

CITY OF EVANSTON
WATER PRODUCTION BUREAU



WATER PLANT 4160V ELECTRICAL SYSTEM
RELIABILITY PROJECT

BID NUMBER 25-05



GREELEY AND HANSEN

A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

BID SET - REDACTED

JANUARY 2025

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* - NOT INCLUDED IN BID SET - REDACTED

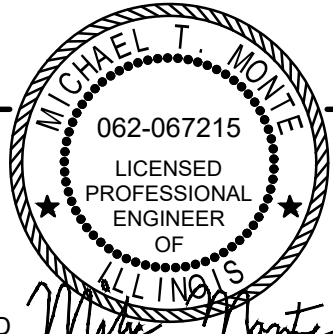
SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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BID SET



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A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED	MM	DATE SIGNED: 01/31/2025
DRAWN	TD	LICENSE OF
CHECKED	MM	EXPIRES: 11/30/2025
		APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

NONE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

GENERAL

INDEX, NOTES, SYMBOLS, AND ABBREVIATIONS

PROJECT NO.: 0028A

DWG:

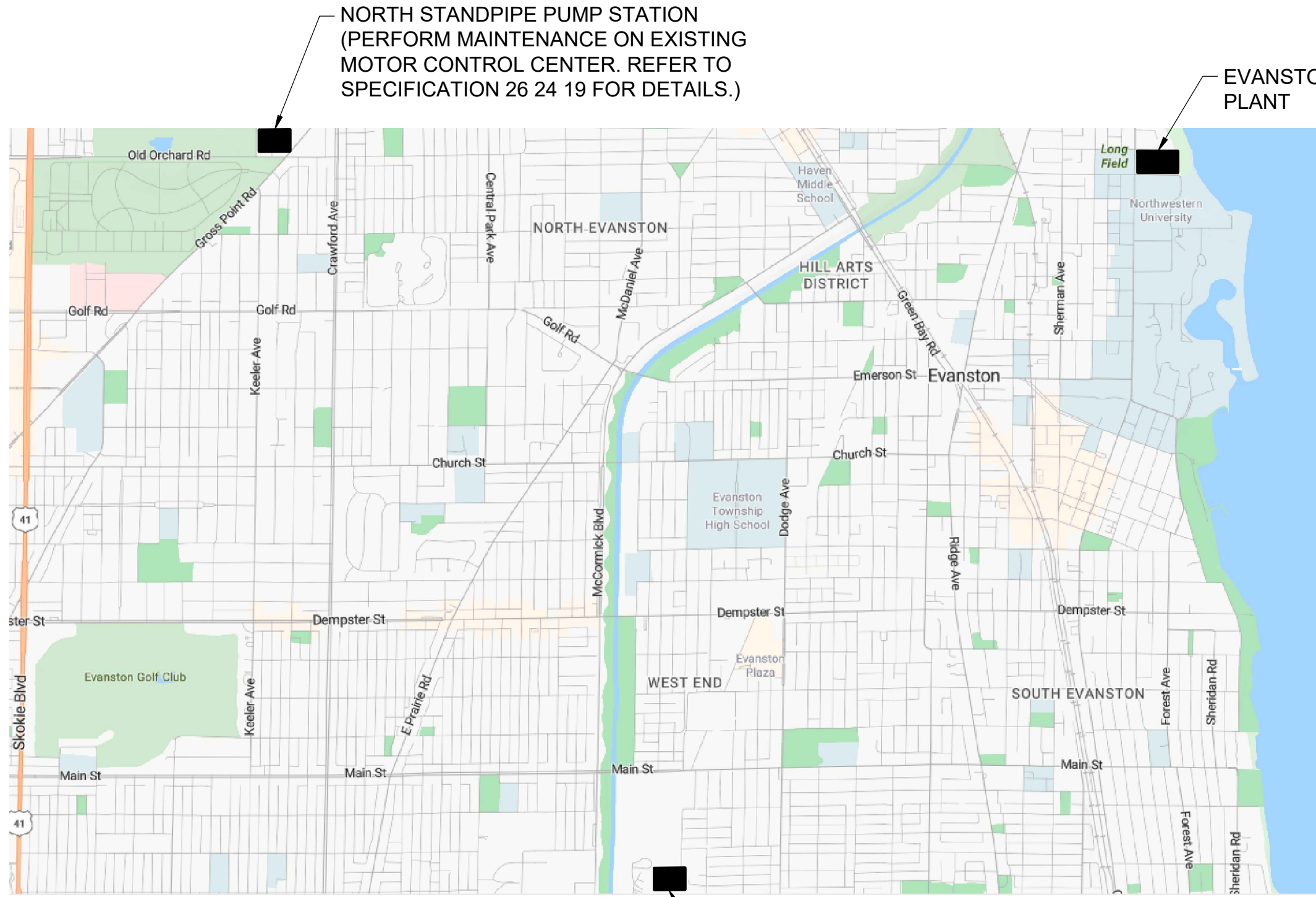
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SHEET: 2 OF 116

DATE: JANUARY 2025 REV: 0

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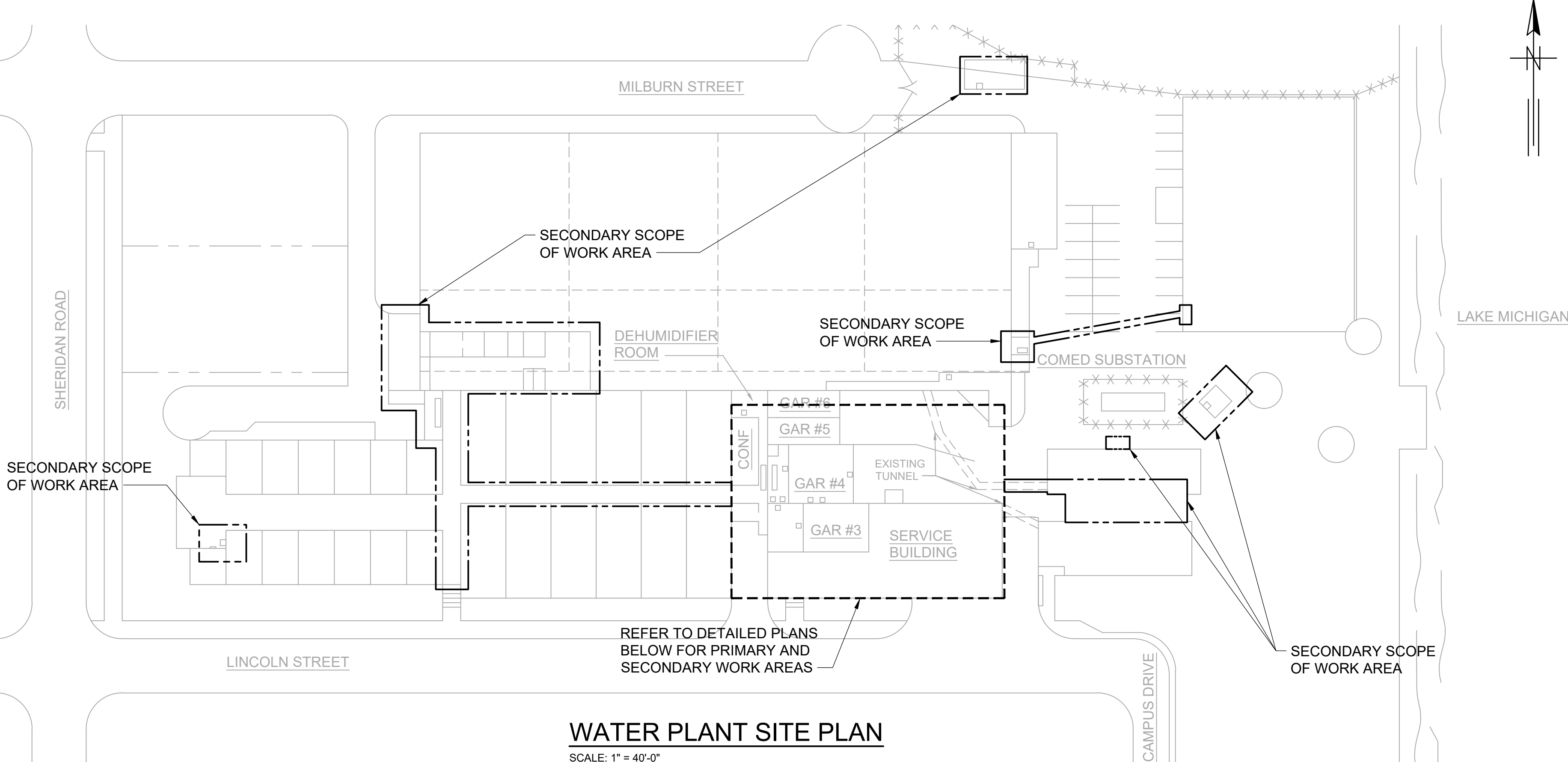
NORTH STANDPIPE PUMP STATION
(PERFORM MAINTENANCE ON EXISTING
MOTOR CONTROL CENTER. REFER TO
SPECIFICATION 26 24 19 FOR DETAILS.)

EVANSTON WATER
PLANT

SOUTH STANDPIPE PUMP STATION
(PERFORM MAINTENANCE ON EXISTING
MOTOR CONTROL CENTER. REFER TO
SPECIFICATION 26 24 19 FOR DETAILS.)

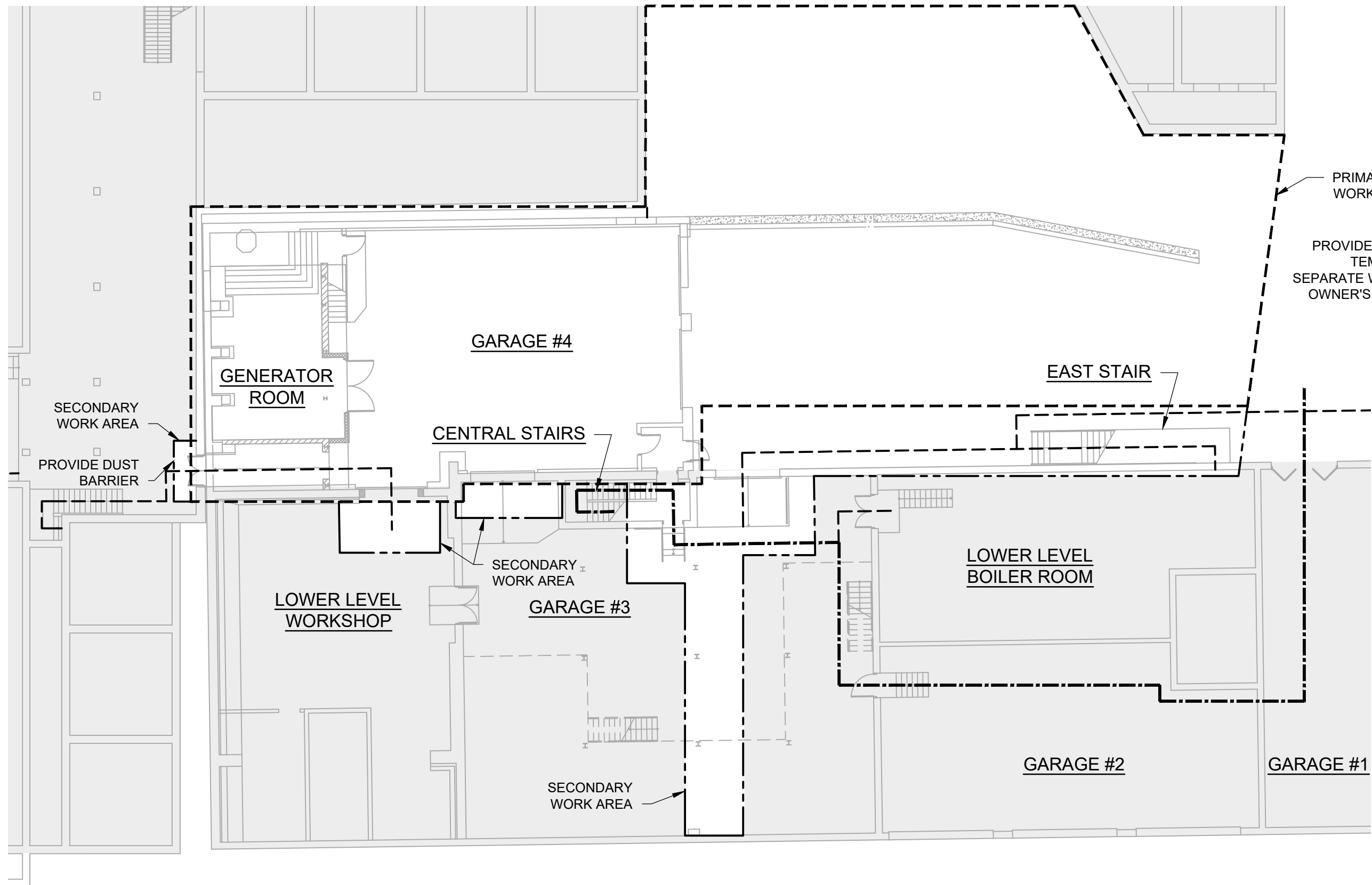
OVERALL SITE MAP

SCALE: NTS



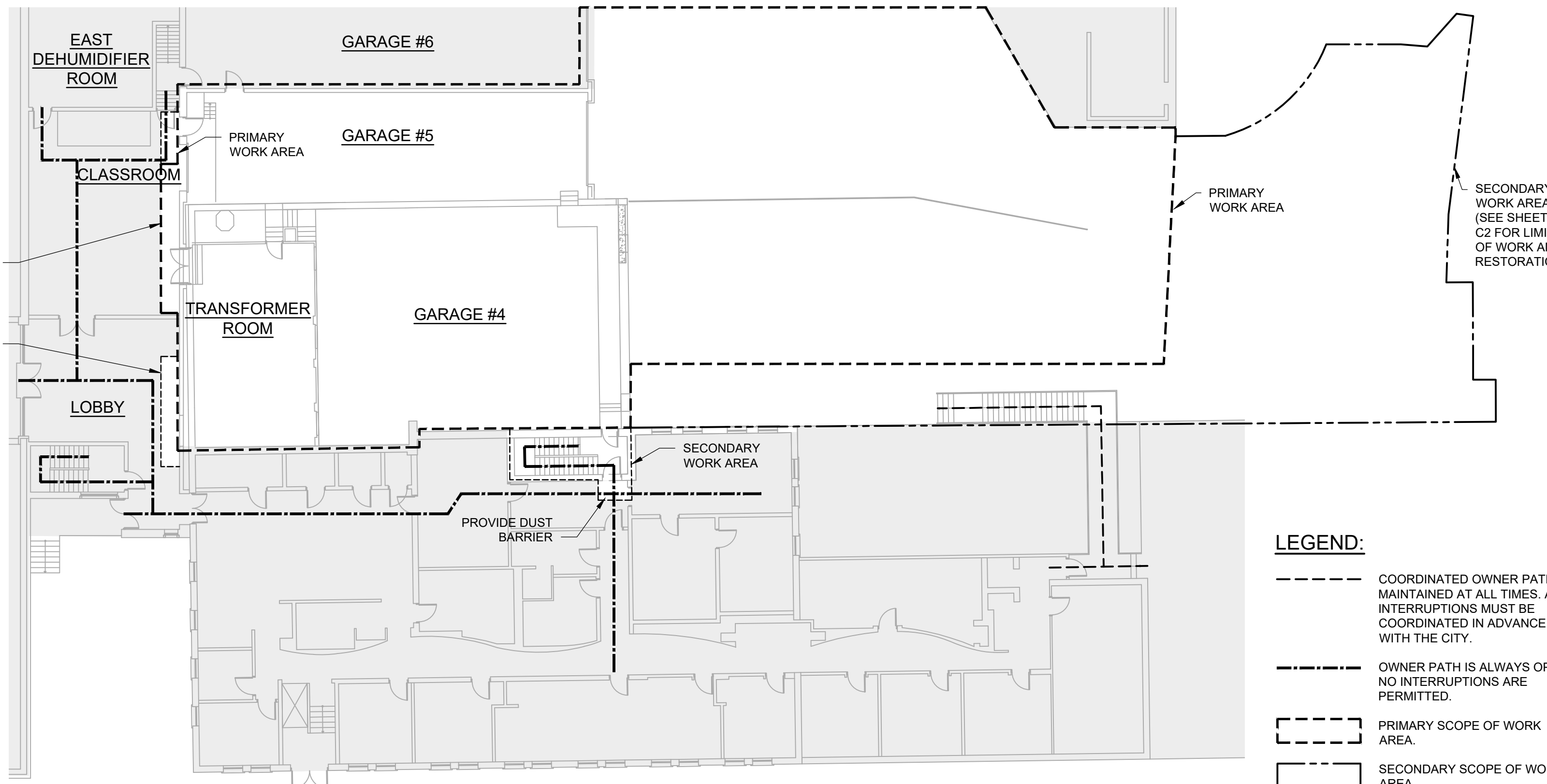
WATER PLANT SITE PLAN

SCALE: 1" = 40'-0"



OWNER ACCESS PLAN AT EL 8.70

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



OWNER ACCESS PLAN AT EL 24.00

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

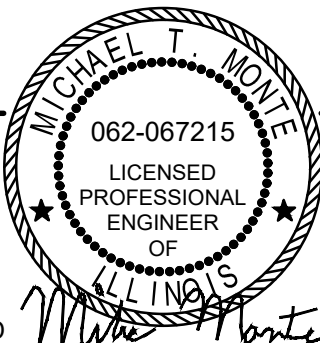
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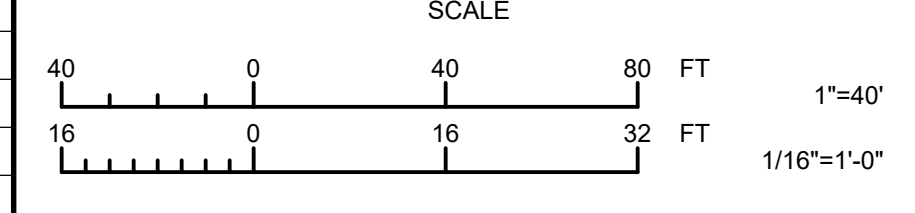
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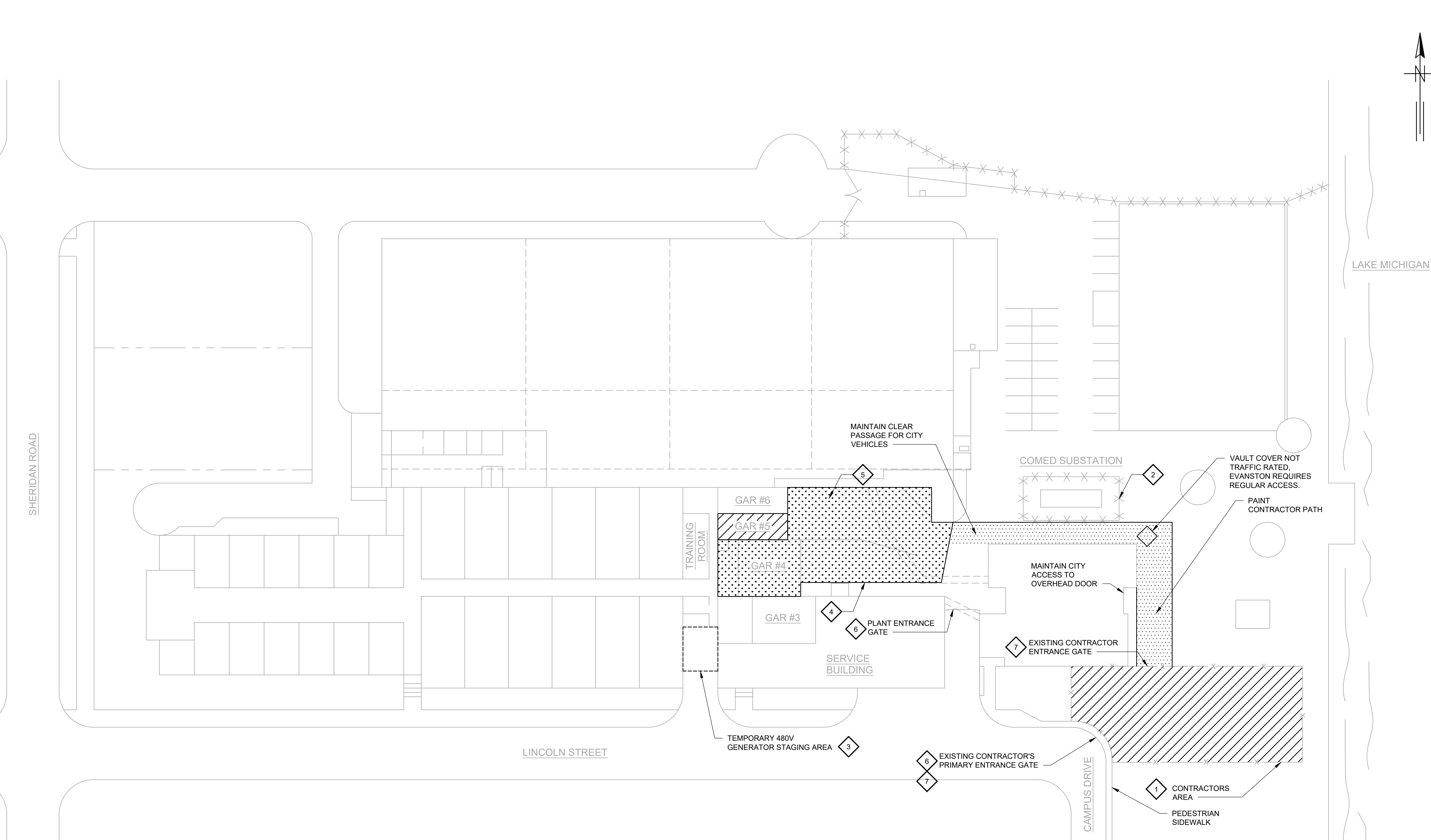
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CITY OF EVANSTON
WATER PRODUCTION BUREAU
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

GENERAL
OVERALL EXISTING SITE AND KEY PLAN

PROJECT NO.: 0028A
DWG: **G2**
SHEET: 3 OF 116
DATE: JANUARY 2025 REV: 0



- GENERAL NOTES:**
- REFER TO SPECIFICATION 01 12 16 - CONSTRUCTION WORK SEQUENCE AND LIMITATIONS FOR ADDITIONAL REQUIREMENTS.
 - NO ADDITIONAL SPACE BESIDES THE SPACE SPECIFICALLY IDENTIFIED FOR CONTRACTOR USE IS PERMITTED. CONTRACTOR TO MAKE BEST USE OF THE AVAILABLE SPACE. NO CONTRACTOR PARKING IS PERMITTED AT THE WATER PLANT EXCEPT IN SPACE DESIGNATED FOR CONTRACTOR'S USE.
 - ELECTRICAL EQUIPMENT TO BE STORED OFF SITE UNTIL READY FOR INSTALLATION. STOCKPILING OF MATERIALS AND EQUIPMENT SHALL BE ALLOWED AT THE DISCRETION OF THE OWNER.
 - LOADS ARE LIMITED TO AASHTO HS-20 WHEEL LOADS.
 - SITE CONDITIONS ARE SUBJECT TO CHANGE. CONTRACTOR TO INSPECT SITE PRIOR TO BID.
 - THE CONTRACTOR SHALL VIDEO RECORD THE WORK AREA AT THE EVANSTON WATER PLANT PRIOR TO MOBILIZATION FOR THE PURPOSE OF DOCUMENTING EXISTING CONDITIONS. THE CONTRACTOR SHALL PROVIDE ONE COPY TO THE OWNER AND ONE COPY TO THE ENGINEER.
 - TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES, UTILITIES AND EQUIPMENT, AND MAINTAIN UNINTERRUPTED PLANT OPERATIONS. PROVIDE ALL TEMPORARY SUPPORTS, BRACES, SHEETING AND SHORING AS NECESSARY TO PROTECT AND MAINTAIN ALL STRUCTURES, PIPING, EQUIPMENT AND APPURTENANCES. REPAIR ANY DAMAGE RESULTING FROM ACTIONS OR LACK OF ACTIONS IMMEDIATELY AT NO EXPENSE TO THE OWNER.
 - THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UTILITIES PRIOR TO MOBILIZATION. SPECIFIC ATTENTION SHALL BE GIVEN TO EXISTING WATER PLANT PROCESS PIPING, WATER MAINS, ELECTRICAL, AND GAS LINES IN THE AREA OF THE TEMPORARY SITE ACCESS DRIVE. GAS LINES MAY BE WITHIN 2 FEET OF GROUND SURFACE.
 - CONTRACTOR SHALL MAINTAIN FIVE FEET OF CLEARANCE AROUND ALL EXISTING EQUIPMENT, STRUCTURES, VALVES, AND BUILDINGS FOR OWNER ACCESS.
 - THE EXISTING FENCING AND GATES INDICATED ON THIS DRAWING REFER TO TEMPORARY CONSTRUCTION FENCING. THIS FENCING SHALL BE MAINTAINED DURING THE DURATION OF THE PROJECT.
 - REMOVE ALL MARKINGS AT END OF PROJECT.

- TRAFFIC CONTROL NOTES:**
- TRAFFIC CONTROL AND PROTECTION DEVICES SHALL BE PROVIDED AND CLEANED AS NECESSARY THROUGHOUT THE DURATION OF THE CONTRACT.
 - THE WORK OF THIS CONTRACT SHALL NOT LIMIT TRAFFIC OR PEDESTRIAN ACTIVITY ALONG LINCOLN STREET AND CAMPUS DRIVE. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN TRAFFIC ALONG LINCOLN STREET AND CAMPUS DRIVE AT ALL TIMES AND PROVIDE SIGNAGE TO WARN VEHICLES OF PEDESTRIAN CROSSING.
 - THE CONTRACTOR SHALL MAINTAIN A FLAGGER AND SECURITY PERSONNEL TO MONITOR THE CONSTRUCTION SITE ENTRANCE TO DIRECT TRAFFIC AND PEDESTRIANS WHENEVER THE PLANT OR CONSTRUCTION GATE IS OPEN.
 - INGRESS AND EGRESS FOR EVANSTON STAFF SHALL BE MAINTAINED AT ALL TIMES.
 - ALL DELIVERIES SHALL BE COORDINATED AND MEET THE REQUIREMENTS SET FORTH IN SECTION 01 12 16 - CONSTRUCTION WORK SEQUENCE AND LIMITATIONS.
 - TRAFFIC CONTROL DEVICES, PROCEDURES, AND LAYOUTS SHALL BE AS PER CURRENT PART IV OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR. PORTABLE MOUNTINGS FOR WARNING SIGNS MAY BE USED FOR WARNING DEVICES UPON APPROVAL BY THE ENGINEER.
 - ALL TRAFFIC CONTROL SIGNS SHALL BE PLACED AT A MINIMUM OF 2 FEET CLEAR OF THE BACK OF CURB WHERE POSSIBLE.
 - LINCOLN STREET AND CAMPUS DRIVE SHALL BE KEPT FREE OF DIRT, MUD, AND DEBRIS. ALL PUBLIC ROADWAYS ADJACENT TO THE CONSTRUCTION SITE SHALL BE INSPECTED AT THE END OF EACH CONSTRUCTION DAY AND CLEANED IF NECESSARY. STREET SWEEPERS SHALL BE USED AT REGULAR INTERVALS WHENEVER MATERIAL OR EQUIPMENT IS BROUGHT ON OR OFF SITE.

- KEY NOTES:**
- AREA IS AVAILABLE FOR CONTRACTOR TO USE AS TRAILER AND STAGING AREA. AT COMPLETION OF PROJECT, CONTRACTOR TO REMOVE EAST, SOUTH, AND WEST CHAIN LINK FENCE AND GATES. APPROXIMATELY 18" OF GRAVEL AND SOIL, REGRADE AND SEED AREA. SLOPE AREA TO ENSURE PROPER DRAINAGE. ASSUME 8,000 SQUARE FEET OF NATIVE PLANTING BED, 8 DECIDUOUS TREES, 4 ORNAMENTAL TREES, 3 SHADED TREES, AND 20 DECORATIVE BUSHES TO MATCH EXISTING. COORDINATE WITH THE OWNER. 2-YEAR WARRANTY SHALL BE PROVIDED FOR ALL PLANTINGS. REFERENCE SHEET AT END OF DRAWING PACKAGE FOR PRELIMINARY CONCEPTUAL RESTORATION DESIGN.
 - PROTECT COMED SUBSTATION DURING CONSTRUCTION. PROVIDE TEMPORARY JERSEY BARRIER. DO NOT BLOCK WEST GATE OF SUBSTATION.
 - LOADING DOCK AND PARKING AREA AVAILABLE FOR CONTRACTOR USE FOR TEMPORARY 480V GENERATOR STAGING LOCATION. AREA MUST BE SECURED BY CONTRACTOR AND ACCESS PROVIDED TO PLANT STAFF.
 - PROVIDE TEMPORARY JERSEY BARRIERS TO DELINEATE PRIMARY AND SECONDARY SCOPE OF WORK AREAS.
 - PRIMARY WORK AREA ASSIGNED FOR CONTRACTOR USE. CONTRACTOR MUST PROVIDE LIMITED PLANNED OPERATIONS ACCESS COORDINATED WITH PLANT STAFF. REFER TO OWNER ACCESS PLANS ON DRAWING G2.
 - ALL CONSTRUCTION DELIVERIES SHALL BE THROUGH CONTRACTOR'S PRIMARY ENTRANCE GATE. COORDINATE WITH OWNER IF REQUESTING TO USE MAIN PLANT ENTRANCE GATE. OWNER MUST PROVIDE APPROVAL 2 WEEKS IN ADVANCE TO USE MAIN PLANT ENTRANCE GATE.
 - EXISTING CONTRACTOR'S PRIMARY ENTRANCE GATE ON CAMPUS DRIVE IS 12-FOOT WIDE VEHICLE GATE WITH 8-FOOT WIDE APRON. EXISTING CONSTRUCTION GATE FOR ENTRANCE TO THE PLANT INCLUDES DOUBLE LEAF 3-FOOT PERSONNEL GATE AND 7-FOOT GATE.

SITE STAGING PLAN

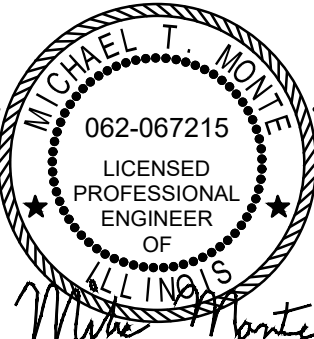
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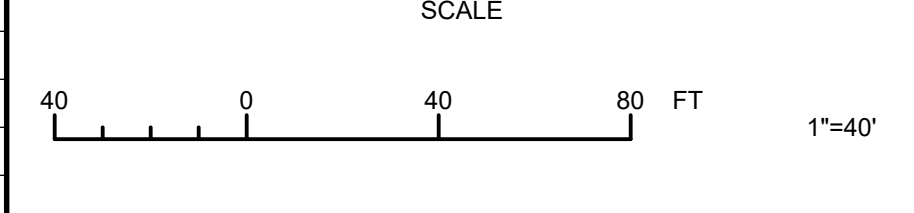
- CONTRACTOR STAGING AREA
- CONTRACTOR WORK AREA ACCESS PATH
- PRIMARY SCOPE OF WORK AREA (REFER TO DRAWING G2 FOR IDENTIFICATION OF PRIMARY AND SECONDARY WORK AREAS)
- FENCE

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CHECKED	MM	LICENSE EXPIRES:
		11/30/2025
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NO.	DATE	APPD	REVISION DESCRIPTION



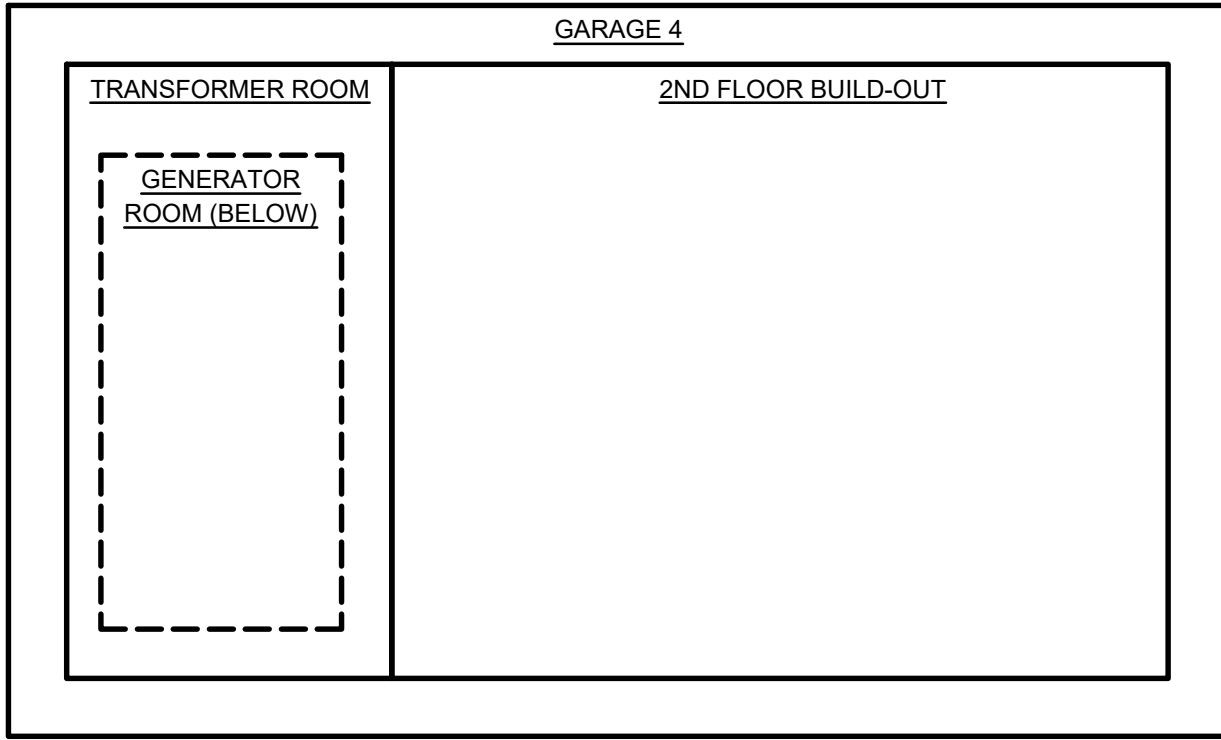
CITY OF EVANSTON
WATER PRODUCTION BUREAU
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

GENERAL
SHEET: 4 OF 116
DATE: JANUARY 2025
REV: 0

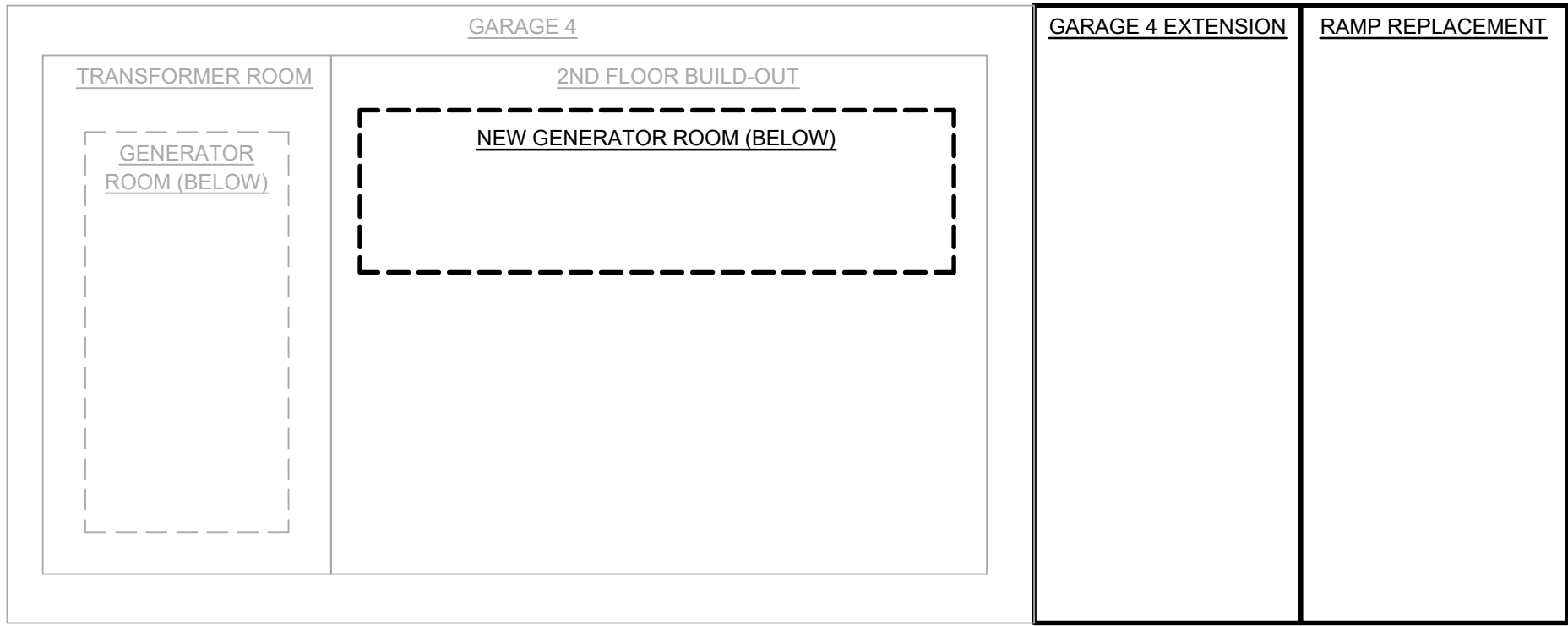
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PROJECT NO.: 0028A
DWG: G3
SHEET: 4 OF 116
DATE: JANUARY 2025
REV: 0

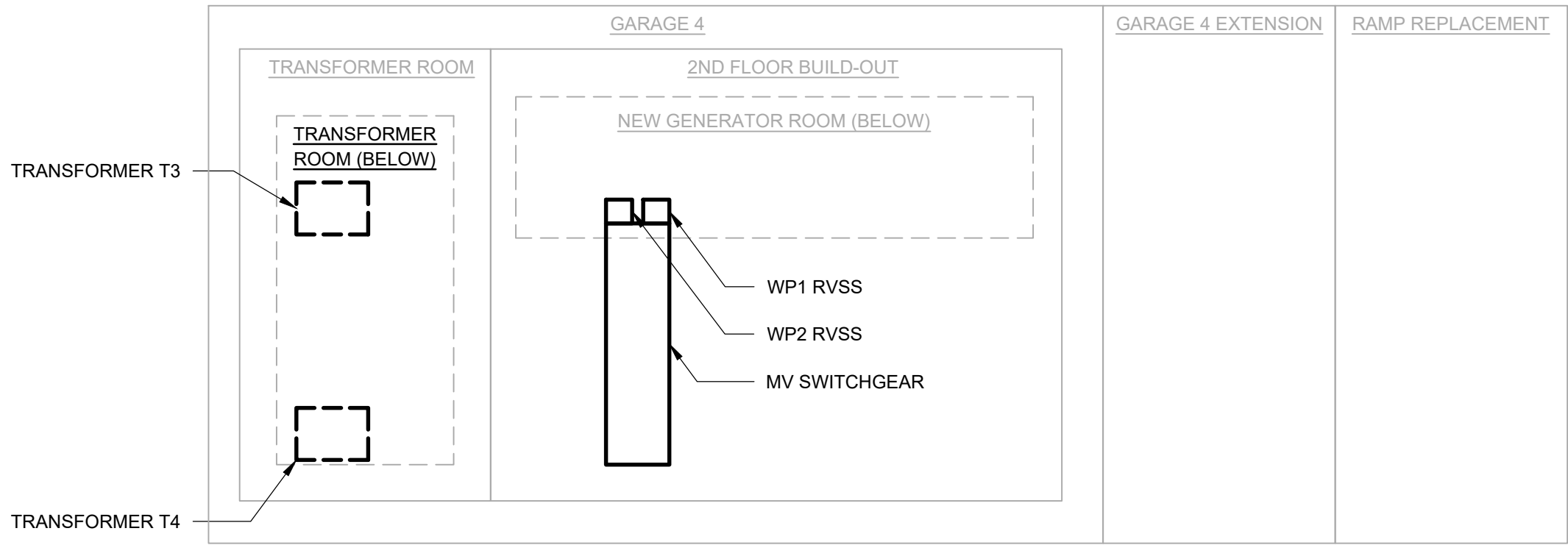
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PHASE I
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PHASE II
SCALE: NOT TO SCALE



PHASE III
SCALE: NOT TO SCALE

PHASE 0:

1. PREPARE AND SUBMIT CONTRACTOR SUBMITTALS
2. INSTALL 4160V TEMPORARY GENERATOR TERMINATION CABINET BOX AND RELOCATE EXISTING 480V TEMPORARY GENERATOR
3. FABRICATE MAJOR EQUIPMENT

PHASE I:

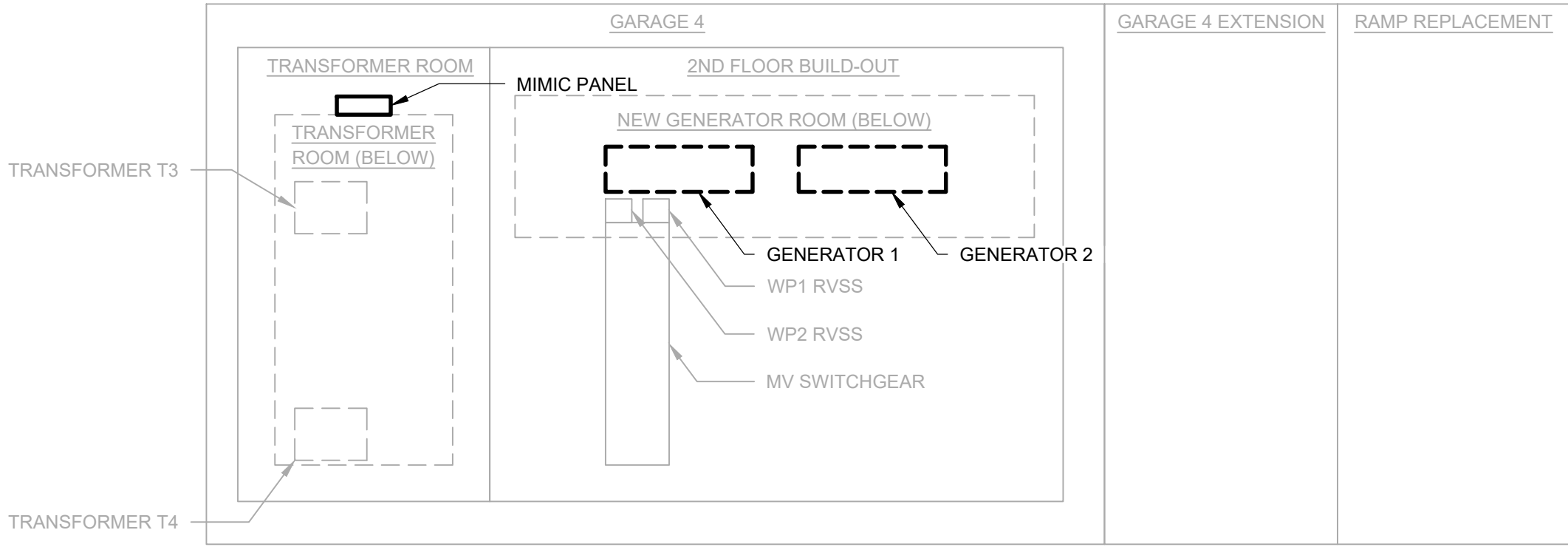
1. REROUTE UTILITIES WITHIN GARAGE 4
2. DEMOLISH MEZZANINE WALKWAY
3. GARAGE 4 DEMOLITION, INCLUDING FLOOR SLAB AND DRAINS
4. UNDERPIN EXISTING FOUNDATIONS, INSTALL NEW FLOOR DRAINS AND CONSTRUCT NEW FOUNDATIONS
5. CONSTRUCT 2ND FLOOR BUILD-OUT WITHIN GARAGE 4

PHASE II:

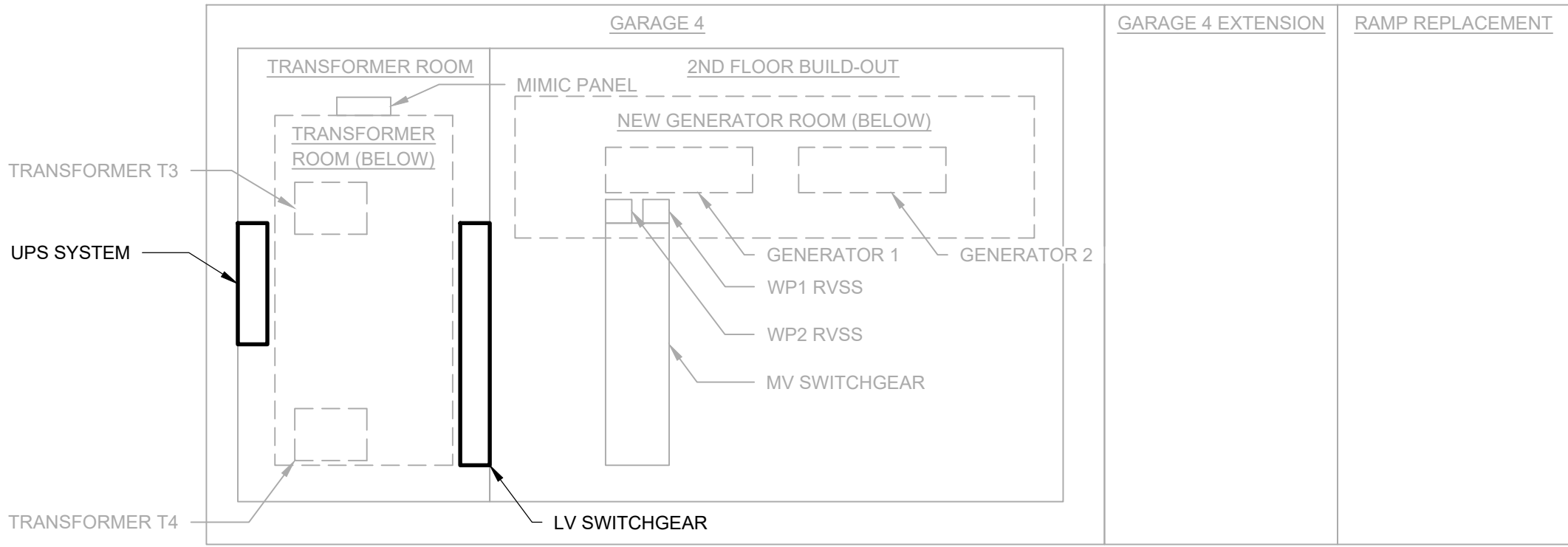
1. TEMPORARY REMOVAL AND REINSTALLATION OF STAIR TOWER
2. DEMOLISH RETAINING WALL AND ASSOCIATED PAVEMENT AND UTILITIES
3. CONSTRUCT GARAGE 4 EXTENSION FOUNDATIONS, RETAINING WALL, AND RAMP REPLACEMENT
4. DEMOLISH DRAINAGE SYSTEM IN GARAGE 3 AND INSTALL NEW DRAINAGE SYSTEM
5. CONSTRUCT GARAGE 4 EXTENSION BUILD-OUT
6. PROVIDE TRAILER MOUNTED 480V AND 4160V GENERATORS
7. DEMOLISH EXISTING GENERATOR
8. GARAGE 4 INSTALL EQUIPMENT PADS AND FLOOR SLAB
9. CONSTRUCT NEW GENERATOR ROOM WALLS

PHASE III:

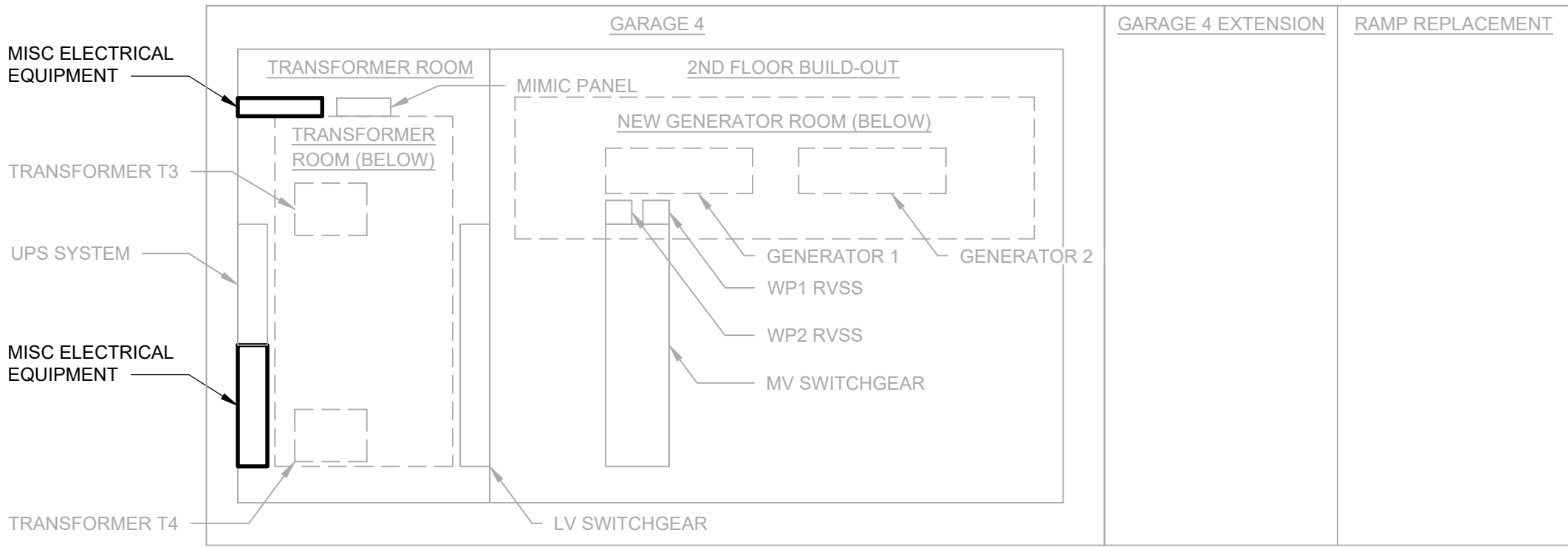
1. INSTALL NEW MV SWITCHGEAR AND BACKWASH RVSS
2. INSTALL NEW SUBSTATION TRANSFORMERS
3. INSTALL TEMPORARY CONNECTIONS FOR EXISTING LV SWITCHGEAR
4. DEMOLISH EXISTING MV SWITCHGEAR
5. DEMOLISH EXISTING SUBSTATION TRANSFORMERS
6. CONSTRUCT SWITCHGEAR ROOM PARTITION WALLS



PHASE IV
SCALE: NOT TO SCALE



PHASE V
SCALE: NOT TO SCALE



PHASE VI
SCALE: NOT TO SCALE

PHASE IV:

1. TRANSFORMER ROOM MODIFICATIONS
2. GENERATOR ROOM BUILD-OUT
3. INSTALL NEW GENERATORS
4. INSTALL NEW MIMIC PANEL

PHASE V:

1. INSTALL NEW LV SWITCHGEAR
2. MISCELLANEOUS TRANSFORMER AND PANEL REPLACEMENTS
3. INSTALL NEW UPS SYSTEM, TRANSFER, AND DEMOLISH EXISTING UPS

PHASE VI:

1. REMAINDER OF ELECTRICAL INSTALLATIONS AND ARCHITECTURAL FINISHES IN GARAGE 4 AND THROUGHOUT PLANT.
2. FIRE ALARM SYSTEM COMMISSIONING
3. HVAC SYSTEM COMMISSIONING

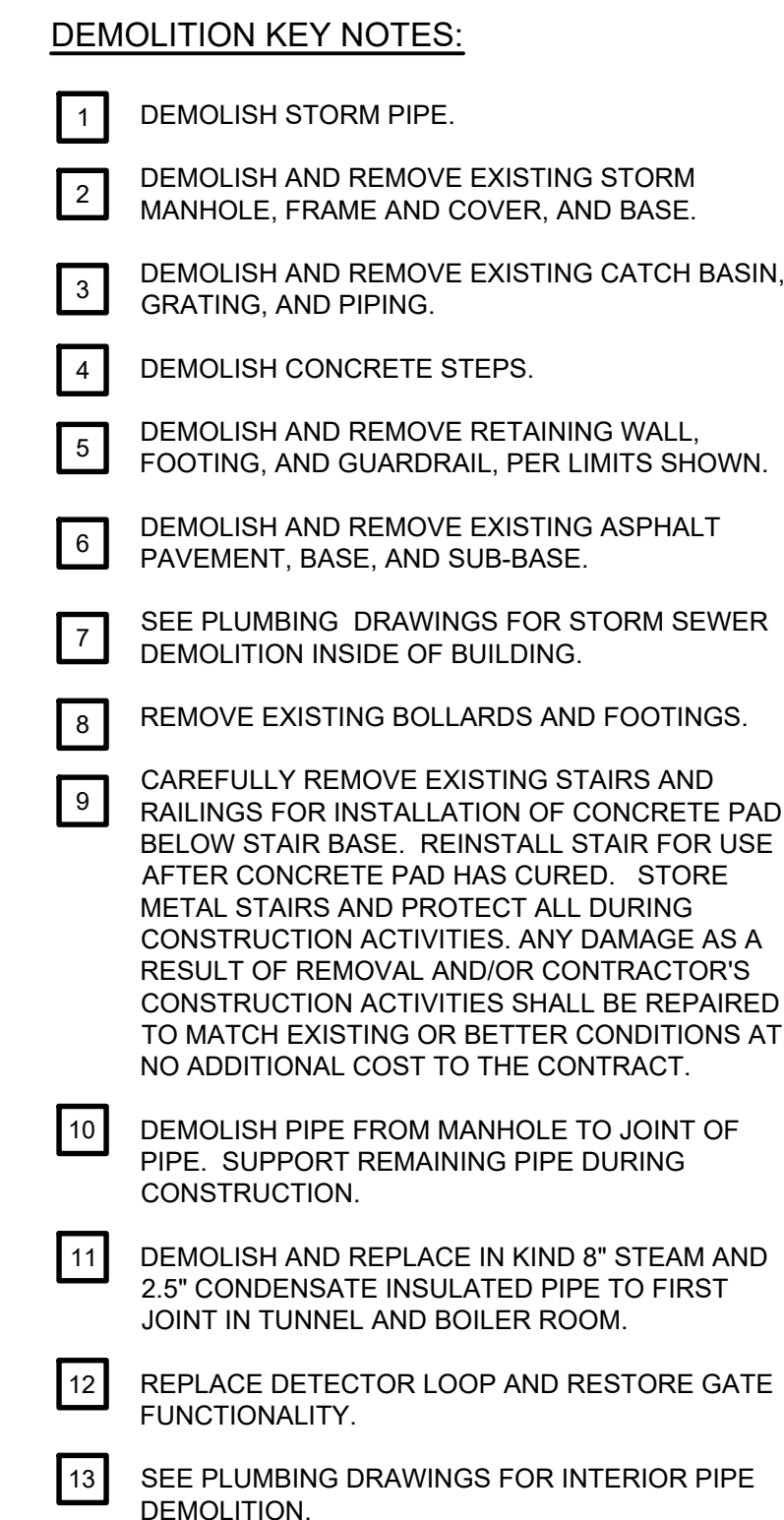
GENERAL NOTES:

1. THIS DRAWING DOES NOT DEPICT ALL WORK BUT ESTABLISHES A GENERAL WORK SEQUENCE REQUIRED TO MAINTAIN FACILITY OPERATIONS. REFER TO SPECIFICATION 01 12 16 - CONSTRUCTION WORK SEQUENCE AND LIMITATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO ELECTRICAL DRAWINGS E-39, E-40, AND E-41 FOR DETAILED ELECTRICAL CONSTRUCTION SEQUENCING.

LEGEND:

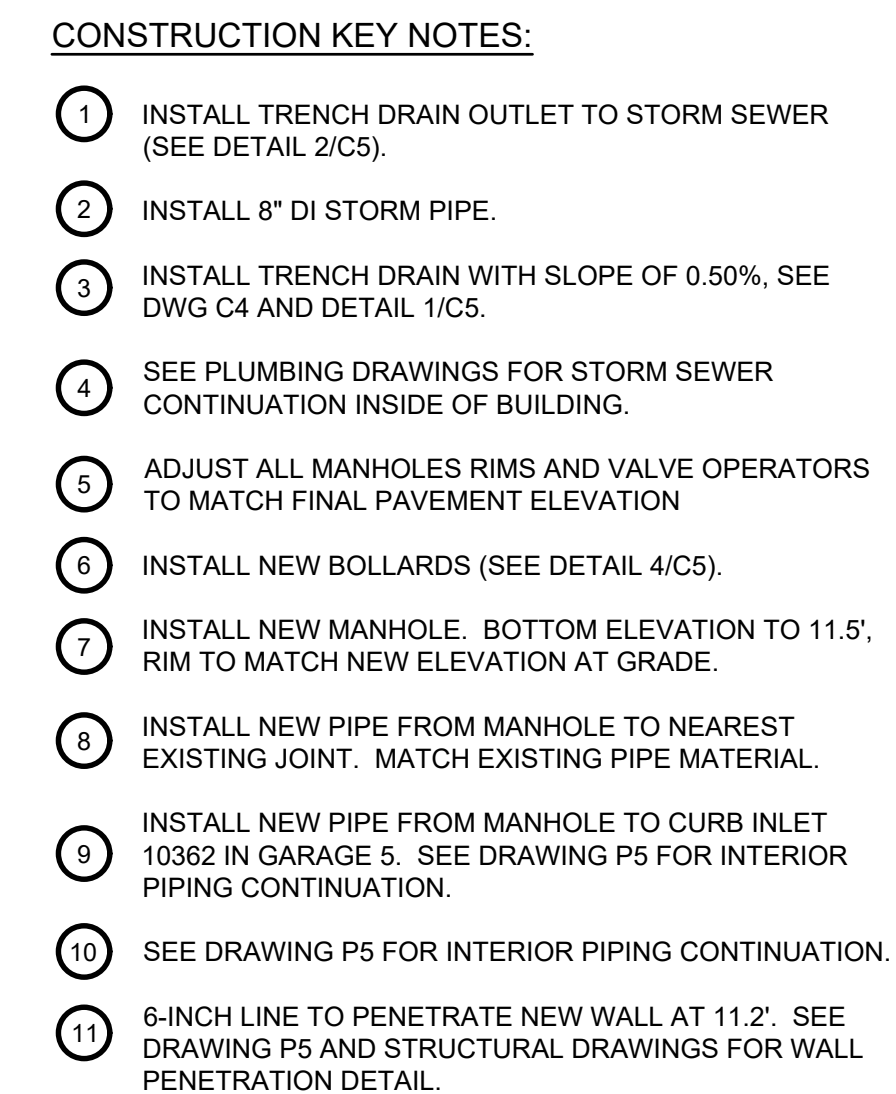
- LOWER LEVEL
- 2ND FLOOR

BID SET

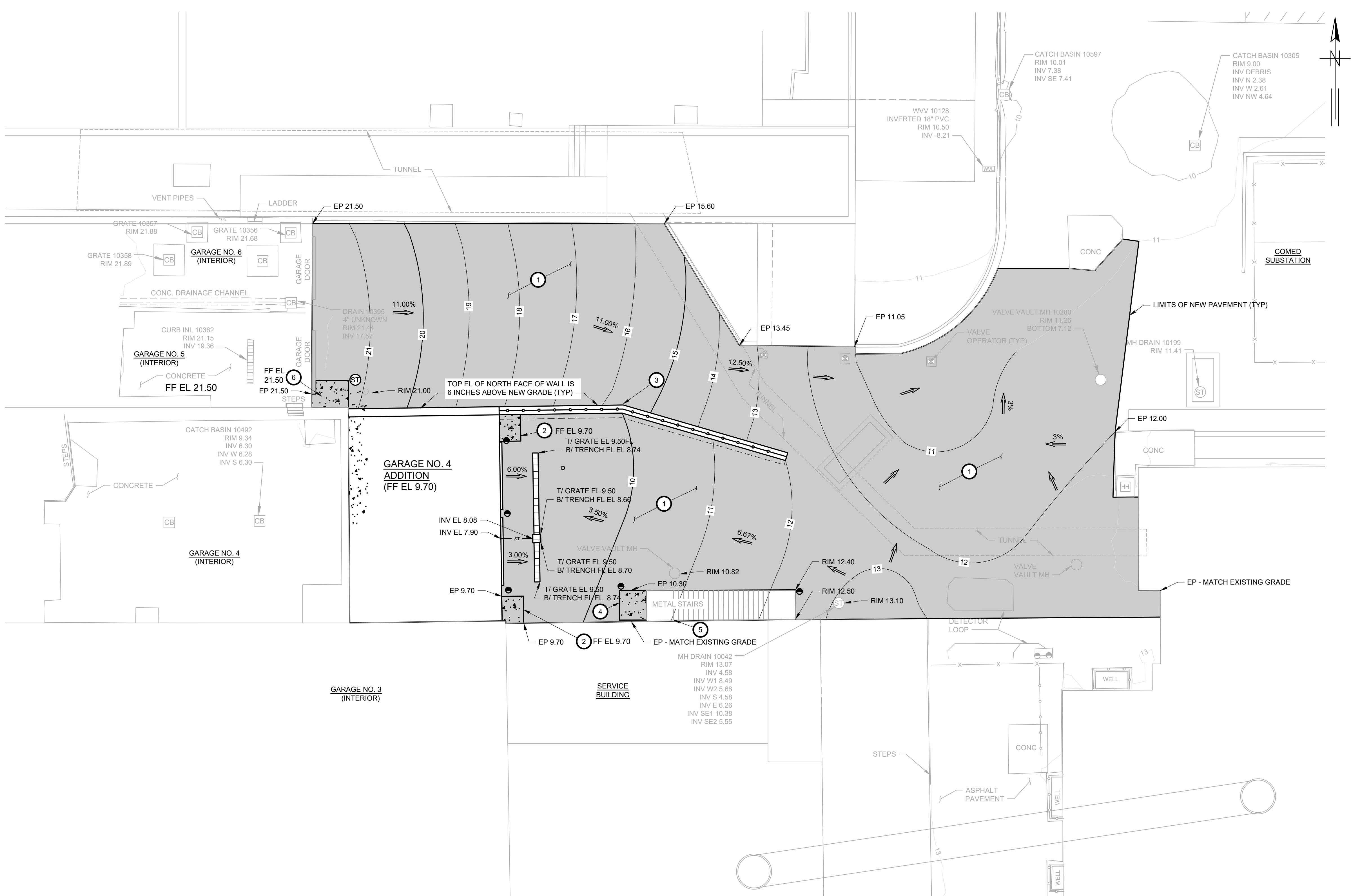


DEMOLITION PLAN
SCALE: 1"=10'

BID SET



BID SET



GRADING PLAN
SCALE: 1"=10'

CONSTRUCTION KEY NOTES:

1. INSTALL NEW ASPHALT PAVEMENT PER DETAIL 3/C5.
2. CONSTRUCT 5' X 4' CONCRETE LANDING PER DETAIL 5/C5.
3. CONSTRUCTION RETAINING WALL WITH SAFETY GUARDRAIL PER STRUCTURAL DRAWINGS.
4. INSTALL NEW CONCRETE LANDING PER DETAIL 5/C5. CONCRETE LANDING TO MATCH EXISTING GRADE AT BASE OF STAIRS. GRADE PAVEMENT SUCH THAT WATER DRAINS AWAY FROM CONCRETE LANDING.
5. REINSTALL THE METAL STAIRS AFTER NEW CONCRETE LANDING IS COMPLETED. STAIRS TO REMAIN IN SERVICE AND ACCESSIBLE FOR DURATION OF PROJECT.
6. CONSTRUCT 6'-10" X 5'4" CONCRETE LANDING PER DETAIL 5/C5.

EARTHWORK CALCULATIONS

TOTAL AREA	8,038.17 SQ FT
GROSS CUT	31.71 CU YD
GROSS FILL	83.42 CU YD
NET FILL	51.71 CU YD

NOTES:

1. MAINTAIN THE EXISTING GRADE ALONG THE SERVICE BUILDING.
2. EXTEND LANDING 18" BEYOND THE DOOR OPENING ON THE SIDE WITHOUT THE DOOR HINGE. SEE DETAIL 5/C5 FOR CROSS SECTION.

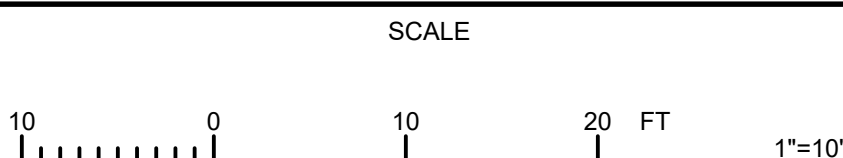
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A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

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LICENSE EXPIRES: 11/30/2025
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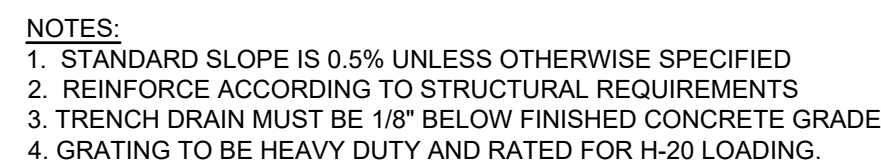
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CITY OF EVANSTON
WATER PRODUCTION BUREAU
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

CIVIL
NEW GRADING PLAN

PROJECT NO.: 0028A
DWG: **C4**
SHEET: 9 OF 116
DATE: JANUARY 2025 REV: 0



1 TRENCH DRAIN
SCALE: NONE



6 STANDARD SANITARY AND STORM SEWER MANHOLE DETAIL
SCALE: NONE

BID SET

2025/01/31 10:54 AM
BID SETS
STRUCTURAL STEEL NOTES
S01_S06.DWG ROBERT OSWALD
PRIMERACHICAGO.COM\FILES\PROJECTS\2022\20220814_0008 DRAWINGS AND SUBSTRUCTURAL - SHEETS\S01_S06.DWG ROBERT OSWALD

STRUCTURAL MASONRY NOTES:

- WORK ON THIS PROJECT SHALL CONFORM TO THE PROJECT SPECIFICATIONS AND TO THE LATEST EDITION OF "THE BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES", CONSISTING OF THE FOLLOWING STANDARDS:
 - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402)
 - SPECIFICATION FOR MASONRY STRUCTURES (TMS 602)
- MINIMUM COMPRESSIVE STRENGTH OF THE MASONRY ASSEMBLY SHALL BE: $f_m = 2500$ PSI.
- MASONRY UNITS USED IN THE ASSEMBLY SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - TYPE: CONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C90
 - WEIGHT: MEDIUMWEIGHT (115 PCF)
 - COMPRESSIVE STRENGTH: 3,250 PSI
- MORTAR SHALL BE TYPE "S" PORTLAND CEMENT/LIME OR MORTAR CEMENT AND SHALL CONFORM TO THE PROPORTION SPECIFICATIONS OF ASTM C270.
- GROUT PROPORTIONING AND MIXING SHALL CONFORM TO THE REQUIREMENTS OF ASTM C476 AND THE FOLLOWING:
 - TYPE: FINE GROUT
 - 28-DAY COMPRESSIVE STRENGTH: 3,000 PSI
 - SUMP: BETWEEN 8 INCHES AND 11 INCHES
- REINFORCEMENT BARS SHALL BE DEFORMED AND SHALL BE OF GRADE 60, CONFORMING TO ASTM A615.
- VERTICAL CELLS CONTAINING REINFORCEMENT SHALL BE SOLIDLY FILLED WITH GROUT.
- CONCRETE MASONRY UNITS SHALL BE LAID IN A RUNNING BOND CONFIGURATION.
- BOND BEAMS SHALL BE CONTINUOUSLY AND SOLIDLY FILLED WITH GROUT.
- HORIZONTAL REINFORCING BARS IN THE BOND BEAMS SHALL BE LAP SPLICED AT CORNERS.
- GROUT SHALL BE PLACED IN LAYERS NOT TO EXCEED 4'-0" AND SHALL BE STOPPED 1'-12" BELOW THE TOP OF THE COURSE TO FORM A SHEAR KEY.
- ALL GROUT SHALL BE MECHANICALLY VIBRATED IN PLACE TO FILL THE GROUT SPACE COMPLETELY.
- PROVIDE LADDER-TYPE HORIZONTAL JOINT REINFORCEMENT AT 16" ON CENTER VERTICALLY. PROVIDE ADDITIONAL JOINT REINFORCEMENT IN TWO LAYERS (AT 8" ON CENTER) ABOVE AND BELOW ALL UNTELS AND SILLS EXCEEDING 1'-0" IN LENGTH. TERMINATE ADDITIONAL JOINT REINFORCEMENT 24" BEYOND THE JAMBS, EXCEPT WHERE A CONSTRUCTION JOINT OCCURS WITHIN 24" OF THE WALL OPENING.
- HORIZONTAL JOINT REINFORCEMENT SHALL BE HOT-DIP GALVANIZED WITH 9-GAUGE SIDE RODS AND 9-GAUGE CROSS RODS WELDED AT 16" ON CENTER. THE FIRST CROSS RODS SHALL BE WELDED 12" IN FROM EACH END TO ALLOW FOR REQUIRED LAP SPLICES.
- MORTAR DROPPINGS SHALL BE KEPT OUT OF GROUTED CELLS.
- PROVIDE VERTICAL DOWELS BETWEEN CMU WALLS AND THE SUPPORTING FOUNDATION ELEMENTS AT EACH VERTICALLY REINFORCED CMU CELL. DOWEL SIZE SHALL MATCH THAT OF THE BAR IN THE CELL. ALL DOWELS SHALL BE FULLY LAP-SPLICED WITH THE VERTICAL WALL REINFORCEMENT.
- DO NOT MAKE CUTS FOR PENETRATIONS THROUGH CONSTRUCTED WALLS OR BEAMS WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER AND ARCHITECT.
- MASONRY WALL VERTICAL CONSTRUCTION JOINTS SHALL BE PROVIDED AT THE LOCATIONS INDICATED ON THE STRUCTURAL DRAWINGS, ALONG WITH THE FOLLOWING REQUIREMENTS:
 - CONSTRUCTION JOINT SPACING SHALL NOT EXCEED 24'-0" OF WALL LENGTH.
 - HORIZONTAL JOINT REINFORCEMENT SHALL BE INTERRUPTED ON EACH SIDE OF THE JOINT.
 - CONSTRUCTION JOINTS SHALL NOT OCCUR OVER WALL OPENINGS, NOR WITHIN 2'-0" OR THE SPECIFIED JAMB WIDTH OF THE OPENING, WHICHEVER IS LARGER.
 - COORDINATE JOINT SEALANT REQUIREMENTS WITH THE ARCHITECTURAL DRAWINGS.
- UNLESS OTHERWISE INDICATED ON THE STRUCTURAL DRAWINGS, THE FOLLOWING MINIMUM REINFORCEMENT AND GROUT REQUIREMENTS SHALL APPLY TO ALL EXTERIOR WALLS AND LOAD BEARING WALLS:
 - (1) #5 @ 4'-0" ON CENTER
 - (1) #5 AT FIRST CELL ON EACH SIDE OF A WALL OPENING
 - (1) #5 AT EACH CORNER CELL
 - (1) #5 AT CELLS AT WALL INTERSECTIONS
 - (1) #5 AT CELL ON EACH SIDE OF VERTICAL CONSTRUCTION JOINT
- THE BASE COURSE OF MASONRY SHALL BE CONTINUOUSLY AND SOLIDLY GROUTED.
- ALL COURSES OF MASONRY BELOW GRADE SHALL BE SOLIDLY GROUTED.
- UNLESS OTHERWISE INDICATED ON THE STRUCTURAL DRAWINGS, PROVIDE SOLIDLY GROUTED BOND BEAMS, WITH (2) #5 CONTINUOUS REINFORCING BARS, AT THE FOLLOWING LOCATIONS:
 - ABOVE AND BELOW ALL WALL OPENINGS, AND EXTENDING A MINIMUM OF 2'-4" BEYOND EACH EDGE OF THE OPENING.
 - AT THE TOP OF THE WALL.
 - AT EACH FLOOR LEVEL.
 - AT THE MID-HEIGHT OF THE WALL SPAN BETWEEN FLOOR LEVELS
- MASONRY WALLS SHALL BE BRACED BY ADJACENT WALLS OR BY THE FLOOR OR ROOF STRUCTURE ABOVE. REFER TO THE STRUCTURAL DRAWINGS AND DETAILS FOR ADDITIONAL INFORMATION.
- REFER TO THE MASONRY WALL REINFORCEMENT LAP SPLICE SCHEDULE ON S20 FOR REQUIRED LAP SPLICE LENGTHS FOR REINFORCEMENT USED IN STRUCTURAL MASONRY CONSTRUCTION.

STRUCTURAL STEEL NOTES:

- ALL STRUCTURAL STEEL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE PROJECT SPECIFICATIONS AND TO THE FOLLOWING SPECIFICATIONS AND DOCUMENTS:
 - AISC 303, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
 - AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
- WELDS AND WELDING SHALL CONFORM TO "AWS" STANDARDS AND THE AWS STRUCTURAL WELDING CODE, AWS D1.1. ALL WELDING SHALL BE PERFORMED BY QUALIFIED AND CERTIFIED WELDING PROFESSIONALS USING E70XX ELECTRODES WITH LOW-HYDROGEN COVERINGS, WHERE NOT INDICATED WITHIN THE STRUCTURAL DRAWINGS, THE MINIMUM FILLET WELD SIZE SHALL BE AS PER THE REQUIREMENTS OF AISC 360.
- STEEL FABRICATOR SHALL INCORPORATE THE OSHA RULES OF JANUARY 18, 2001 OF THE "SAFETY AND HEALTH STANDARDS FOR THE CONSTRUCTION INDUSTRY," 29 CFR 1926, PART R, SAFETY STANDARDS FOR STEEL ERECTION.
- APPROVAL OF STEEL SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD DOES NOT RELIEVE THE FABRICATOR OF THE RESPONSIBILITY FOR ACCURACY OF DETAIL DIMENSIONS ON SHOP DRAWINGS, NOR THE GENERAL FIT-UP OF PARTS TO BE ASSEMBLED IN THE FIELD.
- THE FOLLOWING MATERIAL GRADES SHALL BE PROVIDED FOR THE STRUCTURAL SHAPES AND ELEMENTS INDICATED:
 - ANGLES ASTM A36
 - WIDE FLANGES ASTM A992
 - SQUARE AND RECTANGULAR HSS ASTM A500 GR C (50 KSI)
 - PLATES ASTM A36
 - NUTS ASTM A563
 - WASHERS ASTM F436
 - ANCHOR RODS ASTM F1554, GRADE 36

- THE STEEL FRAMING IS A "NON SELF-SUPPORTING STEEL FRAME" AS DEFINED IN THE AISC CODE OF STANDARD PRACTICE. THE STRUCTURAL DRAWINGS DEPICT THE INTENDED BEHAVIOR OF THE STRUCTURE IN ITS FINAL, CONSTRUCTED CONDITION. THE CONTRACTOR MAINTAINS RESPONSIBILITY FOR TEMPORARY BRACING OF THE STRUCTURE AND SHALL ENSURE THAT THE STABILITY OF THE STRUCTURE IS MAINTAINED DURING AND THROUGHOUT ERECTION/CONSTRUCTION. TEMPORARY SUPPORTS AND BRACINGS MUST NOT BE REMOVED UNTIL ALL CONNECTIONS HAVE BEEN COMPLETED AND THE FLOOR AND ROOF DECK HAVE BEEN FULLY INSTALLED. THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR NOR WILL BE REQUIRED TO REVIEW ANY SUCH SUBMITTALS BEING COORDINATED BETWEEN THE FABRICATOR, ERECTOR OR CONTRACTOR AS THEY PERTAIN TO THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
- THE FABRICATOR SHALL SUBMIT TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD, A STRUCTURAL STEEL SHOP DRAWING SUBMITTAL THAT CONSISTS OF ERECTION DRAWINGS, CONNECTION AND ERECTION DETAILS, AND PIECE DETAILS WHICH CLEARLY IDENTIFY ALL STRUCTURAL STEEL ELEMENTS AND ASSEMBLIES COMPRISING THE FINISHED STRUCTURE.
- FABRICATE ALL STEEL BEAMS WITH THE NATURAL CAMBER POINTING UP.
- CLEAN ALL STRUCTURAL STEEL OF RUST AND LOOSE MILL SCALE AFTER FABRICATION IS COMPLETE. STEEL DESIGNATED BY THE PROJECT SPECIFICATIONS TO BE PRIMED AND PAINTED SHALL BE DONE SO IN ACCORDANCE WITH THE SPECIFICATIONS. STEEL DESIGNATED TO RECEIVE SPRAY FIREPROOFING SHALL NOT BE PRIMED OR PAINTED. REFER TO THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- UNLESS OTHERWISE INDICATED ON THE STRUCTURAL DRAWINGS, SPLICING OF STRUCTURAL STEEL MEMBERS IS NOT ALLOWED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER OF RECORD.
- UNLESS OTHERWISE INDICATED ON THE STRUCTURAL DRAWINGS, PENETRATING OR CUTTING THROUGH MEMBERS IS NOT ALLOWED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER OF RECORD.
- ALL STRUCTURAL STEEL FRAMING EXPOSED TO EXTERIOR CONDITIONS SHALL BE HOT-DIP GALVANIZED.
- PROVIDE NON-SHRINK, NON-METALLIC GROUT BENEATH ALL COLUMN BASE PLATES AND BEAM BEARING PLATES, UNLESS OTHERWISE INDICATED. GROUT SHALL HAVE A COMPRESSIVE STRENGTH OF 5,000 PSI AT 28-DAYS.
- UNLESS OTHERWISE INDICATED, ANCHOR RODS FOR BASE PLATE CONNECTIONS SHALL BE F1554 GRADE 36 AND 3/4" DIAMETER MINIMUM.
- COORDINATE WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED STEEL FRAMING NOT INDICATED ON THE STRUCTURAL DRAWINGS.
- HEADED STEEL ANCHORS, REFERRED TO HEREIN AS STUDS, SHALL CONFORM TO THE AWS D1.1 GRADE B SPECIFICATION. STUDS SHALL BE FURNISHED AND SUITABLE FOR ARC WELDING TO STEEL WITH THE USE OF AUTOMATICALLY TIMED STUD WELDING EQUIPMENT. WELDING SHALL BE PERFORMED ONLY BY QUALIFIED AND CERTIFIED WELDING PROFESSIONALS.
- THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF ALL CONNECTIONS. FIELD CONNECTIONS SHALL BE BOLTED OR WELDED. CONNECTIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE SCHEMATIC AND ARE ONLY INTENDED TO SHOW THE RELATIONSHIP OF MEMBERS BEING CONNECTED. CONNECTION DETAILS INDICATED ON THE DRAWINGS SHALL BE INCORPORATED INTO THE FABRICATOR'S CONNECTION DESIGN. CONNECTION CALCULATIONS THAT HAVE BEEN SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF ILLINOIS SHALL BE SUBMITTED FOR REVIEW TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD. FABRICATOR SHALL SELECT SIMPLE SHEAR CONNECTIONS PER THE AISC "MANUAL OF STEEL CONSTRUCTION, LOAD & RESISTANCE FACTOR DESIGN" FOR STEEL BEAMS CAPABLE OF CARRYING THE FACTORED REACTIONS INDICATED BELOW ALONG WITH ANY SUPPLEMENTAL FACTORED REACTIONS INDICATED ON PLAN:
 - W8 BEAMS - 10 KIPS
 - W12 BEAMS - 14 KIPS
 - W14 BEAMS - 18 KIPS
 - W16 BEAMS - 48 KIPS
 - W18 BEAMS - 56 KIPS
 - W21 BEAMS - 64 KIPS
 - W24 BEAMS - 98 KIPS
 - W27 BEAMS - 100 KIPS
- CONNECTIONS SHALL HAVE A MINIMUM OF 2 ROWS OF BOLTS OR THE EQUIVALENT WELD, UNLESS NOTED OTHERWISE.
- HORIZONTAL AND VERTICAL BRACING FOR WHICH A CALCULATED LOAD IS NOT SHOWN SHALL HAVE A MINIMUM CONNECTION OF 2 BOLTS ON ANGLES, 4 BOLTS ON STRUCTURAL TEES, W-SHAPES AND TUBE STEEL SHAPES, OR A WELDED CONNECTION OF EQUIVALENT STRENGTH, UNLESS NOTED OTHERWISE.
- ALL BEAM CONNECTIONS SHALL BE SELECTED FOR THE MAXIMUM LOAD SHOWN ON THE DRAWINGS. IN ABSENCE OF AN INDICATED LOAD, ALLOW FOR A 5 KIP NOMINAL AXIAL LOAD FOR BEAMS CONNECTED TO BRACING AND BEAMS OF MOMENT FRAMES.
- FOR BOLTED CONNECTIONS, USE ASTM F3125 GRADE A325 OR A490 HIGH-STRENGTH BOLTS IN ACCORDANCE WITH THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS."
- CONNECTIONS FOR THE FOLLOWING CONDITIONS SHALL BE "SLIP CRITICAL" CONNECTIONS:
 - CONNECTIONS FOR STRUCTURAL STEEL BEAMS AND THEIR SUPPORTING BEAMS WHICH SUPPORT TRANSFERRED COLUMNS.
 - CONNECTIONS FOR DIAGONALLY BRACED FRAMES
 - CONNECTIONS FOR FRAMING WITH SPECIFIED AXIAL FORCES
 - WEB AND/OR FLANGE BOLTS AT MOMENT CONNECTIONS
 - CONNECTIONS WITH BOLTS SUBJECT TO APPLIED TENSION LOADING
- "SLIP CRITICAL" CONNECTIONS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS CONFORMING TO ASTM F959 OF TENSION CONTROL, THREADED FASTENERS. OTHER CONNECTIONS MAY BE "BEARING CONNECTIONS."
- BOLTS IN "BEARING CONNECTIONS" ARE REQUIRED TO BE PRE-TENSIONED EXCEPT AT THE FOLLOWING LOCATIONS:
 - CONNECTION OF DOUBLE CLIP ANGLES TO THE WEB OF THE BEAM BEING SUPPORTED FOR THE NON-MOMENT CONNECTED SIMPLE FRAMING
 - CONNECTION OF SHEAR TABS TO THE WEB OF THE BEAM BEING SUPPORTED FOR NON-MOMENT CONNECTED SIMPLE FRAMING
 - CONNECTION OF BEAMS TO SEATED CONNECTIONS
- MEMBER SIZES INDICATED ON THE DRAWINGS ARE DETERMINED BASED ON BEHAVIOR AWAY FROM THE CONNECTIONS AND DO NOT NECESSARILY INCLUDE ALL STIFFENERS, DOUBLERS, ETC. AS REQUIRED FOR LOCAL EFFECTS AT THE CONNECTIONS.
- SOME FLOOR AND ROOF FRAMING MEMBERS ARE DESIGNED TO CARRY AXIAL LOADS INDICATED ON THE PLANS OR ELEVATIONS. CONNECTIONS FOR THESE MEMBERS SHALL BE DESIGNED FOR THE COMBINATION OF THE AXIAL LOAD AND THE SHEAR REACTION REQUIRED BY THE STRUCTURAL STEEL SPECIFICATION, PARAGRAPH "J".
- WHERE BRACING FORCES OR BEAM REACTIONS EXCEED THE MINIMUM PRESCRIBED CONNECTIONS, LOADS ARE SHOWN AS +/- IN KIPS. IN WHICH CASE, "+" DENOTES COMPRESSION AND "-" DENOTES TENSION. DESIGN AND DETAILS OF THESE CONNECTIONS SHALL BE REQUIRED TO BE FURNISHED BY THE FABRICATOR.
- LOADS INDICATED ON THE DRAWINGS ARE FACTORED LOADS. LOAD AND RESISTANCE FACTOR DESIGN (LRFD) SHALL BE USED IN THE SELECTION AND/OR COMPLETION OF THE CONNECTION DETAILS.
- WELDED JOINTS SHALL CONFORM TO THE AWS PRE-QUALIFIED JOINTS AND PROCEDURES. ALL EXPOSED WELDS ON MISCELLANEOUS METAL ITEMS SHALL BE GROUND SMOOTH. EASE ALL SHARP EDGES.
- ALL OPEN ENDS OF TUBE SECTIONS SHALL BE SUPPLIED WITH A 1/4" SEAL WELDED END PLATE. PROVIDE WEEPHOLES FOR EXTERIOR HSS.
- ALL GUSSET PLATES SHALL BE 3/8" MINIMUM THICKNESS UNLESS NOTED OTHERWISE.
- SURFACES NOTED AS "MILLED" SHALL HAVE A MAXIMUM "ANIS" ROUGHNESS HEIGHT VALUE OF 500. ANY FABRICATING TECHNIQUE THAT PRODUCES SUCH A FINISH MAY BE USED.

- PROVIDE COLUMN CONNECTIONS FOR TEMPORARY HANDRAIL (CABLE) AS SPECIFIED "FOR FABRICATION AND ERECTION MINIMUM REQUIREMENTS".

STEEL ROOF DECK NOTES:

- STEEL ROOF DECK SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE LATEST EDITIONS OF THE FOLLOWING STEEL DECK INSTITUTE PUBLICATIONS:
 - "STANDARD FOR STEEL ROOF DECK"
 - "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK"
- STEEL ROOF DECK SHALL CONSIST OF 18 GAUGE, 1-1/2" WIDE-RIB PROFILE, WITH THE FOLLOWING MINIMUM PROPERTIES:
 - BASE METAL THICKNESS: $t_b = 0.0474$ in
 - SECTION MODULUS: $S_x = 0.318$ in³/ft; $S_y = 0.306$ in³/ft
 - MOMENT OF INERTIA: $I_x = 0.290$ in⁴/ft; $I_y = 0.277$ in⁴/ft
 - YIELD STRESS: $f_y = 50$ KSI
- STEEL ROOF DECK SHALL GAIN A GALVANIZED FINISH IN G-60 COATING MEETING ASTM A653 STANDARDS.
- STEEL ROOF DECK SHALL BE INSTALLED SO AS TO BE CONTINUOUS OVER (3) OR MORE SPANS. UNDER NO CIRCUMSTANCE SHALL SINGLE SPAN CONDITIONS BE USED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER OF RECORD.
- CONNECT STEEL ROOF DECK TO FRAMING MEMBERS USING 5/8" DIAMETER ARC SPOT, OR "PUDDLE", WELDS AT 12" ON CENTER IN A 364 FASTENING PATTERN, WHERE DECK SPANS PARALLEL TO FRAMING MEMBERS. PROVIDE SAME WELD AT 12" ON CENTER ALONG LENGTH OF MEMBER.
- CONNECT STEEL ROOF DECK SIDELAPS TOGETHER USING #10 TEK SCREWS AT 12" ON CENTER MAXIMUM.
- CUT AND NEATLY FIT DECK PANELS AND ACCESSORIES AROUND OPENINGS AND OTHER WORK PROJECTING THROUGH ADJACENT TO THE DECKING. PROVIDE ADDITIONAL REINFORCEMENT AND CLOSURE PIECES AT OPENINGS AS REQUIRED FOR STRENGTH, CONTINUITY OF DECKING, AND SUPPORT OF OTHER WORK, WHERE SUPPLEMENTAL FRAMING AROUND AN OPENING IS REQUIRED, CONTRACTOR SHALL PROVIDE SUCH FRAMING AND WELD DECK TO THE FRAMING AT 12" ON CENTER.
- CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF DECK PENETRATIONS WITH THE STRUCTURAL, ARCHITECTURAL, AND MEP DRAWINGS.
- DO NOT HANG EQUIPMENT OR PIPING FROM THE STEEL ROOF DECK WITHOUT THE REVIEW AND APPROVAL OF THESE LOADS BY THE STRUCTURAL ENGINEER.
- STEEL ROOF DECK WELDING SHALL ONLY BE PERFORMED BY QUALIFIED AND CERTIFIED WELDING PROFESSIONALS WITH EXPERIENCE IN SHEET STEEL WELDING APPLICATIONS. WELDING SHALL CONFORM TO THE MOST CURRENT EDITION OF THE APPLICABLE STRUCTURAL WELDING CODE, AWS D1.3.
- CONTRACTOR SHALL PROVIDE PLATE OR OTHER REINFORCEMENT MEMBERS AND ACCESSORIES TO SUPPLEMENT THE STEEL ROOF DECK AT CHANGES IN DECK DIRECTION, CHANGES IN DECK TYPE OR THICKNESS, ROOF RIDGES, ROOF VALLEYS, AND ROOF DRAINS. PROVIDE MINIMUM 14-GAUGE SUMP PANS AT ALL ROOF DRAINS.

COMPOSITE STEEL FLOOR DECK NOTES:

- COMPOSITE STEEL FLOOR DECK SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE LATEST EDITIONS OF THE FOLLOWING STEEL DECK INSTITUTE PUBLICATIONS:
 - "STANDARD FOR COMPOSITE STEEL FLOOR DECK - SLABS"
 - "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK"
- COMPOSITE STEEL FLOOR DECK SHALL CONSIST OF 18 GAUGE, 24"U PROFILE PER VULCRAFT, WITH THE FOLLOWING MINIMUM PROPERTIES:
 - BASE METAL THICKNESS: $t_b = 0.0474$ in
 - SECTION MODULUS:
 - $S_x = 0.500$ in³/ft
 - $S_y = 0.485$ in³/ft
 - MOMENT OF INERTIA:
 - $I_x = 0.557$ in⁴/ft
 - $I_y = 0.557$ in⁴/ft
 - YIELD STRESS: $f_y = 50$ KSI
- COMPOSITE STEEL FLOOR DECK SHALL CONTAIN A GALVANIZED FINISH IN G-60 COATING MEETING ASTM A653 STANDARDS.
- COMPOSITE STEEL FLOOR DECK SHALL BE INSTALLED SO AS TO BE CONTINUOUS OVER (3) OR MORE SPANS. WHERE THIS IS NOT POSSIBLE, THE COMPOSITE STEEL FLOOR DECK SHALL BE SHORED OR THE DECK SUPPLIER'S ENGINEER SHALL VERIFY THE STRUCTURAL ADEQUACY OF THE DECK TO SUPPORT THE IMPOSED LOADS FOR THE GIVEN SPAN CONDITIONS. UNDER NO CIRCUMSTANCE SHALL SINGLE SPAN CONDITIONS BE USED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER OF RECORD.
- THE GENERAL CONTRACTOR SHALL SUBMIT COMPOSITE STEEL FLOOR DECK ALLOWABLE LOAD DATA AND A FORMAL SHOP DRAWING SUBMITTAL TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO CONSTRUCTION. THE SUBMITTAL SHALL CONTAIN PRODUCT DATA FOR EACH TYPE OF DECKING SPECIFIED, INCLUDING DIMENSIONS OF INDIVIDUAL COMPONENTS, PROFILES, AND FINISHES. THE SHOP DRAWINGS SHALL SHOW THE LOCATION AND LAYOUT OF DECK UNITS, POUR STOPS, GIRDER FILLERS, CLOSURES, ALL EDGE OF DECK DIMENSIONS, ANCHORAGE DETAILS, AND ALL OTHER INFORMATION REQUIRED FOR A THOROUGH REVIEW.
- CONNECT COMPOSITE STEEL FLOOR DECK TO FRAMING MEMBERS USING 5/8" DIAMETER ARC SPOT, OR "PUDDLE", WELDS AT 12" ON CENTER IN A 364 FASTENING PATTERN, WHERE DECK SPANS PARALLEL TO FRAMING MEMBERS, PROVIDE SAME WELD AT 12" ON CENTER ALONG LENGTH OF MEMBER.
- CONNECT COMPOSITE STEEL FLOOR DECK SIDELAPS TOGETHER USING A BUTT PUNCH AT 12" ON CENTER MAXIMUM.
- CONCRETE USED IN COMPOSITE SLAB-ON-STEEL FLOOR DECK CONSTRUCTION SHALL BE FREE OF CHLORIDE IONS AND OTHER DELETERIOUS MATERIAL.
- CUT AND NEATLY FIT DECK UNITS AND ACCESSORIES AROUND OPENINGS, SLAB EDGES, AND OTHER WORK PROJECTING THROUGH OR ADJACENT TO THE DECKING. PROVIDE ADDITIONAL REINFORCEMENT, COLUMN AND END CLOSURE PIECES, POUR STOPS, GIRDER FILLERS, AND COVER PLATES AS REQUIRED AT ALL SLAB OPENINGS, SLAB EDGES, AND CHANGES IN DECK DIRECTION. WHERE SUPPLEMENTAL FRAMING AROUND AN OPENING IS REQUIRED TO SUPPORT THE FLOOR DECK CONSTRUCTION, CONTRACTOR SHALL PROVIDE SUCH FRAMING AND WELD DECK TO THE FRAMING AT 12" ON CENTER.
- CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF FLOOR DECK OPENINGS WITH THE STRUCTURAL, ARCHITECTURAL, AND MEP DRAWINGS.
- TRADES THAT SUBSEQUENTLY CUT UNSCHEDULED OPENINGS THROUGH THE DECK ARE RESPONSIBLE FOR REINFORCING THE OPENINGS.
- COMPOSITE STEEL FLOOR DECK WELDING SHALL ONLY BE PERFORMED BY QUALIFIED AND CERTIFIED WELDING PROFESSIONALS WITH EXPERIENCE IN SHEET STEEL WELDING APPLICATIONS. WELDING SHALL CONFORM TO THE MOST CURRENT EDITION OF THE APPLICABLE STRUCTURAL WELDING CODE, AWS D1.3.
- EMBEDDED CONDUIT SHALL BE PERMITTED IN THE COMPOSITE SLAB-ON-STEEL FLOOR DECK CONSTRUCTION SUBJECT TO THE FOLLOWING REQUIREMENTS AND LIMITATIONS:
 - MAXIMUM OUTSIDE DIAMETER OF CONDUIT = ONE-THIRD OF THE SLAB THICKNESS ABOVE THE TOP OF STEEL FLOOR DECK.
 - MINIMUM SPACING = 3 DIAMETERS FOR THE LARGEST CONDUIT DIAMETER.
 - CONDUIT SHALL BE PLACED BELOW THE SLAB WELDED WIRE FABRIC REINFORCEMENT WHERE THIS REINFORCEMENT OCCURS.
 - CONDUITS SHALL NOT CROSS-OVER EACH OTHER WITHIN THE SLAB.

HELICAL PILE GENERAL NOTES

- HELICAL PILES SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE CURRENT INTERNATIONAL BUILDING CODE (IBC) ADOPTED BY THE LOCAL JURISDICTION.
- HELICAL PILES SHALL BE DESIGNED AND MANUFACTURED BY RAM JACK OR APPROVED EQUAL.
- HELICAL PILE SHALL BE RECOGNIZED BY ICC AND THE MANUFACTURER SHALL HOLD A CURRENT ICC-ES ESR REPORT SHOWING COMPLIANCE WITH AC308 AND CURRENT INTERNATIONAL BUILDING CODE (IBC) ADOPTED BY THE LOCAL JURISDICTION.
- DIMENSIONS OF THE CENTRAL SHAFT AND THE NUMBER, SIZE, SPACING AND THICKNESS OF THE HELICAL BEARING PLATES SHALL BE DESIGNED AND FABRICATED TO SUPPORT THE SPECIFIED DESIGN LOADS.
- ONLY ROUND CENTRAL PILE SHAFTS WILL BE ALLOWED.
- MINIMUM AND MAXIMUM INSTALLATION TORQUES SHALL BE SPECIFIED BY THE HELICAL PILE MANUFACTURER. THE MINIMUM INSTALLATION TORQUE SHALL BE HIGH ENOUGH TO ACHIEVE THE REQUIRED BEARING CAPACITY, INCLUDING A SAFETY FACTOR OF 2. THE MAXIMUM INSTALLATION TORQUE SHALL NOT EXCEED THE ALLOWABLE TORSIONAL CAPACITY OF THE PILE SHAFTS.
- HELICAL PILES SHALL BE DESIGNED AND MANUFACTURED TO RESIST ALL STRESSES INDUCED BY INSTALLATION.
- EXISTING CONDITIONS AND UNDERGROUND OBSTRUCTIONS SHALL BE CONFIRMED BY THE PILE INSTALLER. PROBING OR SCANNING MAY BE NECESSARY TO LOCATE UNDERGROUND OBSTRUCTIONS. REPORT ANY UNFORSEEN OBSTRUCTIONS TO THE STRUCTURAL ENGINEER.
- LOCATIONS OF PILES SHALL NOT BE CHANGED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
- SPECIAL INSPECTION OF THE HELICAL PILE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1705.9 OF THE 2021 IBC UNLESS EXCEPTIONS NOTED IN SECTION 1704.2 OF IBC ARE MET. THE INSPECTOR SHALL RECORD THE FOLLOWING:
 - INSTALLATION DATE.
 - PILE MANUFACTURER.
 - INSTALLATION CONTRACTOR.
 - IDENTIFICATION OF INSTALLATION EQUIPMENT.
 - MINIMUM ALLOWABLE INSTALLATION TORQUE.
 - MAXIMUM ALLOWABLE INSTALLATION TORQUE.
 - CENTRAL SHAFT DIAMETER OF EACH PILE.
 - HELIX PLATE CONFIGURATION OF EACH PILE.
 - ACTUAL TIP EMBEDMENT OF EACH PILE.
 - ACTUAL INSTALLATION TORQUE OF EACH PILE.
 - ULTIMATE CAPACITY OF EACH PILE AS SPECIFIED BY MANUFACTURER.
 - ALLOWABLE CAPACITY OF EACH PILE AS SPECIFIED BY MANUFACTURER.

STRUCTURAL DESIGN CRITERIA:

- BUILDING CODE: 2021 INTERNATIONAL BUILDING CODE (IBC 2021) WITH LOCAL AMENDMENTS PER CITY OF EVANSTON.
- SUPERIMPOSED ROOF LOADS AT NEW ROOF CONSTRUCTION:
 - SUPERIMPOSED DEAD LOAD = 20 PSF
 - ROOF LIVE LOAD = 20 PSF (MINIMUM)
- SUPERIMPOSED FLOOR LOADS AT NEW FLOOR CONSTRUCTION:
 - SUPERIMPOSED DEAD LOAD = 35 PSF
 - FLOOR LIVE LOAD:
 - OFFICE = 50 PSF
 - PARTITIONS = 15 PSF
 - LIGHT STORAGE = 125 PSF
 - MECHANICAL/ELECTRICAL ROOMS = 250 PSF
 - CONSTRUCTION LIVE LOAD = 20 PSF
- SNOW LOADS:
 - GROUND SNOW LOAD, $p_g = 25$ PSF
 - EXPOSURE FACTOR, $C_e = 1.0$
 - THERMAL FACTOR, $C_t = 1.0$
 - IMPORTANCE FACTOR = IV
 - IMPORTANCE FACTOR = 1.2
 - FLAT-ROOF SNOW LOAD, $p_f = 18.9$ PSF
 - MINIMUM SNOW LOAD FOR LOW SLOPE ROOFS, $p_{f,min} = 24$ PSF
 - SNOW DRIFT LOAD = SEE SNOW DRIFT DIAGRAMS ON S3.
- WIND LOADS:
 - RISK CATEGORY = IV
 - BASIC WIND SPEED, $V = 119$ MPH
 - WIND DIRECTIONALITY FACTOR, $K_d = 0.85$
 - TOPOGRAPHIC FACTOR, $K_{zt} = 1.0$
 - EXPOSURE CATEGORY = D
 - ENCLOSURE CLASSIFICATION = ENCLOSED
 - GUST EFFECT FACTOR, $G = 0.85$
 - INTERNAL PRESSURE COEFFICIENT, $C_{pi} = +/- 0.18$
 - COMPONENTS AND CLADDING WIND LOADS = SEE LOADING DIAGRAMS ON S3.
- SEISMIC LOADS:
 - RISK CATEGORY = IV
 - SITE CLASS = D ASSUMED
 - MAPPED SPECTRAL ACCELERATION AT SHORT PERIOD, $S_s = 0.11$
 - MAPPED SPECTRAL ACCELERATION AT 1-SECOND PERIOD, $S_1 = 0.06$
 - DESIGN SPECTRAL ACCELERATION AT SHORT PERIOD, $S_{ds} = 0.117$
 - DESIGN SPECTRAL ACCELERATION AT 1-SECOND PERIOD, $S_{d1} = 0.096$
 - SEISMIC DESIGN CATEGORY = C
 - SEISMIC IMPORTANCE FACTOR, $I_e = 1.5$
 - SEISMIC FORCE-RESISTING SYSTEM AT EXISTING BUILDING = ORDINARY PLAN MASONRY SHEAR WALLS
 - RESPONSE MODIFICATION FACTOR, $R = 1.5$
 - OVERSTRENGTH FACTOR, $O_b = 2.5$
 - DEFLECTION AMPLIFICATION FACTOR, $C_d = 1.25$
 - SEISMIC RESPONSE COEFFICIENT, $C_s = 0.1173$
 - DESIGN BASE SHEAR, $V = 147$ KIPS
 - NOTE: DESIGN BASE SHEAR CORRESPONDS TO THE EFFECTIVE SEISMIC WEIGHT OF THE EXISTING 2ND FLOOR MEZZANINE AND THE EXISTING ROOF STRUCTURE.
 - SEISMIC FORCE-RESISTING SYSTEM AT NEW STRUCTURE = STEEL ORDINARY MOMENT FRAMES
 - RESPONSE MODIFICATION FACTOR, $R = 3.5$
 - OVERSTRENGTH FACTOR, $O_b = 3.0$
 - DEFLECTION AMPLIFICATION FACTOR, $C_d = 3.0$
 - SEISMIC RESPONSE COEFFICIENT, $C_s = 0.0503$
 - DESIGN BASE SHEAR, $V = 31.9$ KIPS
 - NOTE: DESIGN BASE SHEAR CORRESPONDS TO THE EFFECTIVE SEISMIC WEIGHT OF THE ENTIRE NEW SECOND FLOOR STRUCTURE AND THE NEW ROOF STRUCTURE
 - RAIN LOADS FOR ROOF OF NEW STRUCTURE / BUILDING
 - PRIMARY DRAINAGE SYSTEM = (2) 4" DIAMETER DRAINS
 - SECONDARY DRAINAGE SYSTEM = (2) 4" DIAMETER DRAINS
 - RAINFALL INTENSITY FOR 15-MINUTE, 100 YEAR RETURN = 5.93 IN / HR
 - STATIC HEAD DEPTH = 2" MAXIMUM
 - HYDRAULIC HEAD DEPTH = 1"
 - MAXIMUM HEAD / BUILD-UP OF WATER ON ROOF = 3 IN
 - CORRESPONDING MAXIMUM RAIN LOAD ON ROOF = 15.6 PSF

LIST OF ABBREVIATIONS

A.B.	ANCHOR BOLT	M.O.	MASONRY OPENING
A.C.	AIR CONDITIONED	M.T.	METAL
A.D.	ARCHITECT	MULL.	MULLION
ADJ.	ADJUSTABLE	N.	NORTH
A.F.F.	ABOVE FINISHED FLOOR	N.A.	NOT APPLICABLE
ALT.	ALTERNATE	N.I.C.	NOT IN THIS CONTRACT
ALUM.	ALUMINUM	N.T.S.	NOT TO SCALE
APPROX.	APPROXIMATELY	N.O.	NUMBER
ARCH.	ARCHITECTURAL	NOM.	NOMINAL
ASSY.	ASSEMBLY	O.C.	ON CENTER
AVG.	AVERAGE	O.D.	OUTSIDE DIAMETER
B.	BEARING PLATE	O.H.	OVERHEAD
BLDG.	BUILDING	OPNG	OPENING
BKG.	BLOCKING	OPD.	OPPOSITE HAND
B.M.	BENCH MARK		
BR.	BRICK	P.C.C.	PORTLAND CEMENT
B/	BOTTOM OF	CONCRETE	
BET.	BETWEEN	P.C.F.	POUNDS PER CUBIC FOOT
C.	CHANNEL	PL.	PLATE
CEM.	CEMENT	PL.WD.	PLYWOOD
C.I.	CAST IRON	PM.J.F.	PREMOLDED JOINT FILLER
C.J.	CONTROL JOINT	P.T.	PRESSURE
C.L.	CENTER LINE	(PRESERVEATIVE) TREATED	
CLG.	CEILING	PNL.	PANEL
CLR.	CLEAR	PR.	PAIR
CMU	CONCRETE MASONRY UNIT	PREFAB.	PREFABRICATED
C.O.	CLEAN OUT	PROP.	PROPOSED
COL.	COLUMN	PSF.	POUND PER SQUARE FOOT
CONC.	CONCRETE	PSI.	POUND PER SQUARE INCH
CONN.	CONNECTION	PVC.	POLY VINYL CHLORIDE
CONST.	CONSTRUCTION		
CONTR.	CONTRACTOR	QTY.	QUANTITY
DBL.	DOUBLE	RAD.	RADIUS
DEG.	DEGREE	REBAR.	REINFORCING BAR
DEMO.	DEMOLITION	REF.	REFERENCE
DET.	DETAIL	REINF.	REINFORCE
DIA.	DIAMETER	REQ.	REQUIRED
DIAG.	DIAGONAL	REV.	REVISION
DIM.	DIMENSION	R.O.	ROUGH OPENING
D.L.	DEAD LOAD		
DN.	DOWN	S.	SOUTH
DWG.	DRAWING	S.C.	SEALED CONCRETE
E.	EAST	SCHED.	SCHEDULE
EA.	EACH	SECT.	SECTION
E.E.	EXPANSION JOINT	S.F.	SQUARE FEET
E.L.E.C.	ELECTRICAL	SHT.	SHEET
ELEV.	ELEVATION	SIM.	SIMILAR
ENCL.	ENCLOSURE	SIM.	SIMILAR
EQ.	EQUAL	SQ.	SPECIFICATIONS
EQUIP.	EQUIPMENT	S.S.	STAINLESS STEEL
EST.	ESTIMATED	STD.	STANDARD
EXIST.	EXISTING	STL.	STEEL
EXP.	EXPANSION	STRUCT.	STRUCTURAL
EXT.	EXTERIOR		
		T/	TOP OF
F.D.	FLOOR DRAIN	T&B	TOP AND BOTTOM
F.F.	FINISHED FLOOR	THK.	THICK
FIN.	FINISH	THRU.	THROUGH
FDN.	FOUNDATION	TS	TUBE STEEL
FR.	FRAME	TYP.	TYPICAL
FT.	FOOT/FEET	U.N.O.	UNLESS NOTED OTHERWISE
FTG.	FOOTING	VERT.	VERTICAL
		V.I.F.	VERIFY IN FIELD
GA.	GAUGE	W.	WEST
GALV.	GALVANIZED	W/	WITH
G.C.	GENERAL CONTRACTOR	WF	WIDE FLANGE
G.I.	GALVANIZED IRON	W/O	WITHOUT
GR.	GRADE	WWF.	WELDED WIRE FABRIC
H.C.	HOLLOW CORE		
H.W.	HARDWARE		
H.M.	HOLLOW METAL		
HORIZ.	HORIZONTAL		
HSS	HOLLOW STRUCTURAL SECTION		
HT.	HEIGHT		
HVAC	HEATING, VENTILATION & AIR CONDITIONING		
IN.	INCH		
INCL.	INCLUDE, INCLUDING		
INFO.	INFORMATION		
INSUL.	INSULATION		
INT.	INTERIOR		
JT.	JOINT		
LB./#	POUND		
L.F.	LINEAL FOOT		
L.H.	LEFT HAND		
L.L.	LIVE LOAD		
L.L.A.	LONG LEG HORIZONTAL		
L.L.V.	LONG LEG VERTICAL		
L.O.	LINE OF		
L.P.	LOW POINT		
MAINT.	MAINTENANCE		
MAS.	MASONRY		
MAX.	MAXIMUM		
MC	MISCELLANEOUS		
CHANNEL			
MECH.	MECHANICAL		
MED.	MEDIUM		
MFR.	MANUFACTURER		
MIN.	MINIMUM		
MISC.	MISCELLANEOUS		



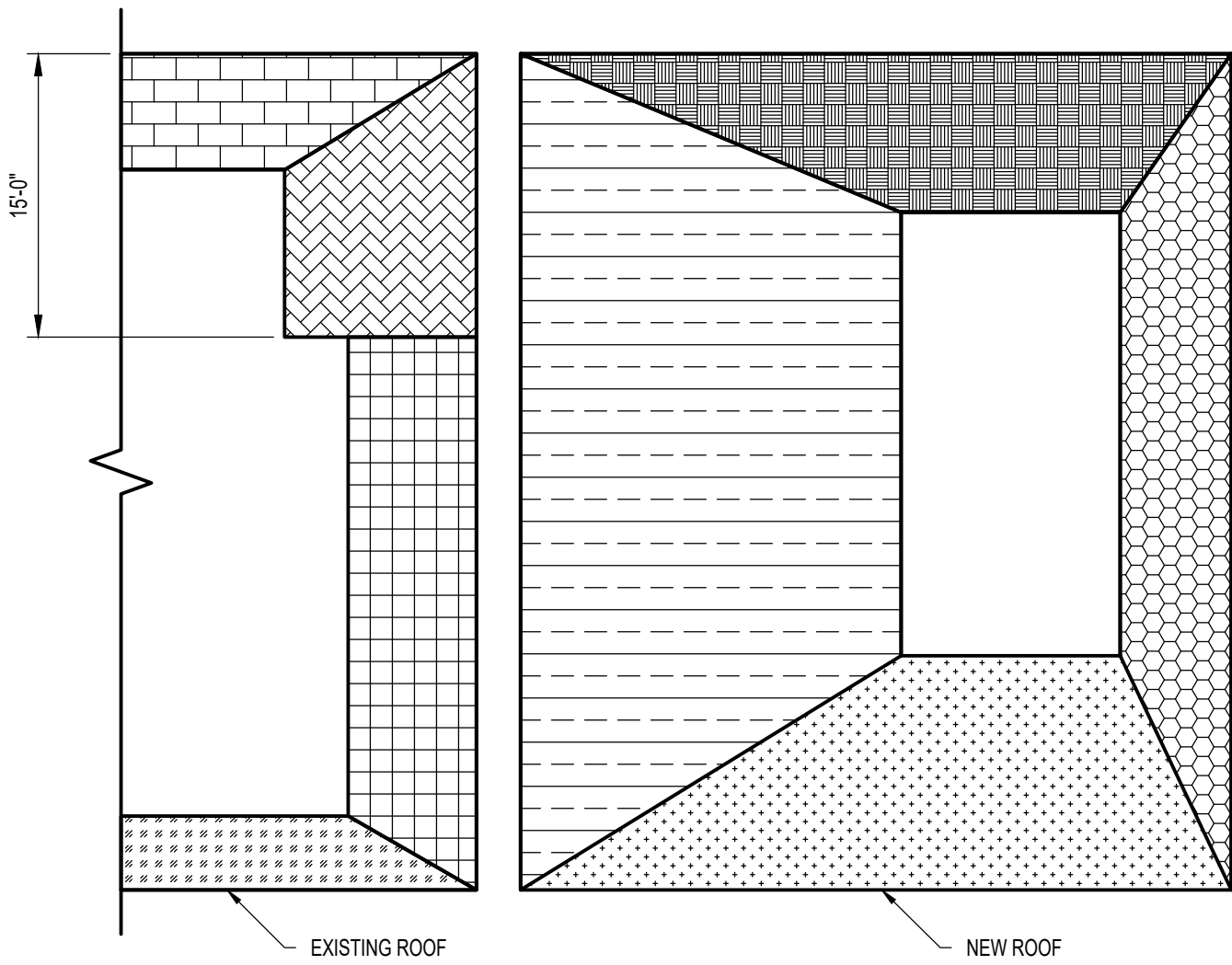
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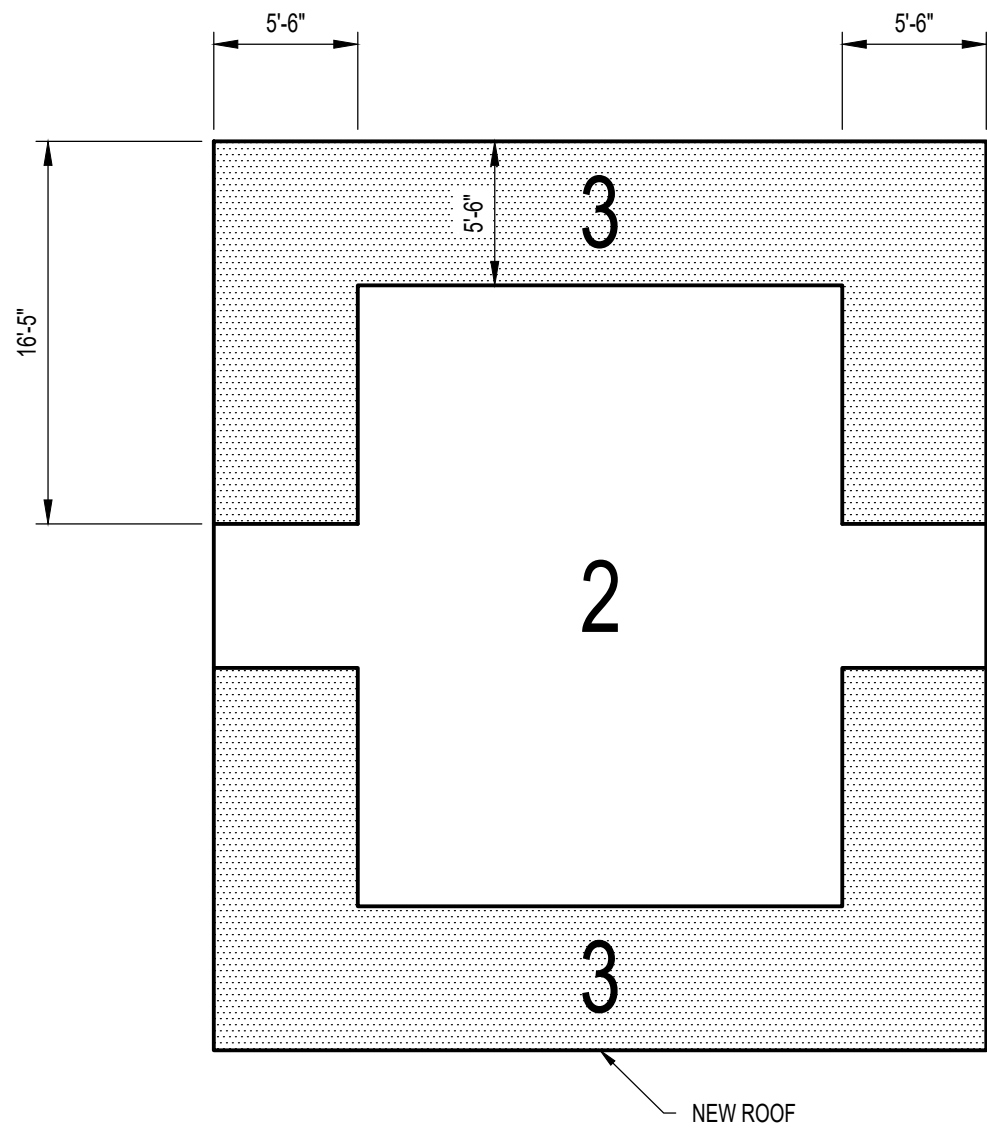
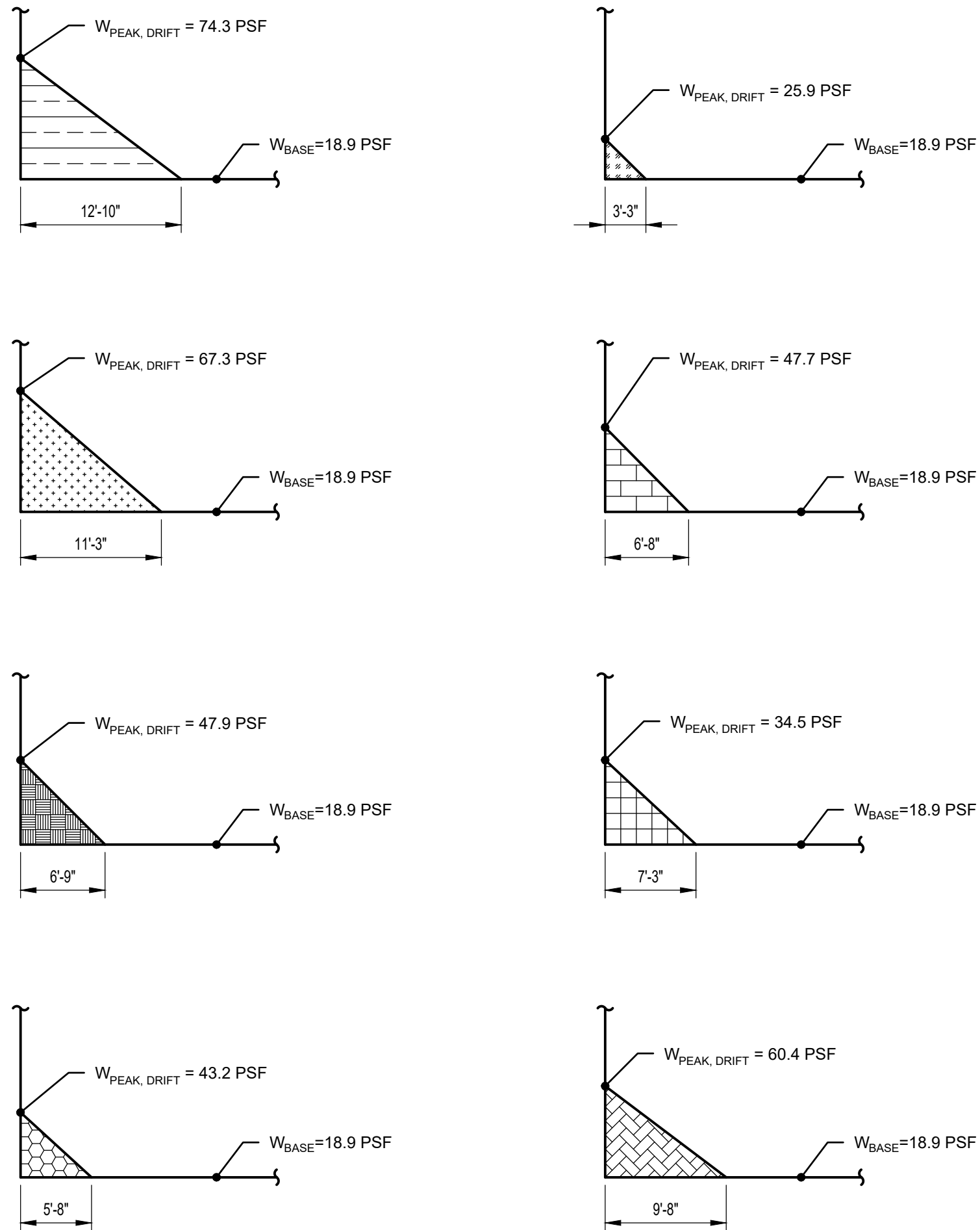
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SNOW DRIFT LOAD DIAGRAMS



COMPONENTS AND CLADDING WIND LOAD DIAGRAMS

COMPONENTS AND CLADDING ROOF WIND LOADS			
ZONE	A EFF (ft ²)	WL POSITIVE (psf)	WL NEGATIVE (psf)
2	<= 10	16.8	-87
	20	16	-81.4
	50	16	-74.0
	100	16	-68.4
	200	16	-62.8
	500	16	-55.4
3	<= 10	16.8	-118.6
	20	16	-107.4
	50	16	-92.6
	100	16	-81.4
	200	16	-70.2
	500	16	-55.4

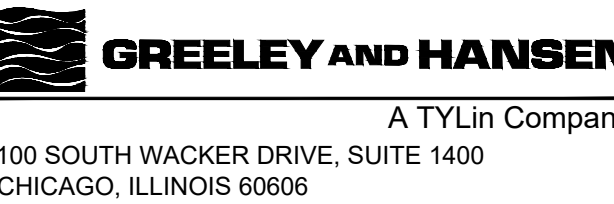
NOTES:
1. POSITIVE WIND LOADS ACT NORMAL TO AND TOWARDS THE ROOF SURFACE.
2. NEGATIVE WIND LOADS ACT NORMAL TO AND AWAY FROM THE ROOF SURFACE.
3. A_{EFF} IS THE EFFECTIVE WIND AREA FOR THE ROOF FRAMING MEMBER, CALCULATED AS THE SPAN LENGTH MULTIPLIED BY AN EFFECTIVE WIDTH THAT NEED NOT BE LESS THAN ONE-THIRD THE SPAN LENGTH.

COMPONENTS AND CLADDING WALL WIND LOADS			
ZONE	A EFF (ft ²)	WL POSITIVE (psf)	WL NEGATIVE (psf)
4	<= 10	37.9	-41
	20	36.2	-39.4
	50	34	-37.1
	100	32.3	-35.5
	200	30.6	-33.8
	500	28.4	-31.6
5	<= 10	37.9	-50.5
	20	36.2	-47.2
	50	34	-42.7
	100	32.3	-39.4
	200	30.6	-36
	500	28.4	-31.6

NOTES:
1. POSITIVE WIND LOADS ACT NORMAL TO AND TOWARDS THE WALL SURFACE.
2. NEGATIVE WIND LOADS ACT NORMAL TO AND AWAY FROM THE WALL SURFACE.
3. A_{EFF} IS THE EFFECTIVE WIND AREA FOR THE WALL FRAMING COMPONENT, CALCULATED AS THE SPAN LENGTH MULTIPLIED BY AN EFFECTIVE WIDTH THAT NEED NOT BE LESS THAN ONE-THIRD THE SPAN LENGTH.
4. ZONE 5 WIND PRESSURES OCCUR OVER A WIDTH OF WALL, a, EQUIVALENT TO 3'-0" AT EACH END OF WALL.



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DRAWN
CHECKED

DATE
SIGNED:
LICENCE
EXPIRES:
APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

LOAD DIAGRAMS

PROJECT NO.: 0028A

DWG: **S3**
SHEET: 13 OF 116
DATE: JANUARY 2025 REV: 0

BID SET

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SPECIAL INSPECTIONS AND TESTING:

1.

ALL TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2021 INTERNATIONAL BUILDING CODE (IBC 2021).
2.

ALL TESTING AND INSPECTION WORK SHALL BE CONDUCTED BY AN APPROVED AGENCY HIRED BY THE OWNER.
3.

THE APPROVED AGENCY SHALL EMPLOY EXPERIENCED PERSONNEL EDUCATED IN CONDUCTING, SUPERVISING AND EVALUATING TESTS AND SPECIAL INSPECTIONS.
4.

THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS OR TESTS.
5.

THE APPROVED AGENCY SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.
6.

GENERAL STRUCTURAL OBSERVATIONS MADE BY THE STRUCTURAL ENGINEER OF RECORD DO NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS IN SECTION 110 OR THE SPECIAL INSPECTIONS IN SECTION 1705 OR OTHER SECTIONS OF IBC 2021.
7.

NEITHER THE BUILDING OFFICIAL NOR THE JURISDICTION SHALL BE LIABLE FOR EXPENSE ENTAILED IN THE REMOVAL OR REPLACEMENT OF ANY MATERIAL REQUIRED TO ALLOW INSPECTION.

STRUCTURAL STEEL:

1.

SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY CONTROL AND QUALITY ASSURANCE REQUIREMENTS OF AISC 360 CHAPTER N.
2.

QUALITY CONTROL:

A.

QUALITY CONTROL (QC) INSPECTION TASKS SHALL BE PERFORMED BY THE FABRICATOR'S OR ERECTOR'S QUALITY CONTROL INSPECTOR (QCI), AS APPLICABLE, IN ACCORDANCE WITH SECTIONS N5.4, N5.6 AND N5.7.

B.

TASKS IN TABLES N5.4-1 THROUGH N5.4-3 AND TABLES N5.6-1 THROUGH N5.6-3 LISTED FOR QC ARE THOSE INSPECTIONS PERFORMED BY THE QCI TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
3.

QUALITY ASSURANCE:

A.

QUALITY ASSURANCE (QA) INSPECTION OF FABRICATED ITEMS SHALL BE MADE AT THE FABRICATOR'S PLANT. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE FABRICATOR.

B.

QA INSPECTION OF THE ERECTED STEEL SYSTEM SHALL BE MADE AT THE PROJECT SITE. THE QAI SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE ERECTOR.

C.

THE QAI SHALL REVIEW THE MATERIAL TEST REPORTS AND CERTIFICATIONS AS LISTED IN SECTION N3.2 FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.

D.

QA INSPECTION TASKS SHALL BE PERFORMED BY THE QAI, IN ACCORDANCE WITH SECTIONS N5.4, N5.6, AND N5.7.

E.

TASKS IN TABLES N5.4-1 THROUGH N5.4-3 AND N5.6-1 THROUGH N5.6-3 LISTED FOR QA ARE THOSE INSPECTIONS PERFORMED BY THE QAI TO ENSURE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

F.

CONCURRENT WITH SUBMITTAL OF REPORTS TO THE AUTHORITY HAVING JURISDICTION, THE ENGINEER OF RECORD, OR THE OWNER, THE QA AGENCY SHALL SUBMIT TO THE FABRICATOR AND ERECTOR:

F.1.

INSPECTION REPORTS

F.2.

NONDESTRUCTIVE TESTING REPORTS

4.

INSPECTION OF WELDING:

A.

OBSERVATION OF WELDING OPERATIONS AND VISUAL INSPECTION OF THE IN-PROCESS AND COMPLETED WELDS SHALL BE THE PRIMARY METHOD TO CONFIRM THAT THE MATERIALS, PROCEDURES, AND WORKMANSHIP ARE IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1 SHALL APPLY.

B.

AS A MINIMUM, WELDING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.4-1, N5.4-2, AND N5.4-3. IN THESE TABLES, THE INSPECTION TASKS ARE AS FOLLOWS:

B.1.

O - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

B.2.

P - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

5.

NONDESTRUCTIVE TESTING OF WELDED JOINTS:

A.

ULTRASONIC TESTING (UT), MAGNETIC PARTICLE TESTING (MT), PENETRANT TESTING (PT), AND RADIOGRAPHIC TESTING (RT), WHERE REQUIRED, SHALL BE PERFORMED BY QA IN ACCORDANCE WITH AWS D1.1.

B.

FOR STRUCTURES IN RISK CATEGORY III OR IV, UT SHALL BE PERFORMED BY QA ON ALL COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN BUTT, T- AND CORNER JOINTS, IN MATERIAL 5/16 INCH THICK OR GREATER. FOR STRUCTURES IN RISK CATEGORY II, UT SHALL BE PERFORMED BY QA ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING, IN MATERIALS 5/16 INCH THICK OR GREATER.

C.

THE UT REJECTION RATE SHALL BE DETERMINED AS THE NUMBER OF WELDS CONTAINING DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED. WELDS THAT CONTAIN ACCEPTABLE DISCONTINUITIES SHALL NOT BE CONSIDERED AS HAVING DEFECTS WHEN THE REJECTION RATE IS DETERMINED. FOR EVALUATING THE REJECTION RATE OF CONTINUOUS WELDS OVER 3 FT IN LENGTH WHERE THE EFFECTIVE THROAT IS 1 INCH OR LESS, EACH 12 INCH INCREMENT OR FRACTION THEREOF SHALL BE CONSIDERED AS ONE WELD. FOR EVALUATING THE REJECTION RATE ON CONTINUOUS WELDS OVER 3 FT IN LENGTH WHERE THE EFFECTIVE THROAT IS GREATER THAN 1 INCH, EACH 6 INCHES OF LENGTH, OR FRACTION THEREOF, SHALL BE CONSIDERED ONE WELD.

D.

FOR PROJECTS THAT CONTAIN 40 OR FEWER WELDS, THERE SHALL BE NO REDUCTION IN THE UT RATE. THE RATE OF UT IS PERMITTED TO BE REDUCED IF APPROVED BY THE ENGINEER OF RECORD AND AUTHORITY HAVING JURISDICTION. WHERE THE INITIAL RATE OF UT IS 100%, THE NDT RATE FOR AN INDIVIDUAL WELDER OR WELDING OPERATOR IS PERMITTED TO BE REDUCED TO 25%, PROVIDED THE REJECTION RATE, THE NUMBER OF WELDS CONTAINING UNACCEPTABLE DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED, IS DEMONSTRATED TO BE 5% OR LESS OF THE WELDS TESTED FOR THE WELDER OR WELDING OPERATOR. A SAMPLING OF AT LEAST 40 COMPLETED WELDS SHALL BE MADE FOR SUCH REDUCED EVALUATION ON EACH PROJECT.

E.

FOR STRUCTURES IN RISK CATEGORY II AND HIGHER (WHERE THE INITIAL RATE FOR UT IS 10%) THE NDT RATE FOR AN INDIVIDUAL WELDER OR WELDING OPERATOR SHALL BE INCREASED TO 100% SHOULD THE REJECTION RATE (THE NUMBER OF WELDS CONTAINING UNACCEPTABLE DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED) EXCEED 5% OF THE WELDS TESTED FOR THE WELDER OR WELDING OPERATOR. A SAMPLING OF AT LEAST 20 COMPLETED WELDS ON EACH PROJECT SHALL BE MADE PRIOR TO IMPLEMENTING SUCH AN INCREASE. IF THE REJECTION RATE FOR THE WELDER OR WELDING OPERATOR FALLS TO 5% OR LESS ON THE BASIS OF AT LEAST 40 COMPLETED WELDS, THE RATE OF UT MAY BE DECREASED TO 10%.

F.

ALL NDT PERFORMED SHALL BE DOCUMENTED. FOR SHOP FABRICATION, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY PIECE MARK AND LOCATION IN THE PIECE. FOR FIELD WORK, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY LOCATION IN THE STRUCTURE, PIECE MARK, AND LOCATION IN THE PIECE. WHEN A WELD IS REJECTED ON THE BASIS OF NDT, THE NDT RECORD SHALL INDICATE THE LOCATION OF THE DEFECT AND THE BASIS OF REJECTION.

6.

INSPECTION OF HIGH-STRENGTH BOLTING:

A.

OBSERVATION OF BOLTING OPERATIONS SHALL BE THE PRIMARY METHOD USED TO CONFIRM THAT THE MATERIALS, PROCEDURES, AND WORKMANSHIP INCORPORATED IN CONSTRUCTION ARE IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND THE PROVISIONS OF THE RCSC SPECIFICATION.

B.

FOR SNUG-TIGHT JOINTS, PRE-INSTALLATION VERIFICATION TESTING AS SPECIFIED IN TABLE N5.6-1 AND MONITORING OF THE INSTALLATION PROCEDURES AS SPECIFIED IN TABLE N5.6-2 ARE NOT APPLICABLE. THE QCI AND QAI NEED NOT BE PRESENT DURING THE INSTALLATION OF FASTENERS IN SNUG-TIGHT JOINTS.

C.

FOR PRETENSIONED JOINTS AND SLP-CRITICAL JOINTS, WHEN THE INSTALLER IS USING THE TURN-OF-NUT METHOD WITH MATCHMARKING TECHNIQUES, THE DIRECT-TENSION INDICATOR METHOD, OR THE TWIST-OFF-TYPE TENSION CONTROL BOLT METHOD, MONITORING OF BOLT PRETENSIONING PROCEDURES SHALL BE AS SPECIFIED IN TABLE N5.6-2. THE QCI AND QAI NEED NOT BE PRESENT DURING INSTALLATION OF FASTENERS WHEN THESE METHODS ARE USED BY THE INSTALLER.

D.

FOR PRETENSIONED JOINTS AND SLP-CRITICAL JOINTS, WHEN THE INSTALLER IS USING THE CALIBRATED WRENCH METHOD OR THE TURN-OF-NUT METHOD WITHOUT MATCHMARKING, MONITORING OF BOLT PRETENSIONING PROCEDURES SHALL BE AS SPECIFIED IN TABLE N5.6-2. THE QCI AND QAI SHALL BE ENGAGED IN THEIR ASSIGNED INSPECTION DUTIES DURING INSTALLATION OF FASTENERS WHEN THESE METHODS ARE USED BY THE INSTALLER.

E.

AS A MINIMUM, BOLTING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.6-1, N5.6-2, AND N5.6-3. IN THESE TABLES, THE INSPECTION TASKS ARE AS FOLLOWS.

E.1.

OBSERVE (O): THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

E.2.

PERFORM (P): THESE TASKS SHALL BE PERFORMED FOR EACH BOLTED CONNECTION.

7.

INSPECTION OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS:

A.

EXPOSED CUT SURFACES OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS AND EXPOSED CORNERS OF RECTANGULAR HSS SHALL BE VISUALLY INSPECTED FOR CRACKS SUBSEQUENT TO GALVANIZING. CRACKS SHALL BE REPAIRED OR THE MEMBER SHALL BE REJECTED.

8.

OTHER INSPECTION TASKS:

A.

THE FABRICATOR'S QCI SHALL INSPECT THE FABRICATED STEEL TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE SHOP DRAWINGS.

B.

THE ERECTOR'S QCI SHALL INSPECT THE ERECTED STEEL FRAME TO VERIFY COMPLIANCE WITH THE FIELD INSTALLED DETAILS SHOWN ON THE ERECTION DRAWINGS.

C.

THE QAI SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED AND DOCUMENTED PRIOR TO PLACEMENT OF CONCRETE.

D.

THE QAI SHALL INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPLICABLE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS.

E.

THE ACCEPTANCE OR REJECTION OF JOINT DETAILS AND THE CORRECT APPLICATION OF JOINT DETAILS SHALL BE DOCUMENTED.

9.

NONCONFORMING MATERIAL AND WORKMANSHIP:

A.

IDENTIFICATION AND REJECTION OF MATERIAL OR WORKMANSHIP THAT IS NOT IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS IS PERMITTED AT ANY TIME DURING THE PROGRESS OF THE WORK. HOWEVER, THIS PROVISION SHALL NOT RELIEVE THE OWNER OR THE INSPECTOR OF THE OBLIGATION FOR TIMELY, IN-SEQUENCE INSPECTIONS. NONCONFORMING MATERIAL AND WORKMANSHIP SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE FABRICATOR OR ERECTOR, AS APPLICABLE.

B.

NONCONFORMING MATERIAL OR WORKMANSHIP SHALL BE BROUGHT INTO CONFORMANCE OR MADE SUITABLE FOR ITS INTENDED PURPOSE AS DETERMINED BY THE ENGINEER OF RECORD.

C.

CONCURRENT WITH THE SUBMITTAL OF SUCH REPORTS TO THE AUTHORITY HAVING JURISDICTION, ENGINEER OF RECORD, OR OWNER, THE QA AGENCY SHALL SUBMIT TO THE FABRICATOR AND ERECTOR:

C.1.

NONCONFORMANCE REPORTS.

C.2.

REPORTS OF REPAIR, REPLACEMENT OR ACCEPTANCE OF NONCONFORMING ITEMS.

CONCRETE CONSTRUCTION:

1.

SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH TABLE 1705.3.

2.

SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND OF AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION.

3.

IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIALS IN CHAPTERS 19 AND 20 OF ACI 318, THE BUILDING OFFICIAL SHALL REQUIRE TESTING OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318.

MASONRY CONSTRUCTION:

1.

SPECIAL INSPECTIONS AND TESTS OF MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE LEVEL 3 QUALITY ASSURANCE PROGRAM REQUIREMENTS OF TMS 602 AND TMS 602. REFER TO TABLES 3 AND 4 OF TMS 602 FOR MINIMUM VERIFICATION REQUIREMENTS AND MINIMUM SPECIAL INSPECTION REQUIREMENTS.

2.

SPECIAL INSPECTIONS AND TESTS FOR GLASS UNIT MASONRY OR MASONRY VENEER DESIGNED IN ACCORDANCE WITH IBC SECTION 2110 OR CHAPTER 14, RESPECTIVELY, WHERE THEY ARE PART OF A STRUCTURE CLASSIFIED AS RISK CATEGORY IV SHALL BE PERFORMED IN ACCORDANCE WITH TMS 602 LEVEL 2.

3.

THE TESTING AGENCY SHALL MAINTAIN THE FOLLOWING SERVICES AND DUTIES:

A.

UTILIZE QUALIFIED LABORATORY TECHNICIANS TO PERFORM REQUIRED LABORATORY TESTS.

B.

SAMPLE AND TEST IN ACCORDANCE WITH TMS 602 TABLES 3 AND 4 AS SPECIFIED FOR THE PROJECT.

C.

UNLESS OTHERWISE REQUIRED, REPORT TEST RESULTS TO THE ARCHITECT/ENGINEER, INSPECTION AGENCY, AND CONTRACTOR PROMPTLY AFTER THEY ARE PERFORMED. INCLUDE IN TEST REPORTS A SUMMARY OF CONDITIONS UNDER WHICH TEST SPECIMENS WERE STORED PRIOR TO TESTING AND STATE WHAT PORTION OF THE CONSTRUCTION IS REPRESENTED BY EACH TEST.

D.

WHEN THERE IS A REASON TO BELIEVE THAT ANY MATERIAL FURNISHED OR WORK PERFORMED BY THE CONTRACTOR FAILS TO FULFILL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, REPORT SUCH DISCREPANCY TO THE ARCHITECT/ENGINEER, INSPECTION AGENCY, AND CONTRACTOR.

E.

THE OWNER SHALL RETAIN THE TESTING AGENCY.

4.

THE INSPECTION AGENCY SHALL MAINTAIN THE FOLLOWING SERVICES AND DUTIES:

A.

UTILIZE QUALIFIED FIELD TESTING TECHNICIANS TO OBSERVE OR PERFORM THE PREPARATION AND HANDLING OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR MASONRY PRISMS.

B.

UTILIZE QUALIFIED SPECIAL INSPECTORS TO INSPECT AND EVALUATE CONSTRUCTION. INSPECT AND EVALUATE IN ACCORDANCE WITH TMS 602 TABLES 3 AND 4, AS SPECIFIED FOR THE PROJECT.

C.

WHEN REQUIRED, INSPECT AND EVALUATE ITEMS BEYOND THE SCOPE OF THE APPLICABLE QA TABLE.

D.

UNLESS OTHERWISE REQUIRED, REPORT INSPECTION RESULTS TO THE ARCHITECT/ENGINEER AND CONTRACTOR PROMPTLY AFTER THEY ARE PERFORMED. INCLUDE IN INSPECTION REPORTS A SUMMARY OF CONDITIONS UNDER WHICH THE INSPECTIONS WERE MADE AND STATE WHAT PORTION OF THE CONSTRUCTION IS REPRESENTED BY EACH INSPECTION.

E.

FURNISH INSPECTION REPORTS TO THE ARCHITECT/ENGINEER AND CONTRACTOR.

F.

WHEN THERE IS A REASON TO BELIEVE THAT ANY MATERIAL FURNISHED OR WORK PERFORMED BY THE CONTRACTOR FAILS TO FULFILL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, REPORT SUCH DISCREPANCY TO THE ARCHITECT/ENGINEER AND TO THE CONTRACTOR AND, WHEN REQUESTED, TO THE OWNER AND THE BUILDING OFFICIAL.

G.

SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTION AGENCY'S KNOWLEDGE, IN CONFORMANCE. SUBMIT THE FINAL REPORT TO THE ARCHITECT/ENGINEER AND CONTRACTOR.

H.

THE OWNER SHALL RETAIN THE INSPECTION AGENCY.

SOILS:

1.

SPECIAL INSPECTIONS AND TESTS OF EXISTING SITE SOIL CONDITIONS, FILL-PLACEMENT, AND LOAD-BEARING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH IBC SECTION 1705.6 AND TABLE 1705.6.

2.

THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE.

3.

DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.

COLD-FORMED STEEL FLOOR AND ROOF DECK:

1.

SPECIAL INSPECTIONS AND QUALIFICATION OF WELDING SPECIAL INSPECTORS FOR COLD-FORMED STEEL FLOOR AND ROOF DECK SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QA/QC.

HELICAL PILE FOUNDATIONS

1.

CONTINUOUS SPECIAL INSPECTIONS SHALL BE PERFORMED DURING INSTALLATION OF HELICAL PILE FOUNDATIONS. THE INFORMATION RECORDED SHALL INCLUDE INSTALLATION EQUIPMENT USED, PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH, FINAL INSTALLATION TORQUE AND OTHER PERTINENT INSTALLATION DATA AS REQUIRED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL SHALL BE USED TO DETERMINE COMPLIANCE.

TABLE N5.4-1 INSPECTION TASKS PRIOR TO WELDING		
INSPECTION TASKS PRIOR TO WELDING	QC	QA
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P	P
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
WELDER IDENTIFICATION SYSTEM (1)	O	O
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) -JOINT PREPARATION -DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) -CLEANLINESS (CONDITION OF STEEL SURFACES) -TACKING (TACK WELD QUALITY AND LOCATION) -BACKING TYPE AND FIT (IF APPLICABLE)	O	O
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY) -JOINT PREPARATION -DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) -CLEANLINESS (CONDITION OF STEEL SURFACES) -TACKING (TACK WELD QUALITY AND LOCATION)	P	O
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
FIT-UP OF FILLET WELDS -DIMENSIONS (ALIGNMENT, GAPS AT ROOT) -CLEANLINESS (CONDITION OF STEEL SURFACES) -TACKING (TACK WELD QUALITY AND LOCATION)	O	O
CHECK WELDING EQUIPMENT	O	-
(1) THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.		

TABLE N5.4-2 INSPECTION TASKS DURING WELDING		
INSPECTION TASKS DURING WELDING	QC	QA
USE OF QUALIFIED WELDERS	O	O
CONTROL AND HANDLING OF WELDING CONSUMABLES -PACKAGING -EXPOSURE CONTROL	O	O
NO WELDING OVER CRACKED TACK WELDS	O	O
ENVIRONMENTAL CONDITIONS -WIND SPEED WITHIN LIMITS -PRECIPITATION AND TEMPERATURE	O	O
WPS FOLLOWED -SETTINGS ON WELDING EQUIPMENT -TRAVEL SPEED -SELECTED WELDING MATERIALS -SHIELDING GAS TYPE/FLOW RATE -PREHEAT APPLIED -INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) -PROPER POSITION (F, V, H, OH)	O	O
WELDING TECHNIQUES -INTERPASS AND FINAL CLEANING -EACH PASS WITHIN PROFILE LIMITATIONS -EACH PASS MEETS QUALITY REQUIREMENTS	O	O
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P

TABLE N5.4-3 INSPECTION TASKS AFTER WELDING		
INSPECTION TASKS AFTER WELDING	QC	QA
WELDS CLEANED	O	O
SIZE, LENGTH, AND LOCATION OF WELDS	P	P
WELDS MEET VISUAL ACCEPTANCE CRITERIA -CRACK PROHIBITION -WELDBASE-METAL FUSION -CRATER CROSS SECTION -WELD PROFILES -WELD SIZE -UNDERCUT -POROSITY	P	P
ARC STRIKES	P	P
K-AREA (1)	P	P
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES (2)	P	P
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
REPAIR ACTIVITIES	P	P
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	O	O
(1) WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES (75 mm) OF THE WELD.		
(2) AFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1c) AND BUILT-UP HEAVY SHAPES (SEE SECTION A3.1d) ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.		

TABLE N5.6-1 INSPECTION TASKS PRIOR TO BOLTING		
INSPECTION TASKS PRIOR TO BOLTING	QC	QA
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O

TABLE N5.6-2 INSPECTION TASKS DURING BOLTING		
INSPECTION TASKS DURING BOLTING	QC	QA
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	O	P
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O

TABLE N5.6-3 INSPECTION TASKS AFTER BOLTING		
INSPECTION TASKS AFTER BOLTING	QC	QA
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P

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01/31/2026

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EXPIRES:

11/30/2026

APPROVED

NO.

DATE

APPD

REVISION

DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

SPECIAL INSPECTIONS AND
TESTING NOTES

PROJECT NO.: 0028A

DWG:

S4

SHEET:

14

OF

116

DATE:

JANUARY 2025

REV:

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TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD ^(a)	IBC REFERENCE
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	-
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16" c. INSPECT ALL OTHER WELDS.	X	X X	AWS D1.4 ACI 318: 26.6.4	-
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS ^(b) a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X	X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	-
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	-	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	-
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	-
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	-
9. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2(b)	-

(a) WHERE APPLICABLE, SEE ALSO SECTION 1705.13, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

(b) SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIALS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

TMS 602 TABLE 3 - MINIMUM VERIFICATION REQUIREMENTS				
MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE ^(a)			REFERENCE FOR CRITERIA
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 602
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.	R	R	R	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF f_{ck} AND f_{AAC} EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE.	NR	R	R	ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	NR	R	R	ART. 1.5 & 1.6.3
DURING CONSTRUCTION, VERIFICATION OF f_m AND f_{AAC} FOR EVERY 5,000 SQ. FT.	NR	NR	R	ART. 1.4B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.	NR	NR	R	ART. 1.4B

(a) R = REQUIRED, NR = NOT REQUIRED

TMS 602 TABLE 4 - MINIMUM SPECIAL INSPECTION REQUIREMENTS					
INSPECTION	FREQUENCY ^(a)			REFERENCE FOR CRITERIA	
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
a. PROPORTIONS OF SITE-PREPARED MORTAR	NR	P	P		ART. 2.1, 2.6A, & 2.6C
b. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	NR	P	P		ART. 3.4
c. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	NR	C ^(b) /P ^(c)	C		ART. 2.1 C.1
d. SAMPLE PANEL CONSTRUCTION	NR	P	C		ART. 1.6D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:					
a. GROUT SPACE	NR	P	C		ART. 3.2D & 3.2F
b. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	NR	P	C	SEC. 6.1, 6.3.1, 6.3.6, & 6.3.7	ART. 3.2E & 3.4
c. PROPORTIONS OF SITE-PREPARED GROUT	NR	P	P		ART. 2.6B
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:					
a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	NR	P	P		ART. 1.5
b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	NR	P	P		ART. 3.3B
c. SIZE AND LOCATION OF STRUCTURAL MEMBERS	NR	P	P		ART. 3.3F
d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	NR	P	C	SEC. 1.2.1(e), 6.2.1, & 6.3.1	
e. WELDING OF REINFORCEMENT	NR	C	C	SEC. 6.1.6.1.2	
f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	NR	P	P		ART. 1.8C & 1.8D
g. PLACEMENT OF GROUT	NR	C	C		ART. 3.5
h. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	NR	C ^(b) /P ^(c)	C		ART. 3.3 B.9 & 3.3 F.1b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	NR	P	C		ART. 1.4 B.2 a.3, 1.4 B.2 b.3, 1.4 B.2 c.3, 1.4 B.3, 1.4 B.4

(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE LISTED TASK OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE.

NR = NOT REQUIRED, P = PERIODIC, C = CONTINUOUS

(b) REQUIRED FOR THE FIRST 5000 SQUARE FEET OF AAC MASONRY.

(c) REQUIRED AFTER THE FIRST 5000 SQUARE FEET OF AAC MASONRY.

SPECIAL INSPECTIONS AND TESTING FOR SEISMIC RESISTANCE:

- SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE SHALL BE REQUIRED AS SPECIFIED IN IBC 2021 SECTIONS 1705.13.1 THROUGH 1705.13.9.
- SPECIAL INSPECTIONS OF STRUCTURAL STEEL IN THE SEISMIC FORCE-RESISTING SYSTEMS IN BUILDINGS AND STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.
- SPECIAL INSPECTIONS OF STRUCTURAL STEEL ELEMENTS IN THE SEISMIC FORCE-RESISTING SYSTEMS OF BUILDINGS AND STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F OTHER THAN THOSE COVERED IN NOTE #2 ABOVE, INCLUDING STRUTS, COLLECTORS, CHORDS AND FOUNDATION ELEMENTS, SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.
- TESTING FOR SEISMIC RESISTANCE SHALL BE REQUIRED AS SPECIFIED IN IBC 2021 SECTIONS 1705.14.1 THROUGH 1705.14.4.
- NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL IN THE SEISMIC FORCE-RESISTING SYSTEMS IN BUILDINGS AND STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.
- NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN THE SEISMIC FORCE-RESISTING SYSTEMS OF BUILDINGS AND STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F OTHER THAN THOSE COVERED IN NOTE #5 ABOVE, INCLUDING STRUTS, COLLECTORS, CHORDS AND FOUNDATION ELEMENTS, SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

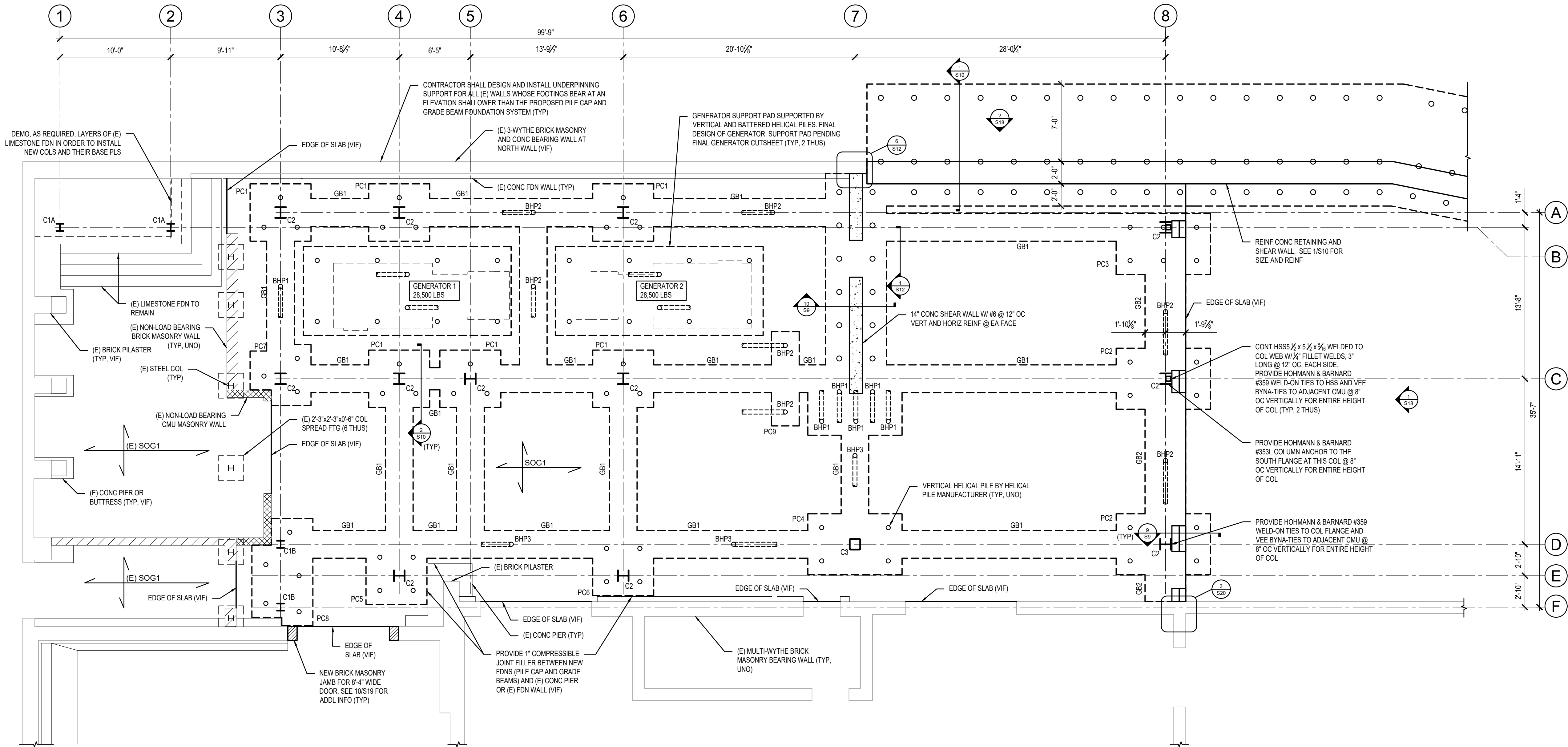
STRUCTURAL

SPECIAL INSPECTIONS AND
TESTING NOTES

PROJECT NO.: 0028A

DWG:	S5	
SHEET:	15	OF 116
DATE:	JANUARY 2025	REV: 0

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\\PRIMERACHICAGO.COM\FILES\PROJECTS\2022\20220208\14.0008 DRAWINGS AND SUBSTRUCTURAL - BASE FILES\CURRENT\00208ASL1B.DWG ROBERT OSWALD



1 FOUNDATION AND FIRST FLOOR PLAN

- NOTES:
1. T/SLAB EL = +9'-8". NOMINAL.
 2. T/SLAB EL = +9'-8". NOMINAL.
 3. PCX - INDICATES REINFORCED CONCRETE PILE CAP. SEE S11 FOR ENLARGED PILE CAP PLAN DETAILS.
 4. T/PILE CAP EL = +8'-8".
 5. GBx - INDICATES REINFORCED CONCRETE GRADE BEAM. SEE S10 FOR TYPICAL GRADE BEAM DETAIL AND SCHEDULE.
 6. T/GRADE BEAM EL = +8'-8".
 7. BHP - INDICATES BATTERED HELICAL PILE BY HELICAL PILE MANUFACTURER. REFER TO SCHEDULE FOR DESIGN LOADS.
 8. HELICAL PILE FOUNDATIONS ARE ASSUMED TO EXTEND A MINIMUM OF 75'-0" INTO THE SOIL UPON WHICH COMPETENT SOIL WILL BE REACHED. HELICAL PILE MANUFACTURER SHALL VERIFY THE REQUIRED DEPTH OF EMBEDMENT FOR THE VERTICAL AND BATTERED PILES SUCH THAT THE ALLOWABLE AXIAL CAPACITY OF THE PILES IS ACHIEVED.
 9. HELICAL PILES SHALL BE DESIGNED FOR A MAXIMUM 1/2" OF TOTAL SETTLEMENT AND 1/4" OF DIFFERENTIAL SETTLEMENT.
 10. SOG1 - INDICATES 8" SLAB-ON-GRADE REINFORCED WITH 4x4-W6@6 W/WF.
 11. (E)SOG1 - INDICATES EXISTING SLAB-ON-GRADE. SLAB THICKNESS SHALL BE VERIFIED IN FIELD.
 12. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT INDICATED AND FOR SLAB SLOPING AND DRAINAGE INFORMATION. SLOPE SLAB TOWARDS DRAINS.
 13. CX - INDICATES COLUMN TYPE. REFER TO COLUMN AND BASE PLATE SCHEDULE ON S13.
 14. SEE S18 FOR EXTERIOR CMU MASONRY WALL ELEVATIONS AND REINFORCING REQUIREMENTS.
 15. SEE S22 FOR SHEAR WALL PILE CAP PLAN DETAIL.
 16. SEE S21 FOR NON-LOAD BEARING CMU PARTITION WALL INFORMATION AND DETAILS. COORDINATE LOCATIONS WITH ARCHITECTURAL DRAWINGS.

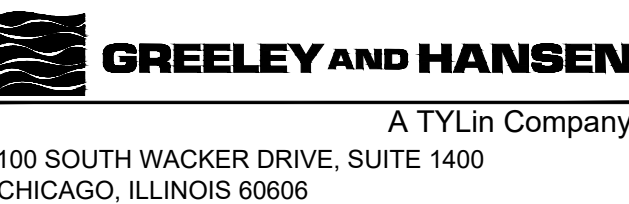
BATTERED HELICAL PILE AXIAL DESIGN LOADS		
HELICAL PILE LABEL	COMPRESSION (KIPS)	TENSION (KIPS)
BHP1	SEE SCHED ON S11A	SEE SCHED ON S11A
BHP2	51	30
BHP3	62	35

HELICAL PILE LEGEND:

○ - VERTICAL PILE

○ - BATTERED PILE

← DIRECTION OF BATTER

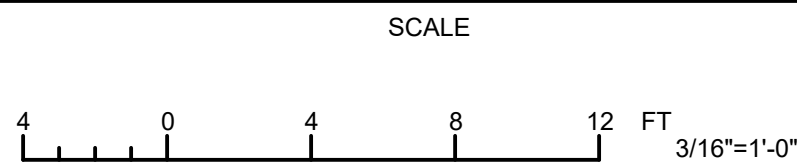


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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

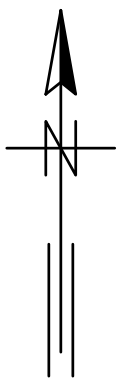
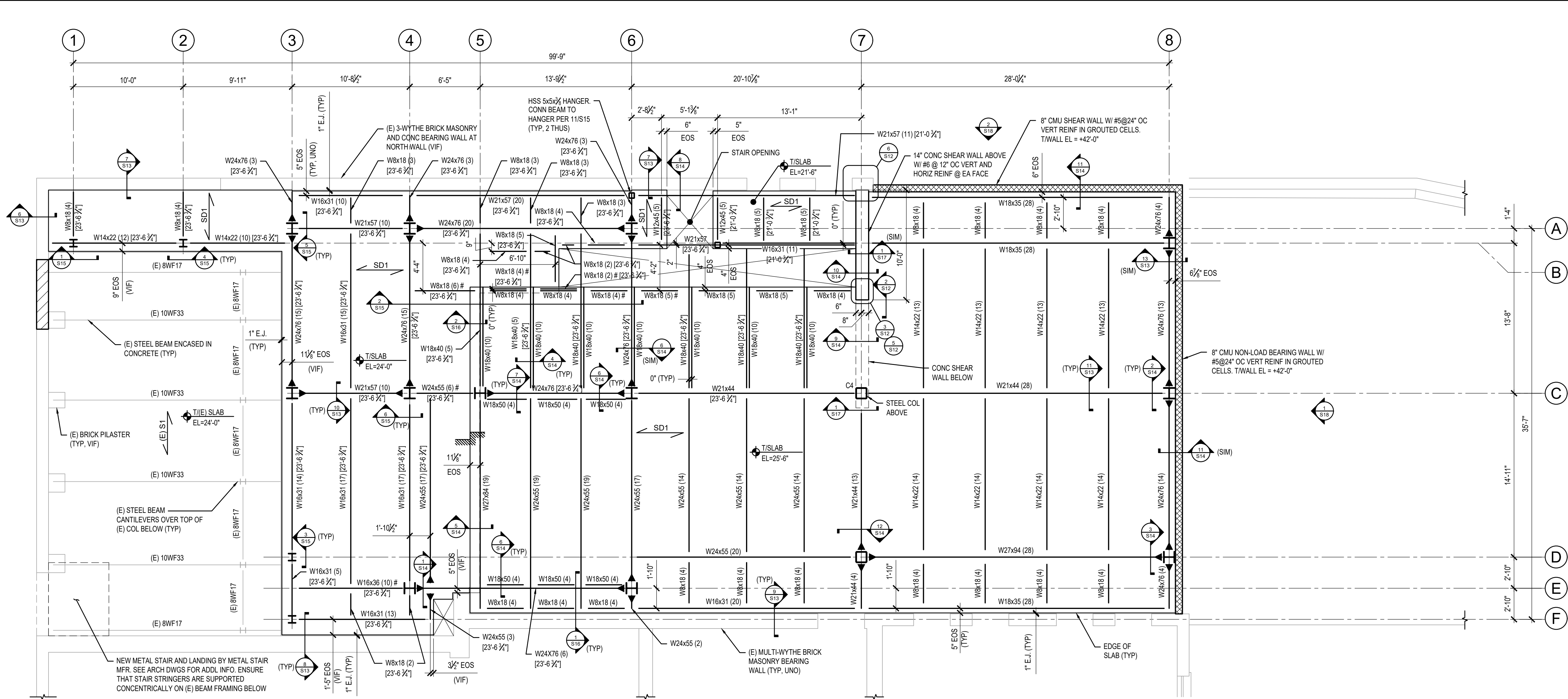
FOUNDATION AND
FIRST FLOOR PLAN

PROJECT NO.: 0028A

DWG: S6
SHEET: 16 OF 116
DATE: JANUARY 2025 REV: 0

BID SET

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\\PRIMERACHICAGO.COM\FILES\FERC\PROJECTS\2022\20220814.0008 DRAWINGS AND GIS\STRUCTURAL - BASE FILES\CURRENT\0028\SL2B.DWG ROBERT OSWALD

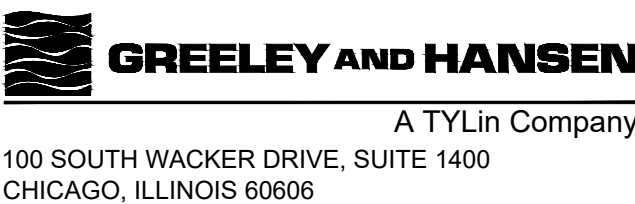


1 SECOND FLOOR FRAMING PLAN

- NOTES:
1. T/SLAB EL = +25'-6" (TYP. UNO).
 2. T/STEEL EL = +25'-0 3/4" (TYP. UNO).
 3. [X-XX'] - INDICATES TOP OF STEEL ELEVATION WHERE DIFFERENT THAN TYPICAL.
 4. ► - INDICATES MOMENT CONNECTION. FABRICATOR'S DELEGATED CONNECTION DESIGN ENGINEER SHALL DESIGN THE CONNECTIONS FOR THE FOLLOWING LOADS:

W21 BEAMS: AXIAL FORCE = 10 KIPS, MOMENT = 140 KIP-FT
W24 BEAMS: AXIAL FORCE = 26 KIPS, MOMENT = 96 KIP-FT
W27 BEAMS: AXIAL FORCE = 40 KIPS, MOMENT = 198 KIP-FT
 5. (X) - INDICATES NUMBER OF 3/4" x 3 3/4" WELDED HEADED STUDS UNIFORMLY SPACED ALONG THE BEAM LENGTH WHERE SLAB OCCURS OVER BEAM.
 6. SD1 - INDICATES SPAN DIRECTION OF 2" 18 GAUGE COMPOSITE STEEL FLOOR DECK W/ 3/4" LIGHTWEIGHT CONCRETE TOPPING SLAB (TOTAL SLAB THICKNESS = 5 3/4"). REINFORCE SLAB W/ 4 LBS/CY MACROSYNTHETIC FIBER REINFORCEMENT.
 7. (E) S1 - INDICATES SPAN DIRECTION OF EXISTING 6" REINFORCED CONCRETE SLAB (VIF).
 8. # - INDICATES DRAG STRUT. FABRICATOR'S DELEGATED CONNECTION DESIGN ENGINEER SHALL DESIGN THE DRAG STRUT END CONNECTIONS FOR THE FOLLOWING FACTORED AXIAL LOADS USING A325 SLIP-CRITICAL BOLTS:

W8 BEAMS - 15 KIPS
W16 BEAMS - 40 KIPS
W24 BEAMS - 20 KIPS
 9. SEE S18 FOR EXTERIOR CMU MASONRY WALL ELEVATIONS AND REINFORCING REQUIREMENTS.
 10. SEE S21 FOR NON-LOAD BEARING CMU PARTITION WALL INFORMATION AND DETAILS. COORDINATE LOCATIONS WITH ARCHITECTURAL DRAWINGS.

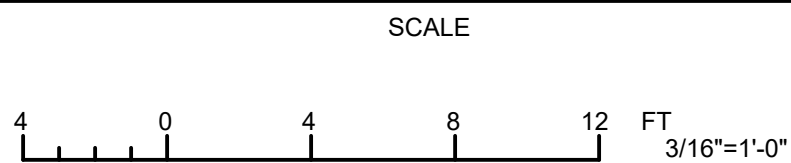


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WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

SECOND FLOOR FRAMING PLAN

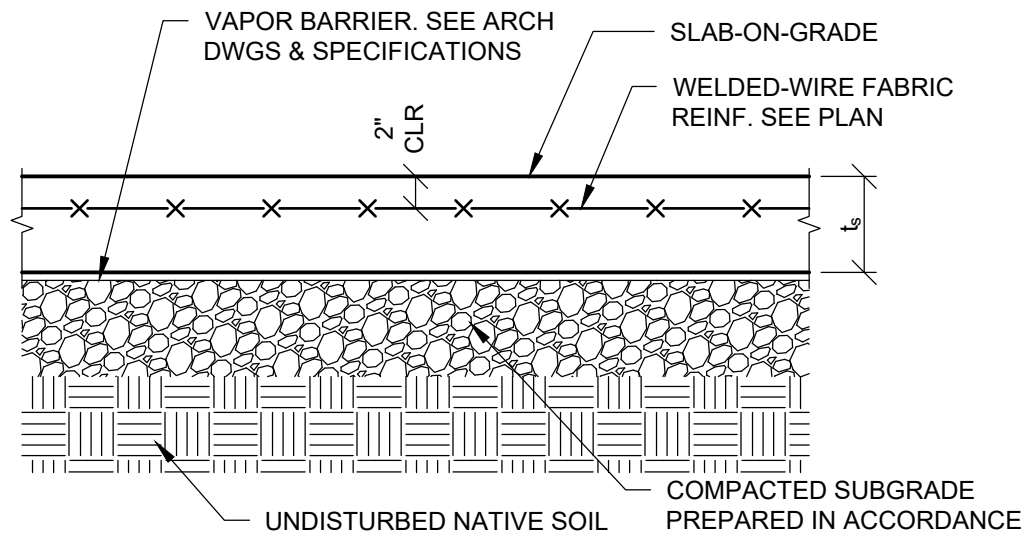
PROJECT NO.: 0028A

DWG: **S7**
SHEET: 17 OF 116
DATE: JANUARY 2025 REV: 0

[illegible]

2 ROOF FRAMING PLAN

PROJECT NO.: 0028A		
DWG:	S8	
SHEET:	18	OF 116
DATE:	JANUARY 2025	REV:

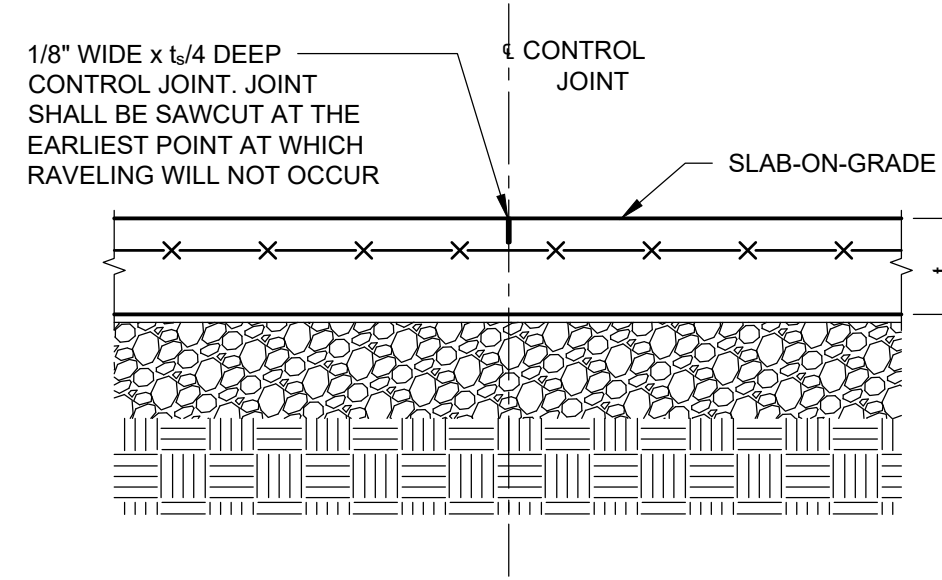


1 TYPICAL SLAB-ON-GRADE DETAIL

SCALE: 1" = 1'-0"

NOTES:

1. DETAIL ALSO APPLIES TO MACROSYNTHETIC FIBER REINFORCEMENT IN LIEU OF WELDED-WIRE FABRIC. SEE PLAN FOR ADDITIONAL INFORMATION.

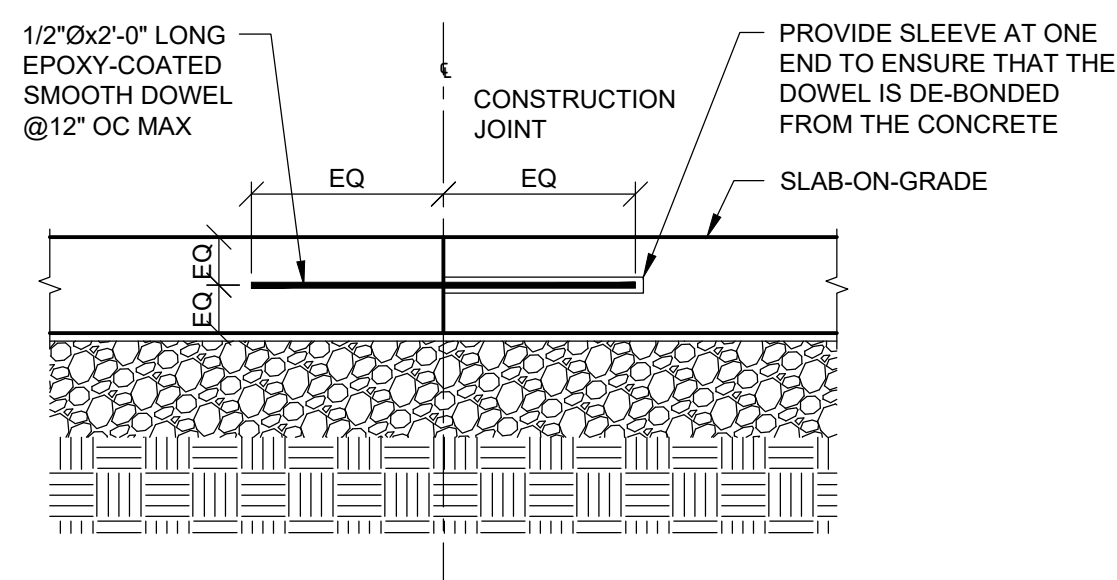


2 TYPICAL SLAB-ON-GRADE CONTROL JOINT DETAIL

SCALE: 1" = 1'-0"

NOTES:

1. SEE 1/S9 FOR INFORMATION NOT INDICATED ABOVE.

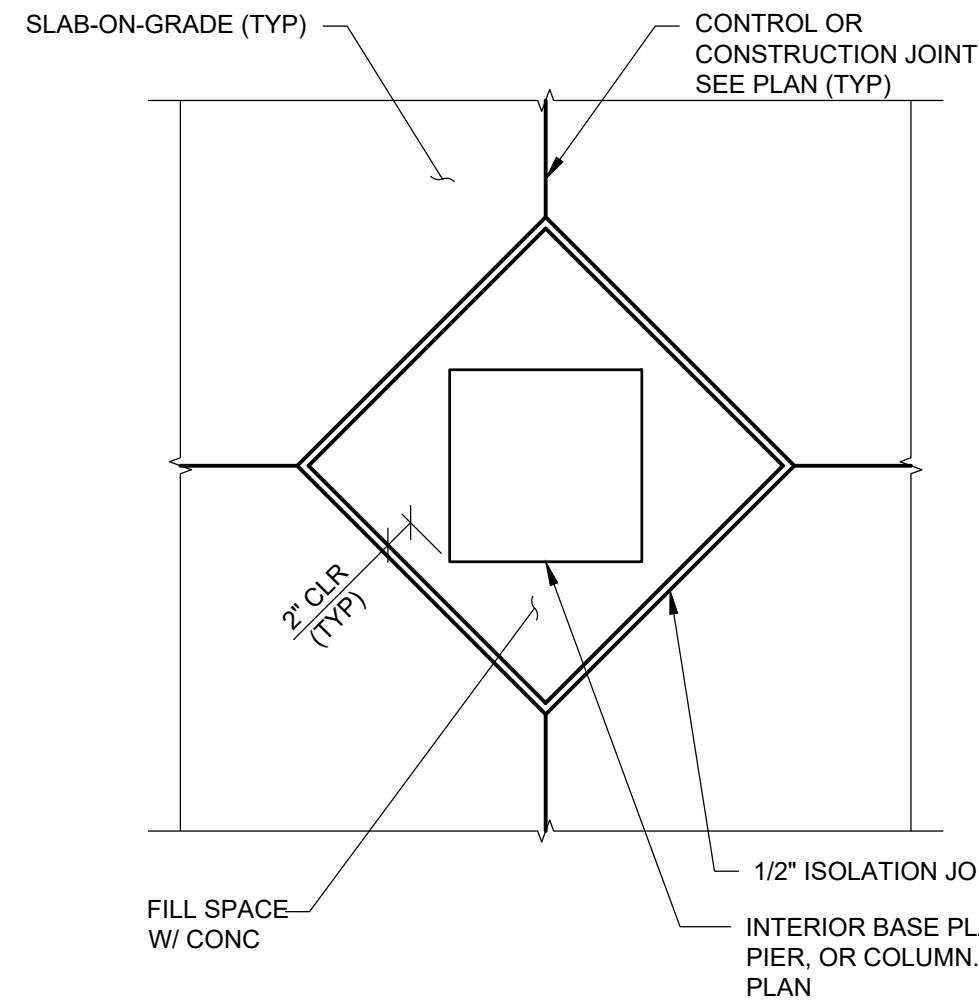


3 TYPICAL SLAB-ON-GRADE CONSTRUCTION JOINT DETAIL - OPTION A

SCALE: 1" = 1'-0"

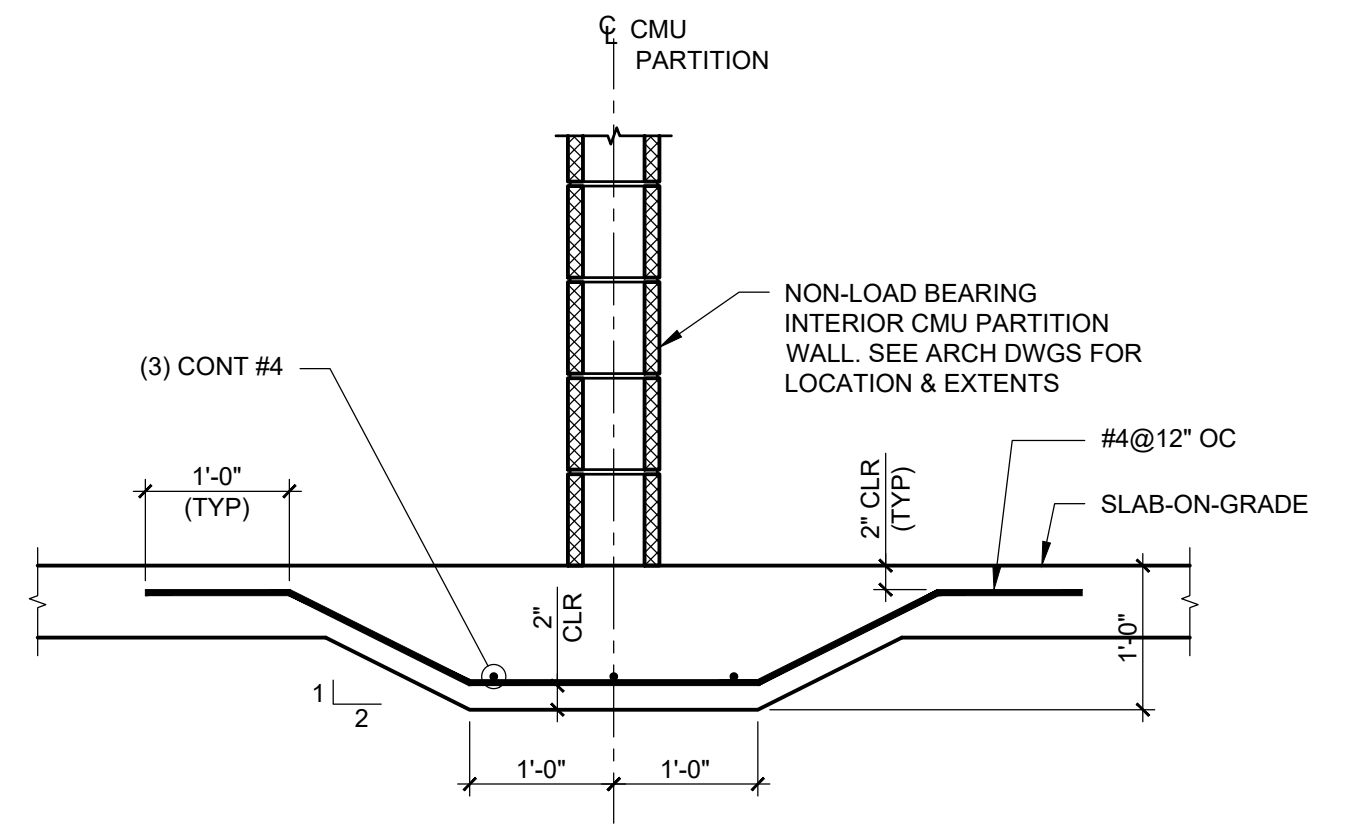
NOTES:

1. SEE 1/S9 FOR INFORMATION NOT INDICATED ABOVE.



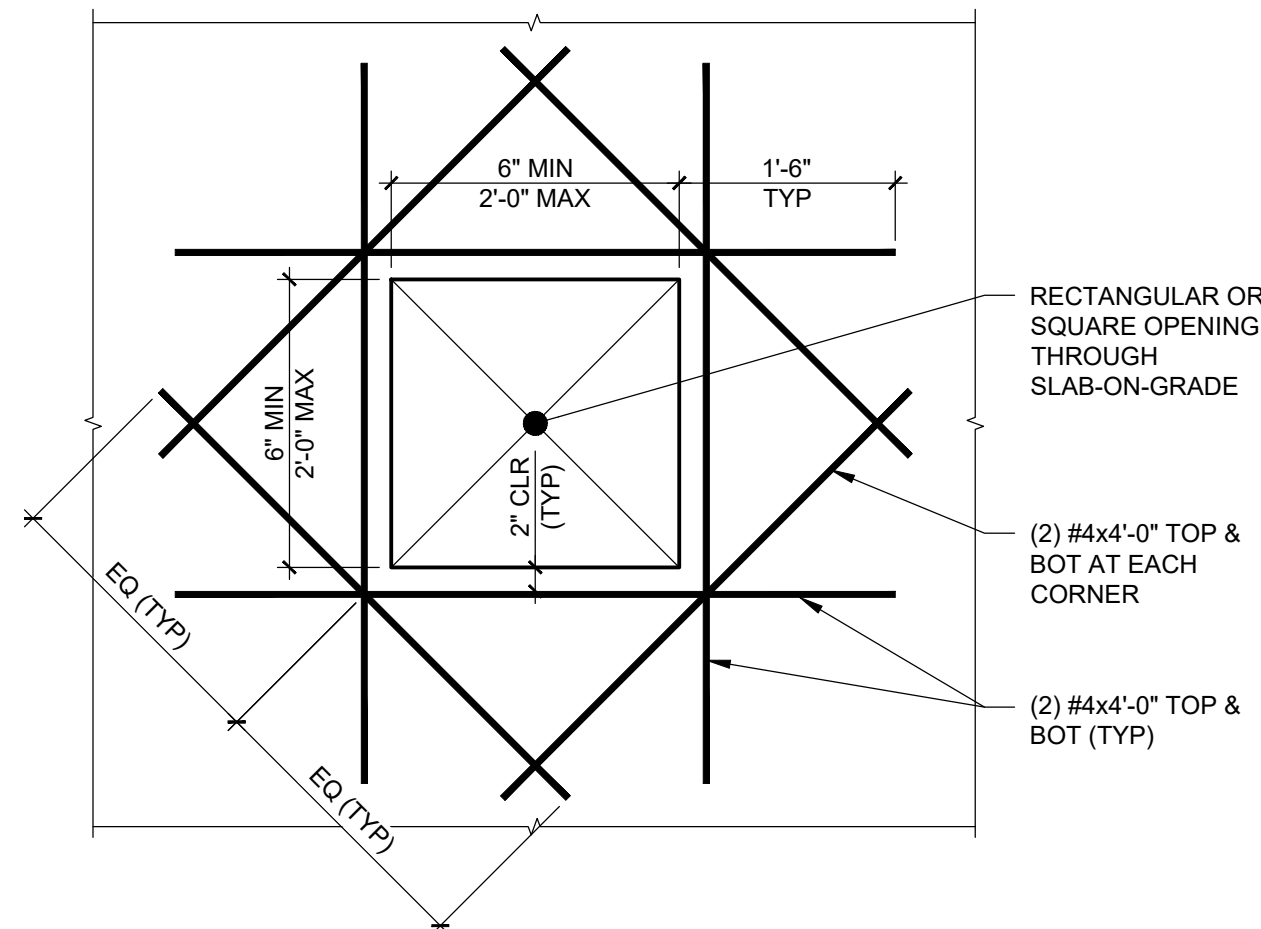
4 TYPICAL ISOLATION JOINT DETAIL AT INTERIOR COLUMN

SCALE: 1" = 1'-0"



5 TYPICAL THICKENED SLAB DETAIL AT NON-LOAD BEARING INTERIOR CMU PARTITION WALL

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

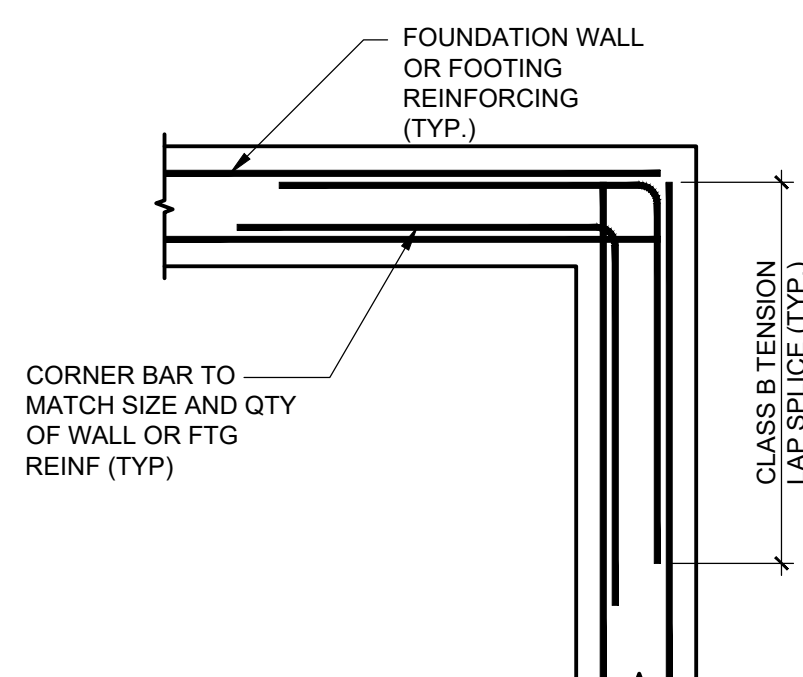
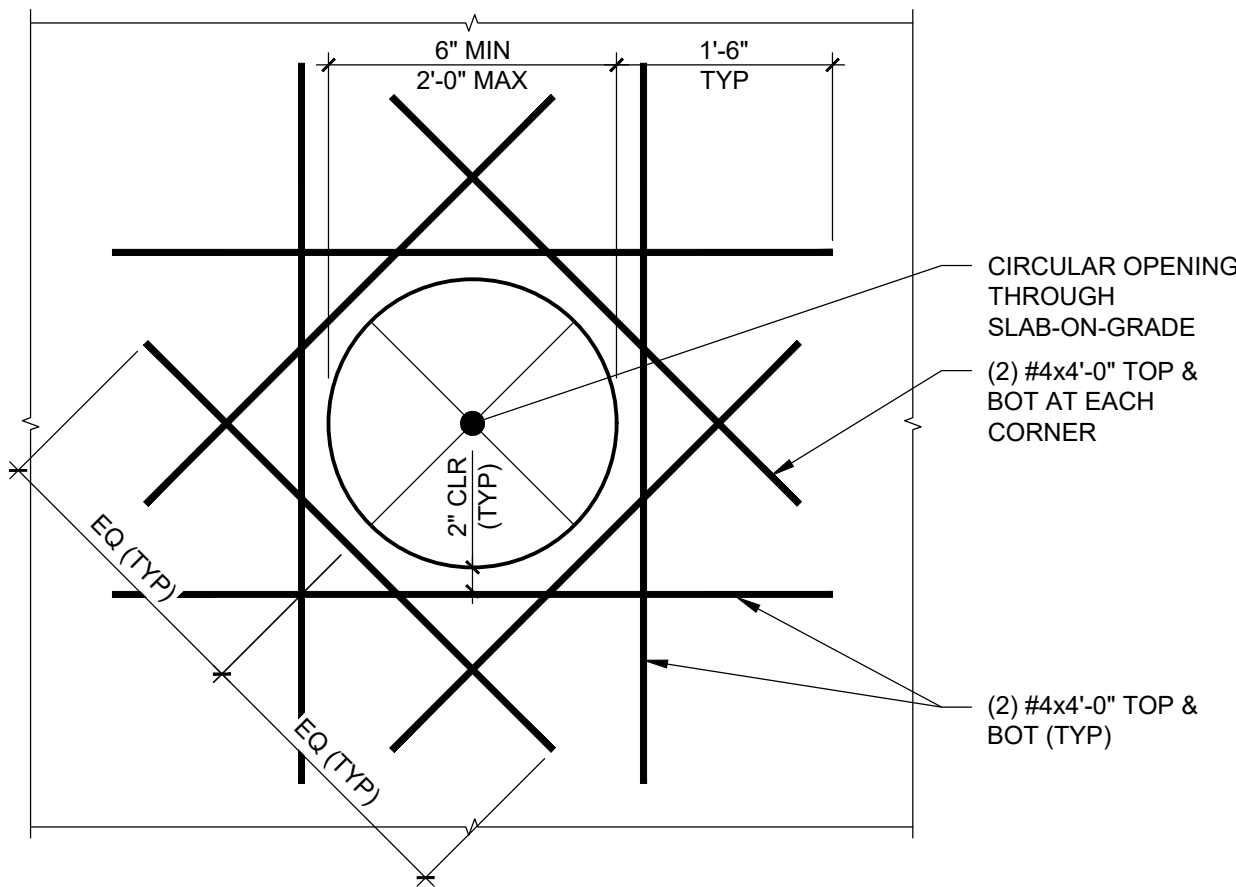


6 TYPICAL SLAB-ON-GRADE REINFORCEMENT DETAIL AT OPENINGS

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

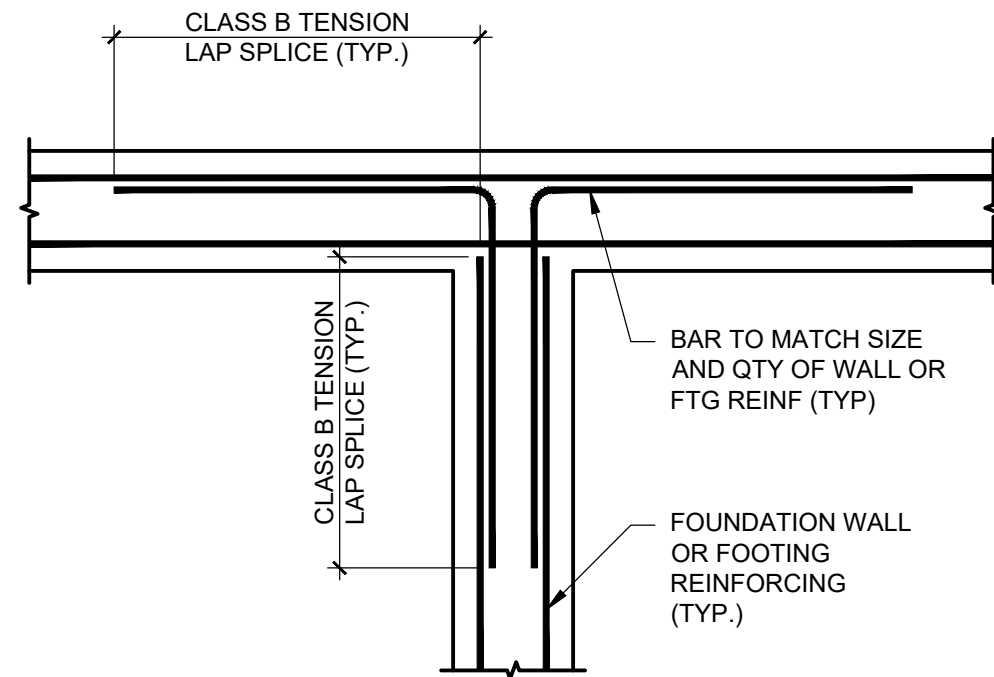
NOTES:

1. COORDINATE OPENING LOCATIONS WITH MEP DRAWINGS.



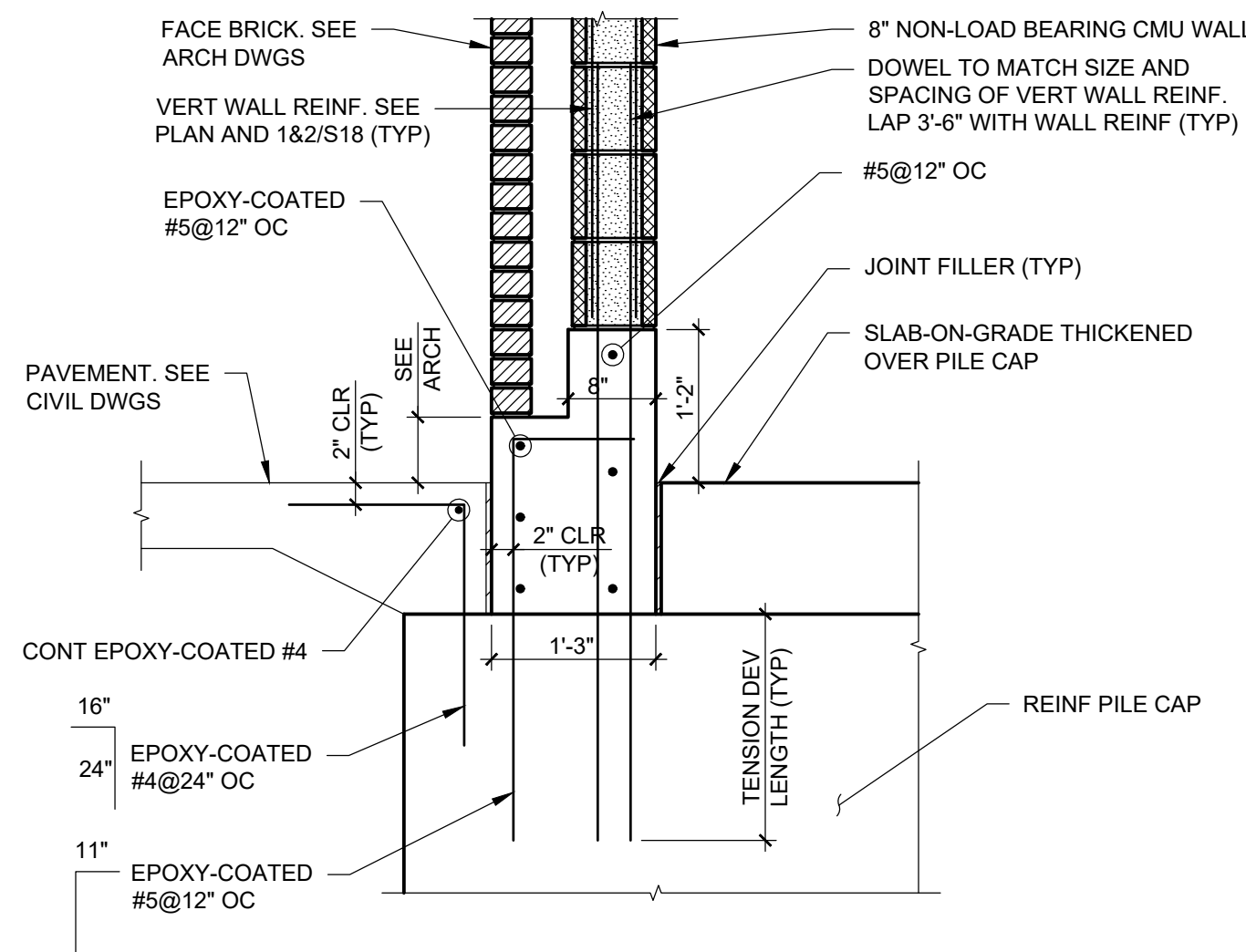
7 TYPICAL FOUNDATION WALL OR FOOTING REINFORCEMENT DETAIL AT CORNERS

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



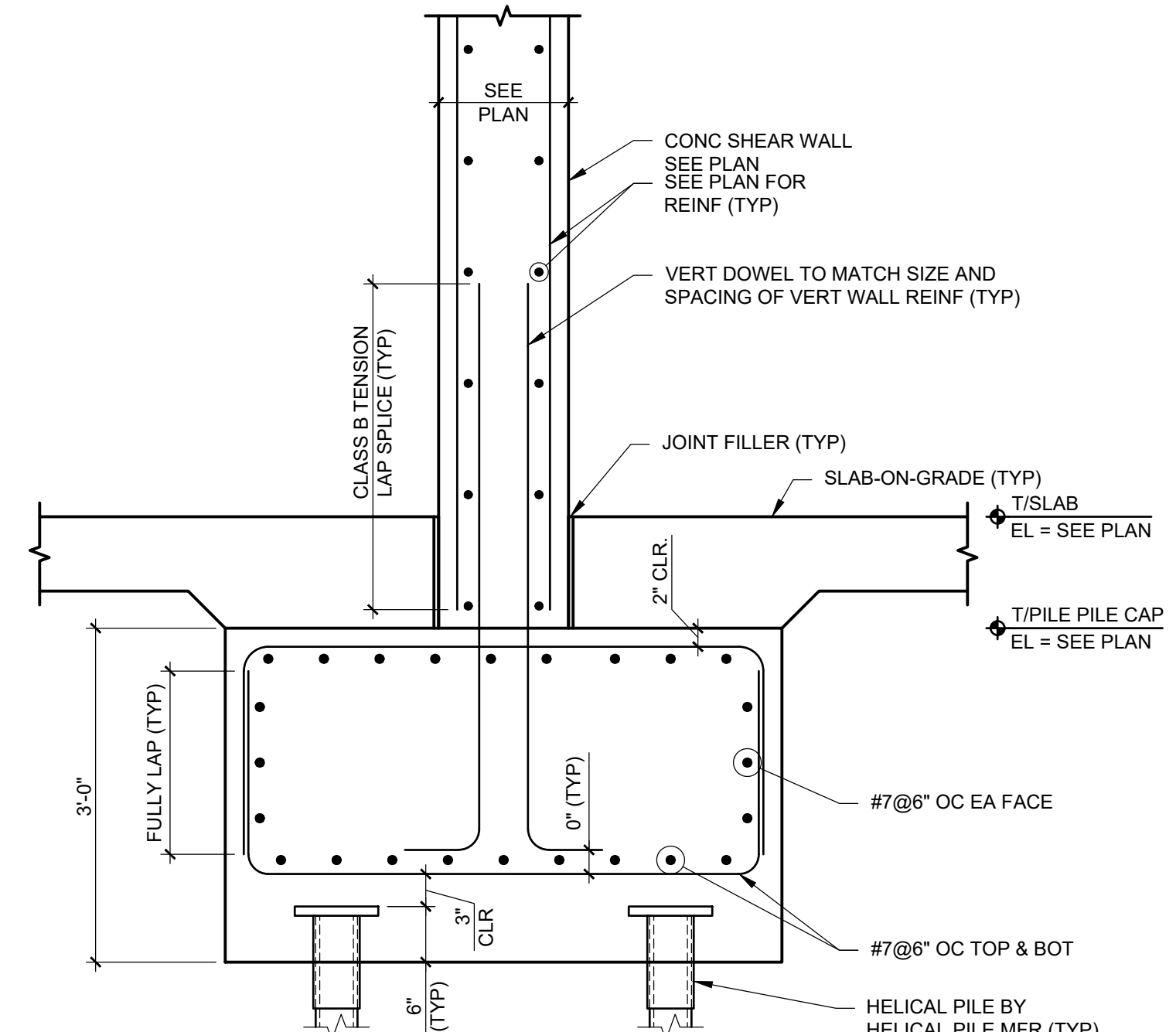
8 TYPICAL FOUNDATION WALL OR FOOTING REINFORCEMENT DETAIL AT INTERSECTIONS

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



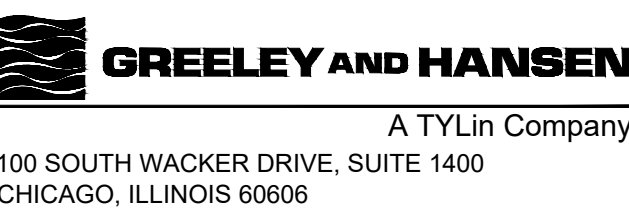
9 EAST EXTERIOR WALL FOUNDATION SECTION

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



10 SHEAR WALL TO PILE CAP DETAIL

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

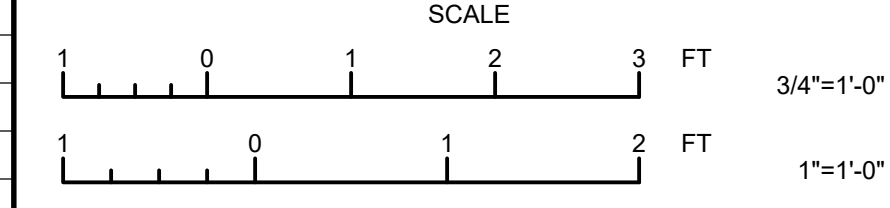


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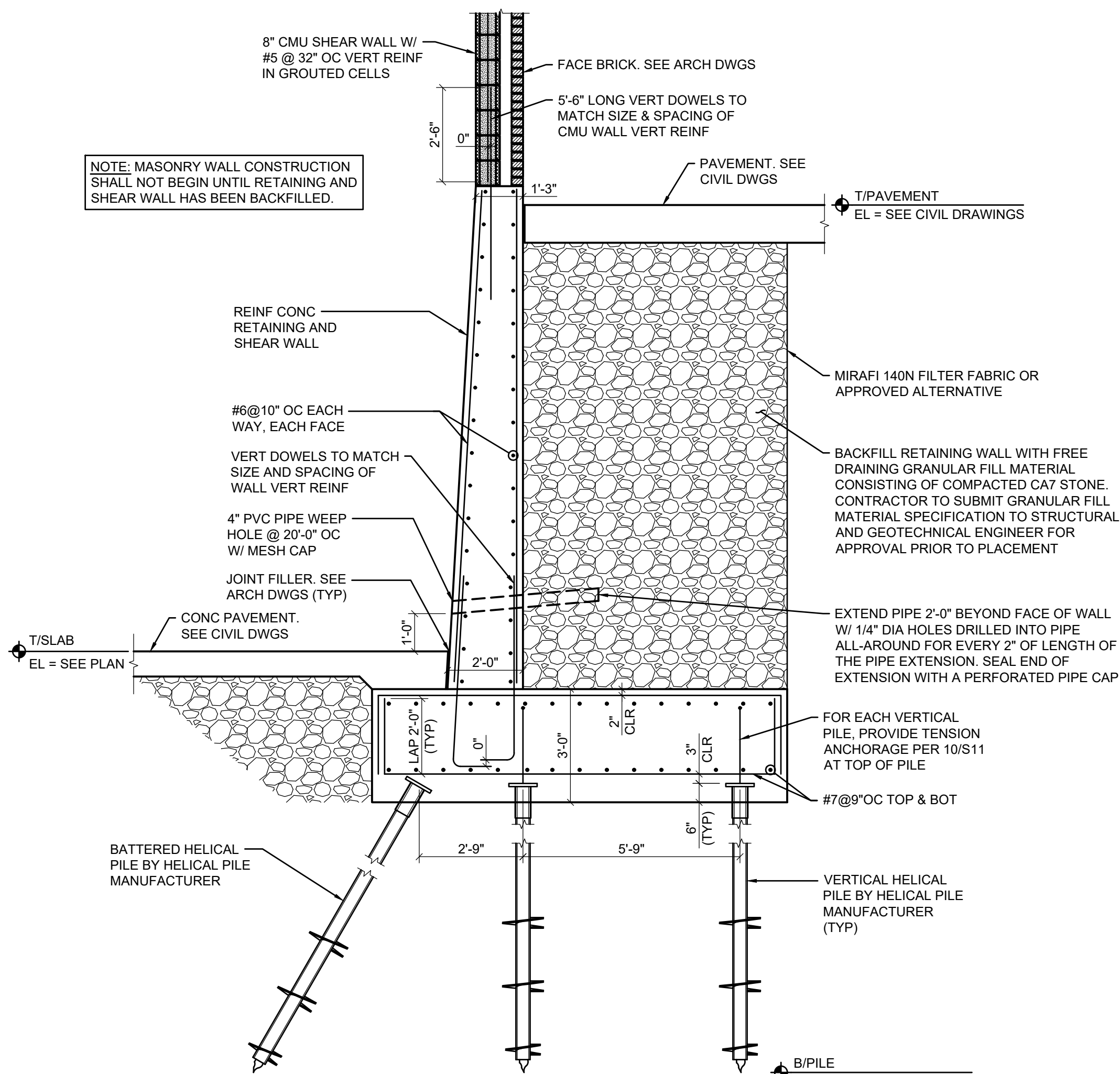
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

FOUNDATION DETAILS

PROJECT NO.: 0028A
DWG: **S9**
SHEET: 19 OF 116
DATE: JANUARY 2025 REV: 0

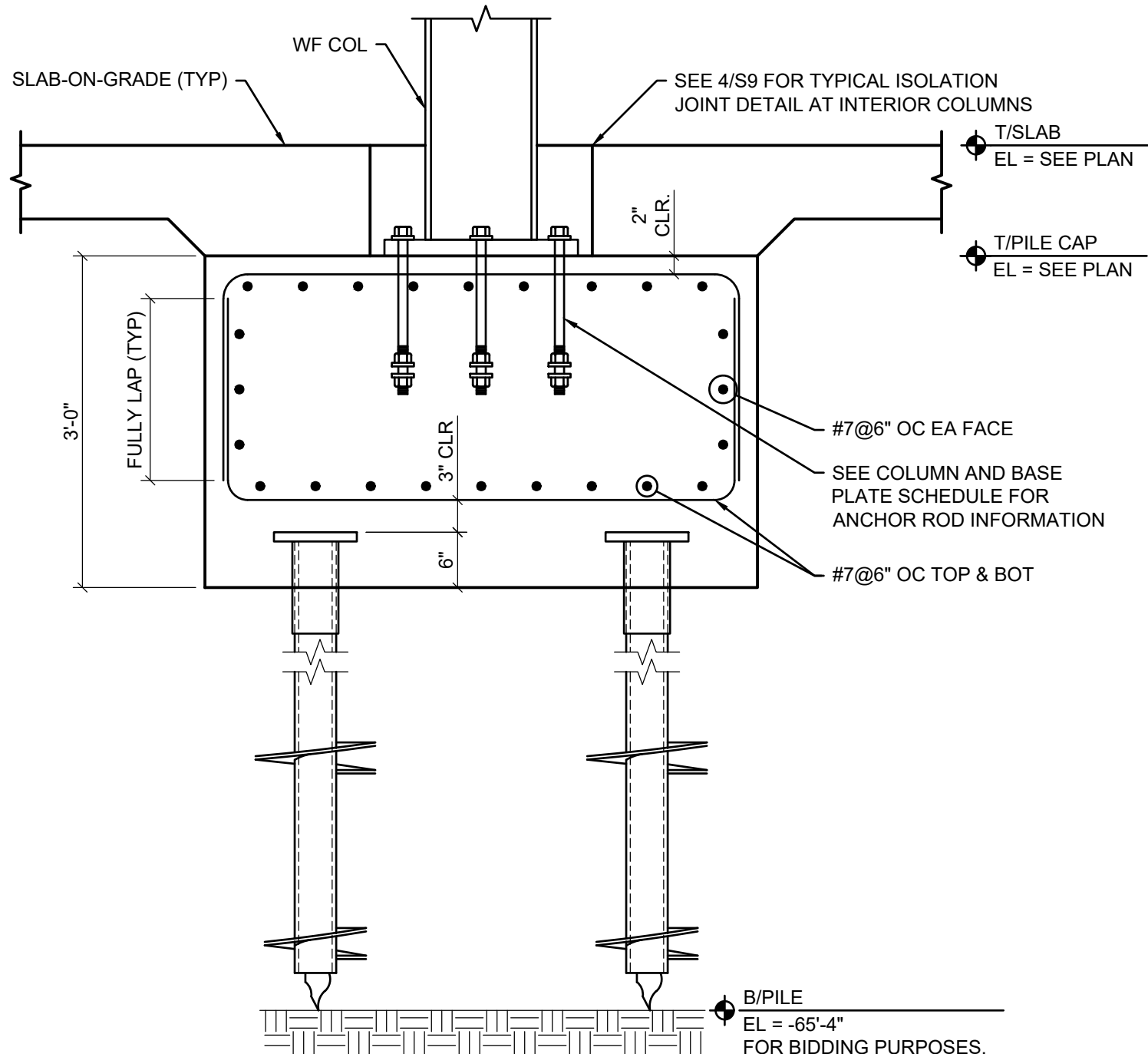
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1 RETAINING AND SHEAR WALL SECTION

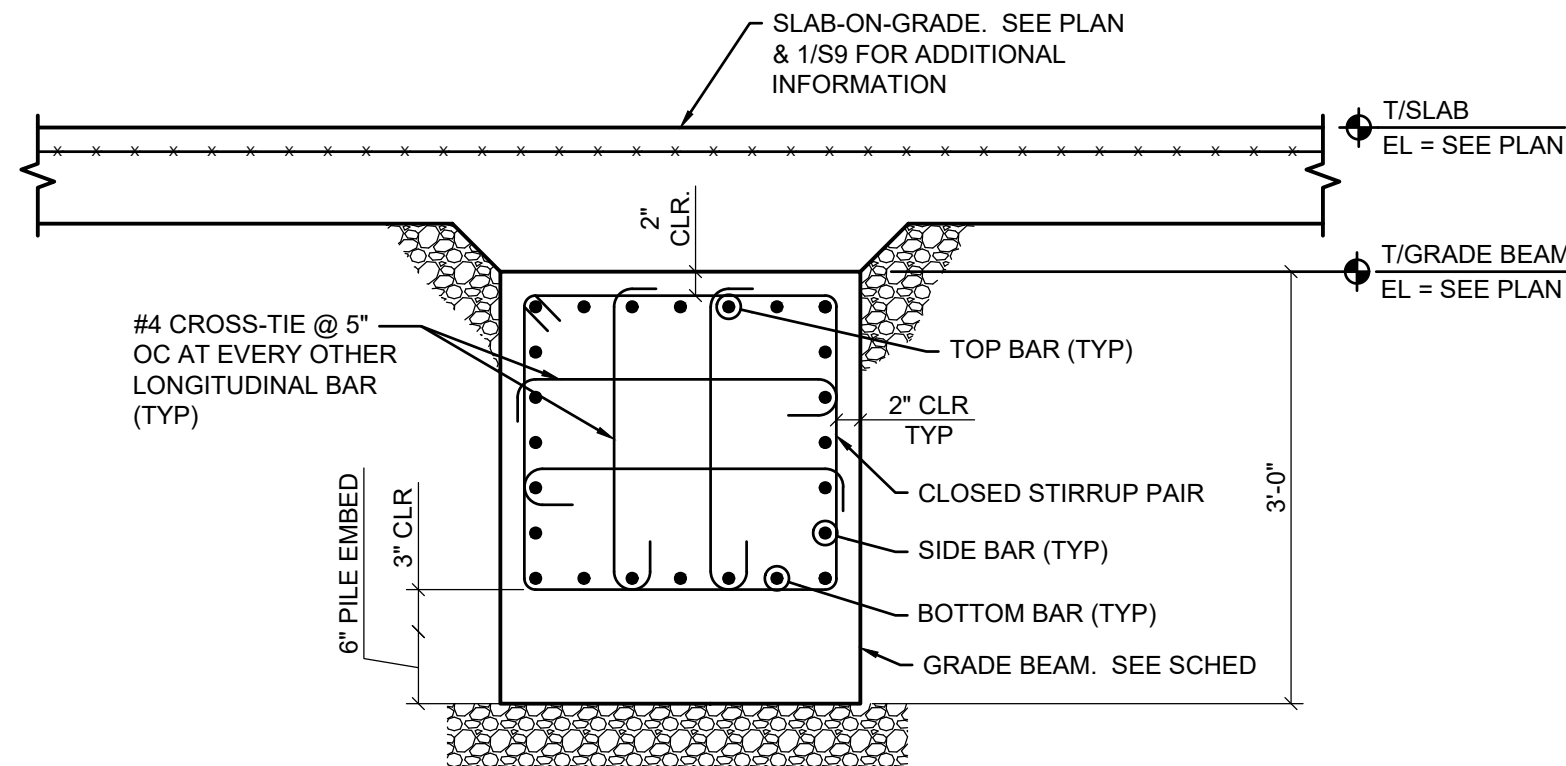
SCALE: 3/8" = 1'-0"

- NOTES:
1. BATTERED HELICAL PILES SHALL BE DESIGNED FOR 50 KIPS AXIAL COMPRESSION.
 2. VERTICAL HELICAL PILES SHALL BE DESIGNED FOR 65 KIPS AXIAL COMPRESSION AND 20 KIPS AXIAL TENSION.



2 TYPICAL PILE CAP DETAIL

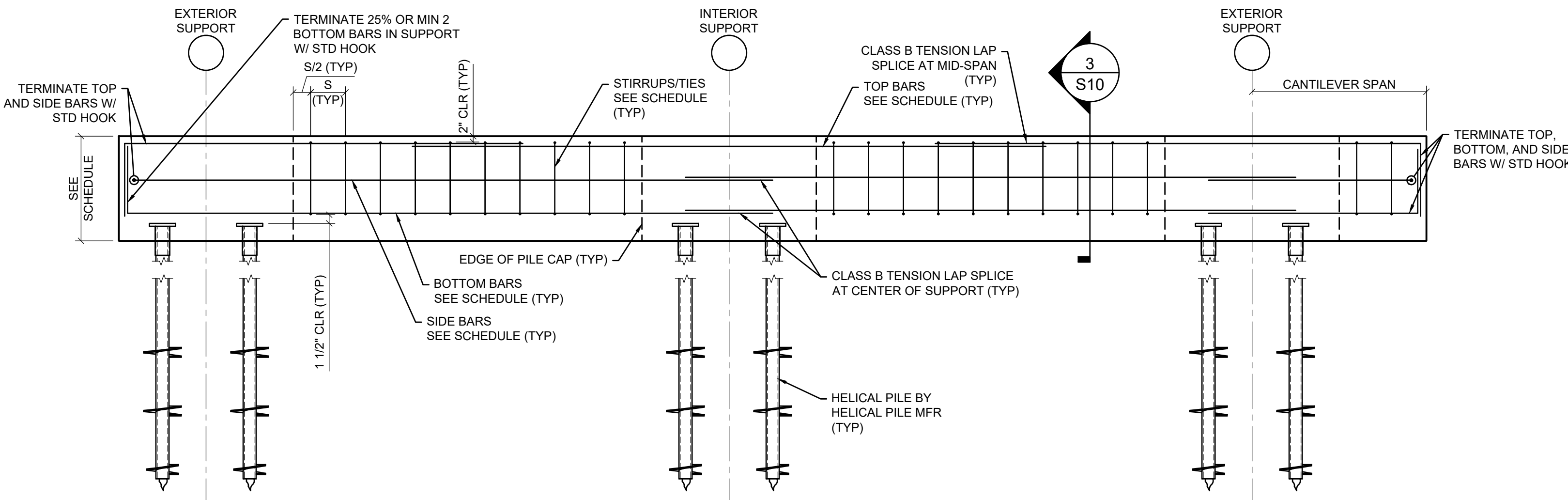
SCALE: 3/4"=1'-0"



3 TYPICAL GRADE BEAM SECTION

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

- NOTES:
1. REFER TO TYPICAL GRADE BEAM DETAIL AND SCHEDULE FOR INFORMATION NOT INDICATED.



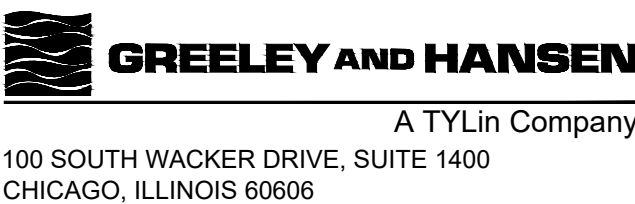
GRADE BEAM SCHEDULE

TYPE MARK	WIDTH (in)	DEPTH (in)	BOTTOM BARS	TOP BARS	SIDE BARS	STIRRUP/TIE SIZE	STIRRUP/TIE SPACING, S (in)
GB1	30"	36"	(7) #7	(7) #7	(5) #7	#4	5"
GB2	44"	36"	(9) #7	(9) #7	(4) #7	#4	5"

- NOTES:
1. SEE 3/S10 FOR STIRRUP/TIE LAYOUT.
 2. LAP SPLICE LENGTH FOR SIDE BARS SHALL BE PROVIDED AS IF THE BARS WERE TOP BARS.
 3. WHERE BATTERED PILES OCCUR ALONG THE GRADE BEAM SPAN, BARS SHALL BE CONTINUOUS ACROSS THE BATTERED PILE INTO THE ADJACENT SPAN. CONSULT WITH ENGINEER FOR PERMISSIBLE SPLICE LOCATIONS WHERE NOT CLEAR.

4 TYPICAL GRADE BEAM DETAIL AND SCHEDULE

SCALE: 3/8" = 1'-0"

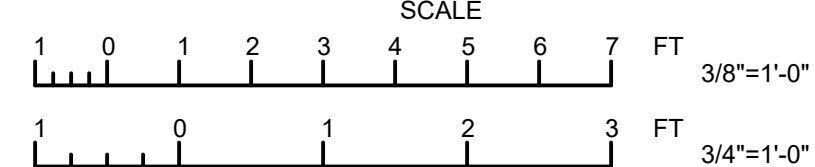


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WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

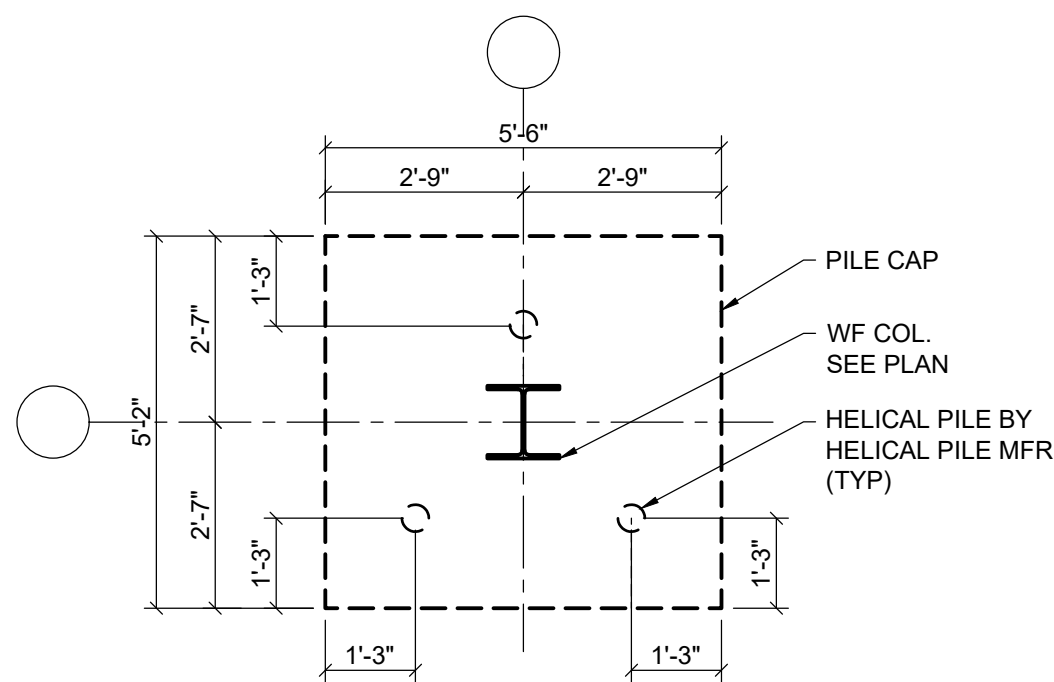
FOUNDATION DETAILS

PROJECT NO.: 0028A

DWG: **S10**
SHEET: 20 OF 116
DATE: JANUARY 2025 REV: 0

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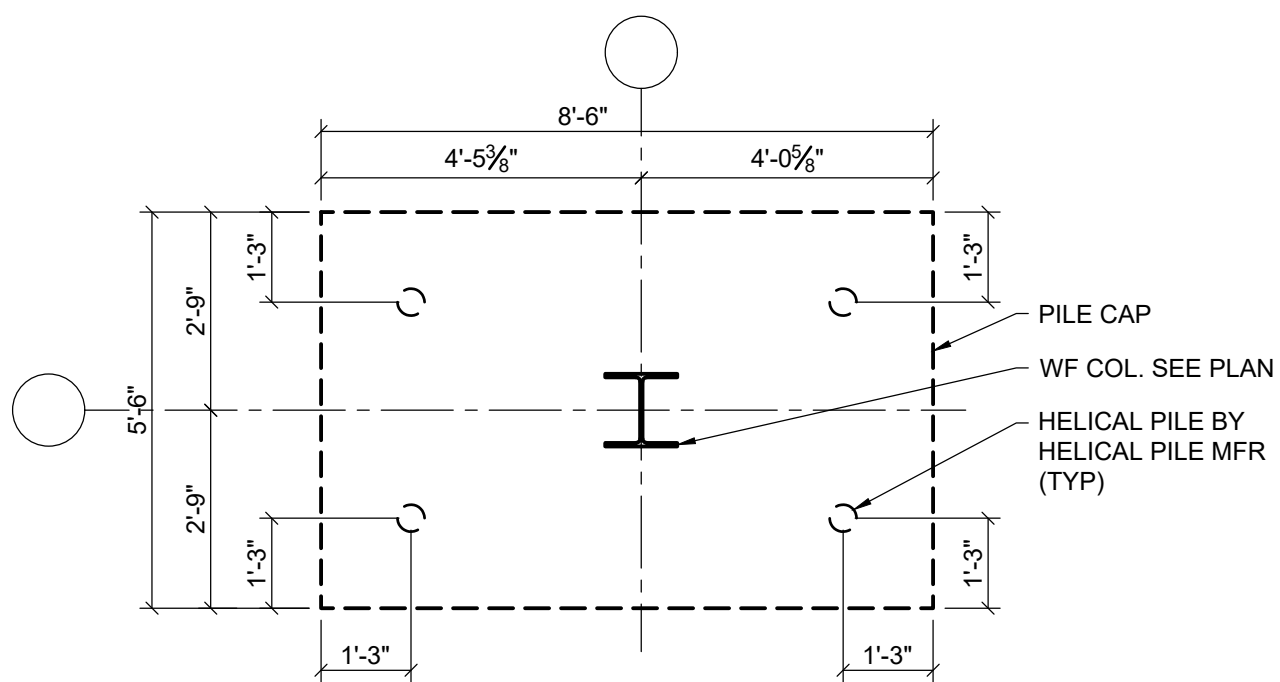
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\\PRIMERACHICAGO.COM\FILES\PROJECTS\2022\20220814.0008 DRAWINGS AND GIS\STRUCTURAL - SHEETS\1.DWG ROBERT OSWALD



1 PILE CAP PC1 DETAIL

SCALE: 3/8" = 1'-0"

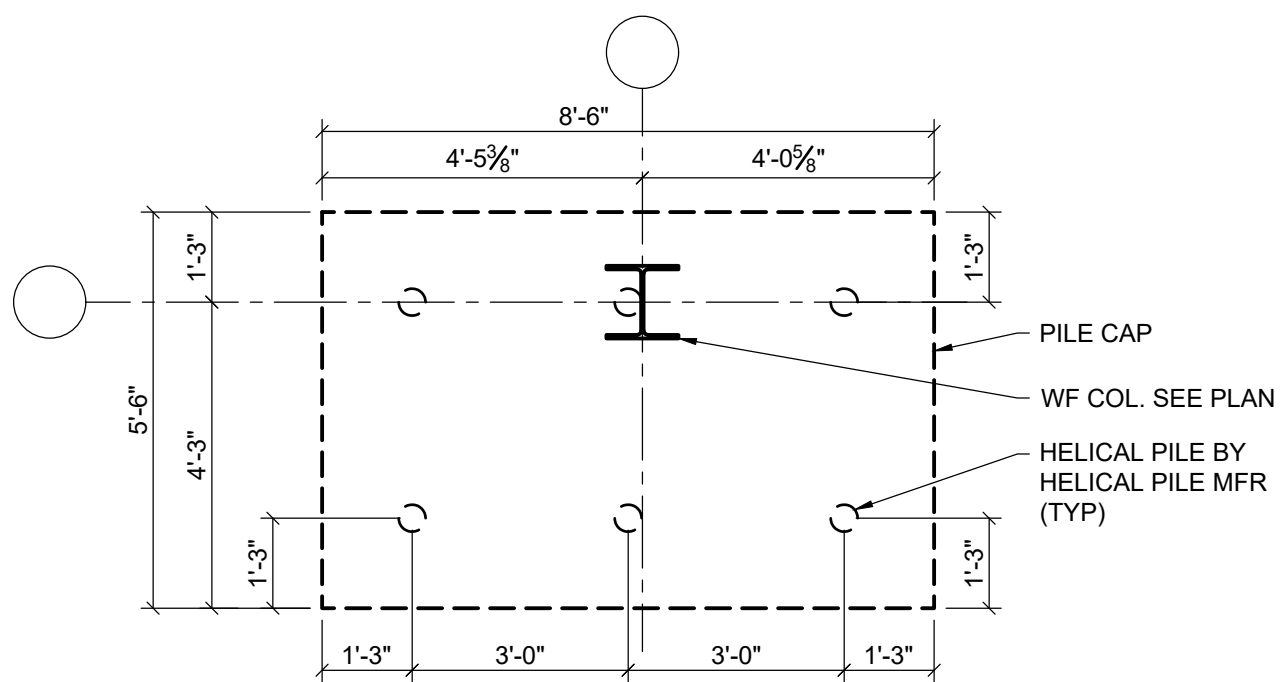
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 75 KIPS
B. TENSION = 20 KIPS
 - ADJACENT GRADE BEAMS NOT SHOWN FOR CLARITY. CONTINUE GRADE BEAM REINFORCEMENT THROUGH THE PILE CAP.



2 PILE CAP PC2 DETAIL

SCALE: 3/8" = 1'-0"

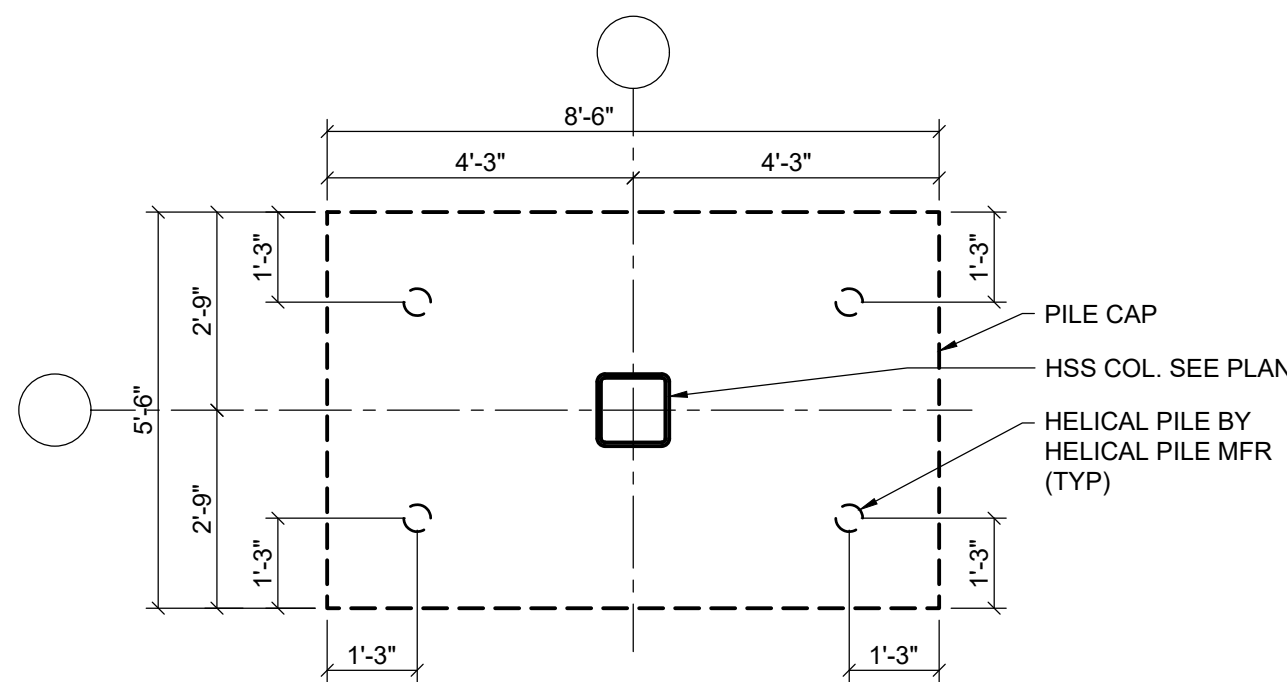
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 61 KIPS
B. TENSION = 18 KIPS
 - ADJACENT GRADE BEAMS NOT SHOWN FOR CLARITY. CONTINUE GRADE BEAM REINFORCEMENT THROUGH THE PILE CAP.



3 PILE CAP PC3 DETAIL

SCALE: 3/8" = 1'-0"

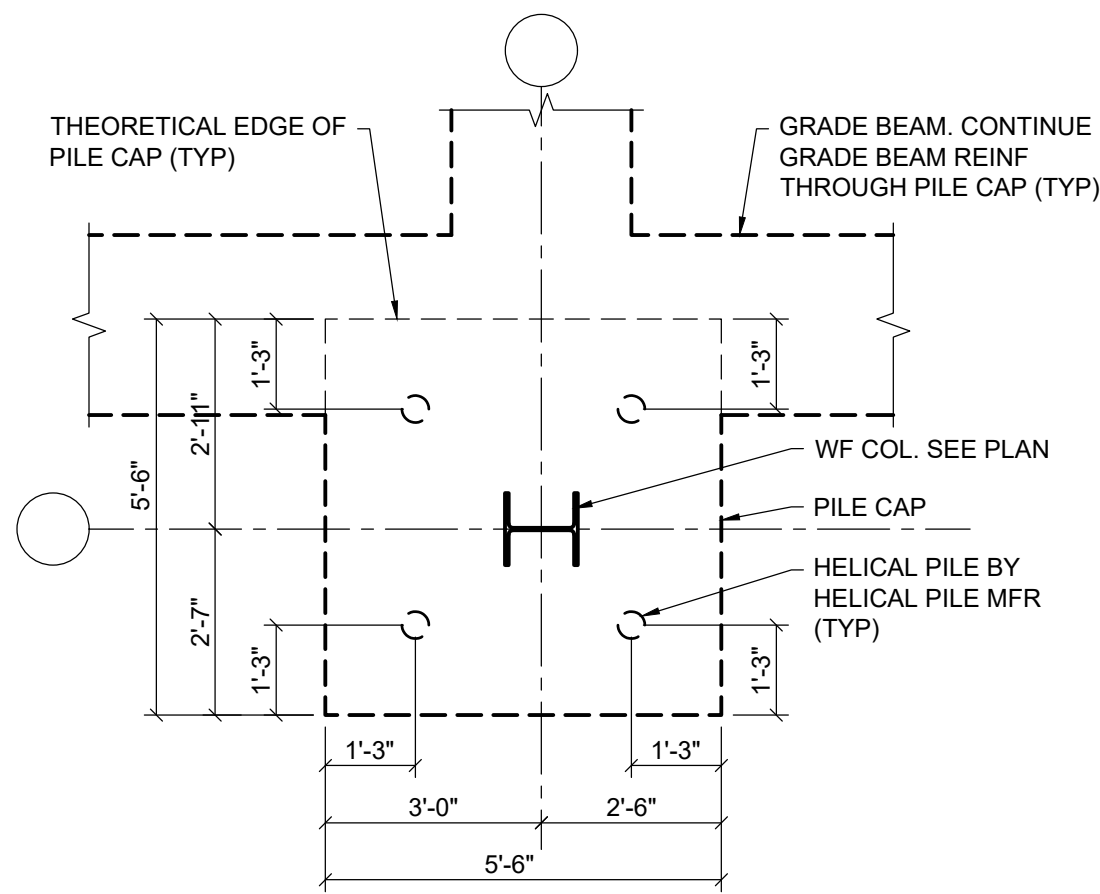
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 67 KIPS
B. TENSION = 15 KIPS
 - ADJACENT GRADE BEAMS NOT SHOWN FOR CLARITY. CONTINUE GRADE BEAM REINFORCEMENT THROUGH THE PILE CAP.



4 PILE CAP PC4 DETAIL

SCALE: 3/8" = 1'-0"

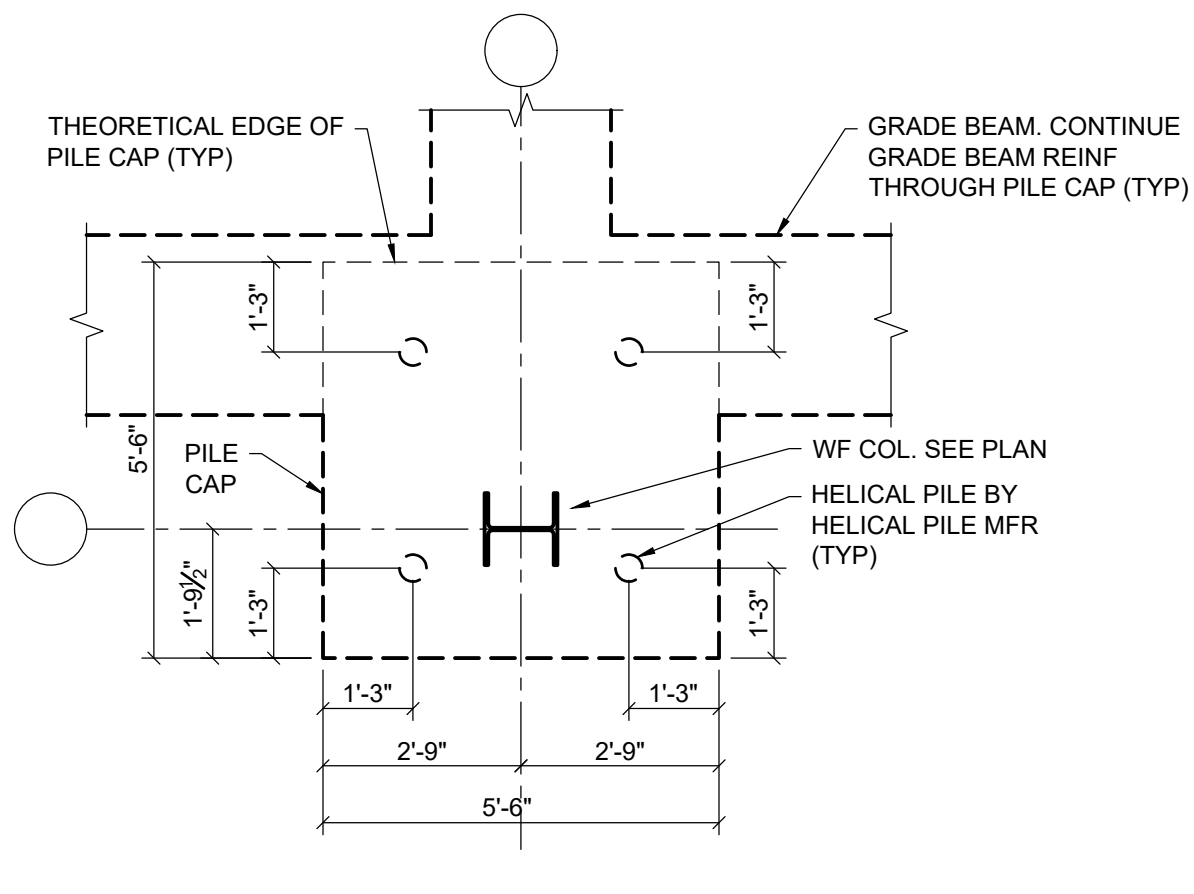
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 55 KIPS
B. TENSION = 20 KIPS
 - ADJACENT GRADE BEAMS NOT SHOWN FOR CLARITY. CONTINUE GRADE BEAM REINFORCEMENT THROUGH THE PILE CAP.



5 PILE CAP PC5 DETAIL

SCALE: 3/8" = 1'-0"

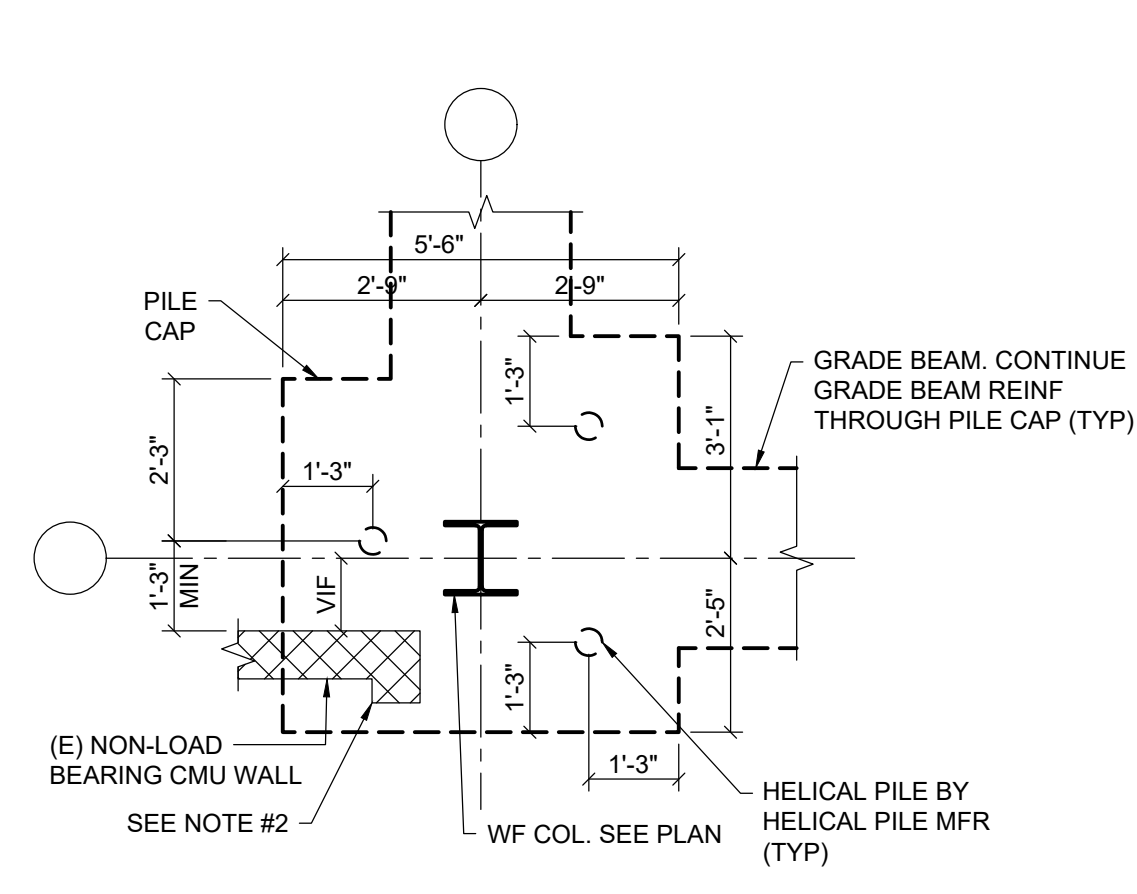
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 61 KIPS
B. TENSION = 22 KIPS



6 PILE CAP PC6 DETAIL

SCALE: 3/8" = 1'-0"

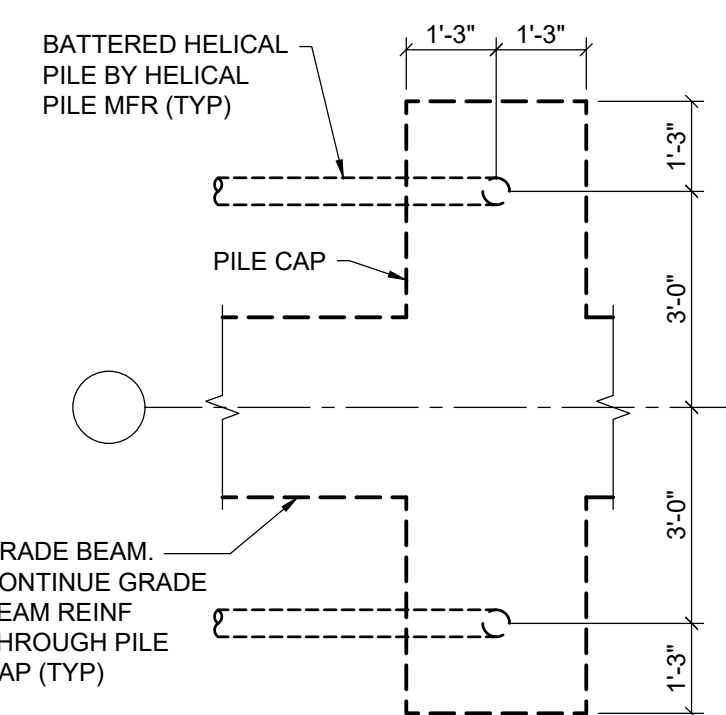
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 60 KIPS
B. TENSION = 24 KIPS



7 PILE CAP PC7 DETAIL

SCALE: 3/8" = 1'-0"

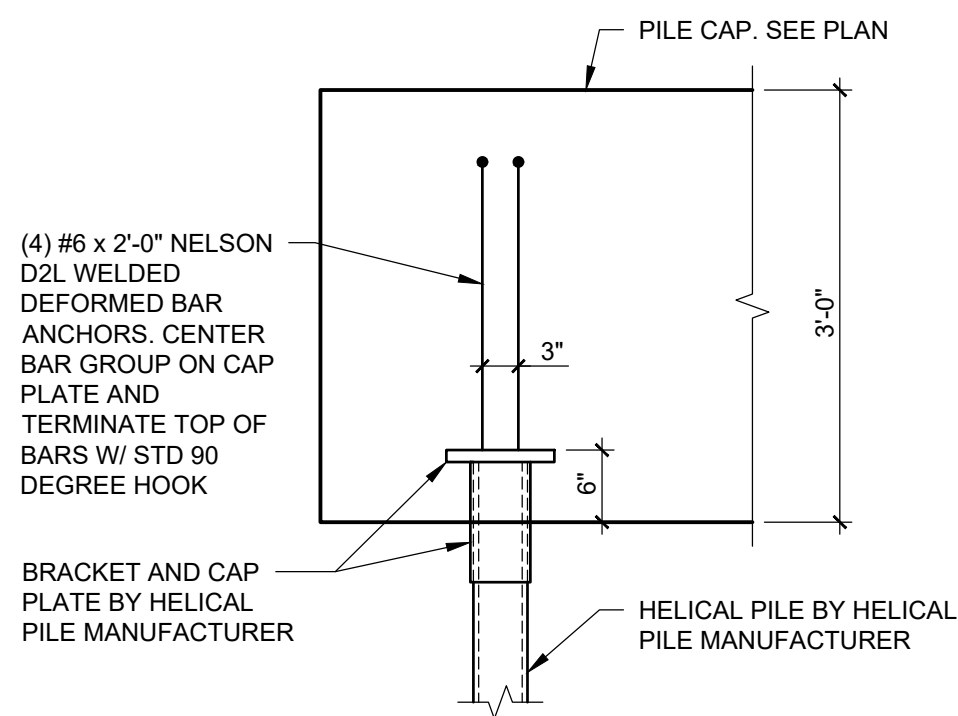
- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 46 KIPS
B. TENSION = 20 KIPS
 - CONTRACTOR SHALL DESIGN AND INSTALL UNDERPINNING OF THE EXISTING NON-LOAD BEARING CMU WALL FOOTING. CONTRACTOR SHALL FIELD VERIFY THE EXISTING FOOTING CONFIGURATION AND DEPTH.



9 PILE CAP PC9 DETAIL

SCALE: 3/8" = 1'-0"

- NOTES:
- HELICAL PILE MANUFACTURER SHALL DESIGN THE PILES INDICATED FOR THE FOLLOWING AXIAL LOADS:
A. COMPRESSION = 51 KIPS
B. TENSION = 30 KIPS



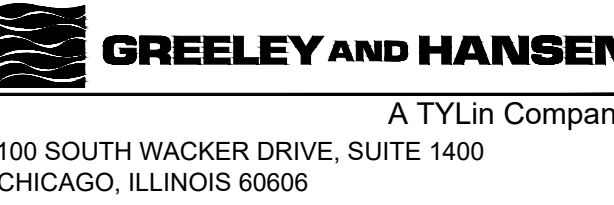
10 TENSION PILE DETAIL

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

- NOTES:
- DETAIL APPLIES FOR ALL HELICAL PILES SCHEDULED TO RESIST TENSION LOADING.
 - PILE CAP REINFORCEMENT IS NOT SHOWN FOR CLARITY.
 - DETAIL APPLIES TO BOTH VERTICAL AND BATTERED HELICAL PILES.



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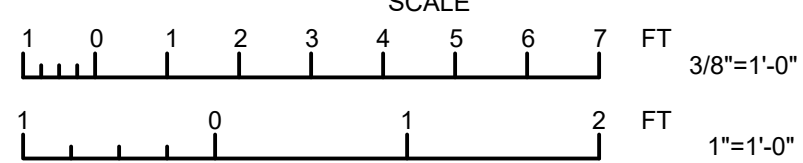


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WATER PRODUCTION BUREAU

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4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

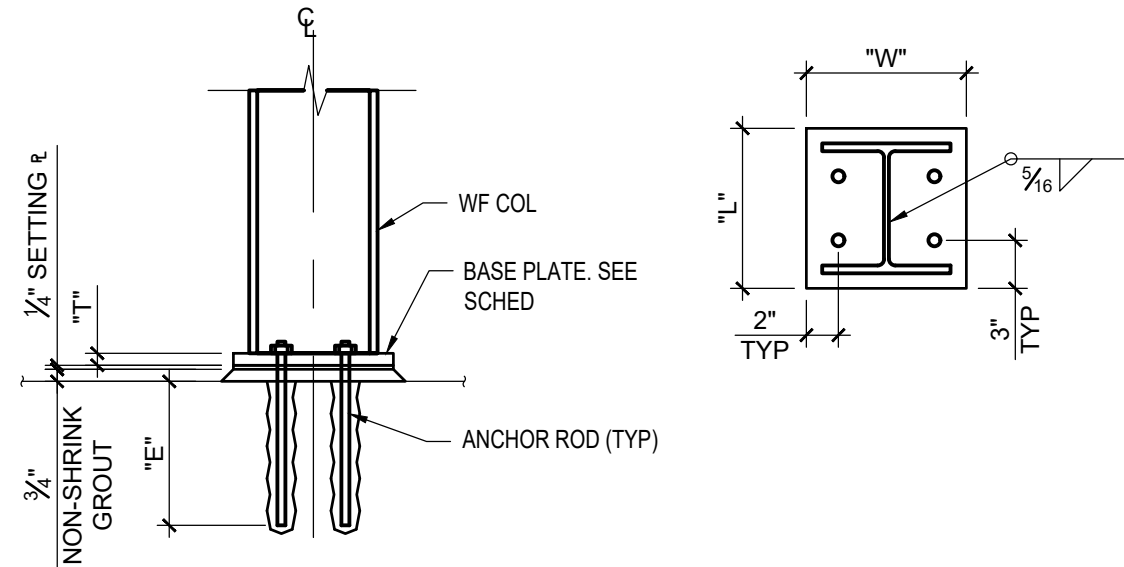
STRUCTURAL

PILE CAP DETAILS

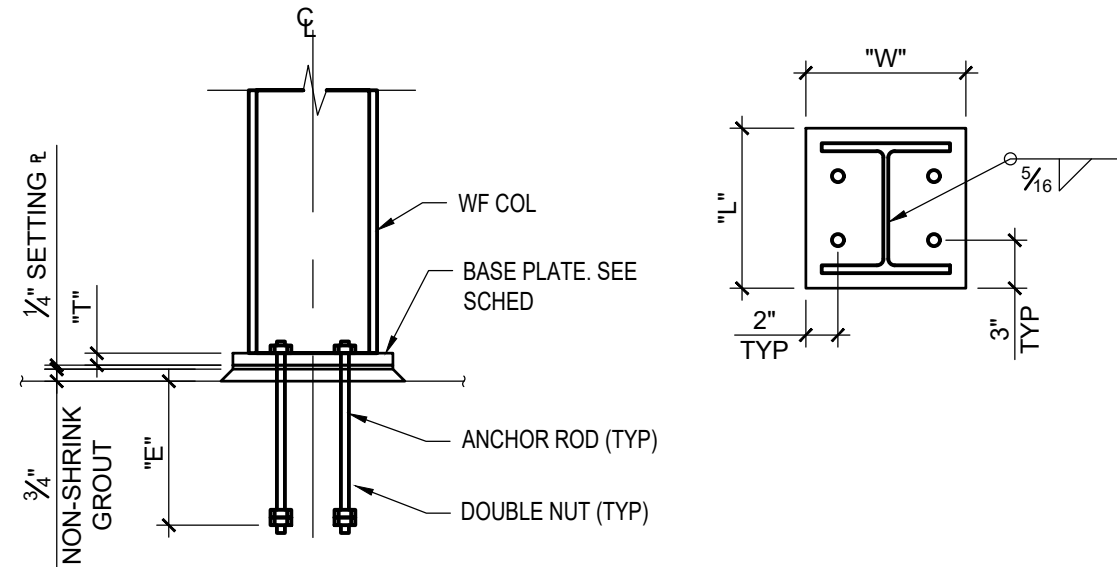
PROJECT NO.: 0028A
DWG: **S11**
SHEET: 21 OF 116
DATE: JANUARY 2025 REV: 0

BID SET

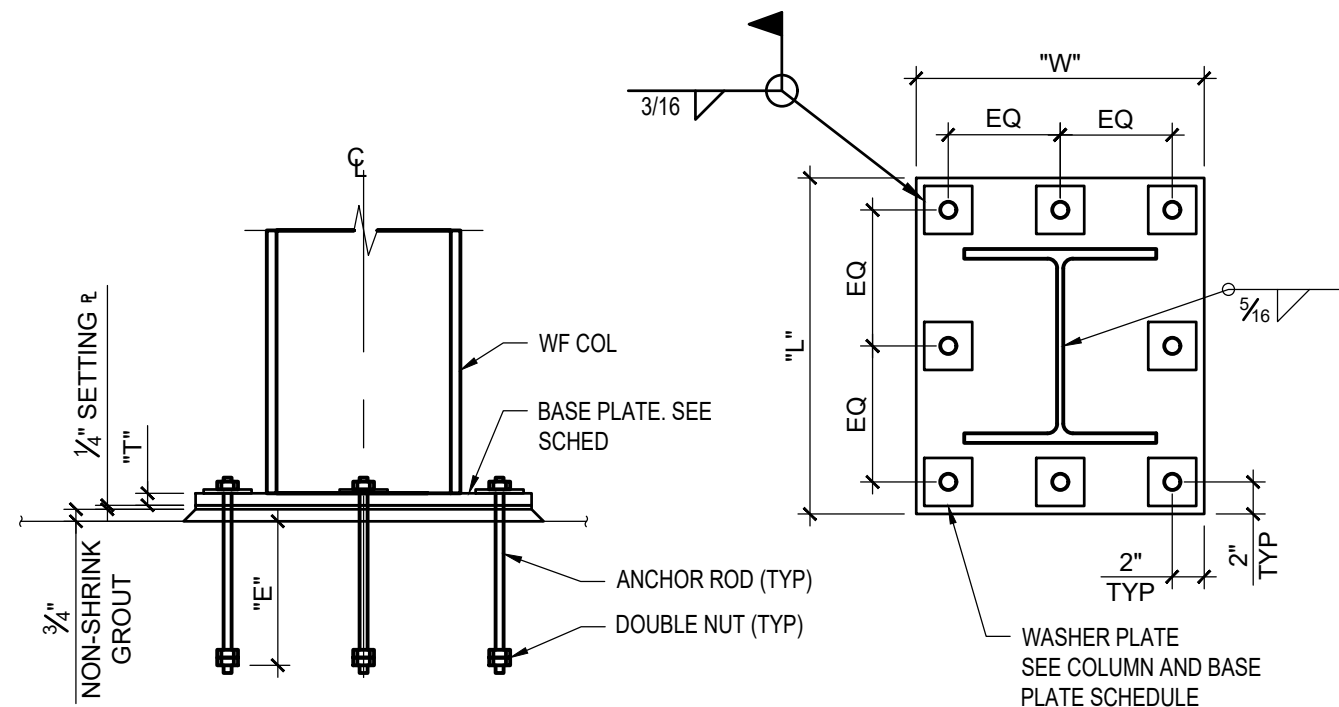
COLUMN AND BASE PLATE SCHEDULE							
TYPE MARK	COLUMN SIZE	BASE PLATE SIZE (T x W x L)	ANCHOR RODS	ANCHOR ROD GRADE	EMBEDMENT 'E'	WASHER PLATE SIZE	REFERENCE DETAIL
C1A	W8x35	3/4"x10"x10"	(4) 3/4" DIA	HILTI HAS-V-36 W/ HIT-RE 500 V3	9"	-	1/S13
C1B	W8x35	3/4"x10"x10"	(4) 3/4" DIA	F1554 GR. 36	9"	-	2/S13
C2	W12x65	1 1/2"x18"x21"	(8) 1" DIA	F1554 GR. 36	1'-3"	1/2"x3"x3"	3/S13
C3	HSS12x12x3/4	1 1/2"x20"x20"	(8) 1" DIA	F1554 GR. 36	1'-3"	1/2"x3"x3"	4/S13
C4	HSS12x12x3/4	3/4"x14"x20"	(4) 3/4" DIA	F1554 GR. 36	9"	-	5/S13



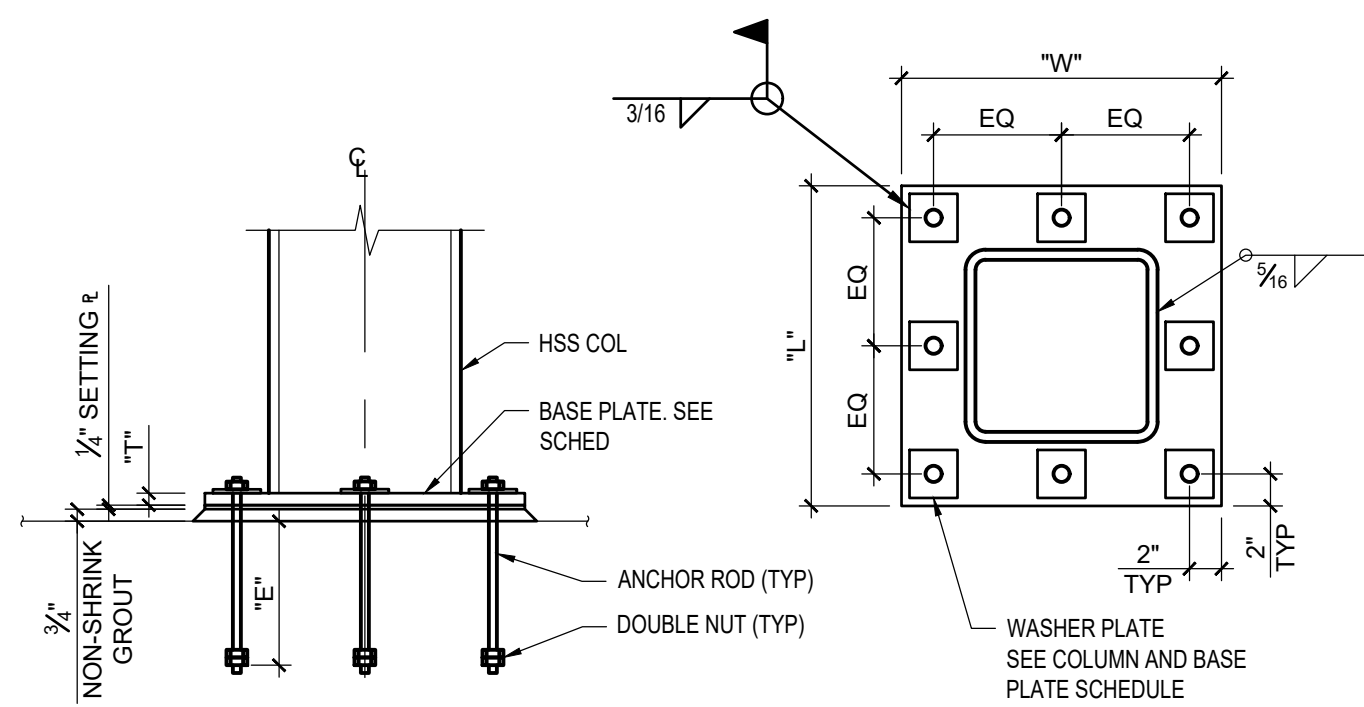
1 COLUMN BASE PLATE DETAIL
NOTES:
1. SEE COLUMN AND BASE PLATE SCHEDULE FOR ALL INFORMATION NOT INDICATED ABOVE.
SCALE: 1"=1'-0"



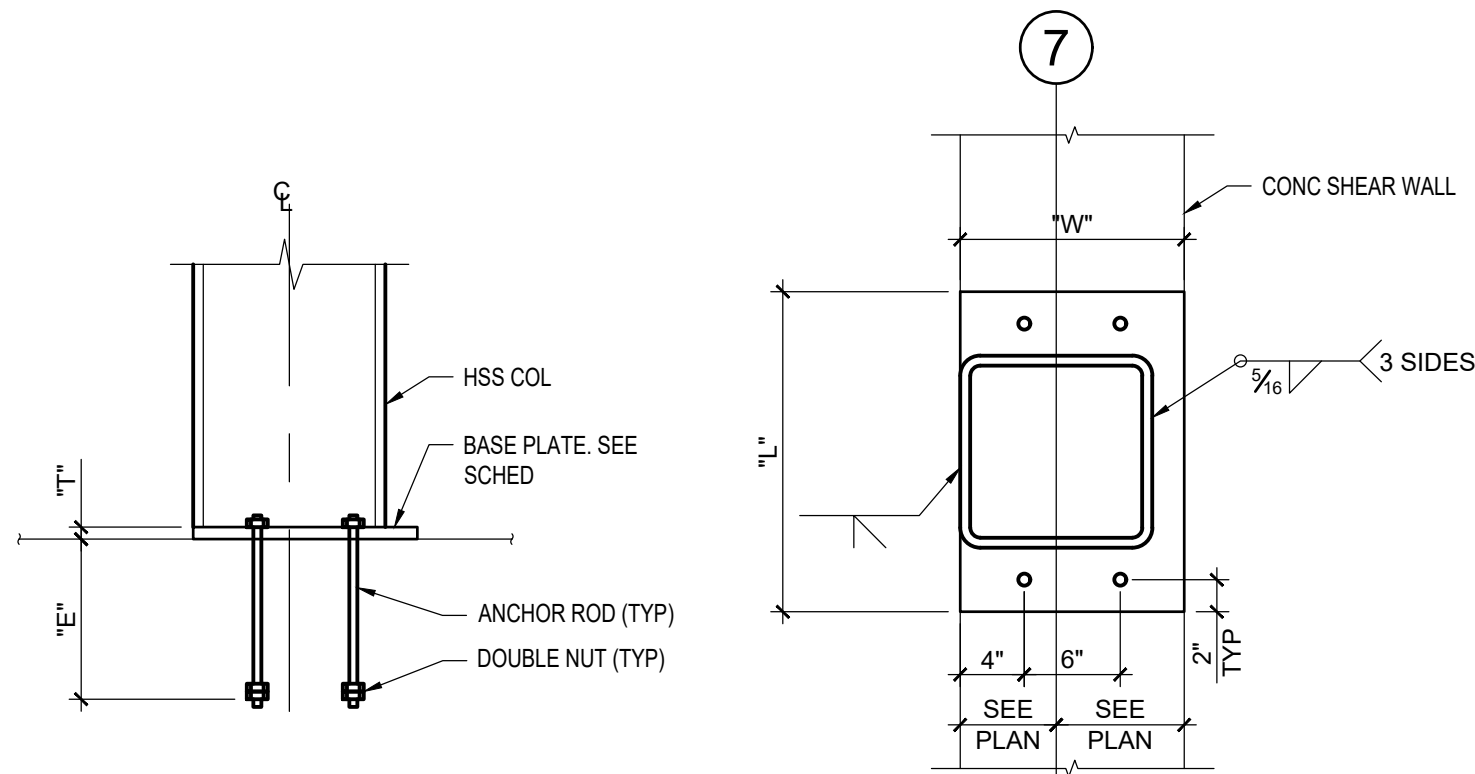
2 COLUMN BASE PLATE DETAIL
NOTES:
1. SEE COLUMN AND BASE PLATE SCHEDULE FOR ALL INFORMATION NOT INDICATED ABOVE.
SCALE: 1"=1'-0"



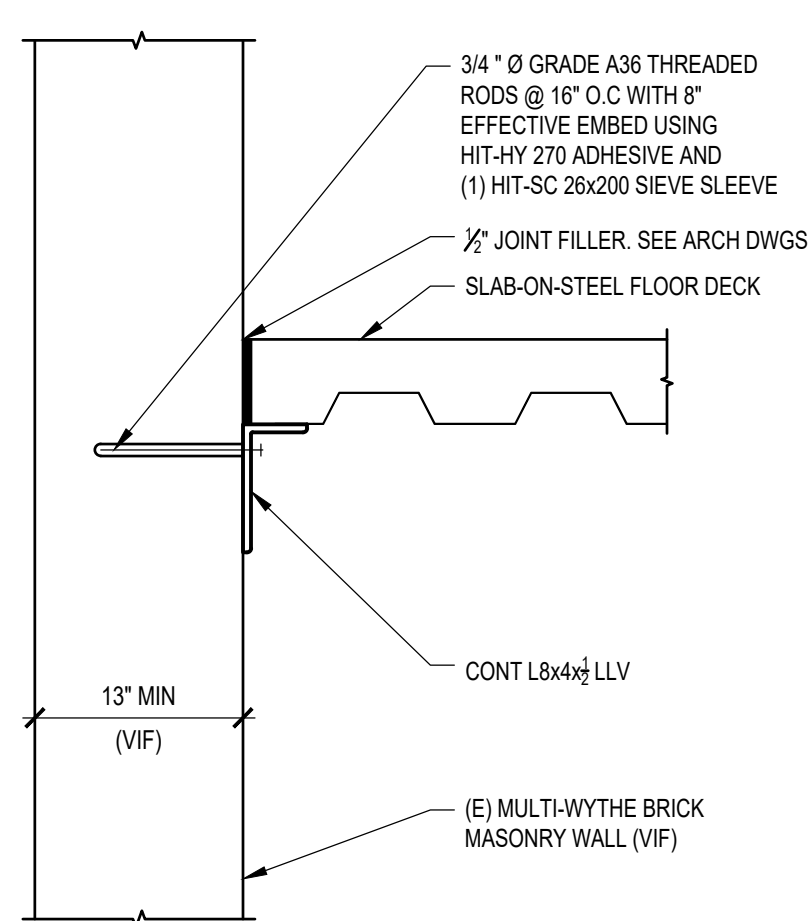
3 COLUMN BASE PLATE DETAIL
NOTES:
1. SEE COLUMN AND BASE PLATE SCHEDULE FOR ALL INFORMATION NOT INDICATED ABOVE.
SCALE: 1"=1'-0"



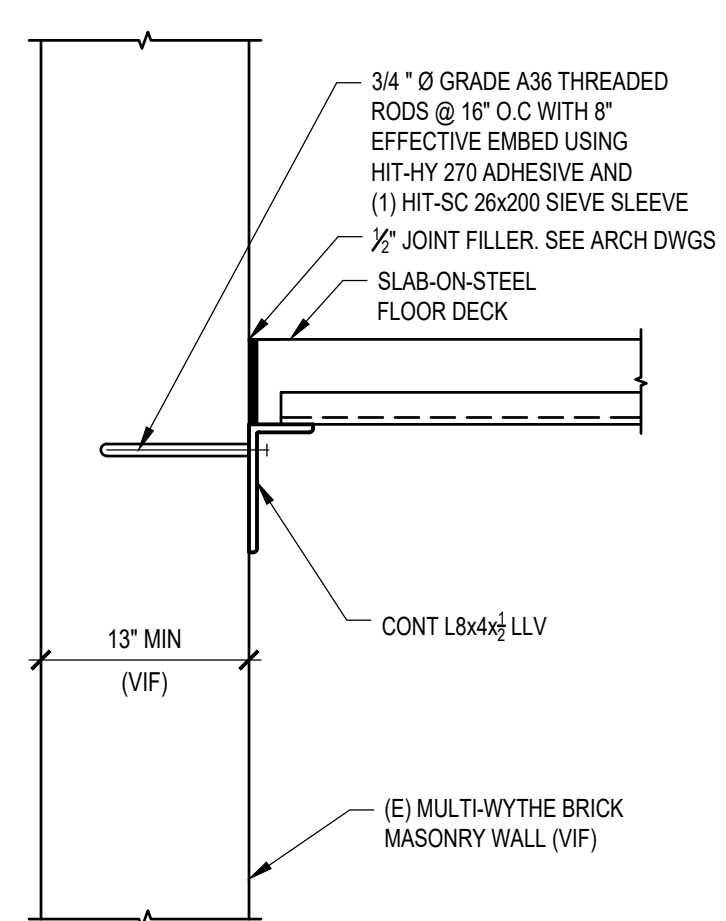
4 COLUMN BASE PLATE DETAIL
NOTES:
1. SEE COLUMN AND BASE PLATE SCHEDULE FOR ALL INFORMATION NOT INDICATED ABOVE.
SCALE: 1"=1'-0"



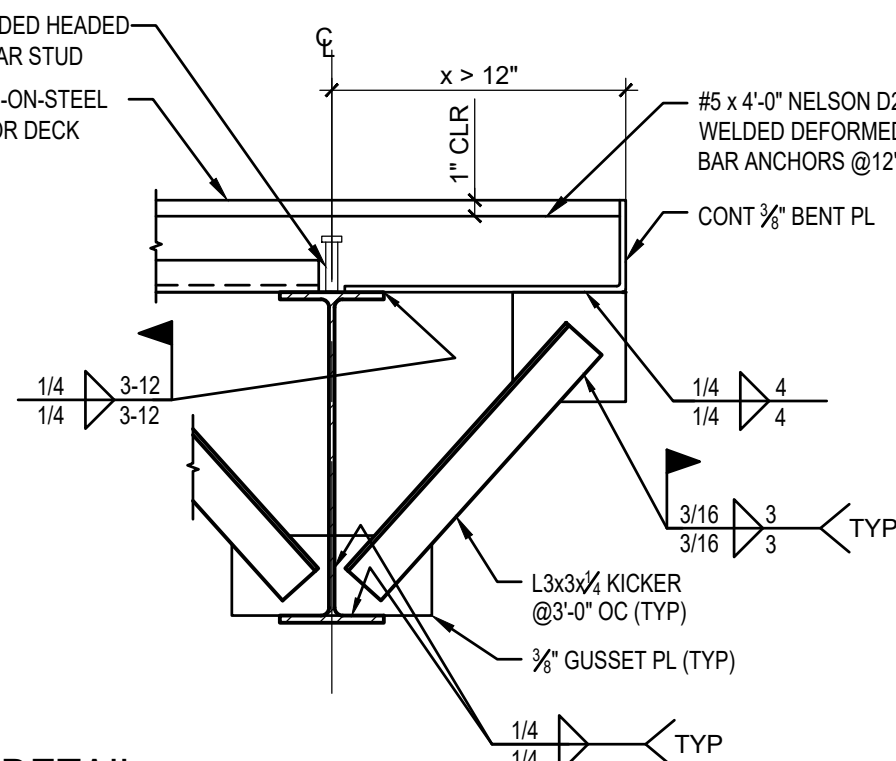
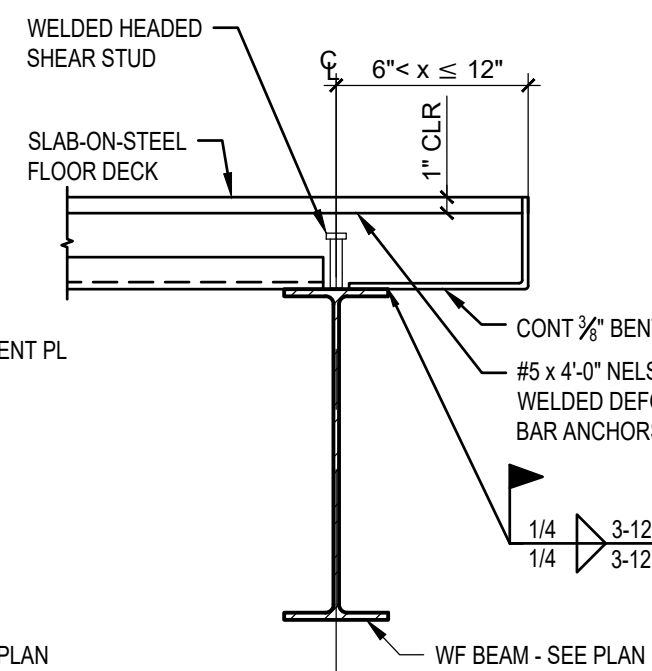
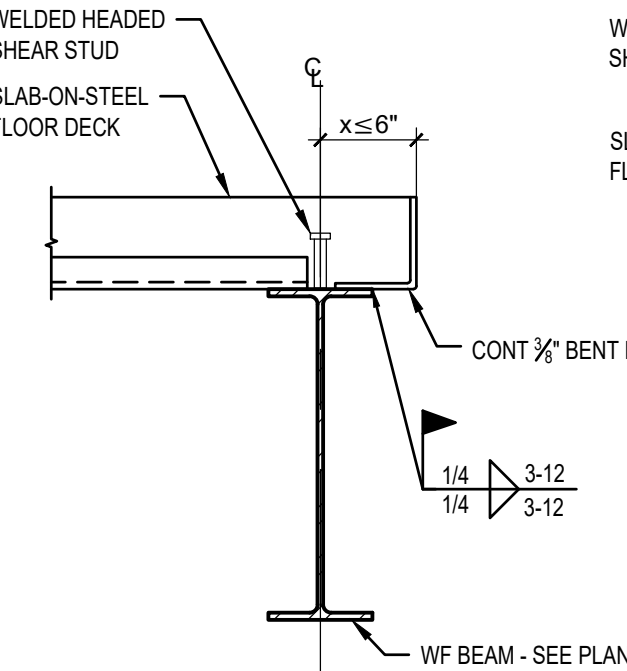
5 COLUMN BASE PLATE DETAIL
NOTES:
1. SEE COLUMN AND BASE PLATE SCHEDULE FOR ALL INFORMATION NOT INDICATED ABOVE.
SCALE: 1"=1'-0"



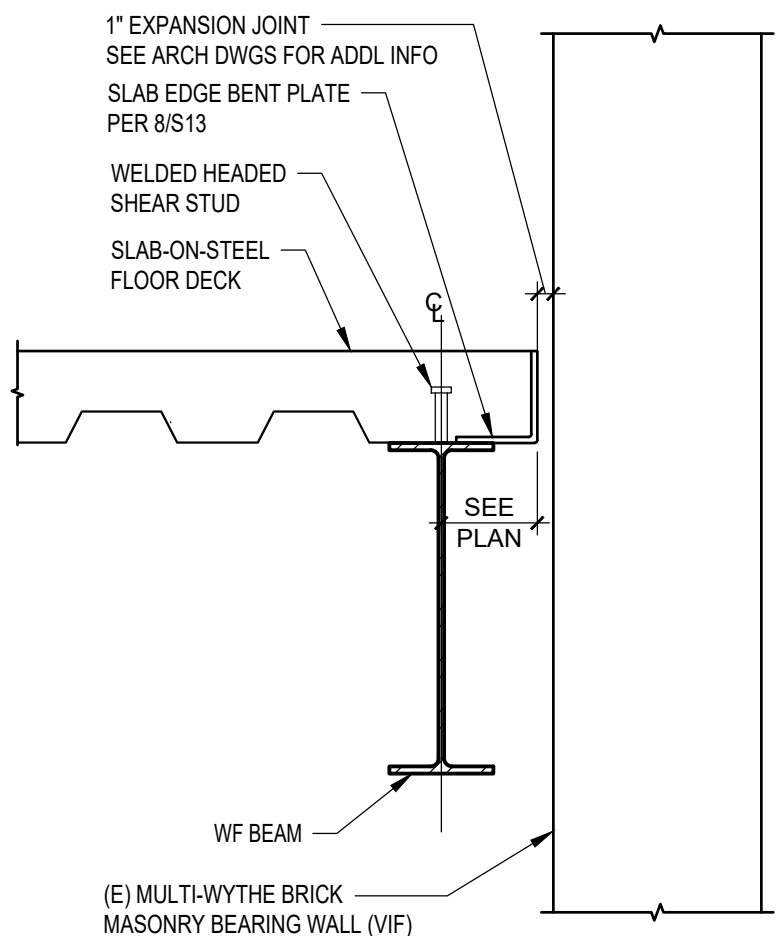
6 EDGE OF SLAB DETAIL - DECK PARALLEL
SCALE: 1"=1'-0"



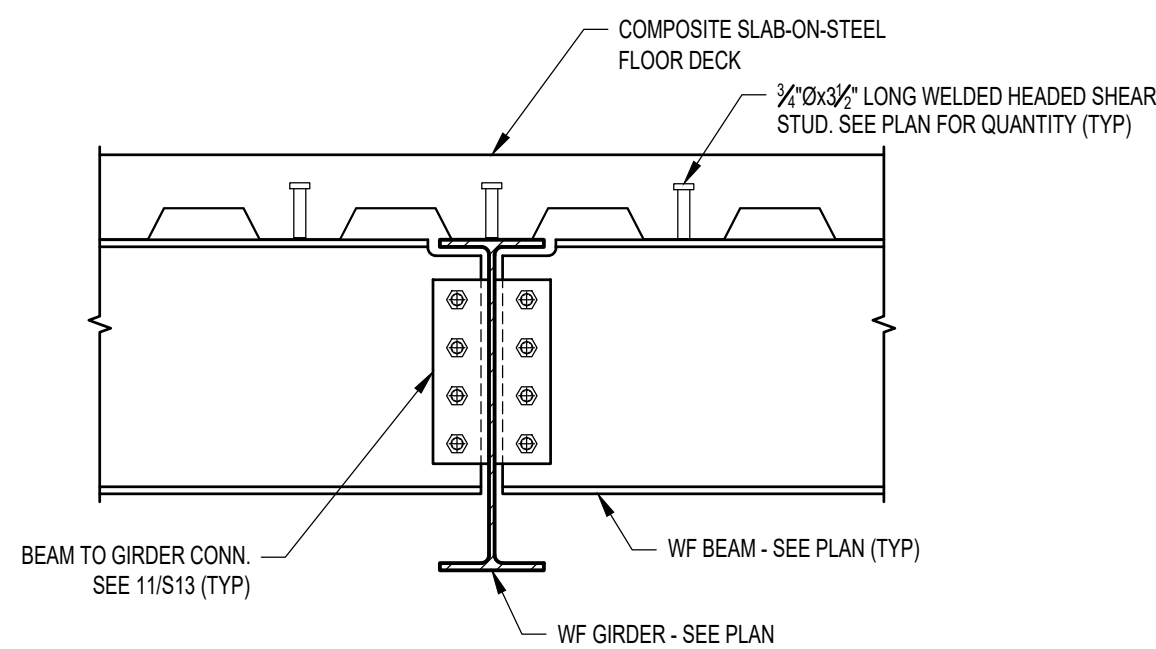
7 EDGE OF SLAB DETAIL - DECK PERPENDICULAR
SCALE: 1"=1'-0"



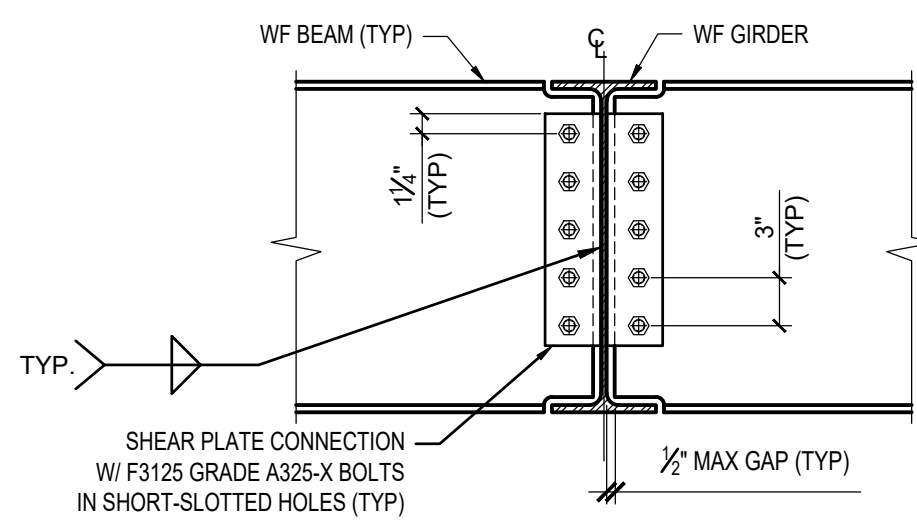
8 SLAB EDGE OVERHANG DETAIL
NOTES:
1. DETAIL ALSO APPLIES FOR DECKING SPANNING IN OPPOSITE DIRECTION.
2. SEE PLAN FOR CONCRETE SLAB THICKNESS.
SCALE: 1"=1'-0"



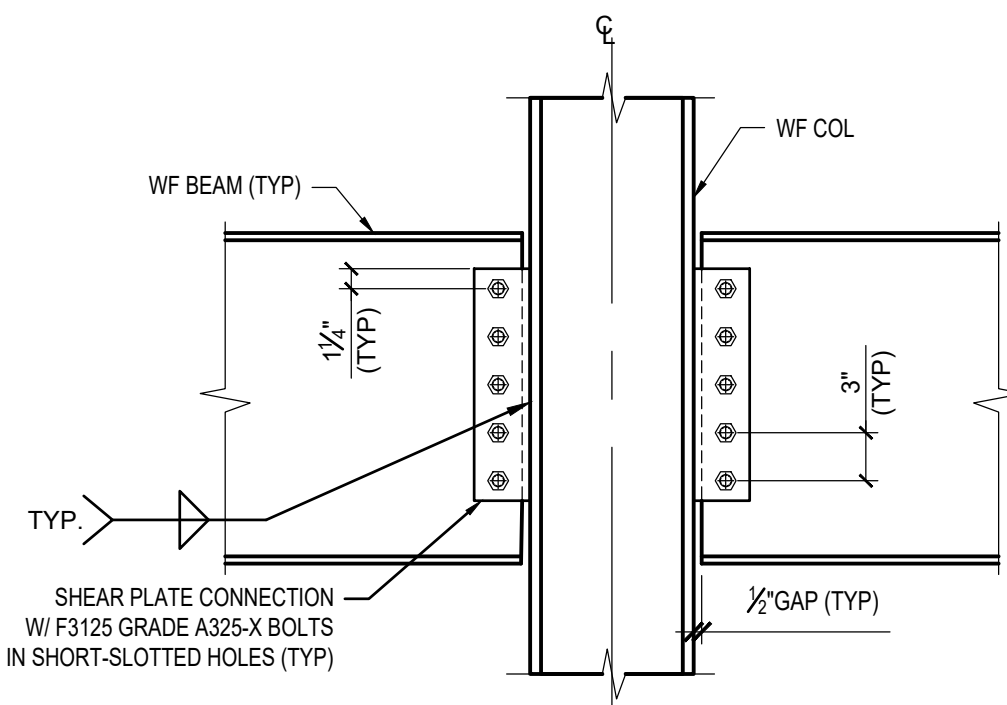
9 EDGE OF SLAB DETAIL
SCALE: 1"=1'-0"



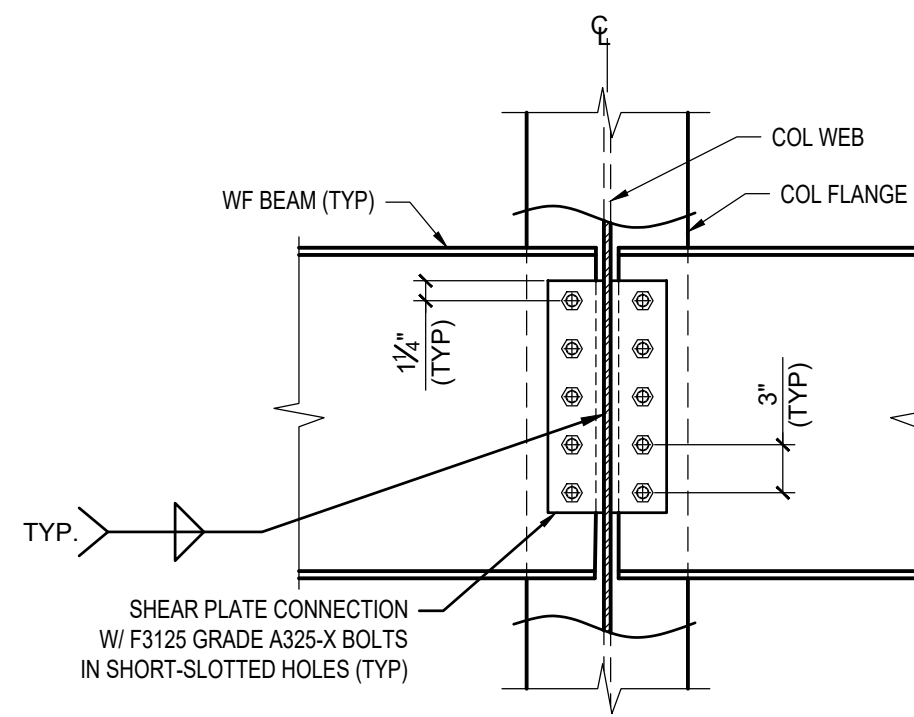
10 TYPICAL COMPOSITE STEEL BEAM CONSTRUCTION DETAIL
SCALE: 1"=1'-0"



11 BEAM TO GIRDER CONNECTION DETAIL
SCALE: 1"=1'-0"



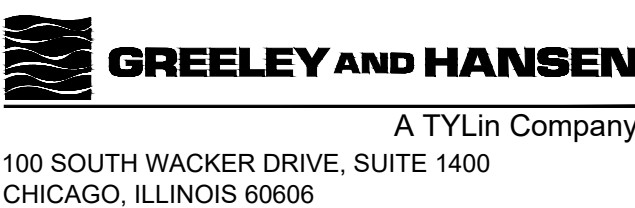
12 BEAM TO COLUMN FLANGE CONNECTION DETAIL
SCALE: 1"=1'-0"



13 BEAM TO COLUMN WEB CONNECTION DETAIL
SCALE: 1"=1'-0"



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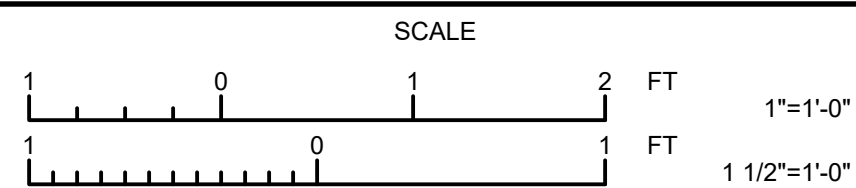
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SIGNED:
11/30/2026
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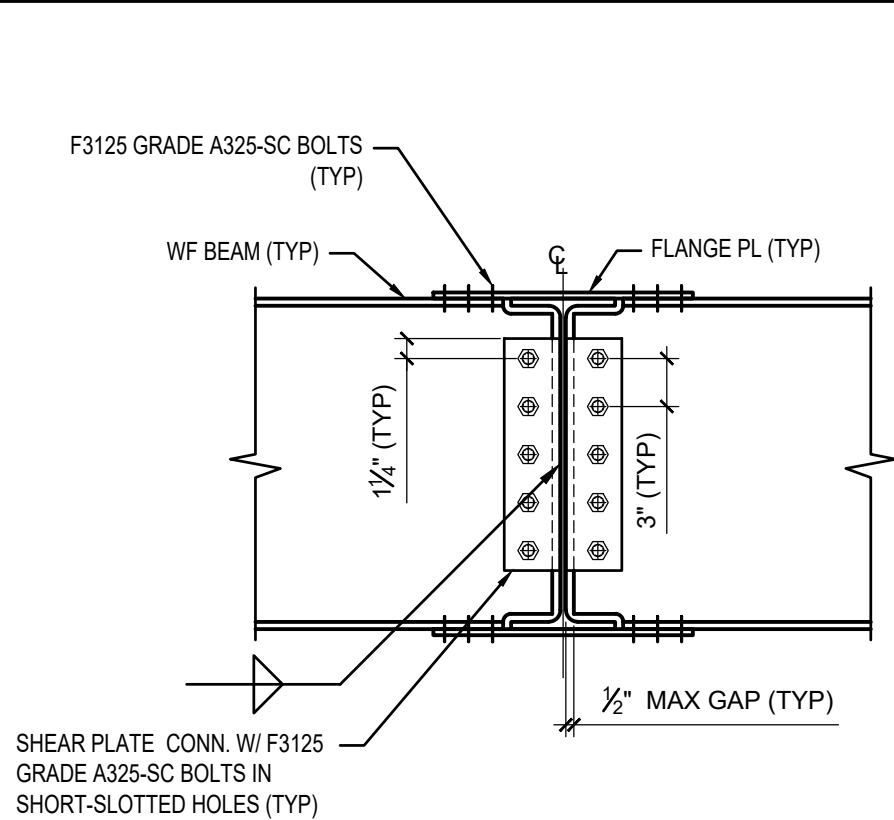
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

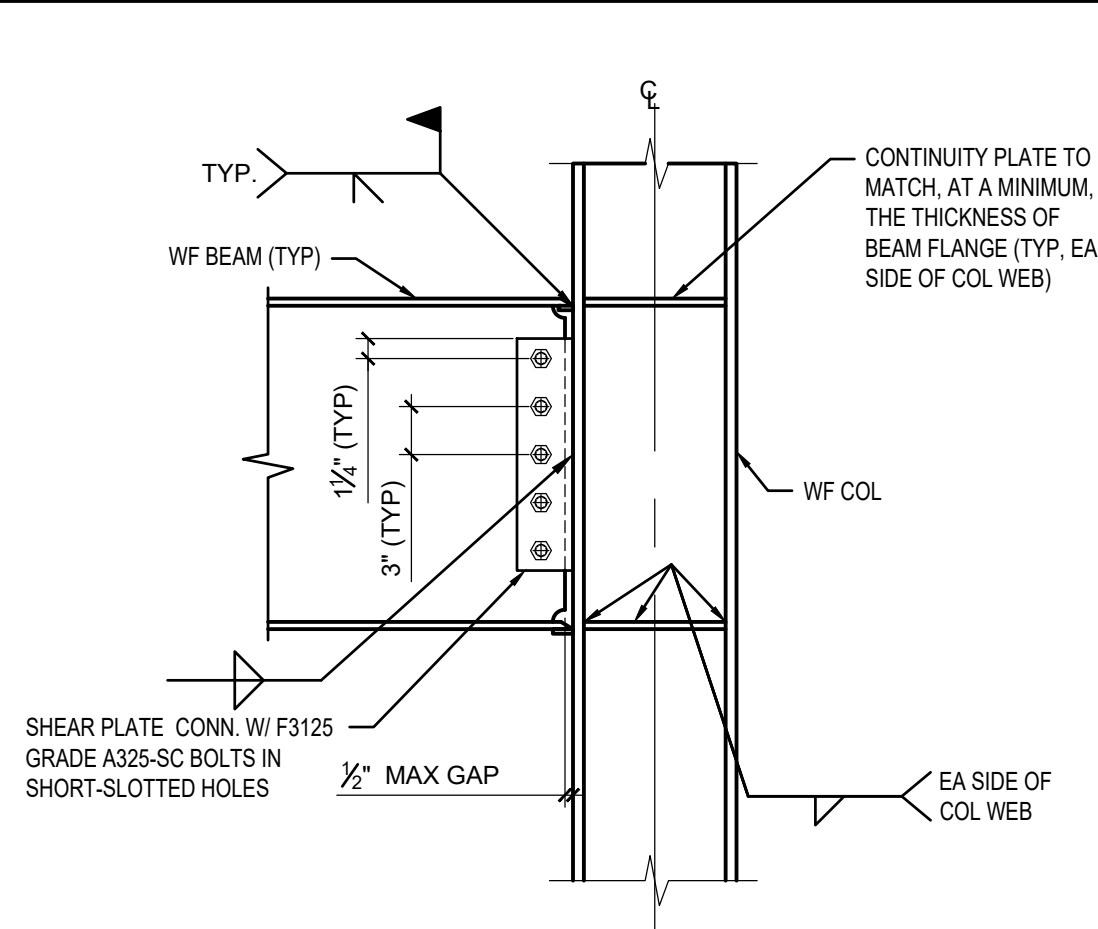
STEEL DETAILS

PROJECT NO.: 0028A
DWG: **S13**
SHEET: 23 OF 116
DATE: JANUARY 2025 REV: 0

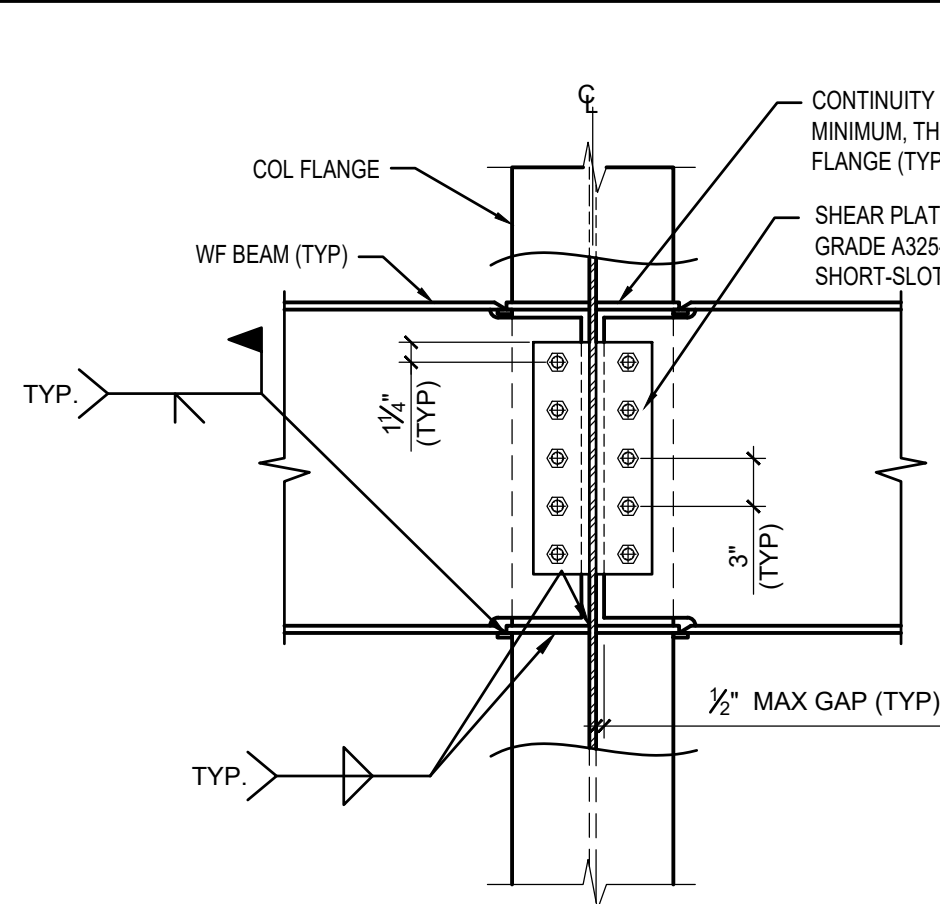
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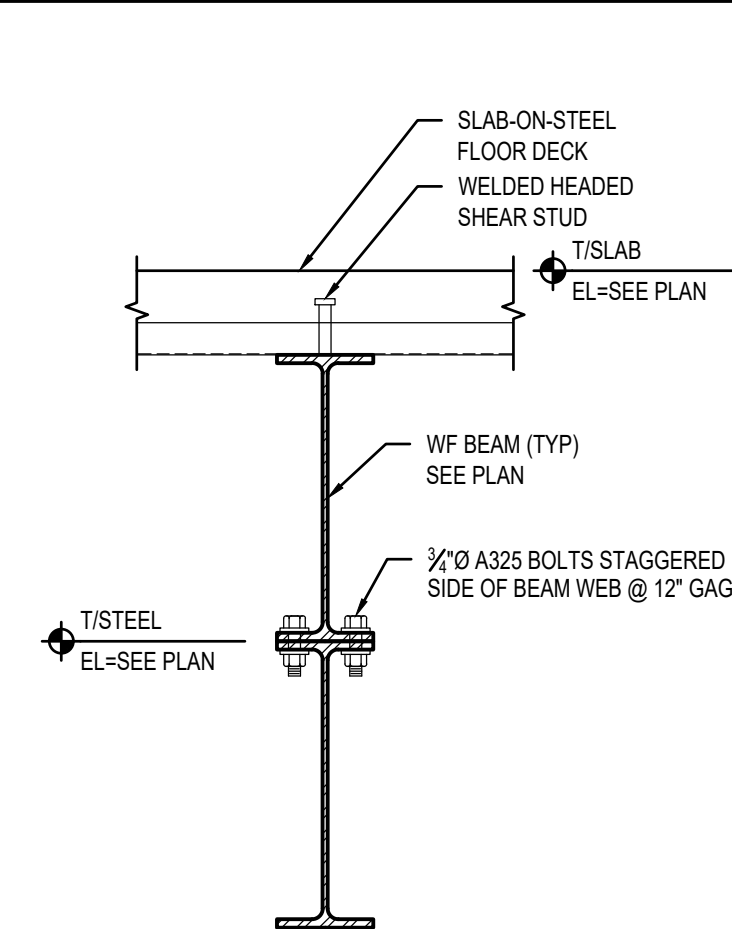
1 BEAM TO GIRDER MOMENT CONNECTION
SCALE: 1"=1'-0"



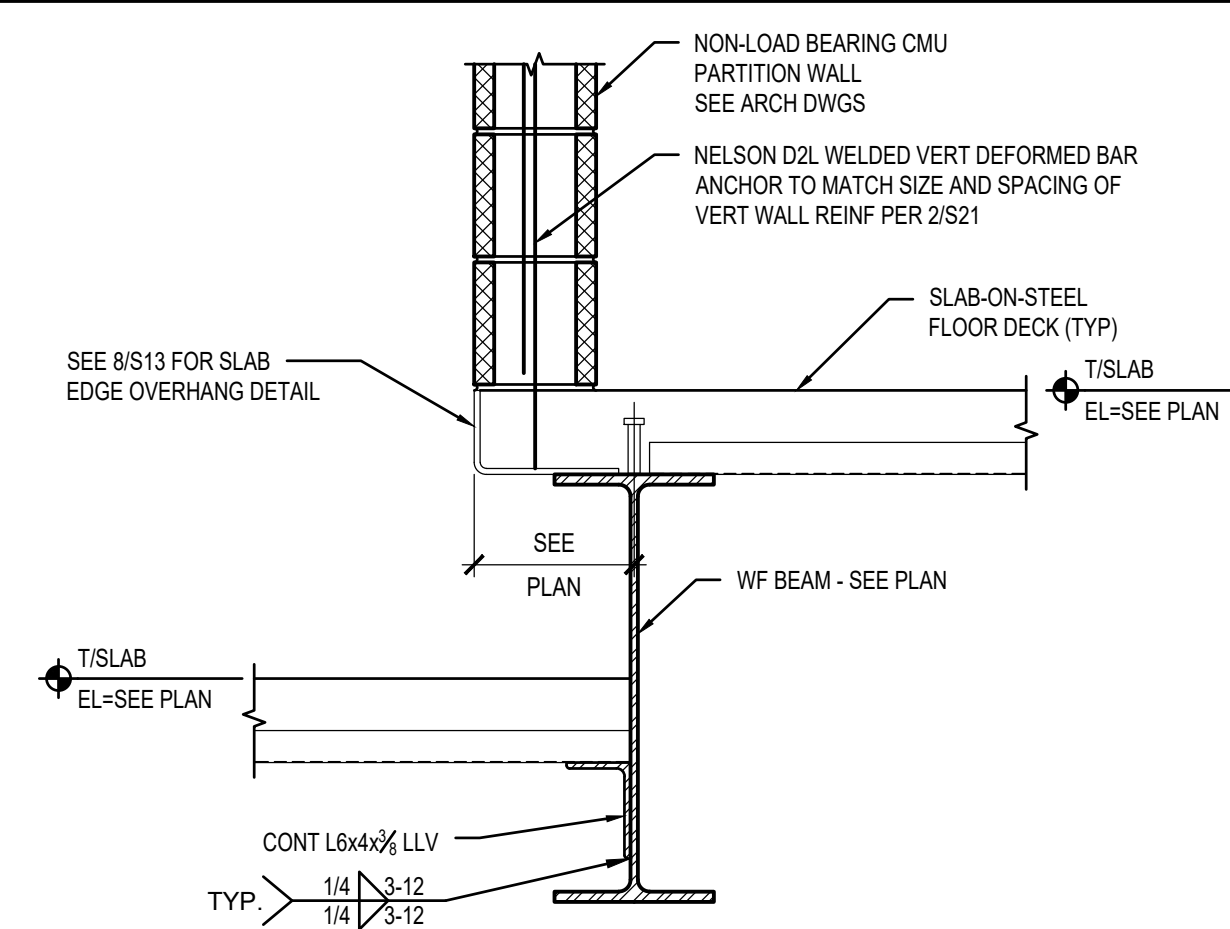
2 MOMENT CONNECTION DETAIL AT
COLUMN FLANGE
SCALE: 1"=1'-0"



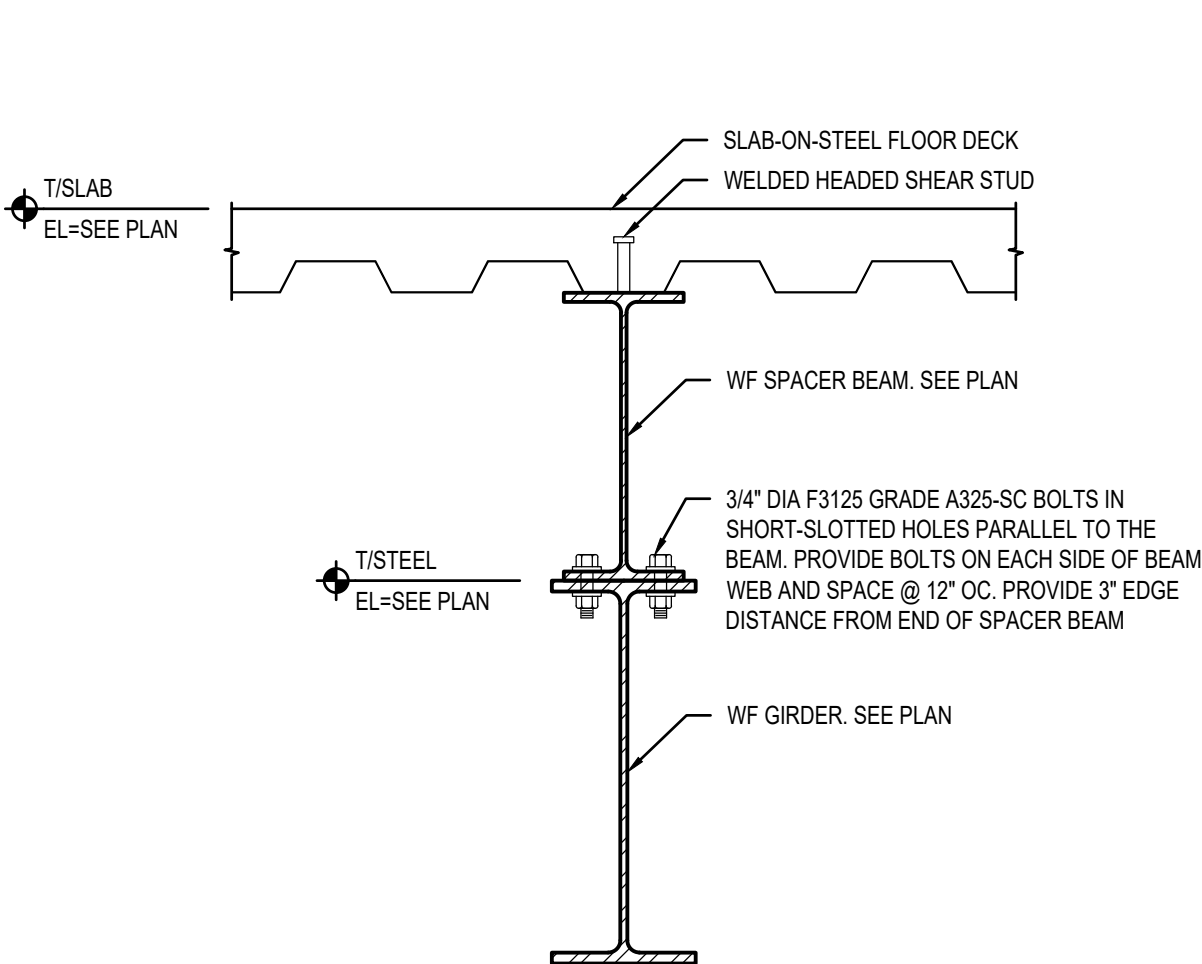
3 MOMENT CONNECTION DETAIL AT
COLUMN WEB
SCALE: 1"=1'-0"



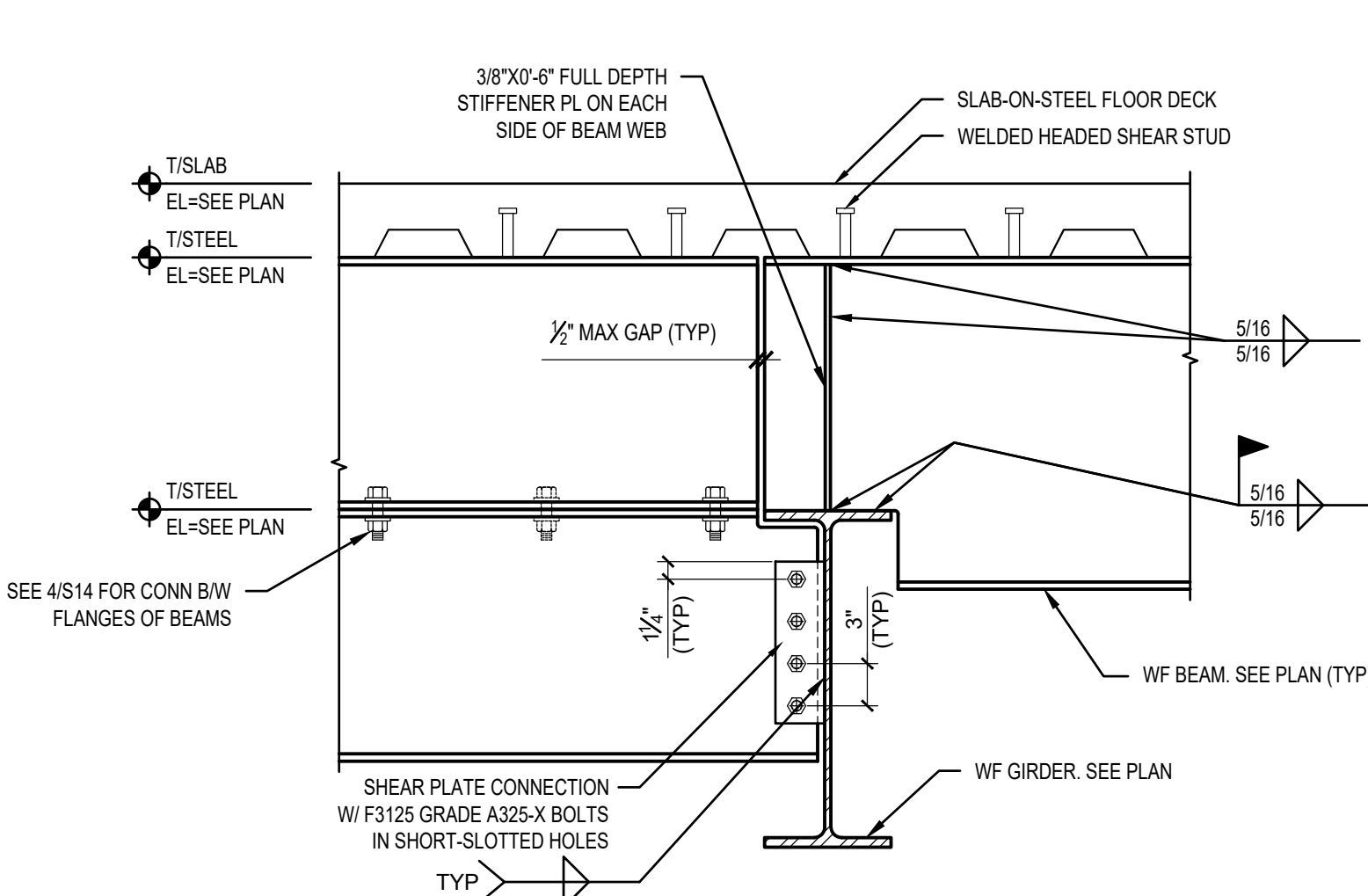
4 STACKED BEAM DETAIL
SCALE: 1"=1'-0"



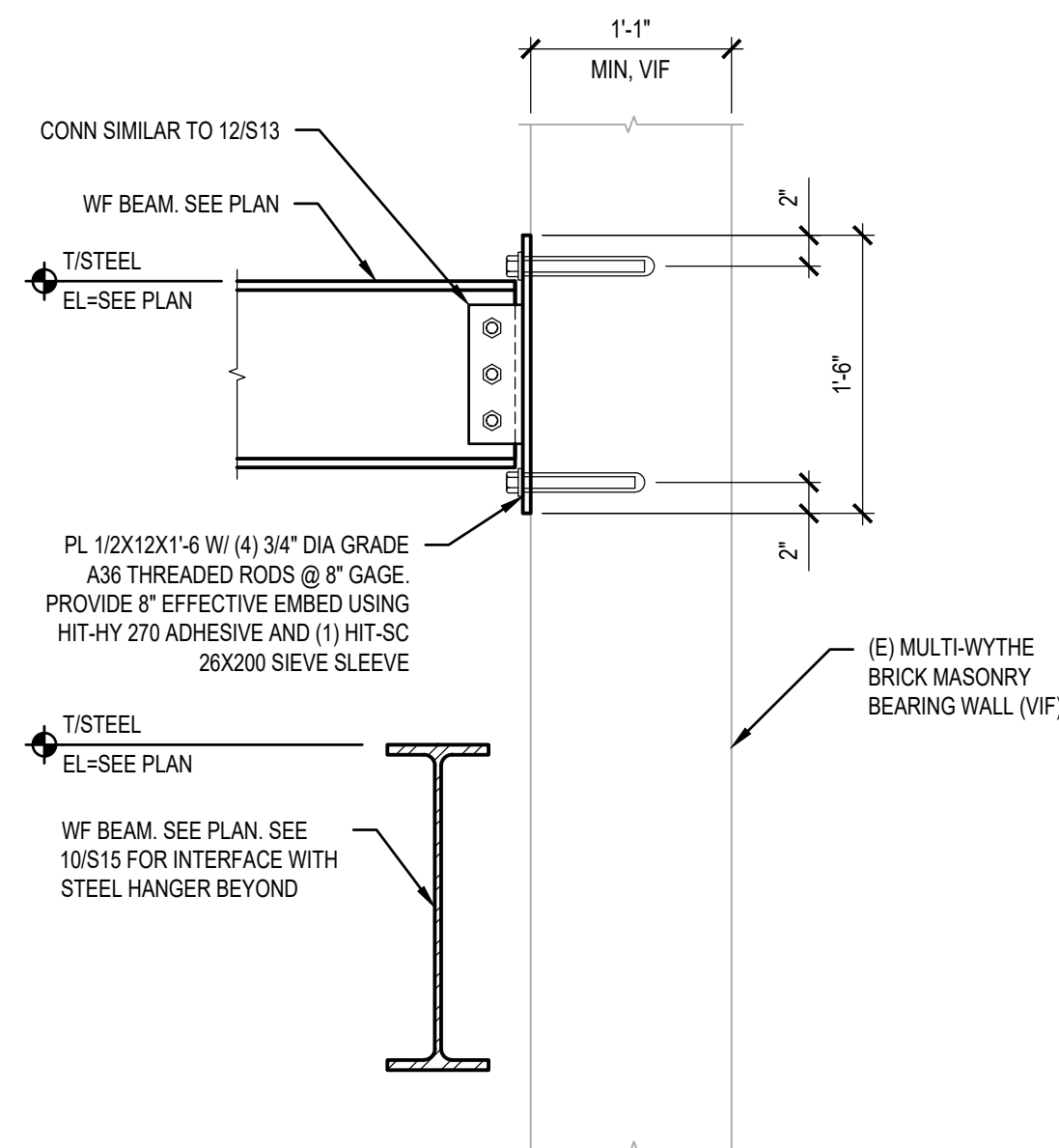
5 SLAB STEP DETAIL
SCALE: 1"=1'-0"



6 DIAPHRAGM TRANSFER DETAIL
SCALE: 1"=1'-0"

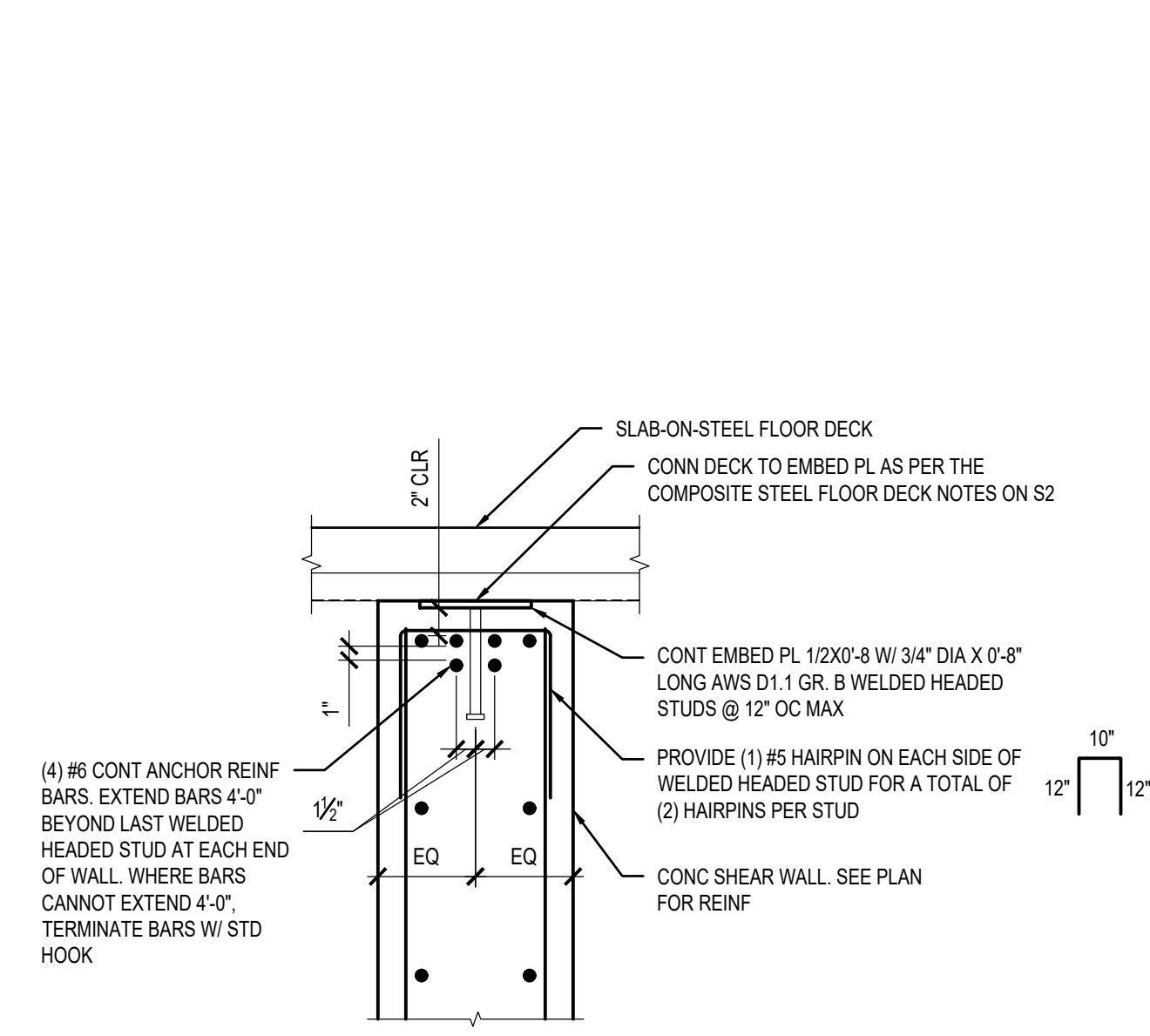


7 CONNECTION DETAIL
SCALE: 1"=1'-0"

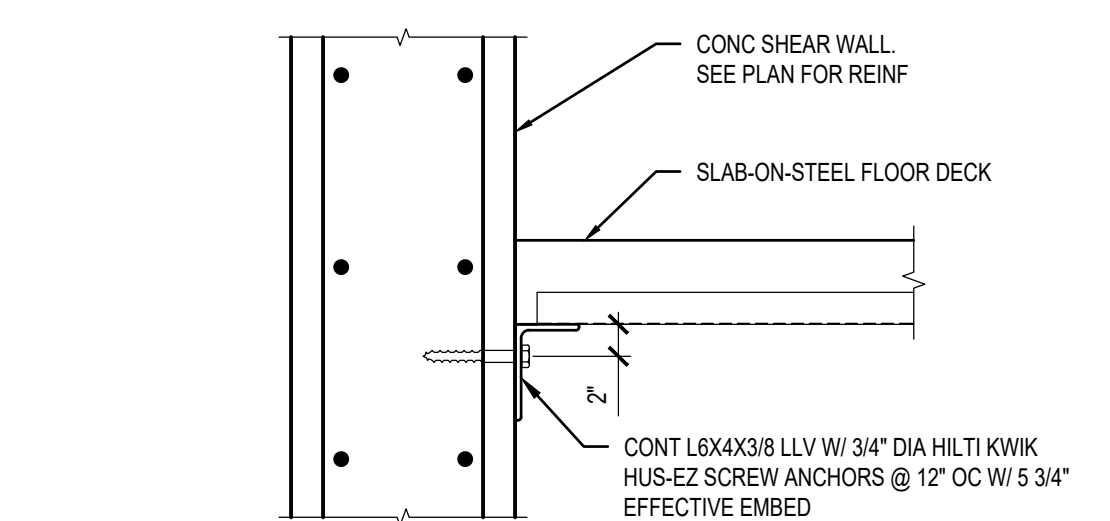


8 BEAM TO WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

NOTES:
1. SLAB-ON-STEEL FLOOR DECK CONSTRUCTION NOT SHOWN FOR CLARITY.

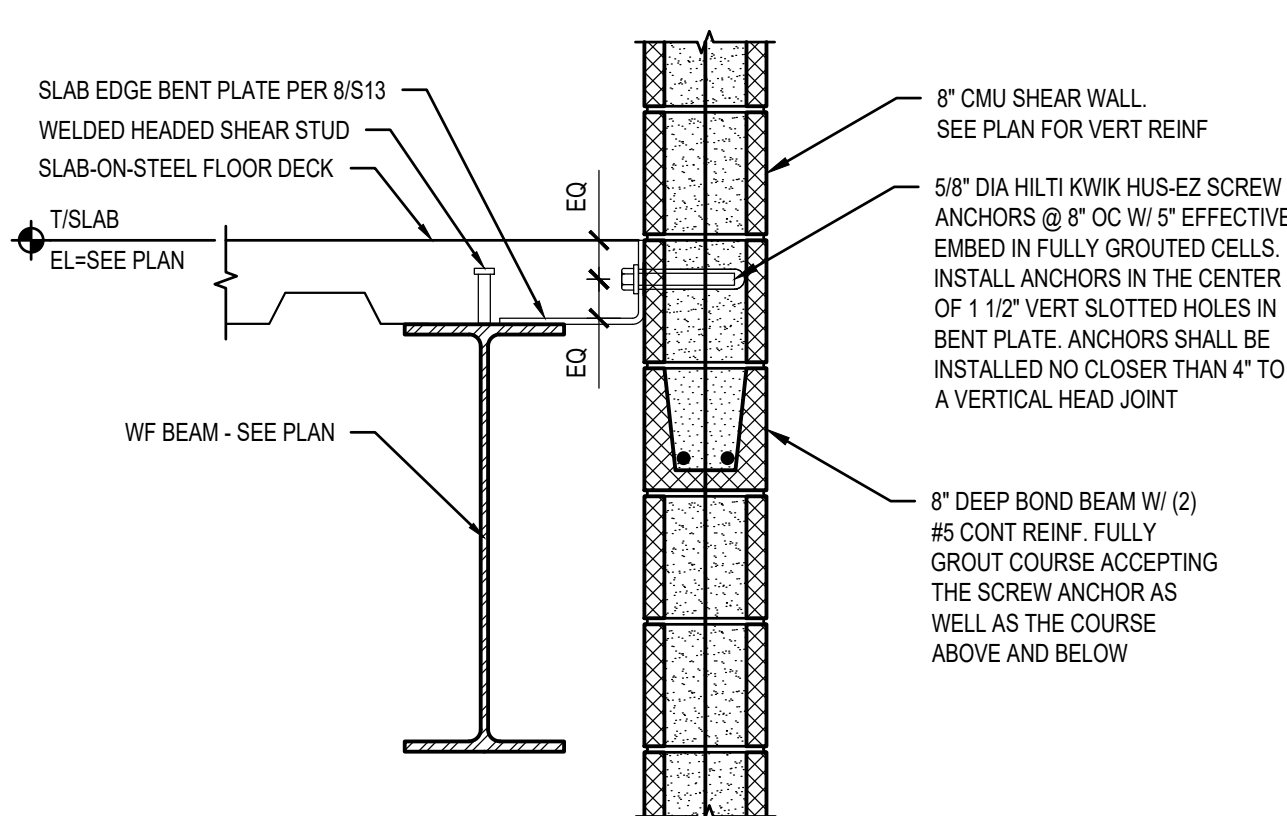


9 SLAB-ON-STEEL FLOOR DECK TO CONCRETE
SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"



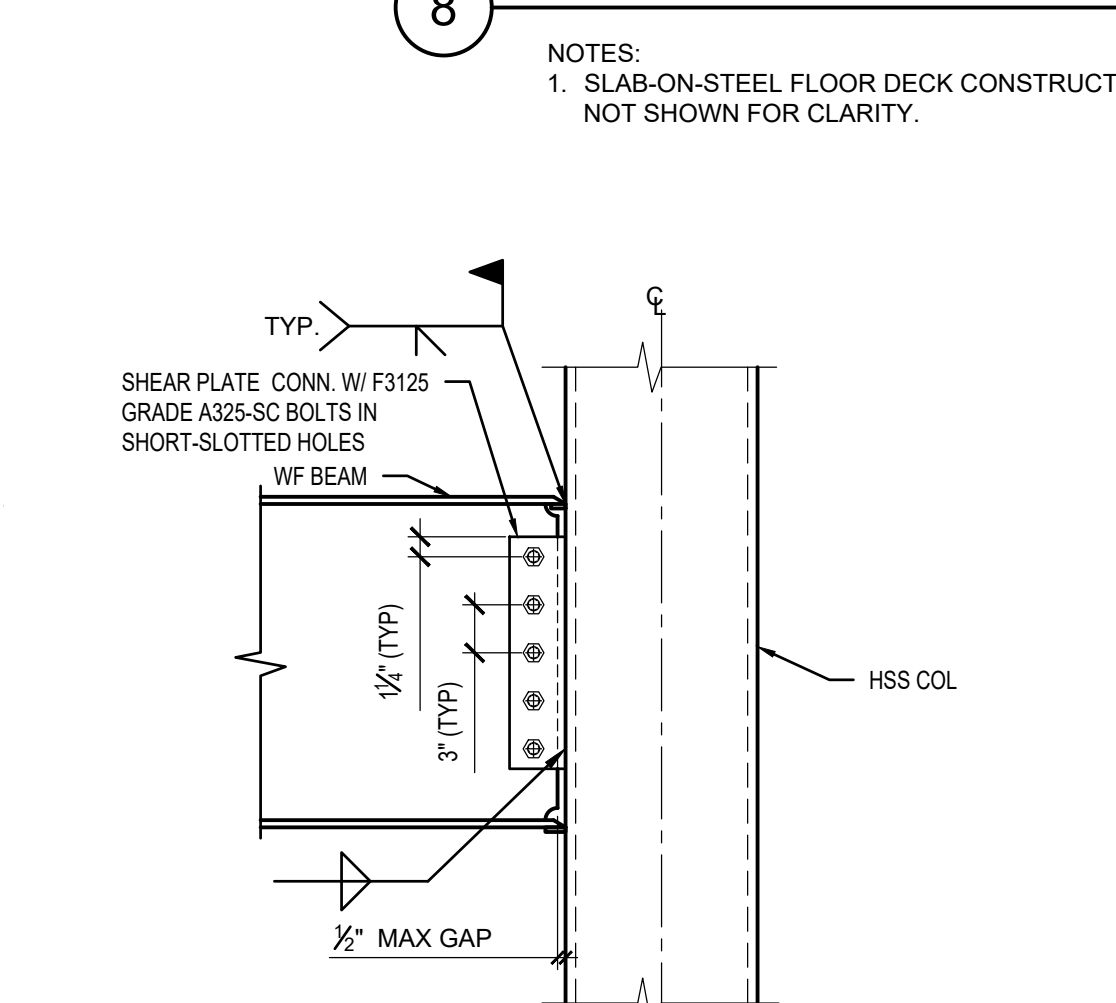
10 SLAB-ON-STEEL FLOOR DECK TO CONCRETE
SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

NOTES:
1. DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS.



11 SLAB-ON-STEEL FLOOR DECK TO CMU SHEAR
WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

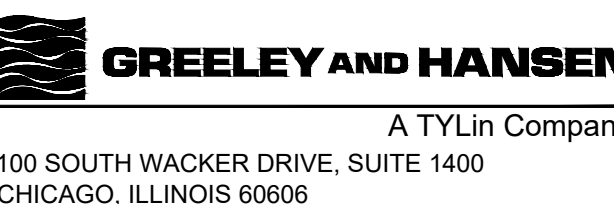
NOTES:
1. DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS.
2. WHERE DETAIL IS INDICATED AS "SIM" ON PLAN, INSTALL SCREW ANCHORS DIRECTLY IN THE CENTER OF 2" DIAMETER OVERSIZED HOLES IN BENT PLATE. PROVIDE 3/8"x4"x4" WASHER PLATE CENTERED OVER THE HOLE, BUT DO NOT WELD TO BENT PLATE. TIGHTEN SCREW UNTIL CONTACT IS MADE WITH WASHER PLATE BUT DO NOT TIGHTEN SNUG.
3. WHERE DETAIL IS CUT AT THE ROOF, SLAB-ON-STEEL FLOOR DECK SHALL BE LACED WITH STEEL ROOF DECK AND PROVIDE BOND BEAM AT TOP OF WALL. H (2) #5 CONTINUOUS REINFORCEMENT.



12 MOMENT CONNECTION DETAIL AT HSS COLUMN
SCALE: 1"=1'-0"



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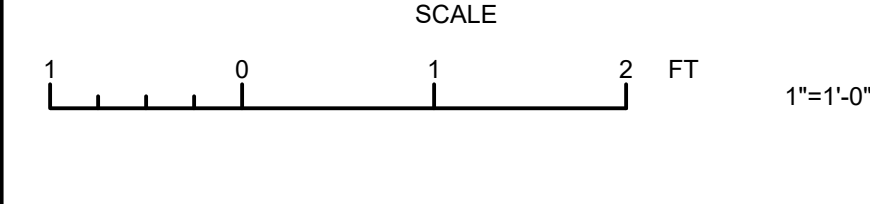
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

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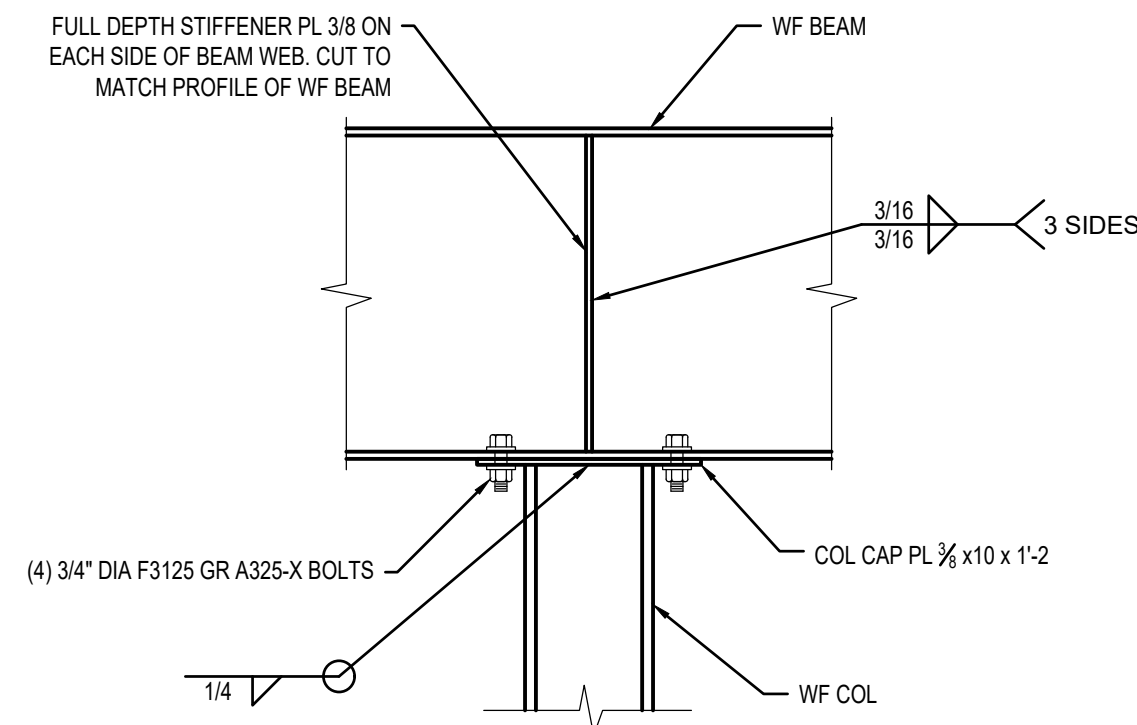


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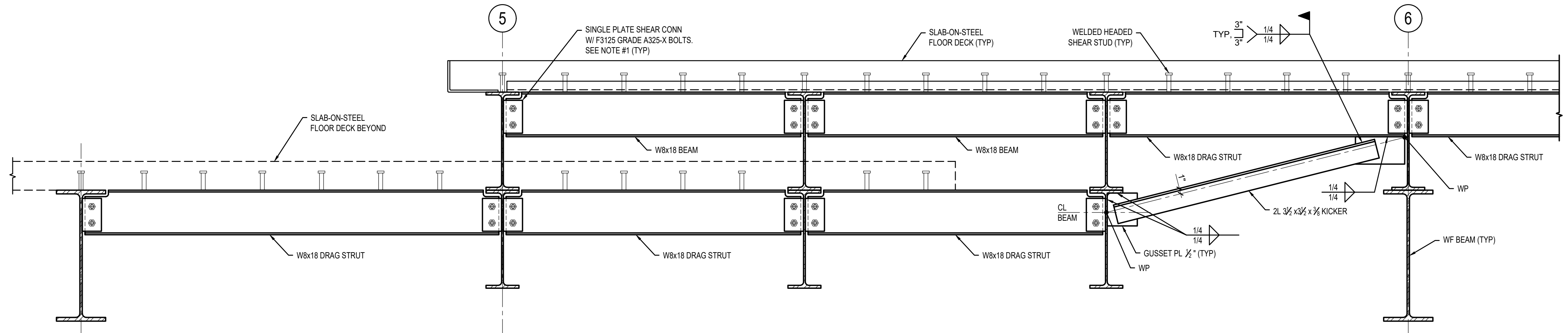
STRUCTURAL
STEEL DETAILS

PROJECT NO.: 0028A
DWG: **S14**
SHEET: 24 OF 116
DATE: JANUARY 2025
REV: 0

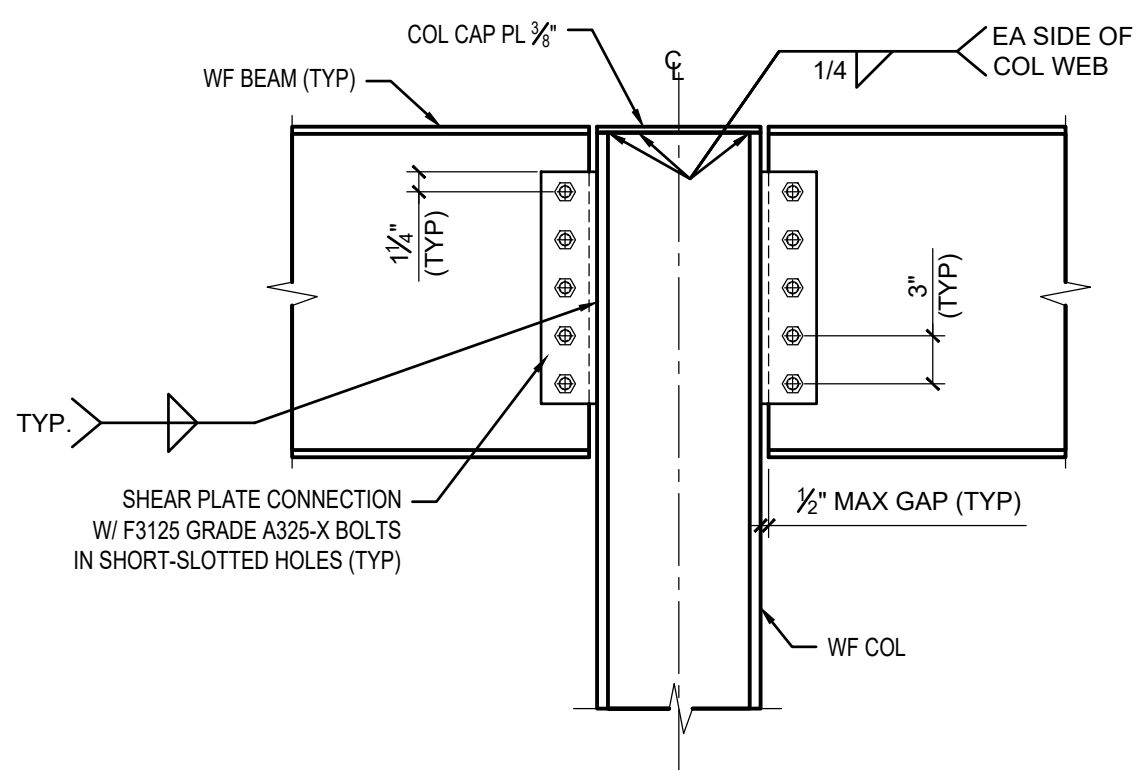
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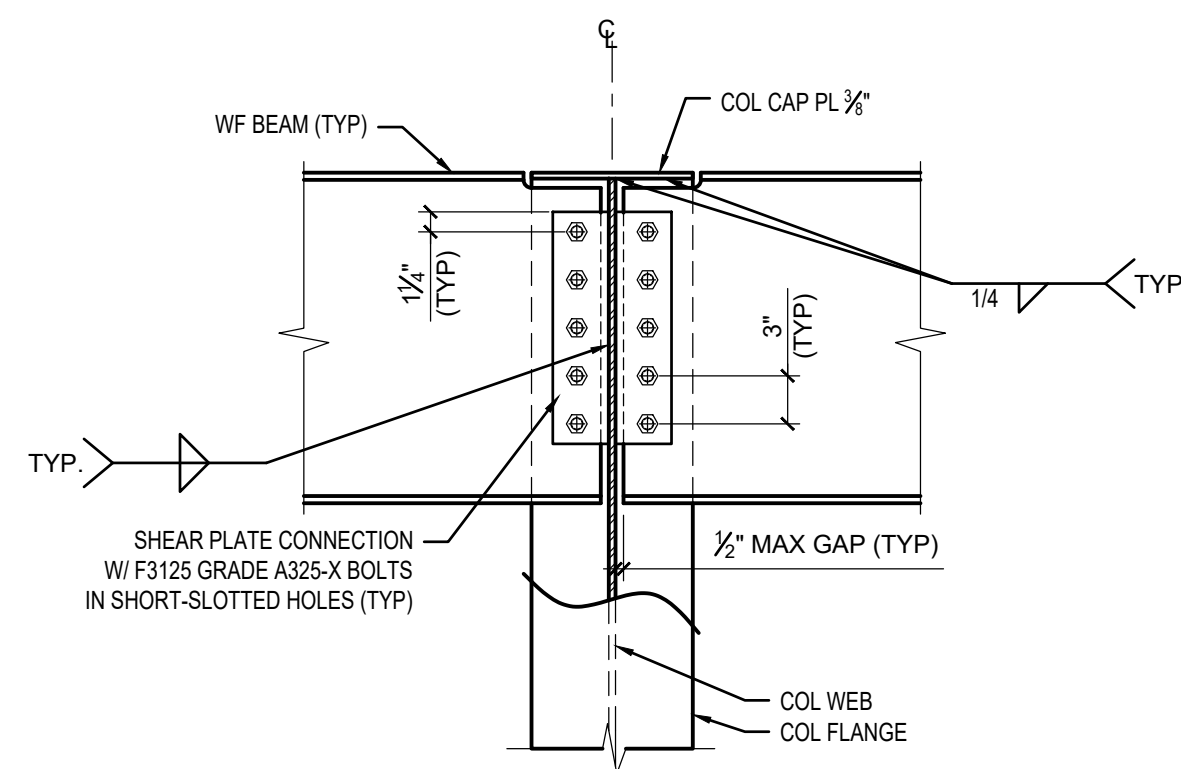
1 WF BEAM OVER TOP OF WF COLUMN DETAIL
SCALE: 1"=1'-0"



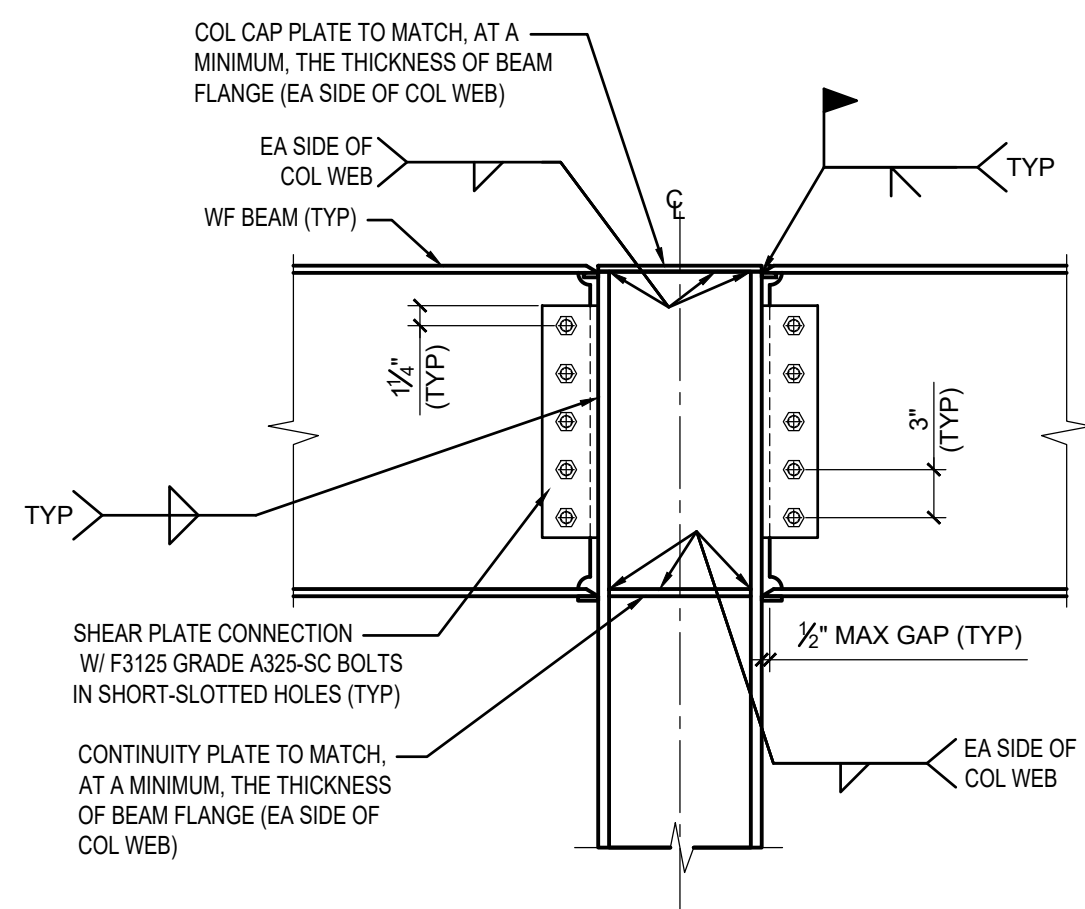
2 DRAG STRUT TRANSFER DETAIL
NOTES:
1. WHERE BEAM IS INDICATED TO BE A DRAG STRUT, PROVIDE 1/2" THICK SINGLE PLATE SHEAR CONNECTION WITH A325-SC BOLTS AT EACH END OF BEAM.
SCALE: 1"=1'-0"



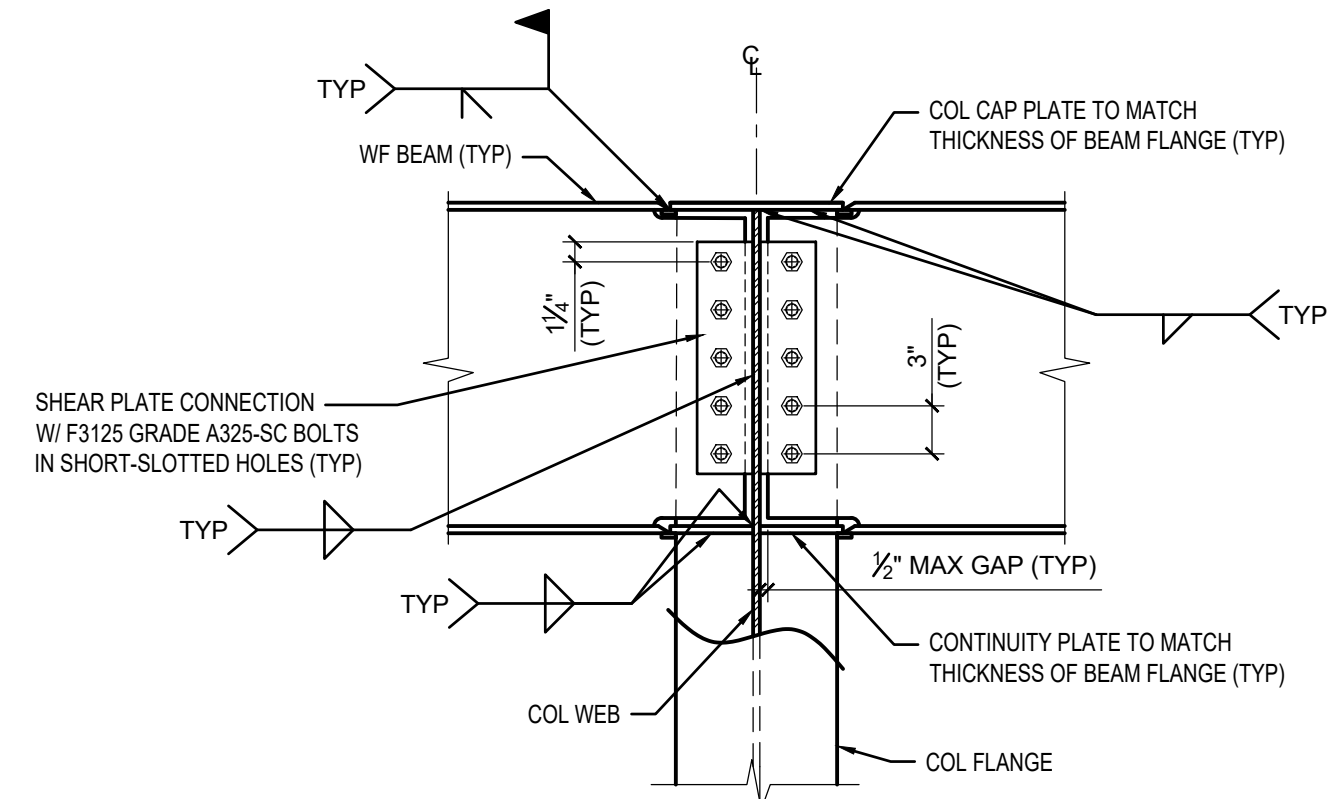
3 BEAM TO COLUMN FLANGE CONNECTION
DETAIL AT TOP OF COLUMN
SCALE: 1"=1'-0"



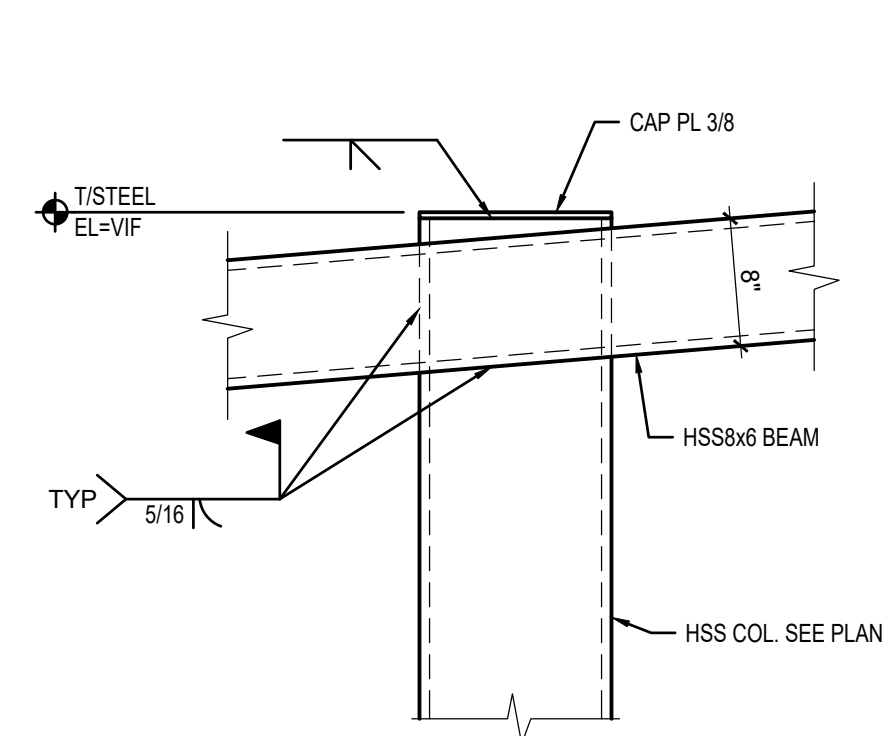
4 BEAM TO COLUMN WEB CONNECTION DETAIL
AT TOP OF COLUMN
SCALE: 1"=1'-0"



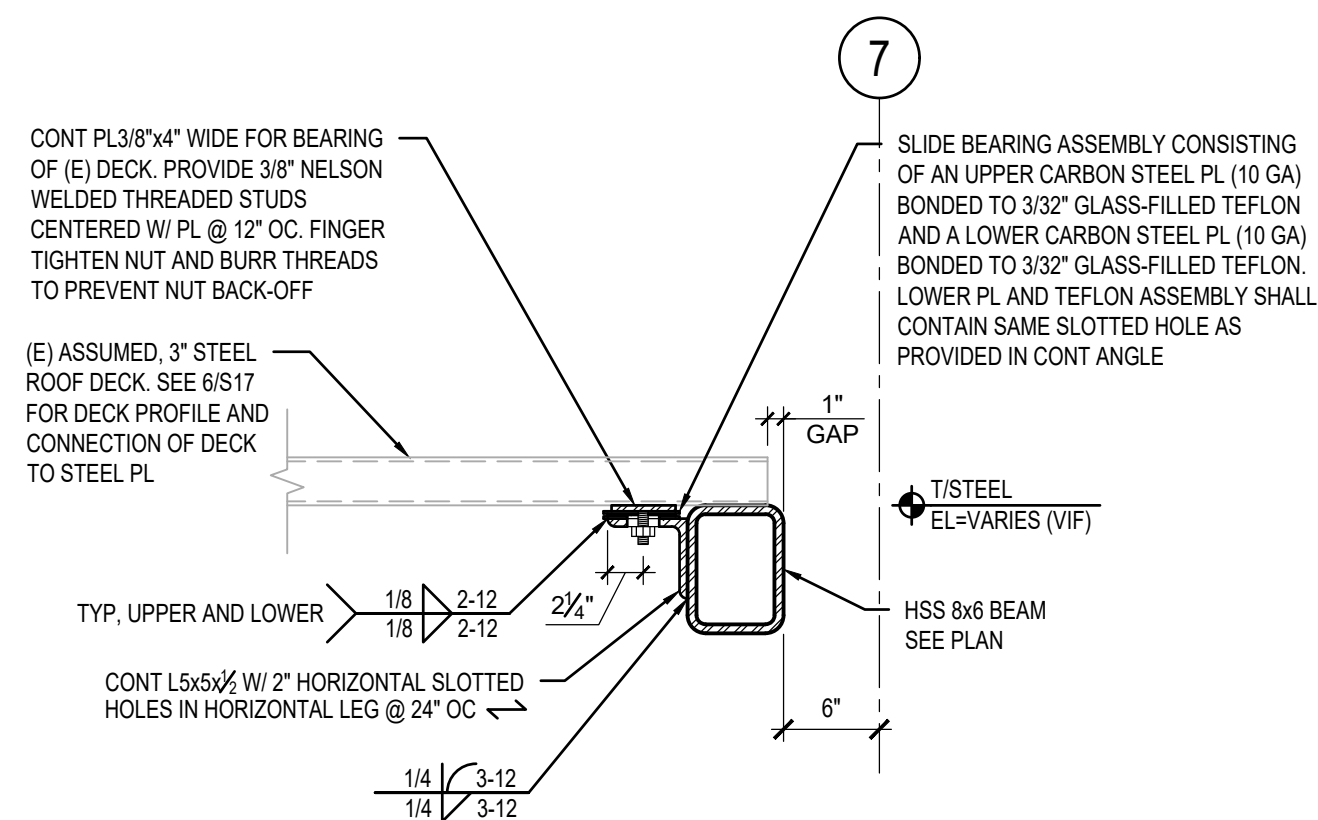
5 MOMENT CONNECTION DETAIL TO FLANGE
AT TOP OF COLUMN
SCALE: 1"=1'-0"



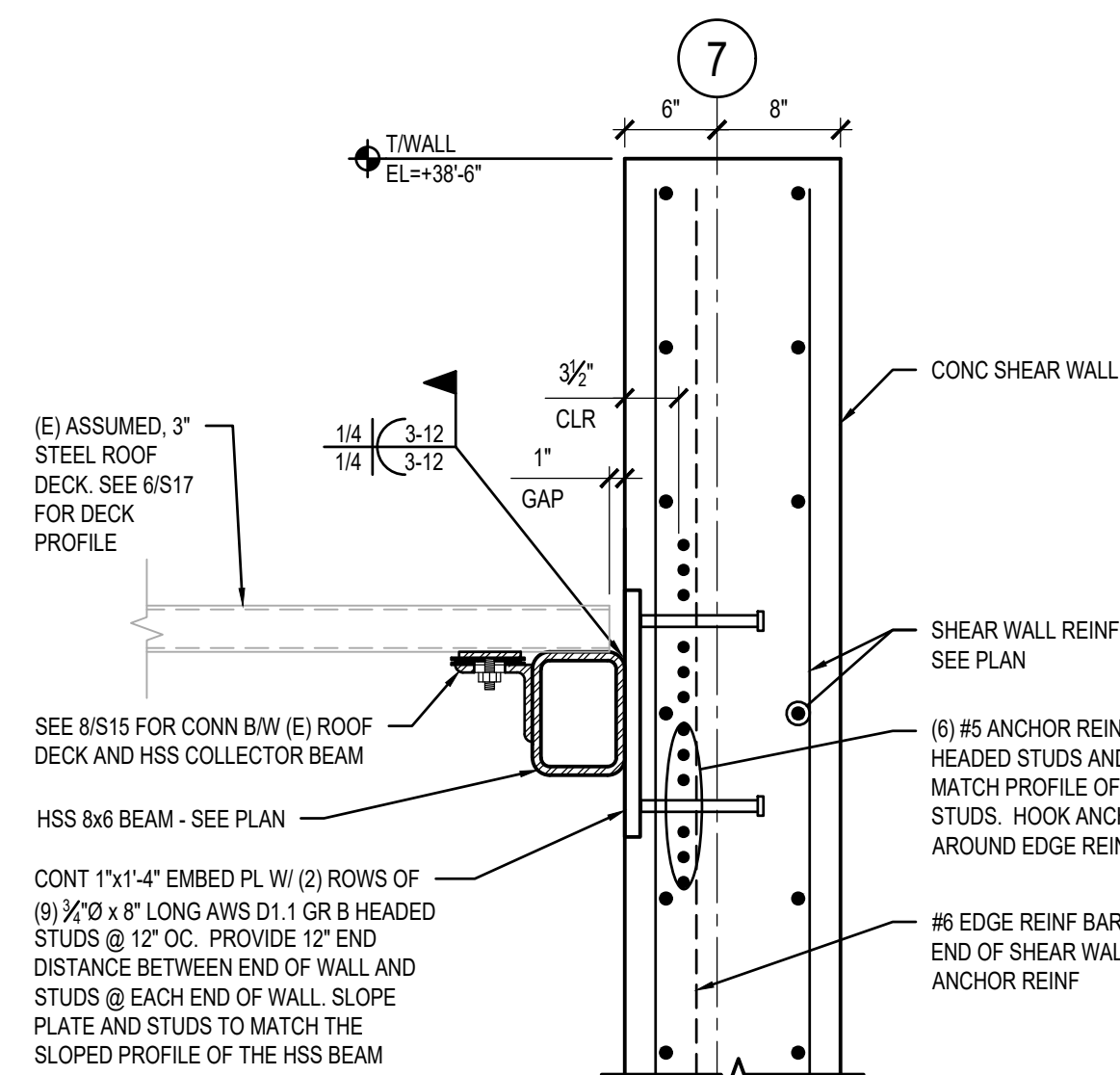
6 MOMENT CONNECTION DETAIL
TO WEB AT TOP OF COLUMN
SCALE: 1"=1'-0"



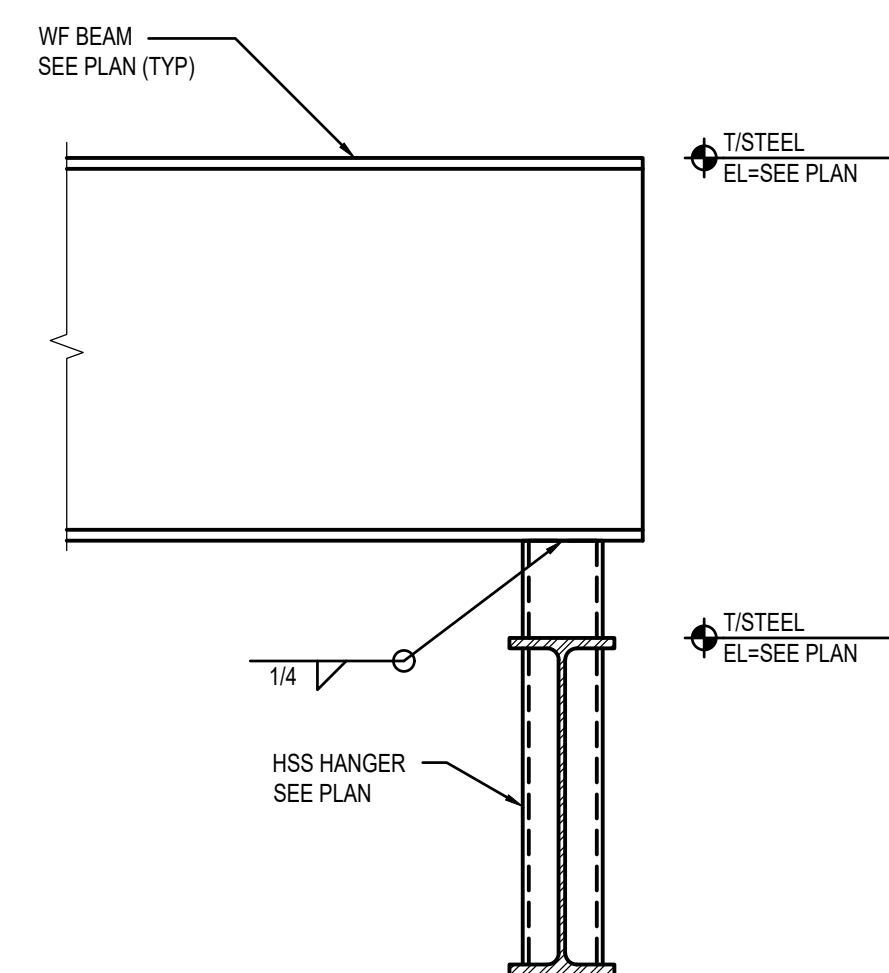
7 HSS COLLECTOR TO HSS
COLUMN CONNECTION DETAIL
SCALE: 1"=1'-0"



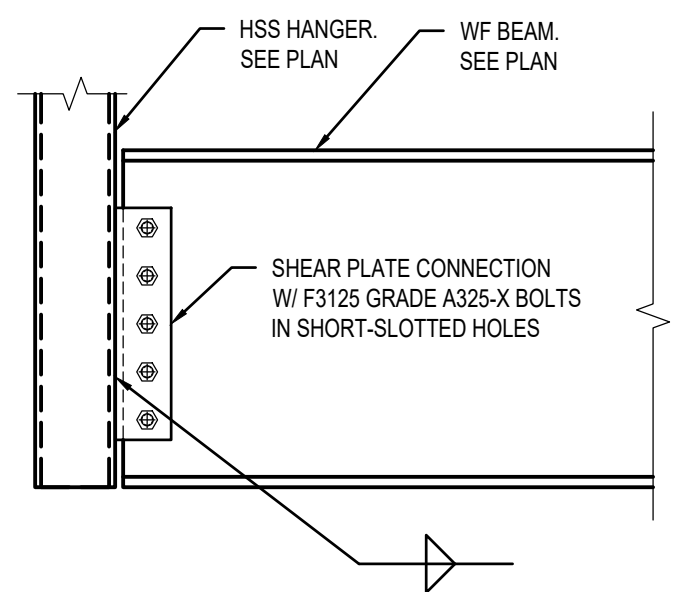
8 EXISTING ROOF SLAB DETAIL AT HSS COLLECTOR
SCALE: 1"=1'-0"



9 HSS COLLECTOR TO SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"



10 HSS HANGER SECTION
SCALE: 1"=1'-0"



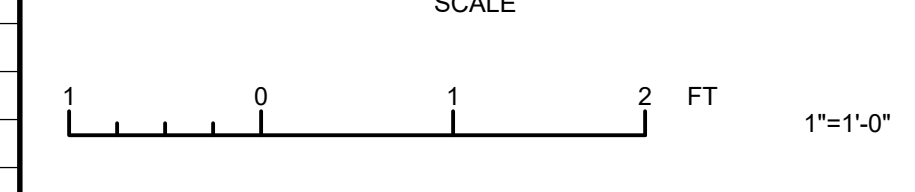
11 BEAM TO HANGER CONNECTION DETAIL
SCALE: 1"=1'-0"



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Eduardo de Santiago
081-006700
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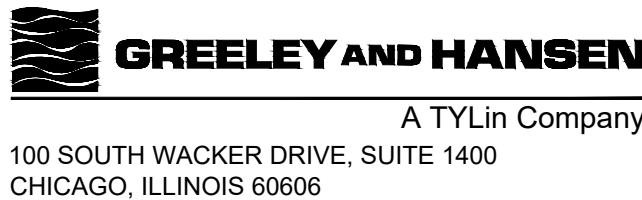
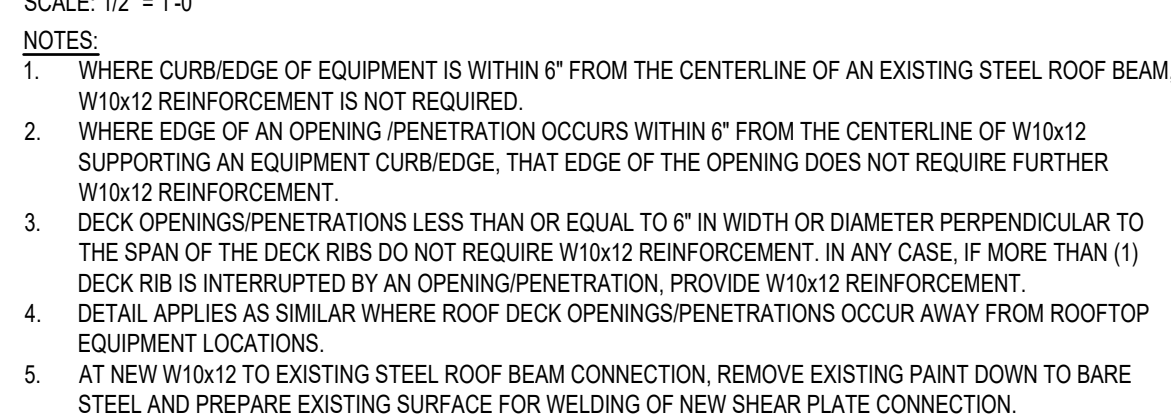
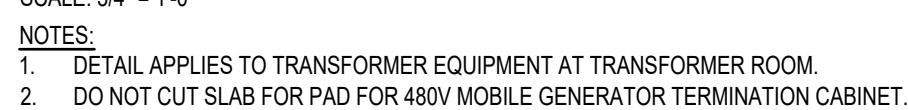
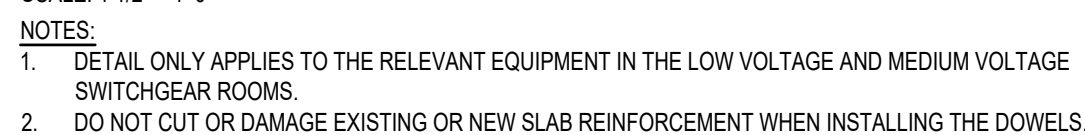
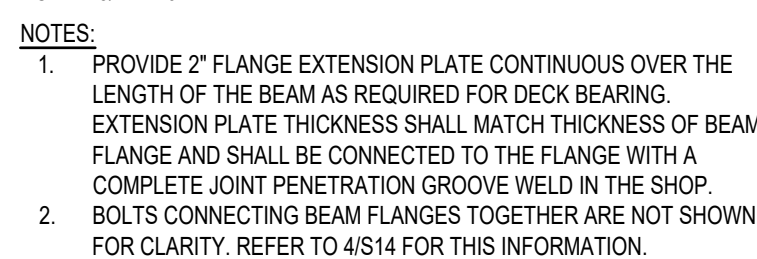
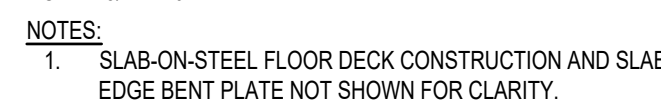


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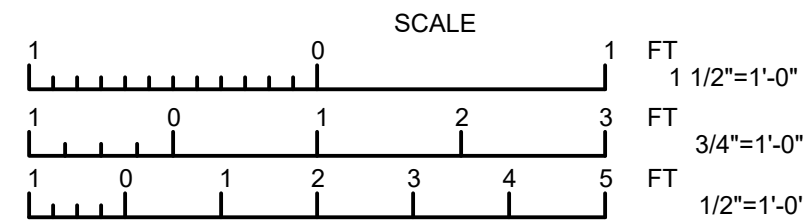
STRUCTURAL
STEEL DETAILS

PROJECT NO.: 0028A
DWG: S15
SHEET: 25 OF 116
DATE: JANUARY 2025
REV: 0

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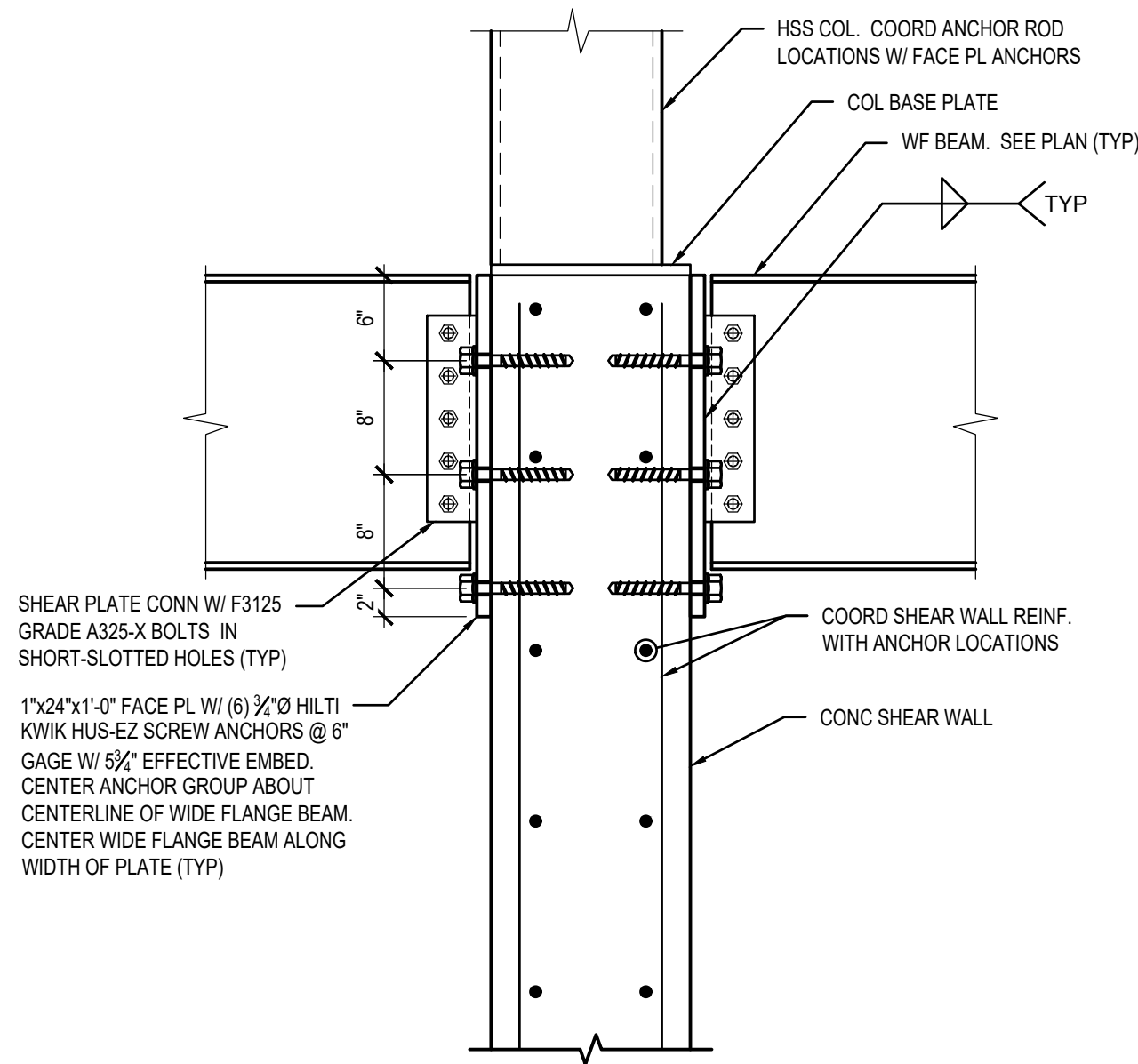


WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STEEL AND CONCRETE DETAILS

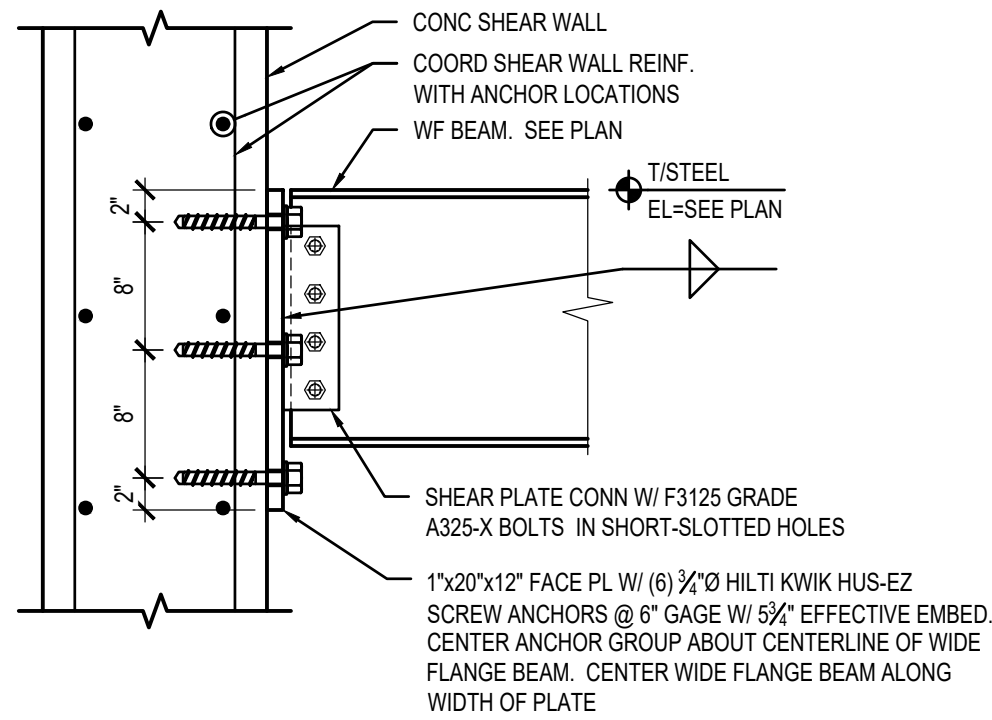
DWG: **S16**
SHEET: 26 C
DATE: JANUARY 2025

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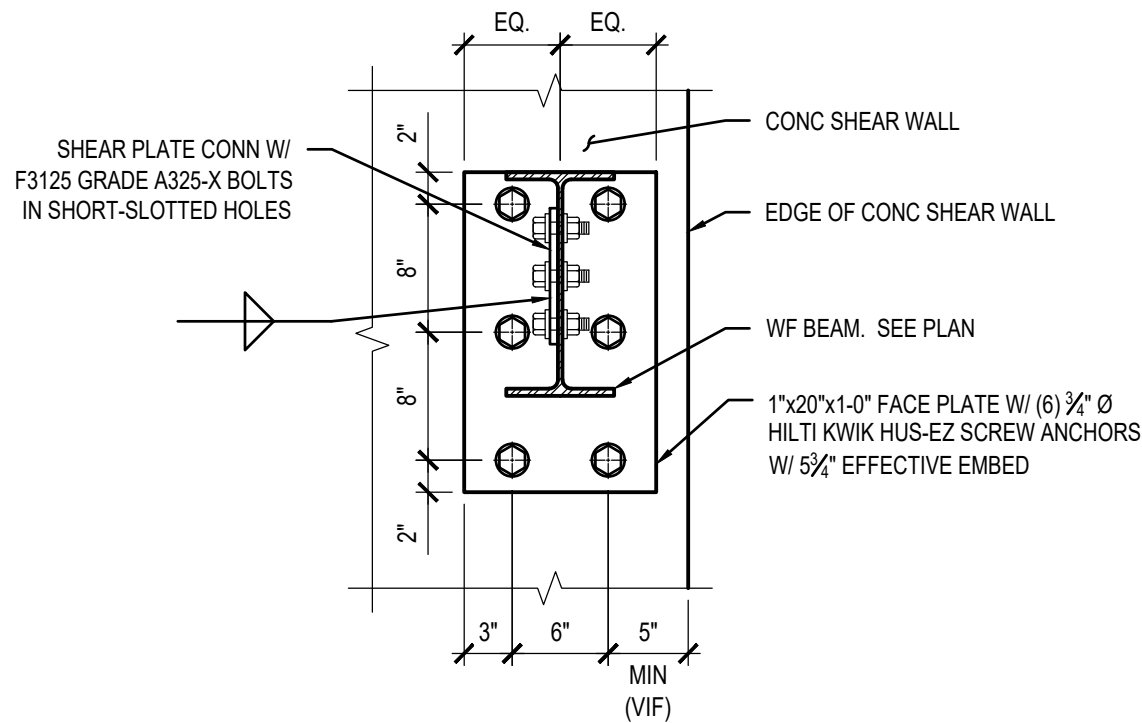
1 WF BEAM TO SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

- NOTES:
- DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS. COORDINATE LOCATION OF WALL REINFORCEMENT WITH THE PROPOSED LOCATION OF THE SCREW ANCHORS AND NOTIFY THE ENGINEER WHERE CONFLICTS EXIST. DETAIL MAY WARRANT A REVISION IF THIS IS THE CASE.
 - SLAB-ON-STEEL FLOOR DECK CONSTRUCTION IS NOT SHOWN FOR CLARITY.



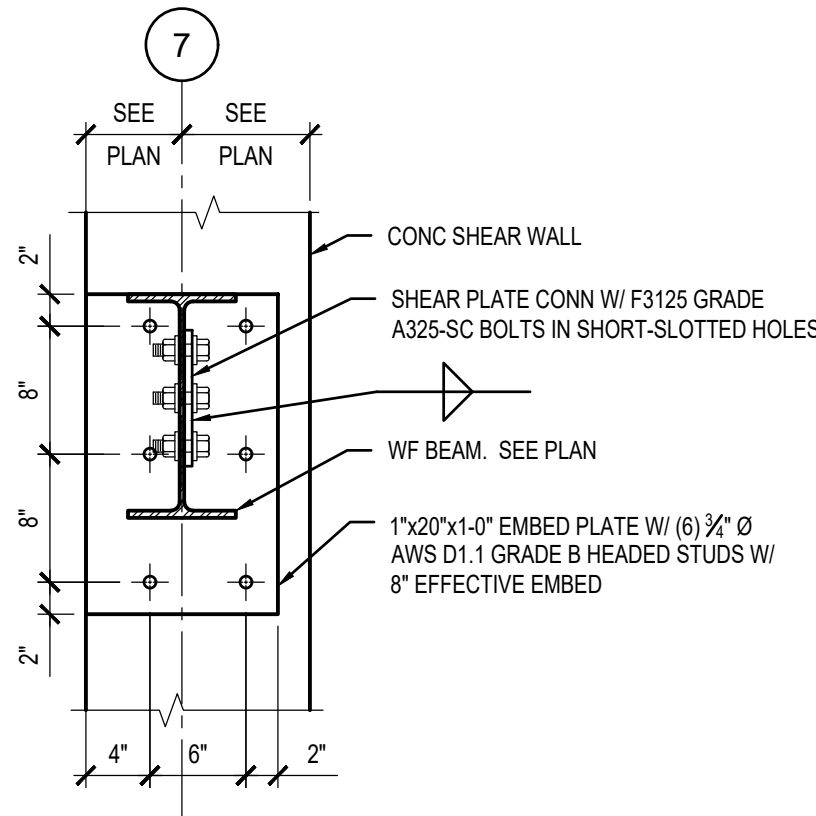
2 W16 BEAM TO CONCRETE SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

- NOTES:
- DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS. COORDINATE LOCATION OF WALL REINFORCEMENT WITH THE PROPOSED LOCATION OF THE SCREW ANCHORS AND NOTIFY THE ENGINEER WHERE CONFLICTS EXIST. DETAIL MAY WARRANT A REVISION IF THIS IS THE CASE.
 - STEEL ROOF DECK CONSTRUCTION IS NOT SHOWN FOR CLARITY.



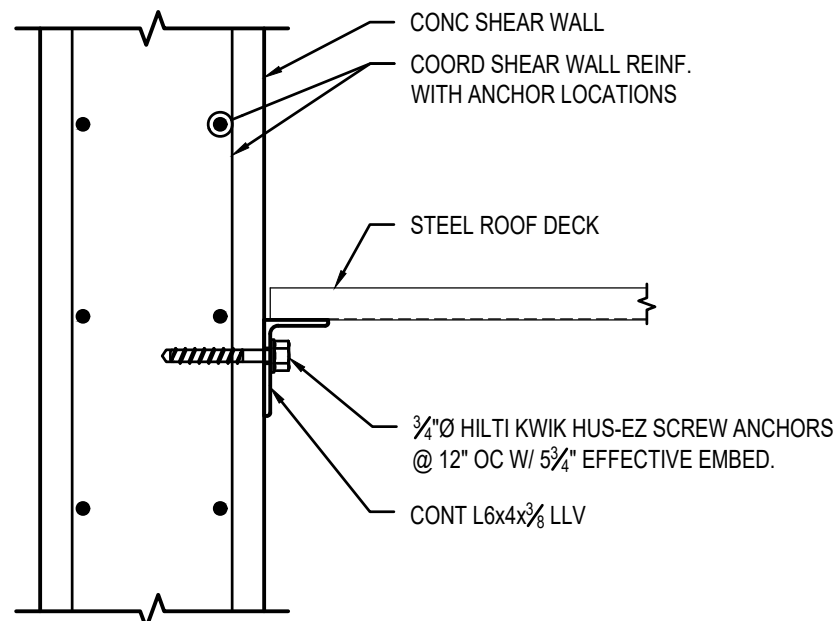
3 W14 BEAM TO CONCRETE SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

- NOTES:
- DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS. COORDINATE LOCATION OF WALL REINFORCEMENT WITH THE PROPOSED LOCATION OF THE SCREW ANCHORS AND NOTIFY THE ENGINEER WHERE CONFLICTS EXIST. DETAIL MAY WARRANT A REVISION IF THIS IS THE CASE.
 - STEEL ROOF DECK CONSTRUCTION IS NOT SHOWN FOR CLARITY.



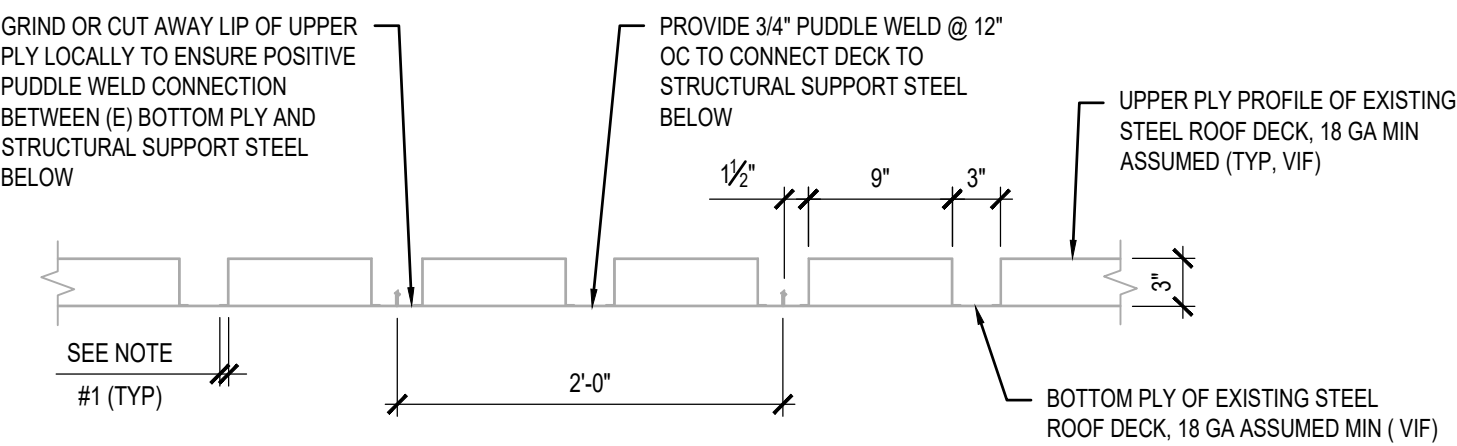
4 W14 BEAM TO CONCRETE SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

- NOTES:
- COORDINATE LOCATION OF WALL REINFORCEMENT WITH THE PROPOSED LOCATION OF THE HEADED STUDS AND NOTIFY THE ENGINEER WHERE CONFLICTS EXIST. DETAIL MAY WARRANT A REVISION IF THIS IS THE CASE.
 - STEEL ROOF DECK CONSTRUCTION IS NOT SHOWN FOR CLARITY.



5 ROOF DECK TO CONCRETE SHEAR WALL CONNECTION DETAIL
SCALE: 1"=1'-0"

- NOTES:
- DO NOT CUT OR DAMAGE WALL REINFORCEMENT WHEN INSTALLING THE SCREW ANCHORS. COORDINATE LOCATION OF WALL REINFORCEMENT WITH THE PROPOSED LOCATION OF THE SCREW ANCHORS AND NOTIFY THE ENGINEER WHERE CONFLICTS EXIST. DETAIL MAY WARRANT A REVISION IF THIS IS THE CASE.



6 EXISTING STEEL ROOF DECK PROFILE AND WELDING DETAIL
SCALE: 1"=1'-0"

- NOTES:
- VERIFY IN FIELD THE LENGTH OF THE RETURN LIP OF UPPER PLY PROFILE OF THE EXISTING STEEL DECK.
 - STRUCTURAL SUPPORT STEEL OCCURRING BELOW THE BOTTOM PLY OF THE EXISTING ROOF DECK IS NOT SHOWN FOR CLARITY.



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GREELEY AND HANSEN

A TYLin Company

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SCALE

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1"=1'-0"

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WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

CONCRETE CONNECTION DETAILS

PROJECT NO.: 0028A

DWG:

S17

SHEET:

27

OF

116

DATE:

JANUARY 2025

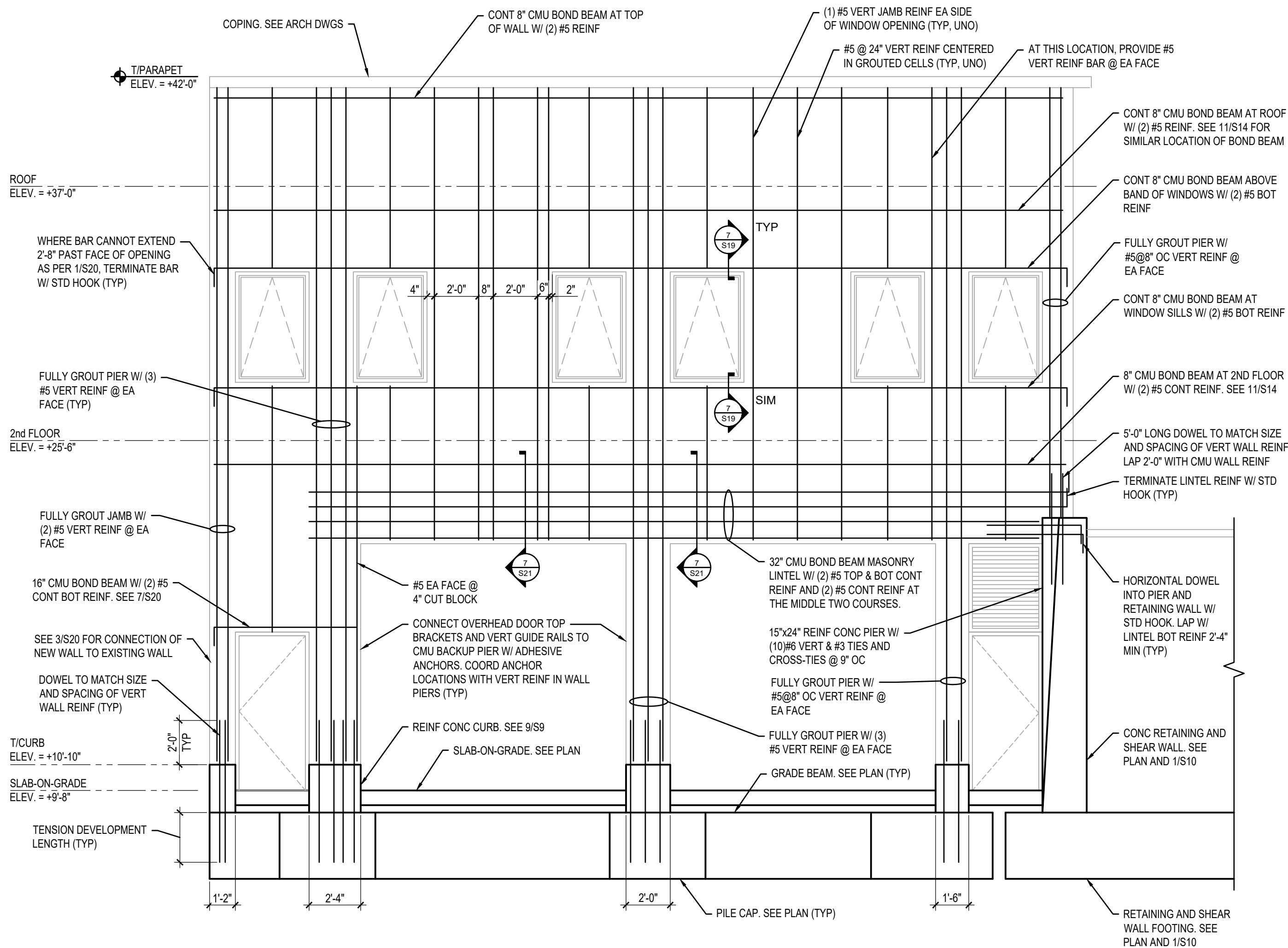
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PLACEMENT OF STEEL REINFORCEMENT WITHIN THE CMU WALL SHALL BE EXACTLY AS PER THE DETAILS ESTABLISHED ON S19 AND S20. DEVIATION BEYOND THE TOLERANCES CLEARLY INDICATED ON THOSE DETAILS IS NOT ALLOWED. REINFORCEMENT PLACEMENT SHALL BE CONTINUOUSLY MONITORED AND INSPECTED THROUGHOUT CONSTRUCTION.

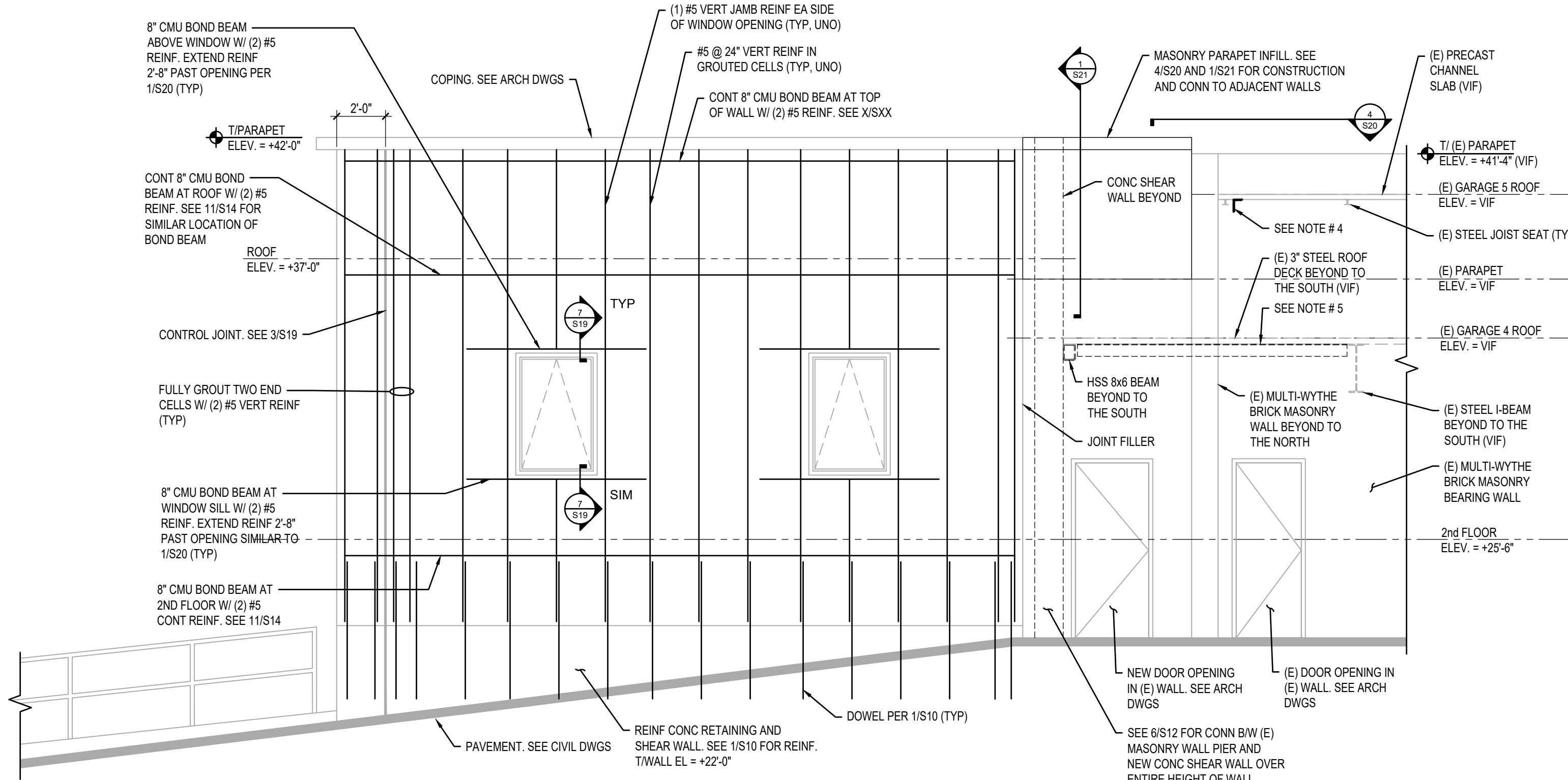


1 CMU REINFORCING ELEVATION AT EAST WALL

NOTES:

- REFER TO MASONRY WALL CONSTRUCTION SPECIFICATIONS AND NOTES ON S2 FOR ADDITIONAL INFORMATION.
- VERTICAL REINFORCEMENT SHALL RUN CONTINUOUSLY THROUGH ALL BOND BEAMS.
- VERTICAL AND HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS OVER THEIR FULL LENGTH AS SHOWN. LAP SPLICES ARE PERMITTED PROVIDED THAT THE SPLICE LENGTHS ARE AS PER THE LAP SPLICE SCHEDULE ON S20. DO NOT LOCATE LAP SPLICES OVER WINDOW OR DOOR OPENINGS.
- HELICAL PILES NOT SHOWN FOR CLARITY.
- REFER TO PLAN ON S6 FOR REQUIRED MASONRY TIES TO THE STEEL COLUMNS.
- THERE SHALL BE NO CONSTRUCTION OR CONTROL JOINTS ON THIS WALL ELEVATION.
- SEE TYPICAL CMU CONSTRUCTION DETAILS ON S19 AND S20.
- STEEL ANGLE LOOSE LINTEL ABOVE LOUVER SHALL CONNECT TO THE REINFORCED CONCRETE PIER AT ITS NORTH END THROUGH A WELDED END PLATE AND SCREW ANCHORS INTO THE PIER.

PLACEMENT OF STEEL REINFORCEMENT WITHIN THE CMU WALL SHALL BE EXACTLY AS PER THE DETAILS ESTABLISHED ON S19 AND S20. DEVIATION BEYOND THE TOLERANCES CLEARLY INDICATED ON THOSE DETAILS IS NOT ALLOWED. REINFORCEMENT PLACEMENT SHALL BE CONTINUOUSLY MONITORED AND INSPECTED THROUGHOUT CONSTRUCTION.



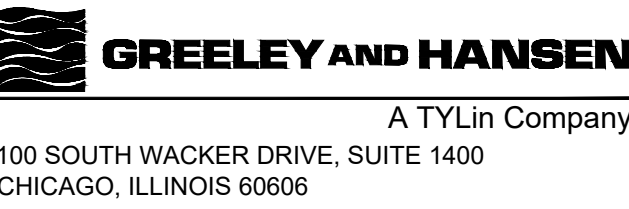
2 CMU REINFORCING ELEVATION AT NORTH WALL

NOTES:

- REFER TO MASONRY WALL CONSTRUCTION SPECIFICATIONS AND NOTES ON S2 FOR ADDITIONAL INFORMATION.
- VERTICAL REINFORCEMENT SHALL RUN CONTINUOUSLY THROUGH ALL BOND BEAMS.
- VERTICAL AND HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS OVER THEIR FULL LENGTH AS SHOWN. LAP SPLICES ARE PERMITTED PROVIDED THAT THE SPLICE LENGTHS ARE AS PER THE LAP SPLICE SCHEDULE ON S20. DO NOT LOCATE LAP SPLICES OVER WINDOW OR DOOR OPENINGS.
- L6x4x5/16 LLV BRACING ANGLE. SEE 4/S20 FOR ADDITIONAL INFORMATION.
- L8x6x1/2 LLH BRACING ANGLE. SEE 7/S20 FOR ADDITIONAL INFORMATION.
- SEE TYPICAL CMU CONSTRUCTION DETAILS ON S19 AND S20.



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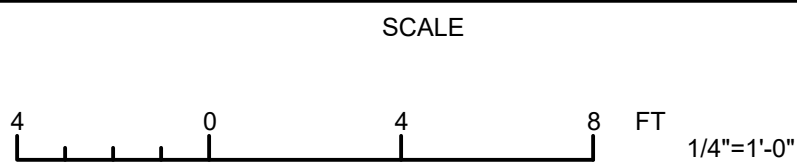


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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

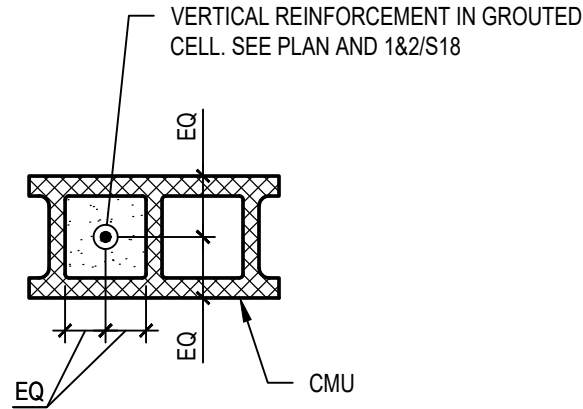
STRUCTURAL

MASONRY REINFORCING ELEVATIONS

PROJECT NO.: 0028A

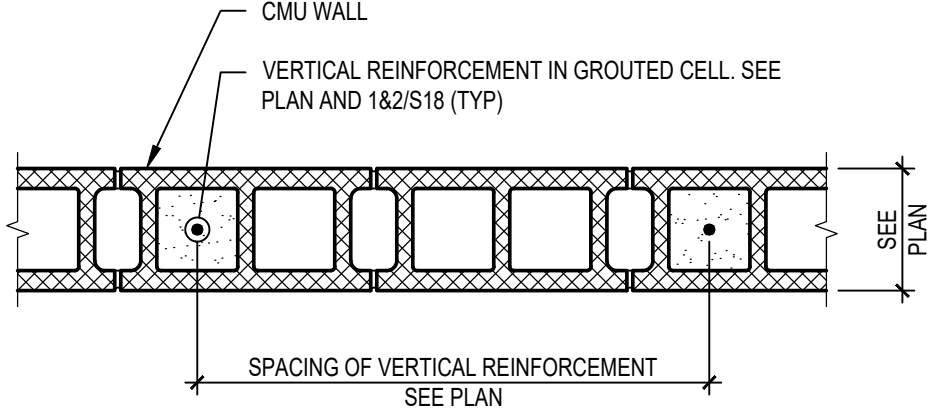
DWG: **S18**
SHEET: 28 OF 116
DATE: JANUARY 2025 REV: 0

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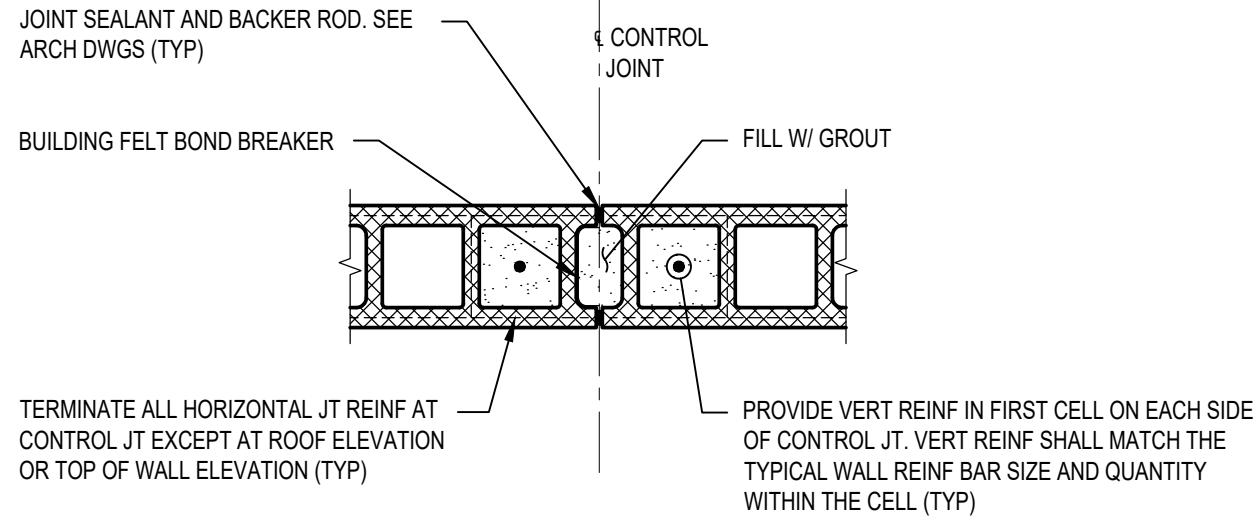


1 CMU REINFORCEMENT POSITION DETAIL - SINGLY-REINFORCED
SCALE: 1" = 1'-0"

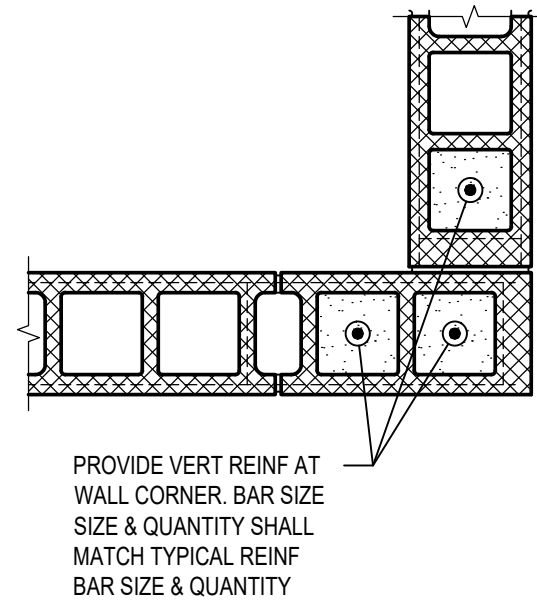
- NOTES:
- MAXIMUM TOLERANCES FROM POSITION SPECIFIED ABOVE:
 - ALONG THICKNESS OF WALL: 1/4" IN EITHER DIRECTION
 - ALONG LENGTH OF WALL: 1/2" IN EITHER DIRECTION



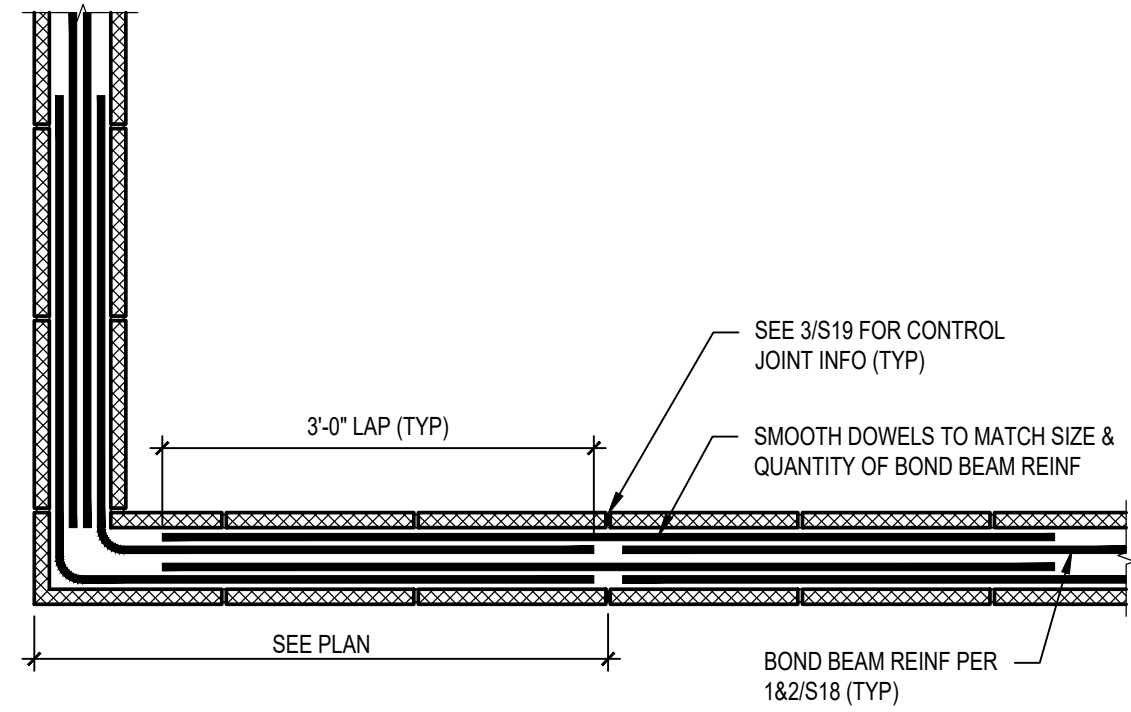
2 CMU REINFORCEMENT SPACING DETAIL
SCALE: 1" = 1'-0"



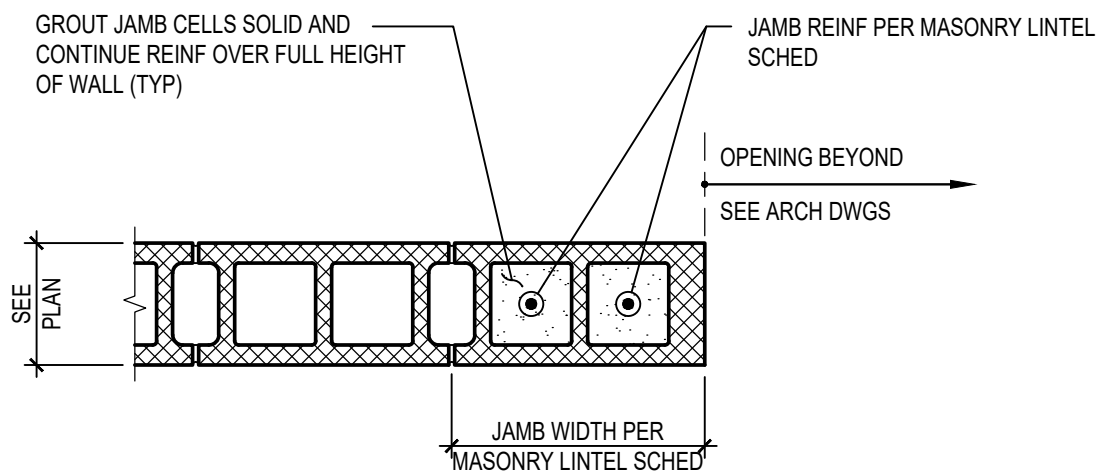
3 TYPICAL CMU CONTROL JOINT DETAIL
SCALE: 1" = 1'-0"



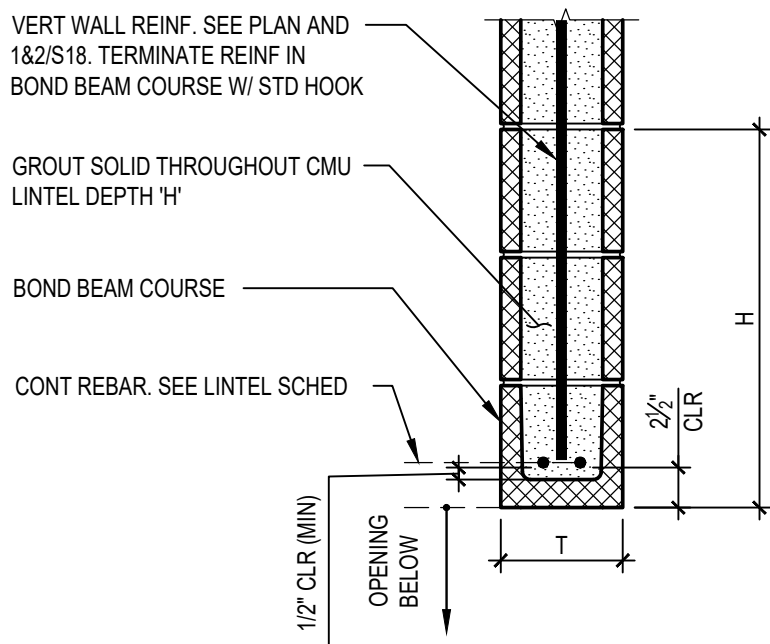
4 CMU REINFORCEMENT DETAIL AT WALL CORNER
SCALE: 1" = 1'-0"



5 BOND BEAM DETAIL AT WALL CORNER
SCALE: 3/4" = 1'-0"

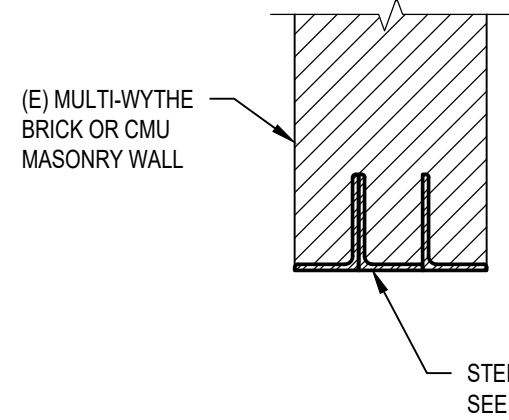


6 CMU JAMB REINFORCEMENT DETAIL
SCALE: 1" = 1'-0"



7 MASONRY LINTEL DETAIL

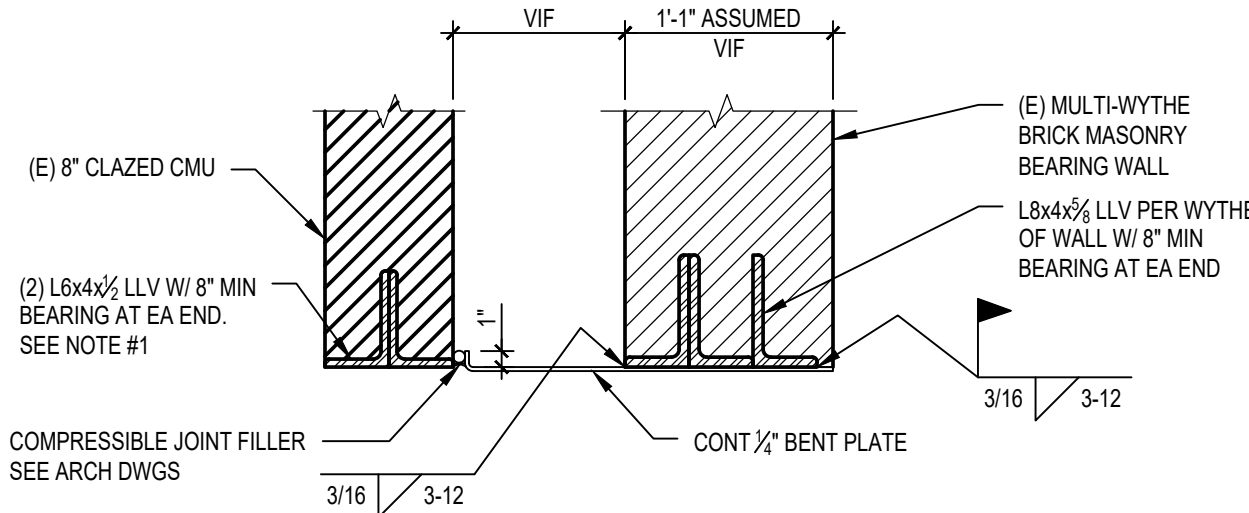
- SCALE: 1" = 1'-0"
- NOTES:
- PROVIDE MINIMUM 8" BEARING OF LINTEL ON WALL BELOW, EACH SIDE OF OPENING, UNLESS NOTED OTHERWISE ON THE LINTEL SCHEDULE.
 - PROVIDE 1/4" CLEAR BETWEEN EACH REBAR AND INSIDE FACE OF CMU FACE SHELL. CLEAR SPACING BETWEEN REBAR SHALL BE 1".



8 LOOSE LINTEL DETAIL AND SCHEDULE AT EXISTING MASONRY

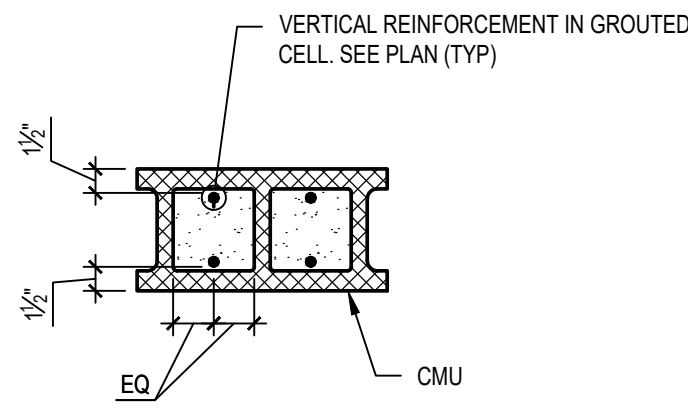
- SCALE: 1" = 1'-0"
- NOTES:
- WHERE EXISTING MASONRY CONSISTS OF CMU CELLS BENEATH LINTEL BEARING SHALL BE GROUTED SOLID.
 - SHORE WALLS WHEN CREATING NEW OPENINGS UNTIL STEEL LINTELS HAVE BEEN INSTALLED IN PLACE.

DOOR LABEL	LINTEL PER WYTHE OR 4" OF MASONRY	END BEARING LENGTH	NOTES
101-1	L8x4x1/2	8"	
200-1	L6x4x3/8	8"	
200-2	L6x4x3/8	8"	
204-3	L6x4x3/8	8"	(E) LINTEL TO REMAIN ABOVE BRICK INFILL
204-4	L6x4x3/8	8"	
201-1	SEE 9/S19	SEE 9/S19	SEE 9/S19



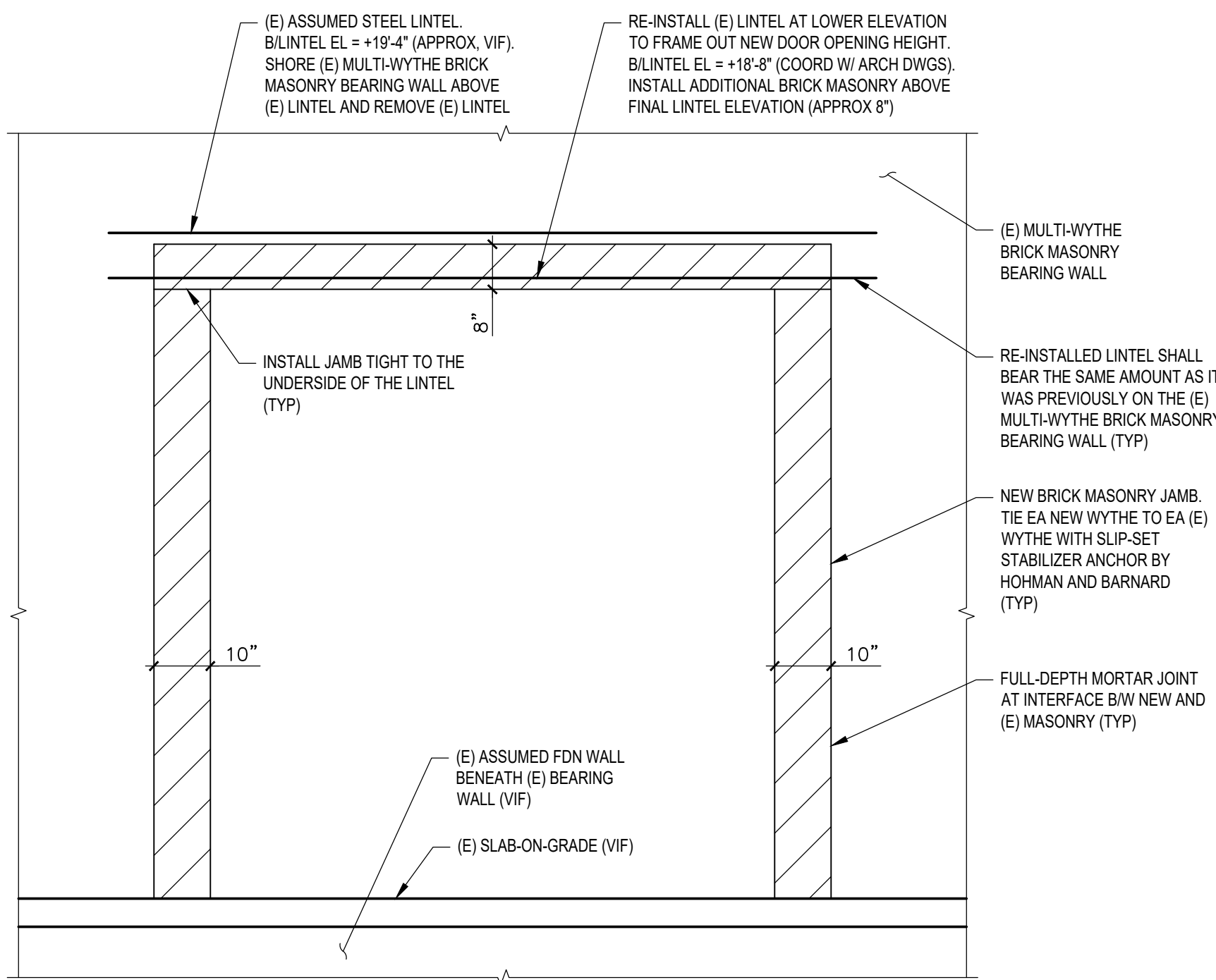
9 LINTELS AT DOOR 201-1
SCALE: 1" = 1'-0"

- NOTES:
- FULLY GROUT CELLS BENEATH BEARING OF LINTEL.
 - SHORE WALLS WHEN CREATING NEW OPENINGS UNTIL STEEL LINTELS HAVE BEEN INSTALLED IN PLACE.



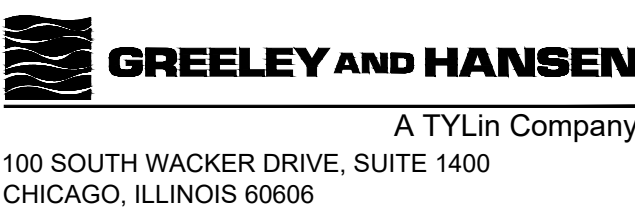
11 CMU REINFORCEMENT POSITION DETAIL - DOUBLY-REINFORCED
SCALE: 1" = 1'-0"

- NOTES:
- MAXIMUM TOLERANCES FROM POSITIONS SPECIFIED ABOVE:
 - ALONG THICKNESS OF WALL: 1/4" TOWARDS INTERIOR
 - ALONG LENGTH OF WALL: 1/2" IN EITHER DIRECTION



10 DOOR 100-7 ELEVATION

- SCALE: 1/2" = 1'-0"
- NOTES:
- SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF DOOR 100-7.

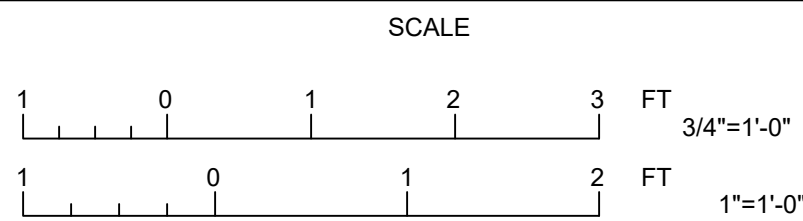


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DATE SIGNED: 01/31/2026
LICENSE EXPIRES: 11/30/2026
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NO.	DATE	APPD	REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

STRUCTURAL

MASONRY DETAILS

PROJECT NO.: 0028A

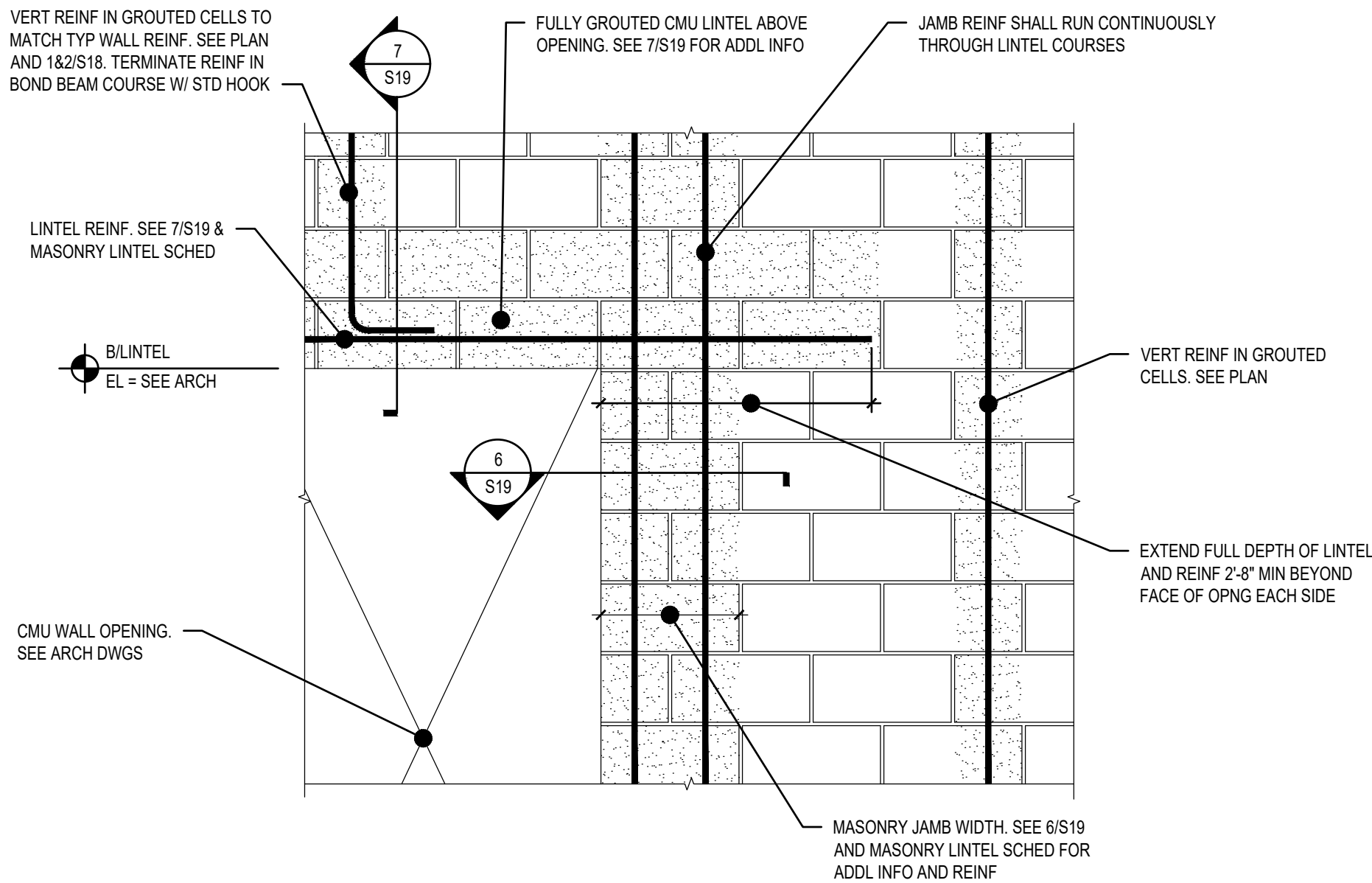
DWG: S19

SHEET: 29 OF 116

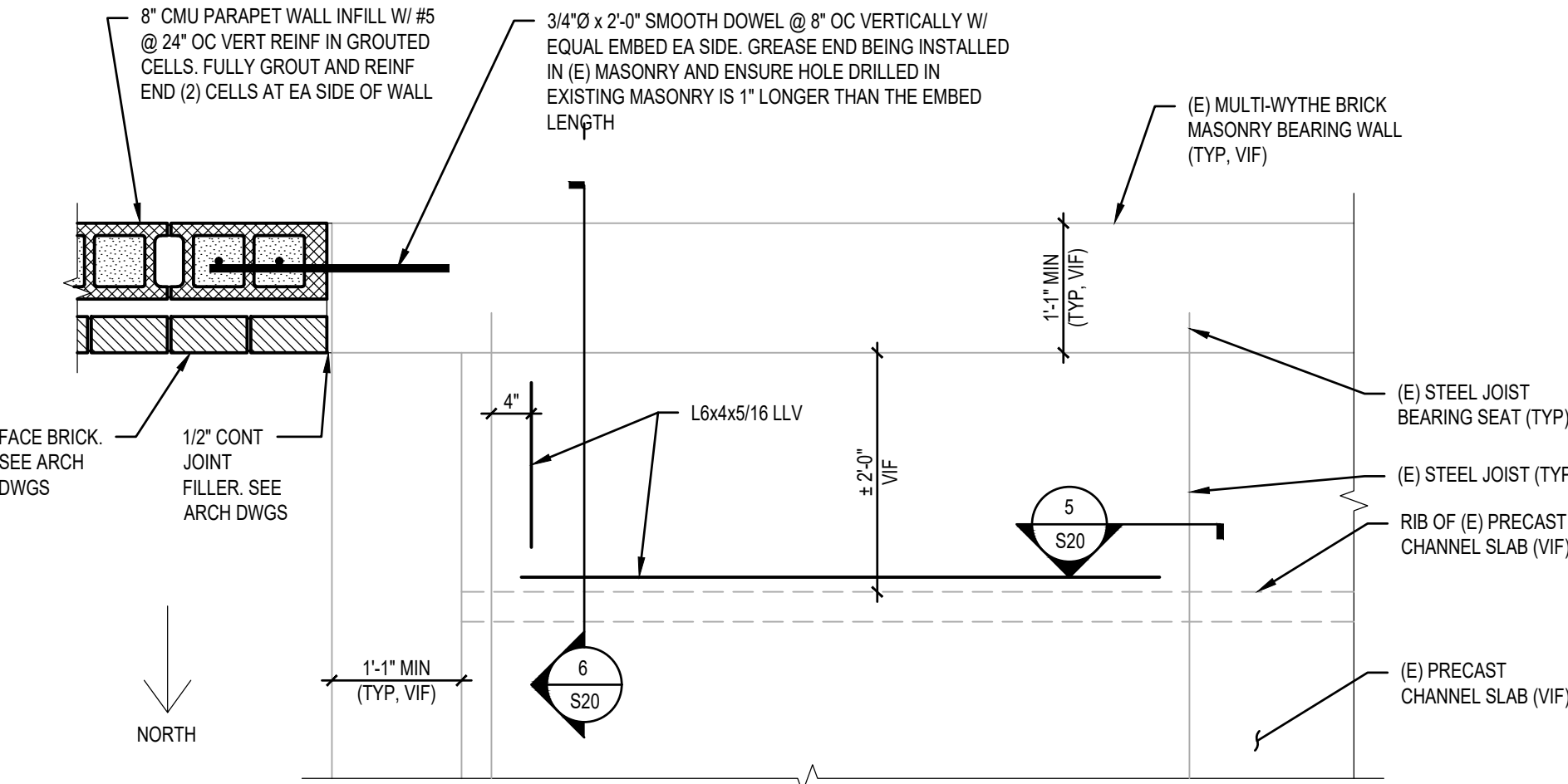
DATE: JANUARY 2025 REV: 0

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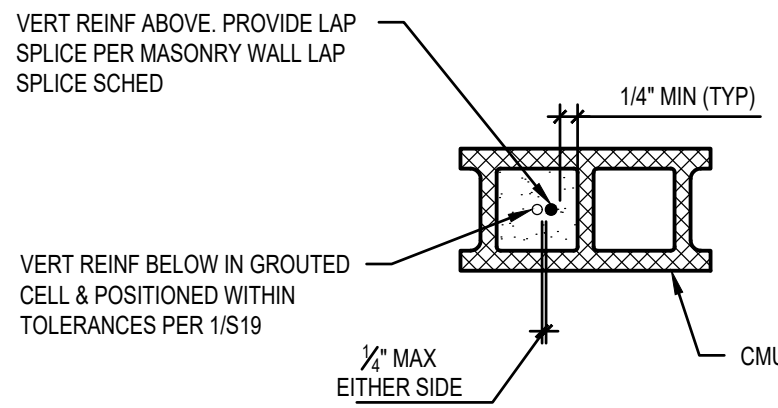
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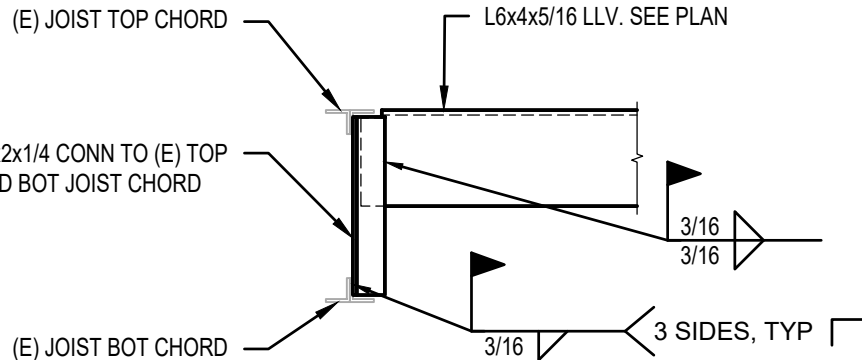
1 TYPICAL WALL OPENING ELEVATION
SCALE: 3/4" = 1'-0"
NOTES:
1. SEE 1&2/S18 FOR ADDITIONAL WALL AND LINTEL REINFORCEMENT INFORMATION.



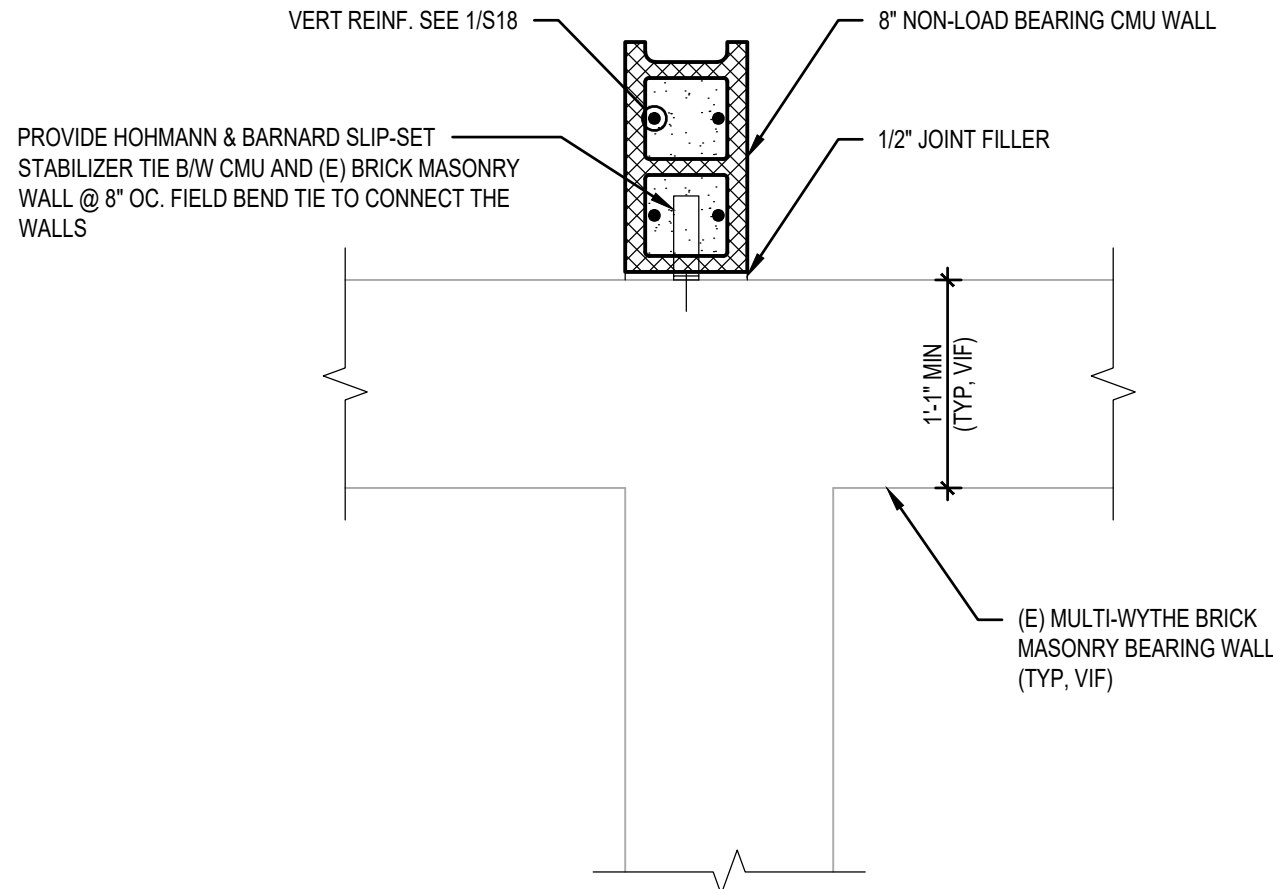
4 EXISTING GARAGE 5 ROOF PARTIAL PLAN
SCALE: 3/4" = 1'-0"



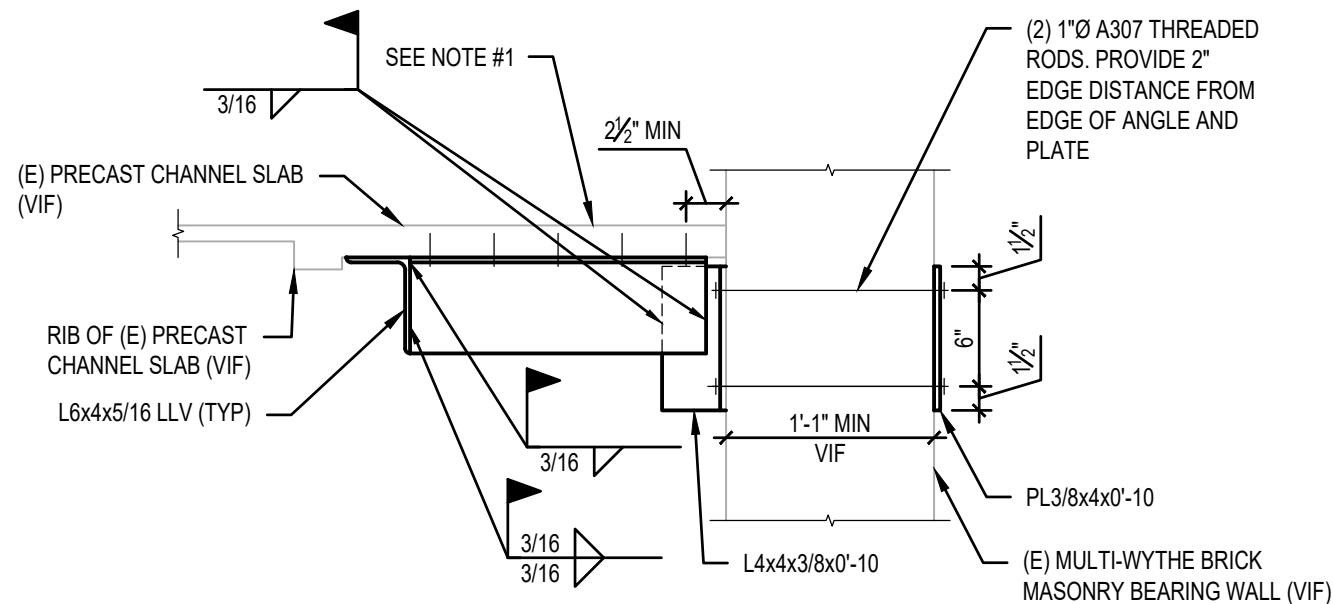
2 LAP SPLICE DETAIL - SINGLY REINFORCED
SCALE: 1" = 1'-0"
NOTES:
1. DETAIL APPLIES AS SIMILAR FOR DOUBLY-REINFORCED CELLS. SEE 11/S19 FOR DOUBLY-REINFORCED CMU REINFORCEMENT POSITION DETAIL.



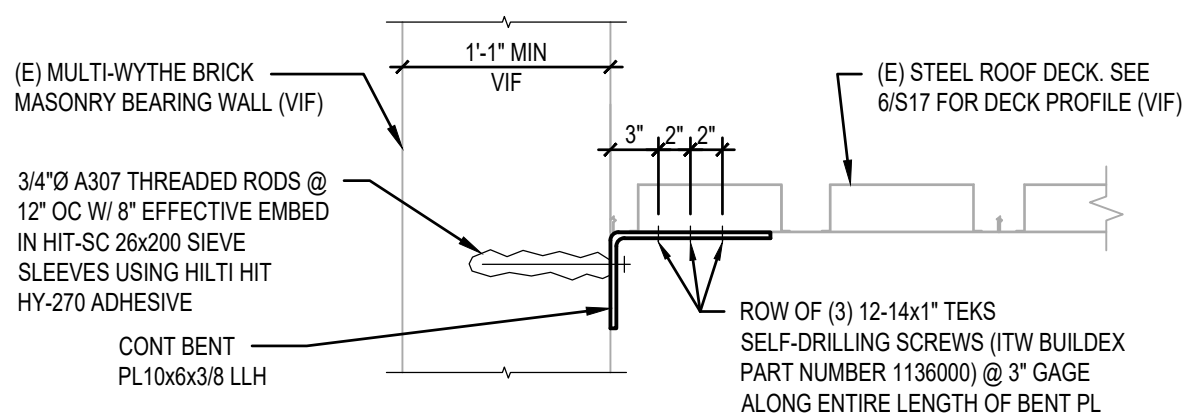
5 ANGLE TO EXISTING JOIST CONNECTION
SCALE: 1" = 1'-0"
NOTES:
1. EXISTING JOIST CHORDS ARE ASSUMED TO CONSIST OF L1 1/2 x 1 1/2 x 3/8 DOUBLE ANGLES. CONTRACTOR SHALL NOTIFY THE ENGINEER IF THIS IS NOT THE CASE AFTER FIELD VERIFICATION.



3 PLAN DETAIL AT WALL INTERSECTION
SCALE: 1" = 1'-0"



6 BRACING ANGLE SECTION
SCALE: 1" = 1'-0"
NOTES:
1. AFTER INSTALLING THE L6x4 ANGLE FRAMING, CONNECT THE ANGLE TO THE EXISTING PRECAST CHANNEL ROOF SLAB WITH (5) 1/4\"/>



7 BRACING ANGLE SECTION
SCALE: 1" = 1'-0"

MASONRY WALL LAP SPLICE SCHEDULE (f'm = 2500 psi) VERTICAL OR HORIZONTAL REINFORCEMENT CENTERED IN CELL				
BAR SIZE	6" CMU	8" CMU	10" CMU	12" CMU
#3	12"	12"	12"	12"
#4	19"	13"	12"	12"
#5	31"	21"	18"	14"
#6	54"	39"	34"	26"
#7	63"	54"	46"	36"
#8	72"	72"	71"	55"
#9	81"	81"	81"	70"

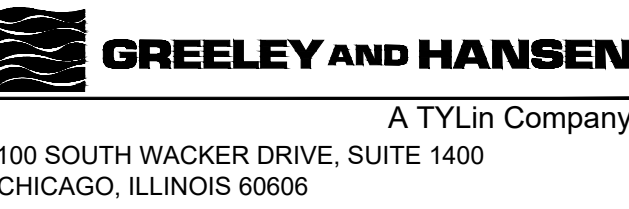
NOTES:
1. LAP SPLICE LENGTHS ARE BASED ON f'y = 60,000 PSI.
2. FOR EPOXY-COATED REINFORCEMENT, MULTIPLY VALUES BY 1.50.

MASONRY WALL LAP SPLICE SCHEDULE (f'm = 2500 psi) DOUBLY-REINFORCED CELLS VERTICALLY OR HORIZONTALLY				
BAR SIZE	6" CMU	8" CMU	10" CMU	12" CMU
#3	-	18"	18"	18"
#4	-	32"	32"	32"
#5	-	45"	45"	45"
#6	-	54"	54"	54"
#7	-	63"	63"	63"
#8	-	72"	72"	72"
#9	-	81"	81"	81"

NOTES:
1. LAP SPLICE LENGTHS ARE BASED ON f'y = 60,000 PSI.
2. FOR EPOXY-COATED REINFORCEMENT, MULTIPLY VALUES BY 1.50.



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11/30/2026
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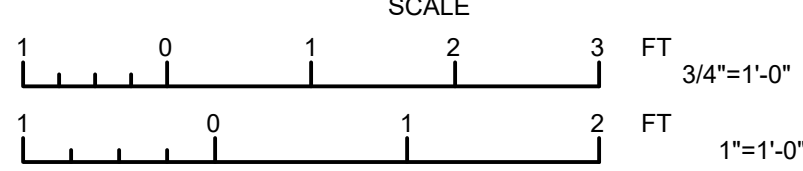


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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

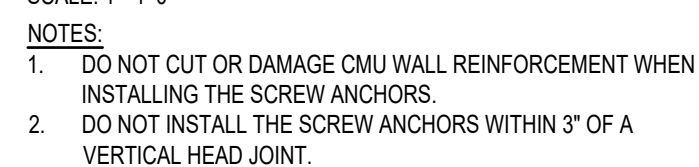
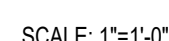
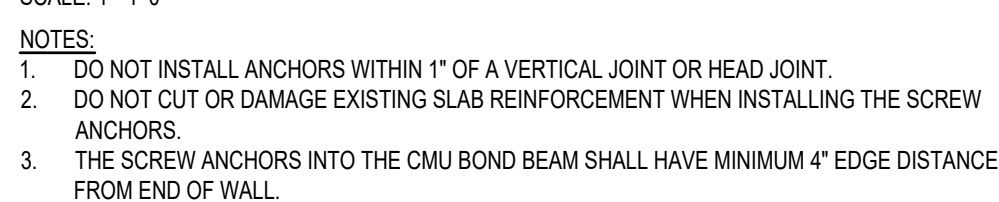
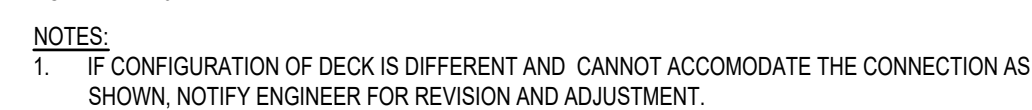
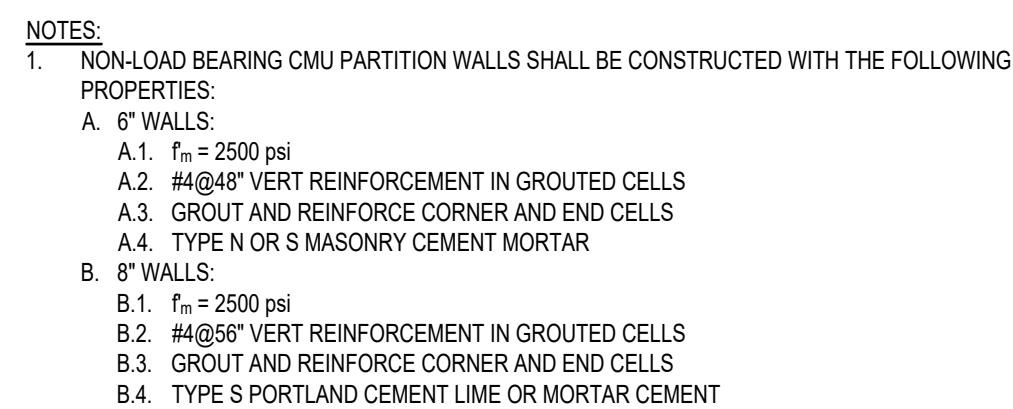
STRUCTURAL

MASONRY DETAILS

PROJECT NO.: 0028A

DWG: S20
SHEET: 30 OF 116
DATE: JANUARY 2025 REV: 0

BID SET



Professional Engineer Seal for Eduardo de Santiago, State of Illinois, License No. 081-006700, Structural Engineer.

SCALE

1 0 1 2 3 FT 3/4"=1'-0"

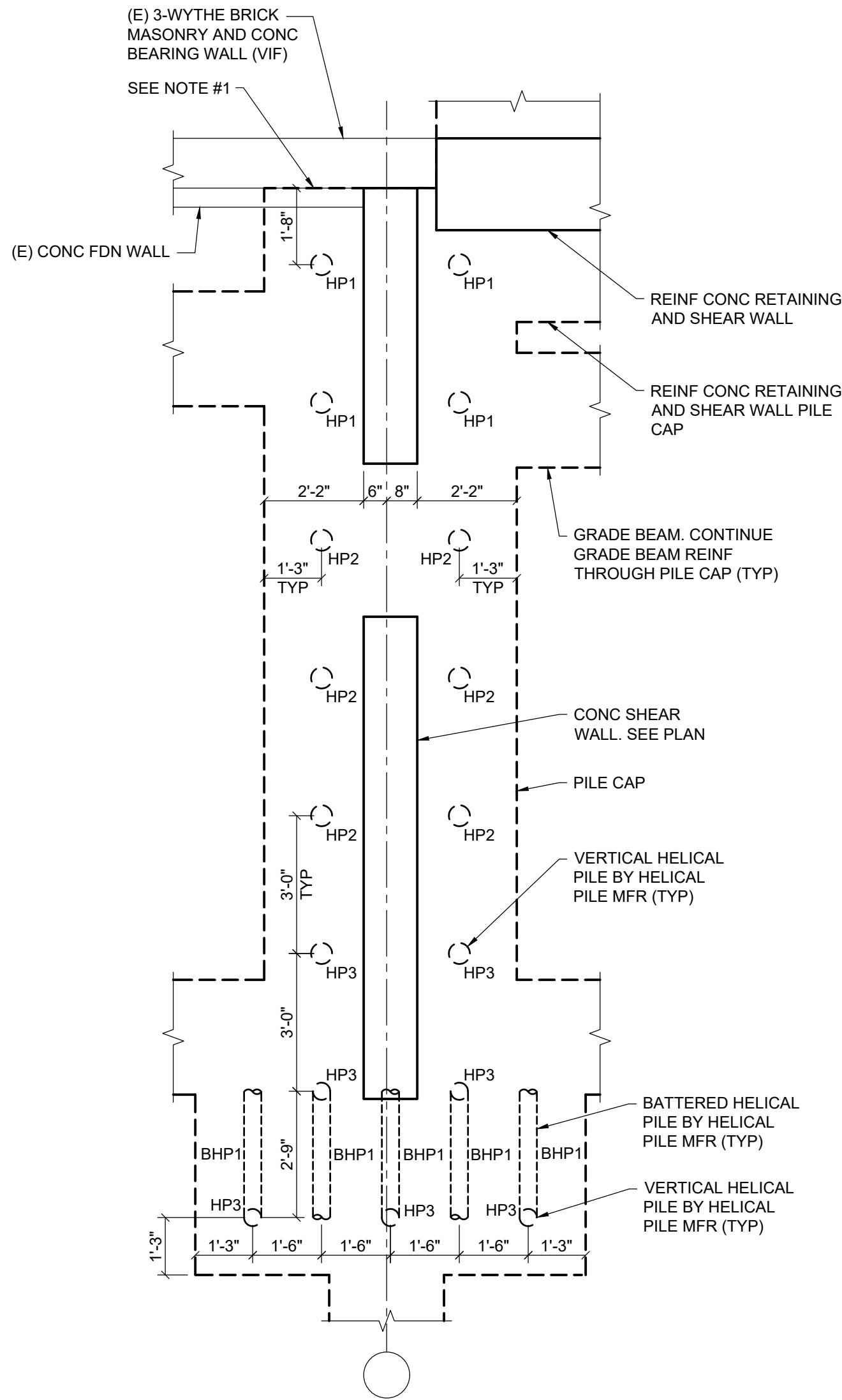
1 0 1 2 FT 1"=1'-0"

MASONRY DETAILS

SHEET:	31	OF	116
DATE:	JANUARY 2025	REV:	

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HELICAL PILE AXIAL DESIGN LOADS		
HELICAL PILE LABEL	COMPRESSION (KIPS)	TENSION (KIPS)
HP1	85	40
HP2	45	0
HP3	65	30
BHP1	40	40

- NOTES:
- LOADS INDICATED ARE CONSISTENT WITH THE ALLOWABLE STRESS DESIGN METHODOLOGY.
 - MANUFACTURER SHALL DESIGN HELICAL PILES FOR COMPRESSION AND TENSION LOADS INDICATED AS INDEPENDENT LOAD CASES.
 - INSTALL NELSON D2L WELDED DEFORMED BAR ANCHORS PER 10/S11 WHERE PILES ARE REQUIRED TO RESIST TENSION.
 - WHERE VERTICAL AND BATTERED HELICAL PILES ARE SHOWN AS OCCURRING AT THE SAME LOCATION, HELICAL PILE MANUFACTURER SHALL PROVIDE BRACKET OFF OF THE VERTICAL PILE FOR BATTERED PILE INSTALLATION. BRACKET SHALL BE CAPABLE OF RESISTING 50 KIPS TENSION INDUCED BY THE BATTERED PILE AS WELL AS THE VERTICAL PILE.

1 SHEAR WALL PILE CAP DETAIL

SCALE: 3/8" = 1'-0"

NOTES:

- CONTRACTOR SHALL DESIGN AND INSTALL UNDERPINNING OF THE EXISTING BEARING WALL FOOTING. CONTRACTOR SHALL FIELD VERIFY THE EXISTING FOOTING CONFIGURATION AND DEPTH.



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A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED

PEL

DATE

SIGNED:

01/31/2026

PEL

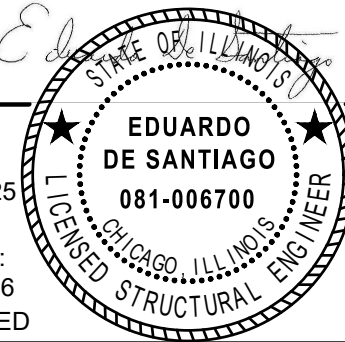
LICENSE

EXPIRES:

11/30/2026

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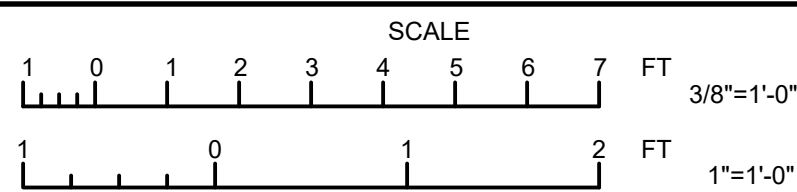


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REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

STRUCTURAL

PILE CAP DETAILS

PROJECT NO.: 0028A

DWG:

S22

SHEET:

32

OF

116

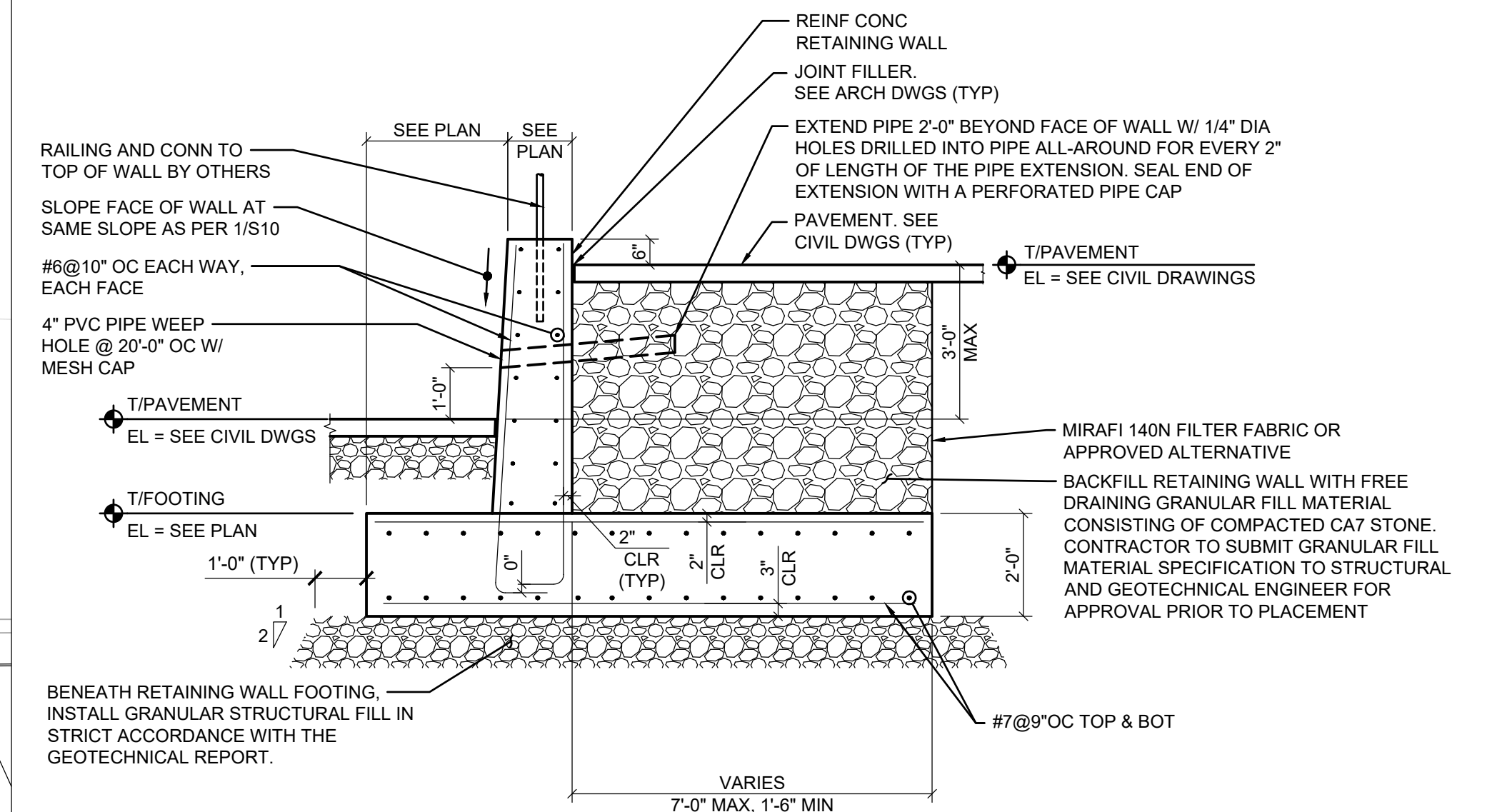
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JANUARY 2025

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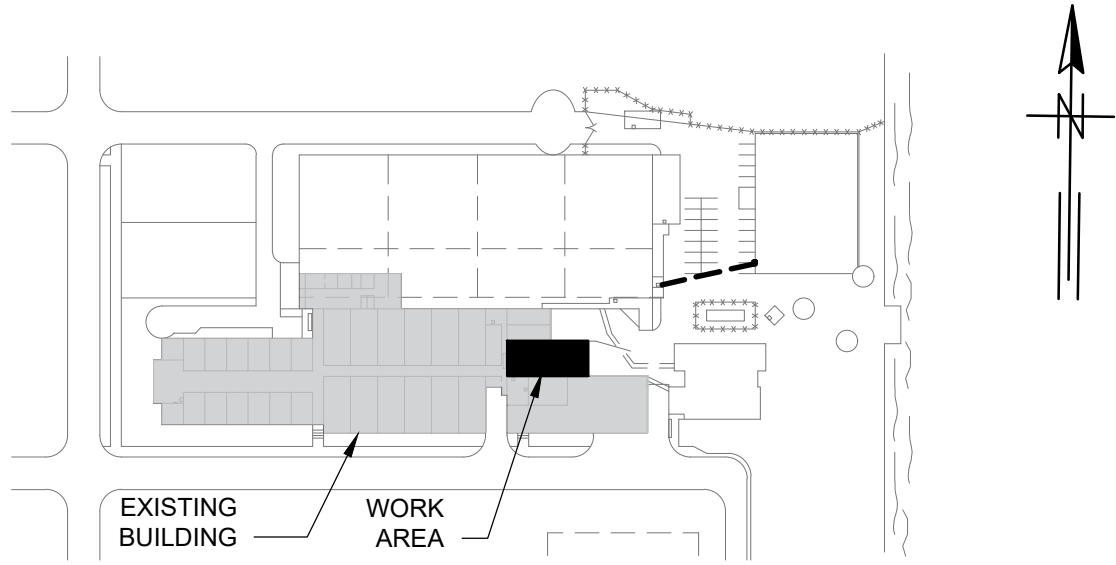
B:\REVIEWS -
DWG SIZE SHEETS

THIS APPLICATION IS PURSUANT UNDER THE CODES ADOPTED BY THE CITY OF EVANSTON AS LISTED BELOW

THE WATER TREATMENT PLANT IS AN EXISTING BUILDING AND FOLLOWS NFPA 101 LIFE SAFETY CODE.

CODE PROVISIONS LISTED ARE BASED ON FIELD OBSERVATIONS AND ENGINEERING JUDGEMENT.

CITY OF EVANSTON ZONING ORDINANCE
2021 INTERNATIONAL BUILDING CODE W/LOCAL AMENDMENTS
2021 INTERNATIONAL MECHANICAL CODE W/LOCAL AMENDMENTS
2020 NATIONAL ELECTRICAL CODE W/LOCAL AMENDMENTS
2021 STATE OF ILLINOIS PLUMBING CODE W/LOCAL AMENDMENTS
2021 INTERNATIONAL FIRE CODE W/LOCAL AMENDMENTS
2018 ILLINOIS ENERGY CONSERVATION CODE (IECC)
OSHA STANDARD 1910 GENERAL INDUSTRY



APPLICABLE CODES

WORK AREA WITHIN BUILDING

CODE REFERENCE	2021 INTERNATIONAL BUILDING CODE		ACTUAL	NOTES
USE AND OCCUPANCY CLASSIFICATION				
304.1	BUSINESS GROUP B		B, INCIDNETAL	CIVIC ADMINISTRATION/ PROFESSIONAL SERVICES
306.2	F-1, MODERATE HAZARD FACTORY INDUSTRIAL		F-1	WATER TREATMENT FACILITIES
311.2	S-2, LOW HAZARD STORAGE		S-2, INCIDENTAL	PARKING GARAGE
BUILDING HEIGHTS AND AREAS				
TABLE 504.3	MAX HEIGHT	55'-0" (NS)	< 40'-0"	EXISTING STRUCTURE
TABLE 504.4	MAX STORIES	2 STORIES	2 STORIES	ABOVE GRADE PLANE
TABLE 506.2	MAX AREA	15,500 SF (NS)	> 60,000	EXISTING BUILDING NOT SPRINKLERED. ADDITION WILL ADD 4,500 SF
TABLE 508.4	SEPARATION OF S-2 FROM F-1 AND B OCCUPANCIES	2 HR.	2 HR.	NO SEPARATION REQUIRED BETWEEN F-1 AND B OCCPANCIES
FIRE RESISTANCE RATING OF BUILDING ELEMENTS				
TABLE 601	PRIMARY STRUCTURAL FRAME	0 HR.	0 HR.	NEW FIRST FLOOR COLUMNS AND BEAMS TO BE RATED
	BEARING WALLS - EXT	0 HR.	0 HR.	
	BEARING WALLS - INT	0 HR.	0 HR.	
	NON BEARING WALLS AND PARTITIONS - EXT	0 HR.	0 HR.	
	NON BEARING WALLS AND PARTITIONS - INT	0 HR.	0 HR.	SEE LIFE SAFETY DIAGRAM
	ROOF CONSTRUCTION	0 HR.	0 HR.	
602.2	TYPE IIB CONSTRUCTION	NON COMBUSTIBLE TYPE	COMPLIES	
FIRE PROTECTION SYSTEMS				
903	AUTOMATIC SPRINKLERS	NOT REQUIRED PER NFPA 101 OR THE INTERNATIONAL FIRE CODE AS AMENDED BY THE CITY	F-1 OCC	NOT SPRINKLERED. ALTERATION TO THE BUILDING IS LESS THAN 50% OF BUILDING.
MEANS OF EGRESS				
1003.2	CEILING HEIGHT	7' - 6" (90")	COMPLIES	
1003.3.1	HEADROOM	6' - 8" (80")	COMPLIES	NOT MORE THAN 50% OF CEILING AREA
1005.3.1	STAIRWAY WIDTH OCC * 0.3	1.344	36"	
1005.3.2	EGRESS WIDTH OCC * 0.2	0.896	36"	
TABLE 1006.2.1	MAX SINGLE EXIT OCC LOAD	GROUP F-1: 49	14	
	MAX SINGLE EXIT TRAVEL DISTANCE	GROUP F-1: 100'-0"	< 50'-0"	
1011.2	STAIR WIDTH	36"	36"	EXCEPTION 1, OC < 50
1011.3	STAIR HEADROOM	80"	> 80"	
1011.6	STAIR LANDINGS	DEPTH AND WIDTH = STAIR WIDTH	36" MIN	MAX REQUIRED DEPTH IS 48"
1011.11	STAIR HANDRAILS	STAIRWAYS SHALL HAVE HANDRAILS ON EACH SIDE	COMPLIES	

1014.2	HANDRAIL HEIGHT	34"	34"	
1014.3.1	HANDRAIL DIAMETER	BETWEEN 1 1/4" AND 2"	1 1/2"	
1014.6	HANDRAIL EXTENSIONS	12"	12"	
1014.7	HANDRAIL CLEARANCE	1 1/2"	1 1/2" MIN	
1014.8	HANDRAIL PROJECTIONS	NOT TO EXCEED 4 1/2" ON EACH SIDE	4 1/2" MAX	
1015.2	GUARDS, WHERE REQUIRED	VERTICAL CHANGES OF 30" OR MORE	COMPLIES	
1015.3	GUARD HEIGHT	42"	42"	
1015.4, EXCEPTION 3	OPENING LIMITS IN GUARDS	NOT ALLOW A PASSAGE OF A 21" DIA SPHERE	COMPLIES	
TABLE 1017.2	MAX EXIT ACCESS TRAVEL DISTANCE FOR F-1 AND B	200 (W/OUT SPRINKLER)	COMPLIES	SEE LIFE SAFETY DIAGRAMS
	MAX EXIT ACCESS TRAVEL DISTANCE FOR S-2	300 (W/OUT SPRINKLER)	COMPLIES	SEE LIFE SAFETY DIAGRAMS
ACCESSIBILITY				
1103.2.9	EQUIPMENT SPACES ARE NOT REQUIRED TO BE ACCESSIBLE		NOT ACCESSIBLE	
IAC 202.3	NEW ELEMENTS AND SPACES ARE REQUIRED TO COMPLY. WHEN TECHNICALLY INFEASIBLE, DESIGN TO COMPLY TO THE GREATEST EXTENT FEASIBLE.		COMPLIES TO THE GREATEST EXTENT FEASIBLE	ACCESSIBILITY ONLY REQUIRED FOR FUTURE OFFICE SPACE. ACCESS PROVIDED TO THE GREATEST EXTENT FEASIBLE.
ENERGY EFFICIENCY				
1301.1	CLIMATE ZONE	5 A		
C101.1	STATE FUNDED FACILITIES MUST COMPLY WITH ASHRAE 90.1			
TABLE C402.1.3	MINIMUM CAPACITY OF HEAT RESISTANCE:			
	ROOF	R-30 ci	R 31.35 ci MIN(5")	
	WALLS ABOVE GRADE – MASS	R-11.4 ci	R 11.4 ci (2")	
	UNHEATED SLAB	R-10 FOR 24"	R 11.4 ci (2")	
	SWINGING DOORS	U-0.37	MAX U-0.37	
	NON-SWINGING DOORS	U-0.31	MAX U-0.31	
	FIXED FENESTRATION	U-0.38	MAX U-0.38	
	OPERABLE FENESTRATION	U-0.45	NA	
INTERNATIONAL FIRE CODE				
509.1.2	ROOM IDENTIFICATION	IDENTIFICATION SIGN AT ALL DOORS 5- FEET OF GROUND	COMPLIES	SPECIFIED AT ALL NEW DOORS
1103.1.2	REHABILITATION WORK	SPRINKLERS, DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS REQUIRED IF WORK IS MORE THAN 50% OF BUILDING AREA.	< 50%	
1103.1.3	CHANGE OF OCCUPANCY	FIRE ALARM SIGNALING REQUIRED IN NEW OCCUPANCIES OVER 5,000 SF	< 5,000	

- CODE NOTES:
- SCOPE OF WORK:
- THE WORK ASSOCIATED WITH THIS PROJECT INCLUDES A TWO STORY BUILDING EXTENSION AND AN INCREASE IN FLOOR AREA AS WELL AS THE ADDITION OR ELIMINATION OF DOORS AND WINDOWS, RE-ROOFING THE EXISTING GARAGE, THE RECONFIGURATION OR EXTENSION OF THE ELECTRICAL SYSTEM, HVAC SYSTEM, AND THE INSTALLATION OF ADDITIONAL EQUIPMENT. THE WORK AREA IS LESS THAN 50 PERCENT OF THE BUILDING AREA.
 - GARAGE NO. 4, TYPE S-2 OCCUPANCY, IS NOT CHANGING IN OCCUPANCY AND WILL HAVE SIMILAR SQUARE FOOTAGE TO THE EXISTING GARAGE NO. 4 ROOM.
 - NEW OCCUPANCIES INCLUDE THE SECOND FLOOR BUILD OUT WHICH WILL EXTEND THE F-1 OCCUPANCIES OF THE ELECTRICAL ROOMS AND WILL PROVIDE FUTURE B OCCUPANCY OFFICE SPACE.
- ADDITIONAL CODE NOTES:
- LOW AND MEDIUM SWITCH GEAR ROOMS CONSIDERED TO BE THE SAME LEVEL OF HAZARD.
 - GENERATOR AND TRANSFORMER ROOM ARE CONSIDERED ACCESSORY TO GARAGE NO. 4.

BID SET



A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED JW

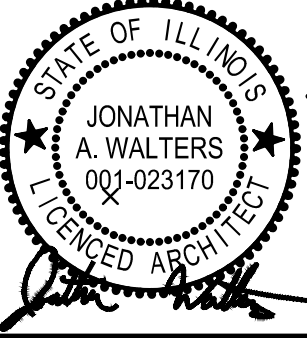
DRAWN JW

CHECKED BS

DATE SIGNED: 01/31/2025

LICENSE EXPIRES: 11/30/2026

APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

NO SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

CODE SUMMARY

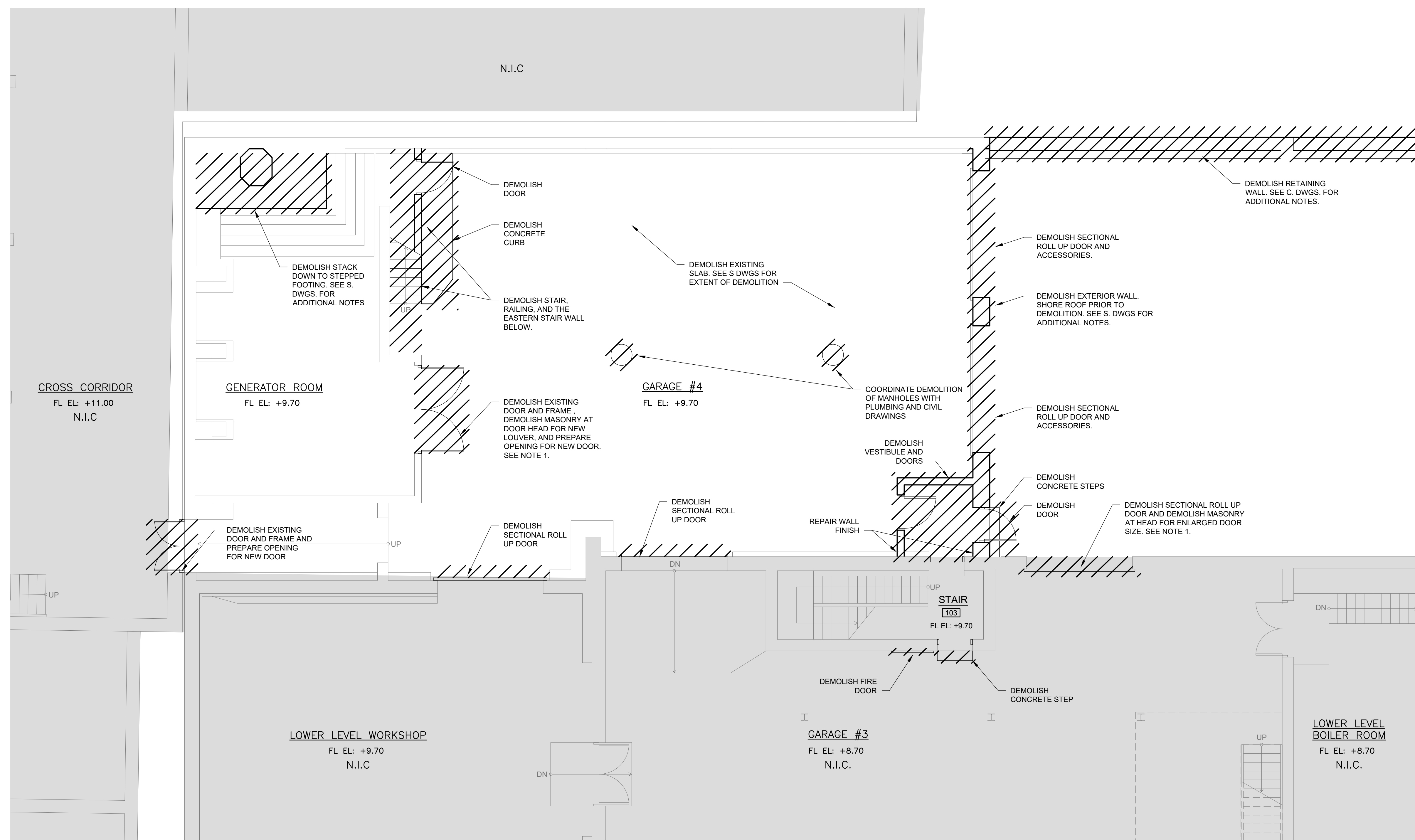
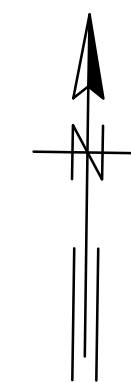
PROJECT NO.: 0028A

DWG: A2

SHEET: 35 OF 116

DATE: JANUARY 2025

REV: 0



DEMOLITION NOTES:

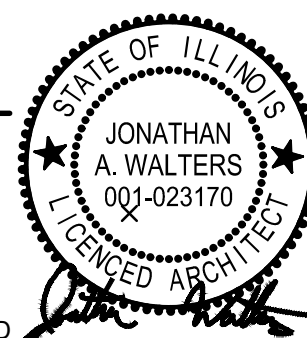
1. PROVIDE ADEQUATE TEMPORARY SUPPORT TO SUPPORT EXISTING MASONRY FOR ALL OPENINGS THAT ARE PARTIALLY DEMOLISHED OR ENLARGED.
2. REPAIR WALL FINISH AT ALL LOCATIONS WHERE DEMOLISHED WALLS INTERSECT WALLS TO REMAIN.

DEMOLITION FLOOR PLAN AT EL 9.70

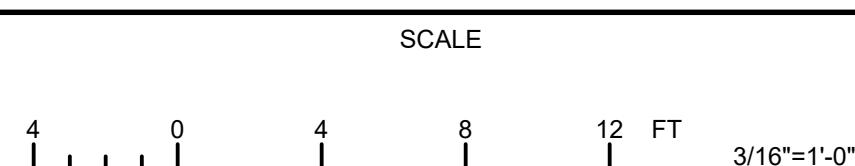
SCALE: 3/16" = 1'-0"

 **GREELEY AND HANSEN**
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED	JW	DATE SIGNED: 01/31/2025
DRAWN	JW	LICENSE EXPIRES: 11/30/2026
CHECKED	BS	APPROVED



NO.	DATE	APPD.	REVISION DESCRIPTION

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

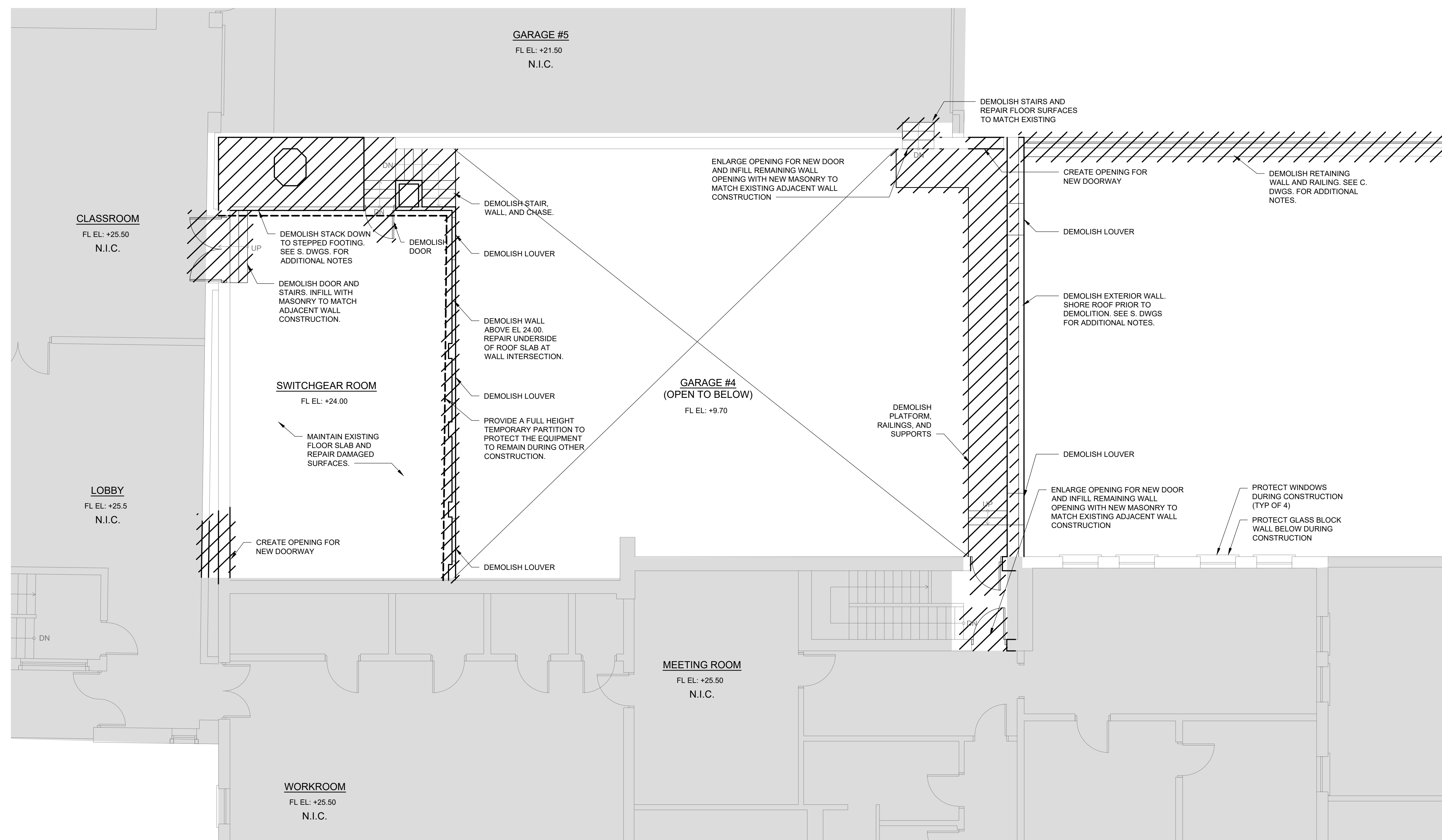
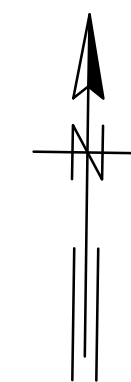
ARCHITECTURAL

T | DEMOLITION PLAN AT EL 9.70

PROJECT NO.: 0028A

DWG: **A3**
 SHEET: 36 OF 116
 DATE: JANUARY 2025 REV:

BID SET

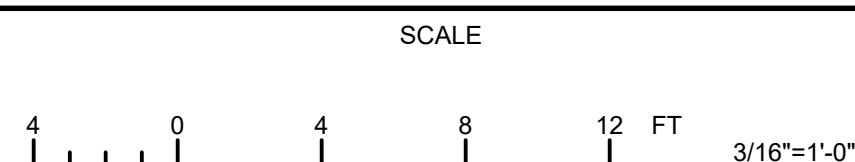


DEMOLITION NOTES:

1. PROVIDE ADEQUATE TEMPORARY SUPPORT TO SUPPORT EXISTING MASONRY FOR ALL OPENINGS THAT ARE PARTIALLY DEMOLISHED OR ENLARGED.
2. REPAIR WALL FINISH AT ALL LOCATIONS WHERE DEMOLISHED WALLS INTERSECT WALLS TO REMAIN.

DEMOLITION FLOOR PLAN AT EL.24.00

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

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

T | DEMOLITION PLAN AT EL 24.00

PROJECT NO.: 0028A

DWG:

A4

SHEET: 37 OF 116

DATE: JANUARY 2025	REV:
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100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED

JW

DATE
SIGNED:

DRAWN

JW

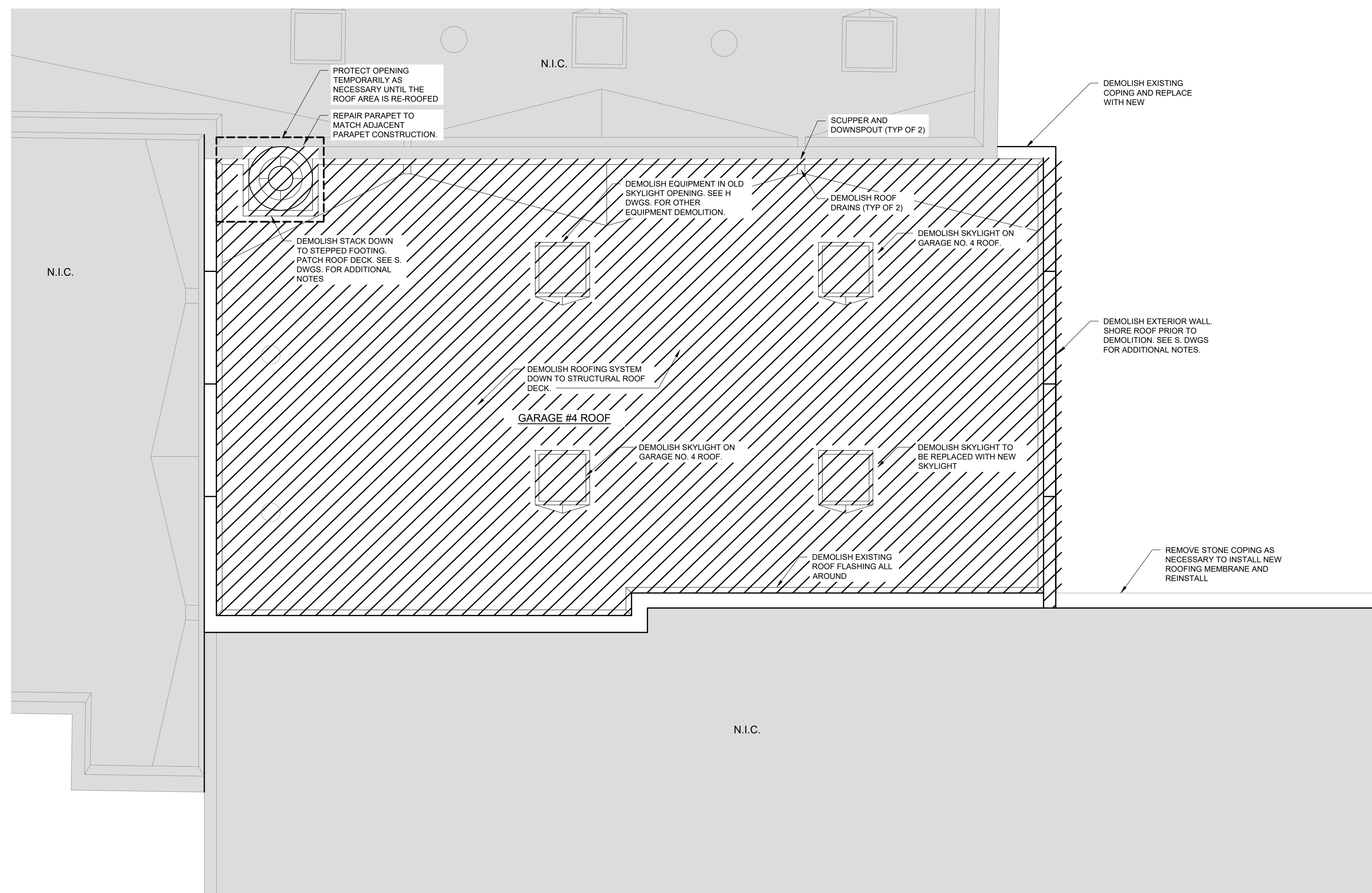
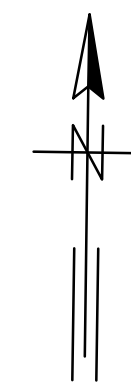
01/31/2023
LICENSE

CHECKED

BS

11/30/2026

NO.	DATE	APPD	REVISION DESCRIPTION

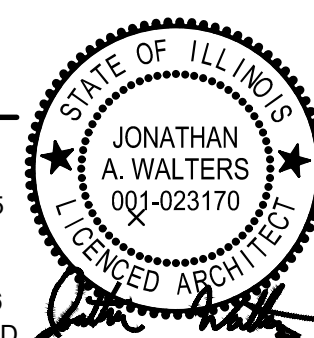
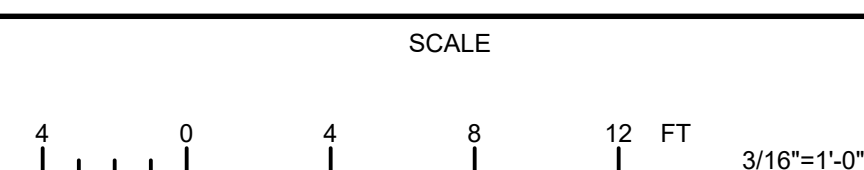


SCALE: 3/16" = 1'-0"

BID SET

 **GREELEY AND HANSEN**
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED	JW	DATE SIGNED: 01/31/2025
DRAWN	JW	LICENSE EXPIRES:
CHECKED	BS	11/30/2026 APPROVE

[illegible]CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

T | DEMOLITION PLAN AT EL 33.00

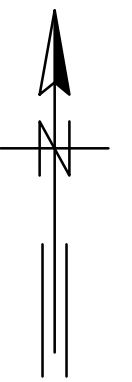
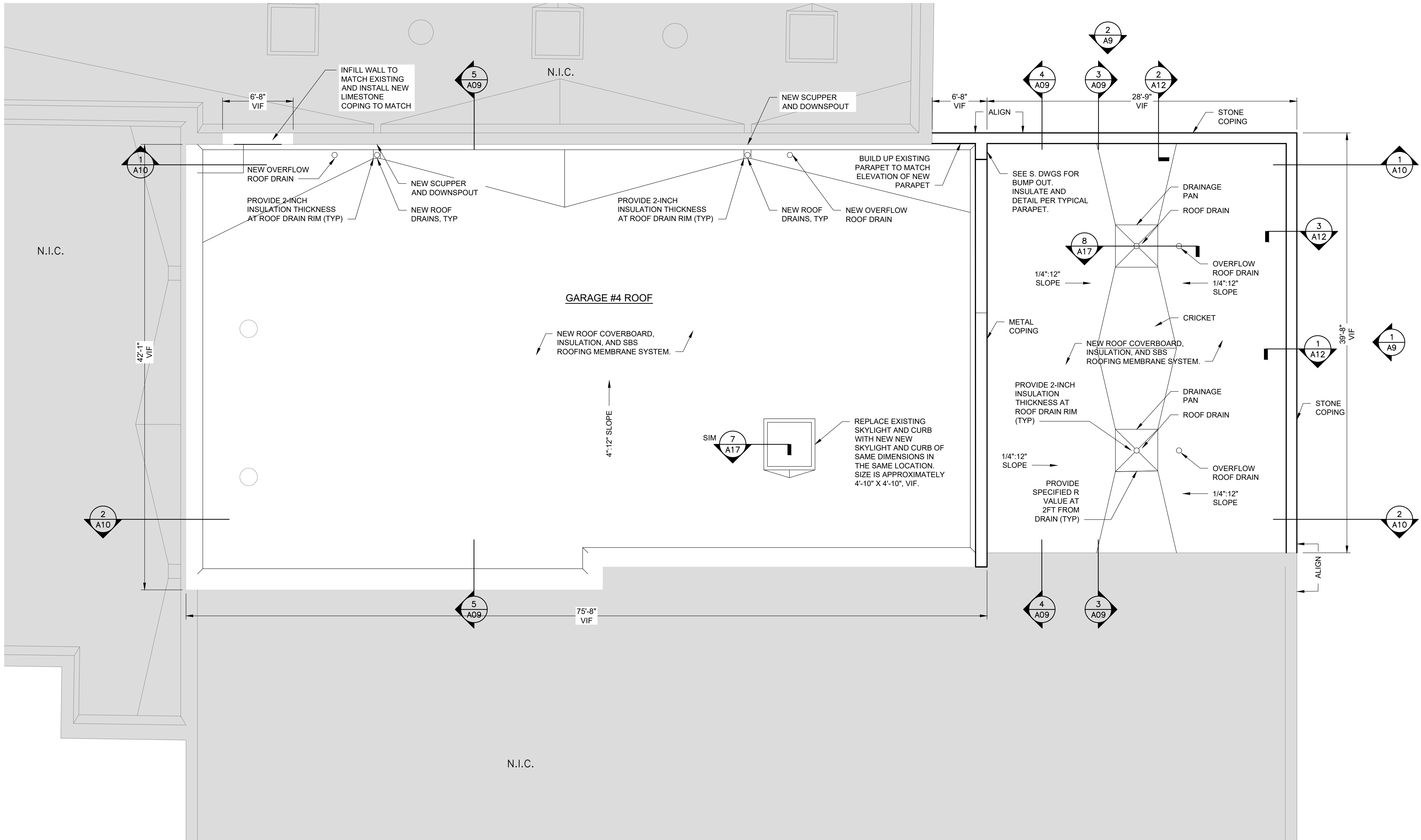
PROJECT NO.: 0028A

DWG:

A5

SHEET: 38 OF 116

DATE:	JANUARY 2025	REV:
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ROOF PLAN AT EL. 33.00

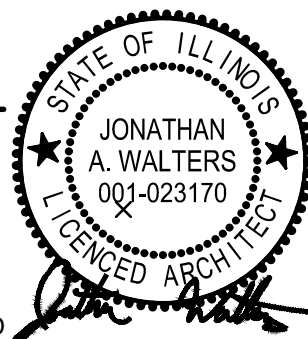
SCALE: 3/16" = 1'-0"

BID SET

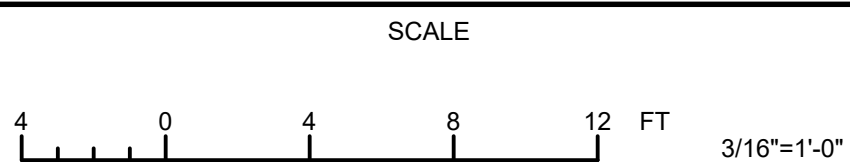
GREELEY AND HANSEN
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED JW
DRAWN JW
CHECKED BS

DATE SIGNED: 01/31/2025
LICENSE EXPIRES: 11/30/2026
APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU

**WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT**

ARCHITECTURAL

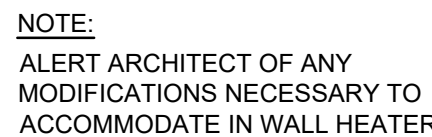
ROOF PLAN AT EL. 33.00

PROJECT NO.: 0028A

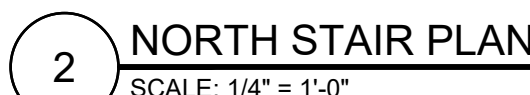
DWG: **A8**

SHEET: 41 OF 116

DATE: JANUARY 2025 REV: 0



1 WEST STAIR PLAN
SCALE: 1/4" = 1'-0"



2 NORTH STAIR PLAN
SCALE: 1/4" = 1'-0"



3 NORTH STAIR SECTION
SCALE: 1/4" = 1'-0"



4 WEST STAIR SECTION
SCALE: 1/4" = 1'-0"



5 NORTH STAIR SECTION
SCALE: 1/4" = 1'-0"



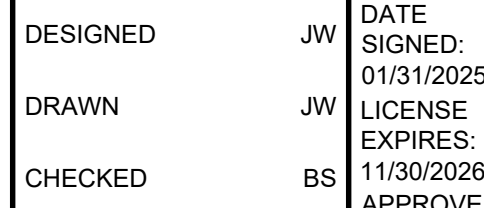
6 NORTH STAIR PASSAGEWAY SECTION
SCALE: 1/4" = 1'-0"



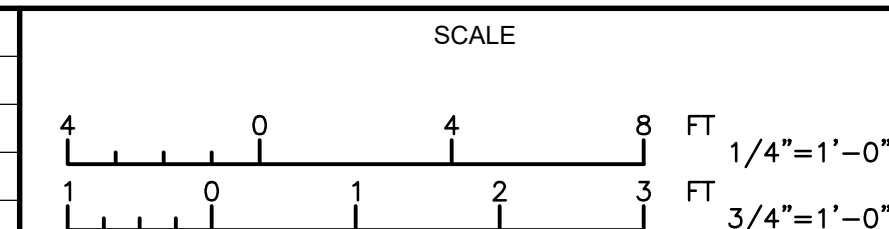
7 NORTH STAIR PASSAGEWAY SECTION
SCALE: 1/4" = 1'-0"



8 STAIR SECTION
SCALE: 1/4" = 1'-0"



NO.	DATE	APPD.	REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU

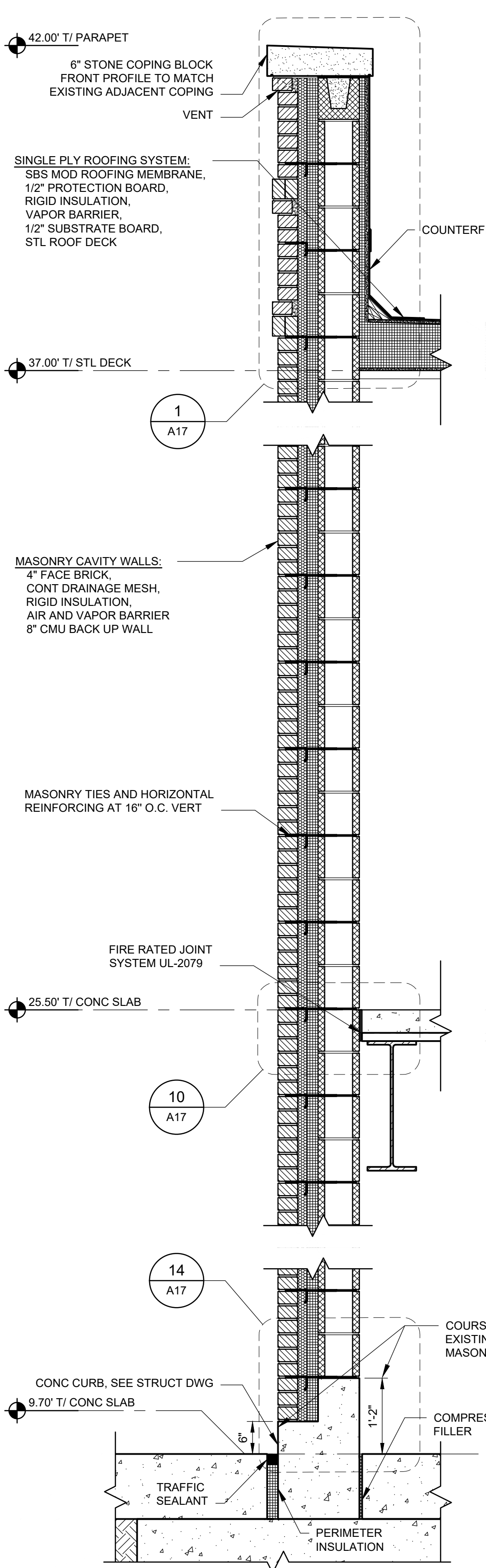
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

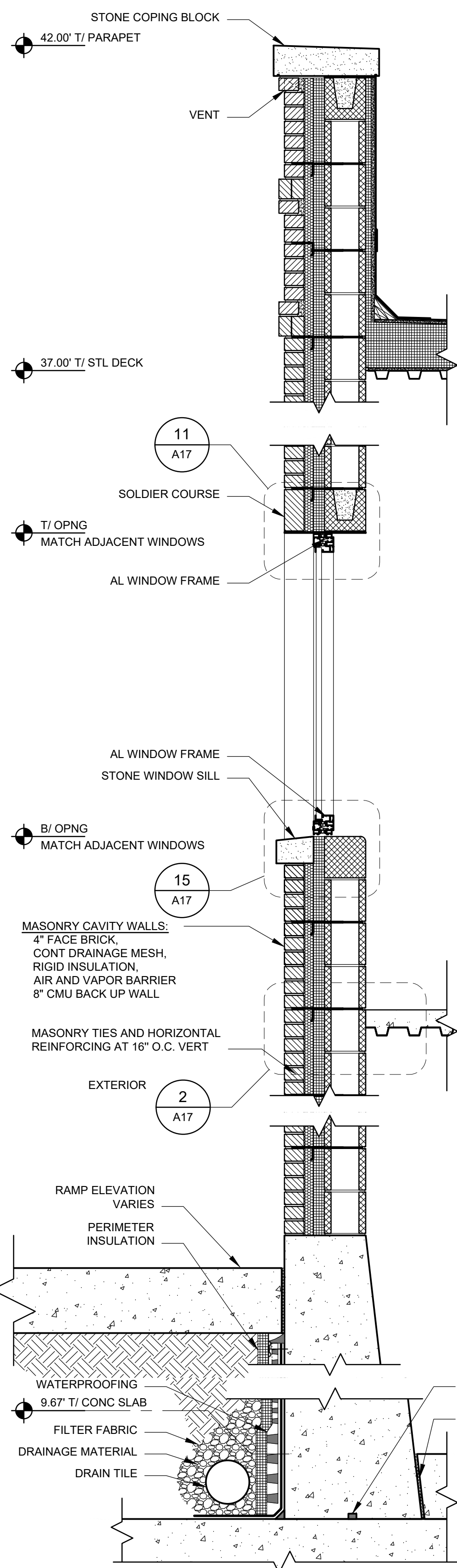
ENLARGED STAIR PLANS AND SECTIONS

PROJECT NO.: 0028A	
DWG:	A11
SHEET:	44 OF 116
DATE:	JANUARY 2025
REV:	

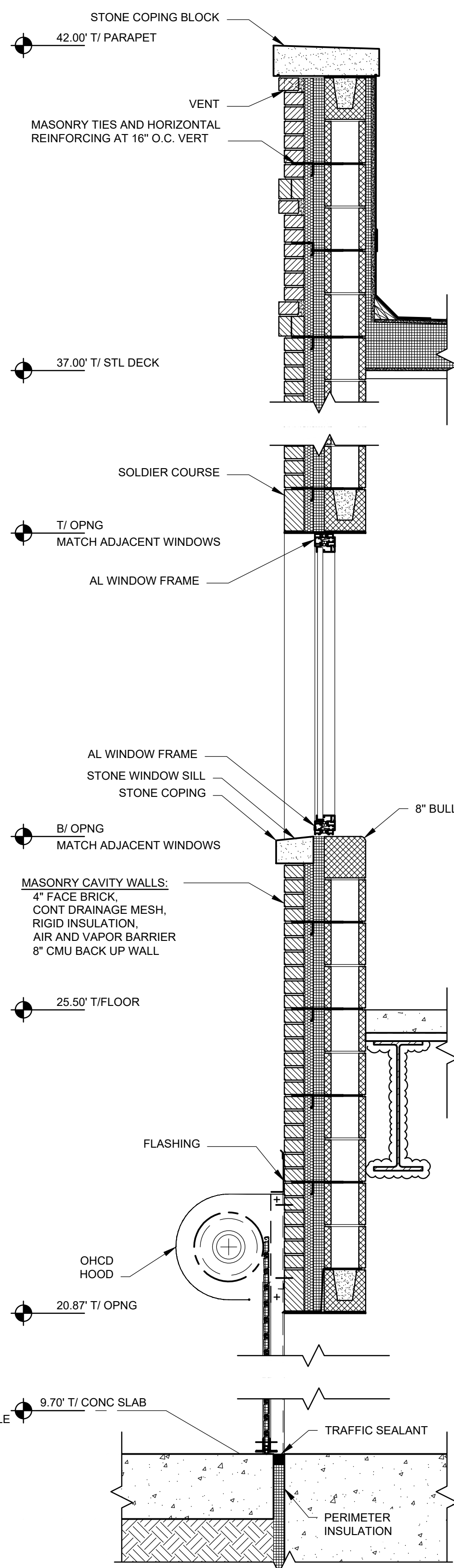
BID SET



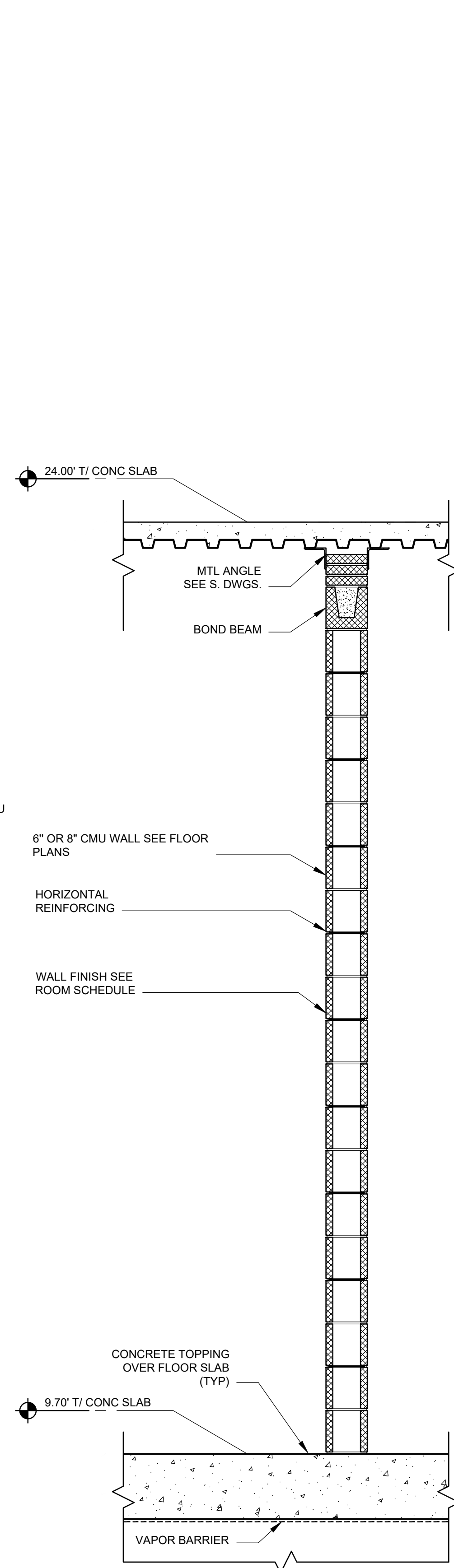
1 WALL SECTION
SCALE: 3/4" = 1'-0"



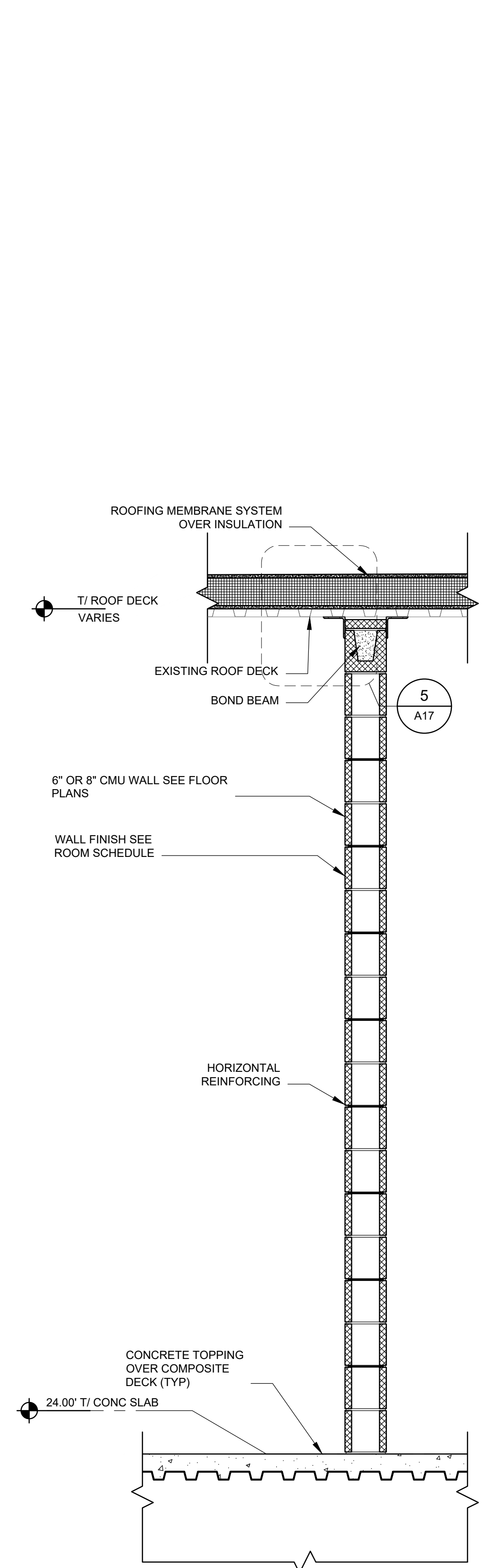
2 WALL SECTION
SCALE: 3/4" = 1'-0"



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



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



5 WALL SECTION
SCALE: 3/4" = 1'-0"

BID SET

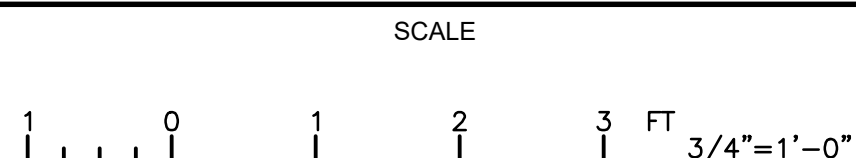
GREELEY AND HANSEN
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED JW
DRAWN JW
CHECKED BS

DATE
SIGNED: 01/31/2025
LICENSE
EXPIRES: 11/30/2026
APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU

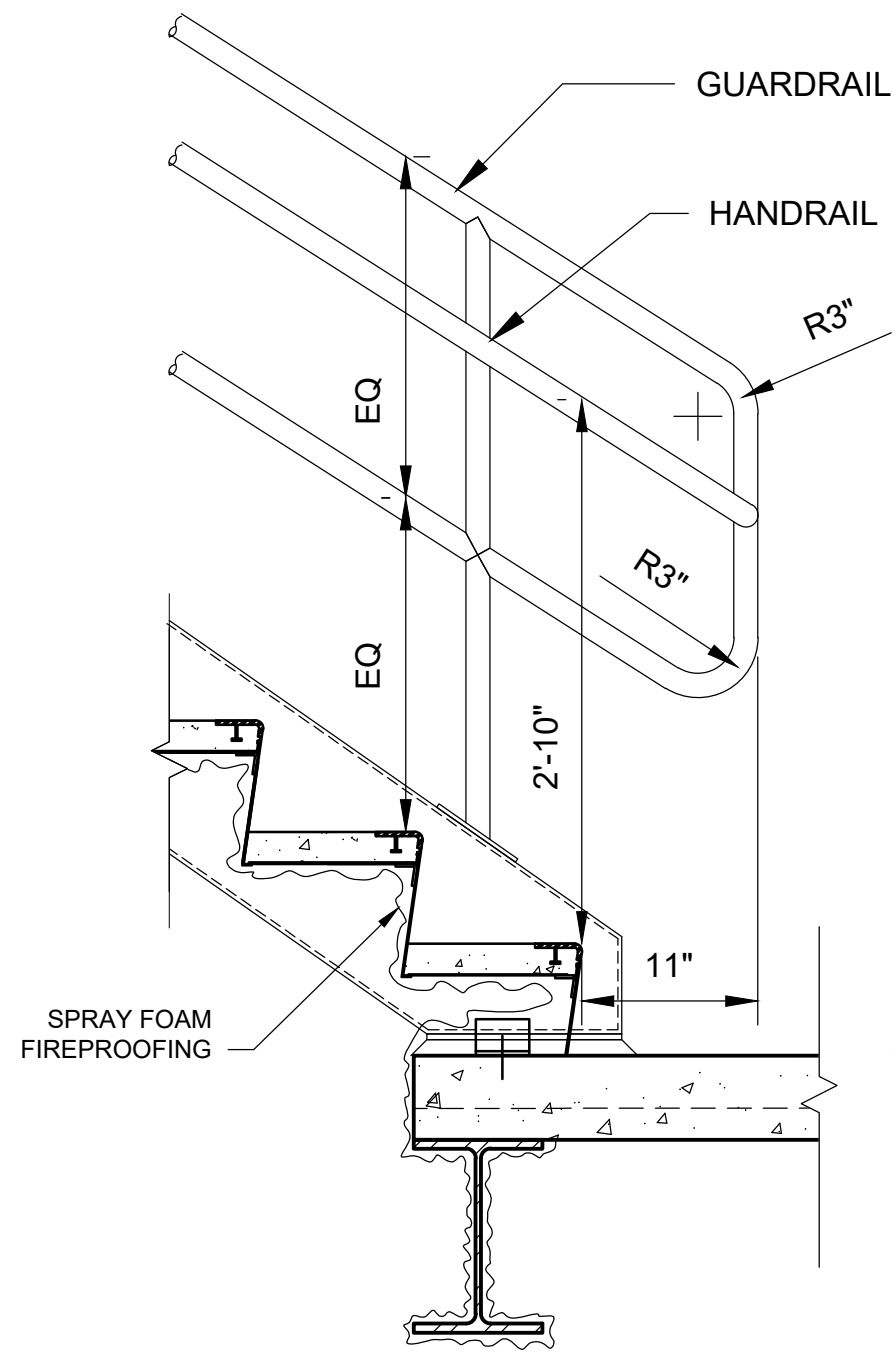
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

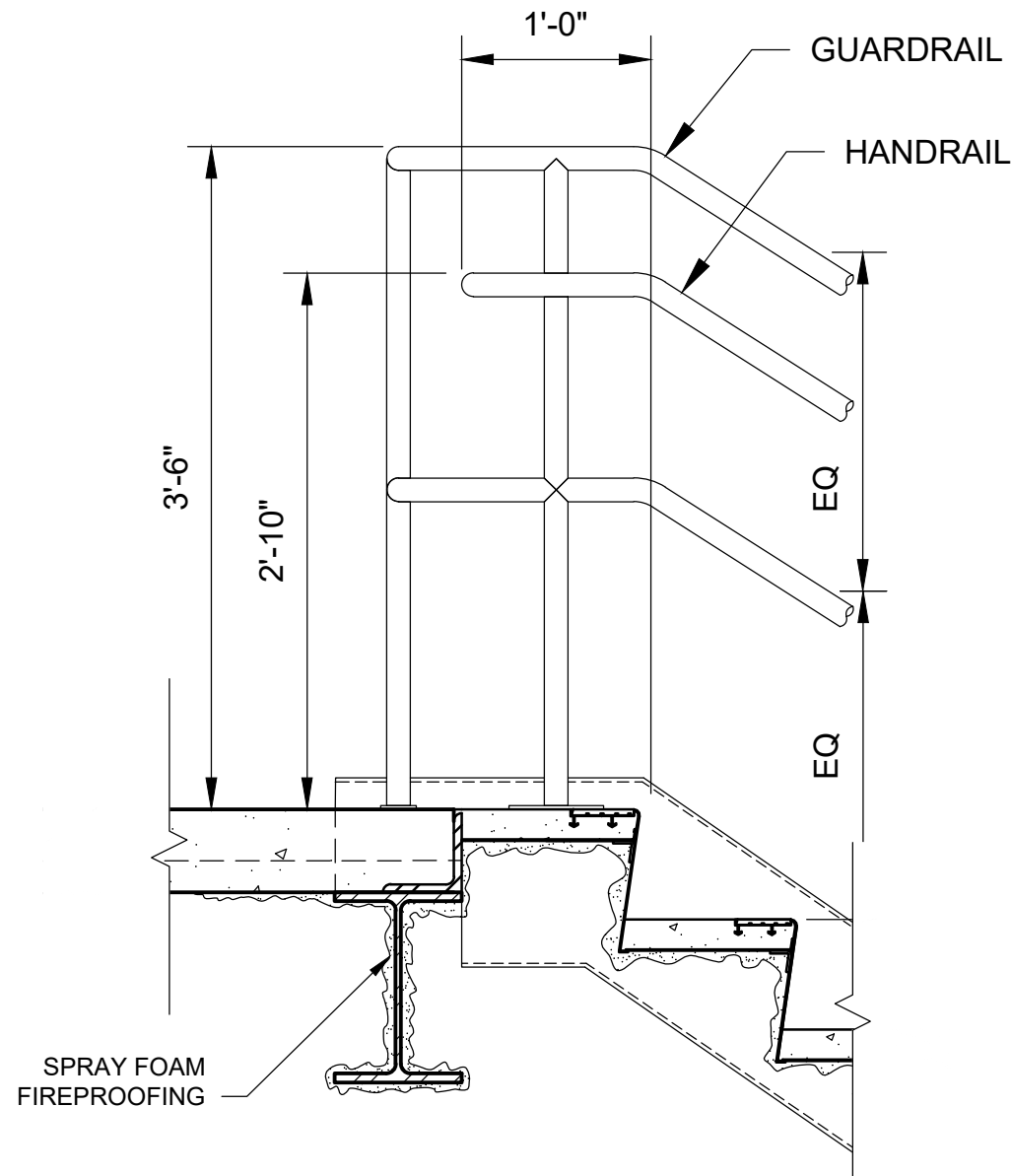
WALL SECTIONS

PROJECT NO.: 0028A

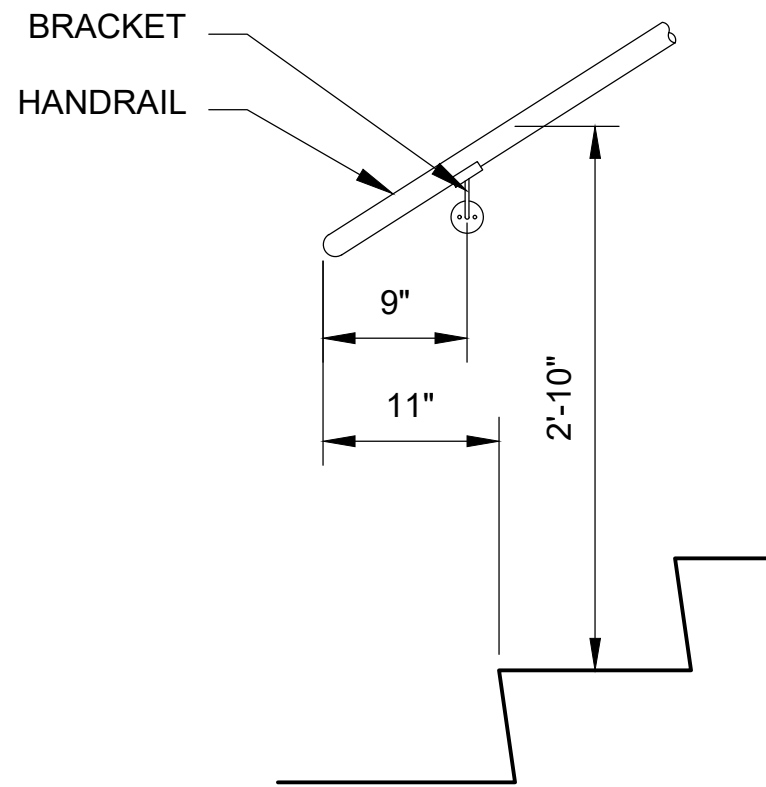
DWG: **A12**
SHEET: 45 OF 116
DATE: JANUARY 2025 REV: 0



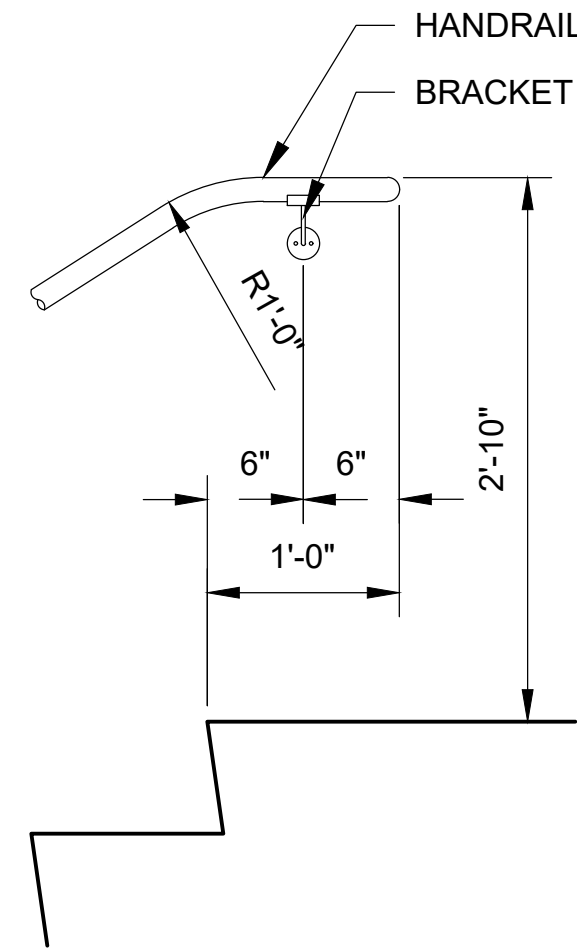
1 STAIR BASE AND RAILLING
SCALE: 1" = 1'-0"



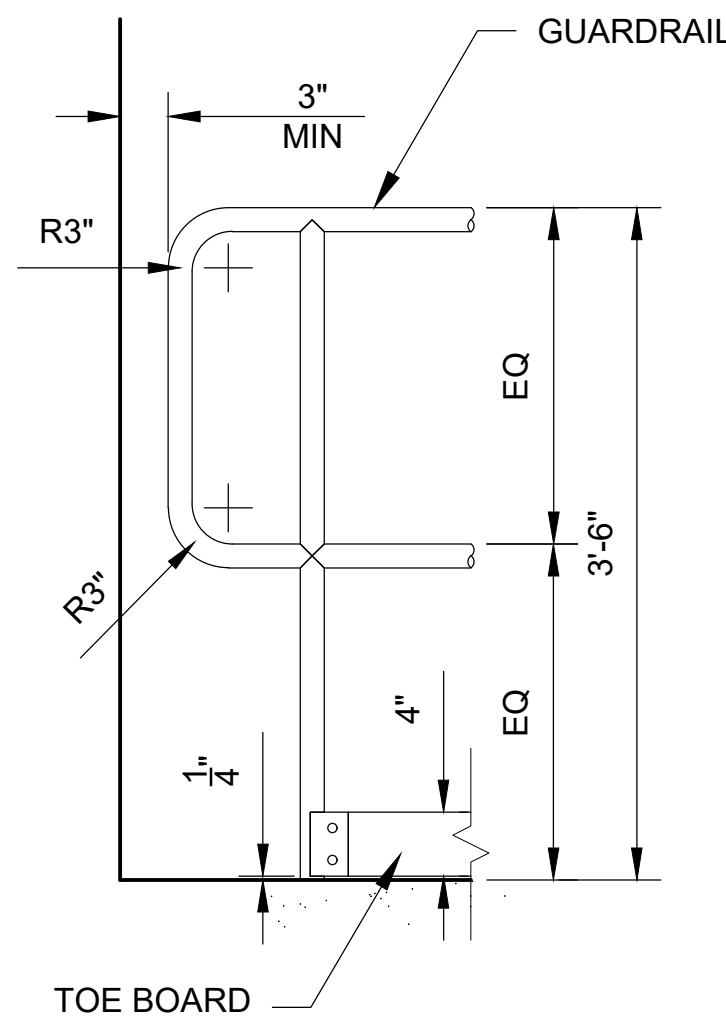
2 STAIR TOP AND RAILLING
SCALE: 1" = 1'-0"



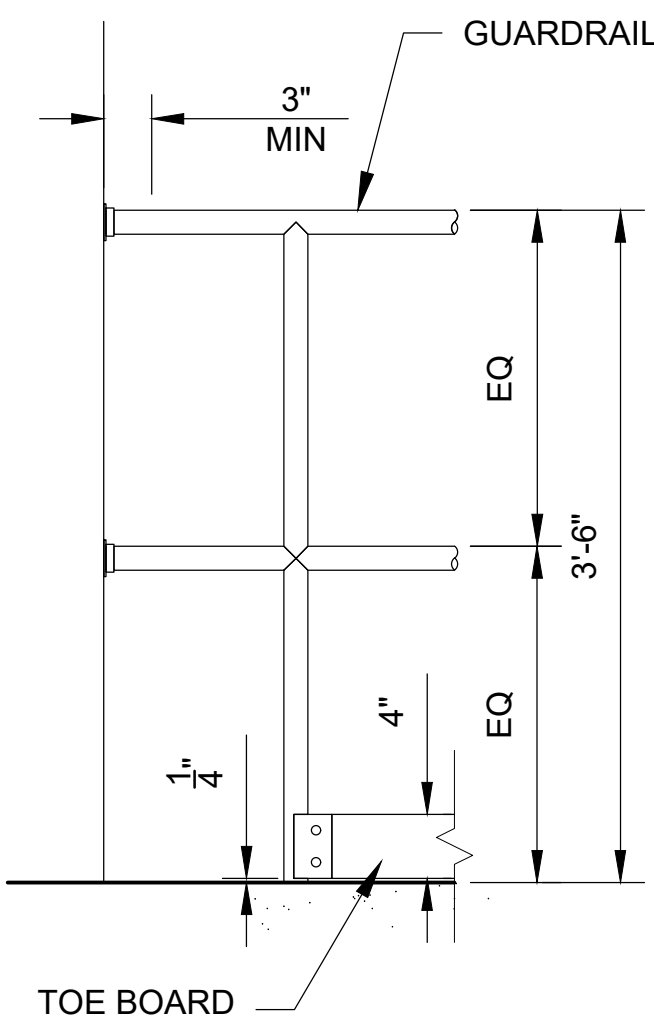
3 HANDRAIL
SCALE: 1" = 1'-0"



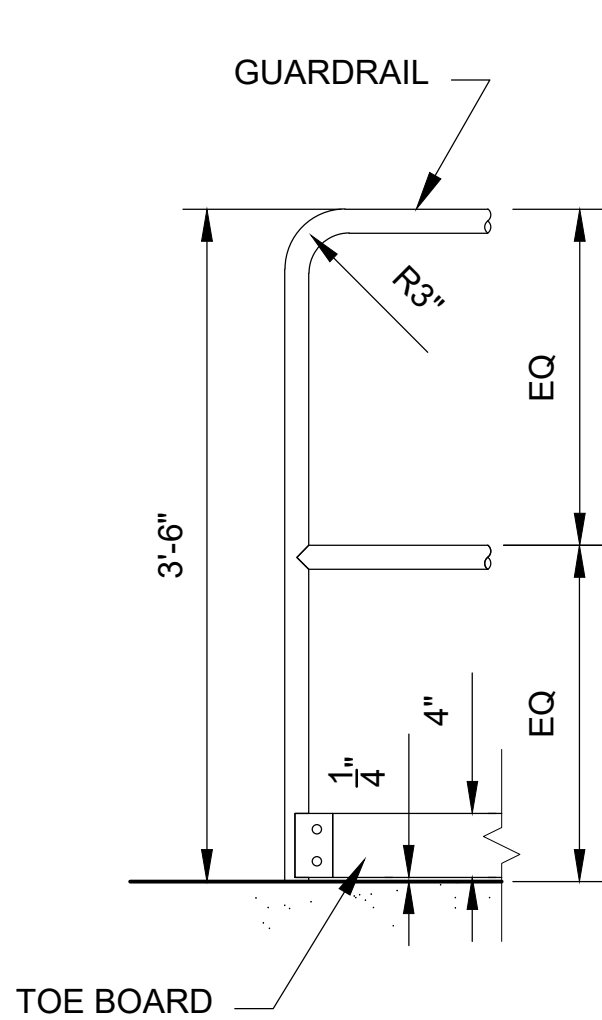
4 HANDRAIL END
SCALE: 1" = 1'-0"



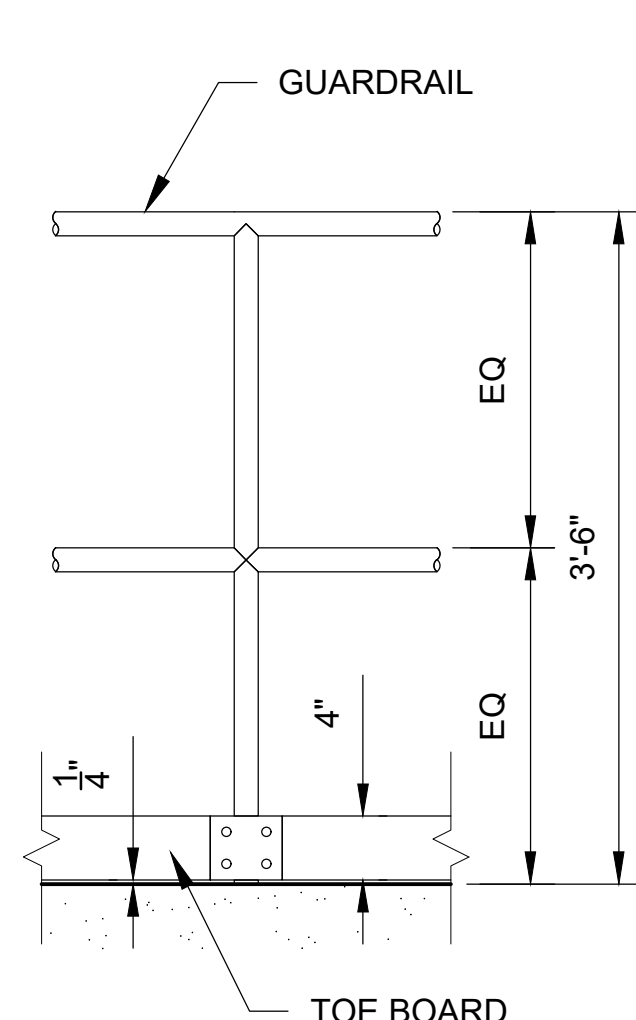
5 RETURN RAIL END
SCALE: 1" = 1'-0"



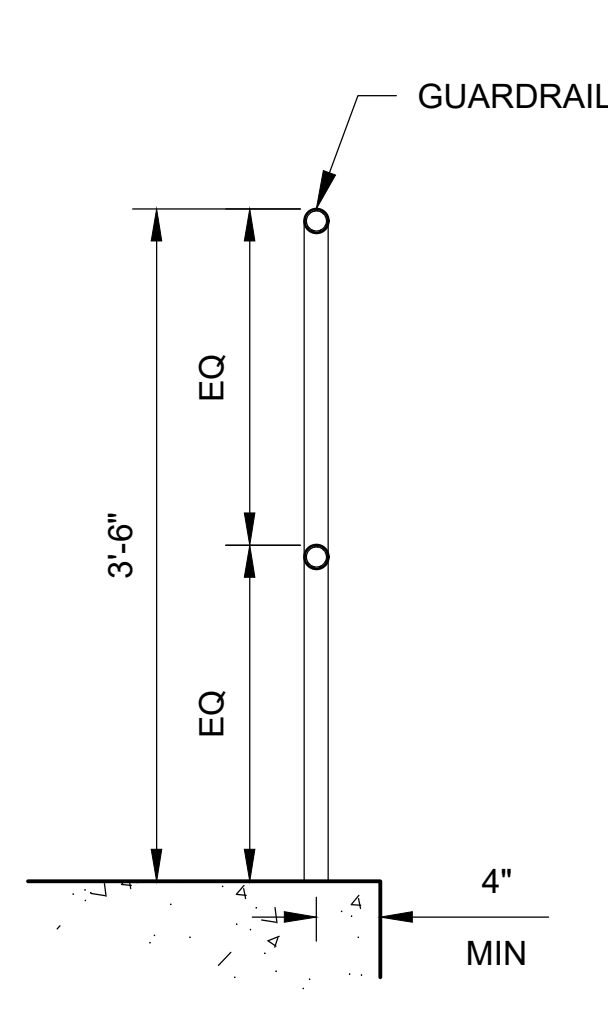
6 RAIL END AT WALL
SCALE: 1" = 1'-0"



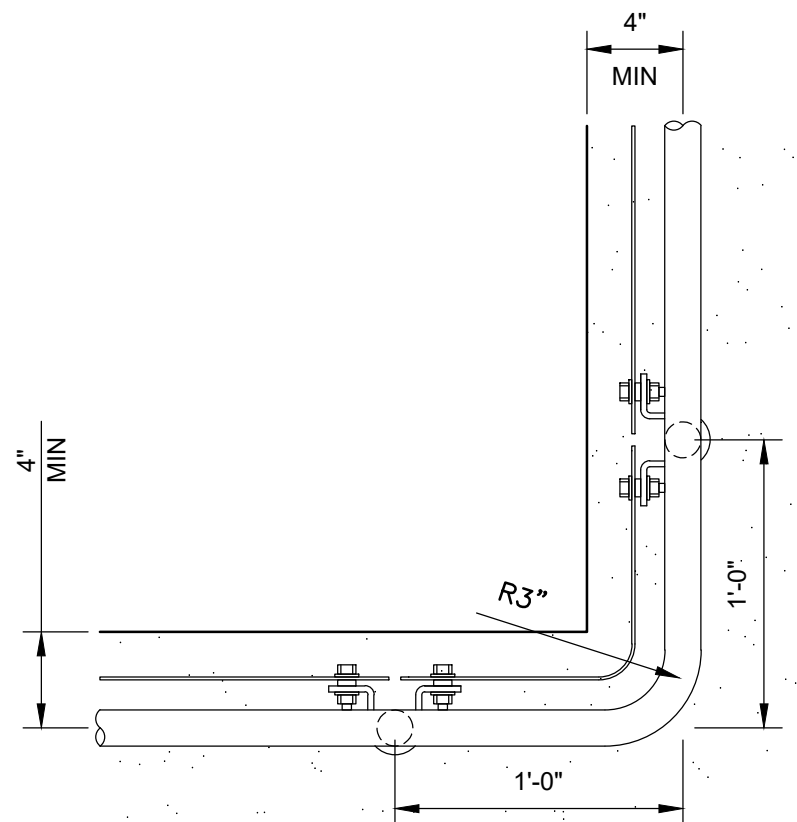
7 TYP RAIL END
SCALE: 1" = 1'-0"



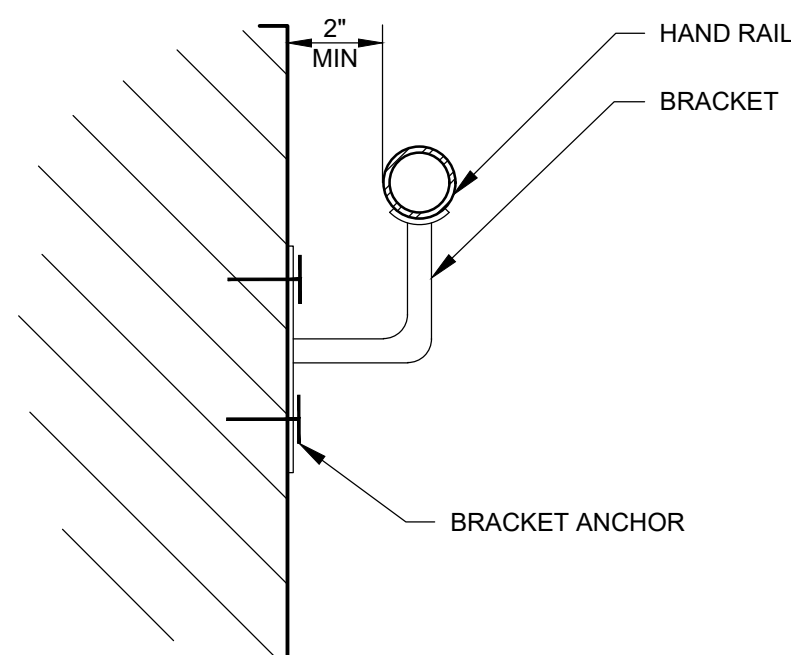
8 TYP RAIL ELEVATION
SCALE: 1" = 1'-0"



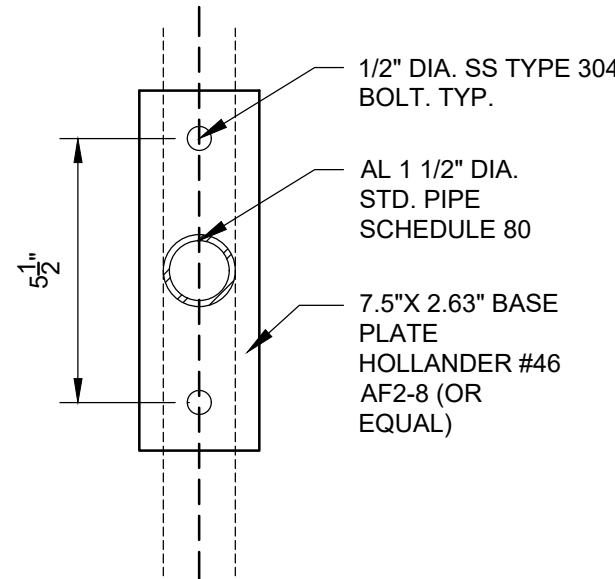
9 TYP RAIL SECTION
SCALE: 1" = 1'-0"



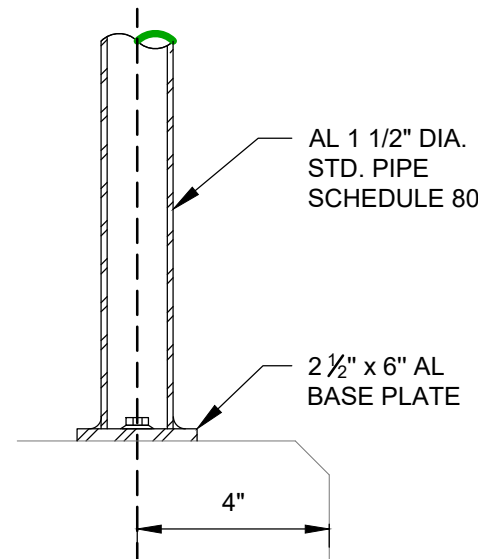
10 GUARDRAIL
SCALE: 1 1/2" = 1'-0"



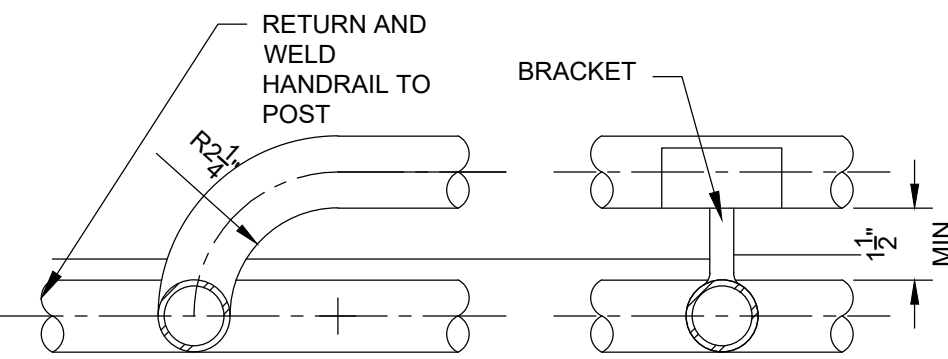
11 TYP RAIL SECTION
SCALE: 3" = 1'-0"



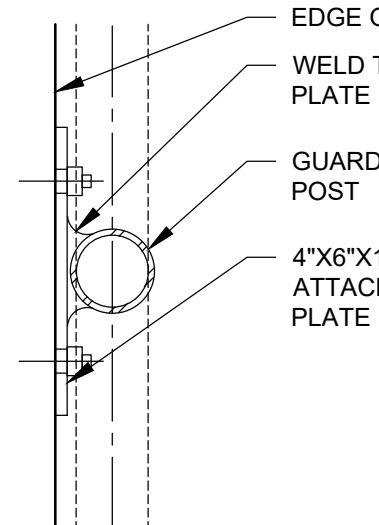
12 TOP MOUNTED POST PLAN
SCALE: 3" = 1'-0"



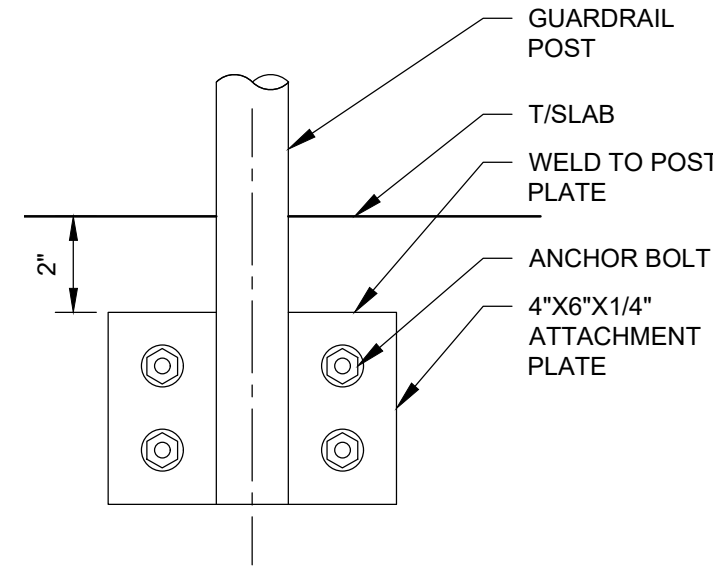
13 TOP MOUNTED POST SECTION
SCALE: 1 1/2" = 1'-0"



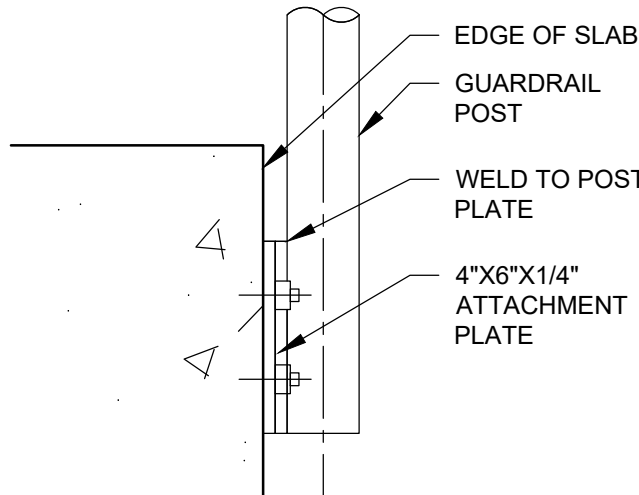
14 GUARD MOUNTED HANDRAIL SUPPORT AND RETURN
SCALE: 1 1/2" = 1'-0"



15 SIDE MOUNTED POST PLAN
SCALE: 3" = 1'-0"

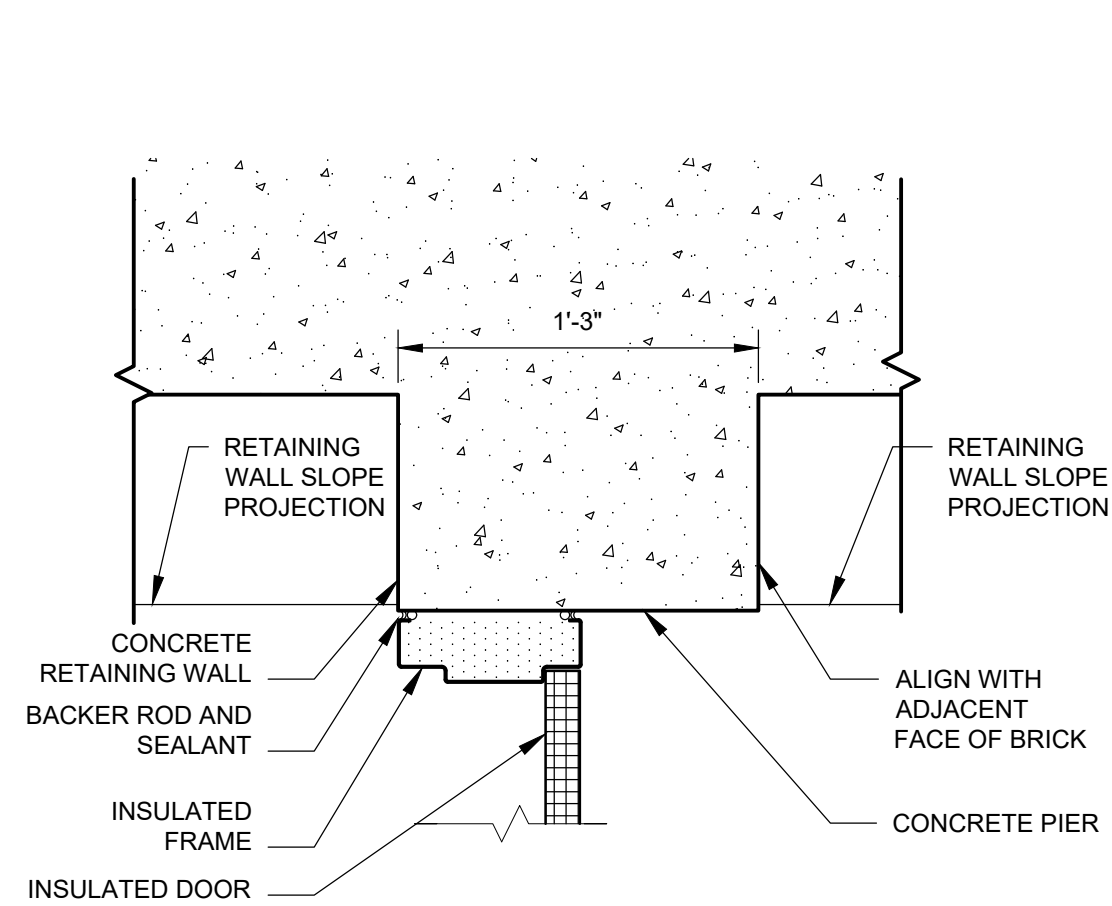


16 SIDE MOUNTED POST FRONT
SCALE: 3" = 1'-0"

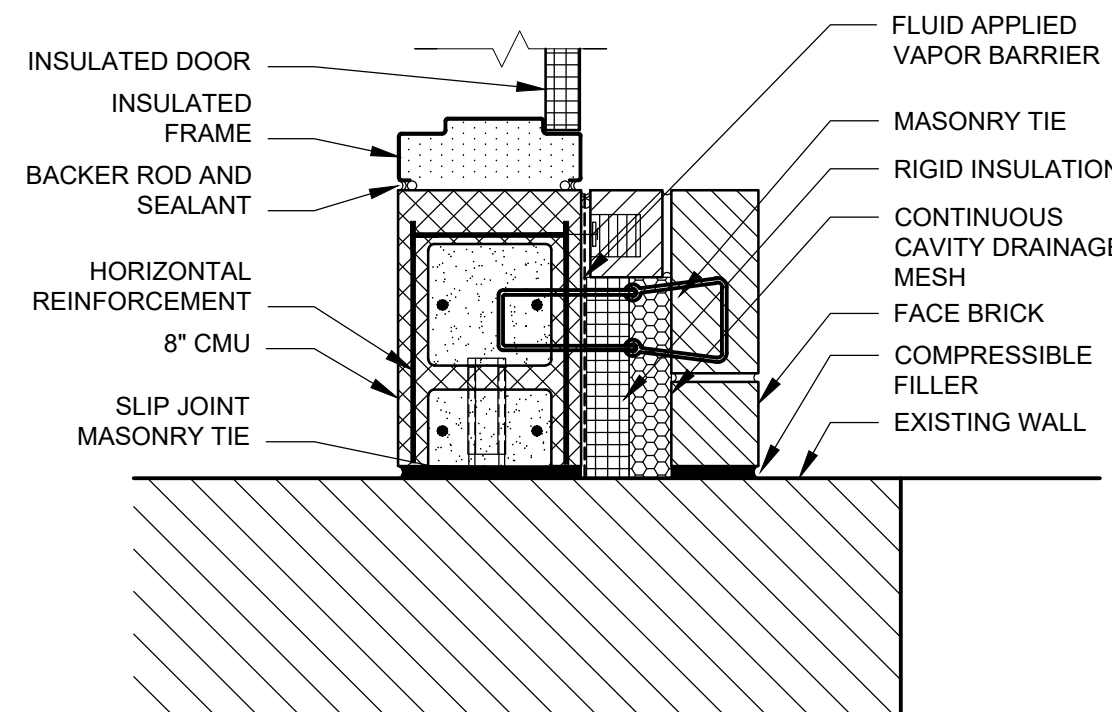


17 SIDE MOUNTED POST SIDE
SCALE: 3" = 1'-0"

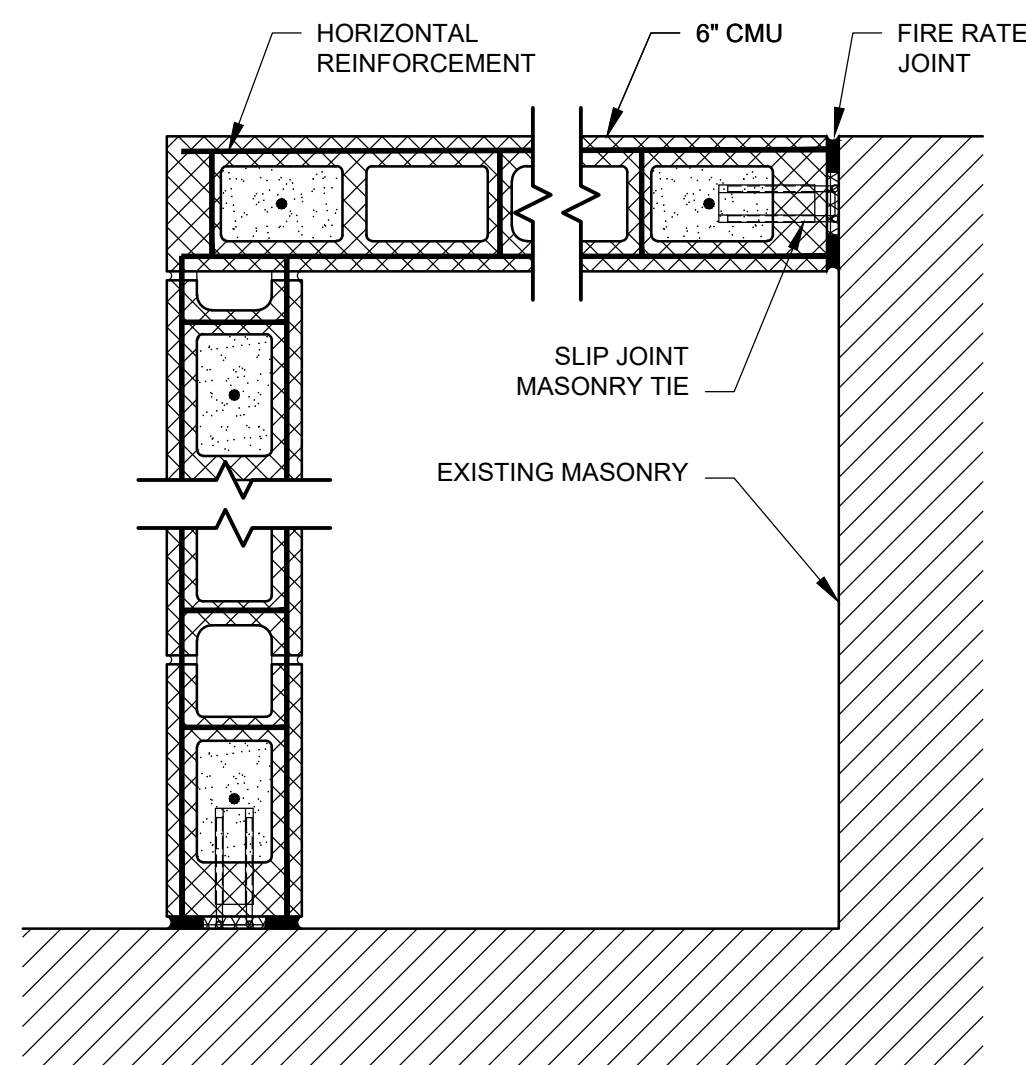
BID SET



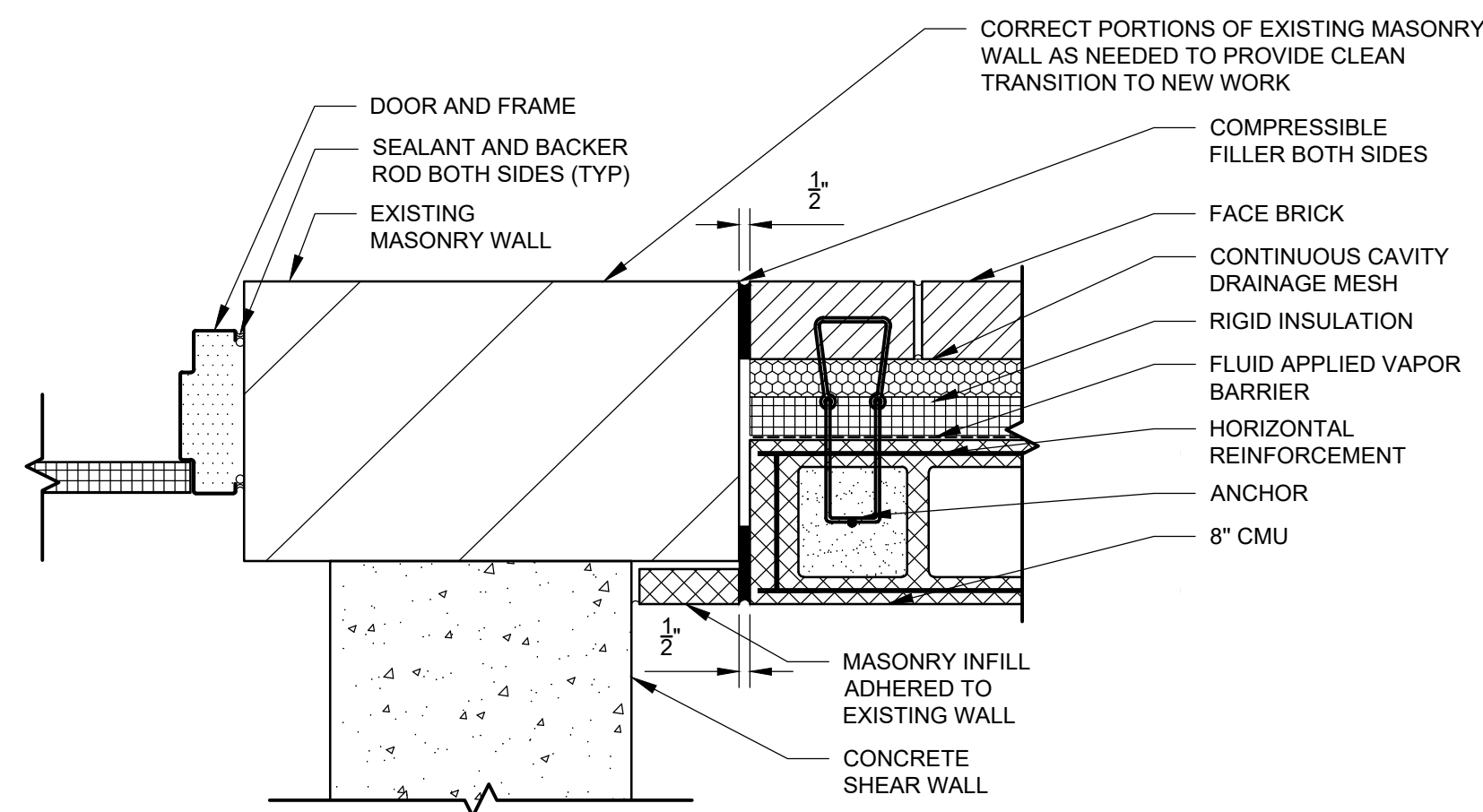
1 EXT WALL NORTH END
SCALE: 1 1/2" = 1'-0"



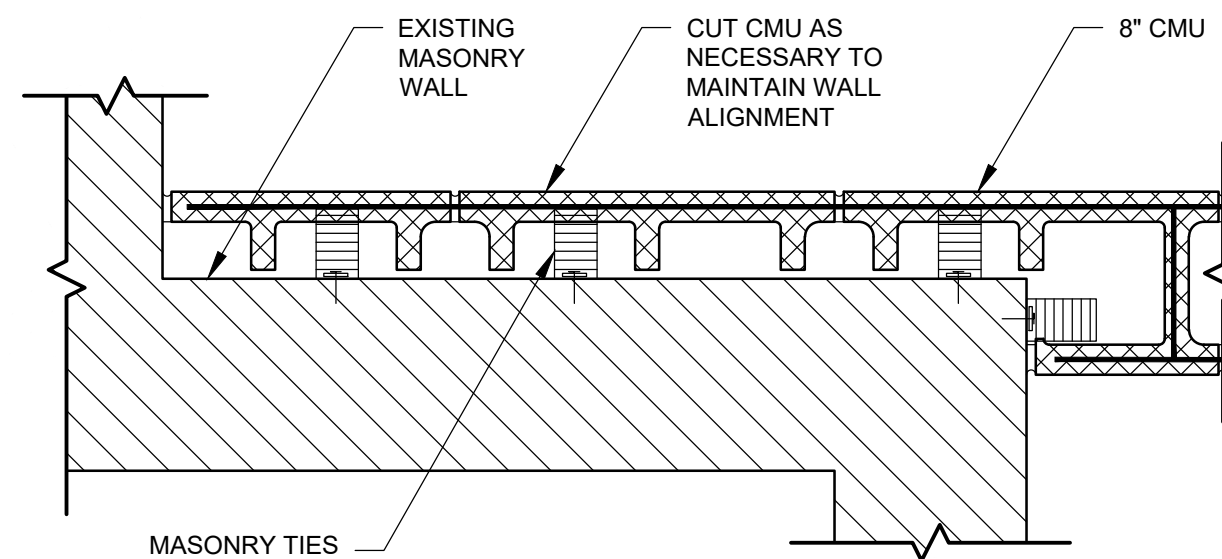
6 EXT WALL SOUTH END
SCALE: 1 1/2" = 1'-0"



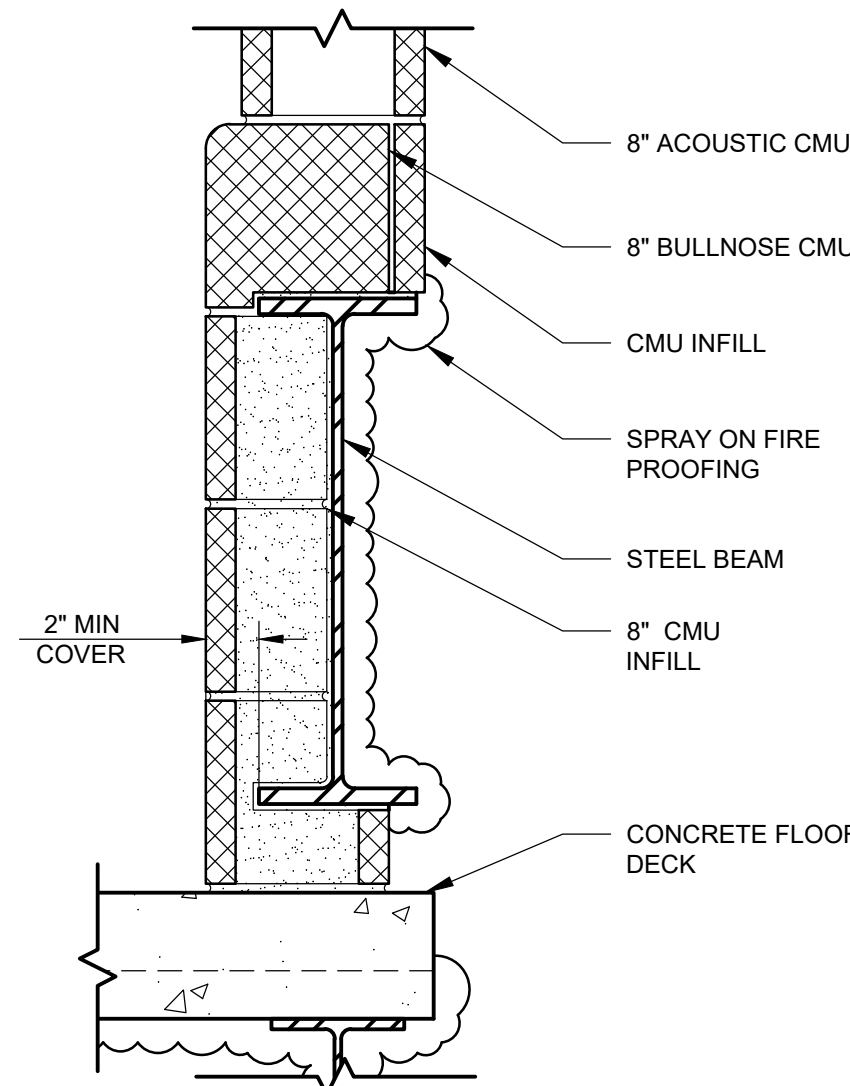
11 CHASE PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



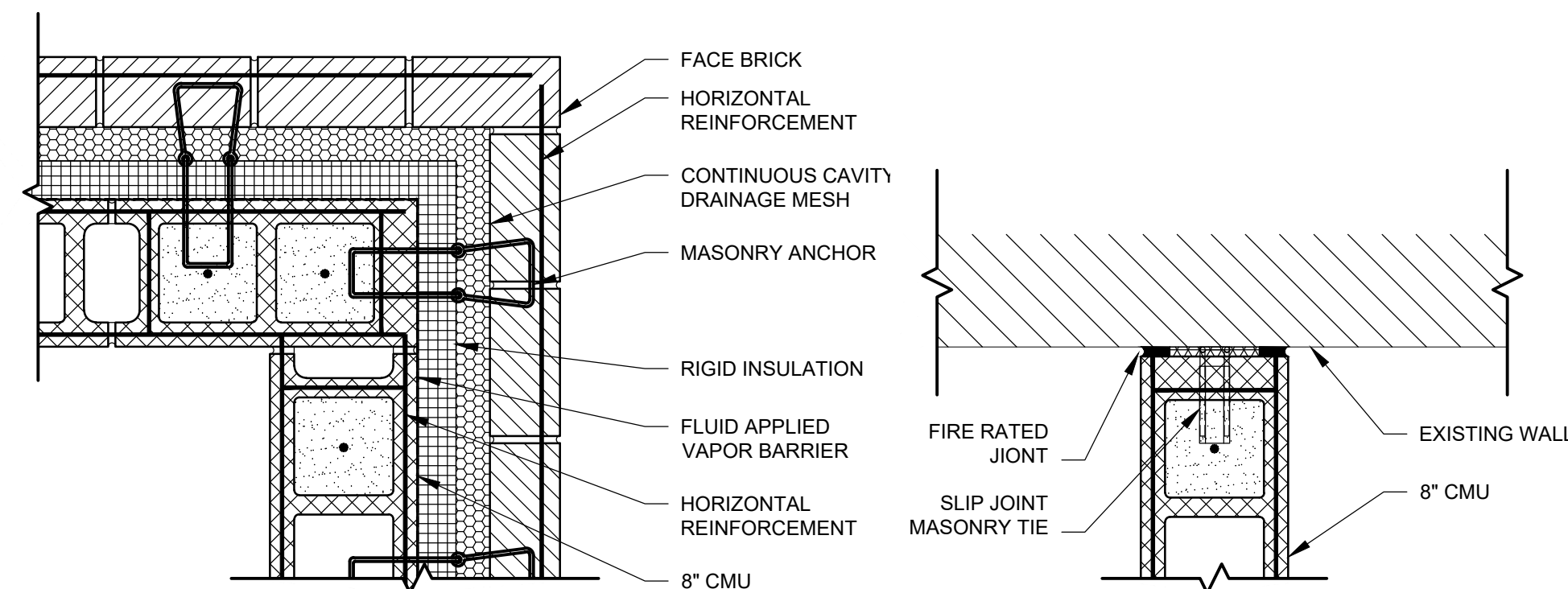
2 EXT WALL INTERSECTION DETAIL
SCALE: 1 1/2" = 1'-0"



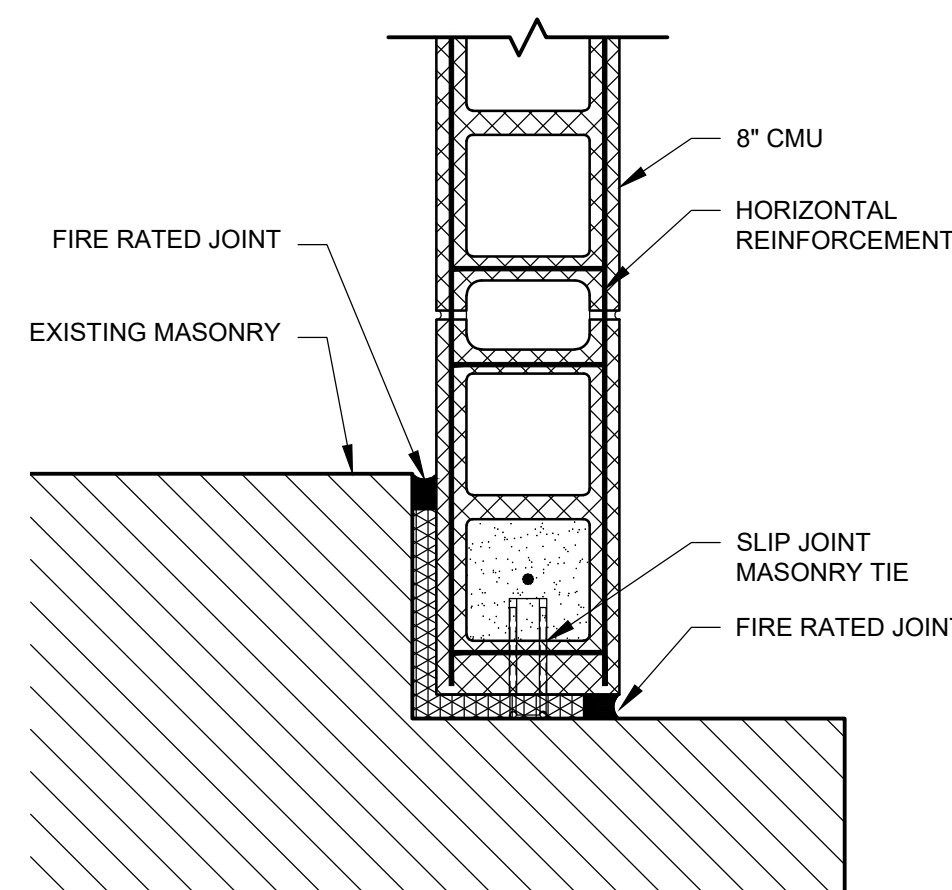
7 INT GENERATOR WALL TRANSITION
SCALE: 1 1/2" = 1'-0"



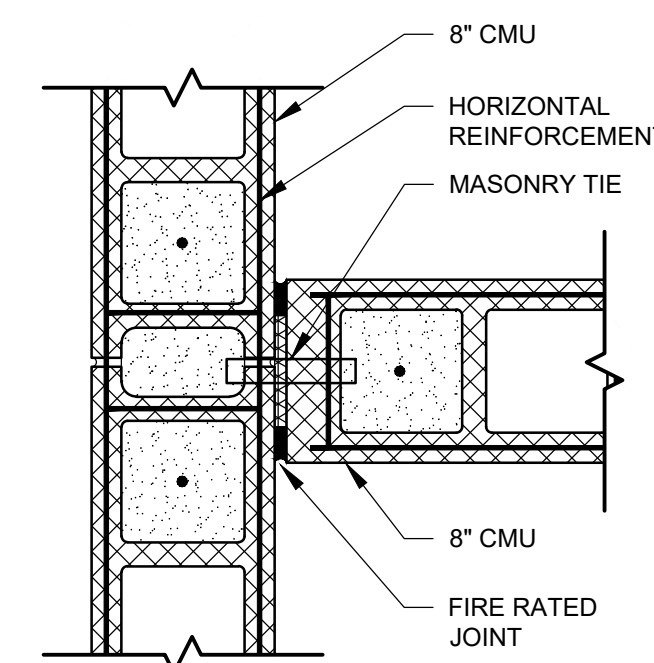
12 CHASE BEAM COVER DETAIL
SCALE: 1 1/2" = 1'-0"



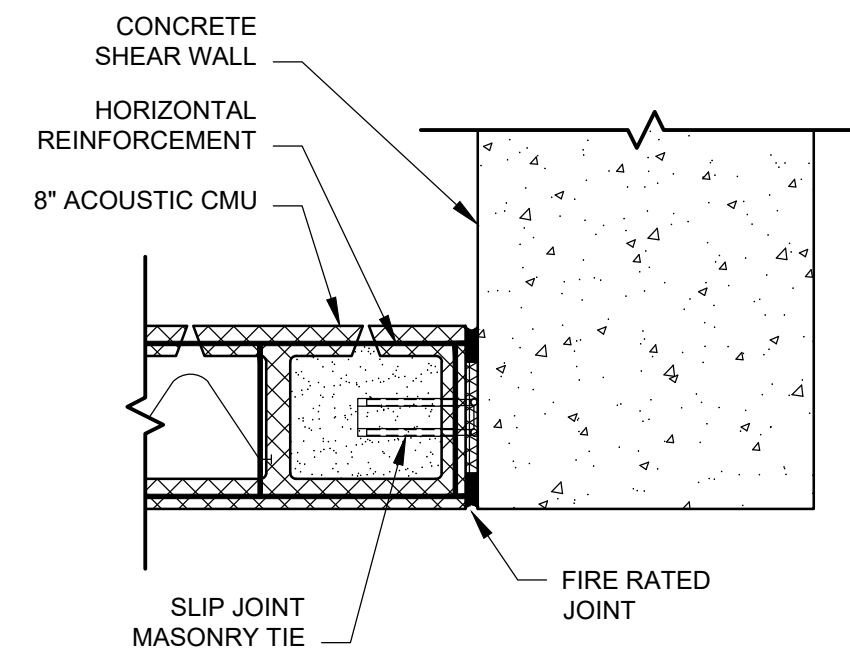
3 EXT WALL CORNER
SCALE: 1 1/2" = 1'-0"



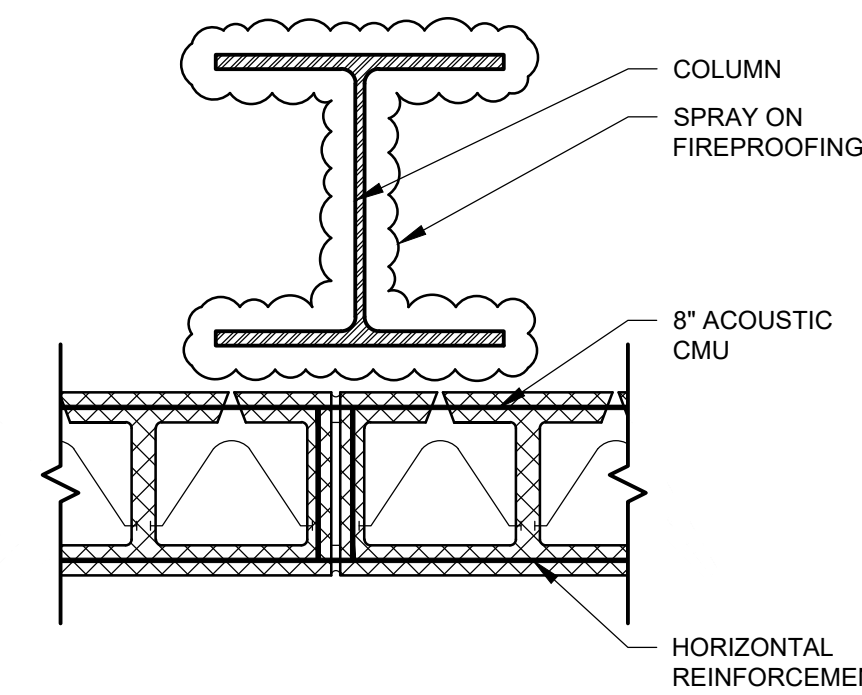
8 INT SWITCHGEAR WALL TRANSITION
SCALE: 1 1/2" = 1'-0"



9 INT WALL T-INTERSECTION
SCALE: 1 1/2" = 1'-0"

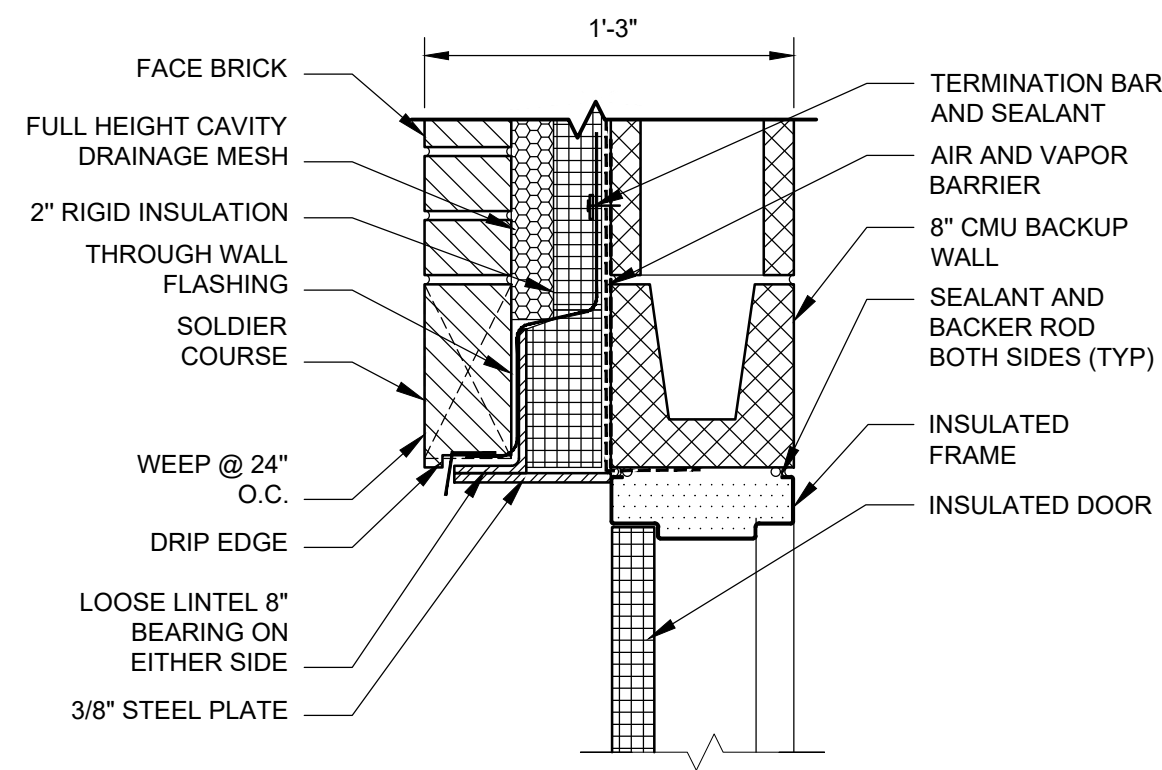


5 INT SHEAR WALL CORNER
SCALE: 1 1/2" = 1'-0"

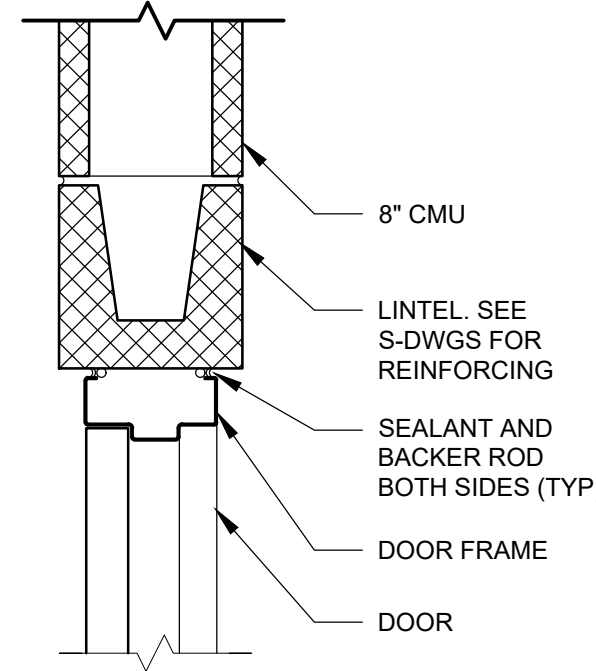


10 INT ACOUSTIC WALL AT COLUMN
SCALE: 1 1/2" = 1'-0"

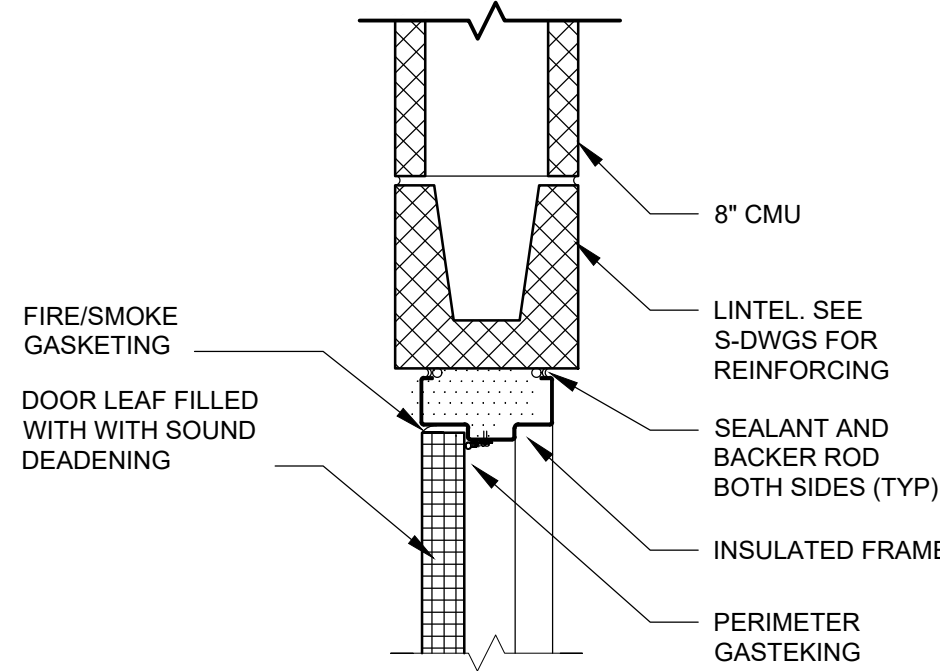
BID SET



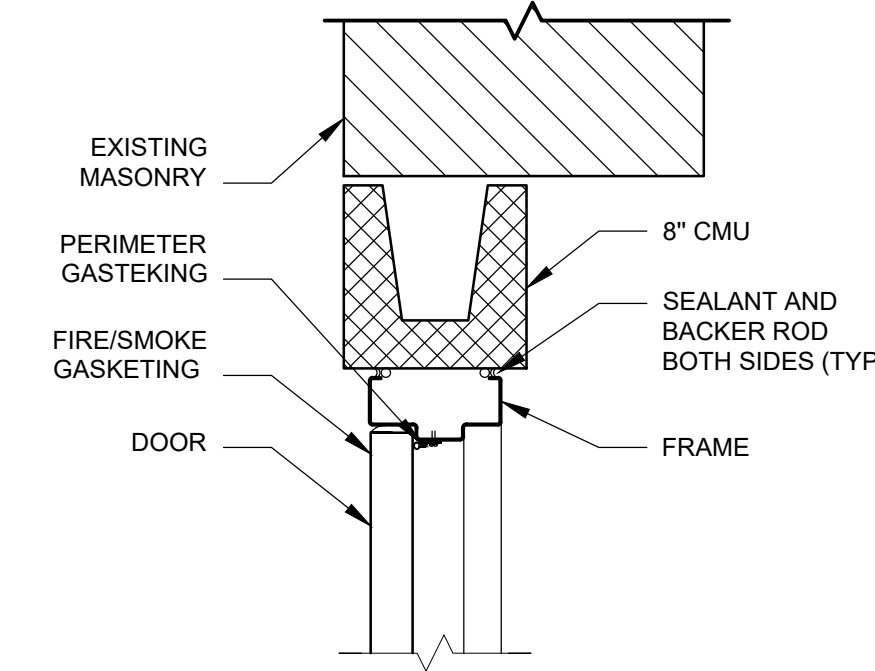
1 EXT DOOR HEAD
SCALE: 1 1/2" = 1'-0"



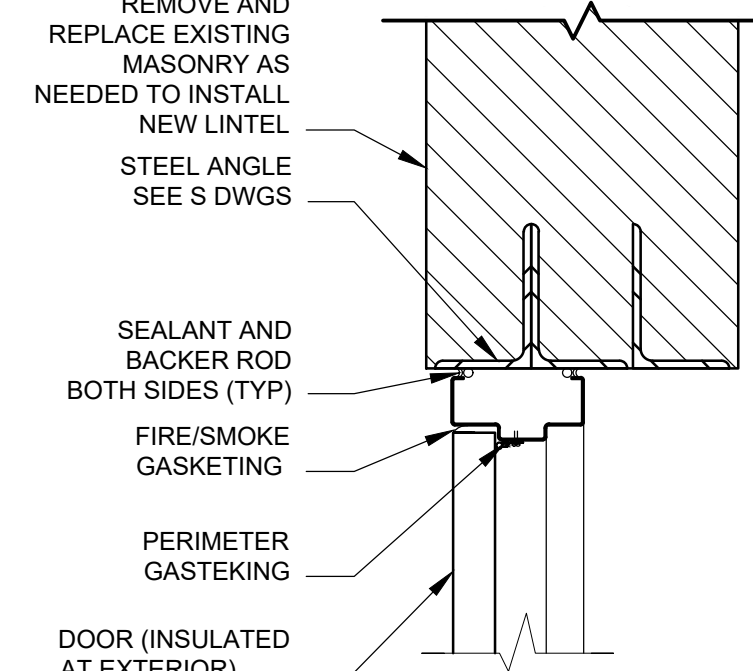
2 INT DOOR HEAD - TYP
SCALE: 1 1/2" = 1'-0"



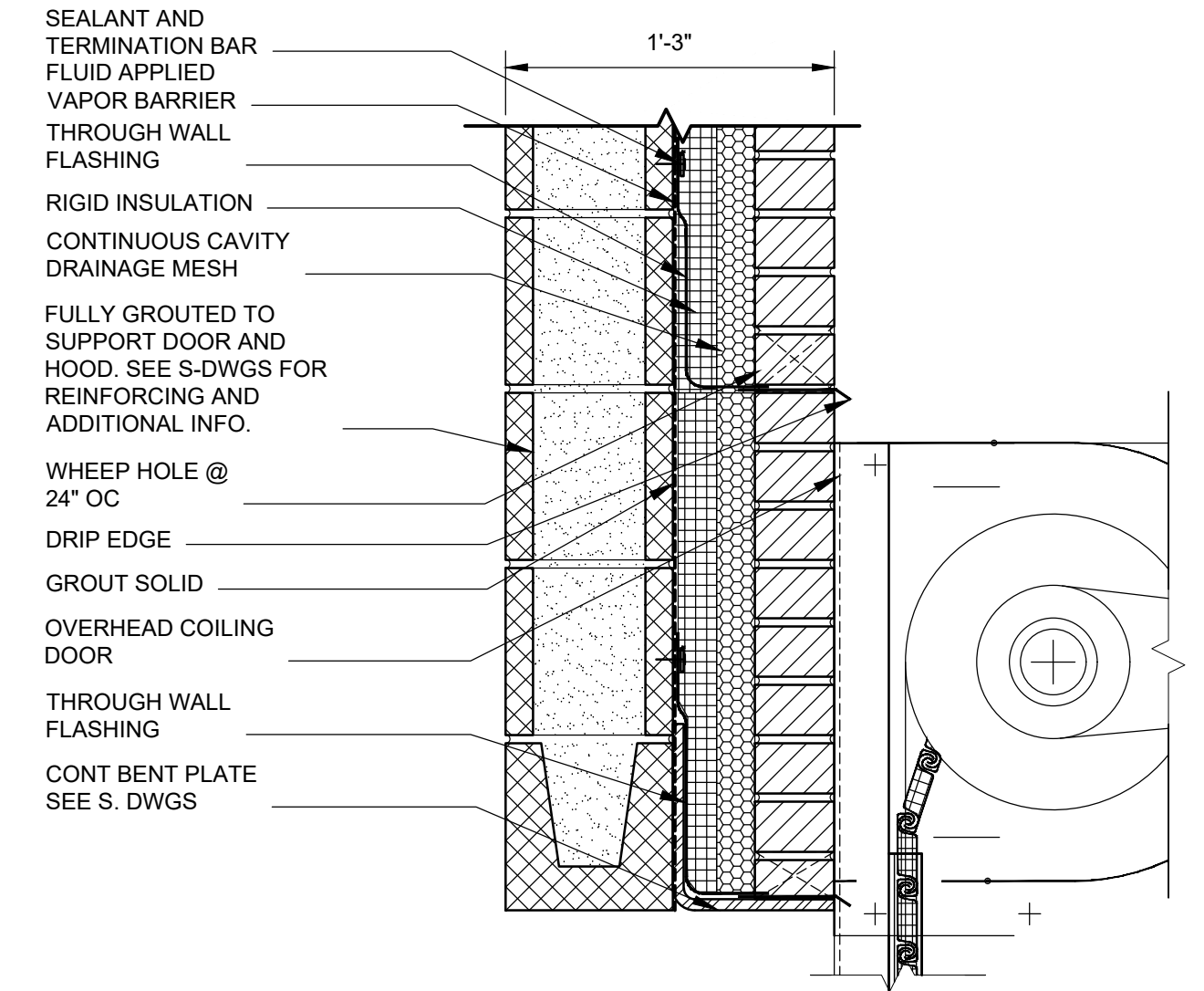
3 INT DOOR HEAD - ACOUSTIC
SCALE: 1 1/2" = 1'-0"



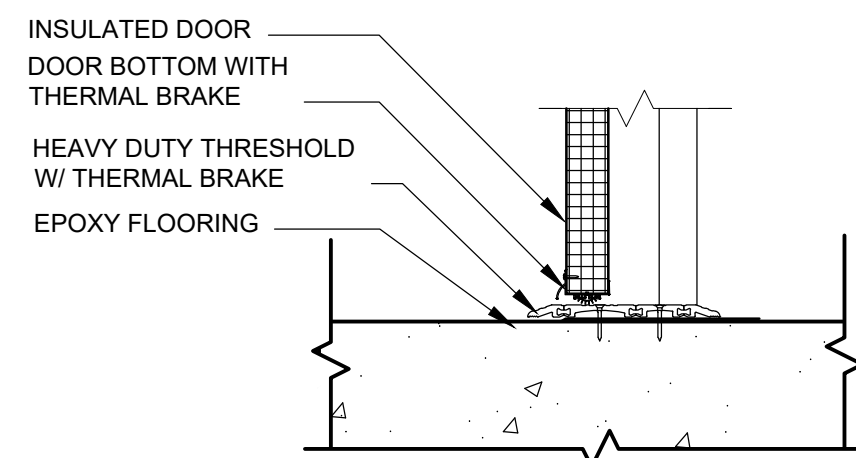
4 INT DOOR HEAD - INFILL
SCALE: 1 1/2" = 1'-0"



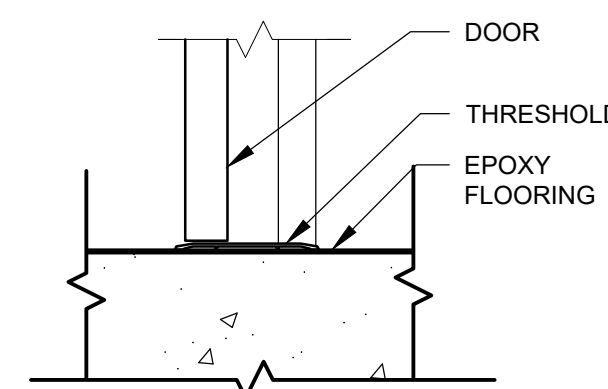
5 INT DOOR HEAD - EXST
SCALE: 1 1/2" = 1'-0"



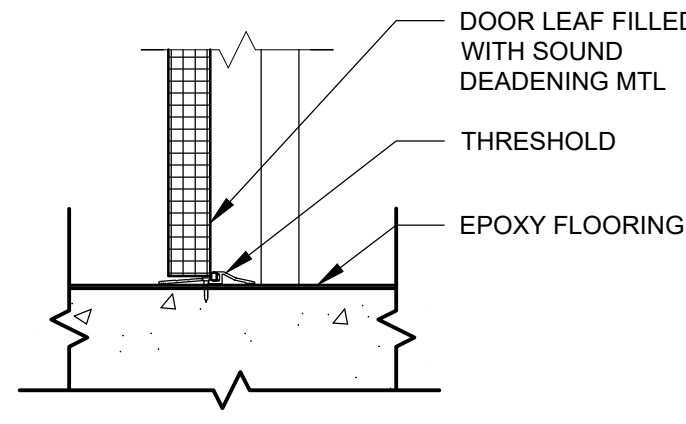
6 EXT OHCD HEAD
SCALE: 1 1/2" = 1'-0"



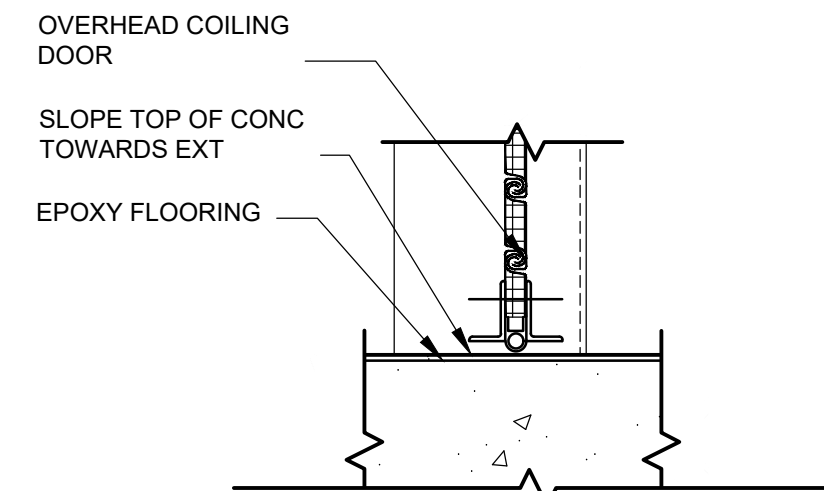
7 EXT DOOR THRESHOLD
SCALE: 1 1/2" = 1'-0"



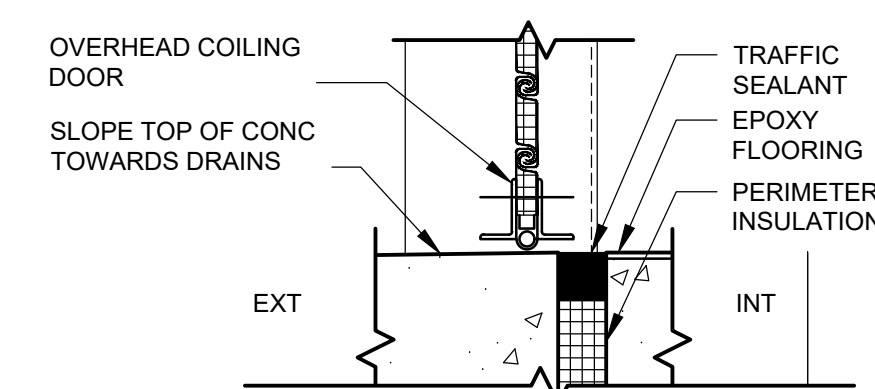
8 INT DOOR THRESHOLD - TYP
SCALE: 1 1/2" = 1'-0"



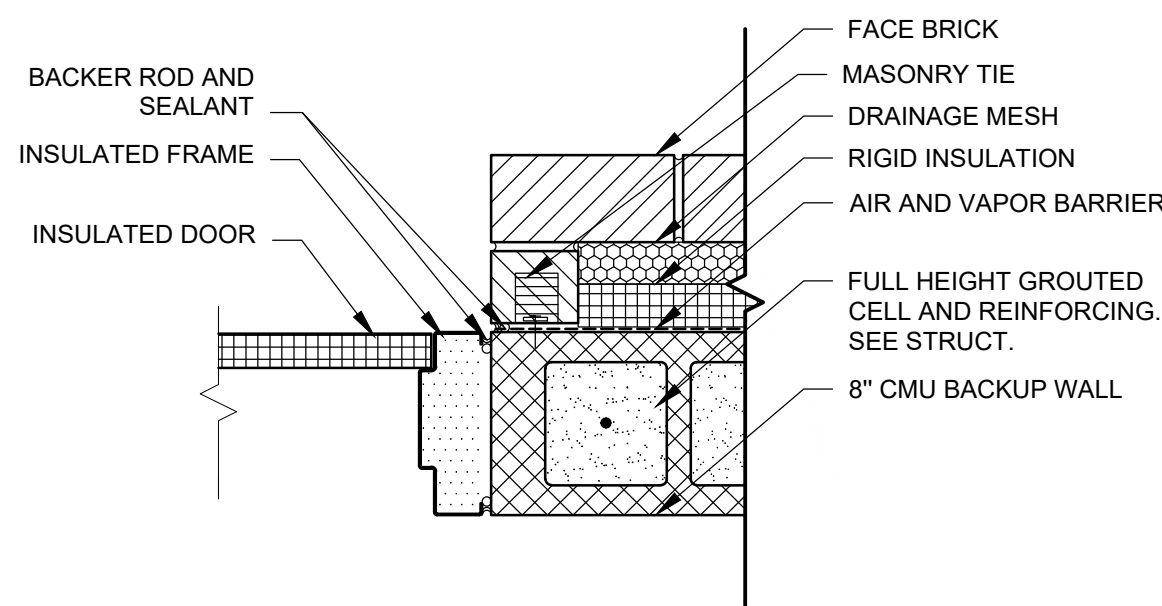
9 INT DOOR THRESHOLD - ACOUSTIC
SCALE: 1 1/2" = 1'-0"



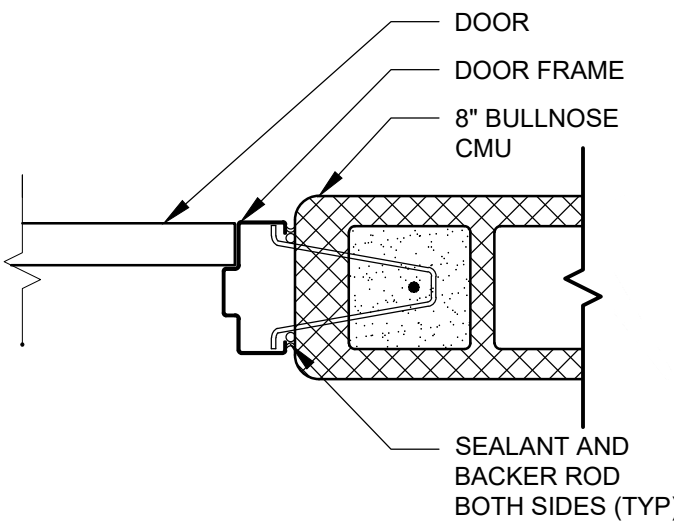
10 INT OHCD THRESHOLD
SCALE: 1 1/2" = 1'-0"



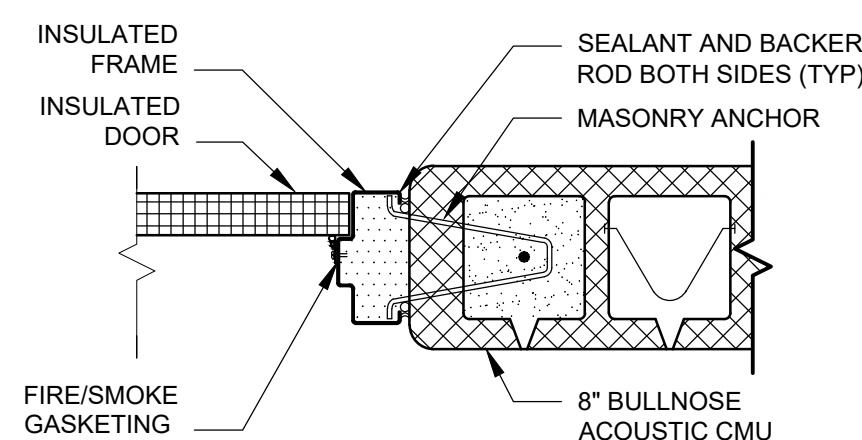
11 EXT OHCD THRESHOLD
SCALE: 1 1/2" = 1'-0"



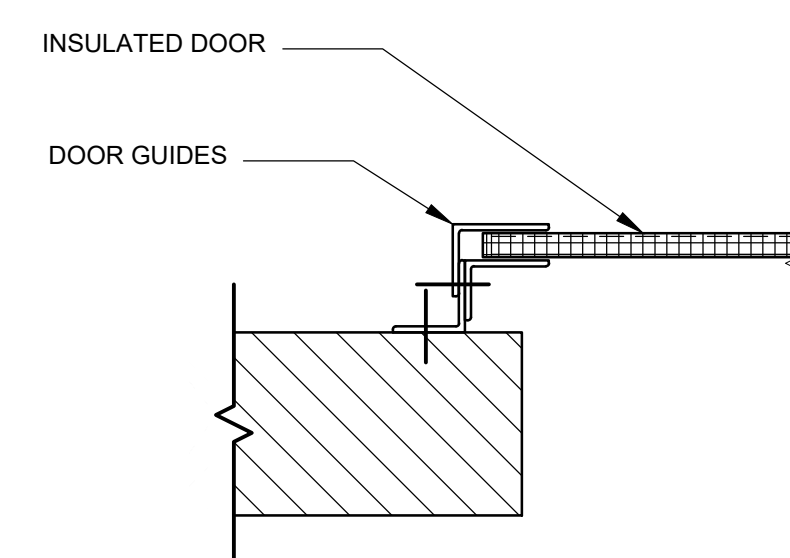
12 EXT DOOR JAMB
SCALE: 1 1/2" = 1'-0"



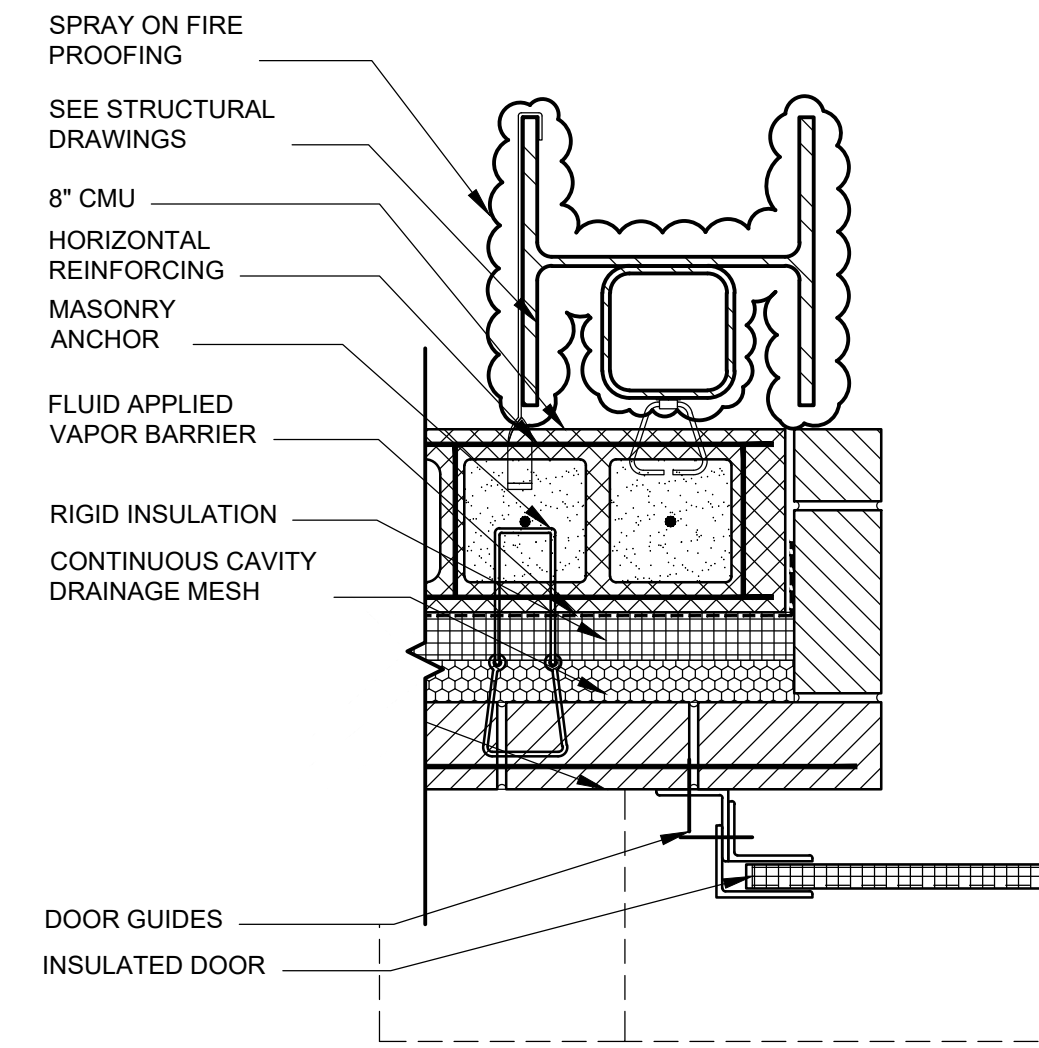
13 INT DOOR JAMB - TYP
SCALE: 1 1/2" = 1'-0"



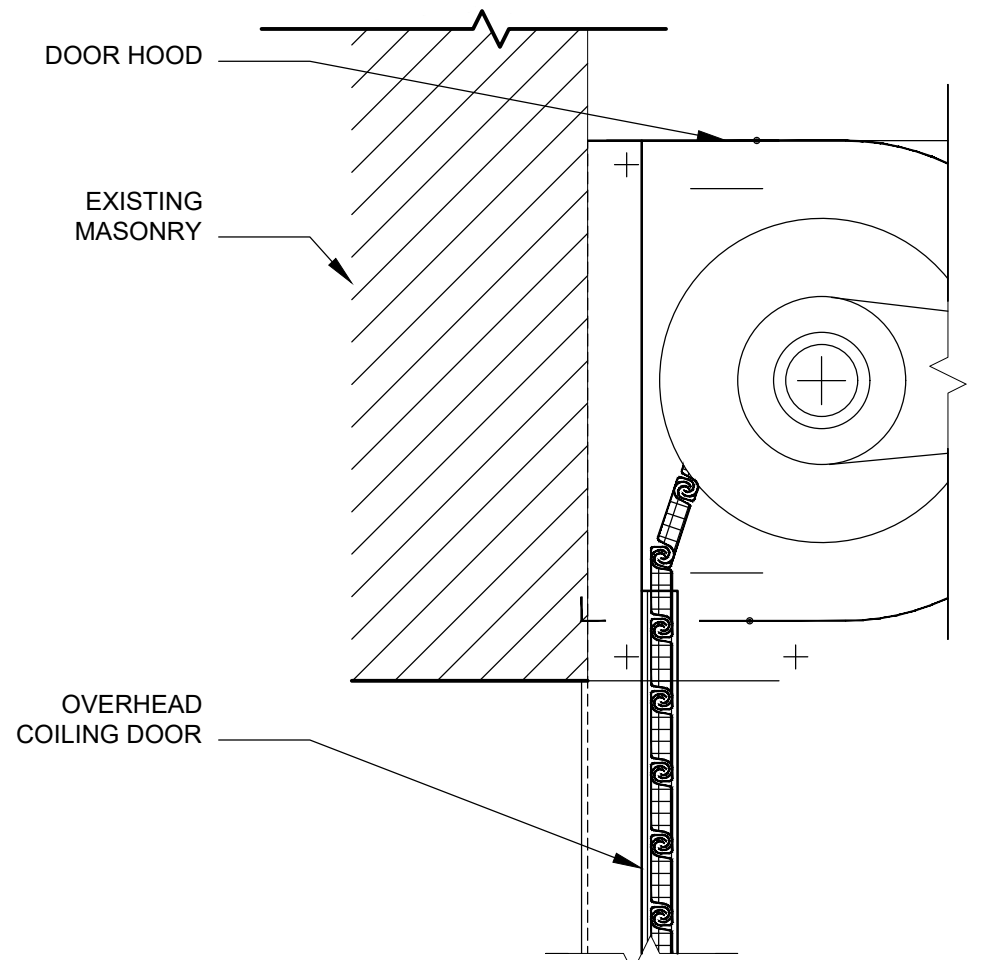
14 INT DOOR JAMB - ACOUSTIC
SCALE: 1 1/2" = 1'-0"



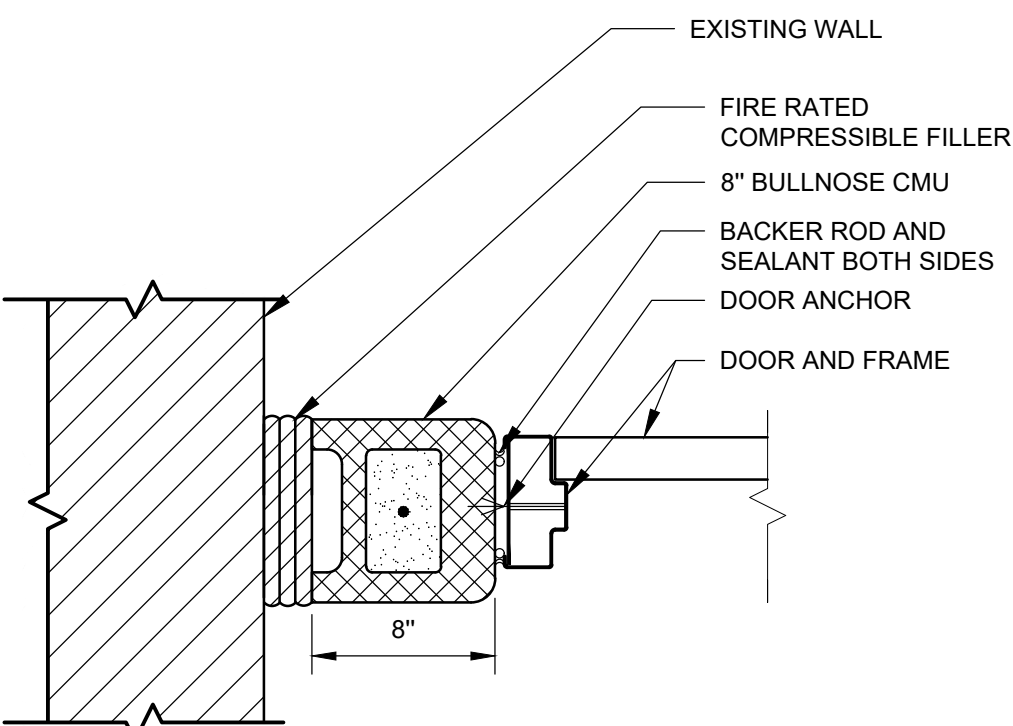
15 INT OHCD JAMB
SCALE: 1 1/2" = 1'-0"



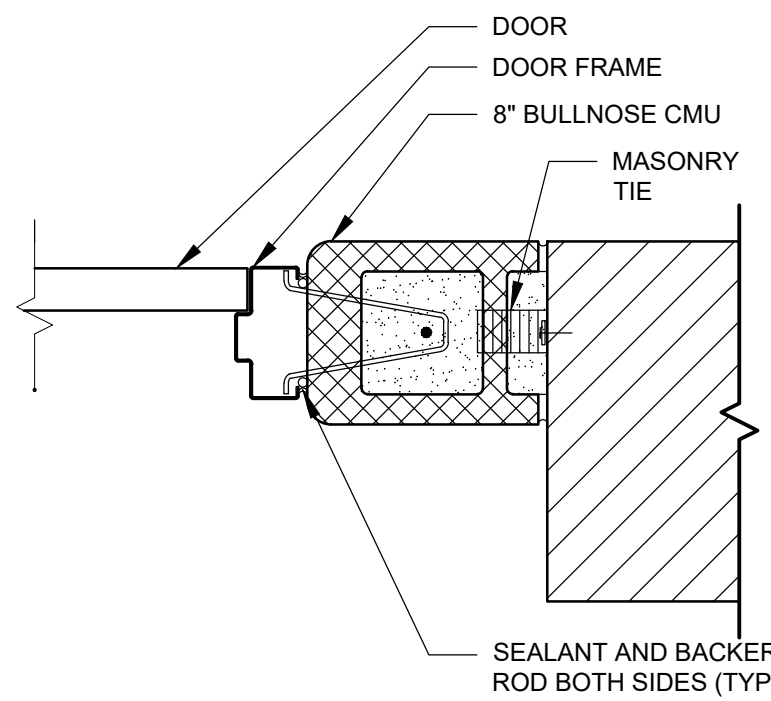
16 EXT OHCD JAMB
SCALE: 1 1/2" = 1'-0"



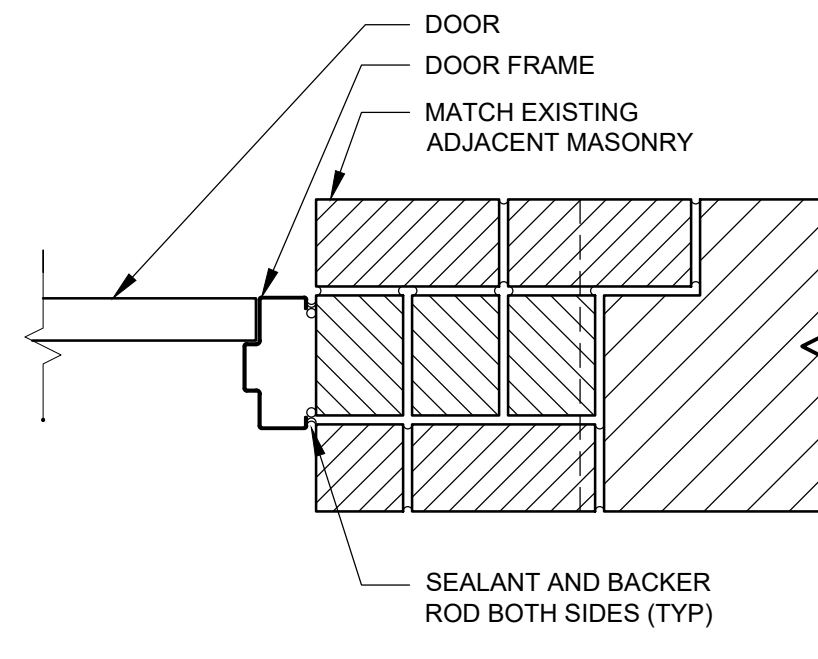
17 INT OHCD HEAD
SCALE: 1 1/2" = 1'-0"



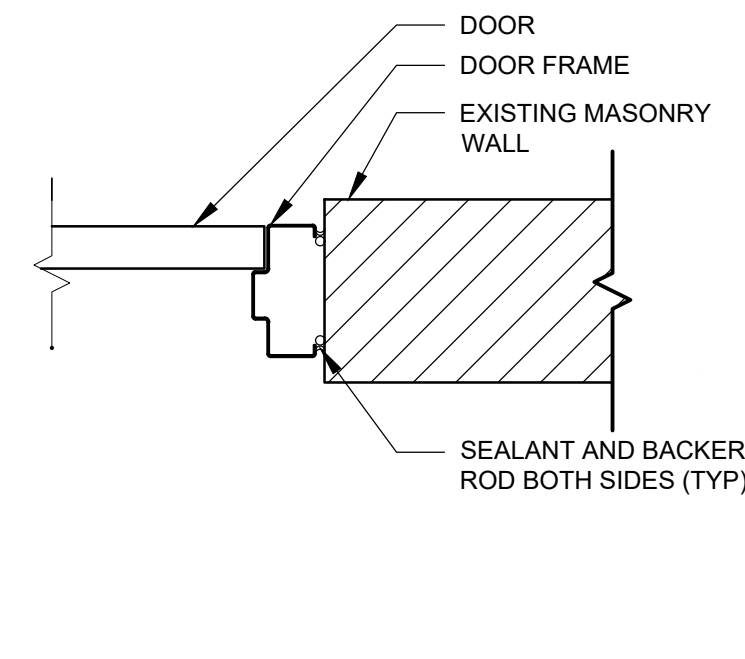
18 INT DOOR JAMB - TYPE 1
SCALE: 1 1/2" = 1'-0"



19 INT DOOR JAMB - TYPE 2
SCALE: 1 1/2" = 1'-0"

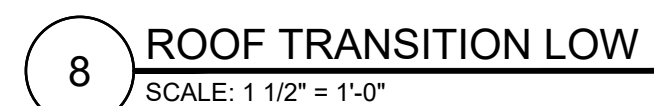
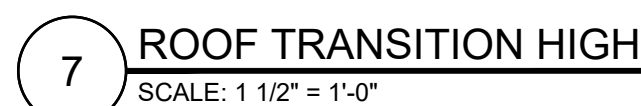
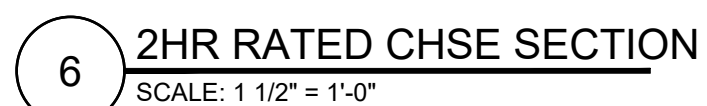
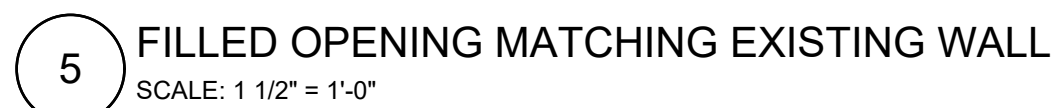
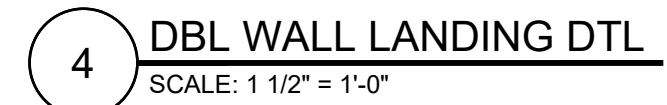
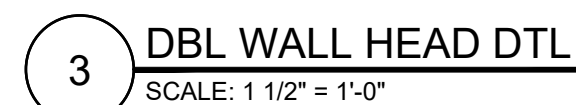


20 INT DOOR JAMB - TYPE 3
SCALE: 1 1/2" = 1'-0"



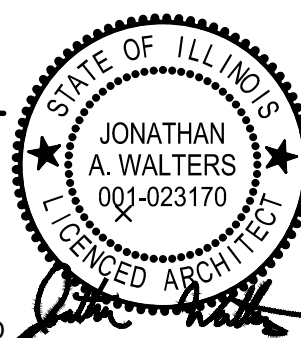
21 INT DOOR JAMB - TYPE 4
SCALE: 1 1/2" = 1'-0"

BID SET



 **GREELEY AND HANSEN**
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED	JW	DATE SIGNED: 01/31/2025
DRAWN	SG	LICENSE EXPIRES: 11/30/2026
CHECKED	BS	APPROVED



NO.	DATE	APPD.	REVISION DESCRIPTION

SCALE



CITY OF EVANSTON WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

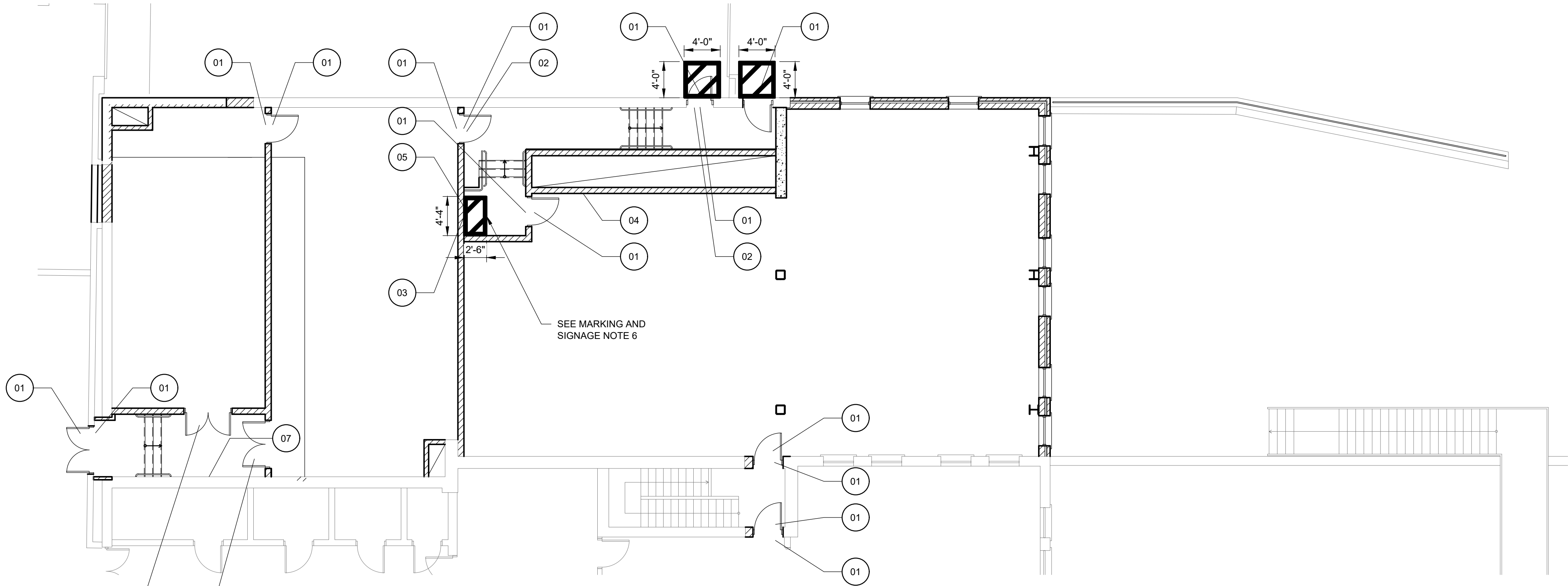
ARCHITECTURAL

T | DETAIL SHEET 5

PROJECT NO.: 0028A

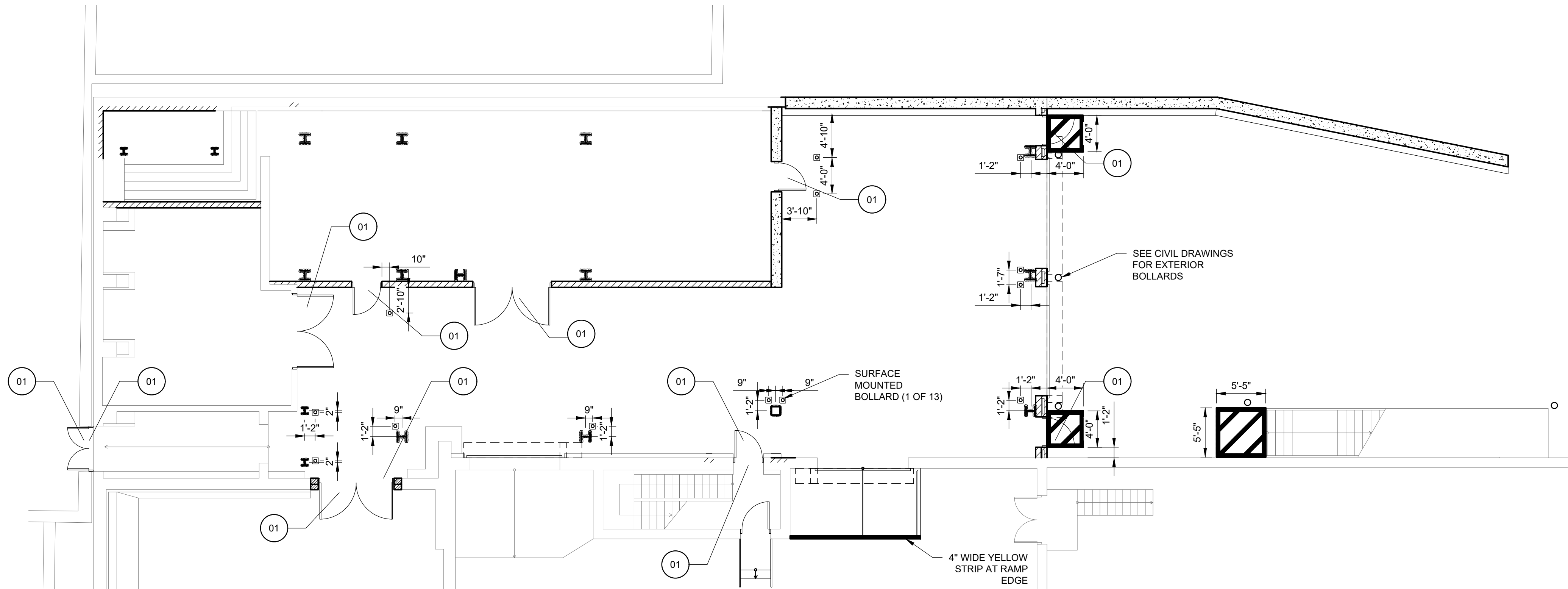
DWG:	A18		
SHEET:	51	OF	116
DATE:	JANUARY 2025	REV:	0

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2025/01/31 12:34 PM
B:\REVIEWS\1-
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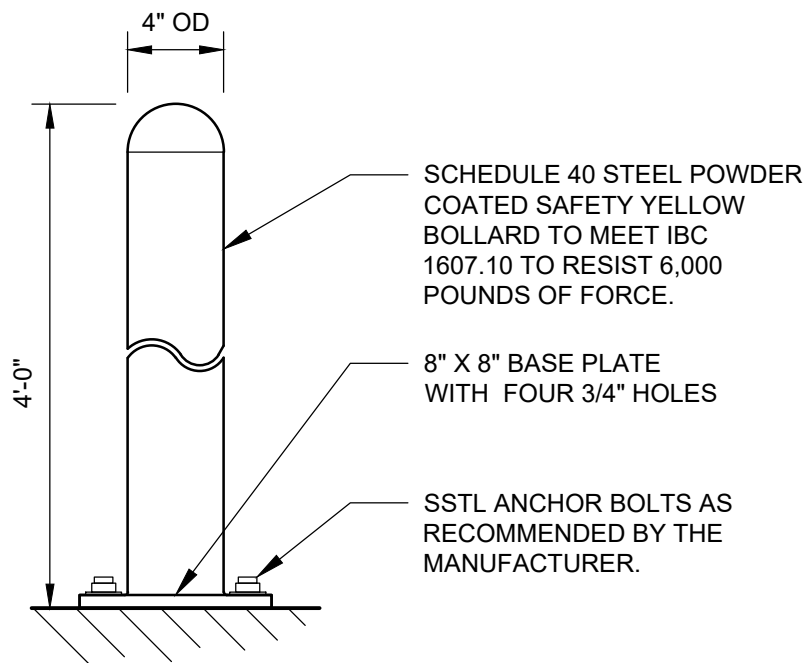
FLOOR PLAN AT EL.24.00

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



FLOOR PLAN AT EL. 9.70

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



1 BOLLARD DETAIL

SCALE: 1 1/2" = 1'-0"

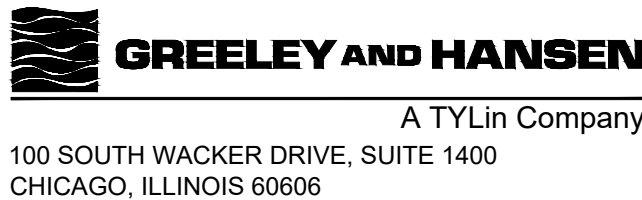
SIGNAGE SCHEDULE

TAG	DESCRIPTION	TYPE	QUANTITY	NOTES
01	ROOM NAME	ROOM SIGN	29	
02	NOT AN EXIT	WAYFINDING	2	
03	AREA OF REFUGE	WAYFINDING	1	
04	AREA OF REFUGE DIRECTIONAL ARROW	WAYFINDING	1	
05	AREA OF REFUGE CALL BUTTON INSTRUCTIONS	WAYFINDING	1	
06	FIRE EXTINGUISHER	SAFETY	6	SEE LIFE SAFETY DIAGRAMS
07	DEDICATION PLAQUE	INFO	1	MOUNT @ 60° AFF

MARKING AND SIGNAGE NOTES

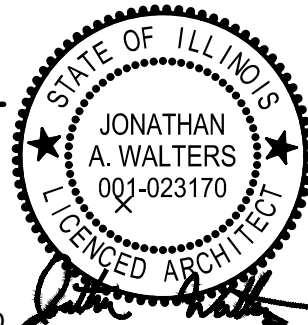
- SIGNAGE SCHEDULE INDICATES ARCHITECTURAL SIGNAGE AND IS PROVIDED FOR CONVENIENCE ONLY. CONTRACTOR TO PROVIDE ALL OTHER SIGNAGE REQUIRED BY CODE.
- REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL CODE REQUIRED SIGNAGE.
- SEE LIFE SAFETY DRAWINGS FOR LOCATIONS OF FIRE EXTINGUISHER SIGNAGE.
- PROVIDE NAMING ON ROOM SIGNS PER THE ROOM FINISH SCHEDULE.
- PROVIDE FLOOR MARKING STRIPS TO BE 4-INCHES WIDE. SPACE STRIPS 2-FEET APART ON CENTER AND AT AN ANGLE OF 45 DEGREES.
- PROVIDE AREA OF REFUGE STRIPING COMPLIANT WITH BUILDING CODE SECTION 1009.6.1.1.
- COORDINATE FINAL LOCATIONS OF BOLLARDS WITH ENGINEER PRIOR TO INSTALLATION.

BID SET

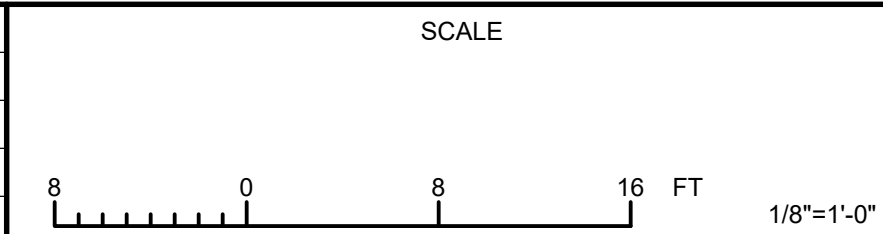


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DRAWN SG
CHECKED BS

DATE SIGNED: 01/31/2025
LICENSE EXPIRES: 11/30/2026
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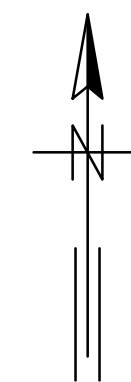
CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ARCHITECTURAL

FLOOR MARKINGS AND SIGNAGE

PROJECT NO.: 0028A
DWG: A19
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DATE: JANUARY 2025 REV: 0



DUCTWORK SYMBOLS				PIPING SYMBOLS			
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
DUCT WIDTH X DEPTH (FIRST DIMENSION IS DIMENSION SEEN)		AIR EXTRACTOR WITH ROD & LOCK		HEATING WATER SUPPLY		EXPANSION JOINT	
CHANGE OF ELEVATION RISE(R) DROP(D)		SUPPLY DUCT DOWN		HEATING WATER RETURN		PIPE FLOW DIRECTION	
VOLUME DAMPER		EXHAUST OR RETURN DUCT UP		COOLING WATER SUPPLY		PIPE PITCH DOWN (WITH RESPECT TO FLOW)	
REGISTER OR GRILLE		FLEXIBLE DUCT CONNECTION		COOLING WATER RETURN		PIPE PITCH UP (WITH RESPECT TO FLOW)	
* SEE MISCELLANEOUS DESIGNATIONS		FLEXIBLE DUCT		CHILLED WATER SUPPLY		PIPE CAPPED	
		ACCESS DOORS IN DUCT		CHILLED WATER RETURN		MANUAL AIR VENT	
RECTANGULAR DIFFUSER (SIZE GIVEN REFERS TO NECK SIZE)		DIRECTION OF AIR FLOW IN DUCT		LOW PRESSURE STEAM		AUTOMATIC AIR VENT	
ROUND DIFFUSER (SIZE GIVEN REFERS TO NECK SIZE)		DUCT SOUND ATTENUATOR		LOW PRESSURE CONDENSATE		PUMP SUCTION DIFFUSER	
LINEAR DIFFUSER		FIRE DAMPER (RATING NOTED IF OTHER THAN 1 1/2 HOUR)		MEDIUM PRESSURE STEAM			
OUTLET AIR DIRECTION		ACOUSTICAL LINING INSULATION		MEDIUM PRESSURE CONDENSATE		MISCELLANEOUS DESIGNATIONS	
INLET AIR DIRECTION		EQUIPMENT SYMBOLS		HIGH PRESSURE STEAM		DESCRIPTION	DESIGNATION
		DESCRIPTION	SYMBOL	HIGH PRESSURE CONDENSATE			
DUCT SECTION * S=SUPPLY AIR * OA=OUTSIDE AIR		CENTRIFUGAL FAN		FUEL OIL SUPPLY		BOTTOM OF DUCT ELEVATION	B/D EL
DUCT SECTION * E=EXHAUST AIR * RA=RETURN AIR		IN-LINE FAN		FUEL OIL RETURN		TOP OF DUCT ELEVATION	T/D EL
ROUND DUCT WITH TRANSITION TO RECTANGULAR DUCT		PROPELLER FAN		FUEL OIL FILL		INVERT ELEVATION	INV EL
SPLITTER DAMPER (WITH ROD & LOCK)		LOUVERED ROOF FAN EXHAUST, SUPPLY		FUEL OIL VENT		CENTERLINE ELEVATION	CL EL
TURNING VANES		ROOF MOUNTED FAN EXHAUST, SUPPLY		BOILER FEED		CUBIC FEET PER MINUTE	CFM
DEFLECTING (SPLITTER) DAMPER WITH ROD & LOCK		GRAVITY ROOF VENTILATOR EXHAUST, INTAKE		NATURAL GAS		THOUSAND BTU PER HOUR	MBH
		UNIT HEATER		LIQUIFIED PETROLEUM GAS		GRAVITY DAMPER	GD
				REFRIGERANT LIQUID		SPLITTER DAMPER	SD
				REFRIGERANT SUCTION		BACKDRAFT DAMPER	BDD
				REFRIGERANT DISCHARGE		BALL JOINT	BJ
				CONDENSATE PUMP DISCHARGE		NOT TO SCALE	NTS
				COMPRESSED AIR		OUTSIDE AIR INTAKE	OAI
				GLYCOL SUPPLY		NORMALLY OPEN	N.O.
				GLYCOL RETURN		NORMALLY CLOSED	N.C.
				PRESSURE & TEMPERATURE TEST PLUG		TYPICAL	TYP
				BALANCING VALVE		FLAT ON TOP	FOT
				MANUAL BALANCING & FLOW MEASURING VALVE		FLAT ON BOTTOM	FOB
				AUTOMATIC BALANCING & FLOW MEASURING VALVE		STAINLESS STEEL	SST
				TRIPLE DUTY VALVE		DIFFUSER	D
				RELIEF VALVE		REGISTER	R
				INLINE PUMP		CEILING DIFFUSER	CD
				BASE MOUNTED PUMP		SUPPLY DIFFUSER	SD
				PIPE GUIDE		CEILING REGISTER	CR
				PIPE ANCHOR		GRILLE	G
				FLOAT & THERMOSTATIC TRAP		WALL GRILLE	WG
						CEILING GRILLE	CG
						TRANSFER GRILLE	TG
						DRUM LOUVER	DL
						WALL DIFFUSER	WD
						WALL REGISTER	WR
						INDUSTRIAL RISK INSURERS	(IRI)

CCJM

C.C. Johnson & Malhotra, P.C.
Engineering Infrastructure Solutions

**GREELEY AND HANSEN**

A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

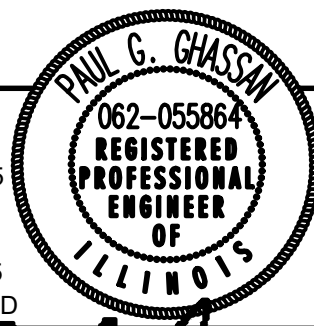
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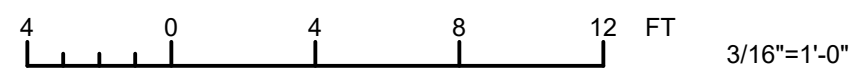
11/3

DATE
SIGNED:
01/31/2025
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EXPIRES:
11/30/2025
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NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

MECHANICAL

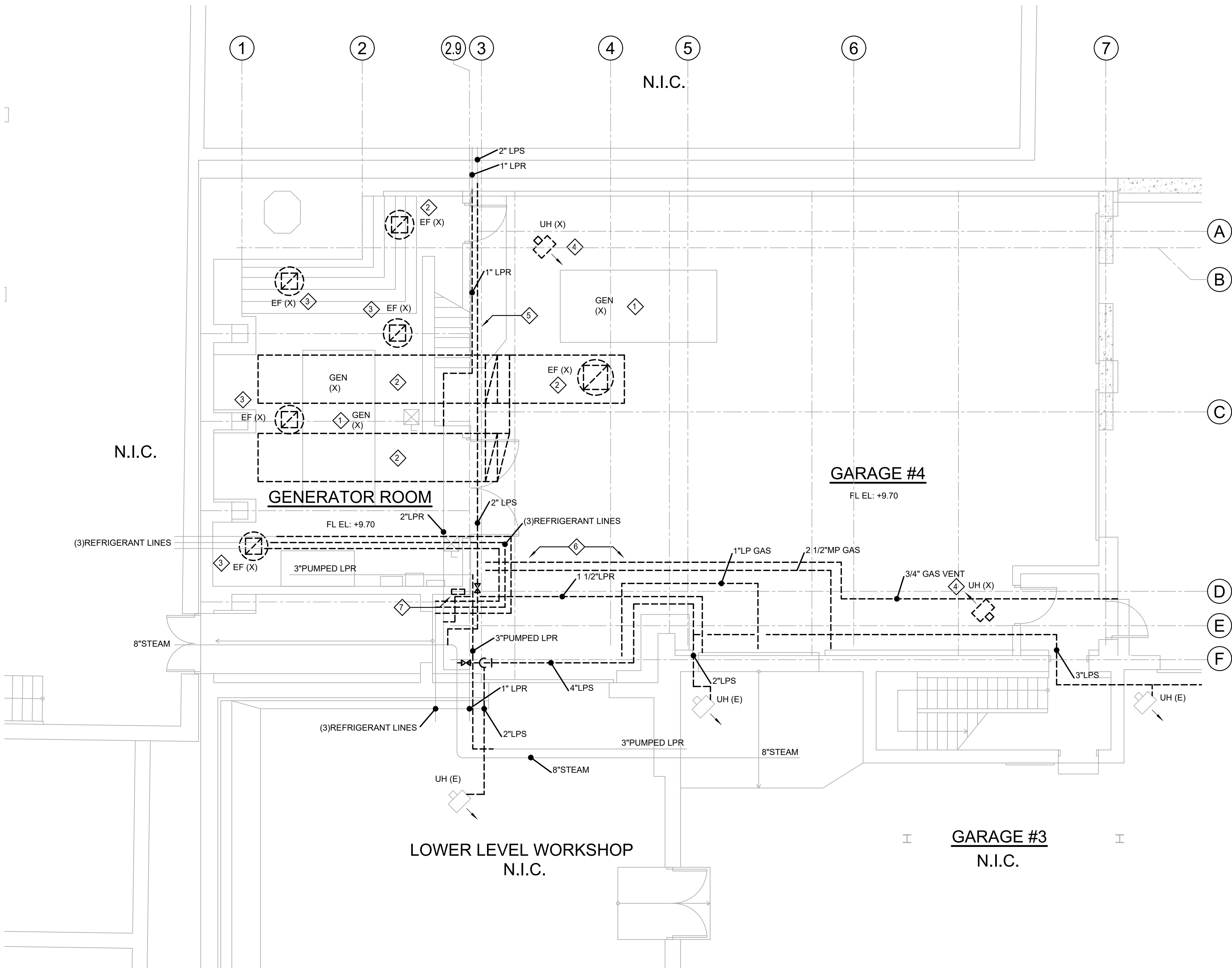
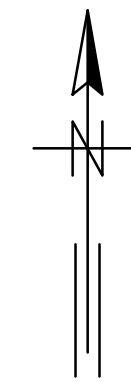
SYMBOLS NOTES & ABBREVIATIONS

PROJECT NO.: 0028A

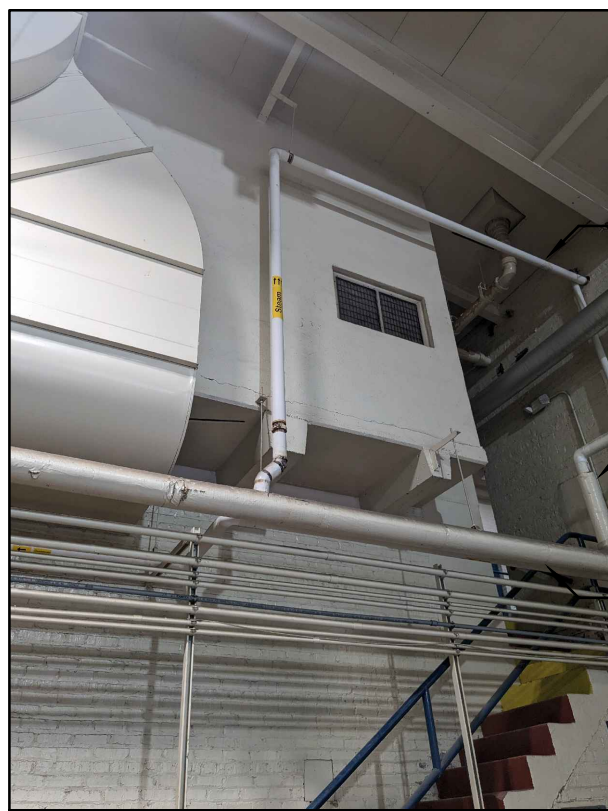
DWG: **H1**

SHEET: 53 OF 116

DATE: JANUARY 2025	REV: 0
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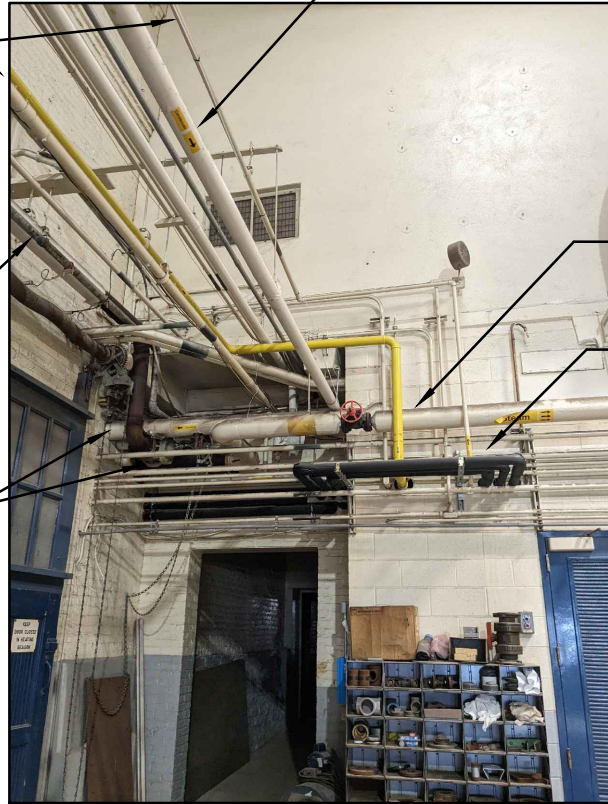
DEMOLITION FLOOR PLAN AT EL. 10.25
SCALE: 3/16"=1'-0"



PIC. #1

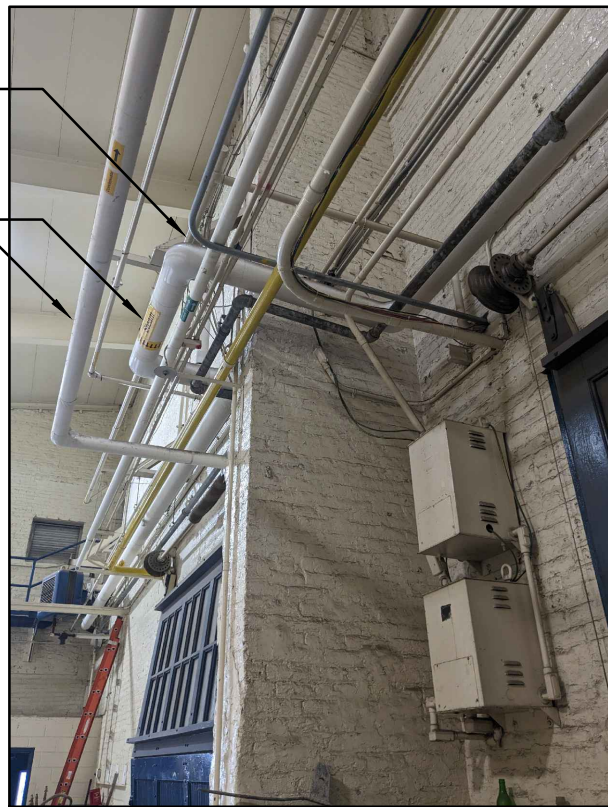
- REROUTE EXISTING 1" STEAM PIPE.
- REROUTE EXISTING 1" STEAM PIPE.
- REROUTE 2" EXISTING STEAM PIPE.

- REMOVE EXISTING 2-1/2" MP GAS PIPE AND 1" GAS VENT.
- REROUTE EXISTING 2" STEAM PIPE.
- REROUTE EXISTING 2" STEAM PIPE. (4" LPS)
- REROUTE EXISTING 1-1/2" STEAM PIPE.
- REROUTE EXISTING (3) REFRIGERANT PIPES.
- REROUTE EXISTING STEAM PIPES. (PUMPED 2" LPR. 1" LPR) EXISTING 8" STEAM MAIN TO REMAIN.



PIC. #2

- REROUTE EXISTING 1" LP GAS PIPE.
- REROUTE EXISTING STEAM PIPES (1 1/2" LPS, 1" LPR)



PIC. #3

PLAN NOTES:

- ALL RELOCATION WORK SHALL BE COORDINATED WITH PLANT OPERATION. CONTRACTOR SHALL PROVIDE 2-WEEK'S NOTICE TO THE CITY FOR PLANNED RELOCATIONS AND OUTAGE HOURS AND THE TIME OF YEAR IF IT IMPACTS PROCESS.

KEY NOTES:

- REMOVE EXISTING GENERATORS FLUES, GAS PIPES AND VENT. COOLING WATER PIPES, INCLUDING CONTROLS, UP TO POINTS OF NEW CONNECTIONS. REFER TO NEW WORK PLAN. PATCH UNUSED ROOF/WALL OPENINGS.
- REMOVE EXISTING GENERATOR ROOM/GARAGE SPACE VENTILATION SYSTEMS, INCLUDING (2) ROOF EXHAUST FANS, DUCTS, LOUVERS, CONTROLS. PATCH UNUSED ROOF/WALL OPENINGS.
- REMOVE EXISTING 2ND FLOOR ELECTRICAL ROOM VENTILATION SYSTEMS, INCLUDING (2) EXHAUST FANS AND (2) ROOF VENTS, (2) ROOF INTAKE HOODS, DUCTS, LOUVERS, CONTROLS. PATCH UNUSED ROOF/WALL OPENINGS.
- REMOVE EXISTING (2) GARAGE SPACE HEATING STEAM HEATERS, REMOVE ASSOCIATED BRANCH STEAM PIPES, CONTROLS.
- EXISTING ACTIVE STEAM PIPES (LPS, LPR) LOCATED WITHIN FUTURE MV ELECTRICAL ROOM SHALL BE REMOVED AND REROUTED AS SHOWN. (SEE PIC. #1)
- EXISTING VARIOUS ACTIVE PIPES (STEAMS, LP GAS, REFRIGERANT LINES) LOCATED NEAR SOUTH WALL IN CONFLICT WITH FUTURE FLOOR ADDITION SHALL BE REMOVED AND REROUTED AS SHOWN. REMOVE INACTIVE MP GAS AND GAS VENT PIPES ASSOCIATED WITH GENERATORS DEMOLITION AS SHOWN. (SEE PIC. #2, #3) SEE ELECTRICAL AND PLUMBING PLANS FOR ADDITIONAL PIPES/CONDUITS TO BE REROUTED.
- REROUTE EXISTING REFRIGERANT DISCHARGE OUTDOORS AND DEMO EXISTING REFRIGERANT ALARM SYSTEM.

LEGEND:

- OR (E) EXISTING DEVICE OR EQUIPMENT TO REMAIN
- - - - OR (X) EXISTING DEVICE OR EQUIPMENT TO BE REMOVED

CCJM

C.C. Johnson & Malhotra, P.C.
Engineering Infrastructure Solutions



GREELEY AND HANSEN

A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

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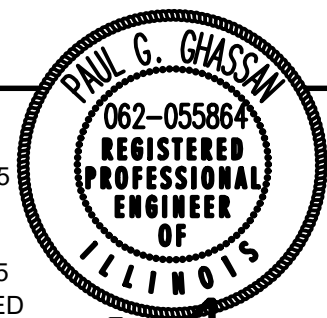
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NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

4 0 4 8 12 FT
3/16"=1'-0"

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

MECHANICAL

DEMOLITION FLOOR PLAN AT EL. 10.25

PROJECT NO.: 0028A

DWG:

H2

SHEET:

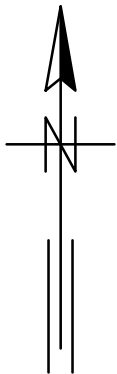
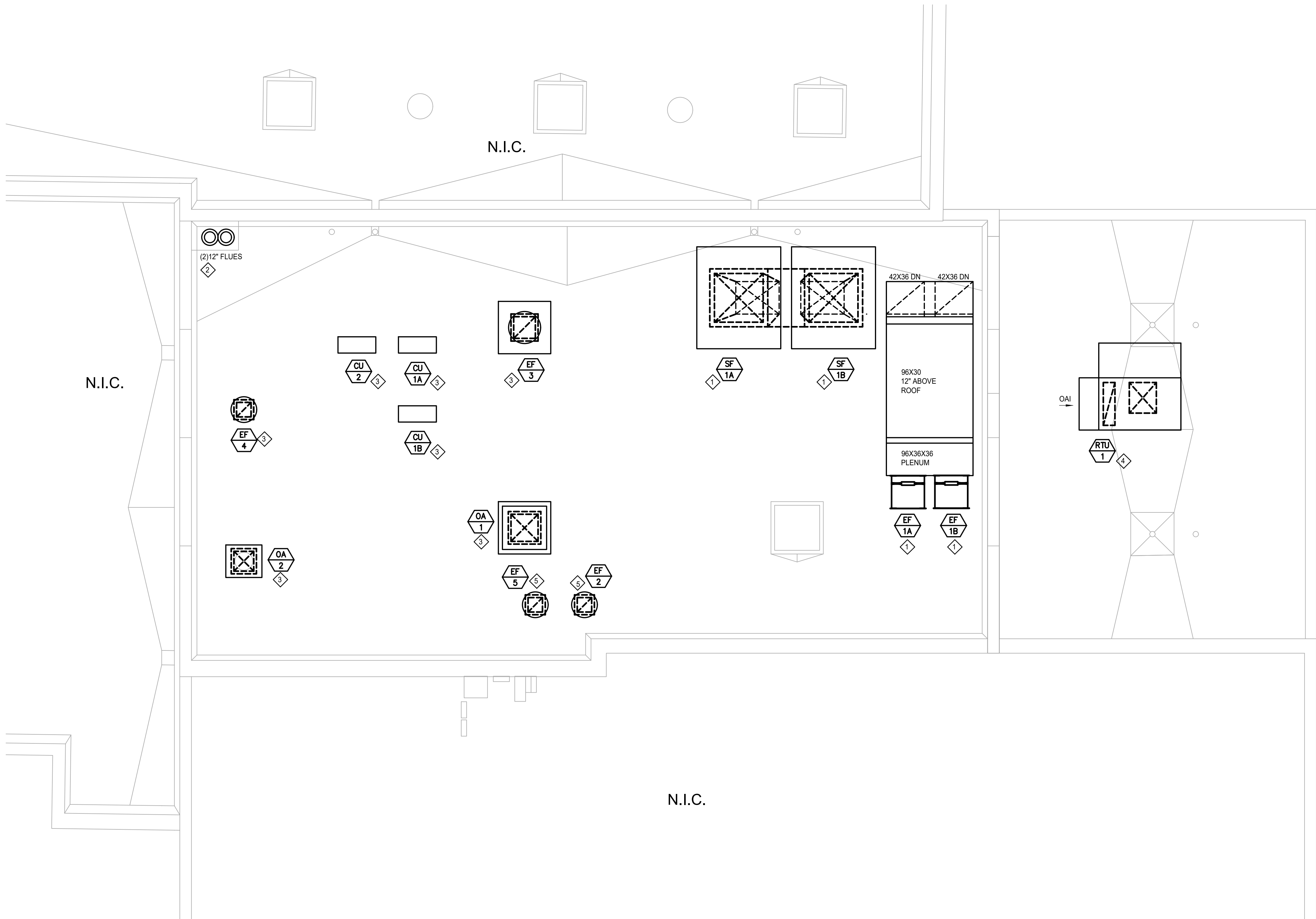
54

OF 116

DATE:

JANUARY 2025

REV: 0



- KEY NOTES:**
- 1. INSTALL GENERATOR ROOM COOLING AND COMBUSTION AIR SUPPLY AND EXHAUST SYSTEM AS SHOWN. ALL SUPPLY AND EXHAUST DUCTS SHALL BE LINED. COORDINATE ROOF OPENINGS WITH STRUCTURAL.
 - 2. INSTALL GENERATOR FLUES AS SHOWN. PROVIDE THIMBLES AT ROOF PENETRATION. TERMINATE FLUES MINIMUM 6" ABOVE ROOF WITH RAIN CAP. PROVIDE GUY WIRE SUPPORT.
 - 3. INSTALL ELECTRICAL ROOMS DX COOLING AND VENTILATION SYSTEM AS SHOWN.
 - 4. INSTALL UNOCCUPIED OFFICE SPACE RTU, DUCT, CONTROLS AS SHOWN.
 - 5. INSTALL GARAGE AND STORAGE ROOM VENTILATION SYSTEMS AS SHOWN. COORDINATE ROOF OPENINGS WITH STRUCTURAL.

- PLAN NOTES:**
- 1. ALL DUCTWORK, FLUES SUPPORTS SERVING GENERATOR ROOM SHALL BE PROVIDED WITH VIBRATION ISOLATORS.
 - 2. INSTALL ROOF EXHAUST FAN (EF-3, EF-4) AND OA INTAKE (OA-1, OA-2) UTILIZE EXISTING ROOF OPENING FROM REMOVED ROOF FANS AND SKYLIGHTS. COORDINATE AND PROVIDE NECESSARY ADAPTERS AND MODIFICATION.
 - 3. PROVIDE 30" HEIGHT COMMON ROOF CURB FOR SF-1A AND SF-1B. PROVIDE TRANSITION DUCTS WITHIN ROOF CURB FROM DUCT SHAFTS TO FAN UNITS. COORDINATE WITH STRUCTURAL FOR ROOF OPENING LOCATIONS.

ROOF PLAN AT EL. 33.0
SCALE: 3/16"=1'-0"

CCJM

C.C. Johnson & Malhotra, P.C.
Engineering Infrastructure Solutions



GREELEY AND HANSEN

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100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

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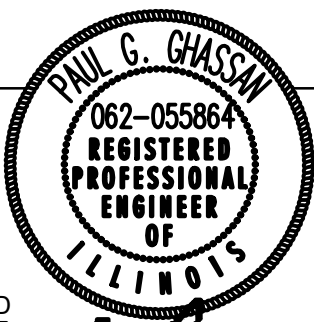
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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

MECHANICAL

HVAC ROOF PLAN AT EL. 33.00

PROJECT NO.: 0028A

DWG:

H5

SHEET:

57

OF

116

DATE:

JANUARY 2025

REV: 0

BID SET

FAN AND HOOD SCHEDULE

SYMBOL	SERVICE	CFM	S.P. IN. W.C.	FAN RPM	DRIVE	DAMPER	CURB TYPE	ELECTRICAL						MANUFACTURER	MODEL	REMARKS	
								BHP	MHP	VOLT- PHASE	DISCONNECT		CONTROLLER/STARTER				
											BY	TYPE	BY				TYPE
EF-1A/EF-1B	GENERATOR ROOM	15000/7500	0.75	860.0	BELT	MOD	Y	3.180	5.000	480-3	EC	NF	EC	VFD	GREENHECK	AX90-275-0620	1
SF-1A/SF-1B	GENERATOR ROOM	18000/9000	0.5	860.0	BELT	MOD	Y	3.910	5.000	480-3	EC	NF	EC	VFD	GREENHECK	RCS3-48-623C	1
EF-2	GARAGE #4	1800/200	0.75	1566.0	DIRECT	MOD	Y	0.470	1.000	208-1	EC	NF	EC	FV	GREENHECK	G-140-VG	2
EF-3	MV ELEC ROOM	3,000	0.5	933.0	DIRECT	MOD	Y	0.520	1.000	208-1	EC	NF	EC	FV	GREENHECK	G-180-VG	3
EF-4	LV ELEC	2,000	0.5	1290.0	DIRECT	MOD	Y	0.440	0.750	208-1	EC	NF	EC	FV	GREENHECK	G-140-VG	3
EF-5	STORAGE ROOM	1,800	0.75	1566.0	DIRECT	MOD	Y	0.470	1.000	208-1	EC	NF	EC	FV	GREENHECK	G-140-VG	3
OA-1	MV ELEC ROOM	3,000	0.1			MOD	Y								GREENHECK	FGI-28x28	4
OA-2	LV ELEC	2,000	0.1			MOD	Y								GREENHECK	FGI-24x24	4

- NOTES:
1. PROVIDE THERMOSTAT FOR FAN SPEED CONTROL. INTERLOCK WITH GENERATOR OPERATION.
 2. PROVIDE THERMOSTAT AND COINQ2 DETECTOR FOR FAN SPEED CONTROL. INTERLOCK WITH OA DAMPER. LOWER AIRFLOW IS FOR CONTINUOUS OPERATION.
 3. PROVIDE THERMOSTAT FOR FAN CONTROL. INTERLOCK WITH OA DAMPER.
 4. INTRELOCKED WITH RESPECTIVE EXHAUST FANS.

SPLIT SYSTEM INDOOR UNIT SCHEDULE - DIRECT EXPANSION

SYMBOL	SERVICE	CFM	EXT. S.P. IN. W.C.	REFRIGERANT COOLING COIL						FILTERS		ELECTRICAL				MANUFACTURER	MODEL	NOTES
				COIL TYPE & REFRIGERANT	# OF CIRCUITS	EAT		MBH		TYPE	VOLT- PHASE	MCA	MOCP AMPS	DISCONNECT	CONTROLLER/STARTER			
						*FDB	*FWB	TOTAL	SENSIBLE					BY	BY			
AC-1A/1B	MV ELEC ROOM	850	0.0	DX/R410A	1	80	68	41	28	MERV 7	208-1	1.4	15.0	MFR	MFR	DAIKIN	FHQ42PVJU	1
AC-2	LV ELEC ROOM	830	0.0	DX/R410A	1	80	68	36	25	MERV 7	208-1	1.4	15.0	MFR	MFR	DAIKIN	FHQ30PVJU	1

- NOTES:
1. SYSTEMS SHALL BE DISABLED WHEN OUTDOOR TEMPERATURE IS BELOW 60 F. PROVIDE OUTDOOR TEMPERATURE SENSORS.

CONDENSING UNIT SCHEDULE

SYMBOL	SERVICE	NOMINAL DESIGN TONS	REFRIGERANT	AMBIENT TEMP. °F	MINIMUM AMBIENT TEMP. °F	NUMBER OF COMPRESSORS	CAPACITY CONTROL	SEER	NUMBER OF FANS	ELECTRICAL					MANUFACTURER	MODEL	NOTES	
										VOLT- PHASE	MCA	MOCP AMPS	DISCONNECT					CONTROLLER/STARTER
													BY	TYPE				BY
CU-1A/1B	MV ELEC ROOM	3.5	R410A	95	25	1	15-100	14	1	208-1	29.1	35.0	EC	NF	MFR	DAIKIN	RZR42TAVJUA	
CU-2	LV ELEC ROOM	3.0	R410A	95	25	1	15-100	14	1	208-1	29.1	35.0	EC	NF	MFR	DAIKIN	RZR36TAVJUA	

UNIT HEATER AND WALL HEATRER SCHEDULE - ELECTRIC

SYMBOL	SERVICE	CFM	STAGES	KW PER STAGE	ELECTRICAL						MANUFACTURER	MODEL	NOTES
					FAN HP	KW	VOLT- PHASE	DISCONNECT		CONTROLLER/STARTER			
								BY	TYPE	BY			
UH-1	GARAGE #4	1,320	1	20.0	0.10	20.0	480-3	MFR.	NF	TC	QMARK	MUH-20-4	1
UH-2	GARAGE #4	1,320	1	20.0	0.10	20.0	480-3	MFR.	NF	TC	QMARK	MUH-20-4	1
UH-3	GENERATOR ROOM	650	1	10.0	0.03	10.0	480-3	MFR.	NF	TC	QMARK	MUH-10-4	1
UH-4	GENERATOR ROOM	650	1	10.0	0.03	10.0	480-3	MFR.	NF	TC	QMARK	MUH-10-4	1
UH-5	LV ELEC ROOM	350	1	3.0	0.03	3.0	480-3	MFR.	NF	TC	QMARK	MUH-03-41	1
UH-6	MV ELEC ROOM	350	1	3.0	0.03	3.0	480-3	MFR.	NF	TC	QMARK	MUH-03-41	1

- NOTES:
1. WALL MTD THERMOSTAT.

GRILLES REGISTERS & DIFFUSERS SCHEDULE

SYMBOL	MAT'L	TYPE	MARGIN	INLET SIZE (INCH)	FACE SIZE (INCH)	VOLUME DAMPER REQ'D	FINISH	MANUFACTURER	MODEL	NOTES
SG	STEEL	DOUBLE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	300R	
RG	STEEL	35° DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350R	
EG	STEEL	35° DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350R	

- NOTES:
1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.
 2. ALL RUN OUT DUCTWORK TO DIFFUSERS SHALL BE NECK SIZE UNLESS OTHERWISE NOTED.

ROOFTOP AIR HANDLING UNIT
SCHEDULE - ELECTRIC

SYMBOL	RTU-1	
SERVICE	MULTI-PURPOSE ROOM	
SUPPLY FAN		
CFM	2,600	
MINIMUM CFM	1,500	
EXTERNAL STATIC PRESSURE	1.50	
BHP	1.49	
MHP	4	
MINIMUM OUTSIDE AIR CFM	520	
HEATING - ELEC		
KW	36	
STAGES	4	
CAPACITY (MBH)	122.9	
COOLING COIL - DX		
EAT °F DB	80.0	
EAT °F WB	67.0	
MAX. LAT °F DB	55.6	
LAT °F WB	55.6	
TOTAL MBH	93.0	
AMBIENT TEMPERATURE °F	95.0	
REFRIGERANT	R410A	
MINIMUM EFFICIENCY (eer)	12.2	
CIRCUITING	2	
FILTER		
TYPE	MERV 8	
ROOF CURB	MFR	
ELECTRICAL		
VOLT-PHASE	480-3	
MCA	65.60	
MOCP AMPS	70	
DISCONNECT BY	EC	
DISCONNECT TYPE	NF	
CONTROLLER/STARTER BY	MFR	
CONTROLLER/STARTER TYPE	DDC	
MANUFACTURER	DAIKIN	
MODEL NUMBER	DPS007A	
NOTES	1	

- NOTES:
1. VAV WITH DUCT SP CONTOL. ECONOMIZER WITH BUILDING PRESSURE CONTROL.

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Engineering Infrastructure Solutions



GREELEY AND HANSEN

A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

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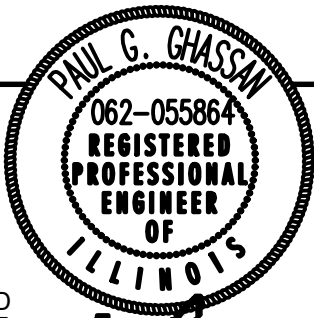
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11/30/2025
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DATE

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REVISION DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

MECHANICAL

SCHEDULES

PROJECT NO.: 0028A

DWG:

H6

SHEET:

58

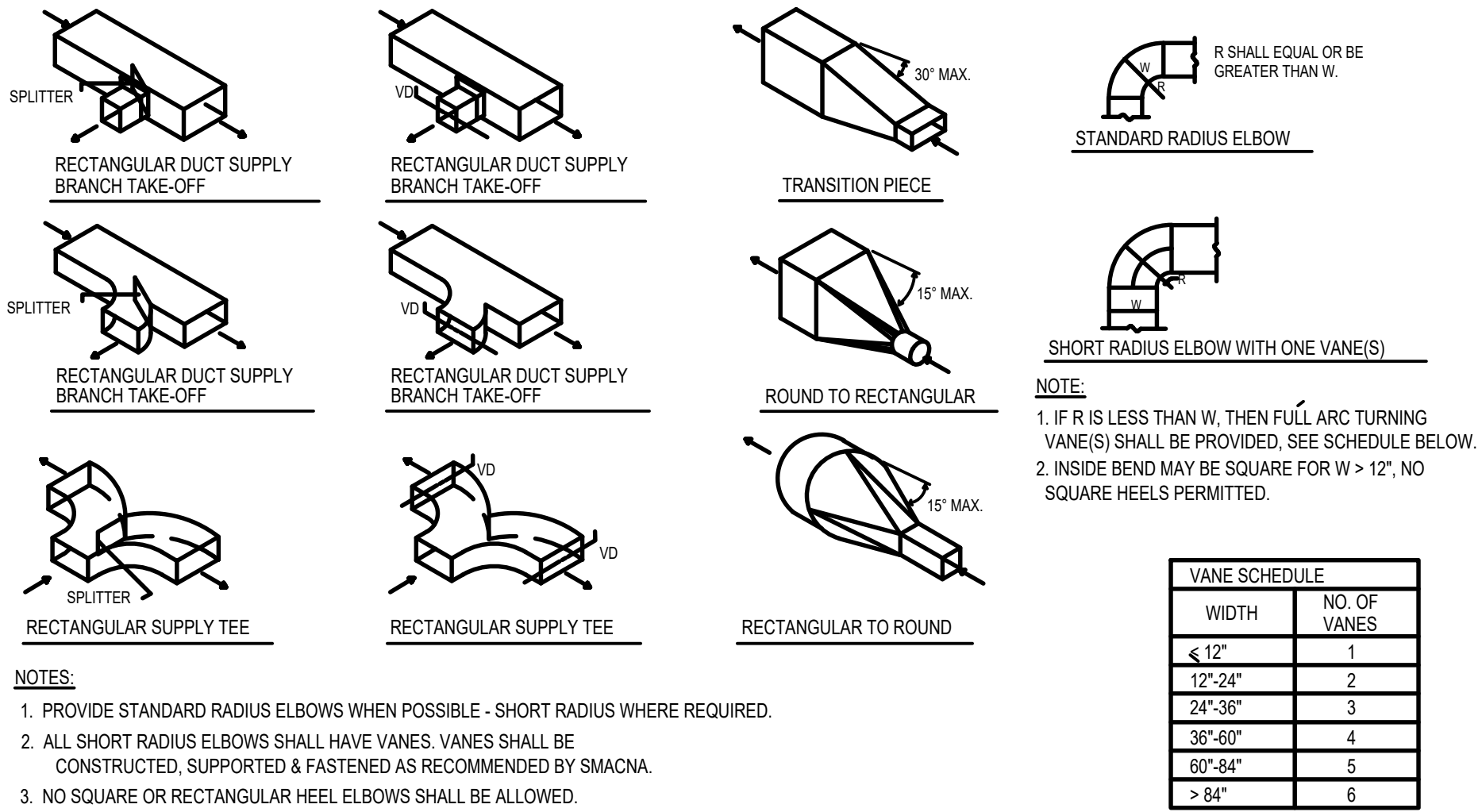
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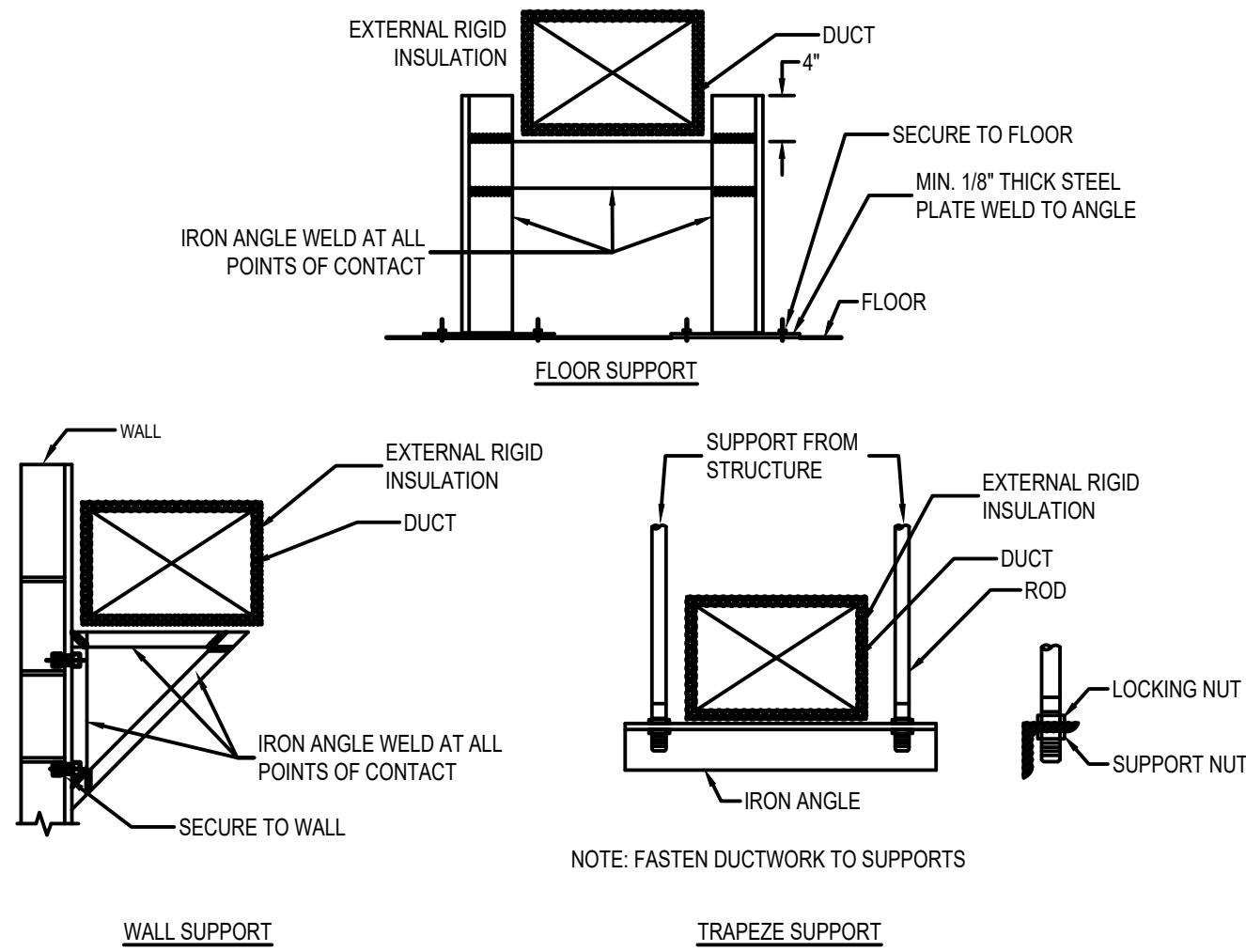
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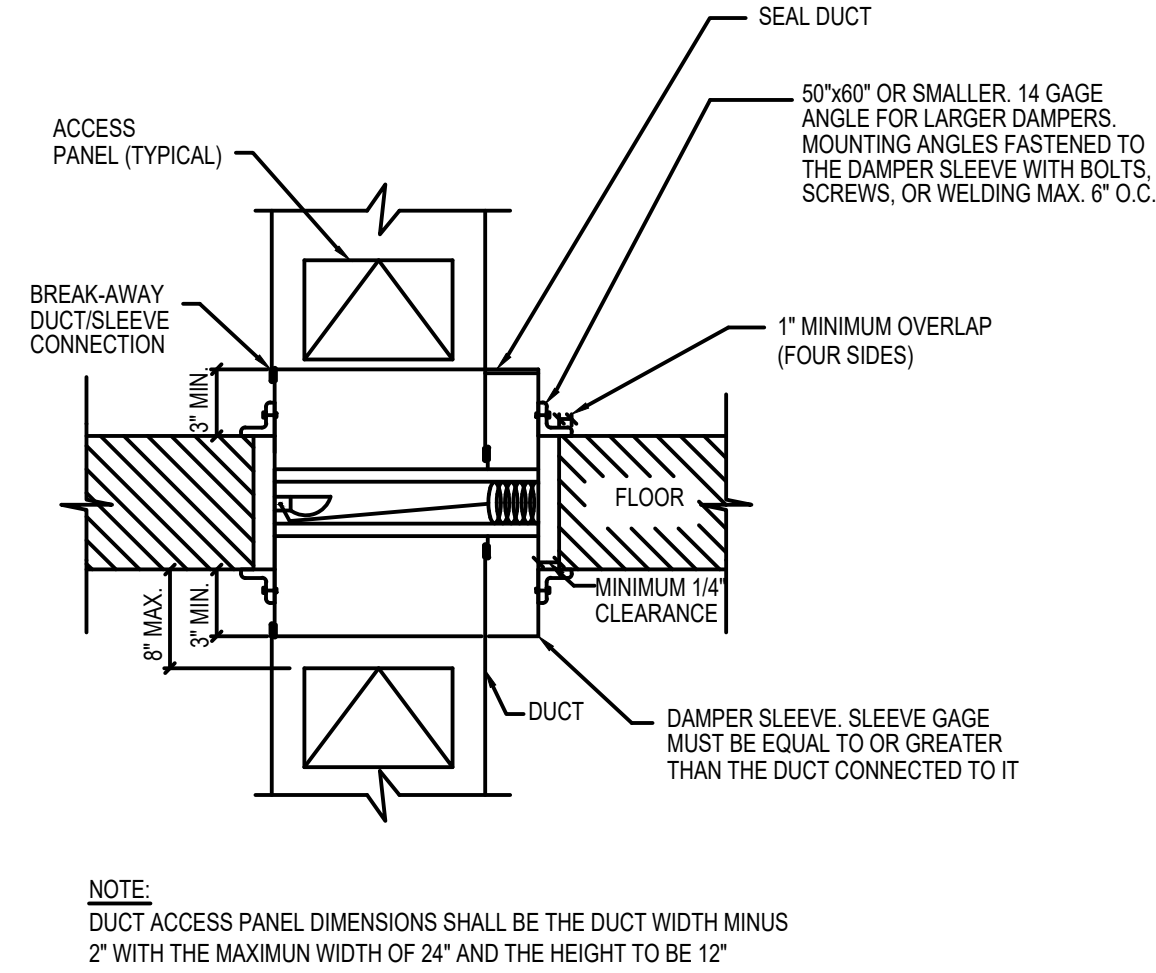
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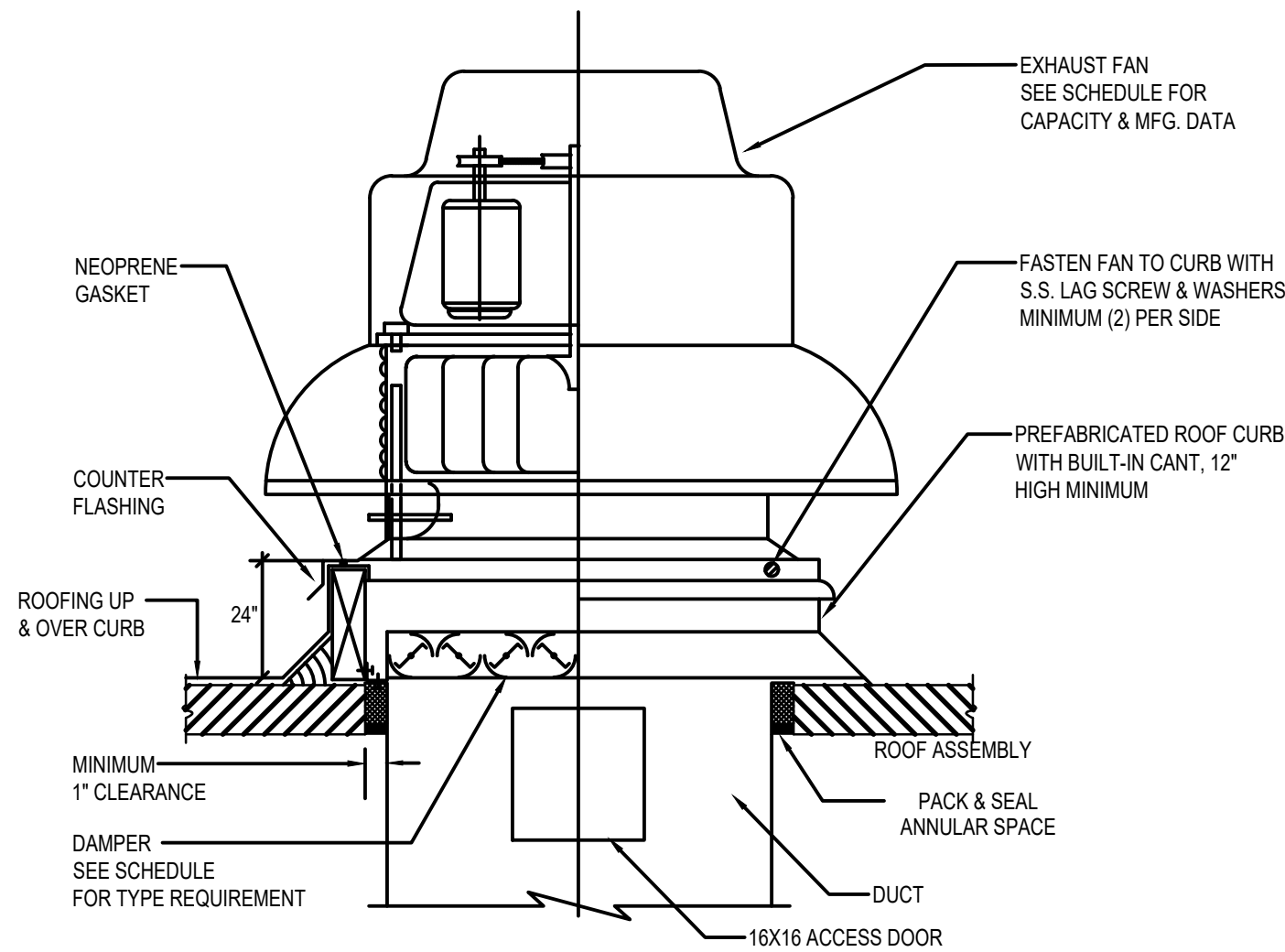
1 **TYPICAL DUCT DETAILS**
SCALE: N.T.S



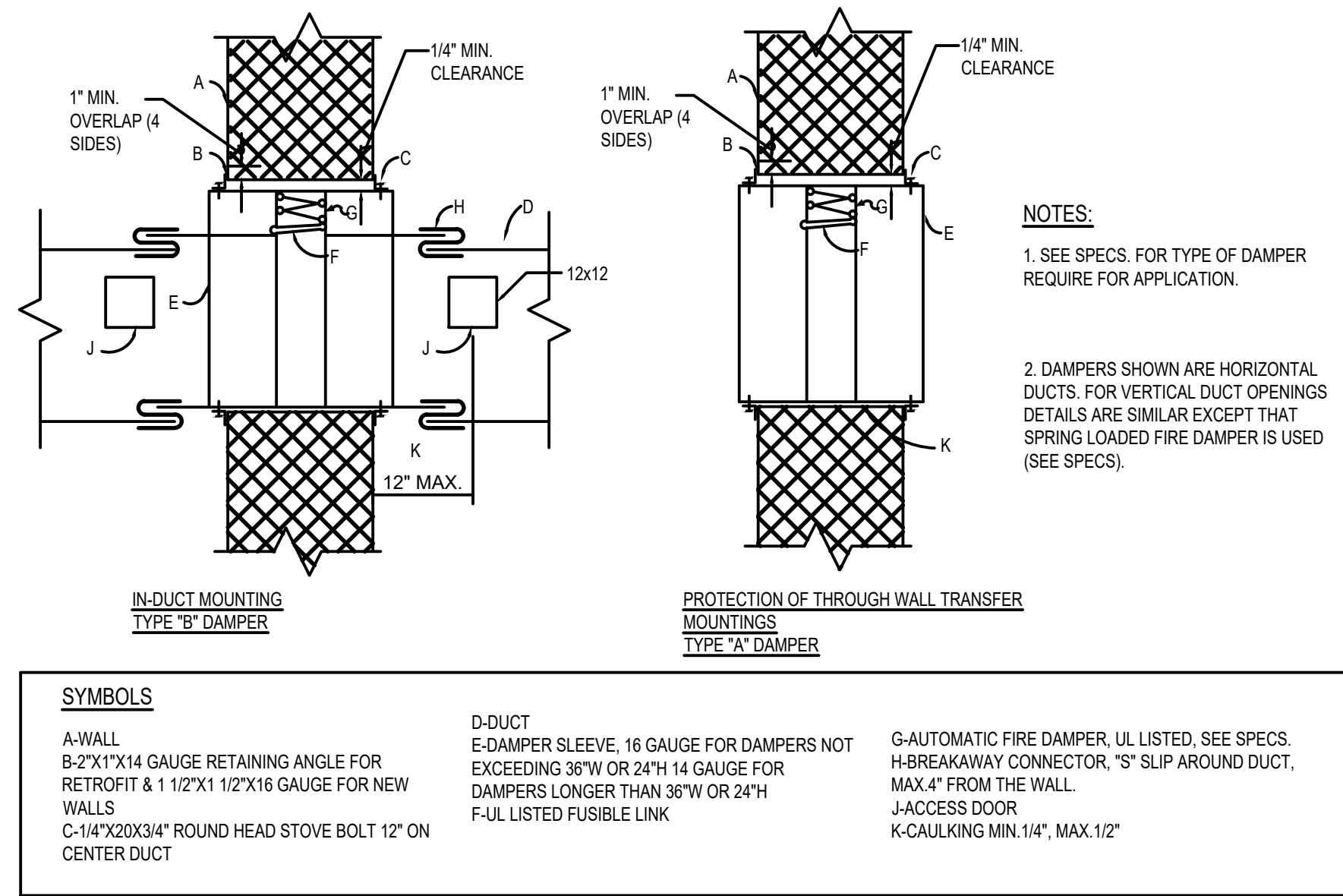
2 **INTERIOR DUCTWORK SUPPORT DETAIL**
SCALE: N.T.S



3 **TYPICAL FIRE DAMPER IN FLOOR**
SCALE: N.T.S



4 **ROOF EXHAUST FAN DETAIL**
SCALE: N.T.S



5 **AUTOMATIC DYMANIC FIRE DAMPERS**
SCALE: N.T.S

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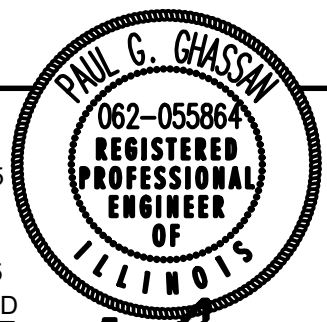
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WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

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DETAILS

PROJECT NO.: 0028A

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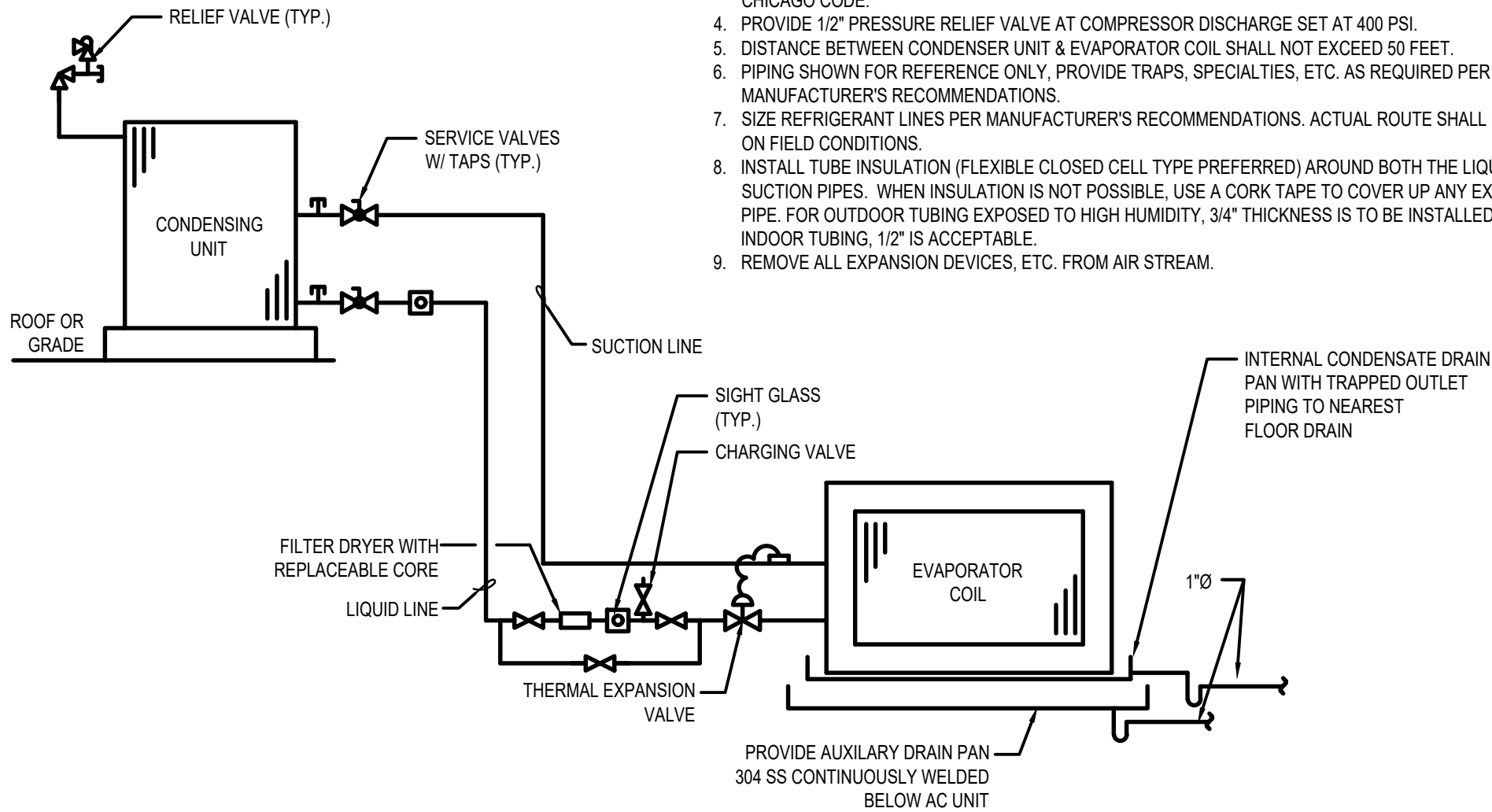
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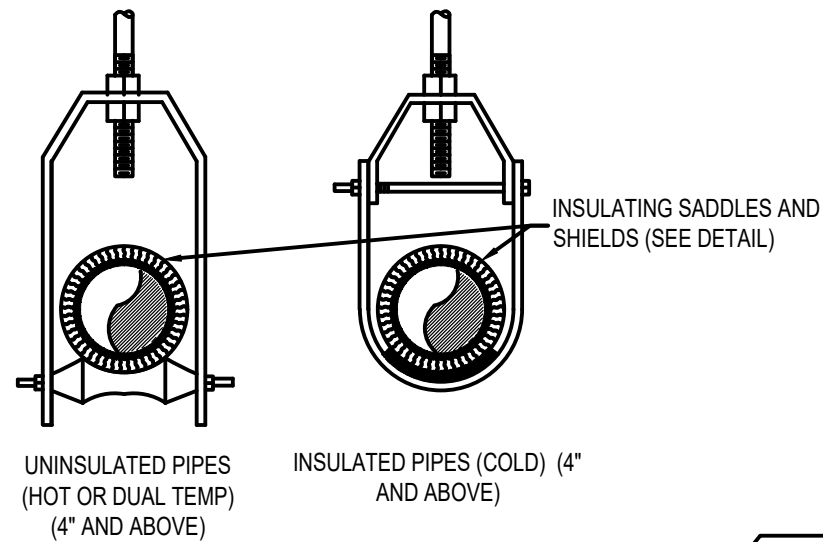
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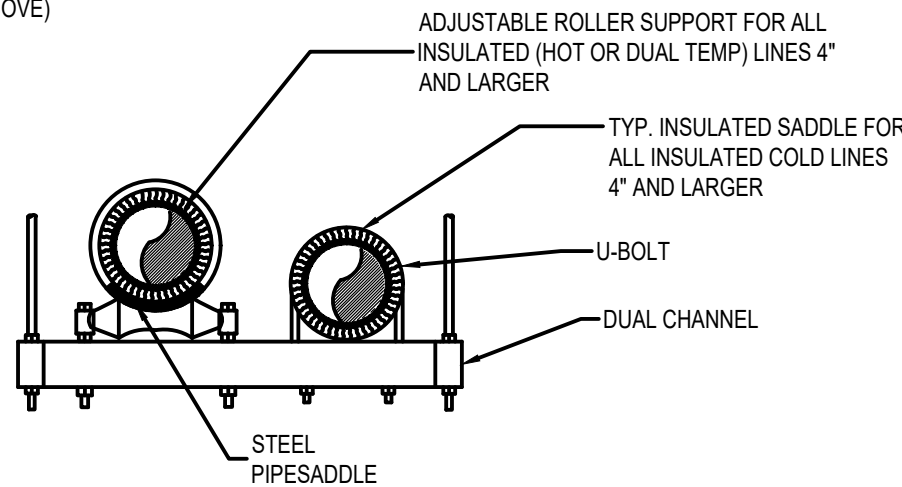
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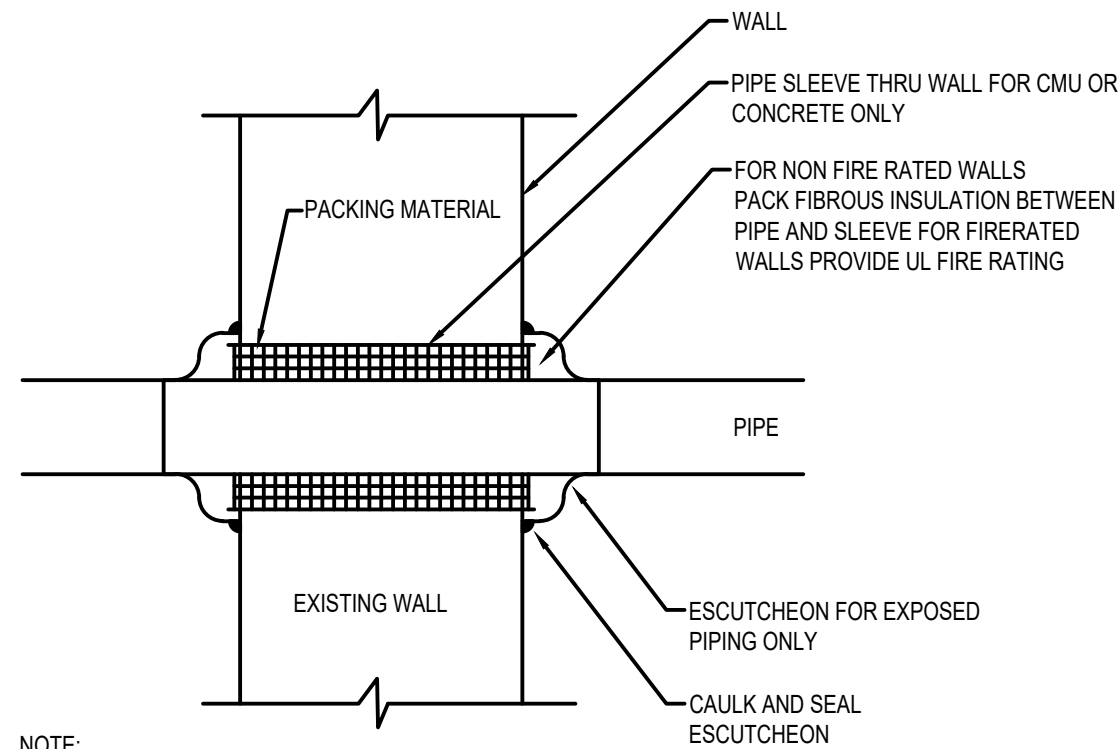
- NOTES:
1. INSTALL PRESSURE RELIEF VALVE ON HIGH PRESSURE SIDE OF SYSTEM, UPSTREAM OF ANY INTERVENING VALVES.
 2. REFRIGERATION PIPING TO BE TYPE "ACR" OR "K" COPPER.
 3. ALL CONNECTIONS AND DEVICES TO BE BRAZED WITH SILVER SOLDER AS APPROVED BY CITY OF CHICAGO CODE.
 4. PROVIDE 1/2" PRESSURE RELIEF VALVE AT COMPRESSOR DISCHARGE SET AT 400 PSI.
 5. DISTANCE BETWEEN CONDENSER UNIT & EVAPORATOR COIL SHALL NOT EXCEED 50 FEET.
 6. PIPING SHOWN FOR REFERENCE ONLY, PROVIDE TRAPS, SPECIALTIES, ETC. AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS.
 7. SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. ACTUAL ROUTE SHALL BE BASED ON FIELD CONDITIONS.
 8. INSTALL TUBE INSULATION (FLEXIBLE CLOSED CELL TYPE PREFERRED) AROUND BOTH THE LIQUID AND SUCTION PIPES. WHEN INSULATION IS NOT POSSIBLE, USE A CORK TAPE TO COVER UP ANY EXPOSED PIPE. FOR OUTDOOR TUBING EXPOSED TO HIGH HUMIDITY, 3/4" THICKNESS IS TO BE INSTALLED. FOR INDOOR TUBING, 1/2" IS ACCEPTABLE.
 9. REMOVE ALL EXPANSION DEVICES, ETC. FROM AIR STREAM.



- NOTE:
1. CONTRACTOR SHALL SIZE THE CHANNEL MEMBERS FOR THE LOADS TO BE SUPPORTED SO AS NOT TO EXCEED A MAXIMUM DEFLECTION OF 1/240 OF THE SPAN BETWEEN HANGER RODS
 2. SEE PIPE COVERING PROTECTION SHIELD AND PIPE SADDLES. 230529-MD-16



2 PIPE SUPPORT AND HANGER DETAIL
SCALE: N.T.S



- NOTE:
1. PIPE SHALL BE SUPPORTED ON EITHER SIDE OF WALL. PIPE SUPPORT SHALL BE COMPLETELY INDEPENDENT OF WALL.

3 PIPE THRU WALL DETAIL
SCALE: N.T.S

1 SPLIT SYSTEM REFRIGERANT PIPING DIAGRAM
SCALE: N.T.S

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WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

MECHANICAL

DETAILS

PROJECT NO.: 0028A

DWG:

H8

SHEET:

60 OF 116

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REV: 0

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GENERAL PLUMBING NOTES:

ALL THE FOLLOWING NOTES APPLIES TO ALL PLUMBING DRAWINGS.

- EACH TRADE CONTRACTOR SHALL VISIT CONSTRUCTION SITE PRIOR TO BIDDING, EXAMINE SCOPE AND CONDITIONS OF OTHER CONTRACT WORK, EXAMINE EXISTING CONDITIONS AND ALL INTERFERENCES AND REQUIRED COORDINATION IN ORDER TO INCLUDE EFFECT OF SAID CONDITIONS IN THEIR BID. BID DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE ALL REQUIRED RELOCATIONS, OFFSETS, CHANGE IN ASPECT RATIOS, OR ROUTING CHANGES REQUIRED TO INTEGRATE WORK WITH ALL OTHER CONDITIONS OR TRADES. WORK INSTALLED BEFORE COORDINATING SO AS TO CAUSE INTERFERENCES WITH OTHER TRADES SHALL BE REMOVED AND REWORKED WITHOUT COST TO OWNER. COST OF PROVIDING SUCH RELOCATIONS, OFFSETS, SIZE CHANGES, REROUTING, ETC. SHALL BE INCLUDED IN BID. CODE CONFORMING SCALED (1/4") COORDINATED DRAWINGS SHALL BE PREPARED BY EACH TRADE TO FACILITATE AND VERIFY FIT AND CONGRUENCE OF THEIR INSTALLATION WITH OTHER TRADES.
- THIS CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL EQUIPMENT IN ACCORDANCE WITH THE ILLINOIS PLUMBING CODE. AFTER EACH WORK DAY, CONTRACTOR SHALL CLEAN ALL WORK AREAS AND REMOVE ALL DEBRIS.
- THIS CONTRACTOR SHALL PAY ALL PERMIT FEES, PLAN REVIEW FEES, LICENSE FEES, INSPECTIONS FEES AND TAXES APPLICABLE TO THEIR DIVISION AND SHALL BE INCLUDED IN THE BASE BID AS PART OF THEIR CONTRACT.
- CONTRACTOR SHALL SUBMIT SCALED, LAYOUT DRAWINGS (SHOP DRAWINGS) OF PIPE AND FITTINGS INCLUDING (BUT NOT LIMITED TO) PIPE SIZES, LOCATIONS, ELEVATIONS AND SLOPES OF HORIZONTAL RUNS, WALL AND FLOOR PENETRATIONS AND CONNECTIONS. IN ADDITION, SHOP DRAWINGS SHALL INDICATE THE INTERFACE AND SPATIAL RELATIONSHIPS BETWEEN PIPING AND APPROXIMATE EQUIPMENT.
- THIS CONTRACTOR SHALL FURNISH AS-BUILT CONTRACT DOCUMENTS TO THE OWNER / ENGINEER BEFORE FINAL PAYMENT WILL BE ISSUED. THE CONTRACT RECORD DOCUMENTS SHALL BE SUBMITTED IN AUTOCAD DRAWINGS FORM. EXACT RISER AND UNIT SHUT-OFF VALVE LOCATIONS ARE REQUIRED. PROVIDE DIMENSION OF EACH RISER FROM WALL AND VALVES HEIGHT DIMENSION FROM FLOOR.
- THIS CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIAL FOR ONE YEAR AFTER COMPLETION AGAINST ALL DEFECTS OF MATERIAL, EQUIPMENT AND WORKMANSHIP.
- THIS CONTRACTOR SHALL PROVIDE ALL MINOR ITEMS WHICH ARE OBVIOUSLY AND REASONABLY NECESSARY TO COMPLETE THE INSTALLATION AND USUALLY INCLUDED IN SIMILAR WORK EVEN THOUGH NOT NECESSARILY MENTIONED IN THE CONTRACT DOCUMENTS. SUCH ITEMS INCLUDE NUTS AND BOLTS, ANCHORS, HANGERS, BRACKET SLEEVES, MINOR OFFSETS IN PIPING BECAUSE OF UNFORESEEN CONDITIONS, ETC.
- CONTRACTOR SHALL PROVIDE A WRITTEN "REQUEST FOR INFORMATION" TO THE ARCHITECT AND/OR ENGINEER TO ALLOW FOR CLARIFICATION ANY INCONSISTENCIES THAT MAY APPEAR ON THE CONTRACT DOCUMENTS AND SPECIFICATIONS.
- PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED ILLINOIS PLUMBING CODE REQUIREMENTS.
- PLUMBING CONTRACTOR SHALL CONFER AND COORDINATE CLEARANCES, CHASES, RECESSES AND OPENINGS WITH OTHER TRADES FOR THIS WORK.
- DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS UNLESS SPECIFICALLY DIMENSIONED. COORDINATE THE WORK WITH ALL TRADES TO AVOID INTERFERENCE. PLUMBING WORK THAT IS INSTALLED WHICH INTERFERES WITH THE WORK OF OTHER TRADES OR DEVIATES FROM THE SPACE PROVIDED BY THE ARCHITECT DUE TO THE LACK OF COORDINATION SHALL BE CHANGED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE BACK FLOW PREVENTERS AND TEST IN ALL LOCATIONS REQUIRED BY CODE.
- PROVIDE MAXIMUM HEADROOM IN ALL PIPED LOCATIONS.
- INSTALL EQUIPMENT PER MANUFACTURES INSTRUCTIONS AND ALL APPLICABLE CODES. PROVIDE PANS AND DRAIN LINES.
- PROVIDE ALL PROPER BUILDING PENETRATIONS TO MEET ALL MANUFACTURERS INSTRUCTIONS AND ALL APPLICABLE CODES.
- INSULATE ALL HOT, COLD AND RETURN WATER LINES. INSULATE PIPING THROUGHOUT INCLUDING BRANCH PIPING, RISERS AND HORIZONTAL MAINS.
- PROVIDE EXPANSION JOINTS AS REQUIRED BY CODE ON HOT WATER SYSTEMS.
- ALL HOT WATER SUPPLY AND RE-CIRCULATING PIPING SHALL BE INSTALLED TO COMPENSATE FOR EXPANSION OF THE PIPE BY INSTALLING PIPE ANCHORS, GUIDES, EXPANSION JOINTS OR LOOPS AND PIPE OFFSETS AS REQUIRED BY FIELD CONDITIONS. MIN. EVERY 100' OF STRAIGHT RUN.
- DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC ACTION. DI-ELECTRIC UNIONS ARE TO BE USED AT ALL SUCH CONNECTIONS.

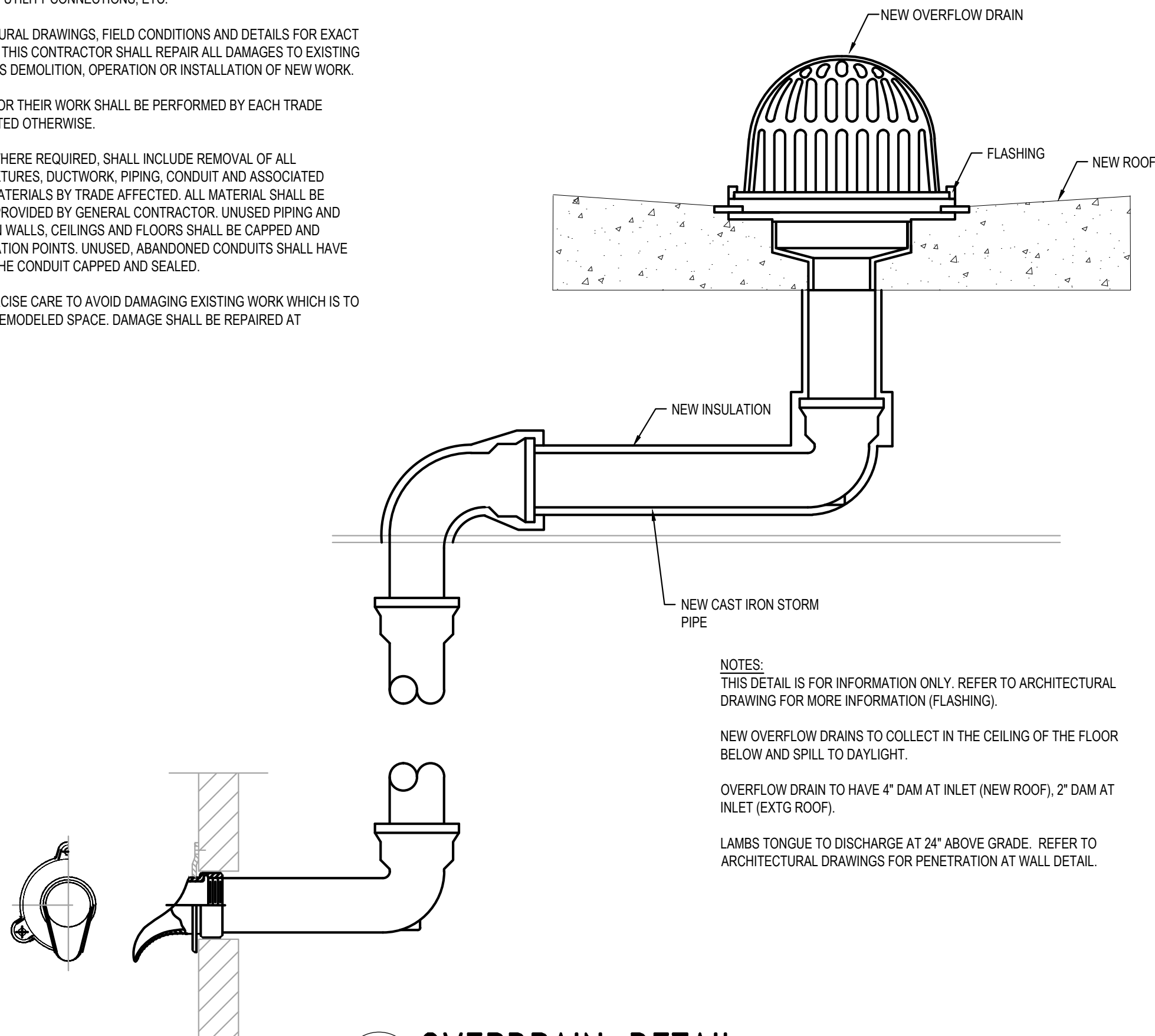
- INSTALL ALL PIPING TO AVOID INTERFERENCE WITH ELECTRICAL AND MECHANICAL EQUIPMENT AND STRUCTURAL FRAMING. WATER AND DRAIN LINES ARE NOT PERMITTED OVER OR UNDER ELECTRICAL PANELS OR DEDICATED ELECTRICAL SPACES.
- ALL PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS SHALL BE MADE FIRE SAFE IN COMPLIANCE WITH THE CITY OF EVANSTON AND LOCAL BUILDING CODE. RATING SHALL MEET OR EXCEED RATING OF WALL OR FLOOR. ALL HOLES THROUGH FLOORS SHALL BE CAULKED AND SEALED AIR AND WATERTIGHT TO RESTRICT THE PASSAGE OF SMOKE, SOUND OR FLAMES.
- PROVIDE ACCESS PANELS IN CEILINGS AND AT WALLS FOR EQUIPMENT OR DEVICE REQUIRING REGULAR ACCESS, MAINTENANCE OR TESTING INSTALLED AT INACCESSIBLE LOCATIONS. ALL ACCESS PANELS ARE TO BE COORDINATED WITH THE ARCHITECT AND REVIEWED PRIOR TO INSTALLATION. MIN. ALLOWABLE ACCESS PANEL SIZE IS 12X12. ACCESS DOORS IN DRYWALL PARTITIONS OR CEILINGS, TILE OR MASONRY WALLS SHALL BE FLUSH TYPE MADE OF 16GA STEEL HAVING MOUNTING FLANGE, CONCEALED HINGES AND SCREWDRIVER CAM LOCKS.
- PLUMBING CONTRACTOR IS RESPONSIBLE FOR INSTALLING BALANCING VALVES IN LOCATIONS WHERE THEY CAN EASILY BE ADJUSTED. CONTRACTOR IS RESPONSIBLE FOR SETTING BALANCING VALVES FROM FIELD CALCULATED SET POINTS AND BALANCING THE ENTIRE HOT WATER RETURN SYSTEM.
- FINISHED PIPING SHALL BE TESTED, FLUSHED AND CHLORINATED PER THE ILLINOIS PLUMBING CODE.

GENERAL RENOVATION NOTES:

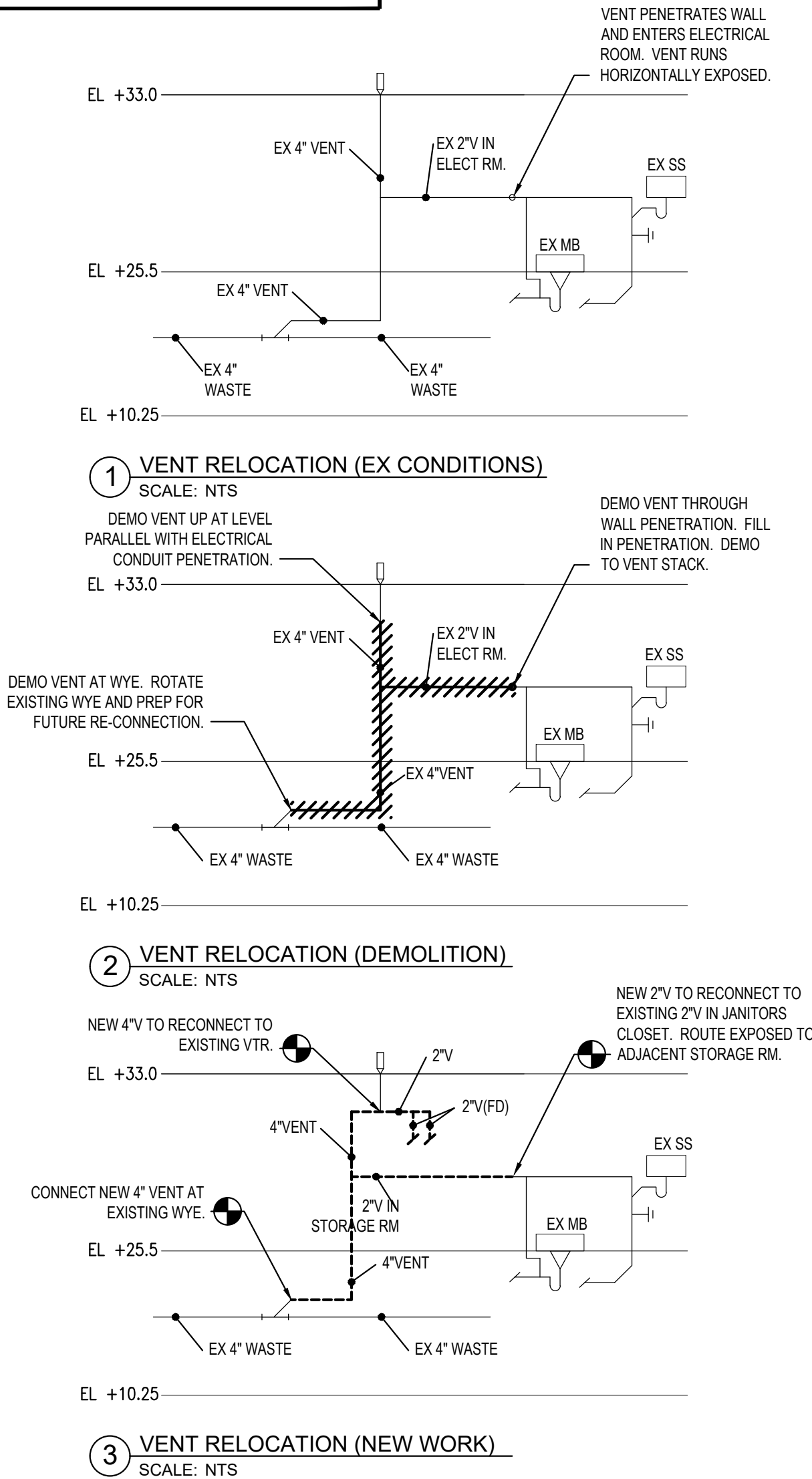
- EXISTING BUILDING SERVICES, WHERE PRESENT, SHALL BE MAINTAINED AND TEMPORARY SERVICES SHALL BE PROVIDED WHEN REQUIRED IN THE EVENT THAT SHUTDOWN CANNOT BE AVOIDED. THE SERVICE INTERRUPTION SHALL BE WITH MINIMUM INCONVENIENCE TO THE OCCUPANTS AND WITH THE APPROVAL AND/OR UNDER THE SUPERVISION OF THE ARCHITECT OR OWNER
- UNLESS INDICATED OTHERWISE IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL HAVE AN OWNER'S REPRESENTATIVE PRESENT DURING ANY SELECTIVE DEMOLITION THAT REQUIRES MAINTAINING THE REMAINDER OF THE BUILDING OPERATIONAL. THE CONTRACTOR SHALL COORDINATE THE EXTENT OF DEMOLITION CAREFULLY WITH THE OWNER'S REPRESENTATIVE TO ENSURE PORTIONS OF THE THE BUILDING TO REMAIN IN OPERATION REMAIN SO.
- THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS TO PURSUE THEIR WORK IN A MANNER WHICH WILL ENSURE THAT BUILDING OPERATIONS ARE INTERRUPTED TO THE LEAST EXTENT POSSIBLE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, DELIVERY OF SUPPLIED, TEMPORARY UTILITY CONNECTIONS, ETC.
- REFER TO THE ARCHITECTURAL DRAWINGS, FIELD CONDITIONS AND DETAILS FOR EXACT LOCATION OF PARTITIONS. THIS CONTRACTOR SHALL REPAIR ALL DAMAGES TO EXISTING CONSTRUCTION DUE TO HIS DEMOLITION, OPERATION OR INSTALLATION OF NEW WORK.
- CUTTING AND PATCHING FOR THEIR WORK SHALL BE PERFORMED BY EACH TRADE CONTRACTOR UNLESS NOTED OTHERWISE.
- ANY DEMOLITION WORK, WHERE REQUIRED, SHALL INCLUDE REMOVAL OF ALL EQUIPMENT, PLUMBING FIXTURES, DUCTWORK, PIPING, CONDUIT AND ASSOCIATED OTHER EQUIPMENT AND MATERIALS BY TRADE AFFECTED. ALL MATERIAL SHALL BE REMOVED TO DUMPSTER PROVIDED BY GENERAL CONTRACTOR. UNUSED PIPING AND DUCTWORK CONCEALED IN WALLS, CEILINGS AND FLOORS SHALL BE CAPPED AND SEALED AT THEIR TERMINATION POINTS. UNUSED, ABANDONED CONDUITS SHALL HAVE ALL WIRING PULLED AND THE CONDUIT CAPPED AND SEALED.
- CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGING EXISTING WORK WHICH IS TO REMAIN AS PART OF THE REMODELED SPACE. DAMAGE SHALL BE REPAIRED AT CONTRACTORS EXPENSE.

PIPING & INSULATION APPLICATIONS																				
PIPE IDENTIFICATION		PIPE					FITTINGS					JOINTS			INSULATION					

PLUMBING FIXTURE SCHEDULE							
TAG	FIXTURE TYPE	QTY	WFU	DFU	DESCRIPTION	REMARKS	
FC0	FLOOR CLEANOUT	X			JAY R SMITH SERIES S4100. CAST IRON BODY, NICKEL BRONZE COVER. ADJUSTABLE TOP. HEAVY DUTY TYPE CLEANOUTS RATED FOR TRUCK TRAFFIC REQUIRED FOR FLEET GARAGE.	REFER TO FLOOR PLANS AND RISERS FOR FIXTURE COUNT.	
FD-1	FLOOR DRAIN	X		2	JAY R SMITH MODEL# 2005C. 6" ROUND TOP. LIGHT DUTY. CAST IRON BODY. NICKEL BRONZE STRAINER. PROVIDE DEEP SEAL TRAPS.	REFER TO FLOOR PLANS FOR OUTLET SIZE AND QTYS.	
FD-2	FLOOR DRAIN	4		2	JAY R SMITH MODEL# 2108C. 7" ROUND TOP, HEAVY DUTY WITH SEDIMENT BUCKET. CAST IRON BODY. REMOVABLE NON-TILTING GRATE.	REFER TO FLOOR PLANS FOR OUTLET SIZE AND QTYS.	
FD-3	AREA DRAIN	3		2	JAY R SMITH MODEL# 2143C. 15" ROUND TOP, HEAVY DUTY WITH SEDIMENT BUCKET. CAST IRON BODY. DUCTILE IRON REMOVABLE NON-TILTING GRATE.	REFER TO FLOOR PLANS FOR OUTLET SIZE AND QTYS.	
OWS1	OIL WATER SEPARATOR	1			STRIEM MODEL# OS-100. LARGE CAPACITY OIL WATER SEPARATOR, TRAFFIC RATED COVER. POLYETHYLENE CONSTRUCTION. 6" INLET/OUTLET. 68"L x 33"W x 52"H. 100GPM FLOW RATE, 250GALLON MAX CAPACITY. PROVIDE RISERS AS REQUIRED TO MEET INVERT.	CONTRACTOR TO COORD. LOC WITH STRUCTURAL. PROVIDE REQ'D VARIATIONS FOR INSTALLATION.	
OWS2	OIL WATER SEPARATOR	1			STRIEM MODEL# OS-50. MEDIUM CAPACITY OIL WATER SEPARATOR, TRAFFIC RATED COVER. POLYETHYLENE CONSTRUCTION. 4" INLET/OUTLET. 37"L x 28"W x 29"H. 50GPM FLOW RATE, 57GALLON MAX CAPACITY. PROVIDE RISERS AS REQUIRED TO MEET INVERT.	CONTRACTOR TO COORD. LOC WITH STRUCTURAL. PROVIDE REQ'D VARIATIONS FOR INSTALLATION.	
RD-1	ROOF DRAIN	4			JAY R SMITH MODEL# 1010C-CID-R, 16" Ø LOW PROFILE DOME. BOTTOM OUTLET.	CAST IRON DOME AND SUMP RECEIVER. CAST IRON BODY AND FLASHING CLAMP.	
OD-1	OVERFLOW DRAIN	2			JAY R SMITH MODEL# 1070C-CID-CIS-R-SP2 16" Ø LOW PROFILE DOME. BOTTOM OUTLET.		
OD-2	OVERFLOW DRAIN	1			JAY R SMITH MODEL# 1070C-CID-CIS-R-SP2, 16" Ø LOW PROFILE DOME. BOTTOM OUTLET.		



1 OVERDRAIN DETAIL
P01 NOT TO SCALE



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APPROVED

MS

DATE

APPD

REVISION

DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

PLUMBING

SYMBOLS, NOTES, ABBREVIATIONS & RISERS

PROJECT NO.: 0028A

DWG:

P1

SHEET:

61

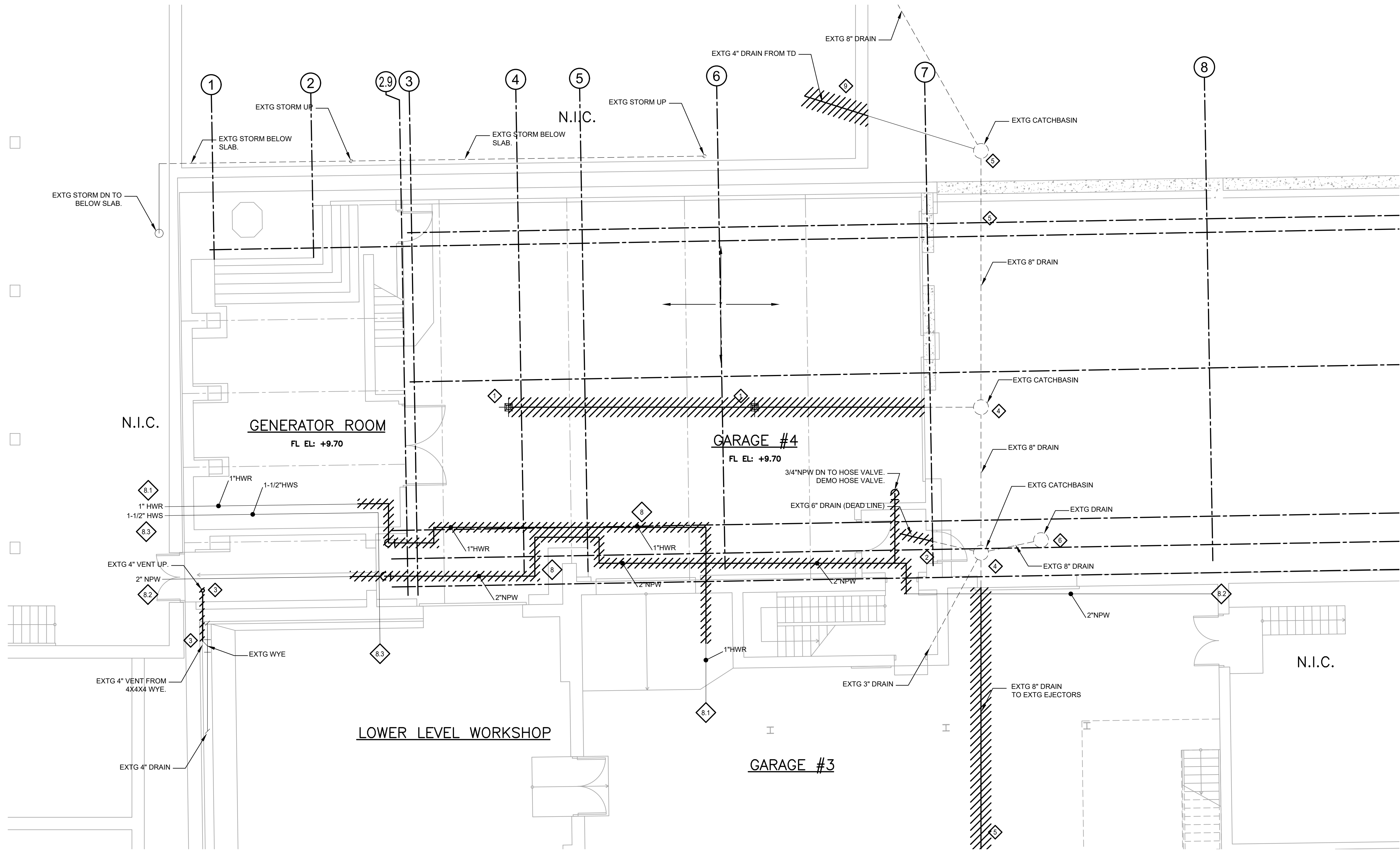
OF

116

DATE:

JANUARY 2025

REV: 0



DEMOLITION FLOOR PLAN AT EL. 10.25
SCALE: 3/16"=1'-0"

KEY NOTES:

- 1 DEMO EXISTING FLOOR DRAIN. REMOVE PIPE DOWN TO BELOW SLAB. REMOVE ALL EXISTING UNDER SLAB WASTE PIPING OUT TO EXTERIOR CATCHBASIN. EXTERIOR DEMO SHOWN ON CIVIL PLANS.
- 2 DEMO EXISTING UNDER SLAB, DEAD LEG, 6" WASTE.
- 3 DEMO EXISTING 4" VENT FROM WYE UP THROUGH FLOOR ABOVE. ROTATE EXISTING WYE AND PREP FOR FUTURE RE- CONNECTION. SEE RISERS SHEET #P1.
- 4 DEMO CATCHBASIN.
- 5 DEMO EXISTING DRAIN FROM CATCH BASIN ABOVE. RETAINING WALL TO EJECTOR PIT. EXTERIOR DEMO SHOWN ON CIVIL PLANS.
- 6 DEMO EXISTING AREA DRAIN. REMOVE PIPING TO CATCHBASIN.
- 7 DEMOLISH ALL EXISTING PLUMBING PIPING AND EQUIPMENT NOT USED OR ASSOCIATED WITH NEW SCOPE.
- 8 PIPES LISTED BELOW TO BE DEMOLISHED WITHIN THE GARAGE #4 SPACE AS SHOWN WITH THE EXCEPTION OF THE HOT WATER SUPPLY WHICH CAN REMAIN BUT MUST BE PROTECTED DURING THE INSTALLATION OF NEW BEAMS. DRAIN PIPES AND TEMPORARILY CAP AT DEMO POINTS. DEMO WORK TO BE COORDINATED WITH OWNER FOR MINIMAL DISTURBANCE TO THE SYSTEMS SERVED. SEE NEW WORK NOTES, SHEET P05.
 - 8.1: 1" HOT WATER RETURN
 - 8.2: 2" NON-POTABLE WATER
 - 8.3: 1-1/2" HOT WATER
- 9 DEMO 4" WASTE LINE FROM MANHOLE TO TRENCH DRAIN. EXTERIOR DEMO SHOWN ON CIVIL PLANS.

LEGEND:

- OR (E) EXISTING DEVICE OR EQUIPMENT TO REMAIN
- /// OR (X) EXISTING DEVICE OR EQUIPMENT TO BE REMOVED

CCJM

C.C. Johnson & Malhotra, P.C.
Engineering Infrastructure Solutions



GREELEY AND HANSEN

A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED

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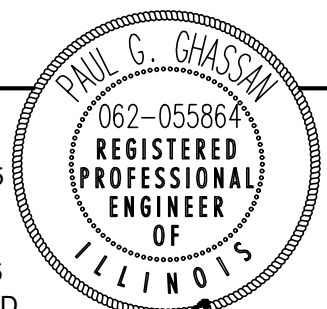
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NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

4 0 4 8 12 FT
3/16"=1'-0"

CITY OF EVANSTON
WATER PRODUCTION BUREAU

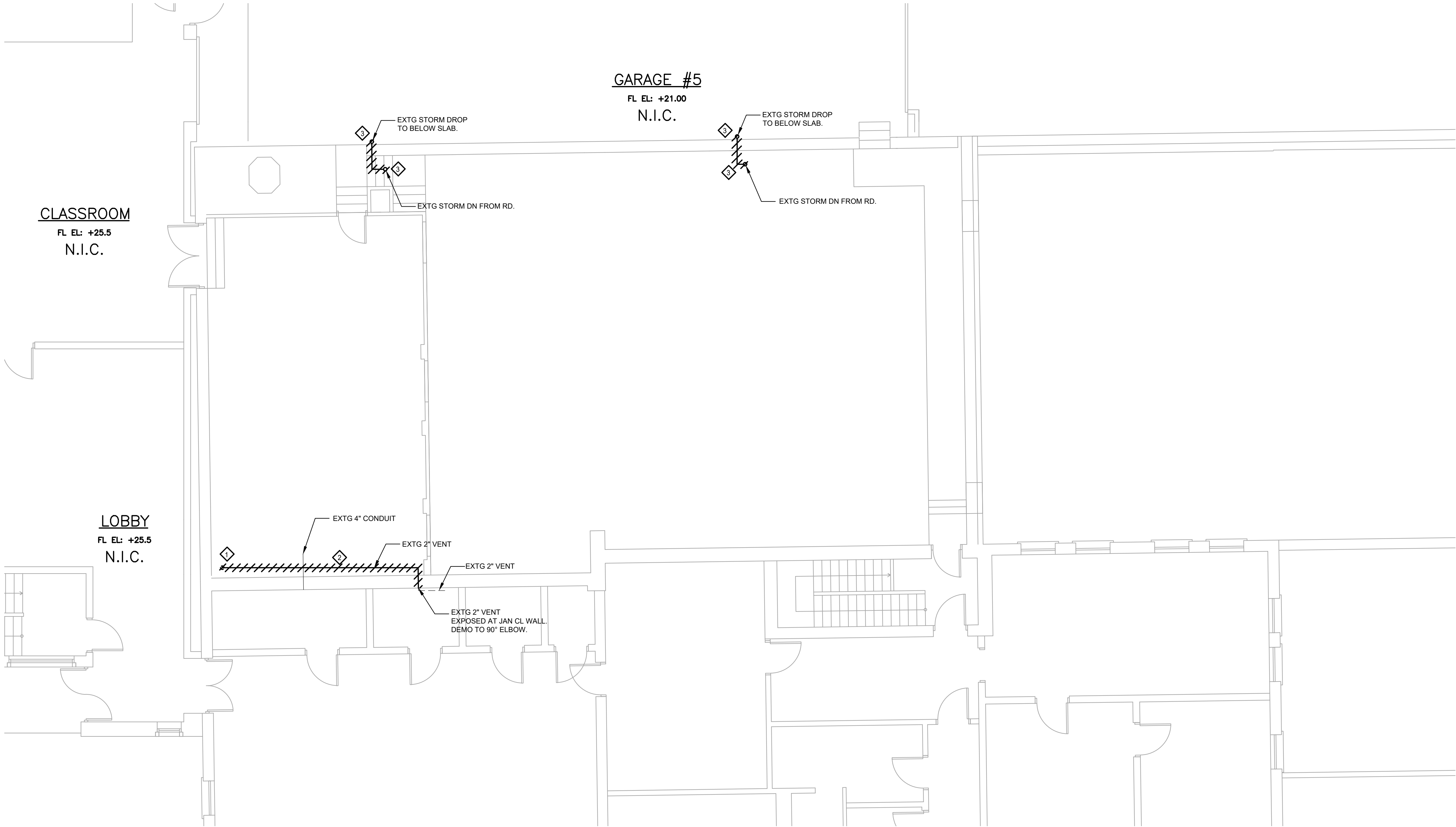
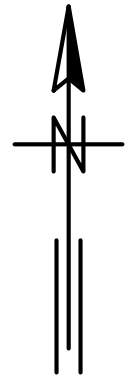
WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

PLUMBING

DEMOLITION FLOOR PLAN AT EL. 10.25

PROJECT NO.: 0028A

DWG: **P2**
SHEET: 62 OF 116
DATE: JANUARY 2025 REV: 0



- KEY NOTES:**
- 1 DEMO EXISTING 4" VENT STACK FROM ABOVE NEW SCOPE DOORWAY DOWN TO BELOW FLOOR. VENT STACK TO REMAIN THROUGH ROOF. DEMO DOWN OCCURS AT SAME ELEVATION OF 4" ELECTRICAL CONDUIT PENETRATION THROUGH WALL. SEE RISERS SHEET #P1.
 - 2 DEMO EXISTING 2" VENT FROM SLOP SINK AND MOP BASIN TO 4" VENT STACK. SEE RISERS SHEET #P1.
 - 3 DEMO EXISTING STORM DOWN TO 90° ELBOW @ ADJACENT GARAGE. STORM PIPE DOWN TO BELOW SLAB TO REMAIN. SEAL PENETRATION AT WALL BETWEEN GARAGES. NEW STORM TO PENETRATE AT HIGHER ELEVATION. SEE NEW WORK PLAN.

- LEGEND:**
- OR (E) EXISTING DEVICE OR EQUIPMENT TO REMAIN
 - //// OR (X) EXISTING DEVICE OR EQUIPMENT TO BE REMOVED

DEMOLITION FLOOR PLAN AT EL. 25.5
SCALE: 3/16"=1'-0"

BID SET

CCJM

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Engineering Infrastructure Solutions



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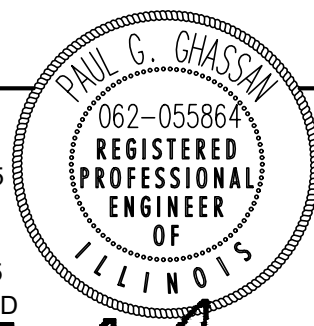
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Paul Ghassan

NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

4 0 4 8 12 FT
3/16"=1'-0"

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

PLUMBING

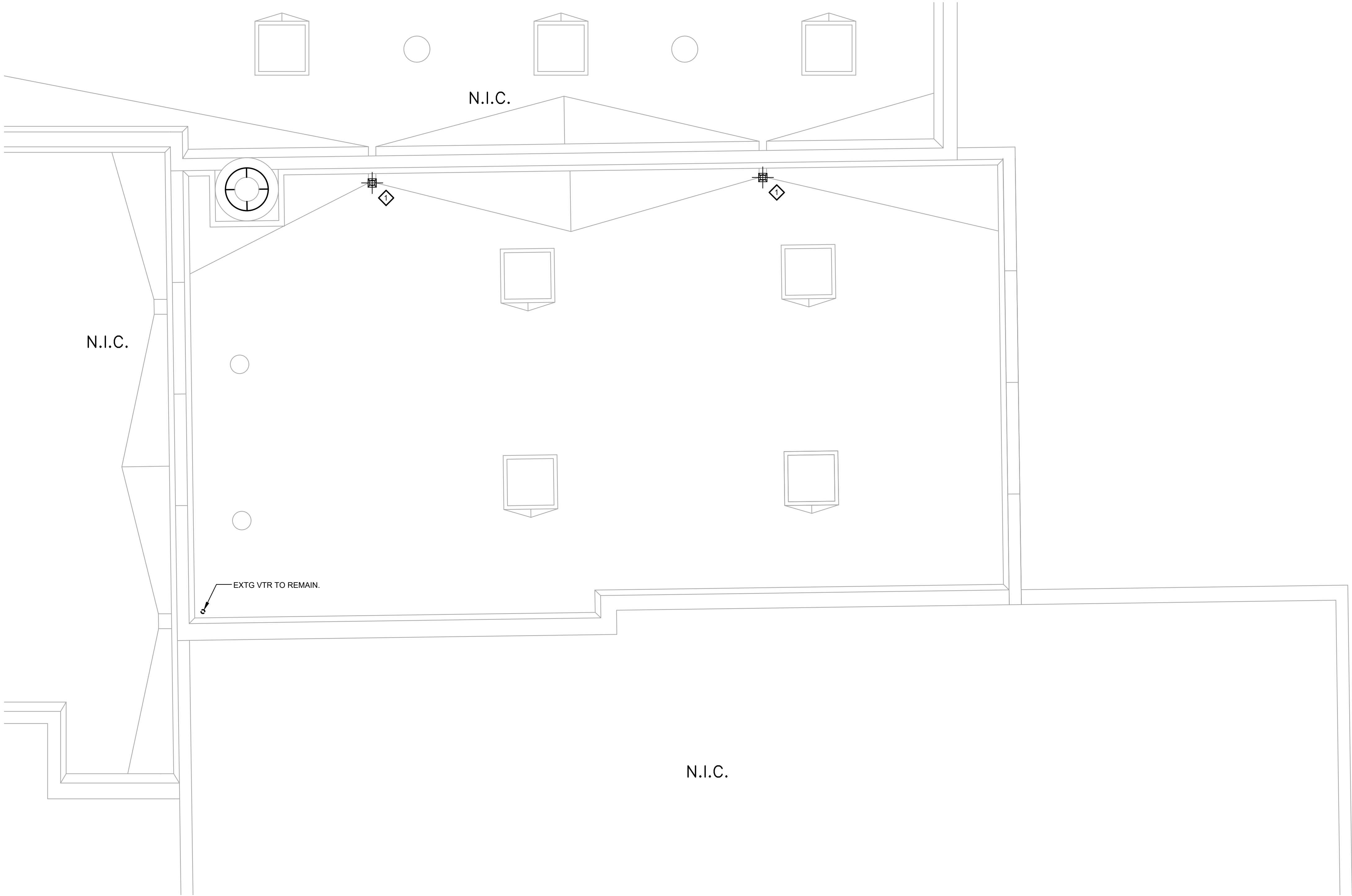
DEMOLITION FLOOR PLAN AT EL. 25.5

PROJECT NO.: 0028A

DWG: **P3**

SHEET: 63 OF 116

DATE: JANUARY 2025 REV: 0



DEMOLITION ROOF PLAN AT EL. 33.0
SCALE: 3/16"=1'-0"

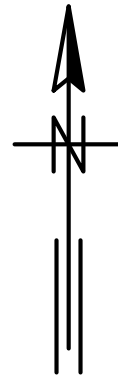
KEY NOTES:

◇ DEMO EXISTING ROOF DRAIN. REMOVE TO BELOW ROOF.

LEGEND:

— OR (E) EXISTING DEVICE OR EQUIPMENT TO REMAIN

~~---~~ OR (X) EXISTING DEVICE OR EQUIPMENT TO BE REMOVED



CCJM

C.C. Johnson & Malhotra, P.C.
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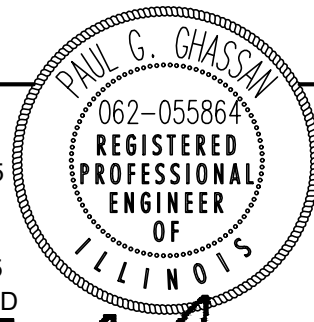
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NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

4 0 4 8 12 FT 3/16"=1'-0"

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

PLUMBING

DEMOLITION ROOF PLAN AT EL. 33.0

PROJECT NO.: 0028A

DWG:

P4

SHEET:

64

OF

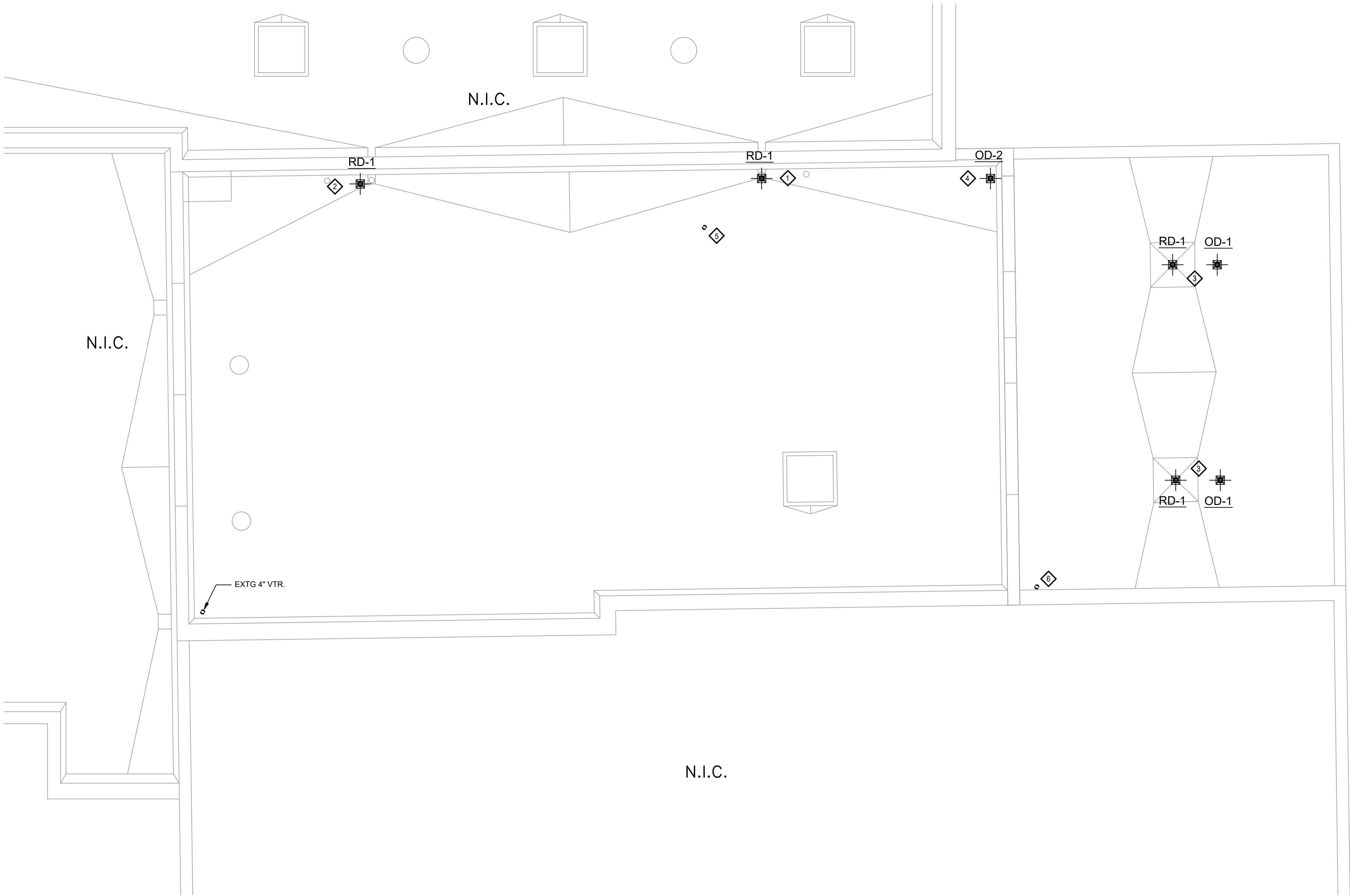
116

DATE:

JANUARY 2025

REV: 0

BID SET



- KEY NOTES:**
- 1 REPLACE EXISTING ROOF DRAIN.
 - 2 REPLACE EXISTING ROOF DRAIN. NEW RD LOCATION TO OFFSET EXISTING RD LOCATION TO AVOID NEW WALL BELOW.
 - 3 PROVIDE NEW ROOF DRAIN. PROVIDE NEW OVERFLOW DRAIN AT 4'-0" DISTANCE FROM RD.
 - 4 PROVIDE NEW OVERFLOW DRAIN AT EXISTING ROOF CORNER.
 - 5 4" NEW VENT THROUGH ROOF.
 - 6 5" NEW VENT THROUGH ROOF.

ROOF PLAN AT EL. 33.0
SCALE: 3/16"=1'-0"

BID SET

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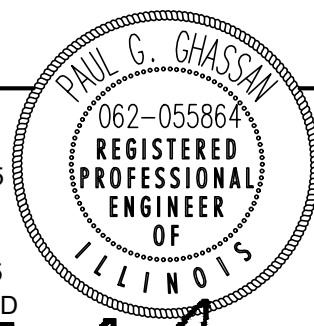
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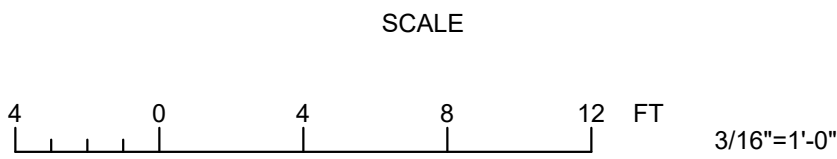
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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

PLUMBING

ROOF PLAN AT EL. 33.0

PROJECT NO.: 0028A

DWG:

P7

SHEET:

67

OF

116

DATE:

JANUARY 2025

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ONE LINE AND SCHEMATIC DIAGRAM SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	INCOMING FEEDER		OPERATING COIL (C-CONTACTOR, F-FAST, F-FORWARD, H-HIGH, L-LOW, M-MOTOR STARTER, R-REVERSE, S-SLOW)
	OUTGOING FEEDER		RELAY COIL (AR-AUXILIARY RELAY, CR-CONTROL RELAY, LOR-LOCKOUT RELAY, TR-TIME DELAY RELAY WHERE 'XX' DENOTES RELAY FUNCTION OR NUMBER)
	CONDUCTORS CONNECTED		NORMALLY OPEN CONTACT
	GROUNDING CONNECTION		NORMALLY CLOSED CONTACT
	LIGHTNING OR SURGE ARRESTOR		OVERLOAD RELAY CONTACT
	RECTIFIER OR DIODE		NORMALLY OPEN (SHOWN) OR NORMALLY CLOSED RESET TIMER CONTACT (X-X-O - DENOTES TIMER SEQUENCE FOR RESET-TIMING-TIMED OUT PERIODS. X INDICATES CONTACT CLOSED)
	SURGE CAPACITOR		NORMALLY OPEN CONTACT WITH TIME DELAY CLOSING (ON DELAY)
	POWER TRANSFORMER		NORMALLY CLOSED CONTACT WITH TIME DELAY CLOSING (OFF DELAY)
	CONTROL POWER TRANSFORMER		NORMALLY CLOSED CONTACT WITH TIME DELAY OPENING (ON DELAY)
	CURRENT TRANSFORMER (NUMBER DENOTES QUANTITY REQUIRED)		NORMALLY OPEN CONTACT WITH TIME DELAY OPENING (OFF DELAY)
	CURRENT TRANSFORMER 3 PHASE WINDOW TYPE		LIMIT SWITCH
	POTENTIAL TRANSFORMER (NUMBER DENOTES QUANTITY REQUIRED)		FLOAT SWITCH
	MEDIUM VOLTAGE DRAWOUT TYPE CIRCUIT BREAKER		PRESSURE OR VACUUM SWITCH
	DISCONNECTING OR DRAWOUT DEVICE		FLOW SWITCH
	LOW VOLTAGE AIR CIRCUIT BREAKER WITH 100A TRIP		TEMPERATURE SWITCH
	LOW VOLTAGE AIR CIRCUIT BREAKER 225A FRAME AND 125A TRIP		TORQUE SWITCH
	LOW VOLTAGE AIR CIRCUIT BREAKER WITH COORDINATED CURRENT LIMITING FUSES - 225A FRAME AND 150A TRIP		LATCHING RELAY WITH CLEARING CONTACTS
	KEY INTERLOCK - DASHED LINE WITH ARROWS INDICATES MOVEMENT OF KEY DURING INTERLOCK PROCEDURE		SELECTOR SWITCH
	FULL VOLTAGE MAGNETIC COMBINATION STARTER WITH MOTOR CIRCUIT PROTECTOR, CONTROL TRANSFORMER AND OVERLOAD RELAYS (M - OPERATING COIL)		NORMALLY OPEN PUSHBUTTON
	FULL VOLTAGE MAGNETIC COMBINATION REVERSING STARTER WITH MOTOR CIRCUIT PROTECTOR, CONTROL TRANSFORMER AND OVERLOAD RELAYS (F - FORWARD, R - REVERSE)		NORMALLY CLOSED PUSHBUTTON
	FULL VOLTAGE MAGNETIC COMBINATION TWO SPEED STARTER WITH MOTOR CIRCUIT PROTECTOR, CONTROL TRANSFORMER AND OVERLOAD RELAYS (H - HIGH, L - LOW, F - FAST, S - SLOW)		PUSHBUTTON STATION (ONE, TWO OR THREE UNIT)
	REDUCED VOLTAGE MAGNETIC COMBINATION AUTOTransformer STARTER WITH MOTOR CIRCUIT PROTECTOR, CONTROL TRANSFORMER AND OVERLOAD RELAYS (R - RUN, TR - TIMER, 1S & 2S - TRANSITION)		INDICATING LIGHT (A-AMBER, B-BLUE, G-GREEN, R-RED, W-WHITE)
	SOLID STATE REDUCED VOLTAGE COMBINATION STARTER WITH MOTOR CIRCUIT PROTECTOR AND CONTROL TRANSFORMER		THERMAL OVERLOAD ELEMENT (OL)
	MOTOR - THREE PHASE (NUMBER DENOTES HORSEPOWER)		ON-OFF SWITCH
			RESISTOR
			FUSE
			BATTERY
			HEATING ELEMENT
			MAINTAINED CONTACT PUSHBUTTON WITH MUSHROOM HEAD OPERATOR
			SELECTOR SWITCH X INDICATES CONTACT CLOSED IN CORRESPONDING SWITCH POSITION
			CURRENT SENSOR TRIP SWITCH

SYMBOL	DESCRIPTION
	PROTECTIVE RELAYS: 25 - SYNCHRONIZING CHECK 27 - UNDERVOLTAGE 32 - REVERSE POWER 43 - SELECTOR SWITCH 47 - PHASE SEQUENCE 49 - THERMAL 50 - INSTANTANEOUS OVERCURRENT 51 - AC TIME OVERCURRENT 52 - AC CIRCUIT BREAKER 59 - OVERVOLTAGE 60 - VOLTAGE OR CURRENT BALANCE 62 - TIME DELAY 64 - GROUND 67 - DIRECTIONAL OVERCURRENT 86 - LOCKOUT 87 - DIFFERENTIAL CURRENT DBX - DEAD BUS AUXILIARY G - DEVICE IN GROUND CIRCUIT GSR - GROUND SENSING IR - INTERPOSING LOR - LOCKOUT N - DEVICE IN NEUTRAL CIRCUIT PSR - PHASE SENSING X - AUXILIARY
	CONTROL DEVICES: DPS - DIFFERENTIAL PRESSURE SWITCH FS - FLOAT SWITCH FLS - FLOW SWITCH LLS - LEVEL SWITCH LS - LIMIT SWITCH PS - PRESSURE SWITCH RDS - REVERSING DRUM SWITCH ST - SHUNT TRIP SV - SOLENOID VALVE T - THERMOSTAT TQ - TORQUE SWITCH TS - TEMPERATURE SWITCH VIB - VIBRATION SWITCH VS - VACUUM SWITCH XS - TAMPER SWITCH
	METER, INSTRUMENT OR INSTRUMENT SWITCHES: A - AMMETER AS - AMMETER SWITCH AT - CURRENT TRANSDUCER BDR - BUS DIFFERENTIAL RELAY CS - BREAKER CONTROL SWITCH DT - DUTY TRANSFER SWITCH FPR - FEEDER PROTECTION RELAY GPR - GENERATOR PROTECTION RELAY MMS - MICROPROCESSOR METERING SYSTEM MPR - MICROPROCESSOR PROTECTION RELAY MSH - MOTOR SPACE HEATER PF - POWER FACTOR METER POT - POTENTIOMETER SI - SPEED INDICATOR SS - SELECTOR SWITCH TM - ELAPSED TIME METER TMR - TIMER V - VOLTMETER VAR - VARMETER VART - VARS TRANSDUCER VS - VOLTMETER SWITCH VT - VOLTAGE TRANSDUCER W - WATTMETER WH - WATTHOUR METER WHD - WATTHOUR DEMAND METER WT - WATTS TRANSDUCER ZT - POSITION TRANSMITTER

ABBREVIATIONS	
AFD - ADJUSTABLE FREQUENCY DRIVE AFF - ABOVE FINISHED FLOOR ATS - AUTOMATIC TRANSFER SWITCH BKR - BREAKER BOD - BOTTOM OF DUCT CKT - CIRCUIT CP - CONTROL PANEL CPT - CONTROL POWER TRANSFORMER DP - DISTRIBUTION PANELBOARD DTC - DATA TERMINAL CABINET EO - ELECTRICALLY OPERATED FO - FIBER OPTIC GFI - GROUND FAULT INTERRUPTER GND - GROUND GRS - GALVANIZED RIGID STEEL JB - JUNCTION BOX LCP - LIGHTING CONTROL PANEL LP - LIGHTING PANELBOARD LT - LIGHTING TRANSFORMER MCC - MOTOR CONTROL CENTER MH - MOUNTING HEIGHT MPR - MOTOR PROTECTION RELAY PB - PULL BOX PLC - PROGRAMMABLE LOGIC CONTROLLER PVC - POLYVINYL CHLORIDE RTU - REMOTE TERMINAL UNIT SP - SPACE	TB - TERMINAL BOX TCP - TEMPERATURE CONTROL PANEL TTC - TELEPHONE TERMINAL CABINET WP - WEATHERPROOF XP - EXPLOSION-PROOF

POWER, LIGHTING AND MISCELLANEOUS PLAN SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXPOSED CONDUIT RUN		WALL OR CEILING MOUNTED INCANDESCENT OR HID LIGHTING FIXTURE UPPER LETTER DENOTES FIXTURE TYPE NUMBER DENOTES CIRCUIT NUMBER AND LETTER DENOTES SWITCH CONTROLLING FIXTURE
	CONCEALED CONDUIT RUN ABOVE CEILING OR IN WALLS		EMERGENCY LIGHTING FIXTURE
	CONCEALED CONDUIT RUN IN OR BELOW FLOOR SLAB		WALL OR CEILING MOUNTED EXIT OR DIRECTIONAL SIGN (SHADED SIDE DENOTES ILLUMINATED FACE ARROW INDICATES DIRECTION)
	UNDERGROUND CONDUIT (CONCRETE ENCASED)		POLE MOUNTED LIGHTING FIXTURE
	UNDERGROUND CONDUIT (DIRECT BURIED)		FLOODLIGHT
	CONDUIT CAPPED		LINEAR STRIP LIGHTING FIXTURE
	CONDUIT UP		LINEAR LIGHTING FIXTURE
	CONDUIT DOWN		EMERGENCY LINEAR LIGHTING FIXTURE
	CONDUIT WITH HOT, NEUTRAL AND GROUND WIRES (LONG LINE DENOTES NEUTRAL; LONG LINE WITH DOT DENOTES GROUND)		REMOTE TEST PUSHBUTTON AND "ON" INDICATING LIGHT FOR BATTERY EQUIPPED LIGHTING FIXTURES
	HOME RUN TO LIGHTING PANELBOARD (LP6 INDICATES PANELBOARD AND 1,3,5 INDICATES CIRCUITS 1, 3 AND 5)		EMERGENCY BATTERY PACK WITH TWO LIGHTING HEADS
	FLEXIBLE CONDUIT OR CABLE		EMERGENCY BATTERY PACK - REMOTE HEAD
	GROUNDING CONDUCTOR		PHOTOELECTRIC CELL
	NEUTRAL CONDUCTOR		SINGLE RECEPTACLE 2 POLE, 3 WIRE, 120 VOLT, 20A, OR AS NOTED
	EQUIPMENT ENCLOSURE AS INDICATED ON PLAN		DUPLEX RECEPTACLE 2 POLE, 3 WIRE, 120 VOLT, 20A, OR AS NOTED
	LIGHTING PANELBOARD 208Y/120V OR 120/240V		DUPLEX RECEPTACLE 2 POLE, 3 WIRE, 208 VOLT, 20A, OR AS NOTED
	LIGHTING PANELBOARD 480Y/277V		FLOOR OUTLET BOX WITH DUPLEX RECEPTACLE 2 POLE, 3 WIRE, 120 VOLT, 20A, OR AS NOTED
	DRY TYPE TRANSFORMER		SINGLE RECEPTACLE - SINGLE PHASE (RATING AS NOTED)
	JUNCTION BOX, PULL BOX OR TERMINAL BOX		SINGLE RECEPTACLE - THREE PHASE (RATING AS NOTED)
	MANUALLY OPERATED DISCONNECTING CIRCUIT BREAKER OR SWITCH (SEE SPECIFICATIONS)		CLOCK WITH RECEPTACLE
	MANUAL REVERSING DRUM SWITCH, FORWARD-OFF-REVERSE, MAINTAINED CONTACTS		SINGLE POLE SWITCH UNLESS NOTED OTHERWISE 2P - TWO POLE 3 - THREE WAY 4 - FOUR WAY D - DOOR SWITCH M - MOMENTARY CONTACT
	FULL VOLTAGE MAGNETIC STARTER OR CONTACTOR		DAYLIGHT SENSOR
	COMBINATION CIRCUIT BREAKER STARTER		OCCUPANCY SENSOR
	MOTOR - THREE PHASE		INTERCOM TELEPHONE OUTLET
	MOTOR - SINGLE PHASE		INTERCOM TELEPHONE FLOOR OUTLET
	MOTOR OPERATED VALVE OR SLUICE GATE WITH INTEGRAL CONTROLLER AND CONTROL STATION		PUBLIC TELEPHONE OUTLET
	CONTROL STATION (SEE SCHEMATIC DIAGRAMS FOR ASSOCIATED DEVICES)		PUBLIC TELEPHONE FLOOR OUTLET
	CONTROL STATION AND FIELD CONTROL DEVICES (SEE ONE LINE DIAGRAMS AND SCHEMATICS FOR DETAILS)		SPEAKER
	GROUND ROD		BI-DIRECTIONAL SPEAKER
	GROUND ROD WITH ACCESS BOX		INTERCOMMUNICATION SPEAKER
	LIGHTNING ROD		INTERCOMMUNICATION SPEAKER VOLUME CONTROL
	METER SOCKET		CLOSED CIRCUIT TELEVISION CAMERA
	WATER HEATER		ALARM HORN
	UNIT HEATER		ALARM BELL
	LIGHT LINE DENOTES EXISTING WORK		FIRE ALARM CONTROL PANEL
	HEAVY LINE DENOTES NEW WORK		FIRE ALARM ANNUNCIATOR PANEL
	WORK TO BE DEMOLISHED		MANUAL PULL STATION
NOTE: THIS IS A GENERAL LEGEND PROVIDED TO FACILITATE USE OF THE ELECTRICAL DRAWINGS. ALL SYMBOLS MAY NOT BE USED IN THIS SET OF ELECTRICAL DRAWINGS. REFER TO THE DRAWINGS AND SPECIFICATIONS FOR ITEMS REQUIRED.			SMOKE DETECTOR
			HEAT DETECTOR
			AUDIBLE/VISUAL INDICATING DEVICE WITH HORN
			AUDIBLE/VISUAL INDICATING DEVICE WITH BELL
			VISUAL INDICATING DEVICE
			SPRINKLER SYSTEM FLOW SWITCH
			SPRINKLER SYSTEM TAMPER SWITCH
			MAGNETIC DOOR SWITCH
			RESCUE ASSISTANCE CALL STATION
			RESCUE ASSISTANCE ANNUNCIATOR PANEL

BID SET

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DRAWN	RM
CHECKED	TK

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CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ELECTRICAL

SYMBOLS AND ABBREVIATIONS

PROJECT NO.: 0028A

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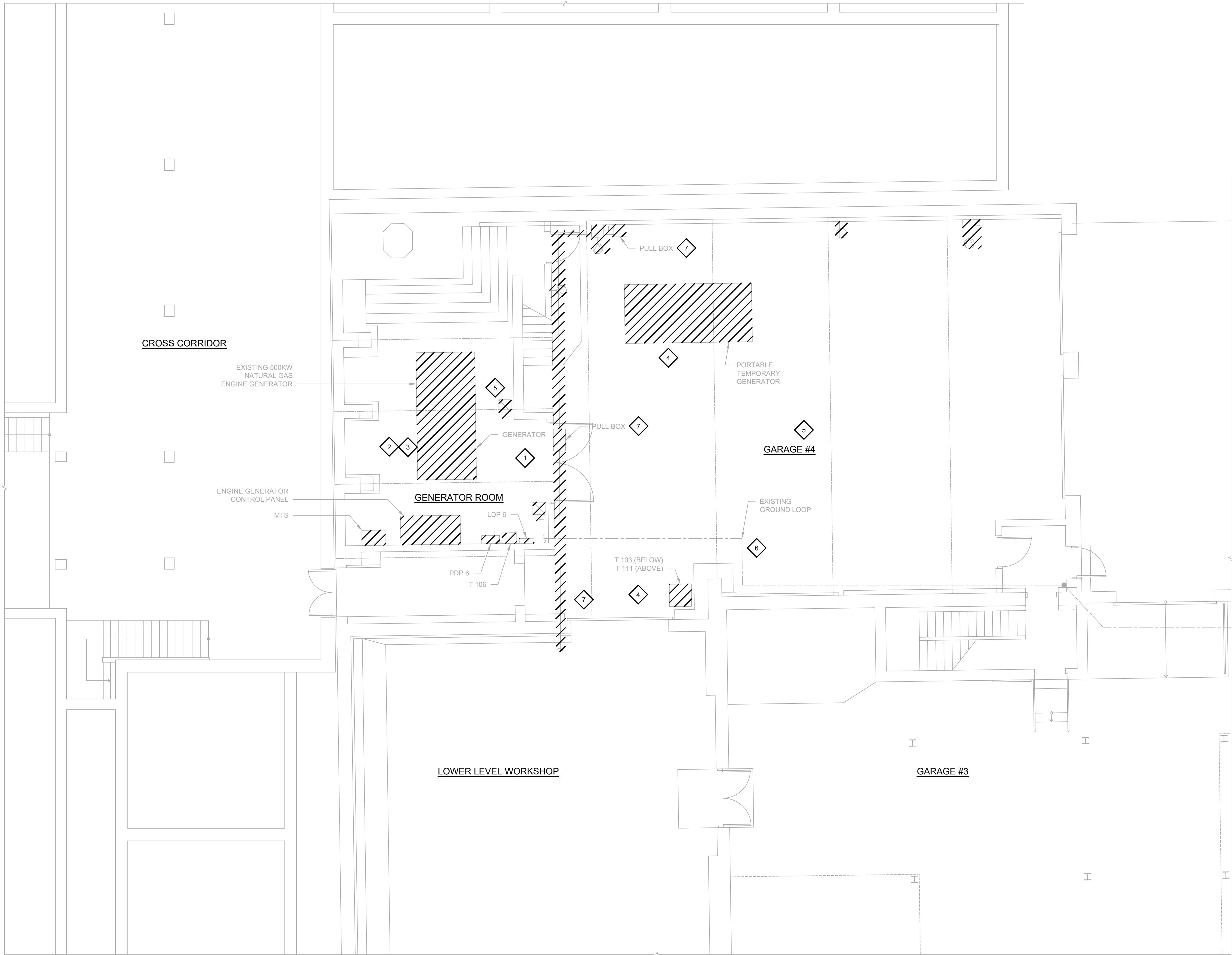


PHOTO 1

REROUTE EXISTING
CONDUIT PASSING
THROUGH AREA OF WORK

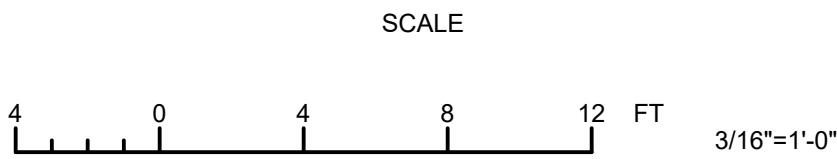
KEY NOTES:

- 1 DEMOLISH EXISTING CABLE AND CONDUIT IN THE GENERATOR ROOM ASSOCIATED WITH EQUIPMENT THAT IS BEING DEMOLISHED
- 2 DEMOLISH EXISTING STANDBY GENERATOR PAD.
- 3 REMOVE STANDBY GENERATOR FROM THE SITE. STANDBY GENERATOR AND ITS ACCESSORIES SHALL BE RETURNED TO THE OWNER. COORDINATION FOR TRANSPORTATION OF EXISTING STANDBY GENERATOR SHALL BE IN ADVANCE BETWEEN OWNER AND CONTRACTOR.
- 4 REMOVE PORTABLE TEMPORARY GENERATOR AND RETURN TO OWNER.
- 5 REMOVE ALL EXISTING LIGHTING AND ASSOCIATED CABLE AND CONDUIT. MAINTAIN OPERATION DURING CONSTRUCTION. REROUTE EXISTING BRANCH CIRCUIT AND CONTROL CABLE AND CONDUIT AS NECESSARY TO CONSTRUCT THE 2ND FLOOR. COORDINATE WITH THE CITY.
- 6 REROUTE EXISTING GROUND LOOP AS SHOWN ON DRAWING E26 PRIOR TO DEMOLITION. MAINTAIN EXISTING GROUND LOOP OUTSIDE AREA OF DEMOLITION.
- 7 EXISTING CONDUITS MUST BE REROUTED TO ALLOW FOR GARAGE 4 STRUCTURAL WORK. PRIOR TO DEMOLISHING EXISTING CONDUITS PASSING THROUGH GARAGE 4, COORDINATE WITH THE OWNER TO FIELD VERIFY CIRCUITS. PROVIDE ITEMIZED LIST OF IMPACTED CONDUITS AND CIRCUITS. SUBMIT REROUTING PLAN TO THE ENGINEER FOR APPROVAL. INTERCEPT EXISTING CONDUITS AND REROUTE CONDUITS TO COORDINATE WITH STRUCTURAL WORK. PROVIDE NEW TERMINAL BOXES AT BOTH ENDS OF THE REROUTE.

BID SET

DEMOLITION PLAN AT EL 9.70

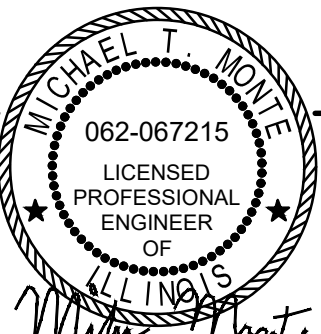
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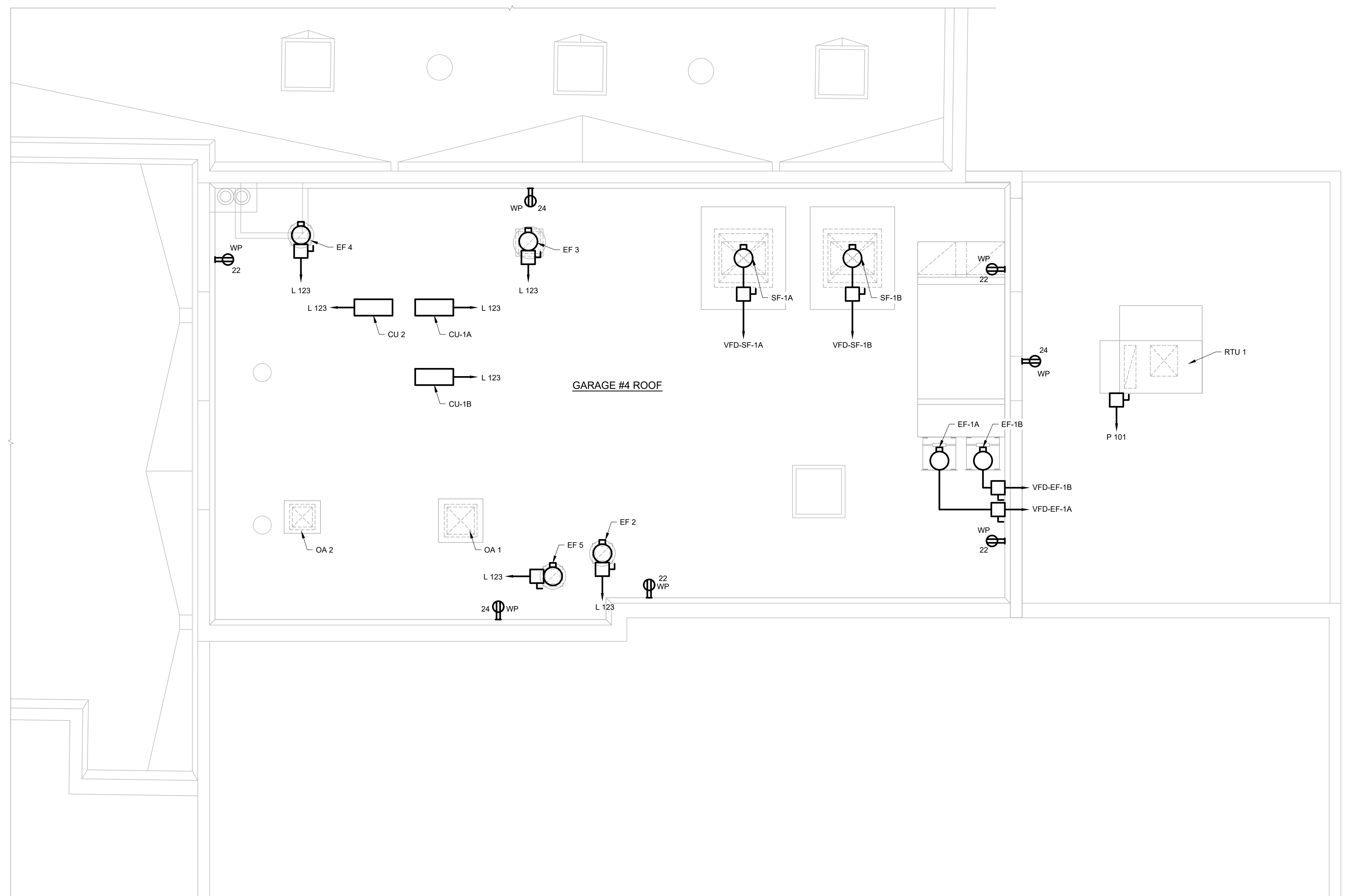
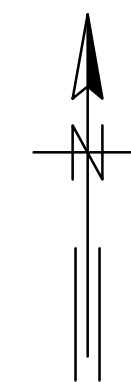
DEMOLITION PLAN EL 9.70

PROJECT NO.: 0028A

DWG: **E7**
SHEET: 74 OF 116
DATE: JANUARY 2025 REV: 0



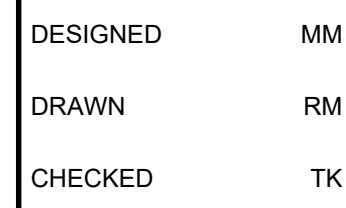
BID SET



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

1. ALL POWER RECEPTACLES TO BE FED FROM PANEL L 123 VIA 2#12, 1#12G, 3/4"C. CONNECT RECEPTACLES TO CKTS AS INDICATED ON PLAN DRAWINGS, AND L 123 PANEL SCHEDULE

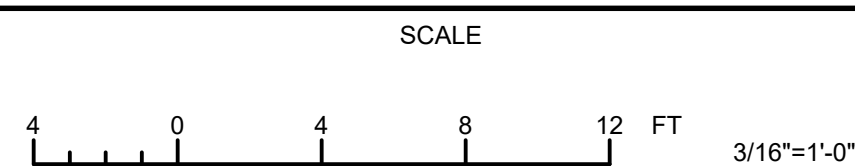
BID SET



MM
RM
TK

DATE
SIGNED:
01/31/2025
LICENSE
EXPIRES:
11/30/2025
APPROVE

062-067215
 LICENSED
 PROFESSIONAL
 ENGINEER
 OF
 ILLINOIS
 Michael J. Mott

[illegible]CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

	ELECTRICAL
--	------------

SERVICE BUILDING
ROOF POWER PLAN EL 33.00

PROJECT NO.: 0028A

DWG: E25

SHEET: 92 OF 116

DATE: JANUARY 2025	REV:
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LIGHTING FIXTURE SCHEDULE						
LABEL	DESCRIPTION	INPUT WATTAGE	LAMP TYPE	MOUNTING	MANUFACTURER & CATALOG NUMBER	REMARKS
A	VAPOR TIGHT LED STRIP	49W	6000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: CSV T L48 6000 LM MVOLT 40K 80 CRI	
AE	VAPOR TIGHT LED STRIP	49W	6000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: CSV T L48 6000 LM MVOLT 40K 80 CRI, IE7WCP	FIXTURES IN MV AND LV SWITCHGEAR ROOM TO BE PENDANT MOUNTED AT 9' AFF
B	LOW BAY 4' LINEAR	75W	8000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: MSL 8000 LM L/LV MVOLT 40K 80 CRI	FIXTURES IN MV AND LV SWITCHGEAR ROOM TO BE PENDANT MOUNTED AT 9' AFF
BE	LOW BAY 4' LINEAR	75W	8000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: MSL 8000 LM L/LV MVOLT 40K 80 CRI, E7W	
C	LOW BAY 8' LINEAR	58W	8000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: TMSL 8000 LM L/LV MVOLT 40K 80 CRI	
CE	LOW BAY 8' LINEAR	58W	8000 LUMENS LED, 4000K	SURFACE	LITHONIA LIGHTING: TSL 8000 LM L/LV MVOLT 40K 80 CRI, E7W	
DE	OUTDOOR ARCHITECTURAL WALL SCONCE WITH BATTERY BACKUP	18W	3000 LUMENS LED, 4000K	WALL	LITHONIA LIGHTING: WDGE2 LED P3 40K 80 T3M MVOLT SRM CRI E20WC PE	MOUNT AT 12'-4" CENTERED OVER DOORS
E	ADJUSTABLE FLOOD LIGHT WITH WALL BRACKET, PHOTOCONTROL AND BIRD SPIKES	51W	7477 LUMENS LED, 4000K	WALL	LITHONIA LIGHTING: RSXF1 LED P1 40K MFL MVOLT AAWB PE BS	MOUNT AT 13'-0" CENTERED OVER GARAGE DOORS
EX	DIE CAST ALUMINUM EXIT SIGN WITH 90 MIN BATTERY BACKUP, RED LETTERS, WHITE HOUSING	1/2W	LED	PENDANT/WALL	LITHONIA LIGHTING: OR APPROVED EQUAL LQCW * R EL N	REPLACE * WITH 1 OR 2 TO INDICATE THE NUMBER OF FACES. PROVIDE MOUNTING OPTIONS AS REQUIRED FOR EACH LOCATION.

BID SET

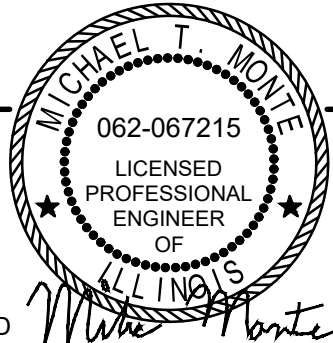


GREELEY AND HANSEN
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED
DRAWN
CHECKED

MM
RM
TK

DATE SIGNED: 01/31/2025
LICENSE EXPIRES: 11/30/2025
APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

NONE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ELECTRICAL

LIGHTING FIXTURE SCHEDULE

PROJECT NO.: 0028A

DWG: **E35**

SHEET: 102 OF 116

DATE: JANUARY 2025 REV: 0

BID RESPONSES -
ATTACHMENTS

2025/01/31 12:47 PM

K\0028_CITY OF EVANSTON\0028A WATER PLANT ELECTRICAL RELIABILITY PROJECT\04-DESIGN\CVIL3\DCDD\0028A\E36.DWG ROB WASON

CONDUIT		CONDUCTOR	FROM	TO	REMARKS
NUMBER	SIZE	QUANTITY AND SIZE			
MAIN SWITCHGEAR					
4H1	3" (EXISTING)	3#4/0 (5 kV), 1#4G	MAIN SWITCHGEAR	MV SWGR BUS 1	REWORK/EXTEND EXISTING CONDUIT AT NEW MV SWGR. INSTALL NEW CABLE
4H2	3" (EXISTING)	3#4/0 (5 kV), 1#4G	MAIN SWITCHGEAR	MV SWGR BUS 2	REWORK/EXTEND EXISTING CONDUIT AT NEW MV SWGR. INSTALL NEW CABLE
4H10A	3"	3 - 250 KCMIL, 1#2/0G	4160V MOBILE GENERATOR TERMINATION CABINET	MAIN SWITCHGEAR	
4H10B	3"	3 - 250 KCMIL, 1#2/0G	4160V MOBILE GENERATOR TERMINATION CABINET	MAIN SWITCHGEAR	
MV SWGR					
4H3	2-1/2"	3#2/0 (5 kV), 1#6G	MV SWGR	TRANSFORMER T3	
4H4	2-1/2"	3#2/0 (5 kV), 1#6G	MV SWGR	TRANSFORMER T4	
4H5	2"	3#4 (5 kV), 1#10G	MV SWGR	RVSS	
4H5A	2" (EXISTING)	3#4 (5 kV), 1#10G	RVSS	WP1	REWORK/EXTEND EXISTING CONDUIT AT NEW MV SWGR. INSTALL NEW CABLE
4H7	2-1/2"	3#2/0 (5 kV), 1#6G	MV SWGR	1000KW GENERATOR	
4H8	2-1/2"	3#2/0 (5 kV), 1#6G	MV SWGR	1000KW GENERATOR	
4H9	2"	3#4 (5 kV), 1#10G	MV SWGR	RVSS	REWORK/EXTEND EXISTING CONDUIT AT NEW MV SWGR. INSTALL NEW CABLE
4H9A	2" (EXISTING)	3#4 (5 kV), 1#10G	RVSS	WP2	
LV SWGR					
3T1	4"	4 - 600 KCMIL, 1#4/0G	T3	LV SWGR	
3T2	4"	4 - 600 KCMIL, 1#4/0G	T3	LV SWGR	
3T3	4"	4 - 600 KCMIL, 1#4/0G	T3	LV SWGR	
3T4	4"	4 - 600 KCMIL, 1#4/0G	T3	LV SWGR	
4T1	4"	4 - 600 KCMIL, 1#4/0G	T4	LV SWGR	
4T2	4"	4 - 600 KCMIL, 1#4/0G	T4	LV SWGR	
4T3	4"	4 - 600 KCMIL, 1#4/0G	T4	LV SWGR	
4T4	4"	4 - 600 KCMIL, 1#4/0G	T4	LV SWGR	
1S1A, 1S1B, 1S1C	4"	3 - 600 KCMIL, 1#3/0G	LV SWGR	P100	REWORK/EXTEND EXISTING CONDUIT AT NEW MV SWGR. INSTALL NEW CABLE
1S2A, 1S2B	3-1/2" EXISTING	4 - 600 KCMIL, 1#4/0G	LV SWGR	FILTER PLANT MCC BUS 1	
1S3A, 1S3B, 1S3C, 1S3D	4"	4 - 600 KCMIL, 1#4/0G	LV SWGR	MOBILE GENERATOR CONNECTION CABINET	
1S4A, 1S4B	3-1/2"	4 - 600 KCMIL, 1#4/0G	LV SWGR	FILTER PLANT MCC BUS 2	
1S5A, 1S5B, 1S5C	4"	3 - 600 KCMIL, 1#3/0G	LV SWGR	P 101	
DISTRIBUTION PANEL P100					
1M1	1"	3#6, 1#10G	DISTRIBUTION PANEL P100	PANELBOARD P 118	VIA SPLICE
1M2	2-1/2"	3#4/0, 1#4G	DISTRIBUTION PANEL P100	PANELBOARD P 108	VIA SPLICE
1M3	1-1/4"	3#2, 1#8G	DISTRIBUTION PANEL P100	PANELBOARD P 117	VIA SPLICE
1M4	1"	3#6, 1#10G	DISTRIBUTION PANEL P100	TRANSFORMER T 107	VIA SPLICE
1M5	1-1/4"	3#2, 1#8G	DISTRIBUTION PANEL P100	PANELBOARD P 106	VIA SPLICE
1M5A	1"	3#10, 1#10G	PANELBOARD P 106	TRANSFORMER T 106	
1M5B	1"	4#6, 1#8G	TRANSFORMER T 106	PANELBOARD L 106	
1M6	1-1/4"	3#2, 1#8G	DISTRIBUTION PANEL P100	PANELBOARD P 115	VIA SPLICE
1M6A	3/4"	2#12, 1#12G	PANELBOARD P 115	TRANSFORMER P 115	
1M6B	3/4"	2#12, 1#12G	TRANSFORMER P 115	PANELBOARD L 115	
1M6C	3/4"	2#12, 1#12G	PANELBOARD P 115A	TRANSFORMER T 115A	
1M6D	3/4"	2#12, 1#12G	TRANSFORMER P 115A	PANELBOARD L 115A	
1M6E	3/4"	2#12, 1#12G	PANELBOARD P 115B	TRANSFORMER T 115B	
1M6F	3/4"	2#12, 1#12G	TRANSFORMER T 115B	PANELBOARD L 115C	
1M7	1-1/4"	3#2, 1#8G	DISTRIBUTION PANEL P100	PANELBOARD P 104	VIA SPLICE
1M8	1-1/4"	3#2, 1#8G	DISTRIBUTION PANEL P100	PANELBOARD P 122	
1M9	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P100	SF-1A AFD	
1M9A	3/4"	3#12, 1#12G	SF-1A AFD	SF-1A	
1M10	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P100	UH-5	
1M11	1"	3#3, 1#8G	DISTRIBUTION PANEL P100	UPS	
1M12	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P100	EF-1A AFD	
1M12A	3/4"	3#12, 1#12G	EF-1A AFD	EF-1A	
1U1	1"	3#3, 1#8G	UPS	PANELBOARD P 124	
1U1A	1"	2#10, 1#8G	PANELBOARD P 124	TRANSFORMER T 115 UPS	
1U1B	1"	3#8, 1#8G	TRANSFORMER T 115 UPS	PANELBOARD L 115 UPS	
1U1C	1"	2#10, 1#8G	PANELBOARD P 124	TRANSFORMER T 304C	
1U1D	1"	3#8, 1#8G	TRANSFORMER T 304C	PANELBOARD L 304C	
DISTRIBUTION PANEL P101					
2M0	1-1/4"	2#2, 1#8G	DISTRIBUTION PANEL P101	TRANSFORMER T 120	
2M1	3-1/2"	3 - 600 KCMIL, 1#3G	DISTRIBUTION PANEL P101	PANELBOARD P 113	VIA SPLICE
2M1A	1"	3#12, 1#8G	PANELBOARD P 113A	TRANSFORMER T 113A	
2M1B	1"	4#8, 1#8G	TRANSFORMER T 113A	PANELBOARD L 113A	
2M2	1"	2#10, 1#8G	DISTRIBUTION PANEL P101	TRANSFORMER T 111	VIA SPLICE
2M2A	1"	3#8, 1#8G	TRANSFORMER T 111	PANELBOARD L 111	
2M3	1"	3#6, 1#8G	DISTRIBUTION PANEL P101	T 114 DISCONNECT	VIA SPLICE
2M4	3-1/2"	3 - 600 KCMIL, 1#3G	DISTRIBUTION PANEL P101	PANELBOARD P 116	VIA SPLICE
2M5	1"	2#10, 1#8G	DISTRIBUTION PANEL P101	TRANSFORMER T 105	VIA SPLICE
2M5A	1"	3#8, 1#8G	DISTRIBUTION PANEL P101	PANELBOARD L 105	

2M6	1"	2#6, 1#8G	DISTRIBUTION PANEL P101	TRANSFORMER T 103	VIA SPLICE
2M6A	1"	3#4, 1#8G	DISTRIBUTION PANEL P101	PANELBOARD L 103	
2M7	2-1/2"	3#4/0, 1#4G	DISTRIBUTION PANEL P101	PANELBOARD P 102	VIA SPLICE
2M7A	1"	3#6, 1#10G	PANELBOARD P 102	TRANSFORMER T 102	
2M7B	1-1/4"	4#2, 1#8G	TRANSFORMER T 102	PANELBOARD L 102	
2M7C	1-1/4"	4#2, 1#8G	PANELBOARD L 102	PANELBOARD L 102A	
2M8	2"	3#2/0, 1#6G	DISTRIBUTION PANEL P101	TRANSFORMER T 119	
2M8A	3"	4 - 500 KCMIL, 1#1/0G	TRANSFORMER T 119	PANELBOARD L 119	
2M9	2-1/2"	3#4/0, 1#4G	DISTRIBUTION PANEL P101	PANELBOARD P 121	
2M10	1"	3#4, 1#8G	DISTRIBUTION PANEL P101	RTU 1 DISCONNECT	
2M10A	1"	3#4, 1#8G	RTU 1 DISCONNECT	RTU 1	
2M11	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P101	EF-1B AFD	
2M11A	3/4"	3#12, 1#12G	EF-1B AFD	EF-1B	
2M12	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P101	UH-6	
2M13	1-1/4"	3#3, 1#8G	DISTRIBUTION PANEL P101	UPS MAINTENANCE BYPASS INPUT	
2M14	1"	3#6, 1#10G	DISTRIBUTION PANEL P101	TRANSFORMER T1 23	
2M14A	1-1/4"	4#2, 1#8G	TRANSFORMER T1 23	PANELBOARD L 123	
2M15	3/4"	3#12, 1#12G	DISTRIBUTION PANEL P101	SF-1B AFD	
2M15A	3/4"	3#12, 1#12G	SF-1B AFD	SF-1B	
FILTER BUILDING MCC					
3M1	1-1/4"	3#6, 1#8G	FILTER BUILDING MCC	TRANSFORMER T 315	
3M1A	1-1/4"	4#2, 1#8G	TRANSFORMER T 315	PANELBOARD L 315	
MOTOR CONTROL CENTER P116					
4M1	1"	2#4, 1#6G	MCC P 116	TRANSFORMER T EV1	
4M1A	1-1/2"	3#1, 1#6G	TRANSFORMER T EV 1	100A DISCONNECT	
4M1B	1-1/2"	3#1, 1#6G	100A DISCONNECT	EV CHARGER	
4M2	1"	2#4, 1#6G	MCC P 116	TRANSFORMER T EV2	
4M2A	1-1/2"	3#1, 1#6G	TRANSFORMER T EV 2	100A DISCONNECT	
4M2B	1-1/2"	3#1, 1#6G	100A DISCONNECT	EV CHARGER	
INSTRUMENTATION AND CONTROL					
1B1	1"	2#3, 1#8G	125VDC BATTERIES	BATTERY DISCONNECT SWITCH	
1B1A	1"	2#3, 1#8G	BATTERY DISCONNECT SWITCH	PANELBOARD D 123	
1C1	3/4"	12#14, 1#12G	RVSS WP 1	SWITCHGEAR SCADA NETWORK CABNIET	START/STOP COMMAND FROM SCADA TO RVSS WP 1
1C2	3/4"	12#14, 1#12G	RVSS WP 2	SWITCHGEAR SCADA NETWORK CABINET	START/STOP COMMAND FROM SCADA TO RVSS WP 1
1C3	3/4"	2#12, 1#12G	TRANSFORMER T3	SWITCHGEAR SCADA NETWORK CABINET	
1C4	3/4"	2#12, 1#12G	TRANSFORMER T4	SWITCHGEAR SCADA NETWORK CABINET	
1C5	3/4"	2#12, 1#12G	BATTERY CHARGER 2	SWITCHGEAR SCADA NETWORK CABINET	
1C6	3/4"	2#12, 1#12G	BATTERY CHARGER 1	SWITCHGEAR SCADA NETWORK CABINET	
1D1	3/4"	2#10, 1#10G	BATTERY CHARGER 1	PANELBOARD D 123	
1D2	3/4"	2#10, 1#10G	BATTERY CHARGER 2	PANELBOARD D 123	
1D3	3/4"	2#12, 1#12G	PANELBOARD D 123	MIMIC PANEL	
1D4	3/4"	2#12, 1#12G	PANELBOARD D 123	MV SWITCHGEAR	
1D5	3/4"	2#12, 1#12G	PANELBOARD D 123	LV SWITCHGEAR	
2C1	2"	88#14, 1#12G	MV SWITCHGEAR	MIMIC PANEL	
2C2	2"	76#14, 1#12G	LV SWITCHGEAR	MIMIC PANEL	
3C1	3/4"	8#14, 1#12G	MV SWITCHGEAR	RVSS WP 1	
3C2	3/4"	8#14, 1#12G	MV SWITCHGEAR	RVSS WP 2	
3C3	1"	22#14, 1#12G	MV SWITCHGEAR	GENERATOR MASTER CONTROL PANEL	COORDINATE WIRING REQUIREMENT WITH GENERATOR AND TRANSFER CONTROLS MANUFACTURER
4C1	3/4"	9#12, 1#12G	RVSS WP 1	WP 1 CONTROL JB	FIELD VERITY EXISTING WIRING
4C1A	3/4"	5#12, 1#12G	WP 1 CONTROL JB	WP 1 LCS	FIELD VERITY EXISTING WIRING
4C1B	3/4"	2#12, 1#12G	WP 1 CONTROL JB	WP 1 SOLENOID VALVE	FIELD VERITY EXISTING WIRING
4C1C	3/4"	2#12, 1#12G	WP 1 CONTROL JB	WP 1 LIMIT SWITCH	FIELD VERITY EXISTING WIRING
4C2	3/4"	8#12, 1#12G	RVSS WP 1	SCADA	
5C1	3/4"	9#12, 1#12G	RVSS WP 2	WP 2 CONTROL JB	FIELD VERITY EXISTING WIRING
5C1A	3/4"	5#12, 1#12G	WP 2 CONTROL JB	WP 2 LCS	FIELD VERITY EXISTING WIRING
5C1B	3/4"	2#12, 1#12G	WP 2 CONTROL JB	WP 2 SOLENOID VALVE	FIELD VERITY EXISTING WIRING
5C1C	3/4"	2#12, 1#12G	WP 2 CONTROL JB	WP 2 LIMIT SWITCH	FIELD VERITY EXISTING WIRING
5C2	3/4"	8#12, 1#12G	RVSS WP 2	SCADA	
1N1	1"	CAT 6 ETHERNET	SWITCHGEAR SCADA NETWORK CABINET	SCADA NETWORK SWITCH RACK NO.1	
1N2	1"	CAT 6 ETHERNET	SWITCHGEAR SCADA NETWORK CABINET	SCADA NETWORK SWITCH RACK NO.2	
1N3	3/4"	MODBUS RS485	RVSS WP 1	SWITCHGEAR SCADA NETWORK CABINET	
1N4	3/4"	MODBUS RS485	RVSS WP 2	SWITCHGEAR SCADA NETWORK CABINET	
1N5A	3/4"	CAT 6 ETHERNET	BATTERY CHARGER 1	SWITCHGEAR SCADA NETWORK CABINET	
1N5B	3/4"	CAT 6 ETHERNET	BATTERY CHARGER 2	SWITCHGEAR SCADA NETWORK CABINET	
1N6	3/4"	CAT 6 ETHERNET	MV SWITCHGEAR	SWITCHGEAR SCADA NETWORK CABINET	
1N7	3/4"	CAT 6 ETHERNET	LV SWITCHGEAR	SWITCHGEAR SCADA NETWORK CABINET	
1N8	3/4"	CAT 6 ETHERNET	PANEL P 100	SWITCHGEAR SCADA NETWORK CABINET	
1N9	3/4"	CAT 6 ETHERNET	PANEL P 101	SWITCHGEAR SCADA NETWORK CABINET	
1N10	3/4"	CAT 6 ETHERNET	GENERATOR MASTER CONTROL PANEL	SWITCHGEAR SCADA NETWORK CABINET	
1N11	3/4"	CAT 6 ETHERNET	GENERATOR MASTER CONTROL PANEL	GENERATOR 1 CONTROL PANEL	
1N12	3/4"	CAT 6 ETHERNET	GENERATOR MASTER CONTROL PANEL	GENERATOR 2 CONTROL PANEL	
1N13	3/4"	CAT 6 ETHERNET	UPS	SWITCHGEAR SCADA NETWORK CABINET	

BID SET

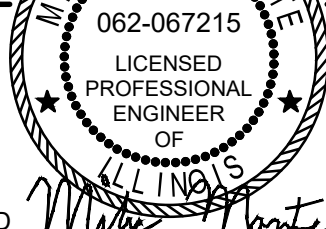
**GREELEY AND HANSEN**

A TYLin Company

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED	MM
DRAWN	RM
CHECKED	TK

062-067215
LICENSED PROFESSIONAL ENGINEER
OF



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

NONE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

ELECTRICAL

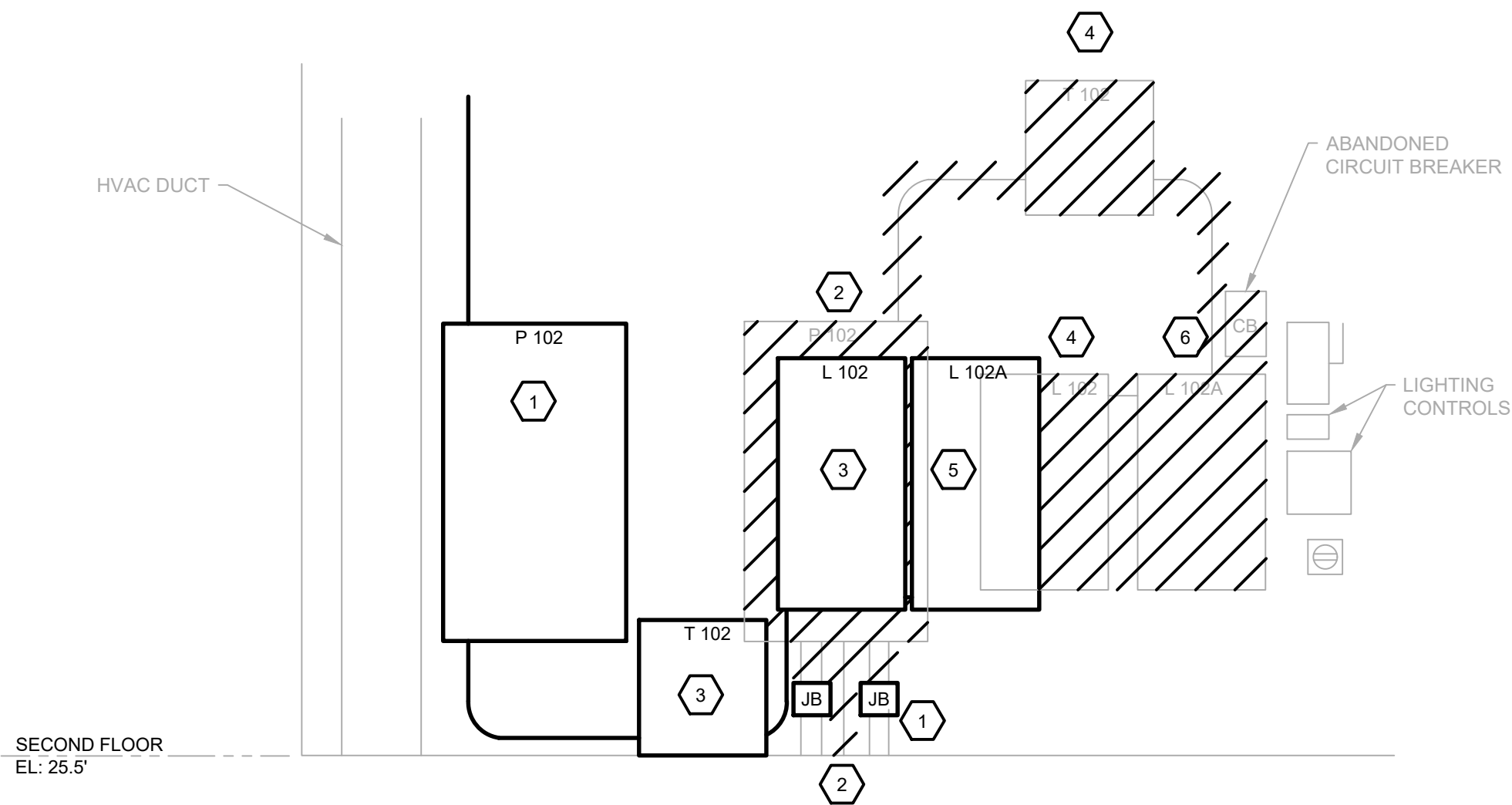
CABLE AND CONDUIT SCHEDULE

PROJECT NO.: 0028A

DWG: **E36**

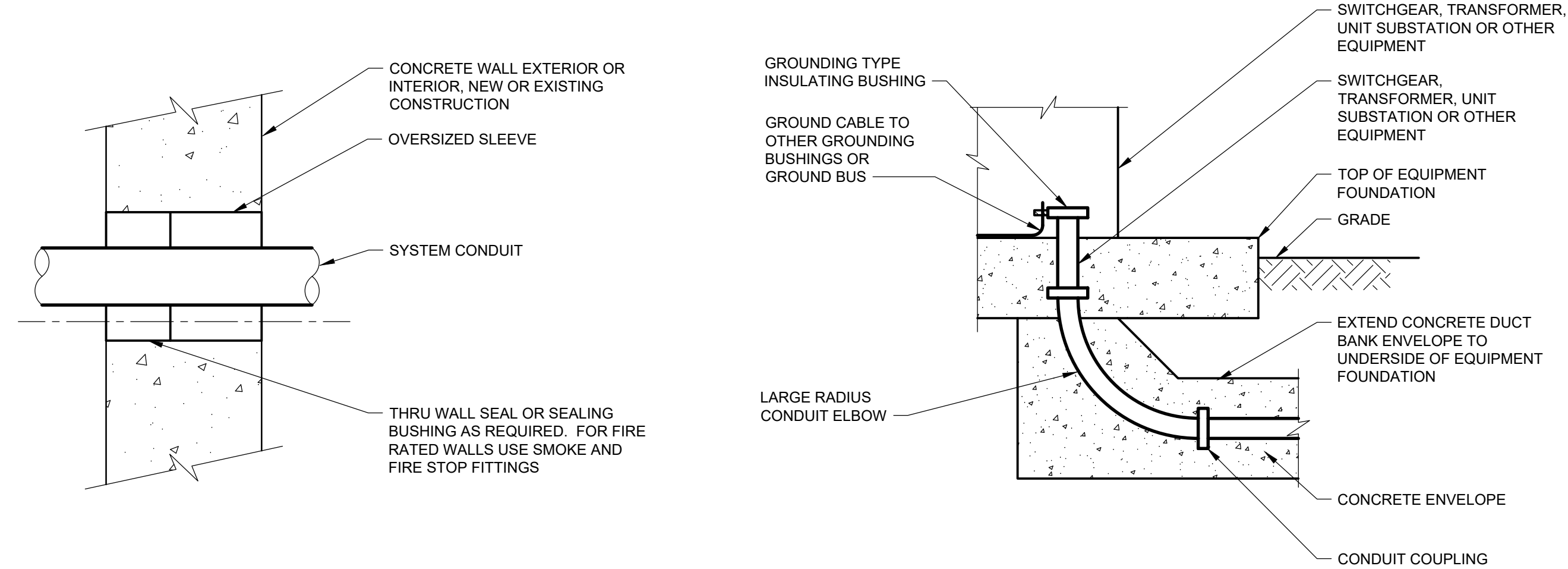
SHEET: 103 OF 116

DATE: JANUARY 2025 REV: 0



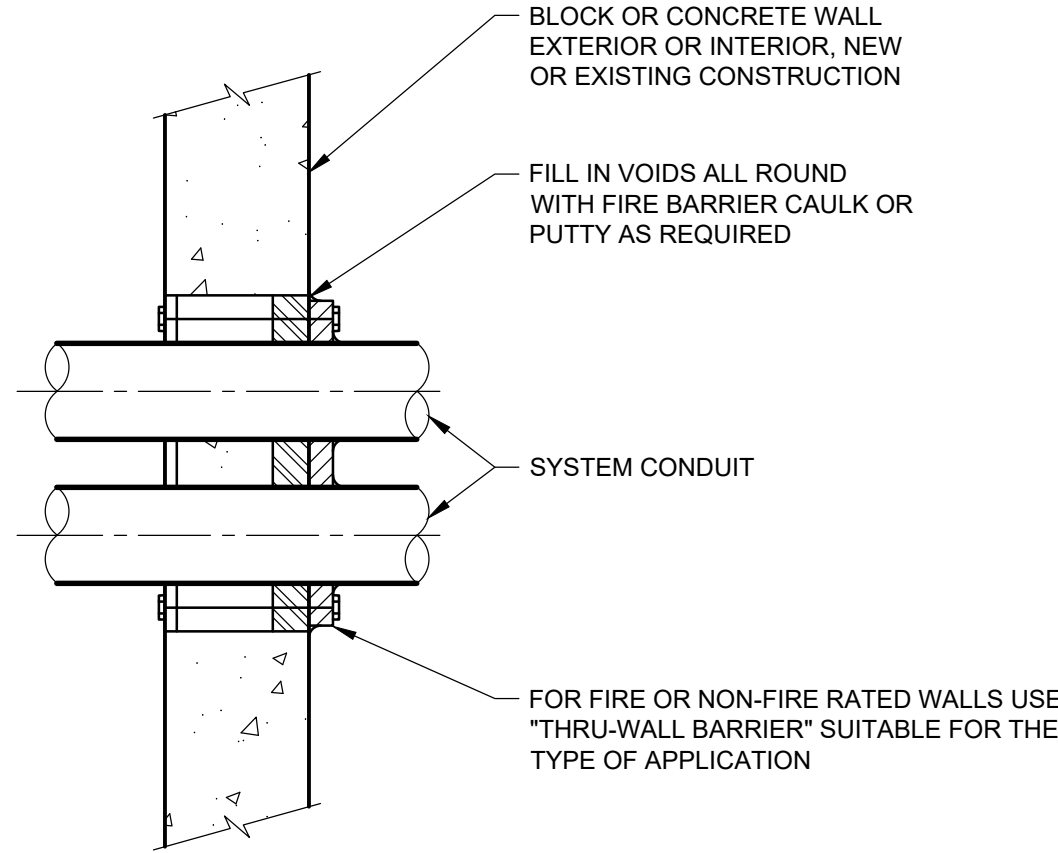
PANELBOARD REPLACEMENT -
EAST DEHUMIDIFIER ROOM ELEVATION 1

NOT TO SCALE



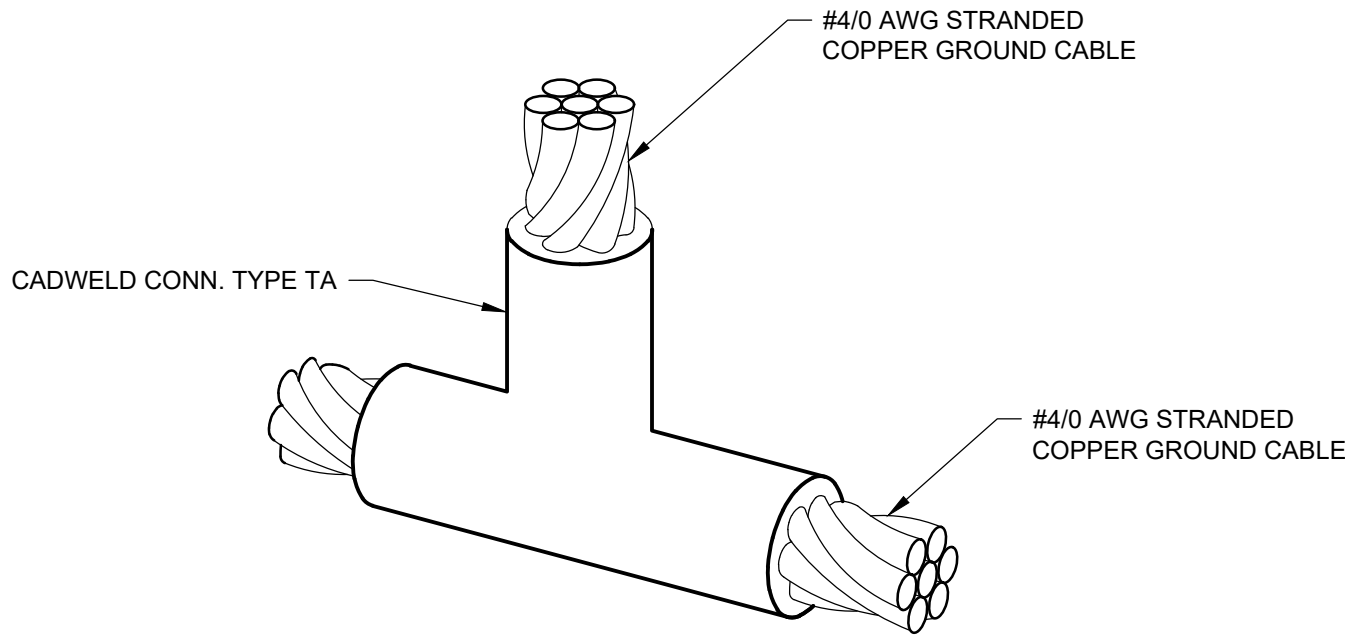
TYPICAL CONDUIT
THRU CONCRETE WALL

NOT TO SCALE



TYPICAL THRU WALL
CONDUIT BANKS

NOT TO SCALE

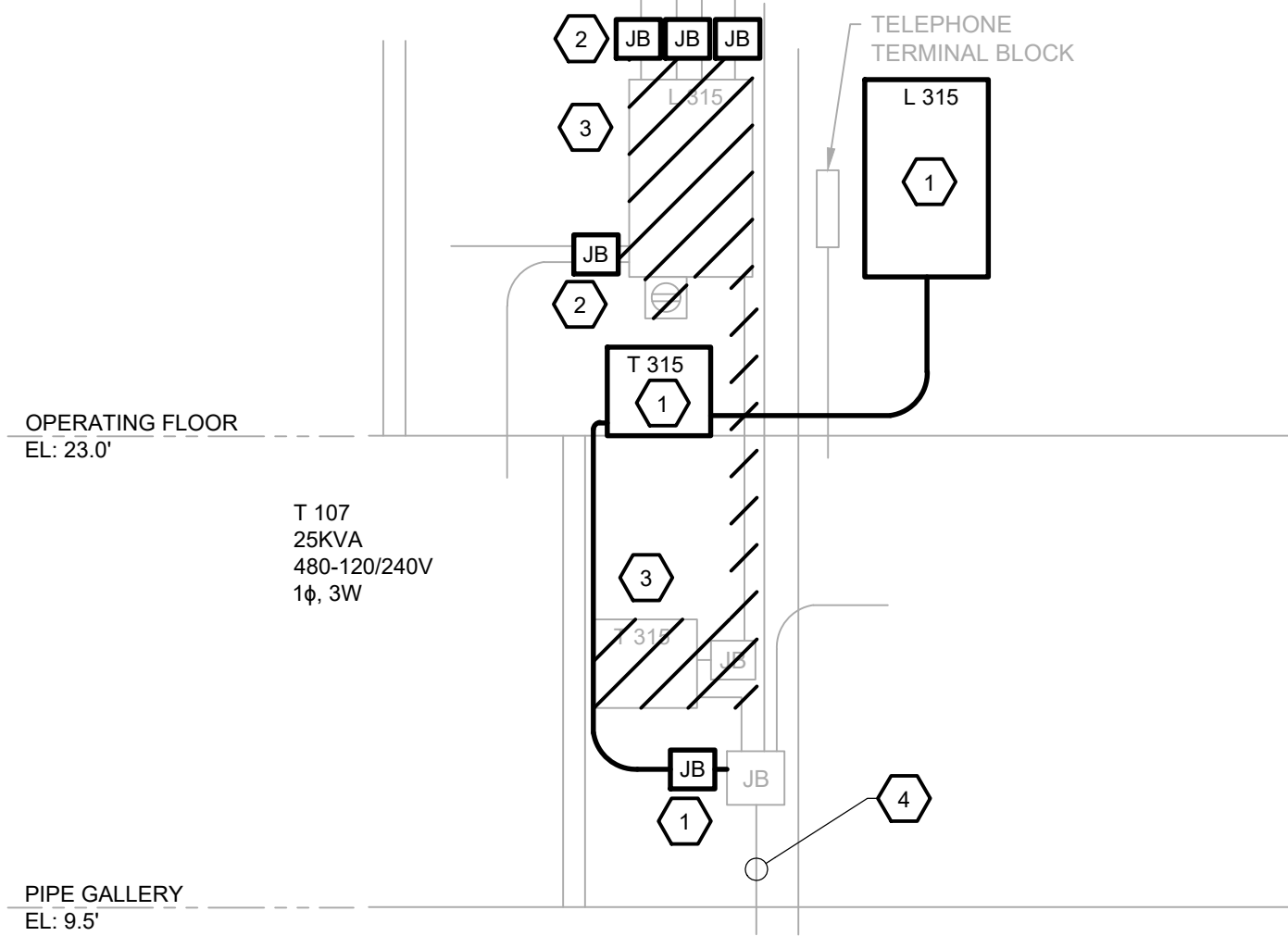


GROUNDING
TYPICAL BUS TAP

NOT TO SCALE

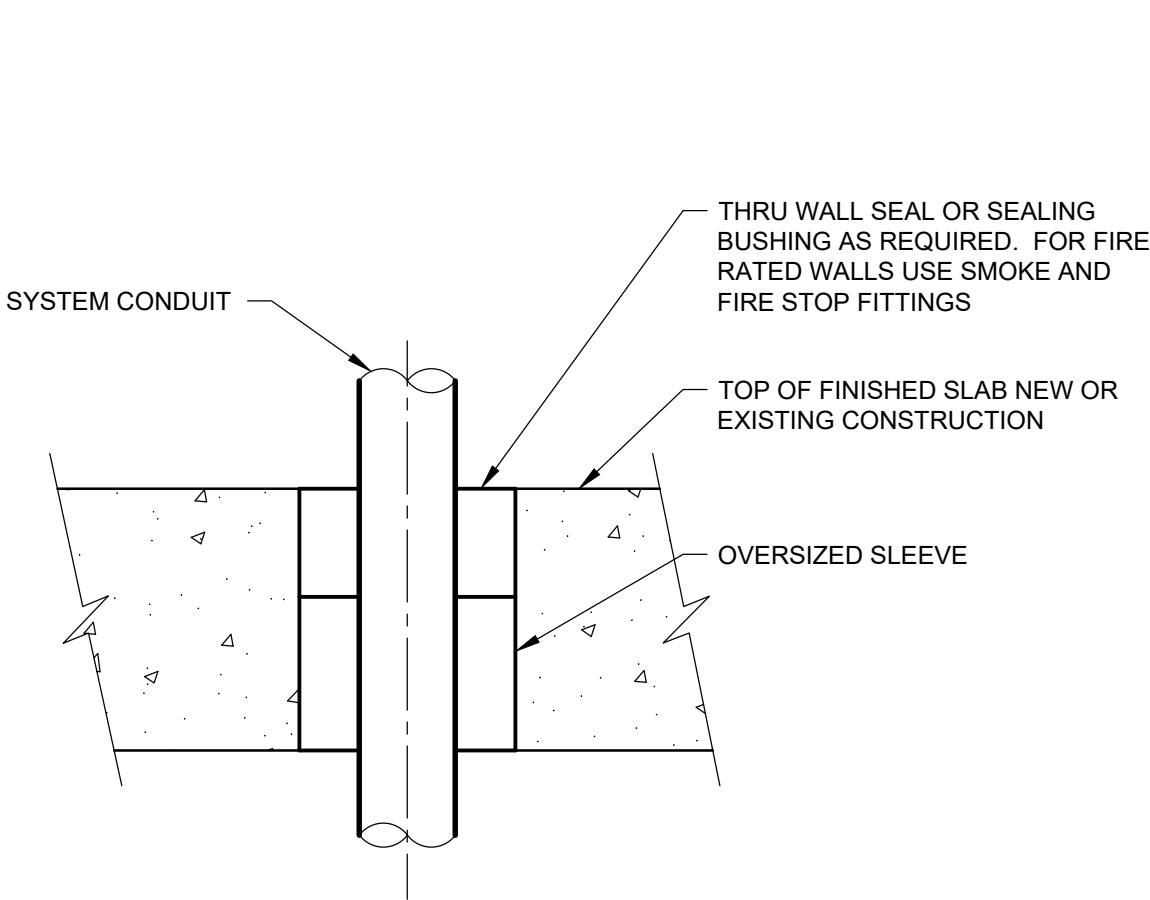
CONSTRUCTION SEQUENCE KEY NOTES:

- 1 INSTALL NEW PANELBOARD P 102 AND FEEDER. TRANSFER LOADS FROM EXISTING P 102. PROVIDE JUNCTION BOXES BELOW EXISTING P 102 TO INTERCEPT AND EXTEND BRANCH CIRCUITS.
- 2 DEMOLISH EXISTING P 102. CUT EMBEDDED RACEWAY FROM DEMOLISHED P 102 FEEDER AT FLOOR AND PLUG.
- 3 INSTALL NEW TRANSFORMER T 102 AND PANELBOARD L 102. TRANSFER LOADS FRO EXISTING P 102.
- 4 DEMOLISH EXISTING T 102 AND L 102.
- 5 INSTALL NEW PANELBOARD L 102A. TRANSFER LOADS FROM EXISTING P 102A.
- 6 DEMOLISH EXISTING L 102A.



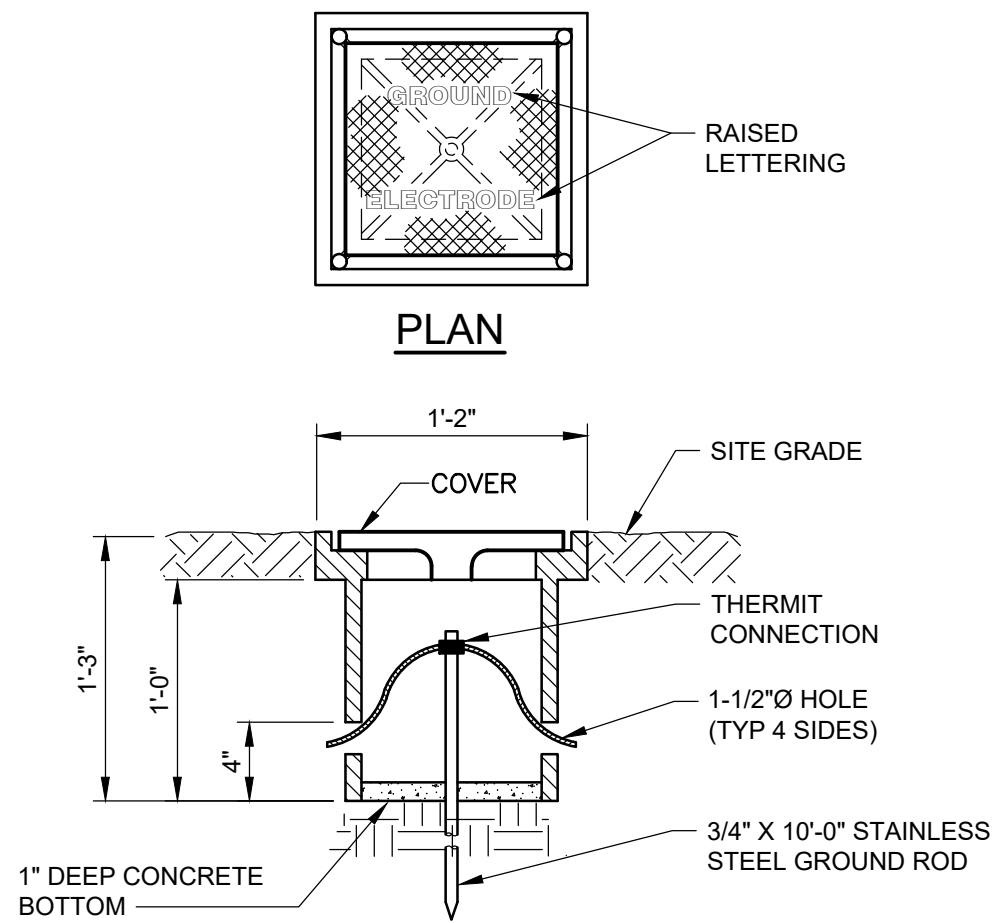
PANELBOARD AND TRANSFORMER REPLACEMENT -
WEST DEHUMIDIFIER ROOM AND FILTER GALLERY ELEVATION 2

NOT TO SCALE



TYPICAL CONDUIT
THRU CONCRETE FLOOR

NOT TO SCALE

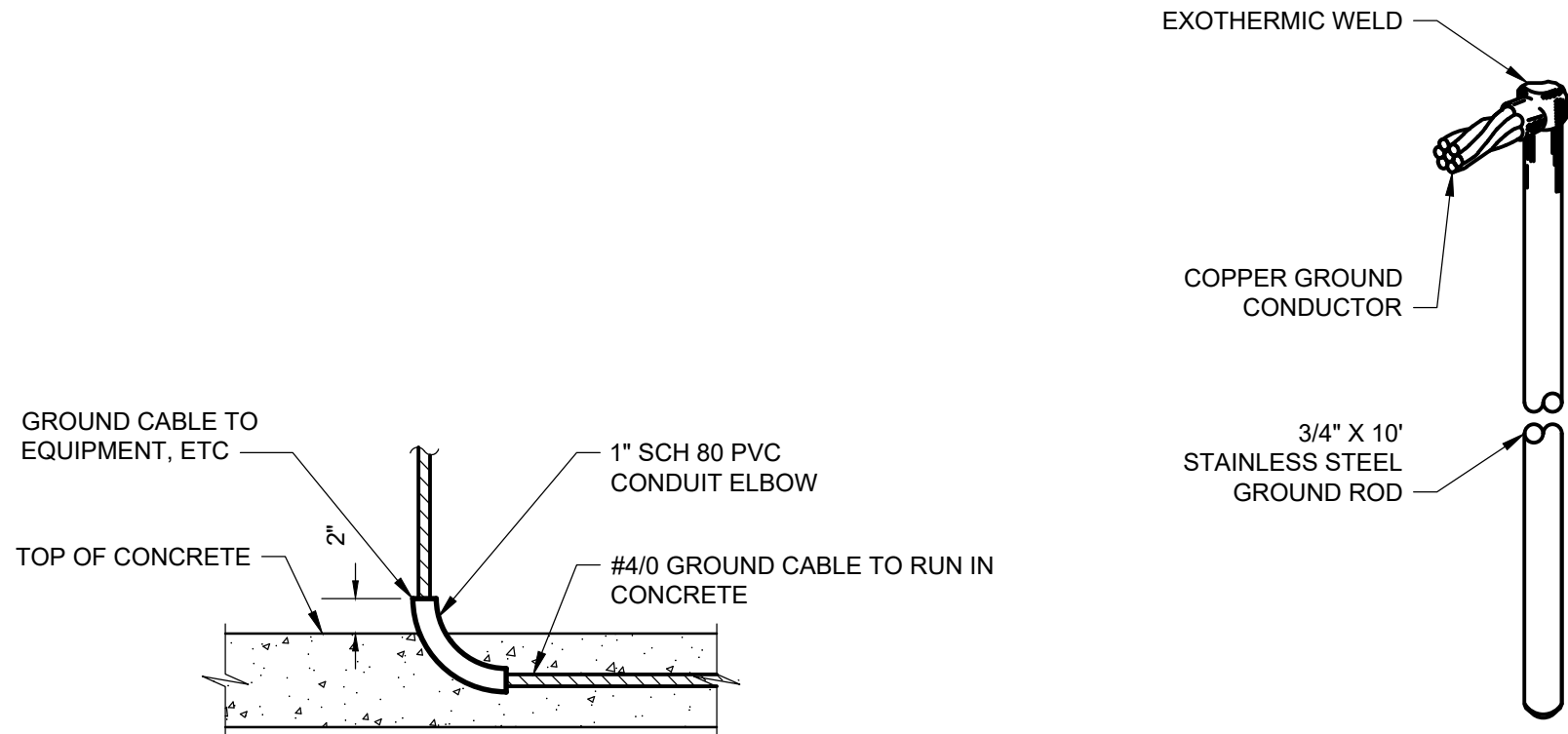


GROUND ROD
ACCESS BOX DETAIL

NOT TO SCALE

CONSTRUCTION SEQUENCE KEY NOTES:

- 1 TAP FEEDER TO EXISTING T 315 AND INSTALL NEW TRANSFORMER T 315 AND PANELBOARD L 315.
- 2 TRANSFER LOADS FROM EXISTING L 315. PROVIDE JUNCTION BOXES ABOVE EXISTING L 315 TO INTERCEPT AND EXTEND BRANCH CIRCUITS.
- 3 DEMOLISH EXISTING L 315, T 315 AND ASSOCIATED FEEDERS.
- 4 REPLACE FEEDER CONDUCTORS FROM FILTER BUILDING MCC TO T 315. REUSE EXISTING CONDUIT. DO NOT SPLICE CONDUCTORS.

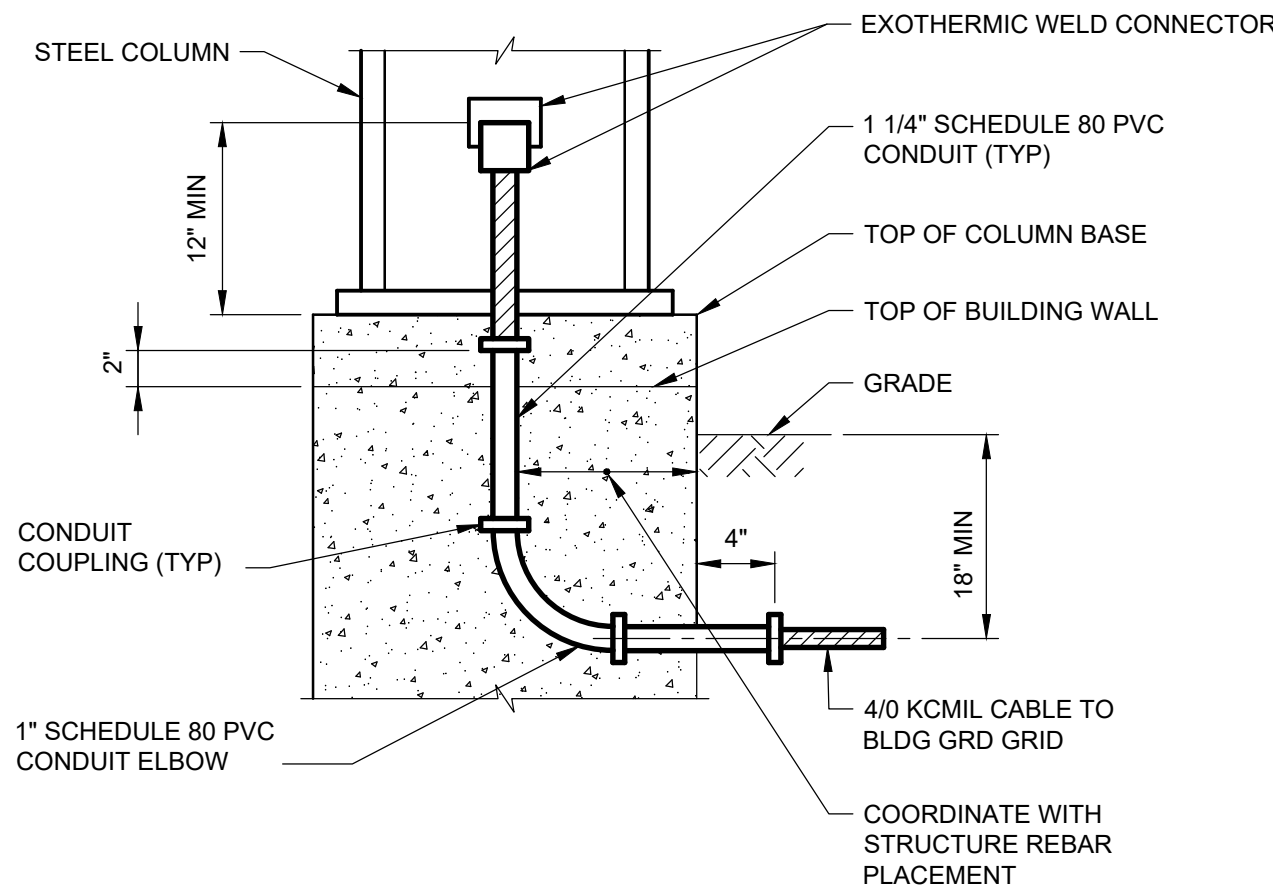


GROUNDING
CABLE IN SLAB

NOT TO SCALE

TYPICAL GROUND
ROD DETAIL

NOT TO SCALE

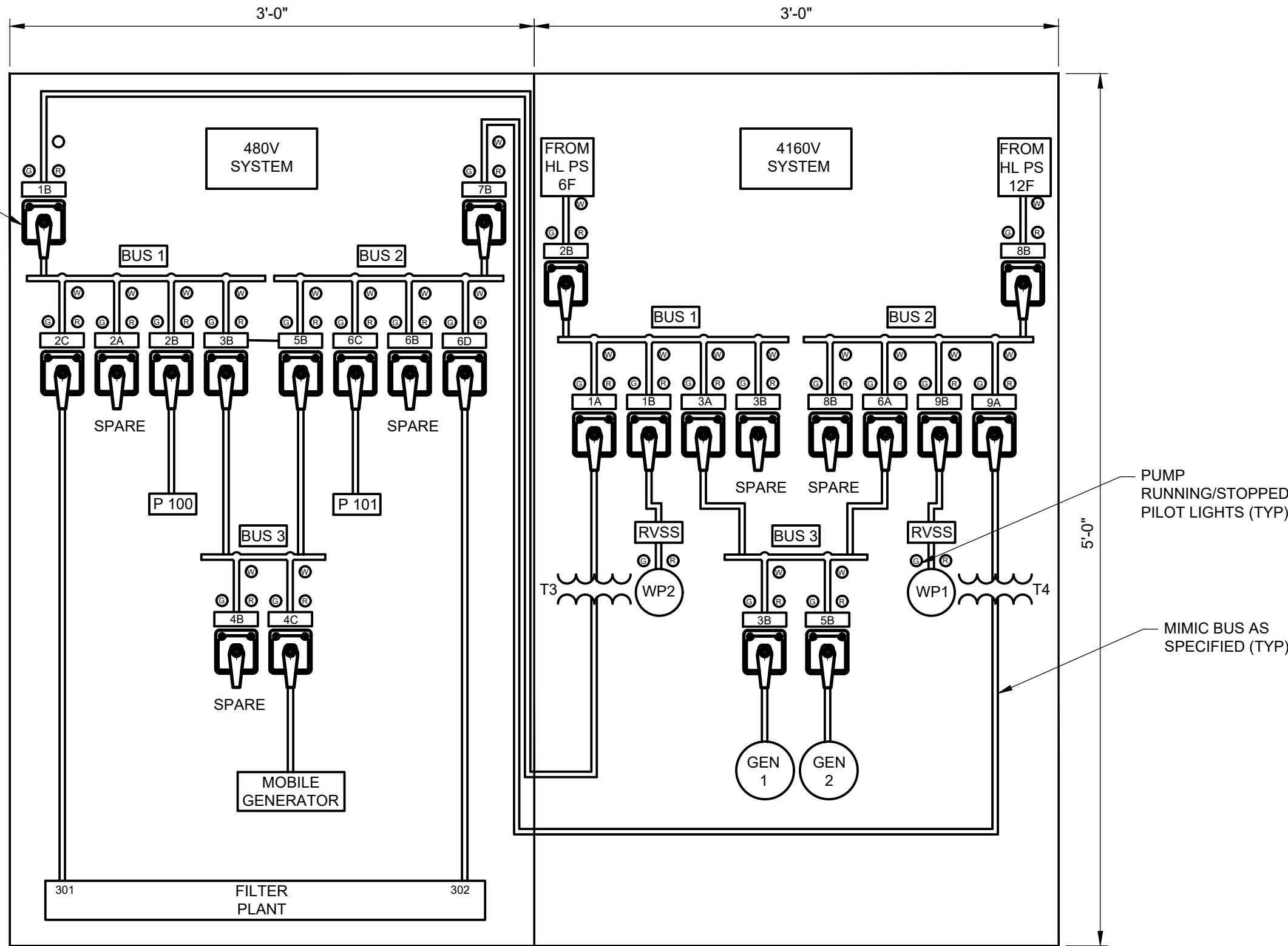


GROUNDING
CONNECTION AT COLUMN

NOT TO SCALE

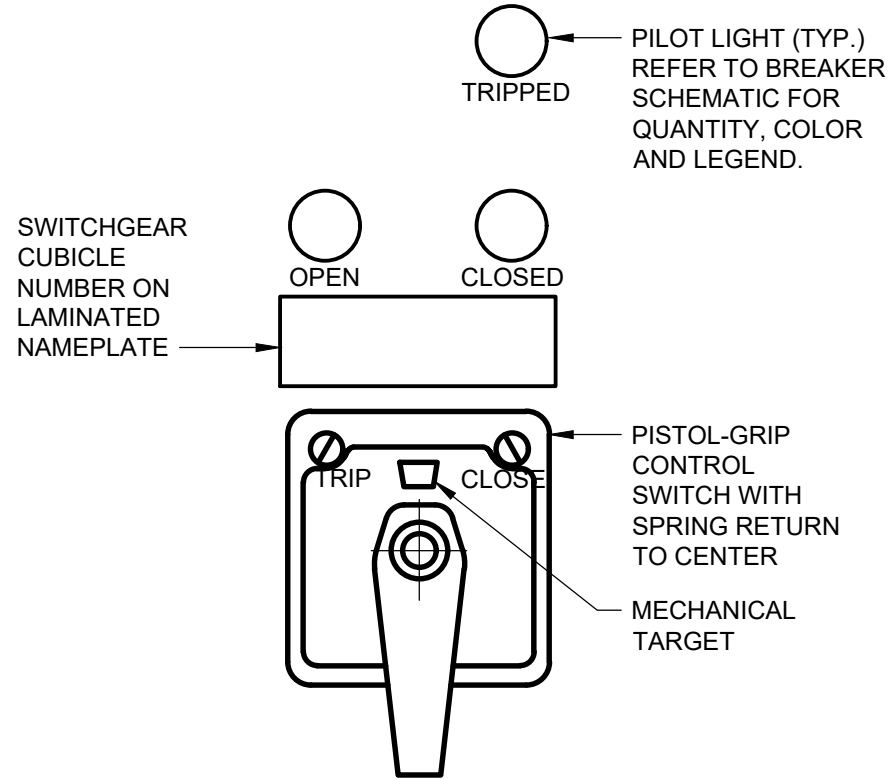
BID SET

CONTROL SWITCH
(SEE DETAIL THIS SHEET)



MIMIC PANEL FRONT ELEVATION

SCALE: 1 1/2" = 1'-0"



TYPICAL MIMIC PANEL CONTROL SWITCH

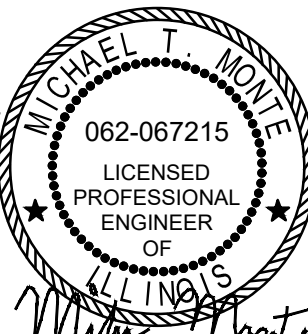
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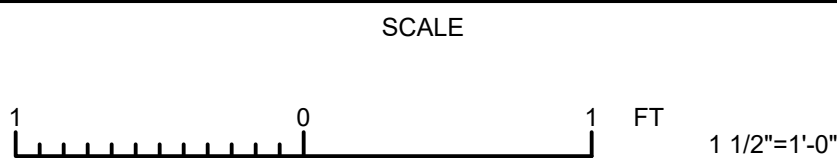
GREELEY AND HANSEN
A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED MM
DRAWN RM
CHECKED TK

DATE SIGNED: 01/31/2025
LICENSE EXPIRES: 11/30/2025
APPROVED



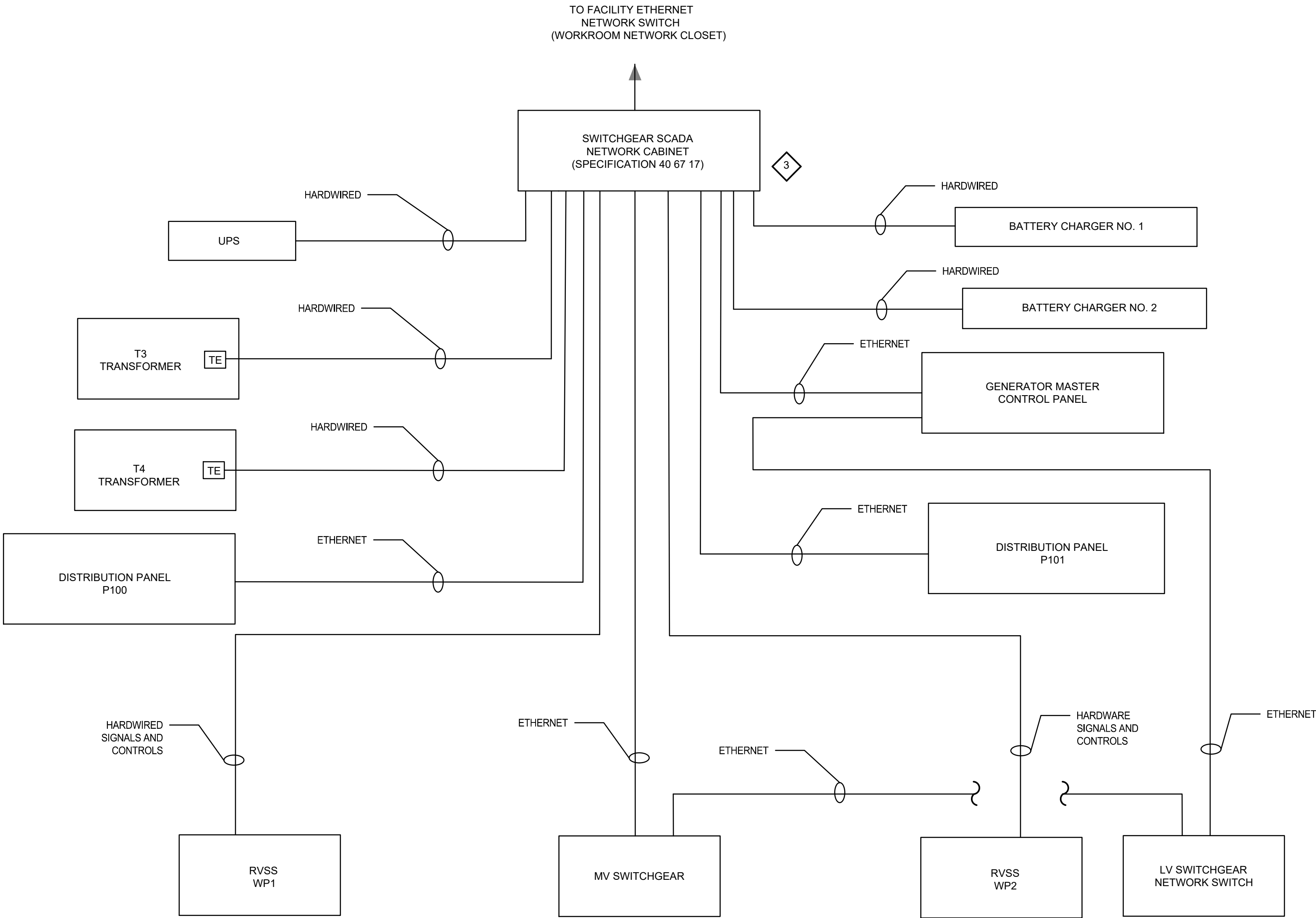
NO.	DATE	APPD	REVISION DESCRIPTION



CITY OF EVANSTON
WATER PRODUCTION BUREAU
**WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT**

ELECTRICAL
DETAILS SHEET 2

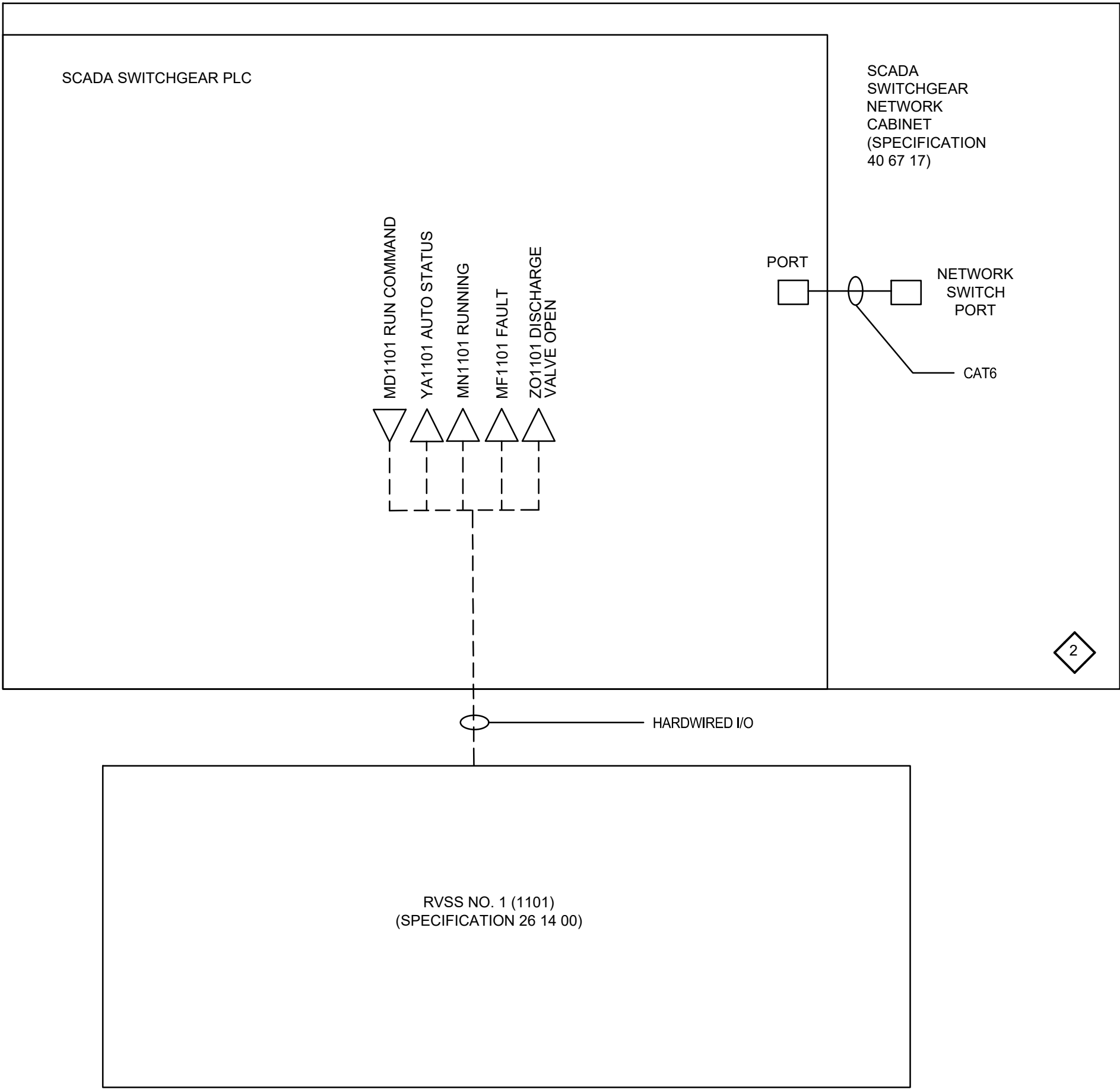
PROJECT NO.: 0028A
DWG: **E38**
SHEET: 105 OF 116
DATE: JANUARY 2025 REV: 0



POWER DISTRIBUTION NETWORK DIAGRAM

1

SCALE: NONE



BACKWASH PUMP NO.1 (WP1) P&ID (1101) TYP. FOR: WP2 (1102)

1

SCALE: NONE

KEY NOTES:

- 1 SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS.
- 2 PROVIDE NEMA 12 FREE STANDING ENCLOSURE.
- 3 REFERENCE PLAN VIEW DRAWING E-24 FOR LOCATION OF THE SWITCHGEAR SCADA NETWORK CABINET.

CCJM

C.C. Johnson & Malhotra, P.C.
Engineering Infrastructure Solutions



GREELEY AND HANSEN

A TYLin Company
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606

DESIGNED

PD

DATE
SIGNED:

01/31/2025

DRAWN

TM

LICENSE

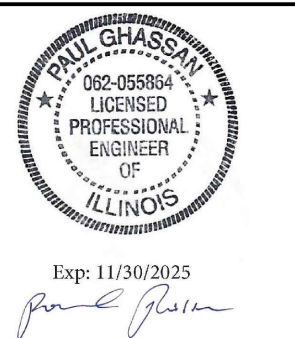
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PD

EXPIRES:

11/30/2025

APPROVED



NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

INSTRUMENTATION

NETWORK DIAGRAM AND BACKWASH PUMP
P&ID-IV

PROJECT NO.: 0028A

DWG:

N5

SHEET:

113

OF

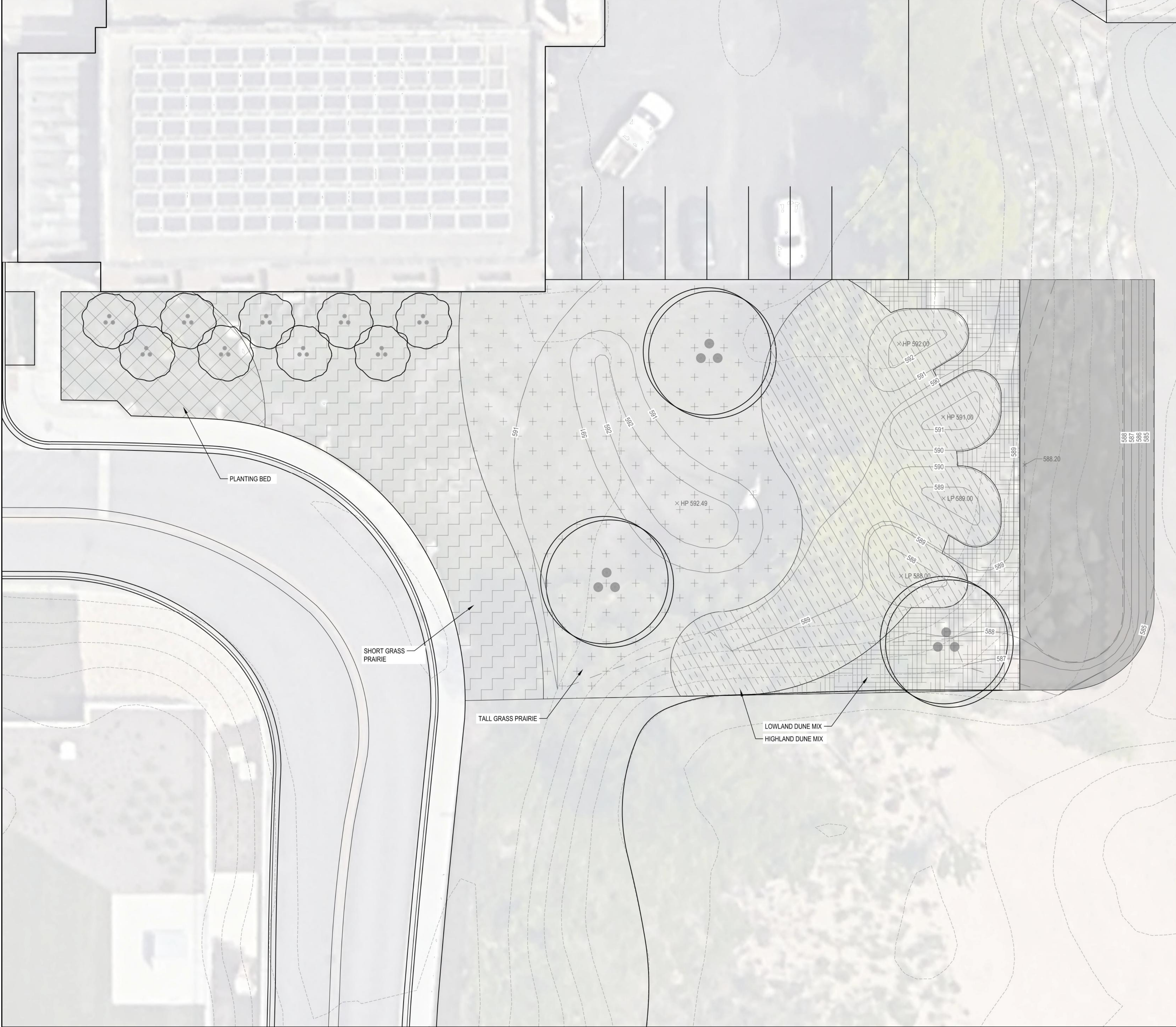
116

DATE:

JANUARY 2025

REV:

BID SET



SHEET NOTES

1. PRIOR TO START OF PROJECT WORK, VERIFY ALL SITE CONDITIONS AND SUBMIT A PROJECT WORK PLAN TO THE ARCHITECT FOR REVIEW AND COMMENT. PRESENT THE WORK PLAN AT THE OWNER'S PRE-CONSTRUCTION MEETING. DO NOT BEGIN PRIOR TO THE 'PRE-CONSTRUCTION MEETING' AND WRITTEN AUTHORIZATION TO PROCEED IS ISSUED BY THE OWNER.
2. ALL EXISTING CONDITIONS ARE TO BE CONFIRMED PRIOR TO DESIGN AND CONSTRUCTION WITH COMPREHENSIVE SITE SURVEY.
3. PRIOR TO THE COMMENCEMENT OF WORK, VERIFY LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY CONSTRUCTION AND TAKE RESPONSIBILITY FOR DAMAGES TO SUCH UTILITIES CAUSED AS A RESULT OF CONSTRUCTION.
4. TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES FROM DAMAGE THROUGHOUT CONSTRUCTION, INCLUDING DAMAGES TO UTILITIES, WALKS, WALLS, DRIVES, CURBS, ETC.
5. SECURE ALL NECESSARY PERMITS AND NOTIFY ALL UTILITY COMPANIES WITH UTILITIES ON THE SITE PRIOR TO THE CONSTRUCTION OF THE PROJECT. ADHERE TO ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS OR REGULATIONS PERTAINING TO THE PROJECT.
6. ESTABLISH AND MAINTAIN SITE SECURITY UNTIL PROJECT ACCEPTANCE.
7. TAKE NOTE OF ALL GRADING AND DRAINAGE WAYS AND MAINTAIN THESE DRAIN WAYS FLOWS FREE OF OBSTRUCTIONS.
8. DISPOSE ALL ELEMENTS DESIGNATED FOR REMOVAL IN A LEGAL MANNER. PROVIDE RECEIPTS AND LETTERS FROM DISPOSAL SITES TO OWNER AS REQUIRED BY THE OWNER.
9. ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
10. SEEDING APPLIES TO ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES EVEN IF ACTIVITIES EXTEND BEYOND THE APPROXIMATED SEEDING LIMITS INDICATED ON THE DRAWINGS. REPAIR ANY DISTURBED AREAS TO THE SAME CONDITION AS ORIGINALLY FOUND AND TO THE OWNER'S SATISFACTION. IN AREAS WHERE LAWN IS DISTURBED BEYOND THE LIMITS OF CONSTRUCTION, REPLACE LAWN WITH NEW LAWN SEED (INCLUDING TOPSOIL, SEED AND MULCH) AT NO ADDITIONAL COST TO THE OWNER. REFER TO SPECIFICATIONS FOR SEED MIXES.
11. MINIMIZE CULTIVATION WITHIN THE DRIPLINES OF EXISTING TREES. PREPARE SOIL FOR SEEDING BY MINIMIZING DISTURBANCE TO 4-INCH DEPTH. HAND CULTIVATE WHEN ENCOUNTERING ROOTS. NO HEAVY EQUIPMENT ALLOWED WITHIN DRIPLINE OF EXISTING TREES.
12. SHOVEL-CUT PLANTING BED EDGES UNLESS LABELED OTHERWISE.
13. HIGHLAND AND LOWLAND DUNE PLANTING AREAS TO RECEIVE SOIL MIXES AND AMENDMENTS CONSISTENT WITH SANDY DUNE CONDITIONS TO SUPPORT PLANT MATERIAL NATIVE TO THESE HABITATS. CONSULT WITH A HORTICULTURIST DURING PLANTING DESIGN.

LEGEND

- PLANTING BED
- SHORT GRASS PRAIRIE
- TALL GRASS PRAIRIE
- HIGHLAND DUNE MIX
- LOWLAND DUNE MIX
- REVTMENT
- PROPOSED DECIDUOUS TREE
- PROPOSED ORNAMENTAL TREE

PRELIMINARY

FURTHER DETAILS WILL BE ADDRESSED BY CHANGE ORDER. INCLUDE PRELIMINARY COST IN BID FORM.

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DESIGNED	MM	DATE
DRAWN	RM	
CHECKED	MM	APPROVED

NO.	DATE	APPD	REVISION DESCRIPTION

SCALE

NONE

CITY OF EVANSTON
WATER PRODUCTION BUREAU

WATER PLANT
4160V ELECTRICAL SYSTEM RELIABILITY PROJECT

GENERAL

LANDSCAPE RESTORATION PLAN

PROJECT NO.: 0028A

DWG: **R1**

SHEET: 116 OF 116

DATE: JANUARY 2025 REV: 0