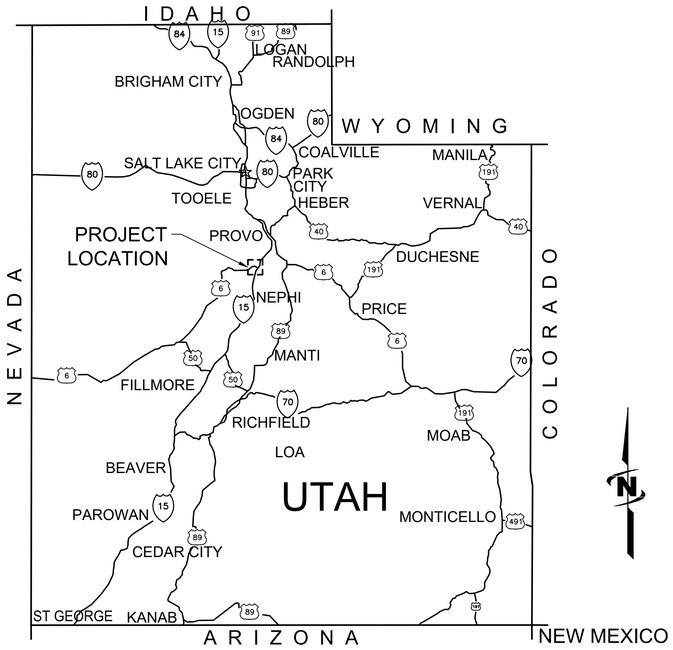
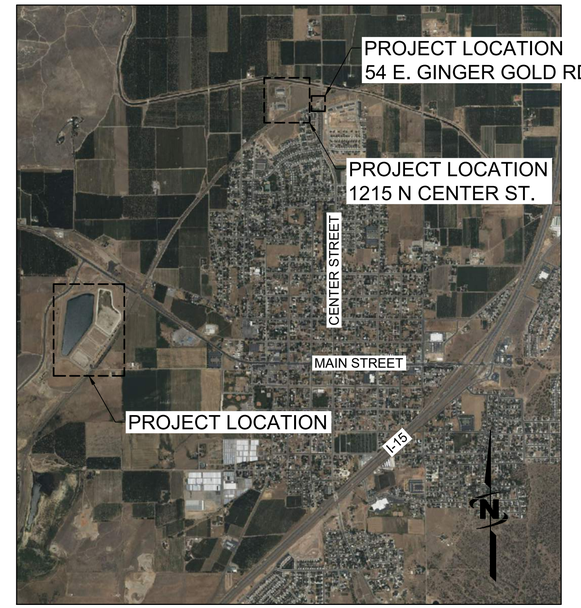
SANTAQUIN CITY

WRF PHASE 3 UPGRADES

FEBRUARY 2025



AREA MAP



VICINITY MAP

VOLUME III DRAWINGS

AGENCY REVIEW

VOLUMES

VOLUME I	FRONT END DOCUMENTS
VOLUME II	TECHNICAL SPECIFICATIONS
VOLUME III	DRAWINGS
VOLUME IV	MEMBRANE EQUIPMENT MANUFACTURER DOCUMENTS

CITY OF SANTAQUIN

DAN OLSON, MAYOR
LYNN MECHAM, CITY COUNCIL
ART ADCOCK, CITY COUNCIL
JEFF SIDDOWAY, CITY COUNCIL
J. TRAVIS KEEL, CITY COUNCIL
BRIAN DEL ROSARIO, CITY COUNCIL
NORM BEAGLEY, CITY MANAGER
JASON CALLAWAY, PUBLIC WORKS DIRECTOR
JON LUNDELL, CITY ENGINEER
GREGG HIATT, WRF SUPERINTENDENT

PROJECT NO. 93-24-001

J-U-B ENGINEERS, INC.

392 E. Winchester St., Suite 300, Salt Lake City, UT 84107
p 801 886 9052 *w* www.jub.com

OTHER J-U-B COMPANIES THE LANGDON GROUP GATEWAY MAPPING INC.

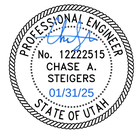
skm OLSEN & PETERSON consulting engineers, inc. THALMANN ARCHITECT

811 Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

LAST UPDATED: 1/30/2025
DRAWING:
00-G-001

Plot Date:1/30/2025 2:01 PM Plotted By: Chase Steigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-001.DWG



Plot Date:1/30/2025 2:01 PM Plotted By: Chase Steigers
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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7279300-2202
GARY MICHAEL
VANCE
STATE OF UTAH

THIS SEAL APPLIES TO ALL SHEETS
CONTAINING THIS SIGNATURE

PROFESSIONAL ENGINEER
No. 12222515
CHASE A.
STEIGERS
01/31/25
STATE OF UTAH

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
Alea Nielson
ALEA M.
NIELSON
STATE OF UTAH

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NO. 12506737-2202
Jessie L Shocklee
JESSIE L.
SHOCKLEE
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LICENSED ARCHITECT
129331
FRED L.THALMANN
02/03/2025
STATE OF UTAH

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PROFESSIONAL ENGINEER
No. 8730795-2202
JORDAN C.
GARDNER
1/31/25
STATE OF UTAH

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LICENSED PROFESSIONAL ENGINEER
#334524-2202
JAMES
AUSTIN
BERRETT
1/31/2025
UTAH

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 9722049-2202
Mitchell Hogsett
MITCHELL C.
HOGSETT
STATE OF UTAH

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GARY MICHAEL
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STATE OF UTAH

REVIEW

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REVISION

NO.	DESCRIPTION	BY	APR.	DATE

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
STAMP SHEET

FILE : 93-24-001_00-G-002
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/30/2025

DRAWING:
00-G-002

SHEET INDEX

NUMBER	DRAWING	TITLE
GENERAL(G)		
	00-G-001	COVER SHEET
	00-G-002	STAMP SHEET
	00-G-003	SHEET INDEX
	00-G-004	GENERAL NOTES
	00-G-005	DRAWING DESIGNATORS
	00-G-006	EQUIPMENT & PIPE SERVICE ABBREVIATIONS
	00-G-007	SURVEYING & SITE CIVIL SYMBOLS
	00-G-008	MECHANICAL & MISCELLANEOUS SYMBOLS
	00-G-009	DESIGN CRITERIA
	00-G-010	HYDRAULIC PROFILE I
	00-G-011	HYDRAULIC PROFILE II
	00-G-012	PROCESS FLOW DIAGRAM I
	00-G-013	FACILITY LAYOUT MAP
	00-G-014	PIPE SCHEDULE
	00-G-015	PIPE MATERIAL SCHEDULE
	00-G-016	EQUIPMENT SCHEDULE
	00-G-017	VALVE SCHEDULE
	00-G-018	GATE SCHEDULE
SURVEY(V)		
	V-101	SURVEY CONTROL
CIVIL STANDARD DETAILS(CZ)		
	00-CZ-901	STANDARD DETAILS
	00-CZ-902	STANDARD DETAILS
	00-CZ-903	STANDARD DETAILS
CIVIL(C)		
	03-C-001	SHEET KEY
	03-CX-101	DEMOLITION PLAN
	03-CG-001	SITE LAYOUT
	03-CG-101	PARTIAL GRADING PLAN AREA A
	03-CG-102	PARTIAL GRADING PLAN AREA B
	03-CU-001	UTILITY LAYOUT
	03-CU-101	PARTIAL UTILITY PLAN AREA A
	03-CU-102	PARTIAL UTILITY PLAN AREA B
	03-CU-103	PARTIAL UTILITY PLAN AREA C
	03-CU-201	UTILITY PROFILES
	03-CU-202	UTILITY PROFILES
	03-C-501	DETAILS
	03-C-502	DETAILS
	05-CX-101	CENTER ST. LIFT STATION - DEMOLITION PLAN
	05-CG-101	CENTER ST. LIFT STATION - GRADING PLAN
	05-CU-101	CENTER ST. LIFT STATION & FORCE MAIN - UTILITY SITE PLAN
	05-CU-102	CENTER ST. LIFT STATION & FORCE MAIN - UTILITY PLAN
	05-CU-103	CENTER ST. LIFT STATION & FORCE MAIN - UTILITY PLAN
	05-CU-201	CENTER ST. LIFT STATION FORCE MAIN PROFILE
	05-C-501	CENTER ST. LIFT STATION - DETAILS
	88-C-001	SHEET KEY
	88-C-101	OVERALL SITE PLAN
	88-C-201	UTILITY PROFILE
	88-C-501	DETAILS
STRUCTURAL STANDARD DETAILS(SZ)		
	00-SZ-901	TYPICAL CONCRETE DETAILS
	00-SZ-902	TYPICAL CONCRETE DETAILS
	00-SZ-903	TYPICAL CONCRETE DETAILS
	00-SZ-904	TYPICAL CONCRETE DETAILS
	00-SZ-905	TYPICAL CONCRETE DETAILS
	00-SZ-906	TYPICAL CONCRETE DETAILS
	00-SZ-907	TYPICAL CONCRETE DETAILS
	00-SZ-921	TYPICAL MASONRY DETAILS
	00-SZ-922	TYPICAL MASONRY DETAILS
	00-SZ-931	TYPICAL GUARD RAIL DETAILS
	00-SZ-932	TYPICAL GUARD RAIL DETAILS
	00-SZ-933	TYPICAL GUARD RAIL DETAILS
	00-SZ-934	TYPICAL GUARD RAIL DETAILS
	00-SZ-935	TYPICAL STAIR DETAILS
	00-SZ-936	TYPICAL STAIR DETAILS
	00-SZ-937	TYPICAL LADDER AND GATE DETAILS
	00-SZ-971	TYPICAL GRATING DETAILS
	00-SZ-972	TYPICAL GRATING DETAILS
	00-SZ-981	TYPICAL STEEL DETAILS
	00-SZ-982	TYPICAL STEEL DETAILS

SHEET INDEX

NUMBER	DRAWING	TITLE
STRUCTURAL(S)		
	00-S-001	GENERAL STRUCTURAL NOTES
	00-S-002	GENERAL STRUCTURAL NOTES
	00-S-003	GENERAL STRUCTURAL NOTES
	05-S-101	VAULT FOUNDATION PLAN
	05-S-102	VAULT ROOF FRAMING PLAN
	05-S-103	ENLARGED LID PLAN
	05-S-104	VAULT SECTIONS
	05-S-105	WET WELL SECTION
	05-S-106	LIFT STATION DETAILS
	05-S-110	ISOMETRIC VIEW
	05-S-111	BUILDING FOUNDATION AND FLOOR PLAN
	05-S-112	BUILDING ROOF FRAMING AND ROOF PLAN
	05-S-301	BUILDING SECTIONS
	05-S-401	CMU WALL REINFORCEMENT
	05-S-402	CMU WALL REINFORCEMENT
	05-S-403	CMU WALL REINFORCEMENT
	05-S-404	ARCHITECTURAL ELEVATION
	05-S-405	ARCHITECTURAL ELEVATION
	05-S-406	ARCHITECTURAL ELEVATION
	05-S-501	STRUCTURAL DETAILS
	05-S-502	STRUCTURAL DETAILS
	80-S-001	ISOMETRIC VIEW
	80-S-100	DEMO PLAN
	80-S-101	FOUNDATION PLAN
	80-S-102	ROOF FRAMING PLAN
	80-S-301	BUILDING SECTIONS
	80-S-302	BUILDING SECTIONS
	80-S-401	CMU WALL REINFORCEMENT
	80-S-402	CMU WALL REINFORCEMENT
	80-S-403	CMU WALL REINFORCEMENT
	80-S-501	STRUCTURAL DETAILS
	80-S-502	STRUCTURAL DETAILS
	80-S-503	STRUCTURAL DETAILS
	80-S-701	TRUSS-JOINT DIAGRAM
	81-S-001	ISOMETRIC VIEW
	81-S-101	FOUNDATION PLAN
	81-S-102	FOOTING AND FLOOR REINFORCING PLAN
	81-S-103	ROOF FRAMING PLAN
	81-S-301	SECTIONS
	81-S-501	STRUCTURAL DETAILS
	82-S-100	ISOMETRIC VIEW
	82-S-101	FOUNDATION PLAN
	82-S-102	ROOF FRAMING PLAN
	82-S-301	SECTIONS
	82-S-401	WALL REINFORCEMENT
	82-S-402	WALL REINFORCEMENT
	82-S-403	WALL REINFORCEMENT
	82-S-404	WALL REINFORCEMENT
	82-S-501	STRUCTURAL DETAILS
	82-S-502	STRUCTURAL DETAILS
	82-S-701	TRUSS-JOIST DIAGRAM
	88-S-501	TRANSFER STRUCTURE DETAILS
ARCHITECTURAL STANDARD DETAILS(AZ)		
	00-AZ-001	TYPICAL DETAILS
	00-AZ-002	TYPICAL DETAILS
	00-AZ-003	TYPICAL DETAILS
ARCHITECTURAL(A)		
	80-A-001	CODE SUMMARY AND EGRESS PLAN
	80-A-101	FLOOR PLAN
	80-A-102	REFLECTED CEILING PLAN
	80-A-103	ROOF PLAN
	80-A-201	ELEVATIONS
	80-A-301	SECTIONS
	80-A-601	SCHEDULES
	80-A-602	SCHEDULES
	80-AD-001	DEMOLITION ROOF PLAN
	82-A-001	CODE SUMMARY AND EGRESS PLAN
	82-A-101	FLOOR PLAN
	82-A-102	REFLECTED CEILING PLAN
	82-A-103	ROOF PLAN
	82-A-201	ELEVATIONS
	82-A-301	SECTIONS

SHEET INDEX

NUMBER	DRAWING	TITLE
PROCESS MECHANICAL STANDARD DETAILS(DZ)		
	00-DZ-901	STANDARD DETAILS
	00-DZ-902	STANDARD DETAILS
	00-DZ-903	STANDARD DETAILS
	00-DZ-904	STANDARD DETAILS
	00-DZ-905	STANDARD DETAILS
	00-DZ-906	STANDARD DETAILS
	00-DZ-907	STANDARD DETAILS
	00-DZ-908	STANDARD DETAILS
	00-DZ-909	STANDARD DETAILS
	00-DZ-910	STANDARD DETAILS
	00-DZ-911	STANDARD DETAILS
	00-DZ-912	STANDARD DETAILS
	00-DZ-913	STANDARD DETAILS
	00-DZ-914	STANDARD DETAILS
PROCESS MECHANICAL(D)		
	02-DX-101	OVERALL PROCESS BUILDING DEMO PLAN
	02-D-001	OVERALL PROCESS BUILDING ISOMETRIC
	02-D-101	OVERALL PROCESS BUILDING PLAN
	05-D-101	CENTER ST. LIFT STATION PLAN
	05-D-301	CENTER ST. LIFT STATION SECTION
	05-D-501	INFLUENT PUMP STATION HEADWORKS - LIFT STATION DETAILS
	16-DX-110	BLOWER ROOM DEMO PLAN
	16-DX-111	AIR COMPRESSOR AND AIR PIPING DEMO
	16-DX-120	DEWATERING FEED PUMPS DEMO PLAN VIEW
	16-DX-121	COARSE BUBBLE DIFFUSER DEMO
	16-D-400	ENLARGED ISOMETRIC - BLOWER ROOM
	16-D-401	ENLARGED PLAN - BLOWER ROOM
	16-D-402	ENLARGED SECTIONS - BLOWER ROOM
	16-D-403	ENLARGED PLAN - AIR PIPING
	16-D-404	ENLARGED ISOMETRIC - AIR PIPING
	16-D-410	ENLARGED ISOMETRIC - PROCESS TRAIN NO.3
	16-D-411	ENLARGED PLAN - PROCESS TRAIN NO.3
	16-D-412	ENLARGED SECTIONS - PROCESS TRAIN NO.3
	16-D-413	ENLARGED SECTIONS - PROCESS TRAIN NO.3
	16-D-420	ENLARGED ISOMETRIC - ML RECIRC PUMPS
	16-D-421	ENLARGED PLAN - ML RECIRC PUMPS
	16-D-422	ENLARGED SECTIONS - ML RECIRC PUMPS
	20-D-400	ENLARGED ISOMETRIC - MEMBRANE TRAIN NO.5
	20-D-401	ENLARGED ISOMETRIC - MEMBRANE TRAIN NO.5
	20-D-402	ENLARGED PLAN - MEMBRANE TRAIN NO.5
	20-D-403	ENLARGED SECTION - MEMBRANE PROCESS TRAIN NO.5
	20-D-404	ENLARGED SECTION - MEMBRANE PROCESS TRAIN NO.5
	20-D-405	ENLARGED SECTION - MEMBRANE PROCESS TRAIN NO.5
	70-DX-101	UV DEMO PLAN VIEW
	70-D-400	ENLARGED ISOMETRIC - UV DISINFECTION
	70-D-401	ENLARGED PLAN - UV DISINFECTION
	70-D-402	ENLARGED SECTIONS - UV DISINFECTION
	75-D-001	ISOMETRIC
	75-D-101	PROCESS PLAN
	75-D-301	SECTIONS
	75-D-302	SECTIONS
	80-D-001	OVERALL DEWATERING ISOMETRIC
	80-D-101	PROCESS PLAN
	80-D-301	SECTIONS
	80-D-302	SECTIONS
	80-D-401	ENLARGED PLANS AND SECTIONS
	81-D-001	ISOMETRICS
	81-D-101	PROCESS PLAN
	81-D-301	SECTIONS
	82-D-001	ISOMETRIC VIEW
	82-D-101	PROCESS PLAN
	82-D-301	SECTIONS
	82-D-302	SECTIONS
BUILDING MECHANICAL(M)		
	05-M-101	FLOOR PLAN
	80-M-101	PLAN
	80-M-501	DETAILS
	82-M-101	FLOOR PLAN
	82-M-501	DETAILS

SHEET INDEX

NUMBER	DRAWING	TITLE
INSTRUMENTATION(I)		
	00-I-001	INSTRUMENTATION LEGEND
	05-I-601	INSTRUMENTATION EXISTING LIFT STATION
	05-I-602	INSTRUMENTATION HEADWORKS BUILDING
	16-I-601	INSTRUMENTATION BIOLOGICAL PROCESS - ANOXIC BASINS
	16-I-602	INSTRUMENTATION BIOLOGICAL PROCESS - AERATION BASIN NO. 1
	16-I-603	INSTRUMENTATION BIOLOGICAL PROCESS - AERATION BASIN NO. 2
	16-IX-604	INSTRUMENTATION BIOLOGICAL PROCESS - AERATION BASIN NO. 3
	16-I-604	INSTRUMENTATION BIOLOGICAL PROCESS - AERATION BASIN NO. 3
	16-I-605	INSTRUMENTATION RECYCLE PUMP TANK
	20-I-601	INSTRUMENTATION MEMBRANE TANK
	20-I-602	INSTRUMENTATION DEOXYGENATION TANK
	20-I-603	INSTRUMENTATION BIOLOGICAL PROCESS - PROCESS BLOWERS
	20-I-604	INSTRUMENTATION BACKPULSE TANK
	23-I-601	INSTRUMENTATION SODIUM HYPOCHLORITE SYSTEM
	70-I-601	INSTRUMENTATION UV DISINFECTION
	70-I-602	INSTRUMENTATION NPW SYSTEM
	75-I-601	INSTRUMENTATION RECLAIMED WATER PUMP STATION
	80-I-601	INSTRUMENTATION BIOSOLIDS DEWATERING
	80-I-602	INSTRUMENTATION BIOSOLIDS DEWATERING
	80-I-603	INSTRUMENTATION BIOSOLIDS DEWATERING
	80-I-604	INSTRUMENTATION BIOSOLIDS DEWATERING
	80-I-605	INSTRUMENTATION BIOSOLIDS DEWATERING
	84-I-601	INSTRUMENTATION ODOR CONTROL
	85-I-601	INSTRUMENTATION PLANT DRAIN PUMP STATION
ELECTRICAL STANDARD DETAILS(EZ)		
	00-EZ-901	DETAILS 1
	00-EZ-902	DETAILS 2
	00-EZ-903	DETAILS 3
	00-EZ-904	DETAILS 4
	00-EZ-905	DETAILS 5
	00-EZ-906	DETAILS 6
	00-EZ-907	DETAILS 7
	00-EZ-908	DETAILS 8
ELECTRICAL(E)		
	00-E-001	ELECTRICAL NOTES & SYMBOLS
	03-E-101	SITE PLAN - AREA CLASSIFICATIONS
	03-E-102	GENERAL SITE PLAN 1
	03-E-103	GENERAL SITE PLAN 2
	05-E-101	SITE PLAN
	05-E-102	CENTER LIFT STATION LAYOUT PLAN
	05-E-103	ELECTRICAL BUILDING LAYOUT
	05-E-501	ONELINE DIAGRAM
	05-E-701	CONDUIT & INSTRUMENT SCHEDULES
	05-E-702	CONDUIT DEVELOPMENT
	05-E-801	VFD CONTROL SCHEMATIC
	16-E-101	OVERALL PLAN
	16-E-102	LAYOUT PLAN
	20-E-101	LAYOUT PLAN 1
	20-E-102	LAYOUT PLAN 2
	20-E-103	LAYOUT PLAN 3
	20-E-501	MCC-A ONELINE DIAGRAM
	20-E-502	MCC-A ELEVATION
	20-E-601	CALCULATION
	20-E-701	PROCESS BASINS CONDUIT SCHEDULE
	20-E-702	PROCESS BASINS CONDUIT & INSTRUMENT SCHEDULES
	20-E-703	MEMBRANE CONDUIT SCHEDULE
	20-E-704	MEMBRANE CONDUIT & INSTRUMENT SCHEDULES
	20-E-801	VFD CONTROL SCHEMATIC
	75-E-101	LAYOUT PLAN
	75-E-501	ONELINE DIAGRAM
	75-E-502	TYPICAL RECLAIM PUMP 75HP VFD CABINET LAYOUT
	75-E-701	CONDUIT & INSTRUMENT SCHEDULES
	75-E-801	VFD CONTROL SCHEMATIC
	82-E-101	SITE PLAN
	82-E-102	SOLIDS HANDLING BUILDING LAYOUT PLAN
	82-E-201	SOLIDS HOLDING TANK J-BOX LAYOUT
	82-E-501	ONELINE DIAGRAM
	82-E-801	VFD CONTROL SCHEMATIC
	80-E-101	LAYOUT PLAN
	80-E-501	DEWATERING BUILDING ONELINE DIAGRAM
	80-E-502	CALCULATIONS

J-U-B ENGINEERS, INC.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APPL	DATE
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SANTAQUIN CITY

GENERAL(G)
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FILE : 93-24-001 00-G-003
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00-G-003

Plot Date:1/30/2025 2:02 PM Plotted By: Chase Steigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3\UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-003.DWG

GENERAL NOTES:

1. THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. NOT ALL UTILITIES ARE SHOWN. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR TO LOCATE AND MAINTAIN UTILITIES IN ACCORDANCE WITH BLUE STAKE PROCEDURES BEFORE TRENCHING OR UTILITY INSTALLATION.

2. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO DISCONNECT, REMOVE, AND/OR CAP OFF EXISTING UTILITY SERVICE LINES, POWER, TELEPHONE, NATURAL GAS, ETC.

3. CROSS-REFERENCE AND COORDINATE ALL WORK IN THE CONTRACT DOCUMENTS AMONG THE VARIOUS TRADES AND DISCIPLINES.

4. THESE PLANS ARE SCHEMATIC AND ARE NOT INTENDED TO DEPICT ALL DETAILS OF THE WORK REQUIRED. THE CONTRACTOR IS RESPONSIBLE TO BECOME FAMILIAR WITH ACTUAL SITE CONDITIONS AND FACTORS AFFECTING WORK.

5. THE EXISTING WRF WILL REMAIN IN OPERATION DURING CONSTRUCTION. CONTRACTOR SHALL PLAN, SCHEDULE AND PERFORM THE WORK TO MINIMIZE DISRUPTIONS IN REGULAR PLANT OPERATIONS. SEE SECTIONS 01 10 00 AND 01 32 17 FOR ADDITIONAL REQUIREMENTS. ALL NECESSARY SHUT DOWNS OR BYPASSES SHALL FIRST BE APPROVED BY THE OWNER AND ENGINEER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS AND STANDARDS OF ANY JURISDICTIONAL BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA.

7. THE CONTRACTOR SHALL NOTIFY ENGINEER A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO SURVEY NEEDS.

8. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL STAKES WITHIN THE CONSTRUCTION SITE AT ALL TIMES. ANY LOST OR OBLITERATED STAKES OR PINS WILL BE RE-SET AT CONTRACTOR EXPENSE.

9. THE CONTRACTOR SHALL LIMIT WORK AREA TO THE LIMITS OF THE SANTAQUIN CITY PROPERTY, RIGHT OF WAY, AND APPROVED EASEMENTS.

10. NO REVISIONS SHALL BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

11. GRASS, VEGETATION, AND TREES, TOGETHER WITH THE MAJOR PORTIONS OF THE ROOT STRUCTURE, SHALL BE REMOVED PRIOR TO CONSTRUCTION OF IMPROVEMENTS, WHERE REQUIRED.

12. CONTRACTOR SHALL RETAIN AND PROTECT ACROSS ENTIRE SITE ALL EXISTING FEATURES INCLUDING UTILITIES, ROADS, CANALS, FENCES, STRUCTURES, TREES, ETC. THAT ARE NOT IN DIRECT CONFLICT WITH THE WORK. DAMAGE BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

13. THE CONTRACTOR IS REQUIRED TO PROPERLY DISPOSE OF ALL DEBRIS REMOVED FOR CONSTRUCTION OF THE WORK.

14. THE OWNER RESERVES THE RIGHT TO SALVAGE ITEMS NOTED FOR DEMOLITION. CONTRACTOR SHALL DISPOSE OF ALL ITEMS NOT SALVAGED BY THE OWNER.

15. POTABLE WATER FOR PROJECT WORK, INCLUDING TESTING, DUST CONTROL, ETC., MAY BE OBTAINED FROM AN EXISTING FIRE HYDRANT AT A LOCATION APPROVED BY THE OWNER. THE CONTRACTOR SHALL METER AND PAY FOR THE VOLUME OF WATER TAKEN FROM THE CITY HYDRANT. SANTAQUIN CITY REQUIRES A $1000 DEPOSIT FOR THE METER AND CHARGES $2.50 PER 1000 GALLONS OF USAGE. CONTRACTOR WILL BE RESPONSIBLE FOR THESE COSTS.

16. CONTRACTOR SHALL COORDINATE WITH STATE AND LOCAL INSPECTION AGENCIES AS REQUIRED FOR INSPECTION AND APPROVAL OF THE WORK (E.G., PLUMBING, MECHANICAL, ELECTRICAL, BUILDING, ETC.).

17. FINISH GRADE SLOPE AWAY FROM BUILDINGS/STRUCTURES AT A MINIMUM OF 2% OR A MAXIMUM OF 25% FOR A MINIMUM DISTANCE OF 10' OR TO THE CATCH POINT WITH EXISTING GRADE (WHICH EVER IS GREATER) UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

18. CONTRACTOR STAGING AREA SHALL BE CLEANED UP AND SEEDED WITH NATIVE GRASS SEED MIX UPON COMPLETION OF WORK.

19. YARD PIPING NOTES CONTAINED IN "C" SERIES.

20. WHERE SANTAQUIN CITY STANDARDS ARE REFERENCED USE "CHAPTER 5 STANDARD DRAWINGS" OF THE "SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS, ADOPTED DECEMBER 19, 2023."

21. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL LOCAL, STATE, AND FEDERAL PERMITS REQUIRED FOR STORM WATER POLLUTION PREVENTION AS A RESULT OF CONSTRUCTION ACTIVITIES. WHEN CALLED FOR IN THE CONTRACT DOCUMENTS, CONTRACTOR SHALL PREPARE A STORM WATER POLLUTION PREVENTION PLAN FOR APPROVAL BY THE ENGINEER AND FOR SUBMITTAL TO LOCAL AUTHORITIES FOR REVIEW AND APPROVAL. IF THE CONSTRUCTION WILL DISTURB MORE THAN ONE ACRE, CONTRACTOR SHALL FILE A "NOTICE OF INTENT" FOR PERMIT COVERAGE UNDER THE STATE'S UPDES STORM WATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES (UTRC00000) AND PAY ALL ASSOCIATED FEES. THE NOI MAY BE FILED ELECTRONICALLY AT THE FOLLOWING WEBSITE: HTTP://WWW.DEQ.UTAH.GOV/WATER-QUALITY/STORM-WATER-PERMITS-UPDES-PERMITS AND FOLLOWING THE DIRECTIONS AND LINKS GIVEN ON THE WEB PAGE. THE CGP DOES NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH OTHER REGULATIONS OR CONTRACT REQUIREMENTS REGARDING STORM WATER POLLUTION PREVENTION INCLUDING BUT NOT LIMITED TO: PROTECTION OF SURFACE WATERS, PREVENTION OF SOIL RUNOFF INTO DRAINS, DUST CONTROL, PREVENTION OF TRACKING SOILS TO ADJACENT STREETS, FUEL CONTAINMENT, SPILL CONTROL, ETC.

INSPECTION AND TESTING

1. THE CM/GC SHALL BE RESPONSIBLE FOR SPECIAL INSPECTIONS AND MATERIALS TESTING INCLUDING BUT NOT LIMITED TO CONCRETE, FLUSHING, DISINFECTION, LEAK, PRESSURE, BACTERIOLOGICAL, AND COMPACTION. ALL TESTS SHALL MEET MINIMUM ENGINEER REQUIREMENTS. SEE THE CONTRACT DOCUMENTS AND DRAWINGS FOR FREQUENCY OF TESTING. RESULTS ARE TO BE DELIVERED TO SPECIAL INSPECTOR, OWNER AND ENGINEER.

2. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ENGINEER AND SPECIAL INSPECTOR FOR INSPECTIONS OF WORK AT APPROPRIATE INTERVALS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PAY FOR ADDITIONAL INSPECTIONS THAT ARE THE RESULT OF HIS/HER WORKMANSHIP.

MECHANICAL NOTES:

1. MECHANICAL MATERIAL/EQUIPMENT SHOWN IS FOR SCHEMATIC PURPOSES. CONTRACTOR IS RESPONSIBLE FOR CORRECT QUANTITIES AND DIMENSIONS. CONSULT MANUFACTURER'S DETAIL DRAWINGS FOR DIMENSIONS AND INSTALLATION DETAILS. MECHANICAL DRAWINGS ARE INTENDED TO DETAIL CERTAIN MECHANICAL FEATURES, DIMENSIONS AND EQUIPMENT. FOR CLARITY, OTHER MECHANICAL, STRUCTURAL, CIVIL, HVAC/PLUMBING, ARCHITECTURAL OR ELECTRICAL INFORMATION MAY BE SHOWN IN BACKGROUND, LIGHTENED, HIDDEN OR REMOVED FROM THE MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE TO CROSS-REFERENCE AMONG DRAWINGS/BID VOLUMES AND COORDINATE WITH OTHER TRADES OR DISCIPLINES TO CONFORM TO THE OVERALL DESIGN INTENT FOR THESE FACILITIES.

2. CONTRACTOR SHALL VERIFY ALL EQUIPMENT DIMENSIONS AND ELEVATIONS AND CROSS REFERENCE THESE WITH ALL OTHER EQUIPMENT AND TRADES ASSOCIATED WITH THE WORK TO ENSURE PROPER INSTALLATION, OPERATION, ALIGNMENT, MOUNTING REQUIREMENTS, CONNECTION DETAILS, ETC. SUBMIT MANUFACTURERS CONNECTION DETAILS AND SHOP DRAWINGS PER THE SPECIFICATIONS.

3. CONTRACTOR'S ATTENTION IS DIRECTED TO MEMBRANE FILTRATION EQUIPMENT MANUFACTURER VEOLIA -- DOCUMENTATION IN VOLUME IV FOR EQUIPMENT DETAILS, VENDOR PROVIDED ITEMS, INSTALLATION DETAILS, AND ADDITIONAL CONSTRUCTION DETAILS. NOT ALL ITEMS BY VEOLIA ARE SHOWN HEREIN. ITEMS SUPPLIED BY VEOLIA ARE NOTED IN THE KEYED NOTES; HOWEVER CONTRACTOR SHALL CONFIRM VEOLIA SCOPE OF SUPPLY AS NOTED IN VOLUME IV. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL EQUIPMENT ITEMS PROVIDED BY VEOLIA AND SHALL PROVIDE ALL SUCH ADDITIONAL VALVES, PIPING, TUBING, AND ALL OTHER ITEMS AS NECESSARY FOR A COMPLETE AND FUNCTIONAL SYSTEM. CONTRACTOR'S ATTENTION IS ALSO DIRECTED TO THE CONTRACT DOCUMENTS FOR ADDITIONAL COORDINATION REQUIREMENTS.

4. CLEAN, PRIME, AND PAINT ALL EXPOSED METAL, PUMPS, PIPING, VALVES, FITTINGS, AND OTHER EQUIPMENT PER THE SPECIFICATIONS.

5. PIPE SUPPORTS AND HANGARS SHOWN ARE A GENERALIZATION. PIPE SUPPORTS AND HANGARS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED WITH THE PIPING SHOP DRAWINGS. PROVIDE PIPE SUPPORTS AND HANGARS IN ACCORDANCE WITH THE STANDARD DETAILS AND AS REQUIRED TO ADEQUATELY SUPPORT AND STABILIZE THE PIPING.

6. SEE YARD PIPING PLAN FOR CONTINUATION OF PIPING FROM INDIVIDUAL BUILDINGS AND STRUCTURES.

7. PROVIDE RESTRAINED MECHANICAL JOINTS ON ALL BURIED PIPING. CONSTRUCT THRUST BLOCKS ONLY WHERE SPECIFICALLY NOTED ON THE PLANS.

8. PROVIDE CONCRETE ENCASEMENT PER STANDARD DETAILS ON SHEET 00-SZ-902 FOR ALL PIPES CONSTRUCTED UNDER BUILDING COLUMNS, BASINS, OR OTHER STRUCTURAL BEARING MEMBERS.

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J-U-B ENGINEERS		
GARY VANCE	PROJECT MANAGER	801-750-4771

D1 PROJECT NOTES

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1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
GENERAL NOTES

FILE : 93-24-001_00-G-004
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-004

Plot Date:1/30/2025 2:02 PM Plotted By: Chase Sleigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-004.DWG

DISCIPLINE CODES ABBREVIATIONS

DESIGNATOR	DISCIPLINE
G	GENERAL
V	SURVEY
C	CIVIL-(OFF-SITE)
CG	CIVIL-GRADING
CU	CIVIL-UTILITIES (YARD PIPING)
L	LANDSCAPE
S	STRUCTURAL
A	ARCHITECTURAL
D	PROCESS MECHANICAL
M	BUILDING MECHANICAL
P	PLUMBING
I	INSTRUMENTATION
E	ELECTRICAL
DISCIPLINE AND X (SX INDICATES STRUCURAL DEMO)	DEMOLITION

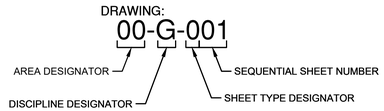
SHEET TYPE DESIGNATOR

DESIGNATOR	SHEET TYPE
0XX	GENERAL (SYMBOLS, LEGENDS, NOTES, ETC. 3D OVERVIEWS/ISOMETRIC)
1XX	PLAN VIEWS
2XX	ELEVATIONS / PROFILES
3XX	SECTIONS
4XX	ENLARGED PLANS/SECTIONS
5XX	DETAILS-AREA SPECIFIC
6XX	SCHEDULES/DIAGRAMS/SCHEMATICS
7XX	USER DEFINED
8XX	USER DEFINED
9XX	STANDARD DETAILS

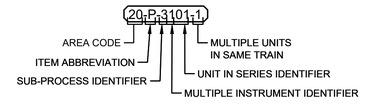
AREA DESIGNATORS

DESIGNATOR	PROCESS AREA
00	GENERAL
01	OVERALL HEADWORKS/DEWATERING BUILDING
02	OVERALL PROCESS BUILDING
03	SITE CIVIL
05	INFLUENT PUMP STATION/HEADWORKS
16	BIOLOGICAL SYSTEMS
20	MEMBRANE PROCESSES
23	CHEMICAL SYSTEMS
70	UV DISINFECTION AND NPW SYSTEM
75	RECLAIMED WATER PUMP SYSTEM
80	BIOSOLIDS HANDLING/DEWATERING
81	SOLIDS HOLDING TANK
82	SOLIDS HANDLING BUILDING
85	PLANT DRAIN LIFT STATION
88	WINTER STORAGE PONDS

DRAWING SET OUTLINE



EQUIPMENT TAGS



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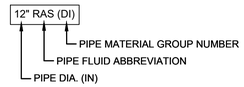
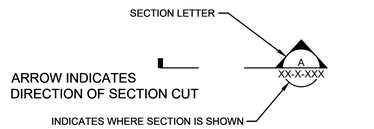


COMMONLY USED ABBREVIATIONS

ABDN	ABANDON
ACFM	ACTUAL CUBIC FEET PER MINUTE
ACH	AIR CHANGES PER HOUR
AFG	ABOVE FINISHED GRADE
AWS	AVERAGE WATER SURFACE
BFD	BUTTERFLY DAMPER
BFG	BELOW FINISHED GRADE
BLDG	BUILDING
BM	BENCH MARK
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
C/L	CENTERLINE
CDF	CONTROLLED DENSITY FILL
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CM	CEMENT MORTAR OR CENTIMETER
CO	CLEAN OUT (GRAVITY)
CONC	CONCRETE
CS	CORPORATION STOPS
CSBC	CRUSHED SURFACE BASE COURSE
CSTC	CRUSHED SURFACE TOP COURSE
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
DO	DISSOLVED OXYGEN
DX	DIRECT EXPANSION
EG	EDGE OF GRAVEL
ELB	ELBOW
ELEV / EL	ELEVATION
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FC	FAIL CLOSE
FG	FINISHED GRADE
FL	FLANGED
FO	FAIL OPEN
FT / '	FEET
GALV	GALVANIZED
GPM	GAL PER MINUTE
HDG	HOT DIPPED GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HMI	HUMAN-MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HR	HOUR
ICFM	INLET CUBIC FEET PER MINUTE
IE	INVERT ELEVATION
IN / "	INCH
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MF	MICROFILTRATION
MGD	MILLION GALLONS PER DAY
MIN	MINIMUM OR MINUTES
MJ	MECHANICAL JOINT
ML	MILLILITER OR MIXED LIQUOR
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
NC	NORMALLY CLOSED
NF	NANOFILTRATION
NO	NORMALLY OPEN
OCEW	ON CENTER EACH WAY
ORP	OXYGEN-REDUCTION POTENTIAL
OSA	OUTSIDE AIR
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PCO	PRESSURE CLEAN OUT
PE	POLYETHYLENE OR PLAIN END
PL	PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSI	POUNDS PER SQUARE INCH
R	RADIUS
R/W / ROW	RIGHT OF WAY
REV	REVISION
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RJ	RESTRAINED JOINT
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SCFM	STANDARD CUBIC FEET PER MINUTE
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC	SPECIFICATION
SST	STAINLESS STEEL
STA	STATION
STL	STEEL
SWD	SIDE WATER DEPTH
TBC	TOP BACK OF CURB
TOB	TOP OF BANK
TOC	TOP OF CONCRETE
TOG	TOP OF GRAVEL OR TOP OF GROUT
TOS	TOP OF SLAB
TOW	TOP OF WALL
TYP	TYPICAL
UF	ULTRAFILTRATION
UNO	UNLESS NOTED OTHERWISE
UP	UNDERGROUND POWER
UPS	UNINTERRUPTIBLE POWER SUPPLY
UT	UNDERGROUND TELEPHONE / COMMUNICATIONS
UVI	ULTRAVIOLET INTENSITY
UVT	ULTRAVIOLET TRANSMISSIVITY
V	VENT OR VOLTS
WC	WATER COLUMN
WSE	WATER SURFACE ELEVATION
YH	YARD HYDRANT

DETAIL AND SECTION DESIGNATIONS

ON DRAWING WHERE SECTION IS TAKEN



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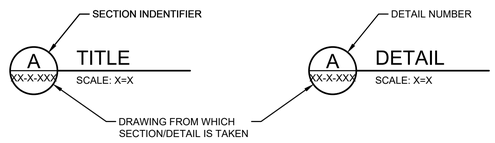

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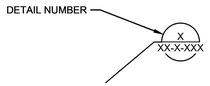

REFERENCING CIVIL/PROCESS MECHANICAL STANDARD DETAILS

D–XXXXX — INDICATES STANDARD DETAIL NUMBER FOR CIVIL/PROCESS MECHANICAL DETAILS

J-U-B ENGINEERS, INC.

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1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
DRAWING DESIGNATORS

FILE: 93-24-001 00-G-005
JUB PROJ. #: 93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/29/2025

DRAWING:
00-G-005

Plot Date:1:00:2025 2:02 PM Plotted By: Chase Steigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-005.DWG

EQUIPMENT ABBREVIATIONS

AB	AERATION BASIN
AC	AIR COMPRESSOR
ACF	ACTIVATED CARBON FILTER
ACU	AIR CONDITIONING UNIT
AER	AERATOR
AHU	AIR HANDLING UNIT
B	BLOWER
BC	BRIDGE CRANE
BF	BAG FILTER
BFL	BAFFLE
BFP	BELT FILTER PRESS
BLR	BOILER
BTF	BIOTRICKLING FILTER
C	CENTRIFUGE, CYCLONE
CCU	COMPRESSOR CONDENSING UNIT
CD	CONDENSER
CDM	CATALYTIC DESTRUCT MODULE
CF	CARTRIDGE FILTER
CH	CHILLER
CHL	CHLORINATOR
CIP	CLEAN-IN-PLACE
CL	CLARIFIER
COND	CONDENSATE DRAIN
CONV	CONVEYOR
CORS	CATALYTIC OXYGEN REMOVAL SYSTEM
CR	CRYSTALLIZER
CT	COOLING TOWER, CARBON TOWER
DAF	DISSOLVED AIR FLOATATION
DMF	DUAL MEDIA FILTER
DMP	DUMPSTER
DR	AIR DRIER
E	EDUCTOR
EAF	ENTRAPPED AIR FLOTATION
EMO	ELECTRIC MOTOR OPERATOR/ACTUATOR
EUH	ELECTRIC UNIT HEATER
EV	EVAPORATOR
EXF	EXHAUST FAN
F	FAN
FDA	FORCED DRAFT AERATOR DEGASIFIER
FLTR	FILTER
FNVR	FULL VOLTAGE REVERSING STARTER
FS	AIRFLOW SENSOR
GAC	GRANULAR ACTIVATED CARBON
GCH	GRIT CHAMBER
GD	GRAVITY DAMPER
GDW	GRIT DEWATERING
GF	GRAVITY FILTER
GUH	GAS UNIT HEATER
GWC	GRIT WASHER/ CLASSIFIER
H	HEATER
HB	HOSE BIB
HF	HEPA FILTER
HPB	HYDRAULIC PRESSURE BOOSTER
HST	HOIST
HTR	HEATER
HXR	HEAT EXCHANGER
IAS	INSTRUMENT AIR SUPPLY
IQ	INJECTION QUILL, INJECTION CHECK VALVE
IX	ION EXCHANGER
LM	LAMP MODULE
M	MOTOR
MAU	MAKEUP AIR UNIT

EQUIPMENT ABBREVIATIONS

MBR	MEMBRANE BIOREACTOR
MD	MOTORIZED DAMPER
ME	MISCELLANEOUS EQUIPMENT
MH	MANHOLE
ML	MUFFLER, SILENCER
MMF	MULTIMEDIA FILTER
MOD	MODULE
MOV	MOTOR OPERATED VALVE
MXR	MIXER
OC	OXYGEN CONCENTRATOR
OCF	ODOR CONTROL FAN
OCS	ODOR CONTROL SYSTEM
OZ	OZONATOR
OZG	OZONE GENERATOR
P	PUMP
PXR	PRESSURE EXCHANGER
RDT	ROTARY DRUM THICKENER
RP	ROTARY PRESS
RT	RESIN TRAP
SC	SCRUBBER
SCP	SCREW PRESS
SCR	SCREEN
SFT	SOFTENER
SG	SLIDE/ WEIR GATE
SKM	SKIMMER
SMP	SAMPLER
ST	STEAM TRAP
STG	STOP GATE
STK	MEMBRANE STACK (ED, EDR, EDI, E-CELL)
STR	STRAINER
SUF	SUPPLY FAN
TNK	TANK
TRB	TURBINE
UV	ULTRAVIOLET
V	VENT
VB	VACUUM BREAKER
VD	VACUUM DEGASIFIER
VFC	VARIABLE FREQUENCY CONTROLLER
WAP	WASH PRESS
WC	WASHER COMPACTOR
WH	WATER HEATER

PIPE MATERIAL ABBREVIATIONS

AC	ASBESTOS CEMENT
CMP	CORRUGATED METAL PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER
DI	DUCTILE IRON
FRP	FIBERGLASS REINFORCED PIPE
GALV	GALVANIZE
GLDI	GLASS LINED DUCTILE IRON
HDPE	HIGH DENSITY POLYETHYLENE
PE	POLYETHYLENE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SST	STAINLESS STEEL
STL	STEEL
VCP	VITRIFIED CLAY PIPE

VALVE DESIGNATION (FOR TAGGING)

ARV	AIR RELEASE VALVE
CV	CHECK VALVE
FCV	FLOW CONTROL VALVE(ACTUATED; MODULATING)
FV	FLOW VALVE(ACTUATED; ON/OFF)
HV	HAND (ISOLATION) VALVE
PRV	PRESSURE REGULATING VALVE
PSV	PRESSURE SAFETY VALVE
SV	SOLENOID VALVE

VALVE TYPE (FOR SPECIFICATIONS/SCHEDULES)

BFV	BUTTERFLY VALVE
BV	BALL VALVE
CB	CIRCUIT BALANCING VALVE
CS	CORPORATION STOP
CV	CHECK VALVE
DPV	DIAPHRAGM VALVE
FLV	FLAP VALVE
GL	GLOBE VALVE
GV	RESILIENT SEAT GATE VALVE
KGV	KNIFE GATE VALVE
MV	MUD VALVE
NV	NEEDLE VALVE
PNV	PINCH VALVE
PRV	PRESSURE REGULATING VALVE
PV	PLUG VALVE
SGV	SHEAR GATE VALVE

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No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
EQUIPMENT & PIPE SERVICE ABBREVIATIONS

FILE : 93-24-001 00-G-006
JUB PROJ. # : 93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/29/2025

DRAWING:
00-G-006

Plot Date:1/30/2025 2:02 PM Plotted By: Chase Slingers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001 00-G-006.DWG

SURVEY

	EXISTING	PROPOSED
CAP (ALUMINUM)	⊕	
CAP (BRASS)	◕	
CHISELED X	⊠	
CTRL PT GENERIC	△	
CTRL PT ½" REBAR	△ 1/2" PIN CONTROL PT	
CTRL PT ⅝" REBAR	△ 5/8" PIN CONTROL PT	
CTRL PT 60D NAIL	△ 60D	
CTRL PT HUB & TACK	△ HT	
CTRL PT PK NAIL	△ PK	
CTRL PT TEMP BENCH MARK	△ TBM	
NAIL	⌀	⌀
NAIL AND TAG	⌀ N/T	
NAIL (PK)	⌀ PK	
BOLT	⬢	
DRILL STEEL	○	
REBAR (½")	○	●
REBAR (⅝")	○	◉
STAINLESS STEEL ROD	◬	
IRON PIPE	◎	
RAILROAD SPIKE	◇	
R/W MONUMENT	⊡	
STONE MONUMENT	⊕	
SECTION CORNER. MON.	22 15 / 21 16	
SECTION QUARTER MON.	15 / 22	

	EXISTING	PROPOSED
BOLLARD	⊡	■
BOULDER	◯	●
DRINKING FOUNTAIN	DF	DF
FLAGPOLE	Ⓕ	Ⓕ
GATE	⟍⟋	▬
MAIL BOX	Ⓜ	Ⓜ
PARKING METER	PM	PM
POST	○	●
SIGN	⊸	⊸
SPOT ELEVATION		⊠
TREE (SHRUB)	◌	
TREE (STUMP)		
TREE (CONIFEROUS)		
TREE (DECIDUOUS)		
TEST HOLE	TH	
WELL	Ⓦ	Ⓦ
WELL (MONITORING)	Ⓜ	Ⓜ

	EXISTING	PROPOSED
MANHOLE (GENERIC)	◯	◯
PRESSURE CLEAN OUT AT GRADE	PCO	PCO
THRUST BLOCK		▲
VAULT	V	V

COMMUNICATION

	EXISTING	PROPOSED
TELE. MANHOLE	Ⓣ	Ⓣ
TELE. PEDASTAL	Ⓣ	Ⓣ
TELE. POLE	ϕ	●
TV PEDASTAL	TV	TV
GUY WIRE		

DOMESTIC WATER

	EXISTING	PROPOSED
FIRE HYDRANT		
SPIGOT		
YARD HYDRANT		
WATER MANHOLE	Ⓦ	Ⓦ
WATER METER	⊞	■
WATER VALVE	W	W

ELECTRIC

	EXISTING	PROPOSED
ELEC. MANHOLE	Ⓔ	Ⓔ
ELEC. METER	E	E
ELEC. TRANS.	E	E
JUNCTION BOX	J	J
POWER POLE	⊣⊢	▬
POWER STUB	Ⓔ	Ⓔ
STREET LIGHT	☼	✷
TRAFFIC SIGNAL POLE	◎	

IRRIGATION

	EXISTING	PROPOSED
IRRIGATION VALVE	IRR	IRR
IRRIGATION VALVE BOX	ⓘ	ⓘ
SPRINKLER	⚠	▲

NATURAL GAS

	EXISTING	PROPOSED
GAS METER	G	G
GAS VALVE	G	G

SANITARY SEWER

	EXISTING	PROPOSED
CLEANOUT	⊙	⊙
SEWER STUB	Ⓢ	Ⓢ
SS MANHOLE	Ⓢ	Ⓢ

STORM DRAIN

	EXISTING	PROPOSED
CATCH BASIN	▤	▤
DRY WELL	DW	DW
FLARE END	▽	▼
GREASE TRAP	⊡	⊡
SD MANHOLE	Ⓓ	Ⓓ

SITE AND CIVIL SYMBOL LEGEND

POWER / COMMUNICATIONS

	EXISTING	PROPOSED
OVERHEAD POWER	OHP	OHP
UNDERGROUND POWER	UP	UP
OVERHEAD TELEPHONE	OHT	OHT
UNDERGROUND TELEPHONE	UT	UT
FIBER OPTIC	F/O	F/O
CABLE TELEVISION	CTV	CTV
UNDERGROUND POWER, TEL, CABLE TV	P,T,CTV	
UNDERGROUND POWER, TEL, CABLE TV, GAS	P,T,CTV,G	

STORM DRAIN

	EXISTING	PROPOSED
STORM DRAIN (GENERAL)	SD	SD
STORM DRAIN	X"SD	X"SD
ROOF DRAIN	RD	RD

SANITARY SEWER

	EXISTING	PROPOSED
SANITARY SEWER (GENERAL)	SS	SS
SANITARY SEWER	X"SS	X"SS
SANITARY SEWER SERVICE	SS SS	SS SS
SEWER FORCE MAIN	FM	FM
SCREENED INFLUENT	X"SI	X"SI
PLANT RETURN	X"PR	X"PR
CHLORINE	X"CL	X"CL

WATER

	EXISTING	PROPOSED
WATER (GENERAL)	W	W
WATER (SPECIFIED SIZE)	X"W	X"W
WATER SERVICE	WS WS	WS WS

IRRIGATION

	EXISTING	PROPOSED
IRRIGATION	IRR	IRR
GRAVITY IRRIGATION	GIRR	GIRR
PRESSURE IRRIGATION	PIRR	PIRR
POTABLE WATER	PW	PW
NON–POTABLE WATER	NPW	NPW

GAS

	EXISTING	PROPOSED
NATURAL GAS	G	G
NATURAL GAS SERVICE	G G	G G
HIGH PRESSURE GAS	HPG	HPG
LIQUID GAS	LG	LG

UTILITY

	EXISTING	PROPOSED
CHLORINE LINE	CHL	CHL
INDUSTRIAL WASTE WATER	IWW	IWW
DRAIN LINE	DL	

SITE AND CIVIL LINE LEGEND

BOUNDARY

	EXISTING	PROPOSED
PROPERTY LINE	P/L	P/L
PROPERTY LINE		
RIGHT OF WAY	R/W	R/W
TEMPORARY EASEMENT	T/E	T/E
PERMANENT EASEMENT	P/E	P/E
TOWNSHIP AND RANGE		
SECTION LINE		
QUARTER SECTION LINE		
1/16 SECTION LINE		
STATE LINE		
COUNTY LINE		

SITE

	EXISTING	PROPOSED
FENCE	X	X
MAJOR CONTOUR		2521
MINOR CONTOUR		
GRADE BREAK	GB	
TOP OF BANK	TOB	
TOE OF SLOPE	TOE	
CUT LIMITS		
FILL LIMITS		
DITCH		
STORM SWALE		
EDGE OF WATER		
HIGH WATER		
WETLAND	WET	
WETLAND BOG	BOG	
WETLAND MARSH	MRSH	
WETLAND SWAMP	SWMP	

ROADWAY

	EXISTING	PROPOSED
ROAD SHOULDER		
ROAD CENTERLINE		
ROAD ASPHALT	EP	
ROAD GRAVEL	EG	
TOP BACK OF CURB		
LIP OF GUTTER		
LANDSCAPING LIMITS	LS	LS

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
SURVEYING & SITE CIVIL SYMBOLS

FILE : 93-24-001_00-G-007
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-007

Plot Date:1/30/2025 2:02 PM Plotted By: Chase Shotgrin
Date Created:1/29/2025 \\JUB.COM\CENTRAL\C1\ENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3\UPGRADES\08 DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-007.DWG

MECHANICAL EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP OR FAN
- SUBMERSIBLE PUMP
- VERTICAL PUMP
- GEAR PUMP
- ROTARY LOBE PUMP
- PROGRESSIVE CAVITY PUMP
- METERING PUMP
- COMPRESSOR
- CONDENSER
- ROTARY LOBE BLOWER
- LIQUID RING BLOWER OR COMPRESSOR
- SILENCER
- LIQUID INTAKE FILTER
- MIXER
- VFC — VARIABLE FREQUENCY CONTROLLER
- GENERATOR
- TANK
- GRINDER
- PROPELLER FAN
- HEAT EXCHANGER
- COOLING COIL (C / C)
- HEATING COIL (H / H)
- EYE WASH SHOWER
- SOLID STATE STARTER
- LOUVER
- DAMPER
- HVAC AIR FILTER
- POSITIVE PRESSURE
- NEGATIVE PRESSURE
- MOTOR (M)
- SUBMERSIBLE PROPELLER PUMP

PIPE FITTING SYMBOLS

	SINGLE LINE	FL	MJ
22 1/2° ELBOW			
45° ELBOW			
90° ELBOW			
TEE			
WYE			
CROSS			
CONCENTRIC REDUCER			
ECCENTRIC REDUCER			

PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- AVERAGING PITOT TUBE
- DOPPLER FLOW METER
- PROPELLER OR TURBINE METER
- MAGNETIC FLOW ELEMENT (M)
- FLUME
- WEIR
- FLOW METER (HYDRONIC)
- VARIABLE AREA FLOW METER (ROTAMETER)
- RUPTURE DISC
- MANUAL RESET (R)
- DIAPHRAGM CHEMICAL SEAL
- ANNULAR CHEMICAL SEAL
- TEMPERATURE WELL
- DISPLACER FLOAT SWITCH
- GUIDED FLOAT SWITCH
- VENTED PORT BALL VALVE

PIPE LINE DEVICE SYMBOLS

- SLIDE GATE
- STOP GATE
- INJECTOR
- FILTER OR SEPARATOR
- CAP OR PLUG
- BLIND FLANGE
- STRAINER
- BACK FLOW PREVENTER (BFP)
- OPEN SYSTEM DRAIN (D)
- PIPED TO DRAIN
- VENT
- STEAM TRAP W/BY-PASS (T)
- PIPE FLANGE CONNECTION TO TANK
- PULSATION DAMPENER
- PIGTAIL COUPLING
- FLEXIBLE COUPLING
- EXPANSION JOINT
- HEAT TRACING
- QUICK DISCONNECT COUPLING
- CALIBRATION COLUMN
- LIQUID LEVEL
- PRESSURE GAUGE
- ROTAMETER
- SIGHT GLASS

VALVE AND ACTUATOR SYMBOLS

- BALL VALVE
- GLOBE VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- GATE VALVE
- SWING CHECK VALVE
- BALL CHECK VALVE
- TRUE UNION
- COUPLING
- FLAP GATE
- KNIFE GATE
- THREE-WAY VALVE
- PINCH VALVE
- DIAPHRAGM VALVE
- NEEDLE VALVE
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- FLOAT VALVE

F.O. – FAIL OPEN
F.C. – FAIL CLOSED

- PRESSURE REGULATING VALVE
- BACK PRESSURE REGULATING VALVE
- SOLENOID OPERATED VALVE (S)
- MOTOR OPERATED VALVE (M)
- MUD VALVE
- MANUAL VALVE OPERATOR
- PISTON OPERATED VALVE
- DIAPHRAGM OPERATED VALVE
- FLOW BALANCING VALVE (HYDRONIC)
- FLOW STRAIGHTENING VALVE
- PRESSURE REGULATOR
- TELESCOPING VALVE

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
MECHANICAL & MISCELLANEOUS SYMBOLS

FILE :	93-24-001_00-G-008
JUB PROJ. # :	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	LMS
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/30/2025

DRAWING:
00-G-008

Plot Date:1/30/2025 2:02 PM Plotted By: Chase Singers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-008.DWG

DESIGN CRITERIA (CRITERIA HIGHLIGHTED IN YELLOW IS NEW OR HAS BEEN UPDATED FOR PHASE 3)

THIS SHEET IS INTENDED TO BE PRINTED IN COLOR. THIS NOTE SHOULD BE DISPLAYED IN RED TEXT.

Influent Lift Station	
Number of Pumps	3 (2 existing/duty, 1 new/standby)
Type of Pumps	Submersible with VFDs
Single Pump Capacity (each pump)	1700 gpm
Total Dynamic Pump Head	52.8 ft
Parallel Pump Capacity (each pump)	1375 gpm
Total Dynamic Pump Head (parallel operation)	63.7 ft
Maximum Solids Size	3 in
Pump Horsepower (each)	30 hp
Screening	
Type of Screen	Rotary Drum Screen
Screen Opening	2.0 mm - perforated
Screen Capacity, each	4 mgd
Number of Screens	2 (1 duty / 1 standby)
Number of Washer/Compactors	2
Biological Treatment	
Anoxic Basin	
Number of Basins	3 (2 existing / 1 new)
Volume, total	0.095 Mgal Total (0.027 Mgal Tank1, 0.068 Mgal Tank 2)
Hydraulic Residence Time (max month flow)	3.0 hrs
Mixer Type	Submersible - Propeller
Mixer Quantity, per Basin	2 (1 duty / 1 standby)
Aeration Basin	
Number of Basins	3
Volume, per Basin	0.200 Mgal Total (0.05 Mgal Tank 1, 0.075 Mgal Tank 2, 0.075 Mgal Tank 3)
Hydraulic Residence Time (max month flow)	6.2 hrs
Solids Residence Time (system)	15 d
Solids Residence Time (aerobic)	11 d
MLSS	6,000 - 10,000 mg/L
Yield	0.66 lb TSS / lb BOD
Side Water Depth	16 ft
Blower, Type	Positive Displacement
Blower, Quantity	4 (3 duty / 1 standby)
Blower Horsepower, each	60 hp
Blower Capacity, each	750 scfm
Blower Discharge Pressure	7.5 - 7.9 psi
Diffuser Type	Fine Bubble
AOR (average conditions)	3500 lb/d
Residual Dissolved Oxygen	2 mg/L
Mixed Liquor Recycle Pumps	
Pump Type	Dry Pit Submersible
Pump Quantity	5 (3 duty / 2 standby)
Target Recycle Rate, % of AADF	500%
Pump Capacity, each	2,750 gpm
Total Dynamic Head	15.9 ft
Pump Horsepower, each	15 hp
Deoxygenation Basin	
Number of Basins	2
Volume, each basin	0.025 Mgal
Hydraulic Residence Time (max month flow)	0.8 hrs
Mixer Type	Submersible- Propeller
Mixer Quantity, each basin	2 (1 duty / 1 standby)
Membrane System	
MLSS, maximum	14,000 mg/L
Type	Hollow Fiber
Nominal Pore Size	0.04 micron
Number of Membrane Units	10 Cassettes (8 duty, 2 standby)
Number of Modules, each unit, maximum	48 (trains 1-4); 52 (train 5)
Number of Modules each unit, installed	48
Total Module Count, plant	480
Surface Area, each module	430 ft^2
Transmembrane Pressure	
Average over a cleaning cycle	1.5 - 4.0 psi
Maximum	8.0 psi
Flux	
Annual average day flow, 14º C	7.53 gfd (w/ 5 trains)
Maximum month flow, 14º C	9.50 gfd (w/ 5 trains)
Peak hour flow, 14º C	17.10 gfd (w/ 5 trains)
Membrane Permeate Pumps	
Pump Type	Rotary Lobe
Quantity	6 (5 duty, 1 standby/spare)
Capacity, each	479 gpm
Discharge Pressure	12.1 psi
Power, each	15 hp
Membrane Air Scour	
Type	Coarse Bubble
Blower Type	Positive Displacement
Blower Quantity	5 (5 duty)
Blower Power, each	20 hp
Airflow Rate	369 scfm
Discharge Pressure	5.6 psig
Membrane Air Scour (Solids Handling Retrofit)	
Type	Coarse Bubble
Blower Type	Positive Displacement
Blower Quantity	2 (standby)
Blower Power, each	30 hp
Airflow Rate	427 scfm (turn down to 369 scfm on VFD)
Discharge Pressure	6.5 psig (turn down to 5.6 psig on VFD)
Compressed Air System	
Number of Units	1 (1 duty)
Pressure Setpoint	80 psi
Chemical Feed Systems	
Maintenance Clean	
Frequency	7 days at AADF
Chemical Used	Hypochlorite and Citric Acid
Concentration	200mg/L / 2000 mg/L
Recovery Clean	
Frequency	180 days at AADF
Chemical Used	Hypochlorite and Citric Acid
Concentration	1000mg/L / 2000 mg/L
UV Disinfection	
Design Flow, each channel	3.45 mgd
Channel Width	32 in
Maximum Water Level in Channel, each	30.625 in
Lamp Configuration	Open Channel
Minimum UV Transmittance at 253.7 nm	65%
Design UV Dose	80 mJ/cm^2
Number of Channels	2 (1 duty / 1 future)
Number of Banks in Duty Channel	3 (2 duty / 1 standby)
Number of Modules, each bank	8 (4 new, 4 existing)
Number of Lamps, each module	8
UV Lamp Type	High intensity-low pressure
Reclaimed Water Pump Station	
Pump Type	Vertical turbine with VFDs
Pump (Upsized):	
Number of Pumps	2
Capacity, each	1250 gpm
Total Dynamic Pump Head	165 ft
Pump Horsepower, each	75 hp
Pump (Existing):	
Number of Pumps	2
Capacity, each	880 gpm
Total Dynamic Pump Head	125 ft
Pump Horsepower, each	40 hp
Solids Holding Tank	
Number of Tanks	1
Tank Volume	380,700 gal
Tank Depth	18 ft
Diameter	60 ft
Side Water Depth Operating Range	4 ft to 14.5 ft
Aeration System	
Diffuser Type	Coarse Bubble
Maximum Diffuser Submergence	14 ft
Blowers	
Number of Blowers	2 (1 duty / 1 standby)
Type of Blower	Positive Displacement
Blower Drive	VFD
Blower Horsepower, each	100 hp
Blower Capacity, each	1272 scfm
Discharge Pressure	7.40 psig
Dewatering System	
Dewatering Feed Pumps	
Number of Pumps	3 (1 duty / 1 standby / 1 future)
Pump Type	Rotary Lobe
Pump Drive	VFD
Pump Horsepower, each	7.5 hp
Pump Capacity, each	125 gpm
TDH, each	70 ft
Screw Presses	
Number of Presses	2
Total Connected Horsepower	6 hp
Anticipated Cake Consistency	14-16%
Feed Sludge Solids	0.7-1.0%
Solids Loading Rate, total	500 lb DS/hr
Hydraulic Loading Rate, total	120 gpm
Shaftless Screw Conveyors	
Number of Conveyors	2
Length, each	24 ft
Slope, each	25º
Anticipated Cake Consistency	14-16%
Solids Loading Rate, each, dry mass	350 dry lbs/hr
Solids Loading Rate, each, wet mass	2,188 wet lbs/hr
Solids Loading Rate, each, volume	34 wet ft^3/hr
Motor Horsepower, each	1.5
Non-Potable Water System	
Number of Pumps	3
Type of Pumps	Vertical, in-line, multistage centrifugals with VFDs
Pump Capacity (each)	111 gpm
Typical Discharge Pressure	85 psig
Pump Horsepower (each)	15 hp

PLANT FLOW RATE DESIGN BASIS

	Units	Existing	Phase 3
Minimum Day	mgd	N/A	N/A
Average Day	mgd	0.80	1.39
Maximum Month	mgd	0.97	1.54
Peak Day Flow	mgd	1.08	1.81
Peak Hour	mgd	1.75	3.16

PLANT LOADS DESIGN BASIS

	Concentration (mg/L)	Phase 3 (ppd)
Average Day COD	625	4,175
Maximum Month COD	700	4,676
Average Day BOD	250	1,670
Maximum Month BOD	280	1,870
Average Day TSS	250	1,670
Maximum Month TSS	280	1,870
Average Day TKN	55	367
Maximum Month TKN	65	434
Average Day TP	8	53
Maximum Month TP	8	53

EFFLUENT DESIGN CRITERIA

Parameter	Unit	Phase 3
5-day Biochemical Oxygen Demand	mg/l	<10 (permit limit)
TSS	mg/l	<5
Total Inorganic Nitrogen	mg/l-N	<10
Total Phosphorus	mg/l-P	N/A
Turbidity	NTU	<0.2
E. Coli	Cfu/100ml	Non detect (permit limit)

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No. 7279300-2202
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STATE OF UTAH

REVIEW

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
DESIGN CRITERIA

FILE : 93-24-001_00-G-009
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/29/2025

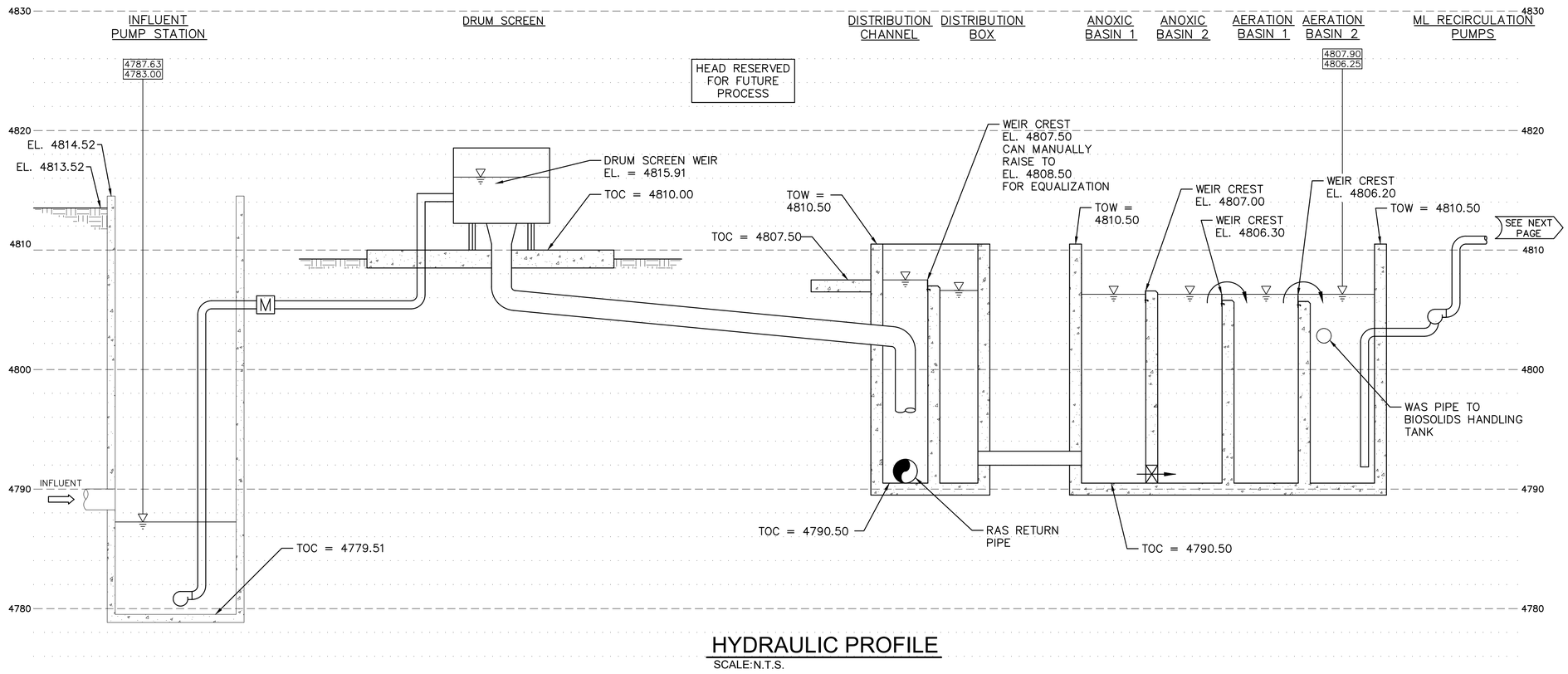
DRAWING:
00-G-009

Plot Date:1/30/2025 2:03 PM Plotted By: Chase Sleipers
Date Created:1/29/2025 \\JUB.COM-CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-009.DWG

	INFLUENT PUMP STATION	DRUM SCREEN	DISTRIBUTION CHANNEL	DISTRIBUTION BOX	ANOXIC BASIN 1	ANOXIC BASIN 2	AERATION BASIN 1	AERATION BASIN 2
TOP OF WALL	4814.52	4819.50	4810.50	4810.50	4810.50	4810.50	4810.50	4810.50
DESIGN PEAK HOUR	-	4816.24	4808.39	4807.51	4807.23	4806.59	4806.46	4807.90
DESIGN PEAK DAY	-	4816.14	4808.11	4806.65	4806.56	4806.50	4806.39	4806.25
DESIGN AVERAGE DAY	-	4816.12	4808.05	4806.58	4806.51	4806.47	4806.37	4806.25
EXISTING AVERAGE DAY	-	4816.11	4808.01	4806.55	4806.49	4806.46	4806.36	4806.25

FLOW CONDITION	INFLUENT [MGD]	RAS [MGD]	PROCESS WATER [MGD]
DESIGN PEAK HOUR	3.16	12.64	0.14
DESIGN PEAK DAY	1.81	7.24	0.14
DESIGN AVERAGE DAY	1.54	6.16	0.14
EXISTING AVERAGE DAY	1.39	5.56	0.14

NOTES:
1. WATER SURFACE ELEVATIONS CORRESPOND TO FLOWS LISTED IN TABLE 1.
2. WATER SURFACE ELEVATIONS ASSUME THE FOLLOWING:
   2.1 FLOW IS SPLIT EQUALLY BETWEEN THREE TREATMENT TRAINS WITH ONE REDUNDANT FINE SCREEN AND MEMBRANE BASIN
   2.2 BIOLOGICAL BASINS RECEIVE 33% OF THE FLOW PLUS RAS AND PROCESS WATER



HYDRAULIC PROFILE

SCALE:N.T.S.

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
HYDRAULIC PROFILE I

FILE : 93-24-001 00-G-010
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-010

Plot Date:1/30/2025 2:03 PM Plotted By: Chase Sleigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001 00-G-010.DWG

	MBR FEED CHANNEL	MBR BASIN	RAS CHANNEL	DE-OX BASIN	BACK PULSE STORAGE TANK	OPEN CHANNEL UV DISINFECTION	UV FINAL EFFLUENT DISCHARGE	RW PUMP STATION
TOP OF WALL	4814.50	4814.50	4814.50	4810.50	4814.50	4808.50	4808.50	4807.50
DESIGN PEAK HOUR	-	4812.97	4811.92	4808.93	4812.50	4806.21	4805.24	4804.76
DESIGN PEAK DAY	-	4812.83	4811.58	4808.64	4812.50	4806.16	4804.85	4804.69
DESIGN AVERAGE DAY	-	4812.80	4811.50	4808.60	4812.50	4806.15	4804.79	4804.67
EXISTING AVERAGE DAY	-	4812.78	4811.45	4808.59	4812.50	4806.14	4804.76	4804.66

FLOW CONDITION	INFLUENT [MGD]	RAS [MGD]	PROCESS WATER [MGD]
DESIGN PEAK HOUR	3.16	12.64	0.14
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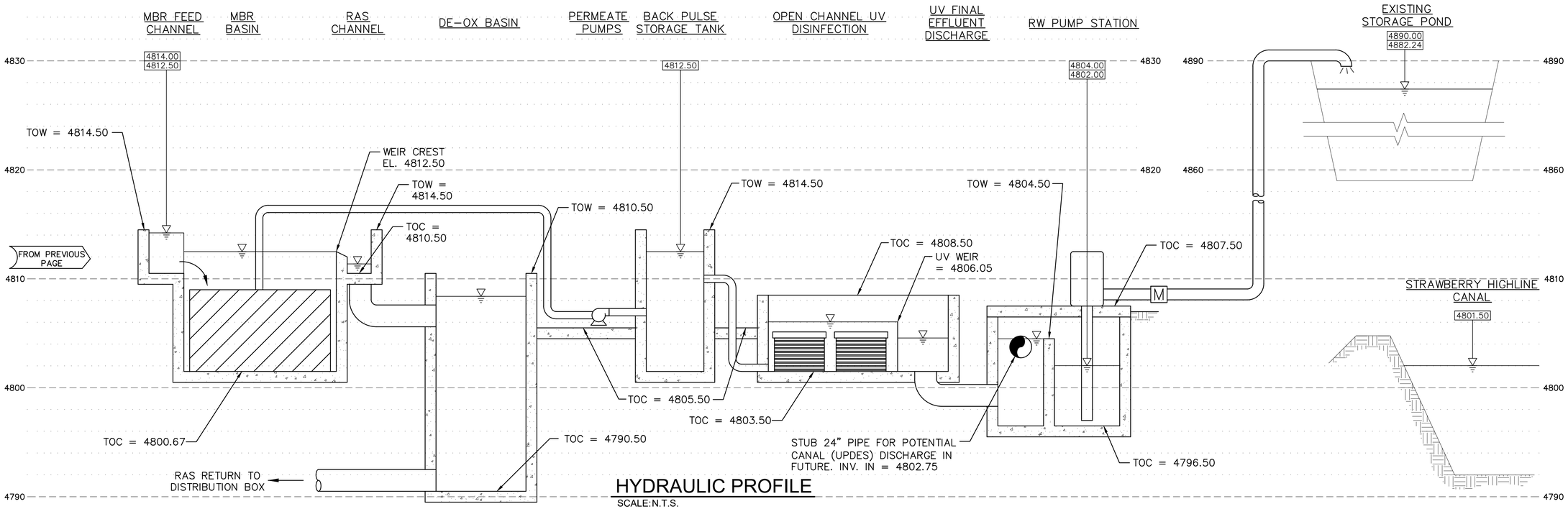

HYDRAULIC PROFILE

SCALE:N.T.S.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

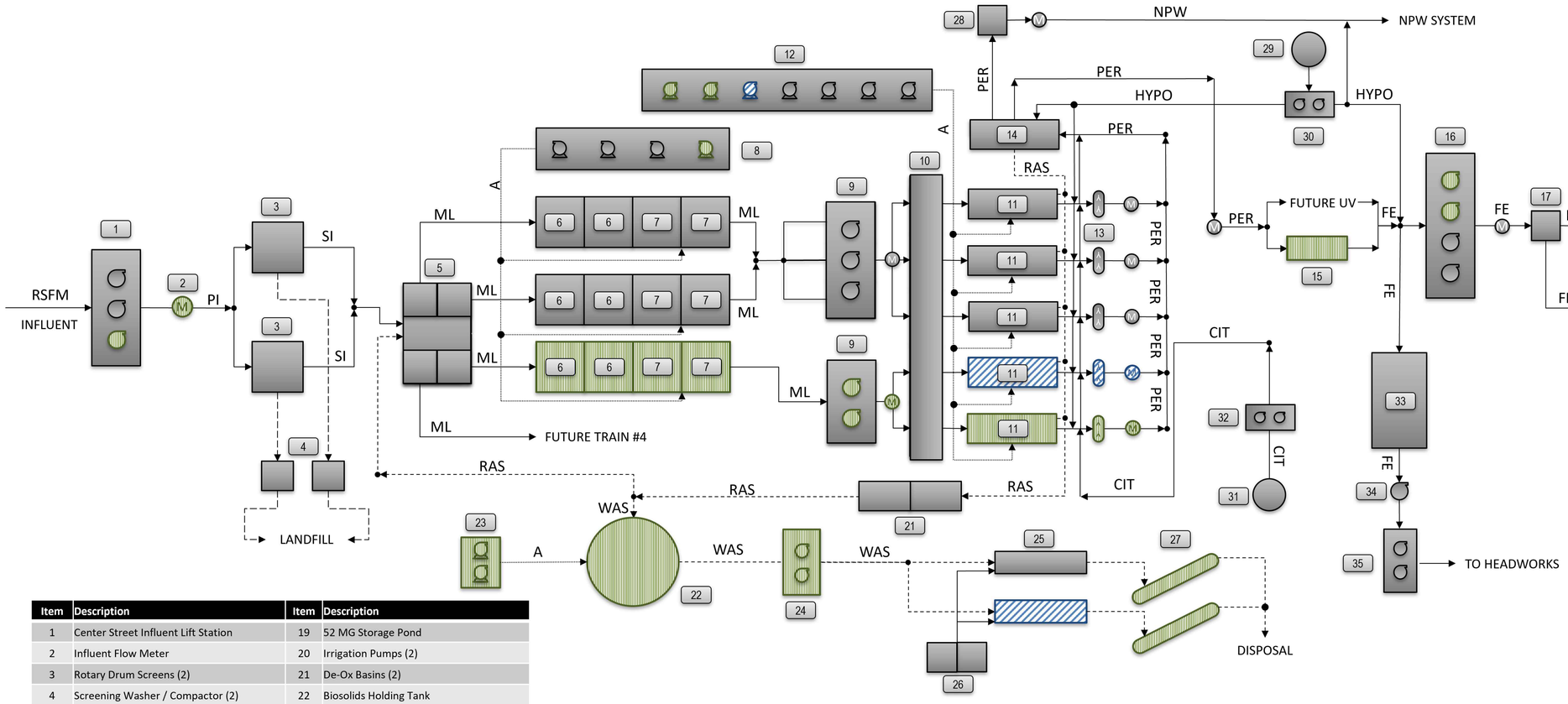
GENERAL(G)
HYDRAULIC PROFILE II

FILE : 93-24-001 00-G-011
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-011

Plot Date:1/30/2025 2:03 PM Plotted By: Chase Sheipers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001 00-G-011.DWG

THIS SHEET IS INTENDED TO BE PRINTED IN COLOR. THIS NOTE SHOULD BE DISPLAYED IN RED TEXT.



Item	Description	Item	Description
1	Center Street Influent Lift Station	19	52 MG Storage Pond
2	Influent Flow Meter	20	Irrigation Pumps (2)
3	Rotary Drum Screens (2)	21	De-Ox Basins (2)
4	Screening Washer / Compactor (2)	22	Biosolids Holding Tank
5	Flow Distribution Box	23	Solids Holding Blowers (2)
6	Anoxic Basins (6)	24	Dewatering Feed Pumps (2)
7	Aerobic Basins (6)	25	Screw Presses (2)
8	Aeration Blowers (4)	26	Polymer (2)
9	Mixed Liquor Recycle Pumps (5)	27	Screw Conveyors (2)
10	MBR Influent Channel	28	NPW Pump Skid
11	MBR Basins (5)	29	Sodium Hypochlorite Tank
12	Membrane Scour Air Blowers (7)	30	Sodium Hypochlorite Pump Skid
13	Permeate Pumps (5)	31	Citric Acid Tank
14	Back Pulse Tank	32	Citric Acid Pump Skid
15	Open Channel UV Disinfection	33	Overflow or Reject Water to Onsite Storage Pond
16	Reclaimed Water Pumps (4)	34	Temporary Pump
17	Valve Vault	35	Plant Drain Lift Station Pumps (2)
18	126 MG Storage Pond		

Process Abbreviation Legend

A	Air	**PER**	Permeate
CH	Chemical	**PI**	Plant Influent
CIT	Citric Acid	**RAS**	Recycled Activated Sludge
FE	Final Effluent	**RSFM**	Raw Sewage Force Main
ML	Mixed Liquor	**SI**	Screened Influent
NPW	Non-Potable Water	**WAS**	Waste Activated Sludge

Equipment & Stream Legend

Liquid Stream		Phase 1 Component	
Solids Stream		Phase 2 Component	
Air Stream		Phase 3 Component	
Drain		Pump	
#	Process Identifier	M	Flow Meter
	Permeate Pump		Blower

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
PROCESS FLOW DIAGRAM I

FILE : 93-24-001 00-G-012
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ONE INCH
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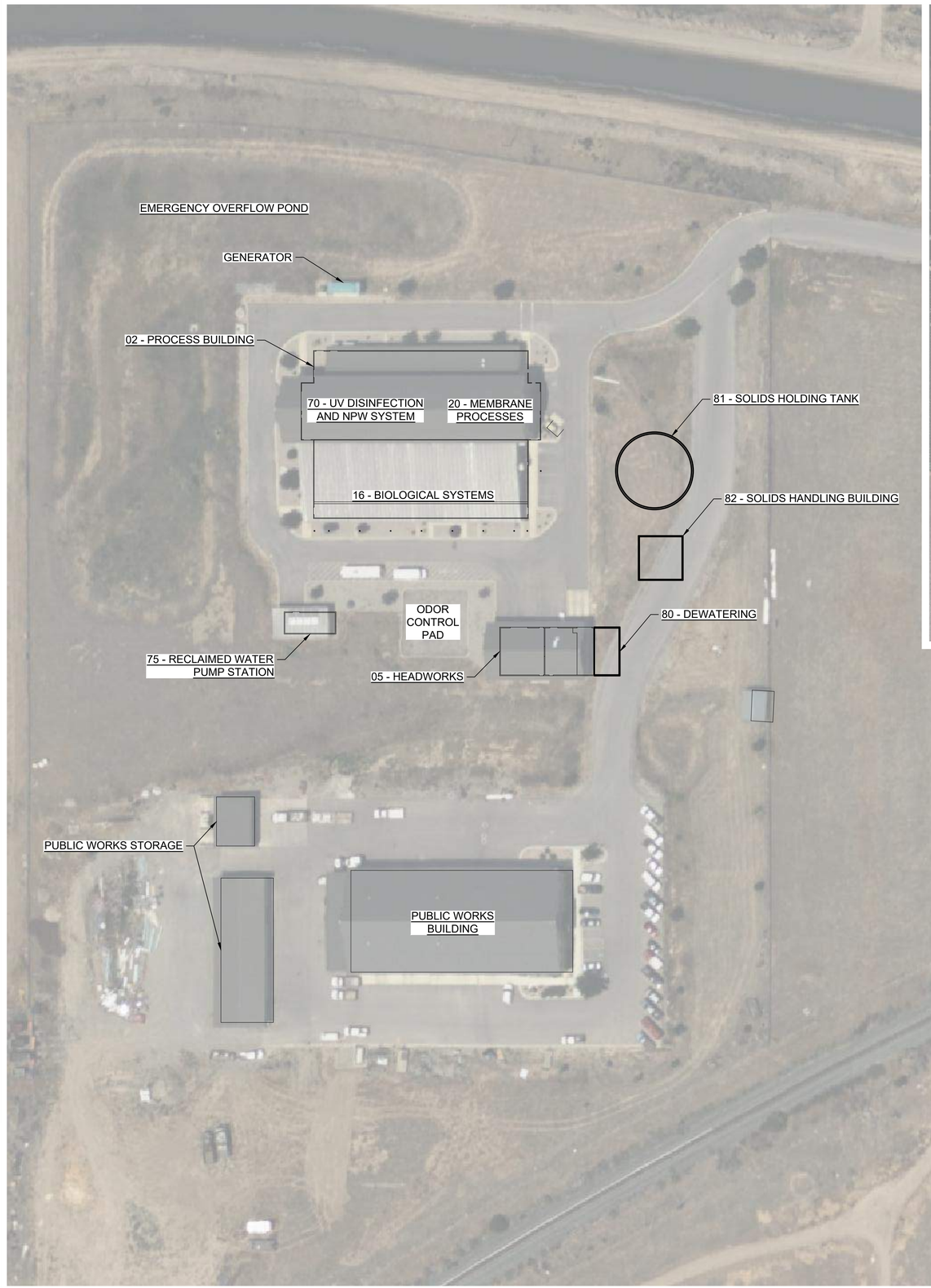
00-G-012

Plot Date:1/20/2025 2:03 PM Plotted By: Chase Sparks
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET-GENERAL\93-24-001_00-G-012.DWG



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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
FACILITY LAYOUT MAP

FILE :	93-24-001_00-G-013
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00-G-013

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PIPE SCHEDULE								
PIPE SERVICE	DESCRIPTION	PIPE SYSTEMS	ELASTOMER / GASKET	MAX OPERATING PRESSURE (PSI)	PRESSURE TEST TYPE	TEST PRESSURE (PSI)	PIPE COLOR	COMMENTS
A	AIR	SST01 SST02	VITON (FKM) VITON (FKM)	25 120	H P	50 150	N/A N/A	
CIT	CITRIC ACID	PVC10	EPDM	150	H	150	COORDINATE WITH OWNER (MATCH EXISTING)	INCLUDE "CIT" LABEL DOUBLE-WALL PIPE REQUIRED WHEN NOTED ON PLANS
DR	DRAIN	PVC04	FACTORY INSTALLED	N/A	G	PER CITY AND STATE STANDARDS	GREEN	
FE	FINAL EFFLUENT	DI01 PVC05	SBR SBR	50 120	H H	100 150	PURPLE PURPLE	
HYPO	SODIUM HYPOCHLORITE	PVC10	N/A	125	H	150	COORDINATE WITH OWNER (MATCH EXISTING)	INCLUDE "HYPO" LABEL DOUBLE-WALL PIPE REQUIRED WHEN NOTED ON PLANS
ML	MIXED LIQUOR	DI02	SBR	50	H	100	DARK GREY	
NPW	NON-POTABLE WATER	PVC04	FACTORY INSTALLED	150	H	150	PURPLE	
PER	PERMEATE	DI02 SST01	EPDM EPDM	50 50	H H	50 150	CLAY N/A	
PW	POTABLE WATER	PE01 PVC10	WELDED FACTORY INSTALLED	100 120	H H	150 150	BLUE	
RAS	RETURN ACTIVATED SLUDGE	DI02	SBR	50	H	100	LIGHT BROWN	
RSFM	RAW SEWAGE FORCE MAIN	DI02 PE01 PVC05	SBR WELDED FACTORY INSTALLED	150 150 150	H H H	150 150 150	GREEN	
RW	RECLAIMED WATER	DI02 PVC05	SBR FACTORY INSTALLED	50 120	H H	50 150	PURPLE	
SD	STORM DRAIN	RCP	-	-	-	-	COORDINATE WITH OWNER	REFERENCE SANTAQUIN CITY STANDARD SPECIFICATIONS 4A.02 FOR RCP PIPE
SAM	SAMPLE LINE	PVC04	FACTORY INSTALLED	125	H	125	COORDINATE WITH OWNER (MATCH EXISTING)	
WAS	WASTE ACTIVATED SLUDGE	DI02	SBR	50	H	100	DARK BROWN	

[1]REFERENCE SPECIFICATION 40 05 10 FOR ADDITIONAL PIPING REQUIREMENTS, COATING, AND IDENTIFICATION.

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
PIPE SCHEDULE

FILE : 93-24-001 00-G-014
JUB PROJ. # :93-24-001
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ONE INCH
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00-G-014

Plot Date:1/30/2025 2:04 PM Plotted By: Chase Steigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-014.DWG

PIPE SYSTEM	GENERIC DESCRIPTION - REFERENCE SPECIFICATION 40 05 10	SIZE RANGE (IN)
PVC01	PVC ASTM D1785 TYPE 1, SCH 40	≤ 12
PVC02	PVC ASTM D3034, SDR 35	4 TO 15
PVC03	PVC ASTM F679, PS 46	18 TO 36
PVC04	PVC ASTM D1785 TYPE 1 GRADE 1, SCH 80	≤ 8
PVC05	PVC AWWA C900, DR 18 OR DR 25	4 TO 48
PVC10	CPVC ASTM F441 TYPE IV, GRADE 1, SCH 80	1/2 TO 8
PE01	HDPE AWWA C901, PE 4710	≤ 3
PE02	HDPE AWWA C906, DR 11	4 TO 36
PP01	POLYPROPYLENE, ASTM F2764	12 TO 60
DI01	DUCTILE IRON, AWWA C150, CEMENT MORTAR LINED	3 TO 48
DI02	DUCTILE IRON, AWWA C150, EPOXY LINED	3 TO 48
DI03	DUCTILE IRON, AWWA C150, GLASS LINED	3 TO 48
DI04	DUCTILE IRON, AWWA C150, UNLINED	3 TO 48
STL01	STEEL, AWWA C200 ASTM A53 SCH 40	6 TO 36
SST01	STAINLESS STEEL, TYPE 304L SCH 10S	2 TO 30
SST02	STAINLESS STEEL, TYPE 304L SCH 40	1/2 TO 2
GALV01	GALVANIZED STEEL PIPE, ASTM A53, SCH 40	≤ 4

ABBREVIATIONS LEGEND

PIPE AND FITTING JOINTS		TESTING TYPE		LININGS	
F	FLANGED	G	GRAVITY	CM	CEMENT MORTAR
FW	FUSION WELDED	H	HYDROSTATIC	E	EPOXY (PROTECTO 401 FOR WASTEWATER, NSF APPROVED FUSION BONDED EPOXY FOR POTABLE WATER)
G	GROOVED END	P	PNEUMATIC	G	GLASS LINED
M	MECHANICAL			NONE	NO LINING
MR	MECHANICAL-RESTRAINED				
P	PUSH-ON RUBBER GASKETED				
S	SOCKET (SOLVENT WELDED)				
T	THREADED				
W	WELDED				
V	VANSTONE FLANGE				

GENERAL NOTES:

1) REFERENCE SPECIFICATION 40 06 00 "PIPE AND FITTINGS" FOR PIPE SYSTEM SPECIFICS.
2) ONE OR MORE PIPE SYSTEMS MAY BE LISTED FOR EACH PIPE SERVICE IN THE PIPE SCHEDULE; HOWEVER, CONTRACTOR SHALL PROVIDE THE INDENTIFIED PIPE SYSTEM SPECIFICALLY SHOWN ON THE PLANS. IN THE EVENT MATERIALS ARE NOT SPECIFIED IN THE PLANS, CLARIFY WITH THE ENGINEER.
3) PIPING LETTERING COLORS SHALL CONTRAST WITH THE SOLID PIPE COLOR (LETTERS SHALL BE WHITE OR BLACK).
4) SEE SPECIFICATIONS FOR ADDITIONAL PIPING REQUIREMENTS.
5) ALL INSIDE/EXPOSED AND SUBMERGED PIPING SHALL BE COATED. IF NO COLOR IS LISTED, REQUEST COLOR SELECTION FROM ENGINEER. COORDINATE AND MATCH PIPE COLOR SCHEME WITH OWNER'S EXISTING COLOR CODING SYSTEM FOR PIPES.
6) BURIED: BEYOND 5-FEET FROM BUILDING OR STRUCTURE AND BELOW GRADE.
7) EMBEDDED: FROM 5-FEET OUTSIDE BUILDING OR STRUCTURE TO TRANSITION TO "INSIDE/EXPOSED" OR "SUBMERGED" AND/OR PIPING PASSING THROUGH CONCRETE, MASONRY, ETC. INCLUDES PIPING UNDER SLABS BETWEEN OTHER TRANSITIONS.
8) INSIDE/EXPOSED: ABOVE SLABS (WITHIN STRUCTURES) OR ABOVE GRADE (EXTERIOR) AND EXPOSED TO AIR. AFTER TRANSITION FROM "EMBEDDED" OR "BURIED".
9) SUBMERGED: BELOW TOP OF WALL IN A LIQUID CONTAINING STRUCTURE, AFTER TRANSITION FROM "EMBEDDED".
10) PIPE MATERIAL TRANSITIONS ARE SHOWN WITH THE FOLLOWING MARKER 

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
PIPE MATERIAL SCHEDULE

FILE : 93-24-001_00-G-015
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
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ONE INCH
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EQUIPMENT SCHEDULE											
ITEM	PROCESS AREA	SUBPROCESS	TAG NO.	DESCRIPTION	TYPE	SIZE (HP)	CAPACITY	FURNISHED BY	SHEET REFERENCE	SPECIFICATION REFERENCE	NOTES
E01	CENTER ST. LIFT STATION	-	05-P-101-3	INFLUENT PUMP NO. 3	SUBMERSIBLE	30	1409 GPM	CONTRACTOR	05-I-601	43 25 05	
E02	BIOLOGICAL TRAIN 3	BIOLOGICAL ANOXIC	16-MX-201-3	ANOXIC BASIN NO. 3A MIXER	SUBMERSIBLE - PROPELLER	3	-	CONTRACTOR	16-I-601	46 41 16	
E03	BIOLOGICAL TRAIN 3	BIOLOGICAL ANOXIC	16-MX-202-3	ANOXIC BASIN NO. 3B MIXER	SUBMERSIBLE - PROPELLER	3	-	CONTRACTOR	16-I-601	46 41 16	
E04	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-P-804	KIVA NO. 2 RECIRCULATION PUMP NO. 1	DRY PIT SUBMERSIBLE	15	2750 GPM	CONTRACTOR	16-I-605	43 25 06	
E05	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-P-805	KIVA NO. 2 RECIRCULATION PUMP NO. 2	DRY PIT SUBMERSIBLE	15	2750 GPM	CONTRACTOR	16-I-605	43 25 06	
E06	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-B-401	AERATION BLOWER NO. 1	POSITIVE DISPLACEMENT	60	750 SCFM	CONTRACTOR	20-I-603	43 11 33	
E07	MEMBRANE TRAIN 5	PERMEATE	20-P-301-5	PERMEATE PUMP NO. 5	ROTARY LOBE	15	470 GPM	VENDOR	-	VOLUME IV	
E08	MEMBRANE TRAIN 5	CASSETTES	-	CASSETTES A5/B5	HOLLOW FIBER	-	-	VENDOR	-	VOLUME IV	
E09	MEMBRANE TRAIN 5	SCOUR AIR	20-B-201-6 (NEW)	SCOUR AIR BLOWER NO. 6	POSITIVE DISPLACEMENT	30	427 SCFM	EXISTING	20-I-603	VOLUME IV	BLOWER IS EXISTING, INSTRUMENTATION IS NEW
E10	MEMBRANE TRAIN 5	SCOUR AIR	20-B-201-7 (NEW)	SCOUR AIR BLOWER NO. 6	POSITIVE DISPLACEMENT	30	427 SCFM	EXISTING	20-I-603	VOLUME IV	BLOWER IS EXISTING, INSTRUMENTATION IS NEW
E11	MEMBRANE TRAIN 5	-	-	AIR COMPRESSOR	HORIZONTAL AIR VESSEL	10	200 GAL	VENDOR	-	VOLUME IV	
E12	UV DISINFECTION	-	70-UV-101	UV CHANNEL NO. 2	HORIZONTAL ARRAY	-	3.16 MGD	CONTRACTOR	70-I-601	46 66 16	PDCS AND CONTROLS ARE EXISTING, MODULES AND LAMPS ARE NEW
E13	RECLAIMED WATER PS	-	75-P-101-1	REUSE PUMP NO. 1	VERTICAL TURBINE	75	1250 GPM	CONTRACTOR	75-I-601	43 24 13	NEW IMPELLER, MOTOR, AND VFD
E14	RECLAIMED WATER PS	-	75-P-101-2	REUSE PUMP NO. 2	VERTICAL TURBINE	75	1250 GPM	CONTRACTOR	75-I-601	43 24 13	
E15	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-B-110	AERATION BLOWER NO. 1	POSITIVE DISPLACEMENT	100	1272 SCFM	CONTRACTOR	80-I-601	43 12 10	
E16	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-B-111	AERATION BLOWER NO. 2	POSITIVE DISPLACEMENT	100	1272 SCFM	CONTRACTOR	80-I-601	43 12 10	
E17	BIOSOLIDS HANDLING	DEWATERING	80-P-201	DEWATERING FEED PUMP NO. 1	ROTARY LOBE	7.5	125 GPM	CONTRACTOR	80-I-602	43 23 58	
E18	BIOSOLIDS HANDLING	DEWATERING	80-P-202	DEWATERING FEED PUMP NO. 2	ROTARY LOBE	7.5	125 GPM	CONTRACTOR	80-I-602	43 23 58	
E19	BIOSOLIDS HANDLING	SOLIDS LOADOUT	80-CONV-715	SCREW CONVEYOR NO. 1	SHAFTLESS	1.5	350 LBS/HR	CONTRACTOR	80-I-605	41 12 13	
E20	BIOSOLIDS HANDLING	SOLIDS LOADOUT	80-CONV-725	SCREW CONVEYOR NO. 2	SHAFTLESS	1.5	350 LBS/HR	CONTRACTOR	80-I-605	41 12 13	

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WRF PHASE 3 UPGRADES
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GENERAL(G)
EQUIPMENT SCHEDULE

FILE : 93-24-001 00-G-016
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VALVE SCHEDULE												
ITEM	PROCESS AREA	SUBPROCESS	TAG NO.	DESCRIPTION	TYPE	SYMBOL	SIZE (IN)	OPERATOR TYPE	POSITION	ACTUATOR TYPE	FURNISHED BY	SHEET REFERENCE
V1	CENTER ST. LIFT STATION	N/A	05-CV-102-1	INFLUENT PUMP NO. 1 CHECK	CHECK	CV-2	8	N/A	N.O.	MANUAL	CONTRACTOR	05-I-601
V2	CENTER ST. LIFT STATION	N/A	05-CV-102-2	INFLUENT PUMP NO. 2 CHECK	CHECK	CV-2	8	N/A	N.O.	MANUAL	CONTRACTOR	05-I-601
V3	CENTER ST. LIFT STATION	N/A	05-CV-102-3	INFLUENT PUMP NO. 3 CHECK	CHECK	CV-2	8	N/A	N.O.	MANUAL	CONTRACTOR	05-I-601
V4	CENTER ST. LIFT STATION	N/A	05-HV-102-1	INFLUENT PUMP NO. 1 ISOLATION	PLUG	PV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V5	CENTER ST. LIFT STATION	N/A	05-HV-102-2	INFLUENT PUMP NO. 2 ISOLATION	PLUG	PV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V6	CENTER ST. LIFT STATION	N/A	05-HV-102-3	INFLUENT PUMP NO. 3 ISOLATION	PLUG	PV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V7	CENTER ST. LIFT STATION	N/A	05-HV-103	VALVE VAULT BYPASS TO CAMLOCK	PLUG	PV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V8	CENTER ST. LIFT STATION	N/A	05-HV-104-1	VALVE VAULT DISCHARGE ISOLATION	PLUG	PV-1	10	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V9	CENTER ST. LIFT STATION	N/A	05-HV-104-2	FLOWMETER BYPASS	PLUG	PV-1	10	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V10	CENTER ST. LIFT STATION	N/A	05-HV-104-3	FLOWMETER BYPASS	PLUG	PV-1	10	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	05-I-601
V11	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-412-1	AERATION BLOWER NO. 1 INTAKE	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	20-I-603
V12	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-411-1	AERATION BLOWER NO. 1 DISCHARGE	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	20-I-603
V13	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-404-3	BIOLOGICAL TRAIN NO. 3 ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-604B
V14	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-403-3	AIR ISOLATION AE 16-TK-403-3	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-604B
V15	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-FV-403-3	AIR AE 16-TK-403-3	BUTTERFLY	BFV-1	6	N/A	N.O.	ELECTRIC	CONTRACTOR	16-I-604B
V16	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-402-3	AIR ISOLATION AE 16-TK-402-3	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-604B
V17	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-FV-402-3	AIR AE 16-TK-402-3	BUTTERFLY	BFV-1	6	N/A	N.O.	ELECTRIC	CONTRACTOR	16-I-604B
V18	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-HV-401-3	AIR ISOLATION AE 16-TK-401-3	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-604B
V19	BIOLOGICAL TRAIN 3	BIOLOGICAL AERATION	16-FV-401-3	AIR AE 16-TK-401-3	BUTTERFLY	BFV-1	6	N/A	N.O.	ELECTRIC	CONTRACTOR	16-I-604B
V20	BIOLOGICAL TRAIN 3	BIOLOGICAL SOLIDS	16-HV-701-3	ISOLATION TO BIOSOLIDS HOLDING TANK	PLUG	PV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-604B
V21	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-HV-J	TRAIN 3 ML PUMP NO. 1 SUCTION	PLUG	PV-1	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V22	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-HV-I	TRAIN 3 ML PUMP NO. 2 SUCTION	PLUG	PV-1	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V23	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-CV-D	TRAIN 3 ML PUMP NO. 1 CHECK	CHECK	CV-2	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V24	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-CV-E	TRAIN 3 ML PUMP NO. 2 CHECK	CHECK	CV-2	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V25	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-HV-K	TRAIN 3 ML PUMP NO. 1 DISCHARGE	PLUG	PV-1	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V26	BIOLOGICAL TRAIN 3	TRAIN 3 ML PUMPING	16-HV-L	TRAIN 3 ML PUMP NO. 2 DISCHARGE	PLUG	PV-1	12	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	16-I-605
V27	BIOLOGICAL TRAIN 4	TRAIN 3 WAS BYPASS	80-HV-805-1	TRAIN 3 ML PUMP WAS BYPASS PLUG	PLUG	PV-1	4	HANDWHEEL/GEARBOX	N.C.	MANUAL	CONTRACTOR	
V28	BIOLOGICAL TRAIN 5	TRAIN 3 WAS BYPASS	80-CV-805-1	TRAIN 3 ML PUMP WAS BYPASS CHECK	CHECK	CV-2	4	HANDWHEEL/GEARBOX	N.C.	MANUAL	CONTRACTOR	
V29	MEMBRANE TRAIN 5	SCOUR AIR	20-FV-210-5	MEMBRANE TRAIN 5 AIR INTAKE ISOLATION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V30	MEMBRANE TRAIN 5	SCOUR AIR	20-FV-211-5	MEMBRANE TRAIN 5 AIR DISCHARGE ISOLATION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V31	MEMBRANE TRAIN 5	SCOUR AIR	20-HV-205A-5	CASSETTE A5 PERMEATE DISCHARGE ISOLATION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V32	MEMBRANE TRAIN 5	SCOUR AIR	20-HV-205B-5	CASSETTE B5 PERMEATE DISCHARGE ISOLATION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V33	MEMBRANE TRAIN 5	SCOUR AIR	20-HV-204A-5	CASSETTE A5 AIR INTAKE ISOLATION	BUTTERFLY	BFV-1	3	LEVER ARM	N.O.	MANUAL	VENDOR	
V34	MEMBRANE TRAIN 5	SCOUR AIR	20-HV-204B-5	CASSETTE B5 AIR INTAKE ISOLATION	BUTTERFLY	BFV-1	3	LEVER ARM	N.O.	MANUAL	VENDOR	
V35	MEMBRANE TRAIN 5	PERMEATE	20-FV-301-5	PERMEATE PUMP NO.5 DISCHARGE ISOLATION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V36	MEMBRANE TRAIN 5	PERMEATE	20-HV-306-5	PERMEATE PUMP NO. 5 SUCTION	BUTTERFLY	BFV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	VENDOR	
V37	RECLAIMED WATER PS	N/A	75-AV-103-2	REUSE PUMP NO. 2 DISCHARGE	AIR RELEASE	ARV-1	3/4	N/A	N.O.	MANUAL	CONTRACTOR	75-I-601
V38	RECLAIMED WATER PS	N/A	75-CV-101-2	REUSE PUMP NO. 2 DISCHARGE	CHECK	CV-2	8	N/A	N.O.	MANUAL	CONTRACTOR	75-I-601
V39	RECLAIMED WATER PS	N/A	75-HV-102-2	REUSE PUMP NO. 2 DISCHARGE ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	75-I-601
V40	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-101-1	WAS DISCHARGE TO TANK	PLUG	PV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601
V41	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-101-2	WAS DISCHARGE TO DRAIN	PLUG	PV-1	6	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601
V42	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-105	BLOWER NO. 1 INTAKE ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	
V43	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-106	BLOWER NO. 2 INTAKE ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	
V44	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-110	BLOWER NO. 1 DISCHARGE ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	20-I-603
V45	BIOSOLIDS HANDLING	SOLIDS HOLDING	80-HV-111	BLOWER NO. 2 DISCHARGE ISOLATION	BUTTERFLY	BFV-1	8	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	20-I-603
V46	BIOSOLIDS HANDLING	DEWATERING	80-HV-201-1	DEWATERING FEED PUMP NO. 1 SUCTION	PLUG	PV-1	4	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601
V47	BIOSOLIDS HANDLING	DEWATERING	80-HV-202-1	DEWATERING FEED PUMP NO. 2 SUCTION	PLUG	PV-1	4	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601
V48	BIOSOLIDS HANDLING	DEWATERING	80-CV-201	DEWATERING FEED PUMP NO. 1 CHECK	CHECK	CV-2	4	N/A	N.O.	MANUAL	CONTRACTOR	80-I-601
V49	BIOSOLIDS HANDLING	DEWATERING	80-CV-202	DEWATERING FEED PUMP NO. 2 CHECK	CHECK	CV-2	4	N/A	N.O.	MANUAL	CONTRACTOR	80-I-601
V50	BIOSOLIDS HANDLING	DEWATERING	80-HV-201-2	DEWATERING FEED PUMP NO. 1 DISCHARGE	PLUG	PV-1	4	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601
V51	BIOSOLIDS HANDLING	DEWATERING	80-HV-202-2	DEWATERING FEED PUMP NO. 2 DISCHARGE	PLUG	PV-1	4	HANDWHEEL/GEARBOX	N.O.	MANUAL	CONTRACTOR	80-I-601

Notes:

(1) Not all items provided as part of package systems or components are included / detailed in the schedule.
(2) Confirm all details in the schedule with the civil, mechanical, electrical, and instrumentation plans, and the corresponding specifications. Some items may not be included in this schedule.
(3) Small diameter isolation valves for instruments, drains, pipe taps, hydrants, yard piping isolation etc. may not be included in the schedule.
(4) The sheet reference (if provided) indicates one location the item can be located. The item may also be found on related plans, sections, details, electrical sheets, and P&IDs.
(5) Reference Membrane Manufacturer's bill of materials. Items that are loose-shipped and shall be installed as necessary by the Contractor.
(6) All buried valves shall have a concrete bearing pad per Santaquin City Standard Detail UT4 and valve box / lid per Standard Detail C-02100.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7270300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
VALVE SCHEDULE

FILE : 93-24-001 00-G-017
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-017

Plot Date:1/30/2025 2:04 PM Plotted By: Chase Steigers
Date Created:1/29/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-017.DWG

GATE SCHEDULE																			
ITEM	PROCESS AREA	SUBPROCESS	TAG NO.	DESCRIPTION	MIN GATE ELEV	NORMAL GATE ELEV	MAX GATE ELEV	TOW OR TOS ELEV	FLUSH BOTTOM ELEV	MAX SEATING WSE	MAX UNSEATING WSE	OPENING WIDTH (IN)	GATE HEIGHT (IN)	GATE TYPE	FRAME	GUIDE TYPE	CLOSURE	STEM	OPERATOR	MATERIAL
G01	MEMBRANE TRAIN 5		20-FV-110-5	MEMBRANE TRAIN 5 INLET GATE	4810.50	4813.00	4812.00	4814.50	-	4812.50	4814.00	36	36	WEIR	SELF-CONTAINED	WALL MOUNTED	DOWNWARD OPENING	RISING	ELECTRIC	304L SST

Notes:
1. All gates may not be listed in this schedule. Contractor shall be solely responsible for providing all gates shown in the drawings or specified in the Contract Documents even if they are not listed in this schedule. The sheet reference (if provided) indicates one location the item can be located. The item may also be found on related plans, sections, details, electrical sheets, and P&IDs.
2. All dimensions listed are nominal. Contractor shall verify exact dimensions and gate installation requirements prior to submitting shop drawings.
3. Not all items provided as part of package systems or components are included / detailed in the schedule.
4. Confirm all details in the schedule with the mechanical, electrical, and instrumentation plans, and the corresponding specifications. Some items may not be included in this schedule.
5. For flange-mounted gates extending from walls, provide pipe support at flange per Standard Detail 15070.
6. Max Gate Elev or Top of Gate Elev: Weir gates are referenced to top of gate; Upward Opening gates are referenced to bottom of gate.
7. All rising stem gates shall be provided with a stem cover and tape strip position indicator per the Specifications.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No. 7279300-2202
GARY MICHAEL VANCE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

GENERAL(G)
GATE SCHEDULE

FILE : 93-24-001 00-G-018
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: LMS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/30/2025

DRAWING:
00-G-018

Plot Date:1/30/2025 2:04 PM Plotted By: Chase Steigers
Date Created:1/30/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\GENERAL\93-24-001_00-G-018.DWG

SURVEY CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	7167845.43	1560161.37	4791.420	
102	7165191.60	1560160.34	4844.150	
103	7162582.69	1562831.72	4880.930	
104	7167823.05	1557490.01	4790.370	
105	7162437.33	1555081.02	4884.040	
106	7162454.49	1552221.77	4851.570	
107	7159816.25	1554882.51	4919.184	

NORTH QUARTER CORNER OF SECTION 35
TOWNSHIP 9 SOUTH, RANGE 1 EAST
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON. 4925

CP-104

S89°31'12"W 2,671.45' MEASURED
(S89°31'13"WS 2,971.49' RECORD)

CP-101

PROJECT SITE

BASIS OF BEARING = S44°27'36"W 7,521.69'
MEASURED (S44°27'36"W 7,521.72' RECORD)

S00°01'20"W 2,653.83" MEASURED
(S00°01'26"W 2653.78' RECORD)

FOUND REFERENCE CORNER FOR THE
EAST QUARTER CORNER OF SECTION 35,
TOWNSHIP 9 SOUTH, RANGE 1 EAST,
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON. 80580

CP-102

420 WEST

RANGE 1 EAST

RANGE 2 EAST

CENTER STREET

ORCHARD COVE DRIVE

S45°40'40"W 3,733.99' MEASURED

FOUND MAG NAIL IN CHURCH PARKING LOT
J-U-B GPS BASE POINT FROM 2010 SURVEY

FOUND REFERENCE CORNER FOR THE
NORTHEAST CORNER OF SECTION 3,
TOWNSHIP 10 SOUTH, RANGE 1 EAST,
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON. 50581

HIGHWAY-6

CP-106

S89°39'22"E 2,859.30 MEASURED
(S89°39'23"E 2,859.38 RECORD)

CP-105

FOUND NORTH QUARTER CORNER OF SECTION 3,
TOWNSHIP 10 SOUTH, RANGE 1 EAST,
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON. 5104

PROJECT SITE

S04°19'12"W 2,628.58 MEASURED
(S04°19'52"W 2,628.72' RECORD)

500 WEST

400 NORTH

200 NORTH

MAIN STREET

CP-103

FOUND SOUTH QUARTER CORNER OF SECTION 36,
TOWNSHIP 9 SOUTH, RANGE 1 EAST,
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON 5101

THIS MONUMENT WAS HELD FOR THE 2010 SURVEY
AND THE 2024 SURVEY WAS TRANSLATED TO CONFORM
TO THE PREVIOUS COORDINATE VALUES

CP-107

FOUND EAST QUARTER CORNER OF SECTION 3,
TOWNSHIP 10 SOUTH, RANGE 1 EAST,
SALT LAKE BASE AND MERIDIAN
UTCO. GIS MON. 5224

0 500 1,000
SCALE IN FEET

SURVEYOR'S CERTIFICATE

I, JASON D. WILLES, DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT I HOLD LICENSE NO. 376067 IN ACCORDANCE WITH TITLE 58, CHAPTER 22 OF THE PROFESSIONAL ENGINEERS AND LAND SURVEYORS LICENSING ACT, UTAH CODE ANNOTATED, 1953 AS AMENDED. I ALSO CERTIFY THAT THIS SURVEY CONTROL SHEET WAS PREPARED UNDER MY DIRECTION.

I FURTHER STATE THAT THE INTENT OF THIS SURVEY CONTROL SHEET IS TO PROVIDE THE COORDINATE DATA AND BASIS OF BEARINGS USED FOR THE DESIGN OF THE SANTAQUIN CITY MAIN STREET WIDENING AND CENTER STREET STORM DRAIN IMPROVEMENTS PROJECTS. I CERTIFY THAT THE PROJECT COORDINATES AND ELEVATIONS LISTED WERE VERIFIED BASED ON GPS RTK AND ROBOTIC TOTAL STATION FIELD MEASUREMENTS AND PERTAIN ONLY TO THE PROJECT AREA DEPICTED ON THIS SHEET. I CERTIFY THAT THE VALUES SHOWN REFLECT THE POSITION OF EACH CONTROL POINT AT THE TIME THE DESIGN SURVEY WAS COMPLETED. HOWEVER, DUE TO THE LENGTH OF TIME BETWEEN THE DESIGN SURVEY AND THE ACTUAL CONSTRUCTION PERIOD, I MAKE NO GUARANTEE, NOR DO I CERTIFY, THAT THE POINTS SHOWN ARE UNDISTURBED OR CURRENTLY IN PLACE. ALL VALUES AND POSITIONS SHOULD BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION ACTIVITIES.

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Subconsultant:

AGENCY

REVIEW

NO.	DESCRIPTION	BY	APPR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

SURVEY(V)
SURVEY CONTROL

FILE : 93-24-001 V-101 S CNTRL
JUB PROJ. # :93-24-001
DRAWN BY: CIH
DESIGN BY: ---
CHECKED BY: ---
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
V-101

Plot Date:1/31/2025 11:27 AM Plotted By: Chase Sleigers
Date Created:12/10/2024\\UB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\06-DESIGN\CADD\SHEETS\CIVIL\93-24-001_V-101_S_CNTRL.DWG

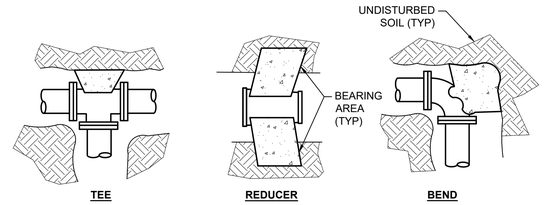
C-00000 RESERVED
NOT TO SCALE

NOTES:

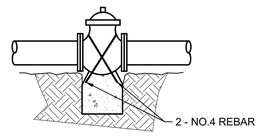
1. THRUST BLOCKS TO BE PROVIDED UNDER ALL BURIED VALVES AND WHERE SPECIFICALLY IDENTIFIED ON THE PLANS.
2. CONCRETE SHALL BE 2,500 PSI MINIMUM.
3. CONTRACTOR TO SUBMIT BEARING REQUIREMENTS FOR HIGHER WORKING PRESSURES, AND ALLOWABLE SOIL BEARING PRESSURE FOR REVIEW BY ENGINEER.
4. WRAP ALL FITTINGS WITH 6 MIL PLASTIC SHEETING BEFORE POURING THRUST BLOCK.

MINIMUM SQUARE FEET OF THRUST AREA*					
PIPE SIZE (INCHES)	TEE OR PLUG	90° BEND	45° BEND	22.5°, 11.25° BENDS OR REDUCER	VALVES
3	0.80	1.10	0.60	0.30	0.80
4	1.40	2.00	1.10	0.60	1.40
6	3.20	4.50	2.40	1.20	3.20
8	5.70	8.00	4.30	2.20	5.70
10	8.80	12.50	6.80	3.40	8.80
12	12.70	18.00	9.70	5.00	12.70
14	17.30	24.50	13.30	6.80	17.30
16	22.59	32	17.30	8.80	22.60
18	28.59	40.50	21.90	11.20	28.60
20	35.41	50.00	27.00	13.80	34.90
24	50.90	71.97	39.00	19.86	50.30

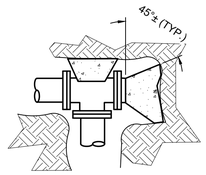
* SOIL BEARING PRESSURE= 2000 PSF
WORKING PRESSURE RATING= 150 P.S.I.
SAFETY FACTOR= 1.5



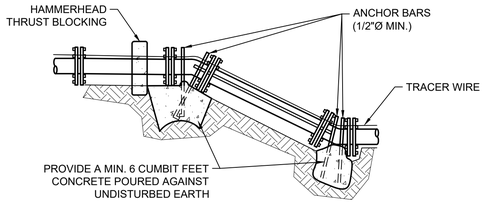
TEE REDUCER BEND



VALVE



TEE (PLUGGED)



VERTICAL BEND DETAIL

C-02005 THRUST BLOCK DETAIL
NOT TO SCALE

GENERAL NOTES:

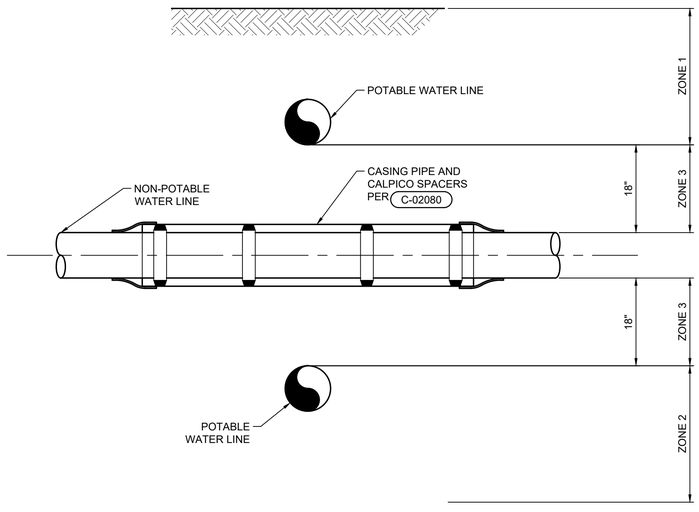
1. THIS DETAIL PERTAINS TO SEPARATION REQUIREMENTS FOR POTABLE WATER AND NON-POTABLE WATER PIPELINES LOCATED WITHIN PUBLIC RIGHTS OF WAY. THE TERM "PIPELINE" APPLIES TO BOTH MAINS AND SERVICES.
2. REFER TO UTAH R317 RULES FOR ALL SEPARATION REQUIREMENTS.
3. ANY CONDITIONS NOT MEETING THESE TYPICAL SEPARATION REQUIREMENTS MUST HAVE UTAH DEQ SITE SPECIFIC APPROVAL (E.G. SKEWED CROSSINGS, I.E. NOT AT 90°).
4. NON-POTABLE MAINS ARE PROHIBITED FROM BEING LOCATED IN THE SAME TRENCH AS POTABLE MAINS. NEW POTABLE SERVICES ARE PROHIBITED FROM BEING LOCATED IN THE SAME TRENCH AS NON-POTABLE MAINS OR NON-POTABLE SERVICES.
5. PRESSURE SEWAGE MAINS SHALL BE NO CLOSER HORIZONTALLY THAN TEN (10) FEET AND NO CLOSER VERTICALLY THAN EIGHTEEN (18) INCHES FROM POTABLE MAINS.

HORIZONTAL SEPARATION REQUIREMENT NOTES:

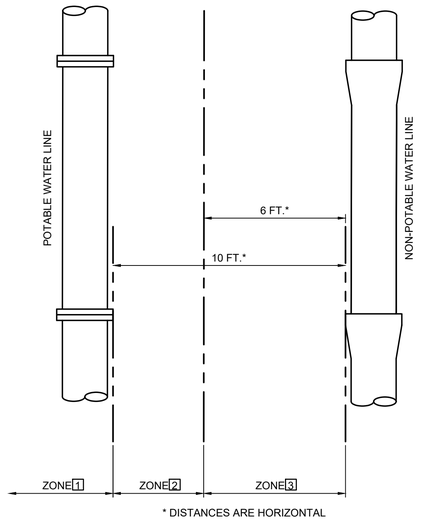
- NON-POTABLE MAINS IN RELATION TO POTABLE MAINS:
  - ZONE 1: GREATER THAN TEN (10) FEET SEPARATION: NO ADDITIONAL REQUIREMENTS BASED ON SEPARATION DISTANCE.
  - ZONE 2: TEN (10) FEET TO SIX (6) FEET SEPARATION: SEPARATE TRENCHES, WITH BOTTOM OF THE POTABLE MAIN ABOVE THE TOP OF THE NON-POTABLE MAIN, AND NON-POTABLE MAIN CONSTRUCTED WITH POTABLE-WATER CLASS PIPE.
  - ZONE 3: LESS THAN SIX (6) FEET SEPARATION: DESIGN ENGINEER TO SUBMIT DATA TO THE DEPARTMENT FOR REVIEW AND APPROVAL THAT THIS INSTALLATION WILL PROTECT PUBLIC HEALTH AND ENVIRONMENT AND NON-POTABLE MAIN CONSTRUCTED WITH POTABLE-WATER CLASS PIPE.
- NEW NON-POTABLE SERVICES IN RELATION TO POTABLE SERVICES, NEW NON-POTABLE SERVICES IN RELATION TO POTABLE MAINS, AND NEW POTABLE SERVICES IN RELATION TO NON-POTABLE MAINS.
  - ZONE 2: GREATER THAN SIX (6) FEET SEPARATION: NO ADDITIONAL REQUIREMENTS BASED ON SEPARATION DISTANCES.
  - ZONE 3: LESS THAN SIX (6) FEET SEPARATION: DESIGN ENGINEER TO SUBMIT DATA THAT THIS INSTALLATION WILL PROTECT PUBLIC HEALTH AND THE ENVIRONMENT AND NON-POTABLE SERVICE CONSTRUCTED WITH POTABLE WATER CLASS PIPE.

VERTICAL SEPARATION REQUIREMENT NOTES:

- ZONE 1: EIGHTEEN (18) INCHES OR MORE VERTICAL SEPARATION WITH POTABLE PIPELINE ABOVE NON-POTABLE PIPELINE: NON-POTABLE PIPELINE JOINT TO BE AS FAR AS POSSIBLE FROM THE POTABLE WATER PIPELINE.
- ZONE 2: EIGHTEEN (18) INCHES OR MORE VERTICAL SEPARATION WITH POTABLE WATER PIPELINE BELOW NON-POTABLE PIPELINE: NON-POTABLE PIPELINE JOINT TO BE AS FAR AS POSSIBLE FROM THE POTABLE WATER PIPELINE, AND NON-POTABLE PIPELINE MUST BE SUPPORTED THROUGH THE CROSSING TO PREVENT SETTLING.
- ZONE 3: LESS THAN EIGHTEEN (18) INCHES VERTICAL SEPARATION:
  - a) NON-POTABLE PIPELINE JOINT TO BE AS FAR AS POSSIBLE FROM THE POTABLE WATER PIPELINE; AND EITHER
  - b) NON-POTABLE PIPELINE CONSTRUCTED WITH POTABLE WATER CLASS PIPE FOR A MINIMUM OF TEN (10) FEET EITHER SIDE OF POTABLE PIPELINE WITH A SINGLE TWENTY (20) FOOT SECTION OF POTABLE WATER CLASS PIPE CENTERED ON THE CROSSING; OR
  - c) SLEEVE NON-POTABLE OR POTABLE PIPELINE WITH POTABLE WATER CLASS PIPE FOR TEN (10) FEET EITHER SIDE OF CROSSING. USE OF HYDRAULIC CEMENTITIOUS MATERIALS SUCH AS CONCRETE, CONTROLLED DENSITY FILL, AND CONCRETE SLURRY ENCASEMENT IS NOT ALLOWED AS A SUBSTITUTE FOR SLEEVING.
  - d) IF THE POTABLE PIPELINE IS BELOW NON-POTABLE PIPELINE, THE NON-POTABLE PIPELINE MUST ALSO BE SUPPORTED THROUGH THE CROSSING TO PREVENT SETTLING.



VERTICAL SEPARATION REQUIREMENTS



* DISTANCES ARE HORIZONTAL

HORIZONTAL SEPARATION REQUIREMENTS

C-02010 POTABLE AND NON-POTABLE WATER LINE SEPARATION REQUIREMENTS
NOT TO SCALE

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Subconsultant:

AGENCY

PROFESSIONAL ENGINEER
No. 12222515
CHASE A. STEIGERS
01/31/25
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

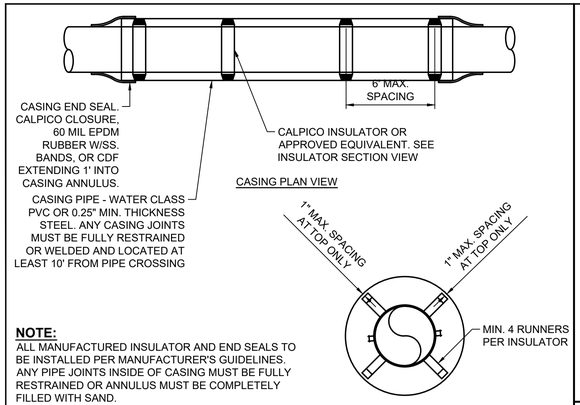
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL STANDARD DETAILS(CZ)
STANDARD DETAILS

FILE : 93-24-001_00-CZ-901X
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
00-CZ-901

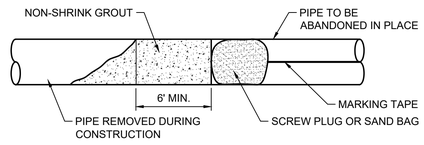
Plot Date:1/31/2025 10:06 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_00-CZ-901X.DWG



NOTE:
ALL MANUFACTURED INSULATOR AND END SEALS TO BE INSTALLED PER MANUFACTURER'S GUIDELINES. ANY PIPE JOINTS INSIDE OF CASING MUST BE FULLY RESTRAINED OR ANNULUS MUST BE COMPLETELY FILLED WITH SAND.

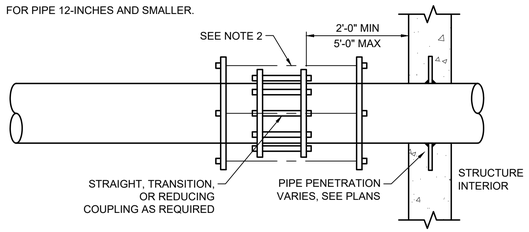
C-02080 PIPE CASING DETAIL
NOT TO SCALE

NOTE:
1. EXPOSE BOTH ENDS OF PIPE TO BE ABANDONED IN PLACE AND PLUG.
2. PROVIDE "ABANDONED" MARKING TAPE THROUGH PIPING PRIOR TO CAPPING OR PLUGGING.
3. IN LIEU OF GROUT AND SCREW PLUG/SNAD BAG, METAL PIPES MAY BE CAPPED WITH A COMPATIBLE MJ OR FL CAP OR BLIND FLANGE.

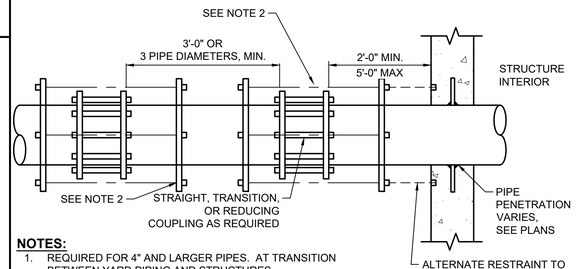


C-02115 PIPE ABANDONMENT PLUG
NOT TO SCALE

NOTES:
1. REQUIRED FOR 4" AND LARGER PIPES. AT TRANSITION BETWEEN YARD PIPING AND STRUCTURES.
2. PROVIDE RESTRAINED JOINT(LONGITUDINAL RESTRAINT HARNESS, ROMAC 600 SERIES, OR EQUAL).
3. FOR PIPE 12-INCHES AND SMALLER.



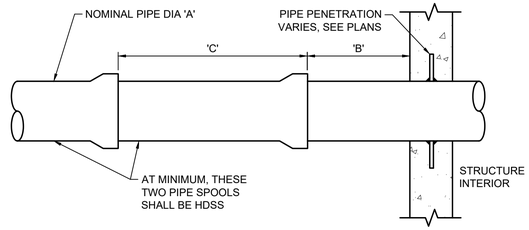
C-02121 PIPE ALIGNMENT DETAIL
NOT TO SCALE



NOTES:
1. REQUIRED FOR 4" AND LARGER PIPES. AT TRANSITION BETWEEN YARD PIPING AND STRUCTURES.
2. PROVIDE RESTRAINED JOINT(LONGITUDINAL RESTRAINT HARNESS, ROMAC 600 SERIES, OR EQUAL).
3. FOR PIPE 12-INCHES AND SMALLER.

C-02122 PIPE TO STRUCTURE TRANSITION DETAIL
NOT TO SCALE

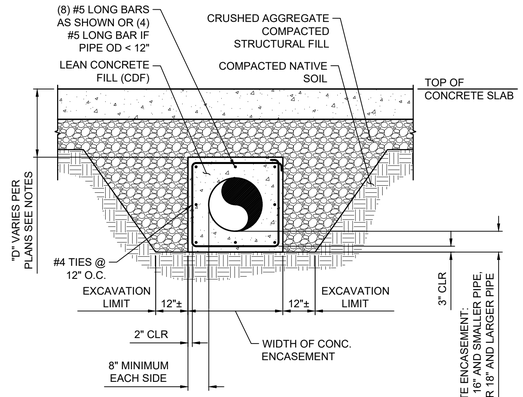
DIMENSIONS IN INCHES		
'A'	'B' (UNO)	'C' (MIN)
14	24	39
16	24	39
18	24	39
24	24	39
30	24	62
36	24	77
42	24	77
48	24	77



NOTES:
1. PROVIDE US PIPE HDSS, HIGH DEFLECTION RESTRAINED JOINT DUCTILE IRON PIPE SPOOL PER DIMENSION 'C' (OR APPROVED EQUAL).
2. FOR DUCTILE IRON PIPE GREATER THAN 12-INCHES.
3. FOR AREAS WITH EXPECTED SETTLEMENT LESS THAN OR EQUAL TO 2 VERTICAL INCHES ONLY.

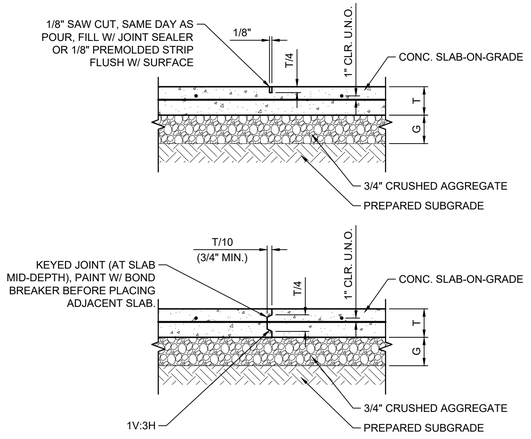
C-02123 FLEXIBLE CONNECTION AT BUILDING (FOR PIPES GREATER THAN 12")
NOT TO SCALE

NOTES:
1. UNLESS NOTED OTHERWISE:
   - IF "D" IS LESS THAN 1'-6" PROVIDE CONCRETE ENCASEMENT CONTINUOUS TO SLAB.
   - IF "D" IS GREATER THAN 1'-6" PROVIDE CONCRETE ENCASEMENT TO BOTTOM OF CRUSHED AGGREGATE OR 2'-0" MAX.
2. EXTEND CONCRETE PIPE ENCASEMENT 12" BEYOND EDGE OF SLAB, TYPICAL.



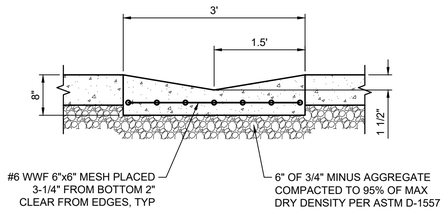
C-02135 CONCRETE ENCASEMENT FOR PIPE UNDER SLABS
NOT TO SCALE

NOTES:
1. UNLESS NOTED OTHERWISE, MINIMUM SLAB THICKNESS (T) SHALL BE 4" FOR FOOT-TRAFFIC AREAS AND MINIMUM OF 6" FOR VEHICULAR TRAFFIC AREAS; GRANULAR BASE MATERIAL (G) SHALL BE 6" THICK. MINIMUM REINFORCING WITH #4 AT 15" O.C.E.W. UNLESS NOTED OTHERWISE.
2. CONTROL JOINTS SHALL BE 15'-0" O.C.
3. JOINT TYPE USED IS OPTIONAL, UNLESS NOTED OTHERWISE.
4. CUT EVERY OTHER BAR CROSSING CONTROL JOINTS.
5. USE ONLY FOR EXTERIOR SLABS AS SPECIFICALLY NOTED ON CIVIL SHEETS. SEE STRUCTURAL SHEETS FOR FOUNDATION AND REINFORCED INTERIOR SLABS.
6. ALL AGGREGATE AND SUBGRADE SHALL BE COMPACTED TO 95% OF MAX DRY DENSITY PER ASTM D-1557
7. PROVIDE 1/2" JOINT WITH EXPANSION FILLER AND JOINT SEALANT WHEN ADJACENT TO STRUCTURES.

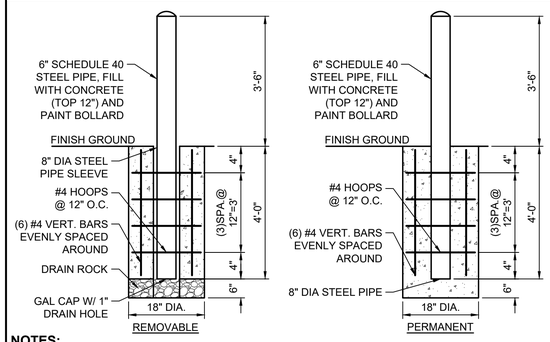


C-02150 TYPICAL CONCRETE SLAB-ON-GRADE DETAIL
NOT TO SCALE

NOTE:
GUTTER SIDE SLOPE TO MATCH ADJACENT SURFACES.



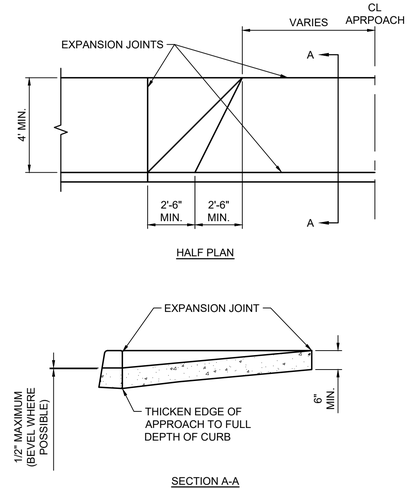
C-02155 CONCRETE VALLEY GUTTER
NOT TO SCALE



NOTES:
1. PROVIDE BOLLARD AROUND ALL ROLL-UP DOORS AND WHERE NOTED ON THE PLANS.
2. BOLLARD SPACING SHALL EQUAL DOOR WIDTH WHEN PLACED AT DOOR OPENINGS UNLESS NOTED OTHERWISE.
3. PAINT COLOR PER OWNER.
4. BOLLARDS NEAR ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO GENERATOR AND TRANSFORMERS, SHALL MEET THE REQUIREMENTS OF THE UTILITY PROVIDER.

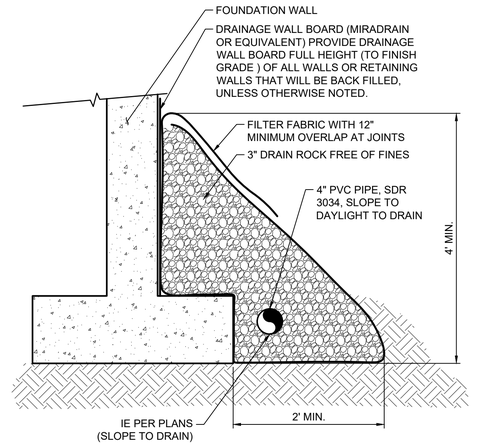
C-02160 BOLLARD DETAILS
NOT TO SCALE

NOTES:
1. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED OF 3,000 PSI MINIMUM AIR-ENTRAINED CONCRETE.
2. CONSTRUCTION JOINTS SHALL BE PLACED AT 5' MAX. SPACING.
3. ALL JOINTS SHALL HAVE 1/2" RADIUS EDGES.
4. APPROACHES MAY BE POURED INTEGRAL WITH CURB.
5. LIGHT BROOM FINISH.
6. EXPANSION MATERIAL IS REQUIRED BETWEEN THE DRIVEWAY SLAB AND WALK AND SHALL EXTEND THE FULL DEPTH.



C-02165 CONCRETE APPROACH
NOT TO SCALE

NOTES:
1. IF WALL EXTERIOR IS INSULATED, PLACE INSULATION BETWEEN DRAINAGE BOARD AND FOUNDATION WALL.
2. DO NOT INTERCONNECT FOUNDATION DRAINS. ROUTE FOUNDATION DRAINS TO DAYLIGHT INDEPENDENTLY.
3. USE NON-PERFORATED PIPE TO ROUTE DRAINS TO DAYLIGHT.



C-02175 FOOTING DRAIN
NOT TO SCALE

J-U-B ENGINEERS, INC.
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Subconsultant:

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CHASE A. STEIGERS
01/31/25
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL STANDARD DETAILS(CZ)
STANDARD DETAILS

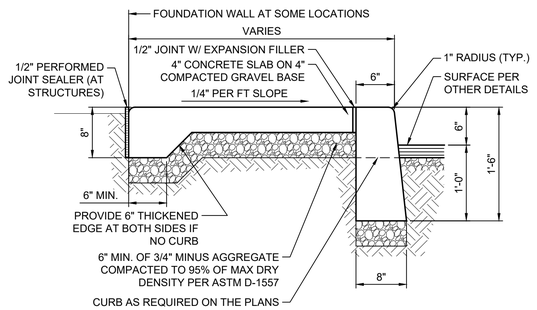
FILE : 93-24-001 00-CZ-901X
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
00-CZ-902

Plot Date=1/31/2025 10:06 AM Plotted By: Chase Steigers
Date Created=12/10/2024 \\JUB.COM\CENTRAL\C\CLIENTS\UT\SANTAQUIN\CITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_00-CZ-901X.DWG

NOTE:

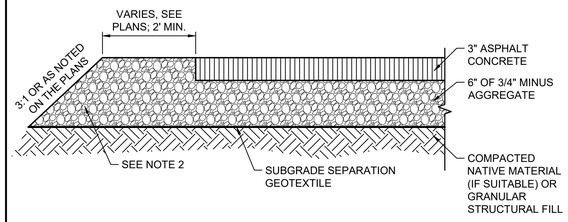
1. PROVIDE CONTROL JOINTS AT 5'-0" O.C. OR SIDEWALK WIDTH, WHICHEVER IS LESS, & EXPANSION JOINTS AT 20'-0" O.C. MAXIMUM, AND AT CURB RETURNS.



C-02180 CONCRETE SIDEWALK
NOT TO SCALE

NOTES:

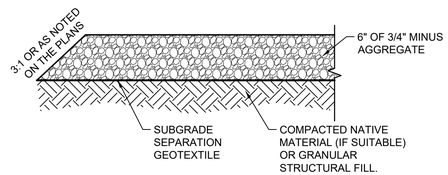
1. COMPACTION SHALL BE TO 95% MAX. DRY DENSITY PER ASTM D-1557.
2. AT ASPHALT EDGE TO GRAVEL OR MISC SURFACES, PROVIDE GRAVEL APRON AS SHOWN.



C-02185 AC PAVEMENT TYPICAL SECTION
NOT TO SCALE

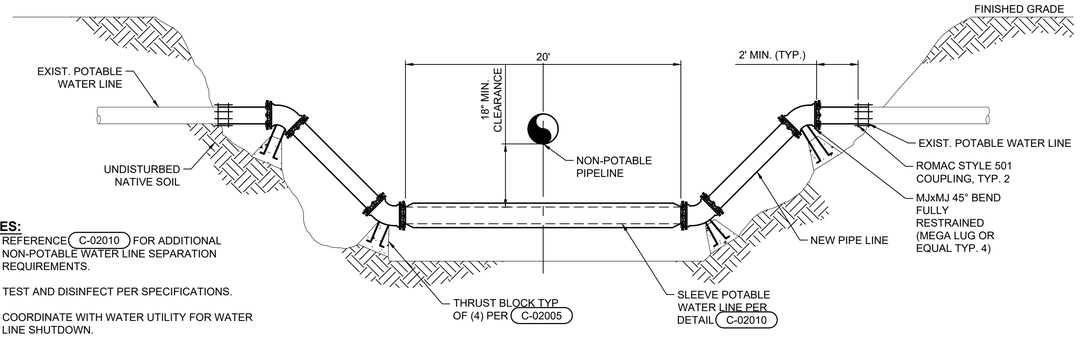
NOTES:

1. COMPACTION SHALL BE TO 95% MAX. DRY DENSITY PER ASTM D-1557.



C-02190 GRAVEL TYPICAL SECTION
NOT TO SCALE

C-00000 RESERVED
NOT TO SCALE



NOTES:

1. REFERENCE C-02010 FOR ADDITIONAL NON-POTABLE WATER LINE SEPARATION REQUIREMENTS.
2. TEST AND DISINFECT PER SPECIFICATIONS.
3. COORDINATE WITH WATER UTILITY FOR WATER LINE SHUTDOWN.

C-02192 WATERLINE CROSSING
NOT TO SCALE

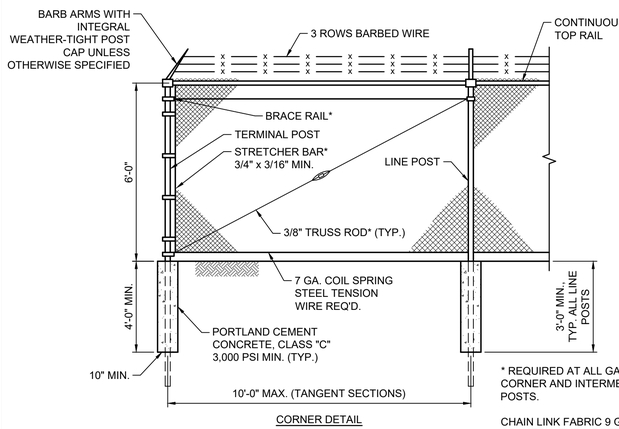
C-00000 RESERVED
NOT TO SCALE

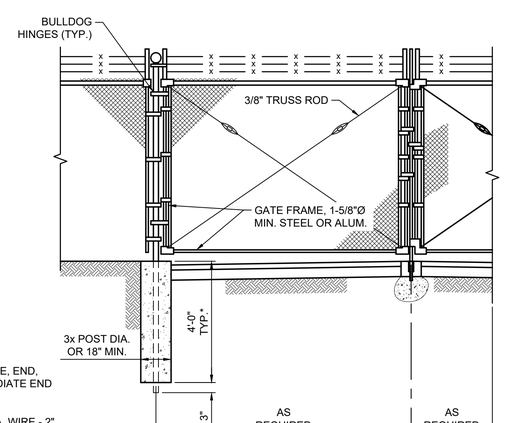
C-00000 RESERVED
NOT TO SCALE

MINIMUM MEMBER SIZE AND WEIGHT FOR CHAIN LINK FENCE

MATERIAL	BRACE & TOP RAILS				LINE POSTS						END, CORNER, INTER. END				GATE POSTS				
	TUBULAR		ROLL FORMED		TUBULAR		H-SECTION		ROLL FORMED		TUBULAR		ROLL FORMED		FOR GATE LEAF WIDTH	TUBULAR		ROLL FORMED	
GALVANIZED OR ALUMINUM COATED (SCH 40 STEEL)	O.D.	#/FT.	SIZE	#/FT.	O.D.	#/FT.	SIZE	#/FT.	SIZE	#/FT.	O.D.	#/FT.	SIZE	#/FT.		O.D.	#/FT.	SIZE	#/FT.
	1-5/8"	2.27	1-5/8"x1-1/4"	1.35	2-7/8"	2.72	1-7/8"x1-5/8"	2.70	1-7/8"x1-7/8"	2.28	2-7/8"	5.79	3-1/2"x3-1/2"	5.14	0'- 6'	2-7/8"	5.79	3-1/2"x3-1/2"	5.14
															6' - 13'	4"	9.10	-----	------
															13' - 18'	6-5/8"	18.97	-----	-----
ALUMINUM ALLOY	1-5/8"	0.786	------	------	2-7/8"	1.264	1-7/8"x1-5/8"	0.913	------	------	2-7/8"	2.004	3"x3"	2.00	0' - 6'	2-7/8"	2.00	3"x3"	2.00
															6' - 13'	4"	3.15	-----	-----
															13' - 18'	6-5/8"	6.56	-----	-----

NOTE: SEE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS FOR FENCES GRATER THAN 6'-0" IN HEIGHT.





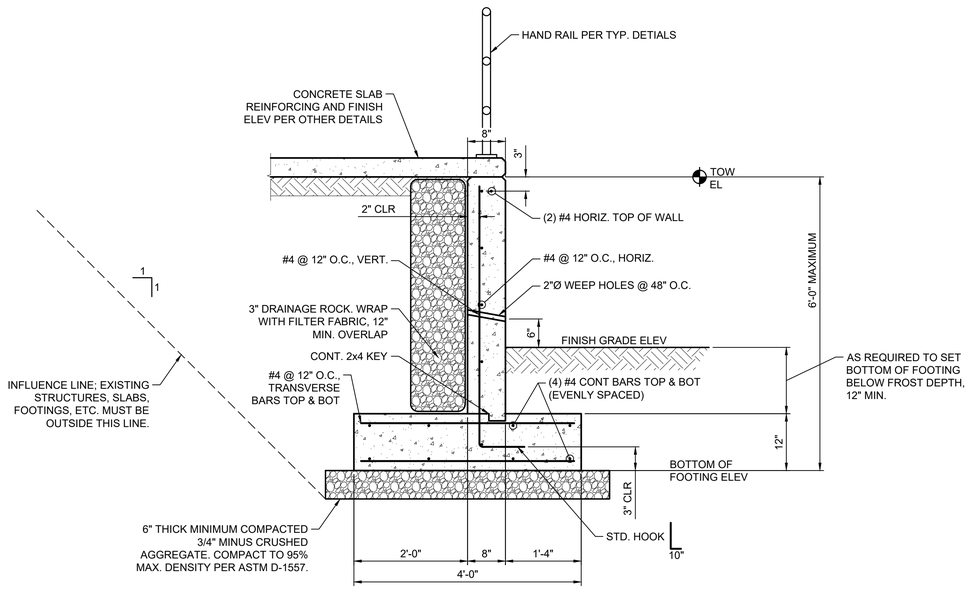
* REQUIRED AT ALL GATE, END, CORNER AND INTERMEDIATE END POSTS.

CHAIN LINK FABRIC 9 GA. WIRE - 2" SQ. MESH (TYP.). BOTTOM OF FABRIC SHALL HAVE TWISTED AND BARBED SELVAGES. TOP OF FABRIC SHALL HAVE KNUCKLE FINISH.

C-02200 CHAIN LINK FENCE AND SWING DETAIL
NOT TO SCALE

NOTES:

1. REFER TO GRADING PLANS FOR FINISH ELEVATIONS & OTHER REQUIREMENTS.



C-02260 TYPICAL CONCRETE RETAINING WALL
NOT TO SCALE

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Subconsultant:

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No. 12222515
CHASE A. STEIGERS
01/31/25
STATE OF UTAH

REVIEW

NO.	REVISION	DESCRIPTION	BY	APR.	DATE

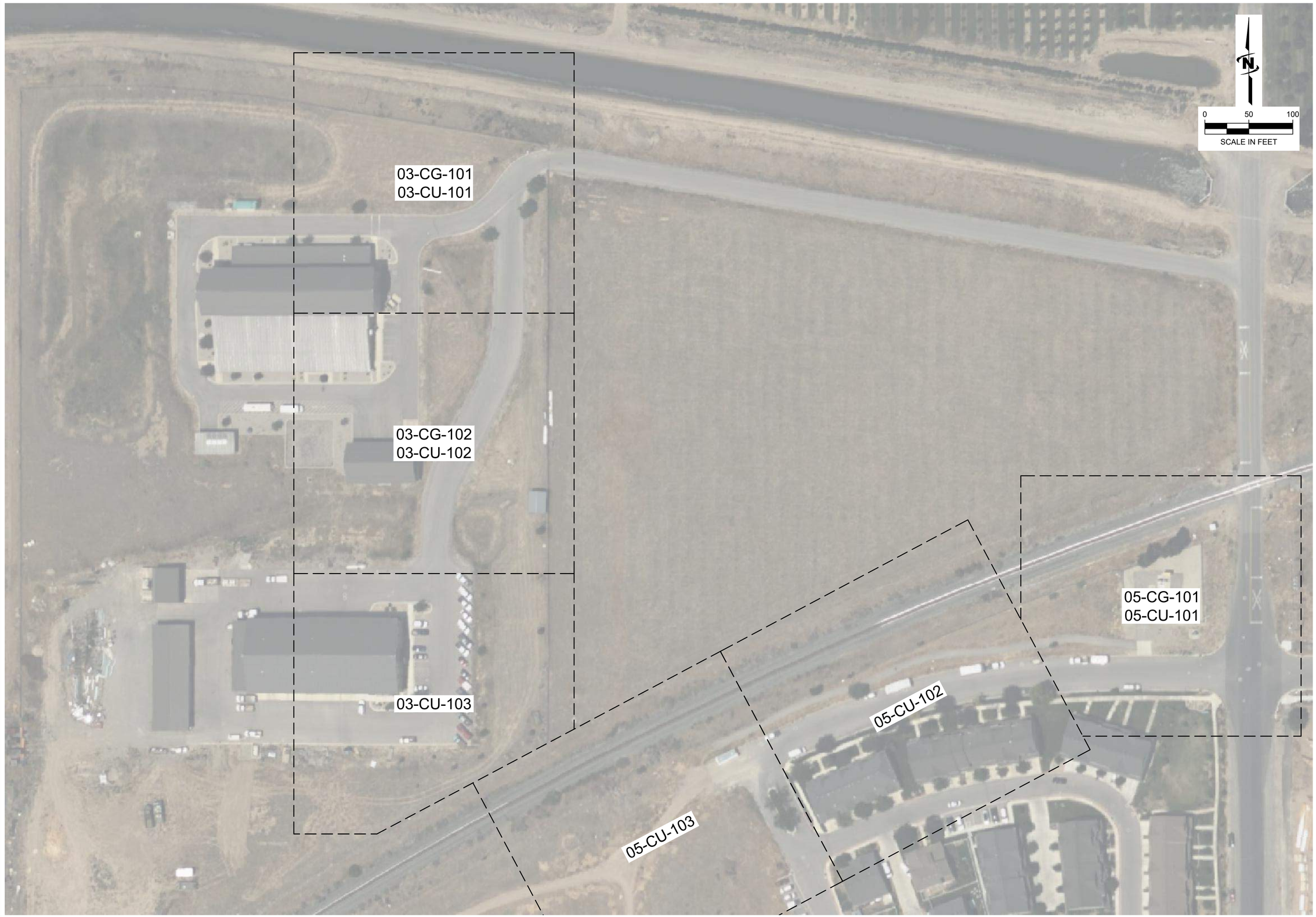
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL STANDARD DETAILS(CZ)
STANDARD DETAILS

FILE : 93-24-001_00-CZ-901X
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
00-CZ-903

Plot Date=1/31/2025 10:06 AM Plotted By: Chase Steigers
Date Created=12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_00-CZ-901X.DWG



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REVIEW

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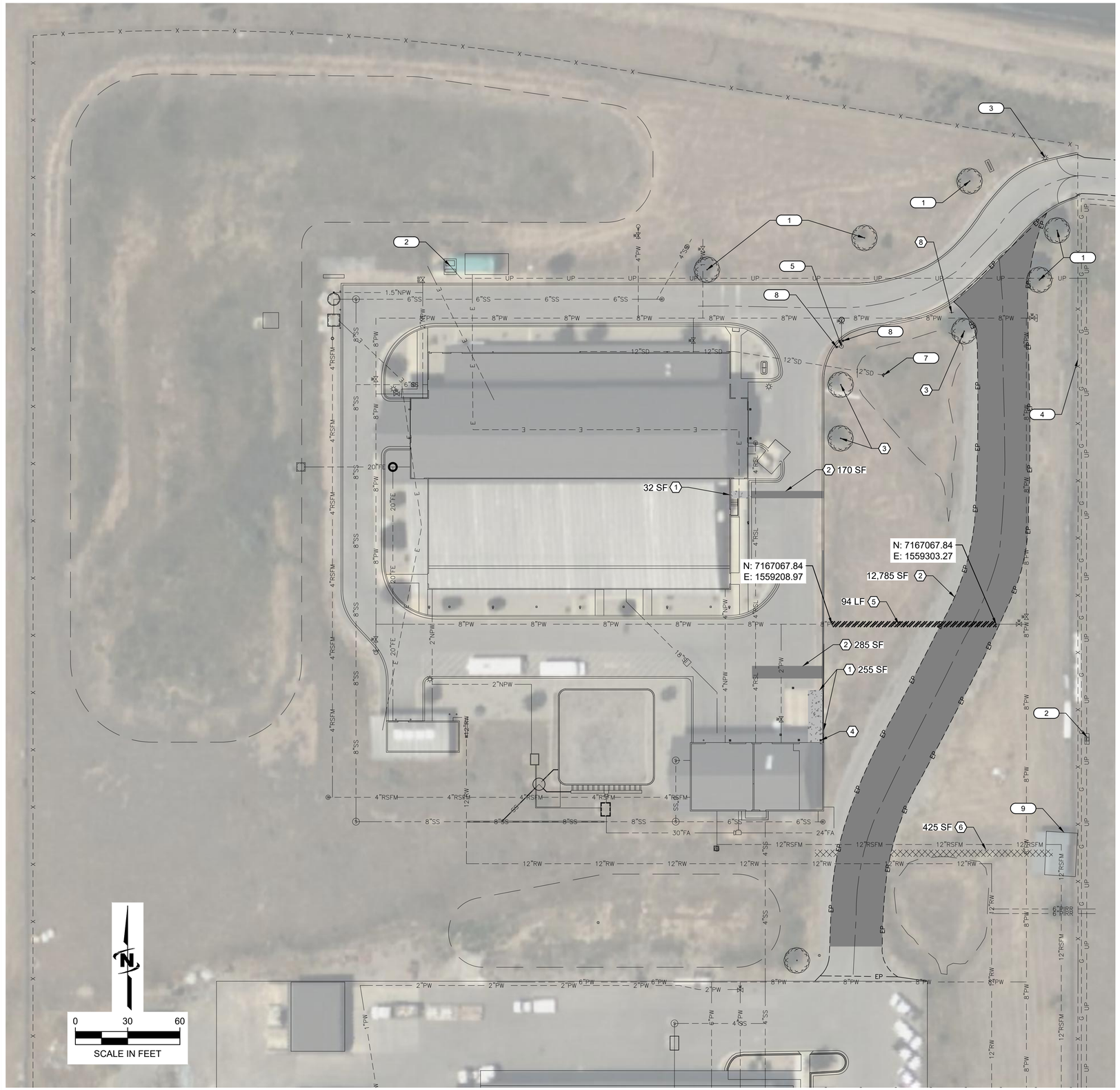
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
SHEET KEY

FILE : 03-24-001 03-C-001 S_KEY
JUB PROJ. # :03-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/28/2025

DRAWING:
03-C-001

Plot Date:1/31/2025 10:09 AM Plotted By: Chase Steigers
Date Created:12/16/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITYPROJECTS\03-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\03-24-001_03-C-001_S_KEY.DWG



DEMOLITION KEYED NOTES

1. REMOVE CONCRETE SIDEWALK, SLAB/FLATWORK, CURB & GUTTERS
2. REMOVE ASPHALT PAVEMENT
3. REMOVE TREE
4. REMOVE BOLLARD
5. REMOVE 8" PW PVC PIPE
6. REMOVE SOD/LANDSCAPING
7. REMOVE/RELOCATE UNDERGROUND POWER CONDUIT (SEE ELECTRICAL SHEETS)
8. RELOCATE SIGN
9. RESERVED
10. RESERVED

PROTECTION KEYED NOTES

1. RETAIN & PROTECT EXISTING TREE
2. RETAIN & PROTECT EXISTING POWER TRANSFORMER & CONDUIT
3. RETAIN & PROTECT EXISTING LIGHT POLE
4. RETAIN & PROTECT EXISTING FENCE
5. RETAIN & PROTECT EXISTING FIRE HYDRANT
6. RETAIN & PROTECT EXISTING WATER LINE
7. RETAIN & PROTECT EXISTING STORM OUTLET
8. RETAIN & PROTECT EXISTING BOLLARD
9. EXISTING SHED & STORED MATERIALS TO BE RELOCATED BY SANTAQUIN CITY PRIOR TO CONSTRUCTION
10. RESERVED

DEMOLITION GENERAL NOTES:

1. GENERAL DEMOLITION PERMIT SHALL BE SECURED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGE OR REMOVED MONUMENTS.
3. PROTECT ALL ITEMS ON ADJACENT PARCELS AND THE RIGHT-OF-WAY INCLUDING BUT NOT LIMITED TO FENCES, SIDEWALKS, CURB AND GUTTERS, STREET TREES/LANDSCAPING, STREET LIGHTS, PAVEMENTS, STRIPING, AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING DAMAGED ITEMS TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE.
4. SAWCUT STRAIGHT LINES IN ASPHALT PAVEMENT, AS NECESSARY.
5. CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN. CONTRACTOR TO PRODUCE, SUBMIT, AND ADHERE TO SWPPP PER UTAH DEQ.
6. REMOVED ITEMS SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH APWA SPECIFICATION SECTION 024113 IN A CONTRACTOR PROVIDED DISPOSAL SITE THAT MEETS ALL REQUIREMENTS OF FEDERAL, STATE, COUNTY AND CITY RULES AND REGULATIONS REGARDING HEALTH, SAFETY, AND PUBLIC.
7. THE EXACT LOCATIONS OF UTILITIES AFFECTED BY CONSTRUCTION ACTIVITIES SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER REPRESENTATIVE OF UTILITIES NOT REPRESENTED IN PLANS. THE CONTRACTOR SHALL MAINTAIN AND PROTECT EXISTING UTILITIES DURING CONSTRUCTION. UTILITIES THAT ARE DAMAGED SHALL BE IMMEDIATELY REPAIRED WITH ALL COSTS BEING BORNE BY THE CONTRACTOR.
8. ALL IMPORTED STRUCTURAL FILL SHALL BE APPROVED BY THE ENGINEER.
9. WATER AND FIRE PROTECTION SERVICE FOR OCCUPIED BUILDING SPACES MUST BE MAINTAINED THROUGH ALL PHASES OF CONSTRUCTION.
10. SEE SITE ELECTRICAL PLANS FOR ELECTRICAL DEMOLITION LIMITS & COORDINATION FOR ON SITE POWER.

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01/31/25
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE
	REVISION BY APPL.	

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
DEMOLITION PLAN

FILE : 03-24-001_03-C-101_DEMO
JUB PROJ. # :03-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
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LAST UPDATED: 1/28/2025

DRAWING:
03-CX-101

Plot Date:1/31/2025 10:09 AM Plotted By: Chase Steigers
Date Created:12/16/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITYPROJECTS\03-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\03-24-001_03-C-101_DEMO.DWG

EMERGENCY OVERFLOW POND

PROCESS BUILDING

DETENTION BASIN

TOP

TOE

TOE

SOLIDS HOLDING TANK

SOLIDS HANDLING BUILDING

DEWATERING BUILDING EXTENSION

RECLAIMED WATER PUMP STATION

ODOR CONTROL PAD

HEADWORKS

DEWATERING BUILDING

EP

0 30 60

SCALE IN FEET

N

J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
392, E. Winchester St., Suite 300
Salt Lake City, UT 84107
Phone: 801.547.0393
www.jub.com

Subconsultant:

AGENCY

PROFESSIONAL ENGINEER
No. 12222515
CHASE A. STEIGERS
01/31/25
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
SITE LAYOUT

FILE :	03-24-001_03-CG-001_SITE
JUB PROJ. # :	03-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	CAS
CHECKED BY:	GMV

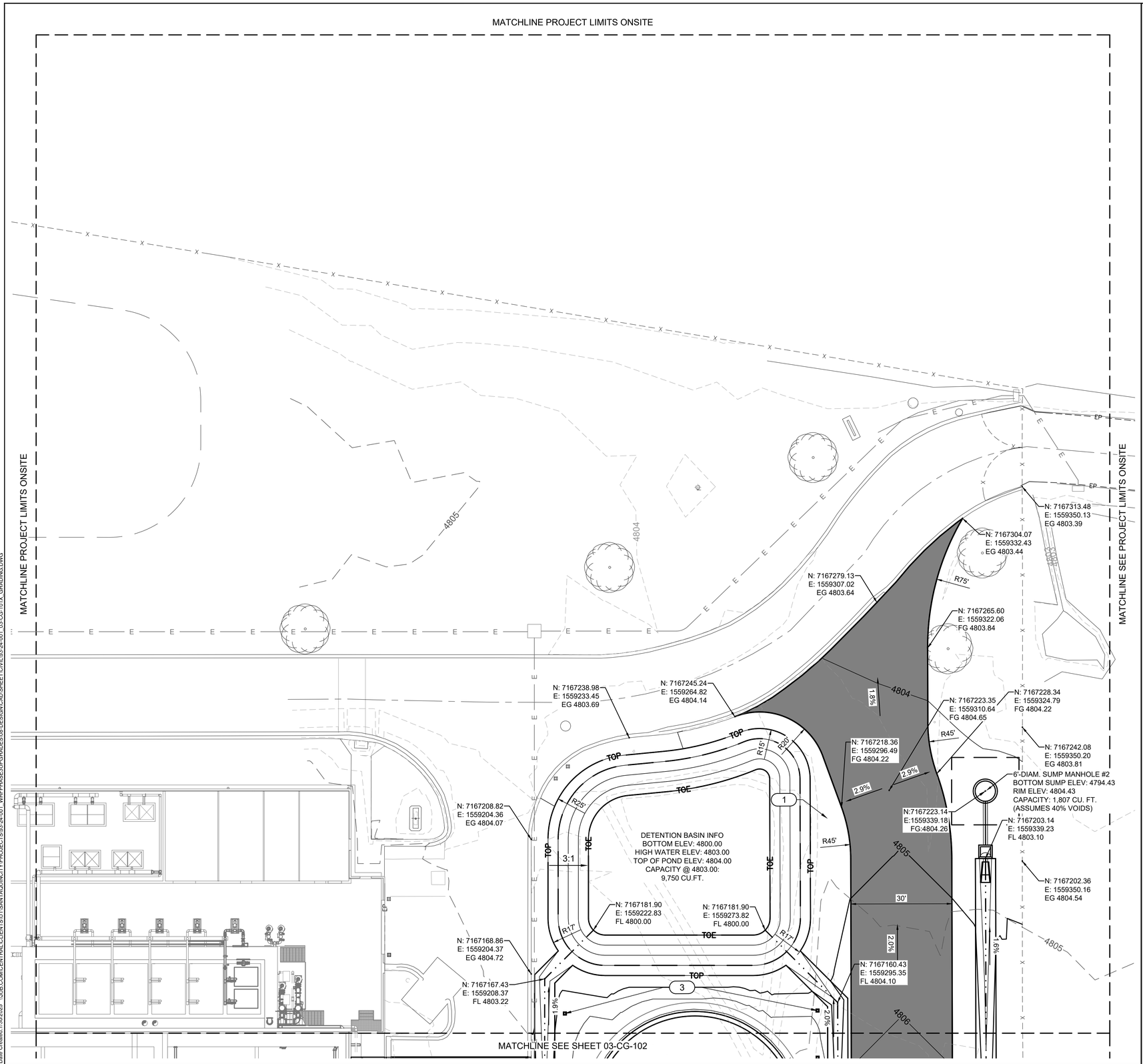
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/31/2025

DRAWING:

03-CG-001

Plot Date:1/31/2025 10:12 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITYPROJECTS\03-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\03-24-001_03-CG-001_SITE.DWG



SITE KEY NOTES

1. ASPHALT (3-IN-THICK ASPHALT, 8-IN-THICK UNTREATED BASE COURSE, & 8-IN-THICK 3" MINUS GRANULAR BORROW) PER SANTAQUIN CITY STANDARDS
2. VEHICULAR CONCRETE PAVEMENT (6-IN-THICK CONCRETE, 8-IN-THICK UNTREATED BASE COURSE, & 12-IN THICK 3" MINUS GRANULAR BORROW) PER SANTAQUIN CITY STANDARDS
3. BOLLARD (DETAIL C-02160/SHEET CZ-902)
4. CONCRETE RETAINING WALL (DETAIL C-02260/SHEET CS-903)

LEGEND

CALLOUT	DESCRIPTION
X.X%	GRADING SLOPE AND DIRECTION (DOWNHILL)
EG	EXISTING GROUND
FG	FINISH GROUND
FF	FINISHED FLOOR
RIM	RIM OF STRUCTURE
TOC	TOP OF CONCRETE/PAVEMENT
TBC	TOP BACK OF CURB
FL	GUTTER FLOW LINE/DITCH FLOW LINE
BW	BACK OF WALK
	GRADE BREAK
	EXISTING CONTOUR MINOR (4810.50)
4810	EXISTING CONTOUR MAJOR (4810.50)
	CONTOUR MINOR (FG) (4810.50)
4810	CONTOUR MAJOR (FG) (4810.50)

KEY NOTES:

1. ASPHALT SECTION (3" HMA OVER 8" UNTREATED BASE COURSE OVER 8" GRANULAR BORROW)
2. VEHICULAR CONCRETE (6" UNREINFORCED CONCRETE OVER 8" UNTREATED BASE COURSE OVER 12" GRANULAR BORROW)
3. BUILDING/TANK

SITE GENERAL NOTES:

1. SEE SHEET V-101 FOR SURVEY CONTROL BENCH MARKS.
2. ALL SITE CIVIL WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS.
3. PROVIDE POSITIVE DRAINAGE AWAY FROM ALL PROPOSED AND EXISTING BUILDINGS.
4. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
5. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
6. SAWCUT STRAIGHT LINES IN ASPHALT/CONCRETE PAVEMENT, AS NECESSARY.
7. ALL IMPORTED STRUCTURAL FILL SHALL BE APPROVED BY THE ENGINEER.

0 15 30
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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

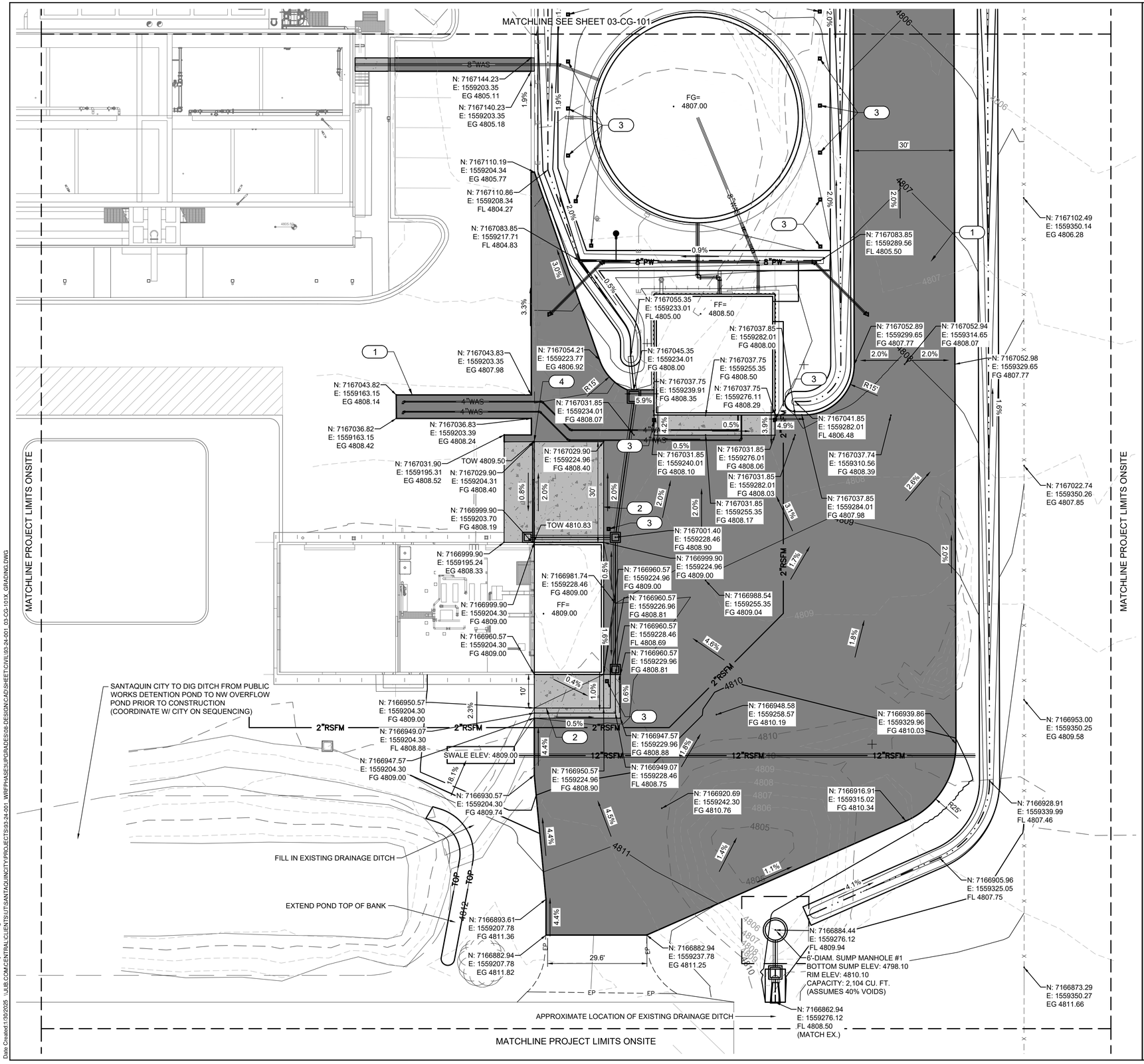
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
PARTIAL GRADING PLAN AREA A

FILE : 93-24-001 03-CG-101X GRADING
JUB PROJ. #: 93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
03-CG-101

Plot Date:1/31/2025 10:13 AM Plotted By: Chase Steigers
Date Created:1/30/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CG-101X GRADING.DWG



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LEGEND

CALLOUT	DESCRIPTION
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FG	FINISH GROUND
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RIM	RIM OF STRUCTURE
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	GRADE BREAK
	EXISTING CONTOUR MINOR (4810.50)
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SITE GENERAL NOTES:

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
PARTIAL GRADING PLAN AREA B

FILE:	93-24-001_03-CG-101X_GRADING
JUB PROJ. #:	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	CAS
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/31/2025

DRAWING:
03-CG-102

Plot Date=1/31/2025 10:14 AM Plotted By: Chase Steigers
Date Created=1/30/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CG-101X_GRADING.DWG

EMERGENCY OVERFLOW POND

PROCESS BUILDING

DETENTION BASIN

SOLIDS HOLDING TANK

SOLIDS HANDLING BUILDING

ODOR CONTROL PAD

RECLAIMED WATER PUMP STATION

HEADWORKS

DEWATERING BUILDING

DEWATERING BUILDING EXTENSION

100+00

100+50

80+00

80+40

90+00

90+50

THIS SHEET IS INTENDED TO BE PRINTED IN COLOR.
THIS NOTE SHOULD BE DISPLAYED IN RED TEXT.

0 30 60
SCALE IN FEET

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
UTILITY LAYOUT

FILE :	93-24-001_03-CU-001_UTILITY
JUB PROJ. # :	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	CAS
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

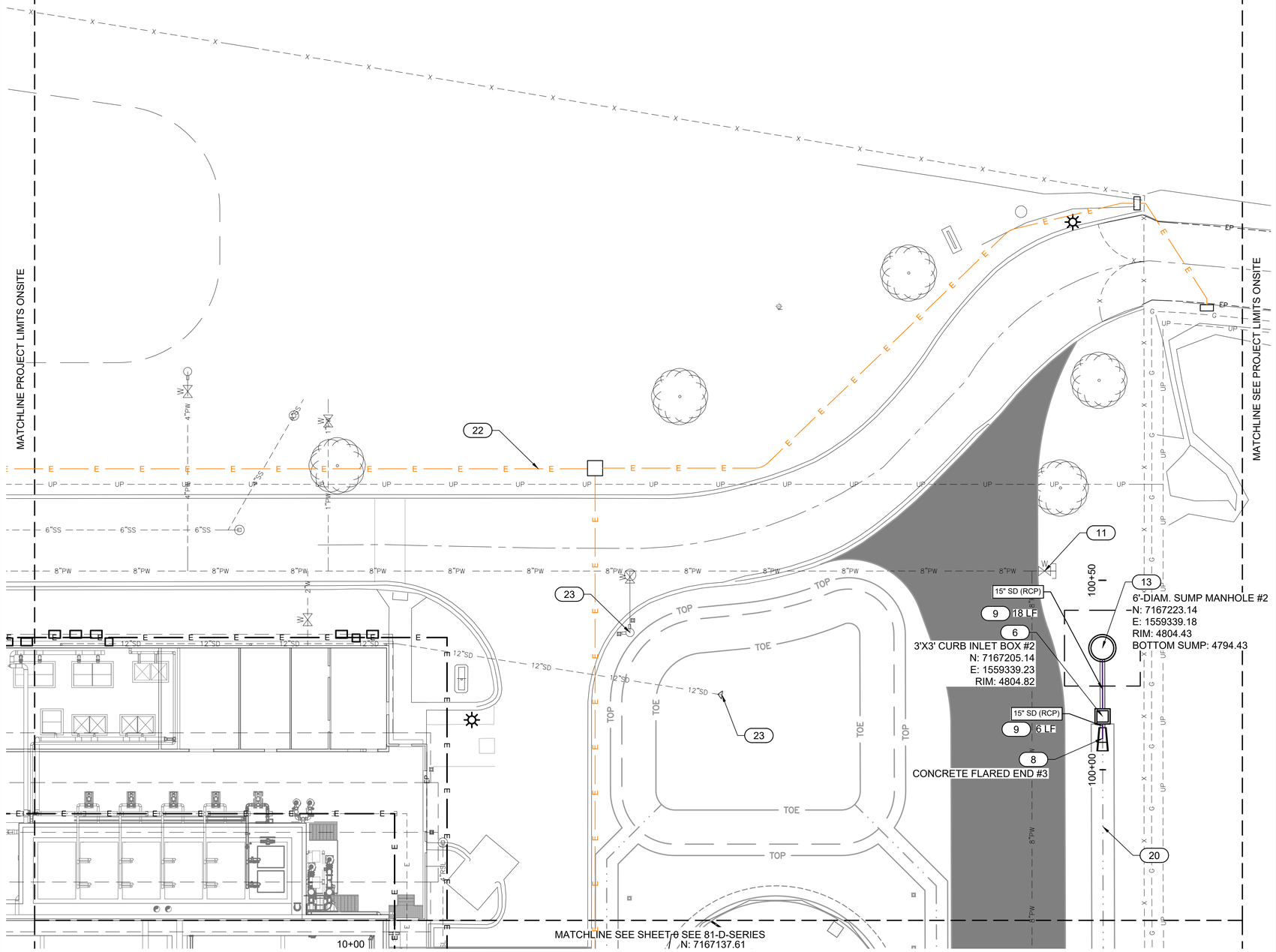
LAST UPDATED: 1/31/2025

DRAWING:
03-CU-001

Plot Date:1/31/2025 10:17 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-001_UTILITY.DWG

MATCHLINE PROJECT LIMITS ONSITE

THIS SHEET IS INTENDED TO BE PRINTED IN COLOR.
THIS NOTE SHOULD BE DISPLAYED IN RED TEXT.



X SHEET KEY NOTES

X	
1	FURNISH & INSTALL 8" DI 45° FITTING.
2	FURNISH & INSTALL 8" DI 22.5° FITTING.
3	FURNISH & INSTALL 4" DI 45° FITTING.
4	FURNISH & INSTALL 4" DI 90° FITTING.
5	FURNISH & INSTALL 4'X4' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
6	FURNISH & INSTALL 3'X3' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
7	FURNISH & INSTALL 2'X2' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
8	FURNISH & INSTALL CONCRETE FLARED END SECTION w/ TRASH RACK PER APWA STD PLAN 323.1.
9	FURNISH & INSTALL REINFORCED CONCRETE PIPE PER CITY SPEC 4A.02 - SIZE PER PLANS.
10	FURNISH & INSTALL DUCTILE IRON PIPE PER CITY SPEC 3A.02 - SIZE PER PLANS.
11	ADJUST VALVE BOX TO GRADE & PLACE CONCRETE COLLAR PER CITY STD DWG NO. W2.
12	NOT USED.
13	FURNISH & INSTALL 6'-DIAMETER SUMP STORM MANHOLE PER CITY STD DWG NO. SD-2 (DEPTH PER PLANS) w/ 20' X 20' X (DEPTH+2') OF GRAVEL AROUND SUMP. INSTALL FILTER FABRIC ON TOP OF AND ON ALL SIDES OF THE GRAVEL ENVELOPE PER DETAIL D1, SHEET 03-C-502.
14	CONNECT TO EXISTING CULINARY WATER MAIN (MATCH EXISTING MATERIALS).
15	FURNISH & INSTALL 2-IN HIGH-DENSITY POLYETHYLENE RAW SEWAGE FORCE MAIN (RSFM) (GREEN). BEND PER ALLOWABLE BENDING RADIUS AS REQ'D.
16	FURNISH & INSTALL 2-IN HIGH-DENSITY POLYETHYLENE CULINARY WATER SERVICE (BLUE). SERVICE CONNECTION PER CITY STD DWG NO. W1. BEND PER ALLOWABLE BENDING RADIUS AS REQ'D.
17	FURNISH & INSTALL 8-IN PVC C900, DR18 CULINARY WATER LINE (CWL) (BLUE).
18	FURNISH & INSTALL 8-IN CWL DI 45° FITTING w/ THRUST BLOCK PER DETAIL C-02005, SHEET 00-CZ-901.
19	FURNISH & INSTALL TYPE PH-4 YARD HYDRANT PER DETAIL D-15200, SHEET 00-DZ-909.
20	FURNISH & INSTALL 6' WIDE X 1.5' DEEP V-DITCH PER DETAIL B1, SHEET 03-C-501.
21	FURNISH & INSTALL 12-IN PVC C900, DR 18 RAW SEWAGE FORCE MAIN (RSFM), CAP EACH END & COORDINATE WITH SANTAQUIN CITY TO GPS EACH END PRIOR TO BACKFILLING.
22	FURNISH & INSTALL ELECTRICAL CONDUIT (SEE ELECTRICAL SHEETS)
23	PRESERVE & PROTECT MISCELLANEOUS UTILITY.
24	FURNISH & INSTALL 10-IN AIR DI 90° FITTING.

GENERAL YARD PIPING NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS.
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4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.
5. STATION CALLOUTS ON STRUCTURES REFERENCE THE CENTER OF THE STRUCTURE/FITTING AND PIPE LENGTHS/SLOPES ARE MEASURED FROM CENTER OF STRUCTURE/FITTING TO CENTER OF STRUCTURE/FITTING.
6. ALL MANHOLE, CLEANOUT, VALVE BOX, ETC. FINISHED GRADE ELEVATIONS TO MATCH FINISHED GRADE OR AS SHOWN ON THE PLANS.
7. THE CONTRACTOR SHALL SECURE APPROVAL FROM THE OWNER'S REPRESENTATIVE PRIOR TO BACKFILL OVER ANY UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING AND ACCURATELY RECORD THE LOCATION OF ALL NEW UNDERGROUND UTILITIES PRIOR TO BACKFILL.
8. ALL WATER AND WASTEWATER SERVICES, PIPING, VALVES, HYDRANTS, & APPURTENANCES SHALL BE INSTALLED, TESTED, & APPROVED PRIOR TO FINAL SURFACE REPAIR.
9. CONTRACTOR SHALL VERIFY NO CROSS-CONNECTIONS EXIST BETWEEN THE POTABLE WATER LINES & NON-POTABLE WATER LINES PRIOR TO PLACING THE NON-POTABLE WATER SYSTEM INTO SERVICE.
10. THE LIMITS FOR YARD PIPING VARY DEPENDING ON THE CONNECTION REQUIREMENTS AT THE STRUCTURE. CONTRACTOR'S ATTENTION IS DIRECTED TO THE INDIVIDUAL COMPONENT DRAWINGS FOR CONNECTION REQUIREMENTS & RELATED DETAILS.
11. ALL WATER LINES SHALL HAVE A MINIMUM COVER OF 4' FROM FINISHED GRADE & BE DISINFECTION TESTED PER CONTRACT DOCUMENTS PRIOR TO USE.
12. ALL CROSSINGS OF WATER LINES SHALL FOLLOW SEPARATION REQUIREMENTS FOR WATER & SEWER.
13. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION BETWEEN PARALLEL PIPES FOR CONSTRUCTABILITY & MAINTAIN SEPARATION DISTANCES BETWEEN PIPELINES AS PER UTAH ADMINISTRATIVE CODE R317-3.
14. PROVIDE STRAIGHT UNRESTRAINED FLEXIBLE PIPE COUPLINGS WITHIN 5' OF EXTERIOR FOOTING FACE FOR ALL PIPES 4" & LARGER.
15. ALL STORM GRATE & FRAME TO BE H-20 RATED. MANUFACTURED BY INWESCO OR EQUAL - UNLESS OTHERWISE NOTED. SIZE TO MATCH BOX AS SPECIFIED IN PLANS.
16. SOLID LIDS TO BE H-20 RATED. MANUFACTURED BY NEENAH FOUNDRY OR EQUAL - UNLESS NOTED OTHERWISE. SIZE TO MATCH BOX AS SPECIFIED IN PLANS.
17. SEE SHEET CG SERIES FOR GRADING DESIGN.
18. SEE SHEET V-101 FOR SURVEY CONTROL BENCHMARKS.

0 15 30
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NO.	REVISION	DESCRIPTION	BY	APR.	DATE

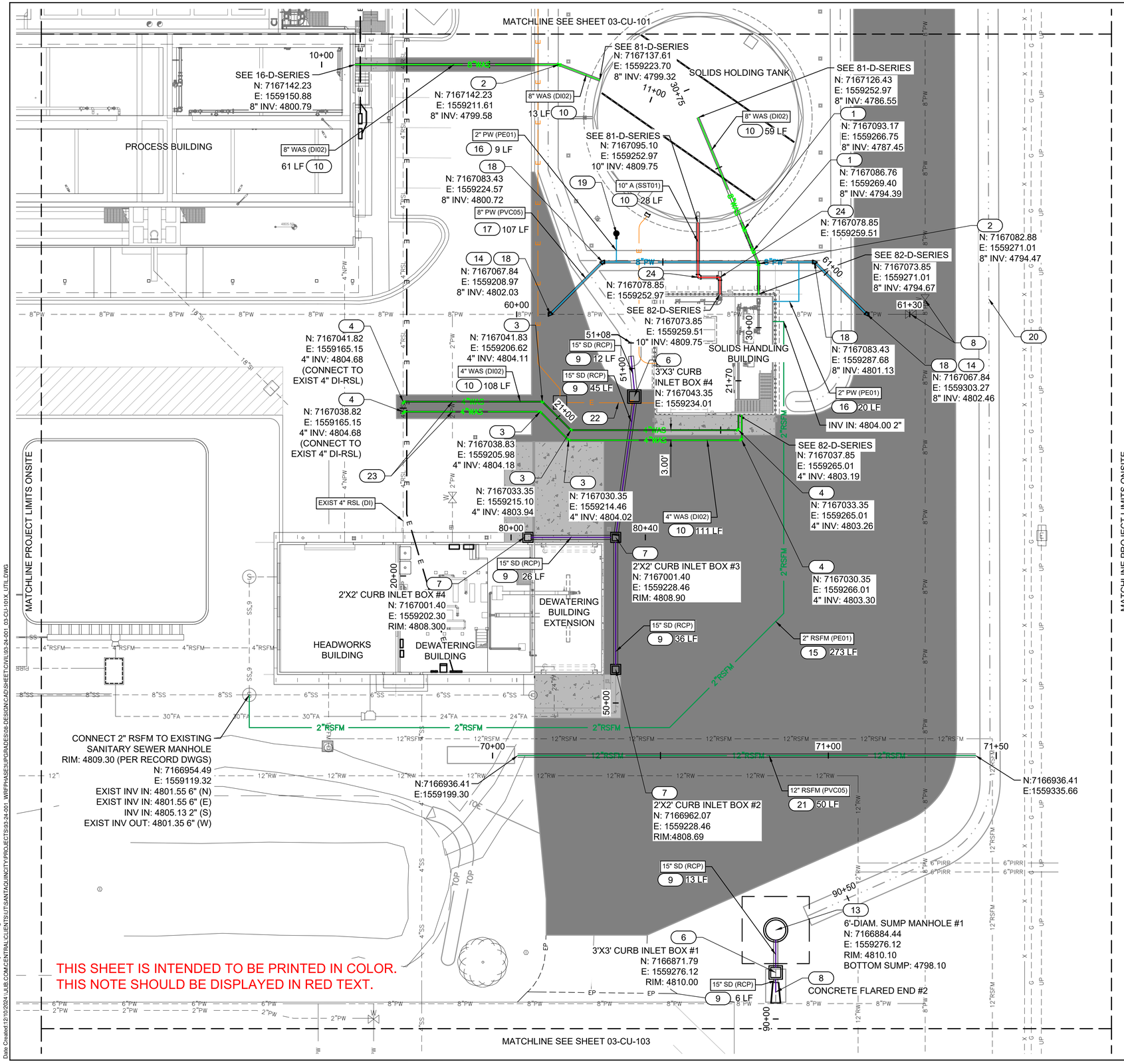
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
PARTIAL UTILITY PLAN AREA A

FILE: 93-24-001 03-CU-101X UTIL
JUB PROJ. #: 93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
03-CU-101

Plot Date=1/31/2025 10:18 AM Plotted By: Chase Steigers
Date Created=12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-101X_UTIL.DWG



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18. SEE SHEET V-101 FOR SURVEY CONTROL BENCHMARKS.

0 15 30
SCALE IN FEET

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
392. E. Winchester St., Suite 300
Salt Lake City, UT 84107
Phone: 801.547.0393
www.jub.com
Subconsultant:

AGENCY

PROFESSIONAL ENGINEER — No. 12222515 — CHASE A. STEIGERS — 01/31/25 — STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
PARTIAL UTILITY PLAN AREA B

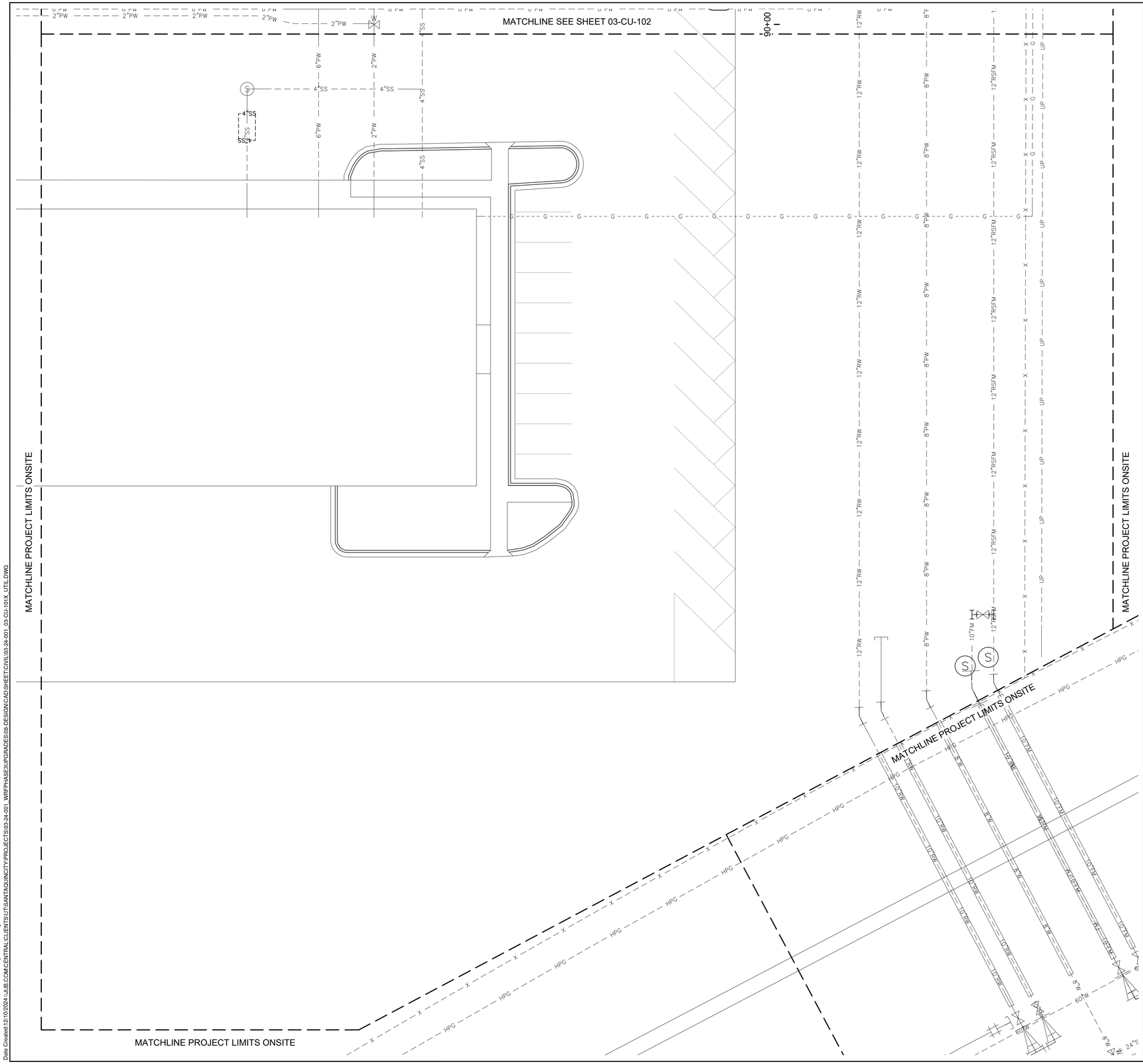
FILE :	93-24-001 03-CU-101X_UTIL
JUB PROJ. # :	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	CAS
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/31/2025

DRAWING:
03-CU-102

Plot Date:1/31/2025 10:19 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-101X_UTIL.DWG



X	SHEET KEY NOTES
1	FURNISH & INSTALL 8" DI 45° FITTING.
2	FURNISH & INSTALL 8" DI 22.5° FITTING.
3	FURNISH & INSTALL 4" DI 45° FITTING.
4	FURNISH & INSTALL 4" DI 90° FITTING.
5	FURNISH & INSTALL 4'X4' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
6	FURNISH & INSTALL 3'X3' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
7	FURNISH & INSTALL 2'X2' SINGLE CURB INLET BOX w/ FRAME & GRATE PER CITY STD DWG NO. SD1 w/ 3'-SUMP.
8	FURNISH & INSTALL CONCRETE FLARED END SECTION w/ TRASH RACK PER APWA STD PLAN 323.1.
9	FURNISH & INSTALL REINFORCED CONCRETE PIPE PER CITY SPEC 4A.02 - SIZE PER PLANS.
10	FURNISH & INSTALL DUCTILE IRON PIPE PER CITY SPEC 3A.02 - SIZE PER PLANS.
11	ADJUST VALVE BOX TO GRADE & PLACE CONCRETE COLLAR PER CITY STD DWG NO. W2.
12	NOT USED.
13	FURNISH & INSTALL 6'-DIAMETER SUMP STORM MANHOLE PER CITY STD DWG NO. SD-2 (DEPTH PER PLANS) w/ 20' X 20' X (DEPTH+2') OF GRAVEL AROUND SUMP. INSTALL FILTER FABRIC ON TOP OF AND ON ALL SIDES OF THE GRAVEL ENVELOPE PER DETAIL D1, SHEET 03-C-502.
14	CONNECT TO EXISTING CULINARY WATER MAIN (MATCH EXISTING MATERIALS).
15	FURNISH & INSTALL 2-IN HIGH-DENSITY POLYETHYLENE RAW SEWAGE FORCE MAIN (RSFM) (GREEN). BEND PER ALLOWABLE BENDING RADIUS AS REQ'D.
16	FURNISH & INSTALL 2-IN HIGH-DENSITY POLYETHYLENE CULINARY WATER SERVICE (BLUE). SERVICE CONNECTION PER CITY STD DWG NO. W1. BEND PER ALLOWABLE BENDING RADIUS AS REQ'D.
17	FURNISH & INSTALL 8-IN PVC C900, DR18 CULINARY WATER LINE (CWL) (BLUE).
18	FURNISH & INSTALL 8-IN CWL DI 45° FITTING w/ THRUST BLOCK PER DETAIL C-02005, SHEET 00-CZ-901.
19	FURNISH & INSTALL TYPE PH-4 YARD HYDRANT PER DETAIL D-15200, SHEET 00-DZ-909.
20	FURNISH & INSTALL 6' WIDE X 1.5' DEEP V-DITCH PER DETAIL B1, SHEET 03-C-501.
21	FURNISH & INSTALL 12-IN PVC C900, DR 18 RAW SEWAGE FORCE MAIN (RSFM), CAP EACH END & COORDINATE WITH SANTAQUIN CITY TO GPS EACH END PRIOR TO BACKFILLING.
22	FURNISH & INSTALL ELECTRICAL CONDUIT (SEE ELECTRICAL SHEETS)
23	PRESERVE & PROTECT MISCELLANEOUS UTILITY.
24	FURNISH & INSTALL 10-IN AIR DI 90° FITTING.

GENERAL YARD PIPING NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.
5. STATION CALLOUTS ON STRUCTURES REFERENCE THE CENTER OF THE STRUCTURE/FITTING AND PIPE LENGTHS/SLOPES ARE MEASURED FROM CENTER OF STRUCTURE/FITTING TO CENTER OF STRUCTURE/FITTING.
6. ALL MANHOLE, CLEANOUT, VALVE BOX, ETC. FINISHED GRADE ELEVATIONS TO MATCH FINISHED GRADE OR AS SHOWN ON THE PLANS.
7. THE CONTRACTOR SHALL SECURE APPROVAL FROM THE OWNER'S REPRESENTATIVE PRIOR TO BACKFILL OVER ANY UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING AND ACCURATELY RECORD THE LOCATION OF ALL NEW UNDERGROUND UTILITIES PRIOR TO BACKFILL.
8. ALL WATER AND WASTEWATER SERVICES, PIPING, VALVES, HYDRANTS, & APPURTENANCES SHALL BE INSTALLED, TESTED, & APPROVED PRIOR TO FINAL SURFACE REPAIR.
9. CONTRACTOR SHALL VERIFY NO CROSS-CONNECTIONS EXIST BETWEEN THE POTABLE WATER LINES & NON-POTABLE WATER LINES PRIOR TO PLACING THE NON-POTABLE WATER SYSTEM INTO SERVICE.
10. THE LIMITS FOR YARD PIPING VARY DEPENDING ON THE CONNECTION REQUIREMENTS AT THE STRUCTURE. CONTRACTOR'S ATTENTION IS DIRECTED TO THE INDIVIDUAL COMPONENT DRAWINGS FOR CONNECTION REQUIREMENTS & RELATED DETAILS.
11. ALL WATER LINES SHALL HAVE A MINIMUM COVER OF 4' FROM FINISHED GRADE & BE DISINFECTION TESTED PER CONTRACT DOCUMENTS PRIOR TO USE.
12. ALL CROSSINGS OF WATER LINES SHALL FOLLOW SEPARATION REQUIREMENTS FOR WATER & SEWER.
13. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION BETWEEN PARALLEL PIPES FOR CONSTRUCTABILITY & MAINTAIN SEPARATION DISTANCES BETWEEN PIPELINES AS PER UTAH ADMINISTRATIVE CODE R317-3.
14. PROVIDE STRAIGHT UNRESTRAINED FLEXIBLE PIPE COUPLINGS WITHIN 5' OF EXTERIOR FOOTING FACE FOR ALL PIPES 4" & LARGER.
15. ALL STORM GRATE & FRAME TO BE H-20 RATED. MANUFACTURED BY INWESCO OR EQUAL - UNLESS OTHERWISE NOTED. SIZE TO MATCH BOX AS SPECIFIED IN PLANS.
16. SOLID LIDS TO BE H-20 RATED. MANUFACTURED BY NEENAH FOUNDRY OR EQUAL - UNLESS NOTED OTHERWISE. SIZE TO MATCH BOX AS SPECIFIED IN PLANS.
17. SEE SHEET CG SERIES FOR GRADING DESIGN.
18. SEE SHEET V-101 FOR SURVEY CONTROL BENCHMARKS.

0 15 30
SCALE IN FEET

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Subconsultant:

AGENCY

PROFESSIONAL ENGINEER
No. 12222515
CHASE A. STEIGERS
01/31/25
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
PARTIAL UTILITY PLAN AREA C

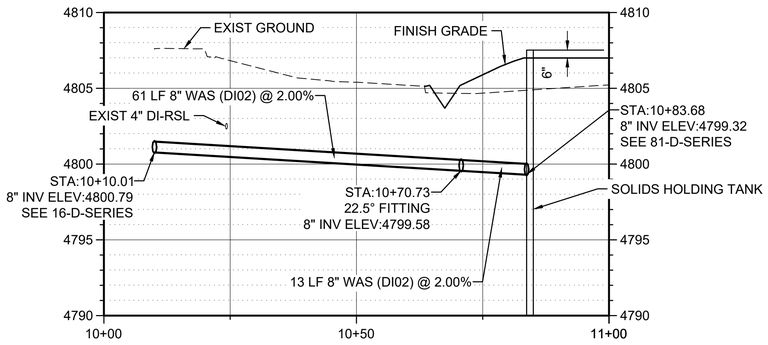
FILE :	03-24-001 03-CU-101X_UTIL
JUB PROJ. # :	03-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	CAS
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/31/2025

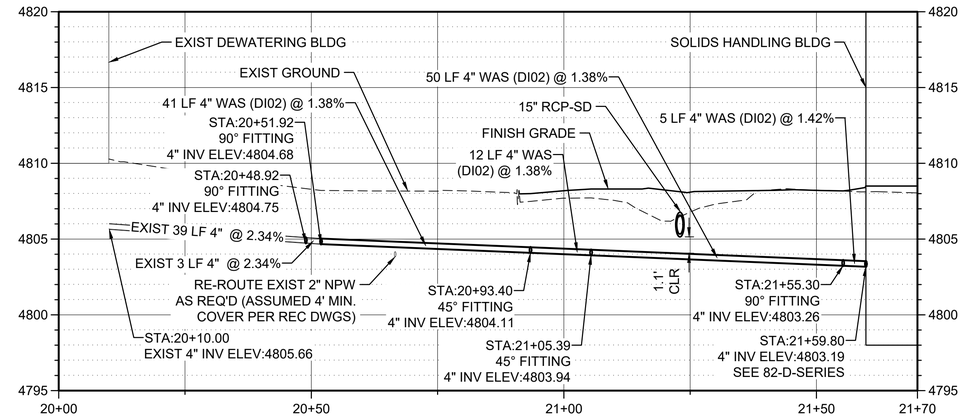
DRAWING:
03-CU-103

Plot Date:1/31/2025 10:20 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITYPROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-101X_UTIL.DWG



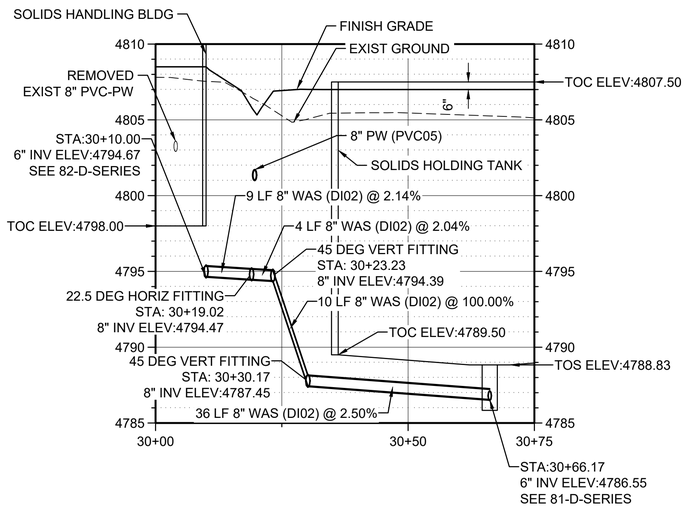
A PROCESS BUILDING TO SOLIDS HOLDING TANK ALIGNMENT - PROFILE

SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE



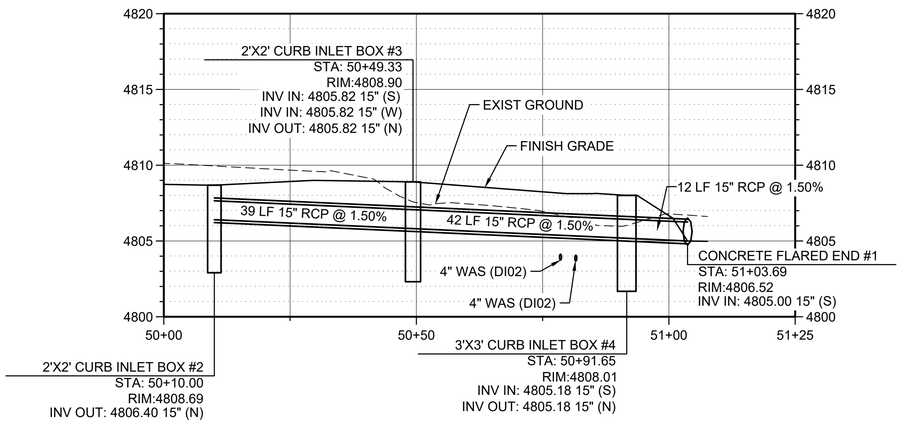
B SOLIDS HANDLING BUILDING DISCHARGE PIPING TO DEWATERING BUILDING ALIGNMENT - PROFILE

SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE



C SOLIDS HOLDING TANK TO SOLIDS HANDLING BUILDING ALIGNMENT - PROFILE

SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE



D STORM ALIGNMENT 1 - PROFILE

SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE

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CHASE A. STEIGERS
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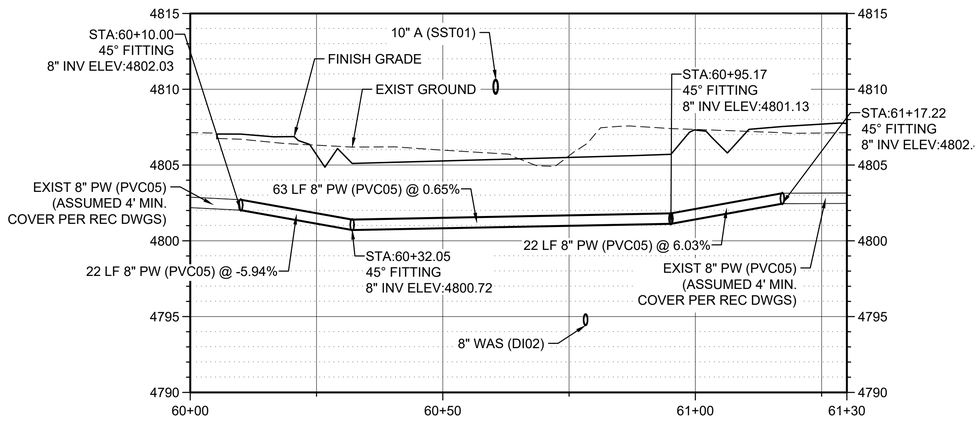
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
UTILITY PROFILES

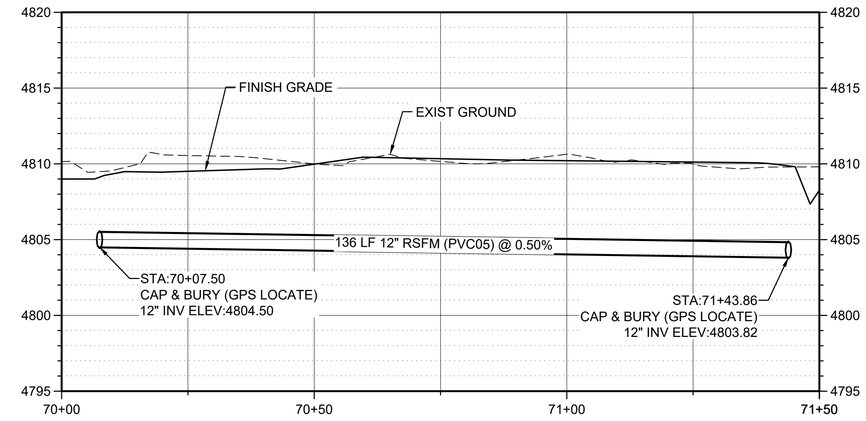
FILE : 93-24-001_03-CU-201X_UTIL
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
03-CU-201

Plot Date:1/31/2025 10:29 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-201X_UTIL.DWG



A WATER LINE ALIGNMENT 1 - PROFILE
SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE



B FORCE MAIN SEWER ALIGNMENT 1 - PROFILE
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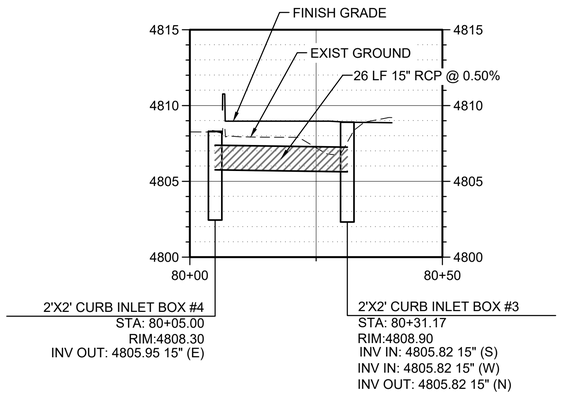
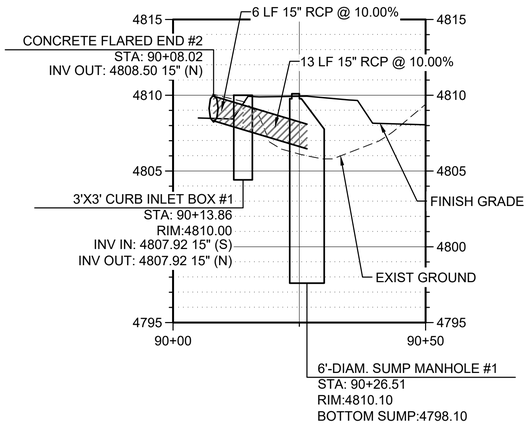
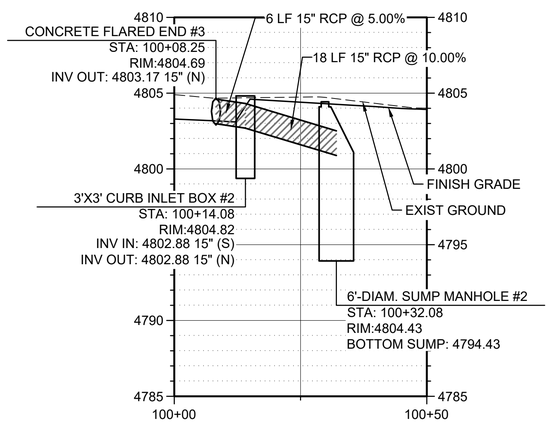


C STORM ALIGNMENT 2 - PROFILE
SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE





D STORM SUMP MANHOLE ALIGNMENTS 1 & 2
SCALE:HORZ: 1" = 15', VERT: 1" = 5' AT FULL SIZE

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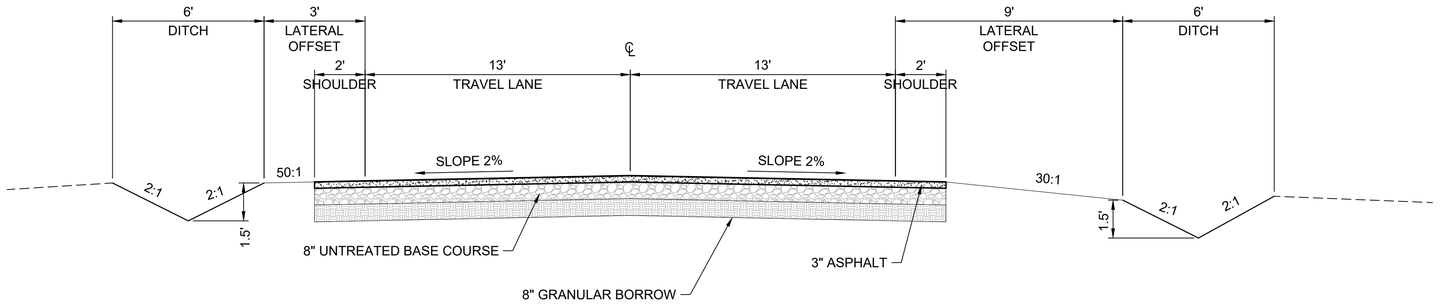
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
UTILITY PROFILES

FILE : 93-24-001_03-CU-201X_UTIL
JUB PROJ. # :93-24-001
DRAWN BY: AMP/ JTB
DESIGN BY: CAS
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/31/2025

DRAWING:
03-CU-202

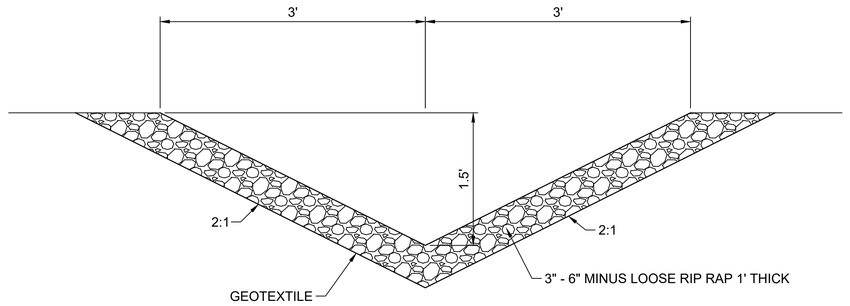
Plot Date:1/31/2025 10:21 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CU-201X_UTIL.DWG



A1 TYPICAL ROADWAY SECTION

SCALE: N.T.S.

LOOKING NORTH



B1 6' x 1.5' V-DITCH SECTION VIEW

SCALE: N.T.S.

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AGENCY REVIEW

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CHASE A. STEIGERS
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STATE OF UTAH

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
DETAILS

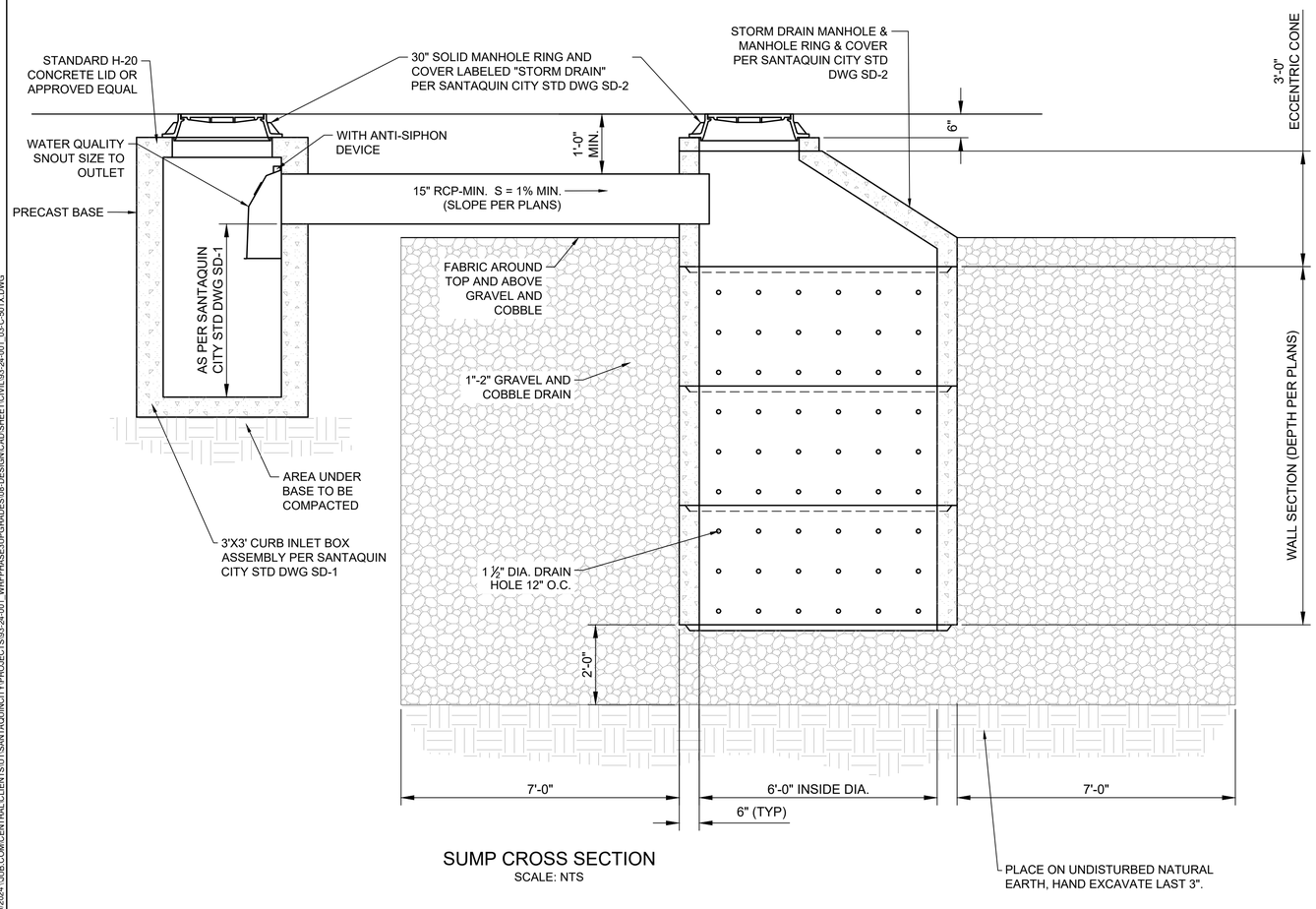
FILE : 93-24-001 03-C-501X
JUB PROJ. # :93-24-001
DRAWN BY: JTB
DESIGN BY: CAS
CHECKED BY: GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 1/28/2025

DRAWING:
03-C-501

Plot Date:1/31/2025 10:21 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-C-501X.DWG



SUMP CROSS SECTION
SCALE: NTS

D1 STORM DRAIN AND SUMP DETAIL
SCALE: N.T.S.

Plot Date:1/31/2025 10:21 AM Plotted By: Chase Steigers
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-C-501X.DWG

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SANTAQUIN CITY

CIVIL(C)
DETAILS

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JUB PROJ. # :93-24-001
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CHECKED BY: GMV
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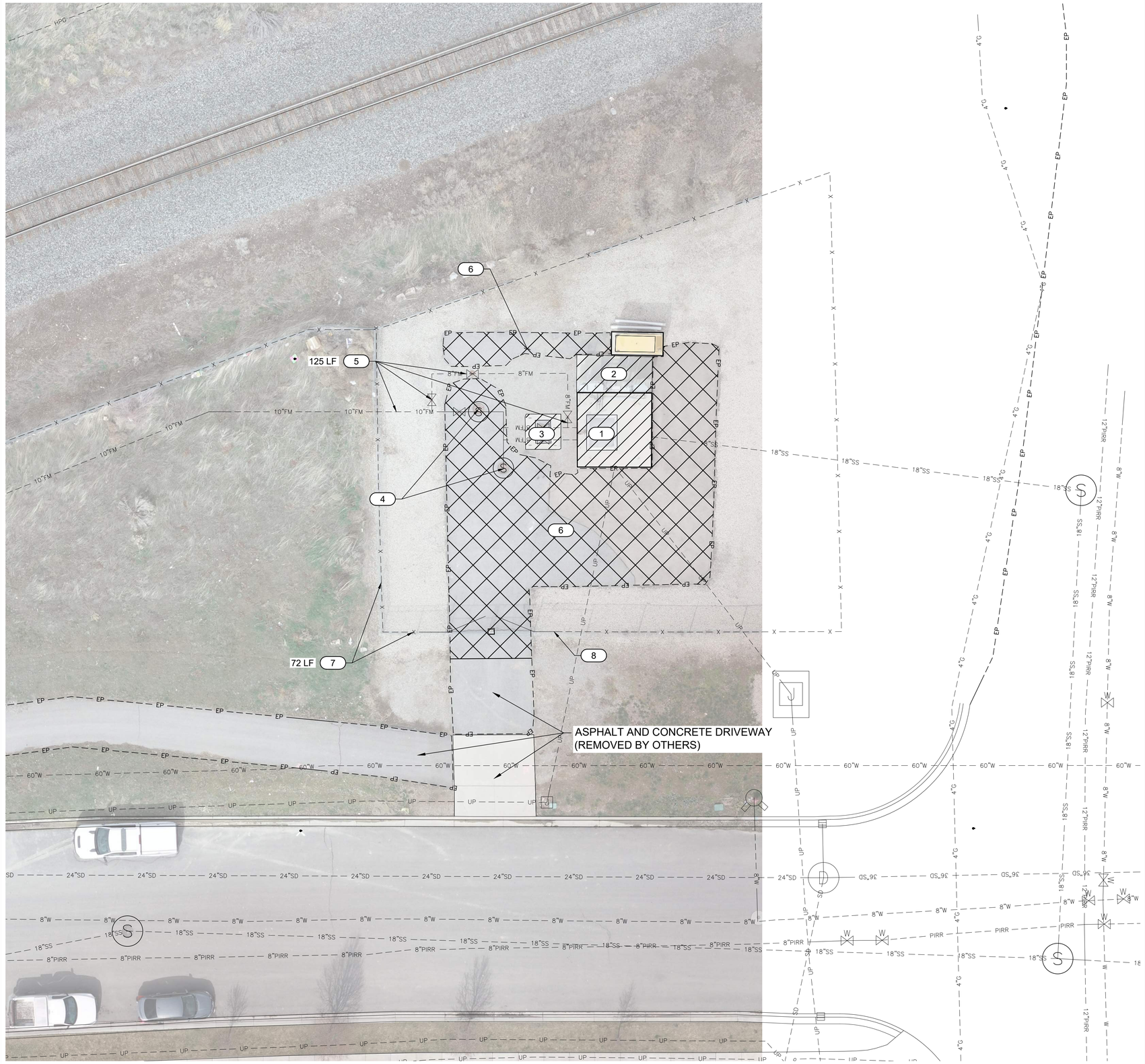
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 1/28/2025

DRAWING:
03-C-502



SITE KEY NOTES

1	REMOVE AND PRESERVE TWO EXISTING SUBMERSIBLE PUMPS. PRESERVE EXISTING 18" INLET SEWER. DEMO EXISTING CONCRETE LID AND HATCHES AND PROVIDE TEMPORARY SHORING OF EXISTING WET WELL WALLS PRIOR TO SLAB DEMO, SEE STRUCTURAL. DEMO ALL APPURTENANCES INSIDE WET WELL AND SEAL ALL EXISTING PENETRATIONS.
2	SALVAGE AND RELOCATE PLC CONTROL PANEL AND OTHER ELECTRICAL EQUIPMENT AS SHOWN ON ELECTRICAL SHEETS. DEMO CONCRETE PAD BETWEEN WET WELL AND GENERATOR.
3	DEMO CONCRETE VALVE VAULT AND APPURTENANCES WITHIN. DEMO PIPE BETWEEN WET WELL AND VALVE VAULT.
4	DEMO EXISTING METER AND BYPASS MANHOLES WITH ALL APPURTENANCES INSIDE.
5	DEMO FORCE MAIN PIPE, VALVES, AND FITTINGS BETWEEN WET WELL AND FORCE MAIN PLUG AS SHOWN ON CU SHEETS.
6	DEMO ASPHALT.
7	DEMO EXISTING FENCE ALONG WEST SIDE OF LIFT STATION.
8	DEMO FENCE AS NEEDED FOR NEW GATE.

GENERAL NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS AS NOTED IN THE DRAWINGS.
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. COORDINATE WITH OWNER FOR SALVAGE REQUIREMENTS ALL ITEMS NOTED FOR DEMOLITION OR SALVAGE. CONTRACTOR SHALL DISPOSE OF ALL ITEMS OWNER DOES NOT SALVAGE.
5. BEFORE DEMO WORK AND UTILITY ABANDONMENT MAY BEGIN, A SEWER BYPASS PLAN MUST BE SUBMITTED AND REVIEWED BY OWNER AND ENGINEER PER SECTION 33 30 00 SEWER BYPASS PUMPING.
6. LIFT STATION AND FORCE MAIN MUST NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.

LEGEND

REMOVE CONCRETE PAD / STRUCTURE PER KEYNOTES

REMOVE ASPHALT

0 10 20
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Subconsultant:

AGENCY

REG. STERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
ALEA M. NIELSON
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
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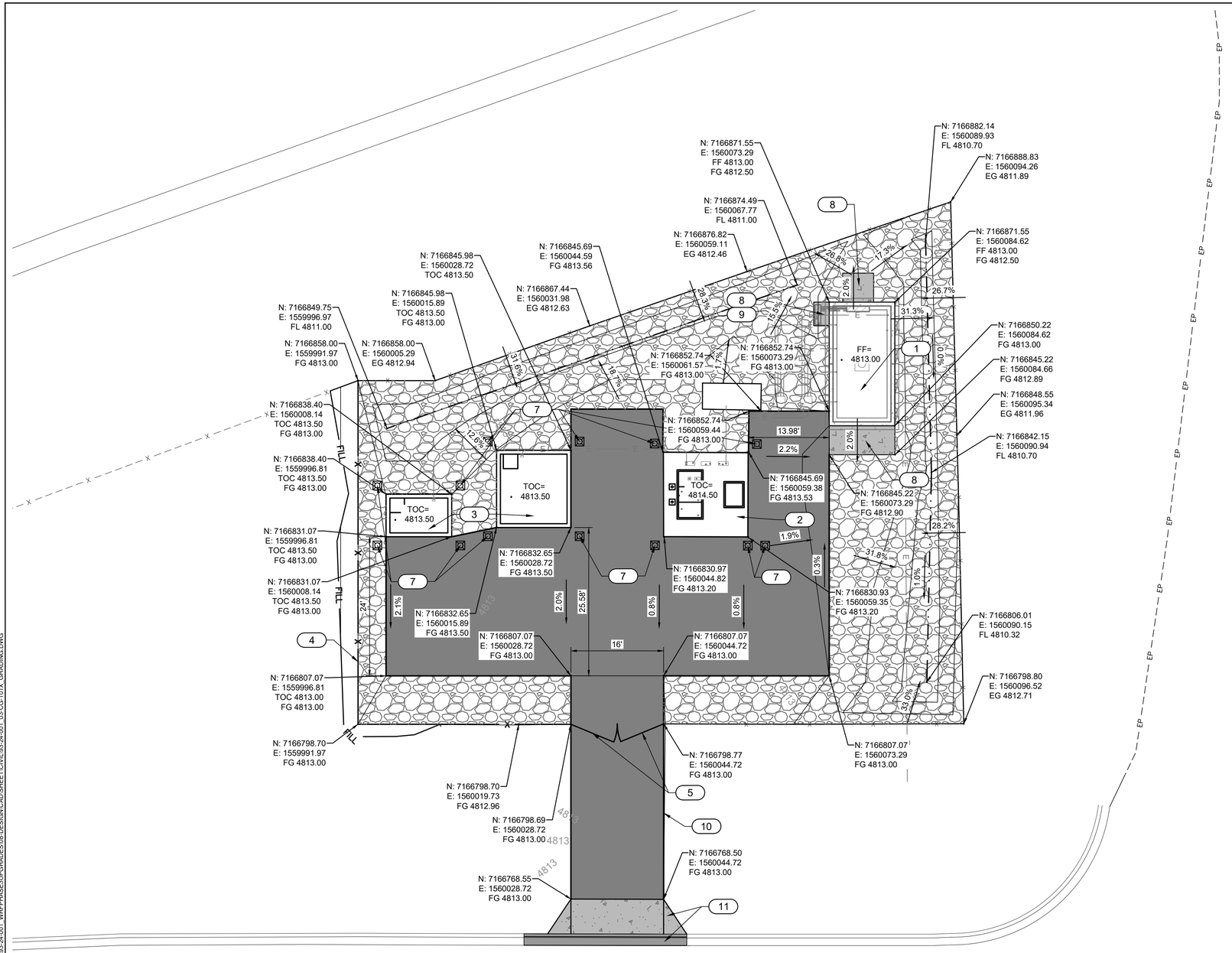
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION - DEMOLITION PLAN

FILE : 93-24-001_05-CD-101_DEMO
JUB PROJ. #: 93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: AMN
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

DRAWING:
05-CX-101

Plot Date:2/1/2025 9:27 PM Plotted By: Alea Nielson
Date Created:1/10/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_05-CD-101_DEMO.DWG



SITE KEY NOTES

1	INSTALL INSTRUMENTATION AND CONTROLS BUILDING, COORDINATE WITH ELECTRICAL AND STRUCTURAL SHEETS.
2	INSTALL CAST-IN PLACE CONCRETE LID ON EXISTING WET WELL, SEE SHEET 05-S-102
3	INSTALL PRE-CAST CONCRETE UTILITY VAULT, SEE SHEET 05-CU-101.
4	INSTALL 6-FT GALVANIZED STEEL CHAIN LINK FENCE W/ 3 STRING BARBED WIRE PER STD DTL (C-02200/00-CZ-903).
5	INSTALL 16-FT WIDE DOUBLE LEAF SWING GATE, SEE STD DTL (C-02200/00-CZ-903).
6	INSTALL HIGH BACK CURB AND GUTTER PER CITY (STD DWG NO. CG4)
7	INSTALL PERMANENT BOLLARD PER STD DTL (C-02160/00-CZ-902).
8	INSTALL 6" THICK SLAB-ON-GRADE CONCRETE PER STD DTL (C-02150/00-CZ-902).
9	CONTRACTOR TO FIELD VERIFY DIMENSIONS OF HVAC UNIT AND COORDINATE CONCRETE PAD SIZE ACCORDINGLY.
10	INSTALL 16-FT WIDE HMA ACCESS ROAD. CONTRACTOR TO COORDINATE WITH CITY FOR FINAL PEDESTRIAN PATH ALIGNMENT/ELEVATIONS TO ENSURE ACCESS ROAD AND PATH DO NOT CONFLICT
11	CUT EXISTING CURB FOR DRIVEWAY APPROACH PER CITY (STD DWG NO. CG3)
12	INSTALL DRAINAGE SWALE PER DETAIL (D1/05-C-501). RIP RAP AND GEOTEXTILE SHALL EXTEND TO MIN. 1.5-FT ABOVE FLOW LINE ELEV. OF SWALE (FLOW LINE ELEV SHOWN ON GRADING PLAN).

GENERAL NOTES:

1. ALL WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS. IN THE CASE OF CONFLICT, SANTAQUIN CITY STANDARDS SHALL APPLY.
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. PROVIDE POSITIVE DRAINAGE AWAY FROM ALL PROPOSED BUILDINGS AND CONCRETE SIDEWALK, PADS, AND VAULTS.
5. GRADE BACK TO EXISTING SURFACE AT MAXIMUM 1:3 SLOPE WITH SMOTH TRANSITION TO ALLOW FOR DRAINAGE ACROSS SURFACE.
6. STRUCTURAL, ARCHITECTURAL, MECHANICAL, HVAC, AND ELECTRICAL/INSTRUMENTATION COMPONENTS ARE NOT ALL SHOWN. COORDINATE ALL WORK WITH RELATED TRADES TO AVOID CONFLICTS.

LEGEND

- INSTALL 3" THICK HMA (3" THICK HMA, 8" THICK UTBC, & 8" THICK 3" MINUS GRANULAR BORROW) PER SANTAQUIN CITY STANDARDS
- INSTALL NEW CONCRETE (SEE KEYNOTE)
- INSTALL 8" THICK ROAD BASE PER CITY (STD DWG NO. ST2)
- INSTALL DRAINAGE SWALE RIP RAP W/ GEOTEXTILE FABRIC PER DTL (D1/05-C-501)

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Subconsultant:

AGENCY

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION - GRADING PLAN
INFLUENT PUMP STATION/HEADWORKS

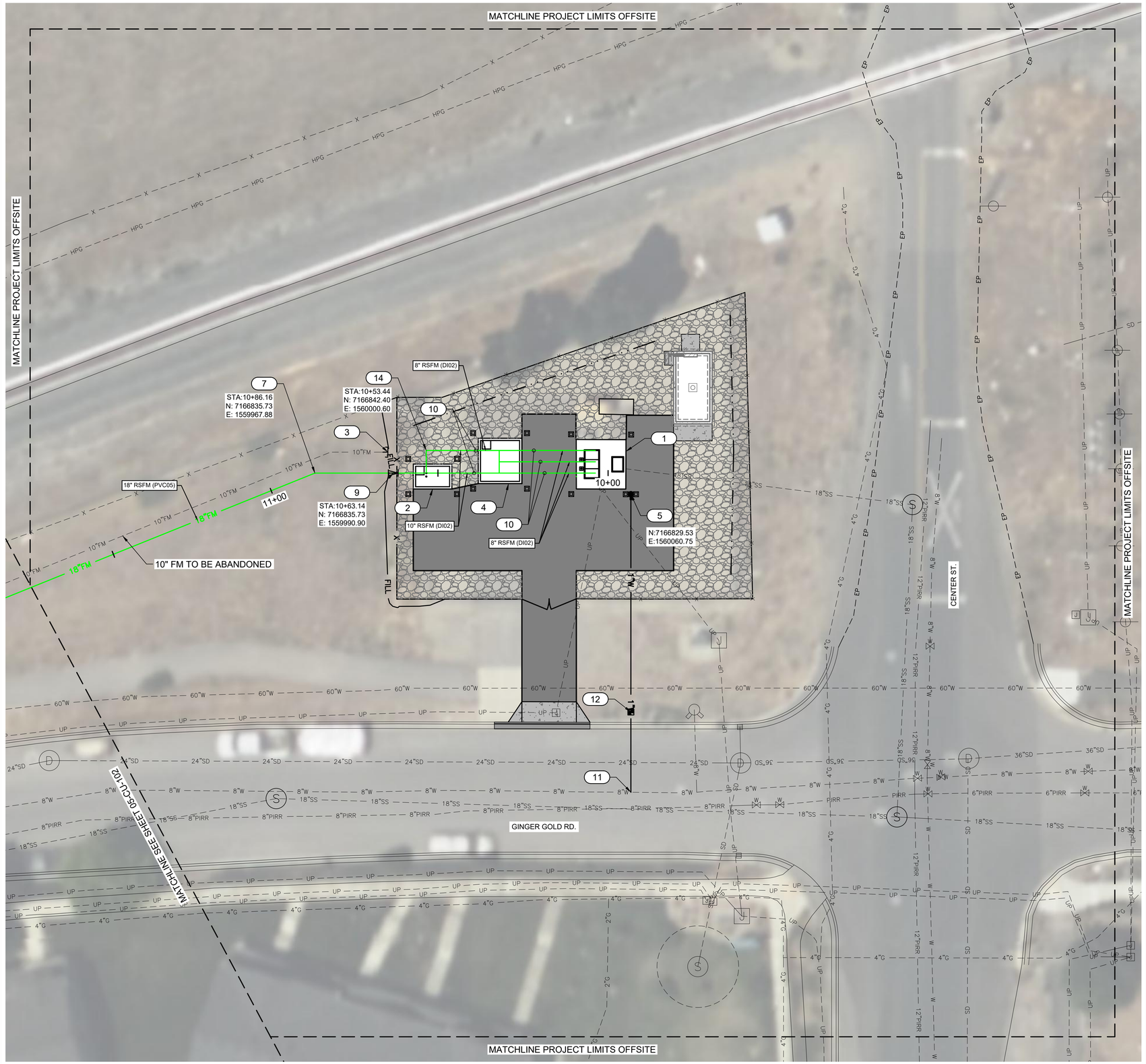
FILE :	93-24-001_03-CG-101X_GRADING
JUB PROJ. # :	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	AMN
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 2/1/2025

DRAWING:
05-CG-101

Plot Date:2/1/2025 9:28 PM Plotted By: Alea Nielson
Date Created:1/30/2025 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_03-CG-101X_GRADING.DWG



SITE KEY NOTES

1	INSTALL NEW CAST-IN-PLACE CONCRETE LID ON EXISTING WET WELL, SEE STRUCTURAL.
2	INSTALL PRE-CAST CONCRETE METER/BYPASS VAULT, SEE DETAIL (D1/05-D-101)
3	ABANDON AND PLUG EXISTING FORCE MAIN, SEE PIPE ABANDONMENT STD DTL (D-15200/00-DZ-909).
4	INSTALL PRE-CAST CONCRETE VALVE VAULT, SEE DETAIL (D1/05-D-101)
5	INSTALL TYPE PH-1, SURFACE-MOUNTED, NON-FREEZE YARD HYDRANT PER STD DTL (D-15200/00-DZ-909)
6	PRESERVE & PROTECT MISCELLANEOUS UTILITY.
7	INSTALL 18" DI 22.5° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
8	INSTALL 18" DI 11.25° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
9	INSTALL 18"x10" DI CONCENTRIC REDUCER (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
10	INSTALL RESTRAINED JOINTS BETWEEN YARD PIPING AND STRUCTURES AS SHOWN ON (D1/05-D-101)
11	TAP EXISTING 8" MAIN WATERLINE FOR INSTALLATION OF 1" CULINARY SERVICE LATERAL PER CITY (STD DWG NO.W1)
12	TYPICAL 1" METER ENCLOSURE W/ METER SETTER PER CITY (STD DWG NO. W1)
13	RESERVED
14	INSTALL 10" DI 90° BEND (MJ) W/ THRUST BLOCK, SEE THRUST BLOCK STD DTL (C-02005/00-CZ-901)
15	CONNECT TO EXISTING 18" PVC PIPE PER DTL (B1/05-D-501). POTHOLE EXISTING 18" FM TO VERIFY LOCATION AND DEPTH FOR CONNECTION. COORDINATE CONNECTION WITH SANTAQUIN REACH PROJECT.

GENERAL NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS AS NOTED IN THE DRAWINGS.
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.
5. STATION CALLOUTS ON STRUCTURES REFERENCE THE CENTER OF THE STRUCTURE/FITTING AND PIPE LENGTHS/SLOPES ARE MEASURED FROM CENTER OF STRUCTURE/FITTING TO CENTER OF STRUCTURE/FITTING.
5. BEFORE DEMO WORK AND UTILITY ABANDONMENT MAY BEGIN, A SEWER BYPASS PLAN MUST BE SUBMITTED AND REVIEWED BY OWNER AND ENGINEER PER SECTION 33 30 00 SEWER BYPASS PUMPING.
6. LIFT STATION AND FORCE MAIN MUST NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.
6. STRUCTURAL, ARCHITECTURAL, MECHANICAL, HVAC, AND ELECTRICAL/INSTRUMENTATION COMPONENTS ARE NOT ALL SHOWN. COORDINATE ALL WORK WITH RELATED TRADES TO AVOID CONFLICTS.

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
ALEA M. NIELSON
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION & FORCE MAIN - UTILITY SITE PLAN
INFLUENT PUMP STATION/HEADWORKS

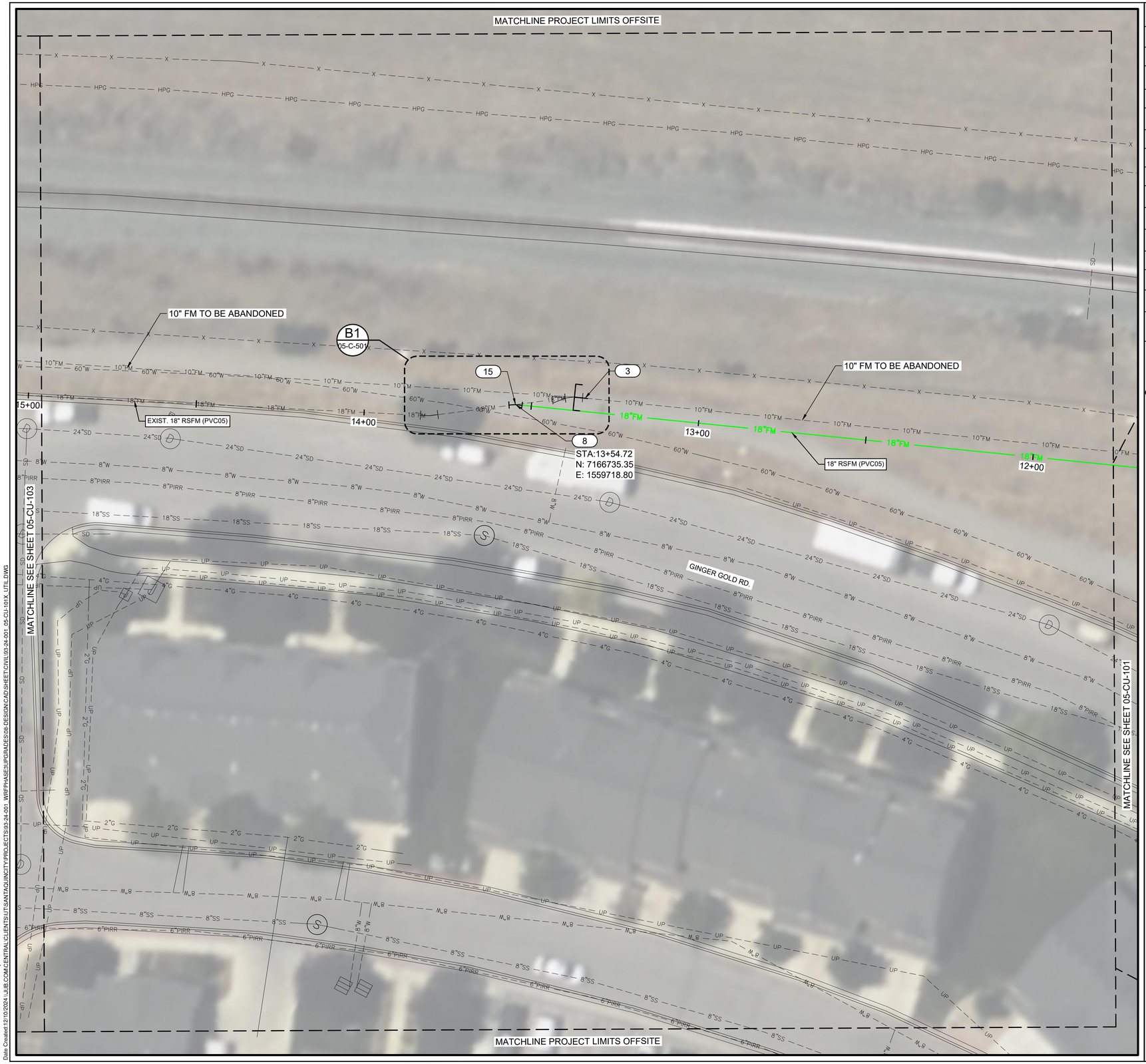
FILE :	93-24-001_05-CU-101X_UTIL
JUB PROJ. # :	93-24-001
DRAWN BY:	AMP / JTB
DESIGN BY:	AMN
CHECKED BY:	GMV

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 2/1/2025

DRAWING:
05-CU-101

Plot Date:2/1/2025 9:29 PM Plotted By: Alea Nielson
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001 WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_05-CU-101X_UTIL.DWG



SITE KEY NOTES

1	INSTALL NEW CAST-IN-PLACE CONCRETE LID ON EXISTING WET WELL, SEE STRUCTURAL.
2	INSTALL PRE-CAST CONCRETE METER/BYPASS VAULT, SEE DETAIL (D1/05-D-101)
3	ABANDON AND PLUG EXISTING FORCE MAIN, SEE PIPE ABANDONMENT STD DTL (D-15200/00-DZ-909).
4	INSTALL PRE-CAST CONCRETE VALVE VAULT, SEE DETAIL (D1/05-D-101)
5	INSTALL TYPE PH-1, SURFACE-MOUNTED, NON-FREEZE YARD HYDRANT PER STD DTL (D-15200/00-DZ-909)
6	PRESERVE & PROTECT MISCELLANEOUS UTILITY.
7	INSTALL 18" DI 22.5° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
8	INSTALL 18" DI 11.25° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
9	INSTALL 18"x10" DI CONCENTRIC REDUCER (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
10	INSTALL RESTRAINED JOINTS BETWEEN YARD PIPING AND STRUCTURES AS SHOWN ON (D1/05-D-101)
11	TAP EXISTING 8" MAIN WATERLINE FOR INSTALLATION OF 1" CULINARY SERVICE LATERAL PER CITY (STD DWG NO.W1)
12	TYPICAL 1" METER ENCLOSURE W/ METER SETTER PER CITY (STD DWG NO. W1)
13	RESERVED
14	INSTALL 10" DI 90° BEND (MJ) W/ THRUST BLOCK, SEE THRUST BLOCK STD DTL (C-02005/00-CZ-901)
15	CONNECT TO EXISTING 18" PVC PIPE PER DTL (B1/05-D-501). POTHOLE EXISTING 18" FM TO VERIFY LOCATION AND DEPTH FOR CONNECTION. COORDINATE CONNECTION WITH SANTAQUIN REACH PROJECT.

GENERAL NOTES:

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4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.
5. STATION CALLOUTS ON STRUCTURES REFERENCE THE CENTER OF THE STRUCTURE/FITTING AND PIPE LENGTHS/SLOPES ARE MEASURED FROM CENTER OF STRUCTURE/FITTING TO CENTER OF STRUCTURE/FITTING.
5. BEFORE DEMO WORK AND UTILITY ABANDONMENT MAY BEGIN, A SEWER BYPASS PLAN MUST BE SUBMITTED AND REVIEWED BY OWNER AND ENGINEER PER SECTION 33 30 00 SEWER BYPASS PUMPING.
6. LIFT STATION AND FORCE MAIN MUST NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.
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0 15 30
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Subconsultant:

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
ALEA M. NIELSON
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION & FORCE MAIN - UTILITY PLAN
INFLUENT PUMP STATION/HEADWORKS

FILE : 93-24-001_05-CU-101X_UTIL
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: AMN
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

DRAWING:
05-CU-102

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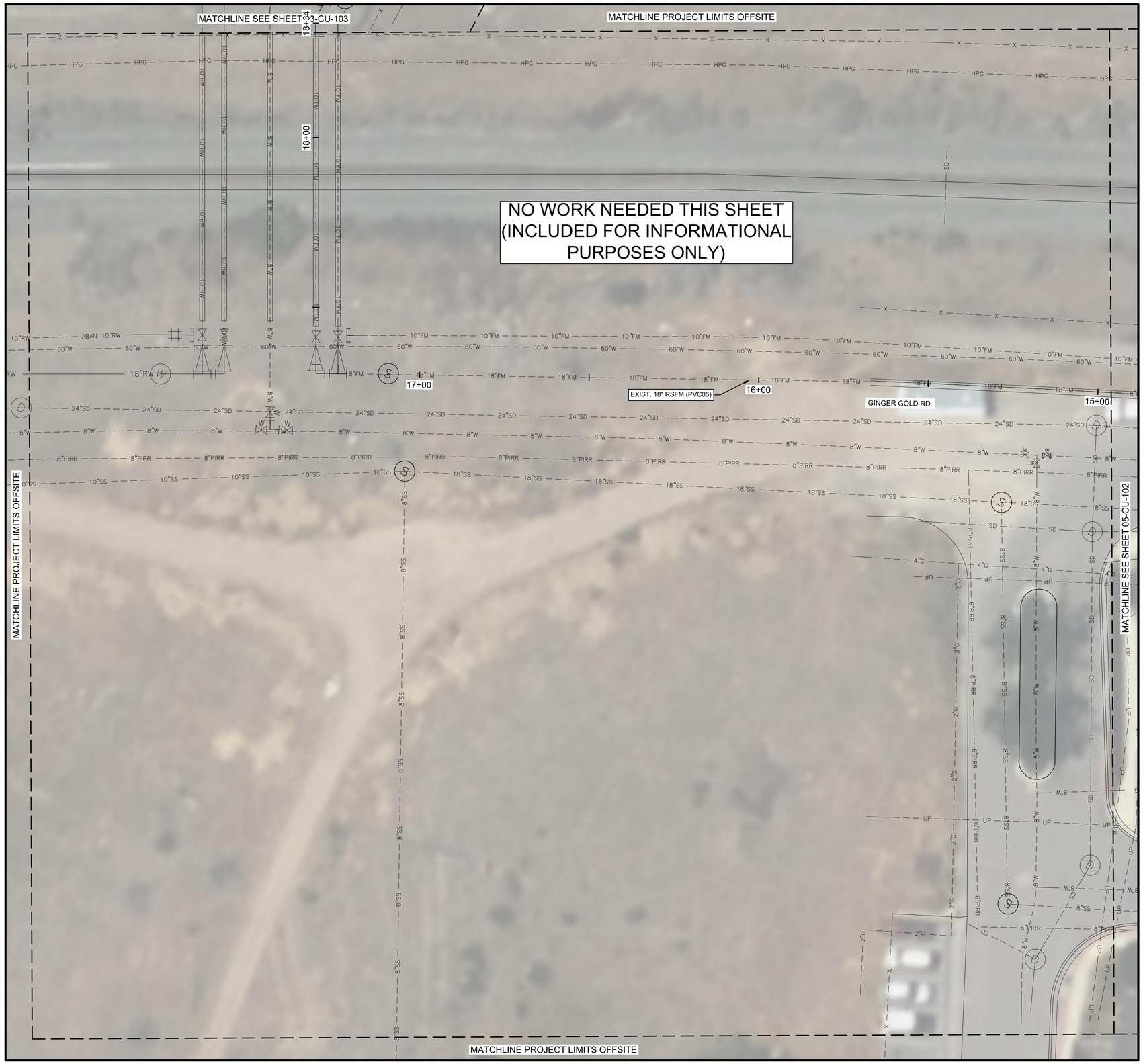

SITE KEY NOTES

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7	INSTALL 18" DI 22.5° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
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9	INSTALL 18"x10" DI CONCENTRIC REDUCER (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
10	INSTALL RESTRAINED JOINTS BETWEEN YARD PIPING AND STRUCTURES AS SHOWN ON (D1/05-D-101)
11	TAP EXISTING 8" MAIN WATERLINE FOR INSTALLATION OF 1" CULINARY SERVICE LATERAL PER CITY (STD DWG NO.W1)
12	TYPICAL 1" METER ENCLOSURE W/ METER SETTER PER CITY (STD DWG NO. W1)
13	RESERVED
14	INSTALL 10" DI 90° BEND (MJ) W/ THRUST BLOCK, SEE THRUST BLOCK STD DTL (C-02005/00-CZ-901)
15	CONNECT TO EXISTING 18" PVC PIPE PER DTL (B1/05-D-501). POTHOLE EXISTING 18" FM TO VERIFY LOCATION AND DEPTH FOR CONNECTION. COORDINATE CONNECTION WITH SANTAQUIN REACH PROJECT.

GENERAL NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS SHALL CONFORM TO J-U-B SPECIFICATIONS AS NOTED IN THE DRAWINGS.
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5. STATION CALLOUTS ON STRUCTURES REFERENCE THE CENTER OF THE STRUCTURE/FITTING AND PIPE LENGTHS/SLOPES ARE MEASURED FROM CENTER OF STRUCTURE/FITTING TO CENTER OF STRUCTURE/FITTING.
5. BEFORE DEMO WORK AND UTILITY ABANDONMENT MAY BEGIN, A SEWER BYPASS PLAN MUST BE SUBMITTED AND REVIEWED BY OWNER AND ENGINEER PER SECTION 33 30 00 SEWER BYPASS PUMPING.
6. LIFT STATION AND FORCE MAIN MUST NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.
6. STRUCTURAL, ARCHITECTURAL, MECHANICAL, HVAC, AND ELECTRICAL/INSTRUMENTATION COMPONENTS ARE NOT ALL SHOWN. COORDINATE ALL WORK WITH RELATED TRADES TO AVOID CONFLICTS.

0 15 30
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
ALEA M. NIELSON
STATE OF UTAH
BEG IS STORED

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION & FORCE MAIN - UTILITY PLAN
INFLUENT PUMP STATION/HEADWORKS

FILE : 93-24-001_05-CU-101X_UTIL
JUB PROJ. # :93-24-001
DRAWN BY: AMP / JTB
DESIGN BY: AMN
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

DRAWING:
05-CU-103

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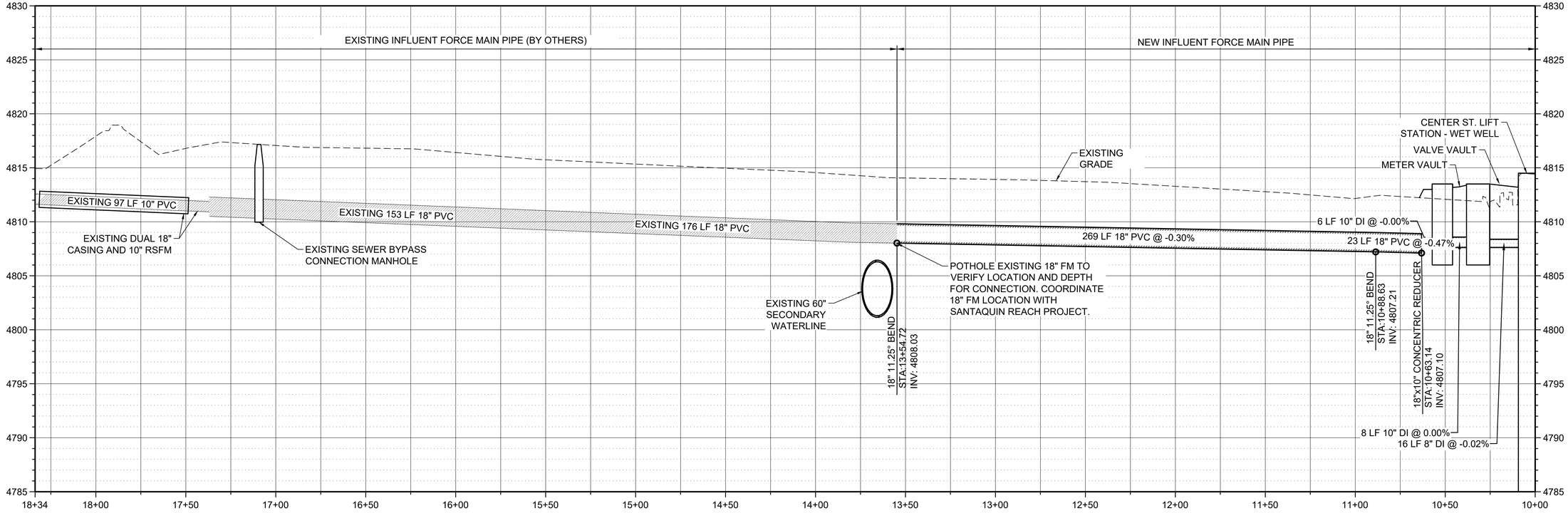
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_05-CU-101X_UTIL.DWG



A INFLUENT FORCE MAIN PIPE - PROFILE

SCALE:

J-U-B ENGINEERS, INC.

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Salt Lake City, UT 84107
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REGISTERED PROFESSIONAL ENGINEER 1/31/2025 No.12647705-2202 ALEA M. NIELSON STATE OF UTAH

REVIEW

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION FORCE MAIN PROFILE
INFLUENT PUMP STATION/HEADWORKS

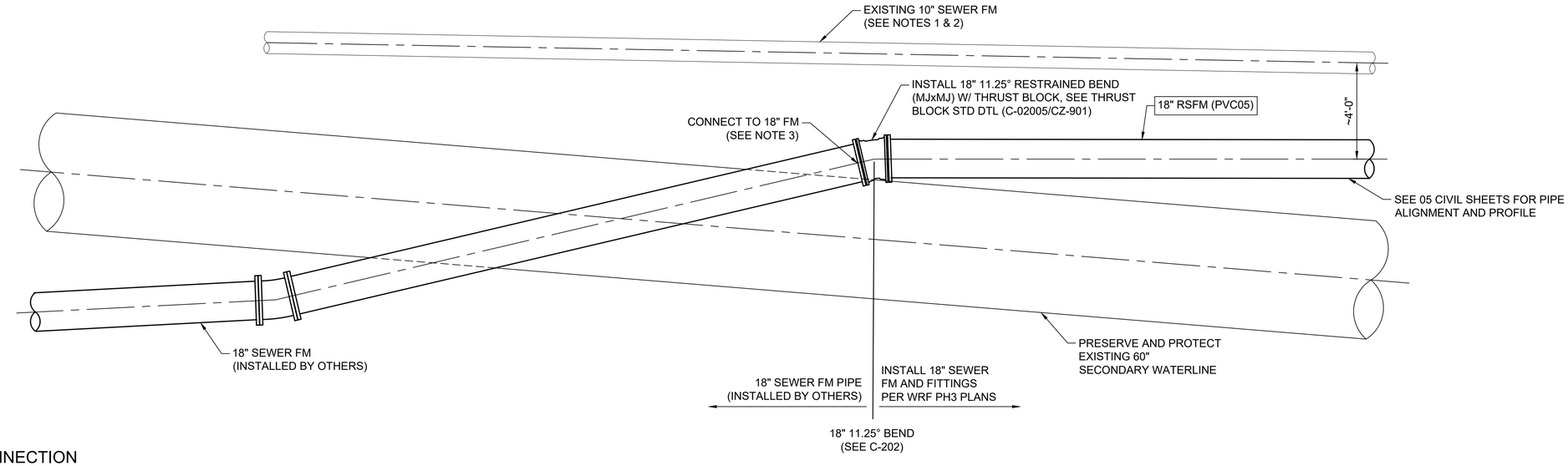
FILE : 93-24-001_05-CU-101X_UTIL
JUB PROJ. # :93-24-001
DRAWN BY: AMP
DESIGN BY: AMN
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

DRAWING:
05-CU-201

Plot Date:2/1/2025 9:32 PM Plotted By: Alea Nielson
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_05-CU-101X_UTIL.DWG

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING 10" FORCE MAIN. VERIFY CLEARANCE BETWEEN NEW 18" FM AND EXISTING 10" FM IS SUFFICIENT TO NOT REQUIRE BYPASS PUMPING DURING 18" FM INSTALLATION.
2. CONTRACTOR TO ABANDON 10" SEWER FM FOLLOWING CENTER ST. LIFT STATION COMPLETION.
3. CONTRACTOR TO COORDINATE AND VERIFY 18" FM CONNECTION LOCATION WITH SANTAQUIN REACH PROJECT.
4. RESTRAIN ALL JOINTS AND FITTINGS WITH MEGALUGS PER CITY (STD DWG NO.W6).
5. BEFORE DEMO WORK AND UTILITY ABANDONMENT MAY BEGIN, LIFT STATION AND FORCE MAIN MUST NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.
6. SEE TECH SPEC 33 30 00 FOR BYPASS PUMPING REQUIREMENTS. A SEWER BYPASS PLAN MUST BE SUBMITTED AND REVIEWED BY OWNER AND ENGINEER PER SECTION 33 30 00 SEWER BYPASS PUMPING.



B1 18" SEWER FM CONNECTION
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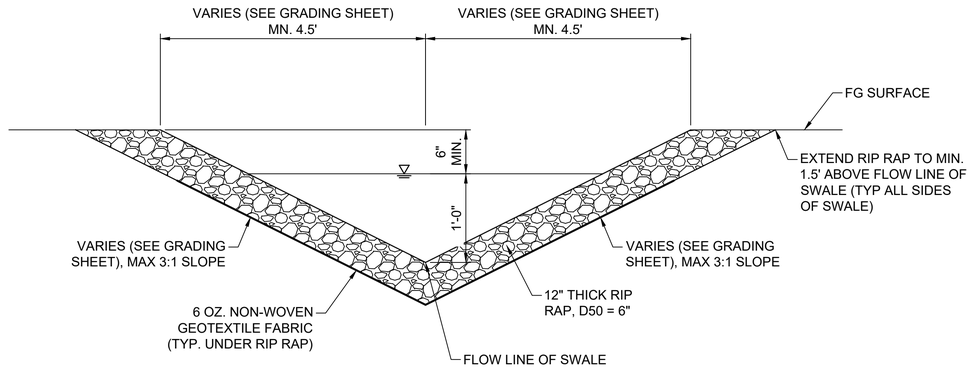

GENERAL NOTE:

1. FOR SWALE FLOW LINE, FG AND SIDE SLOPE INFORMATION, SEE GRADING SHEET (05-CG-101).

D1 TYPICAL STORM DETENTION SWALE DETAIL
SCALE:NOT TO SCALE

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WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
CENTER ST. LIFT STATION - DETAILS
INFLUENT PUMP STATION/HEADWORKS

FILE : 93-24-001_05-C-501X
JUB PROJ. # :93-24-001
DRAWN BY: AMP
DESIGN BY: AMN
CHECKED BY: ----
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

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05-C-501

Plot Date:2/1/2025 9:32 PM Plotted By: Alea Nielson
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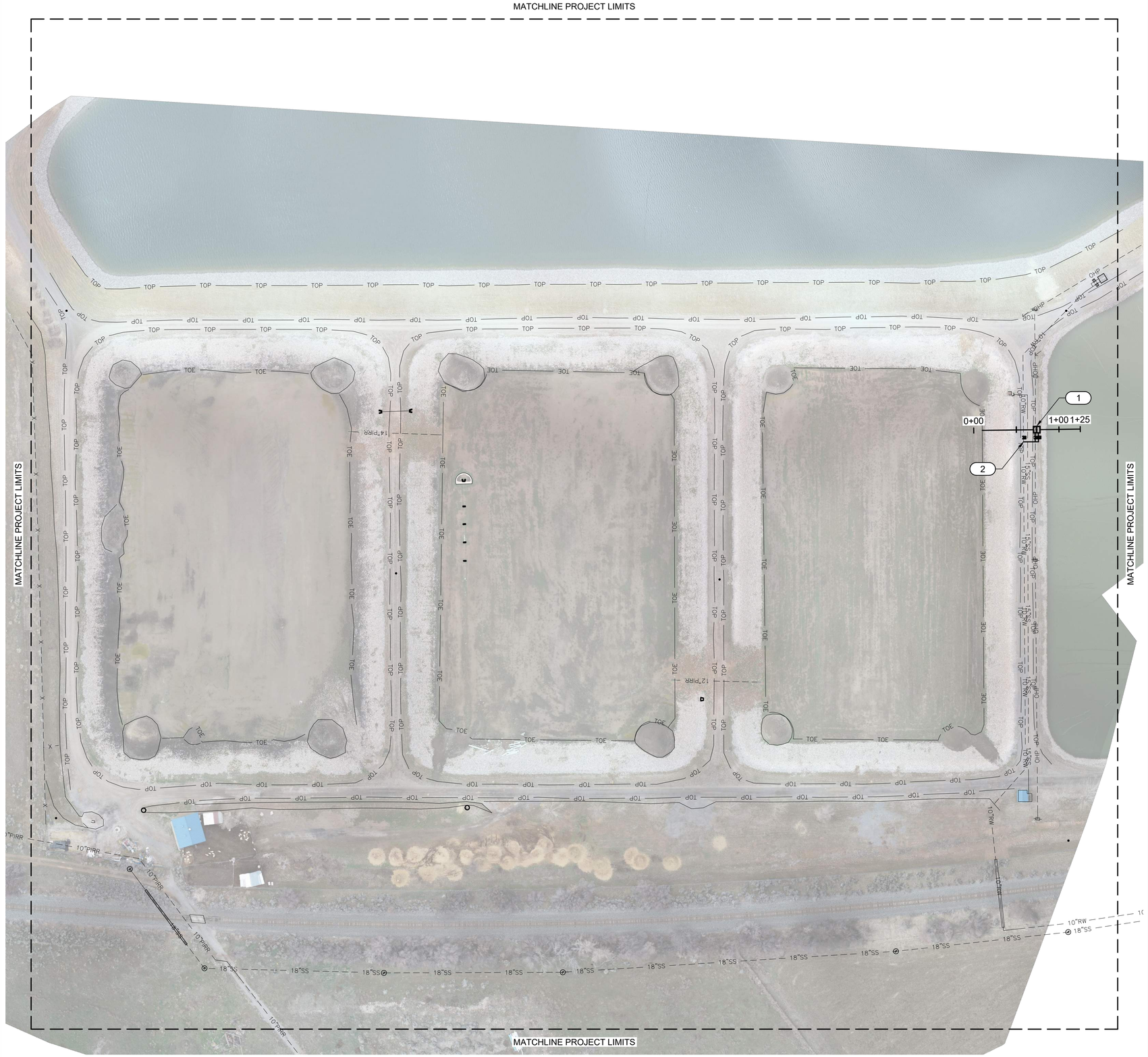
WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
SHEET KEY

FILE : 93-24-001_88-C-001_S_KEY
JUB PROJ. # :93-24-001
DRAWN BY: ....
DESIGN BY: ....
CHECKED BY: ....
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 9/30/2024

DRAWING:
88-C-001

Plot Date:2/1/2025 10:09 PM Plotted By: Alea Nielson
Date Created:12/10/2024 \\JUB.COM\C-CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_88-C-001_S_KEY.DWG



SITE KEY NOTES

1	TRANSFER STRUCTURE, SEE DETAIL 88-C-501
2	LAGOON PIPING, SEE SHEET 88-C-201
3	RESERVED
4	RESERVED

GENERAL NOTES:

1. ALL WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS. IN THE CASE OF CONFLICT, SANTAQUIN CITY STANDARDS SHALL APPLY.
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.

0 60 120

SCALE IN FEET

J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
392. E. Winchester St., Suite 300
Salt Lake City, UT 84107
Phone: 801.547.0393
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
No.12647705-2202
ALEA M. NIELSON
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
OVERALL SITE PLAN
WINTER STORAGE PONDS

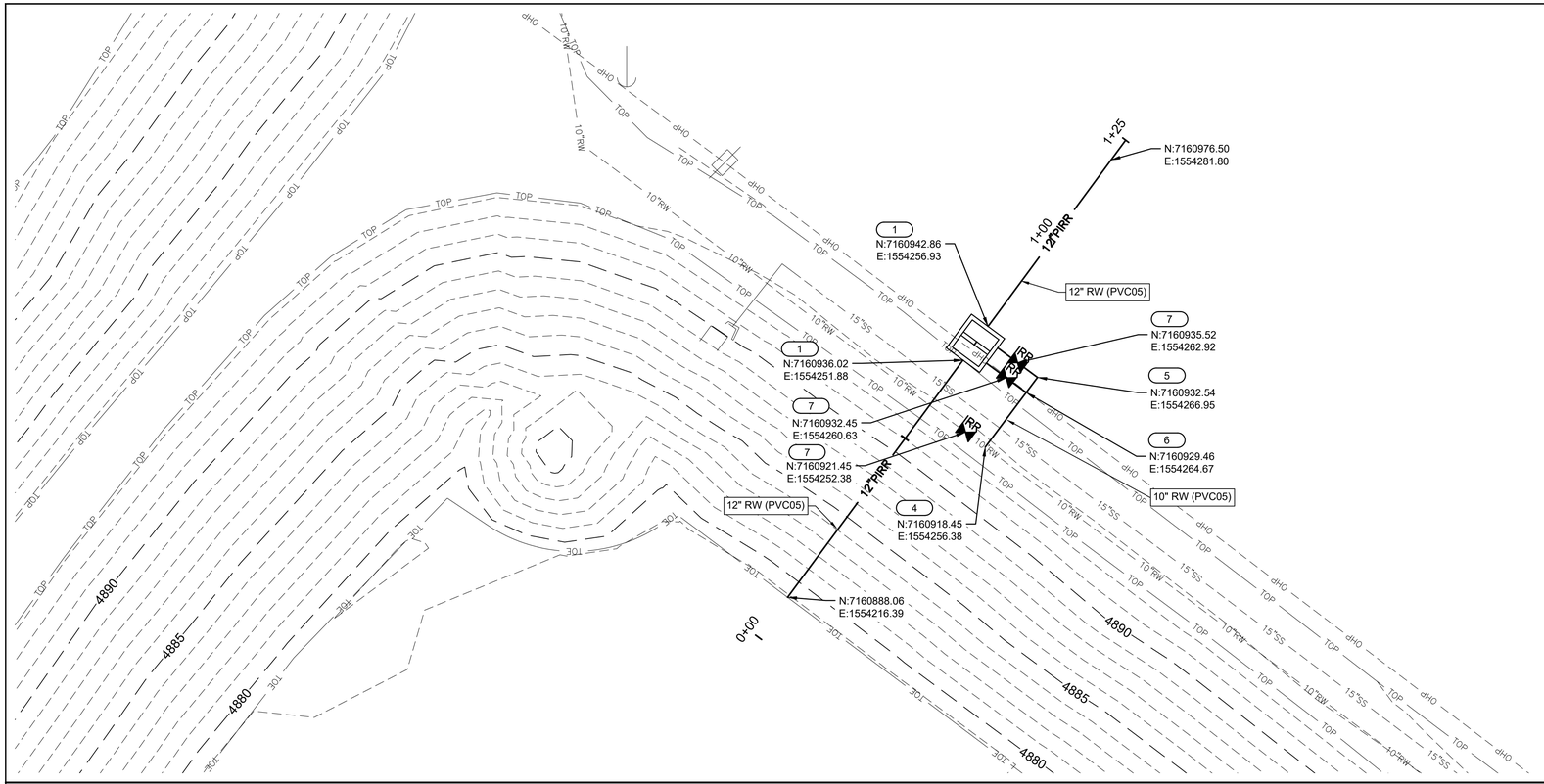
FILE :	93-24-001_88-C-101X
JUB PROJ. # :	93-24-001
DRAWN BY :	AMP / JTB / CIH
DESIGN BY :	AMN
CHECKED BY :	GMV

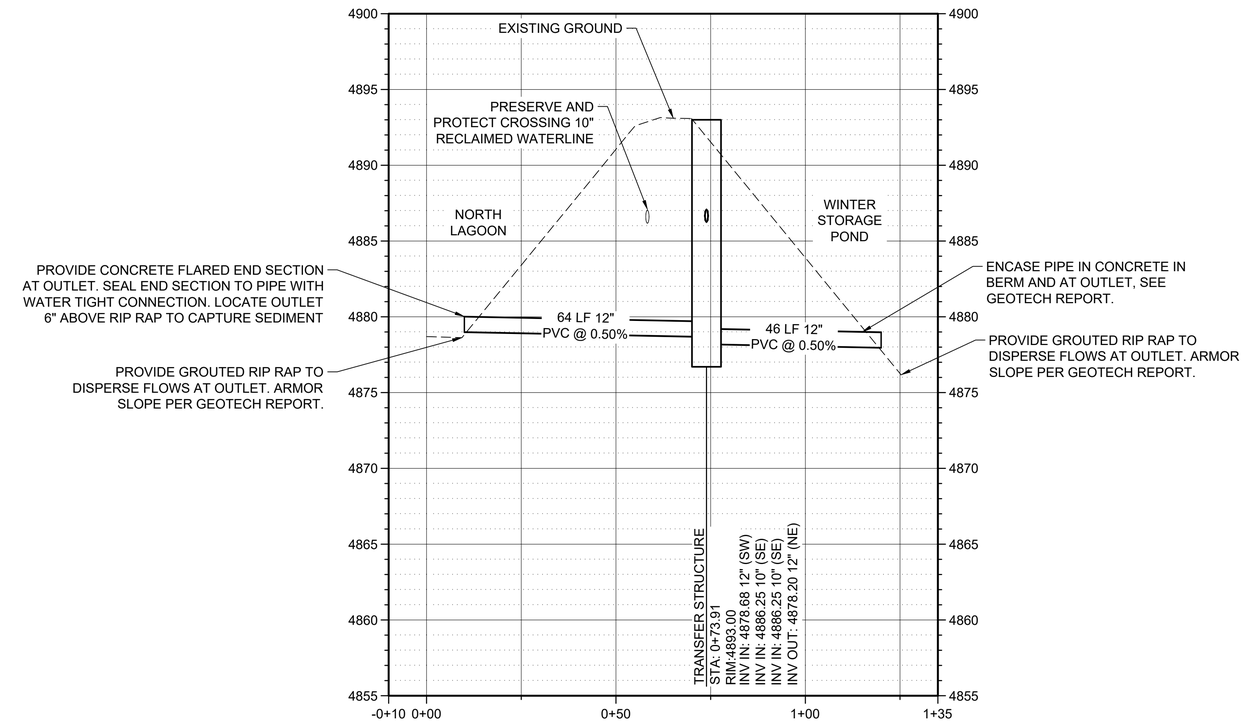
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 2/1/2025

DRAWING:
88-C-101

Plot Date:2/1/2025 10:10 PM Plotted By: Alea Nielson
Date Created:12/10/2024\\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\90-DESIGN\CAD\SHEET\CIVIL\93-24-001_88-C-101X.DWG





SITE KEY NOTES

1	TRANSFER STRUCTURE, SEE DETAIL 88-C-501
2	RESERVED
3	RESERVED
4	CUT AND CONNECT TO EXISTING 10" RW PIPE
5	INSTALL 10" 90° BEND (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
6	INSTALL 10" TEE (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).
7	INSTALL 10" GATE VALVE (MJ) W/ THRUST BLOCK, SEE STD DTL (C-02005/00-CZ-901).

GENERAL NOTES:

1. ALL SITE CIVIL AND YARD PIPING WORK SHALL BE IN CONFORMANCE WITH THE LATEST SANTAQUIN CITY STANDARD SPECIFICATIONS AND DRAWINGS AND WITH THE CURRENT EDITION OF THE UTAH CHAPTER APWA MANUAL OF STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED. ALL WORK WITHIN BUILDINGS AND BACKFILL AROUND BUILDINGS
2. UNLESS OTHERWISE NOTED, PRESERVE AND PROTECT ALL EXISTING FEATURES AND UTILITIES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND EXISTING IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPELINES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.
5. EXCAVATION WITHIN EMBANKMENT MAY NOT PROCEED WITHOUT PRIOR AUTHORIZATION FROM GEOTECHNICAL ENGINEER. EXCAVATION, SHORING, BACKFILL, AND COMPACTION MUST MEET SPECIFICATIONS OF GEOTECHNICAL REPORT.
5. WORK SHALL NOT EXCEED OUTAGES AS DEFINED IN SECTION WORK SEQUENCING 01 32 17 AND MUST RECEIVE PRIOR WRITTEN AUTHORIZATION OF OWNER AND ENGINEER.

N

0 15 30

SCALE IN FEET

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
UTILITY PROFILE
WINTER STORAGE PONDS

FILE : 93-24-001_88-C-201X_UTIL
JUB PROJ. # :93-24-001
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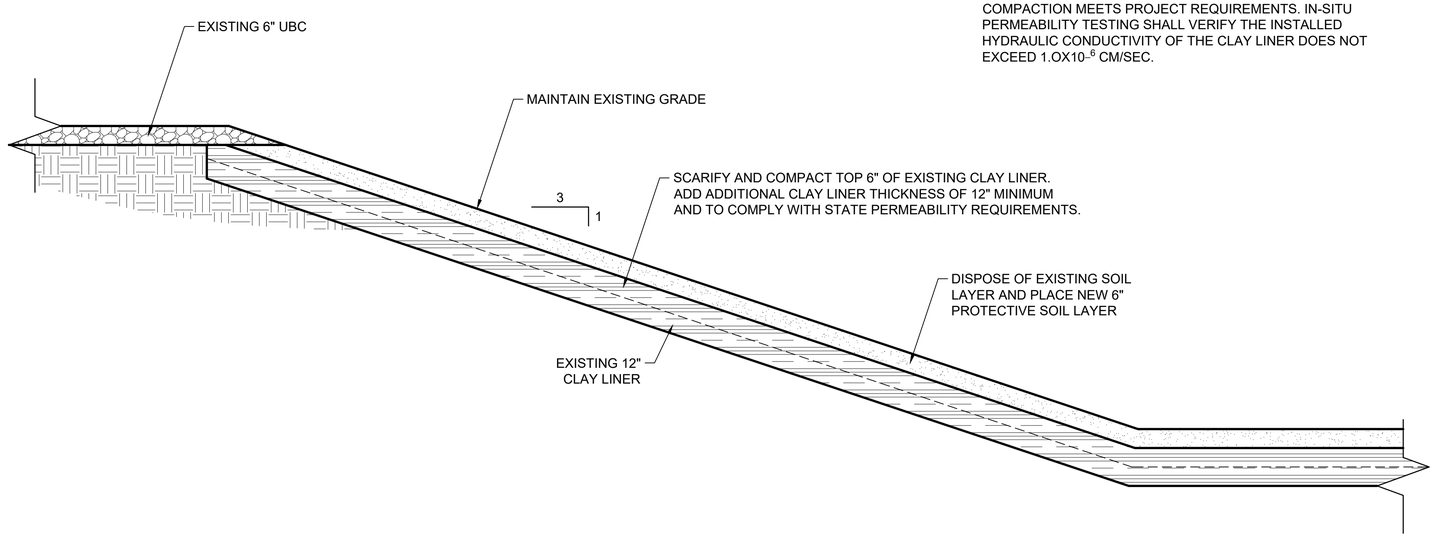
DESIGN BY: ----
CHECKED BY: ----
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

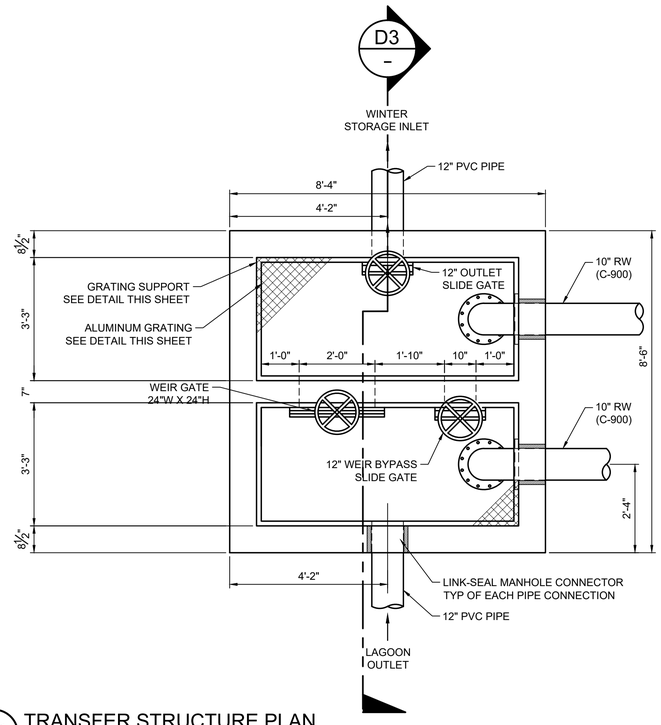
DRAWING:
88-C-201

Plot Date:2/1/2025, 10:10 PM Plotted By: Alea Nielson
Date Created:12/10/2024\\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_88-C-201X_UTIL.DWG

NOTE:
DIKE EMBANKMENTS AND CLAY LINER SHALL BE INSTALLED PER GEOTECHNICAL RECOMMENDATIONS. GEOTECHNICAL ENGINEER WILL BE ON SITE DURING CONSTRUCTION TO VERIFY COMPACTION MEETS PROJECT REQUIREMENTS. IN-SITU PERMEABILITY TESTING SHALL VERIFY THE INSTALLED HYDRAULIC CONDUCTIVITY OF THE CLAY LINER DOES NOT EXCEED $1.0X10^{-6}$ CM/SEC.

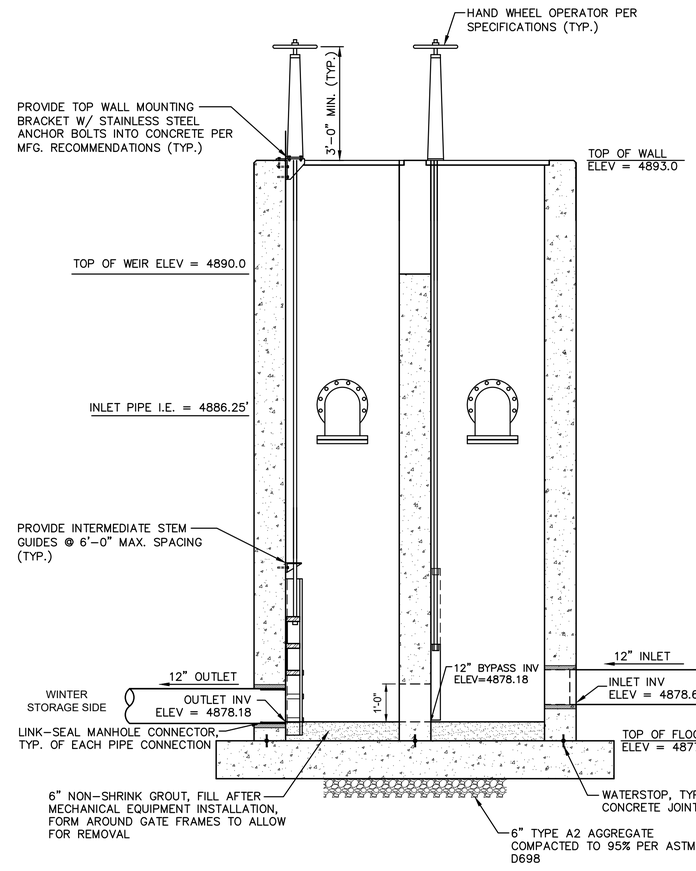


B1 TYPICAL CLAY LINER REHABILITATION
SCALE: N.T.S.



D2 TRANSFER STRUCTURE PLAN
SCALE: N.T.S.

NOTE:
EXCAVATION WITHIN EMBANKMENT MAY NOT PROCEED WITHOUT PRIOR AUTHORIZATION FROM GEOTECHNICAL ENGINEER. EXCAVATION, SHORING, BACKFILL, AND COMPACTION MUST MEET SPECIFICATIONS OF GEOTECHNICAL REPORT.



D3 TRANSFER STRUCTURE SECTION
SCALE: N.T.S.

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REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

WRF PHASE 3 UPGRADES
SANTAQUIN CITY

CIVIL(C)
DETAILS

FILE : 93-24-001 88-C-501
JUB PROJ. # :93-24-001
DRAWN BY: JTB
DESIGN BY: BP
CHECKED BY: GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 2/1/2025

DRAWING:
88-C-501

Plot Date:2/1/2025 10:10 PM Plotted By: Alea Nielson
Date Created:12/10/2024 \\JUB.COM\CENTRAL\CLIENTS\UT\SANTAQUINCITY\PROJECTS\93-24-001_WRFPHASE3UPGRADES\08-DESIGN\CAD\SHEET\CIVIL\93-24-001_88-C-501.DWG

GENERAL REQUIREMENTS

1. THESE GENERAL STRUCTURAL NOTES AND SPECIFICATIONS SUPPLEMENT THE PROJECT WRITTEN TECHNICAL SPECIFICATIONS AND THE PROJECT STRUCTURAL DRAWINGS.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION BRACING, TEMPORARY SHORING, AND OTHER SITE SAFETY CONTROLS REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS, TO INSURE THE STABILITY AND SAFETY OF ALL CONSTRUCTION UNTIL IT IS COMPLETED AND SELF-SUPPORTING.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER, BOTH ABOVE AND BELOW GROUND, RUNOFF AND OTHER ENVIRONMENTAL CONTROLS REQUIRED DURING CONSTRUCTION TO INSURE THE SITE IS MAINTAINED IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
4. DETAILS ON THESE PLANS ARE INTENDED TO DEPICT THE GENERAL CONSTRUCTION DETAILS AND METHODS FOR THIS STRUCTURE. CONNECTION DETAILS AND CONDITIONS NOT SPECIFICALLY SHOWN THAT ARE SIMILAR IN NATURE TO THOSE THAT ARE SPECIFIED SHALL BE ASSUMED ONE AND THE SAME. IF QUESTIONS REGARDING THE APPLICATION OF DETAILS ARE ENCOUNTERED, NOTIFY THE ARCHITECT/ENGINEER FOR CLARIFICATION OR INSTRUCTION.
5. PRIOR TO IMPLEMENTING ANY CHANGES TO THESE PLANS, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED IN WRITING FOR THEIR WRITTEN APPROVAL. CHANGES IMPLEMENTED WITHOUT THE ARCHITECT/ENGINEERS WRITTEN APPROVAL SHALL RELIEVE THE ARCHITECT/ENGINEER OF ANY CLAIM OR LIABILITY RESULTING FROM THAT PORTION OF THE STRUCTURE CHANGED OR AFFECTED BY THE CHANGE.

CONTRACTOR RESPONSIBILITY FOR COORDINATION

1. IT IS THE CONTRACTORS PRIME RESPONSIBILITY TO COORDINATE THE WORK SHOWN ON ALL OF THE PROJECT DRAWINGS, GENERAL, SPECIAL AND TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING CONSTRUCTION MATERIAL TYPES DIMENSIONS, ELEVATIONS AND CONDITIONS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS AND IN THE FIELD PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION, ANY DISCREPANCY SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CAREFULLY STUDY AND COORDINATE THE CONSTRUCTION REQUIREMENTS SHOWN ON BOTH THE ARCHITECTURAL AND THE STRUCTURAL DRAWINGS. WHEN CONFLICTS OR DISCREPANCIES ARE FOUND BETWEEN THESE PLAN SETS AND/OR WITHIN THESE DRAWINGS, THE CONTRACTOR SHALL REPORT THEM IMMEDIATELY TO THE PROJECT ARCHITECT/ENGINEER FOR DIRECTION AND/OR CLARIFICATION.
5. ANY CONSTRUCTION WORK DONE BY THE CONTRACTOR BEFORE OBTAINING SUCH CLARIFICATION FROM THE PROJECT ARCHITECT/ENGINEER SHALL BE AT THE CONTRACTORS OWN RISK AND COST. FURTHERMORE; ANY WORK REQUIRED TO CORRECT, REPLACE AND/OR RESTORE THE WORK AS DIRECTED BY THE ARCHITECT/ENGINEER SHALL BE AT THE CONTRACTORS OWN RISK AND COST.

CODES

1. INTERNATIONAL BUILDING CODE, IBC 2021 EDITION.
2. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-16.
3. AMERICAN CONCRETE INSTITUTE, ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE; REFERENCED EDITION.
4. AMERICAN CONCRETE INSTITUTE, ACI 350, CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES; CURRENT EDITION.
5. AMERICAN CONCRETE INSTITUTE, ACI 530, BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES; CURRENT EDITION.
6. AMERICAN CONCRETE INSTITUTE, ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE.
7. AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 14TH EDITION, STEEL CONSTRUCTION MANUAL.
8. AMERICAN WELDING SOCIETY, AWS D1.1 CURRENT EDITION, STRUCTURAL WELDING CODE.
9. NATIONAL DESIGN SPECIFICATIONS, NDS FOR WOOD CONSTRUCTION; CURRENT EDITION.

SUBMITTALS

SUBMIT PRODUCT OR MATERIAL INFORMATION TO THE ARCHITECT/ENGINEER FOR REVIEW FOR THE FOLLOWING ITEMS:

1. CONCRETE MIX DESIGNS AND ADMIXTURES.
2. NON-SHRINK GROUT.
3. EXPANSION BOLTS.
4. ADHESIVE ANCHORS.
5. STRUCTURAL MASONRY GROUT AND MORTAR MIX DESIGNS.
6. STRUCTURAL CONCRETE BLOCK OR BRICK.
7. METAL ROOF/FLOOR DECKING.
8. STRUCTURAL STEEL MILL CERTIFICATES.

DEFERRED SUBMITTALS

THE FOLLOWING ITEMS TO BE DESIGNED BY OTHERS ARE CONSIDERED "DEFERRED SUBMITTALS". DEFERRED SUBMITTALS SHALL BE ACCOMPANIED BY DESIGN DRAWINGS AND STRUCTURAL CALCULATIONS, STAMPED AND SIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF UTAH.

1. PRE-ENGINEERED AND SHOP FABRICATED WOOD JOISTS AND TRUSSES.
2. PRE-ENGINEERED AND SHOP FABRICATED STEEL JOISTS, GIRDERS AND TRUSSES.
3. SKYLIGHTS, WINDOW WALL AND ALL OTHER GLAZING SYSTEMS.
4. PRE-ENGINEERED AND SHOP FABRICATED STEEL STAIRS.
5. PRECAST

SHOP DRAWINGS

SUBMIT SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THE FOLLOWING ITEMS:

1. REINFORCING STEEL FOR ALL CONCRETE.
2. REINFORCING STEEL FOR MASONRY WALLS.
3. STRUCTURAL STEEL.
4. MISCELLANEOUS STEEL FABRICATIONS INCLUDING STAIRS, LADDERS, BAR-GRATING, FLOOR PLATE AND ACCESS DOORS AND HATCHES.

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS PER IBC CHAPTER 17 ARE REQUIRED FOR THE FOLLOWING ITEMS:
C INDICATES CONTINUOUS, P INDICATES PERIODIC.

		FREQUENCY
1.	SOILS. BY GEOTECHNICAL ENGINEER.	
	A. SITE PREPARATION:	P
	B. FILL MATERIAL VERIFICATION:	C
	C. FILL PLACEMENT AND COMPACTION:	C
	D. LIFT THICKNESS:	C
2.	CONCRETE.	
	A. REINFORCEMENT PLACEMENT:	P
	B. REINFORCING WELDING: REFER TO STEEL WELDING REQUIREMENTS	
	C. PLACEMENT OF CAST-IN-PLACE ANCHORS:	P
	D. VERIFICATION OF USE OF REQUIRED MIX:	P
	E. CONCRETE PLACEMENT:	C
	F. VERIFICATION OF IN-SITU CONCRETE PRIOR TO REMOVAL OF FORMS AND SHORES FROM ELEVATED BEAMS AND SLABS	P
1.	POST INSTALLED CONCRETE ANCHORS.	
	A. INSTALLATION:	C
2.	STRUCTURAL MASONRY.	
	A. VERIFICATION OF SITE PROPORTIONED MORTAR & GROUT:	P
	B. OBSERVATION OF PRISM PREPARATION:	C
	C. PLACEMENT OF MASONRY UNITS & MORTAR JOINTS:	P
	D. VERIFICATION OF SIZE AND LOCATION OF STRUCTURAL ELEMENTS:	P
3.	ANCHORAGE OF MASONRY TO FRAMES, STRUCTURAL MEMBERS AND DIAPHRAGMS INCLUDING TYPE, SIZE AND LOCATION OF ANCHORS	P
	A. TYPE, GRADE AND SIZE OF REINFORCING STEEL:	P
	B. REINFORCING STEEL AND CONNECTOR PLACEMENT:	P
	C. COLD/HOT WEATHER MASONRY PROTECTION:	P
	D. VERIFY USE OF GROUT MIX DESIGN:	P
	E. VERIFY GROUT SPACE IS CLEAN PRIOR TO GROUTING:	C
	F. GROUT PLACEMENT:	C
4.	STRUCTURAL STEEL.	
	A. FABRICATION OF STRUCTURAL ELEMENTS:	P
	B. MATERIAL VERIFICATION OF STRUCTURAL STEEL:	P
	C. MATERIAL VERIFICATION OF HIGH STRENGTH BOLTS:	P
	D. MATERIAL VERIFICATION OF ANCHOR BOLTS & THREADED RODS:	P
	E. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:	P
	F. VERIFY USE OF PROPER WPS'S:	P
	G. COMPLETE AND PARTIAL PENETRATION GROOVE WELDS:	C
	H. MULTI-PASS FILLET WELDS:	C
	I. SINGLE-PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16":	P
	J. INSTALLATION OF COMPOSITE SLAB DECKING:	P
	K. INSTALLATION OF ROOF DECKING:	P
	L. FLOOR AND ROOF DECK WELDS:	P
	M. WELDING SHEAR STUDS:	P
	N. WELDING STAIR AND RAILING SYSTEMS:	P
	O. SNUG-TIGHT HIGH STRENGTH BOLT INSTALLATION:	P
5.	ALL SPECIAL INSPECTION SHALL BE PERFORMED BY ICC CERTIFIED INSPECTORS.	
6.	FOR ADHESIVE ANCHOR INSPECTION REQUIREMENTS REFER TO SECTION 12.	

STRUCTURAL SYMBOL LEGEND

F#, CF#, MF# — DENOTES FOOTING TYPE, SEE SCHEDULE

CP## — DENOTES CONCRETE PIER, SEE SCHEDULE

CW## — DENOTES CONCRETE WALL, SEE SCHEDULE

MW## — DENOTES MASONRY WALL, SEE SCHEDULE

ML## — DENOTES MASONRY LINTEL, SEE SCHEDULE

C|J — DENOTES MASONRY CONTROL JOINT LOCATION

S——S — DENOTES STEP IN FOOTING, SEE

GENERAL SYMBOL LEGEND

SLOPE DIRECTION (DOWN)

SPAN DIRECTION

XX'-XX" MISCELLANEOUS ELEVATION

A / - ELEVATION REFERENCE

A / - SECTION CUT

A / - DETAIL CUT

A REVISION

0'-0" FINISH FLOOR ELEVATION

DESIGN CRITERIA

1. OCCUPANCY OR USE; IBC TABLE 1607.1: WATER TREATMENT PLANT
   - A. RISK CATEGORY; ASCE TABLE 1.5-2: III
2. LIVE LOADS:
   - A. ROOF LIVE LOAD:
     - a. FLAT ROOF SNOW LOAD, P_f: 33 PSF
     - b. GROUND SNOW LOAD, P_g: 43 PSF
     - c. SNOW IMPORTANCE FACTOR, I_s: 1.10
     - d. SNOW EXPOSURE FACTOR, C_e: 1.00
     - e. THERMAL FACTOR, C_t: 1.10
     - f. UNBALANCED SNOW PER ASCE-7, CHAPTER 7
   - B. FLOOR LIVE LOAD:
     - a. LIGHT DUTY INCLUDING CATWALKS/STAIRS: 100 PSF OR A 300-LB PT LOAD
       - PT LOAD AT MID SPAN. WHICHEVER HAS GREAT EFFECT ON THE MEMBER
     - b. MEDIUM DUTY INCLUDING GENERAL WORK AREAS: 200 PSF
     - c. HEAVY DUTY WORK AREAS: 300 PSF
3. DEAD LOADS:
   - A. ROOF DEAD LOAD: 20 PSF
     - a. TRUSS TOP CHORD: 10 PSF
     - b. TRUSS BOTTOM CHORD: 10 PSF
   - B. FLOOR DEAD LOAD: PER TYPE OF CONSTRUCTION
4. WIND:
   - A. ULTIMATE DESIGN WIND SPEED, V_{ult}: 108 MPH
   - B. SITE WIND EXPOSURE: C
   - C. ENCLOSURE CLASSIFICATION: ENCLOSED BUILDING
   - D. INTERNAL PRESSURE COEFFICIENTS: +0.18 TO -0.18
   - E. COMPONENT & CLADDING (FOR DEFERRED SUBMITTALS)
     - a. DESIGN WIND PRESSURES: +XPSF –X PSF
5. EARTHQUAKE:
   - A. SEISMIC IMPORTANCE FACTOR, I_e: 1.25
   - B. MAPPED SPECTRAL RESPONSE ACCELERATION:
     - a. SHORT PERIOD, S_s: 1.741
     - b. 1-SECOND, S_1: 0.636
   - C. SOIL SITE CLASS: D
   - D. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
     - a. SHORT PERIOD, S_{ds}: 1.161
     - b. 1-SECOND, S_{d1}: X
   - E. SEISMIC DESIGN CATEGORY: D
   - F. PROJECT BUILDING SPECIFIC SEISMIC DATA:
     - a. AREA 05 - LIFT STATION ELECTRICAL BUILDING
       - BASIC SEISMIC FORCE RESISTING SYSTEM(S):
       - INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
         1. RESPONSE MODIFICATION COEFFICIENT, R: 3.5
         2. SEISMIC RESPONSE COEFFICIENT, C_s: 0.X
         3. SEISMIC DESIGN BASE SHEAR, V: X KIPS
         4. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
     - b. AREA 80 - DEWATERING BUILDING
       - BASIC SEISMIC FORCE RESISTING SYSTEM(S):
       - INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
         1. RESPONSE MODIFICATION COEFFICIENT, R: 3.5
         2. SEISMIC RESPONSE COEFFICIENT, C_s: 0.X
         3. SEISMIC DESIGN BASE SHEAR, V: X KIPS
         4. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
     - c. AREA 81 - SOLIDS HOLDING TANK
       - BASIC SEISMIC FORCE RESISTING SYSTEM(S):
       - INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
         1. RESPONSE MODIFICATION COEFFICIENT, R: 3.5
         2. SEISMIC RESPONSE COEFFICIENT, C_s: 0.X
         3. SEISMIC DESIGN BASE SHEAR, V: X KIPS
         4. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
     - d. AREA 82 - SOLIDS HANDLING BUILDING
       - BASIC SEISMIC FORCE RESISTING SYSTEM(S):
       - INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
         1. RESPONSE MODIFICATION COEFFICIENT, R: 3.5
         2. SEISMIC RESPONSE COEFFICIENT, C_s: 0.X
         3. SEISMIC DESIGN BASE SHEAR, V: X KIPS
         4. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
6. MECHANICAL LOADS: REFER TO FRAMING PLANS AND MECHANICAL PLANS FOR SPECIAL MECHANICAL EQUIPMENT LOADS.
7. SOIL DESIGN PARAMETERS:
   - A. NET ALLOWABLE SOIL BEARING PRESSURES; Q_n: X PSF
   - B. NATIVE SOIL UNIT WEIGHT, W_s: 120 PCF
   - C. GROUND WATER (GW) ELEVATION
     - a. NORMAL: XXXX.XX-FT
     - b. 100 YEAR EVENT: YYYY.YY-FT
   - D. EQUIVALENT DRAINED FLUID PRESSURES (ABOVE GW)
     - a. ACTIVE; K_a: X PCF
     - b. AT REST; K_r: X PCF
     - c. PASSIVE; K_p: X PCF
   - E. COEFFICIENT OF FRICTION, SOIL TO CONCRETE; F: 0.X
   - F. VERTICAL SURCHARGE; D_s: 2.0-FT
   - G. MODULUS OF SUBGRADE REACTION; K_m: 100 PCI
   - H. FROST DEPTH; D_f: 2.50-FT

FOUNDATIONS

1. ALL FOOTINGS TO BE PLACED ON FIRM UNDISTURBED, INORGANIC MATERIAL. PROOF ROLL SUB-GRADE PRIOR TO PLACING CONCRETE WHERE THE MATERIAL HAS BEEN DISTURBED BY THE EXCAVATING EQUIPMENT. REMOVE ALL COLLAPSIBLE SOILS FROM BENEATH THE STRUCTURES EXTENDING APPROXIMATELY 5-FT BEYON THE FOOTING PERIMETER. PROVIDE COMPACTED STRUCTURAL FILL TO REPLACE EXTENTS OF COLLAPSIBLE SOILS.
2. ALL PIERS AND FOOTINGS OUTSIDE OR AT THE PERIMETER OF THE STRUCTURE, OR IN OTHER UNHEATED AREAS SHALL BE SET TO A DEPTH OF AT LEAST 30-IN. BELOW FINISH GRADE, UNLESS OTHER WISE NOTED ON THE PLANS.
3. ALL FOUNDATIONS AND RETAINING WALLS BELOW FINISH GRADE SHALL RECEIVE AN APPROVED DAMP-PROOF COATING. FOUNDATION WALLS BELOW MAXIMUM ANTICIPATED GROUND WATER LEVELS SHALL RECEIVE AN APPROVED WATER-PROOF COATING; EXTEND WATER-PROOFING TO A MINIMUM OF 1'-0" ABOVE THE MAXIMUM ANTICIPATED GROUND WATER LEVEL.
4. ALLOWABLE BEARING PRESSURE FOR ALL FOOTINGS QA = 4,000 PSF
5. LOCAL AREAS OF SOFT AND/OR UNACCEPTABLE MATERIAL ENCOUNTERED AT BOTTOM OF FOOTING ELEVATIONS INDICATED ON THE PLANS MUST BE OVER-EXCAVATED AND BROUGHT UP TO DESIGN GRADE WITH COMPACTED STRUCTURAL FILL OR LEAN CONCRETE FILL.
6. ALL STRUCTURAL FILL AND/OR BACKFILL SHALL BE GRANULAR, FREE DRAINING, MATERIAL; UNIFIED SOILS CLASSIFICATION GW, GP, GM OR SW; MAXIMUM AGGREGATE SIZE OF 3-IN. AND NO MORE THAN 7% PASSING A NUMBER 200 SIEVE. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 6-IN. IN DEPTH AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED PER ASTM D1557.
7. DESIGN FOR THE MITIGATION OF SUBSURFACE WATER FLOW AND/OR PERCHED WATER TABLES SHALL BE THE RESPONSIBILITY OF OTHERS.
8. AS INDICATED ON THE PLANS AND ALL EXCAVATED AREAS UNDERNEATH CONCRETE STRUCTURES SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL (CDF) OTHERWISE CALLED CONTROLLED LOW STRENGTH MATERIAL (CLSM). CDF SHALL BE A MIXTURE OF CEMENT, FINE AND COURSE AGGREGATE, FLY ASH AND ADMIXTURES FORMULATED TO BE FLOWABLE AND SELF-CONSOLIDATING WITH A NET 28 DAY COMPRESSIVE STRENGTH OF 200 TO 300 PSI.
9. THE ENGINEER SHALL BE NOTIFIED IN WRITING IF ANY GROUND WATER, CLAY TYPE SOILS, DEBRIS OR UNCONSOLIDATED MATERIALS ARE ENCOUNTERED DURING EXCAVATIONS FOR FOUNDATIONS.
10. DO NOT BACKFILL BASEMENT WALLS UNTIL SUPPORTING FLOORS ARE IN PLACE AND COMPLETE.
11. REFER TO THE FACILITY GEOTECHNICAL REPORT BY RB&G ENGINEER, INC DATED MAY 2010.

CAST-IN-PLACE CONCRETE

1. PROJECT CONCRETE MIX TYPES: CONCRETE SHALL BE PROPORTIONED AND FURNISHED FOR THE VARIOUS PROJECT USES AS INDICATED ON THE PLANS AND AS FOLLOWS:
   - A. M2500-SEC: SECONDARY CONCRETE MIX FOR FILL AND BACKFILL AROUND BURIED PIPES UNDERNEATH STRUCTURAL FOOTINGS AND FOUNDATION SLABS: F_c: 2,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.55, AIR CONTENT: 6% (+/- 1.5%), MAXIMUM AGGREGATE SIZE 3/8-INCH; SLUMP 8-INCH.
   - B. M4000-INT: CONCRETE MIX FOR INTERIOR SLABS ON GRADE: F_c: 4,000 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.50, AIR CONTENT: 0 TO 2% (NON-AIR ENTRAINED MIX).
   - C. M4500-SPS: SUPER-PLASTICIZED CONCRETE MIX FOR LIQUID-RETAINING CONCRETE STRUCTURAL WALLS AND FOUNDATION SLABS: F_c: 4,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.40, AIR CONTENT: 6% (+/- 1.5%).
   - D. M4500-STD: STANDARD EXTERIOR STRUCTURAL CONCRETE MIX FOR ALL OTHER CONCRETE INCLUDING ABOVE GRADE STRUCTURAL WALLS, COLUMNS, SLABS AND BEAMS: F_c: 4,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.45, AIR CONTENT: 6% (+/- 1.5%)
   - E. M2500-GFM: MIX FOR GROUT FILL FOR CREATING SLOPE IN LIQUID RETAINING STRUCTURES: F_c: 2,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.55, AIR CONTENT: 6% (+/- 1.5%), MAXIMUM AGGREGATE SIZE 3/8-INCH; SLUMP 8-INCH.
   - F. M-SLURRY: SLURRY CONCRETE FOR HORIZONTAL CONSTRUCTION JOINTS IN WALLS. A FLOWABLE MIX CONSISTING OF SAND, 3/8-INCH MAXIMUM AGGREGATE, WATER AND A MINIMUM 1,150 POUNDS OF CEMENT PER CUBIC YARD.
   - G. M-CDF: MIX FOR CONTROLLED DENSITY FILL (CDF) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM). CDF SHALL BE A MIXTURE OF CEMENT, FINE AND COURSE AGGREGATE, FLY ASH AND ADMIXTURES FORMULATED TO BE FLOWABLE AND SELF-CONSOLIDATING WITH A NET 28 DAY COMPRESSIVE STRENGTH OF 200 TO 300 PSI.
2. CONCRETE MIX COMPONENTS
   - A. A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494, USED IN STRICT CONFORMANCE WITH THE MANUFACTURERS INSTRUCTIONS, SHALL BE INCORPORATED IN ALL CONCRETE MIX DESIGNS.
   - B. FOR ALL WATER-RETAINING CONCRETE STRUCTURAL WALLS AND SLABS, A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494, TYPE F OR G, SHALL BE USED. THE TOTAL SLUMP SHALL BE LESS THAN 10-IN.
   - C. HIGHER WATER-CEMENT RATIOS THAN SHOWN ABOVE MAY BE USED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318.
   - D. FLY-ASH CONFORMING TO ASTM C618 TYPE F OR C, MAY REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.
   - E. CEMENT
     - a. ASTM C150 TYPE I OR II.
   - F. WATER: CLEAN & POTABLE.
   - G. AIR ENTRAINING AGENT: ASTM C260. EXCEPT WHERE NOTED NON-AIR ENTRAINED.
   - H. AGGREGATE: 0.75-INCH MAXIMUM AGGREGATE PER ASTM C33. UNLESS NOTED OTHERWISE.
   - I. MIX PROPORTIONING: ACI 211.1 AND 350R.
3. CONCRETE ACCESSORIES:
   - A. REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60; #3 BARS MAY BE GRADE 40.
   - B. REINFORCING STEEL TO BE WELDED: ALL REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706 GRADE 60, LOW-ALLOY, DEFORMED REINFORCING STEEL.
   - C. JOINTING MATERIALS: IN ACCORDANCE WITH ACI 350 SECTION 4.5.2. ALL JOINTING MATERIALS INCLUDING WATER-STOPS, EXPANSION JOINTS AND SEALANTS, SHALL BE RESISTANT TO CHEMICAL ATTACK FOR THE DESIGN LIFE OF THE FACILITY. SEALANTS SHALL CONFORM TO ASTM C 920 AND FEDERAL SPECIFICATION TT-S-00277E AND PVC WATER-STOP SHALL CONFORM TO ASTM D 570, ASTM D 746, STM D 1149 AND CRD-C572.
4. CONCRETE QUALITY AND DETAILS
   - A. GENERAL. CONCRETE SHALL BE PROPORTIONED TO PROVIDE AN AVERAGE COMPRESSIVE STRENGTH, FC, AS PRESCRIBED IN ACI 318/350 SECTION 5.3.2 AND SHALL SATISFY THE DURABILITY CRITERIA OF ACI 318/350 CHAPTER 4.
   - B. CONCRETE PROPORTIONS.
     - a. CONCRETE MIX PROPORTIONING SHALL BE IN ACCORDANCE WITH ACI 211.1; STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL, HEAVYWEIGHT, AND MASS CONCRETE.
     - b. CONCRETE MIX PROPORTIONING FOR LIGHTWEIGHT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 211.2; STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR LIGHTWEIGHT CONCRETE.
   - C. CONCRETE MIX VERIFICATION: CONCRETE MIX DESIGNS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS PER ASTM C39.
   - D. EVALUATION AND ACCEPTANCE OF CONCRETE. CONCRETE SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318/350 SECTION 5.6.
   - E. MIXING & PLACING CONCRETE. CONCRETE SHALL BE PREPARED, MIXED, PLACED AND CONSOLIDATED IN ACCORDANCE WITH ACI 318/350 SECTIONS 5.7 THROUGH 5.10 AND AS FOLLOWS:
     - a. ACI 304; GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
     - b. ACI 309; GUIDE FOR CONSOLIDATION OF CONCRETE.
   - F. MINIMUM TIME BETWEEN ADJACENT PLACEMENTS:
     - a. NON-LIQUID RETAINING STRUCTURES:
       1. CONSTRUCTION JOINTS: FIVE (5) DAYS WET CURE, OR SEVEN (7) DAYS DRY CURE.
       2. CONTROL JOINTS: TWO (2) DAYS.
       3. EXPANSION JOINTS: ONE (1) DAY.
     - b. FLOOR SLABS:
       1. CONSTRUCTION JOINTS: SEVEN (7) DAYS WET CURE, OR TEN (10) DAYS DRY CURE.
       2. CONTROL JOINTS: FOUR (4) DAYS.
       3. EXPANSION JOINTS: ONE (1) DAY.
     - c. LIQUID RETAINING STRUCTURES:
       1. CONSTRUCTION JOINTS: TEN (10) DAYS WET CURE, OR FOURTEEN (14) DAYS DRY CURE.
       2. CONTROL JOINTS: SIX (6) DAYS.
   - G. HORIZONTAL JOINTS IN REINFORCED CONCRETE WALLS:
     - a. PROVIDE A LAYER OF SLURRY CONCRETE IN THE BOTTOM OF ALL HORIZONTAL WALL JOINTS, 1-INCH MINIMUM TO 2-INCH MAXIMUM THICKNESS. THOROUGHLY VIBRATE TO MIX CONCRETE & SLURRY TOGETHER.
   - H. HORIZONTAL CONSTRUCTION JOINTS CONTAINING WATER-STOP.
     - a. UNLESS OTHERWISE SPECIFICALLY DIRECTED, IN ALL HORIZONTAL CONSTRUCTION JOINTS IN NEW CONCRETE CONSTRUCTION CONTAINING WATER-STOPS, PROVIDE AN INITIAL LAYER OF SLURRY MIX TO AID IN CONSOLIDATION OF FRESHLY PLACED CONCRETE AT THE JOINT INTERFACE.
     - b. SLURRY MIX SHALL BE A MIXTURE OF 3/8-INCH MAXIMUM AGGREGATE, SAND, CEMENT AND WATER.
     - c. PLACE SLURRY MIX 2-INCH MINIMUM TO 4-INCH MAXIMUM IN THICKNESS.
     - d. PLACE WITH BUCKETS OR OTHER MEANS PERMITTING VISUAL VERIFICATION THAT ONLY ENOUGH SLURRY MIX IS DEPOSITED IN THE VICINITY OF THE CONCRETE POUR TO MEET THE THICKNESS REQUIREMENTS.

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AGENCY

REGISTERED PROFESSIONAL ENGINEER — JESSE L. SHOCKLEE — 1/31/2025 — NO. 12506737-2202 — STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

GENERAL STRUCTURAL NOTES

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-S-001

CAST-IN-PLACE CONCRETE CONTINUED

e. PLACE CONCRETE OVER SLURRY MIX WHILE SLURRY MIX IS STILL FLOWABLE.
f. LIMIT INITIAL CONCRETE PLACEMENT ON TOP OF SLURRY MIX TO 12-INCHES IN THICKNESS. THOROUGHLY VIBRATE AND CONSOLIDATE CONCRETE AND SLURRY MIX TOGETHER.
g. CONCRETE CURING. CONCRETE SHALL BE MAINTAINED ABOVE 50-DEGREES F AND IN A MOIST CONDITION FOR AT LEAST 7 DAYS AFTER PLACEMENT, EXCEPT WHEN CURED IN ACCORDANCE WITH ACI 308 GUIDE TO CURING CONCRETE.

I. COLD WEATHER REQUIREMENTS. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING FREEZING OR NEAR-FREEZING WEATHER. THE RECOMMENDED PROCEDURES LISTED IN ACI 306; COLD WEATHER CONCRETING SHALL BE FOLLOWED.
   a. COLD WEATHER IS DEFINED AS A PERIOD WHEN, FOR MORE THAN 3 CONSECUTIVE DAYS, THE FOLLOWING CONDITIONS EXIST:
      1. THE AVERAGE DAILY AIR TEMPERATURE IS LESS THAN 40-DEGREES F AND
      2. THE AIR TEMPERATURE IS NOT GREATER THAN 50-DEGREES F FOR MORE THAN ONE-HALF OF ANY 24-HOUR PERIOD.

J. HOT WEATHER REQUIREMENTS. DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION, AND CURING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES OR WATER EVAPORATION THAT COULD IMPAIR REQUIRED STRENGTH OR SERVICEABILITY OF THE MEMBER OR STRUCTURE. THE RECOMMENDED PROCEDURES LISTED IN ACI 305; HOT WEATHER CONCRETING SHALL BE FOLLOWED.
   a. HOT WEATHER IS ANY COMBINATION OF THE FOLLOWING CONDITIONS THAT TENDS TO IMPAIR THE QUALITY OF FRESHLY MIXED OR HARDENED CONCRETE BY ACCELERATING THE RATE OF MOISTURE LOSS AND RATE OF CEMENT HYDRATION, OR OTHERWISE CAUSING DETRIMENTAL RESULTS:
      1. HIGH AMBIENT TEMPERATURE.
      2. HIGH CONCRETE TEMPERATURE.
      3. LOW RELATIVE HUMIDITY.
      4. WIND SPEED.
      5. SOLAR RADIATION.

5. FORMWORK
   A. FORMS SHALL RESULT IN A FINAL STRUCTURE THAT CONFORMS TO SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE DESIGN DRAWINGS AND SPECIFICATIONS.
      a. DESIGN OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 318/350 SECTION 6.1.
      b. FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347; GUIDE TO FORMWORK FOR CONCRETE.
   B. SPECIAL FORMWORK DESIGN. FORMWORK AS LISTED IN THIS SECTION SHALL BE DESIGNED PER CHAPTER 2 OF ACI 347 BY A PROFESSIONAL STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF *UTAH*. DESIGN CALCULATIONS AND FORMWORK PLANS AND DETAILS, SEALED AND SIGNED BY THE FORMWORK ENGINEER OF RECORD SHALL BE SUBMITTED UNDER THE DEFERRED SUBMITTAL SECTION OF THE PROJECT SPECIFICATIONS. SUBMIT SPECIAL FORMWORK DESIGNS FOR THE FOLLOWING ITEMS:
   C. TOLERANCES FOR FINISHED CONCRETE SURFACES SHALL MEET THE FOLLOWING REQUIREMENTS, CLASS OF SURFACE IS PER ACI 347R-14 TABLE 5.3.1:
      a. FOOTINGS: CLASS C
      b. FOUNDATION WALLS: CLASS B
      c. ABOVE GRADE CONCRETE NOT VISIBLE TO SIGHT: CLASS B
      d. ABOVE-GRADE CONCRETE VISIBLE TO SIGHT: CLASS A
   D. REMOVAL OF FORMS.
      a. CONCRETE FORMS SHALL NOT BE REMOVED UNTIL THE RETAINED CONCRETE HAS REACHED THE FOLLOWING MINIMUM PERCENTAGE OF THE REQUIRED 28 DAY COMPRESSIVE STRENGTH:
         1. FOOTINGS AND BASE SLABS ON GRADE: 50% OF F'_c.
         2. FOUNDATION WALLS AND COLUMNS: 67% OF F'_c.
         3. ELEVATED STRUCTURAL SLABS, BEAMS AND JOISTS: 95% F'_c.
      b. WHERE CONCRETE CYLINDER TESTS ARE NOT AVAILABLE FOR STRENGTH VERIFICATION THE FOLLOWING GUIDE MAY BE USED WHEN PERMITTED BY THE PROJECT ENGINEER:
         1. FOOTINGS AND BASE SLABS ON GRADE: 12 HOURS.
         2. FOUNDATION WALLS AND COLUMNS: 24 HOURS.
         3. ELEVATED STRUCTURAL SLABS, BEAMS AND JOISTS:
            - SPANS UNDER 10-FEET: 4 DAYS
            - SPANS BETWEEN 10-FEET AND 15-FEET: 7 DAYS.
            - SPANS BETWEEN 15-FEET AND 20-FEET: 10 DAYS
            - SPANS GREATER THAN 20-FEET: BY CYLINDER STRENGTH VERIFICATION ONLY.
   E. EMBEDMENTS IN CONCRETE.
      a. CONDUITS, PIPES, AND SLEEVES OF ANY MATERIAL NOT HARMFUL TO CONCRETE AND WITHIN LIMITATIONS OF ACI 318/350 SECTION 6.3 SHALL BE PERMITTED TO BE EMBEDDED IN CONCRETE WITH APPROVAL OF THE PROJECT ENGINEER, PROVIDED THEY ARE NOT CONSIDERED TO REPLACE STRUCTURALLY THE DISPLACED CONCRETE, EXCEPT AS PROVIDED IN SECTION 6.3.6.
      b. CONDUITS AND PIPES OF ALUMINUM SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.
   F. CONSTRUCTION JOINTS.
      a. CONSTRUCTION JOINTS SHALL ONLY BE PLACED WHERE INDICATED ON THE PROJECT DRAWINGS OR AS APPROVED BY THE PROJECT ENGINEER.
      b. CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318/350 SECTION 6.4

6. DETAILS OF REINFORCEMENT
   A. PLACEMENT OF ALL REINFORCING STEEL WITHIN CONCRETE STRUCTURES SHALL BE IN CONFORMANCE WITH ACI 318/350 CHAPTER 7.
   B. REINFORCING STEEL HOOKS, BENDS, TIES, SPLICES AND OTHER REINFORCEMENT DETAILS SHALL BE IN ACCORDANCE WITH ACI 315; DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
   C. SPACING LIMITS FOR REINFORCEMENT SHALL BE IN CONFORMANCE WITH ACI 318/350 SECTION 7.6.
   D. CONCRETE PROTECTION FOR REINFORCEMENT. UNLESS NOTED ELSEWHERE ON THE DRAWINGS, ALL REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER:
      a. FOR NON-LIQUID CONTAINING CONCRETE STRUCTURES; PER ACI 318 SECTION 7.7:
         1. CONCRETE CAST AGAINST EARTH: 3.00 INCH
         2. CONCRETE EXPOSED TO EARTH OR WEATHER;
            A. NO. 5 OR SMALLER BARS: 1.50-INCH
            B. NO. 6 OR LARGER BARS: 2.00-INCH
         3. CONCRETE NOT EXPOSED TO EARTH OR WEATHER;
            A. NO. 11 OR SMALLER BARS: 0.75-INCH
            B. NO. 14 OR LARGER BARS: 1.50-INCH
         4. BEAMS AND COLUMNS;
            A. PRIMARY REINFORCEMENT, TIES, STIRRUPS OR SPIRALS: 1.50-INCH
      b. FOR LIQUID CONTAINING CONCRETE STRUCTURES; PER ACI 350 SECTION 7.7:
         1. CONCRETE CAST AGAINST EARTH: 3.00 INCH
         2. CONCRETE EXPOSED TO EARTH, LIQUID OR WEATHER;
            A. SLABS AND JOINTS: 2.00-INCH
            B. WALLS: 2.00-INCH
         3. BEAMS AND COLUMNS;
            A. TIES, STIRRUPS OR SPIRALS: 2.00-INCH
            B. PRIMARY REINFORCEMENT: 2.50-INCH
         4. FOOTINGS AND BASE SLABS;
            A. FORMED SURFACES: 2.00-INCH
            B. TOP OF FOOTINGS AND BASE SLABS: 2.00-INCH
   E. CONCRETE BLOCKS OR PLASTIC-COATED BAR CHAIRS SHALL BE PROVIDED FOR SUPPORT OF ALL SLAB REINFORCING STEEL, SUFFICIENT IN NUMBER TO PREVENT SETTLEMENT OR SAGGING, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS. METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUB-GRADE.
   F. DOWELS AND ANCHOR BOLTS SHALL BE WIRED OR OTHERWISE HELD IN CORRECT POSITION PRIOR TO PLACING CONCRETE. CARE SHALL BE TAKEN TO INSURE THAT DOWELS AND ANCHOR BOLTS REMAIN PLUM AFTER CONCRETE IS POURED AND VIBRATED. IN NO CASE SHALL DOWELS OR ANCHOR BOLTS BE STABBED INTO FRESHLY POURED CONCRETE!
   G. PROVIDE DOWELS IN FOOTINGS AND AT CONSTRUCTION JOINTS TO MATCH VERTICAL REINFORCING BAR SIZE AND SPACING, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
   H. COORDINATE PLACEMENT OF DOWELS INTO MASONRY OR BRICK WALLS WITH THE MASONRY SHOP DRAWINGS.
   I. WHERE DRILLED IN ANCHORS ARE TO BE POST-INSTALLED INTO CONCRETE SURFACES TAKE CARE TO LOCATE REINFORCING STEEL SO THAT IT WILL NOT INTERFERE WITH THE DRILLING OPERATIONS. MOVE BARS PLUS OR MINUS 1 TO 2 INCHES IN ORDER TO AVOID DRILLING CONFLICTS.
   J. ALL BAR BENDS, HOOKS, SPLICES AND OTHER REINFORCING STEEL DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ACI 315.
   K. UNLESS OTHERWISE NOTED ON THE PLANS ALL BARS SHALL BE SPLICED WITH A MINIMUM CLASS B LAP SPLICE; LAP SPLICES OF DEFORMED BARS AND DEFORMED WIRE IN COMPRESSION ZONES MAY BE CLASS A SPLICES.
   L. AT ALL CORNERS AND WALL INTERSECTIONS PROVIDE BENT BARS TO MATCH THE HORIZONTAL REINFORCING STEEL AND IN ACCORDANCE WITH THE TYPICAL CORNER REINFORCING DETAILS.
   M. CHAMFER ALL EXPOSED CORNERS AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CAST-IN-PLACE CONCRETE CONTINUED

N. WATERSTOP. ALL CONTROL AND CONSTRUCTION JOINTS IN LIQUID-RETAINING STRUCTURES SHALL BE DOWELED, KEYED AND PROVIDED WITH CONTINUOUS WATER-STOP, PER THE TYPICAL DETAILS, TECHNICAL SPECIFICATIONS OR AS DIRECTED BY THE PROJECT ENGINEER.
O. AT SLAB AND WALL OPENINGS PROVIDE A MINIMUM OF (4) #5 BARS; OVER, UNDER AND AT EITHER SIDE OF THE OPENINGS. EXTEND THESE BARS A MINIMUM OF 24" PAST THE OPENING EDGE. PROVIDE (1) MATT OF (4) #5 BARS FOR WALLS OR SLABS WITH SINGLE-LAYER REINFORCING AND (2) MATTS OF (4) #5 BARS FOR DOUBLE-LAYER REINFORCING WALLS OR SLABS. PROVIDE #4, 4'-0" LONG DIAGONAL BARS AT EACH RE-ENTRANT CORNER IN SLABS; (1) BAR FOR SLABS WITH SINGLE LAYER REINFORCING AND (2) BARS FOR SLABS WITH DOUBLE LAYER REINFORCING.

7. CONCRETE FINISHING. ALL CONCRETE SURFACES SHALL BE FINISHED IN ACCORDANCE WITH ACI 301.
   A. FORMED CONCRETE SURFACES. AFTER REMOVAL OF FORMS, GIVE EACH FORMED SURFACE ONE OR MORE OF THE FOLLOWING FINISHES IN CONFORMANCE WITH ACI 301 SECTION 5.3.3 FINISHING FORMED SURFACES.
      a. NON-LIQUID RETAINING CONCRETE STRUCTURES:
         1. CONCRETE FOOTINGS AND FOUNDATIONS NOT EXPOSED TO VIEW. PROVIDE AN AS-CAST FINISH.
         2. FOUNDATION WALL AND OTHER SURFACES BELOW GRADE AND NOT EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-1.0.
         3. INTERIOR, EXTERIOR AND TOP SURFACES EXPOSED TO VIEW TO 6-INCHES BELOW GRADE. PROVIDE A SURFACE FINISH TYPE SF-2.0.
         4. COLUMN, BEAM AND JOIST SURFACES THAT ARE EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-2.0.
         5. INTERIOR CONCRETE SURFACES TO BE PAINTED OR RECEIVE OTHER COATING SYSTEMS SHALL RECEIVE A SURFACE FINISH TYPE SF-3.0.
      b. LIQUID RETAINING CONCRETE STRUCTURES:
         1. INTERIOR SURFACES FROM TOP OF WALL TO FLOOR SLAB, EXTERIOR AND TOP SURFACES EXPOSED TO VIEW TO 6-INCHES BELOW GRADE. PROVIDE A GROUT-CLEANED FINISH. PRESSURE-WASH ALL CONCRETE SURFACES TO RECEIVE A GROUT-CLEANED FINISH WITH HIGH-PRESSURE WATER PRIOR TO GROUTING. (ALTERNATE, PROVIDE A SURFACE FINISH TYPE SF-3.0.)
         2. SURFACES BELOW GRADE AND NOT EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-2.0.
      c. SPECIAL OR ARCHITECTURAL FINISHES: REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR SPECIAL OR ARCHITECTURAL FINISH REQUIREMENTS.
   B. UNFORMED CONCRETE SURFACES. UNFORMED CONCRETE SURFACES INCLUDING THE TOP SURFACE OF ALL CONCRETE ROOF AND FLOOR SLABS SHALL BE FINISHED IN ACCORDANCE WITH ACI 301 SECTION 5.3.4 AND ACI 302 CHAPTER 8.
      a. FOR THE TOP SURFACES OF WALLS, PROVIDE A SCRATCHED FINISH.
      b. INTERIOR OFFICES, LABORATORY SPACES AND OTHER AREAS RECEIVING ONLY LIGHT FOOT TRAFFIC SHALL RECEIVE A TROWELED FINISH.
      c. INTERIOR GARAGE, INDUSTRIAL OR WORK AREAS SUBJECT TO EQUIPMENT OR TRAFFIC LOADS SHALL RECEIVE A BROOM FINISH.
      d. PROVIDE A NONSLIP FINISH FOR EXTERIOR SURFACES AND WHERE INDICATED ON THE PLANS.
      e. REFER TO THE ARCHITECTURAL PLANS FOR FINISH REQUIREMENTS FOR FLOORS TO RECEIVE ARCHITECTURAL COVERINGS.
   C. SAWED CONTRACTION JOINTS. CONFORM TO ACI 301 SECTION 5.3.5.

CONCRETE FLOORS AND SLABS

1. CONCRETE FLOORS AND SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302; CONCRETE FLOOR AND SLAB CONSTRUCTION. PROVIDE THE FOLLOWING CLASS CONCRETE FLOOR SLABS IN ACCORDANCE WITH TABLE 2.1 UNLESS OTHERWISE NOTED ON THE DRAWINGS:
   A. INTERIOR OFFICES, LABORATORY SPACES AND OTHER AREAS RECEIVING ONLY LIGHT FOOT TRAFFIC: CLASS 1 OR 2 FLOOR DEPENDING ON FINAL FLOOR COVERING.
   B. INTERIOR GARAGE, INDUSTRIAL OR WORK AREAS SUBJECT TO EQUIPMENT OR TRAFFIC LOADS: CLASS 6 FLOOR WITH A SPECIAL METALLIC OF MINERAL AGGREGATE SURFACE HARDENER.
   C. EXTERIOR STRUCTURAL FLOOR SLABS SUBJECT TO FOOT AND MAINTENANCE TRAFFIC LOADS: CLASS 4 OR 5 FLOOR. PROVIDE A NONSLIP FINISH TO ALL WALKING SURFACES.
2. PLACING, CONSOLIDATING, AND FINISHING. FOLLOW THE RECOMMENDATIONS GIVEN IN CHAPTER 8.

WATER-RETAINING CONCRETE STRUCTURES

1. CONCRETE TANKS, VAULTS, WELLS AND OTHER STRUCTURES INTENDED TO RETAIN AND HOLD WATER OR OTHER LIQUIDS SHALL BE WATER-TIGHT STRUCTURES. THE WATER-RESISTING WALLS AND FLOOR SLABS SHALL BE OF MONOLITHIC CONCRETE CONSTRUCTION WITH WATER-TIGHT JOINTS, CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE PROJECT ENGINEER. WATER-RESISTING WALLS AND FLOORS SHALL BE UNIFORM IN FINISHED CONSTRUCTION FREE OF SPALLS, POCKETS, BLEMISHES AND OR CRACKS THAT MAY WEEP OR LEAK.
2. CRACKS FOUND IN WATER-RESISTING WALLS, FLOORS AND/OR FOUNDATION SLABS THAT MAY WEEP OR LEAK SHALL BE REPAIRED AND/OR SEALED PER THE PROJECT SPECIFICATIONS, NOTES OR AS APPROVED BY THE PROJECT ENGINEER.

PLANT PRECAST STRUCTURAL CONCRETE MEMBERS

1. REFERENCES
   A. PRECAST-PRESTRESSED CONCRETE INSTITUTE
      a. PCI MNL-116: MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF STRUCTURAL PRECAST CONCRETE PRODUCTS.
      b. PCI MNL-120: PCI DESIGN HANDBOOK, PRECAST AND PRESTRESSED CONCRETE
      c. PCI MNL-123: DESIGN AND TYPICAL DETAILS OF CONNECTIONS FOR PRECAST AND PRESTRESSED CONCRETE.
2. DESIGN REQUIREMENTS
   A. SIZE COMPONENTS TO WITHSTAND DESIGN LOADS AS NOTED IN DESIGN CRITERIA AND GOVERNING CODES AND REGULATIONS.
   B. MAXIMUM MEMBER ALLOWABLE DEFLECTION SHALL BE PER AASHTO CRITERIA.
   C. DESIGN PRECAST, PRESTRESSED MEMBERS UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN THE STATE OF UTAH
3. QUALITY ASSURANCE
   A. PERFORM WORK IN ACCORDANCE WITH THE REQUIREMENTS OF PCI MNL-116, PLI MNL-123 AND PCI MNL-120.
4. ACCESSORIES
   A. BEARING PADS: NEOPRENE TO SHORE A DUROMETER 55 TO 65.
5. FABRICATION
   A. CONFORM TO PCI MNL-116
6. FINISHES
   A. FINISH EXPOSED-TO-VIEW SURFACES OF PRECAST CONCRETE MEMBERS UNIFORM IN COLOR AND APPEARANCE.
   B. CURE MEMBERS UNDER IDENTICAL CONDITIONS TO DEVELOP REQUIRED CONCRETE QUALITY, AND MINIMIZE APPEARANCE BLEMISHES INCLUDING NON-UNIFORMITY, STAINING, OR SURFACE CRACKING.
   C. FINISH MEMBERS TO PCI MNL-116 STANDARD GRADE.
7. FABRICATION TOLERANCES
   A. CONFORM TO PCI MNL-116.
8. ERECTION
   A. ERECT MEMBERS WITHOUT DAMAGE TO STRUCTURAL CAPACITY, SHAPE, OR FINISH. REPLACE OR REPAIR DAMAGED MEMBERS.
   B. ALIGN AND MAINTAIN UNIFORM HORIZONTAL AND VERTICAL JOINTS, AS ERECTION PROGRESSES.
   C. MAINTAIN TEMPORARY BRACING IN PLACE UNTIL FINAL SUPPORT IS PROVIDED.
   D. ADJUST DIFFERENTIAL CAMBER BETWEEN PRECAST MEMBERS TO TOLERANCE BEFORE FINAL ATTACHMENT.
   E. INSTALL BEARING PADS AS NOTED AND WHERE REQUIRED TO PROVIDE UNIFORM AND EVEN BEARING OF PRECAST MEMBERS. PREVENT MOVEMENT OF BEARING PADS PRIOR TO FINAL ASSEMBLY.
   F. LEVEL DIFFERENTIAL ELEVATION OF ADJOINING HORIZONTAL MEMBERS WITH NON-SHRINK GROUT.
9. ERECTION TOLERANCES
   A. CONFORM TO PCI MNL-116.

ALUMINUM

1. RAISED PATTERN FLOOR PLATE: ASTM B632 TYPE 6061-T6; F_y: 35 KSI
2. STRUCTURAL PLATES & SHAPES: ASTM B221 TYPE 6061-T6; F_y: 35 KSI

STAINLESS STEEL

1. ALL STEEL NOTED AS STAINLESS INCLUDING SHAPES, PLATES, BARS, PIPE, TUBING, FASTENERS, ANCHOR RODS AND ASSOCIATED MISCELLANEOUS STEEL ITEMS SHALL BE STAINLESS STEEL, GRADE 304 OR 316; UNLESS SPECIFICALLY NOTED OTHERWISE.
2. STRUCTURAL SHAPES, PLATES & BARS: ASTM A276 WITH F_y: 30 KSI.
3. STRUCTURAL STEEL TUBING: ROUND, SQUARE OR RECTANGULAR STRUCTURAL STEEL TUBING SHALL BE ASTM A847 WITH F_y: 35 KSI.
4. STRUCTURAL BOLTS: ASTM A593 GRADE G OR H, MINIMUM F_y: 65 KSI.
5. NUTS: ASTM A594 GRADE C OR D, HEAVY HEX NUTS.
6. WASHERS: STAINLESS STEEL GRADE 304 OR 316, MINIMUM F_y: 30 KSI.
7. ANCHOR RODS (SET IN CONCRETE): ASTM A593 GRADE 304, MIN. F_y: 30 KSI.
8. THREADED BRACING RODS: ASTM A193 GRADE B8, MINIMUM F_y: 65 KSI
9. PIPE: ASTM A790, MINIMUM F_y: 30 KSI.
10. ROUND OR SQUARE TUBING: TUBING SHALL CONFORM TO ASTM A269, MINIMUM F_y: 35 KSI.

STRUCTURAL STEEL

1. STRUCTURAL MATERIALS
   A. W & WT SHAPES: ASTM A992 GRADE 50, F_y: 50 KSI.
   B. M, S, C, MC & L SHAPES: ASTM A36, F_y: 36 KSI.
   C. PLATES, BARS, CHANNELS & ANGLES: ASTM A36, F_y: 36 KSI.
   D. STEEL PIPE: ASTM A53 GRADE B, F_y: 35 KSI.
   E. SQUARE, RECTANGULAR HSS, STEEL TUBING: ASTM A500 GRADE C, F_y: 50 KSI.
   F. RAISED PATTERN FLOOR PLATE: ASTM A786. F_y: 36 KSI.
2. WELDING OF STRUCTURAL STEEL
   A. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AWS STRUCTURAL WELDING CODE D1.1-02
   B. WELD METAL: FEXX: 70 KSI, TYPICAL UNLESS OTHERWISE NOTED OR REQUIRED BY AWS.
   C. ALL WELDERS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING AGENCY.
   D. ALL WELDERS SHALL BE CURRENTLY LISTED WITH WABO. (FOR WASHINGTON STATE PROJECTS)
   E. QUALIFICATION OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.
   F. CONTRACTOR SHALL SUBMIT A WPS FOR EACH TYPE 1 MOMENT CONNECTION WELD TO BE PERFORMED ON THE JOB. THE WPS SHALL FOLLOW THE REQUIREMENTS OF AWS D1.1 AND SPECIFY AT A MINIMUM THE FOLLOWING: PROCEDURE IDENTIFICATION , BASE METAL IDENTIFICATION, WELDING PROCESS, TYPE OF WELDING, POSITION OF WELDING, FILLER METAL SPECIFICATIONS, FILLER METAL CLASSIFICATION, NUMBER OF PASSES, WELDING CURRENT, WELDING POLARITY, PRE-HEAT AND INTER-PASS TEMPERATURES, CONTROLLED COOLING REQUIREMENTS, WELDING PARAMETERS SUCH AS ELECTRODE DIAMETER, AMPERAGE RANGE, VOLTAGE RANGE, TRAVEL SPEED RANGE, WIRE FEED SPEED RANGE, AND ELECTRICAL STICK-OUT.

STEEL JOISTS AND JOIST GIRDERS

1. STEEL ROOF AND FLOOR JOISTS AND JOIST GIRDERS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS, CURRENT EDITION.
   A. BRACING, HORIZONTAL BRIDGING, AND ALL REQUIRED CONNECTING HARDWARE SHALL BE DESIGNED AND SUPPLIED BY THE JOIST MANUFACTURER IN ACCORDANCE WITH SJI RECOMMENDATIONS.
   B. STEEL JOISTS SHALL BE STORED, HANDLED, AND INSTALLED PER THE MANUFACTURERS AND THE SJI WRITTEN RECOMMENDATIONS.

STEEL ROOF AND FLOOR DECKING

1. ALL STEEL ROOF DECKING SHALL BE FABRICATED FROM ASTM A653 STEEL, F_y: 33 KSI, CLASS G-60 COATING. STEEL FLOOR DECKING SHALL BE FABRICATED FROM ASTM A611 STEEL, F_y: 38 KSI, WITH SHOP PAINTED FINISH. DECKING SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
   A. ROOF: DEPTH: 1.5", TYPE HSB-36, 20 GAG, I_x: .187 IN^4, S_x: .175 IN^3
   B. FLOOR: DEPTH: 1.5", TYPE B FORMLOCK, 22 GAGE, I_x: .187 IN^4, S_x: .175 IN^3
2. STEEL ROOF & FLOOR DECKING CONNECTIONS
   A. METAL DECKING CONNECTIONS AS INDICATED ARE SYMMETRICAL THROUGHOUT THE ROOF AND/OR FLOOR WITH THE DECKING WELDED TO ALL SUPPORTING BEAMS, JOISTS AND WALLS.
   B. ATTACH ALL ROOF DECKING AS FOLLOWS:
      a. TO ALL SUPPORTING MEMBERS & DIAPHRAGM BOUNDARIES USE:
         1. 5/8-IN. DIAMETER PUDDLE WELDS AT 6-IN. O.C.
         2. #12 SELF-DRILLING SCREWS @ 6" O.C.
         3. HILTI X-EDN-19 FASTENERS @ 6" O.C.
         4. PNEUTEK SDK61 FASTENERS @ 6" O.C.
      b. FASTEN SIDE-LAPS WITH:
         1. #10 TEK SCREWS @ 12-IN. O.C. (FOR NESTABLE LAPS ONLY)
         2. BUTTON PUNCH @ 12" O.C. (FOR STANDING SEAM SIDE LAPS)
         3. DELTAGRIP SIDE SEAM ATTACHMENTS @ 12" O.C.
   C. LAP ALL ROOF DECKING A MINIMUM OF 2" OVER SUPPORTS.
   D. ATTACH ALL FLOOR DECKING AS FOLLOWS:
      a. USE 5/8-IN. DIAMETER PUDDLE WELDS AT 12-IN. O.C. TO ALL SUPPORTING MEMBERS AND DIAPHRAGM BOUNDARY MEMBERS.
      b. NO SIDE LAP FASTENERS REQUIRED.
      c. LAP ALL FLOOR DECKING A MINIMUM OF 2-IN. OVER SUPPORTS OR BUTT MEMBERS TOGETHER AND FASTEN EACH SHEET INDIVIDUALLY TO SUPPORTING MEMBER.

OVERHEAD MONORAIL AND BRIDGE HOIST SYSTEMS & COMPONENTS

1. THE OVERHEAD HOIST SYSTEM AND ASSOCIATED COMPONENTS SHALL BE DESIGNED, FABRICATED AND ERECTED AS INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
2. THE DESIGNER/MANUFACTURER SHALL BE AN APPROVED FIRM SPECIALIZING IN THE DESIGN AND FABRICATION OF OVERHEAD HOIST SYSTEMS OF THE TYPES NOTED ON THE PLANS WITH A CONTINUOUS HISTORY OF OPERATION OF AT LEAST 6 YEARS.
3. THE HOIST SYSTEM FURNISHED SHALL BE A COMPLETE SYSTEM, ABLE ON IT'S OWN TO WITHSTAND ALL DESIGN FORCES AS REQUIRED BY THE CODES LISTED ON THE PLANS AND SPECIFICATIONS AND AS REQUIRED BY THE DESIGN/MANUFACTURING CODES PERTINENT TO THE TYPE OF SYSTEM SPECIFIED.
4. DESIGN OF THE HOIST, SUPPORTING MEMBERS, COMPONENTS AND CONNECTIONS SHALL BE SUPERVISED BY A PROFESSIONAL ENGINEER, SPECIALIZING IN HOIST SYSTEM DESIGN. ALL PLANS AND CALCULATIONS SUBMITTED FOR THIS PROJECT SHALL BE STAMPED AND SIGNED BY THIS ENGINEER.
5. THE GENERAL HOIST CONFIGURATION, INCLUDING SUPPORT LOCATION, OPERATION WEIGHTS AND HEIGHTS SHALL BE AS SHOWN ON THE PLANS AND IN THE SPECIFICATIONS. HOIST SUPPORT SYSTEMS SHALL BE DESIGNED TO BEAR ON THE STRUCTURAL MEMBERS PROVIDED AND SHOWN ON THE STRUCTURAL PLANS. NO DEVIATION FROM THESE REQUIREMENTS SHALL BE MADE WITHOUT APPROVAL OF THE PROJECT ENGINEER.
6. FINAL DESIGN AND SIZING OF ALL MEMBERS AND CONNECTIONS SHALL BE BY THE HOIST SYSTEM DESIGNER AND SHALL BE CLEARLY SHOWN ON THE SHOP DRAWING SUBMITTAL.
7. PRIOR TO CONSTRUCTION OF THE SUPPORTING MEMBERS, THE HOIST SYSTEM DESIGNER SHALL FURNISH TO THE PROJECT ENGINEER A SYSTEM :FRAMING PLAN" WITH ALL ANCHORAGE AND BEARING REQUIREMENTS SHOWN AND A COMPLETE SET OF "HOIST SYSTEM ANCHORAGE REACTIONS". THE PURPOSE OF THIS SUBMITTAL IS TO ALLOW THE PROJECT ENGINEER TO REVIEW THE SUPPORT SYSTEM DESIGN FOR CONFORMANCE WITH THE FINAL DESIGN REACTIONS. IF ADJUSTMENT TO THE SUPPORT SYSTEM IS REQUIRED, THE ENGINEER SHALL REPORT SUCH CHANGED TO THE OWNER/ARCHITECT FOR COORDINATION WITH THE CONTRACTOR.

COATING OF METALS

1. ALUMINUM AND DISSIMILAR METAL INSULATION COATING
   A. ALL ALUMINUM SURFACES IN CONTACT WITH CEMENTITIOUS MATERIALS AND DISSIMILAR METAL SURFACES IN CONTACT WITH EACH OTHER SHALL BE INSULATION AGAINST CORROSION.
   B. PREPARE SURFACES BY SOLVENT CLEANING (SP 1).
   C. APPLY (1) COAT OF SINGLE-COMPONENT, COAL-TAR PITCH BASED BITUMINOUS PANT.
   D. MINIMUM COVER SHALL BE 10 MDFT.
2. PAINTING OF EXTERIOR STRUCTURAL STEEL
   A. ALL EXTERIOR STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE PAINTED IN CONFORMANCE WITH THIS SECTION.
   B. PAINTING SHALL BE IN CONFORMANCE WITH THE UTAH TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2004 EDITION.
   C. PAINTING SHALL BE IN CONFORMANCE WITH SECTION 627 - PAINTING.
   D. PAINT MATERIALS SHALL CONFORM WITH SECTION 707 – PAINT.
   E. COLORS SHALL BE AS APPROVED BY THE PROJECT ARCHITECT/ENGINEER OR OWNER.
   F. SUBMIT COLOR CHIPS TO THE PROJECT ARCHITECT/ENGINEER OR OWNER FOR THEIR APPROVAL PRIOR TO ORDERING MATERIALS.
3. ALL STRUCTURAL AND MISCELLANEOUS METALS SHALL BE PROTECTED FROM CORROSION WITH ONE OF THE FOLLOWING SYSTEMS:
   A. STAINLESS STEEL:
      a. UN-COATED.
   B. STEEL:
      a. HOT-DIP GALVANIZED STEEL.
      b. PAINTED.
   C. ALUMINUM:
      a. ANODIZED.
      b. PAINTED.
   D. REFER TO SPECIFICATION 09900 OF THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
   E. STRUCTURAL STEEL INCLUDES HOT-ROLLED STEEL FRAMING, BRACING, STEEL BAR JOISTS AND GIRDERS.
   F. MISCELLANEOUS STEEL INCLUDES METAL STAIRS, WALKWAYS, GRATED FLOORS AND SUPPORTS, AND METAL RAILINGS AND GUARD RAILS.
   G. REFER TO OTHER SECTIONS FOR COATING REQUIREMENTS FOR ALL EQUIPMENT, PIPING, MECHANICAL, ELECTRICAL, ARCHITECTURAL AND SUBMERGED METAL ITEMS.
4. ALUMINUM TO BE ANODIZED SHALL BE COATED AS FOLLOWS:
   A. ALL EXPOSED SURFACES SHALL RECEIVE AN ANODIZED FINISH IN CONFORMANCE WITH ALUMINUM ASSOCIATIONS STANDARD SSA-46 OR AAMA 611 STANDARD.
   B. PROCESS SHALL BE SULFURIC OR EQUIVALENT ANODIZING WITH ELECTROLYTIC OR IMMERSION DEPOSITED INORGANIC PIGMENTATION IN THE COATING.
   C. THE RESULTING ANODIZED FINISH SHOULD BE CONTINUOUS, FULLY SEALED AND FREE OF POWDERY SURFACES, SMUT AND BLEMISHES.
   D. ANODIC FILM THICKNESS SHALL BE .0002 INCH MINIMUM.
5. ALUMINUM TO BE PAINTED SHALL BE COATED AS FOLLOWS:
   A. SURFACES PREPARED IN ACCORDANCE WITH SSPC-SP-1.
   B. SURFACES PRIMED WITH KEM BOND HS PRIMER.
   C. FINISH COAT TO BE PRO INDUSTRIAL URETHANE ALKYD ENAMEL.
   D. REFERENCE SHERMAN WILLIAMS OR APPROVED EQUAL.
6. HOT DIP GALVANIZING SHALL BE IN CONFORMANCE WITH:
   A. ASTM A123 *STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS* COVERS THE REQUIREMENTS FOR GALVANIZING BY THE HOT-DIP PROCESS ON IRON AND STEEL PRODUCTS MADE FROM ROLLED, PRESSED, AND FORGED SHAPES, CASTINGS, PLATES, BARS, AND STRIPS.
   B. ASTM A153 *STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE* COVERS ZINC COATINGS APPLIED BY THE HOT-DIP PROCESS ON IRON AND STEEL HARDWARE. IT IS INTENDED TO BE APPLICABLE TO HARDWARE ITEMS THAT ARE CENTRIFUGED OR OTHERWISE HANDLED TO REMOVE EXCESS ZINC. ASTM A153 ALSO CONTAINS INFORMATION ON MINIMUM COATING THICKNESS AS WELL AS FINISH AND ADHERENCE REQUIREMENTS.
7. PAINTING OF STEEL SHALL BE IN CONFORMANCE WITH THE SOCIETY FOR PROTECTIVE COATINGS, SSPC, LATEST RECOMMENDATIONS.
8. FOR METAL IN A NON-CORROSIVE ENVIRONMENT:
   A. SURFACES PREPARATION:
      a. SSPC-SP1 SOLVENT CLEANING.
      b. SSPC-SP6 COMMERCIAL BLAST CLEANING.
   B. COATINGS.
      a. PRIMER: POLYAMIDE EPOXY. 3.0 TO 4.0 MDFT
      b. FINISH COAT: ACRYLIC POLYURETHANE. 2.0 TO 3.0 MDFT.
9. FOR METAL IN A CORROSIVE ENVIRONMENT:
   A. SURFACES PREPARATION:
      a. SSPC-SP1 SOLVENT CLEANING.
      b. SSPC-SP10 NEAR WHITE BLAST CLEANING WITH A SURFACE PROFILE OF 1.5 TO 3.0 MILS.
   B. COATINGS.
      a. PRIMER: POLYAMIDE EPOXY. 3.0 TO 4.0 MDFT
      b. STRIPE COAT: POLYAMIDOAMINE EPOXY; 3.0 TO 4.0 MDFT.
      c. INTERMEDIATE COAT: POLYAMIDOAMINE EPOXY; 3.0 OT 4.0 MDFT.
      d. FINISH COAT: ACRYLIC POLYURETHANE. 2.0 TO 3.0 MDFT.
10. THE PROJECT ENGINEER SHALL HAVE FINAL SAY AS TO THE DETERMINATION OF WHAT IS A "NON-CORROSIVE" VERSUS A "CORROSIVE" ENVIRONMENT.
11. PAINTING OF ALUMINUM SHALL BEIN
12. COLORS SHALL BE AS APPROVED BY THE PROJECT ENGINEER OR OWNER.
13. SUBMIT COLOR CHIPS TO THE PROJECT ENGINEER OR OWNER FOR THEIR APPROVAL PRIOR TO ORDERING MATERIALS.

BOLTS AND ANCHOR RODS

1. STRUCTURAL BOLTS: HIGH STRENGTH BOLTS SHALL BE ASTM A325, TYPE 1. NUTS FOR HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A563, GRADE DH, HEAVY HEX.
2. ANCHOR RODS: ANCHOR RODS (BOLTS SET INTO CONCRETE) SHALL BE ASTM F1554, F_y: 55 KSI. NUTS FOR ANCHOR RODS SHALL CONFORM TO ASTM A563, GRADE A, HEAVY HEX.
3. THREADED STEEL RODS: THREADED STEEL RODS SHALL CONFORM TO ASTM A36, F_y: 36 KSI. NUTS FOR THREADED RODS SHALL CONFORM TO ASTM A563, GRADE A, HEAVY HEX.
4. WASHERS: ALL WASHERS SHALL CONFORM TO ASTM F436.
5. BOLT PLACEMENT: ALL BOLTS SHALL BE ON MEMBER STANDARD GAGE LINES EXCEPT AS NOTED OTHERWISE.
6. BLIND SIDE FASTENERS: WHERE BOLTED CONNECTIONS ARE INDICATED TO BE MADE TO HSS SHAPES OR WHERE ACCESS IS UNAVAILABLE TO THE BACK SIDE OF THE FASTENER PROVIDE TYPE HB - HOLLO-BOLT BY LINDAPTER OR APPROVED EQUAL. BOLT SIZE SHALL BE AS INDICATED ON THE PLANS FOR THE THICKNESS OF MATERIALS INDICATED TO BE JOINED. INSTALL BOLTS PER THE MANUFACTURER'S SPECIFICATIONS. PROVIDE STAINLESS STEEL FASTENERS FOR ALL EXTERIOR APPLICATIONS

NON-SHRINK GROUT

ALL NON-SHRINK GROUT NOTED ON THE PLANS SHALL BE NON-SHRINK, NON-METALLIC GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 7,000 PSI.

MECHANICAL OPENINGS

1. MECHANICAL OPENINGS ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS; REFER TO MECHANICAL PLANS FOR SIZE AND LOCATIONS.
2. OPENINGS THROUGH METAL ROOF OR FLOOR DECK SHALL BE REINFORCED WITH SECONDARY STEEL FRAMING PER THE TYPICAL DETAILS AND/OR SPECIFICATIONS.
3. OPENINGS THROUGH CONCRETE OR MASONRY WALLS GREATER THAN 6-INCH SQUARE OR 8-INCH ROUND SHALL BE REINFORCED WITH A MINIMUM OF 1-#5 BAR, EACH OF FOUR SIDES, EXTENDING 24" PAST THE OPENING EDGE. IN MASONRY WALLS THE BARS SHALL BE PLACED IN SOLID GROUTED CORES.
4. OPENINGS THROUGH FRAMED WALLS SHALL BE SOLIDLY BLOCKED ON ALL FOUR SIDES WITH FULL HEIGHT STUDS AND TOP AND BOTTOM BLOCKING. PROVIDE A HEADER MEMBER ACROSS THE OPENING PER THE TYPICAL DETAILS WHERE BEARING STUDS ARE INTERRUPTED BY THE OPENING.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

REVISION				
NO.	DESCRIPTION	BY	APR.	DATE

SANTAQUIN WRF PHASE 3 UPGRADES

SANTAQUIN CITY

STRUCUTRAL (S)

GENERAL STRUCTURAL NOTES

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-S-002

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MASONRY

1. MASONRY 28 DAY COMPRESSIVE STRENGTHS FOR GROUT, MORTAR, AND BLOCK
   - A. THE MASONRY ASSEMBLAGE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI. ASSEMBLY SHALL BE VERIFIED PER IBC STANDARDS USING THE UNIT STRENGTH METHOD.
     - a. GROUT: 2,000 PSI
     - b. MORTAR: 1,800 PSI TYPE S
     - c. BLOCK: 2,000 PSI AT 28 DAYS ON THE NET AREA
2. STRUCTURAL MASONRY REQUIREMENTS
   - A. GENERAL. ALL STRUCTURAL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 530.1, SPECIFICATIONS FOR MASONRY STRUCTURES; CURRENT EDITION.
   - B. STRUCTURAL MASONRY UNITS:
     - a. CONCRETE MASONRY UNITS: ALL CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C-90, WITH A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2,000 PSI.
     - b. ALL BLOCK SHALL BE LAID UP WITH A STANDARD RUNNING BOND UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
     - c. PLACE MASONRY UNITS IN ACCORDANCE WITH ACI 530.1 SECTION 3.3, MASONRY ERECTION.
   - C. MORTAR:
     - a. ALL MORTAR FOR USE WITH STRUCTURAL MASONRY UNITS SHALL CONFORM TO ASTM C270, CLASS S AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI.
     - b. MORTAR SHALL BE IN ACCORDANCE WITH ACI 530.1, SECTION 2.1, MORTAR MATERIALS.
   - D. GROUT:
     - a. ALL GROUT FOR USE WITH STRUCTURAL MASONRY UNITS SHALL CONFORM TO ASTM C476 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI.
     - b. GROUT SHALL BE IN ACCORDANCE WITH ACI 530.1, SECTION 2.2, GROUT MATERIALS.
     - c. PLACE GROUT IN ACCORDANCE WITH ACI 530.1, SECTION 3.5, GROUT PLACEMENT.
     - d. GROUT POUR HEIGHT. DO NOT EXCEED THE MAXIMUM GROUT POUR HEIGHT LISTED IN ACI 530.1, TABLE 7.
     - e. GROUT LIFT HEIGHT. DO NOT EXCEED THE MAXIMUM GROUT LIFT HEIGHTS AS DEFINED BY ACI 530.1, SECTION 3.5 D.
   - E. CELLS: FILL ALL CELLS CONTAINING REINFORCING STEEL AND AS DIRECTED ON THE DRAWINGS SOLID FULL HEIGHT WITH GROUT.
   - F. BOND BEAMS: ALL BOND BEAMS SHALL BE GROUTED SOLID TO A MINIMUM HEIGHT OF 8-INCHES.
   - G. LINTELS: ALL MASONRY LINTELS (UNITS OVER WALL OPENINGS GREATER THAN 8-INCHES IN LENGTH) SHALL BE GROUTED SOLID FROM THE BOTTOM OF THE LINTEL TO A TOTAL STRUCTURAL DEPTH AS INDICATED ON THE PLANS, OR 16-IN. MINIMUM. EXTEND THE LENGTH OF SOLID GROUTING PAST THE EDGE OF EACH OPENING AS INDICATED ON THE PLANS OR 8" MINIMUM.
   - H. REINFORCING:
     - a. FABRICATE BARS USED IN MASONRY REINFORCEMENT IN ACCORDANCE WITH THE FABRICATING TOLERANCES OF ACI 315, AND IN ACCORDANCE WITH ACI 530.1, SECTION 2.7.
     - b. PLACE REINFORCEMENT IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 B.
     - c. ALL REINFORCING STEEL SHALL BE IN PLACE AND SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING WITH WIRE TIES, SPACERS OR OTHER SUITABLE DEVICES AT TOPS AND BOTTOMS AND INTERVALS NOT EXCEEDING 192 BAR DIAMETERS NOR 10-FEET.
     - d. BAR PLACEMENT: WHERE ONE VERTICAL BAR IS CALLED FOR IN EACH VERTICAL CORE THE BAR IS TO BE PLACED IN THE CENTER OF THE MASONRY CORE. WHERE TWO VERTICAL BARS ARE CALLED FOR THEY SHALL BE PLACED NEAR EACH WALL FACE WITH 1/5-INCH OF CLEARANCE FOR FINE GROUT AND ½-IN. OF CLEARANCE FOR COURSE GROUT.
     - e. LAPS: WHERE BARS ARE NOT CONTINUOUS LAP ALL BARS AS INDICATED ON THE DRAWINGS. WHERE NOT OTHERWISE INDICATED PROVIDE A MINIMUM VERTICAL LAP SPLICE OF 48 BAR DIAMETERS AND A MINIMUM HORIZONTAL LAP SPLICE OF 32 BAR DIAMETERS.
   - I. ANCHOR BOLTS: ANCHOR BOLTS SHALL BE ACCURATELY SET WITH TEMPLATES OR BY APPROVED EQUIVALENT MEANS AND HELD IN PLACE TO PREVENT MOVEMENT. CONFORM TO ACI 530.1, SECTION 3.4 D.
   - J. WALL TIES: INSTALL WALL TIES IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 C.
   - K. VENEER ANCHORS: INSTALL VENEER ANCHORS IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 E.
   - L. FOUNDATION DOWELS: IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE PLACEMENT OF DOWELS PROJECTING FROM CONCRETE FOUNDATIONS INTO REINFORCED MASONRY OR BRICK WALLS.
   - M. MINIMUM REINFORCING: WHERE REINFORCING IS NOT NOTED ON THE DRAWINGS PROVIDE THE FOLLOWING MINIMUM REINFORCING STEEL:
     - a. 8" WALL: #5 VERTICAL BARS @ 48-INCHES O.C. CENTERED, TWO (2) #4 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C.
   - N. BOND BEAMS WITH TWO (2) #5 BARS HORIZONTALLY SHALL BE PROVIDED AT ALL FLOOR AND ROOF LINES AND AT THE TOP OF WALLS. PROVIDE A BOND BEAM WITH TWO (2) #5 BARS HORIZONTALLY ABOVE AND BELOW ALL OPENINGS, AND EXTEND THESE BARS 2'-0" PAST THE OPENING EDGE. PROVIDE FULL HEIGHT VERTICAL REINFORCEMENT, MATCHING TYPICAL VERTICAL REINFORCING, EACH SIDE OF OPENINGS, AT WALL ENDS AND INTERSECTIONS.
   - O. COLD-WEATHER CONSTRUCTION. WHEN AMBIENT AIR TEMPERATURE IS BELOW 40-DEGREES F, IMPLEMENT COLD WEATHER PROCEDURES IN ACCORDANCE WITH ACI 530.1, SECTION 1.8 C.
   - P. FIELD QUALITY CONTROL: PROVIDE SPECIAL INSPECTION AND VERIFICATION IN ACCORDANCE WITH ACI 530.1, SECTION 3.7.
   - Q. CLEANING: CLEAN ALL EXPOSED MASONRY SURFACES IN ACCORDANCE WITH ACI 530.1, SECTION 3.8.

ADHESIVE ANCHORS

1. MATERIALS
   - A. THE ADHESIVE ANCHOR SYSTEM USED FOR POST-INSTALLED ANCHORAGE TO CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY PUBLISHED ACI 355.4, ACCEPTANCE CRITERIA FOR QUALIFICATION OF POST INSTALLED ADHESIVE ANCHORS IN CONCRETE AND COMMENTARY. THE ANCHOR SYSTEM SHALL BE ONE OF THE FOLLOWING:
     - a. SIMPSON SET-XP
     - b. HILTI HY 200
     - c. APPROVED EQUAL MEETING ACI 355.4 AND THE FOLLOWING MINIMUM STRESS VALUES.
       1. CRACKED CONCRETE BOND STRESS, T_{cr}: 760 PSI FOR 0.75-INCH DIAMETER THREADED ROD ANCHOR.
       2. UNCRACKED CONCRETE BOND STRESS, T_{uncr}: 1,710 PSI FOR 0.75-INCH DIAMETER THREADED ROD ANCHOR.
   - B. ANCHOR ROD TYPE AND MATERIAL SHALL BE AS SPECIFIED.
   - C. NUTS, WASHERS, AND OTHER HARDWARE USED WITH AN ALL-THREADED BAR ADHESIVE ANCHOR SYSTEM SHALL HAVE A MATERIAL OR AN ALLOY DESIGNATION THAT MATCHES THE ALL-THREAD MATERIAL OR ALLOY. GALVANIZED ASSEMBLIES SHALL BE HOT-DIPPED IN ACCORDANCE WITH ASTM A153 CLASS C.
2. GENERAL INSTALLATION GUIDELINES.
   - A. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT THE TIME OF ADHESIVE ANCHOR INSTALLATION.
   - B. CONCRETE TEMPERATURE AT THE TIME OF ADHESIVE ANCHOR INSTALLATION SHALL BE AT LEAST 50-DEGREES F.
   - C. EMBEDMENT DEPTH AND ANCHOR PROJECTION FROM THE CONCRETE SURFACE SHALL BE AS SHOWN ON THE DRAWINGS OR DETAILS OR AS NECESSARY FOR THE PARTICULAR ANCHOR OR GROUP OF ANCHORS BEING INSTALLED.
3. INSTALLATION TECHNIQUES.
   - A. ADHESIVE ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS IN ACCORDANCE WITH THE SPECIFICATIONS. POST INSTALLED ADHESIVE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS PRINTED INSTRUCTIONS (MPII).
   - B. INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM. THE INSTALLERS QUALIFICATIONS SHALL BE SUBMITTED AND APPROVED IN BY THE LICENSED DESIGN PROFESSIONAL.
   - C. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH A ROTARY IMPACT HAMMER DRILL OR ROCK DRILL.
   - D. ANCHOR HOLES SHALL BE THOROUGHLY CLEANED PRIOR TO ADHESIVE INJECTION, AS REQUIRED BY MPII.
   - E. ANCHORS TO BE INSTALLED IN ADHESIVE SHALL BE CLEAN, OIL-FREE AND FREE OF LOOSE RUST, PAINT OR OTHER COATING.
4. FIELD QUALITY CONTROL.
   - A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY AN INSPECTOR SPECIFICALLY APPROVED FOR THE PURPOSE BY THE BUILDING OFFICIAL.
   - B. ADHESIVE ANCHORS SHALL BE PROOF TESTED AS FOLLOWS:
     - a. A MINIMUM OF 10 PERCENT OF THE HORIZONTALLY OR UPWARDLY INCLINED INSTALLED ADHESIVE ANCHORS SHALL BE PROOF TESTED IN TENSION BY AN INDEPENDENT TESTING LABORATORY.
     - b. TENSION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM E488
     - c. THE ADHESIVE ANCHORS SHALL BE TENSION PROOF TESTED TO THE FOLLOWING LOADS:
       1. 0.75-INCH DIAMETER ANCHOR WITH 9-INCH EMBEDMENT, P_t: 50 KIPS.
       2. 1.00-INCH DIAMETER ANCHOR WITH 12-INCH EMBEDMENT, P_t: 75 KIPS
   - C. ANCHORS SHALL HAVE NO VISIBLE INDICATIONS OF DISPLACEMENT OR DAMAGE DURING OR AFTER PROOF LOAD APPLICATION, CONCRETE CRACKING IN THE VICINITY OF THE ANCHOR AFTER LOADING SHALL BE CONSIDERED A FAILURE.
   - D. IF MORE THAN 15 PERCENT OF THE TESTED ADHESIVE ANCHORS FAIL TO ACHIEVE THE SPECIFIED PROOF LOAD WITHIN THE LIMITS DEFINED ON THESE DRAWINGS, 100 PERCENT OF THE SAME DIAMETER AND TYPE AS THE FAILED ANCHOR SHALL BE PROOF TESTED, UNLESS OTHERWISE DIRECTED BY THE LICENSED DESIGN PROFESSIONAL.

WOOD FRAMING

1. LUMBER: GRADING SHALL BE TO THE STANDARD GRADING RULES OF THE WWPA. TYPICAL STRUCTURAL LUMBER SHALL BE NUMBER 2 DOUGLAS-FIR/LARCH OR BETTER. MEMBERS NOTED AS WOOD BEAMS, POSTS OR COLUMNS SHALL BE NUMBER 1 DOUGLAS-FIR/LARCH OR BETTER. STUDS FOR INTERIOR NON-BEARING WALLS MAY BE STUD GRADE LUMBER. LUMBER TO BE LEFT EXPOSED, WITHOUT OTHER FINISH AND LUMBER IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.
2. TREATED LUMBER: LUMBER, INCLUDING WOOD SHEATHING, TO BE LEFT EXPOSED WITHOUT OTHER FINISH, LOCATED WITHIN 8" OF FINISH GRADE, OR IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED MATERIAL. CONTRACTOR SHALL COORDINATE AND VERIFY THAT ALL STEEL ITEMS IN CONTACT WITH THE TREATED MATERIAL, INCLUDING STEEL HANGARS, CONNECTORS AND FASTENERS HAVE A GALVANIZED FINISH OF SUFFICIENT THICKNESS, OR OTHER TYPE OF PROTECTION, THAT IS COMPATIBLE WITH THE SPECIFIC TREATMENT TYPE SELECTED.
3. BOLTS & LAG SCREWS FOR WOOD CONSTRUCTION: CONFORM TO ANSI/ASME STANDARDS B18.2.1-1981 AND THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) 1991 EDITION PART VIII FOR BOLTS AND PART IX FOR SCREWS.
4. WOOD SCREWS: CONFORM TO ANSI/ASME STANDARDS B18.6.1-1981 AND THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) 1991 EDITION PART XI.
5. NAILS & SPIKES: CONFORM TO FEDERAL SPECIFICATION FF-N-105B AND THE NATIONAL DESIGN SPECIFICATION (NDS) 1991 EDITION PART XII.
6. NAILING: WHERE NOT OTHERWISE SPECIFIED ON THE PLANS, NAILING SHALL CONFORM TO IBC TABLE 2304.9.1, FASTENING SCHEDULE. ALL NAILS SHALL BE COMMON WIRE NAILS OR PNEUMATICALLY DRIVEN NAILS WITH AN EQUIVALENT CROSS-SECTION AND PENETRATION, UNLESS NOTED OTHERWISE.
7. LUMBER HARDWARE: WOOD CONSTRUCTION CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY; CURRENT CATALOG OR AN APPROVED EQUAL. HARDWARE EXPOSED TO WEATHER OR VIEW, IN UNHEATED PORTIONS OF THE STRUCTURE, OR AS INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS SHALL BE HOT-DIPPED GALVANIZED WITH GALVANIZED FASTENERS.
8. ROOF SHEATHING: ALL ROOF SHEATHING SHALL BE 5/8" NOMINAL, EXTERIOR APA RATED SHEATHING (32/16) INSTALLED WITH PLY-CLIPS.
9. FLOOR SHEATHING: ALL FLOOR SHEATHING SHALL BE 3/4" NOMINAL TONGUE & GROOVE APA RATED [24-IN] STURD-I-FLOOR SHEATHING, GLUED AND NAILED IN PLACE.
10. HEAVY TIMBER ROOF DECKING: ALL WOOD DECKING NOTED AS HEAVY TIMBER OR TONGUE-AND-GROOVE TIMBER DECKING SHALL CONFORM TO AITC 112, CURRENT EDITION. DECKING SHALL BE TONGUE-AND-GROOVE TIMBER DECKING OF THE NOMINAL THICKNESS NOTED ON THE PLANS AND INSTALLED IN A CONTROLLED RANDOM LAYOUT, UNLESS OTHERWISE NOTED.
    - A. TWO INCH DECKING: EACH PIECE SHALL BE TOE-NAILED THROUGH THE TONGUE AND FACE NAILED WITH ONE NAIL TO EACH SUPPORTING MEMBER, USING 16D COMMON NAILS.
    - B. THREE AND FOUR INCH DECKING: EACH PIECE SHOULD BE TOE-NAILED AT EACH SUPPORT WITH ONE 40D NAIL AND FACE NAILED WITH ONE 60D NAIL. COURSES SHALL BE SPIKED TO EACH OTHER WITH 8-INCH SPIKES AT INTERVALS NOT TO EXCEED 30 INCHES THROUGH PREDRILLED EDGE HOLES AND WITH ONE SPIKE AT A DISTANCE NOT EXCEEDING 10 INCHES FROM EACH PIECE.
11. EXTERIOR WALL SHEATHING: ALL EXTERIOR WALL SHEATHING SHALL BE 1/2" NOMINAL APA RATED EXTERIOR SHEATHING.
12. MANUFACTURED WOOD BEAMS: WOOD BEAMS NOTED ON THE PLANS AS ML OR PSL BEAMS SHALL BE AS MANUFACTURED BY TRUS JOIST MACMILLAN COMPANY AND SHALL PROVIDE THE FOLLOWING MINIMUM ALLOWABLE STRESS VALUES:
    - A. MICRO-LAM (ML): GRADE 1.8E DF, BENDING F_b: 2,600 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 285 PSI, MODULUS OF ELASTICITY E: 1,800 KSI.
    - B. PARALLAM, PSL): GRADE 2.0E DF, BENDING F_b: 2,900 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 290 PSI, MODULUS OF ELASTICITY E: 2,000 KSI.
    - C. LAMINATED VENEER LUMBER (LVL): GRADE 2.0E, BENDING F_b: 2,900 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 285 PSI, MODULUS OF ELASTICITY E: 2,000 KSI.
13. GLUED-LAMINATED WOOD: ALL MEMBERS NOTED ON THE PLANS AS GLUED-LAMINATED TIMBER, SHALL BE DESIGNED AND MANUFACTURED PER THE REQUIREMENTS OF ANSI/AITC A190.1. PROVIDE MEMBERS WITH THE FOLLOWING MINIMUM VALUES:
    - A. BEAMS:
      - a. F_b: 2,400 PSI
      - b. F_v: 265 PSI
      - c. F_c PARALLEL: 1,650 PSI
      - d. F_c PERPEN.: 650 PSI
      - e. E: 1,800,000 PSI
    - B. COLUMNS
      - a. F_c: 1,950 PSI
      - b. F_{bx}: 1,840 PSI
      - c. F_{bx}: 1,700 PSI
      - d. E: 1,600,000 PSI
    - C. DRY CONDITION OF SERVICE.
    - D. STANDARD COMMERCIAL GRADE FINISH. SEE ARCHITECTURAL FOR SPECIAL FINISHES.
14. TIMBER FRAMING
    - A. ALL WOOD FRAMING, BLOCKING AND NAILING SHALL CONFORM TO THE CURRENT LOCAL BUILDING CODE.
    - B. ALL RAFTERS, TRUSSES AND JOISTS SHALL HAVE FULL DEPTH BLOCKING, UNLESS NOTED OTHERWISE ON THE PLANS AND DETAILS, AT BEARING SUPPORTS, SHEAR TRANSFER SUPPORTS, INTERMEDIATE AND CANTILEVER SUPPORTS AND AT MID-SPAN, AND AS REQUIRED BY THE BUILDING CODE OR PRODUCT SUPPLIER.
    - C. ALL STUD WALLS ARE TO HAVE DOUBLE TOP PLATES OF THE SAME DIMENSIONS AND GRADE AS THE STUD. PLATES ARE TO BE LAPPED A MINIMUM OF 4'-0" AND NAILED TOGETHER WITH AT LEAST (8) 16D NAILS THROUGH BOTH PLATES ON EACH SIDE OF ALL SPLICE POINTS OR AS NOTED ON THE PLANS AND DETAILS.
    - D. ALL BUILT-UP, LAMINATED DOUBLE OR MULTIPLE JOISTS AND BEAMS SHALL BE NAILED TOGETHER WITH 16D NAILS AT 6" O. C., STAGGERED 5" FROM TOP AND BOTTOM, WITH (3) 16D NAILS A THE ENDS AND AT SPLICES UNLESS NOTED OTHERWISE.
    - E. PROVIDE DOUBLE JOISTS BELOW ALL PARALLEL NON-BEARING WALLS.
    - F. ALL TRIMMERS SHALL HAVE SOLID BEARING TO THE FOUNDATION.
    - G. IN NO CASE, SHALL WOOD-FRAMED WALLS BE UTILIZED TO RESIST LATERAL PRESSURE DUE TO EARTH BACKFILL, WATER OR SNOW BUILD-UP.
    - H. ALL POSTS AND COLUMNS SHALL BE INSTALLED WITH APPROVED POST OR COLUMN CAPS AND BASES, UNLESS OTHERWISE NOTED ON THE PLANS.
    - I. ALL FRAMING HARDWARE INCLUDING COLUMN CAPS AND BASES, JOIST HANGERS, TRUSS ANCHORS, STRAPS, ETC. SHALL BE APPROVED (I.E. SIMPSON CO. OR EQUIVALENT) OR CUSTOM FABRICATED SPECIFICALLY AS DETAILED ON THE PLANS. THEY SHALL BE INSTALLED WITH NAILS, SCREWS OR BOLTS EXACTLY AS CALLED FOR BY THE MANUFACTURER OR AS NOTED ON THE PLANS.
15. WOOD SHEATHED DIAPHRAGM CONSTRUCTION REQUIREMENTS
    - A. WOOD SHEATHED ROOF DIAPHRAGMS:
      - a. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ORIENT ROOF SHEATHING WITH FACE-GRAIN PERPENDICULAR TO SUPPORTING MEMBERS, WITH JOINTS IN ADJACENT ROWS STAGGERED 1/2 PANEL LENGTH.
      - b. PROVIDE 2X4 FLAT BLOCKING AT UNSUPPORTED PANEL EDGES IN AREAS NOTED AS "BLOCKED ROOF DIAPHRAGM".
      - c. NAIL ROOF SHEATHING TO ALL SUPPORTING MEMBERS AND BLOCKING AS FOLLOWS:
        1. 8D NAILS @ 4-IN. O.C. AT ALL DIAPHRAGM BOUNDARIES.
        2. 8D NAILS @ 4-IN. O.C. AT ALL PANEL EDGES.
        3. 8D NAILS @ 12-IN. O.C. TO INTERMEDIATE FRAMING MEMBERS.
    - B. WOOD SHEATHED FLOOR DIAPHRAGMS:
      - a. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ORIENT FLOOR SHEATHING WITH FACE-GRAIN PERPENDICULAR TO SUPPORTING MEMBERS, WITH JOINTS IN ADJACENT ROWS STAGGERED 1/2 PANEL LENGTH.
      - b. PROVIDE 2X4 FLAT BLOCKING AT UNSUPPORTED PANEL EDGES IN AREAS NOTED AS "BLOCKED FLOOR DIAPHRAGM".
      - c. NAIL FLOOR SHEATHING TO ALL SUPPORTING MEMBERS AND BLOCKING AS FOLLOWS:
        1. 8D NAILS @ 6-IN. O.C. AT ALL DIAPHRAGM BOUNDARIES.
        2. 8D NAILS @ 6-IN. O.C. AT ALL PANEL EDGES.
        3. 8D NAILS @ 12-IN. O.C. TO INTERMEDIATE FRAMING MEMBERS.
    - C. WOOD SHEATHED SHEAR WALLS:
      - a. SHEAR WALL SHEATHING TO BE ORIENTED VERTICALLY.
      - b. ALL UNSUPPORTED EDGES TO BE BACKED WITH 2X SOLID BLOCKING.
      - c. NAIL SHEATHING PER SHEAR WALL SCHEDULES SHOWN ON DRAWINGS.
      - d. MINIMUM NAILING WHERE NOT NOTED OTHERWISE SHALL BE 8D NAILS @ 6-IN. O.C. TO ALL PANEL EDGES AND 12-IN. O.C. AT INTERMEDIATE SUPPORTING MEMBERS.

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

GENERAL STRUCTURAL NOTES

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-S-003

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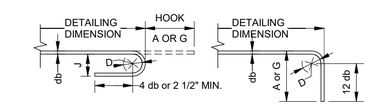
TYPICAL LAP SPLICE LENGTHS IN INCHES, PER ACI 318									
BAR SIZE	LAP CLASS	f'c=3,000 psi		f'c=4,000 psi		f'c=4,500 psi		f'c=5,000 psi	
		CAT.1	CAT.2	CAT.1	CAT.2	CAT.1	CAT.2	CAT.1	CAT.2
#3	A	16	25	14	21	14	20	13	19
	B	21	32	19	28	18	27	17	25
#4	A	22	33	19	28	18	27	17	25
	B	28	43	25	37	24	35	22	33
#5	A	27	41	24	36	23	34	21	32
	B	36	53	31	46	30	44	28	41
#6	A	33	49	28	43	27	41	25	38
	B	43	64	37	55	36	53	33	50
#7	A	48	72	42	62	40	59	37	56
	B	62	93	54	81	51	77	48	72
#8	A	55	82	47	71	45	68	42	64
	B	71	106	61	92	58	88	55	83
#9	A	52	92	53	80	51	76	48	72
	B	80	120	69	104	66	99	62	93

NOTES:
1. FOR GRADE 60 REINFORCING STEEL BARS.
2. ALL LAP SPLICES SHALL BE CLASS B, UNLESS NOTED OTHERWISE.
3. CATEGOR 1: CLEAR COVER >= db & CLR. SPACING >= db, AND STIRRUPS OR TIES THORUGHOUT Ld ARE PROVIDED. CATEGORY 1: CLEAR COVER ≥ db & CLR. SPACING < 2db. CATEGORY 2: CLEAR COVER < db OR CLR. SPACING < 2db.
4. FOR TOP BARS MULITPLY LAP LENGTH LISTED BY 1.30 TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.

1 TYP CONCRETE REBAR LAP SPLICE SCHEDULE
SCALE: NTS

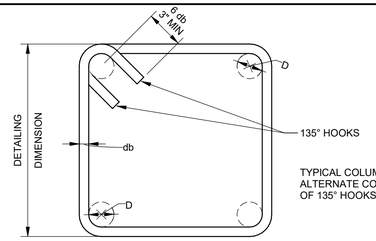


180° HOOKS 90° HOOKS

BAR SIZE	D	180° HOOKS		90° HOOKS
		A or G	J	A or G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	1'-0"
#7	5 1/4"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"

NOTES: db = NOMINAL BAR DIAMETER
D = FINISHED INSIDE BEND DIAMETER
MINIMUM D = 6 db FOR #3 TO #8 BARS
MINIMUM D = 8 db FOR #9 TO #11 BARS
MINIMUM D = 10 db FOR #14 TO #18 BARS
TYPICAL MINIMUM END HOOKS, ALL GRADES OF STEEL

2 TYP REBAR HOOKS DETAIL
SCALE: NTS

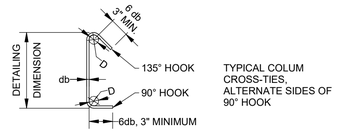


TYPICAL COLUMN TIES ALTERNATE CORNERS OF 135° HOOKS

BAR SIZE	D	135° HOOKS	
		A or G	H **
#3	1-1/2"	4-1/4"	3"
#4	2"	4-1/2"	3"

NOTES:
db = NOMINAL BAR DIAMETER
D = FINISHED INSIDE BEND DIAMETER
TYPICAL MINIMUM END HOOK, ALL GRADES OF STEEL

3 TYP CONCRETE COLUMN REBAR TIE BEND DETAIL
SCALE: NTS

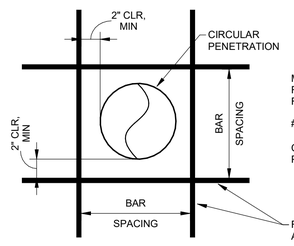


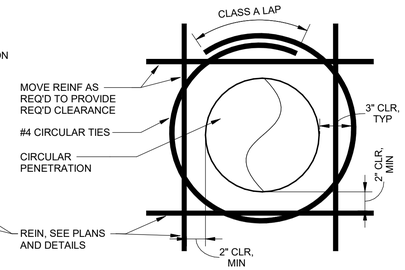
TYPICAL COLUM CROSS-TIES, ALTERNATE SIDES OF 90° HOOK

BAR SIZE	D	135° HOOKS		90° HOOKS
		A or G	H **	A or G
#3	1-1/2"	4-1/4"	3"	4"
#4	2"	4-1/2"	3"	4 1/2"

NOTES:
db = NOMINAL BAR DIAMETER.
D = FINISHED INSIDE BEND DIAMETER.
MINIMUM D = 6 db FOR #3 & #4 BARS
TYPICAL MINIMUM END HOOK, ALL GRADES OF STEEL.
H ** DIMENSION IS APPROXIMATE

4 TYP REBAR CROSS TIES DETAIL
SCALE: NTS





DIA HOLE ≤ BAR SPA. - 4"

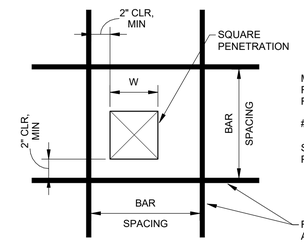
NOTE: NO SPECIAL REIN IS REQ'D AROUND THE PENETRATION.

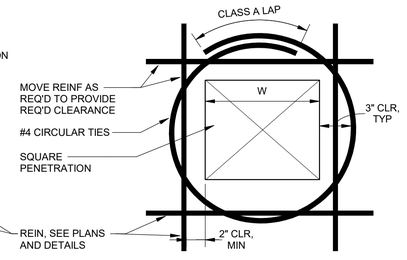
1.5 X BAR SP. > DIA HOLE > BAR SPA. - 4" &

NOTE: PROVIDE (1) CIRCULAR TIE FOR WALLS OR SLABS WITH ONE MAT OR REINF AND (2) TIES FOR WALLS WITH TWO MATS OR REINF.

NOTE:
1. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS.
2. REFER TO OTHER DETAILS FOR WALLS/SLAB REINF SIZE AND SPACING.
3. BAR SPACING REFERS TO THE LESSER OF THE VERT OR HORIZ BAR SPACING.
4. DETAILS IS SIMILAR FOR EITHER VERTICAL WALL OR HORIZONTAL SLAB LOCATIONS.

5 TYP CIRCULAR HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS





DIA HOLE ≤ BAR SPA. - 4"

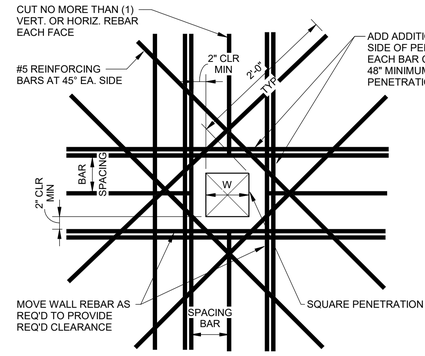
NOTE: NO SPECIAL REIN IS REQ'D AROUND THE PENETRATION.

1.5 X BAR SP. > DIA HOLE > BAR SPA. - 4" &

NOTE: PROVIDE (1) CIRCULAR TIE FOR WALLS OR SLABS WITH ONE MAT OR REINF AND (2) TIES FOR WALLS WITH TWO MATS OR REINF.

NOTE:
1. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS.
2. REFER TO OTHER DETAILS FOR WALLS/SLAB REINF SIZE AND SPACING.
3. BAR SPACING REFERS TO THE LESSER OF THE VERT OR HORIZ BAR SPACING.
4. DETAILS IS SIMILAR FOR EITHER VERTICAL WALL OR HORIZONTAL SLAB LOCATIONS.

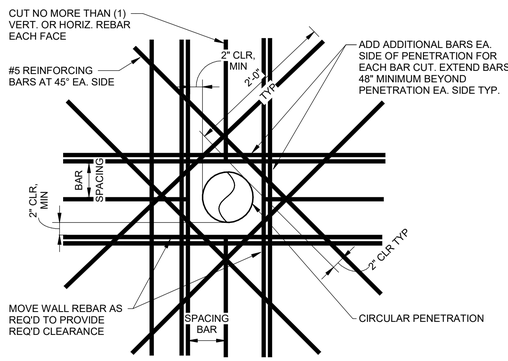
6 TYP SQUARE HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



DIA HOLE > 1.5 x BAR SPA.

NOTE: PROVIDE (4) REINFORCING BARS FOR WALLS w/ ONE MAT OF REBAR & (4) REINFORCING BARS EA. FACE FOR WALLS w/ TWO MATS OF REBAR.
REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS. REFER TO OTHER DETAILS FOR REBAR SIZE AND SPACING REQUIREMENTS. BAR SPACING REFERS TO THE LESSER OF THE VER. OR HORIZ. BAR SPACING. DETAIL IS SIMILAR FOR VERTICAL WALL AND HORIZONTAL SLAB LOCATIONS.

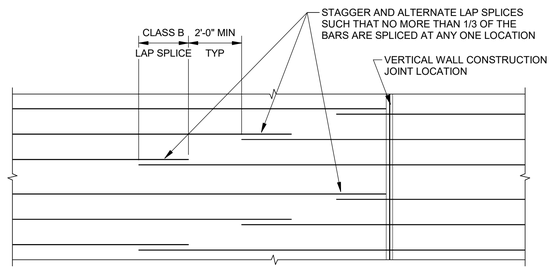
7 TYP SQUARE HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



DIA HOLE > 1.5 x BAR SPA.

NOTE: PROVIDE (4) REINFORCING BARS FOR WALLS w/ ONE MAT OF REBAR & (4) REINFORCING BARS EA. FACE FOR WALLS w/ TWO MATS OF REBAR.
REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS. REFER TO OTHER DETAILS FOR REBAR SIZE AND SPACING REQUIREMENTS. BAR SPACING REFERS TO THE LESSER OF THE VER. OR HORIZ. BAR SPACING. DETAIL IS SIMILAR FOR VERTICAL WALL AND HORIZONTAL SLAB LOCATIONS.

8 TYP CIRCULAR HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



NOTE: VERTICAL WALL REINFORCEMENT NOT SHOWN THIS VIEW FOR CLARITY DO NOT PLACE LAP SPLICES ACROSS A VERTICAL WALL JOINT. REFER TO OTHER VIEWS & SECTIONS FOR BAR SIZE AND SPACING. REFER TO TYPICAL LAP SPLICE SCHEDULE FOR LAP LENGTHS.

9 TYP CONCRETE WALL HORIZ. REBAR LAP SPLICE
SCALE: NTS

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
STRUCUTRAL (S)
TYPICAL CONCRETE DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024
DRAWING:
00-SZ-901

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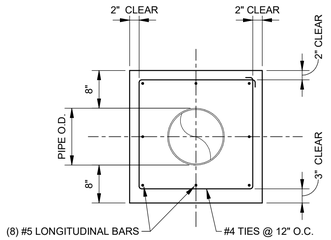
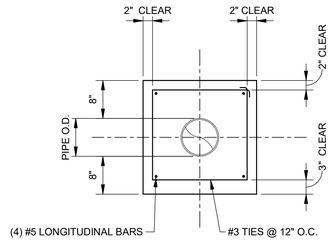


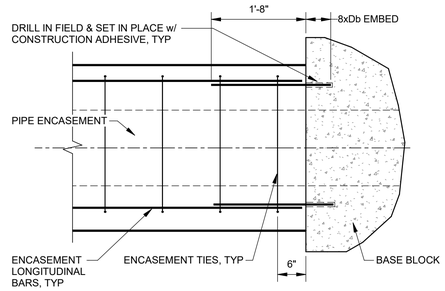
NOTE: FOR PIPE O.D. ≥ 12"
TYPICAL PIPE ENCASEMENT DETAIL FOR PIPES UNDERNEATH STRUCTURES.

1 TYP PIPE ENCASEMENT DETAIL
SCALE: NTS

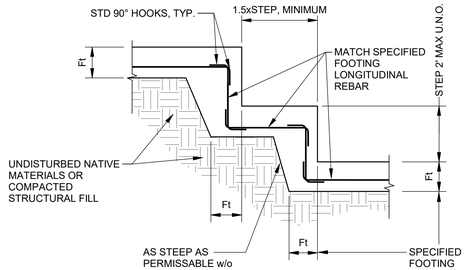


NOTE: FOR PIPE O.D. < 12"
TYPICAL PIPE ENCASEMENT DETAIL FOR PIPES UNDERNEATH STRUCTURES.

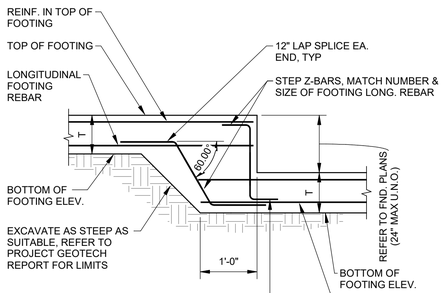
2 TYP PIPE ENCASEMENT DETAIL
SCALE: NTS



3 TYP CONC ENCASEMENT TO BASE BLOCK TIE
SCALE: NTS

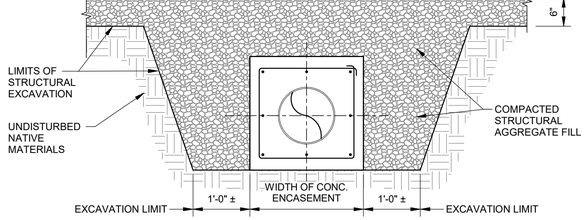


4 TYP STEPPED FOOTING DETAIL
SCALE: NTS

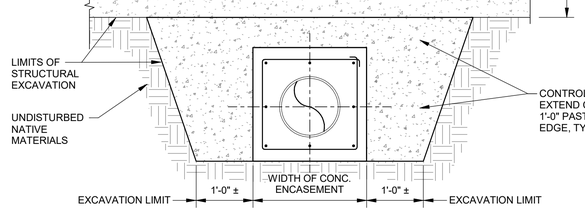


NOTE: REFER TO FOUNDATION FOR LOCATION & ELEVATIONS. REFER TO OTHER DETAILS FOR FOOTING REINFORCING FOOTING TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY

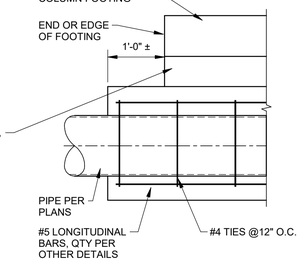
5 TYP STEPPED FOOTING DETAIL
SCALE: NTS

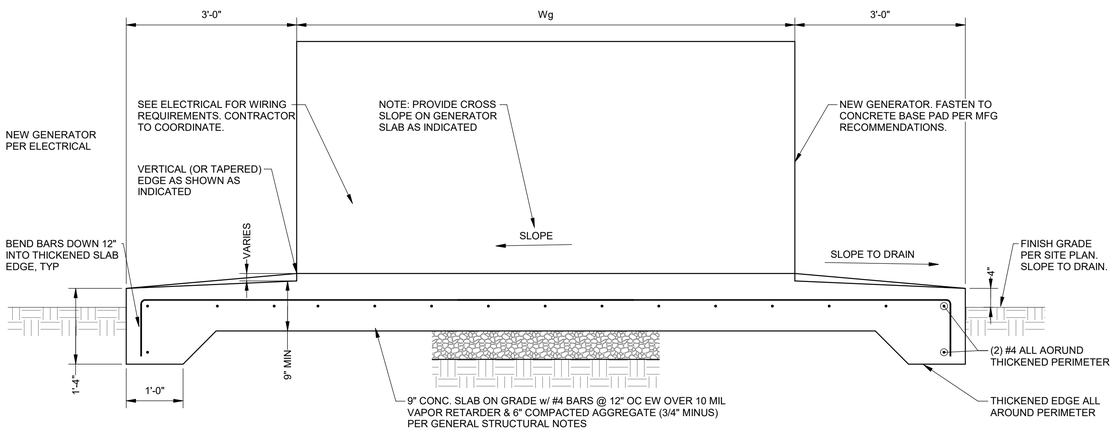


6 TYP COMPACTION AROUND PIPE BELOW SLAB
SCALE: NTS



7 TYP CDF AROUND PIPE BELOW FOOTINGS
SCALE: NTS





8 TYP GENERATOR SLAB ON GRADE DETAIL
SCALE: NTS

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392 E. Winchester St.
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STRUCUTRAL (S)
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DESIGN BY:	JLS
CHECKED BY:	RSM

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AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY.

LAST UPDATED: 10/11/2024

DRAWING:
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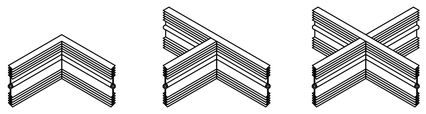
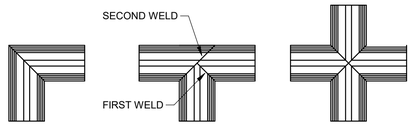


VERTICAL ELL | VERTICAL TEE | VERTICAL CROSS

VERTICAL INTERSECTIONS

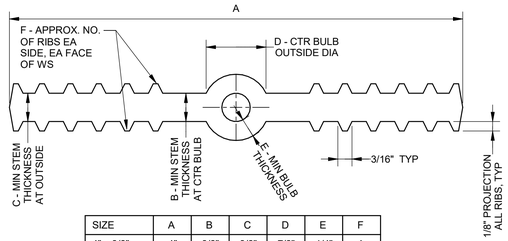
NOTES:
1. PROVIDE FACTORY MADE WATERSTOP FABRICATIONS FOR ALL VERTICAL INTERSECTIONS AND CORNERS.
2. INSTALL AND SEAL FABRICATIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. FABRICATIONS SHALL BE MADE FROM THE SAME MATERIAL AS THE WATERSTOP CONNECTED.



FLAT ELL | FLAT TEE | FLAT CROSS

HORIZONTAL (FLAT) INTERSECTIONS

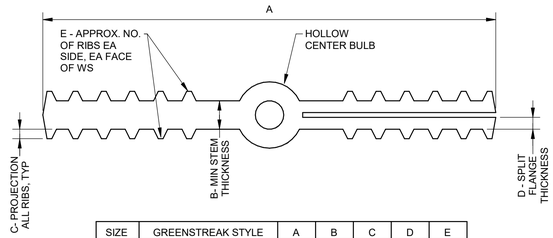
NOTES:
1. PROVIDE TEFLON COATED THERMOSTATICALLY CONTROLLED WATERSTOP SPLICING IRONS FOR ALL FIELD BUTT SPLICED.
2. FIELD BUTT SPLICES SHALL BE FULLY HEATED FUSED FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS.
3. LAPPING OF WATERSTOP, USE OF ADHESIVES, OR SOLVENTS SHALL NOT BE ALLOWED.



SIZE	A	B	C	D	E	F
4" x 3/8"	4"	3/8"	3/8"	7/8"	1/4"	4
6" x 3/8"	6"	3/8"	3/8"	7/8"	1/4"	6

NOTES:
1. WATERSTOP SHALL BE PVC AND SHALL CONFORM TO ASTM D570, ASTM D746, ASTM D1149, AND CRD-C572.
2. WHEN AVAILABLE, PROVIDE PRE-FABRICATED INTERSECTION SECTIONS AT ALL WATER STOP INTERSECTIONS.

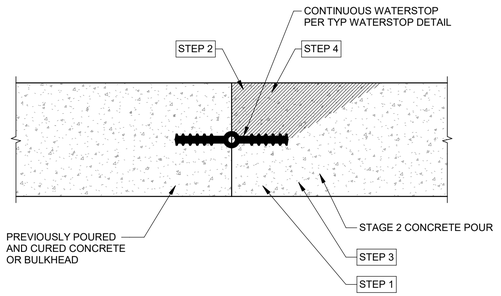
1 TYP WATERSTOP TYPE
SCALE: NTS



SIZE	GREENSTREAK STYLE	A	B	C	D	E
4"	CAT. ITEM 721	4"	3/16"	1/16"	3/32"	5
6"	CAT. ITEM 721	6"	3/8"	3/32"	3/16"	8

NOTES:
1. WATERSTOP SHALL BE PVC AND SHALL CONFORM TO ASTM D570, ASTM D746, ASTM D1149, AND CRD-C572.
2. WHEN AVAILABLE, PROVIDE PRE-FABRICATED INTERSECTION SECTIONS AT ALL WATER STOP INTERSECTIONS.

2 TYP SPLIT WATERSTOP TYPE
SCALE: NTS

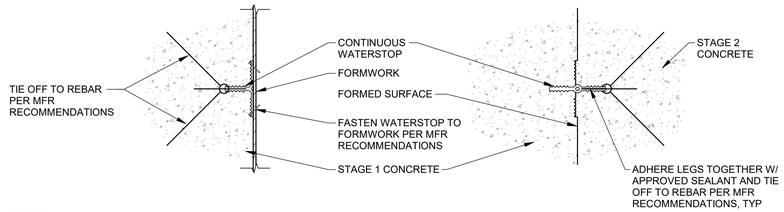


STEP 1 PLACE CONCRETE BELOW WATERSTOP FIRST. REMOVE ALL AIR VOIDS BY VIBRATING THOROUGHLY.

STEP 2 TO CONFIRM THERE ARE NO AIR VOIDS, LIFT WATERSTOP. A CONTINUOUS IMPRESSION OF THE WATERSTOP, INCLUDING THE EDGE OF THE BULB, SHOULD BE VISIBLE IN THE FRESH CONCRETE. CONTINUE THIS PROCEDURE ALONG THE ENTIRE POURED JOINT, END TO END. IF CONTINUOUS IMPRESSION IS CONFIRMED, PROCEED WITH STEP 4. IF VOID LARGER THAN 1/4" IN DIAMETER IS PRESENT ANYWHERE IN THE WATERSTOP IMPRESSION, PROCEED WITH STEP 3.

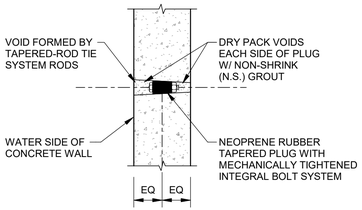
STEP 3 IF A VOID LARGER THAN 1/4" IN DIAMETER IS PRESENT IN THE WATERSTOP IMPRESSION, ADDITIONAL CONCRETE SHALL BE PLACED UNDER THE WATERSTOP, VIBRATED, AND STEP 2 REPEATED.

STEP 4 FINISH PLACING CONCRETE ABOVE THE WATERSTOP TO TOP OF SLAB.



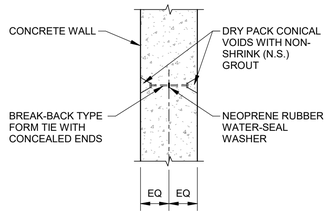
NOTES:
1. SECURE WATERSTOP FIRMLY IN PLACE BEFORE PLACING CONCRETE.
2. THOROUGHLY CONSOLIDATE CONCRETE AROUND ALL WATERSTOP.
3. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR WATERSTOP INSTALLATION.
4. SPLICE WATERSTOP ONLY AS PROVIDED IN THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

3 TYP WELDED WATERSTOP INTERSECTIONS
SCALE: NTS



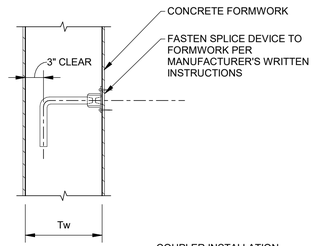
NOTES:
1. CLEAN VOIDS WITH WIRE BRUSH PRIOR TO PLACING PLUG AND N.S. GROUT.
2. STRIK OFF N.S. GROUT WITH STEEL TOOLS FOR SMOOTH UNIFORM FINISH.
3. FORM TIES SHALL BE UNIFORMLY SPACED IN BOTH DIRECTIONS.
4. INSTALL PLUG AND TIGHTEN BOLT PER MFG'S WRITTEN INSTRUCTIONS.
5. PROVIDE X-PLUG MECHANICAL PLUG BY GREENSTREAK OR APPROVED EQUAL.

4 TYP SPLIT WATERSTOP INSTALLATION
SCALE: NTS

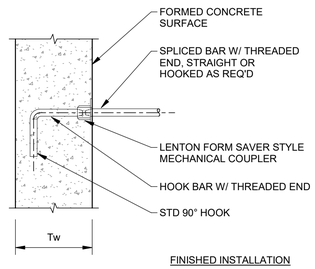


NOTES:
1. CLEAN CONCICAL VOIDS PRIOR TO PLACING N.S. GROUT.
2. STRIK OFF N.S. GROUT WITH STEEL TOOLS FOR SMOOTH UNIFORM FINISH.
3. FORM TIES SHALL BE UNIFORMLY SPACED IN BOTH DIRECTIONS.
4. INSTALL TIES PER MFG'S WRITTEN INSTRUCTIONS.

5 TYP SLAB WATERSTOP INSTALLATION
SCALE: NTS



COUPLER INSTALLATION



FINISHED INSTALLATION

NOTE: SUPPLY BAR SIZE AS NOTED ON THE INDIVIDUAL SECTIONS OR DETAILS INSTALL DEVICES PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS

6 TYP WATER-TIGHT FORM TIE DETAIL
SCALE: NTS

7 TYP WATER-TIGHT FORM TIE DETAIL
SCALE: NTS

8 TYP MECHANICAL COUPLER DETAIL
SCALE: NTS

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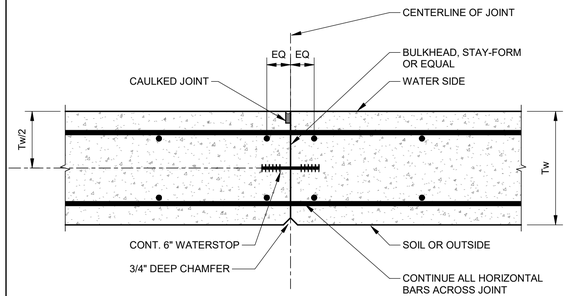
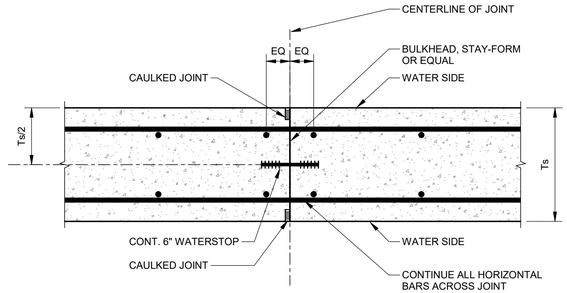


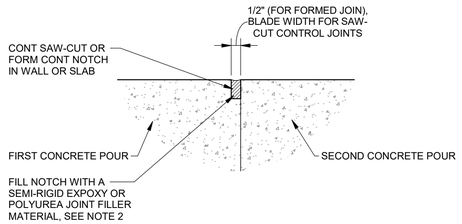
NOTE: TYPICAL FOR WALLS WITH LIQUID ONE SIDE OF WALL ONLY. TYPICAL FOR WALLS WITH TWO-MATS OF REINFORCING STEEL

1 TYP VERTICAL WALL CONTROL JOINT DETAIL
SCALE: NTS



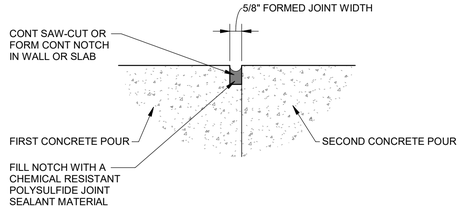
NOTE: TYPICAL FOR WALLS WITH WATER BOTH SIDES. TYPICAL FOR WALLS WITH TWO-MATS OF REINFORCING STEEL

2 TYP VERTICAL WALL CONTROL JOINT DETAIL
SCALE: NTS



NOTES:
1. SEE OTHER DETAILS FOR SLAB REINFORCING REQUIREMENTS.
2. PROVIDE METZGER / McQUIRE MM-80 SEMI-RIGID EPOXY JOINT FILLY OR REZI-WELD FLEX, SEMI-RIGID EPOXY JOINT FILLER.

3 TYP SEALED FLOOR NOTCH DETAIL
SCALE: NTS



NOTES:
1. SEE OTHER DETAILS FOR WALL REINFORCING REQUIREMENTS.
2. PROVIDE SIKA DUOFLEX NS TWO COMPONENT NON-SAG SEALANT OR EQUIVALENT.

4 TYP SEALED WALL NOTCH DETAIL
SCALE: NTS

NOTE: TYPICAL FOR WALLS WITH LIQUID ONE SIDE OF WALL ONLY. TYPICAL FOR WALLS WITH A SINGLE MAT OF REINFORCING STEEL

5 TYP VERTICAL WALL CONTROL JOINT DETAIL
SCALE: NTS

NOTE: TYPICAL FOR SLABS WITH A SINGLE MAT OF REINFORCING BARS

6 TYP HORIZONTAL WALL CONTROL JOINT DETAIL
SCALE: NTS

NOTE: TYPICAL FOR SLABS WITH TWO MATS OF REINFORCING BARS

7 TYP HORIZONTAL WALL CONTROL JOINT DETAIL
SCALE: NTS

NOTE:
1. CENTER CONTROL JOINT NOTCHES ON EXACT CENTERLINE OF JOINTS, & WATERSTOPS, TYPICAL.
2. THIS NOTCH STYLE IS TO BE USED ON NON-LIQUID SIDES OF WALLS & TOP OF WALLS WHERE TOP OF WALL IS EXPOSED TO VIEW.

8 TYP CONTROL JOINT NOTCH DETAILS
SCALE: NTS

9 WATERSTOP AT EXIST. WALL JOINT DETAIL
SCALE: NTS

10 TYPICAL WATERSTOP INTERSECTION DETAIL
SCALE: NTS

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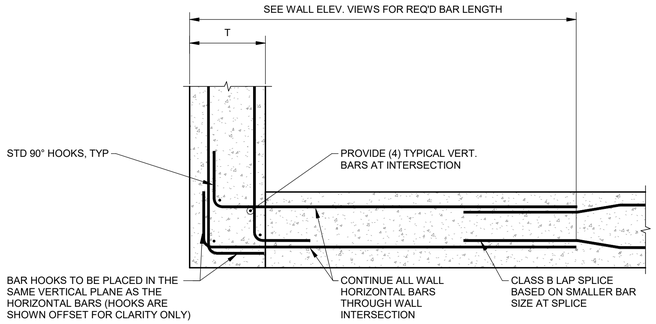
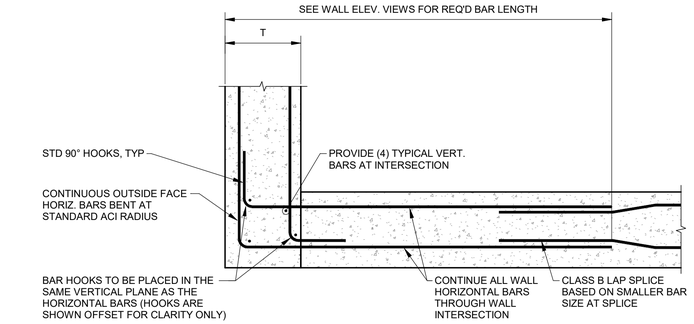


NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. REFER TO OTHER SECTIONS & DETAILS FOR REQ'D BAR SIZE AND SPACING.
3. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
4. TYPICAL DETAIL FOR WATER OR NON-WATER RETAINING CONCRETE WALLS.
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

1 TYP CORNER WALL INTERSECTION DETAIL
SCALE: NTS



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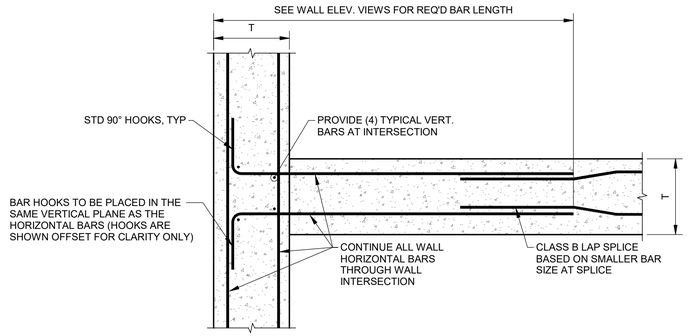
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

2 TYP CORNER WALL INTERSECTION DETAIL
SCALE: NTS



NOTES:
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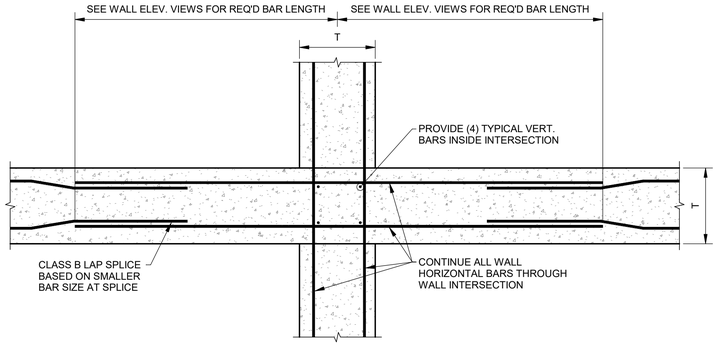
2. REFER TO OTHER SECTIONS & DETAILS FOR REQ'D BAR SIZE AND SPACING.
3. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
4. TYPICAL DETAIL FOR WATER OR NON-WATER RETAINING CONCRETE WALLS.
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

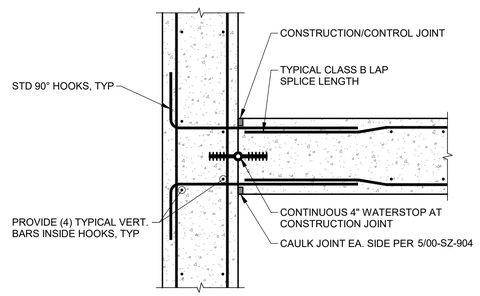
3 TYP WALL 3-WAY INTERSECTION DETAIL
SCALE: NTS



NOTE: REFER TO OTHER PLANS & DETAILS FOR WALL THICKNESS, t AND ALL REINFORCING BAR SIZE AND SPACING REQUIREMENTS, REFER TO GENERAL NOTES FOR BAR CLEARANCE REQUIREMENTS. TYPICAL VERTICAL BARS NOT SHOWN FOR CLARITY THIS DETAIL.

TYPICAL 4-WAY WALL INTERSECTION WITHOUT C.J.

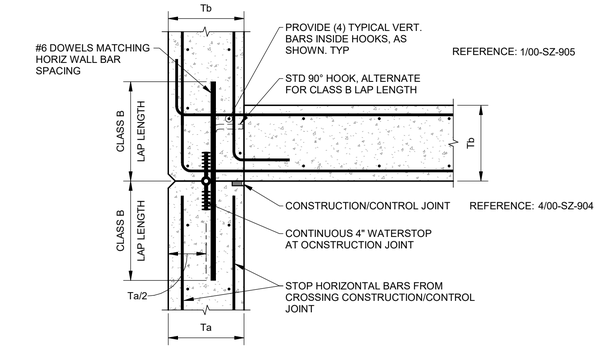
4 TYP 4-WAY INT. WALL INTERSECTION DETAIL
SCALE: NTS



FOR WALLS WITH (2) MATS OF REINFORCING STEEL

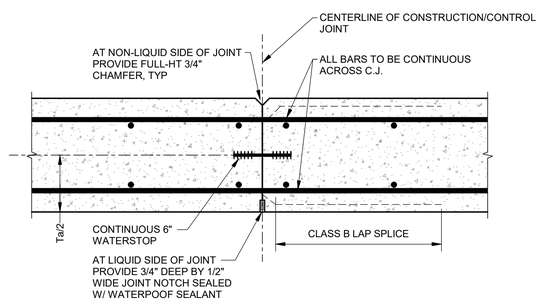
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. REFER TO OTHER SECTIONS & DETAILS FOR REQ'D BAR SIZE AND SPACING.
3. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
4. TYPICAL DETAIL FOR WATER OR NON-WATER RETAINING CONCRETE WALLS.
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

5 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS

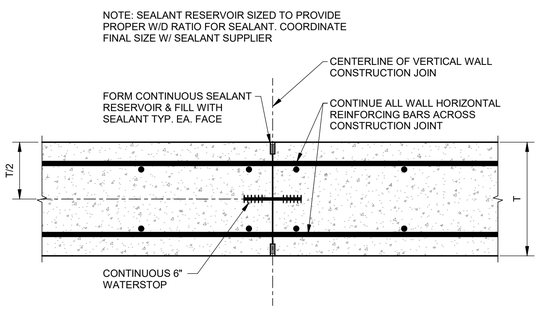


NOTES:
1. REFER TO OTHER PLANS & DETAIL FOR WALL THICKNESS, 'T' AND ALL REINFORCING BAR SIZE AND SPACING REQUIREMENTS.
2. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
3. THIS IS A NON-MOMENT TRANSFER JOINT INTERSECTION.

6 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS



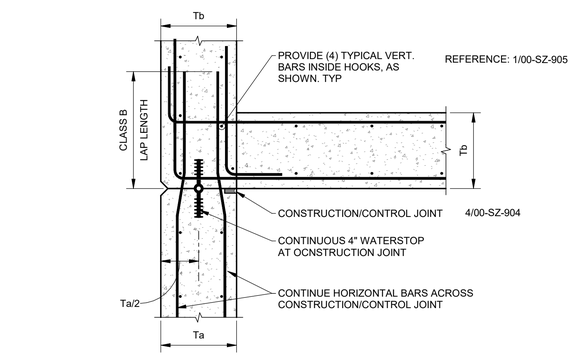
7 TYP WALL CONSTRUCTION/CONTROL JOINT DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR ALL WALL REINFORCING REQUIREMENTS. REFER TO OTHER DETAILS FOR PERMISSABLE REINFORCING STEEL LAP SPLICE LENGTHS AND LOCATIONS.

USE FOR INTERIOR WALLS WITH LIQUID AGAINST EACH FACE

8 TYP WALL CONSTRUCTION/CONTROL JOINT DETAIL
SCALE: NTS



NOTES:
1. REFER TO OTHER PLANS & DETAIL FOR WALL THICKNESS, 'T' AND ALL REINFORCING BAR SIZE AND SPACING REQUIREMENTS.
2. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
3. THIS IS A MOMENT TRANSFER JOINT INTERSECTION.

9 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS

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392 E. Winchester St.
Suite 300
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Phone: 801.886.9052
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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL CONCRETE DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
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ONE INCH
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00-SZ-905

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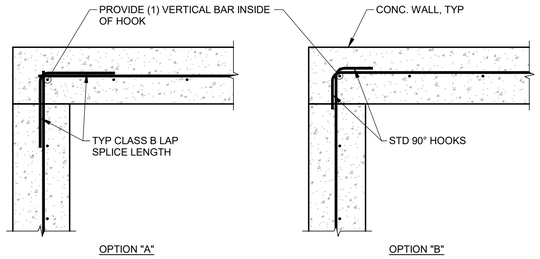
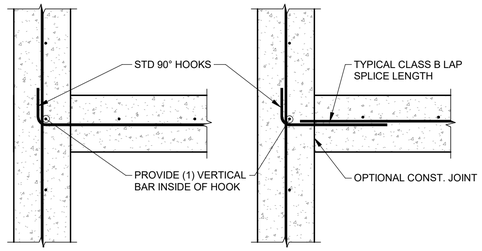


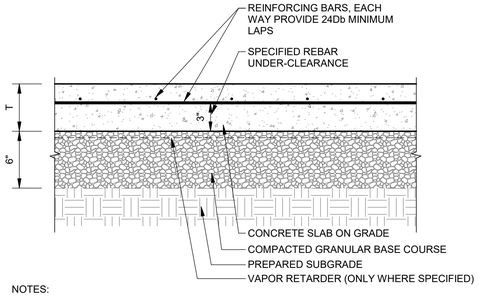
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. CENTER VERTICAL BARS IN WALL U.N.O.
3. REFER TO OTHER DETAILS FOR REQUIRED BAR SIZE AND SPACING.
4. THIS IS A TYPICAL DETAIL FOR WALLS IWTH (1) MATT OF REINFORCING.
5. THIS IS A TYPICAL DETAIL FOR NON-WATER RETAINING WALLS.

1 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS



NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. CENTER VERTICAL BARS IN WALL U.N.O.
3. REFER TO OTHER DETAILS FOR REQUIRED BAR SIZE AND SPACING.
4. THIS IS A TYPICAL DETAIL FOR WALLS IWTH (1) MATT OF REINFORCING.
5. THIS IS A TYPICAL DETAIL FOR NON-WATER RETAINING WALLS.

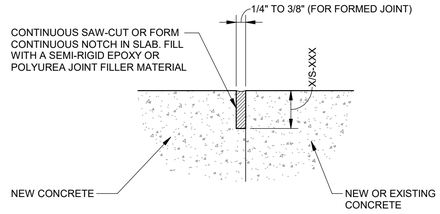
2 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS



NOTES:
1. PREPARE & COMPACT SUBGRADE PER GEOTECHNICAL REPORT RECOMMENDATIONS.
2. REFER TO FOUNDATION PLANS FOR SLAB THICKNESS T & BASE COURSE G.
3. PROVIDE THE FOLLOWING REINFORCING BARS PER SLAB THICKNESS INDICATED; U.N.O.

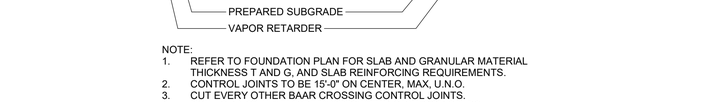
SLAB THICKNESS, T	SLAB REINFORCEMENT (UNO)
5"	#4 BARS @ 12" O.C., E.W.
6"	#5 BARS @ 12" O.C., E.W.
7"	#6 BARS @ 12" O.C., E.W.

3 TYP SLAB ON GRADE DETAIL
SCALE: NTS



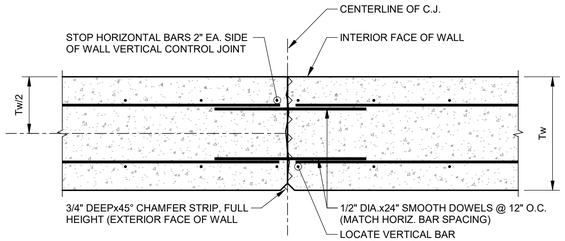
NOTE: REFER TO OTHER TYPICAL DETAILS FOR SLAB REINFORCING REQUIREMENTS. PROVIDE METZGER/McQUIRE MM-80 SEMI-RIGID EPOXY JOINT FILLER OR REZI-WELD FLEX, SEMI-RIGID JOINT FILLER.

4 TYP SLAB ON GRADE CONTROL JOINT DETAIL
SCALE: NTS



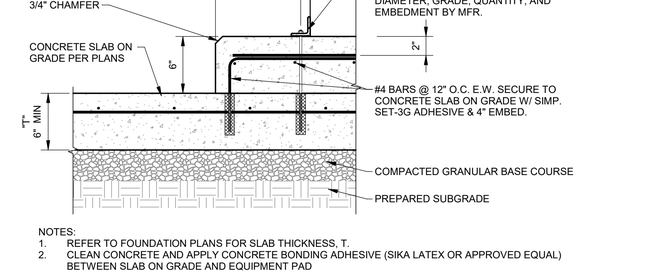
NOTE:
1. REFER TO FOUNDATION PLAN FOR SLAB AND GRANULAR MATERIAL THICKNESS T AND G, AND SLAB REINFORCING REQUIREMENTS.
2. CONTROL JOINTS TO BE 15'-0" ON CENTER, MAX, U.N.O.
3. CUT EVERY OTHER BAAR CROSSING CONTROL JOINTS.
4. USE FOR NON WATER-RETAINING INTERIOR FLOOR SLABS.

5 TYP SLAB ON GRADE CONTROL JOINT DETAIL
SCALE: NTS



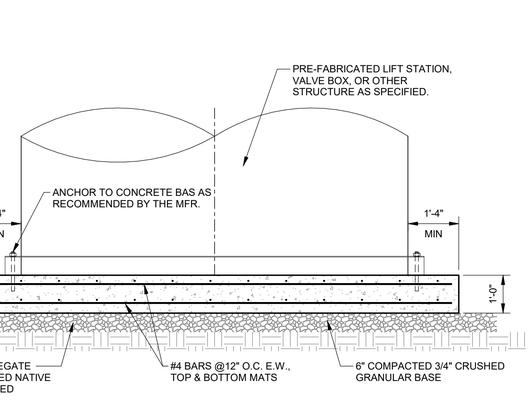
NOTE: LOCATE WALL CONTROL JOINTS AT A UNIFORM SPACING NOT TO EXCEED 15'-0", U.N.O. ON THE PLANS. REFER TO OTHER DETAILS FOR WALL THICKNESS & REINFORCING REQUIREMENTS.

6 TYP VERTICAL CONCRETE WALL CONTROL JOINT DETAIL
SCALE: NTS

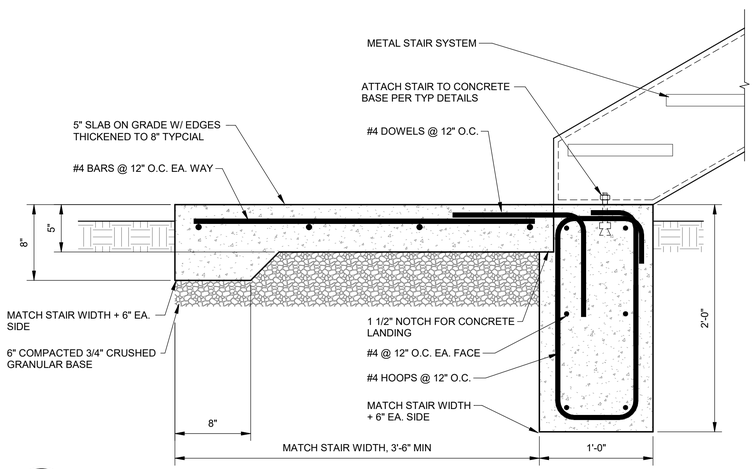


NOTES:
1. REFER TO FOUNDATION PLANS FOR SLAB THICKNESS, T.
2. CLEAN CONCRETE AND APPLY CONCRETE BONDING ADHESIVE (SIKA LATEX OR APPROVED EQUAL) BETWEEN SLAB ON GRADE AND EQUIPMENT PAD

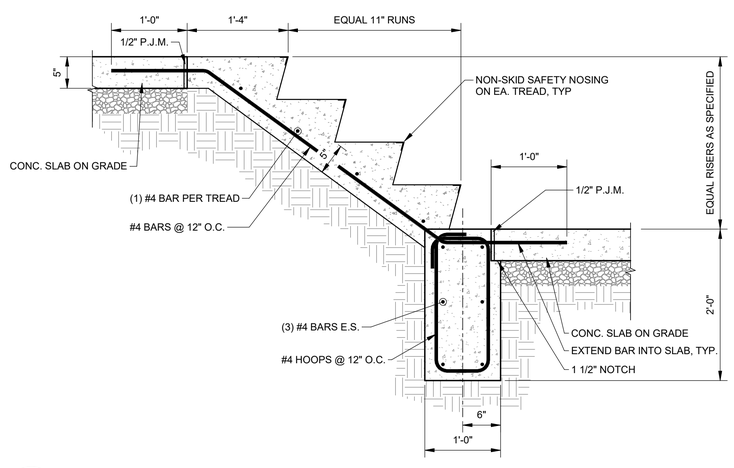
7 TYP EQUIPMENT PAD DETAIL
SCALE: NTS



8 TYP PRE-FABRICATED VAULT FOUNDATION SLAB DETAIL
SCALE: NTS



9 TYP METAL STAIR SYSTEM FOUNDATION & LANDING SLAB
SCALE: NTS



10 TYP CONCRETE STAIR ON GRADE DETAIL
SCALE: NTS

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392 E. Winchester St.
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www.jub.com

Subconsultant:

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	REVISION	APR.	

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
STRUCUTRAL (S)
TYPICAL CONCRETE DETAILS

FILE:
JUB PROJ. #:93-24-001
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ONE INCH
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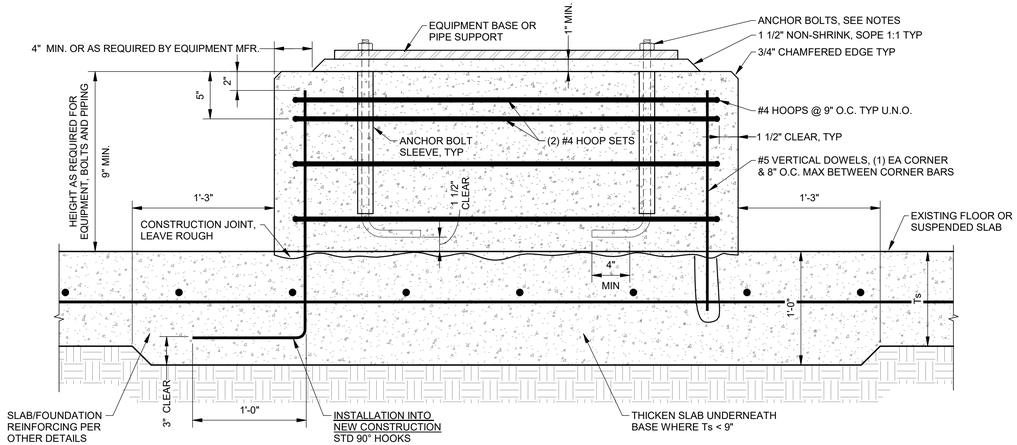
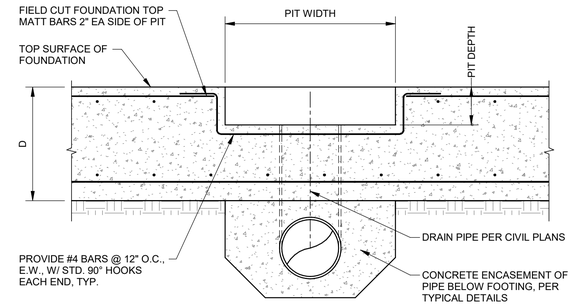


NOTES:
1. PAD SIZE SHALL BE MINIMUM INDICATED, AS SHOWN ON THE PLANS, OR AS DETERMINED BY THE EQUIPMENT MFR AND APPROVED BY THE ENGINEER.
2. THE SIZE, NUMBER, TYPE, LOCATION, THREAD PROJECTION, CLEARANCE TO EDGE OF CONCRETE AND EMBEDMENT OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MFR, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.
3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT. SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
4. EQUIPMENT OR PIPE BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
5. WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.
6. Ts = SLAB ON GRADE PLAN OR MAT FOUNDATION THICKNESS.

1 TYP CONCRETE EQUIPMENT SUPPORT PEDESTAL
SCALE: NTS



NOTE: REFER TO CIVIL AND FOUNDATION PLANS FOR ADDITIONAL REQUIREMENTS.

2 TYPICAL SUMP PIT BLOCKOUT IN FOUNDATION SLAB
SCALE: NTS

NOTE: REFER TO CIVIL AND FOUNDATION PLANS FOR ADDITIONAL REQUIREMENTS.

3 TYPICAL SUMP PIT BLOCKOUT IN FOUNDATION SLAB
SCALE: NTS

4 REMOVABLE BOLLARD
SCALE: NTS

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Phone: 801.886.9052
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL CONCRETE DETAILS

FILE:
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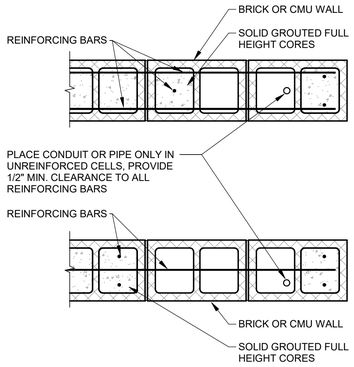
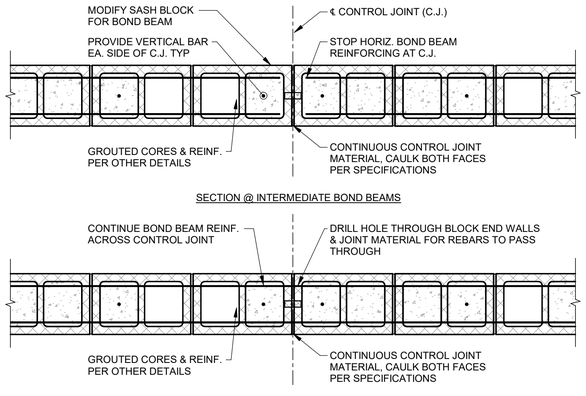


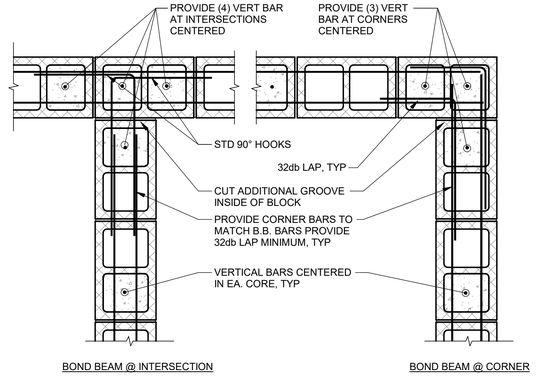
NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING. DO NOT TIE CONDUIT OR PIPE TO REINFORCING STEEL

1 TYP MASONRY WALL CONSTRUCTION
SCALE: NTS



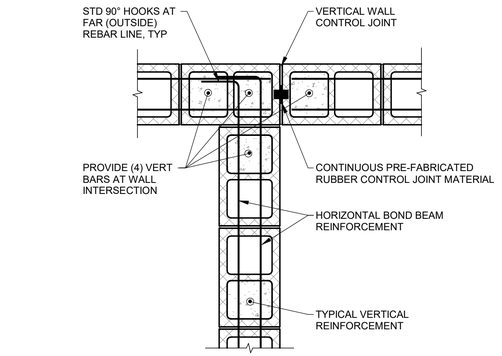
NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING.

2 TYP MASONRY WALL CONTROL JOINT DETAILS
SCALE: NTS

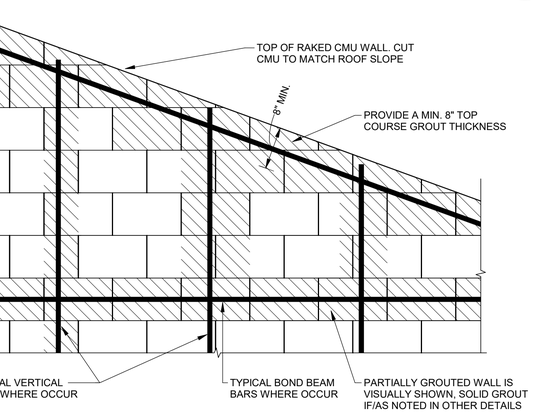


NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING SIZE & SPACING BOND BEAM TO BE SOLID GROUTED FULL HEIGHT & LENGTH. TYPICAL DETAIL WHERE VERTICAL CORES CONTAIN (1) BAR.

3 TYP MASONRY WALL INTERSECTION DETAILS
SCALE: NTS



4 TYP MASONRY WALL INTERSECTION AT CJ
SCALE: NTS



NOTES
1. BUILDING PAPER NOT ALLOWED AS GROUT STOP.
2. REFER TO OTHER DETAILS & NOTES FOR ALL MASONRY REINFORCING.
3. GROUT ALL THE OTHER CORES SOLID FULL HEIGHT WHERE DIRECTED ON THE GENERAL STRUCTURAL NOTES & SPECIFICATIONS & TYPICAL DETAILS.

5 TYP MASONRY WALL BOND BEAM DETAIL
SCALE: NTS

NOTES: PROVIDE FINE GROUT PER ASTM C 476 FOR ALL STRUCTURAL REINFORCED MASONRY. PROVIDE MECHANICAL REBAR POSITIONERS TO CORRECTLY HOLD BARS IN POSITION. TYPICAL DETAIL WHERE (1) VERTICAL BAR IS PLACED WITHIN BLOCK CELL.

6 TYP MASONRY WALL REBAR PLACEMENT DETAIL
SCALE: NTS

NOTE: REFER TO WALL ELEVATION VIEW FOR ADDITIONAL REQUIREMENTS. REFER TO OTHER DETAILS FOR CMU WALL REINFORCING REQUIREMENTS. WHERE NOT OTHERWISE NOTED, EXTEND LINTEL GROUTING 16" EITHER SIDE OF WALL OPENING EDGE.

7 TYP MASONRY LINTEL SECTION VIEW
SCALE: NTS

NOTE: REFER TO OTHER NOTES & DETAILS FOR ALL REINF. REQUIREMENTS. REINFORCING IS NOT SHOWN IN THIS VIEW FOR CLARITY. Le = ANCHOR BOLT EMBEDMENT, 5" MIN. U.N.O.

8 TYP MASONRY WALL ANCHOR BOLT EMBED
SCALE: NTS

NOTE: REFER TO PLAN & ELEVATION VIEWS FOR ELEVATIONS AND SLOPES. REFER TO OTHER DETAILS FOR WALL REINFORCING REQUIREMENTS. THE ROOF STRUCTURE IS NOT SHOWN IN THIS VIEW. REFER TO OTHER DETAILS FOR BLOCK TYPE.

9 TYP RAKED TOP OF WALL DETAIL
SCALE: NTS

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JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL MASONRY DETAILS

FILE:
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DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-921

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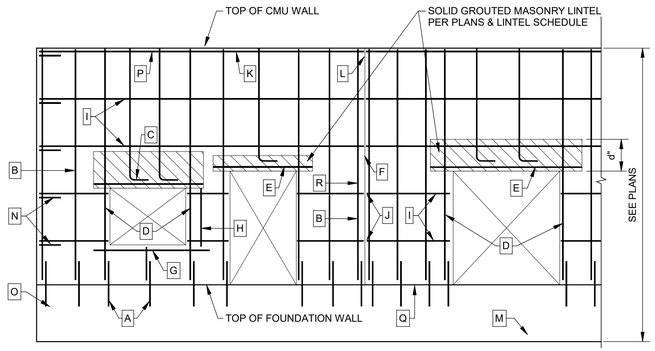
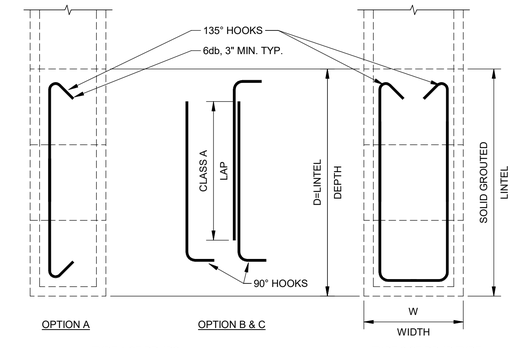
NOTE: SEE PLANS FOR LINTEL SCHEDULE/CALLOUTS



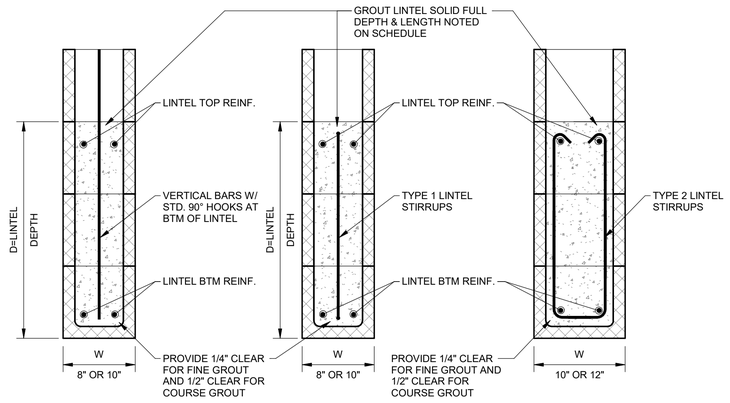
A	FOUND. DOWELS TO MATCH VERT. BAR LOCATIONS.	J	STOP BOND BEAM BARS @ WALL CONTROL JOINT.
B	VERTICAL WALLS BAR, 8" CMU: #5 VERT. @ 32" O.C. U.N.O.	K	DIAPHRAM CHORD B.B. W/ 2-#5 CONT.
C	STANDAR 90° HOOK.	L	CONTINUE BARS ACROSS WALL CONTROL JOINT.
D	8" CMU: 2-#5 VERTICAL BARS, EA. SIDE OF OPENINGS TYP., U.N.O.	M	CONC. STEM WALL, SEE OTHER DETAILS.
E	REFER TO LINTEL REINFORCING SCHEDULE.	N	CORNER BARS AT EACH BOND BEAM.
F	VERTICAL WALL CONTROL (C.J.) JOINTS. SEE PLANS.	O	FOUNDATION WALL, SEE OTHER DETAILS.
G	(2) #4 BAR UNDER EACH OPENING.	P	LAP DIAPHRAM B.B. BARS 72db MINIMUM.
H	48 BAR DIAMETERS MINIMUM.	Q	LAP 48db MINIMUM.
I	HORIZ. B.B. REIN., 8" CMU: 2-#4 CONTINUOUS. USE (2) #5 BARS @ 12" O.C.	R	VERT. BAR/BARS EA. SIDE OF C.J.

NOTES: WALL SHOWN IS A REPRESENTATIVE SECTION OF TYPICAL MASONRY OR BRICK WALL. FOR ACTUAL WALL AND OPENING DIMENSIONS REFER TO THE PLANS AND ELEVATION VIEWS. REFER TO OTHER DETAILS AND STRUCTURAL NOTES FOR REINFORCING REQUIREMENTS.

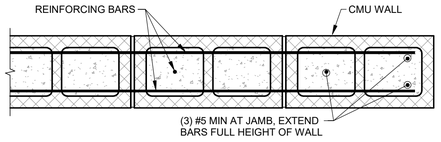
1 TYP REINFORCED MASONRY WALL ELEVATION DETAIL
SCALE: NTS



2 TYP MASONRY LINTEL SHEAT STIRRUPS
SCALE: NTS

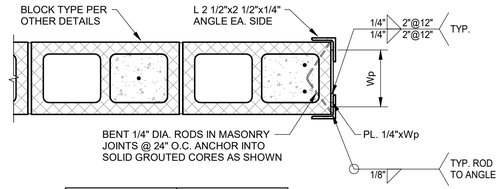


3 TYP MASONRY LINTEL DETAIL
SCALE: NTS



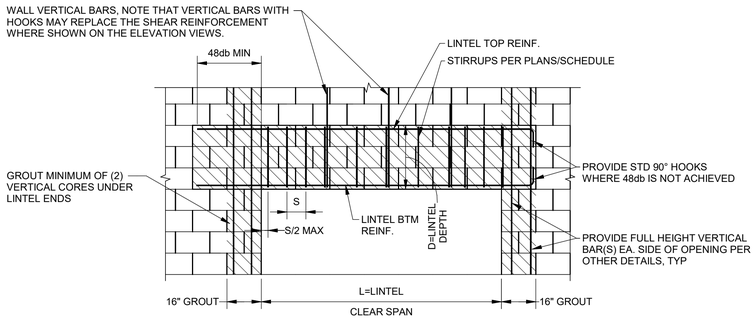
NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING.

4 TYP MASONRY JAMB DETAIL
SCALE: NTS



NOMINAL CMU SIZE	NOMINAL CMU SIZE
	Wp
8"	6"
10"	8"
12"	10"

5 CMU DOOR JAMB PROTECTION DETAIL
SCALE: NTS



NOTES:
1. HATCHING INDICATES SOLID GROUTED CMU CORES, TYPICAL.
2. REFER TO TYPICAL CMU OPENING ELEVATION VIEW FOR ADDITIONAL REQUIREMENTS.
3. REFER TO CMU LINTEL SECTION VIEW & SCHEDULE FOR LINTEL ADDITIONAL REQUIREMENTS.
4. REFER TO TYPICAL LINTEL STIRRUP DETAIL FOR STIRRUP OPTIONS.
5. REFER TO WALL ELEVATION VIEWS FOR TYPICAL CMU WALL REINFORCING REQUIREMENTS.
6. Lo=40 BAR DIAMETERS (BOTTOM BARS), 24" MINIMUM.
7. S=STIRRUP SPACING, REFER TO SCHEDULE.

6 TYP MASONRY WALL OPENING LINTEL ELEVATION
SCALE: NTS

J-U-B ENGINEERS, INC.
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www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
TYPICAL MASONRY DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-922

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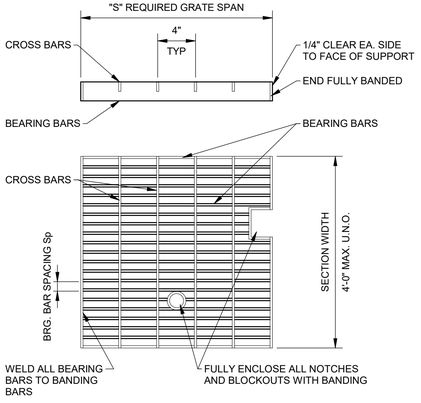
1. ALL ALUMINUM TO BE ALLOY 6063 TEMPER T6, UNLESS NOTED OTHERWISE; CROSS BARS MAY BE ALLOY 6063, TEMPER T1
2. ALL WELDING OF ALUMINUM MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY (AWS) D1.2 STRUCTURAL WELDING CODE: ALUMINUM, CURRENT EDITION.
3. PROVIDE SERRATED OR OTHER NON-SLIP SURFACE TYPICAL UNLESS NOTED OTHERWISE ON THE PLANS OR DETAILS.
4. FINISH SHALL BE STANDARD MILL FINISH UNLESS NOTED OTHERWISE.
5. ATTACH GRATING WITH INDUSTRY STANDARD ALUMINUM CLAMPS OR CLIPS TO ANCHOR THE GRATING SECURELY TO SUPPORTS. PROVIDE A MINIMUM OF (4) PER PANEL UNLESS NOTED OTHERWISE.
6. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIREMENTS.
7. COORDINATE REBAR PLACEMENT IN CONCRETE TO MISS ANCHOR BOLTS.
8. APPLY ONE COAT OF BITUMINOUS PAINT ALL CONCEALED ALUMINUM SURFACES IN CONTACT WITH CEMENTIOUS OR DISSIMILAR MATERIALS.
9. REFER TO ALUMINUM BAR GRATE SCHEDULES FOR MINIMUM GRATING PROPERTIES.
10. BAR GRATE FLOORS HALL BE CONSIDERED MEDIUM-DUTY UNLESS OTHERWISE NOTED.
11. CUTOUTS FOR CIRCULAR PENETRATIONS SHALL BE 2" LARGER IN DIAMETER THAN THE PENETRATION.
12. ALL BAR GRATE SECTION ENDS, EDGES, AND OPENING PERIMETERS SHALL BE FULLY BANDED.
13. SPAN TABLES FOR THIS SHEET ARE FOR ALUMINUM WITH AN ALLOWABLE BENDING STRESS OF 12 KSI AND FOR GRATING WITH 1-3/16" CENTER TO CENTER BEARING BAR SPACING, TYPICAL.
14. NORMAL DUTY BAR GRATE SHALL BE ABLE TO SUPPORT EITHER A UNIFORM LIVE LOAD OF 100 PSF OR A CONCENTRATED LOAD OF 350-LBS.
15. LIMIT LIVE LOAD DEFLECTION TO 1/4" OR LESS UNDER A UNIFORM LIVE LOAD OF 100 PSF.

1 ALUMINUM BAR GRATE GENERAL NOTES
SCALE: NTS

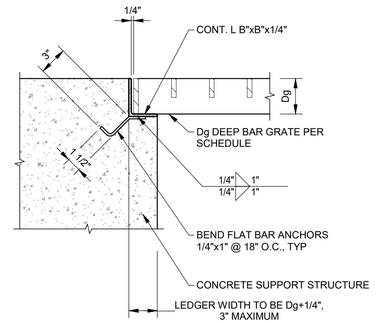
NORMAL DUTY FLOOR GRATING		
GRATE SPAN "S"	MINIMUM BEARING BAR SIZE	
	DEPTH "D"	THICKNESS "T"
UP TO 2'-0"	1"	1/8"
2'-1" TO 3'-0"	1"	3/16"
3'-1" TO 4'-0"	1 1/4"	1/8"
4'-1" TO 5'-0"	1 1/2"	3/16"
5'-1" TO 6'-0"	1 3/4"	3/16"
6'-1" TO 7'-0"	2"	3/16"
7'-1" TO 8'-0"	2 1/4"	3/16"

NOTE: UNLESS OTHERWISE DIRECTED ON THE PLANS OR SPECIFICATIONS PROVIDE NORMAL DUTY FLOOR GRATING.



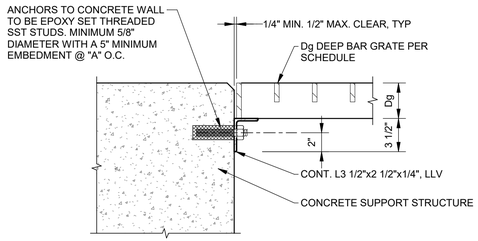
NOTE: REFER TO OTHER TYPICAL DETAILS FOR SUPPORT REQUIREMENTS. REFER TO PLAN VIEWS FOR LOCATION OF OPENINGS AND NOTCHES

3 TYPICAL ALUMINUM BAR GRATING DETAIL
SCALE: NTS



NOTE: ANGLE LEG "B" SHALL BE EQUAL TO "D" + 1/4" SET GRATE & EMBEDDED ANGLE FLUSH WITH TOP CONCRETE SURFACE. REFER TO OTHER DETAILS FOR ALL REINFORCING REQUIREMENTS. ALL MATERIALS (EXCEPT GRATING) TO BE STAINLESS STEEL (SST).

4 TYP BAR GRATE EMBEDDED LEDGER DETAIL
SCALE: NTS

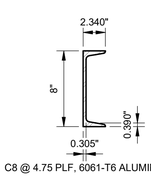


ANCHOR SPACING "A"	BAR GRATE SPAN "S"		
FLOOR TYPE:	UP TO 3'-0"	3'-0" TO 4'-6"	4'-4" TO 6'-0"
NORMAL DUTY FLOOR	32" O.C.	24" O.C.	18" O.C.

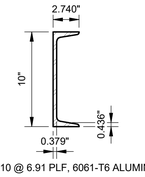
ALL MATERIALS (EXCEPT GRATING) TO BE STAINLESS STEEL (SST).

5 TYP BAR GRATE FACE MOUNT LEDGER DETAIL
SCALE: NTS

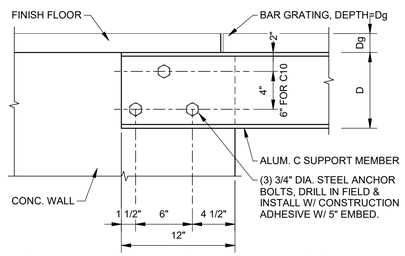
2 TYPICAL ALUMINUM BAR GRATING SCHEDULE
SCALE: NTS



C8 @ 4.75 PLF, 6061-T6 ALUMINUM

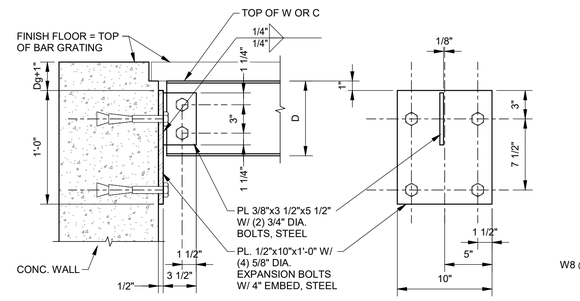


C10 @ 6.91 PLF, 6061-T6 ALUMINUM



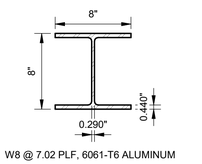
NOTE: ALL MATERIALS NOTED AS STEEL SHALL BE STAINLESS STEEL COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS W/ A COAT OF BITUMINOUS PAINT, TYPICAL

6 TYP ALUM. C WALL FACE ANCHORAGE DETAIL
SCALE: NTS

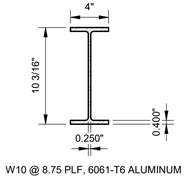


NOTE: ALL MATERIALS NOTED AS STELL SHALL BE STAINLESS STEEL. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS W/ A COAT OF BUITMINOUS PAINT, TYPICAL.

7 TYP ALUM W OR C WALL SHEAR PLATE DETAIL
SCALE: NTS



W8 @ 7.02 PLF, 6061-T6 ALUMINUM

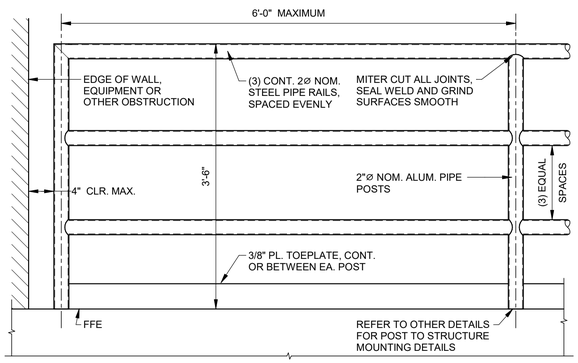


W10 @ 8.75 PLF, 6061-T6 ALUMINUM

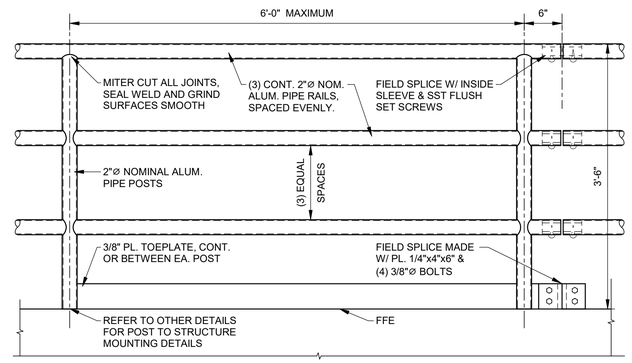
GUARD RAIL INSTALLATIONS WITH TOE/KICK PLATES

1. ALL ALUMINUM TO BE ALLOY 6061 TEMPER T6.
2. MEMBERS NOTED AS ALUMINUM PIPE SHALL BE ROUND ALUMINUM PIPE:
   A. OUTSIDE DIAMETER O.D. = 1.90"
   B. MINIMUM WALL THICKNESS, Tw = 0.20"
3. ALL WELDING OF ALUMINUM MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY (AWS) D1.2 STRUCTURAL WELDING CODE, ALUMINUM, CURRENT EDITION.
4. COMPLETE RAIL ASSEMBLY, BRACKETS AND MISCELLANEOUS PIECES SHALL BE FINISHED WITH ELECTRO-CHEMICAL (CLEAR) ANODIZED SURFACE.
5. STRUCTURAL BOLTS, NUTS, WASHERS, & MSC. ITEMS SHALL BE STAINLESS STEEL PER ASTM A320 GRADE B8M, CLASS 2, TYPE 316.
6. APPLY ONE COAT OF BITUMINOUS PAINT TO ALL CONCEALED ALUMINUM SURFACES IN CONTACT WITH CEMENTIOUS OR DISSIMILAR MATERIALS.
7. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIREMENTS. COORDINATE REBAR PLACEMENT IN CONCRETE TO MISS ANCHOR BOLTS.
8. PROVIDE TOE/KICK PLATES ON GUARD RAIL WHERE ANY MATERIALS KICKED OFF OF THE EDGE OF THE ENCLOSED FLOOR SPACE COULD IMPACT ON PERSONS OR EQUIPMENT THE RAILING IN QUESTION. THE OWNER AND/OR PROJECT ENGINEER SHALL MAKE ALL FINAL DETERMINATIONS.

8 TYP ALUMINUM GUARD RAIL NOTES
SCALE: NTS



9 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



10 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS

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392 E. Winchester St.
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JESSE L. SHOCKLEE
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REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL GUARD RAIL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-931

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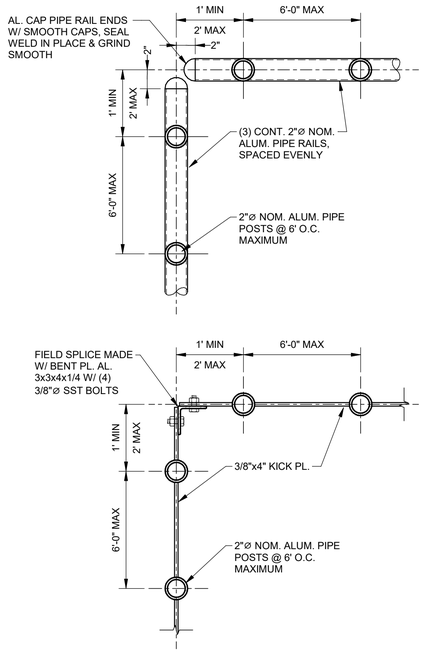
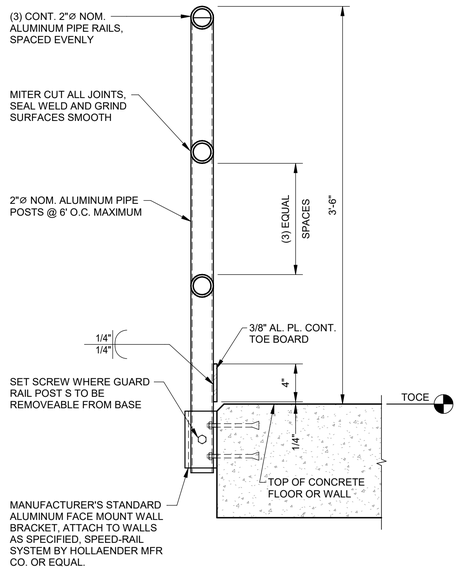
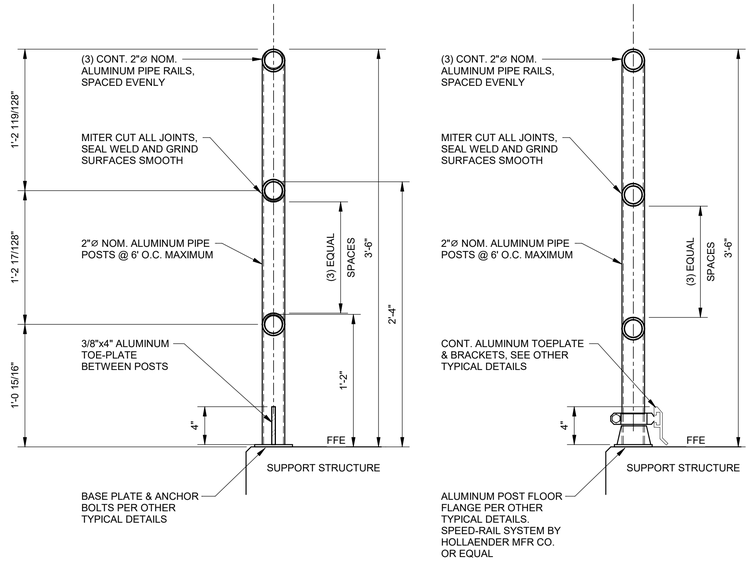


NOTE: DETAIL IS SIMILAR FOR CORNER ANGLES OTHER THAN 90°

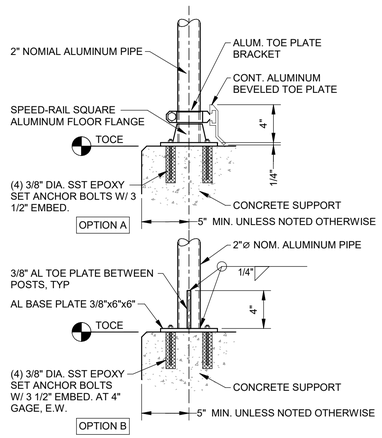
1 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



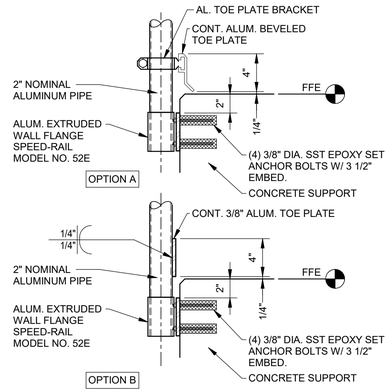
2 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



3 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



4 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



5 TYP ALUMINUM GUARD RAIL DETAILS
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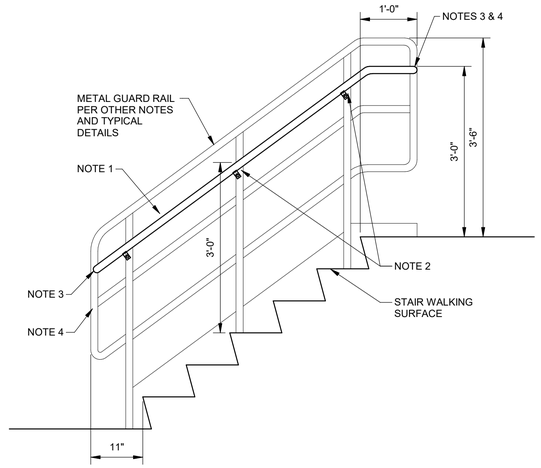

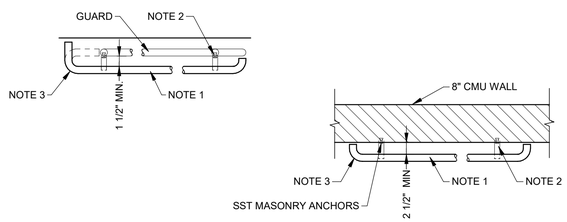

NOTES:
1. ANODIZED ALUMINUM HANDRAIL, 1 1/2" O.D., TYPICAL.
2. ANODIZED ALUMINUM HANDRAIL BRACKET, IBC CODE COMPLIANT, ATTACH BRACKET TO INTERMEDIATE POSTS OR CMU PER THE SUPPLIERS RECOMMENDATIONS.
3. RETURN HANDRAIL TO WALL, GUARD RAIL OR DOWN TO SUPPORT SURFACE WHERE NO WALL IS PRESENT, TYPICAL BOTH ENDS OF HANDRAILS.
4. REFER TO THE ARCHITECTURAL, DRAWINGS FOR ADDITIONAL INFORMATION.
5. MOUNT OPPOSING HANDRAILS AT THE SAME HEIGHT, TYPICAL.

6 TYP ALUMINUM HAND-RAIL DETAILS
SCALE: NTS

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL GUARD RAIL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-932

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GUARD RAIL INSTALLATIONS WITHOUT TOE/KICK PLATES

1. ALL ALUMINUM TO BE ALLOY 6061 TEMPER T6.
2. MEMBERS NOTED AS ALUMINUM PIPE SHALL BE ROUND ALUMINUM PIPE:
   A. OUTSIDE DIAMETER O.D. = 1.90"
   B. MINIMUM WALL THICKNESS, Tw = 0.20"
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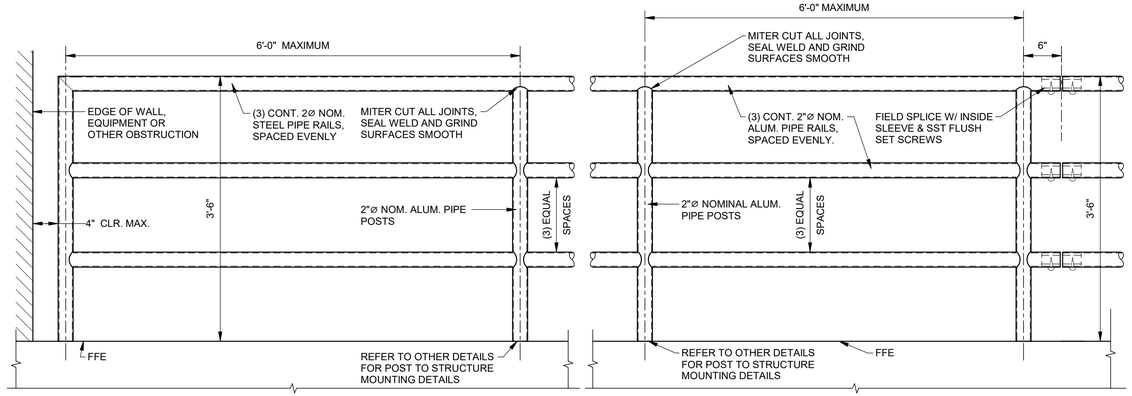
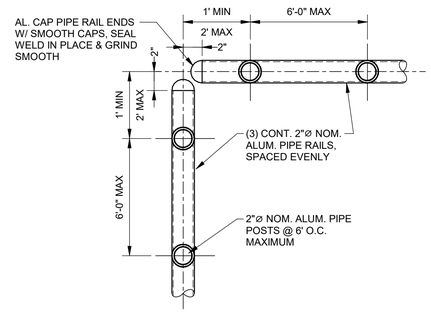
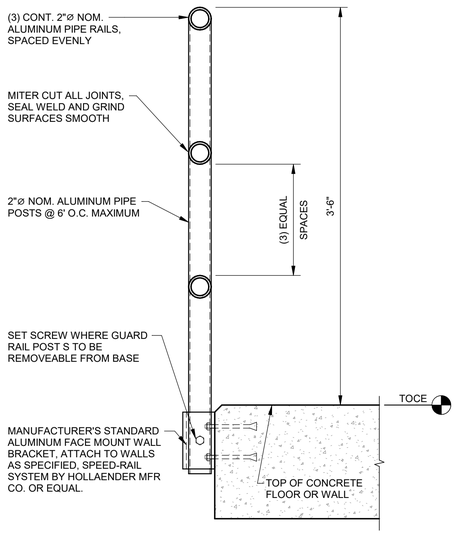




NOTE: DETAIL IS SIMILAR FOR CORNER ANGLES OTHER THAN 90°

1 TYP ALUMINUM GUARD RAIL NOTES
SCALE: NTS



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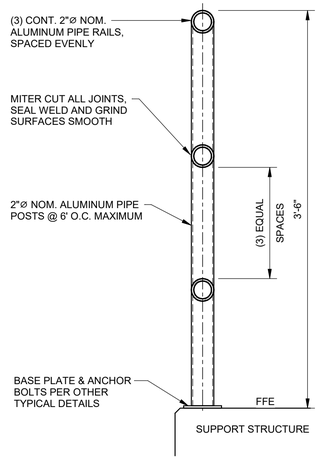
SCALE: NTS



3 TYP ALUMINUM GUARD RAIL DETAILS
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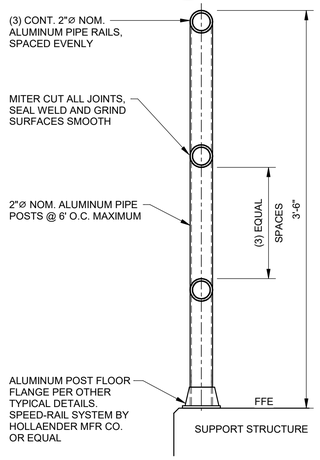

4 TYP ALUMINUM GUARD RAIL DETAILS
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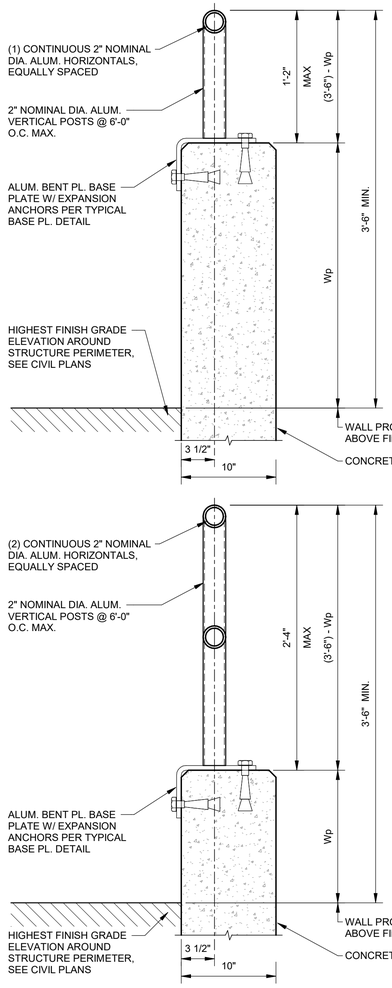
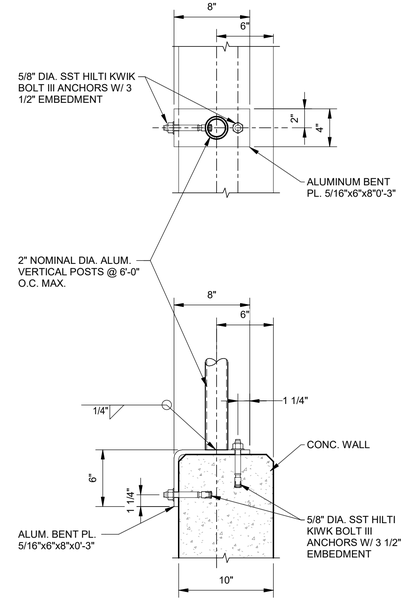
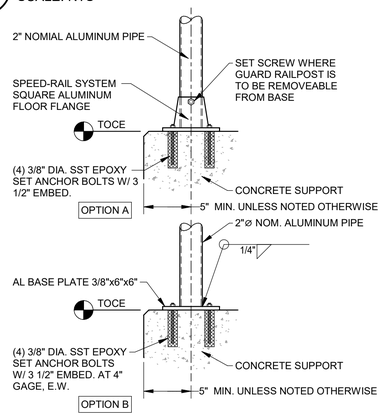




NOTE: PAINT ALUMINUM SURFACES IN CONTACT WITH CONCRETE SURFACES W/ A COAT OF BITUMINOUS CORROSION INHIBITING PAINT, TYPICAL.

5 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS



6 TYP ALUMINUM GUARD RAIL DETAILS
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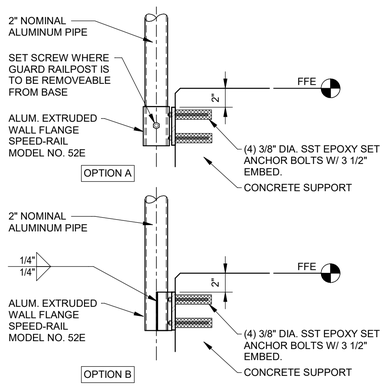

7 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS

8 TYP ALUMINUM GUARD RAIL DETAILS
SCALE: NTS

9 TYP METAL GUARD RAIL ON RAISED WALL
SCALE: NTS

10 TYP METAL GUARD RAIL ON RAISED WALL
SCALE: NTS

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TYPICAL GUARD RAIL DETAILS

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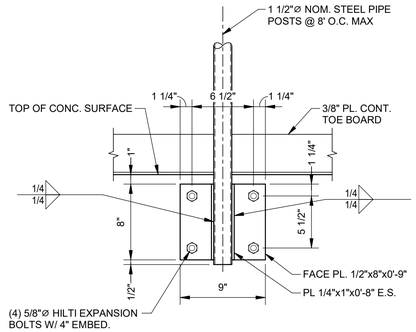
DRAWING:
00-SZ-933

C:\Users\emorales\OneDrive - J-U-B Engineers, Inc\Documents\Revit Project Local\93-24-001_SZ_emorales6P7SX.rvt

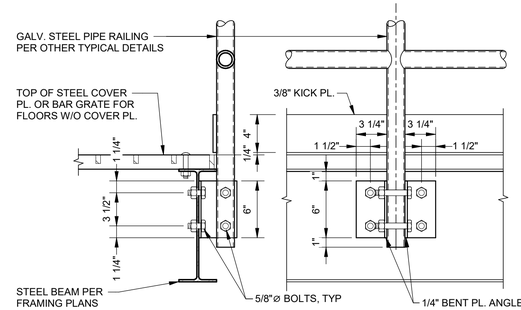
1. STEEL PIPE TO BE ASTM A53 GRADE B; WITH Fy = 35 KSI.
2. STEEL PLATES, CHANNELS, & ANGLES TO BE ASTM A36; WITH Fy = 36 KSI.
3. ALL WELDING TO CONFORM TO CURRENT AWS D1.1 REQUIREMENTS.
4. COMPLETE ASSEMBLY OR SUB-ASSEMBLIES, BRACKETS, RAILING AND MISCELLANEOUS STEEL PIECES SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. STRUCTURAL BOLTS, NUTS, & WASHERS SHALL BE HOT-DIP GALVANIZED.
6. EXPANSION ANCHORS TO BE HILTI KWIK-BOLT II OR APPROVED EQUAL. INSTALL EXPANSION ANCHORS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
7. EXPANSION BOLTS, NUTS, & WASHERS SHALL BE STAINLESS STEEL.
8. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIRMENTS.
9. COORINDATE REBAR PLACEMENT IN CONCRETE TO MISS ANCHOR BOLTS & INSERTS.
10. GALVANIZED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH AN APPROVED COLD-GALVANIZING COMPOUND.
11. EPOXY SET ANCHORS SHALL UTILIZE HILTI HIT HY 150 CONSTRUCTION ADHESIVE AND HAS GALVANIZED OR STAINLESS STEEL THREADED RODS.
12. FIELD SPLICES SHALL BE MADE UTILIZING GALVANIZED STEEL PIPE SLEEVE INSERTS AND HOT-DIP GALVANIZED STEEL BOLTS, NUTS, AND WASHERS.

1 TYP STEEL GUARD RAIL NOTES
SCALE: NTS



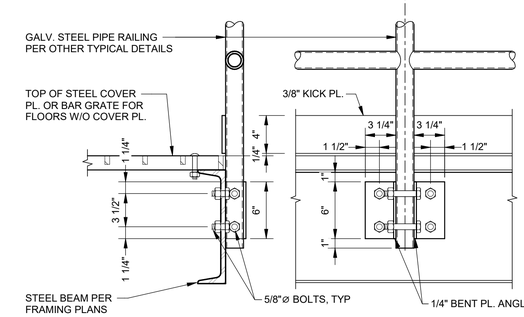
NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

2 TYP STEEL GUARD RAIL DETAIL 3
SCALE: NTS



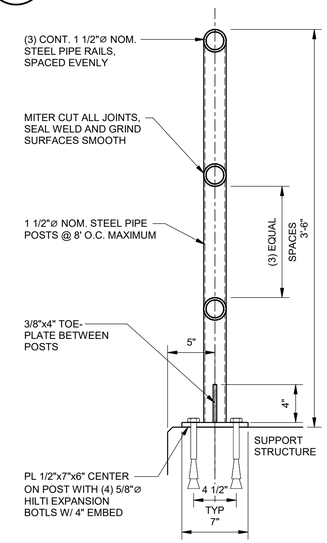
NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

3 TYP STEEL PIPE RAILING ATTACHMENT TO STEEL BEAMS
SCALE: NTS

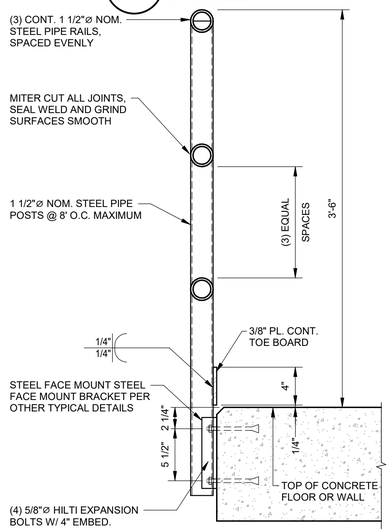


NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

4 TYP STEEL PIPE RAILING ATTACHMENT TO STEEL CHANNELS
SCALE: NTS

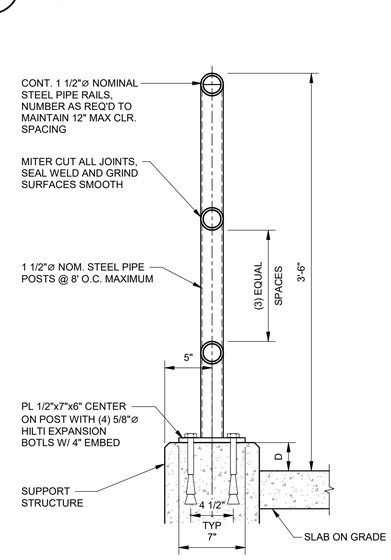


5 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS

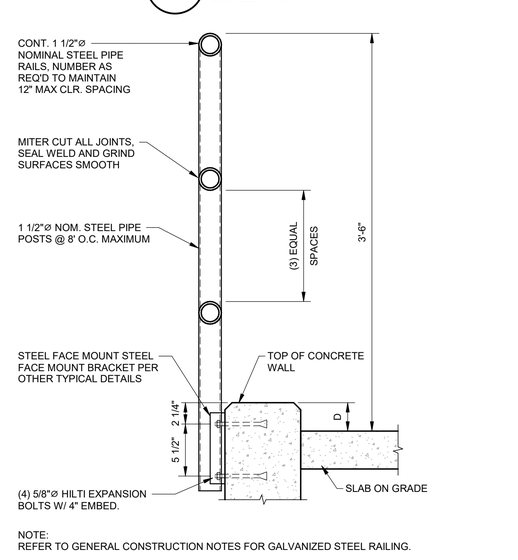


NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

6 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS

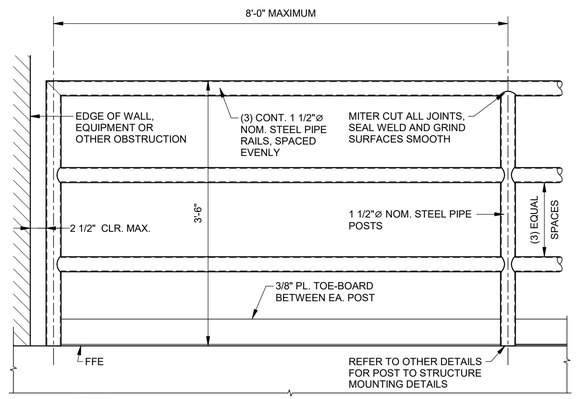


7 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



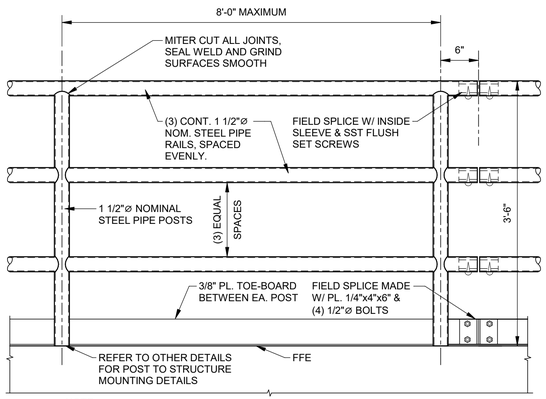
NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

8 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



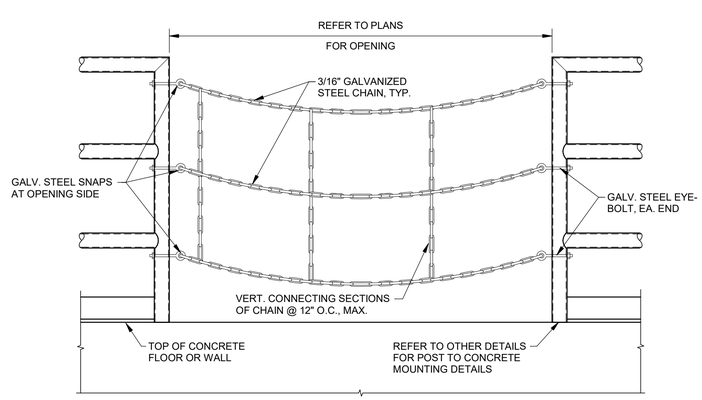
NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

9 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

10 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



NOTE: REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

11 TYP CHAIN ACCESS GATE DETAIL (GALVANIZED)
SCALE: NTS

J-U-B ENGINEERS, INC.
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Subconsultant:

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL GUARD RAIL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-934

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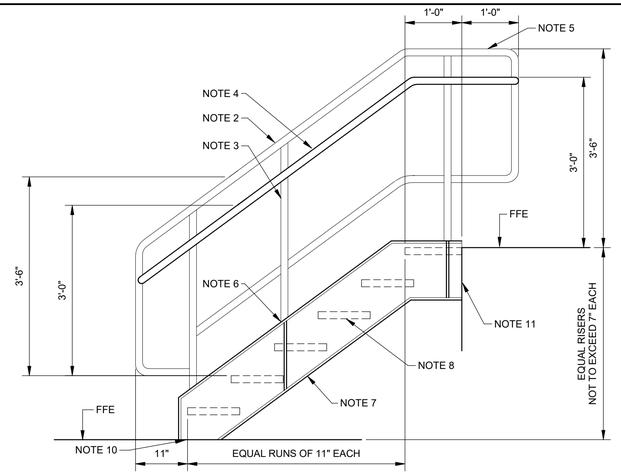
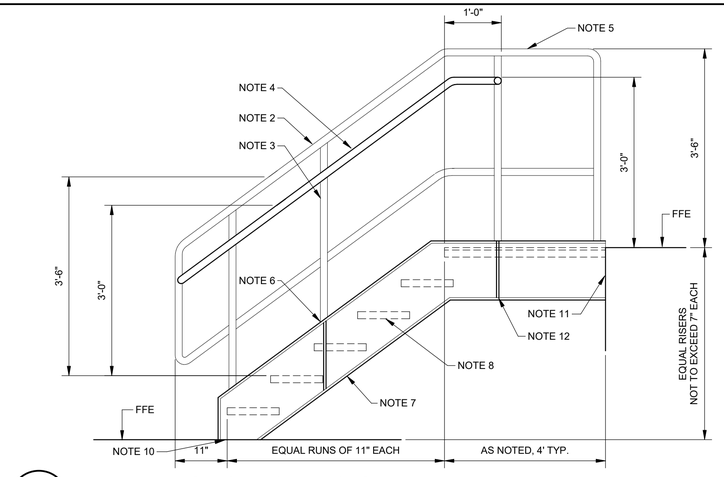
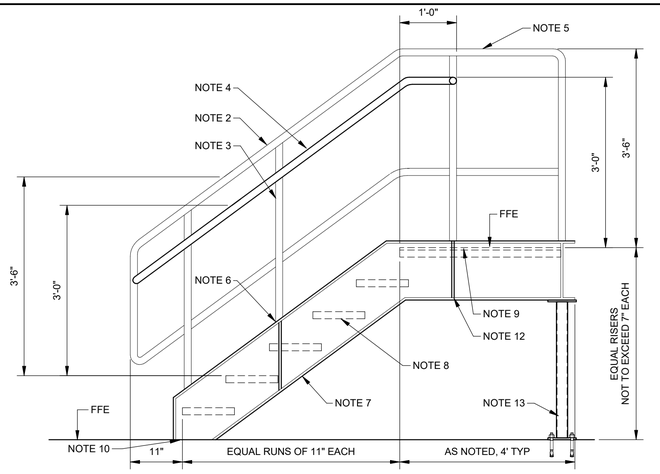


1 TYP METAL STAIR W/O LANDING
SCALE: NTS



2 TYP METAL STAIR W/ LANDING
SCALE: NTS

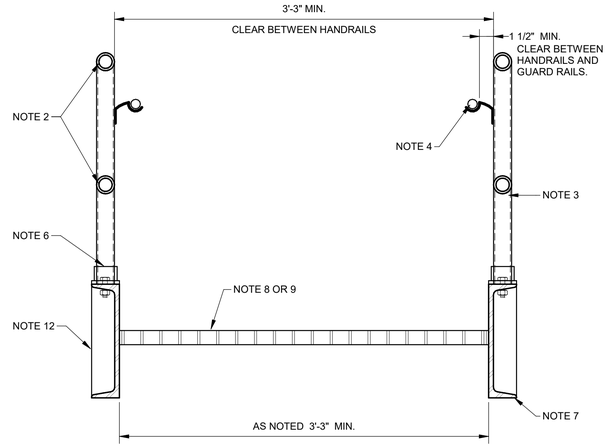


3 TYP METAL STAIR W/ LANDING
SCALE: NTS

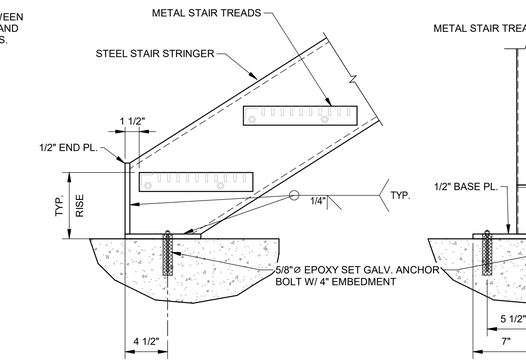
KEYED NOTES:

1. REFER TO METAL FABRICATIONS OR METAL STAIR SYSTEMS TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. (2) EVENLY SPACED 2" NOMINAL DIATMETER ALUMINUM GUARDS.
3. 2" NOMINAL DIAMETER ALUMINUM POSTS @ 6' O.C., MAX SPACING.
4. 1 1/2" NOMINAL DIAMETER ALUMINUM HAND RAIL, EACH SIDE.
5. EXTEND GUARD RAIL OUT PER BUILDING CODE REQUIREMENTS.
6. ATTACH METAL POSTS TO STAIR STRINGERS WITH MFG. STANDARD BRACKETS (SPEED-RAIL SYSTEM BY HOLLAENDER MFR CO OR EQUAL).
7. C12x20.7 STEEL STRINGER EACH SIDE, MITER CUT INTERSECTIONS & SEAL WELD ENDS TOGETHER, TYPICAL.
8. ALUMINUM STAIR TREADS W/ SERRATED SURFACE & SAFETY NOSING, ATTACH TO STRINGERS W/ (2) 5/8" DIA. SST BOLT, TYPICAL.
9. 1 1/2" DEEP ALUMINUM BAR GRATE LANDING.
10. ATTACH TO CONCRETE FLOOR/SLAB PER TYPICAL DETAILS.
11. ATTACH TO CONCRETE WALL PER TYPICAL DETAILS.
12. 3/8" THICK VERTICAL STIFFENER PL.S CENTERED UNDER EACH GUARD POST W/ 3/16 FILLET WELDS (3) EDGES TO STRINGER, TYPICAL.
13. 3" DIA. STEEL PIPE POST W/ 3/8" PLATE EA. END W/ (2) 5/8" DIA. BOLTS TOP & (2) 5/8" DIA.x4" EXPANSION BOLTS BOTTOM.
14. FINISH, ALL FABRICATED STEEL SHALL BE HOT DIPPED GALVANIZED PER SPECIFICATIONS SECTION 05 04 10.

4 TYP METAL (STEEL) STAIR KEYED NOTES
SCALE: NTS

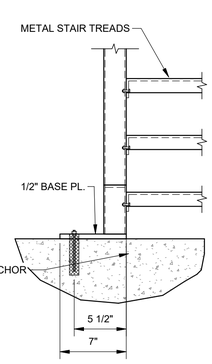


5 TYP METAL STAIR SECTION VIEW
SCALE: NTS

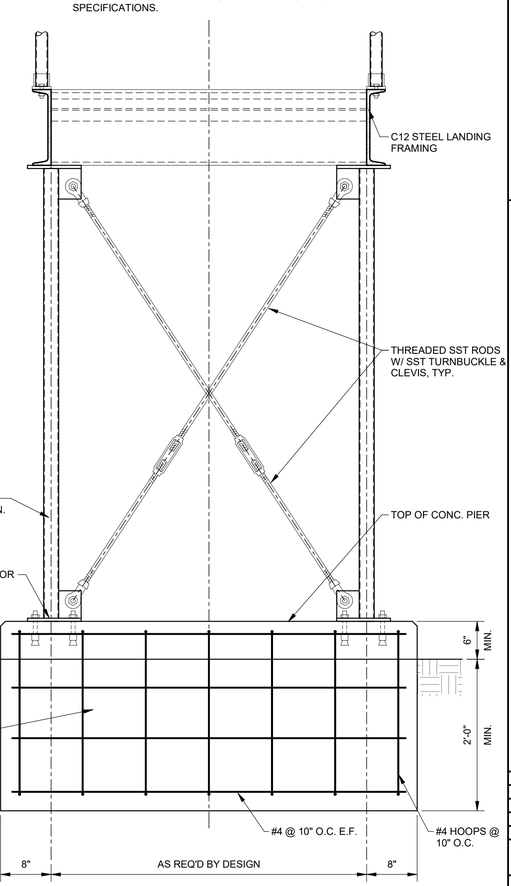


NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POST, & HAND RAIL ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

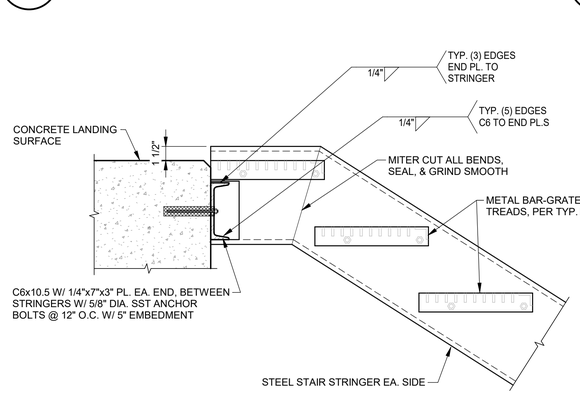
6 TYP STAIR STRINGER BASE PL. DETAIL
SCALE: NTS



NOTE: COORDINATE ALL STAIR LAYOUT REQUIREMENTS W/ ARCHITECTURAL DRAWINGS AND THE TECHNICAL SPECIFICATIONS.

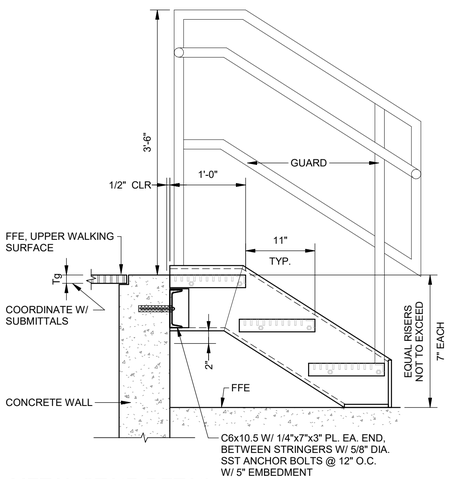


10 TYP LANDING PIER DETAIL
SCALE: NTS

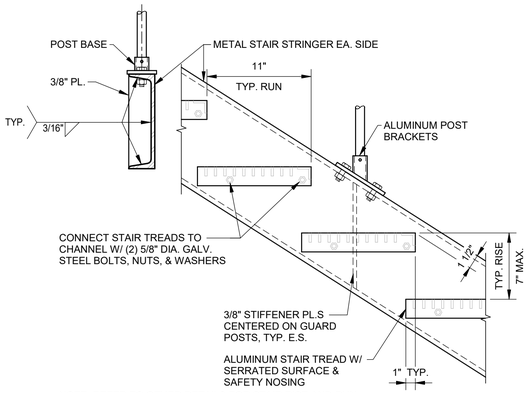


NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAIL ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

7 TYP METAL STAIR LANDING CONNECTION
SCALE: NTS



8 METAL STAIR DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAIL ARE NOT SHOWN ON THE VIEW FOR CLARITY.

9 TYP METAL STAIR TREAD DETAIL
SCALE: NTS

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Subconsultant:

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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
STRUCUTRAL (S)
TYPICAL STAIR DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
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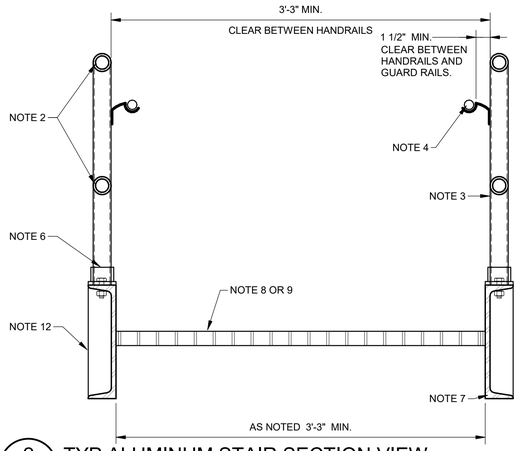
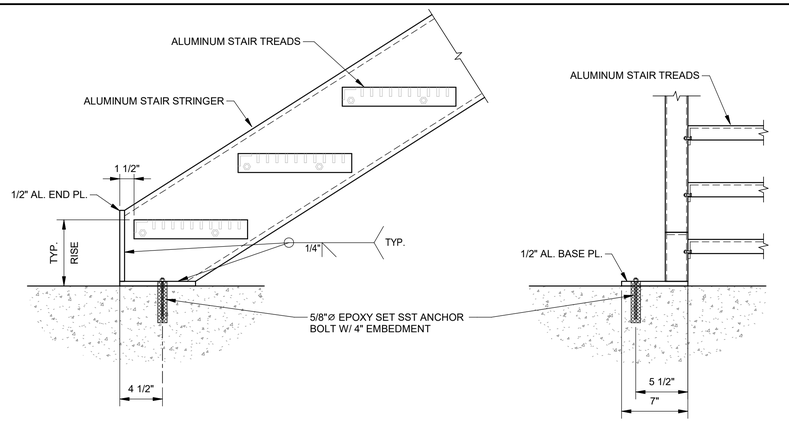
KEYED NOTES:

1. REFER TO METAL FABRICATIONS OR METAL STAIR SYSTEMS TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. (2) EVENLY SPACED 2" NOMINAL DIATMETER ALUMINUM GUARDS.
3. 2" NOMINAL DIAMETER ALUMINUM POSTS @ 6' O.C., MAX SPACING.
4. 1 1/2" NOMINAL DIAMETER ALUMINUM HAND RAIL, EACH SIDE.
5. EXTEND GUARD RAIL OUT PER BUILDING CODE REQUIREMENTS.
6. ATTACH METAL POSTS TO STAIR STRINGERS WITH MFG. STANDARD BRACKETS (SPEED-RAIL SYSTEM BY HOLLAENDER MFR CO OR EQUAL).
7. C12"x3"x8.64 PLF ALUMINUM STRINGER EACH SIDE, MITER CUT INTERSECTIONS & SEAL WELD ENDS TOGETHER, TYPICAL.
8. ALUMINUM STAIR TREADS W/ SERRATED SURFACE & SAFETY NOSING, ATTACH TO STRINGERS W/ (2) 5/8" DIA. SST BOLT, TYPICAL.
9. 1 1/2" DEEP ALUMINUM BAR GRATE LANDING.
10. ATTACH TO CONCRETE FLOOR/SLAB PER TYPICAL DETAILS.
11. ATTACH TO CONCRETE WALL PER TYPICAL DETAILS.
12. 3/8" THICK ALUMINUM VERTICAL STIFFENER PL.S CENTERED UNDER EACH GUARD POST W/ 3/16" FILLET WELDS (3) EDGES TO STRINGER, TYPICAL.

1 TYP ALUMINUM STAIR KEYED NOTES
SCALE: NTS

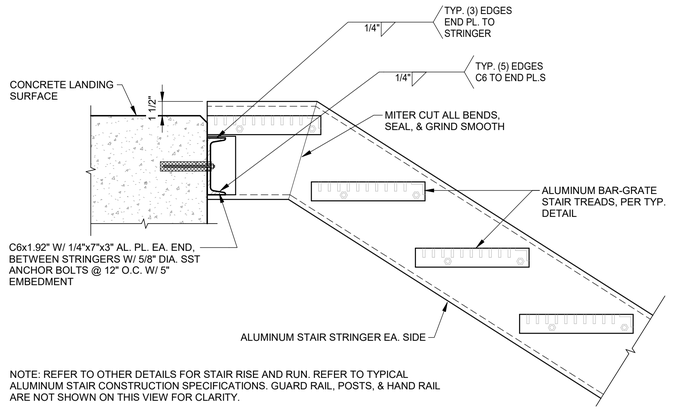


2 TYP ALUMINUM STAIR SECTION VIEW
SCALE: NTS



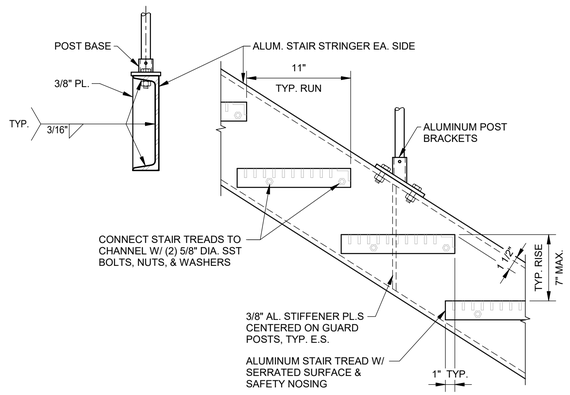
NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL ALUMINUM STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAILS ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

3 TYP STAIR STRINGER BASE PL. DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL ALUMINUM STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAIL ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

4 TYP ALUMINUM STAIR LANDING CONNECTION
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL ALUMINUM STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAILS ARE NOT SHOWN ON THE VIEW FOR CLARITY.

5 TYP ALUMINUM STAIR TREAD DETAIL
SCALE: NTS

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REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
TYPICAL STAIR DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
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ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
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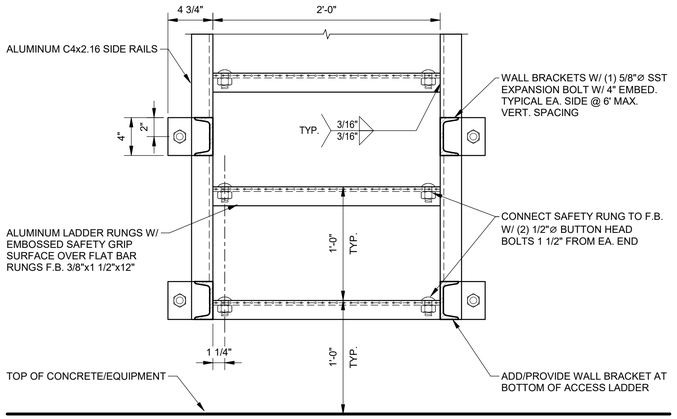
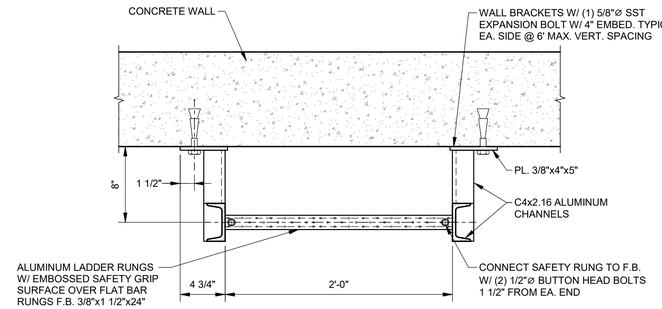


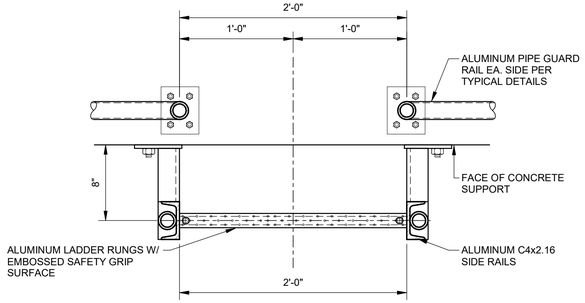
NOTE: REFER TO OTHER DETAILS FOR FINISH ELEVATIONS & CONCRETE DETAILS. 2'-0" WIDE "TRACTION-TREAD" 0.125" ALUMINUM LADDER RUNGS BY McNICHOLS CO. ALL JOINTS TO BE SEAL WELDED WITH MINIMUM 3/16" FILLET OR BEVEL WELDS. ALUMINUM LADDER ASSEMBLY TO BE ANODIZED AFTER FABRICATION.

1 TYP ALUMINUM LADDER DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR FINISH ELEVATIONS & CONCRETE DETAILS. 2'-0" WIDE "TRACTION-TREAD" 0.125" ALUMINUM LADDER RUNGS BY McNICHOLS CO. ALL JOINTS TO BE SEAL WELDED WITH MINIMUM 3/16" FILLET OR BEVEL WELDS. ALUMINUM ASSEMBLY TO BE ANODIZED AFTER FABRICATION.

2 TYP ALUMINUM LADDER DETAIL
SCALE: NTS



NOTE: REFER TO PLANS & OTHER DETAILS FOR FINISH ELEVATIONS & CONCRETE DETAILS. REFER TO TYP. ALUMINUM LADDER DETAILS FOR ADDITIONAL REQUIREMENTS.

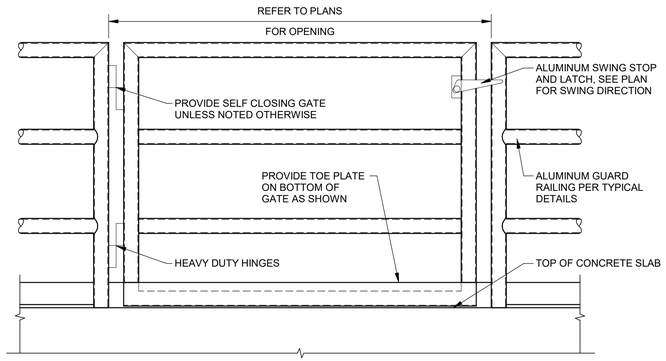
3 TYP ALUMINUM LADDER DETAIL
SCALE: NTS

4 TYP ALUMINUM LADDER DETAIL
SCALE: NTS

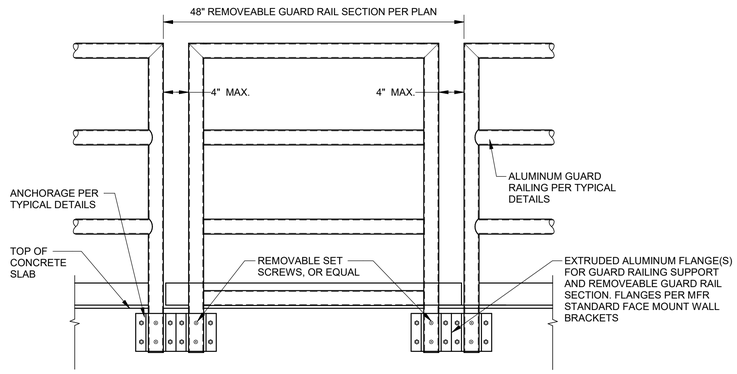
5 TYP ALUMINUM LADDER DETAIL
SCALE: NTS

NOTE: REFER TO GENERAL CONSTRUCTION NOTES FOR ALUMINUM PIPE RAILING.

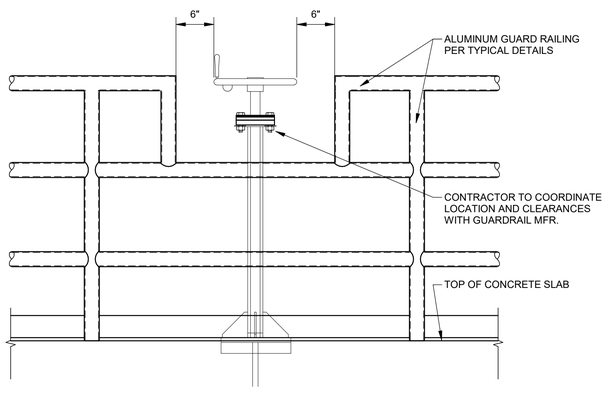
6 TYP CHAIN ACCESS GATE DETAIL
SCALE: NTS



7 TYP ALUMINUM GATE DETAIL
SCALE: NTS



8 TYP ALUMINUM REMOVABLE GUARD RAIL SECTION DETAIL
SCALE: NTS



9 TYP GUARD RAIL BLOCKOUT AT GATE WHEEL DETAIL
SCALE: NTS

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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL LADDER AND GATE DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-937

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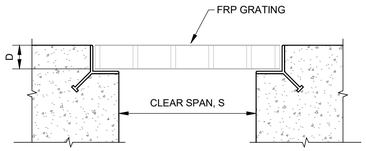
1. ALL FLOOR GRATING NOTES AS "FIBERGLASS" OR "FRP" ON THE PLAN AND DETAILS SHALL CONFORM TO THESE NOTES AND SPECIFICATIONS.
2. ALL MEMBERS NOTED AS "FIBERGLASS GRATING" SHALL BE FIBERGLASS REINFORCED POLYMER PLASTIC "SUPERGRATE" PULTRUDED GRATING AS MANUFACTURED BY ULTRA, INC. CREATIVE PULTRUSIONS, INC. OR AN APPROVED EQUAL. STRUCTURAL PROFILES WILL BE MANUFACTURED WITH A PREMIUM GRADE VINYL ESTER RESIN WITH FIRE RETARDANT ADDITIVE TO MEET CLASS 1 FLAME RATING OF ASTM E84 AND THE SELF-EXTINGUISHING OF ASTM D635. ALL STRUCTURAL PROFILES CONTAIN A UV INHIBITOR.
3. FIBERLGASS SYSTEMS AND ASSOCIATED COMPONENTS SHALL BE DESIGNED, FABRICATED, AND ERECTED AS INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
4. THE DESIGNER/MANUFACTURER SHALL BE AN APPROVED FIRM SPECIALIZING IN THE DESIGN AND FABRICATION OF FIBERGLASS SYSTEMS OF THE TYPES NOTED ON THE PLANS WITH A CONTINUOUS HISTORY OF OPERATION OF AT LEAST (5) YEARS.
5. ALL FLOOR GRATING SHALL BE DESIGNED TO SUPPORT THE FOLLOWING MINIMUM LIVE LOADS:
   A. A MINIMUM UNIFORM LIVE LOAD OF 100 PSF.
   B. A MINIMUM CONCENTRATED LOAD OF 300 LBS.
   C. EITHER LOAD APPLIED TO SUPPORTING MEMBER OF MAXIMUM EFFECT.
6. PROVIDE A CONTINUOUS SUPPORTING LEDGER, EMBEDDED INTO THE SUPPORTING CONCRETE OR FASTENED TO THE FACE OF THE SUPPORTING CONCRETE, AS CALLED FOR ON THE PLANS, ON ALL SIDES AND ENDS OF THE OPENING TO BE COVERED BY THE FLOOR GRATING.
7. AT CONTRACTORS OPTION PROVIDE EITHER CONTINUOUS STAINLESS STEEL FABRICATED LEDGER ANGLES OR CONTINUOUS FIBERGLASS EMBEDMENT ANGLE WITH INTEGRAL ANCHORAGE LEG.
8. FURNISH GRATE IN UNIFORM SECTIONS, OF SIZE AND WIDTH THAT CAN BE EASILY LIFTED AND MOVED BY A SINGLE LABORER.
9. PROVIDE A NON-SLIP SURFACE ON ALL FLOOR GRATING UNLESS NOTED OTHERWISE ON THE PLANS.
10. PROVIDE MANUFACTURER'S STANDARD STAINLESS STEEL CLIPS AND BRACKETS AS REQUIRED TO HOLD DOWN AND INTERONNECT ALL GRATING SECTIONS. AT A MINIMUM PROVIDE CLIPS AT EACH CORNER OF EACH SECTION AND AT A MAXIMUM SPACING OF 48" O.C., BETWEEN.

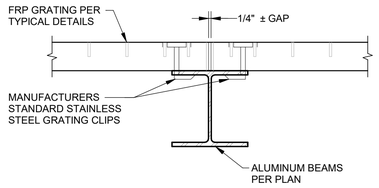
1 TYP FRP FLOOR GRATING CONSTRUCTION NOTES
SCALE: NTS



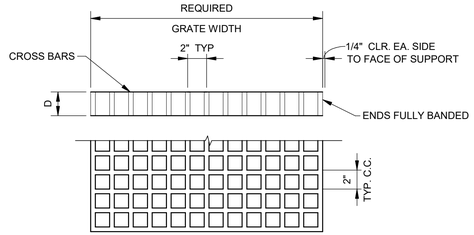
CLEAR GRATE SPAN, S	MINIMUM GRATE DEPTH,D	TYPICAL MESH GRID	MAXIMUM SECTION WIDTH
UP TO 18"	1.00"	1.5" x 1.5"	4'-0"
19" TO 36"	1.50"	1.5" x 1.5"	3'-0"
37" TO 48"	2.00"	2" x 2"	2'-0"
OVER 48"	FURNISH DESIGN DATA		

NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES.
TABLE IS FOR "SUPERGATE" MOLDED GRATING PRODUCTS

2 TYP FIBERGLASS FLOOR GRATING SPAN TABLE
SCALE: NTS

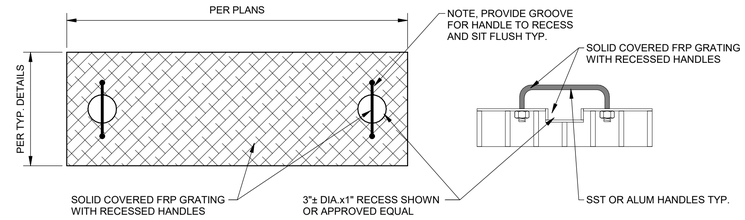


3 TYP FRP GRATING TO ALUMINUM BEAM DETAIL
SCALE: NTS

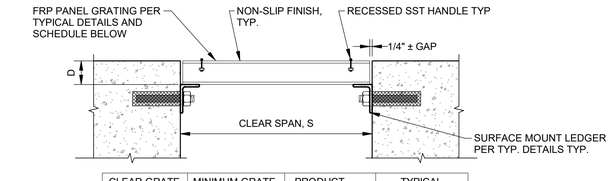


NOTE:
BAR GRATE TYPE:	McNICHOLS
BEARING BARS:	MOLDED 2" SQUARE MESH
CROSS BARS:	MOLDED 2" SQUARE MESH
MATERIAL:	FIBERGLASS (FRP)
SURFACE:	NON-SLIP GRIT SURFACE
WIDTH:	REFER TO FLOOR PLANS
LENGTH:	FURNISH IN 48" MAX. NOMINAL LENGTHS
GENERAL:	MIN. 100 PSF UNIFORM LIVE LOAD OR 300# CONCENTRATED LOAD CAPACITY
FINISH:	REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES CLASS 1 FLAME RATING

4 TYP FIBERGLASS FLOOR GRATING DETAIL
SCALE: NTS



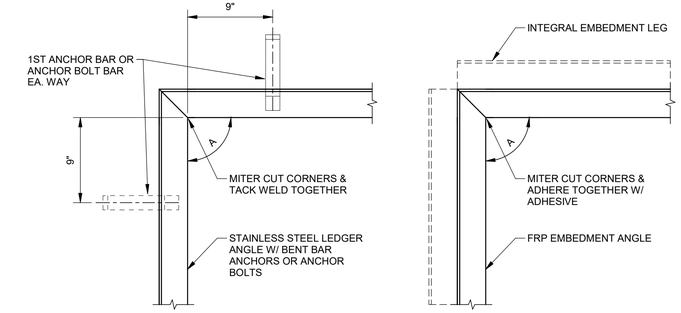
5 TYP SOLID COVERED FRP GRATING W/ RECESSED HANDLE DETAIL
SCALE: NTS



CLEAR GRATE SPAN, S	MINIMUM GRATE DEPTH,D	PRODUCT	TYPICAL SECTION WIDTH
UP TO 8'-6"	3.15"	COMPOSITE	2'-0"± TYPICAL
OVER 8'-6"	FURNISH DESIGN DATA		

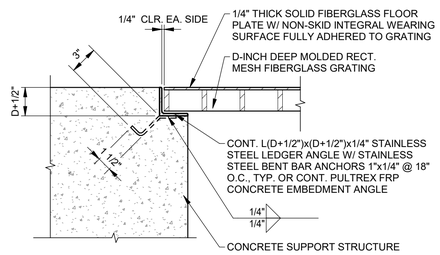
NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES.
TABLE IS FOR "COMPOSITE" FIBERGLASS PANEL SYSTEMS MANUFACTURED BY STRONGWELL

6 SOLID COVERED FRP LONGSPAN PANELS
SCALE: NTS



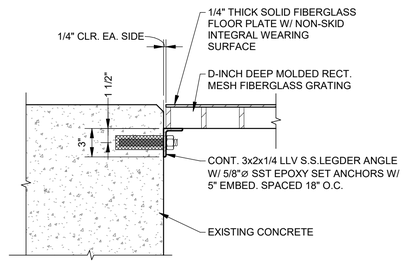
NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. SET TOP OF EMBEDMENT ANGLES FLUSH W/ ADJACENT CONCRETE SURFACES. SET FACE-MOUNT ANGLES SUCH THAT FINISHED WALKING SURFACES ARE FLUSH. REFER TO PLAN VIEWS FOR SKEW ANGLE "A", TYPICAL.

7 TYP LEDGER ANGLE CORNER DETAIL
SCALE: NTS



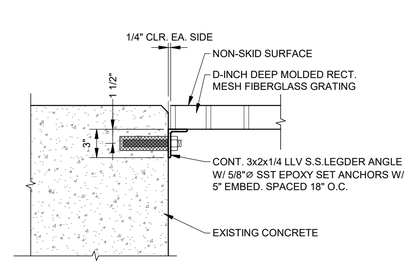
NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. SET TOP OF FLOOR PLATE LEVEL W/ ADJACENT CONCRETE SURFACES. REFER TO OTHER DETAILS FOR CONCRETE REINFORCEMENT TYPICAL STAINLESS STEEL EMBEDDED LEDGER ANGLE DETAIL

8 TYP FIBERGLASS FLOOR COVERED GRATING LEDGER DETAIL
SCALE: NTS



NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. SET TOP OF FLOOR PLATE LEVELE W/ ADJACENT CONCRETE SURFACES. REFER TO OTHER DETAILS FOR CONCRETE REINFORCEMENT TYPICAL STAINLESS STEEL FACE-MOUNT LEDGER ANGLE DETAIL

9 TYP FIBERGLASS FLOOR COVERED GRATING LEDGER DETAIL
SCALE: NTS



NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. SET TOP OF FLOOR PLATE LEVELE W/ ADJACENT CONCRETE SURFACES. REFER TO OTHER DETAILS FOR CONCRETE REINFORCEMENT TYPICAL STAINLESS STEEL FACE-MOUNT LEDGER ANGLE DETAIL

10 TYP FIBERGLASS FLOOR UNCOVERED GRATING LEDGER DETAIL
SCALE: NTS

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Subconsultant:

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LAST UPDATED: 10/11/2024

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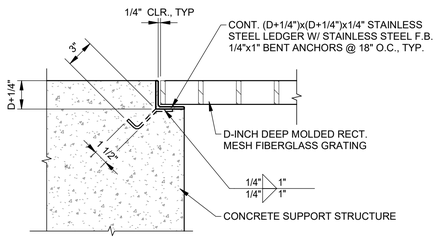
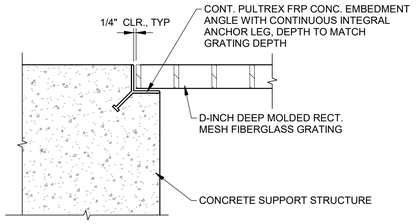


NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING.

1 TYP FIBERGLASS FLOOR UNCOVERED GRATING LEDGER DETAIL
SCALE: NTS

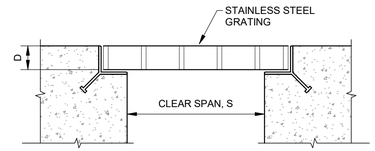


NOTE: REFER TO GENERAL FIBERGLASS CONSTRUCTION NOTES. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING TYPICAL FIBERLGASS EMBEDDED LEDGER ANGLE DETAIL CONT. FRP OR STAINLESS STEEL LEDGER IS A CONTRACTORS OPTION.

2 TYP FIBERGLASS FLOOR UNCOVERED GRATING LEDGER DETAIL
SCALE: NTS

1. STAINLESS STEEL PIPE TO BE ASTM A312, SEAMLESS, TYPE 304 OR 316 WITH Fy = 30 KSI
2. STAINLESS STEEL TUBE TO BE ASTM A269, SEAMLESS, TYPE 304 OR 316 WITH Fy = 30 KSI
3. STAINLESS STEEL BAR AND SHAPES TO BE ASTM A276, TYPE 304 OR 316 WITH Fy = 30 KSI
4. STAINLESS STEEL PLATE, SHEET, AND STRIP TO BE ASTM A480, TYPE 304 OR 316 WITH Fy = 75 KSI
5. ALL WELDING TO CONFORM TO CURRENT AWS D1.6 REQUIREMENTS.
6. COMPLETE ASSEMBLY OR SUB-ASSEMBLIES, BRACKETS, RAILINGS, AND MISCELLANEOUS STAINLESS STEEL PIECES SHALL RECEIVE A FINISH AS NOTED ON PLANS AFTER FABRICATION. MINIMUM FINISH STANDARDS, IF NOT OTHERWISE NOTED, INCLUDE:
   A. INDUSTRIAL APPLICATIONS AND ITEMS NOT EXPOSED TO VIEW: MATTE FINISH (No. 2B)
   B. COMMERCIAL AND PUBLIC ACCESSIBLE APPLICATIONS AND ITEMS EXPOSED TO VIEW: BRUSHED FINISH (No. 4)
7. STRUCTURAL BOLTS, NUTS, AND WASHERS SHALL BE STAINLESS STEEL.
8. EXPANSION ANCHORS TO BE HILTI KWIK-BOLT KB-TZ2 OR APPROVED EQUAL. INSTALL EXPANSION ANCHORS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
9. EXPANSION ANCHOR BOLTS, NUTS & WASHERS SHALL BE STAINLESS STEEL TO MATCH MATERIAL OF METAL FABRICATION.
10. EPOXY SET ANCHORS SHALL UTILIZE HILTI HIT-HY 200 CONSTRUCTION ADHESIVE AND HAS-R STAINLESS STEEL THREAD RODS OR APPROVED EQUAL. INSTALL ANCHORS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
11. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIREMENTS.
12. COORDINATE PLACEMENT OF REINFORCING AND ANCHOR BOLTS IN CONCRETE TO NOT CONFLICT WITH ONE ANOTHER.
13. FIELD SPLICES SHALL BE MADE UTILIZING STEEL PIPE SLEEVE INSERTS AND STAINLESS STEEL BOLTS, NUTS & WASHERS.
14. STAINLESS STEEL AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH AN APPROVED METHOD.
15. CROSS REFERENCE ASSOCIATED STANDARD DETAILS AS NECESSARY FOR STAINLESS STEEL FABRICATIONS.

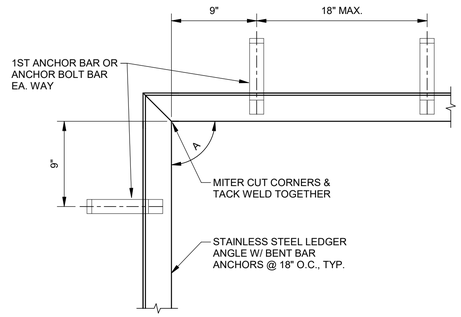
3 TYP SST FABRICATION CONSTRUCTION NOTES
SCALE: NTS



CLEAR GRATE SPAN, S	BEARING BAR SIZE	
	DEPTH, D	THICKNESS, T
UP TO 2'-0"	3/4"	1/8"
2'-1" TO 3'-0"	3/4"	3/16"
3'-1" TO 4'-0"	1"	1/8"
4'-1" TO 5'-0"	1 1/4"	1/8"
5'-1" TO 6'-0"	1 1/2"	3/16"
6'-1" TO 7'-0"	1 3/4"	3/16"
7'-1" TO 8'-0"	2 1/4"	3/16"

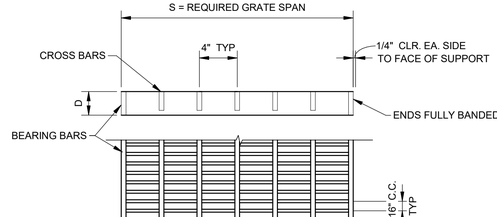
NOTE:
1. BAR GRATE SHALL SUPPORT A MINIMUM LIVE LOAD OF 100 PSF UNIFORM LOAD AND 300-LB CONCENTRATED LOAD FOR STAINLESS STEEL WITH AN ALLOWABLE BENDING STRESS OF 20 KSI FOR 13/16" CENTER TO CENTER BAR SPACING, TYPICAL. REFER TO TYPICAL STAINLESS STEEL BAR GRATE DETAIL.
2. FOR GRATING DENOTED AS "HEAVY DUTY" OR THAT MAY BE SUBJECTED TO VEHICLE LOADING, REFER TO SPECIFIC PLANS AND DETAILS FOR SPAN AND SIZE OF REQUIRED GRATING.

4 TYP STAINLESS STEEL BAR GRATE SCHEDULE
SCALE: NTS



NOTE:
1. REFER TO GENERAL CONSTRUCTION NOTES FOR STAINLESS STEEL FABRICATIONS.
2. SET TOP OF EMBEDMENT ANGLE LEVEL WITH ADJACENT CONCRETE SURFACES.

5 TYP BAR GRATE EMBEDDED LEDGER CORNER
SCALE: NTS

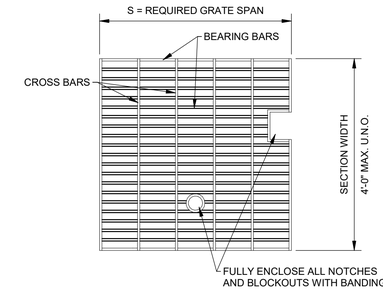


NOTE:

BAR GRATE TYPE:	SL (PER GRATING PACIFIC)
BEARING BARS:	"D" DEEP BY "T" THICK
CROSS BARS:	HYDRAULICALLY SWAGED
MATERIAL:	304 AND 316 STAINLESS STEEL
SURFACE:	PLAIN SURFACE
FINISH:	COMMERCIAL CLEAN
WIDTH:	REFER TO PLANS
SPAN:	REFER TO PLANS
DEPTH, D:	PER TYPICAL STAINLESS STEEL BAR GRATE SCHEDULE

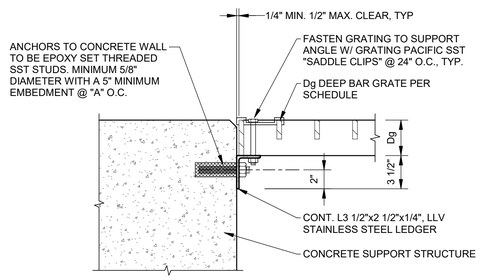
FURNISH BAR GRATE IN SECTIONS NOT TO EXCEED 4'-0" IN LENGTH AND/OR 200 LBS PER SECTION UNLESS OTHERWISE NOTED.

6 TYP STAINLESS STEEL BAR GRATING
SCALE: NTS



NOTES:
1. REFER TO OTHER TYPICAL DETAILS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO PLAN VIEWS FOR LOCATIONS OF OPENINGS AND NOTCHES.

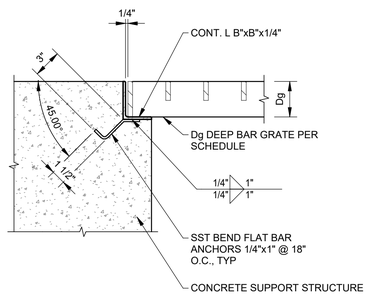
7 TYPICAL SST BAR GRATING FLOOR OPENING/NOTCH
SCALE: NTS



BAR GRATE SPAN "S"	UP TO 4'-0"	4'-0" TO 6'-0"	6'-1" TO 8'-0"
ANCHOR SPACING "A"	24" O.C.	18" O.C.	12" O.C.

NOTE:
1. SET TOP OF BAR GRATE FLUSH WITH CONCRETE SURFACE.
2. PROVIDE (1) ANCHOR BOLT 6" FROM EACH END OF STEEL LEDGER ANGLE.
3. ANCHOR RODS, NUTS, WASHERS, AND MISC. ITEMS SHALL BE STAINLESS STEEL.
4. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIREMENTS.

8 TYP SST BAR GRATE FACE MOUNT LEDGER
SCALE: NTS



NOTE:
1. ANGLE LEG "B" SHALL BE EQUAL TO "D" + 1/4"
2. SET GRATE & EMBEDDED ANGLE FLUSH WITH TOP CONCRETE SURFACE.
3. REFER TO OTHER DETAILS FOR ALL REINFORCING REQUIREMENTS.
4. SUPPORT LEDGER AND ANCHORS SHALL BE STAINLESS STEEL.

9 TYP SST BAR GRATE EMBEDDED LEDGER
SCALE: NTS

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
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NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

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SANTAQUIN WRF PHASE 3 UPGRADES
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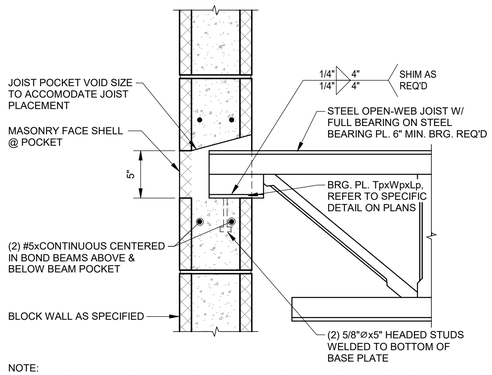
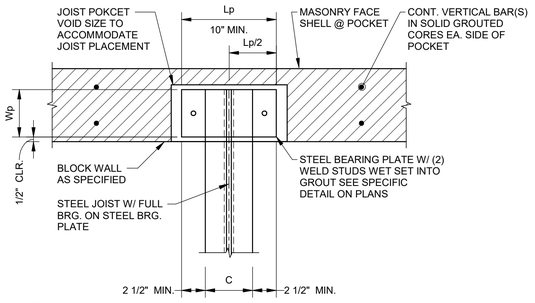


NOTE:
1. METAL ROOF OR FLOOR DECKING OR LEDGERS NOT SHOWN ON THIS VIEW FOR CLARITY.
2. REFER TO OTHER DETAILS FOR MASONRY WALL REINFORCING REQUIREMENTS.
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE, & JOIST SPECIFICATIONS.
4. REFER TO TYPICAL JOIST BEARING PL. PLAN & DETAIL FOR ADDITIONAL REQUIREMENTS.
5. GROUT SOLID JOIST POCKET AFTER FINAL JOIST PLACEMENT & BRG. PL. WELDING.

1 TYP STEEL JOIST BRG. PL. DETAIL - SECTION
SCALE: NTS



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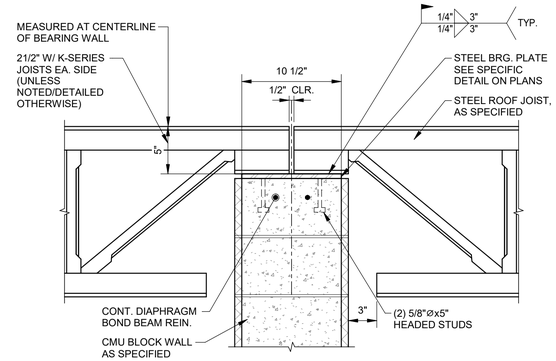
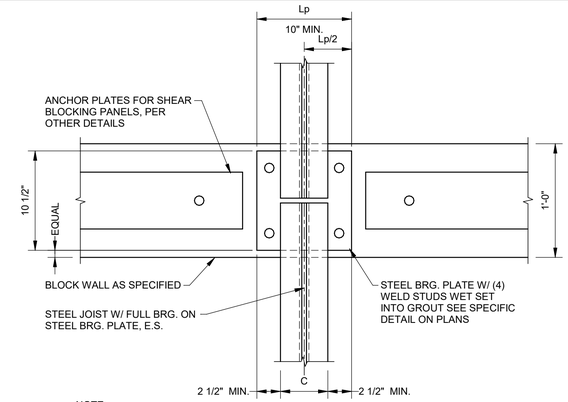
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE & JOIST SPECIFICATIONS.
4. REFER TO TYPICAL JOIST BEARING DETAIL FOR ADDITIONAL REQUIREMENTS.
5. COORDINATE JOIST WIDTH "C" WITH JOIST SUPPLIER

2 TYP STEEL JOIST BRG. PL. DETAIL - PLAN
SCALE: NTS



NOTE:
1. METAL ROOF OR FLOOR DECKING OR BLOCKING NOT SHOWN ON THIS VIEW FOR CLARITY.
2. REFER TO OTHER DETAILS FOR MASONRY WALL REINFORCING REQUIREMENTS.
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE & JOIST SPECIFICATIONS.
4. REFER TO TYPICAL, JOIST BLOCKING DETAIL FOR BLOCKING MEMBERS BETWEEN JOISTS.

3 TYP STEEL JOIST BRG. PL. DETAIL - SECTION
SCALE: NTS



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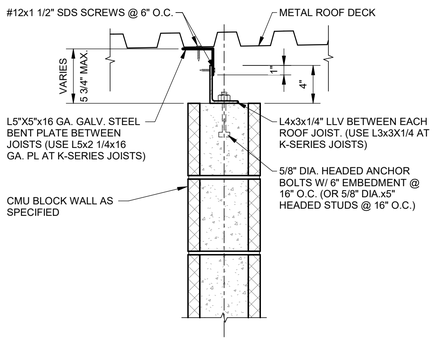
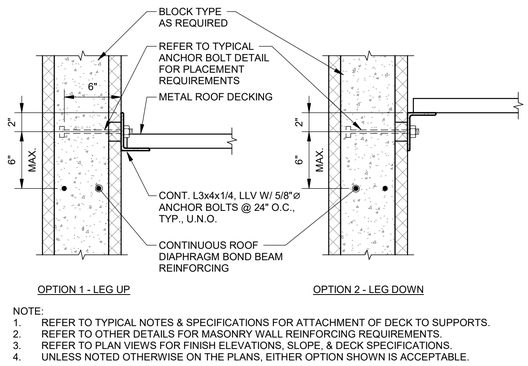
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE, & JOIST SPECIFICATIONS.
4. REFER TO TYPICAL JOIST BEARING DETAIL FOR ADDITIONAL REQUIREMENTS.
5. COORDINATE JOIST WIDTH "C" WITH JOIST SUPPLIER.

4 TYP STEEL JOIST BRG. PL. DETAIL - PLAN 2
SCALE: NTS

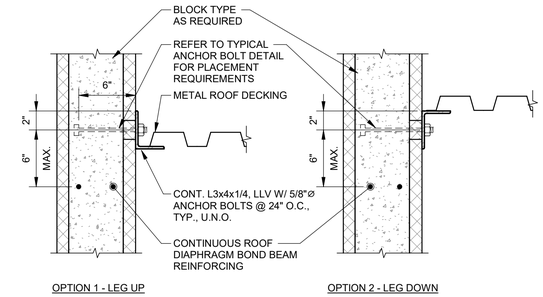


5 TYP STEEL ROOF SHEAR BLOCKING DETAIL
SCALE: NTS



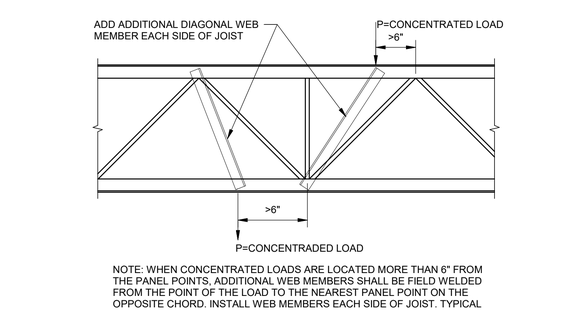
NOTE:
1. REFER TO TYPICAL NOTES & SPECIFICATIONS FOR ATTACHMENT OF DECK TO SUPPORTS.
2. REFER TO OTHER DETAILS FOR MASONRY WALL REINFORCING REQUIREMENTS.
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE, & DECK SPECIFICATIONS.
4. UNLESS NOTED OTHERWISE ON THE PLANS, EITHER OPTION SHOWN IS ACCEPTABLE.

6 TYP STEEL ROOF DECK LEDGER DETAIL
SCALE: NTS



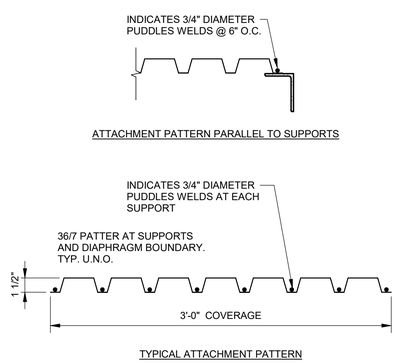
NOTE:
1. REFER TO TYPICAL NOTES & SPECIFICATIONS FOR ATTACHMENT OF DECK TO SUPPORTS.
2. REFER TO OTHER DETAILS FOR MASONRY WALL REINFORCING REQUIREMENTS.
3. REFER TO PLAN VIEWS FOR FINISH ELEVATIONS, SLOPE, & DECK SPECIFICATIONS.
4. UNLESS NOTED OTHERWISE ON THE PLANS, EITHER OPTION SHOWN IS ACCEPTABLE.

7 TYP STEEL ROOF DECK LEDGER DETAIL
SCALE: NTS

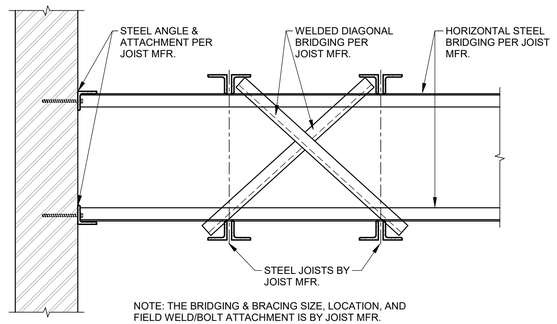


NOTE: WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM THE PANEL POINTS, ADDITIONAL WEB MEMBERS SHALL BE FIELD WELDED FROM THE POINT OF THE LOAD TO THE NEAREST PANEL POINT ON THE OPPOSITE CHORD. INSTALL WEB MEMBERS EACH SIDE OF JOIST. TYPICAL

8 STEEL JOIST ADDED WEB MEMBERS AT LOADS
SCALE: NTS



9 TYP STEEL DECK ATTACHMENT
SCALE: NTS



NOTE: THE BRIDGING & BRACING SIZE, LOCATION, AND FIELD WELD/BOLT ATTACHMENT IS BY JOIST MFR.

10 STEEL JOIST BRIDGING & BRACING DETAIL
SCALE: NTS

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392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY
STRUCUTRAL (S)
TYPICAL STEEL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024
DRAWING:
00-SZ-981

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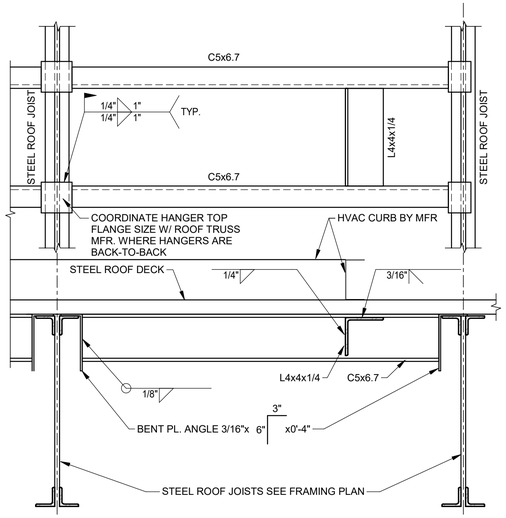
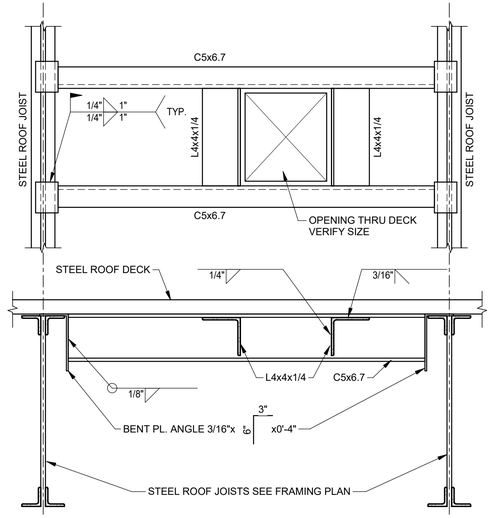


NOTE: REFER TO MECHANICAL PLANS FOR OPENING SIZES AND LOCATIONS.
TYPICAL LOCATE CHANNEL & ANGLE BELOW HVAC CURB TYP, AS SHOWN.

1 TYP MISC ST. FRAMING FOR ROOF EQUIPMENT

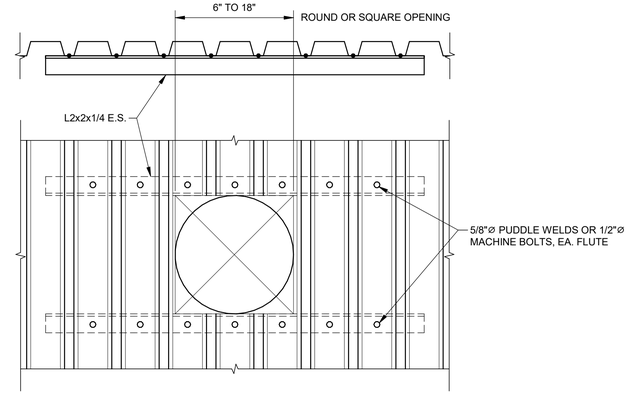
SCALE: NTS



NOTE: REFER TO MECHANICAL PLANS FOR OPENING SIZES AND LOCATIONS.
TYPICAL FOR DECK OPENINGS 18" WIDE OR GREATER, U.N.O.

2 TYP MISC ST. FRAMING FOR ROOF DECK OPENINGS

SCALE: NTS



NOTE: REFER TO MECHANICAL PLANS FOR OPENING SIZES AND LOCATIONS. EXTEND L2x2x1/4 A MINIMUM OF (2) FLUTES PAST EACH SIDE OF OPENING. DETAIL IS TYPICAL FOR OPENINGS THROUGH ROOF DECKING 6" TO 18" IN SIZE, SUPPORTING LOADS OF LESS THAN 100 LBS.
FOR LOAD LARGER THAN 100 LBS, SEE TYPICAL DETAIL S-332.

3 TYP ST. FRAMING FOR ROOF DECK OPENINGS

SCALE: NTS

J-U-B ENGINEERS, INC.
392 E. Winchester St.
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Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE
	REVISION	BY APP.

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)

TYPICAL STEEL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
00-SZ-982

C:\Users\emorales\OneDrive - J-U-B Engineers, Inc\Documents\Revit Project Local\93-24-001_SZ_emorales6P7SX.rvt

GENERAL PLAN NOTES

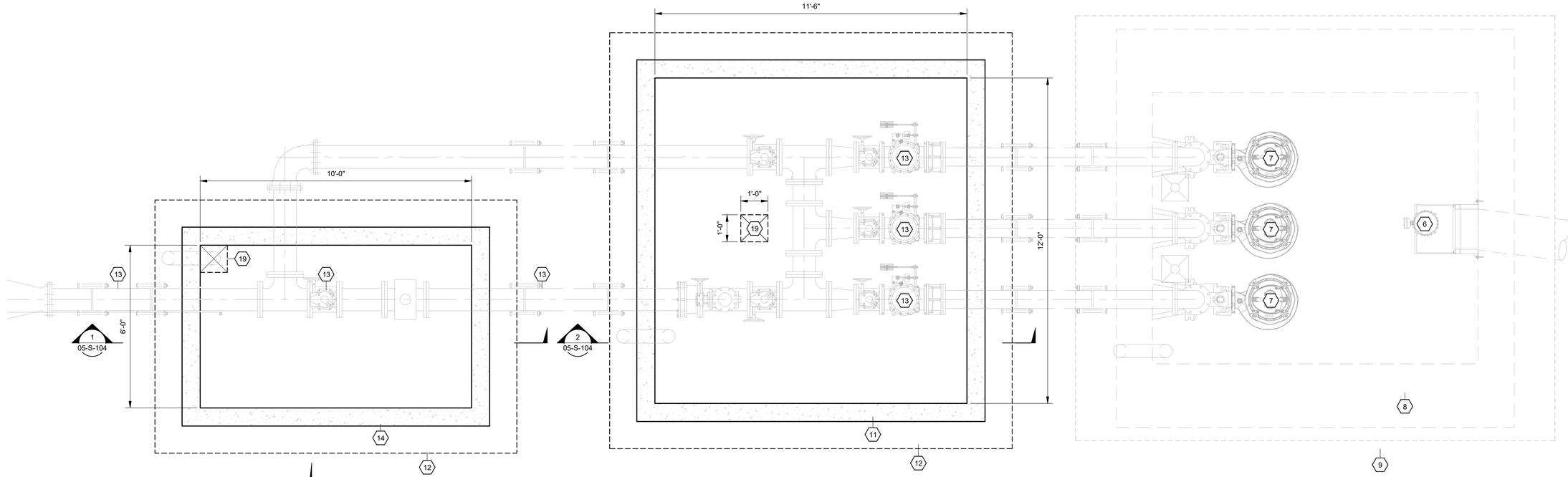
- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.

SHEET KEYED NOTES

6	FUTURE GRINDER, RE: PROCESS
7	PUMP EQUIPMENT, RE: PROCESS
8	EXISTING WET WELL, PROVIDE TEMPORARY SHORING OF WALLS PRIOR TO LID DEMO
9	EXISTING FOUNDATION
11	NEW PRECAST VALVE VAULT
12	NEW PRECAST FOUNDATION
13	PIPING, RE: PROCESS
14	NEW PRECAST METER VAULT
19	12"x12" DRAINAGE HOLE, RE: PROCESS



1 LIFT STATION FOUNDATION PLAN
SCALE: 1/2" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE	BY	APP.
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
VAULT FOUNDATION PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
05-S-101

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt

GENERAL PLAN NOTES

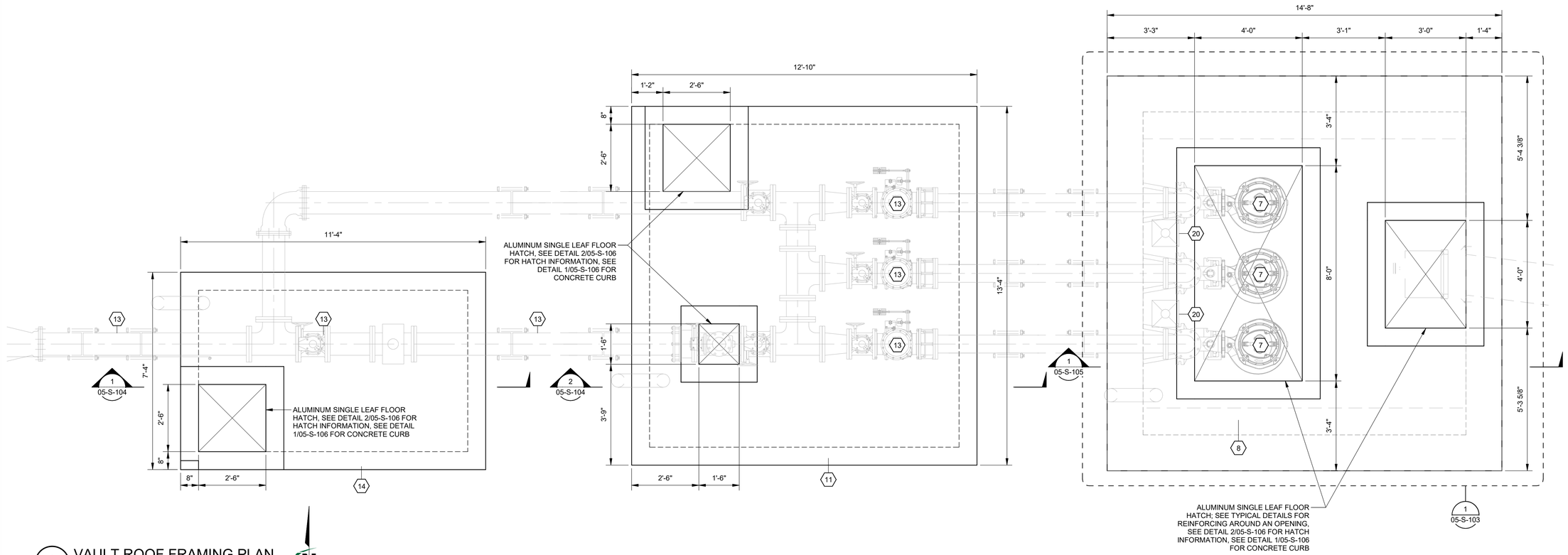
- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. PRECAST LID DESIGN CRITERIA:
   A. LL = 300 PSF
   B. SL = 43 PSF
   C. FOR ADDITIONALL REQUIREMENTS, RE: 00-S-001 & 00-S-002

SHEET KEYED NOTES

7	PUMP EQUIPMENT, RE: PROCESS
8	EXISTING WET WELL, PROVIDE TEMPORARY SHORING OF WALLS PRIOR TO LID DEMO
11	NEW PRECAST VALVE VAULT
13	PIPING, RE: PROCESS
14	NEW PRECAST METER VAULT
20	DAVIT CRANE, RE: PROCESS



1 VAULT ROOF FRAMING PLAN
SCALE: 1/2" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

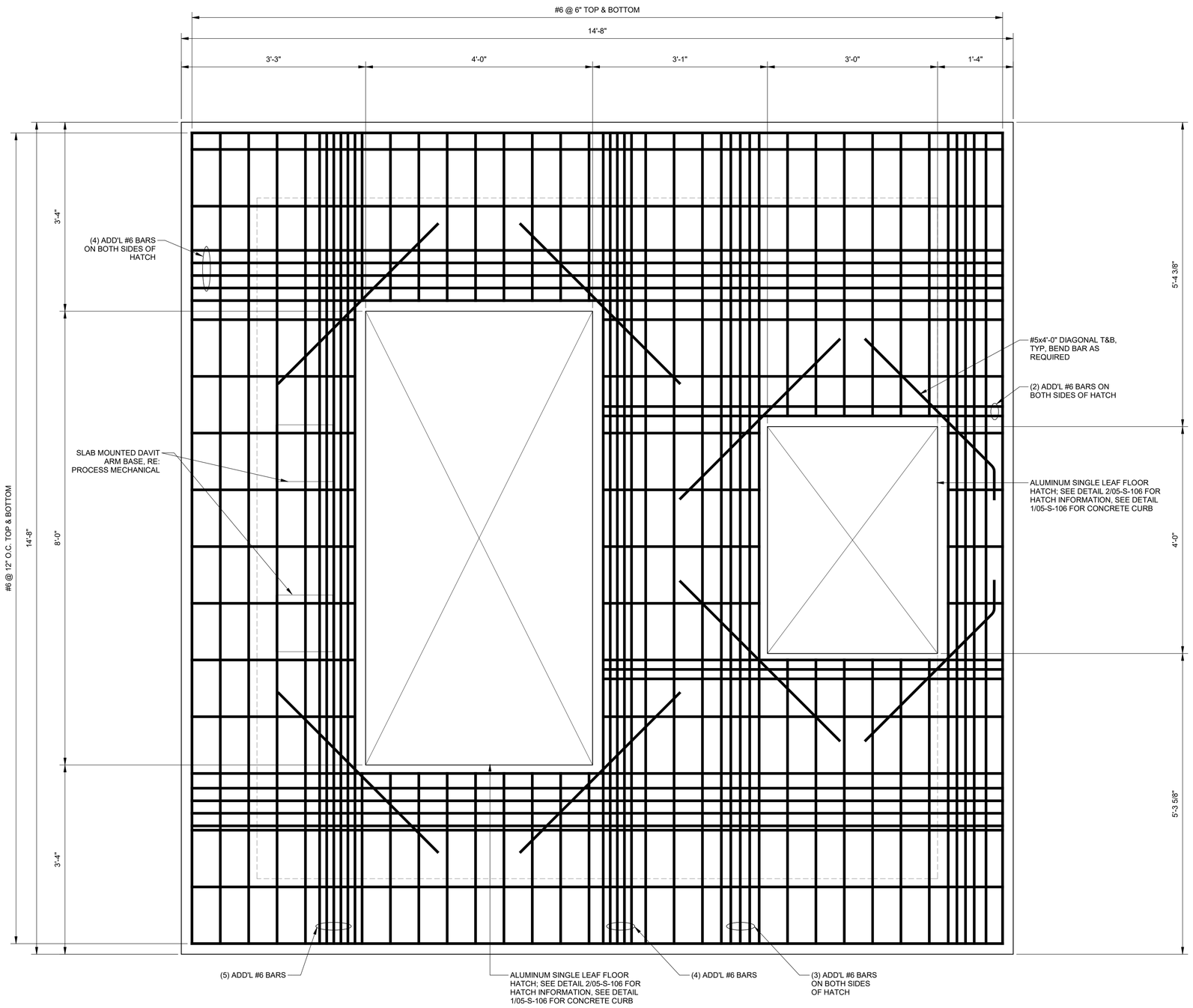
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
VAULT ROOF FRAMING PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-102

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



1 WET WELL LID ENLARGED PLAN
SCALE: 1" = 1'-0"

J-U-B ENGINEERS, INC.
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Suite 300
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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
ENLARGED LID PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

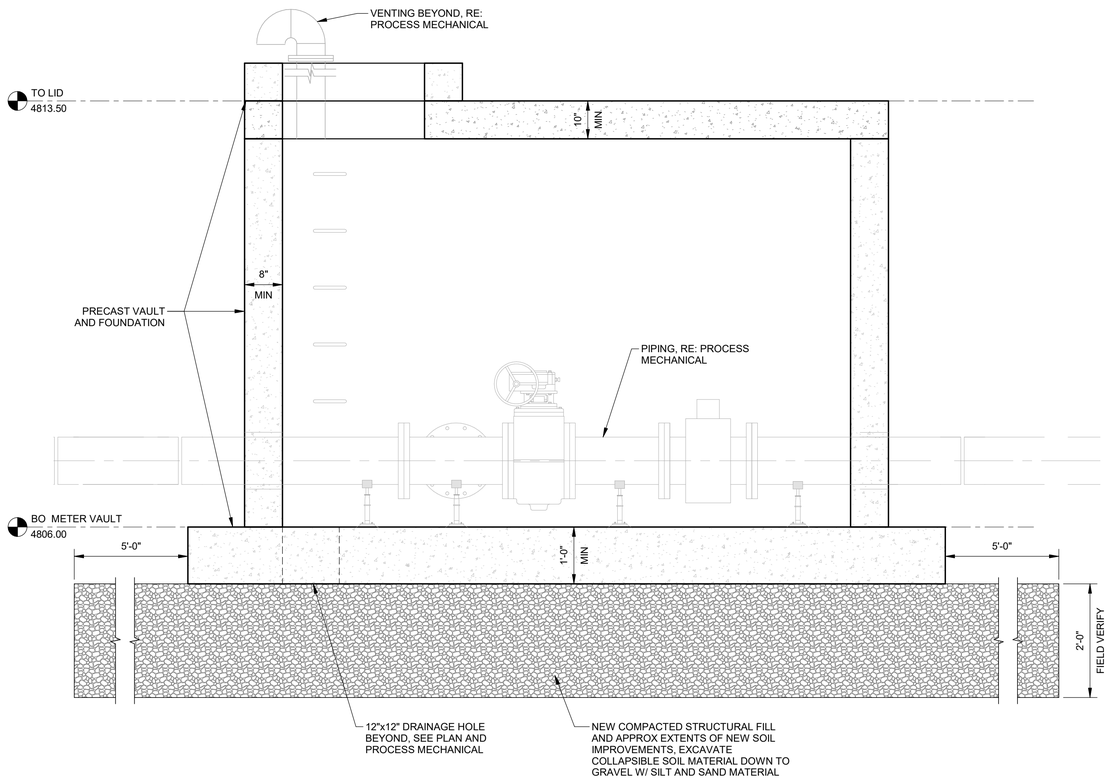
LAST UPDATED: 10/11/2024

DRAWING:
05-S-103

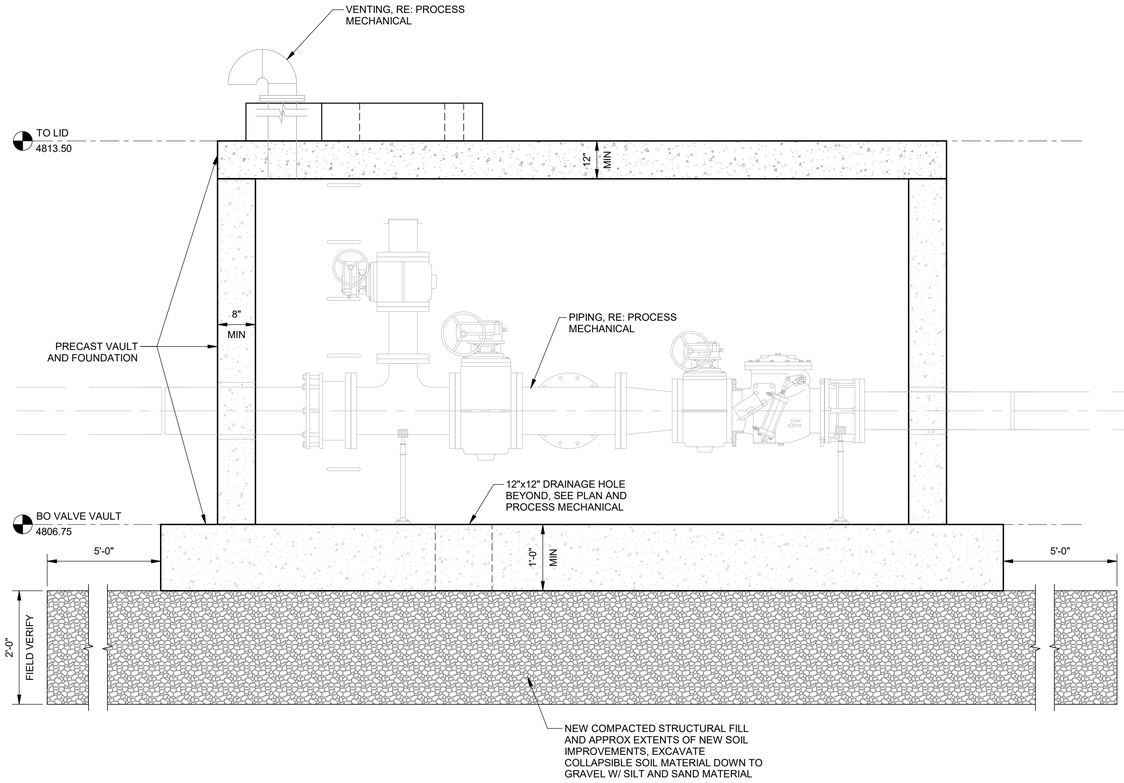
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt

NOTES

1. ADD'L REINFORCMENT AROUND OPENING NOT SHOWN FOR CLARITY. REFER TO SHEET 05-S-103 FOR DETAILING.



1 / 05-S-101 METER VAULT SECTION
SCALE: 3/4" = 1'-0"



2 / 05-S-101 VALVE VAULT SECTION
SCALE: 3/4" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
VAULT SECTIONS

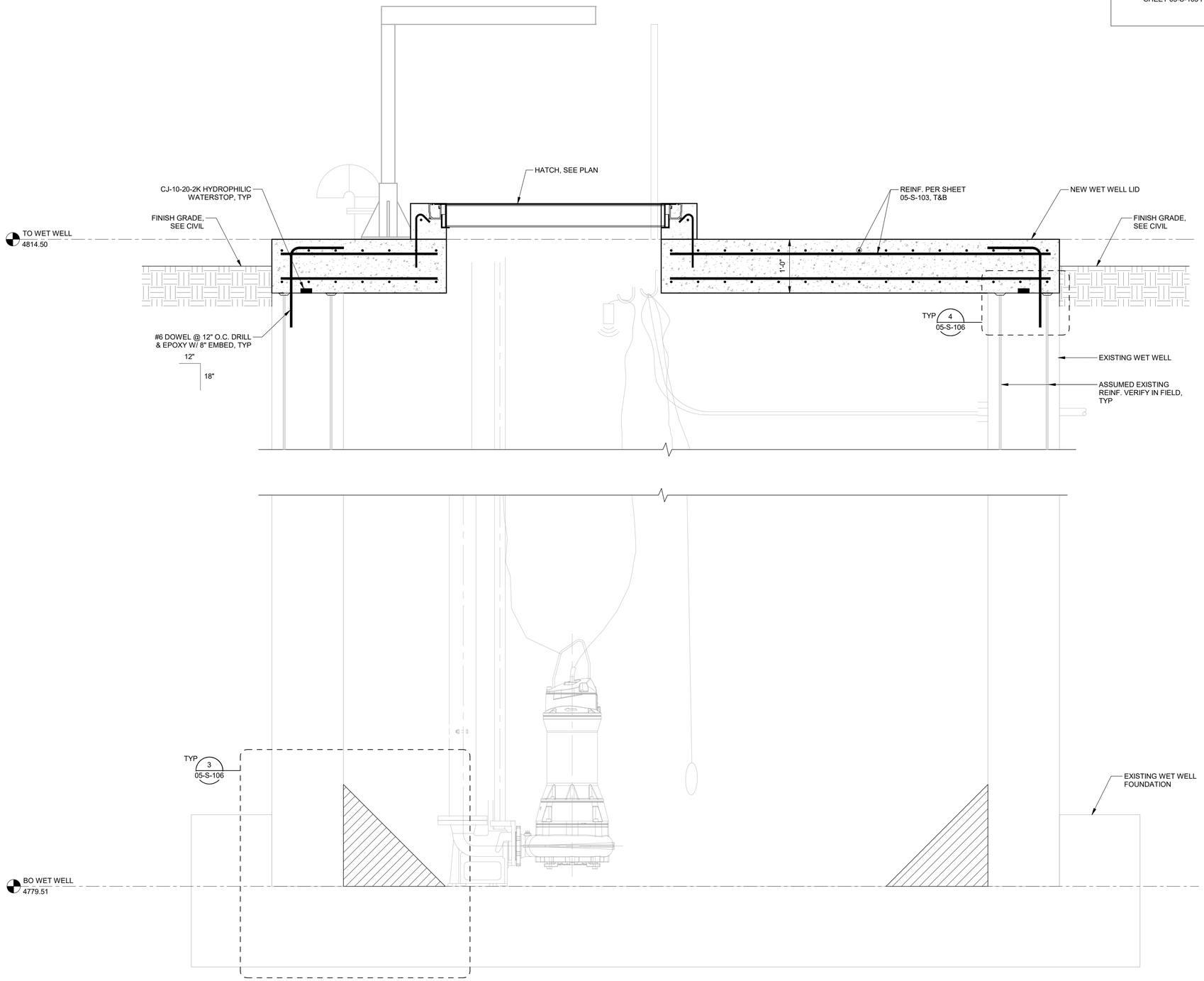
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-104

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt

NOTES

1. ADD'L REINFORCMENT AROUND OPENING NOT SHOWN FOR CLARITY. REFER TO SHEET 05-S-103 FOR DETAILING.



1 05-S-102 WET WELL SECTION
SCALE: 1" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
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Subconsultant:

AGENCY REVIEW

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

NO.	DESCRIPTION	DATE	BY	APR.
	REVISION			

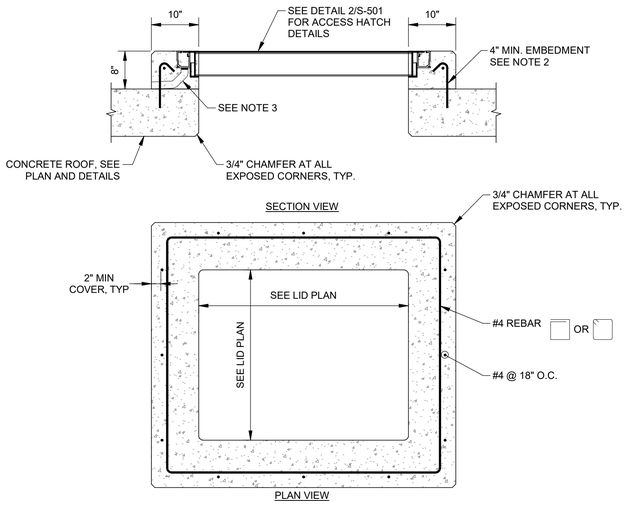
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
WET WELL SECTION

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-105

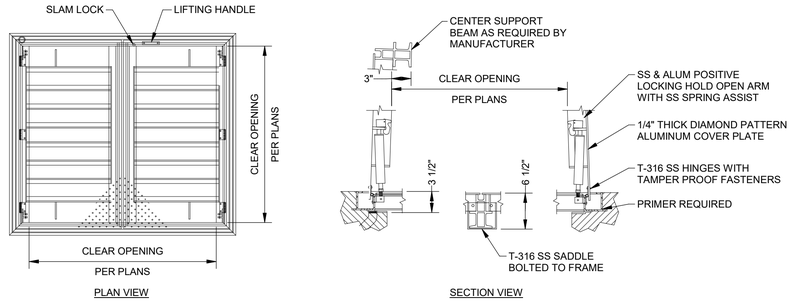
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



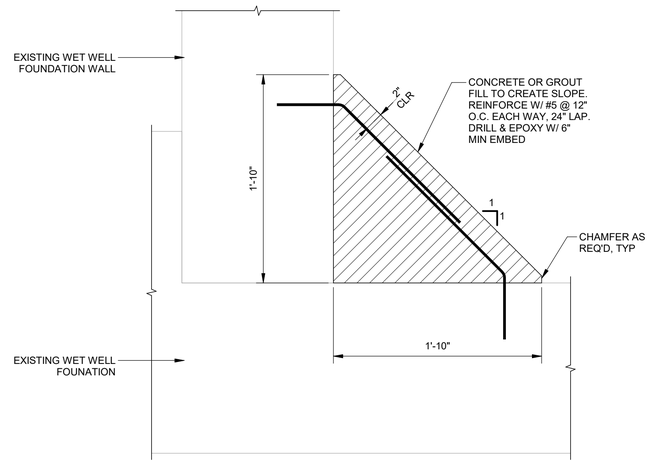
NOTES:
1. INSTALLATION OF HATCH CONCRETE CURB WALL TO OCCUR FOLLOWING CURING OF THE CONCRETE VAULT LID.
2. #4 REBAR TO BE DOWELED INTO CURED LID WITH HILTI HIT-RE 500 EPOXY ADHESIVE OR APPROVED EQUAL.
3. 1-1/2" SCHEDULE 80 PVC DRAIN PIPED TO CONCRETE VAULT LID SURFACE.
4. SEE MECHANICAL DRAWINGS FOR ADDITIIONAL INFORMATION.

1 HATCH CONCRETE CURB WALL
SCALE: NTS

ACCESS DOOR SPECIFICATION:
1. COVER LEAF (S): 1/4" ALUMINUM DIAMOND PLATE (SINGLE OR DOUBLE PER PLANS).
2. CHANNEL FRAME: 1/4" ALUMINUM WITH CONTINUOUS ANCHOR FLANGE AND A 1-1/2" DRAINAGE COUPLING LOCATED IN THE FRONT LEFT CORNER OF FRAME.
3. LOAD RATING: 300 PSF PEDESTRIAN TRAFFIC RATED.
4. LOCKING SYSTEM: TYPE 316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY.
5. COVER EQUIPPED WITH THE FOLLOWING STAINLESS STEEL FEATURES: SPRING ASSISTS, T-316 HEAVY DUTY HINGES, T-316 TAMPER PROOF ATTACHING HARDWARE, AUTOMATIC T-316 HOLD OPEN ARM WITH ALUMINUM HATCH.
6. GUARANTEE: ACCESS COVERS SHALL CARRY A LIFETIME GUARANTEE AGAINST DEFECTS IN MATERIAL AND/OR WORKMANSHIP.
7. PROVIDE SAFETY ORANGE COLORED SAFETY CABLES EXTENDING FROM COVER TO COVER WHEN OPEN. PROVIDE INTEGRAL SAFETY GRATE.
8. AS MANUFACTURED BY HALLIDAY PRODUCTS, BILCO, OR APPROVED EQUAL.
9. ENGINEERED LIFT REQUIRED.



2 ALUMINUM ACCESS HATCH
SCALE: NTS



3 WET WELL GROUT
05-S-105
SCALE: NTS

4 EXISTING REINF GRINDING DETAIL
05-S-105
SCALE: NTS

J-U-B ENGINEERS, INC.
392 E. Winchester St.
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
LIFT STATION DETAILS

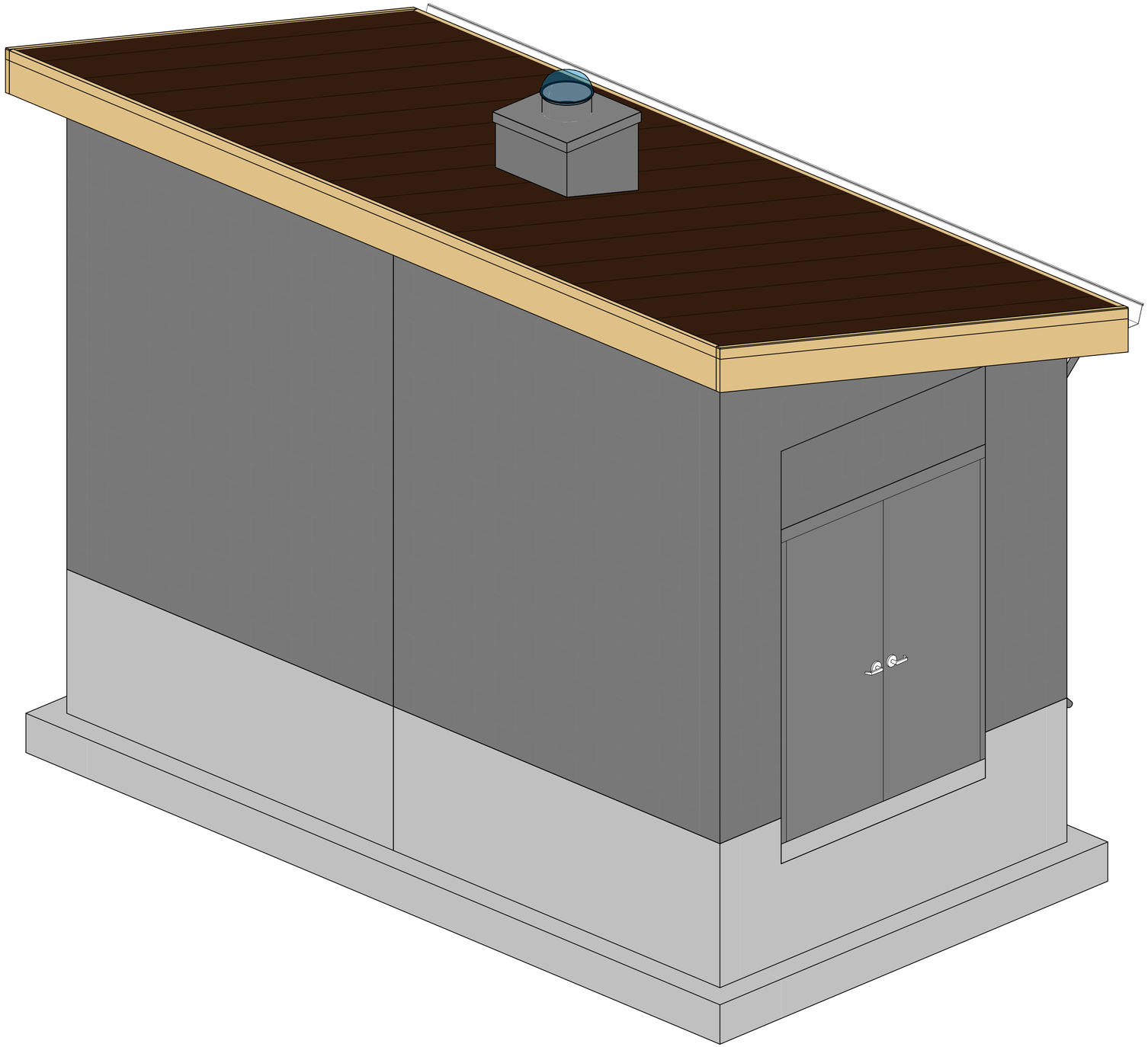
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED:10/11/2024

DRAWING:
05-S-106

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



1 ISOMETRIC VIEW
SCALE: NTS

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt

J-U-B ENGINEERS, INC.
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE

REVISION

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

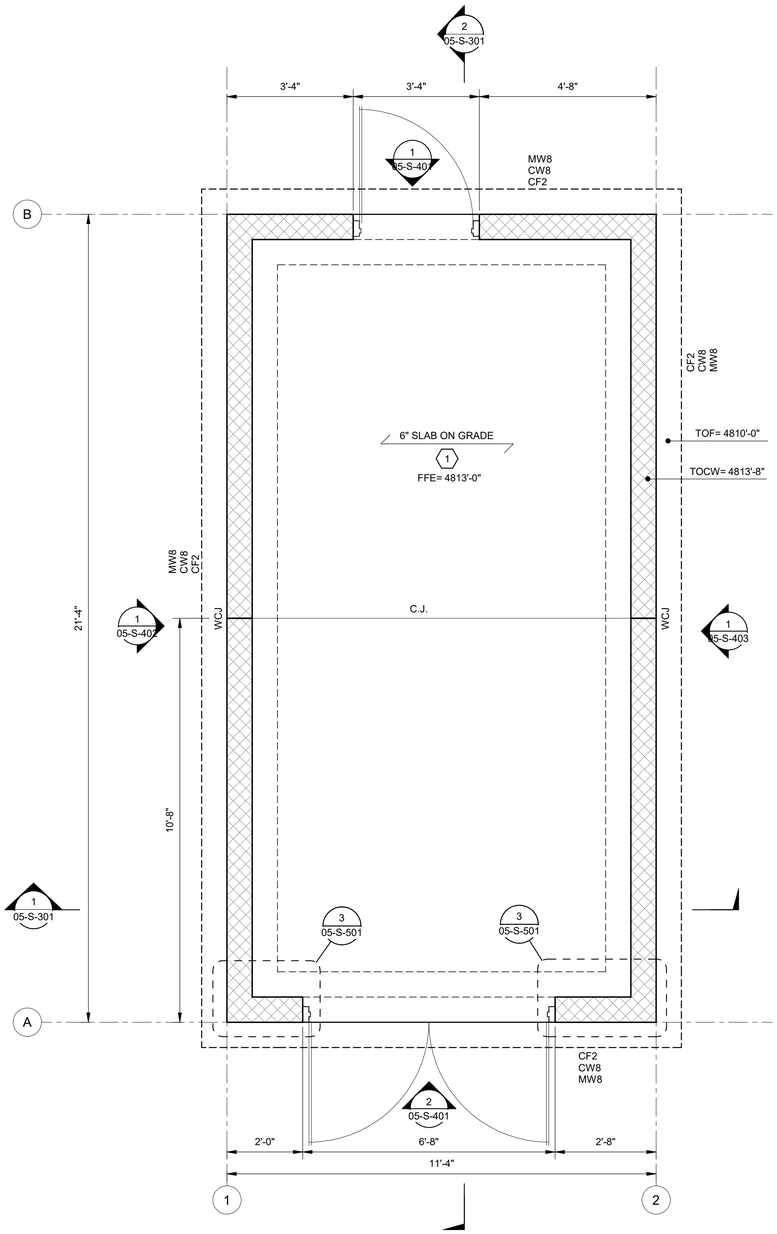
STRUCUTRAL (S)
CENTER ST. LIFT STATION
ISOMETRIC VIEW

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

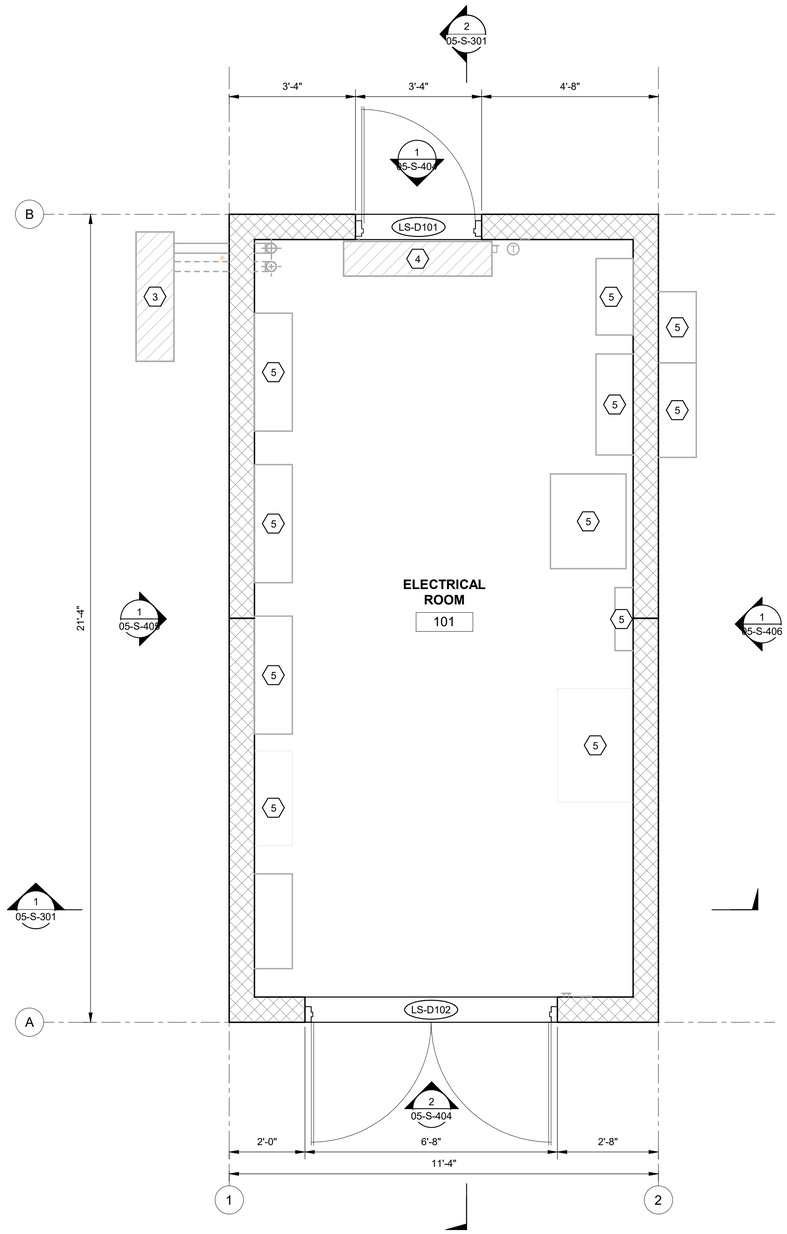
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
05-S-110



1 BUILDING FOUNDATION PLAN
SCALE: 1/2" = 1'-0"



2 BUILDING FLOOR PLAN
SCALE: 1/2" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS 80-A-601 & 80-A-602 FOR ROOM, COLOR, AND DOOR SCHEDULE.

SHEET KEYED NOTES

1	SLAB ON GRADE SHALL BE 6" THICK CONCRETE WITH #4 @ 16" O.C. EACH WAY, PLACED 2" CLEAR FROM TOP OF CONCRETE
3	AIR CONDITIONING CONDENSOR, RE: MECHANICAL
4	MINISPLIT AC UNIT, RE: MECHANICAL
5	ELECTRICAL EQUIPMENT, RE: ELECTRICAL

CONCRETE WALL SCHEDULE

MARK	THICKNESS	REINFORCING		COMMENTS
		VERTICAL	HORIZONTAL	
CW8	8"	#5 AT 16" OC CENTERED MAX	#5 AT 12" OC CENTERED	PLACE VERT CONCRETE WALL BAR AT EACH VERT CMU BAR, SEE 05-S-401 - 05-S-403
CW16	16"	#5 AT 12" OC CENTERED	#5 AT 12" OC CENTERED	

CONCRETE CONTINUOUS FOOTING SCHEDULE

MARK	SIZE		REINFORCING	
	WIDTH	THICKNESS	TOP	BOTTOM
CF2	2'-0"	12"	-	(2) #5 CONT LONG, #5 AT 14" OC TRANS

MASONRY WALL SCHEDULE

MARK	WALL THICKNESS	REINFORCING		COMMENTS
		VERTICAL	HORIZONTAL	
MW8	8"	#5 AT 32" OC MAX	(2) #4 AT 32" OC MAX	SEE TYPICAL DETAILS AND 05-S-401 - 05-S-403 FOR ADDITIONAL REQUIREMENTS

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392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE	BY
	REVISION	APR.	

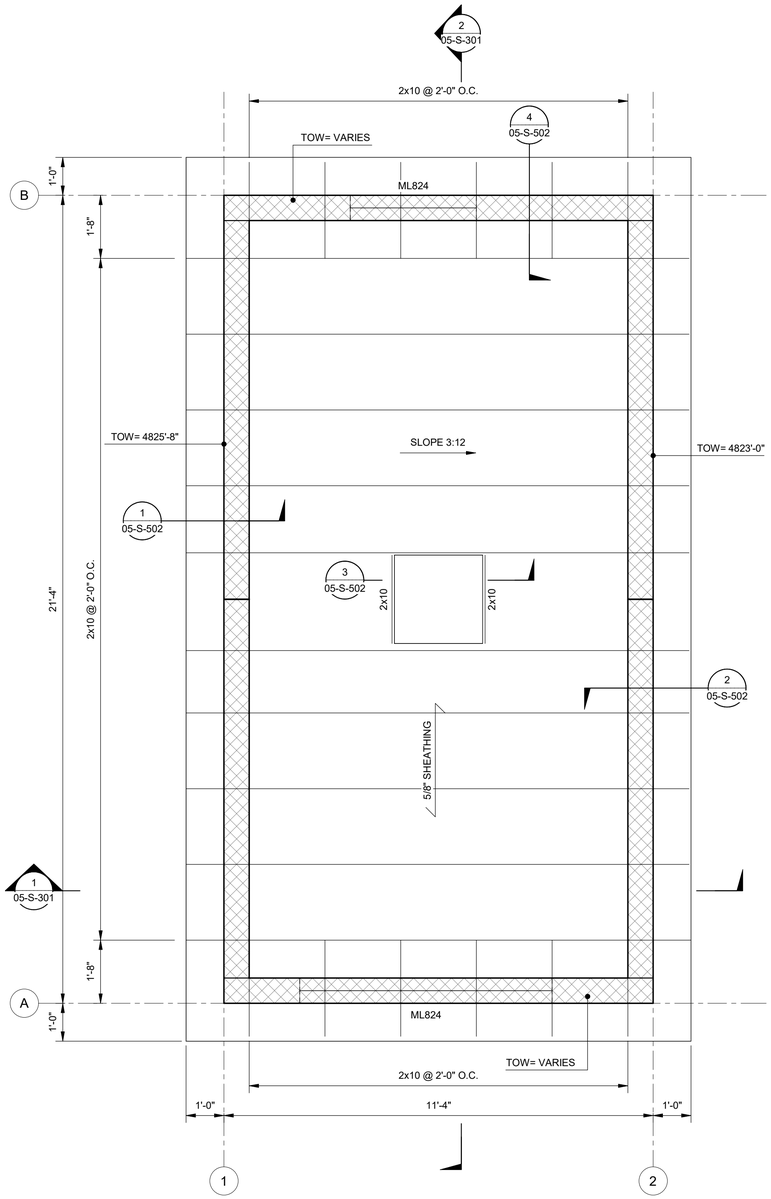
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
BUILDING FOUNDATION AND FLOOR PLAN

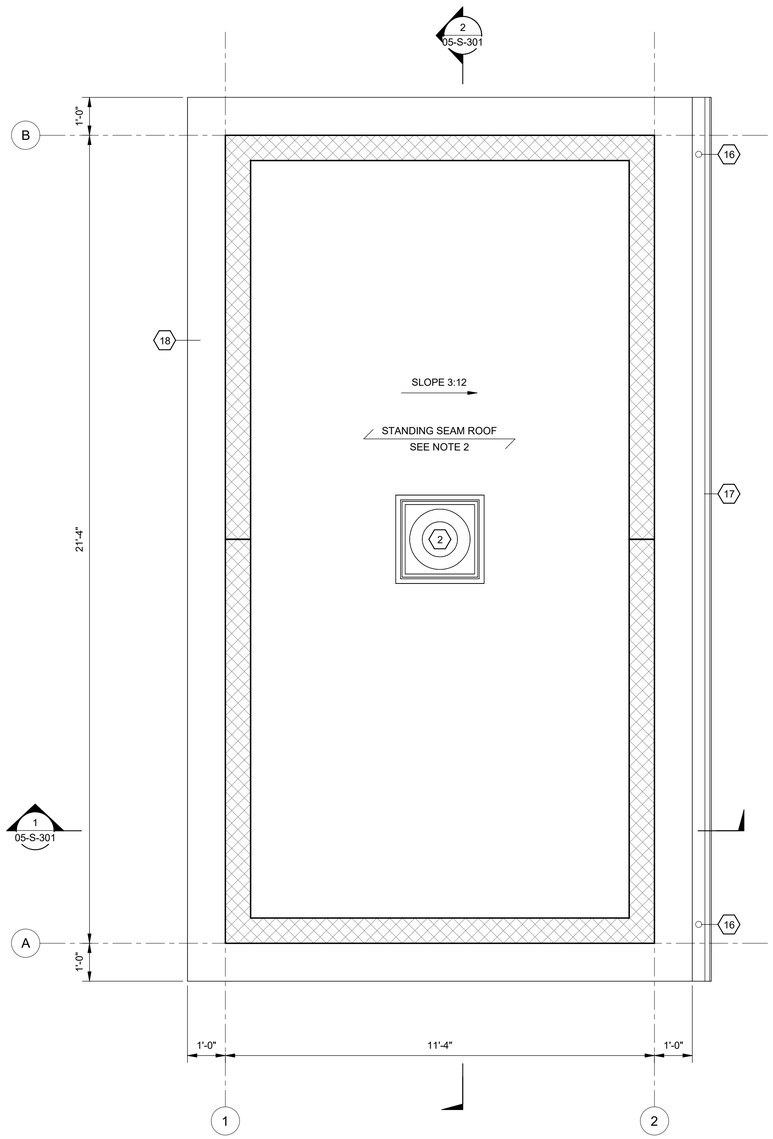
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-111

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



1 BUILDING ROOF FRAMING PLAN
SCALE: 1/2" = 1'-0"



2 BUILDING ROOF PLAN
SCALE: 1/2" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. STANDING SEAM ROOF
   A. 26 GAGE STANDING SEAM ROOFING SYSTEM MECHANICALLY SEAMED 2" HIGH, SEAMS @ 16" O.C.
   B. HIGH TEMP UNDERLAYMENT
   C. CONTRACTOR TO COORDINATE COLOR W/ OWNER
3. ROOF SHEATHING
   A. TYPICAL ROOF FRAMING CONSISTS OF 5/8" APA RATED SHEATHING (INDEX 32/16), LAID FACE GRAIN PERPENDICULAR OVER 2x FRAMING @ 24" O.C. STAGGER JOINTS.
   B. NAIL ROOF SHEATHING TO FRAMING WITH 8d NAILS @ 6" O.C. AT ALL PANEL EDGES AND 8d NAILS @ 12" O.C. AT INTERMMEDIATE FRAMING MEMBERS (UNBLOCKED UNO). SEE TYPICAL DETAILS.
4. CEILING
   A. 5/8" GYPSUM BOARD
   B. TEXTURE, PAINT WHITE FINISH
5. GUTTER AND DOWNSPOUT
   A. COLOR TO MATCH TRIM COLOR

SHEET KEYED NOTES

2	SOLATUBE-290 DS-14" SKYLIGHT OR APPROVED EQUAL.
16	DOWNSPOUT LOCATION
17	GUTTER
18	CONTINUOUS PERFORATED METAL SOFFIT

MASONRY LINTEL SCHEDULE

MARK	OPENING WIDTH	LINTEL DEPTH	REINFORCING		
			TOP	BOTTOM	STIRRUPS
ML824		24"			

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1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
BUILDING ROOF FRAMING AND ROOF PLAN

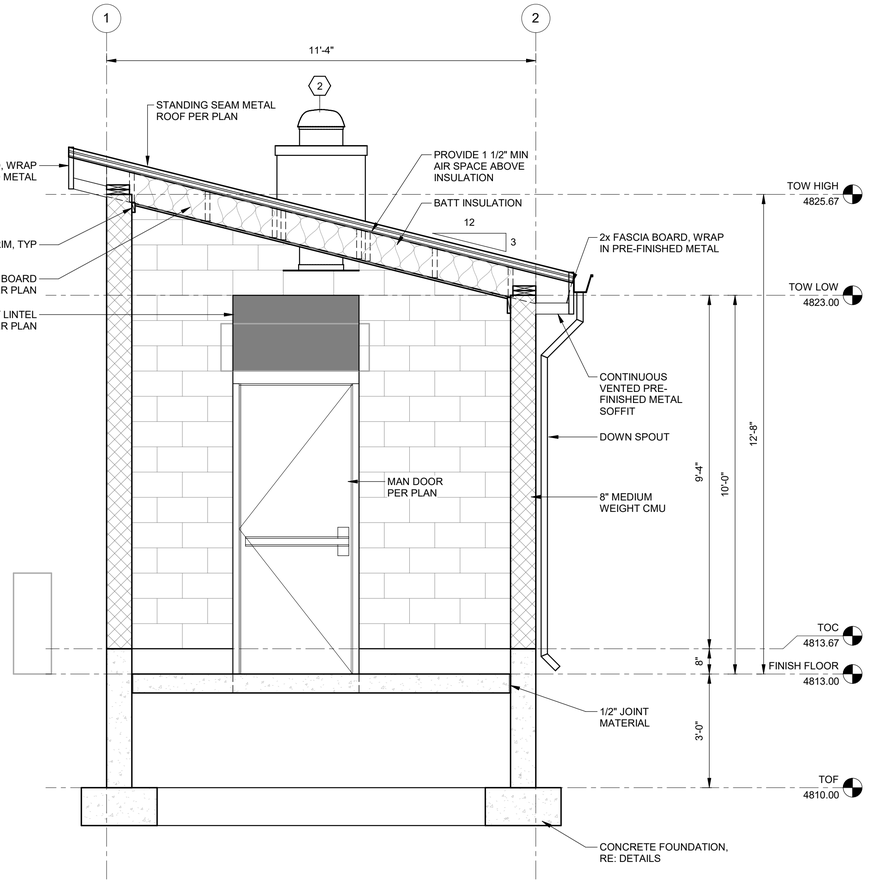
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-112

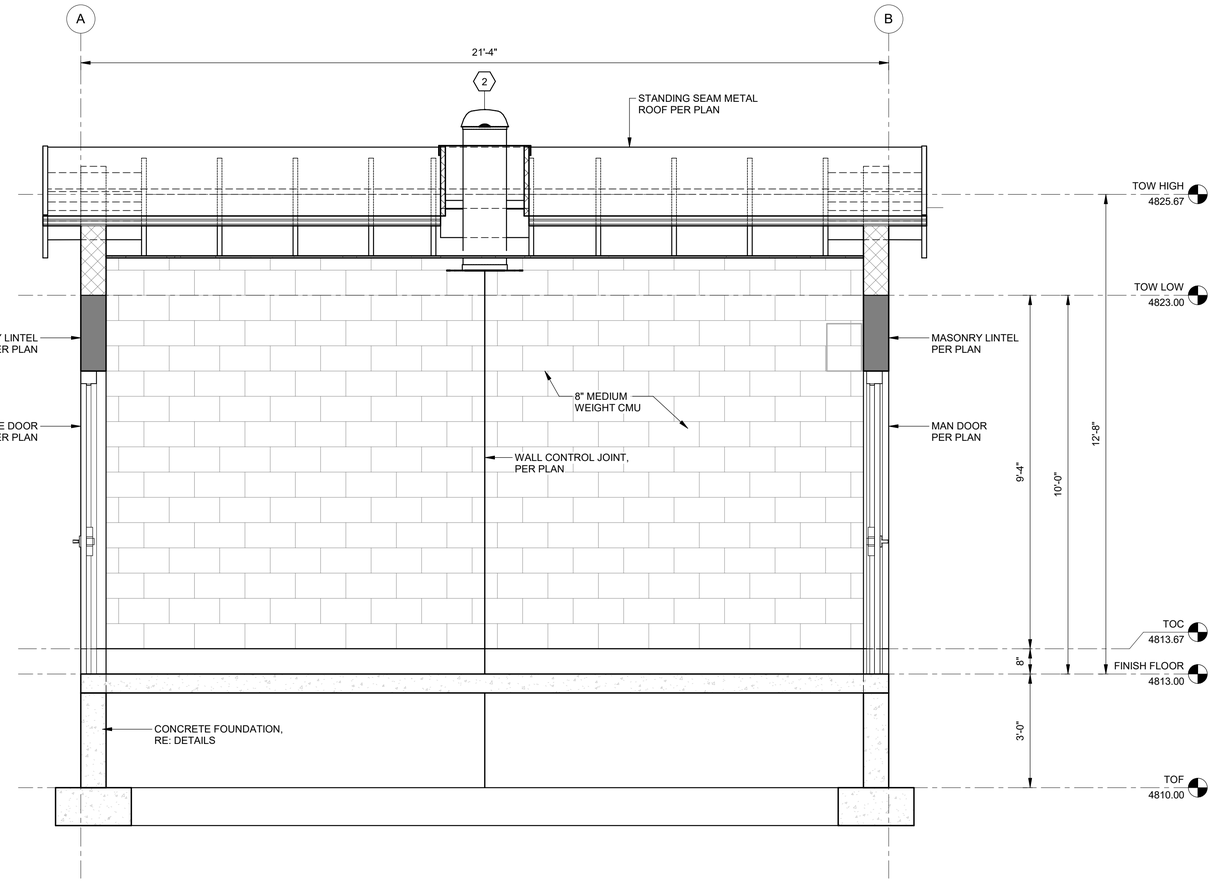
Autodesk Docs://Santaquin WRF Phase 3 Upgrades\93-24-001_05-S.rvt

SHEET KEYED NOTES

2	SOLATUBE-290 DS-14" SKYLIGHT OR APPROVED EQUAL.



1 / 05-S-111 BUILDING SECTION
SCALE: 1/2" = 1'-0"



2 / 05-S-111 BUILDING SECTION
SCALE: 1/2" = 1'-0"

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1/31/2025
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STATE OF UTAH

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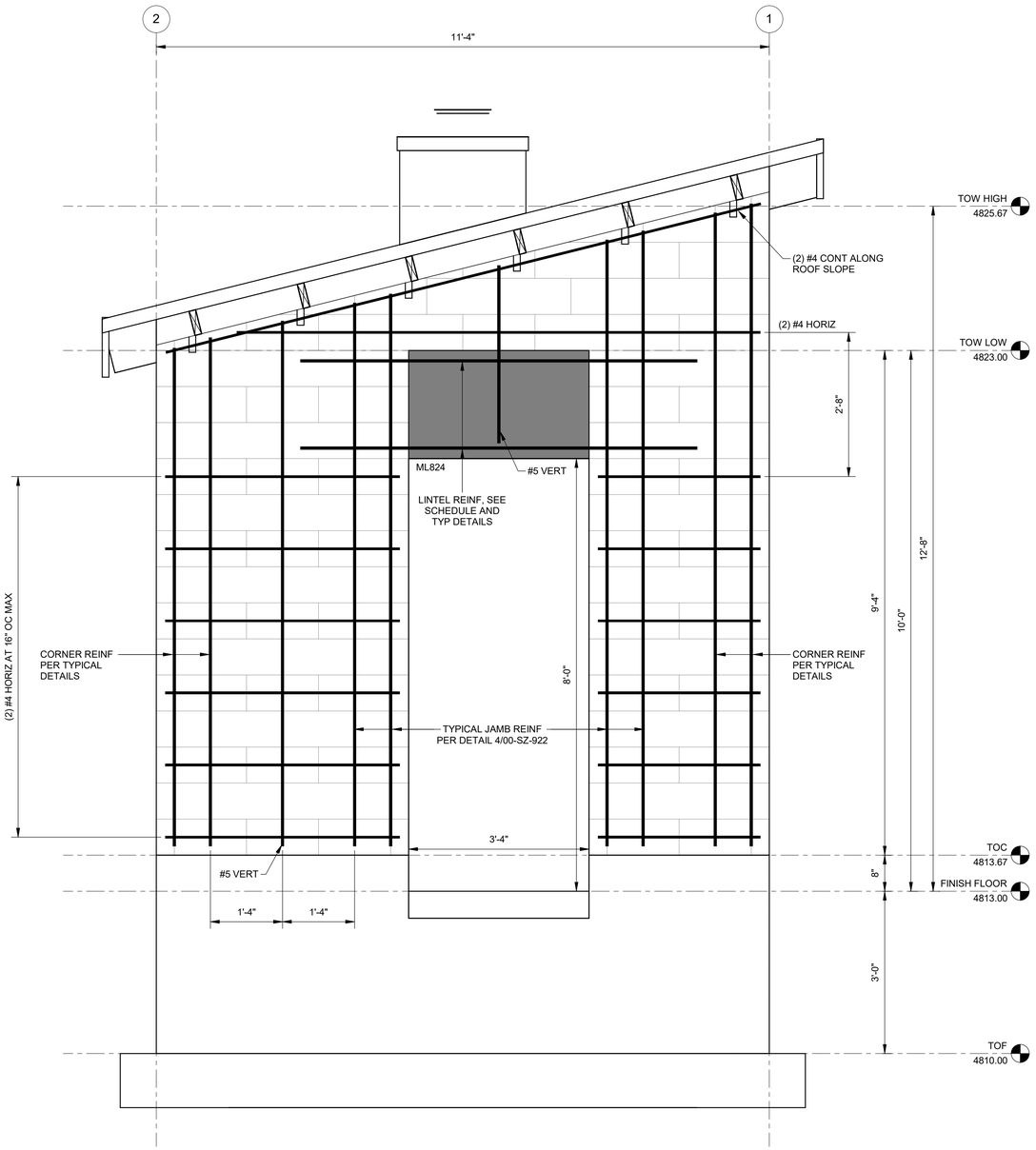
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
BUILDING SECTIONS

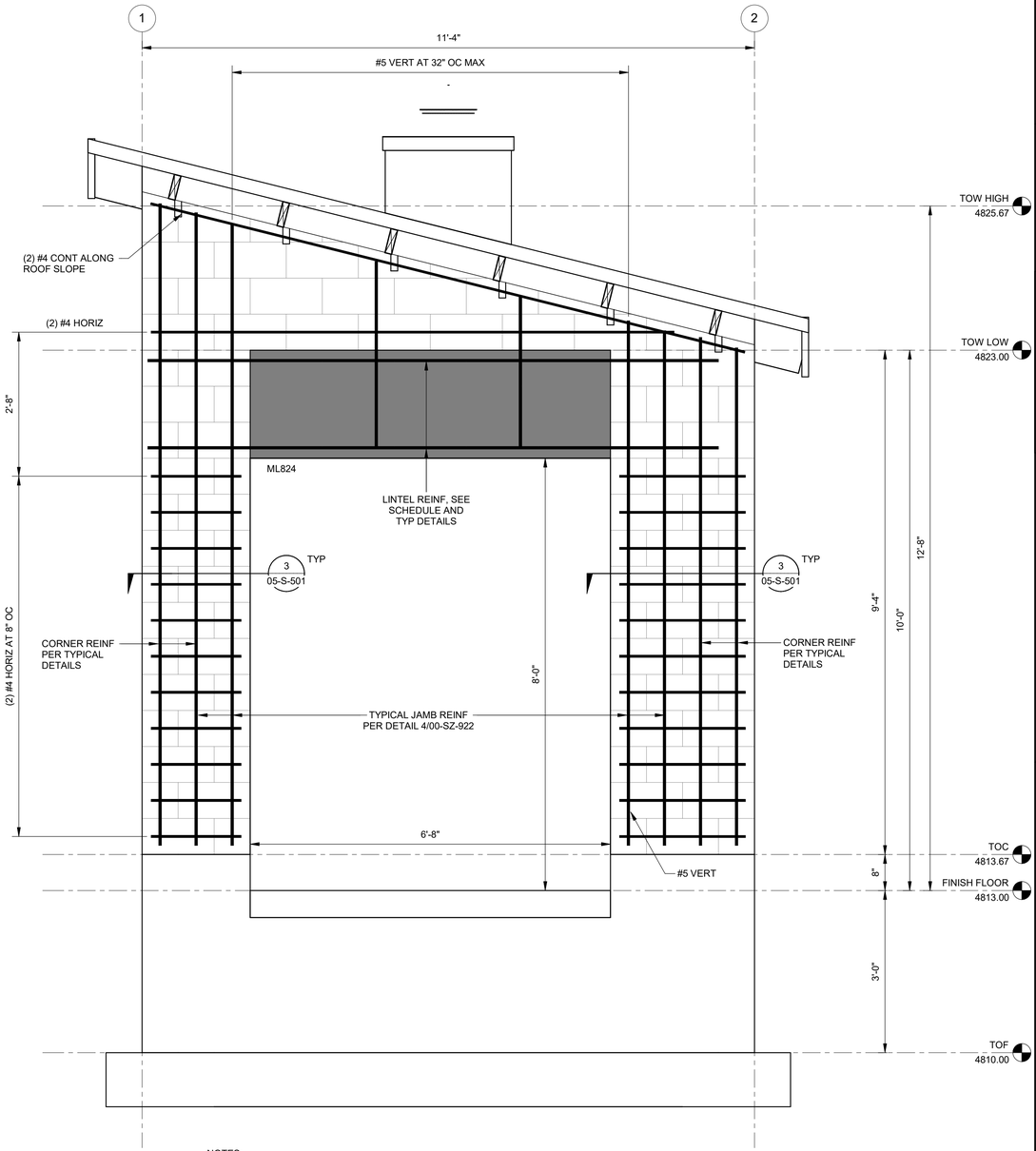
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-301



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 05-S-111 NORTH ELEVATION
SCALE: 3/4" = 1'-0"



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

2 / 05-S-111 SOUTH ELEVATION
SCALE: 3/4" = 1'-0"

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1/31/2025
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STATE OF UTAH

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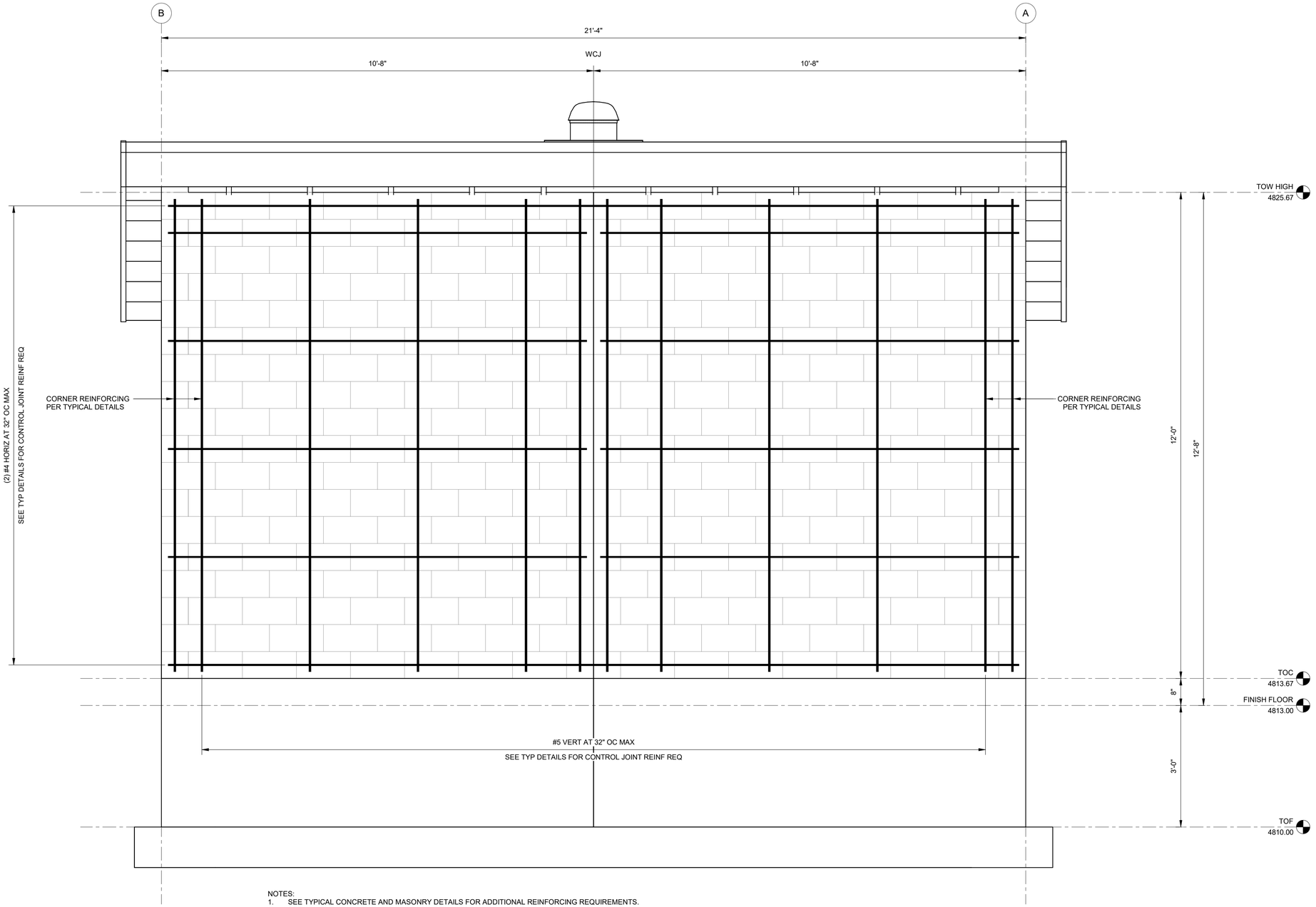
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
CMU WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-401



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 05-S-111 WEST ELEVATION
SCALE: 3/4" = 1'-0"

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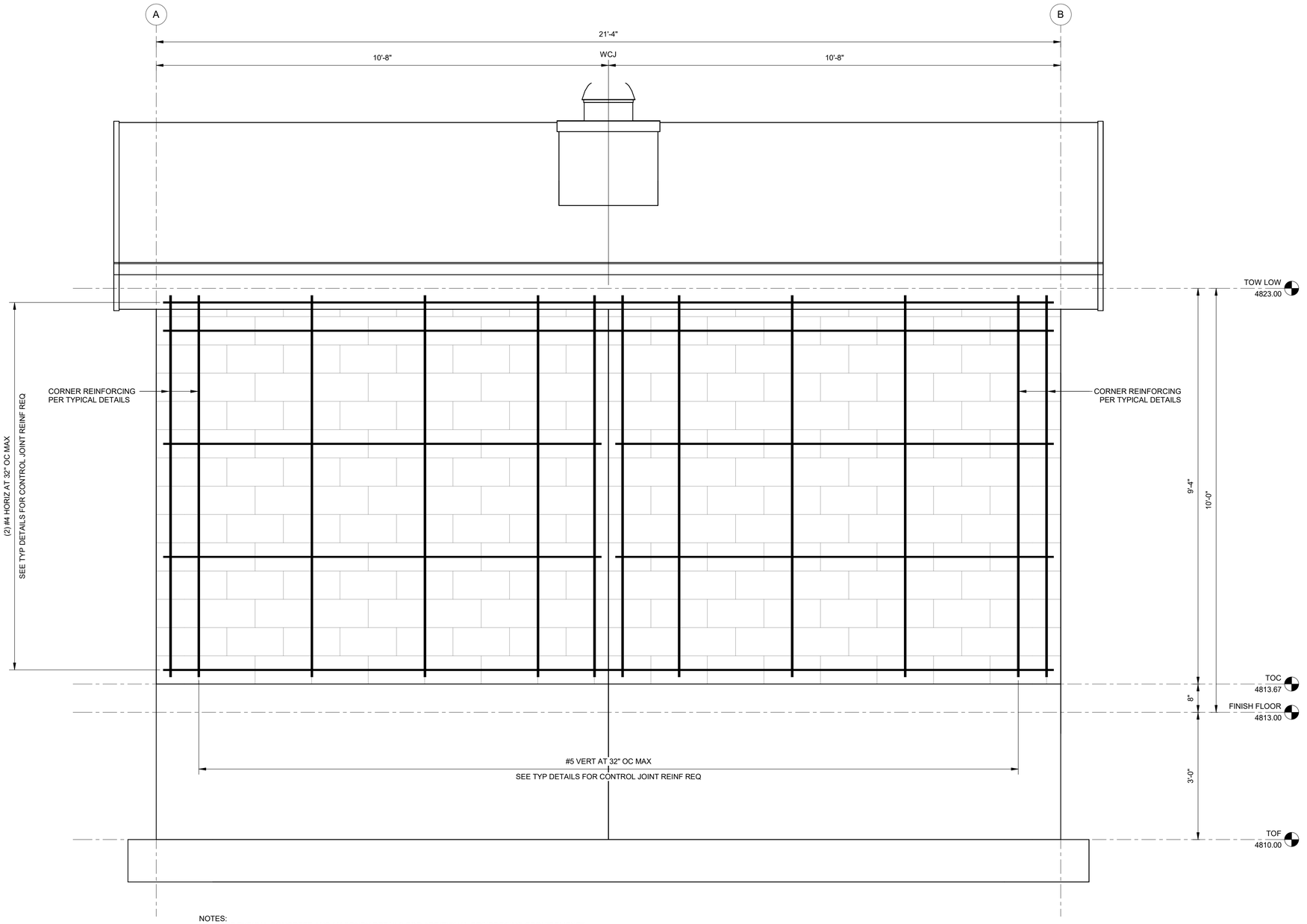
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
CMU WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
05-S-402

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 05-S-111 EAST ELEVATION
SCALE: 3/4" = 1'-0"

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1/31/2025
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STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
REVISION				

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

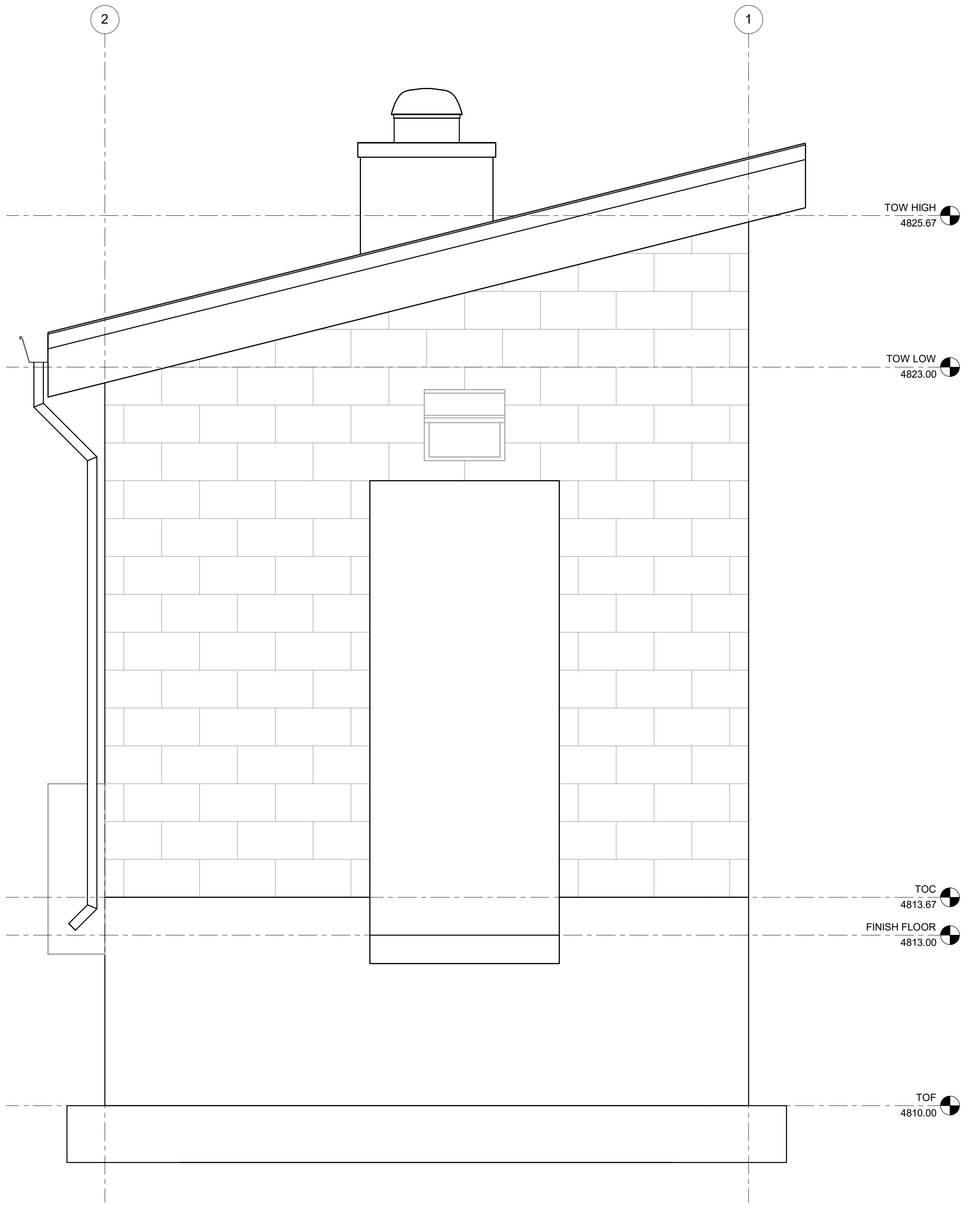
STRUCUTRAL (S)
CENTER ST. LIFT STATION
CMU WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

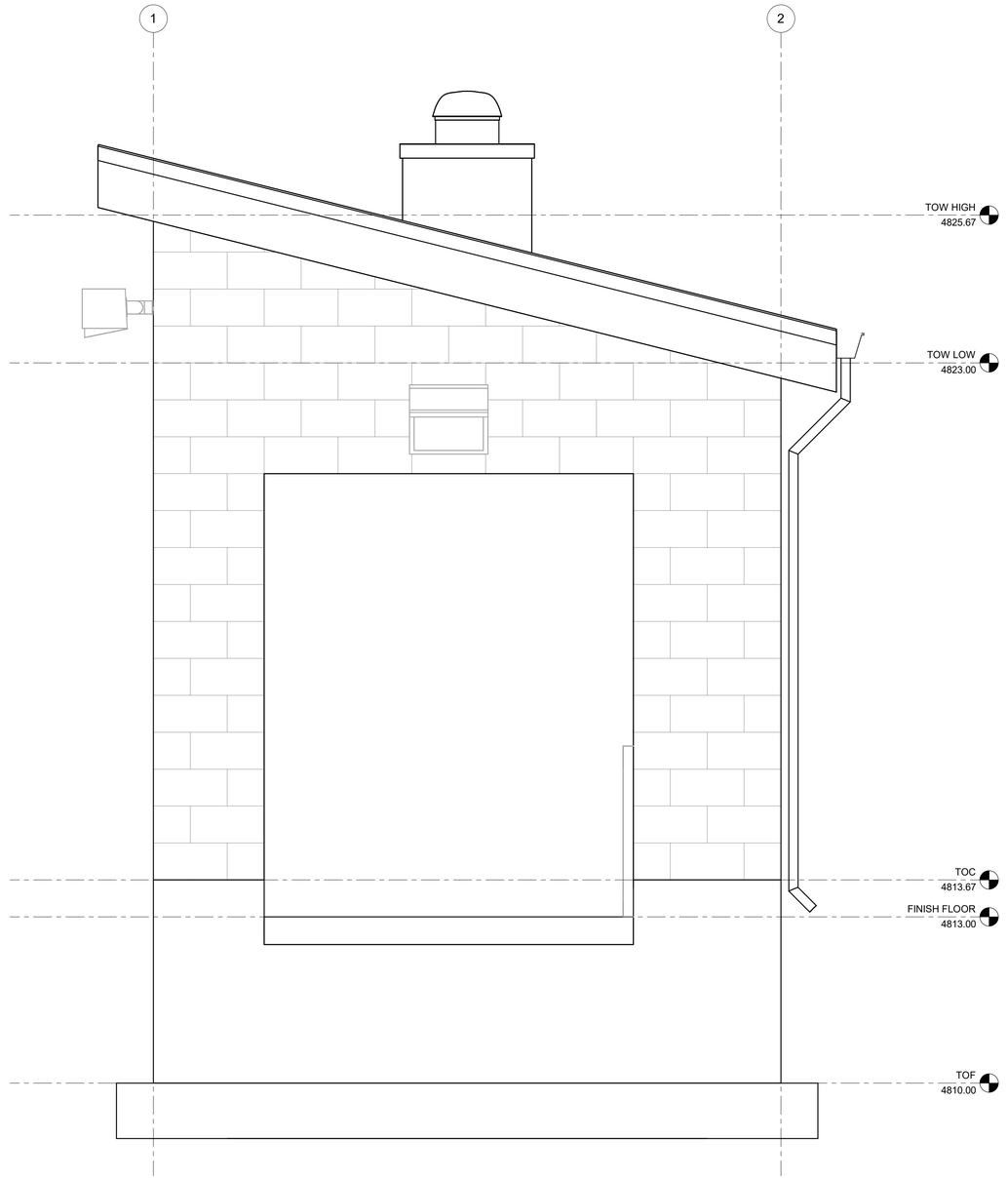
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
05-S-403



1 NORTH ARCHITECTURAL ELEVATION
05-S-111
SCALE: 3/4" = 1'-0"



2 SOUTH ARCHITECTURAL ELEVATION
05-S-111
SCALE: 3/4" = 1'-0"

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392 E. Winchester St.
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1/31/2025
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STATE OF UTAH

REVIEW

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	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

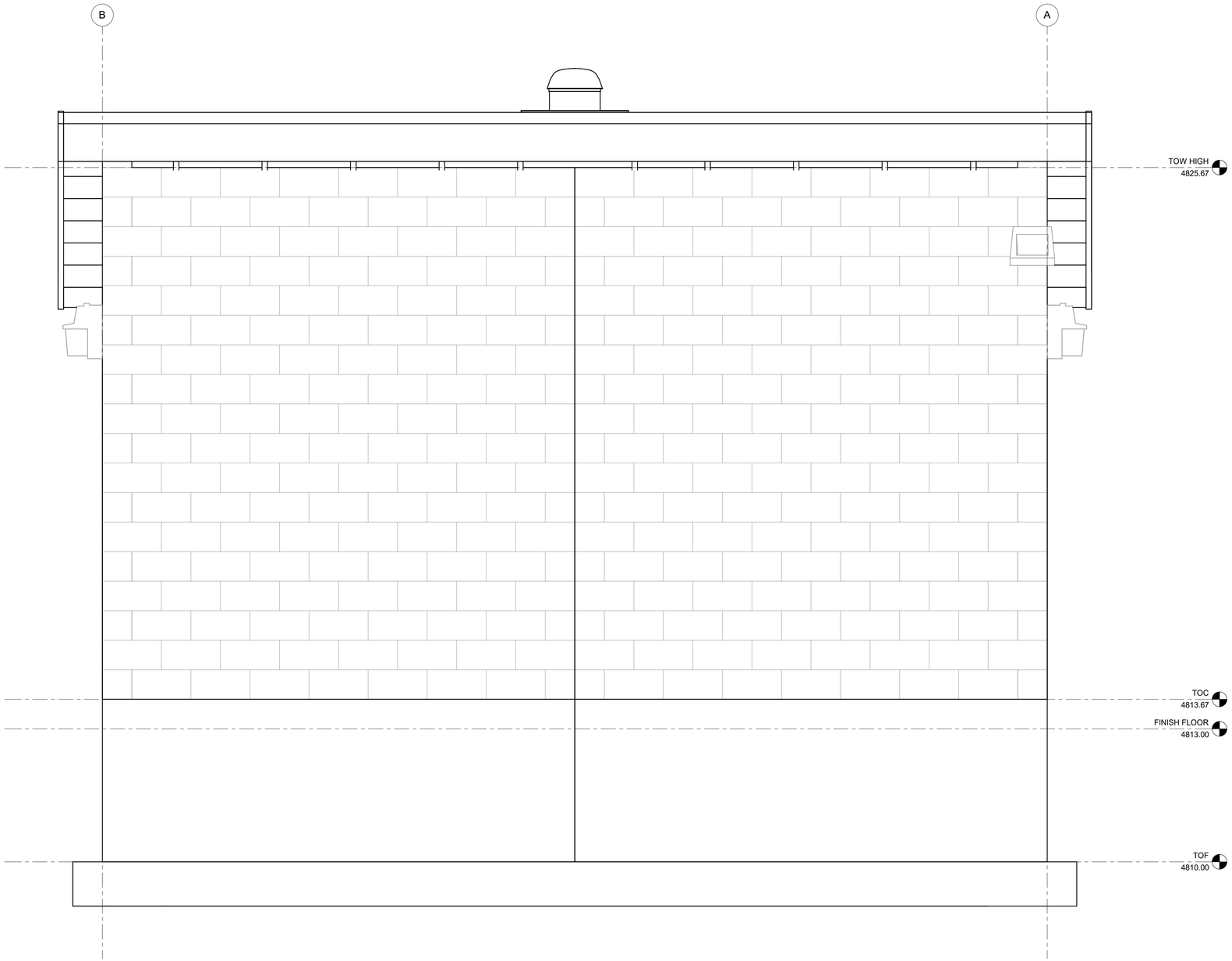
STRUCUTRAL (S)
CENTER ST. LIFT STATION
ARCHITECTURAL ELEVATION

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
05-S-404



1 / 05-S-111 WEST ARCHITECTURAL ELEVATION
SCALE: 3/4" = 1'-0"

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
ARCHITECTURAL ELEVATION

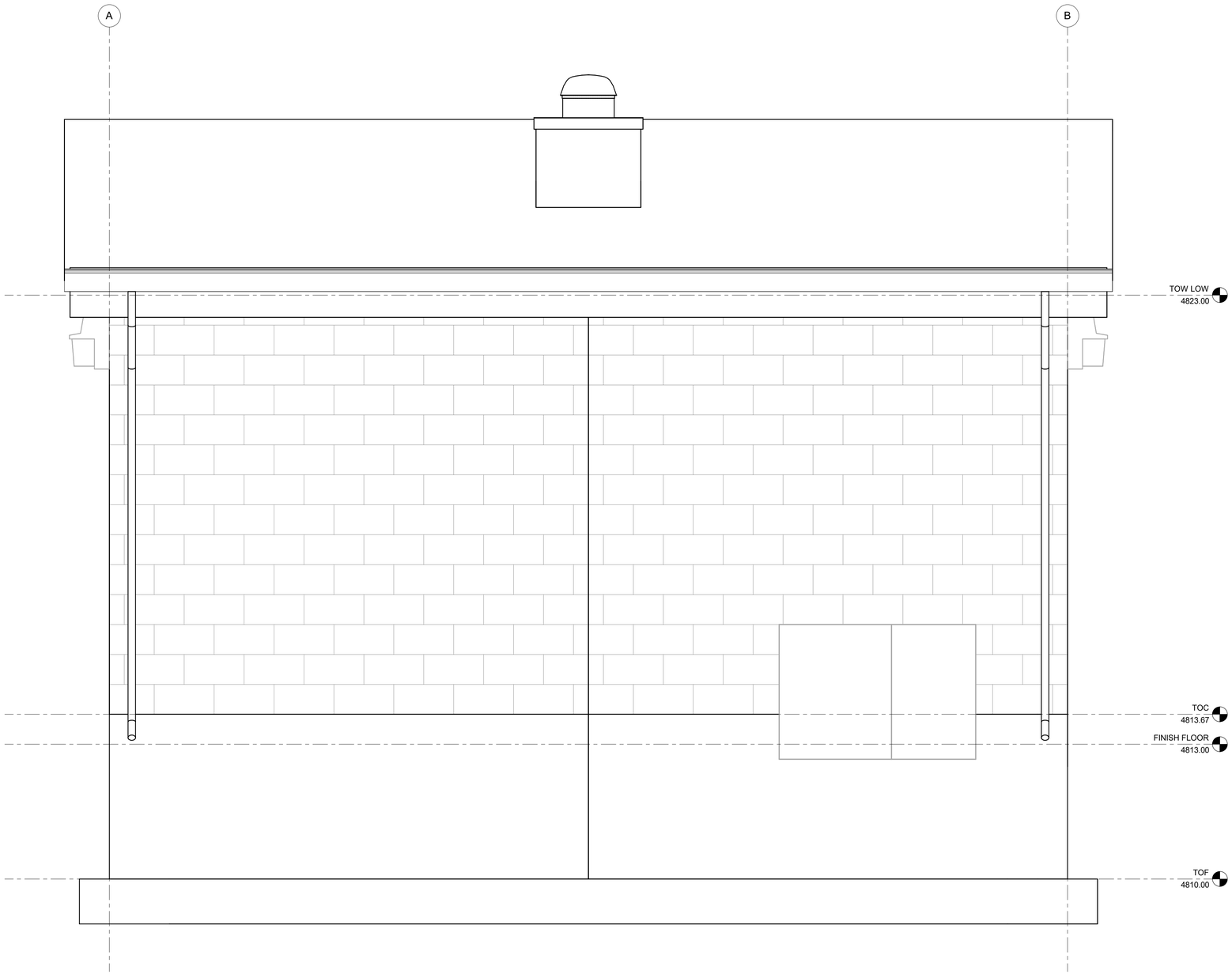
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
05-S-405

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



1 / 05-S-111 EAST ARCHITECTURAL ELEVATION
SCALE: 3/4" = 1'-0"

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
ARCHITECTURAL ELEVATION

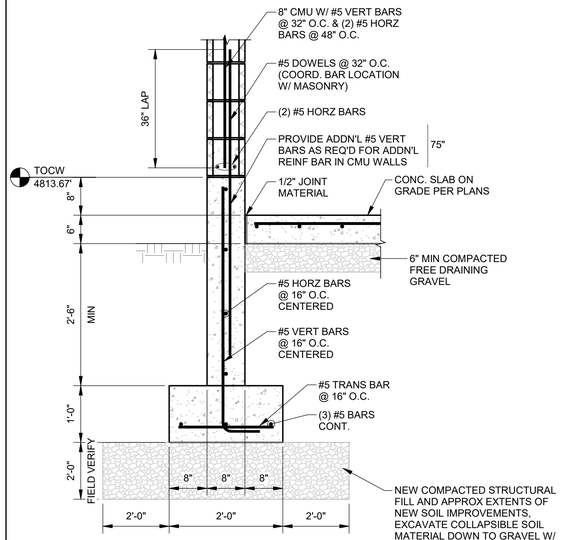
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

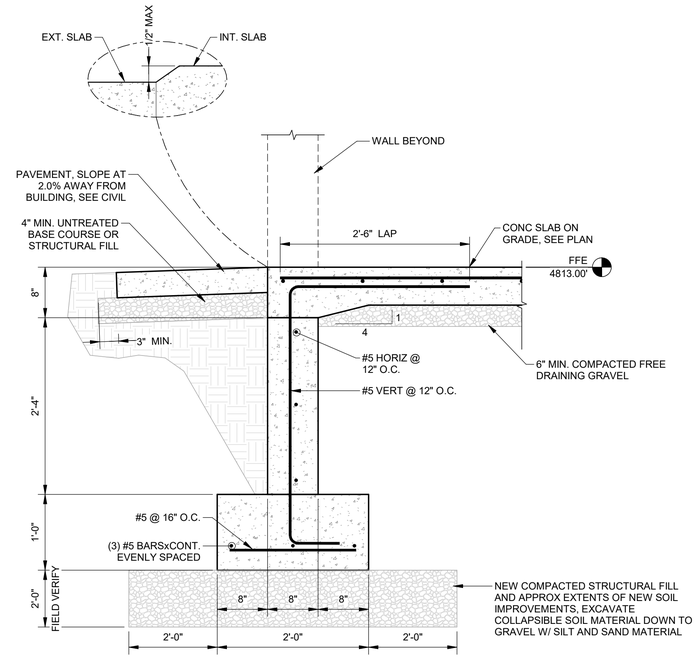
LAST UPDATED: 10/11/2024

DRAWING:
05-S-406

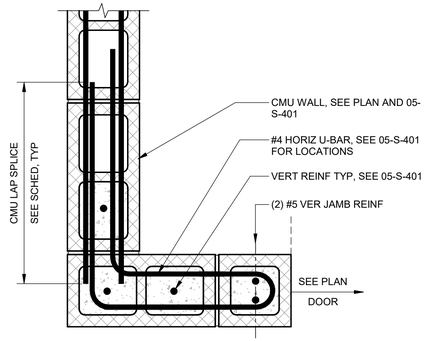
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



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



2 EXTERIOR WALL OPENING
SCALE: 1" = 1'-0"



3 GRID A CORNERS
05-S-111
SCALE: NTS

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1/31/2025
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REVIEW

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	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

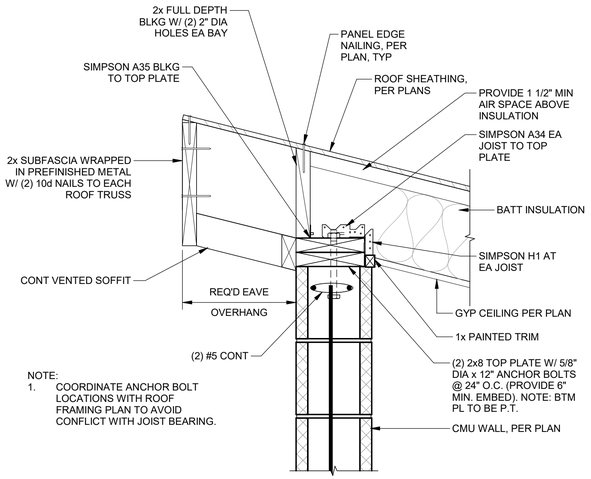
STRUCUTRAL (S)
CENTER ST. LIFT STATION
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

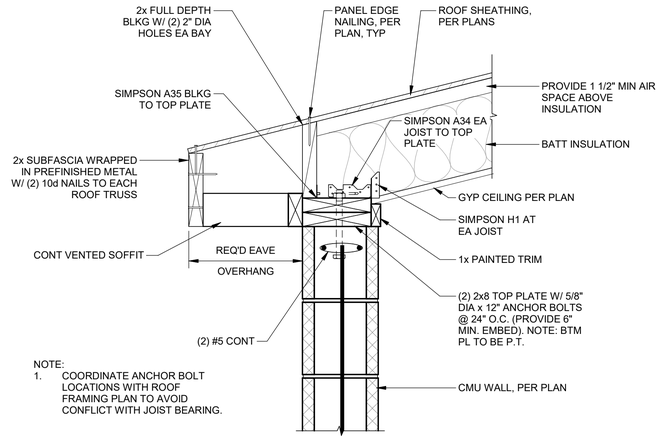
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

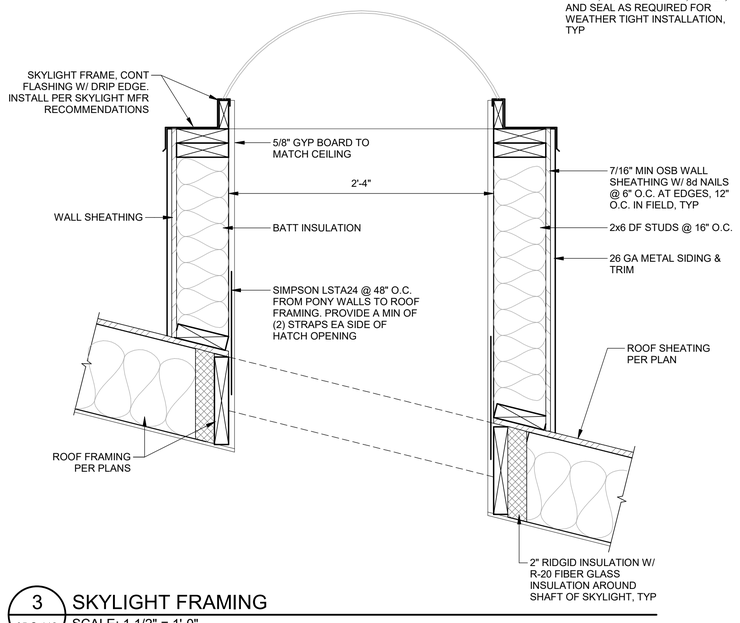
DRAWING:
05-S-501



1 JOIST BEARING AT HIGH TOW
05-S-112 SCALE: 1 1/2" = 1'-0"



2 JOIST BEARING AT LOW TOW
05-S-112 SCALE: 1 1/2" = 1'-0"



3 SKYLIGHT FRAMING
05-S-112 SCALE: 1 1/2" = 1'-0"

4 OUTLOOKER AT CMU WALL
05-S-112 SCALE: 1 1/2" = 1'-0"

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REVIEW

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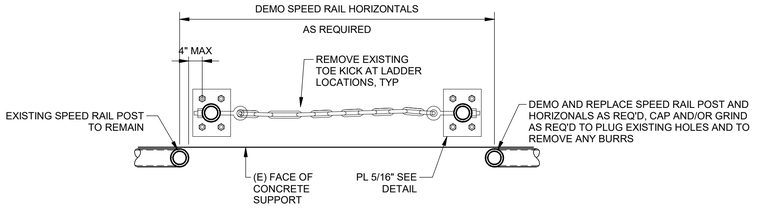
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
CENTER ST. LIFT STATION
STRUCTURAL DETAILS

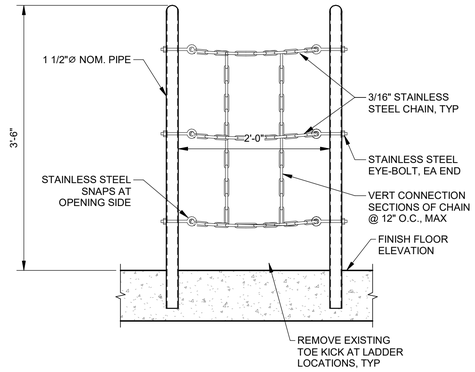
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
05-S-502

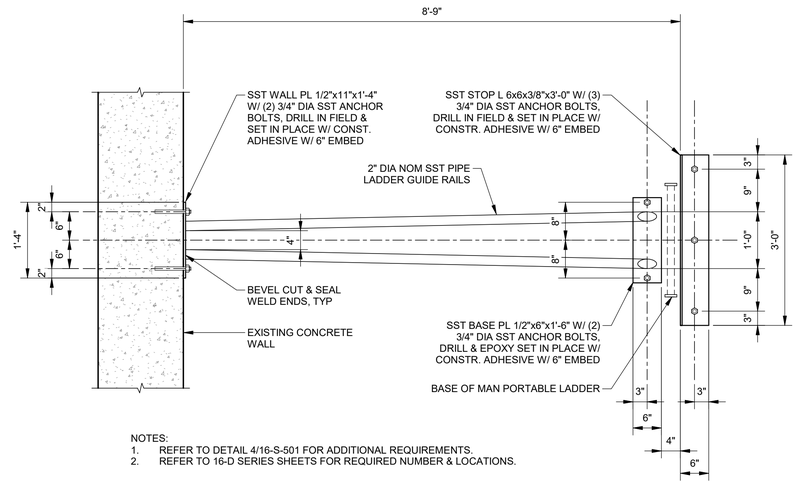
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_05-S.rvt



1 NEW ACCESS AT TEMPORARY LADDER
SCALE: NTS

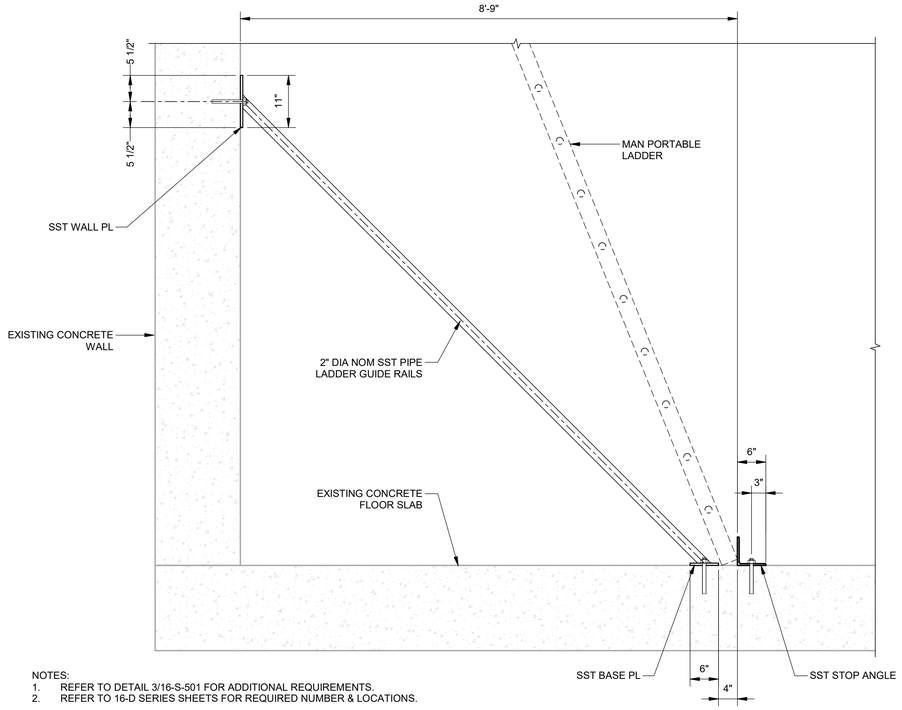


2 NEW ACCESS AT TEMPORARY LADDER
SCALE: NTS



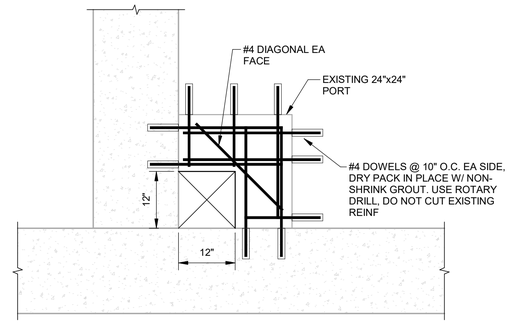
NOTES:
1. REFER TO DETAIL 4/16-S-501 FOR ADDITIONAL REQUIREMENTS.
2. REFER TO 16-D SERIES SHEETS FOR REQUIRED NUMBER & LOCATIONS.

3 LADDER GUIDE & STOP PLAN
SCALE: 3/4" = 1'-0"



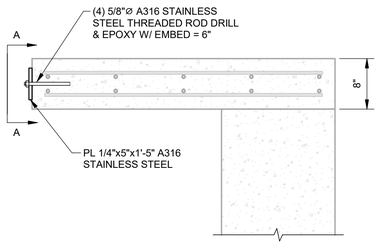
NOTES:
1. REFER TO DETAIL 3/16-S-501 FOR ADDITIONAL REQUIREMENTS.
2. REFER TO 16-D SERIES SHEETS FOR REQUIRED NUMBER & LOCATIONS.

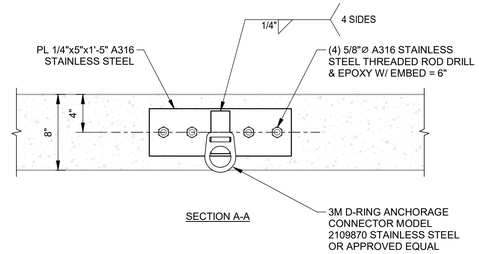
4 LADDER & GUIDE STOP
SCALE: NTS



5 FLOW PORT
SCALE: NTS

NOTES:
1. 3M D-RING ANCHORS SHALL BE INSTALLED PER MFR RECOMMENDATIONS.
2. ALL ADDITIONAL FALL PROTECTION EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE OWNER.
3. EXISTING RAILING AND FUTURE LADDER ACCESS POSTS NOT SHOWN FOR CLARITY.
4. EXISTING REINF. SHOWN IS FOR APPROXIMATE REPRESENTATION ONLY. SEE EXISTING PLANS FOR REINF. DETAILING AND PLACEMENT.





6 FALL ARREST ANCHORS
SCALE: NTS

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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE	BY	APR.

REVISION

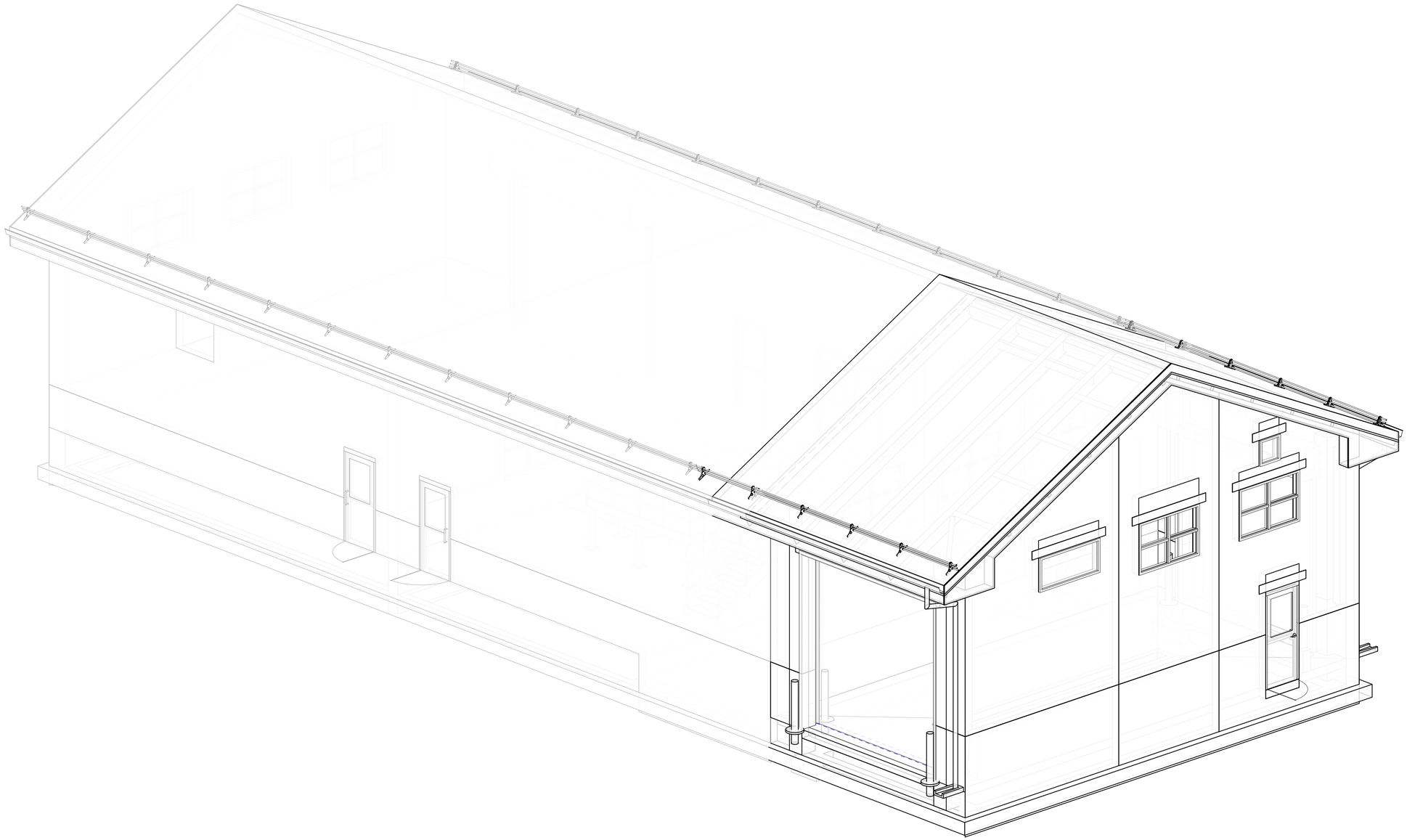
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

PROCESS MECHANICAL(D)
STRUCTURAL DETAILS
PROCESS BUILDING

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:ZJS
DESIGN BY:AD
CHECKED BY:GMV
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:01/30/2025

DRAWING:
16-S-501

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_02-D.rvt



1 ISOMETRIC VIEW
SCALE: NTS

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STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

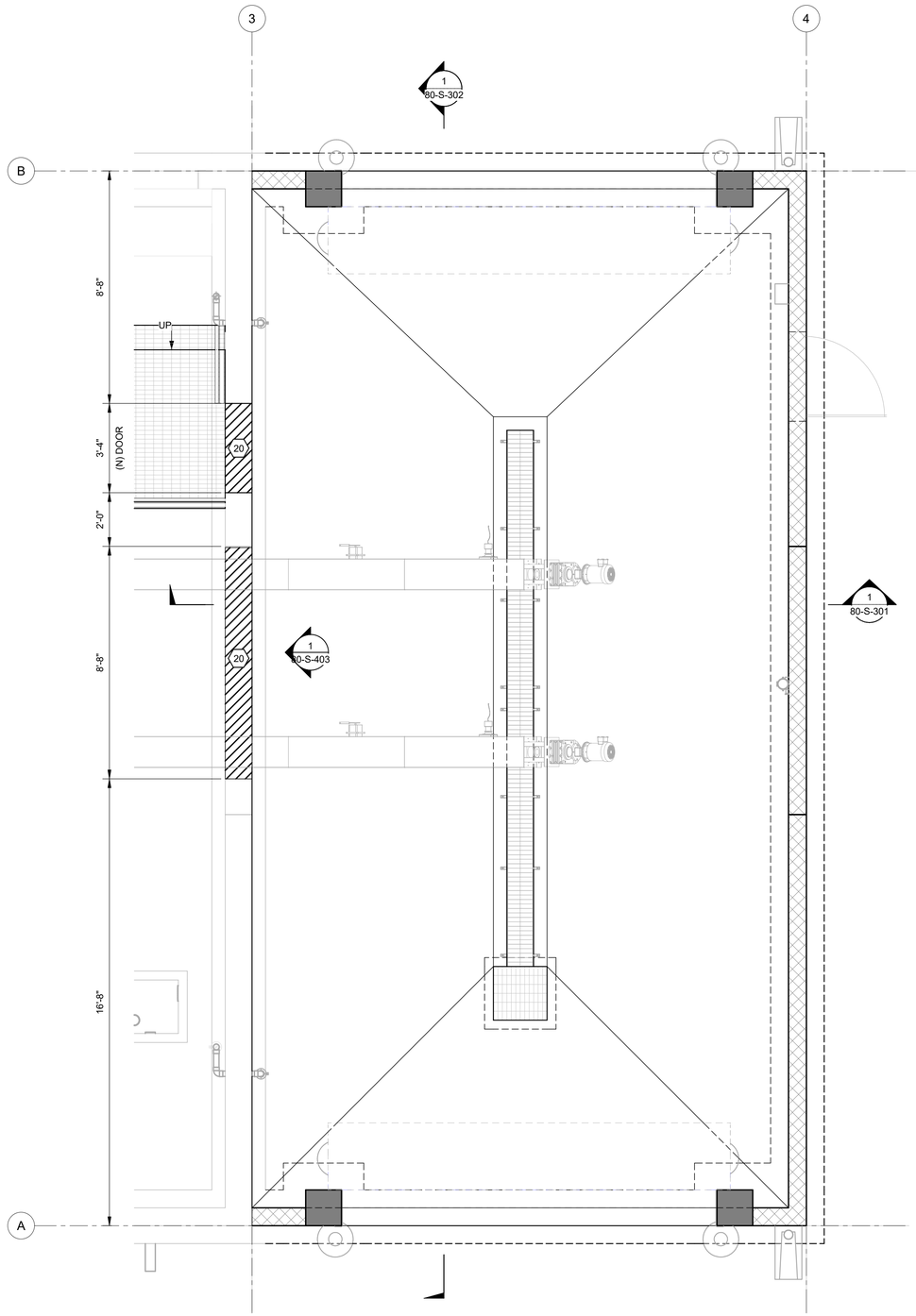
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
ISOMETRIC VIEW

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-001

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



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

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.

SHEET KEYED NOTES

20	DEMO EXISTING CMU AND CONCRETE FOR NEW OPENING

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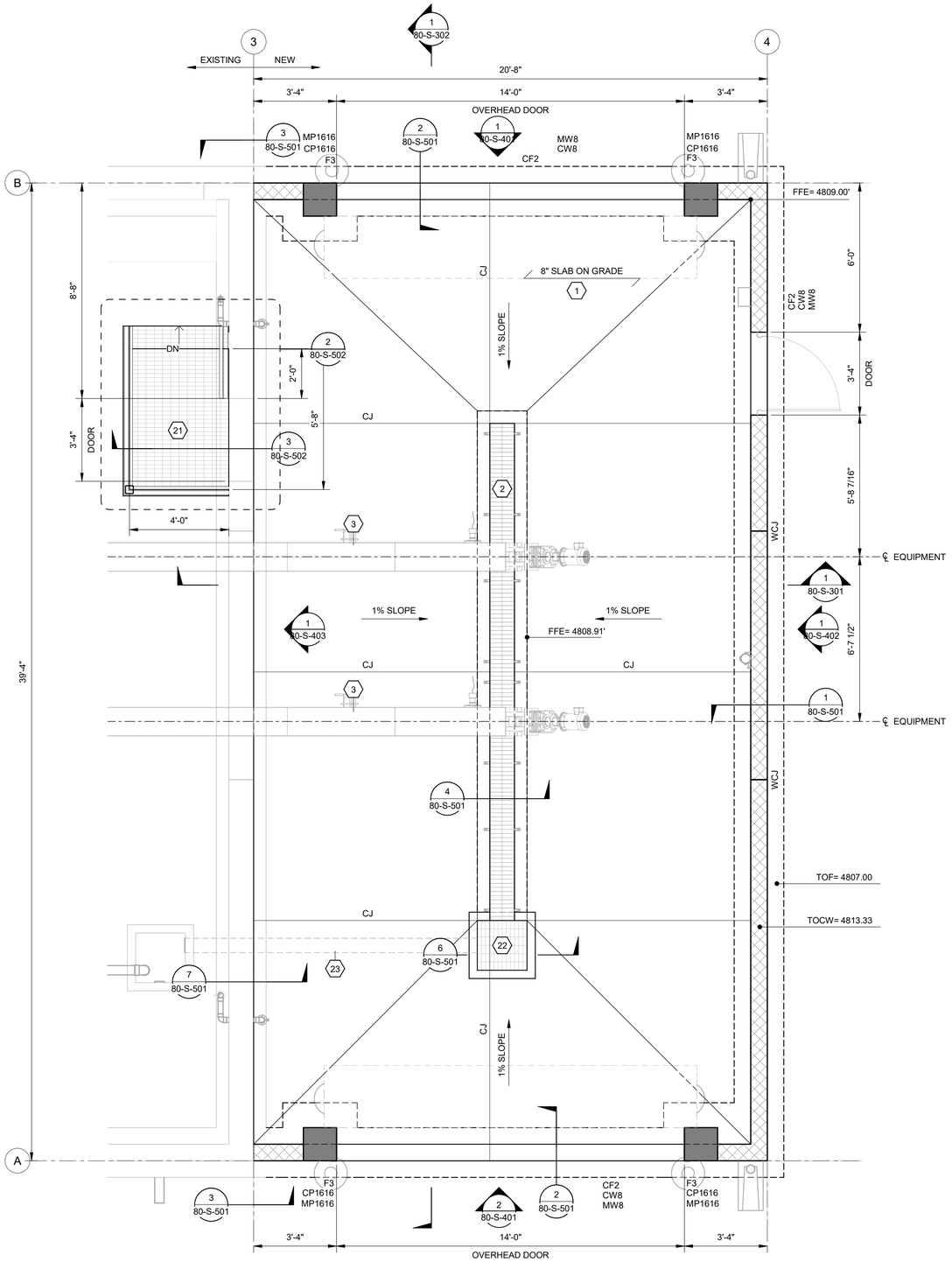
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
DEMO PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-100



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

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
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  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.

SHEET KEYED NOTES

1	SLAB ON GRADE SHALL BE 8" THICK CONCRETE WITH #5 @ 12" O.C. EACH WAY ON BOTTOM, & #4 BARS @ 18" O.C. EACH WAY ON TOP
2	TRENCH DRAIN, RE: MECHANICAL
3	PROCESS EQUIPMENT, RE: PROCESS MECHANICAL
21	REMOVABLE ALUMINUM STAIR AND LANDING
22	SUMP PIT, RE: PROCESS MECHANICAL
23	DRAIN PIPE, RE: PROCESS MECH, PIPE TO EXTEND FROM NEW SUMP PIT. SHORE EXISTING WALL FOOTING AS REQUIRED AND BACKFILL WITH CDF

CONCRETE WALL SCHEDULE

MARK	THICKNESS	REINFORCING	
		VERTICAL	HORIZONTAL
CW8	8"	#5 AT 16" OC CENTERED	#5 AT 16" OC CENTERED

CONCRETE CONTINUOUS FOOTING SCHEDULE

MARK	SIZE		REINFORCING	
	WIDTH	THICKNESS	TOP	BOTTOM
CF2	2'-0"	12"	-	(3) #5 CONT LONG, #5 AT 16" OC TRANS

CONCRETE SPREAD FOOTING SCHEDULE

MARK	SIZE			REINFORCING	
	WIDTH	LENGTH	DEPTH	TOP	BOTTOM
F3	3'-0"	3'-0"	1'-0"	-	(3) #5 EA WAY

MASONRY WALL SCHEDULE

MARK	WALL THICKNESS	REINFORCING		COMMENTS
		VERTICAL	HORIZONTAL	
MW8	8"	#5 AT 32" OC MAX	(2) #4 AT 48" OC MAX	SEE TYP DETAILS AND 80-S-401 - 80-S-403 FOR ADDITIONAL REQUIREMENTS

MASONRY PILASTER SCHEDULE

MARK	WIDTH "W"	LENGTH "L"	VERTICAL	TIE SETS	COMMENTS
MP1616	16"	16"	(1) #5 EACH CELL	(1) #4 AT 8" OC	SEE DETAIL 1/80-S-502

CONCRETE PILASTER SCHEDULE

MARK	WIDTH "W"	LENGTH "L"	VERTICAL	TIE SETS	COMMENTS
CP1616	1'-4"	1'-4"	(6) #5	#4 TIE AT 8" OC	SEE DETAIL 1/80-S-502

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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	DATE	BY
	REVISION	APR.	

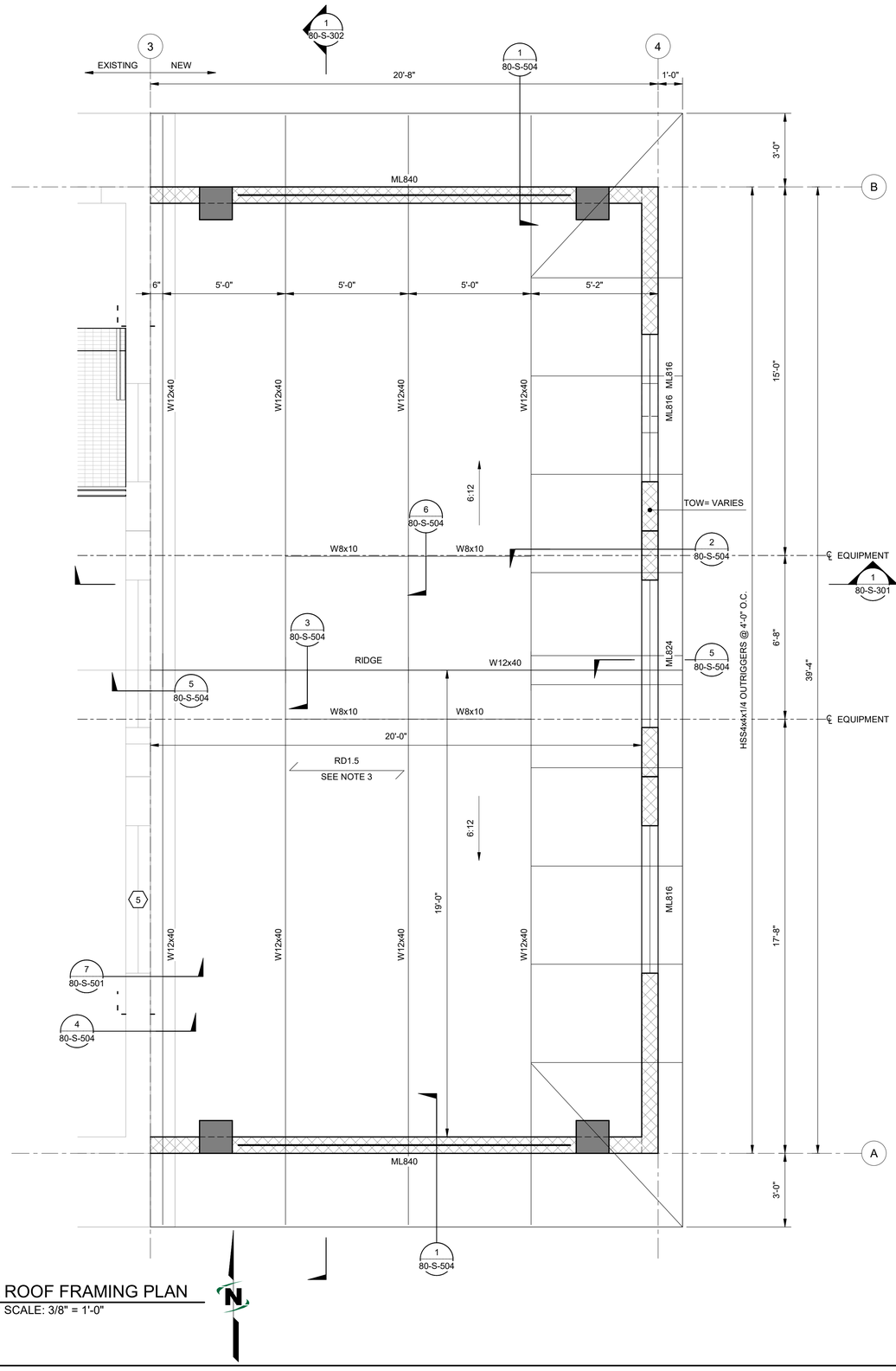
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
FOUNDATION PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
80-S-101

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



1 ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
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  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. RD1.5 = ROOF DECK SHALL BE 1 1/2" x 20 GA VERCO PLB-36 OR EQUAL. DECK SHALL SPAN CONTINOUS OVER 3 OR MORE SPANS (4 SUPPORTS) UNO, SEE ARCH DRAWINGS FOR INSULATION, ROOFING, ETC. WELD DECK USING 1/2" DIA NET EFFECTIVE PUDDLE WELDS.
   A. PERPENDICULAR BEARS: 7 WELDS PER SHEET SUPPORT
   B. PARALLEL EDGES @ 12" O.C.
   C. SIDE LAP: PUNCHLOCK @ 12" O.C.
   D. END BEARING: 2" MIN.

SHEET KEYED NOTES

5	EXISTING OPENING WITH NEW CMU INFILL, RE: 6/80-S-501

MASONRY LINTEL SCHEDULE

MARK	OPENING WIDTH	LINTEL DEPTH	REINFORCING		
			TOP	BOTTOM	STIRRUPS
ML816	SEE PLAN	16"	-	(2) #5	-
ML824	SEE PLAN	24"	-	(2) #5	-
ML840	SEE PLAN	40"	-	(4) #5	#4 @ 32" O.C.

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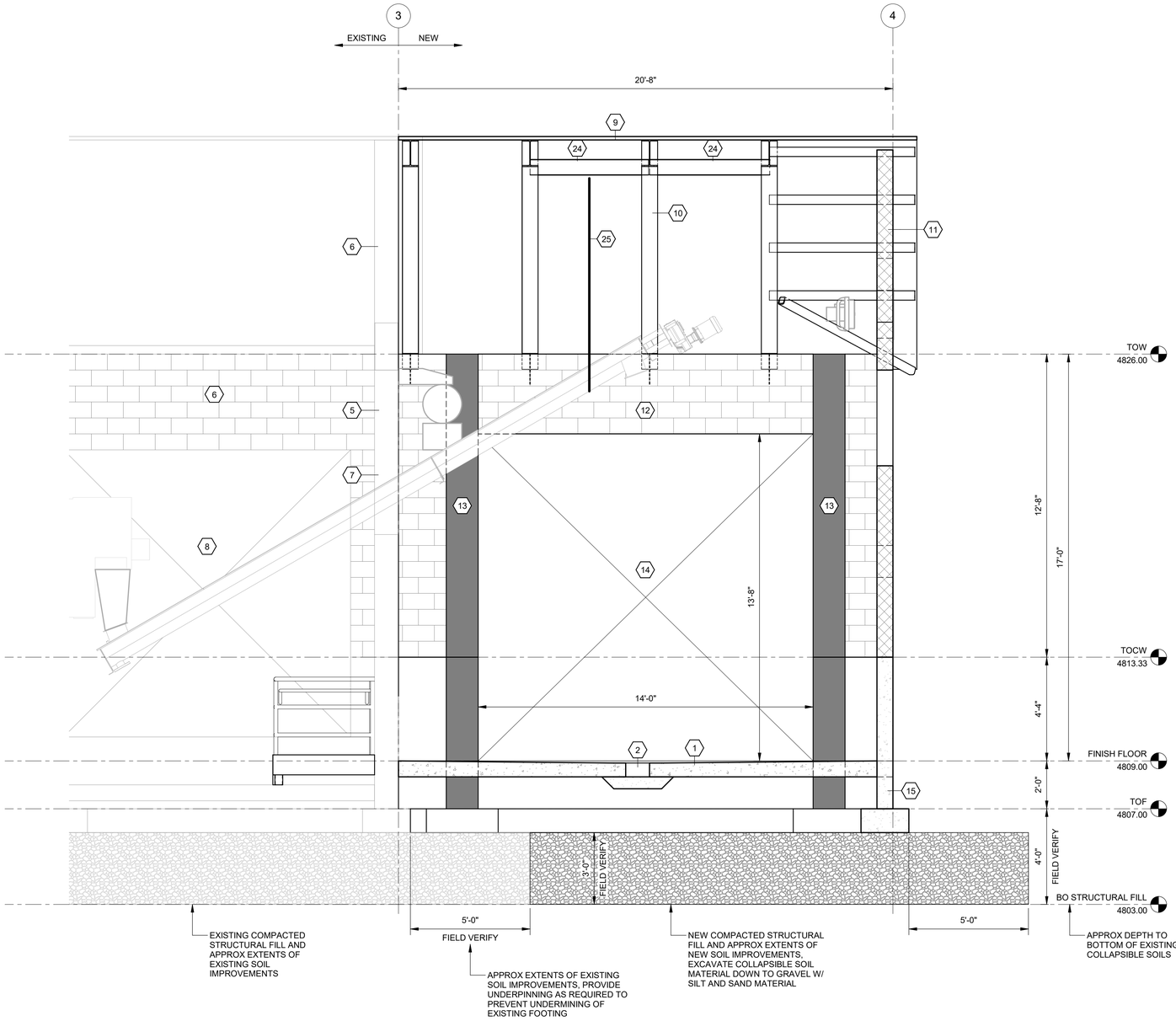
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
ROOF FRAMING PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
80-S-102

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



1 / 80-S-100 BUILDING SECTION
SCALE: 3/8" = 1'-0"

SHEET KEYED NOTES

1	SLAB ON GRADE SHALL BE 8" THICK CONCRETE WITH #5 @ 12" O.C. EACH WAY ON BOTTOM, & #4 BARS @ 18" O.C. EACH WAY ON TOP
2	TRENCH DRAIN, RE: MECHANICAL
5	EXISTING OPENING WITH NEW CMU INFILL, RE: 6/80-S-501
6	EXISTING CMU WALL
7	NEW EQUIPMENT OPENING, RE: PROCESS MECHANICAL
8	EXISTING OVERHEAD DOOR OPENING
9	ROOF DECK, RE: ROOF FRAMING PLAN
10	WIDE FLANGE STEEL ROOF JOIST, RE: ROOF FRAMING PLAN
11	MEDIUM WEIGHT 8" CMU, RE: FOUNDATION PLAN
12	MASONRY LINTEL, RE: ROOF FRAMING PLAN, MASONRY LINTEL SCHEDULE
13	MASONRY PILASTER, RE: FOUNDATION PLAN, MASONRY PILASTER SCHEDULE
14	OVERHEAD DOOR OPENING, RE: ARCH
15	NEW CONCRETE FOUNDATION, RE: FOUNDATION PLAN
24	EQUIPMENT SUPPORT FRAMING, SEE ROOF FRAMING PLAN
25	EQUIPMENT ATTACHMENT BY EQUIPMENT SUPPLIER

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
BUILDING SECTIONS

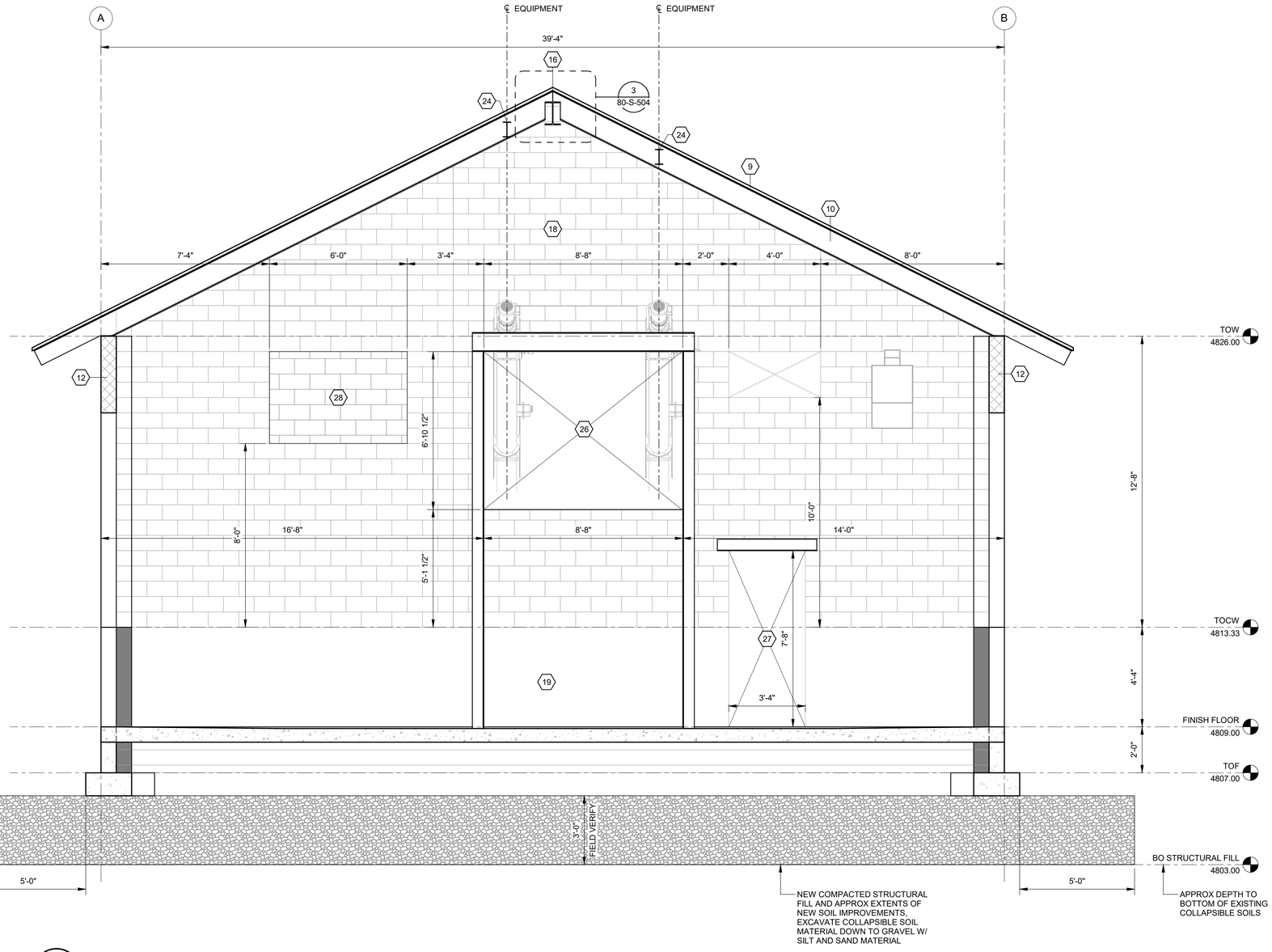
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-301

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt

SHEET KEYED NOTES

9	ROOF DECK, RE: ROOF FRAMING PLAN
10	WIDE FLANGE STEEL ROOF JOIST, RE: ROOF FRAMING PLAN
12	MASONRY LINTEL, RE: ROOF FRAMING PLAN, MASONRY LINTEL SCHEDULE
16	WIDE FLANGE STEEL RIDGE BEAM, RE: ROOF FRAMING PLAN
18	EXISTING CMU GABLE WALL, RE: RECORD DRAWINGS
19	EXISTING CONCRETE STEM WALL
24	EQUIPMENT SUPPORT FRAMING, SEE ROOF FRAMING PLAN
26	EXISTING OPENING AT THIS LOCATION TO BE EXPANDED FOR NEW EQUIPMENT, SEE DETAILS
27	NEW DOOR OPENING
28	EXISTING OPENING AT THIS LOCATION TO BE INFILLED, SEE DETAILS



1 / 80-S-100 BUILDING SECTION
SCALE: 3/8" = 1'-0"

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
BUILDING SECTIONS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

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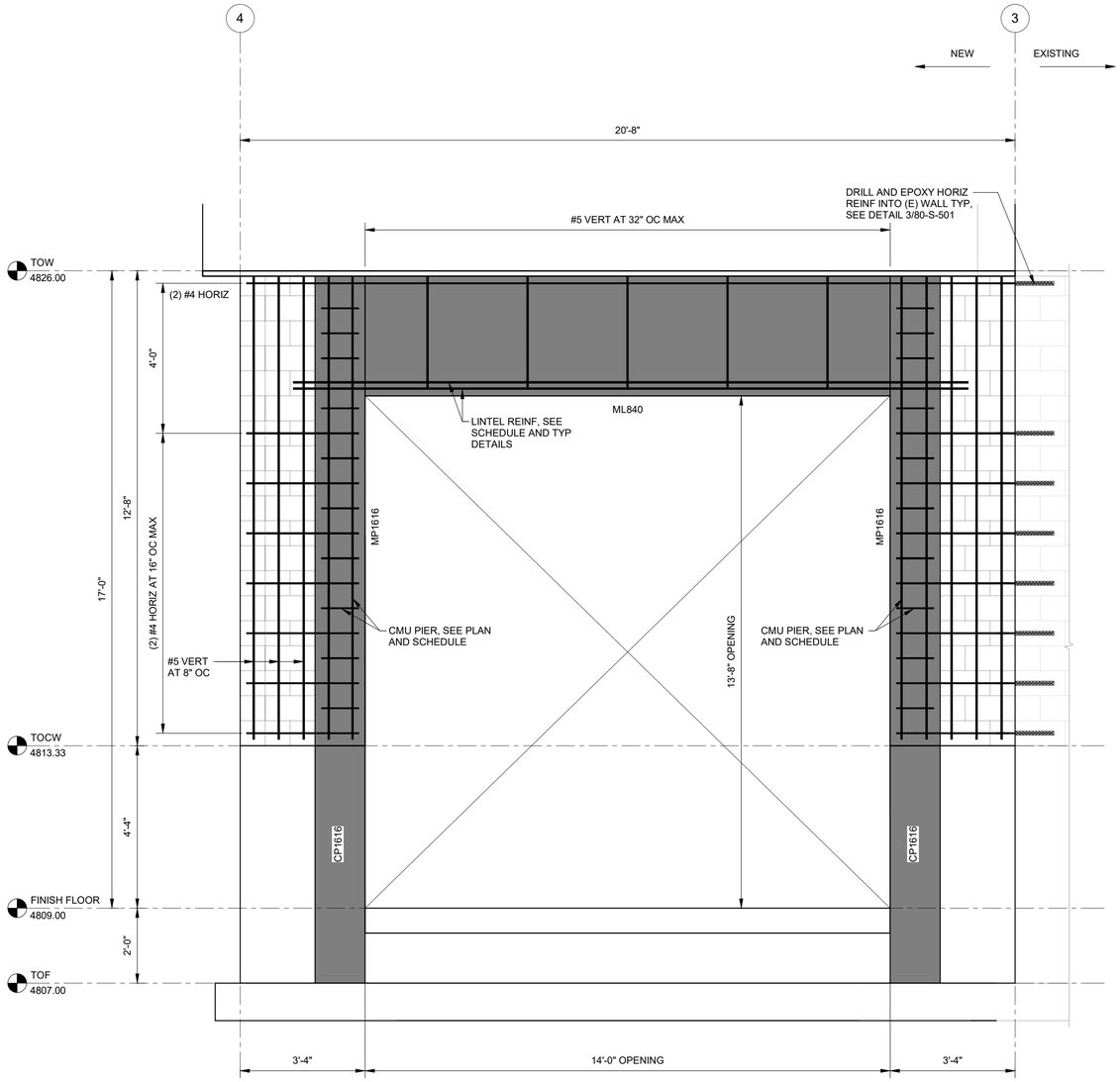
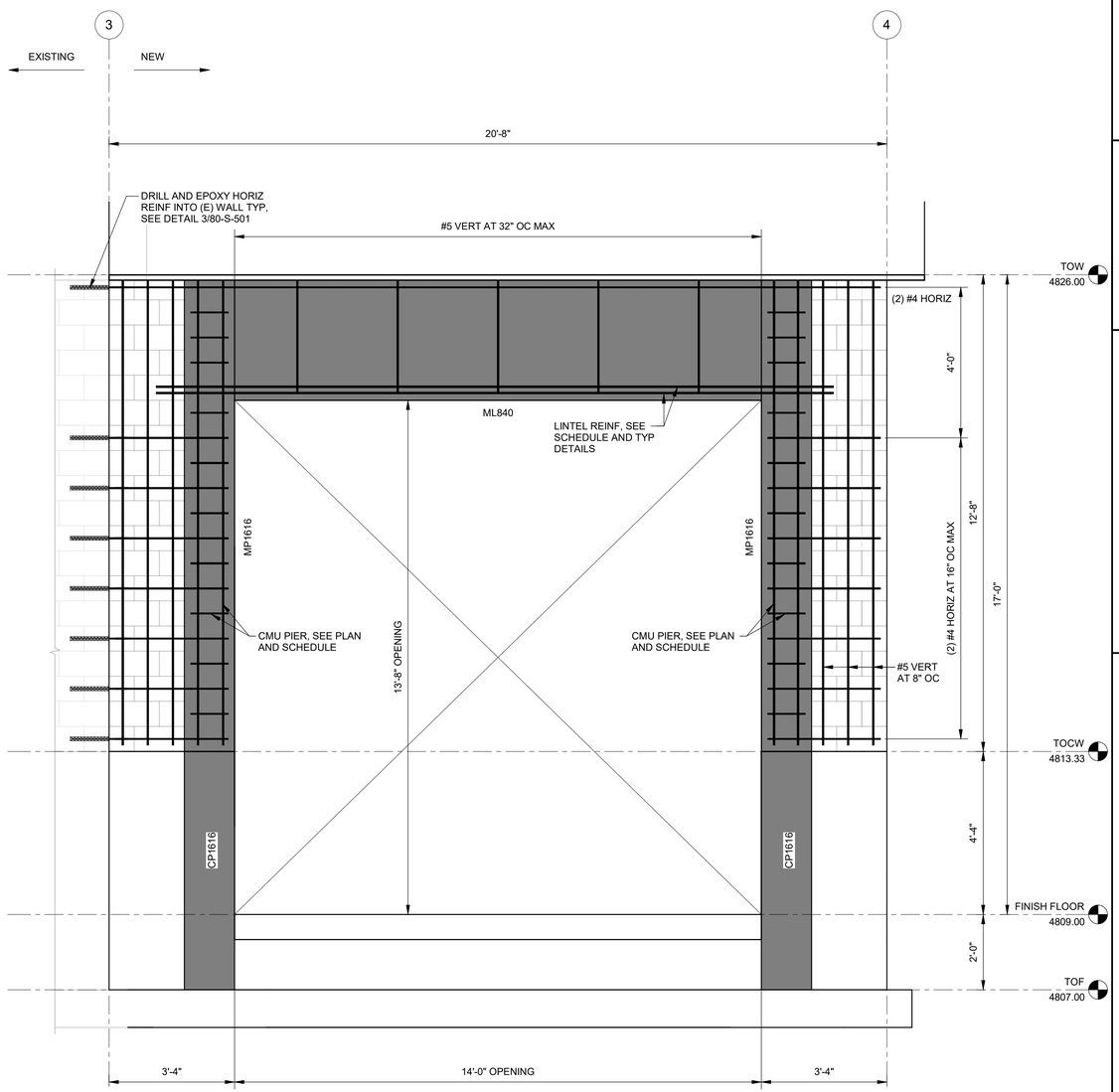
80-S-302



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 80-S-101 NORTH WALL REBAR ELEVATION
SCALE: 1/2" = 1'-0"



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

2 / 80-S-101 SOUTH WALL REBAR ELEVATION
SCALE: 1/2" = 1'-0"

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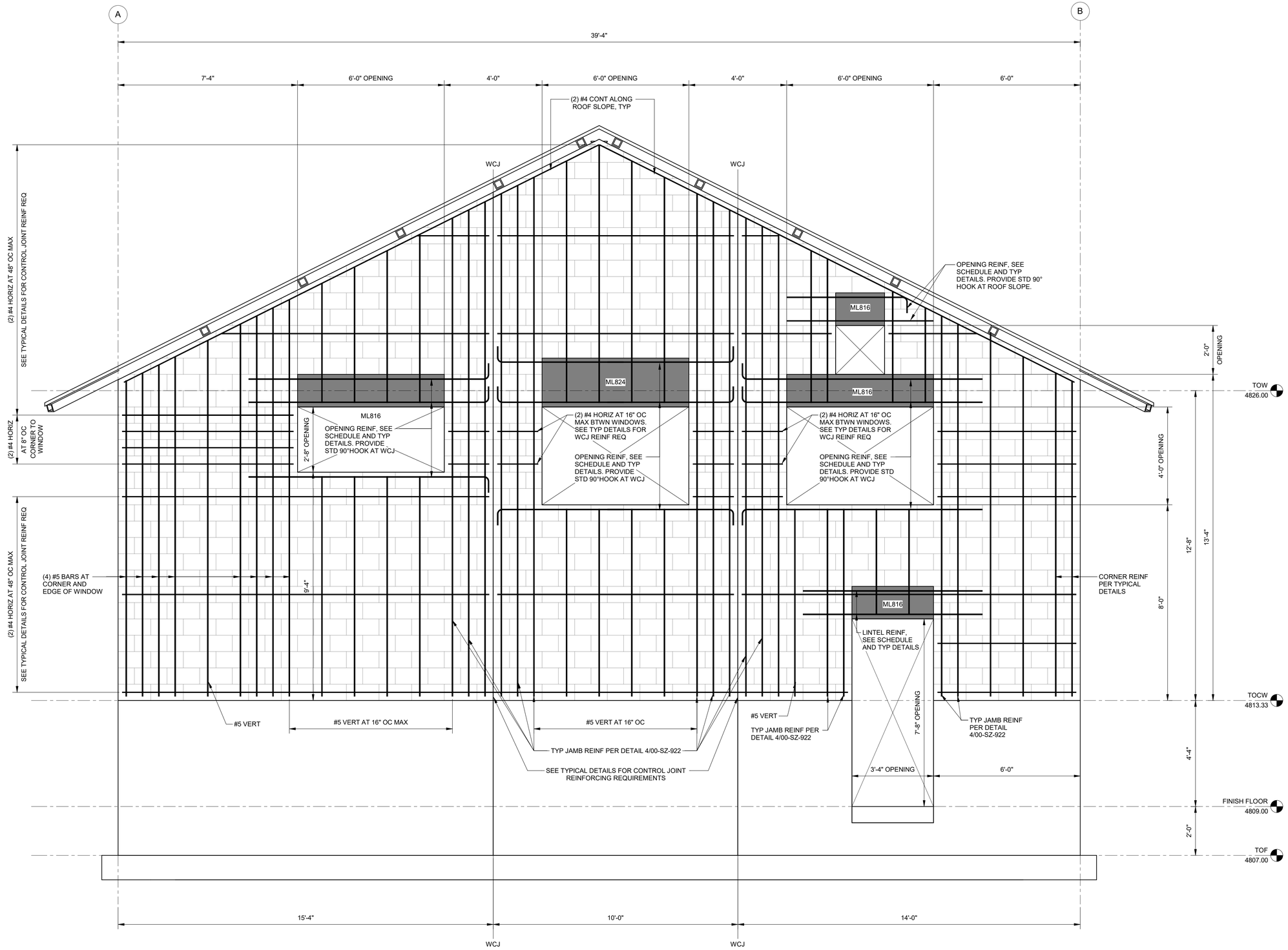
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
CMU WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
80-S-401

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



1 / 80-S-101 EAST WALL REBAR ELEVATION
SCALE: 1/2" = 1'-0"

NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

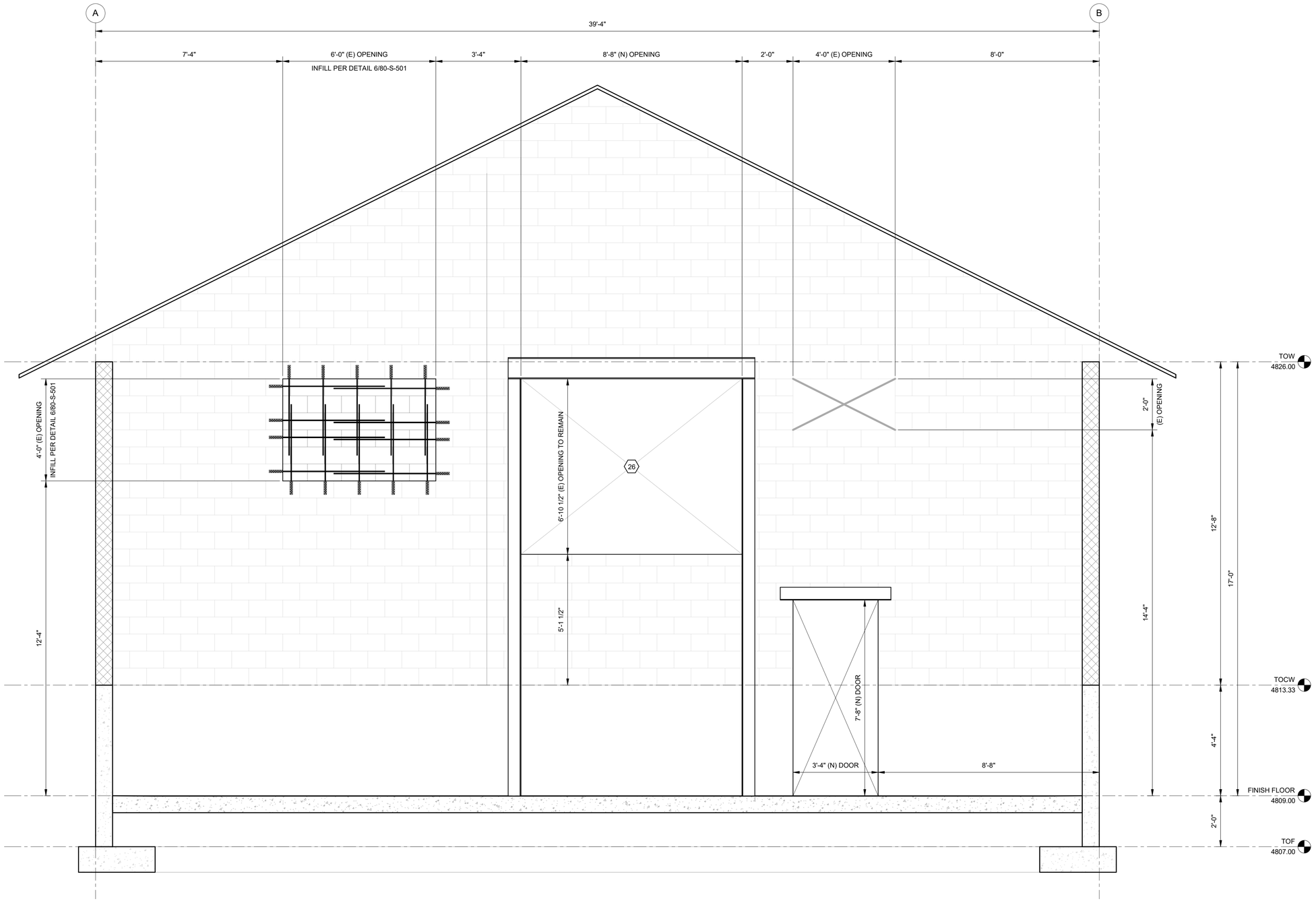
STRUCUTRAL (S)
DEWATERING
CMU WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-402

SHEET KEYED NOTES

26	EXISTING OPENING AT THIS LOCATION TO BE EXPANDED FOR NEW EQUIPMENT, SEE DETAILS



1 / 80-S-100 GRID 3 WALL REBAR ELEVATION
SCALE: 1/2" = 1'-0"

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Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSIE L SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

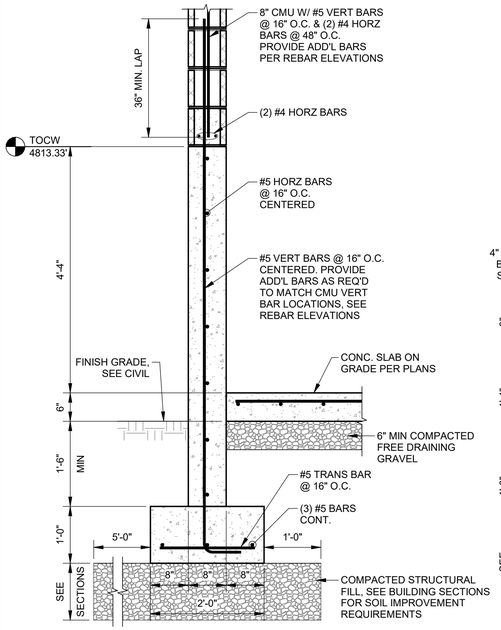
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
CMU WALL REINFORCEMENT

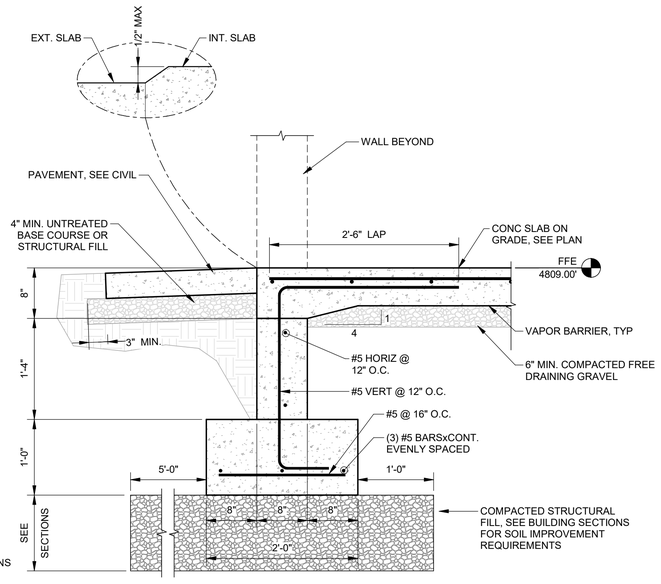
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-403

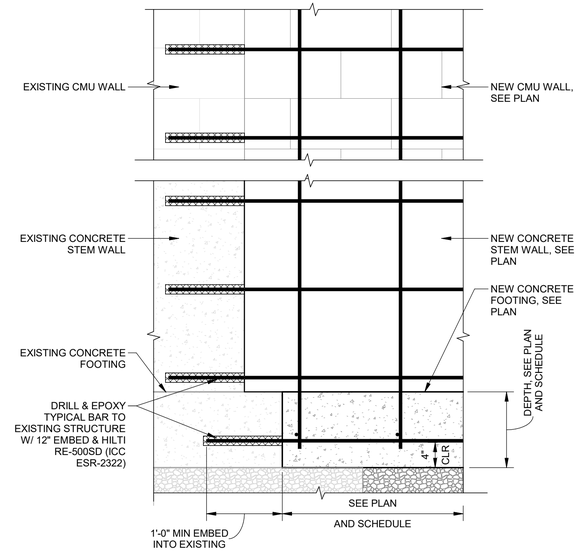
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



1 80-S-101 EXTERIOR FOUNDATION
SCALE: 3/4" = 1'-0"



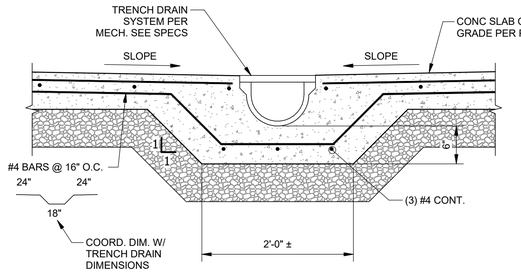
2 80-S-101 EXTERIOR WALL OPENING
SCALE: 1" = 1'-0"



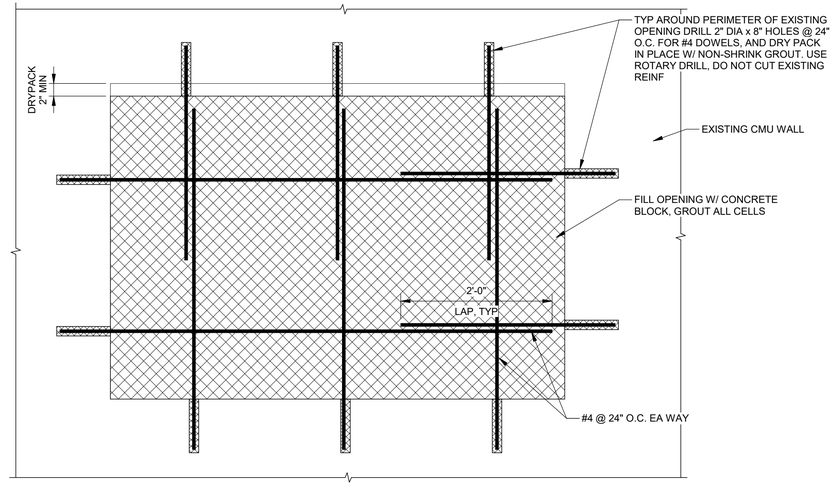
NOTE:
1. DOWEL MAY BE LAP SPLICED WITH FOOTING REINFORCEMENT IN LIEU OF CONTINUOUS REINFORCEMENT.

3 80-S-101 (N) FOOTING TO (E) FOOTING
SCALE: 1" = 1'-0"

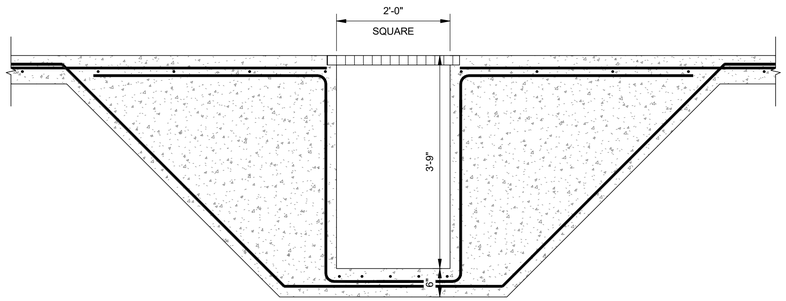
NOTE:
FOR ADDITIONAL INFORMATION SEE MECH



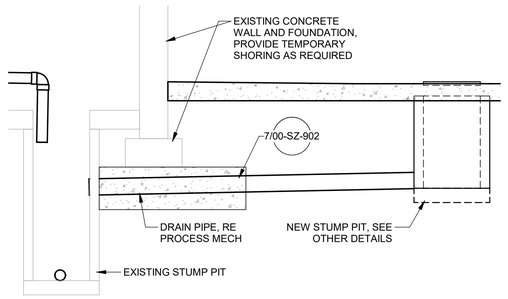
4 80-S-101 TRENCH DRAIN
SCALE: 1" = 1'-0"



5 EXISTING OPENING INFILL
SCALE: 1" = 1'-0"



6 80-S-101 SUMP PIT
SCALE: 3/4" = 1'-0"



7 80-S-101 NEW PIPE AT EXISTING SUMP
SCALE: 3/8" = 1'-0"

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392 E. Winchester St.
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Subconsultant:

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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
STRUCTURAL DETAILS

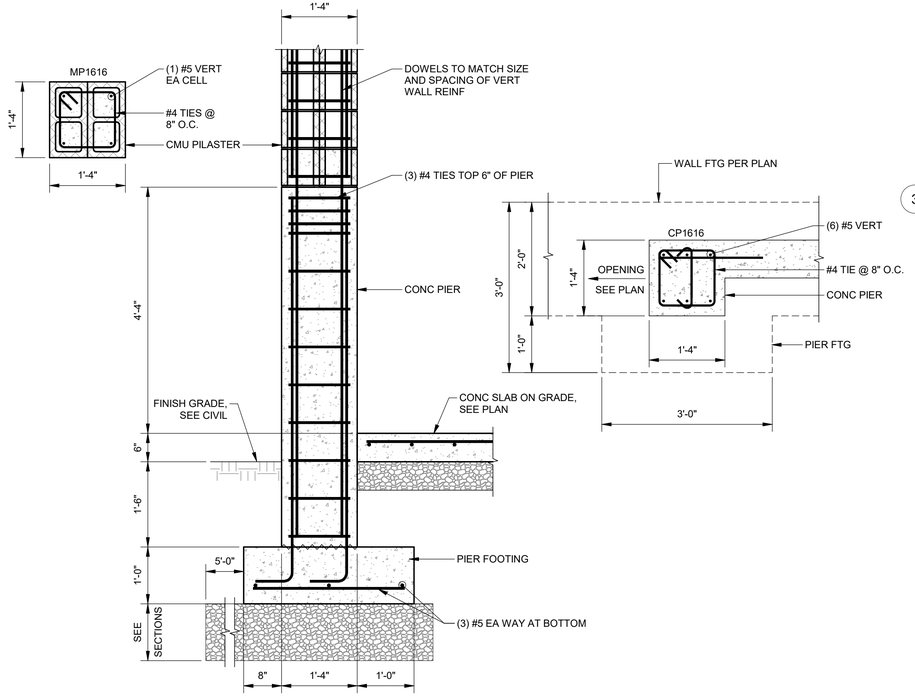
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

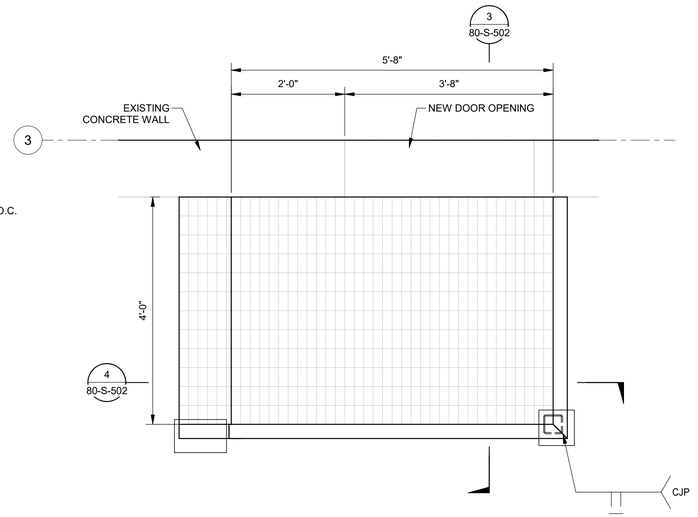
LAST UPDATED: 10/11/2024

DRAWING:
80-S-501

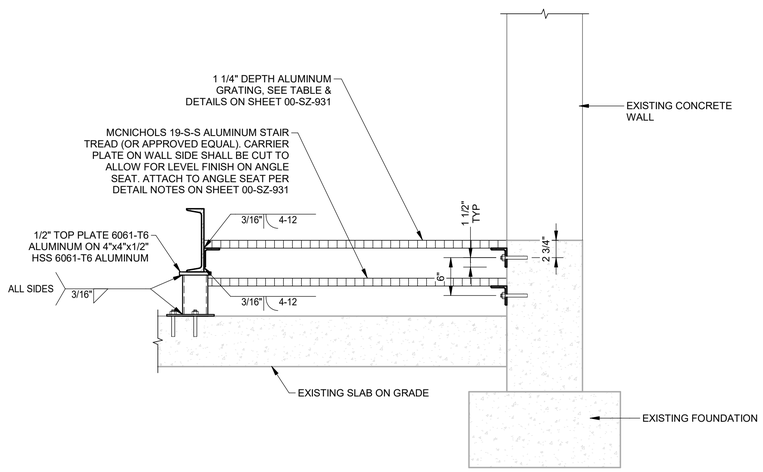
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



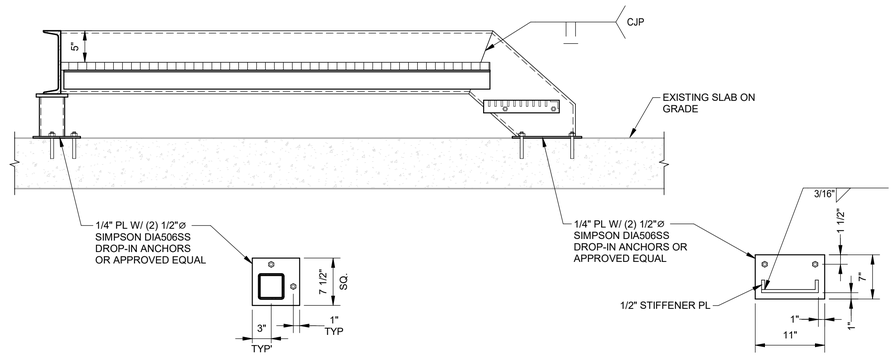
1 MASONRY PILASTER AND CONCRETE PIER
SCALE: 3/4" = 1'-0"



2 ENLARGED STAIR PLAN
80-S-101
SCALE: 3/4" = 1'-0"



3 STAIR LANDING CONNECTION
80-S-101
SCALE: 1" = 1'-0"



4 STAIR LANDING CONNECTION
80-S-502
SCALE: 1" = 1'-0"

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392 E. Winchester St.
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JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

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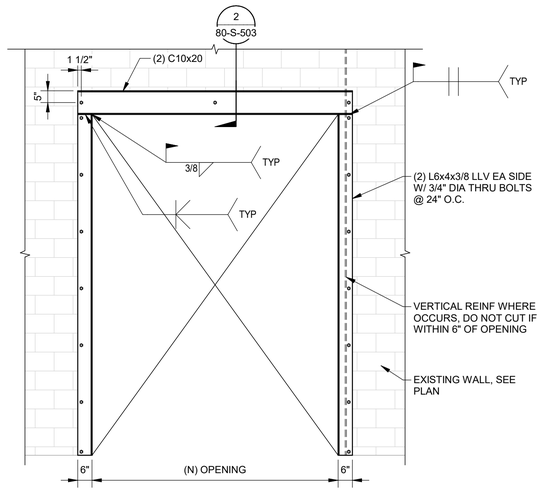
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024
DRAWING:
80-S-502

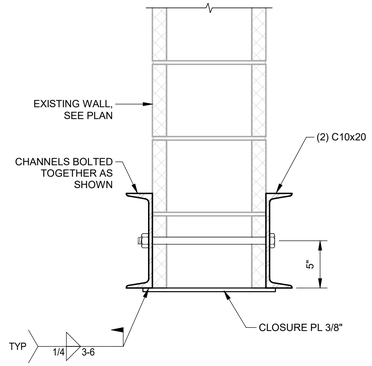
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



NOTE:
1. SAWCUT MASONRY AND INSERT HEAD REINFORCING ANGLES; INSTALL BOLTS THEN REMOVE 2'-0" STRIP OF MASONRY AT JAMBS TO INSTALL JAMB REINFORCING, THEN COMPLTE REMOVAL OF MASONRY.

1 NEW OPENING IN EXISTING WALL - DOUBLE CHANNELS

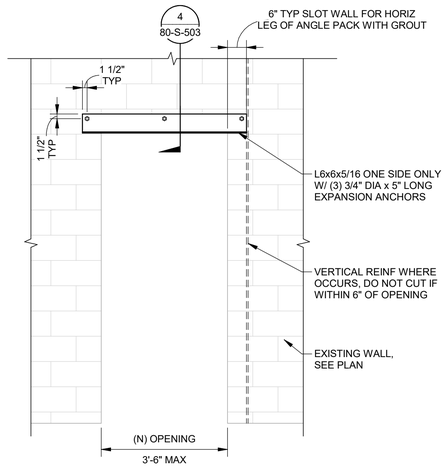
SCALE: 3/8" = 1'-0"



NOTES:
1. FOR INFORMATION NOT SHOWN, SEE 1/80-S-503

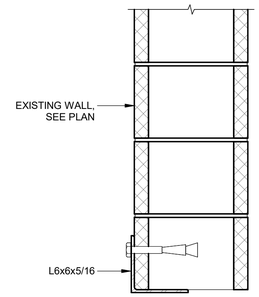
2 JAMB AND HEAD

80-S-503 SCALE: 1 1/2" = 1'-0"



3 NEW OPENING IN EXISTING WALL - SINGLE ANGLE

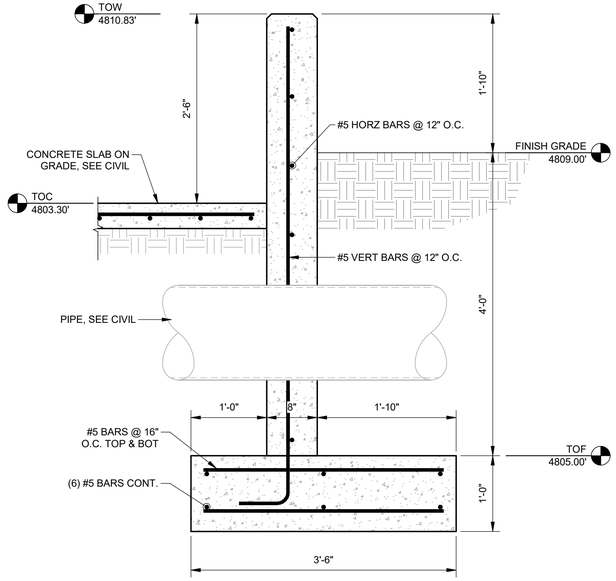
SCALE: 1/2" = 1'-0"



NOTES:
1. FOR INFORMATION NOT SHOWN, SEE 3/80-S-503

4 JAMB AND HEAD

80-S-503 SCALE: 1 1/2" = 1'-0"



5 EXTERIOR RETAINING WALL

SCALE: 1" = 1'-0"

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	REVISION			

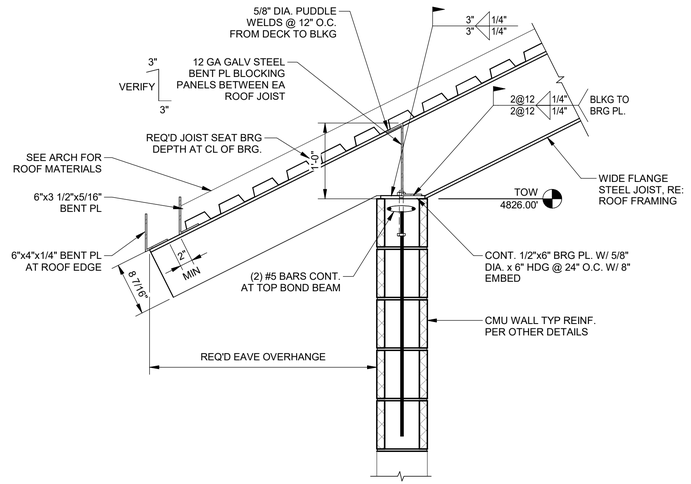
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
STRUCTURAL DETAILS

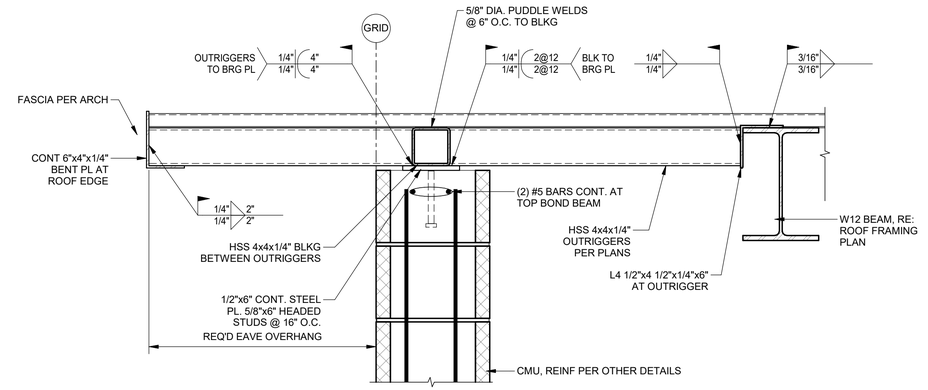
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
80-S-503

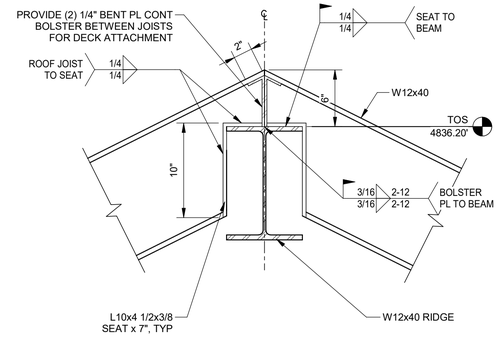
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt



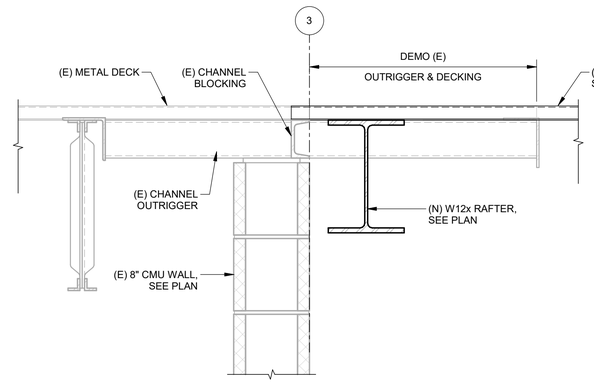
1 ROOF JOIST BEARING
80-S-102 SCALE: 1" = 1'-0"



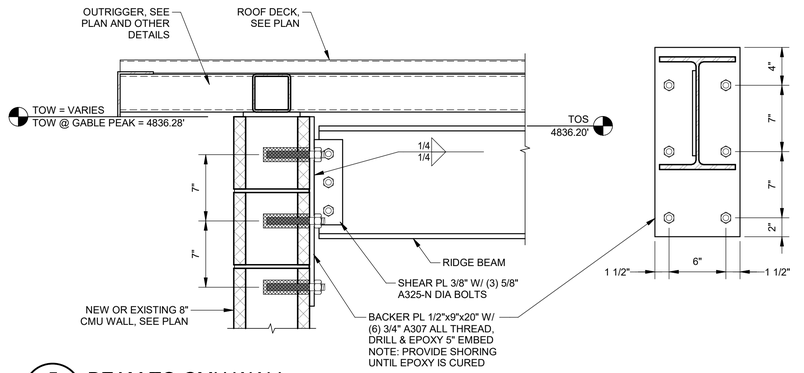
2 GABLE END OUTRIGGER ROOF
80-S-102 SCALE: 1 1/2" = 1'-0"



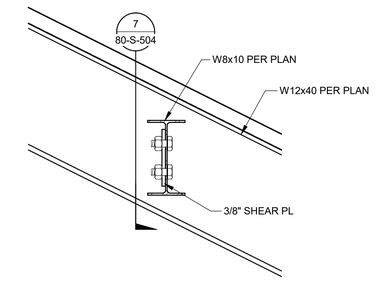
3 RIDGE BEAM
80-S-102 SCALE: 1 1/2" = 1'-0"



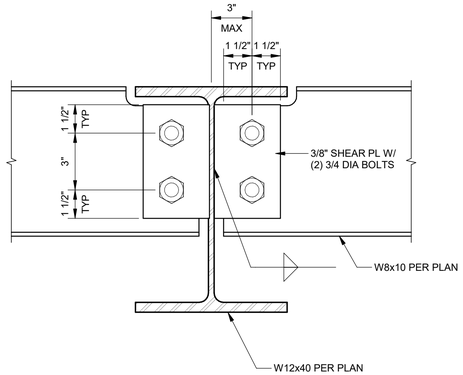
4 EXISTING GABLE AND OUTRIGGER MODIFICATION
80-S-102 SCALE: 1 1/2" = 1'-0"



5 BEAM TO CMU WALL
80-S-102 SCALE: 1 1/2" = 1'-0"



6 EQUIPMENT SUPPORT FRAMING
80-S-102 SCALE: 1 1/2" = 1'-0"



7 SUPPORT FRAMING CONNECTION
80-S-102 SCALE: 3" = 1'-0"

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AGENCY

REVIEW

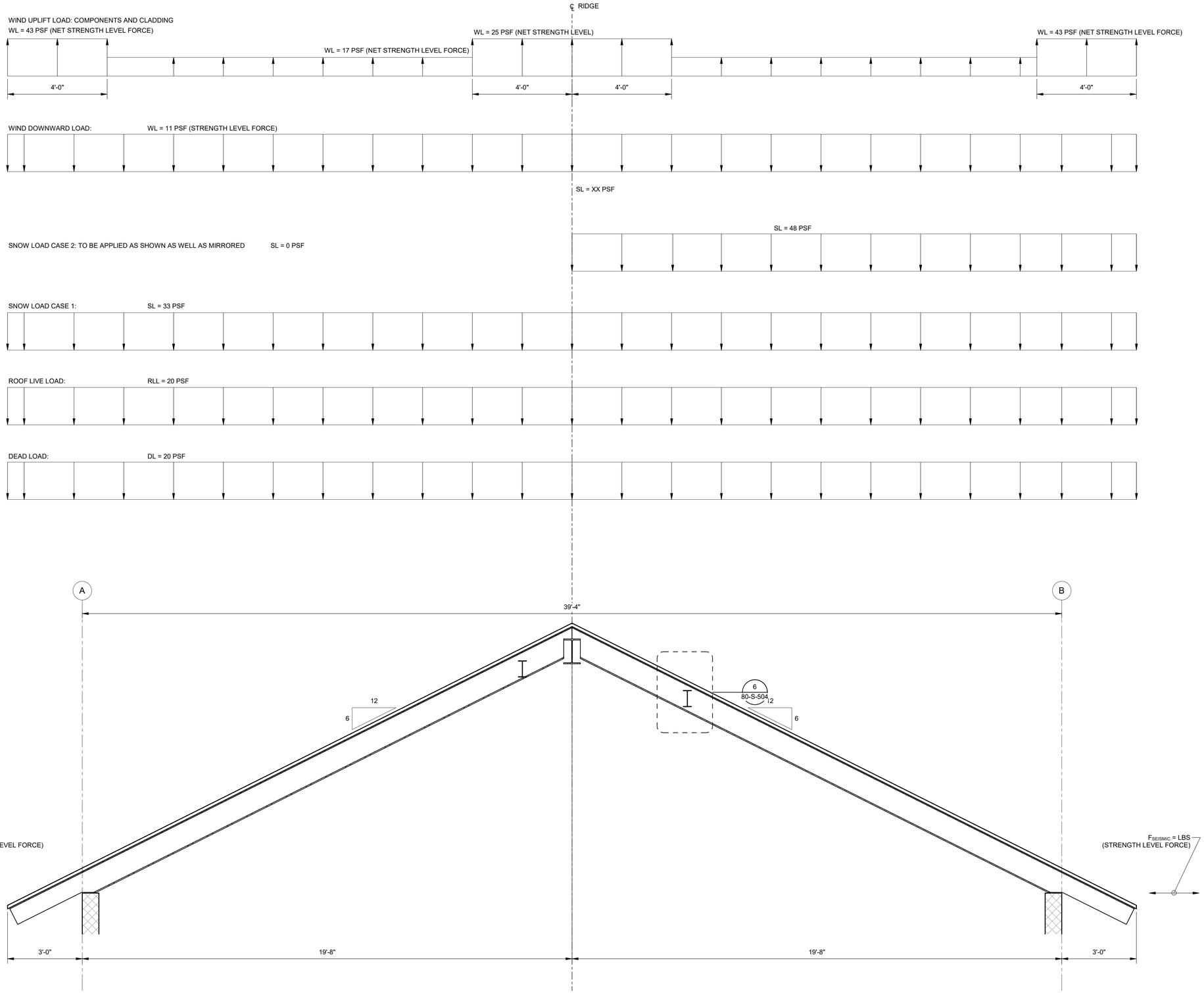
NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
80-S-504



1 STEEL ROOF JOIST LOADING DIAGRAM
SCALE: 1/2" = 1'-0"

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-S.rvt

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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

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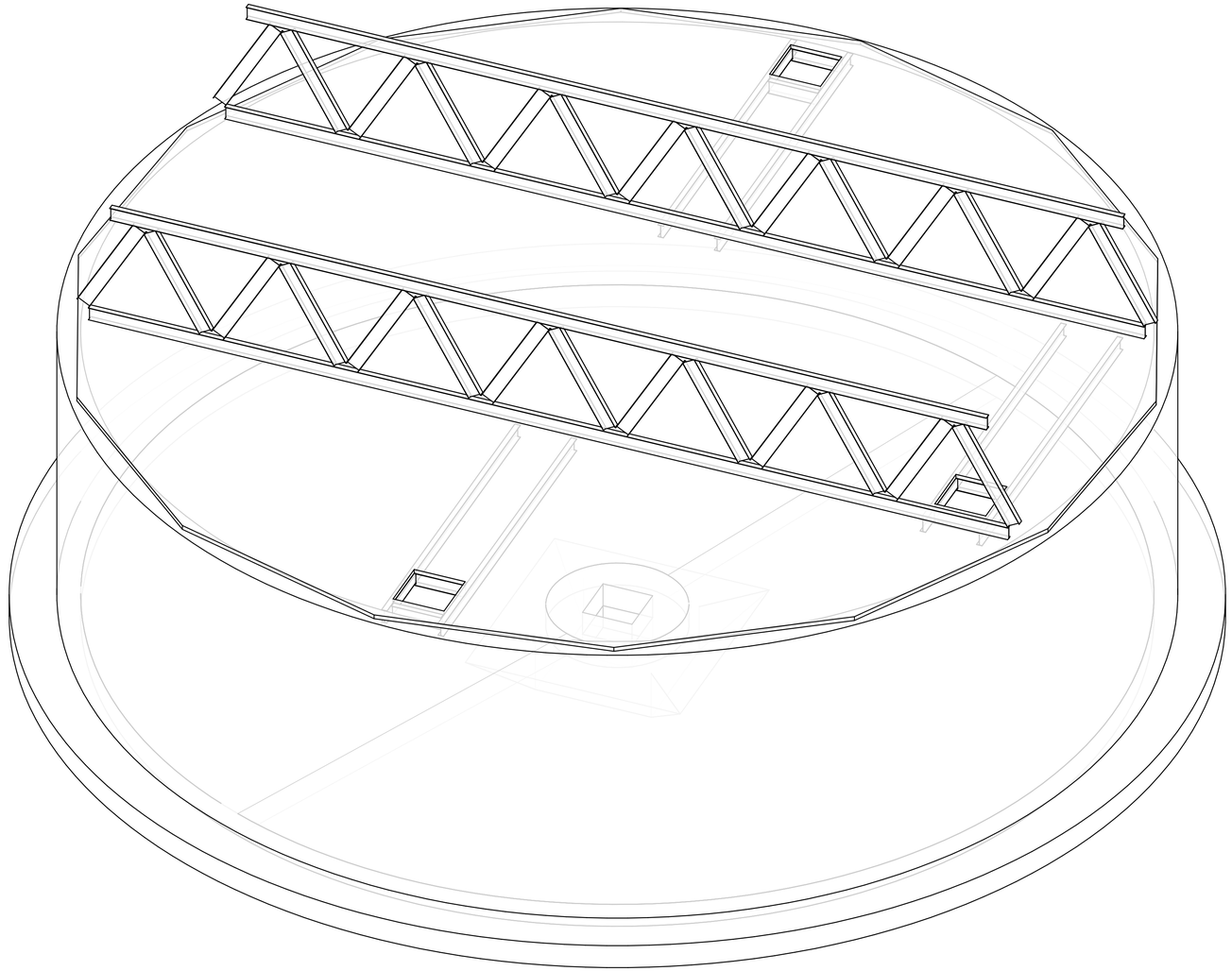
REVISION				

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
DEWATERING
TRUSS/JOIST DIAGRAM

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:Author
DESIGN BY:Designer
CHECKED BY:Checker
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
80-S-701



1 ISOMETRIC VIEW
SCALE: NTS

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REVIEW

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HOLDING TANK
ISOMETRIC VIEW

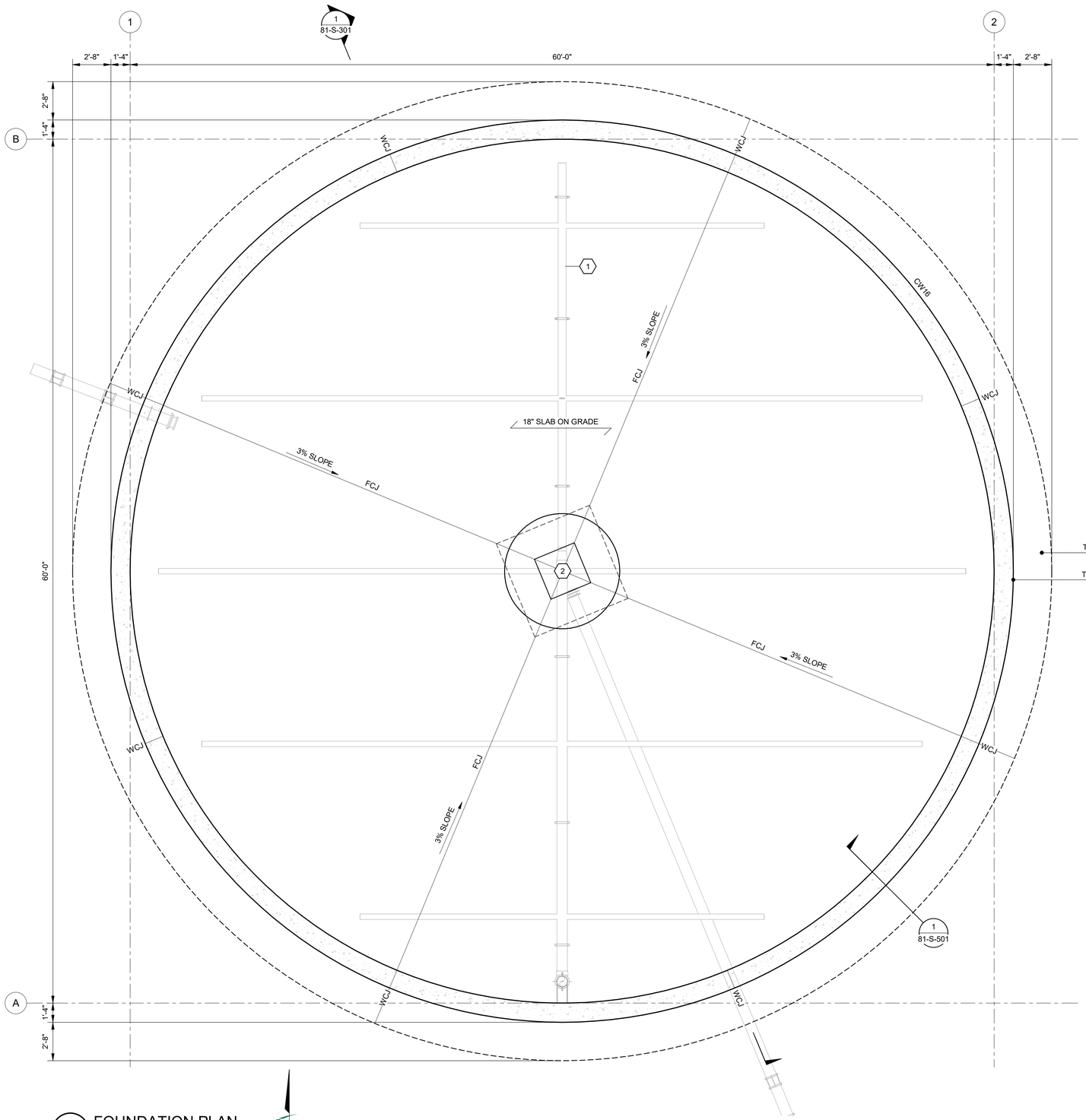
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED:10/11/2024

DRAWING:
81-S-001

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHT.rvt



1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL & MECHANICAL SHEETS.
2. SEE SHEETS S-001 & S-002 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.
3. WCJ = WALL CONTROL JOINT PER TYPICAL DETAIL.
   FCJ = FLOOR CONTROL JOINT PER TYPICAL DETAILS.

SHEET KEYED NOTES

1	PIPING, RE: PROCESS MECH
2	SUMP PIT

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REVISION

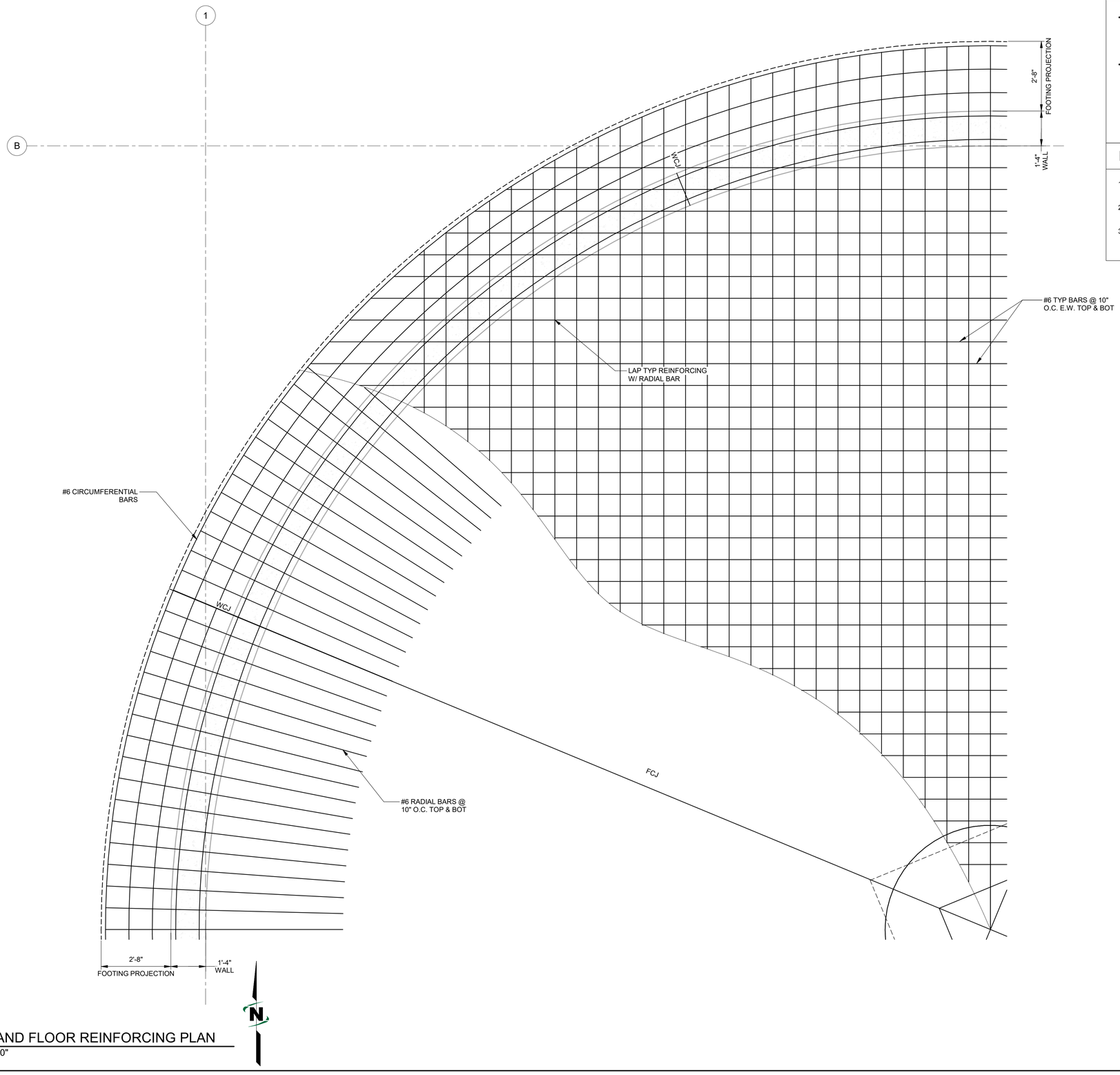
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HOLDING TANK
FOUNDATION PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
81-S-101

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHT.rvt



1 FOOTING AND FLOOR REINFORCING PLAN
SCALE: 1/2" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

FOUNDATION PLAN NOTES

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REVIEW

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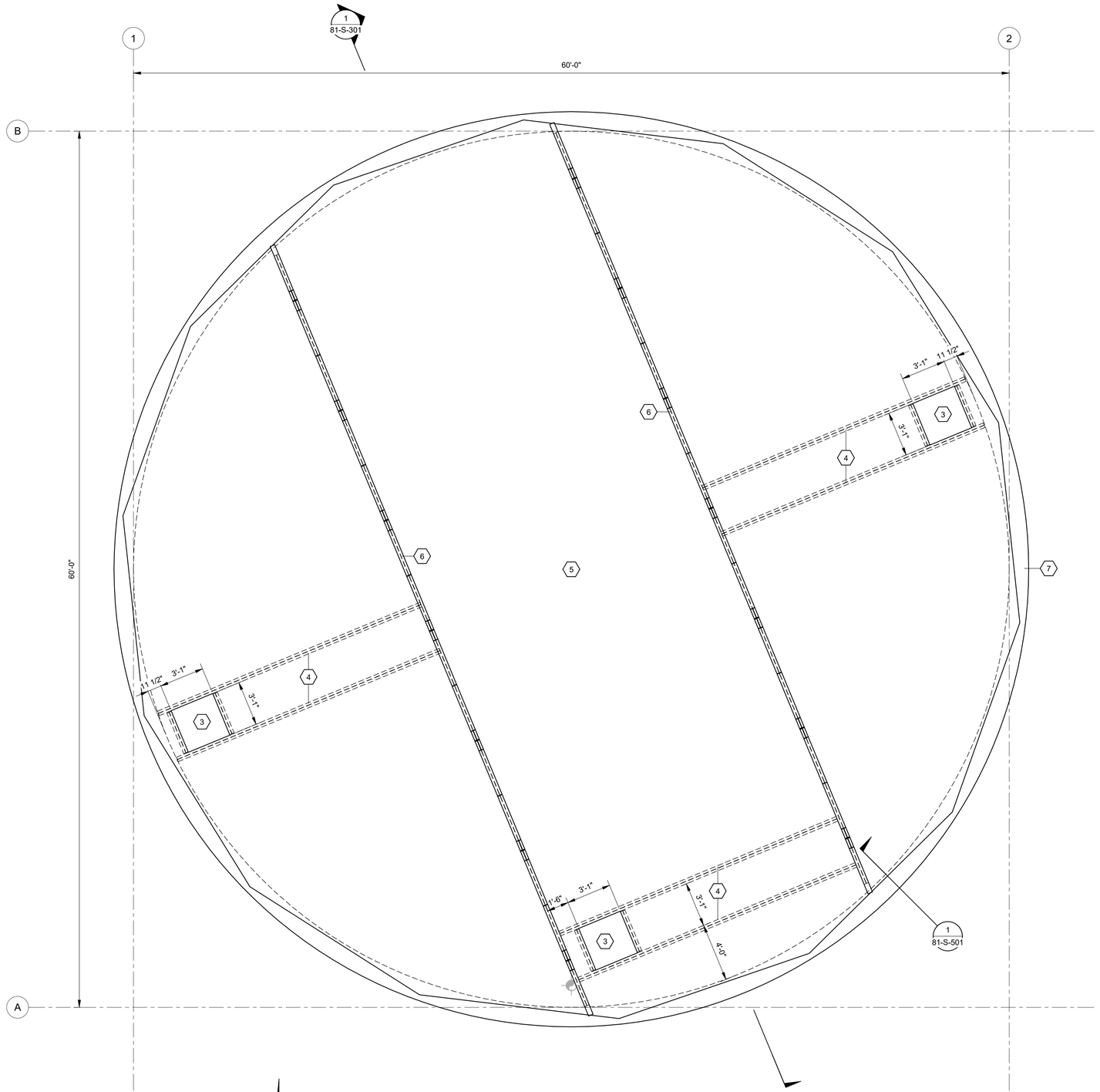
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HOLDING TANK
FOOTING AND FLOOR REINFORCING PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
81-S-102

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHT.rvt



1 ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
  CONCRETE STANDARD DETAILS: 00-SZ-901 - 00-SZ-907
  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL & MECHANICAL SHEETS.
2. SEE SHEETS S-001, S-002, AND S-003 FOR THE GENERAL STRUCTURAL NOTES REQUIRMENTS.
3. ALUMINUM COVER DESIGN LOADS:
   A. LIVE LOAD: 50 PSF
   B. DEAD LOAD: 5 PSF
   C. SNOW LOAD: 43 PSF
   D. CONC. LOAD: 400 # (NON-CONCURRENT WITH LIVE LOAD)
   E. CONC. LOAD AREA: 12" x 12" AREA
   F. WIND LOAD BASIS: 108 MPH
   G. CORERFERENCED CODE: IBC 2021, ASCE 7-16
   H. MAX PANEL WEIGHT: 150 LBS
   I. DEFLECTION LIMIT: L/240
4. MATERIALS
   A. ALUMINUM
      a. ALUMINUM DESIGN SHALL CONFORM TO THE ALUMINUM DESIGN MANUAL, THE ALUMINUM ASSOCATION, 2020. ALL ALUMINUM COMPONENTS TO BE TYPE 6061-T6.
   B. WELDS:
      a. WELDING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY D1.2 STRUCTURAL WELDING CODE. ALUMINUM WELD FILLER METAL TO BE ALLOY 4043.
   C. FASTENERS:
      a. ALL FASTENERS AND ANCHORS SHALL BE STAINLESS STEEL TYPE 316.
   D. SEALANT
      a. SIKAFLEX-1A IS USED TO SEAL BETWEEN ADJACENT DECK SLATS AND THE CONNECTION BETWEEN THE DECK SLATS AND EDGE FLASHING.
5. VERIFICATION
   A. MANUFACTURER TO VERIFY ALL DIMENSIONS, LOCATIONS, AND ELEVATIONS PRIOR TO FABRICATION. ALL EQUIPMENT THAT WILL INTERFACE WITH THE ALUMINUM COVER SYSTEM MUST BE IN PLACE PRIOR TO SURVEY.

SHEET KEYED NOTES

3	HATCH ACCESS
4	ALUMINUM BEAM SYSTEM FOR ALUMINUM LID SUPPORT BY MANUFACTURER
5	ALUMINUM LID COVER BY MANUFACTURER
6	TRUSS SYSTEM FOR ALUMINUM LID SUPPORT BY MANUFACTURER
7	CONCRETE TANK WALL, RE: FOUNDATION PLAN

J-U-B ENGINEERS, INC.
392 E. Winchester St.
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Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

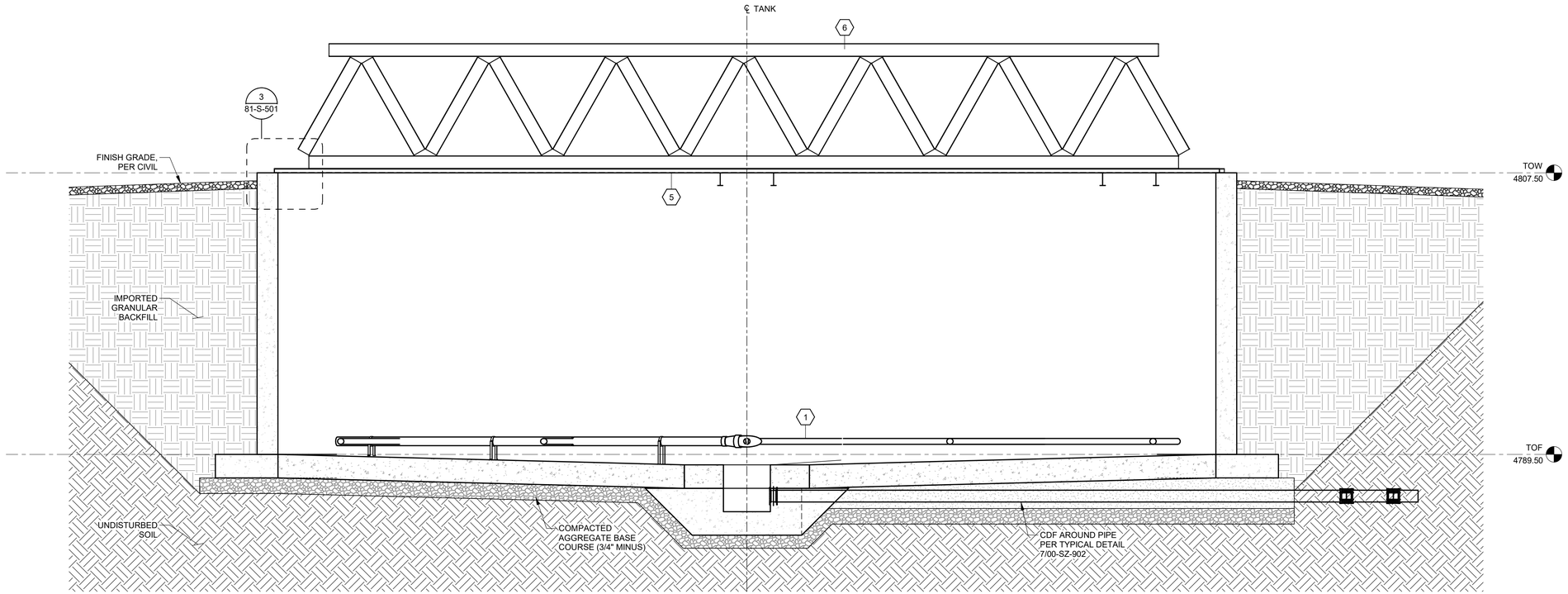
STRUCUTRAL (S)
SOLIDS HOLDING TANK
ROOF FRAMING PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
81-S-103

SHEET KEYED NOTES

1	PIPING, RE: PROCESS MECH
5	ALUMINUM LID COVER BY MANUFACTURER
6	TRUSS SYSTEM FOR ALUMINUM LID SUPPORT BY MANUFACTURER



1 TANK SECTION
SCALE: 1/4" = 1'-0"

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STATE OF UTAH

REVIEW

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REVISION

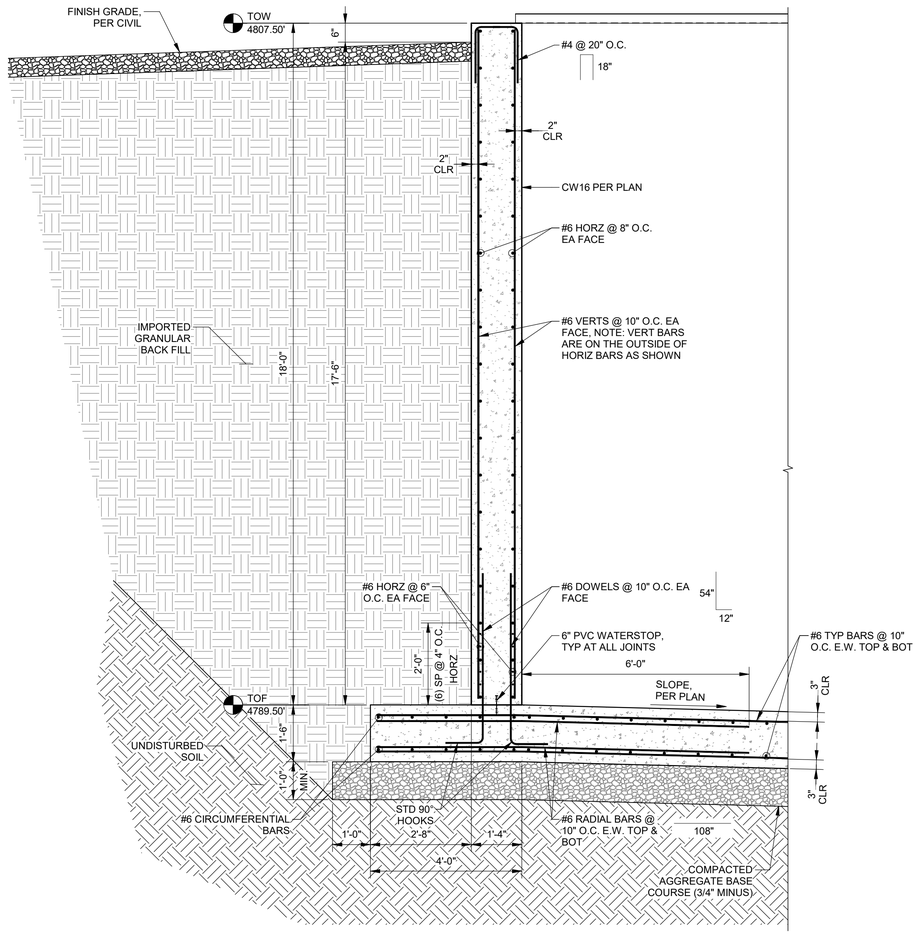
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HOLDING TANK
SECTIONS

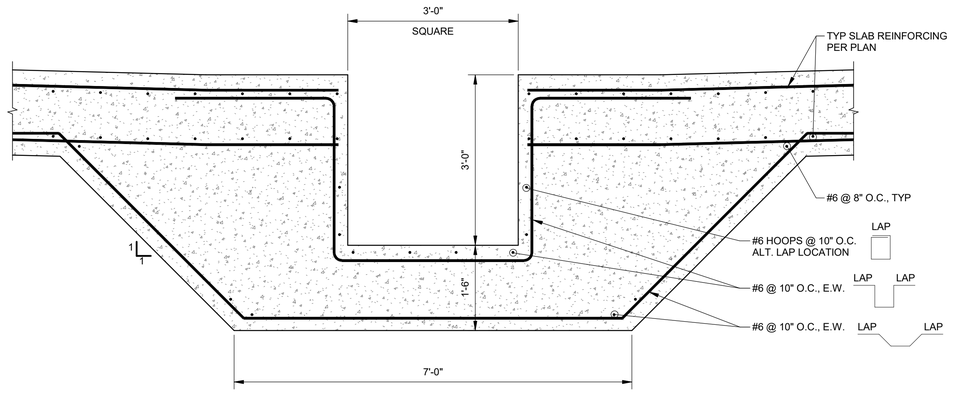
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
81-S-301

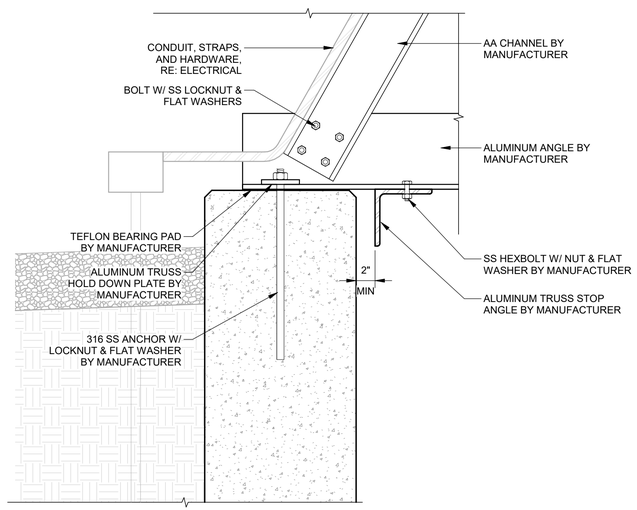
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHT.rvt



1 / 81-S-101 TANK FOUNDATION
SCALE: 1/2" = 1'-0"



2 SUMP PIT
SCALE: 3/4" = 1'-0"



3 / 81-S-301 TRUSS END
SCALE: 1 1/2" = 1'-0"

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	REVISION		

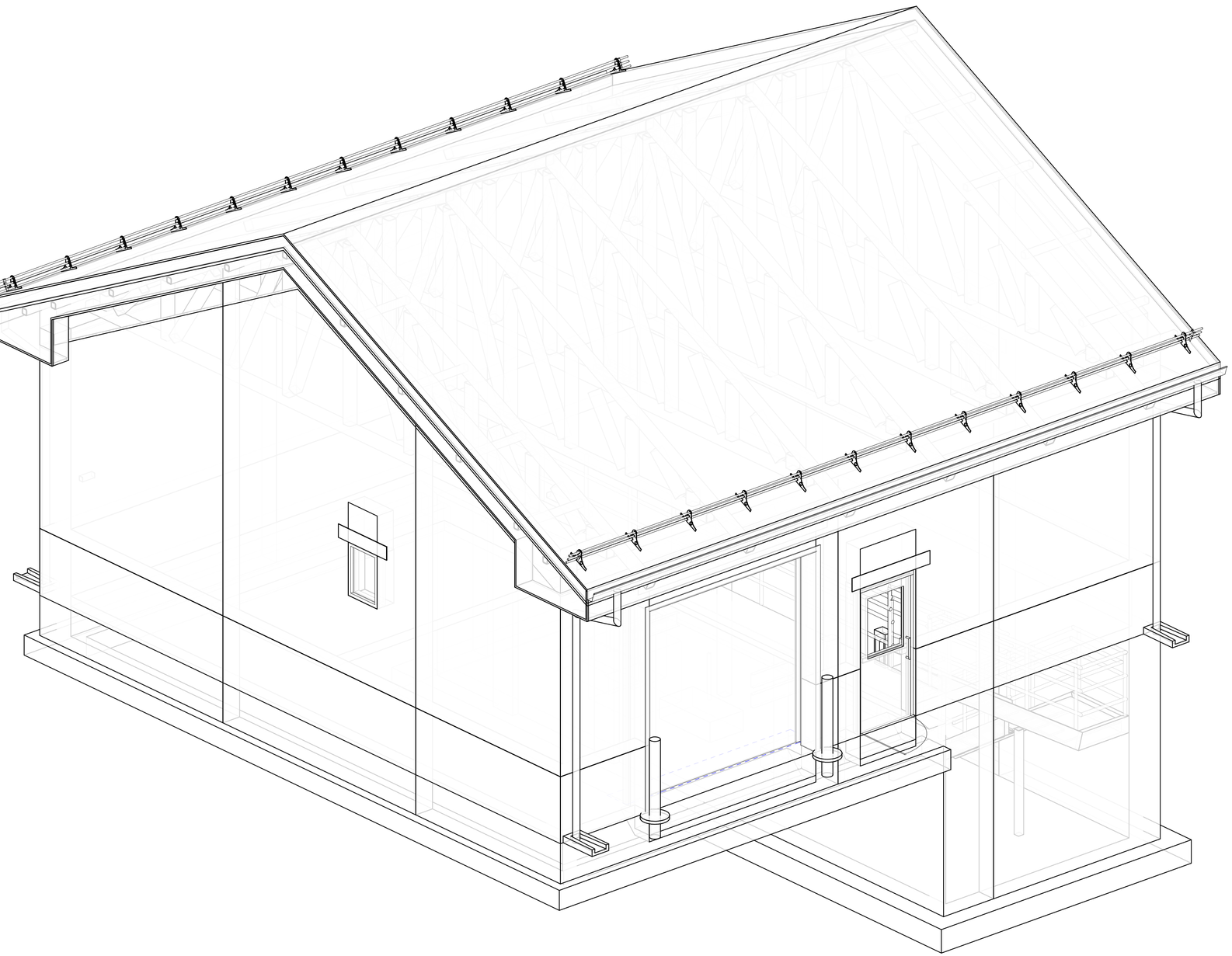
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HOLDING TANK
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
81-S-501

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHT.rvt



1 ISOMETRIC VIEW
SCALE: NTS

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REVIEW

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	REVISION			

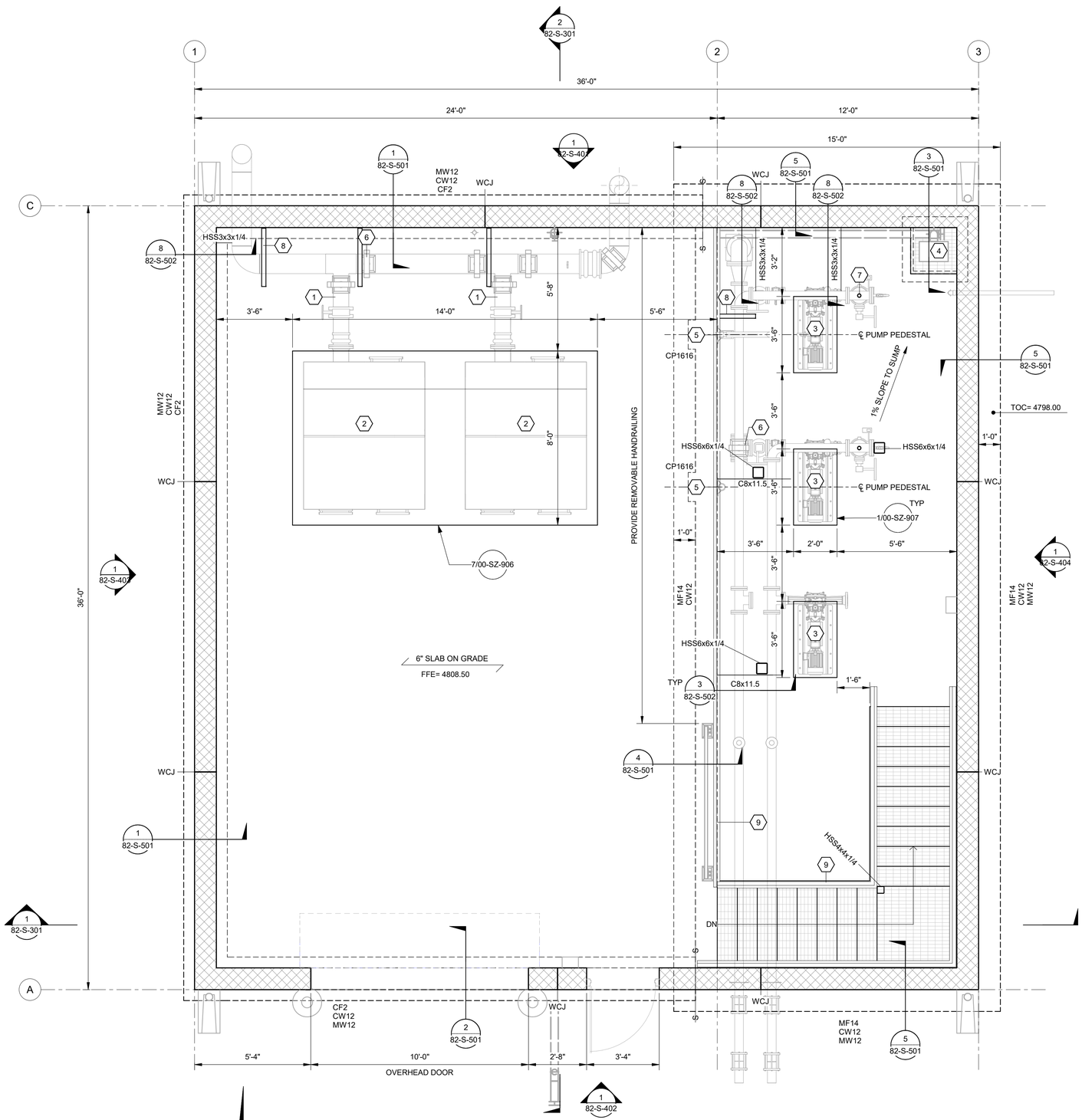
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
ISOMETRIC VIEW

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-100

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



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

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
- FOR GENERAL STRUCTURAL NOTES: S-001 - S-003
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  MASONRY STANDARD DETAILS: 00-SZ-921 - 00-SZ-922
  GUARD RAIL STANDARD DETAILS: 00-SZ-931 - 00-SZ-934
  STAIR STANDARD DETAILS: 00-SZ-935 - 00-SZ-936
  GRATING STANDARD DETAILS: 00-SZ-971 - 00-SZ-972
  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001 & S-002 FOR THE GENERAL STRUCTURAL NOTES REQUIRMENTS.
3. SEE SPECIFICATION 43 52 07 FOR DAVIT CRANE INFORMATION.

SHEET KEYED NOTES

1	AIR PIPING, RE: PROCESS MECHANICAL
2	AIR BLOWER EQUIPMENT, RE: PROCESS MECHANICAL
3	PUMP, RE: PROCESS MECHANICAL
4	24"x24"x36" SUMP, RE: MECHANICAL
5	DAVIT CRANE WALL MOUNT
6	PIPE STAND SUPPORT SEE D-15070, TYPICAL
7	PIPE BASE ELBOW SUPPORT SEE D-15075, TYPICAL
8	PIPE SUPPORT WALL BRACKET SEE D-15055, TYPICAL
9	HANDRAILING, PROVIDE REMOVABLE HANDRAILING WHERE INDICATED, RE: TYPICAL DETAILS

CONCRETE CONTINUOUS FOOTING SCHEDULE

MARK	SIZE		REINFORCING	
	WIDTH	THICKNESS	TOP	BOTTOM
CF2	2'-0"	12"	-	(2) #5 CONT LONG, #5 AT 14" OC TRANS

CONCRETE SPREAD FOOTING SCHEDULE

MARK	SIZE			REINFORCING	
	WIDTH	LENGTH	DEPTH	TOP	BOTTOM
MF14	15'-0"	38'-0"	1'-2"	#5 @ 16" O.C.	#5 @ 16" O.C.

CONCRETE WALL SCHEDULE

MARK	THICKNESS	REINFORCING		COMMENTS
		VERTICAL	HORIZONTAL	
CW12	12"	#5 AT 8" OC MAX EACH FACE	#5 AT 12" OC EACH FACE	PLACE VERT CONC WALL BAR AT EACH VERT CMU BAR, SEE 82-S-401 THRU 82-S-404

MASONRY WALL SCHEDULE

MARK	WALL THICKNESS	REINFORCING		COMMENTS
		VERTICAL	HORIZONTAL	
MW12	12"	(2) #5 AT 32" OC MAX	(2) #5 AT SPACING SHOWN ON ELEVATIONS	FULLY GROUTED. SEE TYP DETAILS AND 82-S-401 - 82-S-404 FOR ADDITIONAL REQUIREMENTS

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1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

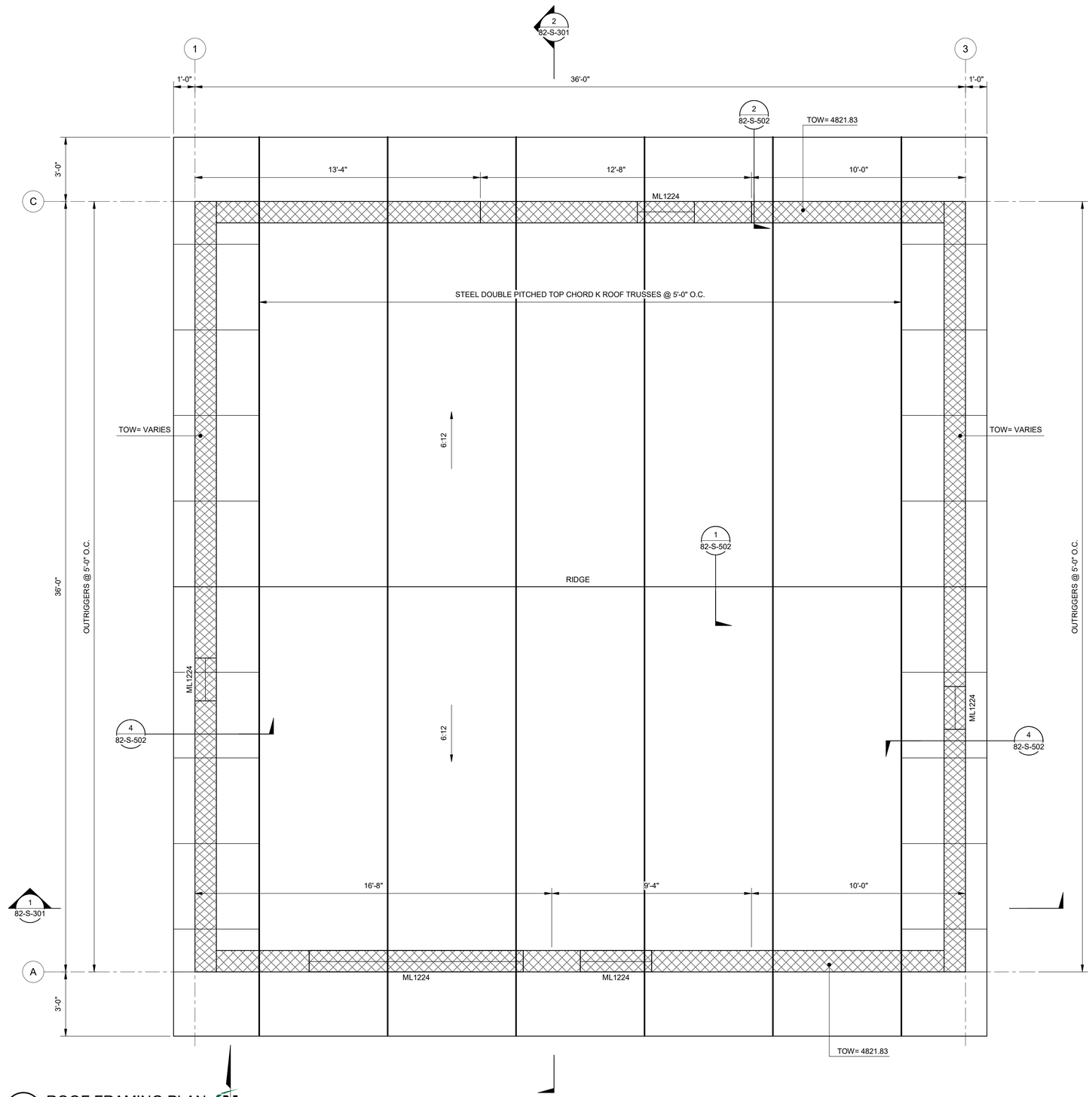
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
FOUNDATION PLAN

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-101

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



1 ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"

GENERAL PLAN NOTES

- ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE LATEST ARCHITECTURAL, CIVIL, MECHANICAL, AND PROCESS MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IMMEDIATELY.
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  STEEL STANDARD DETAILS: 00-SZ-981 - 00-SZ-982

ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001, S-002, AND S-003 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.

SHEET KEYED NOTES

MASONRY LINTEL SCHEDULE					
			REINFORCING		
MARK	OPENING WIDTH	LINTEL DEPTH	TOP	BOTTOM	STIRRUPS
ML1224	SEE PLAN	24"	-	(2) #5	-

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STATE OF UTAH

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	REVISION	BY APP.

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
ROOF FRAMING PLAN

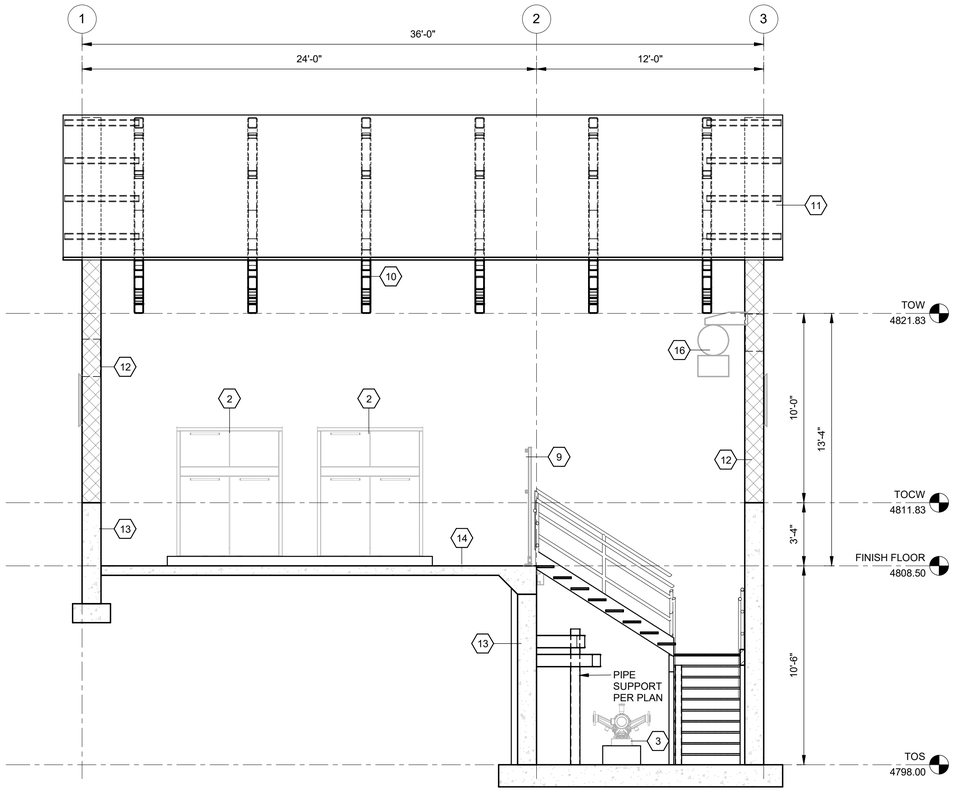
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:10/11/2024

DRAWING:
82-S-102

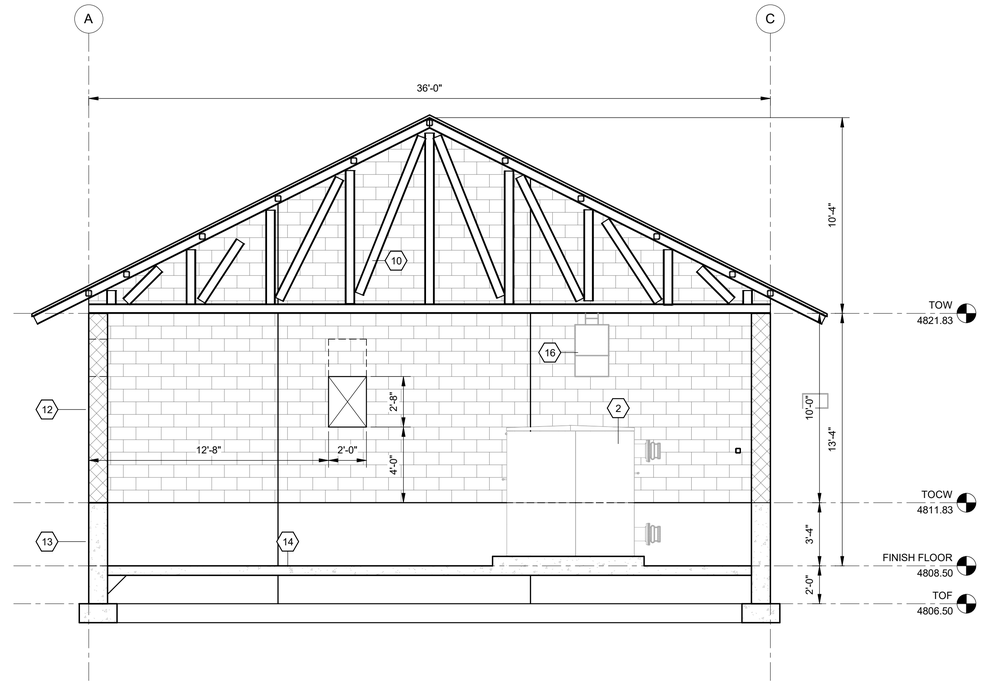
Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt

SHEET KEYED NOTES

2	AIR BLOWER EQUIPMENT, RE: PROCESS MECHANICAL
3	PUMP, RE: PROCESS MECHANICAL
9	HANDRAILING, PROVIDE REMOVABLE HANDRAILING WHERE INDICATED, RE: TYPICAL DETAILS
10	STEEL ROOF TRUSSES, RE: ROOF FRAMING PLAN
11	STEEL ROOF OUTRIGGERS, RE: ROOF FRAMING PLAN
12	MEDIUM WEIGHT 12" THICK CMU, RE: FOUNDATION PLAN
13	CONCRETE FOUNDATION, RE: FOUNDATION PLAN
14	CONCRETE SLAB ON GRADE, RE: FOUNDATION PLAN
16	HVAC EQUIPMENT, RE: MECHANICAL



1 BUILDING SECTION
82-S-101 SCALE: 1/4" = 1'-0"



2 BUILDING SECTION
82-S-101 SCALE: 1/4" = 1'-0"

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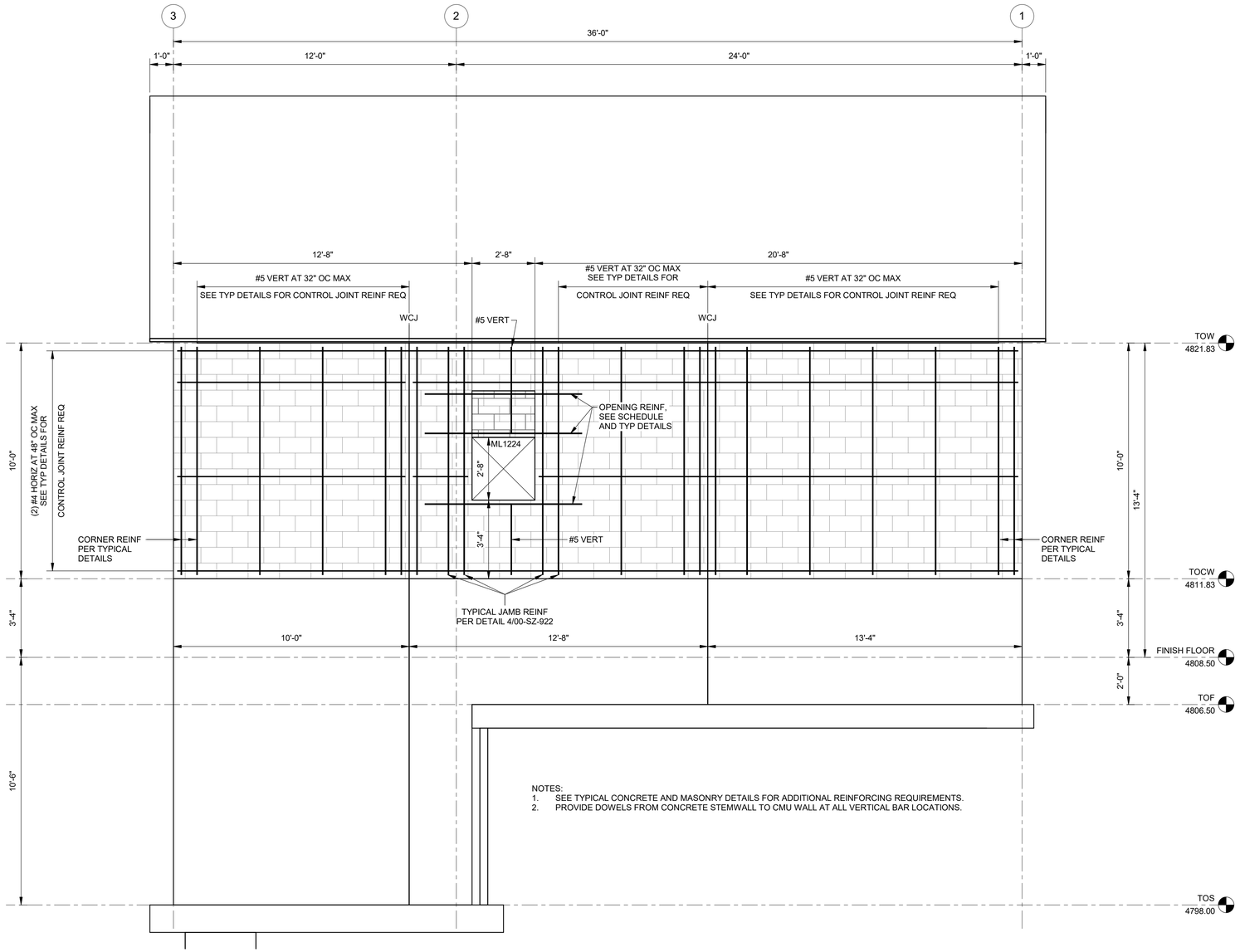
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
SECTIONS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-301



1 / 82-S-101 NORTH REBAR ELEVATION
SCALE: 3/8" = 1'-0"

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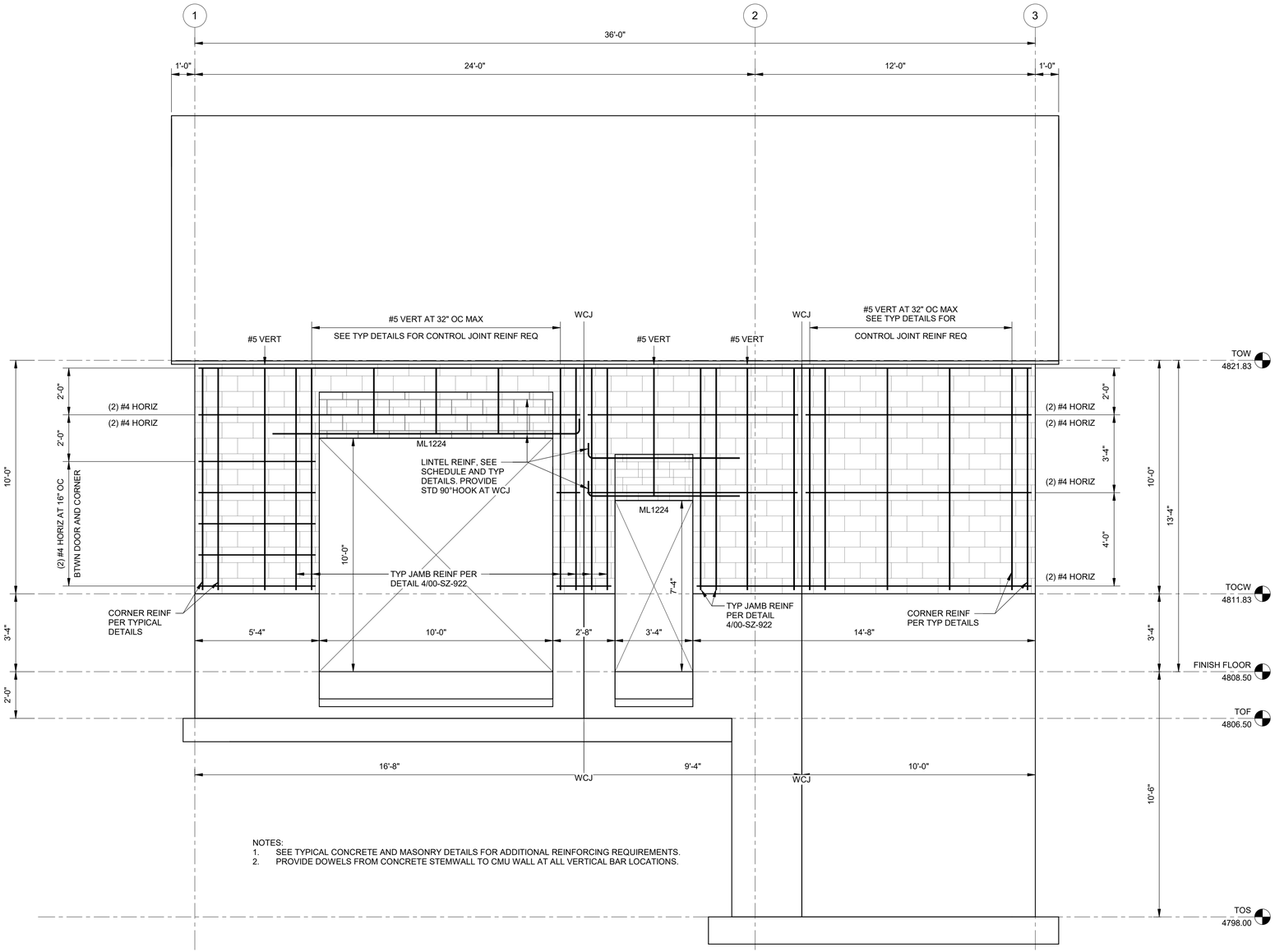
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-401

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 82-S-101 SOUTH REBAR ELEVATION
SCALE: 3/8" = 1'-0"

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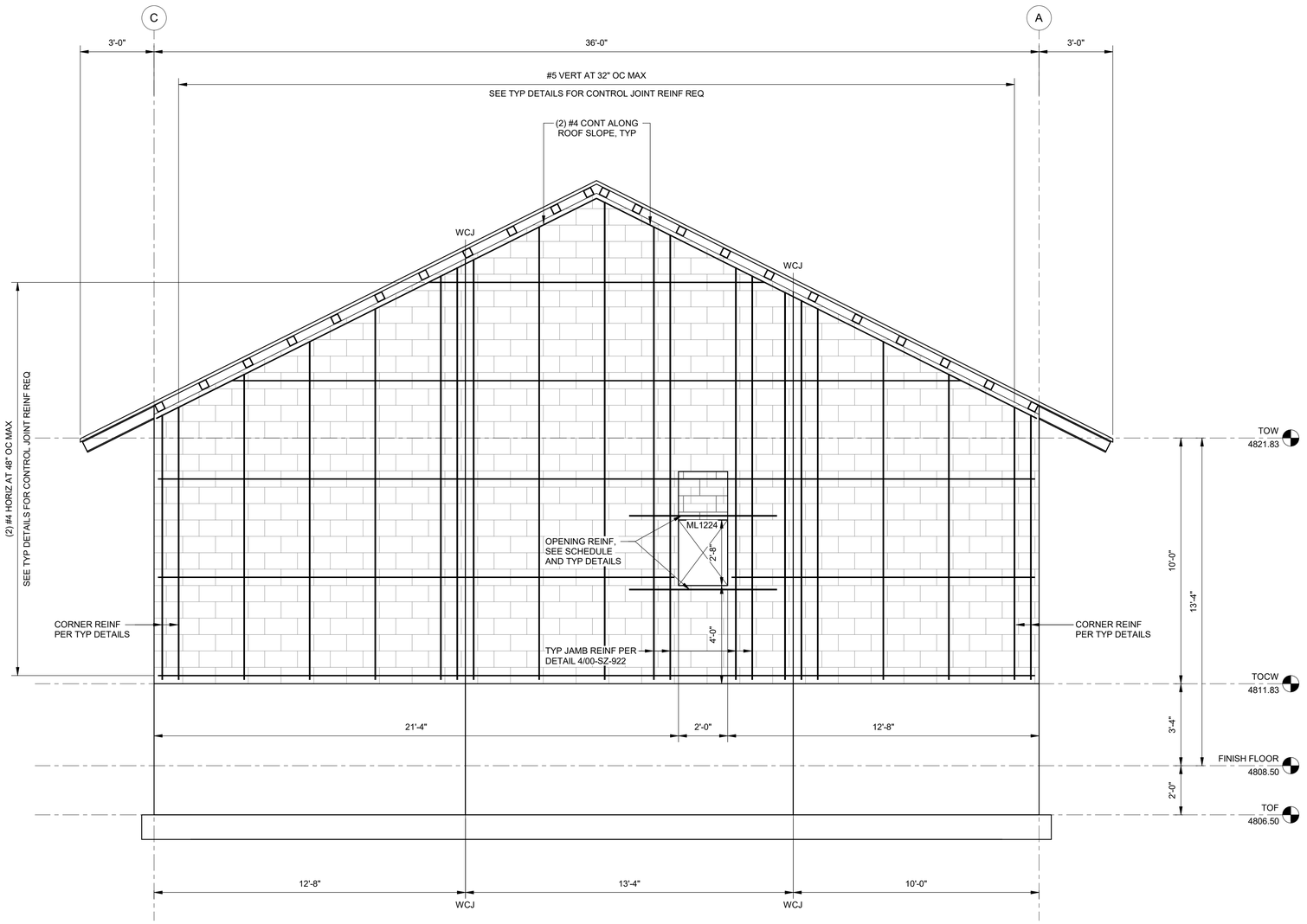
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-402

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 82-S-101 WEST REBAR ELEVATION
SCALE: 3/8" = 1'-0"

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REVISION

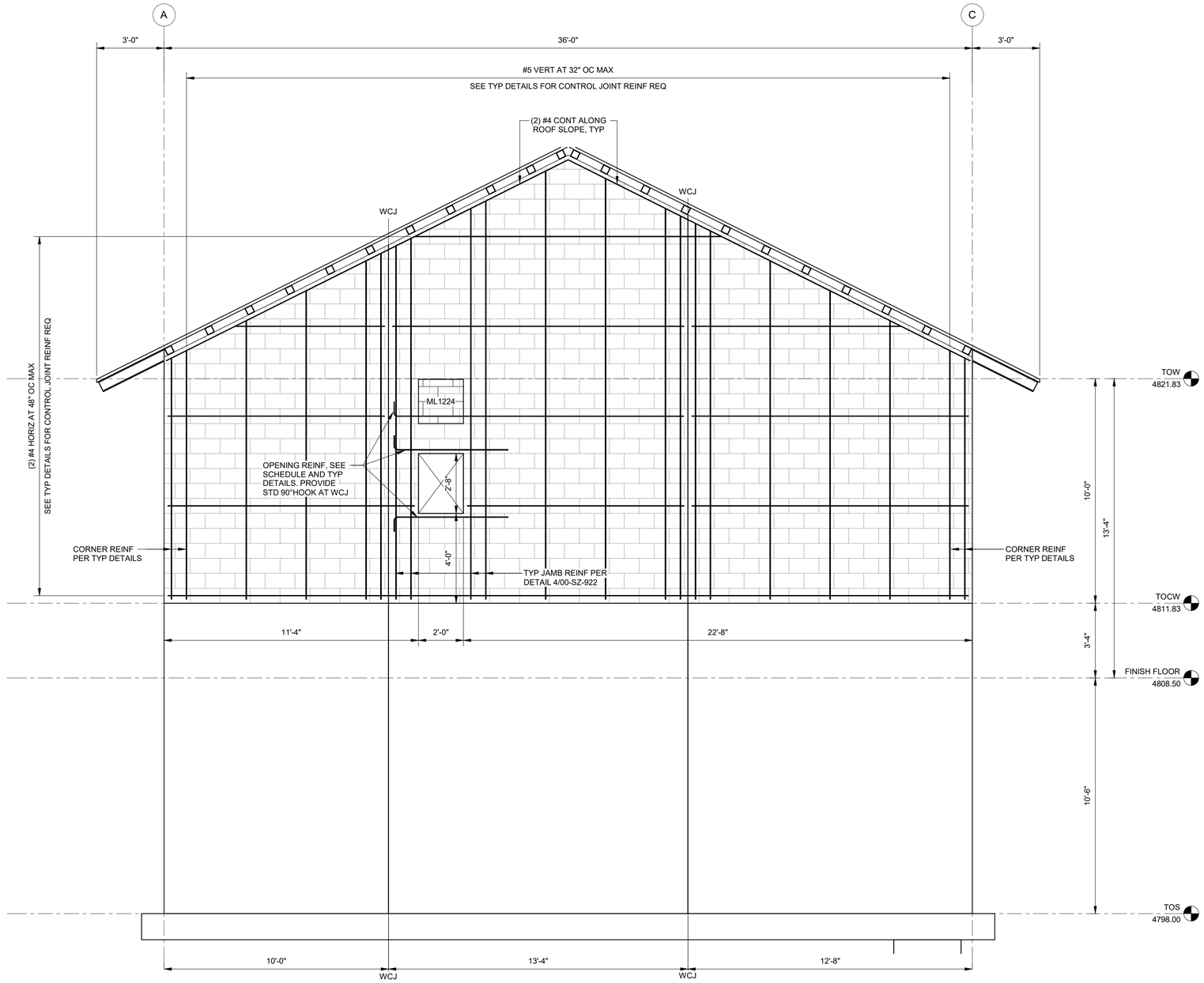
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
WALL REINFORCEMENT

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-403

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



NOTES:
1. SEE TYPICAL CONCRETE AND MASONRY DETAILS FOR ADDITIONAL REINFORCING REQUIREMENTS.
2. PROVIDE DOWELS FROM CONCRETE STEMWALL TO CMU WALL AT ALL VERTICAL BAR LOCATIONS.

1 / 82-S-101 EAST REBAR ELEVATION
SCALE: 3/8" = 1'-0"

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STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR. DATE
	REVISION		

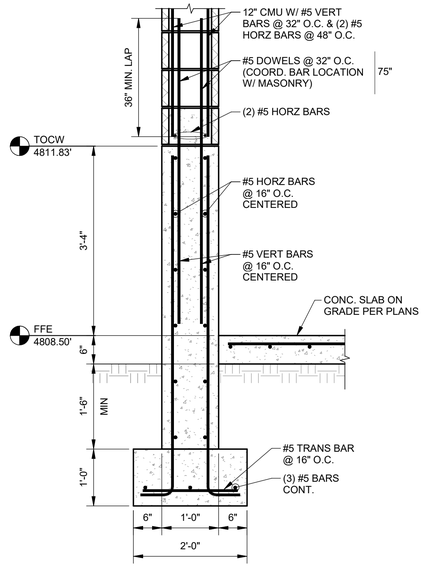
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
WALL REINFORCEMENT

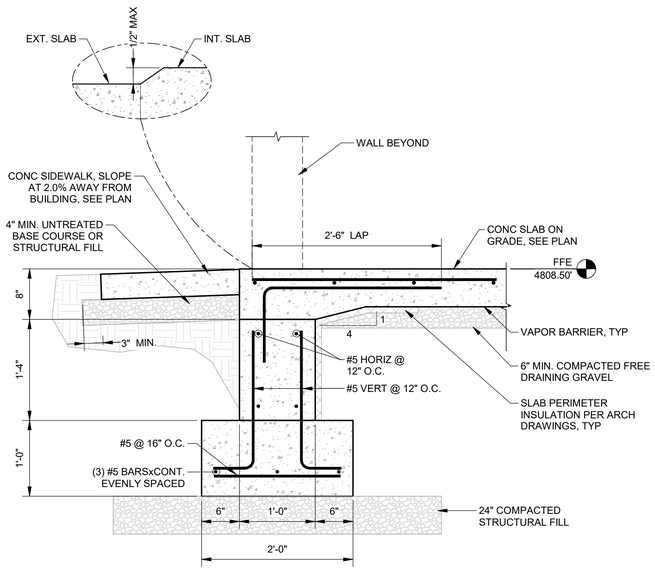
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-404

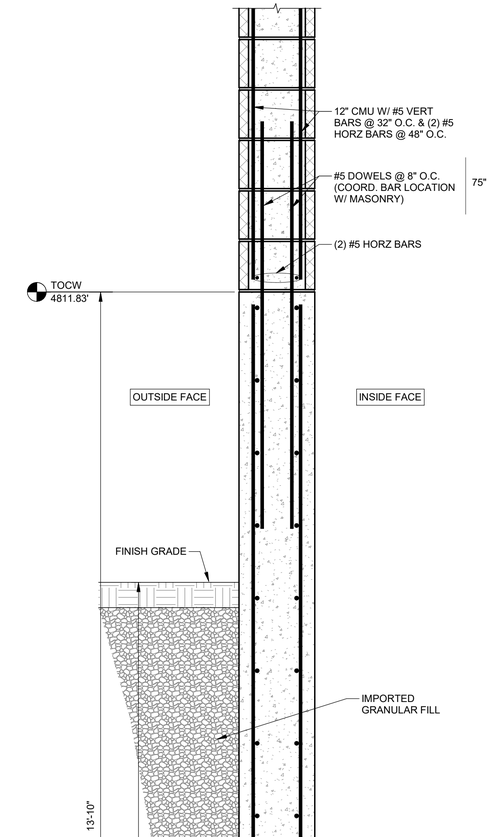
Autodesk Docs://Santaquin VRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



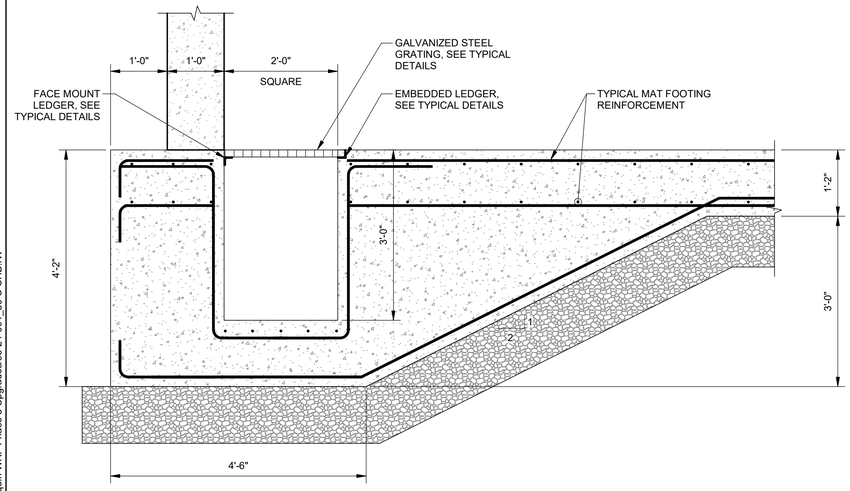
1 EXTERIOR FOUNDATION
82-S-101 SCALE: 3/4" = 1'-0"



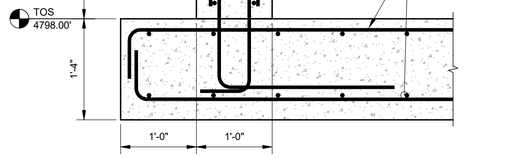
2 EXTERIOR WALL OPENING
82-S-101 SCALE: 1" = 1'-0"



5 EXTERIOR MAT FOUNDATION
82-S-101 SCALE: 1" = 1'-0"



3 SUMP PIT
82-S-101 SCALE: 3/4" = 1'-0"



4 EXTERIOR MAT FOUNDATION
82-S-101 SCALE: 1" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

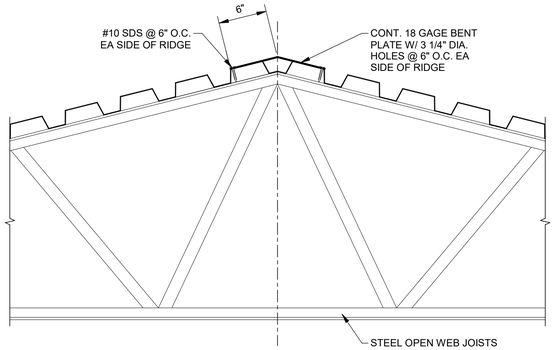
STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

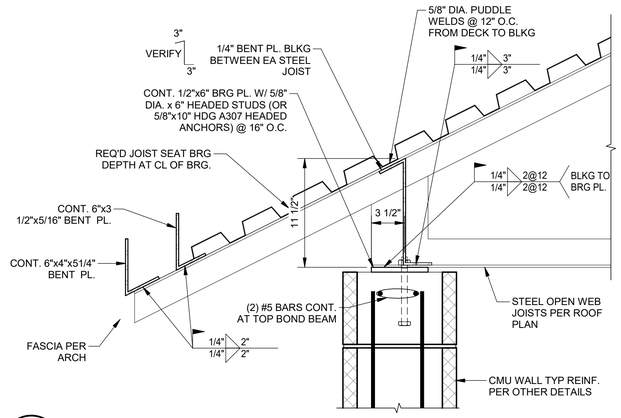
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED:10/11/2024

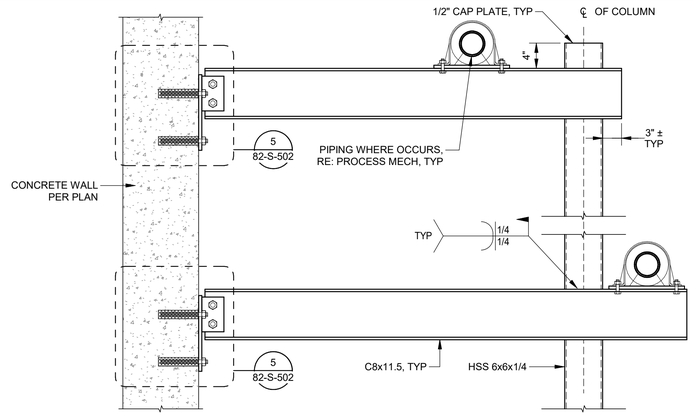
DRAWING:
82-S-501



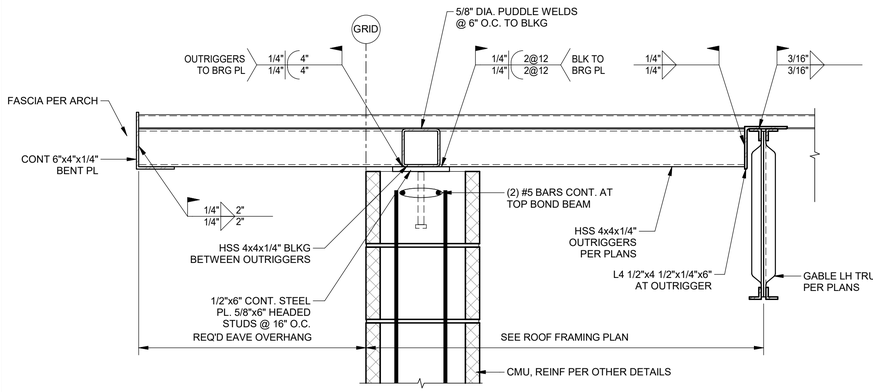
1 ROOF RIDGE
82-S-102 SCALE: 1 1/2" = 1'-0"



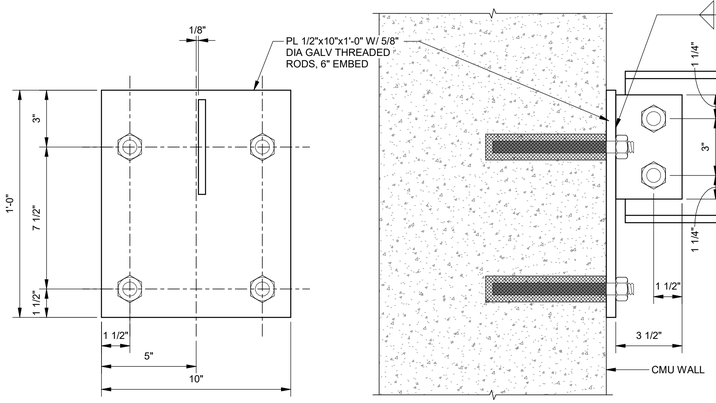
2 ROOF BEARING
82-S-102 SCALE: 1 1/2" = 1'-0"



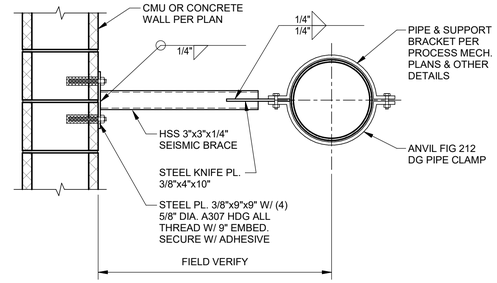
3 PIPE SUPPORTS
82-S-101 SCALE: 1" = 1'-0"



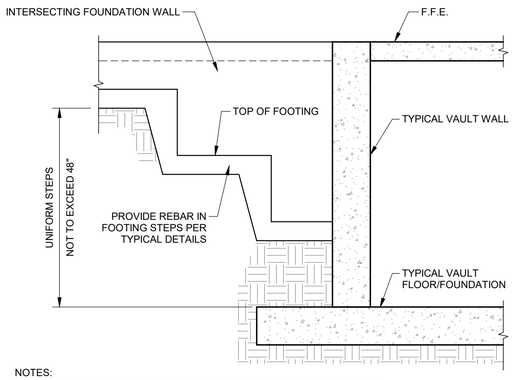
4 GABLE END OUTRIGGER ROOF
82-S-102 SCALE: 1 1/2" = 1'-0"



5 PIPE SUPPORT TO CONCRETE WALL
82-S-502 SCALE: 3" = 1'-0"

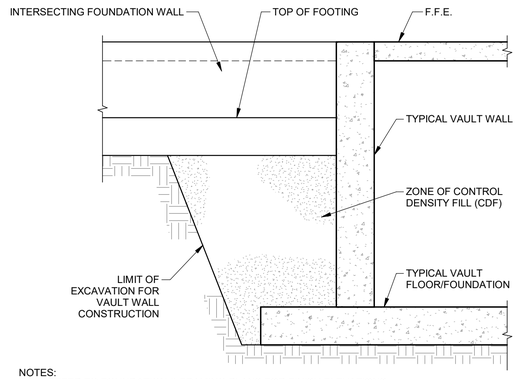


8 PIPE SUPPORT BRACE
82-S-101 SCALE: 1" = 1'-0"



NOTES:
1. REFER TO FOUNDATION & FRAMING PLANS FOR FINISH ELEVATIONS.
2. REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE EITHER FOUNDATION STEPS OR CONTROL DENSITY FILL AT ALL FOUNDATION WALL TO VAULT WALL INTERSECTIONS.
4. REFER OT OTHER DETAILS FOR ALL REINFORCING REQUIREMENTS.

6 STEPPED FOOTING AT VAULT OPTION 1
SCALE: 1/2" = 1'-0"



NOTES:
1. REFER TO FOUNDATION & FRAMING PLANS FOR FINISH ELEVATIONS.
2. REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE EITHER FOUNDATION STEPS OR CONTROL DENSITY FILL AT ALL FOUNDATION WALL TO VAULT WALL INTERSECTIONS.
4. REFER OT OTHER DETAILS FOR ALL REINFORCING REQUIREMENTS.

7 STEPPED FOOTING AT VAULT OPTION 2
SCALE: 1/2" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
STRUCTURAL DETAILS

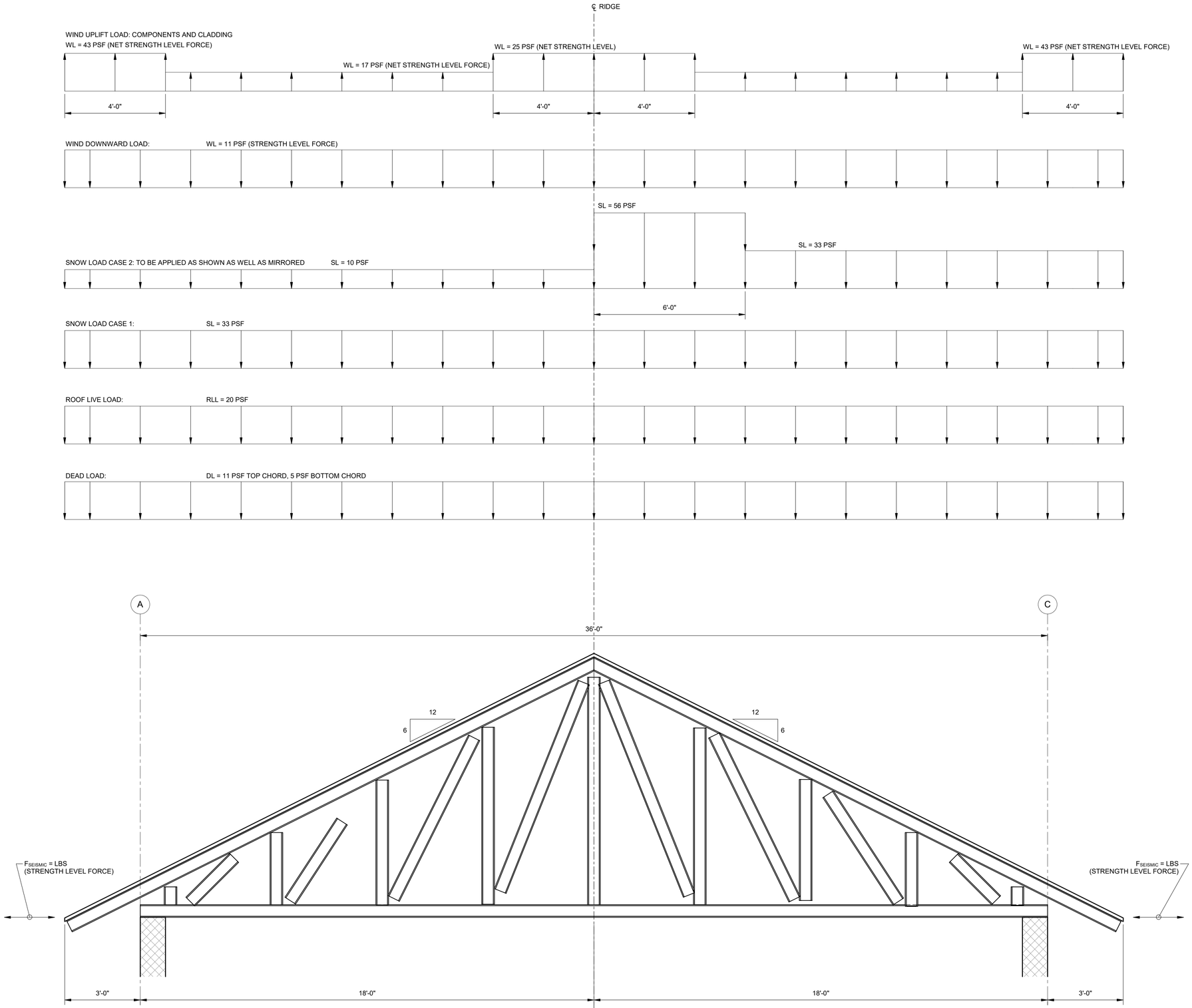
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 10/11/2024

DRAWING:
82-S-502

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt



1 STEEL OPEN WEB ROOF JOIST LOADING DIAGRAM
SCALE: 1/2" = 1'-0"

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_80-S-SHB.rvt

J-U-B ENGINEERS, INC.
392 E. Winchester St.
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REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

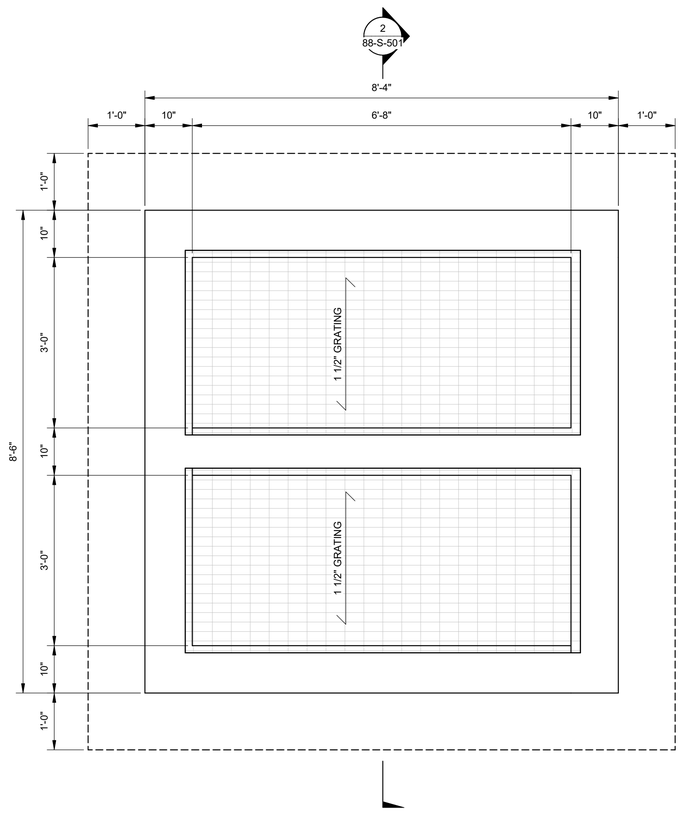
NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

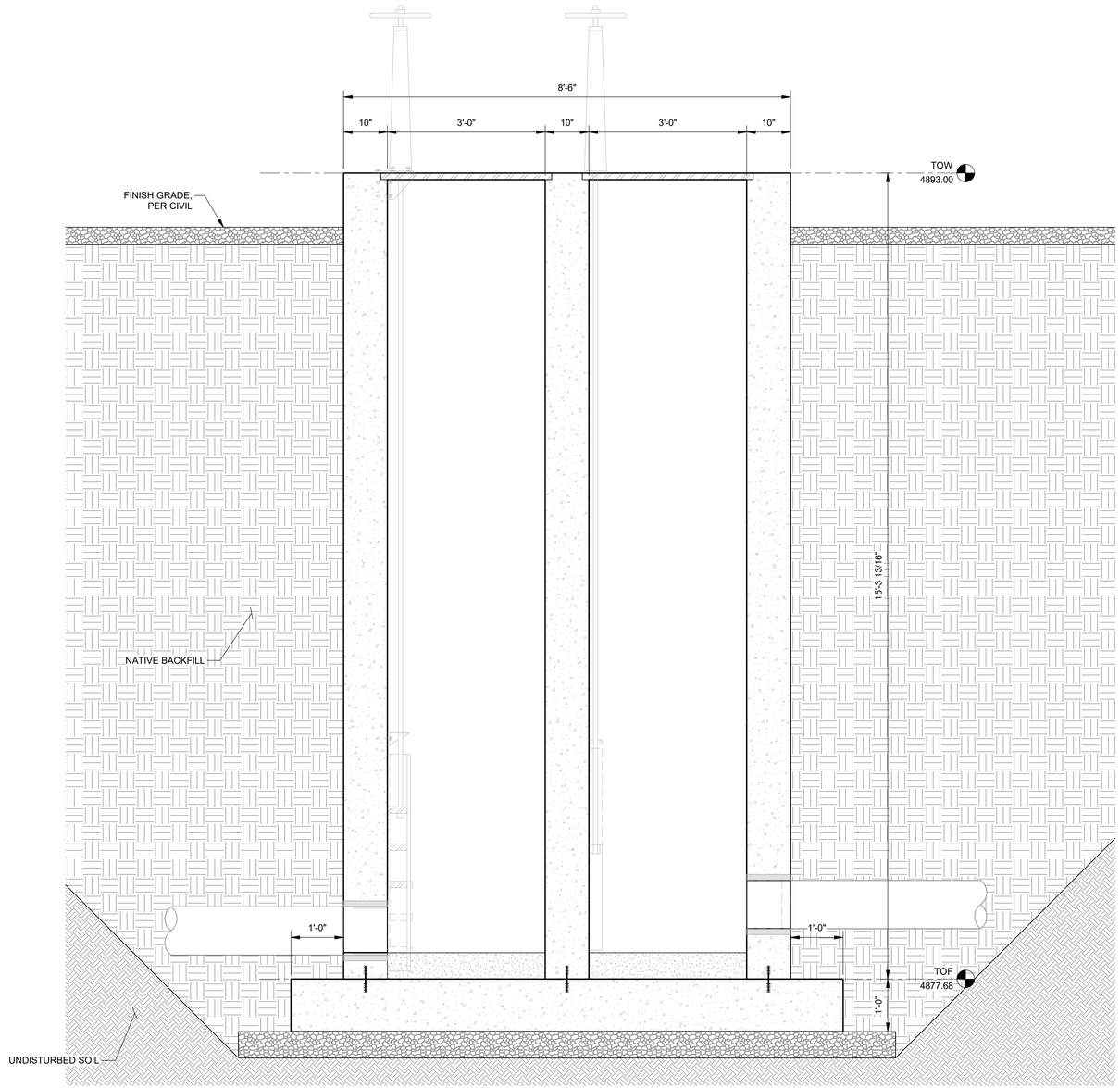
STRUCUTRAL (S)
SOLIDS HANDLING BUILDING
TRUSS/JOIST DIAGRAM

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:Author
DESIGN BY:Designer
CHECKED BY:Checker
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2024

DRAWING:
82-S-701



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



2 (88-S-501) TRANSFER STRUCTURE SECTION
SCALE: 3/4" = 1'-0"

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
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Subconsultant:

AGENCY

REGISTERED PROFESSIONAL ENGINEER
1/31/2025
NO. 12506737-2202
JESSE L. SHOCKLEE
STATE OF UTAH

REVIEW

NO.	DESCRIPTION	BY	APP.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

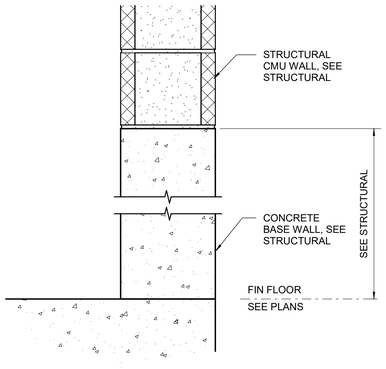
STRUCUTRAL (S)

TRANSFER STRUCTURE DETAILS

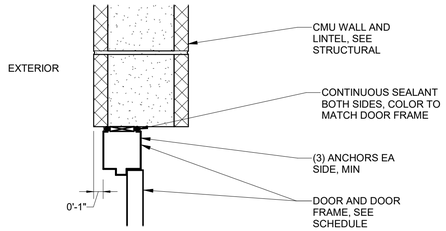
FILE:
JUB PROJ. #:93-24-001
DRAWN BY:EM
DESIGN BY:JLS
CHECKED BY:RSM
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:06/11/2024

DRAWING:
88-S-501

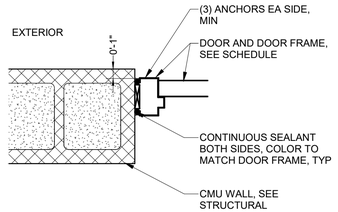
C:\Users\emorales\OneDrive - J-U-B Engineers, Inc\Documents\Revit Project Local\93-24-001_88-S_emorales6P7SX.rvt



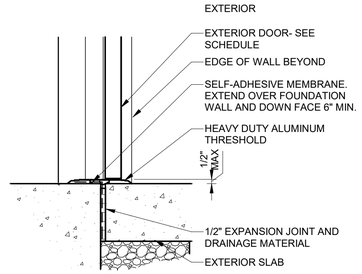
A-101 WALL BASE
SCALE: N.T.S.



A-102 DOOR AT MASONRY WALL HEAD
SCALE: N.T.S.



A-103 DOOR JAMB
SCALE: N.T.S.



A-104 DOOR THRESHOLD
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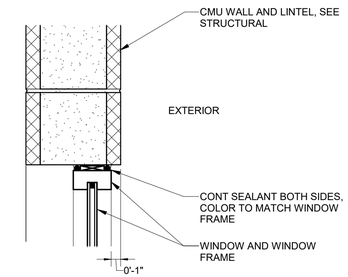
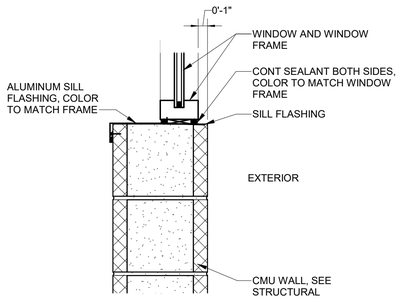
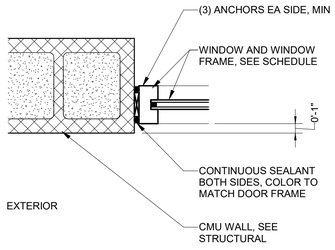


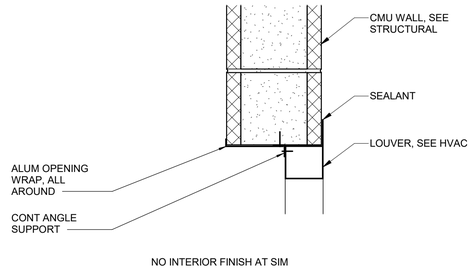
A-105 WINDOW HEAD
SCALE: N.T.S.



A-106 WINDOW SILL
SCALE: N.T.S.

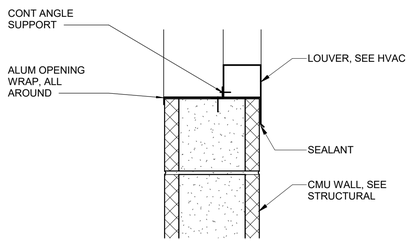


A-107 WINDOW JAMB
SCALE: N.T.S.



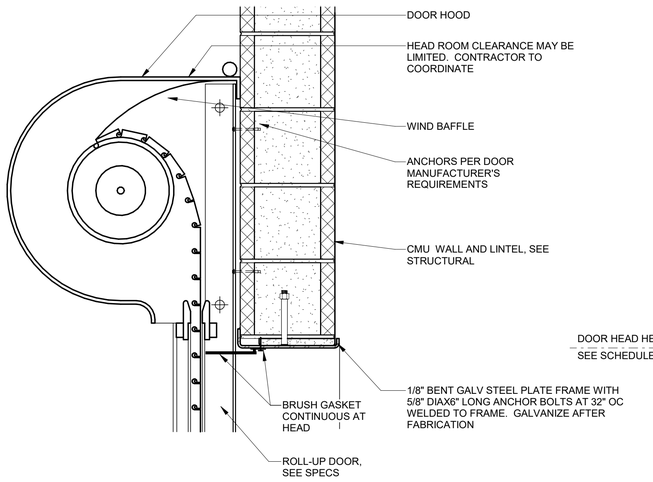
NO INTERIOR FINISH AT SIM

A-108 LOUVER HEAD/JAMB
SCALE: N.T.S.

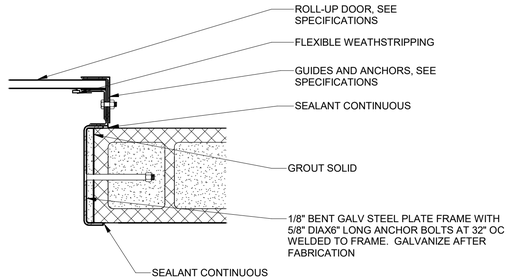


NO INTERIOR FINISH AT SIM

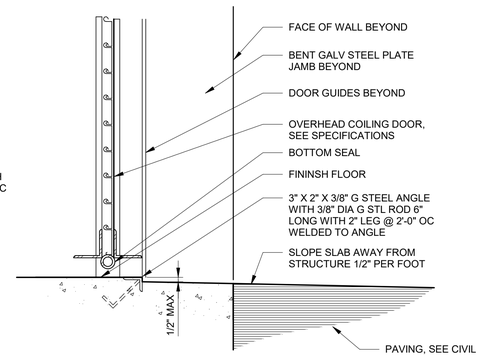
A-109 LOUVER SILL
SCALE: N.T.S.



A-110 OVERHEAD COILING DOOR HEAD
SCALE: N.T.S.



A-111 OVERHEAD COILING DOOR JAMB
SCALE: N.T.S.



SEE STRUCTURAL FOR TRENCH DRAIN LOCATIONS AND DETAILS

A-112 OVERHEAD COILING DOOR THRESHOLD
SCALE: N.T.S.

J-U-B ENGINEERS, INC.
392 E. Winchester St.
Suite 300
Salt Lake City, UT 84107
Phone: 801.886.9052
www.jub.com

Subconsultant:
THALMANN ARCHITECT
832 W Two Moons Way
Ivins, Utah 84738
Cell: 801-647-8043
Email: ftorch@xmission.com

AGENCY

LICENSED ARCHITECT
129331
FRED L.THALMANN
02/03/2025
STATE OF UTAH

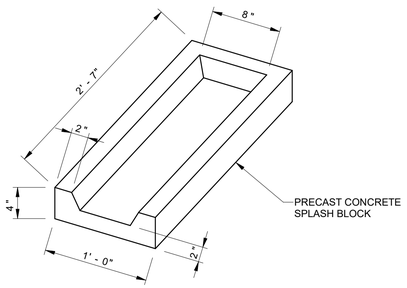
REVIEW

NO.	DESCRIPTION	BY	APR. DATE
	REVISION		

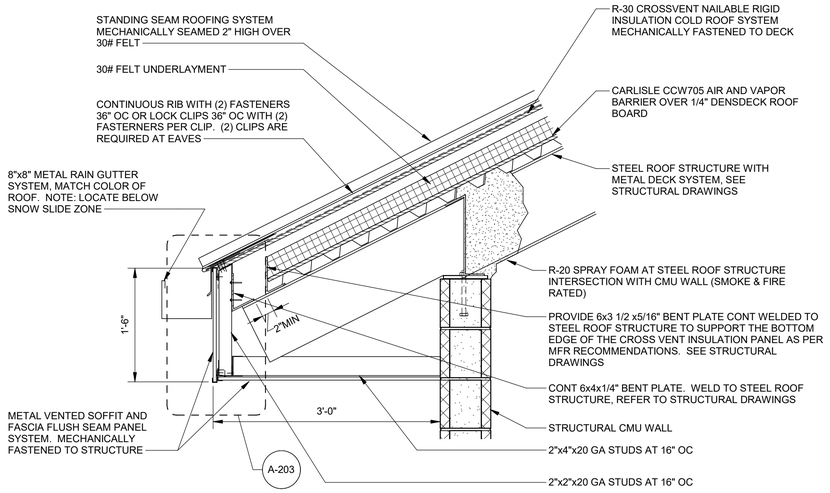
SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ARCHITECTURAL (A)
DEWATERING BUILDING
TYPICAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:TB
DESIGN BY:FT
CHECKED BY:FT
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:5/31/2024
DRAWING:
00-AZ-001

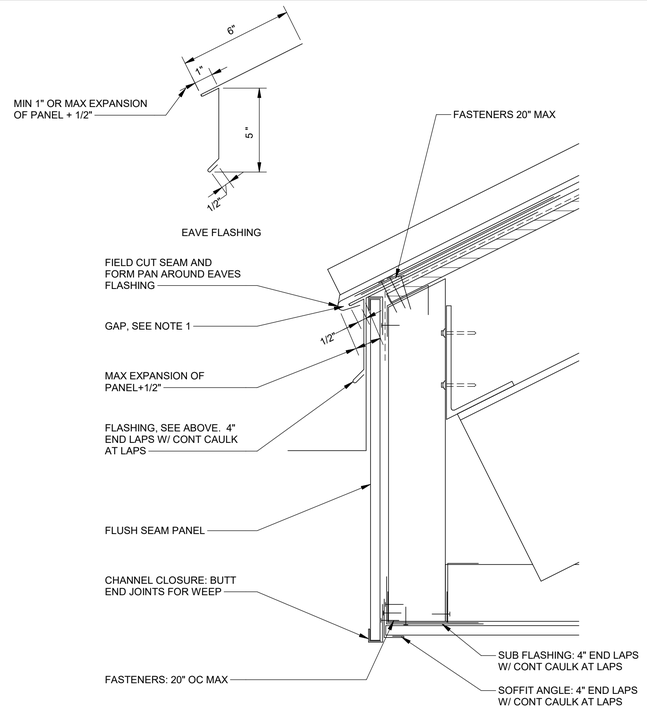


A-201 SPLASH BLOCK
SCALE: N.T.S.

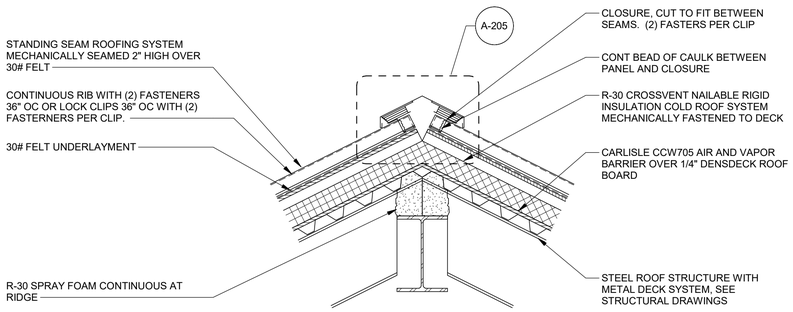


NOTES:
1. THE "GAP" BETWEEN EAVE FLASHING AND PANEL (SEE DETAIL ABOVE) CAN BE INCREASED TO ALLOW FOR LINEAR EXPANSION AND CONTRACTION OF PANELS. NOTE 1/2" OF PAN MUST BE ENGAGED WITH EAVES FLASHING WHEN PANEL HAS EXPANDED TO ITS MAXIMUMN LENGTH REFER TO NOMINAL LINEAR EXPANSION CHART BY MFR.
2. GAP BETWEEN EAVE FLASHING AND PENAL MUST BE ADJUSTED TO SUIT TEMPERATURE DURING INSTALLATION.
3. SEE EXPANSION JOINT DETAIL A-302

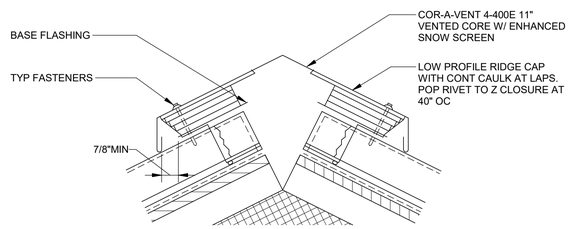
A-202 EAVE DETAIL
SCALE: N.T.S.



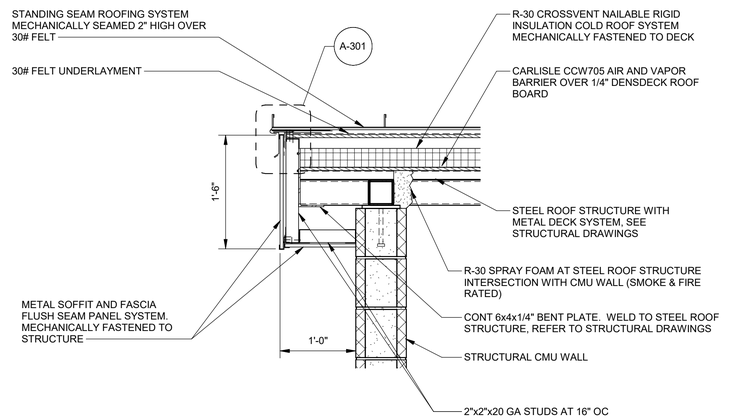
A-203 EAVE DETAIL
SCALE: N.T.S.



A-204 RIDGE DETAIL
SCALE: N.T.S.



A-205 RIDGE CAP DETAIL
SCALE: N.T.S.



A-206 RAKE DETAIL
SCALE: N.T.S.

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
392. E. Winchester St., Suite 300
Salt Lake City, UT 84107
Phone: 801.547.0393
www.jub.com

Subconsultant:
THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997

AGENCY
LICENSED ARCHITECT
129331
FRED L.THALMANN
02/03/2025
STATE OF UTAH
REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SPANISH FORK & MAPLETON WRF
SPANISH FORK CITY CORPORATION

TYPICAL DETAILS

FILE:
JUB PROJ. #: 93-24-001
DRAWN BY: TB
DESIGN BY: FT
CHECKED BY:FT
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 5/31/2024
DRAWING:
00-AZ-002

2/1/2025 10:44:06 AM
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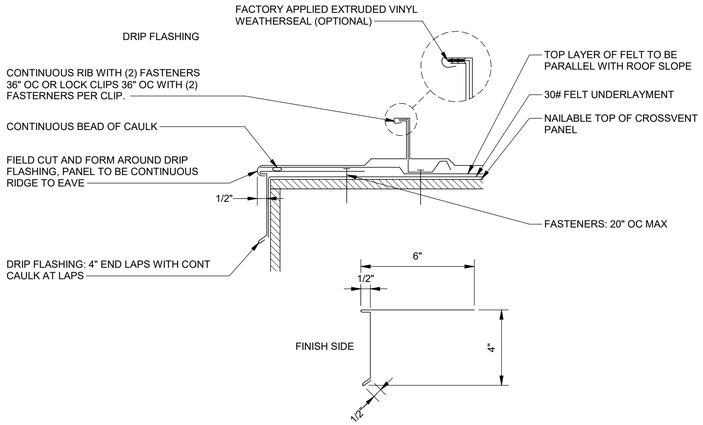
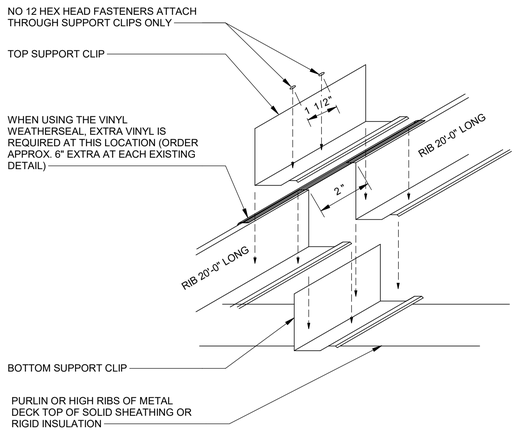
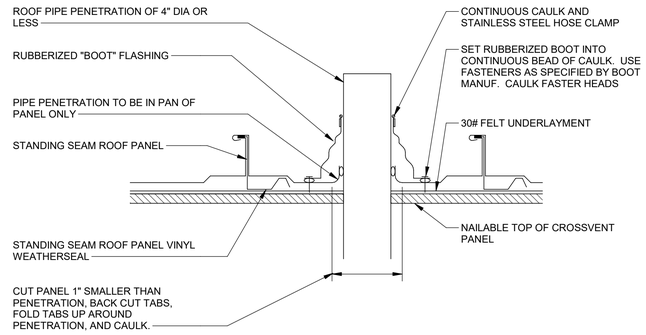


NOTE:
1. FIELD CUT AND FORM LAST PANEL AROUND DRIP FLASHING. PANEL MUST BE CONTINUOUS FROM RIDGE TO EAVE.

A-301 GABLE TURNDOWN DETAIL
SCALE: N.T.S.



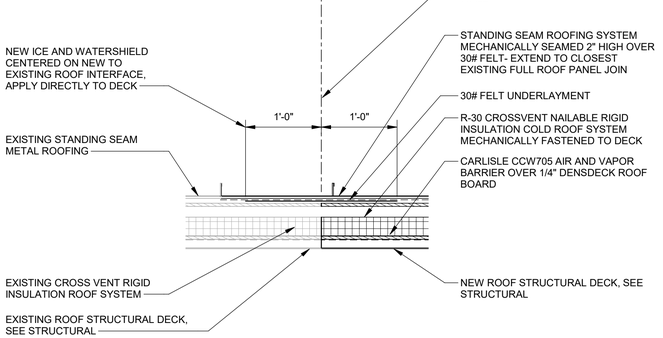
A-302 EXPANSION JOINT DETAIL
SCALE: N.T.S.



NOTES:
1. CUT HOLE TO ALLOW FOR THERMAL MOVEMENT IF PANELS ARE 30'-0" OR LONGER.
2. IF PIPE IS MADE OF METAL, IT MUST BE PAINTED TO PREVENT RUST RUN-OFF FROM STAINING PANELS.
3. POSITION SQUARE BASED BOOTS IN A DIAMOND ORIENTATION WHERE POSSIBLE TO AID IN DIVERTING WATER.

CALL ARCHITECT IF PENETRATION IS NOT IN PAN

A-303 PENETRATION IN PAN (PREFERRED)
SCALE: N.T.S.



A-304 NEW ROOF TO EXISTING ROOF
SCALE: N.T.S.

J-U-B ENGINEERS, INC.
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AGENCY
LICENSED ARCHITECT
129331
FRED L.THALMANN
02/03/2025
STATE OF UTAH
REVIEW

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ARCHITECTURAL (A)
DEWATERING BUILDING
TYPICAL DETAILS

FILE:
JUB PROJ. #:93-24-001
DRAWN BY:TB
DESIGN BY:FT
CHECKED BY:FT
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:5/31/2024

DRAWING:
00-AZ-003

Autodesk Docs://Santaquin WRF Phase 3 Upgrades/93-24-001_01-A.rvt

HEADWORKS / DEWATERING BUILDING - CODE SUMMARY

APPLICABLE CODES

BUILDING CODE:	2021 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE:	2020 NATIONAL ELECTRICAL CODE
PLUMBING CODE:	2021 INTERNATIONAL PLUMBING CODE
MECHANICAL CODE:	2021 INTERNATIONAL MECHANICAL CODE
ENERGY CODE:	2021 INTERNATIONAL ENERGY CONSERVATION CODE
FIRE CODE:	2021 INTERNATIONAL FIRE CODE
ACCESSIBILITY CODE:	2021 INTERNATIONAL BUILDING CODE (ICC/ANSI A117.1-2009)
EXISTING BUILDING CODE:	2021 INTERNATIONAL EXISTING BUILDING CODE

RISK CATEGORY: III WASTEWATER TREATMENT FACILILTY, IBC TABLE 1604.5

OCCUPANCY CLASSIFICATION AND USE

PER IBC CHAPTER 3

OCCUPANCY CLASSIFICATION GROUP

F-2 IBC 306.2 MODERATE-HAZARD FACTORY INDUSTRIAL

GENERAL BUILDING HEIGHTS AND AREAS

PER IBC CHAPTER 5

IBC TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

ALLOWABLE # OF STORIES	ALLOWED	PROPOSED
F-2	3	1

ALLOWABLE BUILDING HEIGHTS: IBC TABLE 504.3		
F-2	55'	29'-7"

IBC TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY SEPARATION	ALLOWED	PROPOSED
NONE SEPARATED		

ALLOWABLE AREAS FOR EACH PROPOSED OCCUPANCY

BASE ALLOWABLE FLOOR AREA (PER TABLE 506.2)

OCCUPANCY	ALLOWED	PROPOSED
F-2	23,000 SF	3,828 SF
AREA INCREASE FOR YARDS		0
AREA INCREASE FOR BUILDING SPRINKLERS		0

ENERGY CODE BUILDING ENVELOPE

THE ENERGY CODE HAS BEEN UPDATED SINCE CONSTRUCTION OF THE ORIGINAL WRF FACILITIES IN THE 2011-2013 TIMEFRAME. THE BASELINE APPROACH AND MATERIALS OF CONSTRUCTION FOR THE ORIGINAL STRUCTURES NO LONGER COMPLIES WITH TODAY'S ENERGY CODE. COMPLIANCE WITH THE UPDATED ENERGY CODE WOULD REQUIRE HIGH "R" VALUE BLOCK, INSULATED VENEER, ETC.

IT SHOULD BE NOTED THAT THE PROPOSED BUILDINGS WILL HAVE LIMITED OCCUPANCY; STAFF WILL ONLY BE IN THESE BUILDINGS FOR SHORT PERIODS OF TIME FOR ROUTINE CHECKS AND MAINTENANCE. THE INTENT IS TO JUST MAINTAIN A MINIMUM TEMPERATURE (ASSUME APPROX 50 DEG F) TO PREVENT FREEZING AND TO KEEP THE SPACE SOMEWHAT COMFORTABLE. IT IS ANTICIPATED AN R30 ROOF WILL BE PROVIDED. THE CITY ALSO WANTS TO MATCH THE "LOOK" AND FUNCTIONALITY OF THE EXISTING WRF STRUCTURES. AS SUCH, THE CITY BUILDING OFFICIAL FELT THERE WAS NO NEED TO COMPLY WITH UPDATED ENERGY CODE REQUIREMENTS FOR THE THREE PROPOSED STRUCTURES: SOLIDS LOADOUT AREA, SOLIDS HANDLING BUILDING, AND CENTER STREET LS ELECTRICAL BUILDING.

TYPE OF CONSTRUCTION

PER IBC CHAPTER 6

CONSTRUCTION TYPE IBC TABLE 601: TYPE II-B

EXTERIOR WALL FIRE RESISTANCE BASED ON FIRE SEPARATION DISTANCE (TABLE 602)

EXTERIOR WALL LOCATION	DIST. TO PROPERTY LINE	FIRE RATING
NORTH	X > 30'	0
EAST	X > 30'	0
SOUTH	X > 30'	0
WEST	X > 30'	0

IBC TABLE 601: FIRE-RISISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT FIRE RATING	ALLOWED
PRIMARY STRUCTURAL FRAME	0 HOURS
BEARING WALLS: EXT & INT	0 HOURS
NONBEARING WALLS INTERIOR	0 HOURS
FLOOR CONST AND ASSOC MEMBERS	0 HOURS
ROOF CONST AND ASSOC MEMBERS	0 HOURS

MEANS OF EGRESS

PER IBC CHAPTER 10

EXIT ACCESS TRAVEL DISTANCE WITH 2 EXITS IBC 1017.2

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (FEET)	WITH SPRINKLER SYSTEM (FEET)
F-2	PROPOSED < 200'	NA

PROPOSED AREA OF BUILDING PER FLOOR (NFPA Classification & Occupancy)	AREA (SF)
LEVEL1: EXISTING HEADWORK AREA	1,429 SF
LEVEL 1: EXISTING DEWATERING AREA	1,586 SF
LEVEL 1: LOAD OUT AREA	813 SF

IBC TABLE 1004.5 MAX FLOOR AREA PER OCCUPANT

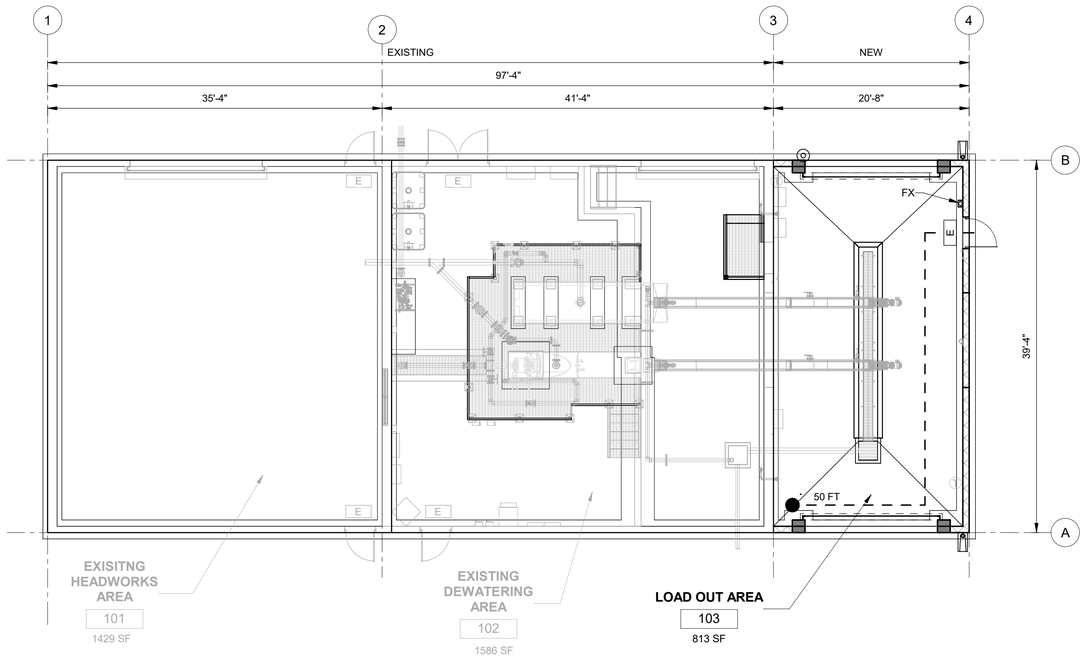
AREA NAME	RATIO	OCC AREA	OCC. LOAD
LEVEL1: EXISTING HEADWORK AREA	300 SF/OCCUPANT	1,429 SF	5 OCCUPANTS
LEVEL 1: EXISTING DEWATERING AREA	300 SF/OCCUPANT	1,586 SF	6 OCCUPANTS
LEVEL 1: LOAD OUT AREA	300 SF/OCCUPANT	813 SF	3 OCCUPANTS

BUILDING FIRE SUPPRESSION, ALARM AND STANDPIPE SYSTEMS (CHAPTER 9)

	PROVIDED: YES / NO	AREA / TYPE OF SYSTEM	COMMENTS
SPRINKLER SYSTEM	NO		
FIRE ALARM SYSTEM	YES (EXISTING SYSTEM)		
STANDPIPE SYSTEM	---		

LEGEND:

XX FT ● – – –	EGRESS PATH WITH TRAVEL DISTANCE TO BUILDING DISCHARGE OR RATED PASSAGE WAY
E	EXIT
FX	FIRE EXTINGUISHER



TOTAL BUILIDNG AREA 3828 SF

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

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AGENCY

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SANTAQUIN WRF PHASE 3 UPGRADES
SANTAQUIN CITY

ARCHITECTURAL (A)
DEWATERING BUILDING
CODE SUMMARY AND EGRESS PLAN

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