CONSTRUCTION DRAWINGS FOR
UNIT WELL 12 RECONSTRUCTION
FOR MADISON WATER UTILITY

MADISON, WISCONSIN

PUBLIC WORKS CONTRACT #9740
PROJECT #10452





PROJECT LOCATION
801 S. WHITNEY WAY
MADISON, WI 53711

Madison Water Utility

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SEH

Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD

Project Status	**Issue Date**
BIDDING	2/12/2026

WISCONSIN
ISAAC C. STEINMEYER
E-46556-6
ELK MOUND
WIS
PROFESSIONAL ENGINEER

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

TITLE SHEET

G001

GENERAL

G001	TITLE SHEET
G002	SHEET INDEX
S001	GENERAL STRUCTURAL ABBREVIATIONS, SYMBOLS AND TABLES
S002	GENERAL STRUCTURAL NOTES
A001	GENERAL INFORMATION AND ABBREVIATIONS
P001	GENERAL PROCESS INFORMATION
P002	HYDRAULIC PROFILE, FLOW SCHEMATIC AND BASIS OF DESIGN
M001	MECHANICAL SYMBOLS AND ABBREVIATIONS
E001	SYMBOLS, ABBREVIATIONS AND NOTES

CIVIL

C101	REMOVALS PLAN
C102	SITE PLAN
C103	GRADING & EROSION CONTROL PLAN
C104	UTILITY PLAN
C105	FIRE ACCESS PLAN
C106	BIOBED DETAILS
CD101	EROSION CONTROL DETAILS
CD102	EROSION CONTROL DETAILS
CD103	EROSION CONTROL DETAILS
CD104	UTILITY DETAILS
CD105	UTILITY DETAILS
CD106	UTILITY DETAILS
CD107	UTILITY & MISCELLANEOUS DETAILS
L101	LANDSCAPE PLAN
L102	LANDSCAPE DETAILS

01 WELLHOUSE

01 S101	FOUNDATION PLAN
01 S102	FLOOR PLAN
01 S103	ROOF FRAMING PLAN
01 S201	REINFORCING ELEVATIONS
01 S301	BUILDING SECTIONS
01 S501	CONCRETE DETAILS
01 S502	PRECAST AND MASONRY DETAILS
01 S503	STRUCTURAL DETAILS
01 A002	BUILDING DEMOLITION REFERENCE DRAWING
01 A003	BUILDING DEMOLITION REFERENCE DRAWING
01 A004	CODE PLAN
01 A101	FLOOR PLAN
01 A102	CLERESTORY PLAN
01 A103	ROOF PLAN
01 A201	EXTERIOR ELEVATIONS
01 A301	BUILDING SECTIONS
01 A302	WALL SECTIONS
01 A303	WALL SECTIONS
01 A501	DETAILS
01 A502	DETAILS
01 A601	SCHEDULES AND DETAILS
01 P070	EXISTING WELLHOUSE REMOVALS
01 P101	WELLHOUSE FLOOR PLAN
01 P301	WELLHOUSE SECTIONS
01 P302	WELLHOUSE SECTIONS
01 P501	WELLHOUSE PROCESS DETAILS
01 P502	WELLHOUSE PROCESS DETAILS
01 P503	WELL NO. 12 PROFILE & ASSEMBLY DETAILS
01 M101	HVAC PLAN
01 M102	DOMESTIC WATER AND GAS PLAN
01 M103	SANITARY WASTE AND VENT PLAN
01 M104	MECHANICAL ROOF PLAN
01 M105	FIRE PROTECTION PLAN
01 M201	RISER DIAGRAMS
01 M202	RISER DIAGRAMS
01 M301	MECHANICAL SCHEDULES
01 M302	PLUMBING SCHEDULES
01 M303	MECHANICAL DETAILS
01 M304	MECHANICAL DETAILS
01 E071	ELECTRICAL REMOVAL PLAN
01 E101	ELECTRICAL SITE PLAN
01 E201	LIGHTING PLAN
01 E301	POWER AND INSTRUMENTATION PLAN
01 E401	SYSTEMS PLAN
01 E501	ONE-LINE DIAGRAM
01 E502	ONE-LINE DIAGRAM
01 E503	NETWORK DIAGRAM
01 E601	ELECTRICAL SCHEMATICS
01 E602	ELECTRICAL SCHEMATICS
01 E701	SCHEDULES
01 E801	ELECTRICAL DETAILS

02 RESERVOIR

02 P101	WATER STORAGE TANK PLAN & SECTION
02 P301	WATER STORAGE TANK SECTION
02 P302	WATER STORAGE TANK ELEVATIONS & SECTIONS
02 P501	WATER STORAGE TANK STRUCTURAL DETAILS
02 P502	WATER STORAGE TANK INLET, OUTLET, & MIXING SYSTEM DETAILS
02 P503	WATER STORAGE TANK ACCESSORY DETAILS
02 P504	WATER STORAGE TANK ACCESSORY DETAILS
02 P505	WATER STORAGE TANK ACCESSORY DETAILS
02 P506	WATER STORAGE TANK ACCESSORY DETAILS

SHEET NUMBERING LEGEND

SHEET 01 P101

STRUCTURE IDENTIFIER OR SHEET TYPE

G	GENERAL INFORMATION
C	SITE WORK
D	DETAILS

SERIES DRAWING NUMBER

000	GENERAL
100	PLAN VIEWS
200	ELEVATION VIEWS
300	SECTION VIEWS
400	LARGE SCALE VIEWS
500	DETAILS
600	SCHEDULES
900	3D VIEWS

DISCIPLINE

G	GENERAL
C	CIVIL
S	STRUCTURAL
A	ARCHITECTURAL
P	PROCESS
M	MECHANICAL
E	ELECTRICAL
IC	INSTRUMENTATION / CONTROLS

SEH

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SHEET INDEX

G002

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ABBREVIATIONS

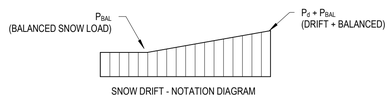
&	AND
L	ANGLE
@	AT
℄	CENTERLINE
ø	DIAMETER/ROUND
(E)	EXISTING
#	POUND/NUMBER
+/-	PLUS OR MINUS
SQ	SQUARE
AB	ANCHOR BOLT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
ADJA	ADJACENT
AGGR	AGGREGATE
ALUM	ALUMINUM
ALT	ALTER OR ALTERNATE
ANCH	ANCHOR
ANG	ANGLE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT (PAVING)
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN
C	CHANNEL
CANT	CANTILEVER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLR	CLEAR
CM	CENTIMETER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CRM	CONCRETE RUBBLE MASONRY
CTR	CENTER
d	PENNY (NAILS)
D	DEEP/DEPTH
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DWL	DOWEL
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
ENCL	ENCLOSURE
EQ	EQUAL
EQPT	EQUIPMENT
EW	EACH WAY
EXP	EXPANSION
EXIST	EXISTING
EXT	EXTERIOR
EXTN	EXTENSION
FD	FLOOR DRAIN
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FH	FLAT HEAD
FL	FLOOR
FR	FRAME
FRP	FIBERGLASS REINFORCED POLYESTER/PLASTIC
FS	FOOTING STEP
FT	FOOT/FEET
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GB	GRADE BEAM
GEN	GENERATOR
GP	GUSSET PLATE
GR	GRADE
H	HEIGHT/HIGH
HC	HOLLOW CORE
HD	HEAD
HORIZ	HORIZONTAL
HR	HOUR
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SHAPE
ID	INSIDE DIAMETER (DIMENSION)
IN	INCH
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
ISF	INSIDE FACE
JBE	JOIST BEARING ELEVATION
JGBE	JOIST GIRDER BEARING ELEVATION
JST	JOIST
JT	JOINT
K	KIPS
KG	KILOGRAM
KM	KILOMETER
KO	KNOCK-OUT
KW	KILOWATT
L	LENGTH/LONG
LB	POUND
LF	LINEAL FOOT
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LTL	LINTEL
LVR	LOUVER
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MFG	MANUFACTURING
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
MTL	METAL
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NO SCALE
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER (DIMENSION)
OPNG	OPENING
OPP	OPPOSITE
OSF	OUTSIDE FACE
OVHD	OVERHEAD
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE
PLYWD	PLYWOOD
PNL	PANEL
PREFAB	PREFABRICATED
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
QT	QUARRY TILE
R	RISER
RAD	RADIUS
REF	REFERENCE/REFER
REINF	REINFORCED/REINFORCING
REQ	REQUIRED
REV	REVISED/REVISION
RH	ROUND HEAD
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	SOUTH
SCHED	SCHEDULE
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SLNT	SEALANT
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SM	SQUARE METER
SOG	SLAB ON GRADE
SP	SPACED
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUC	STRUCTURE/STRUCTURAL
SUSP	SUSPEND/SUSPENDED
SYM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
TBE	TOP OF BEAM ELEVATION
TD	TRENCH DRAIN
TFE	TOP OF FOOTING ELEVATION
THK	THICK/THICKNESS
THR	THRESHOLD
THRD	THREADED
TOS	TOP OF STEEL
TPE	TOP OF PIER ELEVATION
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAR	VARIES
VEF	VERTICAL EACH FACE
VERT	VERTICAL
VIF	VERTICAL INSIDE FACE OR VERIFY IN FIELD
VLE	VENEER LEDGE ELEVATION
VLS	VENEER LEDGE STEP
VOF	VERTICAL OUTSIDE FACE
VOL	VOLUME
W	WEST/WIDTH/WIDE
W	WIDE FLANGE (STEEL)
WF	WIDE FLANGE (ALUMINUM)
W/	WITH
W/O	WITHOUT
WP	WATERPROOF / WORKING POINT
WPM	WATERPROOF MEMBRANE
WS	WATER STOP / WALL STEP
WR	WATER RESISTANT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

MATERIAL SYMBOLS

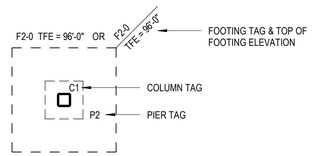
- GRANULAR FILL
- SOIL / EARTH
- BASE COURSE, SUB-BASE, GRAVEL, CRUSHED ROCK
- CONCRETE
- BRICK MASONRY
- CUT STONE, SAND, MORTAR, PLASTER
- GROUT
- CLSM
- CONCRETE MASONRY UNITS
- STEEL
- ALUMINUM (OMIT IN THIN MATERIAL)
- INSULATION BOARD
- RIGID INSULATION
- WOOD FRAMING THROUGH MEMBER
- WOOD FRAMING / BLOCKING INTERRUPTED MEMBER
- PLYWOOD
- GYPSUM BOARD
- PARTICLE BOARD

ANNOTATION SYMBOLS

- BEAM CONTINUOUS OVER COLUMN
- BEAM SPLICE
- MOMENT CONNECTION
- LEVEL NAME / ELEV — LEVEL / ELEVATION REFERENCE
- GRID — GRID REFERENCE
- SPAN DIRECTION
- RFI # — REVISION CLOUD & TAG
- WOOD WALL SHEARWALL WITH HOLD-DOWN LOCATIONS
- 2 — MASONRY REINFORCING DESIGNATION - SEE MASONRY REINFORCING SCHEDULE
- 1 — PLAN KEYNOTE
- ##.## — KEYNOTE TAG
- EXISTING CONSTRUCTION TO BE DEMOLISHED
- EXISTING CONSTRUCTION TO REMAIN
- NEW CONCRETE CONSTRUCTION
- CONCRETE MASONRY WALL
- PIPE PENETRATION - SEE PROCESS FOR SIZE AND LOCATION. SEE OPENING REINFORCEMENT DETAIL.
- ALL DIMENSIONS ARE TO FACE OF FOUNDATION UNLESS NOTED OTHERWISE
- LOCATION OF RE-ENTRANT CORNER BAR
- CJ — LOCATION OF CONTROL / CONTRACTION JOINT IN CONCRETE SURFACE
- X KLF — UNFACTORED WIND SHEAR LOAD



SNOW DRIFT - NOTATION DIAGRAM



STRUCTURAL TABLES

CLASS B REINFORCING BAR LAP SPLICE TABLE
(note d, e, & f)

	f'_c = 3000 psi (note c)		f'_c = 4000 psi		f'_c = 6000 psi		
BAR SIZE	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	VERTICAL (note a)	HORIZONTAL (note b)	STD 90° HOOK
#3	21"	28"	19"	24"	15"	20"	6"
#4	29"	37"	25"	32"	20"	26"	8"
#5	36"	46"	31"	40"	25"	33"	10"
#6	43"	56"	37"	48"	30"	39"	12"
#7	62"	81"	54"	70"	44"	57"	14"
#8	71"	93"	62"	80"	50"	66"	16"
#9	80"	104"	70"	90"	57"	74"	19"
#10	91"	118"	78"	102"	64"	83"	22"
#11	100"	131"	87"	113"	71"	92"	24"

a. Vertical bars; and horizontal or diagonal bars with less than 12" of concrete placed below them.
b. Horizontal or diagonal bars with 12" or more of concrete placed below them. (eg. wall horizontals)
c. Use f'_c = 3000 psi values for masonry rebar laps. Do not lap splice bars bigger than #8 in masonry. Break off fins in cores of 6" CMU.
d. For epoxy coated bars, multiply these values x 1.20.
e. For laps between different bar sizes, use the greater of these values based on the smaller bar, or these values based on the bigger bar divided by 1.30.
f. Hoop bar laps shall be staggered such that splices do not overlap with bars above, below, or on opposite faces.

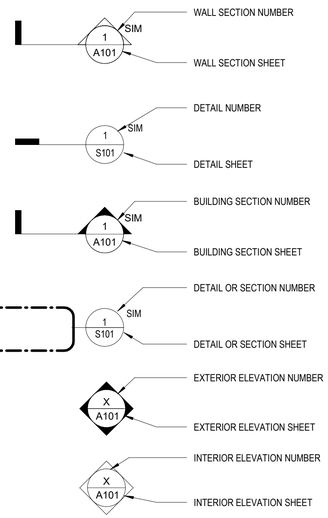
REQUIRED INSPECTIONS

DESCRIPTION OF WORK	INSPECTION YES	INSPECTION NO	TESTING YES	TESTING NO	N/A
1. METAL CONSTRUCTION					
WELDING	●			●	
DETAILS: BRACING, LOCATIONS, ETC.	●			●	
BOLTING	●			●	
2. CONCRETE CONSTRUCTION					
CONCRETE	●		●		
PRECAST/PRESTRESSED CONCRETE	●		●		
REINFORCEMENT: SIZE AND SPACING	●			●	
BOLTS INSTALLED IN CONCRETE	●		●		
3. MASONRY CONSTRUCTION					
REINFORCEMENT: SIZE AND SPACING	●			●	
PRISMS					●
DETAILS: GROUTING, LINTELS, ETC.	●			●	
4. WOOD CONSTRUCTION					●
5. GRADING, EXCAVATION, AND FILLING	●		●		
6. PILING, PIERS, AND CAISSONS					●
7. SPRAY-APPLIED FIREPROOFING					●
8. EXTERIOR INSULATION AND FINISHES					●
9. SPECIAL CASES					●

STRUCTURAL SHEET INDEX

S001	GENERAL STRUCTURAL ABBREVIATIONS, SYMBOLS AND TABLES
S002	GENERAL STRUCTURAL NOTES
S101	FOUNDATION PLAN
S102	FLOOR PLAN
S103	ROOF FRAMING PLAN
S201	REINFORCING ELEVATIONS
S301	BUILDING SECTIONS
S501	CONCRETE DETAILS
S502	PRECAST AND MASONRY DETAILS
S503	STRUCTURAL DETAILS

CALLOUT SYMBOLS



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Drawn By	ALC
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GENERAL STRUCTURAL ABBREVIATIONS, SYMBOLS AND TABLES

S001

GENERAL STRUCTURAL NOTES

1. These notes do not replace the specifications but are to be read in conjunction with them. Any discrepancies or conflicts between the two shall be brought to the attention of the Structural Engineer of Record (SER) for resolution.
2. These drawings are for the Wellhouse 12 Project in Madison, WI (SEH project number MADWU-185392) and no other use is authorized. Contact SER, Benjamin A. Wolf at SEH 507-288-6464.

GOVERNING BUILDING CODE:

2018 Wisconsin Commercial Building Code
2015 International Building Code as adopted and amended by the state building code

DESIGN CODES AND STANDARDS:

ACI Manual of Concrete Practice
ACI 318, 301 Building Code Requirements & Specifications for Structural Concrete
ACI 350 Environmental Engineering Concrete Structures
ACI 530 / TMS 402 / ASCE 5 Building Code Requirements & Specifications for Masonry Structures
AISC 360, 303 Specification for Structural Steel Buildings
CRSI Manual of Standard Practice
PCI MNL 116 PCI Manual for Quality Control
PCI MNL 120 PCI Design Handbook - Precast and Prestressed Concrete
PCI MNL 123 PCI Connections Manual

DESIGN LOADS PER ASCE 7-10

Risk category III

1. Live load:
   - Floor slabs: 150 PSF UNO
   - Elevated walkways: 100 PSF
2. Dead load:
   - Superimposed roof load: 20 PSF
3. Snow loads:
   - Ground snow load: 30 PSF
   - Importance factor: 1.10
   - Roof snow load: 23 PSF + drifting & unbalanced
   - Snow exposure factor: 1.0
   - Thermal factor: 1.0
   - Rain loads: n/a
   - See load map for drift loads
   - See plans for drift loads
4. Wind loads:
   - Wind speed (3 sec gust): 120 mph
   - Wind exposure: C
   - Mean roof height: 30 feet
   - K_d: 0.85
   - K_{zt}: 1.0
   - G: 0.85 (rigid building)
   - Structure is: Enclosed
   - Internal press coef: +/-0.18
   - Interior walls: 5 PSF lateral load

		P (psf)			
		10 ft²	50 ft²	100 ft²	500 ft²
Walls	Int. Zone 4	- 46.5	- 43.1	- 42.3	- 38.1
	End Zone 5	- 55.0	- 47.9	- 45.1	- 38.1
Roof	Int. Zone 1	- 43.7	- 42.3	- 40.9	- 40.9
	End Zone 2	- 66.3	- 52.2	- 46.5	- 46.5
	Corner Zone 3	- 94.5	- 60.6	- 46.5	- 46.5
Overhangs	Zones 1 & 2	- 63.5	- 62.0	- 60.6	- 46.5
	Zone 3	- 94.5	- 55.0	- 38.1	- 38.1

COMPONENTS AND CLADDING WIND LOADS TABLE

5. Seismic loads:
   - Site class: D
   - S_s: 0.105 g
   - S_1: 0.044 g
   - F_a: 1.6
   - F_v: 2.4
   - S_{ds}: 0.112 g
   - S_{d1}: 0.070 g
   - I_e: 1.25
   - Seismic design category: A
6. Soil criteria:
   - Allowable soil bearing pressure: 2,000 PSF (Assumed)
   - Measured groundwater elevation: N/A
   - Dewater as required to keep excavations dry
   - Frost depth: 42 inches (heated building); 60 inches (unheated structure)
   - Anticipated max differential settlement: 1/2 inch (Assumed)
   - Anticipated max total settlement: 1 inch (Assumed)
7. Precast plank loading, where not noted on drawings:
   - Applied Dead Load: 20 PSF
   - Hanging live load (Monorail): 4,000 LBS
   - Lifting Loads: Location and size as determined by precast designer

DESIGN / CONSTRUCTION CRITERIA

1. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
2. All material, workmanship, and details shall be in accordance with typical competent construction practices, current manufacturer's recommendations, and all applicable codes and government regulations.
3. Any material used in contact with drinking water shall be demonstrated to meet NSF 61.
4. The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on process, architectural, mechanical, electrical or other drawings. All conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect and engineer's attention for direction before proceeding.
5. Equipment and structural anchor rod sizes, types, embedment, and patterns shall be verified with the manufacturer or fabricator. All anchor patterns shall be templated to ensure accuracy of placement.
6. The contractor shall supply all necessary temporary bracing, shoring, guying, or other means to avoid excessive stresses and to hold structural elements in place during construction.
7. Job site safety (including excavations) is the sole responsibility of the general contractor and their subcontractors.
8. The engineer is not responsible for construction means, methods, techniques or practices. Where drawings and details imply this, they are provided to show final construction. If contractor desires to use different means and methods than implied by these drawings, submit similar details for review.
9. Standard or typical structural details are intended to illustrate design concepts and to specify material and required physical dimensions matching or similar to the referenced locations in the drawing set. Standard details apply whether or not they are cut on the drawings.

FOUNDATIONS

1. CAUTION: Existing underground utilities may exist anywhere on the site. Notify owner and Digger's hotline (800) 242-8511 (Wisconsin) prior to disturbing any grade or excavation.
2. Material Definitions and Gradations:
   a. Non-frost-susceptible fill
      - 100% passing 1" sieve
      - < 50% passing #40 sieve
      - < 6% passing #200 sieve
      - < 2% organic content
   b. Aggregate Base
      - 100% passing 1" sieve
      - 70-100% passing 3/4" sieve
      - 45-80% passing 3/8" sieve
      - 35-80% passing #4 sieve
      - 20-65% passing #10 sieve
      - 10-35% passing #40 sieve
      - 3-10% passing #200 sieve
      - < 2% organic content
      - Large aggregates through #4 have minimum 25% fractured faces or crushed (per gradation)
   c. Aggregate Filter/Base
      - 100% passing 1" sieve
      - 85-100% passing 3/4" sieve
      - 45-90% passing 3/8" sieve
      - 20-60% passing #4 sieve
      - 0-10% passing #10 sieve
      - 0-6% passing #200 sieve
      - < 2% organic content
      - Large aggregates through #4 have minimum 75% fractured faces or crushed
   d. Granular Structural Backfill
      - 100% passing 1" sieve
      - 0-65% passing #10 sieve
      - 0-65% passing #40 sieve
      - 0-10% passing #200 sieve
      - < 2% organic content
3. Structural foundations consist of wall and spread footings established on material capable of safely supporting 2,000 PSF (assumed). The structural engineer is not responsible for the accuracy or content of the subsurface soil conditions described in the specifications, test borings, or geotechnical report. A licensed geotechnical engineer shall be present during construction to test, inspect and verify all assumed soil conditions as required.
4. Basement and subgrade tank walls shall be backfilled with Granular Structural Backfill or Non-Frost Susceptible Fill (as defined above) within 2 feet of the wall.
5. Foundation walls shall be adequately braced during backfilling and compaction to prevent movement or structural damage. Bracing shall remain in place until permanent bracing is in place and until concrete achieves sufficient strength to resist imposed loads.
6. Away from walls, place fill in 8 inch loose lifts and compact to 98 percent Standard Proctor beneath foundations, 95 percent otherwise.
7. When placing compacted fill adjacent to foundation walls and piers, place backfill at equal rates on both sides to prevent overturning or structural damage.
8. Contractor shall provide for dewatering at excavations from either surface water or seepage.
9. Moisture content in soils beneath building locations should not be allowed to vary after footing excavations and after grading for slabs on grade are completed to a degree that would de-stabilize the compacted soil. If subgrade materials become desiccated or softened by water or other conditions, remove and replace with engineered fill as recommended by the geotechnical engineer. Do not place concrete on frozen ground, nor allow ground beneath foundations to freeze. All foundation work shall be placed on substrate approved and tested by geotechnical engineer of record.
10. Do not place backfill on frozen subgrade. Do not place frozen backfill.
11. Slabs on grade shall be constructed on a subgrade of native material compacted to at least 98 percent of its maximum dry density (standard proctor), and 6 inches of Aggregate Base or Aggregate Filter/Base (as defined above) below the slab compacted to 100 percent standard proctor density unless noted otherwise in geotechnical report. In wet or potentially wet situations, use Aggregate Filter/Base (as defined above).
12. Grading: where not specifically shown on the plans, it is intended that all excavated and backfilled areas shall be graded to slope away from buildings and other structures.

CONCRETE

1. An independent testing agency shall cast 4 six inch test cylinders or an equivalent number of four inch cylinders for each 75 cubic yards of each concrete mix placed or for each day's operation, whichever is the lesser amount. The testing agency shall cast, cure, and test the specimens in accordance with ASTM C31 and ASTM C39. Air, temperature, and slump shall be tested at minimum for the first truck and every third truck thereafter (1st, 4th, 7th, etc.) or when a change in properties is noticed, at the final location (test after pump, not at truck). The contractor shall be responsible for the design of form work to comply with the dimensions indicated on the plans, maintaining proper alignment during concrete pouring operations. Special care shall be taken with formwork for self-consolidating concrete.
2. All concrete except as noted in the following paragraphs shall meet the following requirements:
   - Compressive Strength: f'_c = 4,000 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.45 max (0.40 max if exposed to sulfates)
3. Concrete used in exterior flatwork and stoop slabs shall meet the following requirements:
   - Compressive Strength: f'_c = 4,500 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.45 max
   - Portland cement content: 450 pounds per cubic yard min
4. Concrete used in footings shall meet the following requirements:
   - Compressive Strength: f'_c = 3,000 PSI min at 28 days
   - Water / (cement + pozzolan) ratio: 0.48 max
5. Concrete used in CLSM (Controlled Low Strength Material) shall meet the following requirements:
   - Compressive Strength: f'_c = 50 psi min, 1,000 PSI max at 28 days
   - Where uncoated steel is embedded in CLSM, cementitious material shall be minimum 40 percent Portland cement, or supplier shall demonstrate pH greater than 7.5.
6. Concrete and grout exposed to frost (including foundation walls) shall be air entrained 6% +/- 1%.
7. Slump shall be 4 inches +/- 1 inch without water reducing admixtures. With water reducing admixtures, concrete mix design shall state design slump and field tests shall be +/- 1 inch. Slump is used primarily as a measure of concrete consistency, truck to truck. If slump is outside these ranges, water content (water:cementitious ratio) shall be checked against allowable; and concrete rejected, accepted, or adjusted on that basis.
8. Water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates may be used for improved workability.
9. Do not add water to concrete at the jobsite without written approval of the SER, and in no case in excess of the water in the approved mix design.
10. No chloride containing admixtures are allowed.
11. All concrete is normal weight unless specifically noted otherwise.
12. Cement shall be Portland cement type 1 or Portland Limestone Cement type 1L conforming to ASTM C150. Up to 30% cement can be replaced with fly ash and up to 50% with GGBFS (50% combined max.). Aggregate for normal weight concrete shall conform to ASTM C33. Water is to be potable or demonstrated to have no harmful effects on concrete. Fly ash shall be demonstrated by test to contain minimum 18 percent CAO. When fly ash is used in concrete to be air entrained, air entraining shall be adjusted as required for LOI per recent experience of ready mix supplier.
13. Measured from the time water and cement are batched together, no more than 90 minutes shall elapse until concrete is placed. This time shall be reduced by two minutes for every degree that concrete temperature exceeds 75 degrees Fahrenheit. These criteria may be relaxed by the use of set-controlling admixtures.
15. Protect concrete in accordance with ACI 305 and ACI 306 for hot weather concreting and cold weather concreting respectively. In cold weather, heat is required if outside temperature falls below 30 degrees any time during first three days. Reinforcing shall be 40 degrees or warmer at time of concrete placement. Concrete temperature shall be recorded every morning and shall be kept above 40 degrees in all locations for 7 days. Concrete shall not be exposed to combustion products (use electric heat, ducted heater or ground thaw). Keep protection in place minimum 24 hours after cessation of heating to provide gradual cool-down.
16. When air temperature is above 85 degrees, provide mist, shading, windscreens and other protection as required for 12 hours after placing.
17. Concrete being placed shall be protected from rain. If rain falls on concrete before it has set, or within 3 hours of placement in any event, contractor shall bear cost of testing to prove concrete is unaffected, and shall remove and replace affected concrete to the satisfaction of the engineer.
18. Wet cure (poly and burlap or proprietary blankets kept moist daily) for a minimum of 7 days; sides of footings may be buried after 24 hours. Add one day of cure for flyash in excess of 15 percent or GGBFS in excess of 10 percent of cementitious. Contractor is responsible for staining caused by burlap in visible areas. Spray-on curing compounds shall not be used as a substitute for wet curing without written permission of the SER except as follows. Spray-on curing compounds may be substituted for wet curing in areas of non-liquid-holding structures that are not visible in the final condition. When spray-on curing compounds are used, they should be applied in two layers perpendicular to each other and according to manufacturer's instructions.
19. Cementitious grout shall be non-shrink and non-metallic grout. Place according to manufacturer's recommendations and trim neatly where visible.
20. Coordinate with other trades for sleeves, conduit, electrical grounding wires, inserts, underground utilities, and other items to be embedded into concrete and verify that they are properly installed and supported before casting concrete. Holes through slab or wall shall leave minimum 1 inch clear to reinforcing; shift reinforcing as required. Placement of such items shall be coordinated with reinforcing placement where they would otherwise displace each other.
21. Embedments shall not significantly impair the strength of the structure and shall not reduce fire protection. In no case shall embedments violate the required concrete cover. Conduit and pipes, with their fittings, embedded in concrete shall not be larger in outside dimension than 1/3 the overall thickness of slab, wall, or beam in which they are embedded and shall not be spaced closer than three diameters on center. Conduit and pipes placed within 2 feet below bottom of slabs and footings shall not be spaced closer than three diameters on center and shall be encased in CLSM or concrete vibrated to flow around conduit.
22. No uncoated aluminum items shall be embedded in any concrete. All aluminum surfaces in direct contact with concrete shall receive one coat of 8-12 mil dry film thickness bitumastic.
23. Unless shown on drawings, concrete shall be placed without construction joints except where specifically shown on shop drawings approved by the engineer. The contractor shall submit shop drawings showing additional or alternate construction joint locations to the engineer for approval.
24. Bevel all exposed corners of concrete 3/4"x3/4".
25. Verify size and location of all equipment bases and housekeeping pads.
26. All cast-in-place concrete floors on grade shall be provided with a min. 1/8" per FT slope to floor drains unless noted otherwise. All interior slabs on grade shall be placed over 10 MIL vapor retarder meeting ASTM E1745 class A, with joints welded or lapped and sealed according to manufacturer's recommendations. Vapor retarder shall permit less than 0.01 perm after conditioning. All damage and penetrations shall be sealed according to manufacturer's recommendations.
27. All concrete to be trowel finished shall be tested for air content, whether or not it is purposely air entrained. If concrete contains more than 2 percent entrained air, delay start of finishing to preclude weakened air-rich plane just below surface.
28. Unless specifically noted otherwise, building sections may not illustrate all dowels, keyways, or waterstops required by design. All base slab or footing to wall joints shall have vertical dowels crossing the joint. All elevated slabs (including base slabs above the lowest base slab elevation) to tank or foundation walls shall have horizontal dowels crossing the joint. Slabs on grade may either be independent (with expansion joint) or doweled in; provide dowels where slabs on grade are shown to bear on walls in sections. Refer to typical details in the drawings for design intent.

JOINTS IN CONCRETE STRUCTURES

1. Because of the effects of concrete consolidation, workmanship, detailing, cure, temperature, aggregate size, and other factors; Contractor is responsible for cracking in base slabs and walls of liquid-holding structures, and shall repair any leaking cracks by sealing, injecting, or otherwise filling them. Where sealing is judged necessary by either Contractor or Engineer, Contractor shall submit material and description of sealing to be used for review by Engineer. Note that crystalline waterproofing will heal tight cracks (less than approximately 1/64") over time in warm temperatures, but wide cracks or leak tests attempted in cold temperatures will require additional measures. Any wall which is or may be subject to external groundwater is considered liquid holding.
2. Contractor is encouraged to use well-graded aggregate larger than ¾"; fiber reinforcing; shrinkage reducing admixtures; crystalline waterproofing; extended moist cure; and other means to reduce shrinkage. If used, crystalline waterproofing shall be used at the manufacturer's recommended dosage.
3. Concrete slabs on grade in non-liquid-holding structures:
   a. Contraction joint spacing in non-liquid-holding steel-reinforced slabs on grade (building floors) shall be spaced at a maximum of 24 x Thickness, but not more than 15 feet, in each direction. Contraction joint spacing in fiber-reinforced slabs on grade shall be spaced at a maximum of 30 x Thickness, but not more than 18 feet, in each direction. A slab of dimension 20 feet or less does not need to be divided by a contraction joint in that direction except as required by aspect ratio. The aspect ratio of any panel shall not exceed 1.50. Unless noted on drawings, Contractor shall submit proposed contraction joint spacing for review. Joints shall intersect columns. Where slab is reinforced with bars #4 or greater, cut or interrupt every other bar at each contraction joint. Joint depth shall be slab thickness / 4, with a minimum of 1". If sawcut, joints shall be cut as soon as it is possible to do so without raveling the concrete, but no later than 12 hours after placement.
   b. Contraction joint spacing in steel-reinforced slabs on grade (building floors) with two mats of reinforcing shall have a 1 ½" chamfer strip at bottom of slab and a sawcut or formed joint 1 ½" deep at same location, top of slab. Cut or interrupt every other bar of each mat at each contraction joint.
   c. Construction joints in building floor slabs on grade shall provide for shear transfer across the joint, using plate dowels such as Diamond dowels. Round or square dowel rods shall not be used. Reinforcing bars may be used where shown on drawings, e.g. at stoop or apron joints. Plate dowels shall be sized per manufacturer's recommendations and spaced at manufacturer's recommended spacing (18 inches max for wheeled traffic on slab, 24 inches max otherwise). If subject to de-icing salt, plate dowels shall be galvanized or epoxy coated.
4. Concrete in non-liquid-holding structures other than slabs on grade:
   a. Concrete walls in non-liquid-holding structures shall have construction or contraction joints at a maximum spacing of 60 feet.
   b. Footings carrying such walls shall have construction or contraction joints at a maximum spacing of 120 feet.
   c. Half the longitudinal reinforcing shall be interrupted at these joints unless noted otherwise.
   d. Space control joints at maximum 10'-0" on center each way for topping slabs on precast plank.

PRECAST CONCRETE

1. Prior to installation, the precast concrete manufacturer shall submit structural calculations and plans to the architect/engineer for review. The structural calculations shall contain an original Professional Engineer's seal and signature by the design engineer licensed in the state where the project is located. Where precast is used as a structural shear diaphragm, calculations shall include shear capacity data for the members in question, topped or untopped.
2. Precast concrete units shall be designed for all potential loading conditions including initial handling and erection stresses, all superimposed dead, live, and lateral loads shown on the contract drawings, and all concentrated loads from mechanical equipment and lifting points. General contractor shall verify mechanical loads with the mechanical contractor and provide to precast designer and SER before design.
3. The precast concrete manufacturer shall be responsible for the design and installation of all precast connection hardware including hangers, embed plates, anchors, clip angles, headers at openings, etc. that are cast into or form a part of the precast units. Precast manufacturer shall provide 1/8 inch thick continuous bearing strips beneath hollowcore slabs and masonry or concrete supports.
4. All roof and wall opening dimensions and locations shown on the plans shall be verified by the contractor and roof manufacturer. Wall openings not contained within a panel width shall be protected by posts or other means during transit and erection.
5. Precast wall panels shall be fully grouted at base.
6. Joints between plank shall be pulled flush and grouted. Maximum distance between edges of planks is 4 inches at any joint. Where partial width planks are required, edge of ripped plank shall be smooth and straight.
7. Where topping is called for, plank shall receive a transverse broom finish at plant and shall have keys grouted minimum 4 days before topping is placed. Immediately before placing topping, pressure-wash surface of plank and blow clean with oil-free compressed air, then rub with cement slurry as a bonding agent, working just ahead of concrete placement. Surface to be free of standing water but slurry must be wet when topping is placed. Wet cure topping (burlap/poly) for a minimum of 7 days. Topping slabs shall be reinforced with 6x6 - W2.9 x W2.9 welded wire fabric (flat sheets only) macrosynthetic fibrous reinforcement integral to the mix.
8. All horizontal joints and reveals in wall panels shall align within 1/2 inch or 1/2 of joint dimension, whichever is less, at all joints between panels.

REINFORCING STEEL

1. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. All reinforcing steel shall be detailed, fabricated, and installed in accordance with the following standards and codes:
   - ACI 315 "Details and detailing of concrete reinforcing"
   - ACI 318 "Building code requirements for reinforced concrete"
   - MSP2 "CRSI manual of standard practice"
   - AWS D1.4 "Structural welding code- reinforcing steel"
   - WRI "Welded wire fabric manual of standard practice"
2. All reinforcing steel shall conform to the requirements of ASTM A615 grade 60 steel. Reinforcing steel shall not be welded without authorization of the SER, and if welded shall be A706 grade 60 steel. Reinforcing to be welded shall only be welded to structural steel, not other reinforcing, unless specifically noted on the drawings. Welded plain wire fabric shall be supplied in sheets, not rolls, and conform to the requirements of ASTM A185.
3. Clear minimum cover of concrete over reinforcing steel shall be as follows unless specifically noted otherwise:
   - 3" Concrete placed against earth
   - 2" All other concrete
4. All reinforcing shall be tied to crossing reinforcing on at least every other bar (every bar at perimeter), and sufficiently to resist displacement from workers and placement of concrete.
5. All footing dowels shall be accurately positioned and wired in place before casting footing concrete. Where not noted, provide and install dowels of same size and spacing as vertical reinforcement in all columns and walls. Position all anchor bolts with templates.
6. Bar lap lengths in concrete and 90 degree end hooks shall be in accordance with the table on sheet S001 unless noted otherwise. This table lists class 'B' laps. For dowels called for reinforcing steel, increase lap length by 50% with c-c bar spacing < 6db and cover to center of bar <3db, otherwise increase by 20%. For masonry reinforcing, use F'_c = 3000 psi values.
7. Bars marked continuous, corner bars, and all vertical steel shall be lapped in accordance with table above at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
8. Bar support accessories shall be as specified in latest edition of the ACI detailing handbook and the concrete reinforcing steel institute design handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces shall have plastic coated ends. Chairs shall be supported on sand plates as required to keep from sinking into subgrade. WWF shall be supported by continuous bolsters or bars on chairs sufficiently close to prevent sheets from sagging appreciably during concrete placement. Support rebar used at contractor's option shall be extra bars supplied by contractor, not taken from design reinforcing.
9. Where potentially exposed to de-icing salts; stoop, apron, sidewalk and floor reinforcing shall be epoxy coated.

CONCRETE BLOCK MASONRY

1. Concrete block used in exterior walls or load bearing walls shall meet the following minimum requirements:
   - Masonry assembly: f'_m = 2,000 PSI
   - Concrete masonry units: ASTM C90-11A: 2,800 PSI
   - Mortar, ASTM C-270-10: Type S UNO
   - Grout, ASTM C-476-10: f'_g = 3,000 PSI, Slump: 8-11 inches
2. The contractor shall provide adequate temporary bracing for all masonry walls during construction.
3. Concrete block shall be laid in running bond pattern typical unless noted otherwise. No vertical (head) joint shall be continuous for more than one block height. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities which are to be reinforced or to be filled with concrete or grout.
4. Pilasters and columns shall be laid up in running bond in each direction to provide a monolithic unit.
5. All joints shall be concave tooled joints above and below grade.
6. Masonry walls shall be reinforced with hot dipped galvanized truss horizontal reinforcing (per ASTM A153) with 9 gage side and cross rods. Reinforcing shall be continuous in horizontal joints every other block course (16 inches OC) in walls, every course (8 inches OC) in parapets, with prefabricated corner and tee sections.
7. Unless noted otherwise, concrete block shall be reinforced as follows in 6", 8", 10", and 12" walls:
   - Vertical reinforcing shall be a minimum of (1) #5 bar in 6" and 8" walls and (2) #4 bars in 10" and 12" walls at 4'-0" on center.
   - Provide bar or bars of same size as wall reinforcing at each corner, at each door, window, and opening jamb, each side of control joints and in the end void of each length of wall.
   - Lap splices for masonry vertical reinforcing shall be according to the table above, for "wall top bar."
   - Stack bond CMU shall have continuous horizontal bond beams at 48" OC, reinforced with (2) #4 continuous.
   - Continuous horizontal bars shall be included per section or detail in bond beam or optional running bond beam where noted. Where not detailed, use (2) #5 continuous. Where bond beams are continuous at corners of walls, supply corner bars matching size of horizontal bars. All bond beam reinforcing shall have standard laps or hooked development reinforcing bars at wall corners and intersections.
8. Grouting and reinforcing: all masonry, grouting, and reinforcing work shall be performed by mason craft workers who have successfully completed the International Masonry Institute (1-800-IMI -0988) training course for grouting and reinforced masonry construction, or equal
9. When grouting is stopped for more than one hour, stop grout approximately 1 ½ inches below top of CMU to provide key.
10. Masonry block cells with vertical reinforcing and bond beams with horizontal reinforcing shall be grouted solid. Mortar is not an acceptable corefill. Provide a cleanout hole at the base of all grouted cells where grout lift exceeds 5'-4". Account for fly ash in grout during winter construction by protecting and heating as required to assure set and strength gain.
11. Non-load bearing concrete block walls shall be isolated from adjacent structural elements with vertical 1/2 inch control joints and at the top of the wall with minimum 1/2 inch air space or compressible material and support per details on the drawings.
12. Unless otherwise covered on architectural plans or specifications, vertical control joints in masonry construction shall be 3/8" wide, full height of wall. Joints shall be spaced at a maximum of 16'-0" on center and coordinated with the architect/engineer. Install control joints in locations as required and as directed by engineer/architect.
13. All horizontal joint reinforcing shall be discontinuous at control joints in masonry. All bond beam horizontal reinforcing shall be continuous through control joints.
14. Lintels over all openings in walls not otherwise noted, of 4'-0" span or less, shall be one L6 x 3-1/2 x 5/16 angle for each 4" of masonry (2 angles for 12" CMU); or an 8 inch deep bond beam with 2 - #5. All exterior steel lintels to be hot-dip galvanized. Bear minimum 8 inches on jambs grouted and reinforced full height.
15. Walls shall be anchored at bottom by hooked dowels matching wall vertical reinforcing (unless noted otherwise) set on footing bottom mat. Where walls rest on cast-in-place concrete foundation walls, dowels may be straight and lapped with concrete wall reinforcing below. Non-bearing walls shall be anchored at top by bracing angles per details on drawings.
16. Bond beam lintels shall be standard horse collar type (U shaped) block. Continuity bond beams may be, and upper courses of multi-course bond beams shall be, flow through block.

POST INSTALLED ANCHOR RODS AND DOWELS

1. Unless noted otherwise, anchors and reinforcing dowels installed in concrete or concrete masonry shall be as noted below. Anchors not shown or noted on the drawings, those required by the contractor solely for his means and methods, or those required by mechanical/electrical and carrying less than 100 pounds of non-safety-related items, do not require special inspection.
2. Approved manufacturers are: HILTI, ITW / Redhead, Simpson, and Powers / Rawl. Submit product data and current ICC ES report or IAPMO report showing product is compliant with project code requirements for review. Contractor shall arrange for manufacturer's rep to train all installers on the complete installation process. A letter of procedure stating method of drilling, the product for use, the complete installation procedure, manufacturer training date and a list of the personnel trained on anchor installation shall be submitted to the engineer.
3. Permanent anchors exposed to earth, weather, or corrosive environments, including all anchors in wet areas of WWTP and water treatment plant work, and anchors engaging stainless steel or aluminum members, shall be stainless steel type 304 or 316. Otherwise, anchors shall be zinc plated, minimum ASTM A36 material unless ASTM A193 grade B7 is noted in the drawings, and shall be according to ASTM F1554. Reinforcing dowels shall be of the same size (U.N.O.), material and coating (if any) as the continuing reinforcing.
4. Where expansion anchors are called for, contractor may substitute screw type anchors with self-tapping threads or adhesive anchors of the same size and embedment, subject to review of capacity by the engineer for the product substituted. Where adhesive anchors are called for, other types shall not be substituted. Screw type anchors shall not be re-used on permanent work.
5. Adhesive shall have a current ICC ES report. Use high viscosity adhesive and placement devices in consultation with the manufacturer for overhead work. Overhead installation shall be subject to continuous special inspection during installation and shall only be performed by certified adhesive anchor installers. Use low temperature formulations for cold weather work. Do not apply significant load to anchors until their capacity has been assured.
6. Anchors installed in concrete masonry and precast hollow core concrete shall be installed in cores grouted solid. Minimum grout strength f'_g = 3,000 PSI. Minimum 12 inches of grout each way along horizontal cores from anchor. Vertical cores shall be grouted full height. Anchors installed in masonry shall not be installed within 1 1/2 inches of any head joint unless block are square end and mortared across full width of head joint or filled bond beam.
7. Holes shall be drilled, cleaned, and maintained until installation in accordance with manufacturer's recommendations using standard rotary-impact bits and oil-free compressed air; diamond core bits shall not be used unless specifically approved by the manufacturer. Locate and avoid reinforcing bars and PT tendons. Maintain spacing (minimum 8 inches) and edge/corner distances (minimum 4 inches) as recommended by manufacturer unless specifically noted otherwise in the drawings.
8. Unless noted otherwise, anchors shall be installed to the following embedments:

	Diameter	CIP Concrete	Grouted CMU
Expansion/screw:	1/2 inch	3 1/2 inches	4 1/2 inches
	5/8 inch	4 inches	5 inches
	3/4 inch	5 inches	6 inches
Adhesive:	1/2 inch	4 1/2 inches	5 1/2 inches
	5/8 inch	5 inches	6 inches
	3/4 inch	6 inches	7 inches (6" in 8" CMU)

9. Except as noted, all anchors shall have intermittent special structural inspection by one of the following.
   a. Expansion and screw anchors:
      - Witness installation with torque wrench according to manufacturer's recommendations and requirements of ICC report;
      - Test all anchors with torque wrench after installation (including load test of 5 percent of installed anchors).
   b. Adhesive anchor rods and dowels:
      - Witness installation according to manufacturer's recommendations and requirements of ICC report.

STRUCTURAL METALS / FRP

1. All structural steel shall be as follows:
   - Wide flange beams and columns shall be ASTM A992, grade 50 steel.
   - All miscellaneous steel (angles, channels, plate) shall be ASTM A992, A529, or A36 steel (min. F_y = 36 KSI).
   - Rectangular steel tubes (HSS) shall be ASTM A500, grade C steel (f_y = 50 KSI).
   - Pipe shall be ASTM A53 (f_y = 35 KSI) unless A500 grade C (46 KSI) is noted.
   - Other shapes shall be ASTM A36 (36 KSI).
2. Splicing or modification of members in the field is prohibited without prior written approval of the SER.
3. All primary member bolted connections shall be two bolt minimum.
4. Fabrication and erection shall be in accordance with the latest edition of the AISC Manual of Steel Construction, Code of Standard Practice for Steel Buildings and Bridges, except as follows:
   - To paragraph 3.1, add "The project architectural drawings are a part of the structural steel design drawings by reference and must be used concurrently with the structural steel design drawings for any information not shown on the structural steel design drawings".
   - Delete paragraph 3.2 and insert the following: "architectural, process, electrical and mechanical plans shall be used as a supplement to the structural steel design drawings to define detail configurations and construction information".
   - Paragraph 3.3 modify the last sentence to read, "in case of discrepancies between the structural steel plans and plans of other disciplines or existing conditions, such discrepancies shall be called to the architect / engineer's attention for resolution".
5. All aluminum shapes shall be ASTM B209, B308, alloy 6061-T6; except handrail may be 6063-T5 or -T6. All welding shall be performed by a certified welder using compatible electrodes in accordance with the requirements of AWS D1.2 and visually inspected. Where designed by the fabricator, aluminum alloy and temper shall be stated on shop drawings.
6. All steel shall receive a primer coat unless galvanized, refer to specification manual.
7. All exposed steel shall be galvanized. Damaged galvanizing shall be repaired by application of cold galvanizing compound such as ZRC (minimum 3 coats). Paint finish per architectural.
8. All steel welding shall be performed by a certified welder using E70 electrodes in accordance with the requirements of AWS D1.1 "Structural Welding Code" and visually inspected. Full-pen welds shall also be inspected by NDT methods such as ultrasonic, mag particle, or dye pen.
9. All field welded connections shall be chipped, ground where required, wire brush cleaned and painted to match the paint system.
10. All bolts not otherwise specified shall be 3/4" diameter high strength (ASTM A325-N). All bolts shall be fully pretensioned. Any non-twist off bolts shall have 10 percent checked with a torque wrench by the special inspector.
11. All copes shall be made with a 1 inch minimum radius.
12. All anchor rods shall be minimum 3/4" diameter F1554 grade 36 unless noted otherwise. Where headed rods are noted or specified, bent rods shall not be furnished; rods may be headed or nutted, with the nut tack welded at the bottom end of the anchor or double nutted.
13. Metal stairways, platforms and grates shall be provided and constructed with adequate design characteristics (100 PSF live load capacity UNO) and structural configurations in accordance with the fabricator's shop drawings as approved by the engineer. All stairways, platforms and grates shall satisfy all requirements of the project documents.

HOISTS, TROLLEYS

1. Hoists and trolleys shall be electrically actuated, low overhead with two ton capacity, located as shown on the drawings. Monorail design and support locations shall be by hoist designer; coordinate reactions with precast concrete manufacturer.
2. Approved manufacturers are Harrington, Coffing, Robbins & Myers, and Columbus McKinnon.

SHOP DRAWING REVIEW

1. Short Elliott Hendrickson Inc. (SEH) will review the general contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by SEH. In general, submittals will not be reviewed for correct quantities or construction considerations. SEH shall review shop drawings and related materials with comments provided that each submission has met the requirements herein. SEH shall return without comment unrequired material or submissions without GC approval stamp
2. Any items requiring submittal of calculation packages shall have calculations submitted prior to or as part of the shop drawing submittal they accompany. Shop drawings submitted prior to submittal of required calculations will be rejected. All calculations shall be sealed and signed by an engineer licensed in the state of the project. The supplier's engineer must provide calculations for all systems and connections that differ from the drawings. Design shall comply with the requirements in these notes, the drawings and the specifications.
3. Prior to submittal of a shop drawing or any related material to SEH, the GC shall:
   - Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
   - Review and approve each submission.
   - Stamp each submission as approved.
4. SEH shall assume that no submission comprises a variation from the contract documents unless the GC advises SEH with written documentation. Should SEH require more than ten (10) working days to perform the review, SEH shall so notify the GC. Submittals shall include drawings and related material (if any) as indicated below.
   - Concrete mix designs and material certificates including admixtures, compounds applied to the concrete after placement, and associated product data. See specifications.
   - Aggregate tests and concrete test history for each mix design, with the submission of concrete mix designs.
   - Reinforcing steel shop drawings including erection drawings and bending details. Bar list will not be reviewed for correct quantities. Include elevations of all reinforced concrete masonry walls and all concrete walls with footing steps or other elevation changes, at a scale no smaller than 1/8" = 1'-0" showing all required reinforcing.
   - Grout mix designs (for CMU) and CMU block certification.
   - Structural steel and metal fabrication shop drawings including erection drawings and piece details.
   - Stairs and railing. Details on the drawings for the following items have been designed by the SER: railing systems, connection of railings and stringers to the primary structure. All other items shall be designed by the supplier's engineer to match intent of the construction drawings.
   - Design calculations, standard details, and bridging information for light gage metal framing. Erection plans and details for light gage metal joists and lintels spanning more than 6'-0" shall be submitted. Standard interior non-loadbearing wall framing need not be submitted.
   - Precast shop drawings including reinforcing, bearing details, and design calculations.

REQUIRED INSPECTION

1. Required inspection and testing is required according to the table on sheet GS1. Refer to specification section 01 45 10 for responsibilities. Contractor shall coordinate with SER, testing agency and geotechnical engineer throughout the project.
   - Required Inspection of reinforcing steel and anchor rod placement shall be performed prior to concrete placement or during anchor rod installation for adhesive anchors.
   - Continuous inspection during concrete placement is required.
   - Conduct concrete slump tests in accordance with ASTM C143.
   - Obtain set of a four (4) concrete test cylinders each time concrete is placed. Make test cylinders in accordance with ASTM C39.
   - See these Notes for testing of Post-Installed anchors and rebar where installation is not witnessed.
   - It is assumed that shop welding will be performed on the premises of a fabricator registered and approved to perform such work without outside Inspection. G/C shall submit fabricator documents, standards, and procedures.
   - It is assumed that precast concrete will be cast on the premises of a fabricator registered and approved to perform such work without outside Inspection. G/C shall submit fabricator documents, standards, and procedures.
   - Reports of Required Inspections shall be provided, at the frequency noted above, to the Owner, Contractor, and

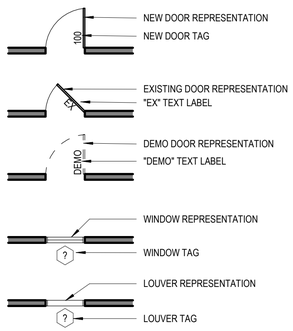
ABBREVIATIONS

&	AND	E.	EAST	JAL.	JALOUSIE	R.F.	RESILIENT FLOORING
∠	ANGLE	EA.	EACH	JAN.	JANITOR	RFG.	ROOFING
@	AT	E.A.R.	EXHAUST AIR REGISTER	J.B.	JUNCTION BOX	RGTR.	REGISTER
℄	CENTERLINE	E.C.	ELASTOMERIC COATING/ EXPOSED CONSTRUCTION	JST.	JOIST	R.H.	ROUND HEAD
⌀	DIAMETER/ROUND			JT.	JOINT	RLG.	RAILING
(E)	EXISTING	E.F.	EXHAUST FAN			RM.	ROOM
#	POUND/NUMBER	E.F.S.	EXTERIOR FINISH SYSTEM	K.D.	KNOCK DOWN	R.O.	ROUGH OPENING
+/-	PLUS OR MINUS	E.G.C.B.	EXTERIOR GYPSUM CEILING BOARD	KG.	KILOGRAM	R.W.R.	RECESSED WASTE RECEPTACLE
P	PROPERTY LINE	E.G.S.B.	EXTERIOR GYPSUM SHEATHING BOARD	KIT.	KITCHEN		
SQ	SQUARE			KM.	KILOMETER	RWD.	REDWOOD
		E.I.F.S.	EXTERIOR INSULATION & FINISH SYSTEM	K.O.	KNOCK-OUT	R.W.L.	RAIN WATER LEADER
A/C	AIR CONDITIONING			KW	KILOWATT		
A.B.	ANCHOR BOLT	E.J.	EXPANSION JOINT	L.	LENGTH/LONG	S.	SOUTH
ABV.	ABOVE	EL.	ELEVATION	LAB.	LABORATORY	S.A.	SINGLE ACTING
A.C.	ASPHALTIC CONCRETE	ELAS.	ELASTOMERIC	LAM.	LAMINATE/LAMINATED	S.C.	SOLID CORE
ACC.	ACCESSIBLE	ELEC.	ELECTRICAL	LAV.	LAVATORY	SC.	SCALE
ACOUS.	ACOUSTICAL	ELEV.	ELEVATOR	LB.	POUND	SCHED.	SCHEDULE
A.D.	AREA DRAIN	EMER.	EMERGENCY	L.F.	LINEAL FOOT	SCP.	SCUPPER
	ACCESS DOOR	ENCL.	ENCLOSURE	LIQ.	LIQUOR	S.C.R.	SHOWER CURTAIN ROD
ADD.	ADDENDUM	E.O.S.	EDGE OF SLAB	LKR.	LOCKER	S.D.	SMOKE DETECTOR
ADJ.	ADJUSTABLE	E.P.	ELECTRICAL PANEL	LOC.	LOCATION	SECT.	SECTION
ADJA.	ADJACENT	EQ.	EQUAL	L.P.	LAMINATED PLASTIC	S.F.	SQUARE FEET
A.F.	ACCESS FLOOR	EQPT.	EQUIPMENT	LTG.	LIGHTING	SH.	SHELF
A.F.F.	ABOVE FINISH FLOOR	E.W.	EACH WAY	LVR.	LOUVER	SHR.	SHOWER
AGGR.	AGGREGATE	E.W.C.	ELECTRICAL WATER COOLER			SHT.	SHEET
A.H.U.	AIR HANDLING UNIT	EXH.	EXHAUST	M.	MALE	SHTG.	SHEATHING
ALUM.	ALUMINUM	EXP.	EXPANSION	MAT'L.	MATERIAL	SIM.	SIMILAR
ALT.	ALTER OR ALTERNATE	EXPO.	EXPOSED	MAX.	MAXIMUM	SL.	SLOPE
ANG.	ANGLE	EXIST.	EXISTING	M.B.	MACHINE BOLT	SLDG.	SLIDING
ANOD.	ANODIZED	EXT.	EXTERIOR	M.C.	MEDICINE CABINET	SLNT.	SEALANT
A.P.	ACCESS PANEL			MECH.	MECHANICAL	S.M.	SQUARE METER
APPROX.	APPROXIMATE	F.	FEMALE	MEMB.	MEMBRANE	S.MH.	SEWER MANHOLE
ARCH.	ARCHITECTURAL	F.A.	FIRE ALARM	MET.	METAL	S.N.D.	SANITARY NAPKIN DISPENSER
ASPH.	ASPHALT (PAVING)	FAB.	FABRICATE	MFR.	MANUFACTURER	S.N.R.	SANITARY NAPKIN RECEPTACLE
A.T.	ACOUSTICAL TILE	F.A.M.	FLUID APPLIED MEMBRANE	MH.	MANHOLE		
A.W.	ARCHITECTURAL WOODWORK	F.B.	FLAT BAR	MIN.	MINIMUM	S.P.	SOLID PLASTIC
		F.C.O.	FLOOR CLEAN OUT	MIR.	MIRROR	SPEC.	SPECIFICATIONS
BD.	BOARD	F.C.U.	FAN COIL UNIT	MISC.	MISCELLANEOUS	SPKR.	SPEAKER
BITUM.	BITUMINOUS	F.D.	FLOOR DRAIN/ FIRE DAMPER	MLDG.	MOULDING	SPRK.	SPRINKLER
BLDG.	BUILDING			MM.	MILLIMETER	SQ.	SQUARE
BLK.	BLOCK	F.E.	FIRE EXTINGUISHER	M.O.	MASONRY OPENING	S.SK.	SERVICE SINK
BLKG.	BLOCKING	F.E.C.	FIRE EXTINGUISHER CABINET	MOD.	MODULAR	S.STL.	STAINLESS STEEL
BM.	BEAM			M.R.	MOISTURE RESISTANT	ST.	STONE
B.O.H.	BACK OF HOUSE			MTD.	MOUNTED	STA.	STATION
BOT.	BOTTOM	F.F.&E.	FURNITURE, FIXTURE & EQUIPMENT	MTG.	MOUNTING	STD.	STANDARD
BR.	BEDROOM					STL.	STEEL
BRG.	BEARING	F.F.S.	FINISH FLOOR SEPARATION	N.	NORTH	STOR.	STORAGE
BRKT.	BRACKET	F.H.	FLAT HEAD	N.I.C.	NOT IN CONTRACT	STRUCT.	STRUCTURE/STRUCTURAL
B.S.	BOTH SIDES	F.H.C.	FIRE HOSE CABINET	N.L.	NIGHT LIGHT	SURR.	SURROUND
BSMT.	BASEMENT	FIN.	FINISH	NO.	NUMBER	SUSP.	SUSPEND/SUSPENDED
BTWN.	BETWEEN	FIXT.	FIXTURE	NOM.	NOMINAL	SVC.	SERVICE
B.U.R.	BUILT-UP ROOFING	FLASH.	FLASHING	N.S.	NO SCALE	SW.	SWITCH
		FLDG.	FOLDING	N.T.S.	NOT TO SCALE	SYM.	SYMMETRICAL
C.	CHORD/COMPACT	FLG.	FLOORING			SYS.	SYSTEM
CAB.	CABINET	FLR.	FLOOR	O.	OVER	T.	TREAD
C.B.	CATCH BASIN	FLUOR.	FLUORESCENT	O.C.	ON CENTER	T&G	TONGUE AND GROOVE
C.B.B.	CEMENTITIOUS BACKER BOARD	F.N.D.	FEMININE NAPKIN DISPOSAL	OA.	OVERALL	T./S	TUB/SHOWER
				O.A.G.	OUTSIDE AIR GRILLE	TACKBD	TACKBOARD
C.C.T.V.	CLOSED CIRCUIT TELEVISION	F.N.V.	FEMININE NAPKIN VENDOR	OBS.	OBSCURE	T.B.	TOWEL BAR
				O.D.	OUTSIDE DIAMETER (DIMENSION)	T.D.	TRENCH DRAIN
C.D.	CEILING DIFFUSER	FND.	FOUNDATION			TEL.	TELEPHONE
CEM.	CEMENT	F.O.	FACE OF ...	O.F./C.I.	OWNER FURNISHED/ CONTRACTOR INSTALLED	TEMP.	TEMPERED/TEMPORARY
CER.	CERAMIC	F.O.C.	FACE OF CONCRETE			TER.	TERRAZZO
C.F./C.I.	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	F.O.M.	FACE OF MANSONRY	OFD.	OVERFLOW DRAIN	TFE	TOP OF FOOTING
		F.O.S.	FACE OF SLAB/ FACE OF STUD	OFF.	OFFICE	TFMR.	TRANSFORMER
				O.F./O.I.	OWNER FURNISHED/ OWNER INSTALLED	THK.	THICK/THICKNESS
C.F.M.	CUBIC FEET PER MINUTE	F.O.W.	FACE OF WALL			THR.	THRESHOLD
C.G.	CORNER GUARD	FR.	FRAME	OPNG.	OPENING	TLT.	TOILET
CHAN.	CHANNEL	F.R.G.	FIBER REINFORCED GYPSUM	OPP.	OPPOSITE	T.O.	TOP OF ...
CH.W.R.	CHILLED WATER RETURN			OPQ.	OPAQUE	T.O.C.	TOP OF CURB
CH.W.S.	CHILLED WATER SUPPLY	F.R.P.	FIBERGLASS REINFORCED POLYESTER	OPR.	OPERABLE	T.O.F.	TOP OF FLOOR
C.I.	CAST IRON			OVHD.	OVERHEAD	T.O.P.	TOP OF PARAPET
C.I.P.	CAST-IN-PLACE	F.R.T.	FIRE RETARDANT TREATED WOOD				TOP OF PAVEMENT
CIRC.	CIRCULATING			PASS.	PASSAGE		
C.J.	CONTROL JOINT	FRZ.	FREEZER	P.C.	POST CONTRACT	T.P.B.	TELEPHONE POWER BOARD
CLNG	CEILING	F.S.	FLOOR SINK/FULL SIZE	P.C.A.	POST CONTRACT ARCHITECTURAL		
CLO.	CLOSET	FT.	FOOT/FEET			T.P.D.	TOILET PAPER DISPENSER
CLR.	CLEAR	F.T.D.	FACIAL TISSUE DISPENSER	PC.	PIECE	T.P.H.	TOILET PAPER HOLDER
CM.	CENTIMETER	FTG.	FOOTING	P.D.	PLANTER DRAIN	TOS	TOP OF STEEL
C.M.U.	CONCRETE MASONRY UNIT	FURR.	FURRING/FURRED	PERIM.	PERIMETER	TPE	TOP OF PIER
CNTR.	COUNTER	FUT.	FUTURE	PERP.	PERPENDICULAR	TRAN.	TRANSITION
C.O.	CLEANOUT/CASED OPENING /CONCRETE OPENING			PH.	PENTHOUSE	TRANS.	TRANSPARENT
		G.	GAS (PIPE)	P.I.P.	POURED-IN-PLACE	TSE	TOP OF SLAB
COL.	COLUMN	GA.	GAGE			T.S.	TUBE STEEL
COMM.	COMMUNICATION	GAL.	GALLON	PL.	PLATE	T.S.C.D.	TOILET SEAT COVER DISPENSER
COMP.	COMPARTMENT	GALV.	GALVANIZED	PLAM.	PLASTIC LAMINATE		
CONC.	CONCRETE	G.B.	GRAB BAR	PLAS.	PLASTER	T.SH.	TOWEL SHELF
COND.	CONDITION	GEN.	GENERATOR	PLBG.	PLUMBING	TV.	TELEVISION
CONN.	CONNECTION	G.F.I.	GROUND FAULT INTERCEPTOR	PLYWD.	PLYWOOD	TWE	TOP OF WALL
CONSTR.	CONSTRUCTION			PNL.	PANEL	TYP.	TYPICAL
CONT.	CONTINUOUS	G.F.R.C.	GLASS FIBER REINFORCED CONCRETE	PR.	PAIR		
CONTR.	CONTRACTOR			P.R.B.P.	PRESSURE REDUCING	UC.	UNDERCUT
COOR.	COORDINATE	GL.	GLASS		BACK FLOW PREVENTER	U.L.	UNDERWRITERS LABORATORIES, INC.
CORR.	CORRIDOR	GLU-LAM	GLUED LAMINATED WOOD	PRCST.	PRECAST		
C.O.T.G.	CLEAN OUT TO GRADE	GND.	GROUND	PREFAB.	PREFABRICATED	UNF.	UNFINISHED
CP.	CARPET	G.P.H.	GALLONS PER HOUR	PREP.	PREPARATION	U.N.O.	UNLESS NOTED OTHERWISE
C.R.	CLOSET ROD	G.S.B.	GYPSUM SHEATHING BOARD	PROP.	PROPERTY	U.P.	UPHOLSTERED PANELS
C.R.M.	CONCRETE RUBBLE MASONRY			P.R.V.	PRESSURE RELIEF VALVE	UR.	URINAL
		GYP.	GYPSUM	P.S.F.	POUNDS PER SQUARE FOOT	VAL.	VALANCE
C.T.	CERAMIC TILE					VAR.	VARIES
CTR.	CENTER	H.	HEIGHT/HIGH	PT.	PAINT/POINT	V.C.T.	VINYL COMPOSITION TILE
CTSK.	COUNTERSUNK	H.B.	HOSE BIB	P.T.D.	PAPER TOWEL DISPENSER	VERT.	VERTICAL
CUST.	CUSTOM	H.C.	HOLLOW CORE	P.T.D.R.	PAPER TOWEL DISPENSER & RECEPTACLE	VEST.	VESTIBULE
C.W.	COLD WATER	HCP.	HANDICAPPED			VLV.	VALVE
C.W.R.	COLD WATER RETURN	HD.	HEAD	PTN.	PARTITION	VOL.	VOLUME
d	PENNY (NAILS)	HDWD.	HARDWOOD	P.T.R.	PAPER TOWEL	V.P.	VENEER PLASTER
D.	DEEP/DEPTH/DRYER	HDWE.	HARDWARE		RECEPTACLE	V.T.R.	VENT THROUGH ROOF
D.A.	DOUBLE ACTING	H.M.	HOLLOW METAL	PVC	POLY VINYL CHLORIDE		
DBL.	DOUBLE	HORIZ.	HORIZONTAL			W.	WEST/WIDTH/WIDE/WASHER
D.D.	DECK DRAIN	HR.	HOUR	Q.T.	QUARRY TILE	W/	WITH
DEPT.	DEPARTMENT	H.S.	HAND SINK			W/O	WITHOUT
DET.	DETAIL	HT.	HEIGHT	R.	RISER	W.C.	WATER CLOSET
D.F.	DRINKING FOUNTAIN	HTR.	HEATER	RAD.	RADIUS	WD.	WALLCOVERING
DIA.	DIAMETER	H.V.A.C.	HEATING, VENTILATION AND AIR CONDITIONING	R.B.	RESILIENT BASE	WD.P.	WOOD PANELING
DIAG.	DIAGONAL			RB.HK.	ROBE HOOK	WDW.	WINDOW
DIM.	DIMENSION	H.W.	HOT WATER	R.C.P.	REFLECTED CEILING PLAN	W.GL.	WIRE GLASS
DISP.	DISPENSER	H.W.R.	HOT WATER RETURN	R.D.	ROOF DRAIN	W.H.	WATER HEATER
DN.	DOWN			REBAR	REINFORCING BAR		
D.O.	DOOR OPENING	I.D.	INSIDE DIAMETER (DIMENSION)	REF.	REFERENCE/REFER		WARNOCK HERSEY
D.PTN	DEMOUNTABLE PARTITION			REFL.	REFLECTOR	W.O.	WHERE OCCURS/ WINDOW OPENING
DR.	DOOR	INCL.	INCLUDED/INCLUSIVE/ INCLUDING	REFR.	REFRIGERATOR		
DS	DOWNSPOUT			REINF.	REINFORCED/REINFORCING	WP.	WATERPROOF
D.SP.	DRY STANDPIPE	INSUL.	INSULATION	REQ.	REQUIRED	WP.M.	WATERPROOF MEMBRANE
DW.	DISHWASHER	INT.	INTERIOR	RESIL.	RESILIENT	W.S.	WOOD SCREWS
DWG.	DRAWING	INV.	INVERT	REST.	RESTROOM	W.R.	WATER RESISTANT
DWR.	DRAWER			REV.	REVISED/REVISION	WRB.	WARDROBE
						WSCT.	WAINSCOT
						W.S.P.	WET STAND PIPE
						WT.	WEIGHT
						W.W.F.	WELDED WIRE FABRIC

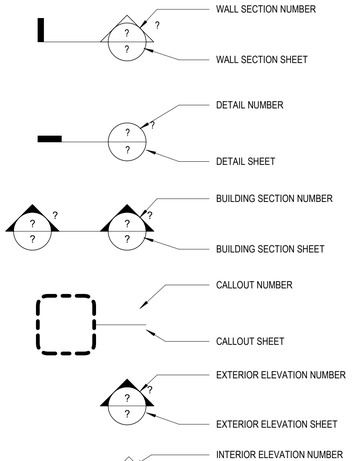
MATERIAL SYMBOLS

- SOIL
- BASE COURSE, SUB-BASE, GRAVEL, CRUSHED ROCK
- CONCRETE
- BRICK MASONRY
- CUT STONE, SAND, MORTAR, PLASTER
- CONCRETE MASONRY UNITS
- STONE, MARBLE, SIMULATED,MARBLE, TERRAZZO
- STEEL
- ALUMINUM (OMIT IN THIN MATERIAL)
- BRONZE, BRASS, COPPER
- INSULATION BOARD
- RIGID INSULATION
- BATT INSULATION
- WOOD, FINISH
- WOOD FRAMING THROUGH MEMBER
- WOOD FRAMING INTERRUPTED MEMBER
- METAL LATH
- PLYWOOD
- GYPSUM BOARD
- PARTICLE BOARD
- GLASS
- GLASS BLOCK
- CARPET
- CERAMIC TILE, QUARRY TILE, OR RESILIENT FLOORING (SHOWN PROFILE ONLY)
- ASPHALTIC CONCRETE OR A.C. PAVING (SHOWN PROFILE ONLY)

OPENING SYMBOLS



CALLOUT SYMBOLS



GENERAL NOTES

ARCHITECTURE GENERAL NOTES:

1. THESE DRAWINGS ARE LEGAL INSTRUMENTS OF SERVICE FOR THE USE OF THE OWNER AND ITS AUTHORIZED AGENTS AND VENDORS ON THE DESIGNATED PROJECT ONLY.
2. GC RESPONSIBLE FOR KNOWLEDGE OF RELATIVE INFORMATION CONTAINED IN THESE DOCUMENTS AND THE CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED.
3. CAREFULLY AND THOROUGHLY EXAMINE THE PROJECT SITE, FIELD VERIFY ALL CONDITIONS, GRADES, ELEVATIONS AND DIMENSIONS OF THE VARIOUS FEATURES OF THE SITE AND COMPARE DRAWINGS WITH THE EXISTING CONDITIONS. ANY DISCREPANCIES AND/OR CONDITIONS NEEDING CLARIFICATION SHALL BE REPORTED IN WRITING TO THE ARCHITECT BEFORE STARTING WORK.
4. ALL CONSTRUCTION, FABRICATION AND INSTALLATION SHALL CONFORM TO THE LATEST LOCALLY ADOPTED EDITIONS OF THE IBC, IPC, IMC, NEC, NFPA, OSHA AND ANY FEDERAL, STATE AND LOCAL CODES, REGULATIONS, STANDARDS AND ORDINANCES OF GOVERNING AGENCIES HAVING JURISDICTION. SUCH APPLICABLE CODES, ETC. ARE THOSE WHICH ARE IN EFFECT AT THE TIME THE PROJECT PERMIT APPLICATION IS RECORDED.
5. ALL TRADES ARE CONSIDERED SPECIALISTS IN THEIR RESPECTIVE FIELD/TRADE AND SHALL, BEFORE SUBMISSION OF BID OR PERFORMANCE OF WORK, NOTIFY THE CONTRACTOR IN WRITING OF ANY WORK ON THE DRAWINGS OR IN THE SPECIFICATIONS WHICH CANNOT BE FULLY WARRANTED OR CONSTRUCTED AS DETAILED OR SPECIFIED. THE CONTRACTOR WILL NOTIFY THE ARCHITECT OF SUCH CONDITIONS IN WRITING.
6. DUE TO REPRODUCTION PROCESSES, DRAWINGS MAY NOT BE ACCURATE TO SCALE. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN AND IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, ELEVATIONS OR DETAILS.
7. THE STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. DISCREPANCIES BETWEEN THE VARIOUS DRAWINGS SHALL BE REPORTED BY THE CONTRACTOR TO THE ARCHITECT IN WRITING.
8. BEFORE STARTING WORK, COORDINATE WITH THE OWNER'S REPRESENTATIVE FOR INSTALLATION OF EQUIPMENT INDICATED N.I.C. ON DRAWINGS. VERIFY EQUIPMENT LOCATIONS WITH THE OWNER'S PRESENTATIVE. VERIFY DIMENSIONS, UTILITIES, ETC, WITH EQUIPMENT MANUFACTURERS ROUGH -- IN DATA PRIOR TO FORMING THE SLAB.
9. PRODUCTS AND MANUFACTURED ITEMS SHALL BE PROVIDED AS SPECIFIED. SUBSTITUTIONS WILL BE PERMITTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE SPECIFICATIONS.
10. WHERE DETAILS ARE NOT SHOWN OR NOTED, GC IS TO PROVIDE A WRITTEN REQUEST FOR INFORMATION TO CLARIFY SPECIFIC DETAIL CONDITIONS.
11. ALL INDICATED EXISTING UTILITIES OR STRUCTURES ARE BASED ON INFORMATION OF RECORD. TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES NOT OF RECORD OR NOT SHOWN. BE RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MAY OCCUR DUE TO FAILURE TO LOCATE AND PROTECT ALL CONCEALED UTILITIES.
12. COMPLY WITH ALL JURISDICTIONAL AGENCY REQUIREMENTS AND REGULATIONS. PERFORM ALL WORK ON THIS PROJECT IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS 29 CFR 1910 AND 1926 OF THE U.S. DEPARTMENT OF LABOR AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.
13. FINAL CONNECTIONS TO EQUIPMENT SHALL BE AS PER MANUFACTURER'S WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. BE RESPONSIBLE TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
14. PROVIDE PERMITS AND INSPECTIONS REQUIRED BY JURISDICTIONAL AGENCIES.
15. PROVIDE SET OF RECORD DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
16. SERVICE SHALL BE MAINTAINED TO EXISTING AREAS DURING CONSTRUCTION. PROVIDE PORTABLE GENERATORS, CABLES, OUTLETS ETC., TO MAINTAIN CONTINUITY OF SERVICE PLACEMENT OF SUCH PORTABLE EQUIPMENT SHALL BE SUBJECT TO OWNER APPROVAL.
17. COORDINATE CONSTRUCTION PHASING WITH THE OWNER. TEMPORARY PARTITIONS, LOCATIONS & CONSTRUCTION DETAILS IN PUBLIC SPACES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO START OF CONSTRUCTION.
18. PATCH AND MATCH ALL NEW WORK W/ EXISTING WHERE NEW TO EXISTING INTERFACE OCCURS.
19. SUBMIT SAMPLES OF ALL EXPOSED PRODUCTS, MATERIALS, PAINTING SYSTEMS, ETC. FOR ARCHITECT'S REVIEW, COLOR SELECTION OR COLOR VERIFICATION PRIOR TO ORDERING ITEMS.
20. SEAL ALL DUCTS, LOUVERS, VENTS, OPENINGS AND CEILING SPACES BETWEEN CONSTRUCTION AREA AND REMAINDER OF SHELLED SPACES TO PREVENT DUST, DIRT, CONTAMINATION OR DEBRIS FROM ENTERING.
21. DO NOT ALLOW DIRT, DEBRIS OR DISCARDED MATERIALS TO ACCUMULATE ON SITE. REMOVE PROMPTLY EACH DAY.
22. VERIFY SERVICES TO BE ABANDONED, REMOVED OR CUT HAVE BEEN PROPERLY AND SAFELY SHUT OFF, CAPPED OR SEALED.
23. KEEP NOISE AND VIBRATION PRODUCING ACTIVITIES AT A MINIMUM WHEN WORKING WITHIN OR ON THE EXISTING BUILDING. APPROPRIATE TIMES OF SUCH ACTIVITIES SHALL BE COORDINATED WITH OWNER IN WRITING AT BEGINNING OF PROJECT.
24. IN THE EVENT THAT NOISE AND VIBRATION PRODUCING ACTIVITIES WILL OCCUR DURING TIMES OTHER THAN THOSE NOTED ABOVE, OBTAIN PERMISSION FROM THE OWNER IN WRITING A MINIMUM OF 72 HOURS PRIOR TO COMMENCEMENT OF ACTIVITIES.
25. KEEP UTILITY AND SERVICE OUTAGES TO A MINIMUM. MAKE WRITTEN OUTAGE REQUESTS AT LEAST FIVE DAYS BEFORE DATE OF PROPOSED OUTAGE. STATE IN THE REQUEST HOURS OF OUTAGE. CONFIRM DATE 48 HOURS IN ADVANCE OF STARTING DATE.
26. ASSIGN THE WORK OF MOVING, REMOVAL, CUTTING, PATCHING AND REPAIR TO TRADES UNDER CONTRACTOR SUPERVISION TO CAUSE THE LEAST DAMAGE TO EACH TYPE OF WORK ENCOUNTERED.
27. PATCHING OF FINISH MATERIALS TO MECHANICS SKILLED IN THE WORK OF THE FINISH TRADE INVOLVED.
28. PROTECT REMAINING FINISHES, EQUIPMENT AND ADJACENT WORK FROM DAMAGE CAUSED BY CUTTING, MOVING AND REMOVAL AND PATCHING OPERATIONS. PROTECT SURFACES WHICH WILL REMAIN A PART OF THE FINISHED WORK.
29. PROTECT EXISTING AND NEW WORK FROM WEATHER DURING CUTTING, MOVING, REMOVAL CONSTR. PROVIDE WEATHER PROTECTION AND OTHER FACILITIES AND PROTECTION AS NEEDED TO PREVENT DAMAGE TO NEW WORK AND TO REMAINING OLD WORK.
30. PROVIDE ADEQUATE SUPPORT OR SUBSTRATE FOR PATCHING FINISHES.
31. USE OF HAZARDOUS MATERIALS SHALL CONFORM WITH 29 CFR 1910.120 AND 1926.65 OF THE OSHA CODE.
32. REMOVAL OF HAZARDOUS WASTE SHALL COMPLY WITH CURRENT FEDERAL, STATE AND LOCAL REGULATIONS, STANDARDS, LAWS AND REQUIREMENTS.
33. THE WET SIDE FIRE PROTECTION CONTRACTOR SHALL PROVIDE TO THE ARCHITECT, THROUGH THE NORMAL SUBMITTAL PROCESS, SPRINKLER PLANS SHOWING PIPING PLANS, POINTS OF CONNECTIONS, HEAD LOCATIONS, VALVE LOCATIONS, CALCULATIONS, AND HEAD TYPES AND FINISHES PRIOR TO SUBMISSION TO THE FIRE DEPARTMENT FOR THE ARCHITECT'S REVIEW AND APPROVAL. DO NOT SUBMIT DRAWINGS TO ANY JURISDICTION PRIOR TO GAINING THIS REVIEW AND APPROVAL.
34. THE ELECTRONIC FIRE PROTECTION CONTRACTOR SHALL PROVIDE TO THE ARCHITECT, THROUGH NORMAL SUBMITTAL PROCESS, PLANS SHOWING THE SIZE, LOCATION, MOUNTING HEIGHTS, AND FINISH OF ALL STROBES, SPEAKERS, AND SPEAKER STROBES AS WELL AS SHOWING ALL CONDUIT RUNS, CONDUIT SIZES, AND POINTS OF CONNECTION FOR ARCHITECT'S REVIEW AND APPROVAL. DO NOT SUBMIT DRAWINGS TO ANY JURISDICTION PRIOR TO GAINING THIS REVIEW AND APPROVAL.

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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SEH Project	185392
Checked By	JRL
Drawn By	JRL

Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

GENERAL INFORMATION AND ABBREVIATIONS

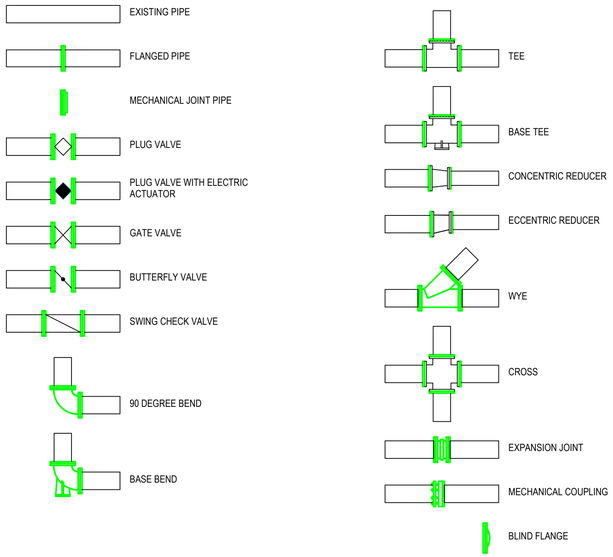
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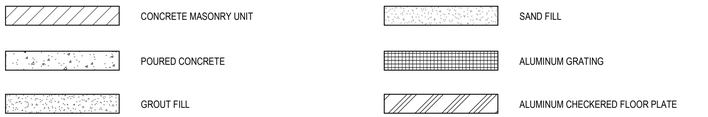
ABBREVIATION LIST

AF	ADAPTER FLANGE	MECH	MECHANICAL
AL/ALUM	ALUMINUM	MFRS	MANUFACTURERS
APPROX	APPROXIMATELY	MIN	MINIMUM
BF	BLIND FLANGE	MV	MUD VALVE
BFV	BUTTERFLY VALVE	N	NORTH
BLDG	BUILDING	N/A	NOT APPLICABLE
BLV	BALL VALVE	NOM	NOMINAL
BF	BLIND FLANGE	NO	NUMBER
BLK	BLOCK	NPW	NON-POTABLE WATER
BOT	BOTTOM	NTS	NOT TO SCALE
CHL	CHLORINE	OC	ON CENTER
CI	CAST IRON	OPNG	OPENING
CKD	CHECKERED	P	PLUG
CL	CENTERLINE	PC	PIPE COUPLING
CMU	CONCRETE MASONRY UNIT	PPC	PRESTRESSED PRECAST CONCRETE
CO	CLEAN-OUT	PR	PRESSURE REDUCER
CONC	CONCRETE	PRV	PRESSURE RELIEF VALVE
CONT	CONTINUOUS	PNT	PAINT
CTE	CONNECT TO EXISTING	PV	PLUG VALVE
CJ	CONTROL JOINT	PV & B	PLUG VALVE & BOX
CPE	CORRUGATED POLYETHYLENE	PVC	POLYVINYL CHLORINE
CV	CHECK VALVE	PW	PLANT WATER
DIP	DUCTILE IRON PIPE	R, RAD	RADIUS
E	EAST	RD	ROOF DRAIN
EL	ELEVATION	RAS	RETURN ACTIVATED SLUDGE
EQUIP	EQUIPMENT	RCP	REINFORCED CONCRETE PIPE
EX	EXISTING	RECIRC	RECIRCULATION
FD	FLOOR DRAIN	REINF	REINFORCE(D)
FFE	FINISHED FLOOR ELEVATION	SEC	SECTION
FM	FORCEMAIN	SHT	SHEET
FRP	FIBERGLASS REINFORCED	SF	SQUARE FOOT / SQUARE FEET
FTG	FITTING/FOOTING	SP	SLIDE PLATE
GV	GATE VALVE	SO	SIDE OUTLET
GV & B	GATE VALVE & BOX	SS	STAINLESS STEEL
H	HIGH	SQ	SQUARE
HWL	HIGH WATER LEVEL	TH	THICK
ID	INSIDE DIAMETER	TK	TANK
INS	INSIDE	TOW	TOP OF WEIR
INV	INVERT	TYP	TYPICAL
JT	JOINT	UON	UNLESS OTHERWISE NOTED
L	LONG	W	WIDE
LL	LIQUID LEVEL	WAS	WASTE ACTIVATED SLUDGE
LT	LEFT	WL	WATER LEVEL
M	METER	WSE	WATER SURFACE LEVEL
MAX	MAXIMUM		

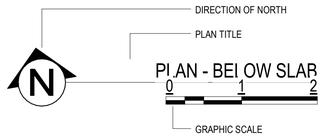
PROCESS PIPE LEGEND



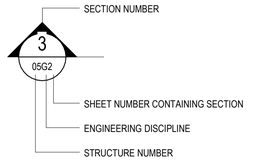
GENERAL CONSTRUCTION LEGEND



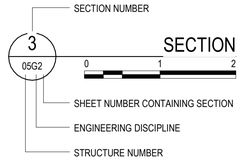
DRAWING SYMBOLS



DRAWING TITLE

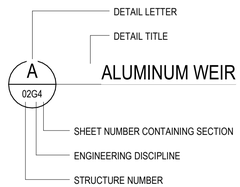


SECTION "CUT" SYMBOL



SECTION TITLE

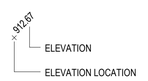
DETAIL INDICATOR



DETAIL TITLE



KEYNOTE INDICATOR



SPOT ELEVATION

GENERAL NOTES

1. SEE STRUCTURAL PLANS FOR ROOF, SLAB, WALL, FOUNDATION, BEAM AND REINFORCING STEEL INFORMATION AND CONCRETE DIMENSIONS.
2. ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE 8-12 MIL DRY FILM THICKNESS OF BITUMASTIC.
3. ALL ANCHOR BOLTS, NUTS FASTENERS, ETC. SHALL BE 304 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
4. ALTHOUGH NOT SPECIFICALLY NOTED ON THE PLANS, CONTRACTOR SHALL INSTALL PIPING USING SUPPORTS, PIPE COUPLINGS AND ANY OTHER PIPING APPURTENANCES REQUIRED FOR COMPLETE AND PROPER INSTALLATION. IN ADDITION, PROVIDE PIPE SUPPORTS IN LOCATIONS SPECIFICALLY IDENTIFIED ON PLANS.
5. TYPICAL DETAILS: ARE INTENDED TO SHOW GENERAL DESIGN CONCEPT. SPECIAL INFORMATION CONCERNING ELEVATIONS AND DIMENSIONS SHOWN ON THESE DETAILS PERTAIN TO A PARTICULAR BUILDING OR STRUCTURE.
6. INFORMATION REGARDING EXISTING CONSTRUCTION WAS COMPILED FROM THE ORIGINAL CONSTRUCTION DOCUMENTS AND PRELIMINARY FIELD INVESTIGATIONS. ALL CONDITIONS, DIMENSIONS AND SIZES ARE TO BE FIELD VERIFIED BY THE CONTRACTOR TO ENSURE FIT BETWEEN THE NEW AND EXISTING. NOTIFY THE ENGINEER OF DISCREPANCIES NOTED BEFORE AND DURING CONSTRUCTION.
7. DRAWINGS SHALL NOT TAKE PRECEDENCE OVER FIELD MEASUREMENTS.
8. DUE TO REPRODUCTIVE PROCESSES, DRAWINGS MAY NOT BE ACCURATE TO SCALE. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN AND IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, ELEVATIONS OR DETAILS.
9. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES. THE CONTRACTOR SHALL CONSULT ALL DRAWINGS AND VARIOUS CONSTRUCTION TRADES TO ACQUAINT SELF WITH THE PROJECT. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES NOTED BEFORE AND DURING CONSTRUCTION. THE ENGINEER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS IN LAYOUT TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES AND FOR THE PROPER EXECUTION OF THE WORK AT NO ADDITIONAL COST TO THE OWNER.
10. ALL WORK SHALL BE CONDUCTED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR SHALL REPAIR AND RESTORE ANY PAVEMENT, UTILITIES, OR OTHER FEATURES OUTSIDE THE LIMITS OF CONSTRUCTION THAT ARE DAMAGED DUE TO THE CONTRACTOR'S ACTS OR NEGLIGENCE AT THE CONTRACTOR'S OWN EXPENSE.
11. THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY, AND STATE ROAD RESTRICTIONS FOR HAULING AND EQUIPMENT MOBILIZATION.
12. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY ADDITIONAL COSTS WHICH MAY RESULT FROM UNAUTHORIZED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
13. CONTRACTOR SHALL PROTECT ALL EXISTING AND INSTALLED PIPING, EQUIPMENT, AND STRUCTURES DURING CONSTRUCTION NOT NOTED TO BE REMOVED. ALL DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED WITH NO ADDITIONAL COST TO THE OWNER.
14. ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES SHALL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PROJECT.
15. SIZE OF FITTINGS AND VALVES SHALL CORRESPOND TO THE SIZE OF ADJACENT PIPING. JOINTS AND FITTING MATERIAL SHALL BE AS SHOWN FOR ADJACENT PIPINGS.
16. PROVIDE PROPER PLUGS, CAPS, AND RESTRAINTS WHEN ANY PIPING IS TERMINATED.
17. THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS NATURAL GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV, AND PIPE LINES ARE UNKNOWN. CONTRACTOR SHALL CONTACT THE WISCONSIN'S DIGGERS HOTLINE. DIAL 811 OR (800) 242-8511 WWW.DIGGERSHOTLINE.COM BEFORE COMMENCING ANY EXCAVATION.
18. SOME ITEMS HAVE BEEN ROTATED INTO THE PLANE OF PROJECTION ON TYPICAL SECTIONS FOR CLARITY.
19. 7.5 FOOT COVER MINIMUM UNLESS OTHERWISE NOTED. PIPE BURIED WITH LESS THAN 7.5 FOOT OF COVER SHALL BE INSULATED IN ACCORDANCE WITH SECTION 40 42 13 - PROCESS PIPING INSULATION.

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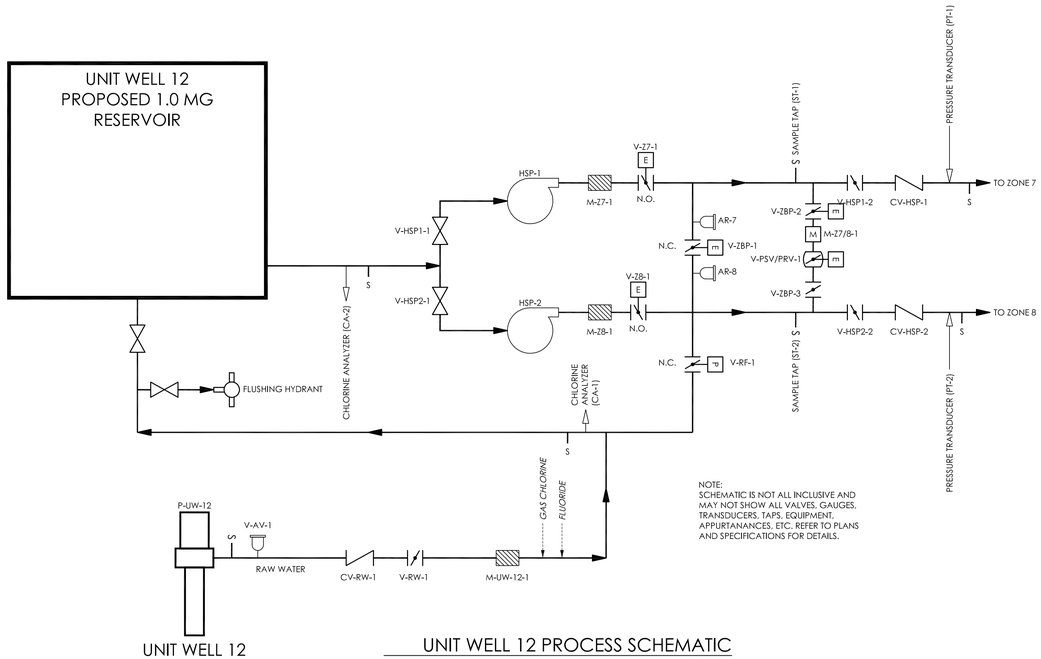
SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

GENERAL PROCESS INFORMATION

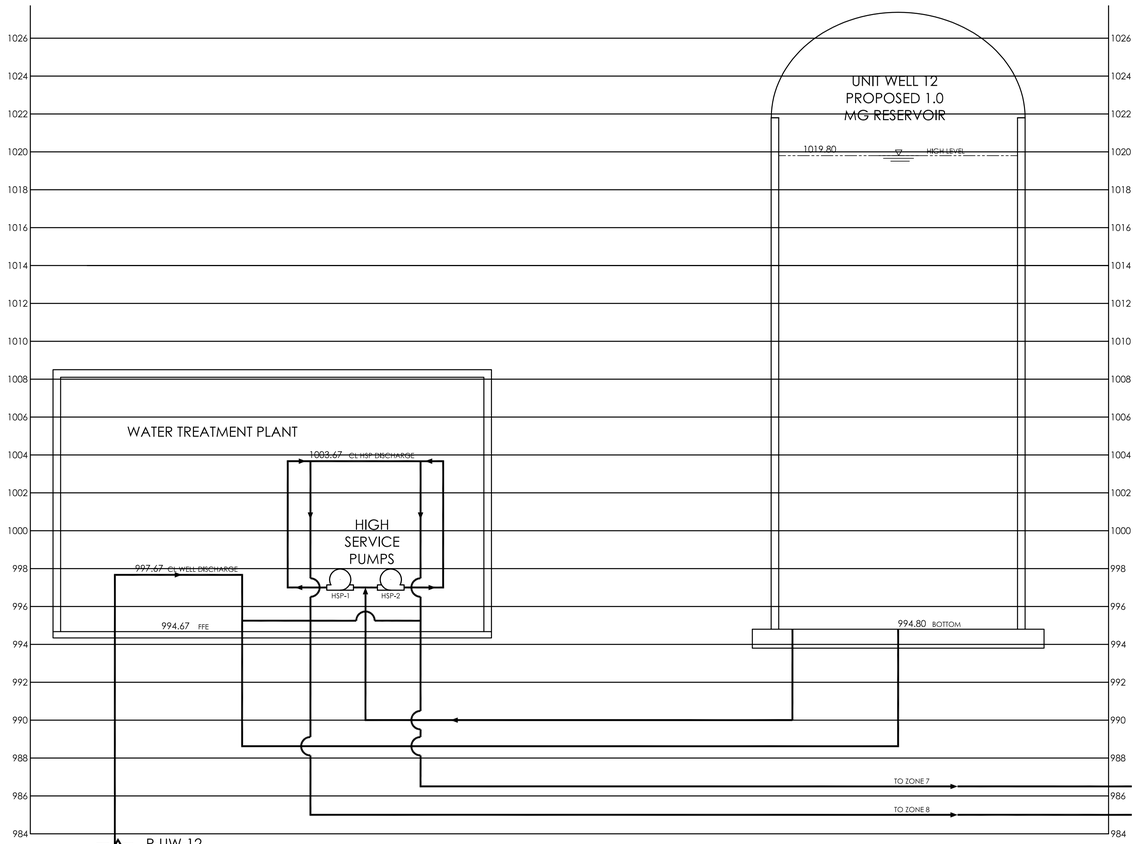
P001



NOTE:
SCHEMATIC IS NOT ALL INCLUSIVE AND MAY NOT SHOW ALL VALVES, GAUGES, TRANSDUCERS, TAPS, EQUIPMENT, APPURTANANCES, ETC. REFER TO PLANS AND SPECIFICATIONS FOR DETAILS.

UNIT WELL 12 PROCESS SCHEMATIC

NOT TO SCALE



NOTE:
HYDRAULIC PROFILE IS INTENDED TO SHOW GENERAL HYDRAULICS AND IS FOR REFERENCE ONLY. SEE PLANS AND SECTIONS FOR SPECIFIC ELEVATIONS

UNIT WELL 12 HYDRAULIC PROFILE

NOT TO SCALE

PROCESS BASIS OF DESIGN

DESIGN FLOWS

WELL FLOW RATE (CAPACITY)	2400 GPM
DESIGN MAXIMUM DAY PRODUCTION (2030)*	2.7 MGD
HIGH SERVICE PUMP 1	2100 GPM
HIGH SERVICE PUMP 2	2100 GPM

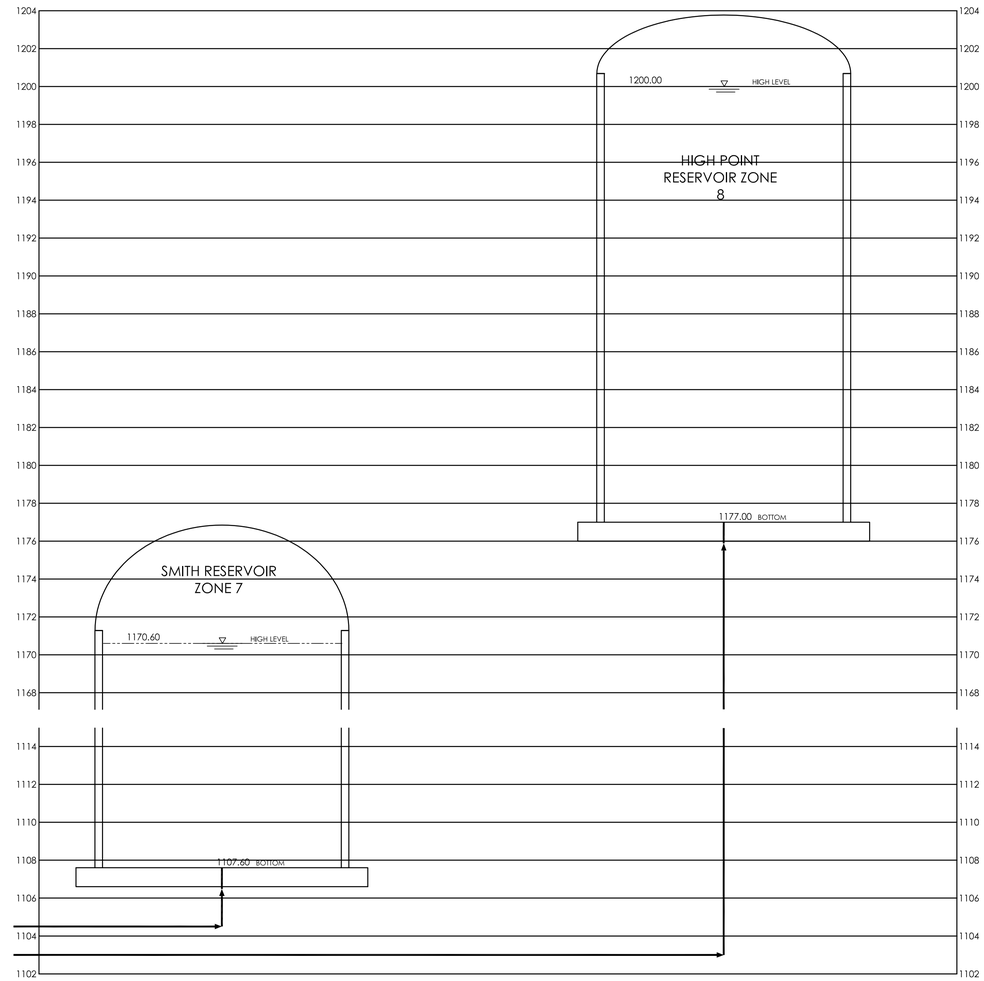
CHEMICAL FEED SYSTEMS

FLUORIDE

BULK LIQUID STORAGE	165 GALLONS
ESTIMATED FEED RANGE	0.5 TO 1.0 mg/l

CHLORINE

BULK CYLINDER STORAGE	600 pounds
ESTIMATED FEED RANGE	0.5 TO 3.8 ppm



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HYDRAULIC PROFILE, FLOW SCHEMATIC AND BASIS OF DESIGN

P002

GENERAL NOTES

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND CURRENT STATE BUILDING, PLUMBING, MECHANICAL, FUEL GAS, FIRE AND ENERGY CODES, ALL LOCAL CODES, STANDARDS, AND REGULATIONS GOVERNING THE WORK.
2. ALL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE MECHANICAL DRAWINGS AND SPECIFICATIONS PRIOR TO BID. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR AS REQUIRED FOR THE COMPLETE INSTALLATION FOR ALL WORK AS SHOWN AND PROVIDE FOR A COMPLETE, OPERABLE SYSTEM. ALL WORK SHALL BE PERFORMED IN A CLEAN, RECTILINEAR AND WORKMANLIKE MANNER.
3. THE DRAWINGS ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE ROUTING. CERTAIN BASIC ITEMS SUCH AS OFFSETS, FITTINGS, ACCESS PANELS, HANGERS, AND SLEEVES MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED FOR PROPER INSTALLATION OF THE WORK, SUCH ITEMS SHALL BE INCLUDED. CONTRACTOR SHALL VERIFY CONNECTIONS, CLEARANCES, AND SERVICES PRIOR TO INSTALLATION.
4. COORDINATE FINAL LOCATIONS OF DUCTWORK, PIPING AND MECHANICAL EQUIPMENT WITH OTHER TRADES PRIOR TO BEGINNING WORK TO AVOID INTERFERENCES WITH EQUIPMENT, STRUCTURE, PIPING, LIGHTING, CONDUIT, ETC. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCES. NO PIPING SHALL BE RUN OVER THE TOP OF ANY ELECTRICAL PANELS OR ELECTRICAL EQUIPMENT.
5. EQUIPMENT AND MATERIALS SHALL BE PROTECTED FROM WEATHER, PAINTING, PLASTER, ETC. UNTIL THE PROJECT IS COMPLETE. DAMAGE FROM RUST, PAINT, SCRATCHES, ETC., SHALL BE REPAIRED AS REQUIRED TO RESTORE EQUIPMENT TO ORIGINAL CONDITION AT NO COST TO OWNER.
6. CONTRACTOR SHALL COORDINATE ALL WALL AND ROOF OPENINGS AS IT RELATES TO THEIR WORK. CUTTING OF STRUCTURAL SUPPORT MEMBERS WILL NOT BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. EXTENT OF CUTTING SHALL BE MINIMIZED TO PROVIDE THE NEAT MINIMUM OPENING REQUIRED PATCHING SHALL MATCH ADJACENT MATERIALS AND SURFACES.
7. TEMPORARY SHUT DOWNS OF MECHANICAL SYSTEMS, IF REQUIRED, SHALL BE COORDINATED WITH THE OWNER IN ORDER TO MINIMIZE THE INTERRUPTIONS TO THE OWNER.
8. NO MECHANICAL SERVICES OR EQUIPMENT SHALL BE LOCATED OVER ELECTRICAL EQUIPMENT, ELEVATOR EQUIPMENT, OR TELEPHONE EQUIPMENT ROOM.
9. CONTRACTOR SHALL INSTALL AS MUCH OF THE NEW SYSTEM AS POSSIBLE, PRIOR TO REMOVING EXITING SYSTEMS IN ORDER TO MINIMIZE THE AMOUNT OF DOWN TIME. REFER TO SPECIFICATIONS.

PLUMBING GENERAL NOTES

1. PIPE OPENINGS THROUGH FIRE RATED WALLS SHALL BE CAULKED WITH AN INTUMESCENT MATERIAL.
2. EXCAVATE UNDER FLOOR TRENCH, INSTALL PIPING AND BACK FILL WITH CLEAN SAND. COMPACT AND REPLACE FLOOR TO MATCH EXISTING.
3. PIPING SHOWN IS SCHEMATIC TO SHOW SIZES AND GENERAL LOCATIONS. ROUTE PIPING AS REQUIRED FOR CLEARANCE WITH STRUCTURAL CONDITIONS.
4. INSTALL PIPING TO MAINTAIN HEADROOM, CONSERVE SPACE, AND NOT INTERFERE WITH USE OF SPACE. GROUP PIPING WHERE PRACTICAL AT COMMON ELEVATIONS. ROUTE PIPING IN A RECTILINEAR, ORDERLY MANNER AND MAINTAIN GRADIENT. ROUTE PIPING PARALLEL AND PERPENDICULAR TO WALL IN CEILING SPACE.
5. COORDINATE ROUGH-IN AND FINAL LOCATIONS OF NEW AND RELOCATED PIPING WITH EXISTING LIGHTING. STRUCTURE, PROCESS, PIPING AND DUCTWORK, ETC. PROVIDE OFFSETS AN/OR EASEMENTS AS REQUIRE TO AVOID CONFLICTS WITH WORK OF ALL OTHER TRADES.
6. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTION PIPING.
7. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
8. ROUGH-IN AND CONNECT ALL PLUMBING TO FIXTURES AND EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
9. PROVIDE SHUT-OFF VALVES AT ALL EQUIPMENT AND ALL BRANCH PIPING OFF OF THE MAINS.

HVAC GENERAL NOTES

1. FABRICATE AND SUPPORT ALL DUCTWORK IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, CURRENT EDITION.
2. ALL DUCTWORK IS SHOWN IN SCHEMATIC FORM. NOT ALL RISES AND DROPS ARE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCES WITH OTHER TRADES.
3. ELBOWS SHALL BE SQUARE ELBOWS CONSTRUCTED WITH TURNING VANES. RADIUS ELBOWS WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 TIMES THE DUCT WIDTH MAY BE USED WHERE SPACE CONDITIONS PERMIT OR WHERE INDICATED ON DRAWINGS.
4. ALL BRANCH DUCT TAPS SHALL BE CONICAL FITTINGS ON ROUND MAINS AND SHALL BE 45 DEG ENTRY FITTINGS ON RECTANGULAR MAINS.
5. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 5'-0" FLEXIBLE DUCT SHALL BE METALFLEX FLEXIBLE DUCT WITH 1" EXTERNAL FIBERGLASS INSULATION AND VAPOR BARRIER JACKET.
6. MANUAL VOLUME DAMPERS SHALL BE PROVIDED ON ALL RETURN, SUPPLY AND EXHAUST BRANCH DUCTS.
7. SUPPORT ALL DUCTWORK, EQUIPMENT, ETC., FROM TOP CHORD OF BAR JOISTS OR STEEL FRAMING BEAMS.
8. ALL DUCTWORK IN CHEMICAL STORAGE ROOMS SHALL BE FIBERGLASS (FRP) WITH FIBERGLASS HANGERS AND HARDWARE.
9. ALL DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS. INCREASE SHEET METAL SIZE TO ACCOMMODATE DUCT LINER AS REQUIRED BY THE SPECIFICATIONS.
10. ALL SHEET METAL CONNECTIONS AND JOISTS SHALL BE SEALED TO SMACNA CLASS A.
11. DIFFUSER, GRILLE, AND REGISTER LOCATIONS. SHALL BE COORDINATED WITH THE ARCHITECT'S REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING PLAN.
12. CHANGE DUCT SIZES GRADUALLY. LIMIT SLOPES FOR TRANSITIONS TO A MAXIMUM OF 1 INCH CHANGE IN WIDTH FOR EVERY 3 INCHES OF LENGTH OF APPROXIMATELY 15 DEG. A MAXIMUM OF 30 DEG IS ACCEPTABLE DIRECTLY ADJACENT TO EQUIPMENT.

GENERAL ABBREVIATIONS

ABV	ABOVE	LB	POUND
AC	AIR CONDITIONING	LB/HR	POUNDS PER HOUR
AD	AREA DRAIN	LWT	LEAVING WATER TEMPERATURE
ADD	ADDENDUM	MAT	MIXED AIR TEMPERATURE
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AFUE	ANNUAL FUEL UTILIZATION EFF.	MBH	THOUSAND BTUH
ALT	ALTERNATE	MCF	THOUSAND CUBIC FEET
AP	ACCESS PANEL	MD	MOTORIZED DAMPER
APD	AIR PRESSURE DROP	MECH	MECHANICAL
ARCH	ARCHITECT/ARCHITECTURAL	MFR	MANUFACTURER
BCO	BUILDING CLEANOUT	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MUA	MAKE-UP AIR
BTUH	BTU PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CC	COOLING COIL	NO	NORMALLY OPEN
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CLG	CEILING	O	OXYGEN
CO	CLEAN OUT	Ø	ROUND
D	DEGREE	OA	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
E, EX	EXISTING	PLBG	PLUMBING
EA	EXHAUST AIR	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWT	ENTERING WATER TEMP.	RA	RETURN AIR
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	RH	RELATIVE HUMIDITY
FD	FLOOR DRAIN	RM	ROOM
FD	FIRE DAMPER	RPM	REVOLUTIONS PER MINUTE
FDV	FIRE DEPARTMENT VALVE	SA	SUPPLY AIR
FL	FLOOR	SD	SMOKE DAMPER
FPM	FEET PER MINUTE	SF	SQUARE FOOT
FS	FLOOR SINK	SP	STATIC PRESSURE
FSD	FIRE SMOKE DAMPER	T	THERMOSTAT
FT	FEET	TD	TEMPERATURE DROP
FT HD	FEET OF HEAD	TDR	TRENCH DRAIN
FTR	FIN TUBE RADIATION	TEMP	TEMPERATURE
GA	GAUGE	TYP	TYPICAL
GAL	GALLON	UG	UNDERGROUND
GC	GENERAL CONTRACTOR	V	VENT
GPH	GALLONS PER HOUR	VAC	VACUUM
GPM	GALLONS PER MINUTE	VTR	VENT THROUGH ROOF
HB	HOSE BIB	WB	WET BULB
HP	HORSE POWER	WC	WATER COLUMN
IN	INCH	WCO	WALL CLEAN OUT
INV	INVERT	WG	WATER GAUGE
LAT	LEAVING AIR TEMPERATURE	WPD	WATER PRESSURE DROP

MECHANICAL EQUIPMENT

MECHANICAL EQUIPMENT TAG

EQUIPMENT TYPE (SEE TABLE BELOW) — XXX-1 — EQUIPMENT NUMBER

AC	AIR COMPRESSOR	GI	GREASE INTERCEPTOR
ACC	AIR COOLED CONDENSER	GRH	GAS FIRED RADIANT HEATER
ACCH	AIR COOLED CHILLER	GRV	GRAVITY ROOF VENTILATOR
AHU	AIR HANDLING UNIT	GUH	GAS FIRED UNIT HEATER
AS	AIR SEPARATOR	HB	HOSE BIBB
B	BOILER	HP	HEAT PUMP UNIT (AIR-AIR)
BC	BOOSTER COIL (HOT WATER)	HS	HAND SINK
CH	CHILLER	HWC	HW CONVECTOR
CHWC	CHILLED WATER COIL	HWHC	HOT WATER HEATING COIL
CHWP	CHILLED WATER PUMP	HWUH	HOT WATER UNIT HEATER
CP	CONDENSATE PUMP	HX	HEAT EXCHANGER
CRU	COMPUTER ROOM UNIT	HYD	WALL HYDRANT
CT	COOLING TOWER	L	LAVATORY
CUH	CABINET UNIT HEATER	L	LOUVER
CWP	CONDENSER WATER PUMP	LBG	LINEAR BAR GRILLE
DBP	DOMESTIC WATER BOOSTER PUMP	MAU	MAKEUP AIR UNIT
DCP	DOMESTIC WATER CIRC. PUMP	P	PUMP
DSF	DESTRATIFICATION FAN	PRV	POWER ROOF VENTILATOR
DG	DOOR GRILLE	RTU	ROOFTOP AIR HANDLING UNIT
DL	DRUM LOUVER	RCP	RECIRCULATING PUMP
DRP	DOMESTIC RECIRCULATION PUMP	RD	ROUND DIFFUSER
DS	DUCT SILENCER	RG	RETURN GRILLE
DU	DEHUMIDIFICATION UNIT	RTF	RETURN FAN
DXC	DX COIL	RTU	ROOFTOP UNIT
EBB	ELECTRIC BASE BOARD HEATER	RV	ROOF VENT
ECH	ELECTRIC COVE HEATER	SD	SLOT DIFFUSER
EDH	ELECTRIC DUCT HEATER	SEP	SEWAGE EJECTOR PUMP
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SG	SUPPLY GRILLE
EHMD	ELECTRIC HUMIDIFIER	SP	SUMP PUMP
ERV	ENERGY RECOVERY VENTILATOR	TF	TRANSFER FAN
ET	EXPANSION TANK	TG	TRANSFER GRILLE
EUH	ELECTRIC UNIT HEATER	UH	UNIT HEATER
EVAP	REMOTE EVAPORATOR	UV	UNIT VENTILATOR
EWC	ELECTRIC WATER COOLER	VAV	VAV BOX (WITH OR WITHOUT COIL)
EWH	ELECTRIC WALL HEATER	VP	VACUUM PUMP
EWH	ELECTRIC WATER HEATER	WH	WATER HEATER
F	FURNACE	WS	WATER SOFTENER
FCU	FAN COIL UNIT		
FP	FIRE PUMP		
FTR	FINNED TUBE RADIATION		
GHMD	GAS FIRED HUMIDIFIER		

HVAC SYMBOLS

- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- 12/6 — RECTANGULAR DUCT SIZE TAG (WIDTH / HEIGHT)
- 12ø — ROUND DUCT SIZE TAG (DIAMETER)
- SUPPLY AIR DIFFUSER
- RETURN AIR/EXHAUST AIR GRILLE
- LINEAR DIFFUSER
- T — TEMPERATURE SENSOR / THERMOSTAT
- H — HUMIDISTAT
- S — SPEED SWITCH
- CO2 — CO2 SENSOR
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- FSD — FIRE/SMOKE DAMPER
- CRD — CEILING RADIATION DAMPER
- VD — VOLUME DAMPER
- M — MD — MOTORIZED DAMPER
- FLEXIBLE DUCT
- TURNING VANES

AIR DEVICES TAGS

ABBREVIATIONS

CD	CEILING DIFFUSER
DG	DOOR GRILLE
DL	DRUM LOUVER
EG	EXHAUST GRILLE
L	LOUVER
LBG	LINEAR BAR GRILLE
RD	ROUND DIFFUSER
RG	RETURN GRILLE
SD	SLOT DIFFUSER
SG	SUPPLY GRILLE
TG	TRANSFER GRILLE

TYPICAL SUPPLY DIFFUSER TAG

DUCT CONNECTION SIZE; DIFFUSER MARK; AIRFLOW — CD1 | 8" — 200 CFM

TYPICAL GRILLE TAG

GRILLE SIZE; GRILLE MARK; AIRFLOW — RG1 | 8/8 — 200 CFM

PLUMBING FIXTURES

PLUMBING FIXTURE TAG

FIXTURE TYPE (SEE TABLE BELOW AND PLUMBING FIXTURE SCHEDULE) — XXX-1 — FIXTURE NUMBER

BS	BEAUTY SINK	MB	MOP BASIN
BT	BATH TUB	SH	SHOWER
DF	DRINKING FOUNTAIN	SK	SINK
DW	DISHWASHER	SS	SAFETY SHOWER
EW	EYE WASH STATION	SSEW	SAFETY SHOWER EYE WASH
EWC	ELECTRIC WATER COOLER	SSK	SERVICE SINK
FDC	FIRE DEPARTMENT CONN.	UR	URINAL
GD	GARBAGE DISPOSAL	W	LAUNDRY WASHER BOX
HB	HOSE BIBB	WC	WATER CLOSET
HS	HAND SINK	WDF	WASH DOWN FAUCET
L	LAVATORY	WDR	WASH DOWN REEL
LS	LAB SINK	WF	WASH FOUNTAIN
LT	LAUNDRY TUB	WH	WALL HYDRANT
		WO	WALL OUTLET (LAMB'S TONGUE)

DRAIN TAGS

DRAIN CONNECTION SIZE — X" XX-1 — DRAIN TYPE (SEE TABLE BELOW AND PLUMBING FIXTURE SCHEDULE)

AD	AREA DRAIN
DW	DISHWASHER
FD	FLOOR DRAIN
FS	FLOOR SINK
FFD	FUNNEL FLOOR DRAIN
ORD	OVERFLOW ROOF DRAIN
OSD	OPEN SIGHT DRAIN
RD	ROOF DRAIN
TD	TRENCH DRAIN
TTFD	TELL-TALE FLOOR DRAIN

PLUMBING AND PIPING SYMBOLS

- NEW CONSTRUCTION
- EXISTING PIPE TO BE REMOVED
- EXISTING PIPE TO REMAIN
- UNDERGROUND PIPING

HWS	HWS	HYDRONIC HOT WATER SUPPLY
HWR	HWR	HYDRONIC HOT WATER RETURN
CHWS	CHWS	CHILLED WATER SUPPLY
CHWR	CHWR	CHILLED WATER RETURN
REF	REF	REFRIGERANT SUCTION / LIQUID
CD	CD	CONDENSATE
CW	CW	COLD WATER
H-CW	H-CW	HARD COLD WATER
S-CW	S-CW	SOFTENED COLD WATER
HW	HW	DOMESTIC HOT WATER
RHW	RHW	RECIRCULATED HOT WATER
RO	RO	REVERSE OSMOSIS WATER
T	T	TEMPERED EYEWASH WATER
G	G	NATURAL GAS
NPW	NPW	NON-POTABLE WATER
W1	W1	POTABLE WATER
W2	W2	NON-POTABLE WATER
W3	W3	PLANT EFFLUENT
OSD	OSD	OVERFLOW STORM DRAIN
SD	SD	STORM DRAIN
SAN	SAN	SANITARY SEWER DRAIN
V	V	VENT
CWV	CWV	COMBINATION WASTE AND VENT
IW	IW	INDIRECT WASTE
PD	PD	PUMP DISCHARGE

SCHEMATIC SYMBOLS

- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- CAPPED OR PLUGGED PIPE
- FLUID FLOW
- UNION
- STRAINER
- PIPE ANCHOR
- PIPE EXPANSION JOINT
- PIPE PITCH DOWN
- BALL VALVE
- GATE VALVE
- STOP VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- BACKFLOW PREVENTER
- RELIEF VALVE — OR
- PRESSURE REDUCING VALVE
- PRESSURE GAUGE
- PIPE THERMOMETER
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BALANCING VALVE
- DRAIN VALVE
- FIN-TUBE RADIATION
- FIN-TUBE RADIATION IN CABINET
- BARE PIPE IN CABINET
- CABINET ONLY
- PUMP
- FLOOR SINK SYMBOL
- FLOOR DRAIN SYMBOL
- STORM DRAIN SYMBOL

GENERAL MECHANICAL SYMBOLS

- 1 — REVISION NUMBER; REVISION CLOUD
- 1 — PLAN KEYNOTE
- CONTINUATION SYMBOL
- ROOM NAME / # — ROOM NAME AND NUMBER
- CONNECT TO EXISTING
- # / # — NUMBER OF DETAIL ON SHEET; SHEET WHERE DETAIL APPEARS

NOTE

ALL GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE 2/6/2026 9:25:54 AM

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	185392
Checked By	CAH
Drawn By	KML

Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

MECHANICAL SYMBOLS AND ABBREVIATIONS

01
M001

SCHEMATIC SYMBOLS

OS — OCCUPANCY SENSOR, CEIL MOUNT
OS — OCCUPANCY SENSOR, WALL MOUNT
ANTENNA
AT MOTOR (SCHEMATIC DEVICE LOCATION)
AT PLC (SCHEMATIC DEVICE LOCATION)
AT MFR CP (SCHEMATIC DEVICE LOCATION)
CONNECTION POINT
EXTERNAL CONNECTION POINT
GROUND
CIRCUIT BREAKER
DRAWOUT CIRCUIT BREAKER
SWITCH
FUSE
NORMALLY OPEN PUSH-BUTTON
NORMALLY CLOSED PUSH-BUTTON
SELECTOR SWITCH
POTENTIOMETER
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
FIXED CAPACITOR
MUSHROOM HEAD PUSH-BUTTON
NORMALLY CLOSED LIMIT SWITCH
NORMALLY OPEN LIMIT SWITCH
SOLENOID
FLOAT SWITCH (OPENING ON RISING LEVEL)
FLOAT SWITCH (CLOSING ON RISING LEVEL)
SWITCH (OPENING ON INCREASE)
P=PRESSURE
V=VACCUM
DP=DIFFERENTIAL PRESSURE
SWITCH (CLOSING ON INCREASE)
P=PRESSURE
V=VACCUM
DP=DIFFERENTIAL PRESSURE
TEMPERATURE SWITCH (OPENING ON RISING LEVEL)
TEMPERATURE SWITCH (CLOSING ON RISING LEVEL)
ON TIME DELAY SWITCH
(TIME DELAY AFTER COIL IS ENERGIZED)
OFF TIME DELAY SWITCH
(TIME DELAY BEFORE COIL IS ENERGIZED)
FLOW SWITCH (OPENING ON INCREASE IN FLOW)
FLOW SWITCH (CLOSING ON INCREASE IN FLOW)
TORQUE SWITCH (NORMALLY CLOSED)
TORQUE SWITCH (NORMALLY OPEN)
ENGINE DRIVEN GENERATOR
MOTOR- NUMBER DENOTES HORSEPOWER
CURRENT TRANSFORMER
POTENTIAL TRANSFORMER
METERING DEVICE
FUSED DISCONNECT
MAGNETIC STARTER
THERMAL OVERLOAD RELAY
SURGE SUPPRESSION
TRANSFORMER
ALARM HORN
KEY INTERLOCK
PILOT LIGHT
STARTER, CONTACTOR OR RELAY COIL

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE
2/5/2026 3:32:20 PM

ELECTRICAL SYMBOL LEGEND

LIGHTING

- SURFACE LIGHT (TYPE DENOTED)
- WALL MOUNTED FLOODLIGHT (TYPE DENOTED)
- RECESSED LIGHT (TYPE DENOTED)
- POLE MOUNTED LIGHT (TYPE DENOTED)
- POLE MOUNTED FLOODLIGHT (TYPE DENOTED)
- SURFACE LINEAR LIGHT (TYPE DENOTED)
- SUSPENDED OR PENDANT LIGHT (TYPE DENOTED)
- RECESSED LINEAR LIGHT (TYPE DENOTED)
- STRIP LIGHT (TYPE DENOTED)
- TRACK AND TRACK LIGHT (TYPES DENOTED)
- EMERGENCY BATTERY LIGHT (TYPE DENOTED)
- EXIT SIGN (TYPE DENOTED)
- LIGHT FIXTURE ON EMERGENCY CIRCUIT
- SINGLE POLE SW.
- 2 POLE SINGLE THROW SW.
- 3-WAY SW.
- 4-WAY SW.
- KEYED SW.
- SW. W/PILOT
- DIMMER SWITCH
- OCCUPANCY SENSOR SWITCH
- MANUAL MOTOR STARTER SWITCH
- WEATHER PROOF SWITCH
- TIMER SWITCH
- MOMENTARY CONTACT SWITCH
- TIME DELAY SWITCH
- OCCUPANCY SENSOR - TYPE DENOTED
- LIGHT LEVEL SENSOR - TYPE DENOTED
- PHOTOCELL

SYSTEMS

- **TELEPHONE OUTLET (TYPE DENOTED)**
- INFORMATION OUTLET (TYPE DENOTED)
- COMBINATION TELEPHONE/DATA OUTLET
- WIRELESS ACCESS POINT
- CLOCK (TYPE DENOTED)

POWER

- SINGLE RECEPT.
- DUPLEX RECEPT.
- SPLIT DUPLEX RECEPT.
- ISOLATED GROUND RECEPT (DUPLEX SHOWN)
- RECEPT ON EMERGENCY CKT (DUPLEX SHOWN)
- QUADPLEX RECEPT.
- QUADRAPLEX PLEX RECEPTACLE ON EMERGENCY CIRCUIT
- FLOOR RECEPT. (DUPLEX SHOWN)
- RECEPT ON DROP CORD (DUPLEX SHOWN)
- RECEPT ON CORD REEL (DUPLEX SHOWN)
- SPECIAL RECEPT. OR CONN. (SEE SCHEDULE)
- JUNCTION BOX (WALL MOUNTED)
- JUNCTION BOX (FLOOR MOUNTED)
- HALFTONE SYMBOL INDICATES EXISTING
- DASHED SYMBOL INDICATES REMOVED
- MULTIOUTLET ASSEMBLY (TYPE DENOTED)
- POWER POLE (OPEN OFFICE STYLE)
- STATIC GROUND RECEPTACLE (TYPE DENOTED)
- LIGHTNING PROTECTION AIR TERMINAL
- GROUND ROD (PLAN VIEW)
- UTILITY SERVICE POWER POLE (SITE)
- CIRCUIT BREAKER PANEL
- POWER OR DISTRIBUTION PANEL
- TRANSFORMER (TYPE DENOTED)
- XX-1 MOTOR (SEE SCHEDULE)
- COMB. MOTOR STARTER (FUSED)
- SAFETY DISC. SW. (NON-FUSED)
- SAFETY DISC. SW. (FUSED)

SECURITY

- CR CARD READER
- DC DOOR CONTACT
- MD MOTION DETECTOR
- CCTV
- CCTV-PTZ

FIRE ALARM

- * = FACP (FIRE ALARM CONTROL PANEL)
  FAA (FIRE ALARM ANNUNCIATOR)
  FAGM (FIRE ALARM GRAPHIC MAP)
  PACP (PRE-ACTION CONTROL PANEL)
- * = F (MANUAL PULL STATION)
  FD (FIRE DAMPER)
  F/S (FIRE/SMOKE DAMPER)
  SD (SMOKE DAMPER)
  M (MAGNETIC DOOR HOLDER)
  RT (REMOTE TEST STATION & PILOT LIGHT)
  V (VISUAL)
  I OR Z (INDIVIDUAL ADDRESSABLE MODULE)
  WHERE X:
  C (CONTROL TYPE)
  M (MONITOR TYPE)
  S (SUPERVISORY)
- * = F (FLOW SWITCH)
  T (TAMPER SWITCH)
  P/V (POST INDICATOR VALVE)
- * = A (AUDIBLE)
  H (HORN)
  AV (AUDIBLE & VISUAL)
  WHERE X:
  X (CANDELA RATING)
- * = D (DUCT DETECTOR)
  H (HEAT)
  S (SMOKE)
  F (FLAME DETECTOR)
  IR (INFRA-RED)
  MF (MULTI SPECTRUM FLAME)
  S (SMOKE DETECTOR)
  I (IONIZATION)
  P (PHOTOELECTRIC)
  H (HEAT DETECTOR)
  R (RATE OF RISE)
  F (FIXED TEMPERATURE)

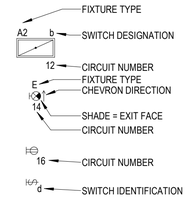
INSTRUMENTATION

- XX = PS (PRESSURE SWITCH)
  SV (SOLENOID VALVE)
  LS (LIMIT SWITCH)
  L (FLOAT SWITCH)
  FS (FLOW SWITCH)
  FD (FLOOR FLOOD FLOAT SWITCH)
  T (THERMOSTAT)
  MV (MOTORIZED VALVE)
- XX = PT (PRESSURE TRANSMITTER)
  LT (LEVEL TRANSMITTER)
  LE (LEVEL ELEMENT)
  FT (FLOW TRANSMITTER)
  FM (FLOW METER ELEMENT)
  TT (TEMPERATURE TRANSMITTER)
  AT (ANALYZER)
  AE (ANALYZER ELEMENT)
  MV (MODULATING MOTORIZED VALVE)

WIRING AND GROUNDING

- CONDUIT EXPOSED
- CONDUIT CONCEALED
- CONDUIT CAPPED
- CONDUIT CONTINUED
- GROUND CONDUCTOR
- OH — OVERHEAD ELECTRICAL LINE
- EE — DIRECT BURIED CONDUIT

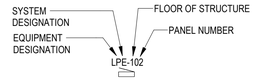
ELECTRICAL SYMBOL NOTES



PANELBOARD IDENTIFICATION

EQUIPMENT DESIGNATION	CODE
3Ø4W. 480Y/277V	PP
3Ø3W. 480	P
3Ø4W. 208Y/120V	LP
1Ø3W. 240/120V	L

SYSTEMS DESIGNATION	CODE
NORMAL	(BLANK)
EMERGENCY	E
UNINTERRUPTIBLE POWER SOURCE	U



ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	CTR	CENTER	HT	HEIGHT	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
A	AMPERE	CU	COPPER	HTG	HEATING	SWBD	SWITCHBOARD
AC	ABOVE COUNTER OR AIR CONDITIONER	DCP	DOMESTIC WATER CIRCULATING PUMP	HTR	HEATER	SYM	SYMMETRICAL
		DEPT	DEPARTMENT	HV	HIGH VOLTAGE	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
ACLG	ABOVE CEILING	DET	DETAIL	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	SYS	SYSTEM
ADO	AUTOMATIC DOOR OPENER	DIA	DIAMETER			TEL	TELEPHONE
AF	AMP FRAME	DISC	DISCONNECT	HWP	HYDRONIC WATER PUMP	TEL/DATA	TELEPHONE/DATA
AFF	ABOVE FINISHED FLOOR	DIST	DISTRIBUTION	IC	INTERRUPTING CAPACITY	TERM	TERMINAL
AFG	ABOVE FINISHED GRADE	DN	DOWN	IG	ISOLATED GROUND	TL	TWIST LOCK
AFI	ARC FAULT CIRCUIT INTERRUPTER	DPR	DAMPER	IMC	INTERMEDIATE METAL CONDUIT	TR	TAMPER RESISTANT
		DS	SAFETY DISCONNECT SWITCH	INCAND	INCANDESCENT	T-STAT	THERMOSTAT
AHU	AIR HANDLING UNIT	DT	DOUBLE THROW	IR	INFRARED	TTC	TELEPHONE TERMINAL CABINET
AL	ALUMINUM	DWG	DRAWING	I/W	INTERLOCK WITH	TV	TELEVISION
ALT	ALTERNATE	EC	ELECTRICAL CONTRACTOR	J-BOX	JUNCTION BOX	TVTC	TELEVISION TERMINAL CABINET
AMP	AMPERE	ELEC	ELECTRIC, ELECTRICAL	KV	KILOVOLT	TYP	TYPICAL
AMPL	AMPLIFIER	ELEV	ELEVATOR	KVA	KILOVOLT-AMPERE	UC	UNDER COUNTER
ANNUN	ANNUNCIATOR	EM	EMERGENCY	KVAR	KILOVOLT-AMPERE REACTIVE	UE	UNDERGROUND ELECTRICAL
APPROX	APPROXIMATELY	EMS	ENERGY MANAGEMENT SYSTEM	KW	KILOWATT	UG	UNDERGROUND
AQ-STAT	AQUASTAT	EMT	ELECTRICAL METALLIC TUBING	KWH	KILOWATT HOUR	UH	UNIT HEATER
ARCH	ARCHITECT, ARCHITECTURAL	EP	ELECTRIC PNEUMATIC	LOC	LOCATE OR LOCATION	UT	UNDERGROUND TELEPHONE
AS	AMP SWITCH	EQUIP	EQUIPMENT	LT	LIGHT	UTIL	UTILITY
AT	AMP TRIP	EWC	ELECTRIC WATER COOLER	LTG	LIGHTING	UV	UNIT VENTILATOR OR ULTRAVIOLET
ATS	AUTOMATIC TRANSFER SWITCH	EXIST	EXISTING	LTNG	LIGHTNING	V	VOLT
AUTO	AUTOMATIC	EXH	EXHAUST	LV	LOW VOLTAGE	VA	VOLT-AMPERES
AUX	AUXILIARY	EXP	EXPLOSION PROOF	MAX	MAXIMUM	VDT	VIDEO DISPLAY TERMINAL
AV	AUDIO VISUAL	FA	FIRE ALARM	MAG.S	MAGNETIC STARTER	VERT	VERTICAL
AWG	AMERICAN WIRE GAUGE	FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	M/C	MOMENTARY CONTACT	VFD	VARIABLE FREQUENCY DRIVE
BATT	BATTERY			MC	MECHANICAL CONTRACTOR	VOL	VOLUME
BD	BOARD	FACP	FIRE ALARM CONTROL PANEL	MCB	MAIN CIRCUIT BREAKER	W	WATT
BLDG	BUILDING	FCU	FAN COIL UNIT	MCC	MOTOR CONTROL CENTER	W/	WITH
BMS	BUILDING MANAGEMENT SYSTEM	FIXT	FIXTURE	MDC	MAIN DISTRIBUTION CENTER	WG	WIRE GUARD
C	CONDUIT	FLR	FLOOR	MDP	MAIN DISTRIBUTION PANEL	WH	WATER HEATER
CAB	CABINET	FLUOR	FLUORESCENT	MFR	MANUFACTURER	W/O	WITHOUT
CAT	CATALOG	FU	FUSE	MFS	MAIN FUSED DISCONNECT SWITCH	WP	WEATHERPROOF
CATV	CABLE TELEVISION	FUDS	FUSED SAFETY DISCONNECT SWITCH	MH	MANHOLE	XFMR	TRANSFORMER
CB	CIRCUIT BREAKER	GA	GAUGE	MIC	MICROPHONE	XFR	TRANSFER
CCTV	CLOSED CIRCUIT TELEVISION	GAL	GALLON	MIN	MINIMUM		
CKT	CIRCUIT	GALV	GALVANIZED	MISC	MISCELLANEOUS		
CLG	CEILING	GC	GENERAL CONTRACTOR	MLO	MAIN LUGS ONLY		
COMB	COMBINATION	GEN	GENERATOR	MMS	MANUAL MOTOR STARTER		
CMPR	COMPRESSOR	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MOA	MULTIOUTLET ASSEMBLY		
CONN	CONNECTION	GFP	GROUND FAULT PROTECTOR	MSP	MOTOR STARTER PANELBOARD		
CONST	CONSTRUCTION	GND	GROUND	MSBD	MAIN SWITCHBOARD		
CONT	CONTINUATION OR CONTINUOUS	GRS	GALVANIZED RIGID STEEL (CONDUIT)	MT	MOUNT		
CONTR	CONTRACTOR	GYP BD	GYPSUM BOARD	MT.C	EMPTY CONDUIT		
CONV	CONVECTOR	HOA	HANDS-OFF-AUTOMATIC SWITCH	MTS	MANUAL TRANSFER SWITCH		
CP	CIRCULATING PUMP	HORIZ	HORIZONTAL	MTR	MOTOR, MOTORIZED		
CRT	CATHODE-RAY TUBE	HP	HORSEPOWER	N.C.	NORMALLY CLOSED		
CT	CURRENT TRANSFORMER	HPF	HIGH POWER FACTOR	NEC	NATIONAL ELECTRICAL CODE		

NIC	NOT IN CONTRACT	SURF	SURFACE MOUNTED
NL	NIGHT LIGHT	SW	SWITCH
N.O.	NORMALLY OPEN	SS	STAINLESS STEEL
NPF	NORMAL POWER FACTOR	SSW	SELECTOR SWITCH
NTS	NOT TO SCALE	S/S	STOP/START PUSHBUTTONS
OH	OVERHEAD	STA	STATION
OL	OVERLOADS	STD	STANDARD
PA	PUBLIC ADDRESS		
PB	PULL BOX OR PUSHBUTTON		
PE	PNEUMATIC ELECTRIC		
PED	PEDESTAL		
PF	POWER FACTOR		
PH	PHASE		
PIV	POST INDICATING VALVE		
PNL	PANEL		
PP	POWER POLE		
PR	PAIR		
PRI	PRIMARY		
PROJ	PROJECTION		
PRV	POWER ROOF VENTILATOR		
PT	POTENTIAL TRANSFORMER		
PVC	POLYVINYL CHLORIDE (CONDUIT)		
PWR	POWER		
QUAN	QUANTITY		
RCPT	RECEPTACLE		
REQD	REQUIRED		
RM	ROOM		
RSC	RIGID STEEL CONDUIT		
RTU	ROOF TOP UNIT		
SC	SURFACE CONDUIT		
SEC	SECONDARY		
SHT	SHEET		
SIM	SIMILAR		
S/N	SOLID NEUTRAL		
SPEC	SPECIFICATION	∠	ANGLE
SPKR	SPEAKER	@	AT
SP	SPARE	▲	DELTA
SR	SURFACE RACEWAY	'	FEET
		"	INCHES
		#	NUMBER
		Ø	PHASE
		C	CENTER LINE
		P	PLATE

SEH
Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	185392
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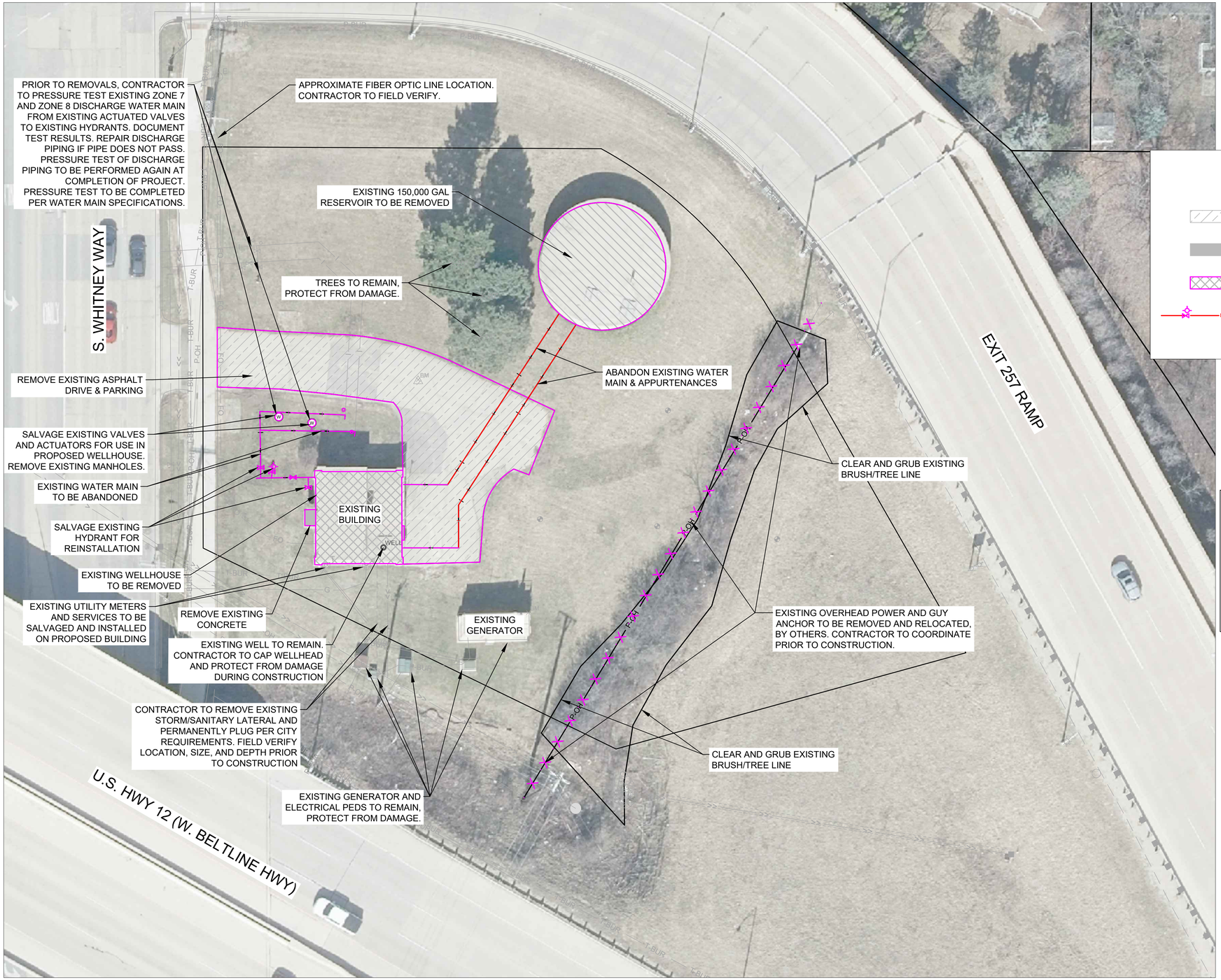
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

SYMBOLS, ABBREVIATIONS AND NOTES

01
E001



N

20 0 20 40
scale 10 feet

REMOVALS

- BITUMINOUS DRIVE REMOVAL
- CONCRETE PAVEMENT REMOVAL
- STRUCTURE REMOVAL
- WATER MAIN & APPURTENANCES REMOVAL OR ABANDONMENT

NOTES:

1. SEE SPECIFICATIONS FOR DETAILED PROJECT SCHEDULE AND PHASING INFORMATION.
2. CONTRACTOR TO NOTIFY ENGINEER AND OWNER IN WRITING A MINIMUM 2 WEEKS PRIOR TO DEMOLITION. DURING THIS PERIOD, CONTRACTOR SHALL ALLOW ACCESS TO EXISTING FACILITIES FOR OWNER TO SALVAGE EXISTING EQUIPMENT.
3. PRIOR TO DEMOLITION, CONTRACTOR TO SALVAGE EXISTING EQUIPMENT, ARCHITECTURAL SIGNAGE AND BLOCK, AND OTHER ITEMS AS SPECIFIED AND DETAILED ELSEWHERE ON PLAN SET. SEE SHEETS P070, E071, AND A003 FOR MORE INFORMATION.

SEH

Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	MADWU 185392
Checked By	KB
Drawn By	PAL

Project Status	**Issue Date**
BIDDING	02/12/2026

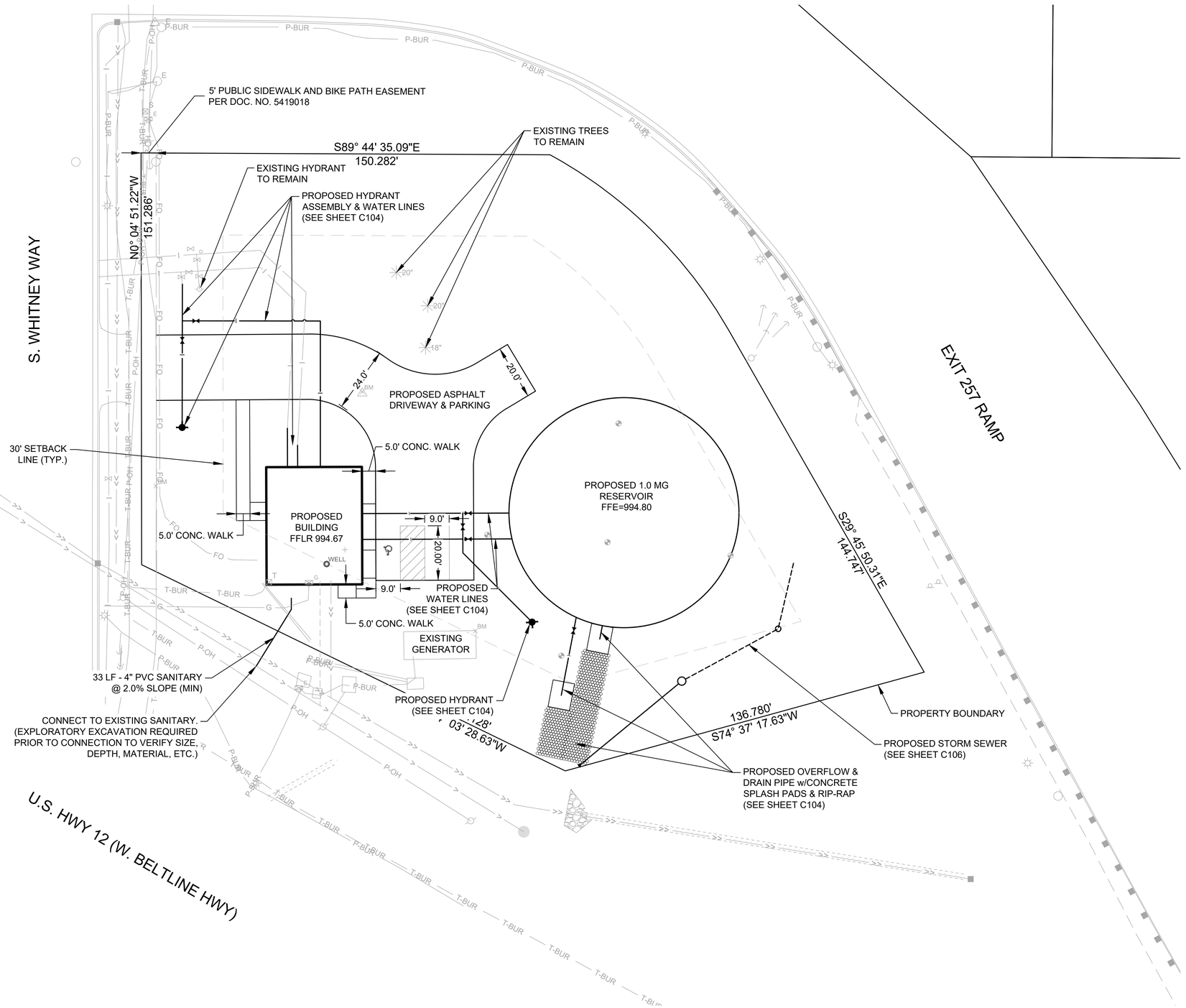
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

REMOVALS PLAN

C101

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N

20 0 20 40
scale 10 feet

SITE PLAN NOTES:

EXISTING IMPERVIOUS AREA (NOT BEING REMOVED):
GENERATOR & UTILITY BOX = 298 SQ. FT.
RIPRAP AND CONCRETE PAD = 760 SQ. FT.

PROPOSED IMPERVIOUS AREA:
ROOF = 7,130 SQ. FT.
PAVEMENT (ASPHALT AND CONCRETE) = 5,260 SQ. FT.

PROPOSED PERVIOUS AREA = 33,058 SQ. FT.

TOTAL SITE AREA = 46,001 SQ. FT.
TOTAL NET IMPERVIOUS AREA (EXISTING AND PROPOSED) = 13,448 SQ. FT.
TOTAL IMPERVIOUS PERCENTAGE = 29.2%

NOTE:

1. EXISTING WELL HOUSE SEWER SERVICE TO BE PERMANENTLY PLUGGED PER CITY REQUIREMENTS. CONTRACTOR TO FIELD VERIFY SIZE AND LOCATION OF EXISTING SANITARY SEWER LATERAL PRIOR TO WORK.

SEH

Madison Water Utility

Project Owner

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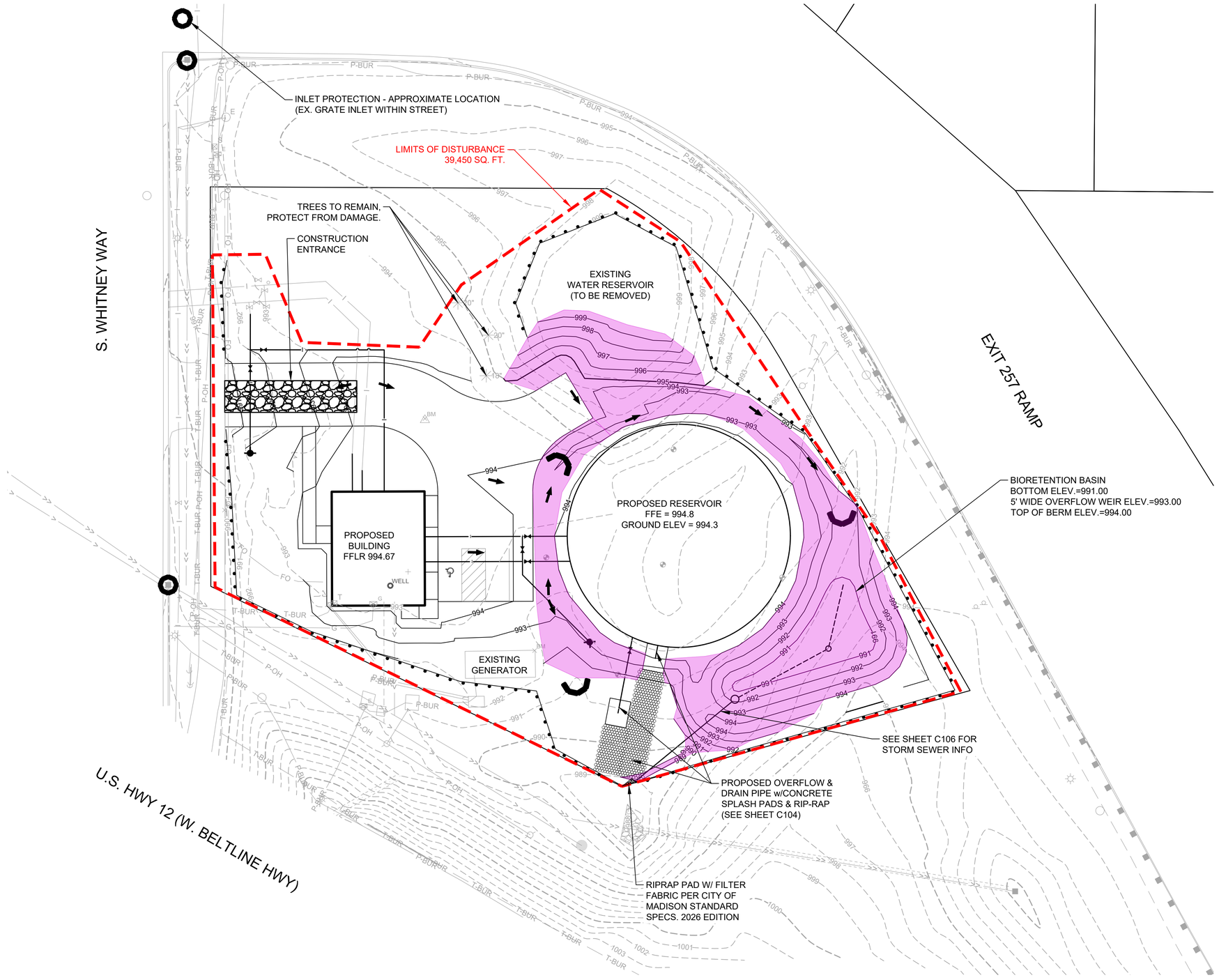
REV. #	DESCRIPTION	DATE

SITE PLAN

C102

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N

20 0 20 40
scale 10 feet

GRADING & EROSION CONTROL LEGEND

- CLASS I - TYPE 'A' ECRM
- DRAINAGE DIRECTION
- INLET PROTECTION
- SEDIMENT LOG DITCH CHECK
- SILT FENCE

EROSION CONTROL NOTES:

EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY.

THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL FINAL ACCEPTANCE BY THE CITY OF MADISON.

THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE WDNR SOC STANDARDS AND CITY OF MADISON STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL PROVIDE STREET CLEANING AS NEEDED ON A DAILY BASIS TO KEEP TRACKING TO A MINIMUM.

INLET PROTECTION SHALL BE INSTALLED WITHIN THE CONSTRUCTION LIMITS. ADDITIONAL INLET PROTECTION SHALL BE INSTALLED AS DIRECTED.

POLYMER SHALL BE APPLIED TO DISTURBED AREAS AS DIRECTED BY THE CONSTRUCTION ENGINEER.

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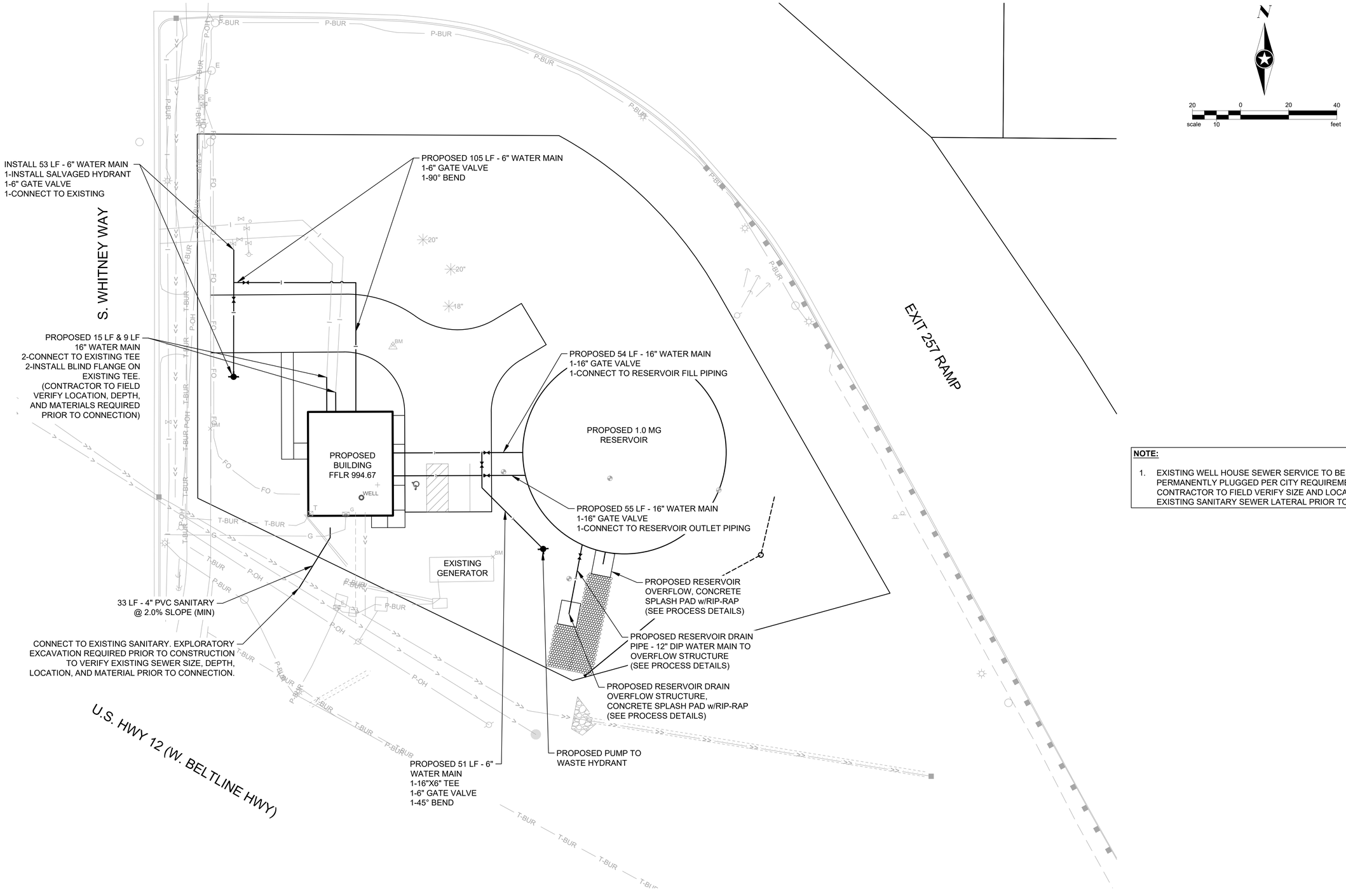
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GRADING & EROSION CONTROL PLAN

C103

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NOTE:

1. EXISTING WELL HOUSE SEWER SERVICE TO BE PERMANENTLY PLUGGED PER CITY REQUIREMENTS. CONTRACTOR TO FIELD VERIFY SIZE AND LOCATION OF EXISTING SANITARY SEWER LATERAL PRIOR TO WORK.

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE

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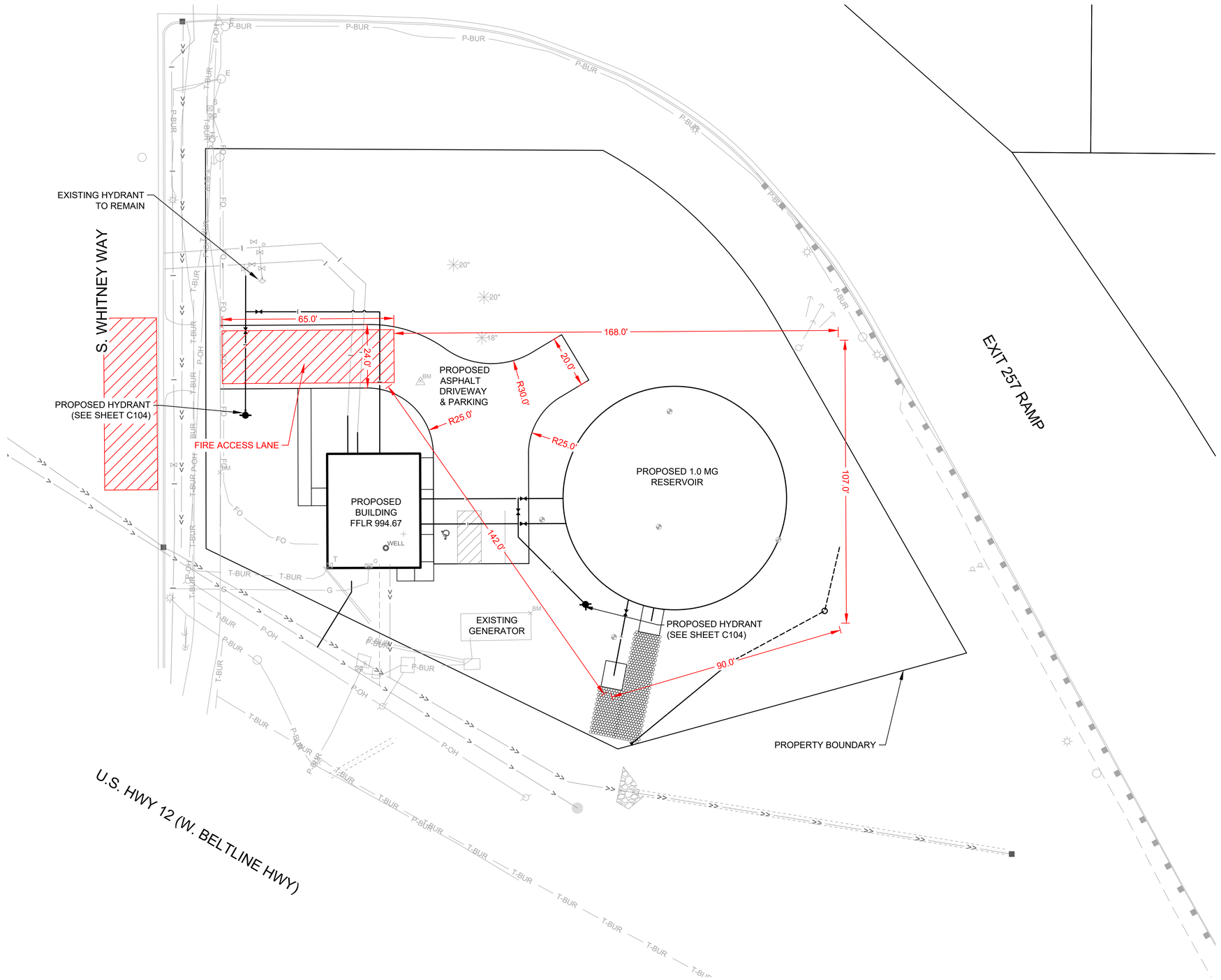
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BIDDING	02/12/2026
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REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

UTILITY PLAN

C104



N

20 0 20 40

scale 10 feet

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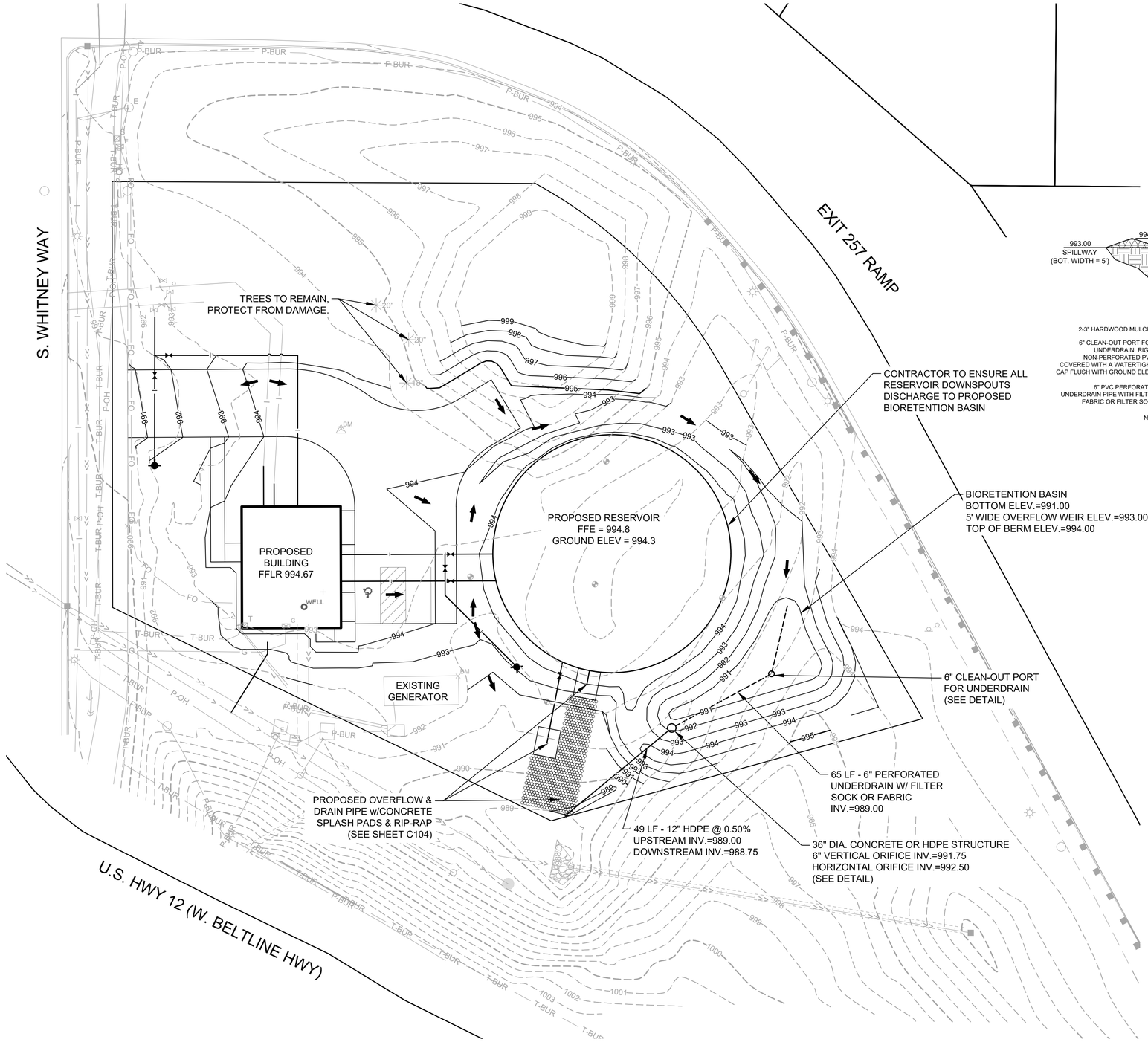
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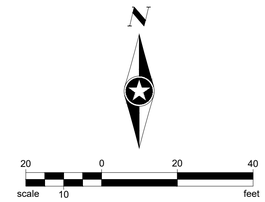
FIRE ACCESS PLAN

C105

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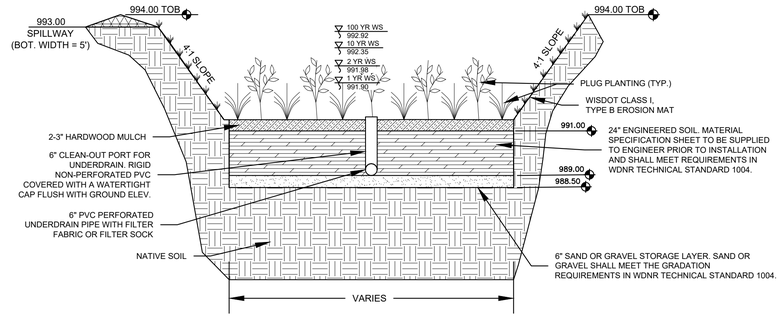
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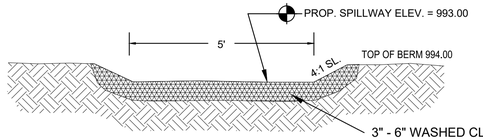


CONSTRUCTION NOTES:
EXCAVATE THE BIORETENTION BASIN. INSTALL ENGINEERED SOIL PER WDNR TECHNICAL STANDARD. 1004. RAKE BIORETENTION BASIN BOTTOM IN PREPARATION FOR NATIVE PLANT SEEDING. SIDE SLOPES TO BE SEEDED WITH GRASS AND EROSION MATTING INSTALLED.

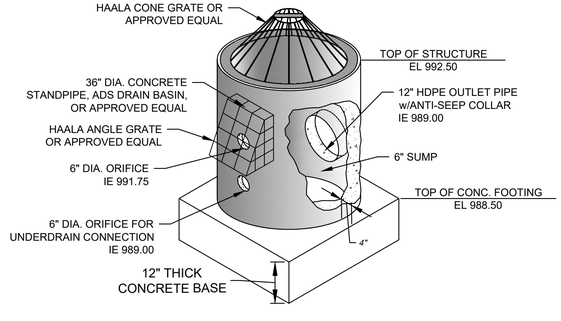
SAND/COMPOST MIX SPECIFICATION:
70-85% SAND / 15-30% COMPOST



BIORETENTION BASIN CROSS-SECTION
NOT TO SCALE



BIORETENTION BASIN EMERGENCY SPILLWAY DETAIL
NOT TO SCALE



STRUCTURE CONSTRUCTION NOTES:

1. INSTALL RISER VERTICALLY ON TOP OF GRAVEL BASE
2. POUR FOOTING AROUND BASE OF STRUCTURE (EXTEND 4" BEYOND PIPE EDGE)
3. FILL RISER WITH CONCRETE TO SUMP ELEVATION

OUTLET STRUCTURE DETAIL
NOT TO SCALE

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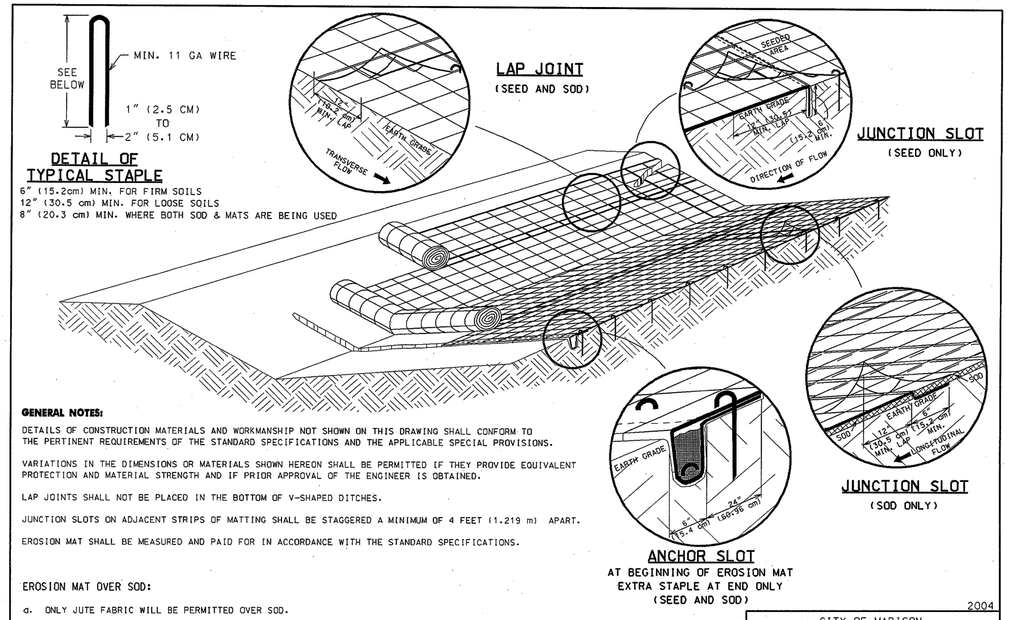
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BIOBED DETAILS

C106

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GENERAL NOTES:

DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

VARIATIONS IN THE DIMENSIONS OR MATERIALS SHOWN HEREON SHALL BE PERMITTED IF THEY PROVIDE EQUIVALENT PROTECTION AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER IS OBTAINED.

LAP JOINTS SHALL NOT BE PLACED IN THE BOTTOM OF V-SHAPED DITCHES.

JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING SHALL BE STAGGERED A MINIMUM OF 4 FEET (1.219 m) APART.

EROSION MAT SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EROSION MAT OVER SOD:

a. ONLY JUTE FABRIC WILL BE PERMITTED OVER SOD.

b. WOOD STAKES FOR SOD MAY BE OMITTED BY THE ENGINEER IF EXISTING SLOPE AND SOIL CONDITIONS SO WARRANT.

c. THE WIDTH OF EROSION MAT SHALL ALWAYS EXCEED THE SOD WIDTH.

EROSION MAT OVER SEEDING:

JUNCTION OR ANCHOR SLOTS SHALL BE AT MINIMUM INTERVALS OF 100 FEET (30.48 m) ON GRADES UP TO AND INCLUDING 3 PERCENT, AND 50 FEET (15.24 m) ON GRADES EXCEEDING 3 PERCENT.

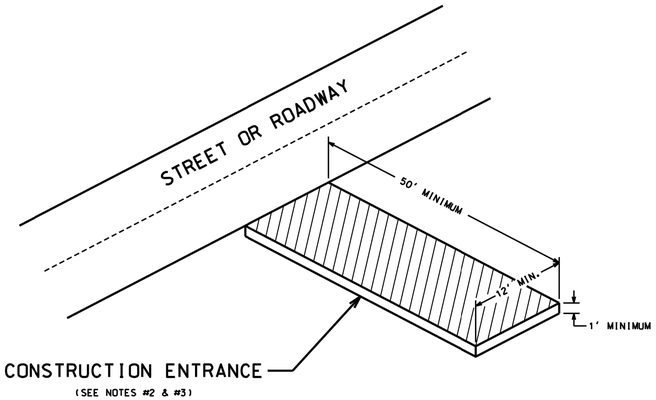
DRAWING NOT TO SCALE

2004

CITY OF MADISON
ENGINEERING DIVISION

EROSION MAT

STANDARD DETAIL DRAWING 1.02



GENERAL NOTES FOR TYPICAL STONE TRACKING PADS:

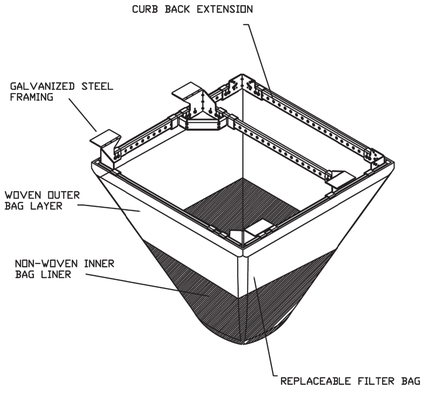
1. CONSTRUCTION ENTRANCE TRACKOUT CONTROLS MUST BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE.
2. THE AGGREGATE FOR THE CONSTRUCTION ENTRANCE SHALL BE HARD, DURABLE, ANGULAR STONE OR RECYCLED CONCRETE MEETING THE FOLLOWING GRADATION, LISTED BY SIEVE SIZE IN INCHES (PERCENT BY WEIGHT PASSING): 3" (100% PASSING), 2.5" (90-100% PASSING), 1.5" (25-60% PASSING), 3/4" (0-20% PASSING), AND 3/8" (0-5% PASSING).
3. WHERE WARRANTED DUE TO SOIL TYPE OR HIGH GROUNDWATER, UNDERLAY THE STONE TRACKING PAD WITH GEOTEXTILE FABRIC TO MINIMIZE MIGRATION OF UNDERLYING SOIL INTO THE STONE. SELECT FABRIC TYPE HR OR FF GEOTEXTILE FABRIC BASED ON SOIL CONDITIONS AND VEHICLE LOADING. IF UNDERLAY IS REQUIRED IT SHALL BE INCLUDED IN CONSTRUCTION ENTRANCE COST.
4. INSTALL THE STONE TRACKING PAD TO ENSURE VEHICLES THAT DRIVE OVER EXPOSED SOIL EXIT ALONG THE FULL LENGTH OF THE PAD.
5. AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. DO NOT COMPACT, GROUT, OR CAUSE SMOOTHING OF TRACKING PAD SURFACE.
6. INSTALL THE TRACKING PAD ACROSS THE FULL WIDTH OF THE ACCESS POINT, OR RESTRICT EXITING TRAFFIC TO A DEDICATED EGRESS LANE WITH A DRIVING SURFACE AT LEAST 12 FEET WIDE.
7. SURFACE WATERS MUST BE PREVENTED FROM PASSING THROUGH THE CONSTRUCTION ENTRANCE. FLOWS SHALL BE DIVERTED AWAY FROM THE CONSTRUCTION ENTRANCE OR CONVEYED UNDER AND AROUND BY USE OF A CULVERT. DIVERSION BERM OR OTHER PRACTICES AS APPROVED BY THE CONSTRUCTION ENGINEER.
8. RUNOFF FROM TRACKING PAD MUST BE DIRECTED TO SEDIMENT CONTROL PRACTICES.
9. MAINTAIN A LOOSENED, ROUGH SURFACE BY SCRAPING, LOOSENING, OR TOP-DRESSING WITH ADDITIONAL AGGREGATE.
10. ALTERNATIVE TRACKOUT CONTROL DEVICES MUST MEET THE REQUIREMENTS OF WDNR STANDARD FOR TRACKOUT CONTROL PRACTICES (1057) AND HAVE APPROVAL OF CITY OF MADISON ENGINEERING PRIOR TO IMPLEMENTATION.

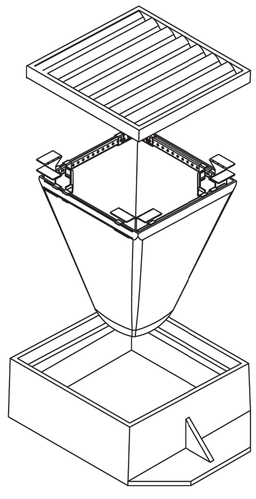
2018

CITY OF MADISON
ENGINEERING DIVISION

CONSTRUCTION ENTRANCE

STANDARD DETAIL DRAWING 1.07





ASTM D8057 Requirements
-> Filter system consists of rigid frame and removable geosynthetic bag
-> Filter bag sized to meet treatment flow rate of the drainage location
-> Bag maintains shape to be extracted when completely filled with sediment
-> Rigid frame capable of supporting full load of sediment with grate removed
-> Frame does not interfere or elevate grate by more than 1/8"
-> Bypass flow exceeds design flow of drainage location
-> Filter bag achieves >80% filtration efficiency per ASTM D7351 OR ASTM D5141

Installation Instructions:
1. Remove grate from the drainage structure
2. Clean stone and dirt from ledge (lip) of drainage structure
3. Drop the inlet filter through the clear opening such that the hangers rest firmly on the lip of the structure
4. Replace the grate and confirm it is not elevated more than 1/8"

Maintenance Guidelines:
1. Empty the sediment bag if more than half filled with sediment and debris
2. Remove the grate, engage the lifting points, and lift filter from the drainage structure
3. Dispose of sediment and debris as directed by the Engineer or Maintenance Contract
4. Alternatively, an industrial vacuum can be used to collect sediment from filter bag

2020

CITY OF MADISON
ENGINEERING DIVISION

RIGID FRAME
INLET
PROTECTION

STANDARD DETAIL DRAWING 1.11

1.11

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.

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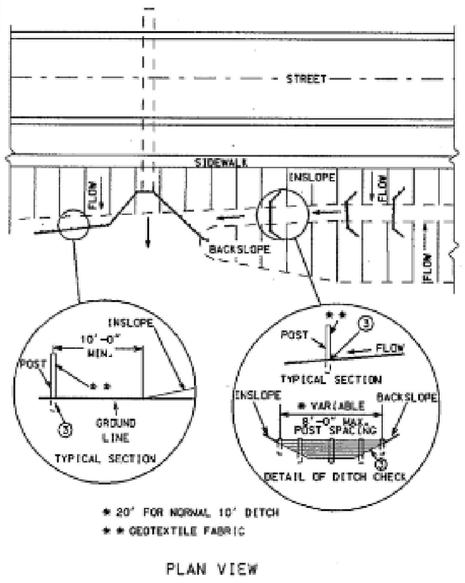
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EROSION CONTROL DETAILS

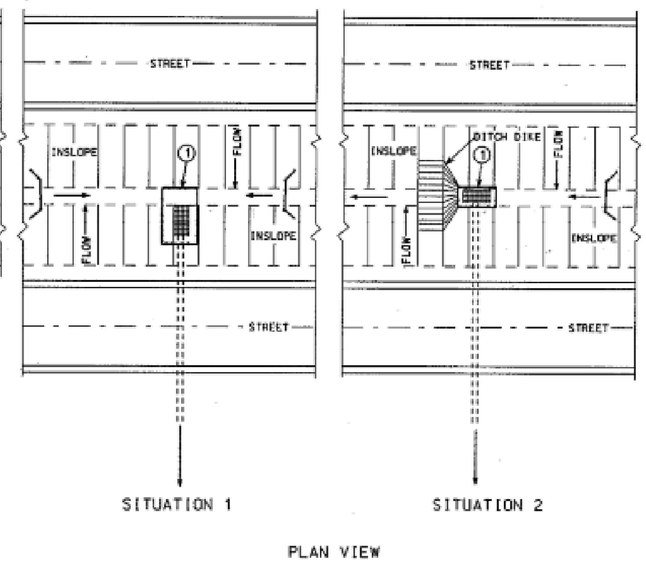
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PLAN VIEW

TYPICAL APPLICATIONS OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

DETAIL OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

(1A) WHEN POSSIBLE THE SILT FENCE SHOULD BE CONSTRUCTED IN AN ARC OR HORSESHOE SHAPE WITH THE ENDS POINTING UPSLOPE TO MAXIMIZE BOTH STRENGTH AND EFFECTIVENESS.

(1) CROSS BRACE WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS AS DIRECTED BY THE ENGINEER.

(2) MINIMUM 14 GAGE WIRE REQUIRED. FOLD FABRIC 3" OVER THE WIRE AND STAPLE OR PLACE WIRE RINGS ON 12" C-C.

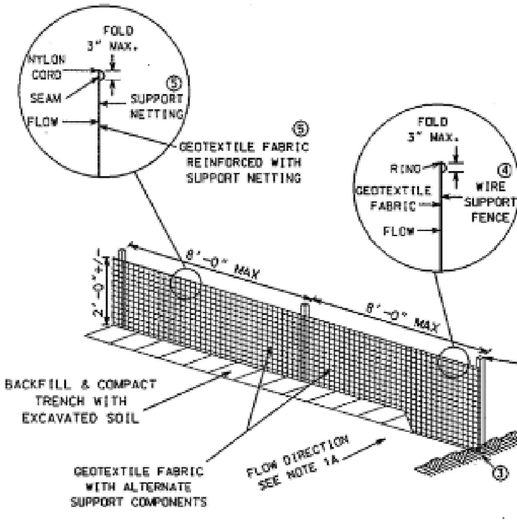
(3) EXCAVATE A TRENCH A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

(4) WIRE SUPPORT FENCE SHALL BE 14 GAGE MINIMUM WOVEN WIRE WITH A MAXIMUM MESH SPACING OF 6". SECURE TOP OF GEOTEXTILE FABRIC TO TOP OF FENCE WITH STAPLES OR WIRE RINGS AT 12" C-C.

(5) GEOTEXTILE FABRIC SHALL BE REINFORCED WITH AN INDUSTRIAL POLYPROPYLENE NETTING WITH A MAXIMUM MESH SPACING OF $^{3}/_{4}$" OR EQUAL. A HEAVY DUTY NYLON TOP SUPPORT CORD OR EQUIVALENT IS REQUIRED.

(6) STEEL POSTS SHALL BE STUDDED "TEE" OR "U" TYPE WITH A MINIMUM WEIGHT OF 1.28 LBS/LINEAL FOOT (WITHOUT ANCHOR). FIN ANCHORS SUFFICIENT TO RESIST POST MOVEMENT ARE REQUIRED. WOOD POSTS SHALL BE A MINIMUM SIZE OF 4" DIA. OR $1^{1}/_{2}$" X $3^{1}/_{8}$" EXCEPT WOOD POSTS FOR GEOTEXTILE FABRIC REINFORCED WITH NETTING SHALL BE A MINIMUM SIZE OF $1^{1}/_{8}$" X $1^{1}/_{8}$" OAK OR HICKORY.

ALTERNATES A & B ARE EQUAL AND EITHER MAY BE USED.

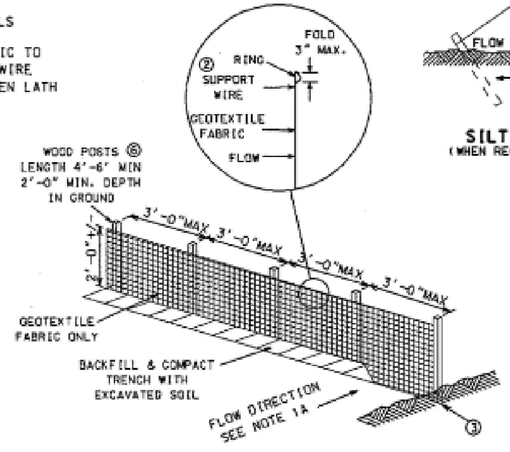


ALTERNATE "A"

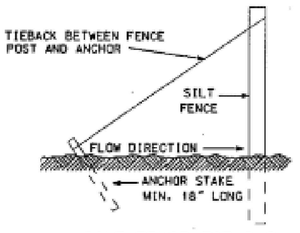
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

ATTACH THE FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH AND NAILS

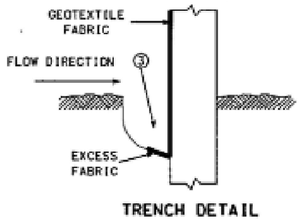
SILT FENCE



ALTERNATE "B"



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)



TRENCH DETAIL

2004

CITY OF MADISON
ENGINEERING DIVISION

SILT FENCE

STANDARD DETAIL DRAWING 1.01

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.

SEH

Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	MADWU 185392
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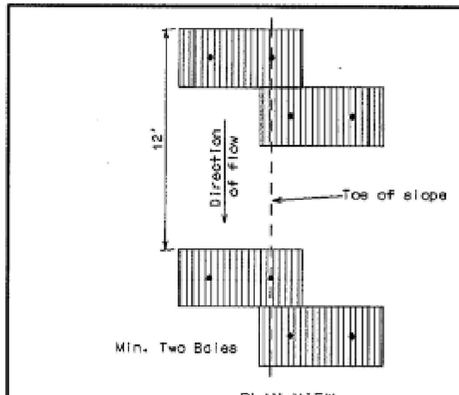
Project Status	Issue Date
BIDDING	02/12/2026

REVISION SCHEDULE

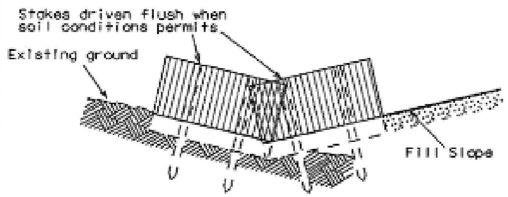
REV. #	DESCRIPTION	DATE

EROSION CONTROL DETAILS

CD102

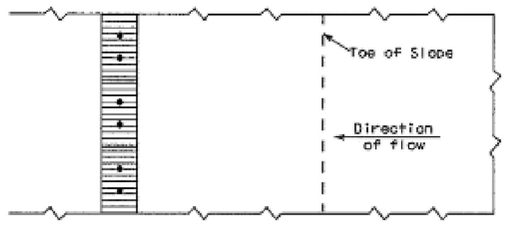


PLAN VIEW

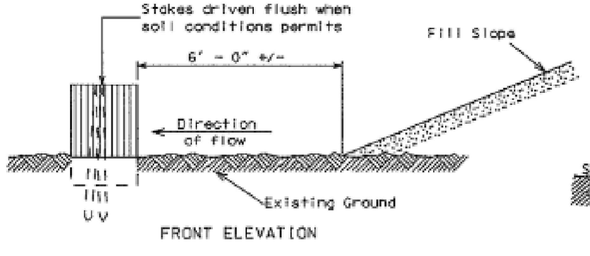


FRONT ELEVATION

EROSION BALES AT TOE OF SLOPE
WHEN EXISTING GROUND SLOPES TOWARD FILL SLOPE

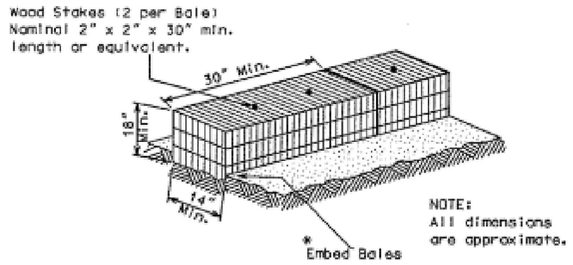


PLAN VIEW

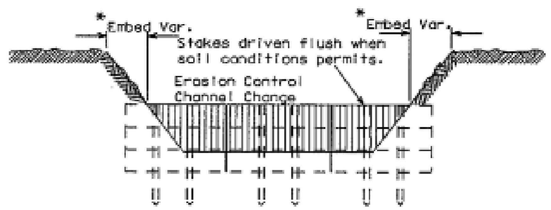


FRONT ELEVATION

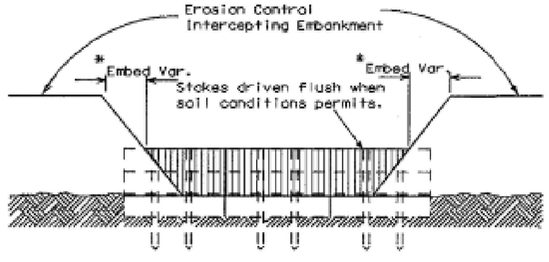
EROSION BALES AT TOE OF SLOPE
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE



DETAIL OF EROSION BALE INSTALLATION



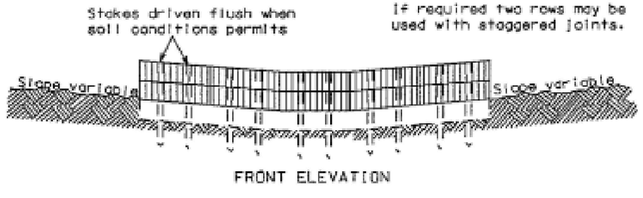
EROSION CONTROL CHANNEL CHANGE



EROSION CONTROL INTERCEPTING EMBANKMENT



PLAN VIEW



FRONT ELEVATION

EROSION BALES ACROSS DITCH BOTTOM

GENERAL NOTES

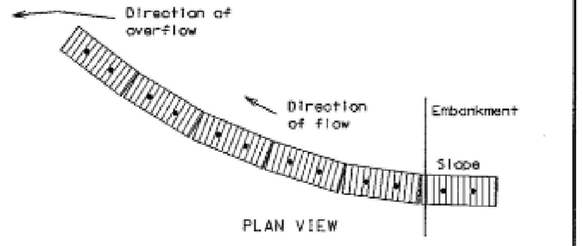
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

BALES SHALL BE PLACED END TO END OR OVERLAPPING AT RIGHT ANGLES TO THE DIRECTION OF FLOW AND FAR ENOUGH UP THE SIDES OF THE DITCH TO PREVENT ERODING AROUND ENDS.

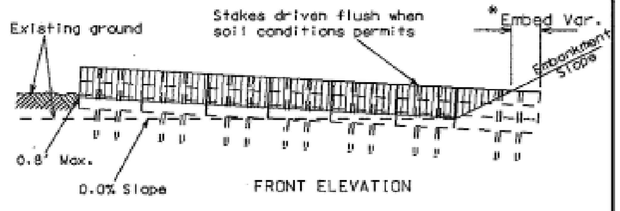
BALES SHALL BE PLACED WITH TWINE OR TIE WIRES PARALLEL TO THE GROUND.

STAKES TO BE BATTERED IN OPPOSITE DIRECTIONS.

* AS DETERMINED BY THE ENGINEER.



PLAN VIEW



FRONT ELEVATION

EROSION BALES AT TOE OF SLOPE

2004

CITY OF MADISON
ENGINEERING DIVISION

TYPICAL INSTALLATIONS OF EROSION BALES

STANDARD DETAIL DRAWING 1.03

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE
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SEH

Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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SEH Project	MADWU 185392
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Drawn By	PAL

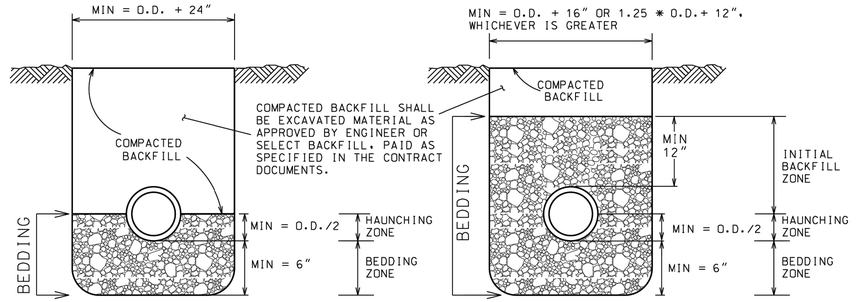
Project Status	Issue Date
BIDDING	02/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

EROSION CONTROL DETAILS

CD103



BEDDING FOR
REINFORCED CONCRETE
SEWER PIPES

BEDDING FOR
SANITARY PIPE

NOTES:

UNLESS OTHERWISE SPECIFIED, ALL SANITARY PIPES, INCLUDING LATERALS AND LEADS, SHALL BE INSTALLED WITH THE TYPE OF BEDDING SHOWN FOR THE TYPE AND SIZE OF PIPE INSTALLED.

THE COSTS OF BEDDING SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PIPE.
FOR RCP, BEDDING INCLUDES THE HAUNCHING & BEDDING ZONES.
FOR PLASTIC PIPES, THE BEDDING INCLUDES THE HAUNCHING, BEDDING & INITIAL BACKFILL ZONES.
THE BEDDING SHALL BE INSTALLED & COMPACTED IN 6" MAXIMUM LIFTS.

ALL TRENCHES SHALL BE HAND BACKFILLED TO A POINT 12" ABOVE THE TOP OF THE PIPE. ALL BEDDING SHALL BE MECHANICALLY COMPACTED.

PAYMENT SHALL NOT BE MADE FOR BACKFILL WITH EXCAVATED MATERIAL, IF APPROVED. SELECT FILL, IF REQUIRED, SHALL BE PAID PER CONTRACT.

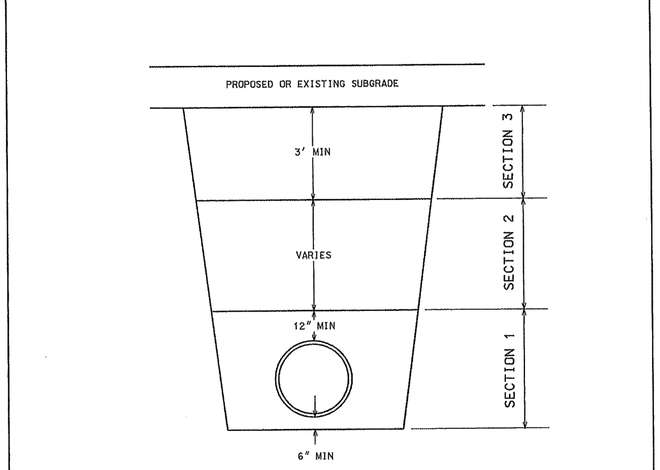
THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE 3 * O.D., THE MINIMUM TRENCH WIDTH AS SPECIFIED, AND SHALL APPLY FROM THE BOTTOM OF THE TRENCH TO A POINT 12" ABOVE THE TOP OF THE PIPE. WHERE THIS WIDTH IS EXCEEDED, THE CONTRACTOR SHALL FURNISH AND INSTALL A HIGHER TYPE OF BEDDING AT **NO EXTRA COST.** THE TYPE OF BEDDING SHALL BE DETERMINED BY THE ENGINEER.

O.D. EQUALS THE OUTSIDE DIAMETER OF THE PIPE.

2016

DRAWING NOT TO SCALE

CITY OF MADISON ENGINEERING DIVISION
PIPE BEDDING AND BACKFILL
STANDARD DETAIL DRAWING 5.2.1



TYPICAL TRENCH COMPACTION

ALL BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12" BEFORE COMPACTION UNLESS AUTHORIZED BY THE ENGINEER DUE TO THE CHARACTER OF THE MATERIAL AND THE COMPACTING EQUIPMENT. EACH LIFT SHALL BE MECHANICALLY COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING SUCCEEDING LIFTS OF BACKFILL MATERIAL.

IN COLD WEATHER, TRENCHES SHALL BE COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN SECTION 502.1 (e), BACKFILLING EXCAVATIONS AND COMPACTION OF BACKFILL, OF THESE SPECIFICATIONS.

SECTION 1:

MECHANICALLY COMPACTED BEDDING AS REQUIRED BY THE SPECIFICATIONS. COMPACTION ACHIEVED WITH SMALLER PLATE COMPACTOR. FOR ALL PLASTIC PIPE SECTION 1 SHALL BE INSTALLED IN ACCORDANCE WITH S.D.D. 5.2.1A

SECTION 2:

MINIMUM COMPACTION OF 90% MAXIMUM DENSITY. COMPACTION OF BACKFILL WITH BOMAG OR HOE-PAC SHALL NOT BEGIN UNTIL THE DEPTH OF BACKFILL MATERIAL IS TWO FEET ABOVE THE TOP OF PIPE.

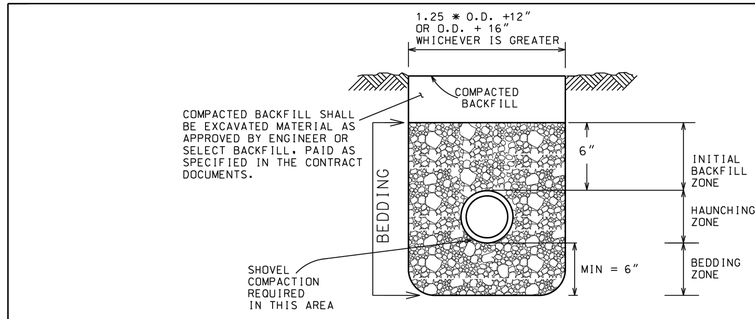
SECTION 3:

MINIMUM COMPACTION OF 95% MAXIMUM DENSITY.

2011

CITY OF MADISON ENGINEERING DIVISION
TYPICAL TRENCH COMPACTION
STANDARD DETAIL DRAWING 5.2.2

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.



BEDDING FOR
TYPE II, TYPE III,
AND TYPE IV STORM PIPE,
SECTION 1 OF S.D.D 5.2.2

NOTES:

THE COSTS OF BEDDING SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PIPE.
THE BEDDING INCLUDES THE HAUNCHING, BEDDING & INITIAL BACKFILL ZONES.
THE BEDDING SHALL BE INSTALLED & COMPACTED IN 6" MAXIMUM LIFTS, AND SHOVEL COMPACTION UNDER THE HAUNCH OF PIPE IS REQUIRED.

ALL TRENCHES SHALL BE HAND BACKFILLED TO A POINT 12" ABOVE THE TOP OF THE PIPE. ALL BEDDING SHALL BE MECHANICALLY COMPACTED.

PAYMENT SHALL NOT BE MADE FOR BACKFILL WITH EXCAVATED MATERIAL. IF APPROVED. SELECT FILL, IF REQUIRED, SHALL BE PAID PER CONTRACT.

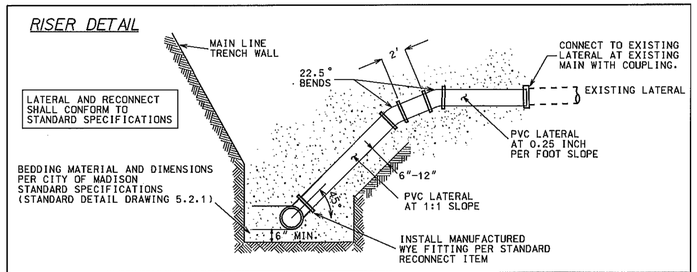
THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MIN SPECIFIED PLUS 12", AND SHALL APPLY FROM THE BOTTOM OF THE TRENCH TO A POINT 12" ABOVE THE TOP OF THE PIPE. WHERE THIS WIDTH IS EXCEEDED, THE CONTRACTOR SHALL FURNISH AND INSTALL A HIGHER TYPE OF BEDDING AT NO EXTRA COST. THE TYPE OF BEDDING SHALL BE DETERMINED BY THE ENGINEER.

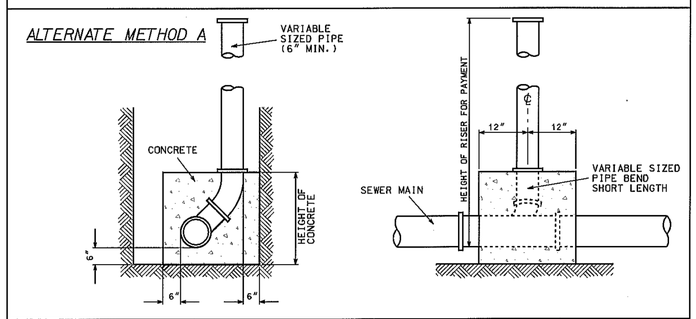
O.D. EQUALS THE OUTSIDE DIAMETER OF THE PIPE.

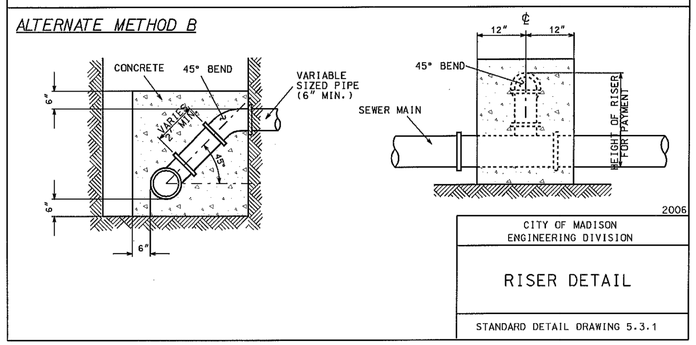
2017

DRAWING NOT TO SCALE

CITY OF MADISON ENGINEERING DIVISION
STORM PIPE BEDDING AND BACKFILL- SECTION 1 OF S.D.D.5.2.2
STANDARD DETAIL DRAWING 5.2.1A







2006

CITY OF MADISON ENGINEERING DIVISION
RISER DETAIL
STANDARD DETAIL DRAWING 5.3.1

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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Checked By	KB
Drawn By	PAL

Project Status	Issue Date
BIDDING	02/12/2026

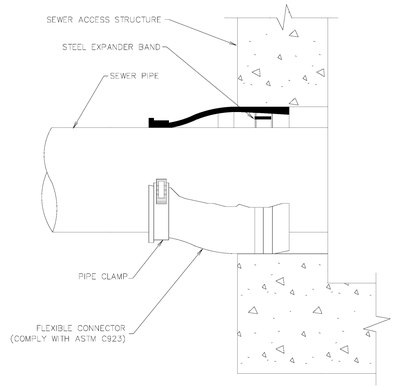
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

UTILITY DETAILS

CD104

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NOTES:

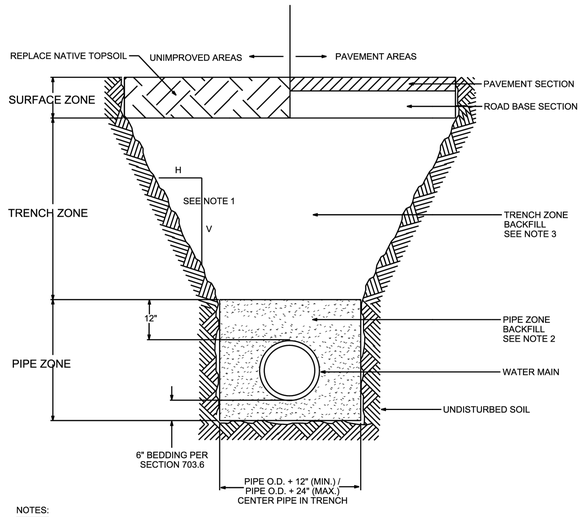
1. S.A.S. CONNECTIONS FOR SEWER MAINS SHALL BE MADE USING FLEXIBLE, WATERTIGHT CONNECTIONS SUCH AS KOR-N-SEAL I OR APPROVED EQUAL, UNLESS DIRECTED OTHERWISE BY ENGINEER.
2. ALL STAINLESS STEEL ELEMENTS OF CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 304 STAINLESS, EXCLUDING THE WORM SCREW FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE SERIES 305 STAINLESS. THE WORM SCREW FOR TIGHTENING THE STEEL BAND SHALL BE TORQUED BY A BREAK-AWAY TORQUE WRENCH AVAILABLE FOR THE PRECAST S.A.S SUPPLIER AND SET FOR 60 – 70 INCH/LBS.
3. THE CONNECTOR SHALL BE INSTALLED IN THE S.A.S. WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE CONNECTOR MANUFACTURER.
4. THE CONNECTOR SHALL BE OF A SIZE SPECIFICALLY DESIGNED FOR THE PIPE MATERIAL AND SIZE BEING UTILIZED ON THE PROJECT.
5. ALL COSTS SHALL BE CONSIDERED INCIDENTAL TO THE S.A.S. AND/OR PIPE. THE ENGINEER RESERVES THE RIGHT TO REQUIRE A "CONCRETE ENCASEMENT" CONNECTION AT NO ADDITIONAL EXPENSE IN THE EVENT OF DESIGN CHANGE.
6. CONCRETE COLLARS SHALL BE REQUIRED FOR STORM SEWER CONNECTIONS. FLEXIBLE WATERTIGHT CONNECTIONS MAY BE REQUIRED IF SPECIFIED BY THE ENGINEER.

2024

CITY OF MADISON ENGINEERING DIVISION
FLEXIBLE PIPE TO S.A.S. CONNECTOR
STANDARD DETAIL DRAWING 5.7.31

PART VII - WATER MAINS AND SERVICE LATERALS — DETAIL DRAWING NO. **7.01**

REVISED: 12/2015



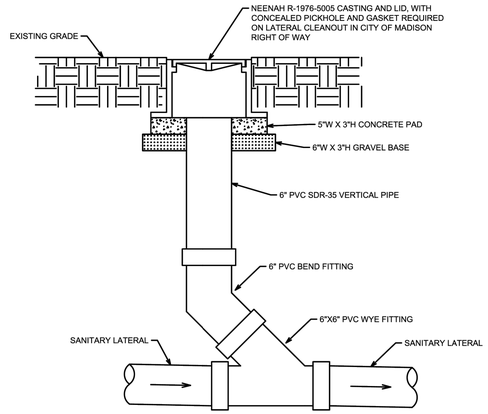
NOTES:

1) ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE WISCONSIN ADMINISTRATIVE CODE FOR "TRENCH EXCAVATION AND TUNNEL CONSTRUCTION" AND ANY ADDITIONAL REQUIREMENTS INCLUDING IN THE CONTRACT DOCUMENTS.
2) BACKFILL OPERATIONS SHALL COMPLY WITH SECTIONS 703.6 AND 202.2(B) OF THE STANDARD SPECIFICATIONS.
3) THE PIPE ZONE BEDDING MATERIAL SHALL CONSIST OF SELECT FILL SAND, LIMESTONE SCREENINGS, CLEAR STONE, OR WASHED GRAVEL.
4) SEE SECTION 703.6.1 FOR BACKFILL/COMPACTION REQUIREMENTS OF BEDDING/COVER MATERIAL IN THE PIPE ZONE.
5) TRENCH ZONE COMPACTION REQUIREMENTS:
   -- ALL COMPACTION OPERATIONS SHALL COMPLY WITH SECTION 703.6.3
   -- DENSITY REQUIREMENTS:
      1. FROM 2-FEET OVER THE PIPE TO WITHIN 3-FEET OF THE SUBGRADE: A MINIMUM OF 90% OF MAXIMUM DENSITY.
      2. WITHIN 3-FEET OF THE BOTTOM OF SUBGRADE: A MINIMUM OF 95% OF MAXIMUM DENSITY.

CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL WATER PIPE TRENCH

City of Madison Standard Specifications for Public Works Construction

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.



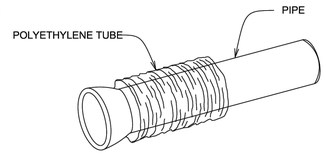
2022

CITY OF MADISON ENGINEERING DIVISION
LATERAL CLEANOUT
STANDARD DETAIL DRAWING 5.7.41

PART VII - WATER MAINS AND SERVICE LATERALS — DETAIL DRAWING NO. **7.02**

REVISED: 12/2015

FIELD INSTALLATION-POLYETHYLENE WRAP

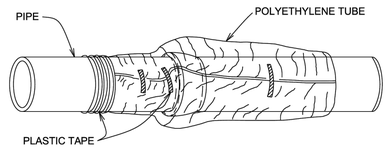


STEP-1

CLEAN SURFACE OF PIPE. CUT POLYETHYLENE TWO FEET LONGER THAN THE PIPE (8 MIL MIN.). PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH. DIG BELL HOLES AT JOINTS, LOWER PIPE.

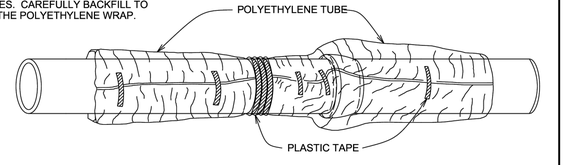
STEP-2

LIFT ENOUGH TO PULL THE TUBE OVER THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END.



STEP-3

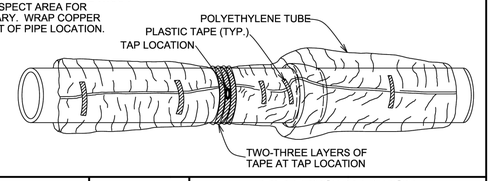
ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROX. THREE FOOT INTERVALS. REPAIR ANY TEARS WITH TAPE OR SECURED POLYWRAP PATCHES. CAREFULLY BACKFILL TO AVOID DAMAGING THE POLYETHYLENE WRAP.



TAPPING POLYETHYLENE WRAP

STEP-1

WRAP TWO OR THREE LAYERS OF TAPE COMPLETELY AROUND PIPE WHERE TAPPING MACHINE WILL BE PLACED. MOUNT TAPPING MACHINE ON TAPED AREA AND TAP DIRECTLY THROUGH THE TAPE AND POLYETHYLENE WRAP. INSTALL CORPORATION STOP. INSPECT AREA FOR DAMAGE AND REPAIR IF NECESSARY. WRAP COPPER SERVICE LINE WITHIN THREE FEET OF PIPE LOCATION.



CITY OF MADISON WATER UTILITY	NOT TO SCALE	FIELD INSTALLATION POLYETHYLENE WRAP / TAPPING POLYETHYLENE WRAP

City of Madison Standard Specifications for Public Works Construction

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

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Madison WI, 53711

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SEH Project	MADWU 185392
Checked By	KB
Drawn By	PAL

Project Status	Issue Date
BIDDING	02/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

UTILITY DETAILS

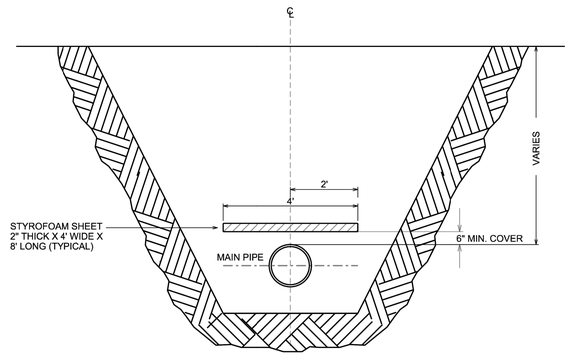
CD105

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PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.03**

REVISED: 12/2015



NOTE: ALL STYROFOAM TO BE 2" THICK
HIGH DENSITY POLYSTYRENE BOARD

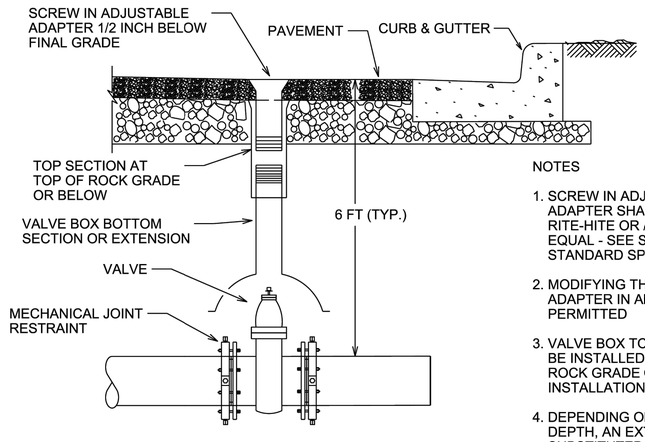
CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL STYROFOAM INSTALLATION

City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.08**

REVISED: 12/2019



NOTES

1. SCREW IN ADJUSTABLE ADAPTER SHALL BE RITE-HITE OR APPROVED EQUAL - SEE SECTION 702 STANDARD SPECS
2. MODIFYING THE VALVE BOX OR ADAPTER IN ANY WAY IS NOT PERMITTED
3. VALVE BOX TOP SECTION SHOULD BE INSTALLED AT TOP OF ROCK ROCK GRADE OR BELOW AT INITIAL INSTALLATION
4. DEPENDING ON WATER MAIN DEPTH, AN EXTENSION MAY BE SUBSTITUTED FOR BOTTOM SECTION TO ACHIEVE CLEARANCE FOR SCREW TYPE ADAPTER

CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL VALVE & BOX INSTALLATION

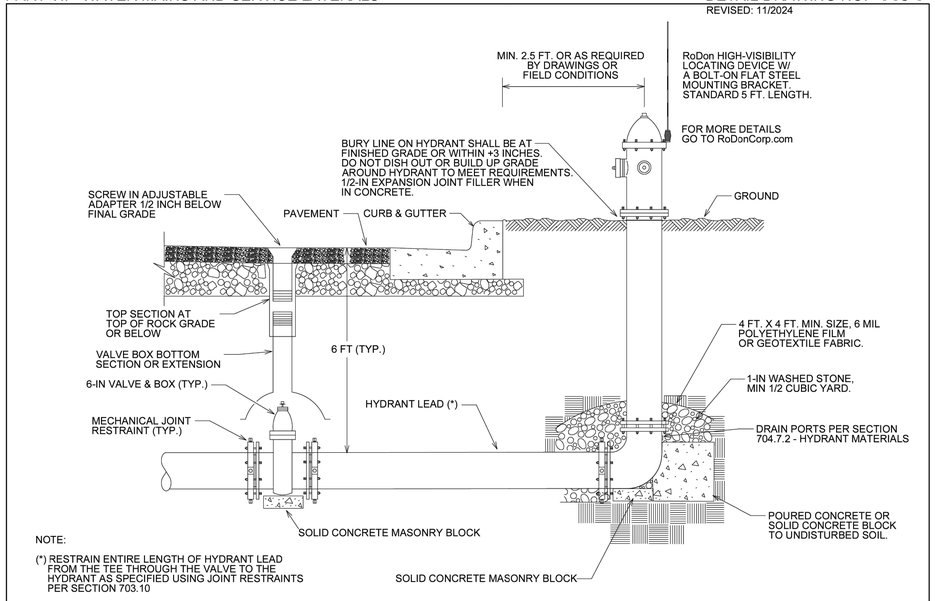
City of Madison Standard Specifications for Public Works Construction

ALL WORK COMPLETED SHALL CONFORM TO THE CITY OF MADISON'S STANDARD CONSTRUCTION DETAILS. CONTRACTOR TO REFERENCE STANDARD DETAILS, AS APPLICABLE.

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.04**

REVISED: 11/2024



NOTE:

(*) RESTRAIN ENTIRE LENGTH OF HYDRANT LEAD FROM THE TEE THROUGH THE VALVE TO THE HYDRANT AS SPECIFIED USING JOINT RESTRAINTS PER SECTION 703.10

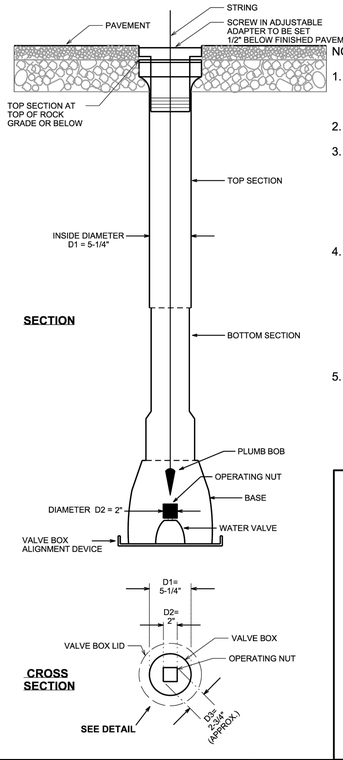
CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL HYDRANT INSTALLATION

City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.06**

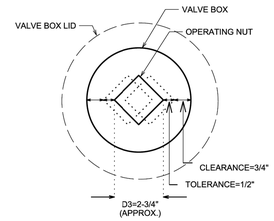
REVISED: 12/2019



NOTES:

1. VALVE BOX SHALL BE LOCATED PLUMB AND CENTERED WITH RESPECT TO THE VALVE OPERATING NUT.
2. ALLOWABLE TOLERANCE SHALL BE 1/2"
3. PLUMBNESS AND ALIGNMENT SHALL BE VERIFIED WITH A PLUMB BOB, LOCATING THE VALVE NUT WITHIN THE ALLOWABLE TOLERANCE, AND CONFIRMING THAT THE VALVE IS OPERATIONAL WITHOUT THE VALVE KEY TOUCHING THE INSIDE EDGE OF THE VALVE BOX.
4. FOR STREETS WITH SLOPE GREATER THAN 3% THAT DO NOT ALLOW EASY PLUMBNESS VERIFICATION, THE VALVE BOX STRAIGHTNESS SHALL BE VISUALLY ASSESSED VERIFYING ITS RELATIVE CENTERED POSITION, CONFIRMING THAT THE VALVE IS OPERATIONAL WITHOUT THE VALVE KEY TOUCHING THE INSIDE EDGE OF THE VALVE BOX AND RESTRICTING ITS USE.
5. FOR VALVE BOXES GREATER THAN 10 FT, UTILIZE ONE CONTINUOUS TUBE OF PVC CUT TO APPROPRIATE LENGTH INSIDE VALVE BOX TO MAINTAIN ALIGNMENT THROUGHOUT CONSTRUCTION

DETAIL



CITY OF MADISON WATER UTILITY	NOT TO SCALE	WATER VALVE BOX ALIGNMENT

City of Madison Standard Specifications for Public Works Construction

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Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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Project Status	**Issue Date**
BIDDING	02/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

UTILITY DETAILS

CD106

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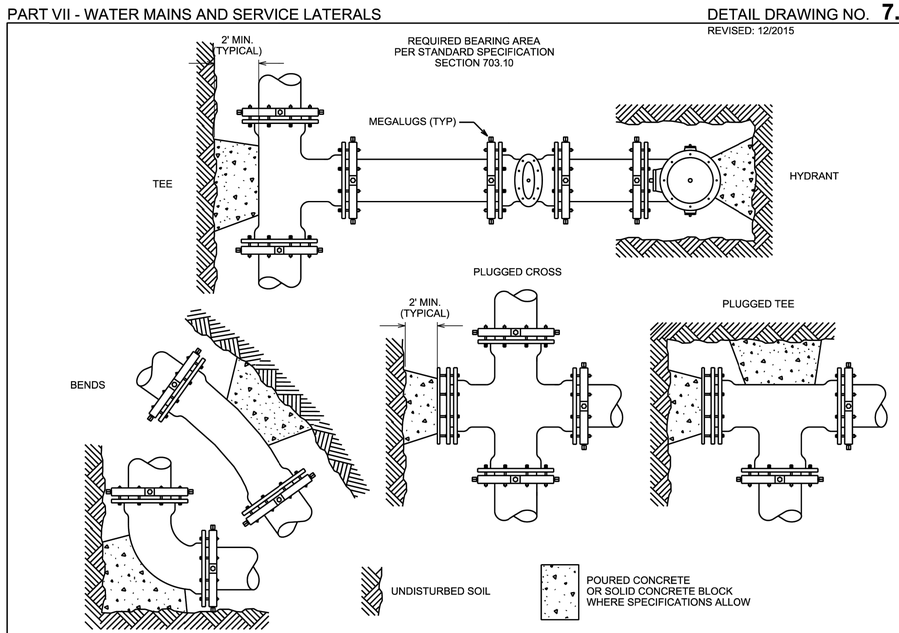
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PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.13**

REVISED: 12/2015



CITY OF MADISON WATER UTILITY	NOT TO SCALE	STANDARD CONCRETE BLOCK THRUST RESTRAINT

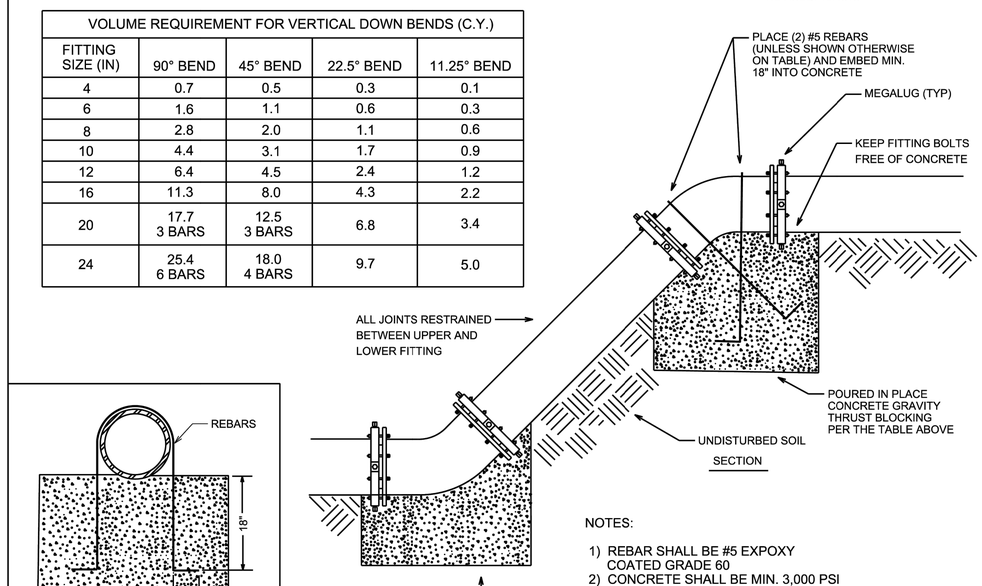
City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.14**

REVISED: 12/2015

VOLUME REQUIREMENT FOR VERTICAL DOWN BENDS (C.Y.)				
FITTING SIZE (IN)	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	0.7	0.5	0.3	0.1
6	1.6	1.1	0.6	0.3
8	2.8	2.0	1.1	0.6
10	4.4	3.1	1.7	0.9
12	6.4	4.5	2.4	1.2
16	11.3	8.0	4.3	2.2
20	17.7 3 BARS	12.5 3 BARS	6.8	3.4
24	25.4 6 BARS	18.0 4 BARS	9.7	5.0

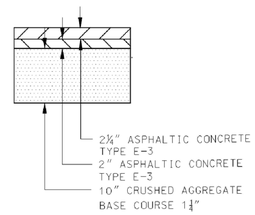


NOTES:

1) REBAR SHALL BE #5 EXPOXY COATED GRADE 60
2) CONCRETE SHALL BE MIN. 3,000 PSI COMPRESSIVE STRENGTH
3) ABOVE VALUES ARE BASED ON 150 PSI TEST PRESSURE FOR OTHER TEST PRESSURES PROPORTION AS FOLLOWS: BLOCK VOLUME=TEST PRESSURE/150 X TABLE VALUE

CITY OF MADISON WATER UTILITY	NOT TO SCALE	GRAVITY BLOCK THRUST RESTRAINT FOR VERTICAL BENDS

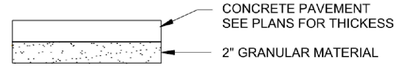
City of Madison Standard Specifications for Public Works Construction



ASPHALTIC PARKING LOTS AND DRIVEWAYS

SCALE: NONE

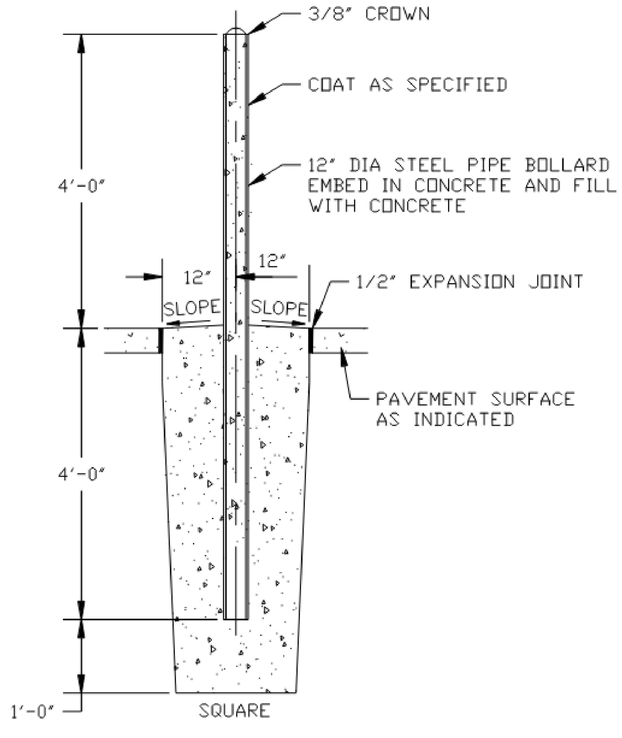
SEE SPECIFICATIONS ON CONCRETE AN BASE MATERIALS.



A. JOINT CONSTRUCTION
1. DIVIDE WALK INTO UNIFORM SIZED PANELS AND OUTLINE WITH CONTRACTION OR EXPANSION JOINTS. USE A TYPICAL LENGTH EQUAL TO THE SIDEWALK WIDTH.
2. PROVIDE SQUARE PANELS WITH MAXIMUM 36 SQUARE FEET OF AREA.
3. JOINTS SHALL BE:
   a. VERTICAL AND STRAIGHT.
   b. PARALLEL TO OR AT RIGHT ANGLES TO THE EDGE OF THE WALK.
   c. ALIGNED WITH LIKE JOINTS IN ADJOINING WORK.
   d. 1/8 INCH WIDE FOR CONTRACTION JOINT.
   e. 1/2 INCH WIDE FOR EXPANSION JOINT.
4. ROUND ALL JOINTS AND EDGES WITH A 1/4-INCH RADIUS EDGING TOOL.
5. EXTEND CONTRACTION JOINTS TO AT LEAST 1/3 OF THE THICKNESS OF THE WALK.
6. EXTEND EXPANSION JOINTS TO THE FULL THICKNESS OF THE WALK.
7. PLACE 1/2 INCH PREFORMED JOINT FILLER ADJACENT TO ALL FIXED OBJECTS.

CONCRETE SIDEWALK

SCALE: NONE



CD11/A: BOLLARD DETAIL

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SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

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Madison WI, 53711

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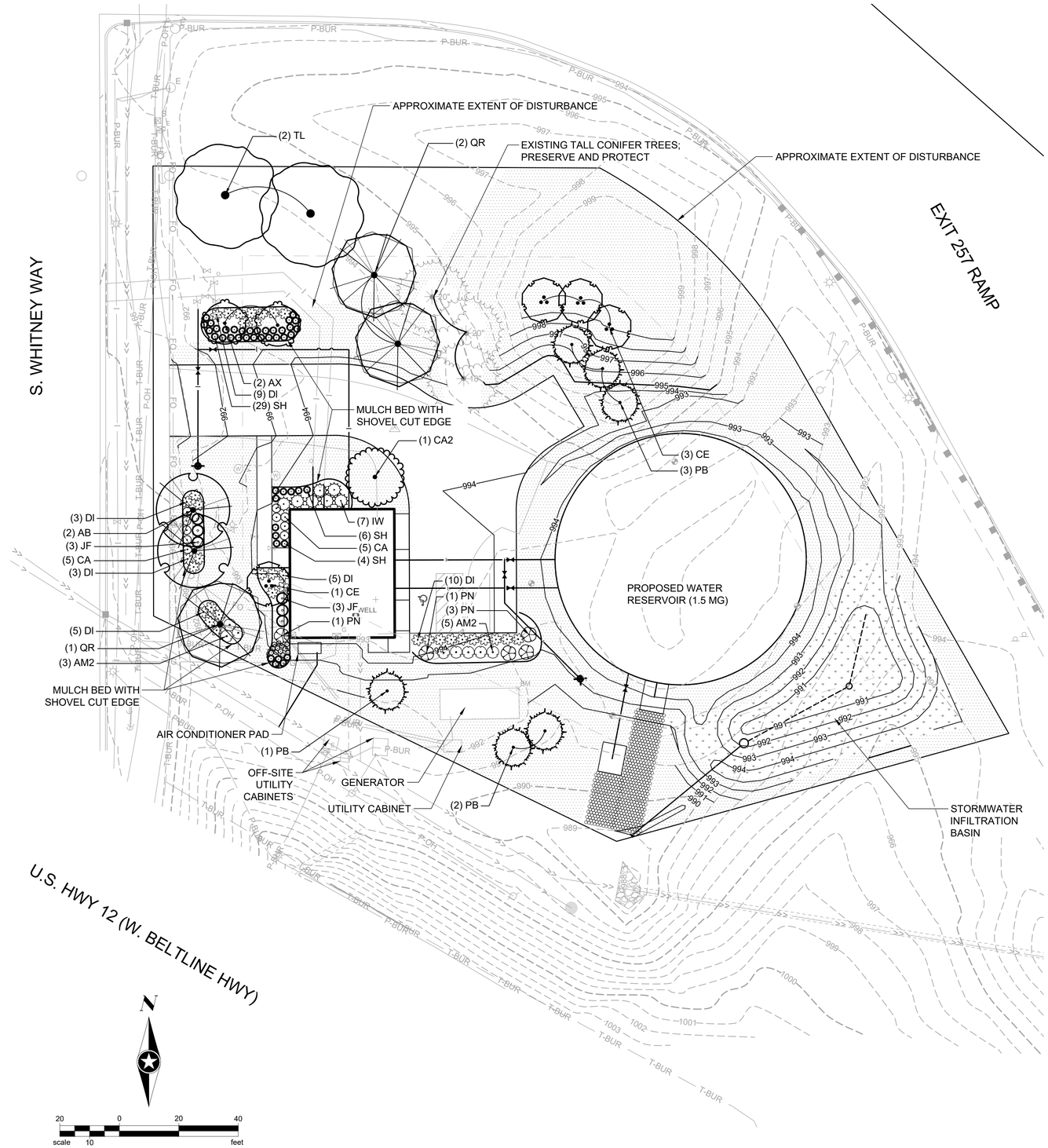
Project Status	**Issue Date**
BIDDING	02/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

UTILITY & MISCELLANEOUS DETAILS

CD107



PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	ROOT	QTY
TREES					
		EXISTING CONIFER			3
EVERGREEN TREES					
	PB	Picea glauca densata / Black Hills Spruce	6` Tall	B&B	6
ORNAMENTAL TREES					
	AX	Amelanchier x grandiflora / Apple Serviceberry	1.5" Cal		2
	CA2	Carpinus caroliniana / American Hornbeam	1.5" Cal	B&B	1
	CE	Cercis canadensis / Eastern Redbud Multi-trunk	6` Tall	B&B	4
OVERSTORY TREE					
	AB	Acer saccharum 'Bailsta' / Fall Fiesta® Sugar Maple	2.5" CAL	B&B	2
	QR	Quercus rubra / Red Oak	2" CAL	B&B	3
	TL	Tilia americana / American Linden	2" CAL	B&B	2

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	ROOT CONDITION	QTY
DECIDUOUS SHRUB					
	AM2	Aronia melanocarpa 'Morton' / Iroquois Beauty™ Black Chokeberry	5 gal.	CONTAINER	8
	CA	Ceanothus americanus / New Jersey Tea	3 gal.	CONTAINER	10
	DI	Diervilla lonicera / Bush Honeysuckle	3 gal.	CONTAINER	35
	HV	Hamamelis virginiana / Common Witch Hazel	36" T/W	CONTAINER	1
	IW	Ilex verticillata / Winterberry Plant one male plant per grouping - located at back of planting bed	5 gal.	CONTAINER	7
	PN	Physocarpus opulifolius / Ninebark	5 gal.	CONTAINER	5
EVERGREEN SHRUB					
	JF	Juniperus chinensis `Sea Green` / Sea Green Juniper	5 gal.	CONTAINER	6
PERENNIALS					
	Ac	Asarum canadense / Wild Ginger	1 quart	CONTAINER	12
	SH	Sporobolus heterolepis / Prairie Dropseed	1 gal.	CONTAINER	44

SYMBOL	CODE	BOTANICAL / COMMON NAME	QTY
GROUND COVERS			
		LAWN SEED MIX WisDOT Seed Mix No. 40	21,292 sf
		STORMWATER SEED MIX Prairie Nursery "Detention Basin - Bioswale" Seed Mix, or approved equal. Apply per manufacturer`s recommendation, minimum seeding rate 1/4 lb. per 1000 sq. ft.	3,501 sf

WISCONSIN
MOLLY WAGNER
749-14
LANDSCAPE ARCHITECT

SEH

Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
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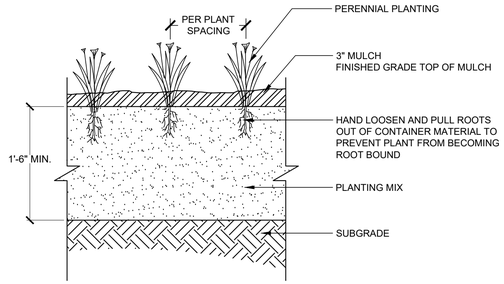
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

LANDSCAPE PLAN

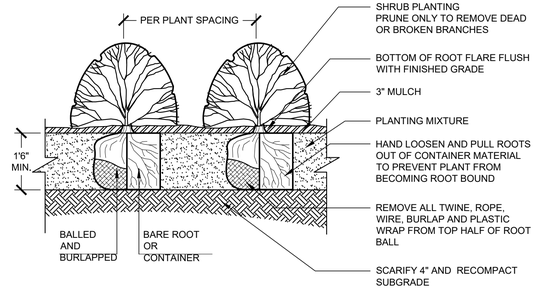
L101

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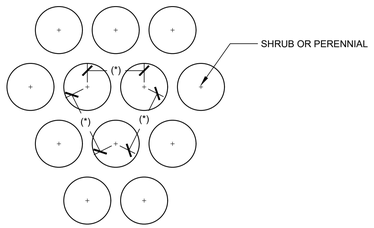
1 PERENNIAL PLANTING DETAIL

1" = 1'-0" 3293-01



2 SHRUB PLANTING

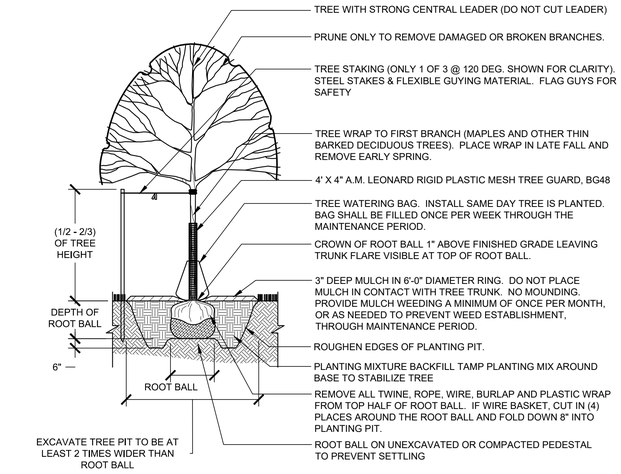
1/2" = 1'-0" 329333.13-08



(*) = SPECIFIED PLANT SPACING PER PLANTING LIST

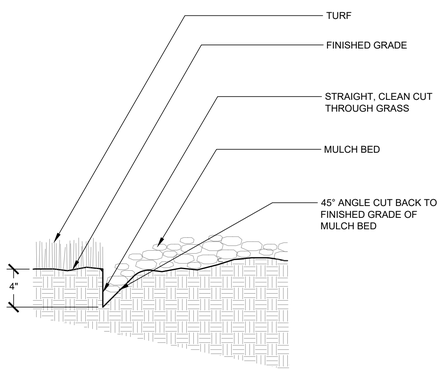
3 PLANT SPACING DETAIL

1/2" = 1'-0" 3293-02



4 TREE PLANTING

1/4" = 1'-0" 329343-01



5 TRENCHED EDGE DETAIL

N.T.S. 329413.23-02

PLANTING NOTES:

1. THE LAYOUT OF ALL PLANTING BEDS AND INDIVIDUAL TREES SHALL BE STAKED BY THE CONTRACTOR IN ADVANCE OF INSTALLATION. FLAGGING, STAKES, OR PAINT MAY BE USED TO DELINEATE LOCATIONS AS SCALED FROM THE PLANS. THE LANDSCAPE ARCHITECT WILL REVIEW THESE LOCATIONS WITH THE CONTRACTOR AND MAKE MINOR ADJUSTMENTS AS NECESSARY.
2. THE CONTRACTOR IS RESPONSIBLE FOR INDEPENDENTLY DETERMINING THE PLANT MATERIAL QUANTITIES REQUIRED BY THE LANDSCAPE PLANS. REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
3. AREAS UNDER PLANTING BEDS SHALL NOT CONTAIN COMPACTED AGGREGATE TO ALLOW FOR PROPER DRAINAGE AND GROWTH OF PLANT MATERIAL. REMOVE AGGREGATE AND PERFORM SUBSOILING AS NECESSARY TO OBTAIN LOOSE, FREE DRAINING SUBGRADE BELOW PLANTING BEDS. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS.
4. ALL SEED AREAS SHALL RECEIVE A MINIMUM OF 6" DEPTH OF TOPSOIL
5. ALL PLANTING BEDS SHALL RECEIVE 18" DEPTH OF PREPARED SOIL.
6. NEW SEEDED AREAS TO BE TREATED WITH HERBICIDE TO KILL ALL EXISTING GROUNDCOVER. THERE SHALL BE A MINIMUM OF TWO (2) APPLICATIONS SEPARATED BY 10 DAYS. IF ALL EXISTING GROUNDCOVER VEGETATION IS NOT KILLED WITHIN 10 DAYS OF 2ND APPLICATION, A 3RD APPLICATION IS REQUIRED.
7. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
8. SHOVEL CUT EDGE TYPICAL OF ALL PLANTING BEDS UNLESS OTHERWISE INDICATED.
9. ALL PLANTING BEDS AND PLANTED TREES SHALL BE MULCHED WITH 3" DEEP SHREDDED HARDWOOD MULCH PER PLANTING DETAILS. MULCH SHALL BE CONSIDERED INCIDENTAL TO PLANT MATERIALS
10. NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL BY THE LANDSCAPE ARCHITECT. ALL PLANT MATERIAL AND SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR PLANT HARDINESS ZONE AS PROJECT LOCATION.
11. CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
12. PROVIDE 1 YEAR WARRANTY ON ALL PLANT MATERIAL.
13. LAWN SEED SHALL BE ESTABLISHED BY THE CONTRACTOR TO A DENSE, GREEN CONSISTENT LAWN VOID OF ANY BARE OR PATCHY AREAS LARGER THAN 3"X3"
14. SEED PRIOR TO OCT. 15. IF SEEDED AFTER OCT. 15, MAINTAIN AND ESTABLISH LAWN UNTIL SPRING REVIEW
15. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES PRIOR TO DIGGING. CONSULT DIGGERS HOTLINE.
16. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES AND LICENSES NECESSARY FOR THE INSTALLATION OF THIS PLAN.
17. DRAWINGS ARE INTENDED FOR THE INSTALLATION OF PLANT MATERIAL ONLY.

WISCONSIN
MOLLY WAGNER
749-14
MADISON
LANDSCAPE ARCHITECT

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
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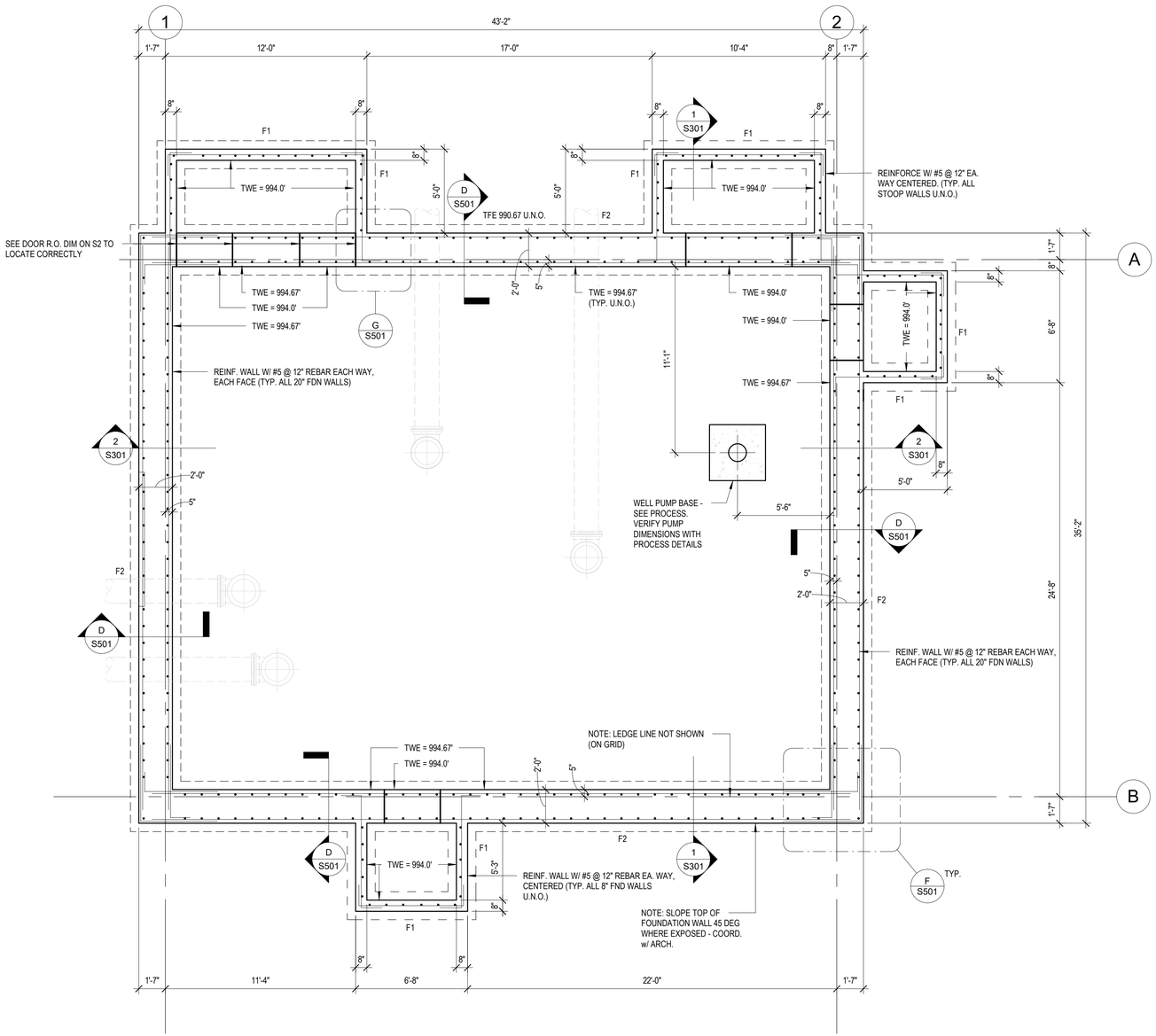
REVISION SCHEDULE

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LANDSCAPE DETAILS

L102

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1 S101 FOUNDATION PLAN

1/4" = 1'-0"

PLAN NOTES

1. TWE = TOP OF FOUNDATION WALL ELEVATION
2. TFE = TOP OF FOOTING ELEVATION = 990.67 U.N.O.
3. VERIFY DIMENSIONS, ELEVATIONS, AND MATERIALS WITH ARCHITECTURAL AND PROCESS.
4. CONTRACTOR OPTIONS AT MECHANICAL & ELECTRICAL LINES THROUGH FOUNDATION - SEE H/DS1, J/DS1, K/DS1, L/DS1
5. 'Fx' DENOTES FOOTING TYPE. REFERENCE SCHEDULE ON THIS SHEET.
6. SEE SHEET S102 - FLOOR PLAN FOR PENETRATIONS THROUGH FLOOR SLAB. VERIFY SIZES AND LOCATIONS WITH FINAL PROCESS DRAWINGS.

FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F1	24" WIDE x 12" DEEP x CONTINUOUS	(2) #5 REBAR, BOTTOM
F2	36" WIDE x 12" DEEP x CONTINUOUS	(3) #5 REBAR, BOTTOM
F3	24" WIDE x 12" DEEP x CONTINUOUS THICKENED SLAB	(2) #5 REBAR, BOTTOM

SEE SHEET S102 FOR LOCATION OF THICKENED SLABS F3.

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Madison WI, 53711

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Project Status	**Issue Date**
BIDDING	2/12/2026

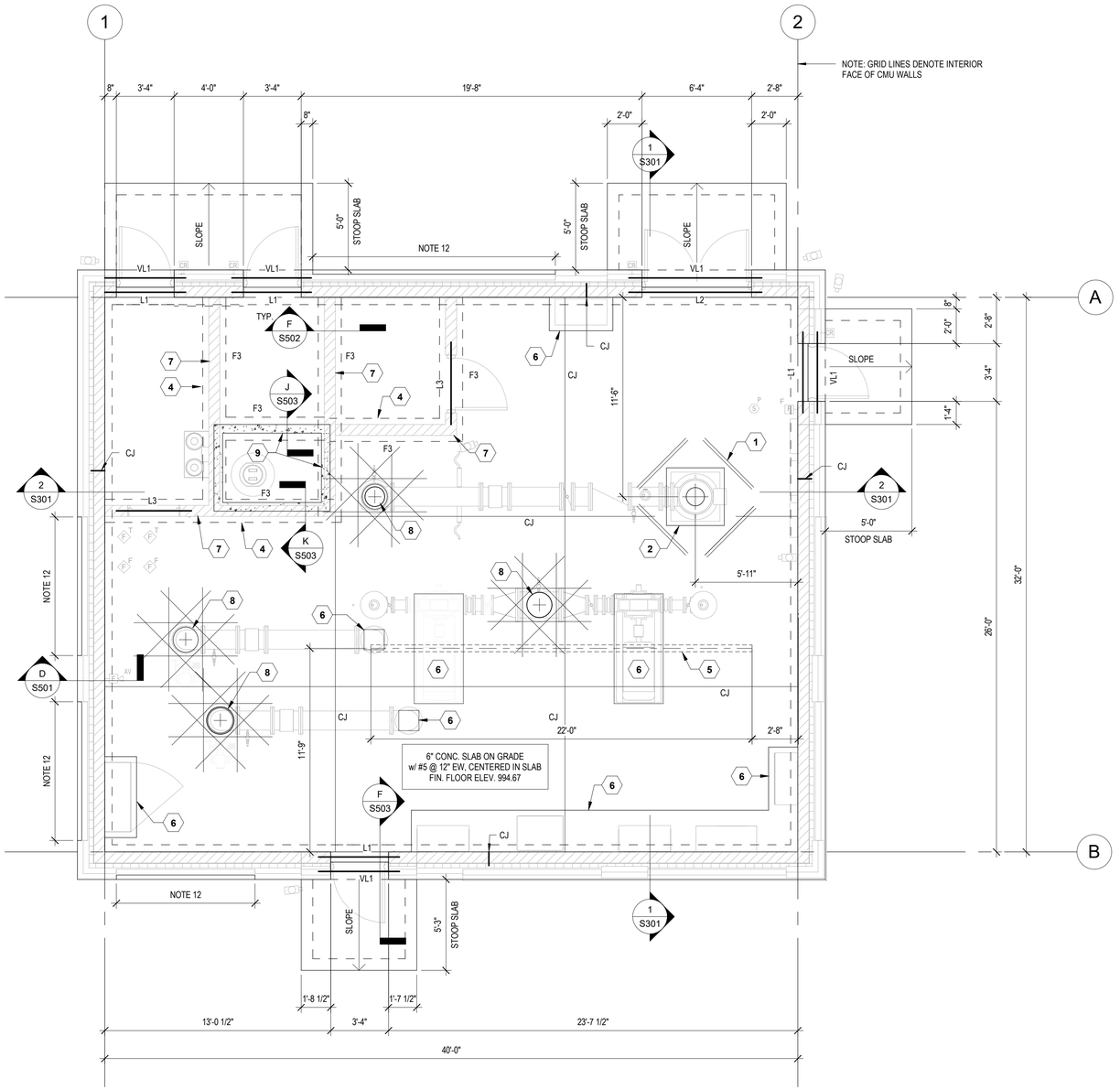
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

FOUNDATION PLAN

S101

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FLOOR PLAN

1/S102 — 1/4" = 1'-0"

PLAN NOTES

1. FFE, FINISHED FLOOR ELEVATION = 994.67"
2. TFE, TOP OF FOOTING ELEVATION = 990.67" U.N.O.
3. VERIFY ALL DIMENSIONS, ELEVATIONS, AND MATERIALS WITH ARCHITECTURAL AND PROCESS DRAWINGS.
4. HOIST, TROLLEY, AND LIFTED LOAD 4,000 POUNDS.
5. MASONRY CONTRACTOR SHALL COORDINATE W/ ELECTRICAL CONTRACTOR TO CUT BLOCK NEATLY FOR OPENINGS NEEDED BY ELECTRICAL CONTRACTOR.
6. SEE DETAILS A/DS1 AND B/DS1 FOR STANDARD CONCRETE EQUIPMENT PAD & PEDESTAL DETAILS. COORDINATE LOCATIONS AND DIMENSIONS WITH PROCESS, MECHANICAL, AND ELECTRICAL.
7. FOR CONTRACTION JOINTS (C.J.) OR SAWCUT WITHIN 18 HOURS OF CONCRETE PLACEMENT - SEE C/DS1. MAXIMUM SPACING OF CONTRACTION JOINTS TO BE 15'-0".
8. 'Fx' DENOTES FOOTING TYPE. SEE SHEET S1 FOR FOOTING SCHEDULE.
9. 'Lx' INDICATES LINTEL - SEE LINTEL SCHEDULE ON SHEET S3.
10. D.O. DENOTES DOOR ROUGH OPENING
    W.O. DENOTES WINDOW ROUGH OPENING
11. ALL CMU SURFACES EXPOSED TO VIEW ARE GLAZED FACE.
12. BEVEL TOP OF CONCRETE FOUNDATION WALL 3" AT 45 DEG. WHERE EXPOSED TO SHED RAIN WATER. COORDINATE EXTENTS WITH ARCHITECTURAL.

KEYNOTES:

1. PROVIDE ADDITIONAL REINFORCEMENT PER DETAIL D/DS3 AT ALL RE-ENTRANT CORNERS.
2. WELL HEAD AND VERTICAL TURBINE PUMP - SEE PROCESS. PROVIDE 1/2" EXPANSION JOINT MATERIAL AND CAULK BETWEEN FLOOR SLAB AND CONCRETE PUMP BASE.
3. 4" ELECTRICAL EQUIPMENT PADS - SEE STANDARD DETAIL A/DS1.
4. THICKENED SLAB, SEE DETAIL F/DS2. SEE FOOTING SCHEDULE ON SHEET S1 FOR THICKNESS, WIDTH, AND REINFORCING.
5. MONORAIL ABOVE - SEE DETAIL J/DS2 AND NOTE 4 ON THIS SHEET. COORDINATE FINAL LOCATION W/ PUMP LIFT POINTS.
6. HOUSEKEEPING PAD OR PUMP PEDISTAL - REFERENCE TYPICAL DETAIL A/DS1 OR B/DS1.
7. 8" INTERIOR PARTITION WALLS CONSTRUCTED OF 2 WYTHES 4" CMU - GLAZED. SECURE WYTHES TOGETHER WITH STAINLESS STEEL LADDER REINFORCEMENT AT 8" O.C. VERTICALLY. REINFORCE W/ #3 REBAR AT 32" HORIZ., MORTARED BETWEEN WYTHES. SEE ARCHITECTURAL DRAWINGS
8. PIPE PENETRATION THROUGH CONCRETE CAST-IN-PLACE SLAB ON GRADE. PROVIDE ADDITIONAL REINFORCING PER DETAIL H/DS1, TYP. VERIFY SIZES AND LOCATIONS WITH FINAL PROCESS DRAWINGS.
9. CIP CONCRETE CONTAINMENT CURB.

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MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

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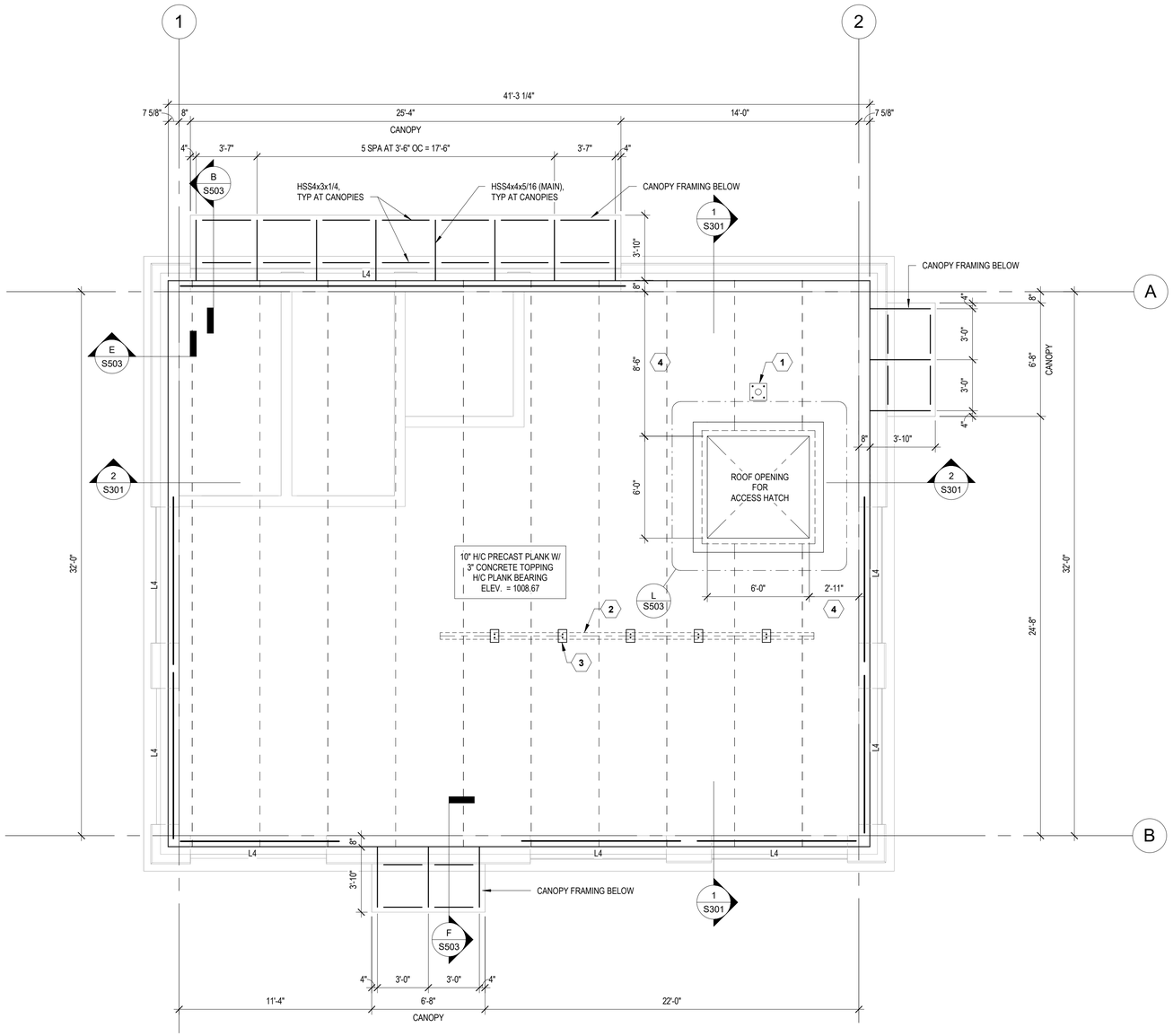
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REV. #	DESCRIPTION	DATE

FLOOR PLAN

S102

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1 S103 ROOF FRAMING PLAN

1/4" = 1'-0"

PLAN NOTES

1. TYPICAL 10" HOLLOWCORE PLANK BEARING ELEVATION = 1008.67'
2. SUPERIMPOSED UNIFORM DEAD LOAD: 20 PSF
   SUPERIMPOSED UNIFORM LIVE LOAD: 20 PSF
3. 'Lx' INDICATES LINTEL - SEE LINTEL SCHEDULE ON THIS SHEET
4. THIS SHEET SHOWS CONCEPTUAL LAYOUT AT OPENINGS IN HOLLOWCORE SLABS. P/C SUPPLIER IS RESPONSIBLE FOR FINAL DESIGN.
5. P/C = PRECAST CONCRETE
   H/C = HOLLOWCORE
   H/C PLANK = PRESTRESSED CONCRETE HOLLOWCORE SLABS DESIGNED BY SUPPLIER IN ACCORDANCE WITH PCI STANDARDS. SEE SPECIFICATION.
6. TYPICAL ANCHORAGE OF EXTERIOR CMU WALLS: INSTALL TO H/C PLANK WITH INJECTION ADHESIVE. PROVIDE SCREEN TUBE AS REQUIRED (IF DOWEL GOES INTO HOLES OF H/C PLANK). LAP REBAR MIN. 32" WITH WALL REINFORCING U.N.O. ON DETAILS. REINFORCING EQUAL TO SIZE AND SPACING SHOWN ON REINFORCING ELEVATIONS.
7. HOLLOWCORE PLANK TO BE DESIGNED ASSUMING (1) STRAND CUT.

KEY NOTES

1. TIE-OFF - SEE DETAIL K/DS2. CONFIRM LOCATION WITH OWNER.
2. MONORAIL BELOW
3. MONORAIL SUPPORT - SEE DETAIL J/DS2. SUPPORT REQUIRED AT EACH PLANK.
4. LOCATE BUILDING TO CENTER HATCH ON EXISTING WELL HEAD.

LINTEL SCHEDULE

MARK	SIZE OR DESIGNATION	NOTES
L1	8" W x 8" DEEP CMU LINTEL W/ (2) #5 REBAR, BOTTOM	
L2	8" W x 16" DEEP CMU LINTEL W/ (2) #5 REBAR, TOP & BOTTOM	
L3	8" W x 8" DEEP CMU LINTEL W/ (1) #5 REBAR, BOTTOM	
L4	2-C8x11.5 W/ 5/16" x 15" BOT. PLATE 8" BEARING EA. END	HOT DIP GALVANIZE SEE M/DS2

NOTES:
1. EACH MASONRY LINTEL SHALL BEAR 8" MIN. ON CMU WALL. - CONTINUE HORIZ. REINF. TO END OF BEARING.
2. GROUT AND REINFORCE 2 VERTICAL CORES EACH SIDE OF ALL MASONRY AND STEEL LINTELS U.N.O.
3. BOTTOM REBAR TO BE MAINTAINED 2" MIN. CLEAR FROM BOTTOM OF BOND BEAM LINTEL OR GREATER IF REQ'D FOR FIRE RESISTIVE CONSTRUCTION.
4. SHORE CMU LINTELS FOR ENTIRE LENGTH UNTIL BOND BEAMS ARE IN PLACE AND GROUT IS CURED. ALL BOND BEAM LINTELS SHALL BE CONSTRUCTED OF 8" HIGH BLOCK IN RUNNING BOND. USE POUR-THRU BOND BEAM BLOCK FOR UPPER COURSE(S) IF LINTEL HEIGHT EXCEEDING 8" IS INDICATED.

VENEER LINTEL SCHEDULE

MARK	SIZE OR DESIGNATION	NOTES
VL1	BENT PLATE 7 x 7 x 3/8	HOLES IN VERT LEG AT 12" O.C. FOR 1/2"Ø EXP. ANCHORS TO CMU BOND BEAM

NOTES:
1. EACH LINTEL SHALL BEAR 8" MIN. ON VENEER EA. SIDE OF OPENING.
2. ALL EXTERIOR LINTELS SHALL BE HOT DIP GALVANIZED - SEE STRUCTURAL NOTES.

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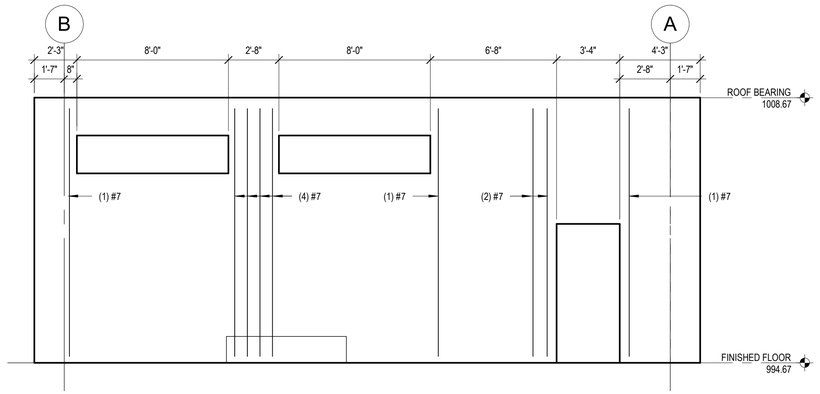
ROOF FRAMING PLAN

S103

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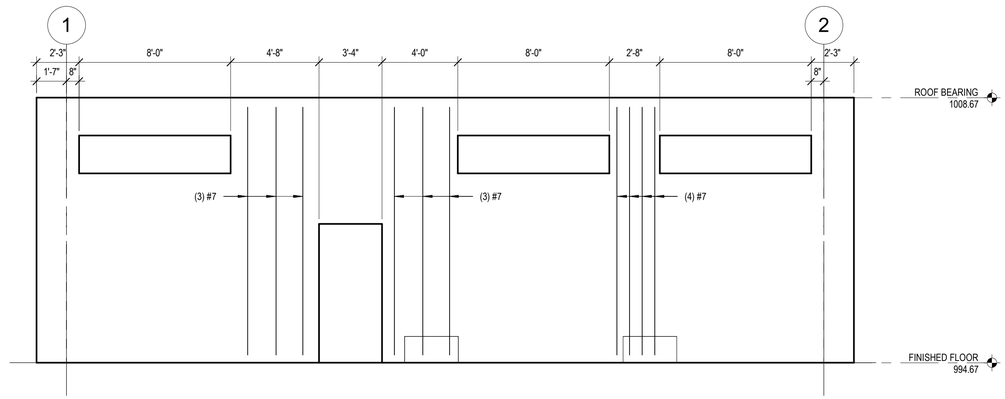
NOTES:

1. ALL REINFORCING TO BE HELD IN CENTER OF BLOCK THICKNESS WITH CENTRALIZERS.
2. IN AREAS BETWEEN BARS SHOWN, PROVIDE #5 REBAR AT 32" MAX.
3. OUTSIDE SURFACE OF WALLS SHOWN HERE IS OUTSIDE OF VENEER.
4. GRIDS ARE INSIDE SURFACE OF CMU.



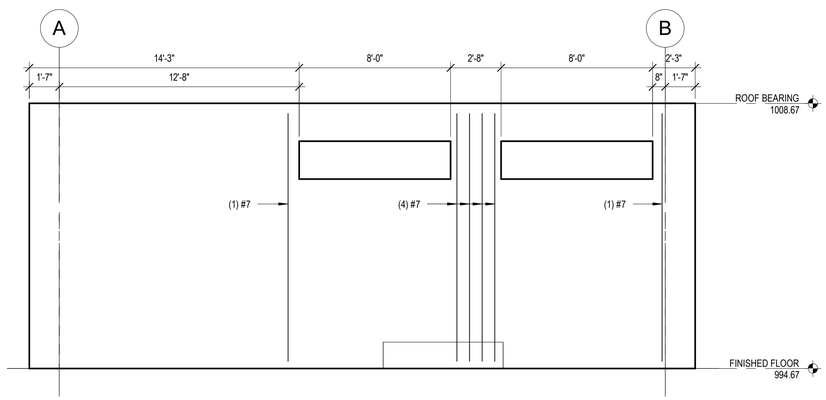
1 S201 SOUTH WALL REINFORCING ELEVATION

1/4" = 1'-0"



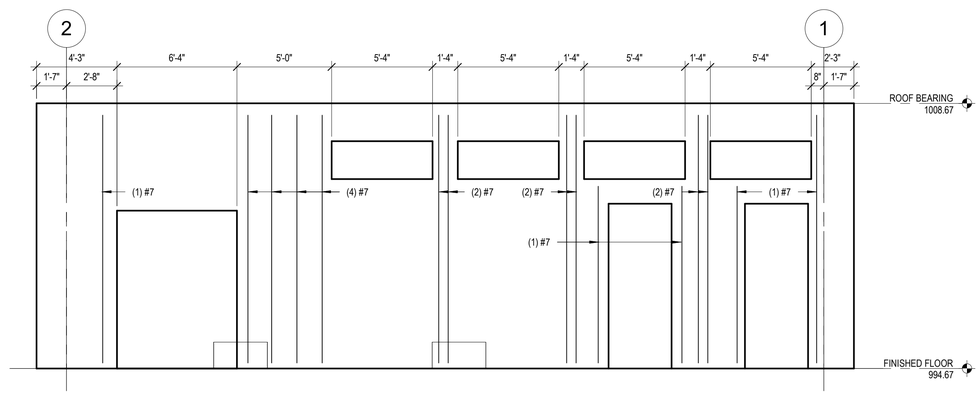
2 S201 WEST WALL REINFORCING ELEVATION

1/4" = 1'-0"



3 S201 NORTH WALL REINFORCING ELEVATION

1/4" = 1'-0"



4 S201 EAST WALL REINFORCING ELEVATION

1/4" = 1'-0"

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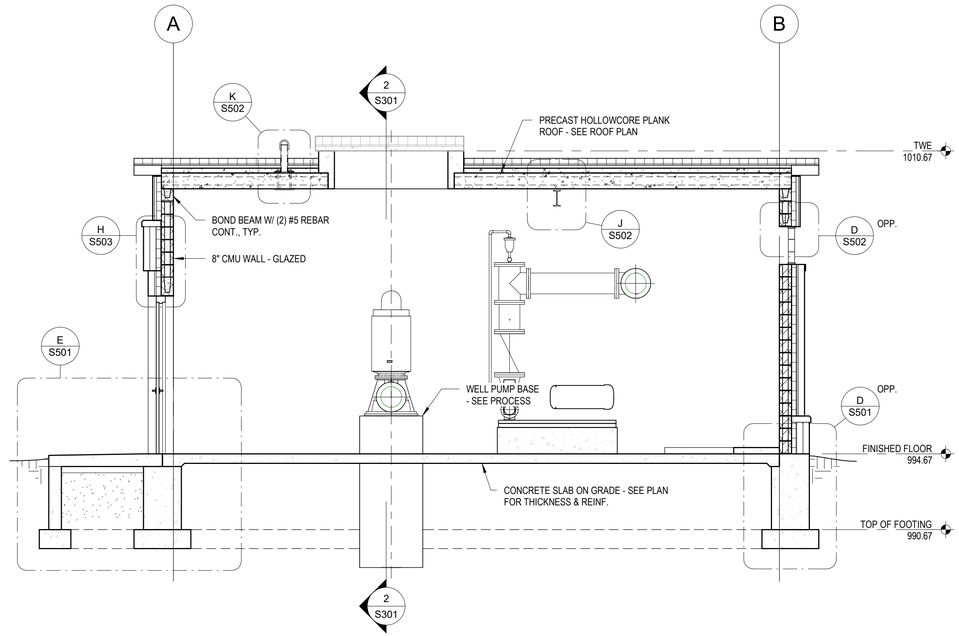
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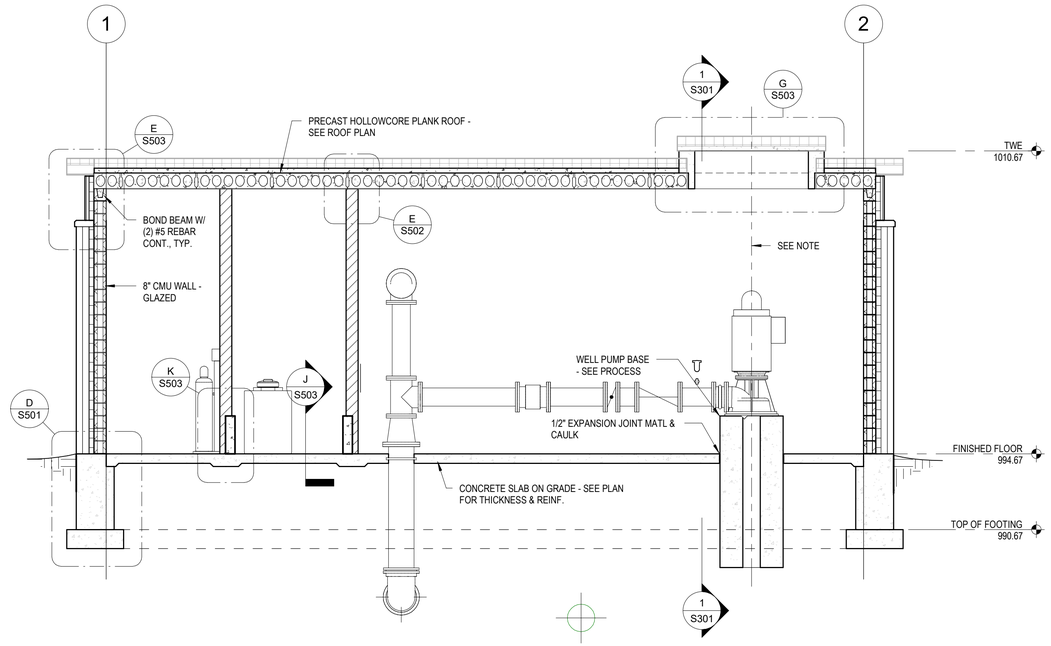
REINFORCING ELEVATIONS

S201



1 S301 BUILDING SECTION - LOOKING EAST

1/4" = 1'-0"



2 S301 BUILDING SECTION - LOOKING NORTH

1/4" = 1'-0"

NOTE:
CENTERLINE ROOF ACCESS HATCH IS CENTERLINE WELL IN EACH DIRECTION.

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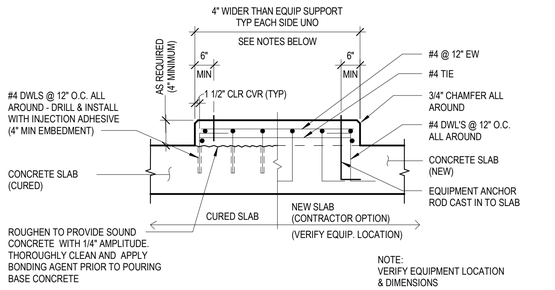
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BUILDING SECTIONS

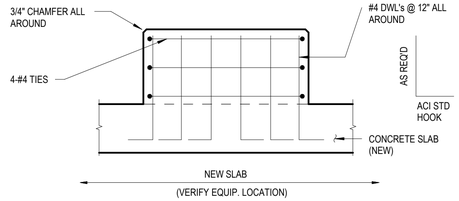
S301



CONCRETE EQUIPMENT PAD NOTES:

1. BEFORE EQUIPMENT SUPPORT PADS ARE POURED, THE PAD SIZES SHALL BE REVIEWED AND APPROVED.
2. 6" MIN PAD EDGE DIMENSION TO EQUIPMENT ANCHOR RODS APPLIES FOR ALL EQUIPMENT SUPPORT PADS THIS PROJECT.
3. EQUIPMENT PADS SHALL BE 4" WIDER THAN EQUIPMENT BASE EACH SIDE UNLESS AGAINST WALL OR RECOMMENDED OTHERWISE BY EQUIPMENT MANUFACTURER OR DESIGNATED OTHERWISE ON DRAWINGS.
4. COORDINATE EQUIPMENT ANCHOR ROD SIZE, EMBEDMENT DEPTH, AND SPACING WITH MANUFACTURER RECOMMENDATIONS.

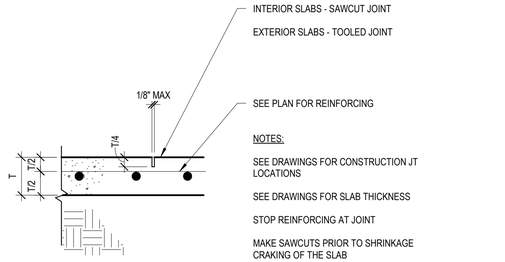
A S501 CONCRETE EQUIPMENT PAD DETAIL
1/2" = 1'-0"



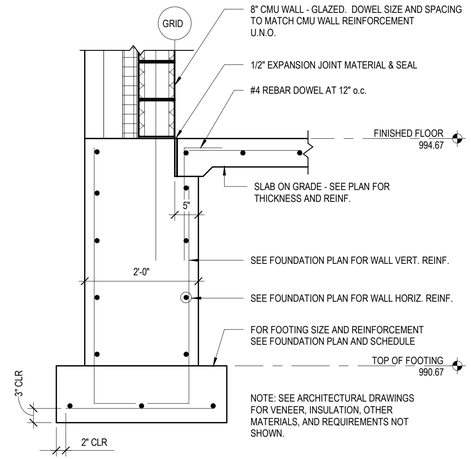
NOTES:

1. FOR PEDESTAL SIZE AND HEIGHT REQUIREMENTS COORDINATE WITH PROCESS AND/OR EQUIPMENT MANUFACTURER.
2. COORDINATE CONCRETE PEDESTAL DETAIL WITH PROCESS PUMP BASE DETAIL.
3. COORDINATE PUMP MOUNT AND PIPE SUPPORT ANCHOR ROD SIZE, EMBEDMENT DEPTH, AND SPACING WITH MANUFACTURER RECOMMENDATIONS.

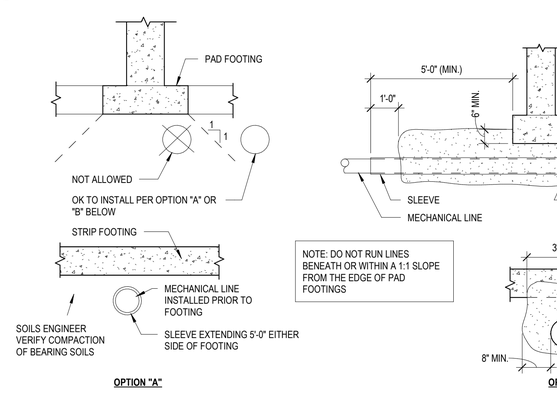
B S501 PUMP PEDESTAL DETAIL
1/2" = 1'-0"



C S501 SLAB ON GRADE CONTROL JOINT
1" = 1'-0"

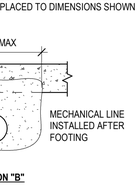


D S501 TYPICAL FOUNDATION WALL SECTION
3/4" = 1'-0"



NOTE:
ALL REBAR IN STOOP SLAB OR DOWELED INTO STOOP SLAB IS TO BE EPOXY COATED.

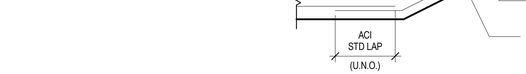
E S501 STOOP SECTION
1/2" = 1'-0"



NOTES:

1. DOWELS & CORNER REINF. SHALL MATCH REINF. SIZE & SPACING UNLESS NOTED OTHERWISE.
2. REINFORCEMENT IS SYMMETRICAL

F S501 WALL CORNER REINFORCEMENT DETAIL
3/4" = 1'-0"



G S501 WALL INTERSECTION REINFORCEMENT DETAIL
3/4" = 1'-0"

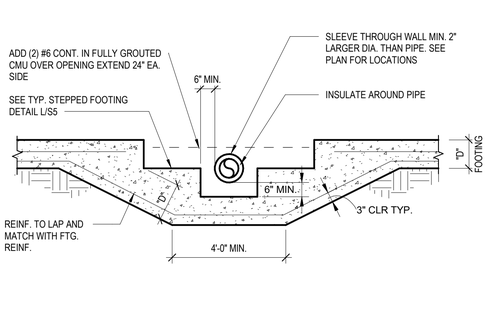


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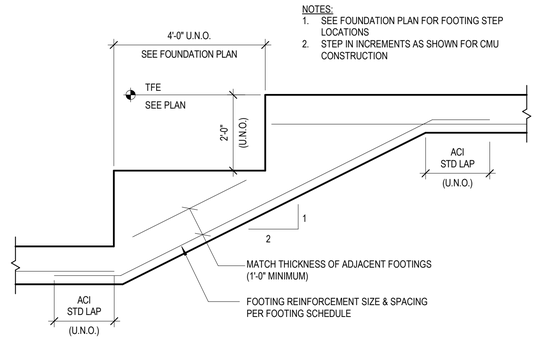
1. ROUND AND RECTANGULAR OPENINGS - WALL AND FLOOR SLABS.
2. DIAGONALS AT RECTANGULAR OPENINGS SHALL BE 6'-0" MINIMUM LENGTH.

H S501 OPENING REINFORCEMENT DETAIL
1/2" = 1'-0"

J S501 CONTRACTOR OPTIONS
3/4" = 1'-0"



K S501 TYPICAL UTILITY OPENING THROUGH WALL
3/4" = 1'-0"



L S501 STEPPED FOOTING DETAIL
1/2" = 1'-0"

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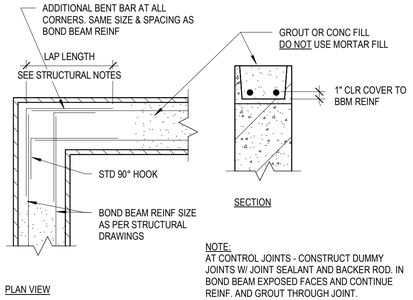
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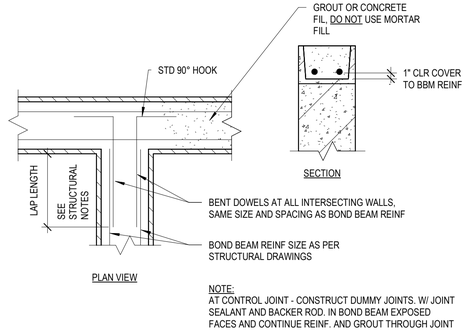
CONCRETE DETAILS

S501



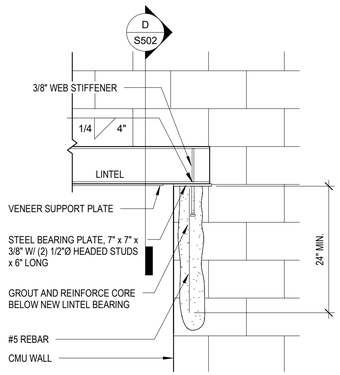
A S502 BOND BEAM CORNER REINF. DETAIL

12" = 1'-0"



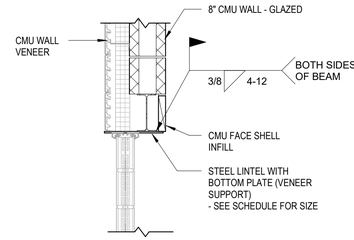
B S502 BOND BEAM INTERSECTION REINF. DETAIL

12" = 1'-0"



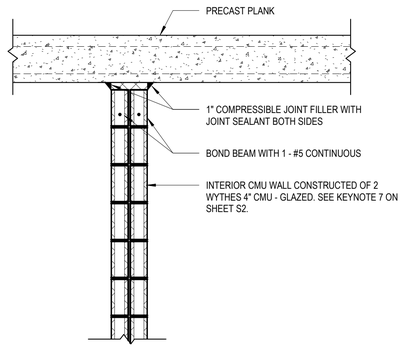
C S502 BEAM / LINTEL SUPPORT DETAIL

3/4" = 1'-0"



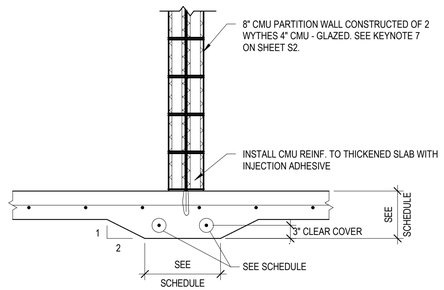
D S502 LINTEL SECTION

3/4" = 1'-0"



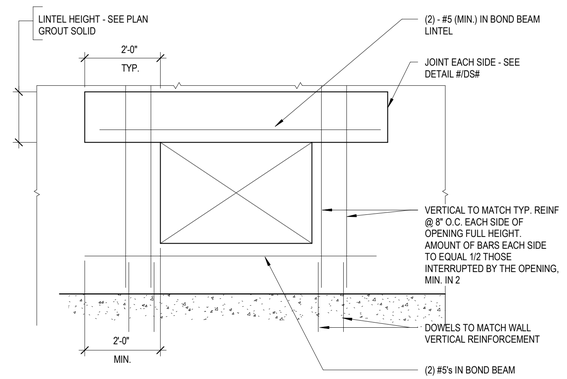
E S502 CMU PARTITION WALL TOP SEAL

3/4" = 1'-0"



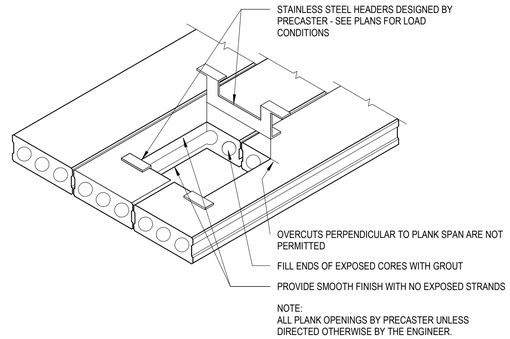
F S502 THICKENED SLAB AT NON-BEARING CMU WALL

3/4" = 1'-0"



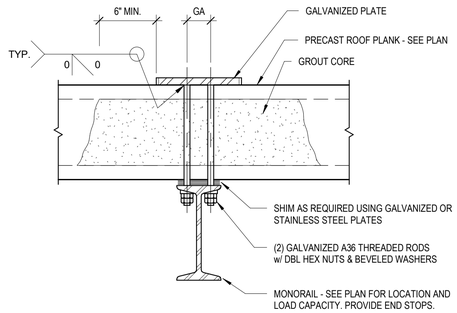
G S502 TYPICAL MASONRY OPENING DETAIL

3/4" = 1'-0"



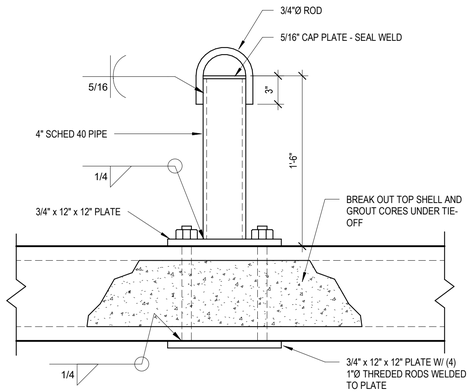
H S502 TYPICAL PLANK OPENING WITH HEADERS

3/4" = 1'-0"



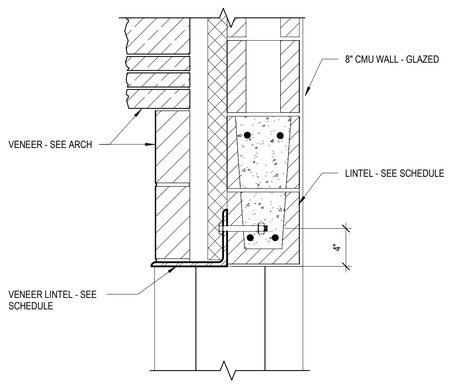
J S502 TYPICAL MONORAIL SUPPORT

1 1/2" = 1'-0"



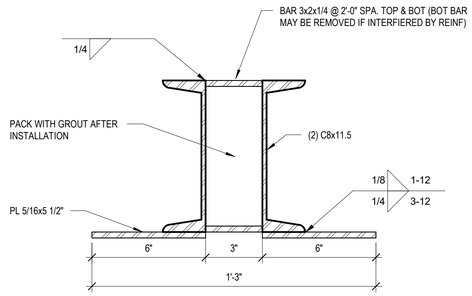
K S502 TIE-OFF DETAIL

1 1/2" = 1'-0"



L S502 VENEER LINTEL DETAIL

1 1/2" = 1'-0"



M S502 L4 - LINTEL DETAIL

3" = 1'-0"

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE 2/3/2026 10:37:12 AM

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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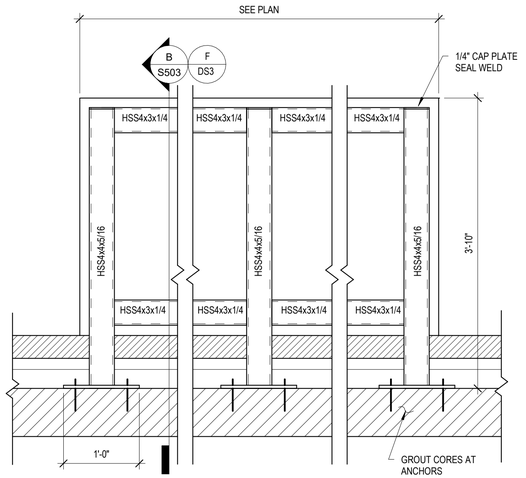
SEH Project	MADWU 185392
Checked By	BAW
Drawn By	ALC
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

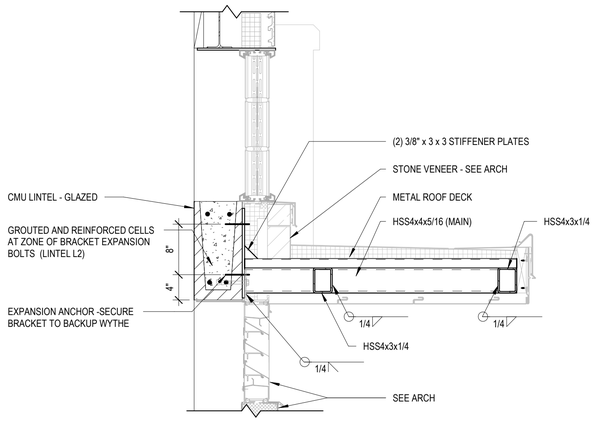
REV. #	DESCRIPTION	DATE

PRECAST AND MASONRY DETAILS

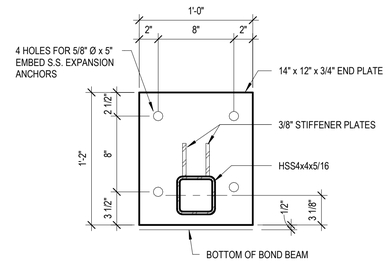
S502



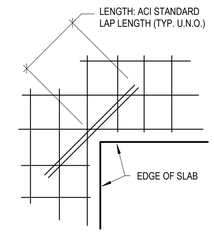
A CANOPY FRAMING PLAN
A S503 — 1" = 1'-0"



B SECTION THROUGH CANOPY AT LOUVER ASSEMBLY
B S503 — 1" = 1'-0"



C CANOPY CONNECTION PLATE DETAIL
C S503 — 1 1/2" = 1'-0"



D SLAB REENTRANT CORNER DETAIL
D S503 — 1/2" = 1'-0"

WALL / SLAB REINF. BARS *	ADDITIONAL CORNER BARS
WWF	2 - #4
#4	2 - #4
#5	2 - #5
#6	2 - #6
#7	2 - #5
#8	2 - #6

* USE LARGEST DIAMETER BAR IN EITHER DIRECTION FOR DETERMINING CORNER BARS.

NOTES:

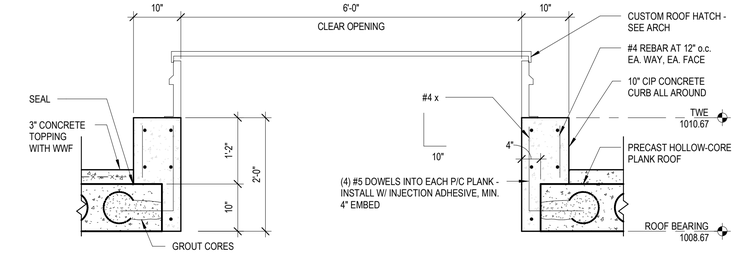
PROVIDE 2" CLEAR COVER OVER ALL BARS AT OPENINGS

ADDITIONAL CORNER BARS:

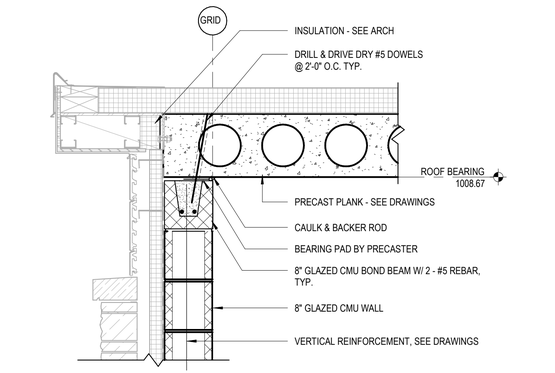
WHEN SLAB HAS BOTTOM REINFORCEMENT LAYER ONLY, PLACE DIAGONAL BARS AT MID DEPTH.

WHEN SLAB HAS TOP REINFORCEMENT LAYER ONLY, PLACE DIAGONAL BARS WITH TOP REINFORCEMENT.

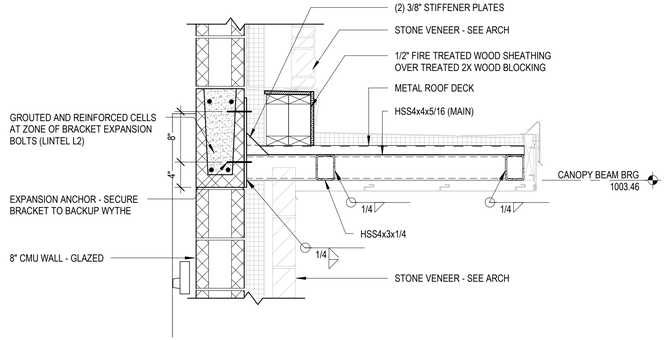
WHEN SLAB HAS TOP & BOTTOM REINFORCEMENT LAYERS, PLACE DIAGONAL BARS WITH TOP & BOTTOM REINFORCEMENT.



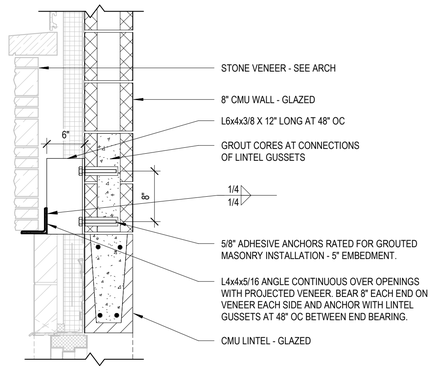
G SECTION THRU ROOF HATCH
G S503 — 3/4" = 1'-0"



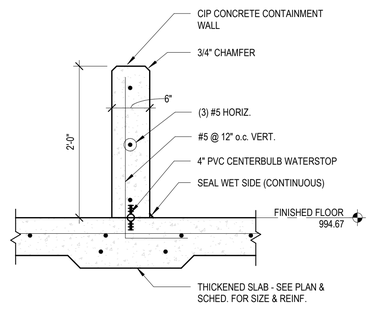
E ROOF PLANK TO WALL CMU SECTION
E S503 — 1" = 1'-0"



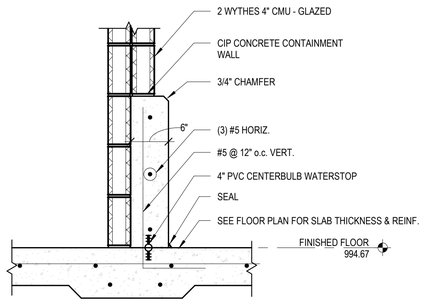
F SECTION THROUGH CANOPY
F S503 — 1" = 1'-0"



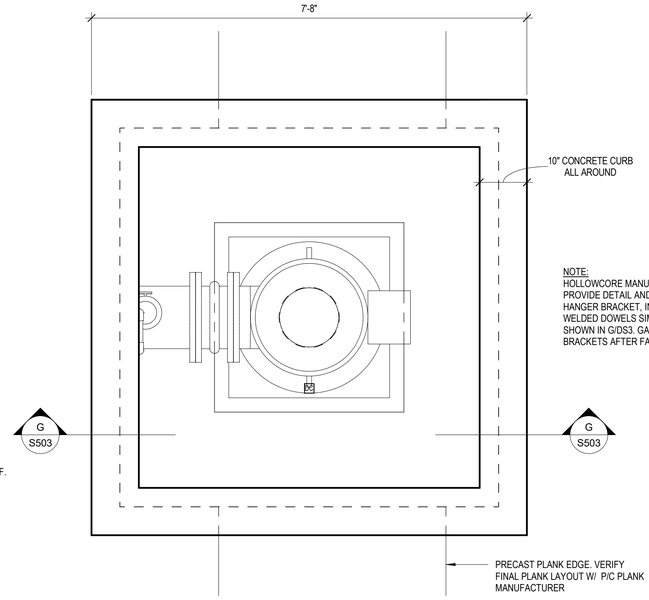
H VENEER SUPPORT DETAIL
H S503 — 1" = 1'-0"



J CONTAINMENT WALL DETAIL
J S503 — 1" = 1'-0"



K CONTAINMENT WALL DETAIL AT INTERIOR WALL
K S503 — 1" = 1'-0"



L ROOF HATCH PLAN
L S503 — 3/4" = 1'-0"

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE

2/3/2026 10:37:15 AM

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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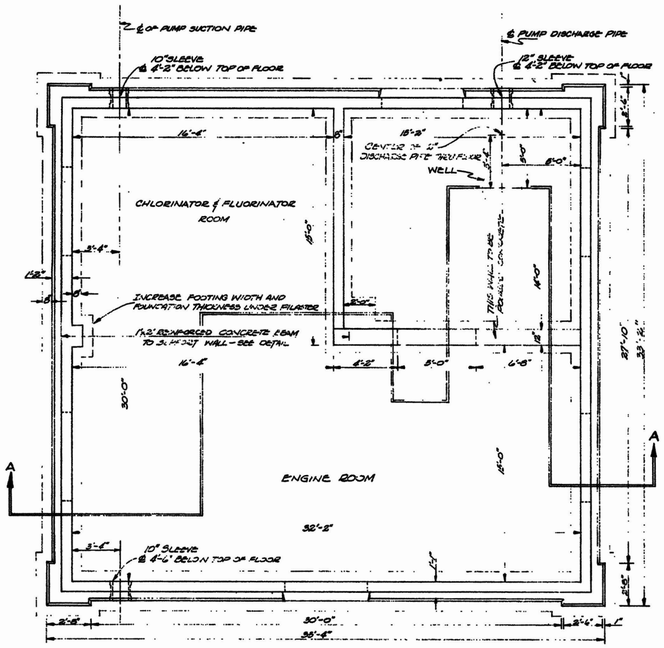
SEH Project	MADWU 185392
Checked By	BAW
Drawn By	ALC
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

STRUCTURAL DETAILS

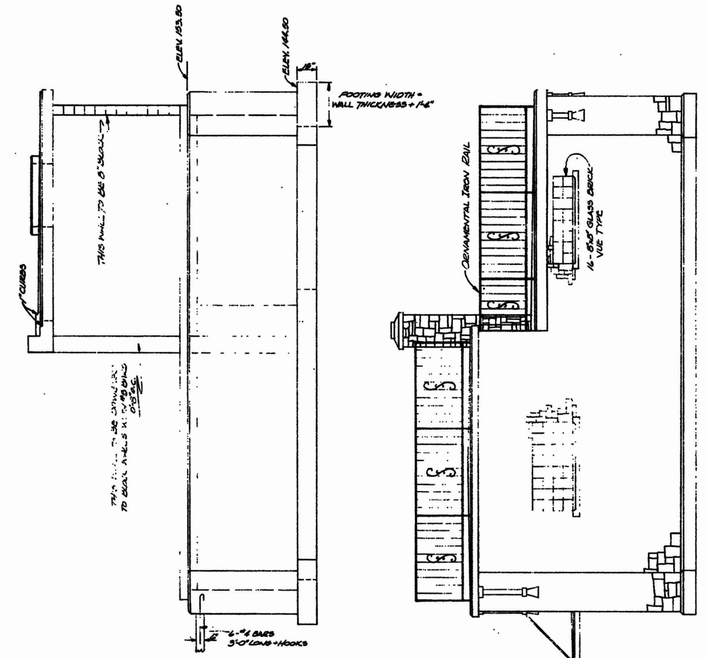
S503



PLAN

SCALE - 1" = 4'-0"

ALL ENGINE ROOM INNER DIMENSIONS INCLUDING OPENINGS TO WELL ROOM ARE PRIOR TO SETTING WALL TILE
PROVIDE 2-12 x 6 ⅝ø BARS, 5'-0" LONG - SET 3" OVER 2'-6" RISERS
" 5-#7 BARS, 750 LONG + HOOKS - SET 3" OVER 2'-3" RISERS
ALL CHLORINATOR & FLUORINATOR ROOM INNER DIMENSIONS ARE PRIOR TO SETTING WALL TILE
TREAT REAR DOORS THE SAME AS FRONT DOORS, EXCEPT ELIMINATE CANOPY & STEPS & "HAT"
FRONT DOORS SWING IN - BACK DOORS OUT



CONCRETE WORK

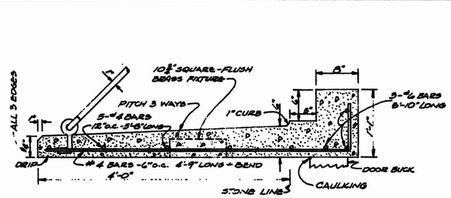
SCALE 1"=4'-0"

WALK, CHIMNEY, UPPER ROOF SLAB AND CANOPY - NOT SHOWN
INCREASE SLAB THICKNESS UNDER STONE WORK TO
PROVIDE 1" MINIMUM CURB AS SHOWN
HEIGHT OF CONSTRUCTION WALL NOT TO SCALE

SIDE ELEVATION

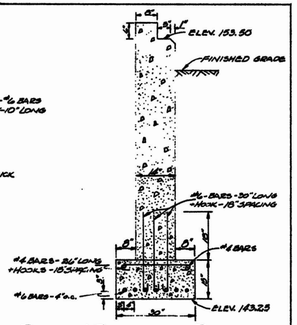
SCALE - 1"=4'-0"

CENTER GLASS BRICK WINDOWS IN EACH ROOM
SET UPPER SLAB RAILING STANDARD DISTANCE BACK
FROM EDGE OF SLAB. OTHERWISE BOTH SIDES IDENTICAL.



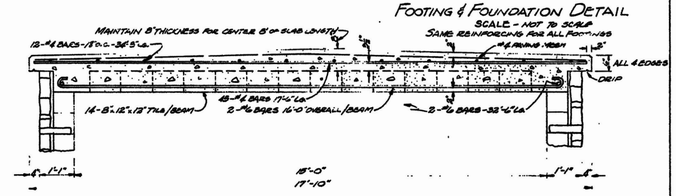
CONCRETE CANOPY DETAIL

SCALE 1" = 1'-0"



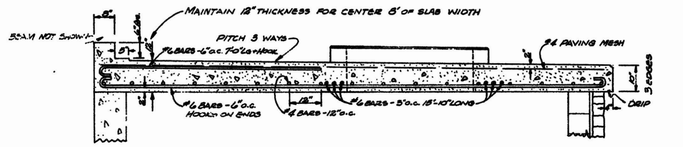
FOOTING & FOUNDATION DETAIL

SCALE - NOT TO SCALE
SAME REINFORCING FOR ALL FOOTINGS



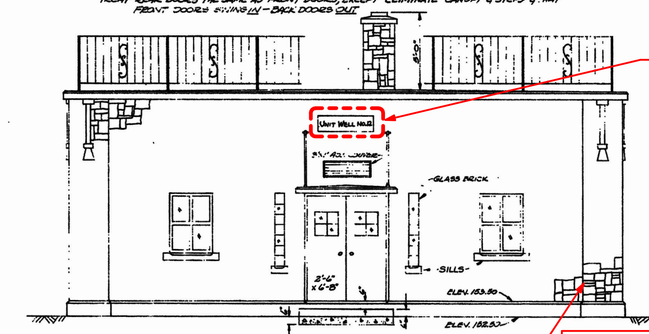
UPPER ROOF SLAB AND BEAM REINFORCING

SCALE 1" = 2'-0"



LOWER ROOF SLAB REINFORCING

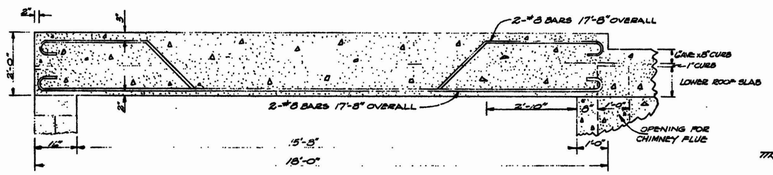
SCALE 1" = 2'-0"



FRONT ELEVATION

SCALE 1" = 4'-0"

SILLCOCK - NOT SHOWN



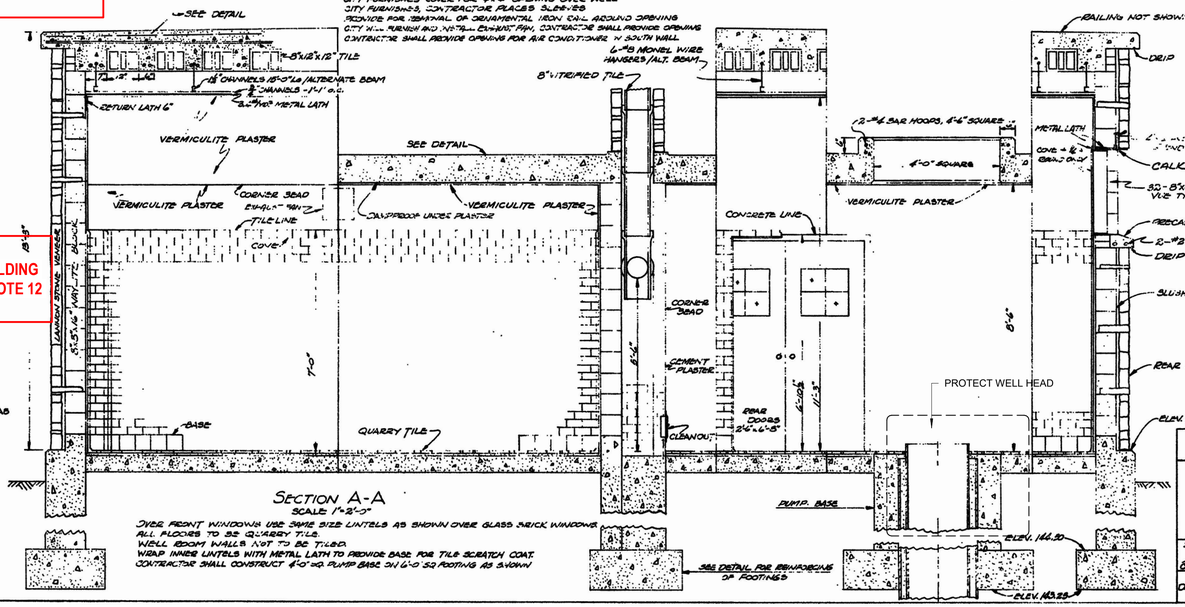
ENGINE ROOM BEAM REINFORCING

SCALE - 1" = 2'-0"

BEAM TO BE POURED WITH LOWER ROOF SLAB AND CURBS

GENERAL

LAID REINFORCING STEEL SIZ DIAMETERS, UNLESS OTHERWISE SPECIFIED
CHAMFER EXPOSED CONCRETE EDGES 1 INCH
ADMIX WATERPROOFING IN CONCRETE FOR ROOF SLABS.
WALL TILE TO RETURN AGAINST DOOR BUCKS, WINDOW JAMBS & GLASS BRICK
SET 2'-8" BACKS FLUSH WITH INSIDE FACE OF 8" WALL
PROVIDE #4 BAR HOOP, 18" SQUARE FOR CHIMNEY CAP
CITY FURNISHES COVER FOR 4'x 4' OPENING OVER WELL
CITY FURNISHES, CONTRACTOR PLACES SLAB-128
PROVIDE FOR REMOVAL OF ORNAMENTAL IRON RAIL AROUND OPENING
CITY WILL REMOVE AND INSTALL EXHAUST FAN, CONTRACTOR SHALL PROVIDE OPENING
CONTRACTOR SHALL PROVIDE OPENING FOR AIR CONDITIONER IN SOUTH WALL



SECTION A-A

SCALE 1"=2'-0"

OVER FRONT WINDOWS USE SAME SIZE LINTELS AS SHOWN OVER GLASS BRICK WINDOWS
ALL FLOORS TO BE QUARRY TILE.
WELL ROOM WALLS NOT TO BE TILED.
WRAP INNER LINTELS WITH METAL LATH TO PROVIDE BASE FOR TILE SCRATCH COAT.
CONTRACTOR SHALL CONSTRUCT 6'-0" SQ. PUMP BASE ON 6'-0 SQ FOOTING AS SHOWN

THIS DRAWING PROVIDED TO SHOW DETAILS OF THE BUILDING TO BE REMOVED

CITY OF MADISON, WISCONSIN
WATER DEPARTMENT

UNIT WELL No.12 PUMPHOUSE

SCALES AS SHOWN — APRIL 1951
CONSTRUCTION ENGR. — SUPT. OF WATER DEPT.
DES'SNED BY BAS | DRAWN BY GAG | SHEET 2 OF 3

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE 1/29/2026 3:21:34 PM

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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SEH Project	185392
Checked By	JRL
Drawn By	JRL

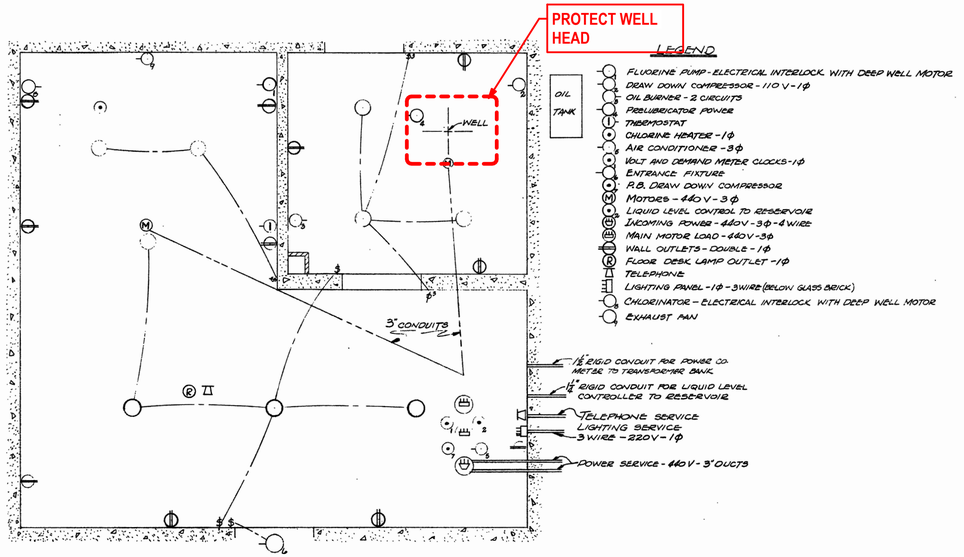
Project Status	Issue Date
BIDDING	2/12/2026

REVISION SCHEDULE

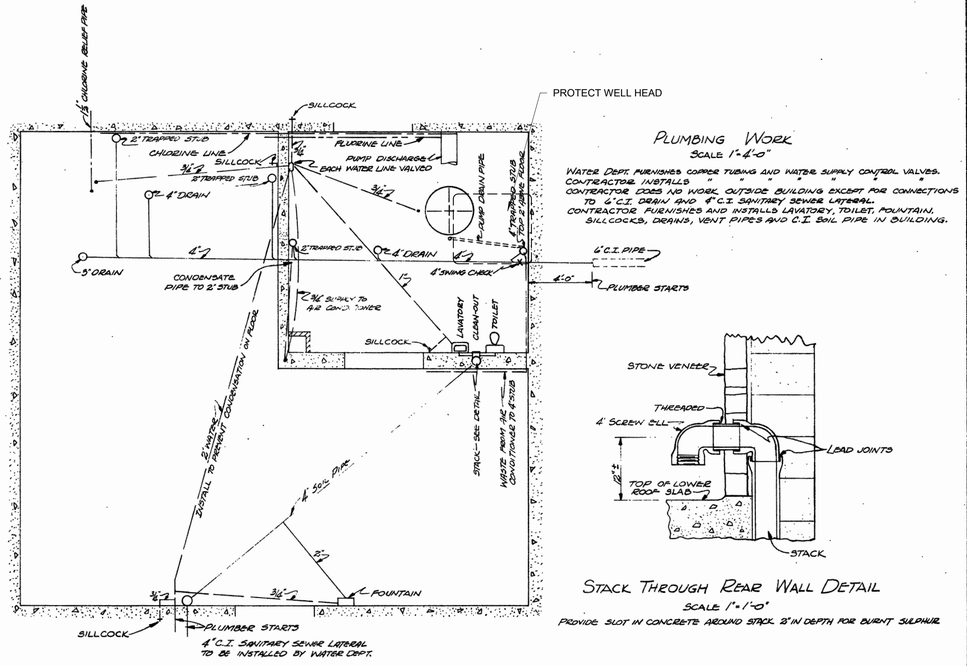
REV. #	DESCRIPTION	DATE

BUILDING DEMOLITION REFERENCE DRAWING

01
A002



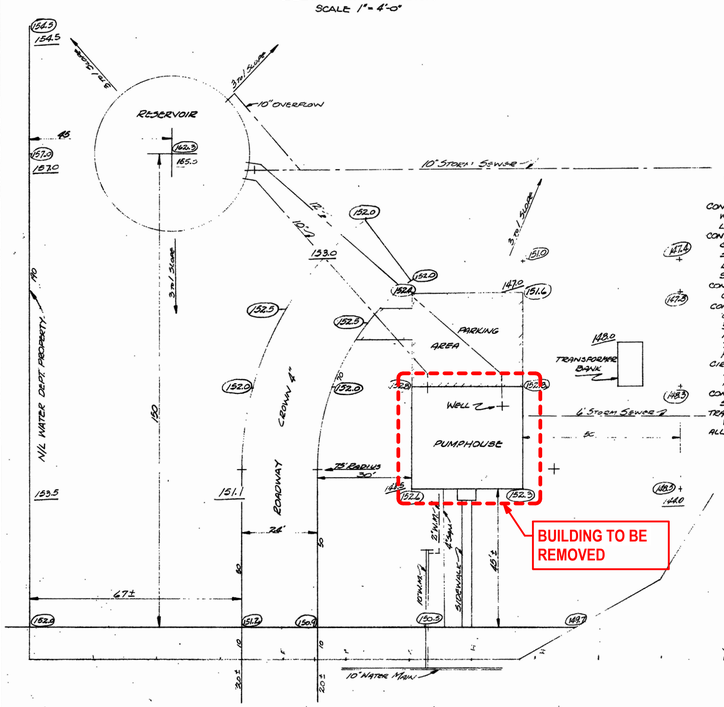
ELECTRICAL WORK
SCALE 1" = 4'-0"



PLUMBING WORK
SCALE 1" = 4'-0"

WATER DEPT. FURNISHES COPPER TUBING AND WATER SUPPLY CONTROL VALVES.
CONTRACTOR INSTALLS " " " " " "
CONTRACTOR DOES NO WORK OUTSIDE BUILDING EXCEPT FOR CONNECTIONS TO 6" C.I. DRAIN AND 8" C.I. SANITARY SEWER LATERAL.
CONTRACTOR FURNISHES AND INSTALLS LAVATORY, TOILET, FOUNTAIN, SILLCOCKS, DRAINS, VENT PIPES AND C.I. SOIL PIPE IN BUILDING.

STACK THROUGH REAR WALL DETAIL
SCALE 1" = 1'-0"
PROVIDE SLOT IN CONCRETE AROUND STACK 2" IN DEPTH FOR BURNT SULPHUR



PLAN, VIEW
OF
UNIT WELL No. 12 SITE
SCALE 1" = 20'-0"

CONTRACTOR SHALL DIG AND BACKFILL ALL SEWER AND WATER DITCHES. WATER DEPT. WILL FURNISH AND LAY ALL SEWER AND WATER PIPES.
CONTRACTOR SHALL FILL AND GRADE SITE TO FINISHED GRADE. TOP 18" SHALL BE 10" CLAY AND 6" TOP SOIL. TOP SOIL WILL BE FURNISHED BY WATER DEPT. CONTRACTOR SHALL LOAD, HAUL, SPREAD & LEVEL TOP SOIL. THE TOP SOIL IS STOCK PILED AT 102 CRAWFORD ROAD.
CONTRACTOR SHALL MOVE THE EXISTING 24" CORRUGATED IRON CULVERT SO THAT IT IS CENTERED ON THE NEW 24' ROADWAY
CONTRACTOR SHALL PAVE THE ROADWAY & PARKING AREA WITH CITY OF MADISON STANDARD 2 COURSE ASPHALTIC PAVEMENT. THE BASE SHALL BE 8" OF CRUSHED STONE CONSTRUCTED OF MATERIAL SALVAGED FROM THE EXISTING DRIVEWAY AND ANY ADDITIONAL MATERIAL NEEDED. THE FILL IN THE PARKING AREA SHALL BE COMPACTED BEFORE PLACING STONE.
CIRCLED NUMBERS ARE FINISHED GRADE ELEVATIONS. UNDERLINED NUMBERS ARE APPROX. PRESENT GROUND ELEVATIONS. SOME FILL HAS BEEN DUMPED AT THE JOBS BY THE WATER DEPT.
CONTRACTOR SHALL CONSTRUCT A 3' WIDE, 1" THICK BITUMINOUS SIDEWALK ON A 6" ROLLED STONE BASE.
TRANSFORMER BANK PLATFORM WILL BE CONSTRUCTED BY THE WATER DEPT.
ALL GROUND SLOPES TO BE A MAXIMUM OF 3 to 1.

GENERAL

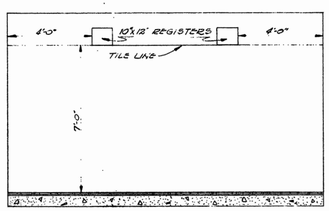
THIS CONTRACT DOES NOT INCLUDE ANY PAINTING WORK.
" " " " " " " AIR CONDITIONER
" " " " " " " PIPING WORK OUTSIDE OF BUILDING EXCEPT AS NOTED.

THIS CONTRACT DOES NOT INCLUDE FURNISHING THE EXHAUST FAN, COPPER WATER PIPE AND FITTINGS, WATER LINE CONTROL VALVES, RESERVOIR ROOF OPENING COVERS.
WATER DEPT. WILL FURNISH 4" C.I. SLEEVES FOR PIPING TO PUMPS AND HANGERS FOR AIR CONDITIONER IN ROOF SLAB.
CONTRACTOR WILL SET SLEEVES AND HANGERS.

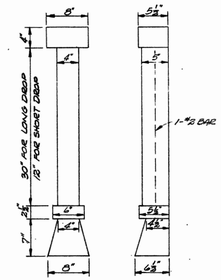
CONTRACTOR TO PROVIDE OPENINGS, SET SLEEVES AND HANGERS

IN	FOR
SLEEVE IN CHLORINATOR ROOM REAR FOUNDATION WALL	CENTRIFUGAL PUMP SUCTION PIPE
" " " " " " WATER TABLE	CHLORINE RELIEF PIPE
OPENINGS IN FLUORINATOR ROOM SIDE WALL	HOT AIR REGISTERS
SLEEVES " " " " " "	CHLORINE & FLUORINE DISCHARGE PIPES
SLEEVE IN WELL ROOM REAR FOUNDATION WALL	DEEP WELL PUMP DISCHARGE
" " " " " "	LIQUID LEVEL CONTROLLER
OPENING IN ENGINE ROOM REAR WALL	AIR CONDITIONER AIR INTAKE
" " " " FRONT WALL	ADJUSTABLE LOUVER
SLEEVE " " " FRONT FOUNDATION WALL	CENTRIFUGAL PUMP DISCHARGE PIPE
HANGERS " " " ROOF SLAB	AIR CONDITIONER UNIT
OPENING " " " N. SIDE FOUNDATION WALL	SANITARY SEWER LATERAL
OPENING IN CHLORINATOR ROOM REAR WALL	EXHAUST FAN

HEATING WORK



HEATING REGISTER DETAIL
NORTH WALL OF CHLORINATOR & FLUORINATOR ROOM
SCALE 1" = 3'-0"
SEE ELECTRICAL WORK DETAIL FOR LOCATION OF OIL TANK.
SEE SPECIFICATIONS FOR SIZE AND LOCATION OF FURNACE.



DETAIL OF PILASTER DROPS
SCALE 1" = 1'-0"

THIS DRAWING PROVIDED TO SHOW DETAILS OF THE BUILDING TO BE REMOVED

CITY OF MADISON, WISCONSIN
WATER DEPARTMENT

UNIT WELL No. 12
PUMPHOUSE

SCALES: AS SHOWN	APRIL 1957
CONSTRUCTION ENGR.	SUPT. OF WATER DEPT.
DESIGNED BY GAG	DRAWN BY GAG
SHEET 3 OF 3	

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SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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SEH Project	185392
Checked By	JRL
Drawn By	JRL

Project Status	Issue Date
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

BUILDING DEMOLITION REFERENCE DRAWING

01
A003

CODE INFORMATION

UNIT WELL 12 WATER TREATMENT PLANT
Madison, WI

General Code Information

ITEM	INFORMATION	REMARKS
Design code:	2021 IBC	
Occupancy Type:	Separated Use	
	F-1 Factory Industrial (water treatment)	
	H-2 Hazardous (Fluoride Room)	
	H-3 Hazardous (Chlorine Room)	
Occupancy Seperations	**Fire Rating**	
F-1:H-2	2 hour	
F-1:H-3	1 hour	
H-2:H-3	1 hour	
Construction type:	IIB	
Fully Sprinkled?	Yes	

Hazardous Materials

Chemical	Chemical Classification	Max Control Area Qun.	Actual Quantity *
Chlorine Gass	Oxidising Gass, Corrosive,Toxic	300 LB	600 LB
23% Hydroflurosilicic Acid	Toxic, Corrosive	1000 LB	1670 LB

Notes:
A. Actual quanity is for combined storage and closed systems use.
B. Control area quantity per 307.1(1) Footnote i.

General Building Information

ITEM	ALLOWABLE	ACTUAL
Building height & no. of stories:		
Stories	2	1
Building Height	60'	14'
Area per floor level		
F-1	8,500 SF	1,120 SF
H-2	3,000 SF	72 SF
H-3	5,000 SF	72 SF
		Building Total Area: 1,500 SF

Means of Egress

ITEM	REQUIRED	PROVIDED / REMARKS
Number of Exits	2 per floor	2 provided per floor
Travel Distances	**EXIT ACCESS / COMMON PATH**	
F-1	250 FT / 75 FT	OK/OK
H-2	100 FT / 25 FT	OK/OK
H-3	150 FT / 25 FT	OK/OK

Fire Resistances, Suppression and Alarm

ITEM	REQUIRED	PROVIDED
Fire Resistance Rating for all Building Components:	0	Per Table 601
Fire Suppression	Fully Sprinkled	Fully Sprinkled

Sanitary Fixtures

Fixtures required per IBC Chapter 3, COMM 62 and table 2902.1
BUILDING IS NOT NORMALLY OCCUPIED

Compliance Check	Water Closets Male / Female	Lavatories Male / Female	Drinking Fountain	Service Sink
Number of fixtures **Required**	N/A	N/A	N/A	N/A
Number of fixtures **Provided**	1	1	0	1

CODE LEGEND

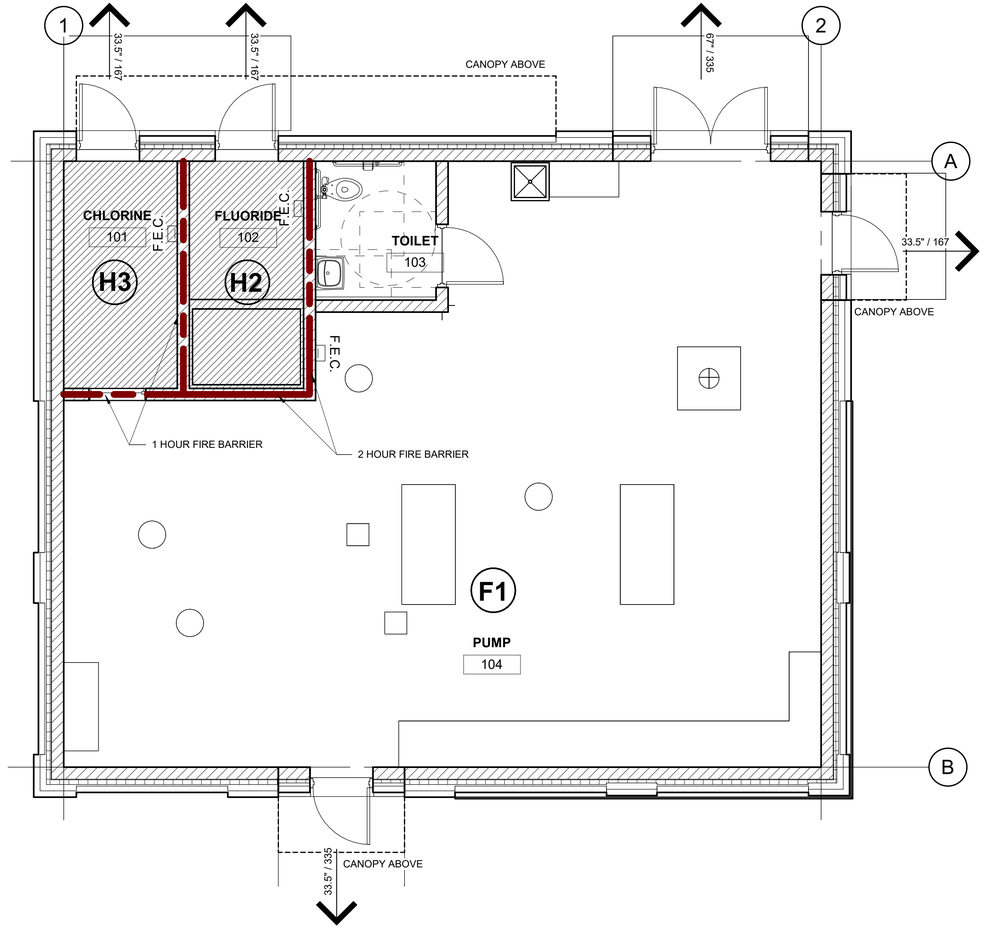
Fire barriers shall be permanently identified with stenciling in accessible and concealed locations at intervals not exceeding 30' along the barrier

EXIT WIDTH
OCCUPANT CAPACITY OF EXIT
60"/240

X OCCUPANCY CLASSIFICATION

1-HOUR FIRE BARRIER (UL U935)

2-HOUR FIRE BARRIER (UL U935)



1 / A004 CODE PLAN
1/4" = 1'-0"

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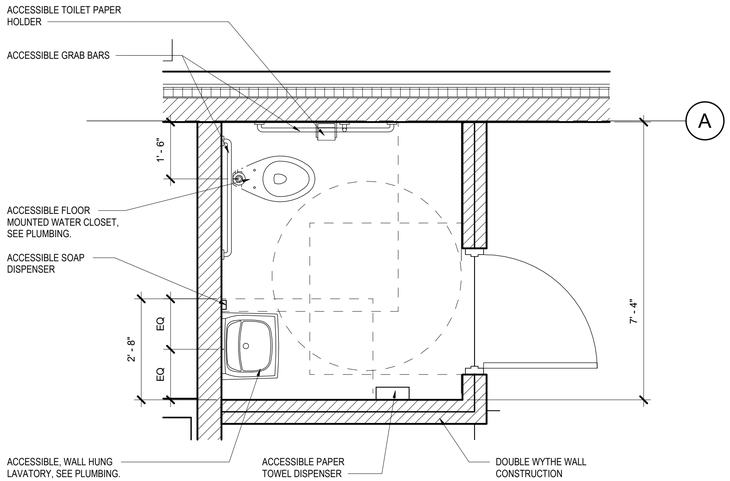
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

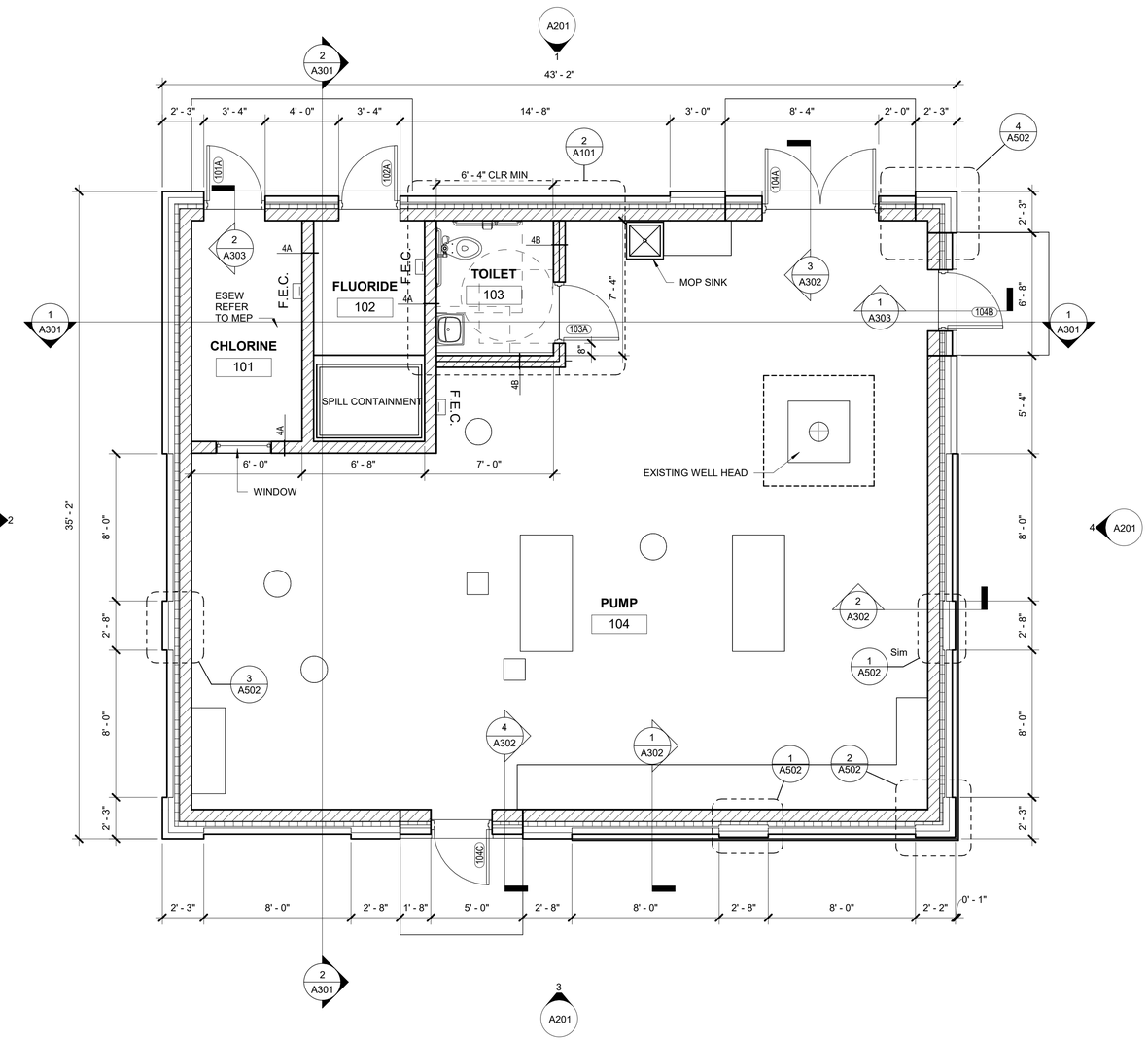
REV. #	DESCRIPTION	DATE

CODE PLAN

01
A004



2 A101 TOILET ROOM ENLARGED PLAN
1/2" = 1'-0"



1 A101 FIRST FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. SEE STRUCTURAL DRAWINGS FOR ALL DETAILS RELATED TO CMU REINFORCING.
2. ALL CMU SURFACES EXPOSED TO VIEW SHALL BE BURNISHED FACED UNITS.
3. PROVIDE BULLNOSE UNITS AT CORNERS AND JAMBS.
4. PROVIDE LINTEL UNITS OVER OPENINGS.
5. PROVIDE BURNISHED SILL UNITS AT SILL CONDITIONS.
6. CONSTRUCT WALLS COMMON TO PUMP ROOM SO THAT GOOD SIDE FACES THE PUMP ROOM.
7. SEE OTHER DRAWINGS FOR EQUIPMENT LOCATIONS AND HOUSE KEEPING PADS.
8. REFER TO DIVISION 9 SPECIFICATIONS FOR INTERIOR FINISHES.

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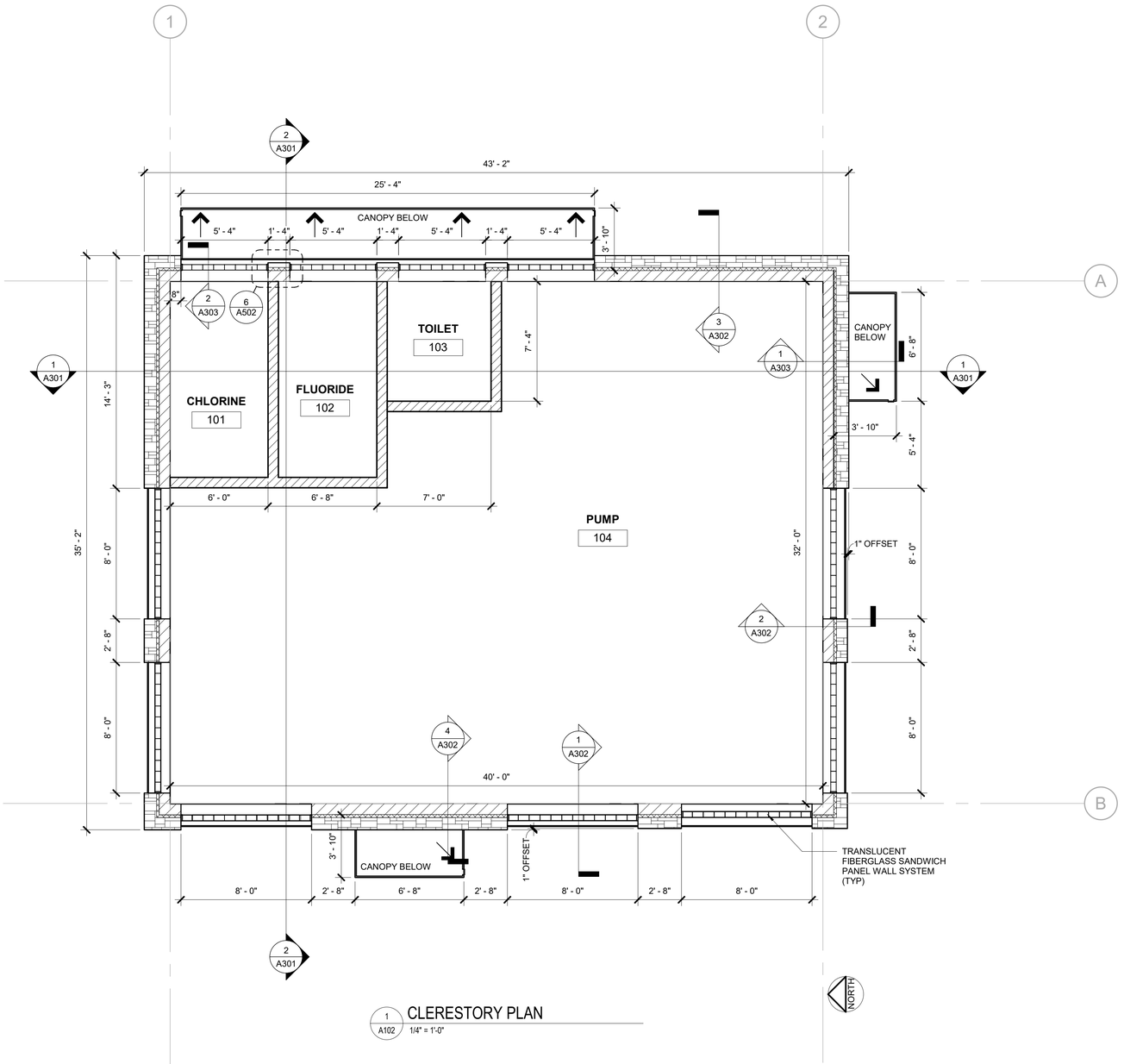
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

FLOOR PLAN

01
A101



1 A102 CLERESTORY PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. SEE STRUCTURAL DRAWINGS FOR ALL DETAILS RELATED TO CMU REINFORCING.
2. ALL CMU SURFACES EXPOSED TO VIEW SHALL BE BURNISHED FACED UNITS.
3. PROVIDE BULLNOSE UNITS AT CORNERS AND JAMBS.
4. PROVIDE LINTEL UNITS OVER OPENINGS.
5. PROVIDE BURNISHED SILL UNITS AT SILL CONDITIONS.
6. CONSTRUCT WALLS COMMON TO PUMP ROOM SO THAT GOOD SIDE FACES THE PUMP ROOM.
7. SEE OTHER DRAWINGS FOR EQUIPMENT LOCATIONS AND HOUSE KEEPING PADS.
8. REFER TO DIVISION 9 SPECIFICATIONS FOR INTERIOR FINISHES.
9. ARROWS ON CANOPIES DENOTE 1/4" PITCH DIRECTION TOWARDS ROOF EDGE SCUPPERS

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MADISON, WISCONSIN
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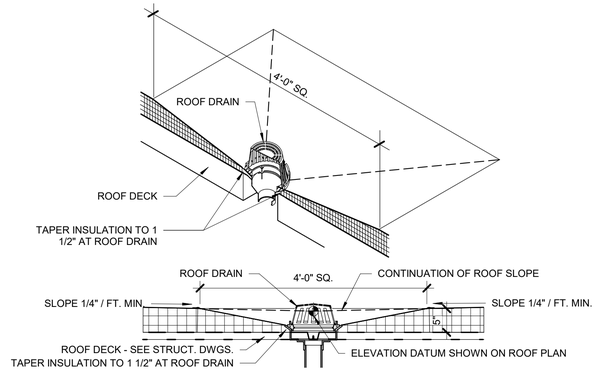
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BIDDING	2/12/2026

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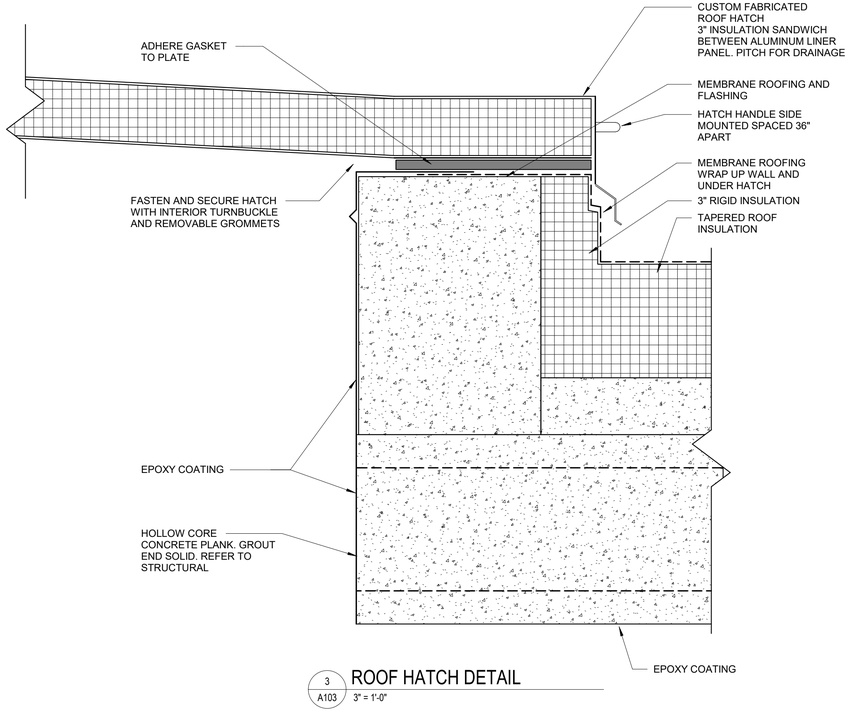
REV. #	DESCRIPTION	DATE

CLERESTORY PLAN

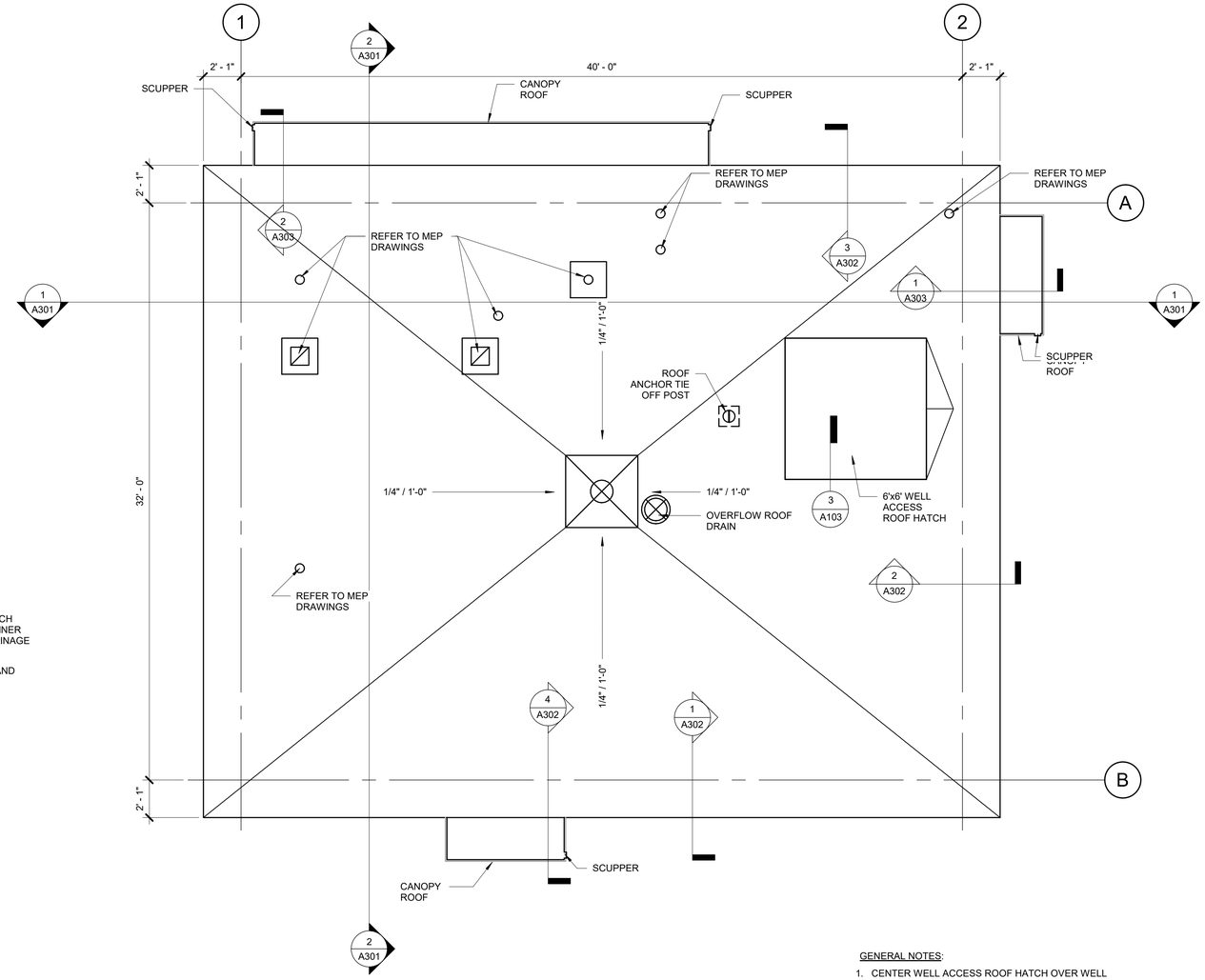
01
A102



2 A103 ROOF DRAIN DETAIL
3/4" = 1'-0"



3 A103 ROOF HATCH DETAIL
3" = 1'-0"



1 A103 ROOF PLAN
1/4" = 1'-0"

NORTH

GENERAL NOTES:

1. CENTER WELL ACCESS ROOF HATCH OVER WELL LOCATION; VERIFY IN FIELD.
2. REFER TO MEP DRAWINGS FOR INTAKE, VENTS AND OTHER ROOF PENETRATIONS. PROVIDE CURBS AND SLEEVES AS REQUIRED

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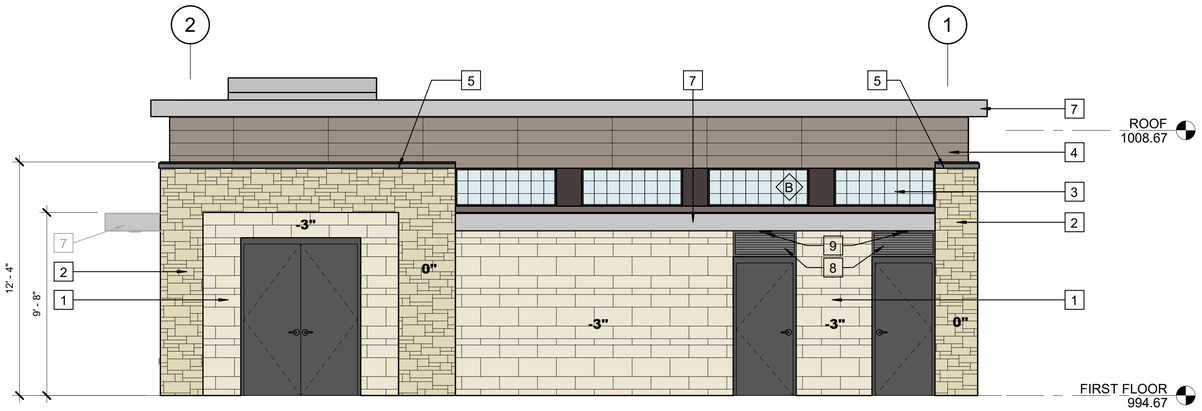
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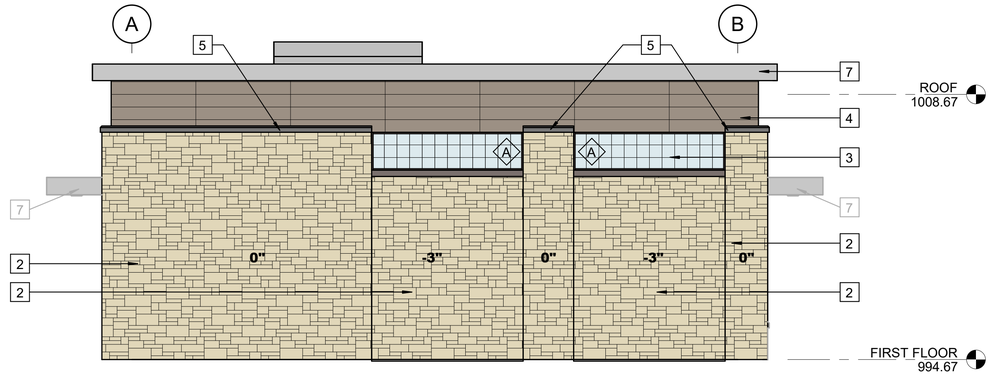
REV. #	DESCRIPTION	DATE

ROOF PLAN

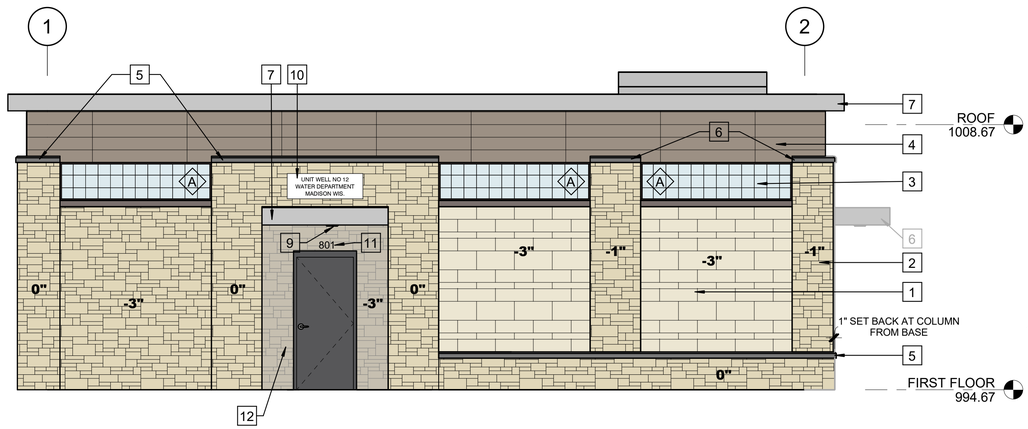
01
A103



1 A201 EAST ELEVATION
1/4" = 1'-0"



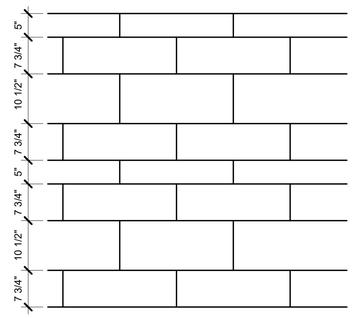
2 A201 NORTH ELVEVATION
1/4" = 1'-0"



3 A201 WEST ELEVATION
1/4" = 1'-0"



4 A201 SOUTH ELEVATION
1/4" = 1'-0"



NOTE: STONE LENGTHS VARY BETWEEN 8" AND 32", STONE HEIGHT COURSING AS SHOWN ABOVE. SEE SPECIFICATIONS FOR STONE TYPE

Exterior Stone Veneer Coursing

GENERAL NOTES:

1. ALL CAST STONE COPINGS PROJECT NOMINALLY 1.5" BEYOND FACE OF STONE

KEY NOTES:

1. STONE VENEER 1
2. STONE VENEER 2
3. TRANSLUCENT FIBERGLASS SANDWICH PANEL WALL SYSTEM
4. 8" H x 5'-0" LONG TERRA COTTA RAIN SCREEN SYSTEM
5. CAST STONE COPING 1
6. CAST STONE COPING 2
7. METAL FASCIA
8. LOUVER REFER TO 5/A601
9. SOFFIT LIGHT CENTER ON DOOR REFER TO ELECTRICAL DRAWINGS
10. SALVAGED STONE SIGNAGE FROM EXISTING BUILDING. CLEAN STONE AND PAINT RECESSED LETTERING.
11. BUILDING ADDRESS COORDINATE WITH OWNER
12. SALVAGED STONE VENEER FROM EXISTING. BUILDING.

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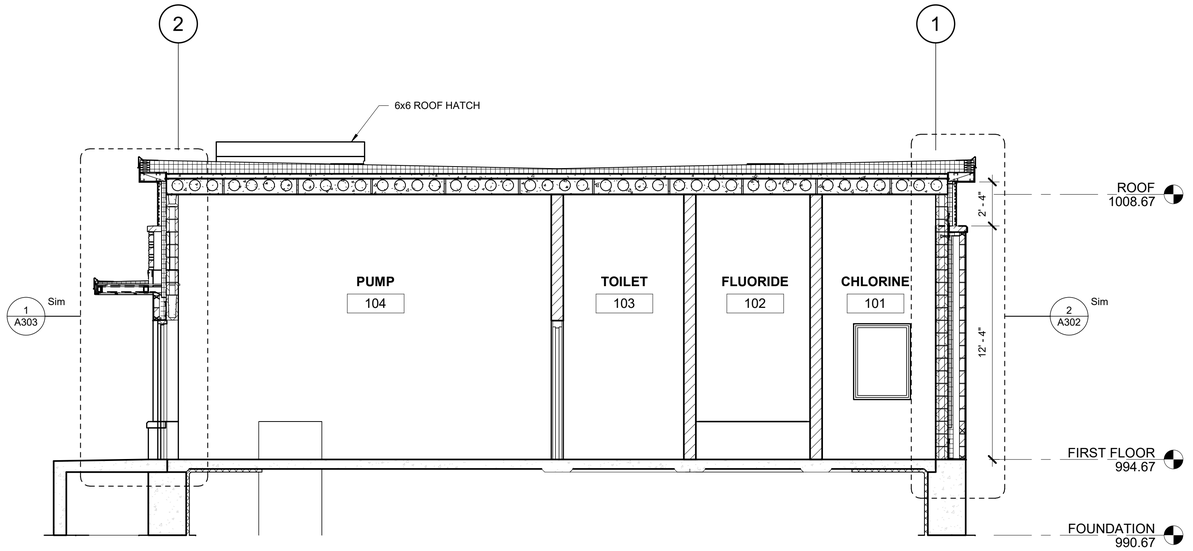
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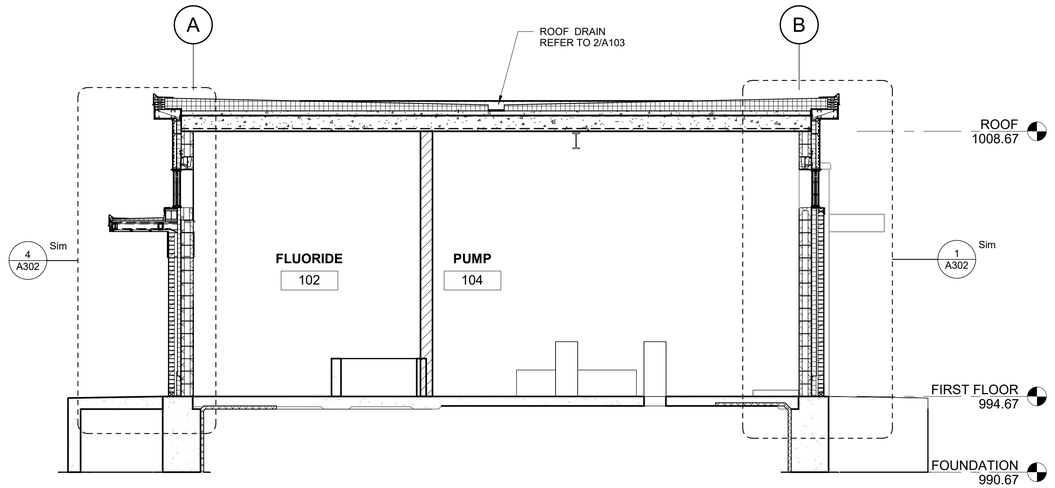
REV. #	DESCRIPTION	DATE

EXTERIOR ELEVATIONS

01
A201



1 A301 BUILDING SECTION
1/4" = 1'-0"



2 A301 BUILDING SECTION
1/4" = 1'-0"

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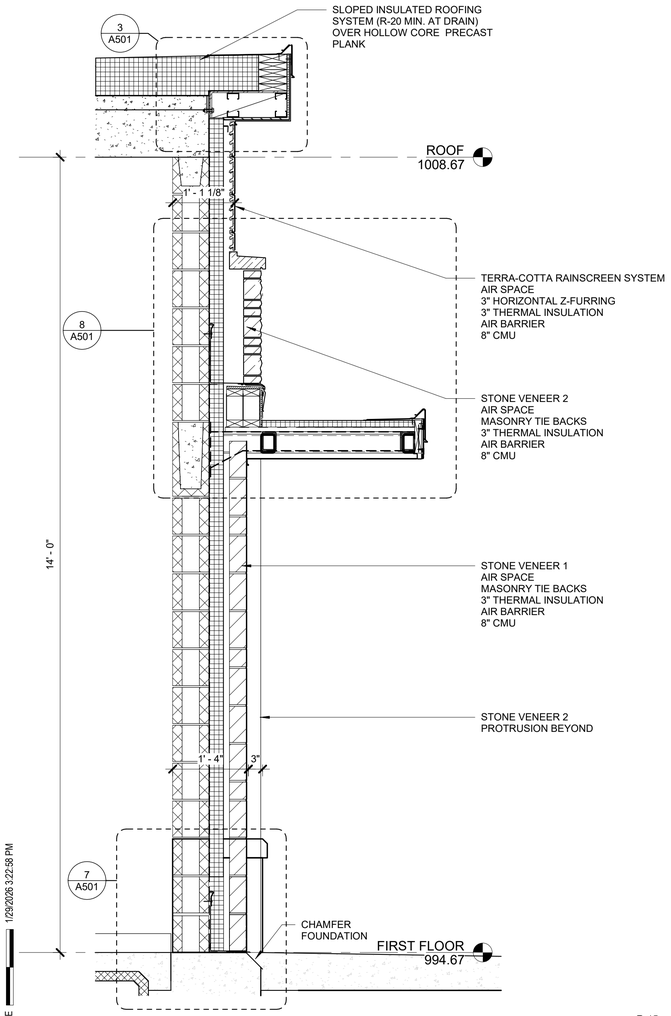
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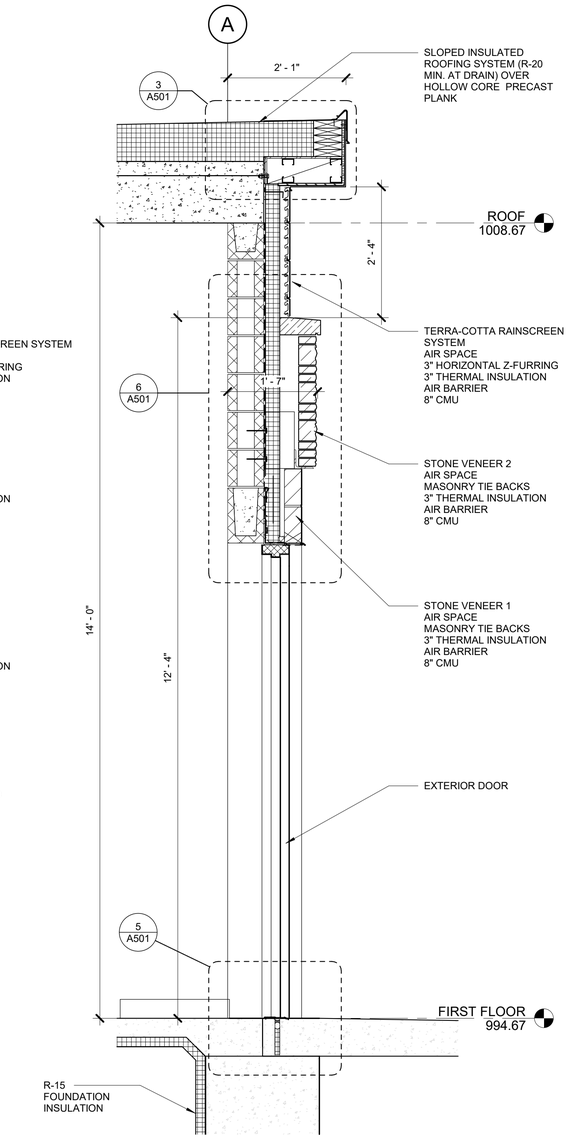
BUILDING SECTIONS

01
A301



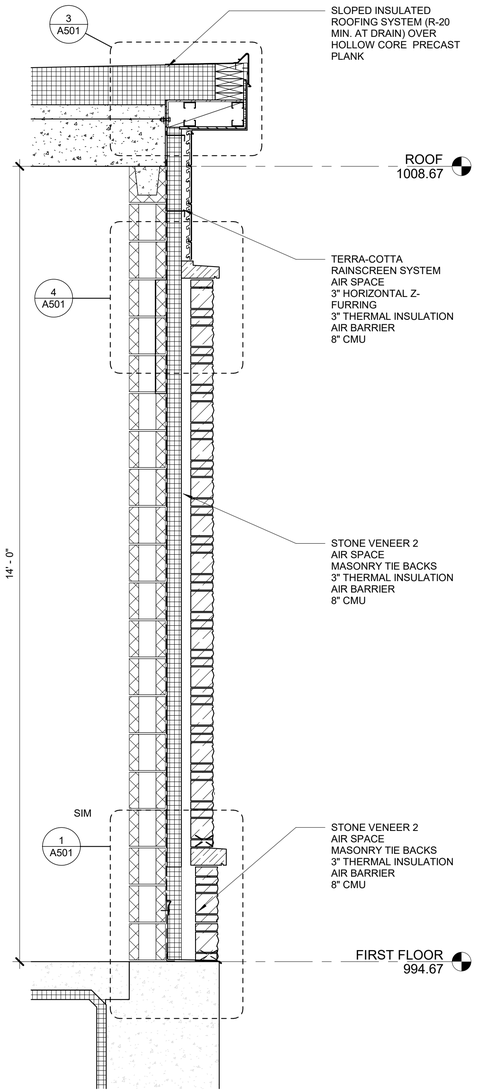
4 A302 WALL SECTION - STONE WALL AT CANOPY

3/4" = 1'-0"



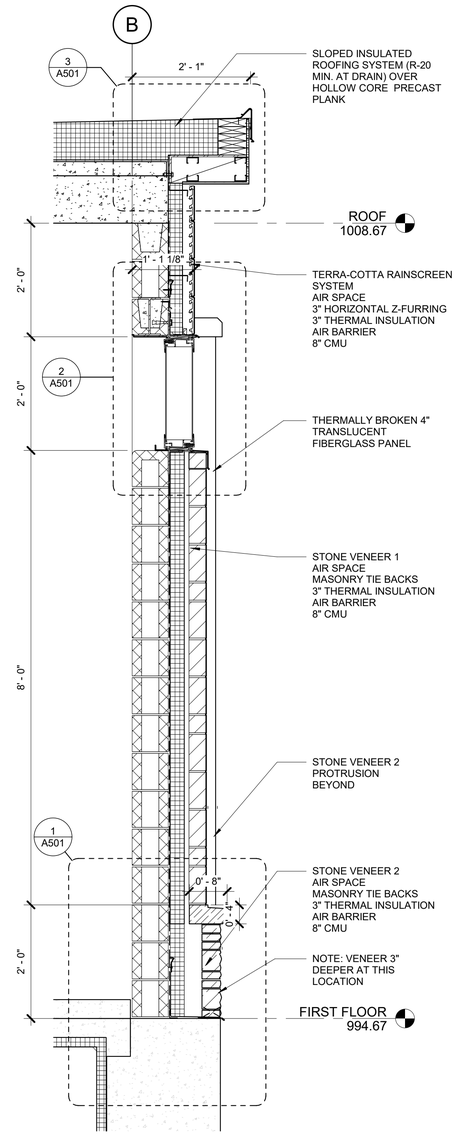
3 A302 WALL SECTION - STONE WALL AT DOOR

3/4" = 1'-0"



2 A302 WALL SECTION - STONE WALL

3/4" = 1'-0"



1 A302 SECTION THRU CLERESTORY WINDOW

3/4" = 1'-0"

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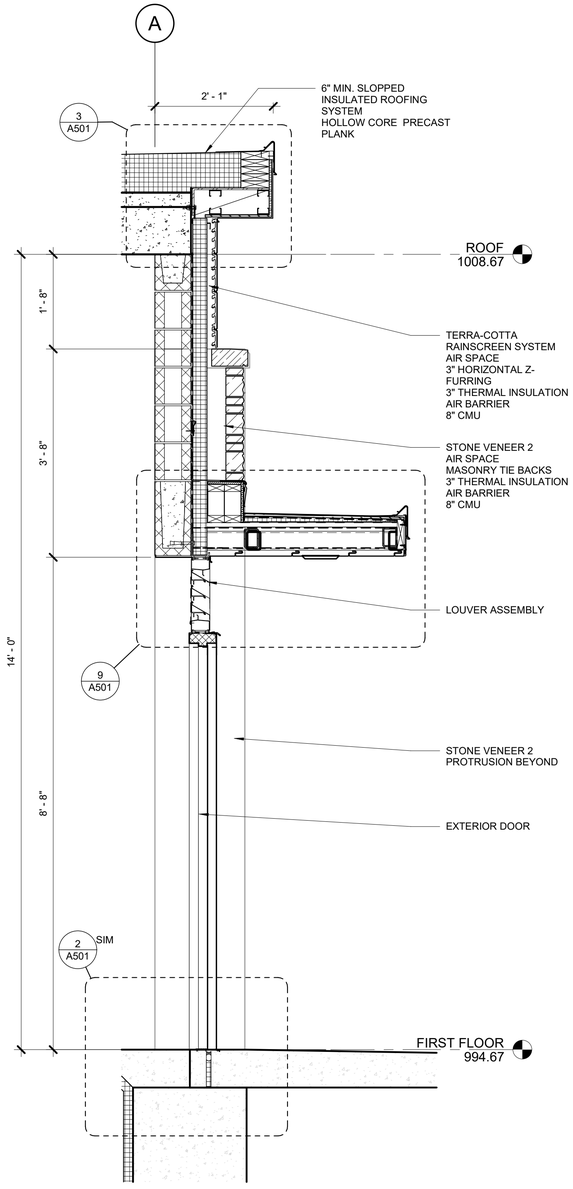
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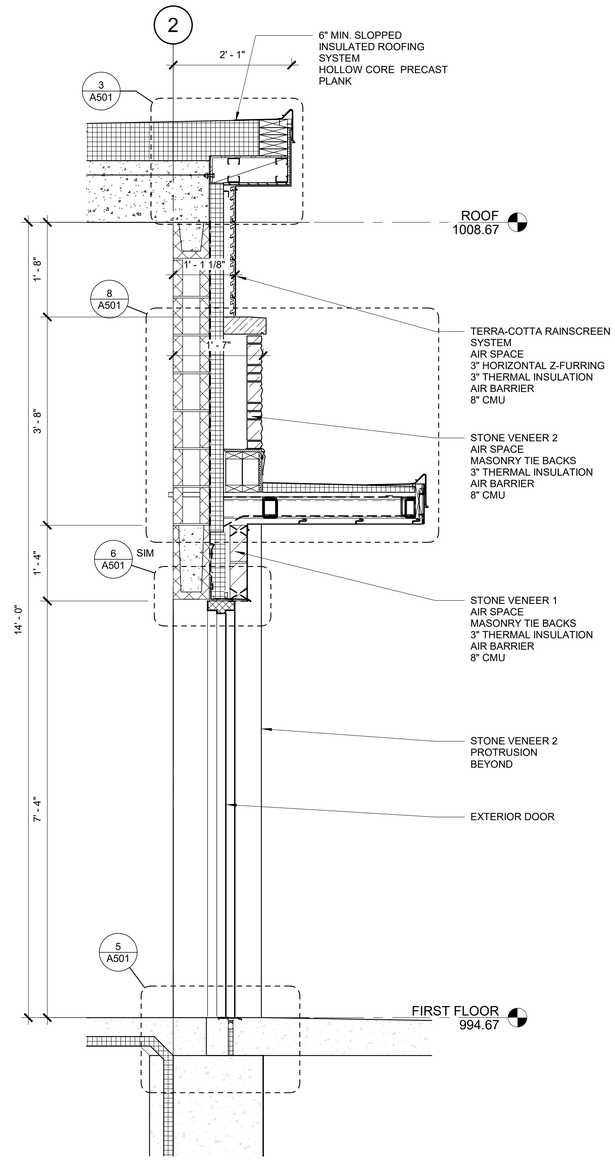
REV. #	DESCRIPTION	DATE

WALL SECTIONS

01
A302



2 WALL SECTION
2 / A303 — 3/4" = 1'-0"



1 WALL SECTION - ENTRANCE DOOR
1 / A303 — 3/4" = 1'-0"

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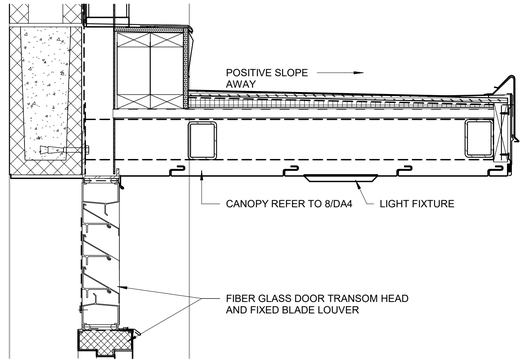
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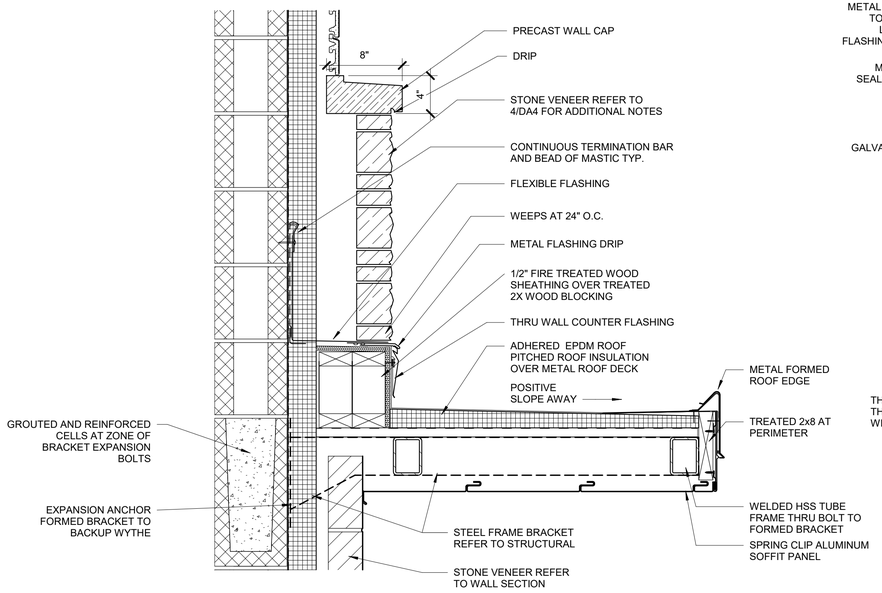
REV. #	DESCRIPTION	DATE

WALL SECTIONS

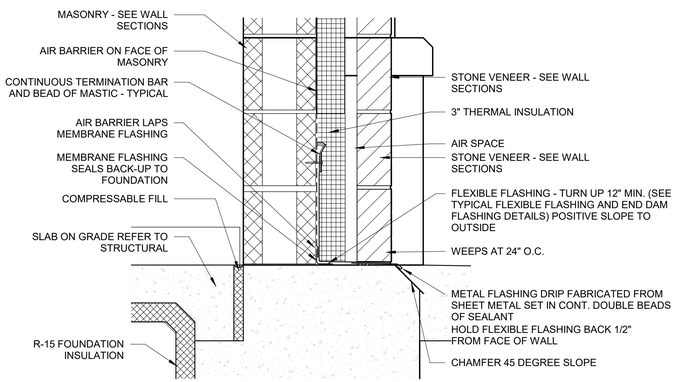
01
A303



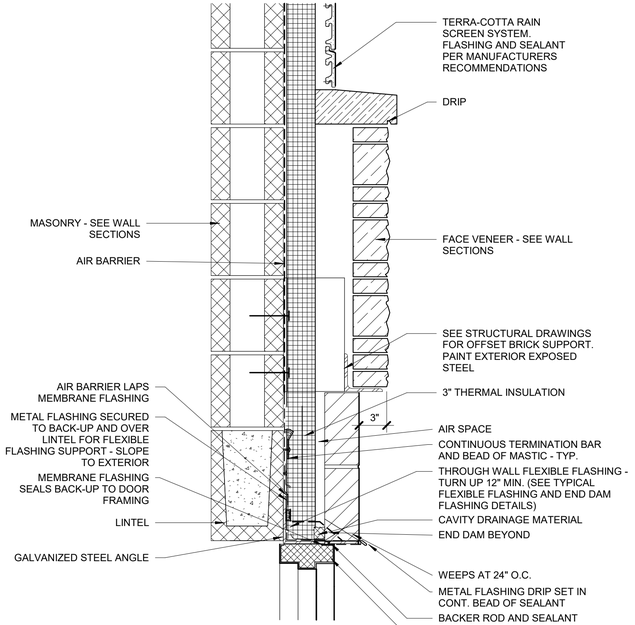
9 A501 — CANOPY AT BLADE LOUVER ASSEMBLY
1 1/2" = 1'-0"



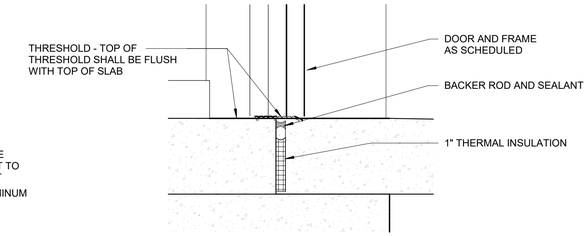
8 A501 — WALL DETAIL - CANOPY
1 1/2" = 1'-0"



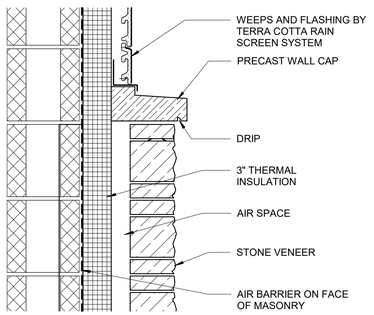
7 A501 — WALL DETAIL - BASE
1 1/2" = 1'-0"



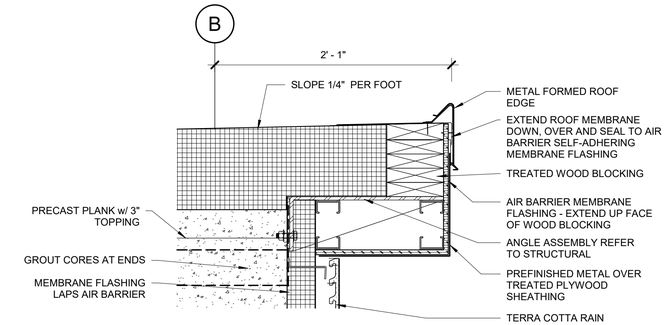
6 A501 — WALL DETAIL
1 1/2" = 1'-0"



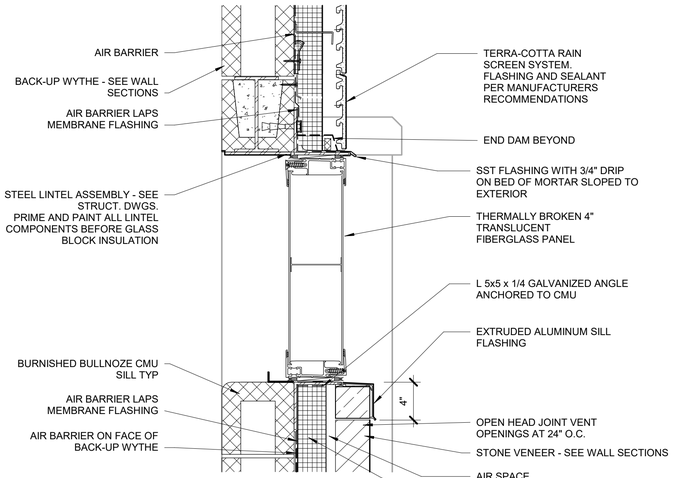
5 A501 — WALL DETAIL- DOOR BASE
1 1/2" = 1'-0"



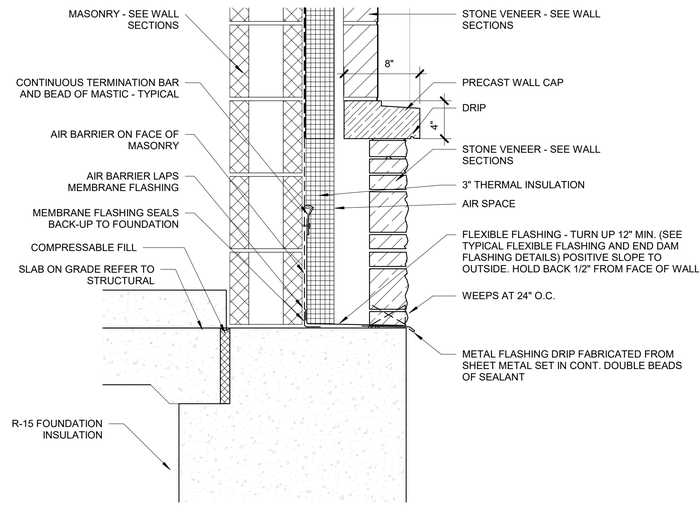
4 A501 — WALL DETAIL
1 1/2" = 1'-0"



3 A501 — WALL DETAIL - ROOF
1 1/2" = 1'-0"



2 A501 — WALL DETAIL - GLASS BLOCK
1 1/2" = 1'-0"



1 A501 — WALL DETAIL - WALL FOUNDATION
1 1/2" = 1'-0"

NOTE: ALL DRAWING SCALES ARE FOR PLANS PRINTED ON 34"x22" SHEETS

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SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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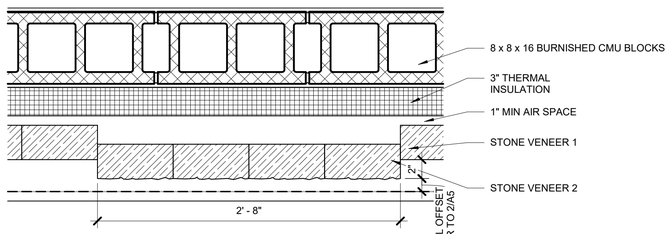
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

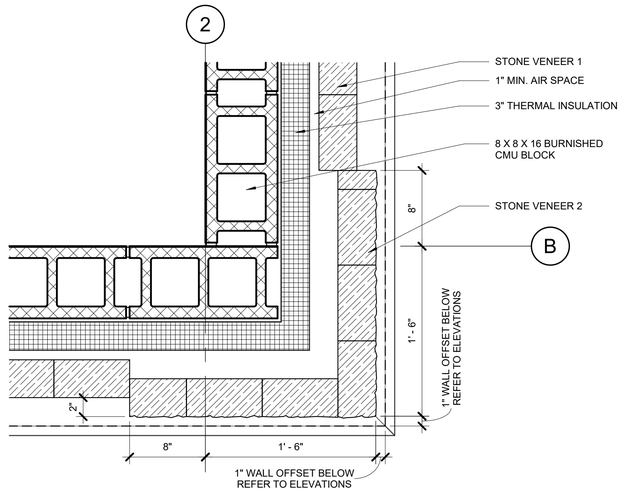
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DETAILS

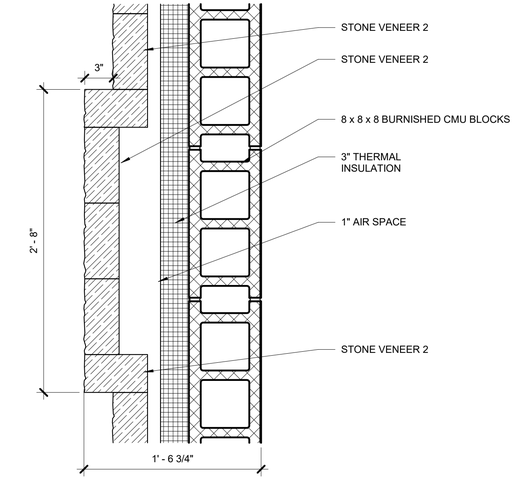
01
A501



1 A502 PLAN DETAIL - STONE PROTRUSION
1 1/2" = 1'-0"

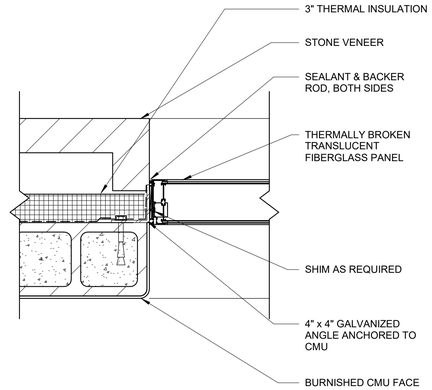


2 A502 PLAN DETAIL - CORNER CONDITION
1 1/2" = 1'-0"

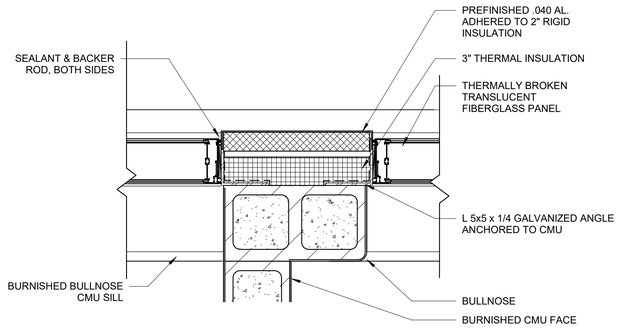


3 A502 PLAN DETAIL - STONE PROTRUSION
1 1/2" = 1'-0"

4 A502 PLAN DETAIL - CORNER CONDITION
1 1/2" = 1'-0"



5 A502 FIBERGLASS WINDOW JAMB
1 1/2" = 1'-0"



6 A502 FIBERGLASS WINDOW JAMB
1 1/2" = 1'-0"

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MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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Checked By	JRL
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Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

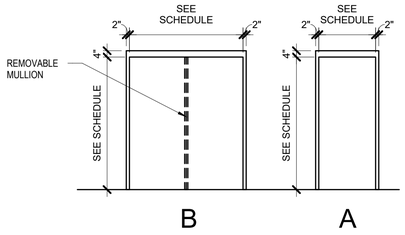
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01
A502

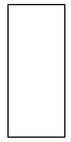
DOOR AND FRAME SCHEDULE

DOOR NUMBER	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATL	FIRE RATING	FRAME TYPE	FRAME MATL	FRAME DETAILS JAMB	FRAME DETAILS HEAD	FRAME DETAILS SILL	HW Set	REMARKS
101A	3' - 0"	7' - 0"	1	FRP	-	A	FRP	13/A601	14/A601	5/A501	2	
102A	3' - 0"	7' - 0"	1	FRP	-	A	FRP	13/A601	14/A601	5/A501	2	
103A	3' - 0"	7' - 0"	1	HM	-	A	HM	11/A601	12/A601	-	1	Paint Door and Frame
104A	6' - 0"	8' - 0"	1	HM	-	B	HM	13/A601	14/A601	5/A501	4	Paint Door and Frame
104B	3' - 0"	7' - 0"	1	HM	-	A	HM	13/A601	14/A601	5/A501	3	Paint Door and Frame
104C	3' - 0"	7' - 0"	1	HM	-	A	HM	13/A601	14/A601	5/A501	5	Paint Door and Frame

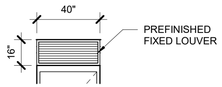
HM: HOLLOW METAL
FRP: FIBER REINFORCED PLASTIC



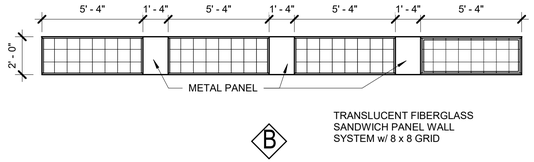
3 A601 FRAME ELEVATIONS
1/4" = 1'-0"

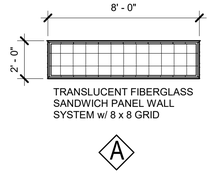


4 A601 DOOR ELEVATIONS
1/4" = 1'-0"

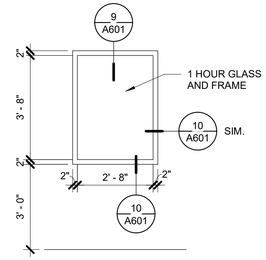


5 A601 LOUVER ELEVATION
1/4" = 1'-0"





1 A601 TRANSLUCENT PANEL ELEVATIONS
1/4" = 1'-0"

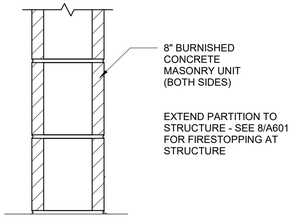


2 A601 FIRE RATED INTERIOR WINDOW
3/8" = 1'-0"

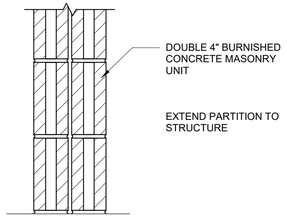
ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL FINISH NORTH	WALL FINISH SOUTH	WALL FINISH EAST	WALL FINISH WEST	CEILINGS FINISH	CEILINGS MATERIAL	REMARKS
101	CHLORINE	EP	-	BURN	BURN	BURN	BURN	PT	PRECAST	
102	FLUORIDE	EP	-	BURN	BURN	BURN	BURN	PT	PRECAST	
103	TOILET	EP	-	BURN	BURN	BURN	BURN	PT	PRECAST	
104	PUMP	EP	-	BURN	BURN	BURN	BURN	PT	PRECAST	

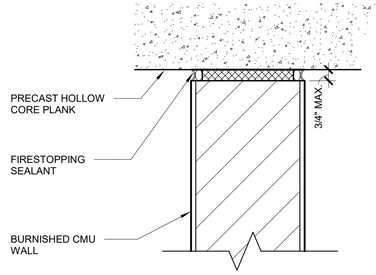
BURN: BURNISHED CMU
EP: EPOXY QUARTZ
PT: PAINTED PER SPECIFICATION



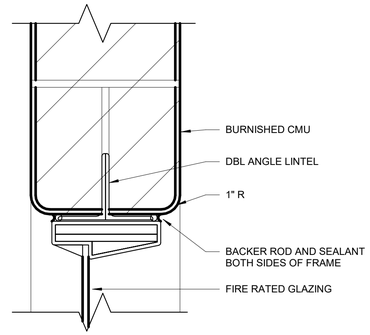
6 A601 PARTITION TYPES 4A
1 1/2" = 1'-0"



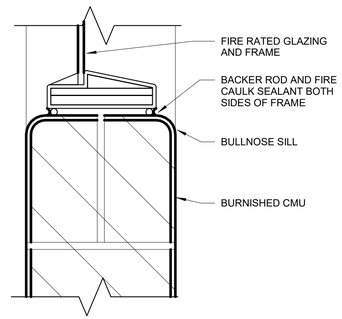
7 A601 PARTITION TYPE 4B
1 1/2" = 1'-0"



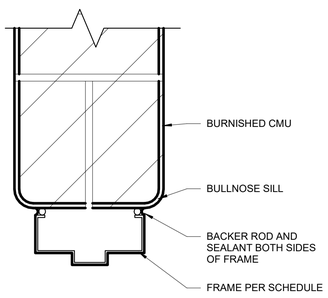
8 A601 FIRESTOPPING AT CMU PARTITION
3" = 1'-0"



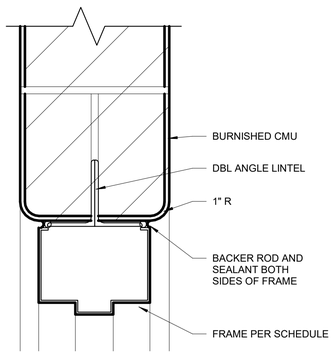
9 A601 FIRE RATED FGL HEAD
3" = 1'-0"



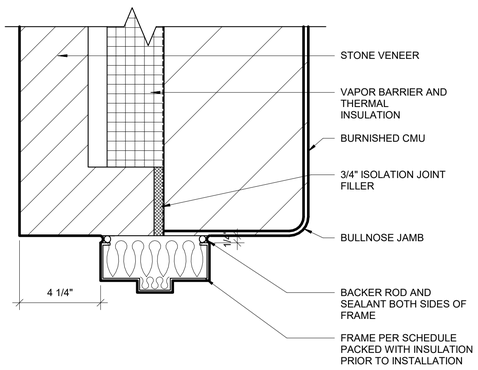
10 A601 FIRE RATED FGL JAMB/SILL
3" = 1'-0"



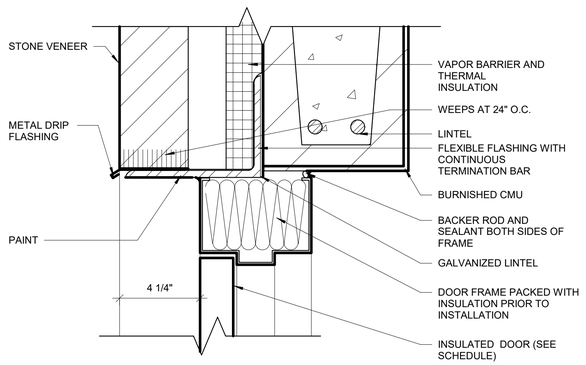
11 A601 TYP. INTERIOR DOOR JAMB
3" = 1'-0"



12 A601 TYP. INTERIOR DOOR HEAD
3" = 1'-0"



13 A601 TYP. EXTERIOR DOOR JAMB
3" = 1'-0"



14 A601 TYP. EXTERIOR DOOR HEAD
3" = 1'-0"

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Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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Checked By	JRL
Drawn By	JRL

Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

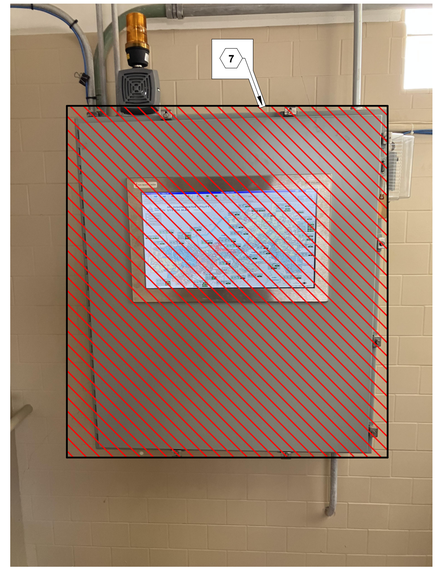
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SCHEDULES AND DETAILS

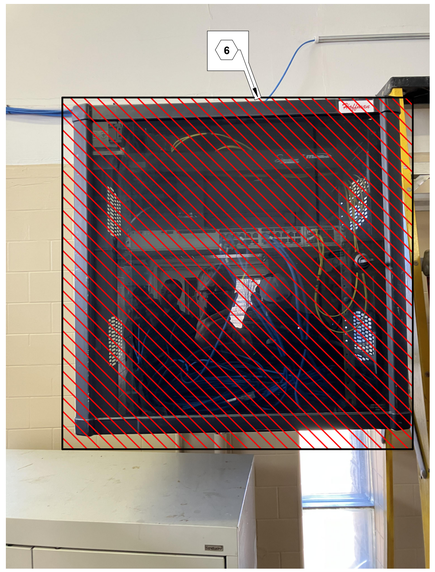
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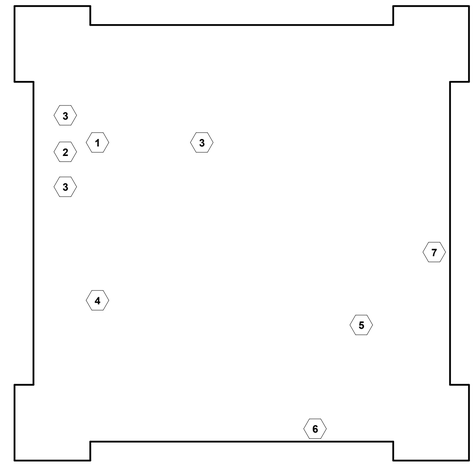












NORTH

1 P070 EXISTING WELLHOUSE REMOVALS

KEYNOTES:

1. SALVAGE HIGH SERVICE PUMP AND MOTOR (HSP-1) FOR INSTALLATION IN PROPOSED WELL HOUSE.
2. SALVAGE 6" EXPANSION JOINT FOR INSTALLATION IN PROPOSED WELL HOUSE.
3. SALVAGE EXISTING 8" EXPANSION JOINT, 10" BUTTERFLY VALVE, AND 6" CHECK VALVE TO OWNER.
4. SALVAGE EXISTING WATER METER TO OWNER.
5. SALVAGE EXISTING WELL PUMP AND HIGH SERVICE PUMP VFDS TO OWNER.
6. SALVAGE EXISTING NETWORK DATA CABINET FOR INSTALLATION IN PROPOSED WELL HOUSE. **
7. SALVAGE EXISTING SCADA CONTROL PANEL TO OWNER
8. SALVAGE EXISTING CHLORINE ACTUATORS TO OWNER.

NOTES:

1 - CONTRACTOR TO COORDINATE REMOVALS WITH OTHER DISCIPLINES AS NECESSARY.

2 - CONTRACTOR TO NOTIFY OWNER 3 WEEKS IN ADVANCE OF REMOVALS AND BUILDING DEMOLITION.

3 - COORDINATE WITH ENGINEER AND OWNER PRIOR TO DEMOLITION TO ALLOW TIME FOR OTHER OWNER SALVAGED ITEMS TO BE REMOVED FROM BUILDING.

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Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
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Madison WI, 53711

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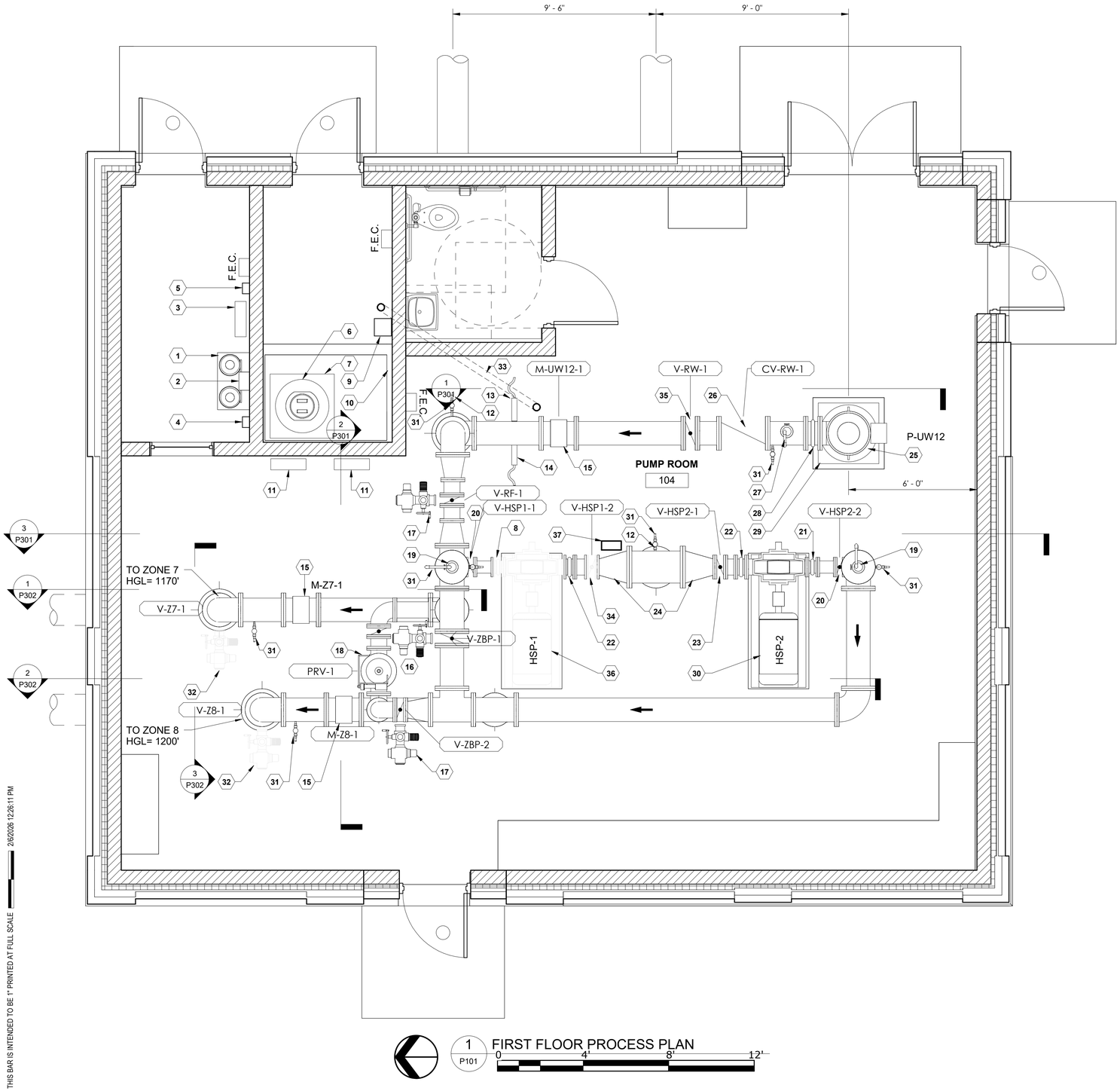
SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

EXISTING WELLHOUSE REMOVALS

01
P070



1 P101 FIRST FLOOR PROCESS PLAN

0 4' 8' 12'

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2/6/2026 12:26:11 PM

KEYNOTES:

1. DUAL CYLINDER PLATFORM WITH INDICATOR
2. GAS CHLORINE FEED SYSTEM - SEE DETAIL E/P501
3. EMERGENCY CHLORINE SHUTOFF PANEL
4. CHLORINE GAS DETECTOR
5. LOSS OF VACCUM DETECTOR
6. 165 GALON FLUORIDE TANK
7. 36" x 36" SCALE PLATFORM
8. SALVAGED 8" EXPANSION JOINT
9. FLUORIDE METERING PUMP - SEE DETAIL F/P501
10. 24" HIGH CHEMICAL CONTAINMENT WALL
11. CHLORINE ANALYZER - ROTATE PIPING AS REQUIRED
12. TAP PIPE FOR 1/2" CHLORINE ANALYZER SUPPLY - INSTALL 1/2" BALL VALVE - ROUTE PIPE TO CHLORINE ANALYZER
13. FLUORIDE INJECTION POINT - SEE DETAIL D/P501
14. CHLORINE INJECTION POINT - SEE DETAIL D/P501
15. 12" MAGNETIC FLOW METER
16. 12" BUTTERFLY VALVE W/ELECTRIC ACTUATOR
17. 8" BUTTERFLY VALVE W/ELECTRIC ACTUATOR
18. 8" PRESSURE REDUCING VALVE (PRV-1)
19. AIR RELEASE VALVE - ROUTE VENT TO NEARBY HUB DRAIN SEE DETAIL A/P501
20. 6" BUTTERFLY VALVE
21. 6" EXPANSION JOINT
22. 8" EXPANSION JOINT
23. 8" BUTTERFLY VALVE
24. 16x8 ECCENTRIC REDUCER
25. EXISTING UW 12 DEEP WELL TO REMAIN, PROTECT FROM DAMAGE DURING CONSTRUCTION, SEE PUMP BASE DETAIL.
26. 12" CHECK VALVE
27. AIR/VACUUM VALVE - ROUTE VENT TO NEARBY FLOOR DRAIN - SEE DETAIL A/P501
28. 12" EXPANSION JOINT
29. VERTICAL TURBINE WELL, PUMP, MOTOR AND PUMP BASE - SEE DETAIL G/P501
30. HIGH SERVICE PUMP (HSP 2)
31. SAMPLE TAP AND PRESSURE GAUGE-SEE DETAIL B/P502
32. 12" BUTTERFLY W/ELECTRICAL ACTUATOR (SALVAGED)
33. 4" CONDUIT WITH LONG SWEEP BENDS UNDER FLOOR FOR CHEMICAL FEED TUBING
34. SALVAGED 8-IN BUTTERFLY VALVE
35. 12" BUTTERFLY VALVE W/HANDWHEEL
36. EXISTING HIGH SERVICE PUMP SALVAGED FROM EXISTING WELLHOUSE
37. CHLORINE ANALYZER BOOSTER PUMP FOR ALT- CL2-2, MOUNT ON UNI-STRUT NEAR TAP LOCATION, COORDINATE POWER REQUIREMENTS WITH ELECTRICAL.

NOTES:

1. ENCASE BELOW FLOOR PIPING ACCORDING TO DETAIL K/P501

2. CONTRACTOR TO FIELD VERIFY PIPE CONNECTION (INCLUDING SIZES, BOLT PATTERNS, ETC.) TO ANY SALVAGED PUMPS, VALVES, AND OTHER EQUIPMENT.

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Madison Water Utility

Project Owner

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WELLHOUSE FLOOR PLAN

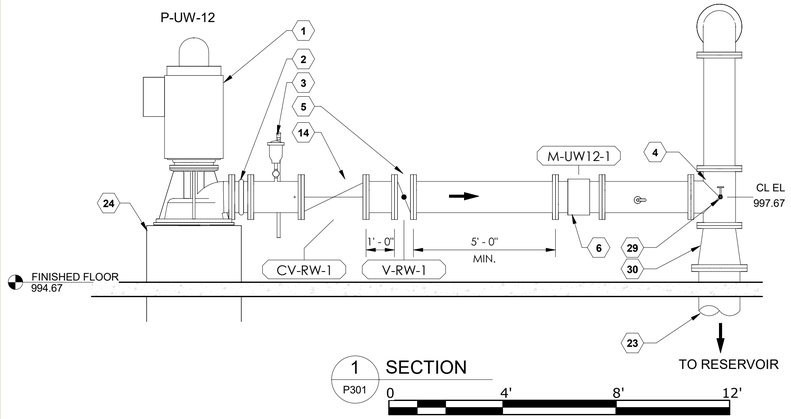
01
P101

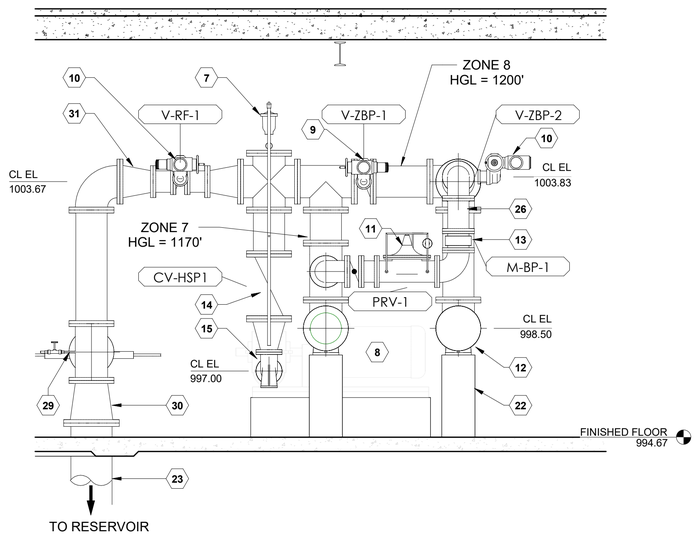
Automated System Process Valves

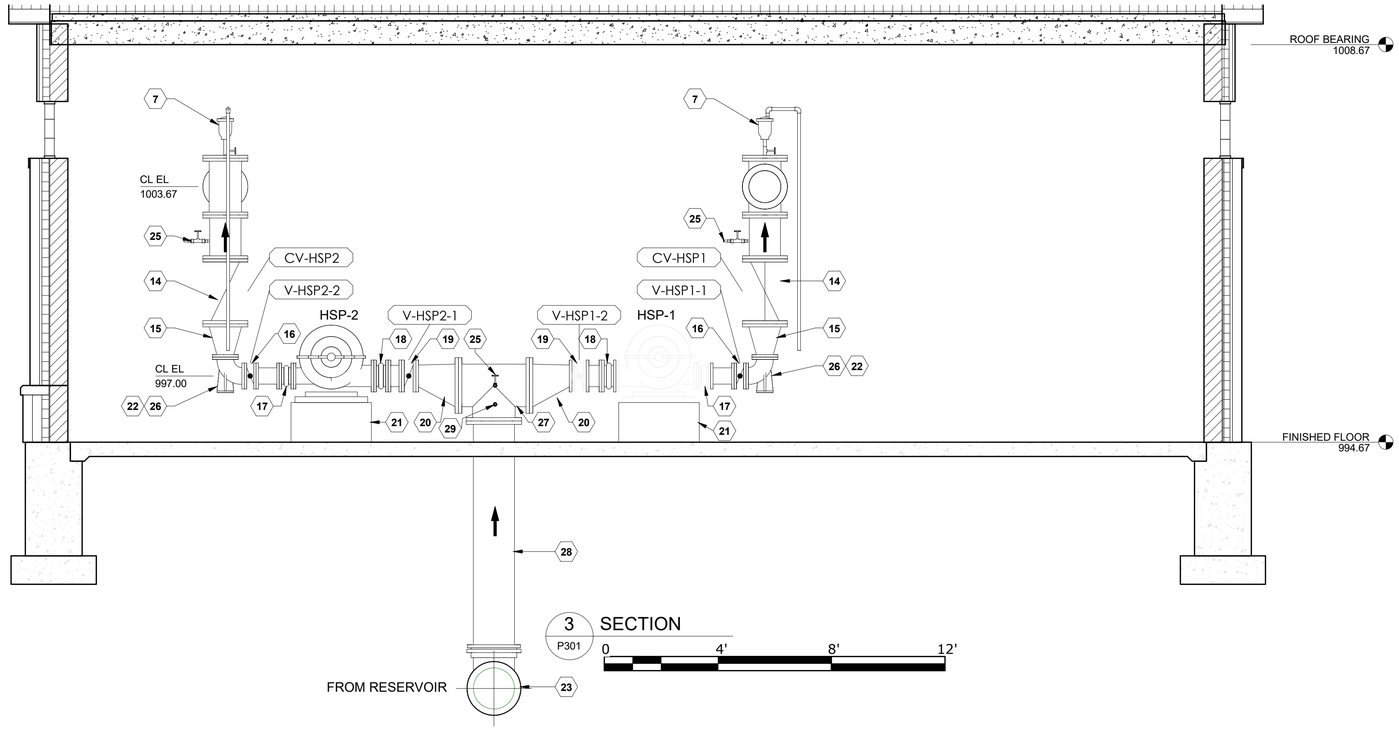
Name	Location	Size	Type	Operator	Purpose	Oper. Press.	Fail Pos.	Notes
V-ZBP-1	Bypass Between Zone 7 and 8 Discharge Piping	12-inch	Butterfly	Electric Actuator	Flow Directional Control water flow to each zone.	< 90 psi	Closed	Closed = One pump feeds each zone, Open = Two pumps feed one zone.
V-Z7-1	Discharge to Zone 7	12-inch	Butterfly	Electric Actuator	Controls Water Flow to Zone 7	< 90 psi	Open	SALVAGED
V-Z8-1	Discharge to Zone 8	12-inch	Butterfly	Electric Actuator	Controls Water Flow to Zone 8	< 90 psi	Open	SALVAGED
V-RF-1	Reservoir Fill Piping	8-inch	Butterfly	Electric Actuator	Controls Water Flow Dist. To Reservoir	< 90 psi	Closed	
V-PSV/PRV-1	Connection between Zone 7 and 8	8-inch	Globe	Solenoid	Move flow from Zone 8 to 7 (PRV) or Zone 7 to 8 (PSV)	< 50 psi	Closed	Set to provide a minimum pressure to each side of the valve.
V-ZPB-2	Bypass between Zone 7 and 8 discharge piping	8-inch	Butterfly	Electric Actuator	Controls Water Flow To PRV Valve	< 90 psi	Open	

Standard Process Valves

Name	Location	Size	Type	Operator	Notes
V-AV-1	Unit Well 12 Wellhead	3-inch	Air Release / Vacuum	Pressure	NPT Threaded
CV-RW-1	Unit Well 12 Wellhead	12-inch	Swing Check	Counter Weight	Flanged
V-RW-1	Well 12 Isolation	12-inch	Butterfly	Handwheel	Flanged
V-HSP1-1	High Lift Pump 1 Suction	8-inch	Butterfly	Handwheel	Flanged
V-HSP2-1	High Lift Pump 2 Suction	8-inch	Butterfly	Handwheel	Flanged
CV-HSP1	High Lift Pump 1 Discharge	12-inch	Swing Check	Counter Weight	Flanged (Salvaged)
CV-HSP2	High Lift Pump 2 Discharge	12-inch	Swing Check	Counter Weight	Flanged
V-HSP1-2	High Lift Pump 1 Discharge	6-inch	Butterfly	Handwheel	Flanged
V-HSP2-2	High Lift Pump 2 Discharge	6-inch	Butterfly	Handwheel	Flanged
V-ZBP-3	Isolation (Zone 7/8)	8-inch	Butterfly	Handwheel	Flanged
V-AR-Z7	Zone 7 Discharge Piping	2-inch	Air Release	Pressure	NPT Threaded
V-AR-Z8	Zone 8 Discharge Piping	2-inch	Air Release	Pressure	NPT Threaded







KEYNOTES:

1. HIGH SERVICE WELL - SEE DETAILS P503
2. 12" EXPANSION JOINT
3. AIR/VACUUM VALVE - ROUTE VENT TO NEARBY FLOOR DRAIN - SEE DETAIL A/P501
4. 12" x 12" TEE
5. 12" BUTTERFLY VALVE W/HANDWHEEL
6. 12" MAGNETIC FLOW METER
7. AIR RELEASE VALVE - ROUTE VENT TO NEARBY FLOOR DRAIN - SEE DETAIL A/P501
8. HIGH SERVICE PUMP (TYP OF 3)
9. 12" BUTTERFLY VALVE W/ELECTRIC ACTUATOR
10. 8" BUTTERFLY VALVE W/ELECTRIC ACTUATOR
11. 8" PRESSURE SUSTAINING/PRESSURE REDUCING VALVE (V-PSV/PRV-1)
12. 12" BASE ELBOW AND PEDISTAL
13. 8" MAGNETIC FLOW METER
14. 12" SWING CHECK VALVE
15. 12x6 REDUCER
16. 6" BUTTERFLY VALVE
17. 6" EXPANSION JOINT
18. 8" EXPANSION JOINT
19. 8" BUTTERFLY VALVE
20. 16x8 ECCENTRIC REDUCER
21. PUMP BASE -SEE DETAIL G/P501
22. BASE BEND PEDISTAL - SEE DETAIL E/P502
23. THRUST BLOCK AND PIPE ENCASEMENT - SEE DETAILS K/P501, C/P502
24. CONCRETE PUMP BASE - SEE DETAILS A/503, B/P503
25. SAMPLE TAP AND PRESSURE GAUGE - SEE DETAIL B/P502
26. 6" 90 DEG BEND AND PIPE SUPPORT - SEE DETAIL E/P502
27. 16x16 TEE
28. 16" FROM RESERVOIR
29. TAP PIPE FOR 1/2" CHLORINE ANALYZER SUPPLY - INSTALL 1/2" BALL VALVE - ROUTE PIPE TO CHLORINE ANALYZER
30. 12" x 16" REDUCER
31. 12" x 8" REDUCER

NOTES:
1. ENCASE BELOW FLOOR PIPING ACCORDING TO DETAIL K/P501
2. CONTRACTOR TO FIELD VERIFY PIPE CONNECTION (INCLUDING SIZES, BOLT PATTERNS, ETC.) TO ANY SALVAGED PUMPS, VALVES, AND OTHER EQUIPMENT.

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Madison Water Utility
Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
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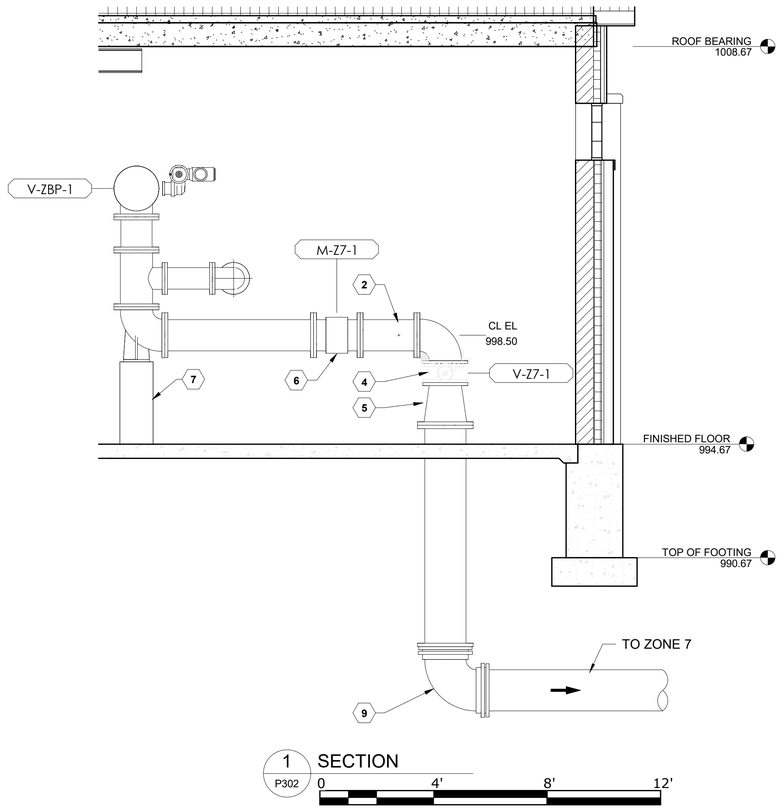
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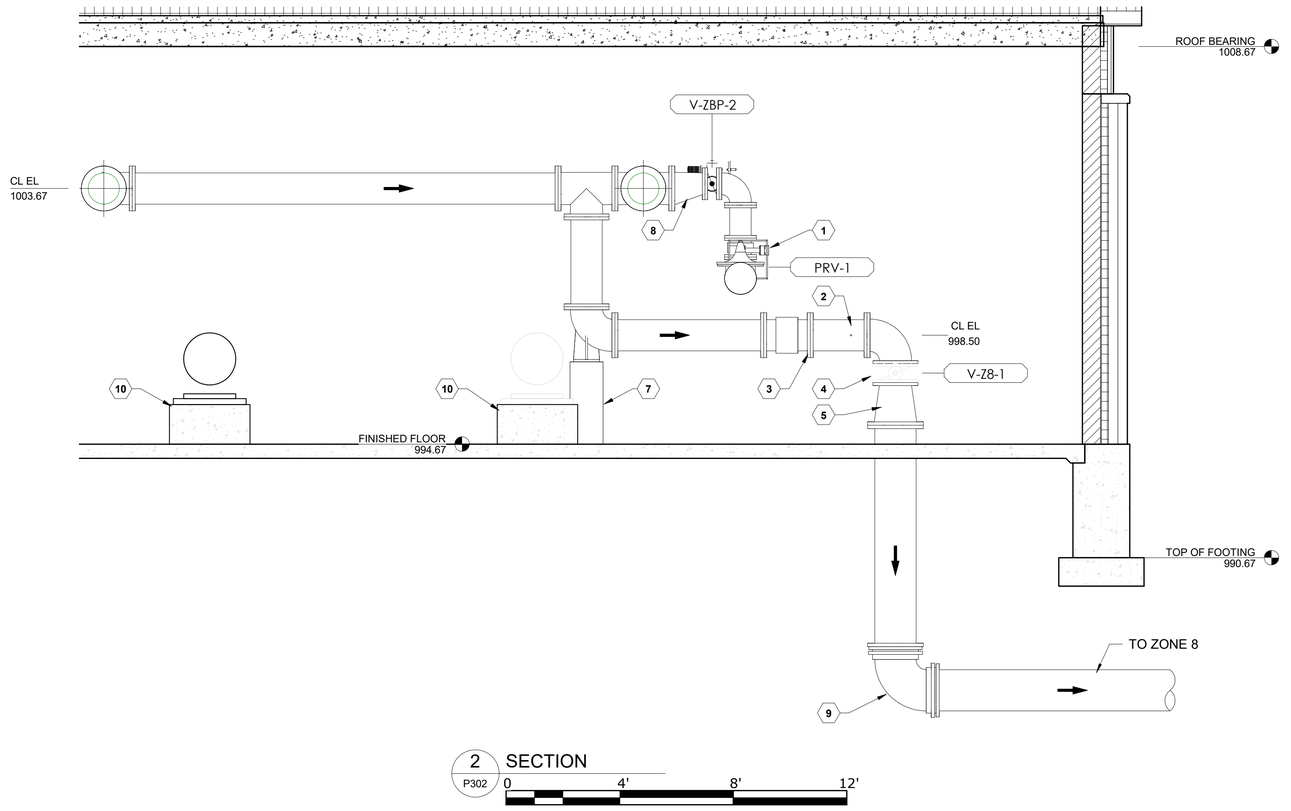
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WELLHOUSE SECTIONS

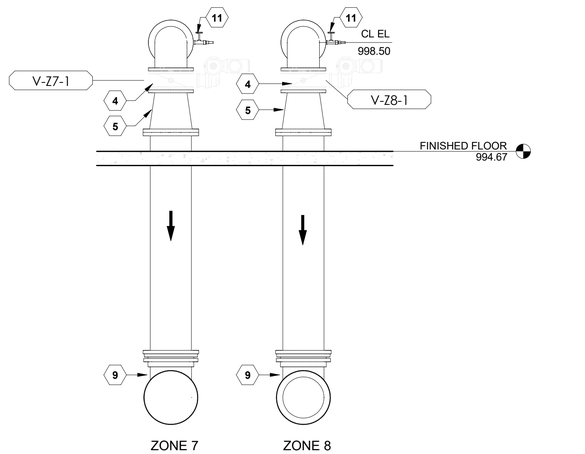
01
P301



1 SECTION P302 — 0 4' 8' 12'



2 SECTION P302 — 0 4' 8' 12'



3 SECTION P302 — 0 4' 8' 12'

KEYNOTES:

1. **8" PRV VALVE**
2. **SAMPLE TAP AND PRESSURE GAUGE -SEE DETAIL B/P502**
3. **12" MAGNETIC FLOW METER**
4. **12" ACTUATED BUTTERFLY VALVE (EXISTING VALVES AND ACTUATORS, SALVAGED FROM EXISTING MANHOLES)**
5. **16x12 CONCENTRIC REDUCER**
6. **12" MAGNETIC FLOW METER**
7. **BASE BEND PEDISTAL - SEE DETAIL B/P501**
8. **12x8 ECCENTRIC REDUCER**
9. **THRUST BLOCK AND PIPE ENCASEMENT - SEE DETAILS K/P501, C/P502**
10. **PUMP BASE - SEE DETAIL G/P501**

NOTE:
CONTRACTOR TO FIELD VERIFY PIPE CONNECTION (INCLUDING SIZES, BOLT PATTERNS, ETC.) TO ANY SALVAGED PUMPS, VALVES, AND OTHER EQUIPMENT.

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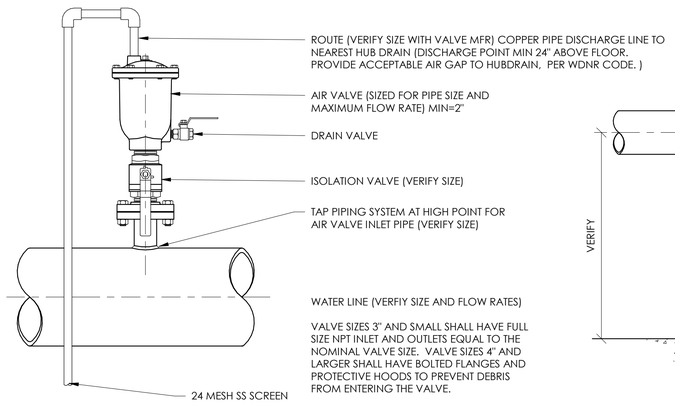
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Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

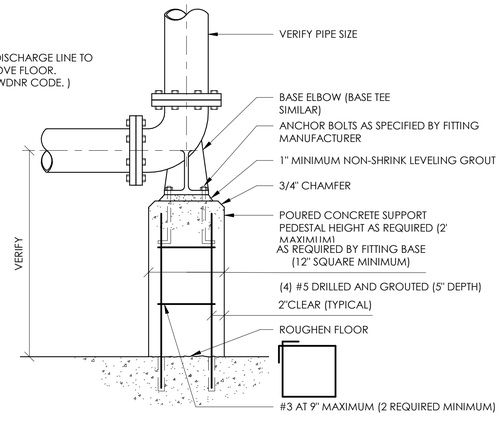
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WELLHOUSE SECTIONS

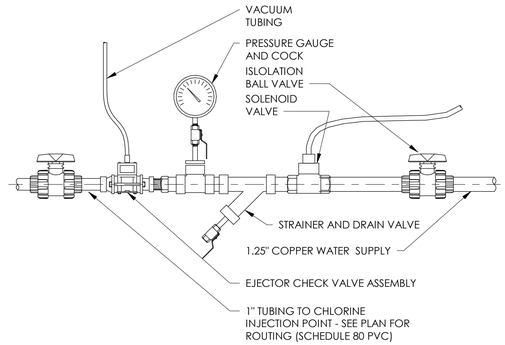
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P302



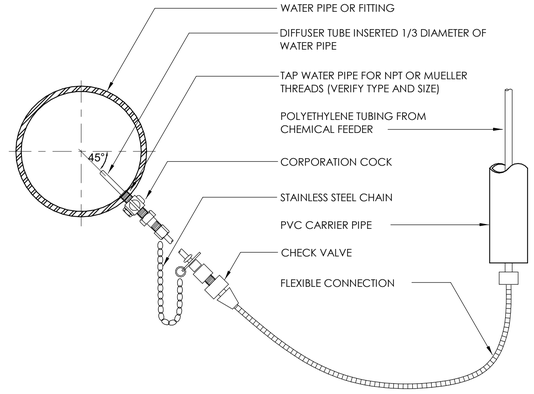
A AIR RELEASE VALVE DETAIL
P501



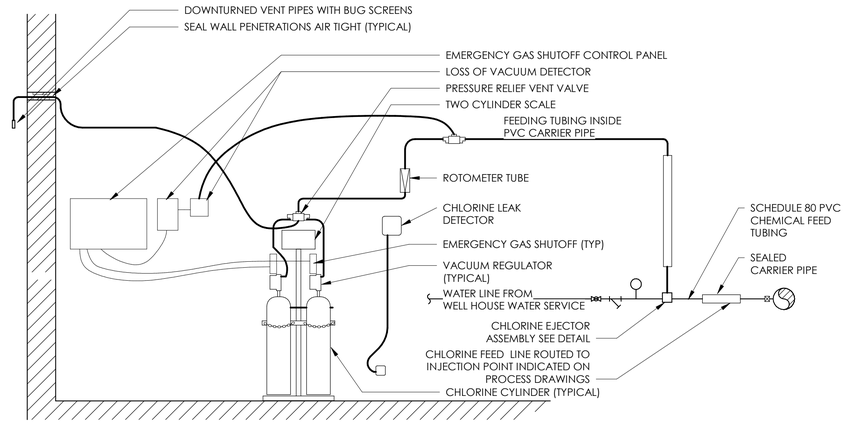
B BASE BEND CONCRETE PEDISTAL DETAIL
P501



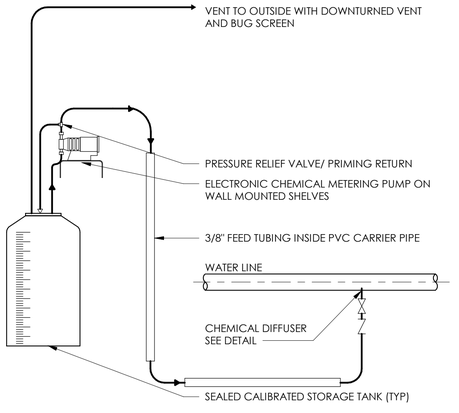
C CHLORINE EJECTOR DETAIL
P501



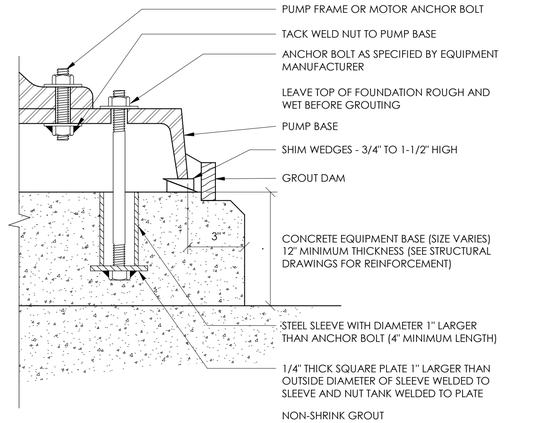
D CHEMICAL FEED DIFFUSER DETAIL
P501



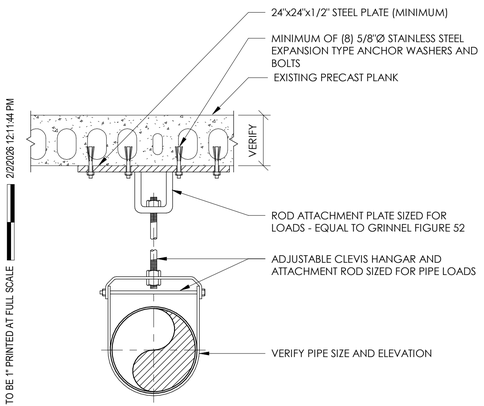
E CHLORINE FEED SYSTEM DETAIL
P501



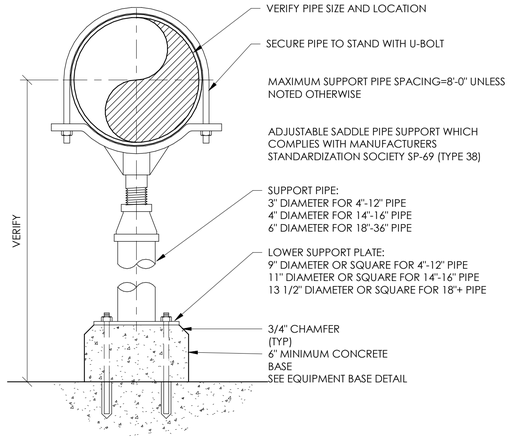
F FLUORIDE CHEMICAL SYSTEM DETAIL
P501



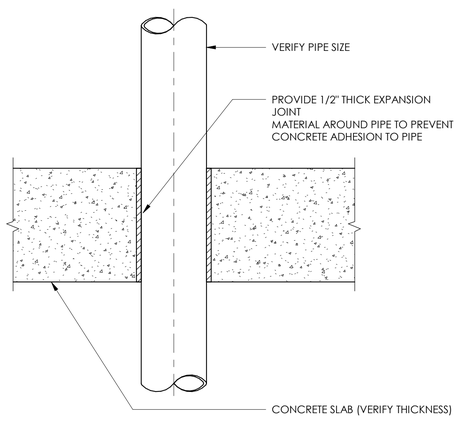
G PUMP BASE DETAIL
P501



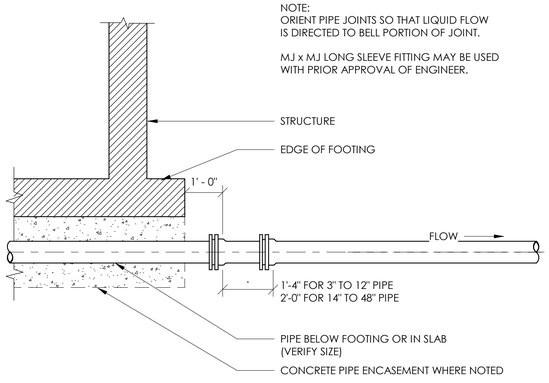
H PIPE SUPPORT FROM CEILING DETAIL
P501



I PIPE SUPPORT FROM FLOOR DETAIL
P501



J PIPE THRU FLOOR DETAIL
P501



K PIPE ENCASEMENT DETAIL
P501

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Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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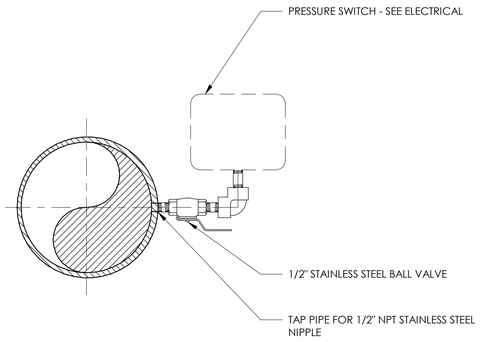
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Project Status	**Issue Date**
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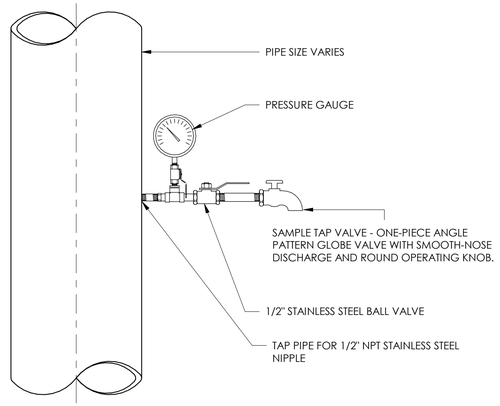
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WELLHOUSE PROCESS DETAILS

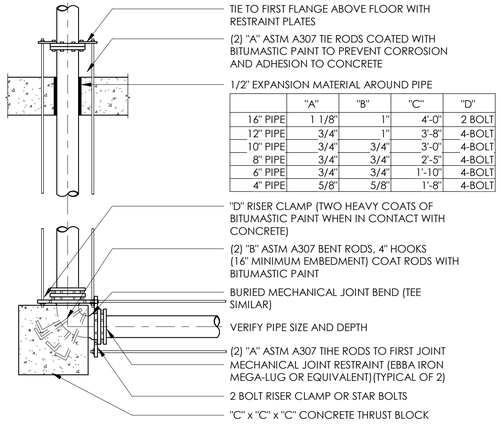
01
P501



A P502 PRESSURE SWITCH DETAIL

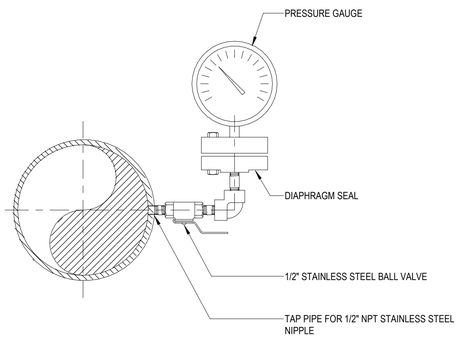


B P502 SAMPLE TAP WITH PRESSURE GAUGE

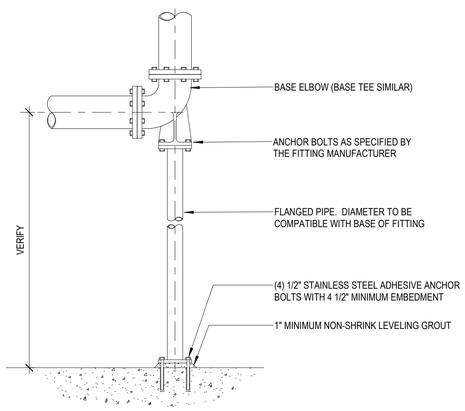


	"A"	"B"	"C"	"D"
16" PIPE	1 1/8"	1"	4'-0"	2 BOLT
12" PIPE	3/4"	1"	3'-8"	4-BOLT
10" PIPE	3/4"	3/4"	3'-0"	4-BOLT
8" PIPE	3/4"	3/4"	2'-5"	4-BOLT
6" PIPE	3/4"	3/4"	1'-10"	4-BOLT
4" PIPE	5/8"	5/8"	1'-8"	4-BOLT

C P502 JOINT RESTRAINT DETAIL



D P502 AIR PIPE PRESSURE GAUGE DETAIL



E P502 BASE BEND SUPPORT - TYPE 1 DETAIL

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MADISON, WISCONSIN
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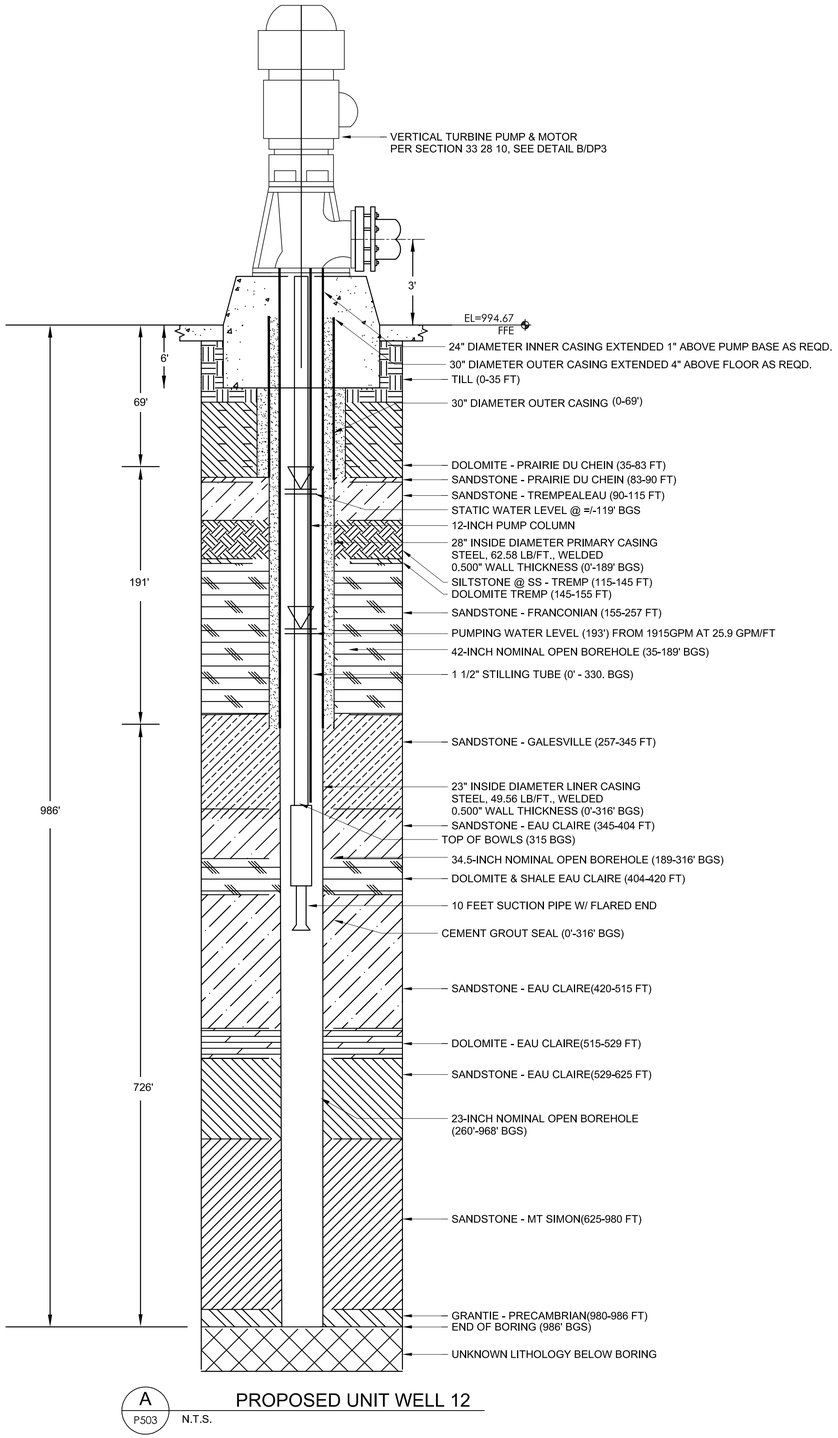
Project Status	**Issue Date**
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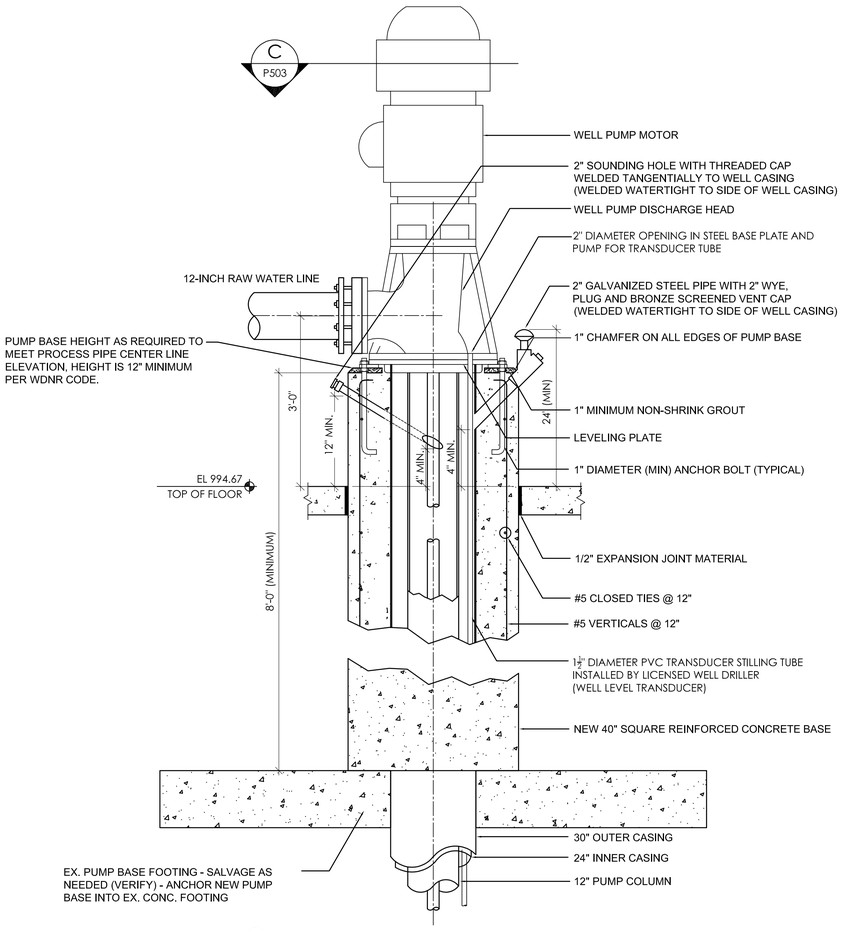
WELLHOUSE PROCESS DETAILS

01
P502



A P503 PROPOSED UNIT WELL 12

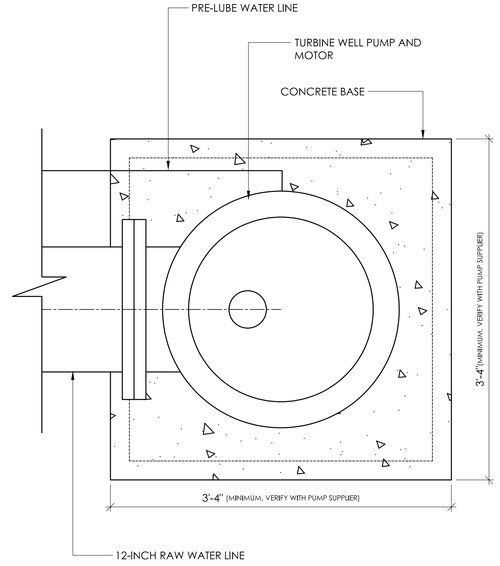
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B P503 VERTICAL TURBINE PUMP BASE DETAIL

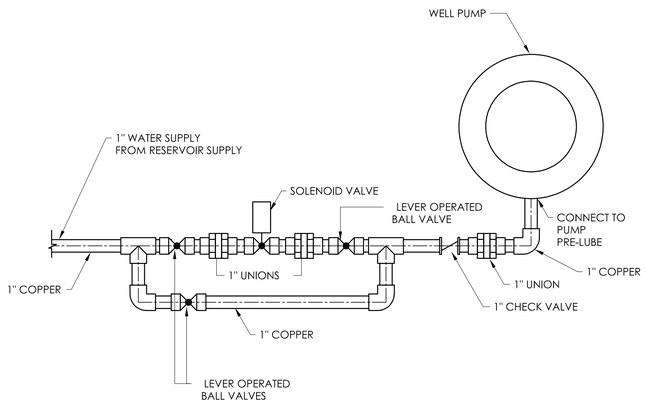
SCALE: NONE

NOTES:
1. THE WELL PUMP BASE, CASING AND WELL SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE WISCONSIN WATER WELL CODE.
2. THE WELL CASING SHALL BE EXTENDED AS REQUIRED FOR PROPER INSTALLATION.
3. REMOVE EXISTING CONCRETE PUMP BASE DOWN TO EXISTING FOOTINGS.
4. RE-BUILD PUMP BASE AS SHOWN IN DRAWING.
5. MODIFY/SEAL EX. CASING AS REQUIRED



C P503 SECTION

SCALE: NONE



D P503 PUMP PRE-LUBE LINE DETAIL

SCALE: NONE

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Madison Water Utility

Project Owner

Madison Water Utility
UNIT WELL 12 RECONSTRUCTION

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Madison WI, 53711

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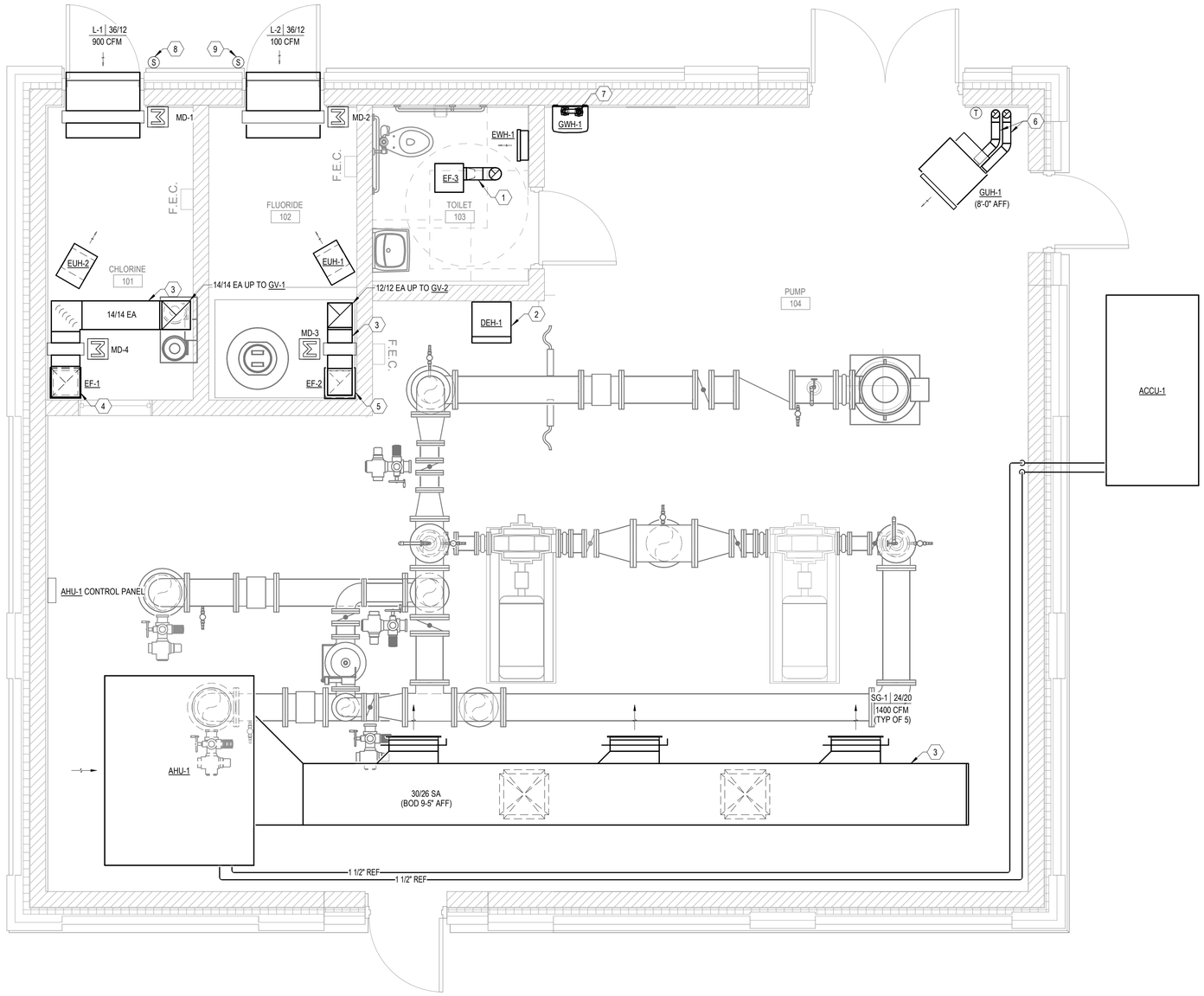
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

WELL NO. 12 PROFILE & ASSEMBLY DETAILS

01
P503



1 M101 HVAC PLAN
3/8" = 1'-0"

0 2' 4' 6'

PROJECT NORTH

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KEYNOTES:

1. ROUTE ⌀6" EA UP THRU ROOF TO ROOF CAP.
2. ROUTE CONDENSATE TO NEAREST FLOOR DRAIN.
3. DUCTWORK IN PUMP AND CHEMICAL ROOMS TO BE TYPE 3002-H14 ALUMINUM UNLESS NOTED OTHERWISE.
4. 14/14 EA FROM 12" AFF TO EXHAUST FAN EF-1 MOUNTED IN VERTICAL. 14/14 OUTLET UP THRU ROOF TO GRAVITY VENT GV-1.
5. 9/9 EA FROM 12" AFF TO EXHAUST FAN EF-2 MOUNTED IN VERTICAL. 12/12/ OUTLET UP THRU ROOF TO GRAVITY VENT GV-2.
6. ROUTE GUH-1 EXHAUST AND COMBUSTION AIR UP TO CONCENTRIC ROOF KIT. CORE DRILL OPENING THRU ROOF. FLASH AND SEAL ROOF PENETRATION.
7. ⌀3" SCHEDULE 40 FLUE VENT/COMBUSTION AIR PIPING TO/FROM GWH-1 AND ROOF TERMINATION. SEAL PENETRATIONS WEATHERTIGHT. PROVIDE ROOF TERMINATION KIT.
8. EF-1 SWITCH WITH INDICATOR LIGHT.
9. EF-2 SWITCH WITH INDICATOR LIGHT.

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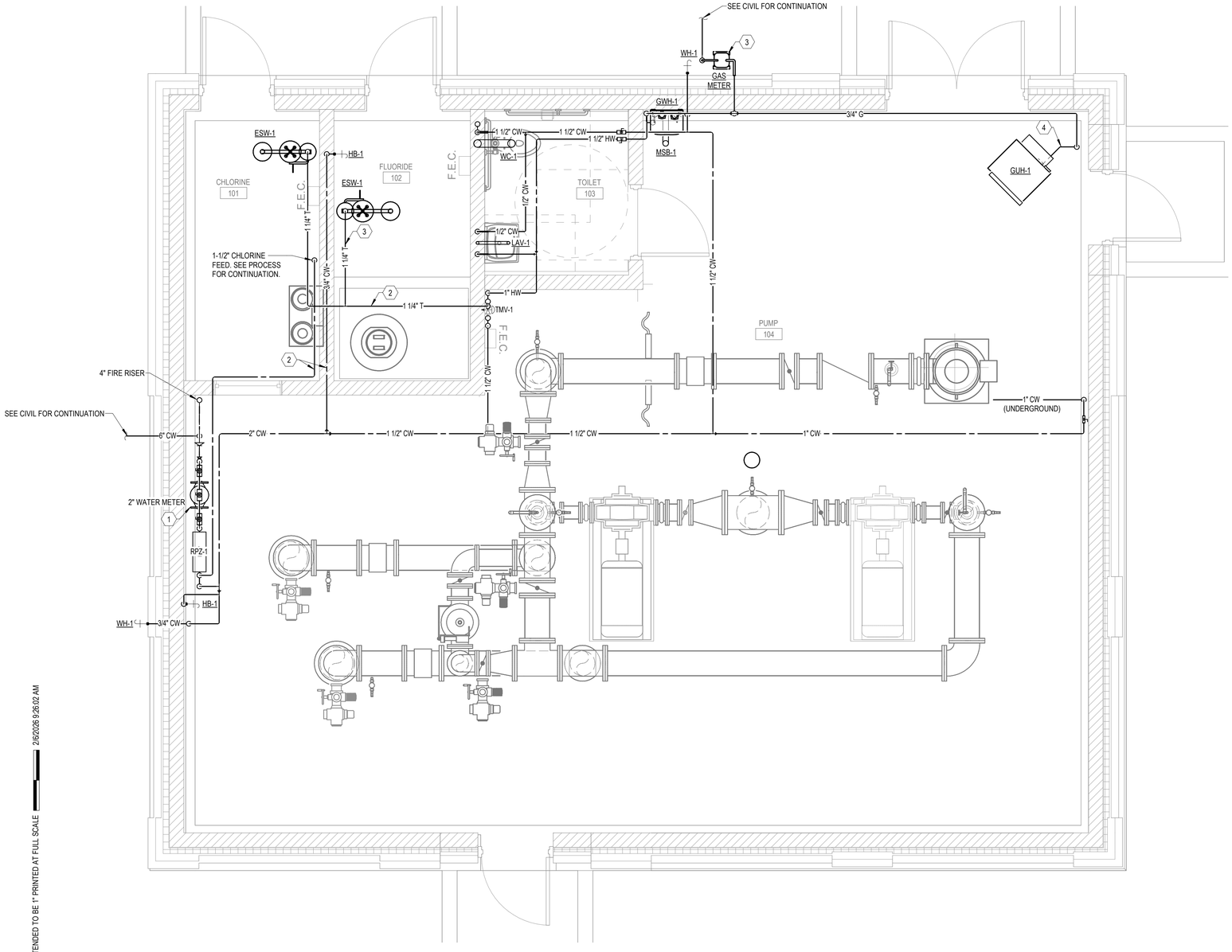
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REV. #	DESCRIPTION	DATE

HVAC PLAN

01
M101



1 M102 DOMESTIC WATER AND GAS PLAN

3/8" = 1'-0"

0 2' 4' 6'

PROJECT NORTH

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE

2/6/2026 9:26:02 AM

KEYNOTES:

1. WATER METER PROVIDED BY OWNER.
2. ALL PIPING, HANGERS AND SUPPORTS IN CHEMICAL ROOMS TO BE CPVC OR EQUIVALENT.
3. EXISTING GAS METER AND GAS SERVICE BY GAS COMPANY. METER TO HAVE 60 CFH CAPACITY AT 2 PSIG.
4. 3/4" GAS CONNECTION TO GUH-1 WITH DRIP LEG, PRESSURE REGULATOR, SHUT-OFF VALVE, AND UNION.

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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Drawn By	KML

Project Status	**Issue Date**
BIDDING	2/12/2026

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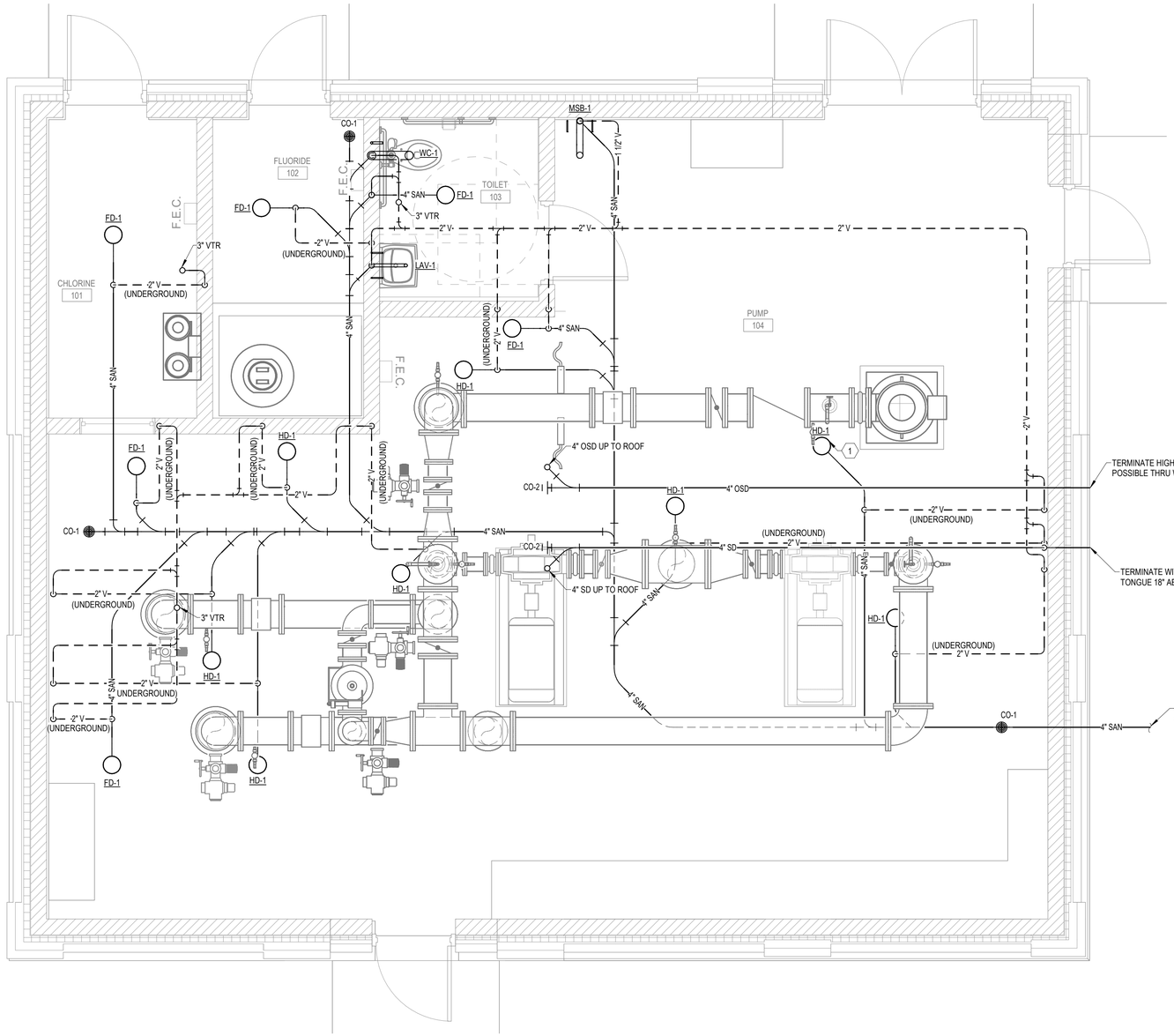
REV. #	DESCRIPTION	DATE

DOMESTIC WATER AND GAS PLAN

01
M102

KEYNOTES:

1. MAINTAIN MINIMUM SEPARATION TO WELL OF 24".



1 M103 SANITARY WASTE AND VENT PLAN

3/8" = 1'-0"

0 2' 4' 6'

PROJECT NORTH

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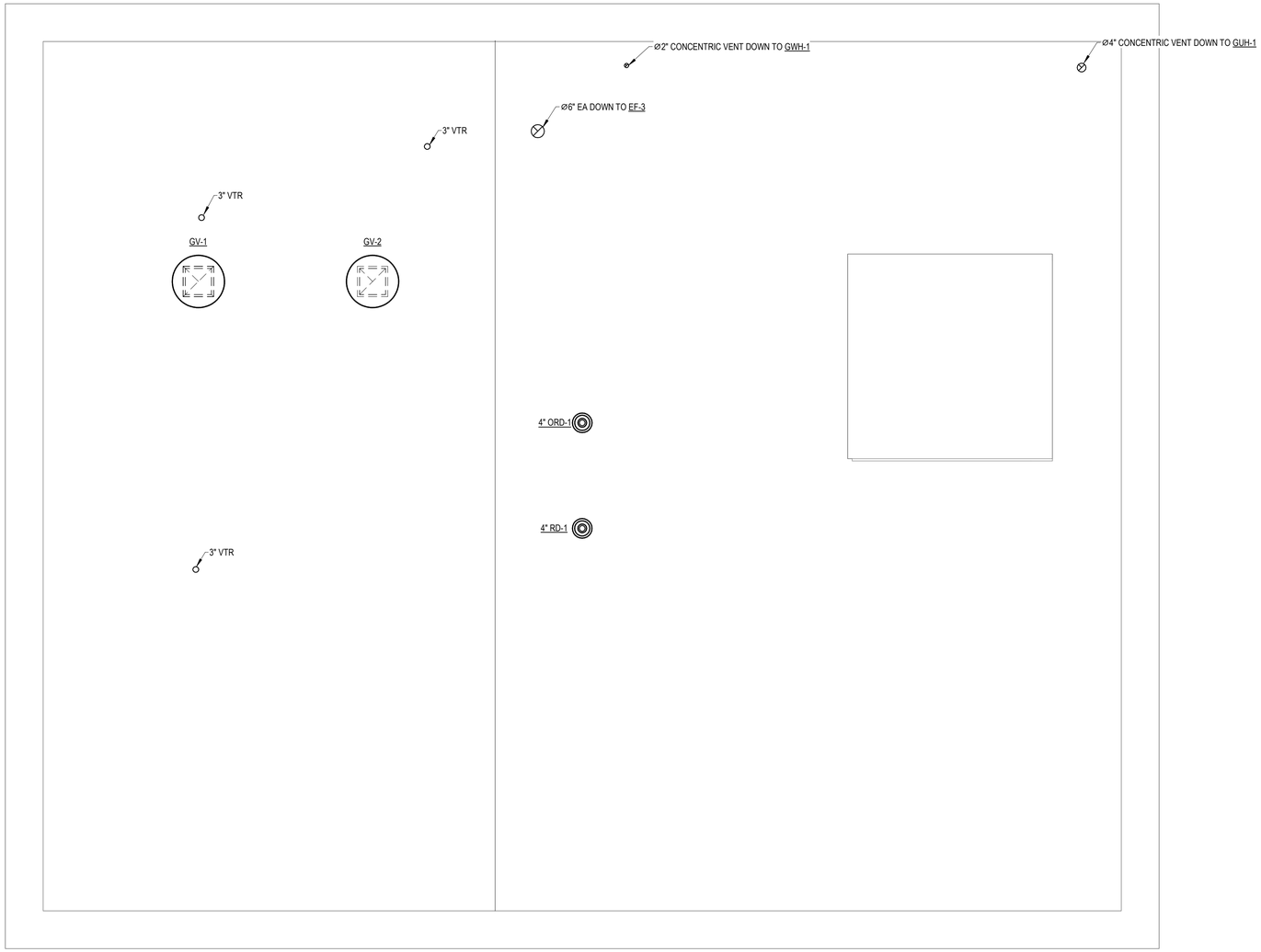
REV. #	DESCRIPTION	DATE

SANITARY WASTE AND VENT PLAN

01
M103

KEYNOTES:

1.



1 M104 MECHANICAL ROOF PLAN
3/8" = 1'-0"

0 2' 4' 6'

PROJECT NORTH

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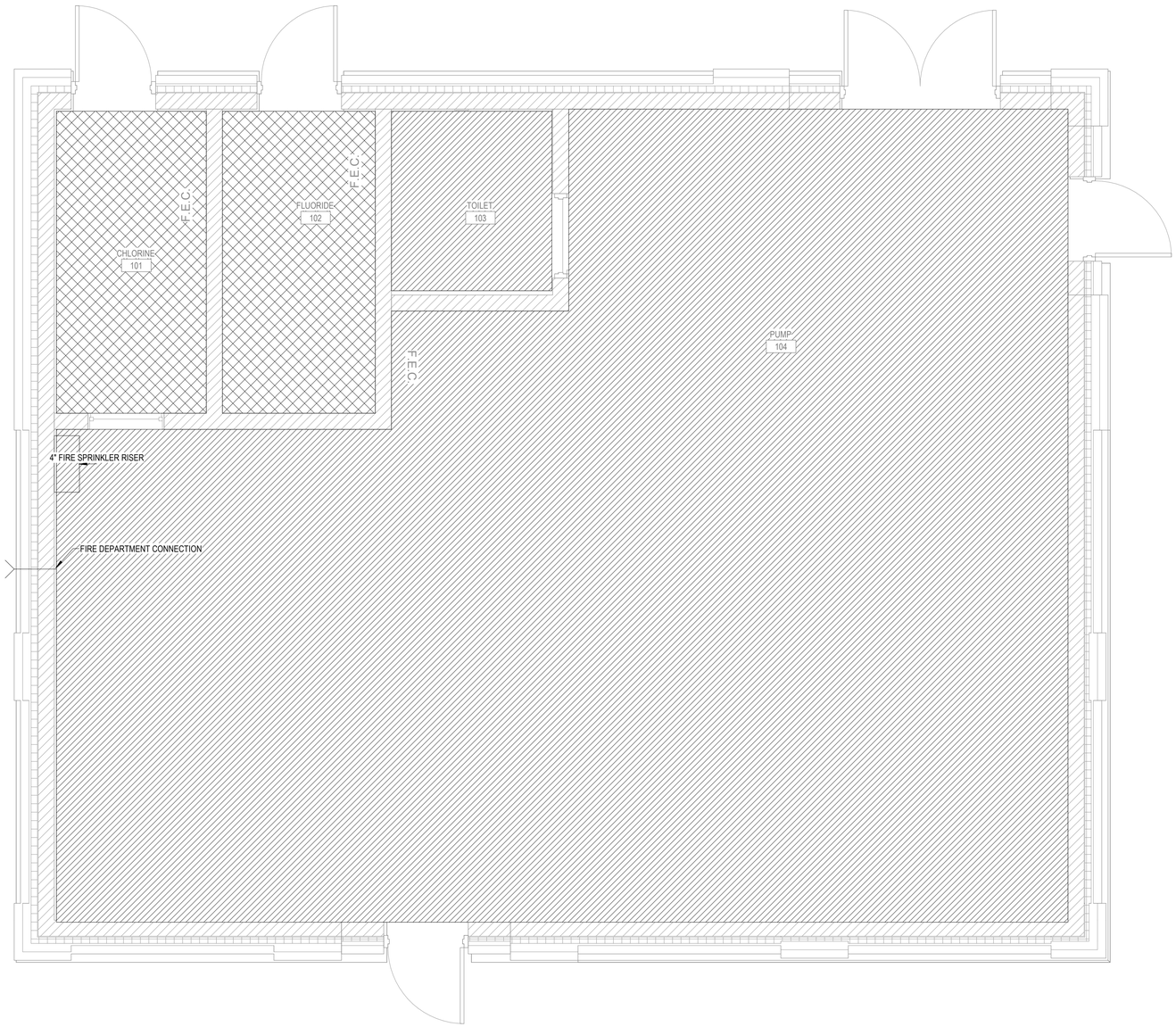
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REV. #	DESCRIPTION	DATE

MECHANICAL ROOF PLAN

01
M104



1 M105 FIRE PROTECTION PLAN

3/8" = 1'-0"

0 2' 4' 6'

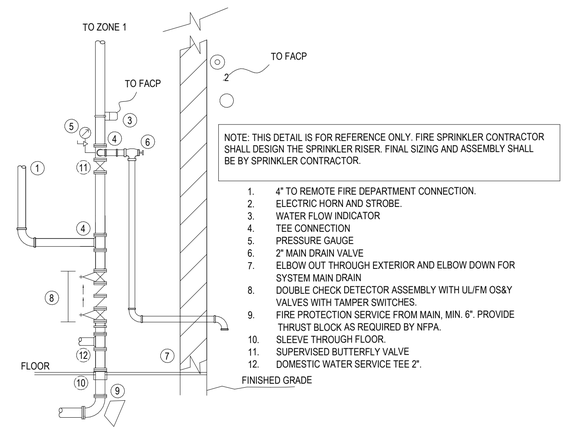
PROJECT NORTH

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GENERAL NOTES:

1. FIRE SPRINKLER PIPING LAYOUT AND SIZING SHALL BE DETERMINED BY HYDRAULIC CALCULATION IN ACCORDANCE WITH NFPA 13 PER SPECIFICATION 21 00 00. FINAL HYDRAULIC CALCULATIONS SHALL BE BASED ON ACTUAL FLOW TEST DATA TO BE PERFORMED BY CONTRACTOR.
2. SPRINKLER SYSTEM SHALL BE DESIGNED AS REQUIRED BY NFPA 13 FOR R THE OCCUPANCIES IDENTIFIED. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL NUMBER OF SPRINKLERS AND SPACING REQUIREMENTS TO PROTECT THE AREA IN ACCORDANCE WITH NFPA 13 FOR THE OCCUPANCY HAZARD CLASSIFICATION.
3. RISER TO SERVE THE ZONE SHALL BE COORDINATED WITH THE CONSTRUCTION; DO NOT OBSTRUCT CORRIDORS, DOORWAYS, ETC. INSTALL RISERS AS CLOSE AS PRACTICAL TO ROOM CORNERS, WALLS, ETC. RISER LOCATION SHOWN MAY BE REVISED BY THE CONTRACTOR AS REQUIRED.
4. THE ARCHITECTURAL BACKGROUND PROVIDED ON THIS SHEET IS FOR GENERAL REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL BACKGROUNDS WITH THE ARCHITECTURAL SHEETS. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATED WALKWAYS, STAIRWAYS, BRIDGES, ETC.
5. COORDINATE SPRINKLER INSTALLATION IN AREAS WITHOUT CEILINGS. PROVIDE ADDITIONAL SPRINKLERS AS REQUIRED TO AVOID OBSTRUCTIONS TO DISCHARGE FORMED BY DUCT WORK, LIGHT FIXTURES, STRUCTURE, WATER TREATMENT EQUIPMENT, MECHANICAL EQUIPMENT, ETC.
6. PROVIDE SPRINKLER GUARDS ON ALL SPRINKLERS LESS THAN 7'-0" AFF.
7. PROVIDE INSPECTORS TEST CONNECTION AT REMOTE POINT FOR EACH ZONE. ROUTE TEST AND DRAIN PIPES TO GRADE. PIPE SHALL TERMINATE WITH SMOOTHER BORE CORROSION RESISTANT OUTLET.
8. COORDINATE LOCATION OF FIRE DEPARTMENT CONNECTION WITH CITY OF SOUTH ST. PAUL FIRE DEPARTMENT.
9. PROVIDE BALL DRIP VALVE AT BASE OF FIRE DEPARTMENT CONNECTION.
10. INSTALL HIGH TEMPERATURE SPRINKLERS IN CLOSE PROXIMITY TO UNIT HEATERS PER NFPA 13.
11. SPRINKLER HEADS IN CHEM ROOMS SHALL BE WAX COATED AGAINST CORROSION. ALL PIPING SHALL BE FIELD PAINTED IN ACCORDANCE WITH DIVISION 9.
12. SPRINKLER MAINS SHALL BE MINIMUM SCHEDULE 10 STEEL PIPE. BRANCH PIPING SHALL BE MINIMUM SCHEDULE 40 STEEL PIPE. NO THIN WALLED PIPING WILL BE ACCEPTED. REFER TO 21 13 13 FOR DETAILS.
13. ALL PIPING PENETRATIONS SHALL BE SEALED WITH FIRE STOP.
14. AREAS WITH LAY-IN OR GYPSUM CEILINGS SHALL HAVE RECESSED OR SEMI-RECESSED SPRINKLER HEADS.
15. AREAS WITHOUT CEILINGS SHALL HAVE UPRIGHT OR PENDANT TYPE SPRINKLER HEADS.
16. ALL CHEMICAL ROOM SPACES SHALL HAVE WAX COATED UPRIGHT OR PENDANT TYPE SPRINKLER HEADS.



NOTE: THIS DETAIL IS FOR REFERENCE ONLY. FIRE SPRINKLER CONTRACTOR SHALL DESIGN THE SPRINKLER RISER. FINAL SIZING AND ASSEMBLY SHALL BE BY SPRINKLER CONTRACTOR.

1. 4" TO REMOTE FIRE DEPARTMENT CONNECTION.
2. ELECTRIC HORN AND STROBE.
3. WATER FLOW INDICATOR
4. TEE CONNECTION
5. PRESSURE GAUGE
6. 2" MAIN DRAIN VALVE
7. ELBOW OUT THROUGH EXTERIOR AND ELBOW DOWN FOR SYSTEM MAIN DRAIN
8. DOUBLE CHECK DETECTOR ASSEMBLY WITH UL/FM OS&Y VALVES WITH TAMPER SWITCHES.
9. FIRE PROTECTION SERVICE FROM MAIN, MIN. 6". PROVIDE THRUST BLOCK AS REQUIRED BY NFPA.
10. SLEEVE THROUGH FLOOR.
11. SUPERVISED BUTTERFLY VALVE
12. DOMESTIC WATER SERVICE TEE 2".

3 FIRE PROTECTION RISER

NOT TO SCALE

SPRINKLER SYSTEM SCHEDULE

AREA	HAZARD CLASS	MINIMUM DENSITY (GPM/SQ FT)	MINIMUM SPRINKLER HYDRAULIC DESIGN AREA (SQ FT)	HOSE STREAM DEMAND (GPM)	DURATION (MIN)	NOTES
	ORDINARY GROUP 1	0.15	1110	250	90	
	ORDINARY GROUP 2	0.20	150	250	90	

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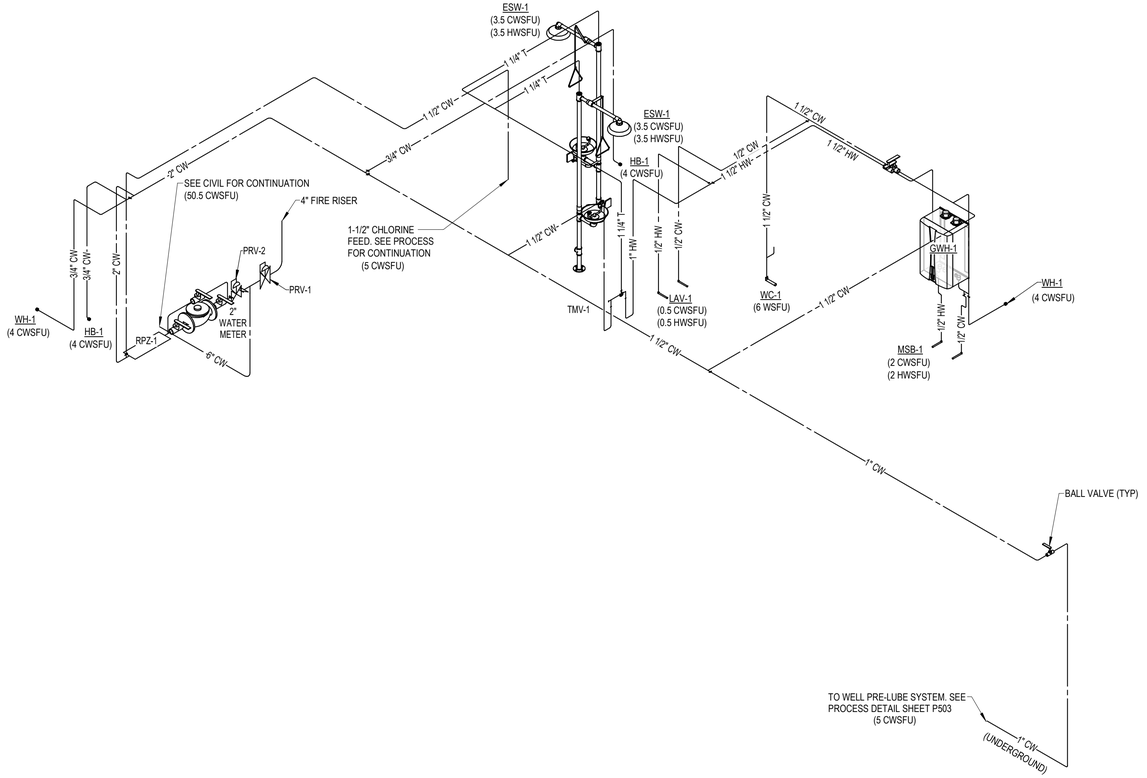
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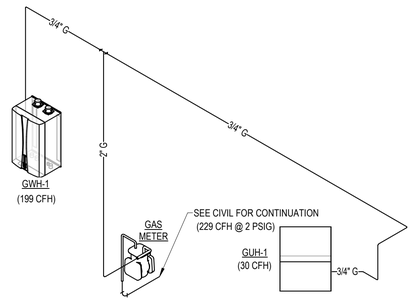
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FIRE PROTECTION PLAN

01
M105



1 M201 DOMESTIC WATER RISER
NOT TO SCALE



2 M201 GAS RISER
NOT TO SCALE

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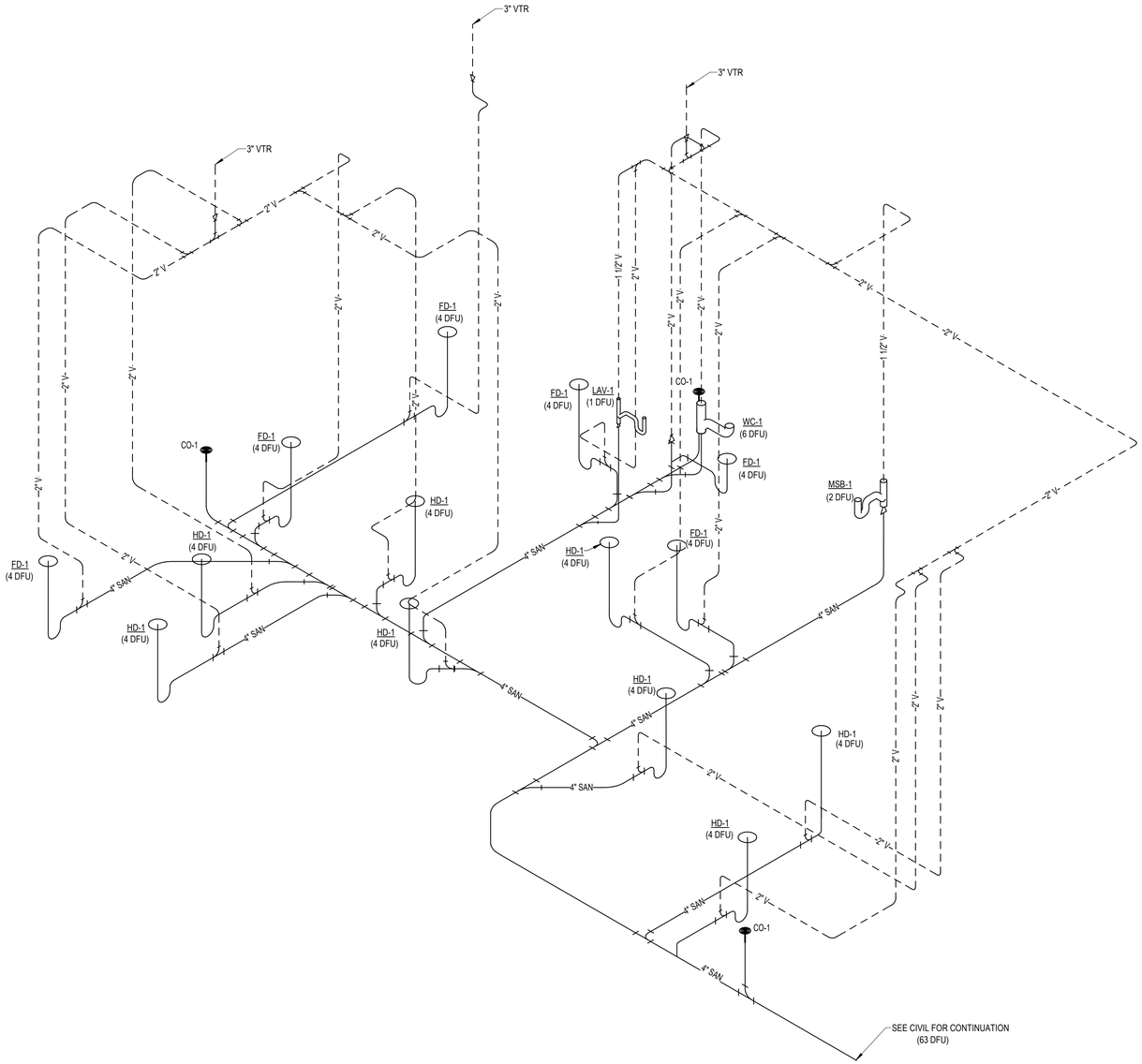
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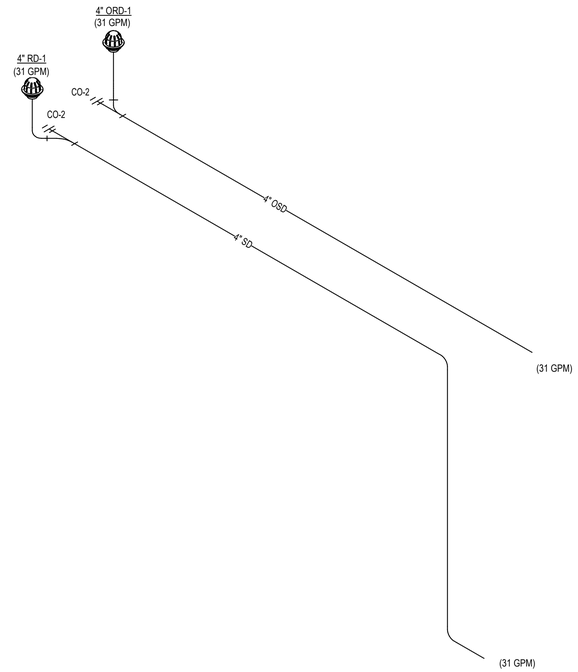
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RISER DIAGRAMS

01
M201



1 M202 SANITARY WASTE AND VENT RISER
NOT TO SCALE



2 M202 STORM WATER RISER
NOT TO SCALE

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REV. #	DESCRIPTION	DATE

RISER DIAGRAMS

01
M202

AIR HANDLING AND CONDENSING UNIT SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	NOMINAL TONS	CFM	FILTER	ESP (IN. W.G.)	IEER	COOLING		REFRIGERANT PIPING SIZE			ELECTRICAL		WEIGHT (LBS)	NOTES
									TOTAL MBH	SENS MBH	LIQUID	SUCTION	MOTOR HP	MCA	V/PH/CY		
AHU-1	TRANE	TWE240K4BAA	PUMP ROOM	20	7000	MERV 13	1.5	13.2	242	180	5/8"	1-3/8"	5	13	460 / 60 / 3	904	1, 2, 3, 4, 5
ACCU-1		TTA240K4CAA			-									54	460 / 60 / 3	802	

NOTES:

1) HORIZONTAL ORIENTATION INDOOR UNIT
2) WALL MOUNTED DIGITAL PROGRAMMABLE THERMOSTAT
3) R-454B REFRIGERANT
4. HAIL GUARD
5. OUTDOOR UNIT MOUNTED ON CONCRETE PAD

DEHUMIDIFIERS SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	CFM	MOISTURE REMOVAL (LB/DAY)	ELECTRICAL		NOTES
					AMPS	V/PH/CY	
D-1	QUEST	HI-E DRY 195	540	192	12	115/60/1	1,2

NOTES:

1) MERV 8 FILTER
2) UNIT MOUNTED HUMIDISTAT

ELECTRIC HEATER SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	FAN			ELECTRIC HEATER		ELECTRICAL		NOTES
				CFM	HP	RPM	KW	AIR TEMP. RISE (F)	V/PH/CY	FLA	
EUH-1	QMARK	QWD	CHLORINE ROOM	2400	-	-	15	21	460/3/60	20	1,2,3,4
EUH-2	QMARK	QWD	FLUORIDE ROOM	700	-	-	15	23	460/3/60	6	1,2,3,4
EWH-1	QMARK	CWH1202DSAF	TOILET	65	-	-	1.5	-	208/1/60	7.3	5,6
-	-	-		-	-	-	-	-	-	-	-

NOTES:

1) FACTORY DISCONNECT
2) FACTORY WALL MOUNTED THERMOSTAT
3) SWIVEL BRACKET
4) WASHDOWN CONSTRUCTION
5) RECESS WALL MOUNT
6) INTEGRAL THERMOSTAT

FAN SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	TYPE	SERVES	CFM	E.S.P. (IN. W.G.)	SONES	MOTOR				NOTES
								WATTS	HP	RPM	V/PH/CY	
EF-1	GREENHECK	SQ-100-A	INLINE	CHLORINE ROOM	900	0.25	7.1	-	1/4	1283	115/60/1	1,2,3,4
EF-2	GREENHECK	SQ-65-D	INLINE	FLUORIDE ROOM	100	0.25	3.5	-	1/30	1534	115/60/1	1,2,3,4
EF-3	GREENHECK	SP-A190	CEILING	TOILET	140	0.25	1.5	33	-	1254	115/60/1	4,5

NOTES:

1) FACTORY MOUNTED AND WIRED DISCONNECT
2) CORROSION RESISTANT CONSTRUCTION
3) HERESITE COATED
4) SPEED CONTROLLER
5) ROOF CURB AND ROOF CAP

DIFFUSERS, REGISTERS, GRILLES

S = SUPPLY GR = RETURN GE = EXHAUST

TAG	MANUFACTURER	MODEL No.	TYPE	DAMPER	MOUNTING POSITION	FACE IN INCHES	REMARKS
SG-1	TITUS	300FL	SUPPLY	NO	SIDEWALL	SEE PLAN	RECTANGULAR REGISTER; STEEL; WHITE ENAMEL; DOUBLE DEFLECTION 3/4" ADJUSTABLE LOUVERS; FRONT BLADES TO BE HORIZONTAL.

NOTES

1) NECK SIZE SHALL MATCH DUCT CONNECTION SIZE
2) VERIFY MOUNTING TYPE WITH CEILING TYPE
3) DAMPER SHALL BE MOUNTED IN DUCT TAKE-OFF

GAS FIRED UNIT HEATER SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	CFM	INPUT (BTU)	OUTPUT (BTU)	GAS CFH	GAS INLET PRESSURE			NOTES
									HP	V/PH/CY	
GUH-1	REZNOR	UDAS60	PUMP ROOM	769	60	49.8	60	2 PSIG	3/100	115/60/1	ALL

NOTES:

1) WALL MOUNTED THERMOSTAT
2) FACTORY MOUNTED AND WIRED DISCONNECT
3) GAS PRESSURE REGULATOR
4) POWER VENTED, SEPARATED COMBUSTION
5) STAINLESS STEEL HEAT EXCHANGER AND BURNER
6) MANUFACTURER'S ROOF CONCENTRIC VENT KIT

GRAVITY VENTS

UNIT NO. GV-1	LOCATION ROOF	SERVING CHLORINE ROOM	MODEL NO.	TYPE EXHAUST	CFM	S.P. ("W.G.)	WIDTH (INCHES)	LENGTH (INCHES)	WIDTH (INCHES)	LENGTH (INCHES)	CURB HEIGHT (INCHES)	OVERALL HEIGHT (INCHES)	ACCESSORIES	REMARKS
GV-1	ROOF	CHLORINE ROOM	FGR-1414	EXHAUST	900	0.06	14	14	16-1/2	16-1/2	8	22	ROOF CURB	
GV-2	ROOF	FLUORIDE ROOM	FGR-1212	EXHAUST	100	0.02	12	12	14-1/2	14-1/2	8	22	ROOF CURB	

NOTES:

1)

LOUVER SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	SERVES	CFM	WIDTH (IN)	HEIGHT (IN)	NET FREE AREA (FT^2)	VELOCITY (FPM)	MATERIAL	SCREEN	NOTES
WL-1	RUSKIN	ELF6375DX	CHLORINE ROOM	900	36	16	2	450	ALUMINUM	INSECT	1
WL-2	RUSKIN	ELF6375DX	FLUORIDE ROOM	100	36	16	2	50	ALUMINUM	INSECT	1

NOTES:

1) KYNAR FINISH. COLOR SELECTED BY ARCHITECT.

MOTORIZED DAMPER SCHEDULE

EQUIPMENT TAG	MANUFACTURER	MODEL NUMBER	ROOM NUMBER	SERVING	WIDTH	HEIGHT	CFM	POSITION	NOTES
MD-1	RUSKIN	CD50	CHLORINE ROOM	EF-1	14	14	900	N.C.	1, 2, 3
MD-2	RUSKIN	CD50	CHLORINE ROOM	WL-1	36	16	900	N.C.	1, 2, 3
MD-3	RUSKIN	CD50	FLUORIDE ROOM	EF-2	9	9	100	N.C.	1, 2, 3
MD-4	RUSKIN	CD50	FLUORIDE ROOM	WL-2	36	16	100	N.C.	1, 2, 4

NOTES:

1) ALUMINUM, LOW LEAKAGE, OPPOSED BLADE TYPE.
2) 120 V NEMA 4X ACTUATOR, POWER OPEN - SPRING RETURN.
3) PROVIDE BAKED ENAMEL COATING FOR CORROSION PROTECTION.

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REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

MECHANICAL SCHEDULES

01
M301

GAS FIRED WATER HEATER SCHEDULE

EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	CAPACITY GAL.'S	RECOVERY AT 100 F RISE	GAS INPUT MBH	V/PH/CY	NOTES
GWH-1	NAVIEN	NPE-240	11.2	5.6 GPH	200	120/1/60	ALL

NOTES:

1) PROVIDE TEMPERATURE AND PRESSURE RELIEF VALVE.

2) T&P VALVE DISCHARGE SHALL BE INTO FLOOR DRAIN OR JANITOR SINK WITH 1" MIN. AIR GAP

PLUMBING FIXTURE SCHEDULE

FIXTURE NUMBER	MANUFACTURER	MODEL NUMBER	DESCRIPTION	PIPING CONNECTIONS				
				WASTE	VENT	C.W.	H.W.	T.W.
ESW - 1	GUARDIAN	GBF 1909	BARRIER FREE COMBINATION SHOWER/EYEWASH, 1-1/4" GALV STEEL PIPE, FITTINGS, AND SUPPLY AND WASTE OUTLET, ALL CORROSION PROTECTED WITH YELLOW EPOXY COATING.DRENCH SHOWER: 10" DIAMETER IMPACT RES. PLASTIC SHOWER HEAD, CHROME PLATED BRASS STAY OPEN BALL VALVE, STAINLESS PULL ROD AND TRIANGULAR HANDLE. GALVANIZED PIPE AND FITTINGS WITH SAFETY COATING. EYE/FACE WASH: 12" DIAMETER STAINLESS STEEL BOWL WITH CHROME PLATED BRASS SPRAY HEADS. 3 GPM. FOUR SOFT FLOW HEADS WITH PROTECTIVE COVERS. CHROME PLATED BRASS STAY OPEN BALL VALVE, 1/2" SUPPLY WITH ALUM FLAG HANDLE. ALL CORROSION PROTECTED WITH EPOXY COATING.	-	-	-	-	1-1/4"
HD-1	-	-	3" SOIL PIPE WITH TRAP. PROVIDE ZURN FD-2390-SS3 3-1/2" SNAP IN STAINLESS STEEL GRATE.	3"	2"	-	-	-
FD - 1	ZURN	Z-550	9" DIAMETER DURA-COATED CAST IRON BODY, FLASHING COLLAR, CAST IRON BAR GRATE.	4"	3"	-	-	-
HB - 1	WOODFORD	26	3/4" BACKFLOW PROTECTED HOSE BIBB. CHROME FINISH, METAL WHEEL HANDLE OPERATOR, 3/4" NPT INLET. AUTOMATIC DRAINING.	-	-	3/4"	-	-
LAV-1	AMERICAN STANDARD	LUCERN	LUCERN WALL HUNG ADA LAVATORY. VITREOUS CHINA, FAUCET LEDGET, SELF DRAINING DECK WITH BACK AND SIDE SPLASH SHIELDS. FAUCET HOLES ON 4" CENTERS. 6-1/2" BOWL DEPTH. WHITE FINISH. REMOVABLE KEY ANGLE STOPS, BRASS P-TRAP WITH CLEANOUT AND ADA TRAP WRAP INSULATION. INCLUDE AMERICAN STANDARD "MONTERAY" TWO HANDLE ADA FAUCET. VANDAL RESISTANT WRIST BLADE HANDLES AND GRID STRAINER DRAIN.	1-1/2"	1-1/4"	1/2"	1/2"	-
MSB-1	FIAT	MSB 2424	MOP BASIN. ONE PIECE MOLDED STONE MOP BASIN. INTEGRAL 3" DRAIN WITH REMOVABLE STAINLESS STEEL STRAINER. 24"X24" OVERALL DIMMENSIONS WITH 10" DEEP BOWL PROVIDE CHICAGO MODEL 897-RCF FAUCET WITH HOSE CONNECTION AND VACUUM BREAKER.	3"	1-1/2"	3/4"	3/4"	-
ORD-1	ZURN	Z-100	15" DIAMETER DURA-COATED CAST IRON BODY, FLASHING CLAMP, CAST IRON DOME, UNDER DECK CLAMP, AND ADJUSTABLE EXTENSION. PROVIDE ACCESSORY EXTERNAL WATER DAM	SEE PLAN	-	-	-	-
RD-1	ZURN		15" DIAMETER DURA-COATED CAST IRON BODY, FLASHING CLAMP, CAST IRON DOME, UNDER DECK CLAMP, AND ADJUSTABLE EXTENSION	SEE PLAN	-	-	-	-
TMV - 1	GUARDIAN	G-3800	BUILT IN PRIMARY AND SECONDARY CW BYPASS SUITABLE FOR EMERGENCY SHOWER/EYEWASH USE. STAINLESS STEEL SURFACE MOUNT CABINET.	-	-	1"	1"	1-1/4"
WC-1	AMERICAN STANDARD	AFWALL	AMERICAN STANDARD "AFWALL" FLOWISE ELONGATED BOWL, VITREOUS CHINA WATER CLOSET, DIRECT FED SIPHON JET FLUSH ACTION. FULL GLAZED 2-1/8" TRAP WAY, CONDENSATION CHANNEL, 10"X12" WATER SURFACE, 1-1/2" INLET SPUD, WHITE OPEN FRONT SEAT WITH SELF SUSTAINING CHECK HINGE. 1.28 GALLON PER FLUSH MANUAL FLUSH VALVE, AMERICAN STANDARD MODEL 6047.121.002.	4"	2"	1-1/4"	-	-
RPZ-1	WATTS	909LF	LEAD FREE REDUCED PRESSURE ZONE BACKFLOW PREVENTER. 1/4 TURN FULL PORT BALL VALVES ON INLET AND OUTLET WITH STRAINER. STAINLESS STEEL CHECK MODULES AND STAINLESS STEEL TRIM. AIR GAP WITH DRAIN PIPED TO NEAREST FLOOR DRAIN.	-	-	2"	-	-
WH-1	WOODFORD	B67	AUTOMATIC DRAINAGE AND FREEZELESS HYDRANT. BACKFLOW PROTECTION AND FLUSH WALL BOX. 3/4" NPT INLET.	-	-	3/4"	-	-

PRV SCHEDULE

TAG	MANUFACTURER	MODEL NUMBER	SIZE	FLUID	MAX FLOW RATE	MIN FLOW RATE	INITIAL PRESSURE	FINAL PRESSURE	OPERATOR	NOTES
PRV-1	WATTS	LFM115F 150 #	6"	WATER	455	N/A	140	70	PILOT	1,2
PRV-2	WATTS	LFM115-74 150#	3"	WATER	107	10	140	70	DIRECT	1,2,3

NOTES:

1) LEAD FREE CONSTRUCTION SUITABLE FOR POTABLE WATER.

2) WATTS ANTICAV ACCESSORY.

3) LOW FLOW BYPASS.

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Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

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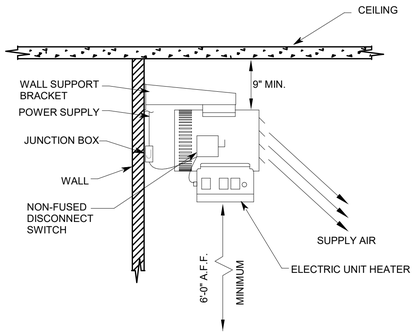
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

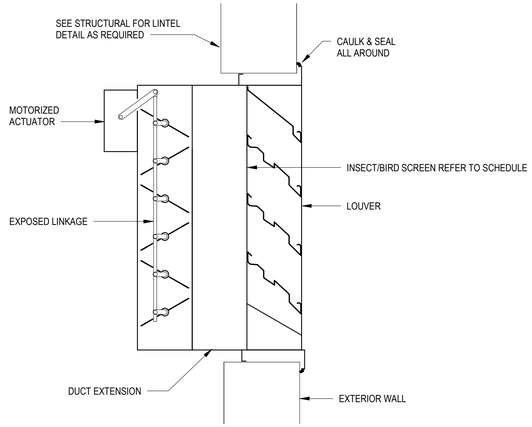
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PLUMBING SCHEDULES

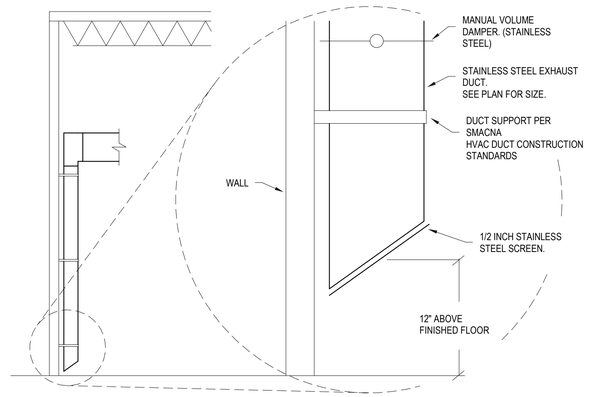
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M302



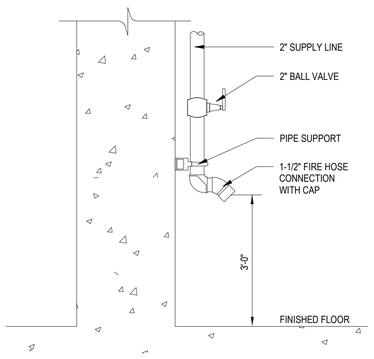
1 M303 WASHDOWN ELECTRIC UNIT HEATER
NOT TO SCALE



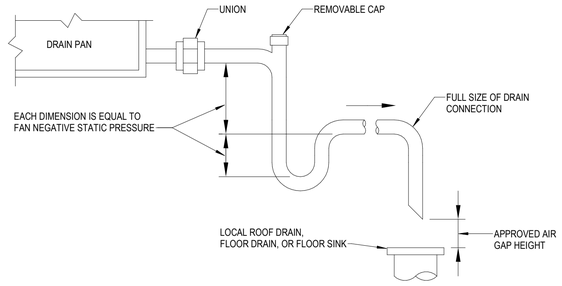
2 M303 LOUVER WITH MOTORIZED DAMPER
NOT TO SCALE



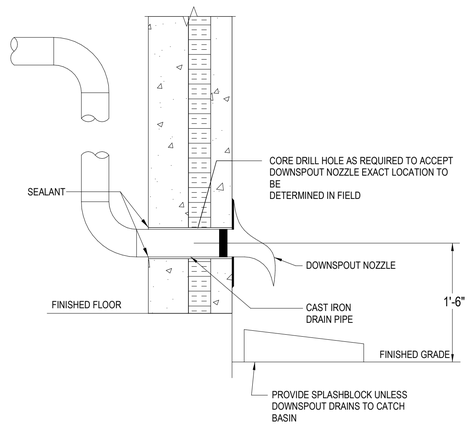
3 M303 EXHAUST DUCT DETAIL
NOT TO SCALE



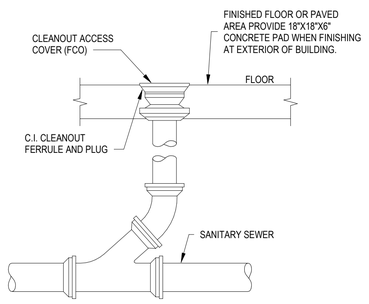
4 M303 1-1/2" HOSE CONNECTION DETAIL
NOT TO SCALE



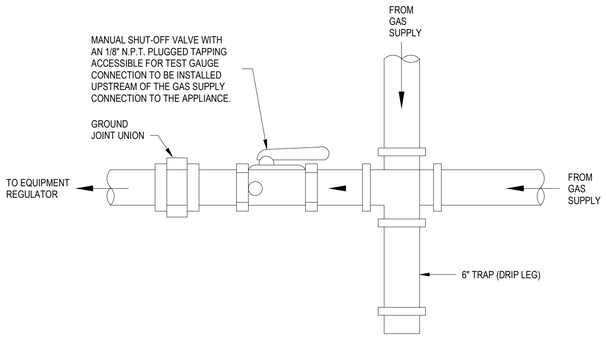
5 M303 CONDENSATE DRAIN
NOT TO SCALE



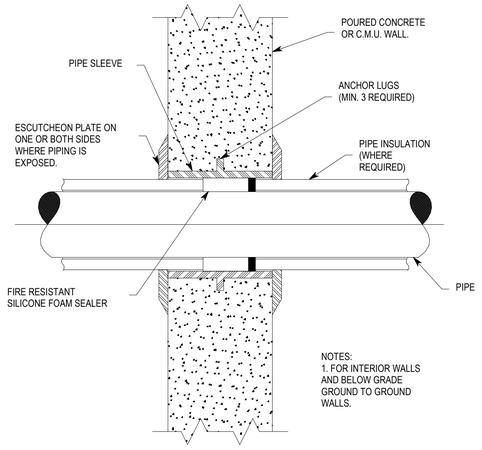
6 M303 OVERFLOW STORM DRAIN TERMINATION
NOT TO SCALE



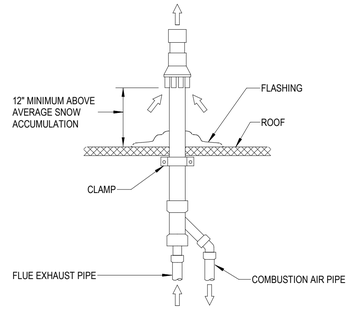
7 M303 CLEANOUT
NOT TO SCALE



8 M303 GAS CONNECTION TO EQUIPMENT
NOT TO SCALE



9 M303 PIPE SLEEVE THROUGH WALL
NOT TO SCALE



10 M303 CONCENTRIC VENT THRU ROOF
NOT TO SCALE

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MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

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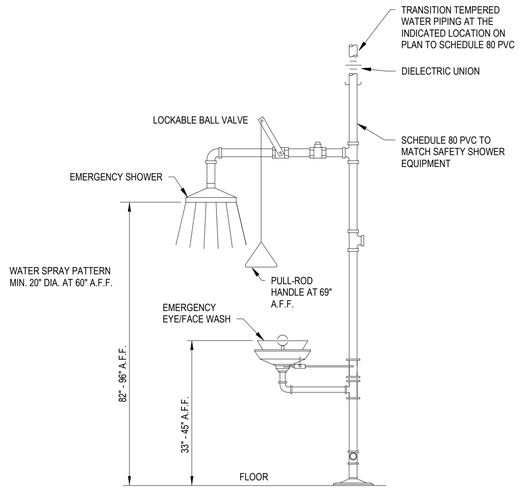
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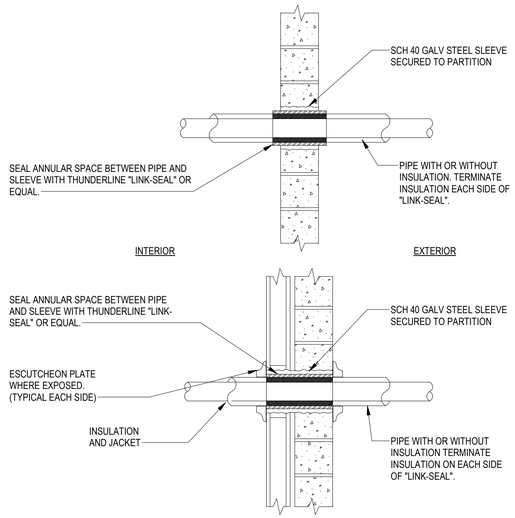
REV. #	DESCRIPTION	DATE

MECHANICAL DETAILS

01
M303

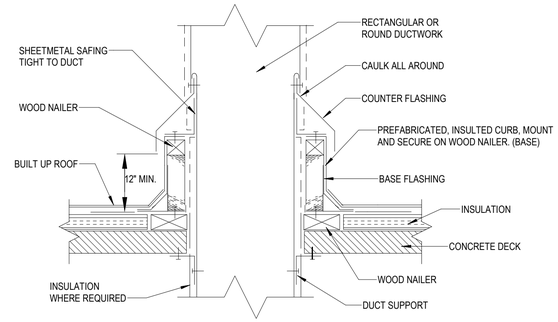


1 M304 SAFETY SHOWER AND EYE WASH
NOT TO SCALE



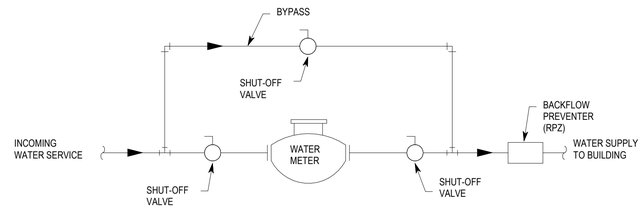
NOTES:
1. TYPICAL FOR NON-INSULATED PIPING AND CONDUIT.
2. TYPICAL FOR MASONRY OR CONCRETE WALL.
3. FOR WALL PENETRATION WITH FIRE RATINGS GREATER THAN (1) HOUR, USE THUNDERLINE "PYRO-PAC" SEALS OR EQUAL.
4. WHERE PIPING EXPOSED AT FINISHED WALL, FLUSH MOUNT SLEEVE, AND PROVIDE AN ESCUTCHEON PLATE.

2 M304 PIPE PENETRATION THRU EXTERIOR WALLS
NOT TO SCALE

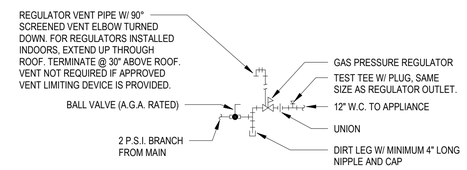


3 M304 DUCT PENETRATION THROUGH ROOF
NOT TO SCALE

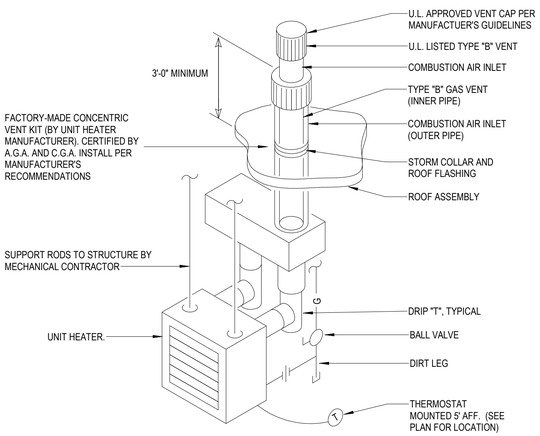
4 M304 CEILING EXHAUST FAN
NOT TO SCALE



5 M304 WATER METER INSTALLATION
NOT TO SCALE

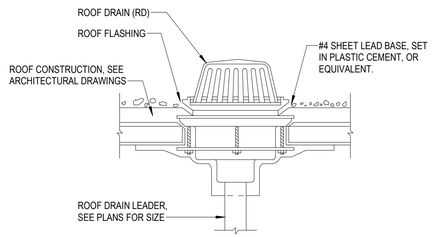


6 M304 GAS PRESSURE REGULATOR ASSEMBLY
NOT TO SCALE

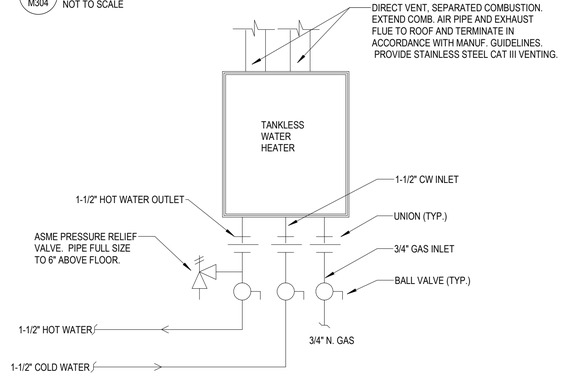


7 M304 GAS FIRED UNIT HEATER
NOT TO SCALE

NOTES:
1. LOCATE ROOF DRAINS AT LOW POINTS OF ROOF, AS SHOWN ON PLAN.
2. ALL ROOF FLASHING WORK AND MATERIALS ARE THE RESPONSIBILITY OF THE ROOFING CONTRACTOR.
3. ROOFING CONTRACTOR MAY USE AN ALTERNATE FLASHING ARRANGEMENT PROVIDED IT HAS BEEN SUBMITTED TO AND APPROVED BY THE ARCHITECT.



8 M304 ROOF DRAIN
NOT TO SCALE



9 M304 TANKLESS WATER HEATER
NOT TO SCALE

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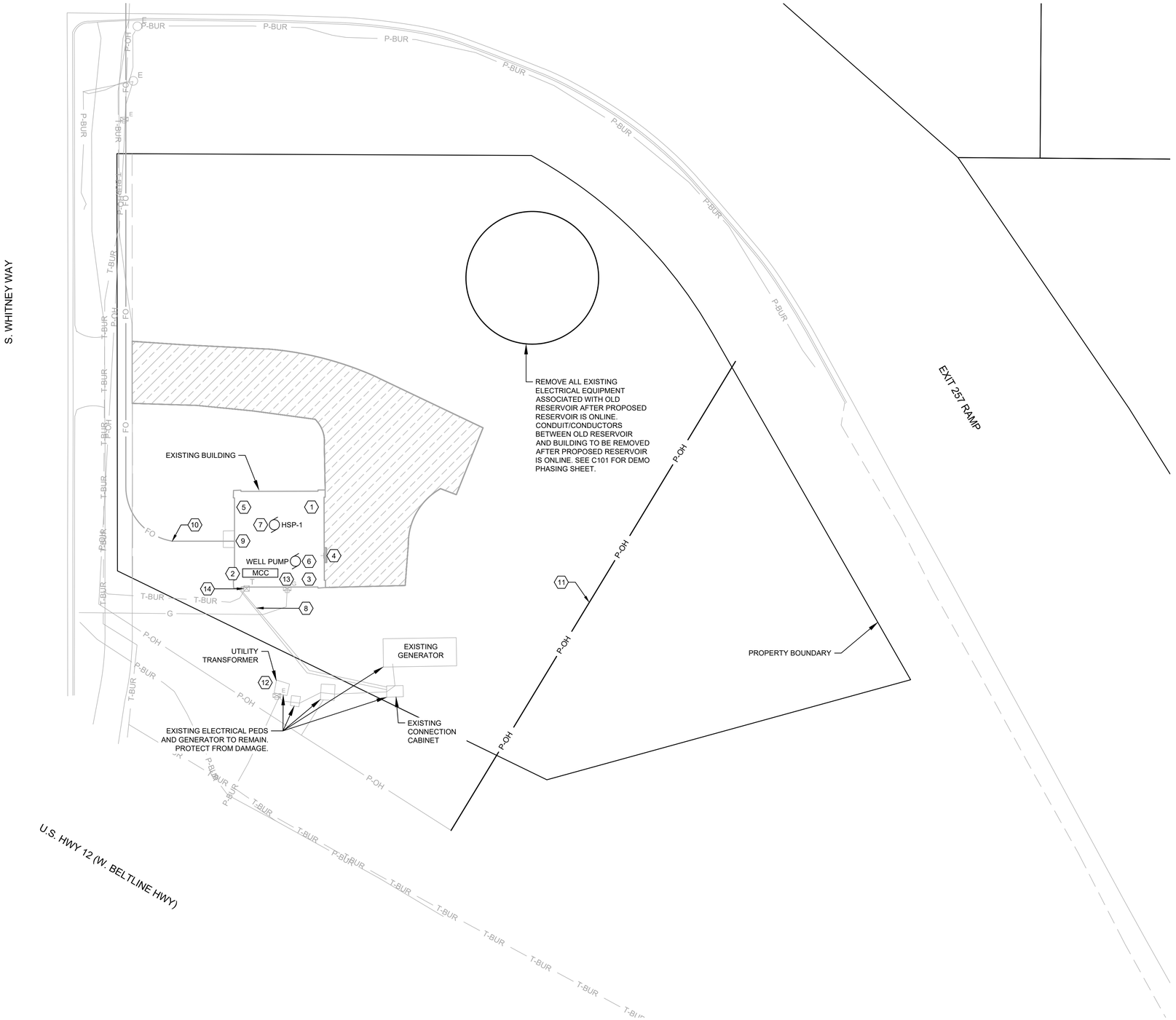
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

MECHANICAL DETAILS

01
M304



1 / E071

ELECTRICAL - REMOVAL PLAN

SCALE: 1"=20'

N

20 0 20 40

scale 10 feet

REMOVAL GENERAL NOTES

A. SEE SPECIFICATION SECTION 01 12 16 FOR WORK SEQUENCE DETAILS.

B. SEE SPECIFICATION SETIONS 26 00 00 AND 26 05 01 FOR ADDITIONAL REMOVAL DETAILS.

C. SEE SHEET C101 FOR ADDITIONAL EXISTING EQUIPMENT SALVAGE ITEMS, DEMOLITION, ETC. COORDINATE ALL REMOVAL WORK WITH ALL OTHER CONTRACTORS.

D. ALL OUTAGES SHALL BE COORDINATED WITH OWNER, ENGINEER, AND GENERAL CONTRACTOR AT A MINIMUM OF 5 DAYS PRIOR TO OUTAGE.

E. ALL EXISTING EQUIPMENT TO REMAIN OPERATIONAL UNTIL NEW EQUIPMENT IS UP AND RUNNING.

F. ELECTRICAL CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL ELECTRICAL EUIPMENT LOCATIONS PRIOR TO REMOVAL AND IDENTIFY ANY ISSUES NOT SHOWN ON PLANS.

KEYNOTES ⬡

1. REMOVE ALL EXISTING LIGHT FIXTURES AND ALL ASSOCIATED CONDUIT/CONDUCTORS BACK TO SOURCE.
2. REMOVE EXISTING MCC AND ALL ASSOCIATED CONDUIT/CONDUCTORS.
3. PULL EXISTING METER INSIDE THE BUILDING AND TURN OVER TO MG&E. REMOVE CONDUIT/CONDUCTORS BACK TO SOURCE.
4. DISCONNECT AND REMOVE EXISTING DOOR CONTACTS. REMOVE ASSOCIATED CONDUIT/CONDUCTORS BACK TO SOURCE.
5. DISCONNECT AND SALVAGE EXISTING FLOW METERS. REMOVE ASSOCIATED CONDUIT/CONDUCTORS BACK TO SOURCE. RETURN SALVAGED EQUIPMENT TO OWNER.
6. DISCONNECT AND REMOVE MOTORS. REMOVE ASSOCIATED CONDUIT/CONDUCTORS BACK TO SOURCES.
7. DISCONNECT AND SALVAGE HSP-1 MOTOR AND PUMP. REMOVE ASSOCIATED CONDUIT/CONDUCTORS BACK TO SOURCE. PROTECT PUMP AND MOTOR FROM DAMAGE, EQUIPMENT TO BE UTILIZED IN PROPOSED WELL HOUSE.
8. DISCONNECT AND SALVAGE CONDUCTORS BETWEEN EXISTING UTILITY CONNECTION CABINET AND BUILDING. TURN OVER SALVAGED CONDUCTORS TO MG&E. COORDINATE WITH ELECTRIC UTILITY COMPANY BEFORE DISCONNECTING. REMOVE EXISTING CONDUIT BETWEEN CONNECTION CABINET AND BUILDING.
9. SALVAGE EXISTING FIBER/NETWORK CABINET FOR RE-USE. COORDINATE WITH OWNER'S IT DEPARTMENT FOR MAINTENANCE OF NETWORK SWITCH DURING CONSTRUCTION.
10. DISCONNECT AND REMOVE FIBER OPTIC CABLE AND CONDUIT BACK TO THIS POINT. PROTECT EXISTING CONDUIT BEYOND THIS POINT FOR RE-USE. CONTRACTOR TO SUBMIT DIG TICKET WITH TRAFFIC ENGINEERING BEFORE DISCONNECTING FIBER.
11. OVERHEAD UTILITY LINE IN THIS AREA TO BE REMOVED. (BY OTHERS)
12. UTILITY TRANSFORMER TO BE REPLACED BY MG&E. COORDINATE WITH MG&E FOR NEW SERVICE INSTALLATION.
13. DISCONNECT AND SALVAGE EXISTING SCADA PANEL, VFDs, AND SECURITY CAMERAS. RETURN SALVAGED EQUIPMENT TO OWNER.
14. REMOVE EXISTING TELEPHONE BOX AND EXISTING CONDUIT/CONDUCTORS BACK TO SOURCE.

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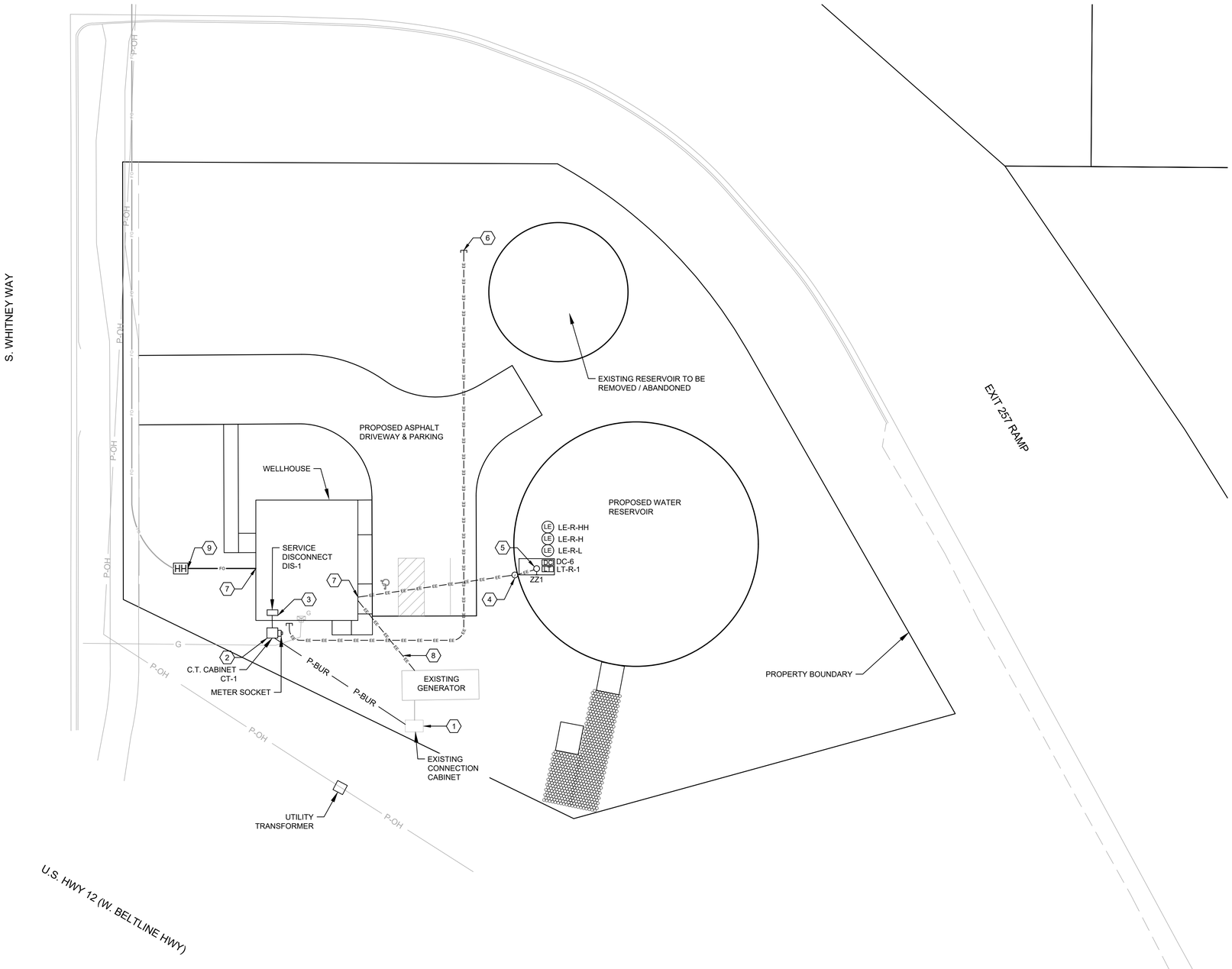
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ELECTRICAL REMOVAL PLAN

E071

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1 E101 ELECTRICAL - SITE PLAN

SCALE: 1"=20'

N

20 0 20 40

scale 10 feet

SITE POWER GENERAL NOTES

A. ALL CONDUIT SHOWN IS APPROXIMATE. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL OTHER TRADES AND UTILITIES TO AVOID CONFLICTS WITH NEW WORK AND EXISTING CONDITIONS PRIOR TO INSTALLATION.

B. ALL HANDHOLE LOCATIONS AND QUANTITIES ARE APPROXIMATE. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT HANDHOLE LOCATIONS PRIOR TO INSTALLATION. ELECTRICAL CONTRACTOR SHALL DETERMINE IF ADDITIONAL HANDHOLES ARE REQUIRED DUE TO SITE CONDITIONS OR PULLING REQUIREMENTS. PROVIDE AND INSTALL IF ADDITIONAL HANDHOLES ARE INDEED REQUIRED.

C. COORDINATE ALL ELECTRICAL SERVICE REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, UTILITY TRANSFORMER, PRIMARY AND SECONDARY CONDUIT AND WIRING, AND METERING WITH ELECTRICAL UTILITY. SEE SPECIFICATION SECTION 26 00 00 FOR MORE INFORMATION.

D. SEE ONE-LINE DIAGRAMS FOR CONDUIT/WIRE REQUIREMENTS. SEE SHEETS E501 AND E502.

E. SEE DETAIL 5/E801 FOR DIRECT BURIED CONDUIT DETAILS.

KEYNOTES

1. ELECTRIC UTILITY TO PROVIDE CONNECTIONS BETWEEN EXISTING CONNECTION CABINET, AND NEW C.T. CABINET CT-1. COORDINATE WITH ELECTRIC UTILITY FOR TERMINATION OF SERVICE CONDUCTORS IN NEW C.T. CABINET.
2. PROVIDE PAD-MOUNTED C.T. CABINET WITH UTILITY METER SOCKET. PROVIDE CONCRETE PAD FOR C.T. CABINET PER MG&E SPECIFICATIONS.
3. PROVIDE CONNECTION BETWEEN C.T. CABINET CT-1 AND SERVICE DISCONNECT DIS-1.
4. EMBED CONDUIT IN TANK PLASTER COATING AND RUN UP TANK. SEE PROCESS SHEET 02 P101 FOR REFERENCE.
5. INSTALL HATCH LIGHT ZZ1 WITH WP GFI DUPLEX RECEPTACLE SECURED TO CONDUIT AT 2'-0" ABOVE WALKING SURFACE, USE 1" RGC CONDUIT AS RACEWAY. LIGHT FIXTURE SHALL BE MOUNTED AT 7'-0" ABOVE WALKING SURFACE. SEE PROCESS SHEET 02 P506 FOR DETAILS.
6. PROVIDE 3" SPARE CONDUIT WITH PULLSTRING AND TRACER WIRE FOR FUTURE CONNECTION TO SOLAR ARRAY IN THIS AREA. CAP CONDUIT STUBS AT BOTH ENDS.
7. SEE DETAIL 6/E801 FOR CONDUIT ENTRY INTO BUILDING.
8. PROVIDE 1" BURIED CONDUIT TO EXISTING GENERATOR FOR GENERATOR STATUS SIGNAL CONNECTIONS TO SCP-12. COORDINATE WITH MG&E ON TERMINATION POINT AT THE GENERATOR.
9. PROVIDE HANDHOLE AT EXISTING FIBER CONDUIT STUB LOCATION. PROVIDE NEW 2" CONDUIT TO EXISTING NETWORK CABINET INSIDE BUILDING. PROVIDE NEW FIBER CONNECTION. COORDINATE WITH OWNER AND ISP.

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ELECTRICAL SITE PLAN

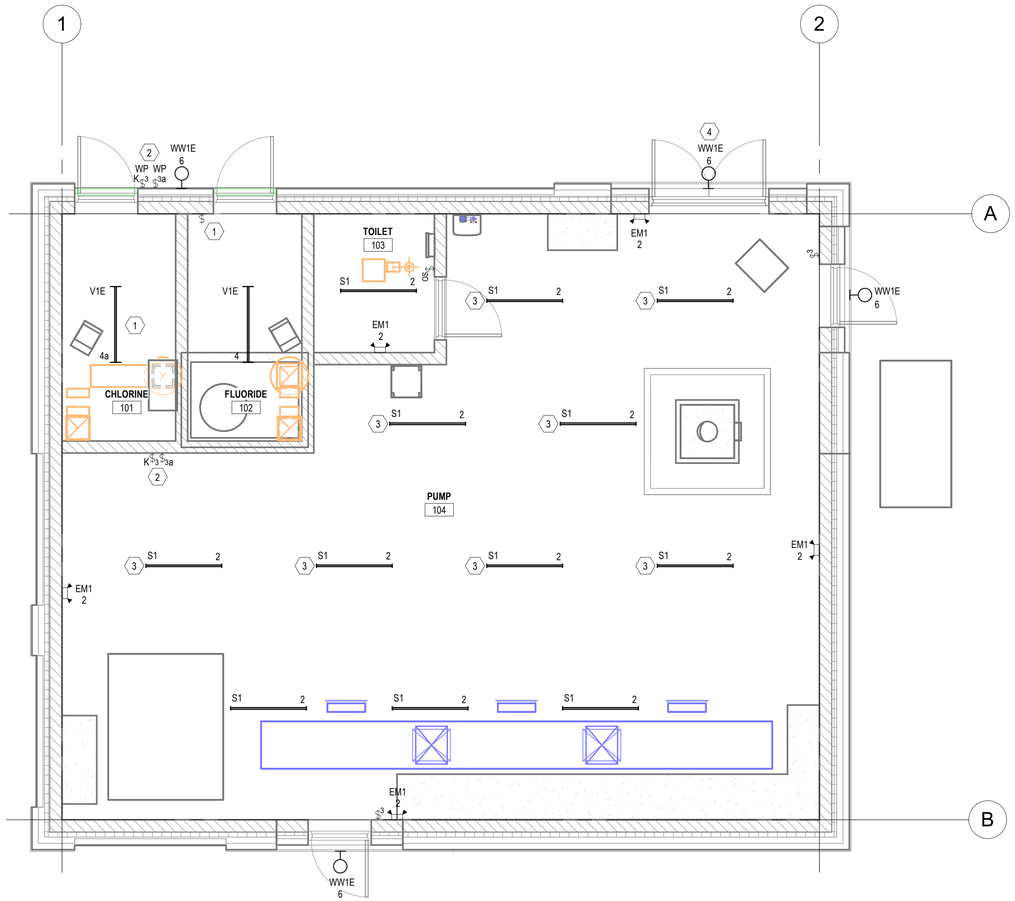
E101

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LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	VOLT	WATT	MFR	CATALOG SERIES	Count
EM1	EMERGENCY LIGHT, THERMOPLASTIC (2) 1.0W LED HEADS (DAMP LOCATION)	WALL	120 V	2 W	LITHONIA	EU2C SD	5
S1	4' LED STRIP, FROSTED ROUND DROP LENS (ELEC RM/ GENERAL AREAS)	Surface/Suspended	120 V	30 W	LITHONIA	HZL1D L48 3000LM FST MVOLT 40K 80CRI WH	12
V1E	4' LED VAPORPROOF W/EM BATT, ACRYLIC, LINEAL RIBBED FROSTED LENS	Surface/Suspended	120 V	18 W	LITHONIA	FEM L48 3000LM IMAFL MD MVOLT 40K 80CRI E10WCP	2
WW1E	EXTERIOR LED W/ 90 DEG CUTOFF, PHOTOCELL (MAN DOORS/ 7.5' OR 8' MOUNTING), W/EM BATT	WALL	120 V	28 W	HOLOPHANE	HLWPC2 P10 40K AS TFTM BZSDP PE EM	4
ZZ1	EXTERIOR LED FLOOD LIGHT W/PHOTOCELL W/RECEPTACLE	STANCHION	120 V	42 W	LITHONIA	DSXF1 LED P2 40K FL MVOLT IS PE DBLXD	1

NOTES:
1. FOR SUSPENDED FIXTURES PROVIDE AIRCRAFT CABLE, BRACKETS AND HARDWARE. CHAIN IS NOT APPROVED.
2. PROVIDE FIXTURES SHOWN OR APPROVED EQUALS.



1 LIGHTING PLAN
E201
1/4" = 1'-0"
0 2' 4' 8'

PROJECT NORTH

LIGHTING GENERAL NOTES

A. ALL LIGHTING FIXTURES SHALL BE INSTALLED AT A MOUNTING HEIGHT OF 8'-0" AFF UNLESS OTHERWISE NOTED.

B. ALL MOUNTING HEIGHTS FOR LIGHTING FIXTURES ARE TO THE BOTTOM OF THE FIXTURE UNLESS OTHERWISE NOTED.

C. REFER TO SPECIFICATION SECTION 26 05 19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.

D. CIRCUIT NUMBERS SHOWN AT LIGHT FIXTURE LOCATIONS CORRESPOND TO PANELBOARD BREAKERS. SEE PANELBOARD SCHEDULES ON SHEET E701.

E. ALL EMERGENCY LIGHT FIXTURES SHALL BE FED FROM AN UNSWITCHED LEG OF ROOM LIGHTING CIRCUIT.

F. WIRE FOR CIRCUIT CONDUCTORS NOT SHOWN. PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUIT AND SWITCHING CONNECTIONS SHOWN.

G. SEE LIGHT FIXTURE SCHEDULE ON THIS SHEET.

KEYNOTES

1. INTER-LOCK EXHAUST FAN WITH ROOM LIGHTING. REFER TO SCHEMATIC 3/E602 FOR ADDITIONAL INFORMATION.
2. PROVIDE WEATHERPROOF, KEYED 3-WAY SWITCH WITH PILOT LIGHT OUTSIDE OF THE CHLORINE ROOM AND A 3-WAY SWITCH WITH PILOT LIGHT NEAR THE VIEWING WINDOW. REFER TO SCHEMATIC 3/E601 FOR ADDITIONAL INFORMATION.
3. MOUNT FIXTURE AT 13'-0" AFF.
4. FIXTURE SHALL BE INSTALLED WITH INTEGRAL PHOTOCONTROLLER (PE) DEVICE. ALL OTHER WW1 FIXTURES TO BE CONTROLLED BY THIS FIXTURES PHOTOCELL.

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE 2/5/2026 3:32:32 PM

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Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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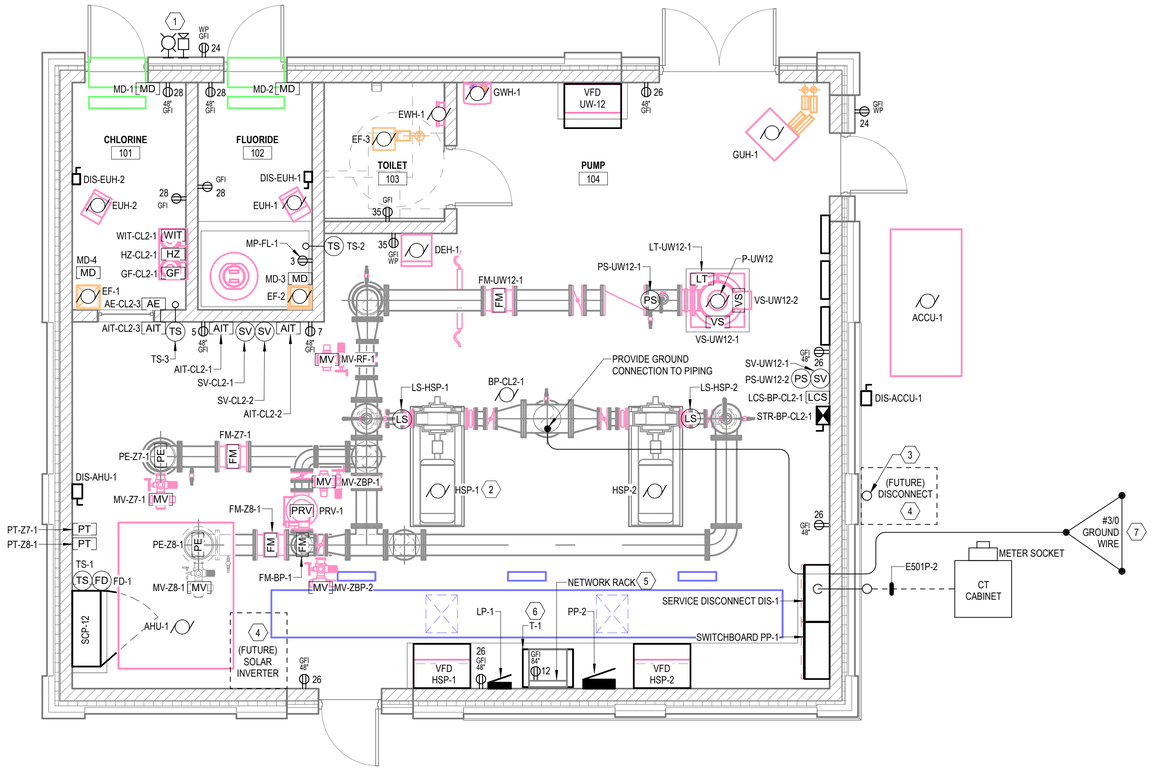
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

LIGHTING PLAN

01
E201



1 E301 POWER PLAN

1/4" = 1'-0"

0 2' 4' 8'

PROJECT NORTH

POWER GENERAL NOTES

A. PROVIDE HOUSE KEEPING PADS FOR ALL FLOOR AND GRADE MOUNTED ELECTRICAL EQUIPMENT. SEE STRUCTURAL FOR DETAILS.

B. REFER TO SPECIFICATION SECTION 26 05 19 FOR MINIMUM CONDUCTOR SIZE ADJUSTMENTS FOR VOLTAGE DROP.

C. CIRCUIT NUMBERS SHOWN AT GENERAL RECEPTACLE, ELECTRICAL EQUIPMENT, AND MECHANICAL EQUIPMENT LOCATIONS CORRESPOND TO PANELBOARD BREAKERS. SEE PANELBOARD SCHEDULES ON SHEET E701.

D. SEE ONE-LINE DIAGRAMS FOR CONDUIT AND WIRING REQUIREMENTS. SEE SHEETS E501 AND E502.

E. SEE PANELBOARD SCHEDULES ON SHEET E701 FOR CONDUIT AND WIRING REQUIREMENTS.

F. SEE MECHANICAL PLANS AND SCHEDULES FOR ALL HVAC AND PLUMBING POWER REQUIREMENTS AND DETAILS.

KEYNOTES

1. PROVIDE CHLORINE LEAK ALARM LIGHT AND HORN OUTSIDE OF CHEMICAL ROOM. REFER TO SCHEMATIC 4/E602 FOR ADDITIONAL INFORMATION. EQUIPMENT TO BE MOUNTED ABOVE CANOPY AT 12'-0" AFG.
2. SALVAGED PUMP.
3. 3" SPARE CONDUIT FROM ELECTRICAL SITE PLAN TO BE ROUTED TO THIS LOCATION FOR FUTURE SOLAR EQUIPMENT. PROVIDE CAPPED CONDUIT STUB ON EXTERIOR SIDE OF THE BUILDING.
4. RESERVE ENCLOSED AREA FOR FUTURE SOLAR ELECTRICAL EQUIPMENT. NO OTHER EQUIPMENT OR MATERIALS SHALL BE INSTALLED OR LEFT IN THIS AREA ONCE CONSTRUCTION IS COMPLETE.
5. MOUNT RECEPTACLE INSIDE NETWORK RACK ENCLOSURE.
6. TRANSFORMER SHALL BE PAD-MOUNTED.
7. SEE DETAIL 1/E801.

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MADISON, WISCONSIN
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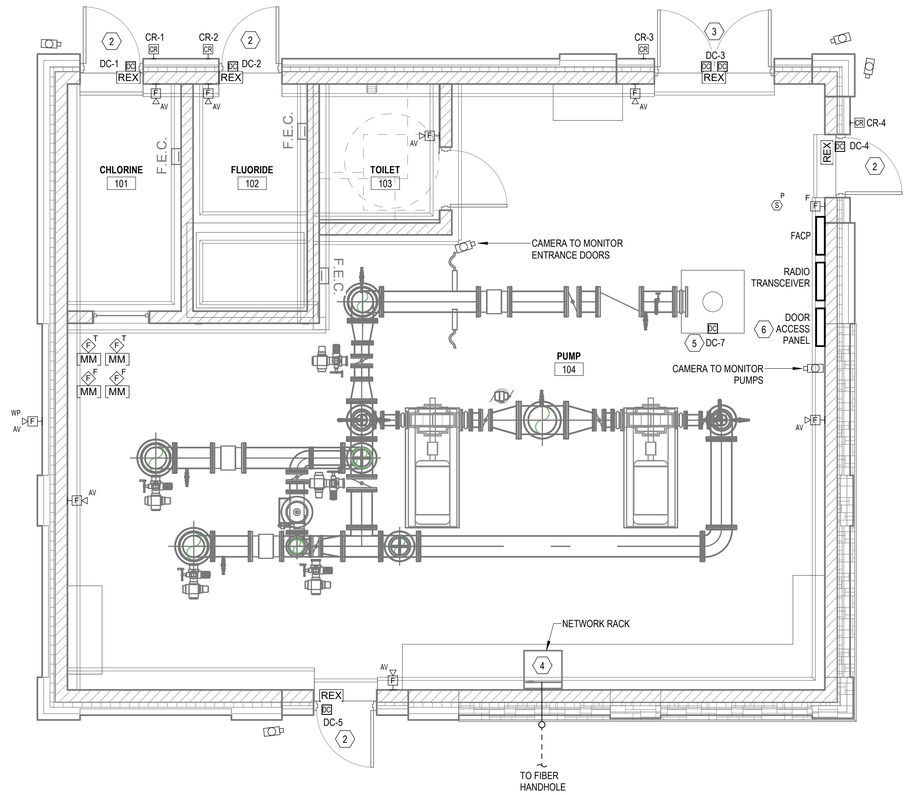
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

POWER AND INSTRUMENTATION PLAN

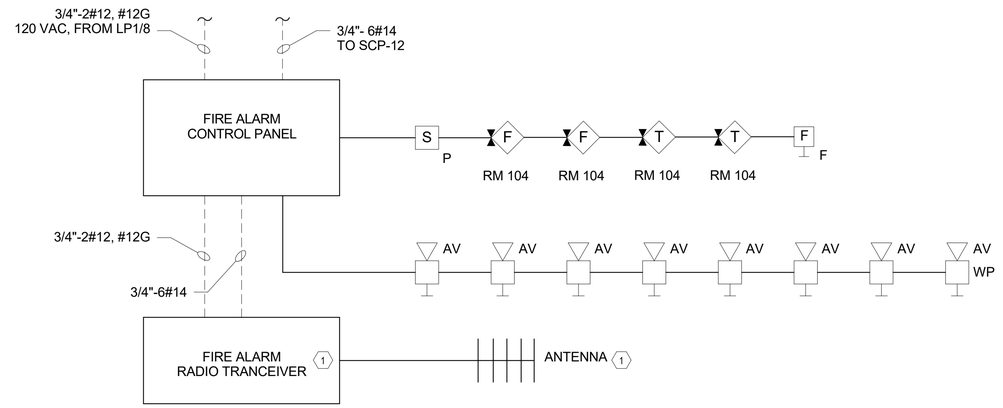
01
E301

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1 E401 **SYSTEMS PLAN**
1/4" = 1'-0"
0 2' 4' 8'

PROJECT NORTH



2 E401 **FIRE ALARM DIAGRAM**
NOT TO SCALE

SYSTEMS GENERAL NOTES

A. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING ALL DEVICES SHOWN ON THIS PLAN, UNLESS OTHERWISE NOTED.

B. SECURITY CAMERAS AND KEYSCAN DOOR ACCESS PANEL TO BE PROVIDED BY INTEGRAL BUILDING SYSTEMS (IBS). E.C. SHALL HAVE PRE-INSTALLATION MEETING WITH OWNER AND IBS TO CONFIRM FINAL LOCATIONS AND AIMING DIRECTIONS.

C. ALL COMMUNICATION, INFORMATION, AND SYSTEM TECHNOLOGY CABLE AND WIRING SHALL BE INSTALLED IN CONDUIT, CABLE TRAY, OR SUPPORTED BY CABLE HOOKS. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESIBLE CEILINGS OR WHERE DROPPED INTO CABLE TRAY. PROVIDE CABLE HOOKS ABOVE ACCESSIBLE CEILINGS FOR CABLE INSTALLATION WHERE NOT INSTALLED IN CONDUIT OR CABLE TRAY.

D. ALL FIRE DETECTION AND NOTIFICATION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 AND NFPA 72 ALONG WITH ALL OTHER GOVERNING LAWS, CODES, AND STANDARDS. CONTRACTOR SHALL ALSO COORDINATE WITH THE LOCAL FIRE MARSHALL FOR ALL OTHER REQUIREMENTS.

KEYNOTES

1. RADIO TRANSCEIVER AND ANTENNA EQUIPMENT TO BE SUPPLIED AND INSTALLED BY PER MAR.
2. SEE DETAIL 7/E801.
3. SEE DETAIL 8/E801.
4. RE-INSTALL SALVAGED NETWORK RACK. RE-CONNECT FIBER CONNECTION FROM ISP. NETWORK RACK SHALL BE INSTALLED AT 8'-0" AFF. ENSURE NO CONFLICT WITH NEARBY ELECTRICAL EQUIPMENT'S WORKING CLEARANCES.
5. PROVIDE ROOF HATCH CONTACT DEVICE.
6. 8-DOOR ACCESS PANEL TO BE SUPPLIED AND INSTALLED BY IBS.

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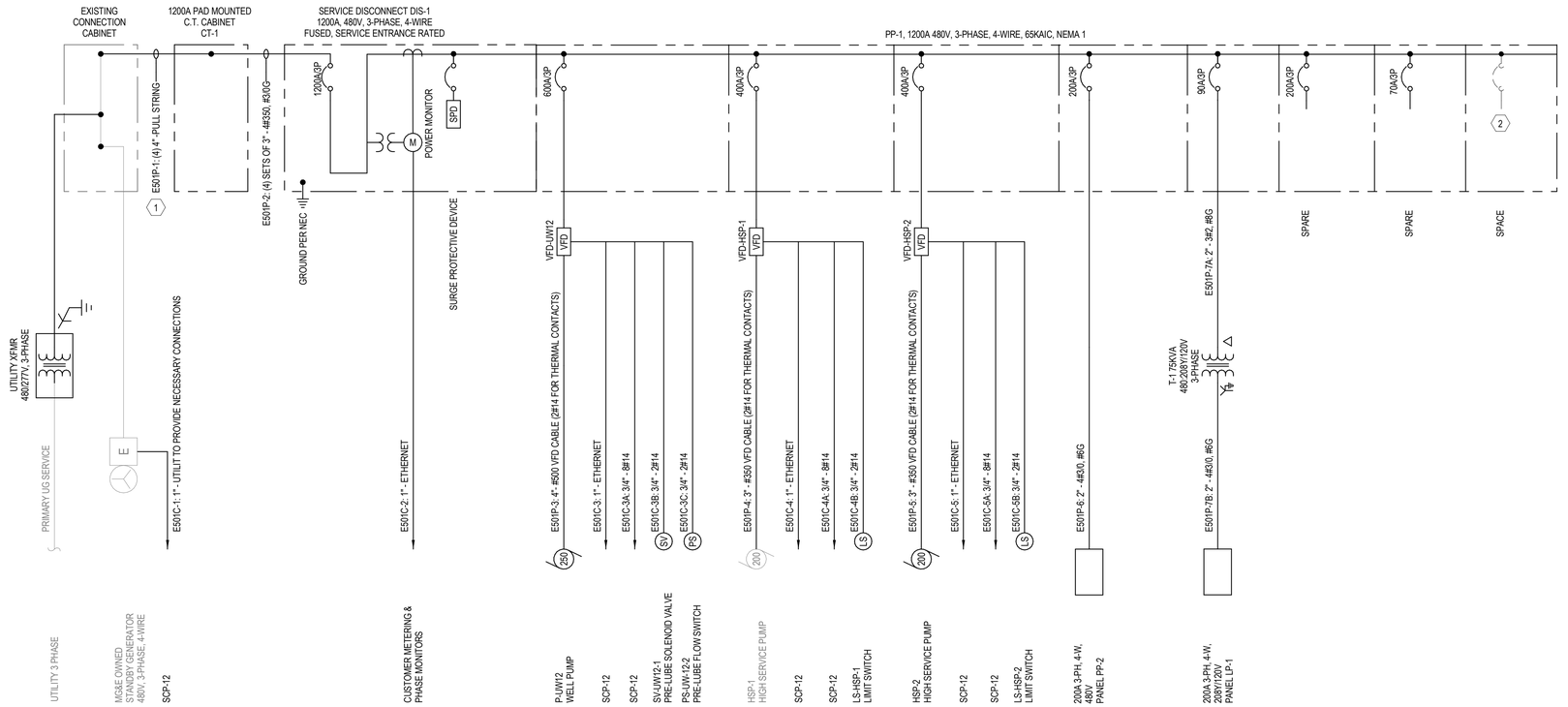
SYSTEMS PLAN

01
E401

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KEYNOTES

1. PROVIDE CONDUIT BETWEEN EXISTING CONNECTION CABINET AND C.T. CABINET WITH PULLSTRING. PROVIDE NECESSARY CONDUIT ADAPTERS AND TRANSITION INTO EXISTING CONNECTION CABINET'S CONCRETE PAD. ELECTRIC UTILITY COMPANY TO PROVIDE CONNECTIONS.
2. PROVIDE SPACE FOR FUTURE SOLAR INVERTER OVERCURRENT PROTECTION DEVICE. NOTE FUTURE CIRCUIT BREAKER NEEDS TO BE RATED FOR BACKFEED OPERATION.



1 E501 POWER 1-LINE
NOT TO SCALE

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MADISON, WISCONSIN
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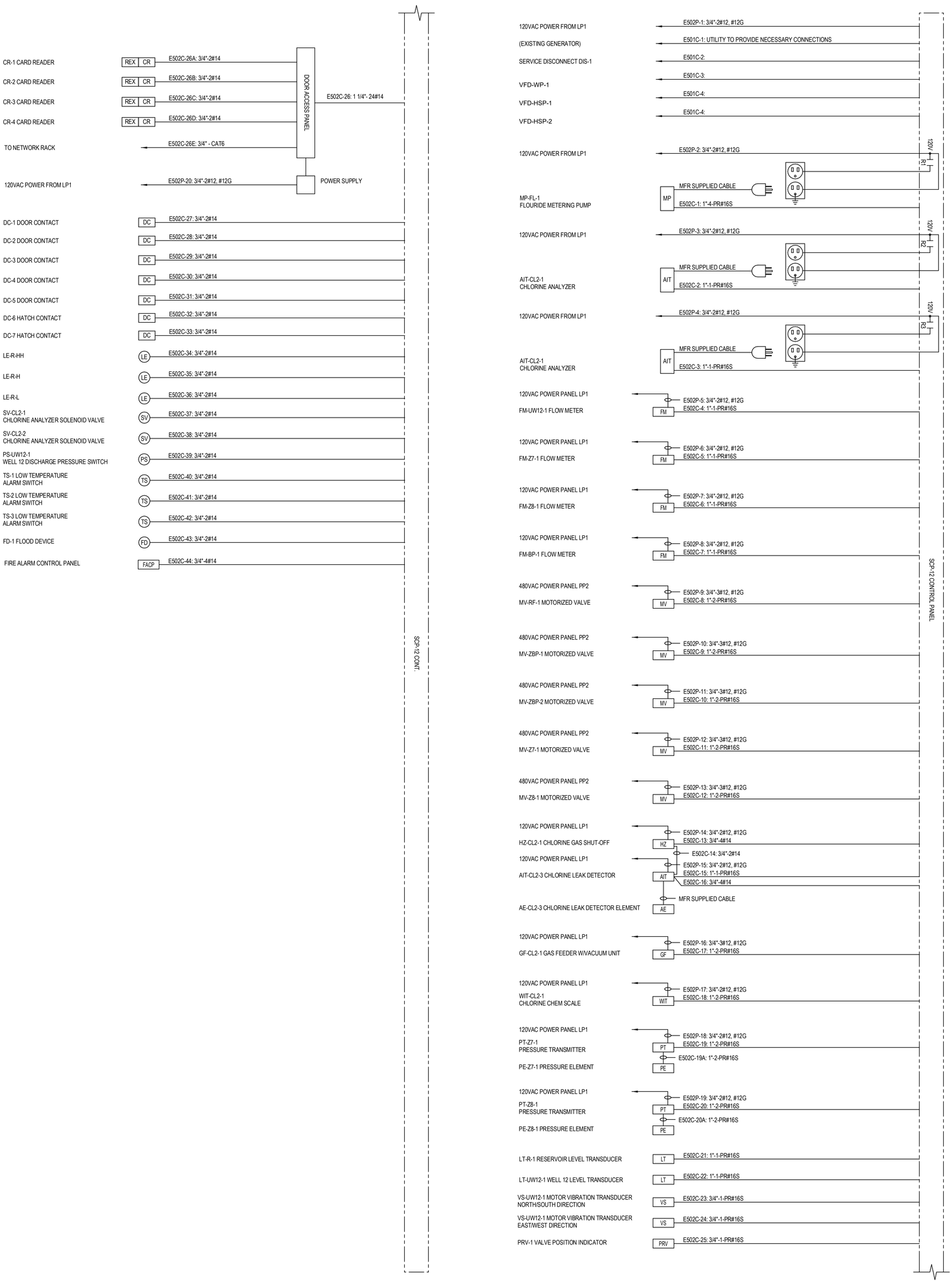
REV. #	DESCRIPTION	DATE

ONE-LINE DIAGRAM

01
E501

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1 E502 PLC 1-LINE
NOT TO SCALE



ONE-LINE DIAGRAM

01
E502

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REV. #	DESCRIPTION	DATE

SEH Project 185302
Checked By JDH
Drawn By JDC

Project Status
BIDDING

Issue Date
2/12/2026

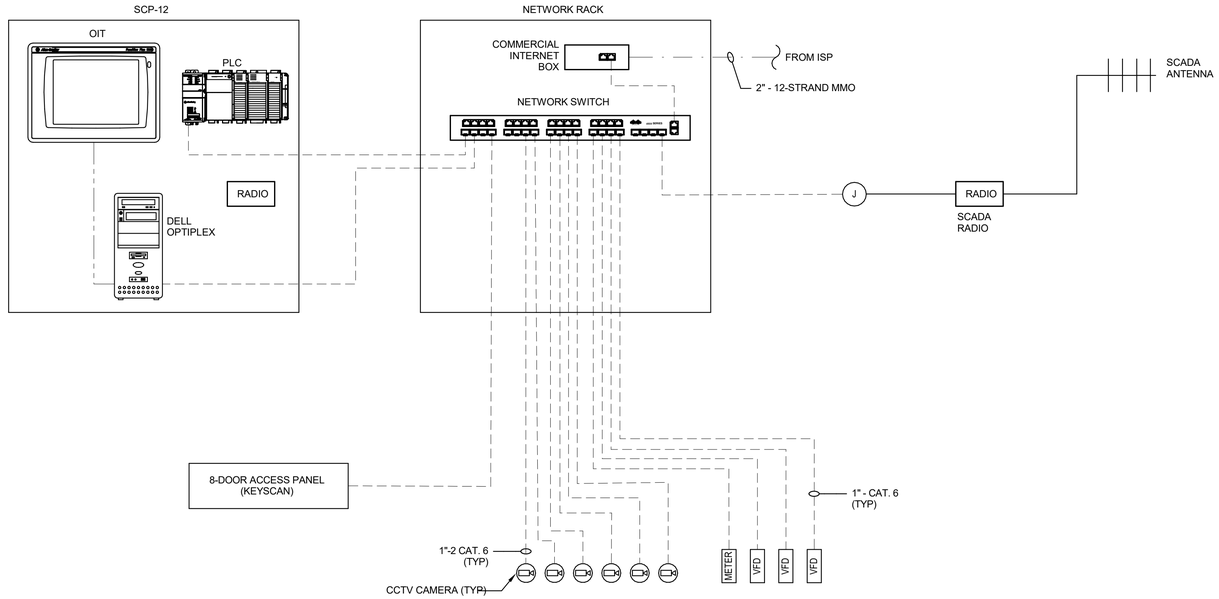
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MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION

801 S. Whitney Way
Madison WI, 53711

Project Owner
Madison Water Utility

SEH®



NETWORK SYMBOLS LEGEND	
	HDMI CABLE
	ETHERNET CABLE
	FIBER
	FIELD WIRING

1 E503 NETWORK DIAGRAM

NOT TO SCALE

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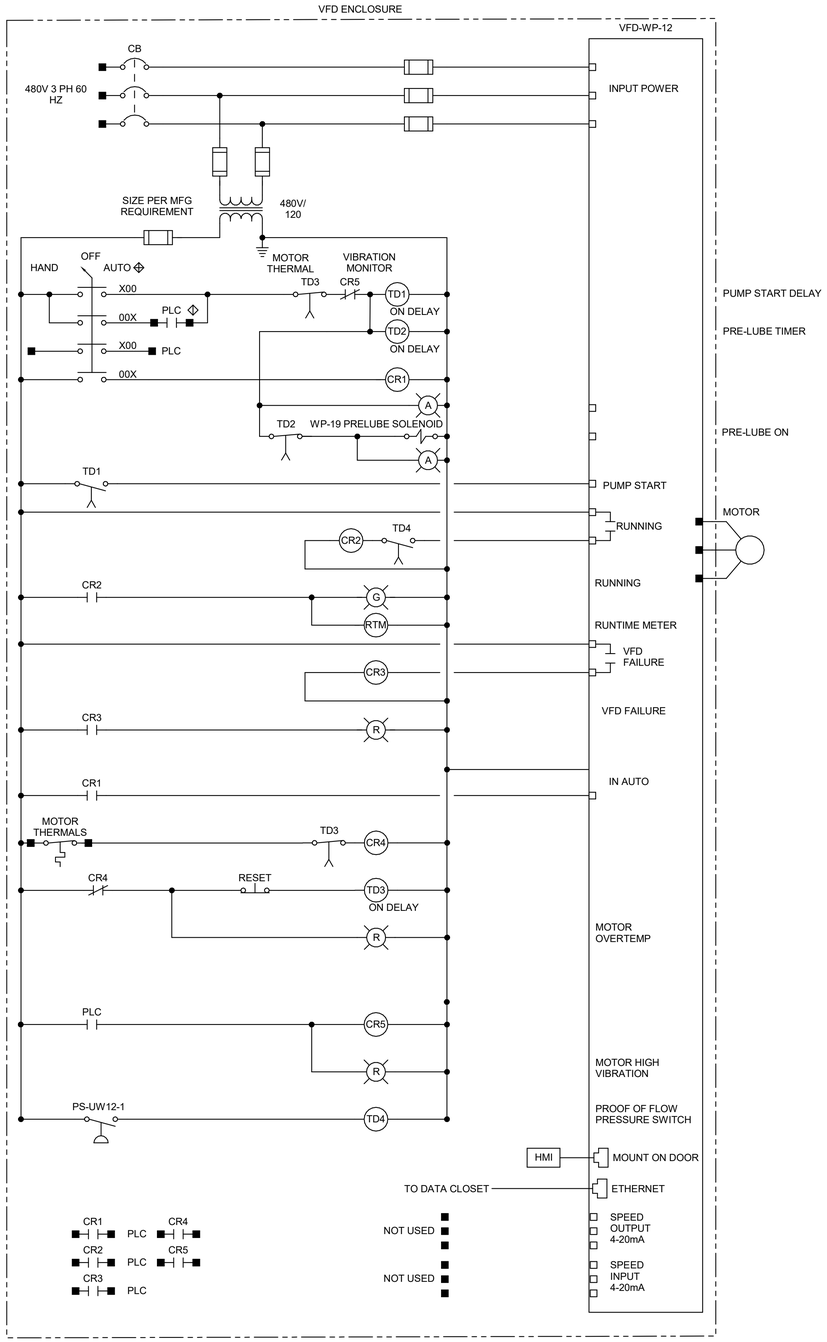
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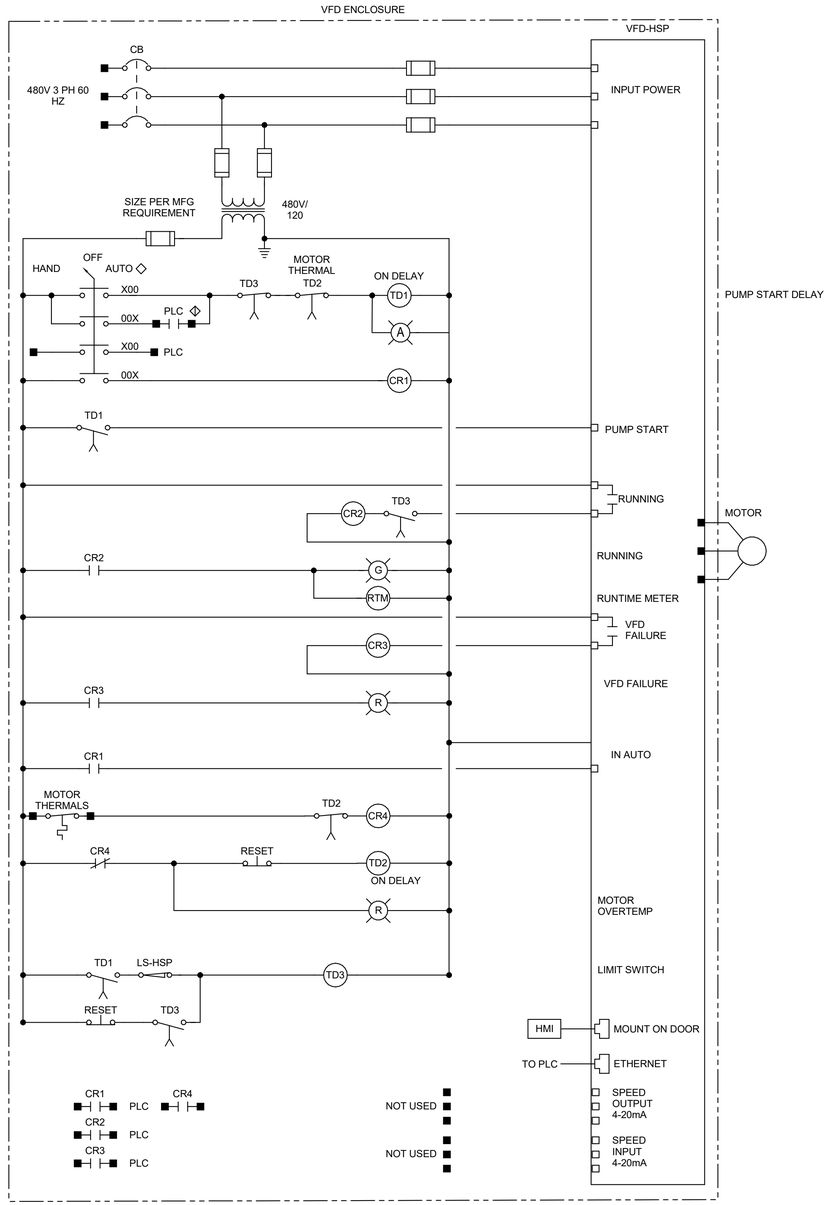
NETWORK DIAGRAM

01
E503



1 E601 WELL PUMP SCHEMATIC

NOT TO SCALE



2 E601 HIGH SERVICE PUMP SCHEMATIC

NOT TO SCALE

SCHEMATIC SYMBOLS - LOCATIONS AND CONNECTIONS	
◆	DEVICE AT MOTOR
◇	DEVICE AT PLC
◈	DEVICE AT MFR CP
•	CONNECTION POINT
■	EXTERNAL CONNECTION POINT

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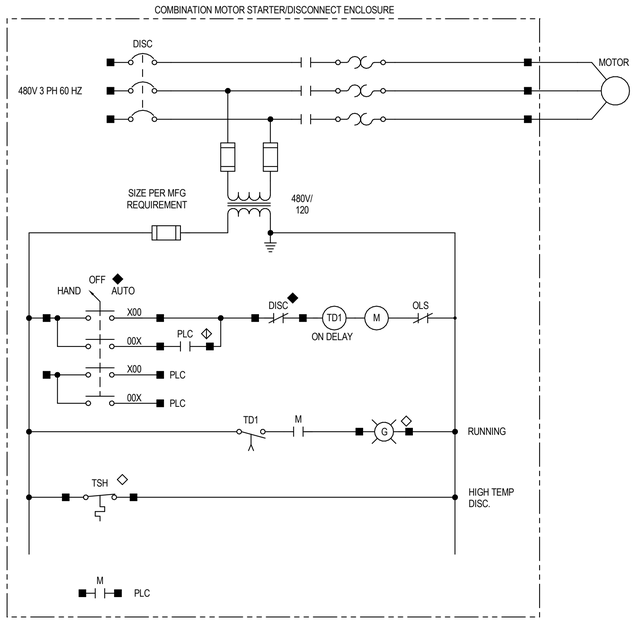
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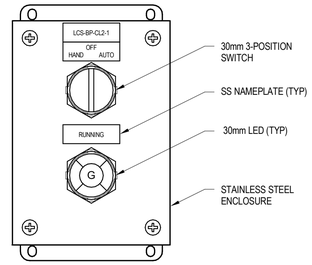
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ELECTRICAL SCHEMATICS

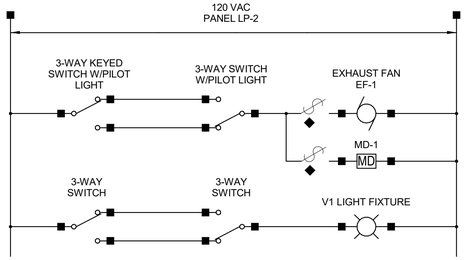
01
E601



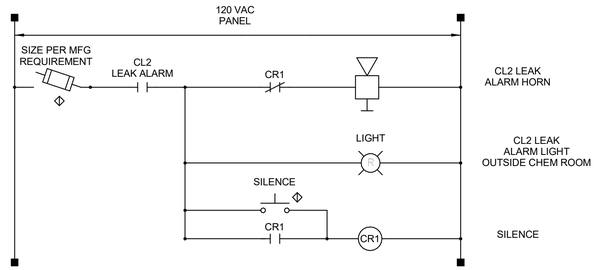
1 E602 BP-CL2-1 MOTOR STARTER SCHEMATIC
NOT TO SCALE



2 E602 BP-CL2-1 LOCAL CONTROL STATION
NOT TO SCALE



3 E602 CHEM ROOM EXHAUST FAN/LIGHTING INTER-LOCK
NOT TO SCALE



4 E602 CHLORINE ROOM LEAK ALARM SCHEMATIC
NOT TO SCALE

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REV. #	DESCRIPTION	DATE

ELECTRICAL SCHEMATICS

01
E602

PANELBOARD: PP-2

LOCATION: PUMP 104
MOUNTING: FLUSH NEMA1
MAIN DEVICE: 200.0 A MAIN CB
BUS AMPS: 200 AMPS

VOLTAGE: 480Y/277 V. 3 ø 4 W.
A.I.C. RATING: 35,000 AMPS SYMMETRICAL
SPECIAL:

CONDUIT/ WIRE	LOAD DESCRIPTION	BKR	P	CKT	PHASE A kVA		PHASE B kVA		PHASE C kVA		CKT	P	BKR	LOAD DESCRIPTION	CONDUIT/ WIRE
3/4" - 3#10, #12G	EUH-1	30 A	3	1	0.0	0.0					2				
				3			0.0	0.0			4	3	20 A	AHU-1	3/4" - 3#12, #12G
				5					0.0	0.0	6				
3/4" - 3#12, #12G	EUH-2	20 A	3	7	0.0	0.0					8				
				9			0.0	0.0			10	3	70 A	ACCU-1	1" - 3#4, #8G
				11					0.0	0.0	12				
3/4" - 3#12, #12G	BP-CL2-1	15 A	3	13	0.0	0.0					14				
				15			0.0	0.0			16	3	20 A	MV-RF-1	E502P-9
				17					0.0	0.0	18				
	SPARE	70 A	3	19	0.0	0.0					20				
				21			0.0	0.0			22	3	20 A	MV-ZBP-1	E502P-10
				23					0.0	0.0	24				
	SPARE	20 A	3	25	0.0	0.0					26				
				27			0.0	0.0			28	3	20 A	MV-ZBP-2	E502P-11
				29					0.0	0.0	30				
				31		0.0					32				
				33				0.0			34	3	20 A	MV-Z7-1	E502P-12
				35						0.0	36				
				37		0.0					38				
				39				0.0			40	3	20 A	MV-Z8-1	E502P-13
				41						0.0	42				
		TOTAL LOAD:			0 kVA		0 kVA		0 kVA						
		TOTAL AMPS:			0 A		0.0 A		0 A						

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
				CONNECTED LOAD:	0 VA
				ESTIMATED DEMAND:	0 VA
				CONNECTED CURRENT:	0.0 A
				EST. DEMAND CURRENT:	0.0 A

NOTES:

PANELBOARD: LP-1

LOCATION: PUMP 104
MOUNTING: FLUSH NEMA1
MAIN DEVICE: 200.0 A MAIN CB
BUS AMPS: 200 AMPS

VOLTAGE: 208Y/120 V. 3 ø 4 W.
A.I.C. RATING: 22,000 AMPS SYMMETRICAL
SPECIAL:

CONDUIT/ WIRE	LOAD DESCRIPTION	BKR	P	CKT	PHASE A kVA		PHASE B kVA		CKT	P	BKR	LOAD DESCRIPTION	CONDUIT/ WIRE
E502P-1	SCP-12	20 A	1	1	0.0	0.4			2	1	20 A	S1 LIGHT FIXTURES	3/4" - 2#12, #12G
E502P-2	FL. METER PUMP	20 A	1	3			0.2	0.0	4	1	20 A	V1E LIGHT FIXTURES	3/4" - 2#12, #12G
E502P-3	AIT-CL2-1	20 A	1	5	0.0	0.0			6	1	20 A	WW1E LIGHT FIXTURES	3/4" - 2#12, #12G
E502P-4	AIT-CL2-2	20 A	1	7			0.0	0.0	8	1	20 A	ZZ1 LIGHT FIXTURE	1" - 2#10, #12G
E502P-5	FM-UW12-1	20 A	1	9	0.0	0.0			10	1	20 A	FACP	3/4" - 2#12, #12G
E502P-6	FM-Z7-1	20 A	1	11			0.0	0.0	12	1	20 A	NETWORK RACK	
E502P-7	FM-Z8-1	20 A	1	13	0.0	0.0			14	1	20 A	GWH-1	3/4" - 2#12, #12G
E502P-8	FM-BP-1	20 A	1	15			0.0	0.0	16	1	20 A	EF-1	3/4" - 2#12, #12G
E502P-14	HZ-CL2-1	20 A	1	17	0.0	0.0			18	1	20 A	EF-2	3/4" - 2#12, #12G
E502P-15	AIT-CL2-3	20 A	1	19			0.0	0.0	20	1	20 A	EF-3	3/4" - 2#12, #12G
E502P-16	GF-CL2-1	20 A	1	21	0.0	0.0			22	1	20 A	GUH-1	3/4" - 2#12, #12G
E502P-18	PT-Z7-1	20 A	1	23			0.0	0.0	24	1	20 A	EXTERIOR RECEPTACLE	3/4" - 2#12, #12G
E502P-19	PT-Z8-1	20 A	1	25	0.0	0.9			26	1	20 A	INTERIOR RECEPTACLES	3/4" - 2#12, #12G
	SPARE	20 A	2	27			0.0	0.7	28	1	20 A	CHEM ROOM RCPT	3/4" - 2#12, #12G
				29	0.0	0.0			30	1	20 A	CL2 LEAK ALARM LIGHT	3/4" - 2#12, #12G
3/4" - 2#12, #12G	EWH-1	20 A	2	31			0.0	0.0	32	1	20 A	DOOR ACCESS PANEL	E502P-20
				33	0.0	0.0			34	1	20 A	CL2 CHEM SCALE	E502P-17
3/4" - 2#12, #12G	DEH-1	20 A	1	35			0.0	0.0	36	1	20 A	SPARE	
	SPD	20 A	3	37	0.0	0.0			38	1	20 A	SPARE	
				39			0.0	0.0	40	1	20 A	SPARE	
				41	0.0	0.0			42	1	20 A	SPARE	
		TOTAL LOAD:			1 kVA		1 kVA						
		TOTAL AMPS:			12 A		7.8 A						

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
LITES	415 VA	125.00%	519 VA		
Receptacle	3060 VA	100.00%	3060 VA	**CONNECTED LOAD:**	3465 VA
				ESTIMATED DEMAND:	3567 VA
				CONNECTED CURRENT:	9.6 A
				EST. DEMAND CURRENT:	9.9 A

NOTES:
1. INTEGRAL SPD.

THIS BAR IS INTENDED TO BE 1" PRINTED AT FULL SCALE 2/5/2026 3:33:38 PM

SEH

Madison Water Utility

Project Owner

MADISON, WISCONSIN
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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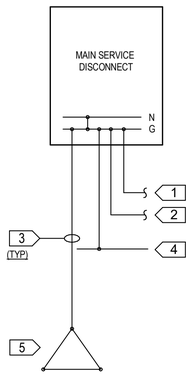
Project Status BIDDING
Issue Date 2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

SCHEDULES

01
E701

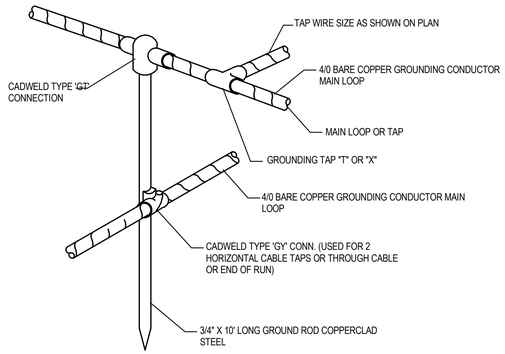


KEYNOTES:

1. BONDING CONDUCTOR TO EXTERIOR ELECTRICAL PANELS, EXTERIOR ANTENNAS, EXTERIOR EXPOSED PIPE AND BUILDING STEEL.
2. CONNECTION TO METAL WATER PIPE, (IF AVAILABLE).
3. SIZE GROUNDING CONDUCTORS PER NEC.
4. UFER GROUND - 20' MINIMUM CONCRETE-ENCASED ELECTRODE PER NEC 250.52 (WHEN SHOWN ON PLANS)
5. GROUND ROD ARRAY, CONSISTING OF THREE (3) GROUND RODS AT LEAST 10' APART AND CONNECTED BY #2/0 AWG BARE COPPER CONDUCTOR.

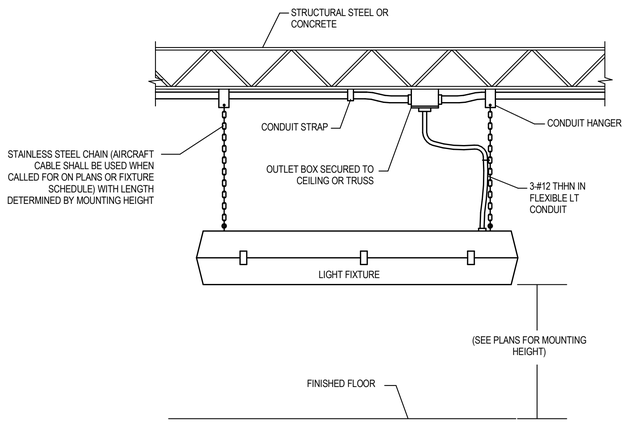
1 E801 GROUNDING DETAIL

NOT TO SCALE



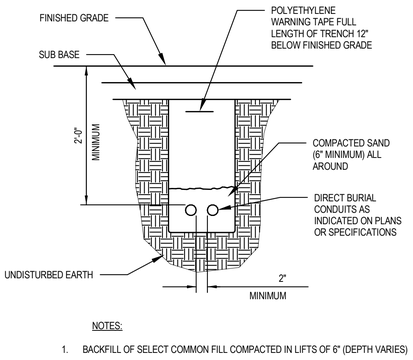
2 E801 GROUND ROD DETAIL

NOT TO SCALE



4 E801 SUSPENDED FIXTURE DETAIL

NOT TO SCALE

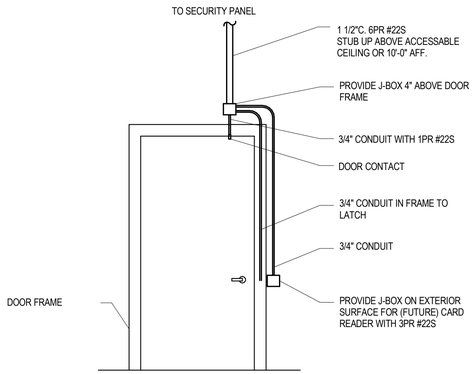


NOTES:

1. BACKFILL OF SELECT COMMON FILL COMPACTED IN LIFTS OF 6" (DEPTH VARIES)

5 E801 DIRECT BURIED CONDUIT DETAIL

NOT TO SCALE

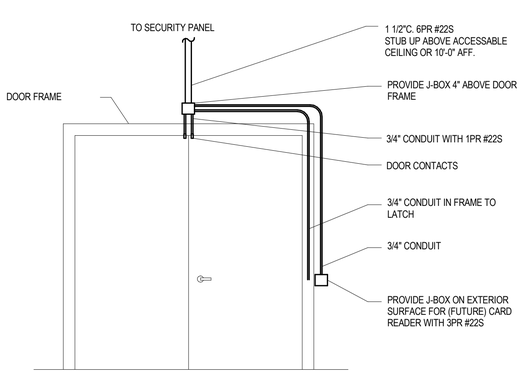


NOTES:

1. PROVIDE CONDUIT ON SECURED SIDE OF DOOR.
2. PROVIDE CONDUIT AND CONDUCTORS BACK TO SECURITY PANEL.

7 E801 SINGLE DOOR SECURITY ROUGH-IN

NOT TO SCALE

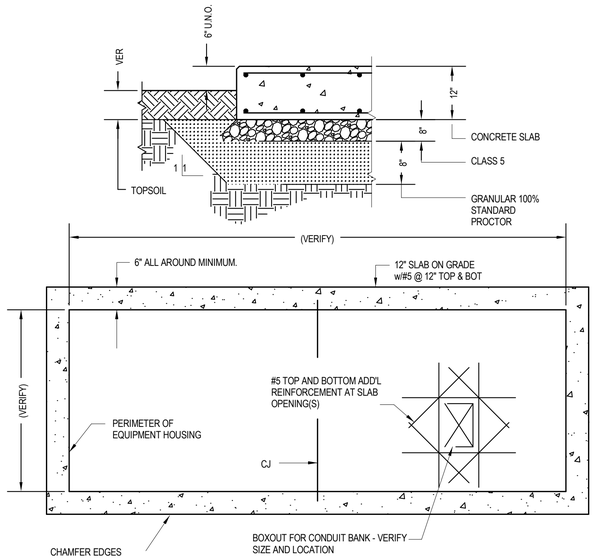


NOTES:

1. PROVIDE CONDUIT ON SECURED SIDE OF DOOR.
2. PROVIDE CONDUIT AND CONDUCTORS BACK TO SECURITY PANEL.

8 E801 DOUBLE DOOR SECURITY ROUGH-IN

NOT TO SCALE

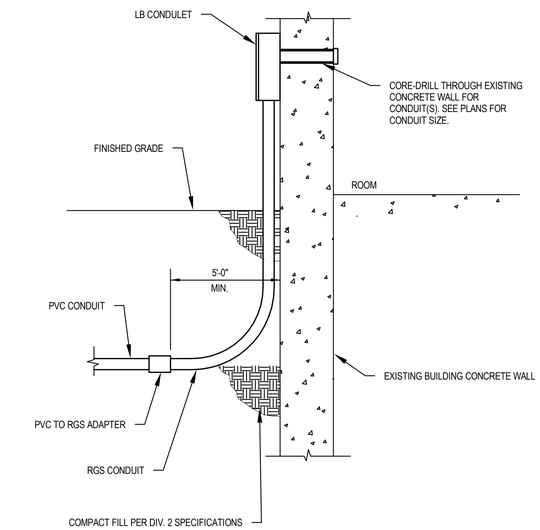


NOTES

- CJ = PROVIDE SLAB CONTROL JOINT: TOOLED JOINT, 1/2" DEEP, 1/8"W (MAX), MAKE SAW CUT AS SOON AS CUTTING CAN BE DONE WITHOUT RAVELING THE CONCRETE. FILL JOINTS WITH JOINT SEALER
- COORDINATE SLAB LOCATION AND ORIENTATION WITH CIVIL.
- REFER TO ELECTRICAL PLANS AND SPECIFICATIONS FOR ADD'L NOTES & DETAILS.
- CONTRACTOR SHALL VERIFY DIMENSIONS AND ALL OTHER REQUIREMENTS.

3 E801 EQUIPMENT PAD EXTERIOR

NOT TO SCALE



6 E801 CONDUIT ENTRY INTO BUILDING

NOT TO SCALE

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MADISON, WISCONSIN
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Drawn By	DDH

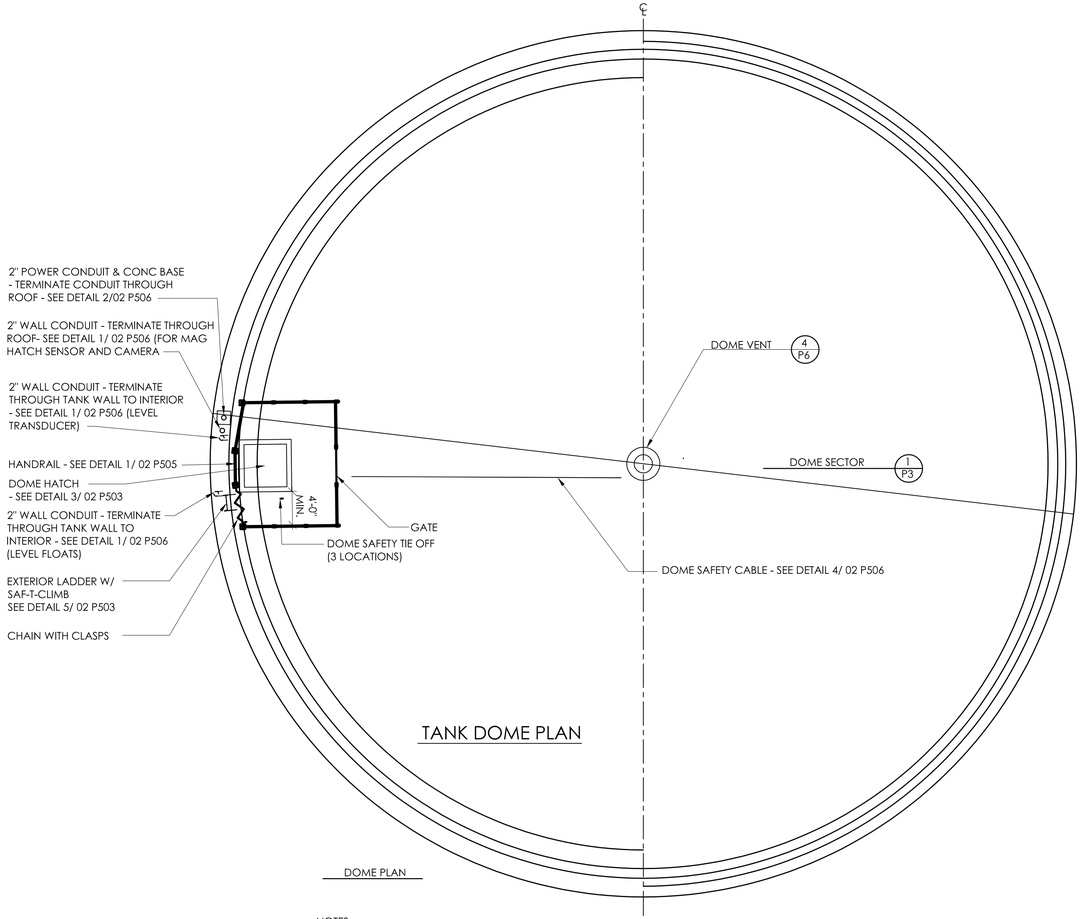
Project Status	**Issue Date**
BIDDING	2/12/2026

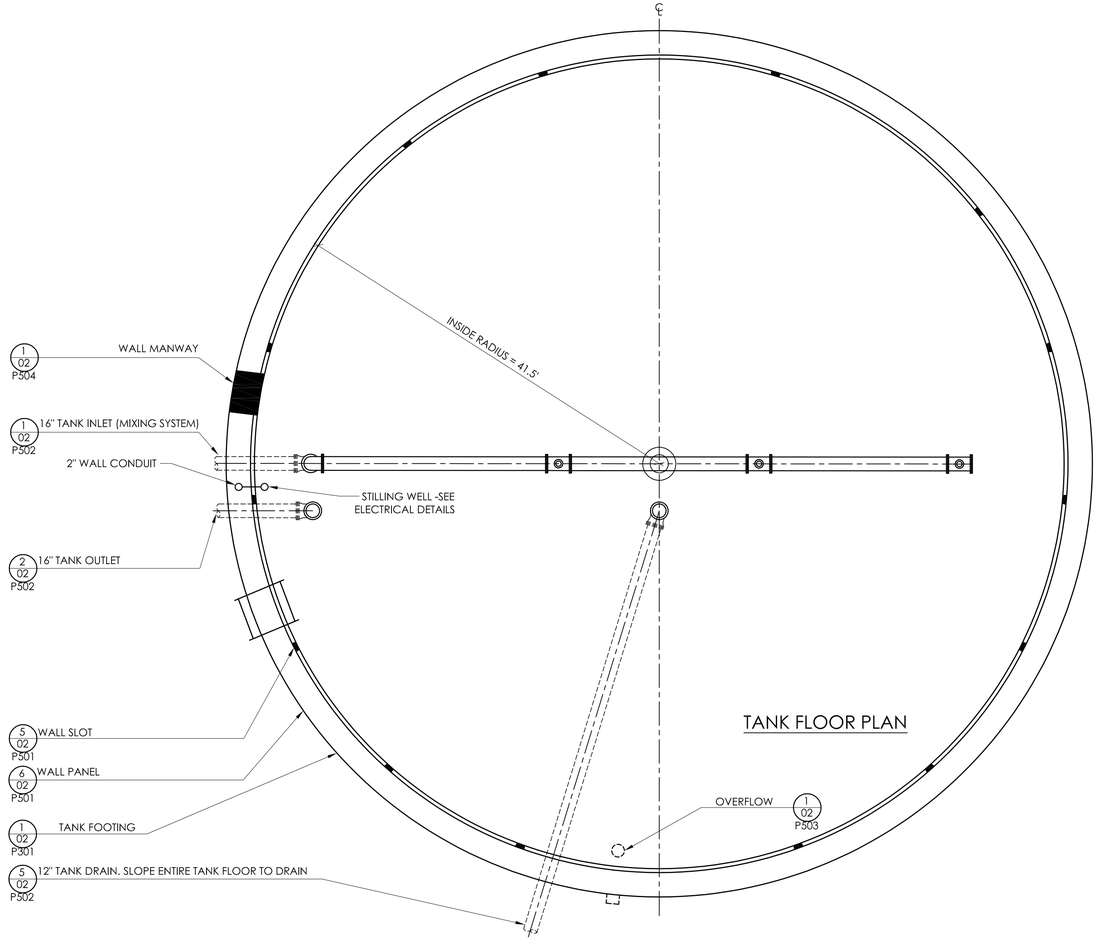
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

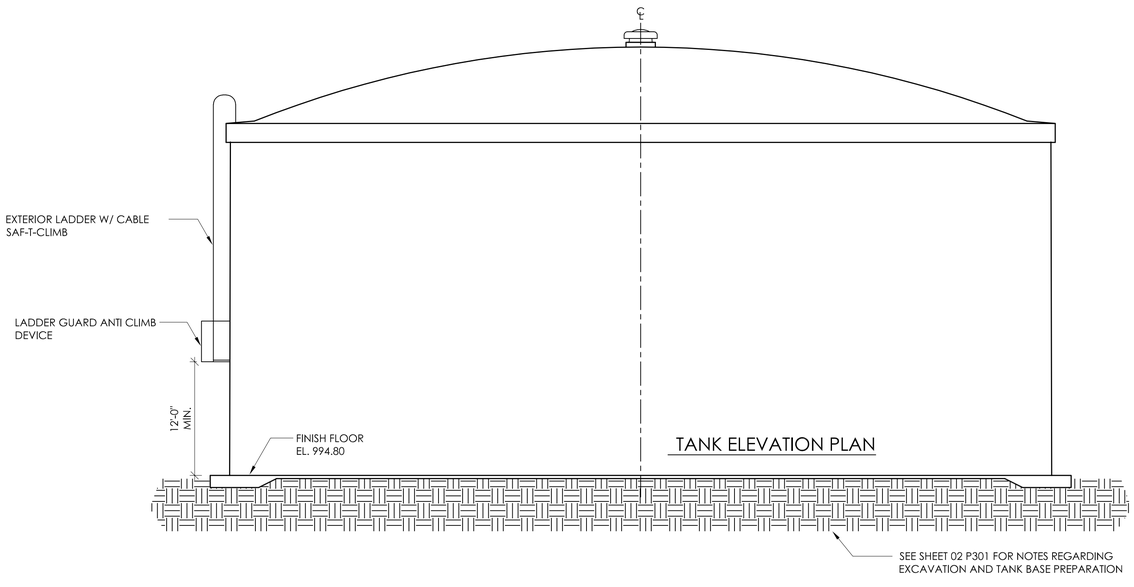
ELECTRICAL DETAILS

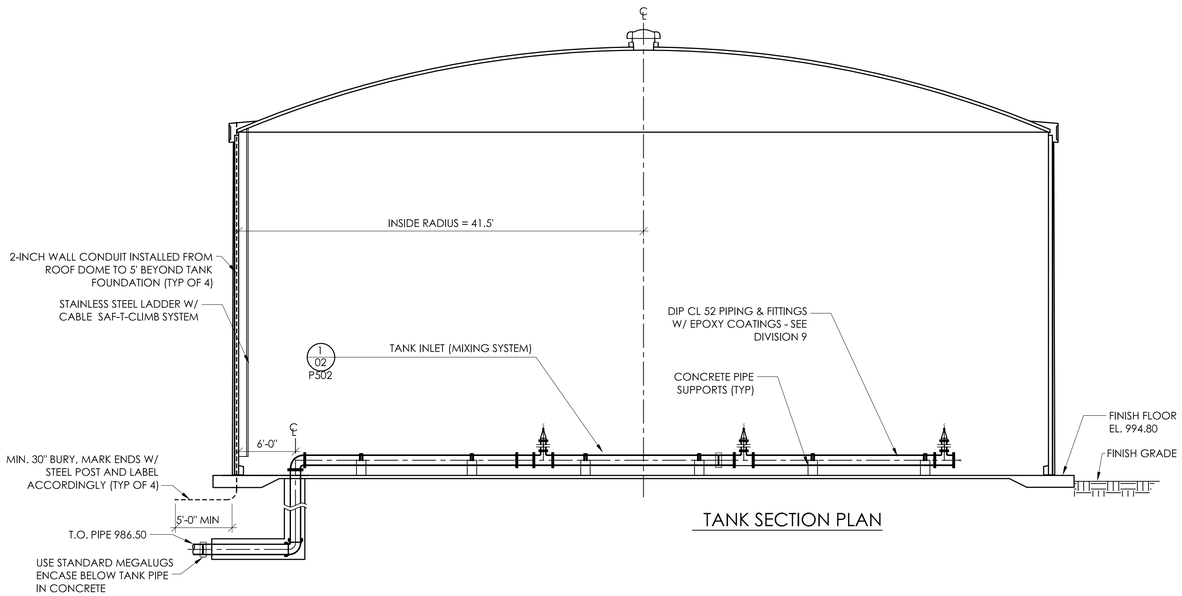
01
E801





NOTES:
1. FINAL LOCATION OF ALL PIPING AND APPURTENANCES TO BE DETERMINED BY THE ENGINEER.
2. THE EXTERIOR DOME CONCRETE SURFACES SHALL RECEIVE ONE COAT OF TAMOSEAL AND ONE COAT OF TAMMSCOAT SMOOTH. THE EXPOSED EXTERIOR WALL CONCRETE SURFACES SHALL RECEIVE TWO COATS OF TAMMSCOAT SMOOTH. COLOR SHALL BE SELECTED BY OWNER - SEE SHEET A1 FOR COLOR ASSIGNMENTS
3. ALL PIPING TO BE COATED PER DIVISION 9.





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Project Owner

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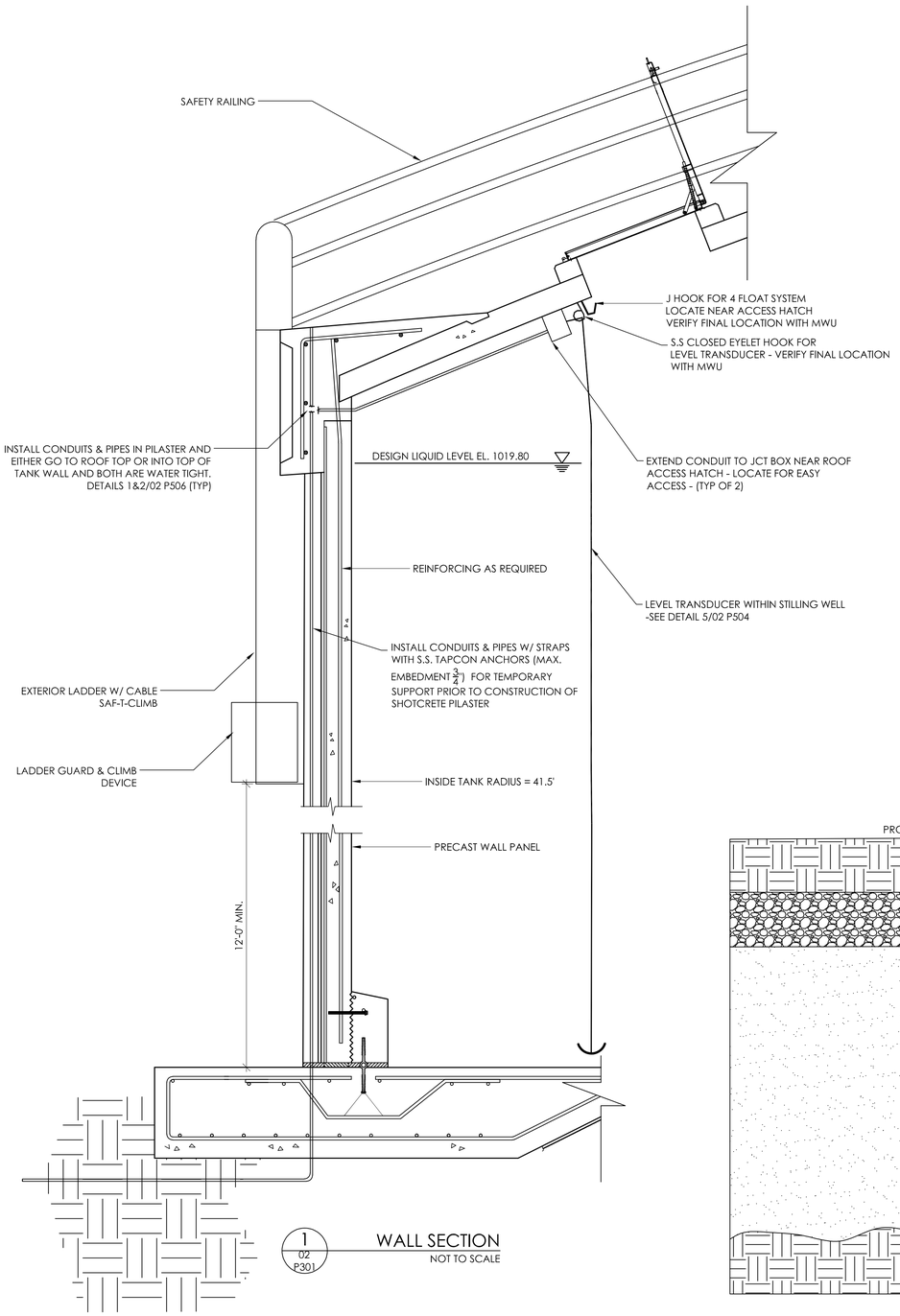
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Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

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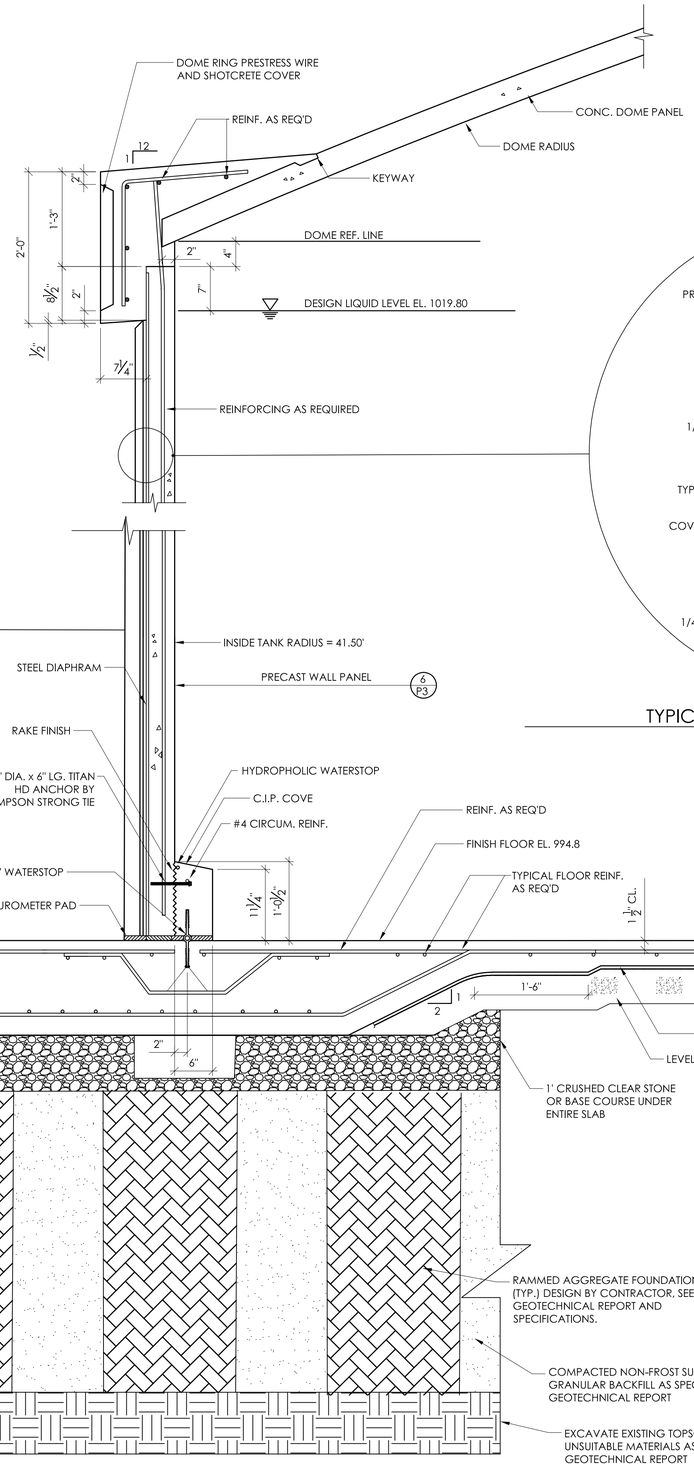
REV. #	DESCRIPTION	DATE

WATER STORAGE TANK PLAN & SECTION

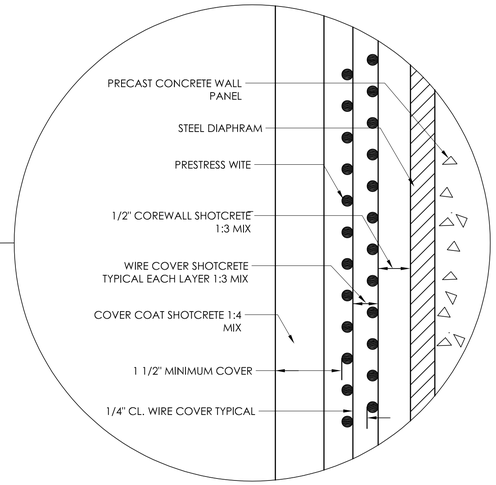
02
P101



1 02 P301 WALL SECTION
NOT TO SCALE



2 02 P301 WALL & FOUNDATION SECTION
NOT TO SCALE



TYPICAL TANK WALL PRESTRESS SECTION DETAIL
NOT TO SCALE

NOTES:
1. THE TANK FLOOR SLAB SHALL RECEIVE A BULLFLOAT AND/OR FRESNO FINISH.
2. TOP OF THE DOME RING AND DOME SLOTS SHALL RECEIVE A LIGHT BROOM FINISH
3. EXCAVATION SHOWN ARE APPROXIMATE, CONTRACTOR TO REVIEW GEOTECHNICAL REPORT FOR DETAILED EXCAVATION REQUIREMENTS.
4. FOOTING REINFORCEMENT SHALL BE DETERMINED BY TANK DESIGNER.
5. REFER TO CONTRACT DOCUMENTS FOR LEVELING BASE SPECIFICATION, COMPACTION REQUIREMENTS AND FOUNDATION PREPARATION.
6. LEVELING BASE MATERIAL SHALL BE PROVIDED BENEATH THE TANK FLOOR, FOOTINGS AND BOTTOM OF PIPE ENCASEMENTS.
7. FOUNDATION IMPROVEMENTS ARE NECESSARY PRIOR TO TANK CONSTRUCTION. PER GEOTECHNICAL EXPLORATION REPORT, FOUNDATION DESIGN, FOOTING DESIGN, AND TANK DESIGN ARE DELEGATED TO THE TANK CONTRACTOR. SUBMITTED FOR REVIEW, PER SPECIFICATIONS.

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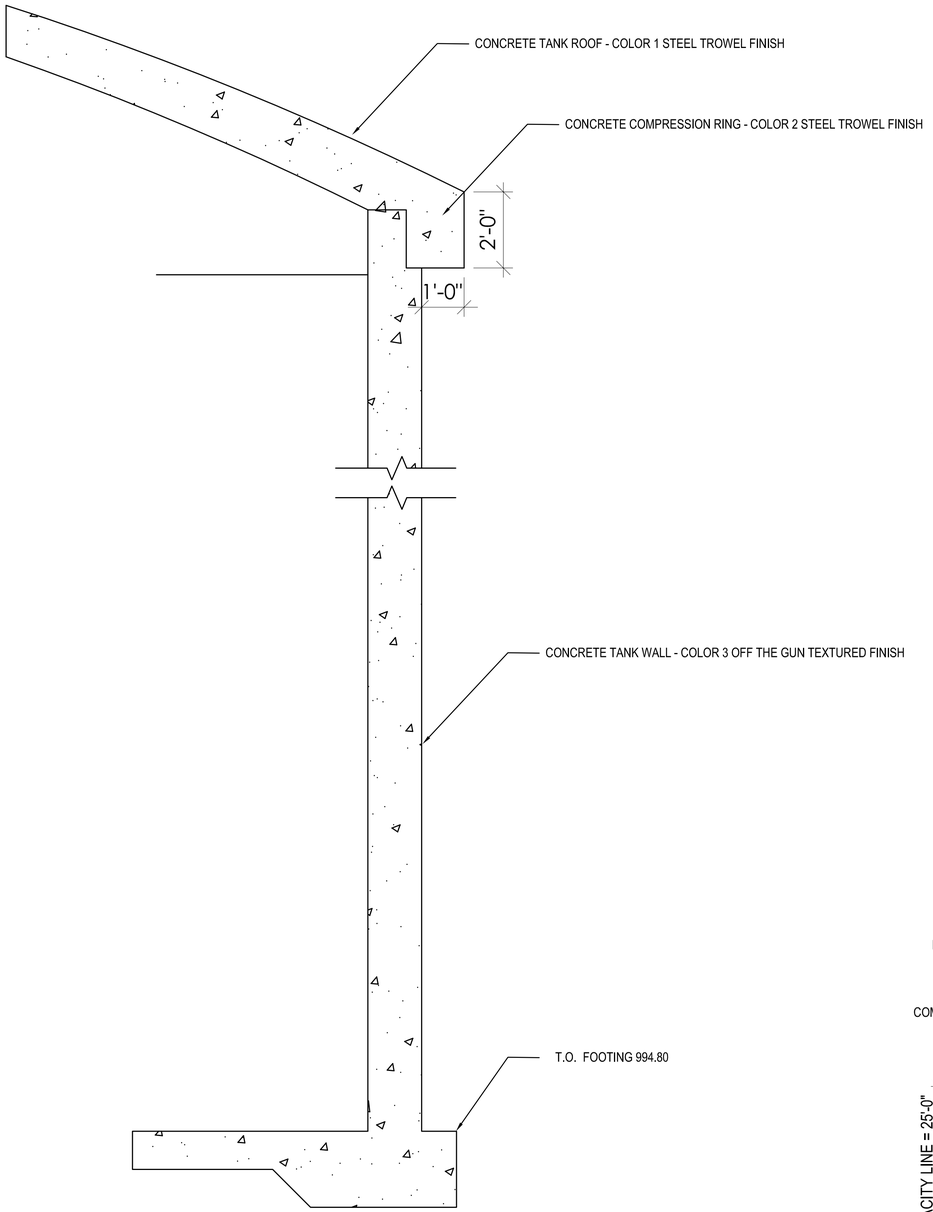
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

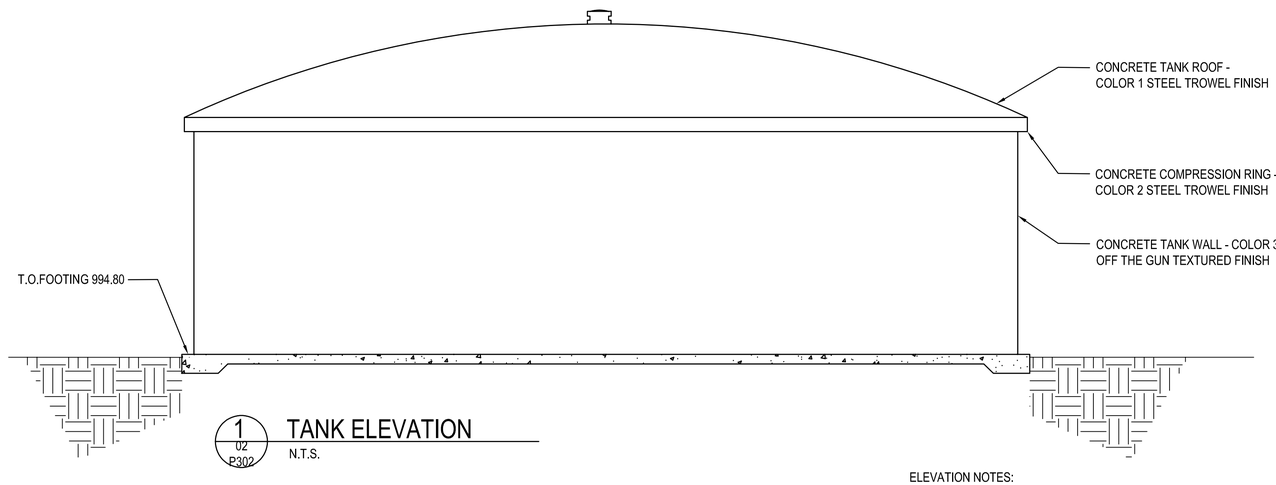
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WATER STORAGE TANK SECTION

02
P301



3 02 P302 TANK WALL SECTION
N.T.S.



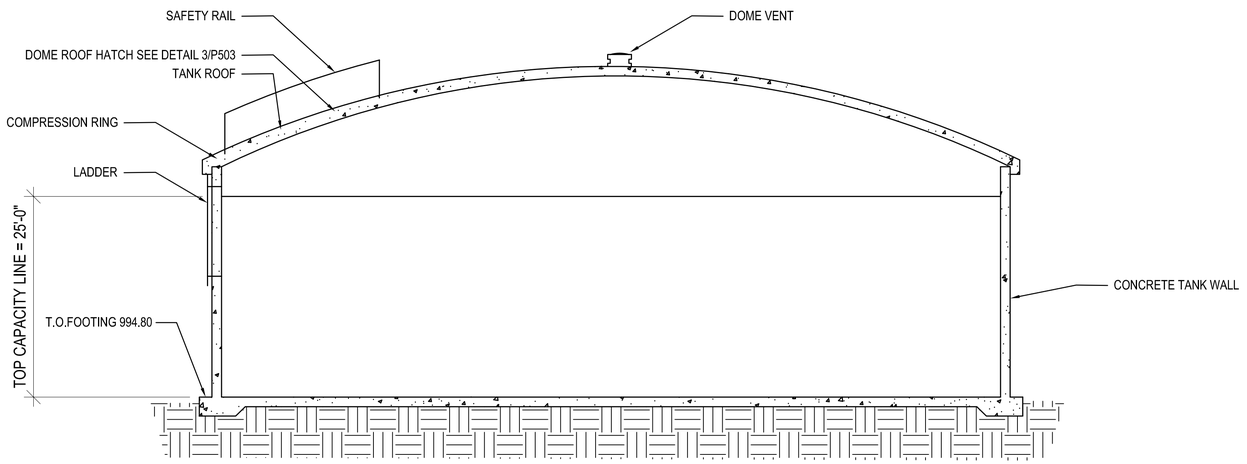
1 02 P302 TANK ELEVATION
N.T.S.

ELEVATION NOTES:

1. PAINT APPURTENANCES TO MATCH ADJACENT COLOR OF TANK SO AS TO BLEND INTO COLOR SCHEME OF TANK

SECTION NOTES:

1. SEE OTHER DRAWINGS FOR TANK APPURTENANCES. COORDINATE LOCATION OF APPURTENANCES WITH ENGINEER AND UTILITY OWNER. ATTEMPT TO CONCEAL APPURTENANCES FROM STREET VIEWS TO MINIMIZE VISUAL IMPACT.



2 02 P302 TANK SECTION
N.T.S.

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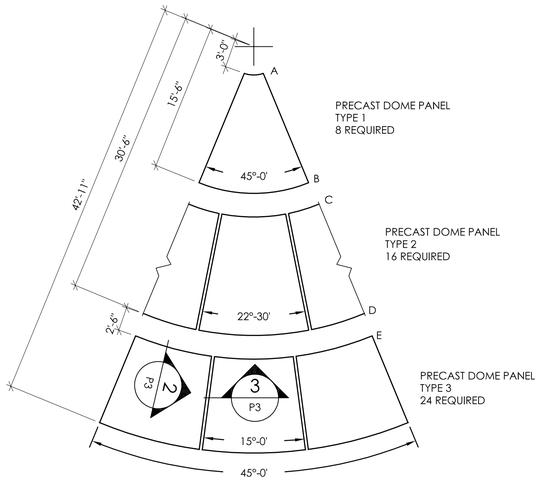
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BIDDING	2/12/2026

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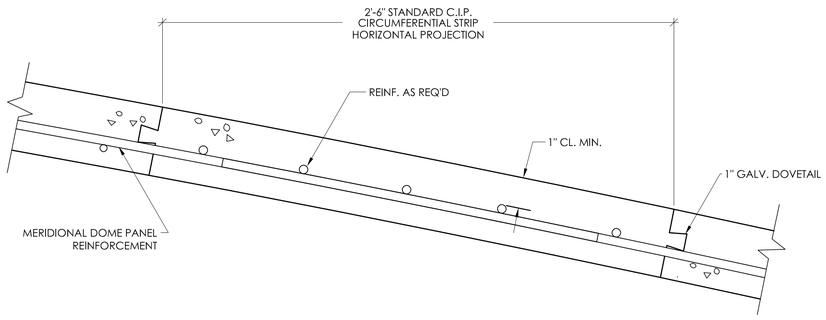
WATER STORAGE TANK ELEVATIONS. SECTIONS

02
P302

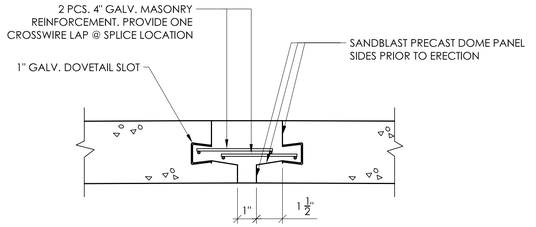


NOTES:
1. SPLICE CIRCUMFERENTIAL JOINT REINFORCING BETWEEN RADIAL JOINTS.
2. RADIAL DIMENSIONS ARE HORIZONTAL PROJECTIONS.
3. DOME PANELS, DOME RING AND DOME SLOTS SHALL RECEIVE A LIGHT BROOM FINISH.

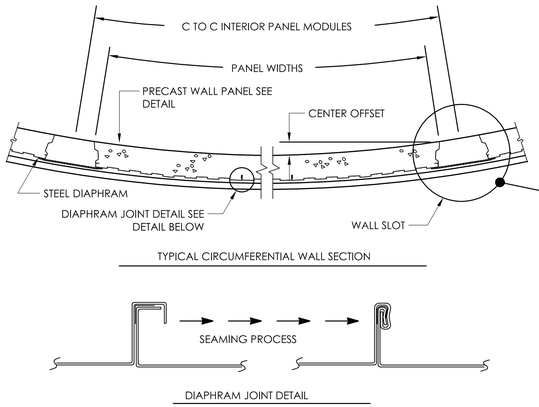
1 / 02 / P501 — DOME SECTOR
NOT TO SCALE



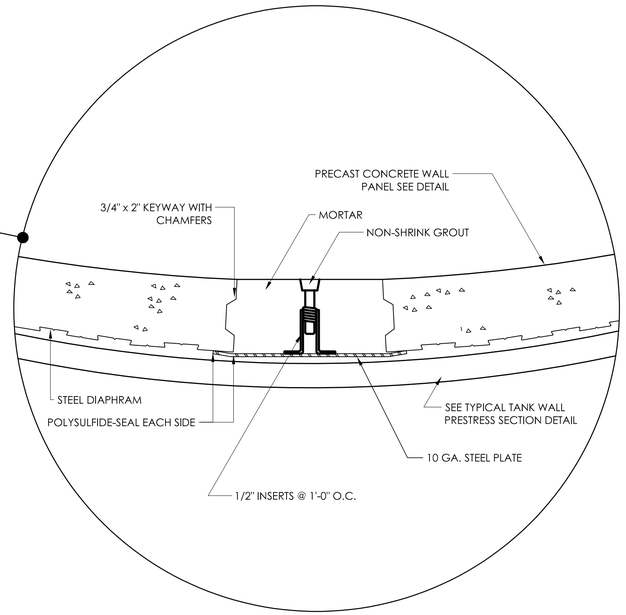
2 / 02 / P501 — CIRCUMFERENTIAL DOME JOINT REINFORCING
NOT TO SCALE



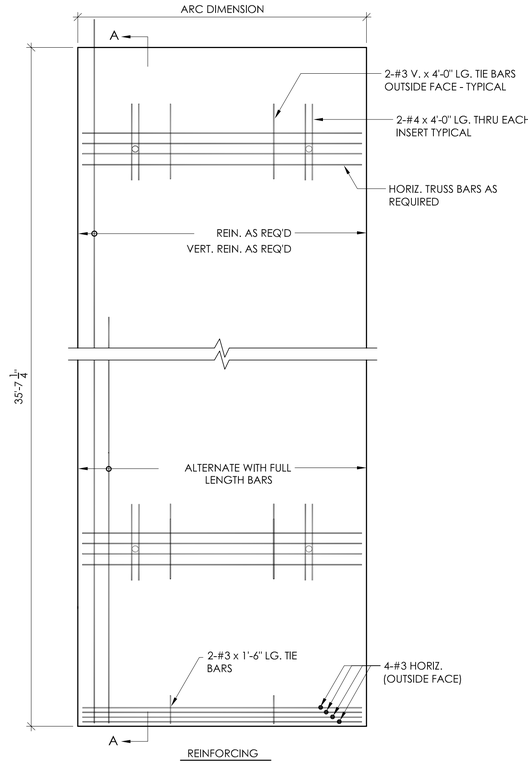
3 / 02 / P501 — RADIAL DOME JOINT REINFORCEMENT
NOT TO SCALE

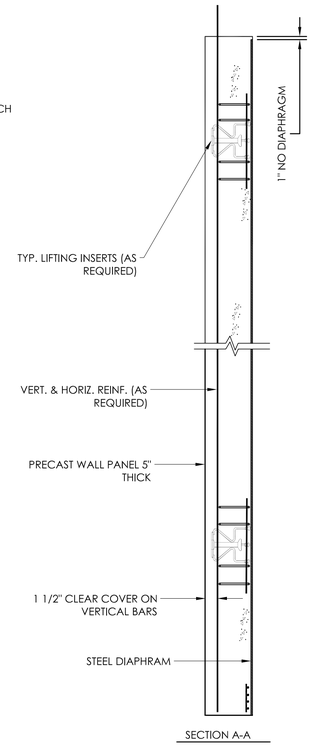


4 / P3 — WALL PANEL AND JOINT
NOT TO SCALE



5 / 02 / P501 — WALL SLOT DETAIL
NOT TO SCALE





6 / 02 / P501 — PRECAST WALL PANEL
NOT TO SCALE

NOTE:
1. WALL PANELS SHALL RECEIVE A HORIZONTAL RAKE FINISH FOR THE BOTTOM 1'-0" OF THE PANEL AND A HORIZONTAL LIGHT BROOM FINISH FOR THE REST OF THE PANEL.

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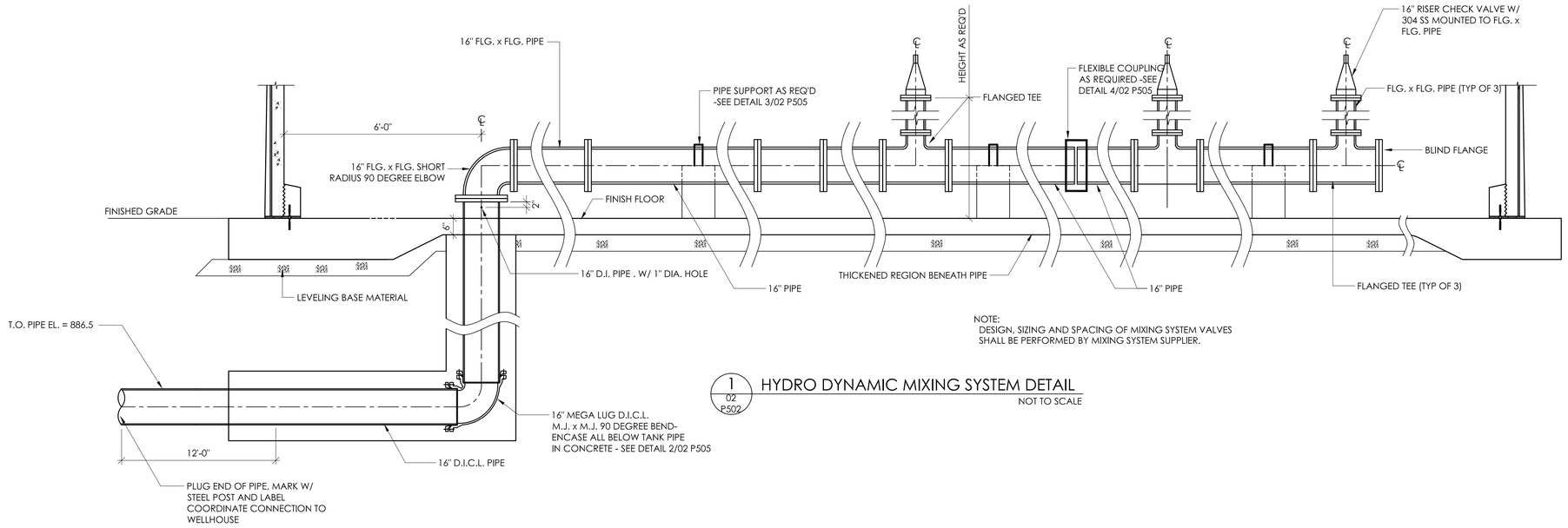
SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

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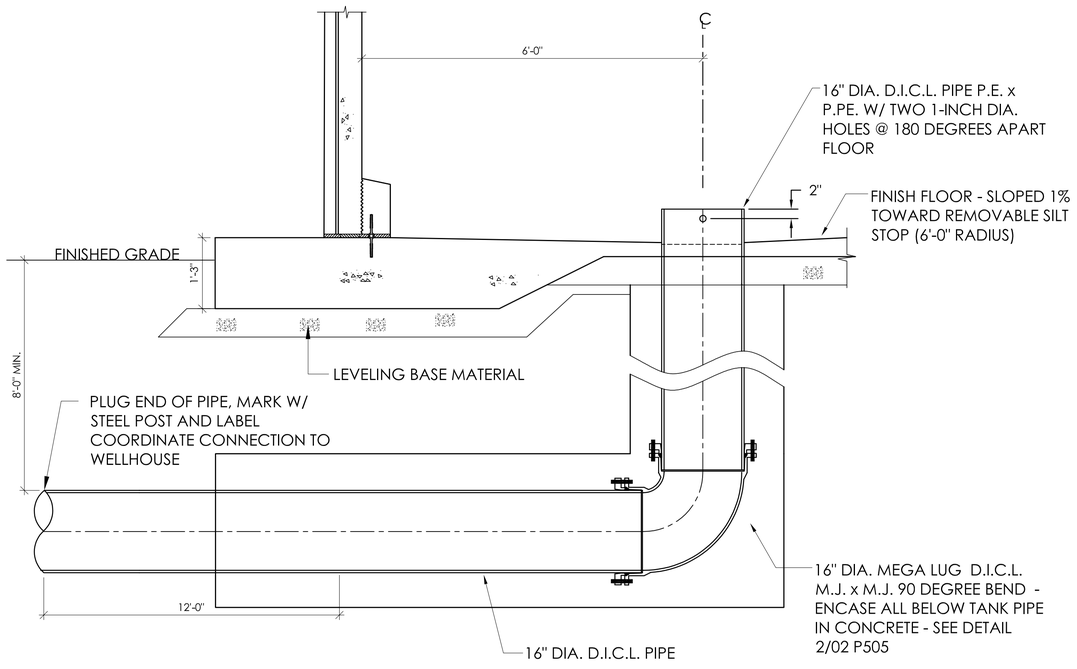
WATER STORAGE TANK
STRUCTURAL DETAILS

02
P501

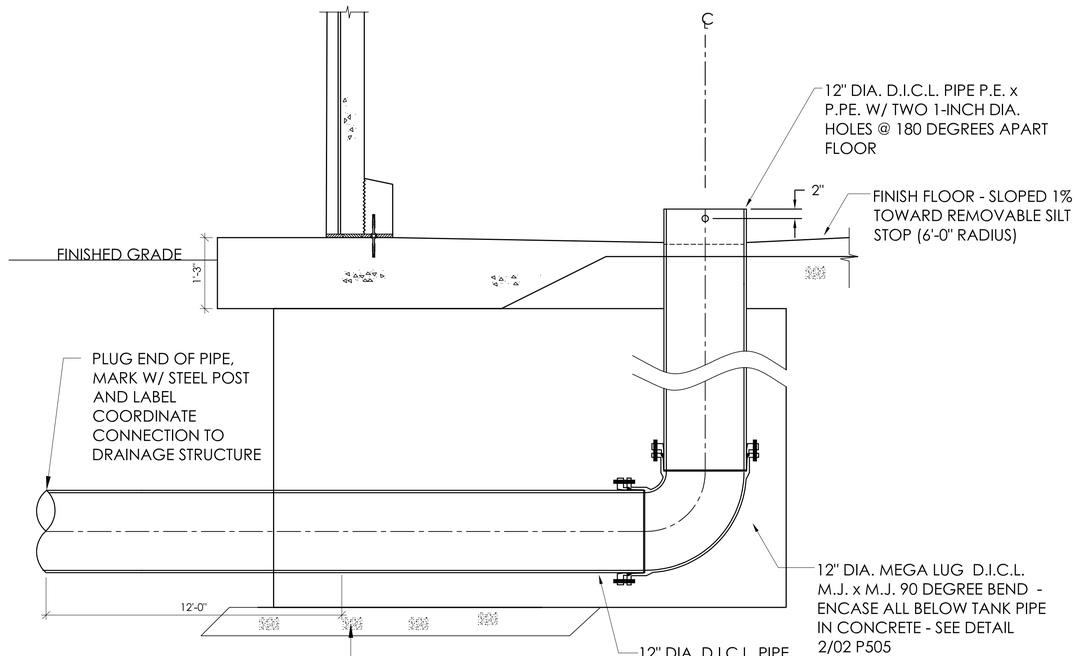


NOTE:
DESIGN, SIZING AND SPACING OF MIXING SYSTEM VALVES SHALL BE PERFORMED BY MIXING SYSTEM SUPPLIER.

1 / 02 P502 — HYDRO DYNAMIC MIXING SYSTEM DETAIL
NOT TO SCALE



2 / 02 P502 — 16" DIA. OUTLET
NOT TO SCALE



3 / 02 P502 — TANK DRAIN
NOT TO SCALE

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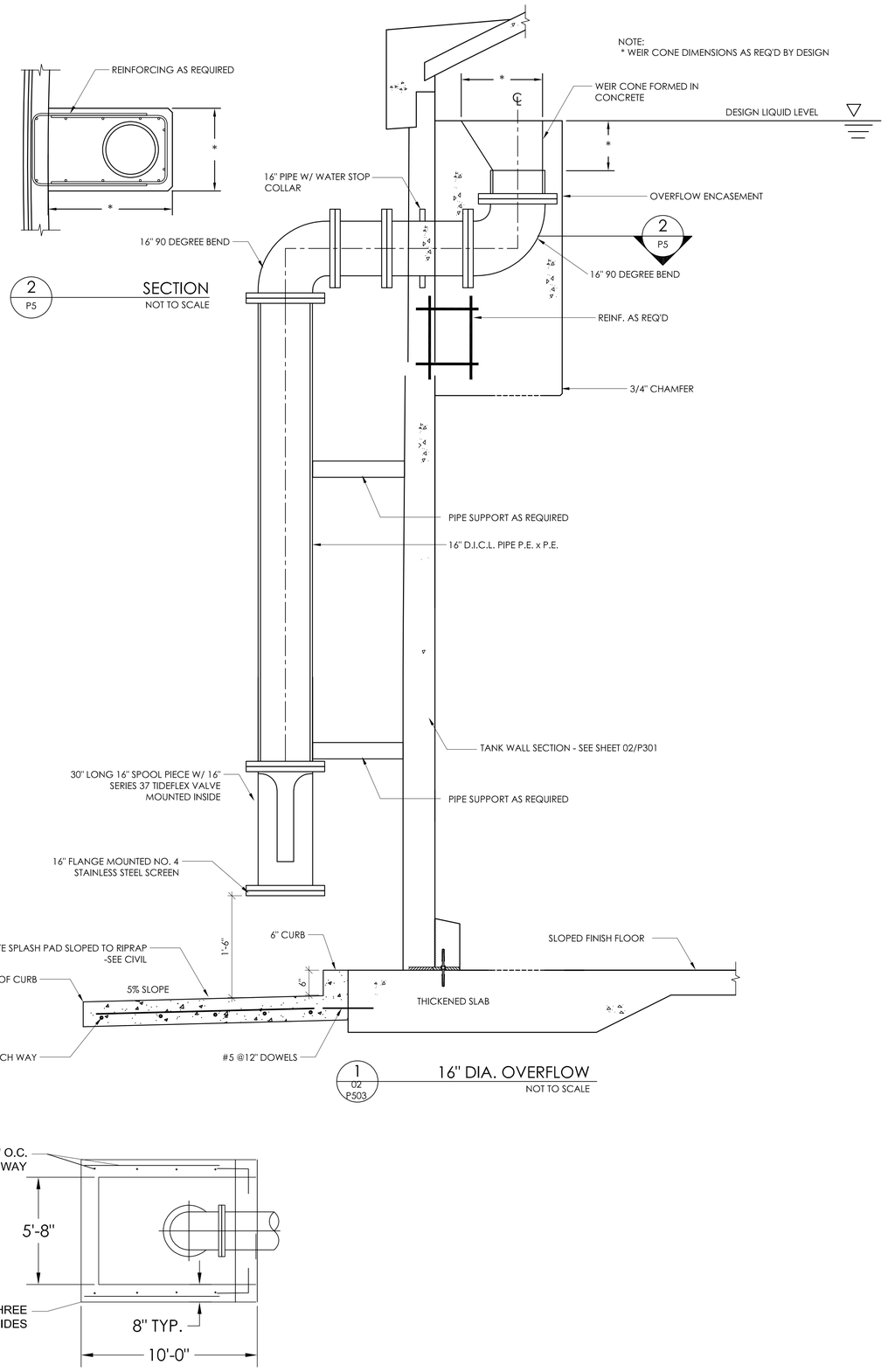
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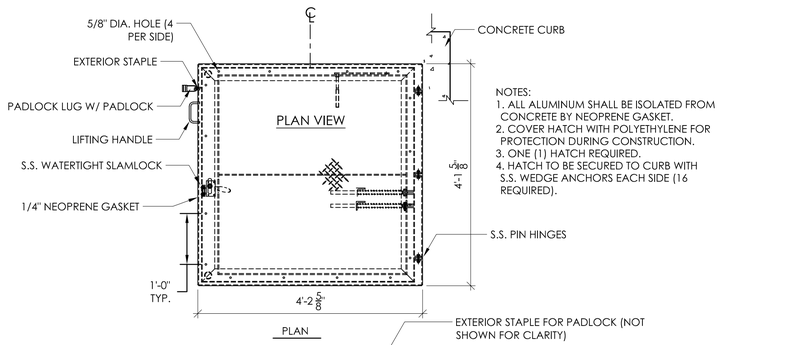
WATER STORAGE TANK INLET, OUTLET, & MIXING SYSTEM DETAILS

02
P502

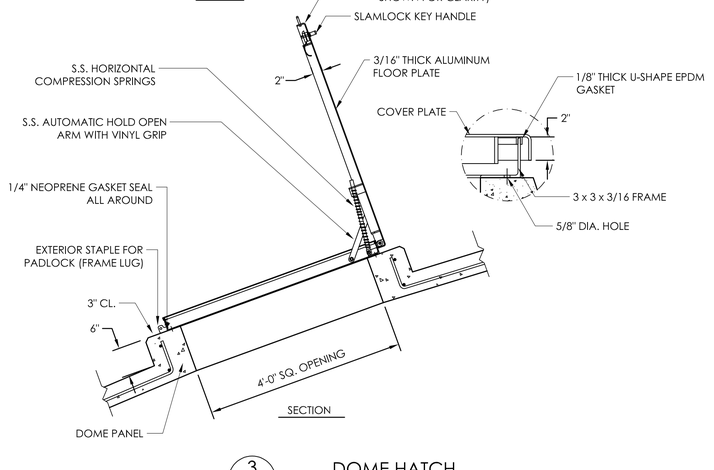


2 P5 SECTION
NOT TO SCALE

1 02 P503 16" DIA. OVERFLOW
NOT TO SCALE

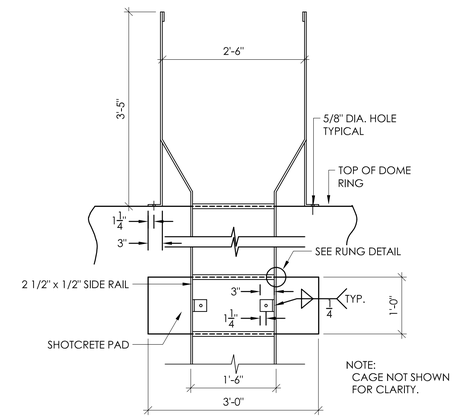


PLAN

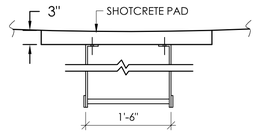


SECTION

3 02 P503 DOME HATCH
NOT TO SCALE

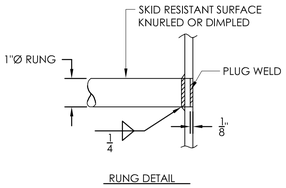


ELEVATION



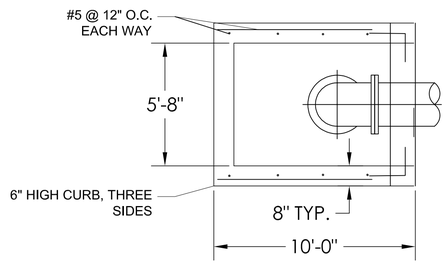
SECTION

NOTES:
1. LADDER SHALL BE 6061-T6 ALUMINUM.
2. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE A PVC SHIM.
3. LADDERS SHALL BE CONNECT TO TANK USING STAINLESS STEEL WEDGE ANCHORS.
4. LADDER SHALL BEGIN AT 12'-0" ABOVE GRADE.
5. LADDER SHALL BE EQUIPPED W/ LADDER GUARD & CABLE STYLE FALL ARREST SYSTEM



RUNG DETAIL

5 02 P503 EXTERIOR LADDER
NOT TO SCALE



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Madison Water Utility

Project Owner

Madison Water Utility
UNIT WELL 12 RECONSTRUCTION
801 S. Whitney Way
Madison WI, 53711

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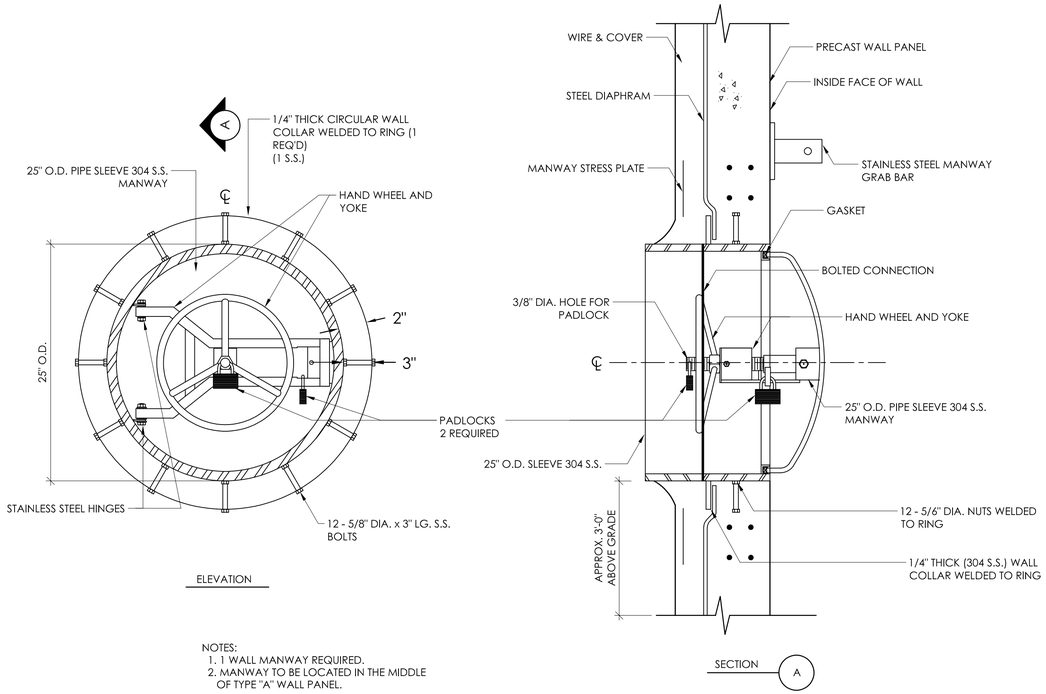
SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

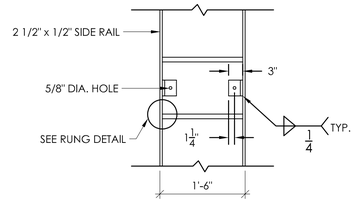
WATER STORAGE TANK ACCESSORY DETAILS

02
P503

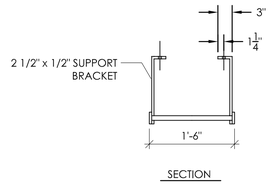


NOTES:
1. 1 WALL MANWAY REQUIRED.
2. MANWAY TO BE LOCATED IN THE MIDDLE OF TYPE "A" WALL PANEL.

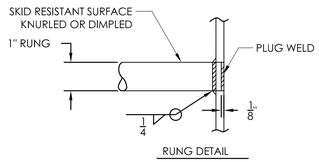
1 / 02 / P504 — WALL MANWAY
NOT TO SCALE



ELEVATION



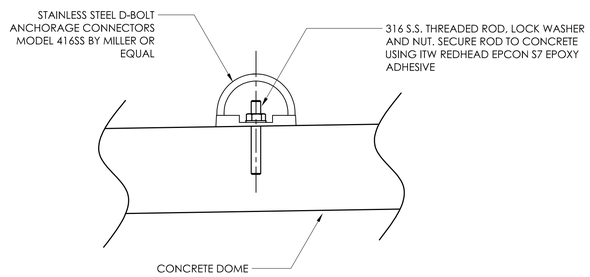
SECTION



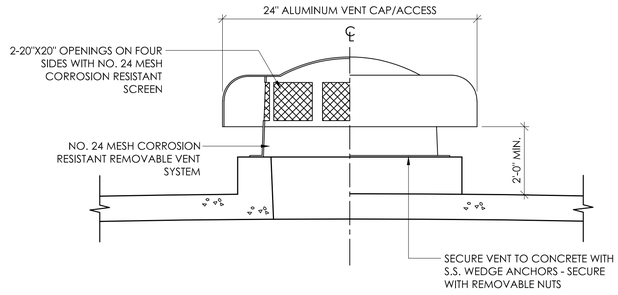
RUNG DETAIL

NOTES:
1. LADDER SHALL BE STAINLESS STEEL.
2. ALL STAINLESS STEEL SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE A PVC SHIM.
3. LADDERS SHALL BE CONNECTED TO TANK USING STAINLESS STEEL WEDGE ANCHORS.
4. LADDERS SHALL BE EQUIPPED W/ CABLE SAF-T-CLIMB.

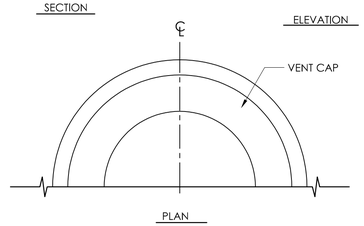
2 / 02 / P504 — INTERIOR LADDER
NOT TO SCALE



3 / 02 / P504 — DOME SAFETY TIE-OFF
NOT TO SCALE



SECTION

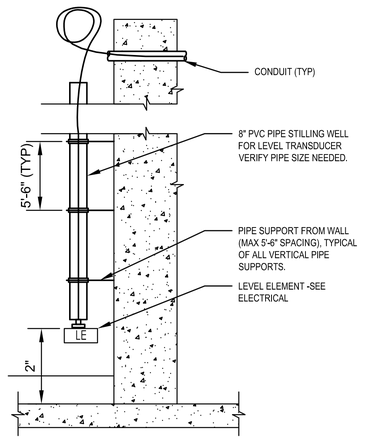


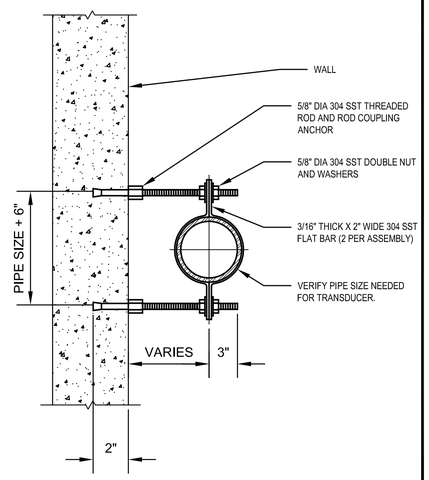
ELEVATION

PLAN

NOTE: CONTRACTOR TO VERIFY VENT IS PROPERLY SIZED FOR MAX FILL AND DRAIN RATES. PROVIDE ADDITIONAL VENTING AS REQUIRED. COORDINATE WITH ENGINEER.

4 / 02 / P504 — VENT
NOT TO SCALE





5 / 02 P504 — STILLING WELL
SCALE: NONE

SEH

Madison Water Utility

Project Owner

Madison Water Utility
UNIT WELL 12 RECONSTRUCTION
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Madison WI, 53711

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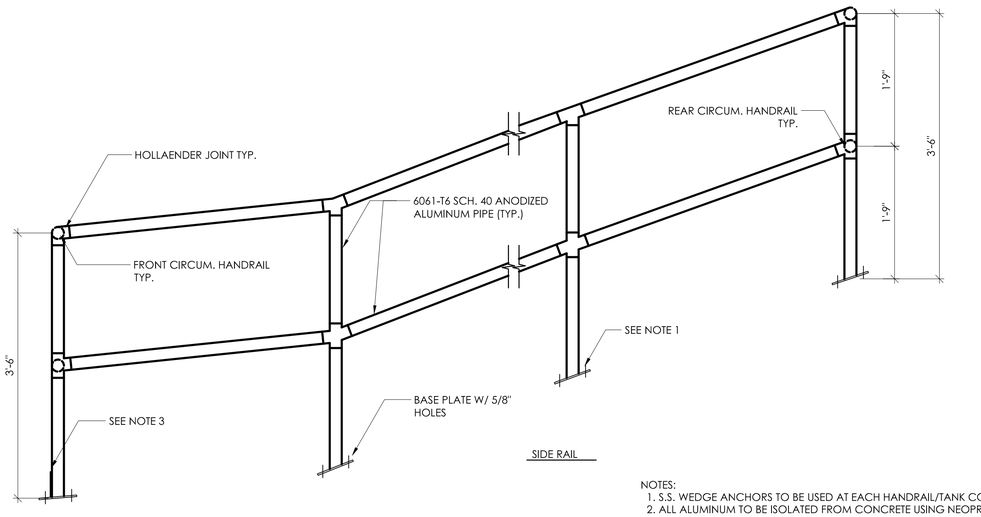
SEH Project	MADWU 185392
Checked By	IS
Drawn By	DD
Project Status	**Issue Date**
BIDDING	2/12/2026

REVISION SCHEDULE

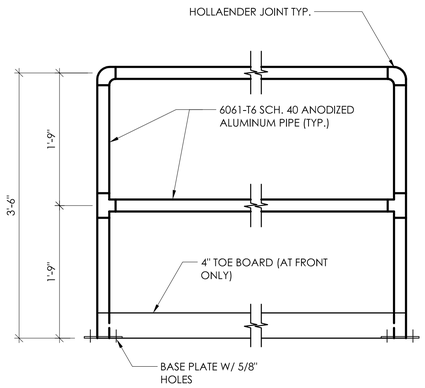
REV. #	DESCRIPTION	DATE

WATER STORAGE TANK ACCESSORY DETAILS

02
P504



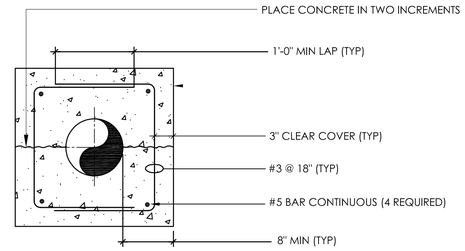
SIDE RAIL



FRONT AND REAR RAIL

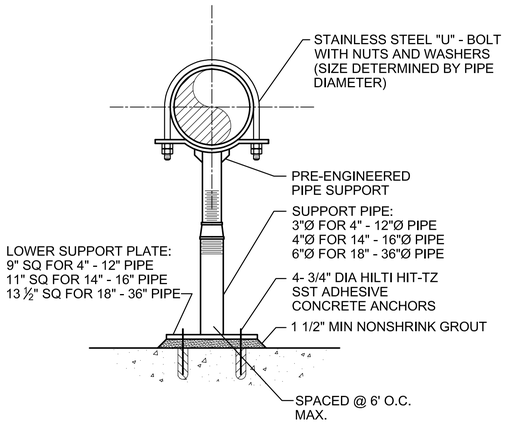
NOTES:
1. S.S. WEDGE ANCHORS TO BE USED AT EACH HANDRAIL/TANK CONNECTION.
2. ALL ALUMINUM TO BE ISOLATED FROM CONCRETE USING NEOPRENE GASKETS.
3. FOUR INCH TOE BOARD TO BE PROVIDED ON FRONT CIRCUMFERENTIAL HANDRAIL.

1 02 P505 — DOME HANDRAIL
NOT TO SCALE



NOTES:
1. VERIFY PIPE SIZE
2. VERIFY CONNECTION OF CONC. ENCASEMENT AND TANK FLOOR WITH WATER TANK ENGINEER OF RECORD

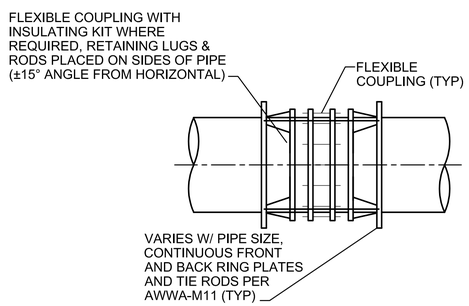
2 02 P505 — CONCRETE ENCASED PIPE DETAIL
NOT TO SCALE



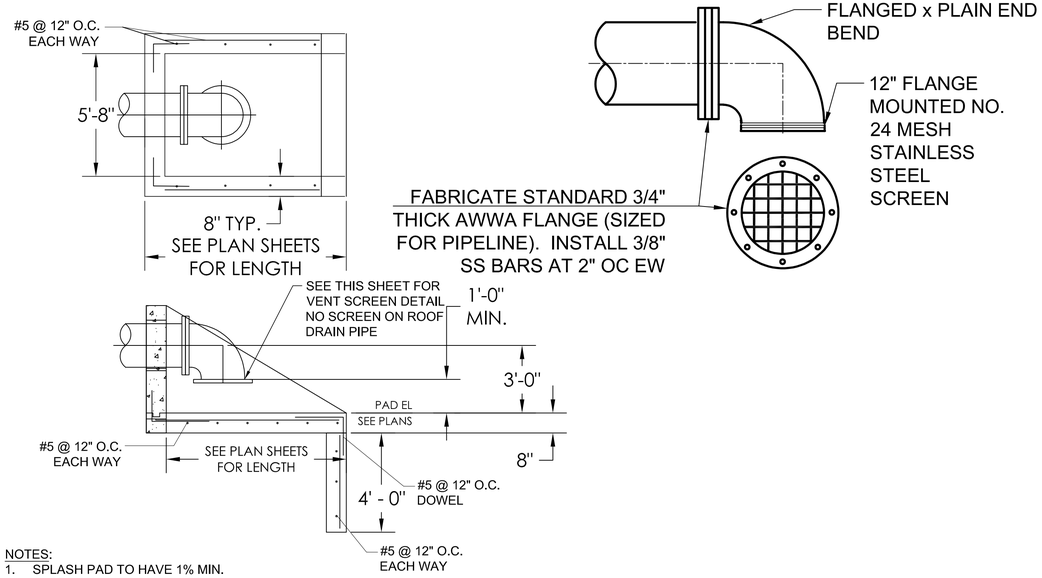
3 02 P505 — PIPE SUPPORT DETAIL
NOT TO SCALE

NOTES:

1. FOR DUCTILE IRON PIPE THIS DETAIL MAY BE REPLACED BY TWO RESTRAINED MECHANICAL JOINTS WITH RETAINER GLANDS, OR RESTRAINED PUSH-ON JOINTS, AS SPECIFIED. JOINTS SHALL BE PLACED BETWEEN TWO AND FOUR FEET ON CENTER. FIRST JOINT SHALL BE WITHIN TWO FEET OF EXTERIOR WALL. INSULATING KIT WILL NOT BE REQUIRED.



4 02 P505 — FLEXIBLE COUPLING DETAIL
NOT TO SCALE



NOTES:
1. SPLASH PAD TO HAVE 1% MIN. SLOPE AWAY FROM DRAIN PIPE
2. ALL DOWELS TO BE EPOXY COATED

5 02 P505 — TANK DRAIN DETAIL
SCALE: NONE

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Madison Water Utility

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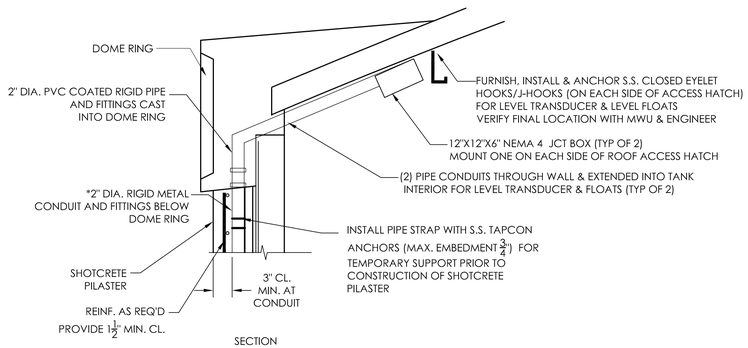
SEH Project	MADWU 185392
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WATER STORAGE TANK ACCESSORY DETAILS

02
P505

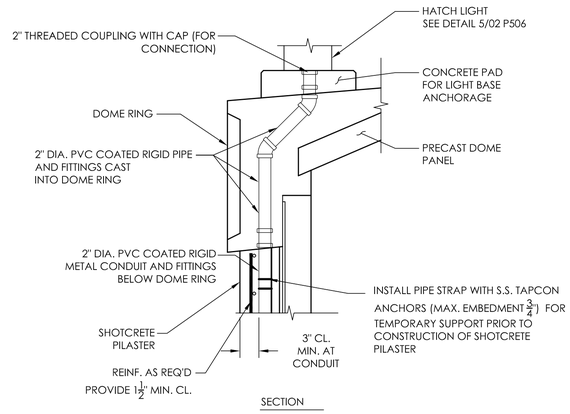


SECTION

*EXTEND CONDUIT TO 28" INCHES BELOW GRADE WITH LARGE RADIUS BEND AND EXTEND TO 5-FEET OUTSIDE OF TANK FOOTINGS) - CAP AND MARK WITH LABELED STEEL POST FOR FUTURE CONNECTION

1 / 02 / P506 — WALL CONDUIT DETAIL

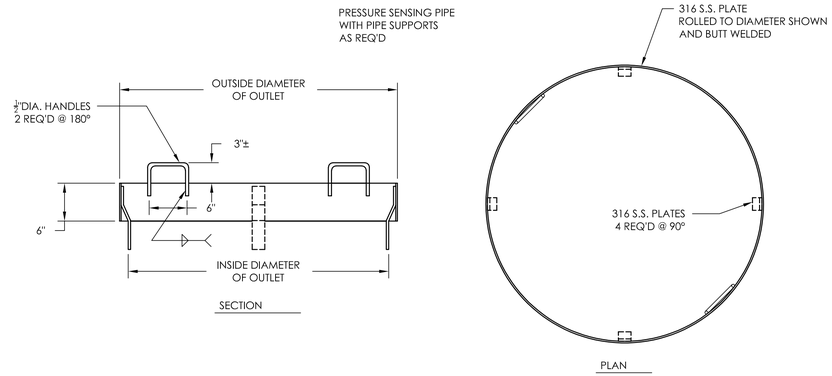
NOT TO SCALE



SECTION

2 / 02 / P506 — HATCH LIGHT CONDUIT DETAIL

NOT TO SCALE

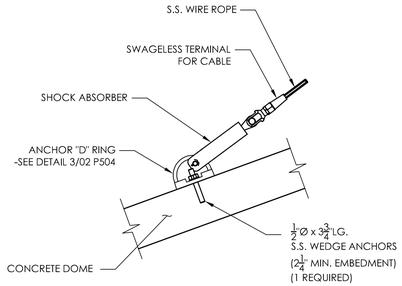


SECTION

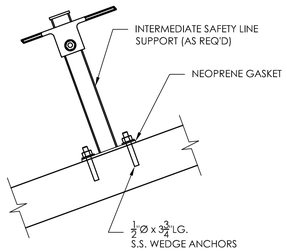
PLAN

3 / 02 / P506 — REMOVABLE SILT STOP DETAIL

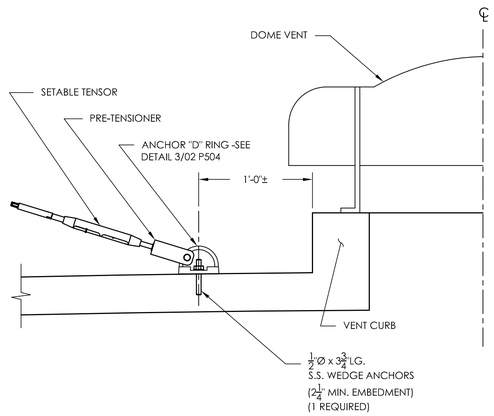
NOT TO SCALE



SECTION AT ANCHOR END



SECTION AT INTERMEDIATE SUPPORT

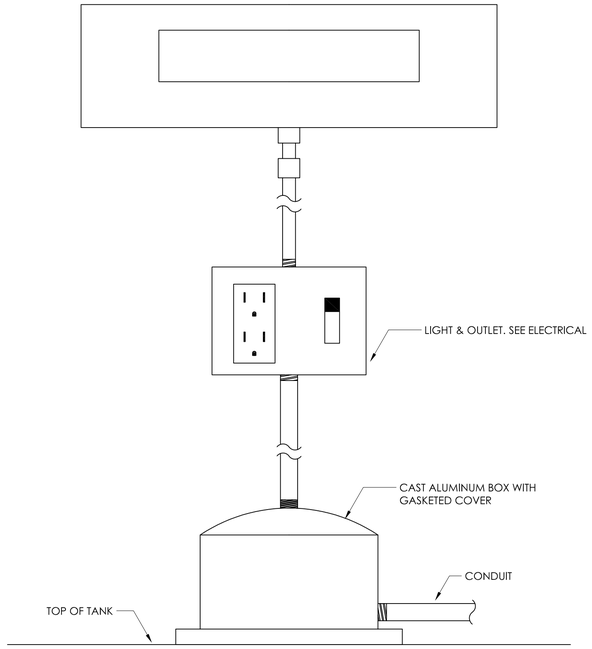


SECTION AT ANCHOR END

NOTE:
1. INSTALL SAFETY RUNNERS ON CABLE AS REQUIRED BY DESIGN.

4 / 02 / P506 — DOME SAFETY LINE

NOT TO SCALE



5 / 02 / P506 — TANK LIGHT DETAIL

NOT TO SCALE

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WATER STORAGE TANK ACCESSORY DETAILS

02
P506