MEHLVILLE SCHOOL DISTRICT

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

100% CONSTRUCTION DOCUMENTS
09/01/2026


## ARCHITECT

BLDD ARCHITECTS

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DECATUR, IL 62523
(844)784-4440

## CIVIL ENGINEER

EXCELSIOR ENGINEERING, LLC

9343 HIGHWAY 100
NEW HAVEN, MO 63068
(573) 291-3159

## M/E/P ENGINEER

FSG Facility Solutions Group

901 HORAN DRIVE
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FENTON, MO 63026
(636) 537-0203

## LANDSCAPE ARCHITECT

GDS Gateway Design Studio

100 CHESTERFIELD
BUSINESS PARKWAY
SUITE 200
ST. LOUIS, MO 63005
(314) 703-1800





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City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380


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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

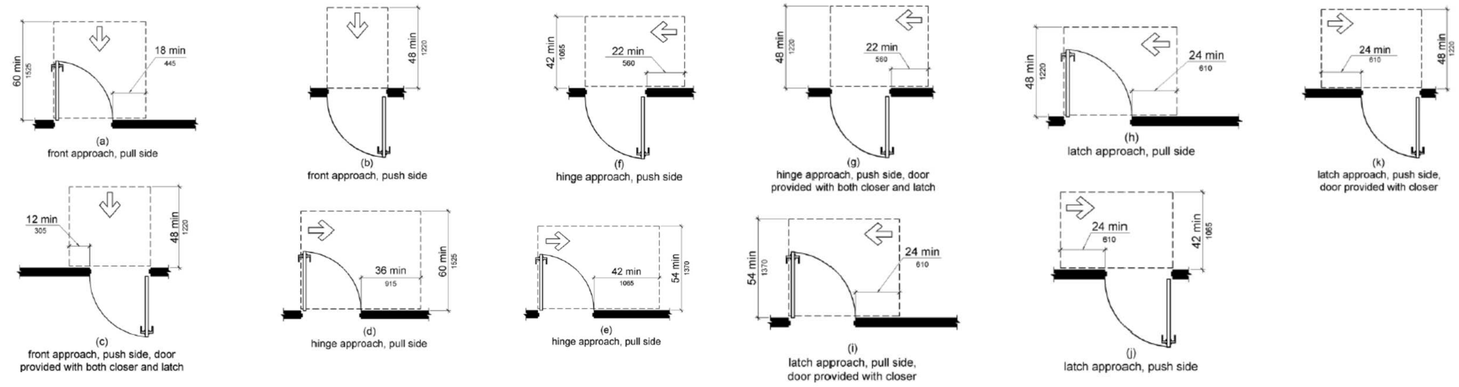
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

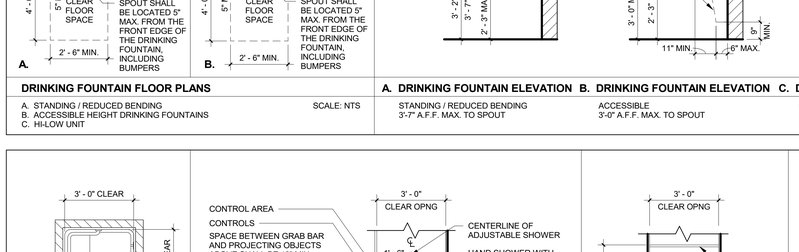
Team
Drawn By: NMM
Checked By: LLW

Sheet Title
COVER SHEET

Sheet No.
G101




1 MANUERVING CLEARANCES AT DOORS
1/4" = 1'-0"




**SANITARY VENDING UNIT** | **WASTE RECEPTACLE** | **PAPER TOWEL DISPENSER AND WASTE RECEPTACLE** | **PAPER TOWEL DISPENSER** | **SOAP DISPENSER** | **MIRROR (ABOVE SINK)** | **DIAPER CHANGING STATION** | **TOWEL BAR** | **ELECTRIC HAND DRYER**




**MARKERBOARD** | **THERMOSTAT** | **LIGHT SWITCH** | **RECEPTACLES & VOICE / DATA OUTLET** | **RECEPTACLES & VOICE / DATA OUTLET ABOVE COUNTERS** | **AUTOMATIC DOOR PUSH PADDLE** | **EMERGENCY LIGHTING** | **FIRE ALARM PULL STATION** | **FIRE ALARM VISUAL ALARM SIGNAL** | **FIRE ALARM AUDIO SIGNAL** | **SURFACE MOUNTED FIRE EXTINGUISHER WITH BRACKET** | **FIRE EXTINGUISHER CABINET** | **ILLUMINATED EXIT SIGN**




**TYPICAL ROOM SIGNAGE**




**DRINKING FOUNTAIN FLOOR PLANS**

A. STANDING / REDUCED BENDING
B. ACCESSIBLE HEIGHT DRINKING FOUNTAINS
C. HI-LOW UNIT

SCALE: NTS




**A. DRINKING FOUNTAIN ELEVATION** — STANDING / REDUCED BENDING 3'-7" A.F.F. MAX. TO SPOUT

**B. DRINKING FOUNTAIN ELEVATION** — ACCESSIBLE 3'-0" A.F.F. MAX. TO SPOUT

**C. DRINKING FOUNTAIN ELEVATION** — HI-LOW UNIT, ACCESSIBLE 3'-6" A.F.F. TO SPOUT 3'-0" A.F.F. MAX. TO SPOUT




**FLOOR PLAN**

36" X 36" SHOWER STALL
(TRANSFER TYPE)
SCALE: NTS




**CONTROL WALL ELEVATION**

36" X 36" SHOWER STALL
(TRANSFER TYPE)
SCALE: NTS




**BACK WALL ELEVATION**

36" X 36" SHOWER STALL
(TRANSFER TYPE)
SCALE: NTS




**SEAT WALL ELEVATION**

36" X 36" SHOWER STALL
(TRANSFER TYPE)
SCALE: NTS




**LAVATORY** | **TOILET TISSUE DISPENSER, SANITARY DISPOSAL UNIT, AND SIDE WALL/REAR WALL GRAB BAR** | **WATER CLOSET AND SIDE WALL/REAR WALL GRAB BARS** | **ROBE AND COAT HOOKS**




**ACCESSIBLE REACH RANGES** SCALE: NTS

## ACCESSIBILITY GENERAL NOTES:

A. "ACCESSIBLE" = HANDICAP ACCESSIBLE

B. FOR ANY ITEMS NOT SHOWN ON THIS SHEET, OR IN CASE OF CONFLICTS, NOTIFY THE ARCHITECT AS SOON AS POSSIBLE.

C. THE ACCESSIBILITY INFORMATION ON THIS SHEET COMPLIES WITH THE ADA 2010 STANDARDS.

D. COORDINATE MOUNTING HEIGHTS OF MEP ITEMS WITH MEP CONSTRUCTION DOCUMENTS.

## ABBREVIATIONS

| | |
|---|---|
| @ | AT |
| &/+ | AND |
| A/C | AIR CONDITIONER |
| ACT | ACOUSTIC CEILING TILE |
| ADJ | ADJUSTABLE |
| ADT'L | ADDITIONAL |
| AFF | ABOVE FINISHED FLOOR |
| AL | ALUMINUM |
| ALT | ALTERNATE |
| APPROX | APPROXIMATE |
| ARCH | ARCHITECTURAL |
| AUTO | AUTOMATIC |
| B/O | BOTTOM OF |
| BD | BOARD |
| BLDG | BUILDING |
| BLKG | BLOCKING |
| BM | BEAM |
| BR | BRICK |
| BRG | BEARING |
| BSMT | BASEMENT |
| BTM | BOTTOM |
| BUR | BUILT UP ROOFING |
| CAB | CABINET |
| CJ | CONTROL JOINT |
| CL | CENTERLINE |
| CLG | CEILING |
| CLR | CLEAR |
| CMU | CONCRETE MASONRY UNIT |
| CNTR | COUNTER |
| CO | CLEAN OUT |
| COL | COLUMN |
| CONC | CONCRETE |
| CONST | CONSTRUCTION |
| CONT | CONTINUOUS |
| CPT | CARPET |
| CT | CERAMIC TILE |
| CTR | CENTERED |
| DBL | DOUBLE |
| DEG | DEGREE |
| DEMO | DEMOLITION |
| DF | DRINKING FOUNTAIN |
| DIA | DIAMETER |
| DIM | DIMENSION |
| DN | DOWN |
| DR | DOOR |
| DS | DOWNSPOUT |
| DTL | DETAIL |
| DWG | DRAWING |
| E | EAST |
| EA | EACH |
| EC | ELECTRICAL CONTRACTOR |
| EF | EXHAUST FAN |
| EHO | ELECTRICAL HOLD OPEN |
| EIFS | EXTERIOR INSULATION FINISH SYSTEM |
| EJ | EXPANSION JOINT |
| EL | ELEVATION |
| ELEC | ELECTRICAL |
| ELEV | ELEVATOR |
| EMER | EMERGENCY |
| EOS | EDGE OF SLAB |
| EPT | EPOXY PAINT |
| EQ | EQUAL |
| EQUIP | EQUIPMENT |
| EW | EACH WAY |
| EWC | ELECTRIC WATER COOLER |
| EXIST | EXISTING |
| EXP | EXPANSION |
| EXT | EXTERIOR |
| FD | FLOOR DRAIN |
| FE | FIRE EXTINGUISHER |
| FEC | FIRE EXTINGUISHER CABINET |
| FIN | FINISH |
| FLR | FLOOR |
| FNDTN | FOUNDATION |
| FP | FIRE PROTECTION |
| FPC | FIRE PROTECTION CONTRACTOR |
| FRMG | FRAMING |
| FRT | FIRE RETARDANT TREATED |
| FT | FEET |
| FTG | FOOTING |
| GA | GAUGE |
| GALV | GALVANIZED |
| GC | GENERAL CONTRACTOR |
| GEN | GENERAL |
| GYP | GYPSUM |
| HB | HOSE BIBB |
| HDWR | HARDWARE |
| HM | HOLLOW METAL |
| HORIZ | HORIZONTAL |
| HP | HIGH POINT |
| HR | HOUR |
| HT | HEIGHT |
| HVAC | HEATING/VENTILATING/AIR CONDITIONING |
| ID | INSIDE DIAMETER |
| IN | INCH |
| INCL | INCLUDING |
| INSUL | INSULATION |
| INT | INTERIOR |
| JAN | JANITOR |
| JT | JOINT |
| LAV | LAVATORY |
| LLH | LONG LEG HORIZONTAL |
| LLV | LONG LEG VERTICAL |
| LP | LOW POINT |
| LT | LIGHT |
| LVT | LUXURY VINYL TILE |
| MAX | MAXIMUM |
| MB | MARKER BOARD |
| MC | MECHANICAL CONTRACTOR |
| MECH | MECHANICAL |
| MFR | MANUFACTURER |
| MH | MANHOLE |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MO | MASONRY OPENING |
| MTD | MOUNTED |
| MTL | METAL |
| MTRL | MATERIAL |
| N | NORTH |
| NIC | NOT IN CONTRACT |
| NO./# | NUMBER |
| NOM | NOMINAL |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| OH | OPPOSITE HAND |
| OPNG | OPENING |
| OPP | OPPOSITE |
| OVHD | OVERHEAD |
| +/- | PLUS / MINUS |
| PC | PLUMBING CONTRACTOR |
| PCT | PORCELAIN CERAMIC TILE |
| PEB | PRE-ENGINEERED BUILDING |
| PERIM | PERIMETER |
| PL | PLATE |
| PLAM | PLASTIC LAMINATE |
| PLBG | PLUMBING |
| PLYWD | PLYWOOD |
| PR | PAIR |
| PRE | PREFINISHED |
| PT | PAINT |
| PWR | POWER |
| QT | QUARRY TILE |
| R | RADIUS |
| RB | RESILIENT BASE |
| RD | ROOF DRAIN |
| REC | RECESSED |
| REF | REFERENCE |
| REINF | REINFORCING |
| REQ'D | REQUIRED |
| REV | REVISION |
| RM | ROOM |
| RO | ROUGH OPENING |
| RTU | ROOF TOP UNIT |
| S | SOUTH |
| S&H | SEALER & HARDENER |
| S&V | STAIN & VARNISH |
| SB | SMART BOARD |
| SCHED | SCHEDULE |
| SE | SEALER |
| SF | SQUARE FEET |
| SIM | SIMILAR |
| SPEC | SPECIFICATION |
| SS | STAINLESS STEEL |
| STD | STANDARD |
| STL | STEEL |
| STOR | STORAGE |
| STRUCT | STRUCTURAL |
| SUSP | SUSPENDED |
| TB | TACKBOARD |
| THRU | THROUGH |
| T/O | TOP OF |
| TYP | TYPICAL |
| TZ | TERRAZZO |
| UNO | UNLESS NOTED OTHERWISE |
| VB | VAPOR BARRIER |
| VCT | VINYL COMPOSITION TILE |
| VERT | VERTICAL |
| VIF | VERIFY IN FIELD |
| VTR | VENT THROUGH ROOF |
| VWC | VINYL WALL COVERING |
| W | WEST |
| W/ | WITH |
| W/O | WITHOUT |
| WC | WATER CLOSET |
| WD | WOOD |
| WOCT | WALK OFF CARPET TILE |
| WS | WALL SECTION |
| WT | WEIGHT |
| WWF | WELDED WIRE FABRIC |

## LEGEND

| | |
|---|---|
| ROOM NAME 101 (30) | ROOM NAME, ROOM NUMBER, OCCUPANCY |
| 101 | DOOR NUMBER - SEE SHEET A401 FOR DOOR SCHEDULE |
| X ## ## XX | PARTITION TYPE - SEE PARTITION TYPE SCHEDULE |
| 11 | WINDOW TYPE - SEE SHEET A401 |
| 1 A101 SIM | DETAIL REFERENCE: DETAIL NUMBER (TOP), SHEET NUMBER (BOTTOM) |
| 1 A101 SIM | BUILDING SECTION: DETAIL NUMBER (TOP), SHEET NUMBER (BOTTOM) |
| 1 A101 SIM | WALL SECTION: DETAIL NUMBER (TOP), SHEET NUMBER (BOTTOM) |
| 1 A201 | BUILDING ELEVATION: DETAIL NUMBER (OUTSIDE), SHEET NUMBER (INSIDE) |
| A701 1 | INTERIOR ELEVATION: DETAIL NUMBER (OUTSIDE), SHEET NUMBER (INSIDE) |
| | SPOT ELEVATION |
| 1 | KEYNOTE |
| | 1-HOUR FIRE BARRIER |

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER 2024001268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024001268

Project No.: 2576X18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

Sheet Title
ACCESSIBILITY INFORMATION, MOUNTING HEIGHTS AND ABBREVIATIONS

Sheet No.
G102

## UNIFORM PLUMBING CODE REQUIREMENTS

| FLOOR / AREA | FLOOR AREA PER PERSON | AREA | OCCUPANTS |
|---|---|---|---|
| 1ST FLOOR | | | |
| ASSEMBLY | 15SF / PERSON | 2,109 SF | 134 PERSONS |
| OFFICES | 150SF / PERSON | 2,722 SF | 18 PERSONS |
| GARAGE | 300SF / PERSON | 9,180 SF | 30 PERSONS |
| TOTAL PLUMBING OCCUPANCY | | | 182 PERSONS |

| | WC-M | UR-M | LV-M | WC-F | LV-F | EWC | MOP |
|---|---|---|---|---|---|---|---|
| ASSEMBLY | 3 | 2 | 4 | 4 | 4 | 1 | N/A |
| OFFICES | 1 | N/A | 1 | 1 | 1 | N/A | 1 |
| GARAGE | 1 | 1 | 1 | 1 | 1 | 1 | N/A |
| TOTAL REQUIRED | 4 | 2 | 3 | 6 | 3 | 2 | 0 |
| TOTAL PROVIDED | 5 | 3 | 6 | 7 | 6 | 2 | 1 |

## APPLICABLE CODES - ST. LOUIS COUNTY

2015 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL FIRE CODE (IFC)
2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2015 INTERNATIONAL FUEL GAS CODE (IFGC)
2015 INTERNATIONAL MECHANICAL CODE (IMC)
2014 NATIONAL ELECTRIC CODE (NFPA 70)
2015 UNIFORM PLUMBING CODE

2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

## APPLICABLE CODES - MEHLVILLE FIRE PROTECTION DISTRICT

2021 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL FIRE CODE (IFC)

## 2015 INTERNATIONAL BUILDING CODE

### BUILDING INFORMATION

CONSTRUCTION TYPE: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
☐ I-B ■ II-B ☐ III-B ☐ V-B
MIXED CONSTRUCTION: ■ NO ☐ YES TYPES:
SPRINKLERS: ☐ NO ■ YES ☐ PARTIAL ■ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
STANDPIPES: ■ NO ☐ YES CLASS ☐ I ☐ II ☐ III ☐ WET ☐ DRY
FLOOD HAZARD AREAS: ■ NO ☐ YES
BUILDING HEIGHT: FT 25'-4" NUMBER OF STORIES 1
SEISMIC DESIGN CATEGORY: C

GROSS BUILDING AREA:

| FLOOR | |
|---|---|
| 1ST FLOOR | 16,542 |
| MEZZANINE | 236 |
| TOTAL | 16,778 |

### BUILDING OCCUPANCY

■ OCCUPANCY GROUPS:
■ ASSEMBLY: GROUP A-2
☐ BUSINESS: GROUP B
☐ EDUCATIONAL: GROUP E
☐ FACTORY & INDUSTRIAL: GROUP ___
HIGH HAZARD: GROUP ___
☐ INSTITUTIONAL: GROUP ___
☐ MERCANTILE: GROUP M
☐ RESIDENTIAL: GROUP ___
■ STORAGE: GROUP S-1
☐ UTILITY & MISCELLANEOUS: GROUP U

MIXED OCCUPANCY: ☐ NO ■ YES

### LIFE SAFETY SYSTEM REQUIREMENTS

EMERGENCY LIGHTING: ☐ NO ■ YES
EXIT SIGNS: ☐ NO ■ YES
FIRE ALARM: ☐ NO ■ YES
SMOKE DETECTION: ☐ NO ■ YES
PANIC HARDWARE: ☐ NO ■ YES

### ALLOWABLE HEIGHT

| | |
|---|---|
| BUILDING HEIGHT IN FEET | |
| ALLOWABLE (PER TABLE 504.3) | 75' |
| ACTUAL | 25'-4" |
| BUILDING HEIGHT IN STORIES | |
| ALLOWABLE (PER TABLE 504.3) | 3 |
| ACTUAL | 1 |

### ALLOWABLE AREA

| FLOOR | AREA | TABULAR AREA (SINGLE STORY PER TABLE 506.2) | TABULAR AREA FOR NON-SPRINKLERED BUILDINGS | AREA FOR FRONTAGE INCREASE[1] | ALLOWABLE AREA |
|---|---|---|---|---|---|
| 1ST FLOOR | 16,778 | 38,000 | 9,500 | 5,188 | 43,188 |

1. FRONTAGE AREA INCREASES PER SECTION 506.2

A. PERIMETER WITH MORE THAN 25% ON A PUBLIC WAY OR OPEN SPACE HAVING A WIDTH OF NOT LESS THAN 20 FEET= 658'(F)
B. TOTAL BUILDING PERIMETER= 658' (P)
C. RATIO (F/P) = 1
D. W=MINIMUM WIDTH OF PUBLIC WAY= 20(W)
E. PERCENTAGE OF FRONTAGE INCREASE I = 100(F/P - 0.25) x W/30 = 50%

2. MAXIMUM BUILDING AREA = 4 x (TABULAR AREA + AREA INCREASES) (506.2.3).

## FIRE PROTECTION REQUIREMENTS

| BUILDING ELEMENT | FIRE SEPARATION DISTANCE (FT) | REQ'D. RATING | SHOWN ON PLANS |
|---|---|---|---|
| PRIMARY STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS, TRUSSES | | 0 HOUR | 0 HOUR |
| BEARING WALLS | | | |
| EXTERIOR | | 0 HOUR | 0 HOUR |
| INTERIOR | | 0 HOUR | 0 HOUR |
| NON-BEARING WALLS AND PARTITIONS | | | |
| EXTERIOR | 10 ≤ X < 30 FEET | 0 HOUR | 0 HOUR |
| EXTERIOR | X < 5 FEET | 0 HOUR | 0 HOUR |
| INTERIOR WALLS AND PARTITIONS | | 0 HOUR | 0 HOUR |
| FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS | | 0 HOUR | 0 HOUR |
| ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS | | 0 HOUR | 0 HOUR |
| SHAFT ENCLOSURES - EXITS | | 0 HOUR | 0 HOUR |
| SHAFT ENCLOSURES - OTHER | | 0 HOUR | 0 HOUR |
| CORRIDOR SEPARATION | | 0 HOUR | 0 HOUR |
| OCCUPANCY SEPARATION | | 0 HOUR | 0 HOUR |
| PARTY / FIRE WALL SEPARATION | | 0 HOUR | 0 HOUR |
| SMOKE BARRIER SEPARATION | | NA | NA |
| TENANT SEPARATION | | NA | NA |
| INCIDENTAL USE SEPARATION | | NA | NA |

***SEE TABLE 706.4 FOR FIRE WALL SEPARATION REQUIREMENTS**
***SEE LIFE SAFETY PLANS**

## EXITING REQUIREMENTS

| FLOOR | MINIMUM NUMBER OF EXITS (1006.3.3) | | TRAVEL DISTANCE | | ARRANGEMENT MEANS OF EGRESS (1007.1.1) | |
|---|---|---|---|---|---|---|
| | REQ'D. | SHOWN ON PLANS | ALLOWABLE TRAVEL DISTANCE (TABLE 1017.2) | ACTUAL TRAVEL DISTANCE | REQ'D. DISTANCE BETWEEN EXIT DOORS | ACTUAL DISTANCE SHOWN ON PLANS |
| 1ST FLOOR | 2 | 8 | 250' | 89' | 97' | 168' |

1. DEAD END CORRIDORS PER 1020.5. EXCEPTION 2: 50 FEET
2. SINGLE EXITS PER TABLE 1006.2.1
3. COMMON PATH OF TRAVEL PER 1017.2: 250 FEET

| FUNCTION OF SPACE | 1ST FLOOR |
|---|---|
| ASSEMBLY (15 SF PER OCCUPANT) | 2,109 SF<br>134 OCCUPANTS |
| BUSINESS (150 SF PER OCCUPANT) | 2,722 SF<br>18 OCCUPANTS |
| STORAGE (300 SF PER OCCUPANT) | 9,180 SF<br>30 OCCUPANTS |
| TOTAL OCCUPANTS | 182 |
| TOTAL INCHES | 27.3 |

***MEANS OF EGRESS CAPACITY FACTOR PER 1005.3.2: (.15) INCHES PER OCCUPANT**

## 2015 INTERNATIONAL ENERGY CONSERVATION CODE

ROOF ASSEMBLY
MINIMUM INSULATION ENTIRELY ABOVE DECK: R-30ci

WALLS, ABOVE GRADE:
MASS WALLS, MINIMUM: R-13
METAL FRAMED, MINIMUM: R-13 + R-4.2ci

WALLS, BELOW GRADE: N/A

FLOORS: R-19

SLAB-ON-GRADE FLOORS:
UNHEATED, MINIMUM: R-10 for 24" below

OPAQUE DOORS:
SWINGING, MAXIMUM U-FACTOR: 0.35

VERTICAL FENESTRATION:
FIXED, MAXIMUM U-FACTOR: 0.35
ENTRANCE DOORS, MAXIMUM U-FACTOR: 0.77

SKYLIGHTS:
MAXIMUM U-FACTOR: 0.55
MAXIMUM SHGC: 0.40

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

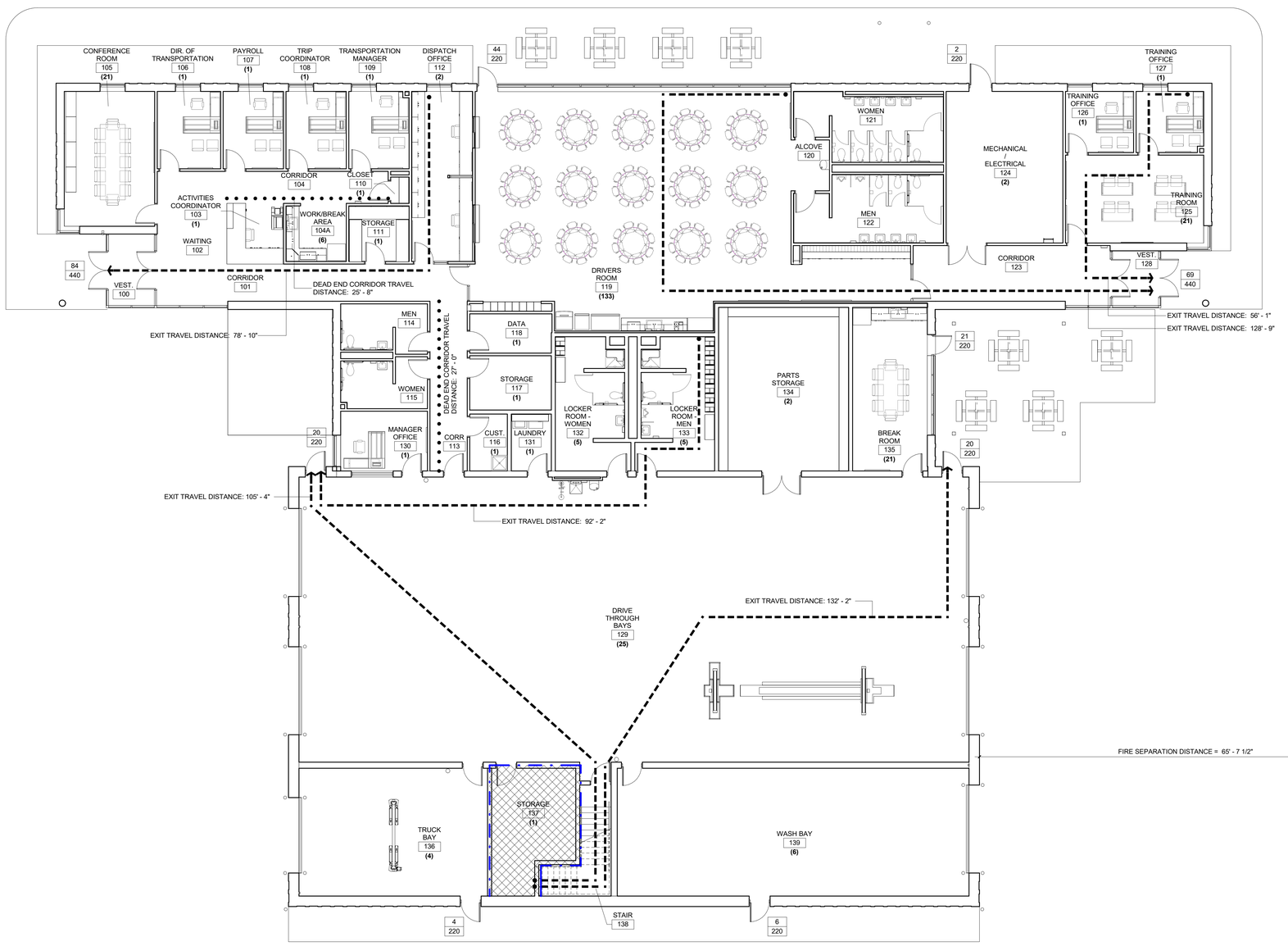
Drawn By: NMM
Checked By: LLW

Sheet Title

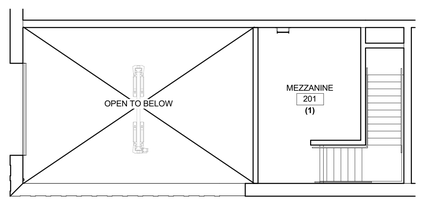
CODE INFORMATION

Sheet No.

G200




1 FIRST FLOOR LIFE SAFETY PLAN
1/8" = 1'-0"




2 MEZZANINE LIFE SAFETY PLAN
1/8" = 1'-0"

OCCUPANT LOAD

| Number | NAME | SPACE FUNCTION PER 302.1 | AREA | SF/PERSON | OCC. LOAD |
|---|---|---|---|---|---|
| ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | | | | | |
| 110 | CLOSET | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 12 SF | 300 SF | 1 |
| 116 | CUST. | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 54 SF | 300 SF | 1 |
| 117 | STORAGE | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 112 SF | 300 SF | 1 |
| 118 | DATA | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 82 SF | 300 SF | 1 |
| 124 | MECHANICAL / ELECTRICAL | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 449 SF | 300 SF | 2 |
| 131 | LAUNDRY | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 58 SF | 300 SF | 1 |
| 134 | PARTS STORAGE | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 539 SF | 300 SF | 2 |
| 137 | STORAGE | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 236 SF | 300 SF | 1 |
| 140 | TIRE STORAGE | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 339 SF | 300 SF | 2 |
| 201 | MEZZANINE | ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM | 236 SF | 300 SF | 1 |
| | | | | | 13 |
| ASSEMBLY WITHOUT FIXED SEATS; UNCONCENTRATED (TABLES AND CHAIRS) | | | | | |
| 104A | WORK/BREAK AREA | ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (TABLES AND CHAIRS) | 88 SF | 15 SF | 6 |
| 105 | CONFERENCE ROOM | ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (TABLES AND CHAIRS) | 314 SF | 15 SF | 21 |
| 119 | DRIVERS ROOM | ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (TABLES AND CHAIRS) | 1,987 SF | 15 SF | 133 |
| 125 | TRAINING ROOM | ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (TABLES AND CHAIRS) | 313 SF | 15 SF | 21 |
| 135 | BREAK ROOM | ASSEMBLY WITHOUT FIXED SEATS: UNCONCENTRATED (TABLES AND CHAIRS) | 310 SF | 15 SF | 21 |
| | | | | | 202 |
| BUSINESS AREAS | | | | | |
| 103 | ACTIVITIES COORDINATOR | BUSINESS AREAS | 98 SF | 150 SF | 1 |
| 106 | DIR. OF TRANSPORTATION | BUSINESS AREAS | 124 SF | 150 SF | 1 |
| 107 | PAYROLL | BUSINESS AREAS | 118 SF | 150 SF | 1 |
| 108 | TRIP COORDINATOR | BUSINESS AREAS | 118 SF | 150 SF | 1 |
| 109 | TRANSPORTATION MANAGER | BUSINESS AREAS | 117 SF | 150 SF | 1 |
| 111 | STORAGE | BUSINESS AREAS | 85 SF | 150 SF | 1 |
| 112 | DISPATCH OFFICE | BUSINESS AREAS | 261 SF | 150 SF | 2 |
| 126 | TRAINING OFFICE | BUSINESS AREAS | 106 SF | 150 SF | 1 |
| 127 | TRAINING OFFICE | BUSINESS AREAS | 104 SF | 150 SF | 1 |
| 130 | MANAGER OFFICE | BUSINESS AREAS | 131 SF | 150 SF | 1 |
| | | | | | 11 |
| INDUSTRIAL AREAS | | | | | |
| 129 | DRIVE THROUGH BAYS | INDUSTRIAL AREAS | 4,835 SF | 200 SF | 25 |
| 136 | TRUCK BAY | INDUSTRIAL AREAS | 611 SF | 200 SF | 4 |
| 139 | WASH BAY | INDUSTRIAL AREAS | 1,139 SF | 200 SF | 6 |
| | | | | | 35 |
| LOCKER ROOMS | | | | | |
| 132 | LOCKER ROOM - WOMEN | LOCKER ROOMS | 227 SF | 50 SF | 5 |
| 133 | LOCKER ROOM - MEN | LOCKER ROOMS | 241 SF | 50 SF | 5 |
| | | | | | 10 |
| TOTAL | | | | | 271 |

**LIFE SAFETY LEGEND**

| | |
|---|---|
| ROOM NAME 101 (30) | ROOM NAME<br>ROOM NUMBER<br>OCCUPANCY |
| XXX / XXX | ACTUAL OCCUPANT LOAD<br>ALLOWABLE OCCUPANT LOAD |
| FE | FIRE EXTINGUISHER, ON BRACKET |
| FEC | FIRE EXTINGUISHER, IN CABINET |
| | PATH OF EXIT TRAVEL DISTANCE |
| | COMMON PATH OF TRAVEL DISTANCE |
| | DEAD END CORRIDOR DISTANCE |
| | 1-HOUR FIRE BARRIER (UL #U901) |
| | 1-HOUR HORIZONTAL ASSEMBLY (MEZZANINE FLOOR ABOVE) PER UL #D902 |

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

Sheet Title

FIRST FLOOR LIFE SAFETY PLAN

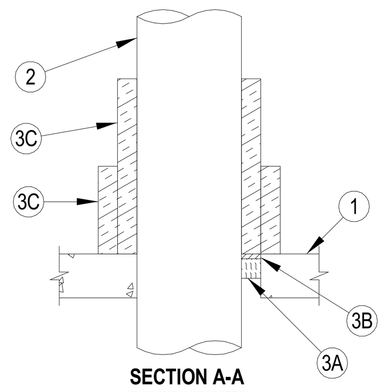
Sheet No.

G201

## System No. F-A-1105

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating - 2 Hr | F Rating - 2 Hr |
| T Rating - 2 Hr | FT Rating - 2 Hr |
| L Rating At Ambient - Less Than 1 CFM/sq ft | FH Rating - 2 Hr |
| L Rating At 400 F - 4 CFM/sq ft | FTH Rating - 2 Hr |
| W Rating - Class 1 (See Item 3B) | L Rating At Ambient - Less Than 1 CFM/sq ft |
| | L Rating At 400 F - 4 CFM/sq ft |



SECTION A-A

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping over the steel deck may be used. Max diam of opening is 12-3/4 in. (324 mm).
2. Through-Penetrant — One metallic pipe installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
   A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. When CP 604, CFS-S SIL GG or CFS-S SIL SL sealant is used (see Item 3B), min thickness of packing material is 4 in. (102 mm) and min thickness of floor is 4-1/2 in. (114 mm). Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Materials* - Sealant — Min 1/2 in. (13 mm) thickness of sealant applied within the annulus, flush with top surface of floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP 604 Self-Leveling Firestop Sealant, CFS-S SIL GG or CFS-S SIL SL Sealant
   W Rating applies only when CP 604, CFS-S SIL GG or CFS-S SIL SL Sealant is used.
   C. Duct Wrap Material* — Encapsulated duct wrap tightly wrapped around penetrant to extend 24 in. (610 mm) above the floor for penetrants of nom 4 in. (102 mm) diam or smaller, and 36 in. (914 mm) above floor for penetrants greater than a nom 4 in. (102 mm) diam. An additional layer of encapsulated duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap and joints between layers of duct wrap are sealed with foil tape. One of the following types and thicknesses of duct wrap may be used:
   C1. Nom 1-1/2 in. (38 mm) or 2 in. (51 mm) thick encapsulated duct wrap.
   UNIFRAX I L L C — Fyrewrap Duct Insulation or FireWrap Duct 1.5 Insulation
   C2. Nom 1-1/2 in. (38 mm) thick encapsulated duct wrap.
   THERMAL CERAMICS INC — FireMaster FastWrap XL Duct Insulation

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

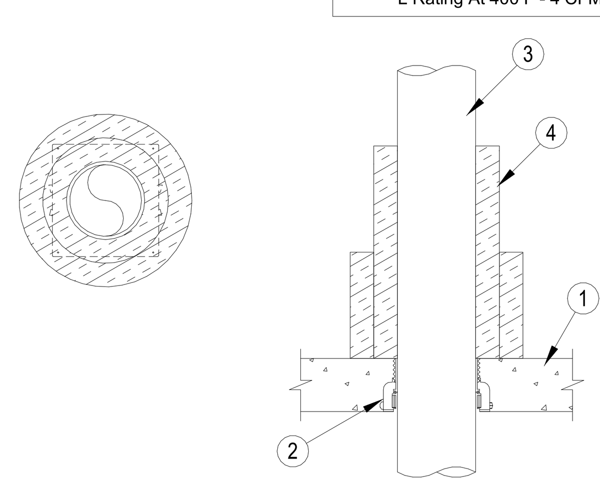
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 15, 2015

## System No. F-A-1106

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating - 2 Hr | F Rating - 2 Hr |
| T Rating - 2 Hr | FT Rating - 2 Hr |
| L Rating At Ambient - Less Than 1 CFM/sq ft | FH Rating - 2 Hr |
| L Rating At 400 F - 4 CFM/sq ft | FTH Rating - 2 Hr |
| W Rating - Class 1 (See Item 3B) | L Rating At Ambient - Less Than 1 CFM/sq ft |
| | L Rating At 400 F - 4 CFM/sq ft |



SECTION A-A

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping over the steel deck may be used.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions. Device sized to nom diam of penetrant. Device is to be trimmed flush with the top surface of the floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-P 2", CP 680-P 3", CP 680-P 4", CP 680-P 6" Cast-In Firestop Device.

2A. Firestop Device* — Water Barrier Module — (Optional, Not Shown) - Used in combination with the CP 680-P device to achieve a W Rating. Module is threaded onto top of device. W Rating applies only when water barrier module is used and pipe is installed from bottom of device.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Water Barrier Module
3. Through-Penetrant — One metallic pipe installed concentrically or eccentrically within opening. Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
   A. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe — Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
4. Duct Wrap Material* — Encapsulated duct wrap tightly wrapped around penetrant to extend 24 in. (610 mm) above the floor for penetrants of nom 4 in. (102 mm) diam or smaller, and 36 in. (914 mm) above floor for penetrants greater than a nom 4 in. (102 mm) diam. An additional layer of encapsulated duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap and joints between layers of duct wrap are sealed with foil tape. One of the following types and thicknesses of duct wrap material shall be used.
   A. Nom 2 in. (51 mm) ) or 1-1/2 in. (38 mm) thick encapsulated duct wrap.
   UNIFRAX I L L C — FyreWrap 2.0 Duct Insulation or FyreWrap 1.5 Duct Insulation
   B. Nom 1-1/2 in. (38 mm) thick encapsulated duct wrap.
   THERMAL CERAMICS INC — FireMaster FastWrap XL Duct Insulation

*Bearing the UL Classification Mark

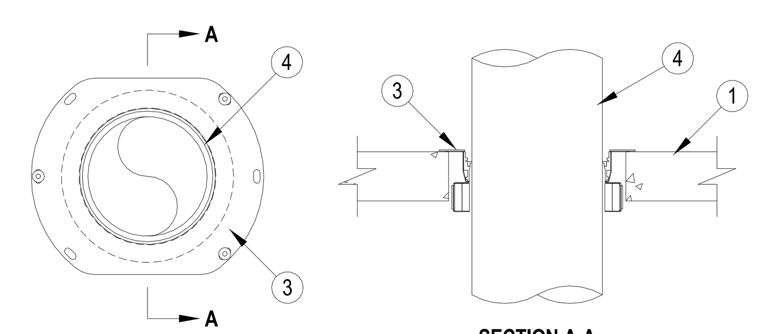
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. September 02, 2011

## System No. F-A-1128

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 2 and 3 Hr (See Items 1 and 1A) | F Ratings — 2 and 3 Hr (See Items 1 and 1A) |
| T Ratings — 0 and 1/4 Hr (See Item 2) | FT Ratings — 0 and 1/4 Hr (See Item 2) |
| L Rating At Ambient — Less Than 1 CFM/sq ft (See Item 3A) | FH Ratings — 2 and 3 Hr (See Items 1 and 1A) |
| L Rating At 400 F — Less Than 1 CFM/sq ft (See Item 3A) | FTH Ratings — 0 and 1/4 Hr (See Item 2) |
| W Rating — Class 1 (See Item 3A) | L Rating At Ambient — Less Than 1 CFM/sq ft (See Item 3A) |
| | L Rating At 400 F — Less Than 1 CFM/sq ft (See Item 3A) |



SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. When concrete thickness is min 4-1/2 in. (114 mm), the F and FH Ratings are 3 hr.

1A. Floor Assembly — (Optional, Not Shown) — The fire rated concrete and steel deck floor assembly shall be constructed of the materials and in the manner specified in the individual D700, D800 or D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete, as measured over crest of fluted steel deck. When concrete topping thickness is min 4-1/2 in. (114 mm), F and FH Ratings are 3 hr.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Metallic Sleeve — (Optional, Not Shown) - Nom 4, 5 or 6 in. (102, 127 or 152 mm) diam Schedule 10 (or heavier) steel sleeve cast or grouted into floor assembly, flush with floor surfaces. When metallic sleeve is used, the T, FT and FTH Ratings are 0 Hr.

2A. Sheet Metal Sleeve — (Optional, Not Shown) - Nom 4, 5, 6 or 9 in. (102, 127, 152 or 229 mm) diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and flush with the top surface of the concrete floor. When sheet metal sleeve is used, the T, FT and FTH Ratings are 0 Hr.
3. Firestop Device* — Drop-in firestop device installed in core-drilled or sleeved opening in concrete floor assembly in accordance with accompanying installation instructions. The firestop device flange should be secured to the top surface of the floor with three 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts or screw anchors (installed in a triangular fashion through holes provided). As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II+ concrete screw anchor, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti 1/4 in. (6 mm) by 3/4 in. (19 mm) long Metal HIT Anchor may be used. In addition, for nom 2 in. (51 mm), 3 in. (76 mm) and 4 in. (102 mm) firestop devices, four 11/16 in. (18 mm) long Hilti X-GH P18 MX steel fasteners may be installed through the steel flange, two on each side. The firestop devices shall be installed as detailed in the following table:

| Core Hole or Sleeve Diam, In. (mm) | Firestop Device | Nom Diam of Through Penetrant, In. (mm) |
|---|---|---|
| 4 (102) | CFS-DID 2"MD | 2 (51) or smaller+ |
| 5 (102) | CFS-DID 3"MD | 3 (76) |
| 6 (152) | CFS-DID 4"MD | 4 (102) |
| 9 (229) | CFS-DID 6"MD | 6 (152) |

+ For pipe smaller than nom 2 in. (51 mm) diam, Adapter and Top Seal Plug is required to be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-DID 2"MD, CFS-DID 3"MD, CFS-DID 4"MD, CFS-DID 6"MD

3A. Firestop Device* - Water Barrier Module — (Optional, Not Shown) - Used in combination with the CFS-DID device and supplied by device manufacturer. Module is threaded onto top of device.
   W Rating and L Rating apply only when water barrier module is used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Water Barrier Module
4. Through Penetrant — One metallic pipe, conduit or tubing to be installed within the firestop device. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used:
   A. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
   D. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
   E. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   F. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular) or heavier copper pipe.

*Bearing the UL Classification Mark

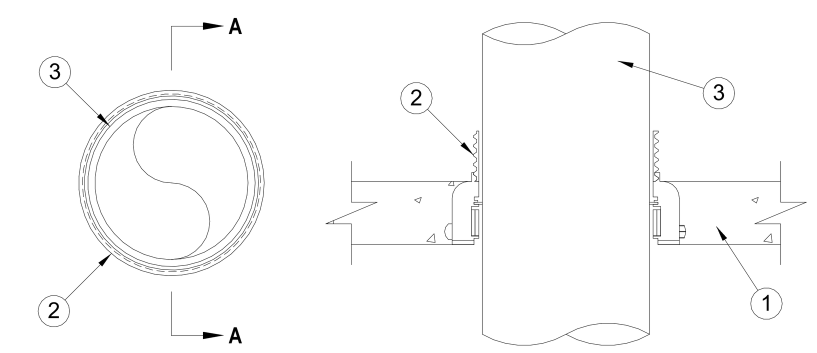
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 21, 2011

## System No. F-A-2053

**F Rating — 2 Hr**
**T Rating — 0 Hr**
**L Rating At Ambient — Less Than 1 CFM/sq ft (See Item 3)**
**L Rating At 400 F — Less Than 1 CFM/sq ft (See Item 3)**
**W Ratings — Class 1 (See Items 3, 4 and 4A)**

CLASSIFIED UL
Classified by Underwriters Laboratories, Inc. to UL 1479



SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.

1A. Floor Assembly - (Optional - Not Shown) — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete assembly in accordance with accompanying installation instructions. The 3, 4 and 6 in. devices may extend a max 2 in. (51 mm) above the top surface of the concrete. The max extension above the slab for the 2 and 2.5 in. devices is not restricted.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-75/2.5"N, CP 680-110/4"N, CP 680-160/6"N, CP 680-P 2", CP 680-P 3", CP 680-P 4", CP 680-P 6"
3. Through Penetrants — One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor assembly. For W Rating with Water Barrier Module, pipe shall be installed from bottom of device. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR11 or SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
   C. Rigid Nonmetallic Conduit+ — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
   The firestop devices and nonmetallic penetrants shall be sized as follows:

| Nom Pipe Diameter | Firestop Device |
|---|---|
| 1/2 in. to 2 in. (19 mm to 51 mm) | CP 680-75/2.5"N<br>CP 680-P 2" |
| 3 in. (76 mm) | CP 680-P 3" |
| 3 in. to 4 in. (76 mm to 102 mm) | CP 680-110/4"N<br>CP 680-P 4" |
| 6 in. (152 mm) | CP 680-160/6"N<br>CP 680-P 6" |

++ L Rating applies only to CP 680-P devices and only when the nom diam of pipe equals size of device (2 in. diam pipe in 2" device etc.) L Rating does not apply to CP 680N devices.

4. Firestop Device* — (Not shown) -Top seal plug for use with CP 680-75/2.5"N devices and nom pipe or conduit sizes 3/4 in. (19 mm) to 2 in. (51 mm), installed in accordance with the manufacturer\'s instructions. The top seal plug is optional for nom 1-1/2 in. (38 mm) pipes and conduits. Top seal plugs are required for all pipes and conduits less than nom 1-1/2 in. (38 mm). W Rating applies only when the CPS or IPS Top Seal Plugs are used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CPS and IPS Top Seal Plugs

4A. Firestop Device* - Water Barrier Module — (Optional, Not Shown) - Applies to nom 2", 3" and 4" water barrier modules used in combination with the CP 680-P 2", CP 680-P 3" and CP 680-P 4" devices, respectively, and supplied by device manufacturer. Module is threaded onto top of device. W Rating applies only when water barrier module is used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Water Barrier Module

*Bearing the UL Classification Mark
+Bearing the UL Listing Mark

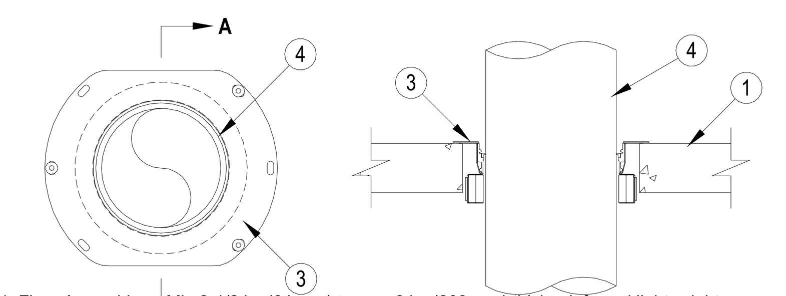
HILTI Hilti Firestop Systems

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## System No. F-A-2213

**F Ratings — 2 and 3 Hr (See Items 1 and 1A)**
**T Ratings — 0, 1/4 and 1/2 Hr (See Items 2, 2A and 4)**
**L Rating At Ambient — Less Than 1 CFM/sq ft (See Item 3A)**
**L Rating At 400 F — 4 CFM/sq ft (See Item 3A)**
**W Rating — Class I (See Item 3A)**

CLASSIFIED UL
Classified by Underwriters Laboratories, Inc. to UL 1479



SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. When concrete thickness is min 4-1/2 in. (114 mm), F Rating is 3 hr.

1A. Floor Assembly — (Optional, Not Shown) — The fire rated concrete and steel deck floor assembly shall be constructed of the materials and in the manner specified in the individual D700, D800 or D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete, as measured over crest of fluted steel deck. When concrete topping thickness is min 4-1/2 in. (114 mm), F Rating is 3 hr.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Metallic Sleeve — (Optional, Not Shown) -Nom 4, 5 or 6 in. (102, 127 or 152 mm) diam Schedule 10 (or heavier) steel sleeve cast or grouted into floor assembly, flush with floor surfaces. When metallic sleeve is used, T Rating is 0 Hr.

2A. Sheet Metal Sleeve — (Optional, Not Shown) — Nom 4, 5, 6 or 9 in. (102, 127, 152 or 229 mm) diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and flush with the top surface of the concrete floor. When sheet metal sleeve is used, T Rating is 0 Hr.
3. Firestop Device* — Drop-in firestop device installed in core-drilled or sleeved opening in concrete floor assembly in accordance with accompanying installation instructions. The firestop device flange should be secured to the top surface of the floor with three 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts or screw anchors (installed in a triangular fashion through holes provided). As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II+ concrete screw anchor, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti 1/4 in. (6 mm) by 3/4 in. (19 mm) long Metal HIT Anchor may be used. In addition, for nom 2 in. (51 mm), 3 in. and 4 in. (102 mm) firestop devices, four 11/16 in. (18 mm) long Hilti X-GH P18 MX steel fasteners may be installed through the steel flange, two on each side. The firestop devices shall be installed as detailed in the following table:

| Core Hole or Sleeve Diam, In. (mm) | Firestop Device | Nom Diam of Through Penetrant, In. (mm) |
|---|---|---|
| 4 (102) | CFS-DID 2"MD | 2 (51) or smaller+ |
| 5 (102) | CFS-DID 3"MD | 3 (76) |
| 6 (152) | CFS-DID 4"MD | 4 (102) |
| 9 (229) | CFS-DID 6"MD | 6 (152) |

+For pipe smaller than nom 2 in. (51 mm) diam, Adapter and Top Seal Plug is required to be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-DID 2"MD, CFS-DID 3"MD, CFS-DID 4"MD, CFS-DID 6"MD

3A. Firestop Device* - Water Barrier Module — (Optional, Not Shown) - Used in combination with the CFS-DID device and supplied by device manufacturer. Module is threaded onto top of device.
   W Rating and L Rating apply only when water barrier module is used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Water Barrier Module
4. Through Penetrant — One nonmetallic pipe to be installed within the firestop device. Pipe to be rigidly supported on both sides of floor assembly. The following types of pipe may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   C. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 6 in. (152 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   D. Flame Retardant Polypropylene (FRPP) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   T Rating is 1/4 hr when Pipe D is used.

*Bearing the UL Classification Mark

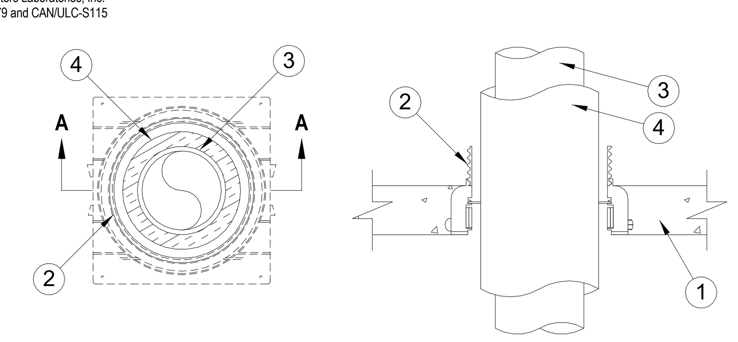
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. May 18, 2011

## System No. F-A-5015

**F Rating — 2 Hr**
**T Ratings — 1/2 and 3/4 Hr (See Item 3)**

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.

1A. Floor Assembly - (Optional - Not Shown) — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series Designs in the Fire Resistance Directory and as summarized below:
   A. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
   B. Concrete — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions with a max 2 in. (51 mm) projection above the top surface of the concrete.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-75/2.5"N, CP 680-110/4"N, CP 680-160/6"N, CP 682-75/2.5", CP 682-110/4", CP 680-M 2", CP 680-M 3", CP 680-M 4", CP 680-P 2", CP 680-P 3", CP 680-P 4", CP 680-P 6"
3. Through Penetrants — One metallic pipe, conduit or tubing to be installed within the firestop device. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   C. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   The firestop device and metallic penetrant shall be sized as follows:

| Nom Pipe Diam, in. (mm) | Nom Thick. Of Pipe Insul., in. (mm) | Firestop Device | T-Rating, Hr |
|---|---|---|---|
| 1/2 (13) | 1 (25) | CP 680-75/2.5"N, CP 682-72/2.5"CP 680-M 2", CP 680-P 2" | 3/4 |
| 1 (25) | 3/4 (19) | CP 680-75/2.5"N CP 680-P 3" | 1/2 |
| 1 (25) | 1 (25) | CP 680-M 3", CP 680-P 3" | 1/2 |
| 1 (25) (see Item 5) | 1 (25) | CP 682-110/4"CP 680-M 4" | 1/2 |
| 2 (51) | 1 (25) | CP 680 110/4"N, CP682 110/4"CP 680-M 4", CP 680-P 4" | 1/2 |
| 2 (51) | 3/4 (19) | CP 680-100/4"NCP 680-P 4" | 1/2 |
| 4 (102) | 3/4 (19) | CP 680-160/6"NCP 680-P 6 | 1/2 |

4. Tube Insulation - Plastics+ — Nom ¾ or 1 in. (19 or 25 mm) thick acryonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.
   See Plastics+ (QMFZ2) Category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
5. Packing Material — (Not Shown) - When using a 1 in. (25 mm) diam pipe with 1 in. (25 mm) thick AB/PVC pipe insulation in a 4 in. (102 mm) device, and a min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation shall be firmly packed into top of devices, flush with the top of the device.

*Bearing the UL Classification Mark

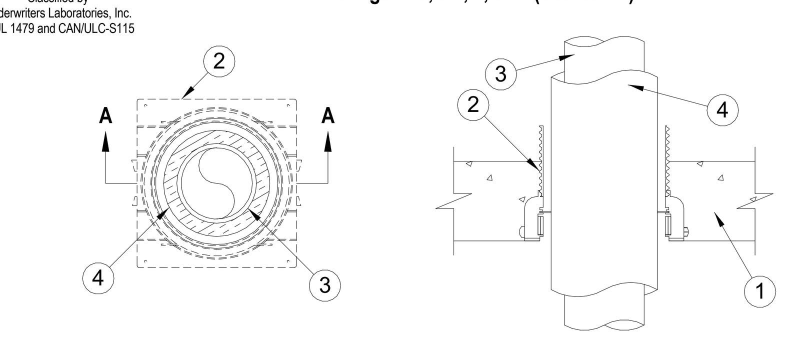
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 14, 2006

## System No. F-A-5016

**F Rating — 3 Hr**
**T Ratings — 0, 3/4, 1, 3 Hr (See Item 3)**

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.

1A. Floor Assembly - (Optional - Not Shown) — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions with a max 2 in. (51 mm) projection above the top surface of the concrete.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-110/4" N , CP 680-160/6" N, CP 682-75/2.5", CP 682-110/4", CP 680-M 2", CP 680-M 3", CP 680-M 4", CP 680-P 2", CP 680-P 3", CP 680-P 4", CP 680-P 6"
3. Through Penetrants — One metallic pipe or tubing to be installed within the firestop device. Pipe or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe or tubing may be used:
   Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   The firestop device and metallic penetrant shall be sized as follows:

| Nom Pipe Diameter* | Nom Pipe Cover-in. (mm) | Firestop | T Rating, Hr |
|---|---|---|---|
| 1/2 in. (13 mm) | 1 (25) | CP 680-75/2.5"N, CP 682-75/2.5" | 3 |
| | | CP 680-M 2", CP 680-P 2" | |
| 1 in. (25 mm) | 1 (25) | CP 680-110/4"N, CP 682-110/4" | 3/4 |
| | | CP 680-M 3", CP 680-P 3", CP 680-M 4", CP 680-P 4" | |
| 2 in. (51 mm) | 3/4 (19) | CP 680-110/4"N | 1 |
| | | CP 680-P 4" | |
| 4 in. (102 mm) | 3/4 (19) | CP 680-160/6"N | 3/4 |
| | | CP 680-P 6" | |

* - When pipe diameter smaller than shown in above table is used, the insulated pipe shall be installed in conjunction with Item 5 and the T Ratings are 0 hr.

4. Tube Insulation - Plastic+ — Nom 3/4 or 1 in. (19 or 25 mm) thick acryonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.
   See Plastics+ (QMFZ2) Category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.
5. Packing Material — (Not Shown) When pipe sizes are less than those shown in the table in Item 3, min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool insulation shall be firmly packed to the fullest extent possible within the device flush with top surface of device.

*Bearing the UL Classification Mark

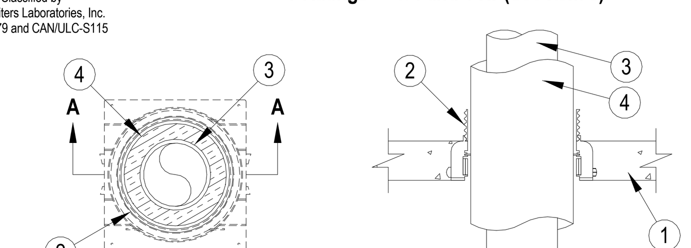
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 14, 2006

## System No. F-A-5017

**F Rating — 2 Hr**
**T Ratings — 3/4 and 1 Hr (See Item 3)**

CLASSIFIED C UL US
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (38 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.

1A. Floor Assembly - (Optional - Not Shown) — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series Designs in the Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in. (38 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement or grouted in concrete floor assembly in accordance with accompanying installation instructions with a max 2 in. (51 mm) projection above the top surface of the concrete.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-75/2.5"N, CP 680-110/4"N, CP 680-160/6"N, CP 682-75/2.5", CP 682-110/4", CP 680-M 2", CP 680-M 3", CP 680-M 4", CP 680-P 2", CP 680-P 3", CP 680-P 4", CP 680-P 6"
3. Through Penetrants — One metallic pipe or tubing to be installed within the firestop device. Pipe or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe or tubing may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   C. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   The firestop device, metallic penetrant and pipe covering shall be sized as follows:

| Nom Pipe Diam, in. (mm) | Nom Pipe Covering Thickness, in. (mm) | Firestop Device | T Rating, Hr |
|---|---|---|---|
| 1/2 (13) | 1 (25) | CP 680-75/2.5"N, CP 682-75/2.5"<br>CP 680-M 2", CP 680-P 2" | 3/4 |
| 1 (25) | 1 (25) | CP 680-M 3", CP 680-P 3" | 3/4 |
| 1 (25) (See Item 5) | 1-1/2 (38) | CP 682-110/4"<br>CP 680-M 4", CP 680-P 4" | 3/4 |
| 2 (51) | 1 (25) | CP 680-110/4"N, CP 682-110/4"<br>CP 680-M 4", CP 680-P 4" | 1 |
| 2 (51) | 2 (51) | CP 680-160/6"N<br>CP 680-P 6" | 3/4 |
| 4 (102) | 1 (25) | CP 680-160/6"N<br>CP 680-P 6" | 3/4 |

4. Pipe Covering* — Nom 1, 1-1/2 and 2 in. (25, 38 and 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units, jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied SSL tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
   See Pipe and Equipment Covering-Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
5. Packing Material — When using a 1 in. (25 mm) diam pipe with 1-1/2 in. (38 mm) thick glass fiber pipe insulation in a 4 in. (102 mm) device, a min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation shall be firmly packed into top of device, flush with the top of the device.

*Bearing the UL Classification Mark

HILTI Hilti Firestop Systems

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General Notes (Pertain to all Typical Firestop Detail Sheets) :

1. Refer to section 07841 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following: * Minimum and maximum Width of Joints * Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   * 2013 Underwriter's Laboratories Fire Resistance Directory, Volumes 1 & 2
   * NFPA 101 Life Safety Code
   * NFPA 70 - National Electric Code
   * All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 (UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated.
6. All rated through-penetration assemblies shall be prominently labeled with the following information:
   * ATTENTION: Fire Rated Assembly
   * UL System # * Product(s) used
   * Hourly Rating (F-Rating)
   * Installation Date
7. For outlet boxes requiring protection, use only Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1.)

City

Collaborator

BLDD ARCHITECTS
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Seal
STATE OF MISSOURI — JUSTIN P. PLACEK — NUMBER A-2024011268 — ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
**100% CONSTRUCTION DOCUMENTS 09/01/2026**

Team
Drawn By: NMM
Checked By: LLW

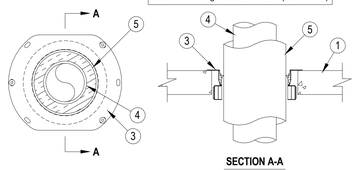
Sheet Title
**FIRESTOPPING DETAILS**

Sheet No.
**G301**

## System No. F-A-5046

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 2 and 3 Hr (See Items 1 and 1A) | F Ratings — 2 and 3 Hr (See Items 1 and 1A) |
| T Ratings — 0 and 1/2 Hr (See Item 2) | FT Ratings — 0 and 1/2 Hr (See Item 2) |
| | FH Ratings — 2 and 3 Hr (See Items 1 and 1A) |
| | FTH Ratings — 0 and 1/2 Hr (See Item 2) |




SECTION A-A

1. Floor Assembly — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. When concrete thickness is min 4-1/2 in. (114 mm), F Rating is 3 hr.

1A. Floor Assembly — (Optional, Not Shown) — The fire rated concrete and steel deck floor assembly shall be constructed of the materials and in the manner specified in the individual D700, D800 or D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete, as measured over crest of fluted steel deck. When concrete topping thickness is min 4-1/2 in. (114 mm), the F and FH Ratings are 3 hr.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.

2. Metallic Sleeve — (Optional, Not Shown) - Nom 4, 5 or 6 in. (102, 127 or 152 mm) diam Schedule 10 (or heavier) steel sleeve cast or grouted into floor assembly, flush with floor surfaces. When metallic sleeve is used, the T, FT and FTH Ratings are 0 Hr.

2A. Sheet Metal Sleeve — (Optional, Not Shown) - Nom 4, 5, 6 or 9 in. (102, 127, 152 or 229 mm) diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and flush with the top surface of the concrete floor. When sheet metal sleeve is used, the T, FT and FTH Ratings are 0 Hr.

3. Firestop Device* — Drop-in firestop device installed in core-drilled or sleeved opening in concrete floor assembly in accordance with accompanying installation instructions. The firestop device flange should be secured to the top surface of the floor with three 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long expansion bolts or screw anchors (installed in a triangular fashion through holes provided). As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II+ concrete screw anchor, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti 1/4 in. (6 mm) by 3/4 in. (19 mm) long Metal HIT Anchor may be used. In addition, for nom 2 in. (51 mm), 3 in. (76 mm) and 4 in. (102 mm) firestop devices, four 11/16 in. (18 mm) long Hilti X-GH P18 MX steel fasteners may be installed through the steel flange, two on each side. The firestop devices shall be installed as detailed in the following table:

| Nom Pipe or Tube (Item 4) Diam, In. (mm) | Insulation Type (Item 5 or 5A) and Thickness, In. (mm) | Firestop Device | Core Hole or Sleeve Diam, In. (mm) |
|---|---|---|---|
| 1/2 (13) | 3/4 or 1 (19 or 25) AB/PVC | CFS-DID 2"MD | 4 (102) |
| 1 (25) | 3/4 or 1 (19 or 25) AB/PVC | CFS-DID 3"MD | 5 (127) |
| 2 (51) | 3/4 or 1 (19 or 25) AB/PVC | CFS-DID 4"MD | 6 (152) |
| 4 (102) | 3/4 or 1 (19 or 25) AB/PVC | CFS-DID 6"MD | 9 (229) |
| 1/2 (13) | 1 (25) Glass Fiber | CFS-DID 2"MD | 4 (102) |
| 1 (25) | 1 (25) Glass Fiber | CFS-DID 3"MD | 5 (127) |
| 1 (25) | 1-1/2 (38) Glass Fiber | CFS-DID 4"MD | 6 (152) |
| 2 (51) | 1 (25) Glass Fiber | CFS-DID 4"MD | 6 (152) |
| 2 (51) | 2 (51) Glass Fiber | CFS-DID 6"MD | 9 (229) |
| 4 (102) | 1 (25) Glass Fiber | CFS-DID 6"MD | 9 (229) |

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-DID 2"MD, CFS-DID 3"MD, CFS-DID 4"MD, CFS-DID 6"MD

4. Through Penetrant — One metallic pipe or tubing to be installed within the firestop device. Pipe or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe or tubing may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   D. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

5. Tube Insulation - Plastics+ — Nom 3/4 or 1 in. (19 or 25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.
   See Plastics+ (QMFZ2) Category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

5A. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units, jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied SSL tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
   See Pipe and Equipment Covering-Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

*Bearing the UL Classification Mark

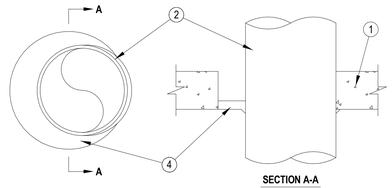
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 21, 2011

## System No. C-AJ-1184

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 3 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Floor may also be constructed of any min 7-1/2 in. (190 mm) thick UL Classified hollow core Precast Concrete Units*. Max diam of opening is 14 in. (356 mm) when concrete floor or wall is used and max 7 in. (178 mm) when precast concrete units are used.
   See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 3-1/4 in. (83 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Forms — (Not Shown, Optional) — Used as a form to prevent leakage of fill material during installation. Forms to be rigid sheet material, cut to fit the contour of the penetrating item and positioned as required to accommodate the required thickness of fill material. Forms to be removed after fill material has cured. Additional forming material may be used concrete block wall is penetrated. A min 1/2 in. (13 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation is firmly packed into the annulus as a permanent form and recessed from both surfaces of the wall as required to accommodate the required thickness of fill material.
4. Fill, Void or Cavity Material* — Sealant — Min 1 in. (25 mm) thickness of fill material applied within the annulus. At the point contact location between through penetrant and concrete, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the concrete through penetrant interface. When precast concrete units are used, the fill material shall be installed within annular space, flush with lower surface of floor. When concrete block wall is penetrated, a min 1 in. (25 mm) thickness of fill material shall be applied within the annulus flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS605, FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

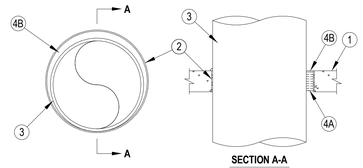
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 07, 2015

## System No. C-AJ-1226

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating At Ambient — Less Than 1 CFM/sq ft | FH Rating — 3 Hr |
| L Rating At 400 F — 4 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating At Ambient — Less Than 1 CFM/sq ft |
| | L Rating At 400 F — 4 CFM/sq ft |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in. (813 mm).
2. Metallic Sleeve — (Optional) Nom 32 in. (813 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall.

2A. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam, min 26 ga. galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

2B. Sheet Metal Sleeve — (Optional) - Max 12 in. (305 mm) diam, min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

3. Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit.
   F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete or sleeve/ pipe penetrant interface on the top surface of floor and on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

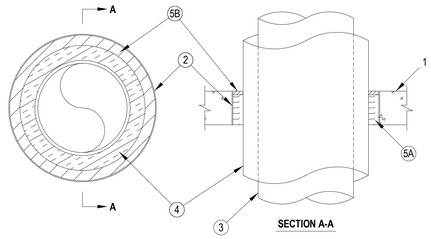
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 07, 2015

## System No. C-AJ-5091

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 2 Hr | F Rating — 2 Hr |
| T Ratings — 0 and 1 Hr (See Items 2 and 4) | FT Ratings — 0 and 1 Hr (See Items 2 and 4) |
| L Rating At Ambient — 4 CFM/sq ft | FH Rating — 2 Hr |
| L Rating At 400 F — Less Than 1 CFM/sq ft | FTH Ratings — 0 and 1 Hr (See Items 2 and 4) |
| | L Rating At Ambient —4 CFM/sq ft |
| | L Rating At 400 F —Less Than 1 CFM/sq ft |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 29 in. (737 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance directory for names of manufacturers.
2. Metallic Sleeve — (Optional) — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall. If the steel sleeve extends beyond the top surface of the floor or both surfaces of the wall, the T Rating of the firestop system is 0 hr.

2A. Sheet Metal Sleeve — (Optional) - Max 6 in. (152 mm) diam, min 26 ga galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approximately mid- height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place flush with bottom surface of floor and may extend a max of 1 in. (25 mm) above the top surface of the floor.

2B. Sheet Metal Sleeve — (Optional) - Max 12 in. (305 mm) diam, min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approximately mid- height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place flush with bottom surface of floor and may extend a max of 1 in. (25 mm) above the top surface of the floor.

3. Through Penetrants — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:
   A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
4. Pipe Covering — Min 1/2 in. (13 mm) to max 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied, self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the periphery of the opening shall be min 1/2 in. (13 mm) to max 12 in. (305 mm). When thickness of pipe covering is less than 2 in. (51 mm), the T Rating for the firestop system is 0 hr.
   See Pipe Equipment Covering — Materials — (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4A. Pipe Covering — (Not Shown) — As an alternate to Item 4, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf or 224 kg/m³) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. The annular space shall be min 1/2 in. (13 mm) to max 12 in. (305 mm).

5. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

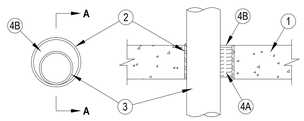
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 13, 2015

## System No. C-AJ-1421

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 2 or 3 Hr | F Ratings — 2 or 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating at Ambient — Less Than 1 CFM/sq ft | FH Ratings — 2 or 3 Hr |
| L Rating at 400 F — Less Than 1 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating at Ambient — Less Than 1 CFM/sq ft |
| | L Rating at 400 F — Less Than 1 CFM/sq ft |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 6 in. (152 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Metallic Sleeve — (Optional) Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces.
3. Through-Penetrant — One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, tube or conduit and periphery of opening shall be min 0 in. (point contact) to max 5-3/8 in. (137 mm). Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel conduit.
   F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* - Sealant — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. For 3 Hr rated assemblies, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete/pipe interface at the point contact location on the top surface of floor and on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-S SIL GG, CFS-S SIL SL, FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP604 Self-Leveling Firestop Sealant. CP604 and CFS-S SIL SL shall be used in floor applications only.
   When CP604, CFS-S SIL GG or CFS-S SIL SL (floors only) is used, F Rating is 2 Hr.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

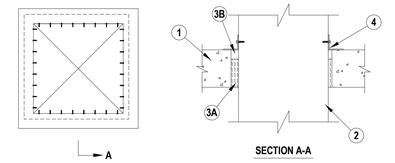
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 28, 2015

## System No. C-AJ-7051

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating - 3 Hr | F Rating — 3 Hr |
| T Rating - 1 Hr | FT Rating - 1 Hr |
| | FH Rating - 3 Hr |
| | FTH Rating - 1 HR |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete floor or min 5-1/2 in. (140 mm) thick lightweight on normal weight concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 1024 in. sq (6606 cm2) with a max dimension of 32 in. (813 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Steel Duct — Nom 30 by 30 in. (762 by 762 mm) by No. 24 gauge (or heavier) galv steel duct. One steel duct to be positioned within the firestop system. The annular space shall be min 1/4 in. (6 mm) to max 1-3/4 in. (44 mm). Duct to be rigidly supported on both sides of floor or wall assembly.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Materials — Min 3-1/2 in. (89 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form between the bare steel duct and the periphery of the opening. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Flexible Firestop Sealant, FS-ONE Sealant or FS-ONE MAX Intumescent
4. Steel Retaining Angle — Nom 2 in. by 2 in. (51 by 51 mm) by No. 16 gauge (or heavier) steel angles attached to all four sides of the steel duct on the top surface or both surfaces of the wall. The angles shall be attached with No. 8 (or larger) steel sheet metal screws spaced max of 1 in. (25 mm) from each end and a max of 3 in. (76 mm) OC.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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City

Collaborator

BLDD ARCHITECTS
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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER 2024011268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024011268

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

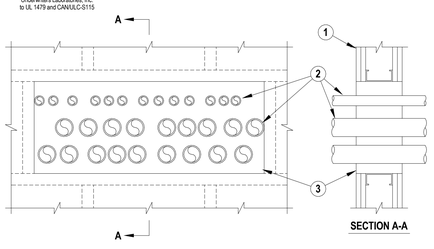
Sheet Title
FIRESTOPPING DETAILS

Sheet No.
G302

## System No. W-L-1249

**F Ratings - 1 and 2 Hr (See Items 1 and 3)**
**T Rating - 1/2 Hr**

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



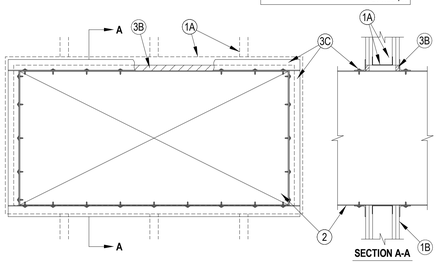

1. Wall Assembly The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features.
   A. Studs Steel studs 3-1/2 in. deep, fabricated from 25 MSG galv steel, spaced max 24 in. OC.
   B. Gypsum Boards* The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 360 sq in. with max dimension of 30 in.
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants One or more nom 2 in. diam (or smaller) rigid steel conduit or electrical metallic tubing (EMT) to be installed within the opening. The annular space between conduits or tubing shall be min 0 in. (point contact) to max 3-3/8 in. The annular space between conduits or tubing and periphery of opening shall be min 0 in. (point contact) to max 3 in. Conduit or tubing to be rigidly supported on both sides of wall assembly.
3. Fill Void or Cavity Material - Foam* Fill material applied within annulus flush with both surfaces of the wall. Min fill material thickness for 1 Hr F Rating is 4-3/4 in. Min fill material thickness for 2 Hr F Rating is 6 in.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam
   *Bearing the UL Classification Mark

Hilti Firestop Systems

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December 7, 2001

## System No. W-L-7155

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Ratings — 0 Hr | FT Ratings — 0 Hr |
| L Rating at Ambient — Less Than 1 CFM/sq ft | FH Ratings — 1 and 2 Hr (See Item 1) |
| L Rating at 400 F — Less Than 1 CFM/sq ft | FTH Ratings — 0 Hr |
| | L Rating at Ambient — Less Than 1 CFM/sq ft |
| | L Rating at 400 F — Less Than 1 CFM/sq ft |




1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel channel studs spaced max 24 in. (610 mm) OC. Additional steel studs shall be used to completely frame the opening.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max area of opening is 73.7 sq ft (6.85 m2) with a max dimension of 104 in. (2.64 m).
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Steel Duct — Max 100 in. by 100 in. (2.5 by 2.5 m) galv steel duct to be installed either concentrically or eccentrically within the firestop system. The duct shall be constructed and reinforced in accordance with SMACNA construction standards. The space between the steel duct and periphery of opening shall be min 0 in. (point contact) to max 2 in. (51 mm). Steel duct to be rigidly supported on both sides of the wall assembly.
2A1. Through-Pentrating Product* — As an alterate to Item 2. Fiber cement with galvanized steel facing, 3/8 in.(10 mm) thick composite metallic duct, with a max cross-sectional area of 43.0 sq ft, (4 m2) and a max individual dimension of 78 3/4 in. (2 m). Duct to be installed either concentrically or eccentrically within the firestop system such that the annular space is min 0 in. (point contact) to max 2 in. (51 mm). Duct to be rigidly supported on both sides of wall assembly. Refer to Ventilation Duct Assemblies in Vol. 2 of the Fire Resistance Directory.
   DURASYSTEMS BARRIERS INC — Type DuraDuct HP.
2A2. Through-Pentrating Product* — As an alternate to Item 2. Fiber cement with galvanized steel facing, 1/4 in. (6 mm) thick, with a max cross-sectional area of 1764 sq in. (1.14 m2), and a max individual dimension of 42 in. (1067 mm). Duct to be installed either concentrically or eccentrically within the firestop system such that the annular space is min 0 in. (point contact) to max 2 in. (51 mm). Duct to be rigidly supported on both sides of wall assembly and installed in accordance. Refer to Ventilation Duct Assemblies in Vol. 2 of the Fire Resistance Directory.
   DURASYSTEMS BARRIERS INC — Type DuraDuct SD..
2A3. Through-Pentrating Product* — As an alternate to Item 2. Galvanized steel faced duct panel, with a max cross-sectional area of 2450 sq in. (1.58 m2), and a max individual dimension of 49-1/2 in. (1258 mm) Duct to be installed either concentrically or eccentrically within the firestop system such that the annular space is min 0 in. (point contact) to max 2 in. (51 mm). Duct to be rigidly supported on both sides wall assembly. Refer to Ventilation Duct Assemblies in Vol. 2 of the Fire Resistance Directory.
   DURASYSTEMS BARRIERS INC — Type DuraDuct GNX.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — (Optional, Not Shown) — Polyethylene backer rod, mineral wool batt insulation or fiberglass batt insulation friction fitted into annular space. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill material.
   A1. Packing Material — Required as specified in Table below. Min 3-3/4 in. (95 mm) or 5 in. (127 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form for 1 and 2 hr rated assemblies, respectively. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of fill material shall be applied at the point contact location between the steel duct and the gypsum board.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-S SIL GG Sealant, FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP606 Flexible Firestop Sealant
   C. Steel Retaining Angles — Min No. 16 gauge galv steel angles sized to lap steel duct a min of 2 in. (51 mm) and to lap wall surfaces a min of 1 in. (25 mm). When max duct dimension does not exceed 48 in. (122 cm) and duct area does not exceed 1300 in2 (8387 cm2), angles may be min No. 18 gauge galv steel. Angles attached to steel duct on both sides of wall with min No. 10 by 1/2 in. (13 mm) long steel sheet metal screws located a max of 1 in. (25 mm) from each end of steel duct and spaced a max of 6 in. (152 mm) OC. Steel angles are optional for those sides of duct that do not exceed the dimension specified in Table below, dependent on packing material, sealant and annular space as specified.

| Max Duct Dimension | Duct Thickness | Annular Space | Packing Material | Angle (Item 3C) Required |
|---|---|---|---|---|
| 24 in. (610 mm) | 24 ga or heavier | 1/2 in. min to 1 in. max (13 to 25 mm) | Item 3A1 | No |

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

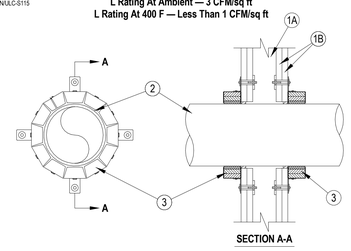
Hilti Firestop Systems

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January 27, 2015

## System No. W-L-2078

**F Ratings — 1 and 2 Hr (See Item 1)**
**T Ratings — 0, 1 and 2 Hr (See Items 2 and 3)**
**L Rating At Ambient — 3 CFM/sq ft**
**L Rating At 400 F — Less Than 1 CFM/sq ft**

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115



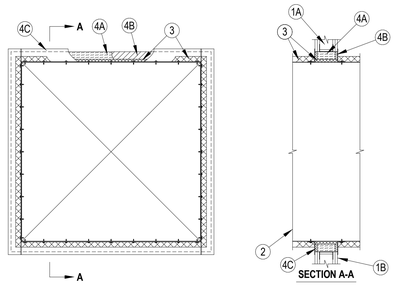

1. Wall Assembly — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the construction features noted below:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design. Max diam of opening is 11-1/2 in. (292 mm).
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through-Penetrants — One nonmetallic pipe, conduit or tubing to be installed within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 10 in. (254 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
   C. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems
   D. Flame Retardant Polypropylene (FRPP) Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   E. Polyvinylidene Fluoride (PVDF) Pipe — Nom 4 in. (102 mm) diam (or smaller) PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   When max 6 in. diam pipe is used, T Rating is equal to the hourly fire rating of the wall. When nom 8 in. or 10 in. (203 or 254 mm) diam pipe is used, T Rating is 0 hr.
3. Firestop Device* — Firestop Collar — Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to both sides of the wall using the anchor hooks provided with the collar. (Minimum two anchor hooks for 1-1/2 and 2 in. (38 and 51 mm) diam pipes, three anchor hooks for 3 and 4 in. (76 and 102 mm) diam pipes, four anchor hooks for 6 in. (152 mm) diam pipes, ten anchor hooks for 8 in. (203 mm) diam pipes and twelve anchor hooks for 10 in. (254 mm) diam pipes. The anchor hooks are to be secured to the surface of wall with 3/16 in. (4.8 mm) diam by 2-1/2 in. (64 mm) long steel toggle bolts along with washers. As an alternate for pipe sizes of nom 4 in. diam or less, min No. 10 by 1-1/2 in. (254 by 38 mm) long drywall or laminate screws with min 3/4 in. (19 mm) steel washers may be used. When the drywall or laminate screw is used, T Rating shall not exceed 1 hr.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643 50/1.5TN, CP 643 63/2TN, CP 643 90/3TN, CP 643 110/4TN, CP 643 160/6TN, CP 644 200/8" andCP 644 250/10" Firestop Collars
4. Fill, Void or Cavity Material* — Sealant - (Not Shown) — Min 1/2 in. (13 mm) thickness of sealant applied within the annular space for nom 8 in. and 10 in. (203 and 254 mm) diam pipes, flush with each side of wall. Sealant in annular space is optional for max 6 in. (152 mm) diam pipes. A min 1/4 in. (6 mm) thickness of sealant is required within the annular space, flush with each side of wall, to attain the L Ratings for max 6 in. (152 mm) diam pipes.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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January 28, 2015

## System No. W-L-7156

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Ratings — 1 and 2 Hr (See Item 1) |
| | FTH Rating — 0 Hr |




1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing members shall be used to completely frame around opening.
   B. Gypsum Board* — Min 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers and orientation shall be as specified in the individual Wall and Partition Design. Max size of opening is 210 sq in. (1355 cm2) with a max width of 14-1/2 in. (368 mm) for wood studs. Max size of opening is 76.2 sq ft. (7 m2) with a max width of 105-1/2 in. (2.7 m) for steel studs.
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall in which it is installed.
2. Steel Duct — Max 100 by 100 in. (2.5 by 2.5 m) steel duct to be installed within the framed opening. The duct shall be constructed and reinforced in accordance with SMACNA construction standards. Steel duct to be rigidly supported on both sides of wall assembly.
3. Batts and Blankets* — Nom 1-1/2 or 2 in. (38 or 51 mm) thick glass fiber batt or blanket (min 3/4 pcf or 12 kg/m3) jacketed on the outside with a foil-scrim-kraft facing. Longitudinal and transverse joints sealed with aluminum foil tape. During the installation of the fill material, the batt or blanket shall be compressed minimum 50% such that the annular space within the firestop system shall be min 1/2 in. (13 mm) to max 2 in. (51 mm).
   See Batts and Blankets (BKNV) category in the Building Materials Directory for names of manufacturers. Any batt or blanket meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index 50 or less may be used.
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 3-5/8 (92 mm) or 4-7/8 in. (124 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form for 1 or 2 hr fire-rated walls, respectively. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant
   C. Steel Retaining Angles — Min No. 16 gauge (0.059 in. or 1.5 mm) galv steel angles sized to lap steel duct a min of 2 in. 51 mm) and lap wall surfaces a min of 1 in. (25 mm). Angles attached to steel duct on both sides of wall with min No. 10 steel sheet metal screws spaced a max of 1 in. (25 mm) from each end of steel duct and spaced a max of 6 in. (152 mm) OC. When max duct dimension does not exceed 48 in. (122 cm) and duct area does not exceed 1300 in2 (8387 cm2), angles may be min No. 18 gauge galv steel. Angles attached to steel duct on both sides of wall with min No. 10 by 1/2 in. (13 mm) long steel sheet metal screws located a max of 1 in. (25 mm) from each end of steel duct and spaced a max of 6 in. (152 mm) OC. When max 1-1/2 in. (38 mm) thick insulation is used, steel angles are optional for those sides of duct that do not exceed the dimension specified in Table below, dependent on packing material and annular space as specified.

| Max Duct Dimension | Duct Thickness | Annular Space | Packing Material | Angle (Item 3C) Required |
|---|---|---|---|---|
| 24 in. (610 mm) | 24 ga or heavier | 1/2 in. min to 1 in. max (13 to 25 mm) | Item 3A1 | No |

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

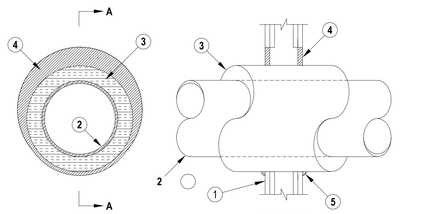
Hilti Firestop Systems

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January 27, 2015

## System No. W-L-5029

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4) | F Ratings — 1, 2 and 3 Hr (See Items 1, 3 and 4) |
| T Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3) | FT Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3) |
| L Rating At Ambient — 4 CFM/Sq Ft | FH Ratings — 1, 2 and 3 Hr (See Items 1, 2 and 4) |
| L Rating At 400 F — Less Than 1 CFM/Sq Ft | FTH Ratings — 0, 1/2, 1 and 1-1/4 Hr (See Item 3) |
| | L Rating At Ambient — 4 CFM/Sq Ft |
| | L Rating At 400 F — Less Than 1 CFM/Sq Ft |




1. Wall Assembly — The 1, 2 or 3 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and for 1 hr F and FH rating and 3-1/2 in. (89 mm) wide for 3 hr F and FH rating and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 18-5/8 in. (473 mm).
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — One metallic pipe or tubing to be installed within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:
   A. Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper tube shall not exceed 4 in. (102 mm).
   D. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. When the hourly F or FH Rating of the firestop system is 3 hr, the nom diam of copper pipe shall not exceed 4 in. (102 mm).
3. Pipe Covering* — Nom 1, 1-1/2 or 2 in. (25, 38 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. For 1 and 2 hr F and FH Ratings, the annular space between insulated penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). For 3 hr F and FH Ratings, the annular space shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).
   See Pipe and Equipment Covering — Materials (BRGU) category in the Building Material Directory for the names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
   The hourly T, FT, FTH Ratings of the firestop system are 1/2 hr for 1 hr rated walls and 1 hr for 2 hr rated walls. For 3 hr rated walls, the hourly T, FT and FTH Ratings when steel and iron pipes are used are 1 hr. For 3 hr rated walls, the hourly T, FT and FTH Ratings when copper penetrants are used are 1-1/4 hr for 2 in. (51 mm) thick pipe covering and 0 hr for pipe covering thickness less than 2 in. (51 mm).
3A. Pipe Covering* — (Not Shown) — As an alternate to Item 3, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. When the alternate pipe covering is used, the T and FT Rating shall be as specified in item 3 above.
   See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
4. Fill, Void or Cavity Material* — Sealant — For 1 and 2 hr F and FH Rating, min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. For 3 hr F and FH Rating, min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe covering/gypsum board interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

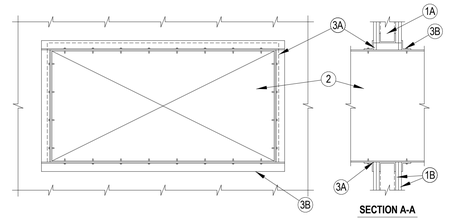
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March 19, 2015

## System No. W-L-7040

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Items 1 and 3) | F Ratings - 1 and 2 Hr (See Items 1 and 3) |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| L Rating at Ambient - Less Than 1 CFM/sq ft | FH Ratings - 1 and 2 Hr (See Items 1 and 3) |
| L Rating at 400°F - Less Than 1 CFM/sq ft | FTH Rating - 0 Hr |
| | L Rating at Ambient - Less Than 1 CFM/sq ft |
| | L Rating at 400°F - Less Than 1 CFM/sq ft |




1. Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (61 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm). Additional framing members shall be used to completely frame around opening.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number. Max area of opening is 1300 in.2 (0.84 m2) with the dimension of 50 in. (1.27 m). The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Steel Duct — Nom 24 in. by 48 in. (610 by 1219 mm) (or smaller) No. 24 gauge (or heavier) galv steel duct to be installed within the firestop system. The annular space shall be min 0 (point contact) in. to a max 2 in. (51 mm) Duct to be rigidly supported on both sides of the wall assembly.
3. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material*—Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus flush with both surfaces of wall. At point contact location, a min 1/2 in. (13 mm) diam bead of fill material shall be applied to the wall/duct interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE Intumescent Sealant, CP601S Elastomeric Firestop Sealant or CP606 Flexible Sealant
   B. Steel Retaining Angle — No. 18 MSG (0.048 in.) galv steel angles cut to fit contour of duct with a 2 in. overlap on the duct and a min 1 in. overlap on the gypsum board assembly on both sufaces of wall. 2 in. leg of angle secured to duct with min No. 8 by 3/4 in. long sheet metal screws, spaced a max of 6 in. OC. When bead of fill material is used at joint contact locations, angles shall be installed prior to full material curing.
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

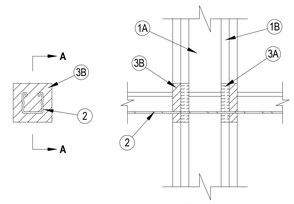
Hilti Firestop Systems

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January 27, 2015

## System No. W-L-7130

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Ratings - 1 and 2 Hr (See Item 1) |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| | FH Ratings - 1 and 2 Hr (See Item 1) |
| | FTH Rating - 0 Hr |




1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One or two layers of gypsum board, as specified in the individual Wall and Partition Design. Max area of rectangular opening is 15 sq in. (96 cm2) with max dimension of 5 in. (127 mm). In lieu of rectangular opening max diam of circular opening is 3 in. (76 mm).
   The F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly.
2. Through Penetrants — One metallic strut, cable, rod or angle service support to be installed within the firestop system. An annular space of min 1/8 in. (3 mm) to max 7/8 in. (22 mm) is required within the firestop system. Strut, cable, rod or angle service support to be rigidly supported on both sides of floor or wall assembly. The strut, cable, rod or angle service support may be installed at an angle not greater than 45 degrees from the perpendicular. The following types and sizes of metallic strut, cable, rod or angle service support may be used:
   A. Steel Strut — Max 1-5/8 by 1-5/8 in. (41 by 41 mm) channel strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   B. Steel Strut — Max 3-1/4 by 1-5/8 in. (83 by 41 mm) H strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   C. Cable — Max 3/8 in. (9.5 mm) diam unjacketed galv steel cable.
   D. Threaded Rod — Max 1 in. (25 mm) diam galv steel threaded rod.
   E. Steel Angle — 2 by 2 by 1/8 in. (51 by 51 by 3 mm) thick steel angle.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1/2 in. (13 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be located between penetrant and periphery of opening, and within channels of struts. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill material. When through penetrant is oriented perpendicular to wall or when Type FS-ONE Sealant (Item 3B) is used, packing material is optional.
   B. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus and within the channel struts, flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, CP 606 Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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January 27, 2015

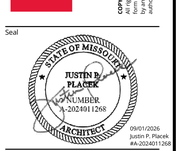
City

Collaborator

BLDD ARCHITECTS
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Seal




Project No.: 2576X18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|
| Sheet Revision | | |

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

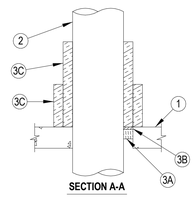
Sheet Title
FIRESTOPPING DETAILS

Sheet No.
G303

## System No. F-A-1105

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating - 2 Hr | F Rating - 2 Hr |
| T Rating - 2 Hr | FT Rating - 2 Hr |
| L Rating At Ambient - Less Than 1 CFM/sq ft | FH Rating - 2 Hr |
| L Rating At 400 F - 4 CFM/sq ft | FTH Rating - 2 Hr |
| W Rating - Class 1 (See Item 3B) | L Rating At Ambient - Less Than 1 CFM/sq ft |
| | L Rating At 400 F - 4 CFM/sq ft |




SECTION A-A

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping over the steel deck may be used. Max diam of opening is 12-3/4 in. (324 mm).
2. Through-Penetrant — One metallic pipe installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
   A. Steel Pipe — Nom 10 in. (254 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. When CP 604, CFS-S SIL GG or CFS-S SIL SL sealant is used (see Item 3B), min thickness of packing material is 4 in. (102 mm) and min thickness of floor is 4-1/2 in. (114 mm). Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Materials* - Sealant — Min 1/2 in. (13 mm) thickness of sealant applied within the annulus, flush with top surface of floor.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP 604 Self-Leveling Firestop Sealant, CFS-S SIL GG or CFS-S SIL SL Sealant
      W Rating applies only when CP 604, CFS-S SIL GG or CFS-S SIL SL Sealant is used.
   C. Duct Wrap Material* — Encapsulated duct wrap tightly wrapped around penetrant to extend 24 in. (610 mm) above the floor for penetrants of nom 4 in. (102 mm) diam or smaller, and 36 in. (914 mm) above floor for penetrants greater than a nom 4 in. (102 mm) diam. An additional layer of encapsulated duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap and joints between layers of duct wrap are sealed with foil tape. One of the following types and thicknesses of duct wrap may be used:
      C1. Nom 1-1/2 in. (38 mm) or 2 in. (51 mm) thick encapsulated duct wrap.
      UNIFRAX I L C — Fyrewrap Duct Insulation or FireWrap Duct 1.5 Insulation
      C2. Nom 1-1/2 in. (38 mm) thick encapsulated duct wrap.
      THERMAL CERAMICS INC — FireMaster FastWrap XL Duct Insulation

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

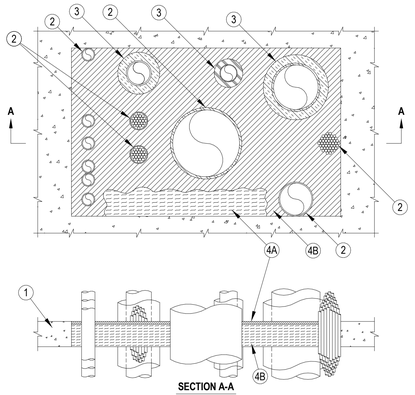
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 15, 2015

## System No. F-A-8012

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 2 Hr | F Rating — 2 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 2 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Max size of opening is 1440 in.2 (9,290 cm2) with a max dimension of 48 in. (1219 mm).
2. Through-Penetrants — One or more pipes, tubes or cable bundles to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces are maintained. The annular space between cable bundles and other penetrants shall be a min 6 in. (152 mm). The annular space between metallic pipes, conduit and tubes and insulated pipes and tubes shall be a min 2 in. (51 mm). The annular space between nom 2 in. (51 mm) diam (and smaller) metallic pipes, conduit and tubes shall be a min 0 in. (0 mm). The annular space between insulated penetrants and the periphery of opening shall be a min 1/2 in. (13 mm). The annular space between all other penetrants and the periphery of opening shall be a min 0 in. (0 mm) (point contact). A max annular space in the system shall be 12 in. (305 mm). Penetrants to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used.
   A. Metallic Penetrants — The following types of metallic pipes, tubes or conduits may be used:
      1. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
      2. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
      3. Steel Pipe — Nom 24 in. (610 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
      4. Iron Pipe — Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.
      5. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electric metallic tubing (EMT) or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
   B. Cables Bundles — Max 4 in. (102 mm) diam tightly bundled cables. Any combination of the following types and sizes of cables may be used:
      1. Max 500 kcmil single copper or aluminum conductor power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.
      2. Max 300 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket material.
      3. Max 7/C copper conductor No. 12 AWG multi-conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.
      4. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in.
      5. Max 3/C No. 12 AWG steel clad cable with copper conductors and PVC insulation material.
   C. Individual Cables — Any of the following types and sizes of individual (non-bundled) cables may be used:
      1. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
      2. Through Penetrating Product* — Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category.
         See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
      3. Max 500 kcmil single copper or aluminum conductor power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.
      4. Max 300 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket material.
      5. Max 7/C copper conductor No. 12 AWG multi-conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.
      6. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in.
      7. Max 3/C No. 12 AWG steel clad cable with copper conductors and PVC insulation material.
      8. Max 4C/750 kcmil (or smaller) aluminum or copper conductor metal clad cable with aluminum or steel armor, with or without PVC jacket.
3. Pipe Insulation — (Optional) - Pipes and tubes of the sizes noted below may be provided with one of the following types of pipe insulations:
   A. Pipe Covering* — Nom 1-1/2 in. (38 mm) thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket for pipes with a nom diam of 8 in. (203 mm) (or smaller) or tubes with a nom diam of 4 in. (102 mm) (or smaller). Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
      See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classifica tion Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
   B. Tube Insulation-Plastics+ — Nom 1 in. (25 mm) thick (or thinner) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing for pipes or tubes with a nom diam of 2 in. (51 mm) (or smaller).
      See Plastics (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of 4 pcf (64 kg/m³) mineral wool batt insulation tightly packed into the opening as a permanent form. Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material - Sealant* — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus flush with the top surface of the floor.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP604, CFS-S SIL GG or CFS-S SIL SL Sealant

*Bearing the UL Classification Mark

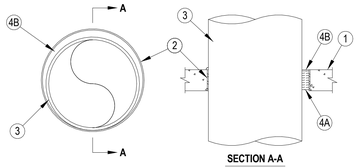
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 15, 2015

## System No. C-AJ-1226

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating At Ambient — Less Than 1 CFM/sq ft | FH Rating — 3 Hr |
| L Rating At 400 F — 4 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating At Ambient — Less Than 1 CFM/sq ft |
| | L Rating At 400 F — 4 CFM/sq ft |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in. (813 mm).
2. Metallic Sleeve — (Optional) Nom 32 in. (813 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall.
2A. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam, min 26 ga. galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.
2B. Sheet Metal Sleeve — (Optional) - Max 12 in. (305 mm) diam, min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.
3. Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit.
   F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete or sleeve/ pipe penetrant interface on the top surface of floor and on both surfaces of wall.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

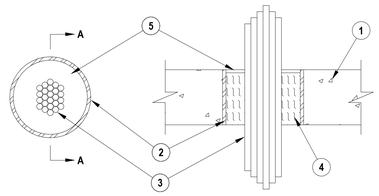
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 07, 2015

## System No. C-AJ-3180

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 3 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 2400 kg/m3) concrete floor or min 4-3/4 in. (121 mm) thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 6 in.(152 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Steel Sleeve — (Optional) — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe cast or grouted into floor or wall assembly, flush with floor or wall surfaces.
3. Cables — Aggregate cross-sectional area of cables in opening to be max 45 percent of the aggregate cross-sectional area of the opening. Cables to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of metallic conductor or fiber optic cable may be used:
   A. Max 500 kcmil single copper connector power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.
   B. Max 300 pair No. 24 AWG copper conductor telecommunication cables with polyvinyl chloride (PVC) insulation and jacket material.
   C. Max 7/C copper conductor No. 12 AWG multiconductor power and control cables with polyvinyl chloride (PVC) or cross-linked polyethylene (XLPE) insulation and PVC jacket.
   D. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in. (13 mm).
   E. Max 3/C copper conductor No. 12 AWG with bare aluminum ground, polyvinyl chloride (PVC) insulated steel, Metal-clad cable.
   F. Max 3/C with ground 2/0 AWG copper conductor SER cable with cross-linked polyethylene (XLPE) insulation and polyvinyl chloride (PVC) jacket.
   G. RG/U coaxial cable with polyethylene (PE) insulation and polyvinyl chloride (PVC) jacket having a max outside diameter of ½ in. (13 mm)
   H. Fire Resistive Cables* - Max 1-1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 18 in. (3 mm) separation shall be maintained between MI cables and any other types of cable.
4. Packing Material — Min 4-1/4 in. (108 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material.
5. Fill, Void or Cavity Material* — Sealant — Min 1/4 in. (6.4 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant.

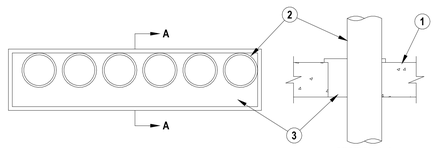
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 13, 2015

## System No. C-AJ-1388
**F RATING = 2-HR**
**T RATING = 0-HR**

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

1. Floor or Wall Assembly Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening 224 sq in. with max dimension of 32 in.
   See Concrete Blocks (CAZT) in the Fire Resistance Directory for names of manufacturers.
2. Conduit One or more nom 4 in diam (or smaller) steel electrical metallic tubing or steel conduit to be installed either concentrically or eccentrically within the firestop system. The space between conduits or tubes shall be min 0 in. (point contact) to max 1/2 in. The annular space between the conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 2-3/4 in. Conduit or tube to be rigidly supported on both sides of floor or wall assembly.
   Conduit - Nom 4 in. diam (or smaller) steel electrical metallic conduit or steel conduit.
3. Fill, Void or Cavity Material* - Foam Min 5 in. thickness of fill material applied within the annulus, extending 1/2 in. above the top surface of the floor or both surfaces of wall and overlapping the concrete 1/2 in. on all sides of the opening.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 620 Fire Foam

*Bearing the UL Classification Mark

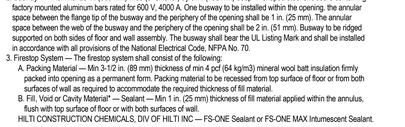
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 23, 2002

## System No. C-AJ-4035

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 3 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 270 sq in (1742 cm2) with max dimension of 30 in. (762 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Cable Tray* — Max 24 in. (610 mm) wide by max 4 in. (102 mm) deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.10 in. (2.54 mm) thick aluminum or 0.060 in. (1.52 mm) thick galv steel and with 1-1/2 in. (38 mm) wide by 1 in. (25 mm) channel shape rungs spaced 9 in. (229 mm) OC or a 0.029 in. (0.74 mm) thick steel solid back, respectively. The annular space between the cable tray and the periphery of the opening shall be min 1 in. (25 mm) to max 4 in. (102 mm). Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 40 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor or fiber optic cables may be used:
   A. 1/C, 500 kcmil with thermoplastic insulation and PVC jacket.
   B. 300 pair — No. 24 AWG cable with PVC insulation and jacket.
   C. 24 fiberoptic cable with PVC subunit and jacket.
   D. Three 1/C No. 12 AWG wire, insulated with polyvinyl chloride, in a nominal 3/4 in. (19 mm) flexible metal conduit.
4. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* — Fire blocks installed with the long dimension placed horizontally within the opening, flush with bottom of floor assembly or centered within wall opening. In concrete block walls, fire block to fill entire thickness of wall opening unless wall is solid filled. Blocks to be firmly packed and completely fill the entire width and height of opening. Either one or a combination of the block specified below may be used.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 Fire Block or CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* -Sealant or Putty- Not Shown — Fill material to be forced into interstices of cables and between cables and cable trays to max extent possible on both surfaces of the penetration.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant, FS-ONE MAX Intumescent Sealant or CP618 Firestop Putty Stick.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

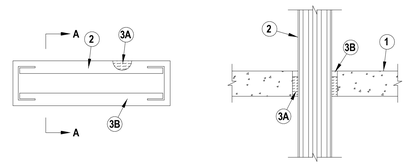
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 14, 2015

## System No. C-AJ-6017

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating - 3 Hr | F Rating - 3 Hr |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| | FH Rating - 3 Hr |
| | FTH Rating - 0 Hr |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max area of opening is 224 square in. (1445 cm2) with max dimension of 28 in. (711 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Busway+ — Nominal 26 in. (660 mm) wide (or smaller) by 6 in. (152 mm) deep "I" shaped steel enclosure containing factory mounted aluminum bars rated for 600 V, 4000 A. One busway to be installed within the opening. the annular space between the flange tip of the busway and the periphery of the opening shall be 1 in. (25 mm). The annular space between the web of the busway and the periphery of the opening shall be 2 in. (51 mm). Busway to be ridged supported on both sides of floor and wall assembly. The busway shall bear the UL Listing Mark and shall be installed in accordance with all provisions of the National Electrical Code, NFPA No. 70.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 3-1/2 in. (89 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

+Bearing the UL Listing Mark

*Bearing UL Classification Mark

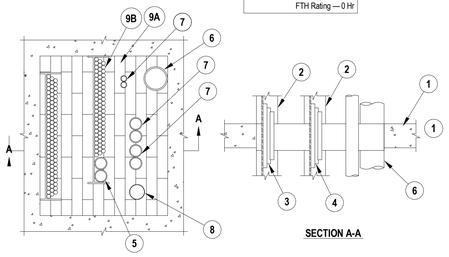
HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 14, 2015

## System No. C-AJ-8110

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 3 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.
1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete floor or concrete wall. Wall may also be constructed of any UL solid or filled Classified Concrete Blocks*. Max area of 720 sq in. (0.46 m2) with max dimension of 30 in. (762 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Cable Tray* — Max of two max 24 in (610 mm) wide by 4 in. (102 mm) deep open-ladder cable tray with channel-shaped side rails formed of 0.10 in. (2.5 mm) thick aluminum or 0.060 in. (.5 mm) thick steel and with 1 in. (25 mm) wide by 1 in. (25 mm) deep tubular channel-shaped rungs spaced 9 in. (229 mm) OC. The annular space between the periphery of the opening shall be min 0 in. (point contact) to max 3 in. (76 mm). Annular space between cable trays shall be 5 in. (127 mm) max. Cable tray to be rigidly supported on both sides of floor assembly.
3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 1/c, 750 kcmil (or smaller) power cable with polyvinyl chloride (PVC) insulation and jacket.
   B. 300 pair - No. 24 AWG telephone cable with PVC insulation and jacket.
   C. 24 fiber optic cable with PVC outer and subunit jacket.
   D. 3/C No. 12 AWG copper conductor steel clad cable with PVC insulation.
4. Cables — Aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 1/C, 750 kcmil (or smaller) power cable with polyvinyl chloride (PVC) insulation and jacket.
   B. 100 pair - No. 24 AWG telephone cable with PVC insulation and jacket.
   C. 7/C No. 12 AWG cable with PVC insulation and jacket.
   D. 3/C (with ground) No. 12 AWG copper conductor non-metallic sheathed cable with PVC insulation and jacket.
5. Optical Fiber/Communication Cable Raceways+ — Nom 2 in. (51 mm) diam (or smaller) optical fiber raceway, formed from PVC. Raceway to be installed in accordance with the National Electrical Code (NFPA No. 70). Max two raceways placed into cable tray.
   See Optical Fiber/Communication Cable Raceways (QAZM) category in the Electrical Construction Materials Directory for names of manufacturers.
6. Metallic Penetrants - One metallic pipe or tubing to be installed within the firestop system. — The min annular space between the copper tube or pipe and the periphery of the opening shall be 0 in. (point contact). The min space between adjacent penetrants shall be 2 in. (51 mm). Tube or pipe to be rigidly supported on both sides of floor assembly. The following types and sizes of metallic pipe or tubing may be used:
   A. Steel Pipe — Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
   D. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic conduit.
   E. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   F. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
7. Conduit — Max 2 in. (51 mm) diam (or smaller) steel electrical metallic tubing (EMT) or steel conduit. The annular space between the EMT and the periphery of the opening shall be min 2 in. (51 mm). The min space between adjacent penetrants shall be 1-1/2 in. (38 mm) except that a max of two EMT or conduit may be installed at point contact with one another. EMT or conduit to be rigidly supported on both sides of floor assembly.
8. Cable — 1800 pair - No. 24 AWG-01 ARMM telephone cable with PVC insulation and jacket. The annular space between the cable and the periphery of the opening shall be min 3-1/2 in. (89 mm). The min space between adjacent penetrants shall be 1-1/2 in. (38 mm). Cable to be rigidly supported on both sides of floor assembly.
9. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* - Fire Blocks — Blocks installed with 5 in. (127 mm) dimension projecting through opening flush with top surface of floor or centered in wall. Blocks to be firmly packed to fill entire opening. Either one or a combination of the block types specified below may be used.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 Fire Block or CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* — Fill material to be forced into interstices of cables, between cables and cable tray and in obvious openings between blocks and between blocks and the periphery of the opening to the max extent possible on both surfaces of wall.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, CP618 Firestop Putty Stick or CP 620 Fire Foam.
   C. Wire Mesh — (Not Shown) When the annular space exceeds 4 in. to the periphery, a nom 2 by 2 in. (51 by 51 mm) wire fencing shall be used to keep the blocks in place. The wire fencing shall be fabricated from min No. 16 SWG (0.060 in. or 1.5 mm) galv steel wire. The wire is cut to fit the contour of the penetrating item with a min 3 in. (76 mm) overlap beyond the periphery of the opening. Wire fencing secured to top surface of floor and both surfaces of the wall assembly by means of 1/4 in. (6 mm) diam by 1 in. (25 mm) long steel concrete anchors and 1/4 in. (6 mm) by 1-1/2 in. (38 mm) diam fender washers spaced max 8 in. (203 mm) OC.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

HILTI Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 15, 2015

City

Collaborator

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER 2024011268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024011268

Project No.: 2576X18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|
| Sheet Revision | | |

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: NMM
Checked By: LLW

Sheet Title

FIRESTOPPING DETAILS

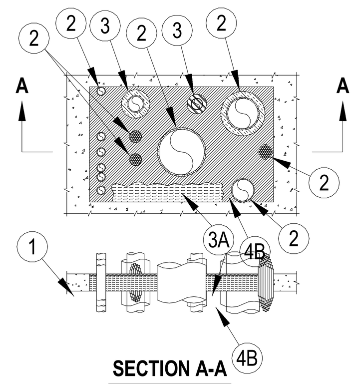
Sheet No.

G304

## System No. C-AJ-8143

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 2 Hr | F Rating — 2 Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 2 Hr |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete floor. Min 5 in. (127 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max size of opening is 1440 in.2 (9,290 cm2) with a max dimension of 48 in. (1219 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers
2. Through-Penetrant — One cable tray and one or more pipes, tubes or cable bundles may be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and the types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces are maintained. The annular space between cable tray and all other penetrants shall be min 3 in. (76 mm). The annular space between individual cables and cable bundles shall be a min 1/2 in. (13 mm). The annular space between individual cables and cable bundles and other penetrants shall be a min 1/2 in. (13 mm) except that a min 2 in. (51 mm) shall be maintained between the cables and copper pipes and tubes greater than a nom 3 in. (76 mm) diam and steel and iron pipes and conduits greater than a nom 4 in. (102 mm) diam. The annular space between metallic pipes, conduit and tubes and insulated pipes and tubes shall be a min 2 in. (51 mm). The annular space between nom 3 in (76mm) diam (and smaller) copper pipes and tubes and between nom 4 in (102mm) diam (and smaller) steel and iron pipes and conduits shall be min 1/2 in. (13 mm). The annular space between nom 2 in. (51 mm) diam (and smaller) metallic pipes and conduits shall be min 0 in. (point contact). The annular space between insulated penetrants or the cable tray and the periphery of opening shall be min 1/2 in. (13 mm). The annular space between all other penetrants and the periphery of opening shall be min 0 in. (point contact). A max annular space in the system shall be 12 in. (305 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used.
   A. Metallic Pipes — The following types of metallic pipes, tubes or conduits may be used:
      1. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
      2. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
      3. Steel Pipe — Nom 24 in. (610 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
      4. Iron Pipe — Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.
      5. Conduit — Nom 4 in. (102 mm) diam (or smaller) electric metallic tubing (EMT) or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
   B. Cables Bundles — Max 4 in. (102 mm) diam tightly bundled cables. Any combination of the following types and sizes of cables may be used:
      1. Max 500 kcmil single copper or aluminum conductor power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.
      2. Max 300 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket material.
      3. Max 7/C copper conductor No. 12 AWG multi-conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.
      4. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in.
      5. Max 3/C No. 12 AWG steel clad cable with copper conductors and PVC insulation material.
   C. Individual Cables — Any of the following types and sizes of individual (non-bundled) cables may be used:
      1. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
      2. Through Penetrating Product* — Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category.
      See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
      3. Max 500 kcmil single copper or aluminum conductor power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket.
      4. Max 300 pair No. 24 AWG copper conductor telecommunication cables with PVC insulation and jacket material.
      5. Max 7/C copper conductor No. 12 AWG multi-conductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket.
      6. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in.
      7. Max 3/C No. 12 AWG steel clad cable with copper conductors and PVC insulation material.
      8. Max 4C/750 kcmil (or smaller) aluminum or copper conductor metal clad cable with aluminum or steel armor, with or without PVC jacket.
   D. Cable Tray* — (Not Shown) — Max 24 in. (610 mm) wide by 6 in. (152 mm) deep open-ladder steel or aluminum cable tray. Aggregate cross-sectional area of cable tray to be max 40 percent of the cross-sectional area of the cable tray based on a max 3 in. cable loading depth. Any combination of the types and sizes of cables described in Item 2B may be used. Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Pipe Insulation — (Optional) - Pipes and tubes of the sizes noted below may be provided with one of the following types of pipe insulations::
   A. Pipe Covering* — Nom 1-1/2 in. (38 mm) thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket for pipes with a nom diam of 8 in. (203 mm) (or smaller) or tubes with a nom diam of 4 in. (102 mm) (or smaller). Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
   See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
   B. Pipe Covering* — Nom 2 in. (51 mm) thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket for pipes or tubes with a nom diam of 2 in. (51 mm) (or smaller). Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
   See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
   C. Tube Insulation-Plastics+ — Nom 1 in. (25 mm) thick (or thinner) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing for pipes or tubes with a nom diam of 2 in. (51 mm) (or smaller).
   See Plastics (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of 4 pcf (64 kg/m3) mineral wool batt insulation tightly packed into the opening as a permanent form. Packing material to be recessed from top surface of floor or both surfaces of wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material - Sealant* — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus flush with the top surface of the floor or both surfaces of the wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

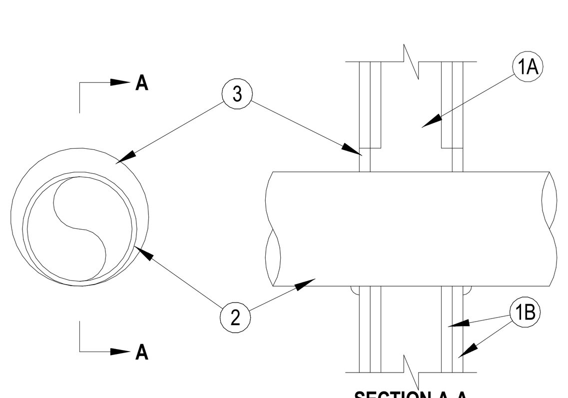
Hilti Firestop Systems

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## System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings —1 and 2 Hr (See Items 1 and 3) | F Ratings — 1 and 2 Hr (See Items 1 and 3) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating at Ambient — Less Than 1 CFM/sq ft | FH Ratings —1 and 2 Hr (See Items 1 and 3) |
| L Rating at 400 F — Less Than 1 CFM/sq ft | FTH Rating — 0 Hr |
| | FTH Rating — 0 Hr |
| | L Rating at Ambient — Less Than 1 CFM/sq ft L Rating at 400 F — Less Than 1 CFM/sq ft |




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
   The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

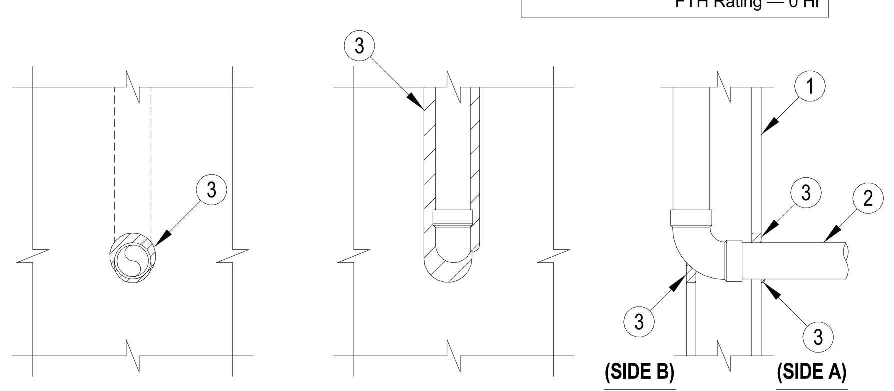
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 23, 2015

## System No. W-L-1412

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 1 Hr | F Rating — 1Hr |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 1Hr |
| | FTH Rating — 0 Hr |




FRONT VIEW (SIDE A) FRONT VIEW (SIDE B) CROSS-SECTIONAL VIEW

1. Wall Assembly — The 1 hr fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm)
   B. OC. Gypsum Board* — Min 5/8 in. (16 mm) thick gypsum board. Max diam of opening shall be 3 in. (76 mm) on through penetration side. Maximum width of opening on membrane penetration is to be max 3 in. (76 mm).
2. Through Penetrant — One nom 2 in. (51 mm) pipe to be installed concentrically or eccentrically within opening on one side of the wall. On one side of the wall the pipe is allowed to penetrate the membrane continuously in a plane parallel with the wall and the studs. The annular space between the through penetrant and the periphery of opening shall be min 0 in. (0 mm, point contact) to max 3/4 in. (19 mm). Through penetrant to be rigidly supported on the through penetration side of the wall assembly. The following types and sizes of through penetrants may be used:
   A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 2 in. (51 mm) diam (or smaller) rigid steel conduit or electrical metallic tubing (ENT).
3. Firestop System — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied with annulus flush with both surfaces of the wall. Additional min 1/4 in. (6 mm) diam bead of fill material applied at the penetrant/gypsum board interface on both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

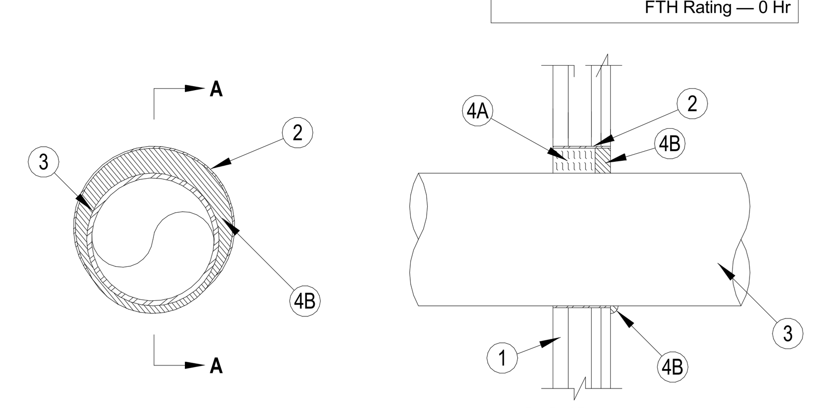
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 26, 2015

## System No. W-L-1206

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 1 and 2 Hr (See Items 1 and 4) | F Rating — 1 and 2 Hr (See Items 1 and 4) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Rating — 1 and 2 Hr (See Items 1 and 4) |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Wall Assembly — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — "C-T" shaped studs 1-5/8 in. (41 mm) wide by 2-1/2 in. (64 mm) deep, fabricated from 25 MSG galv steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One layer of nom 1 in. (25 mm) thick, 24 in. (610 mm) wide gypsum liner and one or two layers of nom 5/8 in. (16 mm) thick, 4 ft. (1.27 m) wide gypsum board with square or tapered edges. The gypsum board types, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 10-1/2 in. (267 mm).

1A. Wall Assembly — As an alternate to the above wall assembly, the 1 or 2 Hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 10-1/2 in. (267 mm).
   The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Metallic Sleeve — Max 10-1/2 in. (267 mm) diam cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum board layers. Sleeve may also be formed of No. 8 steel wire mesh having a min 1 in. (25 mm) lap along the longitudinal seam.
3. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. An annular space of min 0 in. (0 mm, point contact) to max 1-7/8 in. (48 mm) is required within firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 4 in. (102 mm) diam steel conduit.
   D. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. Flexible Steel Conduit+ — Nom 2 in. (51 mm) diam (or smaller) flexible steel conduit.
   See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Equipment Directory for names of manufacturers.
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1-5/8 or 2-1/4 in. (41 or 57 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into sleeve on one side of the wall as permanent form for 1 and 2 Hr walls, respectively. Packing material to be recessed from the room side of wall to accommodate the required thickness of fill material. In alternate wall assembly, packing material to be flush with either side of the wall and recessed from the other side of the wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material — Sealant* — Min 1-1/2 in. (38 mm) thickness applied within sleeve, flush with the surface of wall. At the point contact location between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/wall interface.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.
+Bearing the UL Listing Mark

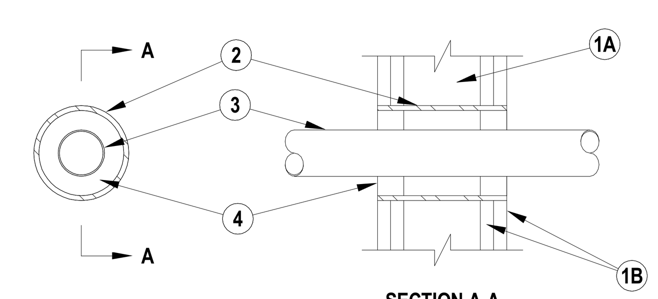
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015

## System No. W-L-2075

**F Ratings - 1 & 2 Hr (See Item 4)**
**T Ratings - 0 and 2 Hr (see Item 4)**
**L Rating At Ambient - Less Than 1 CFM/Sq Ft**
**L Rating At 400 F - 4 CFM/Sq Ft**

Underwriters Laboratories, Inc. to UL 1479




SECTION A-A

1. Floor or Wall Assembly — The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 4 in. (102 mm).
2. Metallic Sleeve — (Optional) — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or thinner) steel pipe cast into wall assembly with joint compound and installed flush with wall surfaces.
3. Electrical Nonmetallic Tubing+ — Nom 2 in. (51 mm) diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC). Tubing to be rigidly supported on both sides of wall assembly. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.
See Electrical Nonmetallic Tubing (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.
4. Fill, Void or Cavity Material* — Sealant — Installed symmetrically on both sides of the wall. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. Fill material applied within the annulus, flush with each end of the steel sleeve at the thickness shown in the table below:

| F Rating Hr | T Rating Hr | Fill Mtl Depth In. (mm) |
|---|---|---|
| 1 | 0 | 5/8 (16) |
| 2 | 2 | 1-1/4 (32) |

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
+Bearing the UL Listing Mark
*Bearing the UL Classification Marking

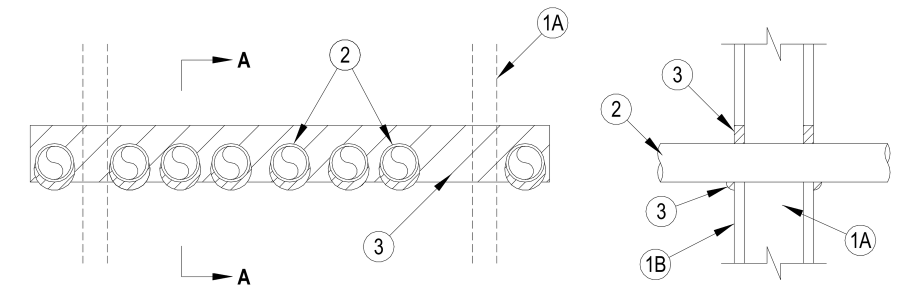
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 26, 2015

## System No. W-L-1389

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1and 3) | F Ratings — 1 and 2 Hr (See Items 1 and 3) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| | FH Ratings — 1 and 2 Hr (See Items 1 and 3) |
| | FTH Rating — 0 Hr |




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of min 3-5/8 in. (92 mm) wide steel studs spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners, as specified in the individual Wall and Partition Design. Max height of opening is 3-1/2 in. (89 mm). Max width of opening is 32 in. (813 mm).
   The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants — Multiple pipes or conduits installed in single layer array within the firestop system. The annular space between the pipes and conduits and the edges of the opening shall be min 0 in. (0 mm, point contact) to max 1-3/8 in. (35 mm). The separation between pipes and conduits to be a min 0 in. (0 mm, point contact) to a max 1-1/4 in. (32 mm). Pipes and conduits to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. Conduit — Nom 2 in. (51 mm) diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).
3. Fill Void or Cavity Materials* - Sealant — Min 5/8 in. (16 mm) thickness of fill material installed to completely fill annular space between pipes, conduits and gypsum flush with each surface of wall. Min 1/2 in. (13 mm) diam bead of fill material applied to the through penetrant/wall interface at the point contact locations on both sides of the wall. The 2 hour F, FH Ratings apply only when FS-ONE Sealant is used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — Hilti CP 606 Flexible Firestop Sealant or FS-ONE Sealant, FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

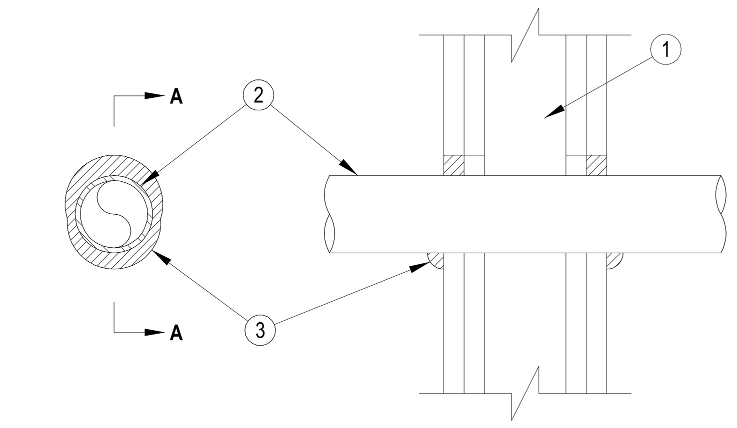
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015

## System No. W-L-2244

**F Ratings -- 1 and 2 Hr (See Item 1)**
**T Ratings -- 1 and 2 Hr (See Item 1)**
**L Rating at Ambient - Less Than 1 CFM/sq ft**
**L Rating at 400 F - 2 CFM/sq ft**

Classified by Underwriters Laboratories, Inc. to UL 1479




SECTION A-A

1. Wall Assembly — The 1 and 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Series Design in the UL Fire Resistance Directory. Max diam of opening is 3 in. (76 mm).
   The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrant — One nonmetallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe and periphery of opening shall be min of 0 in. (point contact) to a max 5/8 in. .(16 mm). Pipe to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) cellular or solid core Schedule 40 (or heavier) pipe for use in closed (process or supply) piping systems.
   B. Chlorinated Polyvinyl Chloride (CPVC) — Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
3. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location, a min 1/2 in. (13 mm) diam bead of fill material shall be applied to the wall/penetrant interface on both surfaces of the wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

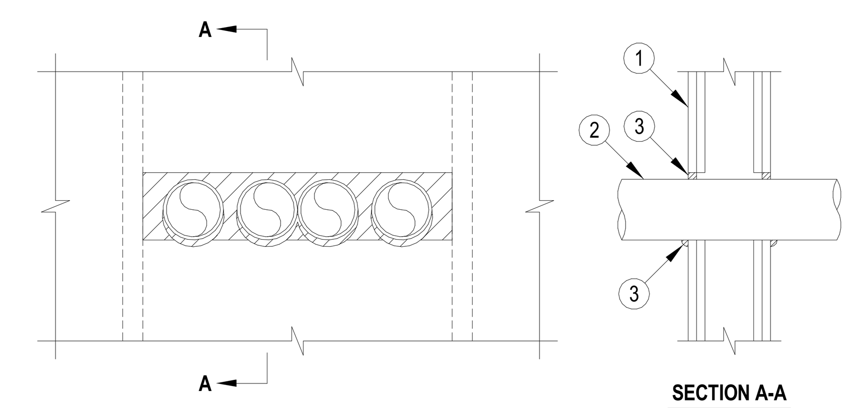
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015

## System No. W-L-1408

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Ratings — 0 and 1/4 Hr (See Item 1) | FT Ratings —0 and 1/4 Hr (See Item 1) |
| | FH Ratings — 1 and 2 Hr (See Item 1) |
| | FTH Ratings — 0 and 1/4 Hr (See Item 1) |




SECTION A-A

1. Wall Assembly — The 1 and 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of min 3-5/8 in. (92 mm) wide steel studs spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners, as specified in the individual Wall and Partition Design. Max area or opening is 114 in.2 (735 cm²) with max height of 5 in. (127 mm) and max width of 23 in. (584 mm).
   The hourly F, FH Ratings of the firestop system are equal to the hourly rating of the wall. The hourly T, FT, FTH Ratings of the firestop system is 0 hr and 1/4 hr when installed in 1 hr and 2 hr fire rated wall assemblies, respectively.
2. Through Penetrants — Multiple pipes or conduits installed in single layer array within the firestop system. The annular space between the pipes and conduits and the edges of the opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm). The separation between pipes and conduits to be a min 0 in. (0 mm, point contact) to a max 1-1/2 in. (38 mm). Pipes and conduits to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. Conduit — Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).
3. Fill Void or Cavity Materials* - Sealant — Min 5/8 in. (16 mm) thickness of fill material installed to completely fill annular space between pipes, conduits and gypsum flush with each surface of wall. Min 1/2 in. (13 mm) diam bead of fill material applied to the through penetrant/wall interface at the point contact locations on both sides of the wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

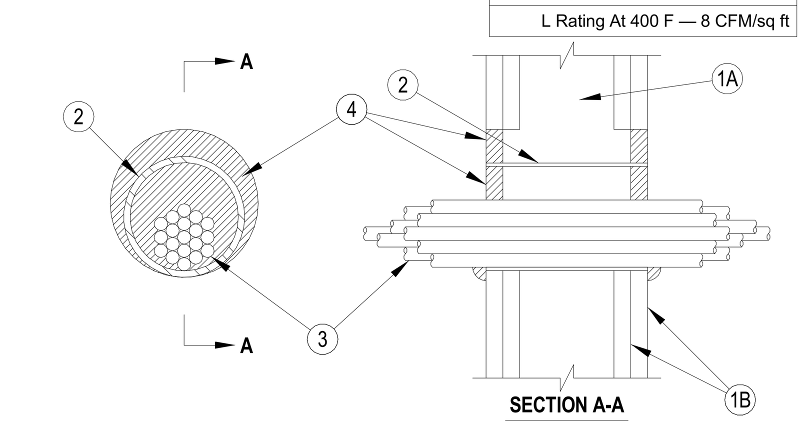
Hilti Firestop Systems

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## System No. W-L-3065

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 1 and 2 Hr (See Item 1) | F Rating — 1 and 2 Hr (See Item 1) |
| T Rating — 0 and 3/4 Hr (See item 3) | FT Rating — 0 and 3/4 Hr (See item 3) |
| L Rating At Ambient — 15 CFM/sq ft | FH Rating — 1 and 2 Hr (See Item 1) |
| L Rating At 400 F — 8 CFM/sq ft | FTH Rating — 0 and 3/4 Hr (See item 3) |
| | L Rating At Ambient — 15 CFM/sq ft |
| | L Rating At 400 F — 8 CFM/sq ft |




SECTION A-A

1. Wall Assembly — The 1 or 2 fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board, with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max diam of opening is 5-1/2 in. (138 mm) when sleeve (Item 2) is employed. Max diam of opening is 4 in. (102 mm) when sleeve (Item 2) is not employed.
   The F, FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
2. Metallic Sleeve — (Optional) - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (0.41 mm, No. 28 ga) galv steel sleeve installed flush with wall surfaces. The annular space between steel sleeve and periphery of opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25mm). When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. (457 mm) beyond the wall surfaces. As an option when Schedule 5 steel pipe or EMT is used, sleeve may extend continuously beyond one wall surface. When cable bundle penetrates wall assembly at an angle of 45 degrees, no metallic sleeve is used.
3. Cables — Aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 0 in. (point contact) to max 1 in. (25 mm). When sleeve is continuous on one side of wall (see Item 2), the cable fill may be 0 to 45% and the max annular space is not limited. Cables to be rigidly supported on both sides of the wall assembly. Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   B1. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   C. Type RG/U coaxial cable with polyethylene (PE) insulation and PVC jacket having a max outside diameter of ½ in. (13 mm).
   C1. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 5/8 in. (16 mm).
   E. Through Penetrating Products*— Max three copper conductor No. 8 AWG .Metal-Clad Cable+.
   AFC CABLE SYSTEMS INC
   F. Max 3/C (with ground)(or smaller) No. 8 AWG copper conductor cable with PVC insulation and jacketing.
   G. Max 3/4 in. (19 mm) diam copper ground cable with or without a PVC jacket.
   H. Fire Resistive Cables* - Max 1-1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 1/8 in. (3 mm) separation shall be maintained between MI cables and any other types of cable.
   I. Max 4/C with ground 300 kcmil (or smaller) aluminum SER cable with PVC insulation and jacket.
   J. Through Penetrating Product* - Any cables, Metal-Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category.
   K. Maximum 3/C No. 8 AWG metal-clad cable.
   L. Maximum 5/8 diam fiber-optic cable with PVC jacket.
   For cable bundle penetrating the wall assembly at an angle of 45 degrees, the T, FT, FTH Ratings are 0 hr and 3/4 hr for 1 and 2 hr wall assemblies, respectively.
   See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. Fill, Void or Cavity Material*— Sealant or Putty — Fill material applied within the annulus, flush with each end of the steel sleeve or wall surface. Fill material installed symmetrically on both sides of the wall. A min 5/8 in. (16 mm) thickness of sealant is required for the 1 or 2 hr F Rating . An additional 1/2 in. (13 mm) diam bead of fill material shall be applied at the interface of sleeve with gypsum board.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CP606, FS-One Sealants or FS-ONE MAX Intumescent Sealantor or CP618 Putty
5. Packing Material — (Optional, Not Shown) — Mineral wool forming material may be used as a backer for the fill material (Item 4). When used, it shall be firmly packed into annular space within the sleeve as a permanent form and recessed from end of sleeve to accommodate the required thickness of fill material.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.
+Bearing the UL Listing Mark

Hilti Firestop Systems

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City

Collaborator

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Seal




09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
**100% CONSTRUCTION DOCUMENTS 09/01/2026**

Team
Drawn By: NMM
Checked By: LLW

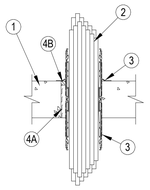
Sheet Title
**FIRESTOPPING DETAILS**

Sheet No.
**G305**

## System No. C-AJ-3285

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Rating — 3 Hr | F Rating — 3 Hr |
| T Ratings — 1, 1-1/2 and 3 Hr (See Item 2) | FT Ratings — 1, 1-1/2 and 3 Hr (See Item 2) |
| L Rating At Ambient — Less Than 1 CFM (See Items 2 and 4) | FH Rating — 3 Hr |
| L Rating At 400 F — Less Than 1 CFM (See Items 2 and 4) | FTH Ratings — 1, 1-1/2 and 3 Hr (See Item 2) |
| | L Rating At Ambient — Less Than 1 CFM (See Items 2 and 4) |
| | L Rating At 400 F — Less Than 1 CFM (See Items 2 and 4) |




1. Floor or Wall Assembly — Reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Min 4-1/2 in. (114 mm) thick floors and min 5 in. (127 mm) thick walls. Wall may also be constructed of any UL Classified Concrete Blocks*. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*. Opening in floor or wall to be max 3 in. (76 mm) diam for 2 in. (51 mm) device and max 5 in. (127 mm) diam for 4 in. (102 mm) device.
   See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. Cables — Within the loading area for each firestop device, the cables may represent a 0 to 100 percent visual fill. Cables to be tightly bundled within the device and rigidly supported on both sides of floor or wall assembly. Any combination of the following types of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max four pair No. 22 AWG Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 20/C No. 22 AWG shielded printer cable with PVC jacket.
   H. Through-Penetrating Product* - Two copper conductors No. 18 AWG (or smaller) Power or Non Power Limited Fire Alarm Cable with or without a jacket under a metal armor.
   AFC CABLE SYSTEMS INC
   I. Max. 1/4 in. (6 mm) diam S-Video Cable consisting of two max No. 24 AWG 75 ohm coax or twisted pair cable with PE insulation and PVC jacket.
   The hourly T, FT and FTH Ratings for blank opening (no cables) are 3 hr. The hourly T, FT and FTH Ratings for opening with cables are 1-1/2 hr except that, when cable type 2A, 2B, 2C, 2E or 2H is used, the T, FT and FTH Ratings are 1 hr. See Table below for L Ratings.

| Max Cable Fill | Cable Type | L Rating, CFM/Sq Ft | | L Rating, CFM | |
|---|---|---|---|---|---|
| | | Ambient | 400°F | Ambient | 400°F |
| 0% | — | 1 | 2 | Less than 1 | Less than 1 |
| 100% | Any cables (Item 2) in any combination | 7 | 7 | Less than 1 | Less than 1 |

3. Firestop Device* — Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings, tightly twisted inner fabric smoke seal, flanges and gasket material (not shown). Firestop device to be installed in accordance with the accompanying installation instructions. Device slid into floor or wall such that ends project an equal distance from the approximate centerline of the assembly. As an option, in floors, steel sleeve of device may be installed flush with bottom of floor. The annular space between the device and the periphery of the opening shall be min 0 in. (point contact). Device provided with flange(s) that are spun clockwise onto device threads, over gasket material butting tightly to top side of floor or both sides of floor or wall. In floors, when one device flange is used, device flange to be secured to floor with min two 1-1/4 in. (32 mm) long masonry screws or anchors. As an alternate to gasket material, sealant (Item 4B) may be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 2" Speed Sleeve and CP 653 4" Speed Sleeve
4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into annular space between firestop device and opening as a permanent form. Packing material to be installed flush with bottom of floor and recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — As an alternate to gasket material (see Item 3), min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. For L Ratings when sealant is used, an additional 1/4 in. (6 mm) bead of fill material is required at the device/floor or device/wall interface on top side of floor or both sides of wall assembly prior to installing flange(s).
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S Sealant, CP604 Sealant, CP 606 Sealant, CFS-S SIL GS, CFS-S SIL SL (floors only), FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

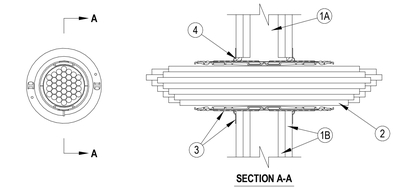
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January 14, 2015

## System No. W-L-3334

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1, 2, 3 and 4 Hr (See Item 1) | F Ratings - 1, 2, 3 and 4 Hr (See Item 1) |
| T Ratings - 0, 1/2, 1, 1-1/2, 2 Hr (See Items 2 and 3) | FT Ratings - 0, 1/2, 1-1/2, and 2 Hr (See Items 2 and 3) |
| L Rating At Ambient - See Item 2 | FH Ratings - 1, 2, 3 and 4 Hr (See Item 1) |
| L Ratings At 400 F - See Item 2 | FTH Ratings - 0, 1/2, 1, 1-1/2, and 2Hr (See Items 2 and 3) |
| | L Rating At Ambient - See Item 2 |
| | L Ratings At 400 F - See Item 2 |




SECTION A-A

1. Wall Assembly — The 1, 2, 3 or 4 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described within the individual U300, U400, V400 or W450 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC for 1 and 2 hr wall assemblies. Steel Studs to be 3-5/8 in. (92 mm) for 3 and 4 hr wall assemblies. Steel studs to be min 3-1/2 in. (89 mm) wide when 3/4 in. (19 mm) thick gypsum board is used (see Item 1B).
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Alternately, for 1 and 2 hr rated walls only, min one layer of nom 3/4 in. (19 mm) thick gypsum board on each side of wall as specified in the individual Wall and Partition Design may be used. Opening in gypsum board to be max 2-1/2 in. (64 mm) diam for 2" device and max 4-1/2 in. (114 mm) diam for 4" device.
   The hourly F and FH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.
2. Cables — Within the loading area for each firestop device, the cables may represent a 0 to 100 percent visual fill. Cables to be tightly bundled within the device and rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 20/C No. 22 AWG shielded printer cable with PVC jacket.
   H. Through-Penetrating Product* - Two copper conductors No. 18 AWG (or smaller) Power or Non Power Limited Fire Alarm Cable with or without a jacket under a metal armor.
   AFC CABLE SYSTEMS INC
   I. Max. 1/4 in. (6 mm) diameter S-Video Cable consisting of 2 max 24 AWG 75 ohm coax or twisted pair cable with PE insulation and PVC jacket.
   J. Max 3/C No 12 AWG MC Cable.
   K. Through Penetrating Product* — Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category. See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
   When the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. When the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr except that, when Item 2J or 2K is used, the T, FT and FTH Ratings are 1/2 hr . When the hourly rating of the wall assembly is 3 or 4 hr, the T, FT and FTH Ratings are 1-1/2 and 2 hr, respectively.
   L Ratings apply only when device flanges are used. L Ratings vary depending on whether the gasketing material (see Item 3) or the sealant (Item 4) is used. See Table below for L Ratings.

| Max Cable Fill | Cable Type | L Rating, CFM/Sq Ft | | | | L Rating, CFM | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Ambient | | 400°F | | Ambient | | 400°F | |
| | | Sealant | Gasket | Sealant | Gasket | Sealant | Gasket | Sealant | Gasket |
| 0% | — | Less than 1 | 1.0 | Less than 1 | 2.7 | Less than 1 | Less than 1 | Less than 1 | Less than 1 |
| 100% | Item 2D only | 4.9 | 4.9 | 1.3 | 3.5 | Less than 1 | Less than 1 | Less than 1 | Less than 1 |
| 100% | Any cables (Item 2) in any combination | 9.2 | 9.2 | 9.6 | 11.8 | 1.2 | 1.2 | 1.3 | 1.6 |

3. Firestop Device* — Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings, twisted inner fabric smoke seal, flanges and gasketing material (not shown). Firestop device to be installed in accordance with the accompanying installation instructions. As an option, the inner fabric seal may remain open except that, to attain the L Rating, the inner fabric seal shall be twisted to completely close off the opening within device. Device slid into wall such that ends project an equal distance from the approximate centerline of the wall assembly. The annular space between the device and the periphery of the opening shall be min 0 in. (point contact). Device provided with flanges that are spun clockwise onto device threads, over gasketing material butting tightly to both sides of wall. As an alternate to gasket material, sealant (Item 4) may be used. Device flanges are optional, except that when ¼ in. (19 mm) gypsum board (see Item 1B) is used, device flanges shall be used and for 3 and 4 hr fire rating, device flanges shall be used. When the device flanges are not used, the T, FT and FTH Ratings for the firestop system are 0 hr.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 2" Speed Sleeve and CP 653 4" Speed Sleeve
4. Fill, Void or Cavity Material* - Sealant — As an alternate to gasket material (see Item 3), min 1/2 in. (13 mm) thickness of fill material applied within the annulus between firestop device and wall, flush with both surfaces of wall, and an additional 1/4 in. (6 mm) bead applied around periphery of device. When device flanges are used, gypsum drywall compound may be used in place of the fill material. Sealant is required when device flanges are not used (see Item 3).
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE, FS-ONE MAX Intumescent Sealant, or CP 606 Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.
+Bearing the UL Listing Mark

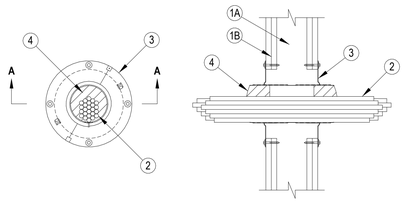
Hilti Firestop Systems

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January 27, 2015

## System No. W-L-3393

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Ratings - 1 and 2 Hr (See Item 1) |
| T Ratings - 0, 3/4 and 1 Hr (See Items 2 and 3) | FT Ratings - 0, 3/4 and 1 Hr (See Items 2 and 3) |
| L Rating At Ambient - See Item 4 | FH Ratings - 1 and 2 Hr (See Item 1) |
| L Rating At 400F - See Item 4 | FTH Ratings - 0, 3/4 and 1 Hr (See Items 2 and 3) |
| | L Rating At Ambient - See Item 4 |
| | L Rating At 400F - See Item 4 |




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described within the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Alternately, for 1 and 2 hr rated walls only, one layer of nom 3/4 in. (19 mm) thick gypsum board as specified in the individual Wall and Partition Design may be used. Opening in gypsum board to be max 7 in. (178 mm) diam for 4" device and max 6 in. (152 mm) diam for 2" device.
   The hourly F and FH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.
2. Cables — Within the loading area for each firestop device, the aggregate cross-sectional area of cables to be min 0 to max 60 percent fill. Cables to be tightly bundled within the device and rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 3/C No 12 AWG MC Cable.
   For opening with cables, when the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. For opening with cables, when the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr except that when Item 2C is used, the T, FT and FTH Ratings are 3/4 hr.
3. Firestop Device* — Firestop device consists of a corrugated steel tube with a flange at each end that is spun clockwise onto device threads, butting tightly to both sides of wall. Each flange is secured to face of wall with min four No. 10 by 1-1/2 in. (38 mm) steel laminating screws through prepunched holes in flange. Device is designed to allow installation before or after the cable penetrants are in place. Device slid into wall such that ends project an equal distance from the approximate centerline of the wall assembly. The annular space between the device and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. (51 mm). For blank openings (no cables) in 2 hr rated walls, the T, FT and FTH Ratings for the firestop system are 1 hr. For blank openings (no cables) in 1 hr rated walls, the T, FT and FTH Ratings are 0 hr.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SL RK 2" and 4" Firestop Sleeve
4. Fill, Void or Cavity Material* - Plug — Nom 2 or 4 in. (51 or 102 mm) plug sized for the firestop device (Item 3) friction fit within the sleeve flush with the end of the sleeve on both sides of the wall assembly. Plug cut to fit around the cable bundle and installed tightly within the sleeve.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-PL Firestop Plug

The following L Ratings are covered. Cable bundle shall be centered within the device.

| | CFM (per device) | | CFM/Sq Ft Opening | |
|---|---|---|---|---|
| | Ambient | 400°F | Ambient | 400°F |
| Blank Opening (no cables) | 1.3 | 1.1 | 3.8 | 3.0 |
| Max 33% aggregate cable fill | 2.8 | 1.2 | 8.1 | 3.3 |

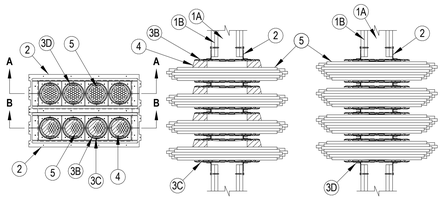
Hilti Firestop Systems

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January 25, 2013

## System No. W-L-3395

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Items 1 and 2) | F Ratings - 1 and 2 Hr (See Items 1 and 2) |
| T Rating - 1/4 Hr | FT Rating - 1/4 Hr |
| L Rating At Ambient - See Item 5 | FH Ratings - 1 and 2 Hr (See Items 1 and 2) |
| L Rating At 400F - See Item 5 | FTH Ratings - 1/4 Hr |
| | L Rating At Ambient - See Item 5 |
| | L Rating At 400F - See Item 5 |




SECTION B-B SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described within the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:
   A. Studs — Wall framing shall consist of steel channel studs. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Maximum size of opening in gypsum board is dependent on the mounting of the gangplate firestop device (Item 2). Openings for gangplates that are surface mounted to the gypsum board may be oriented vertically or horizontally. Openings for gangplates that are stud mounted directed to the wall studs prior to gypsum board layers are oriented horizontally. Maximum opening sizes are specified in Table below.

| FIRESTOP DEVICE (Item 2) | MAXIMUM OPENING SIZE GANGPLATE MOUNTING | | | |
|---|---|---|---|---|
| | SURFACE MOUNTED | | STUD MOUNTED | |
| 24" PLATE : | | | | |
| SINGLE | 20-1/2" x 5-1/2" | (521 x 140) | 23" x 6-3/4" | (584 x 171) |
| DOUBLE (STACKED) | 20-1/2" x 13-1/4" | (521 x 337) | 23" x 14-1/4" | (584 x 362) |
| 16" PLATE : | | | | |
| SINGLE | 15" x 5-1/2" | (381 x 140) | 15-3/16" x 6-3/4" | (386x171) |
| DOUBLE (STACKED) | 15" x 13-1/4" | (381 x 337) | 15-3/16" x 14-1/4" | (386 x 362) |

The hourly F and FH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.

2. Firestop Device* — The firestop device consists of a steel plate sandwich construction with three (16" device size) or four (24" device size) circular opening ports which are each nom 4 in. (102 mm) diam. The firestop device is intended to be oriented vertically or horizontally and mounted to the face of the opening on both sides of wall. The 16" and 24" firestop devices when oriented horizontally are attached to the 16 in. (406 mm) and 24 in. (610 mm), respectively, center-to-center spaced wall studs at each side of opening, over the gypsum board. As an option, up to two devices may be installed adjacent to each other with a nom 13/16 in. (2 cm) overlap to protect larger sized openings (see Item 1B, double device). As an option, single and double 16" and 24" gang plates may be attached directly against the studs prior to installation of the gypsum board layers. When 16" gang plate is installed horizontally in 24" stud cavity, attachment of plate to wall studs is optional. As an option, two devices may be installed end to end in adjacent stud cavities, over the gypsum board layers or directly attached to the wall studs when installed in accordance with the Hilti Installation Instructions and min one layer of gypsum board each side of wall is continuous across the two stud cavities. Each device shall be secured to gypsum board with min No. 10 by 1-1/2 in. (38 mm) steel drywall screws through prepunched holes around periphery of steel device plates; min three (16" gang plate) or four (24" gang plate) screws are used at each long dimension and three screws at each end. When device is secured direct to studs prior to installation of gypsum board layers, the fasteners along each long dimension of opening are spaced max 2-1/2 in. (64 mm) from corners and max 6 in. (152 mm) on center unless otherwise noted in Hilti Installation Instructions. Min screw length is 3/4 in. (19 mm) where device is secured direct to studs and at the overlapping plate to plate joint for double devices. The device shall be installed in accordance with the accompanying installation instructions. When the hourly rating of the wall assembly is 1 hr, blank gang plates (no cables) may be installed vertically or horizontally for single gang plate openings only, and double gang plates are limited to installation horizontally with fasteners at ends of plates penetrating into wall studs.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SL GP 16" and 24" Firestop Gangplate
3. Firestop Device — Within each circular opening port of the CFS-SL GP firestop gang plates (Item 2), one of the following firestop devices shall be installed. Any combination of these firestop devices may be used within each gang plate.
   3A. Firestop Device* — Rectangular steel plate designed to close port openings with no penetrants. Plate is field installed in accordance with Hilti Installation Instructions. Flanges of gang plate over port opening are removed by loosening GP nuts, the steel plate cap installed with prepunched holes aligned with GP fasteners, and the flanges of GP then reinstalled and nuts reinstalled to tighten the plates in position.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SL GP CAP Firestop Gangplate CAP
   3B. Firestop Device* — Firestop device consists of a corrugated steel tube. The device flanges are removed by spinning counterclockwise and are not used. Device tube slid into gang plate port opening and centered within wall such that ends of device tube project an approximate equal distance from the gang plate on each side of wall. The two integral screws within the flange of the gang plate port at each side of wall are tightened to firmly bear against the device sleeve to retain it in position. Device is designed to allow installation before or after the cable penetrants (if employed) are in place. Device is used in combination with the firestop plugs described in Item 4.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SL RK 4" Firestop Sleeve
   3C. Firestop Device* — Firestop device consists of a corrugated steel tube. The device flanges are removed by spinning counterclockwise and are not used. Device tube slid into gang plate port opening and centered within wall such that ends of device tube project an approximate equal distance from the gang plate on each side of wall. The two integral screws within the flange of the gang plate port at each side of wall are tightened to firmly bear against the device sleeve to retain it in position. Device is used in combination with the firestop plugs described in Item 4.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SL SK 4" Firestop Retrofit Sleeve
   3D. Firestop Device* — Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings and twisted inner fabric smoke seal. The device flanges are to be spun counterclockwise and removed since they are not used. Device tube slid into gang plate port opening and centered within wall such that ends of device tube project an approximate equal distance from the gang plate on each side of wall. The two integral screws within the flange of the gang plate port at each side of wall are tightened to firmly bear against the device sleeve to retain it in position. The inner fabric seal shall be twisted to completely close off any unused opening within the device.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 4" Speed Sleeve
4. Fill, Void or Cavity Material* - Plug — Plugs are required to be used with the CFS-SL RK and SK firestop devices (Items 3B and 3C). Nom 4" diam plug friction fit within the device sleeve flush with each end of the device on both sides of wall. Plug cut to fit around the cable bundle (if used) and installed tightly within the device sleeve.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-PL Firestop Plug 4"
5. Cables — Within the loading area for each firestop device (Items 3B through 3D), a tightly bundled cable may be installed. The aggregate cross-sectional area of cables shall be min 0 to max 60 percent fill for each CFS-SL RK and CFS-SL SK firestop device (Items 3B and 3C). For the CP 653 Speed Sleeve firestop device (Item 3D), the cables can be used for a 0 to 100 percent visual fill. Cables to be rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 3/C No 12 AWG MC Cable.
   For opening with cables, when the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. For opening with cables, when the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr.
3. Firestop Device* — Firestop device consisting of a steel collar with plug to be centered over opening and mounted to face of gypsum board on both sides of wall. Each flange of collar is secured to wall with No. 10 by 1-1/2 in. (38 mm) steel laminating screw and min 9/16 in. (15 mm) diam steel washer through prepunched hole in flange. As an alternate, min 3/16 in. (4.8 mm) diam by 2-1/2 in. (64 mm) long steel toggle bolts in conjunction with min 9/16 in. (15 mm) diam steel washers may be used. For openings with cables, plug within collar cut to fit tightly around the cable bundle. For blank openings (no cables), the hourly F and FH Ratings of the firestop system are equal to the hourly rating of the wall in which it is installed.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-CC 4" Firestop Cable Collar
   L Ratings apply to blank the openings only per indicated in Table below.

| Opening | CFM (per device) | | CFM/Sq Ft Opening | |
|---|---|---|---|---|
| | Ambient | 400F | Ambient | 400F |
| Blank Opening Only (no cables) | Less Than 1 | Less Than 1 | Less Than 1 | 4 |
| Max 100% visual fill with Cat 5 and/or Cat 6 cables | 1.2 | Less Than 1 | 13.2 | 8.9 |

4. Fill, Void or Cavity Material* (Optional, Not Shown) — Fill material applied to fill interstices between and around the cable bundle at both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant, CP 618 Putty

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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August 27, 2013

## System No. W-L-3395

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

Table 2 - CFM per FT2 of Opening at Ambient and 400F

| | TYPE AND NUMBER OF DEVICES IN CFS-SL GP (CAP - ITEM 3A; DEVICES - ANY COMBINATION OF ITEMS 3B THROUGH 3D EXCEPT AS NOTED) | | | | |
|---|---|---|---|---|---|
| | CAP(S) ONLY | CAP(S) AND ONE DEVICE | CAP(S) AND TWO DEVICES | CAP (OPT) AND THREE DEVICES | FOUR DEVICES |
| BLANK OPENING (NO CABLES) : | 1.2 | 1.3 | 2.6 | 3.2 | 4.5 |
| OPENINGS WITH ANY COMBINATION OF ITEM 5 CABLES FOR MAX 33% AGGREGATE FILL IN DEVICE TYPES 3B AND 3C, AND/OR MAX 100% VISUAL CABLE FILL IN DEVICE TYPE 3D | - | 2.6 | 5.1 | 7.7 | 10.2 |
| | CAP(S) ONLY | CAP(S) AND ONE CP 653 DEVICE (ITEM 3D) | CAP(S) AND TWO CP 653 DEVICES (ITEM 3D) | CAP (OPT) AND THREE CP 653 DEVICES (ITEM 3D) | FOUR CP 653 DEVICES (ITEM 3D) |
| OPENINGS WITH MAX 100% VISUAL CABLE FILL WITH CABLE TYPE 5D ONLY AND CP 653 ONLY | - | 1.9 | 3.8 | 5.1 | 7.0 |

*Bearing the UL Classification Mark

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August 27, 2013

## System No. W-L-3396

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Ratings - 1 and 2 Hr (See Item 1) |
| T Ratings - 0, 1 and 2 Hr (See Items 2 and 3) | FT Ratings - 0, 1 and 2 Hr (See Items 2 and 3) |
| L Rating At Ambient - See Item 3 | FH Ratings - 1 and 2 Hr (See Item 1) |
| L Rating At 400F - See Item 3 | FTH Ratings - 0, 1 and 2 Hr (See Items 2 and 3) |
| | L Rating At Ambient - See Item 3 |
| | L Rating At 400F - See Item 3 |




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described within the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Opening in gypsum board to be max 4 in. (102 mm) diam.
   The hourly F and FH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.
1A. Sleeve — (Not Shown, Optional) - Nom 4 in. (102 mm) diam (or smaller) sleeve friction fit into wall opening, flush with both wall surfaces. The following types of sleeves may be used: Schedule 5 (or heavier) steel pipe, min 28 ga steel sleeve, or Schedule 40 solid or cellular core polyvinyl chloride (PVC).
2. Cables — Cables may be installed within opening for a 0 to 100 percent visual fill. When PVC sleeve (Item 1A) is used, the aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. Cables to be tightly bundled and rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 3/C No 12 AWG MC Cable.
   For opening with cables, when the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. For opening with cables, when the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr.
3. Firestop Device* — Firestop device consisting of a steel collar with plug to be centered over opening and mounted to face of gypsum board on both sides of wall. Each flange of collar is secured to wall with No. 10 by 1-1/2 in. (38 mm) steel laminating screw and min 9/16 in. (15 mm) diam steel washer through prepunched hole in flange. As an alternate, min 3/16 in. (4.8 mm) diam by 2-1/2 in. (64 mm) long steel toggle bolts in conjunction with min 9/16 in. (15 mm) diam steel washers may be used. For openings with cables, plug within collar cut to fit tightly around the cable bundle. For blank openings (no cables), the hourly F and FH Ratings of the firestop system are equal to the hourly rating of the wall in which it is installed.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-CC 4" Firestop Cable Collar
   L Ratings apply to blank the openings only per indicated in Table below.

| Opening | CFM (per device) | | CFM/Sq Ft Opening | |
|---|---|---|---|---|
| | Ambient | 400F | Ambient | 400F |
| Blank Opening Only (no cables) | Less Than 1 | Less Than 1 | Less Than 1 | 4 |
| Max 100% visual fill with Cat 5 and/or Cat 6 cables | 1.2 | Less Than 1 | 13.2 | 8.9 |

4. Fill, Void or Cavity Material* (Optional, Not Shown) — Fill material applied to fill interstices between and around the cable bundle at both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant, CP 618 Putty

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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January 23, 2015

City

Collaborator

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER 2024012268
ARCHITECT
09/01/2026

Project No.: 2576X18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

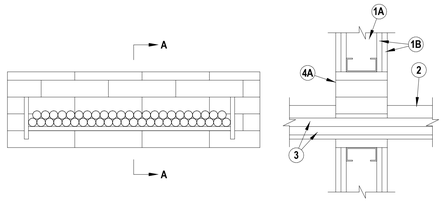
Sheet Title
FIRESTOPPING DETAILS

Sheet No.
G306

## System No. W-L-4011

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating At Ambient — 5 CFM/sq ft | FH Ratings — 1 and 2 Hr (See Item 1) |
| L Rating At 400 F — 2 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating At Ambient — 5 CFM/sq ft |
| | L Rating At 400 F — 2 CFM/sq ft |

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. (51 mm) by 4 in. (102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Additional framing member shall be installed in stud cavity containing through-penetrating item to form a rectangular box around penetrant.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (1219 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory. Max size of opening 9 in. (229 mm) by 30 in. (762 mm). The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
   Min finished wall thickness is 5 in. (127 mm).
2. Cable Tray* — Max 24 in. (610 mm) wide by max 6 in. (152 mm) deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.10 in. (2.54 mm) thick aluminum or 0.060 in. (1.54 mm) thick steel and with 1-1/2 in. (38 mm) wide by 1 in. (25 mm) channel shape rungs spaced 9 in. (229 mm) OC or a 0.029 in. (0.74 mm) thick steel solid back, respectively. The annular space between the cable tray and the periphery of the opening shall be min 0 in. (point contact) to max 4 in. (102 mm). Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 45 percent of the cross-sectional area of the cable tray based on a max 5 in. (127 mm) cable loading depth. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 1/C, 750 kcmil (or smaller) power cable with EPR insulation and PVC jacket.
   B. 300 pair — No. 24 AWG cable with PVC insulation and jacket
   C. Twenty-four fiberoptic cable with PVC subunit and jacket.
   D. Max three 1/C, No. 12 AWG wire, insulated with polyvinyl chloride, in a nom 3/4 in. (19 mm) Flexible Metal Conduit+.
4. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* - Fire Blocks — For walls incorporating max 3-5/8 in. (92 mm) steel studs or max 2 in. (51 mm) by 4 in. (102 mm) wood studs, fire block installed with 5 in. (127 mm) dimension projecting through and centered in opening. For walls constructed of larger steel or wood studs, fire block installed with long dimension passing through and centered in opening. Blocks may or may not be cut flush with both surfaces of wall. When multiple layers of gypsum board are used, blocks may be recessed 1/2 in. (13 mm) from surface of wall. Blocks firmly packed within opening. Either one or a combination of the block types specified below may be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-657 Fire Block or CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* - Sealant or Putty (Not shown) — Fill material to be forced into interstices of cables and between cables and cable trays to max extent possible on both surfaces of the penetration.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP618 Firestop Putty Stick (Note: L Ratings apply only when FS-One Sealant is used)

+Bearing the UL Listing Mark

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

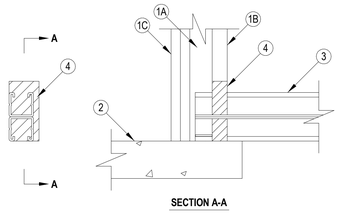
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 23, 2015

## System No. W-L-7154

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Items 1 and 2) | F Ratings - 1 and 2 Hr (See Items 1 and 2) |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| | FH Ratings - 1 and 2 Hr (See Items 1 and 2) |
| | FTH Rating - 0 Hr |

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated shaft wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Steel Studs — C-H -shaped studs, 2-1/2 in. (64 mm) wide by 1-1/2 in. (38 mm) deep, spaced 24 in. (610 mm) OC.
   B. Gypsum Board* — 1 in. (25 mm) thick gypsum board liner panels, supplied in nom 24 in. (610 mm) widths as specified in the individual Wall and Partition Design. Max area of opening is 8.6 sq in. (55 sq cm) with a max dimension of 6-7/8 in. (175 mm). The opening cutout shall follow the contour of the penetrant when steel angle or steel channel is used.
   C. Gypsum Board* — One or two layers of 5/8 in. (16 mm) thick gypsum board for 1 or 2 hr rated assemblies, respectively, as specified in the individual Wall and Partition Design.

1A. Alternate Wall Assembly — (Not shown) As an alternate to the shaft wall described above, the 1 or 2 hr fire rated wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of min 2-1/2 in. (64 mm) steel channel studs spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max area of opening is 8.6 sq in. (55 sq cm) with a max dimension of 6-7/8 in. (175 mm). The opening cutout shall follow the contour of the penetrant when steel angle or steel channel is used.
   The hourly F and FH Ratings of the firestop system are equal to the hourly rating of the wall.
2. Floor Assembly — Min 2-1/2 and 4-1/2 in. (64 or 114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete for 1 and 2 hr rated assemblies, respectively. Floor may also be constructed of any min 6 in. (152 mm) UL Classified Precast Concrete Units*.
   See Precast Concrete Units (CFTV) category in the Fire Resistance Directory for names of manufacturers.
3. Penetrants — One metallic strut, steel angle or steel channel to be installed within the firestop system. An annular space of min 0 in. (point contact) to max 7/8 in. (22 mm) is required within the firestop system. Penetrant to terminate within the stud cavity and shall be secured to floor assembly within 2 in. (51 mm) of the fill material (Item 4) on either side of the fill material with at least one min 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel masonry anchor in conjunction with steel washers or Hilti 1/4 in. diam by 1-3/4 in. long KWIK-BOLT 3 steel expansion anchor. The following types and sizes of metallic struts, angles or channels may be used:
   A. Steel Strut — Max 1-5/8 by 1-5/8 in. (41 by 41 mm) channel strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   B. Steel Strut — Max 3-1/4 by 1-5/8 in. (83 by 41 mm) H strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   C. Steel Angle — Max 2 by 2 in. (51 by 51 mm) by min 1/8 in. (3.2 mm) thick or max 3 by 3 in. (76 by 76 mm) by min 1/4 in. (6 mm) thick steel angle.
   D. Steel Channel — C6 x 8.2 (or smaller) steel channel.
4. Fill, Void or Cavity Material* - Sealant — Fill material to be installed to completely fill the annular space, flush with the surface of the wall. The thickness of the fill material shall be the thickness of the gypsum board(s) in which it is installed. An additional min 1/2 in. (13 mm) diam bead of sealant to be installed at the point contact location at the penetrant/gypsum board interface.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

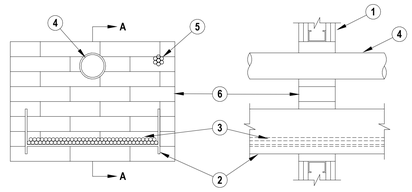
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 27, 2015

## System No. W-L-8013

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating At Ambient — 5 CFM/sq ft | FH Ratings — 1 and 2 Hr (See Item 1) |
| L Rating At 400 F — 2 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating At Ambient — 5 CFM/sq ft |
| | L Rating At 400 F — 2 CFM/sq ft |

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.
1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. (51 mm) by 4 in. (102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. Additional studs installed to completely frame the opening.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (1219 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max area of opening is 352 sq in. (2271 sq cm) with max dimension of 22 in. (559 mm) wide. The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Cable Tray* — Max 18 in. (457 mm) wide by max 6 in. (152 mm) deep open-ladder or solid-back cable tray with channel-shaped side rails formed of 0.065 in. (1.65 mm) thick aluminum or 0.060 in. (1.52 mm) thick steel and with 1-1/2 in. (38 mm) wide by 1 in. (25 mm) channel shape rungs spaced 9 in. (229 mm) OC or a 0.029 in. (0.74 mm) thick steel solid back, respectively. One cable tray to be installed in the opening. The max annular space between the cable tray and the periphery of the opening shall be min 1 in. (25 mm) to max 7 in. (178 mm) Cable tray to be rigidly supported on both sides of floor or wall assembly.
3. Cables — Aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and PVC jacket.
   B. 100 pair - No. 24 AWG cable with PVC insulation and jacket.
   C. 1/C, 750 kcmil (or smaller) with PVC insulation and jacket.
4. Through-Penetrants — One or more pipe or tube to be installed within the opening. The total number of through-penetrants is dependent on the size of the opening and types and sizes of the penetrants. Any combination of the penetrants described below may be used provided that the following parameters relative to the annular spaces and the spacings between the pipes are maintained. The space between the pipe or tube and the periphery of the opening shall be min 1-1/2 in. (38 mm) to max 9-1/4 in. (235 mm). Pipe or tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of non-metallic or metallic pipes, or tubes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Max 3 in. (76 mm) diam Schedule 40 solid core PVC pipe (or smaller) for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) diam steel conduit.
   D. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   E. Copper Tube — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.

4A. Pipe Covering — (Not Shown) Nom 1-1/2 in. (36 mm) thick hollow cylindrical heavy density (min 3.5 pcf) (56kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.
   See Pipe and Equipment Covering and Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 may be used.
5. Cables — Max 1-1/2 in. (38 mm) diam tight bundle of cables installed within the opening and rigidly supported on both surfaces of wall. The space between the cables and periphery of the opening shall range from 1-3/16 in. (30.2 mm) min to a max of 1-1/2 in. (38 mm). Any combination of the following types and sizes of cables may be used:
   A. 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. 25 pair — No. 24 AWG cable with PVC insulation and jacket.
   C. Type R GU/59 coaxial cable with PVC outer jacket.
   D. 24 fiber optic cable with PVC sub unit and outer jacket.
6. Firestop System — The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* — Fire Blocks For walls incorporating max 3-5/8 in. (92 mm) steel studs or max 2 (51 mm) by 4 in. (102 mm) wood studs, fire block installed with 5 in. (127 mm) dimension projecting through and centered in opening. For walls constructed of larger steel or wood studs, fire block installed with long dimension passing through and centered in opening. Blocks may or may not be cut flush with both surfaces of wall. When multiple layers of gypsum board are used, blocks may be recessed 1/2 in. (13 mm) from surface of wall. Blocks to be firmly packed in opening. Either one or a combination of the block types specified below may be used.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 Fire Block or CFS-BL Firestop Block
   B. Fill, Void or Cavity Material* — Sealant or Putty - Fill material to be forced into interstices of cables, between cables and cable trays, around each penetrant and where obvious voids are observed to max extent possible on both surfaces of the penetration.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant, FS-ONE MAX Intumescent Sealant, CP 618 Putty Stick or CP620 Fire Foam

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

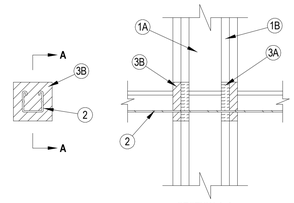
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 26, 2015

## System No. W-L-7130

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Ratings - 1 and 2 Hr (See Item 1) |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| | FH Ratings - 1 and 2 Hr (See Item 1) |
| | FTH Rating - 0 Hr |

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — One or two layers of gypsum board, as specified in the individual Wall and Partition Design. Max area of rectangular opening is 15 sq in. (96 cm2) with max dimension of 5 in. (127 mm). In lieu of rectangular opening max diam of circular opening is 3 in. (76 mm).
   The F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly.
2. Through Penetrants — One metallic strut, cable, rod or angle service support to be installed within the firestop system. An annular space of min 1/8 in. (3 mm) to max 7/8 in. (22 mm) is required within the firestop system. Strut, cable, rod or angle service support to be rigidly supported on both sides of floor or wall assembly. The strut, cable, rod or angle service support may be installed at an angle not greater than 45 degrees from the perpendicular. The following types and sizes of metallic strut, cable, rod or angle service support may be used:
   A. Steel Strut — Max 1-5/8 by 1-5/8 in. (41 by 41 mm) channel strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   B. Steel Strut — Max 3-1/4 by 1-5/8 in. (83 by 41 mm) H strut formed from min 0.105 in. (2.7 mm) thick galv or painted steel.
   C. Cable — Max 3/8 in. (9.5 mm) diam unjacketed galv steel cable.
   D. Threaded Rod — Max 1 in. (25 mm) diam galv steel threaded rod.
   E. Steel Angle — 2 by 2 by 1/8 in. (51 by 51 by 3 mm) thick steel angle.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1/2 in. (13 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be located between penetrant and periphery of opening, and within channels of struts. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill material. When through penetrant is oriented perpendicular to wall or when Type FS-ONE Sealant (Item 3B) is used, packing material is optional.
   B. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus and within the channel struts, flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, CP 606 Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

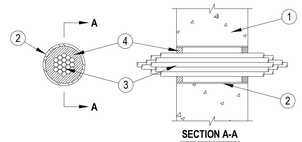
Hilti Firestop Systems

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## System No. W-J-3060

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Rating — 0 Hr | FT Rating — 0 Hr |
| L Rating At Ambient — 15 CFM/sq ft | FH Ratings — 1 and 2 Hr (See Item 1) |
| L Rating At 400 F — 8 CFM/sq ft | FTH Rating — 0 Hr |
| | L Rating At Ambient — 15 CFM/sq ft |
| | L Rating At 400 F — 8 CFM/sq ft |

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115




SECTION A-A

1. Wall Assembly — Min 4-3/4 in. and 6 in. (121 and 152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete for 1 and 2 hr ratings , respectively. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 4 in (102 mm). Max diam of opening is 5-1/2 in. (138 mm) when sleeve (Item 2) is employed.
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Steel Sleeve — (Optional) — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) of Schedule 5 (or heavier) steel pipe or min 0.016 thick (28 MSG or 0.4 mm) galv steel sleeve friction fit or cast into wall flush with wall surfaces. When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. (457 mm) beyond the wall surfaces. As an option when Schedule 5 steel pipe or EMT is used, sleeve may extend continuously beyond one wall surface.
3. Cables — Aggregate cross sectional area of cables to be max 45 percent of the cross sectional area of the opening. Cables installed either concentrically or eccentrically within the firestop system. The annular space between cables and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. (25 mm). When sleeve is continuous on one side of wall (see Item 2), the cable fill may be 0 to 45% and the max annular space within sleeve is not limited. Cables to be rigidly supported on both sides of wall assembly. The following types of cables may be used:
   A. 7/C No. 12 AWG cable with PVC insulation and outer jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and outer jacket.
   C. Max RG 59 (or smaller) coaxial cable with polyethylene insulation and PVC jacket.
   D. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   E. Multiple 24 fiber optic communication cable with PVC jacket, have a max outside diam of 5/8 in. (16 mm).
   F. Max four pair No. 22 AWG Cat 5 or Cat 6 computer cables.
   G. Through Penetrating Product*—Max three copper connector No. 8 AWG Metal-clad Cable+.
   AFC CABLE SYSTEMS INC
   H. Through Penetrating Product* — Any cables, Metal-Clad Cable+ or Armored Cable+ currenlly Classified under the Through Penetrating Products category.
   See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. An additional 1/2 in. (13 mm) bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S Sealant, CP606 Sealant, CFS-S SIL GG Sealant, FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, or CP618 Putty
5. Packing Material — (Optional, Not Shown) — Mineral wool forming material may be used as a backer for the fill material (Item 4). When used, it shall be firmly packed into annular space within the sleeve as a permanent form and recessed from end of sleeve to accommodate the required thickness of fill material.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

+Bearing the UL Listing Mark

Hilti Firestop Systems

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City

Collaborator

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Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

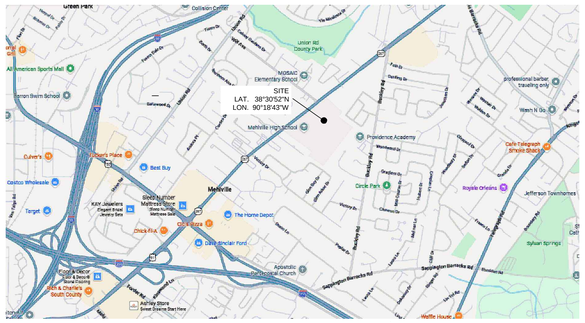
Sheet Title
FIRESTOPPING DETAILS

Sheet No.
G307

# GENERAL CIVIL NOTES

**Mehlville School District**

*Individually Focused. Committed to All.*




SITE LOCATION MAP
NOT TO SCALE

GENERAL NOTES (ST. LOUIS COUNTY)

—All work within St. Louis County right-of-way shall be constructed to County standards.

—The developer or municipality is advised that utility companies may require compensation for relocation of their facilities within the public road right-of-way. St. Louis County shall bear no responsibility for utility relocation or adjustment costs or associated delays.

—Provide adequate off-street parking for construction employees. Parking on non-surfaced areas shall be prohibited in order to eliminate the condition Z E whereby mud from construction and employee vehicles is tracked onto the pavement causing hazardous roadway and driveway conditions.

—All sediment shall be washed from all vehicles at Wash-down Station prior to leaving the site so that no sediment is tracked onto County roads.

—All storm water shall be discharged at an adequate discharge point. Sinkholes are not adequate discharge points. —Interim storm water drainage control in the form of siltation control measures shall be provided.

—The developer shall provide adequate storm water systems in accordance with St. Louis County and M.S.D. standards.

—No slope shall exceed 3:1 maximum.

—Additional siltation control may be required by St. Louis County Department of Transportation.

—All affected offsite property owners shall be given notice 48 hours in advance of any work.

—Any disturbed offsite property (i.e. bushes, fences, mailboxes, etc.) shall be replaced in kind at the developer's expense.

—All construction shall be per most current details located in the St. Louis County Design Criteria Manual and/or the Sediment and Erosion Control Manual.

—A Permit shall be obtained from the St. Louis County Department of Public Works for construction of retaining walls.

—A Drainlayer Permit shall be obtained from the St. Louis County Department of Public Works for internal (private) storm sewers.

—All above-ground utilities or other potential obstructions within the St. Louis County road right-of-way, shall have a minimum setback, as directed by the St. Louis County Department of Transportation, as prescribed in Section 5.10 of the St. Louis County Design Criteria Manual "Roadside Design Requirements".

—Access to all properties shall be maintained at all times during the construction process.

—The contractor shall maintain existing traffic control signs (Street Name, Stop, No Parking, One-Way, Turn, etc.) until such time as they need to be removed/relocated for construction operations. Temporary signing shall be in accordance with the current version of MUTCD Chapter 6F (Temporary Traffic Control Zone Devices). Existing signs shall not lie on the ground for any period of time. Portable supports shall not be located on sidewalks or areas designated for pedestrian traffic. Signs shall be crashworthy and properly maintained for cleanliness, visibility, and proper positioning. Unless noted on the plans, all permanent signage will be fabricated and installed by the St. Louis County Department of Transportation. The contractor shall notify the St. Louis County Sign Shop at (314) 615-0242, two weeks in advance of any sign removal and of any required final signing work.

—Maximum legal lengths in the County are forty (40) feet for any single unit truck and fifty-five (55) feet for any combination of vehicles, including the load. Maximum legal width is eight (8) feet and maximum height is thirteen and one-half (13½) feet. Legal weight limits in the County are the same as those required by Missouri State laws, except in cases when the County Council has established roadway load limits by ordinance or when bridges are posted under state regulations. Any vehicles exceeding these limits shall require a Special Use Permit for overweight and/or over-dimension vehicles prior to driving on St. Louis County roadways. Contact Tony Barnett at (314) 615-8515 for permits.

—Sidewalks and designated walkways are to be accessible. Loading and landing areas are to be 2% maximum grade in any direction. Outside of the loading and landing areas, longitudinal running slopes are to be a maximum of 5% grade with a maximum of a 2% cross slope. Ramps are to be a maximum of 1:12 slope with a maximum of 6" rise.

ST. LOUIS COUNTY NOTES:

a) All proposed improvements shall be constructed to St. Louis County Standards.
b) All grading and drainage to be in conformance with St. Louis County and MSD Standards.
c) Storm water shall be discharged at an adequate natural discharge point. Sinkholes are not adequate discharge points.
d) Any entity that performs work on St. Louis County maintained property shall provide the County with a Certificate of Insurance evidencing general liability coverage (bodily injury and property damage) in the amounts specified as the limits of liability set by the State for public entities. Such certificate shall include "St. Louis County" as an additional insured and shall be provided prior to the issuance of any permit. Certificate shall provide for a 30 day policy cancellation notice to St. Louis County. Upon request, the County will provide the specific amounts for both per person and per occurrence limits.
e) All above-ground utilities or other potential obstructions within the St. Louis County road right-of-way, shall have a minimum setback, as directed by the St. Louis County Department of Transportation, as prescribed in Section 5.11 of the St. Louis County Design Criteria Manual "Roadside Design Requirements".
f) No slopes shall exceed 3 (horizontal) to 1 (vertical) within St. Louis County Right-of-Way unless justified by a geotechnical report, which has been approved by St. Louis County, and designed in full compliance with roadside safety standards.
g) A land disturbance permit will be required.
h) The permit process requires improvement plan submittal to the Department of Transportation.

1. Contractor shall verify elevation of benchmarks based on the information provided.

2. Contractor to seed, mulch, fertilize, and maintain all areas outside of paved areas that were disturbed during construction until an acceptable stand of grass is established. Contractor shall be responsible to take whatever means necessary to establish permanent soil stabilization.

3. The Owner shall keep existing roadways and sidewalks clean of mud and debris at all times. All construction equipment/delivery vehicles shall be cleaned on site prior to entering roadway.

4. The Contractor shall verify and/or perform all necessary inspections and/or certifications required by codes and/or utility companies prior to the startup date and the final connections of utility services. All fees shall be paid by the Contractor.

5. Prior to placement of the base rock within the standard turf field section (excluding WQv area), and paved areas shall be proof rolled with a loaded tandem axle dump truck, having no more than 3 axles and weighing a minimum of 40,000 pounds.

6. The Contractor shall grade all areas to drain in order to prevent ponding water. The minimum allowable slope on all paved surfaces shall be 1.5 percent.

7. Safety Notice: In accordance with generally accepted construction practices, the Contractor is responsible for conditions of the job site, including safety of all persons and property during performance of the work.

**CONTRACTOR'S INSURANCE REQUIREMENTS:**

PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE DISTRICT WITH A COPY OF AN EXECUTED CERTIFICATE OF INSURANCE INDICATING THAT THE PERMITTEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE "RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITY", SECTION 10.090 (ADDENDUM).

CIVIL NOTES:

1. Underground facilities, structures, and utilities have been plotted from available surveys and records. Therefore, their location must be considered approximate only. There may be others, the existence of which is presently not known.

2. All trenches under paved areas shall be backfilled with granular material and compacted. Granular material shall be placed and compacted to a level equal to the trench depth at the time of the utility installations.

3. Areas to be cut or to receive fill shall be stripped of any surface organic topsoil. The strippings shall be removed and stockpiled for later placement in landscaped or un-surfaced area.

4. Conform to State and local codes for demolition of structures, safety of adjacent structures/items, dust control, and erosion control during construction.

5. Obtain applicable permits pertaining to demolition, grading, erosion and civil site improvement construction.

6. Notify and coordinate scheduling with affected utility companies prior to start of construction.

7. Do not close or obstruct public or private roadways, sidewalks, or fire hydrants without appropriate permits or written authorization.

8. Notify adjacent owners of work that may affect their utility service.

9. Immediately notify the Owner should hazardous materials be found during demolition operations.

10. Remove all stumps, bushes, trees, weeds, and other surface obstructions from the site that are within the proposed construction area and that are not otherwise noted to remain.

11. Excavations resulting from the removal of existing site improvements shall be backfilled with properly compacted material, and proof-rolled.

12. All unsurfaced areas to be seeded is to receive topsoil. Contractor to seed, mulch, fertilize, and maintain all areas outside of paved areas that were disturbed during construction to establish vegetation.

13. Suitable fill material can be placed in loose lifts of 8" in thickness when compacted by heavy compaction equipment.

14. Suitable fill material can be placed in loose lifts of 4" in thickness when compacted by hand-operated equipment.

15. Fill shall not be placed on surfaces that are muddy, frozen, and/or contain frost or ice.

16. Earth compaction for pavement: (refer to plan specifications)

17. The Contractor is responsible for keeping stormwater run-off and sediment under control during construction. All Contractors shall refer to the Erosion and Sediment Control Plan throughout construction.

18. The Contractor shall maintain the site in a well-drained manner in order to assure the shortest possible drying time after each rainfall.

19. Sidewalks and designated walkways are to be accessible. Loading and landing areas are to be 2% maximum grade in any direction. Outside of the loading and landing areas, longitudinal running slopes are to be a maximum of 5% grade with a maximum of a 2% cross slope. Ramps are to be a maximum of 1:12 slope with a maximum of 6" rise.

20. FEMA Flood Insurance Rate Map Number: 29189C0340K; Effective Date 2/4/2015; Site scales within Zone "X", areas determined to be outside of the 0.2% annual chance floodplain.

22. All easements and easement linework shown was provided by Mehlville School District. Per the provided information, the location and linework was completed by Clayton Engineering Company. Excelsior Engineering was not retained to provide an ALTA survey or verify the location of the easements. Excelsior Engineering was advised to use the easement information provided and will not certified to their origin or accuracy.

**OWNER INFORMATION / SITE DATA**

| | |
|---|---|
| PLANS PREPARED FOR: | Mehlville High School<br>3100 Lemay Ferry Rd.<br>St. Louis, MO 63125 |
| PROPERTY OWNER: | Mehlville School District<br>3120 Lemay Ferry Rd.<br>St. Louis, MO 63125 |
| PARCEL ID: | 28J310250 |
| PROPERTY AREA: | 40.60± ACRES |
| SITE AREA: | 4.52 ACRES |
| EXISTING ZONING: | R4 |
| BUILDING SETBACK: | FRONT – 20'<br>SIDE – 6'<br>REAR – 15' |

**BENCHMARK**

ST. LOUIS COUNTY Benchmark #19528
Elevation: 538.91 ft (NAVD88(SLC2011a)) / 539.20 ft (NGVD29)

Description: Cut "L" on the westernmost corner of a 3.4' × 6' concrete base for a traffic signal control box, near the northeastern (main) entrance to Mehlville High School, #3100 Lemay Ferry Road —roughly 40 ft southeast of the double yellow stripe in the center of Lemay Ferry Road, and 56 ft northeast of the center median at the entrance opposite Will Avenue.

Position: SP MO East N=297608.2±, E=266296.5± (meters, submeter accuracy)
Coordinates (approx., NAD83): 38.514978° N, 90.313133° W

SITE BENCHMARK: Cut square on N.W. corner of concrete sidewalk approximately 85'± east and 64'± north of the N.E. corner of visitor's dugout, utilizing the MoDOT RTK network of continuously operating reference stations for NAD 1983 east zone and NAVD 1988.
ELEV = 540.58'

**Mehlville Senior High School Stormwater Management Tracking Table**

| PROJECT # | APPROVAL DATE | COMMENTS | ADD IMP. AREA (ACRES) | DIFF. RUNOFF (CFS) | Qp PROVIDED (Y/N) | DIST. AREA (ACRES) | TRIBUTARY AREA TO BMP (ACRES) | WQv PROVIDED (Y/N) | CPv PROVIDED (Y/N) | BMP PROVIDED |
|---|---|---|---|---|---|---|---|---|---|---|
| P-01963-12 | 11/1/2001 | New Pavement Striping | - | - | - | - | - | - | - | None |
| P-01963-13 | 9/12/2001 | Bus Parking Lot | 0.44 | 0.81 | N | 0.44 | - | N | N | None |
| P-01963-14 | 2007 | Artifical Turf Field | - | - | - | - | - | - | - | Artifical Turf |
| P-01963-15 | 10/8/2012 | Auditorium Addition | 0.34 | 0.95 | Y* | 2.37 | 2.29 | Y | Y | Bio, PVMT, UG Det |
| 19MSD-00225 | 6/27/2019 | Bleacher Replacement | 0.03 | 0.06 | N** | 0.33 | - | N** | N** | None |
| 19MSD-00424 | 3/20/2020 | Baseball Field Addition | 0.24 | 0.44 | Y | 3.22 | 3.24 | Y | Y | Bioretention |
| 25MSD-00464 | 2/12/2026 | Transportation Office | 0.00 | 0.11*** | N | 0.07 | - | Y | Y | None |
| **26MSD-XXXXX** | | **Transporation Building****** | **4.03** | **2.62** | **Y** | **9.11** | **4.18** | **Y** | **Y** | **Nested Bio-Retention** |
| | | | | | | | | | | |
| | | | | | | | | | | |
| **Site Area:** | **40.60 Acres** | | | | | | | | | |
| | | | | **4.88** | | | | | | |
| | | | | | | **15.03** | | | | |
| | | | | | | | **9.71** | | | |

**Notes:**
* Detention required due to DS Flooding & Erosion problems even though differential was < 2 CFS at this time
** WQv, CPv, & Qp to be provided for this project in future phase
***This project had WQv & Qp defferred; with the construction of the new Transportration building this area has been modified and incorporated into the new design.
****Includes areas for proposed Concession Stand & Fire Lane; 19MSD-00225 was also included in this proposed project.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

City


Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380



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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

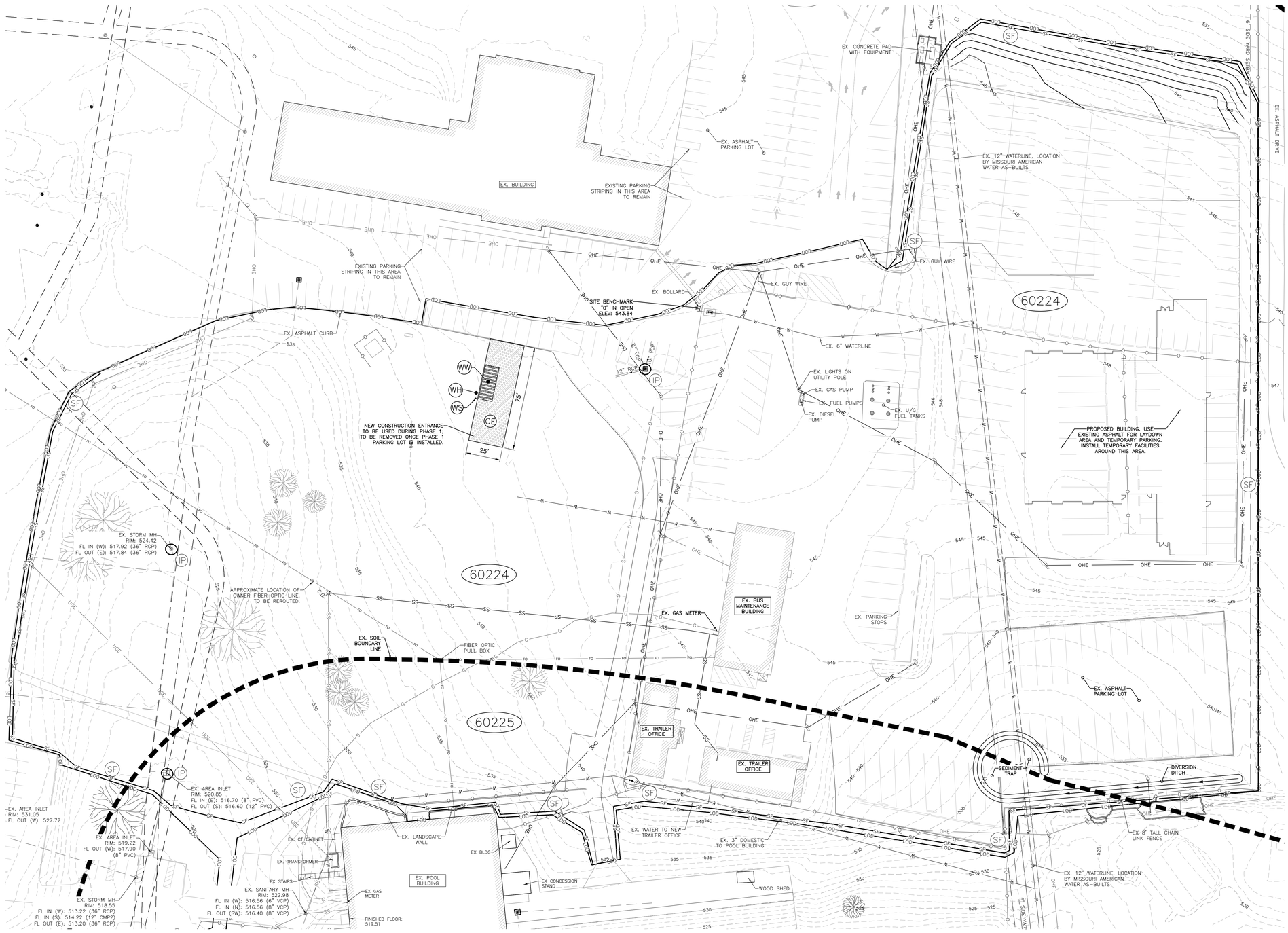
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
GENERAL CIIVL NOTES

Sheet No.
C0.1




## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## GENERAL EROSION & SEDIMENT CONTROL NOTES:

A. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THIS STORM WATER POLLUTION PREVENTION PLAN. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
B. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
C. CONTRACTOR TO LIMIT DISTURBANCE OF SITE IN ACCORDANCE WITH EROSION CONTROL SEQUENCING SHOWN ON THIS PLAN, OR REQUIRED BY THE APPLICABLE GENERAL PERMIT.
D. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
E. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
F. DUST ON THE SITE SHALL BE MINIMIZED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
G. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
H. ALL DENUDED/BARE AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE, MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF MOST RECENT GRADING ACTIVITY WITH THE USE OF FAST-GERMINATION ANNUAL GRASS/GRAIN VARIETIES, STRAW/HAY MULCH, WOOD CELLULOSE FIBERS, TACKIFIERS, NETTING OR BLANKETS.
I. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE PLANS. THESE AREAS SHALL BE SEEDED, SODDED, AND/OR VEGETATED IMMEDIATELY, AND NO LATER THAT 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
J. IF THE ACTION OF VEHICLES TRAVELING OVER THE PAVED CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO PREVENT TRACKING OF DIRT, DUST OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE. ONLY USE INGRESS/EGRESS LOCATION AS PROVIDED.
K. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
L. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
M. ON-SITE AND OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
N. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
O. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND POLLUTANT DISCHARGE.
P. GENERAL CONTRACTOR IS TO DESIGNATE/IDENTIFY AREAS ON THE SITE MAPS, INSIDE OF THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.

## BMP MAINTENANCE EROSION NOTES:

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED.
   AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF
   HE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

## SEQUENCE OF CONSTRUCTION

PROPOSED START OF OPERATIONS – MARCH 2027

PHASE I:

1. INSTALL STABILIZED CONSTRUCTION EXIT(S) & SILT FENCE.
2. PREPARE TEMPORARY PARKING AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: PARKING, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, ETC. DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
3. INSTALL INLET PROTECTIONS AND EROSION EEL'S ON THE SITE.
4. REMOVE EXISTING STRUCTURE, PAVEMENT AND UTILITY SERVICES.
5. BEGIN GRADING THE SITE.

PHASE II:

6. ATTAIN EARTH SUBGRADE ELEVATIONS.
7. TEMPORARILY STABILIZE DENUDED AREAS WHERE GRADING HAS STOPPED.
8. INSTALL STORM SEWERS AND UTILITIES.
9. INSTALL AGGREGATE DRAINAGE BASE AND TURF
10. STABILIZE SITE WITH PERMANENT VEGETATION.

EARTHWORK GRADING IS BALANCED, NO HAULING IN OR OUT IS NECESSARY. TOP SOIL WILL BE USED ON SLOPES AND GREEN AREAS.

**PRIOR TO THE ISSUANCE OF A MAJOR LAND DISTURBANCE PERMIT, A LAND DISTURBANCE ESCROW SHALL BE APPROVED BY ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION.

**PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES IS REQUIRED.

**THE CONTRACTOR SHALL PROVIDE, INSTALL, MAINTAIN, AND REMOVE A PUBLIC NOTIFICATION SIGN, PER PAGES 42-43 OF THE ST. LOUIS COUNTY SEDIMENT AND EROSION CONTROL MANUAL.

**LOCATE STATE AND COUNTY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC. WITH THE SWPPP.

## EROSION & SEDIMENT CONTROL LEGEND

| | |
|---|---|
| CE | CONSTRUCTION ENTRANCE / EXIT |
| EB | EROSION BLANKET |
| LOD | LIMITS OF DISTURBANCE |
| SF | SILT FENCE |
| IP | INLET PROTECTION (SILT FENCE) (AS NEEDED) |
| WW | WHEEL WASH |
| WH | WATER HOSE |
| WS | WASH SIGN |
| NS | NOTIFICATION SIGN |
| CD | TEMPORARY CHECK DAM |
| CW | CONCRETE WASHOUT |
| TS | TEMPORARY SEED* (AS NEEDED) |
| PS | PERMANENT SEED* |
| LS | PROPOSED LANDSCAPING |

* SEED PER LOCAL DOT SPECIFICATIONS.

## SWPPP NOTES:

1. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) OR AS DIRECTED BY THE ENGINEER OF RECORD AND IN ACCORDANCE WITH CITY, STATE, & COUNTY REQUIREMENTS. THE APPROVED SWPPP WILL BE AVAILABLE ON SITE OF THE PERMITTED ACTIVITY.
2. 404 / 401 PERMITS ARE NOT REQUIRED FOR THIS PROJECT
3. THERE ARE NO SINKHOLES, SPRINGS, SEEPS OR KARST FEATURES ON OR NEAR THE CONSTRUCTION SITE.
4. THERE ARE NO KNOWN RECORDS OF SPECIES OR NATURAL COMMUNITIES OF CONSERVATION CONCERN WITHIN THE DEFINED PROJECT AREA AS CONFIRMED BY THE MISSOURI DEPARTMENT OF CONSERVATION .
5. BASED ON CATALOGUED INFORMATION FROM THE UNITED STATES FISH AND WILDLIFE SERVICE, THERE ARE NO KNOWN RECORDS OF FEDERALLY LISTED ENDANGERED SPECIES NEAR OR WITHIN THE PROJECT AREA. INDIANA BATS, NORTHERN LONG-EARED BATS AND GRAY BATS MAY OCCUR NEAR THE PROJECT AREA. DURING PROJECT ACTIVITIES, AVOID DEGRADING STREAM QUALITY AND WHERE POSSIBLE LEAVE SNAGS STANDING AND PRESERVE MATURE FOREST CANOPY.
6. IF ANY TREES NEED TO BE REMOVED FOR THE PROJECT, PLEASE CONTACT THE U.S. FISH AND WILDLIFE SERVICE FOR FURTHER COORDINATION UNDER THE ENDANGERED SPECIES ACT. (ECOLOGICAL SERVICES, 101 PARK DEVILLE DRIVE, SUITE A, COLUMBIA, MISSOURI 65203-0007; PHONE 573-234-2132 EXT. 100). TREE CLEARING IS NOT ALLOWED BY THE ENDANGERED SPECIES ACT BETWEEN APRIL 1ST AND SEPTEMBER 30TH.
7. THERE ARE NO KNOWN HISTORIC PROPERTIES WITHIN CONSTRUCTION LIMITS.
8. INVASIVE EXOTIC SPECIES ARE A SIGNIFICANT ISSUE FOR FISH, WILDLIFE, AND AGRICULTURE IN MISSOURI. SEEDS, EGGS, AND LARVAE MAY BE MOVED TO NEW SITES ON CONSTRUCTION EQUIPMENT. PLEASE INSPECT AND CLEAN EQUIPMENT THOROUGHLY BEFORE MOVING BETWEEN PROJECT SITES.
   – REMOVE ANY MUD, SOIL, TRASH, OR PLANTS FROM EQUIPMENT BEFORE LEAVING ANY WORK AREA
   – WHEN POSSIBLE, WASH AND RINSE EQUIPMENT THOROUGHLY WITH HARD SPRAY OR HOT WATER (>140°F)
9. SEDIMENT SHALL BE WASHED FROM ALL VEHICLES AT WASH DOWN STATION PRIOR TO LEAVING THE SITE. NO TRACKING OF MUD ONTO ANY ROADS SHALL BE ALLOWED.
10. ALL PUBLIC ROADS SHALL BE SWEPT IF SEDIMENT IS VISIBLE.
11. THERE ARE NO NON-STORM WATER DISCHARGES PRESENT.
12. THERE ARE NO ANTICIPATED DEWATERING METHODS IN THE PROPOSED PLANS.
13. THERE ARE NO INDUSTRIAL ACTIVITIES LIKE TEMPORARY, ON SITE, CONCRETE OR ASPHALT BATCH PLANTS ON THE CONSTRUCTION SITE.
14. LOCATE STATE AND CITY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC., WITH THE SWPPP.

## NRCS SOIL TYPE

60224 URBAN LAND–HARVESTER COMPLEX, KARST, 2 TO 9 PERCENT SLOPES

60225 URBAN LAND–HARVESTER COMPLEX, KARST, 9 TO 20 PERCENT SLOPES

## SITE CONTACTS

Property Owner Representative:
Mike Gegg, Director of Facilities
Mehlville School District
phone: 314-467-7870
email: geggm@mehlvilleschooldistrict.net

Person in Responsible Charge of Construction:
LOW BID CONTRACTOR
email: XXXXXXXXX
phone: XXX-XXX-XXXX

## MLD SPECIAL INSPECTOR CONTACT

CONTRACTOR IS RESPONSIBLE FOR HIRING COUNTY APPROVED MLD SPECIAL INSPECTOR

OUTLET:

750 FEET IN ENCLOSED STORM SEWER TO UNNAMED TRIBUTARY OF MEHLVILL CREEK. 3,000 FEET IN UNNAMED TRIBUTARY OF MEHLVILLE CREEK TO THE MEHLVILLE CREEK. 4,200 FEET IN MEHLVILLE CREEK TO GRAVOIS CREEK

FLOOD PLAIN NOTE:

This site scales within Zone "X", areas determined to be outside of the 0.2% annual chance floodplain as per Federal Emergency Management Agency Flood Insurance Rate Maps; Panel No. 345 of 445, Map No. 29189C0345K, effective date 02/04/2015.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

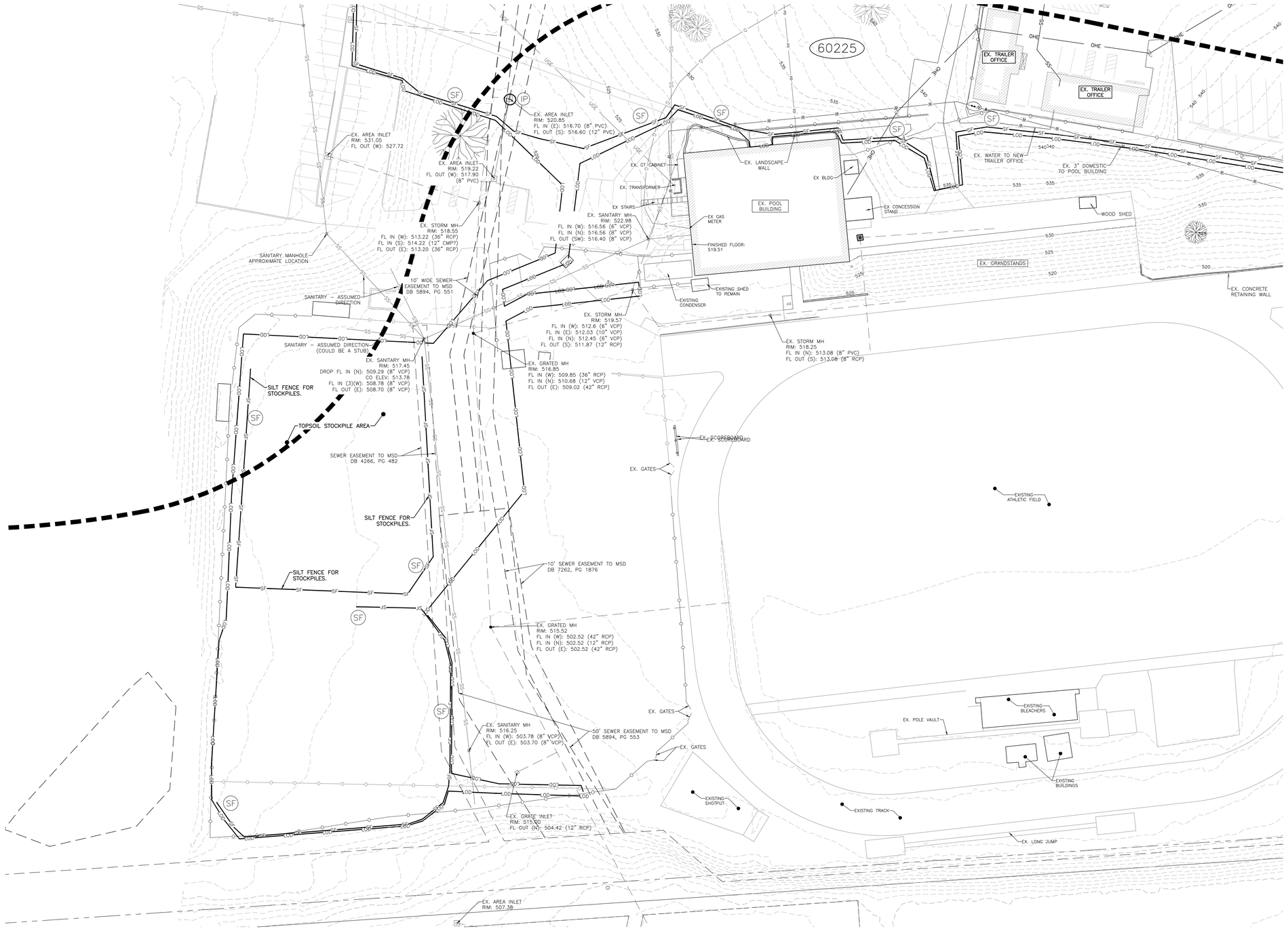
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS 09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
EROSION SEDIMENT AND CONTROL PLAN - NORTH PHASE 1

Sheet No.
ESC1.0




0 30' 60'

SCALE: 1" = 30'

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## GENERAL EROSION & SEDIMENT CONTROL NOTES:

A. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THIS STORM WATER POLLUTION PREVENTION PLAN. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
B. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
C. CONTRACTOR TO LIMIT DISTURBANCE OF SITE IN ACCORDANCE WITH EROSION CONTROL SEQUENCING SHOWN ON THIS PLAN, OR REQUIRED BY THE APPLICABLE GENERAL PERMIT.
D. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
E. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
F. DUST ON THE SITE SHALL BE MINIMIZED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
G. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
H. ALL DENUDED/BARE AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE, MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF MOST RECENT GRADING ACTIVITY WITH THE USE OF FAST-GERMINATION ANNUAL GRASS/GRAIN VARIETIES, STRAW/HAY MULCH, WOOD CELLULOSE FIBERS, TACKIFIERS, NETTING OR BLANKETS.
I. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE PLANS. THESE AREAS SHALL BE SEEDED, SODDED, AND/OR VEGETATED IMMEDIATELY, AND NO LATER THAT 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
J. IF THE ACTION OF VEHICLES TRAVELING OVER THE PAVED CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO PREVENT TRACKING OF DIRT, DUST OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE. ONLY USE INGRESS/EGRESS LOCATION AS PROVIDED.
K. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
L. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
M. ON-SITE AND OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
N. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
O. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND POLLUTANT DISCHARGE.
P. GENERAL CONTRACTOR IS TO DESIGNATE/IDENTIFY AREAS ON THE SITE MAPS, INSIDE OF THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.

## BMP MAINTENANCE EROSION NOTES:

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED.
   AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF
   HE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

## SEQUENCE OF CONSTRUCTION

PROPOSED START OF OPERATIONS – MARCH 2027

PHASE I:
1. INSTALL STABILIZED CONSTRUCTION EXIT(S) & SILT FENCE. – (2 DAYS)
2. PREPARE TEMPORARY PARKING AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: PARKING, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, ETC. DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. – (2 DAYS)
3. INSTALL INLET PROTECTIONS AND EROSION EEL'S ON THE SITE. – (1 DAY)
4. REMOVE EXISTING STRUCTURE, PAVEMENT AND UTILITY SERVICES. – (1 WEEK)
5. BEGIN GRADING THE SITE. – (1 WEEK)

PHASE II:
6. ATTAIN EARTH SUBGRADE ELEVATIONS. – (2 DAYS)
7. TEMPORARILY STABILIZE DENUDED AREAS WHERE GRADING HAS STOPPED.
8. INSTALL STORM SEWERS AND UTILITIES. – (1 WEEK)
9. INSTALL AGGREGATE DRAINAGE BASE AND TURF – (2 WEEKS)
10. STABILIZE SITE WITH PERMANENT VEGETATION. – (1 WEEK)

EARTHWORK GRADING IS BALANCED, NO HAULING IN OR OUT IS NECESSARY. TOP SOIL WILL BE USED ON SLOPES AND GREEN AREAS.

**PRIOR TO THE ISSUANCE OF A MAJOR LAND DISTURBANCE PERMIT, A LAND DISTURBANCE ESCROW SHALL BE APPROVED BY ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION.

**PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES IS REQUIRED.

**THE CONTRACTOR SHALL PROVIDE, INSTALL, MAINTAIN, AND REMOVE A PUBLIC NOTIFICATION SIGN, PER PAGES 42-43 OF THE ST. LOUIS COUNTY SEDIMENT AND EROSION CONTROL MANUAL.

**LOCATE STATE AND COUNTY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC. WITH THE SWPPP.

## EROSION & SEDIMENT CONTROL LEGEND

| | | |
|---|---|---|
| | CE | CONSTRUCTION ENTRANCE / EXIT |
| | EB | EROSION BLANKET |
| LOD | | LIMITS OF DISTURBANCE |
| SF | SF | SILT FENCE |
| IP | IP | INLET PROTECTION (SILT FENCE) (AS NEEDED) |
| | WW | WHEEL WASH |
| | WH | WATER HOSE |
| | WS | WASH SIGN |
| | NS | NOTIFICATION SIGN |
| | CD | TEMPORARY CHECK DAM |
| | CW | CONCRETE WASHOUT |
| | TS | TEMPORARY SEED* (AS NEEDED) |
| | PS | PERMANENT SEED* |
| | LS | PROPOSED LANDSCAPING |

* SEED PER LOCAL DOT SPECIFICATIONS.

## SWPPP NOTES:

1. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) OR AS DIRECTED BY THE ENGINEER OF RECORD AND IN ACCORDANCE WITH CITY, STATE, & COUNTY REQUIREMENTS. THE APPROVED SWPPP WILL BE AVAILABLE ON SITE OF THE PERMITTED ACTIVITY.
2. 404 / 401 PERMITS ARE NOT REQUIRED FOR THIS PROJECT
3. THERE ARE NO SINKHOLES, SPRINGS, SEEPS OR KARST FEATURES ON OR NEAR THE CONSTRUCTION SITE.
4. THERE ARE NO KNOWN RECORDS OF SPECIES OR NATURAL COMMUNITIES OF CONSERVATION CONCERN WITHIN THE DEFINED PROJECT AREA AS CONFIRMED BY THE MISSOURI DEPARTMENT OF CONSERVATION .
5. BASED ON CATALOGUED INFORMATION FROM THE UNITED STATES FISH AND WILDLIFE SERVICE, THERE ARE NO KNOWN RECORDS OF FEDERALLY LISTED ENDANGERED SPECIES NEAR OR WITHIN THE PROJECT AREA. INDIANA BATS, NORTHERN LONG-EARED BATS AND GRAY BATS MAY OCCUR NEAR THE PROJECT AREA. DURING PROJECT ACTIVITIES, AVOID DEGRADING STREAM QUALITY AND WHERE POSSIBLE LEAVE SNAGS STANDING AND PRESERVE MATURE FOREST CANOPY.
6. IF ANY TREES NEED TO BE REMOVED FOR THE PROJECT, PLEASE CONTACT THE U.S. FISH AND WILDLIFE SERVICE FOR FURTHER COORDINATION UNDER THE ENDANGERED SPECIES ACT. (ECOLOGICAL SERVICES, 101 PARK DEVILLE DRIVE, SUITE A, COLUMBIA, MISSOURI 65203-0007; PHONE 573-234-2132 EXT. 100). TREE CLEARING IS NOT ALLOWED BY THE ENDANGERED SPECIES ACT BETWEEN APRIL 1ST AND SEPTEMBER 30TH.
7. THERE ARE NO KNOWN HISTORIC PROPERTIES WITHIN CONSTRUCTION LIMITS.
8. INVASIVE EXOTIC SPECIES ARE A SIGNIFICANT ISSUE FOR FISH, WILDLIFE, AND AGRICULTURE IN MISSOURI. SEEDS, EGGS, AND LARVAE MAY BE MOVED TO NEW SITES ON CONSTRUCTION EQUIPMENT. PLEASE INSPECT AND CLEAN EQUIPMENT THOROUGHLY BEFORE MOVING BETWEEN PROJECT SITES.
   - REMOVE ANY MUD, SOIL, TRASH, OR PLANTS FROM EQUIPMENT BEFORE LEAVING ANY WORK AREA
   - WHEN POSSIBLE, WASH AND RINSE EQUIPMENT THOROUGHLY WITH HARD SPRAY OR HOT WATER (>140°F)
9. SEDIMENT SHALL BE WASHED FROM ALL VEHICLES AT WASH DOWN STATION PRIOR TO LEAVING THE SITE. NO TRACKING OF MUD ONTO ANY ROADS SHALL BE ALLOWED.
10. ALL PUBLIC ROADS SHALL BE SWEPT IF SEDIMENT IS VISIBLE.
11. THERE ARE NO NON-STORM WATER DISCHARGES PRESENT.
12. THERE ARE NO ANTICIPATED DEWATERING METHODS IN THE PROPOSED PLANS.
13. THERE ARE NO INDUSTRIAL ACTIVITIES LIKE TEMPORARY, ON SITE, CONCRETE OR ASPHALT BATCH PLANTS ON THE CONSTRUCTION SITE.
14. LOCATE STATE AND CITY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC., WITH THE SWPPP.

## NRCS SOIL TYPE

60224 URBAN LAND-HARVESTER COMPLEX, KARST, 2 TO 9 PERCENT SLOPES

60225 URBAN LAND-HARVESTER COMPLEX, KARST, 9 TO 20 PERCENT SLOPES

## SITE CONTACTS

Property Owner Representative:
Mike Gegg, Director of Facilities
Mehlville School District
phone: 314-467-7870
email: gegpm@mehlvilleschooldistrict.net

Person in Responsible Charge of Construction:
LOW BID CONTRACTOR
email: XXXXXXXXX
phone: XXX-XXX-XXXX

## MLD SPECIAL INSPECTOR CONTACT

CONTRACTOR IS RESPONSIBLE FOR HIRING COUNTY APPROVED MLD SPECIAL INSPECTOR

OUTLET:

750 FEET IN ENCLOSED STORM SEWER TO UNNAMED TRIBUTARY OF MEHLVILL CREEK. 3,000 FEET IN UNNAMED TRIBUTARY OF MEHLVILLE CREEK TO THE MEHLVILLE CREEK. 4,200 FEET IN MEHLVILLE CREEK TO GRAVOIS CREEK

FLOOD PLAIN NOTE:

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STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator


Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527



BLDD ARCHITECTS
Certificate of Authority No. 2013013380



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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS 09/01/2026

Team

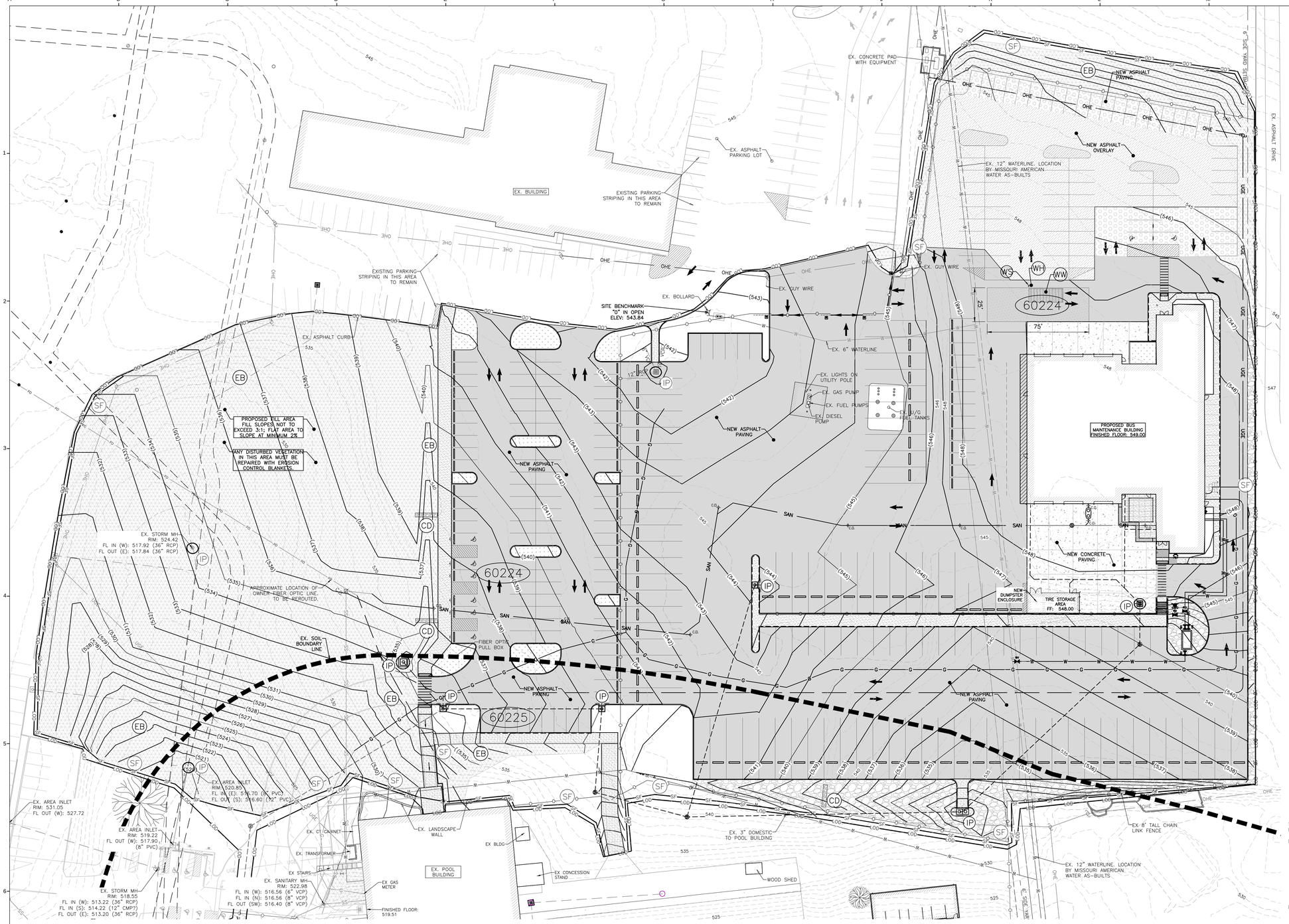
Drawn By: JEL
Checked By: JRN

Sheet Title

EROSION & SEDIMENT CONTROL PLAN - SOUTH PHASE 1

Sheet No.

ESC1.1




## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

GENERAL EROSION & SEDIMENT CONTROL NOTES:

A. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THIS STORM WATER POLLUTION PREVENTION PLAN. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
B. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
C. CONTRACTOR TO LIMIT DISTURBANCE OF SITE IN ACCORDANCE WITH EROSION CONTROL SEQUENCING SHOWN ON THIS PLAN, OR REQUIRED BY THE APPLICABLE GENERAL PERMIT.
D. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
E. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
F. DUST ON THE SITE SHALL BE MINIMIZED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
G. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
H. ALL DENUDED/BARE AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE, MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF MOST RECENT GRADING ACTIVITY WITH THE USE OF FAST-GERMINATION ANNUAL GRASS/GRAIN VARIETIES, STRAW/HAY MULCH, WOOD CELLULOSE FIBERS, TACKIFIERS, NETTING OR BLANKETS.
I. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE PLANS. THESE AREAS SHALL BE SEEDED, SODDED, AND/OR VEGETATED IMMEDIATELY, AND NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
J. IF THE ACTION OF VEHICLES TRAVELING OVER THE PAVED CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO PREVENT TRACKING OF DIRT, DUST OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE. ONLY USE INGRESS/EGRESS LOCATION AS PROVIDED.
K. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
L. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
M. ON-SITE AND OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
N. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
O. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND POLLUTANT DISCHARGE.
P. GENERAL CONTRACTOR IS TO DESIGNATE/IDENTIFY AREAS ON THE SITE MAPS, INSIDE OF THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.

BMP MAINTENANCE EROSION NOTES:

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1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

SEQUENCE OF CONSTRUCTION
PROPOSED START OF OPERATIONS – MARCH 2027

PHASE I:
1. INSTALL STABILIZED CONSTRUCTION EXIT(S) & SILT FENCE. – (2 DAYS)
2. PREPARE TEMPORARY PARKING AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: PARKING, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, ETC. DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. – (2 DAYS)
3. INSTALL INLET PROTECTIONS AND EROSION EEL'S ON THE SITE. – (1 DAY)
4. REMOVE EXISTING STRUCTURE, PAVEMENT AND UTILITY SERVICES. – (1 WEEK)
5. BEGIN GRADING THE SITE. – (1 WEEK)

PHASE II:
6. ATTAIN EARTH SUBGRADE ELEVATIONS. – (2 DAYS)
7. TEMPORARILY STABILIZE DENUDED AREAS WHERE GRADING HAS STOPPED.
8. INSTALL STORM SEWERS AND UTILITIES. – (1 WEEK)
9. INSTALL AGGREGATE DRAINAGE BASE AND TURF – (2 WEEKS)
10. STABILIZE SITE WITH PERMANENT VEGETATION. – (1 WEEK)

EARTHWORK GRADING IS BALANCED, NO HAULING IN OR OUT IS NECESSARY. TOP SOIL WILL BE USED ON SLOPES AND GREEN AREAS.

**PRIOR TO THE ISSUANCE OF A MAJOR LAND DISTURBANCE PERMIT, A LAND DISTURBANCE ESCROW SHALL BE APPROVED BY ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION.

**PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES IS REQUIRED.

**THE CONTRACTOR SHALL PROVIDE, INSTALL, MAINTAIN, AND REMOVE A PUBLIC NOTIFICATION SIGN, PER PAGES 42-43 OF THE ST. LOUIS COUNTY SEDIMENT AND EROSION CONTROL MANUAL.

**LOCATE STATE AND COUNTY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC. WITH THE SWPPP.

**BMP QUANTITIES:**

WASH DOWN STATION = 2 EA. (TEMPORARY)
CONSTRUCTION ENTRANCE/EXIT = 2 EA. (TEMPORARY)
EROSION BLANKET = 2.25 AC. (PERMANENT)
ALL DISTURBED AREAS TO RECEIVE EROSION BLANKET.
SILT FENCE = 3000 L.F. (TEMPORARY)
INLET PROTECTION = 9 EA. (TEMPORARY)
CHECK DAMS = 5 EA. (TEMPORARY)
CONCRETE WASTE MANAGEMENT = 1 LUMP SUM
DUST CONTROL = 1 LUMP SUM

**EROSION & SEDIMENT CONTROL LEGEND**

| | |
|---|---|
| CE | CONSTRUCTION ENTRANCE / EXIT |
| EB | EROSION BLANKET |
| LOD | LIMITS OF DISTURBANCE |
| SF | SILT FENCE |
| IP | INLET PROTECTION (SILT FENCE) (AS NEEDED) |
| WW | WHEEL WASH |
| WH | WATER HOSE |
| WS | WASH SIGN |
| NS | NOTIFICATION SIGN |
| CD | TEMPORARY CHECK DAM |
| CW | CONCRETE WASHOUT |
| TS | TEMPORARY SEED* (AS NEEDED) |
| PS | PERMANENT SEED* |
| LS | PROPOSED LANDSCAPING |

* SEED PER LOCAL DOT SPECIFICATIONS.

SWPPP NOTES:

1. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) OR AS DIRECTED BY THE ENGINEER OF RECORD AND IN ACCORDANCE WITH CITY, STATE, & COUNTY REQUIREMENTS. THE APPROVED SWPPP WILL BE AVAILABLE ON SITE OF THE PERMITTED ACTIVITY.
2. 404 / 401 PERMITS ARE NOT REQUIRED FOR THIS PROJECT
3. THERE ARE NO SINKHOLES, SPRINGS, SEEPS OR KARST FEATURES ON OR NEAR THE CONSTRUCTION SITE.
4. THERE ARE NO KNOWN RECORDS OF SPECIES OR NATURAL COMMUNITIES OF CONSERVATION CONCERN WITHIN THE DEFINED PROJECT AREA AS CONFIRMED BY THE MISSOURI DEPARTMENT OF CONSERVATION .
5. BASED ON CATALOGUED INFORMATION FROM THE UNITED STATES FISH AND WILDLIFE SERVICE, THERE ARE NO KNOWN RECORDS OF FEDERALLY LISTED ENDANGERED SPECIES NEAR OR WITHIN THE PROJECT AREA. INDIANA BATS, NORTHERN LONG-EARED BATS AND GRAY BATS MAY OCCUR NEAR THE PROJECT AREA. DURING PROJECT ACTIVITIES, AVOID DEGRADING STREAM QUALITY AND WHERE POSSIBLE LEAVE SNAGS STANDING AND PRESERVE MATURE FOREST CANOPY.
6. IF ANY TREES NEED TO BE REMOVED FOR THE PROJECT, PLEASE CONTACT THE U.S. FISH AND WILDLIFE SERVICE FOR FURTHER COORDINATION UNDER THE ENDANGERED SPECIES ACT. (ECOLOGICAL SERVICES, 101 PARK DEVILLE DRIVE, SUITE A, COLUMBIA, MISSOURI 65203-0007; PHONE 573-234-2132 EXT. 100). TREE CLEARING IS NOT ALLOWED BY THE ENDANGERED SPECIES ACT BETWEEN APRIL 1ST AND SEPTEMBER 30TH.
7. THERE ARE NO KNOWN HISTORIC PROPERTIES WITHIN CONSTRUCTION LIMITS.
8. INVASIVE EXOTIC SPECIES ARE A SIGNIFICANT ISSUE FOR FISH, WILDLIFE, AND AGRICULTURE IN MISSOURI. SEEDS, EGGS, AND LARVAE MAY BE MOVED TO NEW SITES ON CONSTRUCTION EQUIPMENT. PLEASE INSPECT AND CLEAN EQUIPMENT THOROUGHLY BEFORE MOVING BETWEEN PROJECT SITES.
   - REMOVE ANY MUD, SOIL, TRASH, OR PLANTS FROM EQUIPMENT BEFORE LEAVING ANY WORK AREA
   - WHEN POSSIBLE, WASH AND RINSE EQUIPMENT THOROUGHLY WITH HARD SPRAY OR HOT WATER (>140°F)
9. SEDIMENT SHALL BE WASHED FROM ALL VEHICLES AT WASH DOWN STATION PRIOR TO LEAVING THE SITE. NO TRACKING OF MUD ONTO ANY ROADS SHALL BE ALLOWED.
10. ALL PUBLIC ROADS SHALL BE SWEPT IF SEDIMENT IS VISIBLE.
11. THERE ARE NO NON-STORM WATER DISCHARGES PRESENT.
12. THERE ARE NO ANTICIPATED DEWATERING METHODS IN THE PROPOSED PLANS.
13. THERE ARE NO INDUSTRIAL ACTIVITIES LIKE TEMPORARY, ON SITE, CONCRETE OR ASPHALT BATCH PLANTS ON THE CONSTRUCTION SITE.
14. LOCATE STATE AND CITY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC., WITH THE SWPPP.

NRCS SOIL TYPE

60224 URBAN LAND–HARVESTER COMPLEX, KARST, 2 TO 9 PERCENT SLOPES

60225 URBAN LAND–HARVESTER COMPLEX, KARST, 9 TO 20 PERCENT SLOPES

**SITE CONTACTS**

Property Owner Representative:
Mike Gegg, Director of Facilities
Mehlville School District
phone: 314-467-7870
email: geggm@mehlvilleschooldistrict.net

Person in Responsible Charge of Construction:
LOW BID CONTRACTOR
email: XXXXXXXXX
phone: XXX-XXX-XXXX

**MLD SPECIAL INSPECTOR CONTACT**

CONTRACTOR IS RESPONSIBLE FOR HIRING COUNTY APPROVED MLD SPECIAL INSPECTOR

OUTLET:

750 FEET IN ENCLOSED STORM SEWER TO UNNAMED TRIBUTARY OF MEHLVILL CREEK. 3,000 FEET IN UNNAMED TRIBUTARY OF MEHLVILLE CREEK TO THE MEHLVILLE CREEK. 4,200 FEET IN MEHLVILLE CREEK TO GRAVOIS CREEK

FLOOD PLAIN NOTE:

This site scales within Zone "X", areas determined to be outside of the 0.2% annual chance floodplain as per Federal Emergency Management Agency Flood Insurance Rate Maps; Panel No. 345 of 445, Map No. 29189C0345K, effective date 02/04/2015.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

City


Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380



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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

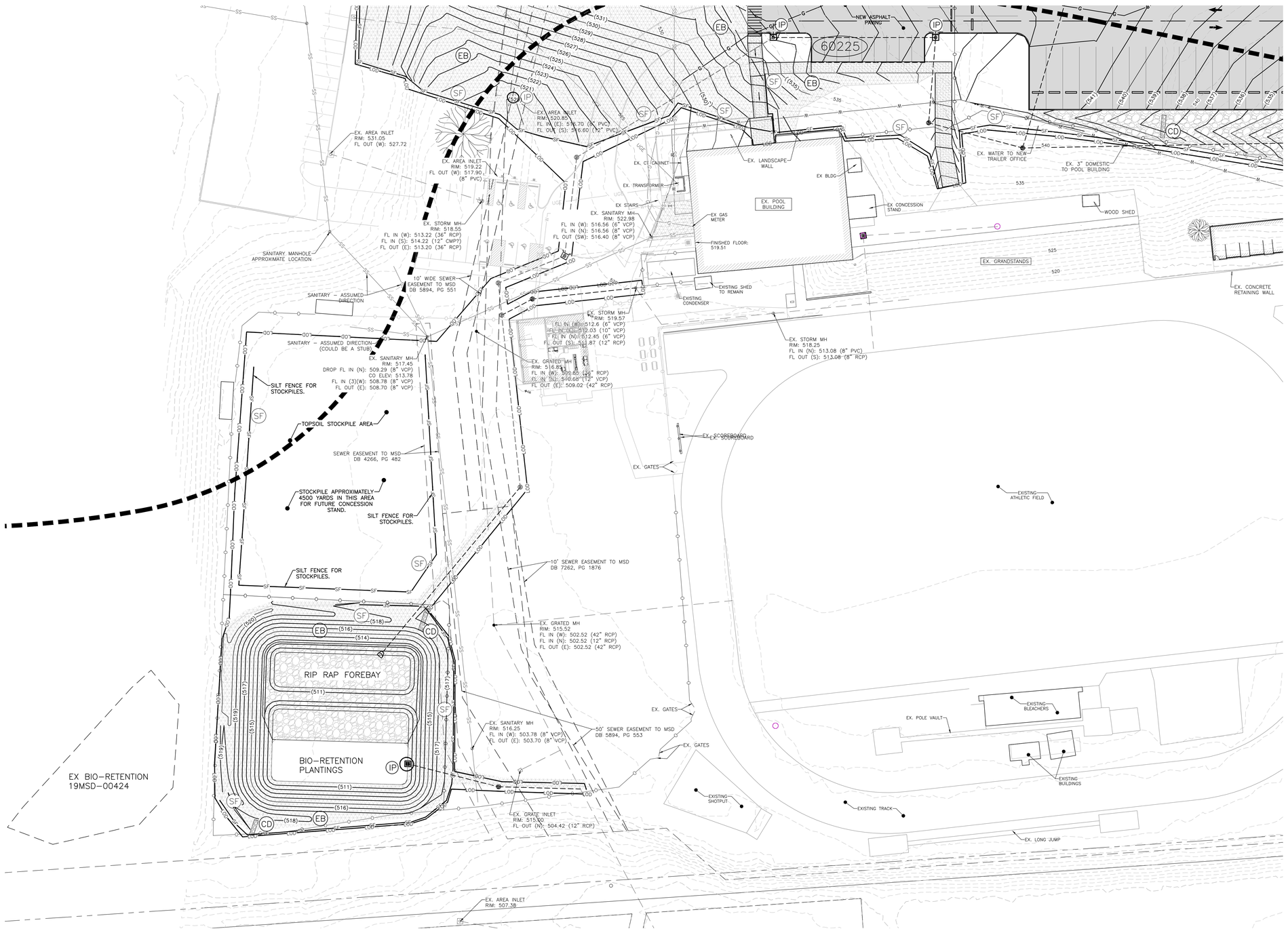
Team
Drawn By: JEL
Checked By: JRN

Sheet Title
EROSION & SEDIMENT CONTROL PLAN - NORTH PHASE 2

Sheet No.
ESC2.0

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483 (TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.




## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## GENERAL EROSION & SEDIMENT CONTROL NOTES:

A. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THIS STORM WATER POLLUTION PREVENTION PLAN. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
B. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
C. CONTRACTOR TO LIMIT DISTURBANCE OF SITE IN ACCORDANCE WITH EROSION CONTROL SEQUENCING SHOWN ON THIS PLAN, OR REQUIRED BY THE APPLICABLE GENERAL PERMIT.
D. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
E. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
F. DUST ON THE SITE SHALL BE MINIMIZED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
G. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
H. ALL DENUDED/BARE AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE, MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF MOST RECENT GRADING ACTIVITY WITH THE USE OF FAST-GERMINATION ANNUAL GRASS/GRAIN VARIETIES, STRAW/HAY MULCH, WOOD CELLULOSE FIBERS, TACKIFIERS, NETTING OR BLANKETS.
I. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY STABILIZED AS SHOWN ON THE PLANS. THESE AREAS SHALL BE SEEDED, SODDED, AND/OR VEGETATED IMMEDIATELY, AND NO LATER THAT 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.
J. IF THE ACTION OF VEHICLES TRAVELING OVER THE PAVED CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO PREVENT TRACKING OF DIRT, DUST OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE. ONLY USE INGRESS/EGRESS LOCATION AS PROVIDED.
K. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
L. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
M. ON-SITE AND OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
N. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
O. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT EROSION AND POLLUTANT DISCHARGE.
P. GENERAL CONTRACTOR IS TO DESIGNATE/IDENTIFY AREAS ON THE SITE MAPS, INSIDE OF THE LIMITS OF DISTURBANCE, FOR WASTE DISPOSAL AND DELIVERY AND MATERIAL STORAGE.

## BMP MAINTENANCE EROSION NOTES:

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED.
   AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

## SEQUENCE OF CONSTRUCTION

PROPOSED START OF OPERATIONS – MARCH 2027

PHASE I:

1. INSTALL STABILIZED CONSTRUCTION EXIT(S) & SILT FENCE. – (2 DAYS)
2. PREPARE TEMPORARY PARKING AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: PARKING, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, ETC. DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. – (2 DAYS)
3. INSTALL INLET PROTECTIONS AND EROSION EEL'S ON THE SITE. – (1 DAY)
4. REMOVE EXISTING STRUCTURE, PAVEMENT AND UTILITY SERVICES. – (1 WEEK)
5. BEGIN GRADING THE SITE. – (1 WEEK)

PHASE II:

6. ATTAIN EARTH SUBGRADE ELEVATIONS. – (2 DAYS)
7. TEMPORARILY STABILIZE DENUDED AREAS WHERE GRADING HAS STOPPED.
8. INSTALL STORM SEWERS AND UTILITIES. – (1 WEEK)
9. INSTALL AGGREGATE DRAINAGE BASE AND TURF – (2 WEEKS)
10. STABILIZE SITE WITH PERMANENT VEGETATION. – (1 WEEK)

EARTHWORK GRADING IS BALANCED, NO HAULING IN OR OUT IS NECESSARY. TOP SOIL WILL BE USED ON SLOPES AND GREEN AREAS.

**PRIOR TO THE ISSUANCE OF A MAJOR LAND DISTURBANCE PERMIT, A LAND DISTURBANCE ESCROW SHALL BE APPROVED BY ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION.

**PRIOR TO ANY MAJOR LAND DISTURBANCE ACTIVITY, A LAND DISTURBANCE PERMIT FROM THE STATE OF MISSOURI DEPARTMENT OF NATURAL RESOURCES IS REQUIRED.

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**LOCATE STATE AND COUNTY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC. WITH THE SWPPP.

## EROSION & SEDIMENT CONTROL LEGEND

| | |
|---|---|
| CE | CONSTRUCTION ENTRANCE / EXIT |
| EB | EROSION BLANKET |
| LOD | LIMITS OF DISTURBANCE |
| SF | SILT FENCE |
| IP | INLET PROTECTION (SILT FENCE) (AS NEEDED) |
| WW | WHEEL WASH |
| WH | WATER HOSE |
| WS | WASH SIGN |
| NS | NOTIFICATION SIGN |
| CD | TEMPORARY CHECK DAM |
| CW | CONCRETE WASHOUT |
| TS | TEMPORARY SEED* (AS NEEDED) |
| PS | PERMANENT SEED* |
| LS | PROPOSED LANDSCAPING |

* SEED PER LOCAL DOT SPECIFICATIONS.

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3. THERE ARE NO SINKHOLES, SPRINGS, SEEPS OR KARST FEATURES ON OR NEAR THE CONSTRUCTION SITE.
4. THERE ARE NO KNOWN RECORDS OF SPECIES OR NATURAL COMMUNITIES OF CONSERVATION CONCERN WITHIN THE DEFINED PROJECT AREA AS CONFIRMED BY THE MISSOURI DEPARTMENT OF CONSERVATION .
5. BASED ON CATALOGUED INFORMATION FROM THE UNITED STATES FISH AND WILDLIFE SERVICE, THERE ARE NO KNOWN RECORDS OF FEDERALLY LISTED ENDANGERED SPECIES NEAR OR WITHIN THE PROJECT AREA. INDIANA BATS, NORTHERN LONG-EARED BATS AND GRAY BATS MAY OCCUR NEAR THE PROJECT AREA. DURING PROJECT ACTIVITIES, AVOID DEGRADING STREAM QUALITY AND WHERE POSSIBLE LEAVE SNAGS STANDING AND PRESERVE MATURE FOREST CANOPY.
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14. LOCATE STATE AND CITY LAND DISTURBANCE PERMITS, BMP INSPECTION REPORTS, ETC., WITH THE SWPPP.

## NRCS SOIL TYPE

60224 URBAN LAND–HARVESTER COMPLEX, KARST, 2 TO 9 PERCENT SLOPES

60225 URBAN LAND–HARVESTER COMPLEX, KARST, 9 TO 20 PERCENT SLOPES

## SITE CONTACTS

Property Owner Representative:
Mike Gegg, Director of Facilities
Mehlville School District
phone: 314-467-7870
email: geggm@mehlvilleschooldistrict.net

Person in Responsible Charge of Construction:
LOW BID CONTRACTOR
email: XXXXXXXXX
phone: XXX-XXX-XXXX

## MLD SPECIAL INSPECTOR CONTACT

CONTRACTOR IS RESPONSIBLE FOR HIRING COUNTY APPROVED MLD SPECIAL INSPECTOR

OUTLET:

750 FEET IN ENCLOSED STORM SEWER TO UNNAMED TRIBUTARY OF MEHLVILL CREEK. 3,000 FEET IN UNNAMED TRIBUTARY OF MEHLVILLE CREEK TO THE MEHLVILLE CREEK. 4,200 FEET IN MEHLVILLE CREEK TO GRAVOIS CREEK

FLOOD PLAIN NOTE:

This site scales within Zone "X", areas determined to be outside of the 0.2% annual chance floodplain as per Federal Emergency Management Agency Flood Insurance Rate Maps; Panel No. 345 of 445, Map No. 29189C0345K, effective date 02/04/2015.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator

Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: JEL
Checked By: JRN

Sheet Title

EROSION SEDIMENT AND CONTROL PLAN - SOUTH PHASE 2

Sheet No.

ESC2.1

## NON-SEDIMENT POLLUTION CONTROL

**PHYSICAL DESCRIPTION** - Control measures designed to prohibit chemicals, hazardous materials, solid waste and construction debris from polluting stormwater. Pollutants carried in solution or as surface films on runoff will be carried through most erosion control and sediment capture BMPs. Keeping substances like fuel, oil, asphalt, paint, solvents, fertilizer, soil additives, concrete wash water, solid waste and construction debris from polluting runoff can be accomplished to a large extent through good housekeeping on the site and following the manufacturer's recommendations for disposal.

**WHERE BMP IS TO BE INSTALLED** - Collection, storage and fueling areas should be located onsite in an area that does not receive a substantial amount of runoff from upland areas and does not drain directly to lakes, creeks, streams, rivers, sewers, groundwater, wetlands, or road ditches.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

- ✓ Reduction in pollutants depends heavily on how construction personnel perform their duties. An effective management system requires training and signage to promote proper storage, handling and disposal of materials. Follow up observations of actions and inspection of storage areas by management personnel is also required.
- ✓ Plans should contain notes clearly stating requirements for addressing potential pollutants.
- ✓ Fueling areas and storage areas for hazardous materials should be protected by berms or other means of catching leaks or spills. Do not store hazardous chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and under cover in secondary containment.

**WHEN BMP IS TO BE INSTALLED** - Immediately following installation of construction entrance and wash station.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Place waste receptacles near area of work.
- ✓ Construct protective berm or other devices around fueling and hazardous materials storage areas.
- ✓ Install appropriate signage.
- ✓ Post guidelines for proper handling, storage and disposal of materials, and emergency spill cleanup on site.

**O&M PROCEDURES:**

- ✓ Inspect activities on regular basis.
- ✓ Inspect storage areas and control devices at least every two weeks and after every storm.
- ✓ Make necessary corrections and repairs.

**SITE CONDITIONS FOR REMOVAL** - Maintain practices until all construction on the site has been completed.

**TYPICAL DETAILS** - General pollution prevention notes attached.



## POLLUTION PREVENTION PROCEDURES

**DESCRIPTION** - Pollution prevention includes best management practices that need to be set up at the beginning of the project. Pollution prevention practices consist of site management considerations that do not fit into the other categories of erosion or sediment controls, such as materials inventory, good housekeeping, spill prevention and clean up, solid waste management and concrete washout. Building materials and other construction site wastes must be properly managed and disposed of to reduce the risk of pollution from materials such as surplus or refuse building materials or hazardous wastes. Practices such as trash disposal, recycling, proper material handling, and spill prevention and cleanup measures can reduce the potential for storm water runoff to mobilize construction site wastes and contaminate surface or ground water.

**APPROPRIATE APPLICATION OF BMPs** - The proper management and disposal of wastes should be practiced at every construction site to reduce contaminated storm water runoff. Use waste management practices to properly locate refuse piles, to cover materials that might be displaced by rainfall or storm water runoff, and to prevent spills and leaks from hazardous materials that were improperly stored.

**Solid Wastes**

- Designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.
- Dumpsters or other collection containers should be provided as needed and ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas in accordance with state and local laws and regulations. Contact a local environmental agency to identify these disposal sites.
- Solid waste may not be buried or burned on the site.
- Good Housekeeping on a construction site is very important. Keep the site clean.

**Pesticides and Fertilizers**

- Follow all federal, state, and local regulations that apply to the use, handling, or disposal of pesticides and fertilizers.
- Do not handle the materials any more than necessary.
- Store pesticides and fertilizers in a dry, covered area.



- Construct berms or dikes to contain stored pesticides and fertilizers in case of spillage.
- Follow the recommended application rates and methods.
- Have equipment and absorbent materials available in storage and application areas to immediately contain and clean up any spills that occur.

**Detergents** - Phosphorous and nitrogen containing detergents are used in wash water for cleaning vehicles. Excesses of these nutrients can be a major source of water pollution. Use detergents only as recommended, and limit their use on the site. Do not dump wash water containing detergents into the storm drain system; direct it to a sanitary sewer or contain it so that it can be treated at a wastewater treatment plant.

1) **HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS**

**DO**

- Prevent spills
- Use products up
- Follow label directions for disposal
- Remove lids from empty bottles and cans when disposing in trash
- Recycle wastes whenever possible

**DON'T**

- Don't pour waste into sewers or waterways or on the ground
- Don't pour waste down the sink, floor drain or septic tanks
- Don't bury chemicals or containers, or dispose of them with construction debris
- Don't burn chemicals or containers
- Don't mix chemicals together
- Don't remove the original product label from the container

2) Containers shall be provided for collection of all waste material including construction debris, trash, petroleum products and any hazardous materials to be used onsite. All waste material shall be disposed of at facilities approved for that material.

3) No waste materials shall be buried on-site.

4) Mixing, pumping, transfering or otherwise handling construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any water course, ditch or storm drain.

5) Equipment fueling and maintenance, oil changing, etc., shall be performed only in an area designated for that purpose. The designated area is equipped for recycling oil and catching spills.



6) Concrete wash water shall not be allowed to flow directly to storm sewers, streams, ditches, lakes, etc., without being treated. A sump or pit shall be constructed to contain concrete wash water. See additional requirements in the "Concrete Waste Management" section of this manual.

7) If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto soil, the soil shall immediately be dug up and disposed of at a licensed sanitary landfill (not a construction / demolition debris landfill). Spills on pavement shall be immediately absorbed with sawdust, kitty litter or product designed for that purpose and disposed of at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. These materials will be removed from the site and recycled or disposed of in accordance with MoDNR requirements.

8) State law requires the party responsible for a petroleum product spill in excess of 50 gallons to report the spill to Missouri Department of Natural Resources (MoDNR) at (537) 634-2436, as soon as practical after discovery. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area, like a road ditch, that drains into one of the above.

9) The contractor / permitee should ensure adequate training is provided to the site superintendent and all field personnel, etc. on the proper protocol for reporting and cleaning up spills.

10) Manufacturer's recommended method for spill cleanup should be clearly posted and the site personnel should be made aware of the procedures and the location of the information and clean up supplies.

11) Material and equipment necessary for spill cleanup should be kept in the material storage area on site.

12) Minimize the material inventory stored on-site (e.g., only a few days' supply).

13) Do not store hazardous chemicals, drums, or bagged / boxed materials directly on the ground. Place these items on a pallet and under cover in secondary containment.

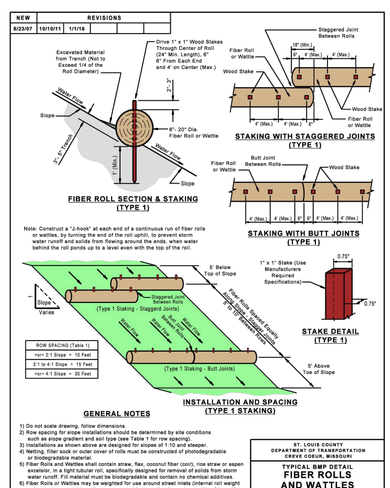
14) Storage areas shall be kept clean and well organized.

**O&M PROCEDURES** - The only way to be sure that waste management practices are being followed is to be aware of worker habits and to inspect storage areas regularly. Extra management time may be required to ensure that all workers are following the proper procedures. Inspect storage and use areas and identify containers or equipment that could malfunction and cause leaks or spills. Check equipment and containers for leaks, corrosion, support or foundation failure, or other signs of deterioration, and test them for soundness. Immediately repair or replace any that are found to be defective.

**TYPICAL DETAILS** - Not applicable.



| NEW | REVISIONS |
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## DUST CONTROL

**PHYSICAL DESCRIPTION** - Control measures designed to reduce the transport of dust, thereby preventing pollutants from infiltrating into stormwater. Examples for construction activities include vegetative cover, wind barriers, minimization of soil disturbance, spray on adhesives, tilling, chemical treatment and water sprays.

In St. Louis County the contractor / permitee is required by Missouri State Law (10 CSR 10-6.170) and County Ordinance (612.340) to control fugitive dust blown from the construction site, land disturbance site, signal installation, etc. Dust control, including saw-cut material etc., on the construction site shall be monitored for safety purposes and to prevent nuisances. The contractor / permitee shall apply reasonable measures to control dust and particulate matter (of any size or source) due to roadway / construction traffic, grading, clearing and grubbing, building demolition, wind erosion, saw-cutting etc. from migrating off the site of origin.

**WHERE BMP IS TO BE INSTALLED** - Critical in areas of exposed soil.

**CONDITIONS FOR EFFECTIVE USE OF BMPs** - A combination of the following actions should be used to help reduce the dust and air pollution at a construction site.

**Minimize Concurrent Areas of Soil Disturbance** - Phase work to the extent practical.

**Vegetative Cover** - For areas not subjected to traffic, vegetation provides the most practical method of dust control and should be established as early as possible. Temporary vegetation should also be used. See Seeding and Sodding BMPs for additional information.

**Sprinkling** - The site can be sprinkled with water until the surface is moist. This practice is effective for dust control on large areas, haul routes or other traffic routes, but constant repetition is required for effective control.

**Tilling** - Roughen the surface and bring clods to the surface. This is an emergency measure that should be used before soil blowing starts. Begin tillage on windward side of the site. Chisel plows with shanks spaced about 12 inches to 18 inches apart and spring toothed harrows are examples of equipment that may produce the desired effect. See Surface Roughening BMPs for additional information.

**Wind Barriers** - Solid board fences, snow fences, burlap fences, crate walls and similar materials can be used to control air currents and blowing soil. Barriers placed at right angles to prevailing wind currents at intervals of about 10 times their height are effective in controlling soil blowing.

**Street Cleaning** - Paved areas that have soil on them from construction sites should be cleaned continuously, at least daily, utilizing a street sweeper or bucket type end loader or scraper.

**Mulching** - This practice offers a fast and effective means of controlling dust when properly applied. Binders and tackifiers should be used on organic mulches. Mulching is not recommended for areas with heavy traffic. See Mulching BMP for additional information.

**Note:** If calcium chloride or spray-on adhesives are used for dust control, a permit may be required from the Missouri Department of Natural Resources.



## FIBER ROLLS AND FILTER ROLLS

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

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

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

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

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

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Calculate required roll diameter, length and row spacing based on slope and the manufacturers recommendations.
- ✓ Dig trench to required depth for fiber rolls (filter rolls do not require trench).
- ✓ Place fiber rolls in trench or filter rolls directly on slope.
- ✓ Stake the fiber rolls or filter rolls as shown on detail drawings.
- ✓ Place excavated soil (fiber roll) or filter roll material along the upside of rolls as shown on detail drawings, not to exceed ¼ of the roll diameter.

**O&M PROCEDURES**

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



## SILT FENCE

**PHYSICAL DESCRIPTION** - Silt fences are used as temporary perimeter controls, appropriate to the BMP, at sites where construction activities will disturb the soil. They can also be used on the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low and down slope areas. The filter fabric should be entrenched in the ground. When installed correctly and inspected frequently, silt fence can be an effective barrier to silt leaving the site in storm water runoff.

**WHERE BMP IS TO BE INSTALLED** - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 c.f.s. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length (100 square feet per foot of fence). The slope length above the fence should not exceed 100 feet (NAHB, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event.

**CONDITIONS FOR EFFECTIVE USE OF BMPs** - Spacing of parallel lengths of silt fence along slopes is relative to slope steepness as follows:

| | |
|---|---|
| Type of Flow: | Sheet flow only. |
| Contributing Slope Length: | 30-foot maximum for 3:1 slopes.<br>50 foot maximum for slopes between 3:1 and 10:1.<br>100 foot maximum for slopes under 10%. |

For additional information see Section 806.70 of St. Louis County's Standard Specification for Road and Bridge Construction.

**WHEN BMP IS TO BE INSTALLED** - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Install on the perimeter of the site (where storm water exits the site) prior to disturbance of natural vegetation, around material stockpiles and interior to the site along slopes, at the base of slopes and at intervals during construction of slopes.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Drive post for fence line.
- ✓ Dig trench to required dimensions in front of posts for fabric burial.
- ✓ Attach wire mesh to posts.
- ✓ Attach fabric to posts, allowing required length below ground level to run fabric along bottom of trench
- ✓ Backfill and compact soil in trench to protect and anchor fabric.

If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about 6 months, depending on the amount of rainfall and runoff.

The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should have minimum dimensions of 2 by 2 inches if a hardwood like oak is used. Stakes from soft woods like No. 2 Southern Pine, should have minimum dimensions of 4 by 4 inches. When using steel (standard U, T, L or C shape sections) posts in place of wooden stakes, they should weigh no less than 1.0 lb/linear foot. If metal posts are used, attachment points are needed for fastening the filter fabric with wire ties. Posts should be least 5 feet long and driven or placed at a slight upstream angle into the ground to a



minimum depth of 18 inches. Depth shall be increased to a minimum of 22 inches if fence is placed on a slope of 3:1 or greater. When the post embedment depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

Erect silt fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches.

The Geosynthetic filter fabric and wire mesh (when applicable) shall be no less than 30 inches above ground and are stapled or wired to the upslope side of the post. Staples should be a 17-gauge wire and ½ inch long. Excavate a trench to bury the bottom of the fabric fence in a "J" configuration at least 6 inches below the ground surface. The trench shall be backfilled with native soil and the soil compacted over the geotextile. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.

The height of the fence posts should be 38 inches (22-inch embedment) to 42 inches (18-inch embedment) above the original ground surface. If standard-strength fabric is used with 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength), space the posts no more than 4 feet apart. If extra-strength fabric is used without wire mesh reinforcement, space the posts no more than 4 feet apart with woven or 6 feet apart with non-woven geosynthetic.

| | |
|---|---|
| Alternate Construction: | Install fence by slicing it into ground with specialized equipment.<br>Install posts at reduced spacing indicated on detail. |

**LIMITATIONS** - Do not install silt fences along areas where rocks or other hard surfaces will prevent you from uniformly anchoring the fence posts and entrenching the filter fabric. Installing fences in such an area greatly reduces their effectiveness and can create runoff channels leading offsite. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. Fence shall not be used when slope is 1:1 or greater and water flow rates exceed 2 cubic feet per minute. Open, windy areas present a maintenance challenge, too, because high winds can make the filter fabric deteriorate faster. Do not install silt fences across streams, ditches, or waterways (Smolen et al., 1988).

When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of the fence. Setting and design of the silt fence should account for this. Take care to avoid unnecessarily diverting stormwater from these pools, causing further erosion damage.

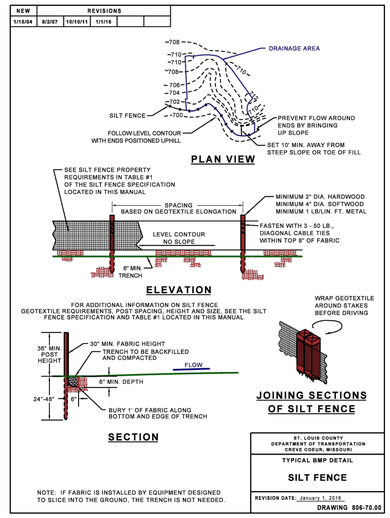
**MAINTENANCE CONSIDERATIONS** - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment, dress the area disturbed to give it a pleasing appearance and vegetate all bare areas as well.

**O&M PROCEDURES**

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment buildup deeper than ½ the fence height or 12", whichever is less.
- ✓ Replace torn of clogged fabric; repair loose fabric.



| NEW | REVISIONS |
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| 1/15/04 | 8/2/07 \| 10/10/11 \| 1/1/16 |






- ✓ Repair unstable or broken posts.
- ✓ Stabilize any areas susceptible to undermining.
- ✓ Extend fence or add additional row(s) of fence if necessary to provide adequate protection.

**SILTING AND DESIGN CONSIDERATIONS** - The material for silt fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, and polyester or polyethylene yarn. Choose the material based on the minimum synthetic fabric requirements shown in **Table 1** below.

**Table 1- Temporary Silt Fence Property Requirements**

| Physical Property | Test Method | Units | *MARV Geotextile Requirements* | | |
|---|---|---|---|---|---|
| | | | | *Unsupported Silt Fence* | |
| | | | Supported Silt Fence [2] | Woven Elongation ≤ 50% [1] | Non-Woven Elongation ≤ 50% [1] |
| Post Spacing (Maximum) | | feet | 4 | 4 | 6 |
| Height of Wire / Polymer Fence (Minimum) | | inches | 30 | --- | --- |
| Grab Strength (Minimum): Machine Direction<br>Cross Machine Direction | ASTM D 4632 | pounds | 90<br>90 | 125<br>100 | 125<br>100 |
| Permittivity (Minimum) | ASTM D 4491 | sec $^{-1}$ | 0.05 | 0.05 | 0.05 |
| Apparent Opening Size (AOS) [3] | ASTM D 4751 | Sieve Number | 30 | 30 | 30 |
| Ultraviolet Stability (Minimum) (retained strength) | ASTM D 4355 | 70% after 500 h of exposure | | | |

**Notes:**

MARV Minimum Average Roll Value

[1] Elongation measured in accordance with ASTM D 4632

[2] **Silt Fence Support** - 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength)

[3] Maximum Average Roll Value

**SITE CONDITIONS FOR REMOVAL** - After permanent vegetation of slope is established. Remove fence and post, re-grade trench area and vegetate.

**TYPICAL DETAIL** - 806-70.0



**WHEN BMP IS TO BE INSTALLED** - Routinely, especially in advance of and during periods of dry weather.

**INSTALLATION / CONSTRUCTION PROCEDURES** - See conditions for effective use above.

**O&M PROCEDURES** - Inspect daily and renew as needed.

**SITE CONDITIONS FOR REMOVAL** - Maintain practices until all disturbed areas are vegetated or paved and blowing soil is no longer a concern.

**TYPICAL DETAILS** - Not applicable.



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

**TYPICAL DETAILS** - 806-65.00
806-55.01
806-55.02



STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527
BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
SEDIMENT AND CONTROL DETAILS

Sheet No.
ESC3.0

## *PUBLIC NOTIFICATION SIGNS*

Provide, install, maintain and remove a public notification sign on a major land disturbance project (one acre and above). The following (minimum) requirements for the sign shall apply:

1) The contractor / permitee shall provide the post(s), mounting hardware, sign, etc.

2) The sign(s) shall be posted at the main entrance to the site, plainly visible to the traveling public and / or at other locations as may be directed by St. Louis County, prior to the commencement of construction / land disturbance operations.

3) The sign shall be mounted on a standard signpost at a 7-foot minimum height to the bottom of the sign. Other methods for displaying the sign may be used as approved by St. Louis County.

4) The sign shall remain in place and maintained until land disturbance activities are completed as determined by St. Louis County, and immediately removed thereafter.

5) Sign blank shall be 2.5 feet wide by 3 feet long. Signs shall be made from 5052-H38 aluminum alloy, which has been anodized, degreased, de-burred and etched.

6) Sign legend should be Helvetica Font sized to utilize as much of the blank as possible, centered horizontal and vertical. Background shall be white, high intensity retro-reflective sheeting (ASTM 4956 Type IV). Border and sign legend shall be black, non-reflective 2-mil vinyl.

Additional information relating to fabrication, connectors and posts is on file at the St. Louis County Department of Transportation, Traffic Operations Building, 2688 Adie Road, Maryland Heights, Missouri 63043.

Only one of the three example signs shown on the next page (Page 43) need be posted at the land disturbance site. If unsure of which sign to post, please contact the St. Louis County Department(s) of Transportation or Public Works for clarification.



## PUBLIC NOTIFICATION SIGNS

STORM WATER DISCHARGES FROM THIS LAND DISTURBANCE SITE ARE AUTHORIZED BY A MAJOR LAND DISTURBANCE PERMIT IF YOU HAVE QUESTIONS OR COMMENTS ABOUT STORM WATER DISCHARGES FROM THIS SITE, PLEASE CONTACT ST. LOUIS COUNTY AT 314-615-1150

FOR RESIDENTIAL LAND DISTURBANCE SITES

2.5 ft

3.0 ft

STORM WATER DISCHARGES FROM THIS LAND DISTURBANCE SITE ARE AUTHORIZED BY A MAJOR LAND DISTURBANCE PERMIT IF YOU HAVE QUESTIONS OR COMMENTS ABOUT STORM WATER DISCHARGES FROM THIS SITE, PLEASE CONTACT ST. LOUIS COUNTY AT 314-615-7130

FOR COMMERCIAL AND MULTI-FAMILY LAND DISTURBANCE SITES

STORM WATER DISCHARGES FROM THIS LAND DISTURBANCE SITE ARE AUTHORIZED BY THE MISSOURI STATE OPERATING PERMIT NUMBER MO-R100008 IF YOU HAVE QUESTIONS OR CONCERNS ABOUT STORM WATER DISCHARGES FROM THIS SITE, PLEASE CONTACT ST. LOUIS COUNTY AT 314-615-1150 AND THE MISSOURI DEPARTMENT OF NATURAL RESOURCES AT 1-800-361-4827

FOR COUNTY GOVERNMENT LAND DISTURBANCE SITES



## *CHECK DAM*

**PHYSICAL DESCRIPTION** - A small dam built within a drainage swale or temporary diversion channel designed to pond water and cause sediment to settle out. Dams can be constructed of rock, sand bags, filter rolls / wattles, triangular dikes, or gravel bags. Silt fence shall not be used to construct check dams.

**WHERE BMP IS TO BE INSTALLED** - At intervals along drainage swales or channels. The top of the downstream check dam should be level with the base of the upstream check dam.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

Type of Flow: Moderate concentrated flow
Contributing Area: Maximum of 2 acres
Channel Slope: Maximum of 2%

**WHEN BMP IS TO BE INSTALLED** - Prior to disturbance of natural vegetation in contributing drainage area; immediately after construction of drainage way.

For additional information see Section 806.30 of St. Louis County's Standard Specification for Road and Bridge Construction.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Grade drainage way and compact area of check dam.
- ✓ Place rock, sand bags, filter rolls / wattles or gravel bags to required configuration perpendicular to flow.

**O&M PROCEDURES**

- ✓ Inspect every week and after every storm.
- ✓ Remove trash and leaf accumulation.
- ✓ Remove sediment buildup once it reaches ½ depth of check dam or 12" depth, whichever is less.
- ✓ Restore dam structure to original configuration to protect banks.
- ✓ Replace rock on upstream face of dam if ponding does not drain in reasonable timeframe.

**SITE CONDITIONS FOR REMOVAL** - Remove after contributing drainage areas have been adequately stabilized and vegetation is adequately established in drainage way. Re-grade and vegetate area of check dam.

**TYPICAL DETAIL** - 806-35.00



## *CONSTRUCTION ENTRANCE*

**PHYSICAL DESCRIPTION** - A stabilized entrance to a construction site designed to minimize the amount of sediment tracked from the site on vehicles and equipment. Stabilization generally consists of aggregate over geogrid and geosynthetic material. Mud and sediment fall off of tires as they travel along the stabilized entrance; however, additional measures in the form of a washdown area should also be included on site. The stabilized entrance also distributes the axle load of vehicles over a larger area; thereby mitigating the rutting impact vehicles normally have on unpaved areas. See additional information in the "Construction Site Access Requirements" section of this manual.

**WHERE BMP IS TO BE INSTALLED** - At locations where it is safe for construction vehicles and equipment to access existing streets – preferably at location of future streets or drives.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

Drainage: Ditches or pipes, if needed, sized for 15 year, 20 minute storm; HGL 6" below surface of entrance

**WHEN BMP IS TO BE INSTALLED** - First order of work, along with washdown area, prior to vehicles or equipment accessing unpaved areas.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Grade and compact area of construction entrance.
- ✓ Install culvert under entrance if needed to maintain positive drainage.
- ✓ Place geosynthetic material next to compacted soil, lay geogrid on top of this, and cover with aggregate, forming diversion across entrance if needed to direct runoff away from roadway.
- ✓ See Washdown Station BMP for additional steps.

**O&M PROCEDURES:**

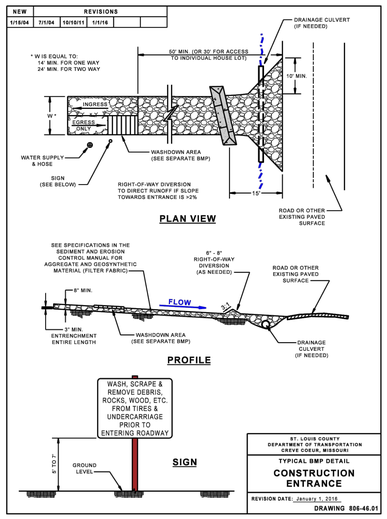
- ✓ Immediately remove any mud or debris tracked onto paved surfaces.
- ✓ Remove sediment and clods of dirt from construction entrance continuously.
- ✓ Replace rock if necessary to maintain clean surface.
- ✓ Repair settled areas.

**SITE CONDITIONS FOR REMOVAL** - Remove when vehicles and equipment will no longer access unpaved areas.

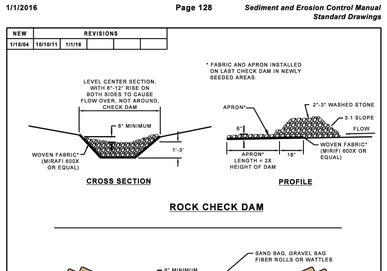
**TYPICAL DETAIL** - 806-46.01



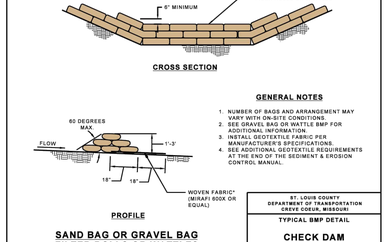
| NEW | REVISIONS | | | | |
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| 1/15/04 | 7/1/04 | 10/10/11 | 1/1/16 | | |




PLAN VIEW




PROFILE




SIGN

ST. LOUIS COUNTY
DEPARTMENT OF TRANSPORTATION
CREVE COEUR, MISSOURI

TYPICAL BMP DETAIL

**CONSTRUCTION ENTRANCE**

REVISION DATE: January 1, 2016

DRAWING 806-46.01

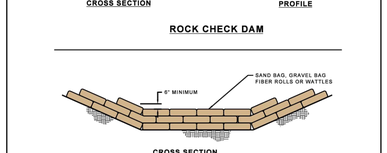


| NEW | REVISIONS | | | | |
|---|---|---|---|---|---|
| 1/15/04 | 10/10/11 | 1/1/16 | | | |




CROSS SECTION PROFILE

ROCK CHECK DAM




CROSS SECTION




PROFILE

**GENERAL NOTES**

1. NUMBER OF BAGS AND ARRANGEMENT MAY VARY WITH ON-SITE CONDITIONS.
2. SEE GRAVEL BAG OR WATTLE BMP FOR ADDITIONAL INSTALLATION.
3. ADJUST MESH/TEXTILE FABRIC PER MANUFACTURER'S SPECIFICATIONS.
4. SEE ADDITIONAL GEOTEXTILE REQUIREMENTS AT THE END OF THE SEDIMENT & EROSION CONTROL MANUAL.

**SAND BAG OR GRAVEL BAG FILTER ROLLS OR WATTLES CHECK DAM**

ST. LOUIS COUNTY
DEPARTMENT OF TRANSPORTATION
CREVE COEUR, MISSOURI

TYPICAL BMP DETAIL

**CHECK DAM**

REVISION DATE: January 1, 2016

DRAWING 806-35.00



## *WASHDOWN STATION*

**PHYSICAL DESCRIPTION** - An area located at construction entrances designed to wash sediment from the tires and undercarriage of exiting vehicles and prevent sediment from being tracked onto existing roadways.

**WHERE BMP IS TO BE INSTALLED** - Across or immediately adjacent to exit paths from unpaved construction sites.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

Drainage: Downstream BMPs sized to treat dirty runoff from washdown station

**WHEN BMP IS TO BE INSTALLED** - First order of work, along with construction entrance, prior to vehicles or equipment accessing unpaved areas.

**INSTALLATION/CONSTRUCTION PROCEDURES**

- ✓ Grade and compact area for drainage under washdown pad.
- ✓ Install steel-ribbed plate on frame or other support to allow a 2" drain space.
- ✓ Grade and vegetate downstream BMPs (V-ditch shown on detail).
- ✓ Install water supply and hose.
- ✓ Post sign in advance of station indicating that all exiting vehicles and equipment must use station prior to exiting site.

**O&M PROCEDURES:**

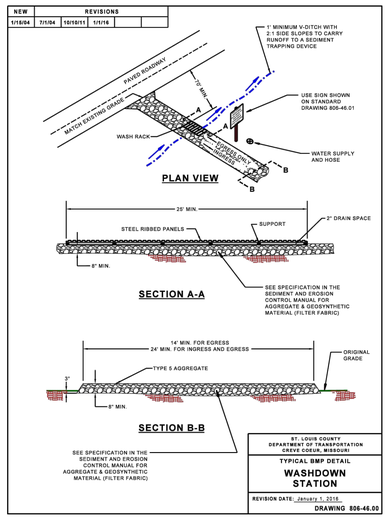
- ✓ Remove sediment daily.
- ✓ Repair settled areas.
- ✓ Replace rock if necessary to maintain clean surface.

**SITE CONDITIONS FOR REMOVAL** - Remove when vehicles and equipment will no longer access unpaved areas.

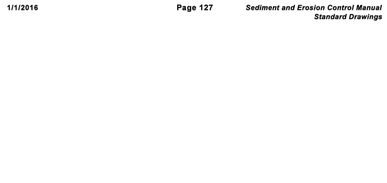
**TYPICAL DETAIL** - 806-46.00



| NEW | REVISIONS | | | | |
|---|---|---|---|---|---|
| 1/15/04 | 7/1/04 | 10/10/11 | 1/1/16 | | |




PLAN VIEW




SECTION A-A




SECTION B-B

ST. LOUIS COUNTY
DEPARTMENT OF TRANSPORTATION
CREVE COEUR, MISSOURI

TYPICAL BMP DETAIL

**WASHDOWN STATION**

REVISION DATE: January 1, 2016

DRAWING 806-46.00



## *SEEDING*

**PHYSICAL DESCRIPTION** - Establishment of vegetation by spreading grass seed designed to protect exposed soil from erosion by eliminating direct impact of precipitation and slowing overland flow rates. Once established, the vegetative cover will also filter pollutants from the runoff. Use only perennial vegetation for final stabilization.

**WHERE BMP IS TO BE INSTALLED** - To exposed soil after a phase of rough or finish grading has been completed, or areas where no activity will occur for 30 days.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

Type of Flow: Sheet flow
Contributing Slope Length: 30 foot maximum for 3:1 slopes
50 foot maximum for slope between 3:1 and 10:1
100 foot maximum for slopes under 10%
Minimum Rates: See attached chart(s)
Acceptable Dates: See attached chart

**WHEN BMP IS TO BE INSTALLED** - Immediately after rough or finished grading is completed.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Install upstream BMPs to protect area to be seeded.
- ✓ Rough grade area and remove all debris larger than 1-inch in diameter and concentrated areas of smaller debris.
- ✓ Install stabilization grids, if needed.
- ✓ Mix soil amendments (lime, fertilizer, etc.) into top 3 to 6 inches of soil as needed.
- ✓ Plant seed ¼ to ½ inch deep.
- ✓ Roll lightly to firm surface.
- ✓ Cover seeded area with mulch unless seeding completed during optimum spring and summer dates.
- ✓ Install additional stabilization (netting, bonded fiber matrix, etc.) as required.
- ✓ Water immediately - enough to soak 4 inches into soil without causing runoff.
- ✓ If contract / permit allows seeding to be used for final stabilization, only perennial vegetation seeds shall be used.
- ✓ For additional information see Sections 805 and 806.50 of St. Louis County's Standard Specification for Road and Bridge Construction.

**O&M PROCEDURES:**

- ✓ Inspect every week and after every storm
- ✓ Protect area from vehicular and foot traffic
- ✓ Reseed areas that have not sprouted within 21 days of planting.
- ✓ Repair damaged or eroded areas and reseed and stabilize as needed
- ✓ Do not mow until 4 inches of growth occurs
- ✓ During the first 4 months, mow no more than ⅓ the grass height
- ✓ Re-fertilize during 2nd growing season

**SITE CONDITIONS FOR REMOVAL** - Does not require removal, but temporary seeding can be removed immediately prior to work returning to an area



**SEEDING REQUIREMENTS**

**Dates for Seeding**

| Permanent Seeding | Jan | Feb | March | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tall Fescue | | | | O | O | O | | | O | O | | |
| Smooth Brome | | | | | O | O | O | | O | O | | |
| Fescue & Brome | | | | | O | O | O | O | | O | O | |
| Fescue, Rye & Bluegrass | A | A | A | O | O | O | P | P | O | O | P | P | A |

| Temporary Seeding | Jan | Feb | March | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rye or Sudan | A | A | O | O | O | O | O | O | O | O | A | A |
| Oats | | A | O | O | O | O | O | O | O | | | |

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

**Minimum Fertilizer and Seeding Rates**

| Permanent Seeding* | Pounds per acre | Pounds Per 1000 sq. ft. |
|---|---|---|
| Tall Fescue | 300 | 7.0 |
| Smooth Brome | 200 | 4.6 |
| Mixture # 1 | 250 | 5.7 |
| Mixture # 2 | 210 | 4.8 |

Mixture # 1 = Tall Fescue @ 150 pounds per acre and Brome @ 100 pounds per acre.
Mixture # 2 = Tall Fescue @ 100 pounds per acre; Perennial Rye grass @ 100 pounds per acre; and Kentucky Blue grass @ 10 pounds per acre.
* = Seeding rate for slopes in excess of 20% (5:1), shall be 10 pounds per 1000 sq. ft.

| Temporary Seeding | Pounds per acre | Pounds Per 1000 sq. ft. |
|---|---|---|
| Rye or Sudan | 150 | 3.5 |
| Oats | 200 | 2.5 |

| Fertilizer | Permanent Seeding (pounds per acre) | Temporary Seeding (pounds per acre) |
|---|---|---|
| Nitrogen | 45 | 30 |
| Phosphate | 65 | 30 |
| Potassium | 65 | 30 |
| Lime - ENM | 600 | 600 |

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

**TYPICAL DETAILS** - Minimum seeding rates and acceptable dates for work attached.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Excavate diversion area except for area of upstream connection.
- ✓ Compact as required to place diversion properly.
- ✓ Install pipe bedding or channel lining as required.



## *MULCH*

**PHYSICAL DESCRIPTION** - A layer of organic material designed to protect exposed soil or freshly seeded areas from erosion by eliminating direct impact of precipitation and slowing overland flow rates. Mulch materials may include, but are not limited to, such things as grass, hay, straw, wood chips, wood fibers, hydro mulch and shredded bark. Type 1 mulch is prohibited in the flood plain.

- Type I Mulch-Vegetative (includes grass, hay, and straw).
- Type II Mulch-Vegetative with asphalt emulsion (includes grass, hay, and straw).
- Type III Mulch-Vegetative with overspray (includes grass, hay, and straw).
- Type V Mulch-Hydro mulch (includes wood fiber, wood cellulose).
- Shredded Hardwood Bark Mulch.
- Wood Chips, (not recycled lumber).

**WHERE BMP IS TO BE INSTALLED** - Typically installed on seeded areas for temporary use, and in landscaped areas for permanent use.

**CONDITIONS FOR EFFECTIVE USE OF BMPs**

Type of Flow: Sheet flow only
Slopes: See attached chart for types of mulch acceptable as a function of slope length and steepness
Mulching Rates: See attached table

**WHEN BMP IS TO BE INSTALLED** - Immediately after grading landscaped areas or seeding other areas.

**INSTALLATION / CONSTRUCTION PROCEDURES**

- ✓ Install upstream BMPs to protect area to be mulched
- ✓ Rough grade area and remove all debris larger than 1 inch if area is to be vegetated and mowed in the future, larger than 2 inches if area is to be permanently mulched
- ✓ If area is to be seeded, follow requirements of Seeding BMP
- ✓ Spread mulch and anchor by punching it into the ground, using netting, peg and twine, or tacking with liquid binder
- ✓ For additional information see Section 802 of St. Louis County's Standard Specifications for Road and Bridge Construction.

**O&M PROCEDURES**

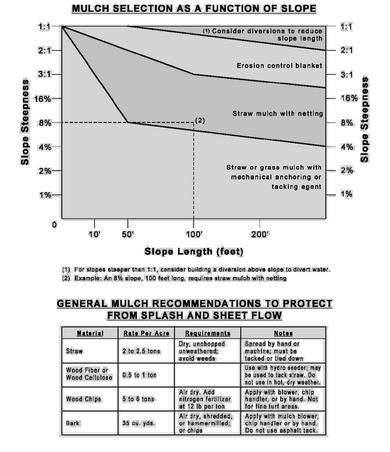
- ✓ Inspect every week and after every storm until adequate vegetation is established; annually for permanent mulch.
- ✓ Protect from vehicular and foot traffic.
- ✓ Repair damaged, degraded or eroded areas - reseed as needed and replace mulch.

**SITE CONDITIONS FOR REMOVAL** - Temporary mulch should be removed when adequate vegetation is established.

**TYPICAL DETAILS** - Type of mulch required for various slopes and application rates attached.



**MULCH SELECTION AS A FUNCTION OF SLOPE**




(1) For slopes steeper than 1:1, consider building a diversion above slope to divert water.
(2) Example: An 8% slope, 100 feet long, requires straw mulch with netting

**GENERAL MULCH RECOMMENDATIONS TO PROTECT FROM SPLASH AND SHEET FLOW**

| Material | Rate Per Acre | Requirements | Notes |
|---|---|---|---|
| Straw | 2 to 2.5 tons | Dry, unchopped unweathered; avoid weeds | Spread by hand or machine; must be tacked or tied down |
| Wood Fiber or Wood Cellulose | 0.9 to 1 ton | | Use with hydro-seeder; may be used to tack straw. Do not use in hot, dry weather. |
| Wood Chips | 5 to 6 tons | Air dry. Add nitrogen fertilizer at 12 lb per ton | Apply with blower; chip handler, or by hand. Not for fine turf areas. |
| Bark | 35 cu. yds. | Air dry, shredded, or hammermilled; or chips | Apply with mulch blower; chip handler or by hand. Do not use asphalt tack. |



## *EROSION CONTROL*

**PHYSICAL DESCRIPTION** - An erosion control blanket is a preformed protective blanket of plastic fibers, straw or other plant residue designed to protect soil from the impact of precipitation and overland flow, and retain moisture to facilitate establishment of vegetation. There are many products on the market designed for a variety of applications.

**WHERE BMP IS TO BE INSTALLED** - Typically installed on slopes or in channels prior to establishment of vegetation.

**CONDITIONS FOR EFFECTIVE USE OF BMPs** - Several factors, such as soil conditions, steepness and length of slope, depth of flow, runoff velocities, and time required to establish desired vegetation, influence the choice of product. Manufacturer's recommendations should be followed. Products are available for a variety of uses:

**Netting** - Synthetic or natural fiber mesh installed over disturbed area to hold organic mulch and / or seed in place. (806-90.11)

**Temporary Erosion Control Blanket** - Natural fiber blanket held together by netting to provide temporary erosion protection on slopes and channels. (806-90.10)

**Permanent Erosion Control Blanket** - Synthetic blanket material which provides permanent erosion control on slopes and channels with increased water flow velocities. (806-20.00)

**Turf Reinforcement Mat** - 3-dimensional permanent synthetic mat that provides a matrix to greatly reinforce the root system of the desired vegetation for permanent erosion protection in high flow channels and on critical slopes. (See page 58 for additional information on TRMs)

For additional information see Section 806.90 of St. Louis County's Standard Specification for Road and Bridge Construction.

**WHEN BMP IS TO BE INSTALLED** - Dependent upon intended use - immediately after completion of a phase of grading, or installation of vegetation.

**INSTALLATION / CONSTRUCTION PROCEDURES** - Follow manufacturer's recommendations and specifications, particularly noting requirements for check slots, fastening devices and need for firm contact with soil.

**O&M PROCEDURES**

- ✓ Inspect every week and after every storm until adequate vegetation is established.
- ✓ Repair erosion and / or undermining at top of slope.
- ✓ Repair undermining beneath blankets - pull back the blanket(s), fill and compact eroded area, re-vegetate and then secure blanket(s) firmly.
- ✓ Reposition or replace blankets that have moved along the slope or channel and secure firmly
- ✓ Replace damaged blankets.

**SITE CONDITIONS FOR REMOVAL** - Temporary blankets will generally degrade naturally; permanent blankets remain in place.

**TYPICAL DETAILS** - Not applicable.



STL CO. #26PRJ–XXXXX
M.S.D. #26MSD–XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator

Telephone: (573) 291–3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: JEL
Checked By: JRN

Sheet Title

SEDIMENT AND CONTROL DETAILS

Sheet No.

ESC3.1






## Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

*Surface runoff* refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

## Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

**Hydrologic Soil Group and Surface Runoff–St. Louis County and St. Louis City, Missouri**

| Map symbol and soil name | Pct. of map unit | Surface Runoff | Hydrologic Soil Group |
|---|---|---|---|





**Hydrologic Soil Group and Surface Runoff–St. Louis County and St. Louis City, Missouri**

| Map symbol and soil name | Pct. of map unit | Surface Runoff | Hydrologic Soil Group |
|---|---|---|---|
| 60223—Urban land-Harvester complex, 9 to 20 percent slopes | | | |
| Urban land | 60 | — | — |
| Harvester | 30 | High | C |
| 60224—Urban land-Harvester complex, karst, 2 to 9 percent slopes | | | |
| Urban land | 50 | Very high | — |
| Harvester | 45 | Medium | C |
| 60225—Urban land-Harvester complex, karst, 9 to 20 percent slopes | | | |
| Urban land | 50 | — | — |
| Harvester | 35 | High | C |

### Data Source Information

Soil Survey Area: St. Louis County and St. Louis City, Missouri
Survey Area Data: Version 27, Sep 2, 2025



### PERMIT HOLDER SPECIAL INSPECTION AND REPORT RESPONSIBILITIES

THE HOLDER OF A MAJOR LAND DISTURBANCE PERMIT, OR HIS/HER AGENT, SHALL CAUSE REGULAR AND AFTER-RAIN INSPECTIONS OF LAND DISTURBANCE SITES BY A QUALIFIED SPECIAL INSPECTOR APPROVED BY THE COUNTY.

THE INSPECTOR SHOULD HAVE A COPY OF THE CURRENT SWPPP WITH DRAWINGS AND SPECIFICATIONS FOR ALL PRACTICES WHILE ON SITE AND DURING ALL INSPECTIONS. INSPECTIONS SHALL INCLUDE EXAMINING ALL EROSION AND SEDIMENT AND OTHER POLLUTANT CONTROL MEASURES, OUTFALLS, AND OFF-SITE RECEIVING WATERS IN ACCORDANCE WITH THE INSPECTION SCHEDULE. INSPECTIONS MUST BE SCHEDULED AT LEAST ONCE PER WEEK. WHEN RAINFALL CAUSES STORM WATER RUNOFF TO LEAVE THE SITE, THE THE SPECIAL INSPECTOR MUST BE NOTIFIED BY PHONE IMMEDIATELY TO SCHEDULE AN INSPECTION OF THE BMP WITHIN 48 HOURS AFTER THE RAIN EVENT HAS CEASED DURING A NORMAL WORKDAY AND WITHIN 72 HOURS ON THE NEXT BUSINESS DAY IF THE RAIN EVENT CEASES ON A NON-WORKDAY SUCH AS ON THE WEEKENDS AND HOLIDAYS. THE TOTAL RAINFALL MEASURED FOR THAT DAY MUST BE RECORDED ON THE INSPECTION REPORT. A PROPERLY MAINTAINED RAIN GAUGE MUST BE KEPT ON SITE OR THE STORM EVENT INFORMATION MUST BE OBTAINED FROM A WEATHER STATION THAT IS REPRESENTATIVE OF THE SITE LOCATION.

THE PURPOSE OF SUCH INSPECTIONS WILL BE TO ENSURE PROPER INSTALLATION, OPERATION AND MAINTENANCE OF BEST MANAGEMENT PRACTICES (BMPS) AND TO DETERMINE THE OVERALL EFFECTIVENESS OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE NEED FOR ADDITIONAL CONTROL MEASURES.

ALL INSPECTIONS SHALL BE DOCUMENTED IN WRITTEN FORM ON WEEKLY AND AFTER-RAIN REPORTS WITH COPIES SUBMITTED WEEKLY TO THE DEPARTMENTS OF TRANSPORTATION AND PUBLIC WORKS. ALL INSPECTION REPORTS SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE COUNTY.

THE MAJOR LAND DISTURBANCE PERMIT HOLDER AND HIS SPECIAL INSPECTOR SHALL ALSO BE RESPONSIBLE TO:

1. IMMEDIATELY NOTIFY THE SITE CONTRACTOR(S) RESPONSIBLE FOR ANY DEFICIENCIES IDENTIFIED SO THAT DEFICIENCIES CAN BE CORRECTED WITHIN SEVEN CALENDAR DAYS OF THE WEEKLY OR AFTER-RAIN INSPECTION REPORT. SUCH INSPECTION REPORTS SHALL IDENTIFY DEFICIENCIES AS WELL AS PROGRESS IN CORRECTING DEFICIENCIES. IF WEATHER CONDITIONS MAKE IT IMPOSSIBLE TO CORRECT THE PROBLEM WITHIN SEVEN CALENDAR DAYS, A DETAILED REPORT OF THE PROBLEM (INCLUDING PICTURES) SHALL BE FILED WITH THE REGULAR INSPECTION REPORTS. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR ENSURING THAT THE DEFICIENCIES ARE CORRECTED.
2. NOTIFY ALL CONTRACTORS AND OTHER ENTITIES (INCLUDING UTILITY CREWS, COUNTY EMPLOYEES, OR THEIR AGENTS) THAT WILL PERFORM WORK AT THE SITE, OF THE EXISTENCE OF THE SWPPP AND WHAT ACTIONS OR PRECAUTIONS SHALL BE TAKEN WHILE ON SITE TO MINIMIZE THE POTENTIAL FOR EROSION AND THE POTENTIAL FOR DAMAGING ANY BMPS.
3. DETERMINE THE NEED FOR AND ESTABLISH TRAINING PROGRAMS TO ENSURE THAT ALL SITE WORKERS HAVE BEEN TRAINED, AT A MINIMUM, IN EROSION CONTROL, MATERIAL HANDLING AND STORAGE, AND HOUSEKEEPING.
4. THE PERMIT HOLDER SHALL NOTIFY THE COUNTY BY THE NEXT WORKING DAY WHENEVER A SPECIAL INSPECTOR IS TERMINATED, RESIGNS, OR IS UNABLE TO CONDUCT INSPECTIONS FOR WHATEVER REASON. THE PERMIT HOLDER SHALL RETAIN A NEW SPECIAL INSPECTOR FROM THE COUNTY'S LIST OF APPROVED SPECIAL INSPECTORS WITHIN FIVE (5) CALENDAR DAYS TO INSURE THAT THE REGULAR WEEKLY AND AFTER RAIN INSPECTIONS REQUIRED BY THIS SECTION ARE CONDUCTED AND REPORTED UPON. THE PERMIT HOLDER SHALL NOTIFY THE COUNTY BY THE NEXT WORKING DAY WHENEVER A NEW SPECIAL INSPECTOR IS RETAINED. ONLY A COUNTY APPROVED SPECIAL INSPECTOR CAN BE RESPONSIBLE FOR THE INSPECTION OF BMPS REQUIRED UNDER THIS CODE.

### SITE CONTACTS

Property Owner Representative:
Mike Gegg, Director of Facilities
Mehlville School District
phone: 314-467-7870
email: geggm@mehlvilleschooldistrict.net

Person in Responsible Charge of Construction:
LOW BID CONTRACTOR
email: XXXXXXXXX
phone: XXX-XXX-XXXX

### MLD SPECIAL INSPECTOR CONTACT

CONTRACTOR IS RESPONSIBLE FOR HIRING
COUNTY APPROVED MLD SPECIAL INSPECTOR

### SWPPP CERTIFICATION

I certify under penalty of law that this Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements and regulations of St. Louis County and the Missouri Department of Natural Resources. To the best of my knowledge and belief, the information contained in this plan is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

Signature: Date:

### INTERIM & PERMANENT STABILIZATION MEASURES

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

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

3. TEMPORARY STABILIZATION IS TO TAKE PLACE WHERE THE SOIL DISTURBING ACTIVITIES WILL CEASE ON ANY PORTION OF THE SITE AND ARE NOT PLANNED TO RESUME FOR A PERIODS EXCEEDING 14 CALENDAR DAYS. TEMPORARY STABILIZATION MUST BE INITIATED IMMEDIATELY UPON KNOWING THE DURATION IS MORE THAN 14 DAYS AND MUST BE COMPLETED WITHIN 7 CALENDAR DAYS. IF THE SLOPE OF THE AREA IS GREATER THAN 3:1 OR IF THE SLOPE IS GREATER THAN 3% AND GREATER THAN 150 FEET IN LENGTH, THEN TEMPORARY STABILIZATION MUST BE ESTABLISHED WITHIN 7 DAYS OF CEASING OPERATION ON THAT PART OF THE SITE. FINAL STABILIZATION OF DISTURBED AREAS MUST BE INITIATED IMMEDIATELY AND COMPLETED WITHIN 7 CALENDAR DAYS WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE. ALLOWANCES TO THE 7 DAY COMPLETION PERIOD FOR TEMPORARY AND FINAL STABILIZATION MAY BE MADE DUE TO WEATHER OR EQUIPMENT MALFUNCTIONS AND SHOULD BE DOCUMENTED.

4. ALL PROPOSED TURF AREAS, ONCE CONSTRUCTED TO FINAL GRADE, SHALL BE SEEDED WITHIN 5 DAYS AFTER FINAL GRADING OF THE SITE WHERE SHOWN ON THE PLAN. SHOULD WEATHER CONDITIONS MAKE IT IMPOSSIBLE TO OPERATIONS, ADDITIONAL SILTATION CONTROL MEASURES MAY BE REQUIRED.

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

6. INSPECTION OF SILTATION CONTROL DEVICES SHALL TAKE PLACE ONCE EVERY 7 DAYS AND WITHIN 48 HOURS AFTER A RAINFALL THAT CAUSES STORMWATER RUNOFF TO OCCUR ONSITE. ANY SILTATION CONTROL IN NEED OF REPAIR SHALL OCCUR IMMEDIATELY.

7. IN RESPONSE TO THE LOSS OF CONTAINED SEDIMENT, BMPS SHALL BE REPAIRED AND/OR REPLACED IMMEDIATELY, AS REQUIRED, TO STABILIZE SITE AND CONTAIN SEDIMENT-LADEN RUNOFF. OFFSITE AREAS SHALL BE REVIEWED FOR EXTENT OF IMPACT FROM BMP FAILURE. PERMIT HOLDER SHALL BE REQUIRED TO PROVIDE DOCUMENTATION OF THE BMP MEASURES INSTALLED AND SCHEDULED MAINTENANCE AND REPAIRS. PERMIT HOLDERS WILL THEN BE REQUIRED TO CONTACT THE ST. LOUIS COUNTY DEPARTMENT OF PUBLIC WORKED AND REPORT ALL INCIDENTS OF FAILURE AND PROVIDE DOCUMENTATION OF ACTIONS AND BMP MEASURES TAKEN.

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

### PREVENTION OF POTENTIAL POLLUTANTS

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

2. HAZARDOUS WASTE SHALL BE SEGREGATED FROM NON-HAZARDOUS CONSTRUCTION SITE DEBRIS. LIQUID OR SEMI-LIQUID HAZARDOUS WASTE SHALL BE STORES IN APPROPRIATE CONTAINERS (CLOSED DRUMS OR SIMILAR) AND SHALL BE KEPT UNDER COVER. GRANULAR, SOLUBLE OR LEACHABLE HAZARDOUS WASTE MATERIALS SHALL BE STORED OFF THE GROUND AND IN COVERED LEAK-PROOF CONTAINERS. THE OWNER SHALL PROPERLY APPROVE ANY HAZARDOUS WASTE STORAGE AREA LOCATIONS.HAZARDOUS WASTE SHALL BE PROPERLY DISPOSED OF OFF-SITE ON A REGULAR BASES BY A REPUTABLE, LICENSED HAZARDOUS WASTE HAULER.

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

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

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

6. DISCHARGES OR FLOWS FROM FIRE FIGHTING ACTIVITIES OCCUR DURING EMERGENCY SITUATIONS. THE PERMITEE IS NOT EXPECTED TO EVALUATE FIRE FIGHTING DISCHARGES WITH REGARD TO POLLUTANT CONTRIBUTIONS. THEREFORE, THESE DISCHARGES ARE AUTHORIZED AS ALLOWABLE NON-STORM WATER DISCHARGES, UNLESS IDENTIFIED, BY EPA, AS SIGNIFICANT SOURCES OF POLLUTANTS TO WATERS OF THE U.S.

SWPPP NOTES:

1. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE APPROVED SWPPP WILL BE AVAILABLE ON SITE OF THE PERMITTED ACTIVITY.
2. 404 / 401 PERMITS ARE NOT REQUIRED FOR THIS PROJECT
3. THERE ARE NO SINKHOLES, SPRINGS, SEEPS OR KARST FEATURES ON OR NEAR THE CONSTRUCTION SITE.
4. THERE ARE NO KNOWN RECORDS OF SPECIES OR NATURAL COMMUNITIES OF CONSERVATION CONCERN WITHIN THE DEFINED PROJECT AREA AS CONFIRMED BY THE MISSOURI DEPARTMENT OF CONSERVATION .
5. BASED ON CATALOGUED INFORMATION FROM THE UNITED STATES FISH AND WILDLIFE SERVICE, FEDERALLY LISTED ENDANGERED SPECIES ARE PRESENT NEAR OR WITHIN THE PROJECT AREA. INDIANA BATS, NORTHERN LONG-EARED BATS AND GRAY BATS MAY OCCUR NEAR THE PROJECT AREA. DURING PROJECT ACTIVITIES, AVOID DEGRADING STREAM QUALITY AND WHERE POSSIBLE LEAVE SNAGS STANDING AND PRESERVE MATURE FOREST CANOPY.
6. IF ANY TREES NEED TO BE REMOVED FOR THE PROJECT, PLEASE CONTACT THE U.S. FISH AND WILDLIFE SERVICE FOR FURTHER COORDINATION UNDER THE ENDANGERED SPECIES ACT. (ECOLOGICAL SERVICES, 101 PARK DEVILLE DRIVE, SUITE A, COLUMBIA, MISSOURI 65203-0007; PHONE 573-234-2132 EXT. 100).
7. THERE ARE NO HISTORIC PROPERTIES WITHIN CONSTRUCTION LIMITS.
8. INVASIVE EXOTIC SPECIES ARE A SIGNIFICANT ISSUE FOR FISH, WILDLIFE, AND AGRICULTURE IN MISSOURI. SEEDS, EGGS, AND LARVAE MAY BE MOVED TO NEW SITES ON CONSTRUCTION EQUIPMENT. PLEASE INSPECT AND CLEAN EQUIPMENT THOROUGHLY BEFORE MOVING BETWEEN PROJECT SITES.
   - REMOVE ANY MUD, SOIL TRASH, OR PLANTS FROM EQUIPMENT BEFORE LEAVING ANY WORK AREA
   - WHEN POSSIBLE, WASH AND RINSE EQUIPMENT THOROUGHLY WITH HARD SPRAY OR HOT WATER (>140˚F)
9. SEDIMENT SHALL BE WASHED FROM ALL VEHICLES AT WASH DOWN STATION PRIOR TO LEAVING THE SIRE. NO TRACKING OF MUD ONTO ANY ROADS SHALL BE ALLOWED.
10. THERE ARE NO NON-STORM WATER DISCHARGES PRESENT.
11. THERE ARE NO ANTICIPATED DEWATERING METHODS IN THE PROPOSED PLANS.
12. THERE ARE NO INDUSTRIAL ACTIVITIES LIKE TEMPORARY, ON SITE, CONCRETE OR ASPHALT BATCH PLANTS ON THE CONSTRUCTION SITE.

CONSTRUCTION SCHEDULE (TENTATIVE)
STARTING DATE MARCH, 2027 – END JULY, 2028

MARCH 2027 JULY 2028

- SEDIMENT/EROSION CONTROL INSTALL (5 DAYS)
- SITE GRADING (DURATION)
- SEDIMENT/EROSION CONTROL MAINTAIN (DURATION OF PROJECT)
- SEEDING/SODDING (5 DAYS)
- REMOVAL OF BMPS (3 DAY)

NOTE: SCHEDULE DURATIONS ARE SUBJECT TO CHANGE DUE TO WEATHER CONDITIONS. SOME OPERATIONS WILL HAVE OVERLAP TIME FRAMES.

CLEARING TECHNIQUES THAT RETAIN EXISTING VEGETATION TO THE MAX EXTENT POSSIBLE SHALL BE USED AND THE TIME PERIOD FOR DISTURBED AREAS TO BE WITHOUT VEGETATIVE COVER MINIMIZED TO THE EXTENT PRACTICAL. ADDITIONAL SILTATION CONTROL SHALL BE INSTALLED AS REQUIRED BY THE ST. LOUIS COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR HIGHWAYS AND TRAFFIC.

AREAS SHALL BE SEEDED AFTER CLEARING AND GRUBBING WHEN NO ACTIVITY WILL OCCUR WITHIN THIRTY DAYS. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND A MAJOR LAND DISTURBANCE (MLD) PERMIT WILL BE REQUIRED PRIOR TO ANY GRADING ON THE SITE, BEYOND WHAT IS APPROVED ON THIS PLAN.

## *CONCRETE WASTE MANAGEMENT*

**DESCRIPTION** - The purpose of this specification is to set forth procedures and practices designed to eliminate the discharge of concrete waste materials to storm drainage systems, drainage areas, streets or watercourses, which shall be required of the contractor.

**APPROPRIATE APPLICATION of BMP** - Concrete waste management procedures and practices will be implemented on construction projects as follows:

- Where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing Portland cement concrete (PCC), asphaltic concrete (AC) or bituminous concrete (BC) are generated, such as from saw cutting, coring, grinding, grooving and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on-site, when approved by the Resident Engineer or Construction Inspector.
- Where mortar-mixing station exist.

**AWARENESS / ENFORCEMENT**

- Contractor's and / or permit holder's superintendent or representative shall oversee and enforce concrete waste management procedures.
  - Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.
- The site superintendent shall make drivers aware of the presence of the concrete waste management facilities. The site superintendent should post signage indicating the location and designated use of the concrete waste management areas, and provide careful oversight to inspect for evidence of improper dumping of concrete waste and wash water.

**IMPLEMENTATION**

- Contractors, private individuals, public agencies, etc. using concrete material, shall incorporate requirements for concrete waste management into material supplier and subcontractor agreements. Include requirements in contracts with concrete delivery companies that drivers must use designated concrete washout facilities.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Do not allow excess concrete to be dumped on-site, except in designated areas.
- Cover the structures before predicted rainstorms to prevent overflows.
- Monitor on site concrete waste storage and disposal procedures at least weekly or as directed by the Resident Engineer or Construction Inspector.



- In St. Louis County, the contractor is required by Missouri State Law (10 CSR 10-6.170) and County Ordinance (612.340) to control fugitive dust blown from the construction site, signal installation, etc. Dust control, including saw-cut material etc., on the construction site shall be monitored for safety purposes and to prevent nuisances. The contractor / permitee shall apply reasonable measures to control dust and particulate matter (of any size or source) due to roadway / construction traffic, grading, clearing and grubbing, building demolition, saw-cutting etc. from migrating off the site of origin. Operations residue from grinding, saw-cutting etc. should be picked up (cleaned-up) by means of a vacuum device or swept up. Compressed or blown air may be used to clean negligible residual dust that the vacuum or sweeping did not clean up, as long as the above dust control procedures (and law and ordinance) are met. Saw cutting residue, slurry or dry, should not be allowed to enter storm drains or watercourses. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement when traffic is present, when precipitation is anticipated before cleanup or overnight. In approved locations, saw-cut slurry may flow into the dirt (where it can soak into the ground) adjacent to the saw-cutting operation and be buried, on site, 2" minimum below finished grade. Other dust control and clean-up procedures may be acceptable as approved by the Engineer or St. Louis County. See additional Concrete Waste Management requirements in this Manual.

**WASHOUT AREA PROTOCOL**

- Contain concrete washout on site or take it offsite for disposal in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- For onsite washout:
  - Locate washout area on-site at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough to contain liquid and solid waste. Locate it in a dirt area where the liquid portion of the washout can soak into the ground. They are preferably built below-grade to prevent breaches and reduce the likelihood of runoff. Discontinue use of the washout once it reaches 75% capacity. Washouts should be sized to handle solids and wash water to prevent overflow. It is estimated that 7 gallons of wash water are used to wash one truck chute and 50 gallons are used to wash out the hopper of a concrete pump. Implement a maintenance schedule for washout areas.
  - Temporary washout facilities should have pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
  - Wash out wastes into the pit where the concrete can set, be broken up, and used on site; or buried on site; or disposed of properly.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose of in the trash.
- Do not place concrete wash water in a pit that is connected to the storm drain system or that drains to nearby waterways.

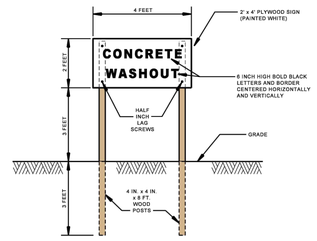


- Locate concrete washout facilities in an area that allows convenient access for concrete trucks, preferably near the area where the concrete is being poured. Appropriate gravel or rock should cover paths to concrete washout facilities if the facilities are located on undeveloped property. These areas should be far enough away from other construction traffic to reduce the likelihood of accidental damage and spills. The number of facilities you install should depend on the expected demand for storage capacity. On large sites with extensive concrete work, place washouts in multiple locations for ease of use. If the dried concrete washout is buried on the site it shall have a 2-foot cover minimum. The 2-foot cover shall match with surrounding finished grade.
- Concrete washed out in areas other than those designated for such activity, shall be cleaned up by the contractor.
- Install signage adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Perform washout of concrete mixers, delivery trucks and other delivery systems in designated areas only.
- Wash out concrete from concrete pumper bins into concrete pumper trucks and discharge into designated washout area.
- Equipment that cannot be easily moved, such as concrete pavers, shall only be washed in designated areas that do not drain to waterways or storm drain systems.
- Backfill and repair holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities.
- Wash out concrete on site into a future designated final concrete pour location. This location cannot be within 50 feet of a storm or sanitary sewer; or water course; or where it can drain off site. The washout cannot jeopardize the integrity of the final concrete pour. Concrete to be removed from the site shall be disposed of in conformance with the provisions in Standard Specification Manual, Section 202, all as directed by the Engineer. No additional payment will be made for complying with the above specification.
- A self-contained and watertight container may be used to control, capture, and contain concrete wastewater and washout material. The container must be portable and temporary, damage resistant, protect against spills and leaks, and sized to handle solids and wash water to prevent overflow. The container should be emptied and cleaned when 75% of its capacity is reached. After all liquids evaporate or are pumped or vacuumed, and the remaining slurry solidified, the Contractor may bury the solids on site. On County roadway projects, the solids may be buried on site if approved by the Engineer. In either case, solids shall be buried a minimum of 2 feet below finished grade. Disposal of container contents that are removed from the site shall be made at an approved landfill. In order to prevent overflows caused by natural occurrences and to provide security for safety purposes and against acts of vandalism, the container shall be covered at the end of each workday and remain covered until the beginning of the next workday. The cover shall remain on site with the container at all times. Container shall be free of liquids during any on-site relocation process or transport to another site. On County roadway projects, location(s) for the container shall be approved by the Engineer.

**TYPICAL DETAIL** - 806-46.03



| NEW | REVISIONS | | | | |
|---|---|---|---|---|---|
| 4/15/08 | 10/15/11 | 1/1/16 | | | |




**CONCRETE WASHOUT SIGN DETAIL**
**(OR EQUIVALENT AS APPROVED BY COUNTY)**

**GENERAL NOTES**

1) DO NOT SCALE DRAWING, FOLLOW DIMENSIONS.
2) ACTUAL LAYOUT DETERMINED IN THE FIELD
3) THE "CONCRETE WASHOUT" SIGN SHALL BE INSTALLED WITHIN 30 FEET OF EACH TEMPORARY CONCRETE WASHOUT FACILITY.

ST. LOUIS COUNTY
DEPARTMENT OF TRANSPORTATION
CREVE COEUR, MISSOURI
TYPICAL BMP DETAIL
**CONCRETE WASTE MANAGEMENT**
(CONCRETE WASHOUT SIGN)
REVISION DATE: January 1, 2016
DRAWING 806-46.03



STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Certificate of Authority No. 2013013380

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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
EROSION SEDIMENT AND CONTROL REQUIREMENTS

Sheet No.
ESC3.2




0 30' 60'

SCALE: 1" = 30'

# GENERAL NOTES

EXISTING CONDITIONS

- UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN BASED OFF OF AVAILABLE SURVEYS AND RECORDS. THEREFORE THEIR LOCATIONS ARE CONSIDERED APPROXIMATE. THERE MAY BE OTHER UNKNOWN FEATURES WHICH AT PRESENT UNKNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES KNOWN OR NOT KNOWN ARE BE THE RESPONSIBILITY OF THE CONTRACTOR.

SAFETY

- THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND SHALL MEET AND MAINTAIN ALL CRITERIA REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
- EXCAVATION PROCEDURES SHALL CONFORM TO OSHA STANDARDS.

GRADING

- ELEVATIONS SHOWN ARE TO FINISH GRADE SURFACES.
- NO BLASTING IS PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- MAXIMUM CUT AND FILL SLOPES SHALL BE 3:1, UNLESS OTHERWISE NOTED.

SEEDING

- SEED AND/OR LANDSCAPE ALL DISTURBED AREAS SUITABLE FOR VEGETATION. FERTILIZE, MULCH, AND WATER AS NECESSARY TO FACILITATE GROWTH.

QUANTITIES

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES.

# CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## DEMOLITION LEGEND

| | |
|---|---|
| DEMOLITION HATCH | |
| ASPHALT OVERLAY | |

DEMOLITION AND PHASING NOTE:

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STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

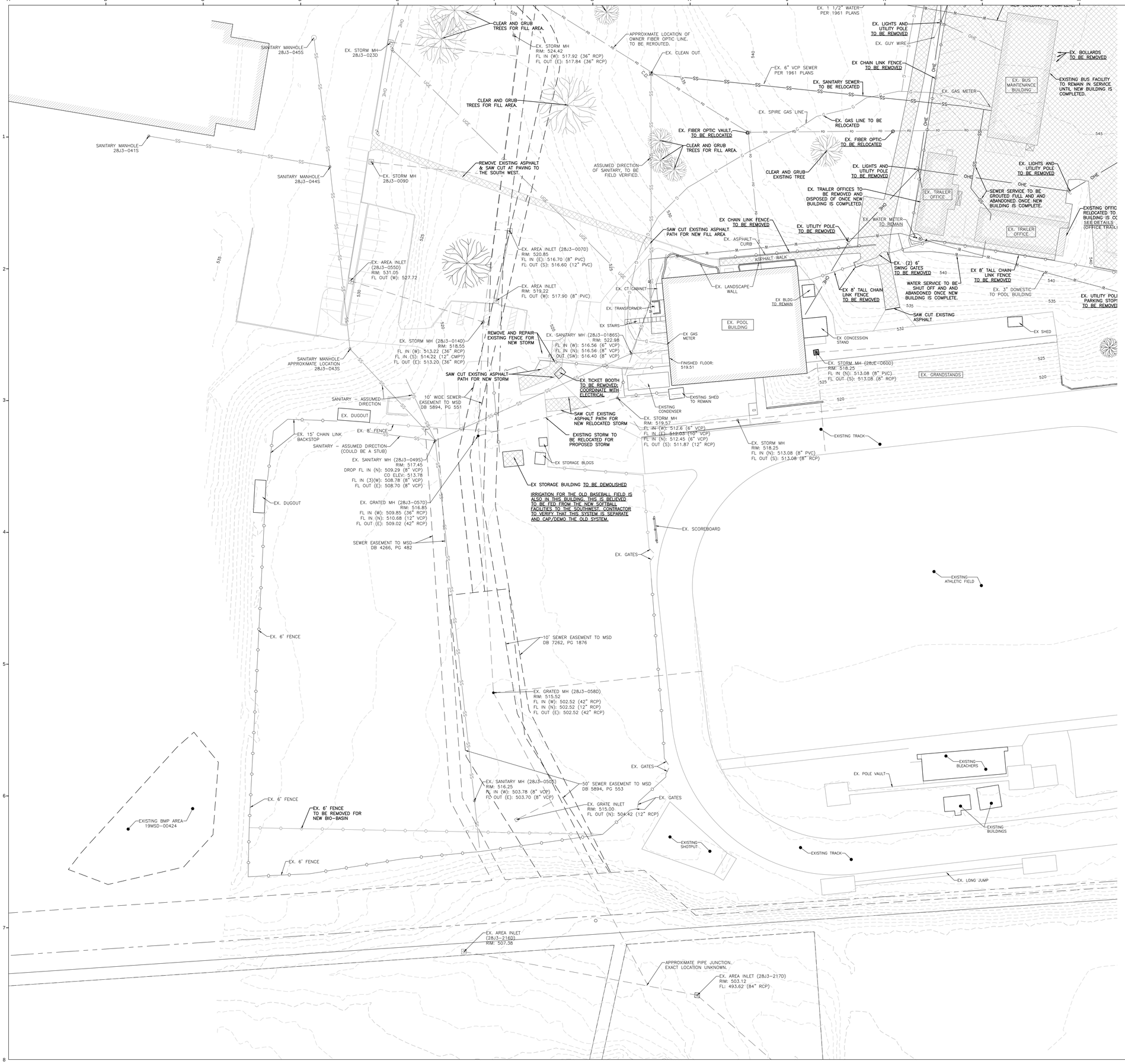
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
EXISTING CONDITIONS & DEMOLITION PLAN - NORTH

Sheet No.
C1.0




0 30' 60'

SCALE: 1" = 30'

## GENERAL NOTES

EXISTING CONDITIONS

- UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN BASED OFF OF AVAILABLE SURVEYS AND RECORDS. THEREFORE THEIR LOCATIONS ARE CONSIDERED APPROXIMATE. THERE MAY BE OTHER UNKNOWN FEATURES WHICH AT PRESENT UNKNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES KNOWN OR NOT KNOWN ARE BE THE RESPONSIBILITY OF THE CONTRACTOR.

SAFETY

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| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

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| | |
|---|---|
| DEMOLITION HATCH | |
| ASPHALT OVERLAY | |

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STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
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Project No.: 257EX18.400

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Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
EXISTING CONDITIONS & DEMOLITION PLAN - SOUTH

Sheet No.
C1.1

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

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- NO BLASTING IS PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- MAXIMUM CUT AND FILL SLOPES SHALL BE 3:1, UNLESS OTHERWISE NOTED.

SEEDING
- SEED AND/OR LANDSCAPE ALL DISTURBED AREAS SUITABLE FOR VEGETATION. FERTILIZE, MULCH, AND WATER AS NECESSARY TO FACILITATE GROWTH.

QUANTITIES
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES.

RETAINING WALL — OVEREXCAVATION NOTE

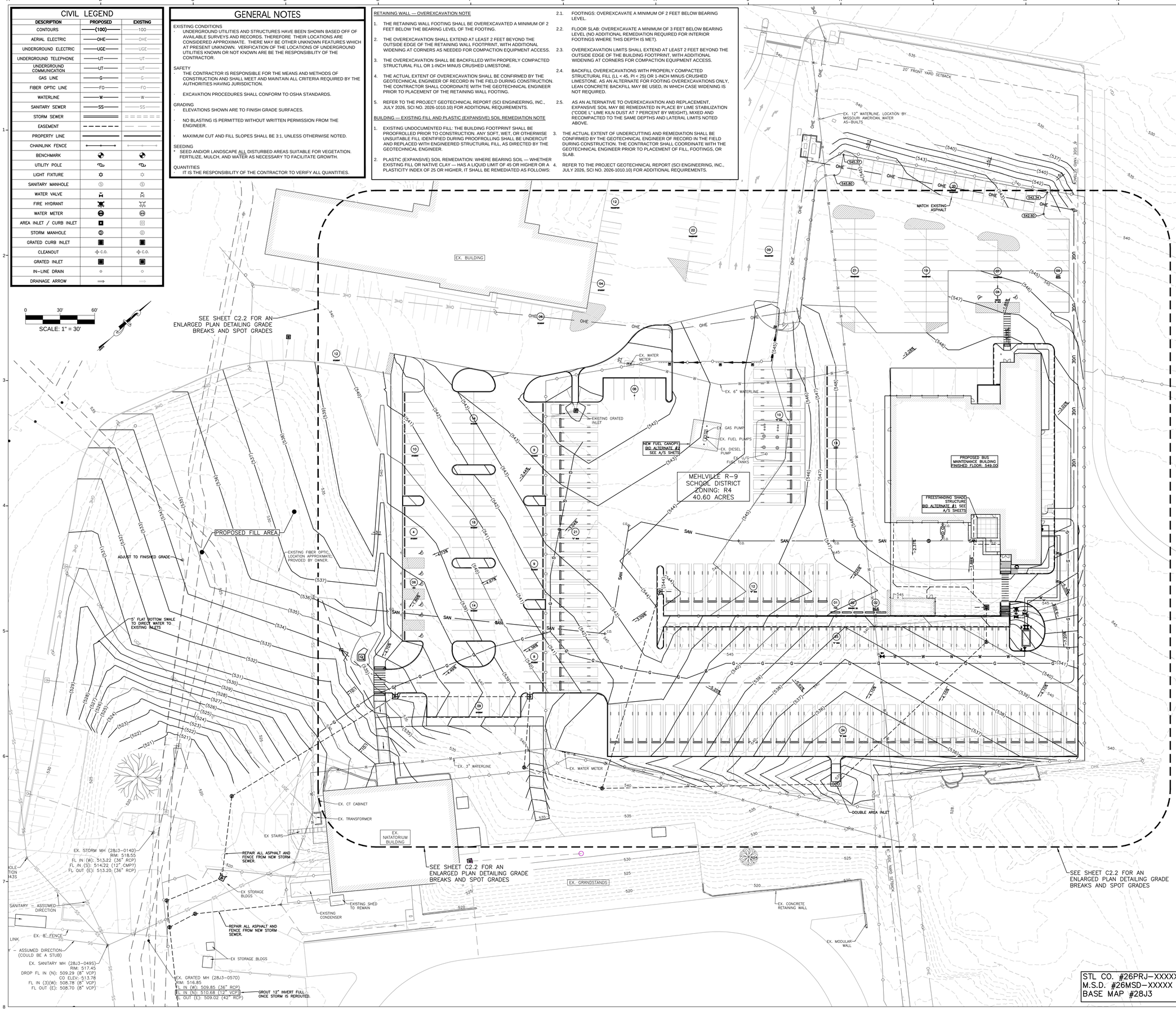
1. THE RETAINING WALL FOOTING SHALL BE OVEREXCAVATED A MINIMUM OF 2 FEET BELOW THE BEARING LEVEL OF THE FOOTING.
2. THE OVEREXCAVATION SHALL EXTEND AT LEAST 2 FEET BEYOND THE OUTSIDE EDGE OF THE RETAINING WALL FOOTPRINT, WITH ADDITIONAL WIDENING AT CORNERS AS NEEDED FOR COMPACTION EQUIPMENT ACCESS.
3. THE OVEREXCAVATION SHALL BE BACKFILLED WITH PROPERLY COMPACTED STRUCTURAL FILL OR 1-INCH MINUS CRUSHED LIMESTONE.
4. THE ACTUAL EXTENT OF OVEREXCAVATION SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER OF RECORD IN THE FIELD DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE RETAINING WALL FOOTING.
5. REFER TO THE PROJECT GEOTECHNICAL REPORT (SCI ENGINEERING, INC., JULY 2026, SCI NO. 2026-1010.10) FOR ADDITIONAL REQUIREMENTS.

BUILDING — EXISTING FILL AND PLASTIC (EXPANSIVE) SOIL REMEDIATION NOTE

1. EXISTING UNDOCUMENTED FILL: THE BUILDING FOOTPRINT SHALL BE PROOFROLLED PRIOR TO CONSTRUCTION. ANY SOFT, WET, OR OTHERWISE UNSUITABLE FILL IDENTIFIED DURING PROOFROLLING SHALL BE UNDERCUT AND REPLACED WITH ENGINEERED STRUCTURAL FILL, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
2. PLASTIC (EXPANSIVE) SOIL REMEDIATION: WHERE BEARING SOIL — WHETHER EXISTING FILL OR NATIVE CLAY — HAS A LIQUID LIMIT OF 45 OR HIGHER OR A PLASTICITY INDEX OF 25 OR HIGHER, IT SHALL BE REMEDIATED AS FOLLOWS:
   - 2.1. FOOTINGS: OVEREXCAVATE A MINIMUM OF 2 FEET BELOW BEARING LEVEL.
   - 2.2. FLOOR SLAB: OVEREXCAVATE A MINIMUM OF 3 FEET BELOW BEARING LEVEL (NO ADDITIONAL REMEDIATION REQUIRED FOR INTERIOR FOOTINGS WHERE THIS DEPTH IS MET).
   - 2.3. OVEREXCAVATION LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND THE OUTSIDE EDGE OF THE BUILDING FOOTPRINT, WITH ADDITIONAL WIDENING AT CORNERS FOR COMPACTION EQUIPMENT ACCESS.
   - 2.4. BACKFILL OVEREXCAVATIONS WITH PROPERLY COMPACTED STRUCTURAL FILL (LL < 45, PI < 25) OR 1-INCH MINUS CRUSHED LIMESTONE. AS AN ALTERNATE FOR FOOTING OVEREXCAVATIONS ONLY, LEAN CONCRETE BACKFILL MAY BE USED, IN WHICH CASE WIDENING IS NOT REQUIRED.
   - 2.5. AS AN ALTERNATIVE TO OVEREXCAVATION AND REPLACEMENT, EXPANSIVE SOIL MAY BE REMEDIATED IN PLACE BY LIME STABILIZATION ("CODE L" LIME KILN DUST AT 7 PERCENT BY WEIGHT), MIXED AND RECOMPACTED TO THE SAME DEPTHS AND LATERAL LIMITS NOTED ABOVE.
3. THE ACTUAL EXTENT OF UNDERCUTTING AND REMEDIATION SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER OF RECORD IN THE FIELD DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF FILL, FOOTINGS, OR SLAB.
4. REFER TO THE PROJECT GEOTECHNICAL REPORT (SCI ENGINEERING, INC., JULY 2026, SCI NO. 2026-1010.10) FOR ADDITIONAL REQUIREMENTS.

0 30' 60'
SCALE: 1" = 30'




STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City


Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Certificate of Authority No. 2013013380



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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

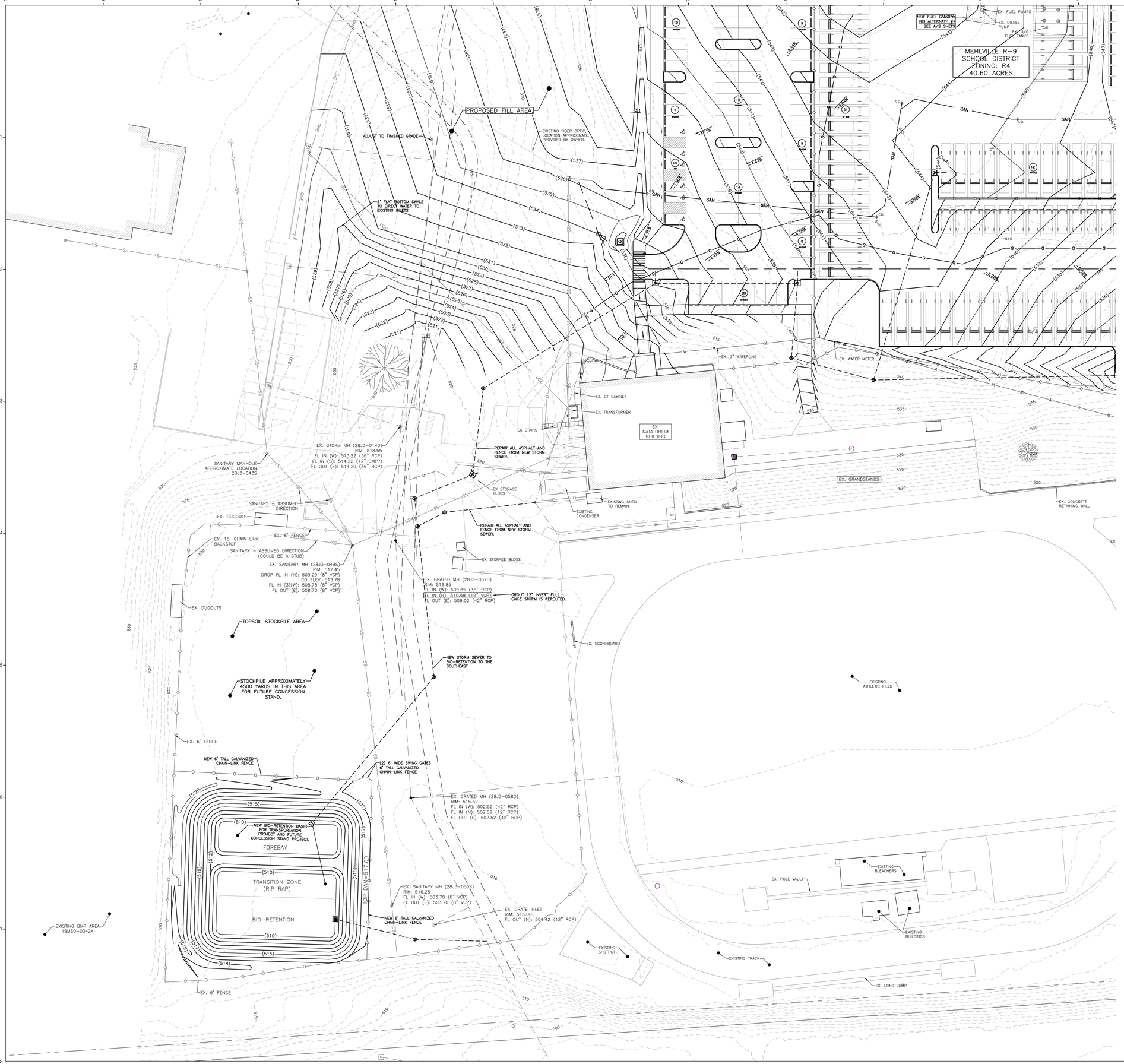
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
GRADING PLAN

Sheet No.
C2.0




0 30' 60'

SCALE: 1" = 30'

## GENERAL NOTES

EXISTING CONDITIONS

- UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN BASED OFF OF AVAILABLE SURVEYS AND RECORDS. THEREFORE THEIR LOCATIONS ARE CONSIDERED APPROXIMATE. THERE MAY BE OTHER UNKNOWN FEATURES WHICH AT PRESENT UNKNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES KNOWN OR NOT KNOWN ARE BE THE RESPONSIBILITY OF THE CONTRACTOR.

SAFETY

- THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND SHALL MEET AND MAINTAIN ALL CRITERIA REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
- EXCAVATION PROCEDURES SHALL CONFORM TO OSHA STANDARDS.

GRADING

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SEEDING

- SEED AND/OR LANDSCAPE ALL DISTURBED AREAS SUITABLE FOR VEGETATION. FERTILIZE, MULCH, AND WATER AS NECESSARY TO FACILITATE GROWTH.

QUANTITIES

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES.

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
GRADING PLAN - BIO RETENTION BASIN

Sheet No.
C2.1

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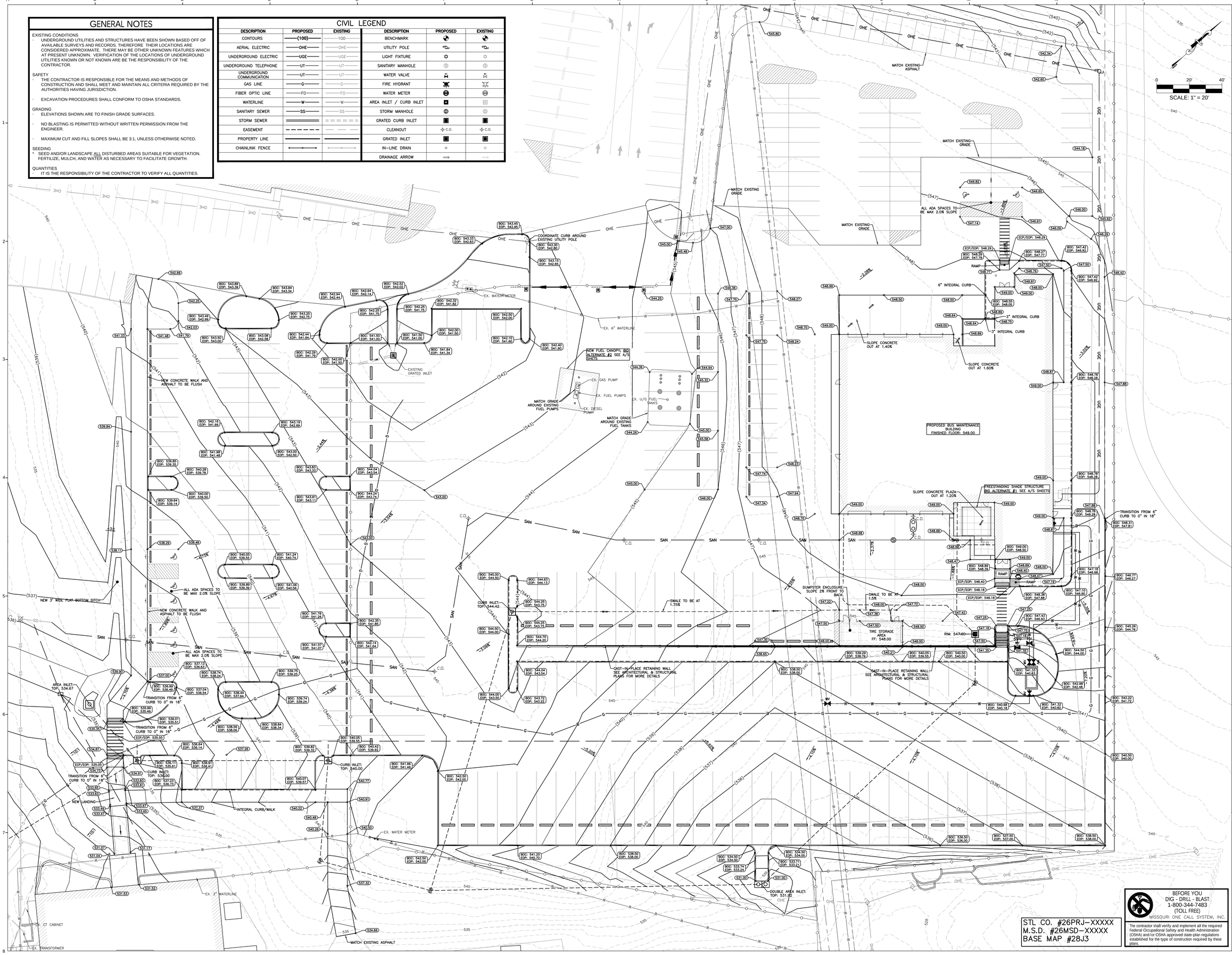
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QUANTITIES
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES.

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING | DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|---|---|---|
| CONTOURS | (100) | 100 | BENCHMARK | | |
| AERIAL ELECTRIC | OHE | OHE | UTILITY POLE | | |
| UNDERGROUND ELECTRIC | UGE | UGE | LIGHT FIXTURE | | |
| UNDERGROUND TELEPHONE | UT | UT | SANITARY MANHOLE | | |
| UNDERGROUND COMMUNICATON | UT | UT | WATER VALVE | | |
| GAS LINE | G | G | FIRE HYDRANT | | |
| FIBER OPTIC LINE | FO | FO | WATER METER | | |
| WATERLINE | W | W | AREA INLET / CURB INLET | | |
| SANITARY SEWER | SS | SS | STORM MANHOLE | | |
| STORM SEWER | | | GRATED CURB INLET | | |
| EASEMENT | | | CLEANOUT | C.O. | C.O. |
| PROPERTY LINE | | | GRATED INLET | | |
| CHAINLINK FENCE | | | IN-LINE DRAIN | | |
| | | | DRAINAGE ARROW | | |




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

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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Engineering Corporation #2017008527

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
ENLARGED GRADING PLAN

Sheet No.
C2.2

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

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GRADING
- ELEVATIONS SHOWN ARE TO FINISH GRADE SURFACES.
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QUANTITIES
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RETAINING WALL — OVEREXCAVATION NOTE

1. THE RETAINING WALL FOOTING SHALL BE OVEREXCAVATED A MINIMUM OF 2 FEET BELOW THE BEARING LEVEL OF THE FOOTING.
2. THE OVEREXCAVATION SHALL EXTEND AT LEAST 2 FEET BEYOND THE OUTSIDE EDGE OF THE RETAINING WALL FOOTPRINT, WITH ADDITIONAL WIDENING AT CORNERS AS NEEDED FOR COMPACTION EQUIPMENT ACCESS.
3. THE OVEREXCAVATION SHALL BE BACKFILLED WITH PROPERLY COMPACTED STRUCTURAL FILL OR 1-INCH MINUS CRUSHED LIMESTONE.
4. THE ACTUAL EXTENT OF OVEREXCAVATION SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER OF RECORD IN THE FIELD DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE RETAINING WALL FOOTING.
5. REFER TO THE PROJECT GEOTECHNICAL REPORT (SCI ENGINEERING, INC., JULY 2026, SCI NO. 2026-1010.10) FOR ADDITIONAL REQUIREMENTS.

BUILDING — EXISTING FILL AND PLASTIC (EXPANSIVE) SOIL REMEDIATION NOTE

1. EXISTING UNDOCUMENTED FILL: THE BUILDING FOOTPRINT SHALL BE PROOFROLLED PRIOR TO CONSTRUCTION. ANY SOFT, WET, OR OTHERWISE UNSUITABLE FILL IDENTIFIED DURING PROOFROLLING SHALL BE UNDERCUT AND REPLACED WITH ENGINEERED STRUCTURAL FILL, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
2. PLASTIC (EXPANSIVE) SOIL REMEDIATION: WHERE BEARING SOIL — WHETHER EXISTING FILL OR NATIVE CLAY — HAS A LIQUID LIMIT OF 45 OR HIGHER OR A PLASTICITY INDEX OF 25 OR HIGHER, IT SHALL BE REMEDIATED AS FOLLOWS:
   - 2.1. FOOTINGS: OVEREXCAVATE A MINIMUM OF 2 FEET BELOW BEARING LEVEL.
   - 2.2. FLOOR SLAB: OVEREXCAVATE A MINIMUM OF 3 FEET BELOW BEARING LEVEL (NO ADDITIONAL REMEDIATION REQUIRED FOR INTERIOR FOOTINGS WHERE THIS DEPTH IS MET).
   - 2.3. OVEREXCAVATION LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND THE OUTSIDE EDGE OF THE BUILDING FOOTPRINT, WITH ADDITIONAL WIDENING AT CORNERS FOR COMPACTION EQUIPMENT ACCESS.
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0 40' 80'

SCALE: 1" = 40'

## EST. EARTHWORK VOLUMES

| LOCATION | CUT | FILL | NET |
|---|---|---|---|
| TRANSPORTATION SITE | 13733 ± | 1690 ± | 12,043 ±(C) |
| NEW 20 SPACES | 52 ± | 309 ± | 257 ±(F) |
| FG FILL AREA | 24 ± | 12145 ± | 12121 ±(F) |
| BIO-RETENTION POND | 4105 ± | 41 ± | 4,064 ±(C) |
| FUTURE CONCESSION STAND (APPROX)* | 248 ± | 5198 ± | 4,950 ±(F) |

* CONCESSION STAND NOT PART OF THIS PROJECT

1. The engineer/design professional assumes no responsibility or liability for the accuracy of quantities used by the contractor for bidding or construction purposes.
2. The Contractor is responsible for evaluating the amount of work required to excavate and grade the site to elevations shown. The provided calculations are estimates only.
3. Calculations shown are generally to subgrade of asphalt & concrete pavement. This does not include sidewalks or top soil stripping, removal of unsuitable or unstable soils, or over-excavation that may be required per the project geotechnical report.
4. Volumes do not include shrinkage, swell, or compaction factors for on-site or imported materials.
5. The contractor is solely responsible for verifying all quantities, means, methods, and techniques of construction and shall perform independent quantity takeoffs prior to bidding.
6. Additional material to be kept on site and placed in accordance with the plans.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC,
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
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Revisions

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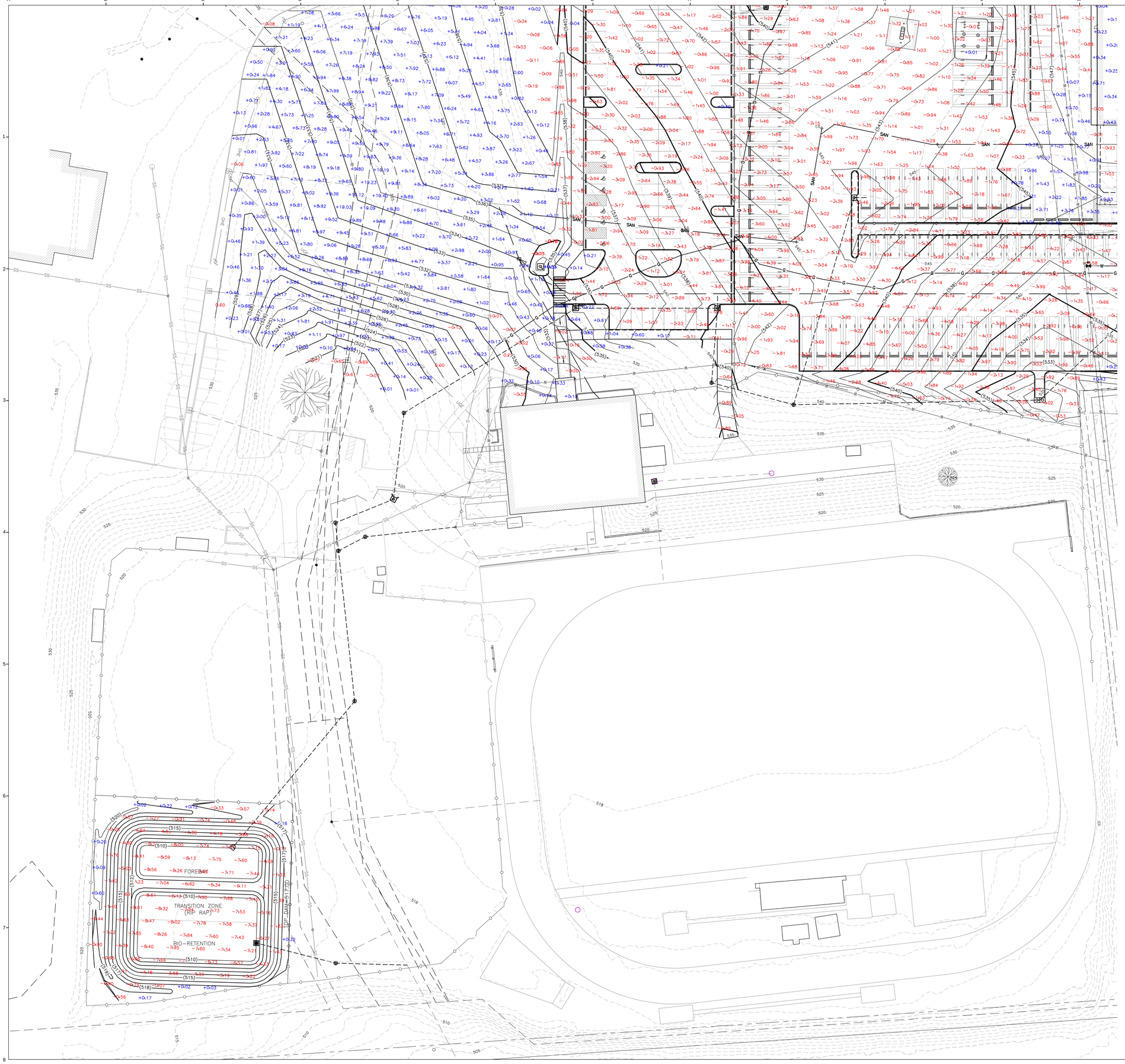
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
CUT / FILL SUBGRADE PLAN

Sheet No.
C2.3




## GENERAL NOTES

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| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

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4. Volumes do not include shrinkage, swell, or compaction factors for on-site or imported materials.
5. The contractor is solely responsible for verifying all quantities, means, methods, and techniques of construction and shall perform independent quantity takeoffs prior to bidding.
6. Additional material to be kept on site and placed in accordance with the plans.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

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City

Collaborator

Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

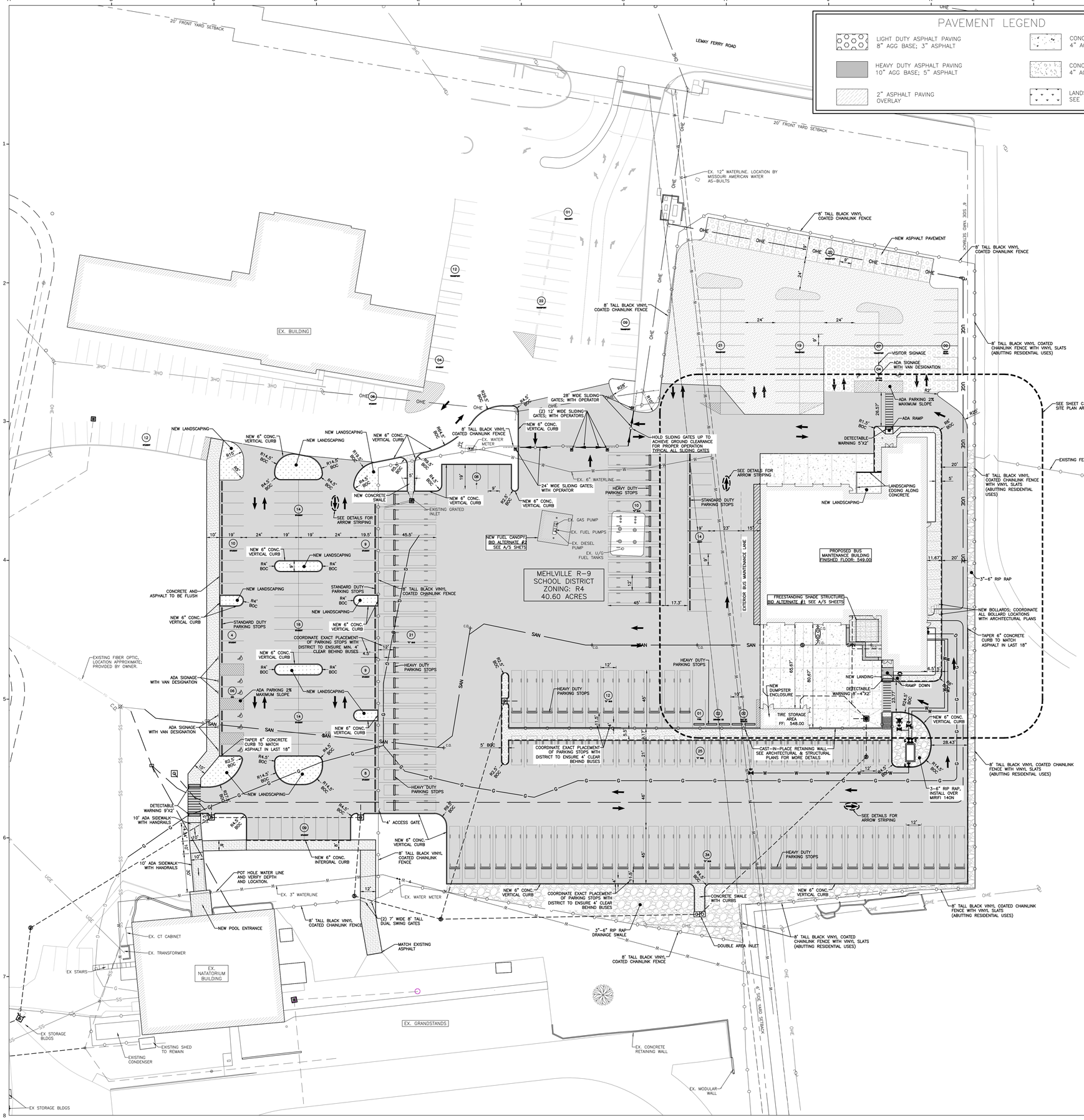
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title

Sheet No.
C2.4




## GENERAL NOTES

EXISTING CONDITIONS
- UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN BASED OFF OF AVAILABLE SURVEYS AND RECORDS. THEREFORE THEIR LOCATIONS ARE CONSIDERED APPROXIMATE. THERE MAY BE OTHER UNKNOWN FEATURES WHICH AT PRESENT UNKNOWN. VERIFICATION OF THE LOCATIONS OF UNDERGROUND UTILITIES KNOWN OR NOT KNOWN ARE BE THE RESPONSIBILITY OF THE CONTRACTOR.

SAFETY
- THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND SHALL MEET AND MAINTAIN ALL CRITERIA REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
- EXCAVATION PROCEDURES SHALL CONFORM TO OSHA STANDARDS.

GRADING
- ELEVATIONS SHOWN ARE TO FINISH GRADE SURFACES.
- NO BLASTING IS PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- MAXIMUM CUT AND FILL SLOPES SHALL BE 3:1, UNLESS OTHERWISE NOTED.

SEEDING
- SEED AND/OR LANDSCAPE ALL DISTURBED AREAS SUITABLE FOR VEGETATION. FERTILIZE, MULCH, AND WATER AS NECESSARY TO FACILITATE GROWTH.

QUANTITIES
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES.

## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | (100) | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## PARKING COUNT (WITHIN AREAS MODIFIED)

### PARKING REQUIRED

| | | |
|---|---|---|
| TYPE A | - 25 SPACES | |
| TYPE C | - 31 SPACES | TOTAL BUS = 102 |
| TYPE D | - 46 SPACES | |
| TRANSPORT | - 110 SPACES | |
| STAFF | - 14 SPACES | |
| VISITOR | - 4 SPACES | |
| STUDENT | - 120 SPACES | |
| ALT | - 12 SPACES | |

### PARKING PROVIDED

| | | |
|---|---|---|
| TYPE A | - 25 SPACES | |
| TYPE C | - 31 SPACES | TOTAL BUS = 102 |
| TYPE D | - 46 SPACES | |
| TRANSPORT | - 110 SPACES | |
| STAFF | - 14 SPACES | |
| VISITOR | - 2 SPACES + 2 ADA | |
| STUDENT | - 115 SPACES + 6 ADA (+1) | |

OTHER

| | |
|---|---|
| ALT | - 0 SPACES (-12) |
| OUT OF SERV | - 2 SPACES |
| SHOP TRUCK | - 9 SPACES |
| IT | - 6 SPACES |
| DRIVER ED | - 2 SPACES |
| FUEL TRUCK | - 1 SPACE |

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
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Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
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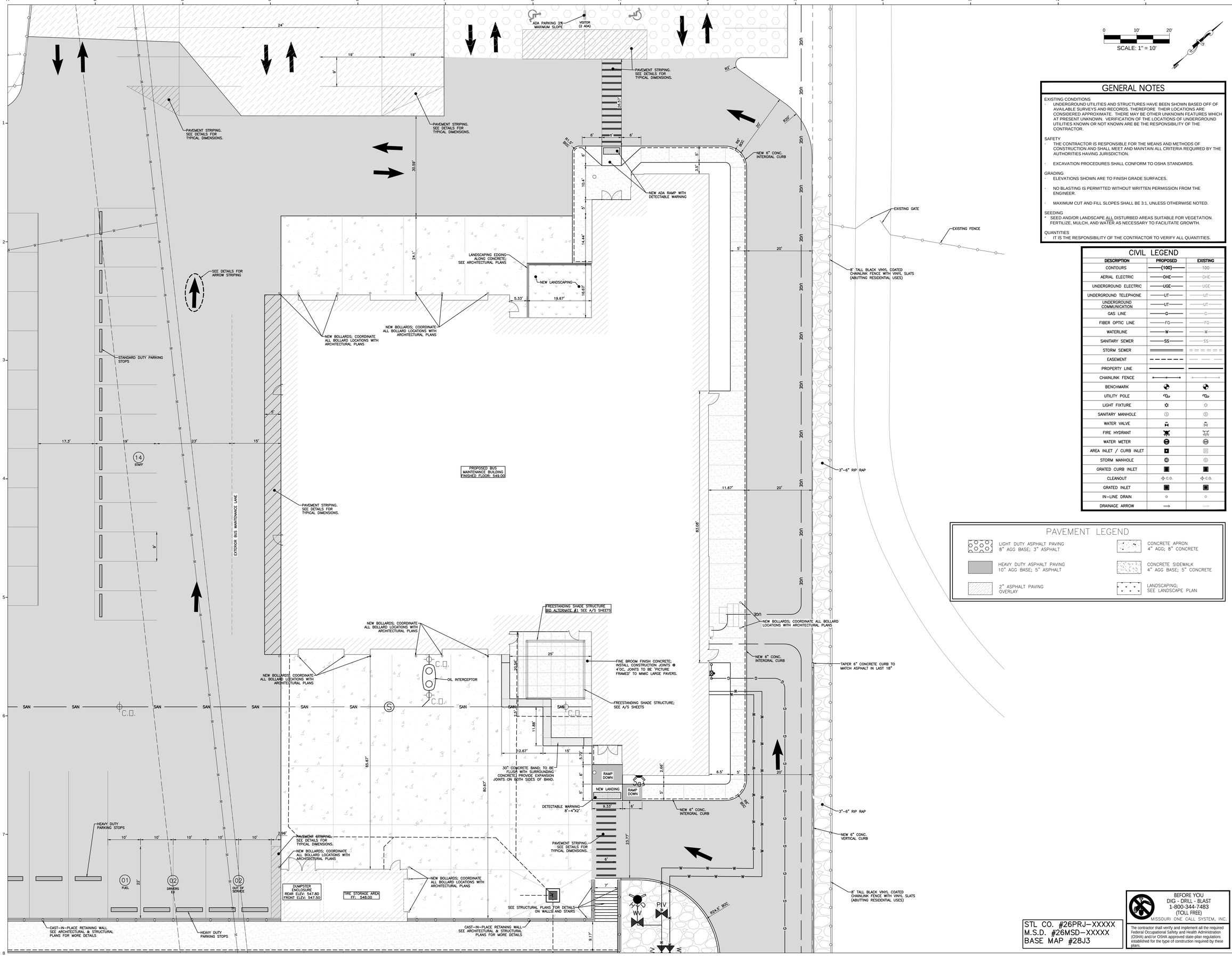
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
OVERALL SITE & DIMENSION PLAN

Sheet No.
C3.0




SCALE: 1" = 10'

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| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## PAVEMENT LEGEND

- LIGHT DUTY ASPHALT PAVING: 8" AGG BASE; 3" ASPHALT
- HEAVY DUTY ASPHALT PAVING: 10" AGG BASE; 5" ASPHALT
- 2" ASPHALT PAVING OVERLAY
- CONCRETE APRON: 4" AGG; 8" CONCRETE
- CONCRETE SIDEWALK: 4" AGG BASE; 5" CONCRETE
- LANDSCAPING; SEE LANDSCAPE PLAN

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
ENLARGED SITE & DIMENSION PLAN

Sheet No.
C3.1

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| UNDERGROUND COMMUNICATION | UT | UT |
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| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
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| EASEMENT | | |
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| CHAINLINK FENCE | | |
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| UTILITY POLE | | |
| LIGHT FIXTURE | | |
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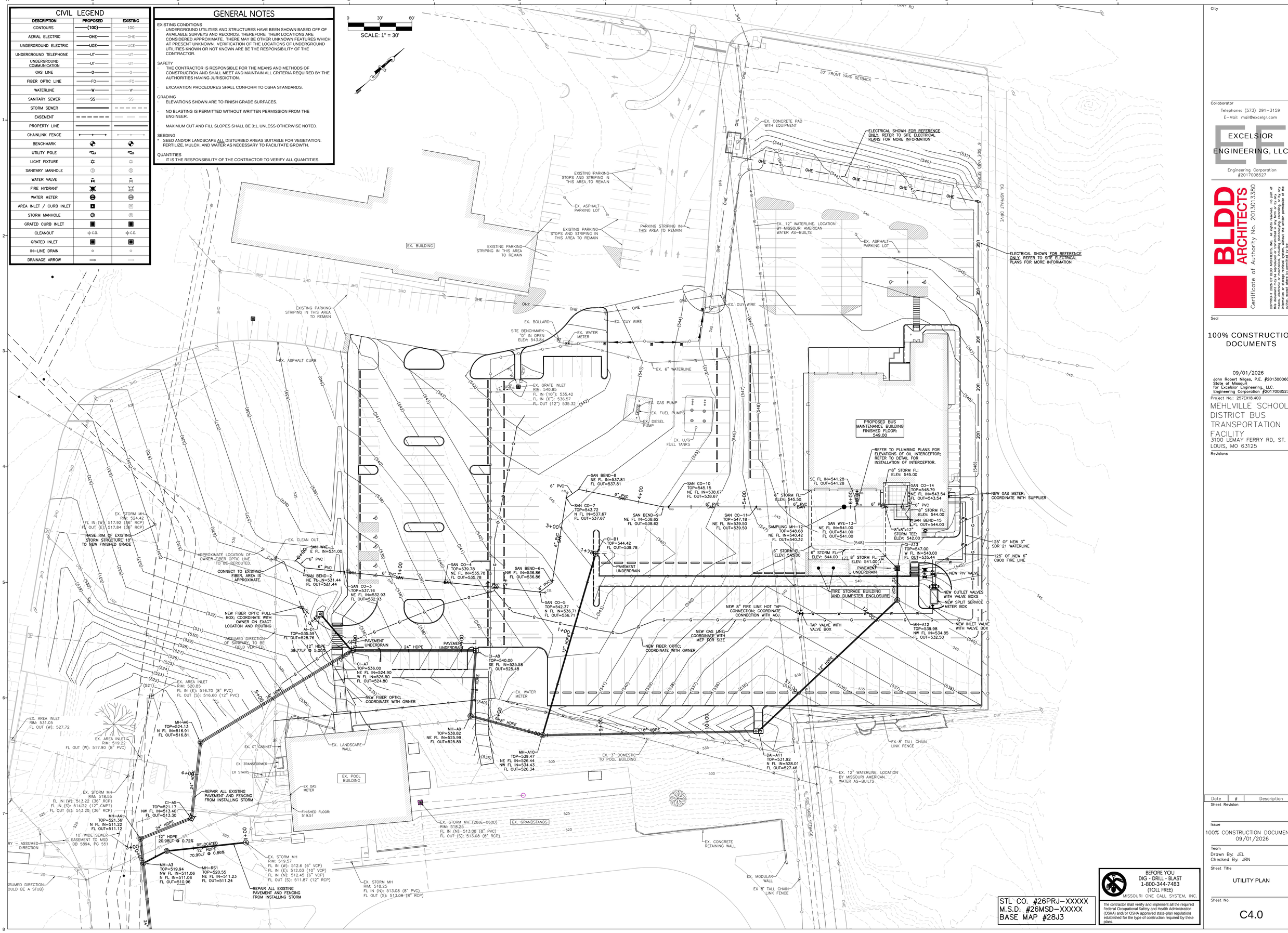
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0 30' 60'
SCALE: 1" = 30'






STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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09/01/2026
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Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
UTILITY PLAN

Sheet No.
C4.0

EX. GRATE INLET
RIM: 540.85
FL IN (10"): 535.42
FL IN (6"): 536.57
FL OUT (12"): 535.32

EX. GAS PUMP
EX. FUEL PUMPS
EX. DIESEL PUMP
EX. U/G FUEL TANKS

PROPOSED BUS MAINTENANCE BUILDING FINISHED FLOOR: 549.00

REFER TO PLUMBING PLANS FOR ELEVATIONS OF OIL INTERCEPTOR; REFER TO DETAIL FOR INSTALLATION OF INTERCEPTOR.

SE FL IN=541.28
FL OUT=541.28

8" STORM FL: ELEV: 545.00

SAN CO-14
TOP=548.79
NE FL IN=543.54
FL OUT=543.54

6" PVC

8" STORM FL: ELEV: 544.00

SAN BEND-15
FL OUT=544.00

8"x8"x12" STORM TEE: ELEV: 542.00

CI-A13
TOP=547.00
W FL IN=540.00
FL OUT=535.44

NEW GAS METER; COORDINATE WITH SUPPLIER

125' OF NEW 3" SDR 21 WATERLINE

125' OF NEW 6" C900 FIRE LINE

NEW PIV VALVE

NEW OUTLET VALVES WITH VALVE BOXS

NEW SPLIT SERVICE METER BOX

NEW INLET VALVE WITH VALVE BOX

MH-A12
TOP=539.98
NW FL IN=534.85
FL OUT=532.50

SAN BEND-8
NE FL IN=537.81
FL OUT=537.81

SAN CO-10
TOP=545.15
NE FL IN=538.67
FL OUT=538.67

SAN CO-7
TOP=543.72
N FL IN=537.67
FL OUT=537.67

SAN BEND-9
NE FL IN=538.62
FL OUT=538.62

SAN CO-11
TOP=547.18
NE FL IN=539.50
FL OUT=539.50

SAMPLING MH-12
TOP=548.68
NE FL IN=540.42
FL OUT=540.32

SAN WYE-13
NE FL IN=541.00
FL OUT=541.00
FL OUT=541.00

6" STORM FL: ELEV: 545.00

6" STORM FL: ELEV: 544.00

8" STORM FL: ELEV: 541.00

PAVEMENT UNDERDRAIN

CI-B1
TOP=544.42
FL OUT=539.78

PAVEMENT UNDERDRAIN

TIRE STORAGE BUILDING AND DUMPSTER ENCLOSURE

NEW 8" FIRE LINE HOT TAP CONNECTION; COORDINATE CONNECTION WITH ADJ.

TAP VALVE WITH VALVE BOX

NEW GAS LINE; COORDINATE WITH MEP FOR SIZE

NEW FIBER OPTIC; COORDINATE WITH OWNER

EX. CLEAN OUT

SAN WYE-1
E FL IN=531.00

6" PVC

APPROXIMATE LOCATION OF OWNER-FIBER OPTIC LINE. TO BE REROUTED.

CONNECT TO EXISTING FIBER, AREA IS APPROXIMATE.

SAN BEND-2
NE FL IN=531.44
FL OUT=531.44

SAN CO-3
TOP=537.16
NE FL IN=532.93
FL OUT=532.93

SAN CO-4
TOP=539.78
NE FL IN=535.78
FL OUT=535.78

SAN BEND-6
NW FL IN=536.86
FL OUT=536.86

SAN CO-5
TOP=542.37
N FL IN=536.71
FL OUT=536.71

NEW FIBER OPTIC PULL BOX; COORDINATE WITH OWNER ON EXACT LOCATION AND ROUTING

ASSUMED DIRECTION OF SANITARY, TO BE FIELD VERIFIED

AI-01
TOP=535.59
FL OUT=528.76

12" HDPE
39.77LF @ 5.00%

PAVEMENT UNDERDRAIN

24" HDPE

PAVEMENT UNDERDRAIN

CI-A7
TOP=536.00
NE FL IN=524.90
W FL IN=526.50
FL OUT=524.80

CI-A8
TOP=540.00
SE FL IN=525.58
FL OUT=525.48

EX. AREA INLET
RIM: 531.05
FL IN (E): 516.70 (8" PVC)
FL OUT (S): 516.60 (12" PVC)

EX. WATER METER

EX. AREA INLET
RIM: 520.85
FL IN (E): 516.70 (8" PVC)
FL OUT (S): 516.60 (12" PVC)

EX. AREA INLET
RIM: 531.05
FL OUT (W): 527.72

EX. AREA INLET
RIM: 519.22
FL OUT (W): 517.90 (8" PVC)

MH-A6
TOP=524.13
N FL IN=516.91
FL OUT=516.81

MH-A9
TOP=538.82
NE FL IN=525.99
FL OUT=525.89

MH-A10
TOP=539.47
NE FL IN=526.44
NW FL IN=534.43
FL OUT=526.34

EX. LANDSCAPE WALL

EX. CT CABINET

EX. TRANSFORMER

EX. STAIRS

EX. POOL BUILDING

EX. GAS METER

FINISHED FLOOR: 519.51

EX. 3" DOMESTIC TO POOL BUILDING

DAI-A11
TOP=531.92
N FL IN=528.01
FL OUT=527.46

EX. 12" WATERLINE, LOCATION BY MISSOURI AMERICAN WATER AS-BUILTS

EX. 8" TALL CHAIN LINK FENCE

REPAIR ALL EXISTING PAVEMENT AND FENCING FROM INSTALLING STORM

EX. STORM MH
RIM: 518.58
FL IN (W): 513.22 (36" RCP)
FL IN (S): 514.22 (12" CMP?)
FL OUT (E): 513.20 (36" RCP)

SANITARY MANHOLE APPROXIMATE LOCATION

CI-A5
TOP=521.17
NW FL IN=513.40
FL OUT=513.30

MH-A4
TOP=521.36
N FL IN=511.22
FL OUT=511.12

10' WIDE SEWER EASEMENT TO MSD DB 5894, PG 551

SANITARY – ASSUMED DIRECTION

SANITARY – ASSUMED DIRECTION (COULD BE A STUB)

12" HDPE
20.98LF @ 0.72%

RELOCATED
12" HDPE
70.90LF @ 0.86%

MH-A3
TOP=519.94
NW FL IN=511.06
N FL IN=511.06
FL OUT=510.96

MH-RS1
TOP=520.55
NE FL IN=511.23
FL OUT=511.24

EX. STORM MH
RIM: 519.57
FL IN (W): 512.6 (6" VCP)
FL IN (E): 512.03 (10" VCP)
FL IN (N): 512.45 (6" VCP)
FL OUT (S): 511.87 (12" RCP)

REPAIR ALL EXISTING PAVEMENT AND FENCING FROM INSTALLING STORM

EX. STORM MH
RIM: 518.25
FL IN (N): 513.08 (8" PVC)
FL OUT (S): 513.08 (8" RCP)

EX. CONCRETE RETAINING WALL

EX. MODULAR WALL

EX 8' TALL CHAIN LINK FENCE

EX. (2) 5' SWING GATES

EX. SCOREBOARD

EX. GATES

SEWER EASEMENT TO MSD DB 4266, PG 482

MH-A2
TOP=517.60
NW FL IN=510.58
FL OUT=510.48

EXISTING ATHLETIC FIELD

10' SEWER EASEMENT TO MSD DB 7262, PG 1876

EX. GRATED MH
RIM: 515.52
FL IN (W): 502.52 (42" RCP)
FL IN (N): 502.52 (12" RCP)
FL OUT (E): 502.52 (42" RCP)

ES-A1
TOP=512.27
N FL IN=510.00

RIP RAP FOREBAY

TRANSITION ZONE – RIP RAP

BIO-RETENTION PLANTINGS

OUTFALL-C1
TOP=510.15
FL OUT=507.00

24" PP Pipe

EX. GATES

EX. SANITARY MH (28J3-05S6)
RIM: 516.25
FL IN (W): 503.78 (8" VCP)
FL OUT (E): 503.70 (8" VCP)

50' SEWER EASEMENT TO MSD DB 5894, PG 553

EX. GRATE INLET
RIM: 515.00
FL OUT (N): 504.42 (12" RCP)

EX. GATES

EX. POLE VAULT

EXISTING BLEACHERS

EXISTING BUILDINGS

EXISTING TRACK

EX. LONG JUMP

CONNECTION-C3
SW FL IN=499.80

ASSUMED 42" FL=499.05
24" CONNECTION FL=499.80

EXISTING SHOTPUT

ST MH-C2
TOP=516.14
SW FL IN=506.33
FL OUT=504.33

EX. GRANDSTANDS

EX. STORM MH (28JE-060D)
RIM: 518.25
FL IN (N): 513.08 (8" PVC)
FL OUT (S): 513.08 (8" RCP)

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| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | C.O. | C.O. |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

0 30' 60'
SCALE: 1" = 30'

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.


City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380



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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC,
Engineering Corporation #2017008527

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

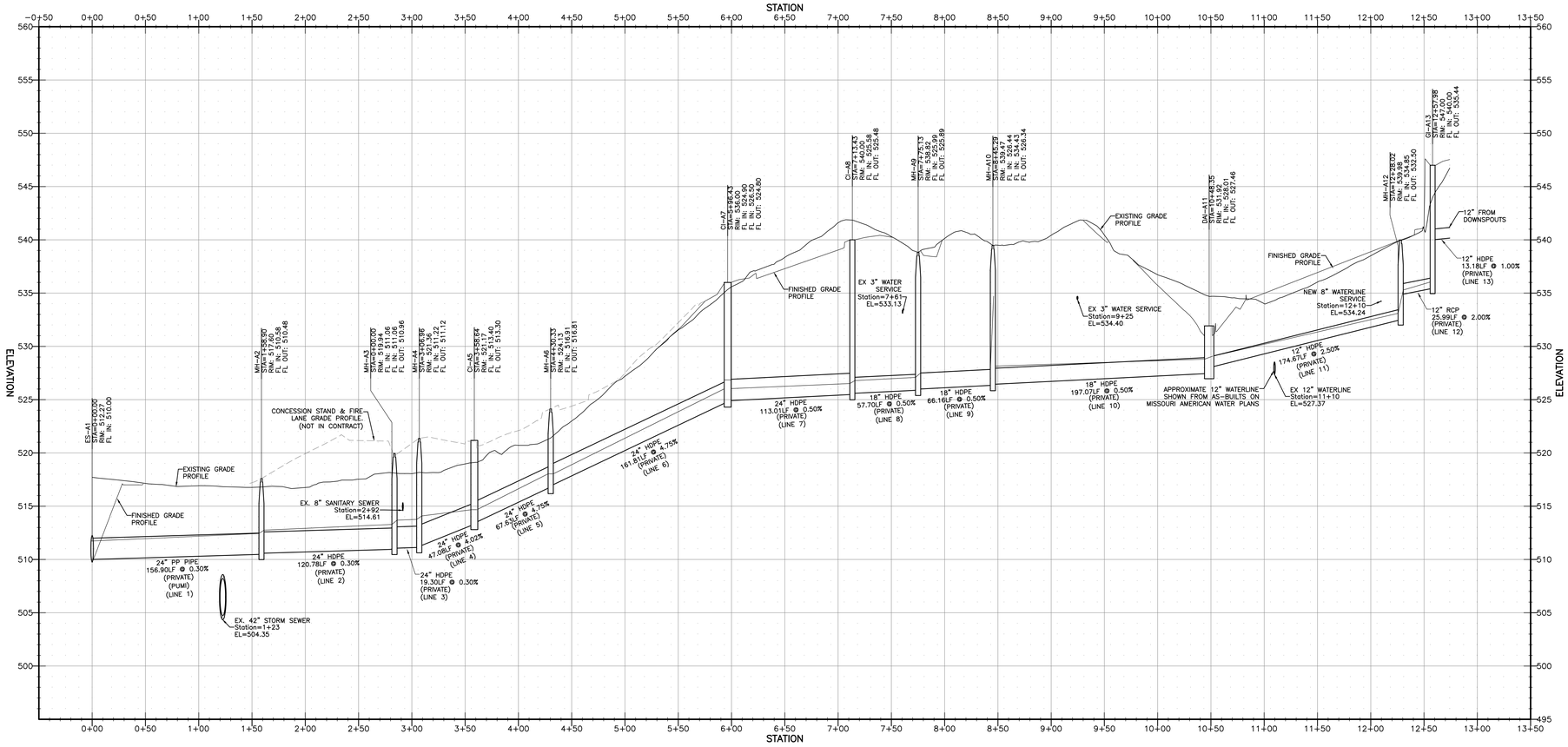
Team
Drawn By: JEL
Checked By: JRN

Sheet Title
UTILITY PLAN - SOUTH

Sheet No.
C4.1

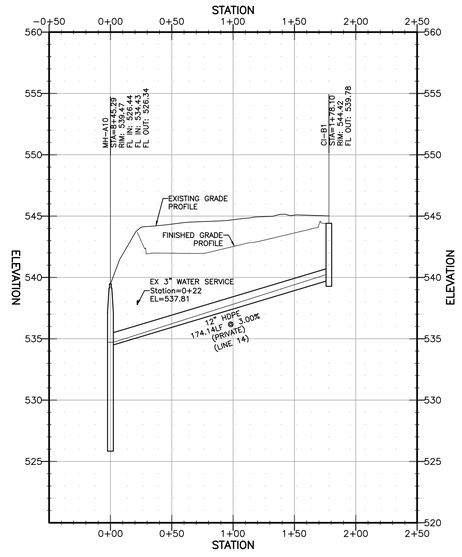
## PROFILE VIEW OF STORM SEWER A

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'



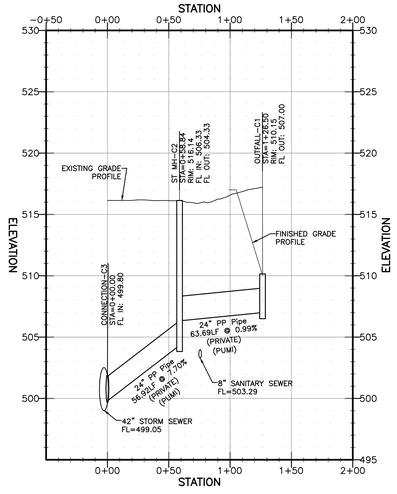

## PROFILE VIEW OF STORM STORM B

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'



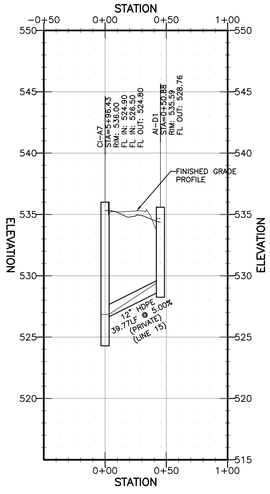

## PROFILE VIEW OF STORM SEWER C

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'



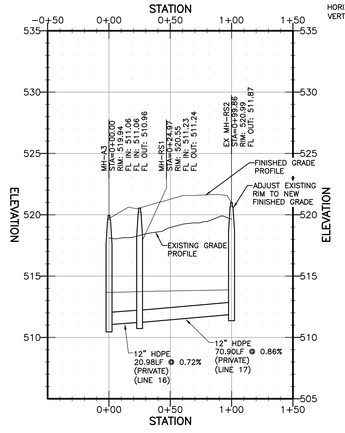

## PROFILE VIEW OF STORM SEWER D

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'




## PROFILE VIEW OF CONCESSION – RELOCATED STORM

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'




STL CO. #26PRJ–XXXXX
M.S.D. #26MSD–XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

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Collaborator


Telephone: (573) 291-3159
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EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527


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**100% CONSTRUCTION DOCUMENTS**

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

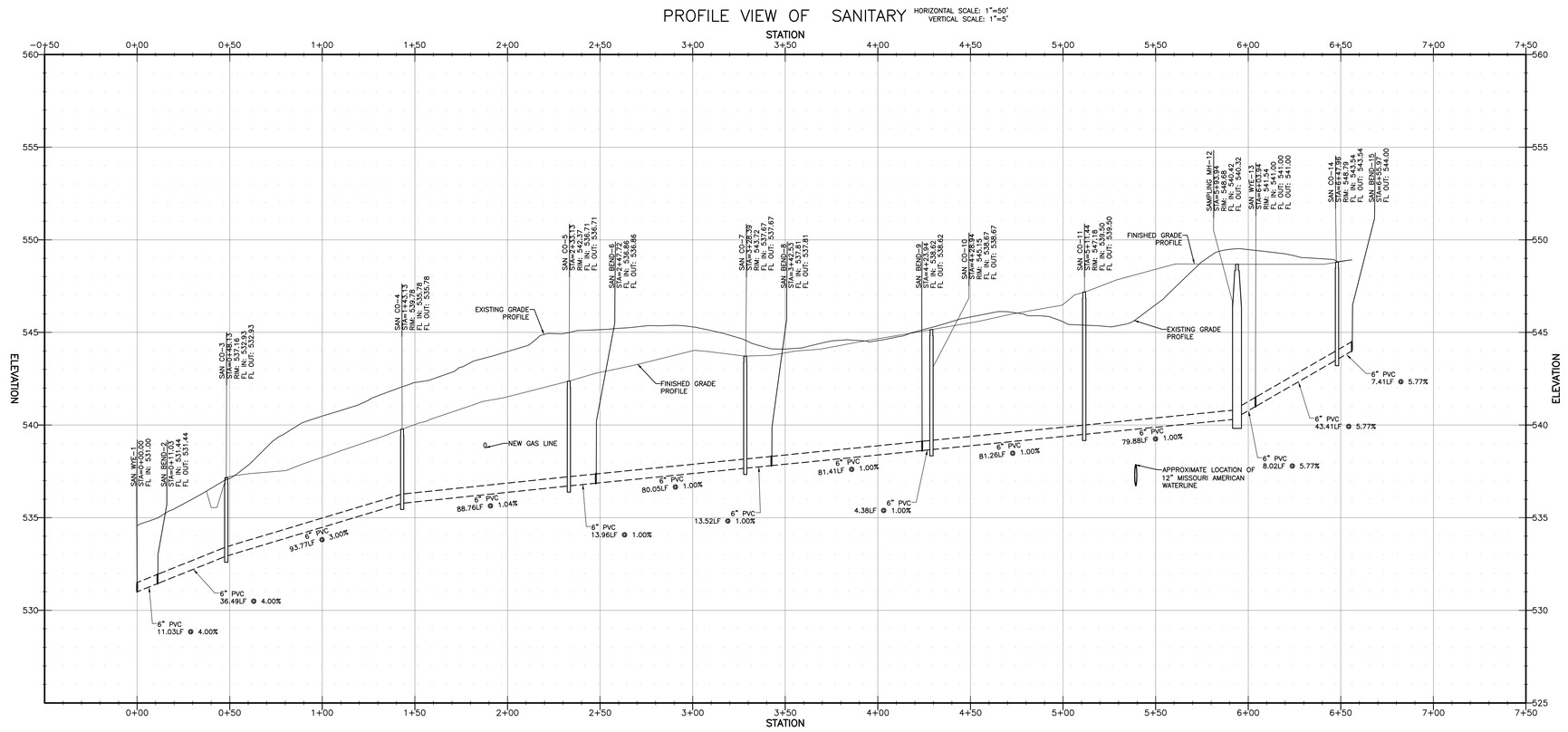
Sheet Revision

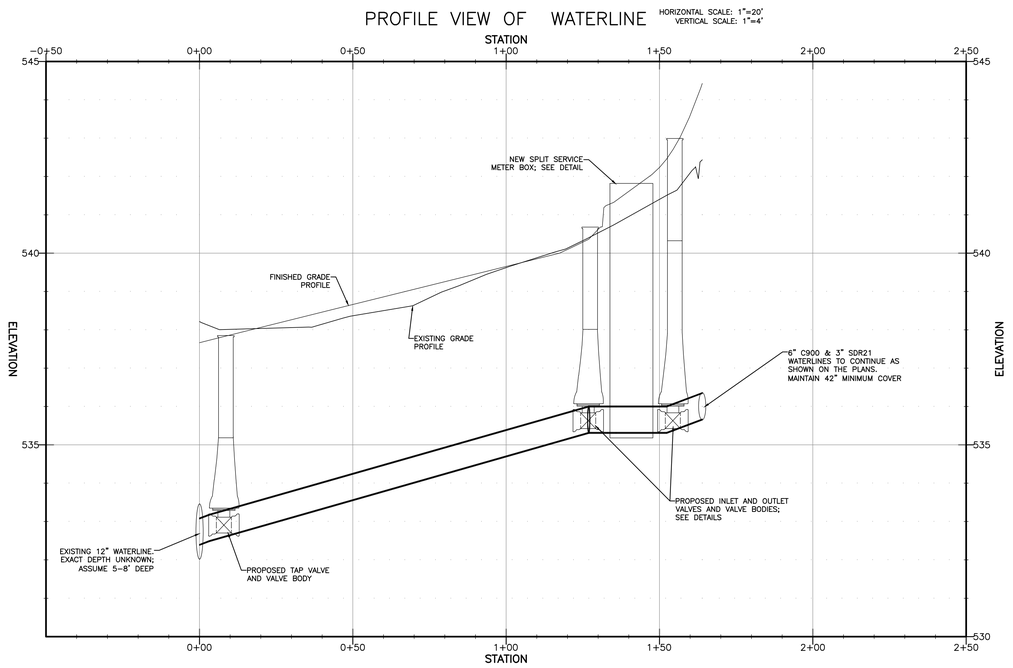
Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
PROFILES SHEET

Sheet No.
C5.0




# MSDReport



| Line No. | Line ID | Line Size (in) | Line Type | Line Length (ft) | Line Slope (%) | n-val Pipe | Flow Rate (cfs) | Capac Full (cfs) | Vel Ave (ft/s) | J-Loss Coeff | Gnd/Rim El Dn (ft) | Gnd/Rim El Up (ft) | Invert Dn (ft) | Invert Up (ft) | HGL Dn (ft) | HGL Jmp Dn (ft) | HGL Up (ft) | HGL Jmp Up (ft) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Pipe - (244) | 24 | Cir | 158.896 | 0.30 | 0.012 | 16.22 | 13.47 | 5.41 | 0.76 | 512.27 | 517.60 | 510.00 | 510.48 | 511.73 | .... | 512.43 | .... | |
| 2 | Pipe - (245) | 24 | Cir | 124.775 | 0.30 | 0.012 | 16.22 | 13.52 | 5.16 | 0.94 | 517.60 | 519.94 | 510.58 | 510.96 | 512.75 | .... | 513.29 | .... | |
| 3 | Pipe - (245) (1) | 24 | Cir | 23.289 | 0.26 | 0.012 | 14.40 | 12.44 | 4.58 | 0.97 | 519.94 | 521.36 | 511.06 | 511.12 | 513.68 | .... | 513.77 | .... | |
| 4 | Pipe - (246) | 24 | Cir | 51.678 | 4.01 | 0.012 | 14.40 | 49.04 | 5.44 | 1.34 z | 521.36 | 521.17 | 511.23 | 513.30 | 514.08 | 514.06 | 514.67 j | 513.33 | |
| 5 | Pipe - (247) | 24 | Cir | 71.693 | 4.76 | 0.012 | 11.68 | 53.44 | 5.68 | 0.82 z | 521.17 | 524.13 | 513.40 | 516.81 | 514.67 | 514.97 | 518.04 j | 514.94 | |
| 6 | Pipe - (248) | 24 | Cir | 166.097 | 4.75 | 0.012 | 11.68 | 53.40 | 6.10 | 1.50 z | 524.13 | 536.11 | 516.91 | 524.80 | 518.04 | .... | 526.03 | .... | |
| 7 | Pipe - (249) | 24 | Cir | 117.001 | 0.50 | 0.012 | 8.32 | 17.25 | 4.84 | 1.50 z | 536.11 | 539.96 | 524.90 | 525.48 | 526.03 | 525.99 | 526.51 j | 525.96 | |
| 8 | Pipe - (250) | 18 | Cir | 61.702 | 0.50 | 0.012 | 7.91 | 8.06 | 5.20 | 0.99 | 539.96 | 538.82 | 525.58 | 525.89 | 526.78 | .... | 527.09 | .... | |
| 9 | Pipe - (250) (1) | 18 | Cir | 70.153 | 0.50 | 0.012 | 7.91 | 8.04 | 4.48 | 1.00 | 538.82 | 539.47 | 525.99 | 526.34 | 527.51 | .... | 527.84 | .... | |
| 10 | Pipe - (250) (1) (1) | 18 | Cir | 203.060 | 0.50 | 0.012 | 6.77 | 8.06 | 3.95 | 1.08 | 539.47 | 531.92 | 526.44 | 527.46 | 528.15 | .... | 528.80 | .... | |
| 11 | Pipe - (262) | 12 | Cir | 179.719 | 2.50 | 0.012 | 1.99 | 6.10 | 3.28 | 0.77 z | 531.92 | 539.98 | 528.01 | 532.50 | 529.08 | 529.06 | 533.10 j | 528.95 | |
| 12 | Pipe - (263) | 12 | Cir | 29.963 | 1.97 | 0.013 | 1.99 | 5.00 | 5.02 | 1.12 z | 539.98 | 547.00 | 534.85 | 535.44 | 535.29 | .... | 536.04 | .... | |
| 13 | Pipe - (304) | 12 | Cir | 16.126 | 0.99 | 0.012 | 1.60 | 3.84 | 4.20 | 1.00 z | 547.00 | 0.00 | 540.00 | 540.16 | 540.45 | .... | 540.70 | .... | |
| 14 | Pipe - (259) | 12 | Cir | 178.101 | 3.00 | 0.012 | 1.14 | 6.69 | 4.84 | 1.00 z | 539.47 | 544.25 | 534.43 | 539.78 | 534.71 | .... | 540.23 | .... | |
| 15 | Pipe - (305) | 12 | Cir | 45.161 | 5.00 | 0.012 | 2.21 | 8.63 | 6.70 | 1.00 z | 536.11 | 534.67 | 526.50 | 528.76 | 526.85 | .... | 529.40 | .... | |
| 16 | Pipe - (302) | 12 | Cir | 24.970 | 0.72 | 0.012 | 1.61 | 3.28 | 2.05 | 0.42 | 519.94 | 520.55 | 511.06 | 511.24 | 513.68 | .... | 513.73 | .... | |
| 17 | Pipe - (303) | 12 | Cir | 74.893 | 0.85 | 0.012 | 1.61 | 3.57 | 2.05 | 1.00 | 520.55 | 520.99 | 511.23 | 511.87 | 513.76 | .... | 513.89 | .... | |

Project File: Jason-Bus Barn Storm-REV.stm

NOTES: ** Critical depth

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

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City

Collaborator

Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

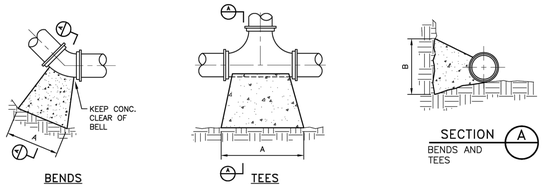
Drawn By: JEL
Checked By: JRN

Sheet Title

PROFILES SHEET

Sheet No.

C5.1




BENDS




TEES




SECTION A
BENDS AND TEES

NOTES:

1. COVER OVER TOP OF PIPE SHALL BE 42". IF GRADING PLANS RECEIVED BY THE ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT, INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS. TOP OF FINISH CONCRETE TO BE A MINIMUM OF 26" FROM FINISH GRADE.
2. THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL TO PREVENT MOVEMENT OF FITTING.
3. NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES,.
4. THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
5. POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS.
6. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
7. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
8. ALL BOLTS SHALL BE PTFE POLYMER COATED BOLTS (EX. XYLAN, FLUOROKOTE #1), MINIMUM 1/2" DIAMETER. COAT EXPOSED ROD WITH APPROVED COATING AFTER CONCRETE HAS SET.
9. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
10. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
11. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.
12. FOR MAIN SIZES GREATER THAN 12", SEE ENGINEER FOR THRUST BLOCK DIMENSIONS.

## REQUIRED MINIMUM BEARING AREA ON UNDISTURBED SOIL

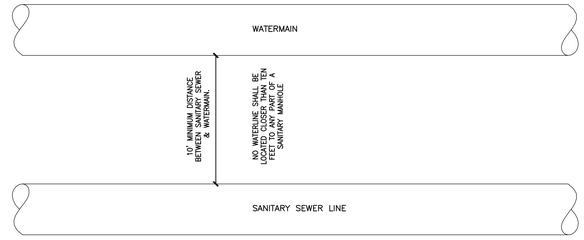
| PIPE SIZE | 90 DEGREE BENDS AREA (SQ. FT.) | 45 DEGREE BENDS AREA (SQ. FT.) | 22.5 DEGREE BENDS AREA (SQ. FT.) | 11.25 DEGREE BENDS AREA (SQ. FT.) | TEES/PLUGS AREA (SQ. FT.) |
|---|---|---|---|---|---|
| 6 | 8.0 | 4.5 | 2.0 | 1.0 | 6.0 |
| 8 | 14.0 | 7.5 | 4.0 | 2.0 | 10.0 |
| 10 | 20.5 | 11.0 | 6.0 | 3.0 | 14.5 |
| 12 | 29.0 | 16.0 | 8.0 | 4.0 | 20.5 |

NOTES:

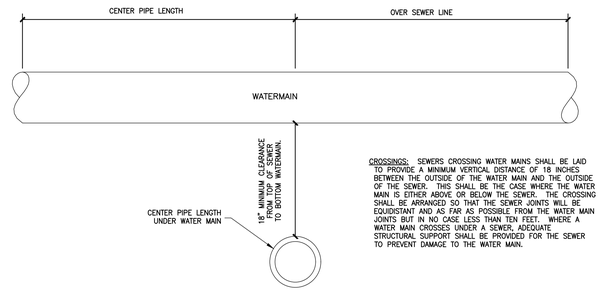
1. BEARING TABLE AREA IS BASED ON 200 PSI MAXIMUM WITH SOIL BEARING CAPACITY OF 2000 LBS/SQUARE FOOT WITH A 1.5 SAFETY FACTOR.
2. FOR HIGHER WATER PRESSURES OR LOWER SOIL PRESSURES, CONSULT ENGINEER FOR ADJUSTMENTS.
3. A SAFETY FACTOR AND ADDITIONAL BEARING AREA MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
4. FOR DEVELOPER LAY PROJECTS, THE DEVELOPER SHALL VERIFY SOIL BEARING CAPACITIES.
5. SEE DWG. NO. 0201-0601-SD19 AND DWG. NO. 0201-0601-SD20 FOR ADDITIONAL BLOCKING INFORMATION.

| REVISIONS | MISSOURI AMERICAN WATER STANDARD CIVIL THRUST BLOCK DETAILS |
|---|---|
| | MISSOURI AMERICAN WATER ST. LOUIS, MO. 63141 |
| | MISSOURI AMERICAN WATER ENGINEERING 727 CRAIG ROAD ST. LOUIS, MO. 63141 — AMERICAN WATER |
| | DRAWN BY KDH — DATE 05-28-11 — USE DIMENSIONS ONLY |
| | PROJECT DATE — PROJECT # — SCALE N.T.S. |
| | USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES — 0201-0601-SD6 |

0201-0601-SD6

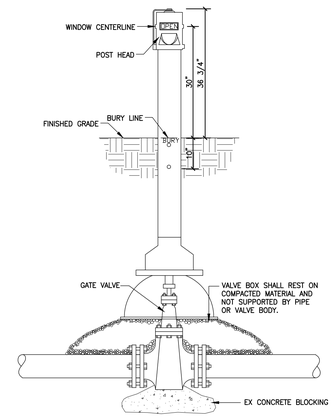



HORIZONTAL DISTANCE

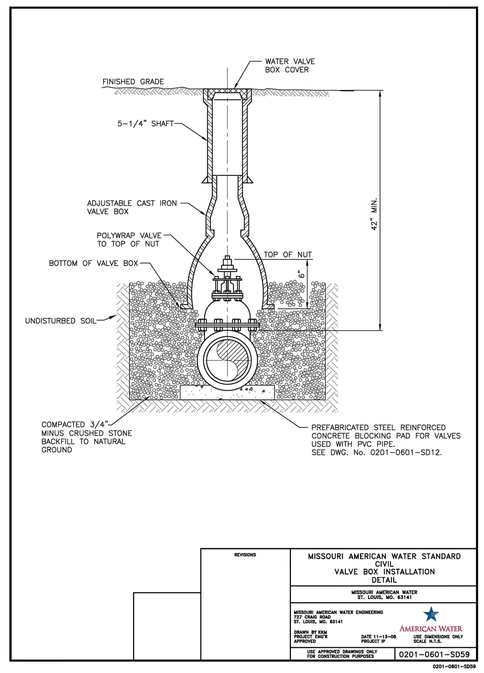



CROSSINGS: SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS BUT IN NO CASE LESS THAN TEN FEET. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

## MINIMUM REQUIREMENTS FOR WATER AND SEWER SEPARATION

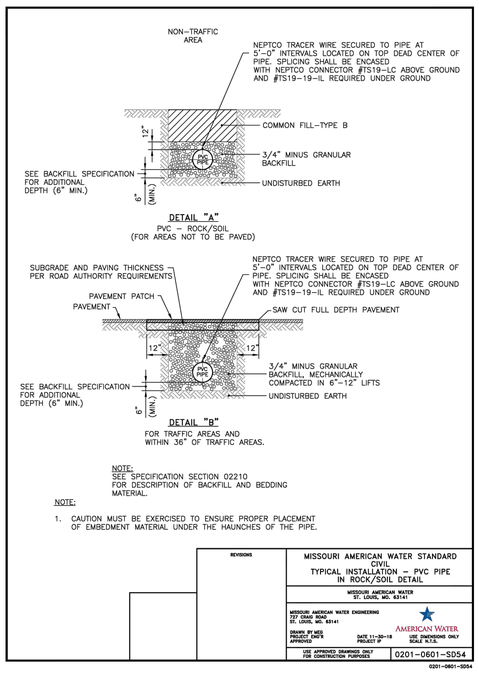



## POST INDICATOR VALVE DETAIL




| REVISIONS | MISSOURI AMERICAN WATER STANDARD CIVIL VALVE BOX INSTALLATION DETAIL |
|---|---|
| | MISSOURI AMERICAN WATER ST. LOUIS, MO. 63141 |
| | MISSOURI AMERICAN WATER ENGINEERING 727 CRAIG ROAD ST. LOUIS, MO. 63141 — AMERICAN WATER |
| | DRAWN BY KDH — DATE 11-13-08 — USE DIMENSIONS ONLY |
| | PROJECT DATE — PROJECT # — SCALE N.T.S. |
| | USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES — 0201-0601-SD59 |

0201-0601-SD59




DETAIL "A"
PVC - ROCK/SOIL
(FOR AREAS NOT TO BE PAVED)




DETAIL "B"
FOR TRAFFIC AREAS AND WITHIN 36" OF TRAFFIC AREAS.

NOTE:
SEE SPECIFICATION SECTION 02210 FOR DESCRIPTION OF BACKFILL AND BEDDING MATERIAL.

NOTE:

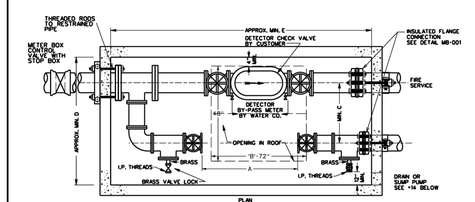
1. CAUTION MUST BE EXERCISED TO ENSURE PROPER PLACEMENT OF EMBEDMENT MATERIAL UNDER THE HAUNCHES OF THE PIPE.

| REVISIONS | MISSOURI AMERICAN WATER STANDARD CIVIL TYPICAL INSTALLATION - PVC PIPE IN ROCK/SOIL DETAIL |
|---|---|
| | MISSOURI AMERICAN WATER ST. LOUIS, MO. 63141 |
| | MISSOURI AMERICAN WATER ENGINEERING 727 CRAIG ROAD ST. LOUIS, MO. 63141 — AMERICAN WATER |
| | DRAWN BY MEG — DATE 11-30-18 — USE DIMENSIONS ONLY |
| | PROJECT DATE — PROJECT # — SCALE N.T.S. |
| | USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES — 0201-0601-SD54 |

0201-0601-SD54

MISSOURI AMERICAN WATER — ST. LOUIS COUNTY OPERATIONS

FILE NO.
INDEX NO.
ISSUED DATE 07/2015
AMENDED DATE




NOTES

| DOMESTIC SERVICE STANDARD | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | MIN. SIZE | A | B | C | D | E | C | D | E | C | D | E | |
| | | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. |
| 3/4 | 1 | 30 | 72 | 35 | 72 | 102 | 35 | 72 | 90 | 30 | 66 | 84 | 27 |
| 1 | 2 | 30 | 72 | 35 | 72 | 102 | 35 | 72 | 90 | 30 | 66 | 84 | 27 |
| 1 1/2 | 2 | 54 | 72 | 35 | 84 | 156 | 35 | 78 | 156 | 30 | 72 | 150 | 27 |
| 2 | 2 | 54 | 72 | 35 | 84 | 162 | 35 | 84 | 162 | 30 | 78 | 156 | 27 |
| 3 | 2 | 60 | 72 | 36 | 84 | 174 | 36 | 84 | 174 | 31 | 78 | 174 | |
| 4 | 2 | 66 | 72 | 37 | 84 | 186 | 37 | 84 | 186 | | | | |

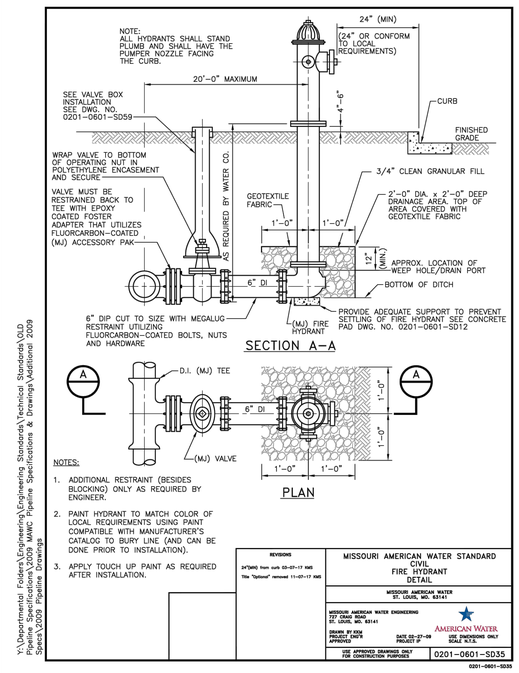
| FIRE SERVICE | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | 6" | | | 8" | | | 10" | | | 12" | | | 4" |
| | A | B | C | D | E | C | D | E | C | D | E | C | D | E |
| | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. | IN. |
| 6 | 30 | 72 | 35 | 72 | 102 | 35 | 72 | 90 | 30 | 66 | 84 | 27 | 60 | 84 |
| 8 | 30 | 72 | 35 | 72 | 102 | 35 | 72 | 90 | 30 | 66 | 84 | 27 | 60 | 84 |
| 10 | 54 | 72 | 35 | 84 | 156 | 35 | 78 | 156 | 30 | 72 | 150 | 27 | 72 | 150 |
| 12 | 54 | 72 | 35 | 84 | 162 | 35 | 84 | 162 | 30 | 78 | 156 | 27 | 72 | 156 |

1. VAULT WALLS AND ROOF TO BE OF CONCRETE.
2. LIDS AND FRAMES SHALL BE OF CAST IRON TO BE ACE NOT IN CONCRETE.
3. FOR 12" OR LESS GATE OR BUTTERFLY VALVES, FLANGES SHALL BE DRILLED TO HAVE SCREW ENDS I.P. THREADS.
4. PIPE SHALL BE SUPPORTED AT WEST WALL TO RESIST EARTH & 3" MOVEMENT. ALL VALVES MUST BE ADEQUATELY SECURED TO WITHSTAND WATER THRUST WITH METER REMOVED.
5. MINIMUM CLEARANCE OF 6" TO BE PROVIDED BETWEEN EDGE AND GENERAL METER AND THE EDGE AND DETECTOR CHECK BY METER.
6. DETECTOR CHECK BY METER SHALL BE PROVIDED OR BOX OTHERWISE KEPT FREE OF WATER. NO FRENCH DRAINS ALLOWED UNLESS APPROVED BY AUTHORIZED COMPANY REPRESENTATIVE.
7. PURPOSURE CLASS 350 PVC MINIMUM EXTENDED MIN. 5' FROM OUTLET SIDE OF METER PIT.
8. TYPE OF VALVE AND FIRE DEPARTMENT CONNECTION SHALL BE DETERMINED BY FIRE PIT.
9. TOP OF CLOSE FIRE DEPTH SHOWN MUST NOT BE APPROVED BY AUTHORIZED COMPANY REPRESENTATIVE PRIOR TO CONSTRUCTION.
10. METER BOX LOCATION, VALVE TO BE LOCATED AS NEAR TO METER BOX AS PRACTICAL.
11. BOX TO BE SET WITH TOP OF BOX A MINIMUM OF 2" ABOVE FINISH GRADE.
12. PIPE SHALL BE PROPERLY INSTALLED WITH ALL BOLTS TIGHTENED. ALL GASKETING ARE COMPLETE AND CONCRETE LEAD JOINTS ARE INSTALLED WHERE APPLICABLE BY AUTHORIZED COMPANY REPRESENTATIVE.
13. AUTHORIZED COMPANY OFFICIAL MUST APPROVE ALL MECHANICAL DISPLACEMENT TYPE JOINTS IN METER BOX.
14. LOCKING DEVICE MADE OF ALUMINUM AND SHOWN ABOVE SHALL BE SERIAL NO. 23-5/7 TO ALLOW UNRESTRICTED ACCESS TO WRENCH TO BE ALLOWED WITH OUTSIDE KEY. ALL DOMESTIC WATER SERVICE VALVES TO HAVE LOCKING DEVICE.
15. SUMP OR SUMP PUMP NEEDS TO BE GRADED TO BELOW WATER DRAINAGE AWAY AND OUT FROM VAULT.

SUBJECT TO REVISION WITHOUT NOTICE 07-01-2015

METER BOX FOR SPLIT SERVICE

PRINT AND READ DISCLAIMER WITH ALL MAWC DRAWINGS — CAD /DISTRIB/DETAILS/METERBOX.DGN




NOTES:

1. ADDITIONAL RESTRAINT (BESIDES BLOCKING) ONLY AS REQUIRED BY ENGINEER.
2. PAINT HYDRANT TO MATCH COLOR OF LOCAL REQUIREMENTS USING PAINT COMPATIBLE WITH MANUFACTURER'S CATALOG TO BURY LINE (AND CAN BE DONE PRIOR TO INSTALLATION).
3. APPLY TOUCH UP PAINT AS REQUIRED AFTER INSTALLATION.

| REVISIONS | MISSOURI AMERICAN WATER STANDARD CIVIL FIRE HYDRANT DETAIL |
|---|---|
| 24"(MIN) from curb 03-07-17 KMS<br>Title "Options" removed 11-09-17 KMS | MISSOURI AMERICAN WATER ST. LOUIS, MO. 63141 |
| | MISSOURI AMERICAN WATER ENGINEERING 727 CRAIG ROAD ST. LOUIS, MO. 63141 — AMERICAN WATER |
| | DRAWN BY KDH — DATE 05-27-09 — USE DIMENSIONS ONLY |
| | PROJECT DATE — PROJECT # — SCALE N.T.S. |
| | USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES — 0201-0601-SD35 |

0201-0601-SD35

Y:\Departmental Folders\Engineering\Engineering Standards\Technical Standards\Old Pipeline Specifications\2009 MAWC Pipeline Specifications & Drawings\Additional 2009 Specs\2009 Pipeline Drawings

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

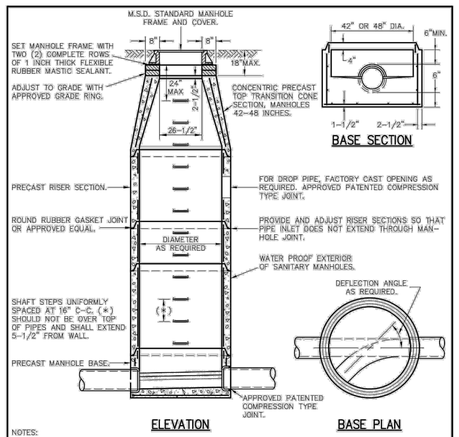
Sheet Title
DETAILS SHEET

Sheet No.
C6.0

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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MISSOURI ONE CALL SYSTEM, INC.

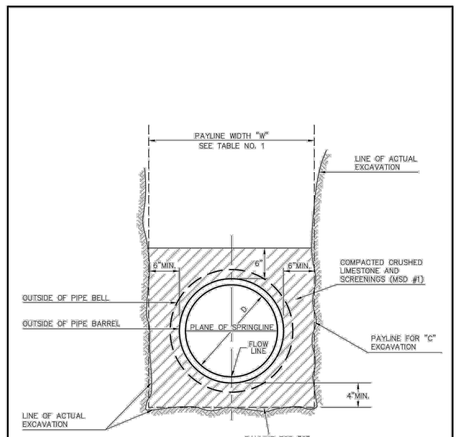
The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.



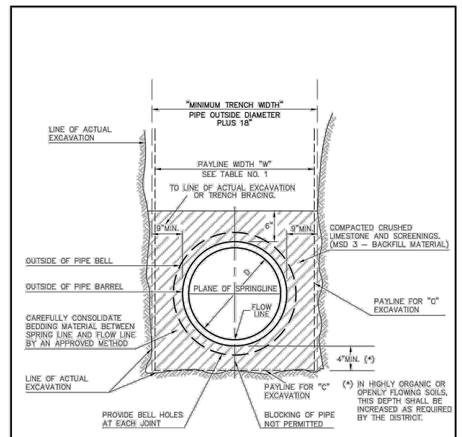

NOTES:

1) THE MINIMUM INSIDE DIAMETER FOR THE BASE AND RISER SECTIONS SHALL BE 42 INCHES FOR 8 INCH DIAMETER SANITARY SEWERS AND ALL STORM SEWERS. THE MINIMUM INSIDE DIAMETER FOR SANITARY SEWERS LARGER THAN 8 INCH DIAMETER IS 48 INCHES. MANHOLE SHALL MEET ASTM C-478 REQUIREMENTS.
2) FLOWLINE ELEVATION OF INCOMING PIPES SHALL BE 1 INCH HIGHER THAN THAT OF OUTGOING PIPE.
3) PIPE SIZES LARGER THAN 24 INCH DIAMETER MAY REQUIRE MANHOLE DIAMETERS OF 60 INCH, 72 INCH OR 96 INCH AS DETERMINED BY OUTSIDE DIAMETERS AND ORIENTATIONS OF CONNECTING PIPES.
4) ECCENTRIC CONES SHALL BE USED ON DIAMETERS 60 INCH AND LARGER. STEPS SHALL EXTEND DOWN VERTICAL WALL OF CONE.
5) PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL OF MAN-HOLES ON PIPE DIAMETERS LARGER THAN 24 INCH AND ALSO FOR THOSE STRUCTURES WITH A DROP PIPE CONNECTION.

| PRECAST CONCRETE MANHOLE | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. WSH/SAM Ch. J.C.K. | 2009 | SHEET 21 (REV) |



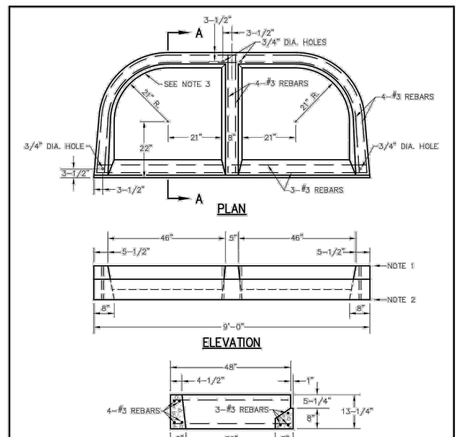

| PIPE BEDDING CLASS "C" (FOR ALL 6" to 18" PIPE EXCEPT REINFORCED CONCRETE PIPE) | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. W.S.H. Ch. J.C.K. | 2009 | SHEET 4 |




NOTES:

1) CHECK GRADE OF PIPE AFTER COMPACTION TO INSURE THE DESIRED FLOWLINE HAS NOT CHANGED.
2) DURING JETTING PROCESS, NOZZLE SHALL NOT BE INSERTED CLOSER THAN TWO FEET FROM TOP OF PIPE.
3) ANY TRENCH BRACING USED BELOW THE TOP OF PIPE SHALL BE LEFT IN PLACE.
4) FOR INSTALLATIONS IN HIGHLY ORGANIC OR OPENLY FLOWING SOILS, THE ENTIRE PERIMETER OF THE PIPE BEDDING SHALL BE WRAPPED WITH AN APPROVED FILTER FABRIC OR THE "MINIMUM TRENCH WIDTH" SHALL BE EXPANDED BY INCREASING THE DISTANCE BETWEEN THE SIDE OF THE PIPE AND THE LINE OF ACTUAL EXCAVATION OR TRENCH BRACING TO A MINIMUM OF ONE PIPE DIAMETER.

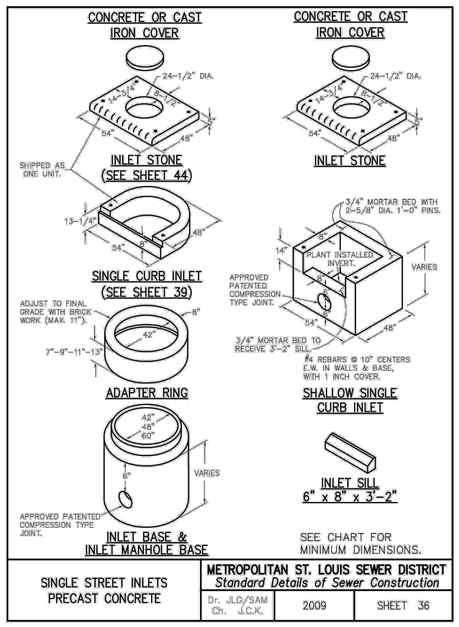
| PIPE BEDDING FOR FLEXIBLE PIPE 21" - 48" DIAMETER | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. P.T.K. Ch. D.R.M. | 2009 | SHEET 6 |



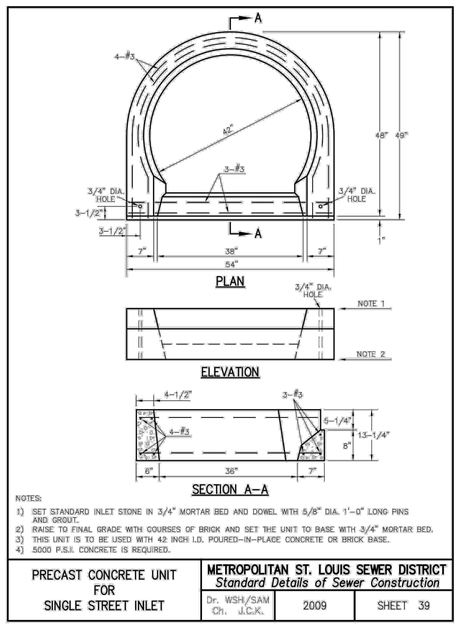

NOTES:

1) SET TWO (2) STANDARD INLET STONES IN 3/4" MORTAR BED AND DOWEL WITH 5/8" DIA. 1'-0" LONG PINS AND GROUT.
2) SET THE UNIT TO BASE WITH 3/4" MORTAR BED.
3) THIS UNIT TO BE USED WITH PRECAST BASE OR BRICK BASE HAVING 8 INCH THICK WALLS AND INSIDE DIMENSIONS CONFORMING TO THE INSIDE DIMENSIONS OF THE UNIT AS INDICATED.
4) 5000 P.S.I. CONCRETE REQUIRED.
5) 1 INCH CLEARANCE, ALL REINFORCEMENT.

| PRECAST CONCRETE UNIT "B" FOR STREET DOUBLE INLET | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. RGW/SAM Ch. J.C.K. | 2009 | SHEET 43 |



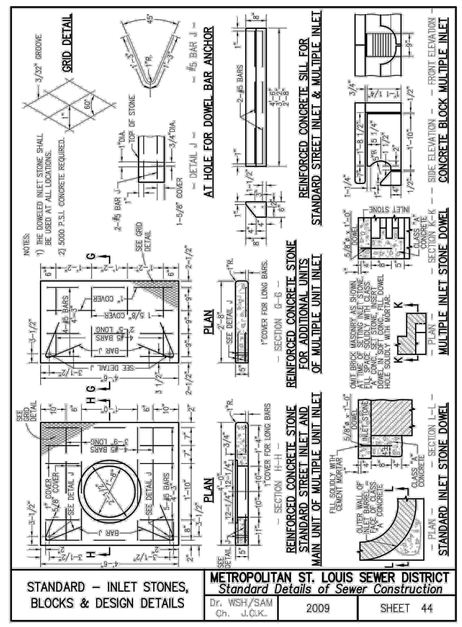

| SINGLE STREET INLETS PRECAST CONCRETE | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. JLG/SAM Ch. J.C.K. | 2009 | SHEET 36 |



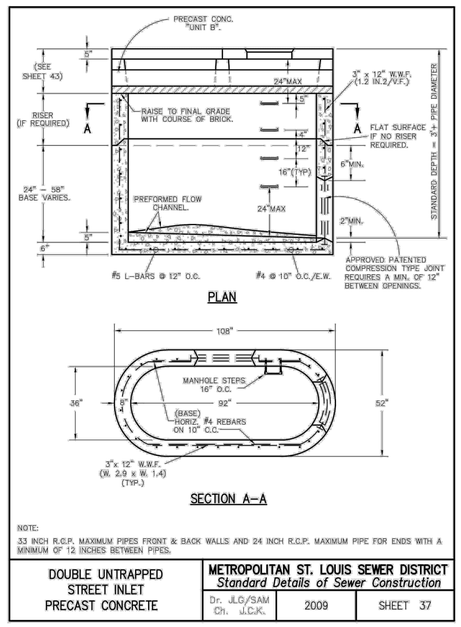

NOTES:

1) SET STANDARD INLET STONE IN 3/4" MORTAR BED AND DOWEL WITH 5/8" DIA. 1'-0" LONG PINS AND GROUT.
2) RAISE TO FINAL GRADE WITH COURSES OF BRICK AND SET THE UNIT TO BASE WITH 3/4" MORTAR BED.
3) THIS UNIT IS TO BE USED WITH 42 INCH I.D. POURED-IN-PLACE CONCRETE OR BRICK BASE.
4) 5000 P.S.I. CONCRETE IS REQUIRED.

| PRECAST CONCRETE UNIT FOR SINGLE STREET INLET | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. WSH/SAM Ch. J.C.K. | 2009 | SHEET 39 |




| STANDARD - INLET STONES, BLOCKS & DESIGN DETAILS | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. WSH/SAM Ch. J.C.K. | 2009 | SHEET 44 |




NOTE:

33 INCH R.C.P. MAXIMUM PIPES FRONT & BACK WALLS AND 24 INCH R.C.P. MAXIMUM PIPE FOR ENDS WITH A MINIMUM OF 12 INCHES BETWEEN PIPES.

| DOUBLE UNTRAPPED STREET INLET PRECAST CONCRETE | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. JLG/SAM Ch. J.C.K. | 2009 | SHEET 37 |

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator

Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

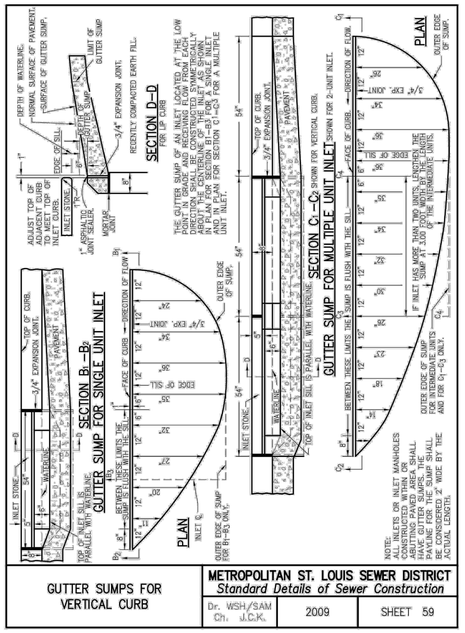
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

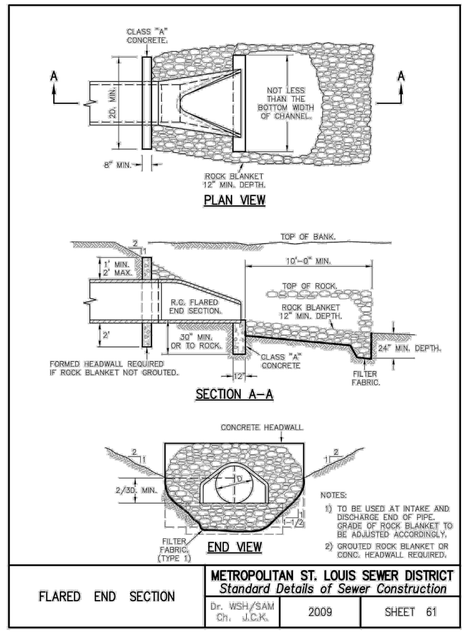
Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

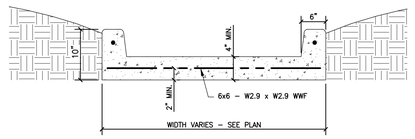
Sheet No.
C6.1



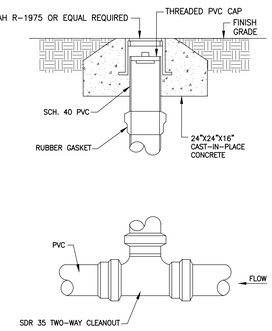

| GUTTER SUMPS FOR VERTICAL CURB | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. WSH/SAM Ch. J.C.K. | 2009 | SHEET 59 |



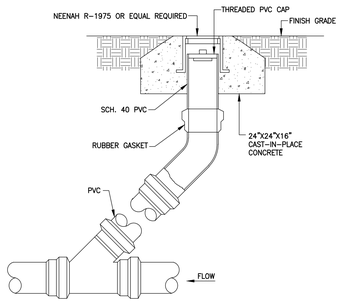

| FLARED END SECTION | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. WSH/SAM Ch. J.C.K. | 2009 | SHEET 61 |



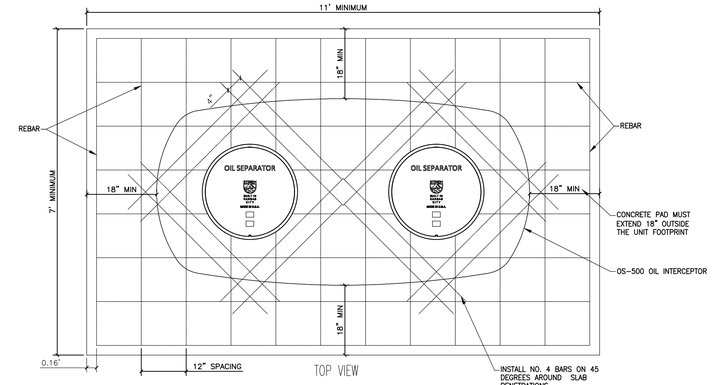

TYPICAL CONCRETE SWALE

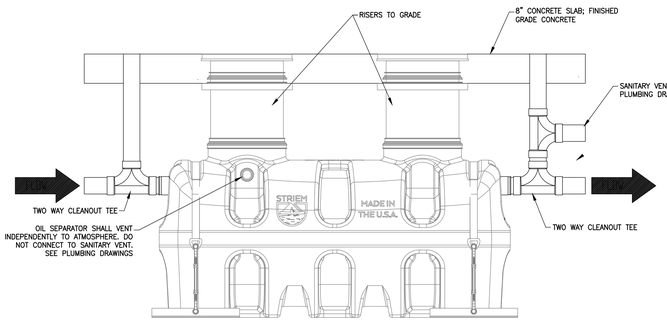



TWO-WAY CLEANOUT DETAIL

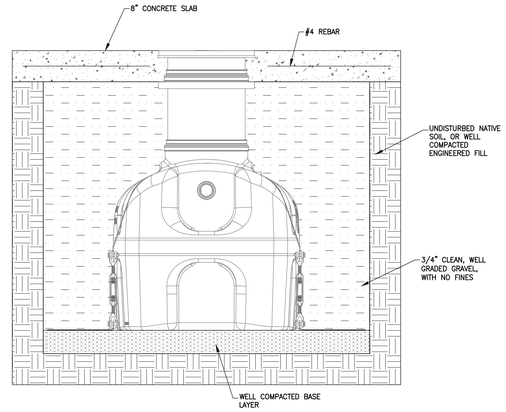



TYPICAL SEWER CLEANOUT



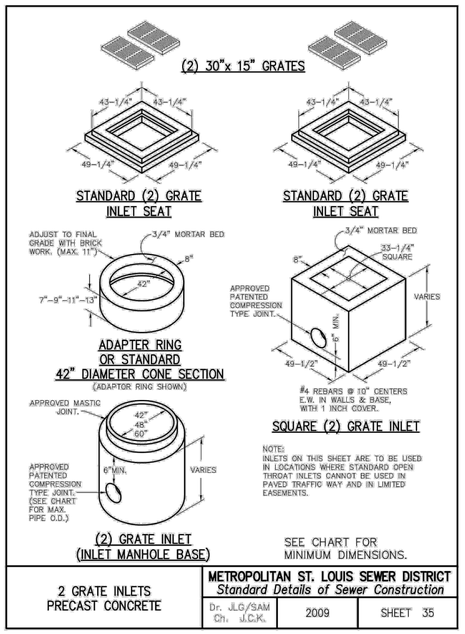




NOTES:
- FILL UNIT WITH WATER FOR STABILIZATION AND FLOAT–OUT PREVENTION. BACKFILL EVENLY AROUND TANK USING CRUSHED AGGREGATE. BACKFILL TO CONSIST OF APPROXIMATELY 3/4" CLEAN ROCK OR FLOWABLE FILL. DO NOT COMPACT BACKFILL AROUND UNIT.
- 8" CONCRETE SLAB WITH REBAR REQUIRED. CONCRETE TO BE MINIMUM OF 4,000 PSI WITH NO. 4 GRADE 60 STEEL PER ASTM A615; CONNECTED WITH TIE WIRE. REBAR TO BE SPACED 2–1/2" FROM EDGE OF CONCRETE AND SPACED IN A 12" GRID WITH 4" SPACING AROUND ACCESS OPENING. REINFORCED SLAB TO EXTEND 18" BEYOND EDGE OF STRUCTURE.

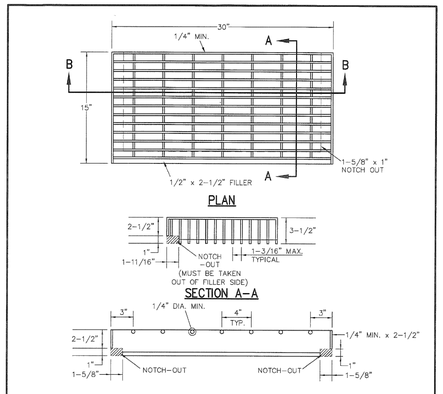



OIL SEPARATOR

STL CO. #26PRJ–XXXXX
M.S.D. #26MSD–XXXXX
BASE MAP #28J3

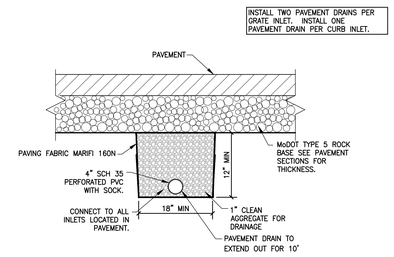



| 2 GRATE INLETS PRECAST CONCRETE | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. JLG/SAM Ch. J.C.K. | 2009 | SHEET 35 |




FINISH – HOT DIP GALVANIZED–(ASTM A123/A123M–97).
MATERIAL – MILD CARBON STEEL – ASTM A569 A–36 STEEL.
CAPACITY – H–20 LOADING.
TOLERANCES – ALL DIMENSIONS 1/8"±.
IDENTIFICATION – THE MANUFACTURER MUST PLACE HIS NAME OR MARK ON EACH UNIT FOR THE PURPOSE OF IDENTIFICATION.

| DETAIL OF STEEL GRATE | METROPOLITAN ST. LOUIS SEWER DISTRICT *Standard Details of Sewer Construction* | | |
|---|---|---|---|
| | Dr. RGW/SAM Ch. J.C.K. | 2009 | SHEET 48 (REV.) |




CROSS SECTION OF PAVEMENT UNDERDRAIN

City
Collaborator
Telephone: (573) 291–3159
E–Mail: mail@excelgr.com
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Engineering Corporation #2017008527
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| Date | # | Description |
|---|---|---|

Sheet Revision

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09/01/2026

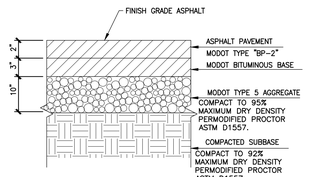
Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

Sheet No.
C6.2

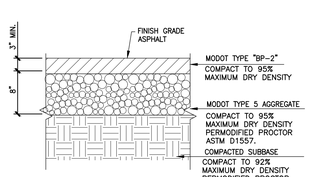
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MISSOURI ONE CALL SYSTEM, INC.

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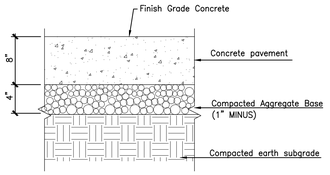



NOTE:
* WHEN PAVING WITHOUT A CURB EXTEND AGGREGATE BASE 1' BEYOND EDGE OF ASPHALT

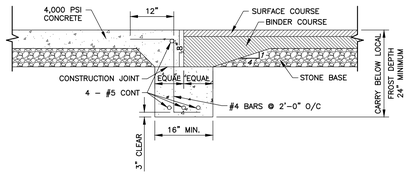
## HEAVY DUTY ASPHALT



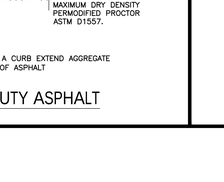

## (TYP) STANDARD DUTY ASPHALT



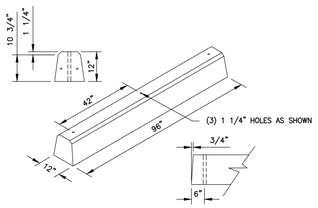

## HEAVY DUTY CONCRETE




## CONCRETE/ASPHALT JOINT DETAIL




**STANDARD PARKING STOP**

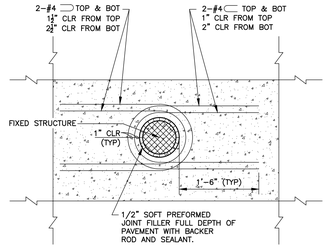



**HEAVY DUTY PARKING STOP**

NOTES:

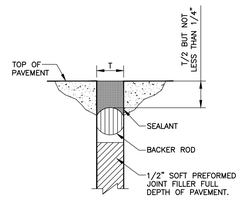
1. PRECAST, AIR-ENTRAINED CONCRETE, 2500-PSI MINIMUM COMPRESSIVE STRENGTH. 5 INCHES HIGH BY 9 INCHES WIDE BY 84 INCHES LONG. PROVIDE CHAMFERED CORNERS AND DRAINAGE SLOTS ON UNDERSIDE AND HOLES FOR ANCHORING TO SUBSTRATE.
2. DOWELS: GALVANIZED STEEL, 3/4-INCH DIAMETER, 10-INCH MINIMUM LENGTH.

## TYPICAL PARKING STOPS

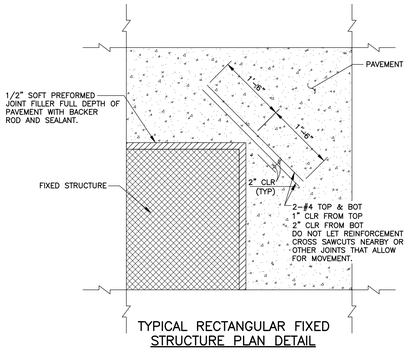



## TYPICAL ROUND FIXED STRUCTURE PLAN DETAIL

USES: MANHOLES, LIGHT POLE BASES AND BOLLARDS

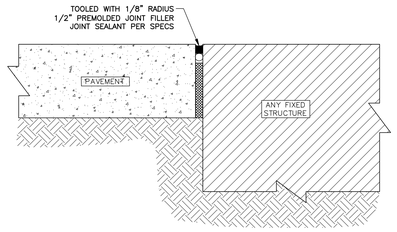



## BACKER ROD AND SEALANT SECTION AT FIXED STRUCTURE




## TYPICAL RECTANGULAR FIXED STRUCTURE PLAN DETAIL

USES: BUILDINGS, RETAINING WALLS/DOCK WALLS AND DROP INLETS

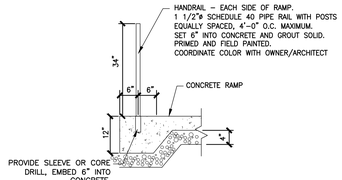



## ISOLATION JOINT

NOTES:

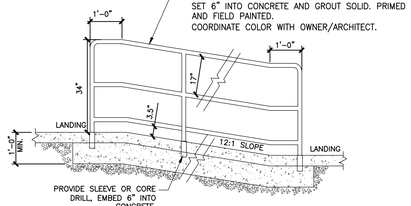
1. ISOLATION JOINT TO BE USED FOR FIXED STRUCTURES SUCH AS BUILDINGS, RETAINING WALLS/DOCK WALLS, DROP INLETS, MANHOLES, LIGHT POLE BASES AND BOLLARDS.
2. PAVEMENT IS NOT CONSIDERED A FIXED STRUCTURE.

## ISOLATION JOINT DETAILS




## TYP. HANDRAIL SECTION - RAMP

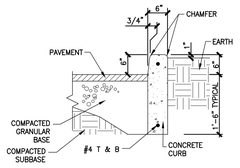
NO SCALE



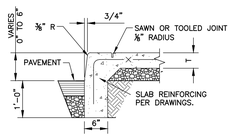

## TYP. HANDRAIL

NO SCALE

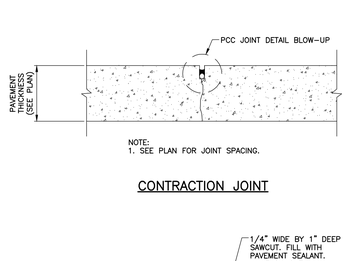
## HANDRAIL/RAMP DETAILS




## BARRIER CURB

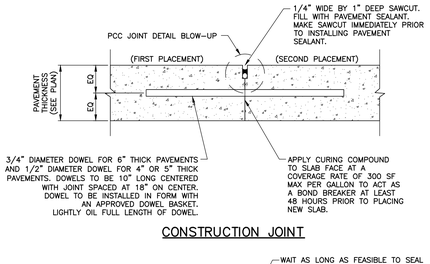



## INTEGRAL CURB/WALK

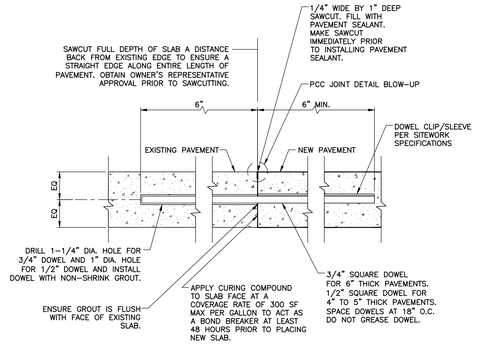



NOTE:
1. SEE PLAN FOR JOINT SPACING.

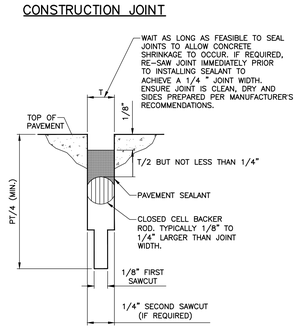
## CONTRACTION JOINT




## CONSTRUCTION JOINT



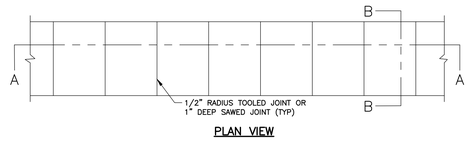

## CONSTRUCTION JOINT TO EXISTING PAVEMENT




NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
3. INSTALL BACKER TOD AT CONSISTENT AND UNIFORM DEPTH.
4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

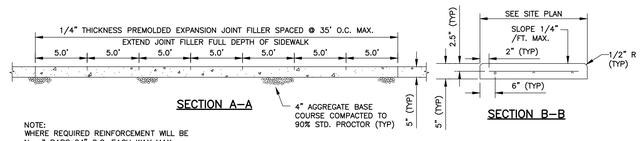
## JOINT DETAIL BLOW-UP (TYP.)

## CONCRETE JOINT DETAILS




NOTE:
PROVIDE 1/2" EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS

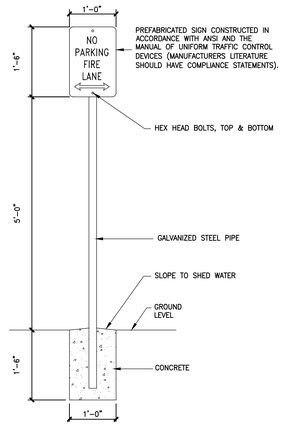
**PLAN VIEW**



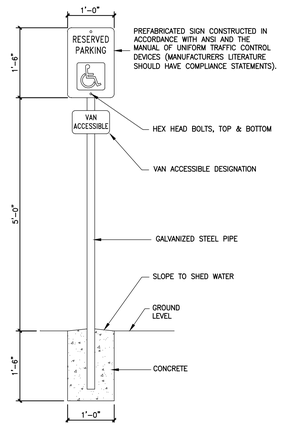

**SECTION A–A** **SECTION B–B**

NOTE:
WHERE REQUIRED REINFORCEMENT WILL BE No. 3 BARS 24" O.C. EACH WAY MAX. SPACING, OR 6 x 6 – W1.4 X W1.4 WWF

## CONCRETE SIDEWALK DETAIL




## NO PARKING FIRE LANE SIGNAGE




## HANDICAP SIGNAGE

STL CO. #26PRJ–XXXXX
M.S.D. #26MSD–XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291–3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Nilges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

Sheet No.
C6.3

## CHAIN LINK FENCE

SUBMITTALS:
1. ADD SUBMITTAL REQUIREMENTS

SPECIFICATIONS AND STANDARDS:
1. ASTM 392: SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC
2. ASTM F567: STANDARD PRACTICE FOR INSTALLATION OF CHAIN-LINK FENCE
3. ASTM F626: STANDARD SPECIFICATION FOR FENCE FITTINGS
4. ASTM F668: STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) AND OTHER ORGANIC POLYMER-COATED STEEL CHAIN-LINK FENCE FABRIC
5. ASTM A824: STANDARD SPECIFICATION FOR METALLIC-COATED STEEL MARCELLED TENSION WIRE FOR USE WITH CHAIN LINK FENCE
6. ASTM F 900: STANDARD SPECIFICATION FOR INDUSTRIAL AND COMMERCIAL SWING GATES
7. ASTM F 934: STANDARD SPECIFICATION FOR STANDARD COLORS FOR POLYMER-COATED CHAIN LINK FENCE MATERIALS
8. ASTM F 1043: STANDARD SPECIFICATION FOR STRENGTH AND PROTECTIVE COATINGS ON STEEL INDUSTRIAL CHAIN LINK FENCE FRAMEWORK
9. ASTM F1083: STANDARD SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED ZINC-COATED (GALVANIZED) WELDED, FOR FENCE STRUCTURES
10. ASTM F 1184: STANDARD SPECIFICATION FOR INDUSTRIAL AND COMMERCIAL HORIZONTAL SLIDE GATES

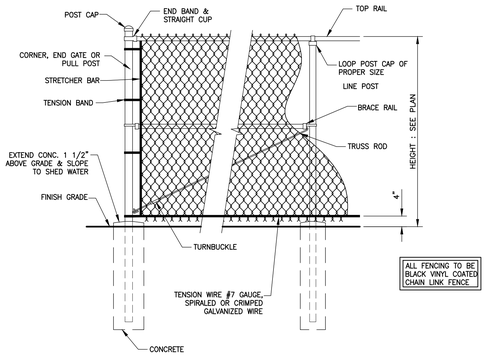
MATERIALS
1. CHAIN LINK FENCE FABRIC
   A. #9 GAUGE STEEL WIRE (0.148"ø), 2" DIAMOND MESH, AND ONE PIECE WIDTH FABRICATION.
   B. GALVANIZE COATING: GALVANIZE AFTER WEAVING (GAW), 1.2 OZ. PER SQUARE FOOT, ASTM A 392, TYPE II CLASS I.
   C. POLYMER COATING: POLYOLEFIN ELASTOMER COATING, 6 MIL TO 10 MIL THICKNESS, THERMALLY FUSED TO ZINC-COATED STEEL CORE WIRE PER ASTM F 668 CLASS 2B.
   D. HEIGHT: INDICATED ON DRAWINGS.
   E. SELVAGE: ALL FABRIC TO BE KNUCKLED ON BOTH ENDS.
2. FENCE FRAMING MEMBERS
   A. FRAMING TO COMPLY WITH ASTM F 1043.
   B. GALVANIZE COATING: 1.8 OZ. PER SQUARE FOOT OF TOTAL COATED SURFACE.
   C. PIPE: SS 40 STEEL PIPE HAVING MINIMUM NOMINAL PIPE SIZE (NPS) AND WEIGHT PER LINEAL FOOT AS GIVEN IN THE FOLLOWING TABLE.

| FRAMING MEMBER | FABRIC HEIGHT | NPS | O.D. | LB/FT | FOOTING DEPTH & DIA. |
|---|---|---|---|---|---|
| END, CORNER & PULL POSTS | LESS THAN 6' | 2 1/2" | 2.375" | 3.12 | 3'-6"x12" |
| | 6'-8' | 3" | 2.875" | 4.64 | 3'-6"x18" |
| | 10' | 4" | 4" | 6.56 | 4'-0"x18" |
| LINE POSTS | LESS THAN 6' | 2" | 1.9" | 2.28 | 3'-6"x10" |
| | 6'-8' | 2 1/2" | 2.375" | 3.12 | 3'-6"x12" |
| | 10' | 3" | 2.875" | 4.64 | 4'-0"x12" |
| TOP RAILS | | 1 5/8" | 1 5/8" | 1.84 | |
| INTER. RAIL | | 1 5/8" | 1 5/8" | 1.84 | |
| BOTTOM RAIL | | 1 5/8" | 1 5/8" | 1.84 | |
| SWING GATE FRAME | 6' AND LESS | 1 5/8" | 1 5/8" | 1.84 | |
| | 8' | 2 1/2" | 2.375" | 3.12 | |

SWING GATE POSTS

| GATE LEAF WIDTH | FABRIC HEIGHT | NPS | O.D. | LB/FT | FOOTING DEPTH & DIA. |
|---|---|---|---|---|---|
| 4' AND LESS | 6' OR LESS | 2" | 2 3/8" | 3.65 | 3'-6"x12" |
| OVER 4' TO 10' | | 3" | 2.875" | 4.64 | 3'-6"x18" |
| OVER 10' TO 16' | | 4" | 4" | 6.56 | 4'-0"x18" |

3. Fittings & Accessories
   a. GENERAL: CHAIN LINK FENCE FITTINGS PER ASTM F 626. GALVANIZE ALL FERROUS METAL FITTINGS.
   b. POST CAPS: STEEL, CAST IRON OR ALUMINUM ALLOY; MUST BE WEATHER PROOF TO PREVENT MOISTURE INTRUSION INTO POST. INTERMEDIATE OR LINE POST TOPS TO HAVE LOOP FOR TOP RAIL.
   c. RAIL ENDS: FORMED STEEL OR IRON, DESIGNED TO PROVIDE SECURE CONNECTION OF TOP RAILS TO TERMINAL POST AND BRACE OR OTHER RAILS TO TERMINAL AND INTERMEDIATE POSTS.
   d. SLEEVES: LENGTH OF TOP RAILS TO BE CONNECTED USING 6" SLEEVES THAT ALLOW FOR EXPANSION OR CONTRACTION OF THE RAIL.
   e. TIE WIRE: 9 GAUGE ALUMINUM FOR ATTACHMENT OF CHAIN LINK FABRIC TO RAILS.
   f. FABRIC BANDS AND RAIL BANDS TO BE PRESSED STEEL.
   g. TENSION (STRETCHER) BARS MADE OF ONE CONTINUOUS PIECE OF STEEL OR ALUMINUM, 3/16" X 3/4". PROVIDE ONE BAR PER END OR GATE POST AND TWO BARS PER CORNER OR PULL POST.
   h. TRUSS RODS & TIGHTENER: 5/16" MINIMUM DIAMETER ROD, GALVANIZED.
   i. TENSION WIRE: MARCELLED (SPIRALED OR CRIMPED) #7 GAGE, 0.177"ø, CONFORMING TO ASTM A 824. GALVANIZE COATING, 1.2 OZ. PER SQUARE FOOT, ASTM A 824, TYPE II, CLASS 2.
   j. FASTENERS: ALL NUTS AND BOLTS TO BE GALVANIZED.



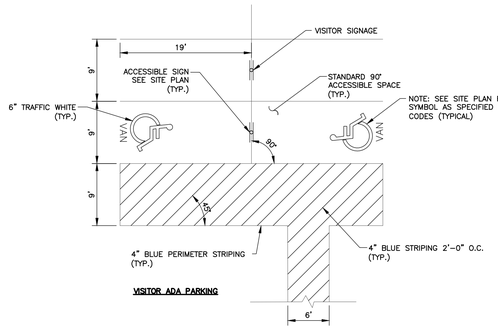

TYP. CHAIN LINK FENCE DETAIL AND SPECIFICATIONS

## CHAIN LINK FENCE
(continued)

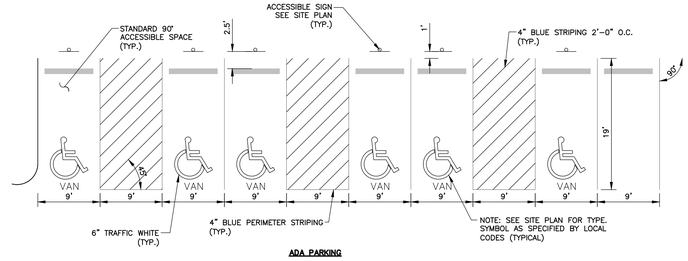
4. SWING GATES
   A. COMPLY WITH ASTM F 900.
   B. FRAMES AND BRACING: FABRICATE MEMBERS FROM STEEL TUBING AS ABOVE SPECIFIED. WELDED OR ASSEMBLED WITH CORNER FITTINGS AND 5/16"ø, ADJUSTABLE TRUSS ROD.
   C. HARDWARE: PROVIDE LATCHES PERMITTING OPERATION FROM BOTH SIDES OF GATE, HINGES, AND GATE KEEPER TO SECURE LEAF TO STAIR ADJACENT STRUCTURE. FABRICATE LATCHES WITH INTEGRAL EYE OPENINGS FOR PADLOCKING.
5. SLIDE GATES
   A. COMPLY WITH ASTM F 1184.
   B. CANTILEVER SLIDE GATES SHALL BE SUPPLIED WITH STEEL OR ALUMINUM FRAMES USING EXTERNAL OR INTERNAL ROLLERS.

INSTALLATION
1. COMPLY WITH ASTM F 567.
2. SPACE LINE POSTS EQUIDISTANT, 10 FEET MAXIMUM.
3. TERMINAL POSTS (END, CORNER AND GATE POSTS): SET AT THE BEGINNING AND END OF EACH CONTINUOUS LENGTH OF FENCE AND AT ABRUPT CHANGES IN VERTICAL AND HORIZONTAL ALIGNMENTS.
4. POST FOUNDATION - EARTH: SET POST IN CONCRETE WITH HOLD DIAMETER DUG OR DRILLED A MINIMUM OF FOUR TIMES THE POST DIAMETER. EXCEPT WHERE DEEPER EMBEDMENT IS SPECIFIED, EMBED POST A MINIMUM DEPTH OF 2'-6" WITH AN ADDITIONAL 3" FOR EACH 1 FOOT INCREASE IN THE FENCE HEIGHT OVER 6'-0". PROVIDE 3" DEPTH OF CONCRETE BENEATH POST BOTTOM.
5. POST FOUNDATION - SOLID ROCK OR CONCRETE: SET POSTS IN A HOLE HAVING A DIAMETER 3/4" GREATER THAN THE POST DIAMETER AND A DEPTH THREE TIMES THE POST DIAMETER, 6" MINIMUM. GROUT SOLID WITH A UNIFORM MIXTURE OF NON-SHRINK GROUT SUITABLE FOR EXTERIOR USE SUCH AS "SUPER POR-ROK" OR EQUAL.
6. CONCRETE BACKFILL: 2500 PSI MINIMUM STRENGTH. EXTEND CONCRETE 1 1/2" ABOVE GRADE AND CROWN TO SHED WATER OR TO 2" BELOW GRADE IF A COVER OF SOD, BLACKTOP, OR OTHER MATERIALS IS INDICATED ON DRAWINGS.
7. TERMINAL POST BRACING IS REQUIRED ON ALL FABRIC OVER 4'-0" AND ON FABRIC OVER 12'-0" IN HEIGHT A CENTER RAIL IS REQUIRED.
8. PASS TOP RAIL THROUGH OPENINGS IN THE POST TOPS PROVIDED FOR THAT PURPOSE AND COUPLE EACH LENGTH WITH INSERT SLEEVE COUPLINGS.
9. INSTALL FABRIC ON OUTSIDE OF FRAMEWORK AND ATTACH SO THAT FABRIC REMAINS IN TENSION AFTER PULLING FORCE IS RELEASED.
10. FASTEN WIRE FABRIC TO FRAMEWORK WITH 9 GAUGE ALUMINUM TIE WIRE. SPACE TIE OR CLIP WIRES AT 12" O.C. ALONG LINE POSTS, AND 24" O.C. ALONG TOP RAIL AND TENSION WIRE.
11. INSTALL HORIZONTAL BRACE RAIL AND DIAGONAL BRACE RODS AT END AND GATE POSTS AND, AT BOTH SIDES OF CORNER AND PULL POSTS. PLACE HORIZONTAL BRACE AT MID-HEIGHT OF FABRIC.

NOTE:
REFER TO ARCHITECTURAL SPECIFICATIONS REGUARDING KEYING OF GATES, AND FOR INFORMATION ON KNOX BOX REQUIREMENTS.

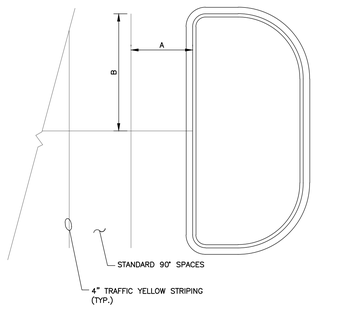



VISITOR ADA PARKING

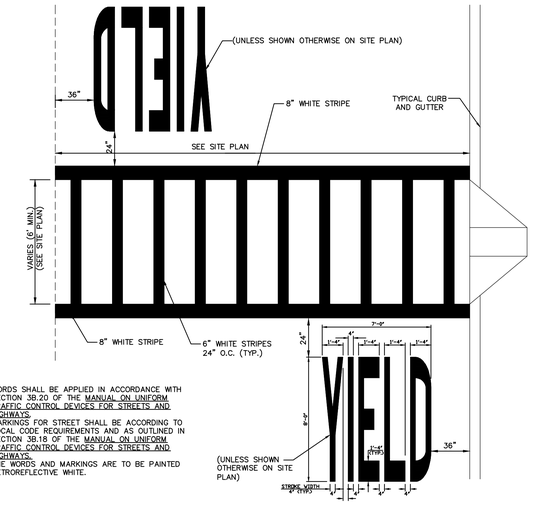



ADA PARKING

| DIMENSION CHART (90°) | |
|---|---|
| A | B |
| 9.0' | 19.00' |

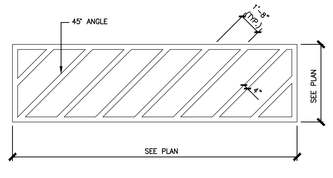



90° PARKING STRIPE DETAIL




NOTE:
1. WORDS SHALL BE APPLIED IN ACCORDANCE WITH SECTION 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. MARKINGS FOR STREET SHALL BE ACCORDING TO LOCAL CODE REQUIREMENTS AND AS OUTLINED IN SECTION 3B.18 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
3. THE WORDS AND MARKINGS ARE TO BE PAINTED RETROREFLECTIVE WHITE.

CROSSWALK MARKING DETAIL

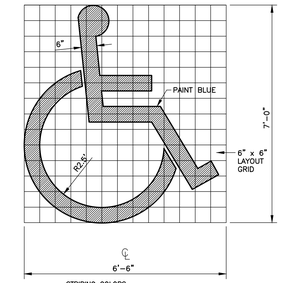



STRIPING COLORS:

GENERAL PARKING & STRIPING: TRAFFIC YELLOW
HANDICAP PARKING: BLUE

TYPICAL STRIPING

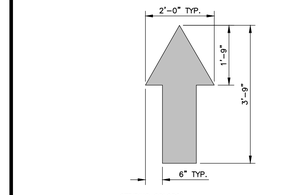
NOTE: LOCATE AT EDGE OF PARKING SPACE UNLESS ACCOMPANIED BY "VAN" LETTERING. CONTRACTOR TO USE THIS DETAIL OR A DETAIL THAT IS APPLICABLE TO LOCAL CODE.




STRIPING COLORS:

GENERAL PARKING & STRIPING: TRAFFIC YELLOW
HANDICAP PARKING: BLUE

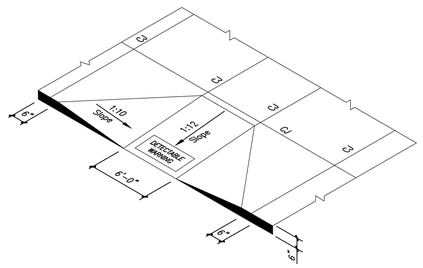
ACCESSIBLE SYMBOL DETAIL




STRIPING COLORS:

GENERAL PARKING & STRIPING: TRAFFIC YELLOW

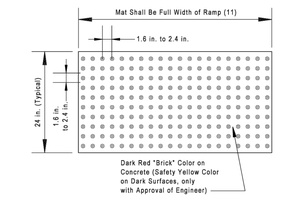
TYPICAL STRIPING ARROWS



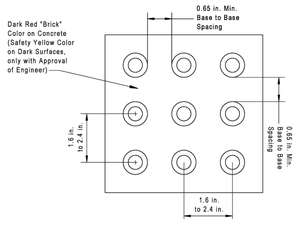

ADA CURB RAMP

### General Notes

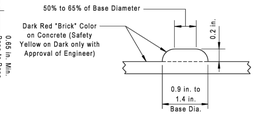
1) Do not scale drawings, follow dimensions.
2) Detectable warning surfaces (truncated domes) shall be preformed and installed as per manufacturer's recommendations. Stamped concrete will not be accepted.
3) All material shall be obtained from a source identified on the Missouri Department of Transportation "Qualified Lists". Specifically, Qualified Truncated Domes, FS-1067 Table 1
4) The detectable warning surface shall contrast visually with adjoining surfaces. Either light-on-dark or dark-on-light.
5) Truncated dome surfaces shall extend a minimum of 24 inches in the direction of sidewalk travel and the full width of the curb ramp (exclusive of flares), the landing, or blended transition. The panels shall be made of a durable material. The panels shall carry a manufacturer warranty covering all defects for a five-year period from the time of installation.
6) Detectable warning surfaces shall be aligned perpendicular or radial to the break between the ramp. Landing or blended transition. And the street.
7) Domes shall have a base diameter of 0.9 to 1.4 inches. The top diameter shall be 50 to 65 percent of the base diameter. The dome height shall be 0.2 inches. Dome center-to-center spacing shall be 1.6 to 2.4 inches with a minimum base-to-base spacing of 0.65 inches. Stamped concrete will not be accepted.
8) The contractor and/or manufacturer must provide a performance warranty on the product and installation of the Detectable Warning Surface for a minimum period of 1-year from the date of project acceptance or installation (whichever date is later). The performance warranty shall guarantee that the Detectable Warning Surface is free from defects in workmanship and material including deformation, breakage, excessive wearing or breakage of truncated domes, color fastness, delamination, or attachment to pavement surface.
9) Truncated dome mats applied with adhesive may be used for retrofit of existing curb ramps only
10) Contractors or manufacturers shall at the request of this Department, provide product literature, installation procedures, maintenance instructions, detectable warning surface samples (minimum 12 in. x 12 in.), current test reports in accordance with ASTM guidelines, and possible test installation by the contractor or manufacturer.
11) Some detectable warning products require a concrete border for proper installation. The concrete border shall not exceed 2 inches per side.
12) The detectable warning surface used shall be consistent throughout the project and are required to be installed on all curb ramps at public and private street intersections; signalized entrances; and at all channelized and raised islands where a curb ramp or cut-through is provided.




**Detectable Warning Surface**




**Square Pattern, Parallel Alignment**




**Truncated Dome Detail**

DETECTABLE WARNING SURFACE

| ISSUE DATE | THIS IS NOT A CERTIFIED DOCUMENT | Saint Louis COUNTY TRANSPORTATION 9900 NORTH LINDBERGH BLVD. ST. LOUIS, MISSOURI 63132 | SIDEWALK & CURB RAMP DETAILS: DETECTABLE WARNING SURFACE FOR NEW CONSTRUCTION AND RETROFITTING OF CURB RAMPS | | |
|---|---|---|---|---|---|
| 03/09/2020 | | | EFFECTIVE 05/01/2020 | SHEET 1 OF 1 | DRAWING C608.51 |
| REVISIONS | | | | | |

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator


Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527


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Certificate of Authority No. 2013013380


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Seal

100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

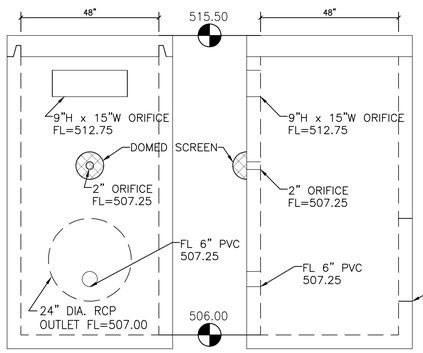
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100% CONSTRUCTION DOCUMENTS 09/01/2026

Team
Drawn By: JEL
Checked By: JRN

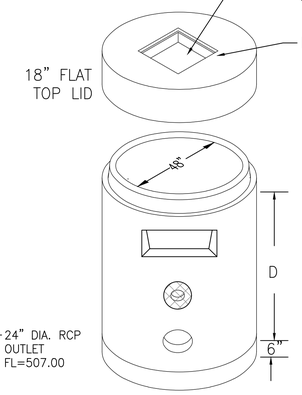
Sheet Title
DETAILS SHEET

Sheet No.
C6.4

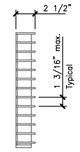
NOTE: ENGINEER APPROVED SHOP DRAWINGS MUST BE SUBMITTED TO MSD FOR REVIEW PRIOR TO CONSTRUCTION OF THE OVERFLOW STRUCTURE. MSD CONTACT: BRIAN DUNN 314-335-2072



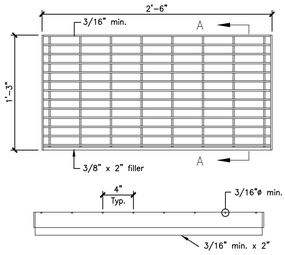

FRONT VIEW SIDE VIEW



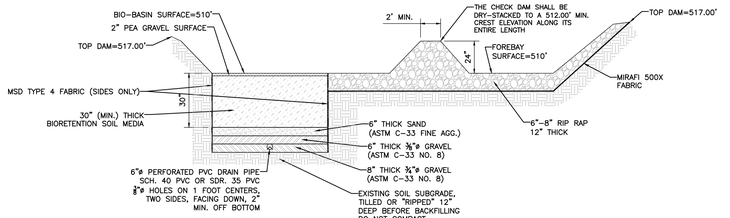

BIO-RETENTION OUTFLOW STRUCTURE



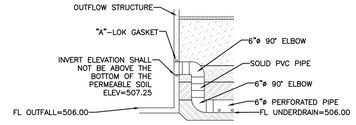

SECTION A-A



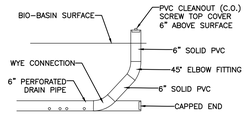

| | |
|---|---|
| Finish | – asphaltic 10 mil. coating |
| Material | – Mild carbon steel – ASTM A569 |
| Capacity | – H-20 loading |
| Weight | – 65 lb. min. |
| Tolerances | – All dimensions ±1/8" |
| Identification mark | – The manufacturer must place his name or on each unit for the purpose of identification. |




BIO-RETENTION DETAIL
(NOT TO SCALE)




TRAPPED UNDER-DRAIN DETAIL
(NOT TO SCALE)




SEWER CLEANOUT IN BIO-RETENTION
(NOT TO SCALE)

**PLANTING SCHEDULE**

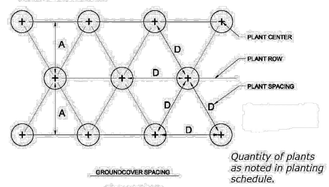
Schizachyrium scoparium (Little Bluestem)

Specified Spacing: 18" centers
Coverage Area (WQa): 3,122 s.f.

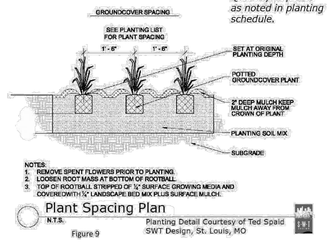
Total Plantings (0.45/s.f.):
3,122 s.f. * 0.45 plants/s.f. = 1,405 min.
Plug size (2" min.)

| SPACING "S" | ROW "A" | NUMBER OF PLANTS/SQ. FT. |
|---|---|---|
| 30" | 26" | 100 |
| 24" | 20.8" | 25 |
| 18" | 15.6" | 450 |
| 15" | 13.0" | 640 |
| 12" | 10.4" | 1.00 |
| 10" | 8.66" | 1.44 |
| 8" | 6.93" | 2.25 |

NOTE: PLANT QUANTITIES WERE DETERMINED BY MULTIPLYING AREA (SQ. FT.) BY NUMBER OF PLANTS/SQ. FT. FOR REQUIRED SPACING.




*Quantity of plants as noted in planting schedule.*




NOTES:
1. REMOVE SPENT FLOWERS PRIOR TO PLANTING.
2. LOOSEN ROOT MASS AT BOTTOM OF ROOTBALL.
3. TOP OF ROOTBALL STRIPPED OF ½" SURFACE GROWING MEDIA AND COVERED WITH ½" LANDSCAPE BED MIX PLUS SURFACE MULCH.

Plant Spacing Plan
N.T.S.
Planting Detail Courtesy of Ted Spaid SWT Design, St. Louis, MO

Figure 9



Bioretention areas are generally designed with underdrains. However, where proper infiltration testing indicates an infiltration rate greater than 0.52 inches per hour, consideration may be given to eliminating underdrains or limiting their use. Given this practice would encourage groundwater infiltration, it should be carefully considered and where possible encouraged. In areas where significant infiltration is possible, or it is desired to limit the use of underdrains, the underdrains may be perched as shown in Figure 7.

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics that promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, the soils must balance soil chemistry and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam or loamy sand (should contain a minimum of 60 percent sand, by volume). The clay content for these soils should be less than 10 percent by volume. A saturated hydraulic conductivity of at least 1.0 feet per day (0.5 inches per hour) is required. (Without post-construction verification, a conservative default value of 0.5 feet per day is acceptable. The design rate may be increased to 2 feet/day if field observation, post-construction infiltration testing, or other equivalent testing [as determined by the District] is provided to confirm the design rate is achieved.) The soil should be free of stones, stumps, roots, or other woody material over 1 inch in diameter. For best results, brush or seeds from noxious weeds, such as Johnson grass, mugwort, nutsedge and Canadian thistle should not be present in the soils. Placement of the planting soil should be in lifts of 12 to 18 inches, loosely compacted (rubber wheeled heavy equipment and mechanical tamping devices are not recommended for compaction). The specific characteristics are presented in the following table.

Table 1: Planting Soil Characteristics. Source: Maryland Stormwater Manual

| Parameter | Value |
|---|---|
| pH range | 5.2 to 8.00 |
| Organic matter | 1.5 to 5.0% |
| Magnesium | 35 lbs. per acre, minimum |
| Phosphorus ($P_2O_5$) | 75 lbs. per acre, minimum |
| Potassium ($K_2O$) | 85 lbs. per acre, minimum |
| Soluble salts | ≤ 500 ppm |

The mulch layer plays an important role in the performance of the bioretention system. It helps maintain soil moisture and avoids surface sealing that reduces permeability. Mulch helps prevent erosion and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments that remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch. The mulch layer should be free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch. Alternatively, pea gravel or other similar natural gravel may be used.





**Planting, Water and Mulch Requirements for Stormwater BMPs**

Table 3: Planting, Water and Mulch Requirements

| Water Availability | Required Planting Period | Minimum Container Size | Water Requirement First 3 Weeks* | Water Requirement After 3 Weeks* | Maximum Mulch Depth**** |
|---|---|---|---|---|---|
| No ability to water after | Late Feb. – April only | 2.25" x 3.75" or larger | Water each plug immediately | | 1.5 for plugs |
| Manual watering with standard sprinkler | Late Feb. – Early June<br>Sept. – October | 4.5" x 5" (quart) or larger in summer & fall | 1" (60 min) every 4 days | 1" (60 min) every 7 days until plants established*** | 1.5" for plugs<br>2.5" for quarts |
| Automatic irrigation<br>(set to water more frequently than normal during first two months after planting) | Late Feb. – Early Oct. | 2.25" x 3.75" (plug) or larger in spring<br>4.5" x 5" (quart) or larger in summer & fall | 1" (60 min) every 4 days in spring and fall<br>1" (60 min) every 3 days in summer | 1" (60 min) every 7 days until plants established*** | 1.5" for plugs<br>2.5" for quarts |

**This water amount includes natural rainfall. If you get a ½ inch of natural rain then you will need to add a ½ inch of water to meet the 1 inch requirement.*

***Requires transport of water to the planting site in large containers and pouring enough water onto each plant (after planting) to moisten the entire planting pit.*

****Plants are established when roots have grown out of the container soil and into the native soil by 3-5 inches. This normally takes 3-4 months for most perennials and grasses and up to 6-7 months for trees and shrubs.*

*****Shredded leaf compost is recommended for use with perennials and grasses. Shredded bark mulch is recommended for tree and shrub plantings at a depth of 3 inches.*



NOTES:

1. DURING CONSTRUCTION OF THE BIO-RETENTION BASIN, SITE RUNOFF SHALL NOT FLOW INTO THE BMP. ALL STORM WATER FLOW TO THE BMP'S SHALL BE DIVERTED, PLUGGED, OR DISCONNECTED UNTIL THE CONSTRUCTION SITE IS STABLE AND THE MSD INSPECTOR PROVIDE APPROVAL TO PLACE THE BMP'S ONLINE.
2. SEE MSD LANDSCAPE GUIDELINES FOR ADDITIONAL FOR ADDITIONAL DETAILS ON PLANTINGS IN BIO-RETENTION AREAS.
3. IT IS IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIO-RETENTION AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIO-RETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK EQUIPMENT. USE OF EQUIPMENT WITH NARROW TRACTS OR NARROW TIRES, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO BMP FAILURE.
4. COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIO-RETENTION FACILITY BY USING TILLING EQUIPMENT SUCH AS A CHISEL PLOW, RIPPER OR SUBSOILERS. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
5. THE PERMEABLE SOIL USED IN THE BIO-RETENTION SOIL MEDIA SHOULD BE TESTED BEFORE PLACING IT IN THE FIELD TO ENSURE IT MEETS THE PERFORMANCE SPECIFICATIONS OUTLINED IN THE PLANS AND STORMWATER MANAGEMENT FACILITIES REPORT. THE PERMEABLE SOIL MUST HAVE A MINIMUM INFILTRATION RATE OF 2 FEET PER DAY.
6. WHEN BACKFILLING THE BIO-RETENTION BASIN, PLACE SOIL IN LIFTS OF 12 TO 18 INCHES. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIO-RETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIO-RETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER / LOADER WITH WIDE (MARSH) TRACKS. THE LANDSCAPER, ENGINEER, OR GEOTECHNICAL ENGINEER SHOULD BE PRESENT ON SITE DURING THE CONSTRUCTION OF THE BIO-RETENTION FACILITIES TO ENSURE QUALITY CONTROL.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

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1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator

Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

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Certificate of Authority No. 2013013380

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100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Niges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

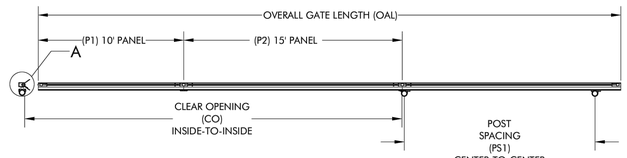
Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

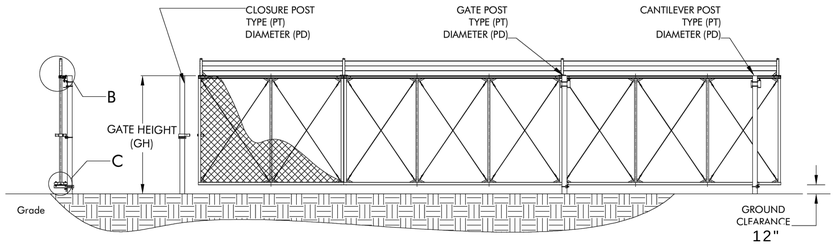
Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

Sheet No.
C6.5

| DIM | VALUE |
|---|---|
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| P2 | |
| CO | |
| PS1 | |
| GH | |
| OAL | |
| PT | |
| PD | |




1.GATE OPERATOR INSTALLATION AND SAFETY STANDARD PER UL-325 (STANDARD FOR DOOR,DRAPERY, GATE LOUVER AND WINDOW OPERATORS AND SYSTEMS)
2.GATE FABRICATION AND SAFETY STANDARD PER ASTM F2200 (AUTOMATED VEHICULAR GATECONSTRUCTION)
3.GATE FRAME CONSTRUCTED USING ALUMINUM 6061-T6 FOR SUPERIOR CORROSION RESISTANCEAND STRUCTURAL INTEGRITY
4.TWO 5/16" EYE BOLT AND 1/4" GALV CABLES FOR GATE RIGIDITY
5.PRODUCT IS SOLD AS KITS: i) GATE PANELS, ii) HARDWARE KIT, iii)SPLICE KIT, iv)GAPFILLER (OPTIONAL), v)BARB ARM KIT (OPTIONAL)
6.STANDARD GATE PANEL HEIGHT OPTIONS: 6', 7' AND 8'
7.FOOTINGS TO BE INSTALLED AS PER OPSD 972.1328.
8.MULTIPLE CONFIGURATIONS OF GATE PANELS CAN BE SPLICED TOGETHER TO REACH REQUIRED OVERALL LENGTH
9.AVAILABLE GATE INFILLS INCLUDE GALVANIZED CHAINLINK (PICTURED ABOVE), WOOD & VINYL PANELS, AND ORNAMENTAL
10. GATES CAN BE FITTED WITH 3-STRAND BARBED WIRE (MODELED ABOVE IF INCLUDED)

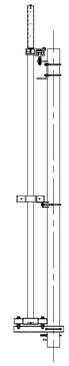
MASTER HALCO Fence & Deck Supply

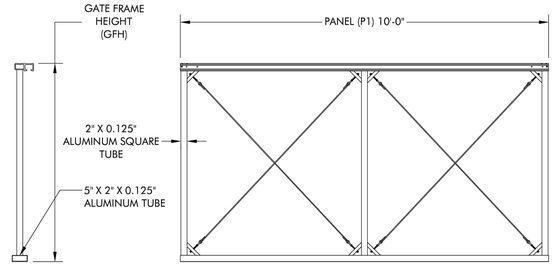
MASTER-HALCO, INC.
3010 LBJ FWY, SUITE 800
DALLAS, TEXAS 75234

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| | DATE: 02-07-2026 | |
| Single Track | REV: REV01 | LAYER: |
| | REV DATE: - | SCALE: AS NOTED |

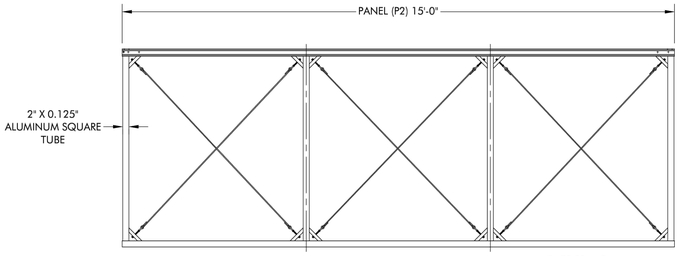
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| GATE HEIGHT (GH) | GFH |
|---|---|
| | |
| 6' | 64.56" |
| 7' | 76.56" |
| 8' | 88.56" |






GATE FRAME CONSTRUCTION DETAILS
SCALE 1:25



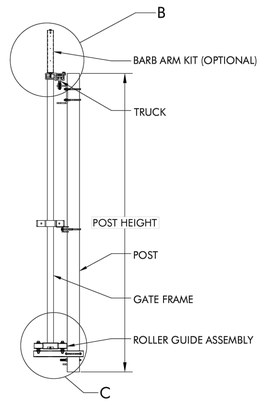

GATE FRAME CONSTRUCTION DETAILS
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MASTER HALCO Fence & Deck Supply

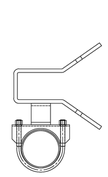
MASTER-HALCO, INC.
3010 LBJ FWY, SUITE 800
DALLAS, TEXAS 75234

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| | DATE: 02-07-2026 | |
| Single Track | REV: REV01 | LAYER: |
| | REV DATE: - | SCALE: AS NOTED |

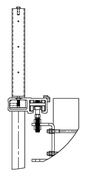
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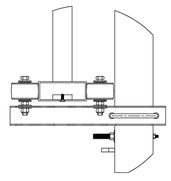

SIDE VIEW
SCALE 1:25



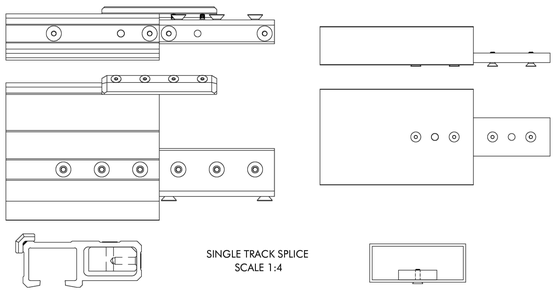
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GATE CLOSURE
ASSEMBLY
SCALE 1:8



DETAIL B
TRUCK
ASSEMBLY
SCALE 1:12



DETAIL C
ROLLER GUIDE
ASSEMBLY
SCALE 1:8



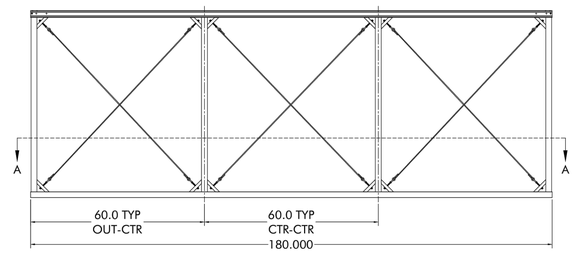
SINGLE TRACK SPLICE
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MASTER HALCO Fence & Deck Supply

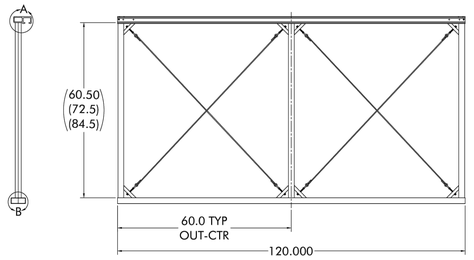
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DALLAS, TEXAS 75234

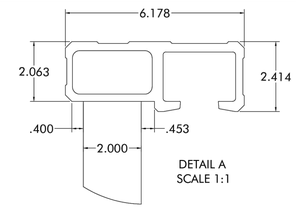
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|---|---|---|
| SurTrac II Single Track | BY: - | DWG: |
| | DATE: 02-07-2026 | |
| Single Track | REV: REV01 | LAYER: |
| | REV DATE: - | SCALE: AS NOTED |

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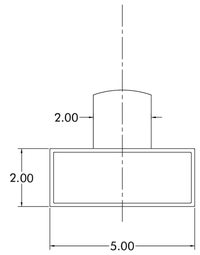



SECTION A-A
SCALE 1:15




DETAIL A
SCALE 1:1




DETAIL B
SCALE 1:1

MASTER HALCO Fence & Deck Supply

MASTER-HALCO, INC.
3010 LBJ FWY, SUITE 800
DALLAS, TEXAS 75234

| | | |
|---|---|---|
| SurTrac II Single Track Gate Panel | BY: - | DWG: |
| | DATE: 04-30-2026 | |
| | REV: REV01 | LAYER: |
| | REV DATE: - | SCALE: AS NOTED |

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SLIDING GATE DETAILS

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com

EXCELSIOR ENGINEERING, LLC
Engineering Corporation #2017008527

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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100% CONSTRUCTION DOCUMENTS

09/01/2026

John Robert Niiges, P.E. #2013000609
State of Missouri
for Excelsior Engineering, LLC.
Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

Sheet No.
C6.6




NOTES

1. CONTRACTOR SHALL FURNISH ALL PARTS AND LABOR TO MOVE THE TRAILER FROM IT'S EXISTING LOCATION TO THIS LOCATION.
2. CONTRACTOR TO BE RESPONSIBLE FOR TAKING APART THE DOUBLE WIDE TRAILER, PROVIDING PROTECTION TO THE INTERIOR ONCE SEPARATED, INCLUDING SITTING ON THE SITE, TRAVELING, ETC. THE INTERIOR SHALL NOT GET WET, DIRTY OR DAMAGED.
3. 
4. THE CONTRACTOR IS RESPONSIBLE TO SET THE TRAILER UP LEVEL ON THE NEW SITE, INCLUDING REASSEMBLING THE TRAILER LIKE IT WAS BEFORE BEING DISASSEMBLED, ANCHORING THE TRAILER AND PUTTING THE STAIRS AND RAMP IN PLACE, ANCHORED. THE INTERIOR FINISHES MUST ALSO BE PUT BACK TOGETHER. THE OWNER WILL RECONNECT THE TRAILER TO ON SITE UTILITIES. THE TRAILER MUST BE WATERTIGHT. ALL ANCHORING SHALL BE IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE AND TRAILER AND ANCHOR MANUFACTURER.
5. CONTRACTOR SHALL ACQUIRE ALL PERMITS REQUIRED TO TRANSPORT TO THIS LOCATION
6. THE OWNER WILL HAVE THE AREA CLEARED AND PREPPED.
7. CONTRACTOR SHALL NOTIFY THE OWNER OF THE RELOCATION DATE 30 DAYS PRIOR TO RELOCATION

## OFFICE TRAILER - RELOCATION PLAN

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state-plan regulations established for the type of construction required by these plans.

City

Collaborator
Telephone: (573) 291-3159
E-Mail: mail@excelgr.com
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100% CONSTRUCTION DOCUMENTS

09/01/2026
John Robert Niges, P.E. #2013000609
State of Missouri
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Engineering Corporation #2017008527

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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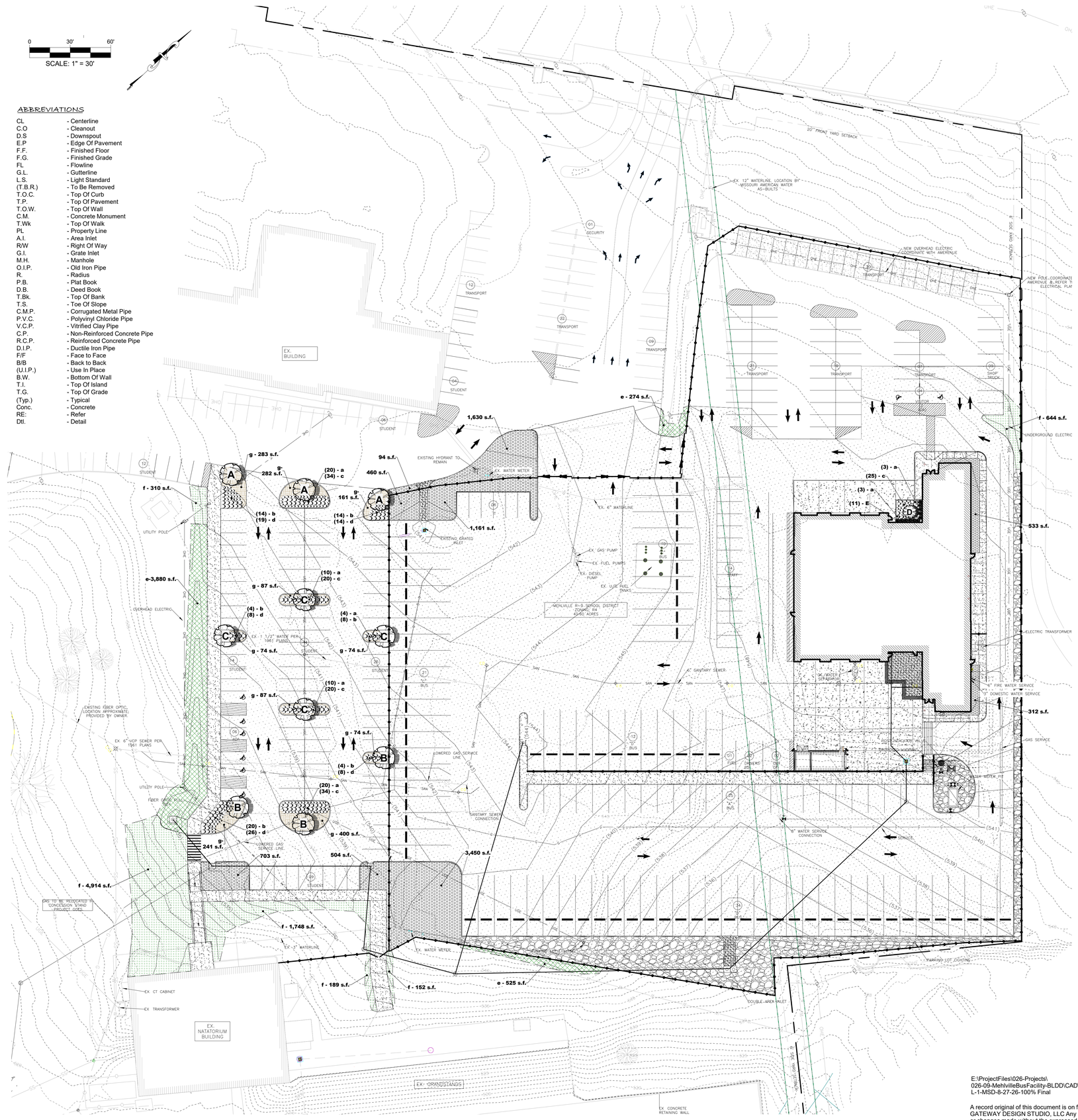
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: JEL
Checked By: JRN

Sheet Title
DETAILS SHEET

Sheet No.
C6.7




## CIVIL LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| CONTOURS | 100 | 100 |
| AERIAL ELECTRIC | OHE | OHE |
| UNDERGROUND ELECTRIC | UGE | UGE |
| UNDERGROUND TELEPHONE | UT | UT |
| UNDERGROUND COMMUNICATION | UT | UT |
| GAS LINE | G | G |
| FIBER OPTIC LINE | FO | FO |
| WATERLINE | W | W |
| SANITARY SEWER | SS | SS |
| STORM SEWER | | |
| EASEMENT | | |
| PROPERTY LINE | | |
| CHAINLINK FENCE | | |
| BENCHMARK | | |
| UTILITY POLE | | |
| LIGHT FIXTURE | | |
| SANITARY MANHOLE | | |
| WATER VALVE | | |
| FIRE HYDRANT | | |
| WATER METER | | |
| AREA INLET / CURB INLET | | |
| STORM MANHOLE | | |
| GRATED CURB INLET | | |
| CLEANOUT | | |
| GRATED INLET | | |
| IN-LINE DRAIN | | |
| DRAINAGE ARROW | | |

## EXTERIOR PLANT SCHEDULE

| Project Name: | MSD – TRANSPORTION AND OFFICE BUILDING PROJECT | Date: | August 26, 2026 |
|---|---|---|---|
| | | Project No. | GDS #026-09 |

| Symbol | COMMON NAME (Scientific Name) | Size | Quantity | Remarks |
|---|---|---|---|---|
| A | GREEN VASE ZELKOVA (Zelkova serrata 'Green Vase') | 2" cal. | 3 | B&B, Strong Central Leader |
| B | AMERICAN HOPHORNBEAM (Ostrya virginiana) | 2" cal. | 3 | B&B, Strong Central Leader |
| C | EASTERN HOP HORNBEAM / IRONWOOD (Carpinus caroliniana) | 2" cal. | 4 | B&B, Strong Central Leader |
| D | SWEETBAY MAGNOLIA (Magnolia virginiana) | 6 ft. | 1 | B&B or container |
| E | GREEN VELVET BOXWOOD (Buxus microphylla 'Green Velvet') | 24" | 11 | 3 ft. o.c. – Full Form/Matching |
| a | LITTLE BLUESTEM (Schizachyrium scoparium) | 1 gal. | 66 | 3 ft. o.c. – Full Form/Matching |
| b | SWITCHGRASS (Panicum virgatum) | 1 gal. | 60 | 3 ft. o.c. – Full Form/Matching |
| c | PRAIRIE DROPSEED (Sporobolus heterolepis) | 1 qt. | 133 | 2 ft. o.c. – Full Form/Matching |
| d | SIDEOATS GRAMA (Bouteloua curtipendula) | 1 qt. | 83 | 2 ft. o.c. – Full Form/Matching |
| e | SEED/STRAW MAT – UTILITY SEED MIX | S.F. | 4,679 | See Specs |
| f | SEED/STRAW - UTILITY SEED MIX | S.F. | 7,957 | See Specs |
| g | SHREDDED BARK MULCH W/FABRIC (Parking Islands) | S.F. | 1,763 | See Specs – 4" layer – no plants |
| | SHREDDED BARK MULCH (Planting Beds) | C.Y. | 26 | See Specs – 4" layer w/plantings |
| | BED PREPARATION (Planting Beds) | S.F. | 2,109 | See Specs |
| | COMPOSTED LEAF MOLD (Planting Beds) | C.Y. | 17 | See Specs |
| | PEA GRAVEL STONE MULCH /W FABRIC | S.F. | 8,847 | See Specs - 4" depth |

## PROPOSED LANDSCAPE LEGEND

SYM. QUAN. SIZE TYPE
A/B/C (10) 2" CANOPY TREE

SYM. QUAN. SIZE TYPE
D (1) 6 ft. ORNAMENTAL TREE

SYM. QUAN. SIZE TYPE
a,b (126) 1 GAL. NATIVE/ORNAMENTAL GRASSES

SYM. QUAN. SIZE TYPE
c,d (216) 1 QT. NATIVE/ORNAMENTAL GRASSES

SYM. QUAN. SIZE TYPE
E (11) 24" EVERGREEN SHRUBS

4" THICK SHREDDED BARK MULCH W/FABRIC

4" THICK PEA GRAVEL STONE MULCH /W FABRIC

SEED/STRAW - UTILITY SEED MIX

SEED/STRAW MAT - UTILITY SEED MIX

PLAN NOTES:

1. Contractor to review and field verify existing and proposed conditions prior to installation.
2. Contractor to notify GATEWAY DESIGN STUDIO of any discrepancies.
3. Contractor to coordinate with other trades.
4. Contractor to adjust plantings accordingly, notify GATEWAY DESIGN STUDIO of any major changes.
5. Proposed plant material is to be selected by the contractor and approved by GATEWAY DESIGN STUDIO or Owner Representative prior to installation.
6. Shrub locations and planting beds to be located by the contractor and approved by GATEWAY DESIGN STUDIO or Owner Representative prior to installation.
7. MULCH: All planting beds to receive a 4 inch layer of shredded bark mulch in a continuous bed.
8. Contractor is responsible for installing all plant material shown on plan.
9. All landscape improvements and maintenance to be done according to St. Louis County requirements.
10. Plantings shall not prohibit site distance requirements.
11. Proposed conditions based on latest plans prepared by Exselsior Engineering, Inc. Refer to Civil Plans for proposed site development and grading requirements.
12. Refer to specifications for full requirements.
13. TOPSOIL NOTE: Lawn areas will require approximately 127 c.y. of topsoil at 3" depth. Trees will require approximately 2 c.y. of topsoil mixed with existing soil. Topsoil shall be reused from stockpile on-site or obtained locally.

E:\ProjectFiles\026-Projects\
026-09-MehlvilleBusFacility-BLDD\CAD\
L-1-MSD-8-27-26-100% Final

A record original of this document is on file at the office of GATEWAY DESIGN STUDIO, LLC Any unauthorized alterations or changes made without the expressed consent from GATEWAY DESIGN STUDIO, LLC shall deem us not responsible for any said alterations and changes.

STL CO. #26PRJ-XXXXX
M.S.D. #26MSD-XXXXX
BASE MAP #28J3

Call before you DIG 811/1-800
1-800-344-7483
MISSOURI ONE-CALL SYSTEM INC.

Underground facilities, structures & utilities have been plotted from available surveys, records & information, and therefore, do not necessarily reflect the actual existence, nonexistence, size, type, number of, or location of these facilities, structures, & utilities. The Contractor shall be responsible for verifying the actual location of all underground facilities, structures, & utilities, either shown or not shown on these plans. The underground facilities, structures, & utilities shall be located in the field prior to any grading, excavation or construction of improvements. Failure to do so shall not relieve the Contractor (or subcontractor) from complying with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMO.

City
GDS
Gateway Design Studio
planning
landscape architecture
environmental design
Vision...Sustainability...Purpose!
Established: 1992
5 - 100 Chesterfield Business Parkway
Chesterfield, Missouri 63005
ph: 314.703.1800 web: www.gatewayds.com
Collaborator
BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
RYAN D. WHITE
NUMBER
LA-44
LANDSCAPE ARCHITECT

This seal and signature applies only to this document. GATEWAY DESIGN STUDIO, LLC expressly disclaims any responsibility for all other plans, specifications, estimates, reports, or other documents or instruments relating to or intended to be used for any part or parts of this project.

Project No.: 25761R.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
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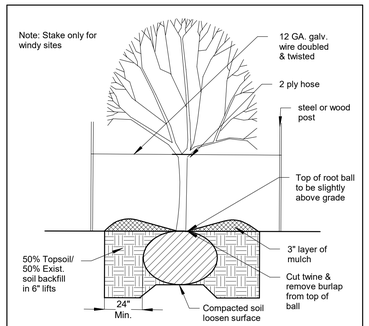
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

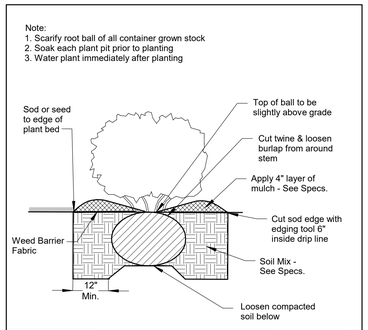
Team
Drawn By:
Checked By:

Sheet Title
LANDSCAPE PLAN

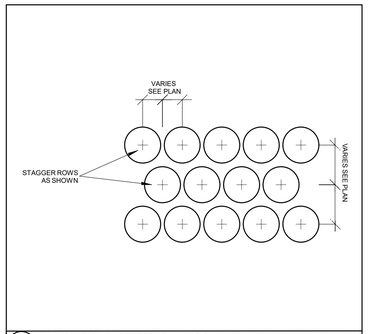
Sheet No.
L-1.0




1 L-1.1 TREE PLANTING DETAIL
N.T.S. GATEWAY DESIGN STUDIO



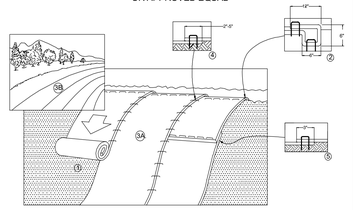

2 L-1.1 SHRUB PLANTING DETAIL
N.T.S. GATEWAY DESIGN STUDIO




3 L-1.1 TYPICAL NATIVE GRASS PLANTING DETAIL
N.T.S. GATEWAY DESIGN STUDIO

NORTH AMERICAN GREEN

OR APPROVED EQUAL




1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A DOWN OR (B ) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-3" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.


14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com


4 L-1.1 TYPICAL STRAW BLANKET INSTALLATION DETAIL
N.T.S.
Refer to specifications for additional instructions

# SECTION 32 90 00 – LANDSCAPE WORK

## PART 1 – GENERAL

### 1.1 SUMMARY

A. Section includes landscape work consisting of topsoil placement, soil amendments, plant materials, seeding, mulching, erosion control blankets, weed barrier fabric, planting accessories, and maintenance.

B. Work includes furnishing all labor, materials, equipment, and services necessary for complete installation and establishment of landscape improvements.

### 1.2 RELATED SECTIONS

A. Section 31 00 00 – Earthwork

B. Section 32 05 00 – Common Work Results for Exterior Improvements

C. Section 32 91 00 – Planting

D. Section 32 92 00 – Turf and Grasses

### 1.3 REFERENCES

A. American Standard for Nursery Stock, ANSI Z60.1 (latest edition).

B. ASTM D4873 – Identification, Storage, and Handling of Geosynthetic Materials.

C. ASTM D6460 – Rolled Erosion Control Product Performance.

D. ASTM A702/A702M – Steel Fence Posts and Assemblies.

E. ASTM D5261 – Mass per Unit Area of Geotextiles.

### 1.4 QUALITY ASSURANCE

A. Plant Material Quality:

1. Conform to ANSI Z60.1 for size, quality, and root condition.
2. Provide balled and burlapped (B&B) trees and shrubs unless otherwise indicated.
3. Container-grown shrubs permitted where necessary.

B. Installer Qualifications: Minimum 5 years' experience with similar project types.

### 1.5 SUBMITTALS

A. Planting Schedule: Submit schedule coordinating planting windows (March 1–June 30; September 1–November 30) with construction activities.

B. Product Data:

1. Fertilizers
2. Mulch materials
3. Erosion control blankets
4. Weed barrier fabric
5. Tree stakes and guying materials

C. Inspection Notification: Notify Owner or Landscape Architect prior to tree selection and prior to installation.

### 1.6 PRE-INSTALLATION MEETINGS

A. Conduct meeting with Owner's Representative minimum 48 hours before planting phases for in-field plant placement verification.

B. Maximum of two such meetings permitted.

### 1.7 WARRANTY AND MAINTENANCE

A. Maintenance:

1. Maintain all plant material immediately after planting until final acceptance.
2. Maintenance includes watering, pruning, cultivation, weeding, repairs, mulching, spraying, and daily cleanup.
3. Perform maintenance weekly until acceptance.

B. Final Inspection and Acceptance:

1. Request inspection in writing.
2. Owner or Landscape Architect may accept portions of work if complete.
3. Replace rejected work and continue maintenance until accepted.
4. Remove rejected plants within 1 week.
5. Replace any plant or turf that dies regardless of reason.

C. Warranty:

1. Plant material: minimum 1 year.
2. Lawn areas: until final acceptance.

## PART 2 – PRODUCTS

### 2.1 TOPSOIL

A. Provide clean, friable, fertile natural topsoil containing minimum 5% organic matter.

B. Reuse stockpiled topsoil if acceptable; otherwise obtain locally.

### 2.2 SOIL AMENDMENTS

A. Planting bed amendment: 2-inch layer of well-composted leaf mold.

### 2.3 PLANT MATERIALS

A. As shown on Drawings.

B. Conform to ANSI Z60.1.

### 2.4 SEED AND FERTILIZER

A. Utility Turf Blend:

1. 80% K31 Tall Fescue, 97% germination, 85% purity
2. 20% Perennial Ryegrass, 97% germination, 85% purity
3. Application rate: 12 lb per 1,000 sq ft

B. Fertilizer: 12-12-12 fertilizer, minimum 1 lb actual nitrogen per 1,000 sq ft.

C. Topsoil for Lawn Areas: Minimum 3-inch layer of clean friable topsoil.

### 2.5 COVER MULCH FOR SEEDED AREAS

A. Hydromulch: Wood/cellulose fiber with tackifier.

B. Terra Mulch Jet Spray with FiberMax with Tacking Agent 3 or equivalent.

C. Straw mulch: Clean wheat, barley, oat, or rye straw; free of mold, weeds, or contaminants.

### 2.6 EROSION CONTROL BLANKET

A. Blanket consisting of wheat straw fiber, open weave, stitch-bonded with UV-degradable polypropylene netting on both sides.

B. Must withstand minimum 2 fps flow and mowing on slopes >3:1.

C. Acceptable product: North American Green S150 or equivalent meeting ASTM D6460 performance.

### 2.7 MULCH

A. Shredded Bark Mulch:

1. Aged hardwood, double-ground, free of growth-inhibiting substances.
2. Apply granular pre-emergent prior to mulch within planting beds.
3. Depth:
   - Planting beds: 4 inches
   - Parking Islands with no plants: 4 inches
   - Trees: 3 inches

B. Stone Mulch:

1. Pea gravel, mixed brown natural stone, washed and free of fines.
2. Depth: 4 inches.

### 2.8 WEED BARRIER FABRIC

A. Contech 4 oz geotextile or approved equal.

B. Conform to ASTM D5261 for mass per unit area.

C. Install per manufacturer's instructions.

D. Provide in all planting areas and parking lot islands as shown.

### 2.9 PLANTING ACCESSORIES

A. Tree Stakes: Everbilt Studded Steel T-Post, 1-3/4 in × 3-1/2 in, 6 ft length; green enamel coating; meets ASTM A702/A702M.

B. Straw Blanket Stakes: Ecoduty 6-inch contractor-grade stake or equivalent.

C. Guy Wire: 12-gauge galvanized wire.

## PART 3 – EXECUTION

### 3.1 PREPARATION

A. Remove stones, debris, limbs, wire banding, and foreign materials.

B. Spread topsoil only on dry, unfrozen subgrade.

C. Place topsoil to 2-inch depth and hand-rake.

D. Grade to match site plan elevations ±0.2 inches.

### 3.2 PLANTING

**A. Trees**

1. Excavate pits 12 inches beyond root ball on all sides.
2. Soak pit thoroughly.
3. Set collar slightly above grade.
4. Backfill in 6-inch compacted lifts with 50% topsoil/50% exist soil mix.
5. Water thoroughly.
6. Apply 3-inch bermed shredded bark mulch.
7. Fertilize with Woodace/Estech or approved equal.
8. Prune maximum 15% of branches; retain terminal leader.
9. Wrap trunk to first branch.
10. Guy and stake in two directions using 12-ga wire and hose guards; use steel posts only for windy sites.

**B. Shrubs**

1. Excavate pits 12 inches beyond root ball.
2. Soak pit.
3. Scarify container root balls.
4. Set root ball slightly above grade.
5. Backfill with soil amendment and existing soil.
6. Water thoroughly.
7. Fertilize with 10-10-10 at 3 lb per 1,000 sq ft.
8. Prune damaged branches.

**C. Native Grasses**

1. Cultivate beds minimum 6 inches deep.
2. Apply 4-inch shredded bark mulch.
3. Fertilize with 10-10-10 at 3 lb per 1,000 sq ft.
4. Install plants per drawings.
5. Backfill with soil amendment and existing soil.
6. Water thoroughly.

### 3.3 SEEDING

A. Apply seed using spreader or machine.

B. Do not seed in winds >5 mph.

C. Sow in two perpendicular directions.

D. Rake lightly into top 1/8 inch.

E. Roll lightly and water.

F. Apply straw mulch 1.5 inches loose depth.

### 3.4 EROSION CONTROL BLANKET INSTALLATION

A. Identify seeded areas with stakes and string at 24-inch height.

B. Install blankets on slopes >30%.

C. Bury top edge in 6-inch trench; overlap edges 12 inches.

D. Stake overlaps at 36-inch spacing.

E. Dress slopes lightly with topsoil.

F. Lap ends 6 inches in direction of water flow.

### 3.5 MULCHING

A. Apply shredded bark mulch within 2 days of planting.

B. Place stone mulch at 4-inch depth; adjust grades accordingly.

C. Compact subgrade before gravel.

D. Install weed barrier fabric beneath stone mulch and hardwood bark mulch as noted on plans.

### 3.6 PROTECTION AND CLEANING

A. Remove surplus materials from site.

B. Protect installed landscape until acceptance.

C. Clean work area daily.

### 3.7 INSPECTIONS

A. Submit written request 10 days prior to desired inspection date.

B. Owner's Representative will determine substantial completion.

PLAN NOTES:

1. Contractor to review and field verify existing and proposed conditions prior to installation.
2. Contractor to notify GATEWAY DESIGN STUDIO of any discrepancies.
3. Contractor to coordinate with other trades.
4. Contractor to adjust plantings accordingly, notify GATEWAY DESIGN STUDIO of any major changes.
5. Proposed plant material is to be selected by the contractor and approved by GATEWAY DESIGN STUDIO or Owner Representative prior to installation.
6. Shrub locations and planting beds to be located by the contractor and approved by GATEWAY DESIGN STUDIO or Owner Representative prior to installation.
7. MULCH: All planting beds to receive a 4 inch layer of shredded bark mulch in a continuous bed.
8. Contractor is responsible for installing all plant material shown on plan.
9. All landscape improvements and maintenance to be done according to St. Louis County requirements.
10. Plantings shall not prohibit site distance requirements.
11. Proposed conditions based on latest plans prepared by Exselsior Engineering, Inc. Refer to Civil Plans for proposed site development and grading requirements.
12. Refer to specificatins for full requirements.
13. TOPSOIL NOTE: Lawn areas will require approximately 127 c.y. of topsoil at 3" depth. Trees will require approximately 2 c.y. of topsoil mixed with existing soil. Topsoil shall be reused from stockpile on-site or obtained locally.

E:\ProjectFiles\026-Projects\
026-09-MehlvilleBusFacility-BLDD\CAD\
L-1-MSD-8-27-26-100% Final


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STL CO. #26PRJ–XXXXX
M.S.D. #26MSD–XXXXX
BASE MAP #28J3

Call Before you DIG
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MISSOURI ONE-CALL SYSTEM INC.

Underground facilities, structures & utilities have been plotted from available surveys, records & information, and therefore, do not necessarily reflect the actual evidence, nonexistence, size, type, number of, or location of these facilities, structures, & utilities. The Contractor shall be responsible for verifying the actual location of all underground facilities, structures, & utilities, either shown or not shown on these plans. The underground facilities, structures, & utilities shall be located in the field prior to any grading, excavation or construction of improvements. These provisions shall in no way absolve any party from complying with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMO.


City
GDS
Gateway Design Studio
planning
landscape architecture
environmental design
Vision...Sustainability...Purpose!
Established: 1992
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Seal




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Project No.: 25781E.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By:
Checked By:

Sheet Title
LANDSCAPE SPECIFICATIONS AND DETAILS

Sheet No.
L-1.1

GENERAL

1. CODES:
   IBC — INTERNATIONAL BUILDING CODE, 2015
   ACI — AMERICAN CONCRETE INSTITUTE
   AISC — AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC 360 ASD)
   AWS — AMERICAN WELDING SOCIETY
   SDI — STEEL DECK INSTITUTE
   SJI — STEEL JOIST INSTITUTE
   MSJC — MASONRY STANDARDS JOINT COMMITTEE CODE
2. DIMENSIONS ON STRUCTURAL DRAWINGS ARE TO BE CHECKED AGAINST THE ARCHITECTURAL DRAWINGS AND SITE SURVEY AS WELL AS AGAINST FIELD CONDITIONS BY CONTRACTORS. VERIFY ANY DISCREPANCIES, CONFLICTING CONDITIONS OR DIMENSIONS WITH ARCHITECT BEFORE PROCEEDING WITH THE WORK.
3. DRAWINGS ARE NOT TO BE SCALED IN THE FIELD.
4. UNLESS NOTED OTHERWISE, DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS/ CONDITIONS ELSEWHERE.

FOUNDATIONS

1. USE NECESSARY METHODS TO EFFECTIVELY MAINTAIN THE CONSTRUCTION AREA IN A DEWATERED STATE.
2. ALL SOIL SUPPORTED FOOTINGS SHALL BE FOUNDED UPON UNDISTURBED, NATURAL SUBGRADE WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 2000 PSF FOR SPREAD FOOTINGS AND 2400 PSF FOR CONTINUOUS FOOTINGS, AS INDICATED IN THE GEOTECHNICAL REPORT AND AS FIELD VERIFIED AND APPROVED BY THE SOIL TESTING LABORATORY.
3. THE SOIL SUBGRADE FOR ALL FOOTINGS AND SLABS SHALL BE INSPECTED AND APPROVED BY THE TESTING LABORATORY IMMEDIATELY PRIOR TO PLACING CONCRETE. IMMEDIATELY NOTIFY THE ARCHITECT IN THE EVENT THAT THE SOIL CONDITIONS ENCOUNTERED VARY FROM THOSE SHOWN IN THE SOILS REPORT.
4. ALL FOOTING AND SLAB SUBGRADES, INCLUDING PIT SLABS, SHALL BE COMPACTED TO 95 PERCENT OF STANDARD PROCTOR (ASTM D698) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, AS REQUIRED.
5. FOOTINGS MAY BE BANK FORMED WHEN SOIL CONDITIONS OR FOUNDATION DESIGN PERMITS.
6. ALL ORGANIC AND/OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS AND BACKFILLED WITH LEAN CONCRETE OR SELECT FILL, COMPACTED TO 98 PERCENT OF STANDARD PROCTOR (ASTM D698) MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. LIFT THICKNESS SHALL BE MINIMIZED TO ALLOW FOR EFFICIENT COMPACTION. NO FILL SHALL BE PLACED OVER A PREVIOUS LIFT WHICH HAS NOT BEEN ADEQUATELY COMPACTED.
7. WHERE BACKFILL IS REQUIRED ON BOTH SIDES OF A FOUNDATION WALL OR GRADE BEAM, PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES OF FOUNDATION WALLS OR GRADE BEAM AT UNIFORM LEVELS OF FILL.
8. NO FOOTINGS OR SLABS SHALL BE PLACED ONTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER, FROST OR ICE ENTER AN EXCAVATED AREA AFTER SUB-GRADE APPROVAL, THE SUB-GRADE SHALL BE REINSPECTED AFTER THE REMOVAL OF WATER, FROST OR ICE.
9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
10. THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.
11. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO DESIGN AND PROVIDE TEMPORARY SHORING, UNDERPINNING, BRACING AND SUPPORT AS REQUIRED TO MAINTAIN STRUCTURAL INTEGRITY OF EXISTING STRUCTURES DURING CONSTRUCTION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION AND PLACEMENT OF INSERTS, HANGERS, SLEEVES, CHASES, OPENINGS, DUCTWORK, CONDUIT, PADS, ANCHOR RODS AND ALL OTHER ITEMS THAT ARE REQUIRED BY MECHANICAL EQUIPMENT.
13. THE CONTRACTOR SHALL PROTECT ALL NEW AND EXISTING UTILITIES FROM DAMAGE. BRACE AND SUPPORT THE UTILITIES TO PREVENT SETTLEMENT, DISPLACEMENT, OR DISTURBANCE TO THE UTILITY.

REINFORCEMENT

1. REINFORCEMENT SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60. REINFORCEMENT TO BE WELDED SHALL CONFORM TO ASTM SPECIFICATION A706, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM SPECIFICATION A185, FLAT SHEETS ONLY.
2. CORNER BARS SHALL BE PROVIDED AT WALL CORNERS EQUAL TO THE HORIZONTAL WALL REINFORCEMENT.
3. ALL CONCRETE FORMED SLAB OR WALL OPENINGS SHALL BE REINFORCED WITH 2 NO. 4 BARS, 24” LONG, PLACED ONE IN EACH FACE AT 45 DEGREES TO OPENING CORNERS.
4. THE CONCRETE COVER PROVIDED FOR ALL REINFORCEMENT SHALL COMPLY WITH ACI, 318, LATEST EDITION. THE FOLLOWING CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT UNLESS NOTED OTHERWISE:

| | COVER. (INCHES) |
|---|---|
| CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: | 3 |
| CONCRETE EXPOSED TO EARTH OR WEATHER: | |
| NO. 6 THROUGH NO. 18 BARS | 2 |
| NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER | 1 1/2 |
| CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: | |
| SLABS, WALLS, JOISTS: | |
| NO. 14 AND NO. 18 BARS | 1 1/2 |
| NO. 11 BAR AND SMALLER | 3/4 |
| BEAMS, COLUMNS: | |
| PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS | 1 1/2 |

5. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT ALL REINFORCEMENT AT THE POSITIONS INDICATED. PLASTIC COATED OR STAINLESS STEEL ACCESSORIES SHALL BE USED IN ALL EXPOSED CONCRETE WORK.
6. ALL EMBEDMENT LENGTHS AND LAPS SHALL BE AS REQUIRED BY ACI 318. UNLESS NOTED OTHERWISE, MINIMUM LAP SHALL BE 40 BAR DIAMETERS.
7. LAP ALL WELDED WIRE FABRIC A MINIMUM OF TWO (2) FULL MESH PANELS AND TIE SECURELY.

CONCRETE

1. ALL CONCRETE WORK SHALL COMPLY TO THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS:
   ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE
   ACI 304R – GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE
   ACI 306R – COLD WEATHER CONCRETING
   ACI 308R – GUIDE TO CURING CONCRETE
   ACI 318 – BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY
   ACI 347 – GUIDE TO FORM WORK FOR CONCRETE
2. UNLESS NOTED OTHERWISE, CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL DEVELOP 4,000 PSI MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS.
3. TYPICAL SLABS ON GRADE SHALL BE 5” THICK NORMAL WEIGHT CONCRETE REINFORCED WITH W.W.F. 6x6-w2.1Xw2.1 OR SYNTHETIC FIBER REINFORCING AND PLACED OVER 15 MIL. VAPOR BARRIER OVER 6” COMPACTED GRANULAR FILL.
4. GARAGE SLABS ON GRADE SHALL BE 8” THICK NORMAL WEIGHT CONCRETE REINFORCED WITH W.W.F. 6x6-W4.0Xw4.0 OR SYNTHETIC FIBER REINFORCING AND PLACED OVER 15 MIL. VAPOR BARRIER OVER 8” COMPACTED GRANULAR FILL.
5. MISCELLANEOUS AND STORAGE SLABS ON GRADE SHALL BE 6” THICK NORMAL WEIGHT CONCRETE REINFORCED WITH W.W.F. 6x6-W2.9Xw2.9 OR SYNTHETIC FIBER REINFORCING AND PLACED OVER 15 MIL. VAPOR BARRIER OVER 6” COMPACTED GRANULAR FILL.
6. DO NOT USE ANY CALCIUM CHLORIDE IN ANY CONCRETE.
7. VERTICAL WALL CONSTRUCTION JOINTS SHALL BE FORMED WITH VERTICAL BULKHEADS AND KEYWAYS. WALL REINFORCING SHALL BE CONTINUOUS THROUGH THE JOINT OR SHALL BE DOWELED WITH AN EQUIVALENT AREA OF REINFORCEMENT. WIRE BRUSH, CLEAN AND MOISTEN ALL CONSTRUCTION JOINTS IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.
8. PROVIDE CONTINUOUS WATERSTOPS IN VERTICAL CONSTRUCTION JOINTS AND PIT WALLS, AND IN ALL OTHER WALLS ADJACENT TO BELOW GRADE SLABS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION AND PLACEMENT OF INSERTS, EMBEDDED PLATES, MASONRY ANCHORS, REGLETS, SLEEVES, DUCTWORK, PADS AND ANCHOR RODS. THE INSERTS, EMBEDDED PLATES, ETC. SHALL NOT INTERFERE WITH CONCRETE REINFORCEMENT LOCATION. THE GENERAL CONTRACTOR SHALL VERIFY ALL OPENINGS THROUGH WALLS WITH SHOP DRAWINGS, SHOWING OPENINGS IN THE SLABS INCLUDING, BUT NOT LIMITED TO, SLEEVE SIZES AND LOCATIONS, DUCT SIZE AND LOCATION, ETC.
10. DEPRESSED SLABS SHALL MAINTAIN FULL THICKNESS UNLESS NOTED OTHERWISE.
11. FOR ELEVATED CONCRETE ON METAL DECK, PROVIDE ADDITIONAL CONCRETE AS NECESSARY TO ACHIEVE FLOOR FLATNESS AND FLOOR LEVELNESS SPECIFIED. ANTICIPATED DEFLECTIONS OF BEAMS AND GIRDERS ARE APPROXIMATELY 3/8” BELOW THE DESIGN ELEVATION.
12. THE CONTRACTOR SHALL PREPARE, DOCUMENT, AND SUBMIT TO THE ARCHITECT FOR REVIEW, A PROGRAM FOR PROVIDING COLD WEATHER PROTECTION, INCLUDING METHODS OF WEATHER ENCLOSURE, HEATING METHODS, AND CONTINUOUS TEMPERATURE MONITORING SYSTEMS. COLD WEATHER CONCRETING PROCEDURE SHALL COMPLY WITH ACI - 306R.
13. FINISHING RECOMMENDATIONS FOR FIBER REINFORCED CONCRETE SLABS:
   A. DO NOT ADD ADDITIONAL WATER TO FIBER REINFORCED CONCRETE, WORKABILITY AND SLUMP SHALL BE ADJUSTED WITH THE USE OF WATER REDUCING ADMIXTURES ONLY.
   B. STRIKE OFF CONCRETE: VIBRATORY OR LASER SCREEDS ARE RECOMMENDED TO BE USED DURING THE STRIKE OFF OPERATION TO ENSURE ADEQUATE SURFACE VIBRATION AND TO LIMIT THE POSSIBILITY OF EXPOSED FIBERS.
   C. BULL FLOATING: MAGNESIUM FLOATS ARE RECOMMENDED TO ESTABLISH A SMOOTH, LEVEL SURFACE AND TO CLOSE ANY TEARS OR OPEN AREAS THAT OCCUR DURING STRIKE OFF OPERATIONS. DO NOT OVERWORK THE CONCRETE SURFACE AS THIS CAN BRING UNWANTED FIBERS TO THE SURFACE.
   D. BLEEDWATER: FIBER REINFORCED CONCRETE BLEEDS MORE EVENLY THAN PLAIN CONCRETE, SO THE PUDDLING EFFECT IS MINIMIZED. THIS UNIFORM BLEEDING CAN SEEM LIKE INITIAL SET HAS OCCURRED AND FINISHING OPERATIONS WILL GET ON THE CONCRETE TOO EARLY. THE BEGINNING OF FINISHING OPERATIONS MAY NEED TO BE DELAYED TO ACCOMMODATE THIS UNIFORM BLEEDWATER CHARACTERISTIC.
   E. MACHINE TROWELLING: PREMATURE TROWELLING HAS BEEN PROVEN TO EXHIBIT MORE FIBER AT THE SURFACE SINCE THE CEMENT PASTE LAYER CAN BE MOVED TO EXPOSE THE FIBERS. IF FIBERS BEGIN TO APPEAR ON THE SURFACE, STOP AND WAIT. BEGIN TROWELLING AGAIN WHEN SURFACE DOES NOT EXPOSE FIBER REINFORCING. KEEP THE BLADES OF THE FINISHING MACHINE AS FLAT AS POSSIBLE FOR AS LONG AS POSSIBLE, SLOWLY INCREASING THE ANGLE AS THE CONCRETE FINISH IS OBTAINED.
   F. FINISHING: RAKE AND BROOM FINISHING, WHERE APPLICABLE, SHOULD BE ACCOMPLISHED BY PULLING THE RAKE OR BROOM IN ONE DIRECTION ONLY.
   G. SAW CUTTING: WET SAW CUT THE JOINTS TO A DEPTH OF 1/3 THE SLAB OR MINIMUM OF 1" DEEP. SOFT CUT OR EARLY ENTRY SAW CUT OPERATIONS SHOULD COMMENCE WITH A TRIAL CUT TO EVALUATE FOR AGGREGATE SPALLING AND FIBER RAVELING BEFORE CONCRETE IS CUT FURTHER. IF AGGREGATE SPALLING OR FIBER RAVELING DOES OCCUR, DELAY CUTTING THE SLAB.

STRUCTURAL STEEL

1. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992, UNLESS NOTED OTHERWISE. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS AND MISCELLANEOUS MATERIAL SHALL CONFORM TO ASTM A36. HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO ASTM A1085 OR ASTM A500, Gr B.
2. ANCHOR RODS SHALL BE ASTM F1554, GRADE 36, 3/4" DIAMETER WITH A 9" MINIMUM EMBEDMENT, UNLESS NOTED OTHERWISE.
3. ALL STRUCTURAL STEEL SHALL BE STRAIGHT AND FREE OF TWIST. COLUMN BEARING ENDS SHALL BE TRUE AND SQUARE. ALL COLUMNS SHALL BE PLUMB AND LEVEL BEARING.
4. HIGH STRENGTH BOLTING SHALL BE DONE IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS" AND BOLTS SHALL BE 3/4” DIAMETER MINIMUM.
5. ALL BOLTED CONNECTIONS THAT TRANSFER AXIAL LOADS SHALL UTILIZE HIGH STRENGTH, SLIP CRITICAL BOLTS IN SINGLE OR DOUBLE SHEAR FOR THE CAPACITIES REQUIRED.
6. WELDING SHALL BE DONE BY CERTIFIED WELDERS AND SHALL CONFORM TO AWS D1.1 "STRUCTURAL WELDING CODE - STEEL", LATEST EDITION. ALL WELDING ELECTRODES SHALL COMPLY TO AWS CODE REQUIREMENTS. THE MINIMUM FILLET WELD SIZE SHALL COMPLY WITH AISC REQUIREMENTS, BUT SHALL NOT BE LESS THAN 3/16”, UNLESS NOTED OTHERWISE.
7. UNLESS NOTED OTHERWISE, CONNECTIONS SHALL BE EITHER AISC SINGLE PLATE OR DOUBLE ANGLE SHEAR CONNECTIONS USING A325-N BOLTS.
8. BEAMS AND JOISTS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP. PROVIDE CAMBERS AS INDICATED ON THE DRAWINGS.
9. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT.
10. ALL MASONRY LINTELS IN EXTERIOR WALLS SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM A123.

STEEL JOISTS

1. JOISTS SHALL REQUIRE CONTINUOUS BRIDGING MEMBERS FASTENED DIRECTLY TO EACH JOIST. BRIDGING SHALL BE DESIGNED IN ACCORDANCE WITH THE "STEEL JOIST INSTITUTE SPECIFICATION" AND SHALL BE PROVIDED BY THE JOIST MANUFACTURER.
2. ROUND MEMBERS FOR BOTTOM CHORDS WILL NOT BE ACCEPTABLE FOR JOISTS. USE ONLY DOUBLE ANGLE BOTTOM CHORDS.
3. UNLESS NOTED OTHERWISE, HANGING LOADS FROM JOISTS SHALL BE ONLY FROM DIAGONAL INTERSECTION POINTS AND ONLY WITH ACCEPTABLE JOIST HANGER DEVICES.
4. THE CONTRACTOR SHALL COORDINATE COLUMN CAP PLATES WITH THREADED STUDS AS REQUIRED FOR JOIST SEAT ATTACHMENT WITH THE STEEL FABRICATOR.
5. OFFSET JOISTS ALONG SUPPORTING BEAMS AS REQUIRED TO MAINTAIN MINIMUM JOIST BEARING LENGTH, UNLESS NOTED OR DETAILED OTHERWISE.

STRUCTURAL METAL DECK

1. METAL DECKING SHALL BE WELDED AT 12 INCHES AVERAGE, NOT MORE THAN 18 INCHES MAXIMUM ON CENTER TO THE SUPPORTING STEEL, WITH A MINIMUM 5/8-INCH DIAMETER WELD. SIDE LAPS SHALL BE FASTENED AT 24 INCHES MAXIMUM ON CENTER. NO WELD OR FASTENER SPACING SHALL BE GREATER THAN THAT RECOMMENDED BY THE DECK MANUFACTURER.
2. THE METAL DECK SHALL BE DESIGNED TO BE UNSHORED AND TO BE CONTINUOUS OVER A MINIMUM TWO (2) SPANS IN THE DIRECTION INDICATED. SINGLE SPANS, IF REQUIRED, SHALL SATISFY LOAD AND DEFLECTION REQUIREMENTS.
3. PROVIDE CONTINUOUS 16 GA. MINIMUM SHEET METAL CLOSURES, POUR STOPS, AT SLAB OPENINGS AND SLAB EDGES AND CONTINUOUS DECK CLOSURE AT DECK ENDS.
4. PROVIDE, AS REQUIRED, RIDGE AND VALLEY PLATES, COLUMN CLOSURES, CANT STRIPS, SUMP PLATES AT PIPING PENETRATIONS AND RECESSED SUMP PANS AT ROOF DRAINS. PROVIDE SUPPLEMENTAL FRAMING AT OPENINGS AS REQUIRED FOR SUPPORT OF THE METAL DECK. OPENINGS SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
5. ANY METAL DECK OPENING THAT IS 12-INCH DIAMETER OR LARGER OR ANY GROUP OF OPENINGS THAT PENETRATE MORE THAN ONE METAL DECK RIB SHALL BE FRAMED WITH SUPPLEMENTAL STEEL FRAMING AS ACCEPTABLE TO THE ARCHITECT.
6. A 50 LB. MAXIMUM CONCENTRATED LOAD MAY BE HUNG DIRECTLY FROM THE COMPOSITE DECK PROVIDED NO OTHER DECK SUPPORTED HANGER IS WITHIN A 30" RADIUS. THIS NOTE SUPERSEDES ANY SIMILAR NOTES ON THE MEP/FP DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING AN APPROPRIATE ANCHORING SYSTEM.
7. A 20 LB. MAXIMUM CONCENTRATED LOAD MAY BE HUNG DIRECTLY FROM METAL ROOF DECK OR FORM DECK.
8. PROVIDE W.W.F. 6x6-W1.4 x W1.4 REINFORCING AT SLABS ON METAL DECK.

STRUCTURAL MASONRY

1. THE MINIMUM NET AREA COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE 2500 PSI AND SHALL CONSIST OF THE FOLLOWING COMPONENTS:
   A. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS = 3250 PSI MINIMUM
   B. NET AREA COMPRESSIVE STRENGTH OF BRICK MASONRY UNITS = 3000 PSI MINIMUM
   C. MORTAR FOR MASONRY, CONFORMING TO ASTM C270 = TYPE S
   D. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90.
2. GROUT FOR MASONRY SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI.
3. DO NOT INCLUDE CALCIUM CHLORIDE IN THE MORTAR OR GROUT MIX.
4. REINFORCEMENT BARS FOR MASONRY SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60. WHEN REINFORCEMENT IS TO BE WELDED, CONFORM TO ASTM A706, GRADE 60.
5. VERTICAL CELLS TO BE FILLED WITH GROUT SHALL BE ALIGNED TO PROVIDE A CONTINUOUS, UNOBSTRUCTED OPENING OF THE DIMENSIONS SHOWN ON THE PLANS. CELLS THAT WILL CONTAIN VERTICAL REINFORCEMENT SHALL HAVE A MINIMUM TWO (2) INCH CLEAR OPENING. REBAR POSITIONERS SHALL BE USED FOR ALL VERTICAL REINFORCEMENT.
6. MASONRY PLACED WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 40 DEGREES F SHALL FULLY COMPLY WITH ACI 530.1 – SPECIFICATION FOR MASONRY STRUCTURES.
7. GROUT FOR FILLING REINFORCED OR NON-REINFORCED CELLS SHALL BE PLACED IN MAXIMUM FIVE (5) FOOT LIFTS AND CONSOLIDATED IN PLACE BY VIBRATION OR OTHER METHODS WHICH INSURE COMPLETE FILLING OF THE CELLS. ALL CELLS CONTAINING REINFORCING BARS OR ANCHOR RODS SHALL BE FULLY GROUTED.
8. HOLLOW UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. WEBS SHALL ALSO BE BEDDED, WHERE THEY ARE ADJACENT TO CELLS TO BE REINFORCED OR FILLED WITH GROUT, IN THE STARTING COURSE ON FOOTINGS AND SOLID FOUNDATION WALLS AND IN NON-REINFORCED OR GROUTED PIERS, PILASTERS AND COLUMNS.
9. SOLID MASONRY UNITS SHALL BE LAID WITH FULL HEAD AND BED JOINTS. POINTS OF BEARING SHALL BE ON TWO (2) COURSES OF SOLID MASONRY, TWO (2) COURSES OF HOLLOW MASONRY GROUTED SOLID OR AS DETAILED. CONSTRUCT WALLS IN RUNNING BOND PATTERN, U.N.O.
10. BRACE ALL MASONRY WALLS TO WITHSTAND A MINIMUM HORIZONTAL WIND PRESSURE OF 25 psf DURING ERECTION AND UNTIL THE WALL DESIGN SUPPORTS ARE IN PLACE.
11. THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL REINFORCING BARS, EXCEPT IN COLUMNS, SHALL BE EQUAL TO THE NOMINAL DIAMETER OF THE BAR, OR 1”, WHICHEVER IS GREATER.
12. VERTICAL REINFORCEMENT SHALL BE LAP SPLICED A MINIMUM OF 48 BAR DIAMETERS WHERE REQUIRED.
13. ALL REINFORCING BARS SHALL BE COMPLETELY EMBEDDED IN GROUT.
14. ALL BEAM AND LINTEL BEARINGS SHALL BE GROUTED TO THE FOUNDATION, UNLESS NOTED OTHERWISE.
15. ADDITIONAL REINFORCEMENT SHALL BE PLACED ADJACENT TO OPENINGS LARGER THAN 24” VERTICALLY OR HORIZONTALLY. SUCH REINFORCEMENT SHALL EXTEND NOT LESS THAN 24” BEYOND FACE OF OPENING. SEE MASONRY REINFORCING GENERAL NOTES FOR REINFORCING REQUIREMENTS.
16. REINFORCE MASONRY WALLS WITH #5 BARS AT 32" O.C., UNLESS NOTED OR DETAILED OTHERWISE.
17. PROVIDE A CONTINUOUS BOND BEAM, REINFORCED w/ #5 BARS AT THE TOP OF ALL STRUCTURAL MASONRY WALLS, UNLESS DETAILED OTHERWISE.
18. PROVIDE CONTROL JOINTS IN STRUCTURAL MASONRY WALLS. CONTROL JOINT SPACING NOT TO EXCEED 25' BETWEEN CONTROL JOINTS OR ENDS OF MASONRY WALLS. DISCONTINUE HORIZONTAL JOINT REINFORCEMENT AT CONTROL JOINTS.

POST-INSTALLED ANCHORS

1. FOR MECHANICAL (EXPANSION) ANCHORS INSTALLED INTO CONCRETE OR GROUTED CMU, PROVIDE HILTI KWIK BOLT 3 OR ARCHITECT APPROVED EQUAL. SEE DRAWINGS FOR ANCHOR TYPE, SIZE, SPACING, AND EMBEDMENT DEPTH.
2. FOR ADHESIVE ANCHORS INSTALLED INTO HOLLOW OR SOLID MASONRY, PROVIDE HILTI HIT-HY 270 OR ARCHITECT APPROVED EQUAL. FOR ADHESIVE ANCHORS INSTALLED INTO CONCRETE, PROVIDE HILTI HIT-HY 200 OR ARCHITECT APPROVED EQUAL. SEE DRAWINGS FOR ANCHOR TYPE, SIZE, SPACING, AND EMBEDMENT DEPTH.

## LINTEL SCHEDULE

| MARK | SPAN | BRG. | WALL "t" | SHAPE | MEMBER CONFIGURATION |
|---|---|---|---|---|---|
| L-4a | 0 to 1'-4" | 4" | 4" | | PL 1/4" x 3 1/2" |
| L-4b | 1'-4" to 6'-0" | 8" | 4" | | L 4x4x3/8" |
| L-4c | 6'-0" to 8'-0" | 8" | 4" | | L 6x4x3/8" |
| L-4d | 8'-0" to 10'-0" | 8" | 4" | | L 7x4x3/8" |
| | | | | | |
| L-8a | 0 to 1'-4" | 4" | 8" | | PL 1/4" x 7 1/2" |
| L-8b | 0 to 4'-0" | 8" | 8" | | 8" CMU LINTEL w/ (1) #5 BAR |
| L-8c | 4'-0" to 8'-0" | 8" | 8" | | 8" x 16" CMU LINTEL w/ (1) #5 BAR (1) #3 VERT. BAR @ 16" O.C. |
| L-8d | 8'-0" to 10'-0" | 8" | 8" | | 8" x 16" CMU LINTEL w/ (2) #5 BAR (1) #3 VERT. BAR @ 16" O.C. |
| L-8e | 1'-4" to 6'-4" | 8" | 8" | | 2L 6x3-1/2x3/8" |
| L-8f | 6'-4" to 10'-0" | 8" | 8" | | 2L 7x4x3/8" |
| | | | | | |
| | | | | | |
| L-12a | 0 to 1'-4" | 4" | 12" | | PL 1/4" x 11 1/2" |
| L-12b | 0 to 4'-0" | 8" | 12" | | 12" CMU LINTEL w/(2) #4 BARS |
| L-12c | 1'-4" to 4'-0" | 8" | 12" | | 2L 6x4x3/8" w/ 1/4" x 11" PLATE |
| L-12d | 4'-0" to 7'-0" | 8" | 12" | | 2L 8x4x7/16" w/ 1/4" x 11" PLATE |
| | | | | | |
| | | | | | |

LINTEL SCHEDULE NOTES:

1. ALL OPENINGS THROUGH MASONRY WALLS, INCLUDING ALL OPENINGS REQUIRED BY THE MECHANICAL TRADES, SHALL HAVE LINTELS SIZED IN ACCORDANCE WITH THIS LINTEL SCHEDULE, UNLESS NOTED AND/OR DETAILED OTHERWISE.
2. GALVANIZE ALL STEEL LINTELS IN EXTERIOR WALLS.
3. INSTALL ANGLE LINTELS LONG LEG VERTICAL, UNLESS NOTED OTHERWISE.
4. PROVIDE (1) #4 VERTICAL BAR IN THE CORE OF THE BLOCK AT EACH END OF MASONRY OPENINGS. FULLY GROUT CORES AT BAR LOCATIONS. TYPICAL, ALL BLOCK 8" THICK AND GREATER.
5. ATTACH STEEL LINTELS TO COLUMNS IF MINIMUM BEARING LENGTH IS NOT AVAILABLE.
6. STITCH WELD STEEL MEMBERS TOGETHER TO ACT AS A SINGLE UNIT.
7. CONTRACTOR MAY PROVIDE EITHER STEEL OR MASONRY LINTEL PER LINTEL SCHEDULE. COORDINATE WITH ARCHITECT.

## IBC 2015 DESIGN LOADS:

LIVE LOADS

| | | |
|---|---|---|
| ROOF | | 20 psf |

SNOW LOAD

| | | |
|---|---|---|
| DESIGN UNIFORM ROOF SNOW LOAD | | 20.0 psf |
| FLAT ROOF SNOW LOAD, | Pf = | 14.0 psf |
| RISK CATEGORY | | II |
| BALANCED SNOW LOAD | Ps = | 14.0 psf |
| GROUND SNOW LOAD | Pg = | 20.0 psf |
| IMPORTANCE FACTOR | I = | 1.0 |
| SNOW EXPOSURE FACTOR | Ce = | 1.0 |
| THERMAL FACTOR | Ct = | 1.0 |
| SLOPED ROOF FACTOR | Cs = | 1.0 |
| DRIFT SURCHARGE LOAD | | 43.9 psf |

WIND LOAD

| | | |
|---|---|---|
| ULTIMATE DESIGN WIND SPEED | | 115 mph |
| NOMINAL DESIGN WIND SPEED | | 89.1 mph |
| RISK CATEGORY | | II |
| WIND EXPOSURE CATEGORY | | B |
| ENCLOSURE CLASSIFICATION | | ENCLOSED BUILDING |
| INTERNAL PRESSURE COEFFICIENT, | GCpi = | +/-0.18 |
| DIRECTIONALITY, | Kd = | 0.85 |
| NET UPLIFT, | | -5 psf |

COMPONENT AND CLADDING, C&C < 60'

ROOF — SURFACE PRESSURE (psf)

| AREA | 10 sf | 50 sf | 100 sf | 500 sf |
|---|---|---|---|---|
| Negative Zone 1 | -23.3 | -21.9 | -21.3 | -21.3 |
| Negative Zone 2 | -39.1 | -29.4 | -25.3 | -25.3 |
| Negative Zone 3 | -58.9 | -35.4 | -25.3 | -25.3 |
| Positive, All Zones | 16.0 | 16.0 | 16.0 | 16.0 |
| Overhang, Zone 1 & 2 | -33.6 | -32.2 | -31.6 | -21.7 |
| Overhang, Zone 3 | -55.3 | -27.7 | -16.0 | -16.0 |

PARAPET — SOLID PARAPET PRESSURE (psf)

| AREA | 10 sf | 50 sf | 100 sf | 500 sf |
|---|---|---|---|---|
| Case A: | | | | |
| Zone 2 | 53.4 | 41.5 | 36.4 | 34.2 |
| Zone 3 | 73.2 | 47.5 | 36.4 | 34.2 |
| Case B: | | | | |
| Edge Zone 2 | -37.4 | -33.0 | -31.1 | -26.7 |
| Corner Zone 3 | -42.7 | -36.1 | -33.3 | -26.7 |

WALL — SURFACE PRESSURE (psf)

| AREA | 10 sf | 100 sf | 500 sf |
|---|---|---|---|
| Negative Zone 4 | -23.1 | -20.0 | -17.8 |
| Negative Zone 5 | -28.5 | -22.2 | -17.8 |
| Positive Zones 4, 5 | 21.3 | 18.2 | 16.0 |

SEISMIC LOAD - STEEL FRAME AREA (OFFICE)

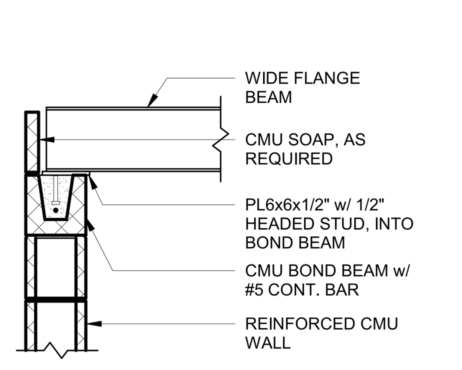
| | | |
|---|---|---|
| RISK CATEGORY | | II |
| SEISMIC IMPORTANCE FACTOR, | | Ie = 1.00 |
| Ss | | 0.48g |
| S1 | | 0.18g |
| SITE CLASS | | C |
| Sds | | 0.384 |
| Sd1 | | 0.194 |
| SEISMIC DESIGN CATEGORY | | C |
| BASIC STRUCTURAL SYSTEM | STRUCTURAL FRAME SYSTEMS | |
| SEISMIC RESISTING SYSTEM | STEEL ORDINARY CONCENTRICALLY BRACED FRAMES | |
| DESIGN BASE SHEAR, | V = | 0.118W |
| SEISMIC RESPONSE COEFFICIENT, | Cs = | 0.118 |
| RESPONSE MODIFICATION FACTOR, | R = | 3.25 |
| ANALYSIS PROCEDURE | EQUIVALENT LATERAL FORCE ANALYSIS | |

SEISMIC LOAD - MASONRY BEARING WALL AREA (SHOP)

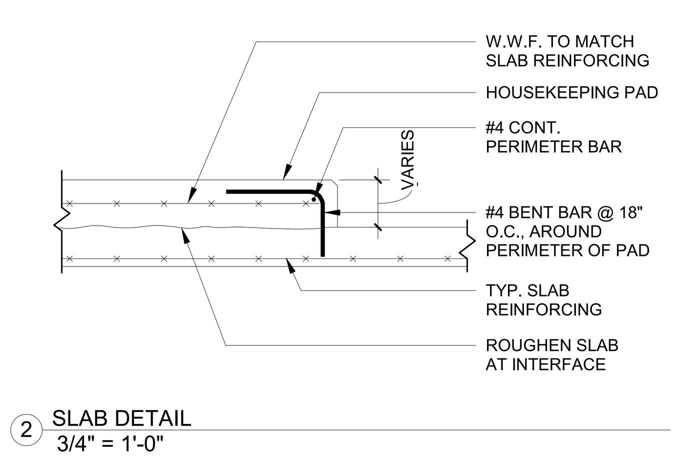
| | | |
|---|---|---|
| RISK CATEGORY | | II |
| SEISMIC IMPORTANCE FACTOR, | | Ie = 1.00 |
| Ss | | 0.48g |
| S1 | | 0.18g |
| SITE CLASS | | C |
| Sds | | 0.384 |
| Sd1 | | 0.194 |
| SEISMIC DESIGN CATEGORY | | C |
| BASIC STRUCTURAL SYSTEM | BEARING WALL SYSTEMS | |
| SEISMIC RESISTING SYSTEM | ORDINARY REINFORCED MASONRY SHEAR WALLS | |
| DESIGN BASE SHEAR, | V = | 0.110W |
| SEISMIC RESPONSE COEFFICIENT, | Cs = | 0.110 |
| RESPONSE MODIFICATION FACTOR, | R = | 3.5 |
| ANALYSIS PROCEDURE | EQUIVALENT LATERAL FORCE ANALYSIS | |

RAIN DESIGN DATA

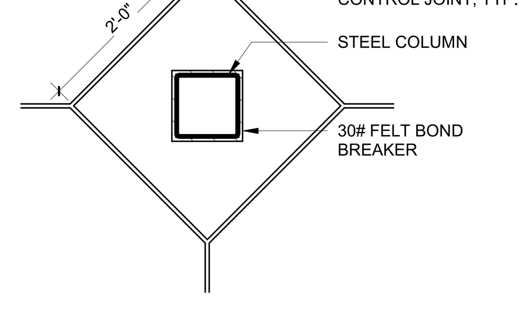
| | | |
|---|---|---|
| RAIN INTENSITY | i = | 7.23 in/hr |
| RAIN LOAD | R = | 28.3 psf |



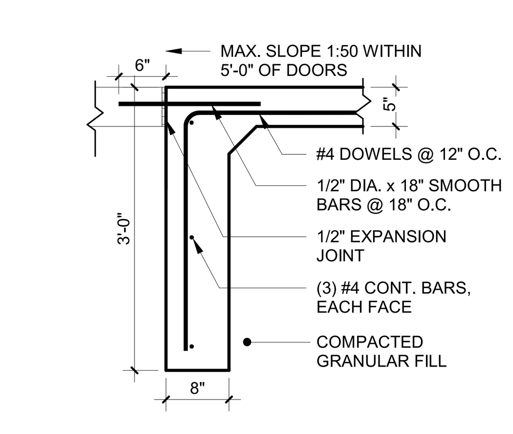

1 FRAMING DETAIL
3/4" = 1'-0"



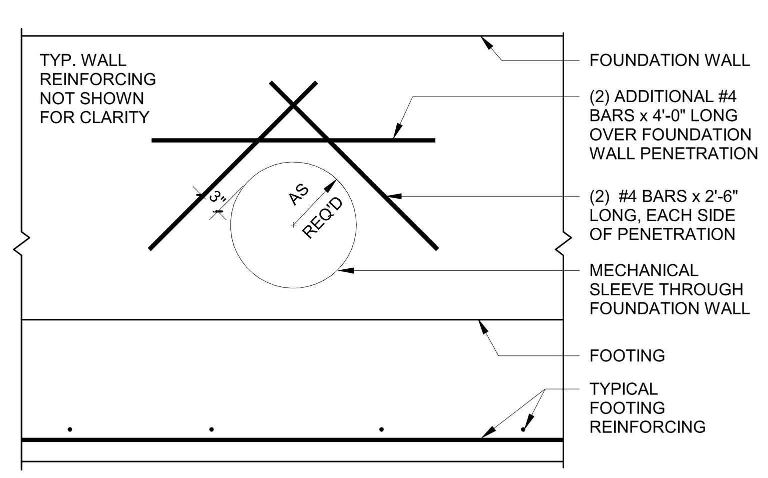

2 SLAB DETAIL
3/4" = 1'-0"



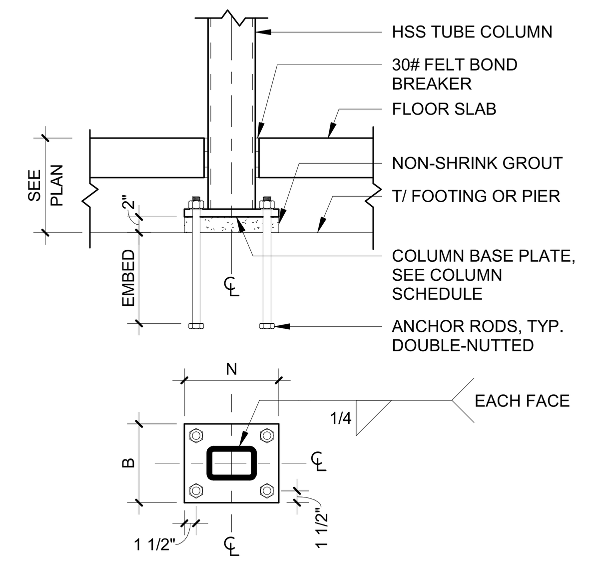

3 SLAB DETAIL
3/4" = 1'-0"



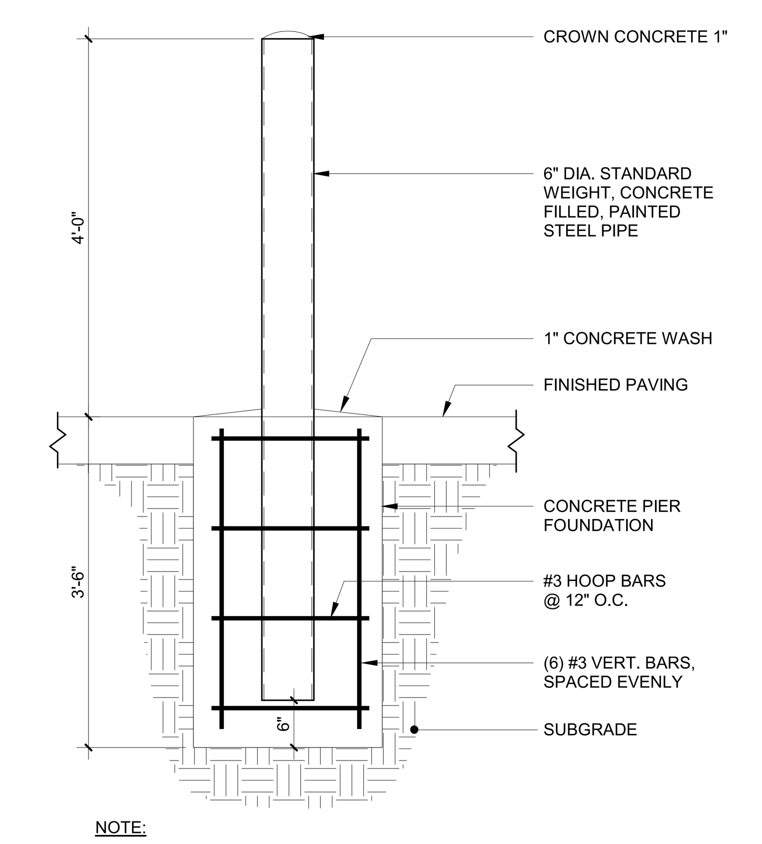

4 SLAB DETAIL
3/4" = 1'-0"




5 FOUNDATION DETAIL
3/4" = 1'-0"



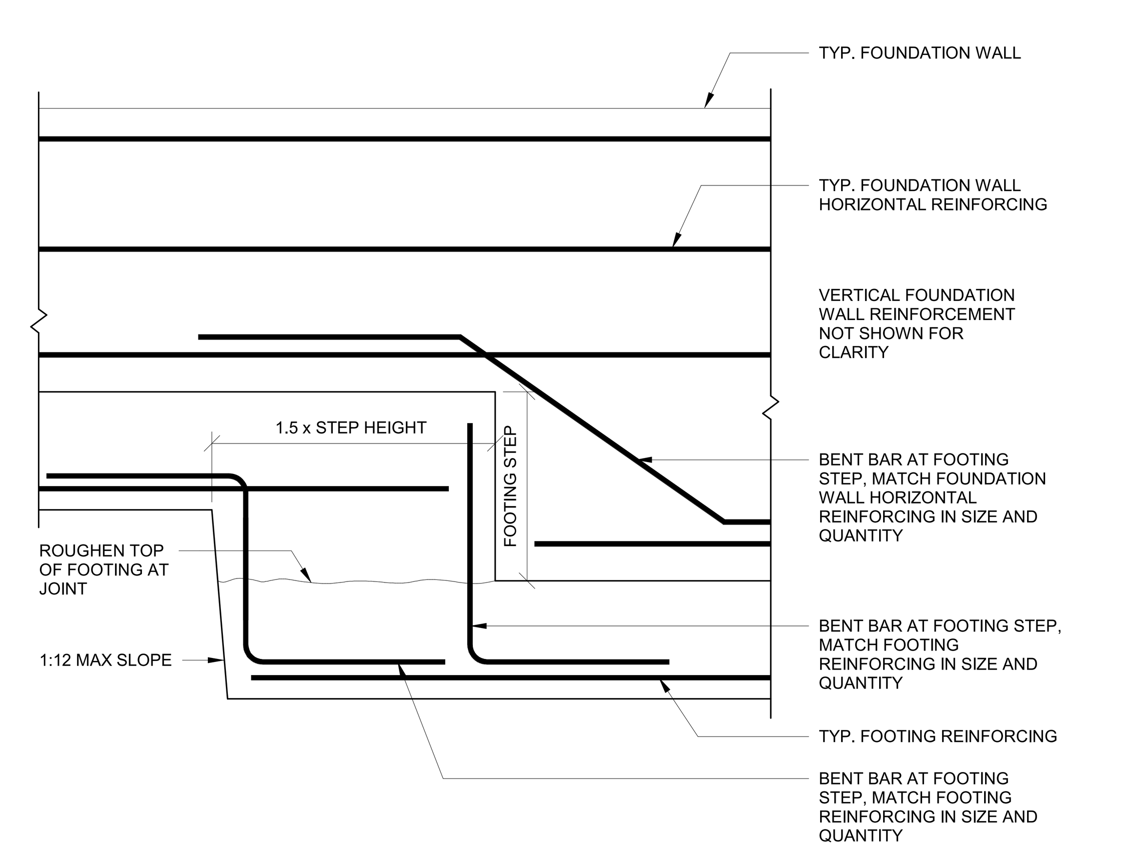

6 COLUMN BASEPLATE DETAIL
3/4" = 1'-0"




NOTE:

1. SOLVENT CLEAN BOLLARD BEFORE INSTALLATION

7 BOLLARD DETAIL
3/4" = 1'-0"




8 STEPPED FOOTING DETAIL
3/4" = 1'-0"

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

Drawn By: RDF
Checked By: JRB

Sheet Title

GENERAL STRUCTURAL NOTES

Sheet No.

S001

## FOOTING SCHEDULE

**Note: Square footing reinforcing - provide same bars in each direction, u.n.o** — **F'b = 4000 psf fy = 60,000 psi f'c = 4000 psi**

| FOOTING MARK | FOOTING SIZE: SIZE (L x W) | FOOTING SIZE: THICKNESS ( t ) | BOTTOM BARS (SHORT) | BOTTOM BARS (LONG) | TOP BARS (SHORT) | TOP BARS (LONG) | COMMENTS |
|---|---|---|---|---|---|---|---|
| F3.0 | 3'-0" x 3'-0" | 1'-0" | (4) #5 | (4) #5 | -- | -- | |
| F4.0 | 4'-0" x 4'-0" | 1'-3" | (6) #5 | (6) #5 | -- | -- | |
| F4.5 | 4'-6" x 4'-6" | 1'-3" | (6) #5 | (6) #5 | -- | -- | |
| F5.0 | 5'-0" x 5'-0" | 1'-3" | (6) #5 | (6) #5 | -- | -- | |
| F6.0 | 6'-0" x 6'-0" | 1'-3" | (7) #5 | (7) #5 | -- | -- | |
| F6.5 | 6'-0" x 5'-0" | 2'-0" | (6) #5 | (7) #5 | -- | -- | |

FOUNDATION PLAN GENERAL NOTES

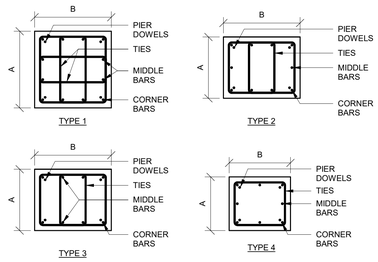
1. SEE PLANS AND DETAILS FOR TOP OF FOUNDATION WALL AND TOP OF FOOTING ELEVATIONS.
2. SEE DETAIL 5/S001 FOR ADDITIONAL REINFORCING REQUIRED WHERE MECHANICAL AND PLUMBING EQUIPMENT PASSES THROUGH FOUNDATION WALLS. DO NOT CORE OR CAST PENETRATIONS THROUGH FOUNDATION WALLS AT COLUMN PIERS FOR ANY ITEM OR EQUIPMENT.
3. PROVIDE FROST WALLS, DETAIL 4/S001, AT ALL EXTERIOR DOOR LOCATIONS. COORDINATE FROST WALL LOCATIONS WITH ARCHITECTURAL AND CIVIL PLANS AND PAVEMENT PATTERNS. SLOPE ALL EXTERIOR WALKS AWAY FROM BUILDING.
4. PROVIDE CORNER BARS, MATCHING SIZE AND QUANTITY OF TYPICAL WALL REINFORCING BARS, AT ALL FOUNDATION AND FOOTING CORNERS.
5. COORDINATE LOCATION AND EXTENT OF ALL EXTERIOR WALKS, DRIVES, STAIRS, RAMPS, ETC. WITH ARCHITECTURAL AND CIVIL PLANS.
6. PROVIDE CHAMFER AT TOP OF ALL EXPOSED FOUNDATION WALLS AT WINDOW SILL LOCATIONS, DETAIL 26/S103.
7. SEE DETAIL 8/S001 FOR ADDITIONAL REINFORCING REQUIRED AT STEPPED FOOTINGS.
8. ALL FORMED CONCRETE WALLS THAT ARE TO REMAIN EXPOSED TO VIEW IN THE FINISHED WORK SHALL BE FINISHED SMOOTH WITH ALL FINS REMOVED AND HOLES LARGER THAN 1/2", FILLED WITH A SAND CEMENT MIXTURE.
9. DO NOT CAST ANY PLUMBING, PIPING, ELECTRICAL OR ANY OTHER EQUIPMENT WITHIN THE VOLUME OF THE COLUMN PIERS. ALL PIPING, CONDUIT, ETC, SHALL BE PLACED ALONG SIDE THE PIERS AND SHALL NOT INTERFERE WITH THE PLACEMENT OF THE REINFORCING BARS.
10. DO NOT EMBED ANYTHING WITHIN THE THICKNESS OF THE CONCRETE FLOOR SLABS.
11. COORDINATE LOCATION OF RETAINING WALL SPLICE WITH PHASING PLAN OF CIVIL DOCUMENTS. SEE DETAIL 22/S104 FOR WALL SPLICE DETAIL.
12. PROVIDE RUBBED SURFACE FINISH TO EXPOSED FACE OF RETAINING WALL AND STAIR. TYPICAL ENTIRE LENGTH OF RETAINING WALL.

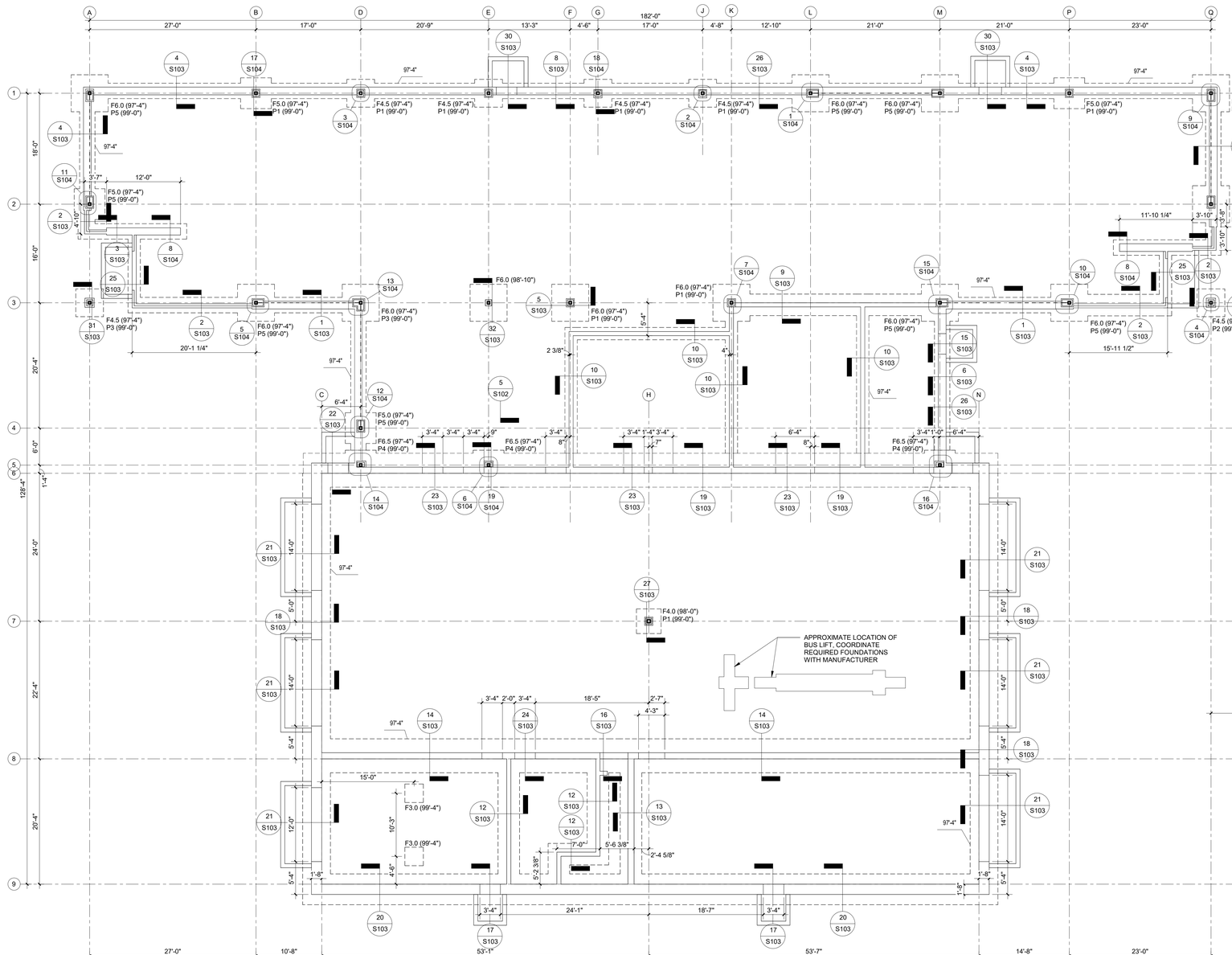
## CONCRETE PIER SCHEDULE

| PIER MARK | TYPE | SIZE (A x B) | REINFORCEMENT: CORNER | MIDDLE | TIES | DOWELS | REMARKS |
|---|---|---|---|---|---|---|---|
| P 1 | 4 | 16" x 16" | 4-#5 | 8-#5 | #3@8" | 4-#5 | |
| P 2 | 1 | 18" x 18" | 4-#6 | 8-#5 | #3@8" | 4-#6 | |
| P 3 | 1 | 24" x 24" | 4-#5 | 8-#5 | #3@8" | 4-#5 | |
| P 4 | 3 | 18" x 12" | 4-#5 | 6-#5 | #3@8" | 4-#5 | |
| P 5 | 2 | 24" x 16" | 4-#5 | 6-#5 | #3@8" | 4-#5 | |

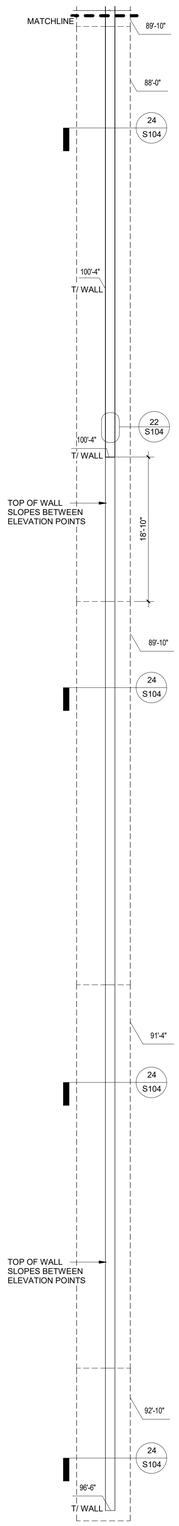
NOTES:

1. SEE FOUNDATION PLANS FOR TOP OF PIER ELEVATIONS.
2. SIZE INDICATED REFERS TO PIER SIZE, SEE FOUNDATION PLANS AND DETAILS FOR RECESSED FOUNDATION/ COLUMN POCKET SIZES.
3. FILL ALL POCKETS WITH CONCRETE AFTER THE STEEL FRAME IS ERECTED AND PLUMB.
4. SEE COLUMN SCHEDULE FOR COLUMN BASE PLATE SIZE.




1 FOUNDATION PLAN
1/8" = 1'-0"




2 RETAINING WALL PLAN
1/8" = 1'-0"

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Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

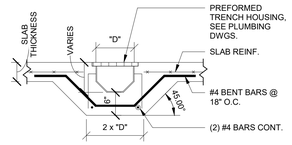
Sheet Revision

Issue
ISSUED FOR BID
09/1/2026

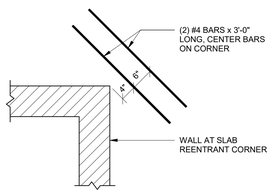
Team
Drawn By: RDF
Checked By: JRB

Sheet Title
FOUNDATION PLAN

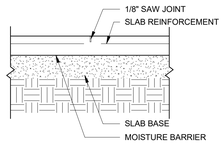
Sheet No.
S101




2 TRENCH DRAIN DETAIL
3/4" = 1'-0"



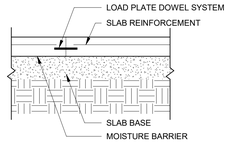

3 SLAB DETAIL
3/4" = 1'-0"




CONTROL JOINT

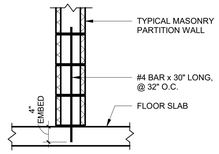
NOTES:

1. SAW CUT JOINTS WITHIN 24 HOURS OF PLACING CONCRETE.
2. SAW CUT JOINT DEPTHS TO BE 1/4 OF SLAB THICKNESS

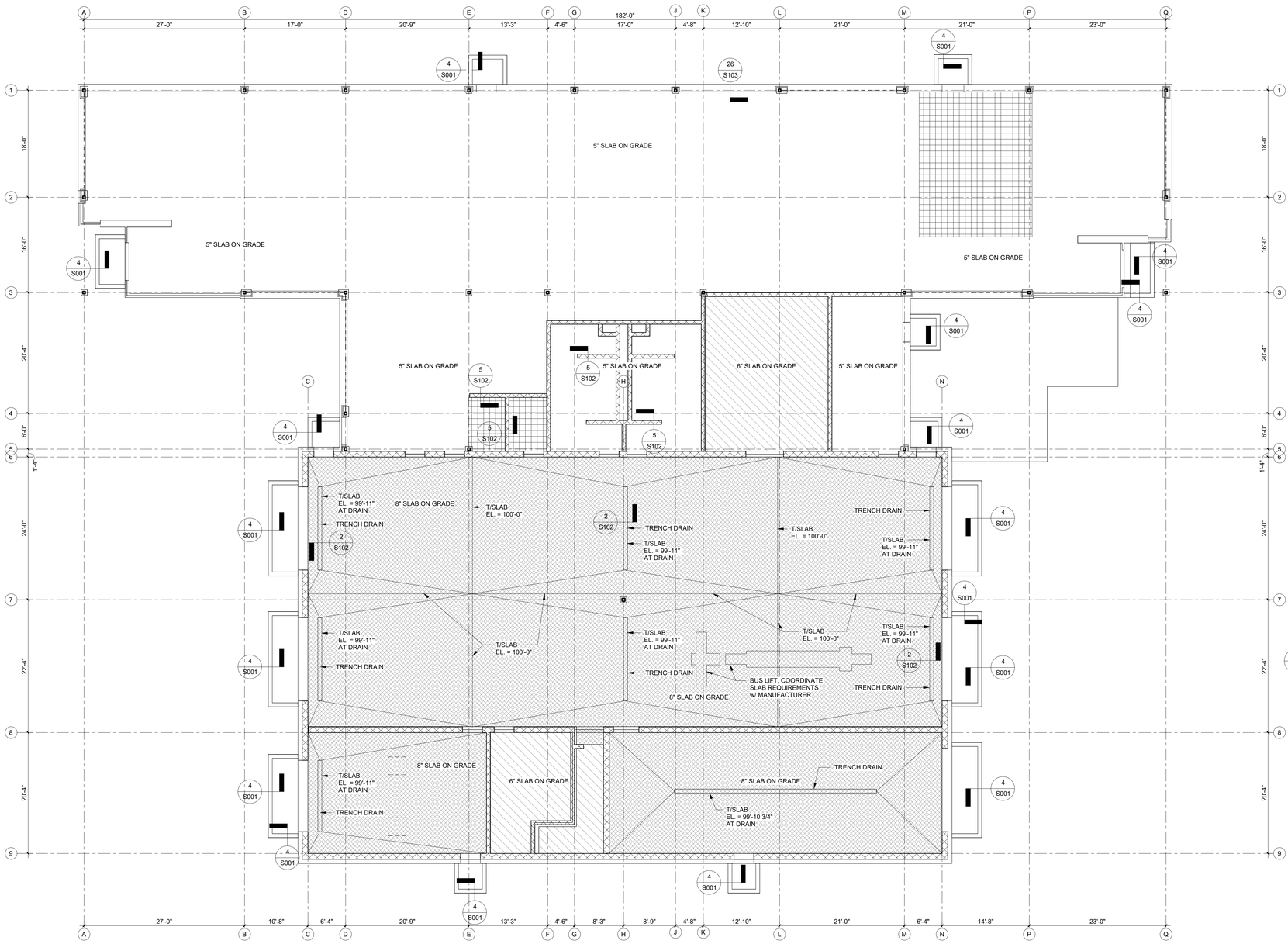



CONSTRUCTION JOINT

4 SLAB ON GRADE JOINTS
3/4" = 1'-0"




5 SLAB DETAIL
3/4" = 1'-0"




1 SLAB PLAN
1/8" = 1'-0"




SLAB PLAN GENERAL NOTES:

1. TOP OF SLAB ELEVATION = 100'-0" (549.00') UNLESS NOTED OTHERWISE. TOP OF SLAB ELEVATION = 100'-0" AT PERIMETER OF DRIVE THROUGH BAYS, TRUCK BAY AND WASH BAY AND AS NOTED ON THE PLANS. SLABS WITHIN THESE AREAS SLOPE TOWARDS TRENCH DRAINS. COORDINATE SLAB ELEVATIONS SHOWN WITH FLOOR TRENCH DRAIN ELEVATIONS.
2. SEE SLAB PLAN FOR LOCATION OF FLOOR TRENCH DRAINS AND OTHER ITEMS TO BE EMBEDDED WITH THE FLOOR SLAB. COORDINATE FINAL LOCATION WITH ARCHITECTURAL AND MECHANICAL PLANS.
3. SEE PLAN FOR ELEVATIONS OF SLOPE FLOOR SLAB.
4. DO NOT EMBED ANYTHING WITHIN THE THICKNESS OF THE FLOOR SLAB, INCLUDING PIPING AND CONDUIT. ALL PIPING, CONDUIT, ETC, SHALL BE PLACED BELOW THE FINAL THICKNESS OF THE FLOOR SLAB. MAINTAIN A MINIMUM SLAB THICKNESS, INDICATED ON THE PLANS AND NOTES, AT ALL LOCATIONS.
5. PROVIDE HOUSEKEEPING PADS, DETAIL 2/S001, AT ALL LOCATIONS REQUIRING A CONCRETE PAD. COORDINATE SIZE AND LOCATION WITH MECHANICAL REQUIREMENTS.
6. SEE JOINT DETAIL, 3/S001, FOR SLAB JOINTS AT COLUMNS. PROVIDE CONSTRUCTION/ CONTROL JOINTS, DETAIL 4/S102. COORDINATE FINAL LAYOUT OF SLAB JOINTS WITH COLUMN AND WALL LOCATIONS.
7. PROVIDE CORROSION INHIBITING ADMIXTURE WITHIN THE CONCRETE AT ALL EXTERIOR SLABS, WALKS, STAIRS, ETC.

SLAB PLAN LEGEND

- INDICATES CONCRETE SLAB WITH MEMBRANE FORMING, CURING AND SEALING COMPOUND, WATER BASED, HIGH SOLIDS
- INDICATES CONCRETE SLAB WITH PENETRATING LIQUID FLOOR HARDENER, DENSIFIER AND SEALER. PROVIDE CONCRETE FINISH PROTECTANT/ ENHANCER TO CLEAN CONCRETE SURFACE PRIOR TO SUBSTANTIAL COMPLETION.
- INDICATES CONCRETE SLAB WITH 2 COATS OF HIGH PERFORMANCE, REACTIVE (100% SILANE) WATER REPELLANT SEALER
- INDICATES TYPICAL CONCRETE SLAB WITH CURING COMPOUND

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Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

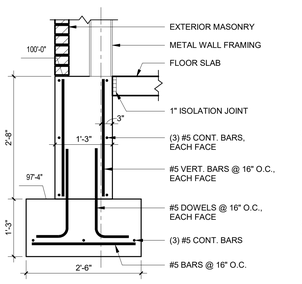
Drawn By: RDF
Checked By: JRB

Sheet Title

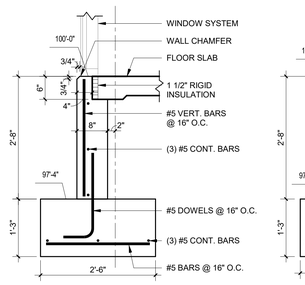
SLAB PLAN AND DETAILS

Sheet No.

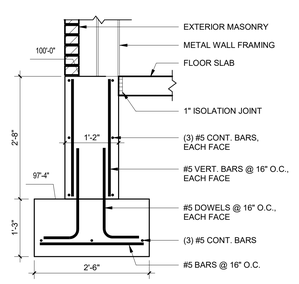
S102



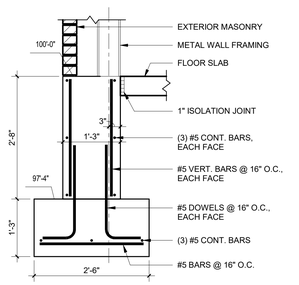

1 FOUNDATION DETAIL
3/4" = 1'-0"



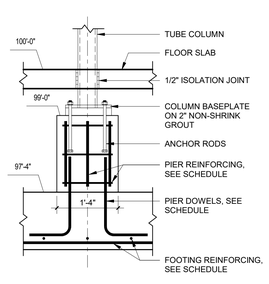

2 FOUNDATION DETAIL
3/4" = 1'-0"



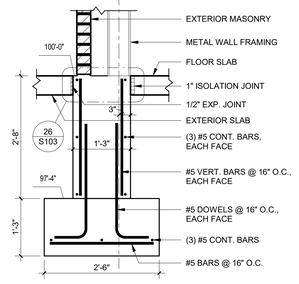

3 FOUNDATION DETAIL
3/4" = 1'-0"



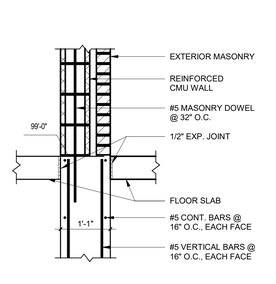

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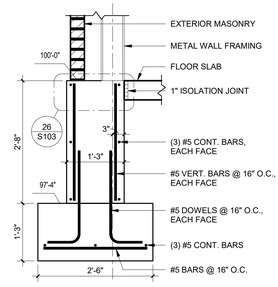

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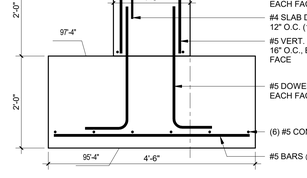

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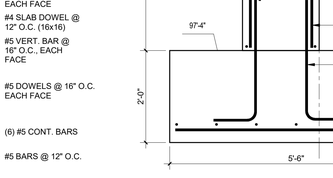

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3/4" = 1'-0"



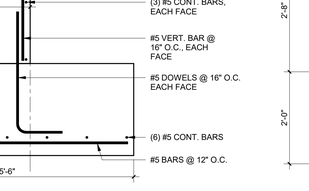

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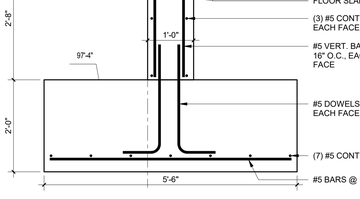

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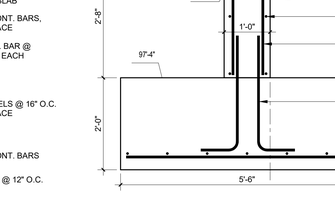

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3/4" = 1'-0"



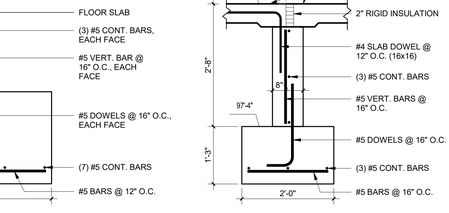

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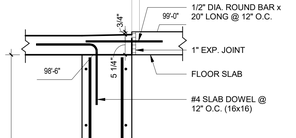

12 FOUNDATION DETAIL
3/4" = 1'-0"




13 FOUNDATION DETAIL
3/4" = 1'-0"




14 FOUNDATION DETAIL
3/4" = 1'-0"




15 FOUNDATION DETAIL
3/4" = 1'-0"




16 FOUNDATION DETAIL
3/4" = 1'-0"




17 FOUNDATION DETAIL
3/4" = 1'-0"




18 FOUNDATION DETAIL
3/4" = 1'-0"




19 FOUNDATION DETAIL
3/4" = 1'-0"




20 FOUNDATION DETAIL
3/4" = 1'-0"




21 FOUNDATION DETAIL
3/4" = 1'-0"




22 FOUNDATION DETAIL
3/4" = 1'-0"




23 FOUNDATION DETAIL
3/4" = 1'-0"




24 FOUNDATION DETAIL
3/4" = 1'-0"




25 FOUNDATION DETAIL
3/4" = 1'-0"




26 FOUNDATION DETAIL
3/4" = 1'-0"




33 FOUNDATION DETAIL
3/4" = 1'-0"




27 FOUNDATION DETAIL
3/4" = 1'-0"




28 FOUNDATION DETAIL
3/4" = 1'-0"




29 FOUNDATION DETAIL
3/4" = 1'-0"




30 FOUNDATION DETAIL
3/4" = 1'-0"




31 FOUNDATION DETAIL
3/4" = 1'-0"




32 FOUNDATION DETAIL
3/4" = 1'-0"

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|
| Sheet Revision | | |
| Issue | | |

ISSUED FOR BID
09/1/2026

Team

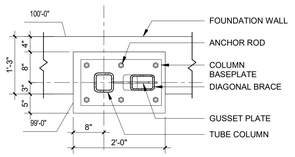
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Checked By: JRB

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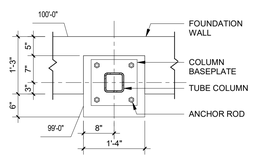
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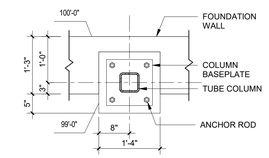
S103



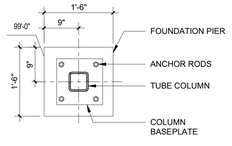

1 PIER DETAIL
3/4" = 1'-0"



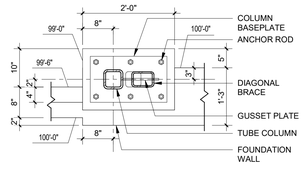

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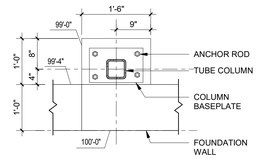

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3/4" = 1'-0"



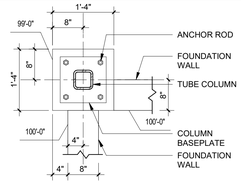

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3/4" = 1'-0"



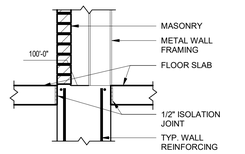

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3/4" = 1'-0"



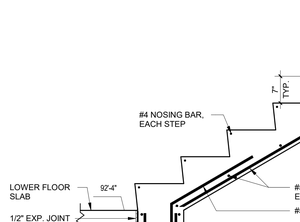

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3/4" = 1'-0"



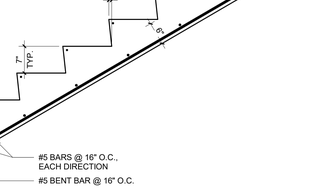

7 PIER DETAIL
3/4" = 1'-0"



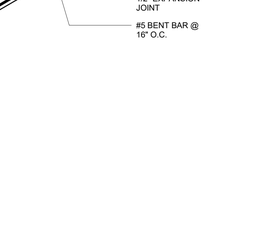

8 FOUNDATION DETAIL
3/4" = 1'-0"



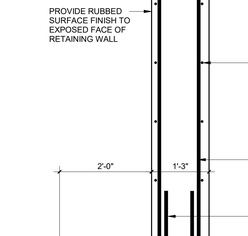

9 PIER DETAIL
3/4" = 1'-0"



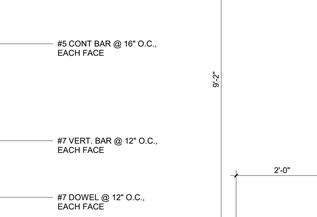

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3/4" = 1'-0"



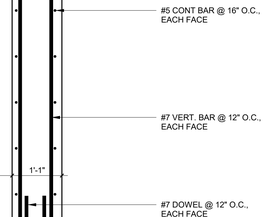

11 PIER DETAIL
3/4" = 1'-0"




12 PIER DETAIL
3/4" = 1'-0"




13 PIER DETAIL
3/4" = 1'-0"



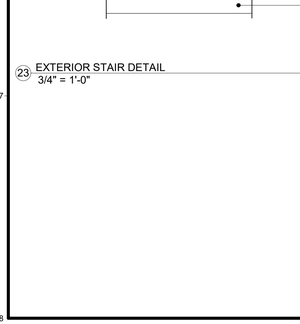

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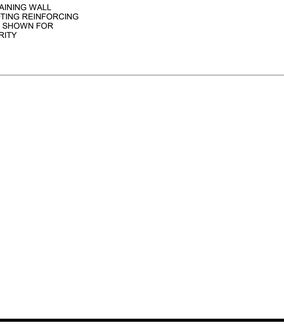

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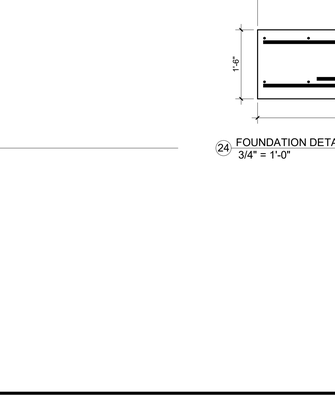

16 PIER DETAIL
3/4" = 1'-0"




17 FOUNDATION DETAIL
3/4" = 1'-0"




18 FOUNDATION DETAIL
3/4" = 1'-0"




19 FOUNDATION DETAIL
3/4" = 1'-0"




20 FOUNDATION DETAIL
3/4" = 1'-0"




21 FOUNDATION DETAIL
1 1/2" = 1'-0"




22 FOUNDATION DETAIL
1" = 1'-0"




23 EXTERIOR STAIR DETAIL
3/4" = 1'-0"




24 FOUNDATION DETAIL
3/4" = 1'-0"




25 FOUNDATION DETAIL
3/4" = 1'-0"

City

Collaborator

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

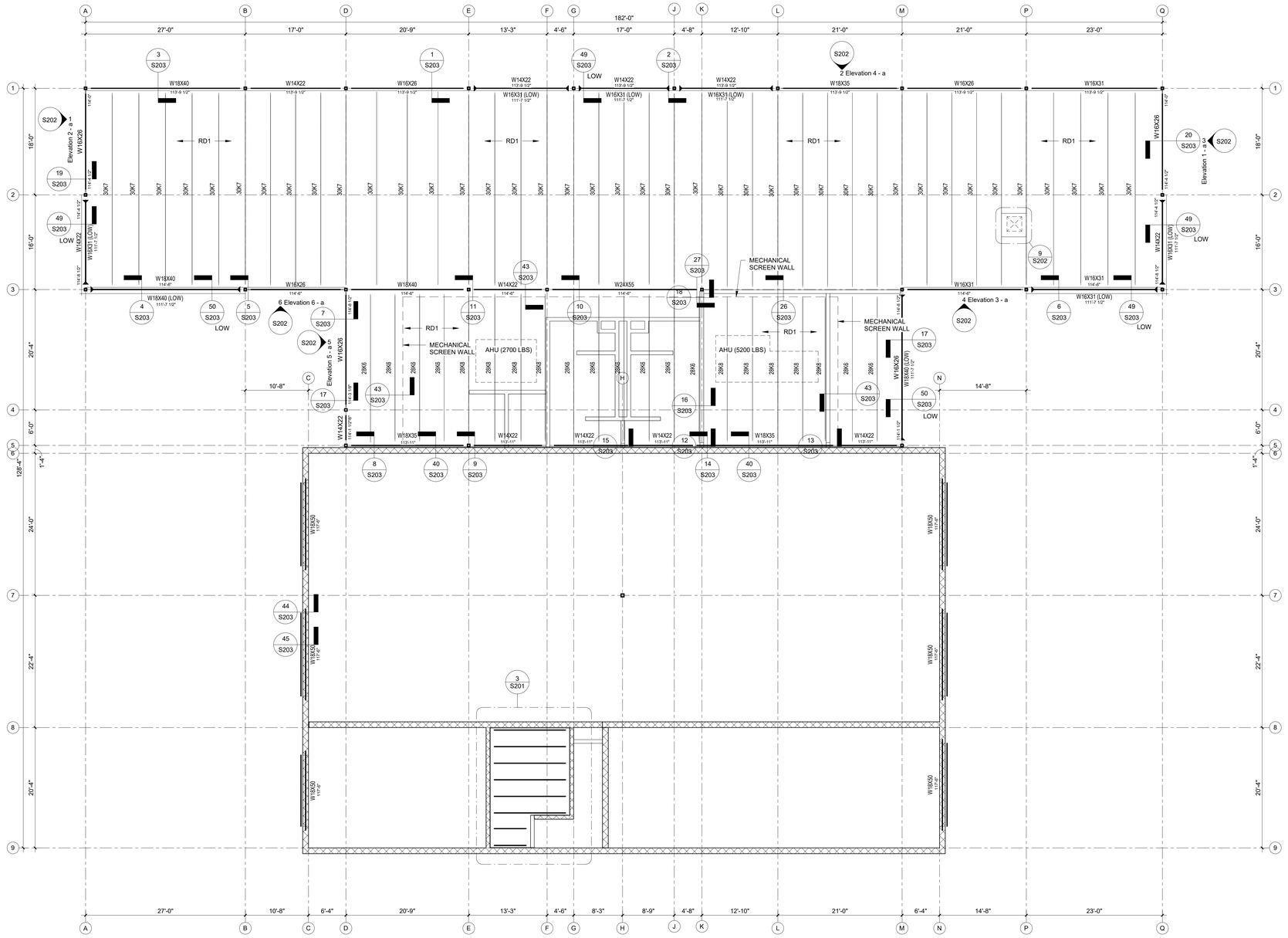
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Checked By: JRB

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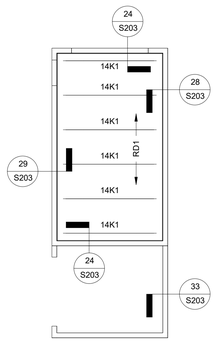
FOUNDATION DETAILS

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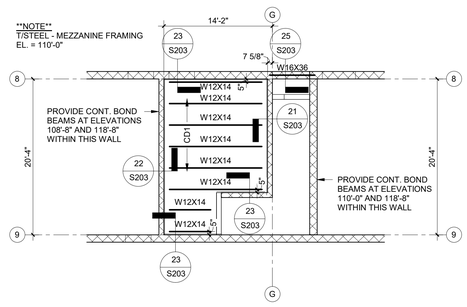
S104




1 LOW ROOF FRAMING PLAN
1/8" = 1'-0"




2 STORAGE BUILDING FRAMING PLAN
1/8" = 1'-0"




3 MEZZANINE FRAMING PLAN
1/8" = 1'-0"

FRAMING PLAN GENERAL NOTES:

1. RD1 INDICATES SPAN DIRECTION OF 1 1/2" METAL ROOF DECK. 0.0358" MINIMUM MATERIAL THICKNESS.
2. RD2 INDICATES SPAN DIRECTION OF 2" METAL ROOF DECK. 0.0474" MINIMUM MATERIAL THICKNESS.
3. RD2A INDICATES SPAN DIRECTION OF 2" ACOUSTIC METAL ROOF DECK. 0.0474 MINIMUM MATERIAL THICKNESS.
4. CD1 INDICATES SPAN DIRECTION OF 1 1/2" COMPOSITE METAL FLOOR DECK. 0.0358 MINIMUM MATERIAL THICKNESS, WITH 3 1/2" CONCRETE TOPPING OVER THE FLUTES, 5" OVERALL SLAB THICKNESS. REINFORCE SLAB WITH WWF 6x6-W1.4 x W1.4.
5. SEE FRAMING PLANS AND/ OR DETAIL FOR TOP OF STEEL ELEVATIONS AND JOIST/ BEAM BEARING ELEVATIONS.
6. AHU (xxxx lbs) INDICATES APPROXIMATE LOCATION OF ROOFTOP MECHANICAL UNIT. COORDINATE FINAL LOCATION OF UNITS WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
7. PROVIDE ROOF FRAME, DETAIL 9/S202 ,AT ALL ROOF OPENINGS REQUIRED FOR ROOFTOP EQUIPMENT. DO NOT CUT BEAMS OR JOISTS FOR INSTALLATION OF ROOF OPENINGS. COORDINATE FINAL REQUIRED SIZE AND LOCATION WITH MECHANICAL DRAWINGS AND EQUIPMENT MANUFACTURER. NOT ALL OPENINGS ARE INDICATED ON THE FRAMING PLANS.
8. SPACE BEAMS AND JOISTS EVENLY WITHIN BAYS AND ALONG BEAM/ GIRDER LENGTHS, UNLESS NOTED OTHERWISE.
9. JOIST MANUFACTURER TO DESIGN AND PROVIDE ALL REQUIRED TEMPORARY AND PERMANENT JOIST BRIDGING.
10. DO NOT HANG ANY EQUIPMENT OR MATERIALS FROM THE JOIST BRIDGING, INCLUDING BUT NOT LIMITED TO ELECTRICAL, PLUMBING, MECHANICAL, FIRE PROTECTION OR ARCHITECTURAL ELEMENTS.
11. DO NOT REMOVE, BEND, OR CUT ANY JOIST OR JOIST BRIDGING FOR THE INSTALLATION OF OTHER MATERIALS OR EQUIPMENT.
12. SEE DETAIL 45/S203 FOR TYPICAL BEAM TO COLUMN MOMENT CONNECTION. SEE REACTION SCHEDULE FOR MOMENT CONNECTION LOADS.
13. PROVIDE ROOF OPENING FRAMING, DETAIL 9/S202, AT ROOF HATCH OPENING LOCATIONS. COORDINATE FINAL SIZE AND LOCATION OF THE ROOF HATCH WITH THE ARCHITECTURAL PLANS AND MANUFACTURER DETAILS.
14. BEAMS MARKED WITH (LOW) ON FRAMING PLAN ARE FOR SUPPORT OF MASONRY LINTEL. MOMENT EACH END OF BEAM TO SUPPORTING COLUMN.
15. COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS FOR EXTENT AND LOCATION OF MECHANICAL SCREEN WALL SYSTEM.
16. PROVIDE HSS 3x1-1/2x1/4 INTERMEDIATE PARAPET WALL SUPPORT AT 6'-0" O.C. SPACING, WELDED TO TOP OF WIDE FLANGE BEAM. FASTEN LIGHT GAUGE PARAPET METAL WALL FRAMING TO HSS SUPPORTS. TYPICAL AT PERIMETER LOW ROOF BEAMS ALONG GRIDS A, D, M, Q, 1, & 3.
17. FUEL CANOPY FOUNDATIONS TO BE DESIGNED BY THE CANOPY MANUFACTURER USING THE PROVIDED LOAD INFORMATION, SHEET S001. COORDINATE LOCATION OF FUEL CANOPY, WITH ARCHITECTURAL AND CIVIL PLANS.

MASONRY WALL REINFORCING GENERAL NOTES:

1. PROVIDE TYPICAL 8" MASONRY WALL REINFORCING AS FOLLOWS:
   - A. REINFORCE 8" CMU WALLS WITH #5 BARS @ 32" O.C.
   - B. PROVIDE #5 BAR AT START AND END OF EACH WALL, ON EACH SIDE OF CONTROL JOINTS, AND AT EACH SIDE OF OPENING THROUGH MASONRY WALL.
   - C. PROVIDE (8 GAUGE), 2 x W2.1, CONTINUOUS HORIZONTAL JOINT REINFORCEMENT SPACED AT 16" VERTICALLY UP THE CMU WALL. TYPICAL, ALL CMU WALLS.
   - D. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT ELEVATIONS INDICATED WITHIN THE FRAMING DETAILS THROUGH MASONRY WALLS.
   - E. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT THE TOP, FULL BLOCK OF ALL MASONRY WALLS.
   - F. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT 8" CMU WALL NEAR GRID LINE E TOP OF BOND BEAM ELEVATIONS TO BE AT 108'-8" AND 118'-8".
   - G. SEE LINTEL SCHEDULE FOR REQUIRED LINTELS AT ALL OPENINGS THROUGH MASONRY WALLS.
   - H. PROVIDE CONTROL JOINTS AT 25' MAXIMUM SPACING. CONTROL JOINTS ARE TO BE 16" MINIMUM FROM THE EDGE OF AN OPENING. DISCONTINUE HORIZONTAL REINFORCEMENT AND PROVIDE PRE-FORMED GASKETS, BACKER ROD AND SEALANT AT EACH CONTROL JOINT.
2. PROVIDE TYPICAL 12" MASONRY WALL REINFORCING AS FOLLOWS:
   - A. REINFORCE 12" CMU WALLS WITH #6 BARS @ 32" O.C.
   - B. PROVIDE #6 BAR AT START AND END OF EACH WALL, ON EACH SIDE OF CONTROL JOINTS, AND AT EACH SIDE OF OPENING THROUGH MASONRY WALL.
   - C. PROVIDE (8 GAUGE), 2 x W2.1, CONTINUOUS HORIZONTAL JOINT REINFORCEMENT SPACED AT 16" VERTICALLY UP THE CMU WALL. TYPICAL, ALL CMU WALLS.
   - D. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #5 BAR, AT ELEVATIONS INDICATED WITHIN THE FRAMING DETAILS THROUGH MASONRY WALLS.
   - E. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #5 BAR, AT THE TOP, FULL BLOCK OF ALL MASONRY WALLS.
   - F. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #6 BAR, AT ALL 12" CMU WALLS ALONG GRIDS C, N, 6, 8, & 9 AND NEAR GRID H. TOP OF BOND BEAM ELEVATIONS TO BE AT 110'-0" AND 118'-8".
   - G. SEE LINTEL SCHEDULE FOR REQUIRED LINTELS AT ALL OPENINGS THROUGH MASONRY WALLS.
   - H. PROVIDE CONTROL JOINTS AT 25' MAXIMUM SPACING. CONTROL JOINTS ARE TO BE 16" MINIMUM FROM THE EDGE OF AN OPENING. DISCONTINUE HORIZONTAL REINFORCEMENT AND PROVIDE PRE-FORMED GASKETS, BACKER ROD AND SEALANT AT EACH CONTROL JOINT.

## BEAM REACTION SCHEDULE

| BEAM SIZE | REACTION (kips) | MOMENT (k-ft) | BEAM SIZE | REACTION (kips) | MOMENT (k-ft) |
|---|---|---|---|---|---|
| W8 | 16 | 15 | | | |
| W10 | 16 | 15 | | | |
| W12 | 16 | 20 | | | |
| W14 | 25 | 25 | | | |
| W16 | 28 | 35 | | | |
| W18 | 38 | 40 | | | |
| W21 | 55 | 40 | | | |
| W24 | 55 | 40 | | | |
| | | | | | |
| | | | | | |

NOTE:
BEAMS WITH REACTIONS EXCEEDING THE VALUES INDICATED ON THIS SCHEDULE ARE NOTED ON THE PLANS

## STRUCTURAL COLUMN SCHEDULE

| COLUMN MARK | TOP PLATE ELEVATION | TOP PLATE SIZE | TOP PLATE DETAIL | COLUMN SECTION | BASE PLATE ELEVATION | BASE PLATE SIZE | BASE PLATE DETAIL | BASE PLATE ANCHOR ROD | FIRE RATING | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| A-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 9/S104 SIM | (6) 3/4" | N/A | |
| A-2 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 11/S104 | (6) 3/4" | N/A | |
| A-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 4/S104 | (4) 3/4" | N/A | |
| B-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 3/S104 | (4) 3/4" | N/A | |
| B-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 5/S104 | (6) 3/4" | N/A | |
| D-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 3/S104 | (4) 3/4" | N/A | |
| D-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 20x20x3/4" | 13/S104 | (8) 3/4" | N/A | |
| D-4 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 12/S104 | (6) 3/4" | N/A | |
| D-5 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 14x9x3/4" | 14/S104 | (4) 3/4" | N/A | |
| E-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 3/S104 | (4) 3/4" | N/A | |
| E-3 | 114'-8 1/2" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-0" | 12x12x3/4" | 6/S001 | (4) 3/4" | N/A | |
| E-5 | 114'-1 1/2" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 14x9x3/4" | 6/S104 | (4) 3/4" | N/A | |
| F-3 | 114'-8 1/2" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 12x12x3/4" | 6/S001 | (4) 3/4" | N/A | |
| G-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 2/S104 | (4) 3/4" | N/A | |
| H-7 | 123'-1" | 8x6x1/2" | -- | HSS6X6X3/8 | 99'-2" | 12x12x3/4" | 6/S001 | (4) 3/4" | N/A | |
| J-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 2/S104 | (4) 3/4" | N/A | |
| K-3 | 114'-8 1/2" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 12x12x3/4" | 7/S104 | (4) 3/4" | N/A | |
| L-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 1/S104 | (6) 3/4" | N/A | |
| M-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 1/S104 SIM | (6) 3/4" | N/A | |
| M-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 15/S104 | (6) 3/4" | N/A | |
| M-5 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 14x9x3/4" | 16/S104 | (4) 3/4" | N/A | |
| P-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 3/S104 | (4) 3/4" | N/A | |
| P-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 10/S104 | (6) 3/4" | N/A | |
| Q-1 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 9/S104 | (6) 3/4" | N/A | |
| Q-2 | 116'-0" | 1/4" FITTED | -- | HSS5X5X1/2 | 99'-2" | 18x12x3/4" | 11/S104 SIM | (6) 3/4" | N/A | |
| Q-3 | 116'-0" | 1/4" FITTED | -- | HSS5X5X3/8 | 99'-2" | 12x12x3/4" | 4/S104 | (4) 3/4" | N/A | |

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

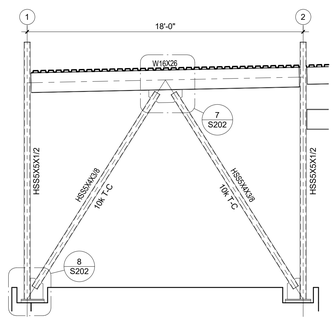
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Checked By: JRB

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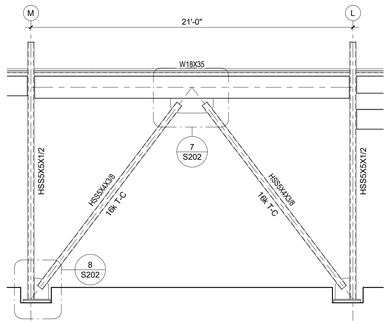
FRAMING PLANS AND COLUMN SCHEDULE

Sheet No.

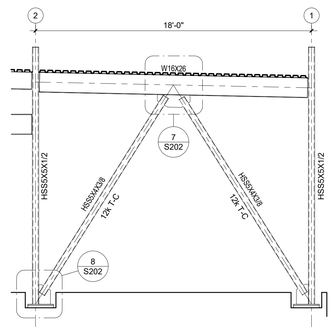
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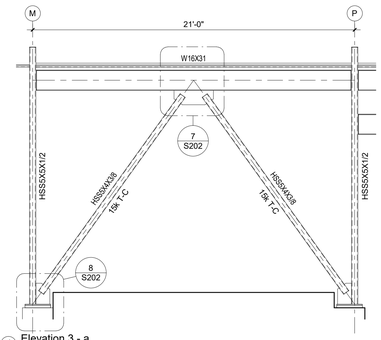

1 Elevation 2 - a
1/4" = 1'-0"



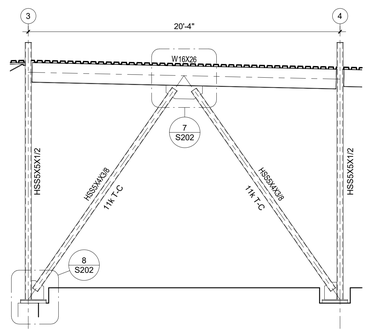

2 Elevation 4 - a
1/4" = 1'-0"



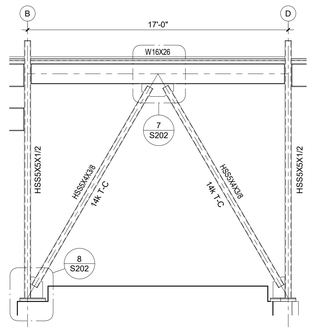

3 Elevation 1 - a
1/4" = 1'-0"



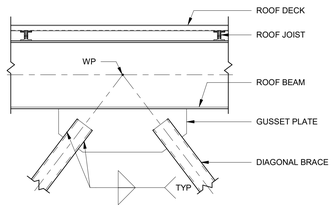

4 Elevation 3 - a
1/4" = 1'-0"



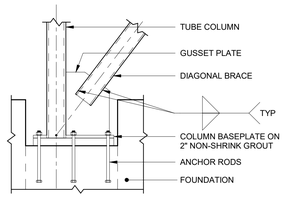

5 Elevation 5 - a
1/4" = 1'-0"



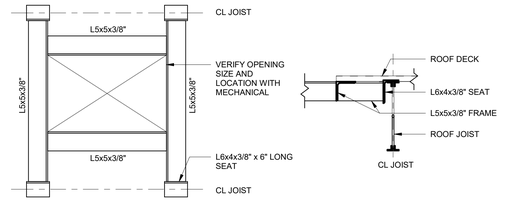

6 Elevation 6 - a
1/4" = 1'-0"



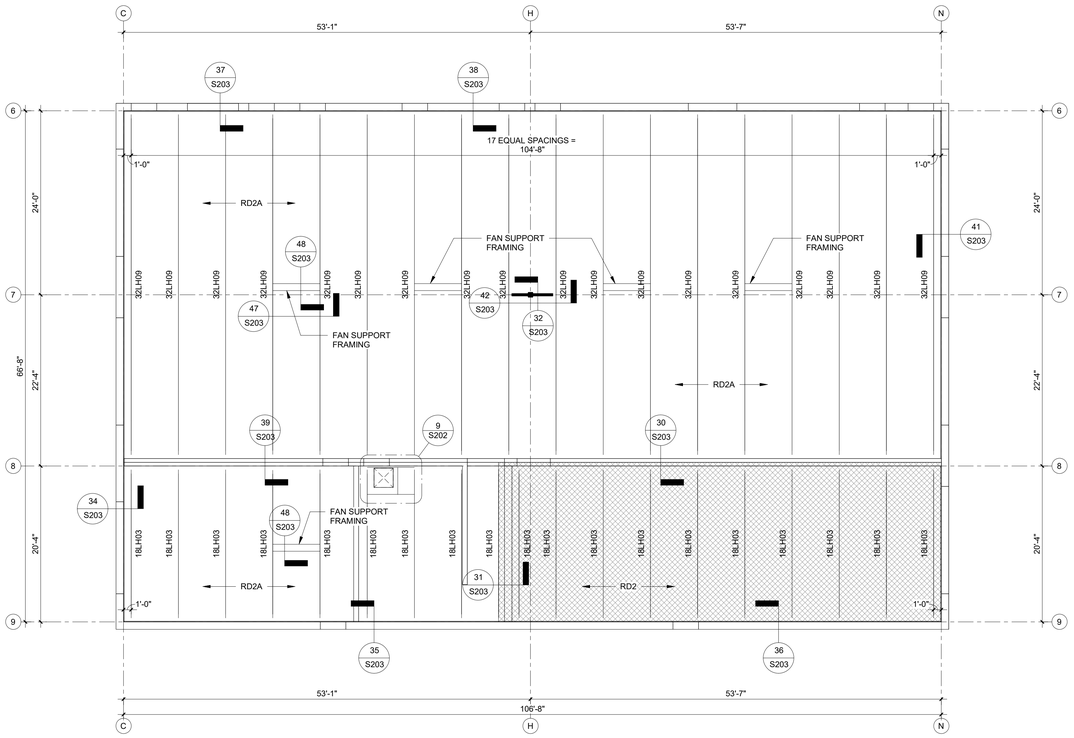

7 FRAMING DETAIL
3/4" = 1'-0"




8 FRAMING DETAIL
3/4" = 1'-0"




9 FRAMING DETAIL
3/4" = 1'-0"




10 UPPER ROOF FRAMING PLAN
1/8" = 1'-0"

FRAMING PLAN LEGEND

INDICATES APPROXIMATE LOCATION AND EXTENT OF 2" METAL ROOF DECK

FRAMING PLAN GENERAL NOTES:

1. RD1 INDICATES SPAN DIRECTION OF 1 1/2" METAL ROOF DECK. 0.0358" MINIMUM MATERIAL THICKNESS.
2. RD2 INDICATES SPAN DIRECTION OF 2" METAL ROOF DECK. 0.0474" MINIMUM MATERIAL THICKNESS.
3. RD2A INDICATES SPAN DIRECTION OF 2" ACOUSTIC METAL ROOF DECK. 0.0474 MINIMUM MATERIAL THICKNESS.
4. CD1 INDICATES SPAN DIRECTION OF 1 1/2" COMPOSITE METAL FLOOR DECK. 0.0358 MINIMUM MATERIAL THICKNESS, WITH 3 1/2" CONCRETE TOPPING OVER THE FLUTES, 5" OVERALL SLAB THICKNESS. REINFORCE SLAB WITH WWF 6x6-W1.4 x W1.4.
5. SEE FRAMING PLANS AND/ OR DETAIL FOR TOP OF STEEL ELEVATIONS AND JOIST/ BEAM BEARING ELEVATIONS.
6. AHU (xxxx lbs) INDICATES APPROXIMATE LOCATION OF ROOFTOP MECHANICAL UNIT. COORDINATE FINAL LOCATION OF UNITS WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
7. PROVIDE ROOF FRAME, DETAIL 9/S202, AT ALL ROOF OPENINGS REQUIRED FOR ROOFTOP EQUIPMENT. DO NOT CUT BEAMS OR JOISTS FOR INSTALLATION OF ROOF OPENINGS. COORDINATE FINAL REQUIRED SIZE AND LOCATION WITH MECHANICAL DRAWINGS AND EQUIPMENT MANUFACTURER. NOT ALL OPENINGS ARE INDICATED ON THE FRAMING PLANS.
8. SPACE BEAMS AND JOISTS EVENLY WITHIN BAYS AND ALONG BEAM/ GIRDER LENGTHS, UNLESS NOTED OTHERWISE.
9. JOIST MANUFACTURER TO DESIGN AND PROVIDE ALL REQUIRED TEMPORARY AND PERMANENT JOIST BRIDGING.
10. DO NOT HANG ANY EQUIPMENT OR MATERIALS FROM THE JOIST BRIDGING, INCLUDING BUT NOT LIMITED TO ELECTRICAL, PLUMBING, MECHANICAL, FIRE PROTECTION OR ARCHITECTURAL ELEMENTS.
11. DO NOT REMOVE, BEND, OR CUT ANY JOIST OR JOIST BRIDGING FOR THE INSTALLATION OF OTHER MATERIALS OR EQUIPMENT.
12. SEE DETAIL 4S/S203 FOR TYPICAL BEAM TO COLUMN MOMENT CONNECTION. SEE REACTION SCHEDULE FOR MOMENT CONNECTION LOADS.
13. PROVIDE ROOF OPENING FRAMING, DETAIL 9/S202, AT ROOF HATCH OPENING LOCATIONS. COORDINATE FINAL SIZE AND LOCATION OF THE ROOF HATCH WITH THE ARCHITECTURAL PLANS AND MANUFACTURER DETAILS.
14. BEAMS MARKED WITH (LOW) ON FRAMING PLAN ARE FOR SUPPORT OF MASONRY LINTEL. MOMENT EACH END OF BEAM TO SUPPORTING COLUMN.
15. COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS FOR EXTENT AND LOCATION OF MECHANICAL SCREEN WALL SYSTEM.
16. PROVIDE HSS 3x1-1/2x1/4 INTERMEDIATE PARAPET WALL SUPPORT AT 6'-0" O.C. SPACING, WELDED TO TOP OF WIDE FLANGE BEAM. FASTEN LIGHT GAUGE PARAPET METAL WALL FRAMING TO HSS SUPPORTS. TYPICAL AT PERIMETER LOW ROOF BEAMS ALONG GRIDS A, D, M, Q, 1, & 3.
17. FUEL CANOPY FOUNDATIONS TO BE DESIGNED BY THE CANOPY MANUFACTURER USING THE PROVIDED LOAD INFORMATION, SHEET S001. COORDINATE LOCATION OF FUEL CANOPY, WITH ARCHITECTURAL AND CIVIL PLANS.

MASONRY WALL REINFORCING GENERAL NOTES:

1. PROVIDE TYPICAL 8" MASONRY WALL REINFORCING AS FOLLOWS:
   - A. REINFORCE 8" CMU WALLS WITH #5 BARS @ 32" O.C.
   - B. PROVIDE #5 BAR AT START AND END OF EACH WALL, ON EACH SIDE OF CONTROL JOINTS, AND AT EACH SIDE OF OPENING THROUGH MASONRY WALL.
   - C. PROVIDE (8 GAUGE), 2 x W2.1, CONTINUOUS HORIZONTAL JOINT REINFORCEMENT SPACED AT 16" VERTICALLY UP THE CMU WALL. TYPICAL, ALL CMU WALLS.
   - D. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT ELEVATIONS INDICATED WITHIN THE FRAMING DETAILS THROUGH MASONRY WALLS.
   - E. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT THE TOP, FULL BLOCK OF ALL MASONRY WALLS.
   - F. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (1) #5 BAR, AT 8" CMU WALL NEAR GRID LINE E TOP OF BOND BEAM ELEVATIONS TO BE AT 108'-8" AND 118'-8".
   - G. SEE LINTEL SCHEDULE FOR REQUIRED LINTELS AT ALL OPENINGS THROUGH MASONRY WALLS.
   - H. PROVIDE CONTROL JOINTS AT 25' MAXIMUM SPACING. CONTROL JOINTS ARE TO BE 16" MINIMUM FROM THE EDGE OF AN OPENING. DISCONTINUE HORIZONTAL REINFORCEMENT AND PROVIDE PRE-FORMED GASKETS, BACKER ROD AND SEALANT AT EACH CONTROL JOINT.
2. PROVIDE TYPICAL 12" MASONRY WALL REINFORCING AS FOLLOWS:
   - A. REINFORCE 12" CMU WALLS WITH #6 BARS @ 32" O.C.
   - B. PROVIDE #6 BAR AT START AND END OF EACH WALL, ON EACH SIDE OF CONTROL JOINTS, AND AT EACH SIDE OF OPENING THROUGH MASONRY WALL.
   - C. PROVIDE (8 GAUGE), 2 x W2.1, CONTINUOUS HORIZONTAL JOINT REINFORCEMENT SPACED AT 16" VERTICALLY UP THE CMU WALL. TYPICAL, ALL CMU WALLS.
   - D. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #5 BAR, AT ELEVATIONS INDICATED WITHIN THE FRAMING DETAILS THROUGH MASONRY WALLS.
   - E. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #5 BAR, AT THE TOP, FULL BLOCK OF ALL MASONRY WALLS.
   - F. PROVIDE CONTINUOUS BOND BEAMS, REINFORCED WITH (2) #6 BAR, AT ALL 12" CMU WALLS ALONG GRIDS C, N, 6, 8, & 9 AND NEAR GRID H. TOP OF BOND BEAM ELEVATIONS TO BE AT 110'-0" AND 118'-8".
   - G. SEE LINTEL SCHEDULE FOR REQUIRED LINTELS AT ALL OPENINGS THROUGH MASONRY WALLS.
   - H. PROVIDE CONTROL JOINTS AT 25' MAXIMUM SPACING. CONTROL JOINTS ARE TO BE 16" MINIMUM FROM THE EDGE OF AN OPENING. DISCONTINUE HORIZONTAL REINFORCEMENT AND PROVIDE PRE-FORMED GASKETS, BACKER ROD AND SEALANT AT EACH CONTROL JOINT.

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

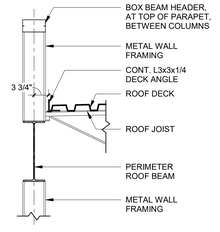
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Checked By: JRB

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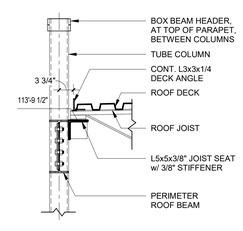
FRAMING PLAN AND DETAILS

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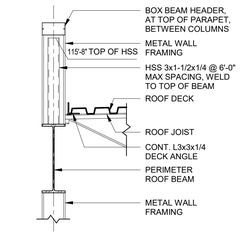
S202



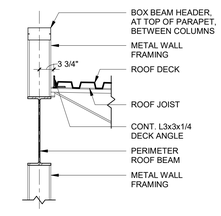

1 FRAMING DETAIL
3/4" = 1'-0"



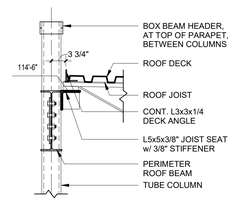

2 FRAMING DETAIL
3/4" = 1'-0"



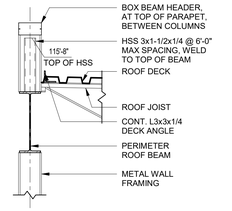

3 FRAMING DETAIL
3/4" = 1'-0"



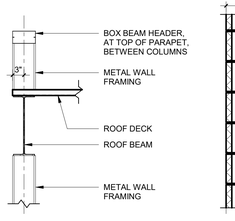

4 FRAMING DETAIL
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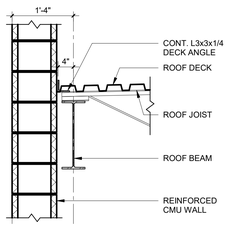

5 FRAMING DETAIL
3/4" = 1'-0"



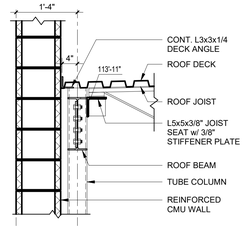

6 FRAMING DETAIL
3/4" = 1'-0"



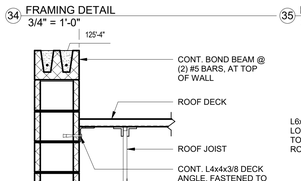

7 FRAMING DETAIL
3/4" = 1'-0"



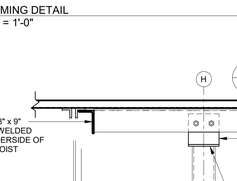

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3/4" = 1'-0"



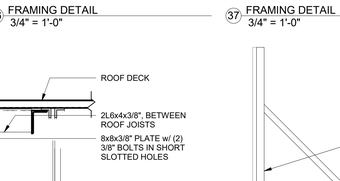

9 FRAMING DETAIL
3/4" = 1'-0"



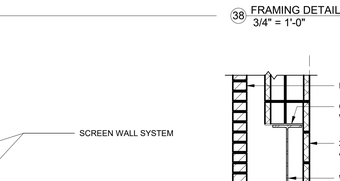

10 FRAMING DETAIL
3/4" = 1'-0"



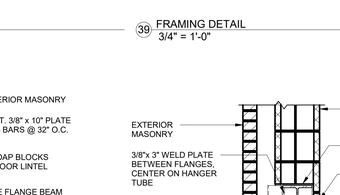

11 FRAMING DETAIL
3/4" = 1'-0"



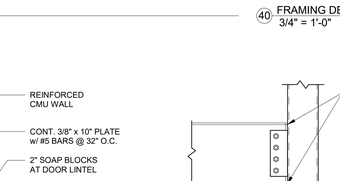

12 FRAMING DETAIL
3/4" = 1'-0"



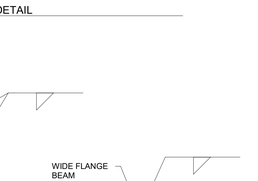

13 FRAMING DETAIL
3/4" = 1'-0"



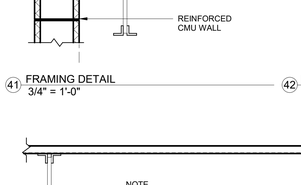

14 FRAMING DETAIL
3/4" = 1'-0"



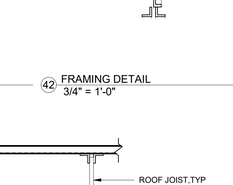

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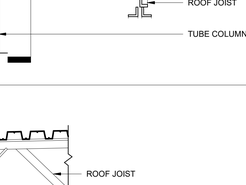

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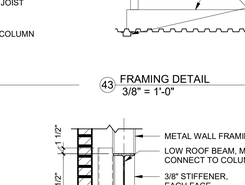

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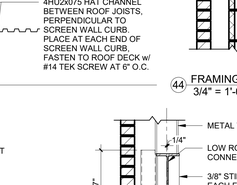

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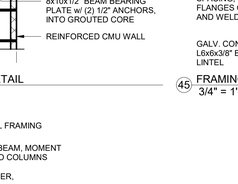

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3/4" = 1'-0"



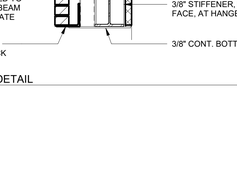

20 FRAMING DETAIL
3/4" = 1'-0"



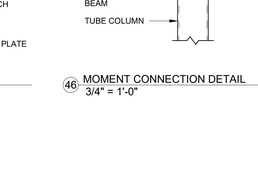

21 FRAMING DETAIL
3/4" = 1'-0"



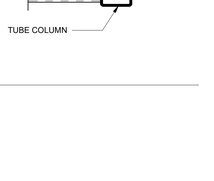

22 FRAMING DETAIL
3/4" = 1'-0"




23 FRAMING DETAIL
3/4" = 1'-0"




24 FRAMING DETAIL
3/4" = 1'-0"




25 FRAMING DETAIL
3/4" = 1'-0"




26 FRAMING DETAIL
3/4" = 1'-0"




27 FRAMING DETAIL
3/4" = 1'-0"




28 FRAMING DETAIL
3/4" = 1'-0"




29 FRAMING DETAIL
3/4" = 1'-0"




30 FRAMING DETAIL
3/4" = 1'-0"




31 FRAMING DETAIL
3/4" = 1'-0"




32 FRAMING DETAIL
3/4" = 1'-0"




33 FRAMING DETAIL
3/4" = 1'-0"




34 FRAMING DETAIL
3/4" = 1'-0"




35 FRAMING DETAIL
3/4" = 1'-0"




36 FRAMING DETAIL
3/4" = 1'-0"




37 FRAMING DETAIL
3/4" = 1'-0"




38 FRAMING DETAIL
3/4" = 1'-0"




39 FRAMING DETAIL
3/4" = 1'-0"




40 FRAMING DETAIL
3/4" = 1'-0"




41 FRAMING DETAIL
3/4" = 1'-0"




42 FRAMING DETAIL
3/4" = 1'-0"




43 FRAMING DETAIL
3/8" = 1'-0"




44 FRAMING DETAIL
3/4" = 1'-0"




45 FRAMING DETAIL
3/4" = 1'-0"




46 MOMENT CONNECTION DETAIL
3/4" = 1'-0"




47 FRAMING DETAIL
3/4" = 1'-0"




48 FRAMING DETAIL
3/4" = 1'-0"




49 FRAMING DETAIL
3/4" = 1'-0"




50 FRAMING DETAIL
3/4" = 1'-0"

City

Collaborator

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NOT FOR CONSTRUCTION

Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD
ST LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

ISSUED FOR BID
09/1/2026

Team

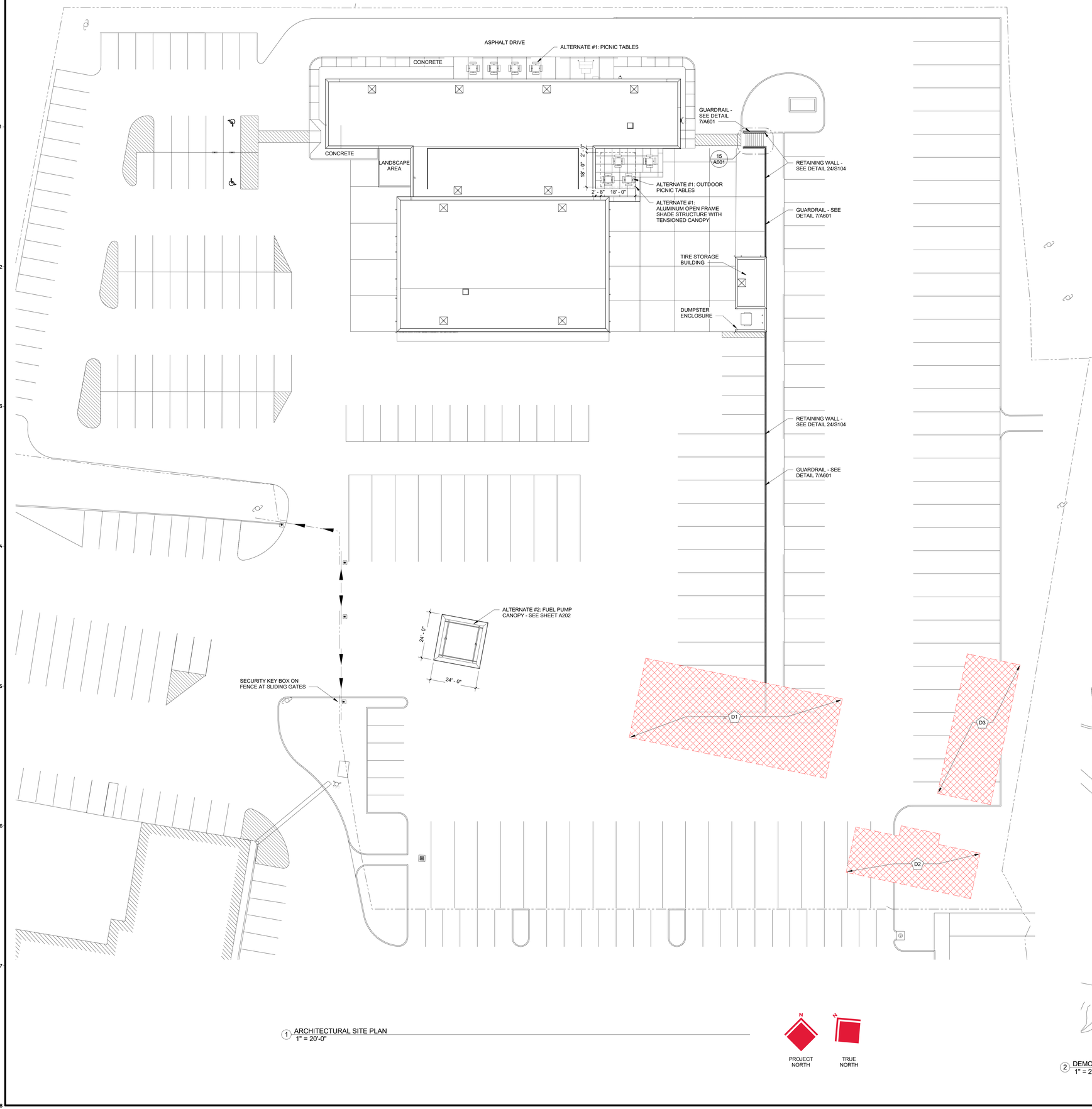
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Checked By: JRB

Sheet Title

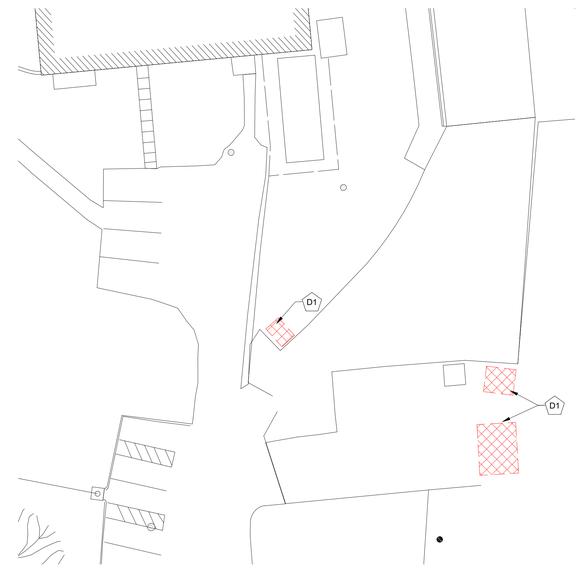
FRAMING DETAILS

Sheet No.

S203




1 ARCHITECTURAL SITE PLAN
1" = 20'-0"




2 DEMOLITION SITE PLAN
1" = 20'-0"

## DEMOLITION GENERAL NOTES

1. FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
2. THIS DRAWING AND ALL OTHER DEMOLITION NOTES / PLANS IN THIS SET DO NOT LIMIT THE EXTENT OF THE REQUIRED DEMOLITION WORK. CONTRACTOR IS RESPONSIBLE FOR ALL DEMOLITION WORK REQUIRED TO COMPLETE WORK INDICATED.
3. REFER TO MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS FOR REMAINDER OF DEMOLITION WORK.
4. ALL SURFACES DISTURBED OR EXPOSED DURING DEMOLITION SHALL BE PATCHED AND REPAIRED TO MATCH ADJACENT SURFACES.
5. CONTRACTOR IS RESPONSIBLE FOR ENSURING ANY ITEM THAT IS INDICATED TO BE SALVAGED FOR REUSE OR TURNED OVER TO THE OWNER, IS NOT DAMAGED DURING REMOVAL OR RELOCATION.
6. ITEMS INDICATED TO REMAIN THAT ARE INADVERTENTLY REMOVED OR DAMAGED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. VERIFY WITH THE OWNER'S REPRESENTATIVE PRIOR TO DISPOSAL OF SALVAGEABLE DEMOLITION ITEMS.
8. VERIFY WITH ARCHITECT PRIOR TO MODIFICATION OR REMOVAL OF ANY STRUCTURAL ELEMENTS, COLUMNS, BEAMS, LINTELS, BEARING WALLS, CUTTING OF FLOOR OPENINGS, ETC.
9. REMOVE EXISTING TICKET BOOTH AND STORAGE SHEDS AS SHOWN ON DETAIL IN THEIR ENTIRETY. REFER TO SHEET C1.1 FOR THEIR LOCATIONS AND ADDITIONAL INFORMATION.

## DEMOLITION KEYNOTES

| | |
|---|---|
| D1 | REMOVE EXISTING BUILDING INCLUDING, BUT NOT LIMITED TO, FOUNDATIONS, STRUCTURE, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS, ETC. IN THEIR ENTIRETY. CAP ALL UTILITES PRIOR TO DEMOLTION. COORDINATE WITH MEP SHEETS. |
| D2 | REMOVE EXISTING PORTABLE BUILDING INCLUDING, BUT NOT LIMITED TO, FOUNDATIONS, STRUCTURE, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS, ETC. IN THEIR ENTIRETY. CAP ALL UTILITES PRIOR TO DEMOLTION. COORDINATE WITH MEP SHEETS. |
| D3 | RELOCATE EXISTING PORTABLE BUILDING TO OFF-SITE LOCATION. DISCONNECT ALL UTILITES PRIOR TO RELOCATION. COORDINATE WITH MEP SHEETS. |

PROJECT NORTH / TRUE NORTH

PROJECT NORTH / TRUE NORTH

City

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER
A-2024011268
ARCHITECT

09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

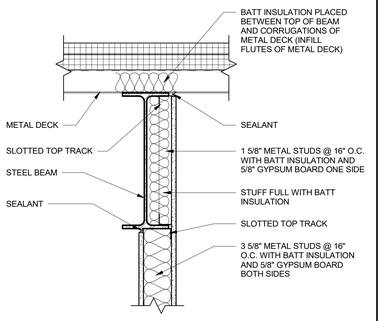
Team
Drawn By: clw
Checked By: LLW

Sheet Title

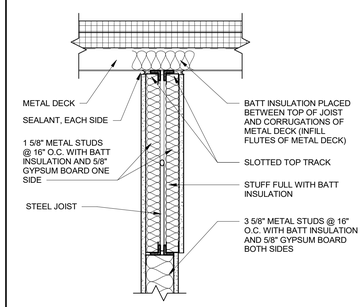
ARCHITECTURAL SITE PLAN AND DEMOLITION SITE PLAN

Sheet No.

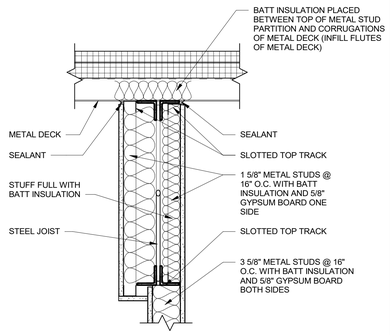
AS101



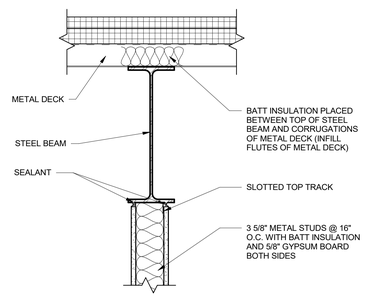

1 TOP OF PARTITION DETAIL @ BEAM_2
1 1/2" = 1'-0"



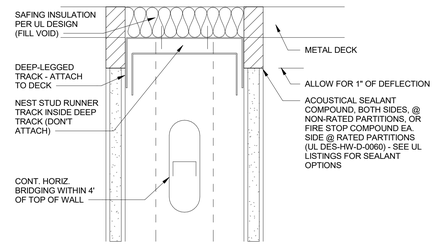

2 TOP OF PARTITION DETAIL @ JOIST_1
1 1/2" = 1'-0"




3 TOP OF PARTITION DETAIL @ JOIST_2
1 1/2" = 1'-0"




4 TOP OF PARTITION DETAIL @ BEAM_1
1 1/2" = 1'-0"




5 METAL STUD TOP OF WALL DETAIL
6" = 1'-0"

## PARTITION GENERAL NOTES

A. EXTEND GYPSUM BOARD TO UNDERSIDE OF FLOOR / ROOF DECK WHERE PARTITIONS ENCLOSES A ROOM. EXTEND GYPSUM BOARD 6" ABOVE CEILINGS AT WING WALLS.

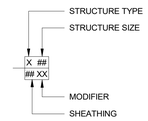
B. PARTITIONS WITH SOUTH SOUND ATTENUATION BATT INSULATION TO RECEIVE ACOUSTICAL SEALANT AT THE BASE, TOP, AND PERIMETER. REFER TO SPECIFICATION 07 9200 JOINT SEALANTS FOR ADDITIONAL INFORMATION.

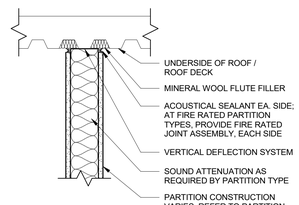
C. PENETRATIONS IN PARTITIONS TO BE SEALED WITH ACOUSTICAL SEALANT OR FIRESTOPPING SEALANT IF RATING IS REQUIRED. REFER TO LIFE SAFETY SHEETS FOR LOCATIONS OF RATED WALLS.

D. PROVIDE METAL STUD KICKERS, BRACING, STRAPPING, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION OF PARTITION ASSEMBLIES.

E. HORIZONTAL STRAPPING, BACKING PLATE, WOOD BLOCKING, ETC. TO BE INSTALLED FOR WALL-MOUNTED EQUIPMENT, CASEWORK, FIXTURES, TV MONITORS, ETC. COORDINATE LOCATIONS WITH OTHER DISCIPLINES.

F. PROVIDE 5/8" GYPSUM BOARD UNLESS NOTED OTHERWISE. REFER TO SPECIFICATION 09 2100 FOR FIRE RATED, MOISTURE/MOLD RESISTANT, OR TILE BACKER BOARD LOCATIONS.




6 TYPICAL PARTITION HEAD DETAIL1
1 1/2" = 1'-0"

## PARTITION TYPE DESIGNATION

| STRUCTURE TYPE | | STRUCTURE SIZE | | SHEATHING (5/8" GYP. BD. UNO) | | | MODIFIER | |
|---|---|---|---|---|---|---|---|---|
| CODE | MATERIAL | CODE | ACTUAL SIZE OF STRUCTURE | CODE | | DESCRIPTION (PER SIDE OF STRUCTURE | CODE | DESCRIPTION |
| S | LIGHT GAUGE FRAMING | 0 | 7/8" FURRING | 0 | 1 | ONE LAYER ON ONE SIDE | - | NO MODIFER |
| | | 1 | 1 5/8" STUD | 0 | 2 | TWO LAYERS ON ONE SIDE | A | SMOKE PARTITION |
| | | 2 | 2 1/2" STUD | 0 | 3 | THREE LAYERS ON ONE SIDE | B | SMOKE BARRIER |
| | | 3 | 3 5/8" STUD | 0 | 4 | FOUR LAYERS ON ONE SIDE | C | 30 MIN FIRE PARTITION |
| | | 4 | 4" STUD | 1 | 1 | ONE LAYER EACH SIDE | D | 1 HOUR FIRE BARRIER |
| | | 5 | 5 1/2" STUD | 1 | 2 | ONE LAYER ON ONE SIDE, TWO LAYERS OTHER SIDE | E | 2 HOUR FIRE WALL |
| | | 6 | 6" STUD | 1 | 3 | ONE LAYER ON ONE SIDE, THREE LAYERS OTHER SIDE | F | SOUND ATTENUATION BATT INSULATION |
| | | 8 | 8" STUD | 1 | 4 | ONE LAYER ON ONE SIDE, FOUR LAYERS OTHER SIDE | G | ABUSE RESISTIVE GYP |
| | | 10 | 10" STUD | 2 | 2 | TWO LAYERS ON EACH SIDE | H | 3 5/8" METAL STUD FURRING |
| H | SHAFT WALL | 2 | 2 1/2" C-H STUD | 2 | 3 | TWO LAYERS ON ONE SIDE, THREE LAYERS OTHER SIDE | I | INFILL AND MATCH EXISTING MASONRY CONSTRUCTION. SCORED FACE CMU ONE SIDE. VERIFY SIZE IN FIELD. SALVAGED FACE BRICK ONE SIDE. |
| | | | | 2 | 4 | TWO LAYERS ON ONE SIDE, FOUR LAYERS OTHER SIDE | J | PARTIAL HEIGHT PARTITION, REFER TO SECTIONS AND DETAILS FOR HEIGHT |
| | | | | 3 | 3 | THREE LAYERS EACH SIDE | K | TECTUM PANEL ATTACHED TO STUD, PARTIAL HEIGHT. SEE... |
| | | | | 3 | 4 | THREE LAYERS ONE SIDE, FOUR LAYERS OTHER SIDE | L | 5/8" PLYWOOD ON ONE SIDE IN LIEU OF GYP. BOARD |
| | | | | S | 1 | SHAFT LINER ON ONE SIDE, ONE LAYER OTHER SIDE | M | 7/8" FURRING CHANNEL W/ RESILIENT ISOLATION CLIPS |
| | | | | S | 2 | SHAFT LINER ON ONE SIDE, TWO LAYERS OTHER SIDE | N | MINERAL WOOL |
| | | | | S | 3 | SHAFT LINER ON ONE SIDE, THREE LAYERS OTHER SIDE | | |
| M | CONCRETE MASONRY UNIT | 4 | 4" CMU BLOCK | S | 4 | SHAFT LINER ON ONE SIDE, FOUR LAYERS OTHER SIDE | | |
| | | 6 | 6" CMU BLOCK | H | 1 | 7/8" HAT CHANNEL ON ONE SIDE WITH ONE LAYER | T | CERAMIC WALL TILE OVER TILE BACKER BOARD |
| | | 8 | 8" CMU BLOCK | H | 2 | 7/8" HAT CHANNEL ON ONE SIDE WITH TWO LAYERS | NOTE | PARTITON TYPE CAN HAVE MULTIPLE MODIFIERS |
| | | 12 | 12" CMU BLOCK | H | 3 | 7/8" HAT CHANNEL ON EACH SIDE WITH ONE LAYER EACH SIDE | | |




7 CORNER GUARD DETAIL
6" = 1'-0"




8 TYPICAL PARTITION BASE DETAIL1
1 1/2" = 1'-0"




9 JOIST/STUD INTERSECTION - ISOMETRIC DETAIL1
1 1/2" = 1'-0"




10 TYPICAL PARTITION HEAD DETAIL - RATED CMU
1 1/2" = 1'-0"




11 TYPICAL CONTROL JOINT ELEVATIONS
1 1/2" = 1'-0"




12 TYPICAL PARTITION HEAD DETAIL - NON-RATED CMU
1 1/2" = 1'-0"




13 TYPICAL CONTROL JOINT DETAILS
1 1/2" = 1'-0"




14 FIRE EXTINGUISHER CABINET DETAIL
1 1/2" = 1'-0"




15 MARKERBOARD / TACKBOARD DETAILS
6" = 1'-0"

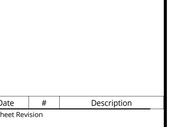
City

Collaborator

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Seal




09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

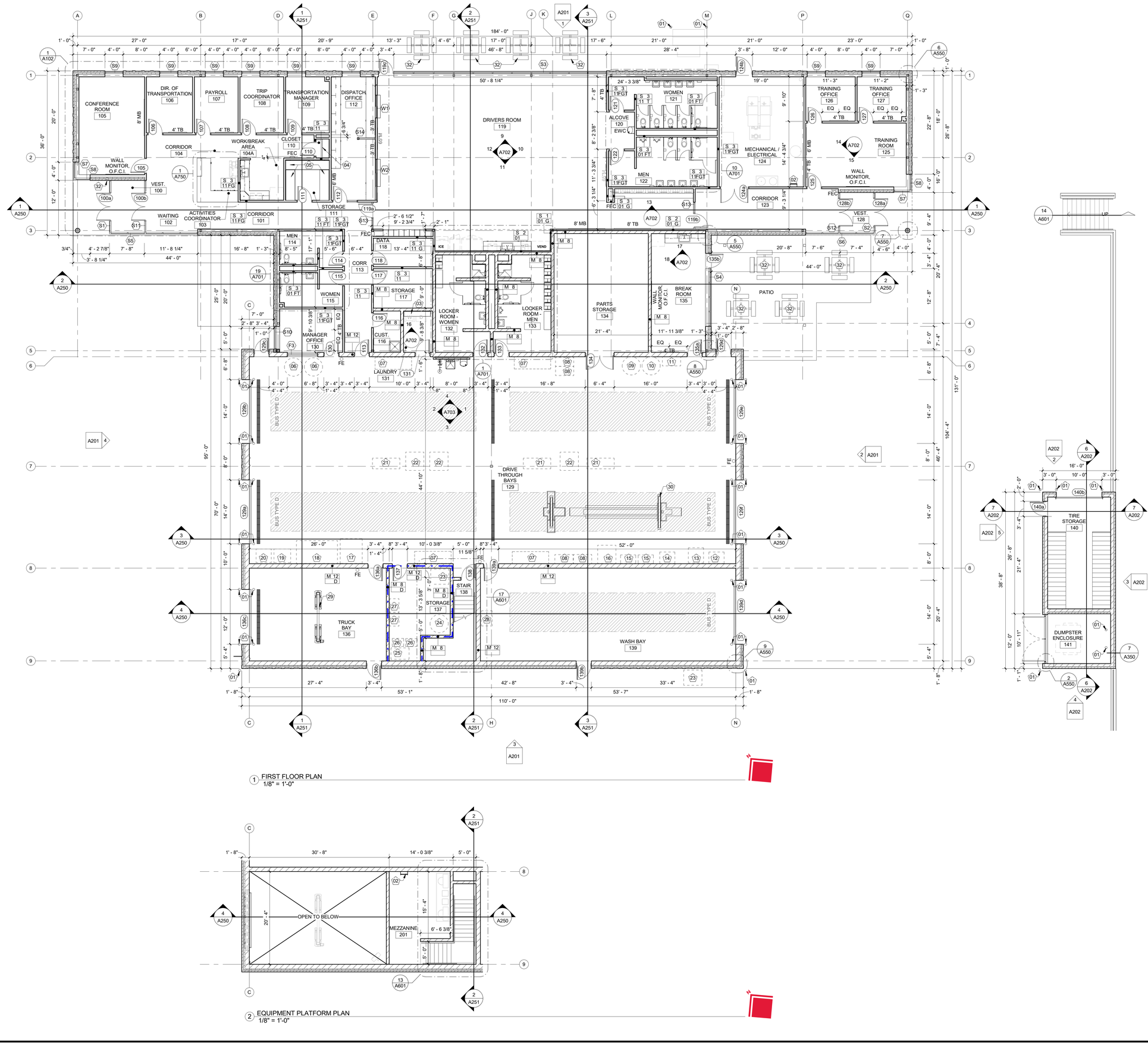
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

Sheet Title
PARTITION TYPE DESIGNATION

Sheet No.
A100




1 FIRST FLOOR PLAN
1/8" = 1'-0"




2 EQUIPMENT PLATFORM PLAN
1/8" = 1'-0"

## GENERAL NOTES

A. TOP OF FIRST FLOOR SLAB = 549.00 UNLESS NOTED OTHERWISE.

B. THE LOCATION OF DIMENSION TICK MARKS ARE AS FOLLOWS:
GYPSUM BOARD PARTITION/FURRING: FACE OF STUD/FURRING.
CONCRETE/MASONRY: FACE OF CONCRETE/ MASONRY.
EXISTING WALL: FACE OF EXISTING FINISH SURFACE
DIMENSIONS NOTED AS "CLEAR" OR "CLR.": DIMENSION IS TO FACE OF FINISH SURFACES.
DIMENSIONS NOTED AS "FINISH" OR "FIN": DIMENSION IS TO FACE OF FINISH SURFACES.
ITEMS NOTED AS "ALIGN": FINISH SURFACES SHALL BE IN THE SAME PLANE.

C. ALL DOOR FRAMES ARE TO BE SET 2" FROM CORNER OF STUD WALL OR 8" FROM CORNER OF MASONRY WALL UNLESS NOTED OTHERWISE.

D. ALL PARTITIONS ARE TO BE TYPE S 3 11FG UNLESS NOTED OTHERWISE.

E. ALL PARTITIONS SHALL EXTEND TO UNDERSIDE OF STRUCTURE (DECK OR BEAM) UNLESS NOTED OTHERWISE. AT NON-FIRE RATED PARTITIONS INFILL VOIDS OF METAL DECK AT CONCEALED LOCATIONS WITH BATT INSULATION; AT FIRE-RATED PARTITIONS USE FIRE-RESISTIVE JOINT SYSTEMS.

F. FOR MASONRY OPENINGS, REFER TO LINTEL SCHEDULE ON STRUCTURAL SHEETS.

G. GROUT ALL HOLLOW METAL FRAMES SOLID AT MASONRY WALLS.

H. ALL CMU EXPOSED AT INTERIOR SHALL HAVE BULLNOSED EDGES AT CORNERS AND JAMBS OF OPENINGS.

## FLOOR PLAN KEYNOTES

| | |
|---|---|
| 01 | PIPE BOLLARD - PAINT YELLOW |
| 02 | ROOF ACCESS LADDER - SEE DETAIL 5/A601 |
| 03 | 12" DEEP METAL SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 04 | 18" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 05 | 24" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 06 | ANTI-FREEZE (O.F.C.I.) |
| 07 | WORK BENCH (O.F.C.I.) |
| 08 | FLOOR JACK (O.F.C.I.) |
| 09 | BUS SOAP (O.F.C.I.) |
| 10 | WINDSHIELD WASHER FLUID (O.F.C.I.) |
| 11 | GRINDER (O.F.C.I.) |
| 12 | WASTE OIL TANK (O.F.C.I.) |
| 13 | FILTER CRUSHER (O.F.C.I.) |
| 14 | SAFETY CLEAN MACHINE (O.F.C.I.) |
| 15 | LADDER (O.F.C.I.) |
| 16 | CUTTING TORCH (O.F.C.I.) |
| 17 | TIRE MACHINE (O.F.C.I.) |
| 18 | BALANCER (O.F.C.I.) |
| 19 | TIRE CAGE (O.F.C.I.) |
| 20 | FLOOR OIL PLAN (O.F.C.I.) |
| 21 | TOOL BOX (O.F.C.I.) |
| 22 | BUMPER JACK (O.F.C.I.) |
| 23 | OIL TANK (O.F.C.I.) |
| 24 | GEAR OIL (O.F.C.I.) |
| 25 | WELDER (O.F.C.I.) |
| 26 | A/C (O.F.C.I.) |
| 27 | CHEMICAL STORAGE (O.F.C.I.) |
| 28 | PRESSURE WASHER (O.F.C.I.) |
| 29 | 2-POST SYMMETRIC VEHICLE LIFT |
| 30 | 2-POST SYMMETRIC INGROUND LIFT |
| 32 | ALTERNATE #1 - PATIO FURNITURE: GLOBAL INDUSTRIAL, MODEL #WB694551BK |

City

Collaborator

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STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT

09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 2576X18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

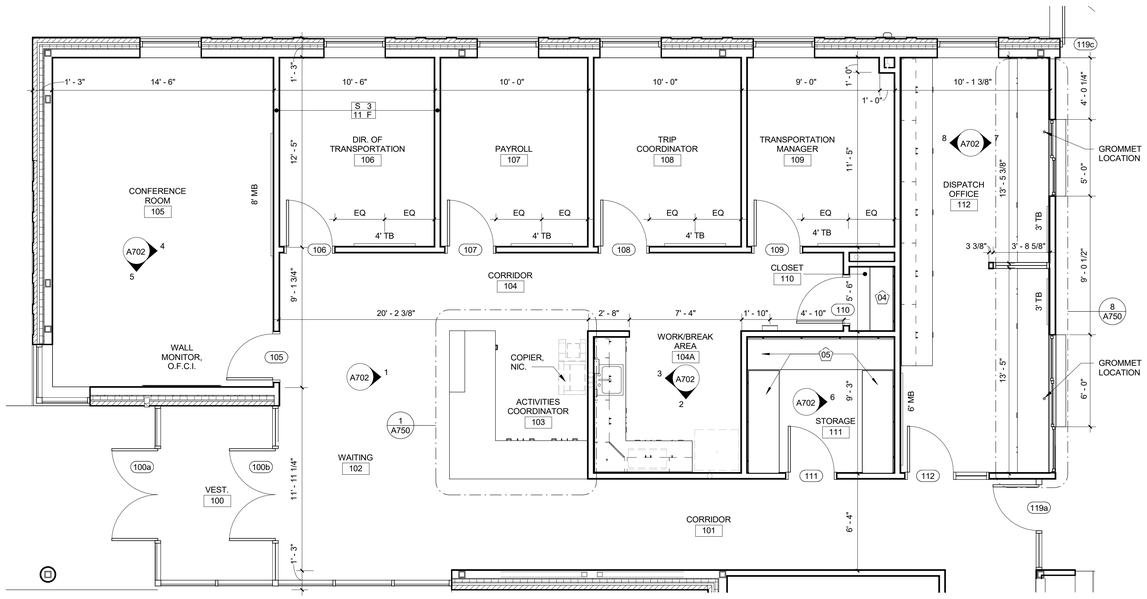
Team
Drawn By: NMM
Checked By: LLW

Sheet Title

FLOOR PLANS

Sheet No.

A101




1 ENLARGED DIMENSION FLOOR PLAN - OFFICE AREA
1/4" = 1'-0"

## GENERAL NOTES

A. TOP OF FIRST FLOOR SLAB = 549.00 UNLESS NOTED OTHERWISE.

B. THE LOCATION OF DIMENSION TICK MARKS ARE AS FOLLOWS:
GYPSUM BOARD PARTITION/FURRING: FACE OF STUD/FURRING.
CONCRETE/MASONRY: FACE OF CONCRETE/ MASONRY.
EXISTING WALL: FACE OF EXISTING FINISH SURFACE
DIMENSIONS NOTED AS "CLEAR" OR "CLR.": DIMENSION IS TO FACE OF FINISH SURFACES.
DIMENSIONS NOTED AS "FINISH" OR "FIN": DIMENSION IS TO FACE OF FINISH SURFACES.
ITEMS NOTED AS "ALIGN": FINISH SURFACES SHALL BE IN THE SAME PLANE.

C. ALL DOOR FRAMES ARE TO BE SET 2" FROM CORNER OF STUD WALL OR 8" FROM CORNER OF MASONRY WALL UNLESS NOTED OTHERWISE.

D. ALL PARTITIONS ARE TO BE TYPE S 3 / 11 FG UNLESS NOTED OTHERWISE.

E. ALL PARTITIONS SHALL EXTEND TO UNDERSIDE OF STRUCTURE (DECK OR BEAM) UNLESS NOTED OTHERWISE. AT NON-FIRE RATED PARTITIONS INFILL VOIDS OF METAL DECK AT CONCEALED LOCATIONS WITH BATT INSULATION; AT FIRE-RATED PARTITIONS USE FIRE-RESISTIVE JOINT SYSTEMS.

F. FOR MASONRY OPENINGS, REFER TO LINTEL SCHEDULE ON STRUCTURAL SHEETS.

G. GROUT ALL HOLLOW METAL FRAMES SOLID AT MASONRY WALLS.

H. ALL CMU EXPOSED AT INTERIOR SHALL HAVE BULLNOSED EDGES AT CORNERS AND JAMBS OF OPENINGS.

## FLOOR PLAN KEYNOTES

| | |
|---|---|
| 01 | PIPE BOLLARD - PAINT YELLOW |
| 02 | ROOF ACCESS LADDER - SEE DETAIL 5/A601 |
| 03 | 12" DEEP METAL SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 04 | 18" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 05 | 24" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 06 | ANTI-FREEZE (O.F.C.I.) |
| 07 | WORK BENCH (O.F.C.I.) |
| 08 | FLOOR JACK (O.F.C.I.) |
| 09 | BUS SOAP (O.F.C.I.) |
| 10 | WINDSHIELD WASHER FLUID (O.F.C.I.) |
| 11 | GRINDER (O.F.C.I.) |
| 12 | WASTE OIL TANK (O.F.C.I.) |
| 13 | FILTER CRUSHER (O.F.C.I.) |
| 14 | SAFETY CLEAN MACHINE (O.F.C.I.) |
| 15 | LADDER (O.F.C.I.) |
| 16 | CUTTING TORCH (O.F.C.I.) |
| 17 | TIRE MACHINE (O.F.C.I.) |
| 18 | BALANCER (O.F.C.I.) |
| 19 | TIRE CAGE (O.F.C.I.) |
| 20 | FLOOR OIL PLAN (O.F.C.I.) |
| 21 | TOOL BOX (O.F.C.I.) |
| 22 | BUMPER JACK (O.F.C.I.) |
| 23 | OIL TANK (O.F.C.I.) |
| 24 | GEAR OIL (O.F.C.I.) |
| 25 | WELDER (O.F.C.I.) |
| 26 | A/C (O.F.C.I.) |
| 27 | CHEMICAL STORAGE (O.F.C.I.) |
| 28 | PRESSURE WASHER (O.F.C.I.) |
| 29 | 2-POST SYMMETRIC VEHICLE LIFT |
| 30 | 2-POST SYMMETRIC INGROUND LIFT |
| 32 | ALTERNATE #1 - PATIO FURNITURE: GLOBAL INDUSTRIAL, MODEL #WB694551BK |

City

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

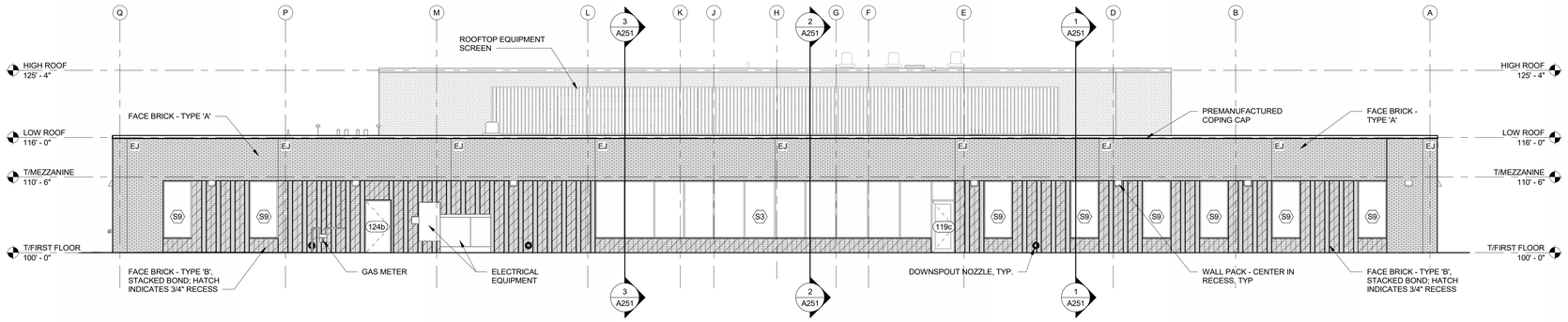
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Checked By: LLW

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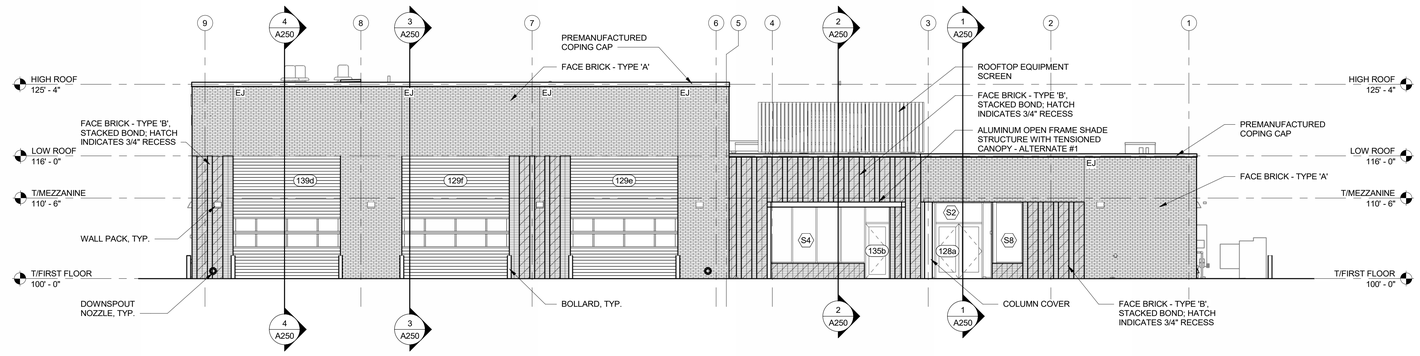
ENLARGED FLOOR PLAN

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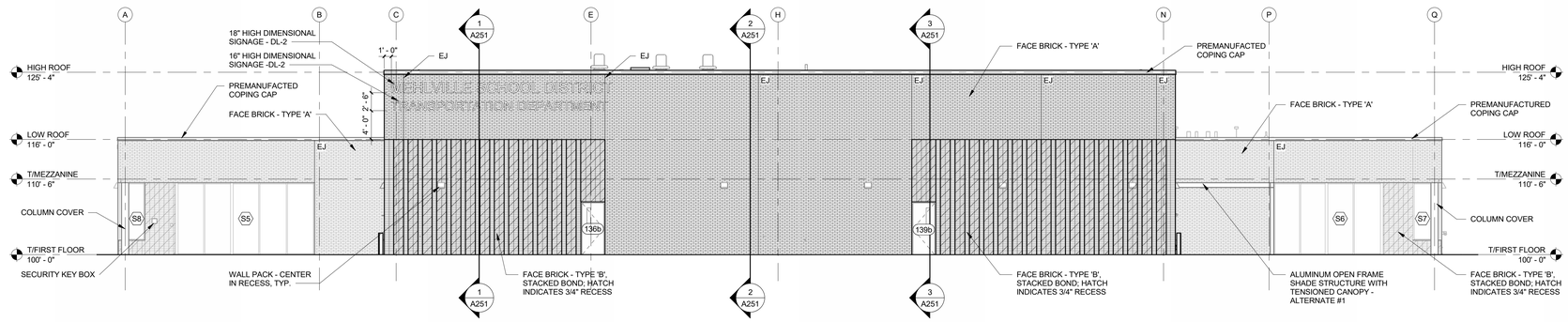
A102



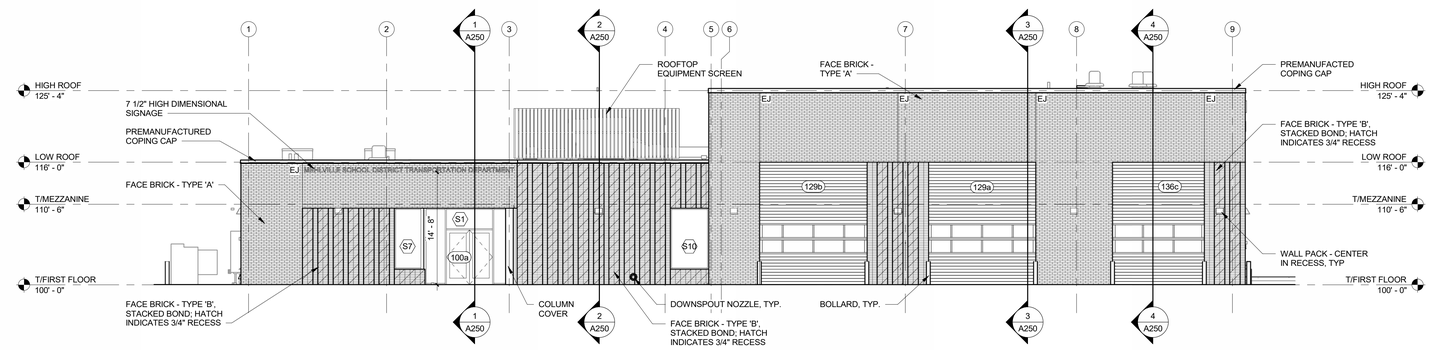

1 NORTH ELEVATION
1/8" = 1'-0"




2 EAST ELEVATION
1/8" = 1'-0"




3 SOUTH ELEVATION
1/8" = 1'-0"




4 WEST ELEVATION
1/8" = 1'-0"

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3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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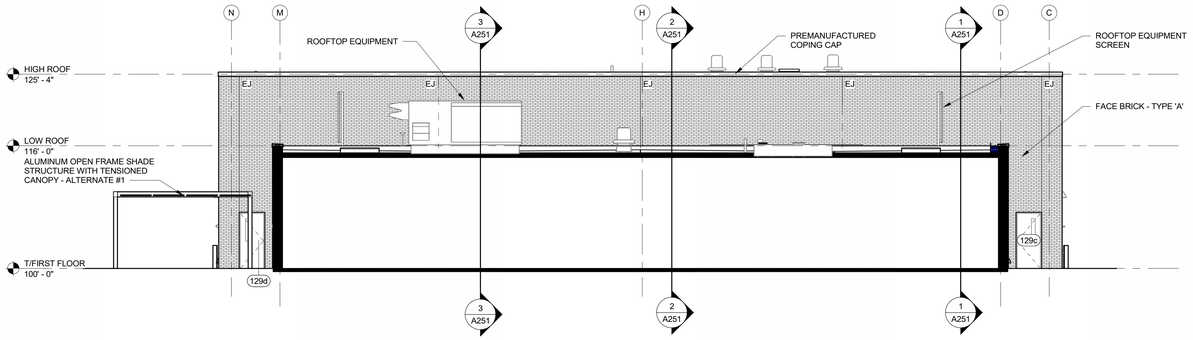
Team
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Checked By: LLW

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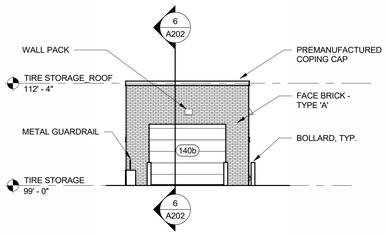
BUILDING ELEVATIONS

Sheet No.

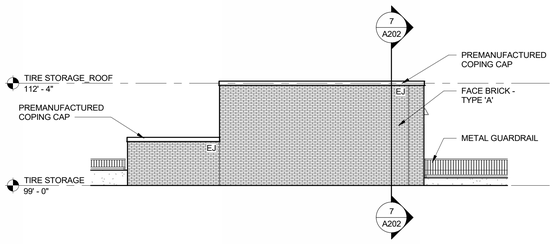
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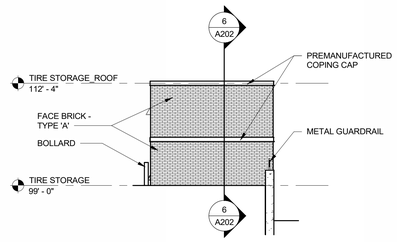

1 NORTH ELEVATION - DRIVE THROUGH BAYS
1/8" = 1'-0"



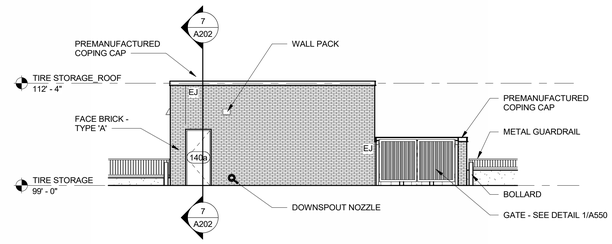

2 TIRE STORAGE - NORTH ELEVATION
1/8" = 1'-0"



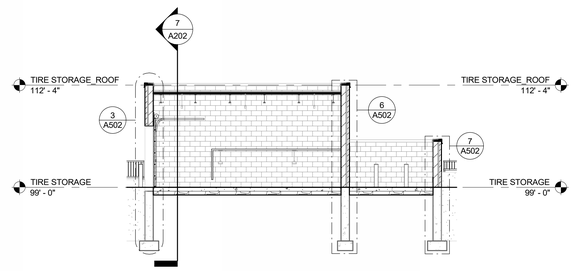

3 TIRE STORAGE - EAST ELEVATION
1/8" = 1'-0"



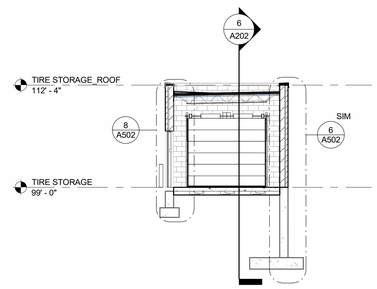

4 TIRE STORAGE - SOUTH ELEVATION
1/8" = 1'-0"



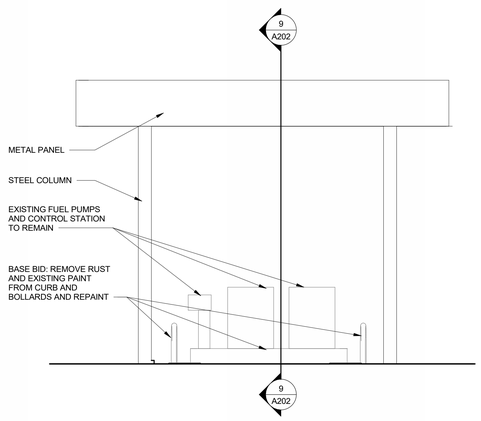

5 TIRE STORAGE - WEST ELEVATION
1/8" = 1'-0"



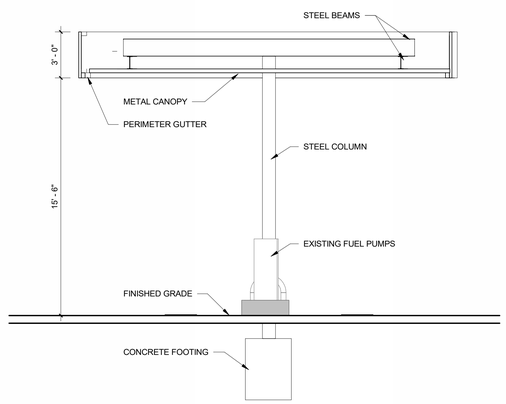

6 BUILDING SECTION - TIRE STORAGE
1/8" = 1'-0"




7 BUILDING SECTION - TIRE STORAGE
1/8" = 1'-0"




8 FUEL PUMP CANOPY - ALTERNATE #2
1/4" = 1'-0"




9 FUEL PUMP CANOPY SECTION - ALTERNATE #2
1/4" = 1'-0"

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STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024011268

Project No.: 2576X18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

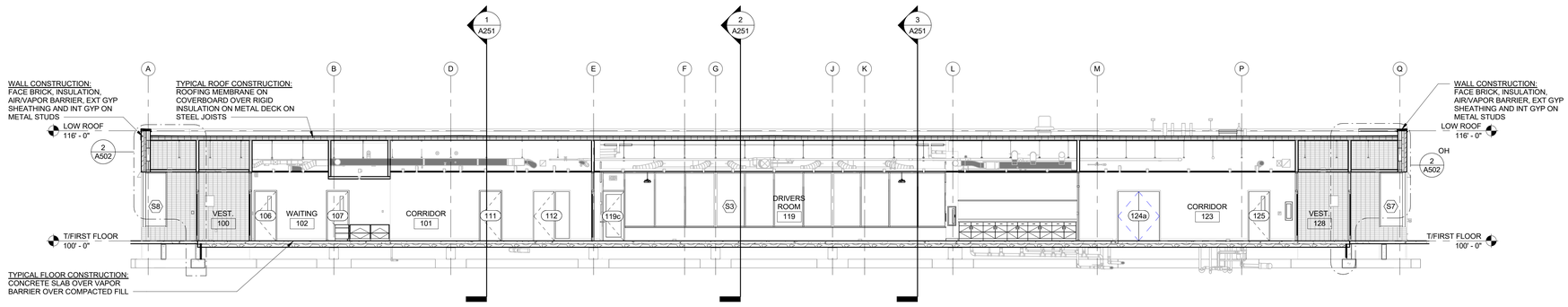
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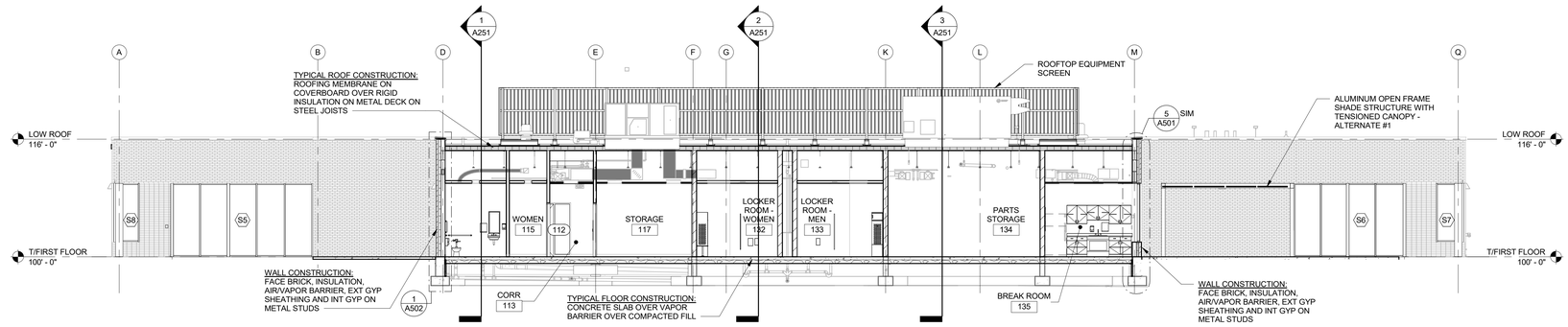
BUILDING ELEVATIONS AND SECTIONS - TIRE STORAGE

Sheet No.

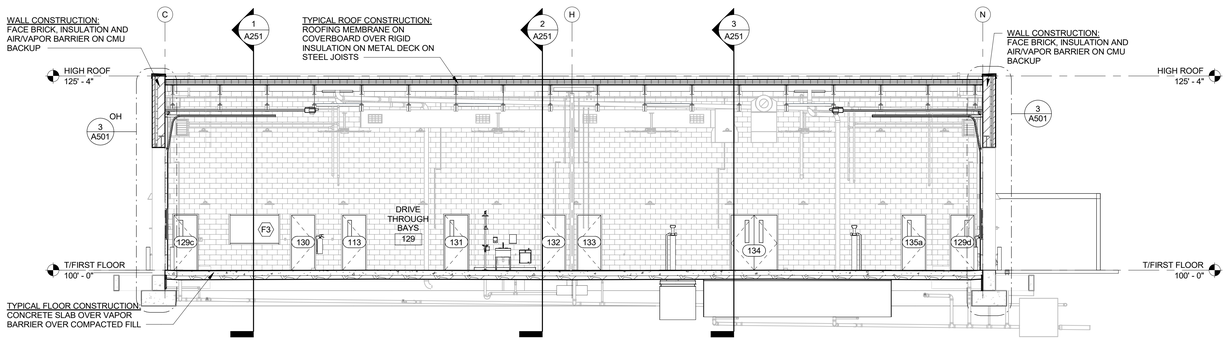
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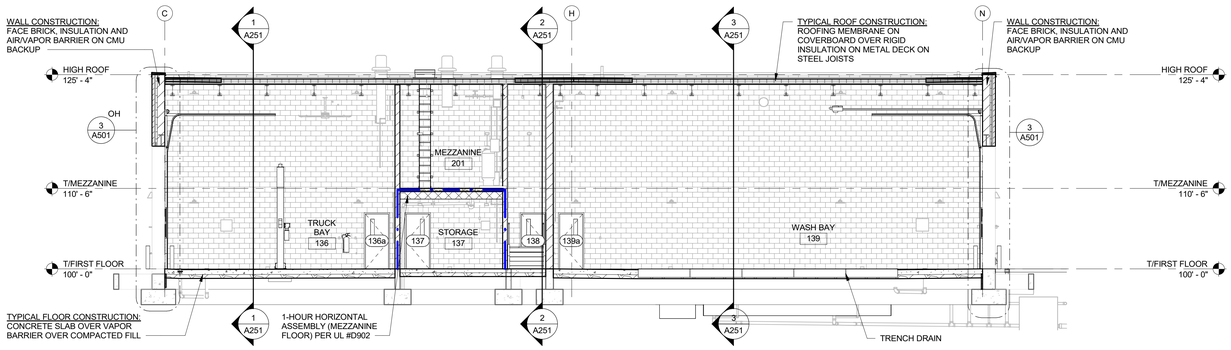

1 BUILDING SECTION THRU ENTRIES
1/8" = 1'-0"




2 BUILDING SECTION THRU MIDDLE
1/8" = 1'-0"




3 TRANSVERSE SECTION THROUGH BUS LIFT
1/8" = 1'-0"




4 TRANSVERSE SECTION THROUGH TRUCK BAY
1/8" = 1'-0"

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STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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|---|---|---|

Sheet Revision

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09/01/2026

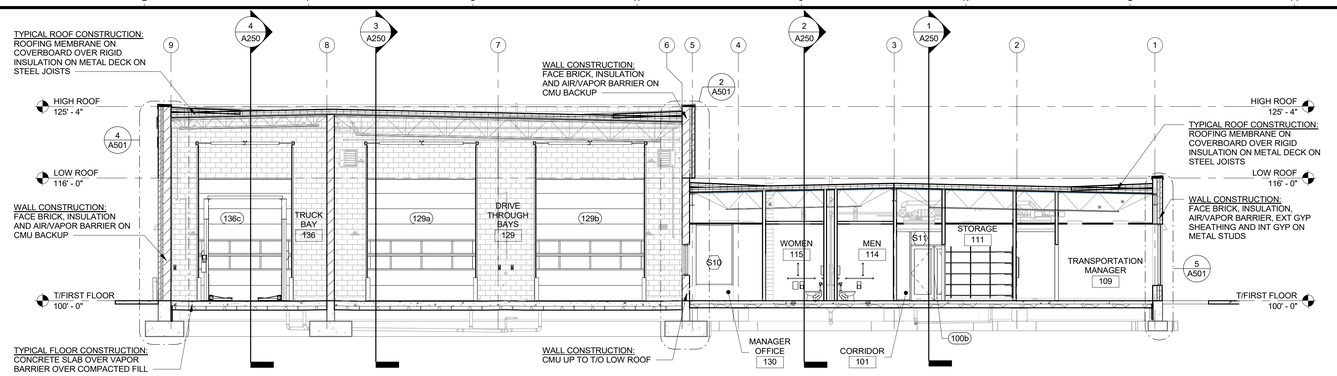
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Checked By: LLW

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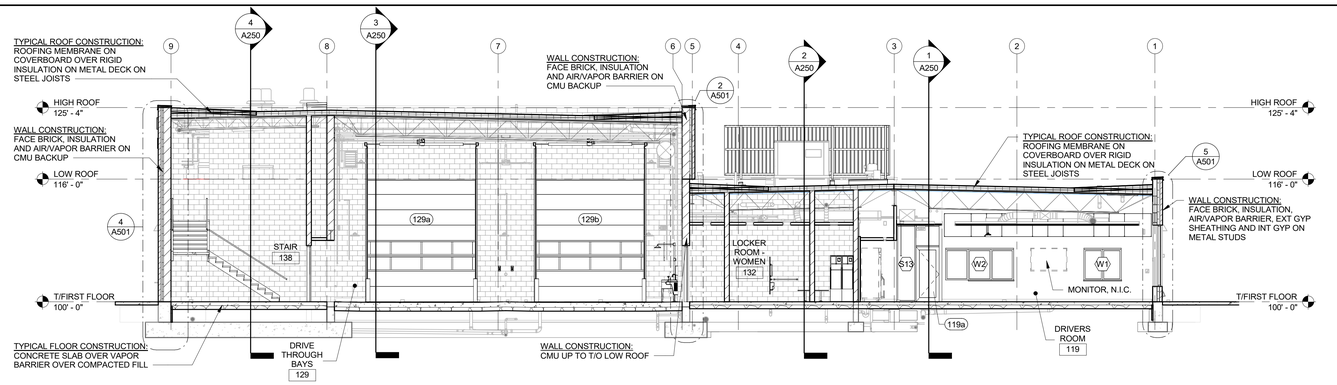
BUILDING SECTIONS

Sheet No.

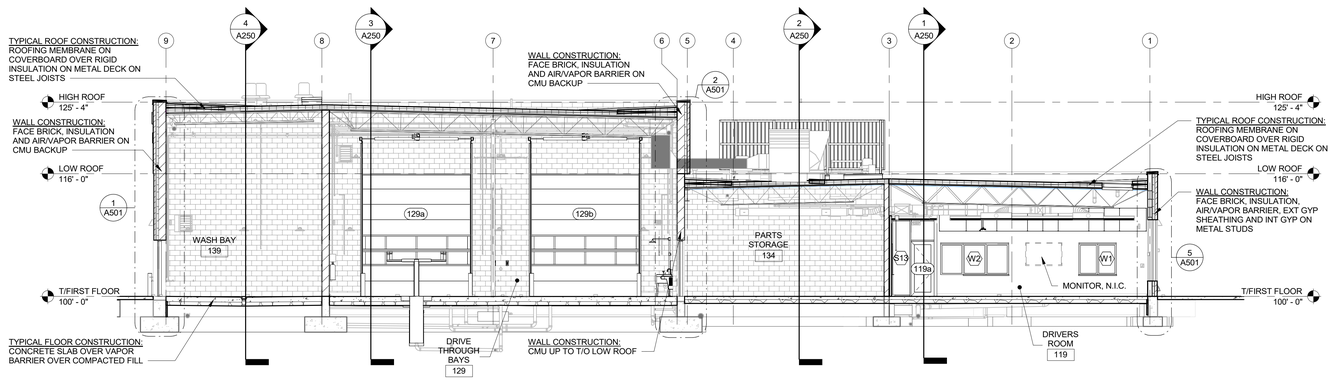
A250




1 BUILDING SECTION - CROSS SECTION THRU TRUCK LIFT
1/8" = 1'-0"




2 BUILDING SECTION - CROSS SECTION THRU MEZZANINE
1/8" = 1'-0"




3 CROSS SECTION THROUGH BUS LIFT
1/8" = 1'-0"

City

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3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

Sheet Title

BUILDING SECTIONS

Sheet No.

A251

## ROOFING GENERAL NOTES

A. VERIFY ALL DIMENSIONS AND CONDITIONS.

B. CONTRACTOR TO COORDINATE ROOF WORK WITH MECHANICAL, ELECTRICAL, AND PLUMBING WORK. ITEMS NOT SPECIFICALLY IDENTIFIED ON THE ROOF PLAN , BUT INDICATED ON THE MECHANICAL, ELECTRICAL OR PLUMBING DRAWINGS SHALL BE INSTALLED IN ACCORDANCE TO THE APPROPRIATE DETAIL FOR THAT WORK.

C. CRICKETS SHALL BE INSTALLED UP-SLOPE OF ALL ROOFTOP EQUIPMENT CURBS.

D. TYPICAL ROOFING SYSTEM FOR ALL LEVELS:
- STRUCTURALLY SLOPED DECK
- 5 1/2" POLYISOCYANURATE INSULATION IN 2 LAYERS
- 1/2" COVERBOARD
- ADHERED TPO ROOFING MEMBRANE

## ROOFING PLAN LEGEND

TAPERED INSULATION

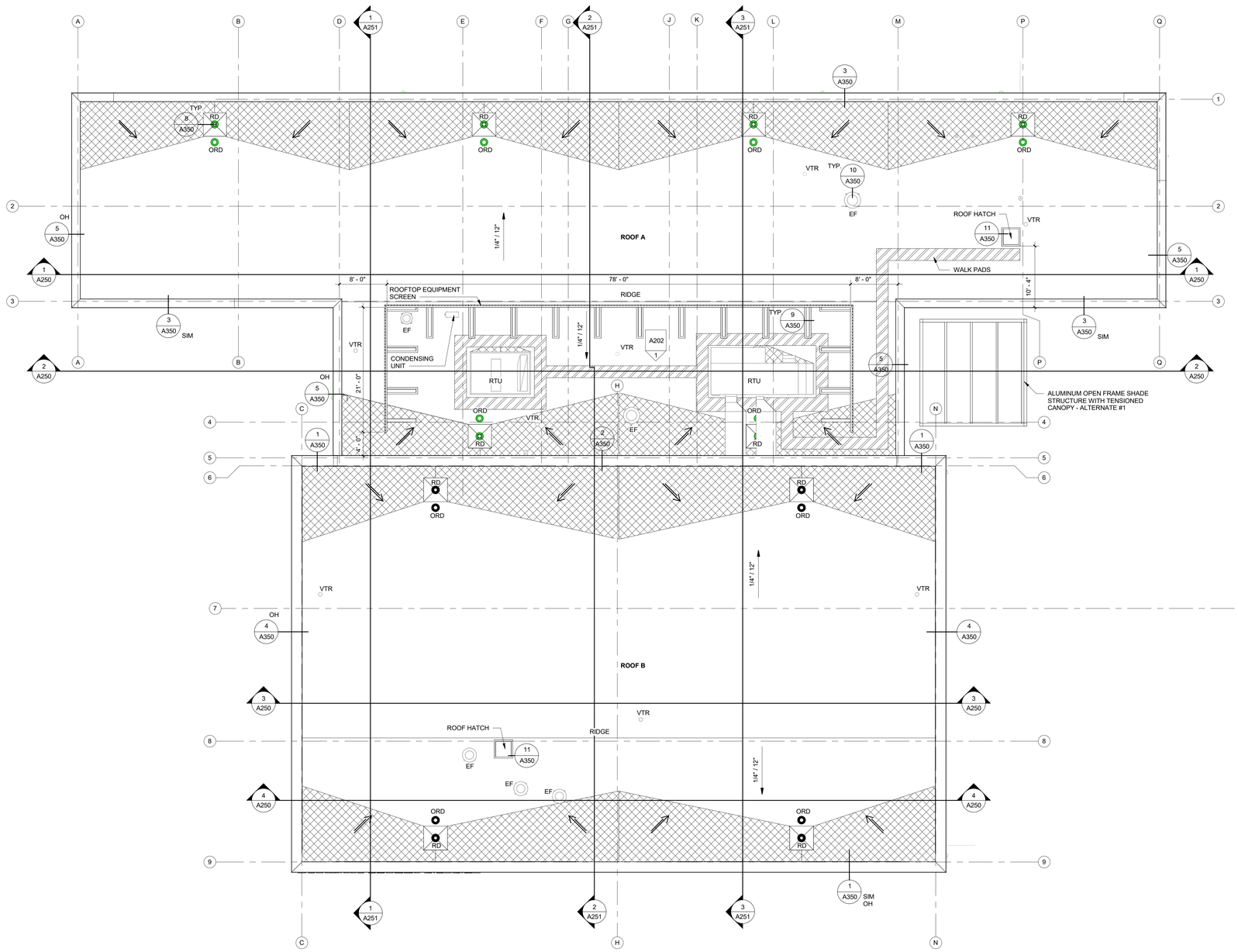
ROOF DRAIN WITH INTEGRAL OVERFLOW AND SUMP

VTR ○ VENT THRU ROOF - REFER TO 12/A350 FOR ADDITIONAL INFORMATION.

MECHANICAL CURB - REFER TO 10/A350 FOR ADDITIONAL INFORMATION.

STRUCTURAL SLOPE OF ROOF DECK

TAPERED INSULATION SLOPE - 1/2":12"




1 ROOF PLAN
1/8" = 1'-0"

City

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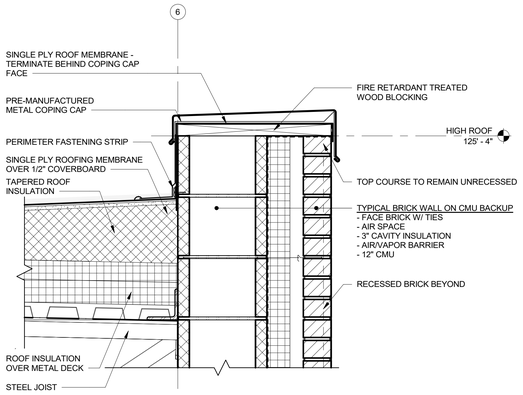
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Drawn By: NMM
Checked By: LLW

Sheet Title

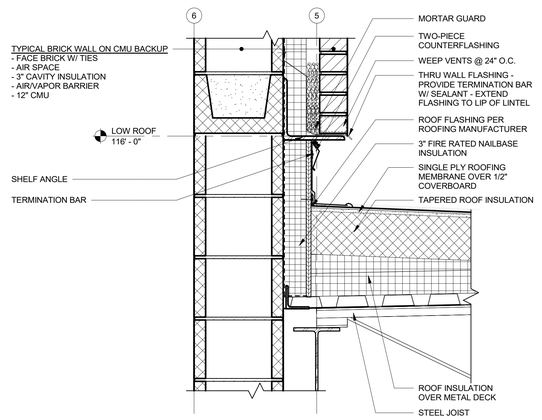
ROOF PLAN

Sheet No.

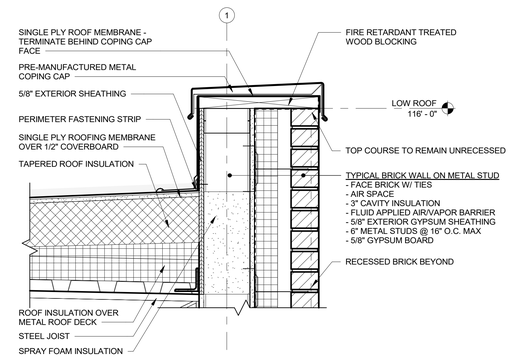
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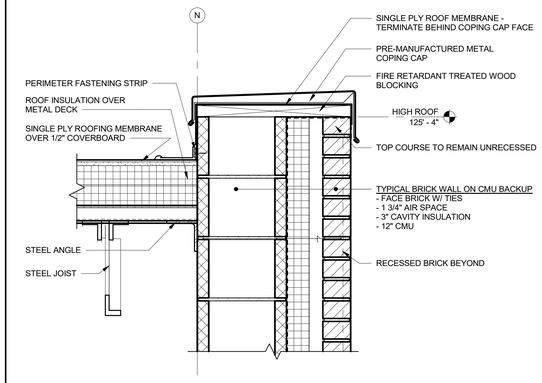

1 ROOF DETAIL
1 1/2" = 1'-0"




2 ROOF DETAIL
1 1/2" = 1'-0"



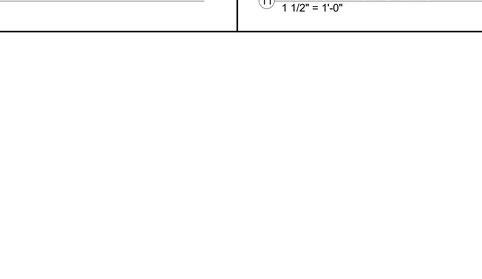

3 ROOF DETAIL
1 1/2" = 1'-0"



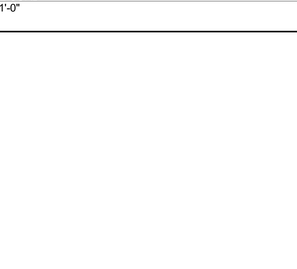

4 ROOF DETAIL
1 1/2" = 1'-0"




5 ROOF DETAIL
1 1/2" = 1'-0"



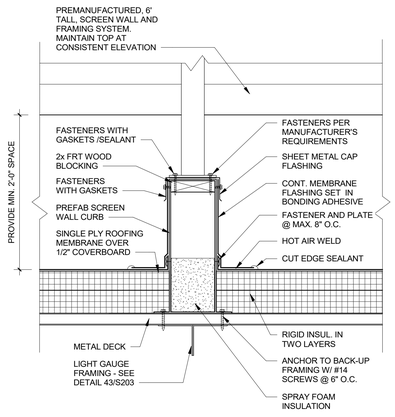

6 ROOF DETAIL
1 1/2" = 1'-0"



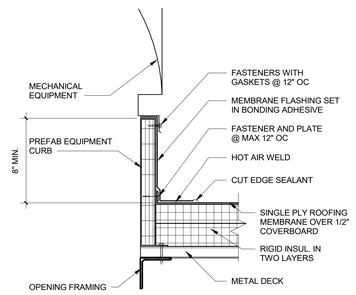

7 COPING CAP - DUMPSTER ENCLOSURE
1 1/2" = 1'-0"




8 ROOF DRAIN DETAIL
1 1/2" = 1'-0"

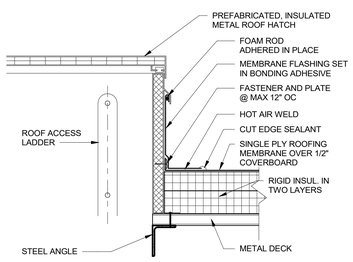



9 SCREEN WALL CURB FLASHING
1 1/2" = 1'-0"

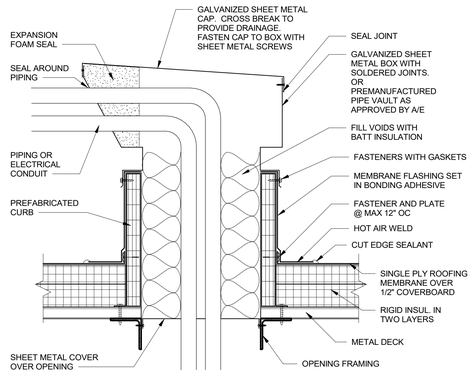



10 TPO CURB FLASHING
1 1/2" = 1'-0"

**NOTE:**
PROVIDE PREFABRICATED RAILING SYSTEM ATTACHED TO ROOF HATCH - REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION




11 TPO ROOF HATCH FLASHING
1 1/2" = 1'-0"




12 TPO PIPE CURB
1 1/2" = 1'-0"

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER 2024001268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024001268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

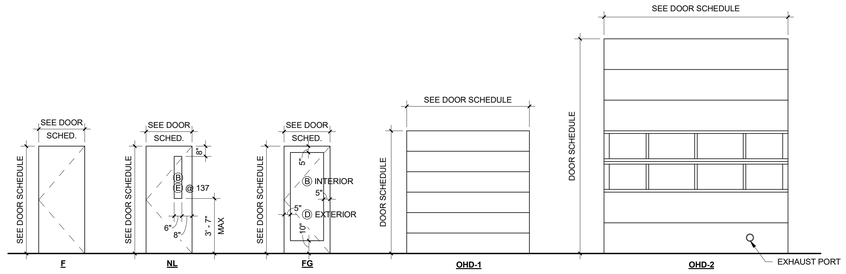
Team
Drawn By: Author
Checked By: LLW

Sheet Title

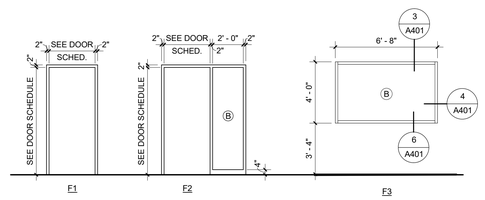
ROOF DETAILS

Sheet No.

A350



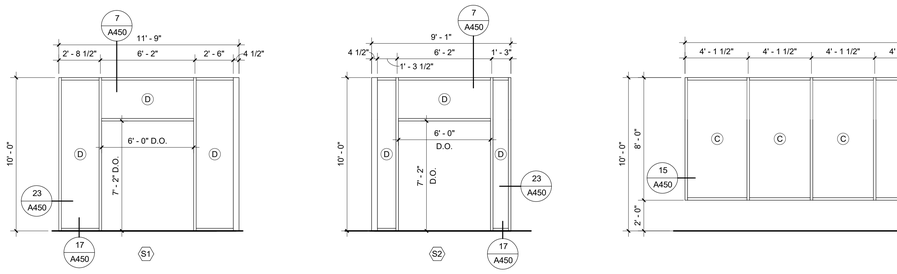

DOOR TYPES
1/4" = 1'-0"

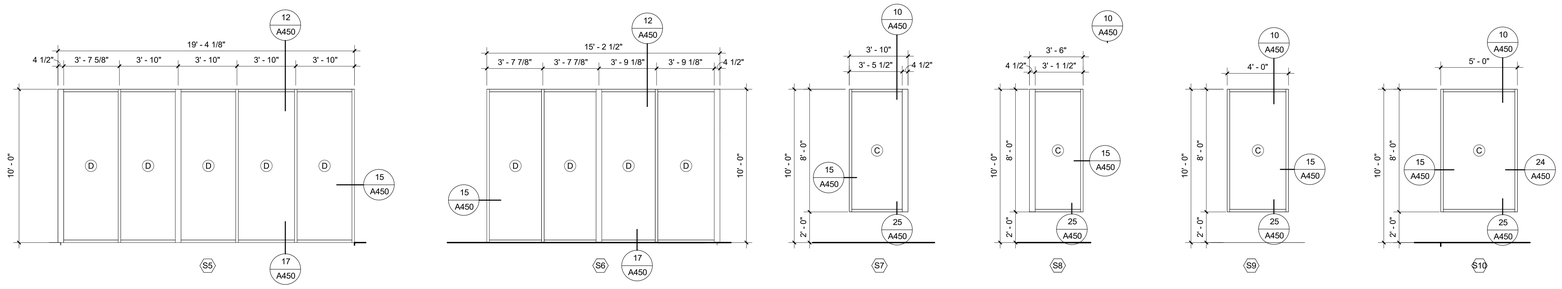



HOLLOW METAL FRAME TYPES
1/4" = 1'-0"

**DOOR SCHEDULE** **SEE SHEET A450 FOR DETAILS UNLESS NOTED OTHERWISE**

| | | DOOR | | | | | FRAME | | | | DETAILS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | ROOM NAME | WIDTH | HEIGHT | MAT | FIN | TYPE | MAT | FIN | TYPE | UL LABEL | HEAD | JAMB | SILL | GROUP | REMARKS |
| 100a | VEST. | 6' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S1 | -- | 7 | 23 | 20 | 01.01 | R1, R3, R4 |
| 100b | VEST. | 6' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S11 | -- | 5 | 26 | -- | 02.01 | R1, R4 |
| 105 | CONFERENCE ROOM | 3' - 0" | 7' - 2" | WD | PRE | FG | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 106 | DIR. OF TRANSPORTATION | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 107 | PAYROLL | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 108 | TRIP COORDINATOR | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 109 | TRANSPORTATION MANAGER | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 110 | CLOSET | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 05.04 | |
| 111 | STORAGE | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 07.05 | |
| 112 | DISPATCH OFFICE | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F2 | -- | 1 | 2 | -- | 07.04 | |
| 113 | CORR | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 07.02 | |
| 114 | MEN | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 06.01 | |
| 115 | WOMEN | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 06.01 | |
| 116 | CUST. | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 05.05 | |
| 117 | STORAGE | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 07.04 | |
| 118 | DATA | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 09.02 | |
| 119a | CORRIDOR | 3' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S13 | -- | 5 | 6 | -- | 09.01 | |
| 119b | CORRIDOR | 3' - 0" | 7' - 10" | AL | PRE | FG | AL | PRE | S13 | -- | 5 | 6 SIM | -- | 09.01 | |
| 119c | DRIVERS ROOM | 3' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S3 | -- | 10 | 15 | 20 | 03.02 | |
| 121 | WOMEN | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 04.02 | |
| 122 | MEN | 3' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 04.02 | |
| 124a | MECHANICAL / ELECTRICAL | 6' - 0" | 7' - 2" | WD | PRE | F | HM | PT | F1 | -- | 1 | 2 | -- | 09.03 | R1 |
| 124b | MECHANICAL / ELECTRICAL | 3' - 4" | 7' - 2" | FRP | -- | F | FBG | -- | F1 | -- | 8 | 13 | 18 | 03.02 | |
| 125 | TRAINING ROOM | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.04 | |
| 126 | TRAINING OFFICE | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 127 | TRAINING OFFICE | 3' - 0" | 7' - 2" | WD | PRE | NL | HM | PT | F1 | -- | 1 | 2 | -- | 07.03 | |
| 128a | VEST. | 6' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S2 | -- | 7 | 23 | 20 | 01.01 | R1, R3, R4 |
| 128b | VEST. | 6' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S12 | -- | 5 | 26 | -- | 02.01 | R1, R4 |
| 129a | DRIVE THROUGH BAYS | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | |
| 129b | DRIVE THROUGH BAYS | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | |
| 129c | DRIVE THROUGH BAYS | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 9 | 14 | 19 | 03.01 | |
| 129d | DRIVE THROUGH BAYS | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 9 | 14 | 19 | 03.01 | |
| 129e | DRIVE THROUGH BAYS | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | |
| 129f | DRIVE THROUGH BAYS | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | |
| 130 | MANAGER OFFICE | 3' - 0" | 7' - 2" | FRP | -- | F | FBG | -- | F1 | -- | 3 | 4 | -- | 07.01 | |
| 131 | LAUNDRY | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 05.01 | |
| 132 | LOCKER ROOM - WOMEN | 3' - 0" | 7' - 2" | FRP | -- | F | FBG | -- | F1 | -- | 3 | 4 | -- | 04.01 | |
| 133 | LOCKER ROOM - MEN | 3' - 0" | 7' - 2" | FRP | -- | F | FBG | -- | F1 | -- | 3 | 4 | -- | 04.01 | |
| 134 | PARTS STORAGE | 6' - 0" | 7' - 2" | FRP | -- | NL | AL | PRE | F1 | -- | 3 | 4 | -- | 05.03 | R1 |
| 135a | BREAK ROOM | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 05.01 | |
| 135b | BREAK ROOM | 3' - 0" | 7' - 2" | AL | PRE | FG | AL | PRE | S4 | -- | 10 | 15 | 20 | 03.01 | R4 |
| 136a | TRUCK BAY | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 05.01 | |
| 136b | TRUCK BAY | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 9 | 14 | 19 | 03.01 | |
| 136c | TRUCK BAY | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | |
| 137 | STORAGE | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | 45 MIN | 3 | 4 | -- | 05.02 | |
| 138 | STAIR | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 05.01 | |
| 139a | WASH BAY | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 3 | 4 | -- | 05.01 | |
| 139b | WASH BAY | 3' - 0" | 7' - 2" | FRP | -- | NL | FBG | -- | F1 | -- | 9 | 14 | 19 | 03.01 | |
| 139d | WASH BAY | 14' - 0" | 16' - 0" | ST | PRE | OHD-2 | ST | -- | -- | -- | 11 | 16 | 21 | 00.1 | R2 |
| 140a | TIRE STORAGE | 3' - 0" | 7' - 2" | FRP | -- | F | AL | PRE | F1 | -- | 1/A401 | 2/A401 | 19 SIM | 03.01 | |
| 140b | TIRE STORAGE | 10' - 0" | 8' - 0" | ST | PRE | OHD-1 | ST | -- | -- | -- | 22 | 27 | 21 | 00.1 | |

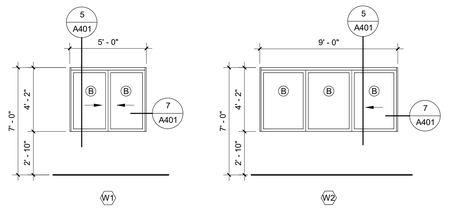


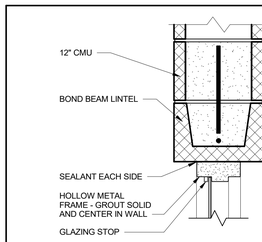

STOREFRONT FRAMING TYPES
1/4" = 1'-0"



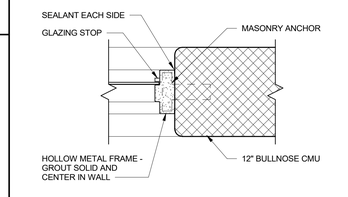

INTERIOR STOREFRONT FRAMING TYPES
1/4" = 1'-0"



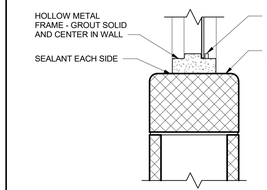

SLIDING SERVICE WINDOWS
1/4" = 1'-0"



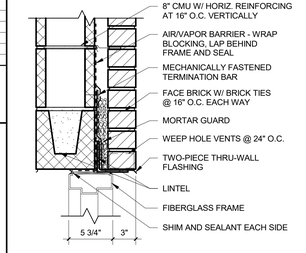

3 HEAD DETAIL - CMU WALL HM WINDOW
1 1/2" = 1'-0"



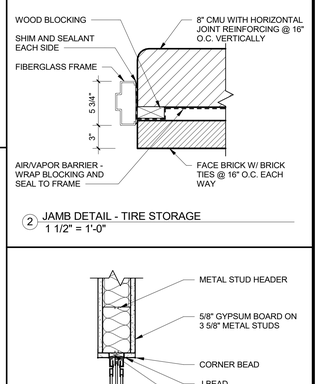

4 JAMB DETAIL - CMU WALL HM WINDOW
1 1/2" = 1'-0"



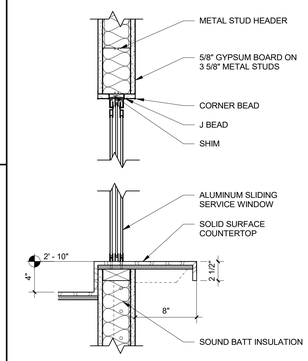

6 SILL DETAIL - CMU WALL HM WINDOW
1 1/2" = 1'-0"



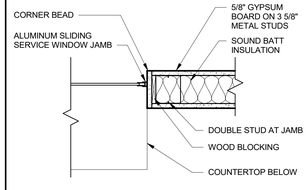

1 HEAD DETAIL - TIRE STORAGE
1 1/2" = 1'-0"




2 JAMB DETAIL - TIRE STORAGE
1 1/2" = 1'-0"




5 SLIDING WINDOW SECTION
1 1/2" = 1'-0"




7 JAMB DETAIL - SLIDING WINDOW
1 1/2" = 1'-0"

**ABBREVIATIONS**

| | |
|---|---|
| AL | ALUMINUM |
| FBG | FIBERGLASS |
| FRP | FIBER REINFORCED PLASTIC |
| HM | HOLLOW METAL |
| PRE | PREFINISHED |
| PT | PAINT |
| ST | STEEL |
| WD | WOOD |

**REMARKS**

| | |
|---|---|
| R1 | PAIR OF 3'-0" DOORS |
| R2 | OMIT EXHAUST PORT |
| R3 | COORDINATE REQUIREMENTS FOR ELECTRONIC HARDWARE (KEY PAD, REQUEST TO EXIT, AND/OR INTERCOM) WITH ACCESS CONTROL CONTRACTOR. |
| R4 | COORDINATE REQUIREMENTS FOR ADA PUSH BUTTON FOR AUTOMATIC DOOR OPENER WITH ACCESS CONTROL CONTRACTOR AND OTHER ELECTRONIC HARDWARE. |

**GLAZING TYPES**

- (A) 1/4" GLAZING
- (B) 1/4" TEMPERED GLAZING
- (C) 1" INSULATED GLAZING
- (D) 1" TEMPERED INSULATED GLAZING
- (E) 45-MINUTE LAMINATED CERAMIC GLAZING

**GLAZING NOTES**

1. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
2. MULLION DIMENSIONS ARE INDICATED AS FOLLOWS:
   "B/O" = BOTTOM OF MULLION
   "C/L" = CENTERLINE OF MULLION
   "T/O" = TOP OF MULLION
3. REFER TO GLAZING SPECIFICATION FOR FULL DESCRIPTION OF GLAZING.
4. ALL GLAZED FRAMES ARE TO BE ALUMINUM STOREFRONT UNLESS NOTED OTHERWISE.

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER 2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|
| | | |

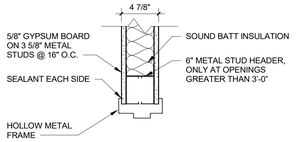
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

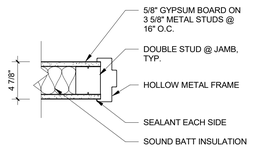
Team
Drawn By: clw
Checked By: LLW

Sheet Title
DOOR SCHEDULE AND FRAMING ELEVATIONS

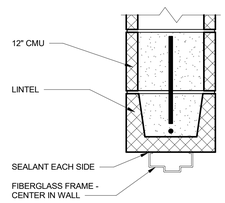
Sheet No.
A401



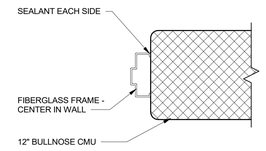

1 HEAD DETAIL - STUD WALL
1 1/2" = 1'-0"



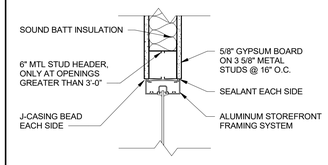

2 JAMB DETAIL - STUD WALL
1 1/2" = 1'-0"



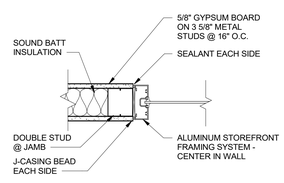

3 HEAD DETAIL - CMU WALL
1 1/2" = 1'-0"



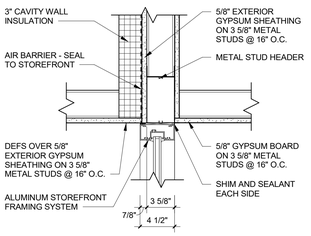

4 JAMB DETAIL - CMU WALL
1 1/2" = 1'-0"



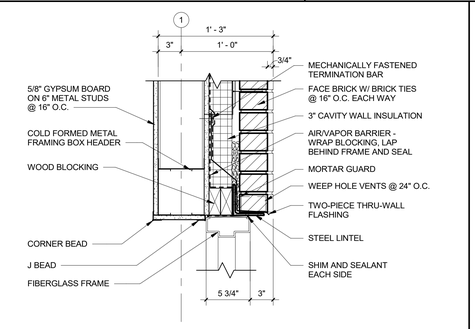

5 HEAD DETAIL - INTERIOR STOREFRONT
1 1/2" = 1'-0"



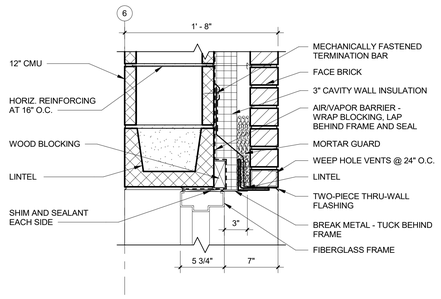

6 JAMB DETAIL - INTERIOR STOREFRONT
1 1/2" = 1'-0"



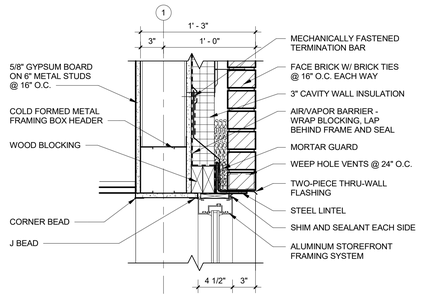

7 HEAD DETAIL - ENTRY OVERHANG
1 1/2" = 1'-0"



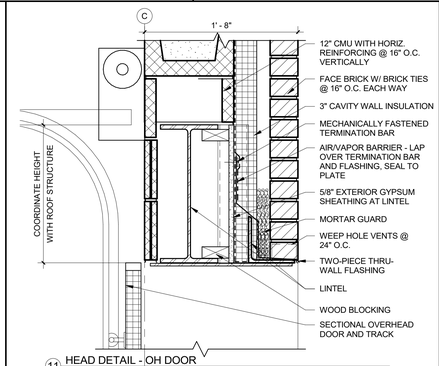

8 HEAD DETAIL - STUD CAVITY WALL
1 1/2" = 1'-0"



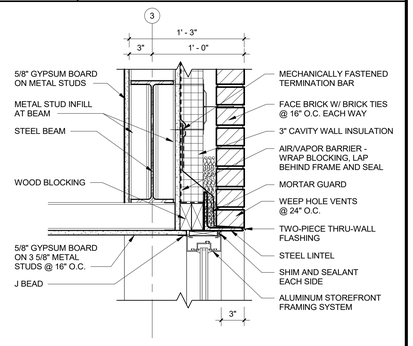

9 HEAD DETAIL - MASONRY CAVITY WALL
1 1/2" = 1'-0"




10 HEAD DETAIL - STOREFRONT AT STUD CAVITY WALL
1 1/2" = 1'-0"




11 HEAD DETAIL - OH DOOR
1 1/2" = 1'-0"




12 HEAD DETAIL - STEEL LINTEL
1 1/2" = 1'-0"




13 JAMB DETAIL - STUD CAVITY WALL
1 1/2" = 1'-0"




14 JAMB DETAIL - MASONRY CAVITY WALL
1 1/2" = 1'-0"




15 JAMB DETAIL - STOREFRONT AT STUD CAVITY WALL
1 1/2" = 1'-0"




16 JAMB DETAIL - OH DOOR
1 1/2" = 1'-0"




17 SILL DETAIL - STOREFRONT AT SLAB
1 1/2" = 1'-0"




18 SILL DETAIL - STUD CAVITY WALL
1 1/2" = 1'-0"




19 SILL DETAIL - MASONRY CAVITY WALL
1 1/2" = 1'-0"




20 SILL DETAIL - ALUM DOOR AT STUD CAVITY WALL
1 1/2" = 1'-0"




21 SILL DETAIL - OH DOOR
1 1/2" = 1'-0"




22 HEAD DETAIL - OH DOOR TIRE STORAGE
1 1/2" = 1'-0"




23 JAMB DETAIL - ENTRY STOREFRONT
1 1/2" = 1'-0"




24 JAMB DETAIL - S10
1 1/2" = 1'-0"




25 SILL DETAIL - STOREFRONT AT STUD CAVITY WALL
1 1/2" = 1'-0"




26 JAMB DETAIL - INT STOREFRONT AT BRICK
1 1/2" = 1'-0"




27 JAMB DETAIL - OH DOOR TIRE STORAGE
1 1/2" = 1'-0"

City

Collaborator

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Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|
| Sheet Revision | | |
| Issue | | |
| 100% CONSTRUCTION DOCUMENTS 09/01/2026 | | |

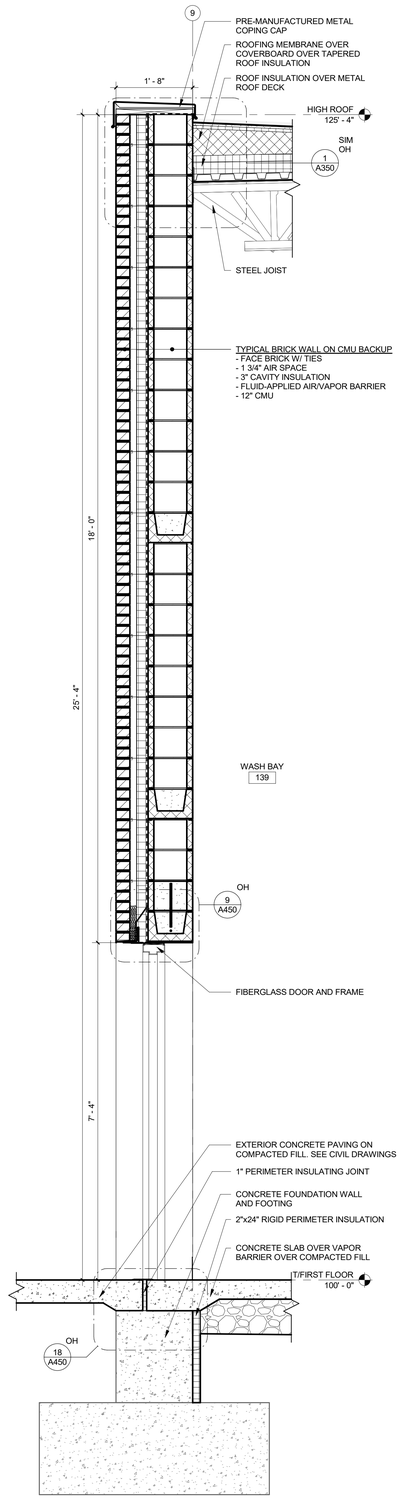
Team
Drawn By: clw
Checked By: LLW

Sheet Title

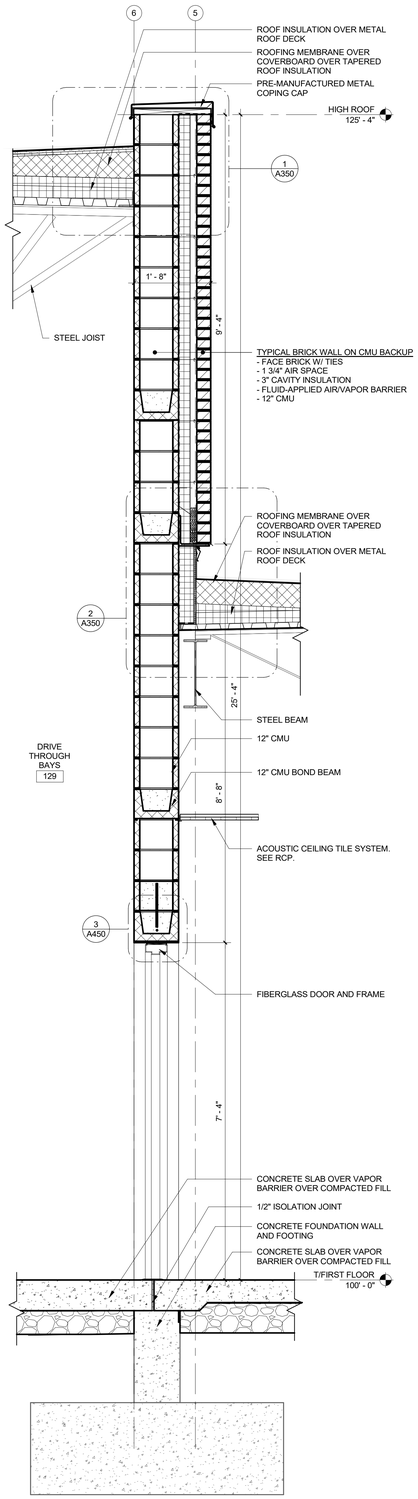
**DOOR AND WINDOW DETAILS**

Sheet No.

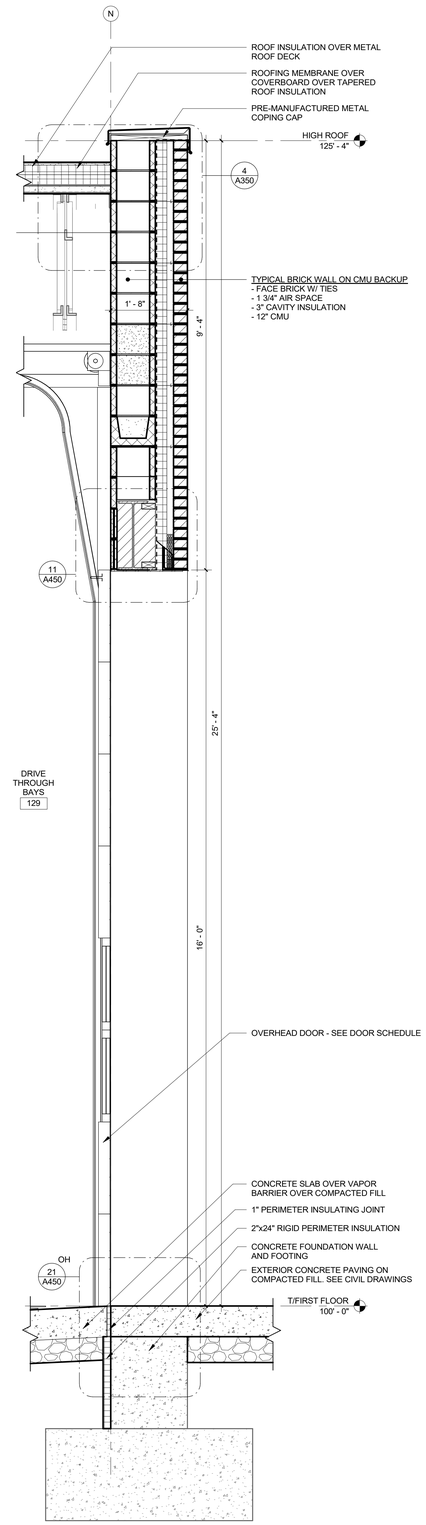
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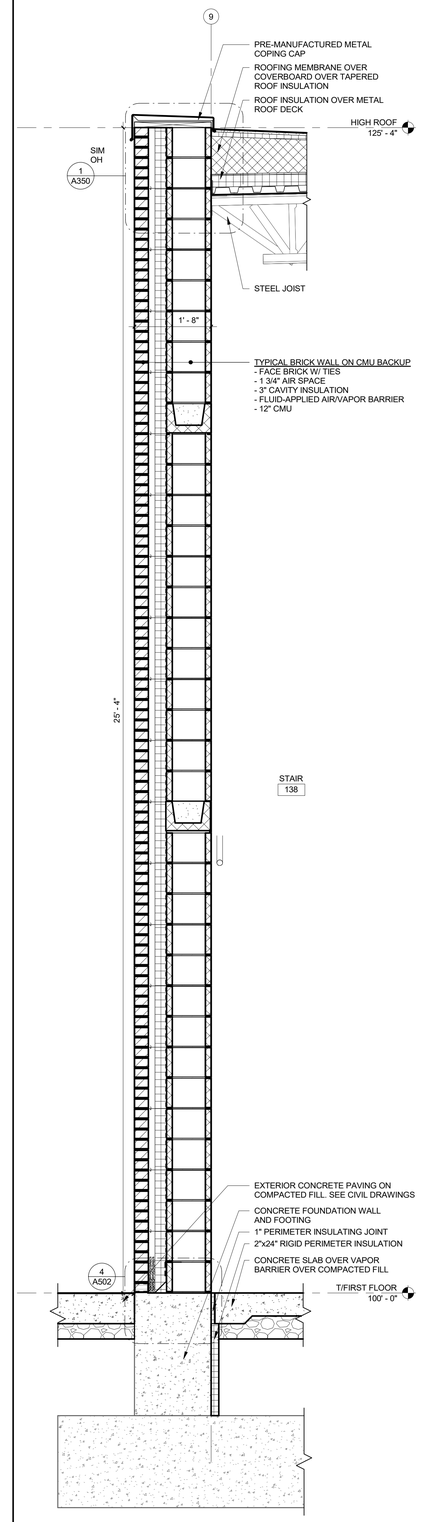

1 WALL SECTION
3/4" = 1'-0"



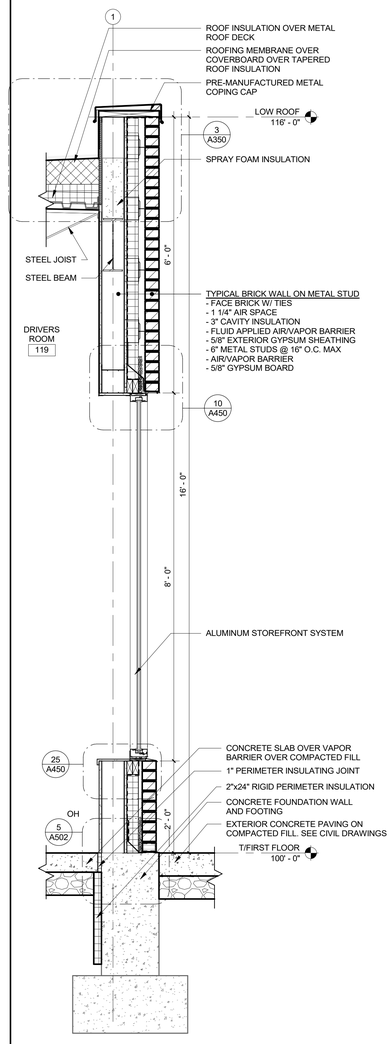

2 WALL SECTION
3/4" = 1'-0"




3 WALL SECTION
3/4" = 1'-0"




4 WALL SECTION
3/4" = 1'-0"




5 WALL SECTION
3/4" = 1'-0"

City

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3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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Sheet Revision

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09/01/2026

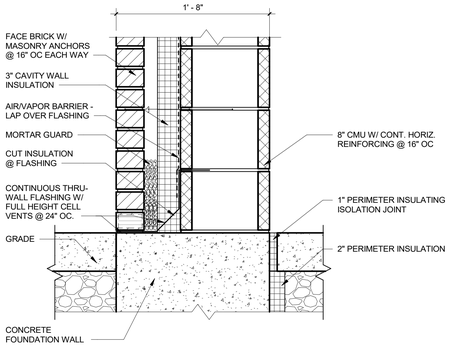
Team
Drawn By: NMM
Checked By: LLW

Sheet Title

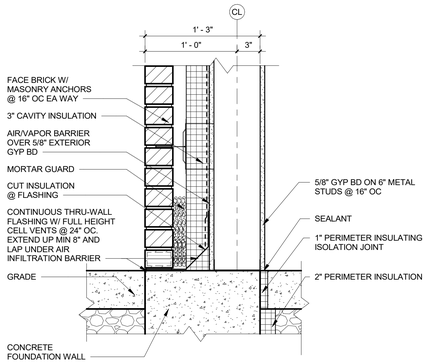
WALL SECTIONS AND DETAILS

Sheet No.

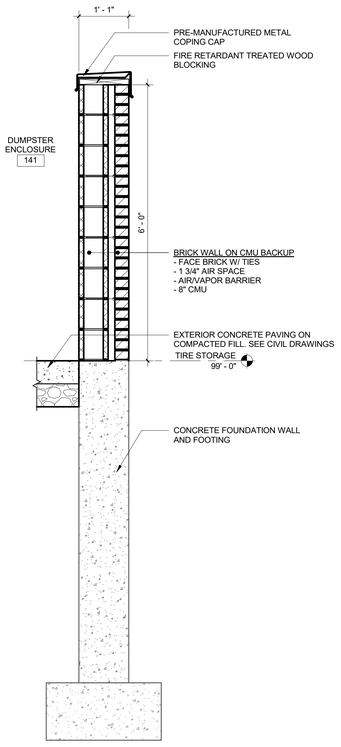
A501



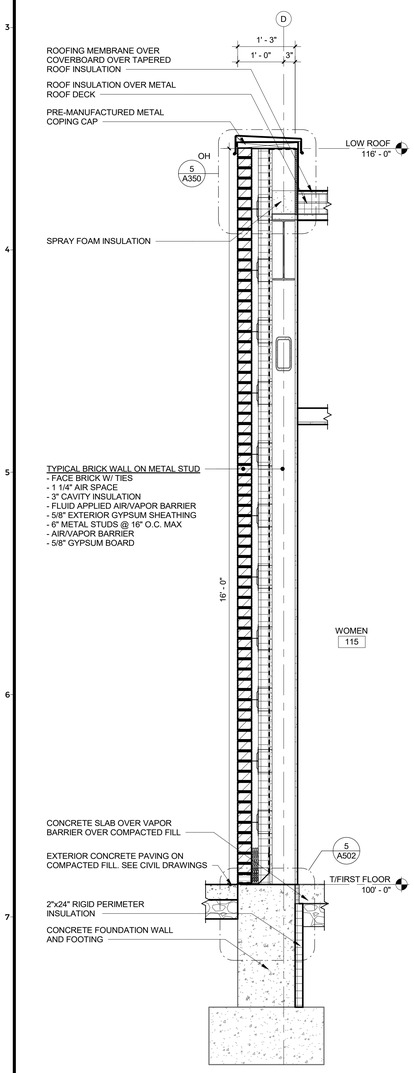

4 TYPICAL BASE DTL @ BRICK ON CMU WALL
1 1/2" = 1'-0"



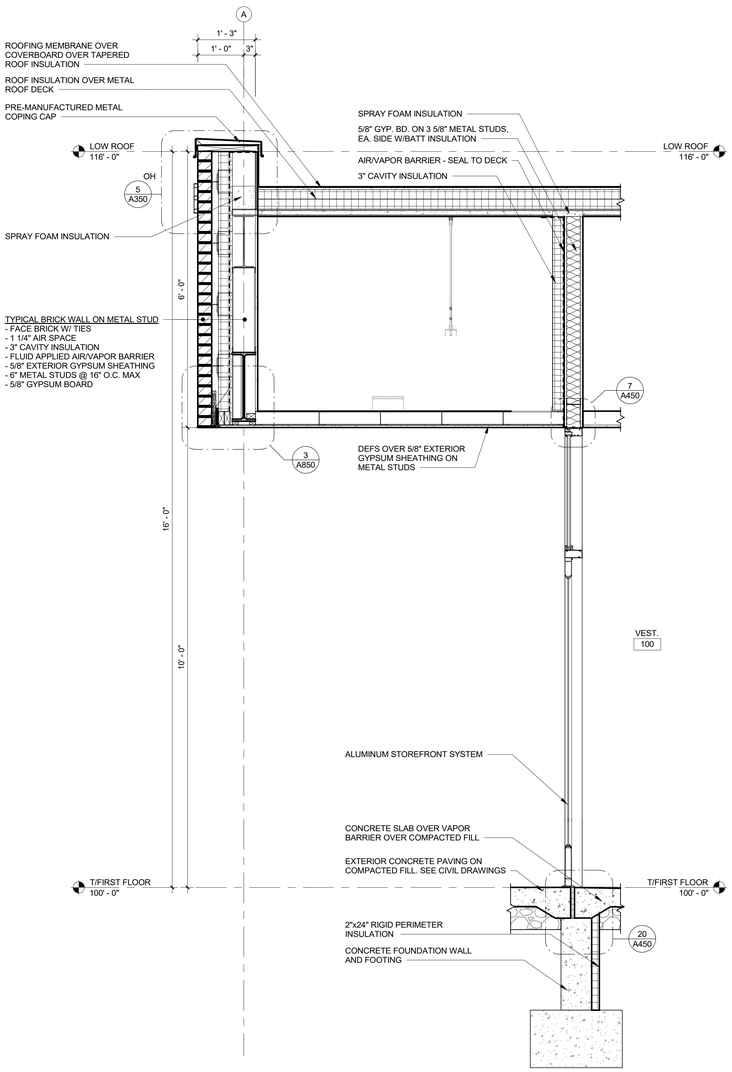

5 TYPICAL BASE DTL @ BRICK ON STUD WALL
1 1/2" = 1'-0"



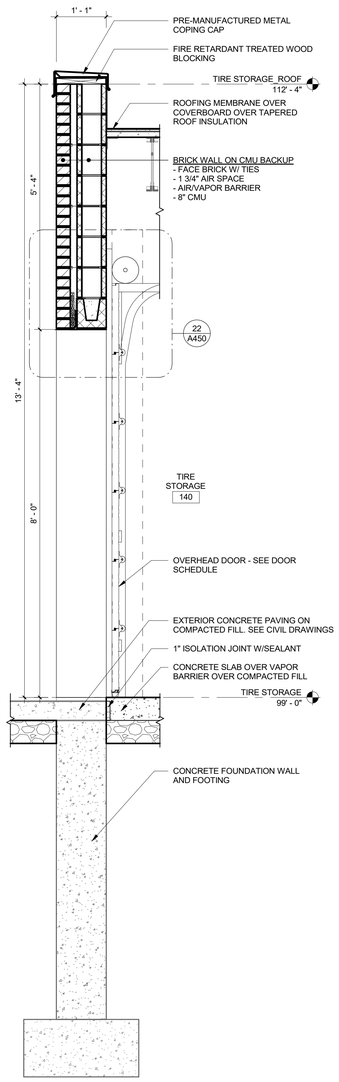

7 WALL SECTION - DUMPSTER ENCLOSURE
3/4" = 1'-0"



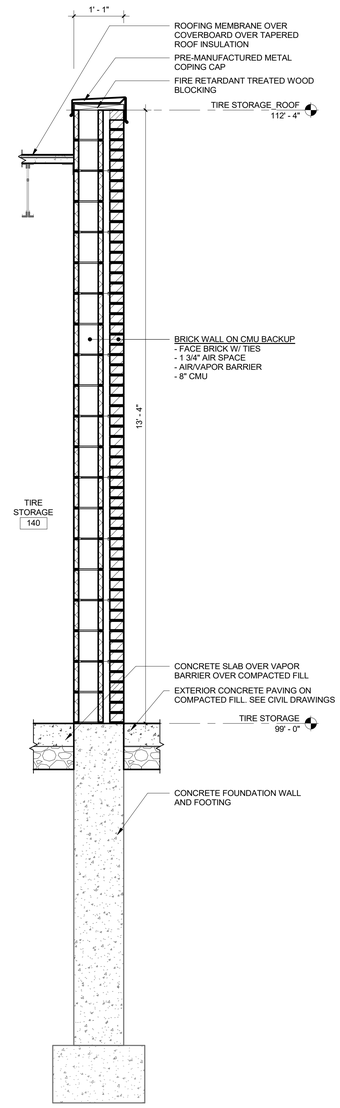

1 WALL SECTION
3/4" = 1'-0"



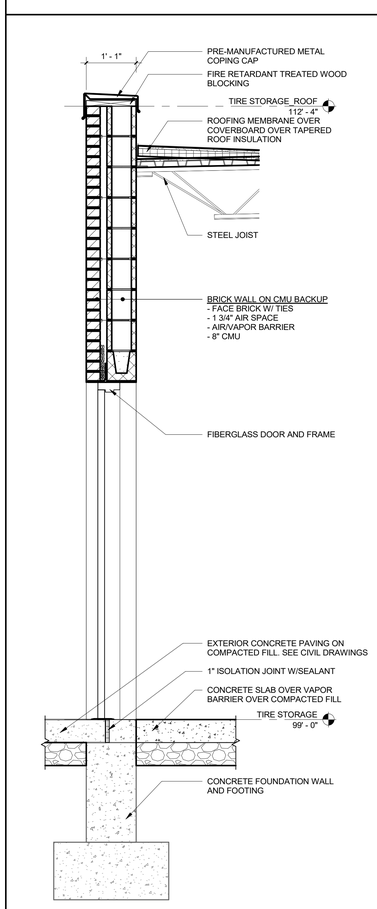

2 WALL SECTION
3/4" = 1'-0"




3 WALL SECTION - TIRE STORAGE
3/4" = 1'-0"




6 WALL SECTION - TIRE STORAGE
3/4" = 1'-0"




8 WALL SECTION - TIRE STORAGE
3/4" = 1'-0"

City

Collaborator

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STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
##-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

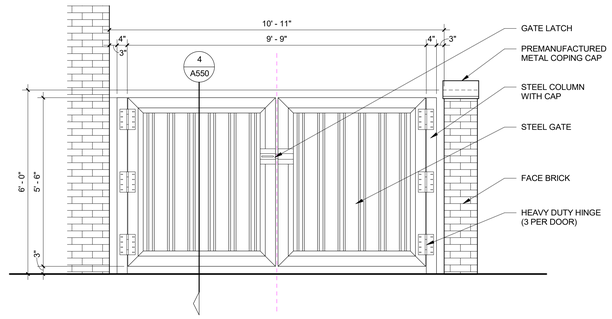
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Checked By: LLW

Sheet Title

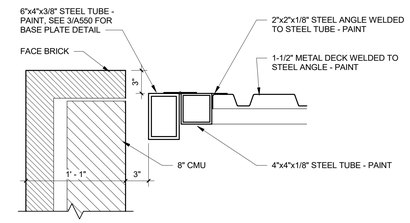
WALL SECTIONS AND DETAILS

Sheet No.

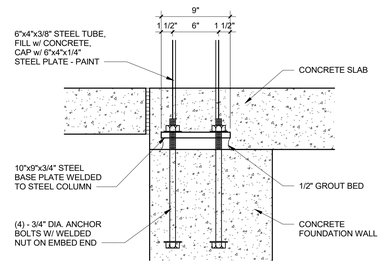
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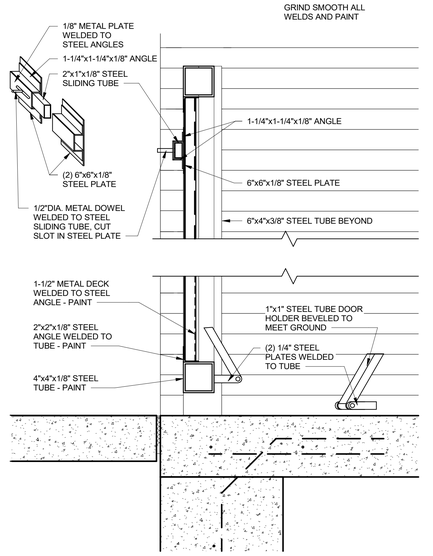

1 DUMPSTER GATE ELEVATION
1/2" = 1'-0"



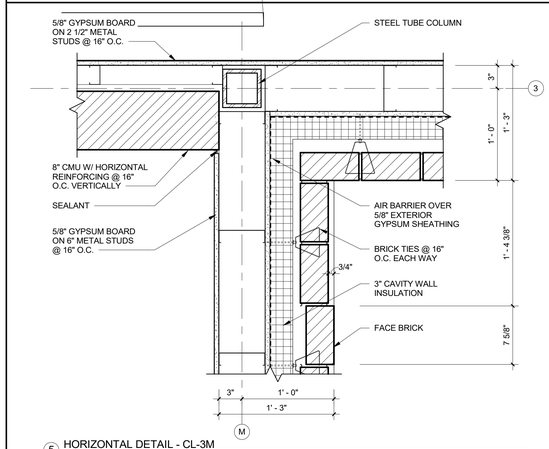

2 DUMPSTER HINGE DETAIL
1 1/2" = 1'-0"



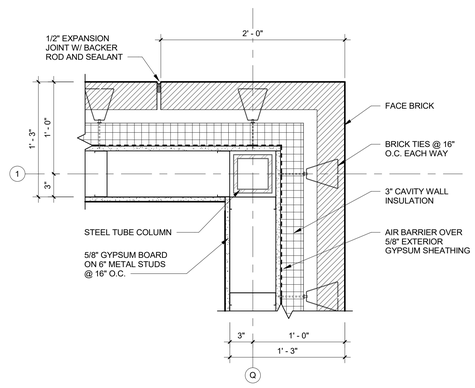

3 DUMPSTER BASE PLATE DETAIL
1 1/2" = 1'-0"



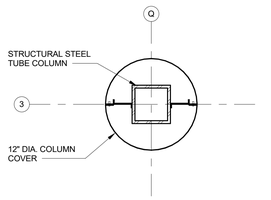

4 DUMPSTER ENCLOSURE GATE SECTION
1 1/2" = 1'-0"



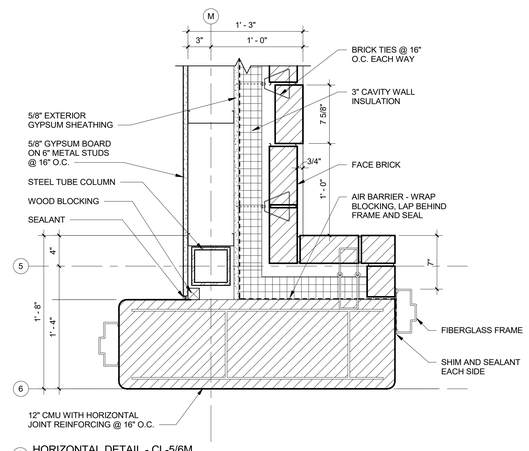

5 HORIZONTAL DETAIL - CL-3M
1 1/2" = 1'-0"



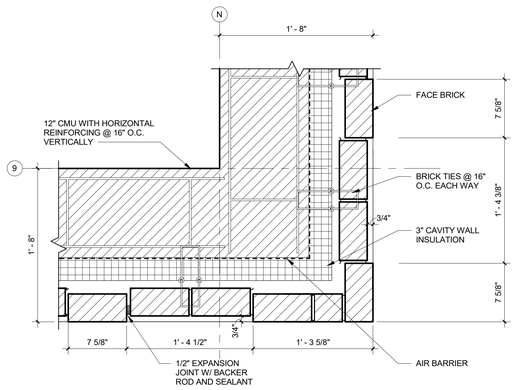

6 HORIZONTAL DETAIL - OUTSIDE CORNER METAL STUD
1 1/2" = 1'-0"




7 HORIZONTAL DETAIL - COLUMN COVER
1 1/2" = 1'-0"




8 HORIZONTAL DETAIL - CL-5/6M
1 1/2" = 1'-0"




9 HORIZONTAL DETAIL - OUTSIDE CORNER CMU
1 1/2" = 1'-0"

City

Collaborator

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STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: clw
Checked By: LLW

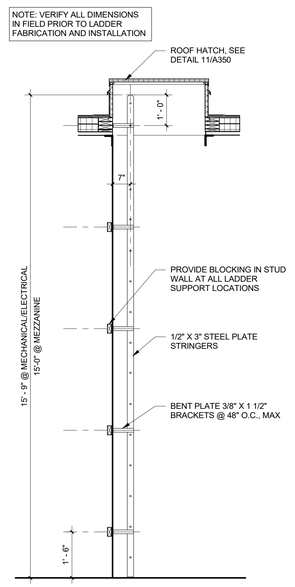
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HORIZONTAL DETAILS AND DUMPSTER GATE DETAILS

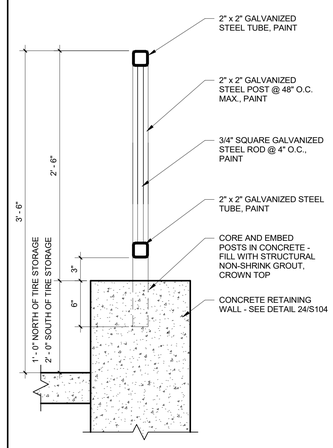
Sheet No.

A550

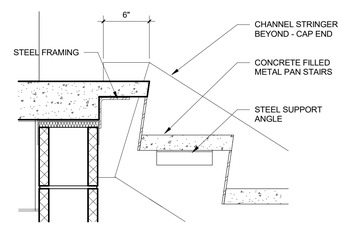
5 ACCESS LADDER PLAN
1 1/2" = 1'-0"



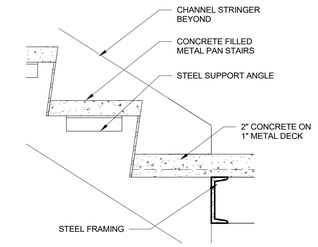

6 ACCESS LADDER SECTION
1/2" = 1'-0"



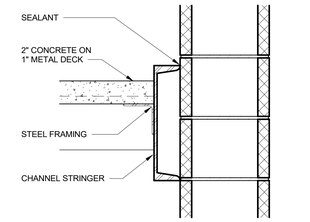

7 GUARDRAIL SECTION
1 1/2" = 1'-0"



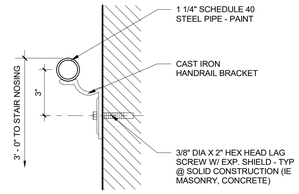

2 STAIR DETAIL - TOP
1 1/2" = 1'-0"



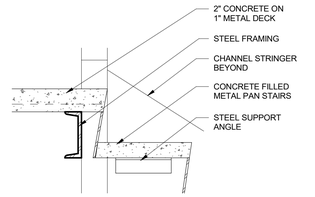

3 STAIR DETAIL - LANDING BASE
1 1/2" = 1'-0"



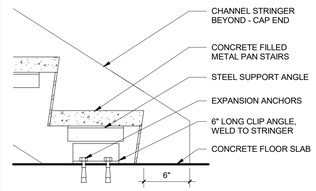

4 STAIR DETAIL - STRINGER AT WALL
1 1/2" = 1'-0"




8 HANDRAIL DETAIL
3" = 1'-0"




9 STAIR DETAIL - LOWER LANDING
1 1/2" = 1'-0"




10 STAIR DETAIL - BASE
1 1/2" = 1'-0"



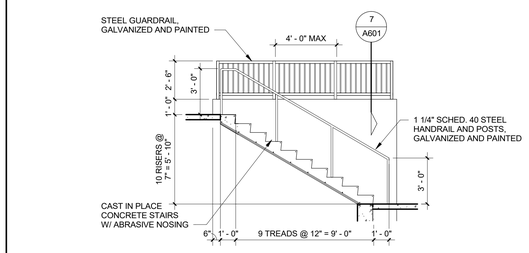

11 RAILING DETAIL
3/4" = 1'-0"




12 STAIR SECTION - UPPER RUN
1/4" = 1'-0"




13 MEZZANINE STAIR - MEZZANINE
1/4" = 1'-0"




14 SITE STAIR SECTION
1/4" = 1'-0"




15 SITE STAIR
1/4" = 1'-0"




16 STAIR SECTION - LOWER RUN
1/4" = 1'-0"




17 MEZZANINE STAIR - FIRST FLOOR
1/4" = 1'-0"

City

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3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: clw
Checked By: LLW

Sheet Title

STAIR PLANS, SECTIONS, AND DETAILS

Sheet No.

A601

## ROOM FINISH SCHEDULE

| ROOM NUMBER | ROOM NAME | FLOOR | WALL BASE | WALLS | | | | CEILING |
|---|---|---|---|---|---|---|---|---|
| | | | | NORTH | EAST | SOUTH | WEST | |
| 100 | VEST. | WOC-1 | RWB-1 | - | PT-1 | PT-1 | PT-1 | GYP/PT-4 |
| 101 | CORRIDOR | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-2 | ACT-1 |
| 102 | WAITING | RF-1 | RF-1 | PT-2 | PT-1 | PT-1 | PT-2 | ACT-1 |
| 103 | ACTIVITIES COORDINATOR | RF-1 | RF-1 | - | PT-1 | - | - | GYP/PT-4 |
| 104 | CORRIDOR | RF-1 | RF-1 | PT-2 | PT-1 | PT-1 | PT-2 | ACT-1 |
| 104A | WORK/BREAK AREA | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 105 | CONFERENCE ROOM | CPT-1 | RWB-1 | PT-1 | PT-5 | PT-1 | PT-1 | ACT-1 |
| 106 | DIR. OF TRANSPORTATION | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 107 | PAYROLL | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 108 | TRIP COORDINATOR | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 109 | TRANSPORTATION MANAGER | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 110 | CLOSET | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 111 | STORAGE | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 112 | DISPATCH OFFICE | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-2 | ACT-1 |
| 113 | CORR | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 114 | MEN | RF-1 | RF-1 | TL-1/TL-2 | TL-3/TL-4 | TL-3/TL-4 | TL-3/TL-4 | GYP/PT-4 |
| 115 | WOMEN | RF-1 | RF-1 | TL-3/TL-4 | TL-3/TL-4 | TL-1/TL-2 | TL-3/TL-4 | GYP/PT-4 |
| 116 | CUST. | CONC-2 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | ACT-1 |
| 117 | STORAGE | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 118 | DATA | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 119 | DRIVERS ROOM | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | SEE RCP |
| 120 | ALCOVE | RF-1 | RF-1 | PT-2 | PT-2 | PT-2 | - | GYP/PT-2 |
| 121 | WOMEN | RF-1 | RF-1 | TL-1/TL-2 | TL-3/TL-4 | TL-3/TL-4 | TL-3/TL-4 | GYP/PT-4 |
| 122 | MEN | RF-1 | RF-1 | TL-3/TL-4 | TL-3/TL-4 | TL-1/TL-2 | TL-3/TL-4 | GYP/PT-4 |
| 123 | CORRIDOR | RF-1 | RF-1 | PT-2 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 124 | MECHANICAL / ELECTRICAL | CONC-1 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |
| 125 | TRAINING ROOM | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-5 | PT-1 | ACT-1 |
| 126 | TRAINING OFFICE | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 127 | TRAINING OFFICE | CPT-1 | RWB-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 128 | VEST. | WOC-1 | RWB-1 | - | PT-1 | PT-1 | PT-1 | GYP/PT-4 |
| 129 | DRIVE THROUGH BAYS | CONC-3 | RWB-2 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | EXPOSED/PT-4 |
| 130 | MANAGER OFFICE | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-1 | ACT-1 |
| 131 | LAUNDRY | CONC-2 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |
| 132 | LOCKER ROOM - WOMEN | RF-1 | RF-1 | TL-3/TL-4 | TL-3/TL-4 | TL-3/TL-4 | TL-1/TL-2 | GYP/PT-4 |
| 133 | LOCKER ROOM - MEN | RF-1 | RF-1 | TL-3/TL-4 | TL-1/TL-2 | TL-3/TL-4 | TL-3/TL-4 | GYP/PT-4 |
| 134 | PARTS STORAGE | CONC-2 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |
| 135 | BREAK ROOM | RF-1 | RF-1 | PT-1 | PT-1 | PT-1 | PT-2 | ACT-1 |
| 136 | TRUCK BAY | CONC-3 | RWB-2 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | EXPOSED/PT-4 |
| 137 | STORAGE | CONC-3 | RWB-2 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | EXPOSED |
| 138 | STAIR | CONC-3 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |
| 139 | WASH BAY | CONC-3 | RWB-2 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | PT-4/PT-3 | EXPOSED/PT-4 |
| 140 | TIRE STORAGE | CONC-2 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |
| 201 | MEZZANINE | CONC-1 | RWB-2 | PT-4 | PT-4 | PT-4 | PT-4 | EXPOSED |

## REFLECTED CEILING PLAN LEGEND

- 2' x 4' ACOUSTICAL CEILING TILE (ACT-1)
- GYPSUM BOARD CEILING
- DEFS
- 2' x 4' FIXTURE
- RECESSED LINEAR FIXTURE
- RECESSED CAN LIGHT
- RETURN AIR DIFFUSER
- SUPPLY AIR DIFFUSER
- LINEAR SLOT AIR DIFFUSER
- CEILING FAN
- 1' x 4' FIXTURE
- LINEAR PENDANT FIXTURE

## REFLECTED CEILING GENERAL NOTES

1. ALL CEILINGS TO BE INSTALLED AT 10'-0" A.F.F. UNLESS NOTED OTHERWISE.
2. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**. SEE ROOM FINISH SCHEDULE FOR PAINT COLOR, U.N.O.
3. WHERE EXPOSED CEILING IS NOTED TO BE PAINTED: PAINT ALL EXPOSED STRUCTURE, PIPES, TRUSSES, DUCTS, CONDUITS, ETC.

## TOILET ROOM KEYNOTES

| | |
|---|---|
| T1 | WATER CLOSET |
| T2 | ACCESSIBLE WATER CLOSET |
| T3 | URINAL |
| T4 | ACCESSIBLE URINAL |
| T5 | LAVATORY |
| T6 | ROBE HOOK |
| T7 | TOILET PARTITION |
| T8 | URINAL SCREEN |
| T9 | 36" GRAB BAR |
| T10 | 42" GRAB BAR |
| T11 | TOILET TISSUE DISPENSER. O.F.C.I. |
| T12 | SANITARY NAPKIN DISPOSAL (WOMEN'S TOILET ONLY) |
| T13 | 18" x 36" MIRROR |
| T14 | LIQUID SOAP DISPENSER. O.F.C.I. |
| T15 | 18" VERTICAL GRAB BAR |
| T16 | PAPER TOWEL DISPENSER |
| T17 | MOP SINK |
| T18 | SHOWER W/ CURTAIN ROD, CURTAIN HOOKS, & SHOWER CURTAIN |
| T19 | FOLDING SHOWER SEAT |
| T20 | TWO-WALL GRAB BAR FOR SHOWER STALL |
| T21 | CHANGING AREA CURTAIN ROD, CURTAIN HOOKS, AND CURTAIN |

## CASEWORK SCHEDULE

| TYPE | D | H | W | DESCRIPTION |
|---|---|---|---|---|
| B1 | 24" | 32 1/2" | 15" | PLAM BASE CABINET W/ (1) DOOR, (1) DRAWER, (1) ADJUSTABLE SHELF, & (2) PULLS |
| B2 | 24" | 32 1/2" | 36" | PLAM SINK BASE CABINET W/ REMOVABLE REAR ACCESS PANEL |
| B3 | 24" | 32 1/2" | 30" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B4 | 24" | 32 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B5 | 24" | 32 1/2" | 18" | PLAM BASE CABINET W/ (1) DOOR, (1) DRAWER, (1) ADJUSTABLE SHELF, & (2) PULLS |
| B6 | 24" | 32 1/2" | 45" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B7 | 24" | 28 1/2" | 18" | LOCKABLE PLAM BASE CABINET W/ (2) FILE DRAWERS & (2) PULLS |
| B8 | 24" | 32 1/2" | 48" | LOCKABLE PLAM-1 BASE CABINET W/ (2) LATERAL FILE DRAWERS & (2) PULLS |
| B9 | 14" | 96" | 84" | PLAM CLIPBOARD CABINET W/ (16) OPEN CUBBIES & (120) EQUAL CLIPBOARD SLOTS |
| B10 | 24" | 32 1/2" | 42" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B11 | 24" | 32 1/2" | 33" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B12 | 24" | 28 1/2" | 24" | LOCKABLE PLAM BASE CABINET W/ (1) BOX DRAWER, (2) FILE DRAWERS, & (3) PULLS |
| B13 | 24" | 32 1/2" | 33" | PLAM SINK BASE CABINET W/ REMOVABLE REAR ACCESS PANEL |
| B14 | 24" | 28 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B15 | 24" | 28 1/2" | 33" | LOCKABLE PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B16 | 24" | 28 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| C1 | 25" | 34" | | SOLID SURFACE COUNTERTOP W/ ATTACHED BACKSPLASH |
| C2 | 8" | 34" | | SOLID SURFACE COUNTERTOP (NO BACKSPLASH) |
| L1 | 18" | 72" | 18" | LOCKER, REFER TO SPECIFICATION |
| L2 | 18" | 72" | 18" | ADA ACCESSIBLE LOCKER, REFER TO SPECIFICATION |
| S1 | 24" | | | PLAM HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| S2 | 12" | | | METAL HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| S3 | 12" | | | PLAM HEAVY-DUTY FIXED-HEIGHT SHELF |
| S4 | 18" | | | PLAM HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| W1 | 12" | 30" | 15" | PLAM WALL CABINET W/ (1) DOOR, (1) ADJUSTABLE SHELF, & (1) PULL |
| W2 | 12" | 24" | 36" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W3 | 12" | 24" | 33" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W4 | 24" | 30" | 24" | PLAM CORNER WALL CABINET W/ (1) DOOR, (1) FIXED SHELF, & (1) PULL |
| W5 | 12" | 30" | 36" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W6 | 12" | 30" | 18" | PLAM WALL CABINET W/ (1) DOOR, (1) ADJUSTABLE SHELF, & (1) PULL |
| W7 | 12" | 30" | 48" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS. CABINET TO HAVE FLAT BOTTOM PANEL, FLUSH WITH ADJ. WALL CABINETS FOR UNDER-CABINET LIGHTING INSTALLATION |
| W8 | 12" | 30" | 45" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W9 | 12" | 30" | 33" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |

## TILE LEGEND

- TL-1: NAVY WALL TILE - MATTE
- TL-2: NAVY WALL TILE - GLOSS
- TL-3: GRAY WALL TILE
- TL-4: WHITE WALL TILE
- TL-5: NAVY TILE BACKSPLASH - 2"X8"

## INTERIOR ELEVATION KEYNOTES

| Keynote Number | Description |
|---|---|
| 1 | RESILIENT BASE RWB-1 |
| 2 | DRINKING FOUNTAIN |
| 3 | ALIGN EDGE OF BACKSPLASH WITH CASEWORK EDGE. PROVIDE TRIM EDGE PROFILE. |
| 4 | REFRIGERATOR, NIC |
| 5 | MICROWAVE, NIC |
| 6 | COFFEE MACHINE, NIC |
| 7 | FABRIC-WRAPPED ACOUSTIC WALL PANELS |
| 8 | 4" EPOXY WALL BASE |
| 9 | EMERGENCY SHOWER AND EYE WASH |
| 10 | RESILIENT BASE RWB-2 |
| 11 | 20"D x 48"L MOBILE ADA ACCESSIBLE BENCH |
| 12 | WASHER/DRYER, NIC |
| 13 | DL-1 - DIMENSIONAL LETTERING. 5" LETTER HEIGHT W/ 1" BETWEEN ROWS. SEE SPECIFICATION. |
| 14 | UNDER-CABINET LIGHTING, SEE ELECTRICAL DRAWINGS |

## PAINT LEGEND

PT-1: SHERWIN WILLIAMS - SW 7029 AGREEABLE GRAY
PT-2: SHERWIN WILLIAMS - SW 6811 HONORABLE BLUE
PT-3: SHERWIN WILLIAMS - SW 7020 BLACK FOX
PT-4: SHERWIN WILLIAMS - SW 7006 EXTRA WHITE
PT-5: SHERWIN WILLIAMS - SW9163 TIN LIZZIE
PT-6: SHERWIN WILLIAMS - SW 4084 SAFETY YELLOW

## INTERIOR GENERAL NOTES

1. ALL KEYNOTE SCHEDULES ARE LOCATED ON DRAWING A700.
2. PAINT ON THE WALLS IN THE FOLLOWING ROOM TYPES SHALL BE **EPOXY PAINT**: TOILET ROOM CEILINGS, DRIVER'S ROOM, MAINTENANCE BAY, STORAGE ROOMS, KITCHEN & RELATED SPACES, LOCKER ROOMS, SHOWERS, TIRE STORAGE.
3. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**.
4. ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED WITH **PT-3** UNLESS OTHERWISE NOTED ON DRAWINGS.
5. ROOM FLOORING TRANSITIONS SHALL OCCUR AT THE CENTER OF DOOR OPENINGS, UNLESS OTHERWISE NOTED ON DRAWINGS.
6. PROVIDE APPROPRIATE TRANSITION THRESHOLD AT ALL DOORWAYS, UNLESS OTHERWISE DETAILED ON DRAWINGS.
7. INSTALL FINISH FLOORING IN DIRECTION AS INDICATED BY FLOORING DIRECTION SYMBOL.
8. INSTALL CASEWORK PRIOR TO FLOORING. FLOORING TO RUN TIGHT TO CASEWORK BASE/TOEKICK.
9. PROVIDE COAT HOOK ON CENTER OF INSIDE DOOR FACE AT ALL SINGLE-USER TOILET ROOMS.
10. PROVIDE LOCKER FILLER PANELS AS NECESSARY TO CLEANLY FILL COLUMN BAYS, EDGE GAPS, ETC.
11. WHERE DRAINS ARE REQUIRED IN FLOORS (IE. AT ALL SHOWERS), SLOPE FINISH FLOOR TO DRAIN FOLLOWING THE 1/4" TO 1'-0" SLOPE RULE.
12. ALL METAL STAIR STEEL PARTS (GUARDRAILS, STRINGERS, BENT CAPS, ETC) TO BE PAINTED WITH **PT-3**.
13. ALL BASE CABINETS TO HAVE RWB-1 BASE.

## FLOORING LEGEND

- CONC-1: SEALED CONCRETE
- CONC-2: SEALED CONCRETE
- CONC-3: SEALED CONCRETE
- CPT-1: GRAY CARPET TILE
- RF-1: RESILIENT EPOXY FLOORING
- WOC-1: WALK-OFF CARPET TILE

## FINISH PLAN SYMBOLS

- XX — SIGNAGE TAG
- X — KEYNOTE SYMBOL
- FLOORING DIRECTION SYMBOL
- XXX / XXX — FLOORING TRANSITION DETAIL

## ABBREVIATIONS

| | |
|---|---|
| ACT | ACOUSTICAL CEILING TILE |
| BR | BRICK |
| CMU | CONCRETE MASONRY UNIT |
| CONC | CONCRETE |
| CPT | CARPET |
| EPT | EPOXY PAINT |
| EXIST | EXISTING |
| EXP | EXPOSED |
| FLP | FILLER PANEL |
| GYP | GYPSUM BOARD |
| PLAM | PLASTIC LAMINATE |
| PT | PAINT |
| RF | RESILIENT FLOOR |
| RWB | RESILIENT WALL BASE |
| SE | SEALER |
| SS | SOLID SURFACE |
| S&H | SEALER AND HARDENER |
| S&V | STAIN AND VARNISH |
| TL | TILE |
| VCT | VINYL COMPOSITION TILE |
| WD | WOOD |

## FINISH PLAN KEYNOTES

| | |
|---|---|
| 1 | HEAVY DUTY METAL TRIM AT WALL CORNERS |
| 2 | CG1 CORNER GUARD AT WALL CORNERS |
| 3 | URETHANE SAFETY STRIPING - SOLID YELLOW. COORDINATE FINAL REQ. DIMENSIONS WITH BUS SIZE REQUIREMENTS. |
| 4 | URETHANE SAFETY STRIPING - BLACK & YELLOW DIAGONAL STRIPING. COORDINATE REQ. CLEARANCE DIMENSIONS W/ LIFT MANUFACTURERS. |

## FLOOR PLAN KEYNOTES

| | |
|---|---|
| 01 | PIPE BOLLARD - PAINT YELLOW |
| 02 | ROOF ACCESS LADDER - SEE DETAIL 5/A601 |
| 03 | 12" DEEP METAL SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 04 | 18" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 05 | 24" DEEP PLAM SHELVING ON HEAVY-DUTY BRACKETS AND STANDARDS - SEE DETAIL 7/A750 |
| 06 | ANTI-FREEZE (O.F.C.I.) |
| 07 | WORK BENCH (O.F.C.I.) |
| 08 | FLOOR JACK (O.F.C.I.) |
| 09 | BUS SOAP (O.F.C.I.) |
| 10 | WINDSHIELD WASHER FLUID (O.F.C.I.) |
| 11 | GRINDER (O.F.C.I.) |
| 12 | WASTE OIL TANK (O.F.C.I.) |
| 13 | FILTER CRUSHER (O.F.C.I.) |
| 14 | SAFETY CLEAN MACHINE (O.F.C.I.) |
| 15 | LADDER (O.F.C.I.) |
| 16 | CUTTING TORCH (O.F.C.I.) |
| 17 | TIRE MACHINE (O.F.C.I.) |
| 18 | BALANCER (O.F.C.I.) |
| 19 | TIRE CAGE (O.F.C.I.) |
| 20 | FLOOR OIL PLAN (O.F.C.I.) |
| 21 | TOOL BOX (O.F.C.I.) |
| 22 | BUMPER JACK (O.F.C.I.) |
| 23 | OIL TANK (O.F.C.I.) |
| 24 | GEAR OIL (O.F.C.I.) |
| 25 | WELDER (O.F.C.I.) |
| 26 | A/C (O.F.C.I.) |
| 27 | CHEMICAL STORAGE (O.F.C.I.) |
| 28 | PRESSURE WASHER (O.F.C.I.) |
| 29 | 2-POST SYMMETRIC VEHICLE LIFT |
| 30 | 2-POST SYMMETRIC INGROUND LIFT |
| 32 | ALTERNATE #1 - PATIO FURNITURE: GLOBAL INDUSTRIAL, MODEL #WB694551BK |

## RCP KEYNOTES

| | |
|---|---|
| 1 | PAINT GYP. CEILING WITH PT-2 |
| 2 | PAINT ALL EXPOSED CEILING ELEMENTS WITH PT-5 |
| 3 | MANUALLY OPERATED ROLLER WINDOW SHADE. TYPE 01, REFER TO SCHEDULE IN SPECIFICATION. |
| 4 | MANUALLY OPERATED BLACKOUT ROLLER WINDOW SHADE. TYPE 02, REFER TO SCHEDULE IN SPECIFICATION |
| 5 | 6" PERIMETER TRIM - SEE DETAIL 8/A850 |
| 6 | CEILING MOUNTED PROJECTOR |
| 7 | RECESSED PROJECTION SCREEN - SEE DETAIL 7/A850 |
| 8 | PROJECTION SCREEN CONTROLS LOCATION |
| 9 | SPRAY-APPLIED FIREPROOFING (UL #D902) |
| 10 | ACCESS PANEL |

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER
A-2024011268
ARCHITECT

09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

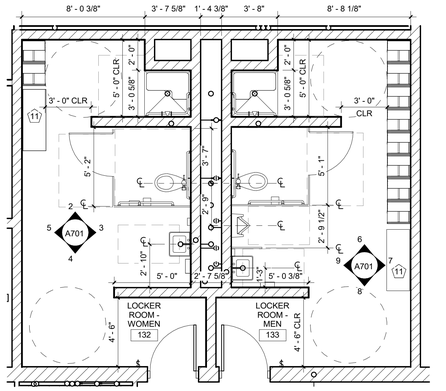
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Checked By: LLW

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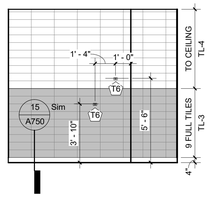
FINISH SCHEDULES AND KEYNOTES

Sheet No.

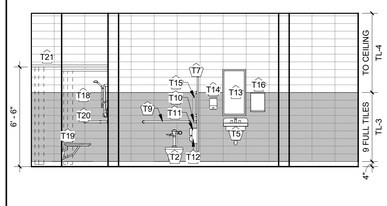
A700



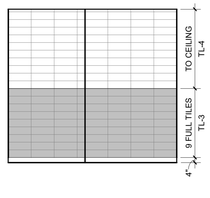

1 ENLARGED PLAN - LOCKER ROOM
1/4" = 1'-0"



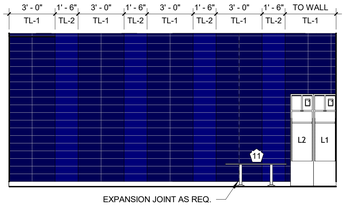

2 132 WOMEN'S LOCKER ROOM - NORTH
1/4" = 1'-0"



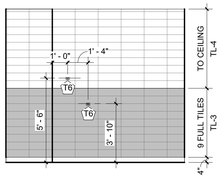

3 132 WOMEN'S LOCKER ROOM - EAST
1/4" = 1'-0"



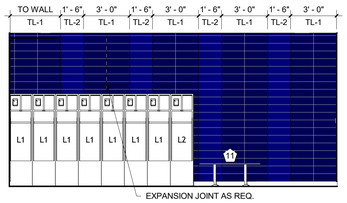

4 132 WOMEN'S LOCKER ROOM - SOUTH
1/4" = 1'-0"



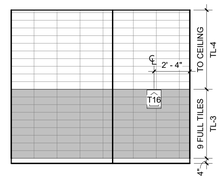

5 132 WOMEN'S LOCKER ROOM - WEST
1/4" = 1'-0"



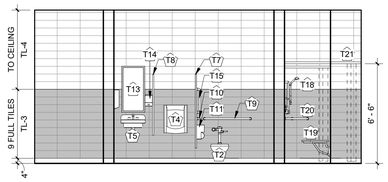

6 133 MEN'S LOCKER ROOM - NORTH
1/4" = 1'-0"



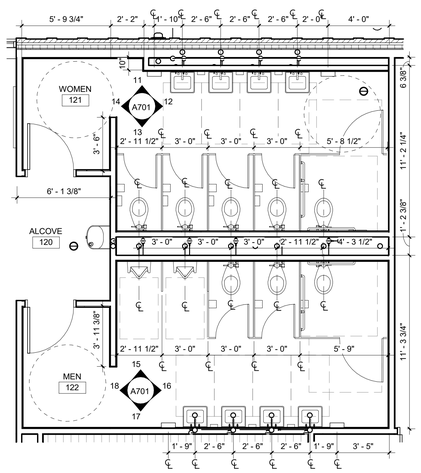

7 133 MEN'S LOCKER ROOM - EAST
1/4" = 1'-0"



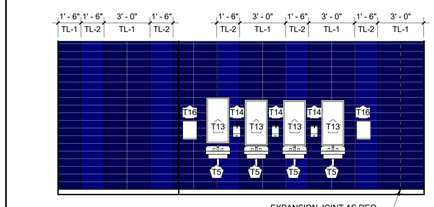

8 133 MEN'S LOCKER ROOM - SOUTH
1/4" = 1'-0"



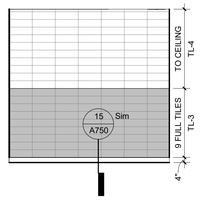

9 133 MEN'S LOCKER ROOM - WEST
1/4" = 1'-0"



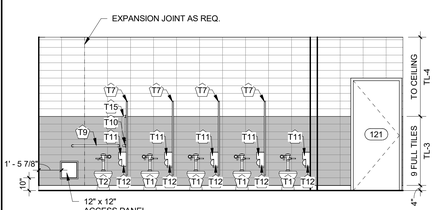

10 ENLARGED PLAN - MULTI USER RESTROOMS
1/4" = 1'-0"



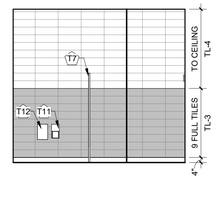

11 121 WOMEN'S RESTROOM - NORTH
1/4" = 1'-0"



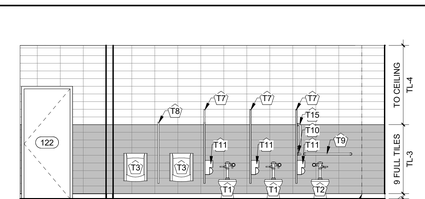

12 121 WOMEN'S RESTROOM - EAST
1/4" = 1'-0"



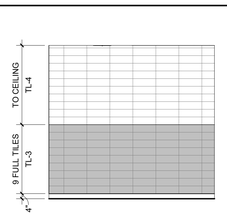

13 121 WOMEN'S RESTROOM - SOUTH
1/4" = 1'-0"



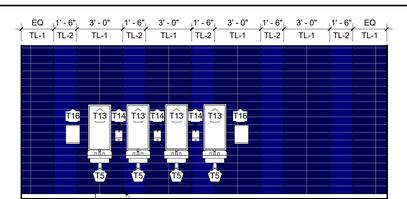

14 121 WOMEN'S RESTROOM - WEST
1/4" = 1'-0"



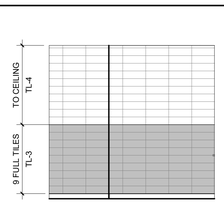

15 122 MEN'S RESTROOM - NORTH
1/4" = 1'-0"



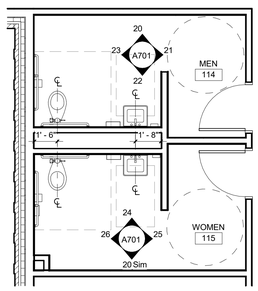

16 122 MEN'S RESTROOM - EAST
1/4" = 1'-0"



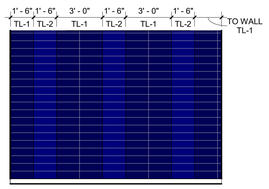

17 122 MEN'S RESTROOM - SOUTH
1/4" = 1'-0"



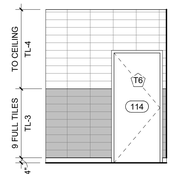

18 122 MEN'S RESTROOM - WEST
1/4" = 1'-0"




19 ENLARGED PLANS - 114/115 SINGLE USER RESTROOMS
1/4" = 1'-0"



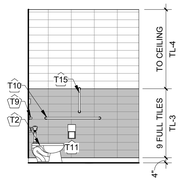

20 114/115 MENS & WOMENS TOILET - ACCENT WALL
1/4" = 1'-0"




21 114 MENS TOILET - EAST
1/4" = 1'-0"



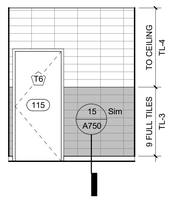

22 114 MENS TOILET - SOUTH
1/4" = 1'-0"



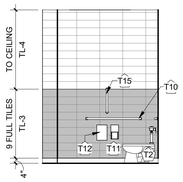

23 114 MENS TOILET - WEST
1/4" = 1'-0"




24 115 WOMENS TOILET - NORTH
1/4" = 1'-0"




25 115 WOMENS TOILET - EAST
1/4" = 1'-0"




26 115 WOMENS TOILET - WEST
1/4" = 1'-0"

## INTERIOR GENERAL NOTES

1. ALL KEYNOTE SCHEDULES ARE LOCATED ON DRAWING A700.
2. PAINT ON THE WALLS IN THE FOLLOWING ROOM TYPES SHALL BE **EPOXY PAINT**: TOILET ROOM CEILINGS, DRIVER'S ROOM, MAINTENANCE BAY, STORAGE ROOMS, KITCHEN & RELATED SPACES, LOCKER ROOMS, SHOWERS, TIRE STORAGE.
3. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**.
4. ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED WITH **PT-3** UNLESS OTHERWISE NOTED ON DRAWINGS.
5. ROOM FLOORING TRANSITIONS SHALL OCCUR AT THE CENTER OF DOOR OPENINGS, UNLESS OTHERWISE NOTED ON DRAWINGS.
6. PROVIDE APPROPRIATE TRANSITION THRESHOLD AT ALL DOORWAYS, UNLESS OTHERWISE DETAILED ON DRAWINGS.
7. INSTALL FINISH FLOORING IN DIRECTION AS INDICATED BY FLOORING DIRECTION SYMBOL.
8. INSTALL CASEWORK PRIOR TO FLOORING. FLOORING TO RUN TIGHT TO CASEWORK BASE/TOEKICK.
9. PROVIDE COAT HOOK ON CENTER OF INSIDE DOOR FACE AT ALL SINGLE-USER TOILET ROOMS.
10. PROVIDE LOCKER FILLER PANELS AS NECESSARY TO CLEANLY FILL COLUMN BAYS, EDGE GAPS, ETC.
11. WHERE DRAINS ARE REQUIRED IN FLOORS (IE. AT ALL SHOWERS), SLOPE FINISH FLOOR TO DRAIN FOLLOWING THE 1/4" TO 1'-0" SLOPE RULE.
12. ALL METAL STAIR STEEL PARTS (GUARDRAILS, STRINGERS, BENT CAPS, ETC) TO BE PAINTED WITH **PT-3**.
13. ALL BASE CABINETS TO HAVE RWB-1 BASE.

## TOILET ROOM KEYNOTES

| | |
|---|---|
| T1 | WATER CLOSET |
| T2 | ACCESSIBLE WATER CLOSET |
| T3 | URINAL |
| T4 | ACCESSIBLE URINAL |
| T5 | LAVATORY |
| T6 | ROBE HOOK |
| T7 | TOILET PARTITION |
| T8 | URINAL SCREEN |
| T9 | 36" GRAB BAR |
| T10 | 42" GRAB BAR |
| T11 | TOILET TISSUE DISPENSER. O.F.C.I. |
| T12 | SANITARY NAPKIN DISPOSAL (WOMEN'S TOILET ONLY) |
| T13 | 18" x 36" MIRROR |
| T14 | LIQUID SOAP DISPENSER. O.F.C.I. |
| T15 | 18" VERTICAL GRAB BAR |
| T16 | PAPER TOWEL DISPENSER |
| T17 | MOP SINK |
| T18 | SHOWER W/ CURTAIN ROD, CURTAIN HOOKS, & SHOWER CURTAIN |
| T19 | FOLDING SHOWER SEAT |
| T20 | TWO-WALL GRAB BAR FOR SHOWER STALL |
| T21 | CHANGING AREA CURTAIN ROD, CURTAIN HOOKS, AND CURTAIN |

## TILE LEGEND

- TL-1: NAVY WALL TILE - MATTE
- TL-2: NAVY WALL TILE - GLOSS
- TL-3: GRAY WALL TILE
- TL-4: WHITE WALL TILE
- TL-5: NAVY TILE BACKSPLASH - 2"X8"

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal




09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

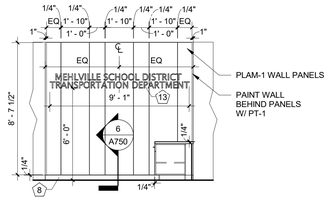
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

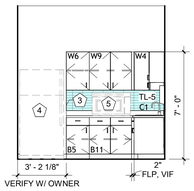
Team
Drawn By: ADW
Checked By: LLW

Sheet Title
TOILET ROOM ENLARGED PLANS AND INTERIOR ELEVATIONS

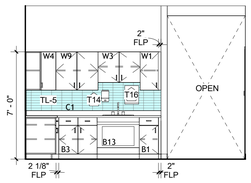
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A701



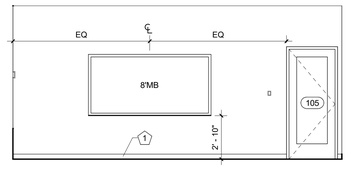

1 102 WAITING - EAST
1/4" = 1'-0"



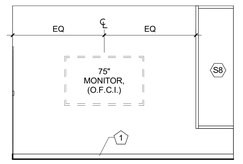

2 104a WORK/BREAK AREA - SOUTH
1/4" = 1'-0"



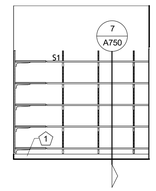

3 104A WORK/BREAK AREA - WEST
1/4" = 1'-0"



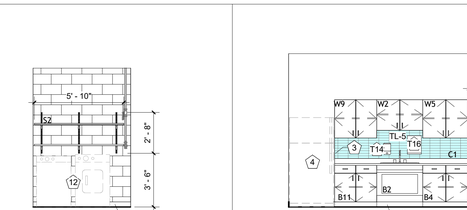

4 105 CONFERENCE ROOM - EAST
1/4" = 1'-0"



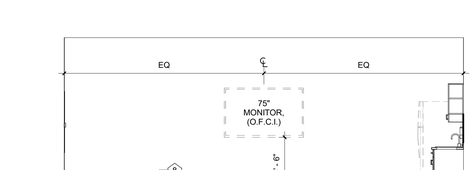

5 105 CONFERENCE ROOM - SOUTH
1/4" = 1'-0"




6 111 TRAINING/DRIVER STORAGE - EAST
1/4" = 1'-0"



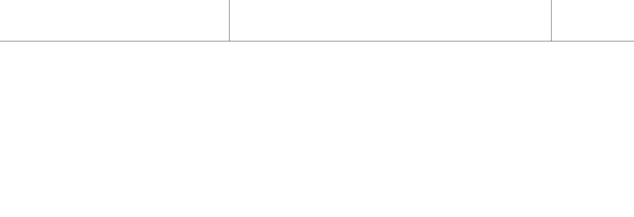

7 112 DISPATCH OFFICE - EAST
1/4" = 1'-0"




8 112 DISPATCH OFFICE - WEST
1/4" = 1'-0"




9 119 DRIVERS ROOM - NORTH
1/4" = 1'-0"




10 119 DRIVERS ROOM - EAST
1/4" = 1'-0"




11 119 DRIVERS ROOM - SOUTH
1/4" = 1'-0"




12 119 DRIVERS ROOM - WEST
1/4" = 1'-0"




13 119 DRIVER'S ROOM - CROCKPOT COUNTER NORTH
1/4" = 1'-0"




14 125 TRAINING ROOM - WEST
1/4" = 1'-0"




15 125 TRAINING ROOM - SOUTH
1/4" = 1'-0"




16 131 LAUNDRY - NORTH
1/4" = 1'-0"




17 135 BREAK ROOM - NORTH
1/4" = 1'-0"




18 135 BREAK ROOM - WEST
1/4" = 1'-0"

## INTERIOR GENERAL NOTES

1. ALL KEYNOTE SCHEDULES ARE LOCATED ON DRAWING A700.
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3. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**.
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7. INSTALL FINISH FLOORING IN DIRECTION AS INDICATED BY FLOORING DIRECTION SYMBOL.
8. INSTALL CASEWORK PRIOR TO FLOORING. FLOORING TO RUN TIGHT TO CASEWORK BASE/TOEKICK.
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## TOILET ROOM KEYNOTES

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|---|---|
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| T2 | ACCESSIBLE WATER CLOSET |
| T3 | URINAL |
| T4 | ACCESSIBLE URINAL |
| T5 | LAVATORY |
| T6 | ROBE HOOK |
| T7 | TOILET PARTITION |
| T8 | URINAL SCREEN |
| T9 | 36" GRAB BAR |
| T10 | 42" GRAB BAR |
| T11 | TOILET TISSUE DISPENSER. O.F.C.I. |
| T12 | SANITARY NAPKIN DISPOSAL (WOMEN'S TOILET ONLY) |
| T13 | 18" x 36" MIRROR |
| T14 | LIQUID SOAP DISPENSER. O.F.C.I. |
| T15 | 18" VERTICAL GRAB BAR |
| T16 | PAPER TOWEL DISPENSER |
| T17 | MOP SINK |
| T18 | SHOWER W/ CURTAIN ROD, CURTAIN HOOKS, & SHOWER CURTAIN |
| T19 | FOLDING SHOWER SEAT |
| T20 | TWO-WALL GRAB BAR FOR SHOWER STALL |
| T21 | CHANGING AREA CURTAIN ROD, CURTAIN HOOKS, AND CURTAIN |

## CASEWORK SCHEDULE

| TYPE | D | H | W | DESCRIPTION |
|---|---|---|---|---|
| B1 | 24" | 32 1/2" | 15" | PLAM BASE CABINET W/ (1) DOOR, (1) DRAWER, (1) ADJUSTABLE SHELF, & (2) PULLS |
| B2 | 24" | 32 1/2" | 36" | PLAM SINK BASE CABINET W/ REMOVABLE REAR ACCESS PANEL |
| B3 | 24" | 32 1/2" | 30" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B4 | 24" | 32 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B5 | 24" | 32 1/2" | 18" | PLAM BASE CABINET W/ (1) DOOR, (1) DRAWER, (1) ADJUSTABLE SHELF, & (2) PULLS |
| B6 | 24" | 32 1/2" | 45" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B7 | 24" | 28 1/2" | 18" | LOCKABLE PLAM BASE CABINET W/ (2) FILE DRAWERS & (2) PULLS |
| B8 | 24" | 32 1/2" | 48" | LOCKABLE PLAM-1 BASE CABINET W/ (2) LATERAL FILE DRAWERS & (2) PULLS |
| B9 | 14" | 96" | 84" | PLAM CLIPBOARD CABINET W/ (16) OPEN CUBBIES & (120) EQUAL CLIPBOARD SLOTS |
| B10 | 24" | 32 1/2" | 42" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B11 | 24" | 32 1/2" | 33" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B12 | 24" | 28 1/2" | 24" | LOCKABLE PLAM BASE CABINET W/ (1) BOX DRAWER, (2) FILE DRAWERS, & (3) PULLS |
| B13 | 24" | 32 1/2" | 33" | PLAM SINK BASE CABINET W/ REMOVABLE REAR ACCESS PANEL |
| B14 | 24" | 28 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B15 | 24" | 28 1/2" | 33" | LOCKABLE PLAM BASE CABINET W/ (2) DOORS, (2) DRAWERS, (1) ADJUSTABLE SHELF, & (4) PULLS |
| B16 | 24" | 28 1/2" | 36" | PLAM BASE CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| C1 | 25" | 34" | | SOLID SURFACE COUNTERTOP W/ ATTACHED BACKSPLASH |
| C2 | 8" | 34" | | SOLID SURFACE COUNTERTOP (NO BACKSPLASH) |
| L1 | 18" | 72" | 18" | LOCKER, REFER TO SPECIFICATION |
| L2 | 18" | 72" | 18" | ADA ACCESSIBLE LOCKER, REFER TO SPECIFICATION |
| S1 | 24" | | | PLAM HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| S2 | 12" | | | METAL HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| S3 | 12" | | | PLAM HEAVY-DUTY FIXED-HEIGHT SHELF |
| S4 | 18" | | | PLAM HEAVY-DUTY ADJUSTABLE HEIGHT SHELVING WITH METAL BRACKETS |
| W1 | 12" | 30" | 15" | PLAM WALL CABINET W/ (1) DOOR, (1) ADJUSTABLE SHELF, & (1) PULL |
| W2 | 12" | 24" | 36" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W3 | 12" | 24" | 33" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W4 | 24" | 30" | 24" | PLAM CORNER WALL CABINET W/ (1) DOOR, (1) FIXED SHELF, & (1) PULL |
| W5 | 12" | 30" | 36" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W6 | 12" | 30" | 18" | PLAM WALL CABINET W/ (1) DOOR, (1) ADJUSTABLE SHELF, & (1) PULL |
| W7 | 12" | 30" | 48" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS. CABINET TO HAVE FLAT BOTTOM PANEL, FLUSH WITH ADJ. WALL CABINETS FOR UNDER-CABINET LIGHTING INSTALLATION |
| W8 | 12" | 30" | 45" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |
| W9 | 12" | 30" | 33" | PLAM WALL CABINET W/ (2) DOORS, (1) ADJUSTABLE SHELF, & (2) PULLS |

## INTERIOR ELEVATION KEYNOTES

| Keynote Number | Description |
|---|---|
| 1 | RESILIENT BASE RWB-1 |
| 2 | DRINKING FOUNTAIN |
| 3 | ALIGN EDGE OF BACKSPLASH WITH CASEWORK EDGE. PROVIDE TRIM EDGE PROFILE. |
| 4 | REFRIGERATOR, NIC |
| 5 | MICROWAVE, NIC |
| 6 | COFFEE MACHINE, NIC |
| 7 | FABRIC-WRAPPED ACOUSTIC WALL PANELS |
| 8 | 4" EPOXY WALL BASE |
| 9 | EMERGENCY SHOWER AND EYE WASH |
| 10 | RESILIENT BASE RWB-2 |
| 11 | 20"D x 48"L MOBILE ADA ACCESSIBLE BENCH |
| 12 | WASHER/DRYER, NIC |
| 13 | DL-1 - DIMENSIONAL LETTERING. 5" LETTER HEIGHT W/ 1" BETWEEN ROWS. SEE SPECIFICATION. |
| 14 | UNDER-CABINET LIGHTING, SEE ELECTRICAL DRAWINGS |

City

Collaborator

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal




09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

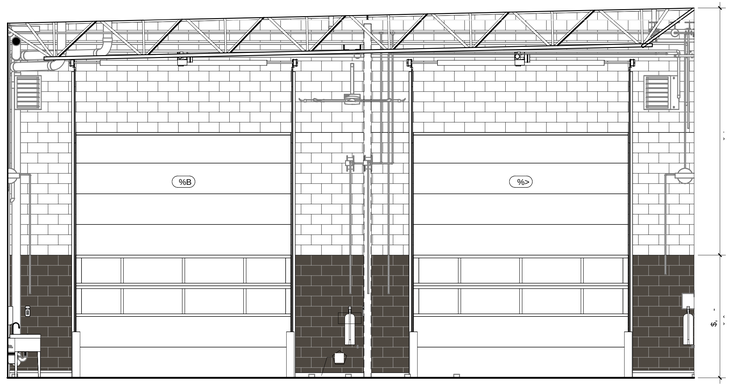
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Drawn By: ADW
Checked By: LLW

Sheet Title

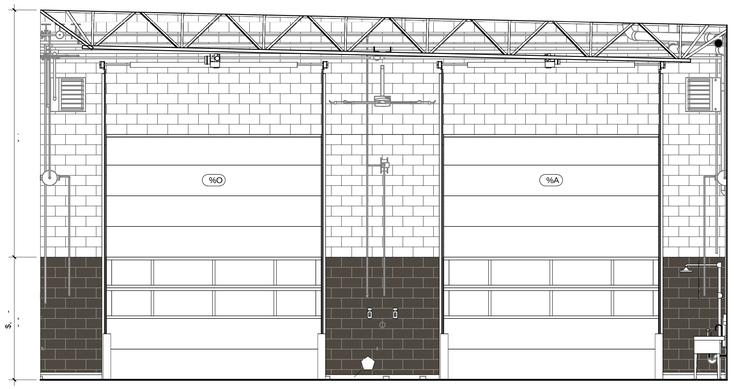
INTERIOR ELEVATIONS

Sheet No.

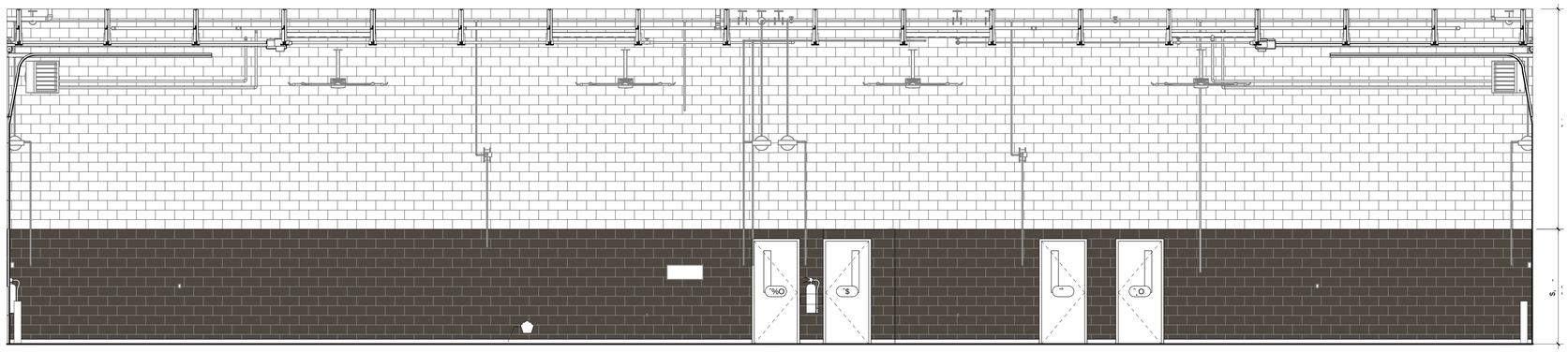
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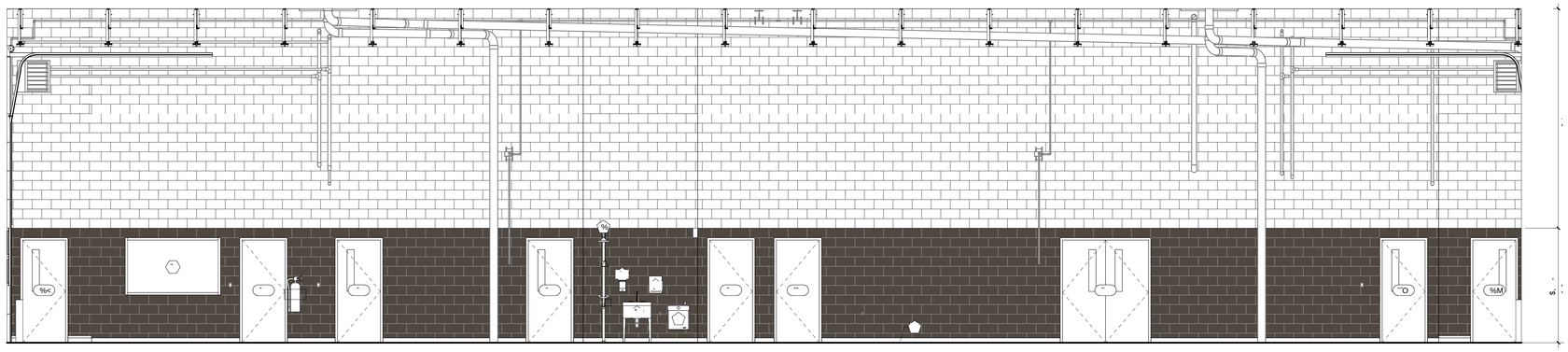

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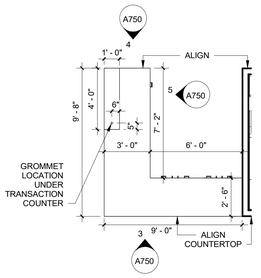

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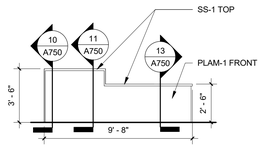

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BLDD ARCHITECTS

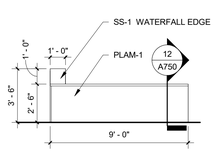
STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER
A-2024011268
ARCHITECT



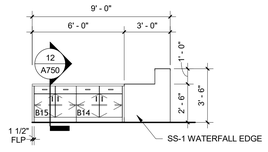

1 ENLARGED PLAN - ACTIVITIES COORDINATOR DESK
1/4" = 1'-0"



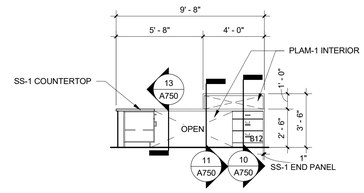

2 COORDINATOR DESK - EAST
1/4" = 1'-0"



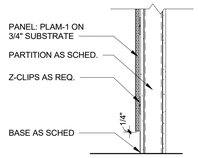

3 COORDINATOR DESK - NORTH
1/4" = 1'-0"




4 COORDINATOR DESK - SOUTH
1/4" = 1'-0"




5 COORDINATOR DESK - WEST
1/4" = 1'-0"




6 PLAM WALL PANEL DETAIL
1" = 1'-0"




7 ADJUSTABLE-HEIGHT SHELVING DETAIL
1" = 1'-0"




8 ENLARGED PLAN - DISPATCH OFFICE DESKS
1/4" = 1'-0"




9 DRIVER'S ROOM WINDOW COUNTER DETAIL
1" = 1'-0"




10 COORDINATOR DESK @ 3-DRAWER CABINET
1" = 1'-0"




11 COORDINATOR DESK @ DESK COUNTER
1" = 1'-0"




12 COORDINATOR DESK @ BASE CABINET
1" = 1'-0"




13 COORDINATOR DESK @ OPEN COUNTER
1" = 1'-0"




14 WALL BASE DETAIL - RESILIENT EPOXY FLOORING COVE BASE
6" = 1'-0"




15 WALL BASE DETAIL - RESILIENT EPOXY FLOORING COVE BASE @ TILE WALL
6" = 1'-0"




16 FLOOR TRANSITION DETAIL - RESILIENT EPOXY FLOORING TO CARPET
6" = 1'-0"




17 FLOOR TRANSITION DETAIL - RESILIENT EPOXY FLOORING TO CONCRETE
6" = 1'-0"




18 WALL BASE - RUBBER BASE
6" = 1'-0"




19 FLOOR TRANSITION DETAIL - RESILIENT EPOXY FLOORING TO CONCRETE @ ISOLATION JOINT
6" = 1'-0"

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Seal

STATE OF MISSOURI
JUSTIN D. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 2576X18.400

**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

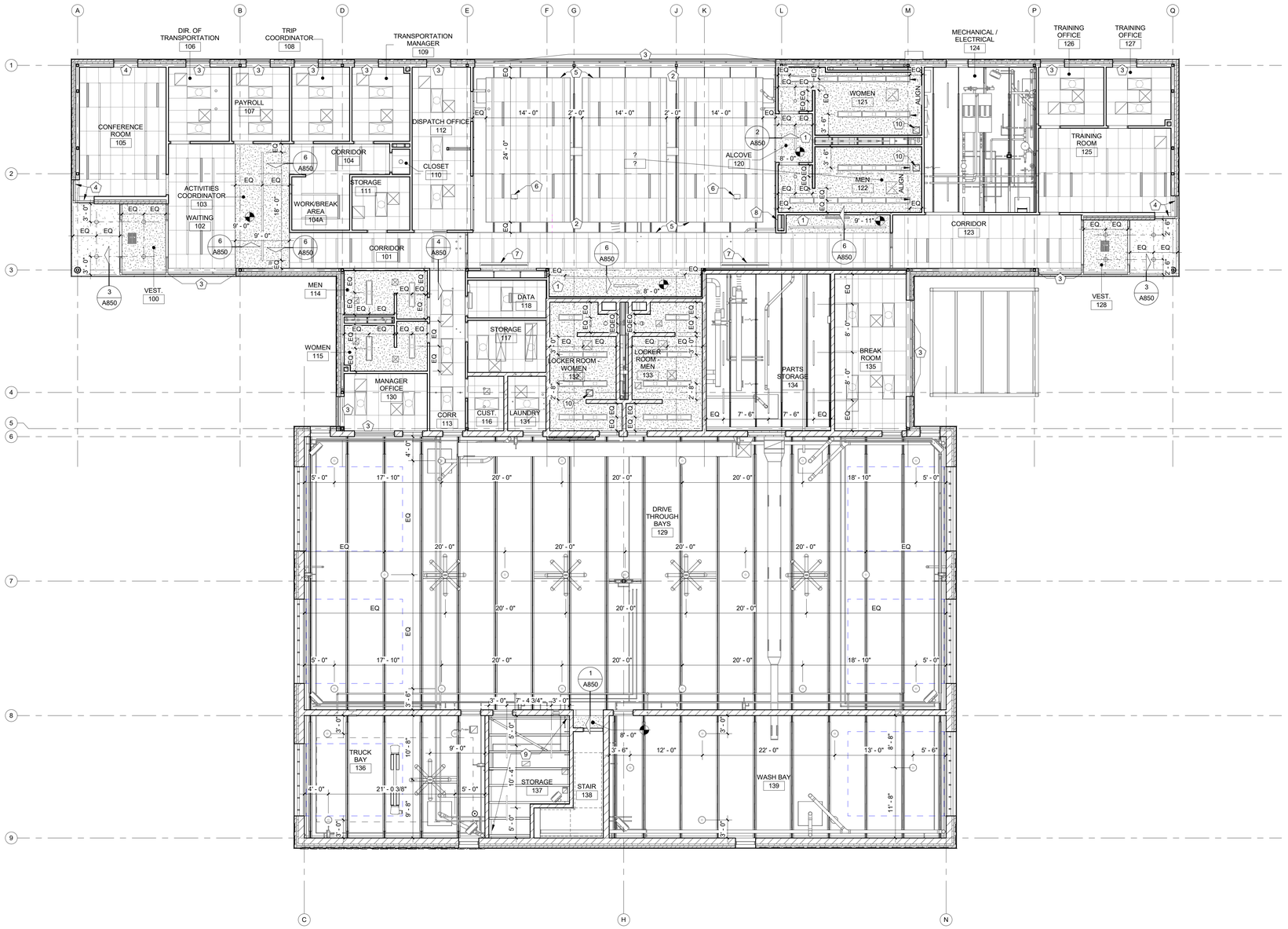
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

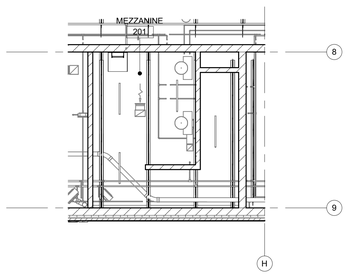
Team
Drawn By: ADW
Checked By: LLW

Sheet Title
INTERIOR DETAILS

Sheet No.
A750




1 FIRST FLOOR CEILING PLAN
1/8" = 1'-0"




2 MEZZANINE CEILING PLAN
1/8" = 1'-0"

## REFLECTED CEILING PLAN LEGEND

- 2' x 4' ACOUSTICAL CEILING TILE (ACT-1)
- GYPSUM BOARD CEILING
- DEFS
- 2' x 4' FIXTURE
- RECESSED LINEAR FIXTURE
- RECESSED CAN LIGHT
- RETURN AIR DIFFUSER
- SUPPLY AIR DIFFUSER
- LINEAR SLOT AIR DIFFUSER
- CEILING FAN
- 1' x 4' FIXTURE
- LINEAR PENDANT FIXTURE

## REFLECTED CEILING GENERAL NOTES

1. ALL CEILINGS TO BE INSTALLED AT 10'-0" A.F.F. UNLESS NOTED OTHERWISE.
2. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**. SEE ROOM FINISH SCHEDULE FOR PAINT COLOR, U.N.O.
3. WHERE EXPOSED CEILING IS NOTED TO BE PAINTED: PAINT ALL EXPOSED STRUCTURE, PIPES, TRUSSES, DUCTS, CONDUITS, ETC.

## RCP KEYNOTES

| | |
|---|---|
| 1 | PAINT GYP. CEILING WITH PT-2 |
| 2 | PAINT ALL EXPOSED CEILING ELEMENTS WITH PT-5 |
| 3 | MANUALLY OPERATED ROLLER WINDOW SHADE. TYPE 01, REFER TO SCHEDULE IN SPECIFICATION. |
| 4 | MANUALLY OPERATED BLACKOUT ROLLER WINDOW SHADE. TYPE 02, REFER TO SCHEDULE IN SPECIFICATION |
| 5 | 6" PERIMETER TRIM - SEE DETAIL 8/A850 |
| 6 | CEILING MOUNTED PROJECTOR |
| 7 | RECESSED PROJECTION SCREEN - SEE DETAIL 7/A850 |
| 8 | PROJECTION SCREEN CONTROLS LOCATION |
| 9 | SPRAY-APPLIED FIREPROOFING (UL #D902) |
| 10 | ACCESS PANEL |

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STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT

09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

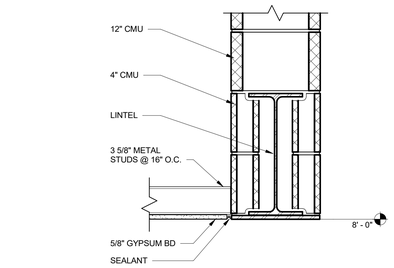
Team
Drawn By: clw
Checked By: LLW

Sheet Title

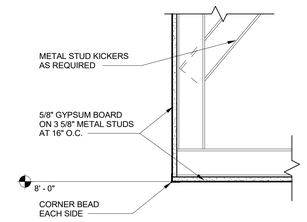
REFLECTED CEILING PLANS

Sheet No.

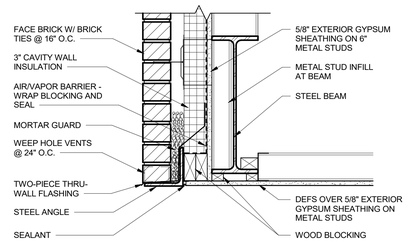
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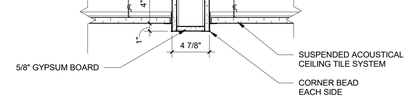

1 CEILING DETAIL - STAIR SOFFIT
1 1/2" = 1'-0"



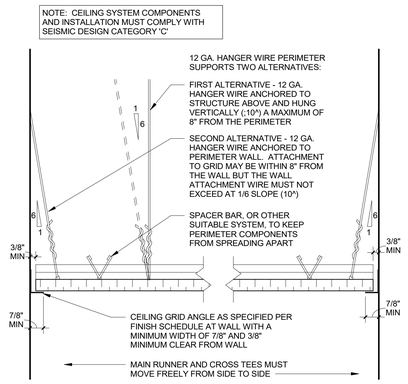

2 CEILING DETAIL - ALCOVE SOFFIT
1 1/2" = 1'-0"



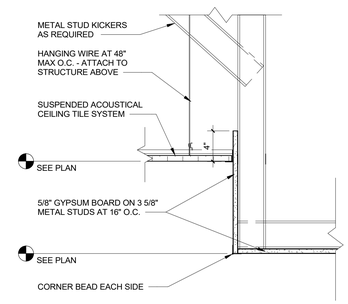

3 CEILING DETAIL - EXTERIOR SOFFIT
1 1/2" = 1'-0"



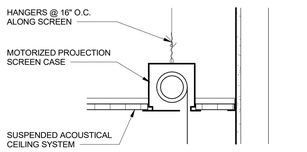

4 CEILING DETAIL - BULKHEAD W ACT BOTH SIDES
1 1/2" = 1'-0"



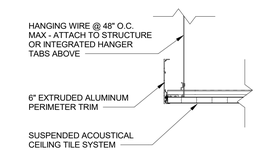

5 CEILING DETAIL - SEISMIC
3" = 1'-0"




6 CEILING DETAIL - BULKHEAD W ACT ONE SIDE
1 1/2" = 1'-0"




7 CEILING DETAIL - RECESSED PROJECTION SCREEN
1 1/2" = 1'-0"




8 CEILING DETAIL - CLOUD TRIM
1 1/2" = 1'-0"

City

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT

09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: clw
Checked By: LLW

Sheet Title

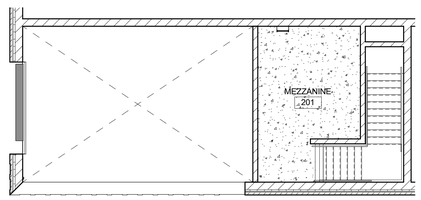
CEILING DETAILS

Sheet No.

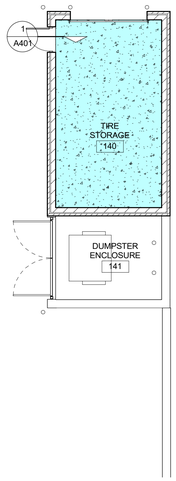
A850




1 FIRST FLOOR FINISH PLAN
1/8" = 1'-0"




2 MEZZANINE PLAN Copy 1
1/8" = 1'-0"




## INTERIOR GENERAL NOTES

1. ALL KEYNOTE SCHEDULES ARE LOCATED ON DRAWING A700.
2. PAINT ON THE WALLS IN THE FOLLOWING ROOM TYPES SHALL BE **EPOXY PAINT**: TOILET ROOM CEILINGS, DRIVER'S ROOM, MAINTENANCE BAY, STORAGE ROOMS, KITCHEN & RELATED SPACES, LOCKER ROOMS, SHOWERS, TIRE STORAGE.
3. PAINT ON ALL CEILING PLANES SHALL BE **DRYFALL PAINT**.
4. ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED WITH **PT-3** UNLESS OTHERWISE NOTED ON DRAWINGS.
5. ROOM FLOORING TRANSITIONS SHALL OCCUR AT THE CENTER OF DOOR OPENINGS, UNLESS OTHERWISE NOTED ON DRAWINGS.
6. PROVIDE APPROPRIATE TRANSITION THRESHOLD AT ALL DOORWAYS, UNLESS OTHERWISE DETAILED ON DRAWINGS.
7. INSTALL FINISH FLOORING IN DIRECTION AS INDICATED BY FLOORING DIRECTION SYMBOL.
8. INSTALL CASEWORK PRIOR TO FLOORING. FLOORING TO RUN TIGHT TO CASEWORK BASE/TOEKICK.
9. PROVIDE COAT HOOK ON CENTER OF INSIDE DOOR FACE AT ALL SINGLE-USER TOILET ROOMS.
10. PROVIDE LOCKER FILLER PANELS AS NECESSARY TO CLEANLY FILL COLUMN BAYS, EDGE GAPS, ETC.
11. WHERE DRAINS ARE REQUIRED IN FLOORS (IE. AT ALL SHOWERS), SLOPE FINISH FLOOR TO DRAIN FOLLOWING THE 1/4" TO 1'-0" SLOPE RULE.
12. ALL METAL STAIR STEEL PARTS (GUARDRAILS, STRINGERS, BENT CAPS, ETC) TO BE PAINTED WITH **PT-3**.
13. ALL BASE CABINETS TO HAVE RWB-1 BASE.

## FLOORING LEGEND

- CONC-1: SEALED CONCRETE
- CONC-2: SEALED CONCRETE
- CONC-3: SEALED CONCRETE
- CPT-1: GRAY CARPET TILE
- RF-1: RESILIENT EPOXY FLOORING
- WOC-1: WALK-OFF CARPET TILE

## FINISH PLAN SYMBOLS

- XX — SIGNAGE TAG
- X — KEYNOTE SYMBOL
- FLOORING DIRECTION SYMBOL
- XXX / XXX — FLOORING TRANSITION DETAIL

## FINISH PLAN KEYNOTES

| | |
|---|---|
| 1 | HEAVY DUTY METAL TRIM AT WALL CORNERS |
| 2 | CG1 CORNER GUARD AT WALL CORNERS |
| 3 | URETHANE SAFETY STRIPING - SOLID YELLOW. COORDINATE FINAL REQ. DIMENSIONS WITH BUS SIZE REQUIREMENTS. |
| 4 | URETHANE SAFETY STRIPING - BLACK & YELLOW DIAGONAL STRIPING. COORDINATE REQ. CLEARANCE DIMENSIONS W/ LIFT MANUFACTURERS. |

City

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Seal

STATE OF MISSOURI
JUSTIN P. PLACEK
NUMBER A-2024011268
ARCHITECT
09/01/2026
Justin P. Placek
#A-2024011268

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: ADW
Checked By: LLW

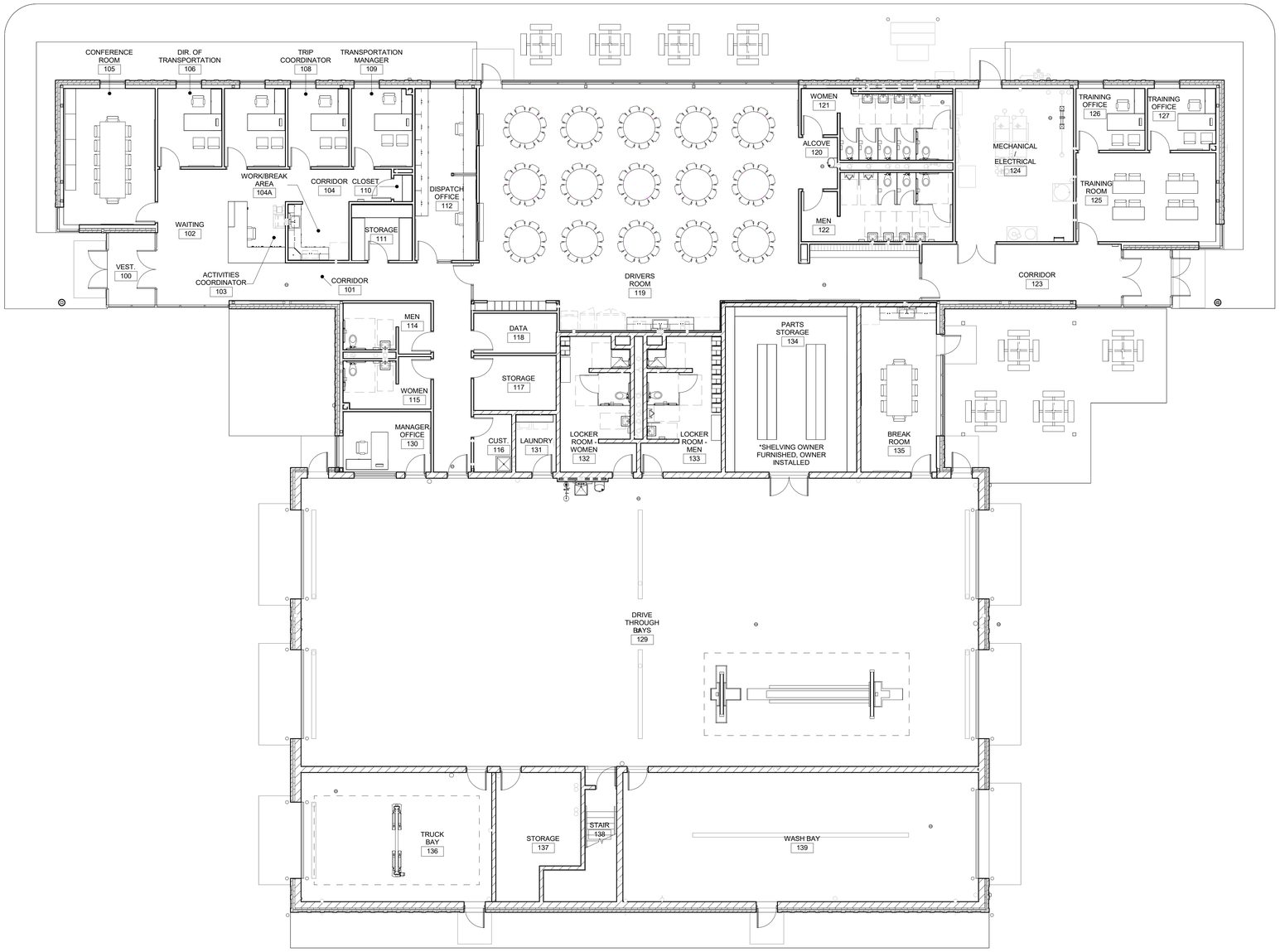
Sheet Title

FIRST FLOOR FINISH PLAN

Sheet No.

A901

*FOR REFERENCE ONLY*




1 FURNITURE PLAN (FOR REFERENCE ONLY)
1/8" = 1'-0"

City

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Certificate of Authority No. 2013013380

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JUSTIN P. PLACEK
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09/01/2026
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**MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY**
3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: NMM
Checked By: LLW

Sheet Title
FURNITURE PLAN (FOR REFERENCE ONLY)

Sheet No.
ID101

## FIRE PROTECTION SCOPE OF WORK:

1. THE DESIGN/BUILD CONTRACTOR SHALL INSTALL NEW SPRINKLER SYSTEM AS DESCRIBED ON THE NEW WORK PLANS.

2. REFERENCE STANDARDS AND SPECIFICATIONS:
   - NFPA 13 INSTALLATION OF SPRINKLER SYSTEMS
   - NFPA 24 FIRE SERVICE MAINS AND THEIR APPURTENANCES
   - SPECIFICATION SECTION 211313 - WET-PIPE FIRE SUPPRESSION SPRINKLERS

## GENERAL REQUIREMENTS:

1. BEFORE SUBMITTING A PROPOSAL, THIS CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF/HERSELF WITH SITE CONDITIONS. THIS CONTRACTOR SHALL CAREFULLY EXAMINE ALL CONSTRUCTION DOCUMENTS. SUBMISSION OF A BID WILL ACKNOWLEDGE THIS CONTRACTOR HAS EXAMINED ALL CONSTRUCTION DOCUMENTS AND PROJECT MANUAL. ALL ITEMS ON THE CONSTRUCTION DOCUMENTS AND PROJECT MANUAL NORMALLY INSTALLED BY THIS CONTRACTOR, AND PROVIDED BY OTHERS SHALL BE INCLUDED. IT IS EXPRESSLY UNDERSTOOD THAT THIS PROPOSAL IS BASED ON THE ABOVE REQUIREMENTS AND THAT IT COVERS EVERYTHING NECESSARY TO COMPLETE THE SCOPE OF WORK DESCRIBED.

2. THE FIRE PROTECTION CONTRACTOR SHALL REQUEST CLARIFICATION ON ANY ITEM(S) OF THE CONTRACT DOCUMENTS AND PROJECT MANUAL THAT ARE NOT UNDERSTOOD OR WHERE CONFLICTS MAY EXIST. CLARIFICATIONS MUST BE PRESENTED AS A REQUEST FOR INFORMATION IN WRITING PRIOR TO SUBMITTING A BID. ANY REQUEST FOR INFORMATION SHALL BE PRESENTED A MINIMUM OF FIVE (5) WORKING DAYS BEFORE THE BID DATE. SUBMISSION OF A BID WILL ACKNOWLEDGE THE FIRE PROTECTION CONTRACTOR UNDERSTANDS THE SCOPE OF WORK, MATERIALS TO BE USED, AND METHODS OF INSTALLATION. ALL CLARIFICATIONS OR REQUESTS FOR INFORMATION THAT HAVE NOT BEEN CLARIFIED PRIOR TO BID WILL BE PROVIDED FOR BY THE FIRE PROTECTION CONTRACTOR AS DIRECTED BY THE ENGINEER AND THE MOST STRINGENT MATERIALS AND CONDITIONS OF WORK SHALL APPLY. NO ADDITIONAL COMPENSATION WILL BE MADE FOR FAILURE OF THE CONTRACTOR TO COMPLY WITH THESE REQUIREMENTS.

3. SHOP DRAWINGS SHALL BE SUBMITTED AT ONE TIME AND ALL ITEMS REQUIRING A SUBMISSION SHALL BE SUBMITTED IN VOLUME(S) OF BINDERS WITH ALL ITEMS CLEARLY MARKED. THE NAME OF THE PROJECT, ADDRESS OF THE CONTRACTOR, PHONE NUMBER AND CONTACT NAME SHALL APPEAR ON A TITLE PAGE. PROVIDE A TABLE OF CONTENTS AND TABS SEPARATING ITEMS SUBMITTED. LARGE POINT-TO-POINT, WIRING SCHEMATICS AND SYSTEM DRAWINGS SHALL BE FOLDED AND SECURED IN THE SHOP DRAWINGS BINDER AND LABELED BY TAB. NO EXCEPTIONS WILL BE TAKEN. SHOP DRAWINGS NOT SUBMITTED IN THIS FORMAT WILL BE REJECTED AND WILL NOT CAUSE REASON FOR PROJECT DELAYS. THE FIRE PROTECTION CONTRACTOR SHALL REVIEW SHOP DRAWING SUBMITTALS FOR COMPLIANCE, CONTENT AND COMPLETENESS. PROVIDE A STAMP WITH THE DATE OF REVIEW, SIGNATURE OF THE REVIEWER, NAME, ADDRESS AND TELEPHONE NUMBER OF THE FIRE PROTECTION CONTRACTOR SHALL APPEAR IN THE STAMP OR TITLE PAGE WITH A WET SIGNATURE. THE FIRE PROTECTION CONTRACTOR WILL BE RESPONSIBLE FOR TRANSMISSION OF THE SHOP DRAWINGS FROM THE ENGINEERS OFFICE TO APPROPRIATE OTHER PARTIES.

4. ALL ITEMS OF WORK AND MATERIALS SHALL BE SPECIFICALLY INSTALLED PER WRITTEN INSTALLATION INSTRUCTIONS AND METHODS OF INSTALLATION AS PROVIDED BY THE MANUFACTURER OF THE EQUIPMENT OR MATERIAL PROVIDER. THIS CONTRACTOR SHALL UNDERSTAND THE PRODUCT AND METHODS OF INSTALLATION. ALL REQUESTS FOR ADDITIONAL INFORMATION DURING CONSTRUCTION WHERE THE CONTRACTOR HAS NOT PREVIOUSLY OBTAINED THIS INFORMATION FOR BIDDING PURPOSES MAY RESULT IN BACK CHARGES TO THE CONTRACTOR.

5. ALL FIRE PROTECTION WORK SHALL BE DONE UNDER THE SUPERVISION OF THE CONTRACTOR, WHO SHALL PROVIDE A COMPETENT FOREMAN TO LAYOUT ALL WORK. ALL WORK SHALL BE PROVIDED WITH DUE REGARD FOR THE SPACE REQUIREMENTS OF THE OTHER CONTRACTORS. THE CONTRACTOR SHALL REPORT ANY CONFLICTS OR DIFFICULTIES IN REGARD TO THE INSTALLATION IMMEDIATELY TO THE CONSTRUCTION MANAGER. WHERE CROWDED LOCATIONS EXIST OR WHERE THERE IS A POSSIBILITY OF CONFLICT BETWEEN TRADES, THE CONTRACTOR SHALL MAKE COMPOSITE SUPPLEMENTARY DRAWINGS SHOWING THE EXACT LOCATIONS OF PIPES, CONDUIT, DUCTS AND EQUIPMENT. DRAWINGS SHALL BE BASED ON FIELD MEASUREMENTS AND, AFTER CONSULTATION AND AGREEMENT BETWEEN THE TRADES, SHALL BE APPROVED BY THE CONSTRUCTION MANGER BEFORE INSTALLATION OF THE WORK.

6. THIS CONTRACTOR SHALL PROVIDE ALL ENGINEERING AND CONSTRUCTION GENERALLY DESCRIBED AS "DESIGN/BUILD". THIS INCLUDES BUT IS NOT LIMITED TO, FLOW TESTS, HYDRAULIC CALCULATIONS, CONSTRUCTION DRAWINGS, EQUIPMENT CUT SHEETS, AND PERMITS. ALL WORK AND ENGINEERING SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 13. ALL CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE LOCAL FIRE DISTRICT AND MEHLVILLE SCHOOL DISTRICT'S INSURANCE CARRIER PRIOR TO STARTING ANY WORK OR ORDERING ANY EQUIPMENT. ALL WORK AND DESIGN SHALL BE PERFORMED UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER FOR THE STATE OF MISSOURI. ENGINEER OF RECORD SHALL CARRY ERRORS AND OMISSION COVERAGE IN AN AMOUNT OF $1,000,000.00.

7. ALL PIPING SHALL BE PROVIDED AND INSTALLED TO MEET REQUIREMENTS OF NFPA 13. ALL PIPING SHALL BE SEISMICALLY RESTRAINED IN ACCORDANCE WITH NFPA 13 AND THE ADOPTED BUILDING CODE.

8. ALL SPRINKLER HEADS SHALL BE INSTALLED PER NFPA 13 FOR USE AND APPLICATION. IN UNFINISHED AREAS WITH NO CEILINGS, SPRINKLER HEADS SHALL BE BRASS UPRIGHT TYPE. SPRINKLER HEADS IN FINISHED AREAS SHALL BE CONCEALED PENDENT TYPE AS SHOWN ON THE DRAWINGS.

9. ALL HANGERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH NFPA 13 AND MUNICIPAL STANDARDS. ALL PIPING SHALL BE TESTED IN STRICT ACCORDANCE WITH NFPA 13. PROVIDE A INSPECTORS TEST CONNECTION WHERE REQUIRED BY THE LOCAL INSPECTION AUTHORITY.

10. ANY STRUCTURAL STEEL MEMBERS REQUIRED TO ADAPT THE EQUIPMENT AS FURNISHED, BY THIS CONTRACTOR, TO THE BUILDING STEEL OR STRUCTURE SHALL BE INCLUDED IN THE BID OF THIS CONTRACTOR FURNISHING THE EQUIPMENT.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO THE GROUNDS, WALKS ROADS, ALL BUILDING COMPONENTS AND FINISHES, PIPING SYSTEMS, ELECTRICAL SYSTEMS AND THEIR EQUIPMENT AND CONTENT, CAUSED BY LEAKS IN THE PIPING SYSTEMS BEING INSTALLED OR HAVING BEEN INSTALLED HEREIN.

12. PIPE PASSING THROUGH FLOOR, FINISHED WALLS, OR FINISHED CEILINGS SHALL BE FITTED WITH BLACK STEEL PLATES OR ESCUTCHEONS, CAULK WATERTIGHT AROUND PIPE. PIPE PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH AN APPROVED FIRE RATED CAULKING.

13. THE STRUCTURE IS OPEN IN SOME PARTS OF THIS PROJECT. THE FIRE PROTECTION CONTRACTOR SHALL REVIEW ARCHITECTURAL CEILING PLANS AND SECTIONS. THE BRANCH LINES SHALL BE COORDINATED WITH LIGHT FIXTURES, DUCT WORK, STRUCTURE, FRAMING AND CEILING ELEMENTS TO PROVIDE FOR A UNIFORM AND NEAT APPEARANCE. THE BRANCH LINES SHALL BE SUBJECT TO ARCHITECTURAL APPROVAL PRIOR TO STARTING WORK OR SUBMISSION TO THE AUTHORITY HAVING JURISDICTION.

## FIRE PROTECTION FIXTURE SCHEDULE

| | |
|---|---|
| FBP-2 | BACKFLOW PREVENTER: WATTS SERIES #757OSY ZONE DOUBLE CHECK VALVE ASSEMBLY CONSTRUCTED OF 304 STAINLESS STEEL HOUSING AND SLEEVE, STAINLESS STEEL TRI-LINK CHECKS, BRONZE TEST COCKS, STAINLESS STEEL SPRINGS, WITH RESILIENT SEATED GATE VALVES. |
| GA-1 | PRESSURE GAUGE: WEKSLER #35TL4-PD, 3-1/2" UTILITY GAUGE WITH BRASS BOURBON TUBE AND SOCKET, 0-100 PSI RANGE WITH BLACK STEEL CASE WITH CHROME BEZEL, 1/4" NPT BOTTOM CONNECTION, WHITE SCALE WITH BACK GRADUATIONS AND NUMERALS. INSTALL WITH 1/4" THREADED TWO-PIECE BALL VALVE FOR ISOLATION. |

# Flow Test Summary

| | |
|---|---|
| Project Name: | Mehlville High School |
| Project Address: | 3200 Lemay Ferry Rd, saint louis, MO 63125 |
| Date of Flow Test: | 2026-06-30 |
| Time of Flow Test: | 2:14 PM |
| Data Reliable Until: | 2027-06-30 |
| Conducted By: | Boyer Fire Protection - Mike Auer, Jake Hagan |
| Witnessed By: | None |
| City Forces Contacted: | Missouri American Water |

**Raw Flow Test Data**

| | |
|---|---|
| Static Pressure: | 89.0 PSI |
| Residual Pressure: | 85.0 PSI |
| Flowing GPM: | 1,548 |
| GPM @ 20 PSI: | 7,203 |

**Data with a 10 % Safety Factor**

| | |
|---|---|
| Static Pressure: | 80.1 PSI |
| Residual Pressure: | 76.1 PSI |
| Flowing GPM: | 1,548 |
| GPM @ 20 PSI: | 6,685 |

**Hydrant $F_1$**

| | | |
|---|---|---|
| Pitot Pressure (1): | 85 | PSI |
| Coefficient of Discharge (1): | 0.9 | |
| Hydrant Orifice Diameter (1): | 2.5 | inches |




Static-Residual Hydrant

Flow Hydrant

Distance Between $F_1$ and R 219 ft (measured linearly)

Static-Residual Elevation 536 ft (above sea level)

Flow Hydrant ($F_1$) Elevation 531 ft (above sea level)

Elevation & distance values are approximate

Boyer Fire Protection
5555 West Park Ave, St. Louis, MO 63110
www.flowtestsummary.com


# Flow Test Summary

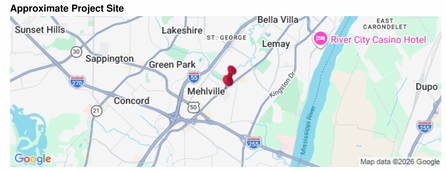
**Static-Residual Hydrant**



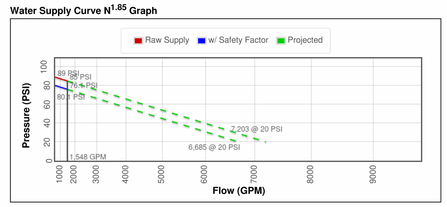

**Flow Hydrant** (only hydrant F1 shown for clarity)




**Approximate Project Site**

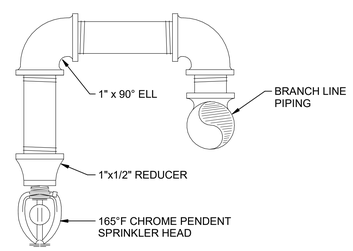



**Water Supply Curve $N^{1.85}$ Graph**

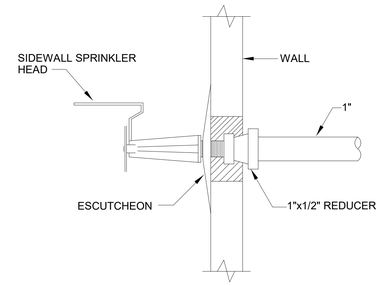



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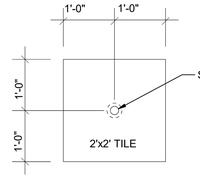

FLOW TEST




1 EXPOSED PENDENT SPRINKLER HEAD DETAIL
12" = 1'-0"

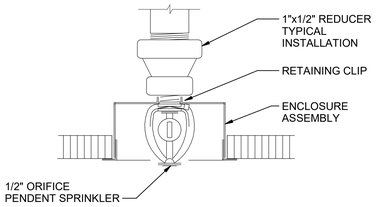



3 SIDEWALL SPRINKLER HEAD DETAIL
12" = 1'-0"

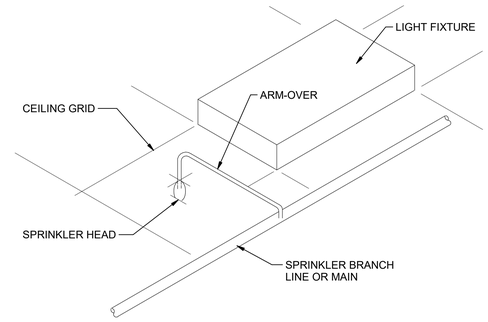



NOTE:
SPRINKLERS SHALL BE POSITIONED AS SHOWN WITH A 3" TOLERANCE. HOWEVER, SHOULD ANY PART OF THE TOLERANCE BE USED, THEN ALL THE SPRINKLERS IN THE ROW SHALL BE OFFSET BY THE SAME DISTANCE IN THE SAME DIRECTION. COORDINATE WITH ARCHITECT FOR POSITIONING REQUIREMENTS OF SPRINKLER IN CEILING TILES OTHER THAN 2'x2' SIZE.

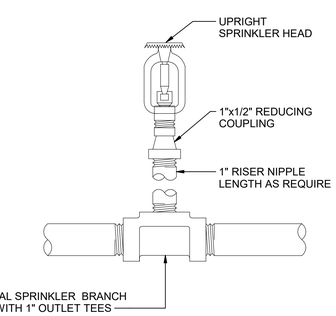
5 SPRINKLER PLACEMENT DETAIL
12" = 1'-0"




2 RECESSED SPRINKLER HEAD DETAIL
12" = 1'-0"




4 TYPICAL ARM OVER DETAIL
12" = 1'-0"




6 UPRIGHT SPRINKLER HEAD DETAIL
12" = 1'-0"

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2007031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No: 2007031307
Project No.: 2576EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

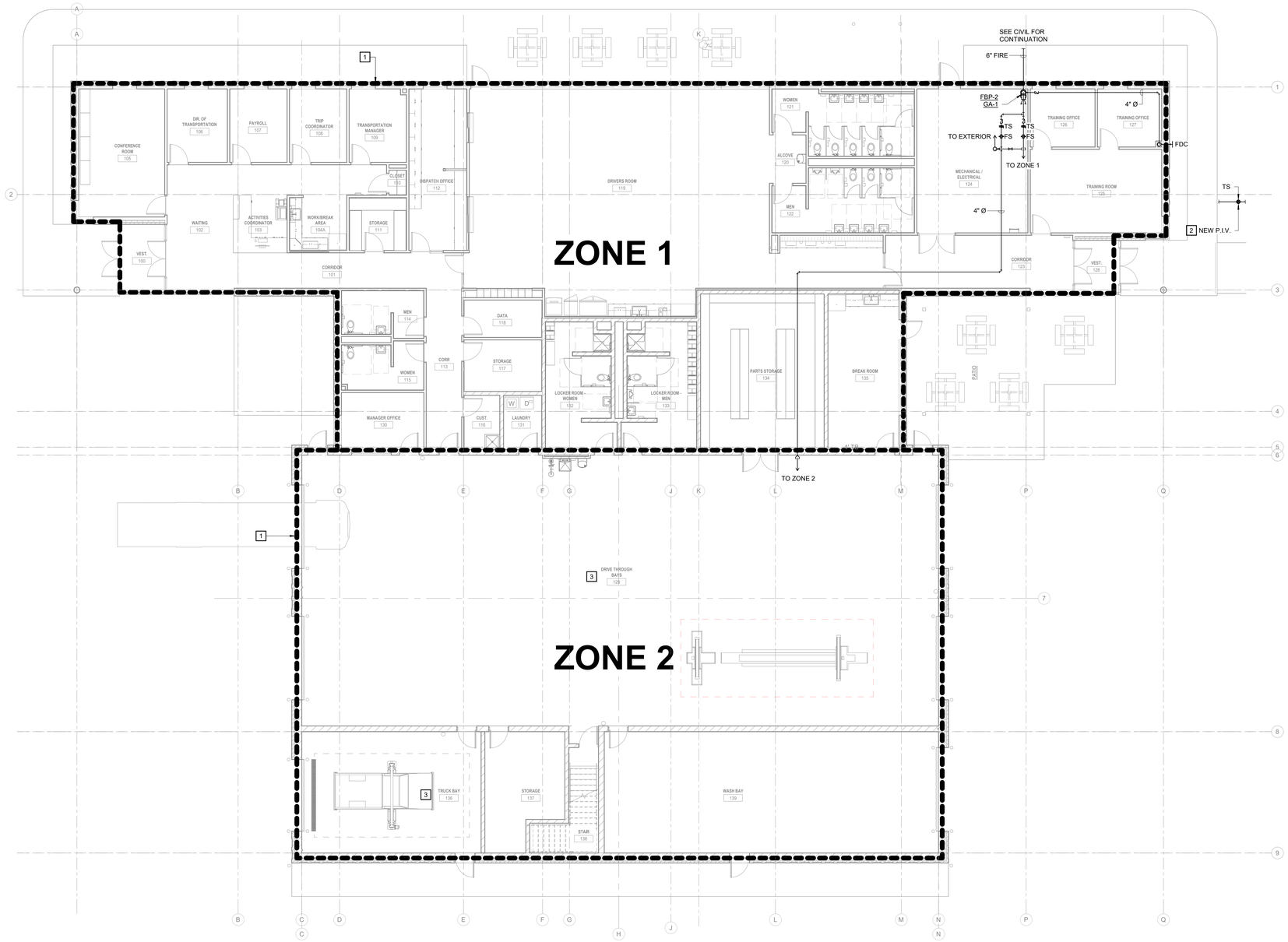
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Checked By: BWB

Sheet Title

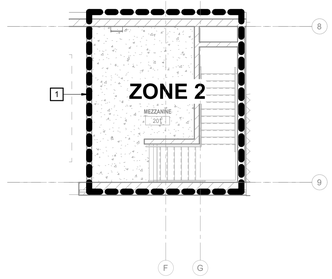
FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS

Sheet No.

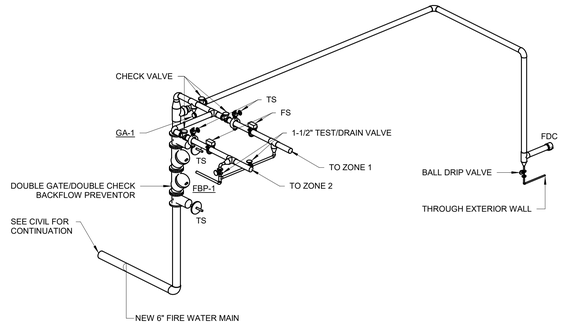
FP001




1 FIRST FLOOR PLAN - FIRE PROTECTION
1/8" = 1'-0"




2 MEZZANINE PLAN - FIRE PROTECTION
1/8" = 1'-0"




3 MECHANICAL/ELECTRICAL 124 - ISOMETRIC - FIRE PROTECTION

## FIRE PROTECTION GENERAL NOTES:

1. ALL EFFORT SHALL BE MADE TO CONCEAL ALL PIPING, INCLUDING USING SIDEWALL SPRINKLER HEADS WHERE NECESSARY. IN AREAS WHERE EXPOSED PIPING IS ABSOLUTELY NECESSARY, PIPING SHALL BE PAINTED TO MATCH ADJACENT SURFACES. COORDINATE WORK WITH GENERAL CONTRACTOR AS REQUIRED.
2. CONTRACTOR TO OFFSET SPRINKLER MAINS AND BRANCH PIPING UP AND AROUND EXISTING AND NEW DUCTWORK, PIPING, AND EQUIPMENT AS REQUIRED. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING AMOUNT OF OFFSETS NEEDED. COORDINATE INSTALLATION LOCATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACTORS.
3. ALL NEW SPRINKLER HEADS TO BE CONCEALED TYPE WITH WHITE COVERPLATES UNLESS OTHERWISE NOTED ON THESE DRAWINGS. ALL SIDEWALL SPRINKLER HEADS SHALL BE CONCEALED TYPE WITH BRUSHED CHROME (OR EQUAL FINISH) COVERPLATES.

## FIRE PROTECTION KEYED NOTES:

1 CONTRACTOR TO INSTALL NEW SPRINKLER PIPING IN AREA HIGHLIGHTED. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES/LAYOUTS.

2 FURNISHED AND INSTALL NEW POST INDICATOR VALVE (PIV) ON NEW FIRE LINE TO BUILDING. PROVIDE TAMPER SWITCH AS REQUIRED. COORDINATE WITH CIVIL. P.I.V. NOT SHOWN IN EXACT LOCATION - SEE CIVIL PLANS.

3 COORDINATE SPRINKLER LAYOUT WITH BIG ASS FAN MANUFACTURER CLEARANCE REQUIREMENTS IN THIS SPACE.

ZONE 1 = LIGHT HAZARD

ZONE 2 = ORDINARY HAZARD 2.

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No: 2017031307
Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

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100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: GSM
Checked By: BWB

Sheet Title

FLOOR PLAN - FIRE PROTECTION

Sheet No.

FP101

# PLUMBING FIXTURE SCHEDULE

WC-1 FLOOR-MOUNTED WATER CLOSET (ADA ACCESSIBLE): AMERICAN STANDARD # 3461.001 "MADERA" WHITE VITREOUS CHINA FIXTURE WITH ELONGATED BOWL, 16-1/2" HEIGHT, EVERCLEAN SURFACE TO INHIBIT MOLD AND BACTERIA GROWTH, 1.6 GALLON PER FLUSH, TOP INLET SPUD AND DIRECT-FED SIPHON JET ACTION. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. NO SUBSTITUTIONS.

FLUSH VALVE: ADA COMPLIANT SLOAN ROYAL 111-1.6 MANUAL WATER CLOSET FLUSHOMETER WITH ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, SWEAT SOLDER ADAPTER WITH COVER TUBE AND CAST SET SCREW WALL FLANGE.

TRIM: CHURCH # 9500SSCT WHITE OPEN-FRONT CONTOURED SOLID PLASTIC, HEAVY DUTY SEAT LESS COVER WITH SELF SUSTAINING CHECK HINGES AND STAINLESS STEEL BOLTS.

WC-2 FLOOR-MOUNTED WATER CLOSET: AMERICAN STANDARD # 3451.001 "MADERA" WHITE VITREOUS CHINA BARRIER FREE TOILET WITH ELONGATED BOWL, 15" HEIGHT, EVERCLEAN SURFACE TO INHIBIT MOLD AND BACTERIA GROWTH, 1.6 GALLON PER FLUSH, TOP INLET SPUD AND DIRECT-FED SIPHON JET ACTION. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. NO SUBSTITUTIONS

FLUSH VALVE: ADA COMPLIANT SLOAN ROYAL 111-1.6 MANUAL WATER CLOSET FLUSHOMETER WITH ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, SWEAT SOLDER ADAPTER WITH COVER TUBE AND CAST SET SCREW WALL FLANGE.

TRIM: CHURCH # 9500SSCT WHITE OPEN-FRONT CONTOURED SOLID PLASTIC, HEAVY DUTY SEAT LESS COVER WITH SELF SUSTAINING CHECK HINGES AND STAINLESS STEEL BOLTS.

UR-1 URINAL (ADA ACCESSIBLE): AMERICAN STANDARD # 6590.001 "WASHBROOK FLOWISE" WHITE VITREOUS CHINA FIXTURE, 1.0 GPF SIPHON-JET URINAL WITH FLUSHING RIM, 3/4" TOP SPUD AND 2" NPTF OUTLET. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. INSTALL WITH MOUNTING HEIGHT OF 17" FROM RIM TO FINISHED FLOOR.

FLUSH VALVE: ADA COMPLIANT SLOAN ROYAL 186-1.0 MANUAL URINAL FLUSHOMETER WITH ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, SWEAT SOLDER ADAPTER WITH COVER TUBE AND CAST SET SCREW WALL FLANGE. NO SUBSTITUTIONS.

CARRIER: ZURN #Z1222 PLATE TYPE CARRIER SYSTEM FOR WALL URINALS WITH FLOOR MOUNTED SUPPORTS.

LAV-1 WALL-MOUNTED LAVATORY: AMERICAN STANDARD # 0355.012 "LUCERNE" 20-1/2" X 18-1/4" WALL HUNG WHITE VITREOUS CHINA FIXTURE WITH INTEGRAL BACK SPLASH, FAUCET LEDGE, FRONT OVERFLOW, FAUCET ON 4" CENTERS AND ARRANGED FOR CONCEALED ARMS SUPPORT. SEE ARCHITECTURAL ELEVATIONS FOR REQUIRED MOUNTING HEIGHT.

FAUCET: CHICAGO FAUCET MODEL 802-VE2805-317ABCP "ECAST" TRADITIONAL DECK MOUNTED SUPPLY FAUCET ON 4" CENTERS WITH SOLID BRASS INTERNAL WATERWAY CONSTRUCTION, POLISHED CHROME PLATED FINISH, 0.5 GPM VANDAL PROOF NON-AERATING SPRAY, 4" VANDAL PROOF WRISTBLADE HANDLE, QUARTURN COMPRESSION OPERATING CARTRIDGE, 1/2" SUPPLY INLET. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. NO SUBSTITUTIONS.

CARRIER: ZURN #Z1231 CONCEALED ARM CARRIER SYSTEM FOR WALL LAVATORIES WITH FLOOR MOUNTED SUPPORTS.

TRIM: McGUIRE # 155A GRID DRAIN WITH TAILPIECE, McGUIRE # BV2165CC BALL TYPE QUARTER-TURN ANGLE STOP VALVES WITH CONVERTIBLE HANDLE WITH RISERS AND ESCUTCHEONS, McGUIRE # 8872CF 1-1/4" 17 GAUGE TUBULAR CHROME PLATED BRASS ADJUSTABLE P-TRAP AND WASTE ARM WITH CLEANOUT PLUG AND ESCUTCHEON, TRUEBRO "HANDI LAV-GUARD" # 102 INSULATION KIT FOR WATER AND WASTE PIPES.

SK-1 COUNTERTOP SINK: ELKAY LUSTERTONE MODEL ELUH2115PD STAINLESS STEEL 23-1/2" X 18-1/4" X 7-1/2" SINGLE BOWL UNDERMOUNT SINK, 21" X 15-3/4" X 7-1/2" BOWL DIMENSION, BOTTOM PADS, 3-3/8" DRAIN. INCLUDE WITH ALL REQUIRED MOUNTING HARDWARE.

FAUCET: CHICAGO FAUCET MODEL 786-GR8AE3V317AB DECK MOUNTED 8" WIDESPREAD FAUCET WITH 8" RESTRICTED SWING GOOSENECK SPOUT, 2.2 GPM AERATOR OUTLET, 4" WRIST-BLADE HANDLES AND QUARTER-TURN RENEWABLE COMPRESSION CARTRIDGES. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. NO SUBSTITUTIONS.

TRIM: ELKAY #LKPD1 PERFECT DRAIN STAINLESS STEEL BODY AND STRAINER, McGUIRE # BV2165CC BALL TYPE QUARTER-TURN ANGLE STOP VALVES WITH CONVERTIBLE HANDLE WITH RISERS AND ESCUTCHEONS, McGUIRE # 8872CF 1-1/4" 17 GAUGE TUBULAR CHROME PLATED BRASS ADJUSTABLE P-TRAP AND WASTE ARM WITH CLEANOUT PLUG AND ESCUTCHEON, TRUEBRO "HANDI LAV-GUARD" # 102 INSULATION KIT FOR WATER AND WASTE PIPES.

GARBAGE DISPOSAL: IN-SINK-ERATOR MODEL EVOLUTION EXCEL WITH MULTIGRIND AND SOUNDSEAL TECHNOLOGIES, 1 HP SINGLE PHASE 120 VOLT MOTOR, STAINLESS STEEL GRIND CHAMBER AND COMPONENTS WITH POWER CORD. NO SUBSTITUTIONS.

SK-2 FLOOR MOUNT SINK: ELKAY STURDIBILT MODEL SS81242 STAINLESS STEEL 27" X 27-1/2" X 14" FLOOR MOUNT, SINGLE COMPARTMENT SCULLERY SINK. SINK IS MANUFACTURED FROM 14 GAUGE 304 STAINLESS STEEL WITH A BUFFED SATIN FINISH, CENTER DRAIN PLACEMENT. SINKS SUPPORTED BY (4) 16 GAUGE STAINLESS STEEL, 1-5/8" O.D. TUBULAR LEGS WITH BULLET SHAPED FEET ADJUSTABLE UP TO 1".

FAUCET: CHICAGO FAUCET MODEL 540-LD897SWXFCP WALL MOUNTED 8" FIXED CENTERS HOT AND COLD WATER SINK FAUCET WITH VACUUM BREAKER, 3/4" MALE HOSE THREAD, PAIL HOOK, LEVER HANDLES, QUATURN COMPRESSION CARTRIDGES AND ADJUSTABLE WALL BRACE. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE. NO SUBSTITUTIONS.

TRIM: ELKAY #LK99 DELUXE DRAIN STAINLESS STEEL BODY AND STRAINER, McGUIRE # BV2165CC BALL TYPE QUARTER-TURN ANGLE STOP VALVES WITH CONVERTIBLE HANDLE WITH RISERS AND ESCUTCHEONS, TRUEBRO "HANDI LAV-GUARD" # 102 INSULATION KIT FOR WATER AND WASTE PIPES. PROVIDE WALL BEND LENGTH AS NEEDED TO ACCOMMODATE ROUGH-IN.

EWC-1 ELECTRIC WATER COOLER (ADA ACCESSIBLE): ELKAY# LZS8WSSP WALL-MOUNTED COOLER, ADA BARRIER FREE, FRONT AND SIDE PUSH ACTUATOR BARS, STAINLESS STEEL BOWL, BOTTLE FILLING STATION, FLEXIBLE POLYESTER ELASTOMER SAFETY BUBBLER AND GALVANIZED STEEL FRONT AND SIDES, CHILLER WITH 8.0 GALLONS PER HOUR CAPACITY, 50° F DRINKING WATER AT 80° F INLET TEMPERATURE. MOUNT WITH ORIFICE HEIGHT AT 33" ABOVE FINISHED FLOOR. NO SUBSTITUTIONS.

EWC-2 ELECTRIC WATER COOLER (ADA ACCESSIBLE): ELKAY# VRCGRN8WSK WALL-MOUNTED VANDAL RESISTANT COOLER, ADA BARRIER FREE, FRONT AND SIDE PUSH ACTUATOR BARS, STAINLESS STEEL BOWL, BOTTLE FILLING STATION, VANDAL RESISTANT STREAMSAVER BUBBLER AND GALVANIZED STEEL FRONT AND SIDES, CHILLER WITH 8.0 GALLONS PER HOUR CAPACITY, 50° F DRINKING WATER AT 80° F INLET TEMPERATURE. MOUNT WITH ORIFICE HEIGHT AT 33" ABOVE FINISHED FLOOR. NO SUBSTITUTIONS.

MSB-1 MOP SERVICE BASIN: FIAT MODEL #MSB-2424 MOLDED STONE MOP SERVICE BASIN WITH 24"x24"x10" WHITE COLOR WITH 1" WIDE SHOULDERS, STAINLESS STEEL DRAIN BODY AND DOME STRAINER. ACCESSORIES TO INCLUDE MOP BRACKET (24"x3") WITH THREE RUBBER GRIPS, VINYL BUMPER GUARDS, STAINLESS STEEL WALL GUARDS (TWO PANELS FOR CORNER INSTALLATION) AND 30" LONG FLEXIBLE HEAVY DUTY 5/8" RUBBER HOSE WITH HOSE BRACKET WITH RUBBER GRIP.

FAUCET: CHICAGO FAUCET MODEL 540-LD897SWXFCP WALL MOUNTED 8" FIXED CENTERS HOT AND COLD WATER SINK FAUCET WITH VACUUM BREAKER, 3/4" MALE HOSE THREAD, PAIL HOOK, LEVER HANDLES, QUATURN COMPRESSION CARTRIDGES AND ADJUSTABLE WALL BRACE. SUPPLY WITH ALL REQUIRED MOUNTING HARDWARE.

DWH-1 DOMESTIC WATER HEATER: STATE ULTRA FORCE MODEL #SUF60 120NE, 120V/1PH, 60 GALLON NATURAL GAS WATER HEATER, 120,000 BTU/HR INPUT CAPACITY. DIRECT VENTED. FACTORY WIRED CONTROLS WITH ADJUSTABLE RANGE OR 110F TO 170F (SET AT 140F), MANUAL RESET HIGH TEMPERATURE CUTOFF, GLASS LINED TANK WITH ANODE ROD FOR CORROSION PROTECTION. INCLUDE 10-YEAR LIMITED TANK WARRANTY AND 6 YEAR PARTS WARRANTY. RECOVERY IS 138 GPH AT 100F RISE.

ET-1 EXPANSION TANK: STATE MODEL #ETC-5X POTABLE WATER EXPANSION TANK, 4.55 GALLON CAPACITY, MAXIMUM ACCEPTABLE VOLUME = 2.19 GALLON AT 60 PSI, WITH FIELD ADJUSTABLE AIR CHARGE VALVE, BUTYL RUBBER DIAPHRAM AND BONDED POLYMER INNER LINING. INCLUDE 5-YEAR LIMITED TANK WARRANTY.

RCP-1 RECIRCULATION PUMP: TACO '003ST4' CARTRIDGE CIRCULATOR, STAINLESS STEEL CASING AND CARTRIDGE, 4 GPM AT 3 FT HEAD, 1/40 HP, 120VAC.

FCO-1 FLOOR CLEANOUT: JAY R. SMITH, CAST IRON BODY, FLASHING FLANGE WITH CLAMPING COLLAR, ABS PLUG, AND ADJUSTABLE ROUND, SECURED NICKEL BRONZE, TOP. # 4031L (-F-C), SCORIATED TOP FOR EXPOSED, FLUSH WITH FINISHED FLOOR APPLICATION(S), # 4031L (-F-C-Y), STAINLESS STEEL MARKER FOR INSTALLATION IN CARPETED FLOOR AREA(S), # 4191 (-F-C), 1/2" RECESS FOR INSTALLATION IN TERRAZZO AND SIMILAR POURED FLOOR AREA(S).

WCO-1 WALL CLEANOUT: JAY R. SMITH # 4530S, CAST IRON CLEANOUT TEE, COUNTER SUNK PLUG, STAINLESS STEEL ROUND COVER AND SCREW, AND IRON PLUG WITH GASKET SEAL.

WCO-2 WALL CLEANOUT (PAINTABLE COVER): JAY R. SMITH # 4530S, CAST IRON CLEANOUT TEE, COUNTER SUNK PLUG, AND IRON PLUG WITH GASKET SEAL. PROVIDE PAINTABLE FLAT COVER, LSP MODEL 109FW, 9" MATTE WHITE WITH SCREW. COVER TO BE PAINTED TO MATCH WALL COLOR.

FD-1 FLOOR DRAIN: JAY R. SMITH # 2005L (-B-SS), SQUARE CAST IRON BODY AND CLAMPING COLLAR, ADJUSTABLE 6" SQUARE STAINLESS STEEL STRAINER. USE PUSH-ON JOINT OF OUTLET SIZE. PROVIDE WITH CONNECTION FOR TRAP SEAL PRIMER WHERE REQUIRED.

TRAP GUARD: JAY R. SMITH # 2692 QUAD CLOSE TRAP SEAL DEVICE. PROVIDE SIZE TO MATCH PIPE SIZE.

FS-1 FLOOR SINK (3/4 GRATE): JOSAM CO. 49300-4-33-35-55, CAST IRON BODY AND FLASHING COLLAR, 8" SQUARE TOP WITH 3/4 GRATE, DOME STRAINER. 2" PIPE SIZE. SEDIMENT BUCKET LINER S.S. MESH. PRIMER ADAPTOR.

AD-1 AREA DRAIN: JAY R. SMITH # 2238, CAST IRON BODY AND FLASHING COLLAR, 12" ROUND CAST IRON TRACTOR GRATE WITH SLOTTED SEDIMENT BUCKET. INSTALL FLUSH WITH CONCRETE.

TP-1 TRAP PRIMER: MIFAB MODEL MR-500 PRESSURE DROP ACTIVATED BRASS TRAP SEAL PRIMER, WITH REMOVABLE FILTER SCREEN, REQUIRES NO ADJUSTMENTS OR AIR PRE-CHARGE. TRAP PRIMER IS FOR INSTALLATION WITH FLOOR DRAINS. INSTALL WITH UNION FITTING ON INLET FOR FUTURE SERVICING. INSTALL ABOVE ACCESSIBLE CEILING OR WITH ACCESS DOOR FOR FUTURE SERVICING.

RD-1 ROOF DRAIN: JAY R. SMITH # 1010 LARGE GENERAL PURPOSE ROOF DRAIN WITH CAST IRON BODY, FLASHING CLAMP, UNDERDECK CLAMP AND GALVANIZED CAST IRON DOME. OUTLET SIZE SHALL MATCH SIZES SHOWN ON DRAWINGS.

RD-2 ROOF DRAIN WITH WATER DAM: JAY R. SMITH # 1080 LARGE SPECIAL PURPOSE ROOF DRAIN WITH CAST IRON BODY, FLASHING CLAMP, UNDERDECK CLAMP, GALVANIZED CAST IRON DOME AND 2" HIGH WATER DAM. OUTLET SIZE SHALL MATCH SIZES SHOWN ON DRAWINGS.

DN-1 DOWNSPOUT NOZZLE: ZURN #ZF199-JB ALUMINUM DOWNSPOUT NOZZLE WITH FLANGE AND PERFORATED HINGED FLAPPER, JET BLACK. NO SUBSTITUTIONS..

R-1 REFRIGERATOR: BY OWNER.

WALL BOX: GUY GRAY BOX MODEL MIB4AB WALL BOX RECESSED IN WALL, BRASS ¼" TURN VALVE, ½" SWEAT CONNECTION. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT. PROVIDE POLYETHYLENE TUBING FOR WATER CONNECTION AND MAKE FINAL CONNECTION TO REFRIGERATOR.

IM-1 ICE MAKER: OWNER FURNISHED, CONTRACTOR INSTALLED.

WALL BOX: GUY GRAY BOX MODEL MIB4AB WALL BOX RECESSED IN WALL, BRASS ¼" TURN VALVE, ½" SWEAT CONNECTION. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT. PROVIDE POLYETHYLENE TUBING FOR WATER CONNECTION AND MAKE FINAL CONNECTION TO ICE MAKER.

CM-1 COFFEE MAKER: BY OWNER.

WALL BOX: GUY GRAY BOX MODEL MIB4AB WALL BOX RECESSED IN WALL, BRASS ¼" TURN VALVE, ½" SWEAT CONNECTION. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT. PROVIDE POLYETHYLENE TUBING FOR WATER CONNECTION AND MAKE FINAL CONNECTION TO COFFEE MAKER.

SH-1 SHOWER (ADA ACCESSIBLE): FIAT #ADATN3636 MONTEREY TERRAZZO WHEELCHAIR SHOWER RECEPTOR, 36"X36", FINAL COLOR BY ARCHITECT, NO THRESHOLD, STAINLESS STEEL STRAINER PLATE, RECESSED FOR FLOOR INSTALLATION, QUICK DRAIN CONNECTOR.

TRIM: SYMMONS DIA SHOWER HAND/SHOWER SYSTEM, MODEL 3505-H321-V-CYL, WITH LEVER HANDLE, SYMMONS TEMPTROL PRESSURE-BALANCING MIXING VALVE, SEPARATE LEVER DIVERTER, SINGLE MODE SHOWERHEAD WITH ARM AND FLANGE. SINGLE MODE WALL/HAND SHOWER WITH FLEXIBLE METAL HOSE, IN-LINE VACUUM BREAKER AND WALL CONNECTION, 30" SLIDE BAR FOR HAND SHOWER.

HB-1 OUTDOOR HOSE BIBB: WATTS DRAINAGE MODEL HY-420 NON-FREEZE KEY OPERATED WALL HYDRANT WITH CHROME PLATED FACE, INTEGRAL VACUUM BREAKER, ¾" HOSE CONNECTION, ¾" FEMALE X 1" MALE PIPE CONNECTION, ALL BRONZE HEAD, SEAT CASTING AND INTERNAL WORKING PARTS, BRONZE WALL CASING, AND LOOSE KEY. OVERALL LENGTH SHALL BE SELECTED FOR ACTUAL WALL THICKNESS WHERE INSTALLED.

HB-2 HOSE BIBB: NIBCO MODEL 73-CL BOILER DRAIN VALVE WITH 3/4" MPT INLET, 3/4" HOSE CONNECTION, MULTI-TURN GLOBE VALVE. PROVIDE WITH 3/4"X3/4" HOSE CONNECTION VACUUM BREAKER.

RH-1 ROOF HYDRANT: WOODFORD MODEL RHY2-MS, ¾"NPT FEMALE INLET, 1-1/2" GALVANIZED STEEL CASING, 1/8"NPT DRAIN HOLE, ADJUSTABLE LINK, ONE PIECE VARIABLE FLOW PLUNGER, 100 PSI MAXIMUM WORKING PRESSURE, 120°F MAXIMUM TEMPERATURE. INCLUDE WITH REQUIRED MOUNTING SYSTEM.

TMV-1 THERMOSTATIC MIXING VALVE: BRADLEY MODEL S59-5125 DIGITAL THERMOSTATIC MIXING VALVE, 1-1/4" INLET AND OUTLET, ADJUSTABLE TEMPERATURE SELECTION DIGITAL CONTROLLER THERMOSTAT WITH LOCK DOWN (SET TO 120F), INTEGRAL STRAINER CHECKSTOPS ON INLET TO PREVENT CROSS-FLOW AND CONTAMINATION. INCLUDE WALL MOUNTING BRACKET AND EXTEND AND REWORK PIPING AS NECESSARY TO CONNECT TO MIXING VALVE.

TMV-2 THERMOSTATIC MIXING VALVE: BRADLEY MODEL #S19-2150 (EFX20) EMERGENCY FIXTURE THERMOSTATIC MIXING VALVE WITH INTEGRAL CHECK VALVES, THERMOMETER, LOCKING TEMPERATURE REGULATOR AND COLD WATER BYPASS. PROVIDE AND INSTALL IN STAINLESS STEEL SURFACE MOUNTED CABINET.

ES-1 EMERGENCY SHOWER/EYEWASH: BRADLEY MODEL #S19314CD2DEEA0P EMERGENCY DRENCH SHOWER AND EYE/FACE WASH, ADA COMPLIANT, CHROME-PLATED PIPING. STAINLESS STEEL BALL VALVE, SHOWERHEAD, HALO EYE/FASH WASH, BOWL AND DUST COVER, AND ACTIVATION. PROVIDE WITH ANTI-SCALD VALVE.

OSI-1 OIL/SAND INTERCEPTOR: STRIEM OS-500-SS, POLYETHYLENE GRAVITY OIL INTERCEPTOR, 500 GALLON CAPACITY, 4" THREADED INLET/OUTLET CONNECTIONS, 3" VENT CONNECTIONS, SLICK STICK OIL LEVEL MONITORING SYSTEM, REMOVABLE 3/8" NONSKID DIAMOND TREAD-PLATE COVER FLUSH WITH GRADE, SECURED WITH STAINLESS STEEL FLAT HEAD SCREWS, HEAVY DUTY LEAK-PROOF GASKET, BITUMINOUS COATING OUTSIDE. PROVIDE ADDED MANWAY HEIGHT ON RISER AS REQUIRED FOR PIPE DEPTH CONNECTION AND TO PROVIDE COVER FLUSH WITH GRADE.

W-1 WASHER: BY OWNER. PROVIDE GUY GRAY BOX MODEL T200TPPVC WALL BOX RECESSED IN WALL, BRASS ¼" TURN VALVE, ½" MIP/SWEAT CONNECTIONS, 2" PVC DRAIN FITTING.

TD-1 TRENCH DRAIN: SIOUX CHIEF HYDROTEC MAXI 150 6" WIDE CHANNEL DRAIN SYSTEM WITH INTEGRAL DUCTILE IRON RAIL AND GRATE, 14' (4.2672 METERS) LONG WITH ONE 4" BOTTOM OUTLET AT END OF RUN, ½ AND 1 METER FIBER REINFORCED CONCRETE CHANNEL OF INTERLOCKING DESIGN. SUPPLIED WITH LOAD CLASS "F" RATED (F900, PER EN 1433) SECURED DUCTILE IRON GRATES WITH SLOTS ACCORDING TO ADA STANDARDS. GRATES ARE SECURED TO THE CHANNEL BODY WITH LOCKING BARS, A PATENTED BOLTLESS GRATE LOCKING SYSTEM. SYSTEM SHALL CONSIST OF 5 METERS AT 1% SLOPE, 6 METERS AT 0% SLOPE, 5 METERS AT 1% SLOPE, 6 METERS AT 0% SLOPE, 1 METER AT 0% SLOPE WITH BOTTOM OUTLET AND ENDCAP.

TD-2 TRENCH DRAIN: SIOUX CHIEF HYDROTEC MAXI 150 6" WIDE CHANNEL DRAIN SYSTEM WITH INTEGRAL DUCTILE IRON RAIL AND GRATE, 12' (3.6576 METERS) LONG WITH ONE 4" BOTTOM OUTLET AT END OF RUN, ½ AND 1 METER FIBER REINFORCED CONCRETE CHANNEL OF INTERLOCKING DESIGN. SUPPLIED WITH LOAD CLASS "F" RATED (F900, PER EN 1433) SECURED DUCTILE IRON GRATES WITH SLOTS ACCORDING TO ADA STANDARDS. GRATES ARE SECURED TO THE CHANNEL BODY WITH LOCKING BARS, A PATENTED BOLTLESS GRATE LOCKING SYSTEM. SYSTEM SHALL CONSIST OF 5 METERS AT 1% SLOPE, 0.5 METERS AT 0% SLOPE, 3 METERS AT 0% SLOPE, 1 METER AT 0% SLOPE WITH BOTTOM OUTLET AND ENDCAP.

TD-3 TRENCH DRAIN: SIOUX CHIEF HYDROTEC MAXI 150 6" WIDE CHANNEL DRAIN SYSTEM WITH INTEGRAL DUCTILE IRON RAIL AND GRATE, 34' (10.3632 METERS) LONG WITH ONE 4" BOTTOM OUTLET AT END OF RUN, ½ AND 1 METER FIBER REINFORCED CONCRETE CHANNEL OF INTERLOCKING DESIGN. SUPPLIED WITH LOAD CLASS "F" RATED (F900, PER EN 1433) SECURED DUCTILE IRON GRATES WITH SLOTS ACCORDING TO ADA STANDARDS. GRATES ARE SECURED TO THE CHANNEL BODY WITH LOCKING BARS, A PATENTED BOLTLESS GRATE LOCKING SYSTEM. SYSTEM SHALL CONSIST OF 5 METERS AT 1% SLOPE, 0.5 METERS AT 0% SLOPE, 3 METERS AT 0% SLOPE, 1 METER AT 0% SLOPE WITH BOTTOM OUTLET AND ENDCAP.

BP-1 BACKFLOW PREVENTER: WATTS SERIES #LF909 LEAD-FREE REDUCED PRESSURE ZONE DOUBLE CHECK VALVE ASSEMBLY CONSTRUCTED OF EPOXY COATED CAST IRON UNIBODY WITH BRONZE SEATS, RELIEF VALVE WITH STAINLESS STEEL SEAT AND TRIM, BRONZE BODY BALL VALVE TEST COCKS, EPOXY COATED STRAINER AND EPOXY COATED QUARTER-TURN BALL VALVE SHUTOFFS AND AIR GAP ASSEMBLY.

BP-2 BACKFLOW PREVENTER: WATTS SERIES #LF009 LEAD-FREE REDUCED PRESSURE ZONE DOUBLE CHECK VALVE ASSEMBLY CONSTRUCTED OF BRONZE COATED CAST IRON UNIBODY WITH BRONZE SEATS, RELIEF VALVE WITH STAINLESS STEEL SEAT AND TRIM, BRONZE BODY BALL VALVE TEST COCKS, BRONZE COATED STRAINER AND BRONZE COATED QUARTER-TURN BALL VALVE SHUTOFFS AND AIR GAP ASSEMBLY.

PRV-1 PRESSURE REDUCING VALVE: WATTS SERIES #LFF115 AUTOMATIC WATER PRESSURE REDUCING VALVE, PRESSURE PILOTED WITH FLANGED CAST IRON BODY CONSTRUCTION, BRONZE TRIM, PRESSURE GAUGE CONNECTIONS, POSITION INDICATOR, AND MEANS FOR DISCHARGE PRESSURE ADJUSTMENT. PROVIDE WITH ALL MANUFACTURER RECOMMENDED STANDARD COMPONENTS VALVE SHALL BE 2-1/2" SIZE INSTALLED IN 3" LINE WITH BRONZE THREADED REDUCERS AND UNIONS AT BOTH INLET AND OUTLET CONNECTIONS. SETPOINT SHALL BE ADJUSTABLE FROM 25 – 75 PSI. INITIAL SETTING SHALL BE 50 PSI.

GA-1 PRESSURE GAUGE: WEKSLER #35TL4-PD, 3-1/2" UTILITY GAUGE WITH BRASS BOURBON TUBE AND SOCKET, 0-100 PSI RANGE WITH BLACK STEEL CASE WITH CHROME BEZEL, 1/4" NPT BOTTOM CONNECTION, WHITE SCALE WITH BACK GRADUATIONS AND NUMERALS. INSTALL WITH 1/4" THREADED TWO-PIECE BALL VALVE FOR ISOLATION.

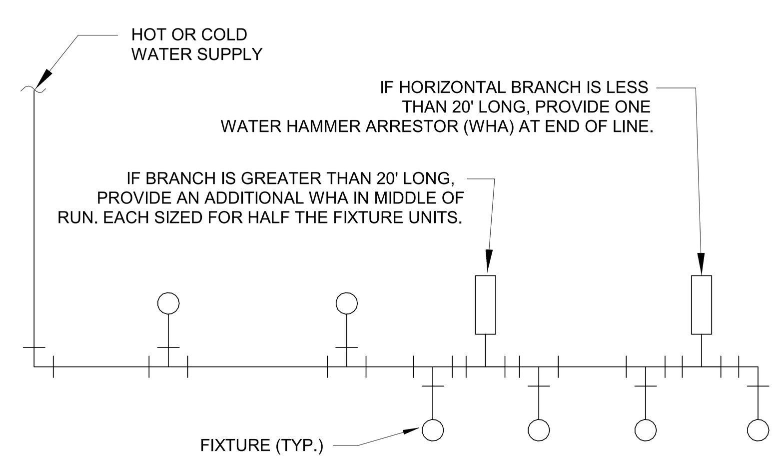
TH-1 THERMOMETER: WEKSLER MODEL AS5H-7-36 ADJUSTABLE ANGLE THERMOMETER, 20-180 F TEMPERATURE RANGE, BLACK MOLDED ABS CASE WITH GLASS FRONT, BLUE LIQUID FILLED THERMOMETER TUBE, WITH BRASS THERMO-WELL.

# PLUMBING NOTES:

1. BEFORE SUBMITTING A PROPOSAL, THE PLUMBING CONTRACTOR SHALL VISIT THE SITE OF WORK AND FAMILIARIZE HIMSELF WITH SITE CONDITIONS. PLUMBING CONTRACTOR SHALL CAREFULLY EXAMINE ALL CONSTRUCTION DOCUMENTS. SUBMISSION OF A BID WILL ACKNOWLEDGE THE PLUMBING CONTRACTOR HAS EXAMINED ALL CONSTRUCTION DOCUMENTS AND THE PROJECT MANUAL. ALL PLUMBING ITEMS ON THE CONSTRUCTION DOCUMENTS AND INCLUDED IN ALL OTHER DIVISIONS OF THE PROJECT MANUAL, NORMALLY INSTALLED BY THE PLUMBING CONTRACTOR, AND PROVIDED BY OTHERS SHALL BE INCLUDED. IT IS EXPRESSLY UNDERSTOOD THAT THIS PROPOSAL IS BASED ON THE ABOVE REQUIREMENTS AND THAT IT COVERS EVERYTHING NECESSARY TO COMPLETE THE SCOPE OF WORK DESCRIBED.
2. ALL ITEMS OF WORK AND MATERIALS SHALL BE SPECIFICALLY INSTALLED PER WRITTEN INSTALLATION INSTRUCTIONS AND METHODS OF INSTALLATION AS PROVIDED BY THE MANUFACTURER OF THE EQUIPMENT OR MATERIAL PROVIDED. PLUMBING CONTRACTOR SHALL UNDERSTAND THE PRODUCT AND METHODS OF INSTALLATION.
3. SYSTEMS AS SHOWN ARE DIAGRAMMATIC AND GIVE THE GENERAL ARRANGEMENT ONLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD ON THE BASIS OF DETAIL DRAWINGS, REVIEWED DRAWINGS, AND SUPPLEMENTARY INFORMATION. INSTALLATION SHALL PROVIDE FOR OPERATING EFFICIENCY, NEATNESS OF APPEARANCE AND EASE OF MAINTENANCE. IT IS EXPECTED THAT THE CONTRACTOR WILL PREPARE DIMENSIONED FIELD ERECTION DRAWINGS AND WORK SKETCHES FOR USE BY THEIR MECHANICS, TO INSURE PROPER INSTALLATION AND COORDINATION. THE PLUMBING CONTRACTOR SHALL TAKE THEIR OWN MEASUREMENTS AT THE BUILDING, AND BE RESPONSIBLE FOR THE CORRECT INTERPRETATION AND USE OF ALL SIZES AND DIMENSIONS. REFER TO PLUMBING MATERIAL SPECIFICATION SCHEDULE FOR TYPE OF SERVICE FOR EACH PIPING SYSTEM. REFER TO ARCHITECTURAL, PLUMBING OR MECHANICAL DRAWINGS OR VERIFY AT SITE, ALL RETURN AIR PLENUM LOCATIONS.
4. THE PLUMBING CONTRACTOR SHALL BASE THEIR BID ON THE MANUFACTURER OF EQUIPMENT, MATERIALS AND METHODS OF INSTALLATION AS DESCRIBED IN THE CONTRACT DOCUMENTS AND PROJECT MANUAL. IF THE ENGINEER ADMITS AN ALTERNATIVE MANUFACTURER, THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR PHYSICAL SIZE, CAPACITIES, COORDINATION, SUPPLEMENTAL DRAWINGS AND INFORMING OTHER CONTRACTORS RELATED TO THE INSTALLATION AS TO ANY SPECIFIED ITEM CHANGES. THE PLUMBING CONTRACTOR SHALL BEAR AS PART OF HIS CONTRACT; ANY ADDITIONAL COSTS INCURRED IN HIS WORK OR BY THE OTHER CONTRACTORS AS A RESULT OF INSTALLATION OF OTHER THAN ASSIGNED EQUIPMENT.
5. PLUMBING CONTRACTOR SHALL VERIFY THE FLOW LINE OF ALL SEWERS AND DRAIN CONNECTION POINTS PRIOR TO STARTING CONSTRUCTION. PLUMBING CONTRACTOR SHALL PROVIDE A WATER FLOW TEST AT THE CONNECTION POINT TO CONFIRM THE SEWER OR DRAIN IS ADEQUATE FOR DESIGN FLOW AND OPERATIONAL PRIOR TO STARTING CONSTRUCTION.
6. PLUMBING WORK SHALL COMPLY WITH THE LATEST EDITION OF THE ADOPTED PLUMBING CODE AS WELL AS GOVERNING STATE AND FEDERAL LAW AND LOCAL ORDINANCES.
7. CONTRACTOR SHALL COORDINATE FLOOR DRAINS IN ALL LOCATIONS TO BE INSTALLED WITH TOP OF GRATE BELOW FINISHED FLOOR. CONTRACTOR SHALL SLOPE FLOOR AROUND DRAIN DOWN TOWARDS DRAIN TO BE FLUSH WITH TOP OF GRATE.

## PLUMBING FIXTURE CONNECTION SCHEDULE

| PLAN MARK | FIXTURE | SAN. | VENT | C.W. | H.W. | REMARKS |
|---|---|---|---|---|---|---|
| WC-1 | WATER CLOSET | 4" | 2" | 1" | - | FLOOR-MOUNTED, 16-1/2" |
| WC-2 | WATER CLOSET | 4" | 2" | 1" | - | FLOOR-MOUNTED, 15" |
| | | | | | | |
| UR-1 | URINAL | 2" | 2" | 3/4" | - | SEE ARCH. FOR MOUNTING HEIGHT |
| | | | | | | |
| LAV-1 | LAVATORY | 2" | 2" | 1/2" | 1/2" | SEE ARCH. FOR MOUNTING HEIGHT |
| | | | | | | |
| SK-1 | COUNTERTOP SINK | 2" | 2" | 1/2" | 1/2" | UNDERMOUNT COUNTER SINK W/ DISPOSAL |
| SK-2 | SERVICE SINK | 2" | 2" | 1/2" | 1/2" | FLOOR MOUNT SCULLERY SINK |
| | | | | | | |
| EWC-1 | ELECTRIC WATER COOLER | 2" | 2" | 1/2" | - | ORIFICE AT 33" AFF |
| EWC-2 | ELECTRIC WATER COOLER | 2" | 2" | 1/2" | - | VANDAL RESISTANT, ORIFICE AT 33" AFF |
| | | | | | | |
| ES-1 | EMERGENCY EYEWASH/SHOWER | 2" | 2" | - | - | 1-1/4" TEMPERED WATER |
| | | | | | | |
| MSB-1 | MOP SINK BASIN | 3" | 2" | 1/2" | 1/2" | |
| | | | | | | |
| SH-1 | SHOWER | 2" | 2" | 1/2" | 1/2" | |
| | | | | | | |
| FD-1 | FLOOR DRAIN | 3" | 2" | - | - | W/ TRAP PRIMER WHERE APPLICABLE |
| | | | | | | |
| FS-1 | FLOOR SINK | 2" | 2" | - | - | 3/4 GRATE |
| | | | | | | |
| TD-1 | TRENCH DRAIN | 4" | 2" | - | - | 6" GRATE |
| TD-2 | TRENCH DRAIN | 4" | 2" | - | - | 6" GRATE |
| TD-3 | TRENCH DRAIN | 4" | 2" | - | - | 6" GRATE |
| | | | | | | |
| AD-1 | AREA DRAIN | 4" | 2" | - | - | 12" TRACTOR GRATE |
| | | | | | | |
| HB-1 | OUTDOOR HOSE BIBB | - | - | 3/4" | - | FREEZE PROOF, VANDAL PROOF |
| HB-2 | INDOOR HOSE BIBB | - | - | 3/4" | - | |
| | | | | | | |
| RH-1 | ROOF HYDRANT | - | - | 3/4" | - | 1/2" DRAIN TO MOP SINK |
| | | | | | | |
| R-1 | REFRIGERATOR | - | - | 1/2" | - | BY OWNER, W/ WALL BOX |
| | | | | | | |
| IM-1 | ICE MAKER | - | - | 1/2" | - | OFCI, W/ WALL BOX |
| | | | | | | |
| CM-1 | COFFEE MAKER | - | - | 1/2" | - | BY OWNER, W/ WALL BOX |
| | | | | | | |
| W-1 | WASHER | 2" | 2" | 1/2" | 1/2" | BY OWNER, W/ WALL BOX |




| SINGLE/DOUBLE FIXTURE | | | |
|---|---|---|---|
| JAY. R. SMITH MODEL | WHA SIZE | PIPE SIZE | FIXTURE UNIT LOAD |
| 5005 | A | 1/2" | 1-11 |
| 5010 | B | 3/4" | 12-32 |
| 5020 | C | 1" | 33-60 |
| 5030 | D | 1-1/4" | 61-113 |
| 5040 | E | 1-1/2" | 114-154 |
| 5050 | F | 2" | 155-330 |

NOTE: INSTALL PER MANUFACTURER'S INSTRUCTIONS AND STANDARD PDI-WH-201. PROVIDE A WATER HAMMER ARRESTOR AT ALL QUICK-CLOSING VALVES.

1 WATER HAMMER ARRESTOR DETAIL
NOT TO SCALE

# PLUMBING GENERAL NOTES:

1. IN ALL AREAS WHERE DEMOLITION OCCURS AND PATCHING IS REQUIRED, PATCH IN SAME/SIMILAR MATERIALS. FINISH TO MATCH ADJACENT SURFACE SO PATCHED AREA MATCHES ADJACENT SURFACE IN MATERIAL, TEXTURE, AND FINISH.
2. ALL PIPING REMOVED THAT WAS PENETRATING THE FLOOR SHALL BE CAPPED BELOW FLOOR LEVEL AND PATCHED WITH CONCRETE TO BE LEVEL WITH ADJACENT FLOOR. SEE ARCHITECTURAL FOR FLOOR PATCHING REQUIREMENTS.
3. CONTRACTOR RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AND MODIFYING PIPING AS NECESSARY WHERE INDICATED.
4. ALL UNDERGROUND STORM PIPING SHALL BE SLOPED AT ¼" PER FOOT OF PIPE MINIMUM. ALL ABOVEGROUND STORM PIPING SHALL BE SLOPED AT 1/8" PER FOOT OF PIPE MINIMUM.
5. ALL SANITARY PIPING SHALL BE SLOPED AT ¼" PER FOOT OF PIPE MINIMUM.
6. ALL SHUTOFF VALVES SHALL BE LOCATED ABOVE AN ACCESSIBLE CEILING. WHERE LOCATING ABOVE ACCESSIBLE CEILING IS NOT FEASIBLE, PROVIDE CEILING ACCESS DOOR AT VALVE LOCATION.
7. COORDINATE LOCATION FOR REQUIRED SLEEVES THROUGH FOOTINGS AND GRADE BEAMS WITH GENERAL CONTRACTOR.
8. ALL PIPING PASSING THROUGH OR UNDER FOOTINGS SHALL BE PROTECTED WITH A RELIEVING ARCH OR PIPE SLEEVE TWO SIZES GREATER THAN THE PIPE PASSING THROUGH.
9. MOUNT ALL NEW HOSE BIBBS AT 24" ABOVE GRADE.

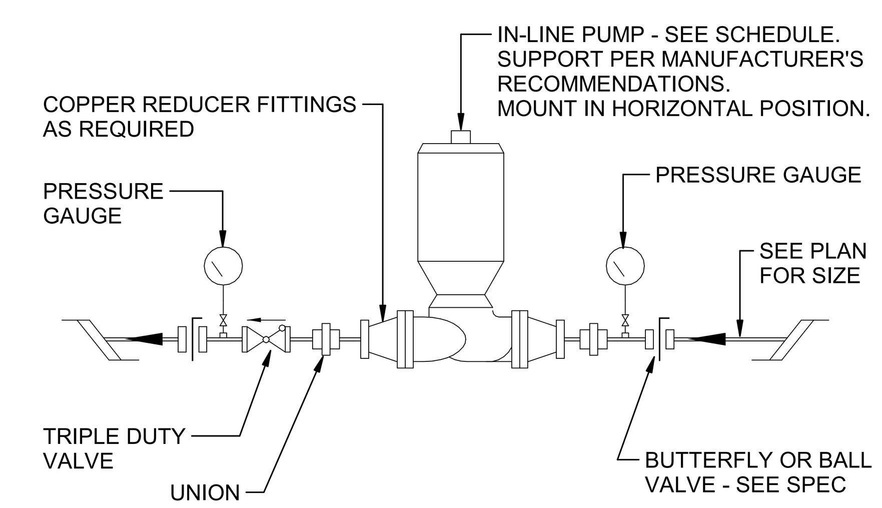
## PLUMBING LEGEND

| Symbol | Description | Symbol | Description |
|---|---|---|---|
| | COLD WATER | | BALL VALVE (2 1/2" AND SMALLER, BUTTERFLY VALVE 3" AND LARGER) |
| | HOT WATER | | CHECK VALVE (C.V) |
| | HOT WATER RETURN | | BALANCING VALVE (BAL.V.) |
| ST | STORM SEWER | | STRAINER (STR.) |
| S | SANITARY SEWER | LAV | LAVATORY |
| | SANITARY VENT PIPING | WC | WATER CLOSET |
| | NEW CONNECTION TO EXIST | UR | URINAL |
| | FLOOR DRAIN | EWC | ELECTRIC WATER COOLER |
| | TEE UP | SK | SINK |
| | TEE DOWN | MSB | MOP SINK BASIN |
| | ELBOW UP | V.T.R. | VENT THROUGH ROOF |
| | ELBOW DOWN | | |
| FCO | FLOOR CLEANOUT | YCO | YARD CLEANOUT |

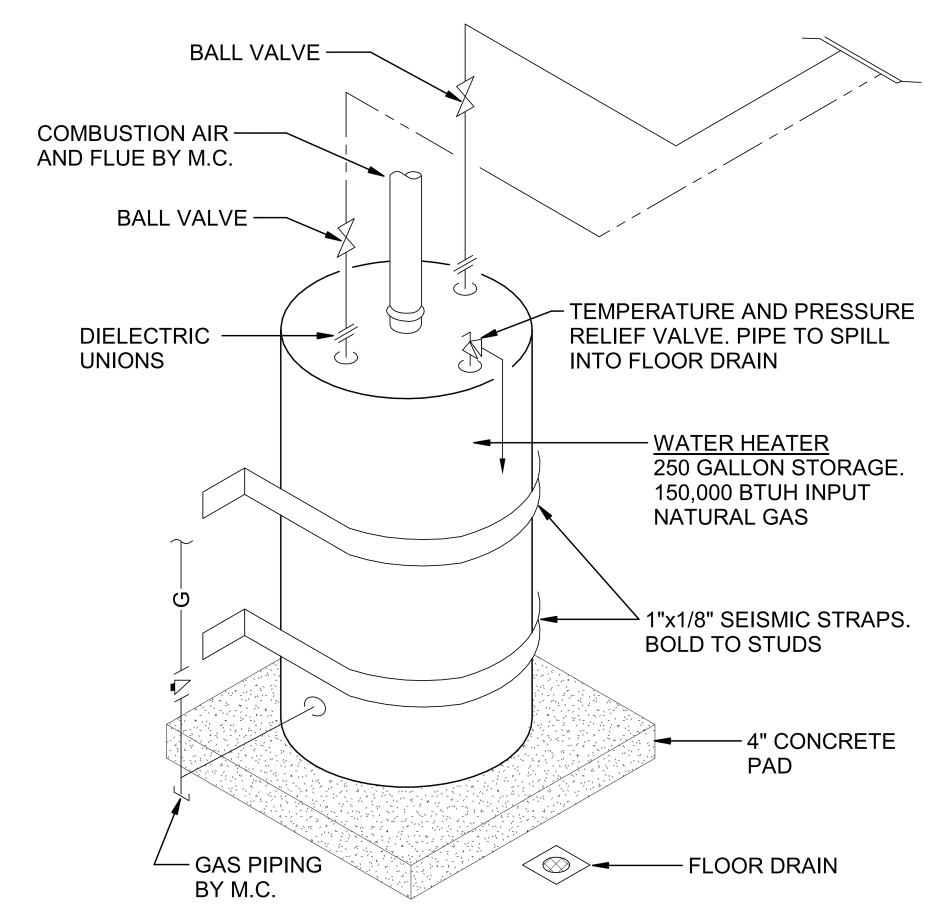
## PLUMBING SEISMIC CODE BLOCK

| Occupancy Category (II) | | | | | | | Seismic Design Category (C) |
|---|---|---|---|---|---|---|---|
| | ANCHORAGE TO FLOORS, ROOFS, ETC. | | SWAY BRACING | | LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS: ON CONST. DOCUMENTS | SUBSEQUENT SUBMITTAL | COMMENTS |
| LISTING OF EQUIPMENT & SYSTEM COMPONENTS | Not Provided | Provided | Not Provided | Provided | Drawing or Plan specs page(s) | Separate Permit & Plans | |
| HAZARDOUS EQUIPMENT & SYSTEMS COMPONENTS, Ip=1.5 | | | | | | | |
| | | | | | | | |
| OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS, Ip=1.0 | | | | | | | |
| Piping | X | | X | | | | NOTE 1 |
| Water Closet / Toilet | X | | X | | | | NOTE 1 |
| Lavatories | X | | X | | | | NOTE 1 |
| Sinks | X | | X | | | | NOTE 1 |
| Floor Sinks | X | | X | | | | NOTE 1 |
| Electric Water Coolers | X | | X | | | | NOTE 1 |
| Water Heaters | | X | | X | 3/P001 | | |
| Expansion Tanks | | X | | X | P201 | | |
| Urinals | X | | X | | | | NOTE 1 |
| | | | | | | | |

NOTES:
1. TABLE 4.4, EXEMPTION 1. GENERAL EXEMPTIONS: SEISMIC DESIGN CATEGORY C AND THE COMPONENT IMPORTANCE FACTOR IP = 1.0.




2 IN-LINE PUMP DETAIL
NOT TO SCALE




3 GAS WATER HEATER DETAIL
NOT TO SCALE

City

Collaborator

FSG Facility Solutions Group

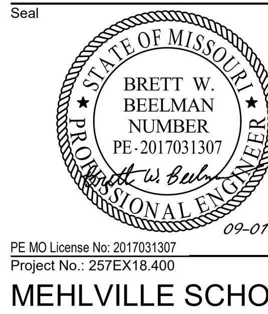
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Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: GSM
Checked By: BWB

Sheet Title
PLUMBING ABBREVIATIONS, NOTES AND SYMBOLS

Sheet No.
P001




## GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE SITE AND EXISTING CONDITIONS.
2. ALL SYSTEMS AND EQUIPMENT SHOWN TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY, INCLUDING ALL PIPING, CONTROLS, CONDUIT, ETC.
3. IN ALL AREAS WHERE DEMOLITION OCCURS AND PATCHING IS REQUIRED, PATCH IN SAME/SIMILAR MATERIALS. FINISH TO MATCH ADJACENT SURFACE SO PATCHED AREA MATCHES ADJACENT SURFACE IN MATERIAL, TEXTURE, AND FINISH.

## KEYED NOTES:

1. REMOVE AND CAP OR ABANDON IN PLACE SANITARY PIPING TO EXISTING BUILDING FOR DEMOLITION.
2. TURN OFF WATER TO EXISTING BUILDING. REMOVE AND CAP OR ABANDON IN PLACE DOMESTIC WATER PIPING TO EXISTING BUILDING FOR DEMOLITION.
3. EXISTING MOBILE BUILDING TO BE DISCONNECTED AND SPLIT APART FOR RELOCATION TO NEW SITE. DISCONNECT, DRAIN BUILDING, AND CAP EXISTING WATER AND SANITARY TO UNDERGROUND BELOW MOBILE BUILDING. DISCONNECT ANY WATER OR SANITARY CONNECTION BETWEEN THE TWO BUILDING SECTIONS BEING SPLIT.

2 EXISTING TRANSPORTATION FACILITY DEMOLITION PLAN - PLUMBING
1" = 60'-0"

City

Collaborator

FSG Facility Solutions Group
901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No: 2017031307
Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: GSM
Checked By: BWB

Sheet Title

DEMO PLAN - PLUMBING

Sheet No.

PS101

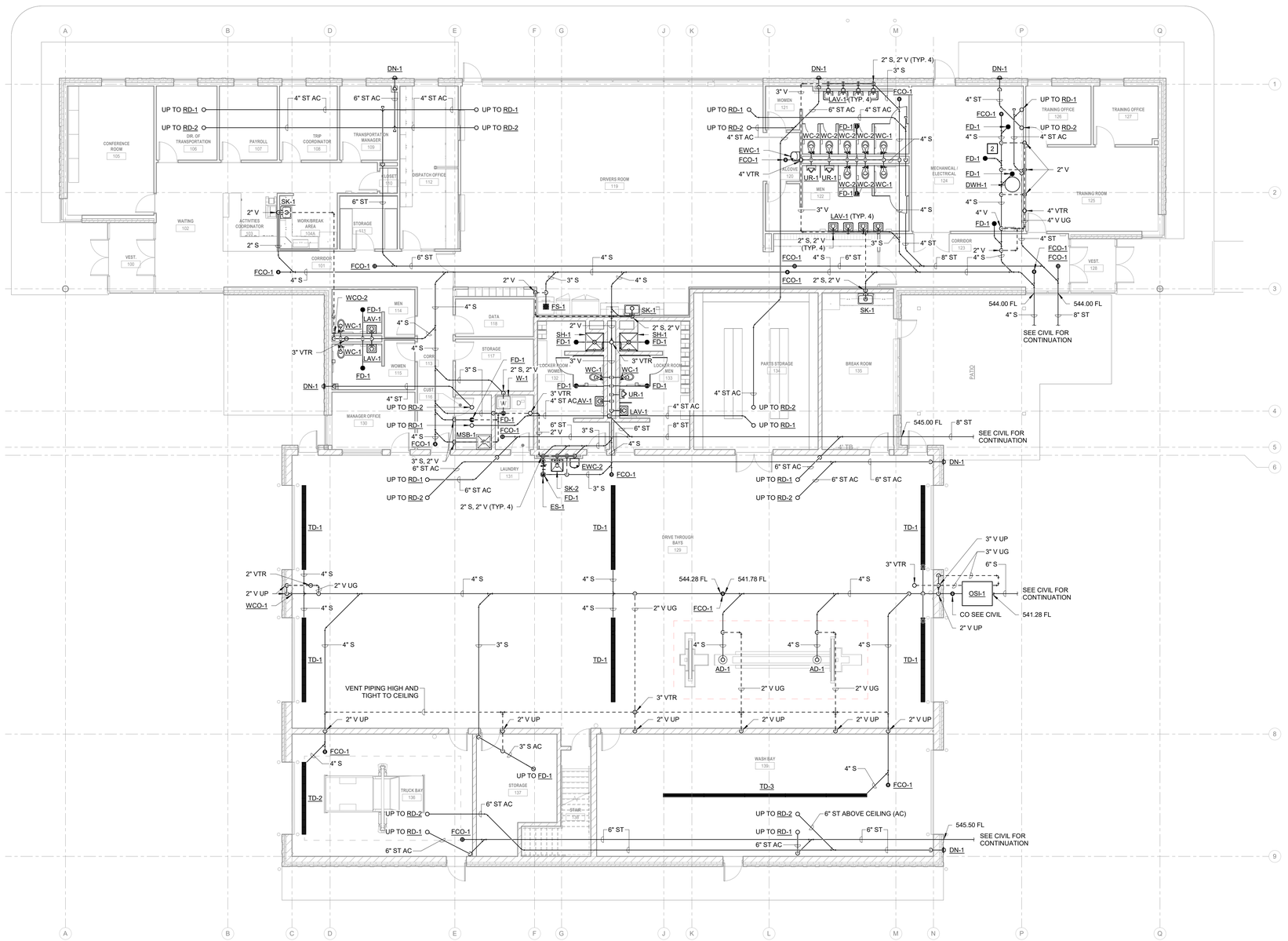
## PLUMBING GENERAL NOTES:

1. ALL UNDERGROUND STORM PIPING SHALL BE SLOPED AT 1/8" PER FOOT OF PIE MINIMUM UNLESS OTHERWISE NOTED OR NOT FEASIBLE WITH EXISTING FLOWLINES. ALL ABOVEGROUND STORM PIPING SHALL BE SLOPED AT 1/8" PER FOOT OF PIPE MINIMUM UNLESS OTHERWISE NOTED.
2. ALL SANITARY PIPING SHALL BE SLOPED AT ¼" PER FOOT OF PIPE MINIMUM UNLESS OTHERWISE NOTED OR NOT FEASIBLE WITH EXISTING FLOWLINES.
3. ALL SHUTOFF VALVES SHALL BE LOCATED ABOVE AN ACCESSIBLE CEILING. WHERE LOCATING ABOVE ACCESSIBLE CEILING IS NOT FEASIBLE, PROVIDE CEILING ACCESS DOOR AT VALVE LOCATION.
4. ALL VENT PIPE ROUTING SHOWN ON FLOOR PLANS IS FOR CLARITY PURPOSES. SEE ISOMETRICS FOR DETAILED ROUTING WHERE APPLICABLE.
5. ALL PIPING PASSING THROUGH OR UNDER FOOTINGS SHALL BE PROTECTED WITH A RELIEVING ARCH OR PIPE SLEEVE TWO SIZES GREATER THAN THE PIPE PASSING THROUGH.
6. CONTRACTOR SHALL NOT PROVIDE ANY WALL CLEANOUTS NOT INDICATED ON THESE DRAWINGS. CLEANOUT FOR SINKS SHALL UTILIZE DRAIN PIE WITHIN CABINET WITH P-TRAP REMOVED. IF CONTRACTOR BELIEVES ADDITIONAL CLEANOUTS ARE REQUIRED, THEY SHALL CONSULT WITH THE ARCHITECT AND ENGINEER ON LOCATION PRIOR TO INSTALL.
7. MOUNT ALL NEW HOSE BIBBS AND DOWNSPOUT NOZZLES AT 24" ABOVE GRADE.

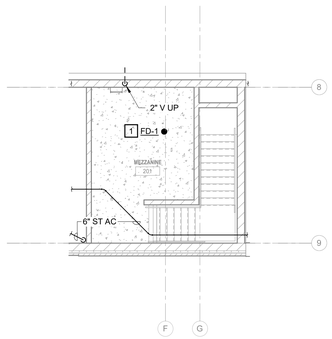
## PLUMBING KEYED NOTES:

1 PROVIDE A LISTED AND APPROVED FIRESTOP SLEEVE FOR FLOOR DRAIN TO MAINTAIN FIRE RATING.

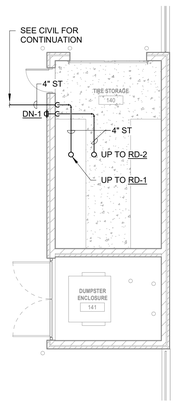
2 COORDINATE FLOOR DRAIN LOCATIONS WITH EQUIPMENT PADS PRIOR TO INSTALL.




1 FIRST FLOOR PLAN - SANITARY/VENTING/STORM
1/8" = 1'-0"




2 MEZZANINE PLAN - SANITARY/VENTING/STORM
1/8" = 1'-0"




3 TIRE STORAGE PLAN - SANITARY/VENTING/STORM
1/8" = 1'-0"

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
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STATE OF MISSOURI
BRETT W. BEELMAN
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PROFESSIONAL ENGINEER
09-01-26

PE MO License No.: 2017031307
Project No.: 2576X18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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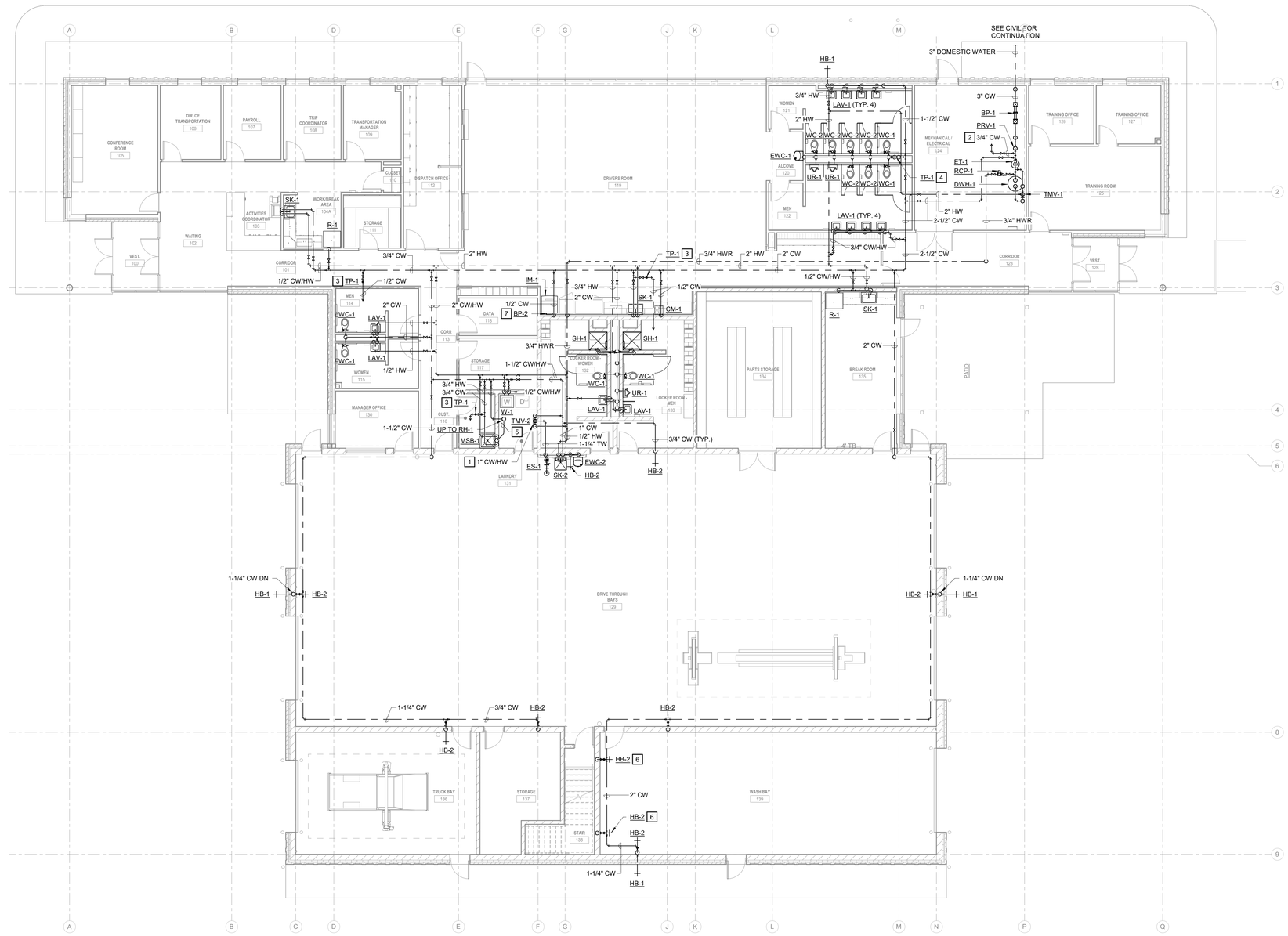
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: GSM
Checked By: BWB

Sheet Title
FLOOR PLAN - SANITARY/VENTING

Sheet No.
P101




1 FIRST FLOOR PLAN - PLUMBING
1/8" = 1'-0"

2 MEZZANINE PLAN - PLUMBING
1/8" = 1'-0"

## PLUMBING GENERAL NOTES:

1. ALL UNDERGROUND STORM PIPING SHALL BE SLOPED AT 1/8" PER FOOT OF PIE MINIMUM UNLESS OTHERWISE NOTED OR NOT FEASIBLE WITH EXISTING FLOWLINES. ALL ABOVEGROUND STORM PIPING SHALL BE SLOPED AT 1/8" PER FOOT OF PIPE MINIMUM UNLESS OTHERWISE NOTED.
2. ALL SANITARY PIPING SHALL BE SLOPED AT ¼" PER FOOT OF PIPE MINIMUM UNLESS OTHERWISE NOTED OR NOT FEASIBLE WITH EXISTING FLOWLINES.
3. ALL SHUTOFF VALVES SHALL BE LOCATED ABOVE AN ACCESSIBLE CEILING. WHERE LOCATING ABOVE ACCESSIBLE CEILING IS NOT FEASIBLE, PROVIDE CEILING ACCESS DOOR AT VALVE LOCATION.
4. ALL VENT PIPE ROUTING SHOWN ON FLOOR PLANS IS FOR CLARITY PURPOSES. SEE ISOMETRICS FOR DETAILED ROUTING WHERE APPLICABLE.
5. ALL PIPING PASSING THROUGH OR UNDER FOOTINGS SHALL BE PROTECTED WITH A RELIEVING ARCH OR PIPE SLEEVE TWO SIZES GREATER THAN THE PIPE PASSING THROUGH.
6. CONTRACTOR SHALL NOT PROVIDE ANY WALL CLEANOUTS NOT INDICATED ON THESE DRAWINGS. CLEANOUT FOR SINKS SHALL UTILIZE DRAIN PIE WITHIN CABINET WITH P-TRAP REMOVED. IF CONTRACTOR BELIEVES ADDITIONAL CLEANOUTS ARE REQUIRED, THEY SHALL CONSULT WITH THE ARCHITECT AND ENGINEER ON LOCATION PRIOR TO INSTALL.
7. MOUNT ALL NEW HOSE BIBBS AND DOWNSPOUT NOZZLES AT 24" ABOVE GRADE.

## PLUMBING KEYED NOTES:

1. INSTALL THERMOSTATIC MIXING VALVE CABINET SURFACE MOUNTED ON WALL SERVING EMERGENCY EYEWASH/SHOWER. EXTEND PIPING CONCEALED IN CHASE AS NECESSARY.
2. PROVIDE NEW ¾" MAKEUP WATER LINE WITH SHUTOFF VALVE FOR BOILERS. MECHANICAL CONTRACTOR TO EXTEND FROM SHUTOFF VALVE TO NEW BACKFLOW PREVENTER AND BEYOND.
3. FURNISH AND INSTALL NEW TRAP PRIMER IN ACCESSIBLE CEILING AND PIPE TO TRAP ON ADJACENT FLOOR DRAINS. PROVIDE SHUTOFF VALVE IN FRONT OF TRAP PRIMER FOR MAINTENANCE. SEE PLUMBING FIXTURE SCHEDULE FOR TRAP PRIMER SPECIFICATION. INSTALL PEX TUBING CONTINUOUS BELOW SLAB (NO JOINTS).
4. FURNISH AND INSTALL NEW TRAP PRIMER LOW IN WALL AND PIPE TO TRAP ON ADJACENT FLOOR DRAINS. PROVIDE SHUTOFF VALVE IN FRONT OF TRAP PRIMER FOR MAINTENANCE WITH ACCESS PANEL. SEE PLUMBING FIXTURE SCHEDULE FOR TRAP PRIMER SPECIFICATION. INSTALL PEX TUBING CONTINUOUS BELOW SLAB (NO JOINTS).
5. ROUTE 1/2" DRAIN FROM ROOF HYDRANT DOWN WITHIN WALL AND EXIT INTO MOP SINK.
6. MOUNT HOSE BIBB AT 16'-0" AFF.
7. WATER CONNECTIONS FOR ICE MAKER TO BE CONNECTED TO WATER FILTERS PROVIDED BY OWNER/CONTRACTOR. MOUNT FILTER BEHIND ICE MAKER. FURNISH AND INSTALL NEW BACKFLOW PREVENTOR 'BP-2' FOR ICE MAKER TO BE INSTALLED AFTER FILTER. LOCATE BACKFLOW PREVENTOR A MINIMUM OF 5' OF PIPE DISTANCE FROM ICE MAKER CONNECTION. PIPE AIR GAP FITTING WITH DRAIN LINE TO FLOOR SINK.

City

Collaborator

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No.: 2017031307
Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

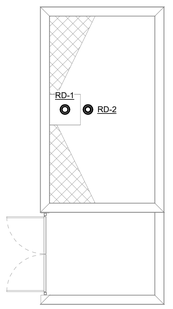
Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

Team
Drawn By: GSM
Checked By: BWB

Sheet Title
FLOOR PLAN - PLUMBING

Sheet No.
P102

1 ROOF PLAN - PLUMBING
1/8" = 1'-0"




2 TIRE STORAGE ROOF PLAN - PLUMBING
1/8" = 1'-0"

## PLUMBING GENERAL NOTES:

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7. MOUNT ALL NEW HOSE BIBBS AND DOWNSPOUT NOZZLES AT 24" ABOVE GRADE.

City

Collaborator

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STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No: 2017031307
Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

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09/01/2026

Team

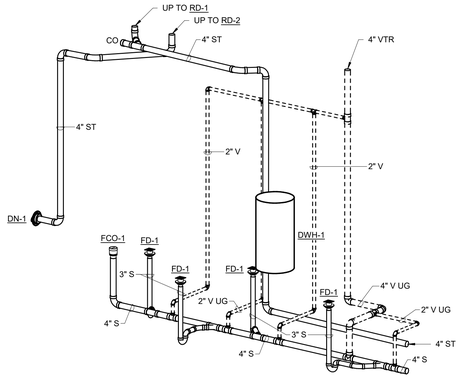
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Checked By: BWB

Sheet Title

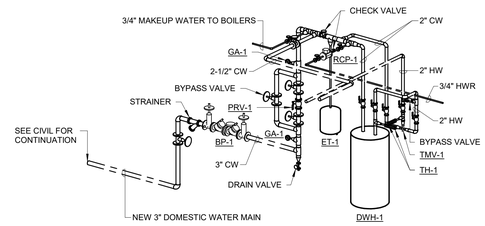
ROOF PLAN - PLUMBING

Sheet No.

P103




1 MECHANICAL/ELECTRICAL 124 - ISOMETRIC - SANITARY/VENTING/STORM




2 MECHANICAL/ELECTRICAL 124 - ISOMETRIC - PLUMBING




3 WOMEN 121/MEN 122 - ISOMETRIC - SANITARY/VENTING/STORM




4 WOMEN 121/MEN 122 - ISOMETRIC - PLUMBING




5 LOCKER ROOM WOMEN 132/MEN 133 - ISOMETRIC - SANITARY/VENTING/STORM




6 LOCKER ROOM WOMEN 132/MEN 133 - ISOMETRIC - PLUMBING




7 OIL/SAND INTERCEPTOR - ISOMETRIC - SANITARY/VENTING

## WATER HEATER GENERAL NOTES:

1. PROVIDE TRANSITIONS TO WATER HEATER CONNECTION SIZE AND DIE-ELECTRIC NIPPLES AT WATER HEATER CONNECTIONS.
2. INSTALL ALL PIPING AND SIZES PER MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL THERMOSTATIC MIXING VALVES AS SCHEDULED AND PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE VACUUM RELIEF VALVE FOR WATER HEATER AND PIPE RELIEF LINE TO FLOOR DRAIN.
5. WATER HEATER AND EXPANSION TANK SHALL BE ATTACHED WITH 24 GAUGE X 1" STRAPS. INSTALL PER 2015 UNIFORM PLUMBING CODE (UPC).

City

Collaborator

FSG Facility Solutions Group
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Fenton, Mo. 63026

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STATE OF MISSOURI
BRETT W. BEELMAN
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Sheet Revision

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09/01/2026

Team

Drawn By: GSM
Checked By: BWB

Sheet Title

PLUMBING ISOMETRICS

Sheet No.

P201

## HVAC SYMBOL LIST

| | | |
|---|---|---|
| VALVE | FLEXIBLE DUCT | MULTI PURPOSE VALVE |
| CAP | VOLUME DAMPER / BALANCE DAMPER | PRESSURE REDUCING VALVE |
| ELBOW DOWN | SUPPLY DIFFUSER, ROUND NECK | CONTROL VALVE |
| ELBOW UP | SUPPLY DIFFUSER, RECTANGULAR NECK | SUCTION DIFFUSER |
| TEE DOWN | SUPPLY ELBOW UP | STRAINER |
| TEE UP | RETURN ELBOW UP | THERMOMETER |
| CLEAN OUT | EXHAUST ELBOW UP | PRESSURE GAUGE WITH GAUGE VALVE |
| UNION | SUPPLY ELBOW DOWN | DIFFERENTIAL PRESSURE SENSOR |
| FLEXIBLE CONNECTOR | ROUND TO RECTANGULAR TRANSITION | TEMPERATURE SENSOR WITH THERMOWELL |
| STRAINER | SMOKE DAMPER | BACKFLOW PREVENTOR |
| THERMOMETER WITH THERMOWELL | HIGH EFFICIENCY SQUARE TO ROUND TAKE OFF WITH BALANCE DAMPER | TRUMPET VALVE |
| FLOW SWITCH | CONDENSATE DRAIN | EQUIPMENT PLAN MARK / EQUIPMENT NUMBER |
| PUMP | CONNECT TO EXISTING | AIR DEVICE TYPE / TEST AND BALANCE AIR DEVICE TO THIS AIRFLOW VALUE (CFM) |
| CIRCUIT SETTER | KEYED NOTE | |
| TEMP AND PRESSURE RELIEF | DEMO KEYED NOTE | |
| DRAIN VALVE | | |
| THERMOSTAT | | |
| TIME CLOCK (EF) | | |

## MECHANICAL SEISMIC CODE BLOCK

| Occupancy Category (II) | | | | | | | Seismic Design Category (C) |
|---|---|---|---|---|---|---|---|
| | ANCHORAGE TO FLOORS, ROOFS, ETC. | | SWAY BRACING | | LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS | | |
| | | | | | ON CONST. DOCUMENTS | SUBSEQUENT SUBMITTAL | COMMENTS |
| LISTING OF EQUIPMENT & SYSTEM COMPONENTS | Not Provided | Provided | Not Provided | Provided | Drawing or Plan Specs page(s) | Separate Permit & Plans | |
| HAZARDOUS EQUIPMENT & SYSTEMS COMPONENTS, Ip=1.5 | | | | | | | |
| Exterior Gas Piping | X | | X | | | | NOTE 1 |
| Interior Gas Piping | | X | | X | 1/M003 | | |
| Maintenance Area Lubricant Piping | | X | | X | 1/M003 | | |
| OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS, Ip=1.0 | | | | | | | |
| Ductwork | X | | X | | | | NOTE 2 |
| Air Devices | X | | X | | | | NOTE 2 |
| Rooftop Unit > 400 lbs | X | | X | | | | NOTE 2 |
| Makeup Air Unit > 400 lbs | X | | X | | | | NOTE 2 |
| VAV boxes | X | | X | | | | NOTE 2 |
| Rooftop Exhaust Fan | X | | X | | | | NOTE 2 |
| Boilers | X | | X | | | | NOTE 2 |
| Unit Heaters | X | | X | | | | NOTE 2 |
| | | | | | | | |

NOTES:
1. SEISMIC GAS VALVE INSTALLED WITHIN 5' OF GAS METER.
2. SEISMIC CATEGORY C, OCCUPANCY CATEGORY II, IP=1.0

## SUPPLEMENTAL NOTES:

1. INSTALL HVAC SYSTEM IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
2. COORDINATE WORK WITH OTHER TRADES. REWORK OF PIPING, DUCTWORK, EQUIPMENT LOCATION, CONDUIT, ETC. AS A RESULT OF POOR PLANNING. COORDINATION OR SCHEDULING SHALL BE THE RESPONSIBILITY OF THE INVOLVED CONTRACTORS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ANY FRAMING REVISIONS, EQUIPMENT LOCATIONS. ADDITION OF CONTROLS. ELECTRICAL CIRCUITING REVISIONS, ETC. THAT RESULT FROM USING EQUIPMENT OTHER THAN INDICATED ON THE DRAWINGS. APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER WILL NOT WAIVE THE CONTRACTOR OF THIS RESPONSIBILITY.
4. THE CONTRACTOR SHALL HAVE THE FINAL RESPONSIBILITY FOR SYSTEM START UP AND TURN OVER TO THE OWNER.
5. ALL ITEMS INCLUDED ON THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE INCLUDED IN THE CONTRACTORS BID. ANY ITEMS THAT ARE UNCLEAR OR FOUND TO BE INCORRECT BY THE CONTRACTOR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE BID DUE DATE.
6. PROVIDE IDENTIFICATION LABELS ON ALL HVAC PIPING SYSTEMS, DUCT SYSTEMS, HVAC EQUIPMENT AND HVAC CONTROLS.

## EQUIPMENT NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE SERVICE ACCESS SPACE FOR ALL EQUIPMENT WITH OTHER TRADES TO MAINTAIN PROPER CLEARANCES FOR EQUIPMENT MAINTENANCE AND OPERATION.

## DUCTWORK NOTES:

1. ALL DUCTWORK SIZES SHOWN ARE FREE AREA. ALLOWANCE HAS NOT BEEN MADE FOR DUCTLINER WHERE AND IF REQUIRED. SEE SPECIFICATIONS SECTION 230713, DUCT INSULATION FOR REQUIREMENTS.
2. ALL 2" AND LOWER PRESSURE CLASS RECTANGULAR 90° ELBOWS SHALL BE EQUIPPED WITH SINGLE THICKNESS TURNING VANES MOUNTED TO A PREFABRICATED CANE RAIL, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
3. ALL 90° AND 45° RECTANGULAR RADIUS ELBOWS TO BE FABRICATED WITH AN INSIDE RADIUS NO LESS THAN 1/2 OF WIDTH OF THE DUCT. THE WIDTH IS DEFINED AS THE DIMENSION OF THE DUCT IN THE PLANE IN WHICH THE DUCT IS TURNING.
4. RECTANGULAR DUCTWORK SHALL BE SUPPORTED PER THE SMACNA STANDARDS AND AT EACH CHANGE IN DIRECTION.
5. PROVIDE MANUAL, SINGLE BLADE, BALANCING DAMPERS WITH LOCKING QUADRANT AND INTEGRAL POSITION INDICATOR ON ALL RUNOUTS TO SUPPLY AND EXHAUST AIR DEVICES.
6. MANUAL SPLITTER DAMPERS ARE NOT ACCEPTABLE.
7. PROVIDE ACCESS DOORS IN ALL DUCT SYSTEMS OR PLENUMS WHERE REQUIRED TO ACCESS AND MAINTAIN MOTORIZED OR AUTOMATIC DAMPER BLADES AND LINKAGES. (NOT REQUIRED FOR FIXED POSITION BALANCING DAMPERS.)
8. ALL DUCTWORK SHALL BE PROVIDED WITH SEISMIC RESTRAINTS IN ACCORDANCE WITH THE SEISMIC HAZARD LEVEL OF THE SEISMIC RESTRAINT MANUAL - GUIDELINES FOR MECHANICAL SYSTEMS, AS PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, INC. AND ALL LOCAL CODES.
9. ALL DUCTWORK SHALL BE SUPPORTED FROM ROOF STRUCTURE ABOVE. DUCTWORK SHALL NOT LAY ON TOP OF CEILING OR LIGHT FIXTURES.
10. FLEXIBLE DUCT RUNOUTS TO AIR DEVICES SHALL NOT EXCEED 10'-0" IN LENGTH. FLEXIBLE RUNOUTS SHALL BE TRIMMED TO THE MINIMUM LENGTH NECESSARY TO MAKE THE CONNECTION.
11. WHERE DAMPER ACTUATORS ARE MOUNTED TO DUCTWORK OR PLENUMS PROVIDE A HEAVY GAGE BASE PLATE, ANGLE STIFFENERS OR MOUNTING AS REQUIRED TO ELIMINATE DEFLECTION OF DUCTWORK DURING ACTUATOR OPERATION.
12. COORDINATION OF DUCT SYSTEM INSTALLATION WITH OTHER TRADES SHALL BE PERFORMED PRIOR TO THE FABRICATION OF ANY DUCTWORK. VERIFY DUCT CLEARANCES PRIOR TO FABRICATION. NOTIFY THE ENGINEER OR ANY CONFLICTS THAT REQUIRE DIMENSIONAL CHANGES OR REQUIRE MAJOR RELOCATION OF DUCTWORK.
13. PROVIDE 45° FLARED TAKEOFFS FOR ALL RECTANGULAR BRANCH DUCT CONNECTIONS TO THE MAIN DUCT.
14. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER THE LATEST VERSION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS. UNLESS SPECIFIED MORE STRINGENTLY IN THESE CONSTRUCTION DOCUMENTS.
15. COORDINATE ROOF OPENINGS AND EQUIPMENT SUPPORT WITH STRUCTURAL.

## GLYCOL MANAGEMENT REQUIREMENTS

1. CONTRACTOR SHALL FURNISH AND INSTALL A TOTAL OF 140 GALLONS OF GLYCOL INTO THE SYSTEM. USE METER READING OBTAINED FROM FILLING PROCESS TO DETERMINE ACTUAL AMOUNT OF GLYCOL REQUIRED. SYSTEM IS TO BE FILLED WITH A 30% GLYCOL-WATER PREMIX. GLYCOL INHIBITOR SHALL BE ADDED TO THE SYSTEMS BY THE OWNER'S CHEMICAL TREATMENT PROVIDER AS NEEDED.
2. ANY ADDITIONAL GLYCOL REQUIRED BEYOND THE 140 GALLONS WILL BE FURNISHED BY THE OWNER TO THE CONTRACTOR FOR THE CONTRACTOR TO INSTALL. ANY EXCESS GLYCOL ON-HAND AFTER THE SYSTEM IS FILLED SHALL BE TURNED OVER TO THE OWNER FOR THEIR USE.

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Seal

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09-01-26

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Project No.: 2576EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: DSD
Checked By: BWB

Sheet Title

ABBREVIATIONS, NOTES AND SYMBOLS

Sheet No.

M001

## MAKEUP AIR UNIT SCHEDULE

| PLAN MARK | MANUFACTURER | MODEL | SPACE SERVED | SUPPLY FAN | | | | EXHAUST FAN | | | HOT WATER HEAT | | COOLING DATA (NET) | | | | ELECT. | | | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CFM | OA CFM | ESP | HP | CFM | HP | ESP | TOTAL MBH | GPM | EAT (DB / WB) | AMB. TEMP | TOT MBH | SENS MBH | VOLT / PH | LOAD (MCA) | MOCP | | |
| MAU-1 | TRANE | OADG020C3 | SHOP BAYS | 5,800 | 5,800 | 1.5 | 7.5 | 4,650 | 5 | 1.5 | 232.4 | 30 | 82.3/69.6 | 95 / 76 | 242.2 | 159 | 460/3 | 52.9 | 60 | 4700 | 1-11 |

NOTES:
1. FACTORY INSTALLED AND WIRED NON-FUSED DISCONNECT, FACTORY INSTALLED AND WIRED 115V GFCI CONVENIENCE OUTLET.
2. MODULATING HOT GAS REHEAT.
3. FACTORY INSTALLED DIFFERENTIAL ENTHALPY ECONOMIZER WITH POWER EXHAUST FAN & MODULATING OA/RA DAMPER.
4. FACTORY INSTALLED CONDENSER COIL HAIL GUARDS.
5. DIRECT DRIVE SUPPLY & EXHAUST ECM FANS
6. UNIT TO BE PROVIDED WITH BACNET CARD FOR INTEGRATION WITH BAS
7. INVERTER SCROLL COMPRESSOR
8. HOT WATER 3 ROW HEATING COIL WITH 120F EWT
9. ENERGY RECOVERY WHEEL
10. 18" ROOF CURB
11. 30% PROPYLENE GLYCOL (HEATING)
12. ACES TO PROVIDE DOOR CONTACTS FOR FOUR (4) MAIN GARAGE DOORS TO SHUT OFF COOLING WHEN DOORS ARE OPEN.

## ROOFTOP UNIT SCHEDULE

| PLAN MARK | SPACE SERVED | MFGR | MODEL | SUPPLY FAN | | | RETURN/EXHAUST FAN | | | | ELECTRICAL DATA | | | COOLING DATA (NET) | | | | HEATING DATA (NET) | | | | | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CFM | ESP | HP | CFM | OA CFM | ESP | HP | VOLT / PH | LOAD (MCA) | MOCP | EAT (DB / WB) | AMB. TEMP | TOT MBH | SENS MBH | EAT | EWT/LWT | GPM | AMB. TEMP | TOT MBH | | |
| RTU-1 | OFFICE AREAS | TRANE | TSK300A4S00 | 7,900 | 1.50 | (2) 3 | 7,900 | 1,820 | 0.50 | (2) 1.5 | 460/3 | 62.0 | 80.0 | 80/67 | 95 / 76 | 274.7 | 195.39 | 68 | 120/100 | 20 | 0 | 188 | 2600 | 1-11 |

NOTES:
1. 30% PROPYLENE GLYCOL (HEATING AND D/X COOLING)
2. FACTORY INSTALLED AND WIRED NON-FUSED DISCONNECT AND GFCI CONVENIENCE OUTLET.
3. FACTORY INSTALLED DIFFERENTIAL ENTHALPY ECONOMIZER WITH POWER EXHAUST FAN & MODULATING OA/RA DAMPER.
4. FACTORY PROVIDED FIELD INSTALLED CONDENSER COIL HAIL GUARDS.
5. CO2 SENSOR
6. VAV REHEAT
7. 2-STAGES COOLING
8. 18" INSULATED PLENUM ROOF CURB
9. DIRECT DRIVE SWSI FAN WITH ELECTRONICALLY COMMUTATED MOTOR
10. 2 STAGE HEAT
11. UNIT TO BE PROVIDED WITH BACNET CARD FOR INTEGRATION WITH BAS

## INDUSTRIAL FAN SCHEDULE

| PLAN MARK | SERVING | MANUFACTURER | MODEL | WEIGHT (LB.) | DIAMETER (FT.) | EXTENSION TUBE LENGTH (FT.) | MAX SPEED RPM | VOLT/PH | AMPS | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| F-1 | DRIVE THROUGH BAYS 129 | BIG ASS FANS | E-SERIES HVLS F-ES2-0701S34 | 69 | 7 | 3 | 198 | 110/1 | 10 | 1, 2 |
| F-2 | DRIVE THROUGH BAYS 129 | BIG ASS FANS | E-SERIES HVLS F-ES2-0701S34 | 69 | 7 | 3 | 198 | 110/1 | 10 | 1, 2 |
| F-3 | DRIVE THROUGH BAYS 129 | BIG ASS FANS | E-SERIES HVLS F-ES2-0701S34 | 69 | 7 | 3 | 198 | 110/1 | 10 | 1, 2 |
| F-4 | DRIVE THROUGH BAYS 129 | BIG ASS FANS | E-SERIES HVLS F-ES2-0701S34 | 69 | 7 | 3 | 198 | 110/1 | 10 | 1, 2 |
| F-5 | TRUCK BAY 136 | BIG ASS FANS | E-SERIES HVLS F-ES2-0701S34 | 69 | 7 | 3 | 198 | 110/1 | 10 | 1, 2 |
| | | | | | | | | | | |

NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING LOCATIONS.
2. FANS AND CONTROLS TO BE INSTALLED BY A FACTORY-APPROVED, BIG ASS FANS CERTIFIED INSTALLER FOR FULL 15 YEAR WARRANTY ON ELECTRICAL SYSTEM

FAN FEATURES:
A. 15 YEAR LIMITED WARRANTY
B. PROVIDE A 'BAFCON' CONTROLLER TO CONTROL ALL FANS LOCATED IN DRIVE THROUGH BAYS 129

## OUTDOOR AIR SCHEDULE

| UNIT | ROOM NAME | OCCUPANCY CLASSIFICATION | OCCUPANT LOAD (PEOPLE) | PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON) | AREA OUTDOOR AIRFLOW RATE (CFM/FT$^2$) | TOTAL AREA (SQUARE FEET) | REQUIRED OUTDOOR VENTILATION AIR (CFM) | 80% EFFECTIVENESS (CFM) |
|---|---|---|---|---|---|---|---|---|
| AHU-1 | ACTIVITIES COORDINATOR 103 | OFFICE | 1 | 5 | 0.06 | 125 | 13 | 16 |
| AHU-1 | WAITING 102 | LOBBY | 5 | 5 | 0.06 | 123 | 32 | 40 |
| AHU-1 | CORRIDOR 101 | CORRIDOR | 0 | 5 | 0.06 | 364 | 22 | 27 |
| AHU-1 | CONFERENCE ROOM 105 | CONFERENCE ROOM | 12 | 5 | 0.06 | 353 | 81 | 101 |
| AHU-1 | DIRECTOR OF TRANSPORTATION 106 | OFFICE | 2 | 5 | 0.06 | 142 | 19 | 23 |
| AHU-1 | PAYROLL 107 | OFFICE | 2 | 5 | 0.06 | 133 | 18 | 22 |
| AHU-1 | TRIP COORDINATOR 108 | OFFICE | 2 | 5 | 0.06 | 134 | 18 | 23 |
| AHU-1 | TRANSPORTATION MANAGER 109 | OFFICE | 2 | 5 | 0.06 | 132 | 18 | 22 |
| AHU-1 | WORK/BREAK AREA 104 | BREAK ROOM | 4 | 5 | 0.12 | 182 | 42 | 52 |
| AHU-1 | DISPATCH OFFICE 112 | OFFICE | 2 | 5 | 0.06 | 295 | 28 | 35 |
| AHU-1 | DRIVERS ROOM 119 | BREAK ROOM | 120 | 5 | 0.12 | 1973 | 837 | 1046 |
| AHU-1 | CORRIDOR 113 | CORRIDOR | 0 | 5 | 0.06 | 170 | 10 | 13 |
| AHU-1 | MANAGER OFFICE 130 | OFFICE | 2 | 5 | 0.06 | 146 | 19 | 23 |
| AHU-1 | BREAK ROOM 135 | BREAK ROOM | 10 | 5 | 0.12 | 345 | 91 | 114 |
| AHU-1 | CORRIDOR 123 | CORRIDOR | 0 | 5 | 0.06 | 397 | 24 | 30 |
| AHU-1 | TRAINING ROOM 125 | CLASSROOM | 10 | 10 | 0.12 | 339 | 141 | 176 |
| AHU-1 | TRAINING OFFICE 126 | OFFICE | 2 | 5 | 0.06 | 119 | 17 | 21 |
| AHU-1 | TRAINING OFFICE 127 | OFFICE | 2 | 5 | 0.06 | 125 | 18 | 22 |

## SINGLE SPLIT AIR CONDITIONING SYSTEM

| PLAN MARK | MATCHING HEAT PUMPS | ROOM SERVED | MFGR | MODEL NUMBER | SUPPLY AIRFLOW (CFM) | COOLING CAPACITY | | | HEATING CAPACITY | | | ELECTRICAL DATA | | | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | TOTAL BTU/H | ENT. AIR DB | ENT. AIR WB | TOTAL BTU/H | ENT. AIR DB | ENT. AIR WB | VOLTS/PH | MCA | MOCP | | |
| SS-1 | CU-1 | DATA 118 | MITSUBISHI | PKA-AL12NL/PUZ-AK12NL | 385 | 12000 | 80.0 | 67.0 | 18000 | 70.0 | 60.0 | 208-230/1 | 16.0 | 27.0 | 99 | 1 |

NOTES 1. CONDENSATE PUMP; WIND BAFFLE; LOW AMBIENT CONTROLS; MOUNTING BRACKET; FACTORY SUPPLIED, FIELD INSTALLED HAIL GUARDS; STANDARD WARRANTY; AND 1/4" INSULATED LIQUID PIPE AND 3/8" GAS PIPE

## VAV BOX SCHEDULE

| PLAN MARK | SERVING | MANUFACTURER / MODEL | INLET DIAMETER (INCHES) | PRIMARY AIR | | | HEATING COIL | | | | | INLET PRESSURE " W.G. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MAX CLG CFM | MAX HTG CFM | MIN CFM | BTU/H | EAT | LAT | GPM | ROWS | |
| VAV-1.1 | CONFERENCE ROOM 105 | TITUS DESV | 6 | 350 | 250 | 195 | 9,500 | 55 | 90.0 | 1.2 | 3 | 1.00 |
| VAV-1.2 | DIRECTOR OF TRANSPORTATION 106 | TITUS DESV | 6 | 110 | 80 | 60 | 3,400 | 55 | 93.7 | 1.0 | 2 | 1.00 |
| VAV-1.3 | PAYROLL 107 | TITUS DESV | 6 | 110 | 80 | 60 | 3,400 | 55 | 93.7 | 1.0 | 2 | 1.00 |
| VAV-1.4 | TRIP COORDINATOR 108 | TITUS DESV | 6 | 110 | 80 | 60 | 3,400 | 55 | 93.7 | 1.0 | 2 | 1.00 |
| VAV-1.5 | TRANSPORTATION MANAGER 109 | TITUS DESV | 6 | 110 | 80 | 60 | 3,400 | 55 | 93.7 | 1.0 | 2 | 1.00 |
| VAV-1.6 | WAITING 102 | TITUS DESV | 10 | 800 | 600 | 440 | 22,800 | 55 | 90.0 | 3.6 | 3 | 1.00 |
| VAV-1.7 | DISPATCH OFFICE 112 | TITUS DESV | 6 | 320 | 250 | 180 | 9,500 | 55 | 90.0 | 1.2 | 3 | 1.00 |
| VAV-1.8 | MANAGER OFFICE 130 | TITUS DESV | 8 | 570 | 450 | 320 | 17,100 | 55 | 90.0 | 3.6 | 3 | 1.00 |
| VAV-1.9 | LOCKER ROOMS | TITUS DESV | 8 | 400 | 275 | 220 | 11,100 | 55 | 92.2 | 1.5 | 3 | 1.00 |
| VAV-1.10 | DRIVERS ROOM 119 | TITUS DESV | 16 | 2220 | 1500 | 1125 | 57,000 | 55 | 90.0 | 5.7 | 4 | 1.00 |
| VAV-1.11 | PARTS STORAGE 134 | TITUS DESV | 8 | 550 | 375 | 305 | 14,200 | 55 | 90.0 | 2.2 | 3 | 1.00 |
| VAV-1.12 | DRIVERS RESTROOMS | TITUS DESV | 10 | 875 | 750 | 500 | 28,500 | 55 | 90.0 | 3.6 | 4 | 1.00 |
| VAV-1.13 | BREAK ROOM 135 | TITUS DESV | 6 | 350 | 250 | 195 | 9,500 | 55 | 90.0 | 1.2 | 3 | 1.00 |
| VAV-1.14 | MECHANICAL/ELECTRICAL 124 | TITUS DESV | 8 | 450 | 350 | 250 | 13,300 | 55 | 90.0 | 1.9 | 3 | 1.00 |
| VAV-1.15 | TRAINING ROOM 125 | TITUS DESV | 6 | 350 | 250 | 195 | 9,500 | 55 | 90.0 | 1.2 | 3 | 1.00 |
| VAV-1.16 | TRAINING OFFICE 126 | TITUS DESV | 6 | 110 | 80 | 60 | 3,400 | 55 | 93.7 | 1.0 | 2 | 1.00 |
| VAV-1.17 | TRAINING OFFICE 127 | TITUS DESV | 6 | 120 | 90 | 70 | 3,600 | 55 | 92.1 | 1.0 | 2 | 1.00 |

GENERAL NOTES:
1. HEATING COIL WATER TEMPERATURES: 120 EWT
2. INLET TO VAV BOX SHALL HAVE STRAIGHT DUCT LENGTH EQUAL TO A MINIMUM OF 1.5 TIMES DUCT DIAMETER.
3. ALLOW 48" OF STRAIGHT DUCT DOWNSTREAM OF VAV BOX BEFORE FIRST RUNOUT. INSIDE OF DUCT SHALL BE EQUAL TO DISCHARGE SIZE. THERE SHALL BE NO REDUCTION.
4. PROVIDE INTEGRAL DISCONNECT SWITCH FOR VAV BOXES.
5. PROVIDE 2-WAY CONTROL VALVES FOR ALL VAV BOXES
6. 24V POWER BY CONTROLS CONTRACTOR (ACES)

## GRILLES AND DIFFUSERS SCHEDULE

| PLAN MARK | MANUFACTURER | MODEL NUMBER | DUCT SIZE | GRILLE SIZE | USAGE | NOTES |
|---|---|---|---|---|---|---|
| SA | TITUS | TMS | 6" DIA. | 24" X 24" | SUPPLY | 1,6 |
| SB | TITUS | TMS | 8" DIA. | 24" X 24" | SUPPLY | 1,6 |
| SC | TITUS | TMS | 10" DIA | 24" X 24" | SUPPLY | 1,6 |
| SD | TITUS | 300RL | 6" DIA. | 8" X 8" | SUPPLY | 2,6 |
| SF | TITUS | 300RL | 8" DIA. | 10" X 10" | SUPPLY | 2,4,6 |
| SG | TITUS | 300RL | 10" DIA. | 12" X 12" | SUPPLY | 2,6 |
| SJ | TITUS | 300RL | 12" x 8" | 12" x 8" | SUPPLY | 2,4,6 |
| SK | TITUS | S-DL | 28" DIA. | 40" X 12" | SUPPLY | 2,4,6 |
| SL | TITUS | ML-38-TZ | 10" DIA. | 48" X 4" | SUPPLY | 3,6 |
| | | | | | | |
| RA | TITUS | 350RL | 24" x 24" | 24" X 24" | RETURN | 2,6 |
| RB | TITUS | MLR-38-TZ | - | 48" X 4" | RETURN | 6,7 |
| | | | | | | |
| EA | TITUS | 350RL | 20" x 12" | 20" x 12" | EXHAUST | 2,4,6 |
| EB | TITUS | 350RL | 6" DIA | 8" X 8" | EXHAUST | 2,4,6 |
| EC | TITUS | 350RL | 8" DIA | 10" X 10" | EXHAUST | 2,4,6 |
| ED | TITUS | 350RL | 10" DIA | 12" X 12" | EXHAUST | 2,4,6 |
| EE | TITUS | 350RL | 26" DIA | 24" X 10" | EXHAUST | 2,4,6 |
| EG | TITUS | 350R-SS | 14" DIA | 18" X 10" | EXHAUST | 2,4,5,6 |
| EH | TITUS | 350RL | 12" X 8" | 12" X 8" | EXHAUST | 2,4,6 |
| EJ | TITUS | 350RL | 8" X 12" | 8" X 12" | EXHAUST | 2,4,6 |
| EK | TITUS | 350RL | 12" X 12" | 12" X 12" | EXHAUST | 2,4,6 |
| EL | TITUS | MLR-38-TZ | 6" DIA | 48" X 4" | EXHAUST | 6,8 |
| EM | TITUS | 350RL | 14" X 14" | 14" X 14" | EXHAUST | 2,4,6 |
| | | | | | | |
| TA | TITUS | 350R-SS | 18" x 18" | 18" x 18" | TRANSFER | 2,5,6 |
| TB | TITUS | 350RL | 12" x 12" | 12" x 12" | TRANSFER | 2,6 |
| TC | TITUS | 350RL | 16" x 16" | 16" x 16" | TRANSFER | 2,6 |

NOTES:
1. LOUVERED FACE
2. FIXED DEFLECTION
3. 2 SLOT, 3/4" SLOT WIDTH WITH MP-TZ PLENUM BOX
4. OPPOSED BLADE DAMPER
5. MILL FINISH
6. COORDINATE COLOR WITH ARCHITECT PRIOR TO ORDERING
7. 2 SLOT, 3/4" SLOT WIDTH
8. 2 SLOT, 3/4" SLOT WIDTH WITH MPR-TZ PLENUM BOX

## HOT WATER UNIT HEATER SCHEDULE

| PLAN MARK | AREA SERVED | MODEL NUMBER | CFM | INPUT HEATING CAPACITY (BTU/H) | DERATED HEATING CAPACITY (BTU/H) | GPM | VOLT/PH | AMPS | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| HWH-1 | DRIVE THROUGH BAYS 129 | MODINE HC-193 | 2,900 | 143,000 | 58,893 | 14.9 | 115/1 | 7.2 | 1,2,3 |
| HWH-2 | DRIVE THROUGH BAYS 129 | MODINE HC-193 | 2,900 | 143,000 | 58,893 | 14.9 | 115/1 | 7.2 | 1,2,3 |
| HWH-3 | DRIVE THROUGH BAYS 129 | MODINE HC-193 | 2,900 | 143,000 | 58,893 | 14.9 | 115/1 | 7.2 | 1,2,3 |
| HWH-4 | DRIVE THROUGH BAYS 129 | MODINE HC-193 | 2,900 | 143,000 | 58,893 | 14.9 | 115/1 | 7.2 | 1,2,3 |
| HWH-5 | WASH BAY 139 | MODINE HC-193 | 2,900 | 143,000 | 58,893 | 14.9 | 115/1 | 7.2 | 1,2,3,4 |
| HWH-6 | STORAGE 137 | MODINE HC-63 | 1,120 | 45,600 | 18,780 | 4.7 | 115/1 | 7.2 | 1,2,3 |
| HWH-7 | TRUCK BAY 136 | MODINE HC-121 | 1,775 | 93,000 | 38,301 | 9.7 | 115/1 | 7.2 | 1,2,3 |
| HWH-8 | STORAGE 201 | MODINE HC-63 | 1,120 | 45,600 | 18,780 | 4.7 | 115/1 | 7.2 | 1,2,3 |
| HWH-9 | MECHANICAL/ELECTRICAL 124 | MODINE HC-63 | 1,120 | 45,600 | 18,780 | 4.7 | 115/1 | 7.2 | 1,2,3 |

NOTES:
1. EWT/LWT = 120/100, DB/EAT = 60 DB, RATED WITH 30% PROP. GLYCOL
2. WITH CEILING BRACKET, FIXED WALL THERMOSTAT, SUMMER FAN SWITCH, AND BUILT-IN DISCONNECT
3. SELECTIONS BASED ON LOW FAN SPEED AND TWO ROW COIL
4. THERMOSTAT (OR ENCLOSURE) SHALL BE WASHDOWN RATED

## AIR DRYER SCHEDULE

| PLAN MARK | SERVING | MANUFACTURER | MODEL | FLOW RATE (SCFM) | IN/OUT AIR CONNECT SIZE | OPERATING KW | VOLT/PH | DIMENSIONS (INCHES) | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| AD-1 | SERVICE BAYS | FS CURTIS | RNP25 | 25 | 3/4" FPT | 0.8 | 115/1 | 16x15x22 | 88 | 1-6 |
| AD-2 | SERVICE BAYS | FS CURTIS | RNP25 | 25 | 3/4" FPT | 0.8 | 115/1 | 16x15x22 | 88 | 1-6 |
| | | | | | | | | | | |

NOTES:
1. PERFORMANCE BASED ON ISO 7183, TABLE 2, OPTION A2 (100 PSIG INLET AIR PRESSURE, 100°F INLET AIR TEMPERATURE, 100°F AMBIENT AIR TEMPERATURE)
2. COPPER TUBE-ON-TUBE HEAT EXCHANGER
3. FULLY HERMETIC REFRIGERATION COMPRESSOR
4. R513A REFRIGERANT
5. TIMED SOLENOID DRAIN
6. DRAIN ISOLATION VALVE

## AIR COMPRESSOR SCHEDULE

| PLAN MARK | SERVING | MANUFACTURER | MODEL | TANK SIZE (GAL.) | ACFM @ 175 PSIG | HP | VOLT/PH | DIMENSIONS (INCHES) | WEIGHT (LBS) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-1 | SERVICE BAYS | FS CURTIS | CT7.5 | 80 | 24 | 7.5 | 230/1 | 73x36x27 | 573 | 1-5 |
| AC-2 | SERVICE BAYS | FS CURTIS | CT7.5 | 80 | 24 | 7.5 | 230/1 | 73x36x27 | 573 | 1-5 |
| | | | | | | | | | | |

NOTES:
1. PACKAGED UNIT WITH PREWIRED MOTOR STARTER AND PRESSURE CONTROL SWITCH(ES).
2. FILTERS (MEDIUM EFFICIENCY AND HIGH EFFICIENCY)
3. AUTODRAIN
4. DUAL CONTROL MODE OPTION
5. VIBRATION PADS

## EXHAUST FAN SCHEDULE

| PLAN MARK | SERVING | MANUFACTURER | MODEL | CFM | ESP | HP | VOLT/PH | NOTES |
|---|---|---|---|---|---|---|---|---|
| EF-1 | WOMENS 121/MENS 122/MECH ROOM | COOK | 150 ACED | 1,400 | 0.25 | 1/6 | 120/1 | 1,2,3,4 |
| EF-2 | LOCKER ROOMS | COOK | 120 ACED | 675 | 0.25 | 1/6 | 120/1 | 1,2,3,4 |
| EF-3 | TOILET 114/TOILET 115 | COOK | 100 ACEH | 250 | 0.125 | 1/6 | 120/1 | 1,2,3,4 |
| EF-4 | TRUCK BAY 136 | COOK | 120 ACED | 500 | 0.125 | 1/6 | 120/1 | 1,2,3,4 |
| EF-5 | STORAGE 137 | COOK | 100 ACEH | 350 | 0.25 | 1/6 | 120/1 | 1,2,3,4 |
| EF-6 | MEZZANINE 201 | COOK | 120 ACED | 700 | 0.125 | 1/6 | 120/1 | 1,2,3,5 |
| EF-7 | SOURCE CAPTURE EXHAUST | MAHLE | EV-1 PART #: 435800100 | | | | 110/1 | 6 |
| EF-8 | SOURCE CAPTURE EXHAUST | MAHLE | EV-1 PART #: 435800100 | | | | 110/1 | 6 |

NOTES:
1. ROOF CURB, INSULATED, 14 INCH
2. INTEGRAL DISCONNECT SWITCH
3. BACKDRAFT DAMPER, BIRDSCREEN
4. EC MOTOR, W/ FACTORY MOUNTED SPEED CONTROL. CONTROLLED THROUGH BAS
5. EC MOTOR, W/ FACTORY MOUNTED SPEED CONTROL. CONTROLLED BY THERMOSTAT ON WALL THROUGH BAS
6. PROVIDE EXHAUST FAN TO OWNER FOR BUS/VEHICLE EXHAUST

## ELECTRIC UNIT HEATER SCHEDULE

| PLAN MARK | AREA SERVED | MFGR | MODEL NUMBER | TYPE | HEATING CAPACITY (KW) | VOLT/PH | AMPS | NOTES |
|---|---|---|---|---|---|---|---|---|
| UH-1 | VESTIBULE 100 | MARKEL | G3383D-RP | CEILING | 1.5 | 277/1 | 5.4 | 1,2,3 |
| UH-2 | VESTIBULE 128 | MARKEL | G3385D-RP | CEILING | 1.5 | 277/1 | 5.4 | 1,2,3 |
| | | | | | | | | |

NOTES:
1. INTEGRAL THERMOSTAT
2. INTEGRAL DISCONNECT SWITCH
3. SUMMER FAN SWITCH

*MECHANICAL SCHEDULES CONTINUED ON M003*

City

Collaborator

FSG Facility Solutions Group

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BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: Author
Checked By: Checker

Sheet Title

MECHANICAL SCHEDULES

Sheet No.

M002

*MECHANICAL SCHEDULES CONTINUED FROM M002*

## HYDRONIC SPECIALTIES SCHEDULE

| Description | Unit | | Notes |
|---|---|---|---|
| | Manufacturer | Model | |
| AUTOMATIC AIR VENT | TACO | 409 | 4 |
| BACKFLOW PREVENTER | WATTS | LF009 | |
| THERMOMETER | WEKSLER | AS5H-7-36 | 1 |
| PRESSURE GAUGE | WEKSLER | 35TL4-PD | 2 |
| MULTI-PURPOSE VALVE | TACO | MPV | |
| SUCTION DIFFUSER | TACO | SD | |
| PRESSURE REDUCING VALVE | WATTS | LF | |
| PRESSURE RELIEF VALVE | WATTS | | 3 |
| POTFEEDER | SKIDMORE | 58760 | |
| TRUMPET VALVE | BELL & GOSSETT | TV-4 | |

NOTES:
1. ADJUSTABLE ANGLE, 20F-180F RANGE, WITH BRASS THERMOWELL
2. 3.5" FACE, 0-100 PSI RANGE, WITH 1/4" THREADED 2-PIECE BALL VALVE FOR ISOLATION
3. SET TO 40PSI, OUTLET PIPED TO GLYCOL TANK
4. LOCATED AT BOILERS ONLY, OUTLET PIPED TO GLYCOL TANK. PROVIDE MANUAL AIR VENTS (BALL VALVES WITH PLUG) ON ALL OTHER HIGH POINTS IN SYSTEM FOR MANUAL VENTING DURING STARTUP

## HOT WATER PUMP SCHEDULE

| PLAN MARK | MAKE/MODEL | GPM | TDH | H.P. | RPM | VOLT/PH | NOTES |
|---|---|---|---|---|---|---|---|
| HWP-1 | TACO KV 3007D | 185 | 45 | 5 | 1760 | 460/3 | 1,2,3,4,5 |
| HWP-2 | TACO KV 3007D | 185 | 45 | 5 | 1760 | 460/3 | 1,2,3,4,5 |
| BP-1 | TACO 1911 | 47 | 10 | 1/3 | 1760 | 120/1 | 2 |
| BP-2 | TACO 1911 | 47 | 10 | 1/3 | 1760 | 120/1 | 2 |

NOTES:
1. OPERATING AND STANDBY OPERATION
2. VERTICAL INLINE PUMP, CLOSE COUPLED
3. VFD (ABB) FURNISHED BY CONTROLS CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR
4. SUCTION DIFFUSER ADJUSTABLE SUPPORT FOOT
5. PUMP FLANGE SUPPORTS - 2 PER PUMP

## AIR AND DIRT SEPARATOR SCHEDULE

| PLAN MARK | MAKE/MODEL | SERVES | GPM | MAX WPD |
|---|---|---|---|---|
| AS-1 | TACO / 4904A-125 | HEATING WATER | 185 | 3 |
| | | | | |

## GLYCOL FEED TANK

| PLAN MARK | MAKE/MODEL | TANK VOLUME (GALLONS) | MAKE-UP CAPACITY (GPM @ PSI) | SERVES | HP | VOLTAGE | NOTES |
|---|---|---|---|---|---|---|---|
| GF-1 | WESSELS COMPANY / GMP 15050 | 50 | 1.8 @ 70 | HOT WATER | 0.50 | 110 / 60 | 1 |

NOTES:
1. INCLUDE HIGH AND LOW LEVEL ALARMS

## EXPANSION TANK SCHEDULE

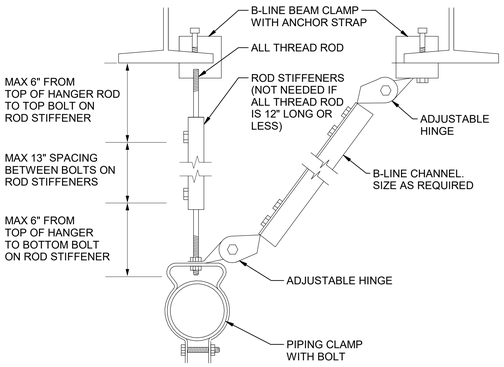
| PLAN MARK | MAKE/MODEL | ACCEPTANCE VOLUME | TANK PRESSURE (PSIG) | | SERVES | NOTES |
|---|---|---|---|---|---|---|
| | | | INITIAL | MAXIMUM | | |
| ET-1 | TACO CA215-125 | 57 GAL. | 50 | 125 | HEATING WATER | 1 |
| | | | | | | |

NOTES:
1. FULL ACCEPTANCE TYPE

## BOILER SCHEDULE

| PLAN MARK | MAKE/MODEL | INPUT (MBH) | OUTPUT (MBH) | VOLT/ PH | AMPS | NOTES |
|---|---|---|---|---|---|---|
| B-1 | LOCHINVAR FTX725N | 725 | 705 | 120/1 | 6 | 1,2,3,4,5 |
| B-2 | LOCHINVAR FTX725N | 725 | 705 | 120/1 | 6 | 1,2,3,4,5 |

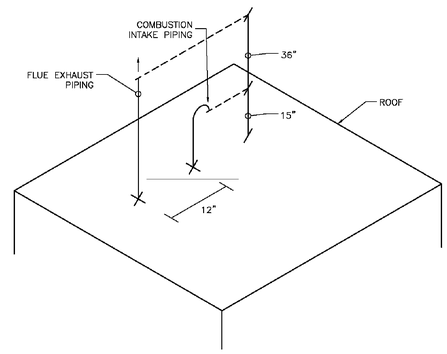
NOTES:
1. BMS GATEWAY - BACNET IP
2. CONDENSATE NEUTRALIZATION KIT
3. SMART TOUCH PC SOFTWARE
4. FLUE PIPING SHALL BE CPVC
5. FACTORY PROVIDED DISCONNECT SWITCH
6. PROVIDE WITH BOILER PUMP
7. PROVIDE WITH EMERGENCY SHUTDOWN SWITCHES (ONE FOR EXTERIOR)



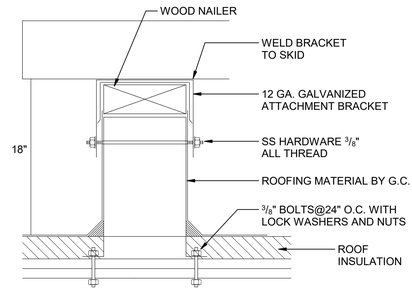

NOTES:

1. SWAY BRACING SHALL BE INSTALLED AT AN ANGLE OF NO LESS THAN 30" FROM VERTICAL
2. SUSPENDED RUNS OF PIPING SHALL BE PROVIDED WITH TRANSVERSE AND LONGITUDINAL SWAY BRACING MEETING THE SPACING LIMITATION. PROVIDE A TRANSVERSE AND LONGITUDINAL SWAY BRACE AT THE BEGINNING AND END OF EACH CONTINUOUS RUN GREATER THAN 12 FEET AND WITHIN 24 INCHES OF ONE END OF EACH HORIZONTAL OFFSET OF 45° OR MORE AND WITHIN 24 INCHES OF THE TOP AND BOTTOM OF EACH VERTICAL OFFSET.
3. A FOUR-WAY SWAY BRACE SHALL BE PROVIDED AT THE TOP OF ALL PIPING RISERS EXCEEDING 3 FEET IN LENGTH AND AT INTERVALS NOT EXCEEDING 25 FEET.
4. LATERAL/TRANSVERSE SWAY BRACES SHALL BE INSTALLED WITHIN 24 INCHES OF EVERY OTHER FLEXIBLE CONNECTION NOT REQUIRED FOR FLEXIBILITY DUE TO DIFFERENTIAL MOVEMENT OF PIPING.
5. LATERAL/TRANSVERSE SWAY BRACES SHALL BE INSTALLED AT THE END OF EACH RUN OF PIPING SIX FEET OR LONGER IN LENGTH.
6. SINGLE HANGER PIPING SUPPORT FOR STEEL CAST IRON PIPING 2-1/2" IN DIAMETER AND LARGER TRANSVERSE SWAY BRACING, MAXIMUM SPACING OF 40 FEET. LONGITUDINAL SWAY BRACING, MAXIMUM SPACING OF 80 FEET.
7. ALL PIPING NOT INDIVIDUALLY SWAY BRACED SHALL BE SECURELY ANCHORED TO THE TRAPEZE TYPE SUPPORTS BEING SWAY BRACED.

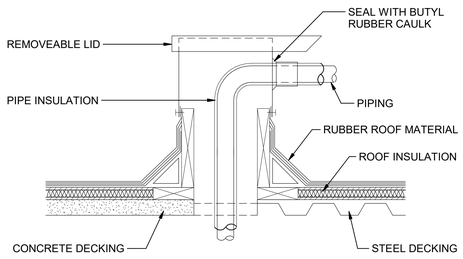
### 1 SINGLE HANGER PIPING SUPPORT DETAIL
N.T.S.




### 2 FLUE/VENTING THRU ROOF DETAIL
NTS




### 3 CONDENSING UNIT SUPPORT DETAIL
NTS




### 4 ROOF PIPE PENETRATION BOX DETAIL
NTS

*MECHANICAL DETAILS ON M004*

City

Collaborator

FSG Facility Solutions Group

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STATE OF MISSOURI
BRETT W. BEELMAN
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09-07-26

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Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

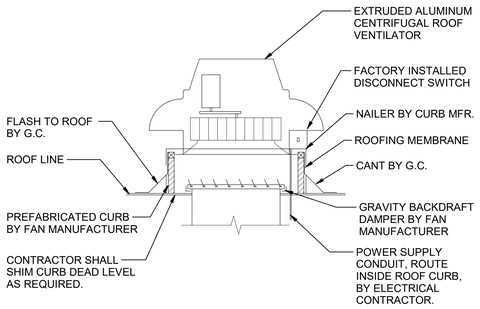
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

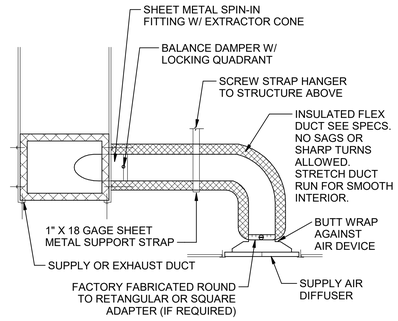
Team
Drawn By: Author
Checked By: Checker

Sheet Title
MECHANICAL SCHEDULES AND DETAILS

Sheet No.
M003

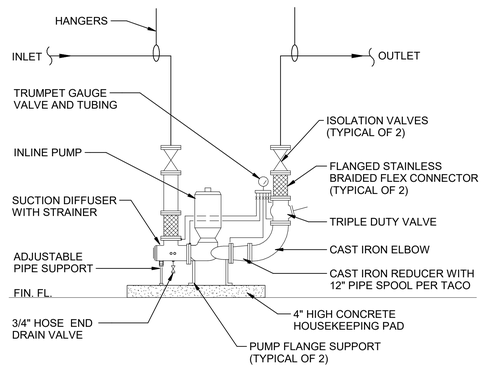



## 1 EXHAUST FAN DETAIL
NTS

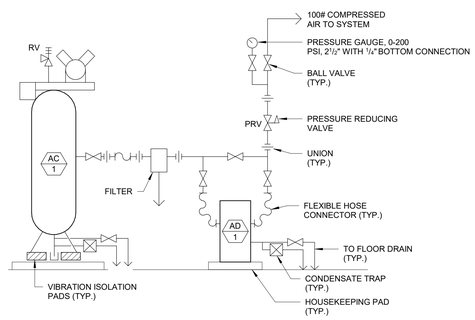



NOTE: EVERY DIFFUSER SHALL HAVE A 3/4" PHENOLIC PLATE W/ 1/2" TEXT IDENTIFYING THE VAV BOX SUPPLYING THE DIFFUSER.

## 2 AIR DEVICE MOUNTING DETAIL
NTS




## 3 HEATING WATER BASE MOUNTED INLINE PUMP DETAIL
NTS

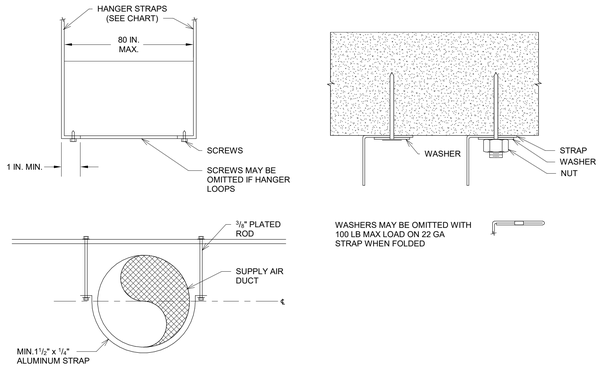



## 4 AIR COMPRESSOR SYSTEM DETAIL (TYP FOR 2 SYSTEMS)
NTS

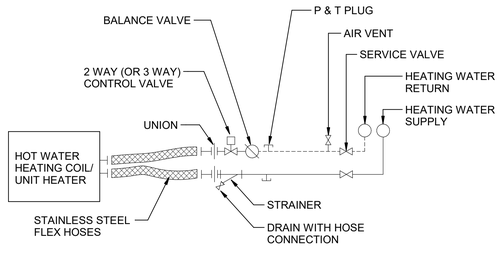
| RECTANGULAR DUCT HANGER MINIMUM SIZE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pair at 10 Ft. Spacing | | Pair at 8 Ft. Spacing | | Pair at 5 Ft. Spacing | | Pair at 4 Ft. Spacing | |
| Maximum Half of Duct Perimeter | Strap | Wire/Rod | Strap | Wire/Rod | Strap | Wire/Rod | Strap | Wire/Rod |
| P/2 = 30" | 1" x 22 Ga | 10 Ga (.135") | 1"x 22 Ga | 10 Ga (.135") | 1" x 22 Ga | 12 Ga (.106") | 1" x 22 Ga | 12 Ga (.106") |
| P/2 = 72" | 1" x 18 Ga | 3/8" | 1" x 20 Ga | 1/4" | 1" x 22 Ga | 1/4" | 1" x 22 Ga | 1/4" |
| P/2 = 96" | 1" x 16 Ga | 3/8" | 1" x 18 Ga | 3/8" | 1" x 20 Ga | 3/8" | 1" x 22 Ga | 1/4" |
| P/2 = 120" | 1-1/2" x 16 Ga | 1/2" | 1" x 16 Ga | 3/8" | 1" x 18 Ga | 3/8" | 1" x 20 Ga | 1/4" |
| P/2 = 168" | 1-1/2" x 16 Ga | 1/2" | 1-1/2" x 16 Ga | 1/2" | 1" x 16 Ga | 3/8" | 1" x 18 Ga | 3/8" |
| P/2 = 192" | Not Given | 1/2" | 1-1/2" x 16 Ga | 1/2" | 1" x 16 Ga | 3/8" | 1" x 16 Ga | 3/8" |
| P/2 = 193" UP | Special Analysis Required | | | | | | | |

| When Straps are Lap Joined Use These Minimum Fasteners | Single Hanger Maximum Allowable Load | |
|---|---|---|
| | Strap | Wire / Rod (Dia.) |
| 1" x 18, 20, 22 Ga - Two #10 of One 1/4" Bolt | 1" x 22 Ga - 260 lbs. | 0.106" - 80 lbs. |
| 1" x 18 Ga - Two 1/4" Dia. | 1" x 20 Ga - 320 lbs. | 0.135" - 120 lbs. |
| 1-1/2" x 16 Ga - Two 3/8" Dia. | 1" x 18 Ga - 420 lbs. | 0.162" - 160 lbs. |
| Place Fasteners in Series, Not Side by Side | 1" x 16 Ga - 700 lbs. | 1/4" - 270 lbs. |
| | 1-1/2" x 16 Ga - 1100 lbs. | 3/8" - 680 lbs. |
| | | 1/2" - 1250 lbs. |
| | | 5/8" - 2000 lbs. |
| | | 3/4" - 3000 lbs. |

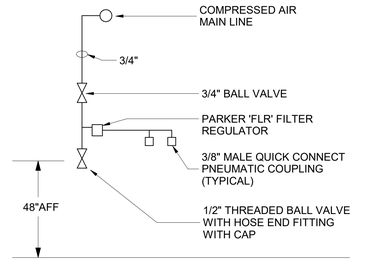
NOTE: TABLE ALLOWS FOR DUCT WEIGHT, 1LB./SQ. FT. INSULATION WEIGHT, AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT.



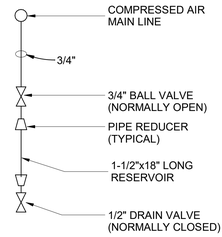

## 5 DUCT HANGER DETAILS
NTS




## 6 HEATING WATER COIL DETAIL
NTS

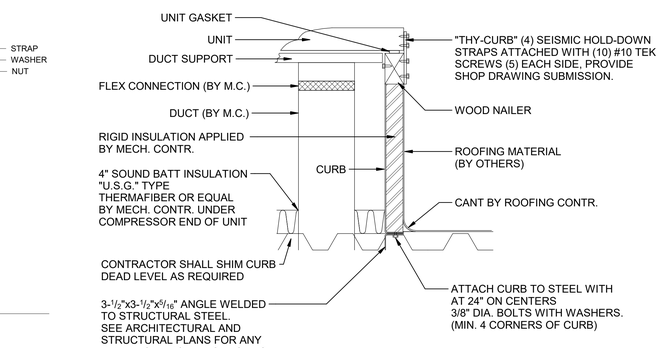



## 7 COMPRESSED AIR DROP DETAIL
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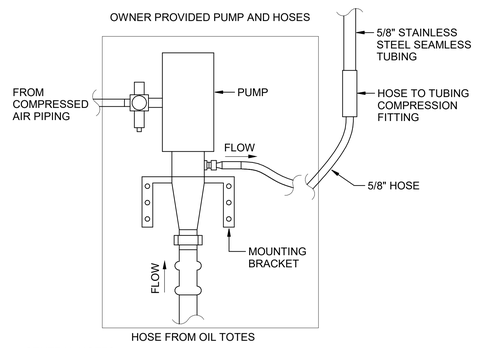



*NOTE: INSTALL AT LOW-POINT OF PIPING LOOP

## 8 COMPRESSED AIR PIPING DRAIN DETAIL
NTS

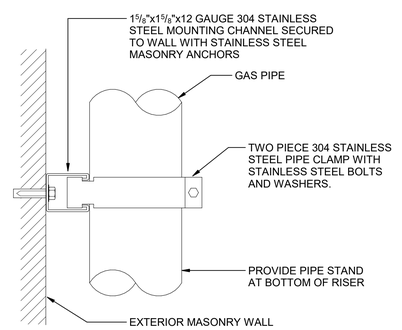



## 9 ROOF CURB DETAIL
NTS

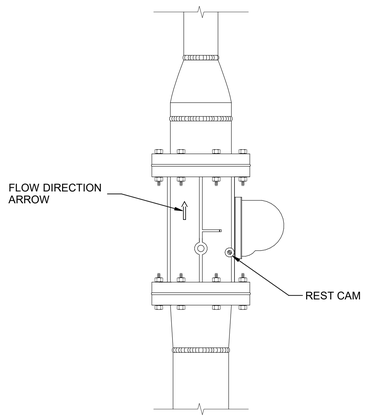



GENERAL NOTES:
1. COORDINATE ALL CONNECTION WITH LUBRICANT EQUIPMENT SUPPLIER.

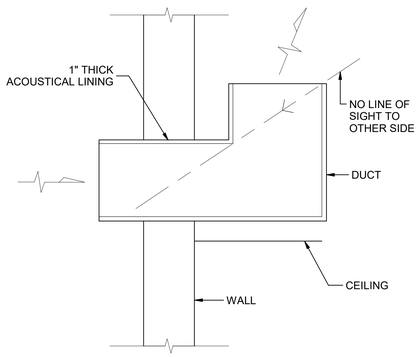
## 10 OIL PUMP CONNECTION DETAIL
NTS



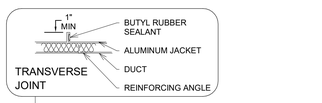

## 11 GAS PIPE MOUNTING DETAIL
NTS

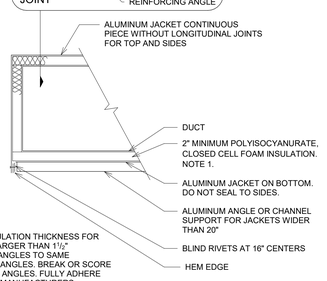



## 12 SEISMIC GAS VALVE DETAIL
NTS



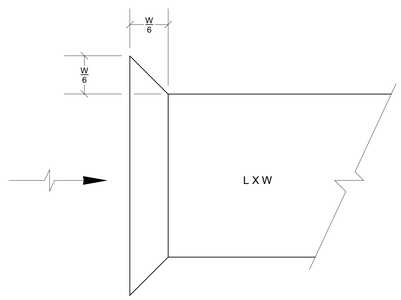

## 13 TRANSFER DUCT DETAIL
12" = 1'-0"




NOTE:
1. INCREASE INSULATION THICKNESS FOR DUCTS WITH LARGER THAN 1½" REINFORCING ANGLES TO SAME THICKNESS AS ANGLES. BREAK OR SCORE INSULATION AT ANGLES. FULLY ADHERE TO DUCT WITH MANUFACTURERS RECOMMENDED ADHESIVE.

## 14 OUTDOOR DUCT INSULATION DETAIL
NTS




## 15 RETURN DUCT OPENING DETAIL
NTS

City

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FSG Facility Solutions Group

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STATE OF MISSOURI
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NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No: 2017031307
Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
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Sheet Revision

Issue

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09/01/2026

Team

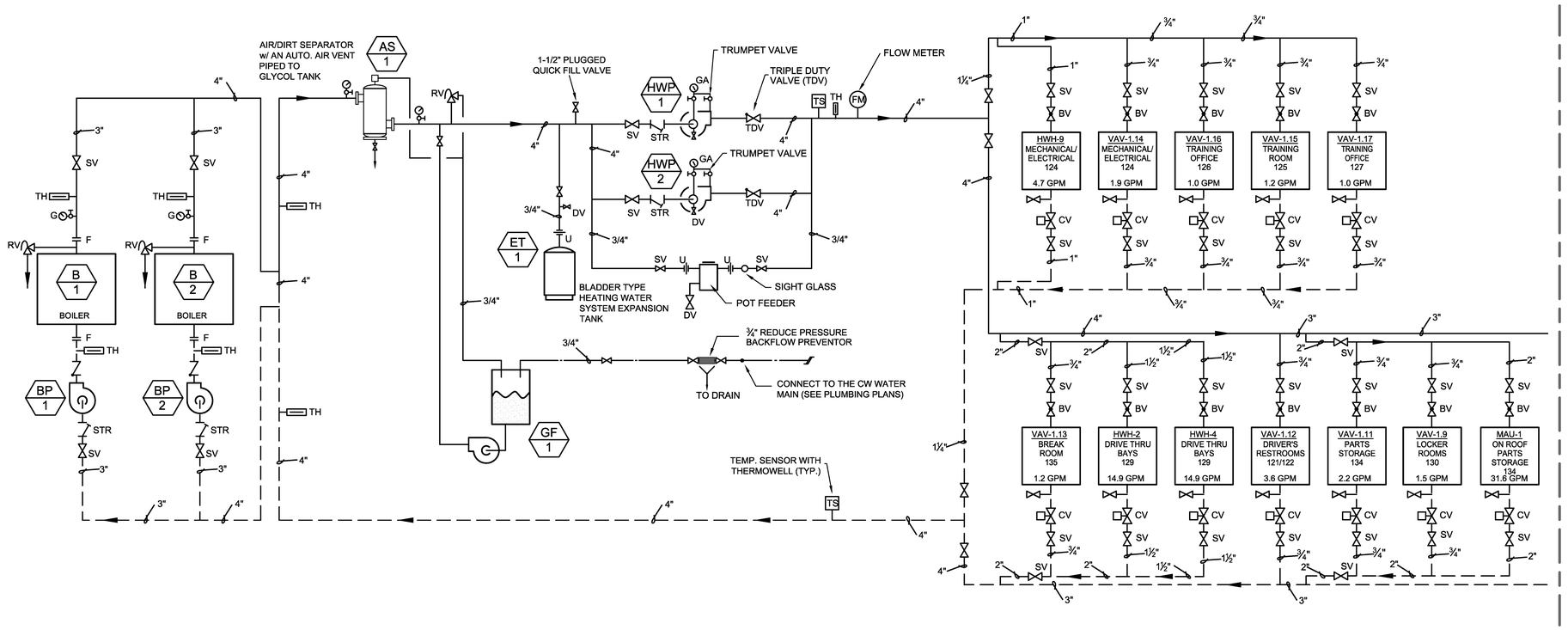
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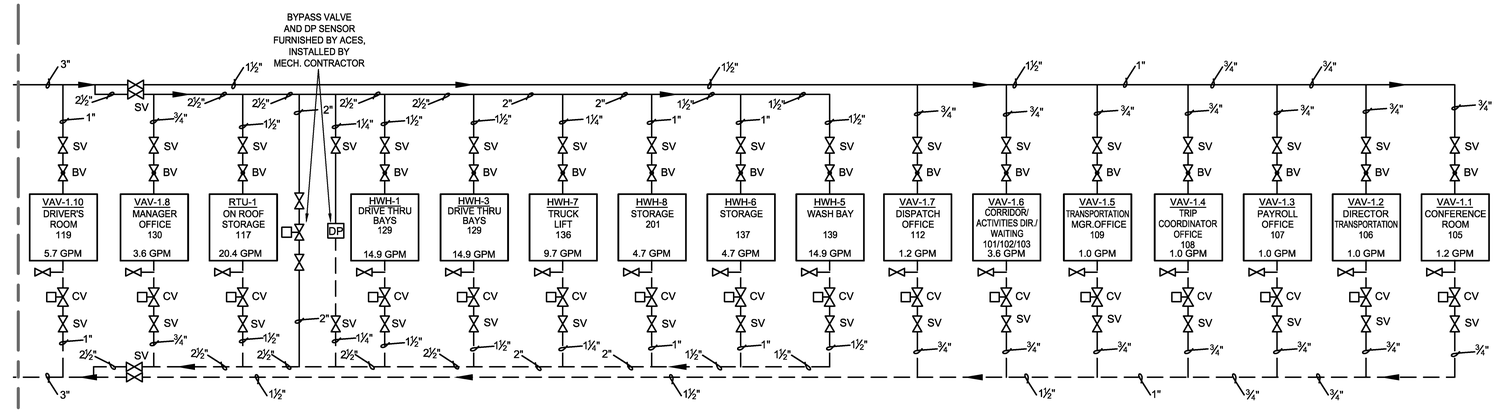
MECHANICAL DETAILS

Sheet No.

M004




1 HEATING WATER SYSTEM - FLOW DIAGRAM
NTS / CONTINUED




2 HEATING WATER SYSTEM - FLOW DIAGRAM
NTS / SEE 1/M005

City

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FSG Facility Solutions Group

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STATE OF MISSOURI
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3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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09/01/2026

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Checked By: Checker

Sheet Title

MECHANICAL FLOW DIAGRAM

Sheet No.

M005




## GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE SITE AND EXISTING CONDITIONS.
2. ALL SYSTEMS AND EQUIPMENT SHOWN TO BE DEMOLISHED SHALL BE REMOVED IN THEIR ENTIRETY, INCLUDING ALL PIPING, CONTROLS, CONDUIT, ETC.
3. IN ALL AREAS WHERE DEMOLITION OCCURS AND PATCHING IS REQUIRED, PATCH IN SAME/SIMILAR MATERIALS. FINISH TO MATCH ADJACENT SURFACE SO PATCHED AREA MATCHES ADJACENT SURFACE IN MATERIAL, TEXTURE, AND FINISH.

## KEYED NOTES:

1. RECOVER ALL REFRIGERANT FROM A/C UNIT PRIOR TO BUILDING DEMOLITION.
2. REMOVE EXISTING WINDOW A/C UNIT AND RETURN TO OWNER PRIOR TO BUILDING DEMOLITION.
3. DISCONNECT GAS PIPING FROM BUILDING AND COORDINATE GAS METER DECOMMISSIONING WITH SPIRE PRIOR TO BUILDING DEMOLITION. EXISTING UNDERGROUND GAS LINE SHALL BE USED TO FEED NEW BUILDING. SEE CIVIL PLANS.

2 EXISTING TRANSPORTATION FACILITY DEMOLITION PLAN - MECHANICAL
1" = 60'-0"

City

Collaborator

FSG Facility Solutions Group

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# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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Sheet Revision

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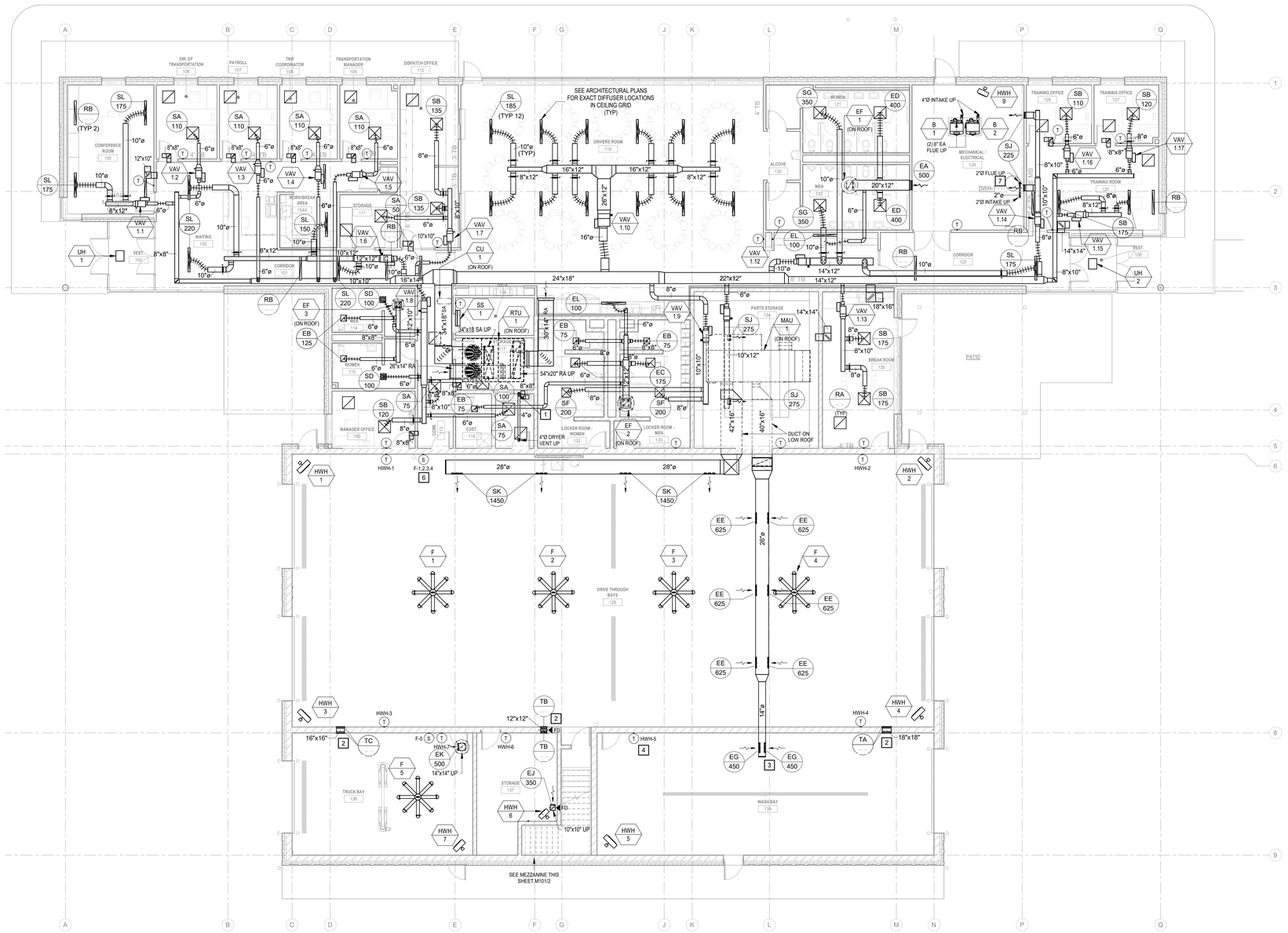
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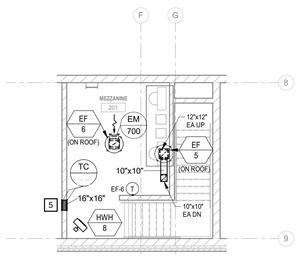
DEMO PLAN - MECHANICAL

Sheet No.

MS101




1 FIRST FLOOR PLAN - MECHANICAL
1/8" = 1'-0"




2 MEZZANINE PLAN - MECHANICAL
1/8" = 1'-0"

## GENERAL NOTES:

1. INSTALL NEW VAV BOXES, DAMPERS, AND VALVES WITHIN FIVE (5) FEET OF FINISHED CEILING FOR MAINTENANCE. DO NOT INSTALL WHERE LIGHTS OR OTHER DEVICES MAY LIMIT SERVICE CLEARANCES. OFFSET VAV BOX HEIGHT FROM MAIN DUCTWORK WHERE NECESSARY TO ALLOW FOR SERVICING. CONTRACTOR RESPONSIBLE FOR DETERMINING LH OR RH CONTROL BOX FOR SERVICING.
2. ALL CONTROL VALVES SHALL BE MANUFACTURED BY BELIMO, NO SUBSTITUTIONS.
3. HEATING WATER PIPE LOOP IS SHOWN DIAGRAMMATICALLY. COORDINATE AND INSTALL PIPING TO AVOID DUCTWORK AND OFFSET DOWN TO VAV'S TO PROVIDE SERVICE ACCESS TO VALVES AS REQUIRED.
4. CHANGES IN EQUIPMENT MANUFACTURER THAT CAUSE MODIFICATIONS TO STRUCTURAL SUPPORT OR ELECTRICAL REQUIREMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ADDRESS. OWNER SHALL NOT BE RESPONSIBLE FOR ANY ADDITIONAL EXPENSES INCURRED.
5. ALL GRILLES AND DIFFUSERS INSTALLED IN HARD CEILINGS SHALL BE INSTALLED CENTERED AND SYMMETRICAL WITH LIGHT FIXTURES AND ADJACENT WALLS.
6. ALL EXPOSED PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE OR WALL. AVOID GARAGE DOOR OPENING WITH ALL PIPING INSTALLS.
7. HEATING WATER PIPING MAINS ARE TO BE INSTALLED ADJACENT TO STRUCTURE WITH ALL RUNOUTS OFF BOTTOM OF MAINS, TO FACILITATE VENTING OF SYSTEM.
8. ALL EXPOSED UNINSULATED AND INSULATED PIPING (COMPRESSED AIR, OIL) SHALL BE PAINTED WITH COLOR BY ARCHITECT.
9. COORDINATE ALL PIPING DROPS IN SHOP AREAS TO AVOID PLANNED EQUIPMENT LOCATIONS. SEE ARCHITECTURAL DRAWINGS FOR EQUIPMENT LAYOUT.

## KEYED NOTES:

1. PROVIDE DRYERBOX MODEL #DB-425 OR EQUAL RECESSED DRYER VENT BOX FOR DRYER VENT CONNECTION. TERMINATE DRYER VENT ON ROOF WITH GOOSENECK WITH 45° DOWN WITH BACKDRAFT DAMPER. TERMINATE MINIMUM 18" ABOVE FINISHED ROOF LEVEL. MOUNT WITH BOTTOM FLUSH WITH FLOOR.
2. MOUNT TRANSFER GRILLES WITH BOTTOM AT 5'-0" AFF.
3. ALL DUCTWORK IN THIS ROOM SHALL BE CONSTRUCTED OF STAINLESS STEEL.
4. THERMOSTAT SHALL BE WASHDOWN RATED OR PROTECTED WITH A WASHDOWN RATED ENCLOSURE.
5. MOUNT TRANSFER GRILLES WITH BOTTOM AT 17'-0" AFF FROM TRUCK LIFT.
6. FURNISH AND INSTALL BIG ASS FANS 'BAFCON' CONTROLLER ON WALL AND WIRE TO F-1,2,3,4 FOR CAPABILITY TO CONTROL ALL FANS AT ONCE. COORDINATE INSTALL WITH MANUFACTURER.
7. INSTALL NEW 2" INTAKE AND VENT FOR WATER HEATER UP TO CONCENTRIC VENT KIT THROUGH ROOF. COORDINATE INSTALLATION WITH MANUFACTURER REQUIREMENTS.

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2007031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No.: 2017031307
Project No.: 2576EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

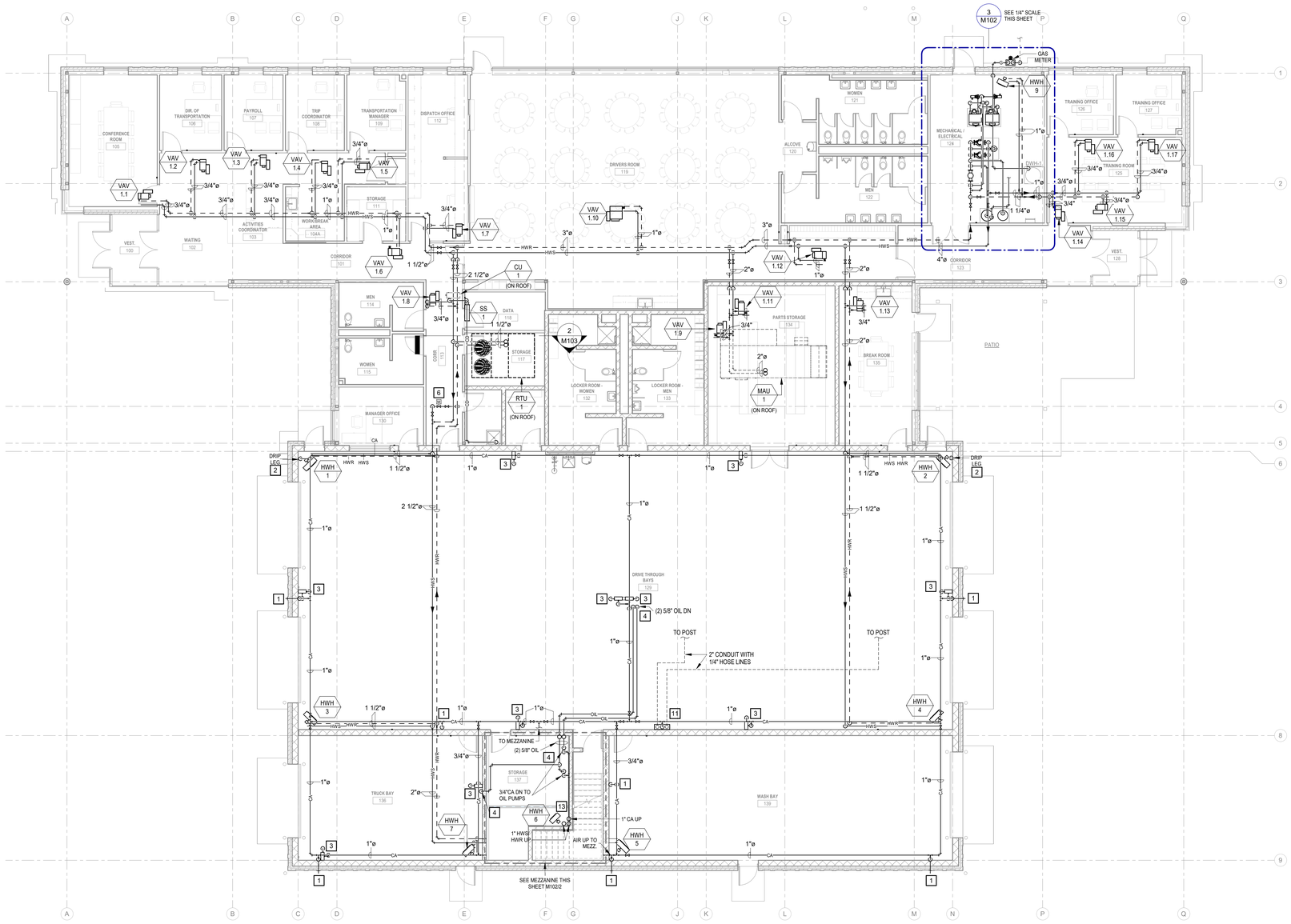
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Checked By: BWB

Sheet Title

FLOOR PLANS - MECHANICAL

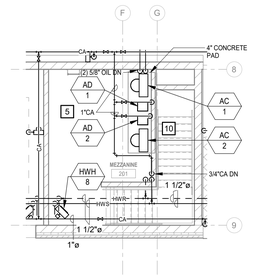
Sheet No.

M101



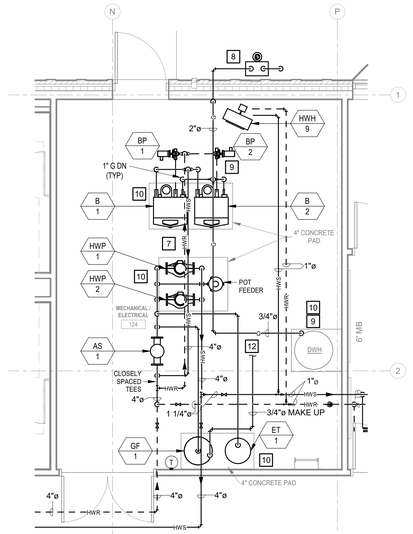

## 1 FIRST FLOOR PLAN - MECHANICAL PIPING

1/8" = 1'-0"




## 2 MEZZANINE PLAN - MECHANICAL PIPING

1/8" = 1'-0"




## 3 ENLARGED BOILER ROOM - HVAC

1/4" = 1'-0"

## GENERAL NOTES:

1. INSTALL NEW VAV BOXES, DAMPERS, AND VALVES WITHIN FIVE (5) FEET OF FINISHED CEILING FOR MAINTENANCE. DO NOT INSTALL WHERE LIGHTS OR OTHER DEVICES MAY LIMIT SERVICE CLEARANCES. OFFSET VAV BOX HEIGHT FROM MAIN DUCTWORK WHERE NECESSARY TO ALLOW FOR SERVICING. CONTRACTOR RESPONSIBLE FOR DETERMINING LH OR RH CONTROL BOX FOR SERVICING.
2. ALL CONTROL VALVES SHALL BE MANUFACTURED BY BELIMO, NO SUBSTITUTIONS.
3. HEATING WATER PIPE LOOP IS SHOWN DIAGRAMMATICALLY. COORDINATE AND INSTALL PIPING TO AVOID DUCTWORK AND OFFSET DOWN TO VAV'S TO PROVIDE SERVICE ACCESS TO VALVES AS REQUIRED.
4. CHANGES IN EQUIPMENT MANUFACTURER THAT CAUSE MODIFICATIONS TO STRUCTURAL SUPPORT OR ELECTRICAL REQUIREMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ADDRESS. OWNER SHALL NOT BE RESPONSIBLE FOR ANY ADDITIONAL EXPENSES INCURRED.
5. ALL GRILLES AND DIFFUSERS INSTALLED IN HARD CEILINGS SHALL BE INSTALLED CENTERED AND SYMMETRICAL WITH LIGHT FIXTURES AND ADJACENT WALLS.
6. ALL EXPOSED PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE OR WALL. AVOID GARAGE DOOR OPENING WITH ALL PIPING INSTALLS.
7. HEATING WATER PIPING MAINS ARE TO BE INSTALLED ADJACENT TO STRUCTURE WITH ALL RUNOUTS OFF BOTTOM OF MAINS, TO FACILITATE VENTING OF SYSTEM.
8. ALL EXPOSED UNINSULATED AND INSULATED PIPING (COMPRESSED AIR, OIL) SHALL BE PAINTED WITH COLOR BY ARCHITECT.
9. COORDINATE ALL PIPING DROPS IN SHOP AREAS TO AVOID PLANNED EQUIPMENT LOCATIONS. SEE ARCHITECTURAL DRAWINGS FOR EQUIPMENT LAYOUT.

## KEYED NOTES:

1. FURNISH AND INSTALL NEW COMPRESSED AIR QUICK CONNECTIONS ON COMPRESSED AIR DROP. SEE DETAIL #8 ON SHEET M004. FURNISH AND INSTALL FILTER REGULATOR ON DROP, PARKER 'FRL' OR EQUAL.
2. FURNISH AND INSTALL NEW COMPRESSED AIR DRIP LEG. SEE DETAIL #8 ON SHEET M004.
3. FURNISH AND INSTALL NEW 50' COMPRESSED AIR HOSE REEL AND CONNECT TO COMPRESSED AIR DROP IN ADDITION TO SECONDARY QUICK CONNECTION. HOSE REEL TO BE MOUNTED ON WALL/COLUMN. COORDINATE FINAL MOUNTING HEIGHT WITH OWNER. FURNISH AND INSTALL FILTER REGULATOR ON DROP, PARKER 'FRL' OR EQUAL.
4. OIL PIPING SHALL BE 5/8" SEAMLESS STAINLESS STEEL TUBING, FURNISHED AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL RECEIVE PUMPS, HOSES, AND REELS FROM OWNER AND INSTALL OIL PUMPS ON WALL IN STORAGE 137 AND HOSE REELS ON WALL IN TRUCK BAY 136 AND ON COLUMN IN DRIVE THROUGH BAYS 129. CONTRACTOR TO MAKE COMPRESSED AIR CONNECTION TO OIL PUMPS. COORDINATE ALL OIL PIPING REQUIRED MATERIALS AND INSTALLATION WITH BAUMAN OIL (OWNER'S VENDOR). CONTACT IS BOBBY VENZ, 314-550-5770. SEE OIL PUMP CONNECTION DETAIL ON SHEET M004.
5. SEE DETAIL #4 ON SHEET M004 FOR AIR COMPRESSOR AND AIR DRYER DETAIL AND ALL REQUIRED COMPONENTS.
6. PROVIDE AND INSTALL 2" BYPASS WITH MOTORIZED CONTROL VALVE. CONTROL VALVE TO BE RATED FOR 20 GPM MINIMUM FLOW
7. SEE FLOW DIAGRAM ON SHEET M005 FOR DETAILS, SIZING, AND PIPING SPECIALTIES REQUIRED.
8. INSTALL GAS METER AT THIS LOCATION. PROVIDE NEW SEISMIC GAS VALVE AS SHOWN ON DETAIL SHEET M004. COORDINATE WITH CIVIL AND LOCAL UTILITY. PAINT NEW GAS PIPING UP THE SIDE OF THE BUILDING. COORDINATE WITH ARCHITECT ON COLOR.
9. FURNISH AND INSTALL NEW POUNDS TO INCHES GAS REGULATOR FOR EACH BOILER AND WATER HEATER. VENT THROUGH EXTERIOR WALL WITH APPROVED VENT TERMINATION CAP. EXTEND CONDENSATE THROUGH NEUTRALIZATION KIT TO FLOOR DRAIN. COORDINATE INSTALL WITH ALL BOILER AND WATER HEATER MANUFACTURER'S REQUIREMENTS.
10. INSTALL THE BOILERS, PUMPS, EXPANSION TANK, GLYCOL FEED TANK, WATER HEATER, AND AIR COMPRESSORS ON A 4" THICK CONCRETE PAD.
11. FURNISH AND INSTALL NEW COMPRESSED AIR DROP TO BUS LIFT CONTROL PANEL. COORDINATE LIFT MODEL AND EXACT CONTROL PANEL LOCATION WITH ARCHITECTURAL PLANS. RECEIVE AND INSTALL FILTER REGULATOR FROM BUS LIFT MANUFACTURER AND INSTALL PRIOR TO CONTROL PANEL. INSTALL ½" HOSES (QUANTITY PER MANUFACTURER) FROM CONTROL PANEL UNDERGROUND TO LIFT POSTS IN PIT. COORDINATE AND INSTALL ALL REQUIRED COMPRESSED AIR LINES FOR A FULLY FUNCTIONING BUS LIFT SYSTEM PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. CONNECT TO MAKEUP WATER LINE CONNECTION PROVIDED BY PLUMBING CONTRACTOR AND EXTEND TO GLYCOL FEED TANK WITH BACKFLOW PER HEATING WATER SYSTEM FLOW DIAGRAM.
13. PROVIDE A LISTED AND APPROVED FIRESTOP SLEEVE FOR PIPING THROUGH RATED FLOOR UP TO MEZZANINE ABOVE TO MAINTAIN RATING.

City

Collaborator

FSG Facility Solutions Group

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Fenton, Mo. 63026

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Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2007031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No.: 2007031307
Project No.: 25TEX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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|---|---|---|

Sheet Revision

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100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

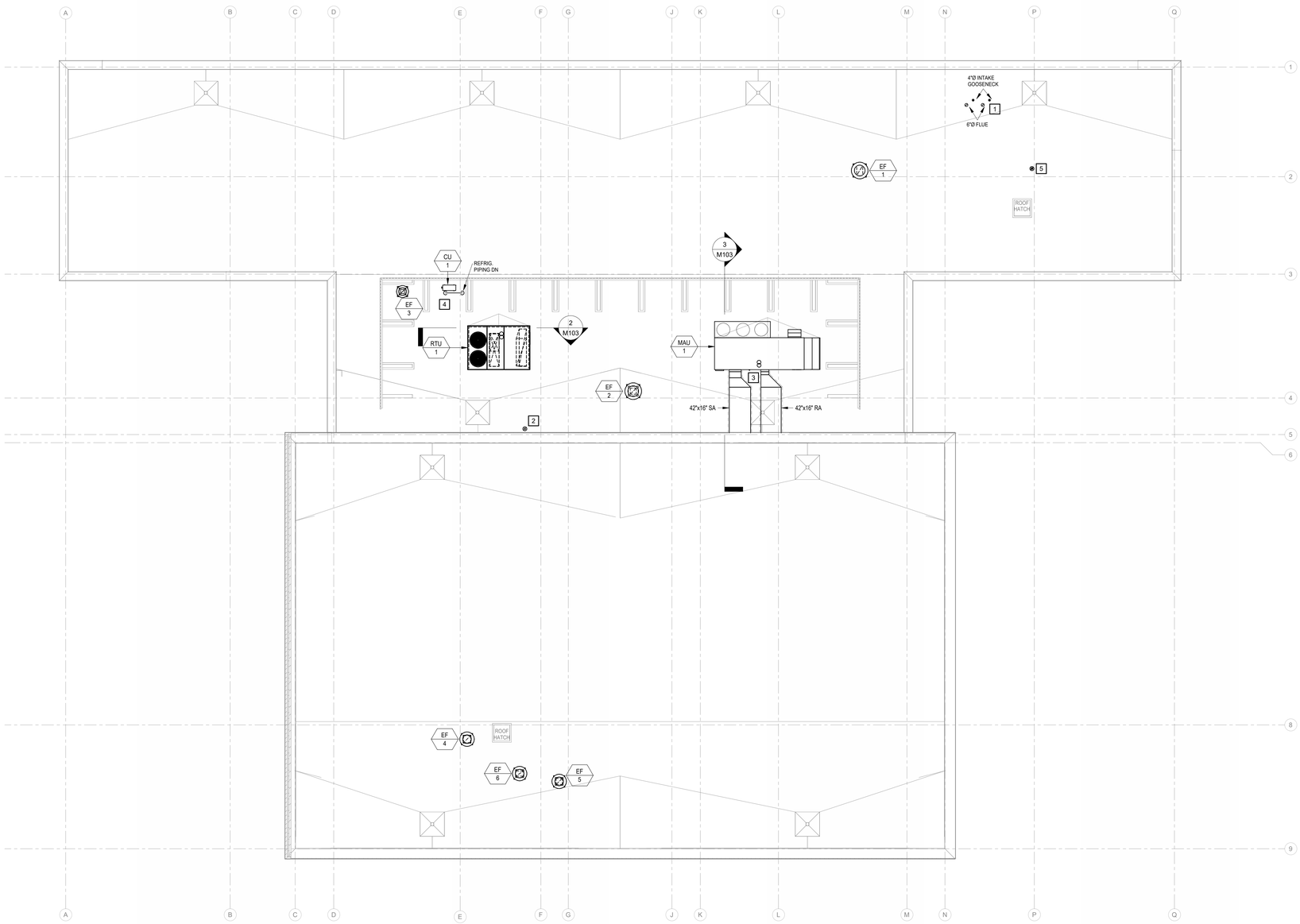
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Checked By: BWB

Sheet Title

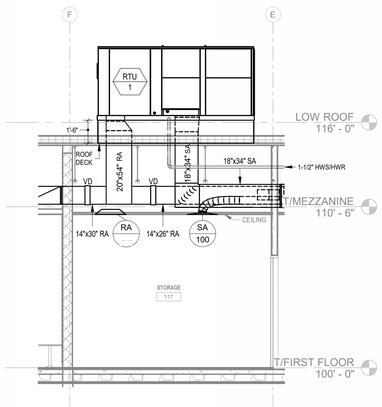
PIPING PLAN - MECHANICAL

Sheet No.

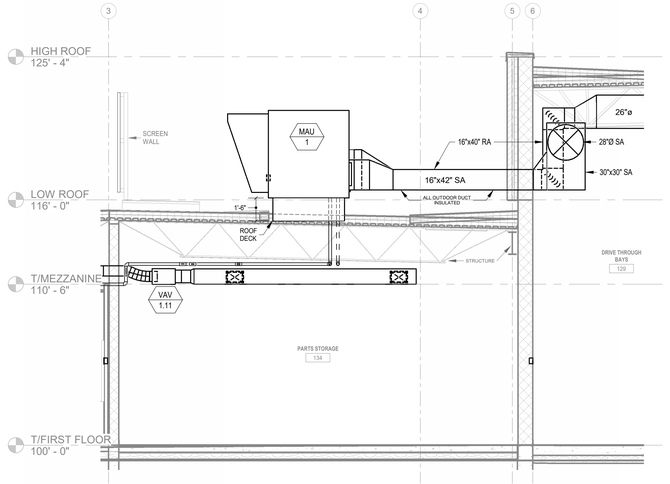
M102




1 ROOF PLAN - MECHANICAL
1/8" = 1'-0"




2 SECTION - RTU-1 - MECHANICAL
1/4" = 1'-0"




3 SECTION - MAU-1 - MECHANICAL
1/4" = 1'-0"

## GENERAL NOTES:

1. INSTALL NEW VAV BOXES, DAMPERS, AND VALVES WITHIN FIVE (5) FEET OF FINISHED CEILING FOR MAINTENANCE. DO NOT INSTALL WHERE LIGHTS OR OTHER DEVICES MAY LIMIT SERVICE CLEARANCES. OFFSET VAV BOX HEIGHT FROM MAIN DUCTWORK WHERE NECESSARY TO ALLOW FOR SERVICING. CONTRACTOR RESPONSIBLE FOR DETERMINING LH OR RH CONTROL BOX FOR SERVICING.
2. ALL CONTROL VALVES SHALL BE MANUFACTURED BY BELIMO, NO SUBSTITUTIONS.
3. HEATING WATER PIPE LOOP IS SHOWN DIAGRAMMATICALLY. COORDINATE AND INSTALL PIPING TO AVOID DUCTWORK AND OFFSET DOWN TO VAV'S TO PROVIDE SERVICE ACCESS TO VALVES AS REQUIRED.
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8. ALL EXPOSED UNINSULATED AND INSULATED PIPING (COMPRESSED AIR, OIL) SHALL BE PAINTED WITH COLOR BY ARCHITECT.
9. COORDINATE ALL PIPING DROPS IN SHOP AREAS TO AVOID PLANNED EQUIPMENT LOCATIONS. SEE ARCHITECTURAL DRAWINGS FOR EQUIPMENT LAYOUT.

## KEYED NOTES:

1. THE EXHAUST FLUE PIPING SHALL BE ROUTED 12" AWAY FROM THE INTAKE PIPING AS SHOWN ON THE ROOF. SEE DETAILS FOR FLUE/INTAKE PIPING TERMINATION REQUIREMENTS ON ROOF. ALL FLUE EXHAUST PIPING SHALL BE CPVC. COMBUSTION AIR INTAKE PIPING SHALL BE SCHEDULE 80 PVC. COORDINATE FLASHING REQUIREMENTS WITH ROOFING CONTRACTOR.
2. TERMINATE DRYER VENT ON ROOF WITH GOOSENECK WITH 45° DOWN WITH BACKDRAFT DAMPER. COORDINATE FLASHING REQUIREMENTS WITH ROOFING CONTRACTOR. TERMINATE MINIMUM 18" ABOVE FINISHED ROOF LEVEL.
3. PROVIDE PATE ES-2 EQUIPMENT SUPPORT (OR EQUAL) TO SUPPORT ALL DUCTWORK ON ROOF AT 6 FT. MAXIMUM INTERVALS. ANCHOR DUCTWORK TO WALL USING A PAINTED 2"X2"X3/16" STEEL ANGLE BRACKET WITH WELDED JOINTS.
4. MOUNT NEW CONDENSING UNIT ON NEW SUPPORTS AND ROUTE PIPING THROUGH NEW PIPE PENETRATION BOX. SEE DETAIL SHEET FOR CONDENSING UNIT SUPPORT DETAIL AND PIPE PENETRATION BOX DETAIL.
5. TERMINATE WATER HEATER INTAKE/VENT WITH NEW CONCENTRIC VENT KIT THROUGH ROOF. COORDINATE INSTALLATION WITH MANUFACTURER REQUIREMENTS.

City

Collaborator

FSG Facility Solutions Group

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
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Project No.: 2576X18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

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100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: DSD
Checked By: BWB

Sheet Title

ROOF PLAN - MECHANICAL

Sheet No.

M103

Autodesk Docs://MSD Transportation Building + Office/MSD Transportation Building_MEPFP.rvt 8/31/2026 11:11:49 AM

# ELECTRICAL SYMBOLS LEGEND

## LIGHTING FIXTURES: SEE FIXTURE SCHEDULE

| | |
|---|---|
| | DOWNLIGHT FIXTURE - TYPE AS NOTED |
| | EXIT LIGHT FIXTURE - SEE SCHEDULE FOR MOUNTING |
| | LIGHT FIXTURE - TYPE AS NOTED |
| | EMERGENCY LIGHT FIXTURE - DENOTED BY SHADING |
| | EMERGENCY WALL MOUNTED LIGHT FIXTURE |
| | WALL MOUNTED FIXTURE - TYPE AS NOTED, MOUNTING HEIGHT AS PER PLANS |
| | LIGHT POLE - TYPE AS NOTED, NUMBER OF HEADS AS INDICATED |
| "A" 1b | NOTE: FIXTURE NOTATION A1b INDICATES THE FOLLOWING:<br>"A" - TYPE OF FIXTURE - REFER TO SCHEDULE<br>1 - CIRCUIT TO WHICH FIXTURE IS CONNECTED<br>b - IDENTIFICATION LETTER OF SWITCH CONTROLLING FIXTURE |

## WIRING DEVICES

| | |
|---|---|
| a | SINGLE POLE SWITCH WITH IDENTIFICATION LETTER - MOUNT 44" A.F.F. UNO. |
| a 3 | THREE WAY SWITCH WITH IDENTIFICATION LETTER - MOUNT 44" A.F.F. UNO. |
| k | KEYED SWITCH - MOUNT 44" A.F.F. UNO. |
| OS | SWITCH WITH OCCUPANCY SENSOR - MOUNT 44" A.F.F. UNO. |
| D | SWITCH WITH DIMMER CONTROLS - MOUNT 44" A.F.F. UNO. |
| OS | CEILING MOUNTED OCCUPANCY SENSOR |
| | SINGLE CONVENIENCE RECEPTACLE - MOUNT 18" AFF. UNO. |
| | DUPLEX RECEPTACLE - MOUNT 18" AFF. UNO. |
| | QUADPLEX RECEPTACLE - MOUNT 18" AFF. UNO. |
| GFI | GROUND FAULT INTERRUPTER RECEPTACLE - MOUNT 18" AFF. UNO. |
| TR | TAMPER RESISTANT RECEPTACLE - MOUNT 18" AFF. UNO. |
| | DUPLEX RECEPTACLE - MOUNT ABOVE COUNTERTOP/BACKSPLASH |
| | SPECIAL PURPOSE RECEPTACLE - TYPE AS NOTED |
| | WIREMOLD RECEPTACLE |
| J | JUNCTION BOX OR POINT OF CONNECTION - MOUNT 18" A.F.F. OR AT HEIGHT REQUIRED BY RESPECTIVE EQUIPMENT |
| AV | COMBINATION FLOOR BOX WITH POWER, DATA/VOICE AND AUDIO/VISUAL CONNECTIONS. |
| PC | PHOTO CELL |
| C | CONTACTOR COIL - NUMBER OF POLES AS NOTED |
| | CONDUIT - UNDER GROUND OR UNDER FLOOR |
| | CONDUIT - CONCEALED IN CEILING OR WALL |

## MOTORS AND EQUIPMENT

| | |
|---|---|
| 30/20/3 | DISCONNECT SWITCH |
| VFD | VARIABLE FREQUENCY DRIVE |
| | MOTOR - SEE MECHANICAL EQUIPMENT DATA SCHEDULE |
| | BRANCH CIRCUIT PANELBOARD |
| | SWITCHBOARD/DISTRIBUTION PANEL |
| T | DRY TYPE TRANSFORMER |
| | WET TYPE TRANSFORMER |
| ATS | AUTOMATIC TRANSFER SWITCH |

## FIRE ALARM SYSTEM

| | |
|---|---|
| F # | VISUAL FLASHER - MOUNT AT 80" AFF. TO BOTTOM OF FLASHER. # INDICATES CANDELA OUTPUT |
| F V # | HORN OR SPEAKER - MOUNT AT 80" AFF; V INDICATES COMBINATION AUDIO/VISUAL DEVICE. # INDICATES CANDELA OUTPUT |
| F # | VISUAL FLASHER - CEILING MOUNTED. FINISH TO MATCH CEILING |
| F V # | HORN OR SPEAKER - CEILING MOUNTED; V INDICATES COMBINATION AUDIO/VISUAL DEVICE. # INDICATES CANDELA OUTPUT |
| F | FIRE ALARM PULL STATION |
| H | HEAT DETECTOR |
| CO CO | CARBON MONOXIDE DETECTOR (CEILING, WALL MOUNT) |
| SD | SMOKE DETECTOR |
| FACP | FIRE ALARM CONTROL PANEL. PROVIDE WITH (2) DATA DROPS |
| FAAP | FIRE ALARM ANNUNCIATOR PANEL |
| FAPS | FIRE ALARM POWER SUPPLY |

## AUXILIARY SYSTEMS

| | |
|---|---|
| | PHONE LINE, MOUNTED 18" AFF. UNO. |
| | PHONE LINE, MOUNTED ABOVE COUNTER/BACKSPLASH |
| | DATA O.B. (# OF OUTLETS INDICATED), MOUNTED 18" AFF. UNO. |
| | DATA O.B. (# OF OUTLETS INDICATED), MOUNTED ABOVE COUNTER/BACKSPLASH |
| | WIRELESS ACCESS POINT, MOUNTED TO CEILING UNO. |
| TV | COAX OUTLET, COORDINATE MOUNTING HEIGHT WITH T.V. |
| | CLOCK OUTLET - MOUNTED 78" AFF. UNO. |
| S | INTERCOM SPEAKER |
| PB | PUSH BUTTON |
| P | PROJECTOR |

## ONE-LINE DIAGRAMS

| | |
|---|---|
| | TRANSFORMER |
| | CURRENT TRANSFORMER |
| | PANEL (1 OR 2 SECTIONS AS NOTED) |
| #AS #AF | FUSIBLE SWITCH: "AS" INDICATES AMP SWITCH, # INDICATES RATING<br>FUSE: "AF" INDICATES AMP FUSE, # INDICATES RATING |
| #AF / #AT | MOLDED CASE CIRCUIT BREAKER: "AF" INDICATES AMP FRAME, # INDICATES RATING<br>"AT" INDICATES AMP TRIP, # INDICATES RATING |
| M | UTILITY METER |
| | TRANSFER SWITCH |

## SECURITY SYSTEM

| | |
|---|---|
| PS | DOOR HARDWARE POWER SUPPLY |
| K | KEY PAD |
| CR | CARD READER |
| IC | INTERCOM |
| REQ | REQUEST TO EXIT |
| DC | DOOR CONTACT |
| ES | DOOR ELECTRIC STRIKE |
| DS | DOOR POSITION SWITCH |
| EH | ELECTRIC HARDWARE |
| ADA | ADA PUSH BUTTON FOR AUTOMATIC DOOR OPENER |
| C | VIDEO SURVEILLANCE CAMERA; # OF HEADS AS NOTED |

## ABBREVIATIONS

| | |
|---|---|
| AC | ABOVE COUNTER |
| AFF | ABOVE FINISHED FLOOR |
| ATS | AUTOMATIC TRANSFER SWITCH |
| EC | ELECTRICAL CONTRACTOR |
| EM | EMERGENCY |
| EWC | ELECTRIC WATER COOLER |
| EWH | ELECTRIC WATER HEATER |
| EX | EXISTING |
| FLA | FULL LOAD AMPS |
| FPC | FIRE PROTECTION CONTRACTOR |
| GC | GENERAL CONTRACTOR |
| GFI | GROUND FAULT CIRCUIT INTERRUPTER TYPE DEVICE |
| KEC | KITCHEN EQUIPMENT CONTRACTOR |
| MC | MECHANICAL CONTRACTOR |
| NTS | NOT TO SCALE |
| PC | PLUMBING CONTRACTOR |
| POE | POWER OVER ETHERNET |
| TCC | TEMPERATURE CONTROLS CONTRACTOR |
| TP | TAMPER PROOF RECEPTACLE TYPE |
| TYP | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| WP | WEATHER PROOF |

SEISMIC RESTRAINTS FOR ELECTRICAL SYSTEM COMPONENTS (EARTHQUAKE LOAD RESISTANCE)

| OCCUPANCY CATEGORY ( III ) | SEISMIC DESIGN CATEGORY ( C ) | | | | | | |
|---|---|---|---|---|---|---|---|
| LISTING OF EQUIPMENT & SYSTEM COMPONENTS | ANCHORAGE TO FLOORS, ROOFS, ETC. | | SWAY BRACING | | LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS | | COMMENTS |
| | | | | | ON CONST. DOCUMENTS | SUBSEQUENT SUBMITTAL | |
| | NOT PROVIDED | PROVIDED | NOT PROVIDED | PROVIDED | DRAWING NO. OR SPEC. SECTION | SEPARATE PERMIT & PLANS | |
| FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS: | | | | | | | |
| FIRE ALARM PANEL | | | | | | | N/A, EXISTING |
| FIRE ALARM BRANCH CIRCUIT | X | | X | | | | 9 |
| FIRE ALARM CABLING | X | | X | | | | |
| EMERGENCY OR STANDBY EQUIPMENT & SYSTEM COMPONENTS: | | | | | | | |
| EMERGENCY GENERATOR | | | | | | | N/A |
| AUTOMATIC TRANSFER SWITCH | | | | | | | N/A |
| EMERGENCY DISTRIBUTION PANEL | | | | | | | N/A |
| CONDUIT AND WIRING | X | | X | | | X | 7, 9 |
| EMERGENCY LIGHTING FIXTURES | X | | X | | | X | 2, 6, 9 |
| EXIT SIGNS | X | | X | | | | 6, 9 |
| OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS: | | | | | | | |
| LIGHTING FIXTURES | X | | X | | | | 1, 4 |
| CONDUIT AND WIRING | X | | X | | | | 5, 6, 7 |

IT IS THE BASIC INTENT OF THIS CODE BLOCK TO DECLARE WHETHER OR NOT ANCHORAGE AND SWAY BRACING IS REQUIRED ON THE PROJECT. IF SO, TO DECLARE WHETHER OR NOT THE DETAILS ARE SHOWN ON THE PLANS OR WILL BE SHOWN ON A SUBSEQUENT SUBMISSION. IF SEISMIC RESTRAINT OF A COMPONENT IS NOT REQUIRED BY CODE THIS SHOULD BE STATED IN COMMENTS. IF SEISMIC RESTRAINT, WHICH IS NOT REQUIRED BY CODE, IS BEING PROVIDED DUE TO OWNER/DESIGNER REQUIREMENTS THIS SHOULD ALSO BE STATED IN THE COMMENTS.

PLANS SIGNED AND SEALED BY A MISSOURI PROFESSIONAL ENGINEER ALONG WITH A SEPARATE PERMIT APPLICATION NEED TO BE SUBMITTED TO THE AHJ A MINIMUM OF TWO WEEKS PRIOR TO THE PLANNED INSTALLATION TO ALLOW FOR PLAN REVIEW AND DISTRIBUTION TO THE INSPECTOR. ADDITIONAL TIME MAY BE NEEDED IF SUCH SUBMISSIONS ARE DEFICIENT.

1. LIGHT FIXTURES LESS THAN 20 POUNDS NOT PART OF STAND-BY OR EMERGENCY LIGHTING SYSTEM SHALL BE POWERED WITH FLEXIBLE CABLE LESS THAN 3 FEET AND FIXTURE SHALL BE MECHANICALLY ATTACHED TO CEILING GRID.
2. PENDANT TYPE FIXTURES DO NOT REQUIRE SWAY BRACING WHEN IT CAN SWING AT AN ANGLE OF 45° FROM VERTICAL WITHOUT IMPACTING OTHER COMPONENTS.
3. EXCEPTION FOR IP=1.0, WEIGHT LESS THAN 400 POUNDS.
4. EXCEPTION FOR IP=1.0, WEIGHT LESS THAN 20 POUNDS.
5. EXCEPTION FOR IP=1.0, WEIGHT 5LBS/FT OR LESS.
6. FLEXIBLE CONNECTION REQUIRED BETWEEN EQUIPMENT AND COMPONENTS IF INSTALLATION OTHER THAN MOUNTED TO WALLS AND FLOORS.
7. EXCEPTION FOR RIGID STEEL IMC CONDUIT ≤ 1-1/2 INCHES IN DIAMETER, AND EMT OR ALUMINUM CONDUIT ≤ 2 INCHES IN DIAMETER.
8. REFER TO INSTALLATION DETAIL AS INDICATED.
9. PLANS SIGNED AND SEALED BY A MISSOURI PROFESSIONAL ENGINEER TO BE SUBMITTED SEPARATELY WITH PERMIT APPLICATION FOR REVIEW. TYPICAL SEISMIC ANCHORAGE (OR SWAY BRACING) PROVIDED ON DRAWINGS IS FOR REFERENCE ONLY.

# ELECTRICAL GENERAL CONSTRUCTION NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF ALL NECESSARY PERMITS, LICENSES, INSPECTIONS, AND FEES AS MANDATED BY CITY ORDINANCES AND SHALL FURNISH THE OWNER WITH A CERTIFICATE OF FINAL INSPECTION AND APPROVAL UPON COMPLETION OF THE WORK. ALL FEES RELATED TO INSPECTIONS, PERMITS, LICENSES, AND APPROVALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ELECTRICAL CONTRACTOR SHALL PERFORM WORK IN A SAFE MANNER AND COMPLY WITH OSHA SAFETY GUIDELINES AS WELL AS COMPLY WITH THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), THE NATIONAL ELECTRICAL CODE (NEC), AND ALL APPLICABLE LOCALLY ENFORCED CODES, ORDINANCES, AMENDMENTS, STATE LAWS, AND FEDERAL LAWS. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND WORKMANSHIP CONFORM TO THESE STANDARDS. IN CASES WHERE A CONFLICT EXISTS BETWEEN CODES, THE MOST STRINGENT SHALL APPLY.
3. ALL ELECTRICAL MATERIALS UTILIZED IN THE EXECUTION OF THIS PROJECT SHALL BE LISTED AND LABELED BY UNDERWRITERS LABORATORIES (UL) TO GUARANTEE SAFETY AND RELIABILITY. THE CONTRACTOR SHALL ENSURE THAT ALL CONDUCTORS AND EQUIPMENT ARE APPROVED AND LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL). ADDITIONALLY, ALL LISTED AND LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. THE ENTIRETY OF THE ELECTRICAL SYSTEM, INCLUDING ALL ASSOCIATED ELECTRICAL EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH NEC GUIDELINES AND AS DEPICTED IN THE PROVIDED DRAWINGS. THE CONTRACTOR SHALL ENSURE THAT A GROUND WIRE IS INCLUDED WITHIN EACH POWER CONDUIT, WITH THE WIRE SIZE DETERMINED IN COMPLIANCE WITH NEC REGULATIONS.
5. PRIOR TO STARTING ANY WORK, THE ELECTRICAL CONTRACTOR MUST THOROUGHLY INSPECT THE SITE TO FAMILIARIZE THEMSELVES WITH ALL THE EXISTING SITE CONDITIONS, INCLUDING THE STRUCTURE AND ANY POTENTIAL OBSTACLES. THE PLANS PROVIDED ARE BASED ON PREVIOUS DRAWINGS AND CASUAL FIELD OBSERVATIONS AND SHOULD BE TREATED AS APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL THE EQUIPMENT, WIRING, AND FIXTURES, WHETHER THEY ARE INDICATED ON THE PLANS OR NOT. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR MUST PROMPTLY INFORM THE ENGINEER. IT IS THE SPECIFIC INTENT OF THE DRAWINGS AND SPECIFICATIONS TO INCLUDE ALL ELECTRICAL WORK ITEMS NECESSARY TO ENSURE THE SYSTEMS OPERATE SATISFACTORILY AND COMPLETELY.
6. THE CONTRACTOR IS RESPONSIBLE FOR EFFECTIVELY COORDINATING WITH ALL OTHER TRADES AND DISCIPLINES INVOLVED IN THE PROJECT TO AVOID CONFLICTS AND TO VERIFY ALL NECESSARY EQUIPMENT CONNECTIONS. THIS INCLUDES MAINTAINING BRANCH CIRCUIT CONTINUITY TO ADJOINING AREAS AS NEEDED AND ENSURING COMPLIANCE WITH ARCHITECTURAL PLANS FOR THE LOCATIONS OF EXPANSION JOINTS AND FIRE-RATED WALLS. ELECTRICAL CONTRACTOR SHALL REQUEST CLARIFICATION ON ANY ITEMS OF THE CONTRACT DOCUMENTS THAT ARE NOT UNDERSTOOD OR WHERE CONFLICTS MAY EXIST PRIOR TO SUBMITTING A BID.
7. THE CONTRACTOR SHALL BE HELD ACCOUNTABLE FOR THE INSTALLATION OF A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM AS OUTLINED IN THE CONTRACT DRAWINGS. THE CONTRACTOR MUST ENSURE THAT THE SYSTEM IS FUNCTIONING CORRECTLY AND MEETS ALL SPECIFIED PERFORMANCE CRITERIA UPON COMPLETION OF THE PROJECT.
8. THE CONTRACTOR GUARANTEES ALL UNITS, LABOR, MATERIALS, AND ACCESSORIES PROVIDED UNDER THIS CONTRACT FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE BUILDING BY THE OWNER. THIS GUARANTEE ENSURES CONFORMITY TO SPECIFICATIONS AND COVERS FAULTY MATERIALS OR WORKMANSHIP. IF ANY UNIT FAILS TO OPERATE SATISFACTORILY OR IF ANY PARTS SHOW UNDUE WEAR DURING THE WARRANTY PERIOD, THE CONTRACTOR SHALL PROMPTLY REMEDY THE DEFECTS.
9. THE CONTRACTOR MUST MAINTAIN AND VERIFY THAT ALL ELECTRICAL EQUIPMENT CLEARANCES AND WORKING SPACES COMPLY WITH NEC GUIDELINES. PROPER CLEARANCE IS VITAL FOR ENSURING SAFE OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS.
10. THE CONTRACTOR SHALL PROVIDE ADEQUATE IDENTIFICATION FOR ELECTRICAL SYSTEMS AS INDICATED IN THE PROJECT SPECIFICATIONS AND AS REQUIRED BY THE NEC OR NFPA 70E. PROPER LABELING ENHANCES SAFETY AND FACILITATES FUTURE MAINTENANCE AND TROUBLESHOOTING.
11. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TEMPORARY POWER AND LIGHTING FOR THE DURATION OF THE PROJECT, ENSURING COMPLIANCE WITH OSHA STANDARDS, STATE LAW, LOCAL ORDINANCES, AND AHJ REQUIREMENTS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVING ALL TEMPORARY INFRASTRUCTURE UPON PROJECT COMPLETION.
12. ALL BRANCH CIRCUIT WIRING SHALL BE A MINIMUM OF #12 AWG UNLESS OTHERWISE NOTED. FOR LENGTHS EXCEEDING 50 FEET, WIRING SHALL BE A MINIMUM OF #10 AWG. ALL BRANCH CIRCUIT WIRING SHALL BE IN 1/2" CONDUIT MINIMUM (UNLESS OTHERWISE NOTED) AND HIDDEN FROM VIEW, WHILE HOME RUNS SHALL BE A MINIMUM OF 3/4". THE MINIMUM SIZE RACEWAY FOR CONDUITS BELOW GRADE SHALL BE 1".
13. HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) EQUIPMENT, PLUMBING EQUIPMENT, AND ALL OTHER MISCELLANEOUS EQUIPMENT, INCLUDING MOTORS AND KITCHEN EQUIPMENT, SHALL BE POWERED AS DELINEATED IN THE EQUIPMENT PROVIDER'S SCHEDULES UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL PROVIDE SUITABLE DISCONNECTING MEANS FOR EQUIPMENT UNLESS EXPLICITLY INDICATED OTHERWISE.
14. ALL EMERGENCY SERVICE WIRING SHALL BE MAINTAINED WITHIN SEPARATE CONDUITS, PULL BOXES, PANELS, AND ASSOCIATED EQUIPMENT TO ENSURE ISOLATION FROM OTHER ELECTRICAL SYSTEMS.
15. IF ANY DISCREPANCIES ARE NOTED REGARDING COMPLIANCE WITH THE PLANS AND CODES, THE ELECTRICAL CONTRACTOR IS REQUIRED TO INFORM THE ENGINEER PROMPTLY. ANY ALTERATIONS OR CHANGES TO THE CONTRACT DOCUMENTS REQUIRE WRITTEN PERMISSION FROM THE ENGINEER.
16. WHERE SAW CUTTING OF THE FLOOR IS NECESSARY, THE CONTRACTOR SHALL LIMIT THE CUTTING DEPTH TO A MINIMUM AND ROUTE NEW CONDUITS EITHER BELOW OR ABOVE EXISTING CONDUITS, WATER PIPES, AND SIMILAR INFRASTRUCTURE. CONDUITS SHALL HAVE A MINIMUM OF 1" OF CONCRETE COVER. X-RAY FLOOR SLAB PRIOR TO CORE DRILLING TO AVOID DRILLING THROUGH STRUCTURAL COMPONENTS OR UTILITIES.
17. ELECTRICAL CONTRACTOR SHALL CUT AND PATCH ROOF, FLOORS, WALLS AND CEILINGS WHERE REQUIRED TO INSTALL NEW ELECTRICAL BOXES, FIXTURES, AND RACEWAY SYSTEMS. SURFACES SHALL BE PATCHED AND LEFT READY FOR FINAL SCHEDULED FINISH. ROOFING WORK SHALL BE PERFORMED BY QUALIFIED ROOFING CONTRACTOR THAT MAINTAINS THE ROOFING WARRANTY. ALL REQUIRED ROOFING WORK DUE TO ELECTRICAL SCOPE OF WORK SHALL BE INCLUDED BY THE ELECTRICAL CONTRACTORS BID.
18. THE CONTRACTOR SHALL HAVE THE OPTION OF GROUPING HOME RUNS WITHIN A SINGLE CONDUIT, PROVIDED THAT NO MORE THAN FOUR CIRCUITS ARE INSTALLED WITHIN A SINGLE JUNCTION BOX. EACH PHASE CONDUCTOR MUST HAVE DEDICATED NEUTRALS, TREATED AS CURRENT-CARRYING CONDUCTORS FOR DERATING CALCULATIONS.
19. ALL PANELBOARD CIRCUIT BREAKERS SHALL BE EQUIPPED WITH BOLT-ON TYPE BREAKERS, PHENOLIC NAME TAGS, AND A KEYED LOCK AND LATCH MECHANISM. EACH PANEL SHALL BE SUPPLIED WITH TWO KEYS, WITH ALL PANELS KEYED ALIKE.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER IDENTIFICATION AND LABELING OF ALL CIRCUIT BREAKERS WITHIN THE PANELBOARDS. EACH PANELBOARD SHALL INCLUDE A TYPEWRITTEN CIRCUIT DIRECTORY DETAILING THE FUNCTION AND SPECIFICATIONS OF EACH CIRCUIT. UPON COMPLETION OF THE WORK, THE ELECTRICAL CONTRACTOR SHALL PROVIDE NEW TYPED DIRECTORIES FOR ALL PANELS AFFECTED BY THE SCOPE OF WORK AND ENSURE THAT ALL CIRCUITS ARE PROPERLY LABELED AND FUNCTIONING.
21. THE ELECTRICAL CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS WITH THE ELECTRIC, CATV, AND TELEPHONE UTILITY COMPANIES TO ASCERTAIN INCOMING SERVICE REQUIREMENTS. ALL ASSOCIATED COSTS FOR THESE SERVICES SHALL BE INCLUDED IN THE BASE BID.
22. SYSTEMS ARE SHOWN AS DIAGRAMMATIC AND GIVE THE GENERAL ARRANGEMENT ONLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD ON THE BASIS OF DETAIL DRAWINGS, REVIEWED DRAWINGS, AND SUPPLEMENTARY INFORMATION. INSTALLATION SHALL PROVIDE FOR OPERATING EFFICIENCY, NEATNESS OF APPEARANCE, EASE OF MAINTENANCE AND NEC COMPLIANCE. IT IS EXPECTED THAT THE CONTRACTOR WILL PREPARE DIMENSIONED FIELD ERECTION DRAWINGS AND WORK SKETCHES FOR USE BY THEIR INSTALLERS, TO ENSURE PROPER INSTALLATION AND COORDINATION. THE ELECTRICAL CONTRACTOR SHALL TAKE THEIR OWN MEASUREMENTS AT THE BUILDING AND BE RESPONSIBLE FOR THE CORRECT INTERPRETATION AND USE OF ALL SIZES AND DIMENSIONS. ALL CONTRACTORS SHALL ATTEND COORDINATION MEETINGS TO COORDINATE THE INSTALLATION WITH DUE REGARD FOR EACH OTHER. THE ELECTRICAL CONTRACTOR SHALL KEEP "AS-BUILT" INFORMATION DURING CONSTRUCTION AND FURNISH TO THE OWNER A RECORD SET OF BLACK LINE PRINTS AT THE PROJECT COMPLETION.
23. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW FIRE ALARM AND SMOKE CONTROL SYSTEM. PROVIDE NEW DEVICES AND APPLICABLE ADA COMPATIBLE COMPLIANCE SIGNALS, PROGRAM AND TEST THE SYSTEM FOR CORRECT OPERATION AND NOTIFY THE INSPECTION AUTHORITIES FOR WITNESS TO THE TEST AT PROJECT COMPLETION. PROVIDE A COMPLETE, DIGITAL, ADDRESSABLE, NFPA 72 COMPLIANT FIRE ALARM SYSTEM. WIRING SHALL BE RUN OPEN ABOVE CEILINGS IN AN APPROVED SUPPORT SYSTEM WITH PLENUM-RATED CABLES. REFER TO ADDITIONAL REQUIREMENTS IN THE PROJECT MANUAL.
24. ELECTRICAL CONTRACTOR SHALL PROVIDE A DEDICATED BRANCH CIRCUIT POWER OUTLET OR DIRECT CONNECTION FOR EACH LOW VOLTAGE SYSTEM. ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLETS BOXES AND CONDUIT FROM EACH OUTLET BOX, STUBBED TO ABOVE ACCESSIBLE CEILING WITH A PULL WIRE IN EACH CONDUIT. COORDINATE LOCATIONS OF BOXES AND OUTLETS/CONNECTIONS WITH THE OWNER PRIOR TO START OF CONSTRUCTION.
25. ELECTRICAL CONTRACTOR SHALL INSTALL EMT CONDUIT FOR POWER AND DATA IN ALL EXPOSED CEILINGS. CONTRACTOR SHALL INCLUDE PAINTING OF ALL CONDUITS, FITTINGS, JUNCTION BOXES, ETC. LOCATED IN EXPOSED CEILINGS. COLOR SHALL BE COORDINATED WITH ARCHITECT.
26. REVIEW ARCHITECTURAL DRAWINGS FOR ALL FIRE RATINGS AND FIRE RATED ASSEMBLIES PRIOR TO BIDDING THE PROJECT. PROVIDE FIRE STOP AT EACH RATED WALL, FLOOR AND CEILING/ROOF ASSEMBLY PENETRATION. FIRE STOP SYSTEMS SHALL BE MANUFACTURED BY "3M". PROVIDE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S APPLICATION DETAILS AND INSTRUCTIONS. PROVIDE TAGGED CERTIFICATIONS AT EACH PENETRATION. PROVIDE SHOP DRAWINGS FOR REVIEW WITH THE U.L. LISTING AND TEST CRITERIA. PROVIDE FIRE STOPPING WHERE REQUIRED THE AHJ. EQUAL SYSTEMS AS MANUFACTURED BY "SPEC SEAL", OR "HILTI" WILL BE ACCEPTABLE. REFER TO THE PROJECT MANUAL FOR SYSTEMS SPECIFICATIONS.
27. PROVIDE CONDUIT, CABLES AND ELECTRICAL ASSEMBLY PENETRATIONS OF NON-RATED ASSEMBLIES WITH DRAFT STOPPING, OR SMOKE BARRIER SEALANT SYSTEMS. THROUGH PENETRATION SEALANT SYSTEMS SHALL BE MANUFACTURED BY "3M". PROVIDE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S APPLICATION DETAILS AND INSTRUCTIONS. PROVIDE DRAFT STOPPING OR SMOKE BARRIER SEALANTS TO MEET APPROVAL OF THE AHJ. EQUAL SYSTEMS AS MANUFACTURED BY "SPEC SEAL", OR "HILTI" WILL BE ACCEPTABLE.

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No. 2017031307
Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: JLC
Checked By: BWB

Sheet Title

ABBREVIATIONS, NOTES & SYMBOLS

Sheet No.

E001

## ELECTRICAL PANEL NOTES:

1. ALL MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND HVAC WORK SHALL BE COORDINATED BY THE CONTRACTOR DOING THE WORK. ANY CORRECTIONS TO ANY OF THE ABOVE SHALL BE AT THAT CONTRACTOR'S EXPENSE.
2. ALL DISCONNECTS REQUIRED SHALL BE PROVIDED BY THE EC, U.N.O. SEE MECHANICAL & PLUMBING EQUIPMENT SCHEDULE(S) FOR EQUIPMENT DETAILS AND FOR DISCONNECTS FURNISHED BY OTHERS. REFER TO MANUFACTURER'S SPECIFICATIONS FOR MECHANICAL & PLUMBING EQUIPMENT CONNECTION DETAILS. COORDINATE WITH APPLICABLE TRADES.
3. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS, SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122, SEE SPECIFICATIONS.
4. ALL EXTERIOR ELECTRICAL EQUIPMENT AND DISCONNECT SWITCHES SHALL BE IN RATED NEMA 3R OR 4X ENCLOSURES. FINAL CONDUIT CONNECTIONS TO MECHANICAL EQUIPMENT SHALL BE MADE WITH LFMC.
5. INFORMATION ON THIS SHEET IS COMPILED FROM EXISTING DRAWINGS AND CASUAL FIELD OBSERVATIONS AND SHALL BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF ALL EQUIPMENT AND DEVICES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. CONTRACTOR SHALL FIELD VERIFY SUBMITTED EQUIPMENT AND DEVICES PRIOR TO STARTING WORK. NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES EXIST.

## LIGHTING FIXTURE SCHEDULE

| TYPE | MANUFACTURER | CATALOG NUMBER | VOLTAGE | LAMP | DESCRIPTION |
|---|---|---|---|---|---|
| A | LITHONIA | CPX 2X4 ALO8 SWW7 M2 | 120/277V | 4000K,45W | 2'X4' GRID LAY-IN EDGE LIT LED FLAT PANEL FIXTURE; 0-10V DIMMING; 6300 DELIVERED LUMENS. SELECTABLE LUMEN OUTPUT SET TO HIGH. |
| AE | LITHONIA | CPX 2X4 ALO8 SWW7 M2 IBLP CP10 HE SD A | 120/277V | 4000K,45W | 2'X4' GRID LAY-IN EDGE LIT LED FLAT PANEL FIXTURE; 0-10V DIMMING; 6300 DELIVERED LUMENS. PROVIDE WITH 10W BATTERY BACKUP. |
| B | AXIS | BBRLED80090HE40FL-1I93*-WUNVCT1DF | 120/277V | 4000K,130W | 4' RECESSED LED STRIP LIGHT; 0-10V DIMMING; 16300 DELIVERED LUMENS. |
| C | LITHONIA | LBR6 ALO1 SWW1 40K AR LSS MWD | 120/277V | 4000K,13W | 6" OPEN ROUND DOWNLIGHT WITH WHITE FLANGE, 2000 DELIVERED LUMENS, 0-10V DIMMING. SWITACHBLE LUMENS SET TO 1000LM |
| D | MARK | S4RD 4FT OD 90CRI 40K 300LMF FLL MVOLT WHTT ZT | 120/277V | 4000K,10W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 2000 DELIVERED LUMENS. |
| DE | MARK | S4RD 4FT OD 90CRI 40K 300LMF FLL MVOLT WHTT ZT 1E10WLCP | 120/277V | 4000K,10W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 2000 DELIVERED LUMENS. PROVIDE WITH 10W BATTERY BACKUP. |
| F | LITHONIA | CPX 1X4 ALO7 SWW7 M4 DGA14 | 120/277V | 4000K, 40W | RECESSED MOUNT 1X4 LED FLAT PANEL FIXTURE; 0-10V DIMMING; 3583 DELIVERED LUMENS. |
| FE | LITHONIA | CPX 1X4 ALO7 SWW7 M4 ILBLP CP10 HE SD A DGA14 | 120/277V | 4000K, 40W | RECESSED 1X4 LED FLAT PANEL FIXTURE; 0-10V DIMMING; 3583 DELIVERED LUMENS. PROVIDE WITH EMERGENCY BATTERY BACKUP. |
| G | LITHONIA | MLX L4 4000LM 80CRI 40K WGDL MD MIN10 ZT MVOLT WH | 120/277V | 4000K,25W | SUSPENDED LINEAR STRIP LIGHT; 3800 DELIVERED LUMENS; MOUNT AT 10' A.F.F. |
| GE | LITHONIA | MLX L4 4000LM 80CRI 40K WGDL MD MIN10 ZT MVOLT E10W WH | 120/277V | 4000K,25W | SUSPENDED LINEAR STRIP LIGHT; 3800 DELIVERED LUMENS; MOUNT AT 10' A.F.F. PROVIDE WITH 10W BATTERY BACKUP. |
| H | LITHONIA | REBL AL016 MD UVOLT SWW9 80CRI DWH | 120/277V | 4000K,150W | 15" ROUND LED HIGH BAY LIGHT; SWITCHABLE LUMENS SET TO 2400LM; SWITCHABLE CCT SET TO 4000K. MOUNT AT 18' A.F.F. |
| HE | LITHONIA | REBL AL016 MD UVOLT SWW9 80CRI DWH RBAY BLDE40WCP M4 | 120/277V | 4000K,150W | 15" ROUND LED HIGH BAY LIGHT; SWITCHABLE LUMENS SET TO 2400LM; SWITCHABLE CCT SET TO 4000K. MOUNT AT 18' A.F.F. PROVIDE WITH 40W BATTERY BACKUP. |
| J | MARK | S4RD 24FT OD 90CRI 40K 300LMF FLL MVOLT WHTT ZT | 277V | 4000K,114W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 4000 DELIVERED LUMENS. |
| K | MARK | S4RD 16FT OD 90CRI 40K 300LMF FLL MVOLT WHTT ZT | 277V | 4000K,79W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 5100 DELIVERED LUMENS. |
| L | MARK | S4RD 6FT OD 90CRI 40K 400LMF FLL MVOLT WHTT ZT | 277V | 4000K,29W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 2500 DELIVERED LUMENS. |
| M | MARK | S4RD 8FT OD 90CRI 40K 600LMF FLL MVOLT WHTT ZT | 277V | 4000K,39W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 5100 DELIVERED LUMENS. |
| ME | MARK | S4RD 8FT OD 90CRI 40K 600LMF FLL MVOLT WHTT ZT 1E10WLCP | 277V | 4000K,39W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 5100 DELIVERED LUMENS. PROVIDE WITH BATTERY BACKUP. |
| N | MARK | S4RD 20FT OD 90CRI 40K 300LMF FLL MVOLT WHTT ZT | 277V | 4000K,95W | 4" RECESSED LED STRIP LIGHT; 0-10V DIMMING; 6000 DELIVERED LUMENS. |
| P | LITHONIA | PCNY LED ALO1 40K FPCL MVOLT DWHXD M3 | 120/277V | 4000K,84W | EXTERIOR SURFACE MOUNTED CANOPY LIGHT; 7389 DELIVERED LUMENS; SELECTABLE LUMENS SET TO LOW. |
| PL1 | FONROCHE | T4-CK16B-4000K-25W | SOLAR | 4000K, 25W | POLE LIGHT WITH SINGLE HEAD AND TYPE T-4 DISTRIBUTION; 4500 DELIVERED LUMENS; PROVIDE 30' DIRECT BURIAL POLE. |
| PL2 | FONROCHE | T4-CK16B-4000K-TWIN-25W | SOLAR | 4000K, 25W | POLE LIGHT WITH DOUBLE HEAD AND TYPE T-4 DISTRIBUTION; 4500 DELIVERED LUMENS; PROVIDE 30' DIRECT BURIAL POLE. |
| U | DIODELED | DI24VL240CSTM20'1" - DI-CPCHB-RC20 - VLM100W-24 | 120/277V | 4000K,114W | UNDERCABINET TAPE LIGHT WITH 45 DEGREE MOUNTING HOUSING AND 24V TRANSFORMER |
| W | LITHONIA | WDGE2 LED P2 40K 80CRI VW MVOLT SRM | 120/277V | 4000K,15W | EXTERIOR SURFACE MOUNTED WALL PACK; 2023 DELIVERED LUMENS. MOUNT FIXTURES SO TOP OF FIXTURE IS 10' A.F.F. AND EVEN WITH BRICK LINE AND CAMERA MOUNTING HEIGHTS. |
| X | LITHONIA | LQM S W RG MVOLT SD | 120/277V | RED, 2W | UNIVERSAL MOUNT, THERMOPLASTIC COMBINATION EXIT SIGN AND EGRESS LIGHT WITH RED LETTERING AND SELF DIAGNOSTIC BETTERY PACK. ARROWS AND FACES PER PLANS |

## Distribution Panel: MDP

**Location:** MECHANICAL /... **Volts:** 480/277 Wye **A.I.C. Rating:** 65K
**Supply From:** **Phases:** 3 **Mains Type:** MCB
**Mounting:** Surface **Wires:** 4 **Mains Rating:** 800 A
**Enclosure:** Type 1 **MCB Rating:** 800 A

**Notes:**
SERVICE ENTRANCE RATED

| CKT | Circuit Description | # of Poles | Frame Size | Trip Rating | Load | Remarks |
|---|---|---|---|---|---|---|
| 1 | MAU-1 | 3 | 60 A | 60 A | 42146 VA | |
| 2 | RTU-1 | 3 | 100 A | 80 A | 51544 VA | |
| 3 | T1 | 3 | 200 A | 175 A | 138470 VA | |
| 4 | BPH | 3 | 400 A | 400 A | 59358 VA | |
| 5 | SPD | 1 | 100 A | 60 A | 0 VA | |
| 6 | Spare | 1 | 100 A | 100 A | 0 VA | |
| 7 | Spare | 1 | 200 A | 200 A | 0 VA | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| | | | | Total Conn. Load: | 291514 VA | |
| | | | | Total Amps: | 351 A | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated Demand | Panel Totals |
|---|---|---|---|---|
| HVAC | 134640 VA | 100.00% | 134640 VA | |
| Motor | 47578 VA | 112.23% | 53398 VA | Total Conn. Load: 291514 VA |
| Other | 4977 VA | 100.00% | 4977 VA | Total Est. Demand: 256014 VA |
| Receptacle | 92639 VA | 55.40% | 51320 VA | Total Conn.: 351 A |
| Power | 2700 VA | 100.00% | 2700 VA | Total Est. Demand: 308 A |
| Lighting | 9014 VA | 100.00% | 9014 VA | |

**Notes:**

## Branch Panel: RP2

**Location:** MECHANICAL / ELECTRICAL... **Volts:** 120/208 Wye **A.I.C. Rating:** 22K
**Supply From:** RP1 **Phases:** 3 **Mains Type:** MLO
**Mounting:** Surface **Wires:** 4 **Mains Rating:** 200 A
**Enclosure:** Type 1 **MCB Rating:**

**Notes:**

| NOTE | CKT | Circuit Description | Trip | Poles | A | B | C | A | B | C | Poles | Trip | Circuit Description | CKT | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | CONFRENCE ROOM 105 RECEPTACLES | 20 A | 1 | 1080... | | | 900 VA | | | 1 | 20 A | OFFICE 106 RECEPTACLE | 2 | |
| | 3 | OFFICE 107 RECEPTACLES | 20 A | 1 | | 1080... | | | 900 VA | | 1 | 20 A | OFFICE 108 RECEPTACLES | 4 | |
| | 5 | OFFICE 109 RECEPTACLES | 20 A | 1 | | | 1080... | | | 1080... | 1 | 20 A | DISPATCH OFFICE RECEPTACLES | 6 | |
| | 7 | DISPATCH OFFICE RECEPTACLES | 20 A | 1 | 1080... | | | 720 VA | | | 1 | 20 A | RECEPTION AND CORRIDOR RECEPTS | 8 | |
| | 9 | RECPTION COPIER RECEPTACLE | 20 A | 1 | | 500 VA | | | 180 VA | | 1 | 20 A | BREAK ROOM COUNTER RECEPT | 10 | |
| | 11 | BREAK ROOM COUNTER RECEPT | 20 A | 1 | | | 180 VA | | | 180 VA | 1 | 20 A | BREAK ROOM COUNTER RECEPT | 12 | |
| | 13 | BREAK ROOM FRIDGE RECEPT | 20 A | 1 | 180 VA | | | 180 VA | | | 1 | 20 A | BREAK ROOM COUNTER RECEPT | 14 | |
| | 15 | OFFICE 130 RECEPTACLES | 20 A | 1 | | 1080... | | | 500 VA | | 1 | 20 A | BREAK ROOM GARBAGE DISPOSAL | 16 | |
| | 17 | STORAGE 117 RECEPTACLES | 20 A | 1 | | | 1080... | | | 900 VA | 1 | 20 A | RESTROOM AND CUSTODIAL RECEPTS | 18 | |
| | 19 | DATA CLOSET QUAD RECEPT | 20 A | 1 | 360 VA | | | 900 VA | | | 1 | 20 A | DRIVERS ROOM RECEPTACLES | 20 | |
| | 21 | DATA CLOSET QUAD RECEPT | 20 A | 1 | | 360 VA | | | 180 VA | | 1 | 20 A | DRIVERS ROOM TV RECEPTACLE | 22 | |
| | 23 | DATA CLOSET RECEPTACLES | 20 A | 1 | | | 540 VA | | | 900 VA | 1 | 20 A | DRIVERS ROOM RECEPTACLES | 24 | |
| | 25 | DRIVERS ROOM RECEPTACLES | 20 A | 1 | 1080... | | | 180 VA | | | 1 | 20 A | DRIVERS ROOM PROJECTOR RECEPT | 26 | |
| | 27 | DRIVERS ROOM EWC | 20 A | 1 | | 500 VA | | | 180 VA | | 1 | 20 A | DRIVERS ROOM PROJECTOR RECEPT | 28 | |
| | 29 | DRIVERS ROOM COUNTER RECEPT | 20 A | 1 | | | 1500... | | | 180 VA | 1 | 20 A | DRIVERS ROOM TV RECEPTACLE | 30 | |
| | 31 | DRIVERS ROOM ICE MAKER | 20 A | 1 | 800 VA | | | 720 VA | | | 1 | 20 A | RESTROOM AND EXTERIOR RECEPTS | 32 | |
| | 33 | DRIVERS ROOM FRIDGE | 20 A | 1 | | 800 VA | | | 1180... | | 1 | 20 A | DRIVERS ROOM COUNTER RECEPT | 34 | |
| | 35 | DRIVERS RM KITCHEN COUNTER REC. | 20 A | 1 | | | 500 VA | | | 360 VA | 1 | 20 A | WASH BAY RECEPTACLES | 36 | |
| | 37 | DRIVERS RM KITCHEN COUNTER REC. | 20 A | 1 | 500 VA | | | 800 VA | | | 1 | 20 A | DRIVERS ROOM FREEZER | 38 | |
| | 39 | DRIVERS ROOM GARBAGE DISPOSAL | 20 A | 1 | | 1200... | | | 1200... | | 1 | 20 A | DRIVERS RM KITCHEN COUNTER REC. | 40 | |
| | 41 | OFFICE 126 RECEPTACLES | 20 A | 1 | | | 1080... | | | 500 VA | 1 | 20 A | DRIVERS RM KITCHEN COUNTER REC. | 42 | |
| | 43 | TRAINING ROOM RECEPTACLES | 20 A | 1 | 1080... | | | 600 VA | | | 1 | 20 A | DRIVERS ROOM PROJECTOR SCREENS | 44 | |
| | 45 | MECH BREAK ROOM COUNTER RECEP. | 20 A | 1 | | 180 VA | | | 1080... | | 1 | 20 A | OFFICE 127 RECEPTACLES | 46 | |
| | 47 | MECH BREAK ROOM RECEPTS | 20 A | 1 | | | 1080... | | | 500 VA | 1 | 20 A | MECH BREAK ROOM GARBAGE DISPOSAL | 48 | |
| | 49 | WASHING MACHINE RECEPTACLE | 20 A | 1 | 180 VA | | | 180 VA | | | 1 | 20 A | MECH BREAK ROOM COUNTER RECEP. | 50 | |
| | 51 | BAY WORKBENCH QUAD RECEPT | 20 A | 1 | | 360 VA | | | 180 VA | | 1 | 20 A | MECH BREAK ROOM FRIDGE | 52 | |
| | 53 | DRIVE THROUGH BAY EWC | 20 A | 1 | | | 500 VA | | | 500 VA | 2 | 30 A | DRYER RECEPTACLE | 54 | |
| | 55 | BAY WORKBENCH QUAD RECEPT | 20 A | 1 | 360 VA | | | 500 VA | | | -- | -- | -- | 56 | |
| | 57 | BAY RECEPTACLES | 20 A | 1 | | 360 VA | | | 360 VA | | 1 | 20 A | BAY RECEPTACLES | 58 | |
| | 59 | BAY RECEPTACLES | 20 A | 1 | | | 360 VA | | | 360 VA | 1 | 20 A | BAY RECEPTACLES | 60 | |
| | 61 | BAY RECEPTACLES | 20 A | 1 | 360 VA | | | 360 VA | | | 1 | 20 A | BAY RECEPTACLES | 62 | |
| | 63 | BAY RECEPTACLES | 20 A | 1 | | 360 VA | | | 360 VA | | 1 | 20 A | BAY RECEPTACLES | 64 | |
| | 65 | BAY RECEPTACLES | 20 A | 1 | | | 360 VA | | | 360 VA | 1 | 20 A | BAY RECEPTACLES | 66 | |
| | 67 | BAY RECEPTACLES - CENTER | 20 A | 1 | 360 VA | | | 360 VA | | | 1 | 20 A | BAY WORKBENCH QUAD RECEPT | 68 | |
| | 69 | TRUCK BAY RECEPTACLES | 20 A | 1 | | 360 VA | | | 360 VA | | 1 | 20 A | BAY WORKBENCH QUAD RECEPT | 70 | |
| | 71 | TRUCK BAY RECEPTACLES | 20 A | 1 | | | 360 VA | | | 540 VA | 1 | 20 A | BAY WORKBENCH QUAD RECEPT | 72 | |
| | 73 | TRUCK BAY RECEPTACLES | 20 A | 1 | 360 VA | | | 360 VA | | | 1 | 20 A | TRUCK BAY RECEPTACLES | 74 | |
| | 75 | WASH BAY RECEPTACLES | 20 A | 1 | | 360 VA | | | 360 VA | | 1 | 20 A | TRUCK BAY RECEPTACLES | 76 | |
| | 77 | WASH BAY RECEPTACLES | 20 A | 1 | | | 360 VA | | | 360 VA | 1 | 20 A | TRUCK BAY RECEPTACLES | 78 | |
| | 79 | WASH BAY RECEPTACLES | 20 A | 1 | 360 VA | | | 360 VA | | | 1 | 20 A | WASH BAY RECEPTACLES | 80 | |
| | 81 | WASH BAY RECEPTACLES | 20 A | 1 | | 360 VA | | | 360 VA | | 1 | 20 A | WASH BAY RECEPTACLES | 82 | |
| | 83 | WASH BAY RECEPTACLES | 20 A | 1 | | | 360 VA | | | 360 VA | 1 | 20 A | WASH BAY RECEPTACLES | 84 | |
| | | | | | Total Load: | 15260 VA | | 15240 VA | | | 16420 VA | | | | |
| | | | | | Total Amps: | 127 A | | 127 A | | | 137 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated Demand | Panel Totals |
|---|---|---|---|---|
| Receptacle | 46920 VA | 60.66% | 28460 VA | |
| | | | | Total Conn. Load: 46920 VA |
| | | | | Total Est. Demand: 28460 VA |
| | | | | Total Conn.: 130 A |
| | | | | Total Est. Demand: 79 A |

**Notes:**

## Branch Panel: RP1

**Location:** MECHANICAL / ELECTRICAL... **Volts:** 120/208 Wye **A.I.C. Rating:** 22K
**Supply From:** T1 **Phases:** 3 **Mains Type:** MCB
**Mounting:** Surface **Wires:** 4 **Mains Rating:** 400 A
**Enclosure:** Type 1 **MCB Rating:** 400 A

**Notes:**

| NOTE | CKT | Circuit Description | Trip | Poles | A | B | C | A | B | C | Poles | Trip | Circuit Description | CKT | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | TRUCK BAY WELDER RECEPTACLE | 50 A | 2 | 4000... | | | 4000... | | | 2 | 50 A | DRIVE THROUGH BAY WELDER RECEPT. | 2 | |
| | 3 | -- | -- | -- | | 4000... | | | 4000... | | -- | -- | -- | 4 | |
| | 5 | DRIVE THROUGH BAY WELDER | 50 A | 2 | | | 4000... | | | 1127... | 1 | 20 A | GLYCOL PUMP RECEPTACLE | 6 | |
| | 7 | -- | -- | -- | 4000... | | | 250 VA | | | 1 | 20 A | EF-2 | 8 | |
| | 9 | EF-1 | 20 A | 1 | | 250 VA | | | 250 VA | | 1 | 20 A | EF-3 | 10 | |
| | 11 | EF-4 | 20 A | 1 | | | 250 VA | | | 250 VA | 1 | 20 A | EF-6 | 12 | |
| | 13 | EF-5 | 20 A | 1 | 250 VA | | | 864 VA | | | 1 | 20 A | HWH-2 | 14 | |
| | 15 | HWH-1 | 20 A | 1 | | 864 VA | | | 864 VA | | 1 | 20 A | HWH-4 | 16 | |
| | 17 | HWH-3 | 20 A | 1 | | | 864 VA | | | 864 VA | 1 | 20 A | HWH-6 | 18 | |
| | 19 | HWH-5 | 20 A | 1 | 864 VA | | | 864 VA | | | 1 | 20 A | HWH-8 | 20 | |
| | 21 | HWH-7 | 20 A | 1 | | 864 VA | | | 450 VA | | 1 | 20 A | DWH-1 & RCP-1 | 22 | |
| | 23 | HWH-9 | 20 A | 1 | | | 864 VA | | | 1584... | 1 | 20 A | B-1 & BP-1 | 24 | |
| | 25 | TRUCK BAY LIFT | 25 A | 2 | 1250... | | | 1584... | | | 1 | 20 A | B-2 & BP-2 | 26 | |
| | 27 | -- | -- | -- | | 1250... | | | 716 VA | | 2 | 20 A | WASH BAY POWER WASHER | 28 | |
| | 29 | CU-1 | 30 A | 2 | | | 1519... | | | 716 VA | -- | -- | -- | 30 | |
| | 31 | -- | -- | -- | 1519... | | | 500 VA | | | 1 | 20 A | FACP | 32 | |
| | 33 | TRUCK BAY FAN | 20 A | 1 | | 1200... | | | 4000... | | 2 | 50 A | WASH BAY WELDER RECEPTACLE | 34 | |
| | 35 | TIRE STORAGE RECEPTACLE | 20 A | 1 | | | 780 VA | | | 4000... | -- | -- | -- | 36 | |
| | 37 | TIRE MACHINE RECEPTACLE | 20 A | 2 | 500 VA | | | 1500... | | | 2 | 30 A | WASH BAY POWER WASHER RECEPT. | 38 | |
| | 39 | -- | -- | -- | | 500 VA | | | 1500... | | -- | -- | -- | 40 | |
| | 41 | BALANCER RECEPTACLE | 20 A | 2 | | | 500 VA | | | 500 VA | 2 | 20 A | DRIVE THROUGH BAY POWER WASHER | 42 | |
| | 43 | -- | -- | -- | 500 VA | | | 500 VA | | | -- | -- | -- | 44 | |
| | 45 | GUARD SHACK | 20 A | 1 | | 500 VA | | | 500 VA | | 2 | 20 A | TRUCK BAY POWER WASHER RECEPT. | 46 | |
| | 47 | MOTORIZED GATE | 20 A | 1 | | | 1500... | | | 500 VA | -- | -- | -- | 48 | |
| | 49 | UPPER STORAGE RECEPTACLES | 20 A | 1 | 360 VA | | | 180 VA | | | 1 | 20 A | AD-1 | 50 | |
| | 51 | ELEC/MECH ROOM RECEPTACLES | 20 A | 1 | | 1080... | | | 180 VA | | 1 | 20 A | AD-2 | 52 | |
| | 53 | EXTERIOR RECEPTACLES | 20 A | 1 | | | 1080... | | | 200 VA | 1 | 20 A | OIL LEVEL MONITORING SYSTEM | 54 | |
| | 55 | BUS BAY FAN F-1 | 20 A | 1 | 1200... | | | 1200... | | | 1 | 20 A | BUS BAY FAN F-2 | 56 | |
| | 57 | BUS BAY FAN F-3 | 20 A | 1 | | 1200... | | | 1200... | | 1 | 20 A | BUS BAY FAN F-4 | 58 | |
| | 59 | AC-1 | 60 A | 2 | | | 4800... | | | 0 VA | 1 | 20 A | Spare | 60 | |
| | 61 | -- | -- | -- | 4800... | | | 0 VA | | | 1 | 20 A | Spare | 62 | |
| | 63 | AC-2 | 60 A | 2 | | 4800... | | | 0 VA | | 1 | 20 A | Spare | 64 | |
| | 65 | -- | -- | -- | | | 4800... | | | 0 VA | 1 | 20 A | Spare | 66 | |
| | 67 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 1 | 20 A | Spare | 68 | |
| | 69 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | 1 | 20 A | Spare | 70 | |
| | 71 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | 1 | 20 A | Spare | 72 | |
| | 73 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 1 | 20 A | Spare | 74 | |
| | 75 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | 1 | 20 A | Spare | 76 | |
| | 77 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | 1 | 20 A | Spare | 78 | |
| S | 79 | RP2 | 200 A | 3 | 1526... | | | 0 VA | | | 1 | 20 A | Spare | 80 | |
| | 81 | -- | -- | -- | | 1524... | | | 0 VA | | 1 | 20 A | Spare | 84 | |
| | 83 | -- | -- | -- | -- | | 1642... | | | 0 VA | 1 | 20 A | Spare | | |
| | | | | | Total Load: | 45945 VA | | 45408 VA | | | 47118 VA | | | | |
| | | | | | Total Amps: | 384 A | | 378 A | | | 393 A | | | | |

**Legend:**
S = PROVIDE SUBFEED BREAKER AS INDICATED. REPLACE SLOTS WITH 20A SINGLE POLE SPARE BREAKERS.

| Load Classification | Connected Load | Demand Factor | Estimated Demand | Panel Totals |
|---|---|---|---|---|
| HVAC | 30654 VA | 100.00% | 30654 VA | |
| Motor | 7500 VA | 105.00% | 7875 VA | Total Conn. Load: 138470 VA |
| Other | 4977 VA | 100.00% | 4977 VA | Total Est. Demand: 97526 VA |
| Receptacle | 92639 VA | 55.40% | 51320 VA | Total Conn.: 384 A |
| Power | 2700 VA | 100.00% | 2700 VA | Total Est. Demand: 271 A |

**Notes:**

## Branch Panel: BPH

**Location:** MECHANICAL / ELECTRICAL... **Volts:** 480/277 Wye **A.I.C. Rating:** 22K
**Supply From:** MDP **Phases:** 3 **Mains Type:** MLO
**Mounting:** Surface **Wires:** 4 **Mains Rating:** 400 A
**Enclosure:** Type 1 **MCB Rating:**

**Notes:**

| NOTE | CKT | Circuit Description | Trip | Poles | A | B | C | A | B | C | Poles | Trip | Circuit Description | CKT | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | UH-1 | 20 A | 1 | 1500... | | | 1500... | | | 1 | 20 A | UH-2 | 2 | |
| | 3 | HWP-1 | 20 A | 3 | | 1216... | | | 1216... | | 3 | 20 A | HWP-2 | 4 | |
| | 5 | -- | -- | -- | | | 1216... | | | 1216... | -- | -- | -- | 6 | |
| | 7 | -- | -- | -- | 1216... | | | 1216... | | | -- | -- | -- | 8 | |
| | 9 | BUS LIFT | 40 A | 3 | | 7759... | | | 800 VA | | 3 | 20 A | BUS BAY OVERHEAD DOOR | 10 | |
| | 11 | -- | -- | -- | | | 7759... | | | 800 VA | -- | -- | -- | 12 | |
| | 13 | -- | -- | -- | 7759... | | | 800 VA | | | -- | -- | -- | 14 | |
| | 15 | OFFICE SPACE LIGHTING | 20 A | 1 | | 5407... | | | 800 VA | | 3 | 20 A | BUS BAY OVERHEAD DOOR | 16 | |
| | 17 | BUS BAY LIGHTING | 20 A | 1 | | | 3310... | | | 800 VA | -- | -- | -- | 18 | |
| | 19 | FUEL CANOPY LIGHTING | 20 A | 1 | 320 VA | | | 800 VA | | | -- | -- | -- | 20 | |
| | 21 | BUS BAY OVERHEAD DOOR | 20 A | 3 | | 800 VA | | | 800 VA | | 3 | 20 A | TRUCK BAY OVERHEAD DOOR | 22 | |
| | 23 | -- | -- | -- | | | 800 VA | | | 800 VA | -- | -- | -- | 24 | |
| | 25 | -- | -- | -- | 800 VA | | | 800 VA | | | -- | -- | -- | 26 | |
| | 27 | BUS BAY OVERHEAD DOOR | 20 A | 3 | | 800 VA | | | 800 VA | | 3 | 20 A | TIRE STORAGE OVERHEAD DOOR | 28 | |
| | 29 | -- | -- | -- | | | 800 VA | | | 800 VA | -- | -- | -- | 30 | |
| | 31 | -- | -- | -- | 800 VA | | | 800 VA | | | -- | -- | -- | 32 | |
| | 33 | WASH BAY OVERHEAD DOOR | 20 A | 3 | | 800 VA | | | 0 VA | | 2 | 20 A | Spare | 34 | |
| | 35 | -- | -- | -- | | | 800 VA | | | 0 VA | -- | -- | -- | 36 | |
| | 37 | -- | -- | -- | 800 VA | | | 0 VA | | | 2 | 20 A | Spare | 38 | |
| | 39 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | -- | -- | -- | 40 | |
| | 41 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | 2 | 20 A | Spare | 42 | |
| | 43 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | -- | -- | -- | 44 | |
| | 45 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | 2 | 20 A | Spare | 46 | |
| | 47 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | -- | -- | -- | 48 | |
| | 49 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 3 | 20 A | Spare | 50 | |
| | 51 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | -- | -- | -- | 52 | |
| | 53 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | -- | -- | -- | 54 | |
| | 55 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 3 | 20 A | Spare | 56 | |
| | 57 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | -- | -- | -- | 58 | |
| | 59 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | -- | -- | -- | 60 | |
| | 61 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 3 | 20 A | Spare | 62 | |
| | 63 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | -- | -- | -- | 64 | |
| | 65 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | -- | -- | -- | 66 | |
| | 67 | Spare | 20 A | 1 | 0 VA | | | 0 VA | | | 3 | 20 A | Spare | 68 | |
| | 69 | Spare | 20 A | 1 | | 0 VA | | | 0 VA | | -- | -- | -- | 70 | |
| | 71 | Spare | 20 A | 1 | | | 0 VA | | | 0 VA | -- | -- | -- | 72 | |
| | | | | | Total Load: | 19099 VA | | 21165 VA | | | 19101 VA | | | | |
| | | | | | Total Amps: | 69 A | | 76 A | | | 69 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated Demand | Panel Totals |
|---|---|---|---|---|
| HVAC | 10296 VA | 100.00% | 10296 VA | |
| Motor | 40078 VA | 114.52% | 45898 VA | Total Conn. Load: 59358 VA |
| Other | 0 VA | 0.00% | 0 VA | Total Est. Demand: 65177 VA |
| Lighting | 9014 VA | 100.00% | 9014 VA | Total Conn.: 71 A |
| | | | | Total Est. Demand: 78 A |

**Notes:**

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

BLDD ARCHITECTS
Certificate of Authority No. 2013013380

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2007031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No: 2017031307
Project No.: 257EX18.400

MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

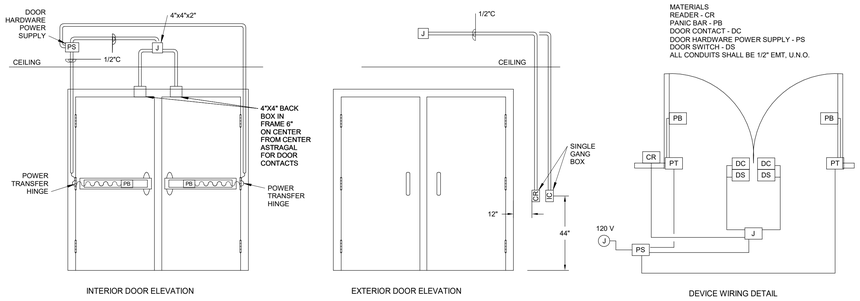
Sheet Revision

Issue
100% CONSTRUCTION DOCUMENTS
09/01/2026

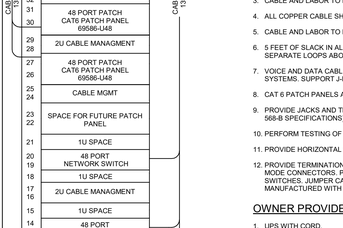
Team
Drawn By: JLC
Checked By: BWB

Sheet Title
ELECTRICAL SCHEDULES

Sheet No.
E002




## 13 DOUBLE ACCESS DOOR W/ELECTRIFIED PANIC HARDWARE
NTS




## 12 FLOOR MOUNTED TRANSFORMER SEISMIC SUPPORT
NTS




## 11 POLE LIGHT 36" CONCRETE BASE DETAIL
NTS




### ELECTRICAL CONTRACTOR PROVIDED

1. ETHERNET HUBS, SWITCHES, UPS AND ACTIVE ELECTRONICS TO BE USED AT THE IDF'S.
2. EQUIPMENT AND LABOR TO INSTALL FIBER OPTIC MEDIA CONVERTERS.
3. CABLE AND LABOR TO INSTALL CAT 6 DATA DROPS FROM TERMINAL LOCATIONS TO RACK.
4. ALL COPPER CABLE SHALL BE PLENUM RATED.
5. CABLE AND LABOR TO INSTALL CAT 6 VOICE DROPS FROM TERMINAL LOCATIONS TO RACK.
6. 5 FEET OF SLACK IN ALL CABLES AND TERMINATION AT IDF END. COPPER AND FIBER SHALL BE IN SEPARATE LOOPS ABOVE THE RACK. LABEL PER DETAIL THIS SHEET.
7. VOICE AND DATA CABLES SHALL BE ROUTED IN J-HOOKS, SEPARATE FROM ALL OTHER WIRING SYSTEMS. SUPPORT J-HOOKS AT 5' ON CENTER.
8. CAT 6 PATCH PANELS AND PATCH CORDS AND LABOR TO INSTALL.
9. PROVIDE JACKS AND TERMINATE DATA CONNECTIONS AT THE DEVICE AND STATION ENDS (TIA 568-B SPECIFICATIONS).
10. PERFORM TESTING OF THE INSTALLED CABLING SYSTEM.
11. PROVIDE HORIZONTAL AND VERTICAL CABLE MANAGEMENT.
12. PROVIDE TERMINATION(S) AT FIBER OPTIC PUNCHDOWN ON RACK THROUGH LC TYPE SINGLE MODE CONNECTORS. PROVIDE SINGLE MODE FIBER JUMPER CABLES TO INTERCONNECT SWITCHES. JUMPER CABLES SHALL BE OFNR-RATED, 1 METER IN LENGTH AND SHALL BE PRE-MANUFACTURED WITH LC-LC CONNECTORS (UPDLC-S01).

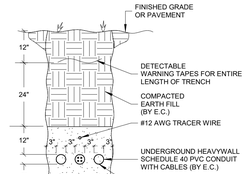
### OWNER PROVIDED

1. UPS WITH CORD.
2. 48 PORT NETWORK SWITCHES.

### NOTES:

1. PROVIDE CAT6 STRANDED PATCH CORDS AS REQUIRED WITH 10% SPARE.
2. RACKS SHALL BE FREESTANDING FLOOR MOUNTED.
3. PROVIDE POWER TO UPS WITH CORD CONNECTED TO DEDICATED RECEPTACLE.

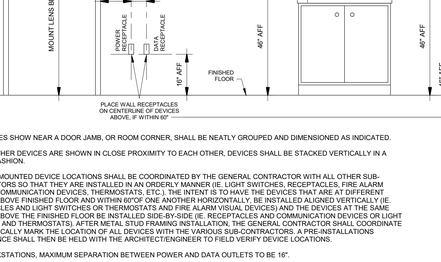
## 10 DATA RACK DIAGRAM
NTS




### NOTES:

1. ALL EXCAVATION IN ELECTRICAL ONLY TRENCHES BY E.C.
2. COORDINATE ALL WORK WITH UTILITY COMPANIES.
3. EXCAVATED MATERIAL SHALL BE PLACED A MINIMUM OF 2' FROM BOTH EDGES OF THE TRENCH.
4. EDGES OF TRENCH SHALL BE A MIN OF 36" FROM EDGE OF WATER, GAS OR SEWER PIPES.

## 9 TRENCH DETAIL FOR TELEPHONE AND CABLE TV CONDUITS
NTS




## 8 UNDERGROUND PULLBOX
NTS




WIRING SHALL BE SOLID COPPER, 24 GAUGE, FOUR UNSHIELDED TWISTED PAIR(UTP), TIA 568-B CATEGORY 6 CABLE. SEE SPECIFICATIONS FOR COLOR CODING. SPLICING OF WIRING IS NOT PERMITTED. REFER TO SPECIFICATIONS FOR INSTALLATION TECHNIQUES. LABELING SHALL BE 1/4" HIGH, MINIMUM.

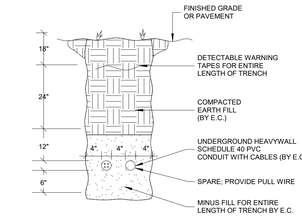
## 7 VOICE AND DATA WIRING IDENTIFICATION
NTS




### NOTES:

1. ALL DEVICES SHOW NEAR A DOOR JAMB, OR ROOM CORNER, SHALL BE NEATLY GROUPED AND DIMENSIONED AS INDICATED.
2. WHERE OTHER DEVICES ARE SHOWN IN CLOSE PROXIMITY TO EACH OTHER, DEVICES SHALL BE STACKED VERTICALLY IN A SIMILAR FASHION.
3. ALL WALL MOUNTED DEVICE LOCATIONS SHALL BE COORDINATED BY THE GENERAL CONTRACTOR WITH ALL OTHER SUB-CONTRACTORS SO THAT THEY ARE INSTALLED IN AN ORDERLY MANNER (IE. LIGHT SWITCHES, RECEPTACLES, FIRE ALARM DEVICES,COMMUNICATION DEVICES, THERMOSTATS, ETC.). THE INTENT IS TO HAVE THE DEVICES THAT ARE AT DIFFERENT HEIGHTS ABOVE FINISHED FLOOR AND WITHIN 60"OF ONE ANOTHER HORIZONTALLY, BE INSTALLED ALIGNED VERTICALLY (IE. RECEPTACLES AND LIGHT SWITCHES OR THERMOSTATS AND FIRE ALARM VISUAL DEVICES) AND THE DEVICES AT THE SAME HEIGHTS ABOVE THE FINISHED FLOOR BE INSTALLED SIDE-BY-SIDE (IE. RECEPTACLES AND COMMUNICATION DEVICES OR LIGHT SWITCHES AND THERMOSTATS). AFTER METAL STUD FRAMING INSTALLATION, THE GENERAL CONTRACTOR SHALL COORDINATE AND PHYSICALLY MARK THE LOCATION OF ALL DEVICES WITH THE VARIOUS SUB-CONTRACTORS. A PRE-INSTALLATIONS CONFERENCE SHALL THEN BE HELD WITH THE ARCHITECT/ENGINEER TO FIELD VERIFY DEVICE LOCATIONS.
4. FOR WORKSTATIONS, MAXIMUM SEPARATION BETWEEN POWER AND DATA OUTLETS TO BE 16".
5. MOUNTING DIMENSIONS SHOWN ILLUSTRATE DESIGN INTENT, BUT DO NOT SUPERCEDE LOCAL CODES OR ADA REGULATIONS.

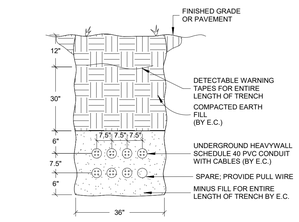
## 6 TYPICAL ELECTRICAL DEVICE LOCATIONS
1/2" = 1'-0"




### NOTES:

1. ALL EXCAVATION IN ELECTRICAL ONLY TRENCHES BY E.C.
2. COORDINATE ALL WORK WITH UTILITY COMPANIES.
3. EXCAVATED MATERIAL SHALL BE PLACED A MINIMUM OF 2' FROM BOTH EDGES OF THE TRENCH.
4. EDGES OF TRENCH SHALL BE A MIN OF 36" FROM EDGE OF WATER, GAS OR SEWER PIPES.

## 5 TRENCH DETAIL FOR PRIMARY POWER CONDUIT
NTS




### NOTES:

1. ALL EXCAVATION IN ELECTRICAL ONLY TRENCHES BY E.C.
2. COORDINATE ALL WORK WITH UTIL. COMPANIES & APPLICABLE TRADES.
3. EXCAVATED MATERIAL SHALL BE PLACED A MINIMUM OF 2' FROM BOTH EDGES OF THE TRENCH.
4. EDGES OF TRENCH SHALL BE A MIN OF 36" FROM EDGE OF WATER, GAS OR SEWER PIPES.

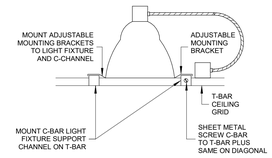
## 4 TRENCH DETAIL FOR SECONDARY POWER CONDUITS
NTS




### NOTES:

1. UNISTRUT CHANNELS, CONDUITS, BOXES AND MISCELLANEOUS HARDWARE ITEMS SHALL BE PAINTED BY GENERAL CONTRACTOR.
2. COORDINATE ELEVATION HEIGHTS SEE ARCHITECTURAL DRAWINGS.
3. COORDIANTE INSTALATION WITH FAN HEIGHTS TO MINIMIZE SHADOWING.

## 3 HIGH BAY LIGHT FIXTURE MOUNTING DETAIL
NTS




## 2 RECESSED MOUNTED DOWNLIGHT SEISMIC SUPPORT
NTS




### NOTES:

1. SUPPORT WIRES FOR FIXTURES WEIGHTING LESS THAN 56 LBS. MAY BE INSTALLED SLACK. ALL OTHER SUPPORT WIRES SHALL BE INSTALLED TAUT WITH A MINIMUM OF 3 TIGHT TURNS AROUND ITSELF.
2. LIGHT FIXTURES WEIGHING 56 LBS OR MORE SHALL BE INDEPENDENTLY SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE, BY APPROVED HANGERS.

EXCEPTION:
LIGHT FIXTURES THAT ARE NOT COMPONENTS OF A STANDBY OR EMERGENCY LIGHTING SYSTEM AND WEIGH LESS THAN 20 POUNDS AND ARE POWERED USING FLEXIBLE CABLE CONNECTIONS NOT LESS THAN 3 FT. LONG CONNECTED TO THE FIXTURES, ARE NOT REQUIRED TO HAVE THE ADDITIONAL SUPPORT WIRE(S) DESCRIBED ABOVE. SUCH FIXTURES ARE REQUIRED TO BE POSITIVELY ATTACHED TO THE CEILING GRID AS DESCRIBED ABOVE.

## 1 RECESSED LIGHTING FIXTURE SEISMIC SUPPORT
1/8" = 1'-0"

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No: 2017031307
Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

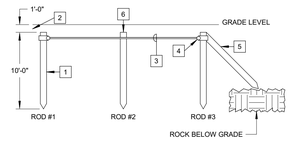
Drawn By: JLC
Checked By: BWB

Sheet Title

ELECTRICAL DETAILS

Sheet No.

E003

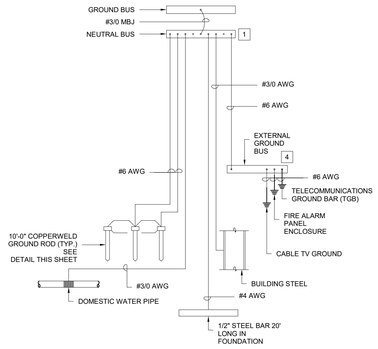



KEYED NOTES:

1. 3/4" x 10' COPPER CLAD STEEL GROUND ROD.
2. 1" COVER MINIMUM TO TOP OF ROD.
3. #6 BARE COPPER CONDUCTOR TYPICAL FOR THREE ROD SYSTEM.
4. EXOTHERMIC WELDED ELECTRODE CONNECTION - TYPICAL.
5. IF ROCK IS ENCOUNTERED, GROUND RODS SHALL BE PERMITTED TO BE DRIVEN AT AN OPPOSING 45° ANGLE FROM EACH OTHER.
6. NOTE 10' MINIMUM HORIZONTAL SPACING BETWEEN GROUND RODS IN A TRIANGULAR CONFIGURATION.

## THREE GROUND ROD ELECTRODE

NOT TO SCALE




## SERVICE ENTRANCE GROUNDING DETAIL

NOT TO SCALE

KEYED NOTES:

1. PROVIDE SERVICE ENTRANCE GROUNDING PER DETAILS ON THIS SHEET. PROVIDE ALL GROUNDING PER NEC 250.50.
2. METER AND METERING CONDUCTORS WILL BE PROVIDED BY UTILITY. COORDINATE ALL REQUIREMENTS WITH THE UTILITY COMPANY FOR LOCATION AND GROUNDING. MOUNT AT EXTERIOR WALL.
3. PROVIDE SERVICE ENTRANCE TYPE SURGE PROTECTION DEVICE (SPD). SEE SPECIFICATIONS FOR DETAILS AND VERIFY OVER-CURRENT PROTECTION DEVICE SIZE WITH THE MANUFACTURER PRIOR TO INSTALLATION.
4. PROVIDE ISOLATED GROUND BUS TO BE MOUNTED EXTERNAL TO ENCLOSURE AT THE SERVICE EQUIPMENT, PER NEC 250-94.
5. PROVIDE 4" HIGH HOUSEKEEPING PAD BELOW EQUIPMENT. PAD SHALL BE 1" LARGER IN EACH DIRECTION THAN EQUIPMENT TO BE SET.

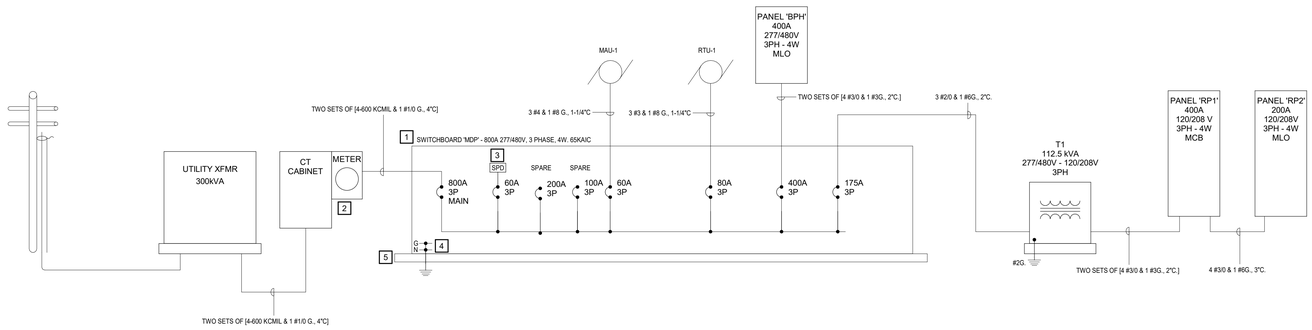
| ELECTRICAL SERVICE RESPONSIBILITY SCHEDULE | | |
|---|---|---|
| DESCRIPTION | FURNISHED BY | INSTALLED BY |
| PRIMARY CONDUIT | EC | EC |
| PRIMARY CONDUCTORS & TERMINATIONS | UTIL | UTIL |
| UTILITY TRANSFORMER CONCRETE PAD - NOTE 1 | EC | EC |
| UTILITY TRANSFORMER | UTIL | UTIL |
| ALL SERVICE TRANSFORMER GROUND RODS NOTE 1 | UTIL | UTIL |
| CT'S/PT'S - NOTE 4 | UTIL | UTIL |
| SECONDARY CONDUIT (FROM X-FMR TO DISC) NOTE 2 | EC | EC |
| SECONDARY CONDUCTOR (FROM X-FMR TO DISC) NOTE 1 | EC | EC |
| SECONDARY CONDUCTOR TERMINATION @ MSB | EC | EC |
| SECONDARY CONDUCTOR TERMINATION @ TRANSFORMER | UTIL | UTIL |
| SECONDARY CONDUCTOR LUGS (AT TRANSFORMER) | UTIL | UTIL |
| SECONDARY CONDUCTOR LUGS (AT DISC) | EC | EC |
| METER - NOTE 3 | UTIL | UTIL |
| METER SOCKET/WIRING/INSTALLATION | UTIL | UTIL |

EC - ELECTRICAL CONTRACTOR
GC - GENERAL CONTRACTOR
UTIL - UTILITY CO.

UTILITY CO. - AMEREN/UTILITRA
KEVINSORENSEN@UTILITRA.COM
M:(224)622-3758
O:(618) 797-5638

ELECTRICAL SERVICE RESPONSIBILITY SCHEDULE NOTES:

1. THE ELC SHALL INSTALL THE ELECTRICAL SERVICE IN CONFORMANCE WITH ALL GOVERNING RULES AND REGULATIONS - CITY, LOCAL UTILITY CO. ETC. THE ELC SHALL CONFORM WITH THE UTILITY CO.'S SERVICE REQUIREMENTS. REQUIREMENTS INCLUDE BUT ARE NOT LIMITED TO TRANSFORMER PAD LOCATION, SERVICE TRANSFORMER GROUNDS, REQUIRED INSPECTIONS, SECONDARY CONDUCTOR LENGTH LEFT AT SERVICE TRANSFORMER, CLEARANCES, ETC.
2. SECONDARY CONDUITS SHALL BE PER THE ONE LINE DIAGRAM.
3. UTILITY COMPANY WILL FURNISH THE METER, METER CONDUCTORS AND MAKE ALL TERMINATIONS. COORDINATE EXACT REQUIREMENTS WITH THE UTILITY COMPANY. PROVIDE GROUNDING CONDUCTOR PER UTILITY REQUIREMENTS.
4. UTILITY COMPANY WILL PROVIDE THE CTS/PTS.
5. INSTALL PULL STRING IN SECONDARY CONDUIT(S).




## 1 ELECTRICAL ONE-LINE DIAGRAM

NOT TO SCALE

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No: 2017031307

Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

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Sheet Revision

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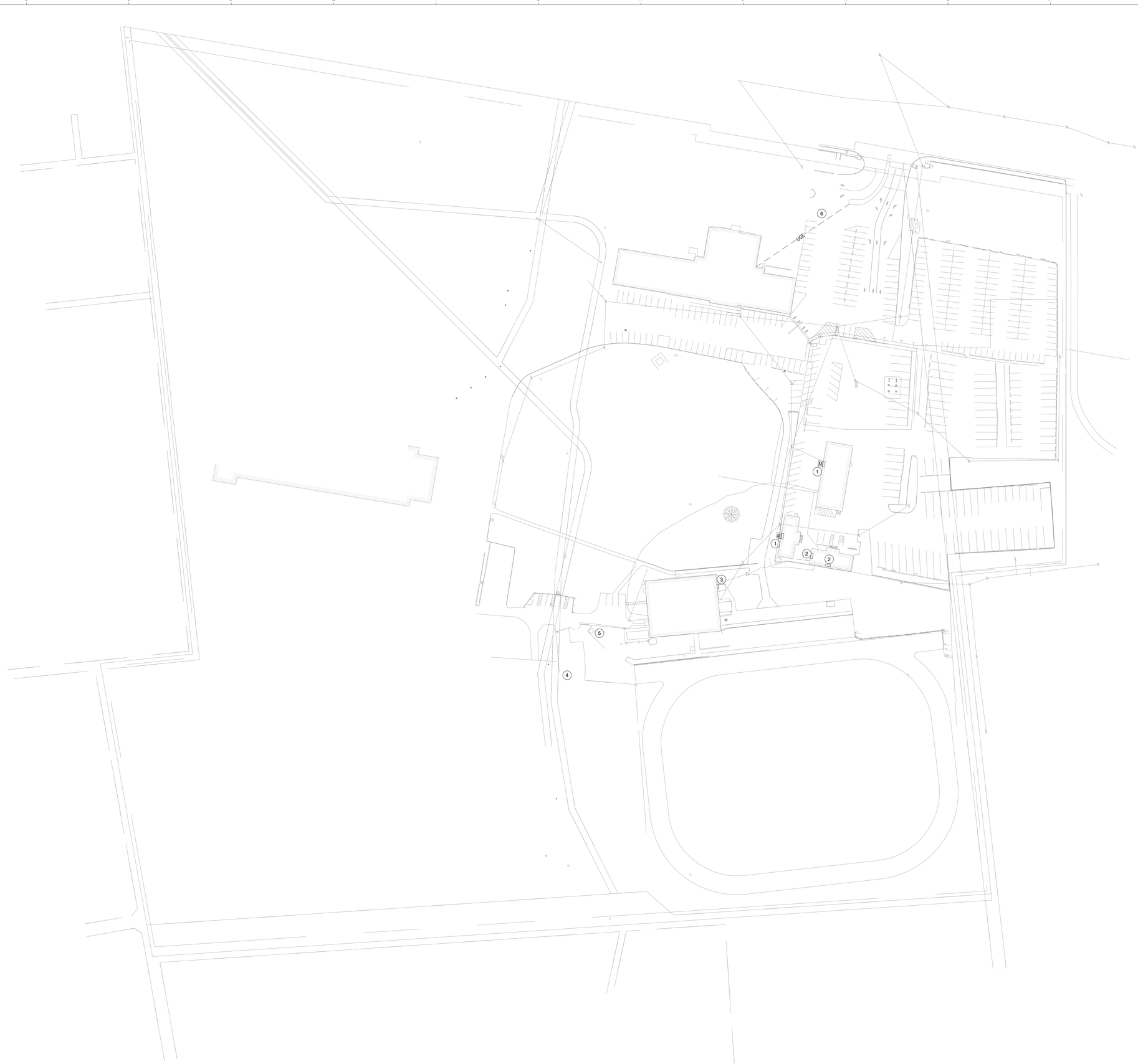
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Checked By: BWB

Sheet Title

ELECTRICAL ONE-LINE DIAGRAM

Sheet No.

E004




1 ELECTRICAL SITE PLAN - DEMOLITION
1" = 60'-0"

## DEMOLITION NOTES:

1. REMOVE ALL LIGHT FIXTURES, POWER AND SPECIAL SYSTEMS DEVICES INDICATED AS DASHED OR DARK LINES ON THESE PLANS AND LOCATED ON WALLS TO BE REMOVED. EXISTING CONDITIONS WERE TAKEN FROM EXISTING DRAWINGS AND CASUAL FIELD OBSERVATIONS AND THUS FIELD CONDITIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO VERIFY AND REMOVE ALL ITEMS, WHETHER OR NOT SPECIFICALLY INDICATED, AT ALL WALLS AND CEILINGS THAT ARE TO BE REMOVED OR ARE REQUIRED FOR INTERFERENCE WITH NEW CONSTRUCTION. WHERE AN ENTIRE AREA IS BEING GUTTED, IT IS THE INTENT THAT ITEMS INDICATED ARE TO BE DISCONNECTED FROM POWER AND REMOVED WITH THE GENERAL DEMOLITION OF THE AREA. NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES EXIST.
2. REMOVE EQUIPMENT, FIXTURES, DEVICES AND OUTLETS AS SPECIFIED AND SHOWN ON DRAWINGS, AND AS MAY BECOME NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS. EXAMINE ALL EXISTING WALLS AND CEILING DESIGNATED FOR REMOVAL TO DETERMINE THE CONDUIT AND WIRING THAT WILL REQUIRE REMOVAL.
3. COORDINATE ALL DEMOLITION WORK WITH PHASING PLAN.

## KEYED NOTES:

1. BUILDING TO BE DEMOLISHED IN ITS ENTIRETY. COORDINATE WITH AMEREN TO DISCONNECT POWER AND MAKE SAFE FOR DEMOLITION.
2. MOBILE BUILDING TO BE RELOCATED. COORDINATE WITH AMEREN TO DISCONNECT AND MAKE SAFE FOR RELOCATION. MAIN POWER FED OVERHEAD FROM MOBILE BUILDING TO THE WEST WITH METER. COORDINATE WITH P.C. TO DISCONNECT HEAT TRACE ON PIPING.
3. CONCESSION STAND POWER FED FROM MOBILE BUILDING WITH METER BEING DEMOLISHED. DEMOLISH INCOMING ELECTRIC TO PANEL AND MAINTAIN PANEL FOR RECONNECTION IN NEW WORK.
4. DEMOLISH ELECTRICAL TO SHED BACK TO SOURCE AND MAKE SAFE.
5. DEMOLISH ELECTRICAL TO TICKET BOOTH BACK TO SOURCE AND MAKE SAFE.
6. DEMOLISH EXISTING UNDERGROUND ELECTRIC BACK TO SOURCE AND MAKE SAFE. PROTECT AND MAINTAIN POWER IN GUARD BOOTH FOR RE-CONNECTION IN NEW WORK.

City

Collaborator

FSG Facility Solutions Group

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
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# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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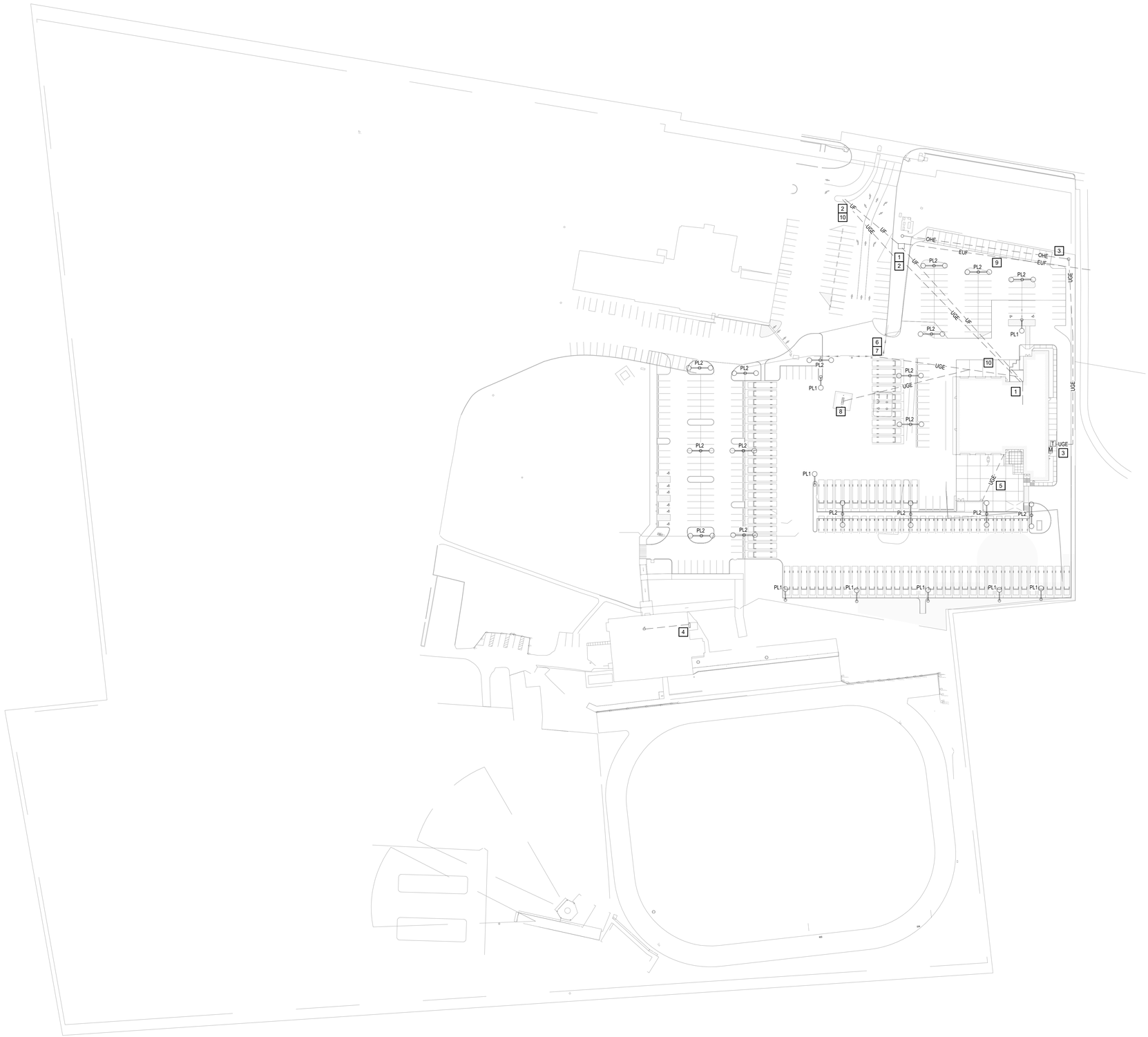
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Checked By: Checker

Sheet Title

ELECTRICAL SITE PLAN - DEMOLITION

Sheet No.

ES101




## DEMOLITION NOTES:

1. COORDINATE ALL WORK WITH THE PHASING PLAN.
2. PROVIDE 1800# MULETAPE IN ALL NEW CONDUITS, INNERDUCTS, AND IN ALL CONDUITS FOR NEW CABLE RUNS.
3. EC SHALL COORDINATE EXACT LOCATIONS, REQUIREMENTS, METERING AND TERMINATIONS WITH UTILITY PROVIDERS PRIOR TO BID.
4. COORDINATE ALL UNDERGROUND ELECTRICAL WORK AND UTILITY TIE-INS WITH UTILITY PROVIDERS AND WORK OF OTHER TRADES.
5. UNDERGROUND FACILITY STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDED INFORMATION. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. VERIFICATION OF LOCATION OF ALL UNDERGROUND STRUCTURES AND FACILITIES EITHER SHOWN OR NOT SHOWN ON THESE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. COORDINATE UNDERGROUND ELECTRICAL WITH ALL LANDSCAPING AND FENCING. ADJUST ELECTRICAL LINES TO AVOID CONFLICTS. REFER TO LANDSCAPING PLANS FOR FURTHER INFORMATION. AVOID ROUTING UNDERGROUND CONDUITS UNDER ROADWAYS OR PARKING LOTS. CROSS ROADWAYS WITH UNDERGROUND CONDUITS AT 90 ANGLES WHERE POSSIBLE.
7. ALL IN-GROUND CONDUITS SHALL BE 1" MINIMUM, SCHEDULE 40 PVC, UNLESS NOTED OTHERWISE. PROVIDE GALVANIZED RIGID CONDUIT FOR EXTERIOR UNDERGROUND TRANSITIONS TO ABOVE GRADE; EXTEND CONDUIT A MINIMUM OF 6" ABOVE GRADE WITH A THREADED PVC TO RIGID METAL CONDUIT ADAPTER.
8. ALL UNDERGROUND AND EXTERIOR CONDUCTORS SHALL BE TYPE "XHHW-2".

## KEYED NOTES:

1. PROVIDE UNDERGROUND FIBER THROUGH EXISTING PULL BOX LOCATED IN GRASS AREA IN FRONT OF EXISTING ELECTRICAL EQUIPMENT TO NEW BUILDING. TERMINATE AT RACK IN MDF.
2. PROVIDE UNDERGROUND FIBER THROUGH EXISTING PULL BOX LOCATED IN GRASS AREA IN FRONT OF ELECTRICAL EQUIPMENT TO EXISTING GUARD SHACK.
3. COORDINATE WITH AMEREN TO PROVIDE CONDUIT FOR PRIMARY ELECTRIC RAN UNDERGROUND FROM NEW POLE TO NEW TRANSFORMER.
4. PROVIDE NEW ELECTRICAL FEED FOR EXISTING PANEL IN CONCESSIONS STAND. FEED FROM EXISTING 100A DISCONNECT IN ELECTRICAL ROOM AT POOL ENTRANCE.
5. PROVIDE CONDUIT UNDERGROUND TO TIRE STORAGE BUILDING FOR LIGHTING, RECEPTACLES, AND OVERHEAD DOOR.
6. PROVIDE POWER TO NEW GATE OPERATOR FROM PANEL 'RP1'. PROVIDE ALL WIRING REQUIRED FOR A FULLY FUNCTIONING GATE SYSTEM INCLUDING ALL WIRING FROM OPERATOR TO VEHICLE DETECTOR LOOP AND (4) KEYPADS. COORDINATE GATE EQUIPMENT WITH CIVIL DRAWINGS.
7. CONTRACTOR SHALL PROVIDE REMOTE OPERATORS, SIMILAR TO LINEAR MT 1B, FOR GATE OPERATION. PROGRAM TO GATE PRIOR TO PROVIDING TO OWNER. COORDINATE NUMBER OF OPERATORS WITH OWNER PRIOR TO ORDERING.
8. UNDER ALTERNATE 2: PROVIDE CONDUIT FOR CANOPY LIGHTING CIRCUIT. SEE E101 FOR LIGHTING LAYOUT.
9. EXISTING UNDERGROUND FIBER CONDUIT ROUTED TO OFFICE BUILDING. PROVIDE 12 STRAND FIBER FROM RACK IN OFFICE BUILDING TO SPLICE BOX. SPLICE 12 STRAND FIBER SO 2 STRANDS ARE PULLED TO TICKET BOOTH AND 10 STRANDS ARE PULLED TO TRANSPORTATION FACILITY.
10. PROVIDE POWER TO GUARD SHACK FROM PANEL 'RP1'. RECONNECT TO EXISTING DEVICES MAINTAINED IN DEMOLITION.

SITE UTILITIES LEGEND

| | |
|---|---|
| OHE | NEW OVERHEAD ELECTRIC |
| UGE | NEW UNDERGROUND ELECTRIC |
| UF | NEW UNDERGROUND FIBER |
| EUF | EXISTING UNDERGROUND FIBER |

1 ELECTRICAL SITE PLAN - NEW WORK
1" = 60'-0"

City

Collaborator

FSG Facility Solutions Group

901 Horan Drive, Suite 200
Fenton, Mo. 63026

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# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

Drawn By: Author
Checked By: Checker

Sheet Title

ELECTRICAL SITE PLAN - NEW WORK

Sheet No.

ES102

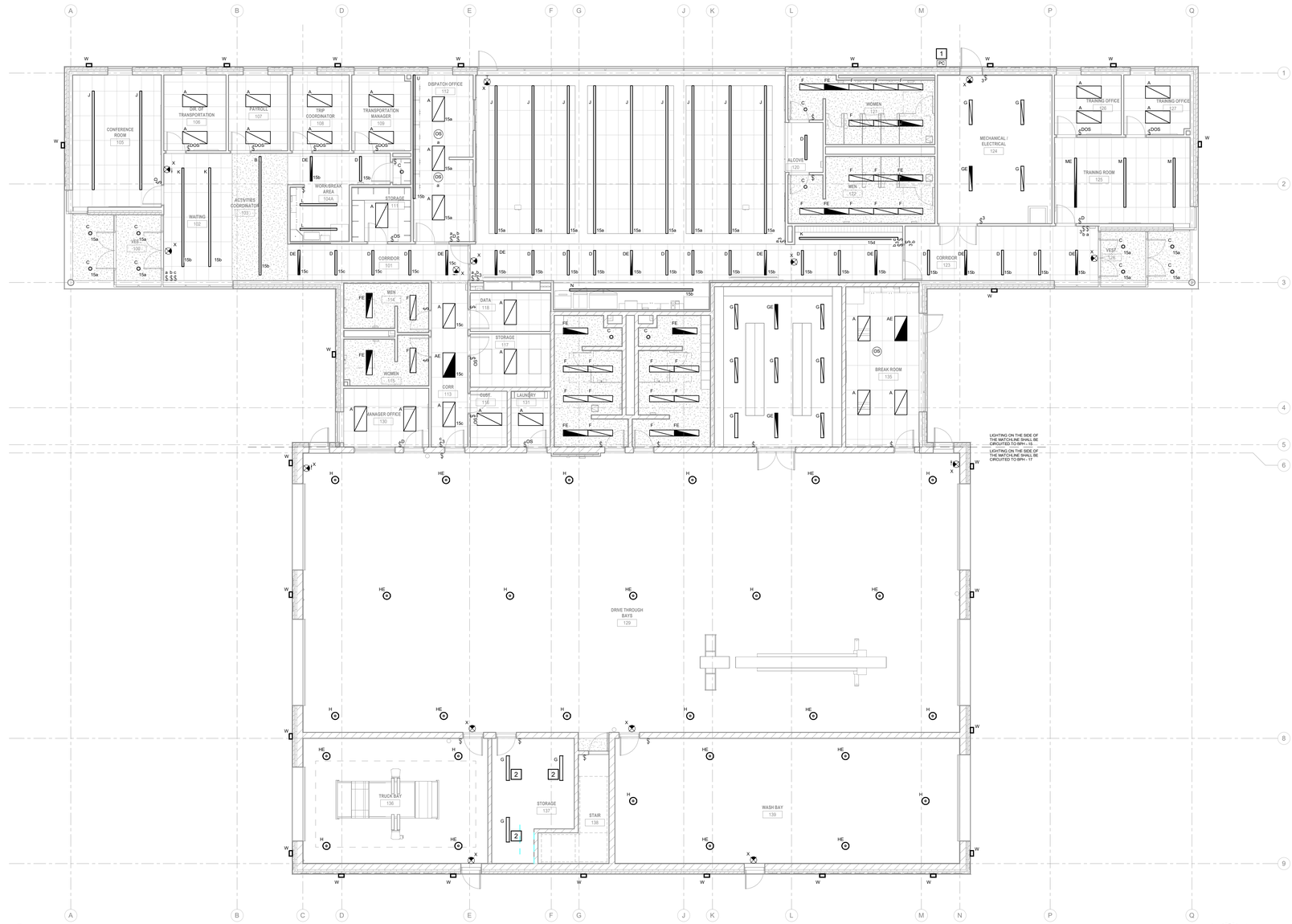
## GENERAL NOTES:

1. PROVIDE NECESSARY ACCESSORIES REQUIRED FOR THE SUPPORT OR MOUNTING OF FIXTURES. WHERE NECESSARY, PROVIDE BRIDGING BETWEEN STRUCTURAL MEMBERS. NO FIXTURES SHALL BE SUPPORTED DIRECTLY FROM THE CEILING TILES OR FROM DUCT WORK, PIPING OR WORK OF OTHER TRADES.
2. EMERGENCY LIGHTING SHALL BE SWITCHED AND NOT BE USED AS A NIGHT LIGHT. CONNECT EMERGENCY BALLAST VOLTAGE SENSING LEADS AHEAD OF SWITCH LEG OR OTHER CONTROL DEVICE.
3. LIGHTING EQUIPMENT LISTED IN THE FIXTURE SCHEDULE SETS GENERAL REQUIREMENTS. EQUIVALENT PRODUCTS FROM COLUMBIA, COOPER, DAYBRITE, HUBBELL, LITHONIA, SIGNIFY, PRESCOLITE OR WILLIAMS MAY BE USED, AND ALL NECESSARY ACCESSORIES FOR A COMPLETE INSTALLATION MUST BE PROVIDED.
4. VERIFY CEILING CONSTRUCTION ON THE ARCHITECTURAL DRAWINGS, AS IT MAY DIFFER FROM THE DESIGN INTENT. CONFIRM THE FINAL CEILING TYPE WITH THE G.C. AND OWNER BEFORE INSTALLATION AND PROVIDE APPROPRIATE FIXTURE HARDWARE.
5. ALL LIGHTING CONTROLS FOR DIMMING SHALL BE 0-10V DIMMING, LOW VOLTAGE CONTROLS WILL NOT BE ACCEPTED.

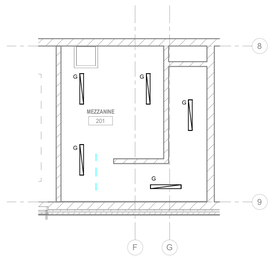
## KEYED NOTES:

1 PROVIDE PHOTOCELL ON ROOF TO CONTROL ALL 'TYPE W' WALL PACK EXTERIOR LIGHTING. LIGHTING TO TURN ON AT DUSK AND OFF AT DAWN.

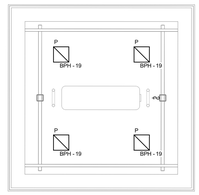
2 MOUNT LIGHTING IN THIS ROOM AT 8' A.F.F.



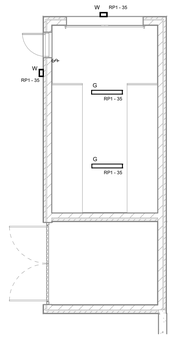

1 FIRST FLOOR PLAN - LIGHTING
1/8" = 1'-0"




2 MEZZANINE PLAN - LIGHTING
1/8" = 1'-0"




3 FUEL PUMP CANOPY - LIGHTING - ALTERNATE #2
1/8" = 1'-0"




4 TIRE STORAGE PLAN - LIGHTING
1/8" = 1'-0"

City

Collaborator

FSG Facility Solutions Group

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09/01/2026

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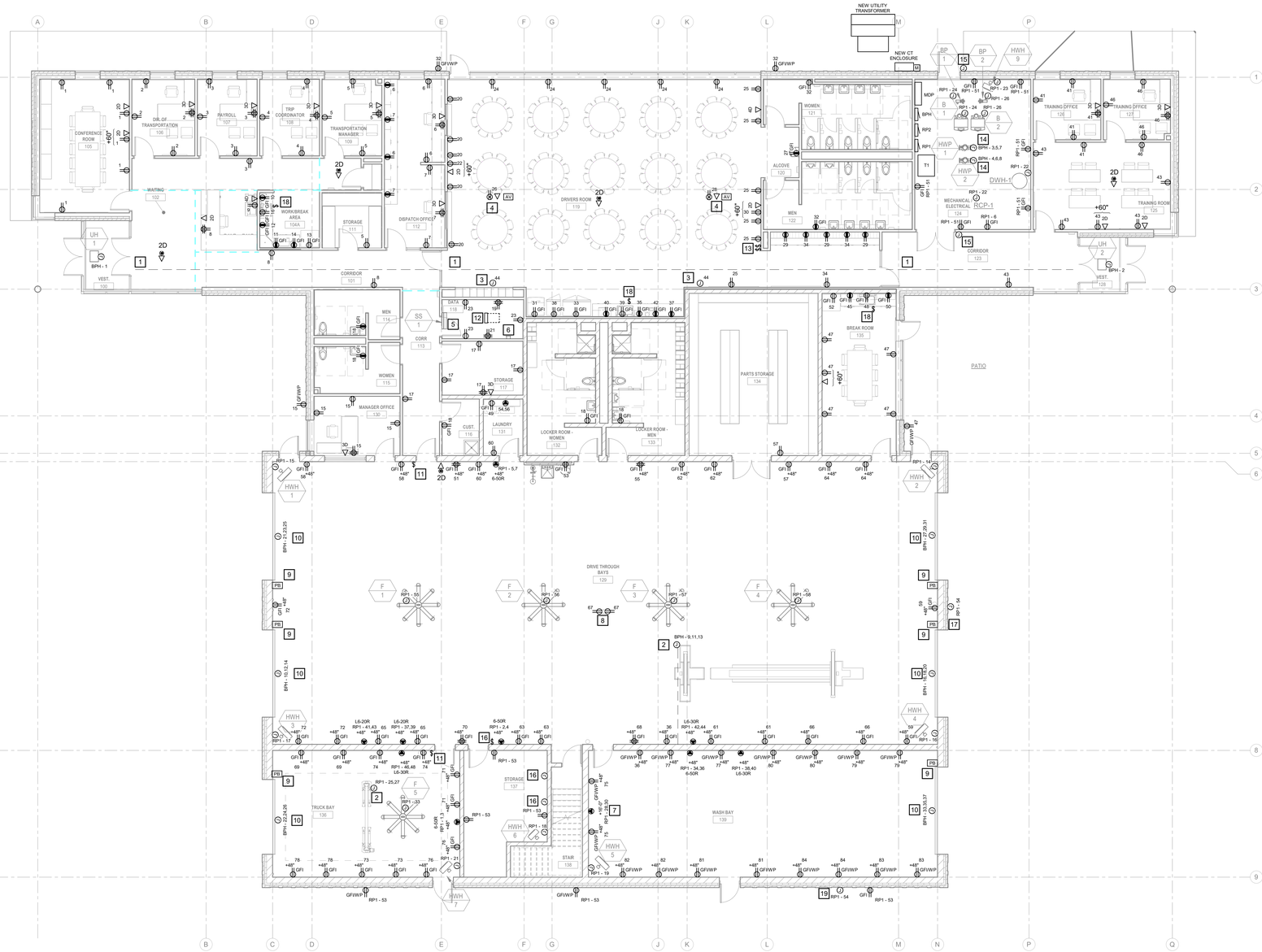
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Sheet Title

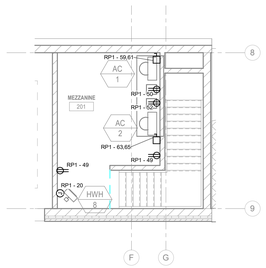
FLOOR PLANS - LIGHTING

Sheet No.

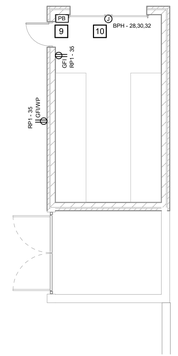
E101




1 FIRST FLOOR PLAN - POWER & DATA
1/8" = 1'-0"




2 MEZZANINE PLAN - POWER & DATA
1/8" = 1'-0"



3 TIRE STORAGE PLAN - POWER & DATA
1/8" = 1'-0"

## GENERAL NOTES:

1. ALL DISCONNECTS REQUIRED SHALL BE PROVIDED BY THE EC UNLESS NOTED OTHERWISE. SEE MECHANICAL & PLUMBING EQUIPMENT SCHEDULE(S) FOR EQUIPMENT DETAILS AND FOR DISCONNECTS FURNISHED BY OTHERS. REFER TO MANUFACTURER'S SPECIFICATIONS FOR MECHANICAL & PLUMBING EQUIPMENT CONNECTION DETAILS. COORDINATE WITH APPLICABLE TRADES.
2. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS, SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122, SEE SPECIFICATIONS.
3. ALL EXTERIOR ELECTRICAL EQUIPMENT AND DISCONNECT SWITCHES SHALL BE IN RATED NEMA 3R OR 4X ENCLOSURES. FINAL CONDUIT CONNECTIONS TO EXTERIOR MECHANICAL EQUIPMENT SHALL BE MADE WITH LFMC.
4. ALL NEW ELECTRICAL DEVICES SHALL BE GRAY WITH STAINLESS STEEL COVER PLATES. PROVIDE LABELING ON RECEPTACLE INDICATING PANEL AND CIRCUIT DESIGNATION.
5. ALL LOW VOLTAGE WALL PLATES SHALL BE STAINLESS STEEL WITH APPLICABLE COLOR CODED JACK PER OWNERS SPECIFICATIONS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DATA TERMINATIONS AT PATCH PANEL. PROVIDE ANY ADDITIONAL PATCH PANELS AS NECESSARY. LABEL ALL DATA OUTLETS AND TERMINATIONS AT PATCH PANEL FOR OWNER TO CONNECT TO SWITCH. ALL NEW DATA OUTLETS SHALL BE WIRED BACK TO DATA 118. ALL NEW CABLING SHALL BE CAT6. COORDINATE LABELING AND PATCH PANEL LAYOUT WITH OWNER PRIOR TO INSTALL.
7. WIRELESS ACCESS POINT (WAP) EQUIPMENT AND CAMERAS ARE OWNER FURNISHED, OWNER INSTALLED. CONTRACTOR TO PROVIDE (2) CAT 6 CABLE TO EACH WAP LOCATION INDICATED.
8. CIRCUIT DESIGNATIONS SHOWN ARE HOMERUNNED TO PANEL 'RP2' U.N.O.

## KEYED NOTES:

1. PROVIDE PULL STRING ALONG WITH DATA CABLE RUNS ABOVE CEILING FOR FUTURE USE BY OWNER.
2. PROVIDE POWER TO BUS LIFT. PROVIDE WIRING FROM BUS LIFT TO CONTROL PANEL ON WALL. COORDINATE CONNECTION REQUIREMENTS WITH EQUIPMENT ORDERED.
3. PROVIDE POWER TO MOTORIZED PROJECTOR SCREEN.
4. PROVIDE DUPLEX RECEPTACLE, DATA OUTLET, AND HDMI PORT IN CEILING FOR CONNECTION TO PROJECTOR.
5. INDOOR SPLIT SYSTEM TO BE POWERED FROM THE OUTDOOR UNIT. ELECTRICAL CONTRACTOR TO PROVIDE ALL REQUIRED INTERCONNECTING WIRING. ROUTE WIRING THROUGH PIPE PENETRATION BOX PROVIDED BY M.C. PROVIDE SEPARATE DISCONNECTING MEANS FOR OUTDOOR AND INDOOR UNIT.
6. FURNISH AND INSTALL A COPPER TELECOMMUNICATIONS GROUND BAR (TGB) AT 6'-0" A.F.F. PROVIDE SEPARATE 1" PVC SLEEVE FOR BONDING CABLE. BOND ALL RACKS, CONDUIT, TRAY, LADDER, SHIELDS, EQUIPMENT, ETC. IN THIS ROOM TO TGB WITH A MINIMUM #2 GREEN INSULATED CONDUCTOR.
7. COORDINATE EXACT LOCATION AND HEIGHT OF RECEPTACLE WITH WASHING EQUIPMENT. COORDINATE CONNECTION REQUIREMENTS WITH WASH BAY EQUIPMENT.
8. PROVIDE CONDUIT DOWN COLUMN FACE TO RECEPTACLES MOUNTED ON COLUMN. COORDINATE EXACT ROUTING AND LOCATIONS WITH AIR LINES AND OTHER DISCIPLINES.
9. OVERHEAD DOOR CONTROLLER - PROVIDE 1" CONDUIT TO OVERHEAD DOOR MOTOR.
10. POWER CONNECTION TO MOTORIZED OVERHEAD DOOR. EXTEND CONDUIT AND CONTROL WIRING FROM MOTOR TO CONTROLLER. COORDINATE FUSE SIZE WITH MANUFACTURER. COORDINATE EXACT LOCATION WITH OVERHEAD DOOR INSTALLER PRIOR TO ROUGH-IN.
11. PROVIDE POWER AND WIRING FOR FAN SWITCH AND CONTROLS. COORDINATE WITH M.C. FOR FAN REQUIREMENTS. COORDINATE WIRING WITH FIRE ALARM SIGNAL SHUTDOWN.
12. PROVIDE DATA RACK AS SPECIFIED ON DETAIL #10/E003.
13. PROVIDE SWITCH FOR OVERHEAD PROJECTOR CONTROL. CONTROL SWITCH TO BE IN SAME GANGBOX AS LIGHT SWITCH.
14. RECEIVE AND INSTALL VFD'S FOR MECHANICAL EQUIPMENT FROM ACES. PROVIDE UNISTRUT SUPPORT NEXT TO EQUIPMENT TO MOUNT VFD ON.
15. COORDINATE WITH MC TO PROVIDE BOILER SHUTDOWN BUTTONS. PROVIDE ROUGH-IN AND WIRING.
16. PROVIDE POWER TO OIL PUMP SYSTEM WITH ON/OFF SWITCH OUTSIDE THE STORAGE ROOM DOOR. COORDINATE EXACT LOCATION AND ROUGH-IN REQUIREMENTS WITH OWNER PROVIDED EQUIPMENT.
17. PROVIDE 120V CIRCUIT FOR OIL LEVEL MONITORING SYSTEM. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH EQUIPMENT.
18. PROVIDE SWITCH BEHIND SINK ABOVE BACKSPLASH TO CONTROL RECEPTACLE FOR GARBAGE DISPOSAL UNDER SINK.
19. PROVIDE 120V CIRCUIT FOR OIL WASTE TANK MONITORING SYSTEM. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH EQUIPMENT.

City

Collaborator

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-07-26

PE MO License No: 2017031307
Project No.: 257EX18.400

# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

Revisions

| Date | # | Description |
|---|---|---|

Sheet Revision

Issue

100% CONSTRUCTION DOCUMENTS
09/01/2026

Team

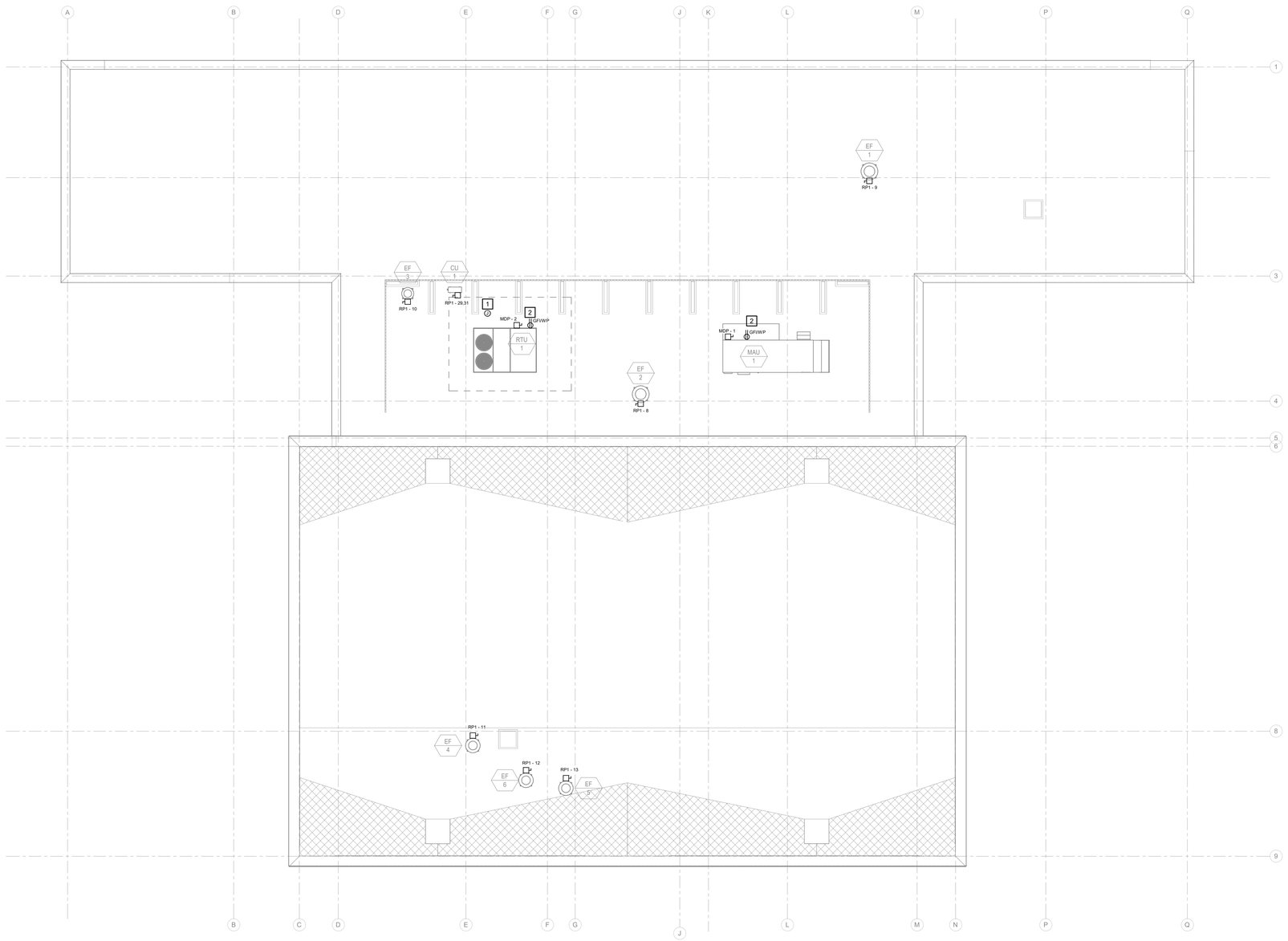
Drawn By: JLC
Checked By: BWB

Sheet Title

FLOOR PLANS - POWER & DATA

Sheet No.

E201




1 ROOF PLAN - POWER & DATA
1/8" = 1'-0"

## GENERAL NOTES:

1. ALL DISCONNECTS REQUIRED SHALL BE PROVIDED BY THE EC UNLESS NOTED OTHERWISE. SEE MECHANICAL & PLUMBING EQUIPMENT SCHEDULE(S) FOR EQUIPMENT DETAILS AND FOR DISCONNECTS FURNISHED BY OTHERS. REFER TO MANUFACTURER'S SPECIFICATIONS FOR MECHANICAL & PLUMBING EQUIPMENT CONNECTION DETAILS. COORDINATE WITH APPLICABLE TRADES.
2. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDERS, SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122, SEE SPECIFICATIONS.
3. ALL EXTERIOR ELECTRICAL EQUIPMENT AND DISCONNECT SWITCHES SHALL BE IN RATED NEMA 3R OR 4X ENCLOSURES. FINAL CONDUIT CONNECTIONS TO EXTERIOR MECHANICAL EQUIPMENT SHALL BE MADE WITH LFMC.
4. ALL NEW ELECTRICAL DEVICES SHALL BE GRAY WITH STAINLESS STEEL COVER PLATES. PROVIDE LABELING ON RECEPTACLE INDICATING PANEL AND CIRCUIT DESIGNATION.
5. ALL LOW VOLTAGE WALL PLATES SHALL BE STAINLESS STEEL WITH APPLICABLE COLOR CODED JACK PER OWNERS SPECIFICATIONS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DATA TERMINATIONS AT PATCH PANEL. PROVIDE ANY ADDITIONAL PATCH PANELS AS NECESSARY. LABEL ALL DATA OUTLETS AND TERMINATIONS AT PATCH PANEL FOR OWNER TO CONNECT TO SWITCH. ALL NEW DATA OUTLETS SHALL BE WIRED BACK TO DATA 118. ALL NEW CABLING SHALL BE CAT6. COORDINATE LABELING AND PATCH PANEL LAYOUT WITH OWNER PRIOR TO INSTALL.
7. WIRELESS ACCESS POINT (WAP) EQUIPMENT AND CAMERAS ARE OWNER FURNISHED, OWNER INSTALLED. CONTRACTOR TO PROVIDE (2) CAT 6 CABLE TO EACH WAP LOCATION INDICATED.
8. CIRCUIT DESIGNATIONS SHOWN ARE HOMERUNNED TO PANEL 'RP2' U.N.O.

## KEYED NOTES:

1 PROVIDE 2" CONDUIT FROM DATA ROOM TO EXTERIOR PULL BOX FOR FUTURE BUS RADIO ANTENNA FURNISHED AND INSTALLED BY OWNER.

2 FACTORY INSTALLED DISCONNECT AND GFCI. SHOWN FOR REFERENCE ONLY.

City

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Seal

STATE OF MISSOURI
BRETT W. BEELMAN
NUMBER PE-2017031307
PROFESSIONAL ENGINEER
09-01-26

PE MO License No: 2017031307
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# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

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Team
Drawn By: JLC
Checked By: BWB

Sheet Title
ROOF PLAN - POWER & DATA

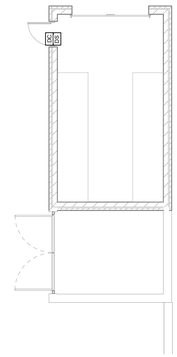
Sheet No.
E202




1 FIRST FLOOR PLAN - FIRE ALARM & SECURITY
1/8" = 1'-0"




2 ROOF PLAN - FIRE ALARM
1/8" = 1'-0"



3 TIRE STORAGE PLAN - FIRE ALARM & SECURITY
1/8" = 1'-0"

## GENERAL NOTES:

1. PROVIDE AND INSTALL HORN/STROBE DEVICES AS INDICATED. PROVIDE ALL ACCESSORIES, ADAPTERS, MODULES, ETC. AS NEEDED.
2. PROVIDE THE NECESSARY QUANTITIES OF POWER SUPPLIES AND CIRCUITS AS NEEDED. PROVIDE DEDICATED 120V, 20A BRANCH CIRCUIT FOR THE POWER SUPPLIES. BRANCH CIRCUIT SHALL BE LABELED AS "FIRE ALARM".
3. ALL FIRE ALARM DEVICES IN CEILING SHALL BE WHITE. ALL WALL MOUNTED DEVICES SHALL BE MOUNTED AT 96" UNLESS THIS IS WITHIN 6" OF THE FINISHED CEILING, IN WHICH THE DEVICE SHALL BE INSTALLED WITH THE TOP OF THE DEVICE 6" FROM THE FINISHED CEILING.
4. THE DRAWINGS AND FIRE ALARM SYSTEM SPECIFICATIONS OUTLINE THE DESIGN-BUILD PERFORMANCE SPECIFICATIONS AND ESTABLISH THE OWNER AND ENGINEER'S MINIMUM REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING FULLY ENGINEERED, SIGNED, AND SEALED FIRE ALARM DOCUMENTS, INCLUDING DEVICE LAYOUT, EQUIPMENT DETAILS, CUTSHEETS, BATTERY AND VOLTAGE DROP CALCULATIONS, WIRING DIAGRAMS, AND ANY ADDITIONAL REQUIREMENTS FROM THE AUTHORITY HAVING JURISDICTION. ALL DOCUMENTS MUST BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT'S STATE. FSG WILL NOT SIGN OR SEAL ANY FIRE ALARM DOCUMENTS. IF ANY DISCREPANCIES ARE FOUND IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MUST NOTIFY THE ENGINEER BEFORE SUBMITTING A BID.
5. PROVIDE 120V POWER AND LOW VOLTAGE ROUGH-IN'S FOR DOOR ACCESS CONTROL AND SECURITY DEVICES AS REQUIRED. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO PROVIDE AND INSTALL A COMPLETE AND FULLY FUNCTIONING DOOR SECURITY SYSTEM. ALL CONDUIT, JUNCTION BOXES, WIRING, POWER SUPPLIES, DATA CABLING, DOOR CONTACTS, POWER SUPPLIES, MAG LOCKS, ETC. TO BE INSTALLED BY ELECTRICAL CONTRACTOR. CARD READERS TO BE ROUGH-IN ONLY AND INSTALLED BY OWNER. RUN ALL DATA CABLE WITH 15' OF SPARE CABLE COILED UP IN CEILING. COORDINATE ALL WORK AND CONNECTION REQUIREMENTS WITH DOOR HARDWARE SUPPLIER AND DOOR HARDWARE SPECIFICATIONS. ALL CONTROLLED DOORS SHALL FAIL SAFE IN THE EVENT OF A FIRE ALARM AND/OR LOSS OF POWER.
6. PROVIDE (1) CAT 6 CABLE TO ALL DOOR INTERCOM DEVICES INDICATED. PROVIDE 2 CONDUCTOR WIRE FROM INTERCOM DEVICE TO DOOR CONTROLLER FOR DOOR LOCK CONTROLS. DOOR INTERCOM DEVICES TO BE OWNER FURNISHED AND INSTALLED.
7. CONTRACTOR TO PROVIDE (1) CAT 6 CABLE TO EACH CAMERA LOCATION INDICATED. CAMERAS TO BE MOUNTED AT 10' A.F.F. TO TOP OF DEVICE TO MATCH WALL PACK LIGHTS AND BRICK LINE.

## KEYED NOTES:

1. BUILDING FIRE ALARM CONTROL PANEL. RUN (2) #12 FEEDERS AND (1) #12 GROUND FROM A JUNCTION BOX AT PANEL LOCATION TO A DEDICATED 20A/1P CIRCUIT BREAKER IN PANEL RP1. THE FIRE ALARM CONTROL PANEL DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL BE ACCESSIBLE ONLY BY AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT". THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
2. PROVIDE DUCT DETECTORS FOR ROOFTOP MECHANICAL EQUIPMENT. COORDINATE WITH MC FOR EXACT LOCATIONS AND CONNECTION.
3. ADA DOOR OPERATORS TO BE DUAL ACTION TO OPEN (1) DOOR ON BOTH SETS OF DOORS AT ENTRIES. ADA OPERATORS INDICATED ON GLASS STOREFRONT SHALL BE NARROW STYLE AS TO MOUNT ON STOREFRONT FRAME.
4. COORDINATE WITH FIRE PROTECTION CONTRACTOR TO MONITOR TAMPER SWITCH AT NEW POST INDICATOR VALVE (PIV). MONITOR WITH FIRE ALARM SYSTEM WITH FIRE ALARM SYSTEM MONITOR MODULE. INITIATION OF ALARM SIGNAL SHALL OCCUR WITHIN 90 SECONDS OF TAMPER SWITCH ACTIVATION.
5. COORDINATE WITH THE FIRE PROTECTION CONTRACTOR TO MONITOR THE SPRINKLER SYSTEM WATER FLOW, AIR PRESSURE, PRESSURE SWITCH, AND TAMPER SWITCH DEVICES. PROVIDE A DEDICATED FIRE ALARM MONITOR MODULE FOR EACH MONITORED DEVICE. INITIATION OF THE WATER FLOW ALARM SIGNAL SHALL OCCUR WITHIN 90 SECONDS OF WATER FLOW AT THE ALARM-INITIATING DEVICE WHEN THE FLOW IS EQUAL TO OR GREATER THAN THAT PRODUCED BY A SINGLE SPRINKLER HAVING THE SMALLEST ORIFICE SIZE INSTALLED IN THE SYSTEM.
6. PROVIDE FIRE ALARM SIGNAL FOR HVLS FAN SHUTDOWN. ALL HVLS FANS MUST SHUT DOWN IMMEDIATELY UPON RECEIVING A WATER FLOW SIGNAL FROM THE ALARM SYSTEM.
7. PROVIDE EXTERIOR FIRE ALARM HORN/STROBE DEVICE AT FIRE DEPARTMENT CONNECTION. COORDINATE EXACT LOCATIONS WITH FIRE ALARM CONNECTION INSTALLATION. MOUNT FIRE ALARM DEVICE AT 10' A.F.F. TO TOP OF DEVICE.
8. KNOX BOX LOCATION SHOWN FOR REFERENCE. COORDINATE WITH ARCHITECTUAL DETAILS FOR EXACT LOCATION.

City

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Seal

STATE OF MISSOURI
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# MEHLVILLE SCHOOL DISTRICT BUS TRANSPORTATION FACILITY

3100 LEMAY FERRY RD, ST. LOUIS, MO 63125

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Sheet Revision

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Sheet Title
FLOOR PLANS - FIRE ALARM & SECURITY

Sheet No.
E301