PARKWAY SCHOOLS

bond architects

DATE: 2026-09-08

ADDENDUM NO: Addendum Two

PROJECT NO: PN# 432501B

PROJECT DESCRIPTION: WEM COOLING TOWER & CHILLER REPLACEMENT AT WEST MIDDLE SCHOOL

This Addendum is hereby made part of the Contract Documents of the above named Project. It supplements and modifies them as follows:

General:

1. **RFI #1 from Jerry Baumann, Integrated Facilities Services, received 8-25-2026**
   Question: (See RFI 1 attachment.)
   We find no provisions in the bidding documents to elevate the cooling tower above the slab with a wide flange beam or other similar means.
   The centerline of the cooling towers 3" dia. drain connection is 3-5/8" from the base of the sump. We feel this will present installation and maintenance issues.
   Please provide direction.
   (See also attachment: "Scanned from Construction Printer RFI 1 attachment")

   Response from RTM:
   Cooling tower shall be provided with a steel cooling tower base with spring isolators. We will update the drawings to be updated to reflect this.

2. **RFI #2 from Jerry Baumann, Integrated Facilities Services, received 8-26-2026**
   Question:
   The Contract Documents contain a conflict in the condenser water main pipe size that prevents accurate pricing and fabrication. Sheet M102 sizes the below-grade condenser water supply/return mains, tower risers, and the existing wall tie-in as 6-inch1, while sheet M502 depicts 8-inch CWS/CWR mains through the mechanical-room wall, along the underground run, and around the cooling-tower loop2, showing 6-inch only at the pump/chiller branch connections. Please confirm the single governing condenser water main size

   Response from RTM on 8-26-2026:
   The condenser water loop piping should be 8 " in the mechanical yard to match the existing 8 " piping that is to remain. We will update the drawings with the correct size.

3. **RFI #3 WEM_Chiller_RFI_Log.xlsx, from Ben Evelsizer, Poettker Construction (RFI-001**

through RFI-011, received 8-28-2026) & (RFI-012-RFI-016, Received 9-3-2026)
Questions: (See attached WEM_Chiller_RFI_Log 2026-09-08.xlsx for Questions.)
Responses from RTM, BOND, CASE,: (See attached WEM_Chiller_RFI_Log 2026-09-08.xlsx for Responses.)

4. **See attached Revised Specifications Sections**
5. **See attached Revised ADDM #2 Drawings**
6. **See attached Clean Electricity Investment Tax Credit Requirements**

Specifications:

1. **Replace Entirely Section 001-110, Table of Contents with the attached new Section 001-110, Table of Contents consisting of 4 pages.**

2. **Add Specification Section 071713, Bentonite Panel Waterproofing consisting of 4 pages.**

3. **Add Specification Section 230934 – Variable-Frequency Motor Controllers for HVAC consisting of 6 pages.**

4. **Remove Specification Section 232500 – HVAC Water Treatment in its entirety.**

5. **Add Specification Section 284400 – Refrigerant Detection and Alarm consisting of 4 pages.**

Drawings:

1. Replace entirely Drawing C1.0, COVER SHEET with the attached new Drawing C1.0, COVER SHEET marked Revision 2, ADDM 2.
(To show updated disturbed area calculation.)

2. Replace entirely Drawing C2.0, EXISTING OVERALL CONDITIONS with the attached new C2.0, EXISTING OVERALL CONDITIONS marked Revision 2, ADDM 2.
(To show additional Area of Improvements for installation of sanitary lateral line.)

3. Replace entirely Drawing C4.0, UTILITY & GRADING PLAN with the attached new Drawing C4.0, UTILITY & GRADING PLAN marked Revision 2, ADDM 2.
(To remove top of wall elevations from civil drawings and refer to structural plans.)

4. Replace entirely Drawing C4.1, SANITARY LATERAL PLAN with the attached new C4.1, SANITARY LATERAL PLAN marked Revision 2, ADDM 2.
(To show revised sanitary lateral alignment, new sampling manhole, and floor sink callout.)

5. Replace entirely Drawing C6.0, STORMWATER POLLUTION PREVENTION PLAN with the attached new C6.0, STORMWATER POLLUTION PREVENTION PLAN marked Revision 2, ADDM 2.
(To show updated limits of disturbance and disturbed area calculation.)

6. Replace entirely Drawing C7.0, INLET DRAINAGE AREA MAP with the attached new C7.0, INLET DRAINAGE AREA MAP marked Revision 2, ADDM 2.
(To show updated disturbed area calculation).

7. Replace entirely Drawing C7.1, PRE-POST DRAINAGE AREA MAP with the attached new C7.1, PRE-POST DRAINAGE AREA MAP marked Revision 2, ADDM 2.
(To update pre/post runoff calculations).

8. Replace entirely Drawing S2.1, PARTIAL FOUNDATION PLAN with the attached new S2.1, PARTIAL FOUNDATION PLAN marked Revision 2, ADDM 2.
(Plans have been updated to indicate 4" of granular fill. This is the same for both slabs.
Wall Elevations have been adjusted to coordinate with Civil Plans).

9. Replace entirely Drawing S3.1, FOUNDATION SECTIONS with the attached newS3.1, FOUNDATION SECTIONS marked Revision 2, ADDM 2.
(Wall Elevations have been adjusted to reference plan for stem wall heights and to indicate bentonite waterproofing on earth-retaining side of retaining stem wall below grade).

10. Replace entirely Drawing ED101 MECHANICAL ROOM 1601 – DEMO PLAN with the attached new Drawing ED101 MECHANICAL ROOM 1601 – DEMO PLAN marked ADDENDUM #2.

11. Replace entirely Drawing ED102 MECHANICAL YARD – DEMO PLAN with the attached new Drawing ED102 MECHANICAL YARD – DEMO PLAN marked ADDENDUM #2.

12. Replace entirely Drawing E101 MECHANICAL ROOM 1601 – NEW WORK with the attached new Drawing E101 MECHANICAL ROOM 1601 – NEW WORK marked ADDENDUM #2.

13. Replace entirely Drawing E102 MECHANICAL YARD – NEW WORK with the attached new Drawing E102 MECHANICAL YARD – NEW WORK marked ADDENDUM #2.

14. Replace entirely Drawing E600 ELECTRICAL - SCHEDULES with the attached new Drawing E600 ELECTRICAL - SCHEDULES marked ADDENDUM #2.

15. Replace entirely Drawing M001 MECHANICAL LEGEND & NOTES with the attached new Drawing M001 MECHANICAL LEGEND & NOTES marked ADDENDUM #2.

16. Replace entirely Drawing M101 MECHANICAL ROOM 1601 – NEW WORK with the attached new Drawing M101 MECHANICAL ROOM 1601 – NEW WORK marked ADDENDUM #2.

17. Replace entirely Drawing M102 MECHANICAL YARD – NEW WORK with the attached new Drawing M102 MECHANICAL YARD – NEW WORK marked ADDENDUM #2.

18. Replace entirely Drawing M500 MECHANICAL – DETAILS with the attached new Drawing M500 MECHANICAL – DETAILS marked ADDENDUM #2.

19. Replace entirely Drawing M600 MECHANICAL - SCHEDULES with the attached new Drawing M600 MECHANICAL - SCHEDULES marked ADDENDUM #2.

END ADDENDUM NUMBER TWO

(This Addendum consists of 45 pages)

REQUEST FOR INFORMATION

Date: August 24, 2026

Re: Parkway Tower & Chiller project # 26-145

Mr. Blanton,

We find no provisions in the bidding documents to elevate the cooling tower above the slab with a wide flange beam or other similar means.

The centerline of the cooling towers 3” dia. drain connection is 3-5/8” from the base of the sump. We feel this will present installation and maintenance issues.

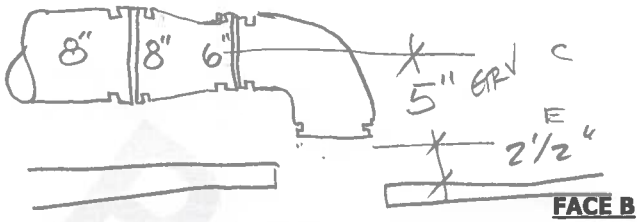
Please provide direction.

Thank You for Your Confidence in IFS

Jerry Baumann
Industrial Sales

UNIT	COOLING TOWER		EVAPCO, INC.	DWG. #	T3092148-DRE-ST	REV.	-
MODEL #	AT 29-4J21	SCALE NTS		SERIAL #		DATE	8/11/2026

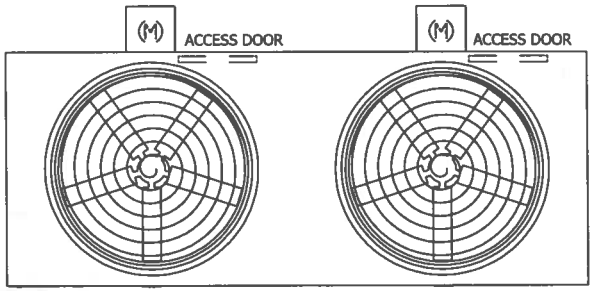
NOTES:
1. (M)- FAN MOTOR LOCATION
2. HEAVIEST SECTION IS UPPER SECTION
3. MPT DENOTES MALE PIPE THREAD
   FPT DENOTES FEMALE PIPE THREAD
   BFW DENOTES BEVELED FOR WELDING
   GVD DENOTES GROOVED
   FLG DENOTES FLANGE
4. +UNIT WEIGHT DOES NOT INCLUDE ACCESSORIES (SEE ACCESSORY DRAWINGS)
5. MAKE-UP WATER PRESSURE
   20 psi MIN [137 kPa], 50 psi MAX [344 kPa]
6. 3/4" [19MM] DIA. MOUNTING HOLES. REFER TO RECOMENDED STEEL SUPPORT DRAWING.
7. DIMENSIONS LISTED AS FOLLOWS:
   ENGLISH FT-IN
   [METRIC] [mm]



FACE B

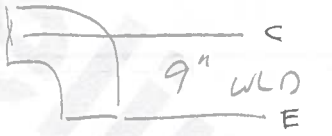
PLAN VIEW

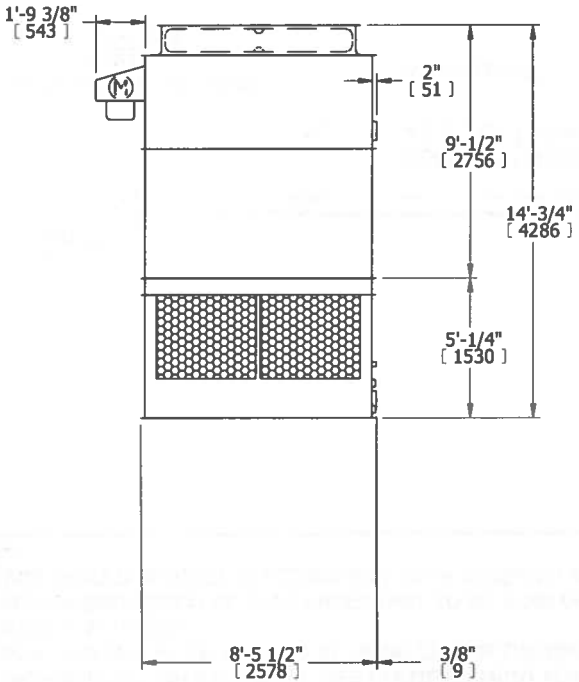
FACE C



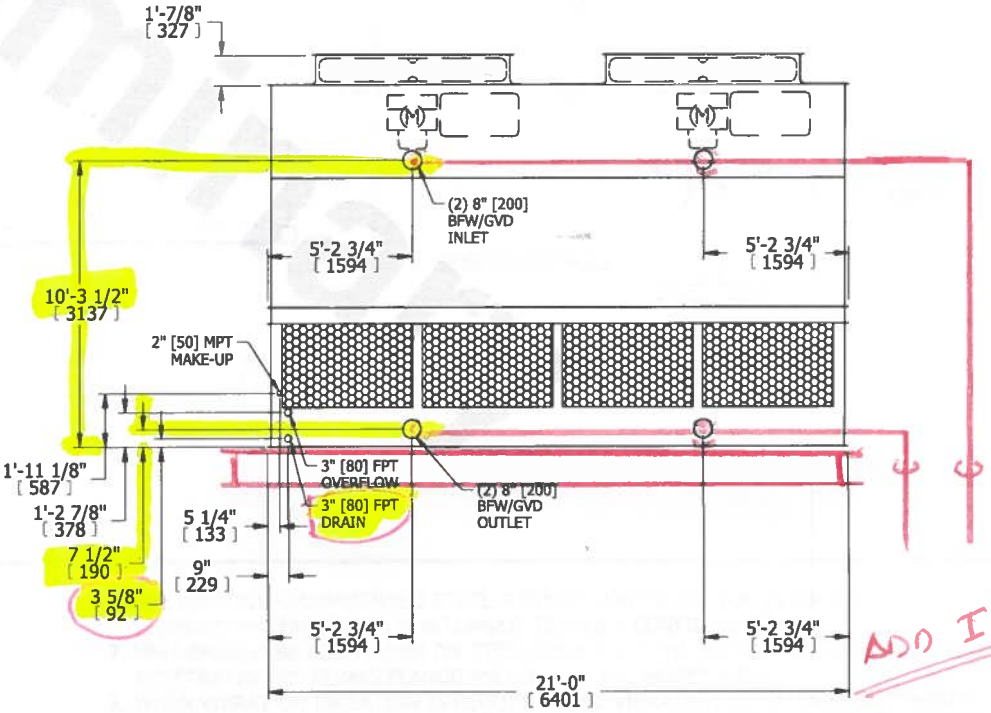
FACE D

FACE A





FACE B



FACE A

SHIPPING WEIGHT	10870 lbs+ [4935] kg+	OPERATING WEIGHT	17810 lbs+ [8080] kg+	HEAVIEST SECTION WEIGHT	7680 lbs+ [3485] kg+	NO. OF SHIPPING SECTIONS	2	DRAWN BY:	JLG

REQUEST FOR INFORMATION (RFI) LOG

WEM Cooling Tower & Chiller Replacement — West Middle School (Parkway PN# 432501B / Bid 26-145)

RFI No.	Priority	Discipline	Description	Question / Clarification	Docment Reference	Contractor Position (Anticipated Answer)	Response	Responder	Submission Date	Closed Date
RFI-001	High	Mechanical / Electrical	Cooling tower fan VFD — furnish responsibility	The Trane proposal lists the EVAPCO cooling tower fan motors as "Inverter Capable... (VFD by Others)." However Drawing M101 Note 13 says "INSTALL NEW FACTORY PROVIDED COOLING TOWER VFDS" and M600 Note 8 says "PROVIDE FACTORY VFD," while Drawing E102 Note 2 says "INSTALL VFD FURNISHED BY MECHANICAL CONTRACTOR." Please confirm definitively WHO furnishes the two (2) 15 HP cooling tower fan VFDs.	Trane Proposal p.9 (EVAPCO); Addm 1 Pre-Bid Notes p.5; Dwg M101 Note 13; M600 Note 8; E102 Note 2	VFDs are NOT in the Trane package ("VFD by Others"); contractor to furnish. Drawings M101/M600 appear to be in error and should be corrected by addendum.	VFD to be furnished by mechanical contractor and installed by electrical contractor. Specification 230934 - VFD Motor Controllers for HVAC to be issued. Mechanical notes to be updated.	RTM	8/28/2026	
RFI-002	High	Mechanical / Electrical	Cooling tower VFD mounting support	M101 Note 13 directs installing the tower VFDs "ON EXISTING UNISTRUT SUPPORT," but E102 Note 2 requires a "new independent steel strut support structure anchored to concrete pad." Please confirm the required VFD mounting/support arrangement.	Dwg M101 Note 13; E102 Note 2	Provide new independent steel-strut support anchored to pad per E102, unless A/E confirms existing Unistrut is adequate for the new VFDs.	Contractor shall provide new independent steel strut support for the VFDs. Mechanical plans to be updated.	RTM	8/28/2026	
RFI-003	High	Electrical	Pump skid power: single-point vs. individual pump feeders	The Trane TCS P2525 pump skid is furnished with "Single Point Power." However E101/E600 show four (4) separate pump feeders (CHP-001/002 at 5 HP and CHP-003/004 at 25 HP) fed from individual MCC buckets. Please confirm whether power is a single skid feeder or individual feeders, and if single-point, provide the skid MCA/MOCP for feeder and disconnect sizing.	Trane Proposal p.9 (Pump Skid); Dwg E101; E600 schedule	Skid is built for single-point power; individual pump feeders should be deleted and a single skid feeder/disconnect provided. Need skid MCA/MOCP from Trane shop drawings.	Provide individual feeders to each of the four pump VFDs as shown on the electrical drawings. Extend the existing 120V HVAC control circuit from Panelboard PLL-003 to the pump skid's automated control panel and connect. Electrical plans to be updated.	RTM	8/28/2026	
RFI-004	High	Electrical	Cooling tower basin heater power	The EVAPCO tower includes two (2) electric basin heaters (208V/3PH, 12 kW each) with factory-mounted controller. The electrical drawings schedule feeders for the fan motors but do not appear to schedule feeders/disconnects for the basin heaters or controller. Please provide the basin heater feeder, disconnect, and controller power requirements.	Dwg M600 Note 4; E600 / E102	Provide dedicated feeder(s), disconnect, and controller power for the two 12 kW basin heaters; source and circuiting to be defined by Design Team.	The condenser water system will be drained down and winterized each year. No need for basin heater with cooling tower. Contractor shall not include pricing to power the basin heater. Mechanical and Electrical plans to be updated.	RTM	8/28/2026	
RFI-005	High	Mechanical / Civil	Buried piping size conflict (ice storage loop)	M101 Note 8 calls the ice storage loop "6" chilled water supply and return," while revised M102 (Addm 1) shows "(2) 4" chilled water supply" below grade and also "(2) 6" chilled water supply piping through wall below grade." Please reconcile the buried chilled water pipe sizes and routing.	Dwg M101 Notes 6-8,11; Revised M102 (Addm 1, p.27)	Reconcile to a single consistent size set.	Lines to/from ice bank shall be 6". Mechanical plans to be updated.	RTM	8/28/2026	
RFI-006	High	Mechanical / Civil	Buried hydronic piping — material, insulation, cover	M500 provides materials for above-ground piping only. Buried chilled water / glycol piping in the cooling tower yard is not specified for material, joint type, below-grade insulation, vapor barrier/jacket, bedding, or minimum cover. (Spec 232113 addresses buried condenser water as PVC only.) Please specify buried chilled water/glycol pipe material and installation requirements.	Dwg M500 material schedule; M101 Note 11; Spec 232113 (PDF p.548)	Provide buried CHW/glycol pipe spec (material, joints, insulation w/ jacketing, bedding, depth) for accurate pricing.	See Specification 232113 Section 2.02 Chilled Water Piping With Or Withot Glycol, Buried on page 547 of the project manual.	RTM	8/28/2026	
RFI-007	High	Controls / Mechanical	Trane <-> Automated Logic controls responsibility matrix	Trane provides factory Symbio controls with BACnet; Automated Logic (via ACES/Automatic Controls) integrates into the existing BAS. Trane's DP transmitters are "Field Installed." The drawings list numerous required points (ice inventory, tank temps, secondary CHW DP, tower sump level/temp, fan speed, vibration alarm) but no matrix assigns who FURNISHES, MOUNTS, WIRES, POWERS, and MAPS each field device, valve actuator, VFD signal, control conduit/cable and network connection. Please issue a point-by-point controls responsibility matrix.	Trane Proposal p.9 (Symbio, DP Transmitters Field Installed); Dwg M502/M503; Spec 230923 (PDF p.513,521)	Issue responsibility matrix outlining what is provided by Trane (Owner Direct) and what needs to be provided by MC/EC for contractor coordination	Trane to provide all controls for the new chiller plant. Mechanical contractor shall carry costs of installing taps for sensors and physical valves. Automated Logic shall provide integration from chiller plant controller to existing BAS. Contractor shall ensure they have controls prices from both Trane and Automated Logic to ensure complete scope coverage.	RTM	8/28/2026	
RFI-008	High	Mechanical / Life Safety	Refrigerant monitoring, ventilation & relief venting (R-513A)	Chillers are factory charged with R-513A and include relief valves. The drawings state the "existing emergency refrigerant purge fan and ductwork to remain" but do not confirm suitability for the new chillers, nor do they clearly assign a machinery-room refrigerant monitor/alarm, purge-fan control interlock/sequence, or relief-valve discharge piping to atmosphere. Please clarify refrigerant safety scope and confirm ASHRAE 15 / code compliance.	Trane Proposal p.8 (R-513A, relief valves); Dwg M101 Note 9 / MD101	Confirm refrigerant monitor/alarm, purge fan interlock & sequence, and relief-vent routing scope, and whether existing purge system is adequate for R-513A.	Refrigerant purge fan is properly sized and can remain (both refrigerants are type A1 and have similar charge weights). Refrigerant detection system shall be replaced with a new system capable of detecting R-513A, with new annunciation alarms outside of each of the three mechanical room entrances. Existing refrigerant detection and alarm system shall be removed in its entirety. Mechanical plans to be updated. Electrical plans to be updated. Specification section 28440 - Refrigerant Detection and Alarm to be issued.	RTM	8/28/2026	
RFI-009	Medium	Mechanical	Glycol type, concentration & quantity (who supplies)	Pre-bid notes make the contractor responsible for filling the system with glycol/chemicals (system volume "assumed 850 gallons" for pricing). Trane supplies the glycol MANAGEMENT SYSTEM hardware only, not the fluid. Drawings imply 30% propylene glycol. Please confirm glycol type, required concentration, inhibitor standard, and that contractor furnishes the full-system charge (all piping + tanks + skid, not just the 850-gal baseline).	Addm 1 Pre-Bid Notes p.5; Trane Proposal p.9 (Glycol Mgmt System); Dwg M600 Note 3	Contractor to furnish propylene glycol for total filled volume + final concentration test unless actual quanitity is provided.	Contractor to furnish 30% propylene glycol for total filled system volume and a final concentration and water treatment test. For bidding purposes, contractor shall providew 3,000 gallons of solution **(note that this value overrides the 850 gallon number given in Pre-Bid Meeting Minutes)**. All excess glycol shall be left for owner's use.	RTM	8/28/2026	
RFI-010	Medium	Electrical	Heat Trace	The Contract Documents do not reference electric heat trace / freeze protection for piping, yet the project includes exterior above-grade and below-grade hydronic piping. Is electric heat trace required for freeze protection of any exterior/below-grade piping, and if so, on which specific runs and to what extent?	No heat trace shown — Dwgs, Spec 232113/230719; Revised M102 makeup water & drain (Addm 1)	Heat trace is not shown or specified in the Contract Documents. If the design intends freeze protection for exterior/below-grade piping or the makeup water line, it must be added by clarification/addendum with a plan, details, and circuiting.	The condenser water and chilled water loops will be drained and winterized, so there is no need to provide heat tracing.	RTM	8/28/2026	

RFI-011	Medium	Mechanical	Condenser water chemical treatment scope	Spec 232500 requires a condenser water treatment system (bypass feeder, conductivity controller, bleed solenoid, solution pumps) plus one year of monthly service and owner training. This is not shown on the drawings and is separate from the skid glycol package. Please confirm the condenser water treatment system and first-year service are in the contractor's scope.	Spec 232500 (PDF p.567-568)		Existing condenser water treatment system to remain and is tied into an existing portion of piping that isn't being touched. Specification will be removed.	RTM	8/28/2026	
RFI-012	Medium	Architectural	Waterproofing at screen wall foundation	The Contract Documents do not indicate any waterproofing or dampproofing on the below-grade, earth-retaining face of the concrete stem wall and grouted CMU. Retaining-wall Detail A/S3.1 shows only subsurface drainage — a continuous drain tile to storm sewer wrapped in geofabric with gravel backfill5 — with no membrane, coating, or protection board called out. Please confirm whether dampproofing/waterproofing is required on the earth side of the retaining wall; if so, issue the applicable specification section and a wall detail defining the product, extent, terminations, and protection board (coordinated with the through-wall flashing and drain tile), and if not, confirm that drain tile alone is the intended moisture-control basis so the work can be priced to a single defined scope.	Site plans (Sheets C3.0/C4.0/C5.0) & structural wall/footing details; "WPR Waterproofing" abbreviation only (permit set); no Div. 07 waterproofing/dampproofing section located in Project Manual.		Waterproofing to be added to earth-retaining face of concrete stem wall below grade and turn onto top of footting. Brick will not extend below grade. Spec Section 071713 Bentonite Waterproofing section has been added to specifications.	BOND	8/31/2026	
RFI-013	High	Structural	Granular fill thickness under slabs	Structural sheet S2.1 Plan Note 3 calls for the 4" slab to be placed "over compacted free-draining granular fill," but no thickness is specified on S2.1 or in the S3.1 sections, and the earthwork specifications (Sections 312323 / 321123) define the material (Fill Type A1) and 6" max compacted lift height but not a required depth. Please specify the minimum compacted thickness of free-draining granular fill beneath the Note 3 (4") slab. Also confirm whether the Note 2 (8") slab requires the same granular fill / subbase and, if so, its thickness.	S2.1 / Sections 312323 / 321123)		Plans have been updated to indicate 4" of granular fill. This is the same for both slabs		8/31/2026	
RFI-014	Medium	Multiple	Wall Elevation Conflict	Structural S2.1 and civil C4.0 give conflicting elevations for the same enclosure/retaining stem wall, such that the base of the wall per civil is at or ABOVE the top of the stem wall per structural at the north end. Top of stem wall per S2.1 (T/WALL): north run 604.60 and 603.93; west run stepping down 603.26, 602.59, 601.92, 601.25, 600.58 (T/FTG 598.00). Base of wall per C4.0 (BW): 605.80 (northeast, match existing), 604.22 (northwest), and 600.75 (west/south). At the northeast, C4.0 base of wall (605.80) is ~1.2 ft ABOVE the S2.1 top of stem wall (604.60); at the northwest, C4.0 base of wall (604.22) is ~0.3 ft above the S2.1 top of stem wall (603.93). Please reconcile the top-of-stem-wall elevations on S2.1 with the base-of-wall (BW) elevations on C4.0 at each location, and confirm the governing base and top of wall so the exposed wall and CMU coursing height at each step can be determined.	S2.1 / C4.0		Wall Elevations have been adjusted to coordinate with Civil plans.		8/31/2026	
RFI-015	Medium		Cooling Tower Disconnect	For the cooling tower disconnects, the spec section 262816.16 required Nema 4X stainless steel, and sheet E600 calls out Nema 3R. Which is correct?	E600 / Section 262816.16	I will price the stainless steel for now since it is the pricey one.	The enclosure type for cooling tower disconnects shall be NEMA 4X. Equipment Data Schedule on Sheet E600 to be updated.	RTM	8/31/2026	
RFI-016	Medium		Condenser Pipe Insulation	On M500 the pipe insulation table shows to insulate the indoor condenser water piping and the existing has no insulation. Confirm insulation required on condenser piping If yes, is scope only to insulate the new piping or all piping?	M500		Insulation is not required on interior condenser water piping. Mechanical plans to be updated.	RTM	8/31/2026	
	Medium									
	Medium									

Clean Electricity Investment Tax Credit Requirements
for West Middle Cooling Tower & Chillers Replacement (bid #26-145)

Successful bidders must comply with federal requirements for the Parkway School District to receive tax credits under **Clean Electricity Investment Tax Credit (§ 48E, 2025 onwards)** to include, but not limited to, the following :

- Prevailing wage and apprenticeship (PWA) requirements - ensure all laborers, tradesmen, and/or mechanics are paid local prevailing wages and that a specified percentage of construction hours are completed by registered apprentices
- Domestic Content - the structural steel, iron, and a minimum percentage of manufactured components must be produced in the U.S
- Do not receive material assistance from any federally listed prohibited foreign entities

Successful bidders must provide all required documentation for domestically sourced materials via submittal for approval prior to purchase as well as documentation for the aforementioned requirements including, but not limited to, domestic certification statements and certified payroll statements prior to project closeout.

SECTION 000110
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PROCUREMENT AND CONTRACTING REQUIREMENTS

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G. 004100 - Bid Form
H. 004301 - Bid Form Supplements Cover Sheet
I. 004322 - Unit Prices Form
J. 004336 - Proposed Subcontractors Form
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L. 005200 - Agreement Form
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B. 230517 - Sleeves and Sleeve Seals for HVAC Piping
C. 230519 - Meters and Gauges for HVAC Piping
D. 230548 - Vibration and Seismic Controls for HVAC
E. 230553 - Identification for HVAC Piping and Equipment
F. 230593 - Testing, Adjusting, and Balancing for HVAC
G. 230716 - HVAC Equipment Insulation
H. 230719 - HVAC Piping Insulation
I. 230913 - Instrumentation and Control Devices for HVAC
J. 230923 - Direct-Digital Control System for HVAC
K. 230934 - Variable-Frequency Motor Controllers for HVAC
L. 230993 - Sequence of Operations for HVAC Controls
M. 232113 - Hydronic Piping
N. 232114 - Hydronic Specialties
O. 232123 - Hydronic Pumps
P. 233100 - HVAC Ducts and Casings
Q. 236426 - Rotary-Screw Water Chillers
R. 236514 - Induced-Draft Cooling Towers

2.18 DIVISION 25 -- INTEGRATED AUTOMATION

2.19 DIVISION 26 -- ELECTRICAL

A. 260519 - Low-Voltage Electrical Power Conductors and Cables
B. 260526 - Grounding and Bonding for Electrical Systems
C. 260529 - Hangers and Supports for Electrical Systems
D. 260533.13 - Conduit for Electrical Systems
E. 260533.16 - Boxes for Electrical Systems
F. 260548 - Vibration and Seismic Controls for Electrical Systems
G. 260553 - Identification for Electrical Systems
H. 260583 - Wiring Connections
I. 262726 - Wiring Devices
J. 262813 - Fuses
K. 262816.16 - Enclosed Switches

2.20 DIVISION 27 -- COMMUNICATIONS

2.21 DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY

A. 284400 - Refrigerant Detection and Alarm

2.22 DIVISION 31 -- EARTHWORK

A. 311000 - Site Clearing

B. 312200 - Grading

C. 312316 - Excavation

D. 312316.13 - Trenching

E. 312316.26 - Rock Removal

F. 312323 - Fill

G. 312500 - Erosion and Sedimentation Control

H. 312500 - Erosion and Sedimentation Controls

2.23 DIVISION 32 -- EXTERIOR IMPROVEMENTS

A. 321313 - Concrete Paving

B. 323113 - Chain Link Fences and Gates

C. 329119 - Landscape Grading

D. 329223 - Sodding

2.24 DIVISION 33 -- UTILITIES

A. 334211 - Stormwater Gravity Piping

2.25 DIVISION 34 -- TRANSPORTATION

2.26 DIVISION 40 -- PROCESS INTEGRATION

2.27 DIVISION 46 -- WATER AND WASTEWATER EQUIPMENT

END OF SECTION 000110

SECTION 071713
BENTONITE PANEL WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Bentonite clay panel waterproofing and accessories.

1.02 RELATED REQUIREMENTS

A. Section 072100 - Thermal Insulation: Rigid insulation board used as protection board.

B. Section 312323 - Fill.

C. Section 334100 - Subdrainage.

1.03 REFERENCE STANDARDS

A. ASTM D5993 - Standard Test Method for Measuring Mass per Unit Area of Geosynthetic Clay Liners.

B. NRCA (WM) - The NRCA Waterproofing Manual.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide product criteria, characteristics, accessories, jointing and seaming methods, and termination conditions.

C. Shop Drawings: Indicate required flashings, control joints, and expansion joints, sealing at openings, projections, penetrations, reglets, and sleeves.

D. Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer's Installation Instructions: Indicate special preparation of substrate, panel attachment methods, and perimeter conditions requiring special attention.

F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 MOCK-UPS

A. Construct mock-up of 100 sq ft of horizontal bentonite panel waterproofing, representing finished work including internal and external corners, seals, counterflashings, control and expansion joints, drainage panel, and protection board.

B. Locate as indicated on drawings.

C. Acceptable mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.

B. Store and handle materials in accordance with manufacturer's written instructions.

C. Maintain minimum ambient storage temperature of 40 degrees F for bentonite panel products.

1.08 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for at least 24 hours before and during application.

1.09 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers:
   1. CETCO: www.cetco.com.

2.02 MATERIALS

A. Bentonite: Pure bentonite clay, granulated, dry, and comprised of at least 50 percent sodium montmorillonite with at least 90 percent passing No.20 mesh sieve, and maximum of 10 percent passing No.200 mesh sieve.

B. Three-Ply Bentonite Panels: Triple corrugated core, smooth-faced kraft paper panels, center core filled with self-expanding bentonite clay granules, outer layers placed at right angles to core layer.
   1. Panel Size: 48 by 48 by 5/8 inches, nominal.
   2. Bentonite Fill: 1.0 lb/sq ft, minimum, in accordance with ASTM D5993.

C. Joint Packing: Biodegradable kraft paper containers filled with bentonite clay granules; 1-1/4 inches square or 2-3/8 inches triangular by 24 inches long.

D. Joint Seal: Moist and hydrated bentonite clay gel using water and glycol for below-freezing application and water for above-freezing application.

2.03 ACCESSORIES

A. Fasteners: Galvanized, washerhead concrete or masonry screws.

B. Adhesive: Manufacturer's recommended type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting this work.

B. Verify substrate surfaces are smooth, durable, and free of matter detrimental to application of waterproofing system.

C. Verify items that penetrate surfaces to receive waterproofing are securely installed.

3.02 PREPARATION

A. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's installation instructions.

B. Remove concrete fins, projections, and form ties.

C. Fill holes, cracks, honeycombs, and voids with joint sealant at least 1/8 inch thick, and extend at least 3 inches beyond defect.

3.03 INSTALLATION

A. Install panels in accordance with manufacturer's installation instructions and applicable requirements of NRCA (WM).

B. Cut panels parallel to corrugations to prevent loss of bentonite.

C. Seal construction joints, control joints, and through-wall projections and penetrations with joint sealant and packing mastic.

D. Vertical Surfaces:
   1. Install single-ply panels with concrete screws, starting at base of foundation.
   2. Fold panels around corners with corrugations vertical, and install unfolded panels with corrugations horizontal.
   3. Lap adjoining panels 1-1/2 inches.

3.04 PROTECTION

A. Do not permit traffic over unprotected or uncovered waterproofing.

END OF SECTION 071713

SECTION 230934
VARIABLE-FREQUENCY MOTOR CONTROLLERS FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Variable-frequency motor controllers for low-voltage (600 V and less) AC motor applications.

B. Overcurrent protective devices for motor controllers, including overload relays.

1.02 RELATED REQUIREMENTS

A. Section 230553 - Identification for HVAC Piping and Equipment: Identification products and requirements.

B. Section 260526 - Grounding and Bonding for Electrical Systems.

C. Section 262813 - Fuses.

1.03 REFERENCE STANDARDS

A. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code).

B. NEMA BS 31047 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum).

C. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

D. NEMA IA 10030 - Industrial Control and Systems: Enclosures.

E. NEMA ICS 61800-2 - Adjustable Speed Electrical Power Drive Systems, Part 2: General Requirements-Rating Specifications for Low Voltage Adjustable Frequency AC Power Drive Systems.

F. NEMA IS 10033 - Industrial Control and Systems: Adjustable-Speed Drives.

G. NEMA IS 10034 - Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable Speed Drive Systems.

H. NEMA IS 10035 - Application Guide for AC Adjustable Speed Drive Systems.

I. NEMA MG 00001 - Motors and Generators.

J. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems.

K. NFPA 70 - National Electrical Code.

L. UL 98 - Enclosed and Dead-Front Switches.

M. UL 508A - Industrial Control Panels.

N. UL 61800-5-1 - Standard for Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements – Electrical, Thermal, and Energy (Ed. 2).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ABB: www.abb.com/#sle.

B. Danfoss: www.danfoss.com/#sle.

C. Schneider Electric: www.se.com/#sle.

D. Yaskawa America, Inc; : www.yaskawa.com/#sle.

E. Substitutions: See Section 016000 - Product Requirements.

2.02 VARIABLE-FREQUENCY MOTOR CONTROLLERS

A. Provide variable-frequency motor control system consisting of required controller assemblies, operator interfaces, control power transformers, instrumentation and control wiring, sensors, accessories, system programming, etc. as necessary for complete operating system.

B. Provide products listed, classified, and labeled as suitable for purpose intended.

C. Variable-Frequency Motor Controller:

D. Controller Assemblies: Comply with NEMA IS 10033, NEMA IS 10034, and NEMA ICS 61800-2; list and label as complying with UL 61800-5-1 or UL 508A as applicable.

E. Provide controllers selected for actual installed motors and coupled mechanical loads in accordance with NEMA IS 10035, NEMA MG 00001 Part 30, and recommendations of manufacturers of both controller and load, where not in conflict with specified requirements; considerations include, but are not limited to:
   1. Motor type (e.g., induction, reluctance, and permanent magnet); consider NEMA MG 00001 design letter or inverter duty rating for induction motors.
   2. Motor load type (e.g., constant torque, variable torque, and constant horsepower); consider duty cycle, impact loads, and high inertia loads.
   3. Motor nameplate data.
   4. Requirements for speed control range, speed regulation, and braking.
   5. Motor suitability for bypass starting method, where applicable.

F. Devices on Load Side of Controller: Suitable for application across full controller output frequency range.

G. Operating Requirements:
   1. Input Voltage Tolerance: Plus/minus 10 percent of nominal.
   2. Input Frequency Tolerance: Plus/minus 5 percent of nominal.
   3. Efficiency: Minimum of 96 percent at full speed and load.
   4. Input Displacement Power Factor: Minimum of 0.96 throughout speed and load range.
   5. Overload Rating:
      a. Variable Torque Loads: Minimum of 110 percent of nominal for 60 seconds.
      b. Constant Torque Loads: Minimum of 150 percent of nominal for 60 seconds.

H. Power Conversion System: Microprocessor-based, pulse width modulation type.

I. Control System:
   1. Provide microprocessor-based control system for automatic control, monitoring, and protection of motors. Include sensors, wiring, and connections necessary for functions and status/alarm indications specified.
   2. Provide integral operator interface for controller programming, display of status/alarm indications, fault reset, and local control functions including motor run/stop, motor forward/reverse selection, motor speed increase/decrease, and local/remote control selection.
   3. Control Functions:
      a. Control Method: Selectable vector and scalar/volts per hertz unless otherwise indicated.
         1) Scalar/Volts per Hertz Control: Provide IR compensation for improved low-speed torque.
         2) Vector Control: Provide selectable autotuning function.
      b. Adjustable acceleration and deceleration time; linear and S-curve ramps; selectable coast to stop.
      c. Selectable braking control; DC injection or flux braking.
      d. Adjustable minimum/maximum speed limits.
      e. Adjustable pulse width modulation switching carrier frequency.
      f. Adjustable motor slip compensation.

g. Selectable autorestart after noncritical fault; programmable number of time delay between restart attempts.

4. Status Indications:
   a. Motor run/stop status.
   b. Motor forward/reverse status.
   c. Local/remote control status.
   d. Output voltage.
   e. Output current.
   f. Output frequency.
   g. DC bus voltage.
   h. Motor speed.
5. Protective Functions/Alarm Indications:
   a. Overcurrent.
   b. Motor overload.
   c. Undervoltage.
   d. Overvoltage.
   e. Controller overtemperature.
   f. Input/output phase loss.
   g. Output short circuit protection.
   h. Output ground fault protection.
6. Inputs:
   a. Digital Input(s): Three.
   b. Analog Input(s): Two.
7. Outputs:
8. Communications: Compatible with connected systems. Provide accessories necessary for proper interface.
9. Features:
   a. Password-protected security access.
   b. Event log.

J. Power Conditioning/Filtering:
   1. Provide DC link choke or input/line reactor for each controller unless otherwise indicated or required.
   2. Reactor Impedance: 3 percent, unless otherwise indicated or required.

K. Packaged Controllers: Controllers factory-mounted in separate enclosure with externally operable disconnect and specified accessories.
   1. Disconnects: Circuit breaker or disconnect switch type.
      a. Disconnect Switches: Fusible type or nonfusible type with separate input fuses.
      b. Provide externally operable handle with means for locking in OFF position. Provide safety interlock to prevent opening cover with disconnect in ON position with capability of overriding interlock for testing purposes.
      c. Provide auxiliary interlock for disconnection of external control power sources where applicable.
   2. Provide door-mounted remote operator interface.

L. Service Conditions:
   1. Provide controllers and associated components suitable for operation under following service conditions without derating:
      a. Altitude: Less than 3,300 feet.
      b. Ambient Temperature: Between 32 degrees F and 104 degrees F.
   2. Provide controllers and associated components suitable for operation at indicated ratings under service conditions at installed location.

M. Short Circuit Current Rating:

1. Provide controllers with listed short circuit current rating not less than available fault current at installed location as indicated on drawings.
2. Provide line/input reactors where specified by manufacturer for required short circuit current rating.

N. Conductor Terminations: Suitable for use with conductors to be installed.

O. Enclosures:
1. Comply with NEMA IA 10030.
2. NEMA EN 10250 Environment Type or Equivalent IEC 60529 Rating: Unless otherwise indicated, as specified for following installation locations:
3. Finish: Manufacturer's standard unless otherwise indicated.
4. Cooling: Forced air or natural convection as determined by manufacturer.

P. Interface with Other Work:
1. Provide products compatible with other systems requiring interface with controllers.

2.03 OVERCURRENT PROTECTIVE DEVICES

A. Fusible Disconnect Switches:
1. Description: Quick-make, quick-break, dead-front fusible switch units complying with NEMA BS 31047, and listed and labeled as complying with UL 98; ratings, configurations, and features as indicated or as required.
2. Fuse Clips: As required to accept indicated fuses.
3. Provide externally operable handle with means for locking in OFF position. Provide means for locking switch cover in closed position. Provide safety interlock to prevent opening of cover with switch in ON position with capability of overriding interlock for testing purposes.

2.04 SOURCE QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Factory test controllers in accordance with NEMA ICS 61800-2.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings of controllers are consistent with indicated requirements.

C. Verify that mounting surfaces are ready to accept controllers.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install in accordance with NEMA IS 10034 and manufacturer's instructions.

C. Do not exceed manufacturer's recommended maximum cable length between controller and motor.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Install controllers plumb and level.

F. Provide grounding and bonding in accordance with Section 260526.

G. Install field-installed devices, components, and accessories.

H. Provide fuses complying with Section 262813 for fusible switches as indicated.

I. Where accessories are not self-powered, provide control power source as indicated or as required to complete installation.

J. Set field-adjustable settings of controllers and associated components according to installed motor requirements, in accordance with recommendations of manufacturers of controller and load.

3.03 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.17. Insulation-resistance test on control wiring listed as optional is not required.

C. Fusible Switches: Perform inspections and tests listed in NETA ATS, Section 7.5.1.1.

D. Correct deficiencies and replace damaged or defective controllers or associated components.

3.04 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

B. See Section 017900 - Demonstration and Training, for additional requirements.

3.05 PROTECTION

A. Protect installed controllers from subsequent construction operations.

END OF SECTION 230934

SECTION 284400
REFRIGERANT DETECTION AND ALARM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusion refrigerant detection systems.

1.02 RELATED REQUIREMENTS

A. Section 260526 - Grounding and Bonding for Electrical Systems.

B. Section 260529 - Hangers and Supports for Electrical Systems.

C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ASHRAE Std 15 - Safety Standard for Refrigeration Systems.

B. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code).

C. NECA 1 - Standard for Good Workmanship in Electrical Construction.

D. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. NFPA 70 - National Electrical Code.

PART 2 PRODUCTS

2.01 REFRIGERANT DETECTION APPLICATIONS

A. Machinery Rooms with Refrigerants Other than Ammonia:
   1. Requirements are not applicable to rooms containing only systems using water.
   2. Automatic Sequence of Operations:
      a. Low Alarm:
         1) Report alarm to approved monitored location.
         2) Activate audible and visible notification of alarm both inside machinery room and outside at each entrance to machinery room.
         3) Alarm to be unlatched, with automatic reset if concentration drops below setpoint for this alarm level.
      b. Intermediate Alarm:
         1) Report alarm to approved monitored location.
         2) Activate audible and visible notification of alarm both inside machinery room and outside at each entrance to machinery room.
         3) Activate emergency ventilation system.
         4) Alarm to be latched, requiring manual reset from within machinery room.
      c. High Alarm:
         1) Report alarm to approved monitored location.
         2) Activate audible and visible notification of alarm both inside machinery room and outside at each entrance to machinery room.
         3) Activate emergency ventilation system.
         4) Shut down combustion processes in machinery room.
         5) Alarm to be latched, requiring manual reset from within machinery room.
   3. Alarm Setpoints:
      a. Low Alarm: 100 ppm.
      b. Intermediate Alarm: Not greater than TLV-TWA value.
      c. High Alarm: Not greater than 25 percent of LFL value or detector upper detection limit, whichever is less.
   4. Emergency Manual Controls:
      a. Emergency stop switch to shut down equipment in machinery room; locate outside machinery room adjacent to primary entrance.

b. Emergency ventilation override switch to manually activate emergency ventilation; locate outside machinery room adjacent to primary entrance.

2.02 REFRIGERANT DETECTION SYSTEMS - GENERAL REQUIREMENTS

A. Provide new refrigerant detection systems consisting of required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, and system programming as necessary for complete operating system that provides functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for purpose intended.

C. Comply with the following:
1. Refrigeration Systems with Refrigerant Other than Ammonia: ASHRAE Std 15.
2. NFPA 70.
3. Applicable state and local codes.
4. Requirements of local authorities having jurisdiction.

D. Service Conditions: Provide products suitable for operation under service conditions at installed location.

E. Enclosures:
1. NEMA EN 10250 Environment Type or Equivalent IEC 60529 Rating: Unless otherwise indicated, as specified for following installation locations:
a. Indoor Clean, Dry Locations: Type 1 or Type 12.

2.03 DIFFUSION REFRIGERANT DETECTION SYSTEMS

A. Manufacturers:
1. ACME Engineering Products Ltd: www.acmeprod.com/#sle.
2. American Gas Safety LLC: www.americangassafety.com/#sle.
3. Bacharach, Inc: www.mybacharach.com/#sle.
4. Thermal Gas Systems, Inc: www.thermalgas.com/#sle.
5. Source Limitations: Furnish refrigerant detection systems produced by single manufacturer and obtained from single supplier.

B. Description: Refrigerant gas detection units that rely on natural diffusion process to transport refrigerant through air to sensor.

C. Diffusion Refrigerant Detection System:
1. Refrigerants Detected: R-513A.
2. Minimum Detection Level: Capable of detecting concentrations down to 50 ppm.
3. Control Functions:
a. Alarm levels, programmable; minimum of two.
b. Manual test mode; via simulation or alarm setpoint triggering.
c. Self-diagnostics.
d. Calibration.
4. Status Indications:
a. Refrigerant type.
b. Measured refrigerant concentration.
5. Alarm Indications:
a. Provide integral visible and audible notification of alarm and fault conditions.
1) Include visible indication of which alarm level is active.
2) Provide audible distinction between alarm and fault conditions.
6. Outputs:
a. Relay Outputs: Minimum of one for each alarm level and one for fault.
7. Communications: Compatible with building automation system. Provide accessories necessary for proper interface.
a. Remote Monitoring Capabilities:
1) Operating status.

2) Measurement information including refrigerant type, measured concentration, and zone, for units with multiple zones.
3) Alarm information including refrigerant type, alarm level, and zone, for units with multiple zones.
4) Fault information.

8. Features:
   a. Password-protected security access.
   b. Event log.

2.04 ACCESSORIES

A. Notification Appliances:
1. Manufacturers:
   a. Same as manufacturer of refrigerant detection control units.
2. Devices for Outdoor and Damp/Wet Locations: Weatherproof, suitable for outdoor use; provide manufacturer's accessory backboxes and/or enclosures in accordance with product listing.
3. Strobes:
   a. Provide xenon or LED light source.
   b. Provide the following lens colors unless otherwise indicated or required by authorities having jurisdiction:
      1) Safety Alarm Level: Red.
      2) Early Warning Alarm Level: Yellow.
      3) Fault/Trouble: Blue.
4. Horns:
   a. Rated Sound Pressure Level: Not less than 75 dB(A) at 10 feet.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements are as indicated.

B. Verify characteristics of system components are consistent with the indicated requirements.

C. Verify mounting surfaces are ready to receive system components.

D. Verify conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions and NECA 1.

B. Do not exceed manufacturer's recommended maximum cable length between system components.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment; see Section 260529.

E. Install control units plumb and level.

F. Sensor/Sample Point Locations:
1. Refrigerants Heavier than Air: Locate at 12 to 18 inches above floor unless otherwise indicated.

G. Provide grounding and bonding; see Section 260526.

H. Provide identification; see Section 260553.
1. Use identification nameplate or identification label to identify meaning of each alarm level at each refrigerant detection system control unit and remote annunciator/notification appliance.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.

C. Provide equipment, tools, supplies, and personnel required to accomplish inspection and testing.

D. Test to verify wiring is free of shorts and grounds.

E. Prepare and start system in accordance with manufacturer's instructions.

F. Program system parameters according to project requirements.

G. Calibrate system in accordance with manufacturer's instructions, where applicable.

H. Test system for proper operation.

I. Test for proper interface with other systems.

J. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

K. Submit detailed reports indicating inspection and testing results and corrective actions taken.

3.04 CLEANING

A. Clean dirt and debris from system components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

3.05 PROTECTION

A. Protect installed system components from subsequent construction operations.

END OF SECTION 284400

SITE IMPROVEMENT PLANS

for

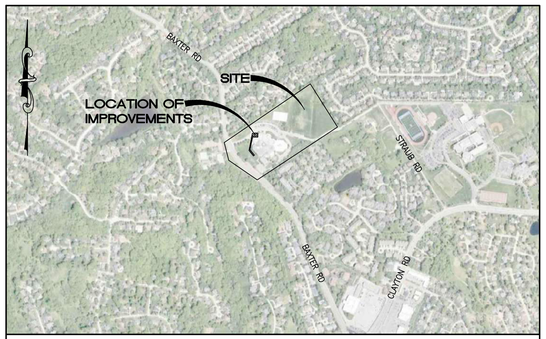
PARKWAY SCHOOL DISTRICT - WEST MIDDLE SCHOOL COOLING TOWER & CHILLERS REPLACEMENT

PART OF LOT 9 OF THE SUBDIVISION IN PARTITION OF THE GREENBERRY BAXTER ESTATE IN U.S. SURVEY 2011, TOWNSHIP 45 NORTH, RANGE 4 EAST, BEING CAUSE NO. 107 OF THE FEBRUARY TERM 1860 OF THE CIRCUIT COURT OF THE CITY (FORMER COUNTY) OF ST. LOUIS, MO, ACCORDING TO THE PLAT THEREOF FILED WITH SHERIFF'S REPORT OF SALE IN SAID CAUSE.

LEGEND

EXISTING		PROPOSED
460 / 458	CONTOURS	460 / 459
+620.15	SPOT GRADE	621.25 (TOP OF CURB) (FINISH PAVEMENT)
	TREE LINE	
8"	TREE	
	BUSH	
	STORM MANHOLE	
	AREA INLET	
	CURB INLET	
	GRATED INLET	
	FLARED END SECTION	
12" RCP	STORM SEWER	
	GRATED MANHOLE	
69	STORM DESIGNATOR	22
DS	DOWNSPOUT	
DP	DRAINAGE PIPE	
	SWALE/SLOPE INDICATOR	
S	SANITARY MANHOLE	
8"VCP	SANITARY SEWER	SS
	CLEAN OUT	CO
A	SANITARY DESIGNATOR	A
	UTILITY POLE	
	GUIDE WIRE	
OU	OVERHEAD UTILITY	OU
UE / UE	UNDERGROUND ELECTRIC	UE / UE
	ELECTRIC MARKER	
	ELECTRIC METER	
	ELECTRIC BOX	
EPB	ELECTRIC PULL BOX	
	ELECTRIC TRANSFORMER	
E	ELECTRIC MANHOLE	
UT	UNDERGROUND TELEPHONE	UT
	FIBER OPTIC MARKER	
	CABLE MARKER	
G	GAS LINE	G
	GAS VALVE	GV
	GAS METER	GM
	GAS MARKER	
W	WATER LINE	W
	WATER VALVE	WV
	WATER METER	
	FIRE HYDRANT	
	SIGN	
	MAIL BOX	
B-1 405.5	TEST HOLE	
	LIGHT STANDARD	
X	FENCE	X
B	BOLLARD	
	RETAINING WALL	
	CONCRETE PAVEMENT	
	SILTATION FENCE	
AC	AIR CONDITIONER	
	FLAG POLE	
	MONITORING WELL	
PM	PARKING METER	
	PLANTER	
SCB	SPRINKLER CONTROL BOX	
SHD	SPRINKLER	
SVLV	SPRINKLER VALVE	
	TRAFFIC CONTROL BOX	
	TRAFFIC POLE	
	YARD LIGHT	
	GUARD RAIL	
	PROPERTY LINE	
	EASEMENT	
	SETBACK	
	INLET PROTECTION	
	WATTLE	
	CHECK DAM	
	USE IN PLACE	(UIP)
	TO BE REMOVED	(TBR)
	ADJUST TO GRADE	(ATG)
	TO BE REMOVED & REPLACED	(TBR&R)
	TYPICAL	(TYP)
	NOT TO SCALE	N.T.S.
	HIGH POINT IN GRADE	HP
	LOW POINT IN GRADE	LP
	FINISH GRADE	FG
	BOTTOM OF WALL	BW
	NOT IN CONTRACT	(NIC)

SCALE: 3" = 1'-0" (0, 0.25', 0.5', 1')
SCALE: 1 1/2" = 1'-0" (0, 0.5', 1', 2')
SCALE: 1" = 1'-0" (0, 0.5', 1', 2')
SCALE: 3/4" = 1'-0" (0, 1', 2', 3')
SCALE: 1/2" = 1'-0" (0, 1', 2', 4')
SCALE: 1/4" = 1'-0" (0, 2', 4', 8')
SCALE: 1/8" = 1'-0" (0, 4', 8', 16')
SCALE: 1/16" = 1'-0" (0, 8', 16', 32')



LOCATION MAP
(NOT TO SCALE)

STORMWATER MANAGEMENT NOTE:

LAND AREA DISTURBED = ±0.11 ACRES

DIFFERENTIAL RUNOFF RATE = ±0.03 CFS

NOTE:

ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME (INCLUDING TOTAL LAND DISTURBANCE AND/OR IMPERVIOUSNESS ADDED ON THIS PLAN).

PERTINENT DATA

OWNER	=	PARKWAY SCHOOL DISTRICT
SITE ADDRESS	=	2312 BAXTER RD CHESTERFIELD, MO 63017
SITE ACREAGE	=	±23.18 AC
EXISTING ZONING	=	"NU" NON-URBAN DISTRICT
PROPOSED ZONING	=	"NU" NON-URBAN DISTRICT
LOCATOR NUMBER	=	20R111202
WATERSHED	=	CREVE COEUR CREEK
FEMA MAP PANEL	=	29189C0281K, DATE: FEBRUARY 4, 2015

UTILITIES

SEWER SERVICE	=	METROPOLITAN ST. LOUIS SEWER DISTRICT 2350 MARKET ST. ST. LOUIS, MO 63103 PH. (314) 768-6272
FIRE DISTRICT	=	METRO WEST FIRE PROTECTION DISTRICT P.O. BOX 310 WILDWOOD, MO 63040 PH. (636) 458-2100
WATER SERVICE	=	MISSOURI AMERICAN WATER COMPANY 727 CRAIG RD. CREVE COEUR, MO 63141 PH. (688) 430-0820
CABLE SERVICE	=	CHARTER COMMUNICATIONS 815 CHARTER COMMONS TOWN & COUNTRY, MO 63107 PH. (314) 275-0025
GAS SERVICE	=	SPIRE 4118 SHREWSBURY AVE SHREWSBURY, MO 63119 PH: (314) 768-7767
ELECTRIC SERVICE	=	AMEREN-UE ELECTRIC COMPANY DORSETT DISTRICT 12121 DORSETT RD. MARYLAND HEIGHTS, MO 63043 PH. (314) 344-9575
PHONE SERVICE	=	AT & T 1030 WOODS MILL DR. TOWN AND COUNTRY, MO 63017 PH. (314) 720-8484

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C4.0	UTILITY & GRADING PLAN	●	●							
C4.1	SANITARY LATERAL PLAN	●	●							
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C6.0	STORMWATER POLLUTION PREVENTION PLAN	●	●							
C7.0	INLET DRAINAGE AREA MAP		●							
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UTILITY INFORMATION:

UTILITIES SHOWN HAVE BEEN TAKEN FROM AVAILABLE SURVEYS, UTILITY COMPANY MAPS AND PHYSICAL PROPERTY INSPECTION. THE LOCATIONS AND FACILITIES SHALL BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE ADDITIONAL UTILITIES THAT HAVE NOT BEEN SHOWN ON THIS SURVEY. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE LOCATIONS OF ALL UTILITIES PRIOR TO EXCAVATION OR CONSTRUCTION.

MISSOURI ONE CALL SYSTEM, INC. 1-800-344-7483 STOP-CALL BEFORE YOU DIG!

CALL 1-800-DIG-RITE (MISSOURI ONE CALL) TO HAVE LOCATIONS MARKED IN THE FIELD (SUBSCRIBING UTILITIES REQUIRE 48 HOURS NOTICE PRIOR TO CONSTRUCTION).

BENCHMARK INFORMATION

NAVD88 (ALC2011A) ELEV=574.06 FTUS (OR) 174.974 METER
NGVD29 ELEV=574.29 FTUS
ALUMINUM TABLET STAMPED "12-253" SET IN THE NORTHWEST END OF THE NORTHEAST HEADWALL OF A SOUBLE 6' X 8' BOS CULVERT UNDER BASTER ROAD IN FRINT IF PARKWAY WEST MIDDLE SCHOOL AT #2312 BAXTER ROAD, ROUGHLY 310 FEET SOUTHEAST OF THE ENTRANCE DRIVE TO THE SCHOOL, 45 FEET NORTHEAST OF THE CENTER OF BAXTER ROAD, 27 FEET EAST OF THE CENTER TOP OF AN AREA INLET, AND VERTICALLY OVER THE NORTHERN WALL OF THE NORTHERN BARREL OF DOUBLE BOX CULVERT.
SP MO EAST N=309501+/- E=246066+/- METER-ESTIMATED
ROUGH NAD83 LAT=38.622261°+/-(N/+) LONG=90.545177°(W/-)

SITE BENCHMARK INFORMATION

BM #1 - ELEV=604.12
SOUTHWEST CORNER OF OF RUNOFF PAD, LOCATED NORTHEAST 68.3 FEET FROM MH IN FIELD, NORTHWEST 27.8 FEET FROM A LIGHT POLE NEAR CURB, SOUTHEAST 5.3 FEET FROM THE SOUTHWEST CORNER OF FENCE SURROUNDING DUMPSTER ENCLOSURE.

BM #2 - ELEV=611.14
NORTHWEST CORNER OF MODULAR BLOCK RETAINING WALL, LOCATED 8.1 FEET FROM THE NORTH EDGE OF A BIKE RACK, SOUTHEAST 58.7 FEET FROM A LIGHT POLE IN THE MIDDLE OF THE WESTERNMOST ISLAND IN PARKING LOT, NORTHEAST 53.2 FEET FROM AN ELECTRICAL TRANSFORM NEAR BRICK ENCLOSURE.

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363 N. Woods Mill Rd.,
Chesterfield, MO 63017
314.415.8231 tel

Project No: 26-0048

Revisions

No.	Description	Date
	BID / PERMIT SET	06/22/2026
	MSD COMMENTS	08/20/2026
1	ADDM 1	08/21/2026
	MSD COMMENTS	08/27/2026
2	ADDM 2	09/02/2026

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DATE: 09/02/26

Construction Document Set

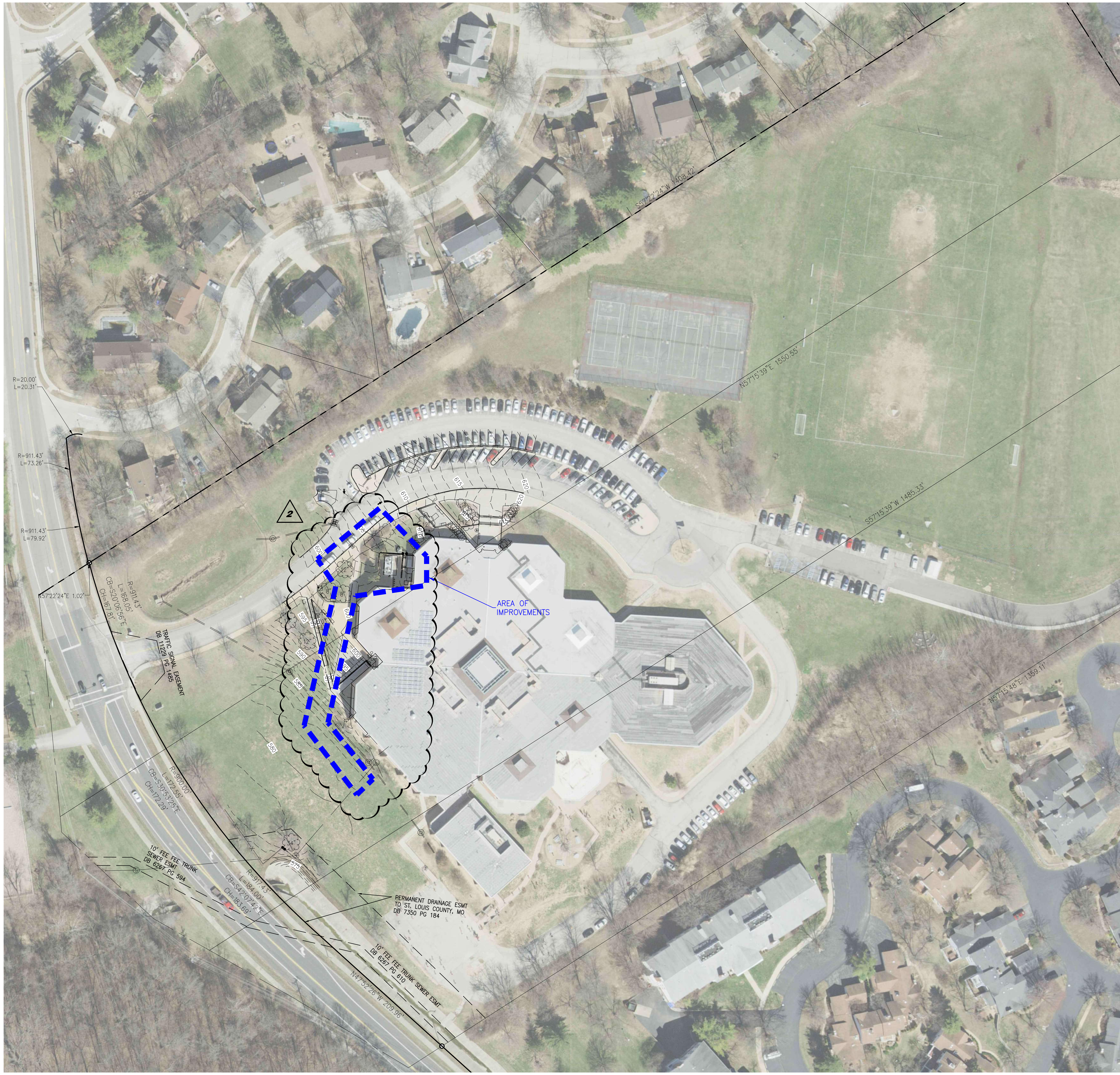
COVER SHEET

C1.0

BASE MAP: 20S

MSD P.NO. 26MSD-00249

USER: Austin Esterhold (AE) Cover
LAST SAVED: September 4, 2026 - 11:09:04 AM
DRAWING: S:_JOBS_Jobs\2026\26-0048\CADD\C-Plan\PlotSheets\0_(PLAN_COVER-SPEC_26-0048.dwg



60' 0' 60' 120'

SCALE: 1" = 60'

GENERAL NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATIONS AND SIZES OF ALL EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THIS PLAN, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER HAS NOT FIELD VERIFIED THE EXISTING UTILITIES. THE UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM RECORDS AND UTILITY MAPS MADE AVAILABLE TO THE ENGINEER AND THE LOCATIONS AND SIZES SHALL BE CONSIDERED APPROXIMATE ONLY. OTHER UTILITIES, NOT SHOWN ON THIS PLAN, MAY EXIST ON OR NEAR THE SITE.
2. PROPERTY BOUNDARY AND TOPOGRAPHIC SURVEY BY COLE AND ASSOCIATES INC.
3. ALL MATERIALS AND METHODS OF CONSTRUCTION TO MEET THE CURRENT STANDARDS AND SPECIFICATIONS AS REQUIRED BY THE CITY OF CHESTERFIELD, MO.
4. ALL GRADED AREAS SHALL BE PROTECTED FROM EROSION BY EROSION CONTROL DEVICES AND/OR SEEDING AND MULCHING. EROSION CONTROL SHALL NOT BE LIMITED TO WHAT IS SHOWN ON THE PLAN. WHATEVER MEANS NECESSARY SHALL BE TAKEN TO PREVENT SILTATION AND EROSION FROM FROM ENTERING NATURAL STREAMS AND ADJACENT ROADWAYS, PROPERTIES, AND DITCHES.
5. PRIOR TO BEGINNING ANY WORK ON THE SITE, THE CONTRACTOR SHALL CONTACT THE OFFICE OF THE DEVELOPER FOR SPECIFIC INSTRUCTIONS RELEVANT TO THE SEQUENCING OF WORK.
6. GRADING CONTRACTOR SHALL INSTALL SILTATION CONTROL PRIOR TO STARTING THE GRADING. ADDITIONAL SILTATION CONTROL DEVICES MAY BE REQUIRED AS DIRECTED BY THE CITY OF CHESTERFIELD OR THE DEVELOPER.
7. ALL FILLS AND BACKFILLS SHALL BE MADE OF SELECTED EARTH MATERIALS, FREE FROM BROKEN MASONRY, ROCK, FROZEN EARTH, RUBBISH, ORGANIC MATERIAL AND DEBRIS.
8. PROPOSED CONTOURS SHOWN ARE FINISHED ELEVATIONS ON PAVED AREAS. CONTRACTOR TO GRADE ALL AREAS TO REQUIRED SUBGRADE.
9. ALL FILL PLACED FOR PROPOSED STORM AND SANITARY SEWER LINES AND/OR PAVED AREAS, AND FOR DRAINAGE BERMS SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED AASHTO T-180 COMPACTION TEST OR 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. ALL TEST SHALL BE VERIFIED BY A SOILS ENGINEER CONCURRENT WITH GRADING AND BACKFILLING OPERATIONS.
10. A GRADING PERMIT IS REQUIRED PRIOR TO ANY GRADING ON THE SITE.
11. THE DEVELOPER IS REQUIRED TO PROVIDE ADEQUATE STORM-WATER SYSTEMS IN ACCORDANCE WITH THE CITY OF CHESTERFIELD AND M.S.D. 2023 STANDARDS.
12. ALL STORM-WATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT.
13. THE CONTRACTOR MUST BE ON FILE WITH THE MISSOURI ONE CALL SYSTEM 1-800-344-7483.
14. ALL PROPOSED UTILITIES ON THIS SITE MUST BE LOCATED UNDERGROUND.
15. SAFETY NOTICE TO CONTRACTOR: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT LIMITED TO NORMAL WORKING HOURS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RAISING AND REMOVAL OF THE EXISTING STRUCTURES, INCLUDING FOUNDATIONS, RELATED UTILITIES, PAVING, UNDERGROUND FACILITIES AND ANY OTHER EXISTING IMPROVEMENTS.
17. CONTRACTOR IS TO REMOVE AND DISPOSE OF, OFF SITE, ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS.
18. THE SITE IMPROVEMENT PLANS APPROVED BY THE CITY OF CHESTERFIELD DOES NOT ALLOW THE REMOVAL OR CONSTRUCTION OF ANY SANITARY OR STORM SEWER LINES WITHOUT THE PRIOR APPROVAL OR CONSENT OF MSD.
19. ALL EXCAVATIONS, GRADING, OR FILLING SHALL HAVE A FINISHED GRADE NOT TO EXCEED A 4:1 SLOPE (25 PERCENT). STEEPER GRADES MAY BE APPROVED BY THE DESIGNATED OFFICIAL IF THE EXCAVATION IS THROUGH ROCK OR THE EXCAVATION OR THE FILL IS ADEQUATELY PROTECTED (A DESIGNED HEAD WALL OR TOE WALL MAY BE REQUIRED). RETAINING WALLS THAT EXCEED A HEIGHT OF FOUR (4) FEET SHALL REQUIRE THE CONSTRUCTION OF SAFETY GUARDS AS IDENTIFIED IN THE APPROPRIATE SECTION(S) OF THE ADOPTED BOCA CODES AND MUST BE APPROVED BY THE CITY BUILDING DEPARTMENT. PERMANENT SAFETY GUARDS WILL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROPRIATE SECTION(S) OF THE ADOPTED BOCA CODES.
20. ALL PUBLIC ROADS MUST BE KEPT CLEAR OF MUD AND DEBRIS AT ALL TIMES. FAILURE TO DO SO WILL BE CAUSE FOR THE CITY TO SUSPEND WORK.
21. WHERE NATURAL VEGETATION IS REMOVED DURING GRADING, VEGETATION SHALL BE REESTABLISHED IN SUCH A DENSITY AS TO PREVENT EROSION. PERMANENT SOD SHALL BE ESTABLISHED AS SOON AS POSSIBLE.
22. WHEN GRADING OPERATIONS ARE COMPLETED OR SUSPENDED FOR MORE THAN 30 DAYS, PERMANENT GRASS MUST BE ESTABLISHED AT SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE. BETWEEN PERMANENT GRASS SEEDING PERIODS, TEMPORARY COVER SHALL BE PROVIDED ACCORDING TO THE DESIGNATED OFFICIAL'S RECOMMENDATION.
23. RUNOFF WATER FROM DEVELOPED AREAS (PARKING LOTS, PAVED SITES, AND BUILDINGS) ABOVE THE AREA TO DEVELOP SHALL BE DIRECTED TO DIVERSIONS, DETENTION BASINS, CONCRETE GUTTERS AND/OR UNDERGROUND OUTLET SYSTEMS. SUFFICIENTLY ANCHORED STRAW BALES MAY BE TEMPORARILY SUBSTITUTED WITH THE APPROVAL OF THE DESIGNATED OFFICIAL.
24. ALL CONSTRUCTION METHODS AND PRACTICES TO CONFORM WITH OSHA STANDARDS.
25. ANY RETAINING WALLS REFERRED TO IN THESE PLANS ARE SHOWN FOR REFERENCE ONLY ARE NOT TO BE INTERPRETED AS DESIGN OF THE WALL SYSTEM.
26. CONTRACTOR SHALL BID THESE PLANS AND SPECIFICATIONS IN THEIR ENTIRETY (COMPLETE SETS).
27. OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS OR THE MISDESCRIPTION OF DETAILS OF WORK THAT ARE MANIFESTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, OR THAT ARE CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED OR MISDESCRIBED DETAILS OF THE WORK. THE CONTRACTOR SHALL PERFORM SUCH DETAILS AS IF FULLY AND CORRECTLY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.

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DATE: 09/02/26

Construction Document Set

BASE MAP: 20S

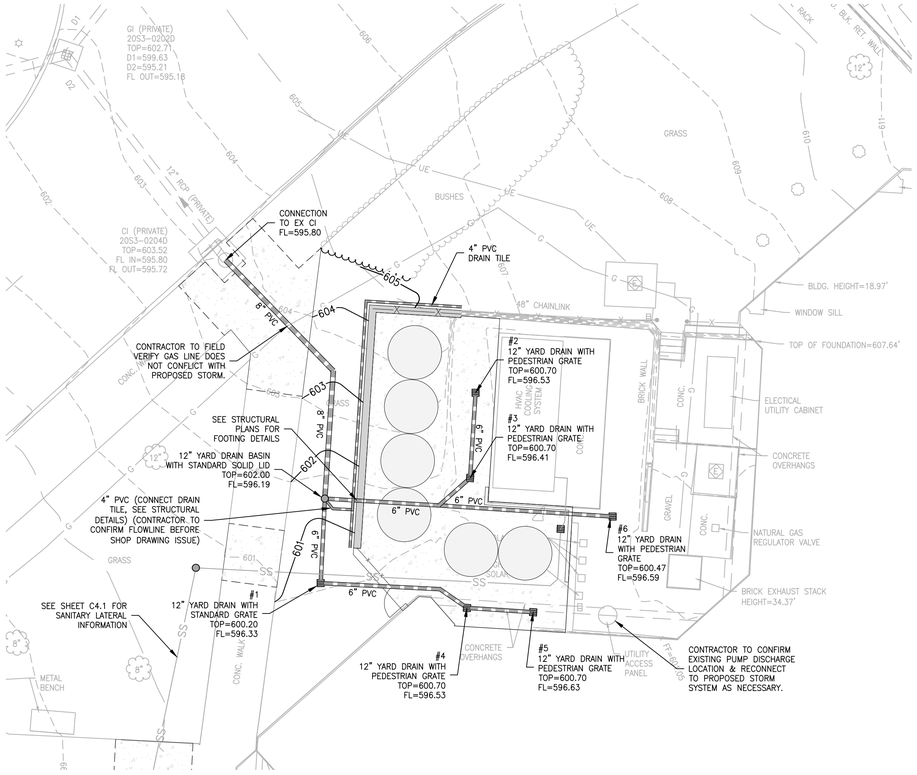
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OVERALL EXISTING CONDITIONS

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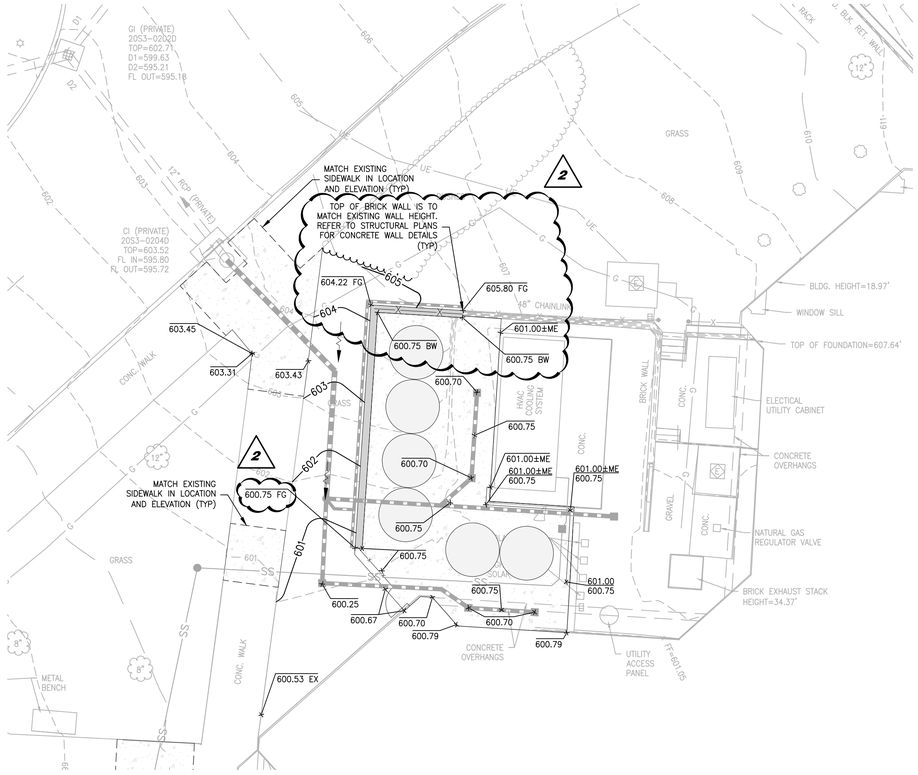
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SCALE: 1/4" = 1'-0" 0 2' 4' 8'
SCALE: 1/8" = 1'-0" 0 4' 8' 16'
SCALE: 1/16" = 1'-0" 0 8' 16' 32'

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1 UTILITY PLAN

SCALE: 1"=10' **REF. DWG.**



2 GRADING PLAN

SCALE: 1"=10' **REF. DWG.**

10' 0' 10' 20'

SCALE: 1" = 10'

STORM SEWER NOTES

1. ALL STORM AND SANITARY SEWER STRUCTURES AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2023, THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.
2. FOR SEWER PIPE (STORM, SANITARY, OR COMBINED) WITH A DESIGN GRADE LESS THAN ONE PERCENT (1%), VERIFICATION OF THE PIPE GRADE WILL BE REQUIRED FOR EACH INSTALLED REACH OF SEWER, PRIOR TO ANY SURFACE RESTORATION OR INSTALLATION OF ANY SURFACE IMPROVEMENTS. THE CONTRACTOR'S FIELD SUPERVISOR WILL BE REQUIRED TO PROVIDE DAILY DOCUMENTATION VERIFYING THAT THE AS-BUILT PIPE GRADE MEETS THE DESIGN GRADE THROUGH THE SUBMITTAL OF SIGNED CUT SHEETS TO THE MSD INSPECTOR UPON REQUEST. FIELD SURVEYED VERIFICATION MUST BE MADE UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE ANY SEWER REACH HAVING AN AS-BUILT GRADE WHICH IS FLATTER THAN THE DESIGN GRADE BY MORE THAN 0.1%. SEWER WITH GRADES GREATER THAN THE DESIGN SLOPE MAY BE LEFT IN PLACE, PROVIDED NO OTHER SEWER GRADE IS REDUCED BY THIS VARIANCE IN THE AS-BUILT GRADE. MSD ALSO RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE ANY SEWER (AT ANY TIME PRIOR TO CONSTRUCTION APPROVAL) FOR WHICH THE AS-BUILT GRADE DOES NOT COMPLY WITH THE GRADE TOLERANCE STATED IN THE ABOVE PARAGRAPH. THE SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE FIELD VERIFICATION OF THE SEWER GRADE, OR REMOVAL AND REPLACEMENT OF THE SEWER PIPE OR ASSOCIATED APPURTENANCES.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATIONS AND SIZES OF ALL EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THIS PLAN, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER HAS NOT FIELD VERIFIED THE EXISTING UTILITIES. THE UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM RECORDS AND UTILITY MAPS MADE AVAILABLE TO THE ENGINEER AND THE LOCATIONS AND SIZES SHALL BE CONSIDERED APPROXIMATE ONLY. OTHER UTILITIES, NOT SHOWN ON THIS PLAN, MAY EXIST ON OR NEAR THE SITE
4. ALL FILL AREAS, INCLUDING TRENCH BACKFILLS, UNDER BUILDINGS, PROPOSED STORM AND SANITARY SEWER LINES, AND PAVED AREAS SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT OF "MODIFIED PROCTOR". FILL IS TO BE PLACED IN A MAXIMUM OF 9-INCH LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF 50-FOOT INTERVALS ALONG THE ROUTE OF THE PIPE; AT A MAXIMUM OF 2-FOOT VERTICALLY; AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISCHARGE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO MSD PRIOR TO CONSTRUCTION APPROVAL.
5. TYPE "C" BEDDING PER M.S.D. STANDARDS IS REQUIRED FOR ALL PIPES IN ROCK EXCEPT AS NOTED.
6. ALL TRENCHES IN AREAS TO BE PAVED AND UNDER EXISTING PAVEMENT OR WITHIN PUBLIC R.O.W. SHALL BE GRANULARLY BACKFILLED WITH 3/4-INCH MINUS CRUSHED LIMESTONE IN ACCORDANCE WITH 2023 M.S.D. STANDARDS.
7. THE SOILS ENGINEER WILL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO FILL PLACEMENT AND THAT ALL FILL UNDER STORM AND SANITARY SEWER LINES CONSTRUCTED ABOVE ORIGINAL GRADE, HAS BEEN COMPACTED TO 90% OF "MODIFIED PROCTOR". FILL IS TO BE PLACED IN A MAXIMUM 9" LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF 50' INTERVALS ALONG THE ROUTE OF THE PIPE, AT A MAXIMUM OF 2' VERTICAL, AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO M.S.D. PRIOR TO CONSTRUCTION.
8. ANY ABANDONED SEWERS SHALL BE REMOVED OR COMPLETELY GROUT FILLED.
9. THE REMOVAL AND REPLACEMENT, OR REHABILITATION OF THE EXISTING STRUCTURE WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, THEN THE TOP SHALL BE ADJUSTED TO GRADE, IF NEEDED.
10. STORMWATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT DISCHARGE POINTS.
11. PIPE JOINTS WITH ADAPTERS AND COUPLINGS SHALL BE SUPPLIED AND INSTALLED WITH 316 STAINLESS STEEL NUT AND BOLT CLAMPS (T-BOLT) CONFIGURATION; AND WITH STAINLESS STEEL SHEAR BANDS, BEING A MINIMUM OF TWELVE (12) MILS (MSD STD. CONST SPECS. PT. 2, SUBSECTION H11). WORM DRIVE HOSE CLAMPS AND CONCRETE BACKFILLING (CAUSTICITY) WILL NO LONGER BE ALLOWED AT THOSE JOINTS. GRANULAR BACKFILL SHOULD BE USED. IF FLOWABLE FILL IS REQUIRED, THE CONTRACTOR SHALL WRAP AND TAPE THE ADAPTERS AND COUPLINGS WITH A SIX (6) MIL POLYETHYLENE SHEET.
12. TRENCH BACKFILL COMPACTION AND TESTING REQUIREMENTS: THE CONTRACTOR IS TO REFER TO PART 4, SECTION H OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2023 EDITION, TO ESTABLISH THE REQUIREMENTS FOR THE SPECIFIC TYPE OF BACKFILL BEING USED.
13. ALL PROPOSED INFRASTRUCTURE IS TO BE PRIVATE.

EXISTING CONNECTIONS:

NO NEW DOMESTIC WATER TAPS ARE PROPOSED UNDER THIS PROJECT.

LIMITS OF DISTURBANCE:

THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHEREVER POSSIBLE.

GRADING NOTES

1. ALL GRADES ARE TO FINISH GRADE OR FINISH PAVEMENT. THE CONTRACTOR SHALL DEDUCT PAVEMENT THICKNESS IN BUILDING AREAS TO OBTAIN SUBGRADE ELEVATIONS.
2. SILTATION CONTROL SHALL BE UTILIZED DURING CONSTRUCTION TO PREVENT SILTATION FROM RUNNING ONTO THE ADJACENT STREETS & PROPERTIES. NO STORM WATER SHALL DRAIN ONTO CITY STREETS, STATE ROADS, OR PRIVATE PROPERTY.
3. MAXIMUM SLOPE SHALL BE 4 HORIZ. TO 1 VERT. (4:1) THE CIVIL ENGINEER ASSUMES NO LIABILITY FOR SLOPES EXCEEDING THOSE RECOMMENDED BY GEOTECH. REPORT.
4. ALL GRADING AND DRAINAGE SHALL MEET THE CITY OF CHESTERFIELD SPECIFICATIONS AND AS SPECIFIED IN SOILS REPORT.
5. ADDITIONAL SILTATION CONTROL DEVICES MAY BE REQUIRED BY CITY OF CHESTERFIELD.
6. THE GRADING CONTRACTOR SHALL ESTABLISH THE SILTATION CONTROL AND BE INSPECTED BY THE CITY OF CHESTERFIELD PRIOR TO BEGINNING THE GRADING.
7. THE GRADING CONTRACTOR SHALL MAINTAIN THE SILTATION CONTROL DEVICES SO AS TO PREVENT SILT FROM BYPASSING THEM.
8. THE CITY OF CHESTERFIELD CITY ENGINEER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF THE GRADING TO VERIFY SILT CONTROL INSTALLATION, (GRADING PERMIT REQUIRED).
9. DURING THE GRADING OPERATION ADDITIONAL SILTATION CONTROL MEASURES MAY BE REQUIRED AS DIRECTED BY THE CITY OF CHESTERFIELD.
10. ALL CONSTRUCTION METHODS AND MATERIAL SHALL CONFORM TO CURRENT CITY OF CHESTERFIELD STANDARDS.
11. IF CUT AND FILL OPERATIONS OCCUR DURING A SEASON NOT FAVORABLE FOR IMMEDIATE ESTABLISHMENT OF A PERMANENT GROUND COVER. SEE VEGETATION NOTES.
12. INSTALL SILTATION CONTROL FENCING AS SOON AS SITE IS BROUGHT TO FINAL GRADE.
13. EXISTING AREAS OF SOFT SOILS AND ORGANIC DEBRIS SHALL BE COMPLETELY REMOVED. INTERIM STORM WATER DRAINAGE CONTROL IN THE FORM OF SILTATION CONTROL MEASURES ARE REQUIRED AS APPROVED BY M.S.D.

SCALE: 3" = 1'-0" 0 0.25' 0.5' 1'
SCALE: 1 1/2" = 1'-0" 0 0.5' 1' 2'
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SCALE: 3/4" = 1'-0" 0 1' 2' 3'
SCALE: 1/2" = 1'-0" 0 1' 2' 4'
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SCALE: 1/8" = 1'-0" 0 4' 8' 16'
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WEST MIDDLE SCHOOL

2312 Baxter Road, Chesterfield, MO 63017
Parkway PN # 432501B
Building Renovation

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Project No: 26-0048

Revisions

No.	Description	Date
	BID / PERMIT SET	06/22/2026
	MSD COMMENTS	08/20/2026
1	ADDM 1	08/21/2026
	MSD COMMENTS	08/27/2026
2	ADDM 2	09/02/2026

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DATE: 09/02/26

Construction Document Set

MSD P.NO. 26MSD-00249 BASE MAP: 20S

UTILITY & GRADING PLAN

C4.0

SANITARY SEWER NOTES

1. ALL STORM AND SANITARY SEWER STRUCTURES AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2023. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.

   SOME RECENT CHANGES CONCERN PLASTIC PIPE MATERIALS AND PIPE FIELD TESTING AND PERFORMANCE, AND INCLUDE THE FOLLOWING:

   PART 2 – MATERIALS OF CONSTRUCTION

   SECTION G PIPE

   12. CORRUGATED POLYPROPYLENE PIPE

   SUBPARAGRAPHS A AND B SHALL BE DELETED IN THEIR ENTIRETY AND REPLACED WITH THE FOLLOWING:

   A. FOR USE IN SANITARY, STORM AND COMBINED SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764 'STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON–PRESSURE SANITARY SEWER APPLICATIONS.' PIPE SHALL HAVE A MINIMUM STIFFNESS OF 46 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D2412.

   B. IN ADDITION TO THE JOINT REQUIREMENTS INDICATED IN PART 2, SEC. H, ALL POLYPROPYLENE PIPE SHALL UTILIZE A DOUBLE GASKETED JOINT.

   PARAGRAPHS D AND E BELOW SHALL BE ADDED:

   D. PIPE FOR GRAVITY SEWER INSTALLATIONS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321. CONSOLIDATION BY WATER (JETTING OR PUDDLING) SHALL NOT BE USED. CONSOLIDATION SHALL BE IN ACCORDANCE WITH MSD STANDARD CONSTRUCTION SPECIFICATIONS FOR TRENCH BACKFILL. PRICE FOR COMPACTED BACKFILL SHALL BE INCLUDED IN PIPE UNIT COST.

      1. FOR USE IN SANITARY AND COMBINED SEWER INSTALLATIONS, A REPRESENTATIVE FROM THE PIPE MANUFACTURER SHALL VISIT THE SITE WITHIN THE FIRST 100 FEET OF PIPE INSTALLATION. COORDINATION OF THIS SITE VISIT SHALL BE ARRANGED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE THE MSD INSPECTOR AT LEAST 24 HOURS' NOTICE OF THE PLANNED DATE AND TIME OF THE MANUFACTURER'S SITE VISIT.

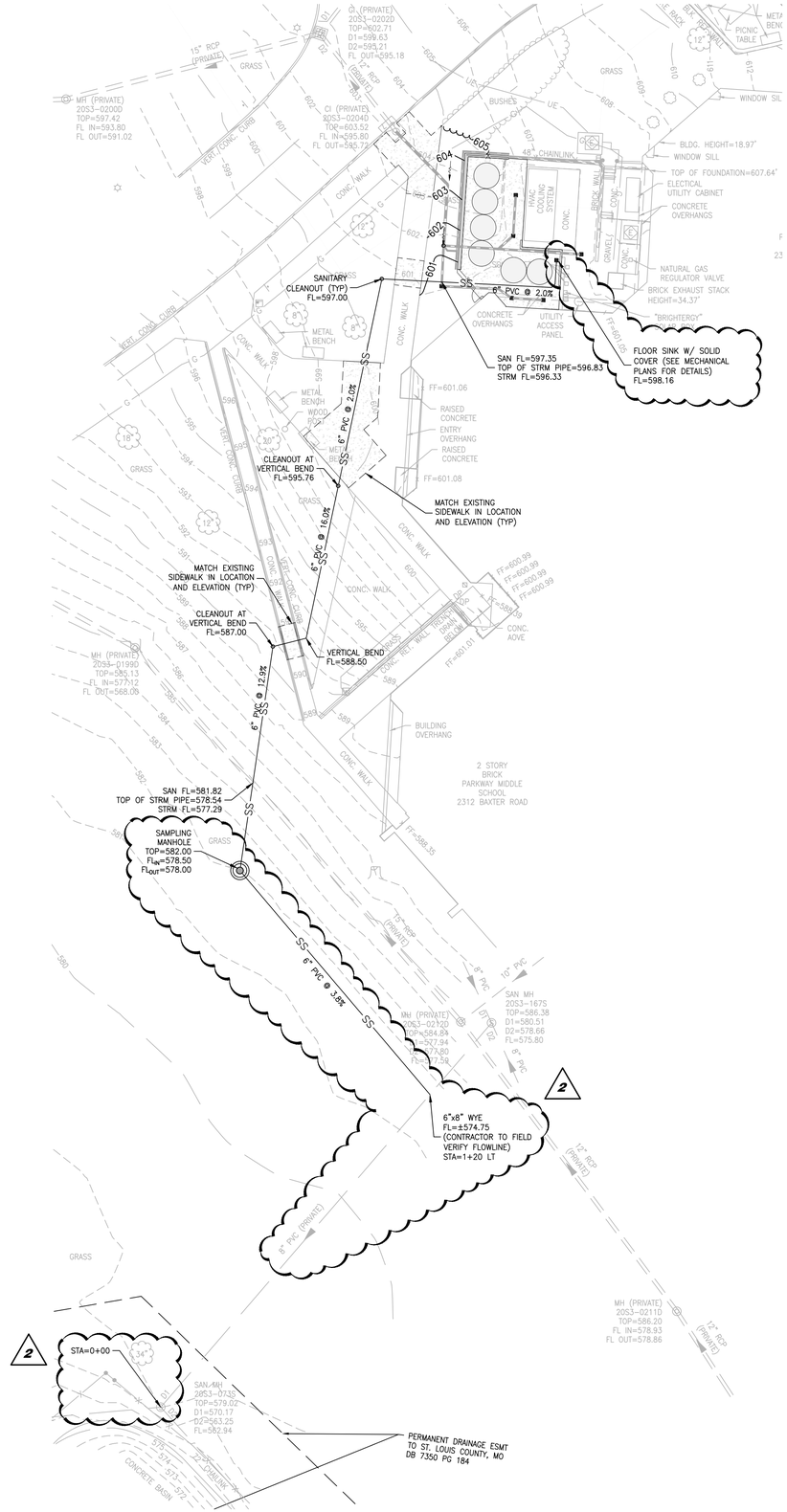
      2. FOLLOWING THE SITE VISIT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A LETTER FROM THE PIPING MANUFACTURER SUMMARIZING THEIR OBSERVATIONS. AT A MINIMUM, THE LETTER SHALL:

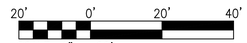
         A) INDICATE THE DATE THE INITIAL SECTION OF PIPE WAS INSTALLED; AND

         B) VERIFY THAT THE INSTALLATION OCCURRED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES.

   E. TRENCH WIDTH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS. DISTRICT STANDARD PAYLINE WIDTHS BASED ON THE NOMINAL INSIDE PIPE DIAMETER SHALL APPLY.

2. NOTE– PIPE JOINTS WITH ADAPTERS AND COUPLINGS SHALL BE SUPPLIED AND INSTALLED WITH 316 STAINLESS STEEL NUT AND BOLT CLAMPS (T–BOLT) CONFIGURATION; AND WITH STAINLESS STEEL SHEAR BANDS, BEING A MINIMUM OF TWELVE (12) MILS (MSD STD. CONST. SPECS. PT. 2, SUBSECTION H 11). WORM DRIVE HOSE CLAMPS AND CONCRETE BACKFILLING (CAUSTICITY) WILL NO LONGER BE ALLOWED AT THOSE JOINTS. GRANULAR BACKFILL SHOULD BE USED. IF FLOWABLE FILL IS REQUIRED THE CONTRACTOR SHALL WRAP AND TAPE THE ADAPTERS AND COUPLINGS WITH A SIX (6) MIL POLYETHYLENE SHEET.
3. ALL MATERIALS AND METHODS OF CONSTRUCTION FOR SANITARY SEWERS TO MEET REQUIREMENTS OF METROPOLITAN ST. LOUIS SEWER DISTRICT (2023).
4. ALL LATERAL SEWER CONSTRUCTION METHODS TO CONFORM TO LATEST STANDARDS AND SPECIFICATIONS OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT (2023).
5. ALL TRENCHES UNDER AREAS TO BE PAVED SHALL BE GRANULARLY FILLED WITH 3/4" MINUS CRUSHED LIMESTONE. BACKFILL SHALL BE PLACED IN ACCORDANCE WITH ST. LOUIS COUNTY AND/OR MSD SPECIFICATIONS.
6. CONTRACTOR TO START LAYING PIPE AT DOWNSTREAM MANHOLE AND WORK UPSTREAM.
7. CLEANOUTS SHALL BE LOCATED AT ALL HORIZONTAL AND VERTICAL CHANGES IN DIRECTION OF FLOW FOR BUILDING LATERALS AND ANY SANITARY LATERAL OF 100 FEET OR LONGER.
8. ALL SANITARY SEWER BUILDING CONNECTIONS SHALL BE DESIGNED SO THAT THE MINIMUM VERTICAL DISTANCE FROM THE LOW POINT OF THE BASEMENT TO THE FLOWLINE OF A SANITARY SEWER AT THE CORRESPONDING BUILDING CONNECTION SHALL NOT BE LESS THAN THE DIAMETER OF THE PIPE PLUS THE VERTICAL DISTANCE OF 2–1/2 FEET.
9. ALL TRENCHES UNDER AREAS TO BE PAVED AND UNDER EXISTING PAVING SHALL BE GRANULARLY BACKFILLED WITH 3/4 INCH MINUS CRUSHED WHITE ROCK ONLY. BACKFILL SHALL BE PLACED IN ACCORDANCE WITH 2023 M.S.D STANDARDS AND SECTION 726.6.2.2 OF ST. LOUIS COUNTY STANDARDS FOR HIGHWAY CONSTRUCTION.
10. JETTING IS NOT AN ACCEPTABLE METHOD OF ACHIEVING BACKFILL COMPACTION. ALL BACKFILL MATERIAL SHALL BE MECHANICALLY COMPACTED TO AT LEAST 90 PERCENT OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY.
11. GAS, WATER, AND OTHER UNDERGROUND UTILITIES SHALL NOT CONFLICT WITH THE DEPTH OR HORIZONTAL LOCATION OF EXISTING OR PROPOSED SANITARY AND STORM SEWERS.
12. THE CONTRACTOR SHALL PREVENT ALL STORM, SURFACE WATER, MUD AND CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER SYSTEMS.
13. THE METROPOLITAN SEWER DISTRICT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION FOR COORDINATION OF INSPECTION.
14. ALL PVC SANITARY SEWER PIPE IS TO BE SDR–35 OR EQUAL WITH "CLEAN" 1/2 INCH TO 1 INCH GRANULAR STONE BEDDING UNIFORMLY GRADED. THIS BEDDING SHALL EXTEND FROM 4 INCHES BELOW THE PIPE TO SPRINGLINE OF PIPE. IMMEDIATE BACKFILL OVER PIPE SHALL CONSIST OF SAME SIZE "CLEAN" OR "MINUS" STONE FROM SPRINGLINE OF PIPE TO 6 INCHES ABOVE THE TOP OF PIPE.
15. EXISTING SANITARY SEWER SERVICE SHALL NOT BE INTERRUPTED.
16. ALL SANITARY FLOW LINES AND TOPS BUILT WITHOUT ELEVATIONS FURNISHED BY THE ENGINEER WILL BE THE RESPONSIBILITY OF THE SEWER CONTRACTOR.
17. PRE–MANUFACTURED ADAPTERS SHALL BE USED AT ALL PVC AND DIP CONNECTIONS. RUBBER BOOT/MISSION–TYPE COUPLINGS WILL NOT BE ALLOWED.
18. ANY PERMITS, LICENSES, EASEMENTS, OR APPROVALS REQUIRED TO WORK ON PUBLIC OR PRIVATE PROPERTIES OR ROADWAYS ARE THE RESPONSIBILITY OF THE DEVELOPER.
19. ALL LATERALS ARE TO BE INSTALLED AT A MINIMUM 2% SLOPE.
20. THE SOILS ENGINEER WILL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO FILL PLACEMENT AND THAT ALL FILLED AREAS, INCLUDING TRENCH BACKFILLS, UNDER BUILDINGS, PROPOSED STORM AND SANITARY SEWER LINES, AND PAVED AREAS SHALL BE COMPACTED TO A MINIMUM OF 90% OF "MODIFIED PROCTOR". FILL IS TO BE PLACED IN A MAXIMUM 9" LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF 50' INTERVALS ALONG THE ROUTE OF THE PIPE, AT A MAXIMUM OF 2' VERTICAL, AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE RESULTS WILL BE SUBMITTED TO M.S.D. PRIOR TO CONSTRUCTION.
21. TYPE "C" BEDDING PER M.S.D. STANDARDS IS REQUIRED FOR PIPES IN ROCK.
22. THE CONTRACTOR MUST VERIFY SIZE AND LOCATION OF EXISTING MAIN PRIOR TO ANY CONSTRUCTION. IF THERE IS A DISCREPANCY, HE MUST NOTIFY THE ENGINEER IMMEDIATELY.
23. ANY ABANDONED SEWERS SHALL BE REMOVED OR COMPLETELY GROUT FILLED.
24. THE REMOVAL AND REPLACEMENT, OR REHABILITATION OF THE EXISTING STRUCTURES WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, THEN THE TOP SHALL BE ADJUSTED TO GRADE, IF NEEDED.
25. MSD PERMITS ARE REQUIRED PRIOR TO THE ABANDONMENT OR REMOVAL OF EXISTING SEWERS. TO RECEIVE MSD PERMITS THE PROJECT MUST HAVE MSD PLAN APPROVAL. NOTIFY MSD 48 HOURS PRIOR TO SEWER ABANDONMENT AND/OR REMOVAL.
26. TRENCH BACKFILL COMPACTION AND TESTING REQUIREMENTS:
    THE CONTRACTOR IS TO REFER TO PART 4, SECTION H OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2023 EDITION, TO ESTABLISH THE REQUIREMENTS FOR THE SPECIFIC TYPE OF BACKFILL BEING USED.
27. THE PARTIAL REMOVAL, REPLACEMENT, AND CONVERSION OF THE EXISTING STRUCTURES WILL BE DETERMINED BY THE MSD FIELD INSPECTOR. IF THE STRUCTURE IS DETERMINED TO REMAIN IN PLACE, AND THE TOP SECTION CAN BE CONVERTED AS PROPOSED AND STILL MEET MSD STANDARDS, THEN CONVERT AND ADJUST TO GRADE. OTHERWISE, THE ENTIRE STRUCTURE WILL BE REMOVED AND REPLACED WITH A NEW STRUCTURE.
28. MAINTENANCE OF THE SEWERS DESIGNATED "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.
29. CONSTRUCTION OF STRAPPED PLUMBING SHALL BE CONSISTENT WITH MSD RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY SEWER AND STORMWATER DRAINAGE FACILITIES (FEBRUARY 2018), FIGURES 3–1.
30. ALL SEWERS ARE PRIVATE UNLESS NOTED OTHERWISE.
31. IF STORM AND SANITARY SEWERS ARE PARALLEL AND IN THE SAME TRENCH, THE UPPER PIPE SHALL BE PLACED ON A SHELF AND THE LOWER PIPE SHALL BE BEDDED IN COMPACTED GRANULAR FILL TO THE FLOW LINE OF THE UPPER PIPE.





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DATE: 09/02/26

Construction Document Set

SANITARY LATERAL PLAN

C4.1

MSD P.NO. 26NMSD-00249 BASE MAP: 20S

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SCALE: 1 1/2" = 1'-0" 0 0.5' 1' 2'
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SWPPP NOTES

SITE OWNER: PARKWAY SCHOOL DISTRICT
SITE ADDRESS: 2312 BAXTER RD
CHESTERFIELD RD, 63017

SITE CONTACT/
SPECIAL INSPECTOR: TBD

1. REFER TO IMPROVEMENT PLANS FOR PERTINENT SITE MAP INFO.
2. REFER TO IMPROVEMENT PLANS FOR PERTINENT TOPOGRAPHICAL INFO.
3. TOTAL LAND ESTIMATED TO BE DISTURBED = APPROXIMATELY 0.11 AC
4. REFER TO DRAINAGE AREA MAP IN IMPROVEMENT PLANS FOR DRAINAGE PATTERNS.
5. REFER TO SWPPP PLAN FOR LOCATION OF ACCESS TO CONSTRUCTION SITE.
6. DESCRIPTION OF B.M.P.'S TO CONTROL EROSION AND SEDIMENTATION (INTERIM AND PERMANENT STABILIZATION PRACTICES)

A. CONTRACTOR SHALL ESTABLISH PERIMETER SILTATION CONTROL PRIOR TO ANY CONSTRUCTION ACTIVITIES. AREAS REQUIRING MINOR CLEARING &/OR GRADING PRIOR TO INSTALLATION OF SILTATION CONTROL SHALL BE COMPLETED IN A TIMELY MANNER AND SILTATION CONTROL ESTABLISHED IMMEDIATELY FOLLOWING.

B. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED WHERE THE ACCESS AREAS INTERSECT WITH PUBLIC ACCESS WAYS. DURING MUDDY CONDITIONS, DRIVERS OF VEHICLES WILL BE REQUIRED TO WASH THEIR WHEELS BEFORE ENTERING THE ROADWAY. WHERE SEDIMENT IS TRANSPORTED ONTO PUBLIC ACCESS WAYS, THE ROAD SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROAD BY SHOVELING OR SWEEPING. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

C. UPON COMMENCEMENT OF INITIAL CLEARING AND GRUBBING OPERATIONS, AS WELL AS FUTURE GRADING OPERATIONS, TOPSOIL MUST BE STRIPPED FROM GRADED AREAS AND STOCKPILED FOR IN FINAL GRADING AND / OR EXCESS REMOVAL. THE STOCKPILES WILL BE KEPT ON SITE BUT MUST STAY CLEAR OF ALL CONSTRUCTION ACTIMTY. THE STOCKPILE MUST BE STABILIZED WITH TEMPORARY VEGETATION, OR COVERED AT THE END OF EACH WORKDAY, OR PERIMETER CONTROLS MUST BE IN PLACE TO PREVENT SOIL LOSS AND SEDIMENT TRANSPORT FROM THE STOCKPILE ITSELF UNTIL NEEDED.

D. CONTRACTOR SHALL CLEAR AND GRUB THOSE AREAS OF THE SITE SCHEDULED FOR CONSTRUCTION. AREAS NOT SCHEDULED FOR IMMEDIATE CONSTRUCTION SHALL NOT BE CLEARED OF ESTABLISHED VEGETATION UNTIL REQUIRED. REMAINDER OF SITE SHALL BE GRADED, AS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF SILTATION CONTROL THROUGHOUT THE DURATION OF THE PROJECT.

E. STORM DRAINS SHALL BE INSTALLED AS EARLY AS POSSIBLE. PROVIDED THE INSTALLATION DOES NOT CONFLICT WITH OTHER CONSTRUCTION ACTIVITIES. INLET PROTECTION SHALL BE PLACED AROUND EACH INLET, IMMEDIATELY, UPON COMPLETION OF CONSTRUCTION OF EACH INLET. INLETS MAY BE UTILIZED FOR STORM WATER CONTROL DURING CONSTRUCTION, WITH THE SILT FENCE AND EROSION CONTROL MEASURES IN PLACE. CONTRACTOR SHALL TAKE PRECAUTIONS TO LIMIT SILT FROM ENTERING STORM PIPE, PRIOR TO INSTALLATION OF STORM STRUCTURES.

F. IF SEEDING OR ANOTHER VEGETATIVE EROSION CONTROL METHOD IS USED, IT SHALL BECOME ESTABLISHED WITHIN TWO WEEKS OR THE SITE SHALL BE RE-SEEDED OR A NON-VEGETATIVE OPTION EMPLOYED.

G. TECHNIQUES SHALL BE EMPLOYED TO ENSURE STABILIZATION ON STEEP SLOPES AND IN DRAINAGE WAYS.

H. THE ENTIRE SITE MUST BE STABILIZED, USING HEAVY MULCH LAYER OR ANOTHER METHOD THAT DOES NOT REQUIRE GERMINATION TO CONTROL EROSION, AT THE CLOSE OF THE CONSTRUCTION SEASON. REFER TO TABLE ON THIS SHEET FOR MULCHING RATES.

I. TECHNIQUES SHALL BE EMPLOYED TO PREVENT THE BLOWING OF DUST OR SEDIMENT FROM THE SITE.

J. ALL PROPOSED TURF AREAS ARE TO BE REPLACED WITH SOD ONCE CONSTRUCTION IS COMPLETED WITHIN FIVE DAYS AFTER FINAL GRADING OF THE SITE WHERE SHOWN ON THE PLAN. SHOULD WEATHER CAUSE DELAYS IN EARTHWORK OPERATIONS, ADDITIONAL SILTATION CONTROL MEASURES MAY BE REQUIRED.

K. ANY DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR 5 DAYS OR MORE SHALL BE STABILIZED WITH SEEDING AND MULCHING PER SPECIFICATIONS WITHIN 5 DAYS. IF SEASONAL CONDITIONS PROHIBIT SEEDING, MULCHING OR MATTING SHALL BE USED.

L. SEDIMENTATION CONTROLS SHALL ONLY BE REMOVED WITH CITY APPROVAL AFTER THE SITE IS COMPLETELY STABILIZED, VEGETATION IS WELL ESTABLISHED, AND ALL PAVEMENT AREAS ARE INSTALLED.

M. SOIL STABILIZATION SHALL BE COMPLETED WITHIN FIVE (5) DAYS OF CLEARING OR INACTIVITY IN CONSTRUCTION.

7. DESCRIPTION OF B.M.P.'S TO PREVENT POTENTIAL POLLUTANTS
(CONSTRUCTION WASTES, TOXIC OR HAZARDOUS SUBSTANCES, PETROLEUM PRODUCTS, PESTICIDES, HERBICIDES, SITE LITTER, SANITARY WASTES, ETC.)

A. SOLID NON-HAZARDOUS CONSTRUCTION WASTE – DISPOSE OF IN TRASH DUMPSTERS OR APPROVED EQUIVALENT IN A LOCATION APPROVED BY THE OWNER. POTENTIALLY SOLUBLE OR LEACHABLE SOLID WASTE SHALL BE STORED OFF THE GROUND AND IN COVERED LEAK-PROOF CONTAINERS. SOLID WASTE SHALL BE STORED OFF THE GROUND AND IN COVERED LEAK-PROOF CONTAINERS. SOLID WASTE SHALL BE PROPERLY DISPOSED OF OFF-SITE ON A REGULAR BASIS.

B. HAZARDOUS WASTE – HAZARDOUS WASTE SHALL BE SEGREGATED FROM NON-HAZARDOUS CONSTRUCTION SITE DEBRIS. LIQUID OR SEMI-LIQUID HAZARDOUS WASTE SHALL BE STORED IN APPROPRIATE CONTAINERS (CLOSED DRUMS OR SIMILAR) AND SHALL BE KEPT UNDER COVER. GRANULAR, SOLUBLE, OR LEACHABLE HAZARDOUS WASTE MATERIALS SHALL BE STORED OFF THE GROUND AND IN COVERED LEAK-PROOF CONTAINERS, THE OWNER SHALL PROPERLY APPROVE ANY HAZARDOUS WASTE STORAGE AREA LOCATIONS.

C. HAZARDOUS WASTE SHALL BE PROPERLY DISPOSED OF OFF-SITE ON A REGULAR BASIS BY A REPUTABLE, LICENSED HAZARDOUS WASTE HAULER.

D. IT IS NOT THE INTENT OF THIS SWPPP TO SUPERSEDE OR REPLACE NORMAL SITE ASSESSMENT AND REMEDIATION PROCEDURES CONCERNING HAZARDOUS MATERIALS. SIGNIFICANT SPILLS AND/OR CONTAMINATION WARRANT AN IMMEDIATE RESPONSE BY TRAINED PROFESSIONALS. SUSPECTED JOB SITE CONTAMINATION SHOULD IMMEDIATELY BE REPORTED TO REGULATORY AUTHORITIES AND PROTECTIVE MEASURES TAKEN.

E. FRESH CONCRETE WASTE AND CONCRETE EQUIPMENT WASH DOWNS SHALL BE CONTAINED AND SHALL BE STORED AWAY FROM DRAINAGE DITCHES, SWALES AND DRAINAGE STRUCTURES. WHERE APPROPRIATE, CONTAINMENT BERMS SHALL BE PLACED AROUND WASTE STORAGE AREAS.

F. ON-SITE FUELING FACILITIES ARE REQUIRED TO ADHERE TO ALL APPLICABLE FEDERAL AND STATE REGULATIONS CONCERNING STORAGE AND DISPENSERS.

G. PROVISIONS SHALL BE MADE SO THAT A SUFFICIENT NUMBER OF TEMPORARY TOILET FACILITIES ARE AVAILABLE TO SERVE THE NUMBER OF WORKERS ON-SITE.

H. PROVISIONS SHALL BE MADE FOR LITTER CONTROL.

8. DESCRIPTION OF B.M.P.'S TO REMAIN AFTER CONSTRUCTION

A. STORM DRAINS – THE DEVELOPMENT WILL BE SERVED BY A STORM WATER SYSTEM CONSISTING OF PIPE AND INLETS. ANY STORM DRAINAGE SYSTEM DESIGNATED AS "PRIVATE" SHALL BE OPERATED AND MAINTAINED BY THE OWNER. ANY STORM DRAINAGE SYSTEM DESIGNATED AS "PUBLIC" SHALL BE MAINTAINED BY METROPOLITAN ST. LOUIS SEWER DISTRICT (MSD) UPON DEDICATION OF THE SEWERS TO THE DISTRICT.

B. TURF AREAS – TURF AREAS SHALL BE MAINTAINED TO INSURE SITE AREAS REMAIN STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.

C. PAVED AREAS AND WALKWAYS – AREAS SUBJECT TO FOOT AND VEHICLE TRAFFIC SHALL BE PAVED AND KEPT IN GOOD REPAIR FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.

9. CONTRACTOR TO COORDINATE WITH THE CITY AND DEVELOPER FOR OFF STREET PARKING AREA..

10. HAUL ROUTE OF EXCESS SPOILS TO BE DETERMINED BY SITE CONTRACTOR.

11. REFER TO B.M.P.'S DESCRIPTIONS (#6, #7, #8) AND THE SWPP PLAN TO REFERENCE ALL EROSION AND SEDIMENT CONTROL MEASURES REQUIRED FOR THIS SITE..

12. REFER TO SEEDING RATES/MIXTURES ON THIS SHEET.

13. PLANNED RESPONSE TO LOSS OF CONTAINED SEDIMENT:
B.M.P.'S SHALL BE REPAIRED AND/OR REPLACED IMMEDIATELY, AS REQUIRED, TO STABILIZE SITE AND CONTAIN SEDIMENT LADEN RUNOFF. OFFSITE AREAS SHALL BE REVIEWED FOR EXTENT OF IMPACT FROM B.M.P. FAILURE. PERMIT HOLDER SHALL BE REQUIRED TO PROVIDE DOCUMENTATION TO THE ST. CHARLES DEPARTMENT OF PUBLIC WORKS OF THE B.M.P. MEASURES, INSTALLED AND SCHEDULED MAINTENANCE, AND REPAIRS.

14. PERMIT HOLDER
A. PERMIT HOLDER SHALL NOTIFY ALL CONTRACTORS AND OTHER ENTITIES (INCLUDING UTILITY CREWS, CITY EMPLOYEES, OR THEIR AGENTS) THAT WILL PERFORM WORK AT THE SITE, OF THE EXISTENCE OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND WHAT ACTIONS OR PRECAUTIONS SHALL BE TAKEN WHILE ON SITE TO MINIMIZE THE POTENTIAL FOR EROSION AND THE POTENTIAL FOR DAMAGING ANY BEST MANAGEMENT PRACTICES (BMP'S).

B. PERMIT HOLDER SHALL DETERMINE THE NEED FOR AND ESTABLISH TRAINING PROGRAMS TO ENSURE THAT ALL SITE WORKERS HAVE BEEN TRAINED, AT A MINIMUM, IN EROSION CONTROL, MATERIAL HANDLING AND STORAGE, AND HOUSEKEEPING.

C. PROVIDE COPIES OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) TO ALL PARTIES WHO ARE RESPONSIBLE FOR INSTALLATION, OPERATION, OR MAINTENANCE FOR ANY BEST MANAGEMENT PRACTICES (BMP'S).

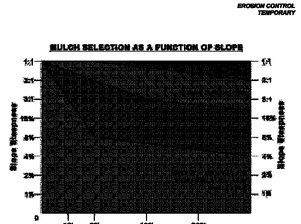
D. MAINTAIN A CURRENT COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) ON THE SITE AT ALL TIMES. A COPY OF THE SWPPP WILL BE LOCATED AT THE CONSTRUCTION TRAILER AND BE AVAILABLE FOR VIEWING AT ALL TIMES.

15. PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES AND COUNTY, WILL BE REQUIRED.

16. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN.

EROSION CONTROL
TEMPORARY

MULCH SELECTION AS A FUNCTION OF SLOPE



GENERAL MULCH RECOMMENDATIONS TO PROTECT FROM SPLASH AND SHEET FLOW

Straw	Rate 2.5 tons	Jute, synthetic, or wood netting required on steep slopes.
Wood Fiber or Paper Cellulose	500 to 1,000	Anchor by hand or mechanical means. Do not use netting.
Wood Chips	4 to 6 tons	Apply 4 to 6 cubic yards per 1,000 sq. ft. Anchor by hand or mechanical means. Do not use netting.
Stone	90 cu. yds.	Apply 3 inch thick layer. Use 1 to 2 inch stone. Do not use netting.

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EROSION CONTROL
TEMPORARY

SEEDING REQUIREMENTS

Dates for Seeding

Permanent Seeding												
Tall Fescue				O	O	O			O	O		
Smooth Brome				O	O	O			O	O		
Fescue & Brome				O	O	O	O		O	O		
Fescue, Kyle & Ryegrass	A	A	A	O	O	O	P	P	O	O	P	P	A
Temporary Seeding												
Rapid Stolon	A	A	A	O	O	O	O	O	O	O	A	A	
Oats	I	A	A	O	O	O	O	O	O	O			

O= Optimum seeding dates
A= Acceptable seeding dates
P= Permitted seeding dates with overseeding 2 months later - Initially use 50% of seed and 75% of fertilizer. Reseed with additional 75% seed and remaining fertilizer.

Minimum Fertilizer and Seeding Rates

Permanent Seeding*		
Tall Fescue	300	7.0
Smooth Brome	200	4.6
Mixture # 1	250	5.7
Mixture #2	210	4.8

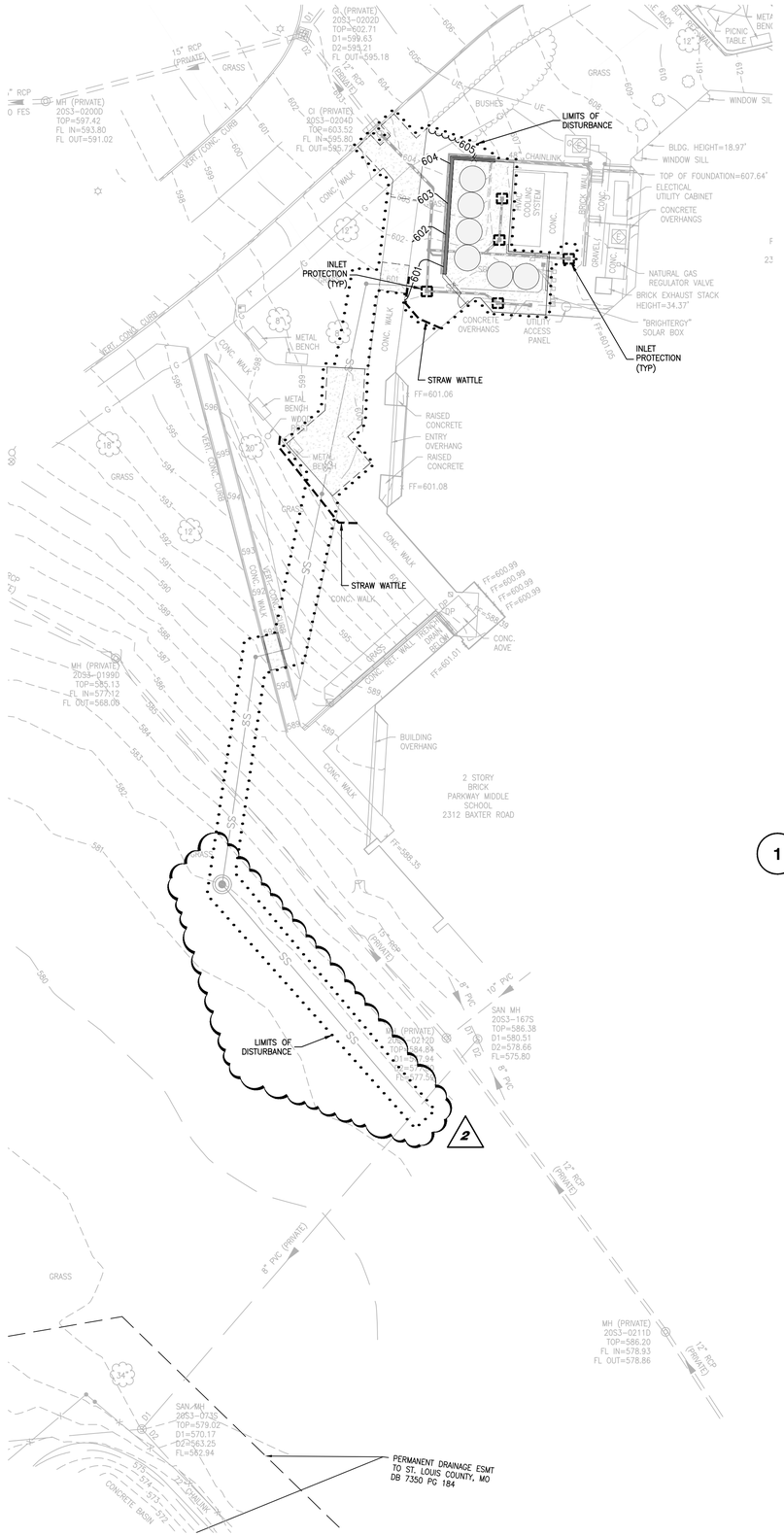
Mixture # 1 = Tall Fescue @ 150 pounds per acre and Brome @ 100 pounds per acre.
Mixture #2 = Tall Fescue @ 100 pounds per acre, Perennial Rye grass @ 100 pounds per acre, and Kentucky Blue grass @ 10 pounds per acre.
* = Seeding rate for slopes in excess of 30% (3:1), shall be 10 pounds per 1000 sq. ft.

Temporary Seeding		
Rapid Stolon	100	3.0
Oats	300	7.0

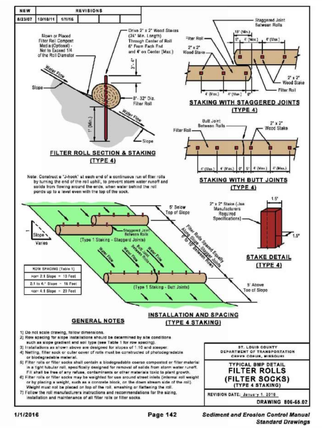
Fertilizer		
Nitrogen	45	20
Phosphate	69	30
Potassium	66	30
Lime - Ton	600	600

ENM = Effective neutralizing material per State evaluation of quarried rock.

5/18/2005 23



20' 0' 20' 40'
SCALE: 1" = 20'



1 STRAW WATTLE AND INLET PROTECTION DETAIL

SCALE: N.T.S. REF. DWG. C6.0

FIBER ROLLS AND FILTER ROLLS

PHYSICAL DESCRIPTION - A fiber roll, also known as a wattle, consists of straw, flax, coconut fiber (coir), rice straw or other similar materials bound in a tight photodegradable or biodegradable tubular roll or filter sock. A fiber roll consists of a biodegradable, coarse composted or filter material bound in a tight photodegradable or biodegradable tubular roll or filter sock. They intercept runoff, reduce flow velocity, remove sediment from the runoff, and reduce soil erosion. Fiber rolls and filter rolls must be prefabricated.

WHERE BMP IS TO BE INSTALLED - Installed on erodible slopes, at top of and toe of slopes, around the perimeter of the site, and around temporary stockpiles, as final barrier to sediment being carried off site. Spacing of rolls along slopes is relative to slope. Filter rolls and fiber rolls may also be used at drain inlets, swales and other concentrated flow areas to prevent sediment, silt, and other solids in storm water runoff from entering the storm sewer system. Rolls may also be used as mini check dams in unlined ditches and swales.

CONDITIONS FOR EFFECTIVE USE OF BMPs

Type of Flow:	Sheet flow and concentrated flow
Contributing Slope:	For slopes, use the following row spacing:
	2:1 (H:V) or steeper: 10 feet
	Between 2:1 and 4:1 (H:V): 15 feet
	4:1 (H:V) or flatter: 20 feet

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Fiber rolls and filter rolls should not be used on slopes subject to creep, slumping or landslide. Rolls are difficult to move once saturated.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Calculate required roll diameter, length and row spacing based on slope and the manufacturers recommendations.
- ✓ Dig trench to required depth for fiber rolls (filter rolls do not require trench).
- ✓ Place fiber rolls in trench or filter rolls directly on slope.
- ✓ Stake the fiber rolls or filter rolls as shown on detail drawings.
- ✓ Place excavated soil (fiber roll) or filter roll material along the upside of rolls as shown on detail drawings, not to exceed ½ of the roll diameter.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment buildup deeper than ½ the exposed roll height.
- ✓ Replace or repair split, torn, unraveling, slumping or damaged rolls.
- ✓ Repair or replace unstable or broken wood stakes.
- ✓ Stabilize any areas susceptible to undermining.
- ✓ Extend rows or add additional rolls if necessary to provide adequate protection.

SITE CONDITIONS FOR REMOVAL - After permanent vegetation of slope is established, remove rolls, collect and dispose of sediment accumulation, re-grade trench area to blend with adjacent ground, and vegetate. Rolls do not have to be removed if approved construction or grading plans call for rolls to permanently be left in place (must be fully biodegradable).

TYPICAL DETAILS - 806-65.00
805-55.01
805-55.02

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Building Renovation

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Project No: 26-0048

Revisions

No.	Description	Date
	BID / PERMIT SET	06/22/2026
	MSD COMMENTS	08/20/2026
1	ADDM 1	08/21/2026
	MSD COMMENTS	08/27/2026
2	ADDM 2	09/02/2026

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DATE: 09/02/26

Construction Document Set

BASE MAP: 20S

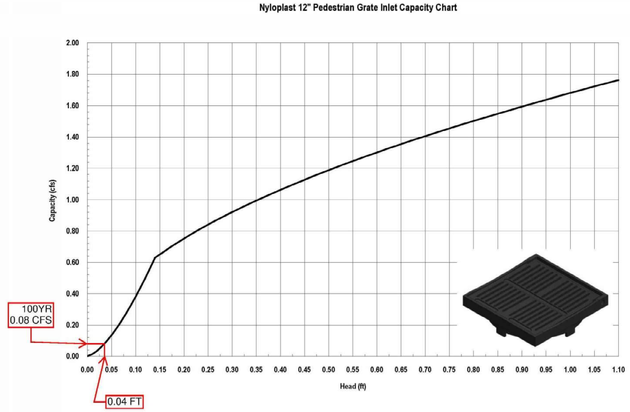
MSD P.NO. 26MSD-00249

STORMWATER POLLUTION PREVENTION PLAN

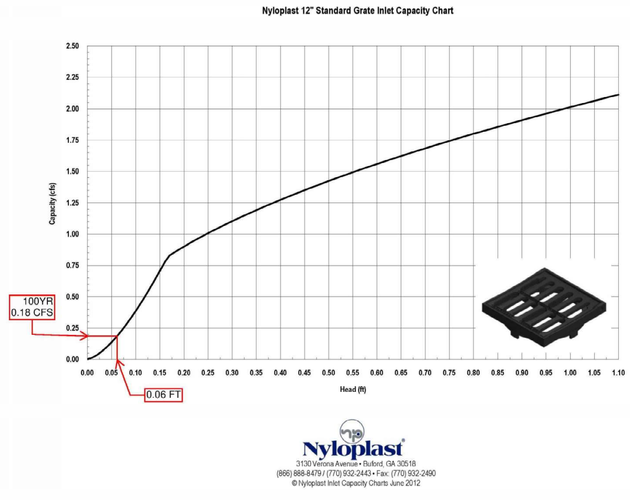
C6.0

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SCALE: 2" = 1'-0" (1", 0.5", 0)
SCALE: 1 1/2" = 1'-0" (2", 1", 0)
SCALE: 1" = 1'-0" (2", 1", 0)
SCALE: 3/4" = 1'-0" (3", 2", 1", 0)
SCALE: 1/2" = 1'-0" (4", 2", 1", 0)
SCALE: 1/4" = 1'-0" (8", 4", 2", 0)
SCALE: 1/8" = 1'-0" (16", 8", 4", 0)
SCALE: 1/16" = 1'-0" (32", 16", 8", 0)

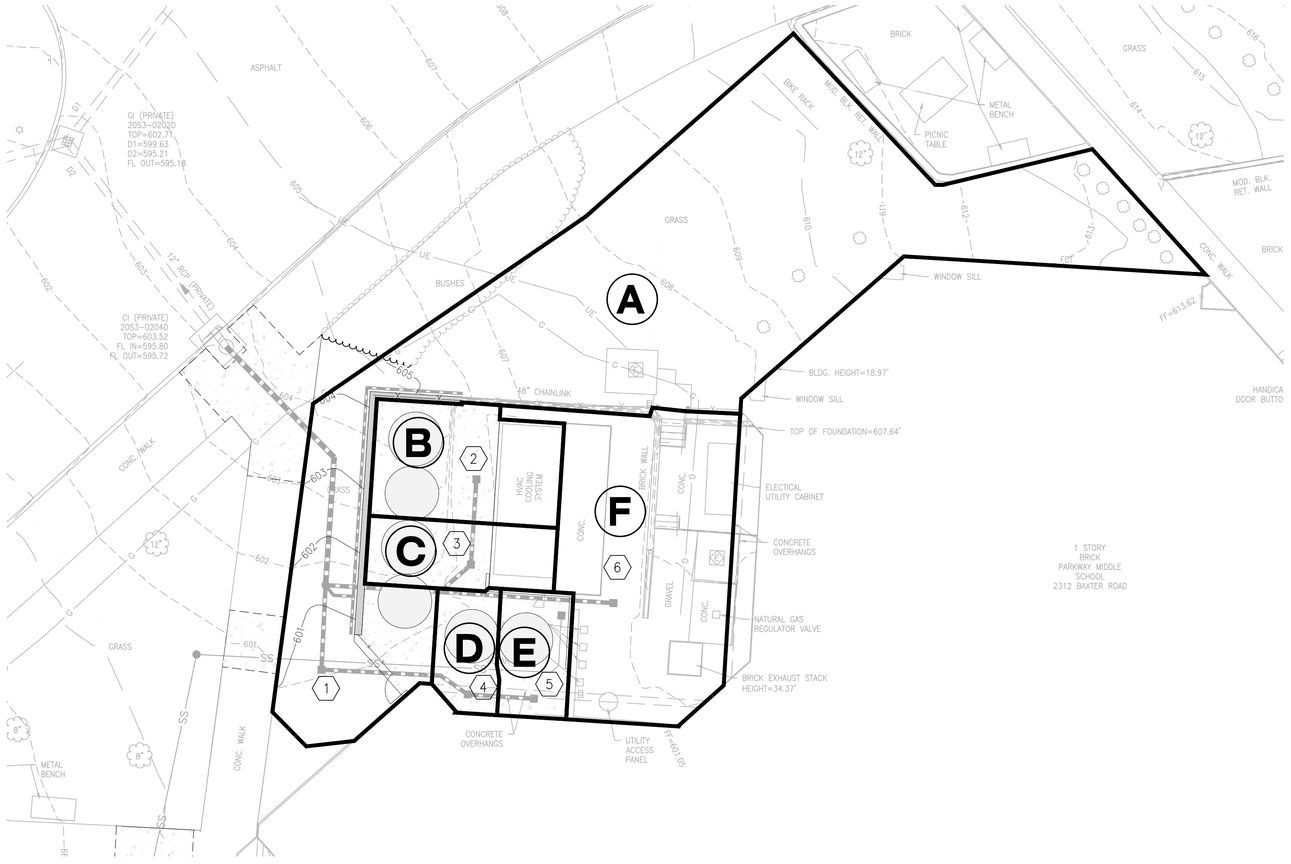
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1 PEDESTRIAN GRATE CAPACITY
SCALE: N.T.S. REF. DWG.



2 STANDARD GRATE CAPACITY
SCALE: N.T.S. REF. DWG.



STORMWATER MANAGEMENT NOTE:

LAND AREA DISTURBED = ±0.11 ACRES (2)

NOTE:

1. ANY FUTURE LAND DISTURBANCE AND/OR INCREASE IN IMPERVIOUS AREA ON THIS SITE MAY REQUIRE ADDITIONAL STORM WATER MANAGEMENT PER MSD REGULATIONS IN PLACE AT THAT TIME.

INLET DRAINAGE AREA TABLE

Designation	Pervious (sf)	Impervious (sf)	Total Area (sf)	Pervious (ac)	Impervious (ac)	TOTAL AREA (ACRES)	IMPERV %	PI (100 yr, 20 min)	PI (15 yr, 20 min)	Q100 (cfs)	Q15 (cfs)	DRAINAGE AREA TRIBUTARY STRUCTURE
A	2,957	268	3,225	0.07	0.01	0.07	8.3%	2.39	1.77	0.18	0.13	1
B	-	417	417	-	0.01	0.01	100.0%	4.77	3.54	0.05	0.03	2
C	-	246	246	-	0.01	0.01	100.0%	4.77	3.54	0.03	0.02	3
D	-	149	149	-	0.00	0.00	100.0%	4.77	3.54	0.02	0.01	4
E	-	176	176	-	0.00	0.00	100.0%	4.77	3.54	0.02	0.01	5
F	539	479	1,018	0.01	0.01	0.02	47.0%	3.39	2.52	0.08	0.06	6

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Project No: 26-0048

Revisions

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	MSD COMMENTS	08/27/2026
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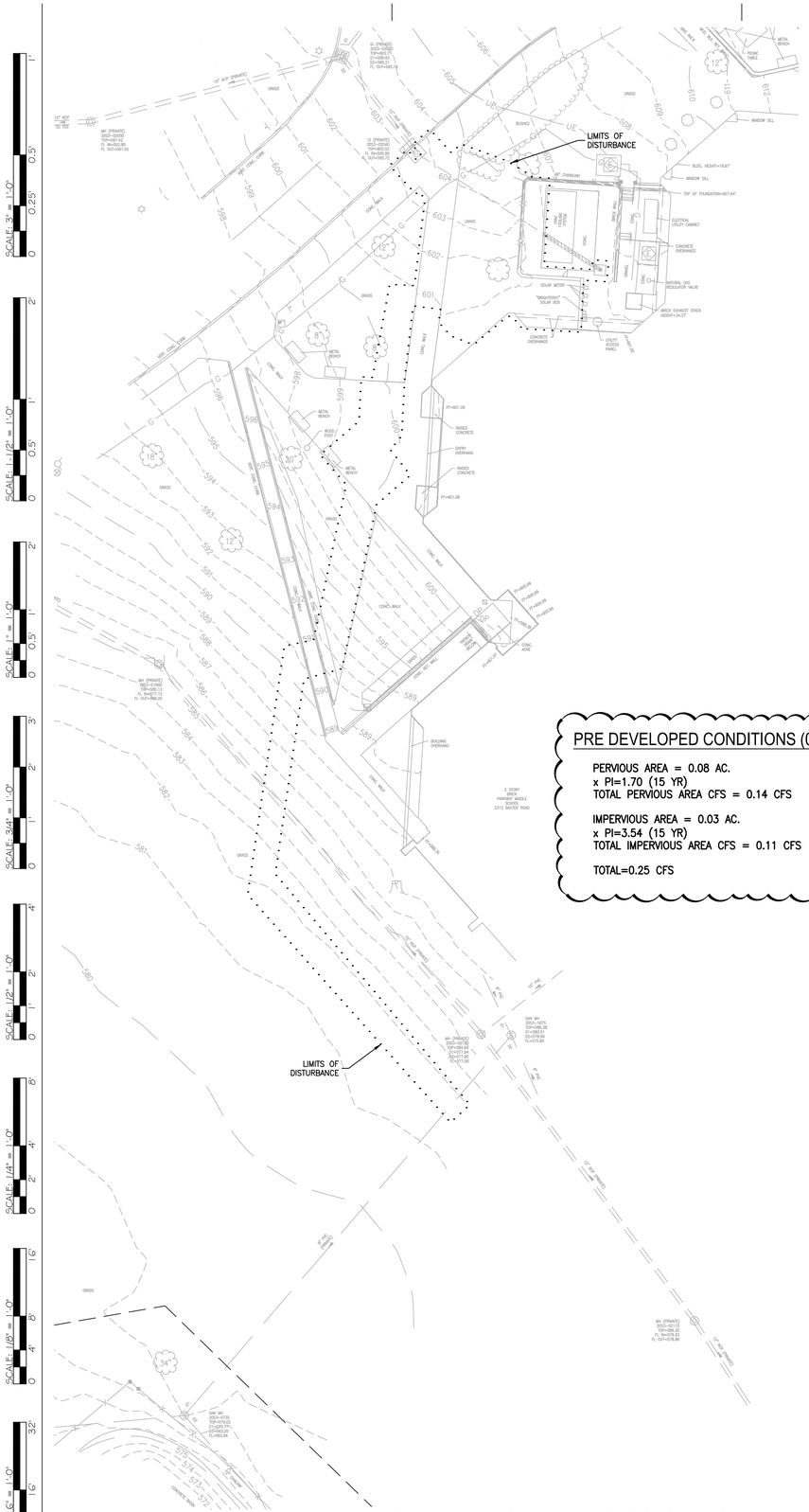
INLET DRAINAGE AREA MAP

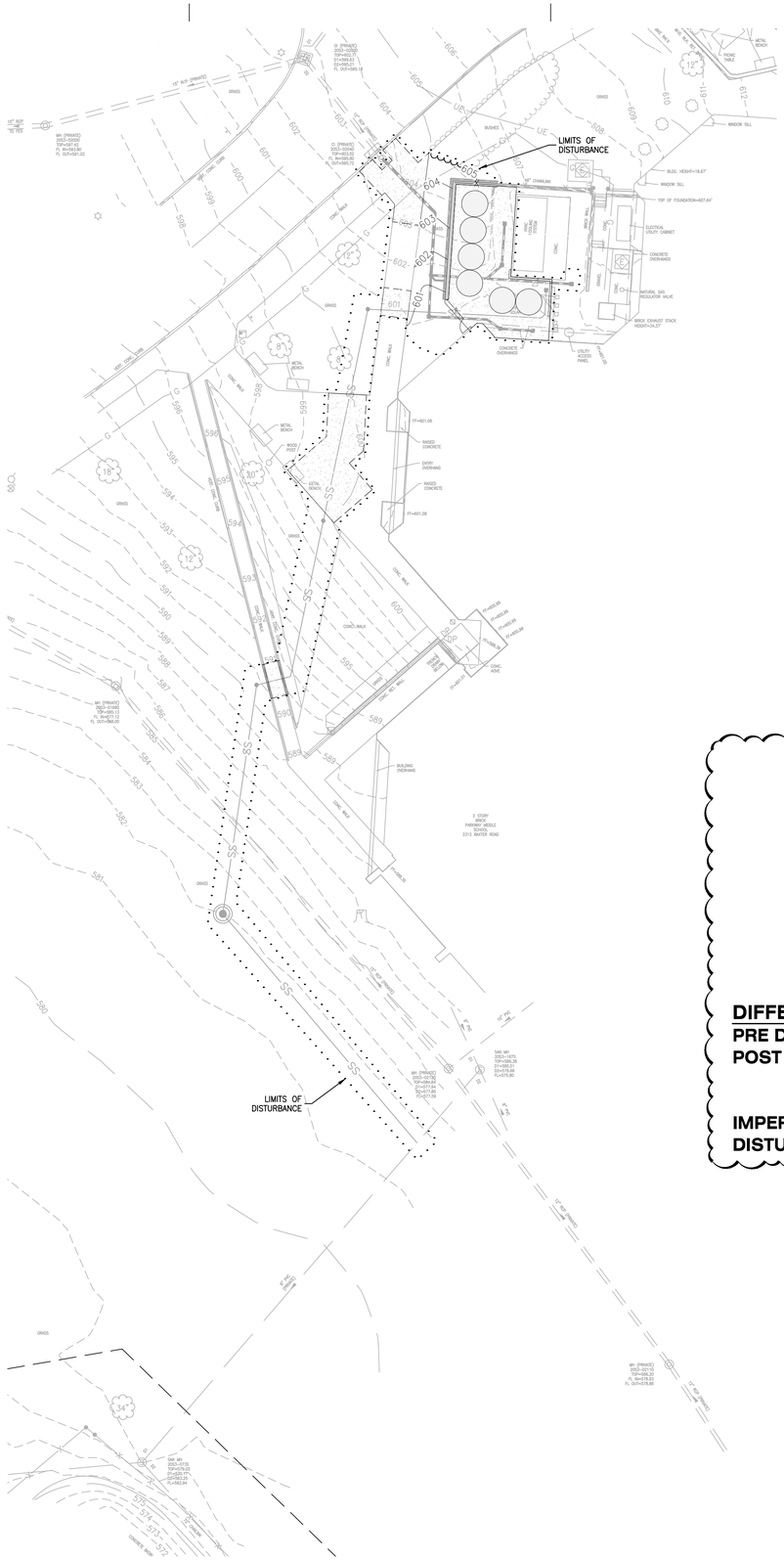
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BASE MAP - 20S

MSD P.NO. - 26MSD-00249

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DATE: September 2, 2026 - 1:37:23 PM
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SCALE: 3" = 1'-0" 0 0.25' 0.5' 1'
SCALE: 1 1/2" = 1'-0" 0 0.5' 1' 2'
SCALE: 1" = 1'-0" 0 0.5' 1' 2'
SCALE: 3/4" = 1'-0" 0 1' 2' 3'
SCALE: 1/2" = 1'-0" 0 1' 2' 4'
SCALE: 1/4" = 1'-0" 0 2' 4' 8'
SCALE: 1/8" = 1'-0" 0 4' 8' 16'
SCALE: 1/16" = 1'-0" 0 8' 16' 32'

20' 0' 20' 40'
SCALE: 1" = 20'

2

PRE DEVELOPED CONDITIONS (0.11 AC)

PERVIOUS AREA = 0.08 AC.
x PI=1.70 (15 YR)
TOTAL PERVIOUS AREA CFS = 0.14 CFS

IMPERVIOUS AREA = 0.03 AC.
x PI=3.54 (15 YR)
TOTAL IMPERVIOUS AREA CFS = 0.11 CFS

TOTAL=0.25 CFS

2

POST DEVELOPED CONDITIONS (0.11 AC)

PERVIOUS AREA = 0.06 AC.
x PI=1.70 (15 YR)
TOTAL PERVIOUS AREA CFS = 0.10 CFS

IMPERVIOUS AREA = 0.05 AC.
x PI=3.54 (15 YR)
TOTAL IMPERVIOUS AREA CFS = 0.18 CFS

TOTAL=0.28 CFS

DIFFERENTIAL RUNOFF CALCULATIONS (15YR)

PRE DEVELOPED CONDITIONS	**0.25 CFS**
POST DEVELOPED CONDITIONS	**0.28 CFS**
DIFFERENTIAL RUNOFF RATE	**+0.03 CFS**

IMPERVIOUS AREA INCREASE = 0.02 ACRES
DISTURBED AREA = 0.11 ACRES

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Project No: 26-0048

Revisions

No.	Description	Date
	BID / PERMIT SET	06/22/2026
	MSD COMMENTS	08/20/2026
1	ADDM 1	08/21/2026
	MSD COMMENTS	08/27/2026
2	ADDM 2	09/02/2026

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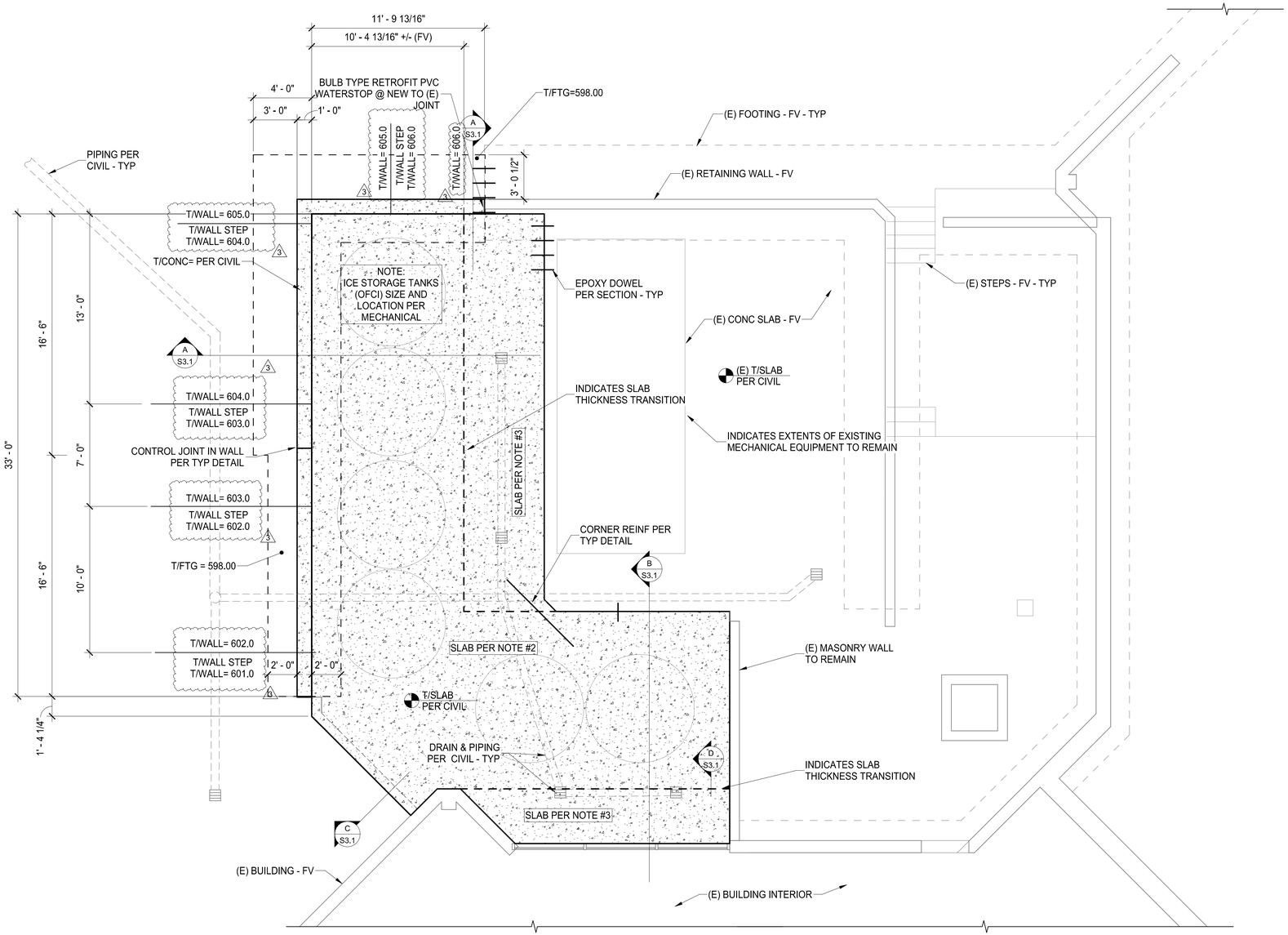
Construction Document Set

PRE-POST DRAINAGE AREA MAP

C7.1

MSD P.NO. 26MSD-00249 BASE MAP: 20S

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DATE: September 29, 2026 - 1:27:24 PM
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FOUNDATION PLAN

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

PLAN NOTES

1. SEE SHEETS S1.1 - S1.2 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. 8" CONCRETE SLAB REINFORCED WITH #6 @ 12"oc. REINFORCEMENT TO BE LOCATED IN THE TOP & BOTTOM FACE IN EA DIRECTION.
3. 4" CONCRETE SLAB REINFORCED WITH #6 @ 12" O.C. MID DEPTH OF SLAB OVER 4" COMPACTED FREE-DRAINING GRANULAR FILL.
4. SEE ARCHITECTURAL DRAWINGS FOR ELEVATIONS NOT SHOWN HEREON. SEE CIVIL DRAWINGS FOR DIMENSIONS AND GRADES NOT SHOWN HEREON.
5. ALL ELEVATIONS ARE REFERENCED FROM CIVIL ELEVATIONS
   - T/FTG = TOP OF FOOTING = PER PLAN
   - T/CONC = TOP OF CONCRETE = PER PLAN
6. ALL HORIZONTAL CONCRETE SURFACES SHALL RECEIVE A "WOOD FLOAT" FINISH SAVE FOR THE ICE TANK FOOTPRINT PLUS A 6" RADIUS BEYOND THE EXTENTS OF FOOTPRINT, WHICH SHALL HAVE A FLAT (NOT SLOPING) TROWEL FINISH.
7. ALL TOP OF WALL STEP LOCATIONS SHALL BE COORDINATED WITH CIVIL GRADING PLAN TO ENSURE TOP OF WALL DOES NOT OCCUR BELOW GRADE.

SCALE: 3" = 1'-0" · SCALE: 1 1/2" = 1'-0" · SCALE: 1" = 1'-0" · SCALE: 3/4" = 1'-0" · SCALE: 1/2" = 1'-0" · SCALE: 1/4" = 1'-0" · SCALE: 1/8" = 1'-0" · SCALE: 1/16" = 1'-0"

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3	ADDM 2	09-08-2026

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09/08/26

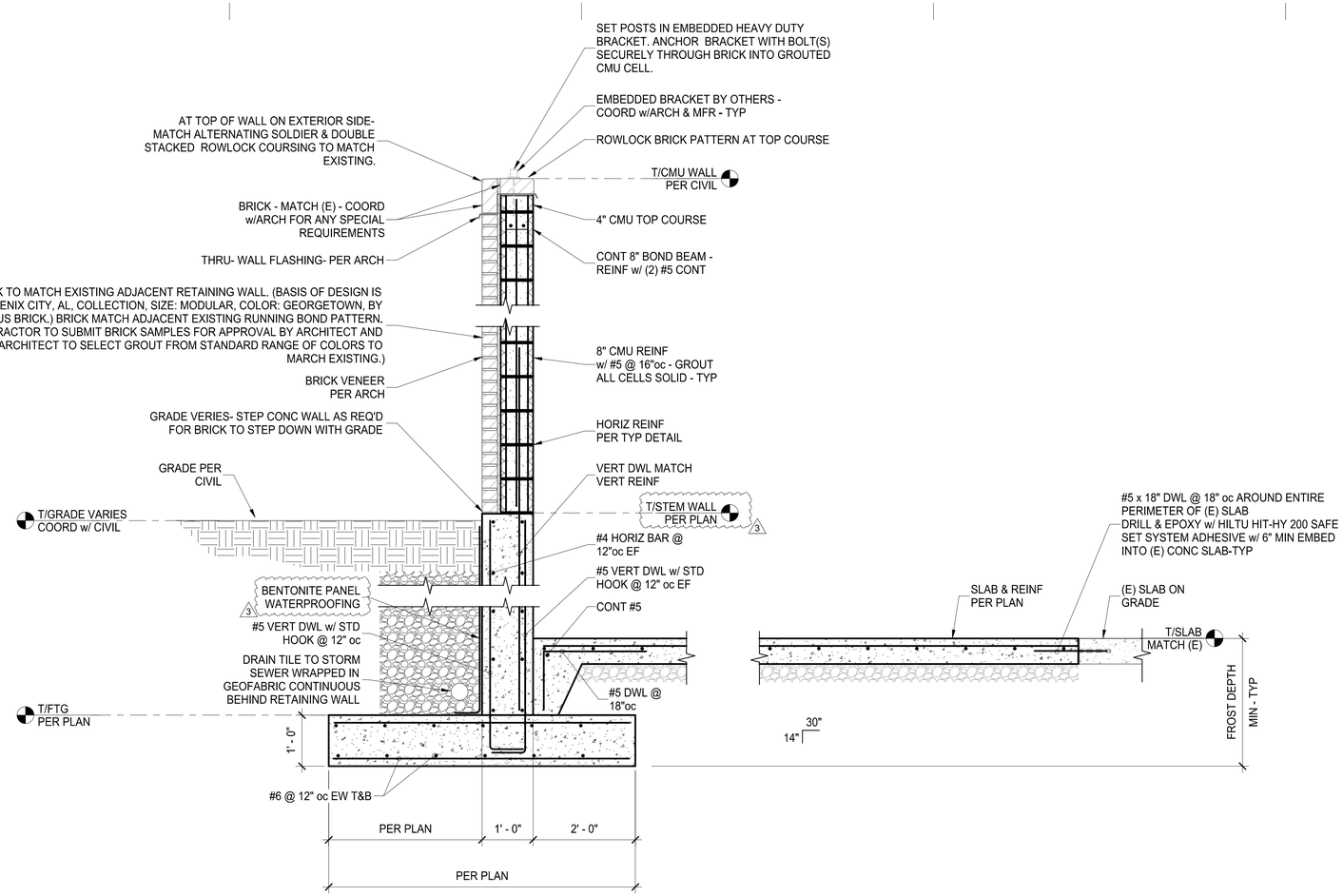
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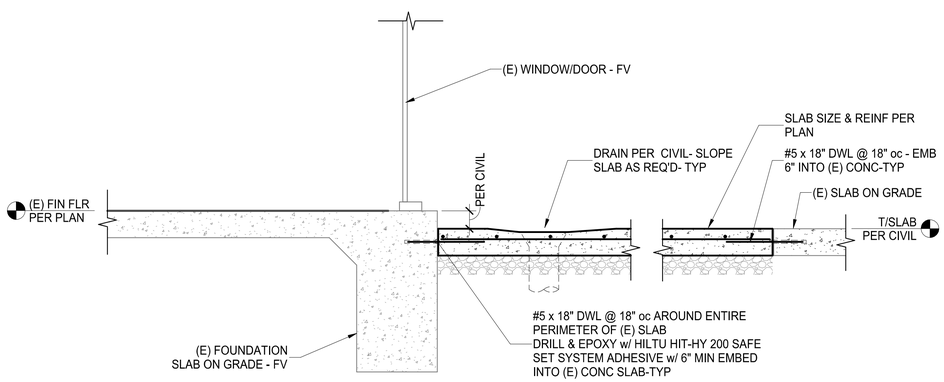
BID/ PERMIT SET

PARTIAL FOUNDATION PLAN

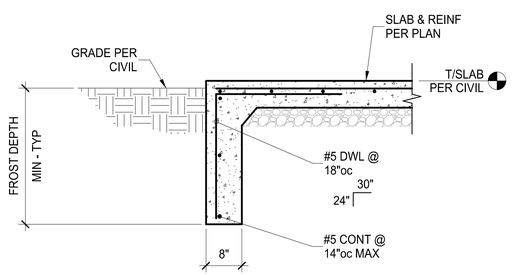
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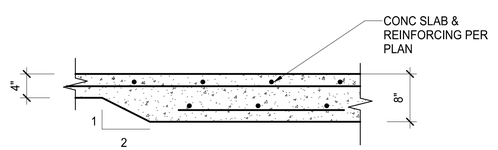
A FOUNDATION SECTION
S3.1 **3/4" = 1'-0"**



B FOUNDATION SECTION
S3.1 **3/4" = 1'-0"**



C FOUNDATION SECTION
S3.1 **3/4" = 1'-0"**



D TYP DEPRESSED SLAB DETAIL
S3.1 **N.T.S.**

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CERTIFICATE OF AUTHORITY NO. 001498

WEST MIDDLE SCHOOL
2312 Baxter Road, Chesterfield, MO 63017
Parkway PN #
Building Renovation

Parkway School District
363 N. Woods Mill Rd.,
Chesterfield, MO 63017
314.415.8231 tel

Project No: 25091

Revisions

No	Description	Date
3	ADDM 2	09-08-2026

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STATE OF MISSOURI
KYLE LINNENFELSER
NUMBER PE-2010036255
PROFESSIONAL ENGINEER
09/08/26

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DATE: 2026-06-22

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FOUNDATION SECTIONS

S3.1

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GENERAL NOTES

A. INFORMATION ON DRAWINGS WAS OBTAINED FROM AS-BUILT DRAWINGS AND CASUAL FIELD OBSERVATION. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BID.

B. UNLESS NOTED OTHERWISE, DEMOLITION SHALL INCLUDE REMOVAL OF FEEDER CONDUCTORS AND CONDUITS TO THE SOURCE.

C. CONTRACTOR SHALL REPAIR AND/OR REROUTE EXISTING CIRCUITS TO REMAIN THAT ARE DISRUPTED BY DEMOLITION.

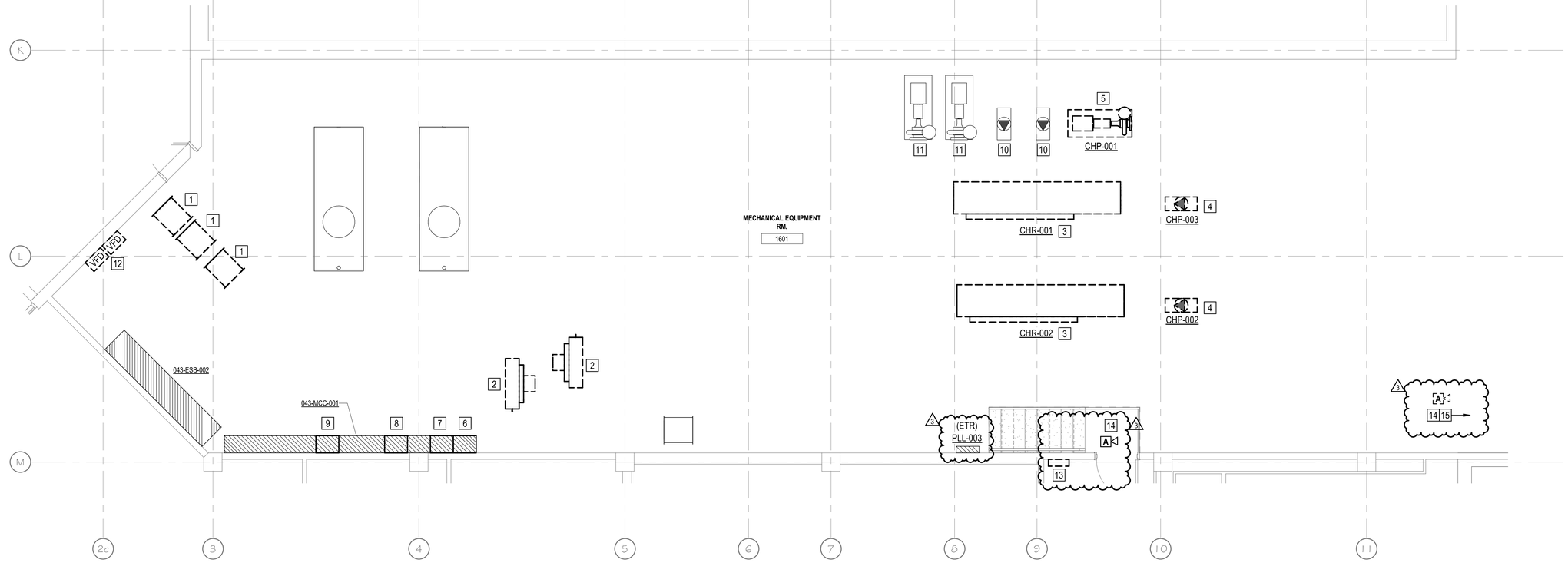
D. CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR EXECUTION OF DEMOLITION WORK.

KEYED NOTES

1. DISCONNECT EXISTING INLINE FAN. REMOVE EXISTING CIRCUIT AS REQUIRED TO ALLOW REPLACEMENT OF LARGE EQUIPMENT. RETAIN THE EXISTING CIRCUIT FOR REUSE.
2. DISCONNECT EXISTING UNIT HEATER. REMOVE EXISTING CIRCUIT AS REQUIRED TO ALLOW REPLACEMENT OF LARGE EQUIPMENT. RETAIN THE EXISTING CIRCUIT FOR REUSE.
3. DISCONNECT EXISTING CHILLER. RETAIN FEEDER CONDUITS AND REMOVE CONDUCTORS FROM MOTOR CONTROL CENTER 043-MCC-001.
4. DISCONNECT EXISTING INLINE PUMP AND REMOVE FEEDER FROM 043-MCC-001.
5. DISCONNECT EXISTING BASE MOUNTED PUMP AND REMOVE FEEDER FROM 043-MCC-001.
6. EXISTING MOTOR CENTER SECTION CONTAINS THE FOLLOWING BUCKETS FOR EXISTING EQUIPMENT RELATED TO THIS PROJECT:
   - CHP-002
   - CHILLER CHR-001 (CCH-001), 800A/3P CB
7. EXISTING MOTOR CENTER SECTION CONTAINS THE FOLLOWING BUCKETS FOR EXISTING EQUIPMENT RELATED TO THIS PROJECT:
   - CHP-003
   - CHILLER CHR-002 (CCH-002), 800A/3P CB
8. EXISTING MOTOR CENTER SECTION CONTAINS THE FOLLOWING BUCKET FOR EXISTING EQUIPMENT RELATED TO THIS PROJECT:
   - CTW-001 (FAN 1), CTW-001 (FAN 2)
9. EXISTING MOTOR CENTER SECTION CONTAINS THE FOLLOWING BUCKET FOR EXISTING EQUIPMENT RELATED TO THIS PROJECT:
   - CHP-001
10. EXISTING BASE MOUNTED CONDENSATE PUMP TO REMAIN.

KEYED NOTES (CONTINUED)

11. EXISTING HEATING WATER PUMP TO REMAIN.
12. DEMO EXISTING VFDs FOR COOLING TOWER FANS AND REMOVE FEEDERS FROM MOTOR CONTROL CENTER 043-MCC-001.
13. DEMO EXISTING LEAK DETECTION CONTROL PANEL AND CIRCUIT FROM PANELBOARD PLL-003. FIELD VERIFY EXISTING PANEL LOCATION.
14. DEMO EXISTING REFRIGERANT ALARM HORN STROBE AND WIRING FROM EXISTING LEAK DETECTION CONTROL PANEL. FIELD VERIFY EXISTING DEVICE LOCATION.
15. EXISTING REFRIGERANT ALARM HORN STROBE IS LOCATED AT SOUTH ENTRANCE TO MECHANICAL EQUIPMENT ROOM 1601, APPROXIMATELY 90 FEET FROM THE DEVICE LOCATION SHOWN.



N ENLARGED MECHANICAL ROOM PLAN - ELECTRICAL DEMOLITION
AD101 1/4" = 1'-0"

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Project No: 25091

Revisions

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3	ADDENDUM 2	09/08/2026

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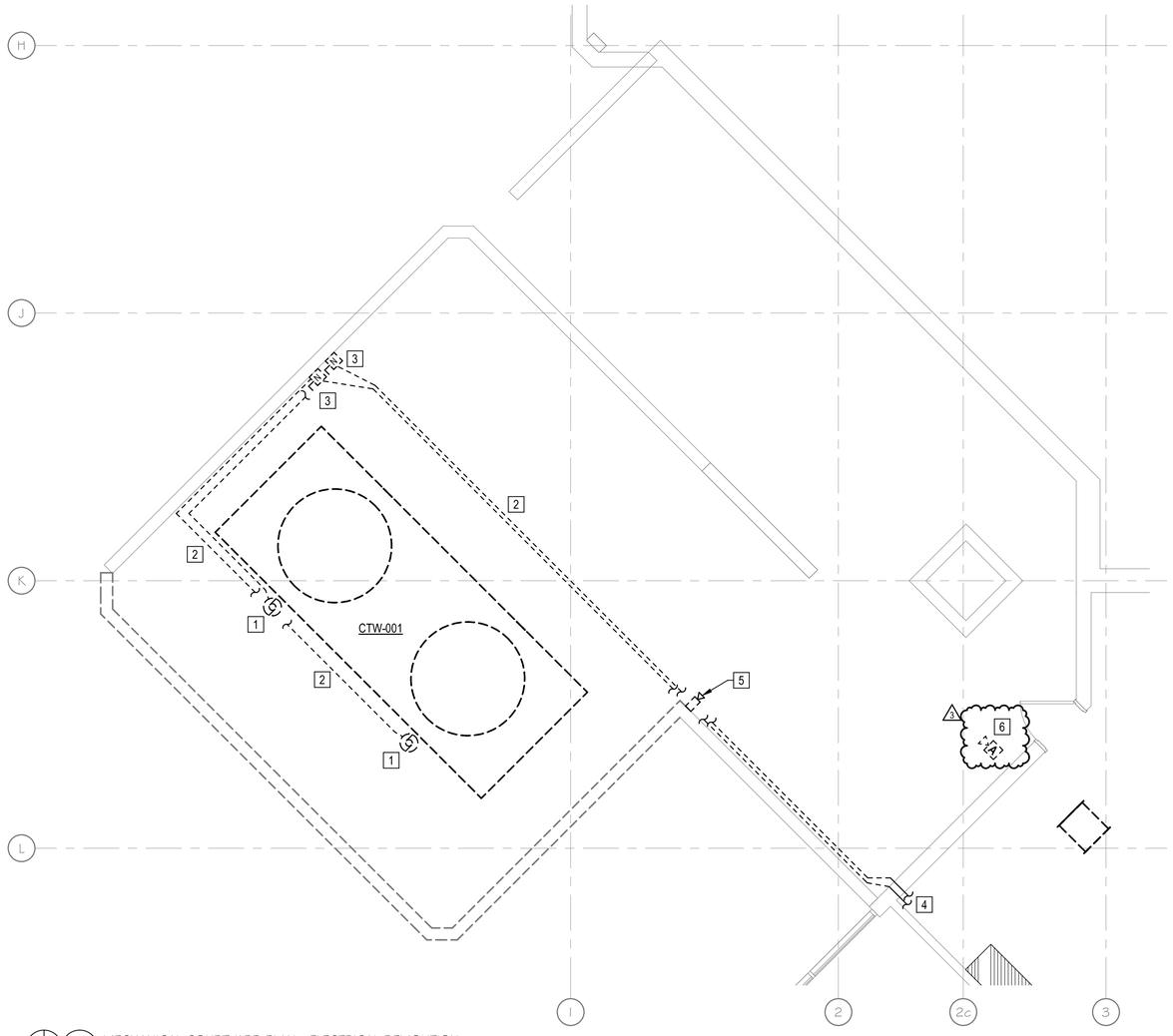
MECHANICAL ROOM 1601 - DEMO PLAN

ED101

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GENERAL NOTES
A. INFORMATION ON DRAWINGS WAS OBTAINED FROM AS-BUILT DRAWINGS AND CASUAL FIELD OBSERVATION. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BID.
B. UNLESS NOTED OTHERWISE, DEMOLITION SHALL INCLUDE REMOVAL OF FEEDER CONDUCTORS AND CONDUITS TO THE SOURCE.
C. CONTRACTOR SHALL REPAIR AND/OR REROUTE EXISTING CIRCUITS TO REMAIN THAT ARE DISRUPTED BY DEMOLITION.
D. CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR EXECUTION OF DEMOLITION WORK.

KEYED NOTES
1 DISCONNENCT EXISTING COOLING TOWER MOTOR. REMOVE FEEDER CONDUCTORS FROM 043-MCC-001.
2 DEMO EXISTING FEEDERS FOR COOLING TOWER MOTORS.
3 DEMO TWO (2) EXISTING DISCONNECT SWITCHES FOR COOLING TOWER.
4 DEMO COOLING TOWER FEEDERS FROM VFDs IN MECHANICAL ROOM 1601. SEE SHEET ED101 FOR LOCATION. RETAIN EXISTING CONDUIT PENETRATIONS AT EXTERIOR FOR REUSE.
5 DISCONNECT AND REMOVE EXISTING VIDEO SURVEILLANCE CAMERA AND ASSOCIATED MOUNTING BRACKET. CABLE INFRASTRUCTURE AND ASSOCIATED PATHWAY SHALL BE MAINTAINED AND PROTECTED DURING DEMOLITION. CABLE SHALL BE PROTECTED FROM THE ELEMENTS. REFER TO NEW WORK FOR RE-INSTALLATION.
3 6 DEMO EXISTING REFRIGERANT ALARM HORN STROBE WITH WEATHERPROOF BOX AT EXTERIOR SOFFIT AND WIRING FROM EXISTING LEAK DETECTION CONTROL PANEL.



N 1 ED102 MECHANICAL COURTYARD PLAN - ELECTRICAL DEMOLITION 1/4" = 1'-0"

SCALE: 3" = 1'-0" 0 0.25 0.5 1
SCALE: 1-1/2" = 1'-0" 0 0.5 1 2
SCALE: 1" = 1'-0" 0 0.5 1 2
SCALE: 3/4" = 1'-0" 0 1 2 3
SCALE: 1/2" = 1'-0" 0 1 2 4
SCALE: 1/4" = 1'-0" 0 2 4 8
SCALE: 1/8" = 1'-0" 0 4 8 16
SCALE: 1/16" = 1'-0" 0 8 16 32

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Parkway Project #: PN432501B
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Parkway School District
363 N. Woods Mill Rd., Chesterfield, MO 63017
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Project No: 25091

Revisions

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3	ADDENDUM 2	09/08/2026

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MECHANICAL YARD - DEMO PLAN

ED102

GENERAL NOTES

A. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR MORE INFORMATION.

B. COORDINATE ELECTRICAL INSTALLATION WITH INSTALLATION OF MECHANICAL SYSTEMS.

C. CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR EXECUTION OF NEW INSTALLATION WORK.

D. ELECTRICAL CONTRACTOR SHALL REVIEW AND COORDINATE THE INSTALLATION OF ELECTRICAL WORK WITH APPROVED MECHANICAL SHOP DRAWINGS.

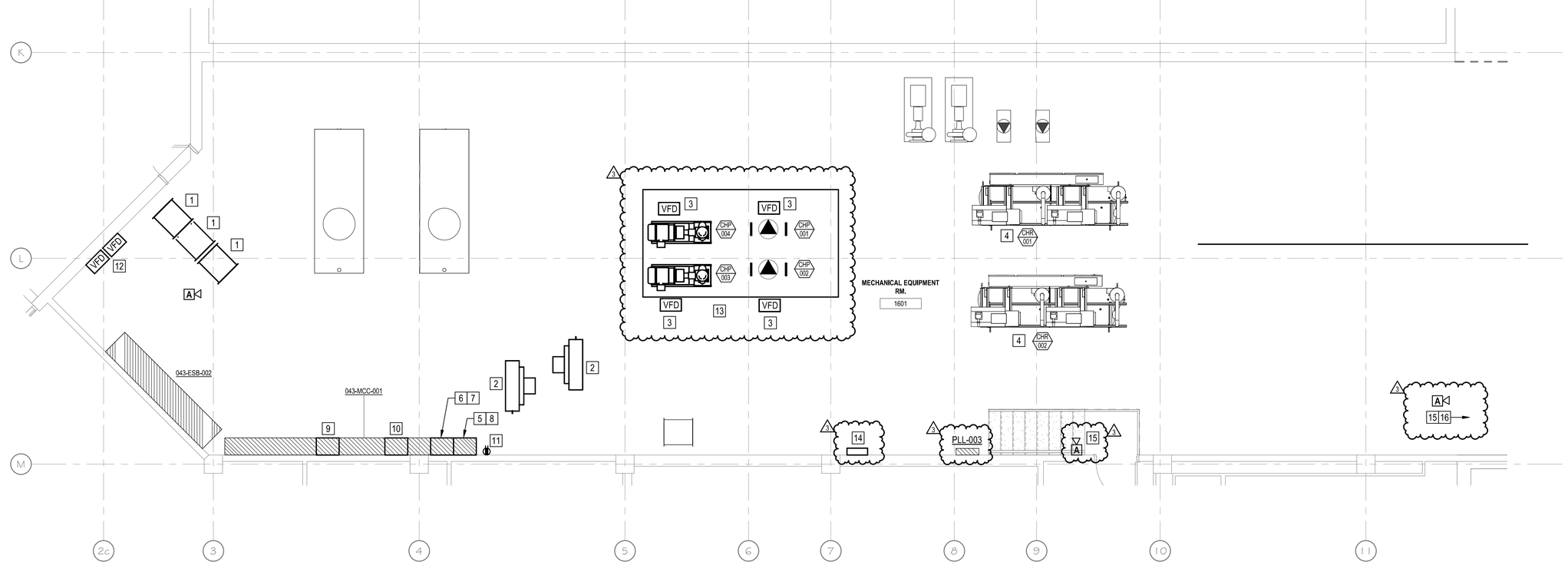
E. PROVIDE NEW ENGRAVED NAMEPLATES FOR EACH EXISTING MOTOR CONTROL CENTER BUCKET UTILIZED FOR THIS PROJECT.

KEYED NOTES

1. RECONNECT EXISTING INLINE FAN. EXTEND EXISTING CIRCUIT AS REQUIRED.
2. RECONNECT EXISTING UNIT HEATER. EXTEND EXISTING CIRCUIT AS REQUIRED.
3. INSTALL VFD FOR CHILLED WATER PUMP, FURNISHED BY MECHANICAL CONTRACTOR. PROVIDE INDEPENDENT STEEL STRUT SUPPORT STRUCTURE ANCHORED TO CONCRETE PAD. PROVIDE FEEDER FROM MOTOR CONTROL CENTER 043-MCC-001 AND FINAL CONNECTIONS TO PUMP PER MANUFACTURER'S REQUIREMENTS. COORDINATE FINAL LOCATION FOR VFD WITH MECHANICAL CONTRACTOR AND APPROVED SHOP DRAWINGS.
4. EXTEND EXISTING FEEDER CONDUITS TO NEW CHILLER AND PROVIDE NEW CONDUCTORS FROM MOTOR CONTROL CENTER 043-MCC-001, MAKE FINAL CONNECTIONS PER MANUFACTURER'S REQUIREMENTS.
5. UTILIZE EXISTING 800A/3P CIRCUIT BREAKER IN MOTOR CONTROL CENTER SECTION TO TERMINATE NEW FEEDER CONDUCTORS FOR CHR-001.
6. UTILIZE EXISTING 800A/3P CIRCUIT BREAKER IN MOTOR CONTROL CENTER SECTION TO TERMINATE NEW FEEDER CONDUCTORS FOR CHR-002.
7. UTILIZE EXISTING BUCKET (CURRENTLY USED FOR CHP-003) IN MOTOR CONTROL CENTER SECTION TO TERMINATE NEW FEEDER FOR CHP-001. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR REQUIREMENTS TO MODIFY EXISTING BUCKET.
8. UTILIZE EXISTING BUCKET (CURRENTLY USED FOR CHP-002) IN MOTOR CONTROL CENTER SECTION TO TERMINATE NEW FEEDER FOR CHP-002. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR REQUIREMENTS TO MODIFY EXISTING BUCKET.
9. REMOVE EXISTING BUCKET IN MOTOR CENTER (CURRENTLY MARKED CHILLER, SPARE) AND RETROFIT WITH TWO (2) NEW BUCKETS TO SERVE FEEDERS FOR CHP-003 AND CHP-004. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR MORE INFORMATION.
10. UTILIZE EXISTING BUCKET IN MOTOR CONTROL CENTER SECTION WITH TWIN DISCONNECT SWITCHES TO TERMINATE NEW FEEDERS FOR CTW-001 FANS #1 AND #2. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR MORE INFORMATION.

KEYED NOTES (CONTINUED)

11. REPLACE EXISTING DUPLEX RECEPTACLE WITH GFCI RECEPTACLE. EXTEND CIRCUIT TO NEW WEATHERPROOF GFCI RECEPTACLE AT EXTERIOR WALL. SEE SHEET E102 FOR LOCATION.
12. INSTALL VFDs FURNISHED BY MECHANICAL CONTRACTOR FOR COOLING TOWER MOTORS AND EXTEND FEEDERS TO EQUIPMENT MOTORS AT EXTERIOR YARD. COORDINATE WITH INSTALLATION OF EQUIPMENT.
13. EXTEND THE EXISTING 120V HVAC CONTROL CIRCUIT FROM PANELBOARD PLL-003 TO THE PUMP SKID'S AUTOMATION CONTROL PANEL AND CONTROL TRANSFORMER; MAKE CONNECTIONS PER MANUFACTURER'S REQUIREMENTS. COORDINATE WITH APPROVED SHOP DRAWINGS AND THE INSTALLATION OF EQUIPMENT.
14. INSTALL NEW LEAK DETECTION CONTROL PANEL FURNISHED BY THE MECHANICAL CONTRACTOR. EXTEND 2#12 AND 1#12 GRD IN 3/4" CONDUIT FROM EXISTING PANELBOARD PLL-003 AND MAKE CONNECTIONS TO THE CONTROL PANEL PER MANUFACTURER'S REQUIREMENTS.
15. INSTALL NEW REFRIGERANT ALARM HORN STROBE FURNISHED BY THE MECHANICAL CONTRACTOR. PROVIDE LOW VOLTAGE WIRING IN CONDUIT FROM THE HORN STROBE TO THE NEW LEAK DETECTION CONTROL PANEL. CONNECT PER MANUFACTURER'S REQUIREMENTS.
16. NEW REFRIGERANT ALARM HORN STROBE TO BE LOCATED AT SOUTH ENTRANCE TO MECHANICAL EQUIPMENT ROOM 1601, APPROXIMATELY 90 FEET FROM THE DEVICE LOCATION SHOWN.



ENLARGED MECHANICAL ROOM PLAN - ELECTRICAL NEW
1/4" = 1'-0"

SCALE: 3" = 1'-0" 0 0.25 0.5 1
SCALE: 1-1/2" = 1'-0" 0 0.5 1 2
SCALE: 1" = 1'-0" 0 0.5 1 2
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SCALE: 1/16" = 1'-0" 0 8 16 32

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Parkway Project #: PN432501B
Cooling Tower & Chillers Replacement

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Project No: 25091

Revisions

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3	ADDENDUM 2	09/08/2026

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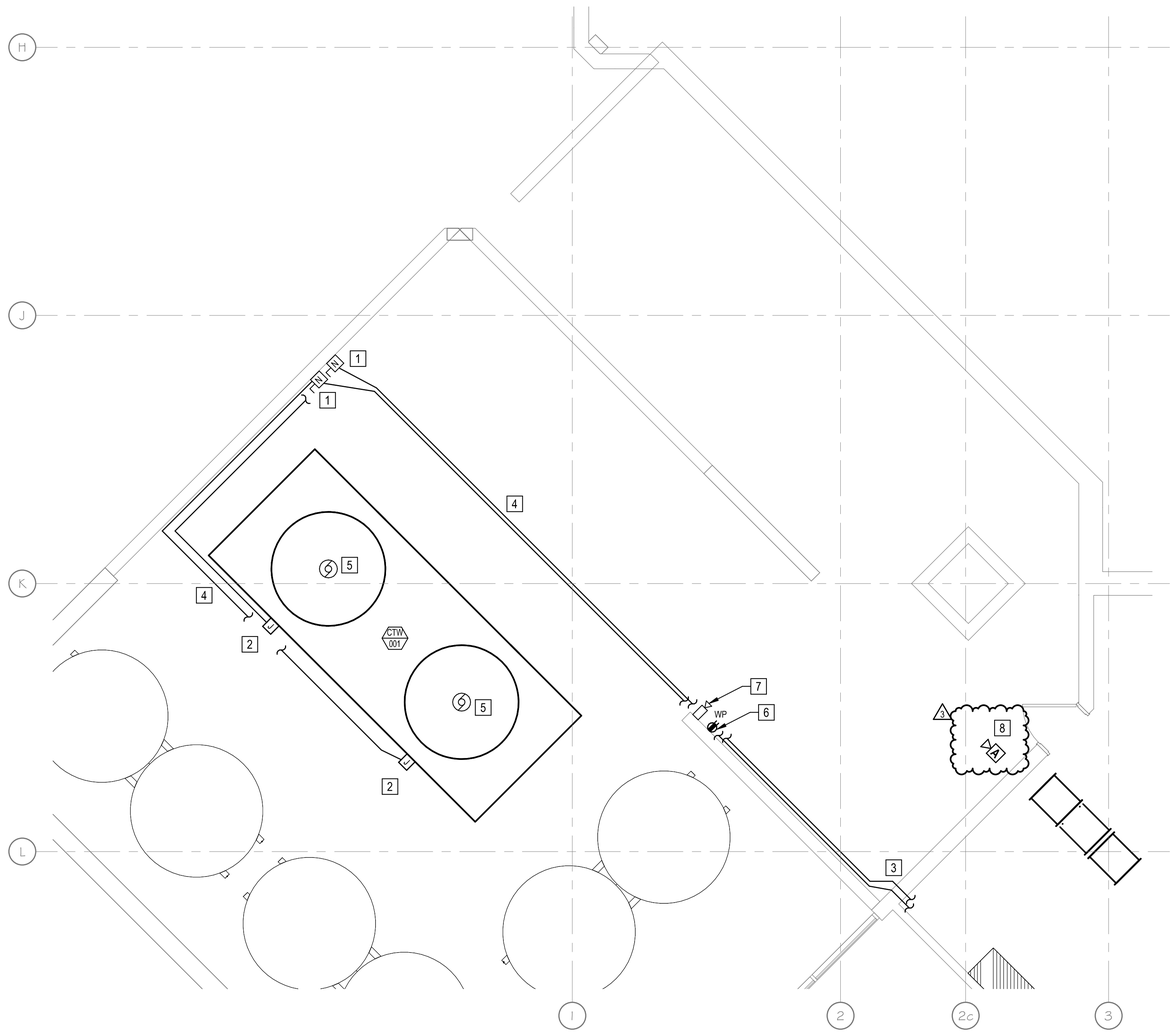
DATE: 2026-06-22

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MECHANICAL ROOM 1601 - NEW WORK

E101

SCALE: 3" = 1'-0"
SCALE: 1 1/2" = 1'-0"
SCALE: 1" = 1'-0"
SCALE: 3/4" = 1'-0"
SCALE: 1/2" = 1'-0"
SCALE: 1/4" = 1'-0"
SCALE: 1/8" = 1'-0"
SCALE: 1/16" = 1'-0"



N — 1 / E102 — MECHANICAL COURTYARD PLAN - ELECTRICAL NEW
1/4" = 1'-0"

GENERAL NOTES
A. SEE EQUIPMENT DATA SCHEDULE ON SHEET E600 FOR MORE INFORMATION.
B. COORDINATE ELECTRICAL INSTALLATION WITH INSTALLATION OF MECHANICAL SYSTEMS.
C. CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR EXECUTION OF NEW INSTALLATION WORK.
D. ELECTRICAL CONTRACTOR SHALL REVIEW AND COORDINATE THE INSTALLATION OF ELECTRICAL WORK WITH APPROVED MECHANICAL SHOP DRAWINGS.

KEYED NOTES
1 PROVIDE DISCONNECT SWITCH FOR COOLING TOWER FAN MOTOR.
2 COORDINATE CONNECTIONS TO COOLING TOWER AND ROUTING OF FEEDERS WITH INSTALLATION OF EQUIPMENT.
3 UTILIZE EXISTING CONDUIT PENETRATIONS AT EXTERIOR WALL FOR NEW FEEDERS TO COOLING TOWER EQUIPMENT.
4 EXTEND FEEDERS TO NEW COOLING TOWER EQUIPMENT.
5 PROVIDE CONNECTION TO COOLING TOWER FAN PER MANUFACTURER'S REQUIREMENTS.
6 PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE WITH EXTRA-DUTY RATED COVER. EXTEND EXISTING 120V CIRCUIT FROM RECEPTACLE ADJACENT TO 043-MCC-001. SEE SHEET E101 FOR MORE INFORMATION.
7 RE-INSTALL EXISTING VIDEO SURVEILLANCE CAMERA UTILIZING EXISTING MOUNTING BRACKET, HARDWARE AND CABLE INFRASTRUCTURE. CAMERA SHALL BE RE-AIMED. FINAL VIEWING ANGLE SHALL BE COORDINATED WITH AND APPROVED BY PARKWAY SCHOOL DISTRICT IT AND SECURITY.
3 8 INSTALL REFRIGERANT ALARM HORN STROBE WITH WEATHERPROOF BOX (FURNISHED BY MECHANICAL CONTRACTOR), MOUNTED TO EXTERIOR SOFFIT. PROVIDE LOW VOLTAGE WIRING IN CONDUIT FROM THE HORN STROBE TO THE NEW LEAK DETECTION CONTROL PANEL IN MECHANICAL EQUIPMENT ROOM 1601. CONNECT PER MANUFACTURER'S REQUIREMENTS.

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MECHANICAL YARD - NEW WORK

E102

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EQUIPMENT DATA SCHEDULE

PLAN MARK	EQUIPMENT	LOCATION	FURNISH BY (1)	MOTOR OR EQUIPMENT DATA			FED FROM	BRANCH CIRCUIT (3)	DISCONNECT SWITCH AT EQUIPMENT					STARTER								KEYED NOTES & REMARKS
				HP/KW/A (2)	VOLTS/ PHASE	INST.BY/ CONN.BY (1)			TYPE (4)	NEMA ENCLOS. TYPE	SWITCH/ FUSE SIZE	FURNISH. BY (1)	INST.BY/ CONN.BY (1)	NEMA SIZE	TYPE (5)	NEMA ENCLOS. TYPE	SWITCH/ FUSE SIZE	ACCESS. (6)	FURNISH. BY (1)	CONN. BY (1)	CONTROL WIRING BY (1)	[#]
CHR-001	CHILLER	MECHANICAL EQUIP. RM. 1601	23	MCA 637 MOCP 800	208/3	23/26	043-MCC-001	2 SETS: 3#500MCM, 1#1/0 GRD, 3"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[1] PROVIDE SINGLE POINT CONNECTION.
CHR-002	CHILLER	MECHANICAL EQUIP. RM. 1601	23	MCA 637 MOCP 800	208/3	23/26	043-MCC-001	2 SETS: 3#500MCM, 1#1/0 GRD, 3"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[1] PROVIDE SINGLE POINT CONNECTION.
CHP-001	CHILLED WATER PUMP	MECHANICAL EQUIP. RM. 1601	23	5 HP	208/3	23/26	043-MCC-001	3#10, #10 GRD, 3/4"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[2]
CHP-002	CHILLED WATER PUMP	MECHANICAL EQUIP. RM. 1601	23	5 HP	208/3	23/26	043-MCC-001	3#10, #10 GRD, 3/4"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[2]
CHP-003	CHILLED WATER PUMP	MECHANICAL EQUIP. RM. 1601	23	25 HP	208/3	23/26	043-MCC-001	3#3, #8 GRD, 1-1/4"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[3]
CHP-004	CHILLED WATER PUMP	MECHANICAL EQUIP. RM. 1601	23	25 HP	208/3	23/26	043-MCC-001	3#3, #8 GRD, 1-1/4"C.	-	-	-	23	23/26	-	VFD	-	-	-	23	26	23	[3]
CTW-001	COOLING TOWER - FAN #1	MECHANICAL YARD - EXTERIOR	23	15 HP	208/3	23/26	043-MCC-001	3#6, #10 GRD, 3/4"C.	NF	4X	60A / --	23	23/26	-	VFD	-	-	-	23	26	23	[4]
	COOLING TOWER - FAN #2	MECHANICAL YARD - EXTERIOR	23	15 HP	208/3	23/26	043-MCC-001	3#6, #10 GRD, 3/4"C.	NF	4X	60A / --	23	23/26	-	VFD	-	-	-	23	26	23	[4]

(1) SPECIFICATION DIVISION NUMBER:
DIVISION 22 - PLUMBING
DIVISION 23 - MECHANICAL
DIVISION 26 - ELECTRICAL
GC - GENERAL CONTRACTOR

(2) HORSEPOWER (HP) IS SHOWN UNLESS AMPS(A) OR KILOWATTS (KW) ARE CALLED OUT.

(3) REFER TO FEEDER SCHEDULE WHEN THIS COLUMN CONTAINS A FEEDER DESIGNATION INSTEAD OF CONDUCTOR SIZE.

(4) CB - CIRCUIT BREAKR ENCL.
NF - NON FUSED
F- FUSED
TOG - TOGGLE

(5) STARTER TYPE:
COMB1 - COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH NON-FUSED DISCONNECT
COMB2 - SWITCH. COMBINATION FULL VOLTAGE NON-REVERSING
COMB3 - MAGNETIC STARTER WITH FUSED DISCONNECT SWITCH. COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH THERMAL MAGNETIC MOLDED
COMB4 - CASE CIRCUIT BREAKER DISCONNECT. COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH MAGNETIC ONLY MOLDED CASE CIRCUIT BREAKER DISCONNECT.
FVNR - FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITHOUT DISCONNECT.
MAN - MANUAL STARTER WITH PILOT LIGHT.
SDS - STAR DELTA STARTER.
PWCP - PREWIRED CONTROL PANEL.
VFD - VARIABLE FREQUENCY DRIVE.
2S2W - 2 SPEED, 2 WINDING
2S1W - 2 SPEED, SINGLE WINDING
SC - SPEED CONTROLLER

(6) ACCESSORIES:
HOAP - HOA WITH PILOT LIGHT
PB - START/STOP PUSH BUTTON (MOMENTARY CONTACT)

ALL MAGNETIC AND SOLID STATE STARTERS ARE TO BE EQUIPPED WITH AUXILIARY CONTACTS, PILOT LIGHTS AND FUSED CONTROL POWER TRANSFORMERS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

KEYED NOTES

[1] UTILIZE EXISTING 800A/3P CIRCUIT BREAKER IN 043-MCC-001.

[2] UTILIZE EXISTING BUCKET IN 043-MCC-001. REPLACE EXISTING 30A/3P CIRCUIT BREAKER (SIEMENS TYPE ED6-ETI, CAT. NO. ED63A030) WITH NEW 25A/3P BREAKER. REWIRE BUCKET TO BYPASS EXISTING STARTER AND CONTROLS TO UTILIZE CIRCUIT BREAKER ONLY FOR PROVIDE OVERCURRENT PROTECTION. DEMOLISH EXISTING STARTER AND CONTROLS FROM BUCKET. REMOVE EXISTING H/O/A AND RUN LIGHT PLATE ASSEMBLY AND PROVIDE CODE GAUGE METAL BLANK PLATE.

[3] REMOVE EXISTING BUCKET ASSEMBLY WITH ONE (1) 400A/3P BREAKER FROM EXISTING SECTION OF 043-MCC-001 AND RETROFIT WITH TWO (2) NEW BUCKETS WITH 100A/3P BREAKERS TO SERVE CHP-003 AND CHP-004.

[4] UTILIZE EXISTING TWIN DISCONNECT SECTION IN 043-MCC-001 TO TERMINATE BOTH FEEDERS SERVING CTW-001 FAN MOTORS TO EXISTING FUSE BLOCKS. PROVIDE NEW 60A FUSES FOR EACH FEEDER.

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Cooling Tower & Chillers Replacement

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Project No: 25091

Revisions

No.	Description	Date
3	ADDENDUM 2	09/08/2026

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ELECTRICAL - SCHEDULES

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GENERAL NOTES

1. THESE PLANS ARE DIAGRAMMATIC IN NATURE SINCE THEY REFLECT ONLY THE AVAILABLE INFORMATION OBTAINED FROM EXISTING PLANS, SPECIFICATIONS, AND FIELD SURVEYS. THE EXACT LOCATION OF EXISTING DUCTWORK, PIPING, AND EQUIPMENT MAY DEVIATE FROM THE LOCATION INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE PREPARED TO MAKE SOME ALTERATIONS TO NEW AND/OR EXISTING SERVICES TO FIT ACTUAL JOB CONDITIONS.
2. THE SPACE ALLOWED FOR MECHANICAL (HVAC, PLUMBING, FIRE PROTECTION) AND ELECTRICAL WORK ABOVE THE SUSPENDED CEILING IS CRITICAL AND REQUIRES COORDINATION BETWEEN TRADES. CONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS PRIOR TO FABRICATION OR INSTALLATION OF ANY MATERIALS. DUCTWORK SHALL BE HUNG AS CLOSE AS POSSIBLE TO THE STRUCTURE ABOVE UNLESS INDICATED OTHERWISE. REWORK OF PIPING, DUCTWORK, EQUIPMENT LOCATION, CONDUIT, ETC. AS A RESULT OF POOR PLANNING, COORDINATION, OR SCHEDULING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. ANY HOLES LEFT IN EXISTING WALL CONSTRUCTION DUE TO DEMOLITION OR NEW WORK SHALL BE PATCHED TO MATCH EXISTING CONDITIONS.
4. PIPES/DUCTS/ETC. PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE SEALED WEATHER PROOF.
5. CONTRACTOR TO FIRESTOP ALL PENETRATIONS THROUGH FIRE-RATED FLOORS AND WALLS CREATED BY DEMOLITION OR NEW WORK WITH "SPECSEAL SSS" OR EQUAL.
6. THERMOSTATS & ROOM TEMPERATURE SENSORS SHALL BE MOUNTED AT 48" A.F.F. TO THE TOP OF THERMOSTAT UNLESS NOTED OTHERWISE. DO NOT MOUNT IN DIRECT SUNLIGHT OR NEAR HEAT PRODUCING EQUIPMENT.
7. INSTALL H.V.A.C. SYSTEM IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ANY FRAMING REVISIONS, EQUIPMENT LOCATIONS, ADDITION OF CONTROLS, ELECTRICAL CIRCUITING REVISIONS, ETC. THAT RESULT FROM USING EQUIPMENT OTHER THAN INDICATED ON THE DRAWINGS. APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER WILL NOT WAIVE THE CONTRACTOR OF THIS RESPONSIBILITY.
9. THE CONTRACTOR SHALL HAVE THE FINAL RESPONSIBILITY FOR SYSTEM START UP AND TURN OVER TO THE OWNER.
10. ALL ITEMS INCLUDED ON THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID. IF THE CONTRACTOR DOES NOT CLEARLY UNDERSTAND THESE PLANS OR IS NOT SURE OF THEIR MEANING, THE CONTRACTOR SHOULD OBTAIN THE ENGINEER'S WRITTEN EXPLANATION AND INTERPRETATION PRIOR TO BID TIME. THE CONTRACTOR WILL BE HELD TO THE INTERPRETATION OF THE ENGINEER.
11. FIRE CAULK ALL PENETRATIONS THRU FIRE RATED PARTITIONS TO MAINTAIN FIRE RATING OF PARTITION.
12. CAULK ALL PENETRATIONS THRU WALLS TO MINIMIZE SOUND PENETRATION THRU WALLS.
13. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL TEMPERATURE CONTROL SYSTEM REQUIREMENTS.
14. ANY DAMAGE TO THE SITE (SIDEWALKS, CURBS, ETC) OR TO THE BUILDING AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT SHALL BE FIXED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
15. CONTRACTOR WILL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF ROOFS/WALLS/FLOORS AND CORE DRILLS REQUIRED TO COMPLETE THEIR RESPECTIVE WORK.
16. THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS OF EQUIPMENT AND MATERIALS REMOVED. ALL EQUIPMENT AND MATERIALS NOT CLAIMED BY THE OWNER SHALL BE REMOVED FROM THE PREMISES BY THE CONTRACTORS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY FENCING AROUND THE LIFT SITE DURING LIFTS.
18. OWNER SHALL BE RESPONSIBLE FOR REMOVING ALL ASBESTOS-CONTAINING MATERIAL ASSOCIATED WITH THIS PROJECT.
19. PROVIDE FLEXIBLE CONNECTIONS ON ALL PIPING PENETRATIONS BACK TO BACK 2 HOUR RATED FIRE WALLS TO ALLOW FOR EXPANSION BETWEEN THE WALLS.
20. ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, ETC. THAT SERVES SPACES ON OTHER FLOORS SHALL REMAIN AS IS. DO NOT DISCONNECT OR REMOVE ANY EQUIPMENT NOT SHOWN IN THESE PLANS.
21. REMOVE AND RE-INSTALL EXISTING LAY-IN CEILING AS REQUIRED TO COMPLETE ALL DEMOLITION AND NEW WORK. REPLACE CEILING TILES DAMAGED DURING CONSTRUCTION WITH NEW TILES MATCHING EXISTING.

GENERAL NOTES (AIR SIDE)

1. NOTE, ALL DUCTWORK OFFSETS ARE NOT SHOWN. THE CONTRACTOR SHALL MODIFY DUCTS AND OFFSETS TO COORDINATE WITH THE BUILDING STRUCTURE AND ALL TRADE REQUIREMENTS.
2. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER THE LATEST VERSION OF THE S.M.A.C.N.A. H.V.A.C. DUCT CONSTRUCTION STANDARDS, UNLESS SPECIFIED MORE STRINGENTLY IN THESE CONSTRUCTION DOCUMENTS. MINIMUM DUCT GAUGE SHALL BE 24.
3. 90° DUCT ELBOWS SHALL BE EQUIPPED WITH SINGLE THICKNESS TURNING VANES MOUNTED TO A PREFABRICATED VANE RAIL.
4. ALL ELBOWS SHALL BE SUPPLIED WITH TURNING VANES, WHETHER SHOWN ON DOCUMENTS OR NOT.
5. ALL 90° AND 45° RECTANGULAR RADIUS ELBOWS TO BE FABRICATED WITH AN INSIDE RADIUS NO LESS THAN 1/2 OF THE WIDTH OF THE DUCT - WHERE THE WIDTH OF THE DUCT IS DEFINED AS THE DIMENSION OF THE DUCT IN THE PLANE IN WHICH THE DUCT IS TURNING.
6. RECTANGULAR DUCTWORK SHALL BE SUPPORTED PER THE S.M.A.C.N.A STANDARDS AND AT EACH CHANGE IN DIRECTION.
7. PROVIDE MANUAL, SINGLE BLADE, BALANCING DAMPERS WITH LOCKING QUADRANT AND INTEGRAL POSITION INDICATOR ON ALL RUNOUTS TO SUPPLY AND EXHAUST AIR DEVICES - EXCEPT THOSE LOCATED IN AREAS WITH PLASTER CEILINGS AND ARE NOT ACCESSIBLE (DAMPER SHALL BE INTEGRAL WITH THE AIR DEVICE IN THESE CASES.)
8. PROVIDE MANUAL OPPOSED BLADE DAMPERS WITH LOCKING QUADRANT AND INTEGRAL POSITION INDICATOR ON ALL RECTANGULAR BRANCH DUCTS AND AIR DEVICE RUNOUTS THAT EXCEED 12" IN HEIGHT.
9. MANUAL SPLITTER DAMPERS ARE NOT ACCEPTABLE.
10. NOT ALL OF THE ACCESS DOORS IN THE DUCT SYSTEMS OR PLENUMS ARE SHOWN. PROVIDE ACCESS DOORS IN ALL DUCT SYSTEMS OR PLENUMS WHERE REQUIRED TO ACCESS AND MAINTAIN MOTORIZED OR AUTOMATIC DAMPER BLADES AND LINKAGES.
11. ALL DUCTWORK SHALL BE SUPPORTED FROM ROOF OR FLOOR STRUCTURE ABOVE. DUCTWORK SHALL NOT LAY ON TOP OF CEILING OR LIGHT FIXTURES.
12. FLEXIBLE DUCT RUNOUTS TO AIR DEVICES SHALL NOT EXCEED 5'-0" IN LENGTH. FLEXIBLE RUNOUTS SHALL BE TRIMMED TO THE MINIMUM LENGTH NECESSARY TO MAKE THE CONNECTION.
13. WHERE DAMPER ACTUATORS ARE MOUNTED TO DUCTWORK OR PLENUMS PROVIDE A HEAVY GAGE BASE PLATE, ANGLE STIFFENERS, OR MOUNTING AS REQUIRED TO ELIMINATE DEFLECTION OF DUCTWORK DURING ACTUATOR OPERATION.
14. FLEXIBLE DUCT CONNECTIONS TO EQUIPMENT ARE NOT SHOWN ON THE DRAWINGS. PROVIDE EXTRA WIDE FLEXIBLE CONNECTIONS ON THE SUPPLY DUCT AND THE RETURN DUCT OF EACH MAKE-UP AIR UNIT, ROOFTOP UNIT, AND EACH AIR HANDLING UNIT. PROVIDE STANDARD FLEXIBLE CONNECTIONS ON ALL BLOWER COILS, EXHAUST FANS, SUPPLY FANS, AND DUST COLLECTOR.
15. PROVIDE 45° FLARED TAKEOFFS FOR ALL RECTANGULAR BRANCH CONNECTIONS TO THE MAIN DUCT.
16. ALL DAMPER ACTUATORS FOR DUCT SYSTEMS OR EQUIPMENT THAT COMMUNICATES DIRECTLY WITH THE OUTDOORS SHALL BE SPRING RETURN TYPE TO CLOSE IN THE EVENT OF A POWER FAILURE.
17. PROVIDE 1-1/2 HOUR RATED FIRE DAMPERS IN THE DUCTWORK WHERE INDICATED ON THE PLANS AND REQUIRED BY CODE. FIRE DAMPERS SHALL BE PROVIDED WITH AN ACCESS PANEL LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE OF THE DAMPER. ACCESS PANELS TO FIRE DAMPERS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A NAMEPLATE WITH THE WORDS "FIRE DAMPER". THE LETTERS ON THE FIRE DAMPER LABELS SHALL NOT BE LESS THAN 1/2 INCH IN HEIGHT.
18. THE SPACE ABOVE THE SUSPENDED CEILINGS SHALL BE USED AS A RETURN AIR PLENUM. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE THE WORK OF OTHER TRADES TO PROVIDE ADEQUATE SPACE FOR THE FLOW OF RETURN AIR (250 FPM MAXIMUM VELOCITY). WHERE PARTITIONS EXTEND TO THE CONSTRUCTION ABOVE, OPENINGS SHALL BE PROVIDED IN THE PARTITION ABOVE THE CEILING.
19. DUCT DIMENSIONS NOTED ON THE DRAWINGS ARE NET FREE AREA. WHERE ACOUSTIC LINER IS INDICATED OR SPECIFIED THE SHEET METAL SIZE MUST BE INCREASED TO ACCOMMODATE THE LINER.
20. AREAS ABOVE THE CEILING SERVE AS A RETURN AIR PLENUM. ALL MATERIALS EXPOSED IN THE PLENUM SHALL HAVE A 25/50 SMOKE/FLAME SPREAD RATING.
21. ALL DUCT RUNOUTS TO AIR DEVICES ARE TO BE THE SAME SIZE AS THE NECK OF THE AIR DEVICE UNLESS NOTED OTHERWISE.
22. CONTRACTOR SHALL BALANCE EACH AREA OF COMPLETED WORK. THE CONTRACTOR SHALL BALANCE SUPPLY, RETURN, AND EXHAUST AIR FLOWS AT EACH AIR DEVICE AFFECTED BY RENOVATION TO QUANTITY INDICATED ON THE DRAWINGS.
23. ALL NEW DUCT CONNECTIONS TO EXISTING DUCTWORK SHALL BE SEALED AIRTIGHT.
24. EXPOSED GALVANIZED DUCTWORK SHALL BE PAINTABLE. GENERAL CONTRACTOR TO PAINT ALL EXPOSED DUCTWORK. FINAL COLOR TO BE APPROVED BY THE ARCHITECT.

HEATING AND VENTILATION SYMBOLS

- SA SOUND ATTENUATOR
- FC FLEXIBLE CONNECTION
- SPLITTER DAMPER
- VD MANUAL VOLUME DAMPER
- BD GRAVITY BACKDRAFT DAMPER
- MD MOTORIZED VOLUME DAMPER
- FD FIRE DAMPER
- SD SMOKE DAMPER
- FD FIRE DAMPER
- TV TURNING VANES
- RETURN/TRANSFER/COMBUSTION AIR DISCHARGE DUCT UP
- RETURN/TRANSFER/COMBUSTION AIR DISCHARGE DUCT DOWN
- SUPPLY AIR/COMBUSTION AIR INTAKE UP
- SUPPLY AIR/COMBUSTION AIR INTAKE DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- ROUND DUCT DOWN
- ROUND DUCT UP
- INCLINED DROP IN THE DIRECTION OF AIR FLOW
- INCLINED RISE IN THE DIRECTION OF AIR FLOW
- ECCENTRIC DUCT TRANSITION
- CONCENTRIC DUCT TRANSITION
- RECTANGULAR DUCT TO ROUND DUCT TRANSITION
- FXD FLEXIBLE DUCT
- CEILING AIR DEVICE
- AIR DEVICE THROW DESIGNATION: (HATCHING DESIGNATES ZERO THROW)
- SIDEWALL AIR DEVICE
- DAMPERED SHOE DUCT TAP FROM RECT. MAIN
- SHOE DUCT TAP FROM RECT. MAIN
- 45° DAMPERED DUCT TAP
- 45° DUCT TAP
- SADDLE TAP
- STRAIGHT RECT. DUCT TAP FROM RECT. MAIN
- STRAIGHT RECT. DUCT TAP FROM ROUND MAIN
- S-1 / 1000 (AIR DEVICE TYPE) - (SCHEDULE NUMBER) (AIR FLOW IN CFM)

AIR DEVICE TYPE:
S - SUPPLY DIFFUSER
R - RETURN GRILLE
E - EXHAUST GRILLE
T - TRANSFER GRILLE

- 24" x 12" RA DUCT SIZE DESIGNATION: 1ST FIGURE SIDE SHOWN. (SIZE SHOWN IS FREE AREA SIZE, ALLOWANCE HAS NOT BEEN MADE DUCT SYSTEM TYPE DESIGNATION: SPECIFIED.)
- 24"/12" FLAT OVAL DUCT

DUCT SYSTEM TYPE:
SA - SUPPLY AIR
RA - RETURN AIR
EA - EXHAUST AIR
TA - TRANSFER AIR
OA - OUTDOOR AIR

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED.

- CWS CONDENSING WATER SUPPLY
- CWR CONDENSING WATER RETURN
- H/C S HOT/CHILLED WATER SUPPLY
- H/C R HOT/CHILLED WATER RETURN
- FOS FUEL OIL SUPPLY
- FOR FUEL OIL RETURN
- FOV FUEL OIL VENT
- MU MAKE - UP WATER LINE
- D DRAIN LINE (OTHER THAN PLUMBING)
- VL VENT LINE (OTHER THAN PLUMBING)
- RD REFRIGERANT DISCHARGE
- RL REFRIGERANT LIQUID
- RS REFRIGERANT SUCTION
- G GAS
- CHWS CHILLED WATER SUPPLY
- CHWR CHILLED WATER RETURN
- CA COMPRESSED AIR
- LPS LOW PRESSURE STEAM
- MPS MEDIUM PRESSURE STEAM
- LPC LOW PRESSURE CONDENSATE
- MPC MEDIUM PRESSURE CONDENSATE
- HPS HIGH PRESSURE STEAM
- HPC HIGH PRESSURE CONDENSATE
- CPD CONDENSATE PUMP DISCHARGE
- HWS HEATING WATER SUPPLY
- HWR HEATING WATER RETURN

- NOS NITROGEN OXIDE SENSOR
- T THERMOSTAT / TEMPERATURE SENSOR
- S TEMPERATURE SENSOR
- CO CARBON MONOXIDE SENSOR
- H HUMIDISTAT

MISCELLANEOUS SYMBOLS

- EQUIPMENT OR PLUMBING FIXTURE DESIGNATION
- (RISER INDICATION P=PLUMBING, K=KITCHEN, A=ACID) RISER DESIGNATION (RISER NUMBER)
- (DETAIL NUMBER) DETAIL DESIGNATION (SHEET NUMBER WHERE DETAIL IS FOUND)
- (SECTION NUMBER) SECTION DESIGNATION (SHEET NUMBER WHERE SECTION IS FOUND)
- KEYED NOTES
- REVISIONS
- AP ACCESS PANEL
- NEW CONNECTION
- AFMS AIR FLOW MEASURING STATION
- CVR CONSTANT VOLUME REGULATOR

PIPING SPECIALTIES

- SV SHUTOFF VALVE
- CV CHECK VALVE
- STR STRAINER
- U UNION
- BC BALANCING COCK
- SOC SHUT-OFF COCK
- SLV SOLENOID VALVE
- FS FLOW SWITCH
- VALVE W/ SUPERVISORY SWITCH
- FCV FLOW CONTROL VALVE (GPM INDICATED)
- T&PR TEMPERATURE AND PRESSURE RELIEF VALVE
- PG PRESSURE GAUGE
- TH THERMOMETER (TUBE OR DIAL AS INDICATED)
- PRV PRESSURE REDUCING VALVE
- DIRECTION OF FLOW
- ANCHORS
- PIPE GUIDES
- MV MOTORIZED VALVE
- DV DIAPHRAGM VALVE
- LPV LUBRICATED VALVE
- HEV HOSE END VALVE
- SWV STOP AND WASTE VALVE
- TWV 3 - WAY VALVE (MIXING OR BY-PASS AS INDICATED)
- PETES PLUG
- RV RELIEF VALVE
- FC FLEXIBLE PIPE CONNECTION
- AVM AIR VENT (MANUAL)
- AVA AIR VENT (AUTOMATIC)
- EX EXPANSION JOINT
- CCR CONCENTRIC REDUCER
- TEE (SIDE OUTLET UP)
- TEE (SIDE OUTLET DOWN)
- ELBOW (TURNED UP)
- ELBOW (TURNED DOWN)
- BMD COMBINATION BALANCING & MEASURING DEVICE
- ECR ECCENTRIC REDUCER
- FMD FLOW MEASURING DEVICE
- STEAM TRAP
- BALANCING VALVE
- FLEXIBLE CONNECTION
- ELBOW
- TEE

ABBREVIATIONS

FFE	FINISH FLOOR ELEVATION
AFF	ABOVE FINISH FLOOR
TE	TOP ELEVATION
BE	BOTTOM ELEVATION
FL	FLOW LINE
INV	INVERT ELEVATION
℄	CENTER LINE
GC	GENERAL CONSTRUCTION CONTRACTOR
HAC	HEATING & AIR CONDITIONING CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
ACS	AUTOMATIC CONTROL SUB-CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
HSC	HALON SUB-CONTRACTOR
KEC	KITCHEN EQUIPMENT CONTRACTOR
MC	MECHANICAL CONTRACTOR
TCC	TEMPERATURE CONTROL CONTRACTOR

GENERAL NOTES (HYDRONIC)

1. THE CONTRACTOR SHALL COORDINATE SYSTEM SHUT-DOWNS, INCLUDING CHILLED WATER AND HEATING WATER SYSTEM SHUT-DOWNS, WITH THE OWNER. PROVIDE A MINIMUM TWO DAY NOTICE PRIOR TO ANY SYSTEM SHUT-DOWN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING, FILLING, AND VENTING OF ALL HYDRONIC SYSTEMS AND EQUIPMENT IMPACTED BY THIS PROJECT. ALL FLUID SHALL BE WATER UNLESS INDICATED OTHERWISE ON MECHANICAL EQUIPMENT SCHEDULES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR TREATING HYDRONIC SYSTEMS TO MEET ALL EQUIPMENT MANUFACTURER START-UP AND WARRANTY REQUIREMENTS. COORDINATE WITH OWNER FOR PREFERRED VENDORS.

MECHANICAL SHEET INDEX:

SHEET NO.	SHEET NAME
M001	MECHANICAL LEGEND AND NOTES
M000	MECHANICAL SEISMIC CODE BLOCK
MD101	MECHANICAL ROOM 1601 - DEMO PLAN
MD102	MECHANICAL YARD - DEMO PLAN
M102	MECHANICAL YARD - NEW WORK
M101	MECHANICAL ROOM 1601 - NEW WORK
M500	MECHANICAL - DETAILS
M600	MECHANICAL - SCHEDULES
M501	MECHANICAL - DETAILS
M502	MECHANICAL - DETAILS
M503	MECHANICAL - DETAILS

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Revisions

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3	ADDENDUM 2	09/08/2026

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DATE: 2026-06-22

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MECHANICAL LEGEND AND NOTES

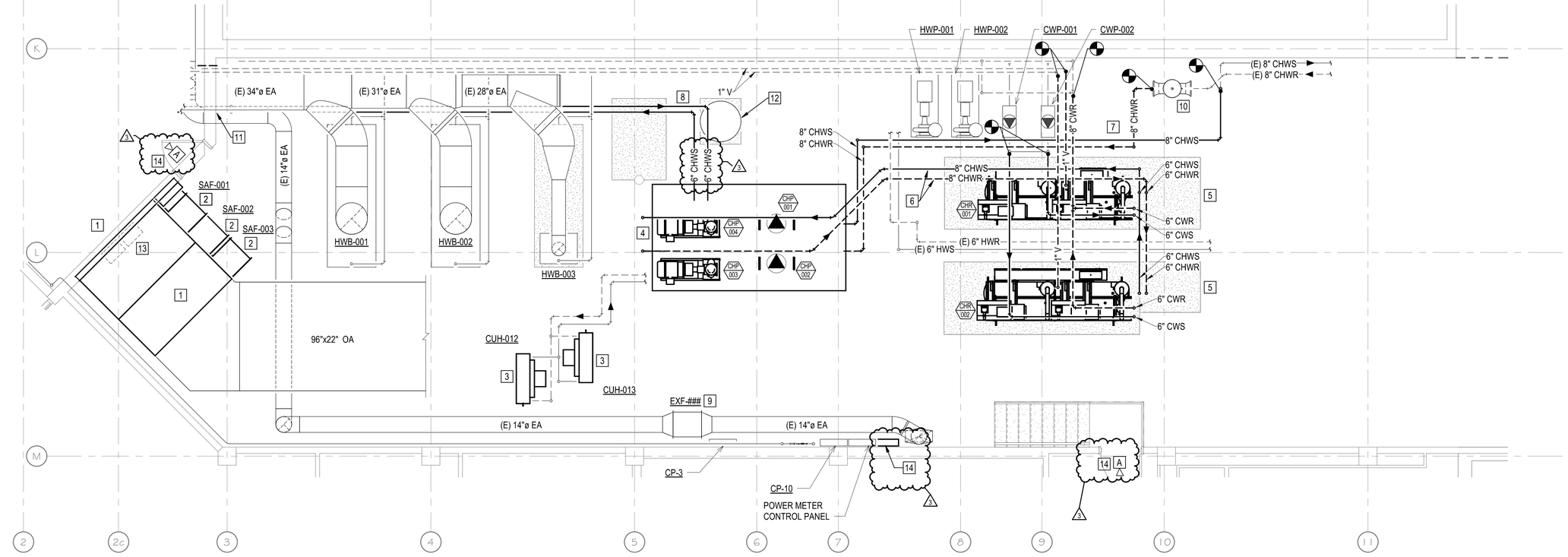
M001

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SCALE: 3" = 1'-0"
SCALE: 1-1/2" = 1'-0"
SCALE: 1" = 1'-0"
SCALE: 3/4" = 1'-0"
SCALE: 1/2" = 1'-0"
SCALE: 1/4" = 1'-0"
SCALE: 1/8" = 1'-0"
SCALE: 1/16" = 1'-0"

KEYED NOTES

1. RE-INSTALL EXISTING INTAKE LOUVER AND DUCTWORK.
2. RE-INSTALL EXISTING INLINE FANS AND ASSOCIATED DUCTWORK.
3. RE-INSTALL EXISTING UNIT HEATERS. PROVIDE NEW PIPING AND VALVE ASSEMBLIES.
4. INSTALL NEW SKID-MOUNTED CHILLED WATER/THERMAL ENERGY STORAGE PUMP AND CONTROL MODULE. SEE SCHEDULES AND DIAGRAMS FOR FURTHER INFORMATION. FINAL COORDINATION OF PIPING CONNECTIONS TO SKID TO HAPPEN ONCE SHOP DRAWINGS ARE SENT IN FROM SKID MANUFACTURER.
5. INSTALL NEW CHILLER ON EXISTING HOUSEKEEPING PAD.
6. NEW 8" CHILLED WATER SUPPLY AND RETURN PIPES FOR CHILLERS
7. NEW 8" CHILLED WATER SUPPLY AND RETURN PIPES FOR BUILDING LOOP.
8. NEW 6" CHILLED WATER SUPPLY AND RETURN PIPES FOR ICE STORAGE LOOP.
9. EXISTING EMERGENCY REFRIGERANT PURGE FAN AND DUCTWORK TO REMAIN.
10. EXISTING AIR DIRT SEPARATOR TO REMAIN.
11. CHILLED WATER PIPING OUT TO THERMAL STORAGE TANKS TO EXIT MECHANICAL ROOM AT SIMILAR ELEVATION TO EXISTING CONDENSER WATER PIPING, RESULTING IN BURIED PIPING IN THE COOLING TOWER YARD. SEE SHEET M102 FOR CONTINUATION.
12. EXISTING HOT WATER EXPANSION TANK TO REMAIN.
13. INSTALL NEW CONTRACTOR PROVIDED COOLING TOWER VFDS ON NEW UNISTRUT SUPPORT.
14. NEW REFRIGERANT MONITORING SYSTEM PROVIDED AND INSTALLED BY TEMPERATURE CONTROLS CONTRACTOR. INSTALL (3)REFRIGERANT ALARM HORN STROBES AT EACH EXISTING EXIT DOOR ON THE EXTERIOR SIDE OF THE MECHANICAL ROOM (PLAN EAST EXISTING DOOR NOT SHOWN ON PLANS.) CONTRACTOR TO INTERFACE NEW CONTROL/MONITORING PANEL WITH EXISTING REFRIGERANT PURGE FAN SHOWN.



N

MECHANICAL ROOM 1601 MECHANICAL CONSTRUCTION PLAN
1/4" = 1'-0"

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WEST MIDDLE SCHOOL CHILLER

2312 Baxter Road, Chesterfield, MO 63017
Parkway Project #: PN432501B
Cooling Tower & Chillers Replacement

Parkway School District
363 N. Woods Mill Rd., Chesterfield, MO 63017
314.415.8231 tel

Project No: 25091

Revisions

No.	Description	Date
3	ADDENDUM 2	09/08/2026

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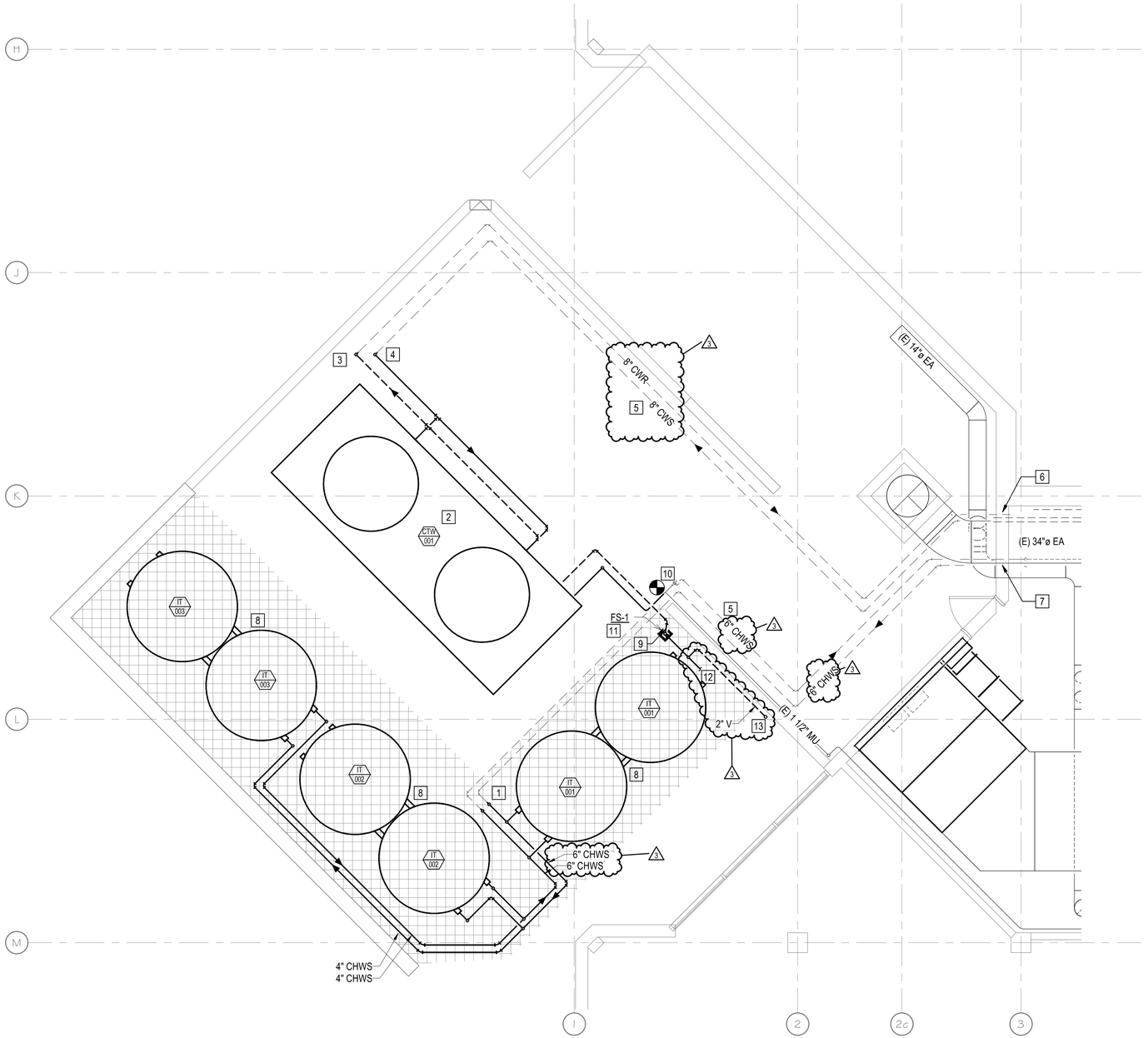
DATE: 2026-06-22

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MECHANICAL ROOM 1601 - NEW WORK

M101

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MECHANICAL COURTYARD CONSTRUCTION PLAN

M102 1/4" = 1'-0"

GENERAL NOTES

A. REFER TO PIPING SCHEMATIC LAYOUTS FOR SPECIFIC EQUIPMENT AND PIPING SYSTEM VALVE REQUIREMENTS.

B. BURIED SANITARY/VENT PIPING SHALL BE:
   a. PVC Pipe: ASTM D2665 or ASTM D3034.
      - Fittings: PVC.
      - Joints: Solvent welded, with ASTM D2564 solvent cement.
   b. PVC Pipe: ASTM D2665, ASTM D3034, or ASTM F679.
      - Fittings: PVC.
      - Joints: Push-on, using ASTM F477 elastomeric gaskets.

C. VENT PIPING ABOVE GRADE SHALL BE:
   a. Cast Iron Pipe: CISPI 301, hubless, service weight.
      - Fittings: Cast iron.
      - Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.

KEYED NOTES

1. ROUTE (2) 6" CHILLED WATER SUPPLY PIPES UP FROM BELOW GRADE AND ROUTE ALONG HOUSEKEEPING PAD AS SHOWN. PROVIDE MECHANICAL PIPE SLEEVE THROUGH SLAB.
2. INSTALL NEW COOLING TOWER ON EXISTING STRUCTURAL PAD.
3. ROUTE 8" CONDENSER WATER RETURN PIPING FROM COOLING TOWER DOWN BELOW GRADE.
4. ROUTE 8" CONDENSER WATER SUPPLY PIPING UP FROM BELOW GRADE AND CONNECT TO COOLING TOWER.
5. ROUTE 8" CONDENSER WATER SUPPLY AND RETURN AND (2) 6" CHILLED WATER SUPPLY BELOW GRADE AS SHOWN.
6. CONNECT NEW 8" CONDENSER WATER SUPPLY AND RETURN LINES TO EXISTING PIPING AT WALL BELOW GRADE.
7. ROUTE (2) 6" CHILLED WATER SUPPLY PIPING THROUGH WALL BELOW GRADE.
8. INSTALL NEW ICE STORAGE TANKS ON NEW STRUCTURAL CONCRETE PADS. SEE STRUCTURAL DRAWINGS FOR PAD DETAILS.
9. INSTALL NEW 3" DRAIN LINE AND TERMINATE OVER FLOOR SINK.
10. CONNECT NEW 1 1/2" MAKEUP WATER LINE TO EXISTING 1 1/2" MAKE UP WATER LINE.
11. FLOOR SINK, FS-1, BASIS OF DESIGN: JR SMITH MODEL 3450, PROVIDE WITH A.R.C. SOLID COVER. FIELD CUT COVER TO TERMINATE WITHIN FLOOR SINK BASIN. INSTALL FLOOR SINK ABOVE FINISHED LEVEL OF SLAB TO AVOID SEDIMENT WASHING INTO BASIN. INSTALL DEEP TRAP SEAL ON DRAIN FOR FREEZE PROTECTION.
12. SEE CIVIL DRAWINGS FOR CONTINUATION OF UNDERGROUND SANITARY LINE.
13. INSTALL VENT BELOW CONCRETE PAD AND ROUTE UP ON EXISTING WALL. TERMINATE A MINIMUM OF 6" ABOVE TOP OF WALL.

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Project No: 25091

Revisions

No.	Description	Date
1	REV 1	2026-07-22
2	ADDENDUM 1	8/25/2026
3	ADDENDUM 2	09/08/2026

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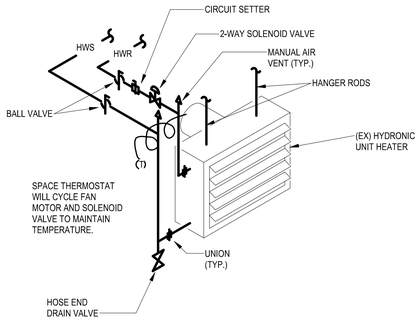
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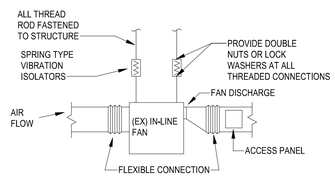
MECHANICAL YARD - NEW WORK

M102

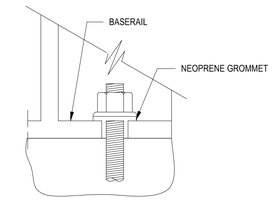
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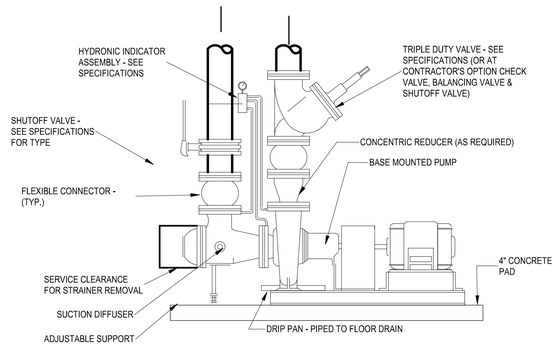
4 M500 HYDRONIC UNIT HEATER PIPING DETAIL
NOT TO SCALE



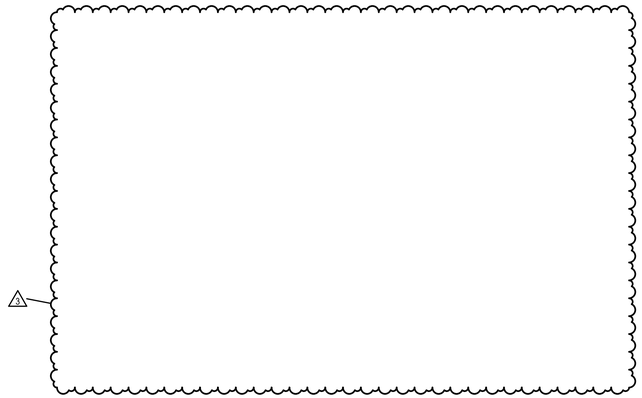
3 M500 FAN - INLINE DETAIL
NOT TO SCALE

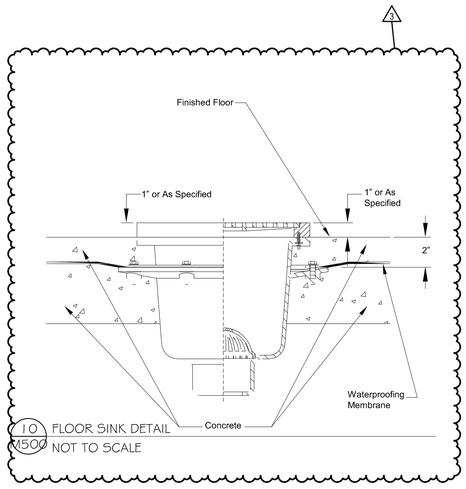


2 M500 EQUIPMENT - Grade Slab Mounting
NOT TO SCALE



1 M500 END SUCTION PUMP PIPING DETAIL
NOT TO SCALE





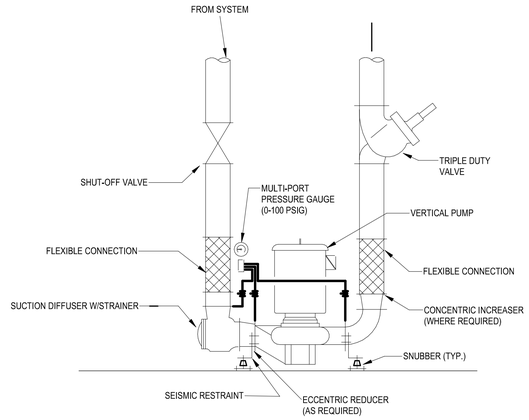
10 M500 FLOOR SINK DETAIL
NOT TO SCALE

MINIMUM PIPE INSULATION THICKNESS (INCHES)
(PIPING NPS 12 AND SMALLER)

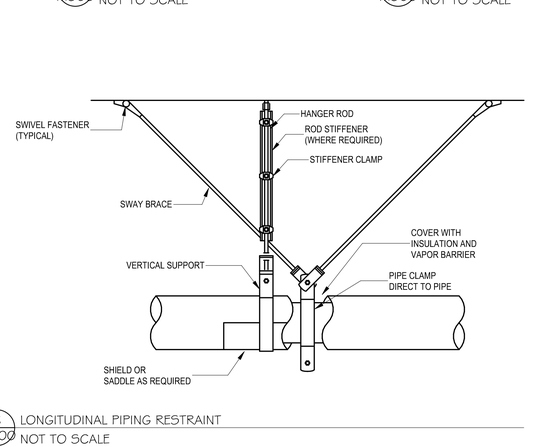
SYSTEM	LOCATION	CELLULAR GLASS	FLEXIBLE ELASTOMERIC	MINERAL FIBER - PREFORMED	PVC OR ALUMINUM JACKET
CHILLED WATER (< 40°F)	INDOOR	1-1/2	1	1-1/2	-
	OUTDOOR	3	3	3	YES
CHILLED WATER (≥ 40°F)	INDOOR	1-1/2	1	1	-
	OUTDOOR	3	3	3	YES
HEATING WATER (≤ 200°F)	INDOOR	2-1/2	N/A	2	-
	OUTDOOR	3	N/A	2	YES
HEATING WATER (> 200°F)	INDOOR	3	N/A	3	-
	OUTDOOR	3	N/A	3	YES
CONDENSER WATER	INDOOR	-	-	-	-
	OUTDOOR	2	2	2	YES
STEAM AND STEAM CONDENSATE (≤ 350°F)	INDOOR	3	N/A	3	-
	OUTDOOR	4	N/A	3	YES
STEAM AND STEAM CONDENSATE (> 350°F)	INDOOR	3	N/A	3	-
	OUTDOOR	5	N/A	4	YES
REFRIGERANT LIQUID	INDOOR	1-1/2	1	1	-
	OUTDOOR	2	2	2	YES
REFRIGERANT SUCTION AND HOT GAS	INDOOR	1-1/2	1	1	-
	OUTDOOR	2	2	2	YES
CONDENSATE AND EQUIPMENT DRAIN WATER (≤ 60°F)	INDOOR	1-1/2	3/4	1/2	-

NOTES:
1. ENTIRE PIPING SYSTEM INCLUDING VALVES AND FITTINGS TO BE INSULATED.

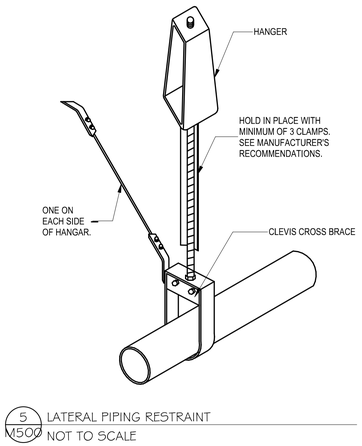
9 M500 PIPE INSULATION TABLE
NOT TO SCALE



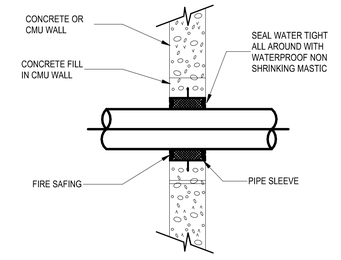
8 M500 VERTICAL PUMP PIPING DETAIL
NOT TO SCALE



6 M500 LONGITUDINAL PIPING RESTRAINT
NOT TO SCALE



5 M500 LATERAL PIPING RESTRAINT
NOT TO SCALE



7 M500 PIPE PENETRATION THRU WALL
NOT TO SCALE

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3	ADDENDUM 2	09/08/2026

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MECHANICAL - DETAILS

M500

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ALL SCHEDULES FOR REFERENCE ONLY. EQUIPMENT TO BE OWNER FURNISHED, CONTRACTOR INSTALLED.

WATER COOLED CHILLER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	NOMINAL CAPACITY (TON)	FULL LOAD EFF. (kW/TON)	IPLV (kW/TON)	NPLV (RATED EER)	ELECTRICAL DATA			EVAPORATOR						CONDENSER						COMPRESSOR								
							VOLTAGE	PHASE	DESIGN TOTAL POWER (KW)	EWT (°F)	LWT (°F)	ACUTAL FLOW (GPM)	EQUIPMENT DESIGN FLOW (GPM)	WPD (FT WG.)	NUMBER OF PASSES	EWT (°F)	LWT (°F)	FLOW (GPM)	WPD (FT WG.)	NUMBER OF PASSES	TYPE	QTY.	REFRIG.	REFRIG. CHARGE (LB/CIRCUIT)	LENGTH	WIDTH	HEIGHT	SHIPPING WEIGHT (LBS)	OPERATING WEIGHT (LBS)	NOTES
CHR - 001	TRANE	RTWD	250	0.8306	0.5406	22	208	3	155.5	56.8	44.0	351.5	370	7.21	2	85.0	94.3	607	11.30	2	HELICAL ROTARY SCREW	2	R513A	180.80	136.06"	47.75"	76.96"	9478.00	10071.00	ALL
CHR - 002	TRANE	RTWD	250	0.8306	0.5406	22	208	3	155.5	56.8	44.0	351.5	370	7.21	2	85.0	94.3	607	11.30	2	HELICAL ROTARY SCREW	2	R513A	180.80	136.06"	47.75"	76.96"	9478.00	10071.00	ALL

NOTES:
1. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL REQUIREMENTS.
2. PROVIDE FACTORY SINGLE POINT POWER CONNECTION.
3. PERFORMANCE BASED ON 30% PROPYLENE GLYCOL.
4. PROVIDE BACNET CARD FOR INTERFACE WITH EXISTING BUILDING AUTOMATION SYSTEM.
5. START-UP SHALL BE COMPLETED BY CHILLER MANUFACTURER
6. PROVIDE FACTORY FURNISHED SOLE PLATES. CHILLERS TO BE INSTALLED ON EXISTING INERTIA BASE PADS.
7. CONTRACTOR SHALL FIELD PROVIDE AND INSTALL A STRAINER ON THE INLET PIPING OF COOLER AND CONDENSER FOR EACH CHILLER.
8. PROVIDE FACTORY CHARGED REFRIGERANT.
9. PROVIDE FACTORY INSTALLED FLOW SWITCHES WITH CONTROL LOGIC ENABLE/DISABLE
10. PROVIDE FACTORY MOUNTED VFD WITH HARMONIC FILTER AND DISCONNECT
11. PROVIDE SEISMIC VIBRATION ISOLATORS
    A. BASIS OF DESIGN: VIBRO-ACOUSTICS MODEL SCSR WITH 0.25 IN NOMINAL DEFLECTIONS.

COOLING TOWER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	LOCATION	FLOW RATE (GPM)	EWT (˚F)	LWT (˚F)	AMBIENT WB (˚F)	WPD (PSI)	FANS		SHIPPING WEIGHT (LBS)	OPERATING WEIGHT (LBS)	NOTES
									QUANTITY	POWER (HP/MOTOR)			
CTW - 001	EVAPCO	AT 29-4J21	UTILITY YARD	1641	95.0	85.0	78	2.2	2	15	10870	17810	ALL

NOTES:
1. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL REQUIREMENTS
2. PROVIDE FACTORY STAINLESS STEEL WELDED COLD WATER BASIN
3. PROVIDE FACTORY EXTERNAL SERVICE PLATFORM WITH LADDER
4. PROVIDE MANUFACTURED COOLING TOWER BASE RAILS AND SEISMIC VIBRATION DEFLECTORS BY A SINGLE SUPPLIER
   A. BASIS OF DESIGN: VIBRO-ACOUSTICS MODEL DS-CTB-1-003 WITH ISOLATOR TYPE SCSR AND A NOMINAL DEFLECTION OF 0.25 IN.
5. PROVIDE 4-PROBE ELECTRONIC WATER LEVEL CONTROL PACKAGE
6. PROVIDE INVERTER CAPABLE, PREMIUM EFFICIENT FAN MOTORS WITH MOTOR DAVIT WITH BASE
7. PROVIDE FACTORY VIBRATION SWITCH
8. CONTRACTOR TO FURNISH VFD EQUIPPED PER SPECIFICATION 290934 VARIABLE FREQUENCY MOTOR CONTROLLERS FOR HVAC

MECHANICAL TANK SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	TYPE	TANK QUANTITY	PER TANK					ASME PRESSURE RATING	NOTES
							NET-USABLE CAPACITY (TON-HRS)	VOLUME (GAL)	DIAMETER	HEIGHT	WEIGHT		
IT-001	TRANE	1320C	UTILITY YARD	ICE LOOP	ICEBANK	2	162	1655	89"	102"	17000	90	1
IT-002	TRANE	1320C	UTILITY YARD	ICE LOOP	ICEBANK	2	162	1655	89"	102"	17000	90	1
IT-003	TRANE	1320C	UTILITY YARD	ICE LOOP	ICEBANK	2	162	1655	89"	102"	17000	90	1

NOTES:
1. DATA IS SHOWN FOR INDIVIDUAL TANKS. CAN BE MANIFOLDED TOGETHER.

PUMP SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	SYSTEM	TYPE	FLOW (GPM)	HEAD (FT)	PUMP (RPM)	MOTOR POWER (HP)	WEIGHT (LBS)	NOTES
CHP-001	Taco	6009D	CHILLER LOOP	VERTICLE INLINE	600	22	1160	5.00	398	1
CHP-002	Taco	6009D	CHILLER LOOP	VERTICLE INLINE	600	22	1160	5.00	398	1
CHP-003	Taco	5009D	CHILLED WATER BUILDING LOOP	BASE MOUNTED	1051	61	1760	25.01	875	1
CHP-004	Taco	5009D	CHILLED WATER BUILDING LOOP	BASE MOUNTED	1051	61	1760	25.01	875	1

NOTES:
1. PROVIDE FACTORY SKID MOUNTED VFD FOR EACH PUMP.
2. PERFORMANCE BASED ON 30% PROPYLENE GLYCOL.

SCALE: 3" = 1'-0" 0 0.25 0.5 1
SCALE: 1 1/2" = 1'-0" 0 0.5 1 2
SCALE: 1" = 1'-0" 0 0.5 1 2
SCALE: 3/4" = 1'-0" 0 1 2 3
SCALE: 1/2" = 1'-0" 0 1 2 4
SCALE: 1/4" = 1'-0" 0 2 4 6
SCALE: 1/8" = 1'-0" 0 4 8 16
SCALE: 1/16" = 1'-0" 0 8 16 32

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MECHANICAL - SCHEDULES

M600