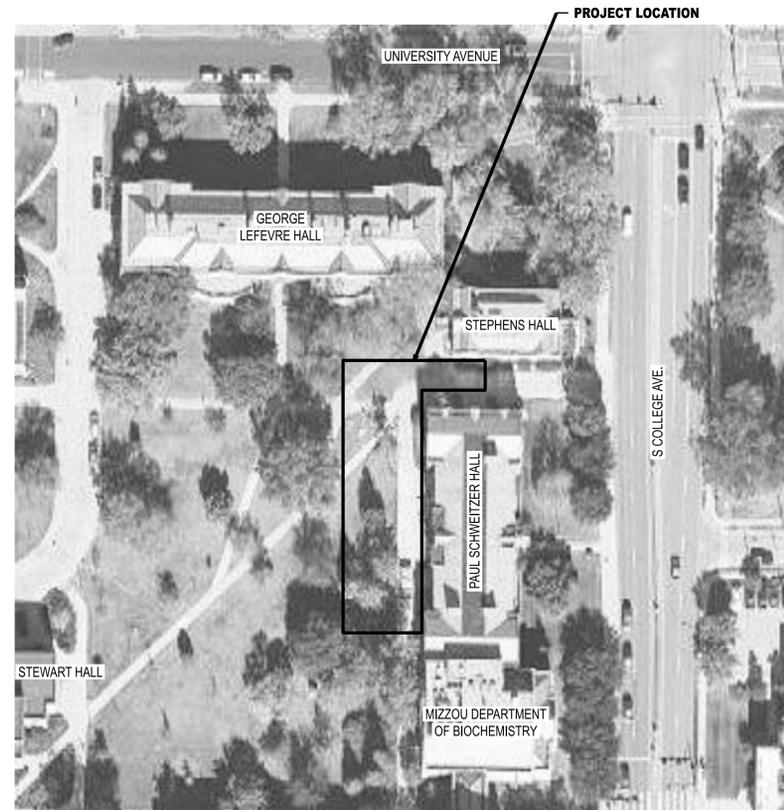


UNIVERSITY OF MISSOURI - COLUMBIA GENERAL SITE - STEAM, CONDENSATE, & WATER LINE REPLACEMENT PROJECT NUMBER: CP253171

AT: UNIVERSITY OF MISSOURI - COLUMBIA, MISSOURI
FOR: THE CURATORS OF THE UNIVERSITY OF MISSOURI
ISSUED FOR BID: 12/22/2025

INDEX OF DRAWINGS

REV. NO.	SHEET NO.	DRAWING INDEX
DESCRIPTION		
GENERAL DRAWINGS		
0	G000	COVER SHEET, PROJECT LOCATION PLAN AND DRAWING INDEX
CIVIL DRAWINGS		
0	C-101	EAST EXISTING CONDITIONS PLAN
0	C-102	EAST DEMOLITION PLAN
0	C-103	EAST UTILITY PLAN
0	C-104	STEAM CHASE PROFILE
0	C-105	EAST SITE PLAN
0	C-105.1	EAST GRADING PLAN
0	C-106	EAST PHASE 1 PLAN
0	C-107	EAST PHASE 2 PLAN
0	C-108	WEST EXISTING CONDITIONS PLAN
0	C-109	WEST DEMOLITION PLAN
0	C-110	WEST UTILITY PLAN
0	C-111	WATER PROFILES
0	C-112	WEST SITE PLAN
0	C-113	WEST PHASE 1 PLAN
0	C-114	WEST PHASE 2 PLAN
0	C-115	STEAM DETAILS
0	C-116	CHILLED WATER DETAILS
0	C-117	WATER LINE DETAILS
0	C-118	PAVEMENT DETAILS
DEMOLITION DRAWINGS		
0	D100	OVERALL DEMOLITION SITE PLAN
0	D110	SMH-100 DEMOLITION PLAN AND PHOTOS
0	D120	SMH-105 DEMOLITION PLAN AND PHOTOS
0	D130	STEPHENS HALL DEMOLITION PLAN & PHOTOS
0	D140	ELECTRICAL DEMOLITION SITE PLAN
MECHANICAL DRAWINGS		
0	M000	MECHANICAL NOTES AND PHASING NOTES
0	M001	MECHANICAL SYMBOLS AND ABBREVIATIONS
0	M100	OVERALL MECHANICAL SITE PLAN
0	M110	SMH-100 PLAN AND SECTIONS
0	M120	SMH-105 PLAN AND SECTIONS
0	M130	SMH-737 PLAN AND SECTIONS
0	M140	STEPHENS HALL MECHANICAL PLAN
0	M150	THERMAL EXPANSION PLAN - STEAM
0	M151	THERMAL EXPANSION PLAN - CONDENSATE
0	M160	MECHANICAL DETAILS
STRUCTURAL DRAWINGS		
0	S100	SMH-737 PLAN & DETAILS
0	S110	STEAM MANHOLE & CHASE DETAILS
0	S111	STEAM MANHOLE & CHASE DETAILS
0	S112	TYPICAL WATERPROOFING, REPAIR DETAILS, & NOTES
0	S113	FOUNDATION & STAIR DETAILS
ELECTRICAL DRAWINGS		
0	E100	ELECTRICAL SITE PLAN
0	E110	SMH-100 ELECTRICAL PLAN AND SECTION
0	E130	SMH-737 ELECTRICAL PLAN
0	E140	STEPHENS HALL ELECTRICAL PLAN
0	E150	SCHWEITZER HALL ELECTRICAL PLAN
0	E200	ELECTRICAL DETAILS
0	E300	CABLE SCHEDULE
0	E310	VOLTAGE DROP CALCULATIONS



SPECIAL INSPECTIONS (IBC CHAPTER 17):

- 1) All concrete waterproofing shall be fully placed and inspected by the owner prior to proceeding to the next step of installation. Owner shall receive 24 hour notice of inspections being required. These inspections for approval shall include:
 - a) Substrate conditions and preparations
 - b) Flashing installation
 - c) Membrane installation
 - d) Protection and drainage installation
 - 2) The owner will contract with an independent testing firm to complete ultrasonic shear wave weld inspections on owner selected field welds. If the results of these tests indicate poor quality welds, those "failed" welds shall be replaced at no additional cost to the project. If further ultrasonic inspection is required to assure quality weld workmanship, these tests shall be at the expense of the contractor, and any and all defective welds shall be replaced at no additional cost to the project.
 - 3) Placing of concrete and reinforcing steel (continuous of concrete sampling / periodic of reinforcing).
 - 4) In-situ soils, excavations, filling, and compaction (periodic).
- The contractor shall request special inspection of the items listed above prior to those items becoming inaccessible and unobservable due to progression of the work.

DELEGATED DESIGN:

Contractor is responsible for the design of shoring, earth retention systems, temporary excavations support, existing utility protection systems, and associated items as needed to facilitate completion of this work. Design shall be completed by a licensed professional structural engineer registered in the State of Missouri. Designs shall be submitted to review by project engineer.

OWNER'S REPRESENTATIVE:

112 GENERAL SERVICES BUILDING
COLUMBIA, MO 65211
573-405-0083
PROJECT CP230201

DESIGN CONSULTANTS:

MECHANICAL AND ELECTRICAL
PRVN CONSULTANTS, INC.
1617 SECOND AVE. SUITE 110
ROCK ISLAND, IL 61201
563.263.5160
PROJECT 24084

I HEREBY CERTIFY THAT THE G-SERIES, D-SERIES, AND M-SERIES DRAWINGS AND SPECIFICATIONS 33 63 00 AND 33 63 19 HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

I HEREBY CERTIFY THAT THE E-SERIES DRAWINGS AND SPECIFICATIONS DIVISION 26 HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

STRUCTURAL AND CIVIL

ENGINEERING CONSULTANTS

CROCKETT ENGINEERING CONSULTANTS
1000 W NIFONG BLVD, BUILDING 1
COLUMBIA, MO 65203
573.447.0292

I HEREBY CERTIFY THAT THE C-SERIES DRAWINGS AND SPECIFICATIONS DIVISION 31, DIVISION 32, 33 11 13, 33 11 14, AND 33 41 00 HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

I HEREBY CERTIFY THAT THE S-SERIES DRAWINGS AND SPECIFICATIONS DIVISION 03, 33 63 41, 33 63 50, 33 63 51, AND 33 63 54 HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH THE BUILDING CODES OF THE UNIVERSITY OF MISSOURI.

THIS SHEET HAS BEEN SIGNED,
SEALED, AND DATED ELECTRONICALLY

ENGINEER / ARCHITECT OF RECORD:
JAMES NONNENMANN, PE
LICENSE NO. PE-5053025612
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

ISSUED FOR BID
12/22/25
DRAWN BY: M.A.O.
CHECKED BY: J.J.N.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 563.263.5160
MISSOURI CERTIFICATE OF
AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
COVER SHEET, PROJECT LOCATION PLAN
AND DRAWING INDEX

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
G000

SURVEY CONTROL POINTS:

POINT #	NORTH	EAST	ELEVATION	DESCRIPTION
MCP-006	1133285.02	1690830.50	771.20	STEAM MH - NW CORNER OF SCHWEITZER BLD.
CP #30	1133284.23	1690851.98	774.55	PK NAIL
CP #31	1133130.83	1690855.69	-	PK NAIL

UTILITY COMPANIES:

LOCATES:
 MISSOURI ONE CALL INC.
 1022 B NORTHEAST DRIVE
 JEFFERSON CITY, MO 65109
 1-800-344-7483

WATER:
 ENERGY MANAGEMENT
 417 S. 5TH ST.
 COLUMBIA, MO 65211
 573-882-3094

SECONDARY ELECTRIC:
 UNIVERSITY CAMPUS FACILITY OPERATIONS
 180 GENERAL SERVICES BUILDING
 COLUMBIA, MO 65211
 573-882-8211

TELEPHONE:

UNIVERSITY OF MISSOURI, DIVISION OF I.T.
 615 LOCUST ST.
 COLUMBIA, MO 65211
 573-882-5000

STEAM & MEDIUM VOLTAGE ELECTRIC:

ENERGY MANAGEMENT
 417 S. 5TH ST.
 COLUMBIA, MO 65211
 573-882-3094

NATURAL GAS:

AMEREN MISSOURI
 2001 MAGUIRE BLVD.
 COLUMBIA, MO 65201
 573-876-3030

GENERAL NOTES:

CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT AND MAINTENANCE OF TRAFFIC CONTROL DEVICES NECESSARY TO COMPLETE THEIR PORTION OF WORK. THE DEVICES AND METHODS EMPLOYED WILL COMPLY WITH THE CURRENT VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).

ALL EXISTING UTILITIES SHOWN ARE FOR REFERENCE AND HAVE BEEN DETERMINED BY FIELD LOCATES AND MAPPING SERVICES. CONTRACTOR SHALL PERFORM LOCATES PRIOR TO WORK.

ALL EXCAVATION TO BE IN ACCORDANCE WITH SECTIONS 319.010-319.050, REVISED STATUTES OF THE STATE OF MISSOURI. SUCH COMPLIANCE SHALL NOT, HOWEVER, EXCUSE ANY PERSON MAKING ANY EXCAVATION FROM DOING SO IN A CAREFUL AND PRUDENT MANNER, NOR SHALL IT EXCUSE SUCH PERSON FROM LIABILITY FOR ANY DAMAGE OR INJURY TO UNDERGROUND UTILITIES RESULTING FROM THE EXCAVATION.

IT IS THE INTENT OF THESE PLANS TO COMPLY WITH THE REQUIREMENTS OF THE MO/DNR CLEAN WATER COMMISSION.

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL DEVICES AND REMOVING THEM ONCE THE SITE IS STABILIZED.

STORM WATER OR OTHER SOURCES OF WATER SHALL NOT BE ALLOWED TO ENTER ACTIVE STEAM SYSTEMS.

CONTRACTOR TO PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND PAVEMENT THAT IS TO REMAIN. ALL DAMAGED ITEMS OUTSIDE THE SCOPE OF WORK TO BE REPLACED OR REPAIRED TO ORIGINAL CONDITION AT THE CONTRACTORS EXPENSE.

ALL PAVEMENTS, SIDEWALKS, ABANDONED SEWERS, PIPELINES, EXCESS EARTHWORK, OR OTHER OBSTRUCTIONS TO CONSTRUCTION THAT ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFICALLY NOTED AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH STATE REGULATION 10 CSR 80-2.010 (9)(A)1.

ALL SLOPES ARE 3:1 OR FLATTER UNLESS LANDSCAPED OR OTHERWISE NOTED.

ALL DISTURBED AREAS WITHIN THE "LIMITS OF DISTURBANCE" SHALL BE FINE GRADED AND LEFT (6" FOR TURF AREAS OR 24" FOR PLANTER BED AREAS) BELOW FINAL GRADE BY CONTRACTOR. FINAL TOPSOIL AND VEGETATION WILL BE REESTABLISHED BY OWNER.

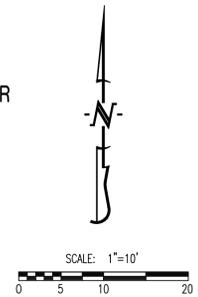
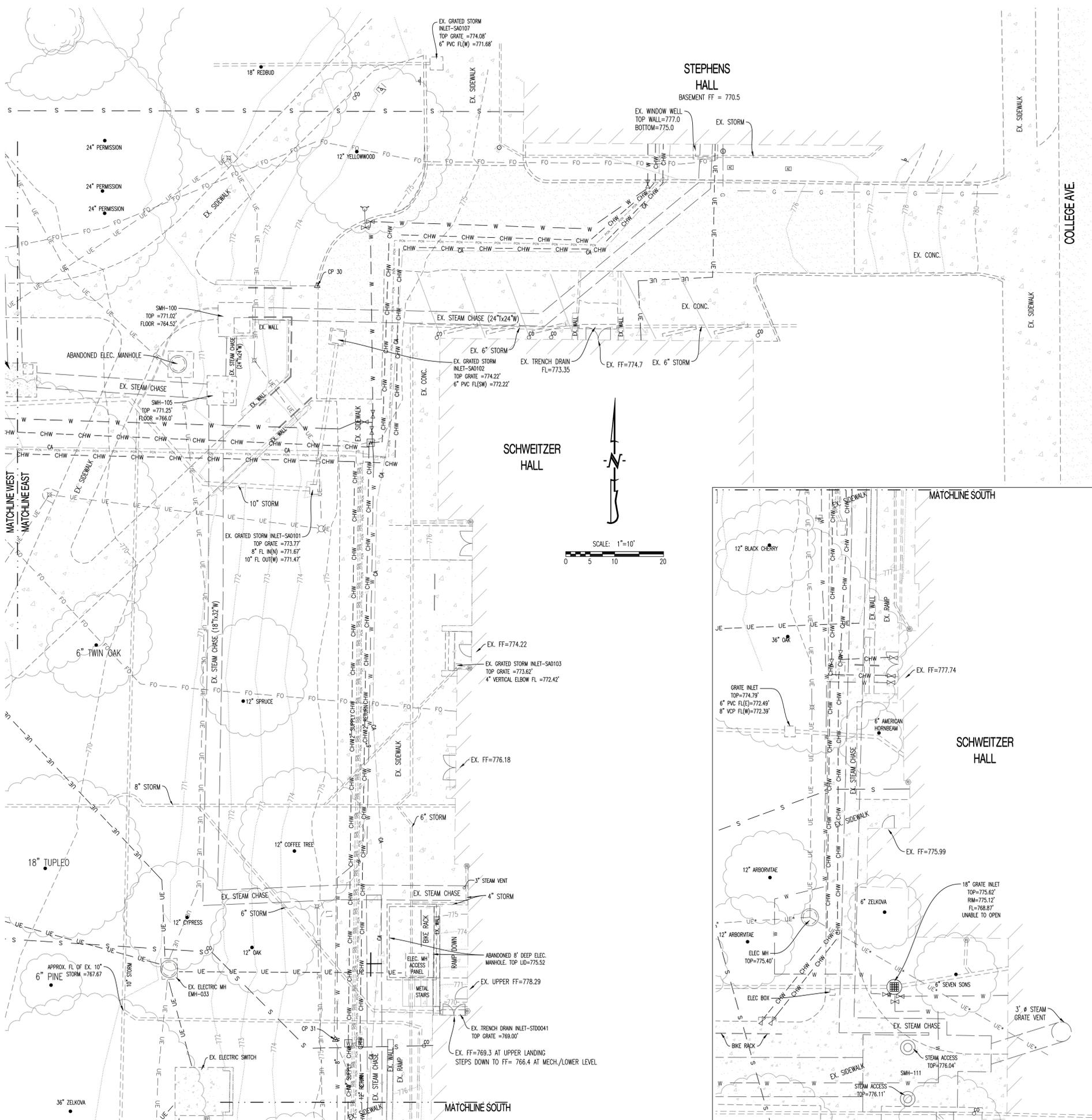
TOTAL DISTURBED AREA ON SITE = 0.000000 AC.

MISSOURI DNR LAND DISTURBANCE PERMIT NOT NEEDED FOR THIS PROJECT.

THE PROJECT REQUIRES OUTAGES TO SITE UTILITY SYSTEMS. CONTRACTOR SHALL COMPLETE ALL RELATED WORK TO THE MAXIMUM EXTENT POSSIBLE PRIOR TO THE START OF OUTAGES. CONTRACTOR SHALL HAVE ALL REQUIRED MATERIALS ON SITE PRIOR TO START OF OUTAGES.

SITE LEGEND OF LINES/SYMBOLS:

---	EXISTING CURB/PAVEMENT/SIDEWALK	FF-XXXX	FINISH FLOOR OF STRUCTURE
---	PROPOSED CURB/PAVEMENT/SIDEWALK	XXXX.XX TC	PROPOSED TOP OF CURB ELEVATION
---	EXISTING STRUCTURE	XXXX.XX TP	PROPOSED TOP OF PAVEMENT ELEVATION
---	EXISTING TREELINE	XXXX.XX FC	PROPOSED FINISH GRADE ELEVATION
---	PROPOSED TREELINE	XXXX.XX TW	PROPOSED TOP OF WALL
---	EDGE OF WATERWAY	XX	LOT NUMBER
---	EXISTING WATERLINE	X	STORM SEWER STRUCTURE LABEL
---	PROPOSED WATERLINE	X	SANITARY SEWER STRUCTURE LABEL
---	EXISTING GAS LINE	HP.	HIGH POINT
---	PROPOSED GAS LINE	LP.	LOW POINT
---	EXISTING TELECOM/FIBER	---	EXISTING SIGNS
---	EXISTING UNDERGROUND CABLE TELEVISION	---	EXISTING POWER POLE
---	EXISTING HIGH VOLTAGE ELECTRIC	---	EXISTING GAS VALVE
---	EXISTING OVERHEAD ELECTRIC	---	EXISTING WATER VALVE
---	EXISTING UNDERGROUND ELECTRIC	---	EXISTING GAS METER
---	EXISTING OVERHEAD ELEC. & TV	---	EXISTING WATER METER
---	EXISTING OVERHEAD ELEC., TV & TELE.	---	EXISTING FIRE HYDRANT
---	EXISTING SANITARY SEWER	---	MANHOLE
---	PROPOSED SANITARY SEWER	---	EXISTING SANITARY SEWER LATERAL
---	EXISTING MINOR CONTOUR	---	PROPOSED SANITARY SEWER LATERAL
---	EXISTING MAJOR CONTOUR	---	PROPOSED TRACER WIRE TEST STATION BOX
---	PROPOSED MAJOR CONTOUR	---	EXISTING AIR CONDITIONER
---	DEMOLITION LIMITS	---	EXISTING TELEPHONE PEDESTAL
---	SILT FENCE/STRAW WADDLE	---	EXISTING ELECTRICAL TRANSFORMER
---	CONSTRUCTION BARRIER FENCING	---	EXISTING ELECTRIC METER
---	TREE PROTECTION FENCING	---	EXISTING LIGHT POLE
---	EXISTING GUY WIRE	---	EXISTING CHILLED WATER
---	EXISTING STORM SEWER	---	PROPOSED CHILLED WATER
---	PROPOSED STORM SEWER	---	EXISTING PROCESS CONTROL NETWORK
---	EXISTING ASPHALT	---	PROPOSED PROCESS CONTROL NETWORK
---	EXISTING CONCRETE	---	EXISTING COMPRESSED AIR
---	PROPOSED ASPHALT	---	
---	PROPOSED CONCRETE	---	



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

ANDREW T. GREENE
 PROFESSIONAL ENGINEER
 MO LICENSE - PE-2020000043

CROCKETT
 ENGINEERING CONSULTANTS

ISSUE FOR BID	CHECKED BY:
12/22/25	
DRAWN BY:	

PRV CONSULTANTS, INC.
 1617 SECOND AVE. STE. 110
 ROCK ISLAND, IL 61201
 PHONE 562.263.9161
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEBVRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
EAST EXISTING CONDITIONS PLAN

UNIVERSITY OF MISSOURI PROJECT NUMBER	CP253171
CONSULTANT PROJECT NUMBER	25103
SHEET	C-101

LEGEND OF LABELS

- (A) EXISTING TREE/LANDSCAPE AREA TO BE REMOVED AS REQUIRED FOR UTILITY WORK. ALL TREES, MULCH, PLANTS, BUSHES, ETC. TO BE DISPOSED OF OFF-SITE. REMOVE ENTIRE ROOT BALL OF TREES.
- (B) EXISTING TREES AND LANDSCAPING OUTSIDE OF PROJECT FENCING TO BE PROTECTED. REFER TO PHASING PLANS FOR PROJECT FENCING LOCATIONS AND TREES/LANDSCAPING AREAS THAT ARE OUTSIDE OF THIS FENCING.
- (C) REMOVE EXISTING ASPHALT PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
- (D) REMOVE EXISTING CONCRETE PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. REMOVAL LIMITS SHALL BE TO NEAREST JOINT IN PAVEMENT. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
- (E) EXISTING WINDOW WELL TO BE REMOVED.
- (F) EXISTING CONCRETE STAIR SECTION TO BE REMOVED.
- (G) EXISTING RAILING SECTION TO BE REMOVED.
- (H) EXISTING PARKING BUMPERS TO BE SALVAGED FOR REINSTALLATION AFTER PAVEMENT REPLACEMENT.
- (I) REMOVE EXISTING CURB/WALL NEAR NORTH ENTRY. CONTRACTOR SHALL MAKE NOTE OF EXISTING CONFIGURATION FOR REPLICATION DURING RECONSTRUCTION. ENSURE WATER FROM DRIVE IS NOT DIRECTED TOWARDS ENTRY.
- (J) REMOVE PORTION OF EXISTING BLOCK RETAINING WALL AS SHOWN. REFER TO SITE PLAN FOR REPLACEMENT.
- (K) REMOVE CONCRETE RETAINING WALL AS SHOWN. REFER TO SITE PLAN FOR REPLACEMENT WITH BLOCK WALL.
- (L) EXISTING STEAM CHASE LID AND PIPING TO BE REMOVED AND REPLACED.
- (M) EXISTING STEAM CHASE TO BE REMOVED AS NEEDED TO INSTALL NEW STEAM MANHOLE.
- (N) EXISTING STEAM MANHOLE LID AND PIPING TO BE REMOVED AND REPLACED.
- (O) EXISTING STEAM VENT TO BE REMOVED AND REPLACED.
- (P) EXISTING ABOVE GRADE DOWNSPOUT PIPING TO BE REMOVED, SEE UTILITY PLAN FOR RELOCATION BELOW GRADE. CAP AT DISCONNECTION POINT.
- (Q) EXISTING LIGHT POLE TO BE SALVAGED AND REPLACED. REFER TO ELECTRICAL PLANS FOR REPLACEMENT.
- (R) EXISTING ELECTRIC BOX TO BE SALVAGED AND REPLACED. REFER TO ELECTRICAL PLANS FOR REPLACEMENT.
- (S) EXISTING WATERLINE TO BE REMOVED AND REPLACED AROUND NEW STEAM MANHOLE. SEE UTILITY PLAN.
- (T) EXISTING CHILLED WATER SUPPLY AND RETURN PIPING TO BE REMOVED AND REPLACED AROUND NEW STEAM MANHOLE. SEE UTILITY PLAN.
- (U) EXISTING COMPRESSED AIR LINE TO BE RELOCATED AROUND NEW STEAM MANHOLE. SEE UTILITY PLAN.
- (V) PERFORM HYDRO-EXCAVATION NEAR TREE TO REMAIN.
- (W) EXISTING (ASSUMED LOCATION) SUMP PUMP DISCHARGE LINE TO BE REMOVED FROM MANHOLE PENETRATION AND CAPPED OUTSIDE OF MANHOLE AND ABANDONED IN PLACE. REFER TO UTILITY PLAN FOR REPLACEMENT SUMP PUMP DISCHARGE LINE TO BE ROUTED THROUGH SAME MANHOLE PENETRATION.
- (X) EXISTING (3) 2" PCN CONDUITS TO BE REMOVED AND REPLACED AROUND NEW STEAM MANHOLE. OWNER WILL REMOVE OLD FIBER LINES WITHIN CONDUITS PRIOR TO REMOVAL. REFER TO MECH. AND ELECTRICAL PLANS FOR PCN RELOCATION BETWEEN CHILLED WATER LINES.

GENERAL DEMOLITION NOTES:

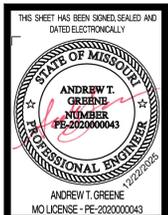
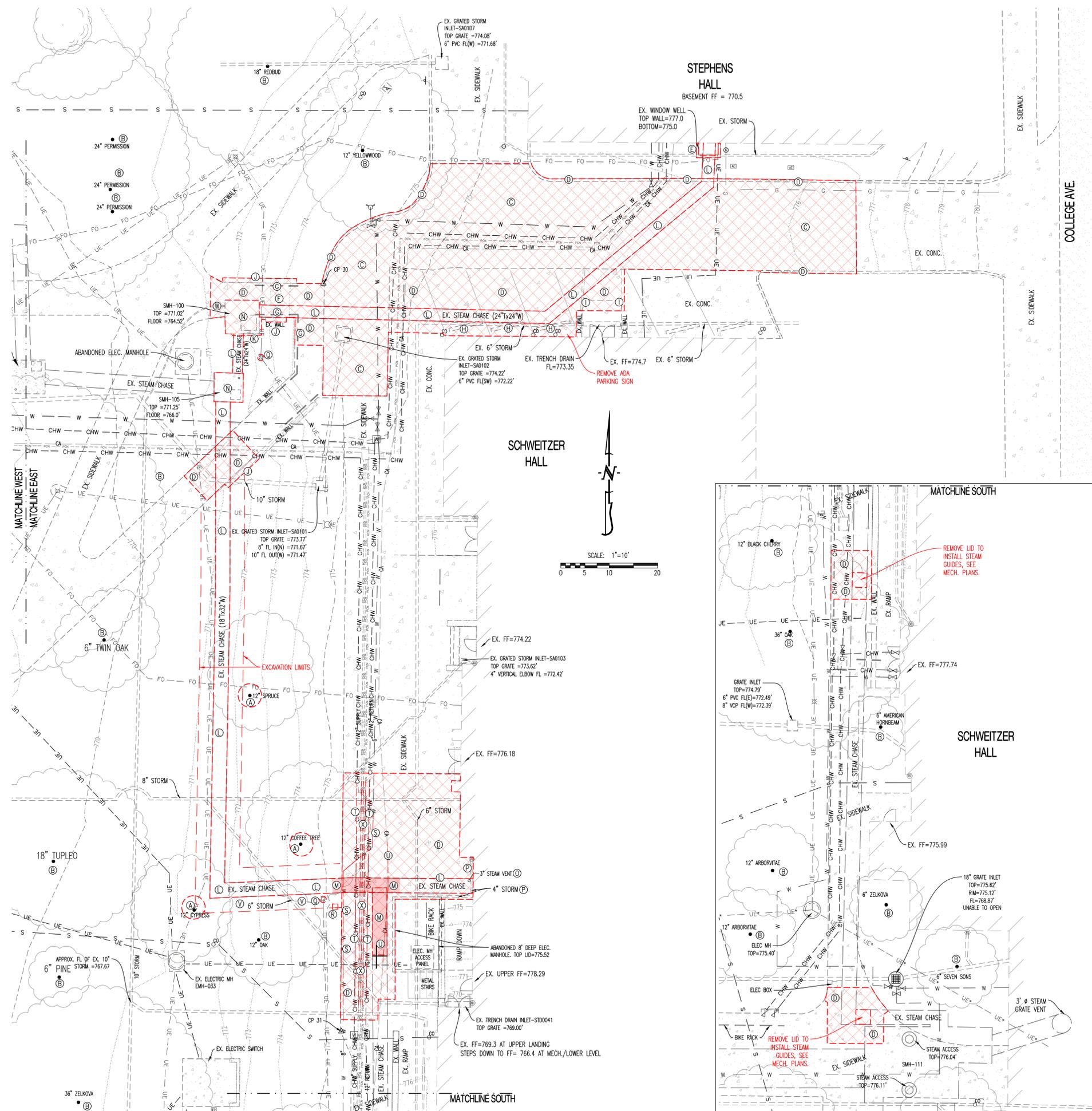
1. CONTRACTOR SHALL TAKE CAUTION TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN.
2. CERTAIN AREAS MAY BE REQUIRED TO BE REMOVED IN PHASES. CONTRACTOR TO COORDINATE TIMING WITH OWNER.
3. ITEMS OUTSIDE CONSTRUCTION LIMITS OR CALLED OUT TO REMAIN SHALL BE PROTECTED AS REQUIRED. CONTRACTOR SHALL REPAIR/REPLACE DAMAGED ITEMS OUTSIDE PROJECT SCOPE OF WORK AT NO EXPENSE TO THE OWNER.
4. CONCRETE TO BE REMOVED TO THE NEAREST SAW JOINT, BUT NOT LESS THAN THE DEMOLITION LIMITS SHOWN ON THE PLAN.
5. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO DISCONNECTING ANY UTILITIES.
6. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.

UTILITY PROTECTION DURING WORK NOTE:

ALL EXISTING UTILITIES SHALL TO BE PROTECTED DURING WORK, EXCAVATION AND/OR SHORING. UTILITY SHALL REMAIN ACTIVE DURING WORK AND SHALL BE PROTECTED FROM SHIFTING, SAGGING OR OTHER DAMAGE.

SHORING NOTE:

CONTRACTOR TO PROVIDE STABLE EXCAVATION WITH SHORING AS REQUIRED. DESIGN OF SHORING SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REFER TO PROJECT MANUAL FOR SHORING SPECIFICATION.



CROCKETT
ENGINEERING CONSULTANTS

ISSUE FOR BID	CHECKED BY:
12/22/25	
DRAWN BY:	

PRV CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2022017805



UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEBVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
C-102

LEGEND OF LABELS

- (A) INSTALL TEMPORARY STEAM SERVICE TO EACH BUILDING AS SHOWN. REFER TO MECH PLANS FOR DETAILS. COORDINATE WITH PROJECT MANUAL AND OWNER'S REPRESENTATIVE ON STEAM OUTAGE REQUIREMENTS.
- (B) INSTALL NEW STEAM MANHOLE SMH-737 AS SHOWN. REFER TO MECH AND STRUCTURAL PLANS FOR DETAILS.
- (C) INSTALL NEW LIDS AT EXISTING STEAM MANHOLES. SEE MECH AND STRUCTURAL PLANS. 5'x5' INSIDE DIMENSION OF MANHOLE FOR SMH-105. 6'x6' INSIDE DIMENSION OF MANHOLE FOR SMH-106.
- (D) INSTALL NEW STEAM CHASE LID AND PIPING AT EXISTING CHASE. REFER TO MECH AND STRUCTURAL PLANS FOR DETAILS.
- (E) INSTALL NEW STEAM CHASE BETWEEN EXISTING CHASE AND NEW STEAM MANHOLE AS NEEDED. REFER TO MECH AND STRUCTURAL PLANS FOR DETAILS.
- (F) INSTALL NEW COMPRESSED AIR AROUND NEW STEAM MANHOLE. SEE MECH PLANS. USE 2" TYPE K COPPER FROM A CONTINUOUS FLEXIBLE ROLL WITHOUT JOINTS OR SOLDER.
- (G) INSTALL NEW 12" CHILLED WATER SUPPLY PIPING AROUND NEW STEAM MANHOLE AS SHOWN. PIPING SHALL BE DUCTILE IRON PIPE. INSTALL FITTINGS AS REQUIRED. CHILLED WATER PIPING SHALL HAVE A MINIMUM OF 36" COVER FROM FINISHED GRADE. CENTER A FULL STICK OF PIPE OVER STEAM CHASE CROSSING TO LOCATE JOINTS AS FAR AWAY FROM THE STEAM CHASE AS POSSIBLE. INSTALL 2" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM CHASE. REFER TO CHILLED WATER DETAILS ON C-116.
- (H) INSTALL NEW 12" CHILLED WATER RETURN PIPING AROUND NEW STEAM MANHOLE AS SHOWN. PIPING SHALL BE DUCTILE IRON PIPE. INSTALL FITTINGS AS REQUIRED. CHILLED WATER PIPING SHALL HAVE A MINIMUM OF 36" COVER FROM FINISHED GRADE. CENTER A FULL STICK OF PIPE OVER STEAM CHASE CROSSING TO LOCATE JOINTS AS FAR AWAY FROM THE STEAM CHASE AS POSSIBLE. INSTALL 2" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM CHASE. REFER TO CHILLED WATER DETAILS ON C-116.
- (I) RELOCATE (3) 2" PCN CONDUITS AROUND NEW STEAM MANHOLE AS SHOWN. REFER TO ELECTRICAL PLANS. REFER TO JUNCTION BOX DETAILS ON C-116. OWNER WILL PROVIDE AND INSTALL NEW FIBER LINES IN CONDUITS INSTALLED BY CONTRACTOR.
- (J) INSTALL NEW 8" WATERLINE PIPING AROUND NEW STEAM MANHOLE AS SHOWN. PIPING SHALL BE C900 PVC (DR 18) EXCEPT WHERE CROSSING THE STEAM CHASE SHALL BE DUCTILE IRON PIPE. INSTALL FITTINGS AS REQUIRED. WATERLINE SHALL HAVE A MINIMUM OF 42" COVER FROM FINISHED GRADE. CENTER A FULL STICK OF PIPE OVER STEAM CHASE CROSSING TO LOCATE JOINTS AS FAR AWAY FROM THE STEAM CHASE AS POSSIBLE. INSTALL 4" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM CHASE. REFER TO WATERLINE DETAILS ON C-117.
- (K) INSTALL CHASE VENT. REFER TO MECH AND STRUCTURAL PLANS FOR DETAILS. INSTALL VENT TOP 3" ABOVE PAVEMENT GRADE.
- (L) INSTALL 12" NYLOPLAST DRAIN BASIN WITH H-20 SOLID LID IN-LINE OF EXISTING STORM SEWER LINE. TOP = 773.3' (EXISTING GRADE) EXISTING FL IN SOUTHEAST = FIELD DETERMINE NEW 2" FL IN EAST = FIELD DETERMINE - 1' ABOVE FLOWLINE OUT. EXISTING FL OUT NORTHWEST = FIELD DETERMINE
- (M) INSTALL 2" TYPE K HARD COPPER SUMP PUMP DRAIN LINE TO CONNECT INTO NEW STORM BASIN AS SHOWN.
- (N) INSTALL 6" SDR 26 PVC DOWNSPOUT LEADER @ 1.0% MINIMUM SLOPE AS SHOWN. CONNECT TO BUILDING DOWNSPOUTS (FIELD CONFIRM SIZE) WITH DOWNSPOUT BOOT, ZURN Z191 (OR EQUAL) WITH CLEANOUT PORT. CONNECT TO STORM PIPING WITH MANUFACTURED FITTING (INSERTA-TEE OR EQUAL). REFER TO DETAIL C-105.1.
- (O) INSTALL 2" TYPE K HARD COPPER SUMP PUMP DRAIN LINE TO CONNECT INTO EXISTING STORM BOX AS SHOWN. CAP OLD SUMP PUMP DISCHARGE PIPING SHOWN (ASSUMED LOCATION).
- (P) REROUTE 6" STORM SEWER WITH SDR26 PVC AS SHOWN AROUND STEAM MANHOLE AS NEEDED.

WATERLINE CONSTRUCTION NOTES:

WHERE WATER MAIN IS LESS THAN 10' FROM SANITARY SEWER AS MEASURED EDGE TO EDGE, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE (1) SIDE OF THE SANITARY SEWER AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN INCHES (18") ABOVE THE TOP OF THE SANITARY SEWER.

MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATERLINE & SANITARY SEWER LINES. AT CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SANITARY SEWER LINE AS POSSIBLE.

MAINTAIN 12" VERTICAL SEPARATION BETWEEN WATERLINE & ALL OTHER UTILITIES.

MINIMUM COVER OF 42" REQUIRED ON WATERLINES. REFER TO PROFILES FOR ASSUMED VERTICAL ALIGNMENT OF NEW WATERLINES. SHOULD FIELD CONDITIONS ALLOW FOR WATER TO BE INSTALLED ABOVE A UTILITY INSTEAD OF BELOW AS SHOWN ON A PROFILE, IT SHALL BE INSTALLED ABOVE ASSUMING COVER AND SEPARATION REQUIREMENTS ARE MET.

ALL UTILITIES SHOWN ARE FOR REFERENCE AND HAVE BEEN DETERMINED BY FIELD LOCATES AND MAPPING SERVICES. CONTRACTOR SHALL PERFORM LOCATES PRIOR TO WORK.

LINES PASSING DIRECTLY OVER OR UNDER STEAM TUNNELS OR DIRECT BURIED STEAM/CONDENSATE LINES MUST BE DUCTILE IRON WITH 4" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM LINES. AT THESE CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE CENTERED ON THE CROSSING SO BOTH JOINTS WILL BE AS FAR FROM THE CROSSING AS POSSIBLE.

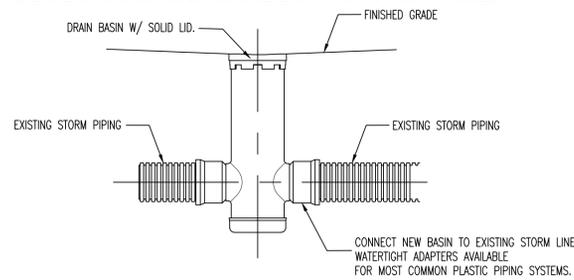
CHILLED WATER CONSTRUCTION NOTES:

MAINTAIN 12" SEPARATION BETWEEN CHILLED WATER & ALL UTILITIES.

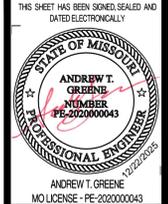
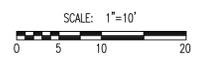
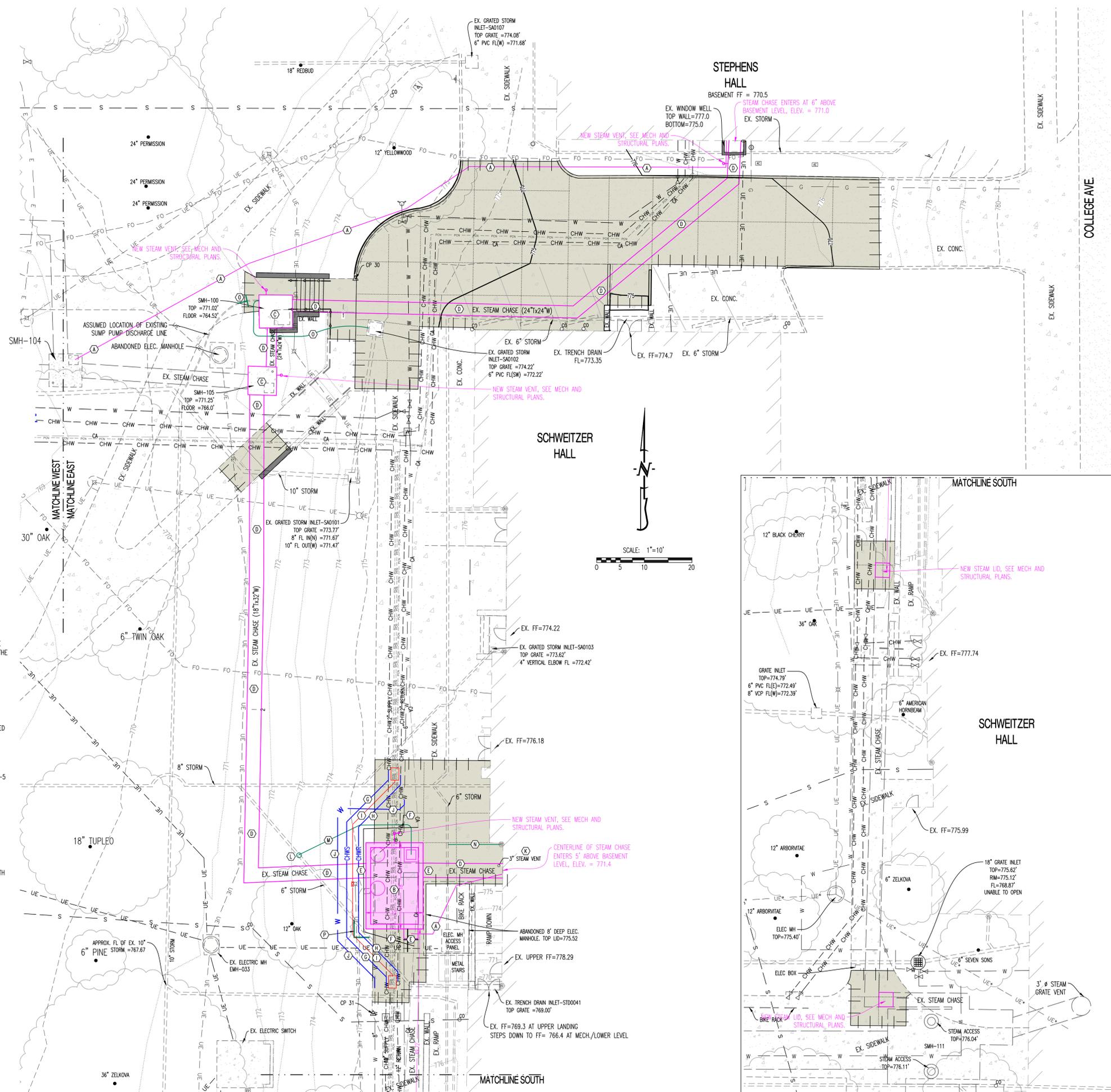
SUPPLY AND RETURN PIPING (12") SHALL HAVE 18" PIPE EDGE TO PIPE EDGE SEPARATION.

MINIMUM COVER OF 36" REQUIRED ON CHILLED WATER PIPES.

LINES PASSING DIRECTLY OVER OR UNDER STEAM TUNNELS/CHASES OR DIRECT BURIED STEAM/CONDENSATE LINES MUST BE DUCTILE IRON WITH 2" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM LINES. AT THESE CROSSINGS, ONE (1) FULL LENGTH OF PIPE MUST BE CENTERED ON THE CROSSING SO BOTH JOINTS WILL BE AS FAR FROM THE CROSSING AS POSSIBLE.



TYPICAL INSTALLATION OF NYLOPLAST DRAIN BASIN



CROCKETT
ENGINEERING CONSULTANTS

CHECKED BY:	
DRAWN BY:	
ISSUE FOR BID	12/22/25

PRM CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203
EAST UTILITY PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171
CONSULTANT
PROJECT NUMBER
25103
SHEET
C-103

GENERAL EROSION CONTROL NOTES:

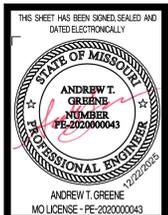
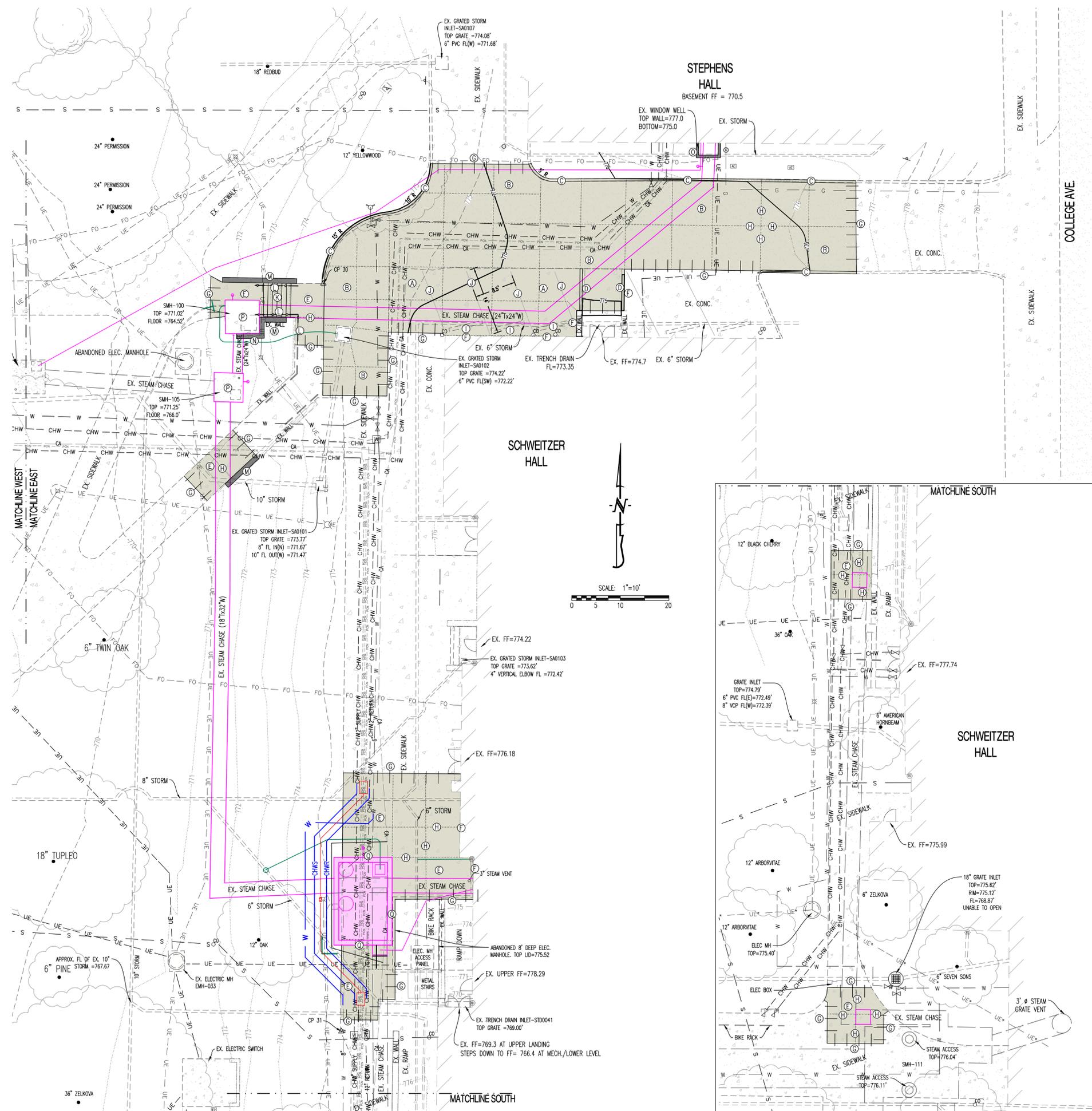
1. THE CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION AND SEDIMENT DEPOSITION DURING ALL PHASES OF CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS SUBSTANTIALLY COMPLETE.
2. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ROADWAYS AND SIDEWALKS ADJACENT TO THE CONSTRUCTION SITE FREE OF DIRT AND DEBRIS RESULTING FROM ACTIVITIES RELATED TO THE CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR SHALL KEEP THE ENTIRE PROJECT SITE FREE OF DEBRIS AND TRASH AT ALL TIMES. CONTRACTOR SHALL EXECUTE WORK USING METHODS THAT MINIMIZE EXCESSIVE NOISE OR DUST EMISSIONS. CONTRACTOR SHALL PROVIDE METHODS, MEANS AND FACILITIES TO PREVENT CONTAMINATION OF SOIL OR WATER FROM DISCHARGE OF REGULATED MATERIALS (I.E., DIESEL FUEL) USED DURING CONSTRUCTION.
4. CONTRACTOR MUST INSTALL AND MAINTAIN THE EROSION CONTROL MEASURES SHOWN ON THIS PLAN. IF THE ENGINEER, OWNER'S REPRESENTATIVE, DETERMINES THAT THE INSTALLATION OF THE MAINTENANCE IS INADEQUATE, THE CONTRACTOR MUST IMMEDIATELY CORRECT AT THEIR EXPENSE. IF IT IS DETERMINED THAT ADDITIONAL EROSION CONTROL MEASURES ARE NEEDED THE CONTRACTOR WILL BE DIRECTED TO INSTALL AND MAINTAIN THOSE MEASURES.
5. THE CONTRACTOR SHALL INSPECT THE LAND DISTURBANCE SITE AT LEAST ONCE EVERY SEVEN (7) DAYS AND WITHIN TWENTY-FOUR (24) HOURS FOLLOWING EACH RAINFALL EVENT OF 1/2" OR MORE. WITHIN ANY TWENTY-FOUR (24) HOUR PERIOD, THE CONTRACTOR SHALL ALSO INSPECT AND ASSURE THAT ALL SEDIMENT CONTROL DEVICES ARE IN WORKING CONDITION PRIOR TO ANY FORECASTED RAINFALL.
6. THE CONTRACTOR SHALL REMOVE SEDIMENT FROM THE FLOW AREAS AND MAKE ALL NECESSARY REPAIRS TO MAINTAIN THE INTEGRITY OF THE SEDIMENT CONTROL MEASURES, SEDIMENT SHALL BE REMOVED ONCE IT REACHED 1/2 THE INSTALLED HEIGHT OF MEASURE.
7. SOME OF THE EROSION AND SEDIMENT CONTROL MEASURES WILL REQUIRE THE CONTRACTOR TO INSTALL, REMOVE, AND REINSTALL THE MEASURES AS CONSTRUCTION PROCEEDS. THE PHASING OF THIS WORK IS DEPENDENT ENTIRELY ON THE CONTRACTOR'S SCHEDULE, AND IS NOT SPECIFIED HEREIN. HOWEVER, THE CONTRACTOR SHALL COORDINATE THESE ACTIONS WITH THE ENGINEER AT THE TIMES ADJUSTMENTS ARE NEEDED.
8. CONTRACTOR SHALL DIRECT CONCRETE TRUCKS TO WASHOUT AT PLANT.

GENERAL LANDSCAPE NOTES:

1. VEHICLES ARE TO USE DESIGNATED CONSTRUCTION ENTRANCES AS INDICATED ON DRAWINGS OR CONSTRUCTION DOCUMENTS. IF NO CONSTRUCTION ROUTE IS INDICATED VEHICLES ARE RESTRICTED TO PAVED AREAS. ALL CONSTRUCTION EQUIPMENT AND OR VEHICLES SHALL VERIFY THE WEIGHT LIMIT AND RESTRICTION ON PAVEMENT PRIOR TO CONSTRUCTION AND NOTIFY OWNERS REPRESENTATIVE OF THE PLANNED ROUTE.
2. THERE SHALL BE NO VEHICLE MOVEMENT IN ANY LANDSCAPED, SHRUB OR PERENNIAL AREAS, MULCH BED AND/OR TREE CANOPY DRIP AND ROOT ZONES, WITHOUT PRIOR MODIFICATIONS AND APPROVAL FROM LANDSCAPE SERVICES. LANDSCAPE SERVICES REQUIRES ONE WEEK NOTICE PRIOR TO ANY VEHICLE MOVEMENT IN THESE AREAS.
3. VEHICLE ACCESS SHALL NOT BREAK OR RUB TREE BRANCHES. OWNER WILL PRUNE TREE BRANCHES TO PROVIDE CLEARANCE AROUND BUILDING ENTRANCE. OWNER REQUIRES ONE WEEKS NOTICE FOR THIS WORK TO BE DONE.
4. DO NOT COMPACT GRADE WITHIN THE DRIP LINE OF TREES TO REMAIN. PROVIDE APPROVED FENCING TO PREVENT DRIVING OR EQUIPMENT PARKING WITHIN DRIP LINE OF TREES, PRIOR TO CONSTRUCTION OR WORK IN THE PROJECT AREA. MU'S CAMPUS STANDARD 6" CHAIN LINK FENCE AND POST SHALL BE USED UNLESS OTHERWISE NOTED AND/OR APPROVED BY OWNERS REPRESENTATIVE.
5. CONTRACTOR SHALL RIP THE SUB-SOIL TO A DEPTH OF 6" TO BREAK UP COMPACTION. CONTRACTOR SHALL THEN COMPACT THE SUB-SOIL TO 85% (IN NON-PAVED AREAS) OR 95% (IN PAVED AREAS) OF THE MATERIAL'S STANDARD PROCTOR DRY DENSITY. CONTRACTOR SHALL LEAVE THE AREA 6" BELOW THE FINISHED GRADE IN TURF AREAS AND 24" BELOW THE FINISHED GRADE IN PLANTER BED AREAS.
6. FINAL 6" OF TOP SOIL PLACEMENT AND TURF ESTABLISHMENT BY MU.
7. THE CONTRACTOR SHALL ADJUST EXISTING AND NEW YARD BOXES VALVE BOXES, PULL BOXES, CLEANOUTS, AND MANHOLE LID RINGS ETC. (INCLUDES IRRIGATION, SEWERS, WATER AND ELECTRIC), TO THE INDICATED FINAL FINISH GRADE WHERE NEW FINISHED GRADE ELEVATIONS ARE PROVIDED, INDICATED, OR OTHERWISE IMPLIED.
8. THE OWNER WILL WATER AND MAINTAIN ALL SEED AND LANDSCAPING.
9. IRRIGATION LINES AND VALVES MAY EXIST IN THE AREA. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF THE SYSTEM AS CAUSED BY CONSTRUCTION. WITHIN REASON AND WHEN POSSIBLE, THE NEW WORK SHALL BE INSTALLED TO AVOID LANDSCAPING COMPONENTS. IF AVOIDANCE IS NOT POSSIBLE, CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, REPAIR AND/OR RE-INSTALLATION OF THE IRRIGATION AS REQUIRED TO COMPLETE THE WORK AS SHOWN AND TO LEAVE THE OWNER WITH AN IRRIGATION SYSTEM IN THE SAME CONDITION AS WHEN WORK BEGAN.

LEGEND OF LABELS

- (A) PATCH CONCRETE PARKING PAVEMENT AS SHOWN. SEE GRADING PLAN FOR PROPOSED SLOPES. REFER TO DETAIL ON C-118.
- (B) PATCH CONCRETE DRIVE PAVEMENT AS SHOWN. SEE GRADING PLAN FOR PROPOSED SLOPES. REFER TO DETAIL ON C-118.
- (C) CONSTRUCT MONOLITHIC CONCRETE CURB AS SHOWN. SEE GRADING PLAN FOR PROPOSED SLOPES. REFER TO DETAIL ON C-118.
- (D) RECONSTRUCT CURBING NEAR NORTH ENTRY TO MATCH EXISTING CONDITIONS. SEE GRADING PLAN FOR PROPOSED SLOPES. ENSURE WATER FROM DRIVE IS NOT DIRECTED TOWARDS ENTRY.
- (E) PATCH TYPICAL CONCRETE SIDEWALK AS SHOWN. MATCH EXISTING SLOPE AND GRADE. REFER TO DETAIL ON C-118.
- (F) INSTALL 3/4" EXPANSION JOINT BETWEEN NEW CONCRETE PAVEMENT AND BUILDING/STRUCTURE AS SHOWN.
- (G) INSTALL DOWELED CONSTRUCTION JOINT TO EXISTING PAVEMENT WITH SEALANT AS SHOWN. REFER TO DETAIL ON C-118.
- (H) INSTALL TYPE C SAW JOINT WITH SEALANT AS SHOWN (TYPICAL). REFER TO DETAIL ON C-118.
- (I) REINSTALL SALVAGED PARKING BUMPERS.
- (J) PAINT 4" PARKING STALL STRIPES AS SHOWN, COLOR WHITE. TYPICAL ALL STALLS EXCEPT ADA ACCESSIBLE STALLS. REFER TO PLAN FOR WIDTH AND DEPTH OF STALLS.
- (K) RECONSTRUCT CONCRETE STAIR SECTION AS SHOWN. MATCH EXISTING NUMBER OF TREADS AND RISERS WITH RISERS BEING BETWEEN 4" AND 7" TALL. REFER TO STRUCTURAL PLANS FOR STAIR DETAILS.
- (L) INSTALL NEW BLACK RAILING ALONG STAIRS AND AT TOP OF LANDING AS SHOWN. RAILING SHALL GENERALLY MATCH EXISTING EXCEPT THAT THE MOUNTING METHOD SHALL BE BOLT DOWN.
- (M) BLOCK RETAINING WALL TO BE REINSTALLED. CONTRACTOR SHALL SUPPLY NEW BLOCKS IF SALVAGED BLOCKS ARE DAMAGED.
- (N) PREVIOUS LOCATION OF CONCRETE WALL TO BE REPLACED WITH BLOCK WALL TO MATCH EXISTING ADJACENT BLOCK WALLS. CONTRACTOR SHALL SUPPLY BLOCKS TO MATCH EXISTING.
- (O) REPLACE CONCRETE WINDOW WELL. REFER TO STRUCTURAL PLANS.
- (P) REPLACE STEAM MANHOLE LID. REFER TO STRUCTURAL PLANS FOR DOWEL AND EXPANSION MATERIAL BETWEEN LID AND ADJACENT PAVEMENT.
- (Q) NEW STEAM MANHOLE LID. REFER TO STRUCTURAL PLANS FOR DOWEL AND EXPANSION MATERIAL BETWEEN LID AND ADJACENT PAVEMENT.



GROCKETT
ENGINEERING CONSULTANTS

ISSUE FOR BID	12/22/25	CHECKED BY:	
DRAWN BY:			

PRV CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2022017605



UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEBRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203
EAST SITE PLAN

UNIVERSITY OF MISSOURI PROJECT NUMBER
CP253171
CONSULTANT PROJECT NUMBER
25103
SHEET
C-105

LEGEND OF LABELS:

- (A) CONTRACTOR TO INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION.
- (B) CONTRACTOR TO USE EXISTING PAVING AS CONSTRUCTION ENTRY AND EXIT AND STAGING AREA WITHIN THE FENCE LIMITS. ALL CONSTRUCTION TRAFFIC SHALL UTILIZE THIS ENTRY AND EXIT TO THE PROJECT. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
- (C) EXISTING TREE OUTSIDE OF PROJECT FENCING TO BE PROTECTED. MAIN PROJECT FENCING SHALL SERVE AS TREE PROTECTION FENCING. COORDINATE WITH OWNER TO PRUNE LIMBS AS NEEDED FOR CONSTRUCTION. CONTRACTOR SHALL NOT DISTURB AREAS BEYOND FENCING LIMITS, WITHIN DRIP LINE OF TREE, TO BE PROTECTED.
- (D) CONTRACTOR TO INSTALL TEMPORARY INTERNAL BUILDING SIGNAGE TO DESCRIBE ALTERNATIVE EGRESS ROUTE FOR DOORWAYS CLOSED DURING CONSTRUCTION. COORDINATE WITH OWNER'S REPRESENTATIVE ON EXACT SIGNAGE NEEDS FOR DOORWAYS LEADING INTO FENCED CONSTRUCTION AREAS, AS NEEDED.

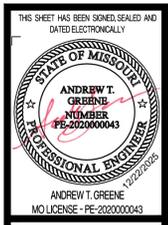
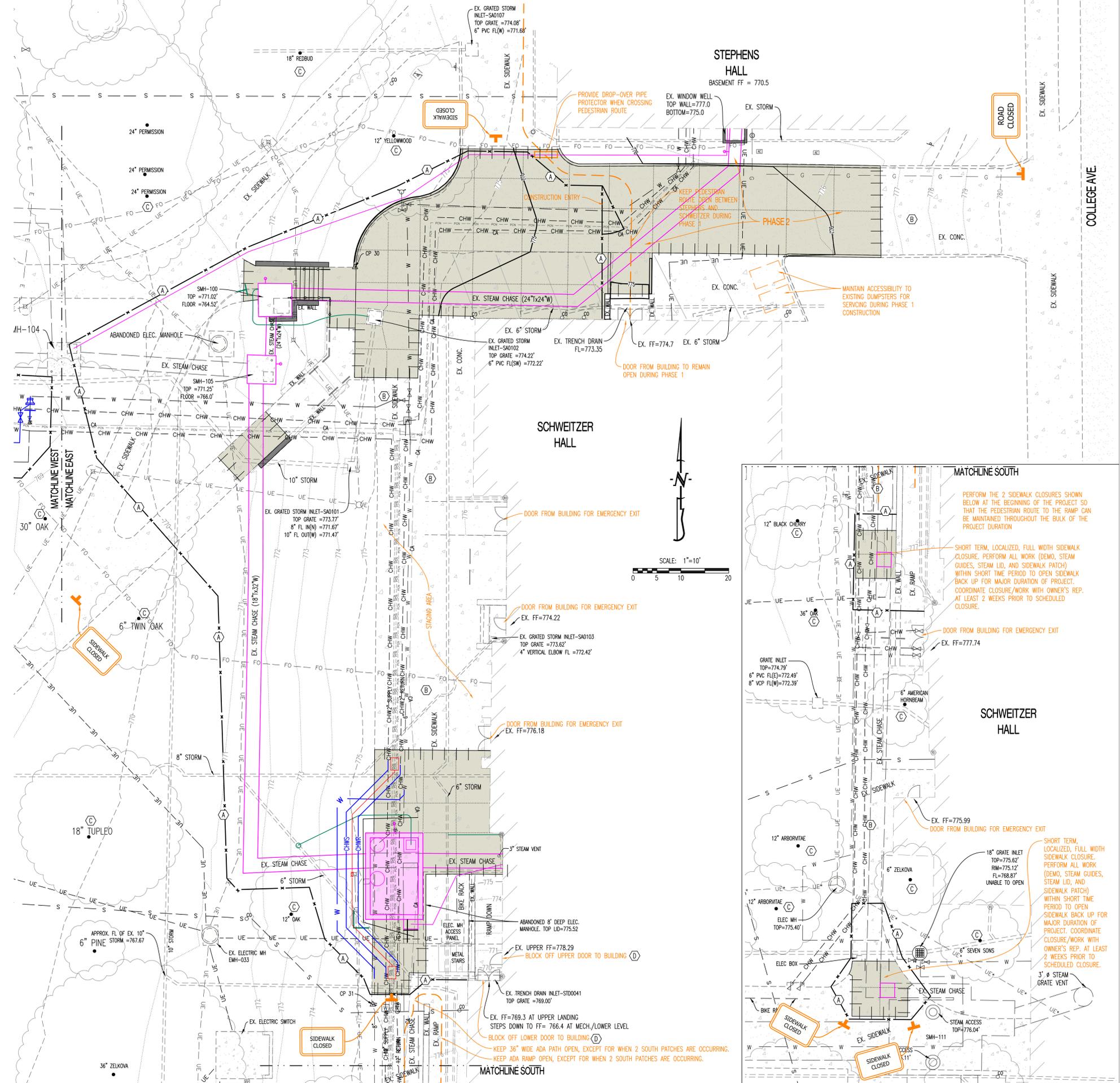
GENERAL TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.

CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES.

CONTRACTOR SHALL KEEP ALL ADJACENT DRIVEWAYS OPEN AT ALL TIMES, UNLESS OTHERWISE SHOWN ON THIS PLAN.

CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO IMPLEMENTING THIS PLAN. ALL TIMES FOR CLOSURES SHALL BE APPROVED BY THE OWNER.



CROCKETT
ENGINEERING CONSULTANTS

ISSUE FOR BID	CHECKED BY:
12/22/25	
DRAWN BY:	

PRVN CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 202301785



UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203
EAST PHASE 1 PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171
CONSULTANT
PROJECT NUMBER
25103
SHEET
C-106

LEGEND OF LABELS:

- (A) CONTRACTOR TO INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION.
- (B) CONTRACTOR TO USE EXISTING PAVING AS CONSTRUCTION ENTRY AND EXIT AND STAGING AREA WITHIN THE FENCE LIMITS. ALL CONSTRUCTION TRAFFIC SHALL UTILIZE THIS ENTRY AND EXIT TO THE PROJECT. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
- (C) EXISTING TREE OUTSIDE OF PROJECT FENCING TO BE PROTECTED. MAIN PROJECT FENCING SHALL SERVE AS TREE PROTECTION FENCING. COORDINATE WITH OWNER TO PRUNE LIMBS AS NEEDED FOR CONSTRUCTION. CONTRACTOR SHALL NOT DISTURB AREAS BEYOND FENCING LIMITS, WITHIN DRIP LINE OF TREE, TO BE PROTECTED.
- (D) CONTRACTOR TO INSTALL TEMPORARY INTERNAL BUILDING SIGNAGE TO DESCRIBE ALTERNATIVE EGRESS ROUTE FOR DOORWAYS CLOSED DURING CONSTRUCTION. COORDINATE WITH OWNERS REPRESENTATIVE ON EXACT SIGNAGE NEEDS FOR DOORWAYS LEADING INTO FENCED CONSTRUCTION AREAS, AS NEEDED.

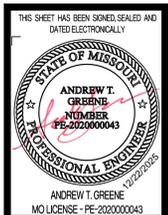
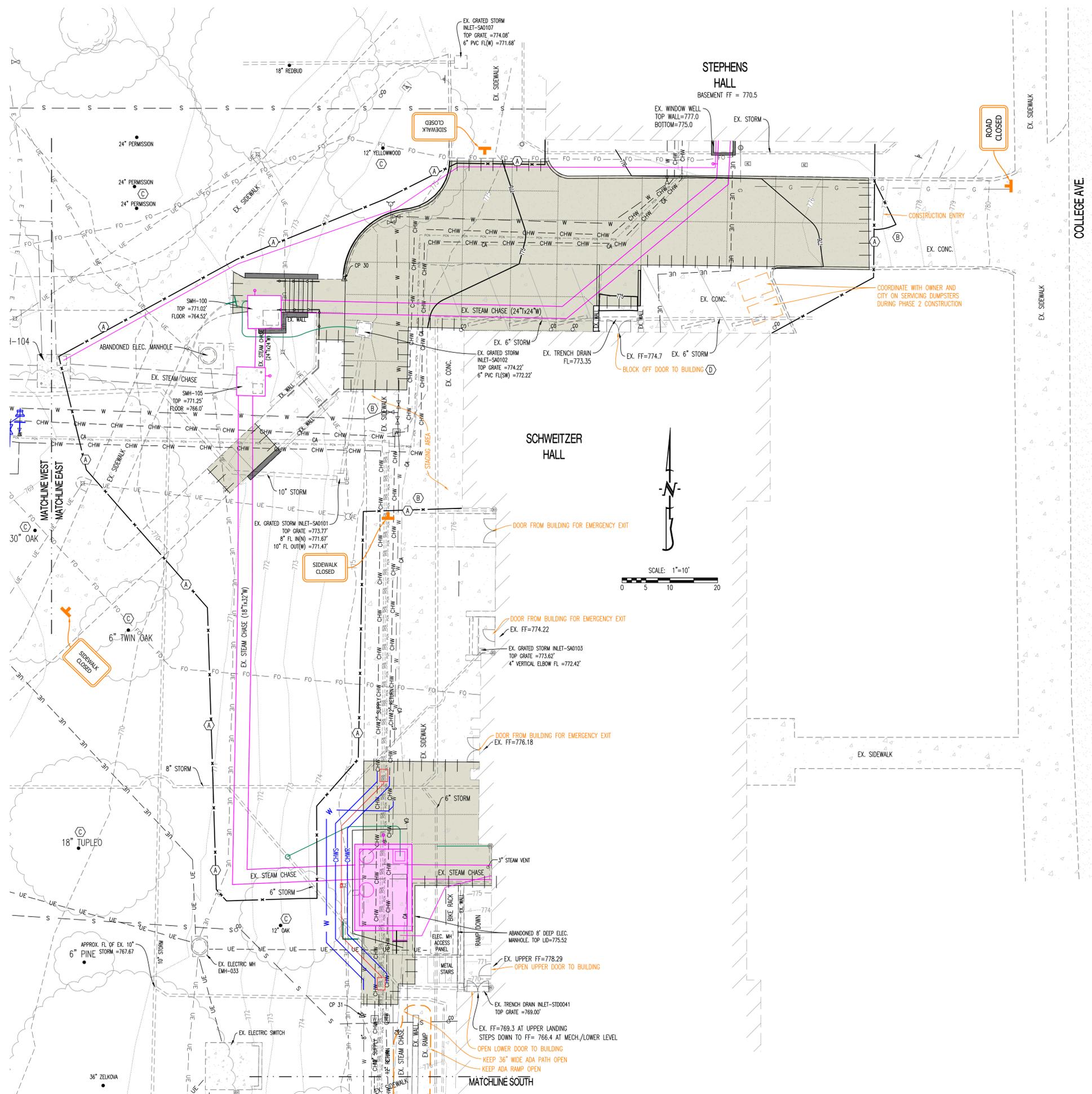
GENERAL TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.

CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES.

CONTRACTOR SHALL KEEP ALL ADJACENT DRIVEWAYS OPEN AT ALL TIMES, UNLESS OTHERWISE SHOWN ON THIS PLAN.

CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO IMPLEMENTING THIS PLAN. ALL TIMES FOR CLOSURES SHALL BE APPROVED BY THE OWNER.



CROCKETT
ENGINEERING CONSULTANTS

ISSUE FOR BID	CHECKED BY:
12/22/25	
DRAWN BY:	

PRV CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, ILL. 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

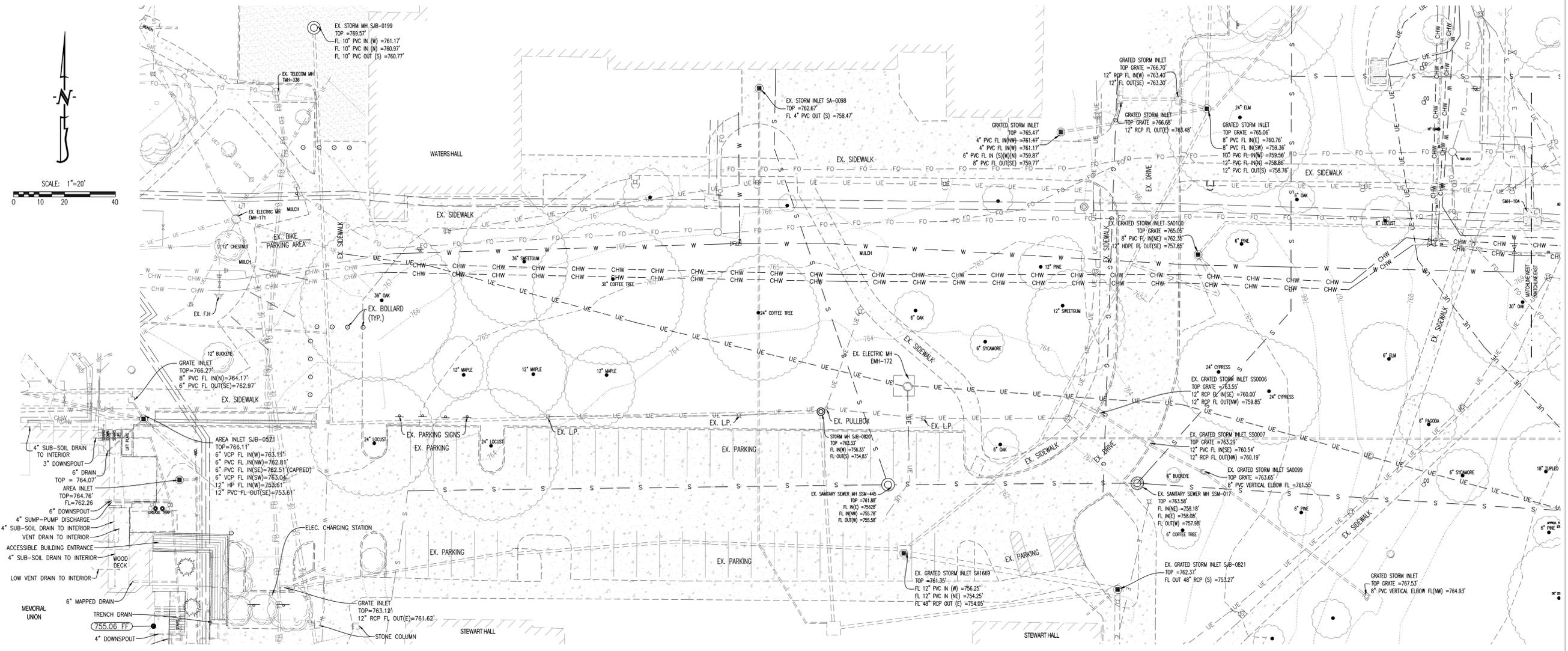
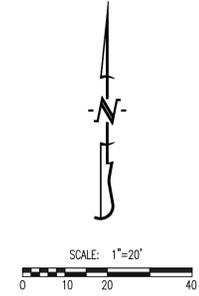


UNIVERSITY OF MISSOURI — COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEBVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
C-107



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
 PROFESSIONAL ENGINEER
 ANDREW T. GREENE
 NUMBER PE-202000043
 MO LICENSE - PE-202000043

CROCKETT
 ENGINEERING CONSULTANTS

CHECKED BY:	
ISSUE FOR BID	12/22/25
DRAWN BY:	

PRM CONSULTANTS, INC.
 1617 SECOND AVE. STE. 110
 ROCK ISLAND, IL 61201
 PHONE 562.263.9161
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2022017805

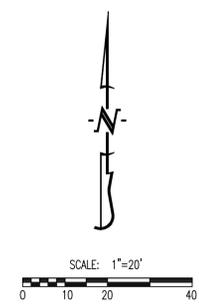
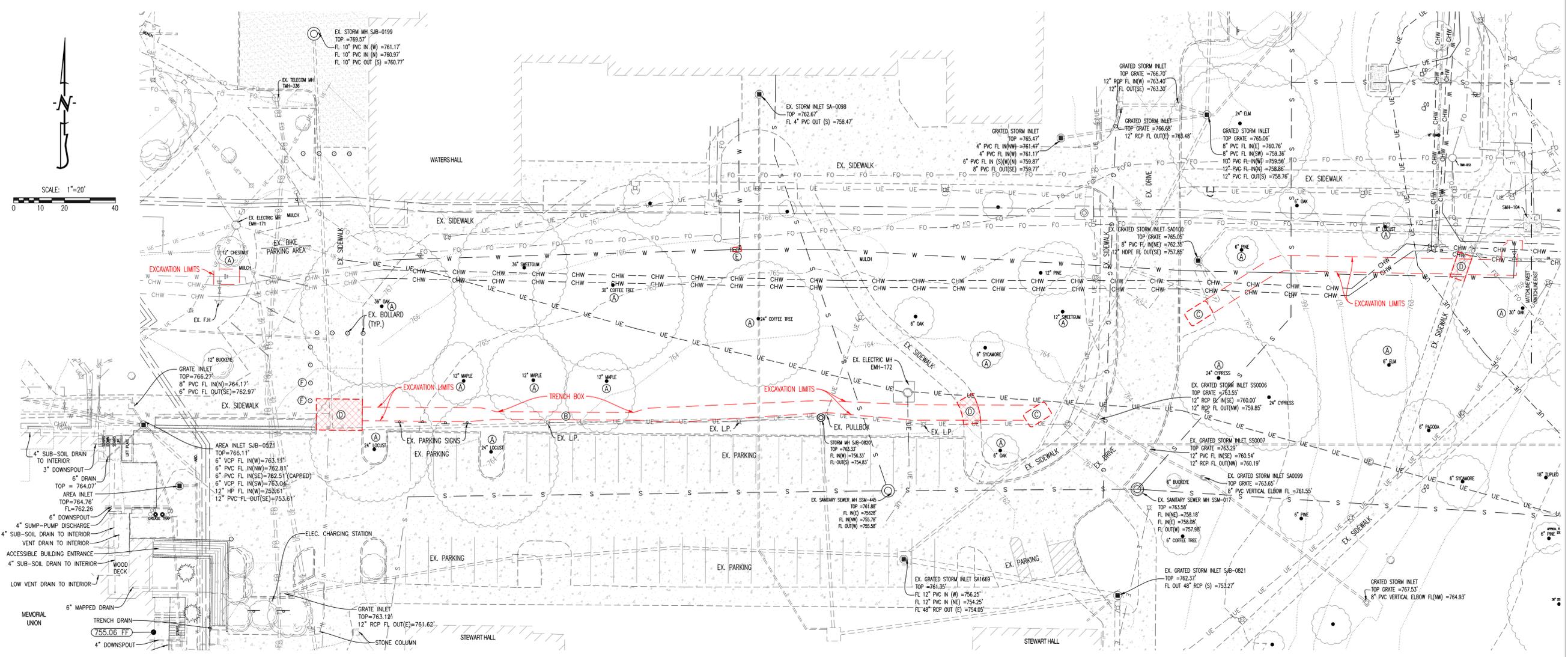


UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEBVRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
WEST EXISTING CONDITIONS PLAN

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
 CP253171

CONSULTANT
 PROJECT NUMBER
 25103

SHEET
 C-108



GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL TAKE CAUTION TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN.
2. CERTAIN AREAS MAY BE REQUIRED TO BE REMOVED IN PHASES. CONTRACTOR TO COORDINATE TIMING WITH OWNER.
3. ITEMS OUTSIDE CONSTRUCTION LIMITS OR CALLED OUT TO REMAIN SHALL BE PROTECTED AS REQUIRED. CONTRACTOR SHALL REPAIR/REPLACE DAMAGED ITEMS OUTSIDE PROJECT SCOPE OF WORK AT NO EXPENSE TO THE OWNER.
4. CONCRETE TO BE REMOVED TO THE NEAREST SAW JOINT, BUT NOT LESS THAN THE DEMOLITION LIMITS SHOWN ON THE PLAN.
5. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO DISCONNECTING ANY UTILITIES.
6. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.

UTILITY PROTECTION DURING WORK NOTE:

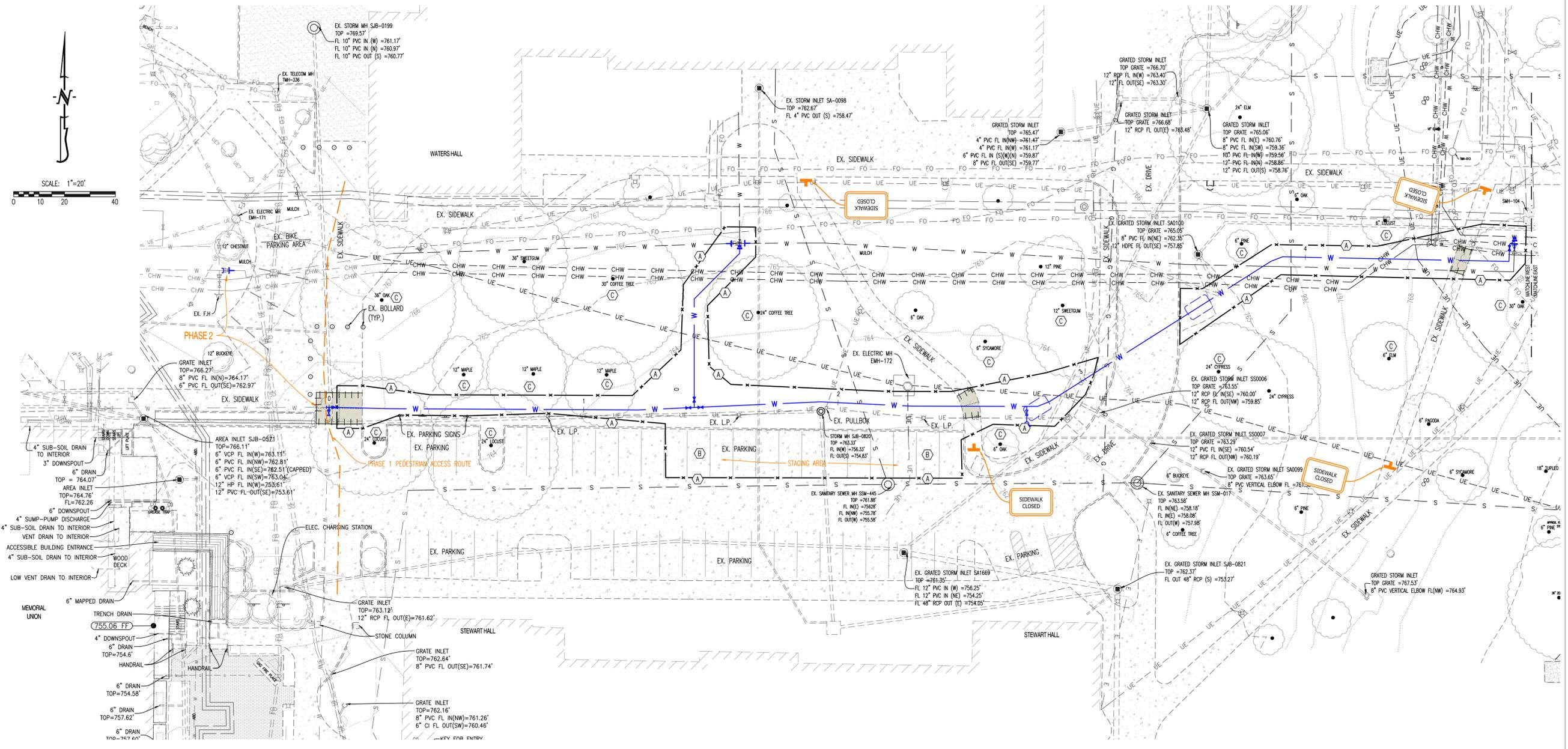
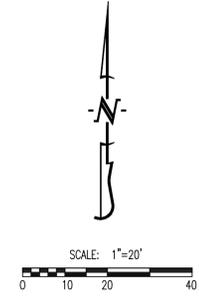
ALL EXISTING UTILITIES SHALL TO BE PROTECTED DURING WORK, EXCAVATION AND/OR SHORING. UTILITY SHALL REMAIN ACTIVE DURING WORK AND SHALL BE PROTECTED FROM SHIFTING, SAGGING OR OTHER DAMAGE.

SHORING NOTE:

CONTRACTOR TO PROVIDE STABLE EXCAVATION WITH SHORING AS REQUIRED. DESIGN OF SHORING SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REFER TO PROJECT MANUAL FOR SHORING SPECIFICATION.

LEGEND OF LABELS

- (A) EXISTING TREES AND LANDSCAPING OUTSIDE OF PROJECT FENCING TO BE PROTECTED. REFER TO PHASING PLANS FOR PROJECT FENCING LOCATIONS AND TREES/LANDSCAPING AREAS THAT ARE OUTSIDE OF THIS FENCING.
- (B) USE TRENCH BOX FOR EXCAVATION ADJACENT TO TWO MAPLE TREES AS SHOWN TO MINIMIZE DISTURBANCE TO ROOT ZONE.
- (C) PROPOSED BORE PIT. PROTECT EXISTING UTILITIES ADJACENT TO PIT.
- (D) REMOVE EXISTING CONCRETE PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. REMOVAL LIMITS SHALL BE TO NEAREST JOINT IN PAVEMENT. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
- (E) EXISTING CONCRETE PAD FOR WATERLINE VALVES TO BE REMOVED.
- (F) EXISTING BOLLARDS TO BE REMOVED/REPLACED AS NEEDED TO ACCESS TO WORK AREA AT PHASE 2 CAPPING POINT.



LEGEND OF LABELS:

- (A) CONTRACTOR TO INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION.
- (B) CONTRACTOR TO USE EXISTING PAVING AS CONSTRUCTION ENTRY AND EXIT AND STAGING AREA WITHIN THE FENCE LIMITS. ALL CONSTRUCTION TRAFFIC SHALL UTILIZE THIS ENTRY AND EXIT TO THE PROJECT. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
- (C) EXISTING TREE OUTSIDE OF PROJECT FENCING TO BE PROTECTED. MAIN PROJECT FENCING SHALL SERVE AS TREE PROTECTION FENCING. COORDINATE WITH OWNER TO PRUNE LIMBS AS NEEDED FOR CONSTRUCTION. CONTRACTOR SHALL NOT DISTURB AREAS BEYOND FENCING LIMITS, WITHIN DRIP LINE OF TREE, TO BE PROTECTED.

GENERAL TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.
 CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES.
 CONTRACTOR SHALL KEEP ALL ADJACENT DRIVEWAYS OPEN AT ALL TIMES, UNLESS OTHERWISE SHOWN ON THIS PLAN.
 CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO IMPLEMENTING THIS PLAN. ALL TIMES FOR CLOSURES SHALL BE APPROVED BY THE OWNER.

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

ANDREW T. GREENE
 PROFESSIONAL ENGINEER
 LICENSE NO. PE-2020000043
 MISSOURI

CROCKETT
 ENGINEERING CONSULTANTS

CHECKED BY:	
DRAWN BY:	
ISSUE FOR BID	12/22/25

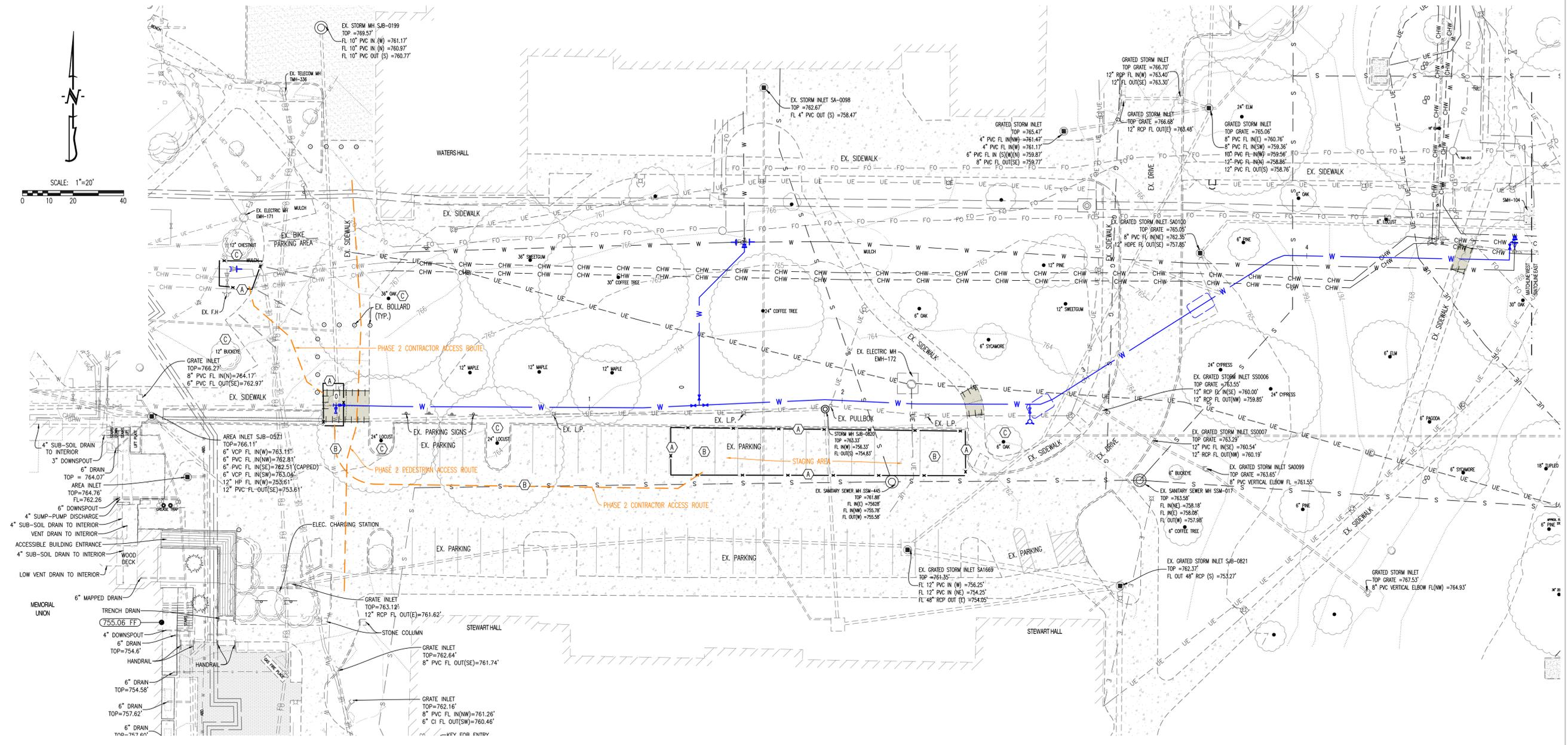
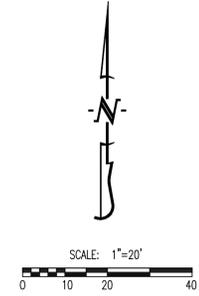
PRV CONSULTANTS, INC.
 1617 SECOND AVE. STE. 110
 ROCK ISLAND, IL 61201
 PHONE 562.263.9161
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEBRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
WEST PHASE I PLAN

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171

CONSULTANT
 PROJECT NUMBER
25103

SHEET
C-113



- LEGEND OF LABELS:**
- (A) CONTRACTOR TO INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION.
 - (B) CONTRACTOR TO USE EXISTING PAVING AS CONSTRUCTION ENTRY AND EXIT AND STAGING AREA WITHIN THE FENCE LIMITS. ALL CONSTRUCTION TRAFFIC SHALL UTILIZE THIS ENTRY AND EXIT TO THE PROJECT. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
 - (C) EXISTING TREE OUTSIDE OF PROJECT FENCING TO BE PROTECTED. MAIN PROJECT FENCING SHALL SERVE AS TREE PROTECTION FENCING. COORDINATE WITH OWNER TO PRUNE LIMBS AS NEEDED FOR CONSTRUCTION. CONTRACTOR SHALL NOT DISTURB AREAS BEYOND FENCING LIMITS, WITHIN DRIP LINE OF TREE, TO BE PROTECTED.

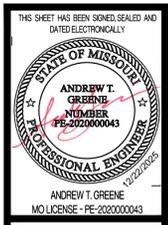
GENERAL TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.

CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES.

CONTRACTOR SHALL KEEP ALL ADJACENT DRIVEWAYS OPEN AT ALL TIMES, UNLESS OTHERWISE SHOWN ON THIS PLAN.

CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO IMPLEMENTING THIS PLAN. ALL TIMES FOR CLOSURES SHALL BE APPROVED BY THE OWNER.



CROCKETT
ENGINEERING CONSULTANTS

CHECKED BY:	
ISSUE FOR BID	12/22/25
DRAWN BY:	

PRV CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2022017805

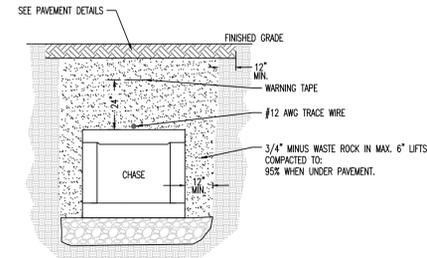


UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEBVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203
WEST PHASE 2 PLAN

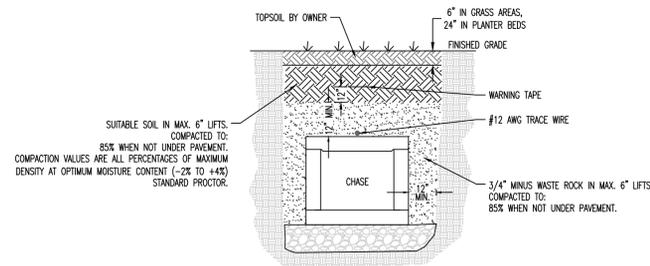
UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

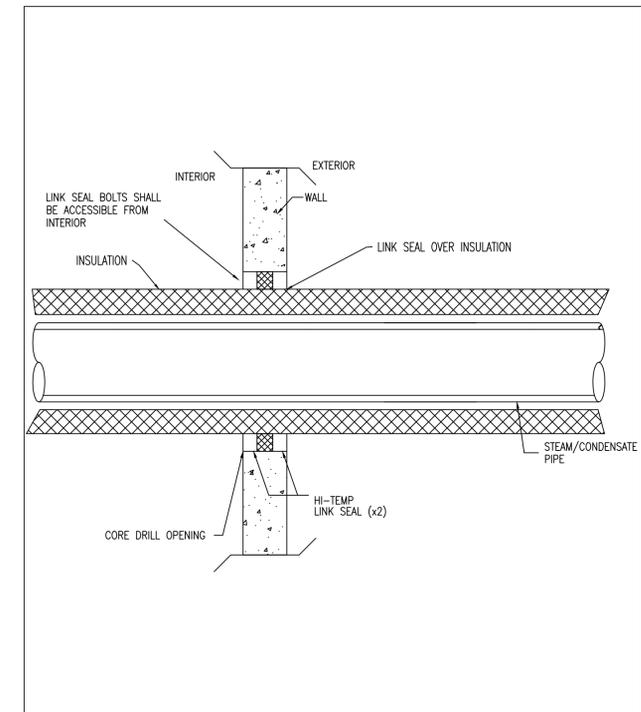
SHEET
C-114



CHASE LID BACKFILL IN PAVED AREAS

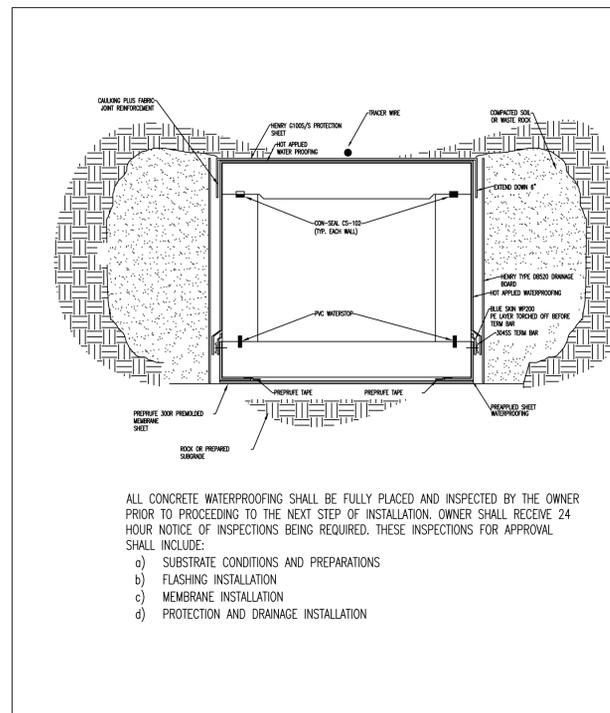


CHASE LID BACKFILL IN NON-PAVED AREAS



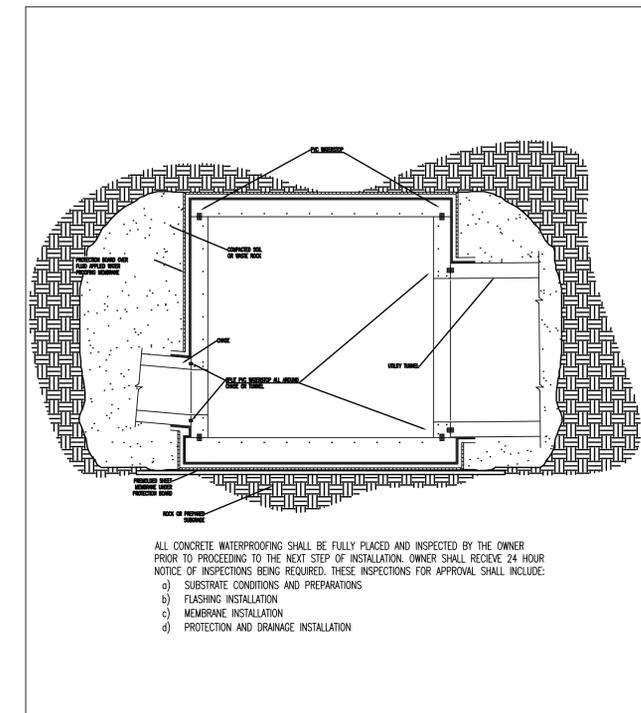
REV	DATE	DESCRIPTION	DRAWING NOT TO SCALE
1	8/17/09	Construction Standards Steam & Condensate Pipe Wall Penetration	
2	12/22/11		
3	10/29/13		

DRAWN BY: MD
 CHECKED BY: LL
 Energy Management
 Campus Facilities
 UNIVERSITY OF MISSOURI-COLUMBIA
 DATE: 10/24/06



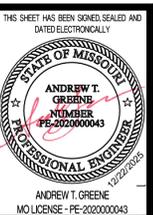
REV	DATE	DESCRIPTION	DRAWING NOT TO SCALE
5	5/12/2017	Construction Standard Typical Chase Waterproofing	

DRAWN BY: .
 CHECKED BY: .
 Energy Management
 Campus Facilities
 UNIVERSITY OF MISSOURI
 DATE: 12/22/2011



REV	DATE	DESCRIPTION	DRAWING NOT TO SCALE
0	8/22/05	Construction Standard Typical Manhole Waterproofing	
1	7/28/09		
2	8/07/09		

DRAWN BY: TG
 CHECKED BY: TG
 Energy Management
 Campus Facilities
 UNIVERSITY OF MISSOURI-COLUMBIA
 DATE: 7/27/09



ANDREW T. GREENE
 NUMBER
 PE-202000043
 PROFESSIONAL ENGINEER
 MO LICENSE - PE-202000043



NO.	DATE	DESCRIPTION	CHECKED BY:
12225	12/22/11	ISSUE FOR BID	

PRVN CONSULTANTS, INC.
 1617 SECOND AVE. STE. 110
 ROCK ISLAND, IL 61201
 PHONE 562.263.3760
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 202307865



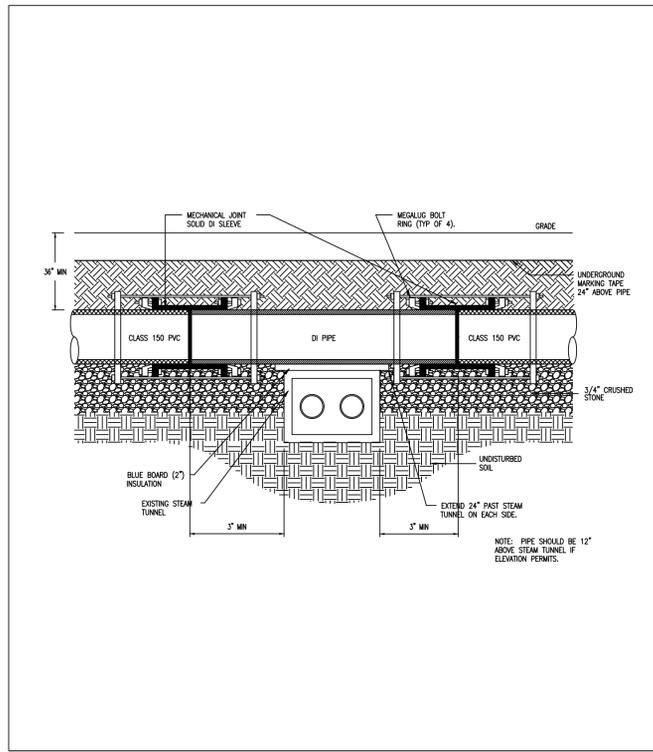
UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEBVRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 STEAM DETAILS

UNIVERSITY OF MISSOURI PROJECT NUMBER

CP253171

CONSULTANT PROJECT NUMBER
25103

SHEET
C-115



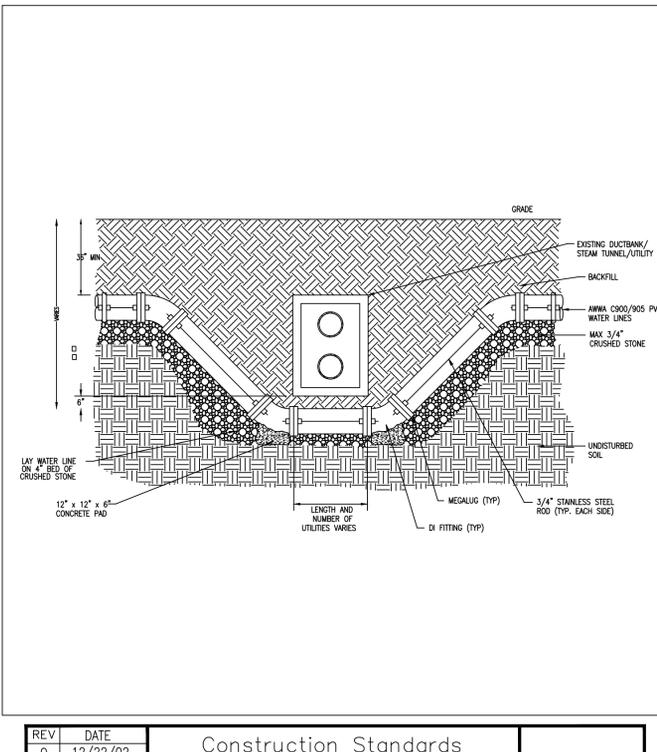
REV	DATE	DESCRIPTION
0	12/18/02	
1	7/11/05	
2	2/9/2016	

Construction Standard
Steam Tunnel Crossing

Energy Management
Campus Facilities
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWN BY: AM
CHECKED BY: TG

DRAWING NOT TO SCALE
DATE: 2/9/2016



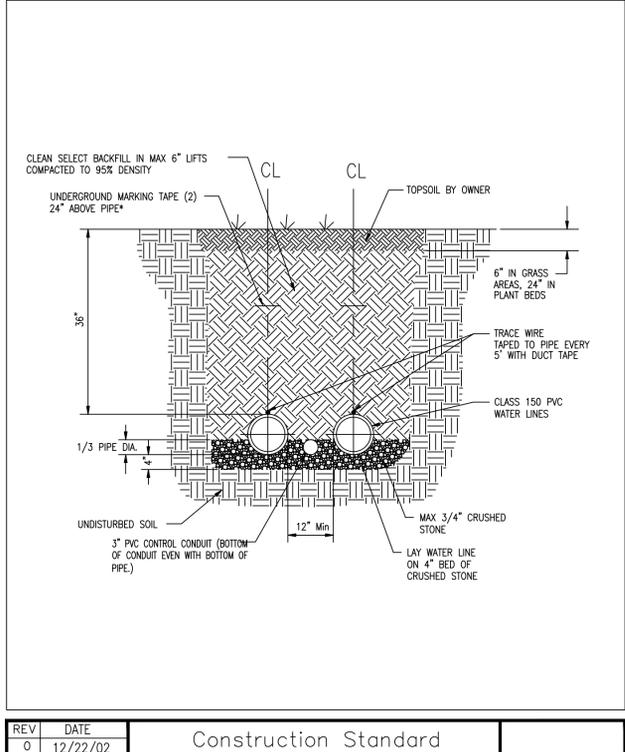
REV	DATE	DESCRIPTION
0	12/22/02	
1	2/9/2016	

Construction Standards
Vertical Offset

Energy Management
Campus Facilities
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWN BY: BB
CHECKED BY: TG

DRAWING NOT TO SCALE
DATE: 2/9/2016



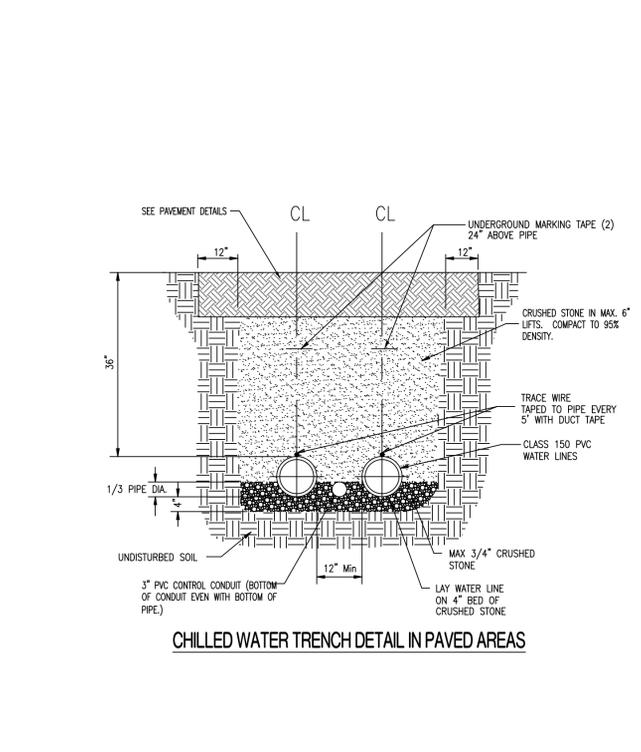
REV	DATE	DESCRIPTION
0	12/22/02	
1	2/9/2016	

Construction Standard
Trench at Grass and Plantings

Energy Management
Campus Facilities
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWN BY: BB
CHECKED BY: TG

DRAWING NOT TO SCALE
DATE: 2/9/2016



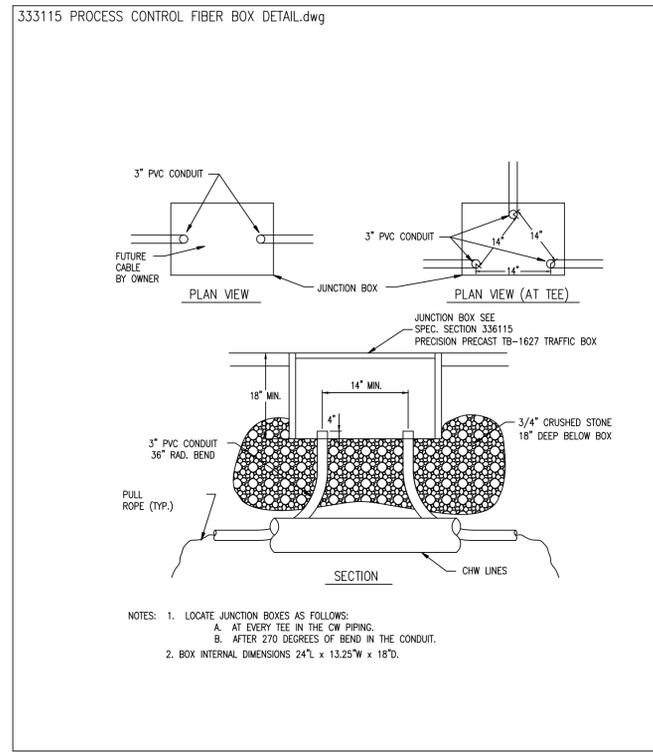
REV	DATE	DESCRIPTION
0	12/22/02	
1	2/9/2016	

Construction Standard
Chilled Water Trench Detail in Paved Areas

Energy Management
Campus Facilities
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWN BY: BB
CHECKED BY: TG

DRAWING NOT TO SCALE
DATE: 2/9/2016



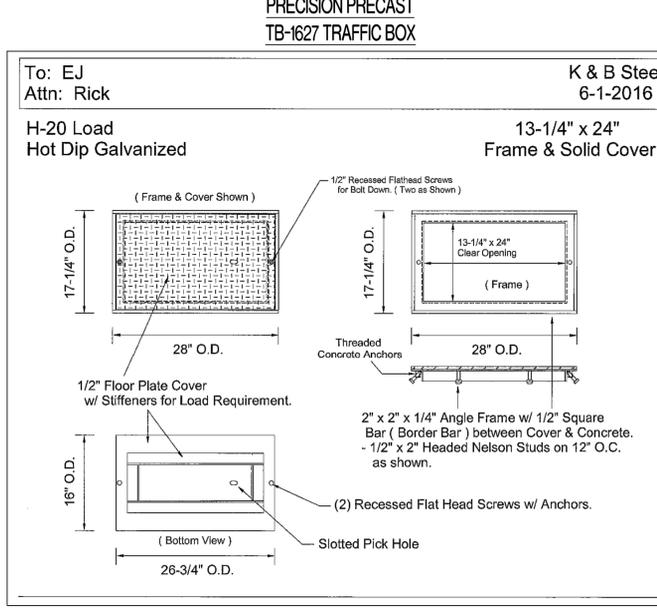
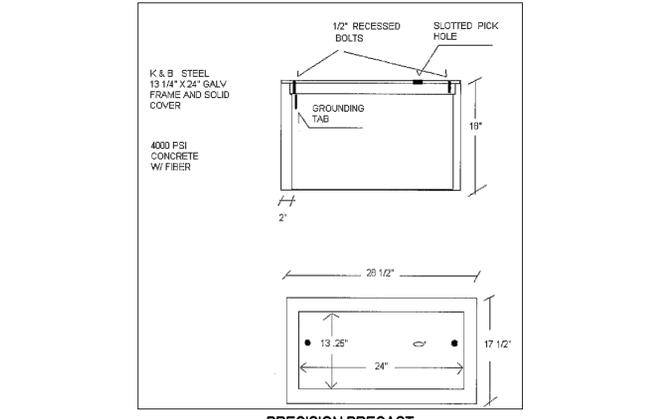
REV	DATE	DESCRIPTION
0	12/18/02	
1	2/9/2016	
2	8/24/2021	

Construction Standard
Process Control Fiber Junction Box

Energy Management
Campus Facilities
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWN BY: AM
CHECKED BY: TG

DRAWING NOT TO SCALE
DATE: 2/9/2016



Precision Precast

"Where Quality Comes First"

2801 Old 63 South - Columbia, MO 65201
Phone: 573-442-0995 - Fax 573-474-4086
David Rothove drothove@precision-precast.com

4000 PSI Mix Design

Cement Type 1/2	510 lbs
Flyash	90lbs
Fine Agg	1515 lbs
Coarse 3/4" Agg	1982 lbs
Water	174 lbs
Polychem 3000	40.0oz
Polychem SA-50	1.14oz
Polymesh Fibrillated Fiber	1.5lbs

Material Suppliers

Cement	Central Plains, Sugar Creek MO
Fine Agg	Capital Sand, Rocheport MO
Coarse Agg	Mertens Quarry, Auxvasse MO
Polychem 3000	General Resource Tech., St Louis MO
Polychem SA-50	General Resource Tech., St Louis MO
Polymesh Fibrillated Fiber	General Resource Tech., St Louis MO

Test reports will be supplied upon completion.
Sample report attached.

GRT
ADMIXTURES
FOR CONCRETE

Polymesh™

Fibrillated Fiber Reinforcement System for Concrete

APPLICABLE STANDARDS

Polymesh™ Fibrillated Fibers meet the material specifications described in ASTM C-1116, Type III, Section 4.1.3, "Synthetic Fiber Reinforced Concrete or Shotcrete".

Meets the properties for polypropylene established in ACI 544.1 R-82, Table 1.1.

ADVANTAGES

- Will control shrinkage and thermal cracking
- Will not rust or corrode
- Will assist in preventing cracks; whereas wire mesh may influence cracking
- Low cost alternative to light duty wire mesh reinforcement
- Reduces permeability to chloride and increases

PACKAGING

Polymesh™ Fibrillated Fibers are available in 1-1/2 pound water-dispersible bags, (18 bags per carton, 18 cartons per pallet). For additional information, please contact your GRT Polymesh™ representative.

HANDLING

Polymesh™ Fibrillated Fibers should be stored in a weathertight area.

General Resource Technology assumes no responsibility for the end products or uses made with our Polymesh fibers due to GRT's lack of control during design, manufacture, or testing of these products.

IMPACT RESISTANCE

- Chemically inert and non-hazardous, will not react with any components normally incorporated in concrete
- Contains no additives harmful to the skin when handling
- Does not affect concrete pumpability, set time or finishing characteristics
- Qualifies as non-structural fiber reinforcement in hardened concrete

General Resource Technology, Inc. • 2978 Center Court • Eagan, Minnesota 55121-1257
Sales: (800) 324-8154 • Corporate: (631) 454-4151 • Fax: (651) 454-4252
Visit our Web site @ www.grtinc.com

CROCKETT
ENGINEERING CONSULTANTS

CHECKED BY: _____

DRAWN BY: _____

ISSUE FOR BID

12/22/05

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEBRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203

CHILLED WATER DETAILS

UNIVERSITY OF MISSOURI PROJECT NUMBER

CP253171

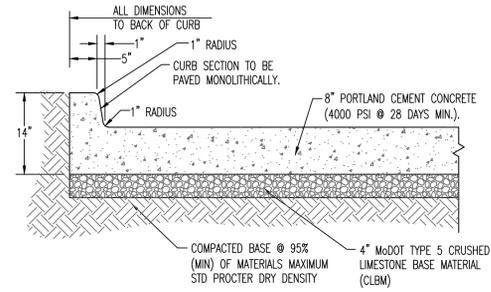
CONSULTANT PROJECT NUMBER

25103

SHEET

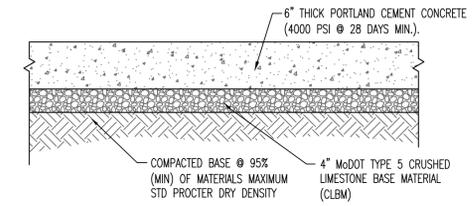
C-116

PRV CONSULTANTS, INC.
1617 SECOND AVE. STE. 110
ROCK ISLAND, IL 61201
PHONE 562.263.9161
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 202007865



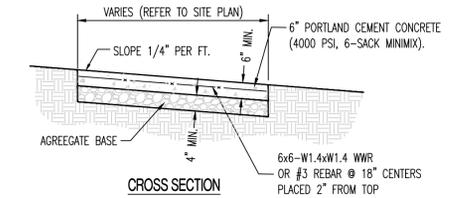
NOTES: 1. ALL PAVEMENT IS TO HAVE PANELS SAW CUT WITH JOINTS NO LARGER THAN 10'X10' IN SIZE. FILL JOINT WITH BITUMINOUS SEALER.

CONCRETE DRIVE PAVEMENT W/ INTEGRAL CURB



NOTES: 1. ALL PAVEMENT IS TO HAVE PANELS SAW CUT WITH JOINTS NO LARGER THAN 12'X12' IN SIZE. FILL JOINT WITH SEALER.

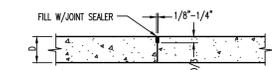
CONCRETE PARKING PAVEMENT CROSS SECTION



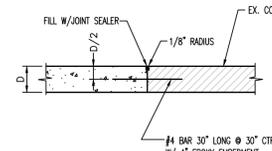
TYPICAL LOCATION OF EXPANSION JOINT AT BUILDING/CURB

- NOTE:
1. SIDEWALK SHALL BE 6" THICK CLASS A CONCRETE ON 4" AGGREGATE BASE.
 2. INSTALL 3/4" EXPANSION JOINT AT BUILDING/STRUCTURES.
 3. INSTALL DOWELED CONSTRUCTION JOINT AT EXISTING PAVEMENTS.
 4. INSTALL 3/8" EXPANSION JOINT EVERY 100'.
 5. INSTALL TRANSVERSE SAW JOINTS AT SPACING = SIDEWALK WIDTH.

TYPICAL PRIVATE SIDEWALK



CONTROL JOINT 'SAWED'



CONSTRUCTION JOINT

JOINT DETAILS (P.C. CONCRETE PAVEMENT)

CHECKED BY:
 DRAWN BY:
 12/22/25
 ISSUE FOR BID

PRVN CONSULTANTS, INC.
 1617 SECOND AVE. STE. 110
 ROCK ISLAND, IL 61201
 PHONE 563.283.3160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2022017865

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEVRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203

PAVEMENT DETAILS

UNIVERSITY OF MISSOURI
 PROJECT NUMBER

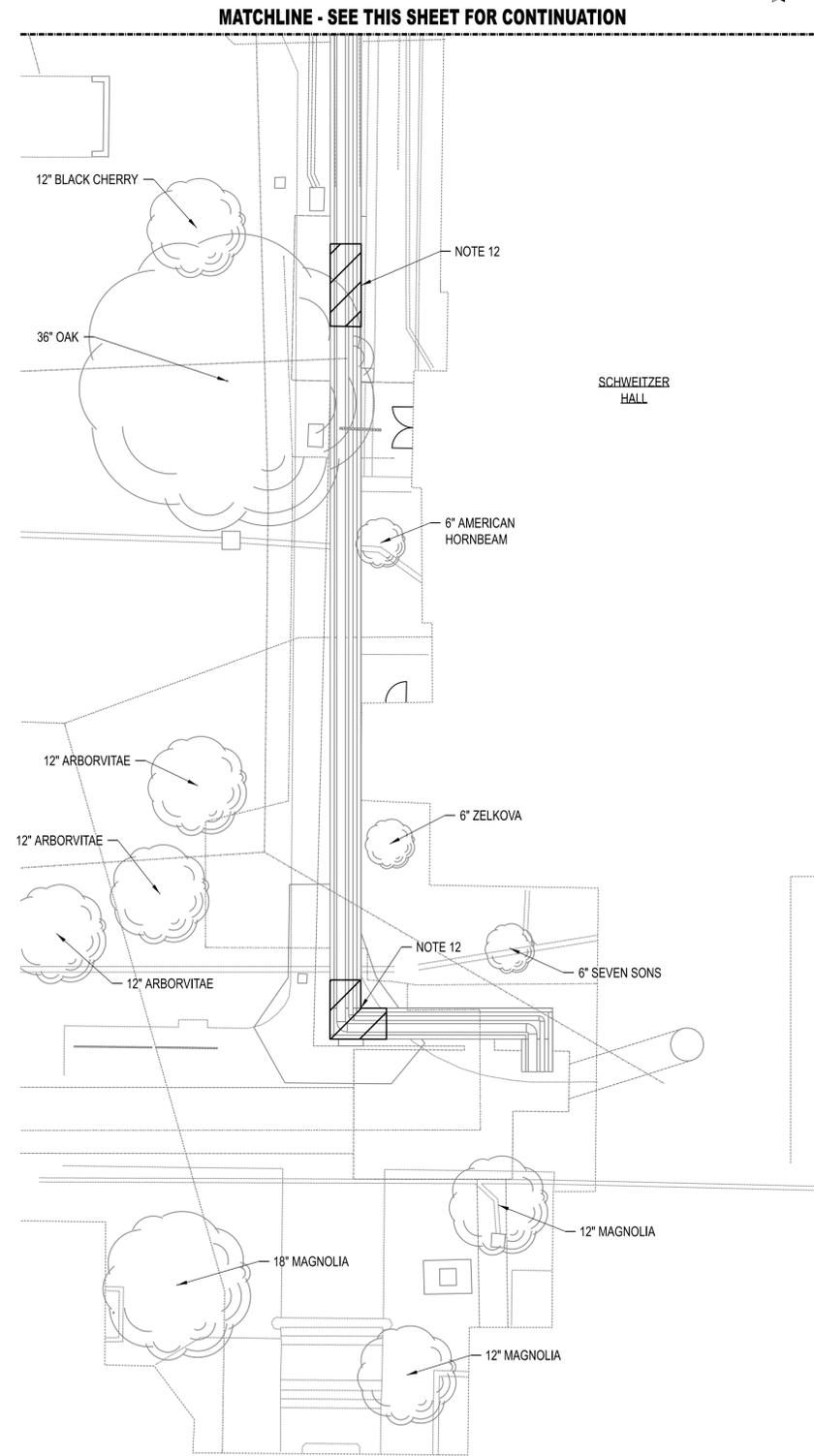
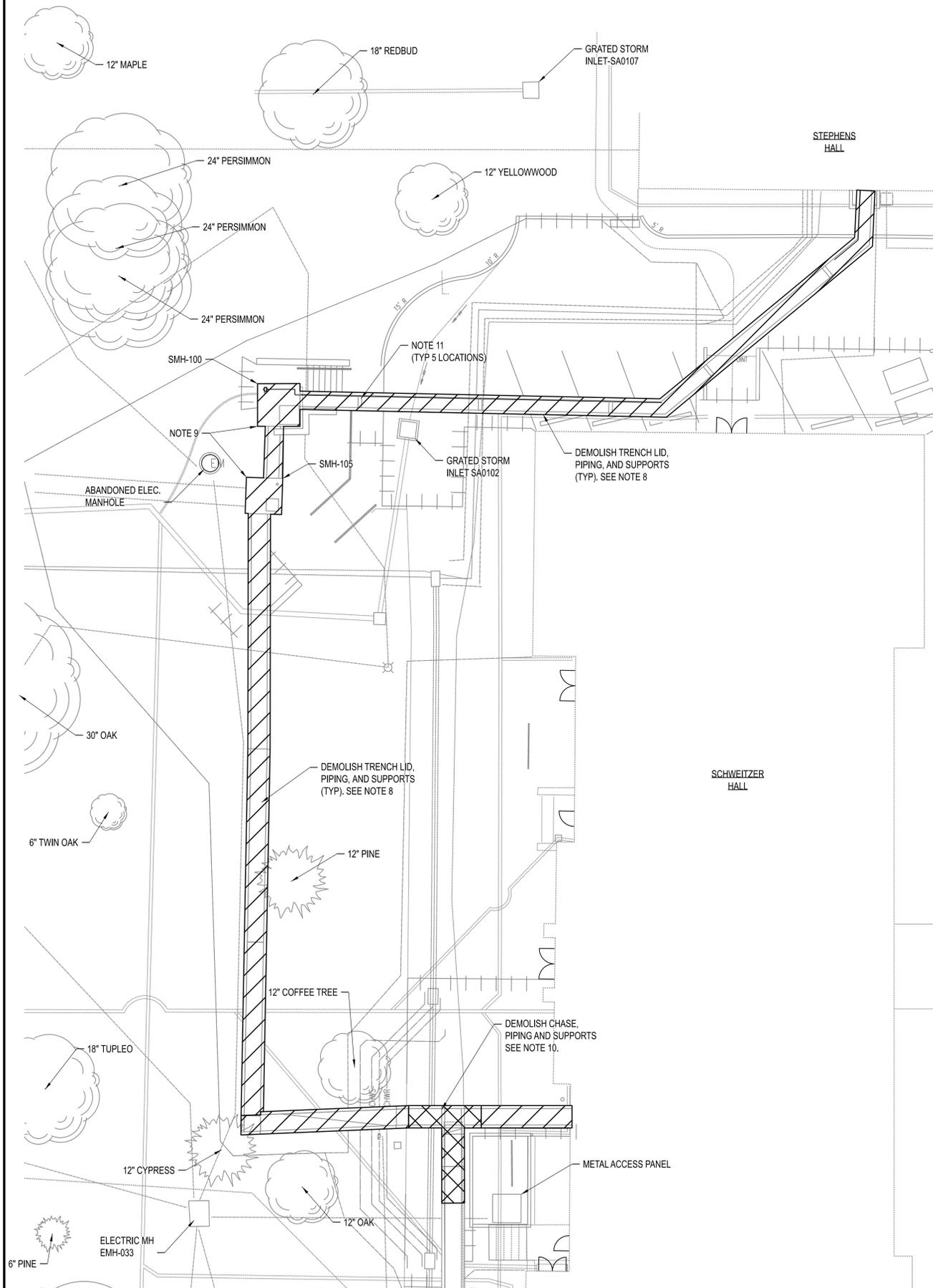
CP253171

CONSULTANT
 PROJECT NUMBER

25103

SHEET

C-118



NOTES:

1. FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
2. PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
3. EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
4. TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
5. PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
6. PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
8. EXISTING STEAM CHASE TO BE EXCAVATED AND EXPOSED. DEMOLISH CHASE LID AND ALL PIPING AND SUPPORTS. ABATE ASBESTOS AS NEEDED. CONTRACTOR SHALL NOTIFY ENGINEER WHEN SECTIONS OF STEAM CHASE ARE CLEARED OF PIPING AND READY FOR INSPECTION. ENGINEER WILL DETERMINE EXTENT OF CHASE REPAIRS REQUIRED. CONTRACTOR SHALL MAKE REPAIRS PER DETAILS ON S110. CONTRACTOR SHALL INCLUDE UNIT PRICING FOR CRACK AND SPALL REPAIRS SHOWN ON S110 AS INSTRUCTED IN THE PROJECT MANUAL.
9. LID ON EXISTING SMH-100 & SMH-105 TO BE DEMOLISHED SEE DRAWING S101. DEMOLISH SMH-100 & SMH-105 PIPING AND SUPPORTS SEE DRAWINGS D110, D120, M110 AND M120. ABATE ASBESTOS AS NEEDED.
10. DEMOLISH CHASE SECTION, PIPING, AND SUPPORTS COMPLETELY. RECONSTRUCT CHASE SECTION AS SHOWN ON DRAWINGS S110.
11. DEMOLISH CHASE INTERNAL CONCRETE BARRIER. NO RECONSTRUCTION REQUIRED.
12. CONTRACTOR SHALL REMOVE SIDEWALK TO THE NEAREST JOINT IN THE LOCATION INDICATED. EXCAVATE TO THE STEAM CHASE. DEMOLISH CHASE LID. REMOVE PIPE INSULATION ON PIPING FOR INSTALLATION OF NEW PIPE SUPPORTS.

LEGEND:



ASBESTOS NOTES - CAUTION!!!

1. STEAM CHASE WATERPROOFING MAY CONTAIN ASBESTOS. ONCE EXCAVATED TO BE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT MAY BE REQUIRED TO REMOVE STEAM CHASE LID SHALL BE PROVIDED BY CONTRACTOR.
2. MPS/PC PIPING INSULATION WITHIN CHASE MAY CONTAIN ASBESTOS. ONCE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT SHALL BE PROVIDED BY CONTRACTOR.

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

JEFFREY N. CHAMBERLAIN
 NUMBER PE-809923860
 PROFESSIONAL ENGINEER
 12/22/2025
 ENGINEER / ARCHITECT OF RECORD
 JAMES R. ROYER/DAVID J. RE
 LICENSE NO. PE-800002690
 PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE 110
 ROCK ISLAND, IL 61201
 PHONE: 563-263-5160

ISSUED FOR BID	12/22/25	0
CHECKED BY:	J.J.N.	
DRAWN BY:	M.A.O.	

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 OVERALL DEMOLITION SITE PLAN

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171
 CONSULTANT
 PROJECT NUMBER
25103
 SHEET
D100

OVERALL DEMOLITION SITE PLAN

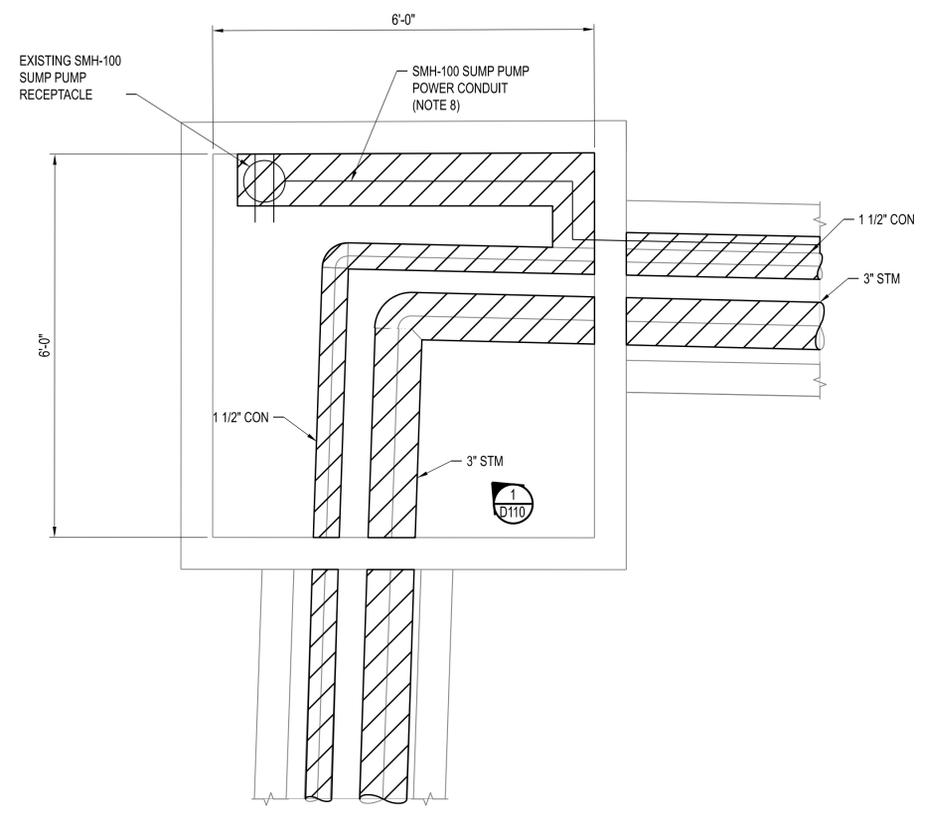
SCALE: 1"=10'-0"

MATCHLINE - SEE THIS SHEET FOR CONTINUATION

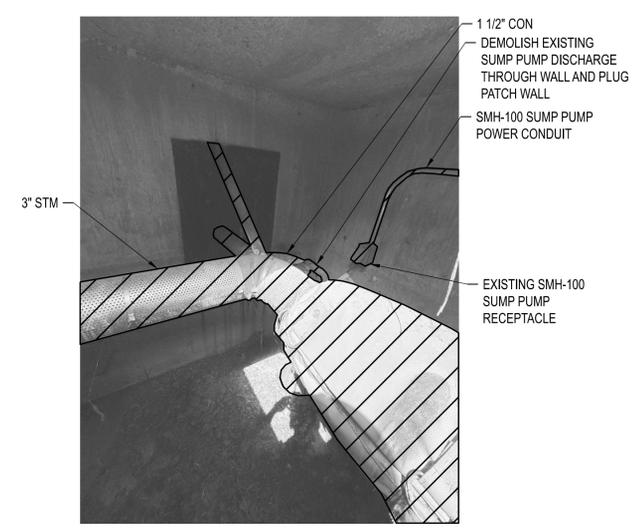
MATCHLINE - SEE THIS SHEET FOR CONTINUATION

NOTES:

1. FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
2. PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
3. EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
4. TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
5. PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
6. PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
8. CONTRACTOR SHALL COORDINATE WITH UNIVERSITY TO TAKE OUTAGE ON EXISTING SMH-100 SUMP PUMP POWER PRIOR TO CONDUIT AND CABLE DEMOLITION.



SMH-100 DEMOLITION PLAN
 SCALE: 3/4" = 1'-0"



1 SMH-100 LOOKING NORTHWEST
 D110

LEGEND:



0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
			DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563.263.5160
 MISSOURI CERTIFICATE OF
 AUTHORITY ENGINEERING - 2023017805



UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 SMH-100 DEMOLITION PLAN AND PHOTOS

UNIVERSITY OF MISSOURI
 PROJECT NUMBER

CP253171

CONSULTANT
 PROJECT NUMBER

25103

SHEET

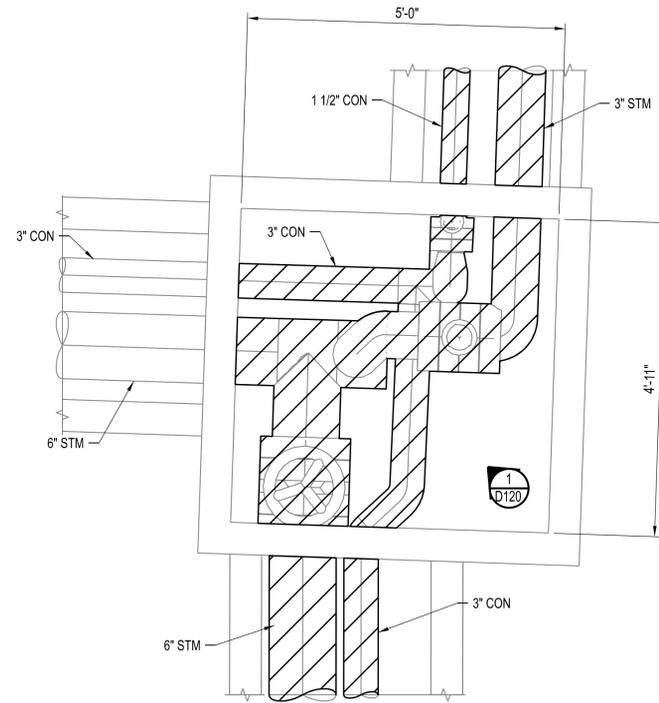
D110



ENGINEER / ARCHITECT OF RECORD:
 JAMES J. NONNENMANN, PE
 LICENSE NO. PE-6053025612
 PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE 110
 ROCK ISLAND, IL 61201
 PHONE: 563-263-5160

NOTES:

1. FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
2. PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
3. EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
4. TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
5. PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
6. PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.

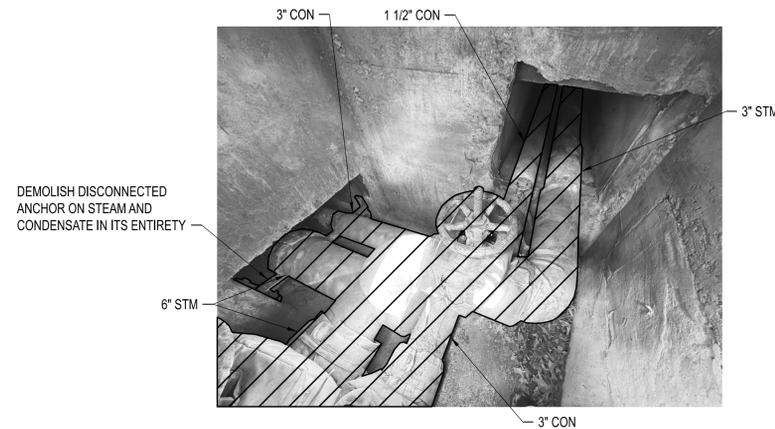


SMH-105 DEMOLITION PLAN

SCALE: 3/4" = 1'-0"

LEGEND:

 ITEMS TO BE DEMOLISHED



① **SMH-105 LOOKING NORTHWEST**
 D120

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
			DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE 563.263.5160
 MISSOURI CERTIFICATE OF
 AUTHORITY ENGINEERING - 2023017805



UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 SMH-105 DEMOLITION PLAN AND PHOTOS

UNIVERSITY OF MISSOURI
 PROJECT NUMBER

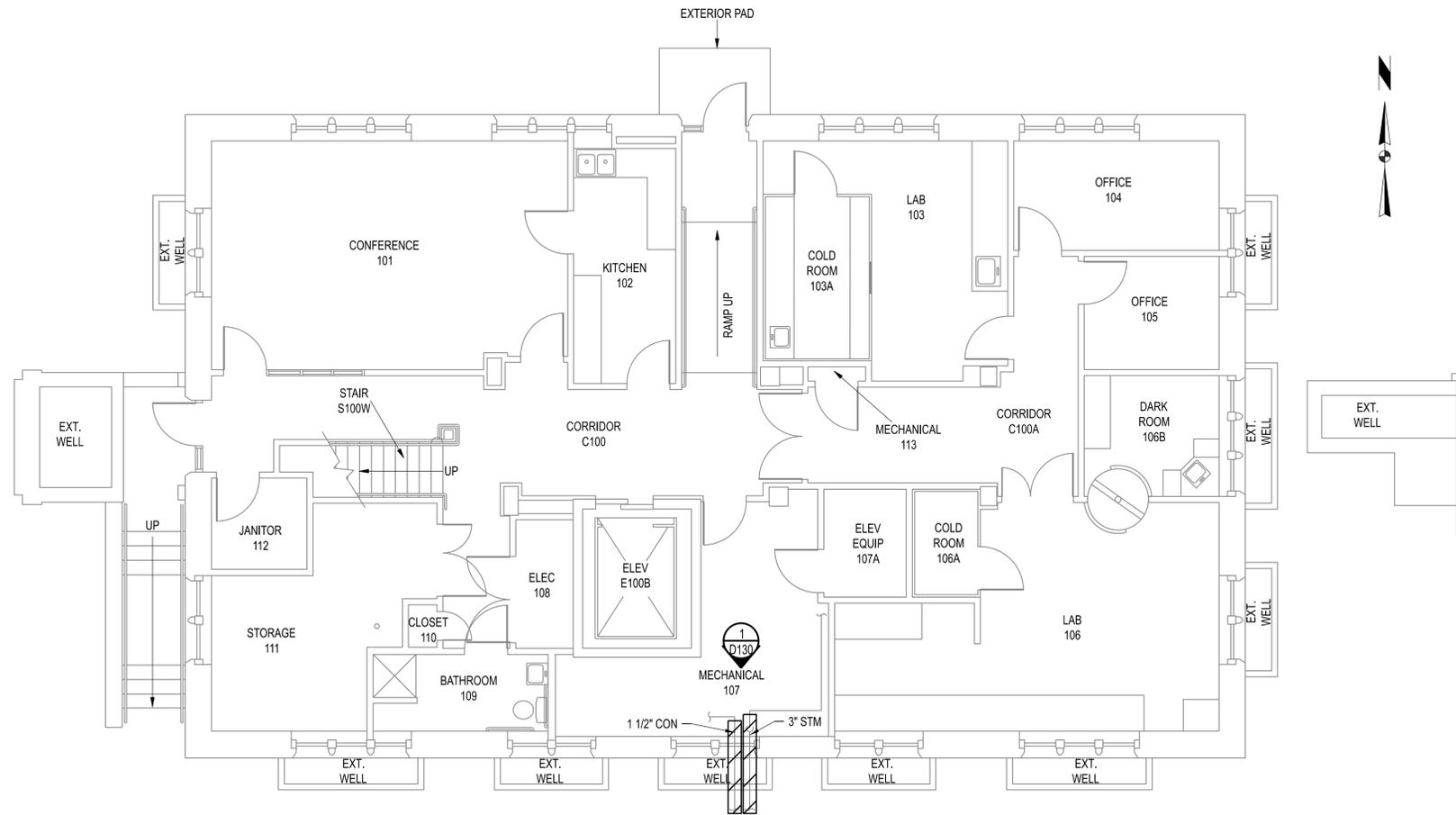
CP253171

CONSULTANT
 PROJECT NUMBER

25103

SHEET

D120



STEPHENS HALL BASEMENT

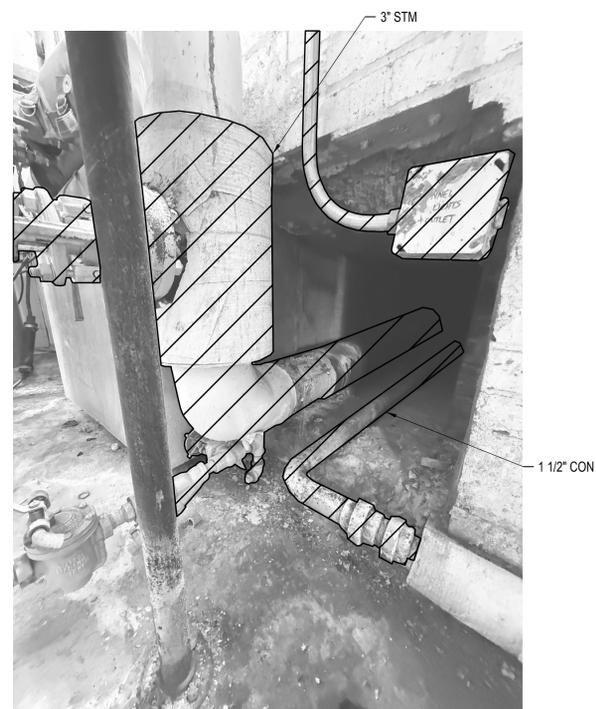
SCALE: 3/16" = 1'-0"

NOTES:

1. FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
2. PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
3. EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
4. TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
5. PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
6. PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.

LEGEND:

 ITEMS TO BE DEMOLISHED



1 STEPHENS HALL LOOKING SOUTHEAST
D130

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.



ENGINEER / ARCHITECT OF RECORD:
JAMES NONNENMANN, PE
LICENSE NO. PE-6053025612
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
			DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

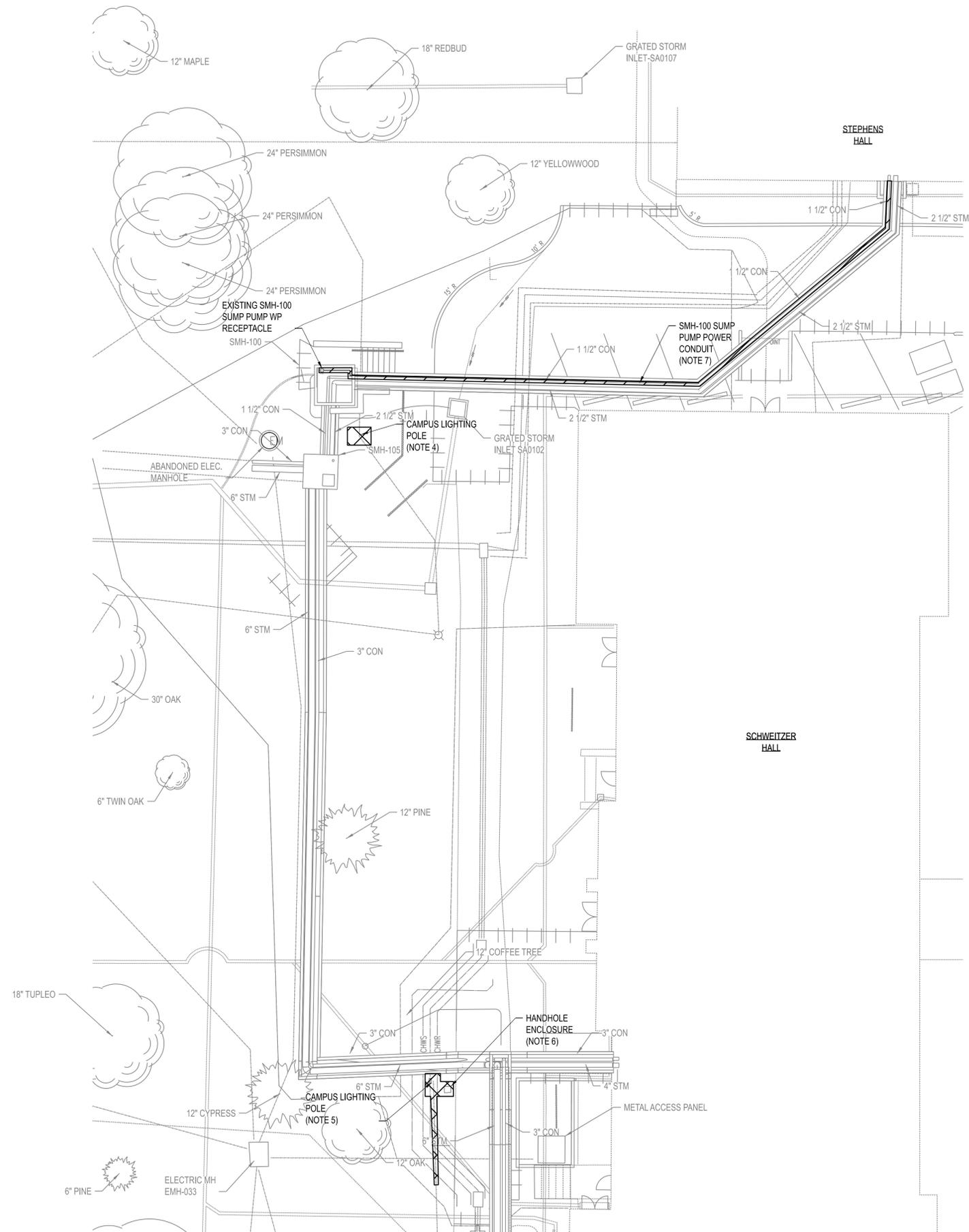


UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
STEPHENS HALL DEMOLITION PLAN AND PHOTOS

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
D130



ELECTRICAL DEMOLITION SITE PLAN
SCALE: 1"=10'-0"



NOTES:

1. ALL EXISTING CONDITIONS SHOWN HAVE BEEN DETERMINED FROM CASUAL FIELD OBSERVATIONS AND AS-BUILT DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT FIELD CONDITIONS (QUANTITIES, LOCATIONS, ETC) PRIOR TO BEGINNING WORK.
2. ALL DEVICES AND EQUIPMENT SHOWN LIGHT AND CONTINUOUS ON THIS SHEET ARE EXISTING EQUIPMENT TO REMAIN. ALL DEVICES AND EQUIPMENT SHOWN BOLD AND DASHED ON THIS SHEET ARE TO BE DISCONNECTED, REMOVED AND DISPOSED OF BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE INDICATED. THE OWNER SHALL BE GIVEN SALVAGE RIGHTS TO ALL EQUIPMENT INDICATED FOR REMOVAL WITHOUT RE-INSTALLATION. CONTRACTOR SHALL DISPOSE OF ALL UNSALVAGED EQUIPMENT IN AN ENVIRONMENTALLY ACCEPTABLE MANNER.
3. WHEN A DEVICE IS DESIGNATED TO BE REMOVED, THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ASSOCIATED WIRE AND CONDUIT BACK TO THE NEAREST DEVICE TO REMAIN OR TO THE PANEL, UNLESS OTHERWISE INDICATED. CONTINUITY OF CONDUCTORS FEEDING DEVICES TO REMAIN SHALL BE MAINTAINED DURING CONSTRUCTION.
4. CONTRACTOR SHALL COORDINATE WITH UNIVERSITY TO TAKE OUTAGE ON CAMPUS LIGHTING CIRCUIT AFFECTED BY THE SALVAGE REMOVAL OF THIS LIGHT POLE. LIGHT POLE SHALL BE TEMPORARILY REMOVED TO SAFE LOCATION DURING CONSTRUCTION TO AVOID DAMAGING IT. CONTRACTOR SHALL SHORE AND PROTECT EXISTING LIGHT POLE FOUNDATION. CONTRACTOR SHALL COVER BARE CABLES TO PREVENT DANGER IN THE EVENT OF INADVERTENT ENERGIZATION. AT END OF PROJECT, LIGHT POLE SHALL BE REINSTALLED TO BE AS IT WAS PRIOR TO CONSTRUCTION COMMENCEMENT UTILIZING EXISTING CABLES.
5. CONTRACTOR SHALL COORDINATE WITH UNIVERSITY TO TAKE OUTAGE ON CAMPUS LIGHTING CIRCUIT AFFECTED BY THE SALVAGE REMOVAL OF THIS LIGHT POLE. LIGHT POLE SHALL BE TEMPORARILY REMOVED TO A SAFE LOCATION DURING CONSTRUCTION TO AVOID DAMAGING IT. CONTRACTOR SHALL PULL BACK EXISTING CABLES COMING FROM UPSTREAM LIGHT POLE AND REPLACE IN KIND AFTER PROJECT IS COMPLETED. DEMOLISH EXISTING LIGHT POLE FOUNDATION AND REUSE AFTER NEW CHASE IS INSTALLED. EXISTING CABLES ARE TO BE REUSED. LIGHT POLE SHALL BE REINSTALLED TO BE AS IT WAS PRIOR TO CONSTRUCTION STARTING.
6. EXISTING ELECTRIC PULL BOX SHALL BE SALVAGED AND REMOVED DURING THE CONSTRUCTION OF THIS PROJECT. CONTRACTOR SHALL COORDINATE WITH UNIVERSITY TO TAKE OUTAGE ON CIRCUITS INSIDE THE PULLBOX. CONTRACTOR TO PULL EXISTING CABLES BACK AWAY FROM CONSTRUCTION AREA. AFTER CHASE IS INSTALLED, PULLBOX SHALL BE REINSTALLED AS IT WAS PRIOR TO CONSTRUCTION STARTING.
7. CONTRACTOR SHALL COORDINATE WITH UNIVERSITY TO TAKE OUTAGE ON EXISTING SMH-100 SUMP PUMP POWER PRIOR TO CONDUIT AND CABLE DEMOLITION.

LEGEND:

- ITEMS TO BE DEMOLISHED
- ITEMS TO BE SALVAGED

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

ENGINEER / ARCHITECT OF RECORD:
JEFFERY GAMBRELL, PE
LICENSE NO. PE-2000173860
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

ISSUED FOR BID	CHECKED BY: J.J.N.
0 12/22/25	DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
ELECTRICAL DEMOLITION SITE PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
D140

PROJECT ABBREVIATIONS

AC	AIR COMPRESSOR	EA	EXHAUST AIR	KW	KILOWATT	RP	RESERVOIR PUMP
ACID	SULFURIC ACID	EAT	ENTERING AIR TEMPERATURE	LAT	LEAVING AIR TEMPERATURE	S	SOUTH
AD	AIR DRYER	EF	EXHAUST FAN	LB	POUND	S (#)	STEAM AT PRESSURE LISTED
ADDL	ADDITIONAL	EL	ELEVATION	LOR	LOCAL OFF REMOTE	SAN	SANITARY SEWER
AFF	ABOVE FINISHED FLOOR	EWT	ENTERING WATER TEMPERATURE	LS	LEVEL SWITCH	SC	SPEED COMMAND
AHU	AIR HANDLING UNIT	ETC	ET CETERA	LT	LEVEL TRANSMITTER	SCH	SCHEDULE
AI	ANALOG INPUT	EXST	EXISTING	LWT	LEAVING WATER TEMPERATURE	SEL	SELECT
AT	AMP TRIP	F	FAHRENHEIT	M	METER	SI	STATUS INDICATOR
BDW	BLOW-DOWN WATER	FACP	FIRE ALARM CONTROL PANEL	MAU	MAKEUP AIR UNIT	SIC	STATUS INDICATOR CONTROL
BI	BRINE	FC	FAIL CLOSED	MAX	MAXIMUM	SIZ	STATUS INDICATOR CONTROL DRIVE
BFP	BACK FLOW PREVENTER	FCU	FAN COIL UNIT	MBH	1000 BTU PER HOUR	SP	SPRINKLER
BMS	BUILDING MANAGEMENT SYSTEM OR BURNER MANAGEMENT SYSTEM	FD	FLOOR DRAIN, FIRE DAMPER	MCC	MOTOR CONTROL CENTER	SPCF	SPEED POINT CONTROL FLOW
BP	BRINE PUMP	FL	FAIL LAST	MIN	MINIMUM, MINUTE	SQ	SQUARE
BOD	BOTTOM OF DUCT	FLA	FULL LOAD AMPS	MISC	MISCELLANEOUS	SOV	SOLENOID VALVE
C	COIL	FLT	FLOW TRANSMITTER	MOV	MOTOR OPERATED VALVE	SSP	SOUTH STEAM PLANT
CA	COMPRESSED AIR	FM	FLOW METER	MPH	MILES PER HOUR	STA	STATION
CCUT	COUPLING CAPACITIVE VOLTAGE TRANSFORMER	FPM	FEET PER MINUTE	NC	NORMALLY CLOSED	STR	STORM SEWER
CFM	CUBIC FEET PER MINUTE	FO	FAIL OPEN	NG	NATURAL GAS	SW	SOFT WATER
CFS	CHEMICAL FEED SUPPLY	FOR	FUEL OIL RETURN	NO	NORMALLY OPEN	TES	TERMINAL ENERGY SYSTEM
CHLR	CHILLER	FOS	FUEL OIL SUPPLY	NPT	NATIONAL PIPE THREAD	TG	TEMPERATURE GAUGE
CO	CLEANOUT	FS	FLOW SWITCH	NS	RUN STATUS	T	TANK
COL	COLUMN	FT	FLOW TRANSMITTER, FOOT, FEET	NSA	RUN STATUS AUTO	TRS	TEMPERATURE SENSOR
COMM	COMMUNICATION	GA	GAUGE	NTS	NOT TO SCALE	TS	TRANSFER SWITCH
COND	CONDENSATE	GPM	GALLONS PER MINUTE	OPD	OVER FLOW DRAIN	TT	TEMPERATURE TRANSMITTER
CR	CONDENSER WATER RETURN	H	HEIGHT	P&ID	PIPING & INSTRUMENTATION DIAGRAM	TW	THERMOWELL
CS	CONDENSER WATER SUPPLY	HHWR	HEATING HOT WATER RETURN	PCR	PUMPED CONDENSATE RETURN	TYP	TYPICAL
CT	COOLING TOWER	HHWS	HEATING HOT WATER SUPPLY	PCT	PUMPED CONDENSATE TRANSFER	UH	UNIT HEATER
CTP	CONDENSATE TRANSFER PUMP	HOV	HYDRAULIC OPERATED VALVE	PCW	PROCESS COLD WATER	UTIL	UTILITY
CTHH	CONTROL TRANSMITTER HIGH HIGH	HP	HORSEPOWER	PG	PRESSURE GAUGE	V	VENT
CTL	CONTROL	HRS	HOUR	PMP	PUMP	VFD	VARIABLE FREQUENCY DRIVE
CTL	CONTROL VALVE	HSS	HAND START SWITCH	PS	PRESSURE SWITCH	VP	VACUUM PUMP
CWR	CHILLED WATER RETURN	HST	HAND STOP TRANSMITTER	PSIG	POUNDS PER SQUARE INCH	VS	VARIABLE SPEED
CWS	CHILLED WATER SUPPLY	HVAC	HEATING, VENTILATION AND AIR CONDITIONING	PSV	PRESSURE SUSTAINING VALVE	VTR	VENT THROUGH ROOF
DB	DUCT BANK	HWR	HOT WATER RETURN	PT	PRESSURE TRANSMITTER	W	WIDTH, WATER, WIDE, WATT
DCS	DISTRIBUTED CONTROL SYSTEM	HWS	HOT WATER SUPPLY	PWS	POTABLE WATER SUPPLY OR PROCESS WATER SUPPLY	WCCUP	WEST CENTRAL UTILITY PLANT
DEG	DEGREES	HZ	HERTZ	RA	RETURN AIR	WE	WITH EQUIPMENT
DIA	DIAMETER	ID	INSIDE DIAMETER, IDENTIFICATION	RAD	RADIAL	WTR	WATER
DN	DOWN	IT	INDICATING TRANSMITTER	RD	ROOF DRAIN	XLG	INDICATING LIGHT GREEN
DWG	DRAWING	KV	KILOVOLT	REC	RECEIVER	XLR	INDICATING LIGHT RED
		KVA	KILOVOLT AMPERE	R.O.	REVERSE OSMOSIS	XSS	PLC/DCS START SWITCH
						XST	PLC/DCS STOP SWITCH

PHASING NOTES

- BEFORE DEMOLITION OF THE CONDENSATE AND STEAM SERVICES TO STEPHENS HALL AND SCHWEITZER HALL, CONTRACTOR SHALL COORDINATE WITH OWNER CONDENSATE AND STEAM OUTAGE FOR TEMPORARY STEAM SERVICE CONNECTION TO STEPHENS HALL AND SCHWEITZER HALL. SEE SHEET M100 FOR ADDITIONAL TEMPORARY STEAM DETAILS. (1 DAY DURATION)
- AFTER CONSTRUCTION OF NEW STEAM AND CONDENSATE SERVICES IN SMH-737, SMH-105, AND SMH-100, ALONG WITH SERVICES TO STEPHENS HALL AND SCHWEITZER HALL ARE COMPLETED, CONTRACTOR SHALL COORDINATE WITH OWNER STEAM AND CONDENSATE OUTAGE FOR NEW STEAM AND CONDENSATE CONNECTION TO STEPHENS HALL AND SCHWEITZER HALL. (1 DAY DURATION)
- PCN FIBER NETWORK CABLES SHALL REMAIN OPERATIONAL UNTIL REPLACEMENT CONDUITS ARE INSTALLED AND READY FOR OWNER TO PULL REPLACEMENT FIBER CABLES. FIBER CABLE OUTAGE SHALL NOT LAST LONGER THAN 7 CALENDAR DAYS.
- TO INSTALL SMH-737, WATER AND CHILLED WATER SERVICES SHALL BE RELOCATED TO NEAR SCHWEITZER HALL. CONTRACTOR SHALL COORDINATE WITH OWNER CHILLED WATER AND WATER OUTAGE TO COMPLETE RELOCATION AND TIE-IN OF NEW PIPING IN THE AREA. (8 HOUR DURATION).
- THE WORK TO INSTALL THE LIMIT STOP AND INTERMEDIATE GUIDE AT THE SOUTH END OF THE PROJECT AREA SHALL BE COMPLETED WITH THE FIRST STEAM SHUTDOWN TO SCHWEITZER HALL. THE SIDEWALK REMOVAL, EXCAVATION, MECHANICAL WORK, CHASE LID INSTALLATION, WATERPROOFING, BACKFILL, AND SIDEWALK REPLACEMENT SHALL NOT LAST LONGER THAN 14 CALENDAR DAYS.

GENERAL CONSTRUCTION NOTES

- CONTRACTOR AND SUB -CONTRACTORS OF EACH TRADE SHALL BE RESPONSIBLE FOR INCLUDING WORK ASSOCIATED WITH FIRE PROTECTION OF ALL SPECIFIC TRADE RELATED PENETRATIONS THROUGH RATED WALLS AND FLOOR/CEILING ASSEMBLIES. FIRE SAFING RELATED TO PENETRATIONS BY EACH TRADE SHALL BE PERFORMED BY INDIVIDUALS EXPERIENCED WITH INSTALLING UL RATED PENETRATION ASSEMBLIES.
- CONTRACTORS SHALL INFILL AND PAINT ALL PENETRATIONS FROM REMOVAL OF EXISTING EQUIPMENT, PIPING, AND ELECTRICAL CONDUIT. COORDINATE INFILLS WITH ALL TRADES. ALL PENETRATIONS ARE NOT SHOWN ON PLANS. UNLESS NOTED OTHERWISE, INFILL REMAINING PENETRATIONS ABOVE CEILINGS WITH 5/8" GYPSUM BOARD AND METAL STUDS. USE TYPE X GYPSUM BOARD AND AN APPROVED UL LISTED ASSEMBLY AT WALLS REQUIRED TO MAINTAIN FIRE RESISTANCE RATING. UNLESS NOTED OTHERWISE, INFILL EXISTING PENETRATIONS BELOW CEILINGS WITH MATERIALS MATCHING EXISTING ADJACENT CONSTRUCTION. FINISH EXPOSED INFILLED AREAS TO MATCH ADJACENT FINISHES. WHERE EXISTING MATERIAL CANNOT BE MATCHED, COORDINATE WITH DESIGN PROFESSIONAL.
- ALL NEW PENETRATIONS CREATED AS PART OF THIS PROJECT ARE REQUIRED TO BE SEALED. ALL EXISTING PENETRATIONS UTILIZED FOR NEW WORK ARE REQUIRED TO BE SEALED, WHERE EXISTING PENETRATIONS ARE LARGER THAN NEEDED FOR NEW WORK, PENETRATION IS REQUIRED TO BE INFILLED AROUND THE NEW WORK TO ALLOW FOR TIGHT SEAL.
- WORK INCLUDES PARTIAL (CUTOUT) DEMOLITION OF SELECT ELEMENTS TO ALLOW FOR THE INSTALLATION OF NEW UTILITIES AND EQUIPMENT. CONTACT DESIGN PROFESSIONAL IF DEMOLITION IMPACTS THE STABILITY OF WALLS, SUPPORTING ELEMENTS, ETC. REPAIR ALL DEMOLITION NECESSARY FOR INSTALLATION WITH MATERIALS AND FINISHES MATCHING ADJACENT CONSTRUCTION.
- ALL CONNECTIONS TO INSTRUMENTATION, PIPING SYSTEMS, EQUIPMENT, AND ALL OTHER ITEMS SHOWN ARE BASED UPON THE ENGINEER'S RECOMMENDED MANUFACTURER AND MODEL. IF CONNECTION SIZES OR TYPES DIFFER FROM THAT SHOWN ON THE CONTRACT DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE APPROPRIATE CONNECTIONS. CONNECTIONS PROVIDED MUST MEET SPECIFICATIONS.
- ALL SYSTEM SHUTDOWNS AND STARTUPS SHALL BE COORDINATED AND SUPERVISED BY OWNER'S REPRESENTATIVE.
- COORDINATE ALL WORK WITH SITE/CIVIL PORTION OF THE PROJECT.
- SITE DRAWINGS ARE DERIVED FROM UNIVERSITY PROVIDED SITE SURVEY AND CIVIL CONSULTANT SURVEY. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH EXACT LOCATIONS AND REPORT ANY DISCREPANCIES WITH THE OWNER'S REPRESENTATIVE.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL ASBESTOS-CONTAINING MATERIAL ASSOCIATED WITH THIS PROJECT. COORDINATE REMOVAL WITH OWNER'S REPRESENTATIVE.
- 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.
- COORDINATE MATERIAL LAYDOWN AREA WITH OWNER'S REPRESENTATIVE AND CIVIL DRAWINGS.



ENGINEER / ARCHITECT OF RECORD:
 JAMES J. NONNENMANN, PE
 LICENSE NO. PE-6053025612
 12/22/25
 PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE 110
 ROCK ISLAND, IL 61201
 PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
		DRAWN BY: M.A.O.	

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 MECHANICAL NOTES AND PHASING NOTES

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171
 CONSULTANT
 PROJECT NUMBER
25103
 SHEET
M000

ISA INSTRUMENT TAG IDENTIFICATION

	DEVICE	DCS	COMPUTER FUNCTION	PLC
FIELD MOUNTED				
CONTROL PANEL MOUNTED (FRONT)				
CONTROL PANEL MOUNTED (REAR)				
AUXILIARY PANEL MOUNTED (FRONT)				

ADDITIONAL ISA INSTRUMENT TAGS

	PURGE OR FLUSHING DEVICE		INSTRUMENTS SHARING COMMON HOUSING
	PANEL MOUNTED PATCHBOARD POINT 12		PILOT LIGHT
	REST FOR LATCH-TYPE ACTUATOR		PILOT LIGHT CONTROL PANEL MOUNTED
	UNDEFINED INTERLOCK LOGIC		PILOT LIGHT AUXILIARY PANEL MOUNTED

INSTRUMENT LOCATIONS

	PROCESS TAP LOCATION
	INSTRUMENT MOUNTING LOCATION
	INSTRUMENT MOUNTED AT PROCESS TAP LOCATION

INSTRUMENT TAG DESIGNATIONS

FUNCTION CODE

ZZ	I/O TYPE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
V	VIRTUAL

CONTROL LOOP:

INSTRUMENT INSTALLATION NOTES

VALVES AND PIPING ACCESSORIES

	WAFER CHECK VALVE		NEEDLE VALVE (N.O.)		THREE-WAY VALVE		SINGLE-ACTING PNEUMATIC CYLINDER, SPRING OPPOSED		SPRING OPPOSED PNEUMATIC OPERATED W/ POSITIONER
	CHECK VALVE		NEEDLE VALVE (N.C.)		FOUR-WAY VALVE		SINGLE-ACTING PNEUMATIC CYLINDER, SPRING OPPOSED W/ POSITIONER		BACKFLOW PREVENTER
	BALL CHECK VALVE		BALL VALVE (N.O.)		SELF CONTAINED PRESSURE REDUCING (REGULATING) VALVE		DOUBLE-ACTING PNEUMATIC CYLINDER		SAFETY VALVES
	STOP CHECK VALVE		BALL VALVE (N.C.)		SELF CONTAINED BACK PRESSURE REDUCING (REGULATING) VALVE		DOUBLE-ACTING PNEUMATIC CYLINDER WITH POSITIONER		PIPE PLUG
	GATE VALVE (N.O.)		PINCH VALVE		EXTERNAL TAP PRESSURE REDUCING (REGULATING) VALVE		PNEUMATIC OPERATED		PAIR FLANGES
	GATE VALVE (N.C.)		CONCENTRIC REDUCER		EXTERNAL TAP BACK PRESSURE REDUCING (REGULATING) VALVE		PNEUMATIC OPERATED W/ POSITIONER		BLIND FLANGE
	GLOBE VALVE (N.O.)		ECCENTRIC REDUCER		AUTOMATIC SHUT OFF VALVE		SINGLE-ACTING PNEUMATIC CYLINDER		ORIFICE
	GLOBE VALVE (N.C.)		UNION		SINGLE-ACTING PNEUMATIC CYLINDER WITH POSITIONER		SPRING OPPOSED PNEUMATIC OPERATED		CLEANOUT (C.O.)
	BUTTERFLY VALVE		FLEXIBLE HOSE		DRAIN		VENT		WELD CAP
	PLUG VALVE		Y TYPE STRAINER		REMOVABLE CAP		A - AIR CYLINDER		FS - FLOW SWITCH
	V-BALL VALVE		BLEEDER VALVE		G - GEAR		H - HYDRAULIC CYLINDER		M - MOTOR OPERATED
					S - SOLENOID		TS - TAMPER SWITCH		

IN-LINE INSTRUMENTS

	FLUME		ORIFICE PLATE W/ METER		MAGNETIC FLOW METER
	WEIR		PITOT TUBE		THERMAL FLOWMETER
	VORTEX FLOW METER		VENTURI		PROPELLER METER
	POSITIVE DISPLACEMENT FLOW METER		TARGET		ULTRASONIC METER
	V-CONE FLOW METER		FLOW NOZZLE		
	GENERIC FLOW METER		VARIABLE AREA FLOW INSTRUMENT (ROTAMETER)		

SECTION, VIEW, OR DETAIL CALLOUTS

	SECTION MARKER IDENTIFYING PLANE OF CUT
	TYPICAL VIEW DIRECTION
	DETAIL CALLOUT

PUMPS

	CENTRIFUGAL PUMP W/ ELECTRIC MOTOR (TYP)		REGENERATIVE BLOWER
	VACUUM PUMP		GEAR PUMP
	BLOW-THRU ROTARY VALVE		ROTARY VALVE
	AIR OPERATED DOUBLE DIAPHRGM PUMP		DEHUMIDIFIER

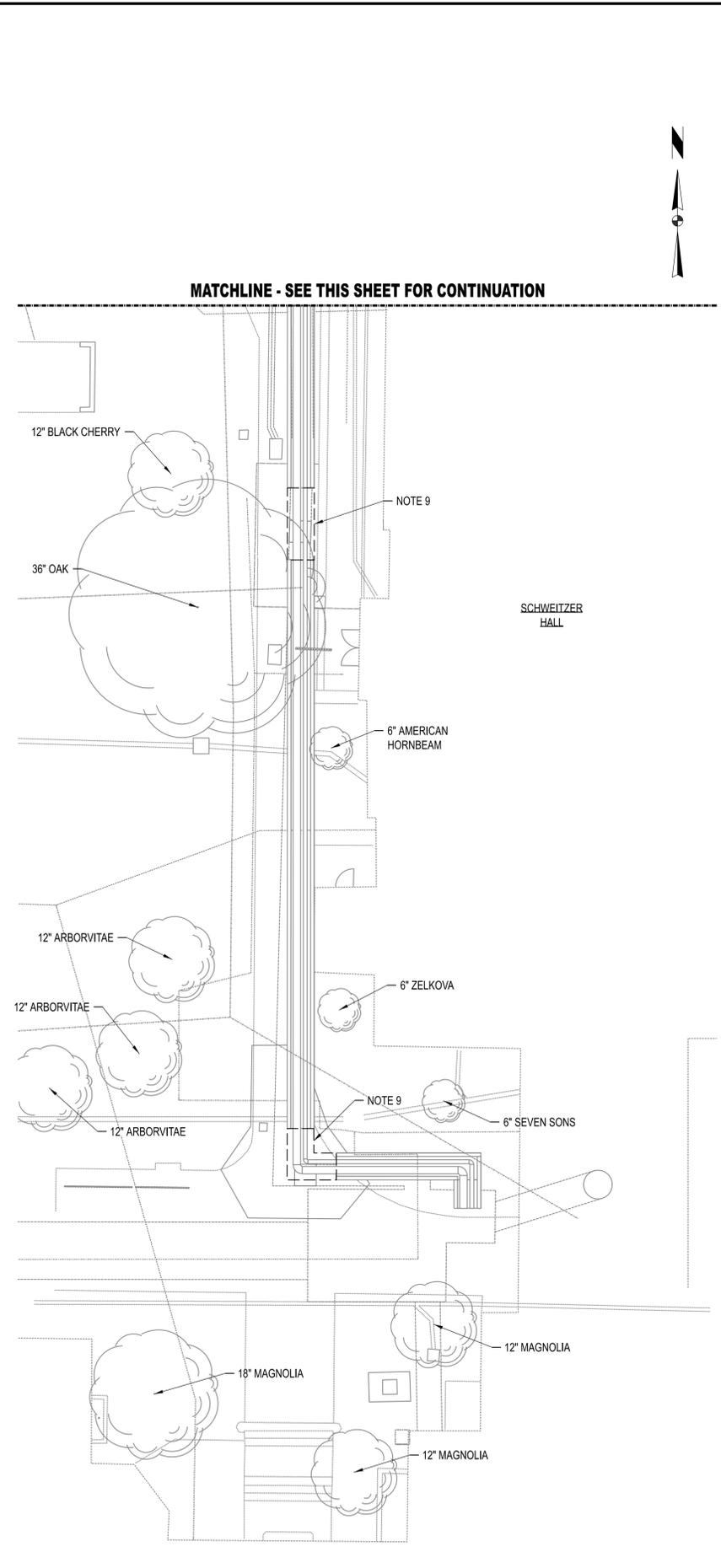
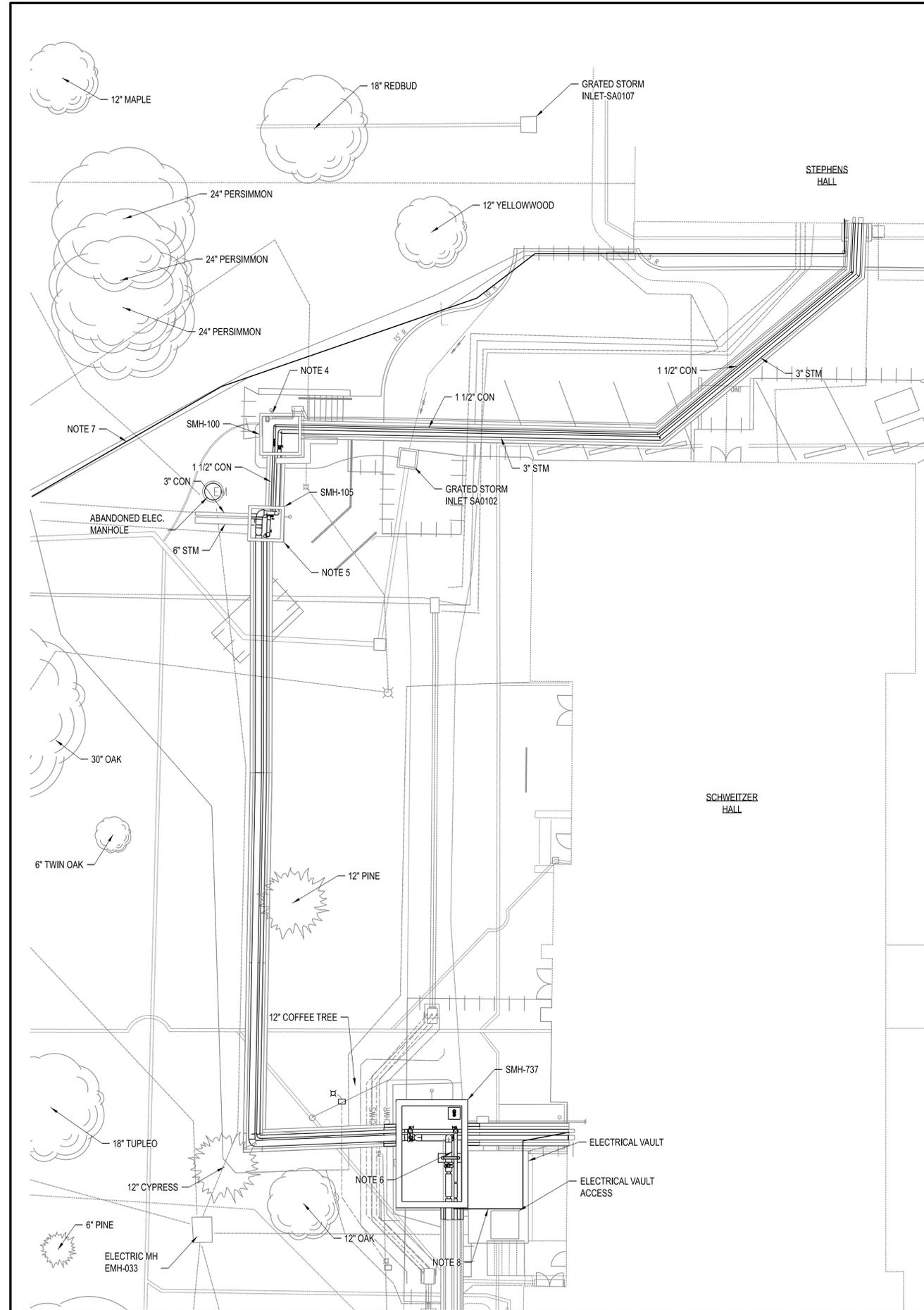
SECTION OR DETAIL IDENTIFIERS

	SECTION TOP IDENTIFIER
	SECTION BOTTOM IDENTIFIER
	DETAIL TOP IDENTIFIER
	DETAIL BOTTOM IDENTIFIER

TOP IDENTIFIER: SECTION OR DETAIL CALLOUT WITH SHEET NUMBER IT IS LOCATED ON
BOTTOM IDENTIFIER: SHEET NUMBERS WHERE DETAIL OR SECTION IS INDICATED

GENERAL SYMBOLS

	NORTH ARROW		CENTER LINE
	REVISION INDICATOR: # - REVISION NUMBER X - PART OF ADDENDUM TO CONTRACT FOR INSTANCES WHEN ONLY A PORTION OF DRAWING IS MODIFIED BY ADDENDUM. THE AFFECTED AREA IS "CLOUDED."		HIDDEN LINE
	COLUMN IDENTIFICATION: # - COLUMN IDENTIFIER		SURFACE BREAK LINE
	STREAM IDENTIFIER		MATCH LINE
	ELEVATION DESIGNATION EL 100'-0"		GRATING COVER (PLAN)
	EXISTING OBJECT LINE		CHECKERED PLATE COVER (PLAN)
	OUTLINE OF NEW OR RELOCATED OBJECT		GUARDRAIL/HANDRAIL
	OUTLINE OF FUTURE OBJECT		CENTERLINE
			DIAMETER OR ROUND
			SQUARE
			TIE POINT DESIGNATOR
			KEY NOTE IDENTIFIER



- NOTES:**
- CONTRACTOR SHALL NOTIFY ENGINEER WHEN SECTIONS OF STEAM CHASE ARE CLEARED OF PIPING AND READY FOR INSPECTION. ENGINEER WILL DETERMINE EXTENT OF CHASE REPAIRS REQUIRED. CONTRACTOR SHALL MAKE REPAIRS PER DETAILS ON S110. CONTRACTOR SHALL INCLUDE UNIT PRICING FOR CRACK AND SPALL REPAIRS SHOWN ON S110 AS INSTRUCTED IN THE PROJECT MANUAL.
 - INSTALL NEW PIPING, ANCHORS, AND SUPPORTS IN CHASE. REFER TO THERMAL EXPANSION PLANS FOR SUPPORT TYPE AND SPACING, AND MECHANICAL DETAILS FOR SUPPORT CONSTRUCTION. SEE STRUCTURAL DRAWINGS FOR CHASE REPAIR AND NEW LID CONSTRUCTION DETAILS.
 - CONNECT NEW 6" MPS AND 3" PC TO EXISTING ELBOWS IN TUNNEL.
 - EXISTING SMH-100 TO REMAIN AND BE REFURBISHED. SEE M110 FOR MECHANICAL WORK. SEE STRUCTURAL DRAWINGS FOR STRUCTURAL MODIFICATIONS AND WATERPROOFING REQUIREMENTS.
 - EXISTING SMH-105 TO REMAIN AND BE REFURBISHED. SEE M120 FOR MECHANICAL WORK. SEE STRUCTURAL DRAWINGS FOR STRUCTURAL MODIFICATIONS AND WATERPROOFING REQUIREMENTS.
 - RELOCATE 2" COMPRESSED AIR. COORDINATE WITH NEW SMH-737, EXISTING 12" CHILLED WATER SUPPLY, RETURN, AND PCN.
 - ROUTE TEMPORARY 2" MPS FROM SMH-104 TO STEPHENS HALL. TEMPORARY SUPPORT USING WOOD OR METAL STRUCTURES. INSULATE WITH 2" FIBERGLASS INSULATION. NO JACKETING REQUIRED. VERIFY CONDENSATE TRAPS IN STEPHENS HALL AND SMH-104 ARE FUNCTIONAL. AT THE MID-POINT IN THE TEMPORARY LINE, SLOPE BACK TO SMH-104 AND SLOPE TOWARDS STEPHENS HALL.
 - ROUTE TEMPORARY 2" MPS FROM CHASE PIPING TO SCHWEITZER HALL. TEMPORARY SUPPORT USING WOOD OR METAL STRUCTURES. INSULATE WITH 2" FIBERGLASS INSULATION. NO JACKETING REQUIRED. SLOPE BACK TO CONNECTION IN CHASE.
 - INSTALL PIPE SUPPORTS PER DETAIL ON MECHANICAL DETAILS AND TYPE PER THERMAL EXPANSION PLAN. INSTALL NEW CHASE LID AND WATERPROOF PER DETAIL ON S111. BACKFILL AND INSTALL NEW SIDEWALK PER DETAIL ON C-115.

ASBESTOS NOTES - CAUTION!!!

- STEAM CHASE WATERPROOFING MAY CONTAIN ASBESTOS. ONCE EXCAVATED TO BE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT MAY BE REQUIRED TO REMOVE STEAM CHASE LID SHALL BE PROVIDED BY CONTRACTOR.
- MPS/PC PIPING INSULATION WITHIN CHASE MAY CONTAIN ASBESTOS. ONCE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT SHALL BE PROVIDED BY CONTRACTOR.



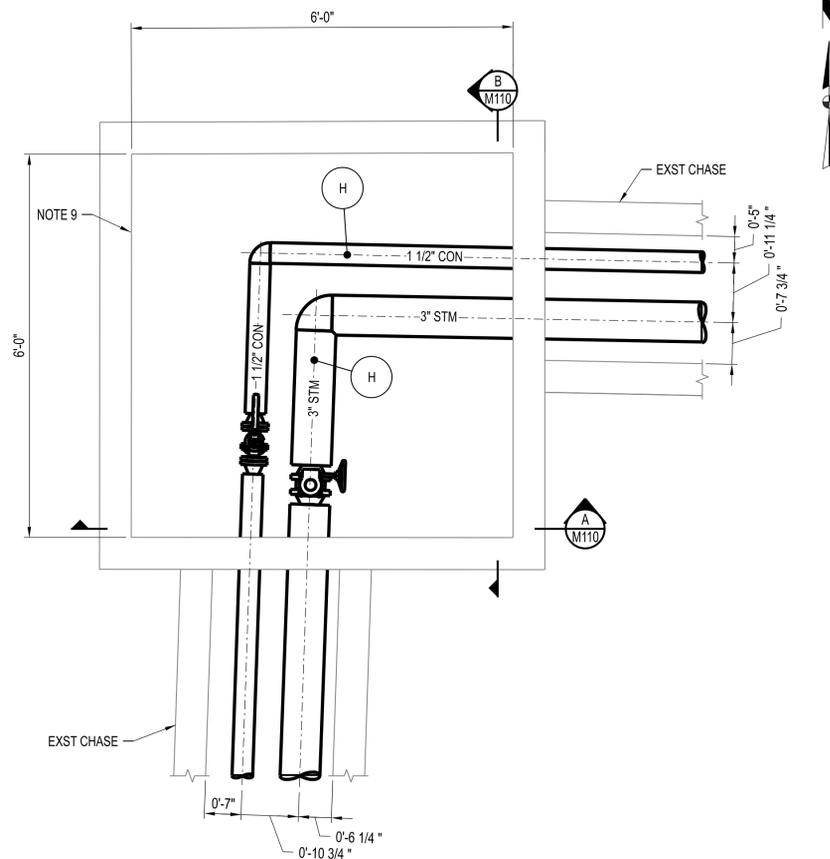
ENGINEER / ARCHITECT OF RECORD:
 JAMES J. NONNENMANN, P.E.
 LICENSE NO. PE-5053025612
 12/22/25
 PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563-263-5160
 CHECKED BY: J.J.N.
 ISSUED FOR BID
 0 12/22/25



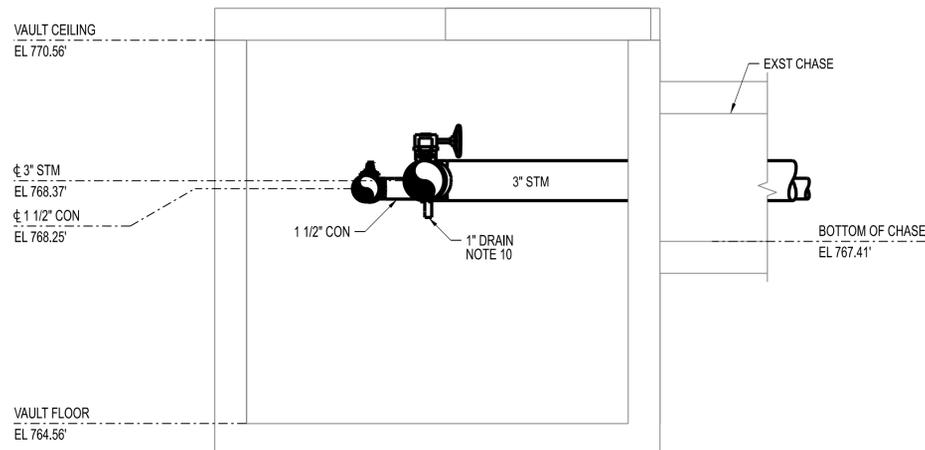
UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 OVERALL MECHANICAL SITE PLAN

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171
 CONSULTANT
 PROJECT NUMBER
25103
 SHEET
M100

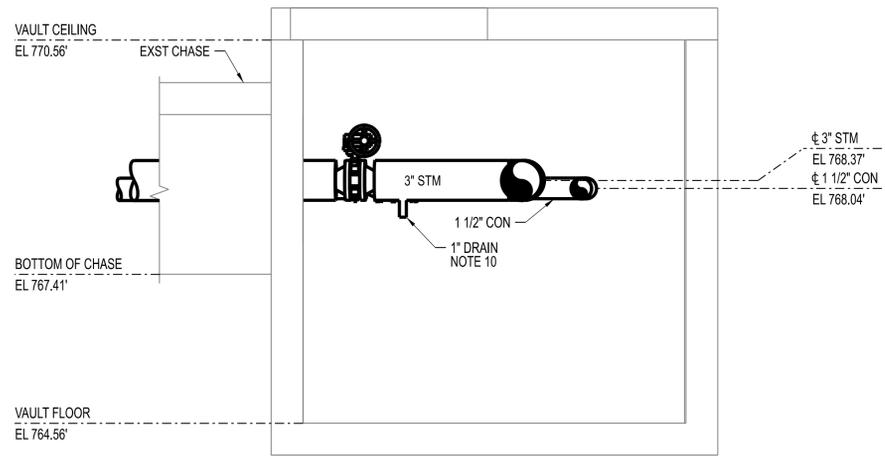
OVERALL MECHANICAL SITE PLAN
 SCALE: 1"=10'-0"
 0 1" 2"



SMH-100 MECHANICAL PLAN
SCALE: 3/4" = 1'-0"



SECTION A-M110 (LOOKING NORTH)
SCALE: M110
3/4" = 1'-0"



SECTION B-M110 (LOOKING WEST)
SCALE: M110
1/2" = 1'-0"

NOTES:

1. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
2. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
3. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
5. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
6. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN SMH-100, SURROUNDING PIPE CHASES, AND OTHER EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
8. INSTALL LOW POINT DRAIN ON CONDENSATE SERVICE.
9. CONTRACTOR SHALL CORE DRILL NEW 2" SUMP PUMP DISCHARGE THROUGH WALL, INSTALL LINK SEAL, AND CONNECT TO NEW SUMP PUMP DISCHARGE LINE SHOWN ON C-107.
10. INSTALL 1" DRAIN WITH 1" GATE VALVE.

LEGEND

- XX PIPE SUPPORT DESIGNATOR
- H: CLEVIS HANGER
- FOR PIPE SUPPORT DETAILS, SEE SHEET M160



ENGINEER / ARCHITECT OF RECORD: JAMES NONNENMANN, PE LICENSE NO. PE-5053025612	CHECKED BY: J.J.N.
PRVN CONSULTANTS, INC. 1617 SECOND AVE., STE 110 ROCK ISLAND, IL 61201 PHONE: 563.263.5160	ISSUED FOR BID
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805	DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
SMH-100 PLAN AND SECTIONS

UNIVERSITY OF MISSOURI
PROJECT NUMBER

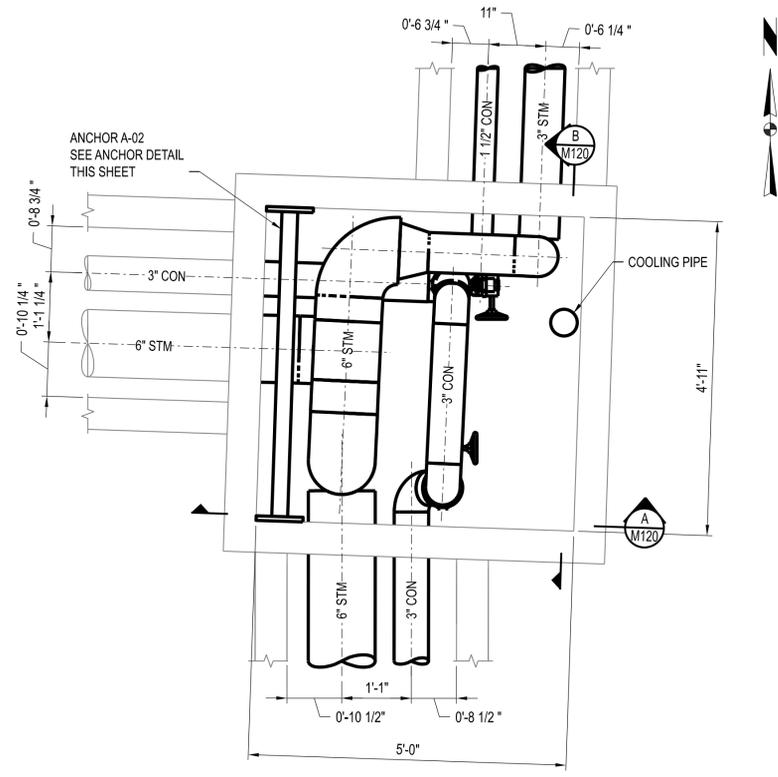
CP253171

CONSULTANT
PROJECT NUMBER

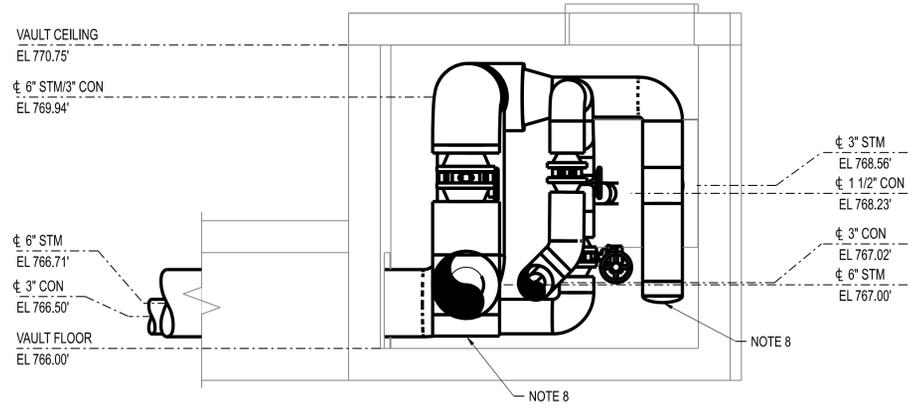
25103

SHEET

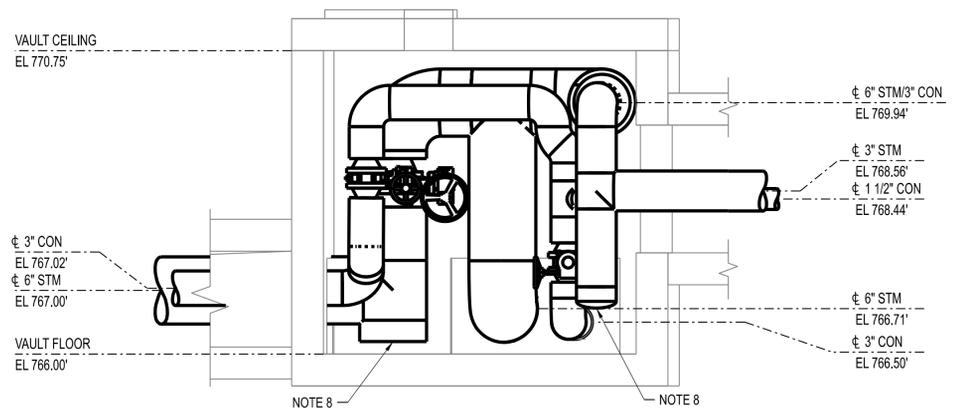
M110



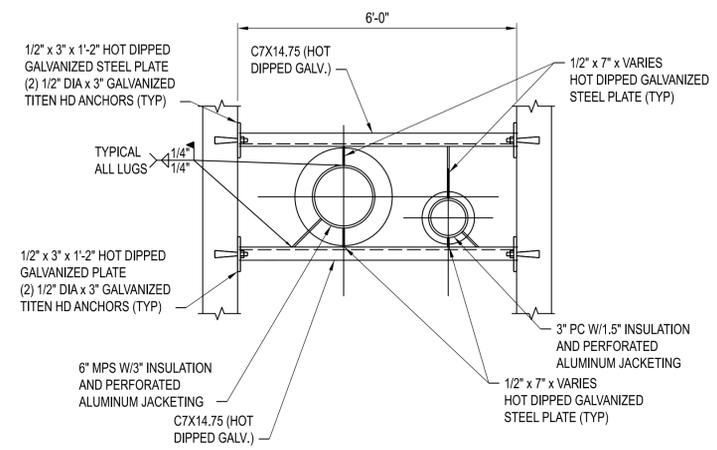
SMH-105 MECHANICAL PLAN
SCALE: 3/4" = 1'-0"



SECTION A-M120 (LOOKING NORTH)
SCALE: M120
3/4" = 1'-0"



SECTION B-M120 (LOOKING WEST)
SCALE: M120
3/4" = 1'-0"



SMH-105 PIPE ANCHOR - NEW WORK
SCALE: NONE

NOTES:

1. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
2. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
3. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
5. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
6. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN SMH-105, SURROUNDING PIPE CHASES, AND OTHER EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
8. INSTALL NEW STEAM TRAP STATION PER DETAIL ON M150. COORDINATE WITH MU UTILITIES ON TRAP INSTALLATION LOCATION.
9. INSTALL LOW POINT DRAIN ON COMBINED CONDENSATE SERVICE.

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

STATE OF MISSOURI
JAMES J. NONNENMANN
NUMBER PE-5053025612
PROFESSIONAL ENGINEER

12/22/25

ENGINEER / ARCHITECT OF RECORD:
JAMES J. NONNENMANN, PE
LICENSE NO. PE-5053025612

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
			DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
SMH-105 PLAN AND SECTIONS

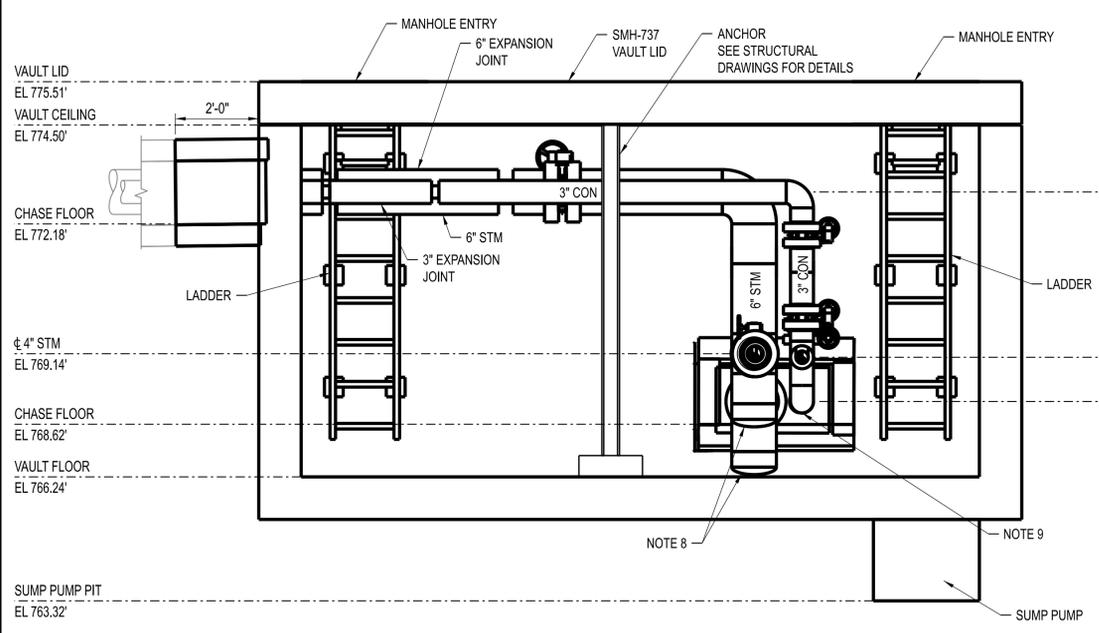
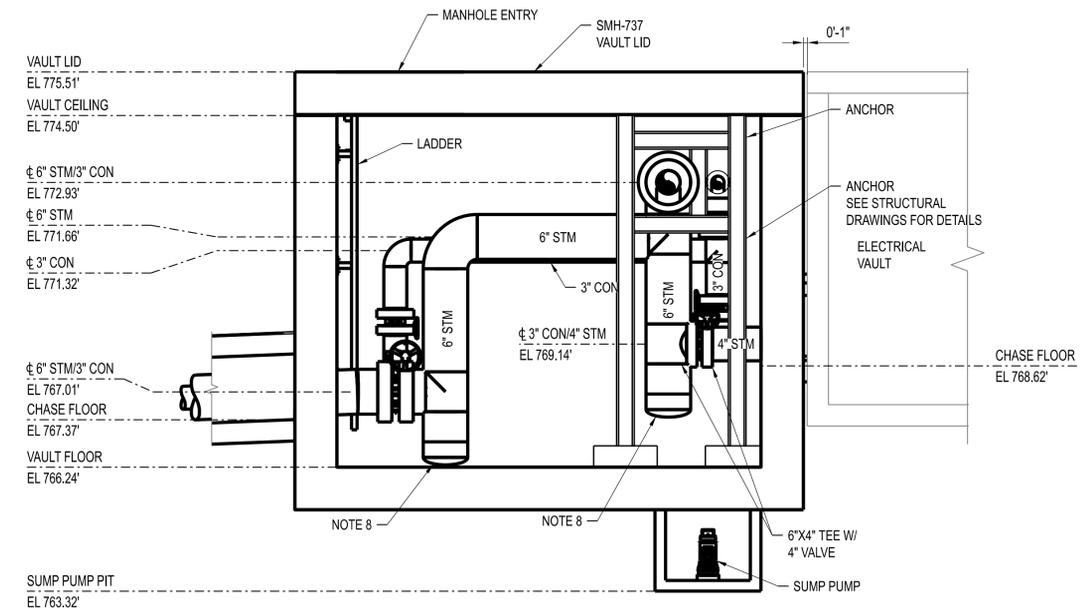
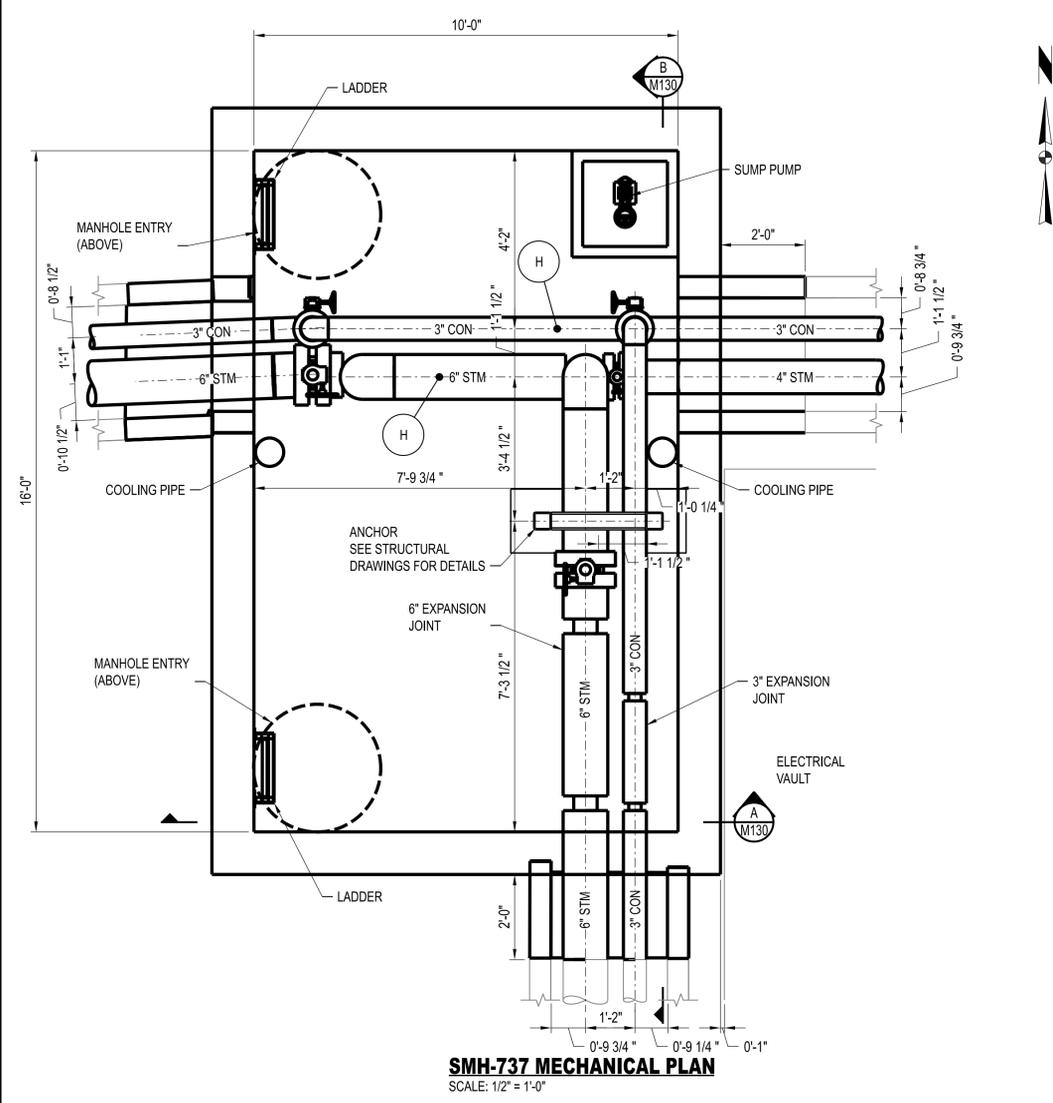
UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
M120

NOTES:

1. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
2. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
3. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
5. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
6. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN SURROUNDING PIPE CHASES AND OTHER EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION.
7. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
8. INSTALL NEW STEAM TRAP STATION PER DETAIL ON M150. COORDINATE WITH MU UTILITIES ON TRAP INSTALLATION LOCATION.
9. INSTALL LOW POINT DRAIN ON COMBINED CONDENSATE SERVICE.



LEGEND

- XX PIPE SUPPORT DESIGNATOR
- H: CLEVIS HANGER
- FOR PIPE SUPPORT DETAILS, SEE SHEET M160

ASBESTOS NOTES - CAUTION!!!

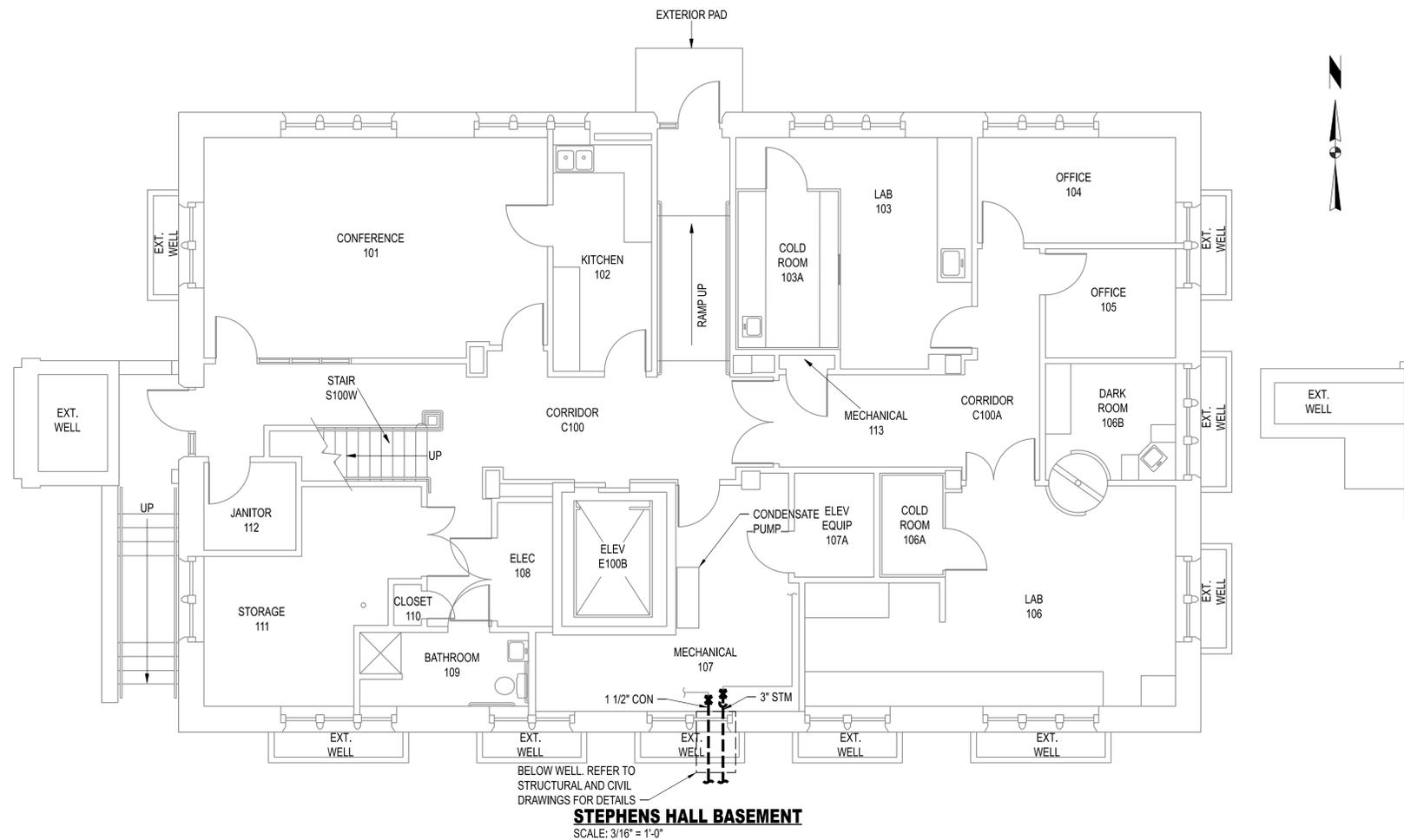
1. STEAM CHASE WATERPROOFING MAY CONTAIN ASBESTOS. ONCE EXCAVATED TO BE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT MAY BE REQUIRED TO REMOVE STEAM CHASE LID SHALL BE PROVIDED BY CONTRACTOR.
2. MPS/PC PIPING INSULATION WITHIN CHASE MAY CONTAIN ASBESTOS. ONCE EXPOSED, THE WATERPROOFING AND PIPE INSULATION SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT SHALL BE PROVIDED BY CONTRACTOR.

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
0	12/22/25	ISSUED FOR BID	DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 SMH-737 PLAN AND SECTIONS

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171
 CONSULTANT
 PROJECT NUMBER
25103
 SHEET
M130



STEPHENS HALL BASEMENT
SCALE: 3/16" = 1'-0"

- NOTES:**
1. CONTRACTOR SHALL NOTIFY ENGINEER WHEN SECTIONS OF STEAM CHASE ARE CLEARED OF PIPING AND READY FOR INSPECTION. ENGINEER WILL DETERMINE EXTENT OF CHASE REPAIRS REQUIRED. CONTRACTOR SHALL MAKE REPAIRS PER DETAILS ON S110. CONTRACTOR SHALL INCLUDE UNIT PRICING FOR CRACK AND SPALL REPAIRS SHOWN ON S110 AS INSTRUCTED IN THE PROJECT MANUAL.
 2. PROVIDE AND INSTALL NEW CHASE VENT. SEE DETAIL ON DRAWING M160. ROUTE VENT PIPING SUCH THAT VENT OUTLET IS IN LANDSCAPED AREA.
 3. INSTALL NEW DRIP LEG AND RECONNECT TO EXISTING STEAM TRAP. MODIFY RISER PIPING TO INSTALL NEW 3" GATE VALVE.
 4. RECONNECT CONDENSATE PIPING AT MECHANICAL ROOM ENTRANCE. INSTALL NEW GATE VALVE AT CONNECTION.
 5. INSTALL CONCRETE BULKHEAD AT BUILDING ENTRANCE. SEE S110 FOR STRUCTURAL INFORMATION. CORE DRILL THROUGH BULKHEAD FOR NEW STEAM AND CONDENSATE SERVICES. USE LINK SEALS AT PIPE PENETRATIONS.

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

ENGINEER / ARCHITECT OF RECORD:
JAMES NONNENMANN, PE
LICENSE NO. PE-6053025612
12/22/25

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.J.N.
		DRAWN BY: M.A.O.	

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

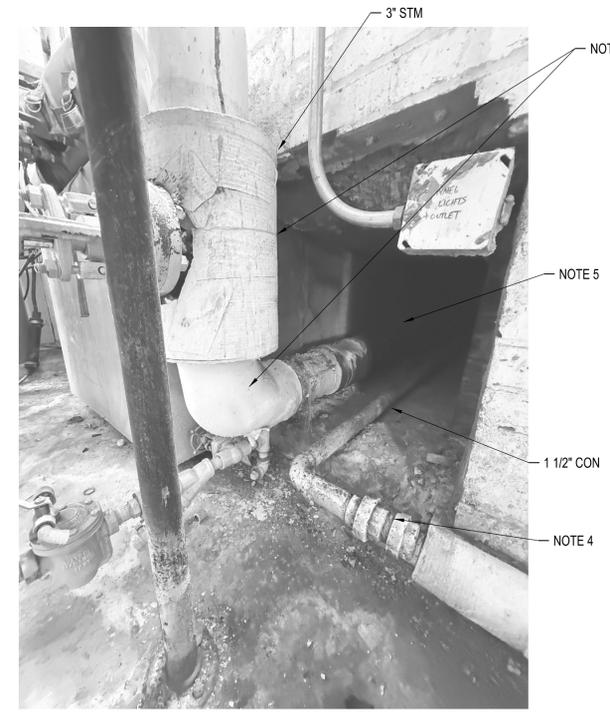


UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
STEPHENS HALL MECHANICAL PLAN

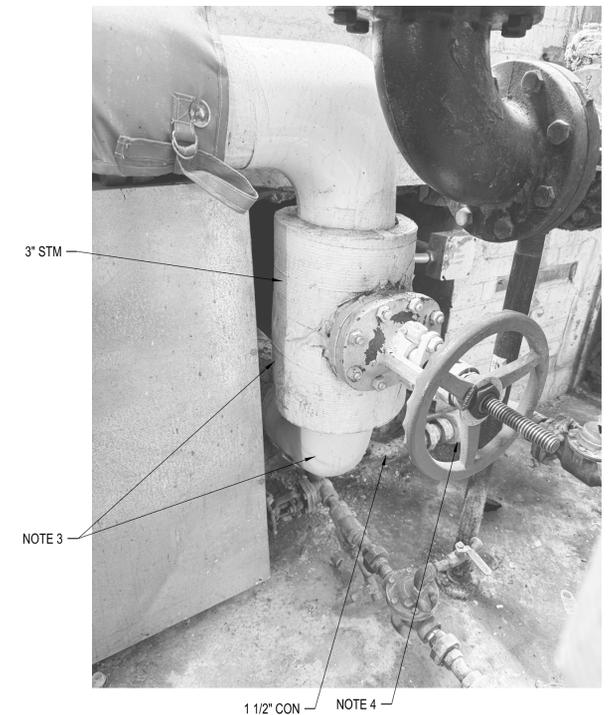
UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

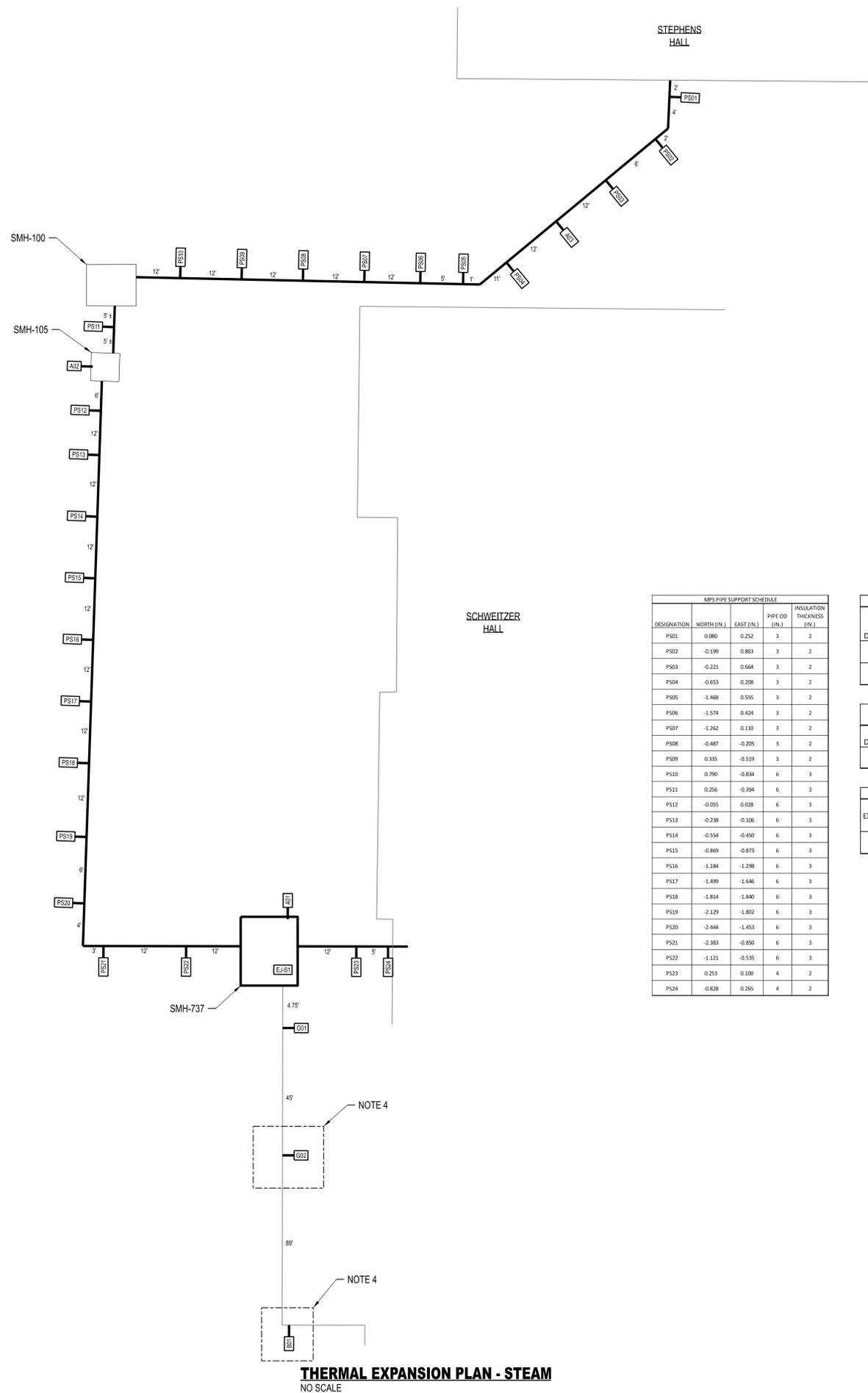
SHEET
M140



1 STEPHENS HALL LOOKING SOUTHEAST
M140



2 STEPHENS HALL LOOKING SOUTHWEST
M140



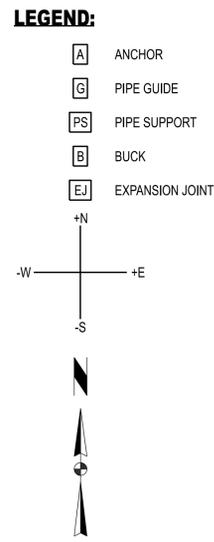
MPS PIPE SUPPORT SCHEDULE				
DESIGNATION	NORTH (IN.)	EAST (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)
PS01	0.080	0.252	3	2
PS02	-0.199	0.863	3	2
PS03	-0.221	0.664	3	2
PS04	-0.653	0.208	3	2
PS05	-1.468	0.555	3	2
PS06	-1.574	0.424	3	2
PS07	-1.262	0.110	3	2
PS08	-0.487	-0.205	3	2
PS09	0.335	-0.519	3	2
PS10	0.790	-0.834	6	3
PS11	0.256	-0.394	6	3
PS12	-0.055	0.028	6	3
PS13	-0.238	-0.106	6	3
PS14	-0.554	-0.450	6	3
PS15	-0.869	-0.873	6	3
PS16	-1.184	-1.298	6	3
PS17	-1.499	-1.646	6	3
PS18	-1.814	-1.840	6	3
PS19	-2.129	-1.802	6	3
PS20	-2.444	-1.453	6	3
PS21	-2.383	-0.850	6	3
PS22	-1.121	-0.535	6	3
PS23	0.253	0.100	4	2
PS24	-0.828	0.265	4	2

MPS GUIDE SUPPORT SCHEDULE					
DESIGNATION	NORTH (IN.)	EAST (IN.)	VERTICAL (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)
G01	3.45	0	0	6	3
G02	2.28	0	0	6	3

MPS BUCK SCHEDULE					
DESIGNATION	NORTH (IN.)	EAST (IN.)	VERTICAL (IN.)	PIPE OD (IN.)	INSULATION THICKNESS
B01	0	-0.58	0	6	3

MPS EXPANSION JOINT SCHEDULE								
EXPANSION JOINT DESIGNATION	LOCATION	SIZE	TYPE	ENDS	SERVICE	RATED TRAVEL (IN)	MAX OAL (IN)	THERMAL EXPANSION (IN)
EJ-S1	MANHOLE NO. 737	6"	EXTERNALLY PRESSURIZED BELLOWS	WELD	STEAM	8	51.25	3.608

- NOTES:**
- REFER TO SHEET M141 FOR CONTINUATION OF THERMAL EXPANSION PLAN.
 - AMBIENT TEMPERATURE USED WAS 55°F. OPERATING PRESSURE USED WAS 75 PSIG. OPERATING TEMPERATURE USED WAS 375°F ON MPS AND 200°F ON PC.
 - CONTRACTOR TO CONFIRM DISTANCE BETWEEN PS136/PS236 AND THE NEAREST EXISTING PIPE SUPPORT IN THE TUNNEL. IF DISTANCE EXCEEDS 12' ADD ADDITIONAL PIPE SUPPORT IN THE TUNNEL.
 - CONTRACTOR SHALL REMOVE SIDEWALK TO THE NEAREST CONCRETE JOINT IN THE LOCATION INDICATED. EXCAVATE TO THE STEAM CHASE. REMOVE THE CHASE LID. INSTALL PIPE SUPPORTS PER DETAIL ON M160. INSTALL NEW CHASE LID AND WATERPROOF PER DETAIL ON S111. BACKFILL AND INSTALL NEW SIDEWALK PER DETAIL ON C-115.



THERMAL EXPANSION PLAN - STEAM
NO SCALE

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

STATE OF MISSOURI
JAMES J. NONNENMANN
NUMBER PE-6053025612
PROFESSIONAL ENGINEER

ENGINEER / ARCHITECT OF RECORD:
JAMES NONNENMANN, PE
LICENSE NO. PE-6053025612

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0 12/22/25 ISSUED FOR BID
DRAWN BY: M.A.O. CHECKED BY: J.J.N.

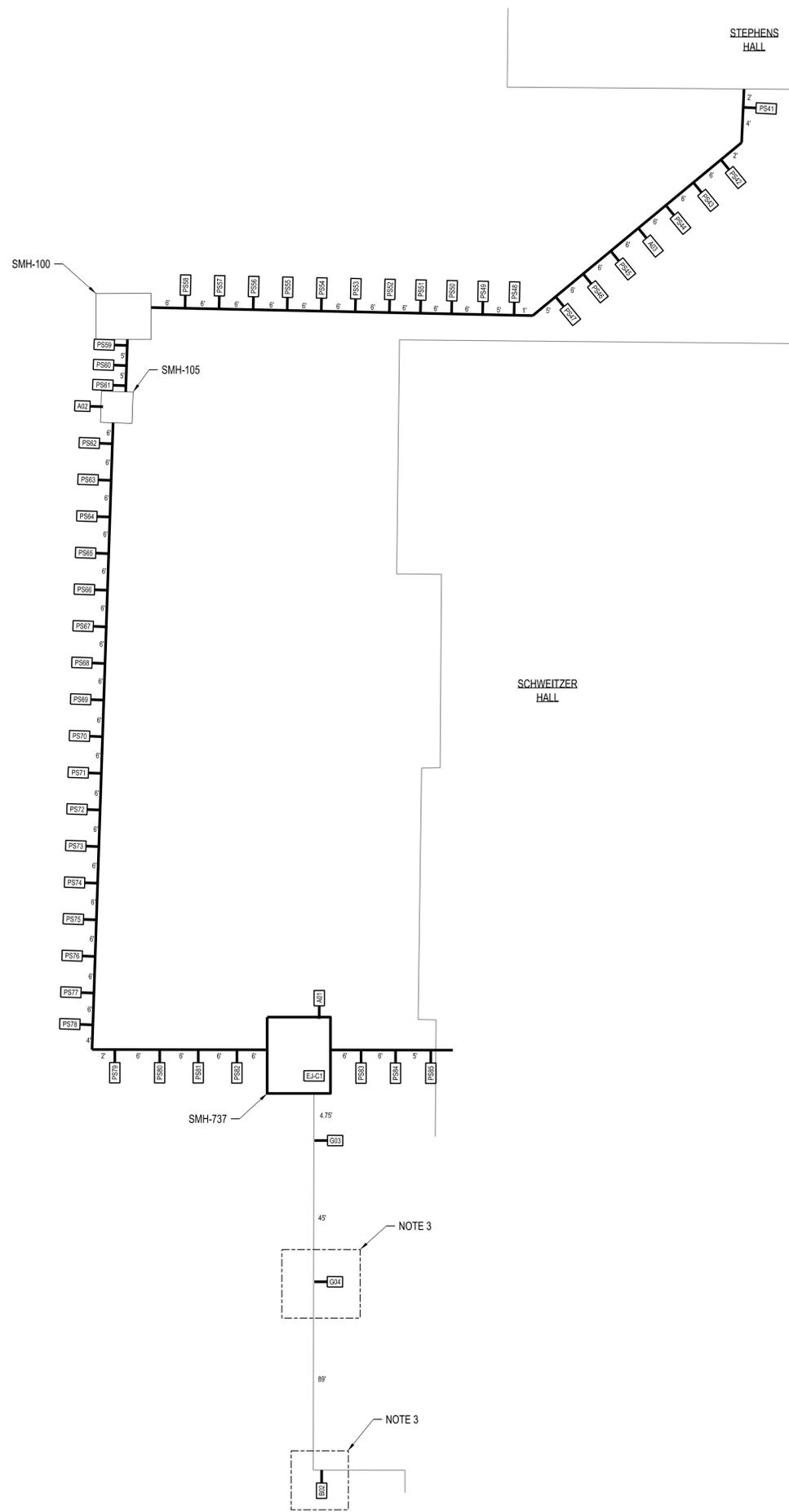
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
THERMAL EXPANSION PLAN - STEAM

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
M150



THERMAL EXPANSION PLAN - CONDENSATE
NO SCALE

NOTES:

- REFER TO SHEET M140 FOR CONTINUATION OF THERMAL EXPANSION PLAN.
- AMBIENT TEMPERATURE USED WAS 55°F. OPERATING PRESSURE USED WAS 75 PSIG. OPERATING TEMPERATURE USED WAS 375°F ON MPS AND 200°F ON PC.
- CONTRACTOR SHALL REMOVE SIDEWALK TO THE NEAREST CONCRETE JOINT IN THE LOCATION INDICATED. EXCAVATE TO THE STEAM CHASE. REMOVE THE CHASE LID. INSTALL PIPE SUPPORTS PER DETAIL ON M160. INSTALL NEW CHASE LID AND WATERPROOF PER DETAIL ON S111. BACKFILL AND INSTALL NEW SIDEWALK PER DETAIL ON C-115.

PC PIPE SUPPORT SCHEDULE				
DESIGNATION	NORTH (IN.)	EAST (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)
PS41	0.265	0.000	2	1
PS42	0.195	0.060	2	1
PS43	0.138	0.052	2	1
PS44	0.051	0.034	2	1
PS45	-0.101	0.016	2	1
PS46	-0.281	0.111	2	1
PS47	-0.483	0.228	2	1
PS48	-0.644	0.295	2	1
PS49	-0.711	0.245	2	1
PS50	-0.705	0.184	2	1
PS51	-0.624	0.124	2	1
PS52	-0.490	0.064	2	1
PS53	-0.323	0.000	2	1
PS54	-0.145	-0.056	2	1
PS55	0.034	-0.116	2	1
PS56	0.162	-0.176	2	1
PS57	0.249	-0.236	2	1
PS58	0.263	-0.297	2	1
PS59	0.131	-0.281	2	1
PS60	0.081	-0.111	2	1
PS61	0.023	0.032	2	1
PS62	-0.031	0.032	3	1.5
PS63	-0.091	0.000	3	1.5
PS64	-0.151	-0.062	3	1.5
PS65	-0.211	-0.135	3	1.5
PS66	-0.271	-0.218	3	1.5
PS67	-0.332	-0.308	3	1.5
PS68	-0.392	-0.399	3	1.5
PS69	-0.452	-0.489	3	1.5
PS70	-0.512	-0.571	3	1.5
PS71	-0.572	-0.642	3	1.5
PS72	-0.632	-0.697	3	1.5
PS73	-0.692	-0.732	3	1.5
PS74	-0.753	-0.742	3	1.5
PS75	-0.813	-0.724	3	1.5
PS76	-0.873	-0.672	3	1.5
PS77	-0.933	-0.582	3	1.5
PS78	-0.993	-0.450	3	1.5
PS79	-0.919	-0.335	3	1.5
PS80	-0.694	-0.275	3	1.5
PS81	-0.454	-0.214	3	1.5
PS82	-0.220	-0.154	3	1.5
PS83	0.120	0.024	3	1.5
PS84	0.194	0.091	3	1.5
PS85	0.261	0.152	3	1.5

PC GUIDE SUPPORT SCHEDULE					
DESIGNATION	NORTH (IN.)	EAST (IN.)	VERTICAL (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)
G03	1.063	0.000	0	3	1.5
G04	1.330	0.000	0	3	1.5

PC BUCKSCHEDULE					
DESIGNATION	NORTH (IN.)	EAST (IN.)	VERTICAL (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)
B02	0	-0.208	0	3	1.5

PC EXPANSION JOINT SCHEDULE								
EXPANSION JOINT DESIGNATION	LOCATION	SIZE	TYPE	ENDS	SERVICE	RATED TRAVEL (IN.)	MAX OAL (IN.)	THERMAL EXPANSION (IN.)
EJ-C1	MANHOLE NO. 737	3"	EXTERNALLY PRESSURIZED BELLOWS	WELD	CONDENSATE	4	32.375	1.362

LEGEND:

- [A] ANCHOR
- [G] PIPE GUIDE
- [PS] PIPE SUPPORT
- [B] BUCK
- [EJ] EXPANSION JOINT

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

ENGINEER / ARCHITECT OF RECORD:
JAMES J. NONNENMANN, PE
LICENSE NO. PE-6053025612

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	DRAWN BY: M.A.O.	CHECKED BY: J.J.N.
---	----------	----------------	------------------	--------------------

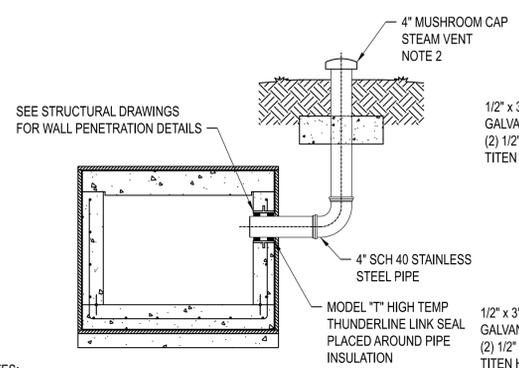
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
THERMAL EXPANSION PLAN - CONDENSATE

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

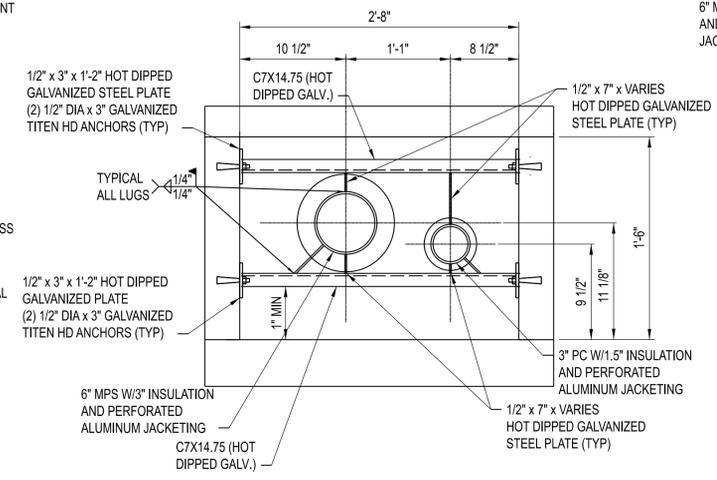
CONSULTANT
PROJECT NUMBER
25103

SHEET
M151

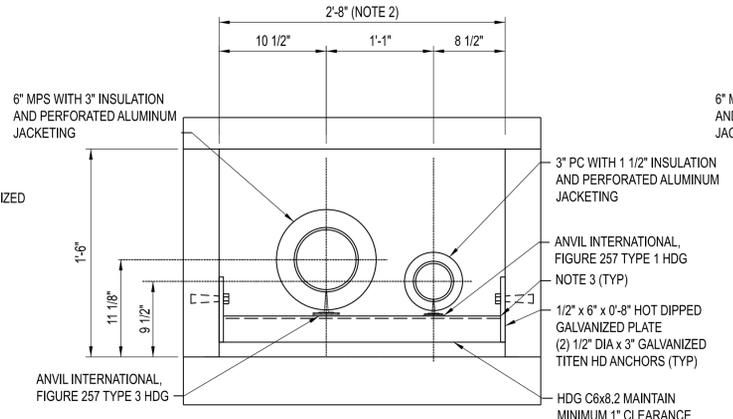


- NOTES:**
- PIPE VENT SHALL BE MUSHROOM TYPE WITH GALVANIZED CAST IRON BODY, 30 MESH STAINLESS STEEL SCREEN, POSITIVE STOP AND 4" NPT CONNECTION. OIL EQUIPMENT MANUFACTURING CORP. FIG NO. 4028 OR APPROVED EQUAL.
 - TERMINATE TOP OF VENT 1' ABOVE FINISHED GRADE.
 - PIPE VENT SHALL BE INSTALLED WITHIN 2' FROM THE BUILDING WALL.

TYPICAL CHASE VENT
 SCALE: NONE

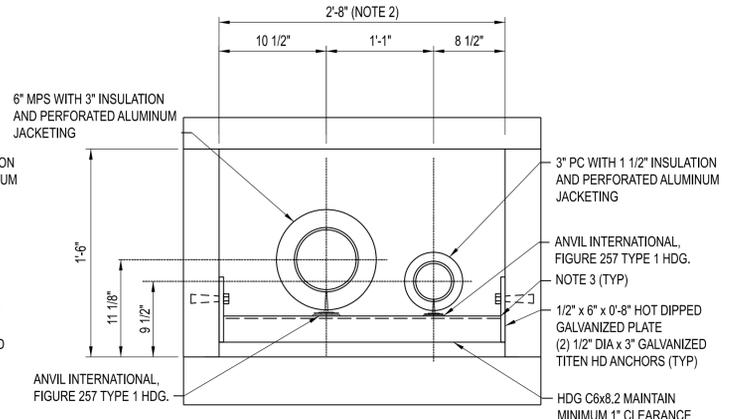


CHASE FROM SMH-737 TO SMH-105 ANCHOR DETAIL
 SCALE: NONE



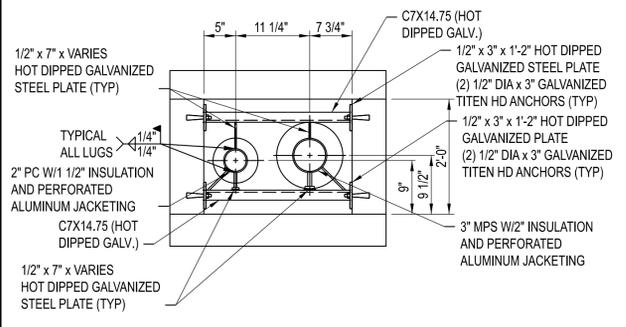
- NOTES:**
- PIPE SUPPORT INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.
 - CHASE WIDTH SHALL BE FIELD VERIFIED AFTER LID REMOVAL AND REPORTED TO MU REPRESENTATIVE AND ENGINEER. ENGINEER WILL UPDATE SPACING AS NECESSARY.
 - 5/16" FILLET WELD ON TOP AND SIDES. PERFORM HOT MELT STICK GALVANIZING REPAIRS. COLD GALVANIZING IS NOT ALLOWED.

CHASE FROM SOUTH TUNNEL TO SMH-737 PIPE SUPPORT DETAIL
 SCALE: NONE

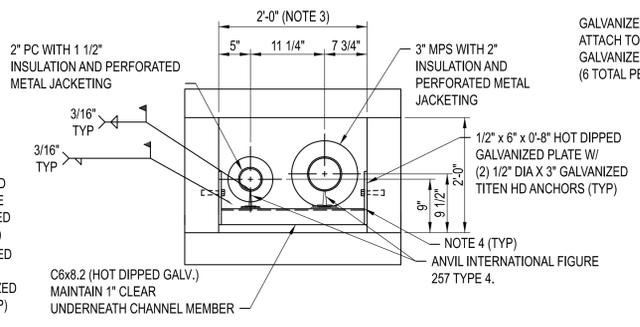


- NOTES:**
- PIPE SUPPORT INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.
 - CHASE WIDTH SHALL BE FIELD VERIFIED AFTER LID REMOVAL AND REPORTED TO MU REPRESENTATIVE AND ENGINEER. ENGINEER WILL UPDATE SPACING AS NECESSARY.
 - 5/16" FILLET WELD ON TOP AND SIDES. PERFORM HOT MELT STICK GALVANIZING REPAIRS. COLD GALVANIZING IS NOT ALLOWED.

CHASE FROM SMH-737 TO SMH-105 PIPE SUPPORT DETAIL
 SCALE: NONE

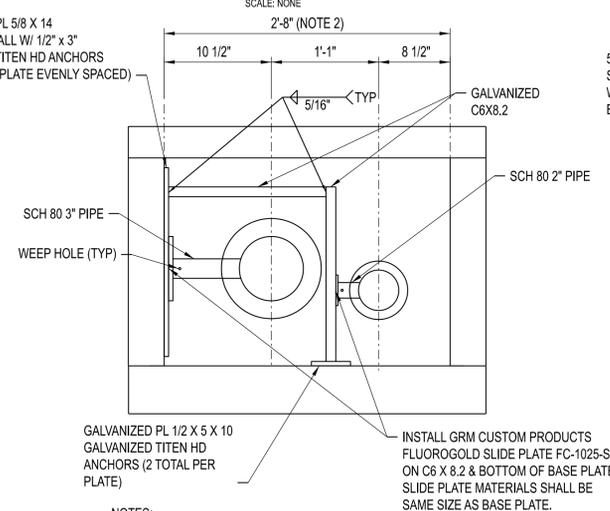


CHASE FROM SMH-105 TO STEPHENS HALL ANCHOR DETAIL
 SCALE: NONE



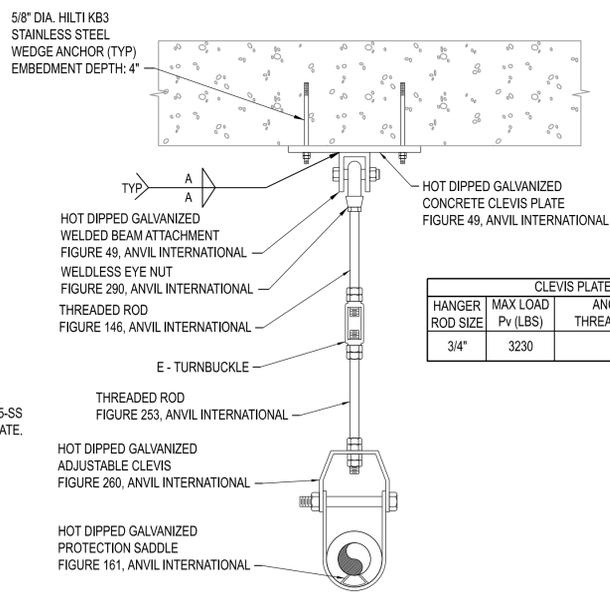
- NOTES:**
- PIPE SUPPORT INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.
 - SEE SHEET M141 FOR LOCATIONS.
 - CHASE WIDTH SHALL BE FIELD VERIFIED AFTER LID REMOVAL AND REPORTED TO MU REPRESENTATIVE AND ENGINEER. ENGINEER WILL UPDATE SPACING AS NECESSARY.
 - 5/16" FILLET WELD ON TOP AND SIDES. PERFORM HOT MELT STICK GALVANIZING REPAIRS. COLD GALVANIZING IS NOT ALLOWED.

CHASE FROM SMH-737 TO STEPHENS HALL PIPE SUPPORT DETAIL
 SCALE: NONE



- NOTES:**
- PIPE SUPPORT INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.
 - CHASE WIDTH SHALL BE FIELD VERIFIED LID REMOVAL AND REPORTED TO MU REPRESENTATIVE AND ENGINEER. ENGINEER WILL UPDATE SPACING AS NECESSARY.

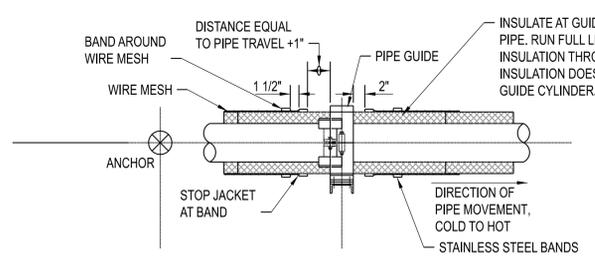
CHASE FROM SOUTH TUNNEL TO SMH-737 BUCK DETAIL
 SCALE: NONE



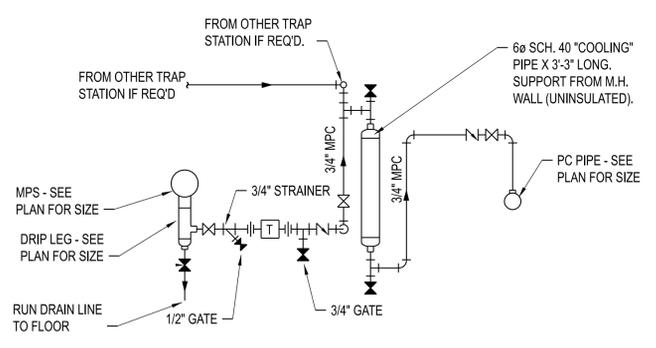
- NOTES:**
- ALL COMPONENTS SHALL BE HDG (HOT DIPPED GALVANIZED).

CLEVIS HANGER (H) DETAIL
 SCALE: NONE

CLEVIS PLATE SCHEDULE			
HANGER ROD SIZE	MAX LOAD Pv (LBS)	ANCHOR ROD THREAD DIA. (EACH)	ANCHOR EMBEDMENT
3/4"	3230	5/8"	4"

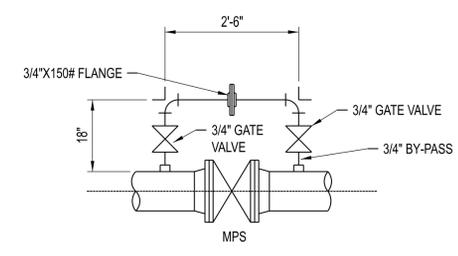


TYPICAL PIPE GUIDE INSULATION DETAIL
 SCALE: NONE



- NOTES:**
- MOUNT COOLING PIPE FROM INSIDE WALL OF MANHOLE AS SHOWN IN PLAN VIEW.
 - TRAPS AND VALVING SHALL BE EASILY ACCESSIBLE FOR MAINTENANCE.
 - COOLING PIPE SHALL HAVE GALVANIZED EXPANDED METAL CAGE FOR PERSONNEL PROTECTION.

TYPICAL TRAP AND COOLING PIPE SCHEMATIC
 SCALE: NONE



- PROVIDE 3/4" BY-PASS WITH GATE VALVES AROUND MPS VALVES 6" AND LARGER. FIELD LOCATE BY-PASS FOR GOOD ACCESS. USE SCHEDULE 40 PIPE AND 3000# FORGED STEEL SOCKET WELD FITTINGS.

TYPICAL VALVE BY-PASS
 SCALE: NONE

0 12/22/25 ISSUED FOR BID
 DRAWN BY: M.A.O.
 CHECKED BY: J.J.N.

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE: 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 MECHANICAL DETAILS

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171
 CONSULTANT
 PROJECT NUMBER
25103
 SHEET
M160

GENERAL NOTES

ELEVATION DATUM
SEE ARCHITECTURAL DRAWINGS OR SITE PLAN FOR FINISH FLOOR ELEVATIONS

DESIGN SPECIFICATIONS
2024 INTERNATIONAL BUILDING CODE

EARTHWORK
EARTHWORK OPERATIONS SHALL BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL TESTING AGENCY TO ASSURE COMPLIANCE WITH THE RECOMMENDATIONS OF THE SOILS REPORT BY CROCKETT GTL, DATED OCTOBER 1, 2025.

CONCRETE

CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 305 SPECIFICATIONS FOR HOT WATER CONCRETE, AND ACI 306 SPECIFICATIONS FOR COLD WEATHER CONCRETE, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

- CONCRETE SHALL DEVELOP THE FOLLOWING 28-DAY MINIMUM COMPRESSIVE STRENGTH:
 - FOUNDATIONS - 3,000 PSI, 500# MIN. CEMENT/FLY ASH, 0.45 W/C RATIO
 - CAST-IN-PLACE WALLS - 4,500 PSI, 540# MIN. CEMENT/FLY ASH, 0.45 W/C RATIO
 - FLOOR SLAB - 4,000 PSI, 565# MIN. CEMENT ONLY, 0.45 W/C RATIO
 - EXTERIOR SLABS, WALLS AND CURBS - 4,500 PSI, 580# MIN. CEMENT/FLY ASH, 0.42 W/C RATIO
 - STEAM TUNNEL SYSTEM - SEE SPECIFICATIONS
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL.
- CHLORIDE-BASED ADMIXTURES ARE PROHIBITED IN ALL REINFORCED CONCRETE.
- REINFORCING STEEL TO BE MPMX & CONFORM TO ASTM A1035.
- ALL CONTINUOUS REINFORCING STEEL THAT MEETS AT A CORNER SHALL BE TIED TOGETHER WITH A CORNER BAR THAT HAS SUFFICIENT LAP DISTANCE IN EACH DIRECTION.
- CONTINUOUS REINFORCING BARS LAP LENGTH SHALL BE A MINIMUM OF 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.
- CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C-143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY. NO WATER MAY BE ADDED TO THE CONCRETE MIX ON SITE UNLESS WATER IS WITHHELD AT THE BATCHING FACILITY. IF WATER IS WITHHELD AT THE BATCHING FACILITY IT SHOULD BE REFLECTED ON THE LOAD TICKET. THE TOTAL AMOUNT OF WATER IN THE MIX SHALL NOT EXCEED WHAT IS NOTED ON THE APPROVED MIXED. THIS SHALL BE NOTED IN THE SPECIAL INSPECTOR'S RECORDS.
- CONCRETE EXPOSED TO WEATHER, VEHICLES, AND/OR DEICING CHEMICALS SHALL BE AIR-ENTRAINED WITH 6% (+/-) 1.5% ENTRAINMENT AIR BY VOLUME AT POINT OF DISCHARGE. DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3%.
- SUBMIT CONCRETE MIX PROPORTIONS PRIOR TO START OF WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED AND ARE ACCEPTABLE TO THE ENGINEER.
- READY MIX CONCRETE SHALL COMPLY WITH REQUIREMENTS OF ASTM C94.
- CONCRETE WORK EXECUTION
 - CONSTRUCT FORMS TO CORRECT SIZE, SHAPE, ALIGNMENT, ELEVATION AND POSITION; AND TO SUPPORT VERTICAL AND LATERAL LOADS.
 - POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE, UNLESS NOTED OTHERWISE ON THE DRAWINGS:
 - CAST AGAINST AND EXPOSED TO EARTH.....3 INCHES
 - EXPOSED TO EARTH OR WEATHER.....2 INCHES
 - NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH.....1 1/2 INCHES
 - PROVIDE CONTROL JOINTS IN SLABS-ON-GRADE AT NOT GREATER THAN 15 FEET ON CENTER IN EACH DIRECTION. SAW CUT CONTROL JOINTS MINIMUM 1/4 OF SLAB DEPTH, AS SOON AFTER SLAB FINISHING WITHOUT DISLODING AGGREGATE.
 - STEEL TROWEL FINISH ALL INTERIOR CONCRETE SLABS, BROOM FINISH ALL EXTERIOR CONCRETE SLABS.
 - CURE ALL CONCRETE IN COMPLIANCE WITH ACI 301, USING A LIQUID TYPE MEMBRANE, NON-RESIDUAL, CURING COMPOUND COMPLYING WITH ASTM C309. ASSURE COMPATIBILITY WITH FINISH FLOOR COVERING.

STRUCTURAL STEEL

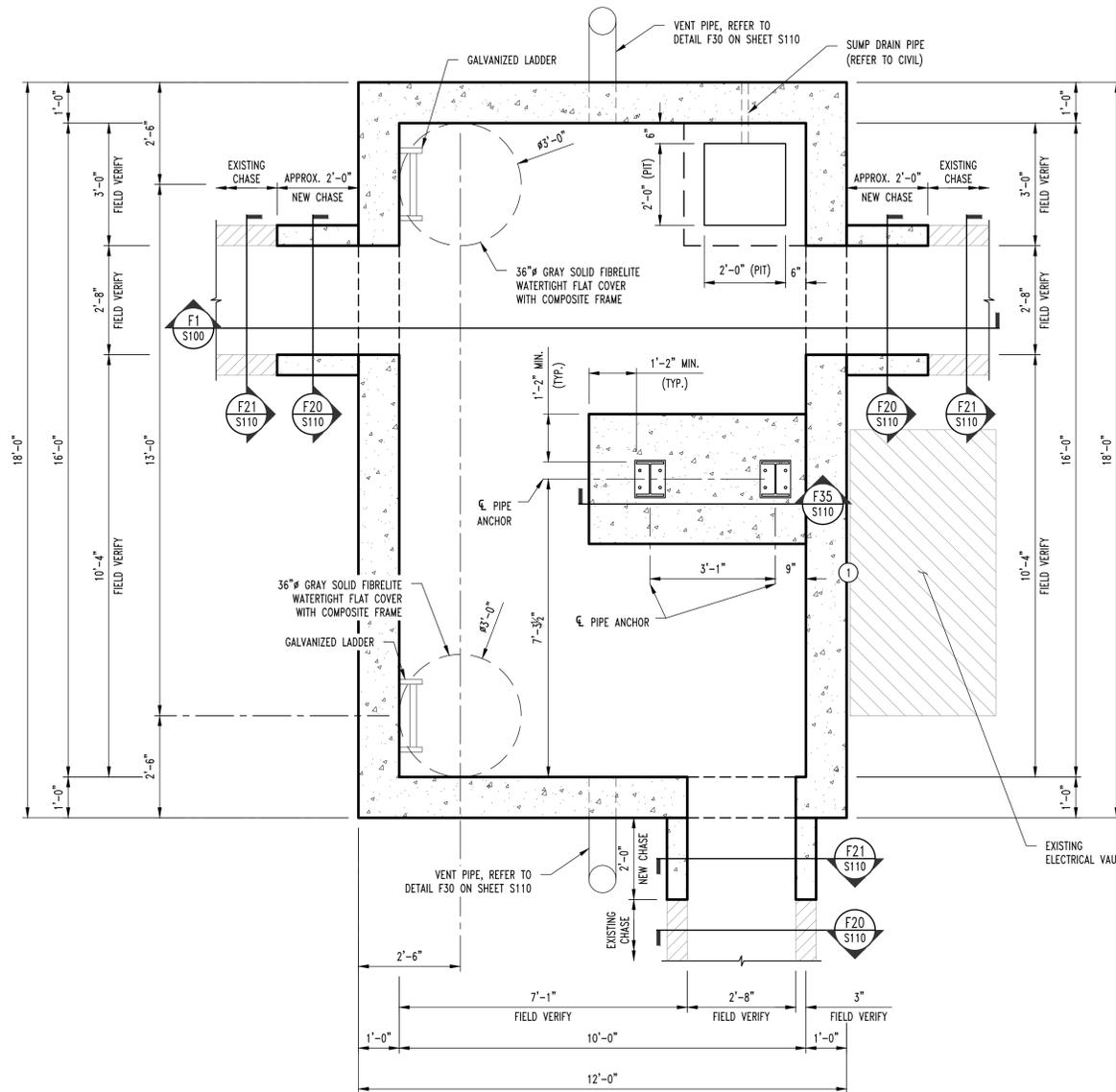
- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AND CURRENT OSHA STANDARDS.
- WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. STRUCTURAL TUBES SHALL CONFORM TO ASTM A500 GRADE B. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
- BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM A325-N, SIZE AS PER PLAN.
- ANCHOR BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM F1554 GRADE 36.
- SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.
- ALL STRUCTURAL AND MISCELLANEOUS STEEL ITEMS SHALL RECEIVE ONE COAT OF "IRONCLAD RETARDO RUST INHIBITIVE PAINT 163" (BENJAMIN MOORE) OR APPROVED EQUAL UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS. ALL STEEL SURFACES EMBEDDED IN CONCRETE SHALL NOT BE PAINTED. PREPARATION OF STEEL SURFACES SHALL MEET THE REQUIREMENTS OF THE STEEL STRUCTURES PAINTING COUNCIL (SSPC-SP1) AND THE REMOVAL OF GREASE AND OIL BY SOLVENT CLEANING (SSPC-SP1) AND THE REMOVAL OF MILL SCALE, RUST, WELD FLUX AND SLAG BY HAND TOOL CLEANING (SSPC-SP2). PRIMER SHALL BE APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE BUT NOT LESS THAN ONE GALLON PER 400 SQ.FT. THEREBY DEPOSITING A DRY FILM THICKNESS OF NOT LESS THAN 1.5 MILS. ANY SCARRED AREAS SHALL BE TOUCHED UP WITH THE SAME PAINT AFTER ERECTION.
- ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS STRUCTURAL WELDING CODE. WELDING ELECTRODES SHALL BE E70XX.

SPECIAL INSPECTIONS

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

- CONCRETE GROUT DESIGN MIX (PERIODIC)
- PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING / PERIODIC OF REINFORCING)
- BOLTS & ANCHORS EMBEDDED IN CONCRETE (PERIODIC)
- STRUCTURAL STEEL BOLTING & WELDING (PERIODIC)
- POST INSTALLED ANCHORS IN CONCRETE (CONTINUOUS)

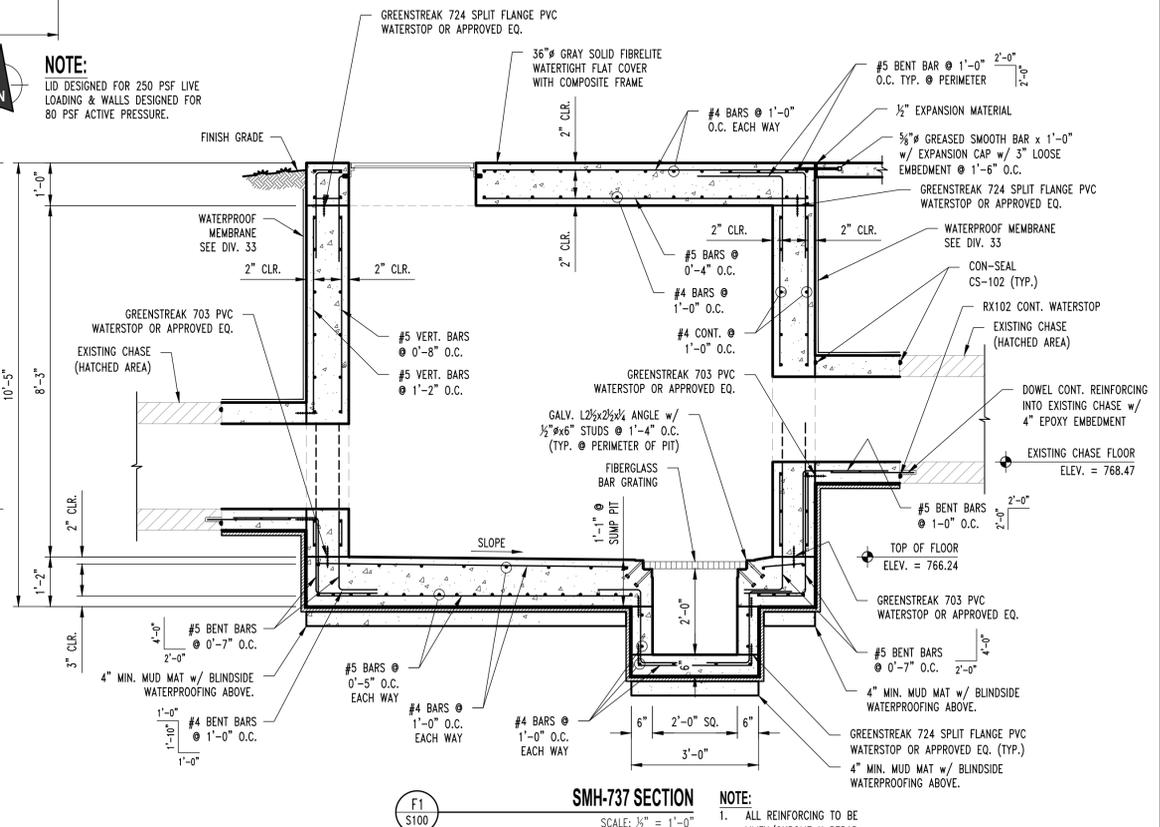
THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.



SMH-737 PLAN
SCALE: 1/2" = 1'-0"

NOTE:
LID DESIGNED FOR 250 PSF LIVE LOADING & WALLS DESIGNED FOR 80 PSF ACTIVE PRESSURE.

DESIGN DATA	
2024 INTERNATIONAL BUILDING CODE / ASCE 7-22	
NEW STEAM MANHOLE LOAD DATA	
LIVE LOAD	250 (OR 16kip CONCENTRATED)
CONCRETE LID	150
MECHANICAL ALLOWANCE	15
TOTAL TO LID	415 lbs/sqft
NEW CHASE LOAD DATA	
LIVE LOAD	250 (OR 16kip CONCENTRATED)
SOIL LOADING (APPROX. 4 FEET)	480
PRECAST CONCRETE LID	75
TOTAL TO LID	805 lbs/sqft
WALL BELOW GRADE SOIL PARAMETERS	
BEARING CAPACITY	1500 PSF (ASSUMED)
ACTIVE AT-REST EARTH PRESSURES (COHESIVE)	80 PCF
FRICTION COEFFICIENT	0.32
EARTHQUAKE DESIGN DATA	
RISK CATEGORY	IV
I_e	1.5
S_p	0.27
S_s	0.11
SITE CLASS	
S_{DS}	D
S_{M1}	0.227
S_{M2}	0.160
SEISMIC DESIGN CATEGORY	
BASIC SEISMIC-FORCE-RESISTING SYSTEM*	D
ORDINARY REINFORCED CONCRETE SHEAR WALLS	
R_w	4.0
Ω_o	2.5
C_o	4.0
DESIGN BASE SHEAR	$V = 0.015W$
EQUIVALENT LATERAL FORCE PROCEDURE	



SMH-737 SECTION
SCALE: 1/2" = 1'-0"

NOTE:
1. ALL REINFORCING TO BE MPMX/CHROME X REBAR.

NOTES

- PROVIDE INSULATION BOARD & BLINDSIDE WATERPROOFING AGAINST EXISTING ELECTRICAL VAULT.

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED

GREGORY L. LINEMAN - PE
MO LICENSE - 200501013
12/19/25

CROCKETT
ENGINEERING CONSULTANTS

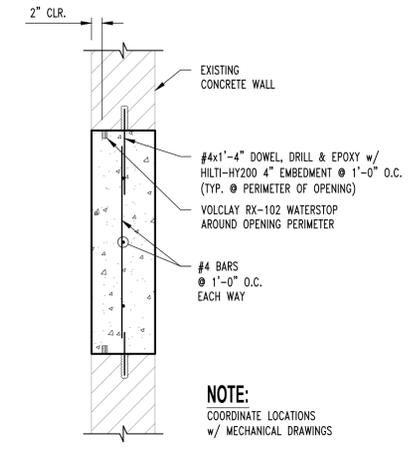
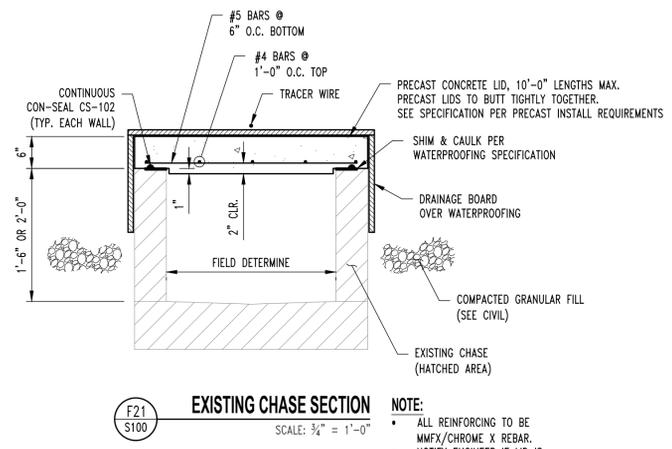
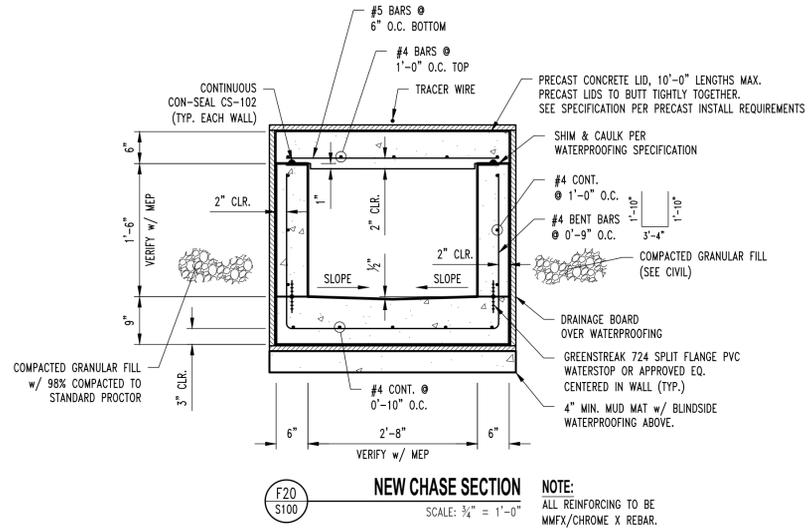
ISSUE FOR BID: 12/22/2025
DRAWN BY: RGA
CHECKED BY: GIL

PRVN CONSULTANTS, INC.
1677 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 866.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

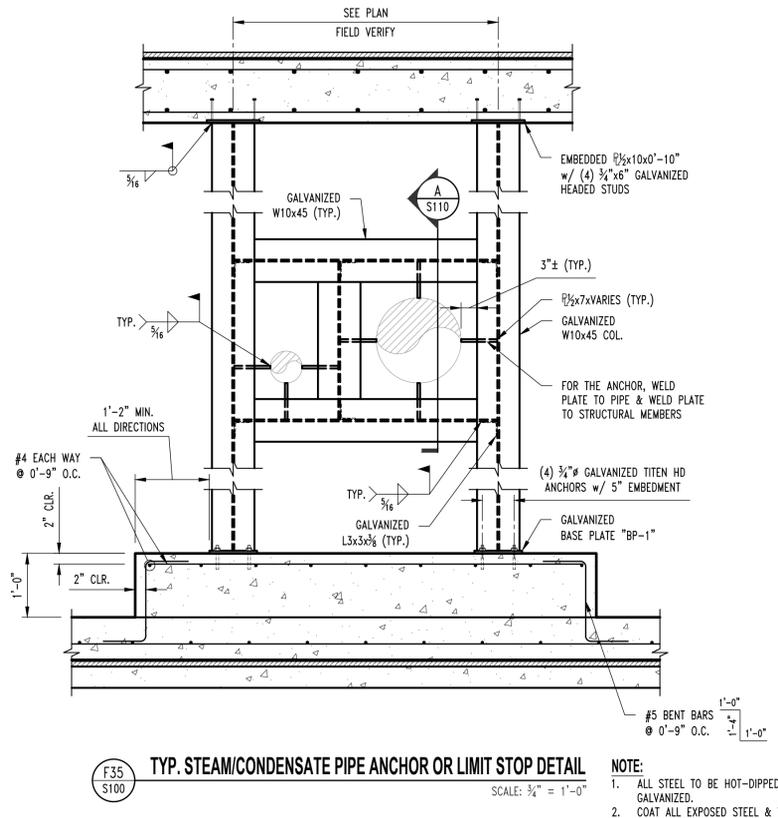
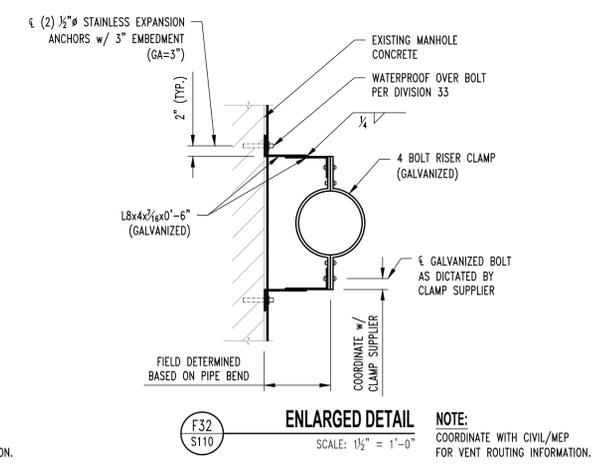
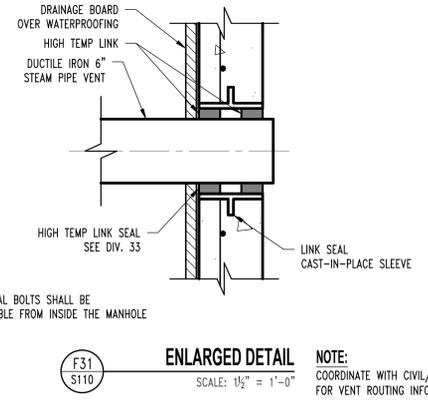
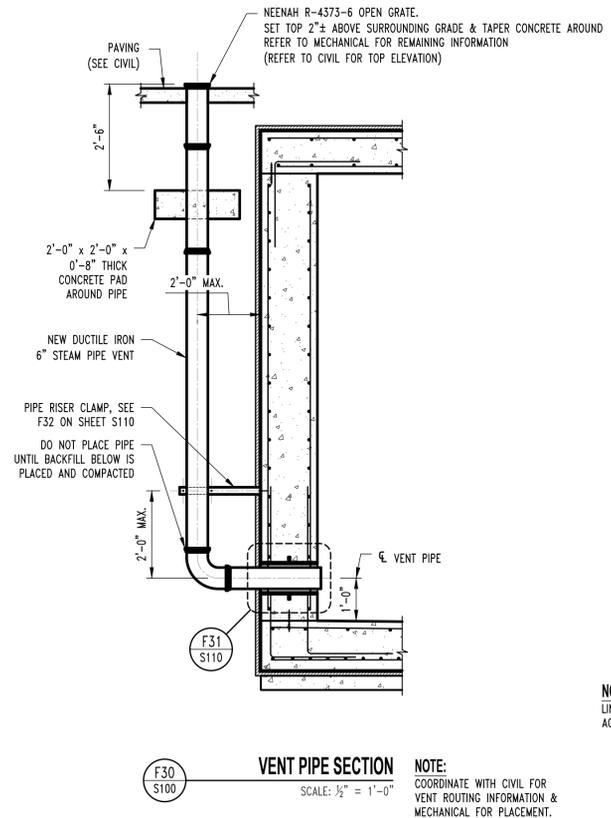
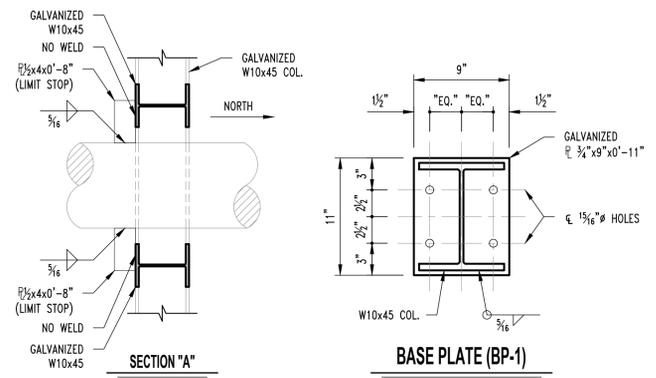
UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203

SMH-737 PLANS & DETAILS

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171
CONSULTANT PROJECT NUMBER
250326
SHEET
S100



TYP. INFILL STEAM CHASE OPENING @ BUILDING
NOTE: ALL REINFORCING TO BE MMFX/CHROME X REBAR.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED
STATE OF MISSOURI
GREGORY L. LINNEMAN
REGISTERED PROFESSIONAL ENGINEER
NO. 1000000103
12/19/25
GREGORY L. LINNEMAN - PE
MO LICENSE - 2005001013

CROCKETT
ENGINEERING CONSULTANTS

ISSUE FOR BID
12/22/2025
DRAWN BY: RCA
CHECKED BY: GIL

PRVN CONSULTANTS, INC.
1677 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 866.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM AND WATER LINE REPLACEMENT,
STEPHENS AND LEFEVRE HALLS
COLUMBIA, BOONE COUNTY, MISSOURI 65203
STEAM MANHOLE & CHASE DETAILS

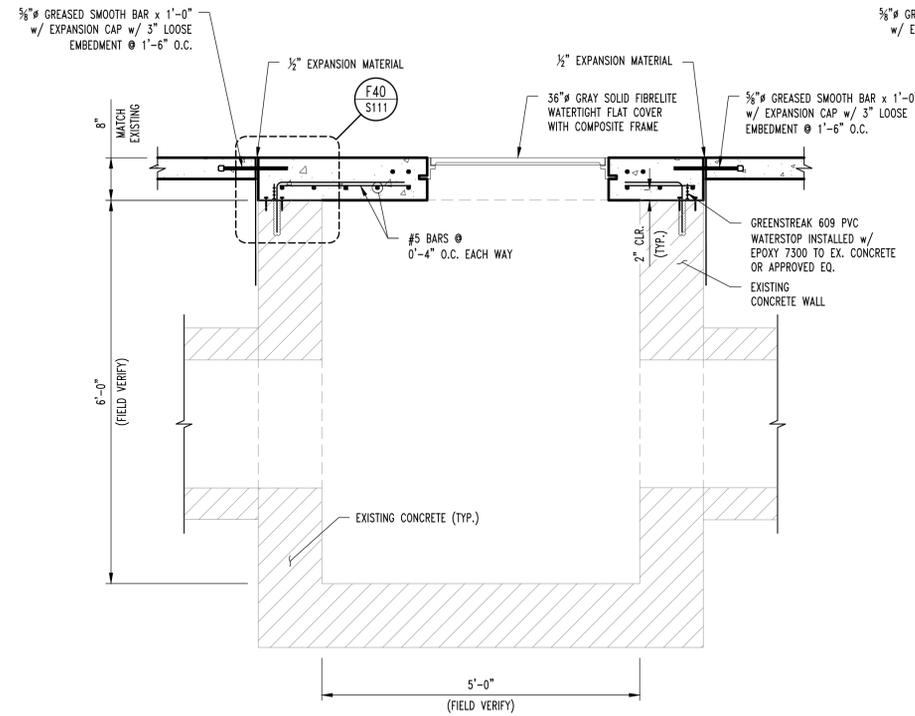
UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171
CONSULTANT
PROJECT NUMBER
250326
SHEET
S110

12/22/2025	ISSUE FOR BID	DRAWN BY: RCA	CHECKED BY: GIL
------------	---------------	---------------	-----------------

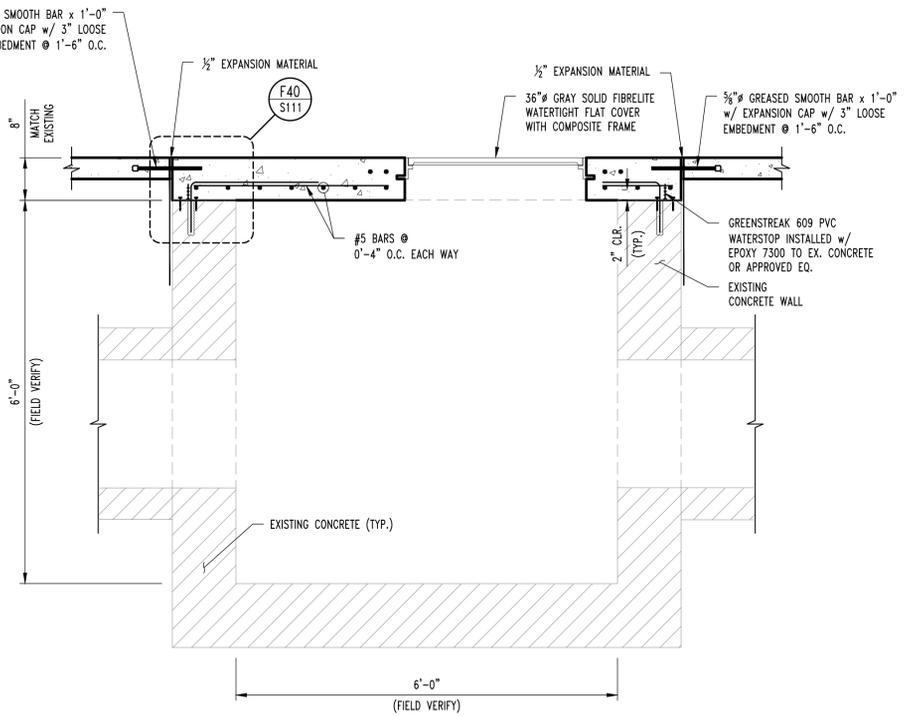
PRVN CONSULTANTS, INC.
 1677 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM AND WATER LINE REPLACEMENT,
 STEPHENS AND LEFEVRE HALLS
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
STEAM MANHOLE & CHASE DETAILS

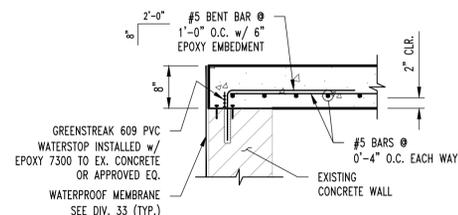
UNIVERSITY OF MISSOURI
 PROJECT NUMBER
 CP253171
 CONSULTANT
 PROJECT NUMBER
 250326
 SHEET
S111



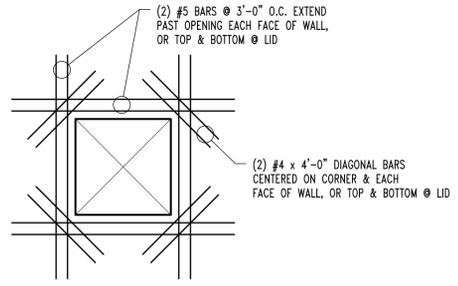
F40 S111 **EXISTING STEAM MANHOLE #105 SECTION**
 SCALE: 1/2" = 1'-0"
 NOTE:
 1. ALL REINFORCING TO BE MMFX/CHROME X REBAR.



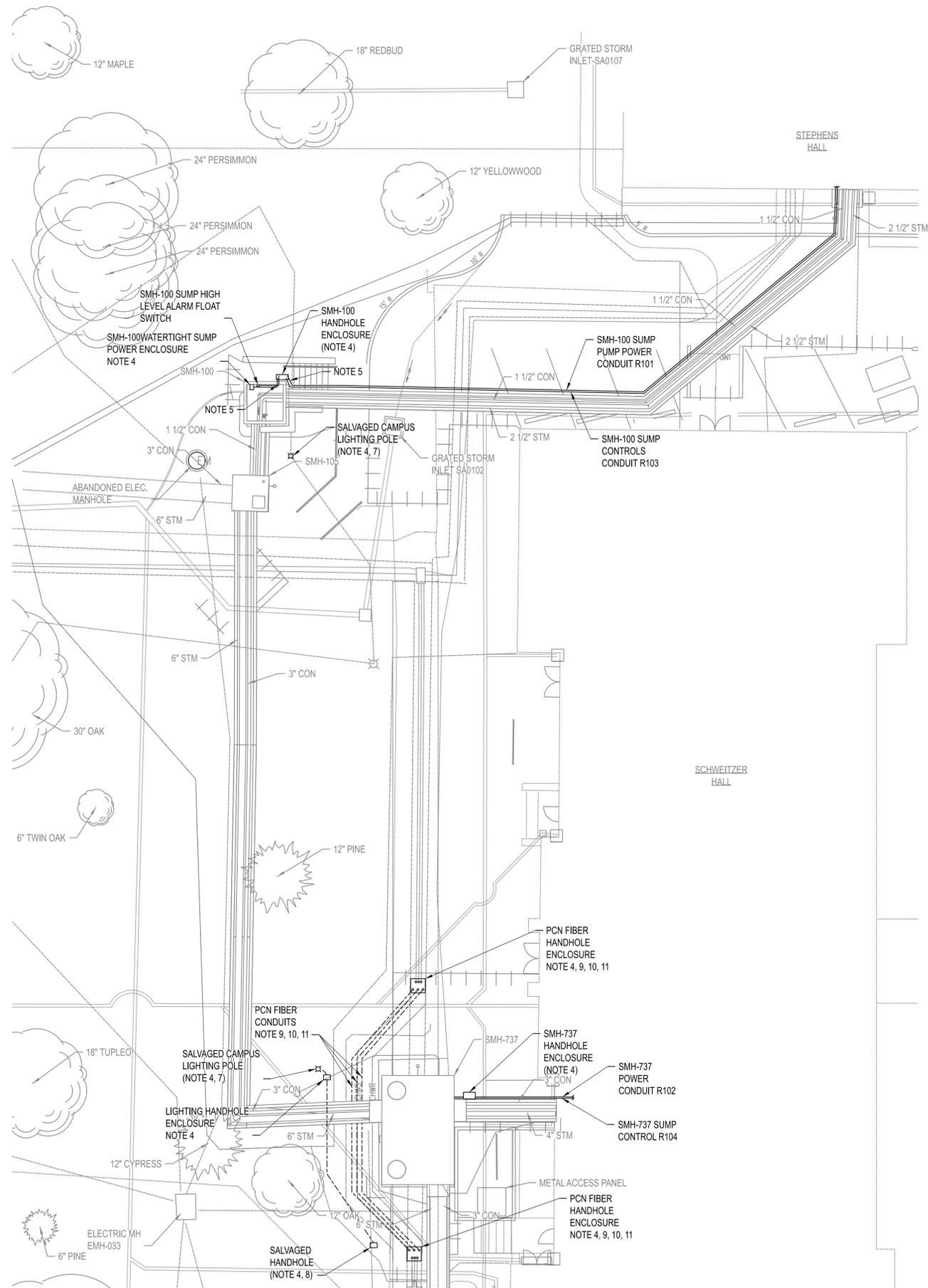
F41 S111 **EXISTING STEAM MANHOLE #100 SECTION**
 SCALE: 1/2" = 1'-0"
 NOTE:
 1. ALL REINFORCING TO BE MMFX/CHROME X REBAR.



F40 S111 **NEW LID DETAIL**
 SCALE: 3/4" = 1'-0"
 NOTE:
 1. ALL REINFORCING TO BE MMFX/CHROME X REBAR.



TYP. WALL & LID OPENING REINFORCEMENT



ELECTRICAL SITE PLAN
SCALE: 1"=10'-0"



NOTES:

1. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF NEW WORK SHOWN ON THIS PLAN. IMMEDIATELY REPAIR ANY DAMAGED UTILITIES TO THE SATISFACTION OF THE OWNER, IN COMPLIANCE WITH THE OWNER'S REQUIREMENTS.
2. COORDINATE ROUTING WITH ALL OTHER SITE UTILITIES (WATER, GAS, STORM, ETC).
3. UNDERGROUND CONDUITS SHALL BE A MINIMUM OF 1" AND CONDUCTORS SHALL BE #10 UNLESS NOTED OTHERWISE.
4. SEE SHEET E200 FOR ADDITIONAL DETAILS ON HANDHOLE ENCLOSURES AND LIGHT FIXTURE POLE BASES.
5. SEE SHEET E200 FOR ADDITIONAL DETAILS ON DIRECT BURIED CONDUIT INSTALLATION.
6. COORDINATE WITH OWNER FOR CONDUIT ROUTING TO MINIMIZE DISRUPTION TO SIDEWALKS AND DAMAGE TO TREES.
7. REINSTALL SALVAGED LIGHT POLE USING EXISTING LIGHTING CABLES AFTER NEW CHASE INSTALLATION AND BACKFILL AND GRADING IS COMPLETED.
8. AFTER NEW CHASE INSTALLATION IS COMPLETED AND BACKFILL AND GRADING IS COMPLETED, REINSTALL SALVAGED ELECTRIC HANDHOLE ENCLOSURE AS IT WAS PRIOR TO PROJECT COMMENCEMENT. USE SALVAGED HANDHOLE ENCLOSURE TO EXTEND LIGHTING CIRCUIT TO LIGHTING POLE.
9. CONTRACTOR TO INTERCEPT THE THREE EXISTING PCN FIBER CONDUITS ROUTED THROUGH NEW SMH-737 LOCATION AND INSTALL TWO HANDHOLE ENCLOSURES AND NEW CONDUIT TO ROUTE FIBER CABLES AROUND SMH-737 AS SHOWN ON THIS PLAN DRAWING. NEW CONDUIT SHALL BE REPLACE EXISTING CONDUIT IN KIND. OWNER TO DEMOLISH EXISTING FIBER CABLE AND OWNER TO PROVIDE REPLACEMENT FIBER CABLE.
10. CONTRACTOR SHALL INSTALL FIBER CONDUITS SUCH THAT THEY IMMEDIATELY BEGIN GOING IN THE NORTHWEST OR SOUTHWEST DIRECTIONS FROM THEIR HANDHOLE ENCLOSURES AFTER MAKING THE 90° BEND TO GET INTO THE HORIZONTAL PLANE. THE TOTAL SUM OF THE BENDS IN EACH CONDUIT SHALL BE KEPT TO 270° OR LESS BETWEEN THE TWO NEW HANDHOLE ENCLOSURES.
11. CONTRACTOR SHALL KEEP EXISTING FIBER CABLES OPERATIONAL UNTIL REPLACEMENT CONDUITS ARE INSTALLED AND READY FOR OWNER TO PULL REPLACEMENT FIBER CABLES. FIBER CABLE OUTAGE SHALL NOT LAST LONGER THAN 7 CALENDAR DAYS.

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

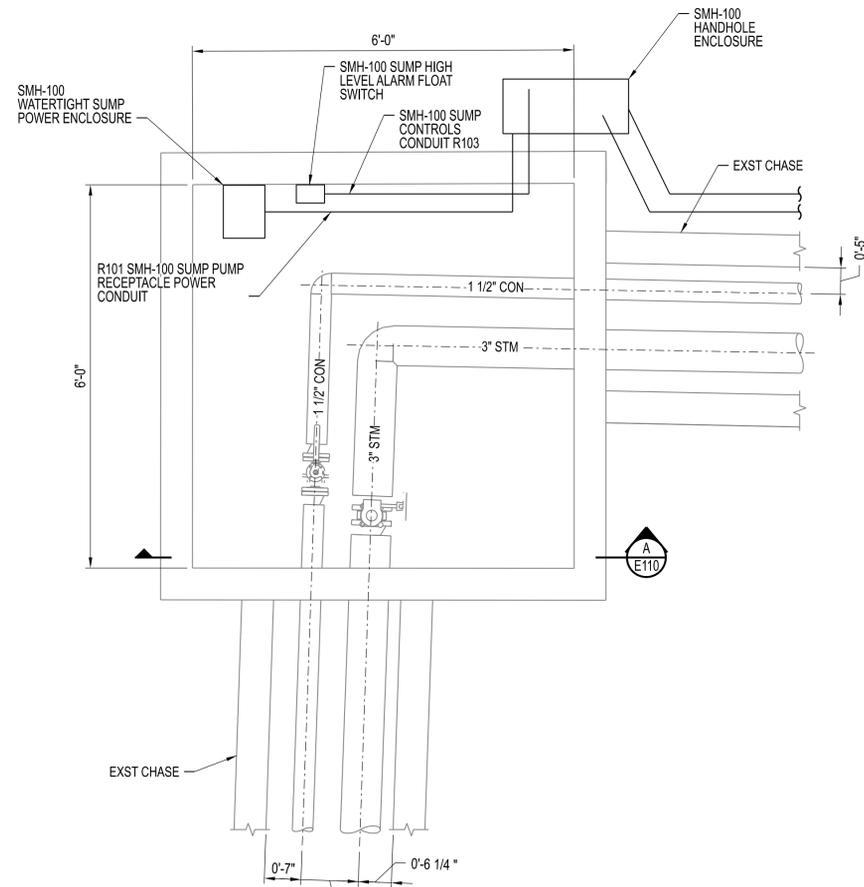
JEFFERY GAMBRELL
NUMBER PE-2000173860
12/22/2025
ENGINEER / ARCHITECT OF RECORD
JEFFERY GAMBRELL, PE
LICENSE NO. PE-2000173860
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.T.G.
			DRAWN BY: M.A.O.

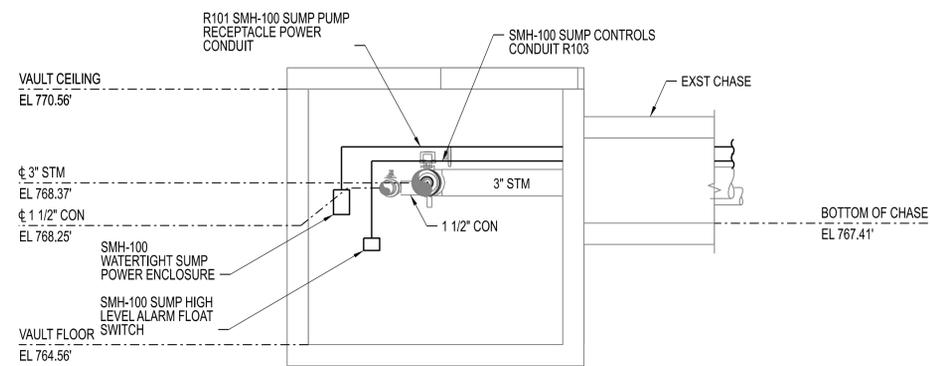
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
ELECTRICAL SITE PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171
CONSULTANT
PROJECT NUMBER
25103
SHEET
E100



SMH-100 ELECTRICAL PLAN
SCALE: 3/4" = 1'-0"



SECTION A-E110 (LOOKING NORTH)
SCALE: 1/2" = 1'-0"

THIS SHEET HAS BEEN SIGNED,
SEALED, AND DATED ELECTRONICALLY

STATE OF MISSOURI
JAMES J. NONNENMANN
NUMBER
PE-5053025612
PROFESSIONAL ENGINEER

12/22/2025

ENGINEER / ARCHITECT OF RECORD:
JAMES NONNENMANN, PE
LICENSE NO. PE-5053025612

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0 12/22/25 ISSUED FOR BID
DRAWN BY: M.A.O.
CHECKED BY: J.T.G.

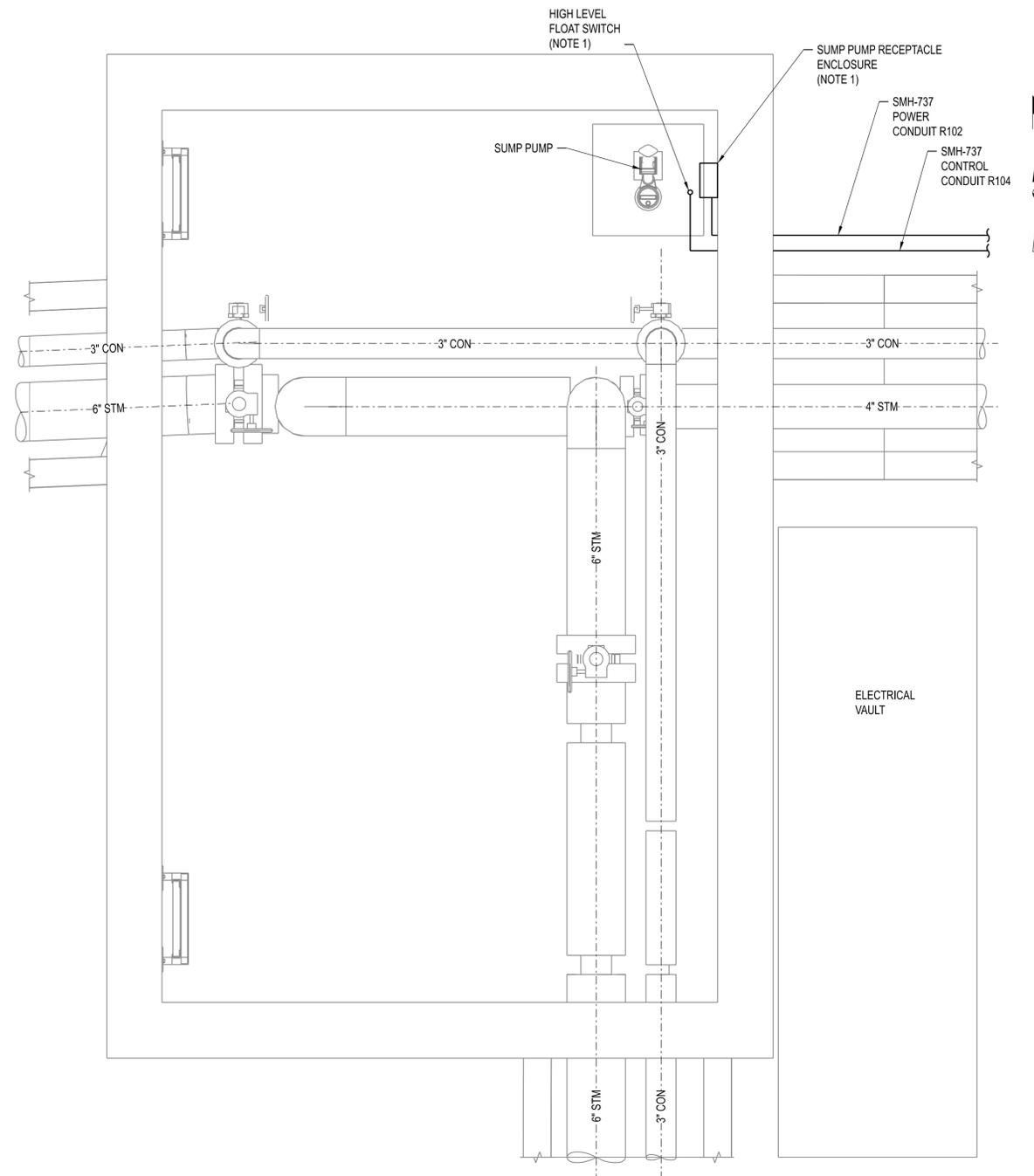
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF
AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
SMH-100 ELECTRICAL PLAN AND SECTION

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
E110



SMH-737 ELECTRICAL PLAN
SCALE: 3/4" = 1'-0"

NOTES:

- SEE DRAWING E200 FOR MORE DETAILS ON SUMP PUMP LEVEL RECEPTACLE ENCLOSURE AND HIGH LEVEL FLOAT SWITCH INSTALLATION.



0	12/22/25	ISSUED FOR BID	CHECKED BY: J.T.G.
		DRAWN BY: M.A.O.	

PRN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
SMH-737 ELECTRICAL PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER

CP253171

CONSULTANT
PROJECT NUMBER

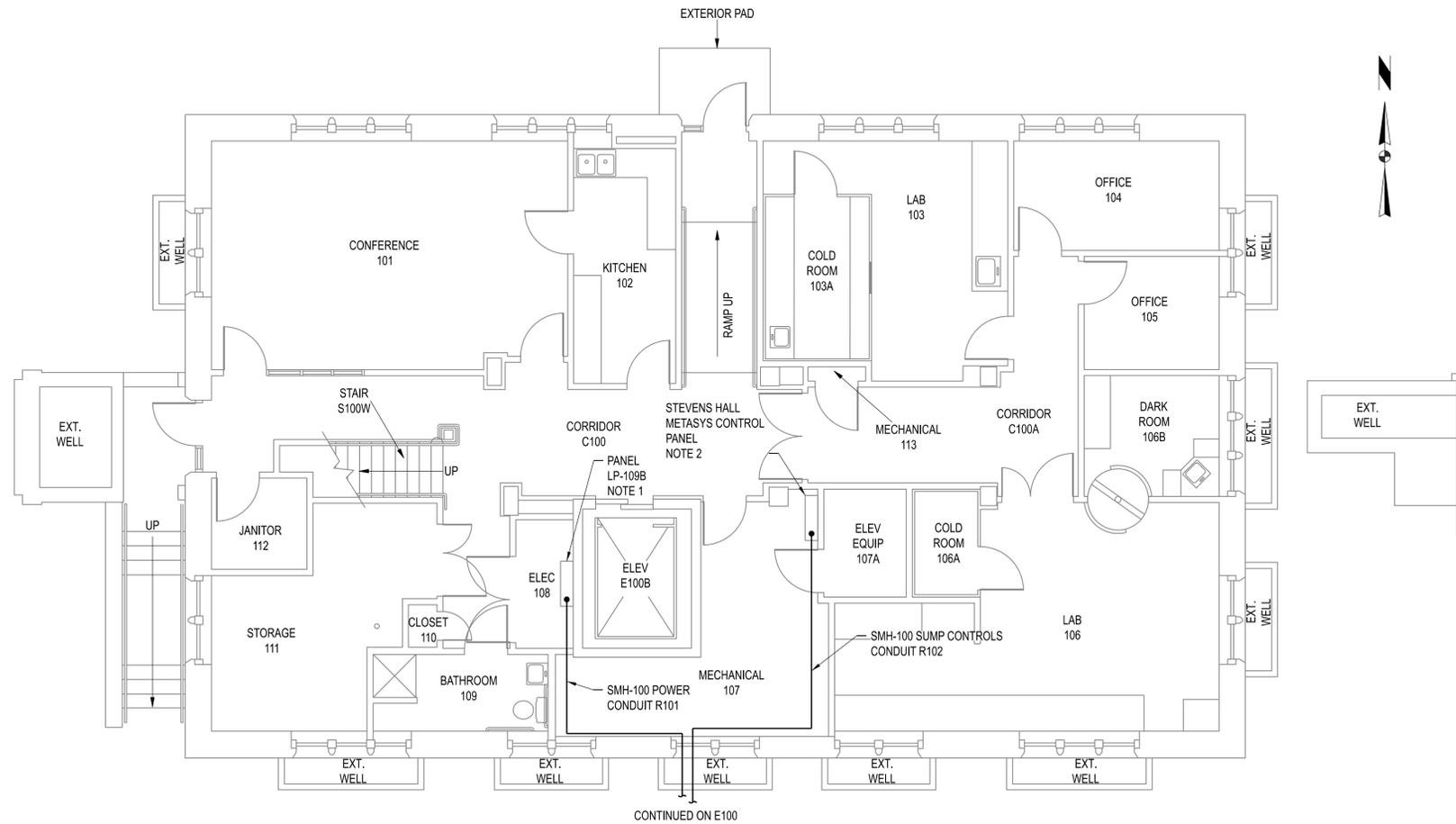
25103

SHEET

E130

ASBESTOS NOTES - CAUTION!!!

- STEAM CHASE WATERPROOFING MAY CONTAIN ASBESTOS. ONCE EXCAVATED TO BE EXPOSED, THE WATERPROOFING SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT MAY BE REQUIRED TO REMOVE STEAM CHASE LID SHALL BE PROVIDED BY CONTRACTOR.
- MPS/PC PIPING INSULATION WITHIN CHASE MAY CONTAIN ASBESTOS. ONCE EXPOSED, THE WATERPROOFING AND PIPE INSULATION SHALL BE TESTED FOR ACM. ASBESTOS ABATEMENT SHALL BE PROVIDED BY CONTRACTOR.



CONTINUED ON E100
STEPHENS HALL BASEMENT
 SCALE: 3/16" = 1'-0"

NOTES:

1. CONNECT SMH-100 DISCONNECT POWER TO SPARE CIRCUIT #38 WITHIN PANEL LP-109B.
2. ROUTE PUMP HIGH ALARM CONTROL CABLING TO METASYS CONTROL PANEL IN MECHANICAL ROOM 207, PULL CABLE THROUGH WIRING TROUGH, AND COORDINATE WITH OWNER ON FINAL TERMINATION LOCATION.

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

STATE OF MISSOURI
 JEFFERY GAMBELL
 PROFESSIONAL ENGINEER
 NUMBER PE-2000173860
 12/22/2025

ENGINEER / ARCHITECT OF RECORD:
 JEFFERY GAMBELL, PE
 LICENSE NO. PE-2000173860

PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE 110
 ROCK ISLAND, IL 61201
 PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.T.G.
DRAWN BY: M.A.O.			

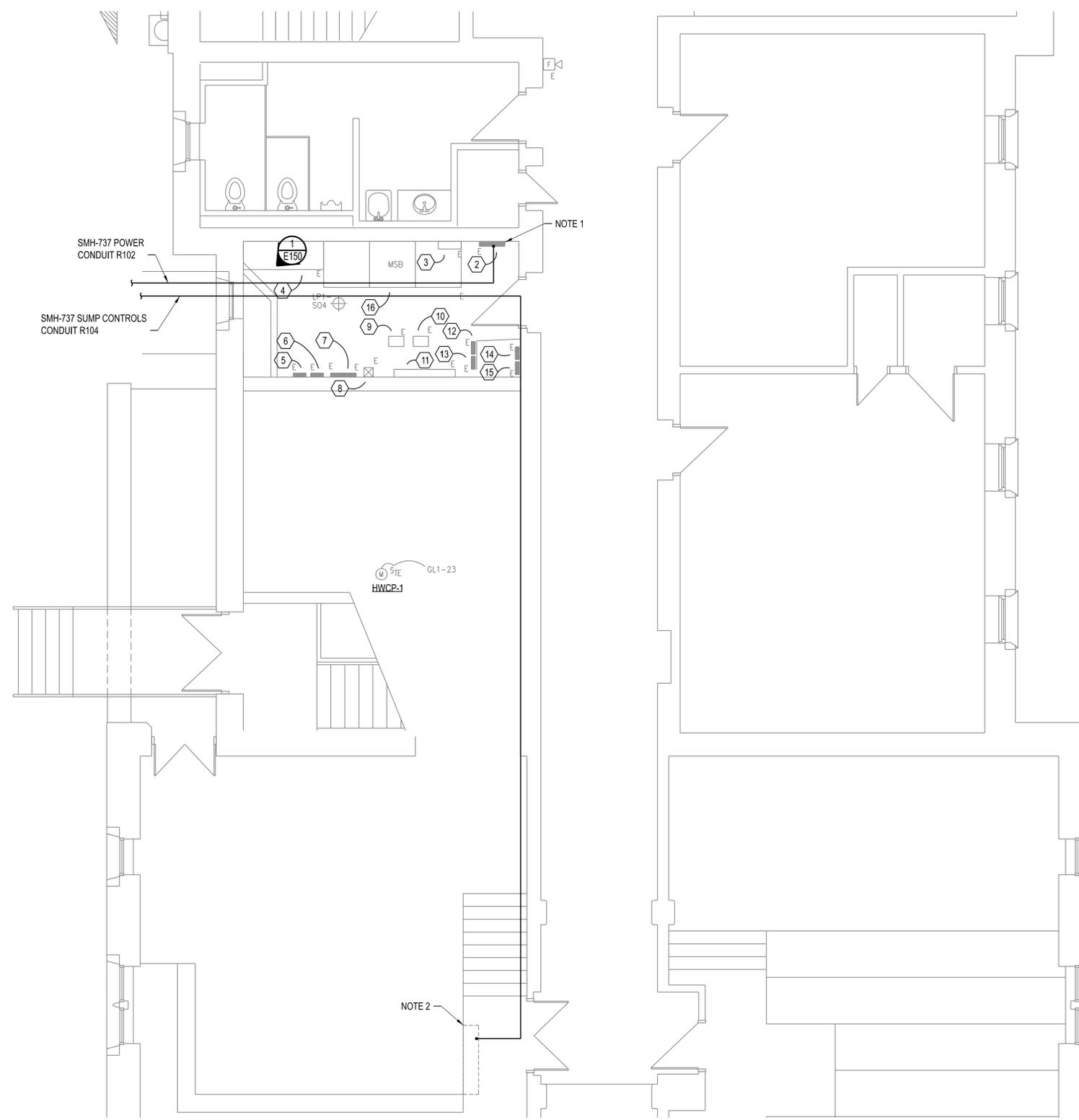
PRVN CONSULTANTS, INC.
 1617 SECOND AVE., STE. 110
 ROCK ISLAND, IL 61201
 PHONE 563.263.5160
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605

UNIVERSITY OF MISSOURI - COLUMBIA
 GENERAL SITE
 STEAM, CONDENSATE, & WATER LINE REPLACEMENT
 COLUMBIA, BOONE COUNTY, MISSOURI 65203
 STEPHENS HALL ELECTRICAL PLAN

UNIVERSITY OF MISSOURI
 PROJECT NUMBER
CP253171

CONSULTANT
 PROJECT NUMBER
25103

SHEET
E140



SCHWEITZER HALL ELECTRICAL PLAN
SCALE: 1/4"=1'-0"

- NOTES:**
- CONNECT SMH-737 DISCONNECT POWER TO SPARE CIRCUIT #9 WITHIN PANEL "NE".
 - ROUTE PUMP HIGH ALARM CONTROL CABLING TO EMCS CONTROL PANEL IN MECHANICAL ROOM AS SHOWN. COORDINATE WITH OWNER ON FINAL TERMINATION LOCATION.

GROUND FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA B NOTES:

- SEE GROUND FLOOR POWER AND AUXILIARY SYSTEMS PLAN - AREA A FOR LOCATION OF PANEL 'GL1'
- EXISTING NORTHEAST WALL PANEL (SECTION 1 - LEFT, SECTION 2 RIGHT).
- EXISTING 18"X18"X6" DEEP PULL BOX MTD TO TOP OF EXISTING MAIN SWITCHBOARD 'MSB'.
- EXISTING 18"X18"X6" DEEP PULL BOX MTD TO TOP OF EXISTING MAIN SWITCHBOARD 'MSB'.
- EXISTING PANEL 'EMP'.
- EXISTING PANEL 'LPG'.
- EXISTING PANEL 'PPG' (SECTION 1-LEFT, SECTION 2 - RIGHT).
- EXISTING MOTOR STARTER FOR FAN COIL UNIT.
- EXISTING POLYSONICS TRANSMITTER.
- EXISTING BADGER FLOW METER.
- EXISTING 6"X6"X4" LONG WIREWAY MTD HORIZONTALLY AT 18" AFF.
- EXISTING 12"X12"X6" DEEP J-BOX AT 39" AFF.
- EXISTING CONTROL BOX (ENGINEERING MEASUREMENTS) AT 54" AFF.
- EXISTING METASYS BOX AT 72" AFF.
- EXISTING SCHWEITZER HALL STEAM METER AT 72" AFF.
- EXISTING MAIN SWBD 'MSB', RE-FED FROM SWBD 'MS1'.



DEMOLISH IN BETWEEN STUDS OF WALL, 1' OFF FINISHED FLOOR. INSTALL ACCESS PANEL TO ACCESS AREA WAY THAT IS SEALED WATERTIGHT. 24" TALL x 14" WIDE.

① **SCHWEITZER HALL - ELECTRICAL ROOM AREA WAY**
E150

LEGEND:

 ITEMS TO BE DEMOLISHED

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

STATE OF MISSOURI
JEFFERY GAMBELL
NUMBER PE-2000173860
PROFESSIONAL ENGINEER
12/22/25

ENGINEER / ARCHITECT OF RECORD:
JEFFERY GAMBELL, PE
LICENSE NO. PE-2000173860

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

0	12/22/25	ISSUED FOR BID	CHECKED BY: J.T.G.
			DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING - 2023017605



UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
SCHWEITZER HALL ELECTRICAL PLAN

UNIVERSITY OF MISSOURI
PROJECT NUMBER

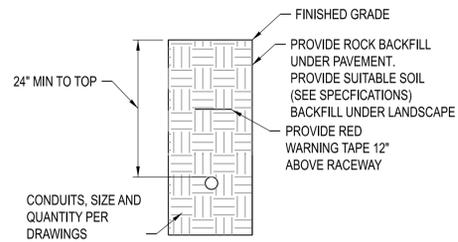
CP253171

CONSULTANT
PROJECT NUMBER

25103

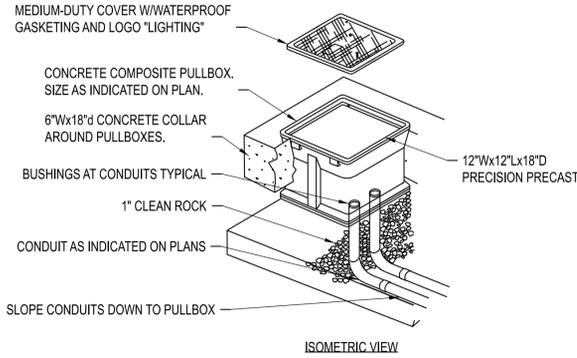
SHEET

E150



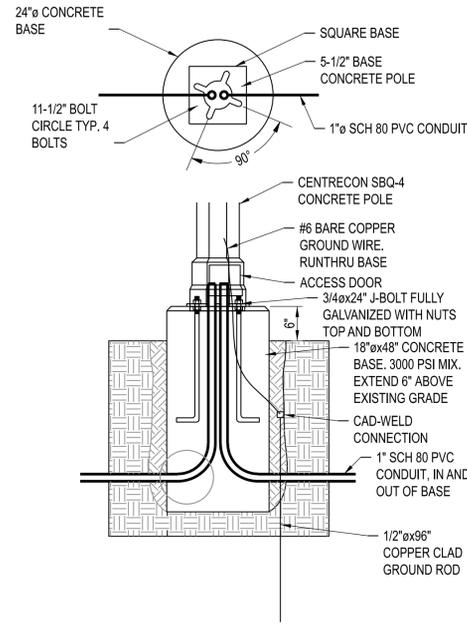
TYPICAL TRENCHING DETAIL

SCALE: NONE



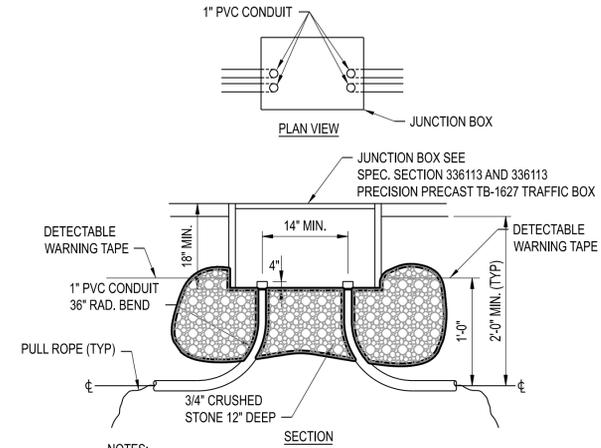
LIGHTING HANDHOLE ENCLOSURE DETAIL

SCALE: NONE



POLEBASE DETAIL

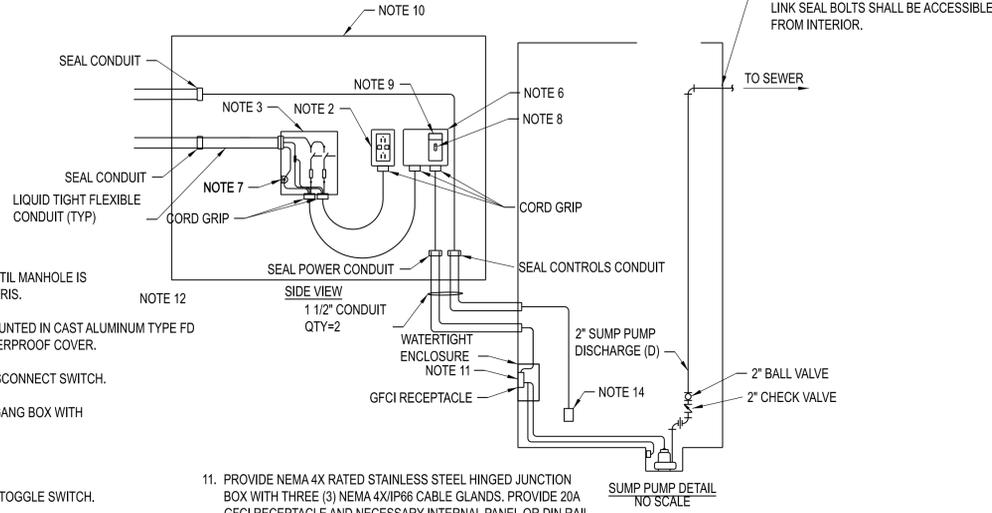
SCALE: NONE



POWER HANDHOLE ENCLOSURE DETAIL

SCALE: NONE

- NOTES:**
- DO NOT INSTALL NEW PUMP UNTIL MANHOLE IS CLEANED OF ALL DIRT AND DEBRIS.
 - GFCI DUPLEX RECEPTACLE MOUNTED IN CAST ALUMINUM TYPE FD SINGLE GANG BOX WITH WEATHERPROOF COVER.
 - 600VAC, 60A, 2-POLE FUSED DISCONNECT SWITCH.
 - CAST ALUMINUM TPE FD TWO GANG BOX WITH WEATHERPROOF COVER.
 - ENCLOSURE GROUND.
 - INDUSTRIAL GRADE, HP RATED TOGGLE SWITCH.
 - NAMEPLATE - "SUMP PUMP"
 - PROVIDE OUTDOOR RATED IN-GROUND HANDHOLE PRECISION PRECAST TB-1627 TRAFFIC BOX ENCLOSURE WITH K&B STEEL 13 1/4" x 24" GALVANIZED FRAME. MINIMUM INTERNAL DIMENSIONS SHALL BE 24"L x 13"W x 18"D. PROVIDE SOLID COVER RATED FOR 4000 PSI CONCRETE. H-20 LOAD RATING. COVER SHALL BE FOR THE ENTIRE OPENING WITH A SLOTTED PICK HOLE AND TWO RECESSED FLAT HEAD GALVANIZED SCREWS WITH ANCHORS. CONCRETE SHALL CONTAIN POLYMESH FIBERS. INSTALL HANDHOLE ENCLOSURE FLUSH WITH GRADE. PROVIDE SEALING COMPOUND INSIDE CONDUITS TO PREVENT AIR TRANSFER BETWEEN VAULT AND HANDHOLE ENCLOSURE.



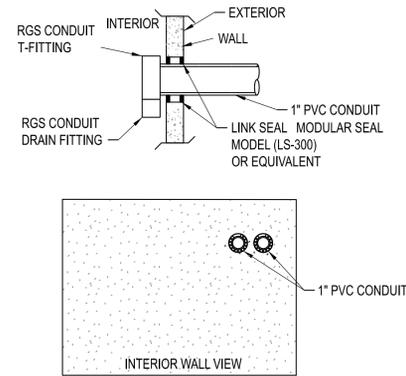
SUMP PUMP INSTALLATION

SCALE: NONE

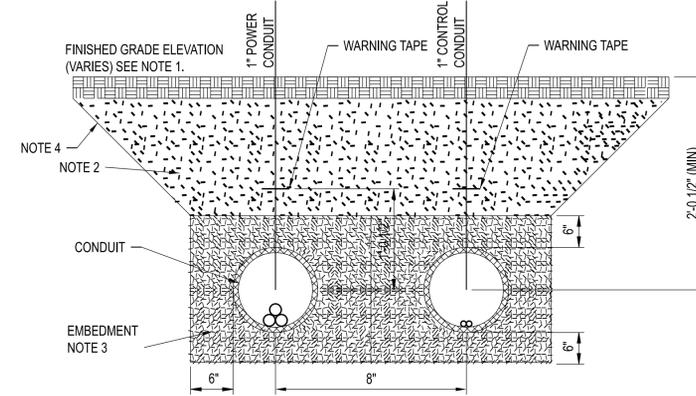
- PROVIDE NEMA 4X RATED STAINLESS STEEL HINGED JUNCTION BOX WITH THREE (3) NEMA 4XIP66 CABLE GLANDS. PROVIDE 20A GFCI RECEPTACLE AND NECESSARY INTERNAL PANEL OR DIN RAIL MOUNTING. MOUNT JUNCTION BOX 5' ABOVE MANHOLE FLOOR NEAR THE SUMP PUMP. THE DEPTH OF THE JUNCTION BOX SHALL ALLOW FOR THE MOUNTED 20A GFCI RECEPTACLE, AND CONNECTION OF PUMP AND FLOAT PLUGS.
- ENCLOSURE TO BE SEATED ON 1" CLEAN ROCK. DEPTH OF ROCK TO BE EQUAL TO THE HEIGHT OF THE ENCLOSURE.
- ITEM 2, 3, AND 6 TO BE MOUNTED HORIZONTAL INSIDE THE GRADE LEVEL ENCLOSURE.
- PROVIDE MADISON #MS600 HIGH LEVEL FLOAT SWITCH. INSTALL AT ELEVATION SUCH THAT THE BOTTOM OF HIGH LEVEL FLOAT SWITCH IS 1/2" ABOVE THE VAULT FLOOR.

WALL PENETRATION FOR SUMP PUMP CONDUITS

SCALE: NONE



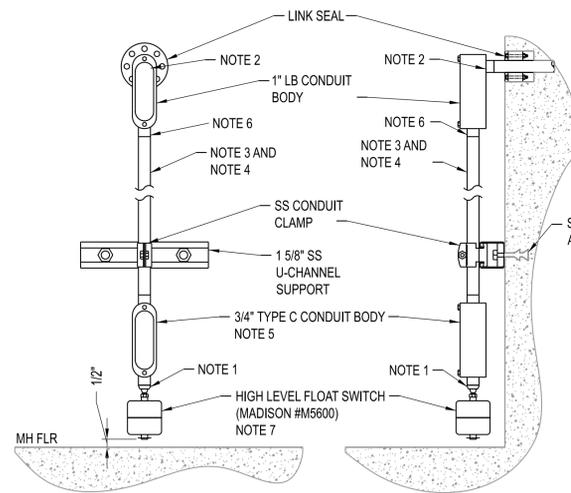
- NOTES:**
- MUST MAINTAIN A BENDING RADIUS OF NO LESS THAN 8" FOR INSTALLED CABLE.



- NOTES:**
- SEE SURFACE RESTORATION PLANS AND SPECIFICATIONS FOR FINISHED GRADE (PAVING, TOPSOIL, ETC.)
 - PROVIDE BACK FILL FROM SUITABLE NATIVE MATERIAL. COMPACTION REQUIREMENTS SHALL BE AS SPECIFIED.
 - ELECTRICAL CONDUIT SHALL BE BACKFILLED WITH CLEAN SAND 6" IN ALL DIRECTIONS.

DIRECT BURIED CONDUIT INSTALLATION DETAIL

SCALE: NONE



STEAM MANHOLE LEVEL SWITCH MTG DETAIL

SCALE: NONE

- NOTES:**
- PROVIDE ALUMINUM OR SS LIQUIDTIGHT FLEXIBLE CORD & POWER CABLE CONNECTOR.
 - SEAL INSIDE OF CONDUIT AT ENCLOSURE/CONDUIT BODY ENTRY WITH 3M 3000VT SEALANT.
 - 3/4" CONDUIT. CABLE C101(SMH-100), C102(SMH-737), 2C-#14AWG TYP..
 - PROVIDE SS U-CHANNEL SUPPORTS WITH SS CONDUIT CLAMPS WITHIN 3' OF EACH CONDUIT TERMINATION AND AT 9' INTERVALS IN BETWEEN.
 - MAINTAIN FULL LENGTH OF FACTORY WIRING ON FLOAT SWITCH TO ALLOW SLACK FOR REPLACING IN THE FUTURE AND PROVIDE WATERPROOF SPLICE CONNECTIONS USING SCREW ON SPRING CONNECTORS AND 3M NO. 3570G-N OR EQUAL EPOXY RESIN. PROVIDE SHOP DWG SUBMITTAL FOR EPOXY RESIN PACKS.
 - PROVIDE ALUMINUM REDUCING BUSHING(S) AS REQ'D.
 - PROVIDE SHOP DRAWING SUBMITTAL FOR FLOAT SWITCH.

THIS SHEET HAS BEEN SIGNED,
SEALED, AND DATED ELECTRONICALLY

JEFFERY GAMBRELL
PROFESSIONAL ENGINEER
12/22/2025
ENGINEER / ARCHITECT OF RECORD:
JEFFERY GAMBRELL, PE
LICENSE NO. PE-2000173860
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

Cable Schedule									
Revision	Cable Number	Cable Description				From	To	Raceway	Comments
		Sets #	Phase	Conductor	Qty.				
0	P101	1	8 AWG	2	8 AWG	STEPHENS HALL 120/208V POWER PANEL - RM 108, PANEL LP-109B, CIRCUIT 38	SMH-100 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	R101	
0	P102	1	10 AWG	2	10 AWG	SCHWEITZER HALL 120/208V POWER PANEL - RM 46, PANEL NE, CIRCUIT 9	SMH-737 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	R102	
0	P103	1	12 AWG	2	12 AWG	SMH-100 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	SMH-100 HANDHOLE ENCLOSURE RECEPTACLE		
0	P104	1	12 AWG	2	12 AWG	SMH-100 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	SMH-100 HANDHOLE ENCLOSURE SUMP PUMP TOGGLE SWITCH		SEE SUMP PUMP INSTALLATION DETAIL ON SHEET E200.
0	P105	1	12 AWG	2	12 AWG	SMH-100 HANDHOLE ENCLOSURE SUMP PUMP TOGGLE SWITCH	SMH-100 SUMP PUMP RECEPTACLE PULLBOX		
0	P106	1	12 AWG	2	12 AWG	SMH-737 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	SMH-737 HANDHOLE ENCLOSURE RECEPTACLE		
0	P107	1	12 AWG	2	12 AWG	SMH-737 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	SMH-737 HANDHOLE ENCLOSURE SUMP PUMP TOGGLE SWITCH		SEE SUMP PUMP INSTALLATION DETAIL ON SHEET E200.
0	P108	1	12 AWG	2	12 AWG	SMH-737 HANDHOLE ENCLOSURE SUMP PUMP TOGGLE SWITCH	SMH-737 SUMP PUMP RECEPTACLE PULLBOX		
0	P109	1	12 AWG	2	12 AWG	SALVAGED LIGHTING HANDHOLE ENCLOSURE	RLOCATED LIGHT POLE		
0	C101	1	2C-14 AWG			SMH-100 SUMP HIGH LEVEL SWITCH	STEPHENS HALL METASYS CONTROL PANEL - ROOM 107	R103	HI LEVEL ALARM STATUS. ROUTE TO WIRING TROUGH ABOVE CONTROL PANEL, COORDINATE FINAL CONNECTION WITH OWNER
0	C102	1	2C-14 AWG			SMH-737 SUMP HIGH LEVEL SWITCH	SCHWEITZER HALL CONTROL PANEL	R104	HI LEVEL ALARM STATUS. CONTROL PANEL DESIGNATION NEEDS TO BE DETERMINED.

CABLE SCHEDULE

0 12/22/25 ISSUED FOR BID
DRAWN BY: M.A.O. CHECKED BY: J.T.G.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE: 563.263.5160
MISSOURI CERTIFICATE OF
AUTHORITY ENGINEERING - 2023017805

UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
CABLE SCHEDULE

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
E300

THIS SHEET HAS BEEN SIGNED,
SEALED, AND DATED ELECTRONICALLY



JEFFERY GAMBRELL
PROFESSIONAL ENGINEER
NUMBER
PE-2000173860
12/22/2025
ENGINEER / ARCHITECT OF RECORD:
JEFFERY GAMBRELL, PE
LICENSE NO. PE-200117330
PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE 110
ROCK ISLAND, IL 61201
PHONE: 563-263-5160

Destination	Amps	Length (Feet)	Wire Size	Phase-to-Phase VD per Amp per 100 Feet of 3P Circuit	Correction Factor (1.155 for 1P LL or 0.577 for LN loads)	Volts	Voltage Drop	Notes
SMH-100 Sump Pump Receptacle	10.5	215	#8 AWG	0.12	1.155	120	2.61%	
SMH-737 Sump Pump Receptacle	10.5	60	#10 AWG	0.191	1.155	120	1.16%	

VOLTAGE DROP CALCULATIONS

0 | 12/22/25 | ISSUED FOR BID | CHECKED BY: J.T.G.
DRAWN BY: M.A.O.

PRVN CONSULTANTS, INC.
1617 SECOND AVE., STE. 110
ROCK ISLAND, IL 61201
PHONE 563.263.5160
MISSOURI CERTIFICATE OF
AUTHORITY ENGINEERING - 2023017805



UNIVERSITY OF MISSOURI - COLUMBIA
GENERAL SITE
STEAM, CONDENSATE, & WATER LINE REPLACEMENT
COLUMBIA, BOONE COUNTY, MISSOURI 65203
VOLTAGE DROP CALCULATIONS

UNIVERSITY OF MISSOURI
PROJECT NUMBER
CP253171

CONSULTANT
PROJECT NUMBER
25103

SHEET
E310