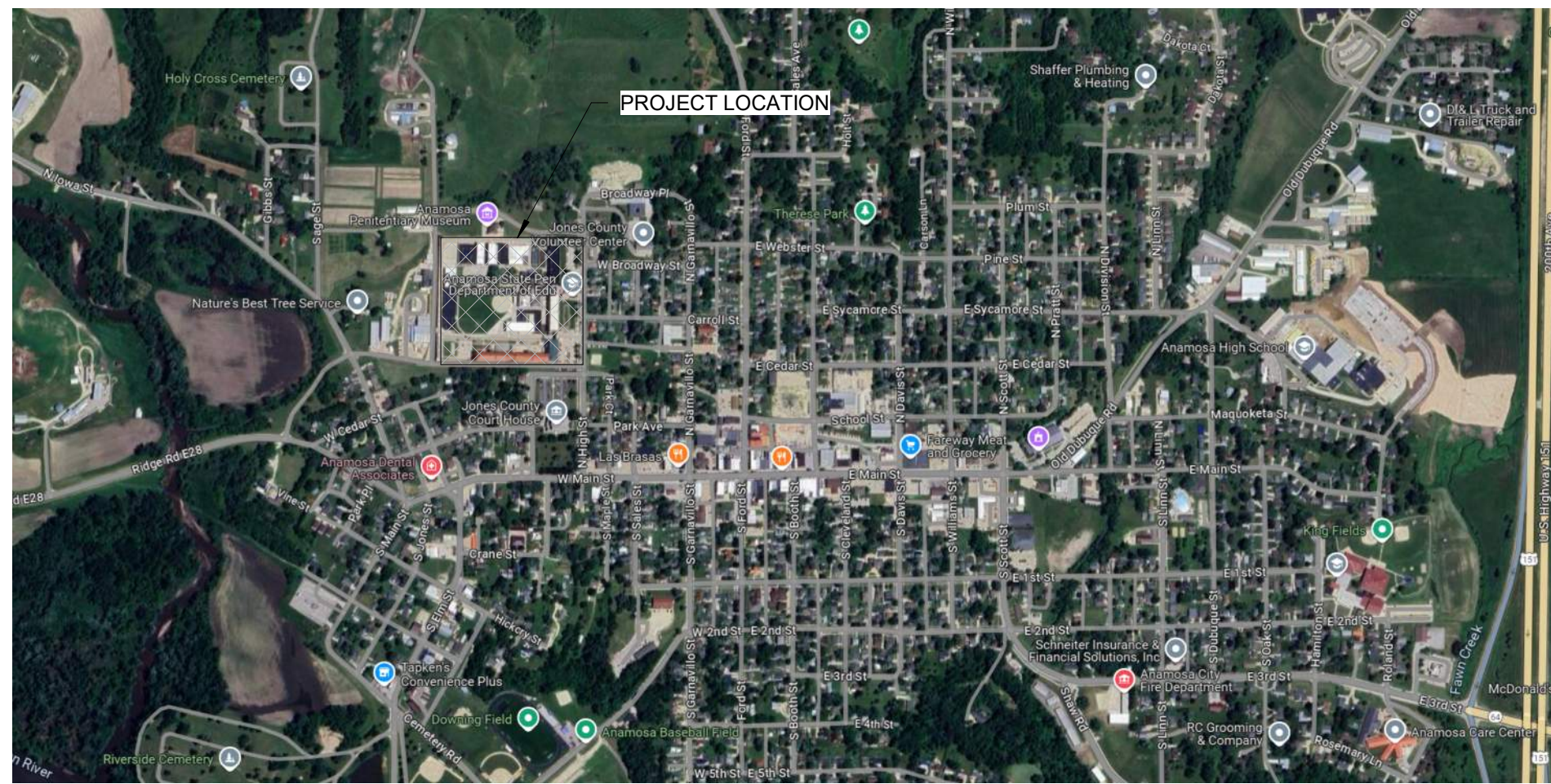


ANAMOSA STATE PRISON TUNNEL REPAIRS

DAS PROJECT NO: 9386.01 RFB #938601-01

406 N HIGH STREET
ANAMOSA, IA 52205



A3 PROJECT MAP
NOT TO SCALE

SHEET INDEX

SHEET LIST	
SHEET	NAME
GENERAL	
G000	COVER SHEET
STRUCTURAL	
S000	STRUCTURAL GENERAL INFORMATION AND SPECIAL INSPECTIONS
S001	GENERAL NOTES
S100	SITE PLAN
S101	NORTH TUNNEL PLANS
S102	SOUTH TUNNEL PLANS
S200	TYPICAL SECTIONS
S300	PHOTOS
S500	DETAILS
S501	DETAILS

CERTIFICATIONS

STRUCTURAL ENGINEER

LICENSED PROFESSIONAL ENGINEER

CHRISTOPHER R. MARVIN
P27417

★ IOWA ★

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: *Christopher R. Marvin* DATE: 10/30/2024

PRINTED OR TYPED NAME: **Christopher R. Marvin**

LICENSE NUMBER: **P27417**

MY LICENSE RENEWAL DATE IS DECEMBER 31, **2025**

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: **ALL**

DESIGN INFORMATION

- 1. CODES:
A. INTERNATIONAL BUILDING CODE (IBC) 2021
B. AMERICAN CONCRETE INSTITUTE - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318)
C. AMERICAN SOCIETY OF CIVIL ENGINEERS AND STRUCTURAL ENGINEERING INSTITUTE (ASCE/SEI 7) - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
2. DESIGN LOADS PER THE 2021 IBC (RISK CATEGORY II)
A. DEAD LOADS
STRUCTURE SELF WEIGHT AS SHOWN
B. LIVE LOADS
TYPICAL ROOF LIVE LOAD - 20 PSF
ROOF LID 100 PSF
C. ROOF SNOW LOAD
GROUND SNOW LOAD, Pg 25 PSF
FLAT ROOF SNOW LOAD, Pf 21 PSF
SNOW EXPOSURE FACTOR, Ce 1.0
SNOW IMPORTANCE FACTOR, Is 1.2
THERMAL FACTOR, Ct 1.0
D. DEFLECTION CRITERIA
a. FLOOR LIVE LOAD L/360

CAST-IN-PLACE CONCRETE

- 1. ALL CONCRETE SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTES PUBLICATIONS: ACI 301, ACI 305.1, ACI 306.1, ACI 315, AND ACI 318 UNLESS NOTED OTHERWISE.
2. CONCRETE COMPRESSIVE STRENGTH (28 DAY)(F'c)
FOUNDATION WALLS 4000 PSI
ELEVATED SLAB 4000 PSI
3. CONCRETE REINFORCEMENT STANDARDS:
DEFORMED BARS ASTM A615 Fy = 60 KSI
WELDED WIRE REINFORCEMENT (WWR) ASTM A1064 Fy = 65 KSI
SYNTHETIC MACRO FIBER REINFORCING ASTM C1116
4. ALL CONCRETE SHALL BE STONE AGGREGATE UNLESS NOTED OTHERWISE. SUBMIT MIX DESIGN AND DOCUMENTATION FOR APPROVAL PER ACI 318.
5. REINFORCEMENT PROTECTION
A. CONCRETE PLACED AGAINST EARTH - 3"
B. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH:
a. BARS #5 AND SMALLER - 1 1/2"
b. BARS LARGER THAN #5 - 2"
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
a. SLABS, WALLS, AND JOISTS - 3/4"
b. BEAMS, COLUMNS - 1 1/2"
6. WHERE REQUIRED, DOWELS SHALL MATCH THE SIZE, NUMBER AND SPACING OF THE MAIN REINFORCING UNLESS NOTED OTHERWISE.
7. ALL SPLICES, STANDARD HOOKS, AND DEVELOPMENT LENGTHS TO BE PER THE REFERENCED EDITION OF ACI 318. MAKE BARS CONTINUOUS AROUND CORNERS. ALL SPLICES SHALL BE BY CONTACT LAP.
8. ALL SPLICES SHALL BE A CLASS "B" TENSION SPLICE AS DEFINED IN ACI 318. PROVIDE LAP SPLICES LENGTHS AS FOLLOWS:

Table with 3 columns: BAR SIZE, TYPICAL, TOP BARS. Rows include #3, #4, #5, #6, #7, #8, #9, #10, #11 with corresponding dimensions.

LAP SPLICE LENGTHS GIVEN, ASSUME CLEAR SPACING BETWEEN BARS OF 2 BAR DIAMETERS, AND A MINIMUM CLEAR COVER OF 1 BAR DIAMETER. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" ON FRESH CONCRETE BENEATH THE BARS.

- 9. WALLS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE, UNLESS APPROVED BY THE ENGINEER.
10. CONSTRUCTION JOINTS IN STRUCTURAL CONCRETE WORK MUST BE MADE AT CENTER OF SPAN OR AT CENTER OF SUPPORT WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN.
11. THERE SHALL BE NO ADDITIONAL OPENINGS LARGER THAN 10" IN CONCRETE WALLS AND SLABS NOT SHOWN. REFER TO CONCRETE OPENING DETAIL FOR ADDITIONAL REINFORCEMENT AROUND OPENINGS.
12. REINFORCING STEEL SHALL BE SECURELY FASTENED INTO FORMS PRIOR TO POURING CONCRETE. WET SETTING OF REINFORCING STEEL WILL NOT BE ACCEPTED PER ACI.
13. CONCRETE MIX - FOUNDATION WALLS
COARSE AGGREGATE 100% PASSING 1" SIEVE
FINE AGGREGATE 100% PASSING 3/8" SIEVE
WATER/CEMENT RATIO 0.45
SLUMP (NO WATER REDUCER) 4" +/- 1"
SLUMP (WITH WATER REDUCER) 4" TO 8"
AIR CONTENT 6% +/- 1.5%
14. CONCRETE MIX - ELEVATED SLAB
COARSE AGGREGATE 100% PASSING 1" SIEVE
FINE AGGREGATE 100% PASSING 3/8" SIEVE
WATER/CEMENT RATIO 0.5
SLUMP (WITH WATER REDUCER) 4" TO 6"
AIR CONTENT 6% +/- 1.5%

GENERAL NOTES

- 1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL PROJECT DRAWINGS AND SPECIFICATIONS. REFER TO ALL DRAWINGS FOR THE COORDINATION OF THE WORK IN THIS PROJECT.
2. THE INTENT OF THESE PLANS AND NOTES IS TO PRESENT THE PROJECT REQUIREMENTS. MAJOR DETAILS HAVE BEEN SHOWN ON THE DRAWINGS. HOWEVER, CERTAIN MINOR DETAILS MUST BE WORKED OUT IN THE FIELD OR SHOP DRAWING PROCESS BY THE CONTRACTOR.
3. UNLESS NOTED OTHERWISE, DETAILS SHOWN ON DRAWINGS ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
4. THE STRUCTURE IS DESIGNED TO BE STABLE AND SELF-SUPPORTING AFTER THE STRUCTURE IS FULLY ERECTED AND ALL CONNECTIONS ARE COMPLETED. UNLESS NOTED OTHERWISE, THE DRAWINGS DO NOT INDICATE THE MEANS AND METHODS OF CONSTRUCTION. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCING TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION TEMPORARY BRACING, GUYS AND TIE-DOWNS NECESSARY FOR THE ERECTION PROCESS.
5. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW THE APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
6. CONTRACTOR'S CONSTRUCTION AND ERECTION SEQUENCE SHALL CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF THE STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.
7. EXISTING CONDITIONS:
A. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND CONDITIONS RELATING TO EXISTING CONSTRUCTION AND EXISTING SERVICES ON SITE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING COLUMNS, WALLS, OPENINGS, ETC. WITH THE DRAWINGS PRIOR TO PROCEEDING WITH THE WORK. ANY DISCREPANCIES WITH THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
B. DURING CONSTRUCTION THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS WHICH ARE NOT KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION (DISCOVERY). SUCH CONDITIONS MAY INTERFERE WITH THE NEW CONSTRUCTION OR REQUIRE PROTECTION AND/OR SUPPORT OF EXISTING WORK DURING CONSTRUCTION. IT MAY ALSO CONSIST OF DAMAGED OR DETERIORATION OF STRUCTURAL MATERIALS OR COMPONENTS WHICH COULD JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE STRUCTURE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCOVERIES WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE WORK OR JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE STRUCTURE PRIOR TO PROCEEDING WITH THE WORK RELATED TO SUCH DISCOVERIES.
C. DURING THE CONSTRUCTION PROCESS, IT SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF THE EXISTING STRUCTURE AND TO PROTECT IT FROM DAMAGE ANY PORTIONS THAT ARE TO REMAIN.
D. CONTRACTOR SHALL INVESTIGATE THE SITE DURING EARTHWORK OPERATIONS FOR FILL MATERIAL OR BURIED STRUCTURES. IMMEDIATELY, NOTIFY THE ENGINEER IF ANY SUCH MATERIALS OR STRUCTURES ARE DISCOVERED.
8. STRUCTURAL COORDINATION
A. EXCESS COST DUE TO VARIATION IN THE STRUCTURE TO ACCOMMODATE A SUBSTITUTION OR ALTERNATE MANUFACTURER(S) FROM THE LISTED BASIS OF DESIGN SHALL BE BORNE BY THE CONTRACTOR.
9. BEFORE SUBMITTING A BID, EACH BIDDER SHALL VISIT THE SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS, CONSTRUCTION REQUIREMENTS, RESTRICTIONS, QUANTITIES AND EQUIPMENT NECESSARY TO COMPLETE THE WORK. THE BID SHALL INCLUDE ALL ITEMS REQUIRED TO COMPLETE THE WORK WITHIN THE EXISTING CONDITIONS. DISRUPTION OF THE OWNERS NORMAL ACTIVITIES AROUND THE CONSTRUCTION SITE SHALL BE KEPT TO A MINIMUM.
10. THE COST OF ADDITIONAL DESIGN WORK DUE TO ERRORS AND OMISSIONS BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE BORNE BY THE RESPONSIBLE CONTRACTOR.
11. ANY ENGINEERING DESIGN PROVIDED BY OTHER AND SUBMITTED FOR REVIEW OR RECORD SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT EXISTS.
12. CONTRACTOR SHALL COORDINATE WORK SCHEDULES WITH THE OWNER TO ESTABLISH CONSTRUCTION SEQUENCING AROUND ANY OCCUPIED AREAS. CONTRACTOR SHALL NOT PROCEED TO OCCUPIED AREAS UNTIL AUTHORIZED BY THE OWNER.
13. ALL ELEMENTS AND SURFACES DAMAGED BY DEMOLITION, BUT NOT SCHEDULED FOR REMOVAL SHALL BE REPAIRED AND REFINISHED TO MATCH THE ADJACENT SURFACES AT NO ADDITIONAL COST TO THE OWNER.
14. CONTRACTOR SHALL REMOVE ALL DEBRIS AND WASTE MATERIALS RESULTING FROM CONSTRUCTION FROM THE SITE, UNLESS NOTED OTHERWISE.
15. CONTRACTOR SHALL MINIMIZE CREATION OF DUST, DIRT AND WINDBORNE DEBRIS FROM BLOWING ACROSS THE SITE AND ONTO ADJACENT SITES.
16. CONTRACTOR SHALL COVER ANY EXTERIOR OPENING WITH TEMPORARY CLOSURES WHEN NOT WORKING ON SITE TO PROTECT THE INTERIOR SPACES FROM WEATHER, INSECTS, RODENTS AND INTRUDERS.
17. TUNNELS CANNOT BE LEFT OPEN OVERNIGHT. AT END OF WORKDAY, ANY DEMOLISHED LID EITHER HAS TO BE REPLACED WITH NEW CONCRETE LID OR TEMPORARY STEEL PLATE SCREWED DOWN.
18. ANY EQUIPMENT BROUGHT IN AT THE BEGINNING OF THE WORK DAY NEEDS TO BE TAKEN OUT AT THE END OF THE WORK DAY AND NOT LEFT INSIDE THE SECURED PERIMETER.
19. CONCRETE TRUCKS CANNOT LEAVE THE DRIVEWAY INSIDE THE SECURED PERIMETER. CONCRETE BUGGIES NEED TO BE USED TO CARRY CONCRETE BEYOND THE DRIVEWAY TO THE LID POURS.
20. PROVIDE A CONCRETE POUR SCHEDULE THAT SHOWS HOW PEDESTRIAN ACCESS IS MAINTAINED TO ALL LOCATIONS. CONTRACTOR CANNOT BLOCK ALL ENTRANCES TO ANY ONE BUILDING AT ONE TIME.

STRUCTURAL STEEL

- 1. STRUCTURAL STEEL SHALL CONFORM TO THE REFERENCED EDITION OF THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".
2. STRUCTURAL STEEL MATERIAL STANDARDS
WIDE FLANGE SECTIONS ASTM A992 Fy = 50 KSI
ANGLES, CHANNELS & PLATES ASTM A36 Fy = 36 KSI
SQUARE AND RECTANGULAR HSS ASTM A500, GR C Fy = 50 KSI
ROUND HSS ASTM A500, GR C Fy = 46 KSI
STANDARD PIPE SECTIONS ASTM A53, GR B Fy = 35 KSI
3. STRUCTURAL STEEL CONNECTION STANDARDS:
HIGH STRENGTH BOLTS ASTM F3125 GRADE A325
HEAVY HEX NUT ASTM A563
WASHERS ASTM F436
ANCHOR RODS ASTM F1554 GRADE 36
HEADED WELDED STUDS ASTM A108 TYPE B
WELDING ELECTRODES (CARBON STEEL) AWS 5.1, E70XX
4. WELDING SHALL BE IN ACCORDANCE WITH STRUCTURAL WELDING CODE, AWS D1.1, LATEST EDITION, AND SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY USING PROPER ELECTRODES FOR MATERIAL BEING WELDED. PROVIDE WELD SIZE IN ACCORDANCE WITH AISC SPECIFICATIONS, BUT NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.
5. ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH RCSC - "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS." SEE DRAWINGS FOR BOLTS SIZES. USE 3/4" DIAMETER, A325 BOLTS UNLESS NOTED OTHERWISE.
6. ALL BOLTED CONNECTIONS ARE BEARING TYPE, UNLESS INDICATED AS TENSION CONTROLLED (TC) OR SLIP CRITICAL (SC), PROVIDE STANDARD HOLES FOR BEARING TYPE CONNECTION WHICH ARE 1/16" WIDER DIAMETER THAN THE BOLT.
7. ALL EXTERIOR EXPOSURE STEEL FRAMING, STEEL LINTEL ASSEMBLIES, BRICK RELIEF ANGLES AND CONNECTORS SHALL BE HOT DIPPED GALVANIZED. ITEMS INDICATED TO BE GALVANIZED SHALL BE HOT-DIP GALVANIZED IN COMPLIANCE WITH ASTM A123.
8. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS. STEEL SHALL BE HAND TOoled CLEANED (SSPC-SP2) OR POWER TOOL CLEANED (SSPC-SP3).
9. ALL STRUCTURAL STEEL WILL HAVE ONE COAT OF FABRICATOR'S STANDARD LEAD AND CHROMATE-FREE RUST INHIBITIVE PRIMER APPLIED PRIOR TO DELIVERY TO THE JOB SITE UNLESS NOTED OTHERWISE. ALL AREAS OF STRUCTURAL STEEL MEMBERS IN WHICH THE PRIMER COATED SURFACE IS DAMAGED DURING CONSTRUCTION SHALL BE TOUCHED UP WITH MATCHING PRIMER.
10. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
11. CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORES, GUYS, BRACES AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, PLUMB AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL TO DESIGN LOADS. REMOVE ALL TEMPORARY SUPPORTS WHEN PERMANENT STRUCTURAL STEEL FRAMING AND CONNECTIONS ARE COMPLETED.
12. MAINTAIN ERECTION TOLERANCES OF STRUCTURAL STEEL WITHIN AISC 303, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
13. DO NOT ENLARGE MISALIGNED BOLT HOLES BY BURNING OR THERMAL CUTTING. REAM HOLES THAT MUST BE ENLARGED TO INSTALL BOLTS.

SUBMITTALS

- 1. CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL THE FOLLOWING SUBMITTALS FOR EACH MATERIAL INDICATED BELOW.
2. CONCRETE REINFORCING
A. SUBMIT CONCRETE REINFORCEMENT SHOP DRAWINGS IN ACCORDANCE WITH ACI 315 FOR APPROVAL.
a. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66 AND THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
3. CAST-IN-PLACE CONCRETE
A. SUBMIT CONCRETE MIX DESIGNS FOR EACH APPLICATION LOCATION INDICATED IN THE DRAWINGS.
4. CONCRETE POUR SCHEDULE
A. SUBMIT CONCRETE POUR SCHEDULE FOR REVIEW BY FACILITY AND EOR PRIOR TO POURING ANY CONCRETE.
5. TUNNEL LID HATCH
A. SUBMIT CUTSHEET OF PROPOSED HATCH FOR REVIEW BY FACILITY, CONSTRUCTION MANAGER, AND EOR PRIOR TO CONSTRUCTION.
6. TUNNEL HATCH LADDER
A. SUBMIT CUTSHEET OR SHOP DRAWINGS FOR REVIEW BY FACILITY, CONSTRUCTION MANAGER, AND EOR.
7. TUNNEL PIPE PASS
A. SUBMIT SHOP DRAWINGS FOR REVIEW BY FACILITY, CONSTRUCTION MANAGER, AND EOR.

STATEMENT OF SPECIAL INSPECTIONS

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION AND STRUCTURAL TESTING REQUIREMENTS OF THE BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL INSPECTION SERVICES APPLICABLE TO THE STRUCTURAL COMPONENTS OF THIS PROJECT. IF APPLICABLE, IT INCLUDES REQUIREMENTS FOR SEISMIC RESISTANCE AND/OR REQUIREMENTS FOR WIND RESISTANCE. THIS STATEMENT OF SPECIAL INSPECTIONS ENCOMPASSES THE FOLLOWING DISCIPLINES:
[X] STRUCTURAL [] MECHANICAL / ELECTRICAL / PLUMBING
[] ARCHITECTURAL [] OTHER
THE SPECIAL INSPECTION COORDINATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.
INTERIM REPORTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTIONS OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY. JOB SITE SAFETY AND MEANS AND METHODS OF CONSTRUCTION ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

QUALIFICATIONS OF INSPECTORS AND TESTING TECHNICIANS

THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING SPECIAL INSPECTION AND TESTING ACTIVITIES ARE SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL. THE CREDENTIALS OF ALL INSPECTORS AND TESTING TECHNICIANS SHALL BE PROVIDED IF REQUESTED.

KEY FOR MINIMUM QUALIFICATIONS OF INSPECTION AGENTS:

WHEN THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DEEMS IT APPROPRIATE THAT THE INDIVIDUAL PERFORMING A STIPULATED TEST OR INSPECTION HAVE A SPECIFIC CERTIFICATION OR LICENSE AS INDICATED BELOW, SUCH DESIGNATIONS SHALL APPEAR BELOW THE AGENT ON THE SCHEDULE.

- PE/SE STRUCTURAL ENGINEER - A LICENSED SE OR PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURE
PE/GE GEOTECHNICAL ENGINEER - A LICENSED PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS
EIT ENGINEER-IN-TRAINING - A GRADUATE ENGINEER WHO HAS PASSED THE FUNDAMENTS OF ENGINEERING EXAMINATION

AMERICAN CONCRETE INSTITUTE (ACI) CERTIFICATION

- ACI-CFT CONCRETE FIELD TESTING TECHNICIAN - GRADE 1
ACI-CCI CONCRETE CONSTRUCTION INSPECTOR
ACI-LTT LABORATORY TESTING TECHNICIAN - GRADE 1 & 2
ACI-STT STRENGTH TESTING TECHNICIAN

AMERICAN WELDING SOCIETY (AWS) CERTIFICATION

- AWS-CWI CERTIFIED WELDING INSPECTOR
AWS/AISC-SSI CERTIFIED STRUCTURAL STEEL INSPECTOR

AMERICAN SOCIETY OF NON-DESTRUCTIVE TESTING (ASNT) INSPECTION

- ASNT NON-DESTRUCTIVE TESTING TECHNICIAN - LEVEL IV OR III

INTERNATIONAL CODE COUNCIL (ICC) CERTIFICATION

- ICC-SMSI STRUCTURAL MASONRY SPECIAL INSPECTOR
ICC-SFSI SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR
ICC-RCSI REINFORCED CONCRETE SPECIAL INSPECTOR
ICC-SWSI STRUCTURAL STEEL AND WELDING SPECIAL INSPECTOR
ICC-PCSI PRESTRESSED CONCRETE SPECIAL INSPECTOR

NATIONAL INSTITUTE OF CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET)

- NICET-CT CONCRETE TECHNICIAN - LEVELS I, II, III, & IV
NICET-ST SOILS TECHNICIAN - LEVELS I, II, III, & IV
NICET-GET GEOTECHNICAL ENGINEERING TECHNICIAN - LEVEL I, II, III & IV

EXTERIOR DESIGN INSTITUTE (EDI) CERTIFICATION

- EDI-EIFS EIFS THIRD PARTY INSPECTOR

CONTRACTOR'S RESPONSIBILITY REGARDING INSPECTIONS

- 1. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING (SCHEDULED AT LEAST 5 BUSINESS DAYS BEFORE START OF CONSTRUCTION). MEETING SHOULD INCLUDE ALL RESPONSIBLE PARTIES (A/E, S/F, FIELD INSPECTOR). MEETING IS FOR ENTIRE PROJECT, NOT PHASE OF WORK.
2. PRE-CONSTRUCTION MEETING IS TO BE CONDUCTED BY THE CONTRACTOR WITH MEETING MINUTES TO BE TAKEN AND DISTRIBUTED TO ALL MEMBERS ATTENDING. MEETING MINUTES TO INCLUDE A SIGN-IN SHEET FOR ALL PARTIES.
3. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS. SUFFICIENT NOTICE AND LEAD TIME MUST BE ALLOWED FOR THE INSPECTION AND TESTING TO BE PERFORMED WITHOUT IMPENDING CONSTRUCTION OPERATIONS.
4. THE CONTRACTOR MUST COOPERATE WITH THE INSPECTIONS AND TESTING AGENCIES. SAFE ACCESS MUST BE PROVIDED TO ALL INSPECTION AND TEST TO BE PERFORMED. THIS MAY REQUIRE THE CONTRACTOR TO PROVIDE SCAFFOLDING, LADDERS OR LIFTS.
5. WHEN DEFICIENCIES ARE IDENTIFIED, THE CONTRACTOR MUST TAKE CORRECTIVE ACTIONS TO COMPLY WITH THE CONTRACT DOCUMENTS OR REMEDY THE DEFICIENCIES AS DIRECTED BY THE REGISTERED DESIGN PROFESSIONAL.
6. THE SPECIAL INSPECTION AND QUALITY ASSURANCE PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITY TO PERFORM QUALITY CONTROL.
7. THE CONTRACTOR IS RESPONSIBLE FOR TESTING SERVICES THAT ARE REQUIRED FOR MATERIAL SUBMITTALS AND THAT NOT PART OF THE SPECIAL INSPECTIONS PROGRAM (E.G. AGGREGATE TESTS, CONCRETE MIX DESIGNS, TESTING OF CONTROLLED FILL, MATERIALS, ETC.).

Table with 4 columns: CONCRETE CONSTRUCTION, SERVICE, EXTENT, AGENT. Rows include inspection details for reinforcing steel, shear reinforcement, and concrete curing.

Table with 4 columns: DRAWN BY, APPROVED BY, ISSUED FOR, ISSUE DATE. Includes project number 22-0000490 and field book reference.



**ANAMOSA STATE PRISON
TUNNEL REPAIRS**

DAS PROJECT NO. 9386.01
ANAMOSA STATE PENITENTIARY
406 N HIGH STREET ANAMOSA, IA 52205

DRAWN BY	BDD
APPROVED BY	CRM
ISSUED FOR	BID
ISSUE DATE	10/30/2024
PROJECT NUMBER	2240000490
FIELD BOOK	--

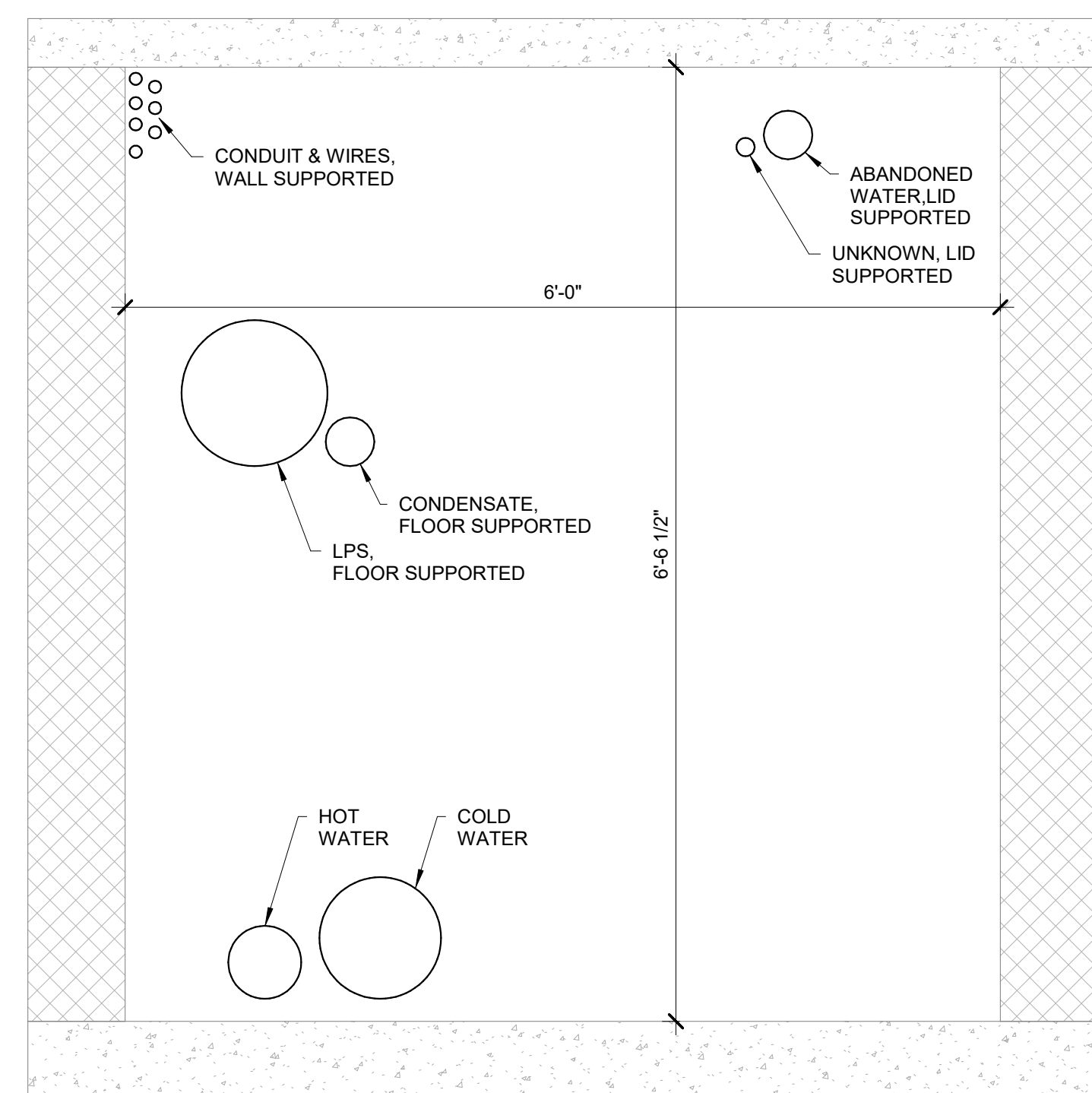
SITE PLAN

S100

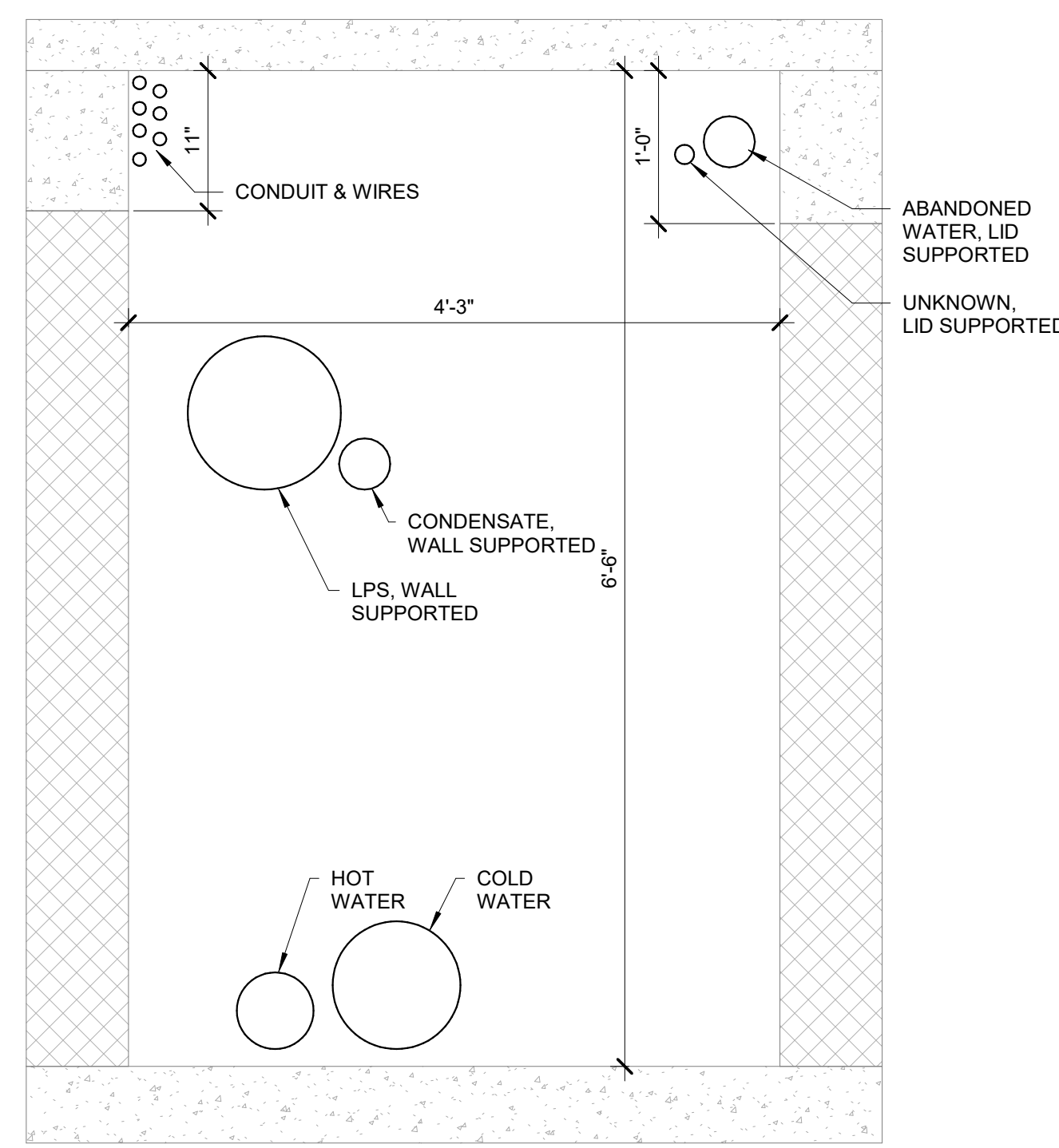
DRAWN BY	CRM
APPROVED BY	CRM
ISSUED FOR	BID
ISSUE DATE	10/30/2024
PROJECT NUMBER	2240000490
FIELD BOOK	

DAS PROJECT NO.	9386.01
ANAMOSA STATE PENITENTIARY	
406 N HIGH STREET	
ANAMOSA, IA 52205	

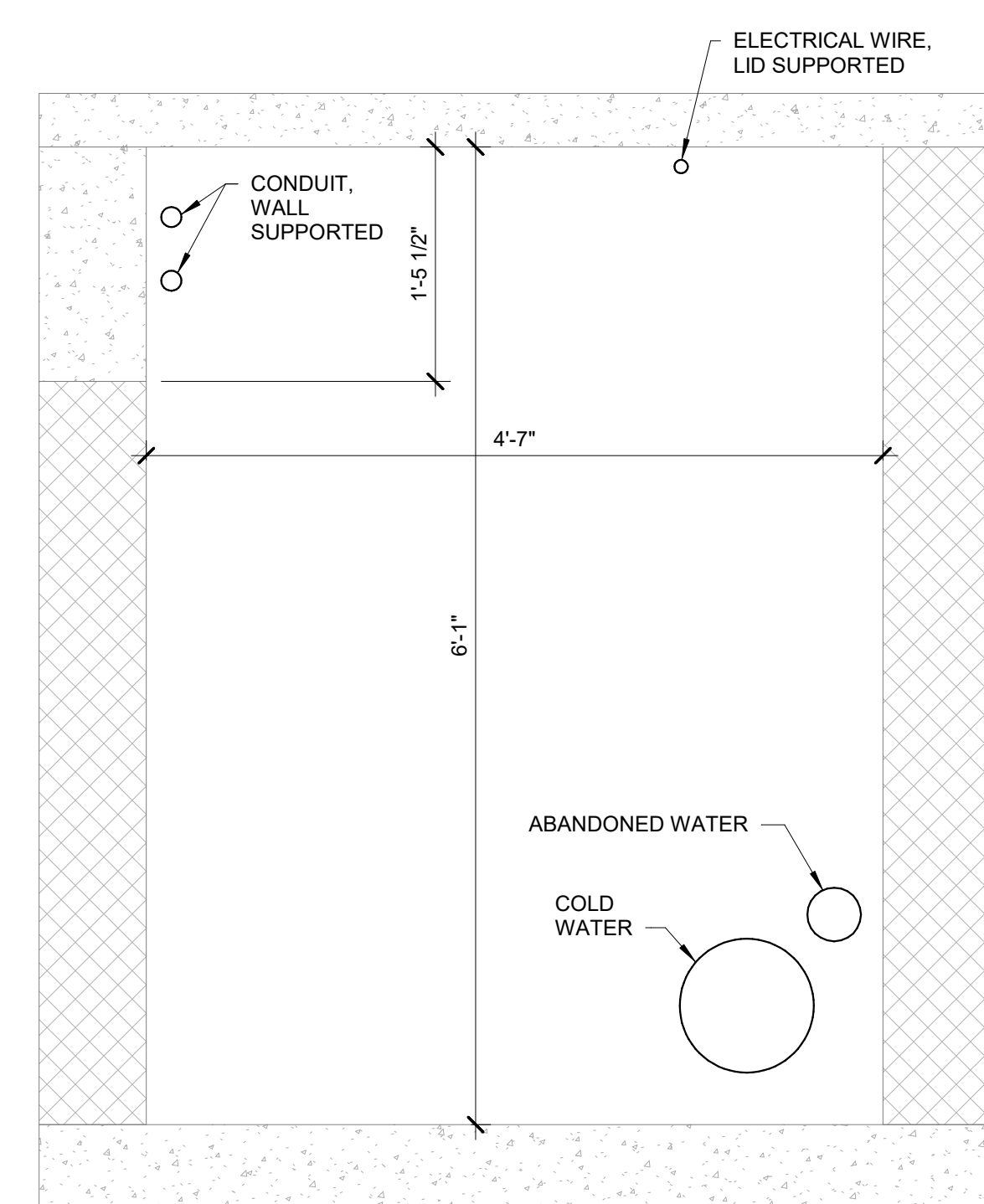
800.798.0313 | SHIVE-HATTERY.COM



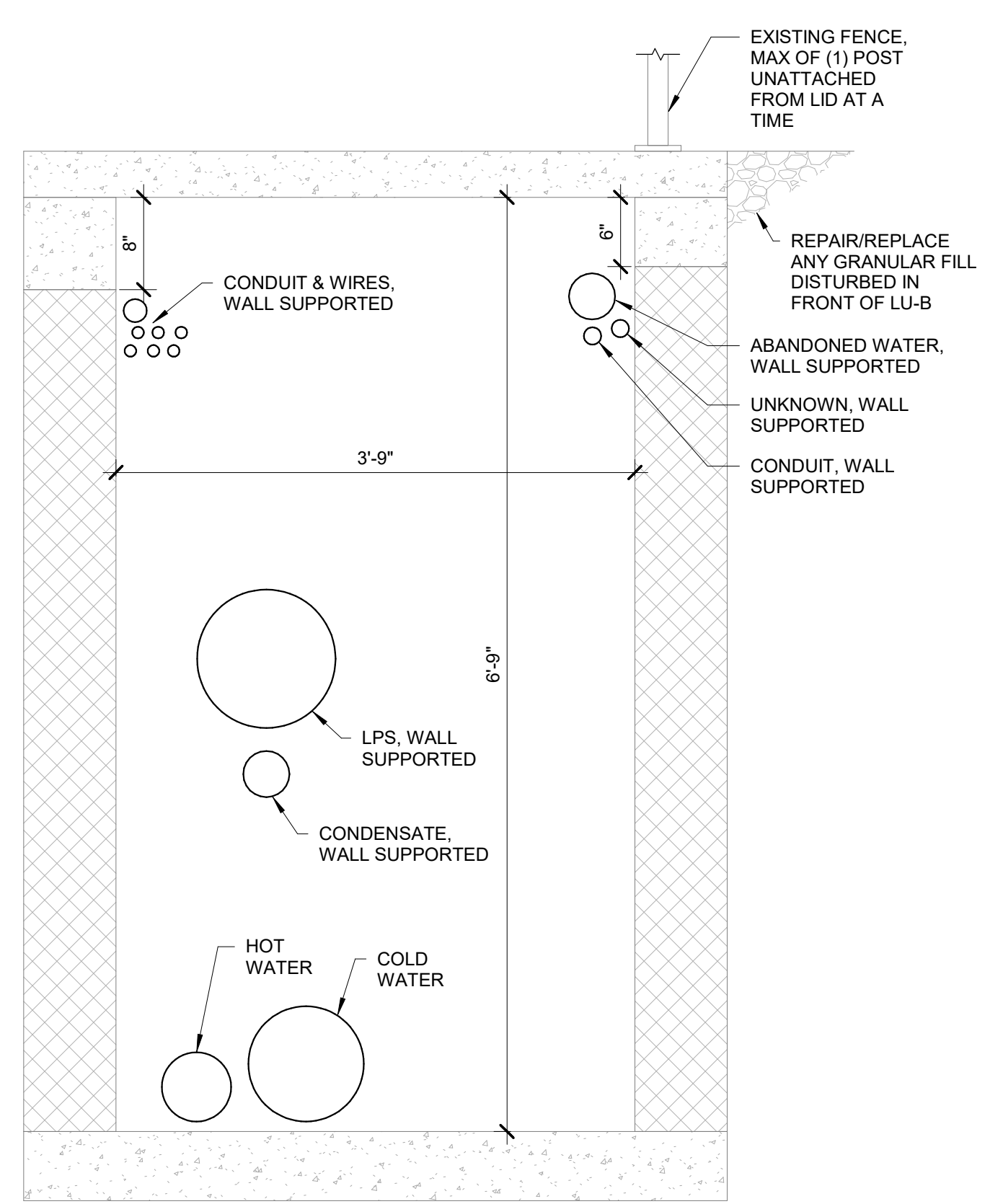
A2 EXISTING SOUTH TUNNEL SECTION
1" = 1'-0" 0 1'-6"



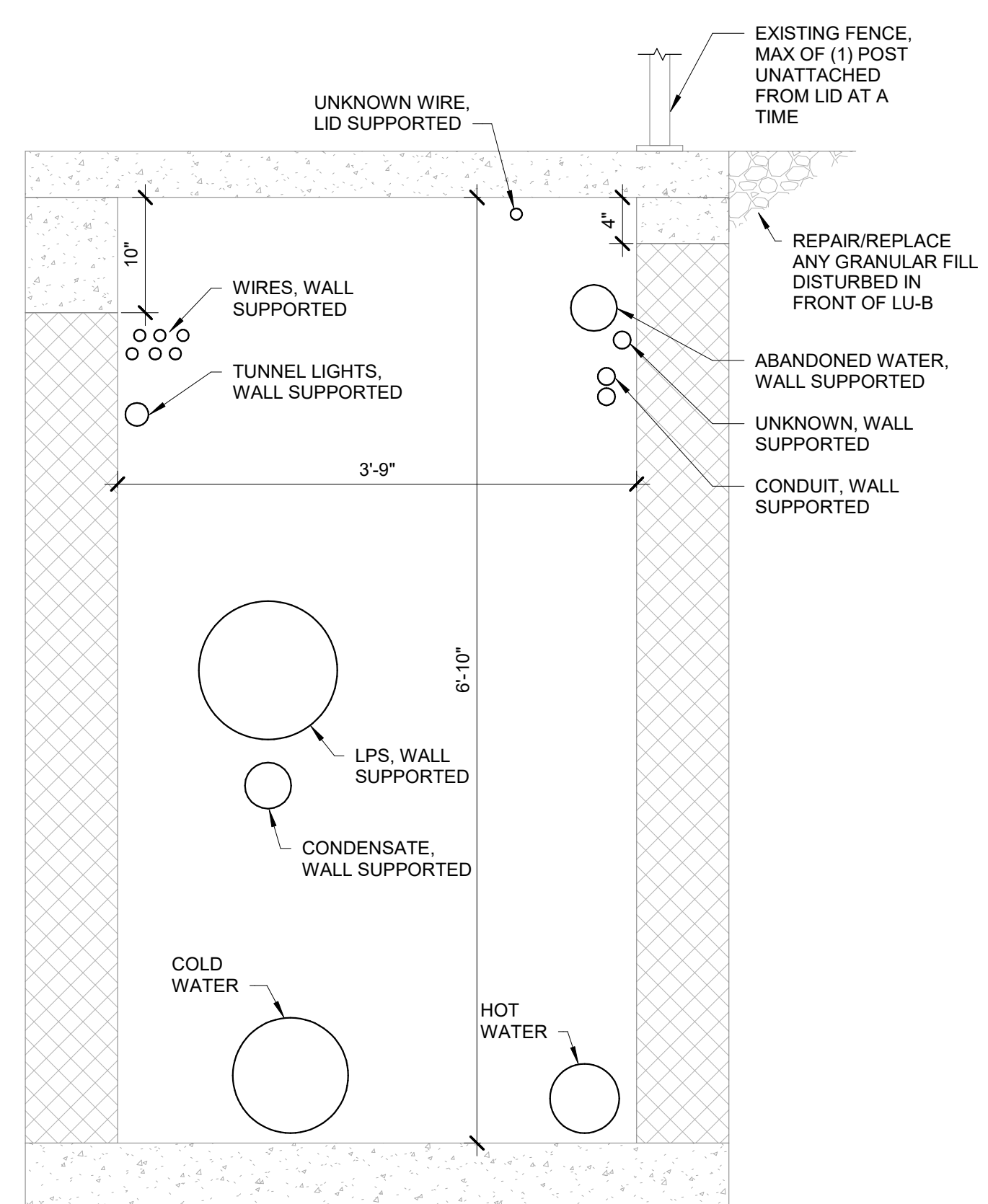
B2 EXISTING SOUTH TUNNEL SECTION
1" = 1'-0" 0 1'-6"



D3 EXISTING NORTH TUNNEL SECTION
1" = 1'-0" 0 1'-6"



A4 EXISTING SOUTH TUNNEL SECTION
1" = 1'-0" 0 1'-6"



B4 EXISTING SOUTH TUNNEL SECTION
1" = 1'-0" 0 1'-6"

Autodesk Desc: 2240000490 (DAS - Anamosa Tunnel Repair) 2240000490-R04-DAS-Anamosa Tunnel Repair.rvt 10/30/2024 12:12:59 AM



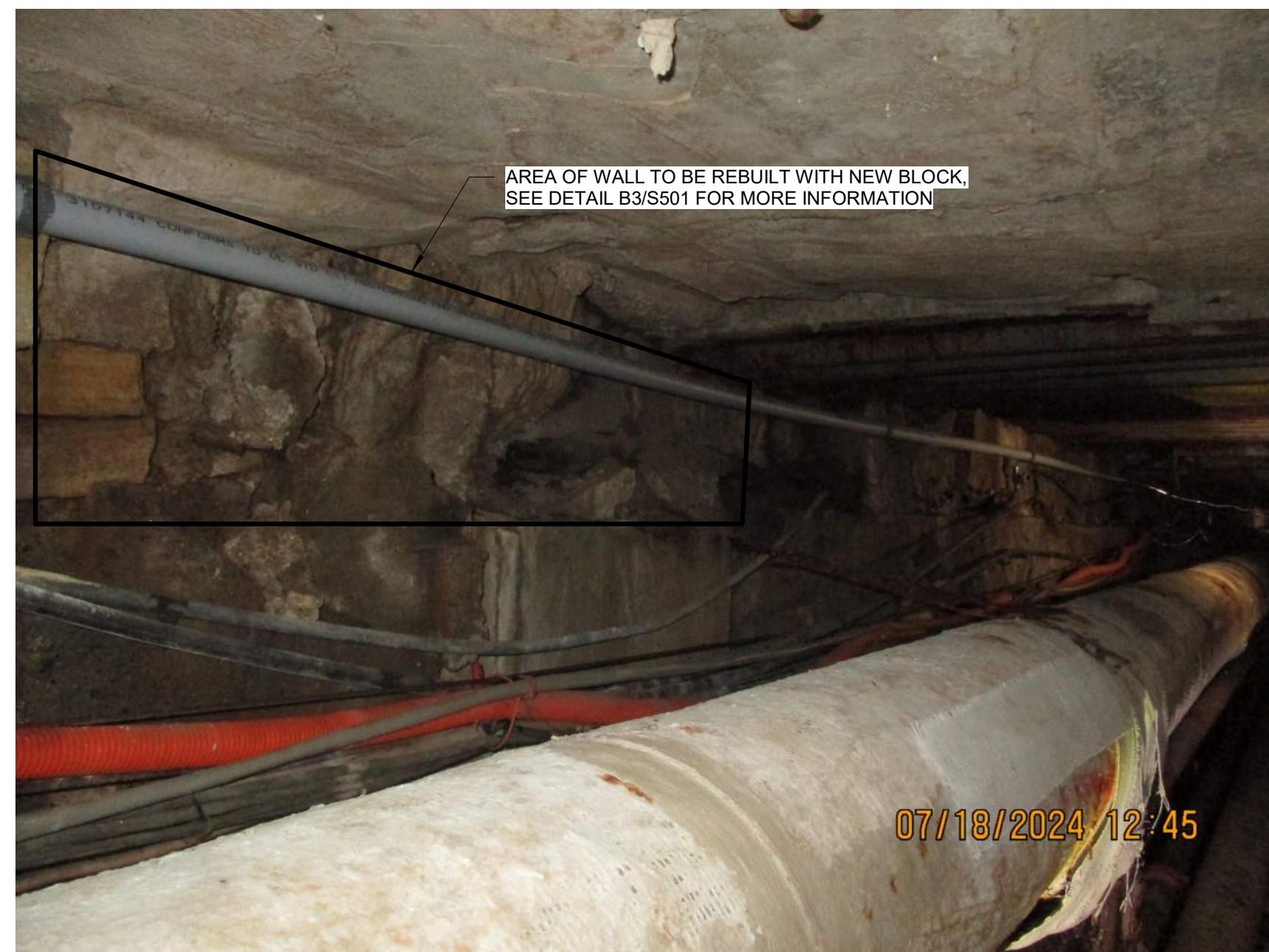
(A2) NORTH TUNNEL - PHOTO 1
 1 1/2" = 1'-0" 0" 1'



(C2) NORTH TUNNEL - PHOTO 2
 1 1/2" = 1'-0" 0" 1'



(E2) SOUTH TUNNEL - FENCE AT LID
 1 1/2" = 1'-0" 0" 1'



(A4) SOUTH TUNNEL - PHOTO 1 (STA 0+75)
 1 1/2" = 1'-0" 0" 1'



(C4) SOUTH TUNNEL - PHOTO 2 (STA 1+79)
 1 1/2" = 1'-0" 0" 1'



(E4) SOUTH TUNNEL - PHOTO 3 (STA 3+05)
 1 1/2" = 1'-0" 0" 1'

Autodesk Desktop App: 2240000490 (DAS - Anamosa Tunnel Repair) 2240000490 (S-R)-DAS-Anamosa Tunnel Repair.rvt
 10/30/2024 12:13:39 AM

SHIVE-HATTERY
 ARCHITECTURE + ENGINEERING
 800.798.0313 | SHIVE-HATTERY.COM

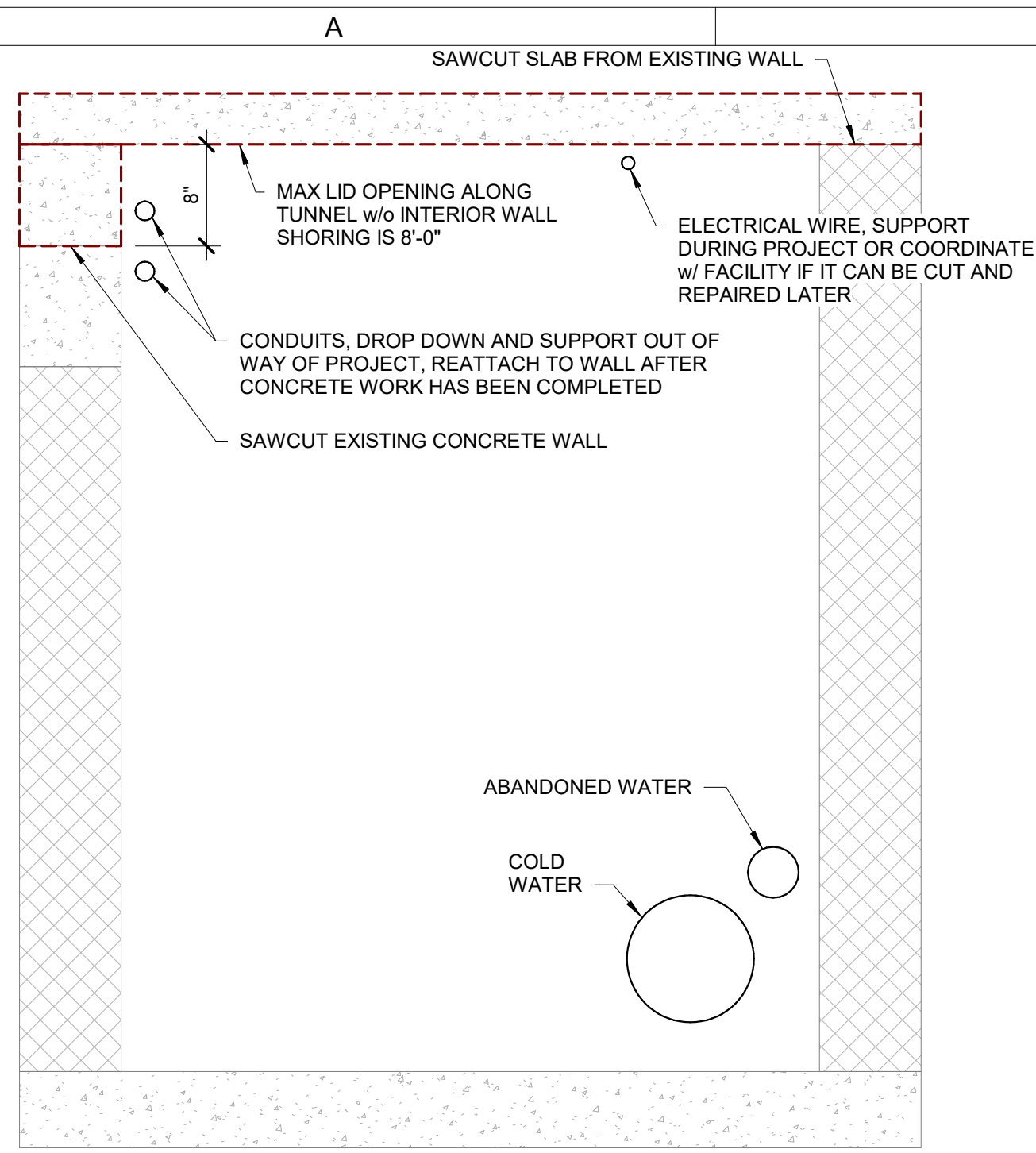
ANAMOSA STATE PRISON TUNNEL REPAIRS

DAS PROJECT NO.: 9386.01
 ANAMOSA STATE PENITENTIARY
 406 N HIGH STREET
 ANAMOSA, IA 52205

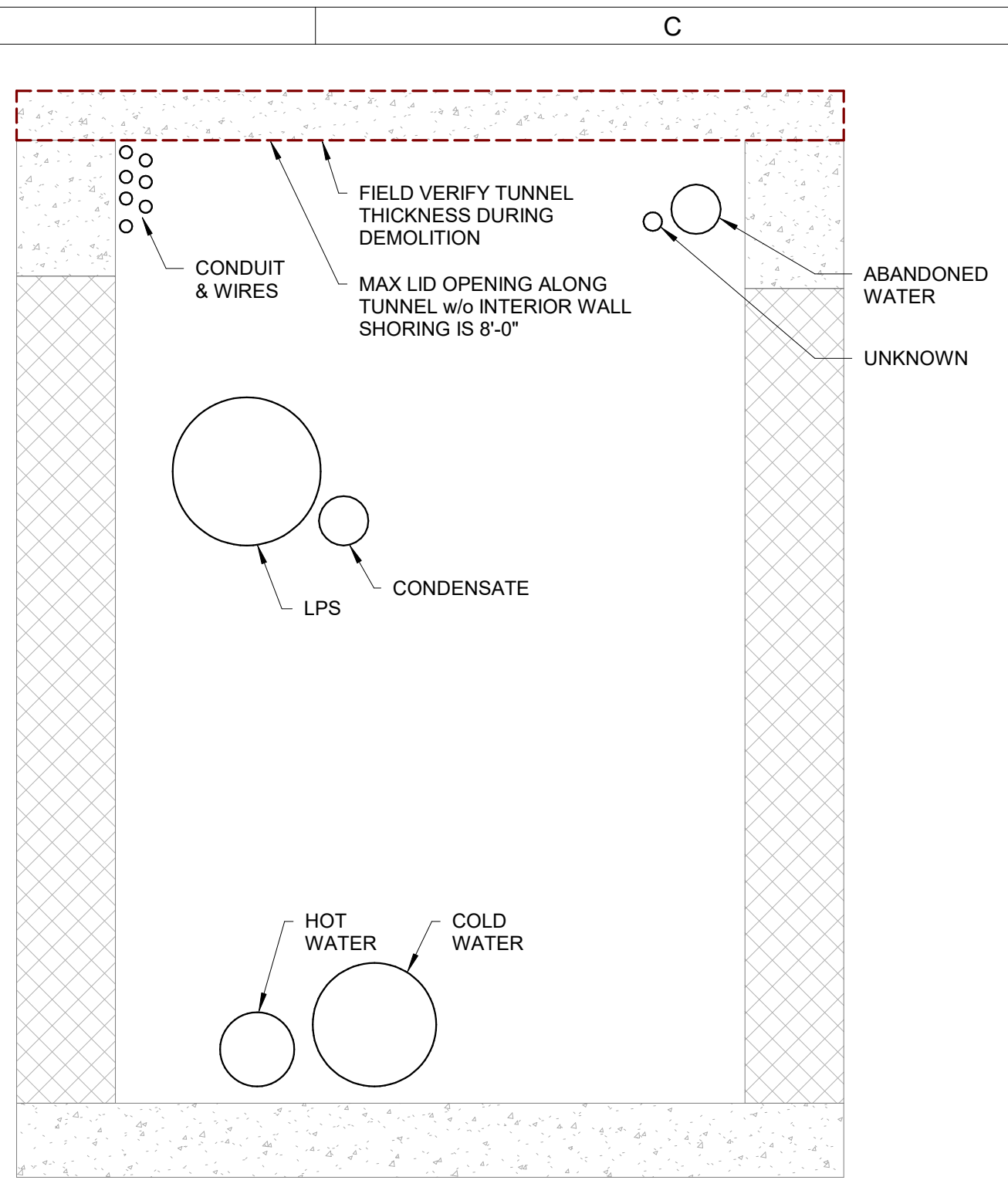
DRAWN BY	CRM
APPROVED BY	CRM
ISSUED FOR	BID
ISSUE DATE	10/30/2024
PROJECT NUMBER	2240000490
FIELD BOOK	

PHOTOS

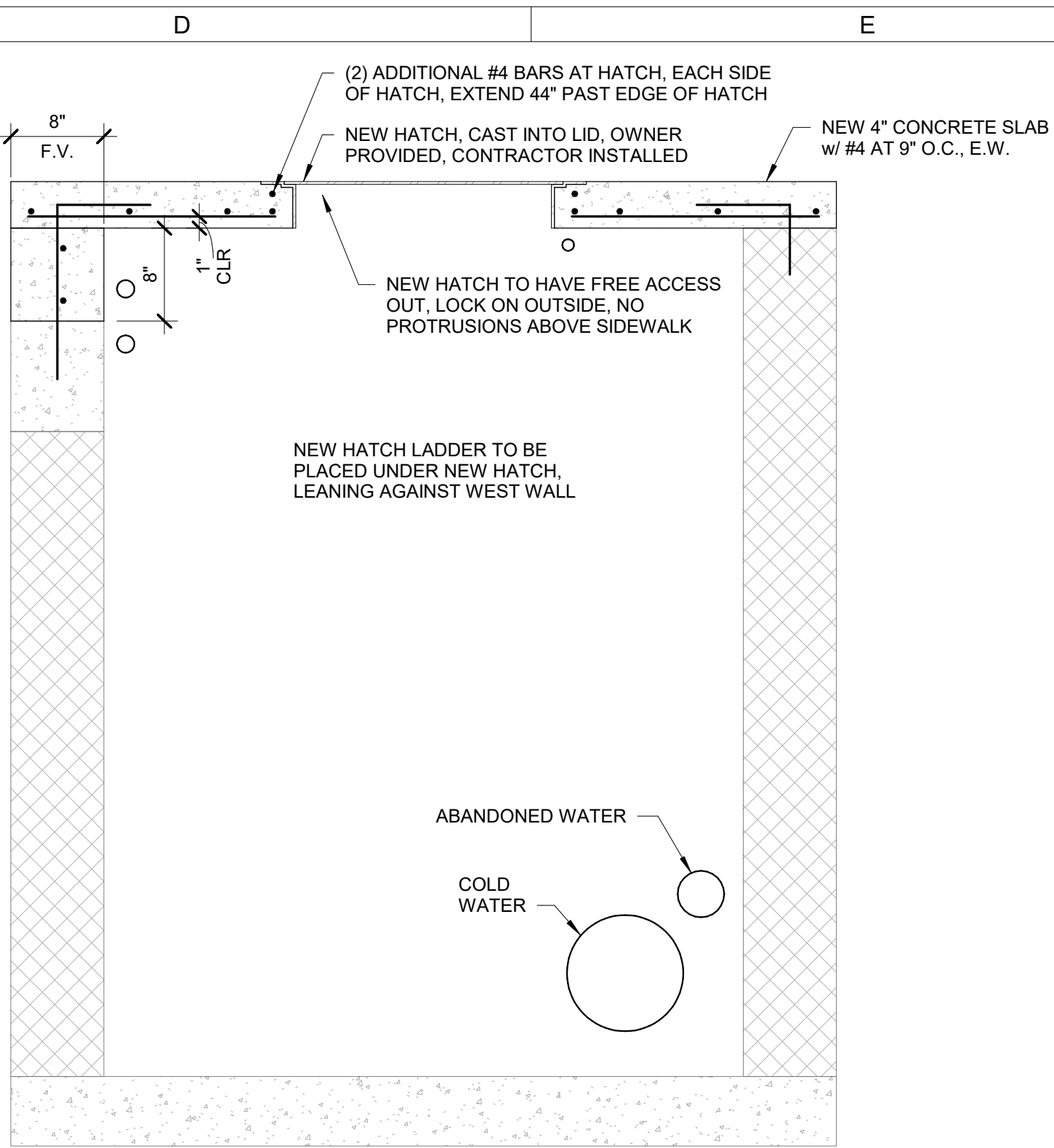
S300



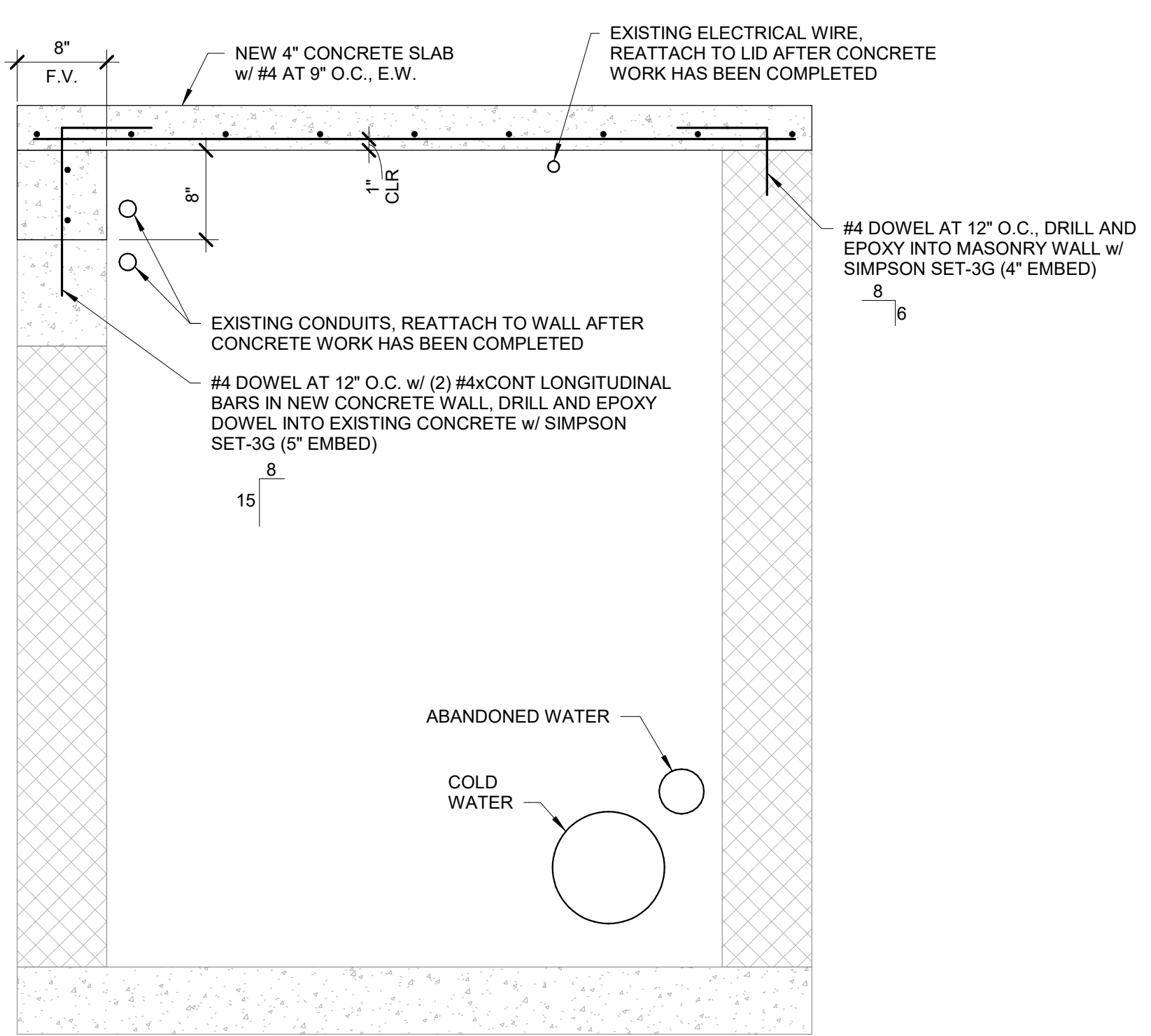
A2 NORTH TUNNEL DEMOLITION SECTION
1" = 1'-0" 0 1'-6"



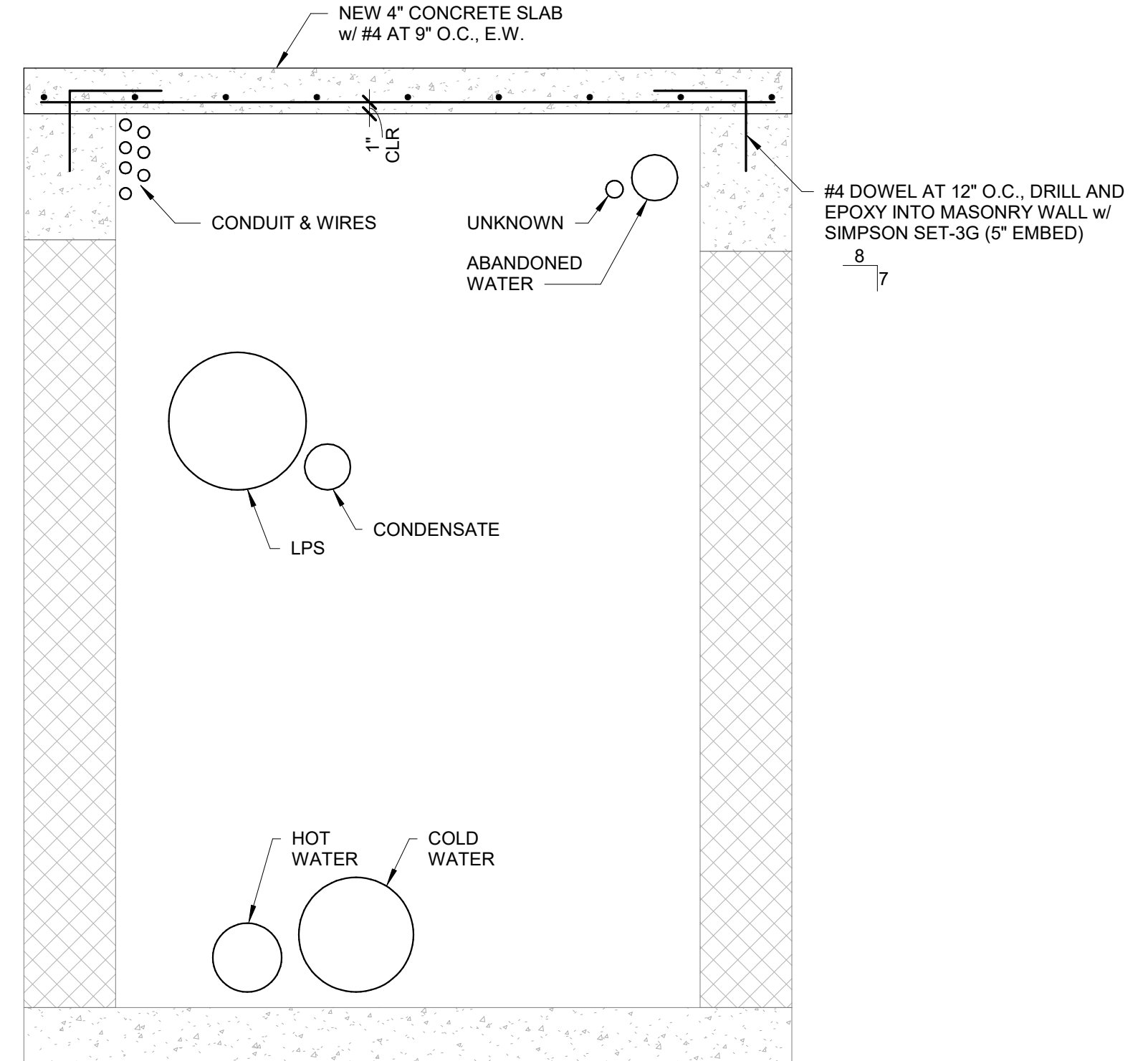
B2 TYPICAL SOUTH TUNNEL DEMOLITION SECTION
1" = 1'-0" 0 1'-6"



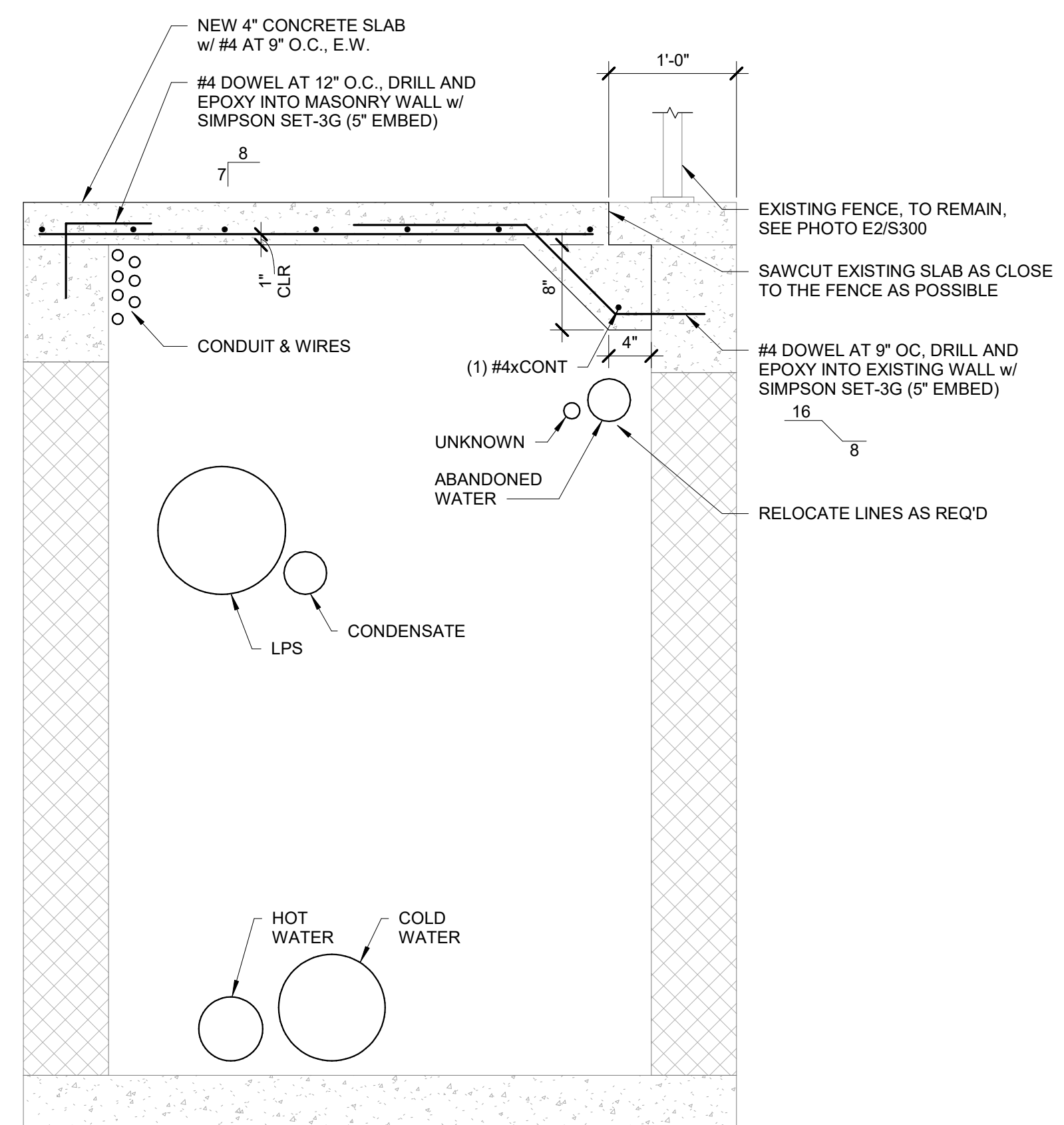
D2 NORTH TUNNEL HATCH DETAIL
1" = 1'-0" 0 1'-6"



A4 NORTH TUNNEL NEW LID SECTION
1" = 1'-0" 0 1'-6"



B4 TYPICAL SOUTH TUNNEL NEW LID SECTION
1" = 1'-0" 0 1'-6"



D4 SOUTH TUNNEL NEW LID AT FENCE
1" = 1'-0" 0 1'-6"

Autodesk Doc: 2240000490 - Anamosa Tunnel Repair 2240000490-R34-LDAS-Anamosa Tunnel Repair.rvt
10/30/2024 12:16:10 AM

Autodesk Revit 2024

DRAWN BY	CRM
APPROVED BY	CRM
ISSUED FOR	BID
ISSUE DATE	10/30/2024
PROJECT NUMBER	2240000490
FIELD BOOK	

CRM	CRM	BID	10/30/2024	2240000490	
DRAWN BY	APPROVED BY	ISSUED FOR	ISSUE DATE	PROJECT NUMBER	FIELD BOOK

REINFORCED UNIT MASONRY

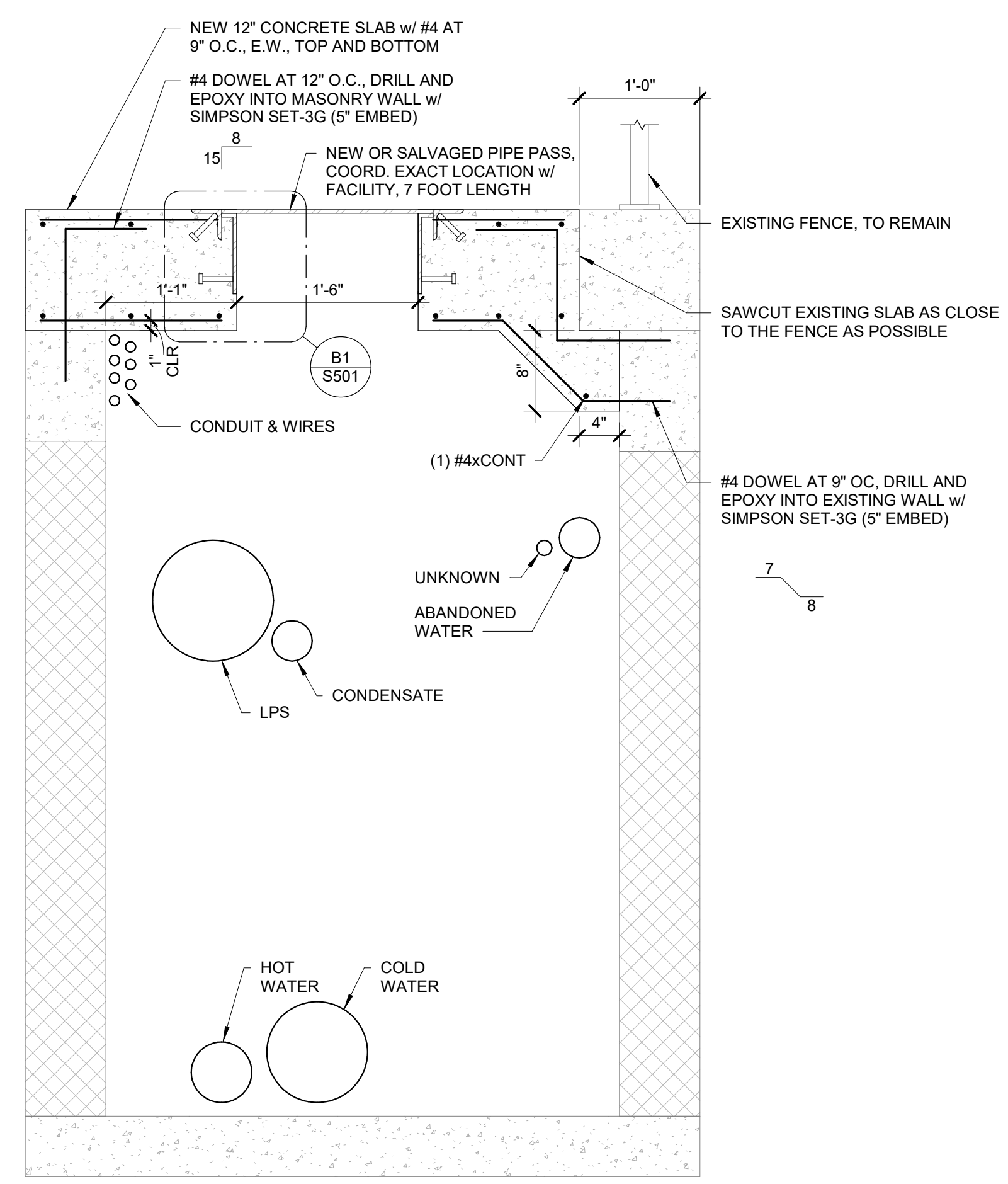
- CONCRETE MASONRY UNIT STANDARDS AND COMPRESSIVE STRENGTHS:

DESIGN ASSEMBLY STRENGTH, F _m , BY UNIT STRENGTH METHOD	2500 PSI
CONCRETE MASONRY UNITS (NORMAL WEIGHT)	ASTM C90
MASONRY GROUT	ASTM C476
MASONRY MORTAR, TYPE S	ASTM C270
REINFORCING FOR MASONRY	ASTM A615
JOINT REINFORCEMENT, LADDER TYPE, 1.7(9GA)	ASTM A1064
- THE LOAD BEARING CONCRETE MASONRY WALLS FOR THIS PROJECT WERE DESIGNED TO SPAN VERTICALLY AND BE BRACED BY THE LID ELEMENTS OF THE STRUCTURE. DURING CONSTRUCTION THE MASONRY CONTRACTOR SHALL PROVIDE LATERAL BRACING UNTIL THE LID STRUCTURE IS INSTALLED AS RECOMMENDED BY ACI 530 AND THE LATEST REVISION OF "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION" PREPARED BY THE COUNCIL FOR MASONRY WALL BRACING. THIS BRACING IS TO PREVENT UNNECESSARY STRESS OR DAMAGE TO THE MASONRY WALLS FROM LATERAL LOADS, WHICH CAN OCCUR WHILE THE WALLS ARE NOT PROPERLY BRACED BY THE LID STRUCTURE.
- SPLICE REINFORCING USING CONTACT LAPS TO THE LENGTHS INDICATED BELOW:

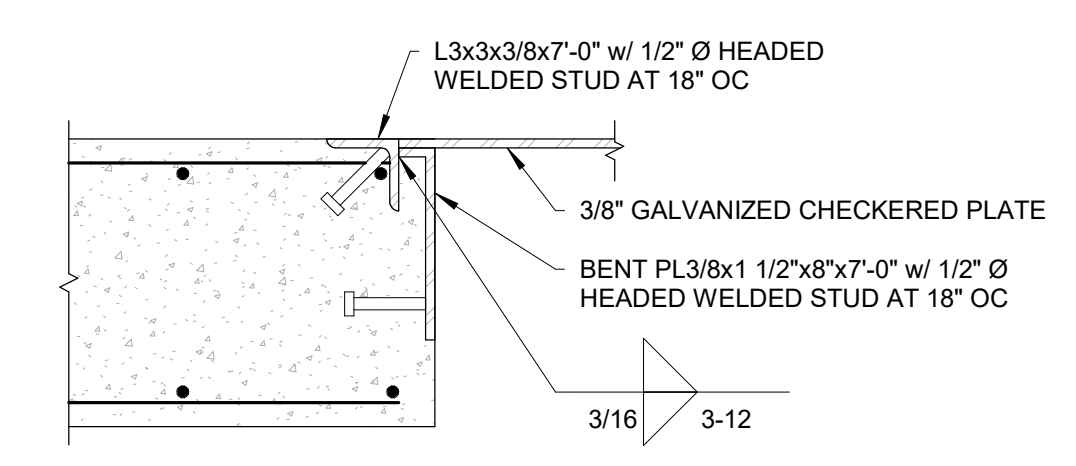
BAR SIZE	MINIMUM LAP SPLICE LENGTH			
	6" CMU	8" CMU	10" CMU	12" CMU
#3	27"	27"	27"	27"
#4	36"	36"	36"	36"
#5	45"	45"	45"	45"
#6	54"	54"	54"	54"
#7	NP	63"	63"	63"
#8	NP	113"	72"	72"
#9	NP	NP	82"	82"

NP = NOT PERMITTED
NOTES TO SPECIFIER:
BASED ON 100% ALLOWABLE TENSILE STRESS IN REINFORCING (24,000 PSI)
LAP SPLICE CAN BE REDUCED (DIV BY 1.5) IF STRESS IS LESS THAN 80%
BARS GREATER THAN #9 ARE REQUIRED TO BE MECHANICALLY SPLICED

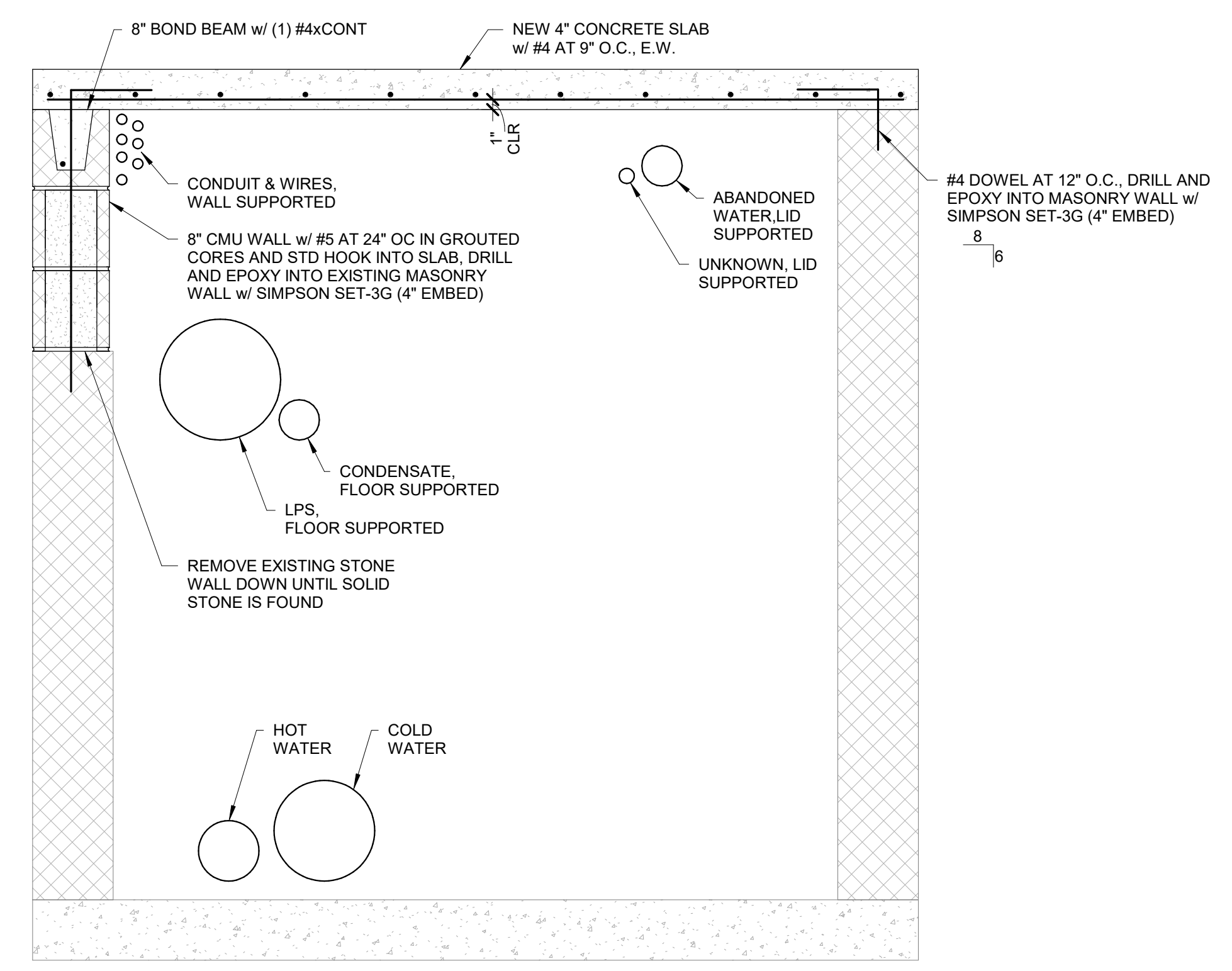
- MASONRY MATERIALS AND CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF "SPECIFICATION FOR MASONRY STRUCTURES AND RELATED COMMENTARIES (ACI 530/ASCE 6/TM 602) PUBLISHED BY AMERICAN CONCRETE INSTITUTE, EXCEPT WHERE REQUIREMENTS ARE EXCEEDED BY THESE CONTRACT DOCUMENTS.
- THOROUGHLY MIX MORTAR AND GROUT INGREDIENTS IN ACCORDANCE WITH THE REFERENCED ASTM ABOVE IN QUANTITIES NEEDED FOR IMMEDIATE USE. DO NOT USE ANTI-FREEZE COMPOUNDS TO LOWER THE FREEZE POINT.
- ALL LOAD BEARING MASONRY WALLS SHALL BE HAVE FULL MORTAR BED, HEAD AND COLLAR JOINTS. LAY HOLLOW MASONRY UNITS WITH FACE SHELL BEDDING ON HEAD AND BED JOINTS.
- HORIZONTAL JOINT REINFORCEMENT: ALL LOAD BEARING MASONRY WALLS SHALL BE CONSTRUCTED WITH LADDER TYPE JOINT REINFORCEMENT AS FOLLOWS:
 - SPACED AT A MAXIMUM OF 16" ON CENTER IN WALL CONSTRUCTION.
 - LAP JOINT REINFORCEMENT ENDS MINIMUM 6 INCHES.
 - PLACE HORIZONTAL JOINT REINFORCEMENT ONE ROW ABOVE AND ONE ROW BELOW ALL WALL OPENINGS.
 - PLACE CONTINUOUS JOINT REINFORCEMENT IN FIRST JOINT BELOW THE TOP OF THE WALL.
 - DO NOT CONTINUE HORIZONTAL JOINT REINFORCEMENT ACROSS CONTROL OR EXPANSION JOINTS.
- ALL LOAD BEARING REINFORCED UNIT MASONRY WALLS SHALL HAVE (1) #5 BAR VERTICALLY IN GROUTED CELL AT ALL CORNERS, ENDS OF WALLS, WALL INTERSECTIONS, AND IMMEDIATELY ADJACENT TO EACH SIDE OF CONTROL JOINTS AND WALL OPENINGS.
- CONCRETE MASONRY UNIT CORES SHALL BE PLACED WITH CELLS IN VERTICAL ALIGNMENT. ALL CORES CONTAINING REINFORCEMENT AND ANCHORS SHALL BE FILLED SOLID WITH GROUT. GROUT ALL CELLS TO RECEIVE ANCHORS.
- PROVIDE A MINIMUM OF 1/2" OF GROUT BETWEEN THE MAIN REINFORCING AND THE MASONRY UNITS. ALL VERTICAL REINFORCEMENT SHALL BE CENTERED IN THE WALL UNLESS NOTED OTHERWISE.
- ALL MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS AT A MAXIMUM SPACING OF 25 FEET AS FOLLOWS:
 - COORDINATE CONTROL JOINTS WITH LOCATIONS INDICATED ON ARCHITECTURAL DRAWINGS.
 - CONTROL JOINTS SHALL NOT INTERFERE WITH BEAMS, JOISTS, OR LINTEL BEARING.
 - PROVIDE PREFORMED EXTRUDED RUBBER CONTROL JOINT DESIGNED FOR MASONRY WALLS CONFORMING TO ASTM D2000 2AA-805.
 - SEAL JOINT WITH SINGLE COMPONENT ELASTOMERIC POLYURETHANE SEALANT. COLOR TO MATCH MORTAR JOINTS.
- DOWELS IN FOOTINGS SHALL BE PLACED TO ALIGN WITH CORES CONTAINING REINFORCING STEEL. COORDINATE PLACEMENT BEFORE CONSTRUCTION OF FOOTING BEGINS.
- GROUT SOLID ALL CMU CORES BELOW ADJACENT GRADE OR BELOW SLAB ON GRADE CONSTRUCTION.
- DURING CONSTRUCTION OF WALLS, COVER TOPS OF WALLS, PARTIALLY COMPLETED MASONRY AND ANY OPEN WALL CAVITIES AT SILLS OR HEADERS WITH WATERPROOF SHEETING AT THE END OF EACH DAY'S WORK.
- MASONRY WALL CONSTRUCTION TOLERANCES
 - MAXIMUM VARIATION FROM UNIT TO UNIT: 1/16"
 - MAXIMUM VARIATION FROM PLANE OF WALL: 1/4"
 - MAXIMUM VARIATION FROM PLUMB: 1/4"
 - MAXIMUM VARIATION FROM LEVEL COURSING: 1/8"
 - MAXIMUM VARIATION OF JOINT THICKNESS: 1/8"
 - MAXIMUM VARIATION FROM CROSS SECTIONAL THICKNESS OF WALL: 1/4"
- BEAM BEARING CONDITIONS: FILL BLOCK CELLS SOLID WITH GROUT A DISTANCE OF 24" BENEATH AND 12" EACH SIDE OF BEAM REACTIONS OR OTHER CONCENTRATED LOADS IF NOT OTHERWISE REINFORCED. ALL BEAM AND JOIST POCKETS SHALL BE GROUTED SOLID OR FILLED WITH CONCRETE MASONRY UNITS AFTER STEEL ERECTION IS COMPLETE.



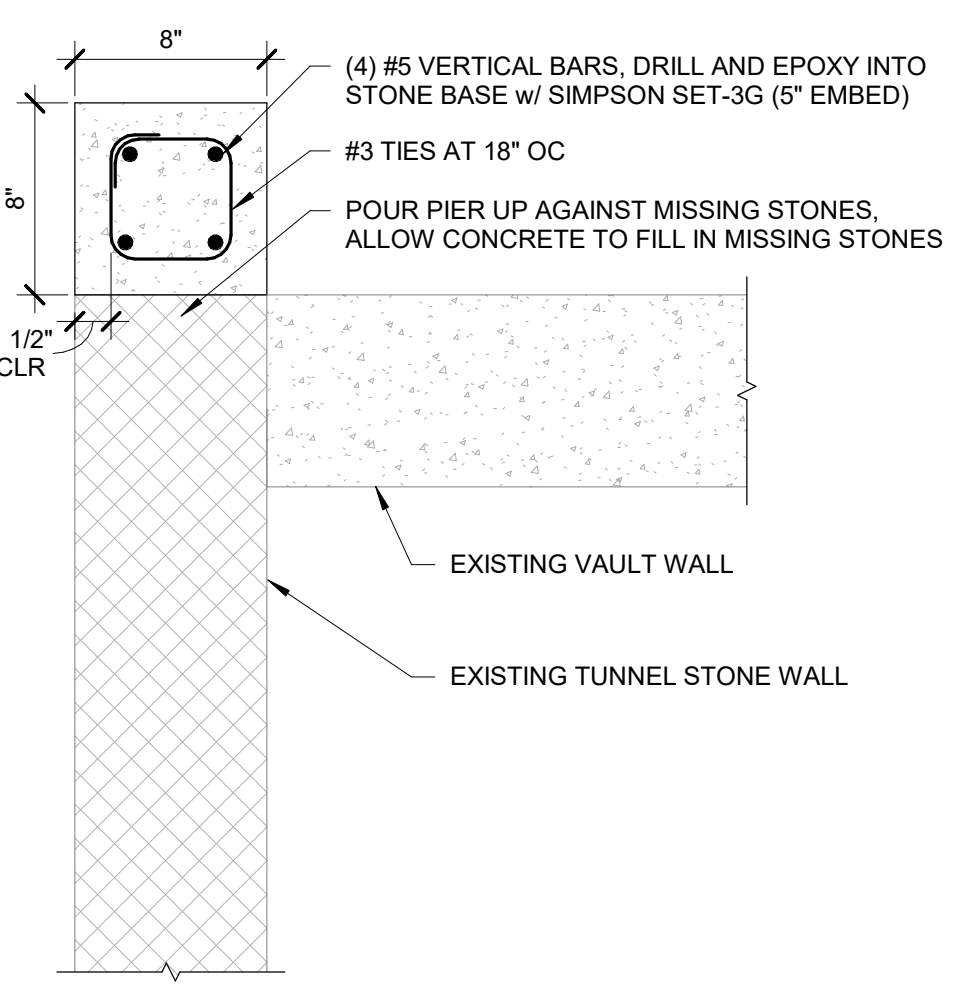
A3 SOUTH TUNNEL NEW LID AT PIPE PASS
1" = 1'-0" 0' 1'-6"



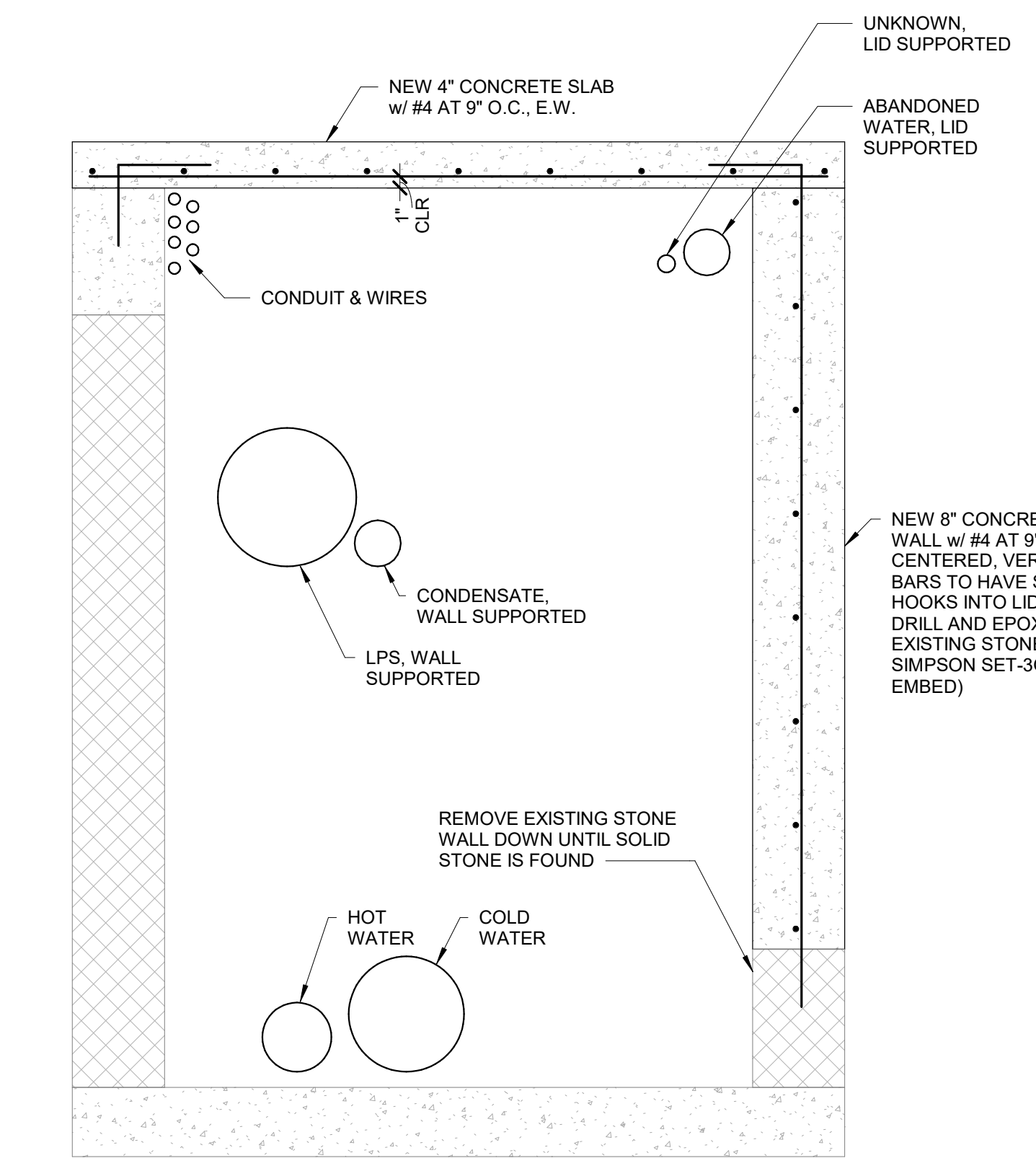
B1 PIPE PASS DETAIL
1 1/2" = 1'-0" 0' 1'



B3 SOUTH TUNNEL NORTH WALL REPAIR
1" = 1'-0" 0' 1'-6"



B4 SOUTH TUNNEL CORNER REPAIR
1 1/2" = 1'-0" 0' 1'



A4 SOUTH TUNNEL SOUTH WALL REPAIR
1" = 1'-0" 0' 1'-6"

Autodesk Doc: 2240000490 (DAS) - Anamosa Tunnel Repair 2240000490 (S-R)-DAS-Anamosa Tunnel Repair.rvt
10/30/2024 12:16:40 AM