Planning Commission Staff Report

File # 12C26 - CUP-000608-2026

Public Hearing and Consideration of a Nonadministrative Conditional Use Permit to Construct a Utility Facility at 1298 W. 4800 S. in Taylorsville, Utah.

Department of Community Development

Date:	July 2, 2026
Meeting Date:	July 14, 2026
Agenda Item:	Public Hearing and Consideration of a Nonadministrative Conditional Use Permit to Construct a Utility Facility at 1298 W. 4800 S. and 1285 W. Taylorsville Expressway in Taylorsville, Utah.
Subject Property Address:	1298 W. 4800 S., 1285 W. Taylorsville Expressway
Property Owner:	B.A.B. Leasing and Fore Lakes Corporation
Applicant:	Angela Barber (representing Enbridge Gas)
Author:	Terryne Bergeson, Planner II
Parcel #:	21102510020000; 21111010130000
Applicable Ordinances:	Including, but not limited to Chapter 13.07, 13.11 and 13.33
Agenda Item #:	4

Attachments:

Exhibit A: Zoning Map
Exhibit B: General Plan Map
Exhibit C: Subject Property
Exhibit D: Vicinity Map
Exhibit E: Extracted Pages
Exhibit F: Easement
Exhibit G: Full Plan Set

Summary:

Angela Barber has submitted a conditional use permit application on behalf of Enbridge Gas Company. Plans illustrate the intent to construct a gas regulator station in an area to the

rear of the Fore Lakes golf course. The use meets the definition of a public utility station. The subject properties are zoned R-1-15 and R-1-10 and according to the Residential Land Use Table in §13.07.020(E), such use requires approval of a nonadministrative conditional use permit.

Site Description

The subject properties are comprised of two parcels. The larger parcel has an area of 28,750 SF and is developed along the 4800 S. frontage with an existing single-family home and a long, deep rear lot. Exhibit C shows a line of trees creating a break between the residential portion of the lot and the rear that has historically been used as a maintenance equipment storage area for Fore Lakes. A county-owned parcel used as utility and maintenance access runs parallel along the west property line. The smaller parcel to the east is an undeveloped remnant parcel with a total area of 2,614 SF and is approximately 18 X 150 feet.

North	South	East	West
Open Space (OS)	Murray Taylorsville Road	Single-Family Residential (R-1-10)	OS (OS)

General Plan Analysis

The Proposed Land Use Map represents the adopted long-term vision for the city. The General Plan and associated map designate the subject properties as "Residential Low Density" described as (pg 3-23):

> "*Single-family detached homes along with incidental neighborhood uses such as schools, parks, and churches.*"

The proposal will not result in changes to the fabric of the neighborhood and the construction of the utility station is incidental to the surrounding single-family use. The request is consistent with the intended uses identified for the classification.

Land Development Code Analysis

In addition to the requirements to apply for a nonadministrative conditional use permit to allow the planning commission to explore potential impacts of the proposed use, the Land Development Code (LDC) provides additional standards in §13.11.240 for utility facilities intended to minimize the impact on surrounding uses. The following table highlights where the submitted plans show compliance with the standards and staff analysis:

Code Reference	Standard	Complies	Staff Analysis
13.11.240.B.1	Lot Size And Dimensions: Upon review and approval by the Planning Commission, the minimum size and dimensions of a lot or parcel shall be sufficient to meet the needs of the public utility station structure.	No	The area needed for vehicle access maneuvering requires the construction of a wall that spans two properties. Staff recommends that the planning commission require a lot line consolidation to be recorded prior to final approval of the permit. (See exhibit E)

13.11.240.B.3	Creation Of Lot Or Parcel: Unless otherwise prohibited by Utah State Code, lots or parcels may be created as a lot or parcel within a recorded subdivision plat, or created by a recorded deed that describes the property by metes and bounds legal description.	NA	Further supports lot consolidation by metes and bounds.
13.11.240.C.1	(Setbacks) Minimum 30 feet from any existing habitable structure or street.	Yes	Nearest homes are approximately 64 feet from property lines.
13.11.240.C.2.a.1.A	(Setbacks) Minimum 30 feet from street right-of-way. lines.	Yes	
13.11.240.C.2.a.1.B	(Setbacks) Ten feet for landlocked properties and all other property.	No	**Building** is not located on landlocked parcel. Wall structure is crossing property lines. Staff recommends lot consolidation to remove bisecting property line.
13.11.240.4.b	(Screening) Minimum six foot (6') opaque and nonclimbable screening fence and gate(s) shall be constructed along all property lines.	Yes	Plans show compliance 8' tall fence, materials, height, and gate.

Exhibit E show compliance with all other architectural and landscaping requirements in the applicable code. The main regulator will be housed within a permanent structure, illustrated in plans to be approximately 121 SF and 13 feet tall, constructed of tan CMU block (extracted pages, Exhibit E). Since the station is not located within the public view landscaping is not required. The entire area is to be enclosed within the opaque masonry wall, which meets the standards within the section requiring screening of equipment.

Staff did not identify any detrimental impacts to the surrounding areas based on the proposed use and does not recommend any mitigating conditions. As stated in the analysis, staff does recommend the planning commission require the recording of a lot consolidation to bring the site plans into compliance with §13.11.240(B)(1).

Public Comment

A public notice was sent to all affected entities and residents within 300 feet of the property on June 29, 2026. As of July 9, 2026, Staff has received no public comment.

Findings

1. Angela Barber, representing Enbridge Gas Company, has submitted a nonadministrative conditional use permit to construct a public utility station at 1298 W. 4800 S. and 1285 W. Taylorsville Expressway.

2. 1298 W. 4800 S. contains a single-family home fronting 4800 S (Murray Taylorsville Road) and the rear portion has been used by Fore Lakes golf course as storage.
3. 1298 W. 4800 S. is zoned R-1-15.
4. 1285 W. Taylorsville Expressway is an undeveloped remnant parcel zoned R-1-10.
5. The proposed use is defined as "public utility station".
6. §13.11.240 contains development standards for such uses.
7. The submitted plans show that the vehicle area for maneuvering and proposed fence enclosure spans two properties, therefore minimum size and dimensions of a lot or parcel are not sufficient to meet the needs of the public utility station structure, required by 13.11.240.B.1.
8. The plans show compliance with all other standards of §13.11.240.
9. According to §13.07.020(E), a public utility station requires approval of a nonadministrative conditional use permit in the single-family residential zone.
10. Chapter 13.33 designates the planning commission as the review authority for nonadministrative conditional use permits.
11. Staff identified no detrimental impacts for which to impose additional conditions.
12. Staff recommends the planning commission require that a lot consolidation be completed to remove bisecting property line and bring plans into compliance with 13.11.240.B.1, prior to final approval.

Conditions of Approval

Based on the information presented in this staff report, Staff recommends the Planning Commission consider the following conditions. The commission may consider revisions or additional conditions:

1. The applicant shall continue to work with staff to resolve any outstanding review comments on submitted plans.
2. A lot consolidation for the two subject properties shall be completed and recorded with the county recorder's office. Verification shall be provided to the city prior to issuance of final approval of the conditional use permit.
3. The plans shall show compliance with §13.11.240 and all other applicable city, state, and federal laws.
4. Final approval of the conditional use permit is deferred to the Community and Economic Development director.

Staff Recommendation

Staff recommend the Planning Commission grant preliminary approval of File #12C26 - CUP-000608-2026, request for a nonadministrative conditional use permit, based on the findings and conditions in this staff report.

Recommended Motion

I move that we grant preliminary approval of File # 12C26 - CUP-000608-2026, request for a nonadministrative conditional use permit to construct a utility facility at 1298 W. 4800 S. and 1285 W. Taylorsville Expressway in Taylorsville, Utah, subject to the findings and conditions in this staff report.

Exhibit A

Zoning Map: 1298 W 4800 S

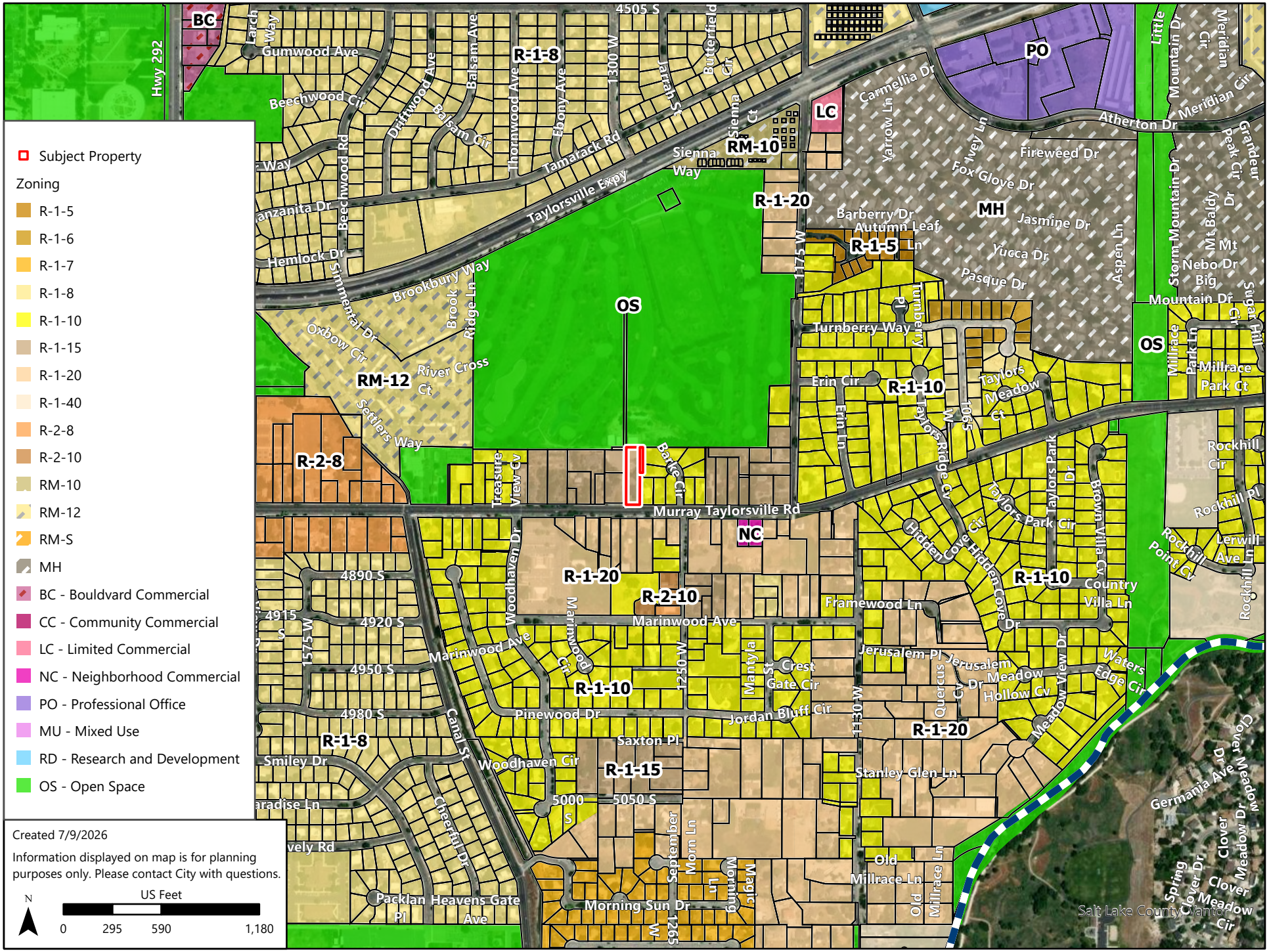


Exhibit B

General Plan Map: 1298 W 4800 S

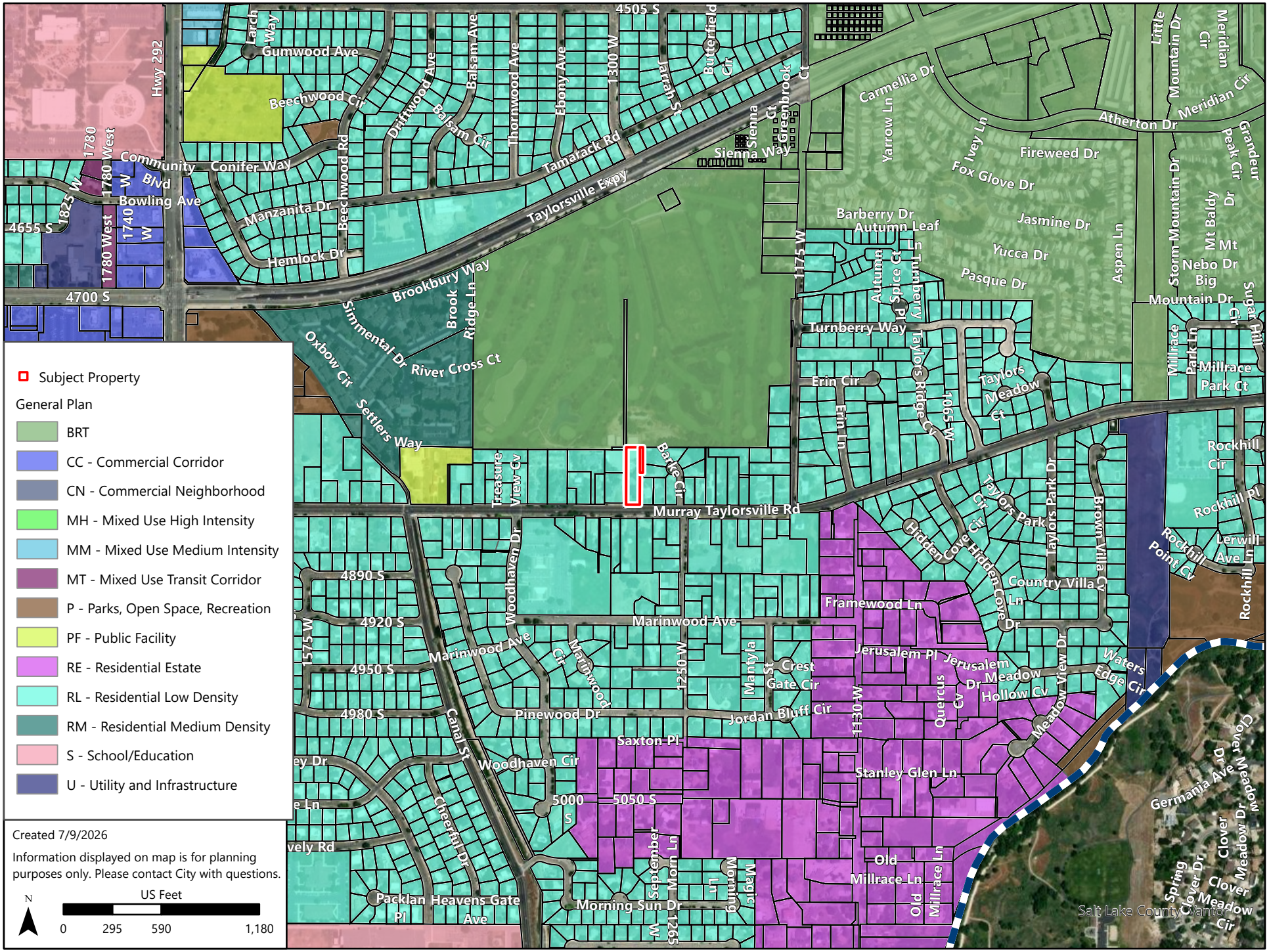


Exhibit C

Site Map: 1298 W 4800 S

Exhibit D

Vicinity Map: 1298 W 4800 S

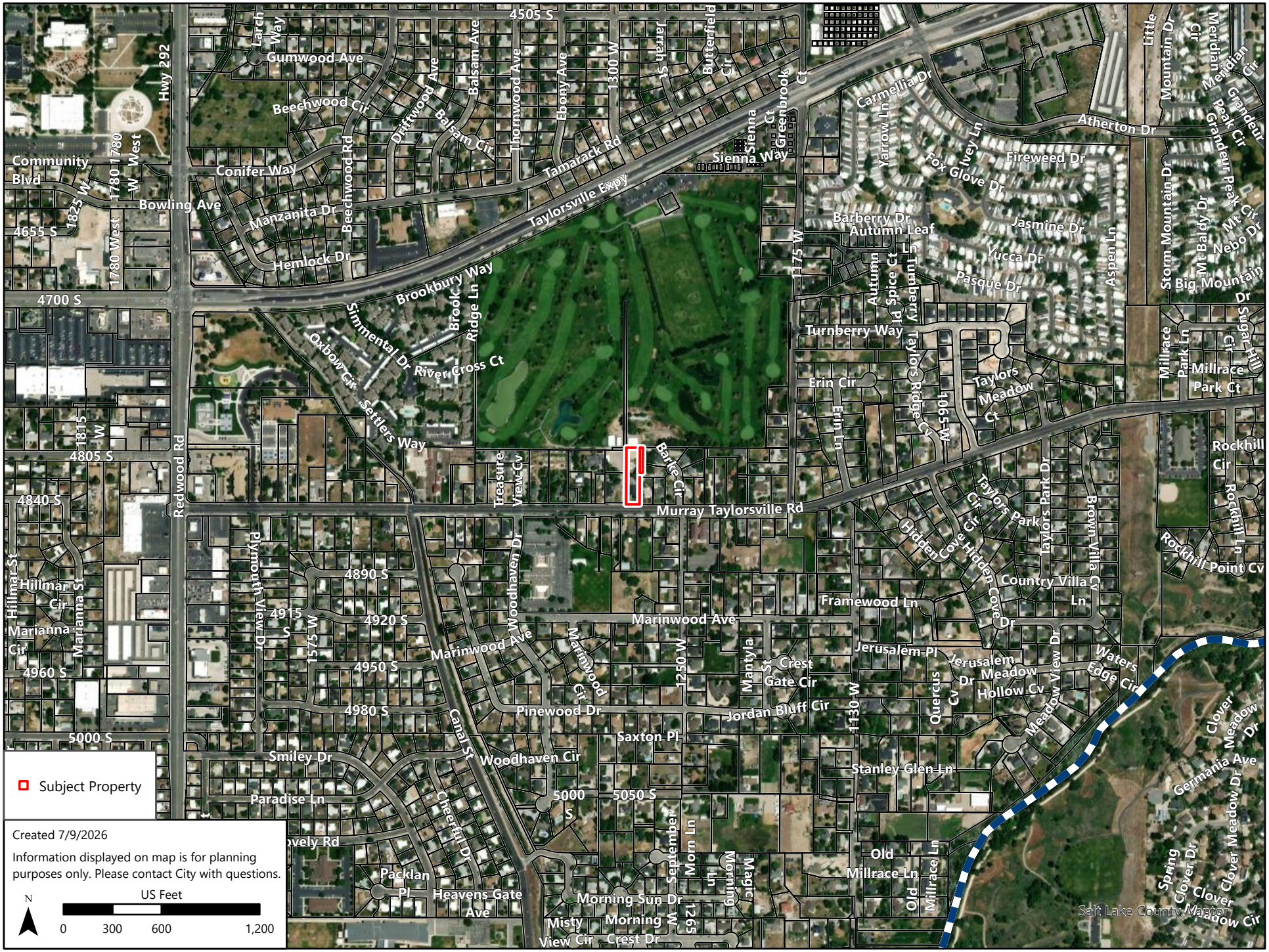
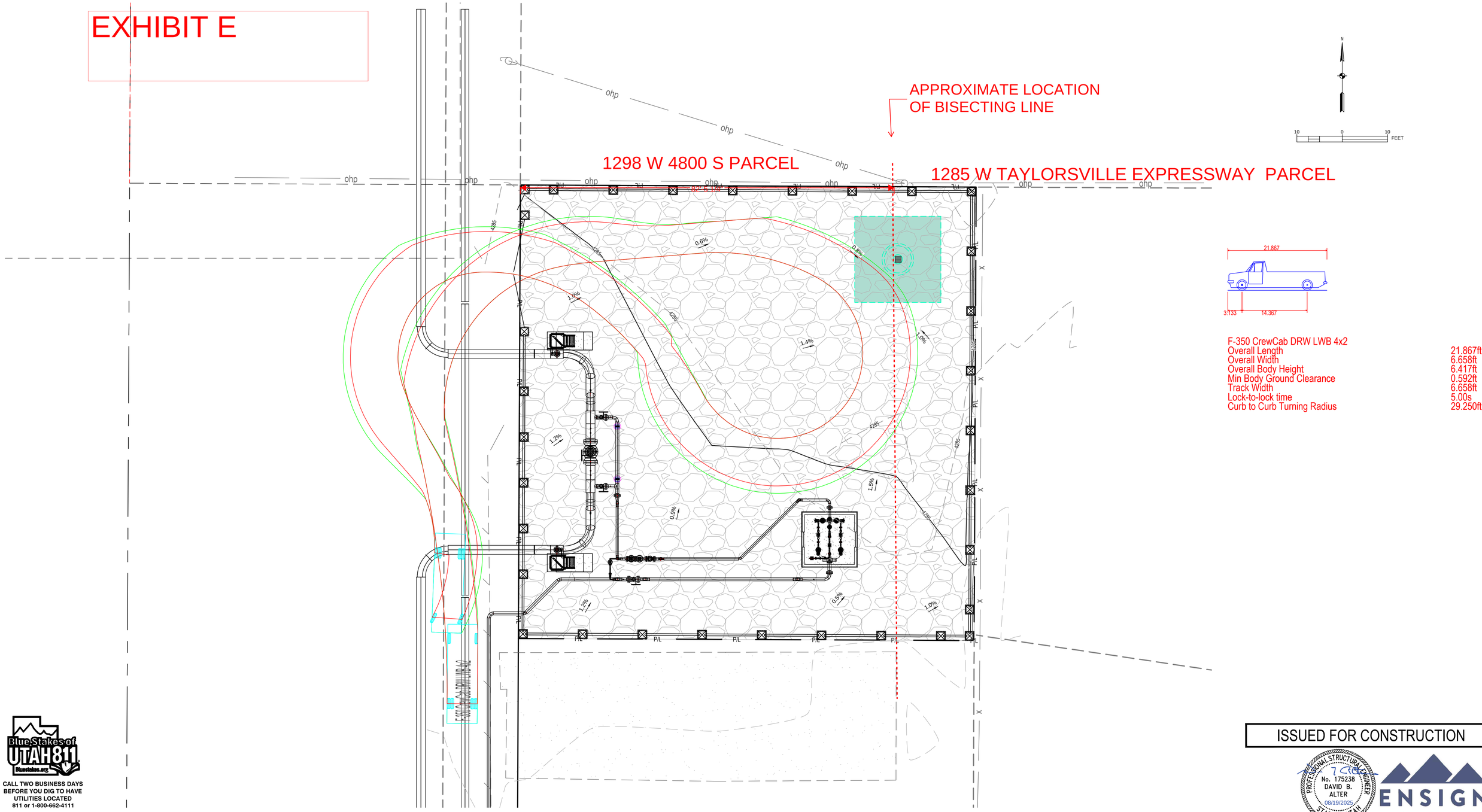


EXHIBIT E



F-350 CrewCab DRW LWB 4x2	
Overall Length	21.867ft
Overall Width	6.658ft
Overall Body Height	6.417ft
Min Body Ground Clearance	0.592ft
Track Width	6.658ft
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	29.250ft

Blue Stakes of UTAH 811 — Bluestakes.org

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ISSUED FOR CONSTRUCTION

PROFESSIONAL STRUCTURAL ENGINEER — No. 175238 — DAVID B. ALTER — 08/19/2025 — STATE OF UTAH

ENSIGN — THE STANDARD IN ENGINEERING

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: J. LINFORD (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

ENBRIDGE

SECTION: 11 T2S R 1W

ELEVATION: 4292'

LAT: 40.6651 LONG: -111.9289

SCALE: 1" = 10'

LINE NUMBER:

FACILITY:

TITLE: FL- 34
DISTRICT REGULATOR STATION TV0001
2" X 2" REGULATOR STATION
VEHICLE TRACKING PLAN

DESCRIPTION:

ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	04 OF 06	0

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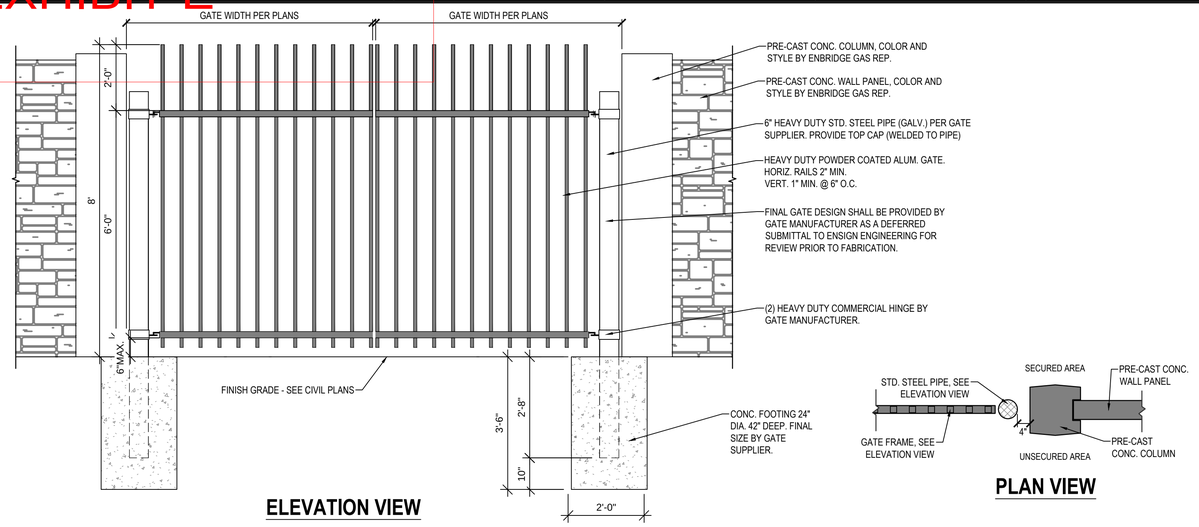
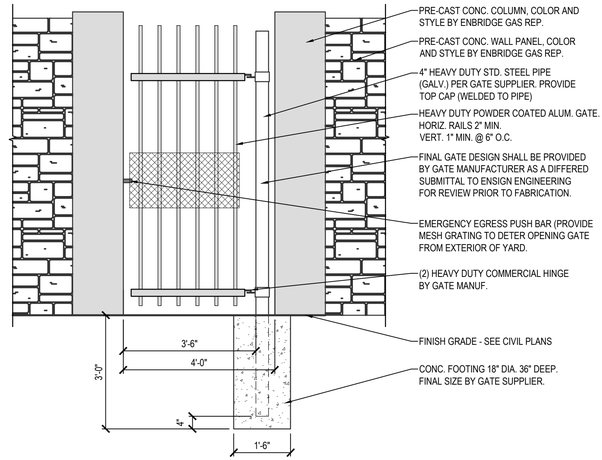
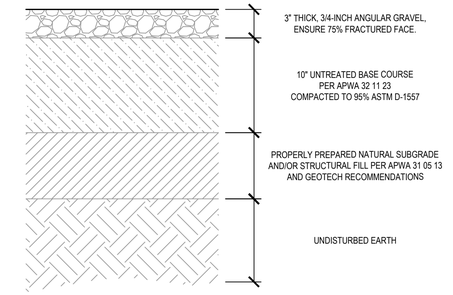
EXHIBIT E



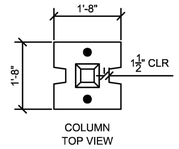
DOUBLE SWING GATE DETAIL 1
SCALE: NTS 06

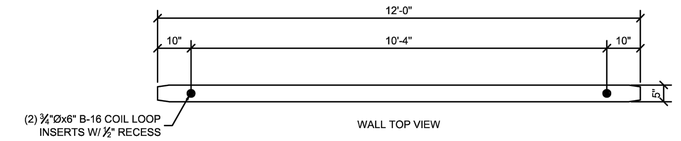


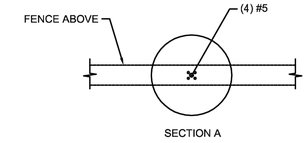
PERSONNEL GATE DETAIL 2
SCALE: NTS 06

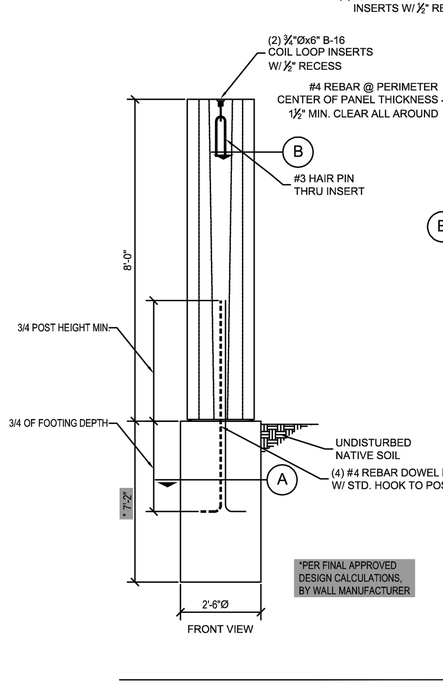


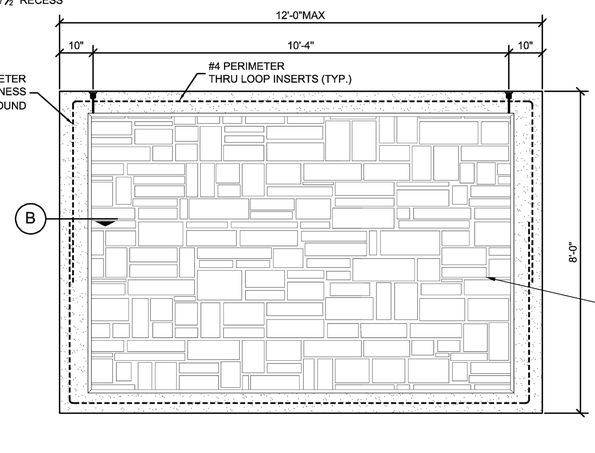
GRAVEL SECTION 3
SCALE: 1 1/2" = 1'-0" 06

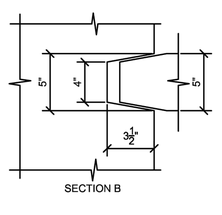












*PER FINAL APPROVED DESIGN CALCULATIONS, BY WALL MANUFACTURER

NOTES:
1. POST AND PANEL CONCRETE TO BE 5000 PSI.
2. FOOTING CONCRETE TO BE 3000 PSI.
3. MINIMUM SOIL LATERAL BEARING ALLOWABLE: 150 PSF/FT. OF DEPTH BELOW GRADE
4. MINIMUM ALLOWABLE SOIL BEARING PRESSURE: 2000 PSF.
5. DIMENSIONS MAY BE REDUCED TO FIT PROJECT REQUIREMENTS.
6. GROUT BETWEEN POST AND FOOTING TO BE 2500 PSI.
7. CONTRACTOR SHALL SUBMIT PRE-CAST WALL DESIGN CALCULATIONS AND SHOP DRAWINGS FOR REVIEW BY ENSIGN PRIOR TO INSTALLATION.
8. FENCE AND FOUNDATIONS TO BE DESIGNED FOR 2'-0" SOIL RETENTION.

PRE-CAST CONCRETE WALL 4
SCALE: NTS 06

ISSUED FOR CONSTRUCTION

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ENSIGN
THE STANDARD IN ENGINEERING

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REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: J. LINFORD (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS SHOWN

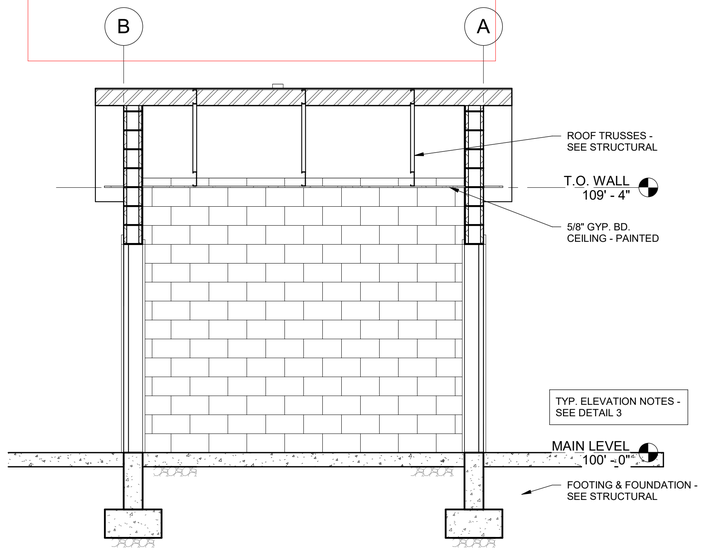
LINE NUMBER:
FACILITY:
TITLE: FL- 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
DETAILS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	06 OF 06	0

ENBRIDGE GAS_ANSI_D

EXHIBIT E



5 BUILDING SECTION
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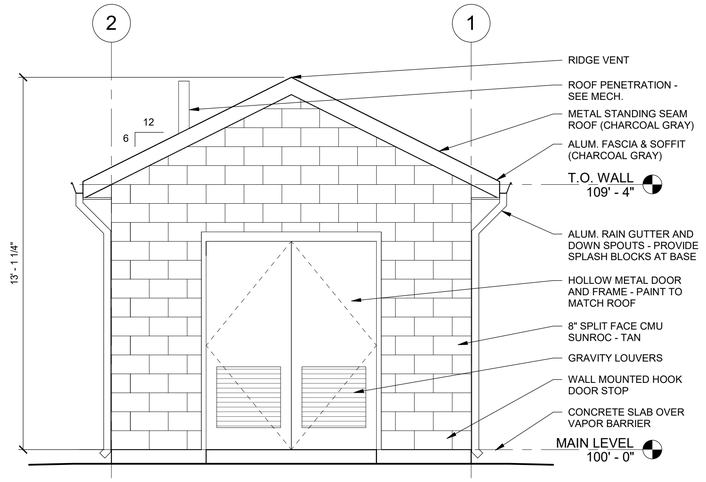
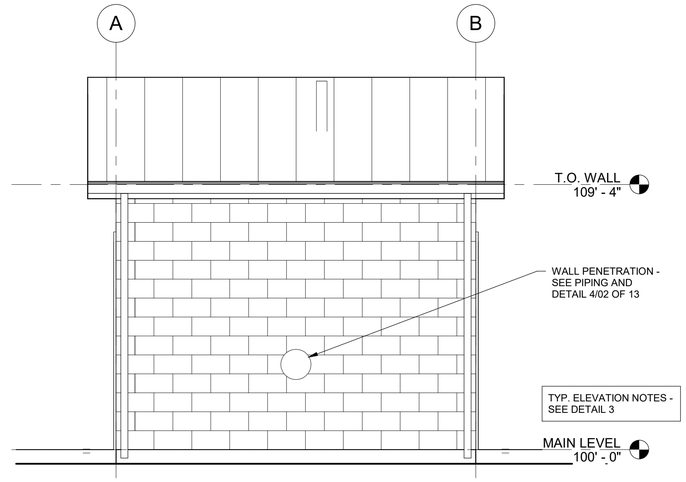


3 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"



1 BUILDING ELEVATION
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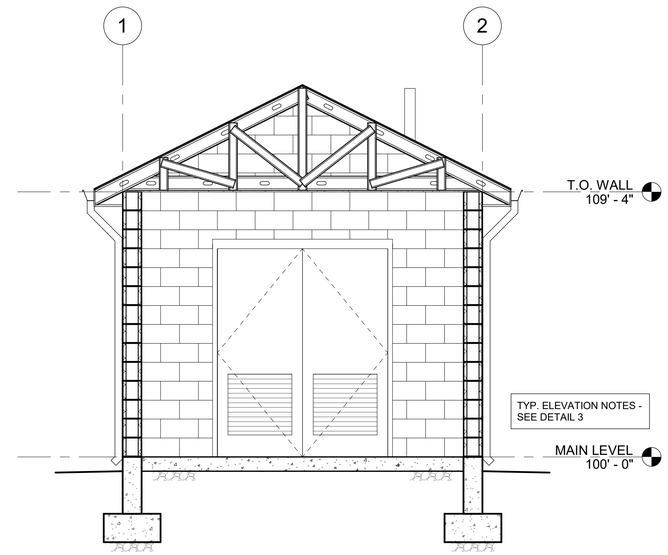

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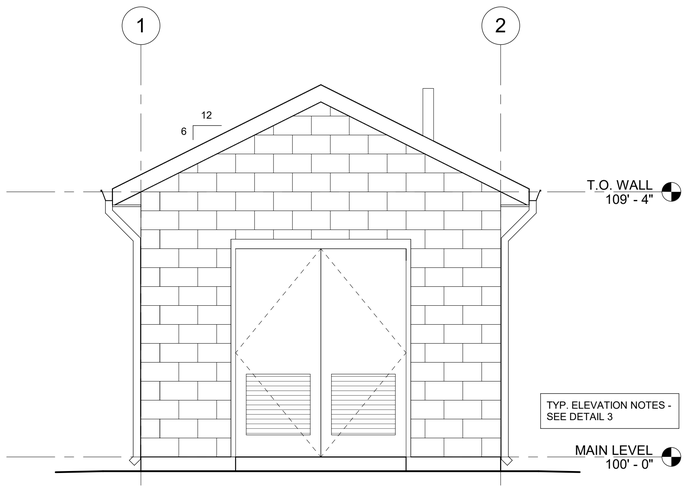
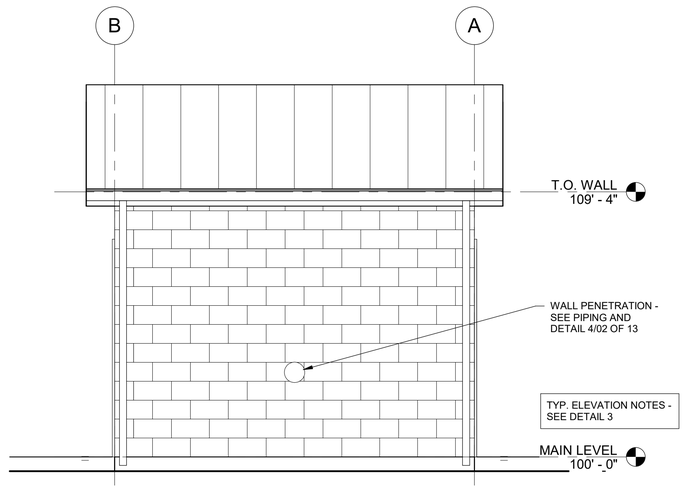
SCALE: 3/8" = 1'-0"



4 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"



2 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ISSUED FOR CONSTRUCTION

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THE STANDARD IN ENGINEERING
www.ensigneng.com
Ensign Project #: 13448 Date: 08-06-2025
Ensign Sheet: 03 OF 13 - ELEVATIONS

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
ELEVATIONS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	03 OF 13	0

ENBRIDGE GAS_ANSI_D

EXHIBIT F

PROJECT DRAWINGS		
DRAWING	**REV**	**DESCRIPTION**
ENB-R-TV0001-LST-001 (1 SHT)	0	DISTRICT REGULATOR STATION TV0001 - DRAWING INDEX LIST
ENB-R-TV0001-PID-001 (1 SHT)	0	DISTRICT REGULATOR STATION TV0001 - PIPING AND INSTRUMENTATION DIAGRAM
ENB-R-TV0001-PIP-001 (5 SHTS)	0	DISTRICT REGULATOR STATION TV0001 - DISTRICT REGULATOR STATION TV0001 2" X 2" MOONEY
ENB-R-TV0001-CCS-001 (6 SHTS)	0	TV0001 SITE/CIVIL DRAWINGS
ENB-R-TV0001-CCS-002 (13 SHTS)	0	TV0001 SITE/CIVIL DRAWINGS

REFERENCE DRAWINGS		
DRAWING	**REV**	**DESCRIPTION**
DE-STD-GEN-PID-001 (2 SHTS)	0	STANDARD DRAWING - PIPING AND INSTRUMENTATION DIAGRAM SYMBOLS AND LEGEND
ENB-STD-REG-PIP-001 (2 SHTS)	7	STANDARD DRAWING - 2" X 2" MOONEY REGULATOR STATION
DE-V-BLD-CCS-010 (4 SHTS)	0	STANDARD DRAWING - DOMINION ENERGY 12'-0" X 12'-0" BUILDING
ENB-STD-GEN-CCS-002 (1 SHT)	3	STANDARD DRAWING - E-Z LINE PIPE SUPPORTS
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE
ENB-STD-COR-COR-007 (1 SHT)	4	STANDARD DRAWING - ABOVE GROUND CATHODIC LOCATING STATION

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV.	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB

ENGINEERING RECORD
DRAWN BY: D. CONTI
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: G. NEWHART
ENGR MNGR: W. RADFORD
CONSTR MNGR: S. UTLEY
MEAS & CTRLS: A. BEZDJIAN

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ENBRIDGE

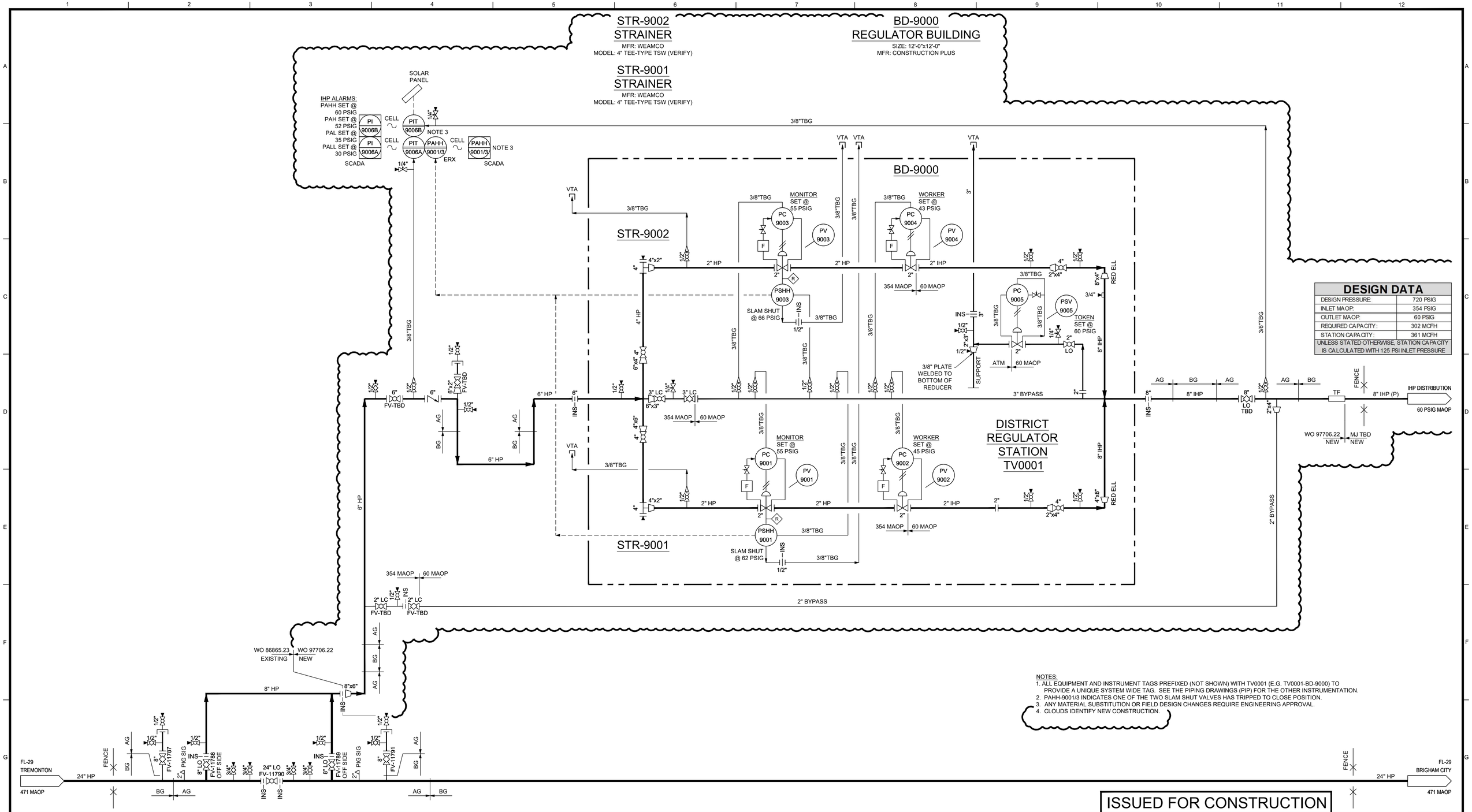
SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: NONE

LINE NUMBER: FL-34
FACILITY: DISTRICT REGULATOR STATION TV0001
TITLE: 2" X 2" REGULATOR STATION
DESCRIPTION: DRAWING LIST
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-LST-001	1 OF 1	0

ENB-R-TV0001-LST-001.dwg 08/21/2025 - 08:30am
ENBRIDGE GAS, ANSI D



DESIGN DATA

DESIGN PRESSURE:	720 PSIG
INLET MAOP:	354 PSIG
OUTLET MAOP:	60 PSIG
REQUIRED CAPACITY:	302 MCFH
STATION CAPACITY:	361 MCFH
UNLESS STATED OTHERWISE, STATION CAPACITY IS CALCULATED WITH 125 PSI INLET PRESSURE	

NOTES:
1. ALL EQUIPMENT AND INSTRUMENT TAGS PREFIXED (NOT SHOWN) WITH TV0001 (E.G. TV0001-BD-9000) TO PROVIDE A UNIQUE SYSTEM WIDE TAG. SEE THE PIPING DRAWINGS (PIP) FOR THE OTHER INSTRUMENTATION.
2. PAHH-9001/3 INDICATES ONE OF THE TWO SLAM SHUT VALVES HAS TRIPPED TO CLOSE POSITION.
3. ANY MATERIAL SUBSTITUTION OR FIELD DESIGN CHANGES REQUIRE ENGINEERING APPROVAL.
4. CLOUDS IDENTIFY NEW CONSTRUCTION.

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS			WORK ORDERS		REVISIONS					ENGINEERING RECORD
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION	NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: K BATES
ENB-STD-GEN-PID-001	0	P&ID SYMBOLS & LEGEND SHEETS 1 & 2	97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001 REPLACING WA0314	0	ISSUED FOR CONSTRUCTION	8/20/25	KWB	DGB	CHECKED BY: D BROX
DEU-R-TV0001-PIP-001	0	PIPING PLANS, SECTIONS & ELEVATIONS								PROJECT ENGR: M DIZDAREVIC
ENB-STD-REG-PIP-001	5	STANDARD DRAWING, 2"X2" MOONEY, REG STATION								SURVEYOR: G NEWHART / ENSIGN
										ENGR MNGR: J McGEE
										CONSTR MNGR: D FRANCIS
										MEAS & CTRLS: D MACDONALD
										AUTOM ENGR: J ANDERSON

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ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4,292 FT
LAT: 40.6651 LONG: -111.9289
SCALE: NONE

LINE NUMBER: FL- 34
FACILITY: DISTRICT REGULATOR STATION TV0001
TITLE: 2"x2" REGULATOR STATION, SLAM SHUTS & BYPASS
DESCRIPTION: PIPING & INSTRUMENTATION DIAGRAM
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 SOUTH)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PID-001	1 OF 1	0

ENB-R-TV0001-PID-001-01.dwg - 09/20/2023 - 09:30am
ENBRIDGE GAS_ANSI_D

LINE TYPES

TABLE 1

- PRIMARY PROCESS
- SECONDARY PROCESS (UTILITY)
- PACKAGE, SKID OR BUILDING LIMITS
- INSTRUMENT OR PROCESS LEAD
- PNEUMATIC SIGNAL
- ELECTRICAL SIGNAL
- HYDRAULIC SIGNAL
- CAPILLARY TUBE
- LOGIC SYSTEM LINK, SOFTWARE OR DATA LINK
- WIRELESS SIGNALS INSTRUMENTATION, RADIO, ETC.
- MECHANICAL LINK

VALVE CONNECTION DESIGNATIONS

TABLE 2

- THREADED OR SOCKET WELDED
- FLANGED

VALVE SYMBOL SIZES

TABLE 3

- GREATER THAN OR EQUAL TO 2" PIPE SIZE
- LESS THAN 2" PIPE SIZE

CONTINUATION ARROWS

TABLE 4

- PROCESS UNIDIRECTIONAL
- PROCESS BIDIRECTIONAL
- SIGNAL UNIDIRECTIONAL

PRIMARY FLOW DEVICES

TABLE 5

- FG — FLOW SIGHT GLASS
- FI — ROTAMETER
- FLOW ORIFICE FLANGE SET
- ORIFICE PLATE IN QUICK-CHANGE FITTING
- TURBINE METER
- POSITIVE DISPLACEMENT (ROTARY) METER
- PITOT TUBE OR PITOT-VENTURI TUBE
- AVERAGING PITOT TUBE (ANNUBAR)
- MASS GAS FLOW (CORIOLIS)
- MASS LIQUID FLOW (CORIOLIS)
- ULTRASONIC METER
- V-CONE
- VORTEX METER
- FLOW CONDITIONER (STRAIGHTENING VANE)
- VENTURI TUBE
- FLOW NOZZLE

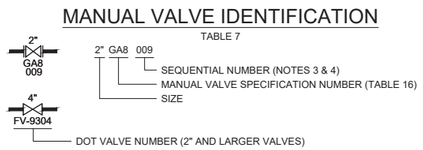
VALVE & ACTUATOR SYMBOLS

TABLE 6

- GATE VALVE (UNDEFINED VALVE)
- SLIDE GATE VALVE
- BALL VALVE
- GLOBE VALVE
- PLUG VALVE
- CHECK VALVE
- CHECK VALVE (WAFER) — WC
- NEEDLE VALVE
- BUTTERFLY VALVE
- DIAPHRAGM VALVE
- ANGLE VALVE
- 3-WAY VALVE
- 4-WAY VALVE
- DOUBLE BLOCK & BLEED VALVE
- BLOCK & BLEED VALVE (INSTRUMENT) — VTA
- PRESSURE RELIEF VALVE
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE & VACUUM RELIEF VALVE
- PILOT OPERATED RELIEF VALVE — P
- RUPTURE DISC(PRESSURE)
- RUPTURE DISC (VACUUM)
- SHUTTLE VALVE
- DIAPHRAGM ACTUATED VALVE (FAIL CLOSED) — FC
- DIAPHRAGM ACTUATED VALVE WITH MANUAL OVERRIDE
- BACK PRESSURE REGULATOR
- PRESSURE REDUCING REGULATOR
- PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP
- MOTOR ACTUATED VALVE — M
- SOLENOID ACTUATED VALVE — S
- PISTON ACTUATED VALVE
- GAS ACTUATED VALVE — G
- GAS-HYDRAULIC ACTUATED VALVE — G/H
- ELECTRO-HYDRAULIC ACTUATED VALVE — E/H
- 3-WAY TEMPERATURE REGULATOR SELF-CONTAINED — T
- DIAPHRAGM ACTUATED VALVE WITH POSITIONER — POS, IAS
- PILOT OPERATED 3-WAY VALVE VENTS WHEN DE-ENERGIZED — P, VTA, DE
- SOLENOID OPERATED 3-WAY VALVE WITH MANUAL RESET — S
- 3-WAY SOLENOID OPERATED VALVE VENTS WHEN DE-ENERGIZED — S, VTA, DE

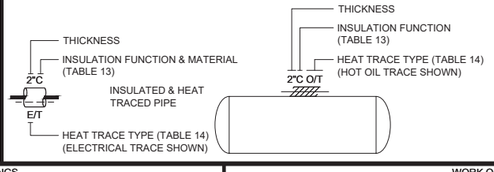
MANUAL VALVE IDENTIFICATION

TABLE 7



INSULATION IDENTIFICATION

TABLE 8



MISCELLANEOUS SYMBOLS

TABLE 9

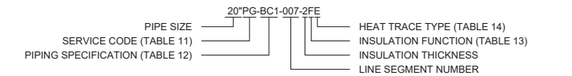
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- SWAGE
- FLANGE
- BLIND FLANGE
- BLIND FLANGE (DRILL & TAP) — 1"
- UNION
- INSULATING FLANGES — INS
- INSULATING UNION — INS
- INSULATING JOINT — IJ
- TRANSITION FITTING — TF
- SPECTACLE BLIND (OPEN)
- SPECTACLE BLIND (CLOSED)
- WELD CAP
- THREADED CAP
- THREADED PLUG (ON VALVE)
- COUPLING WITH THREADED PLUG
- HOSE CONNECTION
- PIG SIGNAL
- RAIN CAP
- BLOW OFF CLOSURE (YALE CAP)
- GOOSENECK VENT
- SPACER
- FILTER
- STRAINER (Y-TYPE) WITH VALVE & PLUG — 1/2" HOSE
- STRAINER (T-TYPE)
- BARRED TEE
- PRESSURE FITTING
- EXIST — NEW
- PIPING TIE-IN POINT — TP, XXX
- SEQUENTIAL NUMBER / P&ID DRAWING NUMBER
- BG — AG — IDENTIFIES CHANGE SUCH AS SPEC ID, INSULATION MATERIAL (ABOVE/BELOW GRADE SHOWN)
- EQUIPMENT CONNECTION POINT — X = CONNECTION ID PER VENDOR DRAWINGS — X
- CORROSION COUPON — CC
- SPECIALTY ITEM (THIEF HATCH SHOWN) — SP, XXX
- OPEN DRAIN
- TS = TEMPORARY STRAINER; CS = CONE STRAINER; PS = PERMANENT STRAINER — TS
- FLAME ARRESTOR
- EXPANSION JOINT
- EXPANSION LOOP
- FLEXIBLE CONNECTION (HOSE)
- TEST RING W/VALVE (BLEED RING)
- CHEMICAL SEAL (DIAPHRAGM SEAL)
- HORN
- AE — AIR ELIMINATOR
- T — STEAM OR DRAIN TRAP
- D — DRYER (INSTRUMENT)
- FD — FILTER DRYER WITH REGULATOR(S) (INSTRUMENT)
- F — FILTER (INSTRUMENT)
- 3 — THREE-WAY MANIFOLD (INSTRUMENT)
- 5 — FIVE-WAY MANIFOLD (INSTRUMENT)

NOTES:

1. REFERENCE ISA STANDARD, "INSTRUMENTATION SYMBOLS AND IDENTIFICATION". ANSI/ISA-S5.1 (LATEST EDITION).
2. ABBREVIATIONS NOT LISTED WITHIN TABLE 17 TO COMPLY WITH ASME Y1.1(LATEST EDITION).
3. MANUAL VALVE IDENTIFICATION SEQUENTIAL NUMBERS OPTIONAL FOR VALVES LESS THEN 2" IN SIZE.
4. USED AS REQUIRED FOR CLARITY.
5. LISTINGS COVERING PIPING MATERIAL AND VALVE SPECIFICATIONS ARE EXAMPLES AND NOT ALL INCLUSIVE OF WHAT MAY EXIST. LEGACY PIPING AND VALVE SPECIFICATIONS MAY APPLY WHENEVER MODIFYING EXISTING FACILITIES.
6. REFER TO QUESTAR STANDARD PRACTICE SP 9-12-01 FOR FURTHER DETAIL.
7. MATERIAL SUBSTITUTIONS ONLY ALLOWED WHEN SPECIFIED BY COMPANY ENGINEER IN ACCORDANCE WITH SP 9-12-01.
8. ACTUAL MAOP OF PIPELINE INSTALLED IS ESTABLISHED AT TIME OF PRESSURE TEST. REFER TO SEPARATE DOCUMENTATION.

LINE NUMBER IDENTIFICATION

TABLE 10



SERVICE CODES

TABLE 11

CODE	SERVICE
	AMINE
LA	LEAN AMINE
RA	RICH AMINE
	DRAIN
CD	CLOSED DRAIN
OD	OPEN DRAIN
DF	DIESEL FUEL
FL	FLARE HEADER
	GAS
FG	FUEL GAS
IG	INSTRUMENT GAS & POWER GAS
PG	PROCESS GAS
PGS	PROCESS GAS SOUR
SG	STARTING GAS
GL	GLYCOL, TEG OR EG
	HEATING/COOLING
HM	HEAT MEDIUM
RF	REFRIGERANT
IA	INSTRUMENT AIR
LO	LUBE OIL
ME	METHANOL
N	NITROGEN
PL	PROCESS LIQUID
ST	STEAM
	WATER
CW	COOLING WATER (EVAPORATIVE)
DI	DISTILLED OR DEIONIZED WATER
PW	PROCESS WATER
RO	RO WATER
UW	UTILITY WATER
V	VENT

PIPING MATERIAL SPECIFICATION NUMBERS

TABLE 12 (NOTE 5 & 6)

SPECIFICATION NUMBER	PIPING CODE	ANSI RATING	BASIC MATERIAL	DESCRIPTION	
AC1	B31.3	150	CARBON STEEL, GRADE B TO X52	GAS PROCESS PLANT HYDROCARBONS, PROCESS LIQUIDS, B31.3 FUEL GAS, ETC.	
AC3	B31.3	150	LOW TEMPERATURE CARBON STEEL	REFRIGERATION SERVICE, CARBON STEEL	
AC5	B31.3	150	CARBON STEEL, GRADE B	VENT LINES, OPEN DRAINS, FLARE HEADERS, ETC.	
AU	B31.3	150	CARBON STEEL, GRADE B	UTILITY PIPING, INSTRUMENT AIR, COOLING WATER AND LUBE OILS	
BC1	B31.3	300	CARBON STEEL, GRADE B TO X52	GAS PROCESS PLANT HYDROCARBON AND PROCESS LIQUIDS	
BH	B31.3	300	CARBON STEEL, GRADE B	HEAT MEDIA, HOT OIL, HOT GLYCOL, ETC.	
BC3	B31.3	300	LOW TEMPERATURE CARBON STEEL	REFRIGERATION SERVICE, CARBON STEEL	
DC1	B31.3	600	CARBON STEEL, GRADE B TO X52	GAS PROCESS PLANT HYDROCARBONS, GAS OR LIQUIDS, 1480 MAOP OR LESS (NOTE 8)	
DC2	B31.3	600	CARBON STEEL, GRADE B TO X52	GAS PROCESS PLANT HYDROCARBONS, GAS OR LIQUIDS, 1200 MAOP OR LESS (NOTE 8)	
DC3	B31.3	600	LOW TEMPERATURE CARBON STEEL	REFRIGERATION SERVICE, CARBON STEEL, 1480 MAOP OR LESS (NOTE 8)	
AX1	B31.3	150	304 STAINLESS STEEL	LUBE OIL PIPE, ETC.	
BX1	B31.3	300	304 STAINLESS STEEL	LUBE OIL PIPE, ETC.	
AX2	B31.3	150	316 STAINLESS STEEL	LUBE OIL PIPE, ETC.	
BX2	B31.3	300	316 STAINLESS STEEL	LUBE OIL PIPE, ETC.	
AG1	DOT 192	150	CARBON STEEL, GRADE B TO X52	GAS PIPING WITH 285 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)
BG1	DOT 192	300	CARBON STEEL, GRADE B TO X52	GAS PIPING WITH 740 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)
DG1	DOT 192	600	CARBON STEEL, GRADE B TO X52 (NOTE 7)	GAS PIPING WITH 900 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)
DG2	DOT 192	600	CARBON STEEL, GRADE B TO X52 (NOTE 7)	GAS PIPING WITH 1200 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)
DG3	DOT 192	600	RESERVED	RESERVED	
DG4	DOT 192	600	CARBON STEEL, GRADE B TO X52 (NOTE 7)	GAS PIPING WITH 1480 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)
EG1	DOT 192	600	CARBON STEEL, GRADE B TO X52 (NOTE 7)	GAS PIPING WITH 2220 MAOP OR LESS DESIGN FACTOR F = 0.5	(NOTE 8)

INSULATION FUNCTION

TABLE 13

CODE	FUNCTION
C	COLD CONSERVATION
F	FREEZE PROTECTION
G	GENERAL PURPOSE HEAT
H	HEAT CONSERVATION
P	PERSONNEL PROTECTION
S	SOUND ATTENUATION

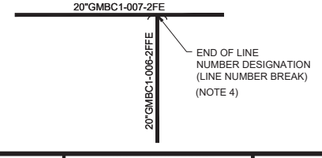
HEAT TRACE TYPE

TABLE 14

CODE	TYPE
E	ELECTRICAL TRACE
O	HOT OIL TRACE
G	GLYCOL TRACE
S	STEAM TRACE

LINE NUMBER EXAMPLES

TABLE 15



VALVE SPECIFICATION NUMBERS

TABLE 16 (NOTE 5 & 6)

SPECIFICATION NUMBER	SIZE	DESCRIPTION
BA1	2"-6"	BALL, 150RF, FLOATER, CS
BA2	8"-24"	BALL, 150RF, TRUNNION, CS
BA3	2"-6"	BALL, 150RF, FLOATER, LOW TEMP CS
BA4	8"-24"	BALL, 150RF, TRUNNION, LOW TEMP CS
BA5	1/2"-1 1/2"	BALL, 3000THD, FLOATER, CS
BA6	1/2"-1 1/2"	BALL, 3000SW, FLOATER, HI/LOW TEMP CS
BA7	2"-4"	BALL, 300RF, FLOATER, CS
BA8	6"	BALL, 300RF, TRUNNION, CS, WRENCH
BA9	8"-24"	BALL, 300RF, TRUNNION, CS, GEAR
BA10	2"-4"	BALL, 300RF, FLOATER, LOW-TEMP NACE
BA11	6"	BALL, 300RF, TRUNNION, LOW-TEMP NACE
BA12	8"-24"	BALL, 300RF, TRUNNION, LOW-TEMP NACE
BA13	2"-6"	BALL, 300RF, FLOATER, HI-TEMP CS
BA14	2"	BALL, 600RF, FLOATER, CS, WRENCH
BA15	4"	BALL, 600RF, FLOATER, CS, GEAR
BA16	6"-24"	BALL, 600RF, TRUNNION, CS, GEAR
BA17	1/2"-1 1/2"	BALL, 2000SW, STAINLESS
BA18	2"-4"	BALL, 600RF, FLOATER, LOW TEMP CS
BA19	6"-24"	BALL, 600RF, TRUNNION, LOW TEMP CS
N1	3/4"x(3)1/2"	GAUGE, 6000THD, STAINLESS, LONG BODY
N2	3/4"x(3)1/2"	GAUGE, 1000 PSI THD, HI-TEMP SST
N3	3/4"x(3)1/2"	GAUGE, 6000THD, STAINLESS, SHORT BODY
N4	3/4"x(3)1/2"	GAUGE, 6000THD, CRYOGENIC, LONG BODY
GA1	2"-24"	GATE, 150RF, CS
GA2	2"-24"	GATE, 300RF, CS
GA3	2"-24"	GATE, 600RF, CS
GA4	1/2"-1 1/2"	GATE, 800THD, NACE CS
GA5	1/2"-1 1/2"	GATE, 800SW, LOW TEMP
GA6	2"-24"	GATE, 150RF, LOW TEMP
GA7	2"-24"	GATE, 300RF, LOW TEMP
GA8	2"-24"	GATE, 600RF, LOW TEMP
GL1	2"-24"	GLOBE, 150RF, HI-TEMP CS
GL2	2"-24"	GLOBE, 150RF, HI-TEMP CS
GL3	2"-24"	GLOBE, 600RF, HI-TEMP CS
GL4	1/2"-1 1/2"	GLOBE, 800THD, NACE CS
GL5	2"-6"	GLOBE, 150RF, LOW TEMP CS
GL6	2"-6"	GLOBE, 300RF, LOW TEMP CS
GL7	2"-6"	GLOBE, 600RF, LOW TEMP CS
GL8	1/2"-1 1/2"	GLOBE, 800SW, LOW TEMP
CK1	1/2"-1 1/2"	CHECK, SWING, 800THD, NACE
CK2	1/2"-1 1/2"	CHECK, PISTON, 800THD, NACE
CK3	2"-24"	CHECK, SWING, 150RF, CS2"-24"
CK4	2"-24"	CHECK, SWING, 300RF, CS
CK5	2"-24"	CHECK, SWING, 600RF, CS
CK6	1/2"-1 1/2"	CHECK, PISTON, 800SW, LOW TEMP NACE
CK7	2"-24"	CHECK, SWING, 150RF, LOW TEMP CS
CK8	2"-24"	CHECK, SWING, 300RF, LOW TEMP CS
CK9	2"-24"	CHECK, SWING, 600RF, LOW TEMP CS

HOLD

ABBREVIATIONS

TABLE 17 (NOTE 2)

AG	ABOVE GROUND
ALM	ALARM
APU	AUXILIARY POWER UNIT
A/M	AUTO-MANUAL SELECTOR
ATS	AUTO TRANSFER SWITCH
BD	BLOW DOWN
BF	BLIND FLANGE
BIF	BURIED ISOLATING FLANGE
BG	BELOW GROUND
CC	CORROSION COUPON
CE	CORROSION COUPON / PROBE
CL	CLOSE
CS	CONE STRAINER
CSC	CAR SEAL CLOSED
CSO	CAR SEAL OPEN
DE	DE-ENERGIZE
EFM	ELECTRONIC FLOW MEASUREMENT
EN	ENERGIZE
ES	ELECTRIC SUPPLY
ESD	EMERGENCY SHUTDOWN
(F)	FURNISHED WITH EQUIPMENT
FB	FULL BORE
FI	FAIL INTERMEDIATE
FE	FLANGED END
FC	FAIL CLOSED
FO	FAIL OPEN
FL	FAIL LAST
FP	FULL PORT
F/S	FAST SLOW SELECTOR
GOV	GAS OPERATED VALVE
HOA	HAND-OFF-AUTOMATIC SELECTOR
HSD	HAND SHUTDOWN
IAS	INSTRUMENT AIR SUPPLY
IGS	INSTRUMENT GAS SUPPLY
IC	INSPECTION CLOSURE
IJ	INSULATING JOINT
INS	INSULATING
LB	LINE BREAK
LC	LOCKED CLOSED
LCP	LOCAL CONTROL PANEL
LD	LIQUID DRAIN
LEL	LOWER EXPLOSION LIMIT
L/L	LEAD LAG SELECTOR
LO	LOCKED OPEN
LOR	LOCAL OFF REMOTE SELECTOR
LPC	LOW PRESSURE CONTROLLER
L/R	LOCAL REMOTE
MAOP	MAXIMUM ALLOWABLE OPERATING PRESSURE
MCC	MOTOR CONTROL CENTER
MOP	MAXIMUM OPERATING PRESSURE
MW	MANWAY
NC	NORMALLY CLOSED
NLL	NORMAL LIQUID LEVEL
NNF	NORMALLY NO FLOW
NO	NORMALLY OPEN
NS	NITROGEN SUPPLY
OAH	OVERALL HEIGHT
OP	OPEN
O/C	OPEN-CLOSE SELECTOR
OSC	OPEN-STOP-CLOSE SELECTOR
PB	PUSHBUTTON
PD	PULSATION DAMPENER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PTG	PILOT GAS
PG	POWER GAS
POS	POSITIONER
RA	REVERSE ACTING
RF	RAISED FACE
RO	REVERSE OSMOSIS
ROV	REMOTE OPERATED VALVE
ROC	FISHER ROC FLOW CONTROLLER
RTD	RESISTANCE TYPE TEMPERATURE ELEMENT
RTJ	RING TYPE JOINT
RTU	REMOTE TELEMETRY UNIT
SC	SAMPLE CONNECTION
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCP	STATION CONTROL PANEL
S/D	SHUTDOWN
SDV	SHUTDOWN VALVE
SEL	SELECTOR
SIR	STATION INTERFACE RACK
SO	STEAM OUT CONNECTION
SP	SET POINT
SR	STRESS RELIEF
SS	SELECTOR SWITCH
SSD	SOLID-STATE DECOUPLER OR SYSTEM SHUTDOWN
ST	STEAM TRAP
ST/SP	START-STOP SELECTOR
STA	STATION
SV	SOLENOID VALVE
TBD	TO BE DETERMINED
TBG	TUBING
TF	TRANSITION FITTING
T/C	THERMOCOUPLE
TOR	THREAD-O-RING FITTING
TP	TIE-IN POINT
TS	TEMPORARY STRAINER
TSO	TIGHT SHUT OFF
T/T	TANGENT TO TANGENT
TYP	TYPICAL
UCP	UNIT CONTROL PANEL
USD	UNIT SHUTDOWN
VB	VORTEX BREAKER
VFD	VARIABLE FREQUENCY DRIVE
VTA	VENT TO ATMOSPHERE (OUTSIDE AND ABOVE BUILDING)
WC	WATER COLUMN
W/	WITH

REFERENCE DRAWINGS			WORK ORDERS	
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION - SUPERSEDES DE-STD-GEN-PID-001	09/04/2024	EDH	KWB

ENGINEERING RECORD	
DRAWN BY: E. HAMMON	
CHECKED BY: K. BATES	
PROJECT ENGR: J. MCGEE	
SURVEYOR: N/A	
ENGR MNGR: J. MCGEE	
CONSTR MNGR: N/A	
MEAS & CTRLS: N/A	
AUTOM ENGR: N/A	

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ENBRIDGE

SECTION: N/A	T N/A R N/A
ELEVATION: N/A	
LAT: N/A	LONG: N/A
SCALE: NONE	

LINE NUMBER:
FACILITY:
TITLE: STANDARD DRAWING
DESCRIPTION: PIPING AND INSTRUMENTATION DIAGRAM
ADDRESS: SYMBOLS AND LEGEND

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-GEN-PID-001	1 OF 2	0

ENB-STD-GEN-PID-001-1.dwg - 09/04/2024 - 12:15pm

ENBRIDGE GAS_ANSI_D

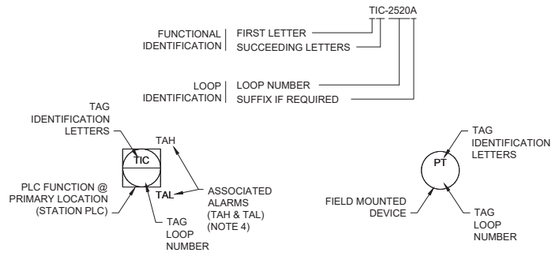
INSTRUMENT IDENTIFICATION LETTERS

(NOTE 1)

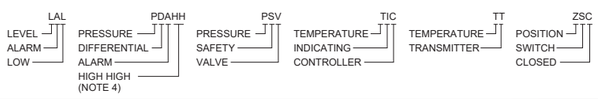
TABLE 18

	FIRST LETTERS		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N	UNIT		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	STATION	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

INSTRUMENT TAG NUMBER LEGEND



INSTRUMENT IDENTIFICATION LETTER EXAMPLES



MISCELLANEOUS

TABLE 19

INSTRUMENTATION DEVICE AND FUNCTION SYMBOLS

TABLE 20

(NOTE 1)

LOCATION/ACCESSIBILITY	DISCRETE INSTRUMENTS	SHARED DISPLAY AND CONTROL (CENTRAL CONTROL)	PROGRAMMABLE LOGIC CONTROL (LOCAL CONTROL)	COMPUTER FUNCTION (RTU)
FIELD MOUNTED	○	○	◇	⬡
PRIMARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR	⊖	⊖	◇	⬡
PRIMARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR	⊖	⊖	◇	⬡
AUXILIARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR	⊖	⊖	◇	⬡
AUXILIARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR	⊖	⊖	◇	⬡

INSTRUMENTS AND FUNCTIONS WITH SUCCEEDING LETTERS L, LL, H AND HH PROVIDE OUTPUTS FOR ALARMS, TRIPS, PILOT LIGHTS OR INTERLOCK WITH OTHER CONTROLS.

COMPUTED OR RELAY FUNCTION DESIGNATIONS

TABLE 21

FUNCTION DESIGNATIONS (NOTE 3)

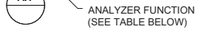
- > HIGH SELECTOR
- < LOW SELECTOR
- 1/P CURRENT TO PNEUMATIC
- ◇ (1) INTERLOCK
- (DWG#XXXXX) REFERENCE TO ELECTRICAL SCHEMATIC DRAWING

CONVERT DESIGNATIONS

DESIGNATION	SIGNAL
A	ANALOG
B	BINARY
D	DIGITAL
E	VOLTAGE
H	HYDRAULIC
I	CURRENT (ELECTRICAL)
O	ELECTROMAGNETIC OR SONIC
P	PNEUMATIC
R	RESISTANCE (ELECTRICAL)

ANALYSIS DESIGNATIONS

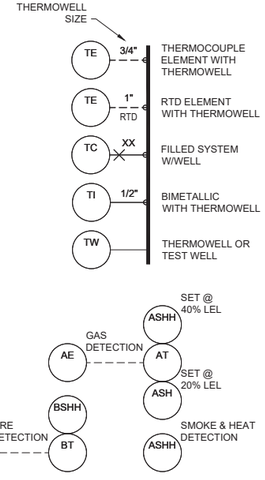
TABLE 22



IDENTIFIER	DESCRIPTION
C1	METHANE
C2	ETHANE
C3	PROPANE
C4	BUTANE
C5+	GASOLINE
DENSITY	DENSITY
O2	OXYGEN
HCDP	HYDROCARBON DEW POINT
SG	SPECIFIC GRAVITY
GC	GAS CHROMATOGRAPH
N2	NITROGEN
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
H2O	WATER (DEW POINT)
H2S	HYDROGEN SULFIDE

PRIMARY TEMPERATURE DEVICES

TABLE 23



EQUIPMENT TAGGING LEGEND

TABLE 24

CATEGORY		TYPE		TAG NUMBER SERIES
FIRST LETTER(S) DESIGNATION	DESCRIPTION	FIRST OR SUCCEEDING LETTER(S) DESIGNATION	DESCRIPTION	
NONE	ROTATING EQUIPMENT			1000 THROUGH 1999
		B	BLOWERS	
		C	COMPRESSORS	
		M	MOTOR, ELECTRIC	
		F	FANS	
		G	GENERATOR, ELECTRICAL	
		GT	GAS TURBINES	
		P	PUMPS	
		RE	RECIPROCATING ENGINE	
		ST	STEAM TURBINES	
V	PRESSURE VESSELS			2000 THROUGH 2999
		A	ACCUMULATOR	
		C	COALESCER	
		D	DRIER/DEHYDRATOR	
		F	FILTERS	
		FC	FILTER/COALESCER	
		FS	FILTER SEPARATOR	
		KO	KNOCKOUT	
		PC	PACKED COLUMN/TOWER	
		PD	PULSATION DAMPENER	
		RX	REACTOR	
		S	SEPARATOR	
		SC	SCRUBBER	
		SL	SLUG CATCHER	
		SP	SPHERES	
		ST	STORAGE/SURGE TANK (PRESSURE RETAINING)	
		TC	TRAYED COLUMN/TOWER	
H	HEAT EXCHANGERS			3000 THROUGH 3999
		NONE	SPACE HEATER	3000 THROUGH 3199
		AC	AIR COOLED	3202 THROUGH 3299
		DP	DOUBLE PIPE	3300 THROUGH 3399
		MT	MULTI-TUBE	3400 THROUGH 3499
		PF	PLATE & FRAME	3500 THROUGH 3599
		ST	SHELL AND TUBE	3600 THROUGH 3699
F	FIRED EQUIPMENT			4000 THROUGH 4999
		B	BOILER	
		BH	BATH HEATER	
		CA	CATALYTIC HEATER	
		CH	COIL HEATER	
		EL	ELECTRIC HEATER	
		F	FURNACE	
		FA	FORCED AIR SPACE HEATER	
		H	HEATER	
		IN	INCINERATOR	
		L	FLARE	
		TH	THERMAL OXIDIZER	
T	TANKS (ATMOSPHERIC PRESSURE)			5000 THROUGH 5499
M	MIXING EQUIPMENT			5500 THROUGH 5999
		A	AGITATOR	
		J	JET MIXER	
		S	STATIC IN-LINE MIXER	
SK	SKID/PACKAGED EQUIPMENT	ALL	ALL	8000 THROUGH 8099
NONE	OTHER			9000 THROUGH 9999
		FA	FLAME ARRESTOR	
		BD	BUILDING	
		L	LAUNCHER/SCRAPER TRAP	
		MR	METER RUNS	
		O	ODORIZER	
		PV	PROVER	
		R	RECEIVER/SCRAPER TRAP	
		S	SILENCER	
		STR	STRAINER	
		SV	STRAIGHTENING VANE	
		XFMR	TRANSFORMER	

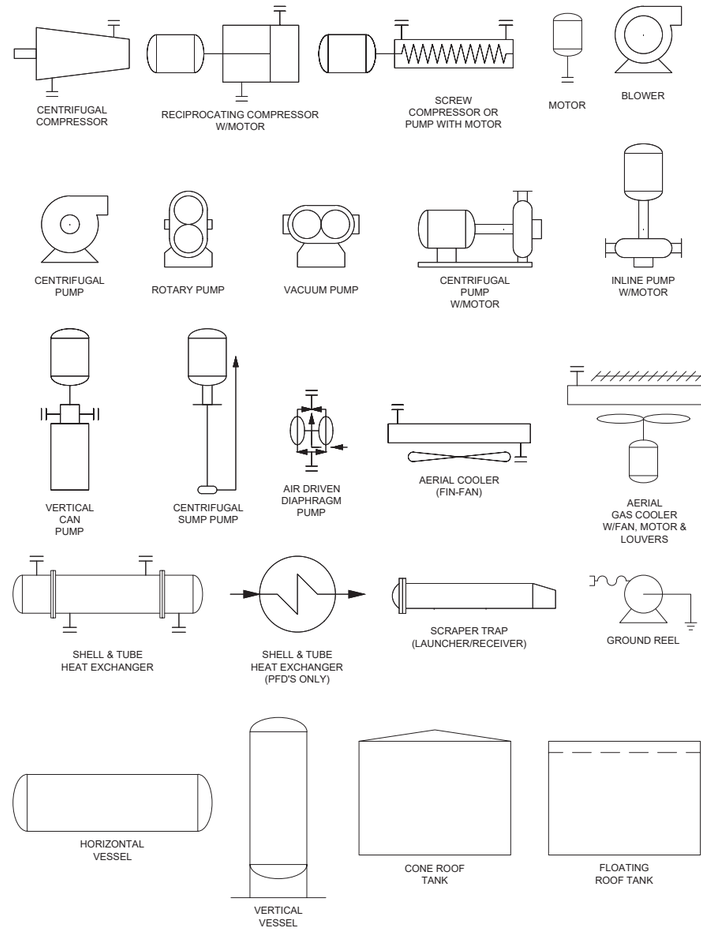
EQUIPMENT TAGGING EXAMPLE

TABLE 25

EQUIPMENT SYMBOLS

TABLE 26

(NOTE 2)



NOTES:

1. REFERENCE ISA STANDARD, "INSTRUMENTATION SYMBOLS AND IDENTIFICATION". ANSI/ISA-S5.1 (LATEST EDITION).
2. EQUIPMENT SYMBOLS SHOWN DO NOT COVER MAJOR ENGINEERED EQUIPMENT.
3. SEE ISA STANDARD REFERENCED IN NOTE 1 FOR COMPLETE LISTING OF FUNCTION DESIGNATIONS.
4. HIGH HIGH (HH) AND LOW LOW (LL) SWITCHES AND ALARMS TRIP SHUTDOWNS AND ARE GIVEN SHUTDOWN SYSTEM DESIGNATIONS PER TABLE 19. SEPARATE FUNCTIONAL SYMBOLS ARE TO BE SHOWN FOR ALL SHUTDOWNS.
5. EQUIPMENT TAG NUMBERS SEQUENCED BY DIVISIONS OF 10 OR MORE TO ALLOW FOR INSTRUMENT NUMBERING BETWEEN EQUIPMENT.

REFERENCE DRAWINGS			WORK ORDERS	
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION

REVISIONS					ENGINEERING RECORD
NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: E. HAMMON
0	ISSUED FOR CONSTRUCTION - SUPERSEDES DE-STD-GEN-PID-001	09/04/2024	EDH	KWB	CHECKED BY: K. BATES
					PROJECT ENGR: J. MCGEE
					SURVEYOR: N/A
					ENGR MNGR: J. MCGEE
					CONSTR MNGR: N/A
					MEAS & CTRLS: N/A
					AUTOM ENGR: N/A

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ENBRIDGE

SECTION: N/A TN/A R N/A
ELEVATION: N/A
LAT: N/A LONG: N/A
SCALE: NONE

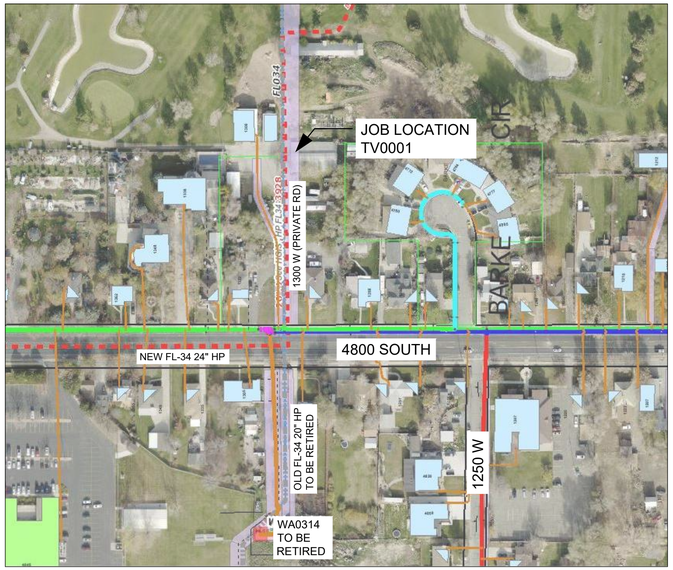
LINE NUMBER:
FACILITY:
TITLE: STANDARD DRAWING PIPING AND INSTRUMENTATION DIAGRAM SYMBOLS AND LEGEND
DESCRIPTION:
ADDRESS:

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-GEN-PID-001	2 OF 2	0

ENB-STD-GEN-PID-001-2.dwg - 09/04/2024 - 12:18pm

ENBRIDGE GAS_ANSI_D



VICINITY MAP

MAOP DETERMINATION

(STANDARD PRACTICES 1-01-02, 1-90-01, 1-97-04)

MAOP SEGMENT NAME:	354 MAOP		
PIPELINE FACILITY CLASSIFICATION:	PIPELINE		
DESIGN CLASS LOCATION:	CLASS 3		
MINIMUM TEST PRESSURE:	1080		
TEST FACTOR:	1.5		
PRESSURE LIMITS	PSIG		%SMYS
A. PIPE = (2St/D) × F × E × T	1941		49.99%
	S=52000	t=0.322	D=8.625
	F=0.5	E=1	T=1
B. FITTING = (2St/D) × F × E × T	1941		49.99%
	S=52000	t=0.322	D=8.625
	F=0.5	E=1	T=1
C. RATED ITEM	1333		N/A
	GASKET		
D. MAXIMUM DESIGN PRESSURE	720		18.54%
E. REGION PRESSURE LIMITATION	354		9.12%
MAOP (MIN A, B, C, D, E)	354		9.12%

TEST SPECIFICATION

(STANDARD PRACTICE 1-90-01 FOR HP OR 3-10-04 FOR IHP)

TEST SPECIFICATION DESIGNATION:	TS-1	
PRESSURE-TEST PRESSURES:	PSIG	%SMYS
MINIMUM REQUIRED:	1080	27.82%
MAXIMUM (WATER):	1500	38.63%
MAXIMUM (NITROGEN):	1500	38.63%
MAXIMUM (CNG):	N/A	N/A
PRESSURE-TEST DURATIONS:	SHOP	FIELD
MINIMUM DURATION:	1 HR	1 HR
% SMYS CALCULATION INPUTS:	S = 52000	t = 0.322 D = 8.625

FABRICATION SPECIFICATION

(STANDARD PRACTICE 2-10-01)

WELD REQUIREMENTS:	API 1104	
POST WELD HEAT TREATMENT:	NO	
WELD INSPECTION:	VISUAL	NDE
GD-OM-E-010-001 INSPECTION AND TESTING OF WELDS	100%	100% > 2"

ALL IN-SERVICE WELDING SHALL BE COMPLETED UTILIZING LOW HYDROGEN ELECTRODES (SP 2-10-01 AND SP 2-10-02)

MATERIAL LIST

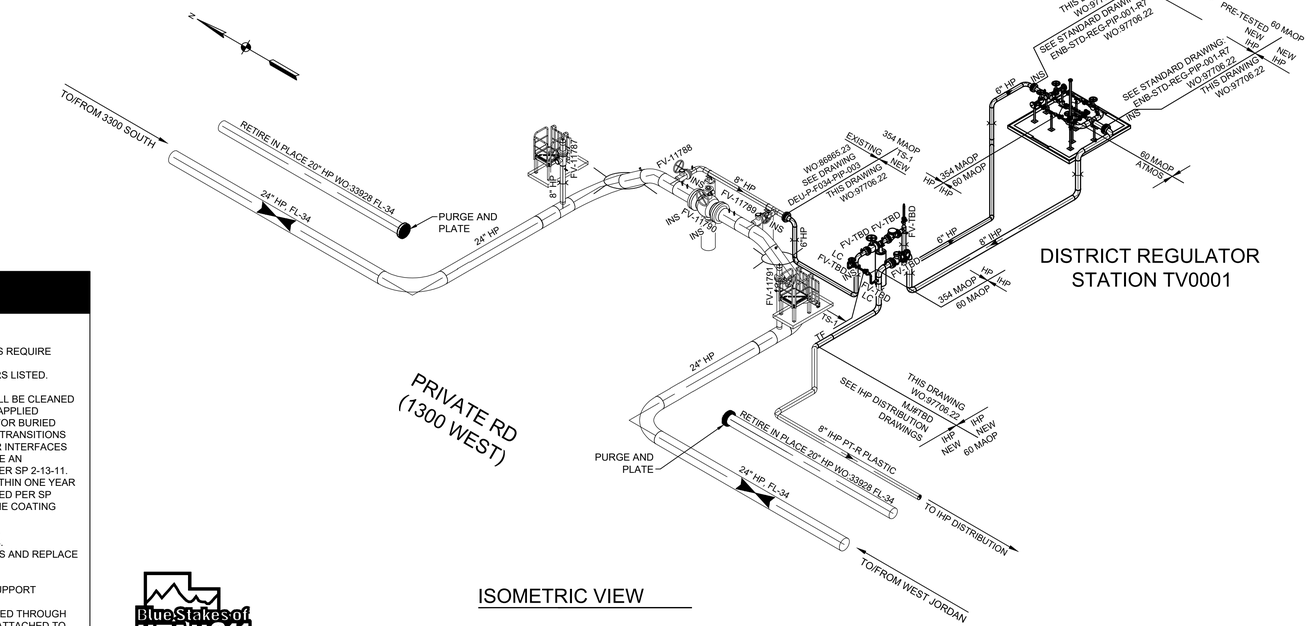
NOTE 3

ITEM #	QTY	SIZE	DESCRIPTION	MAWP NOTE 14	TEST SEG	MATL NOTES NOTE 4	WH #
WO #: 97706.22							
1	36	8"	BOLT, STUD, 1-1/8 x 7 1/2" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 1-1/8, ASTM A194 GR-2H	N/A	IHP	7	Q3400336
2			NOT USED				
3	7	8"	ELL, CS, 90 DEG LR, BW, 8.625 OD 0.322 WT, Y-52, ASTM A694, MSS SP75	1941	IHP	3	Q1758005
4	4	8"	FLANGE, RFWN, CL600, 8 NPS, 0.322 WT, F-52, ASTM A694, MSS SP44	1480	1, IHP	6	Q1808025
5	3	8"	GASKET, 8" ND, 600 LB, GARLOCK 9900	1333	IHP	9	Q1908006
6			NOT USED				
7	1	8"x6"	REDUCER, CS, CONC, BW, 8.625 OD 0.322 WT x 6.625 OD 0.280 WT, Y52, ASTM A694, MSS SP75	1941	1	3	Q2258065
8	1	8"	STEEL TO PLASTIC TRANSITION FITTING, SDR 11.5	70	IHP	-	Q4078001
9	1	8"x4"	TEE, CS, RDCD, BW, 8.625 OD 0.322 WT x 4.500 OD 0.237 WT, Y-52, ASTM A694, MSS SP75	1941	IHP	3	Q2558045
10	1	8"	VALVE, CS, PLUG, CL600, 8 NPS, RF x RF, NORDSTROM, FIG 2249	1480	IHP	1	Q2748213
11	48	6"	BOLT, STUD, 1 x 6 3/4" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 1, ASTM A194 GR-2H	N/A	1	7	Q3400214
12	1	6"	ELL, CS, 45 DEG LR, BW, 6.625 OD 0.280 WT, Y-52, ASTM A694, MSS SP75	2197	1	3	Q1756005
13	8	6"	ELL, CS, 90 DEG LR, BW, 6.625 OD 0.280 WT, Y-52, ASTM A694, MSS SP75	2197	1	3	Q1756004
14	6	6"	FLANGE, RFWN, CL600, 6 NPS, 0.280 WT, F-52, ASTM A694, MSS SP44	1480	1	6	Q1806007
15	4	6"	GASKET, 6" ND, 600 LB, GARLOCK 9900	1333	1	9	Q1906006
16	1	6"x2"	REDUCER, CS, CONC, BW, 6.625 OD 0.280 WT x 2.375 OD 0.154 WT, Y52, ASTM A694, MSS SP75	2197	1	3	Q2256022
17	1	6"x2"x6"	TEE, CS, RDCD, BW, 6.625 OD 0.280 WT x 2.375 OD 0.154 WT, Y-52, ASTM A694, MSS SP75	2197	1	3	Q2556022
18	1	6"	TEE, CS, STRT, BW, 6.625 OD 0.280 WT, Y-52, ASTM A694, MSS SP75	2197	1	3	Q2556003
19	1	6"	VALVE, CS, BALL, CL600, 6 NPS, FULL PORT, RF x RF, UNION TECH, API 6D, Z4	1480	1	1	42419896
20	1	6"	VALVE, CS, CHECK, CL600, 6 NPS, RF x RF, WHEATLEY, SERIES 500	1480	1	1	Q2776613
21	1	4"x2"	REDUCER, CS, CONC, BW, 4.500 OD 0.237 WT x 2.375 OD 0.154 WT, Y52, ASTM A694, MSS SP75	2739	IHP	3	Q2254022
22	16	2"	BOLT, STUD, 5/8 x 4 1/4" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 5/8, ASTM A194 GR-2H	N/A	1	7	Q3400112
23	8	2"	BOLT, STUD, 5/8 x 4 3/4" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 5/8, ASTM A194 GR-2H	N/A	1	7	SO
24	1	2"	CAP, CS, BLANKING, BW, CL600, 2 NPS, 0.218 WT, HUBER-YALE W/ 1/2" TAP	1480	1	16	Q1182003
25	4	2"	ELL, CS, ES, 90 DEG, BW, LR, 2.375 OD 0.218 WT, GR-B, ASTM A234 WPB	3212	1	2	Q1752011
26	3	2"	FLANGE, RFWN, CL600, 2 NPS, 0.218 WT, GR-B, ASME B16.5, ASTM A105	1480	1	5	Q1802070
27	2	2"	GASKET, 2" ND, 600 LB, GARLOCK 9900	1333	1	9	Q1902003
28	1	2"	GASKET, INSULATING, CL600, RF, 2 NPS, GEORG FISCHER, TYPE F, PHENOLIC GASKET, MINLON SLEEVE, 1 PHENOLIC WASHER PER BOLT	1480	1	10	Q4432061
29	1	2"	VALVE, CS, BALL, CL600, 2 NPS, FULL PORT, BW x RF, 0.218 WT, UNION TECH, API 6D, Z4	1480	1	1	SO
30	2	2"	VALVE, CS, PLUG, CL600, 2 NPS, BW x RF, NORDSTROM, 2245 1/4	1480	1	1	Q2742213
31	7	1/2"	NIPPLE, CS, NPT x NPT, 1/2 NPS x 2 LG, XXH, 0.294 WT, GR-B A 106 SMLS	9875	1	19	Q2000553
32	7	1/2"	PARKER BLEED PLUG, CS, 10000#, MNPT, 1/2", BV10N4-80	10000	1	17	Q2700510
33	6	1/2"	THREADOLET, 1/2 NPS 3000# OUTLET, F-52, FOR RUN SIZES 3/4 TO 36, ASTM A694, MSS SP97	3000	1	4	Q1250510
34	5	1/2"	VALVE, CS, BALL, 2200 CWP, 1/2 NPS, FNPT x FNPT, SWAGELOK, S-63TF8, W/ LOCKING DEVICE	2200	1	N/A	Q2700522
35	2	1/2"	VALVE, CS, PLUG, CL600, 1/2 NPS, STD PORT, FNPT x FNPT, NORDSTROM, FIG 2224	1480	1	N/A	Q2740501
36	1	12'x12'	12'x12' STEEL BUILDING, SEE DRAWING "DE-V-BLD-CCS-010" r0 FOR DETAILS AND SPECIFICATIONS	N/A	N/A	N/A	N/A
37	1	6"	PIPE SUPPORT, EZ LINE, 6" DOUBLE U-BOLT, MODEL# 510-FIR ("D"= 1"-5 3/8")	N/A	N/A	N/A	42331214
38	1	2"X2"	2"X2" REGULATOR STATION (MOONEY) SEE DRAWING ENB-STD-REG-PIP-001	1000	HP, IHP	N/A	N/A
39	2	N/A	ABOVE GROUND CATHODIC TEST STATION (SEE DWG ENB-STD-COR-COR-007 FOR MATERIALS AND SPECIFICATIONS)	N/A	HP	N/A	N/A

PRESSURE PIPING

NOTE 6

ITEM #	SIZE	DESCRIPTION	FOOTAGE	O.D.	SMYS	W.T.	MAWP NOTE 14	TEST SEG	WH #
WO# : 97706.22									
P1	8"	PIPE, CS, BARE, 8.625 OD, 0.322 WT, X52, API 5L PSL2, ERW	6'	8.625"	52,000	0.322"	1941	IHP	Q0108012
P2	8"	PIPE, CS, FBE CTG, 8.625 OD, 0.322 WT, X52, API 5L PSL2, ERW	54'	8.625"	52,000	0.322"	1941	IHP	Q0208022
P3	6"	PIPE, CS, BARE, 6.625 OD, 0.280 WT, X52, API 5L PSL2, ERW	10'	6.625"	52,000	0.280"	2197	1	Q0106045
P4	6"	PIPE, CS, FBE CTG, 6.625 OD, 0.280 WT, X52, API 5L PSL2, ERW	65'	6.625"	52,000	0.280"	2197	1	Q0206019
P5	2"	PIPE, CS, BARE, 2.375 OD, 0.218 WT, GR B, ASTM A106, SMLS	8'	2.375"	35,000	0.218"	3213	1, IHP	Q0102031



ISOMETRIC VIEW

DISTRICT REGULATOR STATION TV0001

1. BOLD LINES AND/OR CLOUDS REPRESENT NEW PIPING.
2. ℞ IDENTIFIES GUIDE BARRED TEES.
3. ANY MATERIAL SUBSTITUTION OR FIELD DESIGN CHANGES REQUIRE ENGINEERING APPROVAL.
4. SEE SPECIFICATION 9-00-01 FOR MATERIAL NOTE NUMBERS LISTED.
5. LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. CORROSION CONTROL: BURIED FABRICATION PIPING SHALL BE CLEANED AND COATED PER SP 2-13-10. THE RECOMMENDED FIELD APPLIED COATING FOR BURIED FBE PIPING IS 2-PART EPOXY AND FOR BURIED ARO PIPING POWERCRETE J APPLIED COATING. COATING TRANSITIONS ARE TO BE APPLIED PER DE-TYP-GEN-PIP-001. SOIL TO AIR INTERFACES (TRANSITIONS FROM BELOW TO ABOVE GROUND) REQUIRE AN OVERCOAT OF TRENTON WAX TAPE NUMBER 2 APPLIED PER SP 2-13-11. ALL BURIED PIPING TO BE CATHODICALLY PROTECTED WITHIN ONE YEAR OF INSTALLATION. ABOVE GROUND PIPING IS TO BE COATED PER SP 2-13-11. CONSULT CORROSION ENGINEERING FOR PIPELINE COATING EQUIVALENTS.
7. FIELD VERIFY WALL THICKNESS AT ALL TIE-IN LOCATIONS.
8. ALL VALVES MUST HAVE APPROPRIATE LOCKING DEVICES.
9. BALL VALVES - REMOVE ALL MANUFACTURER VENT PLUGS AND REPLACE WITH SMALL BALL VALVES.
10. ALL CHECK VALVES TO BE VENTED.
11. INSULATE GAUGE AND CONTROL LINES, RELIEF STACK, SUPPORT BRACKETS, ETC.
12. ENSURE INSULATION POINTS ARE NOT SHORTED /BYPASSED THROUGH FUEL GAS PIPING, ELECTRICAL CONDUIT, ETC. THAT ARE ATTACHED TO THE PIPE SUPPORTS.
13. ALL PIPE SHALL HAVE MILL TEST REPORTS (MTR'S) AS DEFINED WITHIN STANDARD PRACTICE 3-95-01.
14. THE FORMULA USED TO CALCULATE THE MAWP FOR ALL STEEL PIPE AND NON-RATED FITTINGS IS P=(2St/D) x F x E x T, WHERE F=0.5 FOR A CLASS 3 LOCATION, E=1, AND T=1.
15. 2" IN SERVICE FILLET WELDS SHALL RECEIVE 100% NDE.
16. PIPE IS DESIGNED TO WITHSTAND ANTICIPATED EXTERNAL PRESSURES AND LOADS FOLLOWING SP 1-01-02.

Blue Stakes of UTAH 811 — Bluestakes.org

CALL TWO BUSINESS DAYS BEFORE YOU DIG TO HAVE UTILITIES LOCATED 811 or 1-800-662-4111

PROJECT CONTACTS

PROJECT MANAGER:	MELISA DIZDAREVIC	(801) 946-7783
PROJECT ENGINEER:	MELISA DIZDAREVIC	(801) 946-7783
CORROSION	KENNETH WINN	(801) 310-3241
HP SURVEYOR:	GARRETT NEWHART	(303) 324-3660
KEY ACCOUNTS SPECIALIST	DEANNA HOPKINS	(801) 652-3824
CONSTRUCTION COORDINATION	STEVE PALMERKYLE SAVOY	(801) 232-3736 (801) 230-2746
RIGHT OF WAY AGENT:	ALEX HOWARD	(801) 209-2635
MEASUREMENT & CONTROLS	DAVID PLATT (SLC NORTH / SUMMIT)	(801) 389-4581
ENVIRONMENTAL HEALTH & SAFETY:	STEPHEN RYDER	(330) 813-8805

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-STD-GEN-CCS-002	3	E-Z LINE PIPE SUPPORTS
ENB-R-TV0001-CCS-001	0	TV0001 SITE/CIVIL DRAWINGS
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE
ENB-STD-REG-PIP-001	7	STANDARD DRAWING, 2"X2" MOONEY, REG STATION
ENB-STD-COR-COR-007	4	STANDARD DRAWING, CATHODIC LOCATING STATION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB

ENGINEERING RECORD
DRAWN BY: D. CONTI
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: G. NEWHART
ENGR MNGR: W. RADFORD
CONSTR MNGR: S. UTLEY
MEAS & CTRLS: A. BEZDJIAN

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ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: NONE

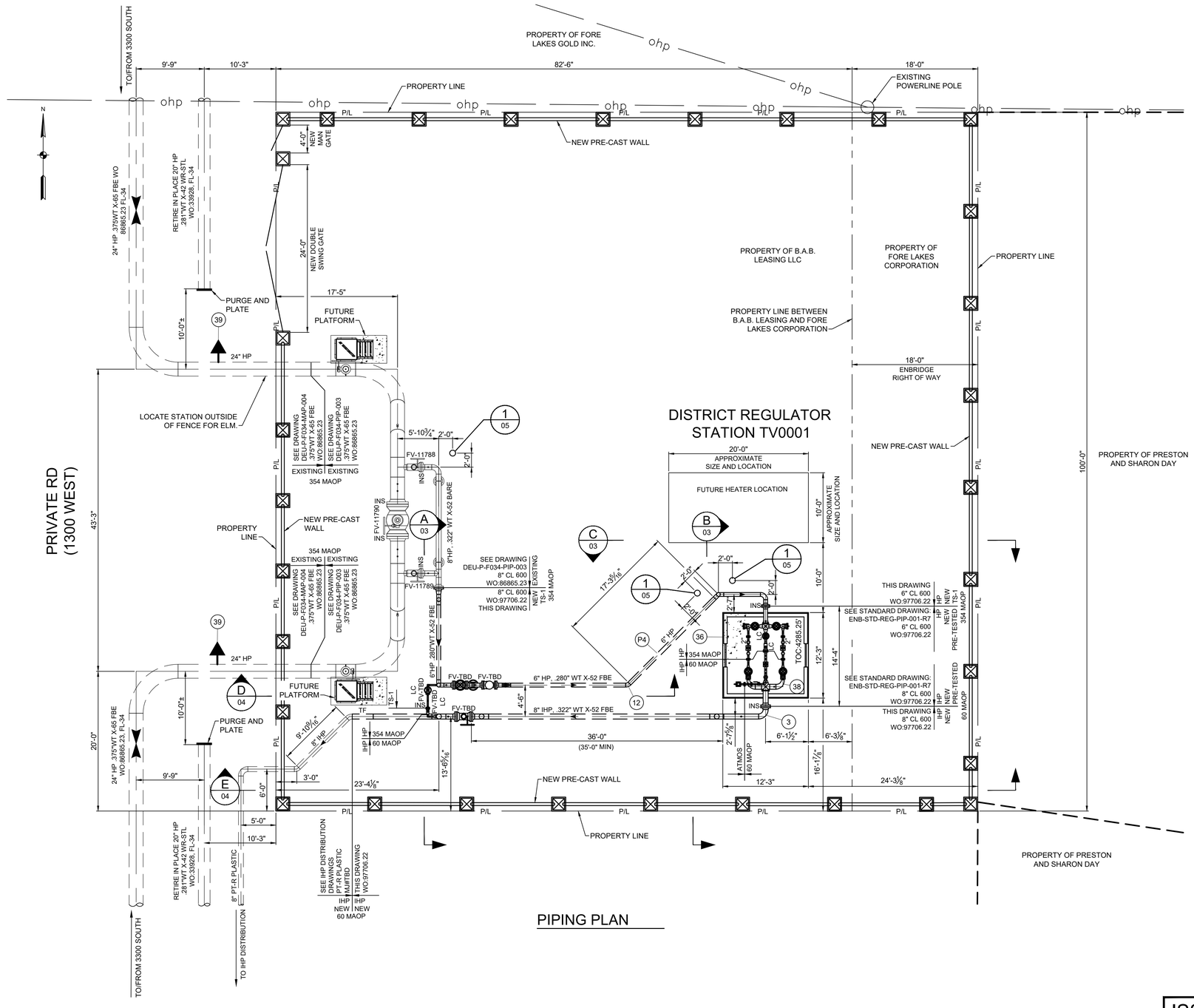
LINE NUMBER: FL-34
FACILITY: DISTRICT REGULATOR STATION TV0001
TITLE: 2" X 2" REGULATOR STATION
DESCRIPTION: ISOMETRIC, VICINITY MAP AND MATERIALS
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PIP-001	1 OF 5	0

ENB-R-TV0001-PIP-001-r0.dwg - 08/21/2025 - 08:30am

ENBRIDGE GAS, ANSI_D



ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-STD-GEN-CCS-002	3	E-Z LINE PIPE SUPPORTS
ENB-R-TV0001-CCS-001	0	TV0001 SITE/CIVIL DRAWINGS
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE
ENB-STD-REG-PIP-001	7	STANDARD DRAWING, 2"X2" MOONEY, REG STATION
ENB-STD-COR-COR-007	4	STANDARD DRAWING, CATHODIC LOCATING STATION

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WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB

ENGINEERING RECORD
DRAWN BY: D. CONTI
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: G. NEWHART
ENGR MNGR: W. RADFORD
CONSTR MNGR: S. UTLEY
MEAS & CTRLS: A. BEZDJIAN

ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: 1/8" = 1'-0"

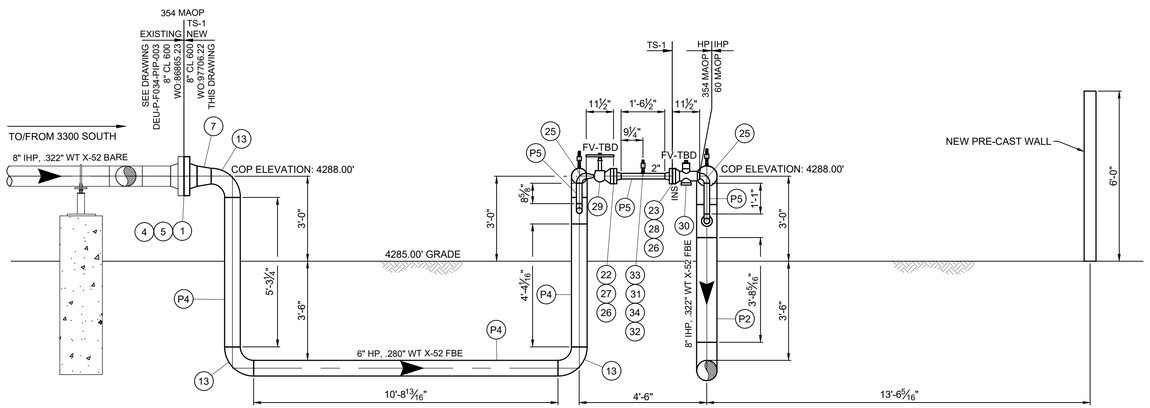
LINE NUMBER:	FL-34
FACILITY:	DISTRICT REGULATOR STATION TV0001
TITLE:	2" X 2" REGULATOR STATION
DESCRIPTION:	PLAN VIEW
ADDRESS:	1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

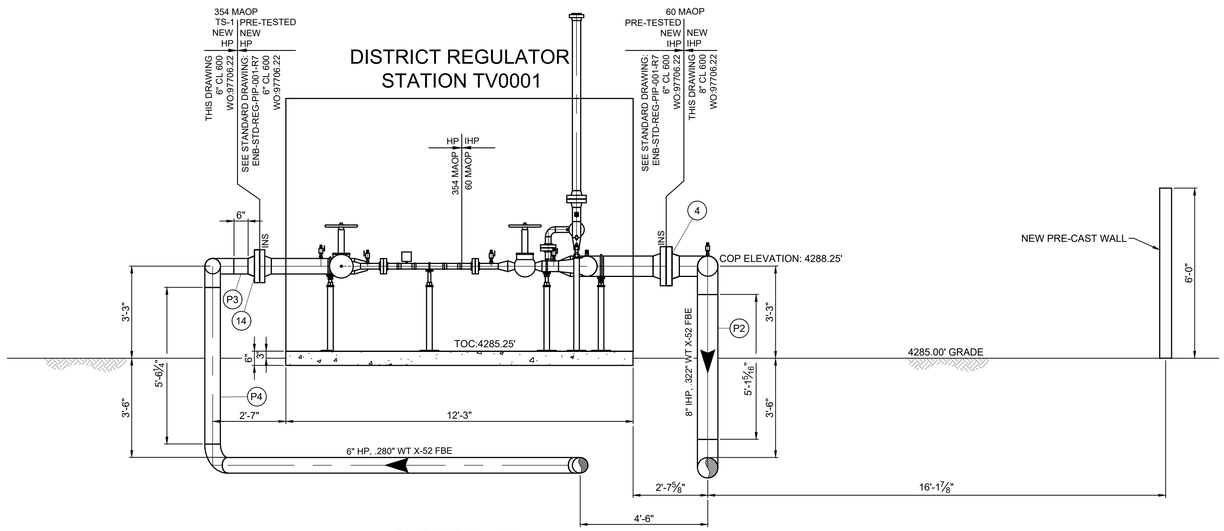
DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PIP-001	2 OF 5	0

ENB-R-TV0001-PIP-001-02.dwg 08/21/2025 - 09:30am

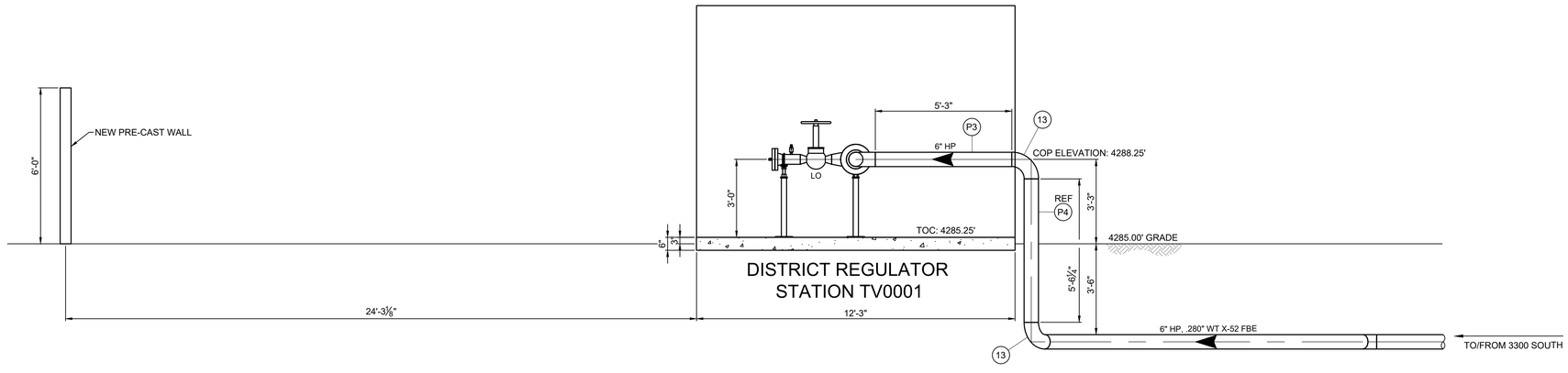
ENBRIDGE GAS_ANSI_D



SECTION A 02



SECTION B 02



SECTION C 02

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS			WORK ORDERS		REVISIONS					ENGINEERING RECORD
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION	NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: D. CONTI
ENB-STD-GEN-CCS-002	3	E-Z LINE PIPE SUPPORTS	97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001	0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB	CHECKED BY: D. BROX
ENB-R-TV0001-CCS-001	0	TV0001 SITE/CIVIL DRAWINGS								PROJECT ENGR: M. DIZDAREVIC
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE								SURVEYOR: G. NEWHART
ENB-STD-REG-PIP-001	7	STANDARD DRAWING, 2"X2" MOONEY, REG STATION								ENGR MNGR: W. RADFORD
ENB-STD-COR-COR-007	4	STANDARD DRAWING, CATHODIC LOCATING STATION								CONSTR MNGR: S. UTLEY
										MEAS & CTRLS: A. BEZDJIAN

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ENBRIDGE

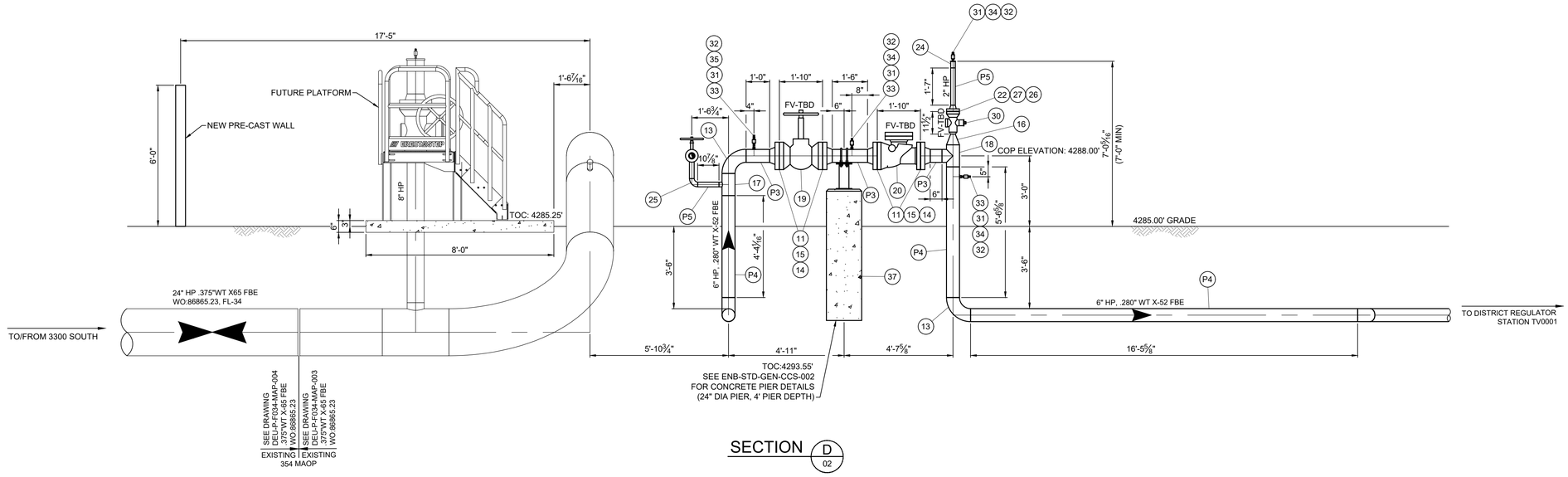
SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: 3/8" = 1'-0"

LINE NUMBER: FL-34
FACILITY: DISTRICT REGULATOR STATION TV0001
TITLE: 2" X 2" REGULATOR STATION
DESCRIPTION: SECTIONS
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

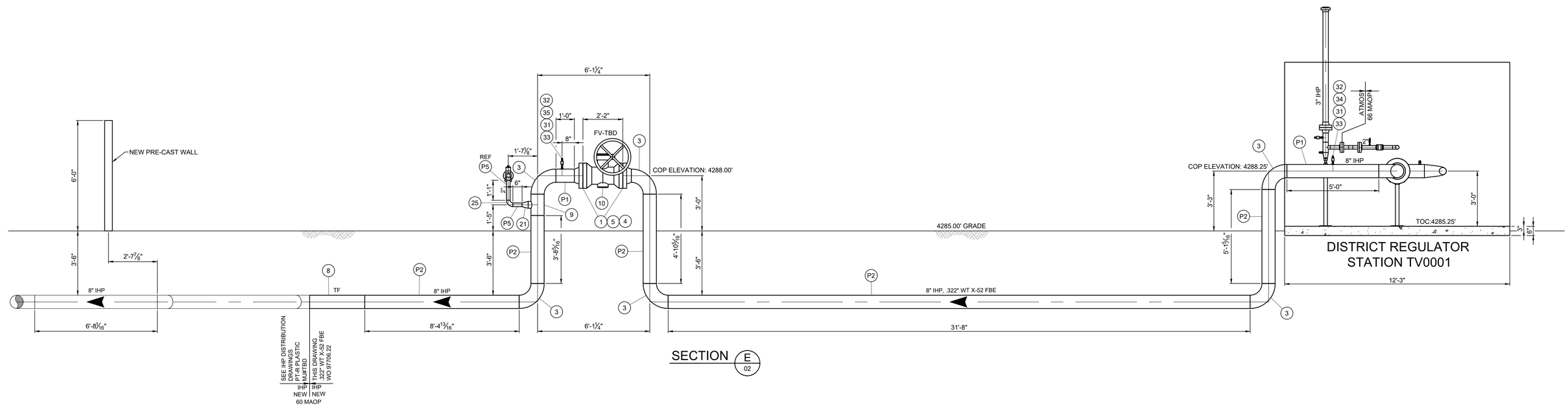
CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PIP-001	3 OF 5	0

ENB-R-TV0001-PIP-001-03.dwg - 09/29/2025 - 06:15am
ENBRIDGE GAS_ANSI D



SECTION D 02



SECTION E 02

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS			WORK ORDERS		REVISIONS					ENGINEERING RECORD
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION	NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: D. CONTI
ENB-STD-GEN-CCS-002	3	E-Z LINE PIPE SUPPORTS	97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001	0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB	CHECKED BY: D. BROX
ENB-R-TV0001-CCS-001	0	TV0001 SITE/CIVIL DRAWINGS								PROJECT ENGR: M. DIZDAREVIC
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE								SURVEYOR: G. NEWHART
ENB-STD-REG-PIP-001	7	STANDARD DRAWING, 2"X2" MOONEY, REG STATION								ENGR MNGR: W. RADFORD
ENB-STD-COR-COR-007	4	STANDARD DRAWING, CATHODIC LOCATING STATION								CONSTR MNGR: S. UTLEY
										MEAS & CTRLS: A. BEZDJIAN

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ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: 3/8" = 1'-0"

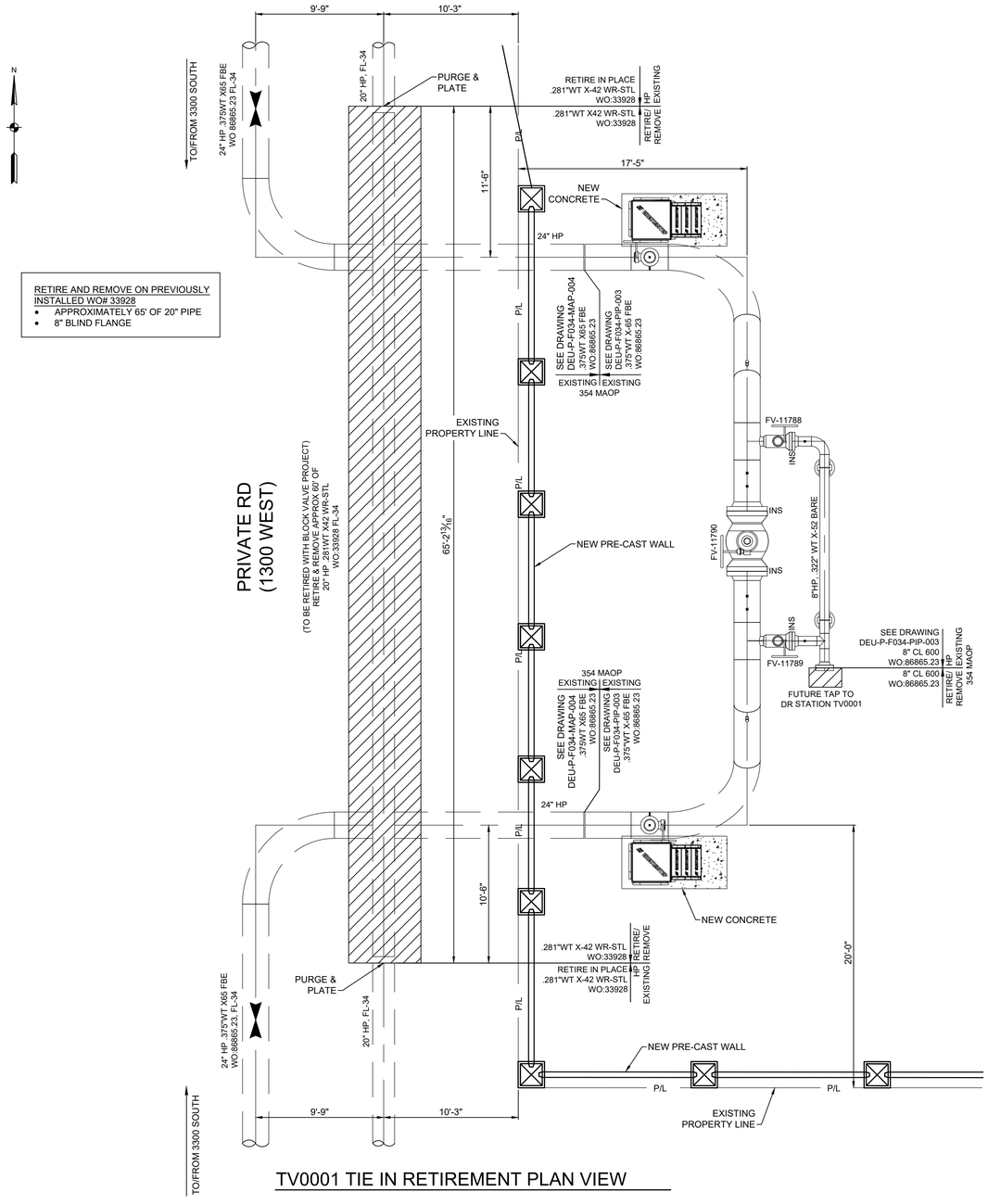
LINE NUMBER:
FACILITY: FL-34
DISTRICT REGULATOR STATION TV0001
TITLE: 2" X 2" REGULATOR STATION
DESCRIPTION: SECTIONS
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PIP-001	4 OF 5	0

ENB-R-TV0001-PIP-001-04.dwg - 09/29/2025 - 06:08am

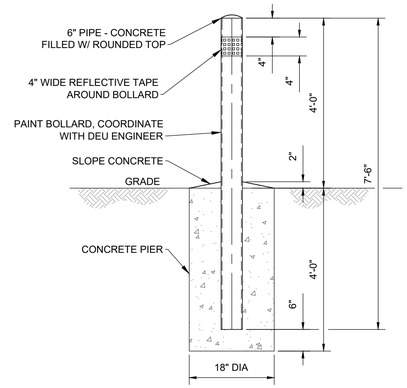
ENBRIDGE GAS - ANSI D



RETIRE AND REMOVE ON PREVIOUSLY INSTALLED WO# 33928

- APPROXIMATELY 65' OF 20" PIPE
- 8" BLIND FLANGE

TV0001 TIE IN RETIREMENT PLAN VIEW



TYPICAL BOLLARD DETAIL (1/02)

(3 PLACES) SCALE: NONE

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-STD-GEN-CCS-002	3	E-Z LINE PIPE SUPPORTS
ENB-R-TV0001-CCS-001	0	TV0001 SITE/CIVIL DRAWINGS
DEU-P-F034-PIP-001	0	FABRICATION DRAWINGS, FL-34 BLOCK VALVE
ENB-STD-REG-PIP-001	7	STANDARD DRAWING, 2"X2" MOONEY, REG STATION
ENB-STD-COR-COR-007	4	STANDARD DRAWING, CATHODIC LOCATING STATION

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WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/21/25	DJC	DGB

ENGINEERING RECORD
DRAWN BY: D. CONTI
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: G. NEWHART
ENGR MNGR: W. RADFORD
CONSTR MNGR: S. UTLEY
MEAS & CTRLS: A. BEZDJIAN

ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: 3/16" = 1'-0"

LINE NUMBER: FL-34
FACILITY: DISTRICT REGULATOR STATION TV0001
TITLE: 2" X 2" REGULATOR STATION
DESCRIPTION: TV0001 TIE IN RETIREMENT PLAN AND DETAIL
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

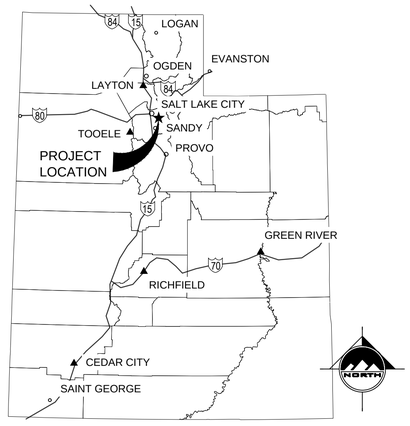
DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-PIP-001	5 OF 5	0

ENB-R-TV0001-PIP-001.dwg, 8/20/2025, 06:38am

ENBRIDGE GAS, ANSI D

ENBRIDGE GAS
TAYLORSVILLE DISTRICT REGULATOR STATION SITE

1300 WEST MURRAY TAYLORSVILLE RD (4850 S)
TAYLORSVILLE, UTAH 84123



LOCATION MAP
NO SCALE

VICINITY MAP
NO SCALE

Blue Stakes of UTAH 811 Bluestakes.org

CALL TWO BUSINESS DAYS BEFORE YOU DIG TO HAVE UTILITIES LOCATED 811 or 1-800-662-4111

CIVIL PROJECT DRAWINGS		
GENERAL DRAWINGS		
DRAWING	REV	DESCRIPTION
ENB-B-FV11839-CCS-001 SHEET 01 OF 06	0	COVER SHEET
ENB-B-FV11839-CCS-001 SHEET 02 OF 06	0	GENERAL NOTES
CIVIL DRAWINGS		
ENB-B-FV11839-CCS-001 SHEET 03 OF 06	0	SITE PLAN
ENB-B-FV11839-CCS-001 SHEET 04 OF 06	0	GRADING PLAN
ENB-B-FV11839-CCS-001 SHEET 05 OF 06	0	UTILITY PLAN
ENB-B-FV11839-CCS-001 SHEET 06 OF 06	0	DETAILS

PROJECT DRAWINGS	
DRAWING	DESCRIPTION
ENB-R-HR0003-CCS-002 SHEET 01 OF 13	COVER SHEET
ENB-R-HR0003-CCS-002 SHEET 02 OF 13	FLOOR AND ROOF PLAN
ENB-R-HR0003-CCS-002 SHEET 03 OF 13	ELEVATIONS
ENB-R-HR0003-CCS-002 SHEET 04 OF 13	GENERAL STRUCTURAL NOTES
ENB-R-HR0003-CCS-002 SHEET 05 OF 13	GENERAL STRUCTURAL NOTES
ENB-R-HR0003-CCS-002 SHEET 06 OF 13	SPECIAL INSPECTION
ENB-R-HR0003-CCS-002 SHEET 07 OF 13	SPECIAL INSPECTION
ENB-R-HR0003-CCS-002 SHEET 08 OF 13	STRUCTURAL SCHEDULES
ENB-R-HR0003-CCS-002 SHEET 09 OF 13	STRUCTURAL SCHEDULES
ENB-R-HR0003-CCS-002 SHEET 10 OF 13	STRUCTURAL PLANS
ENB-R-HR0003-CCS-002 SHEET 11 OF 13	STRUCTURAL DETAILS
ENB-R-HR0003-CCS-002 SHEET 12 OF 13	STRUCTURAL DETAILS
ENB-R-HR0003-CCS-002 SHEET 13 OF 13	STRUCTURAL DETAILS

NOTICE TO DEVELOPER/CONTRACTOR

UNAPPROVED DRAWINGS REPRESENT WORK IN PROGRESS, ARE SUBJECT TO CHANGE, AND DO NOT CONSTITUTE A FINISHED ENGINEERING PRODUCT. ANY WORK UNDERTAKEN BY DEVELOPER OR CONTRACTOR BEFORE PLANS ARE APPROVED IS UNDERTAKEN AT THE SOLE RISK OF THE DEVELOPER OR CONTRACTOR, INCLUDING BUT NOT LIMITED TO BIDS, ESTIMATION, FINANCING, BONDING, SITE CLEARING, GRADING, INFRASTRUCTURE CONSTRUCTION, ETC.

UTILITY DISCLAIMER

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATIONS OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

NOTICE TO CONTRACTOR

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND THE STATE OF UTAH DEPARTMENT OF INDUSTRIAL RELATIONS CONSTRUCTION SAFETY ORDERS." THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR'S AND SUBCONTRACTOR'S COMPLIANCE WITH SAID REGULATIONS AND ORDERS.

THE CONTRACTOR FURTHER AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB-SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

PROJECT CONTACTS		
PROJECT MANAGER	CHAD LAIHO	906-251-0259
PROJECT ENGINEER	CHAD LAIHO	906-251-0259
CATHODIC PROTECTION	KELLY FACER	801-201-5528
HP SURVEYOR	ENOCH CLEMENCE	801-793-7950
LEAD INSPECTOR	TBD	
IHP SUPERVISOR	TBD	
RIGHT OF WAY AGENT	ALEX HOWARD	801-209-2635
MARKETING	N/A	
ENVIRONMENTAL HEALTH & SAFETY	STEPHAN RYDER	330-813-8805

SURVEY CONTROL STAKEOUT TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
143	7415057.65	1521332.72	4268.44	W 1/4 COR. SEC 2 T2S, R1W, SLB&M (NAIL)
141	7412223.36	1521322.89	4280.82	SW COR. SEC 2 T2S, R1W, SLB&M (2.5"BRASS CAP)
144	7406931.94	1521297.45	4306.02	SW COR. SEC 11 T2S, R1W, SLB&M (2.5"BRASS CAP)
	7411331.62	1521487.28	N/A	ROW POB
10069	7411331.54	1521505.28	N/A	ROW NE CORNER
10064	7411231.54	1521504.83	N/A	ROW SE CORNER
10061	7411231.99	1521404.33	N/A	ROW SW CORNER
10072	7411331.99	1521404.76	N/A	ROW NW CORNER

ISSUED FOR CONSTRUCTION

DATE PRINTED 08/19/2025

PROFESSIONAL STRUCTURAL ENGINEER No. 175238 DAVID B. ALTER 08/19/2025 STATE OF UTAH

ENSIGN THE STANDARD IN ENGINEERING

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: J. LINFORD (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

LINE NUMBER:	
FACILITY:	FL- 34
TITLE:	DISTRICT REGULATOR STATION TV0001
DESCRIPTION:	2" X 2" REGULATOR STATION
ADDRESS:	COVER SHEET
	1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

SECTION: 11 T2S R 1W	CITY: TAYLORSVILLE	COUNTY: SALT LAKE
ELEVATION: 4292'		STATE: UTAH
LAT: 40.6651 LONG: -111.9289	DRAWING NUMBER: ENB-R-TV0001-CCS-001	SHEET: 01 OF 06
SCALE: AS SHOWN		REVISION: 0

01 COVER SHEET.dwg - 08/19/2025 - 07:37pm

ENBRIDGE GAS_ANSI_D

GENERAL NOTES

1. ALL CONSTRUCTION MUST STRICTLY FOLLOW THE STANDARDS AND SPECIFICATIONS SET FORTH BY: THE DESIGN ENGINEER, LOCAL AGENCY JURISDICTION, APWA (CURRENT EDITION), AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). THE ORDER LISTED ABOVE IS ARRANGED BY SENIORITY. THE LATEST EDITION OF ALL STANDARDS AND SPECIFICATIONS MUST BE ADHERED TO. IF A CONSTRUCTION PRACTICE IS NOT SPECIFIED BY ANY OF THE LISTED SOURCES, CONTRACTOR MUST CONTACT DESIGN ENGINEER FOR DIRECTION.
2. ALL GRADING INCLUDING BUT NOT LIMITED TO CUT, FILL, COMPACTION, ASPHALT SECTION, SUBBASE, TRENCH EXCAVATION/BACKFILL, SITE GRUBBING, AND FOOTINGS MUST BE COORDINATED DIRECTLY WITH SOILS REPORT.
3. CONTRACTOR MUST VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING, AND BRING UP ANY QUESTIONS BEFORE SUBMITTING BID.
4. CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE CITY, STATE, OR COUNTY REGULATIONS FOR WORKING IN THE PUBLIC WAY.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ACCORDING TO GOVERNING AGENCY STANDARDS. WET DOWN DRY MATERIALS AND RUBBISH TO PREVENT BLOWING.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT SURFACE IMPROVEMENTS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY SETTLEMENT OF OR DAMAGE TO EXISTING UTILITIES.
8. THE CONTRACTOR IS RESPONSIBLE TO FURNISH ALL MATERIALS TO COMPLETE THE PROJECT.
9. UNLESS OTHERWISE NOTED, ALL ON-GRADE CONCRETE WILL BE PLACED ON A MINIMUM 4" GRAVEL BASE OVER A WELL COMPACTED (95% DENSITY PER ASTM D-1557) SUB GRADE.
10. ALL EXPOSED SURFACES WILL HAVE A TEXTURED FINISH, RUBBED, OR BROOMED. ANY "PLASTERING" OF NEW CONCRETE WILL BE DONE WHILE IT IS STILL "GREEN".
11. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
12. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE. CONTRACTOR SHALL START INSTALLATION AT LOW POINT OF ALL NEW GRAVITY UTILITY LINES.
13. ALL DIMENSIONS, GRADES, AND UTILITY DESIGN SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO THE DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS, IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
14. NO CHANGE IN DESIGN LOCATION OR GRADE WILL BE MADE BY THE CONTRACTOR WITHOUT THE WRITTEN APPROVAL OF THE PROJECT ENGINEER.
15. NATURAL VEGETATION AND SOIL COVER SHALL NOT BE DISTURBED PRIOR TO ACTUAL CONSTRUCTION OF A REQUIRED FACILITY OR IMPROVEMENT. MASS CLEARING OF THE SITE IN ANTICIPATION OF CONSTRUCTION SHALL BE AVOIDED.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, MAINTAINING, OR RESTORING ALL MONUMENTS AND MONUMENT REFERENCE MARKS WITHIN THE PROJECT SITE. CONTACT THE CITY OR COUNTY SURVEYOR FOR MONUMENT LOCATIONS AND CONSTRUCTION DETAILS.
17. EXISTING UTILITY INFORMATION SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. IT IS DERIVED FROM ON-SITE SURVEY AND/OR UTILITY MAPPING PROVIDED TO THE ENGINEER, AND THEREFORE UTILITIES MAY NOT BE LOCATED CORRECTLY, EITHER HORIZONTALLY OR VERTICALLY, AND MAY NOT BE ALL INCLUSIVE. CONTRACTOR IS REQUIRED TO FOLLOW THE PROCEDURE OUTLINED BELOW:
   - 17.1. CONTRACTOR IS REQUIRED TO LOCATE AND POTHOLE ALL EXISTING UTILITY LINES (BOTH HORIZONTALLY AND VERTICALLY) THAT AFFECT THE PROJECT CONSTRUCTION, EITHER ON-SITE OR OFF-SITE, AND DETERMINE IF THERE ARE ANY CONFLICTS WITH THE DESIGN OF THE SITE AS SHOWN ON THE APPROVED PLANS PRIOR TO ANY CONSTRUCTION. IF IT IS DETERMINED THAT CONFLICTS EXIST BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) THE ENGINEER MUST BE NOTIFIED IMMEDIATELY TO CORRECT THE CONFLICTS BEFORE ANY WORK CAN BEGIN. IF THE CONTRACTOR FAILS TO FOLLOW THIS ABSOLUTE REQUIREMENT AND CONFLICTS ARISE DURING CONSTRUCTION THE CONTRACTOR WILL BEAR THE SOLE RESPONSIBILITY TO FIX THE CONFLICTS.
   - 17.2. CONTRACTOR IS REQUIRED TO VERIFY THAT PROPER COVER AND PROTECTION OF EXISTING UTILITY LINES IS MAINTAINED OR ATTAINED WITHIN THE DESIGN ONCE VERIFICATION OF THE EXISTING UTILITIES IS COMPLETED AS OUTLINED IN 17.1 ABOVE.
   - 17.3. IN ADDITION TO 17.1 AND 17.2 ABOVE THE CONTRACTOR WILL VERIFY DEPTHS OF UTILITIES IN THE FIELD BY "POTHOLING" A MINIMUM OF 300 FEET AHEAD OF PROPOSED PIPELINE CONSTRUCTION TO AVOID POTENTIAL CONFLICTS WITH DESIGNED PIPELINE ALIGNMENT AND GRADE AND EXISTING UTILITIES.
   - 17.4. IF A CONFLICT ARISES BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) AS DETERMINED UNDER 17.1, 17.2 OR 17.3 THE CONTRACTOR WILL NOTIFY THE ENGINEER IMMEDIATELY TO RESOLVE THE CONFLICT.
   - 17.5. IF A CONFLICT ARISES BETWEEN EXISTING UTILITIES AND DESIGN UTILITIES (OR ANOTHER ASPECT OF PROPOSED CONSTRUCTION) RESULTING FROM THE CONTRACTOR'S NEGLIGENCE TO IDENTIFY AND/OR "POTHOLE" EXISTING UTILITIES AS REQUIRED IN 17.1, 17.2 AND 17.3 ABOVE, THE CONTRACTOR WILL BE REQUIRED TO RESOLVE THE CONFLICT WITHOUT ADDITIONAL COST OR CLAIM TO THE OWNER OR ENGINEER.
18. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
19. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.
20. AT ALL LOCATIONS WHERE EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.
21. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT, ADOPTED EDITION OF ADA ACCESSIBILITY GUIDELINES.
22. CONTRACTOR SHALL, AT THE TIME OF BIDDING AND THROUGHOUT THE PERIOD OF THE CONTRACT, BE LICENSED IN THE STATE OF UTAH AND SHALL BE BONDABLE FOR AN AMOUNT REQUIRED BY THE OWNER.
23. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL WATER, POWER, SANITARY FACILITIES AND TELEPHONE SERVICES AS REQUIRED FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
24. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING INSPECTION AND TESTING OF ALL FACILITIES CONSTRUCTED UNDER THIS CONTRACT. ALL TESTING SHALL CONFORM TO THE REGULATORY AGENCY'S STANDARD SPECIFICATIONS. ALL RE-TESTING AND/OR RE-INSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.
25. IF EXISTING IMPROVEMENTS NEED TO BE DISTURBED AND/OR REMOVED FOR THE PROPER PLACEMENT OF IMPROVEMENTS TO BE CONSTRUCTED BY THESE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING OR REPAIRING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND/OR REPLACEMENT. THERE WILL BE NO EXTRA COST DUE TO THE CONTRACTOR FOR REPLACING OR REPAIRING EXISTING IMPROVEMENTS.
26. WHENEVER EXISTING FACILITIES ARE REMOVED, DAMAGED, BROKEN, OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS OR SPECIFICATIONS, SAID FACILITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL EXISTING FACILITIES. THE FINISHED PRODUCT SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER, THE ENGINEER, AND THE RESPECTIVE REGULATORY AGENCY.
27. CONTRACTOR SHALL MAINTAIN A NEATLY MARKED SET OF FULL-SIZE RECORD DRAWINGS SHOWING THE FINAL LOCATION AND LAYOUT OF ALL STRUCTURES AND OTHER FACILITIES. RECORD DRAWINGS SHALL REFLECT CHANGE ORDERS, ACCOMMODATIONS, AND ADJUSTMENTS TO ALL IMPROVEMENTS CONSTRUCTED. WHERE NECESSARY, SUPPLEMENTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR. PRIOR TO ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL DELIVER TO THE ENGINEER ONE SET OF NEATLY MARKED RECORD DRAWINGS SHOWING THE INFORMATION REQUIRED ABOVE. RECORD DRAWINGS SHALL BE REVIEWED AND THE COMPLETE RECORD DRAWING SET SHALL BE CURRENT WITH ALL CHANGES AND DEVIATIONS REDLINED AS A PRECONDITION TO THE FINAL PROGRESS PAYMENT APPROVAL AND/OR FINAL ACCEPTANCE.
28. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
29. ALL EXISTING GATES AND FENCES TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL GATES AND FENCES FROM DAMAGE.
30. ALL EXISTING TREES ARE TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL TREES FROM DAMAGE.
31. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN THE CITY RIGHT-OF-WAY.
32. CONTRACTORS ARE RESPONSIBLE FOR ALL OSHA REQUIREMENTS ON THE PROJECT SITE.
33. A UPDES (UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM) PERMIT IS REQUIRED FOR ALL CONSTRUCTION ACTIVITIES 1 ACRE OR MORE AS WELL AS A STORM WATER POLLUTION PREVENTION PLAN.

GRADING AND DRAINAGE NOTES

1. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL STRIP AND CLEAR THE TOPSOIL, MAJOR ROOTS AND ORGANIC MATERIAL FROM ALL PROPOSED BUILDING AND PAVEMENT AREAS PRIOR TO SITE GRADING. (THE TOPSOIL MAY BE STOCKPILED FOR LATER USE IN LANDSCAPED AREAS.)
3. THE CONTRACTOR SHALL REMOVE ALL ORGANIC MATERIAL AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING GRADING FILL OR BASE COURSE. THE AREA SHOULD BE PROOF-ROLLED TO IDENTIFY ANY SOFT AREAS. WHERE SOFT AREAS ARE ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE SOIL AND REPLACE WITH COMPACTED FILL.
4. ALL DEBRIS PILES AND BERMS SHOULD BE REMOVED AND HAULED AWAY FROM SITE OR USED AS GENERAL FILL IN LANDSCAPED AREAS.
5. THE CONTRACTOR SHALL CONSTRUCT THE BUILDING PAD TO THESE DESIGN PLANS AS PART OF THE SITE GRADING CONTRACT, AND STRICTLY ADHERE TO THE SITE PREPARATION AND GRADING REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT.
6. THE CONTRACTOR SHALL GRADE THE PROJECT SITE TO PROVIDE A SMOOTH TRANSITION BETWEEN NEW AND EXISTING ASPHALT, CURB AND GUTTER, AND ADJOINING SITE IMPROVEMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE AND DEBRIS ON ADJACENT STREETS WHEN EQUIPMENT IS TRAVELING THOSE STREETS.
8. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL CONDITIONS AND RECOMMENDATIONS OUTLINED IN THESE PLANS AND TAKE ALL NECESSARY PRECAUTIONS AND RECOMMENDED PROCEDURES TO ASSURE SOUND GRADING PRACTICES.
9. THE CONTRACTOR SHALL TAKE APPROPRIATE GRADING MEASURES TO DIRECT STORM SURFACE RUNOFF TOWARDS CATCH BASINS.
10. THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON ON-SITE SURVEY. IT SHALL BE THE CONTRACTORS' FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES, AND SLOPES SHOWN.
12. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
13. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT. ALL CONTRACTOR ACTIVITIES 1 ACRE OR MORE IN SIZE ARE REQUIRED TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN.
14. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
15. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER FROM GOVERNING AGENCY.
16. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS, AND ALL OTHER PUBLIC RIGHT-OF-WAYS IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY-OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC, SHALL BE MAINTAINED IN A CLEAN, SAFE, AND USABLE CONDITION.

STEEL REINFORCING NOTES

1. TYPICAL REINFORCING BAR STRENGTHS
   A. REINFORCING (NON-WELDABLE = ASTM615, DEFORMED, Fy = 60 KSI (420 MPa)
   B. REINFORCING (WELDABLE = ASTM706, DEFORMED, Fy = 60 KSI (420 MPa)
2. TYPICAL CLEAR CONCRETE COVERAGES:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3" FORMED
   B. CONCRETE EXPOSED TO EARTH OR WEATHER = (#6 AND LARGER) 2" (#5 AND SMALLER) 1-1/2"
   C. ALL OTHERS PER LATEST EDITION OF ACI 318.
3. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. LATEST ACI CODE AND DETAILING MANUAL APPLY. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. REINFORCING BAR SPACINGS GIVIN ARE MAXIMUM ON CENTERS.
4. ALL REINFORCING TO BE WELDED SHALL BE WELDED IN ACCORDANCE WITH AWS D1.4 NO TACK WELDING OF REINFORCING BARS IS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE BY STRUCTURAL ENGINEER.
5. EPOXY COATED REINFORCING STEEL REQUIREMENTS: BARS SHALL CONFORM TO ASTM A775.

ABBREVIATIONS

APWA	AMERICAN PUBLIC WORKS ASSOCIATION	NIC	NOT IN CONTRACT
AR	ACCESSIBLE ROUTE	NO	NUMBER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	OC	ON CENTER
AWWA	AMERICAN WATER WORKS ASSOCIATION	OCEW	ON CENTER EACH WAY
BOS	BOTTOM OF STEP	OHP	OVERHEAD POWER
BVC	BEGIN VERTICAL CURVE	PC	POINT OF CURVATURE OR PRESSURE CLASS
C	CURVE	PCC	POINT OF COMPOUND CURVATURE
CB	CATCH BASIN	PI	POINT OF INTERSECTION
CF	CURB FACE OR CUBIC FEET	PIV	POST INDICATOR VALVE
CL	CENTER LINE	PL	PROPERTY LINE
CO	CLEAN OUT	PRC	POINT OF REVERSE CURVATURE
COMM	COMMUNICATION	PRO	PROPOSED
CONC	CONCRETE	PT	POINT OF TANGENCY
CONT	CONTINUOUS	PVC	POINT OF VERTICAL CURVATURE
DIA	DIAMETER	PVI	POINT OF VERTICAL INTERSECTION
DIP	DUCTILE IRON PIPE	PVT	POINT OF VERTICAL TANGENCY
ELEC	ELECTRICAL	R	RADIUS
ELEV	ELEVATION	RD	ROOF DRAIN
EOA	EDGE OF ASPHALT	ROW	RIGHT OF WAY
EVC	END OF VERTICAL CURVE	S	SLOPE
EW	EACH WAY	SAN SWR	SANITARY SEWER
EXIST	EXISTING	SD	STORM DRAIN
FF	FINISH FLOOR	SEC	SECONDARY
FG	FINISH GRADE	SS	SANITARY SEWER
FH	FIRE HYDRANT	STA	STATION
FL	FLOW LINE OR FLANGE	SW	SIDEWALK
GB	GRADE BREAK	SWL	SECONDARY WATER LINE
GF	GARAGE FLOOR	TBC	TOP BACK OF CURB
GV	GATE VALVE	TOA	TOP OF ASPHALT
HC	HANDICAP	TOC	TOP OF CONCRETE
HP	HIGH POINT	TOF	TOP OF FOUNDATION
IRR	IRRIGATION	TOG	TOP OF GRATE
K	RATE OF VERTICAL CURVATURE	TOP	TOP OF PIER
LD	LAND DRAIN	TOS	TOP OF STEP
LF	LINEAR FEET	TOW	TOP OF WALL
LP	LOW POINT	TYP	TYPICAL
MH	MANHOLE	VC	VERTICAL CURVE
MJ	MECHANICAL JOINT	WIV	WALL INDICATOR VALVE
NG	NATURAL GROUND	WL	WATER LINE

NOTE: MAY CONTAIN ABBREVIATIONS THAT ARE NOT USED IN THIS PLAN SET.

LEGEND

- SECTION CORNER
- EXISTING MONUMENT
- PROPOSED MONUMENT
- EXISTING REBAR AND CAP
- SET ENSIGN REBAR AND CAP
- EXISTING WATER METER
- PROPOSED WATER METER
- EXISTING WATER MANHOLE
- PROPOSED WATER MANHOLE
- EXISTING WATER BOX
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- EXISTING SECONDARY WATER VALVE
- PROPOSED SECONDARY WATER VALVE
- EXISTING IRRIGATION BOX
- EXISTING IRRIGATION VALVE
- PROPOSED IRRIGATION VALVE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY CLEAN OUT
- EXISTING STORM DRAIN CLEAN OUT BOX
- PROPOSED STORM DRAIN CLEAN OUT BOX
- EXISTING STORM DRAIN INLET BOX
- EXISTING STORM DRAIN CATCH BASIN
- PROPOSED STORM DRAIN CATCH BASIN
- EXISTING STORM DRAIN COMBO BOX
- PROPOSED STORM DRAIN COMBO BOX
- EXISTING STORM DRAIN CLEAN OUT
- EXISTING STORM DRAIN CULVERT
- PROPOSED STORM DRAIN CULVERT
- TEMPORARY SAG INLET PROTECTION
- TEMPORARY IN-LINE INLET PROTECTION
- ROOF DRAIN
- EXISTING ELECTRICAL MANHOLE
- EXISTING ELECTRICAL BOX
- EXISTING TRANSFORMER
- EXISTING UTILITY POLE
- EXISTING LIGHT
- PROPOSED LIGHT
- EXISTING GAS METER
- EXISTING GAS MANHOLE
- EXISTING GAS VALVE
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE BOX
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING CABLE BOX
- EXISTING BOLLARD
- PROPOSED BOLLARD
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION

- EXISTING EDGE OF ASPHALT
- PROPOSED EDGE OF ASPHALT
- EXISTING STRIPING
- PROPOSED STRIPING
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING FLOW LINE
- PROPOSED FLOW LINE
- GRADE BREAK
- EXISTING STORM DRAIN LINE
- PROPOSED STORM DRAIN LINE
- ROOF DRAIN LINE
- HIGHWATER LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER LINE
- PROPOSED SAN. SWR. SERVICE LINE
- EXISTING LAND DRAIN LINE
- PROPOSED LAND DRAIN LINE
- PROPOSED LAND DRAIN SERVICE LINE
- EXISTING CULINARY WATER LINE
- PROPOSED CULINARY WATER LINE
- PROPOSED CULINARY WATER SERVICE LINE
- EXISTING SECONDARY WATER LINE
- PROPOSED SECONDARY WATER LINE
- PROPOSED SEC. WATER SERVICE LINE
- EXISTING IRRIGATION LINE
- PROPOSED IRRIGATION LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING ELECTRICAL LINE
- EXISTING GAS LINE
- EXISTING TELEPHONE LINE
- ACCESSIBLE ROUTE
- SAW CUT LINE
- TEMPORARY SILT FENCE
- LIMITS OF DISTURBANCE
- EXISTING WALL
- PROPOSED WALL
- EXISTING CONTOURS
- PROPOSED CONTOURS
- BUILDABLE AREA WITHIN SETBACKS
- PUBLIC DRAINAGE EASEMENT
- EXISTING ASPHALT TO BE REMOVED
- PROPOSED ASPHALT
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- CONCRETE TO BE REMOVED
- EXISTING CONCRETE
- PROPOSED CONCRETE
- BUILDING TO BE REMOVED
- EXISTING BUILDING
- PROPOSED BUILDING

NOTE: MAY CONTAIN SYMBOLS THAT ARE NOT USED IN THIS PLAN SET.

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ISSUED FOR CONSTRUCTION

PROFESSIONAL STRUCTURAL ENGINEER — No. 175238 — DAVID B. ALTER — 08/19/2025 — STATE OF UTAH

ENSIGN — THE STANDARD IN ENGINEERING

REFERENCE DRAWINGS			WORK ORDERS	
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION
			97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: J. LINFORD (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: NONE

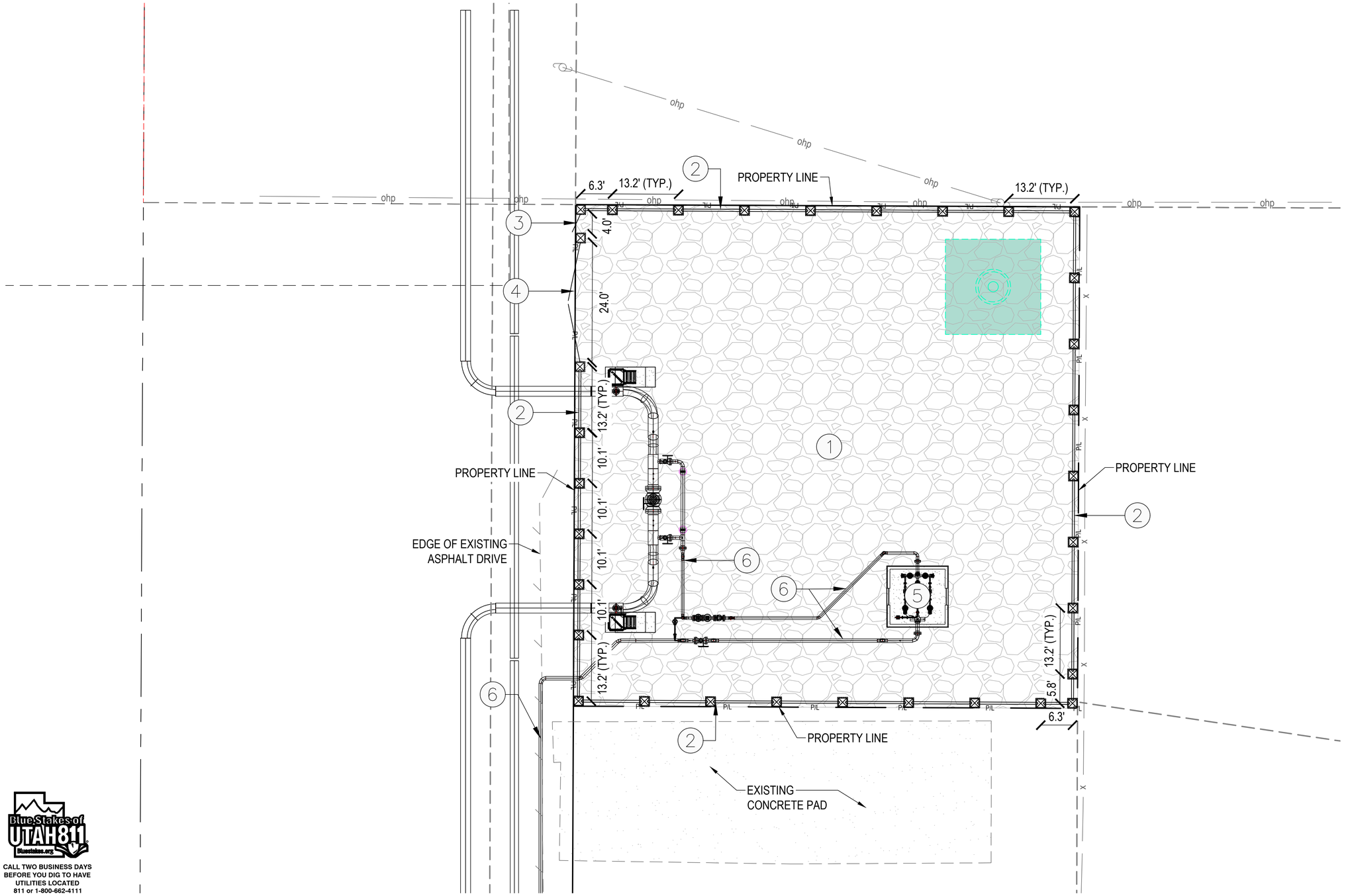
LINE NUMBER:
FACILITY:
TITLE: FL- 34 DISTRICT REGULATOR STATION TV0001 2" X 2" REGULATOR STATION GENERAL NOTES
DESCRIPTION:
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	02 OF 06	0

07.GENERAL NOTES.dwg - 08/19/2025 - 07:36pm

ENBRIDGE GAS_ANSI_D



GENERAL NOTES:

1. ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
2. ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.
3. SEE LANDSCAPE/ARCHITECTURAL PLANS FOR CONCRETE MATERIAL, COLOR, FINISH, AND SCORE PATTERNS THROUGHOUT SITE.
4. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE M.U.T.C.D. (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES).
5. ALL SURFACE IMPROVEMENTS DISTURBED BY CONSTRUCTION SHALL BE RESTORED OR REPLACED, INCLUDING TREES AND DECORATIVE SHRUBS, SOD, FENCES, WALLS AND STRUCTURES, WHETHER OR NOT THEY ARE SPECIFICALLY SHOWN ON THE CONTRACT DOCUMENTS.
6. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE OR ASPHALT.
7. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.

SCOPE OF WORK:

PROVIDE, INSTALL AND/OR CONSTRUCT THE FOLLOWING PER THE SPECIFICATIONS GIVEN OR REFERENCED, THE DETAILS NOTED, AND/OR AS SHOWN ON THE CONSTRUCTION DRAWINGS:

1. GRAVEL SECTION PER DETAIL 3/SHEET 6.
2. PRECAST CONCRETE FENCE AND POSTS PER DETAIL 4/SHEET 6.
3. 4' MAN GATE PER DETAIL 2/SHEET 6.
4. DOUBLE SWING GATE PER DETAIL 1/SHEET 6.
5. CONCRETE BUILDING PAD PER STRUCTURAL PLANS.
6. PROPOSED UTILITIES PER PIPING PLAN.

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ELEVATION: 4292'
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SCALE: 1" = 20'

LINE NUMBER:
FACILITY:
TITLE: FL- 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
SITE PLAN
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	03 OF 06	0

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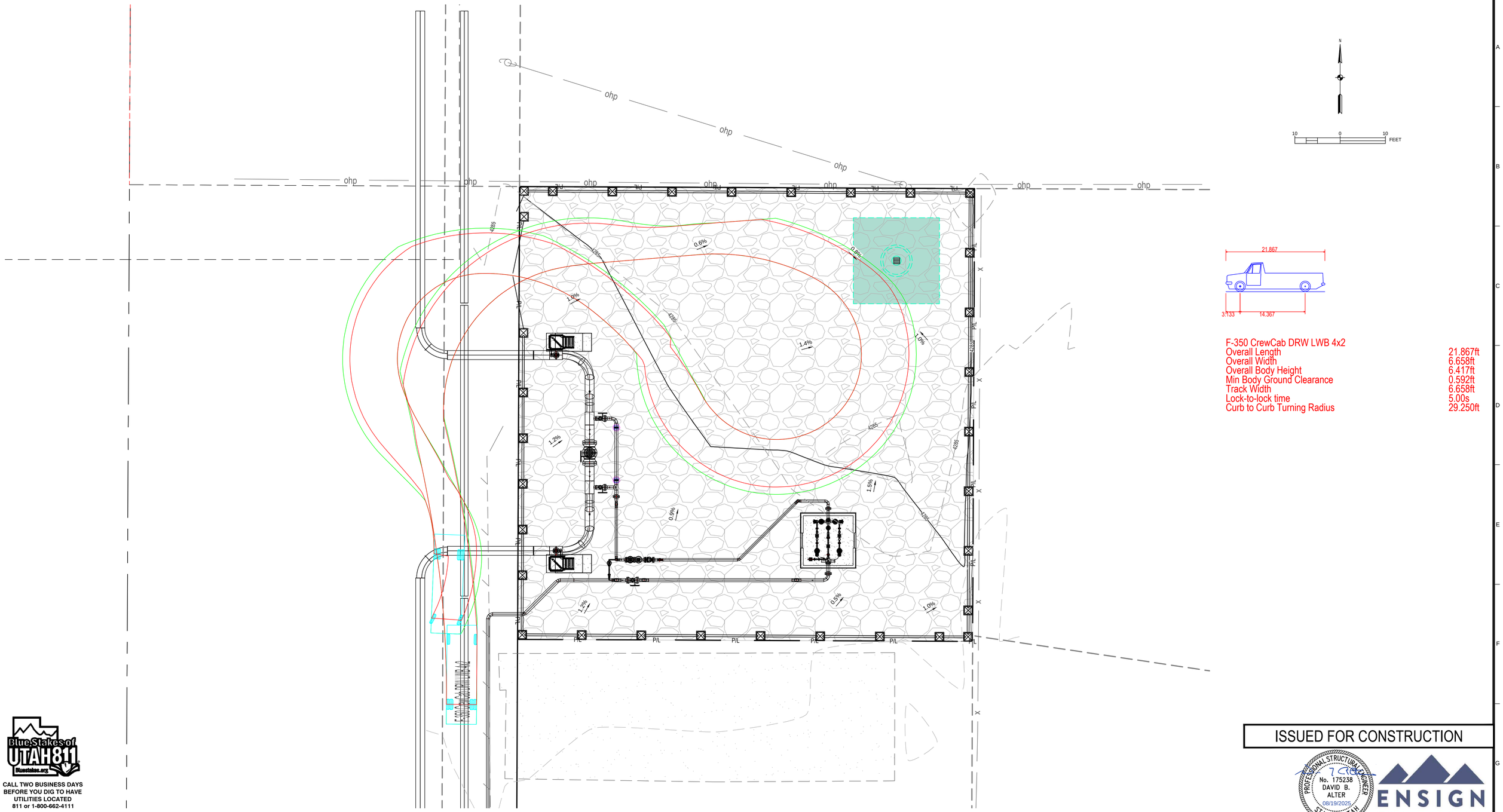

F-350 CrewCab DRW LWB 4x2

Overall Length	21.867ft
Overall Width	6.658ft
Overall Body Height	6.417ft
Min Body Ground Clearance	0.592ft
Track Width	6.658ft
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	29.250ft

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SCALE: 1" = 10'

LINE NUMBER:

FACILITY: FL- 34

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DESCRIPTION: 2" X 2" REGULATOR STATION

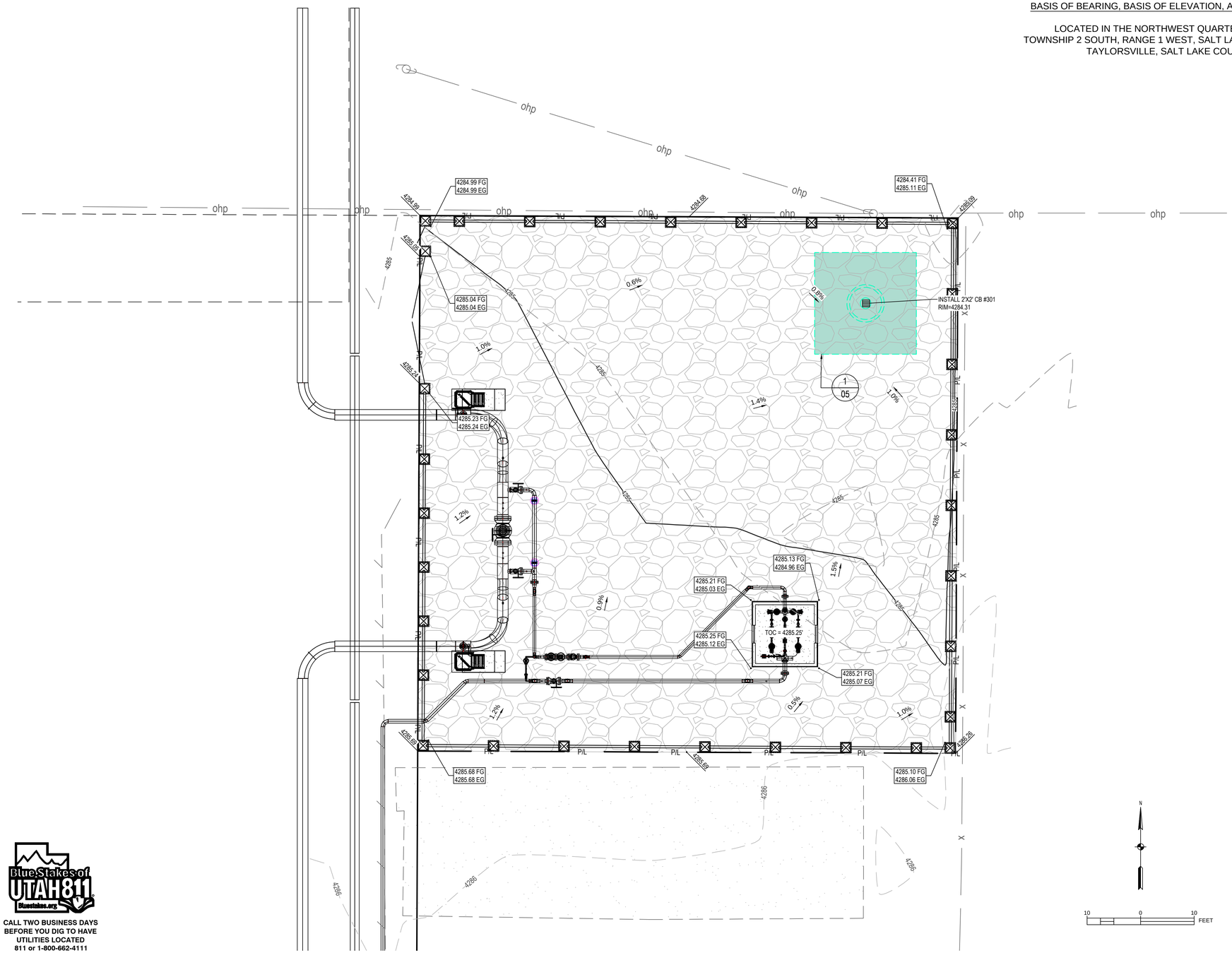
ADDRESS: VEHICLE TRACKING PLAN

1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	04 OF 06	0

ENBRIDGE GAS ANSI D



BASIS OF BEARING, BASIS OF ELEVATION, AND SITE BENCHMARKS

LOCATED IN THE NORTHWEST QUARTER OF SECTION 11
TOWNSHIP 2 SOUTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN
TAYLORSVILLE, SALT LAKE COUNTY, UTAH

LEGEND

GRAVEL DRIVE SECTION PER DETAIL 1 ON SHEET 05.

LOD AREA = 0.23 ACRES

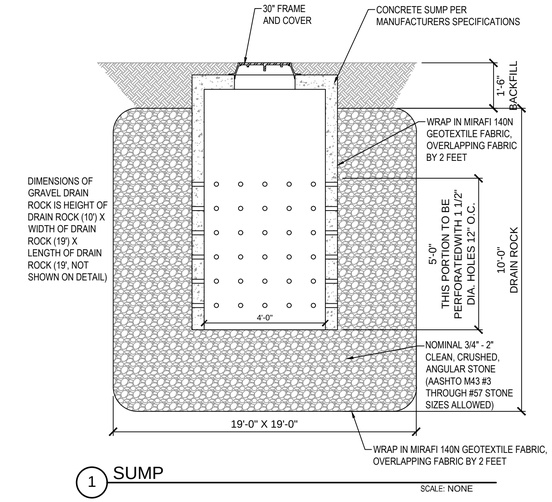
PROPOSED EARTHWORKS		
IMPORT/EXPORT	MATERIAL	QUANTITY (CU. YD.)
EXPORT	TOPSOIL	186
EXPORT	NATIVE SUBGRADE	34
IMPORT	FILL	7
IMPORT	BASE COURSE	310
IMPORT	GRAVEL	93
Assumed 6-inches topsoil		

CONTRACTOR TO VERIFY ALL QUANTITIES

STORAGE CALCULATIONS

AREA CALCULATION				
Hardscape Area:	0.01	acres	Runoff Coeff. C :	0.95
Landscape/Native Area:	0.22	acres	Runoff Coeff. C :	0.75
Offsite Area:	0.00	acres	Runoff Coeff. C :	0.75
Total Area:	**0.23**	acres	Weighted C :	**0.76**

RUNOFF CALCULATION						
100 Year Design Storm				Allowable Runoff	0.00	cfs/ac
				Total Allowable Runoff	**0.000**	cfs
Time (min)	CA (Acres)	Precipitation (in/hr)	Time (sec)	Cumulative Runoff (ft^3)	Allowed Runoff (ft^3)	Storage (ft^3)
5	0.17	6.24	300	327	0	327
10	0.17	4.75	600	497	0	497
15	0.17	3.93	900	617	0	617
30	0.17	2.64	1,800	829	0	829
60	0.17	1.64	3,600	1,030	0	1,030
120	0.17	0.88	7,200	1,109	0	1,109
180	0.17	0.60	10,800	1,127	0	1,127
360	0.17	0.32	21,600	1,199	0	1,199
720	0.17	0.18	43,200	1,357	0	1,357
1440	0.17	0.09	86,400	1,417	0	1,417
					Storage Required:	**1,417**
					Storage Provided:	**1,444**



1 SUMP

SCALE: NONE

NOTES

1. CLEAR AND GRUB ENTIRE SITE AND HAUL OFF SITE.
2. STRIP TOPSOIL AND HAUL OFF SITE.
3. RE-SEED DISTURBED AREA OUTSIDE FENCE WITH NATIVE MIX.
4. MATCH EXISTING GRADE ON THE EXTERIOR SIDE OF ALL CHAINLINK FENCE.

ISSUED FOR CONSTRUCTION

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ENSIGN
THE STANDARD IN ENGINEERING

Blue Stakes of UTAH 811 Bluestakes.org

CALL TWO BUSINESS DAYS BEFORE YOU DIG TO HAVE UTILITIES LOCATED 811 or 1-800-662-4111

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: J. LINFORD (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: 1" = 10'

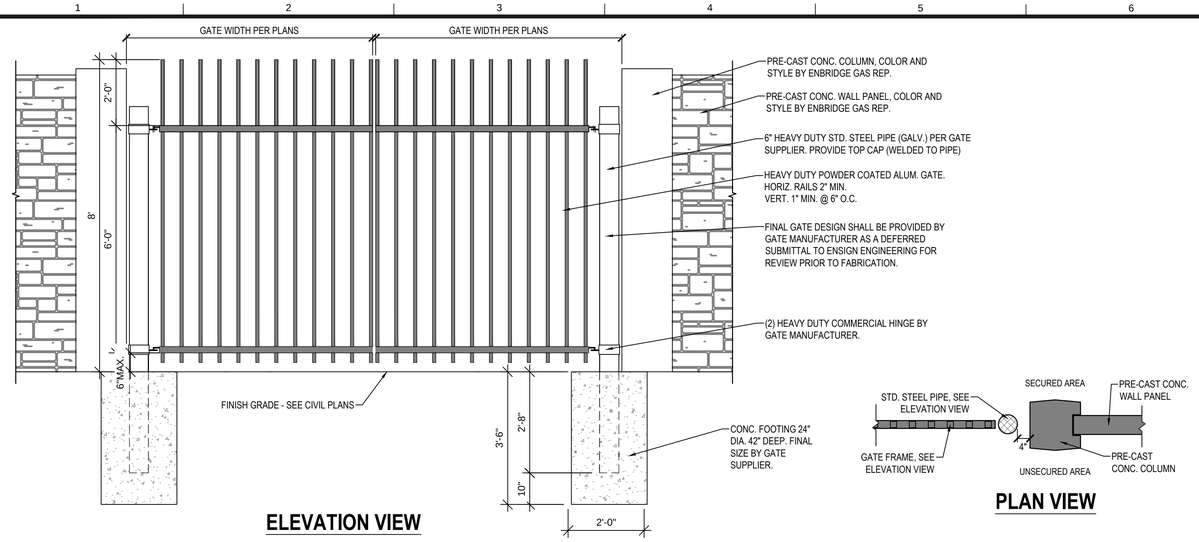
LINE NUMBER:
FACILITY:
TITLE:
DESCRIPTION:
ADDRESS:

FL- 34
DISTRICT REGULATOR STATION TV0001
2" X 2" REGULATOR STATION
GRADING PLAN
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

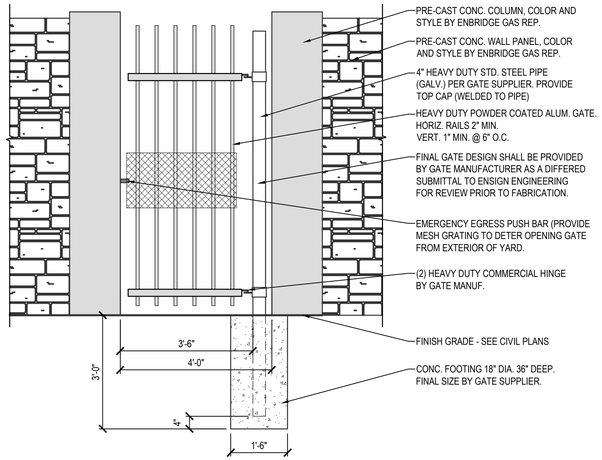
CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	05 OF 06	0

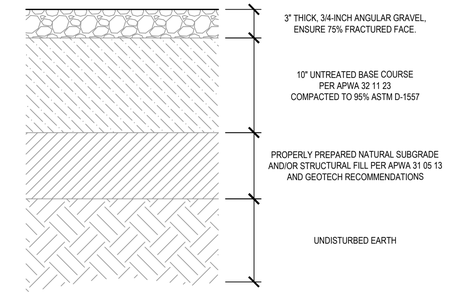
ENBRIDGE GAS ANSI D



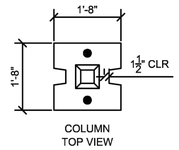
DOUBLE SWING GATE DETAIL 1
SCALE: NTS 06



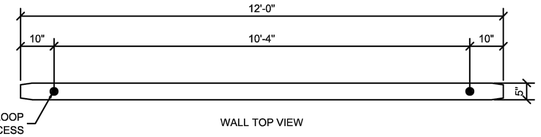
PERSONNEL GATE DETAIL 2
SCALE: NTS 06



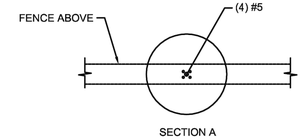
GRAVEL SECTION 3
SCALE: 1 1/2" = 1'-0" 06



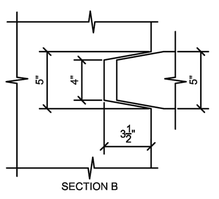
COLUMN TOP VIEW



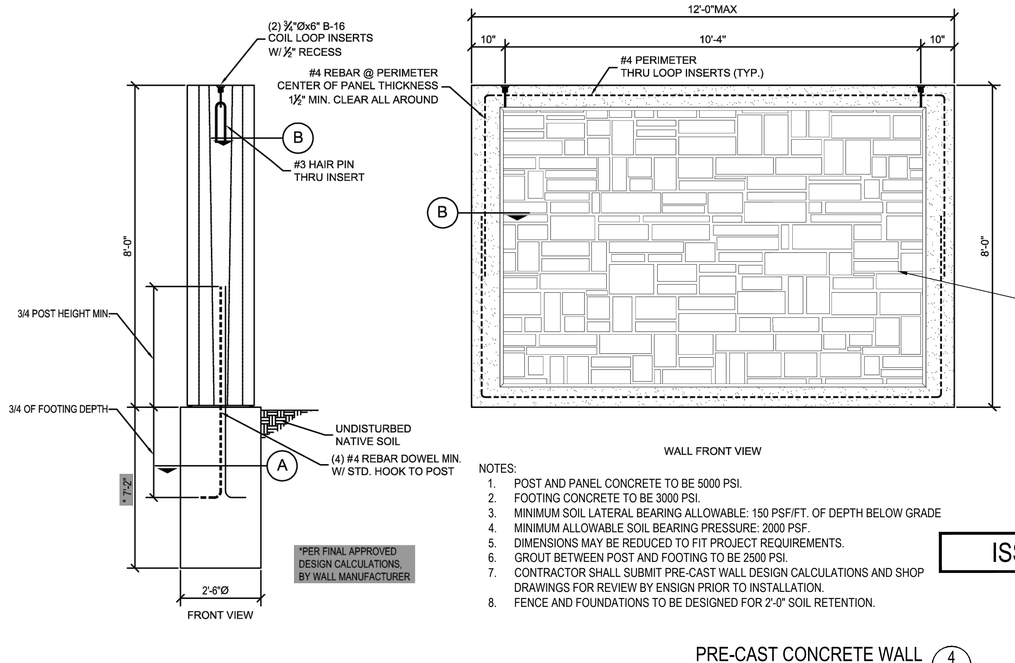
WALL TOP VIEW



SECTION A



SECTION B



WALL FRONT VIEW

NOTES:
1. POST AND PANEL CONCRETE TO BE 5000 PSI.
2. FOOTING CONCRETE TO BE 3000 PSI.
3. MINIMUM SOIL LATERAL BEARING ALLOWABLE: 150 PSF/FT. OF DEPTH BELOW GRADE
4. MINIMUM ALLOWABLE SOIL BEARING PRESSURE: 2000 PSF.
5. DIMENSIONS MAY BE REDUCED TO FIT PROJECT REQUIREMENTS.
6. GROUT BETWEEN POST AND FOOTING TO BE 2500 PSI.
7. CONTRACTOR SHALL SUBMIT PRE-CAST WALL DESIGN CALCULATIONS AND SHOP DRAWINGS FOR REVIEW BY ENSIGN PRIOR TO INSTALLATION.
8. FENCE AND FOUNDATIONS TO BE DESIGNED FOR 2'-0" SOIL RETENTION.

PRE-CAST CONCRETE WALL 4
SCALE: NTS 06

ISSUED FOR CONSTRUCTION

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ENSIGN
THE STANDARD IN ENGINEERING

Blue Stakes of UTAH 811 Bluestakes.org

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ENBRIDGE

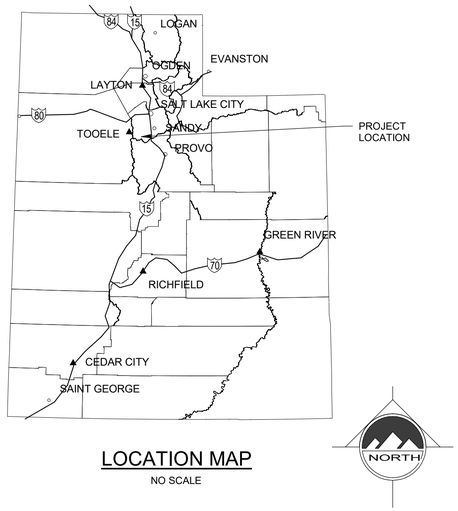
SECTION: 11 T2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS SHOWN

LINE NUMBER:
FACILITY:
TITLE: FL- 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
DETAILS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

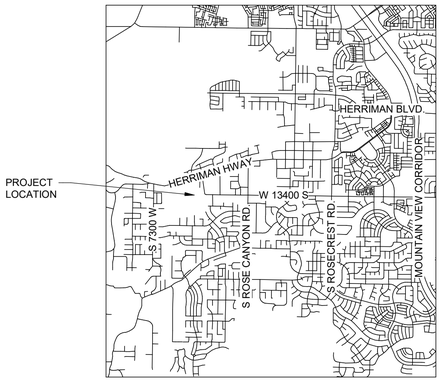
DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-001	06 OF 06	0

ENBRIDGE GAS_ANSI_D



LOCATION MAP

NO SCALE



VICINITY MAP

NO SCALE

Blue Stakes of UTAH 811 — Bluestakes.org

CALL TWO BUSINESS DAYS BEFORE YOU DIG TO HAVE UTILITIES LOCATED 811 or 1-800-662-4111

PROJECT DRAWINGS

DRAWING	DESCRIPTION
ENB-R-HR0003-CCS-002 SHEET 01 OF 13	COVER SHEET
ENB-R-HR0003-CCS-002 SHEET 02 OF 13	FLOOR AND ROOF PLAN
ENB-R-HR0003-CCS-002 SHEET 03 OF 13	ELEVATIONS
ENB-R-HR0003-CCS-002 SHEET 04 OF 13	GENERAL STRUCTURAL NOTES
ENB-R-HR0003-CCS-002 SHEET 05 OF 13	GENERAL STRUCTURAL NOTES
ENB-R-HR0003-CCS-002 SHEET 06 OF 13	SPECIAL INSPECTION
ENB-R-HR0003-CCS-002 SHEET 07 OF 13	SPECIAL INSPECTION
ENB-R-HR0003-CCS-002 SHEET 08 OF 13	STRUCTURAL SCHEDULES
ENB-R-HR0003-CCS-002 SHEET 09 OF 13	STRUCTURAL SCHEDULES
ENB-R-HR0003-CCS-002 SHEET 10 OF 13	STRUCTURAL PLANS
ENB-R-HR0003-CCS-002 SHEET 11 OF 13	STRUCTURAL DETAILS
ENB-R-HR0003-CCS-002 SHEET 12 OF 13	STRUCTURAL DETAILS
ENB-R-HR0003-CCS-002 SHEET 13 OF 13	STRUCTURAL DETAILS

CODE ANALYSIS

REFERENCED BUILDING CODES:	2021 IBC, 2021 IFC, 2021 IECC, 2021 IPC, 2021 IFGC, 2021 IMC, 2020 NEC, ICC/ANSI A117.1-2017
OCCUPANCY CLASSIFICATION:	U
SEPARATED USES:	NA
TYPE OF CONSTRUCTION:	II-B
IMPORTANCE FACTORS:	SEISMIC: 1.5 SNOW: 1.2 WIND: 1.0
TABULAR HEIGHT LIMITATIONS:	55'-0"
TABULAR STORY LIMITATIONS:	2 (504.4)
TABULAR AREA/FLOOR:	8,500 (506.2)
ACTUAL HEIGHT:	13'-10"
ACTUAL STORIES:	1
FLOOR AREA:	236 SQ. FT.
OCCUPANT LOAD:	1 TABLE 1004.1.2
FIRE RATINGS:	NA
FIRE SYSTEM:	NA

PROJECT CONTACTS

PROJECT MANAGER	BLAKE HASLAM	801-560-9960
PROJECT ENGINEER	BLAKE HASLAM	801-560-9960
CATHODIC PROTECTION	KELLY FACER	801-201-5528
MEASUREMENT & CONTROLS	DAVID PLATT (SLC NORTH/SUMMIT)	801-389-4581
HP SURVEYOR	GARRETT NEWHART	801-324-3660
LEAD INSPECTOR	TBD	
IHP SUPERVISOR	SAL DELGADO	801-201-4970
RIGHT OF WAY AGENT	ALEX HOWARD	801-209-2635
MARKETING	ERIC FEHR	385-227-9526
ENVIRONMENTAL HEALTH & SAFETY	STEPHAN RYDER	330-813-8805

NOTICE TO DEVELOPER/CONTRACTOR

UNAPPROVED DRAWINGS REPRESENT WORK IN PROGRESS, ARE SUBJECT TO CHANGE, AND DO NOT CONSTITUTE A FINISHED ENGINEERING PRODUCT. ANY WORK UNDERTAKEN BY DEVELOPER OR CONTRACTOR BEFORE PLANS ARE APPROVED IS UNDERTAKEN AT THE SOLE RISK OF THE DEVELOPER OR CONTRACTOR, INCLUDING BUT NOT LIMITED TO BIDS, ESTIMATION, FINANCING, BONDING, SITE CLEARING, GRADING, INFRASTRUCTURE CONSTRUCTION, ETC.

UTILITY DISCLAIMER

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATIONS OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

NOTICE TO CONTRACTOR

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND THE STATE OF UTAH DEPARTMENT OF INDUSTRIAL RELATIONS CONSTRUCTION SAFETY ORDERS." THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR'S AND SUBCONTRACTOR'S COMPLIANCE WITH SAID REGULATIONS AND ORDERS.

THE CONTRACTOR FURTHER AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB-SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

PROFESSIONAL STRUCTURAL ENGINEER — No. 175238 — DAVID B. ALTER — 08/19/2025 — STATE OF UTAH

ENSIGN — THE STANDARD IN ENGINEERING — www.ensigneng.com — Ensign Project #: 13448 — Date: 08-06-2025 — Ensign Sheet: 01 OF 13 - COVER

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
COVER
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	01 OF 13	0

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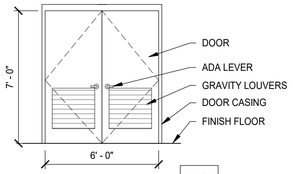
ENBRIDGE GAS_ANSI_D

ROOM SCHEDULE

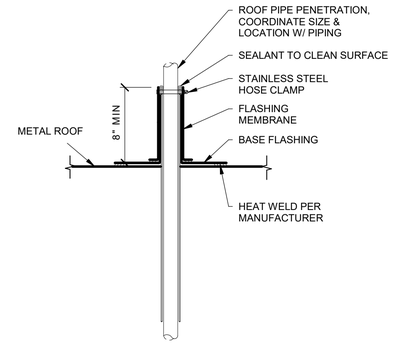
NUMBER	NAME	FLOOR FINISH	BASE FINISH	WALL FINISHES				CEILINGS		COMMENTS
				NORTH	EAST	SOUTH	WEST	HEIGHTS	FINISH	
101	UTILITY ROOM	SEALED CONCRETE	NONE	PAINT	PAINT	PAINT	PAINT	9' - 4"	PAINTED GYP.BD	

DOOR SCHEDULE

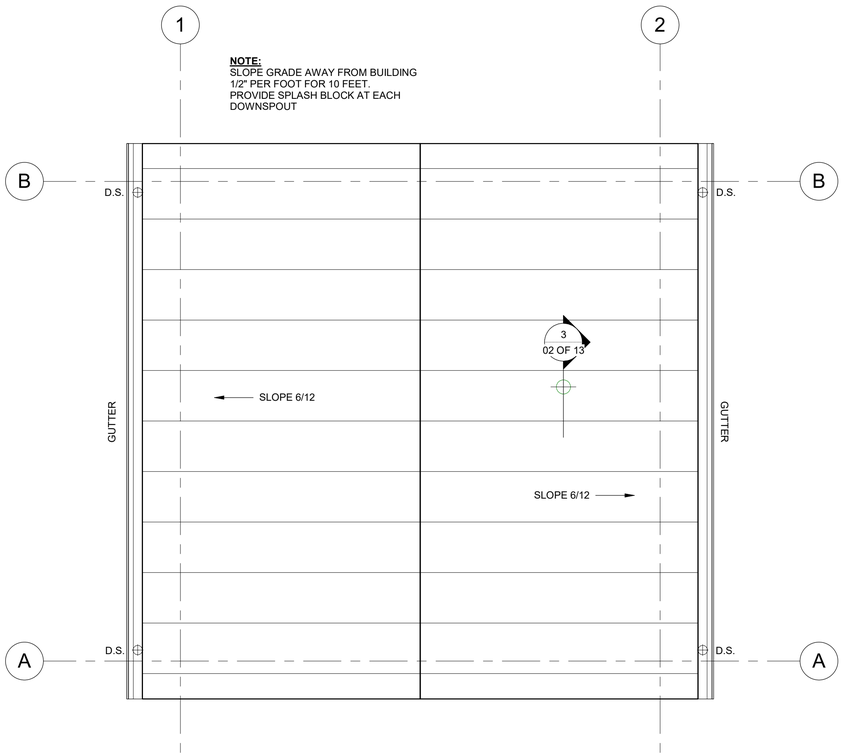
MARK	WIDTH	HEIGHT	DOOR TYPE	DOOR FINISH	FRAME TYPE	FINISH	FIRE RATING	HARDWARE	COMMENTS
101A	6' - 0"	7' - 4"	GALVANIZED	PAINT	GALVANIZED	PAINT		LOCKSET	HM DOOR FRAME WITH 4" HEADER
101B	6' - 0"	7' - 4"	GALVANIZED	PAINT	GALVANIZED	PAINT		LOCKSET	HM DOOR FRAME WITH 4" HEADER



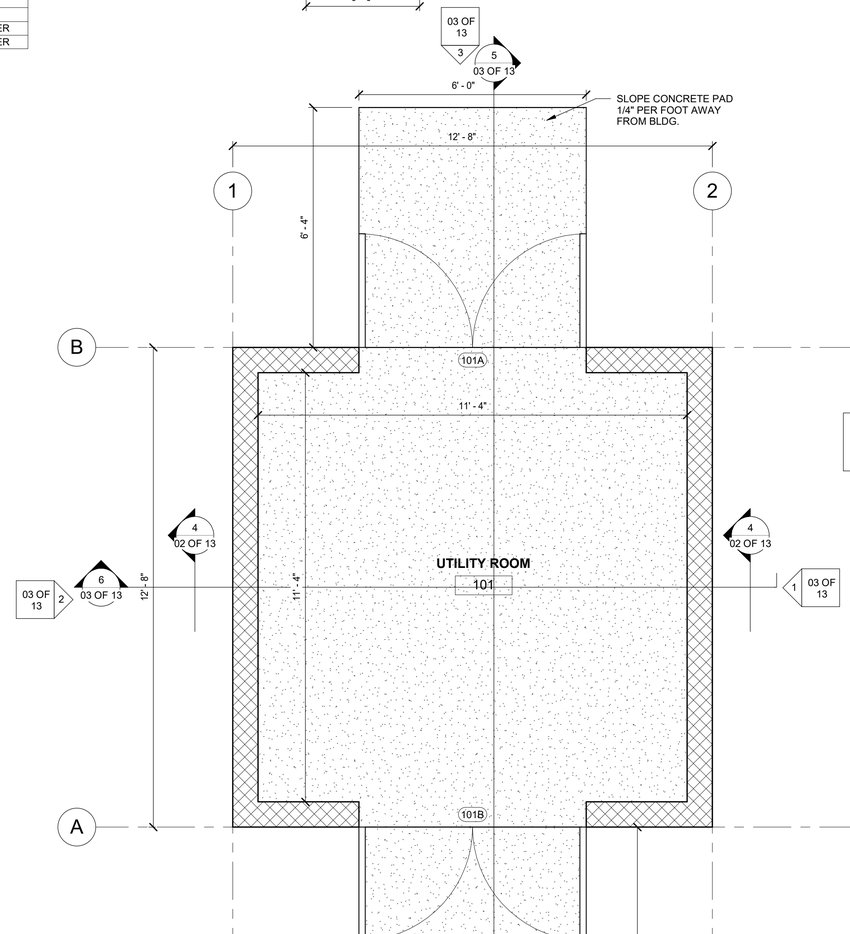
1. DOOR THRESHOLDS TO BE LESS THAN 1/2" ABOVE FINISH FLOOR.
2. ALL DOOR HARWARE TO BE ADA LEVER TYPE.
3. EXIT DOORS ARE TO BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE OR EFFORT.
4. DOORS TO MEET THE REQUIREMNTS OF IBC 1010.
5. DOOR HARDWARE TO BE LOCATED IN DOOR PER 1010.1.9.2
6. ALL LOCKSETS SHALL COMPLY WITH 1010.1.9.3 AND 1010.1.9.4



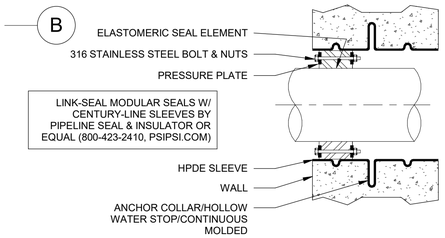
3 ROOF PENETRATION DETAIL
SCALE: 1 1/2" = 1'-0"



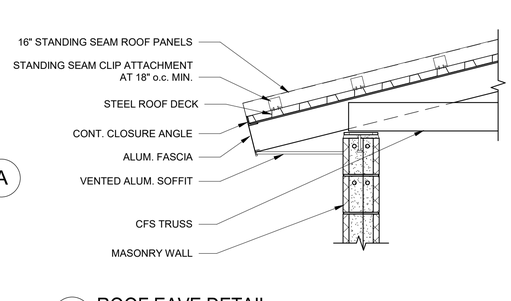
2 ROOF PLAN
SCALE: 1/2" = 1'-0"



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



4 LINK-SEAL DETAIL
SCALE: 1 1/2" = 1'-0"



5 ROOF EAVE DETAIL
SCALE: 3/4" = 1'-0"

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ISSUED FOR CONSTRUCTION

ENSIGN
THE STANDARD IN ENGINEERING
www.ensigneng.com
Ensign Project #: 13445 Date: 08-06-2025
Ensign Sheet: 02 OF 13 - FLOOR AND ROOF PLAN

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

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SCALE: AS NOTED

LINE NUMBER:
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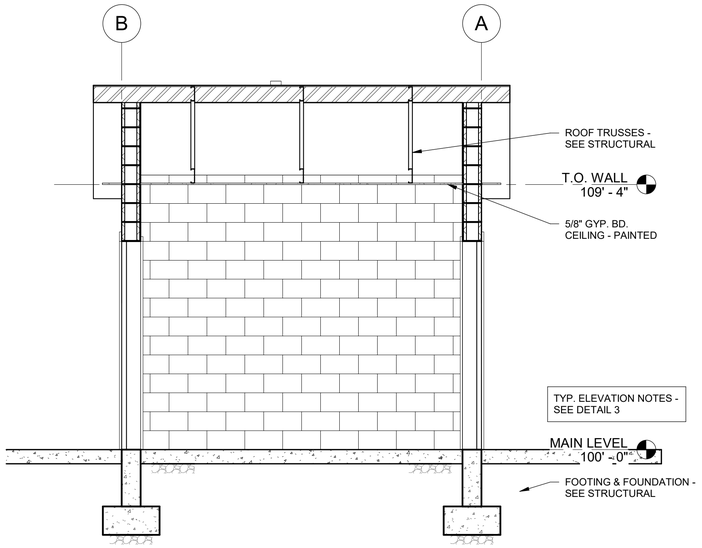
DESCRIPTION: 2" X 2" REGULATOR STATION
ADDRESS: FLOOR AND ROOF PLAN
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

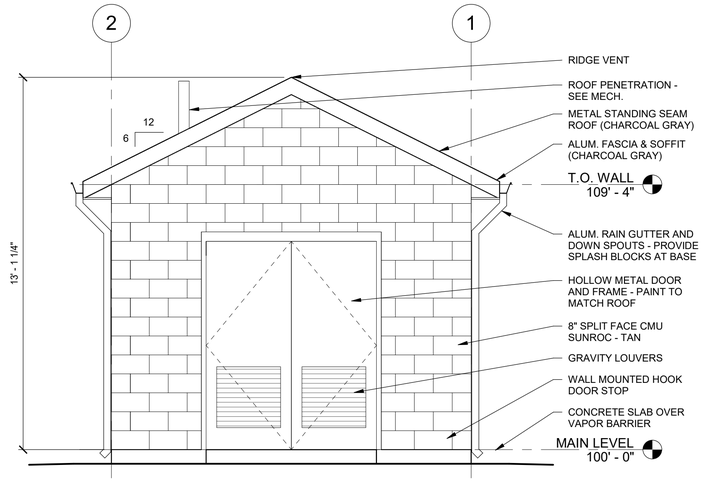
CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	02 OF 13	0

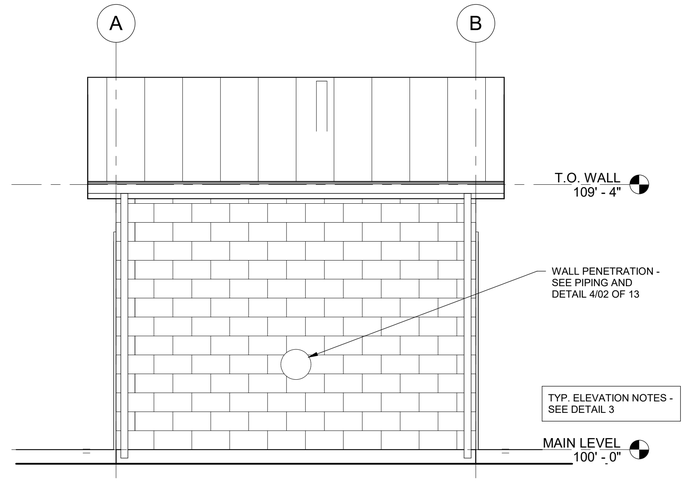
ENBRIDGE GAS_ANSI_D



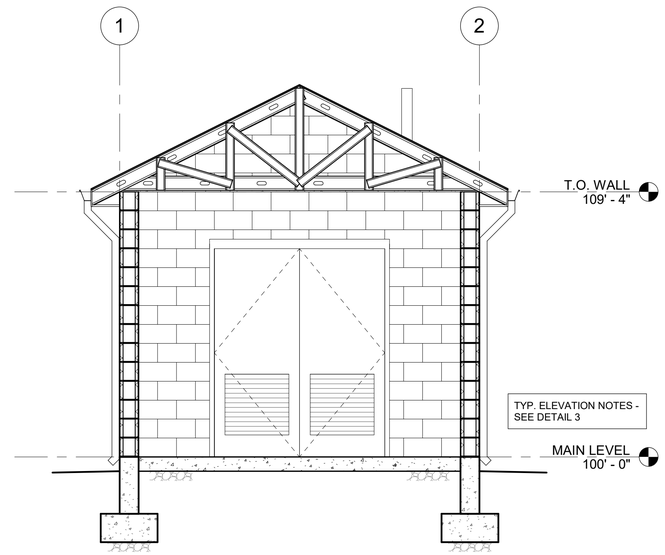
5 BUILDING SECTION
SCALE: 3/8" = 1'-0"



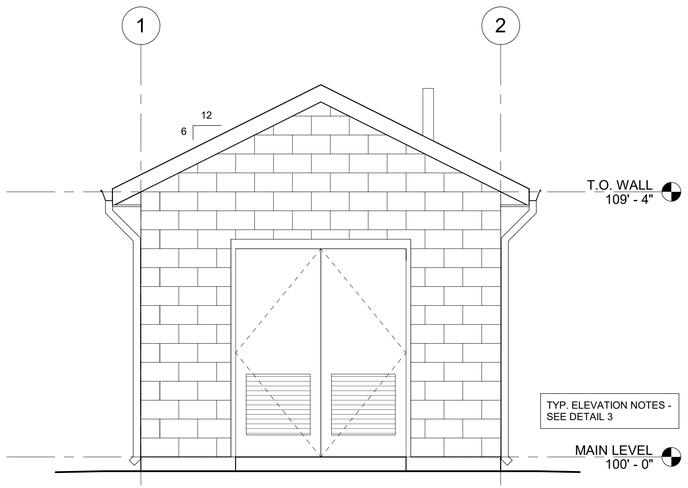
3 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"



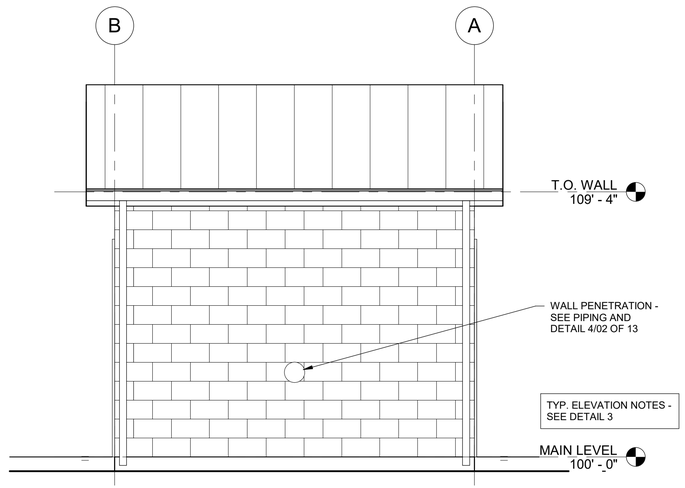
1 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"



6 BUILDING SECTION
SCALE: 3/8" = 1'-0"



4 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"



2 BUILDING ELEVATION
SCALE: 3/8" = 1'-0"

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ISSUED FOR CONSTRUCTION

ENSIGN
THE STANDARD IN ENGINEERING
www.ensigneng.com
Ensign Project #: 13445 Date: 08-06-2025
Ensign Sheet: 03 OF 13 - ELEVATIONS

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11	T 2S R 1W
ELEVATION: 4292'	
LAT: 40.6651	LONG: -111.9289
SCALE: AS NOTED	

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
ELEVATIONS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	03 OF 13	0

ENBRIDGE GAS_ANSI_D

DESIGN CRITERIA

1. GOVERNING BUILDING CODE: **2021 IBC**
   A. RISK CATEGORY = **IV**

2. ROOF LOADING:
   A. ROOF LIVE LOAD = 20 PSF
   B. ROOF DEAD LOAD = 10 PSF
      a. TOP CHORD DEAD LOAD = 7 PSF
      b. BOTTOM CHORD DEAD LOAD = 3 PSF
   C. ROOF SNOW LOAD (FLAT), p_f = 45 PSF
      a. GROUND SNOW LOAD, p_g = 45 PSF
      b. SNOW EXPOSURE FACTOR, C_e = 1.0
      c. THERMAL FACTOR, C_t = 1.2
      d. SNOW LOAD IMPORTANCE FACTOR, I_s = 1.2
      e. SLOPE FACTOR, C_s = 0.79
      f. DRIFT SURCHARGE LOADS = (SEE ROOF PLANS)
   D. RAIN LOADS:
      a. RAIN INTENSITY, I = 1.5 IN/HR

3. SEISMIC LOADING:
   A. S_S = 0.928g
   B. S_1 = 0.314g
   C. S_{DS} = 0.698g
   D. S_{D1} = 0.371g
   E. BASIC SEISMIC FORCE RESISTING SYSTEM = BEARING WALL SYSTEM: SPECIAL REINFORCED MASONRY SHEAR WALLS
   F. ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE
   G. RESPONSE MODIFICATION FACTOR, R = 5.0
   H. DESIGN BASE SHEAR = 0.209W
   I. SEISMIC RESPONSE COEFFICIENT, C_S = 0.209
   J. SEISMIC DESIGN CATEGORY = D
   K. SITE CLASS = D (DEFAULT)
   L. IMPORTANCE FACTOR, I_e = 1.5

4. WIND LOADING:
   A. BASIC WIND SPEED, V = 113 MPH - 3 SEC GUST
   B. ASD WIND SPEED, V_{asd} = 88 MPH - 3 SEC GUST
   C. EXPOSURE = C
   D. INTERNAL PRESSURE COEFFICIENT, GC_{pi} = ± 0.18
   E. WIND DIRECTIONALITY FACTOR, K_d = 0.85
   F. WIND TOPOGRAPHIC FACTOR, K_{zt} = 1.0
   G. COMP. & CLADDING WIND PRESSURE:

COMPONENTS & CLADDING DESIGN WIND PRESSURE (PSF)

LOCATION			EFFECTIVE WIND AREA (FT²)				
			< 10	20	50	100	>500
WALLS	ZONE 5: WITHIN 3-FT OF BUILDING CORNER		-30.8	-28.8	-25.9	-24.0	-19.1
	ZONE 4: ALL OTHER AREAS		-24.9	-24.0	-23.0	-21.5	-19.1
	ZONE 4 & 5: POSITIVE PRESSURES		16.0	16.0	16.0	16.0	16.0
ROOF	ZONE 3R: WITHIN 3-FT OF ROOF RIDGE AT GABLE ENDS		-73.6	-62.9	-50.2	-38.6	-38.6
	ZONE 3E, 2R & 2N: WITHIN 3-FT OF ROOF CORNERS, ROOF RIDGE & GABLE ENDS		-61.9	-54.1	-42.4	-34.7	-23.0
	ZONE 2E & 1: WITHIN 3-FT OF ROOF EDGE & IN ROOF FIELD		-42.4	-42.4	-26.9	-16.0	-16.0
	ALL ZONES: POSITIVE PRESSURES		16.0	16.0	16.0	16.0	16.0
	N/A		-	-	-	-	-
	N/A		-	-	-	-	-
PARAPETS	N/A	LOAD CASE A	-	-	-	-	-
		LOAD CASE B	-	-	-	-	-
	N/A	LOAD CASE A	-	-	-	-	-
		LOAD CASE B	-	-	-	-	-

5. SERVICEABILITY CRITERIA:
   A. DEFLECTION LIMITS: TOTAL LIVE / SNOW
      a. ROOF L/180 L/240
   B. ALLOWABLE STORY DRIFT:
      a. SEISMIC 0.010 x STORY HEIGHT

GENERAL

1. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE GOVERNING BUILDING CODE AND SUPPLEMENTS UNLESS HIGHER STANDARD IS REQUIRED BY LOCAL BUILDING OFFICIAL.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ELEMENTS AS SHOWN ON THE CONTRACT DOCUMENTS UNLESS SPECIFICALLY NOTED OTHERWISE.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
4. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL APPLICABLE OSHA SAFETY REQUIREMENTS DURING CONSTRUCTION AND SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE SITE.
5. AT ANY GIVEN TIME DURING AND AFTER CONSTRUCTION, THE CONTRACTOR AND/OR OWNER SHALL ENSURE THE LOADS ON THE STRUCTURE DO NOT EXCEED THE SPECIFIED DESIGN LOADS. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF.
6. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
7. THE TYPICAL DETAILS SHALL BE USED WHEREVER APPLICABLE UNLESS OTHERWISE NOTED ON THE DRAWINGS. SPECIFIC NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
8. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW MOST STRINGENT REQUIREMENT AS DETERMINED BY STRUCTURAL ENGINEER WITHOUT COST TO OWNER.
9. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SHORING, SEQUENCES, AND PROCEDURES.
10. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.

GENERAL (CONTINUED)

11. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS, AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
12. **DO NOT PENETRATE ANY STRUCTURAL ELEMENTS** (BEAMS, COLUMNS, WALLS, SLABS, STEEL DECKS, ETC.) WITHOUT PRIOR WRITTEN APPROVAL OF STRUCTURAL ENGINEER THROUGH ARCHITECT.
13. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

PRE-CONSTRUCTION MEETINGS

1. A PRE-CONSTRUCTION MEETING IS RECOMMENDED PRIOR TO THE START OF CONSTRUCTION OF THE STRUCTURE. AT THE CONTRACTOR'S OPTION, THE PRE-CONSTRUCTION MEETING MAY TAKE PLACE PRIOR TO THE START OF SHOP DRAWING PRODUCTION.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE THE PRE-CONSTRUCTION MEETING WITH ALL APPLICABLE PARTIES INCLUDING (BUT NOT LIMITED TO) THE CONTRACTOR, SUB-CONTRACTORS, ARCHITECT, STRUCTURAL ENGINEER, AND SPECIAL INSPECTOR.

SHOP DRAWINGS

1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR PRIOR TO FABRICATION OR ERECTION FOR THE FOLLOWING ITEMS:
   A. CONCRETE MIX DESIGNS
   B. REINFORCING STEEL
   C. STRUCTURAL STEEL
   D. CFS TRUSSES
   E. MISCELLANEOUS METALS (INCLUDING BUT NOT LIMITED TO PREFABRICATED STEEL STAIRS, HANDRAILS, GUARDRAILS, LADDERS, ETC.)
   F. CONCRETE MASONRY BLOCK
   G. GROUT
2. THE GENERAL CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF ALL SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OR ERECTION. FIVE (5) WORKING DAYS (MINIMUM) SHALL BE ALLOWED FOR THE REVIEW OF THESE SHOP DRAWINGS BY THE STRUCTURAL ENGINEER.
3. THE GENERAL CONTRACTOR WILL REVIEW AND STAMP ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMISSION. ANY SHOP DRAWINGS OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW.
4. ANY SHOP DRAWING NOT CHECKED AND INITIALED BY THE SUPPLIER/DETAILER PRIOR TO SUBMITTING FOR ARCHITECTURAL AND ENGINEERING REVIEW, WILL BE RETURNED WITHOUT REVIEW.
5. THE CONSTRUCTION DOCUMENTS MAY NOT BE REPRODUCED AND USED TO CREATE SHOP DRAWINGS WITHOUT THE PERMISSION FROM THE ARCHITECT OR ENGINEER.

FOUNDATIONS

1. GEOTECHNICAL CONSULTANT: **GSH GEOTECHNICAL**
   REPORT NUMBER: **2651-002-18**
   REPORT DATE: **SEPTEMBER 19, 2018**

   ANY ADDENDUMS, ALTERATIONS, OR FIELD CHANGES TO THE ABOVE REFERENCED GEOTECHNICAL REPORT SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND INCORPORATION INTO THE STRUCTURAL DESIGN. ANY CONSTRUCTION COMPLETED BEFORE THE REVIEW IS COMPLETED IS PERFORMED AT THE CONTRACTOR'S RISK.
2. SPREAD FOOTINGS SHALL BEAR ON **UNDISTURBED, UNIFORM, NATIVE SOILS OR ENTIRELY ON PROPERLY PLACED AND COMPACTED STRUCTURAL FILL**, AS SPECIFIED IN THE GEOTECHNICAL REPORT. DESIGN SOIL BEARING VALUE IS **3000 PSF**. BOTTOM OF FOOTINGS SHALL BEAR AT A MINIMUM OF **30-INCHES** BELOW LOWEST ADJACENT FINAL GRADE EXCEPT THAT BOTTOM OF INTERIOR FOOTINGS NOT SUBJECT TO ANY FREEZING MAY BEAR AT A MINIMUM OF **18-INCHES** BELOW TOP OF INTERIOR SLAB.
3. A **1.50** ALLOWABLE SOIL BEARING PRESSURE INCREASE IS ALLOWED FOR WIND & SEISMIC LOADING.
4. ANY FILL TO BE PLACED UNDER THE BUILDING AND FOOTINGS SHALL MEET THE SOIL PROPERTY AND COMPACTION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT. EXTENT OF THE FILL BEYOND THE EDGE OF THE FOOTINGS SHALL BE PLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
5. ALL FILL AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER OF RECORD.
6. ALL WATER SHALL BE REMOVED FROM FOUNDATION EXCAVATION PRIOR TO PLACING OF CONCRETE. DO NOT PLACE CONCRETE UNDER WATER OR ON FROZEN GROUND.
7. ANY UNUSUAL SOIL CONDITIONS (WATER, SOFT LAYERS, ROCK OUTCROPPINGS, ETC.) ENCOUNTERED DURING EXCAVATION FOR FOOTINGS SHOULD BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE STRUCTURAL AND GEOTECHNICAL ENGINEERS PRIOR TO PROCEEDING.

STEEL REINFORCING

1. TYPICAL REINFORCING BAR STRENGTHS:
   A. REINFORCING (NON-WELDABLE) = ASTM A615, DEFORMED, Fy = 60 KSI (420 MPa)
   B. REINFORCING (WELDABLE) = ASTM A706, DEFORMED, Fy = 60 KSI (420 MPa)
2. TYPICAL CLEAR CONCRETE COVERAGES:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
   B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER = 2" (#6 AND LARGER)
      = 1-1/2" (#5 AND SMALLER)
   C. ALL OTHERS PER LATEST EDITION OF ACI 318.
3. TYPICAL CLEAR MASONRY COVERAGES:
   A. MASONRY FACE EXPOSED TO EARTH OR WEATHER: = 2" (#6 AND LARGER)
      = 1-1/2" (#5 AND SMALLER)
   B. MASONRY NOT EXPOSED TO EARTH OR WEATHER: = 1-1/2"
4. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. LATEST ACI CODE AND DETAILING MANUAL APPLY. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE OR MASONRY. REINFORCING BAR SPACINGS GIVEN ARE MAXIMUM ON CENTERS.
5. ALL REINFORCING TO BE WELDED SHALL BE WELDED IN ACCORDANCE WITH AWS D1.4. NO TACK WELDING OF REINFORCING BARS IS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE BY STRUCTURAL ENGINEER.

CONCRETE

1. CONCRETE SHALL CONFORM TO ALL REQUIREMENTS OF ACI 318-19 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", EXCEPT AS MODIFIED BY THE SUPPLEMENTAL REQUIREMENTS BELOW:

   NO WATER TO BE ADDED TO CONCRETE ON SITE EITHER BEFORE OR AFTER PLACEMENT

ELEMENT TYPE	MINIMUM COMP. STRENGTH, f'c (psi)	EXPOSURE CLASSES F	S	W	C	CEMENT TYPE	MAX. W/C RATIO	AIR CONTENT %	MAX. AGG. SIZE	MAX. FLY ASH %	APPLICABLE *SPECIFIC INSTRUCTION NOTES
FOOTINGS	3000	F0	S0	W0	C1	II OR IL	0.45	--	3/4"	25	
FOUNDATION WALLS, PEDESTALS, & GRADE BEAMS OCCURRING AT OR BELOW 6" ABOVE FINISHED GRADE	3000	F0	S0	W0	C1	II OR IL	0.45	5	3/4"	25	
INTERIOR SLAB ON GRADE	4000	F0	S0	W0	C0	II OR IL	0.45	--	1 1/2"	25	
EXTERIOR REINFORCED SLAB ON GRADE	5000	F2	S0	W0	C2	II OR IL	0.40	5 1/2	1 1/2"	25	

2. CONCRETE SHALL ATTAIN THE LISTED MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.
3. AIR CONTENT TOLERANCE IS +/- 1-1/2% AT THE TIME OF FINAL PLACEMENT.
4. AIR ENTRAINMENT SHALL BE ADJUSTED FOR THE USE OF ADMIXTURES AND FLY ASH.
5. SUPERPLASTICIZER MAY BE ADDED TO INCREASE SLUMP AS REQUIRED FOR PLACEMENT.
6. CALCIUM CHLORIDE SHALL NOT BE ADDED TO THE CONCRETE MIX.
7. FOR EXPOSURE CLASS F3, THE MAXIMUM PERCENTAGE OF POZZOLAN IN CONCRETE MIX SHALL BE IN ACCORDANCE WITH SECTION 26.4.2.2 (B) OF ACI 318-19.
8. USE TYPE V CEMENT WHEN HIGH SULFATE RESISTANCE IS REQUIRED BY THE GEOTECHNICAL REPORT OR WHEN THE 'S' EXPOSURE CLASS IS DESIGNATED AS S2 OR S3. IF S3 IS REQUIRED, POZZOLAN OR SLAG CEMENT IN ACCORDANCE WITH ASTM C1012 IS ALSO REQUIRED.
9. MATERIAL DESIGNATIONS:
   A. CEMENT = ASTM C150 OR ASTM C595
   B. NORMAL WEIGHT AGGREGATES = ASTM C33
   C. LIGHTWEIGHT AGGREGATES = ASTM C330
   D. FLY ASH, CLASS F POZZOLAN = ASTM C618
   E. DEFORMED BAR ANCHORS (DBA) = ASTM A496
   F. HEADED STUD ANCHORS (HSA) = ASTM A108
   G. AIR ENTRAINMENT ADMIXTURES = ASTM C260
   H. WATER REDUCING ADMIXTURES = ASTM C494, TYPE 'A'
   I. RETARDING ADMIXTURES = ASTM C494, TYPE 'B'
   J. WATER REDUCING & RETARDING ADMIXTURES = ASTM C494, TYPE 'D'
   K. HIGH RANGE WATER REDUCING ADMIXTURES = ASTM C494, TYPE 'F'
   L. HIGH RANGE WATER REDUCING & RETARDING ADMIXTURES = ASTM C494, TYPE 'G'
   M. ADMIXTURES TO COME FROM AN ISO9001 QUALITY CERTIFIED MANUFACTURER. ALL ADMIXTURES ARE TO COME FROM THE SAME MANUFACTURER TO ENSURE COMPATIBILITY.
   N. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER PRODUCTS THAT REACT ADVERSELY WITH THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.
10. A STATEMENT OF MIX DESIGN FOR ALL CONCRETE SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK.
11. PLACEMENT, CURING, AND PROTECTION OF CONCRETE SHALL CONFORM TO ACI 318-19. THE USE OF CHEMICALS OR ADDITIVES TO PREVENT FREEZING SHOULD NOT BE PERMITTED, REFER TO SPECIFICATIONS AND TO DIRECTIVES BY STRUCTURAL ENGINEER FOR ADDITIONAL COLD WEATHER REQUIREMENTS. ALL CONCRETE SHALL BE PROPERLY VIBRATED IN PLACE USING INTERNAL VIBRATING RODS (MECHANICAL OR ELECTRICAL).
12. ALL SLABS ON GRADE SHALL BE PLACED WITH CONTROL JOINTS OR SAW CUTS AT NO MORE THAN 30 TIMES THE SLAB THICKNESS ON CENTER (MAXIMUM) OR AS SHOWN/NOTED ON DRAWINGS. LENGTH TO WIDTH RATIO OF THE SLAB BETWEEN CONTROL JOINTS EACH WAY SHALL BE NO MORE THAN 1.25. COMPLETE CONTROL JOINTS WITHIN 12 HOURS OF CONCRETE PLACEMENT. TOOLED CONTROL JOINTS ARE TO BE AT MINIMUM 1/4 OF THE SLAB THICKNESS AND NO MORE THAN 1/3 OF THE SLAB THICKNESS. FOR SAW CUT CONTROL JOINTS, SEE THE TYPICAL SLAB ON GRADE JOINT DETAILS.
13. SLAB ON GRADE CONSTRUCTION JOINTS SHALL NOT EXCEED 125' - 0" O.C. IN ANY DIRECTION. CONSTRUCTION JOINTS MAY BE EITHER A DOWEL TYPE CONSTRUCTION JOINT OR A KEYWAY TYPE CONSTRUCTION JOINT. SEE THE SLAB JOINT TYPICAL DETAILS FOR MORE INFORMATION.

CONCRETE (CONTINUED)

14. CONCRETE TESTS WILL BE MADE ON MAJOR POURS AND AT SUCH OTHER TIMES AS MAY BE REQUIRED BY THE ENGINEER. EACH TEST SHALL CONSIST OF (4) CYLINDERS OF WHICH ONE SHALL BE TESTED AT SEVEN DAYS, TWO TESTED AT TWENTY-EIGHT DAYS AND ONE RETAINED IN RESERVE FOR LATER TESTS, IF REQUIRED. IN GENERAL, ONE TEST SHALL BE MADE FOR EACH 150 CUBIC YARDS OF CONCRETE OR EVERY 5000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS ON EACH DAY'S POUR. SPECIMENS SHALL BE MADE AND TESTED IN ACCORDANCE WITH ASTM C31 & C39 STANDARDS. SLUMP AND AIR ENTRAINMENT TESTS SHALL ALSO BE MADE WITH EACH SET OF CYLINDERS TAKEN.
15. BEFORE CONCRETE IS POURED, CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC., RELATED TO THE WORK.
16. THE CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT, REMOVAL, AND DESIGN OF ALL FORMWORK AND SHORING.
17. SUSPENDED CONCRETE STRUCTURAL MEMBERS SHALL NOT BE STRIPPED OF FORMS UNTIL CONCRETE HAS REACHED ITS DESIGN STRENGTH.
18. FOR LAP SPLICE LENGTH, SEE CONCRETE REINFORCING LAP SPLICE LENGTH SCHEDULE.
19. SEE CIVIL DRAWINGS FOR SITE CONCRETE REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM WITH ASTM STANDARDS AS OUTLINED IN THE AISC "STEEL CONSTRUCTION MANUAL" (LATEST EDITION) CONTAINING SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS AND THE CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL BUILDINGS, AND AS OUTLINED IN THE AISC "SEISMIC DESIGN MANUAL" (LATEST EDITION) CONTAINING SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS AND PREQUALIFIED CONNECTIONS, UNLESS OTHERWISE NOTED ON DRAWINGS.
2. STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   A. W-SHAPES: ASTM A992, Fy = 50 KSI
   B. RECTANGULAR HSS SHAPES: ASTM A500, GR. C, Fy = 50 KSI
   C. ROUND HSS SHAPES: ASTM A500, GR. C, Fy = 46 KSI
   D. PIPES: ASTM A53, GR. B, Fy = 35 KSI
   E. CHANNELS, ANGLES AND ALL OTHER SHAPES: ASTM A36, Fy = 36 KSI
   F. PLATES AND BARS: ASTM A36, Fy = 36 KSI
   G. STAINLESS STEEL (WHERE INDICATED ON DRAWINGS): TYPE 316 w/ MIN. Fy = 42 KSI AND Fu = 84 KSI
   H. HIGH-STRENGTH BOLTS (ALL STEEL TO STEEL CONNECTIONS): ASTM A325 OR A490
   I. COMMON BOLTS (NON-STEEL TO STEEL CONNECTIONS): ASTM A307
   J. HEADED STUD ANCHORS (HSA): ASTM A108
   K. ANCHOR RODS: ASTM F1554, GR. 36
   L. HEAVY HEX NUTS: ASTM A563
   M. STEEL PLATE WASHERS: ASTM A36
   N. HARDENED WASHERS: ASTM F436
3. UNLESS OTHERWISE NOTED, ALL STRUCTURAL STEEL TO STEEL BOLTED CONNECTIONS SHALL USE 3/4" DIAMETER HIGH-STRENGTH BOLTS AND SHALL BE SNUG-TIGHTENED.
4. WHERE SLIP-CRITICAL/PRETENSIONED CONNECTIONS ARE REQUIRED, A HARDENED WASHER SHALL BE PLACED DIRECTLY UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD) IN THE BOLT ASSEMBLY. PRETENSIONING MAY BE COMPLETED USING EITHER THE TURN OF THE NUT METHOD, DTI WASHERS, OR TZ BOLTS. ALL OTHER PROCEDURES INCLUDING FAYING SURFACE PREPARATION, BOLT ASSEMBLY PREPARATION, STORAGE, AND INSPECTION SHALL BE COMPLETED PER AISC STANDARDS.
5. HEADED STUD ANCHORS SHALL BE TYPE B CONFORMING TO REQUIREMENTS OF AWS D1.1 AND SHALL BE ATTACHED PER MANUFACTURER'S SPECIFICATIONS.
6. REMOVE RUST, OILS, MILL SCALE AND APPLY ONE COAT RED LEAD IRON OXIDE SHOP PAINT, 2 MILS (DRY) THICK. PROVIDE TOUCH UP FIELD COAT AT ALL ABRADED AND WELDED AREAS, 2 MILS (DRY) THICK.
7. SHOP DRAWINGS FOR ALL STEEL ITEMS SHALL BE PREPARED FOR AND REVIEWED BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION AND INSTALLATION.
8. ALL WELDS SHALL BE MADE WITH E70XX ELECTRODES UNLESS NOTED OTHERWISE ON DRAWINGS. WELDS SHALL BE PERFORMED BY WELDERS CERTIFIED BY AWS STANDARDS WITHIN THE LAST 12 MONTHS (PROVIDE WRITTEN CERTIFICATION IF REQUESTED). STAINLESS STEEL WELDS SHALL BE MADE WITH APPROPRIATE E308 ELECTRODES UNLESS NOTED OTHERWISE ON DRAWINGS. STAINLESS STEEL WELDS SHALL BE PERFORMED BY WELDERS CERTIFIED TO WELD STAINLESS STEEL BY AWS STANDARDS WITHIN THE LAST 12 MONTHS (PROVIDE WRITTEN CERTIFICATION IF REQUESTED).

   WHERE NOTED ON THE DRAWING:
   A. ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN INDEPENDENT TESTING LABORATORY AS SELECTED BY THE OWNER OR ENGINEER.
   B. ALL FULL PENETRATION OR FUSION WELDS SHOWN ON DRAWINGS ARE TO BE TESTED BY X-RAY PER AWS SPECIFICATION.
   C. THE OWNER MAY TEST ALL FILLET WELDS OR PORTIONS THERE OF WITH INSPECTIONS.
   D. COPIES OF TEST RESULTS SHALL BE SENT TO STRUCTURAL ENGINEER.

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PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

ISSUED FOR CONSTRUCTION

ENSIGN
THE STANDARD IN ENGINEERING
www.ensigneng.com
Ensign Project #: 13448 Date: 08-06-2025
Ensign Sheet: 4 OF 13 - GENERAL STRUCTURAL NOTES

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DISTRICT REGULATOR STATION TV0001
2" X 2" REGULATOR STATION
GENERAL STRUCTURAL NOTES
DESCRIPTION:
ADDRESS: 1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	4 OF 13	0

ENBRIDGE GAS_ANSI_D

MASONRY

1. MASONRY WORK SHALL CONFORM TO ALL REQUIREMENTS OF TMS 402-16 "BUILDING CODE FOR MASONRY STRUCTURES."

2. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90-14 "STANDARD SPECIFICATION FOR LOAD-BEARING CONCRETE MASONRY UNITS", AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'm) OF 2,000 PSI AND AN AVERAGE DENSITY BETWEEN 105 PCF AND 125 PCF (MEDIUM WEIGHT).

3. MORTAR SHALL CONFORM TO ASTM C270-14a, "STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY". USE TYPE S MORTAR WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. DO NOT USE ADMIXTURES CONTAINING MORE THAN 0.2 PERCENT CHLORIDE IONS.

4. GROUT SHALL CONFORM TO ASTM C476-18, "STANDARD SPECIFICATION FOR GROUT FOR MASONRY", AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF f'm PLUS 500 PSI (2,500 PSI MINIMUM). DETERMINE COMPRESSIVE STRENGTH OF GROUT IN ACCORDANCE WITH ASTM C1019. DO NOT USE ADMIXTURES UNLESS APPROVED BY ENGINEER OF RECORD. FIELD ADDITION OF ADMIXTURES IS NOT PERMITTED IN SELF-CONSOLIDATING GROUT. GROUT SHALL CONSIST OF 1 PART PORTLAND CEMENT, 3 PARTS SAND AND NOT MORE THAN 2 PARTS PEA GRAVEL. MIX GROUT (OTHER THAN SELF-CONSOLIDATING GROUT) TO A CONSISTENCY THAT HAS A SLUMP BETWEEN 8 AND 11 INCHES. MASONRY VIBRATORS SHALL BE USED IN ALL GROUTED CELLS, AND ALL CELLS SHALL BE VIBRATED TWICE.

5. MASONRY COMPRESSIVE STRENGTH VERIFICATION:
   A. MASONRY COMPRESSIVE STRENGTH, f'm SHALL BE VERIFIED USING THE "UNIT STRENGTH METHOD" PER SECTION 1.4 B.2.b OF TMS 602-16 AND AS DESCRIBED BELOW.
   B. PRIOR TO CONSTRUCTION, THE MASONRY UNITS SHALL BE TESTED FOR STRENGTH AND A LETTER OF CERTIFICATION FOR THE GROUT STRENGTH SHALL BE PROVIDED BY THE SUPPLIERS OF THE MASONRY UNITS.
   C. THE CONTRACTOR HAS THE OPTION OF USING THE "MASONRY PRISM TEST METHOD" PER SECTION 1.4 B.3 IN LIEU OF THE "UNIT STRENGTH METHOD."

6. MASONRY REINFORCING:
   A. LAP ALL REINFORCING AS SHOWN ON MASONRY REINFORCING LAP SPLICE LENGTH SCHEDULE.
   B. UNLESS NOTED OTHERWISE, TYPICAL REINFORCING SHALL BE #5 BARS @ 32"O.C. VERTICALLY, #5 BARS @ 48" O.C. HORIZONTALLY.
   C. ALL VERTICAL REINFORCING SHALL BE DOWELED INTO FOUNDATION WALL OR FOOTING BELOW. HORIZONTAL REINFORCING SHALL BE CONTINUOUS AT ALL INTERSECTING WALLS AND AT CORNERS.
   D. UNLESS OTHERWISE NOTED, ADDITIONAL VERTICAL BARS TO MATCH WALL REINFORCING SHALL BE PLACED AT JAMBS OF ALL OPENINGS, ENDS, AND INTERSECTIONS OF WALLS.
   E. HORIZONTAL BARS SHALL BE PLACED IN BOND BEAMS FILLED WITH GROUT AT THE TOP OF ALL WALLS, AT EACH FLOOR LEVEL, AND AT 48" O.C. MAXIMUM BETWEEN TOP OF WALL AND FOUNDATION. BOND BEAM UNITS SHALL CONTINUE UNINTERRUPTED AROUND ALL CORNERS AND WALL INTERSECTIONS.
   F. WHERE BOND BEAM REINFORCEMENT IS INTERRUPTED BY ADJACENT STEEL FRAMING, DOWELS MATCHING BOND BEAM REINFORCEMENT SHALL BE WELDED TO THE STEEL FRAMING FOR CONTINUITY.
   G. ALL REINFORCING SHALL BE IN PLACE PRIOR TO GROUTING. VERTICAL REINFORCING BARS SHALL BE HELD IN POSITION AT THE TOP, BOTTOM, AND AT INTERVALS NOT FARTHER APART THAN 200 BAR DIAMETERS.

7. NO MASONRY SHALL BE LAID WHEN THE TEMPERATURE OF THE OUTSIDE AIR IS BELOW 40 DEGREE F., UNLESS APPROVED METHODS ARE USED DURING CONSTRUCTION TO PREVENT DAMAGE TO THE MASONRY. SUCH METHODS SHALL INCLUDE PROTECTION OF THE MASONRY FOR A PERIOD OF AT LEAST 48 HOURS. SEE SECTION 1.8 C OF THE TMS 602-16 FOR OTHER CONSTRUCTION AND PROTECTION REQUIREMENTS.

8. UNLESS APPROVED OTHERWISE BY THE ENGINEER, LOW LIFT GROUTED CONSTRUCTION PRACTICE SHALL BE USED. UNITS MAY BE LAID TO A HEIGHT NOT EXCEEDING 8 FEET; HOWEVER, IF THE HEIGHT EXCEEDS 4 FEET, CLEANOUTS MUST BE USED/ SUCH CLEANOUTS SHALL BE PROVIDED BY SUITABLE OPENING IN THE FACE SHELLS IN THE BOTTOM COURSE OF EACH REINFORCED CELL.

9. ALL ANCHOR BOLTS AND REINFORCING STEEL MUST BE PLACED IN GROUTED CELLS.

10. STOP GROUT POUR 2" BELOW TOP OF BLOCK UNITS BETWEEN EACH GROUT LIFT.

11. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, ONLY CELLS WITH REINFORCING SHALL BE GROUTED SOLID. ADDITIONALLY, ALL STEEL JOIST AND BEAM POCKETS SHALL BE GROUTED SOLID AND ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID. CELLS SHALL BE ALIGNED TO PRESERVE UNOBSTRUCTED VERTICAL CAVITIES OF 2" x 3" MINIMUM.

12. UNLESS NOTED OTHERWISE, MASONRY WALLS SHALL BE CONSTRUCTED UTILIZING COMMON RUNNING-BOND WITH FULLY MORTARED BED JOINTS.

13. UNLESS OTHERWISE NOTED ON THE PLANS, PLACE CONTROL JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT RUN OF WALL EXCEEDS THE LESSER OF THE LENGTH TO HEIGHT RATIO OF 1.5 TO 1 OR 40'-0".

14. ALL UNITS SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE. VERTICAL ALIGNMENT OF CELLS SHALL MAINTAIN A CONTINUOUS CLEAR, UNOBSTRUCTED CELL NOT LESS THAN 3 INCHES SQUARE. MINIMUM DEPTH OF HORIZONTAL BOND BEAM CHANNEL BELOW TOP OF UNIT SHALL BE 1-1/2 INCHES, AND CHANNEL SHALL BE 3 INCHES WIDE MINIMUM. ALL UNITS SHALL BE FREE OF DUST AND DIRT AT THE TIME OF LAYING.

COLD-FORMED STEEL (CFS)

1. ALL FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) S100-16, "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

2. CFS MEMBERS SHALL COMPLY WITH ASTM C955 (CP60 MINIMUM COATING).

3. MATERIAL:
   A. ALL CFS MEMBERS WITH BASE METAL THICKNESS OF LESS THAN 54 MIL (16 GAUGE) SHALL CONFORM TO ASTM A1003, STRUCTURAL GRADE, TYPE H (ST33H, G60 MINIMUM COATING) WITH MINIMUM YIELD STRENGTH OF 33 KSI.
   B. ALL CFS MEMBERS WITH BASE METAL THICKNESS OF 54 MIL (16 GAUGE) OR GREATER SHALL CONFORM TO ASTM A1003, STRUCTURAL GRADE, TYPE H (ST50H, G60 MINIMUM COATING) WITH MINIMUM YIELD STRENGTH OF 50 KSI.
   C. ALL SHEET STEEL USED FOR CONNECTION CLIPS AND MISCELLANEOUS ACCESSORIES SHALL CONFORM TO ASTM A653, STRUCTURAL STEEL (G60 MINIMUM COATING) WITH MINIMUM YIELD STRENGTH OF 50 KSI.

4. ALL CFS MEMBERS SHALL BE MILL CERTIFIED "PRIME STEEL".

5. INSTALL CFS MEMBERS AND ACCESSORIES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN. ALL FABRICATED COMPONENTS MUST BE COMPLETED BY AN "AISI" MANUFACTURER.

6. ALL CFS MEMBER SIZES ARE AS INDICATED IN SCHEDULE. ALL MEMBERS SHALL BE COLD-FORMED STEEL UNLESS NOTED OTHERWISE. TYPICAL NOMENCLATURE IS AS FOLLOWS:
   EXAMPLE: 600S162-54
   600 INDICATES MEMBER DEPTH IN 1/100 INCHES
   S INDICATES STYLE S=STUD, T=TRACK, U=CHANNEL, ZG=Z-GIRT
   162 INDICATES FLANGE WIDTH IN 1/100 INCHES
   54 INDICATES THE DESIGNATION MIL THICKNESS. MIL THICKNESS IS THE MINIMUM BASE STEEL THICKNESS MEASURED IN 1/1000 INCH.
   33 IS 20 GAUGE MATERIAL
   43 IS 18 GAUGE MATERIAL
   54 IS 16 GAUGE MATERIAL
   68 IS 14 GAUGE MATERIAL
   97 IS 12 GAUGE MATERIAL
   118 IS 10 GAUGE MATERIAL

7. PRIOR TO FABRICATION OF FRAMING, THE CONTRACTOR SHALL SUBMIT FABRICATION AND ERECTION DRAWINGS TO THE ARCHITECT OR ENGINEER TO OBTAIN APPROVAL.

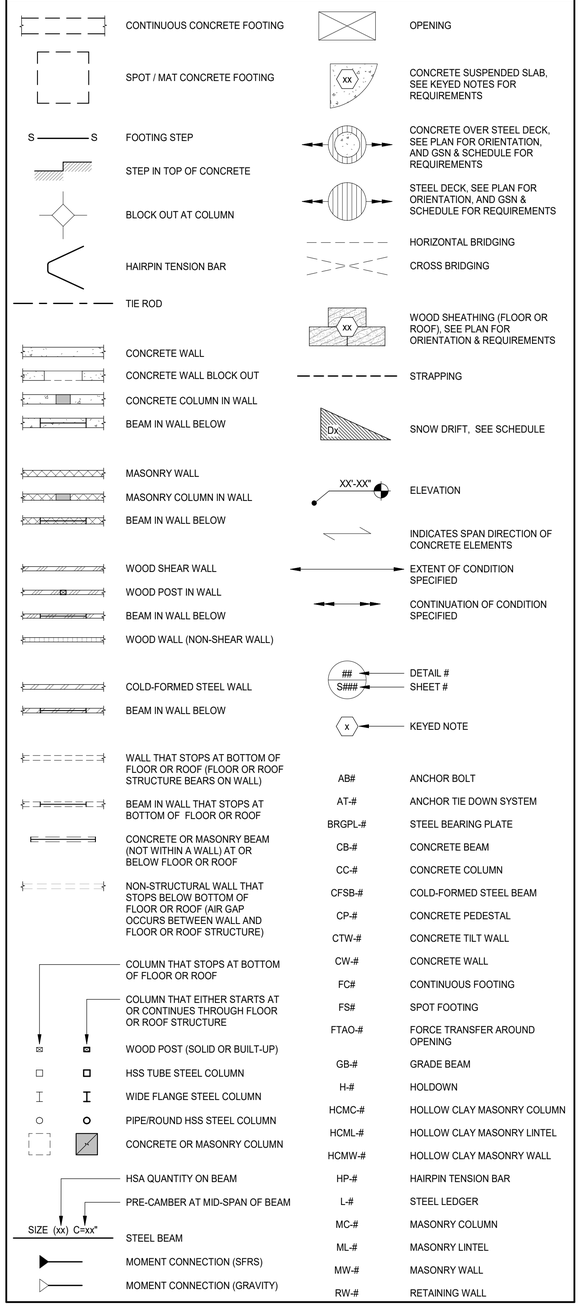
8. PREFABRICATED PANELS SHALL BE SQUARE, WITH COMPONENTS ATTACHED IN A MANNER TO PREVENT RACKING AND TO MINIMIZE DISTORTION WHILE LIFTING AND TRANSPORTING.

9. ALL CFS MEMBERS SHALL BE IN GOOD CONDITION. BENT, WARPED, SPLIT, OR OTHERWISE DAMAGED MEMBERS SHALL BE REPLACED.

10. FABRICATION AND GENERAL INSTALLATION:
    A. FABRICATE COLD-FORMED STEEL FRAMING AND ACCESSORIES PLUMB, SQUARE, LEVEL, AND TRUE TO LINE. ALL CONNECTIONS SHALL BE SECURELY FASTENED AND SHALL COMPLY WITH THE ABOVE-REFERENCED AISI SPECIFICATIONS AND STANDARDS, MANUFACTURER'S WRITTEN SPECIFICATIONS, AND AS INDICATED ON THE DRAWINGS.
    B. CUT FRAMING MEMBERS BY SAWING OR SHEARING; DO NOT TORCH CUT. CUTTING METHODS THAT CAUSE SIGNIFICANT HEATING OF THE STEEL OR DAMAGE TO THE COATINGS SHOULD BE AVOIDED.
    C. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR AS REQUIRED FOR AN ANGULAR FIT AGAINST ABUTTING MEMBER.
    D. FASTENING OF FRAMING MEMBERS SHALL BE WITH SELF-DRILLING SCREWS OR WELDING AS NOTED ON THE DRAWINGS. WIRE TYING OF COMPONENTS IS NOT PERMITTED.
    E. SCREWS SHOULD TYPICALLY BE DRIVEN THROUGH THE THINNER MATERIAL INTO THE THICKER MATERIAL AND EXTEND THROUGH THE STEEL MEMBER A MINIMUM OF THREE EXPOSED THREADS.
    F. WHEN CONNECTING COLD-FORMED STEEL TO STRUCTURAL STEEL MEMBERS, DRILLING TOOLS SHOULD DRIVE SCREWS AT LOW SPEEDS OF 2,500 RPM.
    G. PRE-DRILLED HOLES FOR PRESET BOLTS SHALL NOT BE OVERSIZED MORE THAN 1/16 INCH (1.6 MM) FOR BOLT SIZES UP TO 1/2 INCH (12.7 MM) AND NO MORE THAN 1/8 INCH FOR BOLT SIZES LARGER THAN 1/2 INCH (12.7 MM) IN DIAMETER UNLESS NOTED OTHERWISE. A WASHER SHOULD BE USED BETWEEN THE NUT AND MEMBER IN ALL BOLTED CONNECTIONS.
    H. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED BY AWS STANDARDS WITHIN THE LAST 12 MONTHS AND EXPERIENCED IN LIGHT GAUGE STEEL FRAMING WORK. ALL WELDS SHALL COMPLY WITH AWS D1.1 AND D1.3 STANDARDS.
    I. ALL WELDS SHALL BE DONE USING AWS COMPLIANT E60XX ELECTRODES & 1/8" AWS ROD, UNLESS NOTED OTHERWISE. WELDING IS NOT PERMITTED ON MATERIAL THINNER THAN 18 GA. (43 MIL).
    J. ALL SHOP AND FIELD WELDS SHALL BE BRUSHED CLEAN AND FINISHED WITH A CORROSION PROTECTIVE METALLIC COATING.
    K. WELDING, IN LIEU OF FASTENING, IS PERMITTED PROVIDED THAT WELD CAPACITY IS SHOWN TO EXCEED THE SPECIFIED SCREW CAPACITY.
    L. DO NOT BRIDGE BUILDING EXPANSION JOINTS WITH COLD-FORMED STEEL FRAMING. INDEPENDENTLY FRAME BOTH SIDES OF JOINT.
    M. ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED UNTIL ENTIRE INTEGRATED SUPPORTING STRUCTURE HAS BEEN COMPLETED AND PERMANENT CONNECTIONS HAVE BEEN SECURED.
    N. INSTALL INSULATION EQUAL TO THAT SPECIFIED ELSEWHERE IN ALL BUILT-UP EXTERIOR FRAMING MEMBERS (JAMB STUDS, BOX HEADERS, SILLS, BOX JOISTS, ETC.) THAT ARE NOT ACCESSIBLE TO INSULATION CONTRACTORS.

11. WALL STUD INSTALLATION:
    A. ALL LOAD BEARING STUDS, INCLUDING KING AND JAMB STUDS, SHALL BE SEATED IN THE TOP & BOTTOM TRACK WITH A MAXIMUM GAP OF 1/8 INCH (0.32 MM) BETWEEN THE END OF THE STUD AND THE WEB OF THE TRACK.
    B. SPLICES IN AXIAL LOAD BEARING WALLS, OTHER THAN RUNNER TRACK, SHALL NOT BE PERMITTED (ALLOWABLE IN NON-LOAD BEARING WALLS).
    C. ABUTTING LENGTHS OF RUNNER TRACK SHALL BE BUTT-WELDED, SPLICED, OR EACH LENGTH SECURELY ANCHORED TO A COMMON STRUCTURAL ELEMENT. RUNNER TRACKS SHALL BE SECURELY ANCHORED TO THE SUPPORTING STRUCTURE AS SHOWN ON THE DRAWINGS.
    D. INSTALL DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, BEAM BEARING LOCATIONS, AND JOIST BEARING LOCATIONS, UNLESS NOTED OTHERWISE.
    E. ISOLATE NON-LOAD BEARING FRAMING FROM BUILDING STRUCTURE AS SHOWN ON DRAWINGS TO ALLOW FOR VERTICAL DEFLECTION AND LATERAL DRIFT.
    F. BRIDGING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS WITH THE FOLLOWING MINIMUM REQUIREMENTS:
       a. FOR NON-BEARING WALLS, PROVIDE BRIDGING AT MID-HEIGHT FOR WALLS LESS THAN OR EQUAL TO 10'-0" HIGH, AND 4'-0" O.C. MAXIMUM FOR WALLS GREATER THAN 10'-0" HIGH.
       b. FOR BEARING WALLS, PROVIDE BRIDGING EQUALLY SPACED AT 4'-0" O.C. MAXIMUM. IN ADDITION, BRIDGING SHALL BE PROVIDED AT ROOF LINES, FLOOR LINES, AND ELSEWHERE AS NOTED ON THE DRAWINGS. SOLID BLOCKING SHALL BE INSTALLED IN LIEU OF BRIDGING WHERE NOTED ON THE DRAWINGS.
    G. WALL BRIDGING SHALL USE THE SAME PATTERN OF BLOCKED BAY AT THE END OF EACH RUN WITH ADDITIONAL INTERMEDIATE BLOCKED BAYS AT 12 FEET (3.6 M) ON CENTER FOR LENGTHS OF WALLS GREATER THAN 12 FEET (3.6 M). WALL BRIDGING IS NOT NECESSARY IF APPROPRIATE SHEATHING IS PLACED ON BOTH FLANGES OF THE STUD PRIOR TO LOADING THE WALL.
    H. A SILL SEALER, OR EQUIVALENT, SHALL BE PROVIDED BETWEEN THE UNDERSIDE OF THE WALL WHEN FASTENED DIRECTLY TO CONCRETE.
    I. ALL JAMBS, BOX HEADERS, AND SILLS SHALL BE CONTINUOUS WITHOUT SPLICES UNLESS NOTED OTHERWISE. WEB PUNCHOUTS IN BOX HEADER STUDS SHALL NOT OCCUR WITHIN 12 INCHES OF THE SUPPORT.

SYMBOLS & MARKS LEGEND



AB#	ANCHOR BOLT
AT-#	ANCHOR TIE DOWN SYSTEM
BRGPL-#	STEEL BEARING PLATE
CB-#	CONCRETE BEAM
CC-#	CONCRETE COLUMN
CFSB-#	COLD-FORMED STEEL BEAM
CP-#	CONCRETE PEDESTAL
CTW-#	CONCRETE TILT WALL
CW-#	CONCRETE WALL
FC#	CONTINUOUS FOOTING
FS#	SPOT FOOTING
FTAO-#	FORCE TRANSFER AROUND OPENING
GB-#	GRADE BEAM
H-#	HOLDOWN
HCMC-#	HOLLOW CLAY MASONRY COLUMN
HCML-#	HOLLOW CLAY MASONRY LINTEL
HCMW-#	HOLLOW CLAY MASONRY WALL
HP-#	HAIRPIN TENSION BAR
L-#	STEEL LEDGER
MC-#	MASONRY COLUMN
ML-#	MASONRY LINTEL
MW-#	MASONRY WALL
RW-#	RETAINING WALL

SYMBOLS & MARKS LEGEND (CONTINUED)

COLLECTOR CONNECTION IDENTIFICATION (SFRS)	
BEAM SPLICE	
BRACED FRAME ELEMENT	
KICKER BRACE	
MFB	MOMENT FRAME BEAM
MFC	MOMENT FRAME COLUMN
SFRS	INDICATES MEMBER IS PART OF SEISMIC FORCE RESISTING SYSTEM

SC-#	STEEL COLUMN
SD-#	STEEL DECK
SW-#	WOOD SHEAR WALL
T-#	FLOOR-TO-FLOOR TIE
WB-#	WOOD BEAM
WL-#	WOOD LEDGER
WP-#	WOOD POST
WW-#	WOOD WALL

STRUCTURAL ABBREVIATIONS

AB.	ANCHOR BOLT(S)
ABV.	ABOVE
ADD.	ADDITION (AL)
@	AT
ALT.	ALTERNATE
APPROX.	APPROXIMATE
ARCH.	ARCHITECT (URAL)
BM.	BEAM
BLK'G.	BLOCKING
BLW.	BELOW
BPL.	BASE PLATE
BRG.	BEARING
BTWN.	BETWEEN
BLDG.	BUILDING
BOT.	BOTTOM
C.J.	CONSTRUCTION JOINT OR CONTROL JOINT
CJP.	COMPLETE JOINT PENETRATION
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CTR.	CENTER
DB.	DECK BEARING
DBA	DEFORMED BAR ANCHORS
DBL.	DOUBLE
DET.	DETAIL
DF	DOUGLAS FIR-LARCH
DIA.	DIAMETER
DIM.	DIMENSION
DWG.	DRAWING
DWL.	DOWEL
EA.	EACH
E.J.	EXPANSION JOINT (SEISMIC SEPARATION JOINT)
ELEV.	ELEVATION
ELEC.	ELECTRICAL
EQUIP.	EQUIPMENT
EQ.	EQUAL
EXIST.	EXISTING
EXP.	EXPANSION / EXPOSED
EXT.	EXTERIOR
E.F.	EACH FACE
E.W.	EACH WAY
F.D.	FLOOR DRAIN
FDTN.	FOUNDATION
F.F.	FINISH FLOOR
FIN.	FINISH
FL.	FLOOR
FT.	FOOT
FTG.	FOOTING
FV.	FIELD VERIFY
GA.	GAUGE
GALV.	GALVANIZED
GFRC	GLASS FIBER REINFORCED CONCRETE
GLB.	GLU-LAMINATED BEAM
GR.	GRADE
GSN	GENERAL STRUCTURAL NOTES
HB.	HORIZONTAL BRIDGING
HT.	HEIGHT
HORIZ.	HORIZONTAL
HSA	HEADED STUD ANCHORS
IBC	INTERNATIONAL BUILDING CODE
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
IN.	INCH
INSUL.	INSULATION
INT.	INTERIOR
I.F.	INSIDE FACE
JT.	JOINT
JST.	JOIST
KLF	KIPS PER LINEAL FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
K	KIPS
LF.	LINEAL FOOT
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAS.	MASONRY
MAX.	MAXIMUM
MCJ.	MASONRY CONTROL JOINT
MECH.	MECHANICAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
OPN'G.	OPENING
OPP.	OPPOSITE
O.C.	ON CENTER
O.F.	OUTSIDE FACE
OWSJ.	OPEN WEB STEEL JOIST
PAF	POWDER ACTUATED FASTENER
PCF	POUNDS PER CUBIC FOOT
PEMB	PRE-ENGINEERED METAL BUILDING
PL.	PLATE
PNL	PANEL
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST-TENSIONED
REINF.	REINFORCING
RBS	REDUCED BASE STUD
R.D.	ROOF DRAIN
REQ'D.	REQUIRED
SHT.	SHEET
SHT'G.	SHEATHING
SI	SPECIAL INSPECTION
S.O.G.	SLAB ON GRADE
STD.	STANDARD
STIFF.	STIFFENER
STL.	STEEL
SQ.	SQUARE
SIM.	SIMILAR
STRC.	STRUCTURAL
STAG.	STAGGERED
T&B	TOP AND BOTTOM
TEMP.	TEMPORARY
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF SLAB
TOW	TOP OF WALL
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
w/	WITH
WWF	WELD WIRE FABRIC
WWM	WELD WIRE MESH
WT.	WEIGHT
WP	WOOD POST

PROFESSIONAL STRUCTURAL ENGINEER
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08/19/2025
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DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	5 OF 13	0

ENBRIDGE GAS_ANSI_D

SPECIAL INSPECTION

SPECIAL INSPECTIONS:

1. SPECIAL INSPECTIONS ARE REQUIRED AS DESCRIBED IN CHAPTER 17 OF THE 2021 IBC. THE OWNER OR OWNER'S AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED IN SECTION 1705 AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL. THESE SPECIAL INSPECTIONS AND TESTS ARE IN ADDITION TO THE INSPECTIONS BY THE BUILDING OFFICIAL THAT ARE IDENTIFIED IN SECTION 110.

2. THE SPECIAL INSPECTION REQUIREMENTS OF THIS SECTION OF THE GENERAL STRUCTURAL NOTES SERVE AS THE ENGINEER OF RECORD'S STATEMENT OF SPECIAL INSPECTIONS REQUIRED BY CHAPTER 17 OF THE 2021 IBC.

SPECIAL INSPECTOR QUALIFICATIONS & RESPONSIBILITIES:

1. PRIOR TO THE START OF CONSTRUCTION, THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION.

2. APPROVED AGENCIES SHALL KEEP RECORDS OF ALL SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TEST TO THE BUILDING OFFICIAL AND TO THE ARCHITECT / ENGINEER OF RECORD.
   A. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
   B. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
   C. ANY DISCREPANCIES THAT ARE NOT CORRECTED SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE ARCHITECT/ENGINEER OF RECORD PRIOR TO COMPLETION OF THAT PHASE OF WORK.
   D. THE INSPECTOR SHALL KEEP A MARKED-UP SET OF DRAWINGS SHOWING THE EXTENT AND TIME OF ALL INSPECTIONS AND TESTING.
   E. A FINAL SIGNED REPORT DOCUMENTING ALL REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND ARCHITECT/ENGINEER OF RECORD AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR OWNER'S AGENT. THE REPORT SHALL INCLUDE THE MARKED-UP SET OF DRAWINGS OUTLINED ABOVE.

CONTRACTOR RESPONSIBILITIES:

1. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND/SEISMIC FORCE RESISTING SYSTEM, DESIGNATED WIND/SEISMIC SYSTEM, OR A WIND/SEISMIC FORCE RESISTING COMPONENT SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THAT SYSTEM OR COMPONENT. THIS STATEMENT SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS.

2. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH ALL REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS. THE CONTRACTOR SHALL NOT PROCEED WITH SUBSEQUENT WORK UNTIL REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS HAVE BEEN COMPLETED.

3. ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS.

4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AT LEAST (2) DAYS PRIOR TO ANY REQUIRED STRUCTURAL OBSERVATIONS.

SPECIAL INSPECTION OF FABRICATED ITEMS:

1. ALL FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES PERFORMED OFFSITE SHALL BE SPECIAL INSPECTED PER SECTION 1704.2.5.

2. WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1, THEY SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR THE OWNER'S AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL AT THE COMPLETION OF FABRICATION STATING THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

SUBMITTALS TO THE BUILDING OFFICIAL:

1. IN ADDITION TO THE SUBMITTAL OF REPORTS OF SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH SECTION 1704.2.4, REPORTS AND CERTIFICATES SHALL BE SUBMITTED BY THE OWNER OR OWNER'S AGENT TO THE BUILDING OFFICIAL FOR EACH OF THE FOLLOWING:
   A. CERTIFICATES OF COMPLIANCE FOR APPROVED FABRICATORS.
   B. CERTIFICATES OF COMPLIANCE FOR SEISMIC QUALIFICATIONS OF NON-STRUCTURAL COMPONENTS, SUPPORTS, AND ATTACHMENTS.
   C. CERTIFICATES OF COMPLIANCE FOR DESIGNATED SEISMIC SYSTEMS.
   D. REPORTS OF PRE-CONSTRUCTION TESTS FOR SHOTCRETE.
   E. CERTIFICATES OF COMPLIANCE FOR OPEN-WEB STEEL JOISTS AND JOIST GIRDERS.
   F. REPORTS OF MATERIAL COMPLIANCE FOR WELDABILITY OF REINFORCING BARS IN CONCRETE.
   G. REPORTS OF MILL TESTS FOR REINFORCING BARS USED IN SPECIAL CONCRETE MOMENT FRAMES, SPECIAL STRUCTURAL WALLS OR COUPLING BEAMS.

STRUCTURAL OBSERVATIONS:

1. ***STRUCTURAL OBSERVATIONS ARE REQUIRED PER SECTION 1704.6.1 OF THE 2021 IBC. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY A REPRESENTATIVE FROM ENSIGN ENGINEERING AS REQUIRED FOR CRITICAL PHASES OF CONSTRUCTION. THE STRUCTURAL OBSERVER SHALL VISUALLY OBSERVE REPRESENTATIVE LOCATIONS OF STRUCTURAL SYSTEMS, DETAILS, AND LOAD PATHS FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. THIS INCLUDES, BUT IS NOT LIMITED TO, MAT FOUNDATIONS, FOOTINGS, FOUNDATION WALLS AND PIERS, MASONRY SHEAR WALLS, CONCRETE SHEAR WALLS, MOMENT FRAMES, BRACED FRAMES, AND STEEL ROOF/FLOOR DECKING.***

2. ***COPIES OF THE STRUCTURAL OBSERVATION REPORT WILL BE DISTRIBUTED TO THE OWNER, ARCHITECT, CONTRACTOR AND BUILDING OFFICIAL.***

3. ***STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE SPECIAL INSPECTIONS REQUIRED BY THE 2021 IBC AND SHALL NOT BE CONSTRUED AS APPROVAL OF CONSTRUCTION.***

REQUIRED SPECIAL INSPECTION OR TESTING:

THE FOLLOWING MATERIALS, SYSTEMS AND COMPONENTS REQUIRE SPECIAL INSPECTION OR TESTING PER CHAPTER 17 OF THE 2021 IBC:

1. SPECIAL CASES (SECTION 1705.1.1)
   A. SPECIAL INSPECTION AND TESTING SHALL BE PROVIDED FOR POST INSTALLED ANCHORS PER THE ICC OR IAPMO REPORT.

2. STRUCTURAL STEEL (SECTION 1705.2.1 ***& SECTION 1705.13***):
   A. THE FABRICATOR OR ERECTOR SHALL SUBMIT THE DOCUMENTS LISTED IN SECTION N3 OF AISC 360 ***& SECTION J2 OF AISC 341*** FOR REVIEW BY THE ENGINEER OF RECORD.
   B. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), APPLICABLE BUILDING CODE (ABC), PURCHASER, OWNER, OR ENGINEER OF RECORD.
   C. QA INSPECTION OF FABRICATED ITEMS SHALL BE MADE AT THE FABRICATOR'S PLANT. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE FABRICATOR.
   D. QA INSPECTION OF THE ERECTED STEEL SYSTEM SHALL BE MADE AT THE PROJECT SITE. THE QAI SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE ERECTOR.
   E. THE QAI SHALL REVIEW THE MATERIAL TEST REPORTS AND CERTIFICATIONS LISTED IN SECTION N3.2 OF AISC 360 FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.
   F. THE QAI SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE.

SPECIAL INSPECTION (CONTINUED)

REQUIRED SPECIAL INSPECTION OR TESTING (CONTINUED):

2. STRUCTURAL STEEL (SECTION 1705.2.1 ***& SECTION 1705.13***): (CONTINUED)
   G. THE QAI SHALL INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
   H. QA INSPECTIONS, EXCEPT NONDESTRUCTIVE TESTING (NDT), MAY BE WAIVED WHEN THE WORK IS PERFORMED IN A FABRICATING SHOP OR BY AN ERECTOR APPROVED BY THE AHJ TO PERFORM THE WORK WITHOUT QA. NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP MAY BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AHJ. WHEN THE FABRICATOR PERFORMS THE NDT, THE QA AGENCY SHALL REVIEW THE FABRICATOR'S NDT REPORTS.
   I. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIALS SUPPLIED AND WORK PERFORMED BY THE FABRICATOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. AT COMPLETION OF ERECTION, THE APPROVED ERECTOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIAL SUPPLIED AND WORK PERFORMED BY THE ERECTOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
   J. IDENTIFICATION AND REJECTION OF MATERIAL OR WORKMANSHIP THAT IS NOT IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS SHALL BE PERMITTED AT ANY TIME DURING THE PROGRESS OF THE WORK. HOWEVER, THIS PROVISION SHALL NOT RELIEVE THE OWNER OR THE INSPECTOR OF THE OBLIGATION FOR TIMELY, IN-SEQUENCE INSPECTIONS. NONCONFORMING MATERIAL AND WORKMANSHIP SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE FABRICATOR OR ERECTOR, AS APPLICABLE.
   K. NONCONFORMING MATERIAL OR WORKMANSHIP SHALL BE BROUGHT TO CONFORMANCE, OR MADE SUITABLE FOR ITS INTENDED PURPOSE AS DETERMINED BY THE ENGINEER OF RECORD.
   L. CONCURRENT WITH THE SUBMITTAL OF SUCH REPORTS TO THE AHJ, ENGINEER OF RECORD OR OWNER, THE QA AGENCY SHALL SUBMIT TO THE FABRICATOR AND ERECTOR:
      a. NONCONFORMANCE REPORTS.
      b. REPORTS OF REPAIR, REPLACEMENT OR ACCEPTANCE OF NONCONFORMING ITEMS.
   M. QA INSPECTION TASKS SHALL BE PERFORMED BY THE QAI IN ACCORDANCE WITH THE STRUCTURAL STEEL SPECIAL INSPECTION TABLE, AS A MINIMUM.
   N. THE AGENCY RESPONSIBLE FOR QUALITY ASSURANCE SHALL SUBMIT THE DOCUMENTS LISTED IN SECTION J3 OF AISC 341 TO THE AHJ, THE ENGINEER OF RECORD AND THE OWNER.

3. STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (SECTIONS 1705.2.2, 1705.2.3, & 1705.2.4):
   A. SPECIAL INSPECTION FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL SPECIAL INSPECTION TABLE AND THE FOLLOWING:
      a. COLD-FORMED STEEL DECK: SPECIAL INSPECTIONS AND QUALIFICATION OF WELDING SPECIAL INSPECTORS OR COLD-FORMED STEEL FLOOR AND ROOF DECKS SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QA/QC AND SECTION 1705 OF THE 2021 IBC.
      b. OPEN-WEB STEEL JOISTS AND JOIST GIRDERS: SPECIAL INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS IN BUILDING, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH SECTION 1705 OF THE 2021 IBC.
   B. SEE TABLE 1705.2.3 OF THE 2021 IBC FOR APPLICABLE REFERENCE STANDARDS.

4. CONCRETE CONSTRUCTION (SECTION 1705.3):
   A. SPECIAL INSPECTION AND TESTS FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONCRETE CONSTRUCTION SPECIAL INSPECTION TABLE AND SECTION 1705.3 OF THE 2021 IBC.
   B. SEE TABLE 1705.3 OF THE 2021 IBC FOR APPLICABLE REFERENCE STANDARDS.
   C. WELDING OF REINFORCING BARS: SPECIAL INSPECTION OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND FOR SPECIAL INSPECTOR QUALIFICATIONS.
   D. IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318, THE BUILDING OFFICIAL SHALL REQUIRE TESTING OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318.

5. MASONRY CONSTRUCTION (SECTION 1705.4):
   A. THE QUALITY ASSURANCE PROGRAM SHALL BE IN ACCORDANCE WITH THE MASONRY CONSTRUCTION SPECIAL INSPECTION TABLE.

6. SOILS (SECTION 1705.6):
   A. SPECIAL INSPECTIONS AND TESTS OF EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE SOILS SPECIAL INSPECTION TABLE AND THE FOLLOWING:
      a. THE APPROVED GEOTECHNICAL REPORT AND APPROVED CONSTRUCTION DOCUMENTS SHALL BE USED TO DETERMINE COMPLIANCE.
      b. DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL DETERMINE THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.
      c. WHERE A GEOTECHNICAL REPORT IS NOT PROVIDED, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE IN-PLACE DRY DENSITY OF THE COMPACTED FILL IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D 1557.

7. SPECIAL INSPECTION FOR WIND-RESISTANCE (SECTION 1705.12):
   A. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING SYSTEMS AND COMPONENTS:
      a. ROOF COVERING, ROOF DECK, AND ROOF FRAMING CONNECTIONS.
      b. EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING.

8. SPECIAL INSPECTION FOR SEISMIC-RESISTANCE (SECTION 1705.13):
   A. DESIGNATED SEISMIC SYSTEMS FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E,OR F, THE SPECIAL INSPECTOR SHALL EXAMINE DESIGNATED SEISMIC SYSTEMS REQUIRING SEISMIC QUALIFICATIONS IN ACCORDANCE WITH SECTION 13.2.2 OF ASCE 7 AND VERIFY THAT THE LABEL, ANCHORAGE, AND MOUNTING CONFORM TO THE CERTIFICATE OF COMPLIANCE.
   B. ARCHITECTURAL COMPONENTS: PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE ERECTION AND FASTENING OF EXTERIOR CLADDING, INTERIOR AND EXTERIOR NON-BEARING WALLS AND INTERIOR AND EXTERIOR VENEER IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, OR F.
   C. MECHANICAL AND ELECTRICAL COMPONENTS: PERIODIC SPECIAL INSPECTION OF MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1705.13.6 OF THE 2021 IBC.
   D. STORAGE RACKS: STEEL STORAGE RACKS & STEEL CANTILEVERED STORAGE RACKS THAT ARE 8 FEET IN HEIGHT OR GREATER AND ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, OR F SHALL BE PROVIDED WITH PERIODIC SPECIAL INSPECTION AS REQUIRED BY TABLE 1705.13.7.

9. TESTING AND QUALIFICATION FOR SEISMIC RESISTANCE (SECTION 1705.14):
   A. TESTING FOR SEISMIC RESISTANCE SHALL BE REQUIRED AS SPECIFIED IN SECTIONS 1705.14.1 THROUGH 1705.14.4 OF THE 2021 IBC.

10. COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION (SECTION 1705.12.2):
   A. SPECIAL INSPECTION OF COLD-FORMED LIGHT-FRAME CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COLD-FORMED LIGHT-FRAME CONSTRUCTION SPECIAL INSPECTION TABLE.

DEFINITIONS:

1. THE FOLLOWING DEFINITIONS APPLY TO ALL SPECIAL INSPECTION TABLES (WHERE APPLICABLE) UNLESS SPECIFICALLY NOTED OTHERWISE:
   A. CONTINUOUS – FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR.
   B. PERIODIC – AN APPROVED SPECIAL INSPECTOR MUST OBSERVE THE WORK REQUIRING SPECIAL INSPECTION PRIOR TO COMMENCEMENT OF WORK, INTERMITTENTLY DURING THE WORK, AND AT COMPLETION OF THE WORK.

CONCRETE CONSTRUCTION SPECIAL INSPECTION PER SECTION 1705.3 OF IBC 2021

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS AND VERIFYING PLACEMENT		X
REINFORCING BAR WELDING:		
VERIFICATION OF WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706		X
INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"		X
INSPECT ALL OTHER WELDS	X	
CAST-IN-PLACE ANCHORS		X
POST-INSTALLED ANCHORS IN HARDENED CONCRETE MEMBERS[NOTE 1)]		
ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	
MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE		X
USE OF REQUIRED MIX DESIGN		X
PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TEST, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE CONCRETE TEMPERATURE	X	
CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	
MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X
INSPECT PRE-STRESSED CONCRETE FOR:		
APPLICATION OF PRE-STRESSING FORCES	X	
GROUTING OF BONDED PRE-STRESSING TENDONS	X	
ERECTION OF PRECAST CONCRETE		X
FOR PRECAST CONCRETE DIAPHRAGM CONNECTIONS OR REINFORCMENT AT JOINTS CLASSIFIED AS MODERATE OR HIGH DEFORMABILITY ELEMENTS (MDE OR HDE) IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E, OR F, INSPECT SUCH CONNECTIONS AND REINFORCEMENT IN THE FIELD FOR:		
INSTALLATION OF THE EMBEDDED PARTS	X	
COMPLETION OF THE CONTINUITY OF REINFORCEMENT ACROSS JOINTS	X	
COMPLETION OF CONNECTIONS IN THE FIELD	X	
INSPECT INSTALLATION TOLERANCES OF PRECAST CONCRETE DIAPHRAGM CONNECTIONS FOR COMPLIANCE WITH ACI 550.5		X
IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X
FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF CONCRETE MEMBER BEING FORMED		X

NOTES:

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

MASONRY CONSTRUCTION SPECIAL INSPECTION PER SECTION 1705.4 OF IBC 2021

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
AS MASONRY CONSTRUCTION BEGINS, VERIFY:		
PROPORTIONS OF SITE-PREPARED MORTAR		X
GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS		X
SAMPLE PANEL CONSTRUCTION	X	X
PRIOR TO GROUTING, VERIFY:		
GROUT SPACE	X	X
PLACEMENT OF REINFORCEMENT, CONNECTORS AND ANCHOR BOLTS	X	X
PROPORTIONS OF SITE-PREPARED GROUT		X
DURING CONSTRUCTION, VERIFY:		
MATERIALS AND PROCEDURES WITH APPROVED SUBMITTALS		X
PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION		X
SIZE AND LOCATION OF STRUCTURAL MEMBERS		X
TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	X	X
WELDING OF REINFORCEMENT	X	
PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD OR HOT WEATHER (TEMPERATURE BELOW 40°F OR ABOVE 90°F, RESPECTIVELY)		X
PLACEMENT OF GROUT	X	
OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND / OR PRISMS	X	X

NOTES:

1. DURING CONSTRUCTION, VERIFY SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.
2. PRIOR TO CONSTRUCTION, VERIFY F'm
3. PRIOR TO CONSTRUCTION, VERIFY COMPLIANCE OF SUBMITTALS WITH THE APPROVED CONSTRUCTION DOCUMENTS.
4. DURING CONSTRUCTION, VERIFY F'm FOR EVERY 5,000 SQ. FT.
5. DURING CONSTRUCTION, VERIFY PROPORTIONS OF MATERIALS DELIVERED TO PROJECT SITE FOR PRE-MIXED OR PRE-BLENDED MORTAR AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.

SOIL SPECIAL INSPECTION PER SECTION 1705.6 OF IBC 2021

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X
DURING FILL PLACEMENT, VERIFY PROPER MATERIALS AND PROCEDURES IN ACCORDANCE w/ THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	
PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY SITE HAS BEEN PREPARED PROPERLY		X

COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION SPECIAL INSPECTION PER SECTION 1705.12.2 OF IBC 2021

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
WELDING OPERATIONS OF LIGHT-GAUGE FRAMING ELEMENTS INCLUDING SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLD-DOWNS		X
SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF LIGHT-GAUGE FRAMING COMPONENTS WITHIN SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLD-DOWNS		X

NOTES:

1. SPECIAL INSPECTION IS NOT REQUIRED FOR COLD-FORMED STEEL LIGHT-FRAME SHEAR WALLS, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLD-DOWNS WHERE EITHER OF THE FOLLOWING APPLIES:
   A. THE SHEATHING IS GYPSUM BOARD OR FIBERBOARD.
   B. THE SHEATHING IS WOOD STRUCTURAL PANEL OR STEEL SHEETS ON ONLY ONE SIDE OF THE SHEAR WALL, SHEAR PANEL, OR DIAPHRAGM ASSEMBLY AND THE SPECIFIED FASTENER SPACING AT THE PANEL OR SHEET EDGES IS MORE THAN 4-INCHES ON CENTER.

PROFESSIONAL STRUCTURAL ENGINEER — No. 175238 — DAVID B. ALTER — 08/19/2025 — STATE OF UTAH

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ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11	T 2S R 1W
ELEVATION: 4292'	
LAT: 40.6651	LONG: -111.9289
SCALE: AS NOTED	

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
SPECIAL INSPECTIONS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	6 OF 13	0

ENBRIDGE GAS_ANSI_D

STRUCTURAL STEEL SPECIAL INSPECTION OF WELDED CONNECTIONS PER SECTION 1705.2.1 AND SECTION 1705.13.1 OF IBC 2021	
INSPECTION TASKS PRIOR TO WELDING (AISC 360, TABLE N5.4-1)	**QA**
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	O
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLE AVAILABLE	P
MATERIAL IDENTIFICATION (TYPE/GRADE)	O
WELDER IDENTIFICATION SYSTEM (NOTE 6)	O
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)	O
JOINT PREPARATION	
DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	
CLEANLINESS (CONDITION OF STEEL SURFACES)	
TACKING (TACK WELD QUALITY AND LOCATION)	
BACKING TYPE AND FIT (IF APPLICABLE)	
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY)	O
JOINT PREPARATIONS	
DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	
CLEANLINESS (CONDITION OF STEEL SURFACES)	
TACKING (TACK WELD QUALITY AND LOCATION)	
CONFIGURATION AND FINISH OF ACCESS HOLES	O
FIT-UP OF FILLET WELDS	O
DIMENSIONS (ALIGNMENT, GAPS AT ROOT)	
CLEANLINESS (CONDITION OF STEEL SURFACES)	
TACKING (TACK WELD QUALITY AND LOCATION)	
INSPECTION TASKS DURING WELDING (AISC 360, TABLE N5.4-2)	**QA**
CONTROL & HANDLING OF WELDING CONSUMABLES	O
PACKAGING	
EXPOSURE CONTROL	
NO WELDING OVER CRACKED TACK WELDS	O
ENVIRONMENTAL CONDITIONS	O
WIND SPEED WITHIN LIMITS	
PRECIPITATION AND TEMPERATURE	
WPS FOLLOWED	O
SETTINGS ON WELDING EQUIPMENT	
TRAVEL SPEED	
SELECTED WELDING MATERIALS	
SHIELDING GAS TYPE / FLOW RATE	
PREHEAT APPLIED	
INTERPASS TEMPERATURE MAINTAINED (MIN. / MAX.)	
PROPER POSITION (F, V, H, OH)	
INTERMIX OF FILLER METALS AVOIDED UNLESS APPROVED	
WELDING TECHNIQUES	O
INTERPASS AND FINAL CLEANING	
EACH PASS WITHIN PROFILE LIMITATIONS	
EACH PASS MEETS QUALITY REQUIREMENTS	
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P
INSPECTION TASKS AFTER WELDING (AISC 360, TABLE N5.4-3)	**QA**
WELDS CLEANED	O
SIZE, LENGTH, AND LOCATION OF WELDS	P
WELDS MEET VISUAL ACCEPTANCE CRITERIA	P / D
CRACK PROHIBITION	
WELD / BASE-METAL FUSION	
CRATER CROSS SECTION	
WELD PROFILES	
WELD SIZE	
UNDERCUT	
POROSITY	
ARC STRIKES	P
k-AREA (NOTE 7)	P / D
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP SHAPES	P
PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS (IF REQUIRED)	P / D
BACKING REMOVED, WELD TABS REMOVED AND FINISHED, AND FILLET WELDS ADDED (IF REQUIRED)	P / D
REPAIR ACTIVITIES	P / D
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	O

NOTES:

1. QUALITY ASSURANCE (QA) WELDING INSPECTORS SHALL BE QUALIFIED IN ACCORDANCE WITH SECTION N4.2 OF AISC 360. AND SECTION J4 OF AISC 341.
2. OBSERVATION OF WELDING OPERATIONS AND VISUAL INSPECTION OF IN-PROCESS AND COMPLETED WELDS SHALL BE THE PRIMARY METHOD TO CONFIRM THAT THE MATERIALS, PROCEDURES AND WORKMANSHIP ARE IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1/D1.1M, STRUCTURAL WELDING CODE – STEEL, FOR STATICALLY LOADED STRUCTURES SHALL APPLY.
3. NON-DESTRUCTIVE TESTING (NDT) PERSONNEL SHALL BE QUALIFIED IN ACCORDANCE WITH SECTION N4.3 OF AISC 360. AND SECTION J4 OF AISC 341.
4. NDT OF WELDED JOINTS SHALL COMPLY WITH SECTION N5.5 OF AISC 360. AND SECTION J6 OF AISC 341.
5. ALL NDT PERFORMED SHALL BE DOCUMENTED. FOR SHOP FABRICATION, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY PIECE MARK AND LOCATION IN THE PIECE. FOR FIELD WORK, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY LOCATION IN THE STRUCTURE, PIECE MARK, AND LOCATION IN THE PIECE.
6. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
7. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE *k*-AREA, VISUALLY INSPECT THE WEB *k*-AREA FOR CRACKS WITHIN 3 INCHES OF THE WELD. THE VISUAL INSPECTION SHALL BE PERFORMED NO SOONER THAN 48 HOURS FOLLOWING THE COMPLETION OF WELDING.
8. AFTER ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.

DEFINITIONS:

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

P – PERFORM TASK FOR EACH WELDED JOINT OR MEMBER.

D – THE QA INSPECTOR SHALL PREPARE REPORTS AS DESCRIBED IN SECTION J5.3 OF AISC 341 INDICATING THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

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ENSIGN
THE STANDARD IN ENGINEERING
www.ensigneng.com
Ensign Project #: 13446 Date: 08-06-2025
Ensign Sheet: 7 OF 13 - SPECIAL INSPECTIONS

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
SPECIAL INSPECTIONS
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	7 OF 13	0

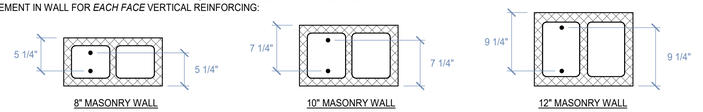
ENBRIDGE GAS_ANSI_D

MASONRY WALL SCHEDULE

MARK	THICKNESS	VERTICAL REINFORCING			HORIZONTAL REINFORCING			COMMENTS
		SIZE	SPACING	LOCATION	SIZE	SPACING	LOCATION	
MW-8A	8"	#5	16" O.C.	CENTERED	#5	48" O.C.	CENTERED	--
MW-8B	8"	#5	32" O.C.	CENTERED	#5	48" O.C.	CENTERED	--

NOTES:

1. INSTALL (2) #5 BARS AROUND ALL WINDOWS, DOORS, OPENINGS, & WALL ENDS, TYPICAL U.N.O.
2. INSTALL SOLID GROUTED, 8" BOND BEAM (8" TOTAL DEPTH) WITH (2) #5 LONGITUDINAL BARS @ EACH FLOOR & ROOF BEARING ELEVATIONS.
3. DOWELS MATCHING VERTICAL REINFORCING SIZE & SPACING SHALL EXTEND INTO FOOTING & TERMINATE WITH A 90-DEGREE STANDARD HOOK. ENSURE VERTICAL DOWEL HOOKS AROUND BOTTOM MAT OF FOOTING REINFORCING, U.N.O.
4. ANCHOR HORIZONTAL BAR ENDS AROUND VERTICAL BARS WITH A 90-DEGREE HOOK AT ALL WALL ENDS & OPENING EDGES.
5. INSTALL BENT CORNER BARS TO MATCH HORIZONTAL REINFORCING AT ALL CORNERS & WALL INTERSECTIONS. EACH LEG OF BENT CORNER BARS TO LAP HORIZONTAL WALL REINFORCING.
6. INSTALL ADDITIONAL HORIZONTAL REINFORCING BASED ON THE JAMB WIDTH DIMENSIONS INDICATED IN THE MASONRY JAMB HORIZONTAL REINFORCING SCHEDULE, TYPICAL U.N.O.
7. SEE MASONRY REINFORCING LAP SPLICE LENGTH SCHEDULE FOR MINIMUM LAP SPLICE LENGTHS.
8. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
9. SPECIAL INSPECTION IS REQUIRED FOR ALL MASONRY, SEE GENERAL STRUCTURAL NOTES.
10. BAR PLACEMENT IN WALL FOR *EACH FACE* VERTICAL REINFORCING:



EACH FACE VERTICAL REINFORCING

CONCRETE REINFORCING LAP SPLICE LENGTH SCHEDULE

BAR SIZE	BAR DIAMETER (IN.)	f'c = 3,000 PSI				f'c = 4,000 PSI				f'c = 5,000 PSI			
		TYPICAL SPLICE (IN)		TOP BAR SPLICE (IN)		TYPICAL SPLICE (IN)		TOP BAR SPLICE (IN)		TYPICAL SPLICE (IN)		TOP BAR SPLICE (IN)	
		CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B
3	0.375	17	22	22	29	15	20	20	25	13	17	17	22
4	0.500	22	29	29	38	19	25	25	33	17	23	23	30
5	0.625	28	36	36	47	24	31	31	40	22	29	29	36
6	0.750	33	43	43	56	29	38	38	48	26	34	34	44
7	0.875	48	63	63	82	42	55	55	70	38	49	49	64
8	1.000	55	72	72	94	48	62	62	81	43	56	56	73
9	1.128	62	81	81	105	54	70	70	91	48	63	63	82
10	1.270	70	91	91	118	61	79	79	103	54	71	71	92
11	1.410	78	101	101	131	67	87	87	113	60	78	78	101

NOTES:

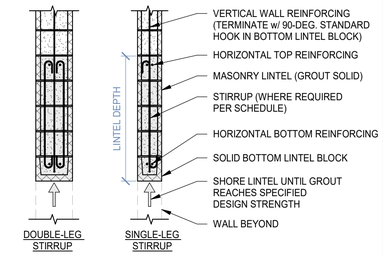
1. ALL LAP SPLICE LENGTHS ARE CLASS B UNLESS NOTED OTHERWISE ON PLANS.
2. HORIZONTAL BARS ARE CLASSIFIED AS TOP BARS WHERE 12" OR MORE OF FRESH CONCRETE IS CAST BELOW THE LAP SPLICE.
3. FOR ALL EPOXY-COATED BARS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY:
   - 1.5 WHEN CLEAR COVER IS LESS THAN 3 BAR DIAMETERS & CLEAR SPACING IS LESS THAN 6 BAR DIAMETERS, OR
   - 1.2 FOR ALL OTHER EPOXY-COATED BARS.
4. FOR ALL LIGHT-WEIGHT CONCRETE, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.33.

MASONRY LINTEL SCHEDULE

MARK	BEAM DIMENSIONS		HORIZONTAL REINFORCING			STIRRUPS			COMMENTS
	WIDTH	DEPTH	QUANTITY	SIZE	LOCATION	SIZE	TYPE	SPACING	
ML-8A	8"	16"	(2)	#5	TOP & BOTTOM	--	--	--	--

NOTES:

1. ALL MASONRY LINTELS SHALL BE CONSTRUCTED USING SINGLE OPEN-ENDED MASONRY UNITS FOR FULL DEPTH OF LINTEL ABOVE SOLID BOTTOM LINTEL BLOCK.
2. ALL MASONRY LINTELS SHALL BE SOLID GROUTED AND GROUTED MONOLITHICALLY WITH ADJACENT SUPPORT WALL OR COLUMN AT EACH END.
3. WALL REINFORCING ABOVE ALL LINTELS SHALL MATCH THAT OF ADJACENT WALL TYPE, TYPICAL U.N.O. TERMINATE VERTICAL WALL REINFORCING WITH 90-DEGREE STANDARD HOOK IN BOTTOM LINTEL BLOCK. LAP SPLICE NOT PERMITTED WITHIN LINTEL.
4. TERMINATE STIRRUPS WITH 180-DEGREE STANDARD HOOK AT TOP & BOTTOM OF LINTEL, ALTERNATE DIRECTION OF SINGLE-LEG STIRRUP.
5. EXTEND ALL HORIZONTAL REINFORCING MINIMUM LAP SPLICE LENGTH BEYOND THE EDGE OF THE OPENING. IF EXTENSION CANNOT BE ACHIEVED, TERMINATE BARS WITH 90-DEGREE STANDARD HOOK AT END OF WALL OR COLUMN.
6. SPLICE TOP HORIZONTAL BARS AT MID-SPAN OF LINTEL ONLY & BOTTOM HORIZONTAL BARS OVER SUPPORTS ONLY. SEE MASONRY REINFORCING LAP SPLICE LENGTH SCHEDULE FOR MINIMUM LAP SPLICE LENGTHS.
7. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS THROUGH MASONRY LINTEL. WHERE HORIZONTAL WALL REINFORCING & HORIZONTAL LINTEL REINFORCING OCCUR IN SAME COURSE, USE LARGER REINFORCING.
8. NO PENETRATIONS PERMITTED THROUGH MASONRY LINTEL.
9. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



MASONRY REINFORCING LAP SPLICE LENGTH SCHEDULE

BAR SIZE	BAR DIAMETER (IN.)	f'm = 2,000 PSI							
		6" CMU		8" CMU		10" CMU		12" CMU	
		CENTERED REINFORCING	EACH FACE REINFORCING	CENTERED REINFORCING	EACH FACE REINFORCING	CENTERED REINFORCING	EACH FACE REINFORCING	CENTERED REINFORCING	EACH FACE REINFORCING
3	0.375	15	--	15	15	15	15	15	15
4	0.500	20	--	20	21	20	20	20	20
5	0.625	28	--	25	37	25	31	25	31
6	0.750	53	--	38	79	30	57	30	57
7	0.875	--	--	52	--	40	78	35	78
8	1.000	--	--	79	--	61	117	50	117

NOTES:

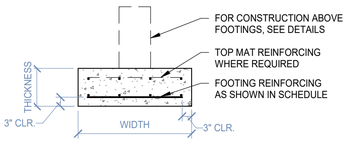
1. FOR ALL EPOXY-COATED BARS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.50.
2. ALL LAP SPLICE LENGTHS SHOWN ARE IN UNITS OF INCHES.

CONCRETE CONTINUOUS FOOTING SCHEDULE

MARK	FOOTING TYPE	WIDTH	THICKNESS	LONGITUDINAL REINFORCING			TRANSVERSE REINFORCING			COMMENTS
				QUANTITY	SIZE	SPACING	QUANTITY	SIZE	SPACING	
FC2.0	CONTINUOUS	2' - 0"	12"	(2)	#5	EVENLY	--	--	--	--

NOTES:

1. CONTRACTOR TO DETERMINE REQUIRED DEPTH OF FOOTINGS TO MEET FROST PROTECTION. SEE FOUNDATION SECTION OF GSN FOR MINIMUM REQUIREMENTS.
2. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



CONCRETE WALL SCHEDULE

MARK	WALL THICKNESS	REINFORCING						COMMENTS
		VERTICAL			HORIZONTAL			
		SIZE	SPACING	LOCATION	SIZE	SPACING	LOCATION	
CW-8A	8"	#5	12" O.C.	CENTER	#5	16" O.C.	CENTER	TYPICAL U.N.O. SEE NOTE 10

NOTES:

1. EXTEND VERTICAL BARS FROM THE FOOTING TO WITHIN 3" OF TOP OF WALL.
2. DOWELS MATCHING VERTICAL REINFORCING SIZE & SPACING SHALL EXTEND INTO FOOTING & TERMINATE WITH A 90-DEGREE STANDARD HOOK. ENSURE VERTICAL DOWEL HOOKS AROUND BOTTOM MAT OF FOOTING REINFORCING.
3. EXTEND VERTICAL LEG OF DOWEL MIN. LAP SPLICE LENGTH INTO WALL.
4. ALTERNATE DIRECTION OF STANDARD HOOK AT EVERY OTHER BAR.
5. INSTALL SCHEDULED HORIZONTAL REINFORCING WITHIN 4" OF TOP & BOTTOM OF WALL, U.N.O.
6. INSTALL CORNER REINFORCING SO AS TO LAP HORIZONTAL REINFORCING. SEE "TYPICAL CONCRETE WALL INTERSECTION REINFORCING" STRUCTURAL DETAIL.
7. INSTALL (2) REBAR ABOVE, (1) REBAR @ EACH SIDE, & (1) REBAR BELOW ALL OPENINGS. PLACE STEEL WITHIN 2" OF OPENINGS. VERTICAL BARS AROUND OPENINGS SHALL EXTEND FROM THE FOOTING TO WITHIN 3" OF TOP OF WALL & EXTEND HORIZONTAL BARS MIN. LAP SPLICE LENGTH BEYOND EDGE OF OPENINGS.
8. ALL CONCRETE WALL TYPES MAY NOT BE USED, SEE PLAN FOR REQUIREMENTS.
9. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
10. VERTICAL DOWEL SPACING SHALL MATCH SPACING OF MASONRY WALL VERTICAL REINFORCING ABOVE WITHOUT EXCEEDING MAX SPACING LISTED IN THIS SCHEDULE.

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Ensign Project #: 13448 Date: 08-06-2025
Ensign Sheet: 8 OF 13 - STRUCTURAL SCHEDULES

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS			WORK ORDERS		REVISIONS					ENGINEERING RECORD
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION	NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: H. SEAMONS (ENSIGN)
			97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001	0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB	CHECKED BY: D. BROX
										PROJECT ENGR: M. DIZDAREVIC
										SURVEYOR: ENSIGN
										ENGR MNGR: J. MCGEE
										CONSTR MNGR: D. FRANCIS
										PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE:
DESCRIPTION:
ADDRESS:

FL - 34
DISTRICT REGULATOR STATION TV0001
2" X 2" REGULATOR STATION
STRUCTURAL SCHEDULES
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	8 OF 13	0

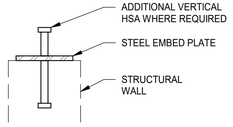
ENBRIDGE GAS_ANSI_D

STEEL LEDGER ANGLE & EMBEDMENT PLATE SCHEDULE

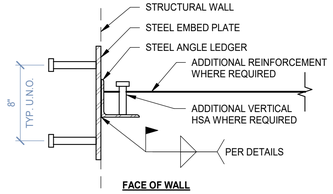
MARK	STEEL LEDGER ANGLE SIZE	STEEL EMBED PLATE				ADDITIONAL REINFORCEMENT				ADDITIONAL VERTICAL HSA		COMMENTS
		PLATE SIZE	PLATE SPACING	HSA QUANTITY	HSA SIZE	SIZE	GRADE	LENGTH	SPACING	HSA SIZE	HSA SPACING	
L-1	N/A	1/2" x 7" x CONT.	N/A	(1) @ 32" O.C.	3/4" x 5"	--	--	--	--	--	--	CENTER EMBED PLATE ON TOP OF WALL

NOTES:

1. SEE STRUCTURAL DETAILS FOR CONNECTION OF LEDGER ANGLE TO EMBED PLATE.
2. ATTACH HSA PER MANUFACTURER'S SPECIFICATIONS.



TOP OF WALL



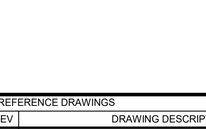
FACE OF WALL

BEARING PLATE SCHEDULE

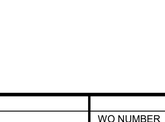
MARK	PLATE SIZE			HEADED STUD ANCHORS					COMMENTS
	A	B	THICKNESS	QUANTITY	DIAMETER	GRADE	LENGTH	SPACING	
BRGPL-1	5"	10"	3/4"	(2)	3/4"	A108	8"	8" O.C.	TYPICAL UNLESS NOTED OTHERWISE

NOTES:

1. CENTERLINE OF FRAMING MEMBER TO ALIGN WITH CENTERLINE OF BEARING PLATE, TYPICAL U.N.O.
2. CENTER BEARING PLATE ON MASONRY WALL, TYPICAL U.N.O.
3. ATTACH HSA PER MANUFACTURER'S SPECIFICATIONS.



PLAN VIEW



SIDE VIEW

STEEL DECK SCHEDULE

MARK	STEEL DECK PROPERTIES					CONCRETE PROPERTIES			MIN. ALLOWABLE SHEAR CAPACITY (PLF)	STEEL DECK ATTACHMENT TO PRIMARY STRUCTURE						COMMENTS
										WELDED ATTACHMENT			MECHANICAL FASTENERS			
	DECK TYPE	DECK GAUGE	MINIMUM SPAN	MINIMUM S (in^3/ft)	MINIMUM I (in^4/ft)	TOTAL SLAB DEPTH (in)	CONCRETE TYPE	STEEL REINFORCEMENT		PERPENDICULAR SUPPORTS (3)	PARALLEL SUPPORTS (4)	SIDELAP (5)	PERPENDICULAR SUPPORTS (3)	PARALLEL SUPPORTS (4)	SIDELAP (5)	
SD-1	1-1/2" DEEP PLB	20	3	0.23	0.231	--	--	--	870	--	--	--	PAF @ 36/7	PAF @ 6" O.C.	VSC2 @ 18" O.C.	GALVANIZED

NOTES:

1. REINFORCEMENT PLACEMENT:
   - WELDED WIRE REINFORCEMENT (WHERE APPLICABLE) SHALL BE PLACED APPROXIMATELY 1" BELOW TOP OF CONCRETE, TYP. U.N.O.
   - STEEL REINFORCING BARS (WHERE APPLICABLE) SHALL BE CENTERED BETWEEN TOP FLUTE OF STEEL DECK & TOP OF CONCRETE (ENSURE AT LEAST 3/4" OF CLEAR COVER IS MAINTAINED), TYP. U.N.O.
2. WELDED WIRE REINFORCEMENT SHALL HAVE MINIMUM LAP LENGTH OF 12". USE CONCRETE REINFORCING LAP SPLICE LENGTH SCHEDULE FOR MINIMUM LAP SPLICE FOR STEEL REINFORCING BARS.
3. PERPENDICULAR SUPPORTS - FASTEN DECK TO STRUCTURE WITH ATTACHMENTS INDICATED IN SCHEDULE AT SHEET ENDS, END LAPS & INTERMEDIATE SUPPORTS PERPENDICULAR TO DECK CORRUGATIONS.
   - ATTACHMENT SPACING AT PERPENDICULAR SUPPORTS NOTED AS ###/# INDICATES "DECK PANEL WIDTH" / "ATTACHMENTS PER PANEL".
4. PARALLEL SUPPORTS - FASTEN DECK TO STRUCTURE WITH ATTACHMENTS INDICATED IN SCHEDULE AT ALL SUPPORTS RUNNING PARALLEL TO DECK CORRUGATIONS.
5. SIDELAP - FASTEN ADJACENT PIECES OF DECK TOGETHER WITH ATTACHMENTS INDICATED IN SCHEDULE.
6. PW (PUDDLE WELD) - 3/4" DIAMETER ARC SPOT WELD (1/2" MINIMUM EFFECTIVE DIAMETER) OR 5/8" x 1-1/4" LONG ARC SEAM WELD (3/8" x 1" LONG EFFECTIVE SIZE, EXCLUDING CIRCULAR ENDS) AS INDICATED IN ATTACHMENT PATTERN DIAGRAM.
7. PAF (POWDER ACTUATED FASTENER) -
   - HILTI X-EDNK22 AT SUPPORTS 1/8" TO 1/4" THICK
   - HILTI X-HSN24 AT SUPPORTS 3/16" TO 3/8" THICK
   - HILTI X-ENP19 AT SUPPORTS 1/4" & THICKER
8. VSC2 (VERCO SIDELAP CONNECTION 2) - FASTEN ADJACENT PIECES OF DECK TOGETHER WITH VERCO PUNCHLOK II TOOL.
9. BP (BUTTON PUNCH) - 3/16" BUTTON PUNCH BETWEEN ADJACENT PIECES OF DECK.
10. ARC SPOT WELDS MAY BE ELIMINATED WHERE THEY COINCIDE WITH STEEL HEADED STUD ANCHORS.
11. ADDITIONAL REINFORCING MAY BE REQUIRED AT OPENINGS THROUGH DECK. SEE PLANS & TYPICAL STRUCTURAL DETAILS.
12. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

ATTACHMENT PATTERNS:

PLB DECK, 36/7:

PLN3 DECK, 32/5:

W3 DECK, 36/4:

○ INDICATES LOCATION OF ARC SPOT WELD, PAF, OR SCREW AS INDICATED IN SCHEDULE ABOVE.

□ INDICATES LOCATION OF ARC SEAM WELD, PAF, OR SCREW AS INDICATED IN SCHEDULE ABOVE.

PROFESSIONAL STRUCTURAL ENGINEER
No. 175238
DAVID B. ALTER
08/19/2025
STATE OF UTAH

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Ensign Project #: 13448 Date: 08-06-2025
Ensign Sheet: 9 OF 13 - STRUCTURAL SCHEDULES

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION
97706.22	FL-34, INSTALL DISTRICT REGULATOR STATION TV0001

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION	08/19/2025	ENSIGN	DGB

ENGINEERING RECORD
DRAWN BY: H. SEAMONS (ENSIGN)
CHECKED BY: D. BROX
PROJECT ENGR: M. DIZDAREVIC
SURVEYOR: ENSIGN
ENGR MNGR: J. MCGEE
CONSTR MNGR: D. FRANCIS
PROJECT ENGR: D. ALTER (ENSIGN)

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ENBRIDGE

SECTION: 11 T 2S R 1W
ELEVATION: 4292'
LAT: 40.6651 LONG: -111.9289
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE: FL - 34
DESCRIPTION: DISTRICT REGULATOR STATION TV0001
ADDRESS: 2" X 2" REGULATOR STATION
STRUCTURAL SCHEDULES
1300 WEST MURRAY TAYLORSVILLE RD (4850 S)

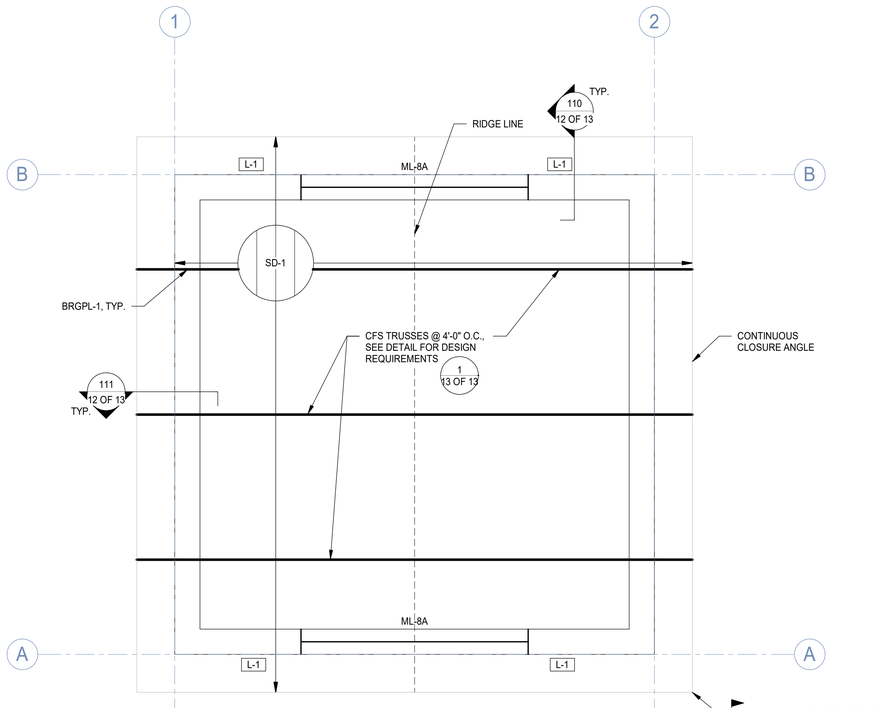
CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	9 OF 13	0

ENBRIDGE GAS_ANSI_D

ROOF FRAMING GENERAL NOTES

1. REFER TO ARCHITECTURAL PLANS FOR ALL DIMENSIONS. CONTRACTOR TO VERIFY ALL DIMENSIONS BEFORE STARTING CONSTRUCTION. DO NOT SCALE DRAWINGS. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT. NOTIFY STRUCTURAL ENGINEER THROUGH THE ARCHITECT OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THIS DRAWING.
2. NOT ALL OPENINGS THROUGH ROOF AND WALLS ARE SHOWN. COORDINATE OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL AND TYPICAL STRUCTURAL DETAILS.
3. SEE ARCHITECTURAL DRAWINGS FOR ROOF DRAINAGE PLAN AND LOCATIONS.
4. ALL MASONRY LINTELS DESIGNATED ON THIS SHEET OCCUR ABOVE WALL OPENINGS IN LEVEL BELOW, U.N.O.
5. ALL MASONRY WALLS DESIGNATED ON THIS SHEET OCCUR AT THIS FRAMING LEVEL AND CONTINUE TO NEXT FRAMING LEVEL ABOVE.



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

FOUNDATION GENERAL NOTES

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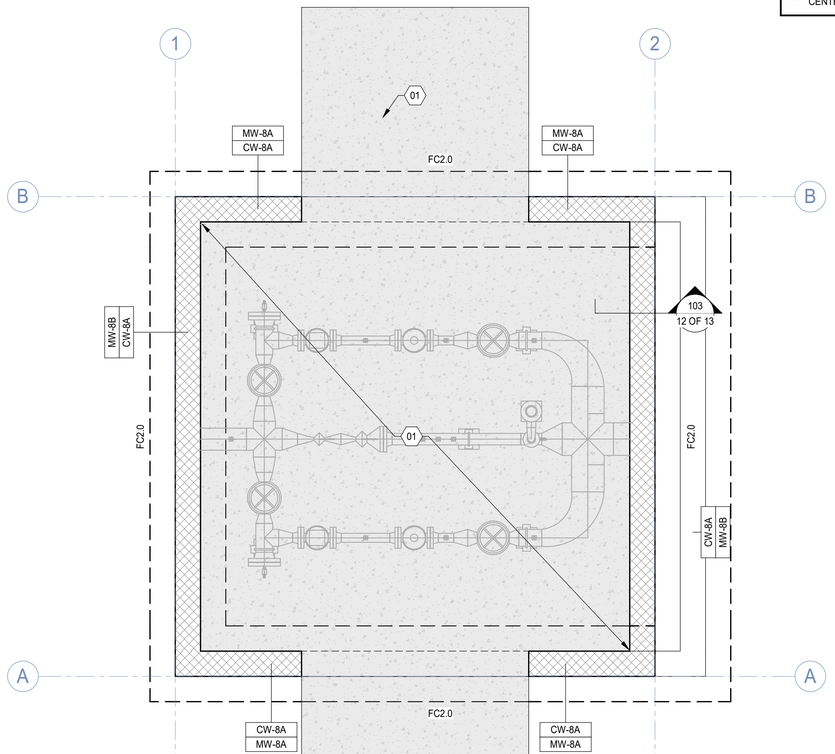
2. COORDINATE STRUCTURAL REQUIREMENTS AT WALLS AND FOOTINGS WITH TYPICAL STRUCTURAL DETAILS.
3. COORDINATE LOCATIONS OF UTILITY TRENCHES (IF APPLICABLE) WITH RESPECTIVE DRAWINGS AND SUB-CONTRACTORS. SLAB REINFORCING SHALL BE CONTINUOUS OVER TRENCH.
4. ALL TOP OF FOOTING ELEVATIONS ARE BASED ON FINISH FLOOR = 100'-0". VERIFY WITH ARCHITECTURAL PLANS.
5. PROVIDE MINIMUM FROST DEPTH PER GENERAL STRUCTURAL NOTES. COORDINATE FOOTING STEPS (IF APPLICABLE) WITH CIVIL AND ARCHITECTURAL PLANS. SEE TYPICAL CONCRETE STEPPED FOOTING DETAIL IN STRUCTURAL DETAILS.
6. CONTRACTOR SHALL COORDINATE FLOOR SLAB DEPRESSIONS AND SLAB SLOPES WITH ARCHITECTURAL PLANS.
7. NOT ALL OPENINGS THROUGH FLOORS AND WALLS ARE SHOWN. COORDINATE PENETRATION REQUIREMENTS (ADDITIONAL FRAMING ELEMENTS OR REINFORCING) AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND TYPICAL STRUCTURAL DETAILS.
8. PROVIDE CONTROL JOINTS IN ALL SLABS PER THE GENERAL STRUCTURAL NOTES AND TYPICAL SLAB JOINT DETAIL.
9. CENTER ALL SPOT FOOTINGS UNDER COLUMNS AS SHOWN ON PLAN, TYPICAL U.N.O. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO ALL STEEL COLUMNS.
10. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.

FOUNDATION KEYED NOTES

01 6" CONCRETE SLAB OVER 6" LAYER OF FREE-DRAINING STRUCTURAL FILL w/ #4 BARS @ 12" O.C. EACH WAY CENTERED IN SLAB



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

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Ensign Sheet: 10 OF 13 - STRUCTURAL PLANS

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DRAWING NUMBER	SHEET	REVISION
ENB-R-TV0001-CCS-002	10 OF 13	0

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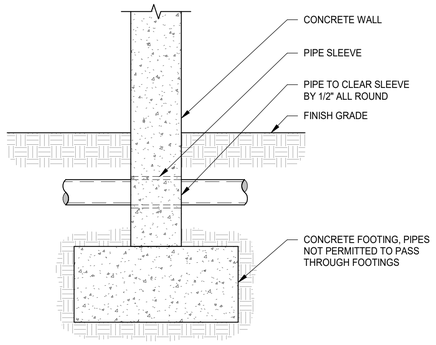
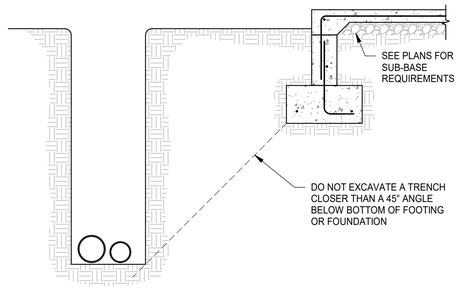
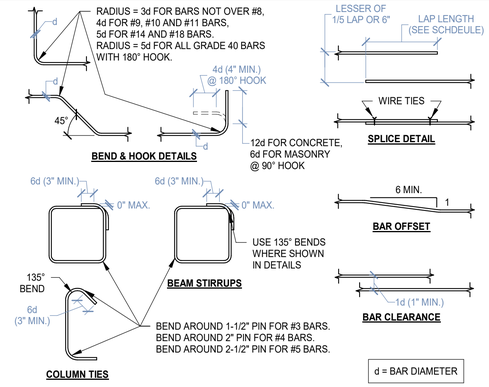


007 TYPICAL PIPE PENETRATION THRU FDTN.
SCALE: N.T.S.



004 TYPICAL TRENCH PARALLEL TO FOUNDATION
SCALE: N.T.S.



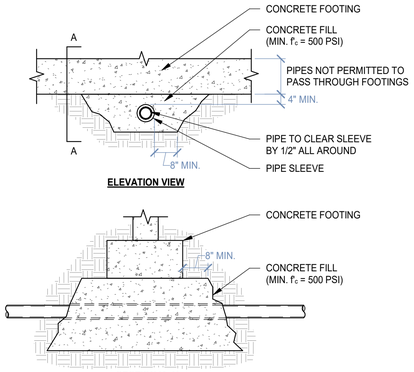
001 TYPICAL REINFORCING BAR DETAILS
SCALE: N.T.S.

DOWELED CONSTRUCTION JOINT - DOWEL REQUIREMENTS

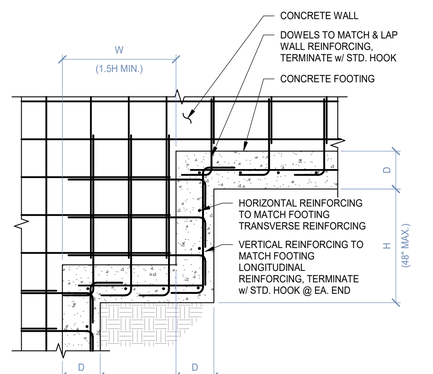
SLAB THICKNESS	DOWEL DIAMETER
UP TO 6"	3/4"
6" < D ≤ 8"	1"
8" < D ≤ 10"	1-1/4"

NOTES:

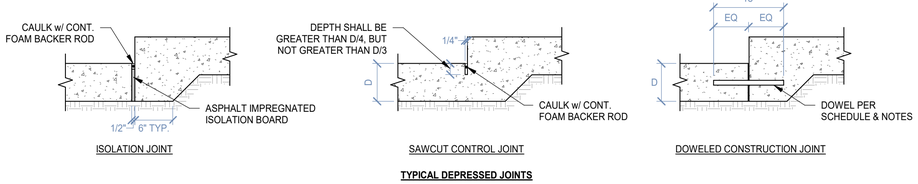
1. DOWELS SHALL BE SPACED AT 12" O.C.
2. DOWELS SHALL BE SMOOTH AND ROUND. AT CONTRACTOR'S OPTION, DIAMOND DOWELS ARE PERMITTED FOR USE IN LIEU OF ROUND DOWELS.
3. INSTALL DOWELS USING A POCKET FORMER, THIN BOND BREAKER, COAT OR GREASE AT ONE END OF EACH DOWEL TO PREVENT BOND.
4. ALIGN DOWELS STRAIGHT AND TRUE. MISALIGNED DOWELS MAY CAUSE CRACKING.
5. STAINLESS STEEL OR EPOXY COATED DOWELS SHALL BE USED IN EXTERIOR OR CORROSIVE ENVIRONMENTS.
6. WHEN DOWELS ARE USED IN EXPANSION JOINTS, EXPANSION END CAPS SHALL BE USED AT EACH DOWEL END.

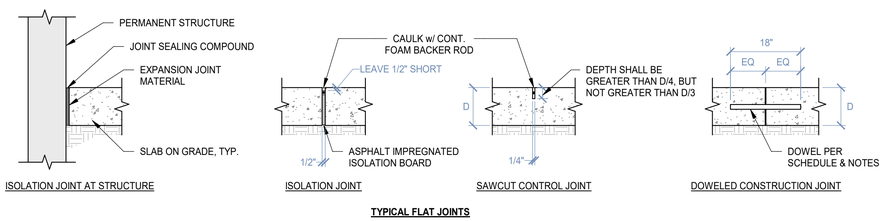


005 TYPICAL PIPE PASSING BELOW FOOTING
SCALE: N.T.S.

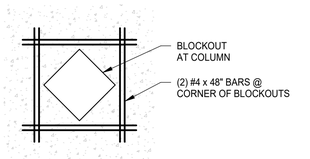


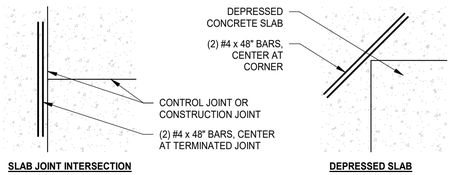
002 TYPICAL CONCRETE STEPPED FOOTING
SCALE: N.T.S.



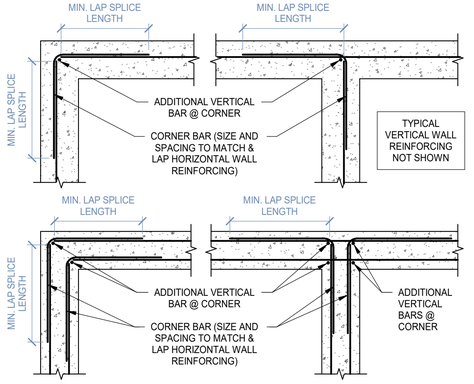


012 TYPICAL SLAB ON GRADE JOINT DETAILS
SCALE: N.T.S.





006 TYPICAL ADD'L REINF. @ OPENINGS IN S.O.G.
SCALE: N.T.S.



003 TYPICAL CONC. WALL INTERSECTION REINF.
SCALE: N.T.S.

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Ensign Sheet: 11 OF 13 - STRUCTURAL DETAILS

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ENBRIDGE

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DESCRIPTION: 2" X 2" REGULATOR STATION
ADDRESS: STRUCTURAL DETAILS
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CITY	COUNTY	STATE
TAYLORSVILLE	SALT LAKE	UTAH

DRAWING NUMBER	SHEET	REVISION
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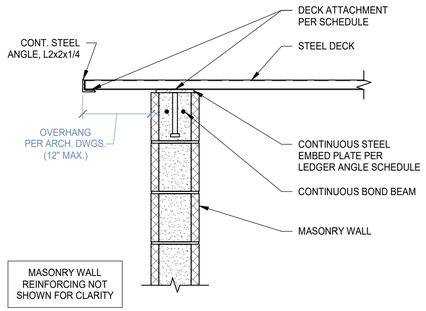
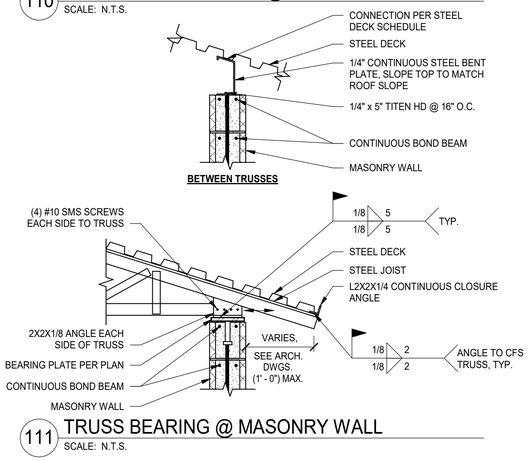


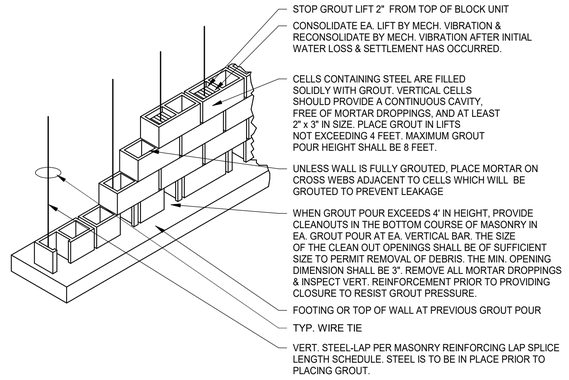
110 STEEL DECK BEARING @ MASONRY WALL

SCALE: N.T.S.



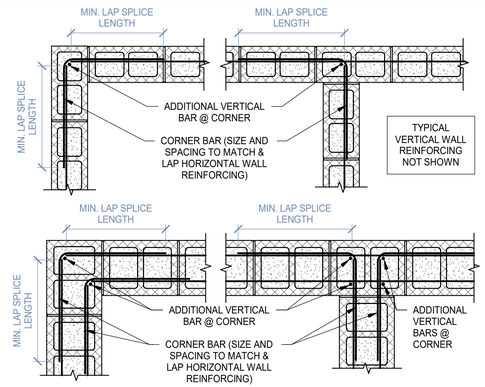
111 TRUSS BEARING @ MASONRY WALL

SCALE: N.T.S.



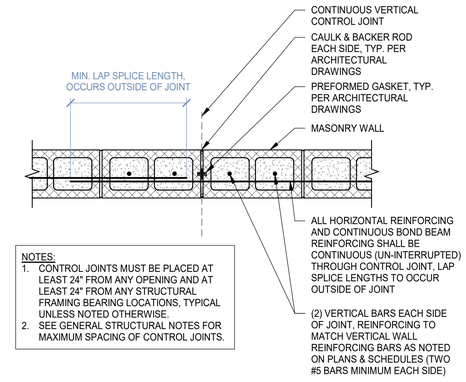
104 REINFORCED MASONRY CONSTRUCTION

SCALE: N.T.S.



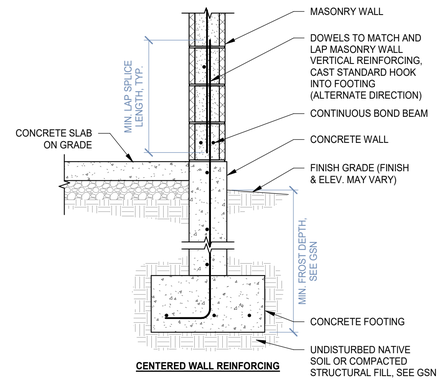
101 TYP. MASONRY WALL INTERSECTION REINF.

SCALE: N.T.S.



102 TYPICAL MASONRY WALL CONTROL JOINT

SCALE: N.T.S.



103 MASONRY WALL @ EXTERIOR FOOTING

SCALE: N.T.S.

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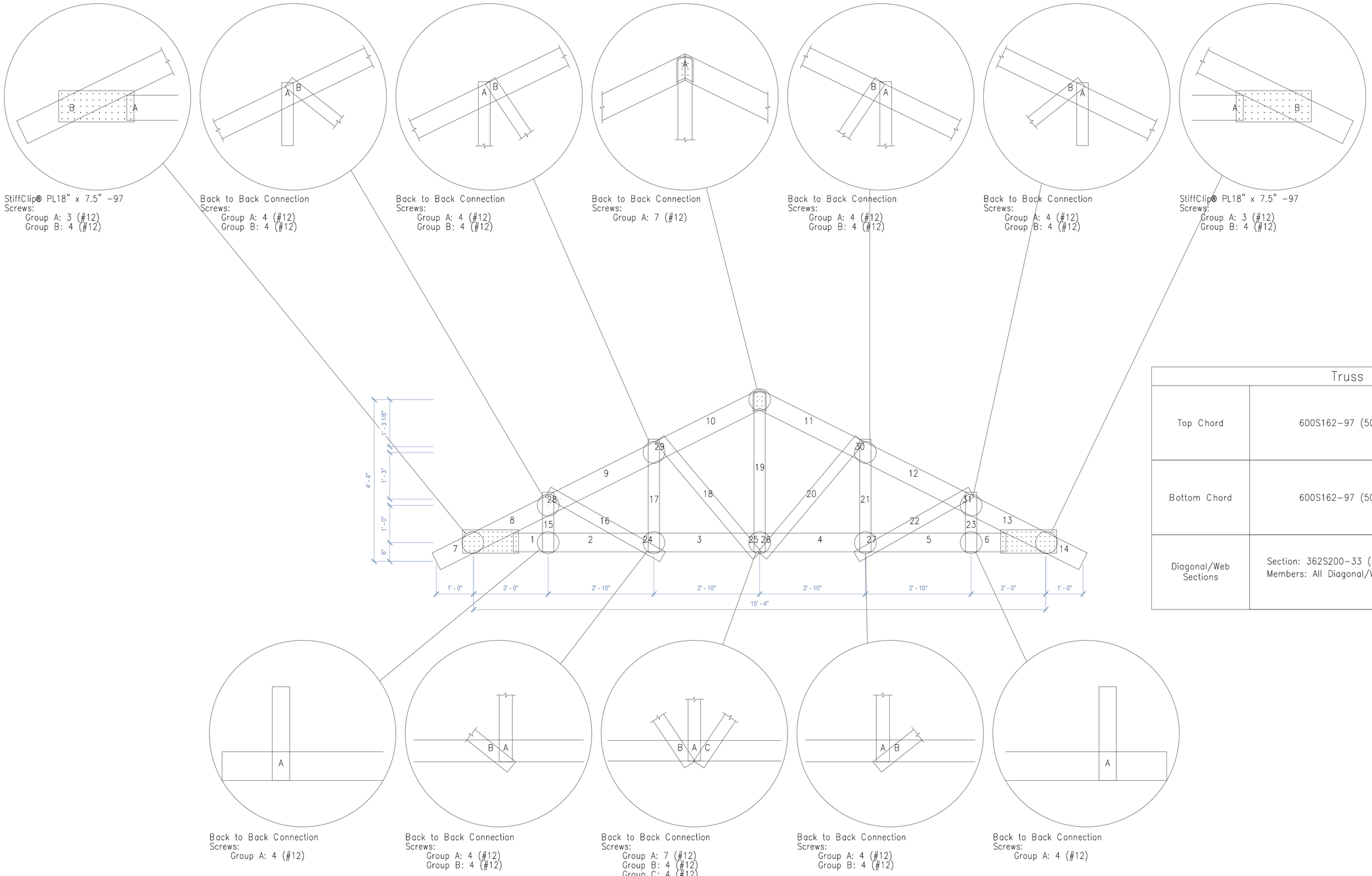

1 COLD-FORMED STEEL TRUSS DETAIL

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

Truss		
Top Chord	600S162-97 (50 ksi)	
Bottom Chord	600S162-97 (50 ksi)	
Diagonal/Web Sections	Section: 362S200-33 (33 ksi) Members: All Diagonal/Web Members	

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GENERAL STRUCTURAL NOTES

1. 2018 International Building Code Design Criteria (ASCE 7-16)

A. Roof Dead Load . . . . . 5 psf
B. Roof Live Load . . . . . 20 psf
C. Roof Snow Load Data
Ground Snow Load P_g . . . . . 57.0 psf
Flat-Roof Snow Load P_f . . . . . 57.5 psf
Slope Factor C_s 1.0
Exposure Factor C_e 1.0
Importance Factor I_s 1.2
Thermal Factor C_t 1.2
D. Rainfall Intensity . . . . . 1.5 Inches Per Hour
E. Wind Design Data
Basic Design Wind Speed V . . . . . 115 mph
Nominal Design Wind Speed V_{asd} . . . . . 89 mph
Risk Category IV
Exposure C
Component & Cladding . . . . . 49.0 psf Roof 39.1 psf Wall
F. Earthquake Design Data
Risk Category IV
Importance Factor I_e 1.5
Mapped Spectral Parameters
S_s 1.250g
S_1 . . . . . 0.500g
Site Class . . . . . D (Default)
Design Spectral Parameters
S_{DS} 0.833g
S_{D1} 0.533g
Seismic Design Category . . . . . D
Seismic Force Resisting System . . . . . Steel ordinary moment frames
Seismic Response Coefficient C_s 0.357
Response Modification Factor R 3.5
Analysis Procedure . . . . . Equivalent Lateral Force Procedure
G. Frost Depth . . . . . As Required Per Local Requirements

2. Structural Steel

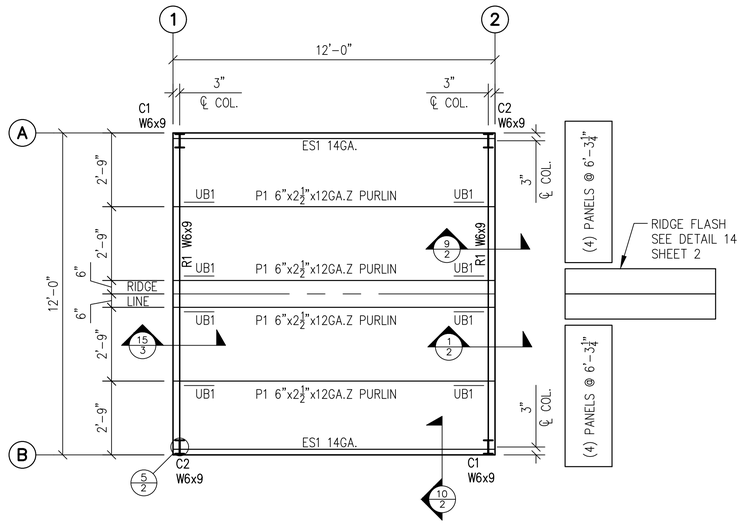
A. Material:
i. Angles, Plates, and Channels: ASTM A36 (Fy = 36 k.s.i.)
ii. Wide Flanges: ASTM A992 (Fy = 50 k.s.i.).
iii. Tubes (HSS): ASTM A500, Grade B (Fy = 46 k.s.i.)
iv. Pipes: ASTM A53, Grade B (Fy = 35 k.s.i.)
B. Fabrication and construction shall comply with the latest edition of the following Codes and Standards:
i. American Institute of Steel Construction (AISC) "Specification for Structural Steel Buildings." (360-10)
ii. AISC "Seismic Provisions for Structural Steel Buildings," including supplement No. 1 (341-10)
iii. AISC "Code of Standard Practice."
iv. RCSC "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
v. Steel Joist Institute (SJI), "Standard Specifications and Code of Standard Practice."
vi. American Welding Society (AWS), Structural Welding Code (specific items do not apply when they conflict with the AISC requirements).
vii. American Iron and Steel Institute (AISI), "Specification for the Design of Cold-Formed Steel Structural Members".
C. Welding:
i. Certification of Welders: All shop and field welding shall be executed by AWS certified welders. Certification shall be considered current if dated within the past 12 months. Welders will be considered certified if they have been certified by AWS and their work records are current within every six month period thereafter as required by AWS. Certification and records must comply with AWS Standards. Certification and appropriate records must be provided to the inspector prior to beginning work.
ii. Electrodes: E-70XX or as noted otherwise. E-60XX may be used for welding steel floor and roof decks.
iii. Minimum Welds: All intersecting steel shapes which are not bolted shall be connected by a fillet weld all around, unless noted otherwise.
iv. Welded reinforcing bars shall be ASTM A706 Grade 60.
D. Bolted Connections:
i. Use ASTM A325N bolts for hot-rolled steel to steel (e.g. girder to column, rafter to column/cap plate, beam to beam, etc.) connections unless noted otherwise in the drawings. All connections shall conform to the RCSC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
ii. A325 bolts shall be pretensioned using an acceptable method such as "Turn of the Nut" as per the RCSC Specification Section 8.2 at all 8-bolt wide flange to wide flange ridge and haunch connections only.
iii. All other A325 bolts shall be fully tightened to the "Snug Tight" condition in accordance with the RCSC Specification Section 8.1.
E. Provide full height web stiffener plates to each side of all beams bearing on top of columns. Plate thickness shall match the thickness of the beam web except that the thickness need not exceed 1/4" unless noted otherwise on drawings.
F. All structural steel, except plates embedded in concrete or masonry, to have one coat (min.) of gray shop primer, 1.5 mil minimum thickness.
G. Cold Formed Girts & Purlins:
i. All cold formed cees, zees, and eave struts shall be MBCI standard or equal.
ii. All girt and purlin connection bolts shall be GR-5 or equal.
H. Use 26 gage roof and wall panels with trims as required.
J. Flange braces as shown by marks UB and FB to be 2"x2"x3/16" angle.
K. Steel Stairs, Handrails, and Guardrails
i. Design of steel stairs, handrails, and guardrails is not by Mountain View Engineering.
ii. All stairs, handrails, and guardrails shall comply with the requirements of the 2015 IBC unless noted otherwise in the project specifications.
iii. The fabricator shall be responsible for the design and certification of all steel stairs, handrails, and guardrails, including member sizes and connection details.
iv. See the architectural plans for all stair information including, but not limited to, stair layout, dimensions, and style.

3. Miscellaneous

A. The project specifications are not superseded by the General Structural Notes. Notes and details on the drawings shall take precedence over General Structural Notes and typical details. Should any of the detailed instructions shown on the plans conflict with the General Structural Notes, or with each other, the strictest provisions shall govern.
B. It is solely the responsibility of each contractor to follow all applicable safety codes and regulations during all phases of construction. The engineer is not engaged in, and does not supervise, construction.
C. Erection, Shoring, and Bracing
i. It is the contractor's responsibility to determine erection procedures and sequence, and to ensure the stability of the building and its component parts during erection.
ii. It is solely the contractor's responsibility to provide any temporary shoring, bracing, guys, and tie downs that may be necessary to provide adequate vertical and lateral support. Such material is not shown on the drawings. Shoring and bracing shall remain in place until all permanent members are in place and all final connections are completed, including all roof and floor attachments.
iii. The building shall not be considered stable until all connections are complete.
iv. The engineer has no expertise in, and takes no responsibility for, construction means and methods or job site safety during construction. Approval of submittals made by the contractor which may contain information related to construction methods or safety issues, or participation in meetings where such issues might be discussed, shall not be construed as voluntary assumption by the engineer of any responsibility for safety procedures.
D. Equipment framing loads, openings, and structure in any way related to mechanical, plumbing, or electrical requirements are shown for bidding purposes only. The contractor shall coordinate this information with the involved trades before proceeding with such portion of the work. Excess cost related to variation in these requirements shall be borne by the appropriate contractor.
E. The contractor shall notify engineer of any variations in dimensions.
F. The engineer is not responsible for any deviations from these plans unless such changes are authorized in writing by the engineer.

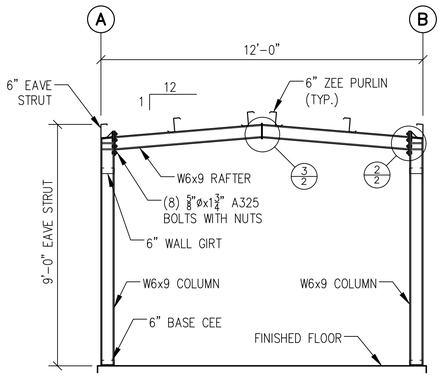
4. Special Inspections

A. Special inspections, as required by Section 1705 of the IBC, shall be provided by an independent agency employed by the owner unless waived by the building official. The contractor shall coordinate and cooperate with the required inspections. Items requiring special inspection are:
i. Steel Construction (AISC 360-16 Chapter N)
a. Field welding (if any is used).
b. High-strength bolts (if any are used).
ii. Concrete Construction (IBC 1705.3)
a. Special inspections of concrete footings, grade beams, walls, and slabs are not required as per Exceptions 1, 2.3, 3, 4, & 5 to IBC Section 1705.3. Third party special inspection of reinforcing placement need only be performed where specifically required by the building official.
b. Special inspection of anchor rods/bolts is required per IBC Table 1705.3. Special inspection may be waived subject to the approval of the building official.
c. Special inspection of rebar welding is required (if any is used).
B. Special inspector must be qualified and approved by local building department.



ROOF FRAMING PLAN

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

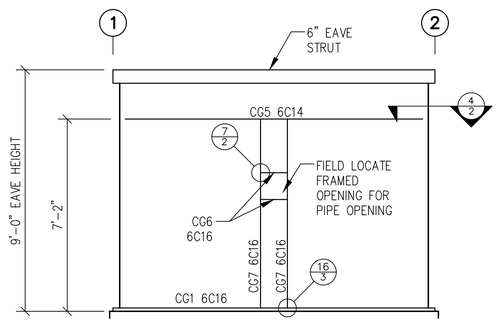


BUILDING SECTION

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

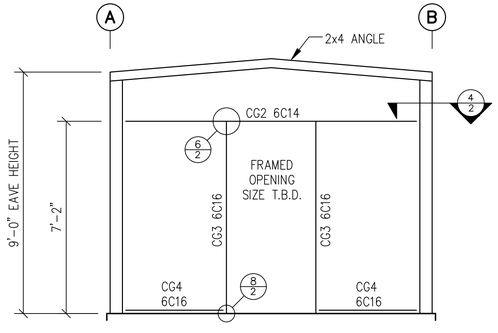
PAINT COLOR FOR ROOF, WALLS AND TRIMS WILL BE MBCI SADDLE TAN.

NOTES:
1: GRID LINES ARE AT STEEL LINE.
2: OUTSIDE OF CONCRETE IS 1½" OUT FROM STEEL LINE.



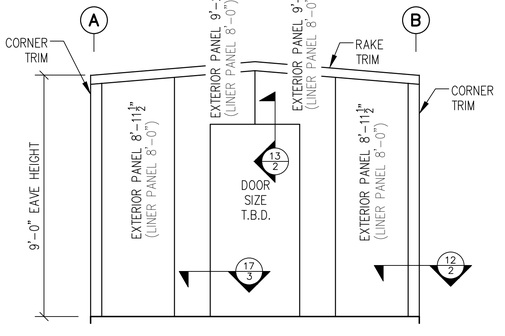
FRAMING AT LINES A AND B

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



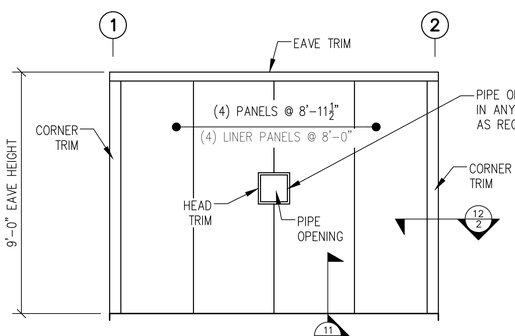
FRAMING AT LINES 1 AND 2

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



SHEETING AT LINES 1 AND 2

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



SHEETING AT LINES A AND B

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

PROFESSIONAL STRUCTURAL ENGINEER
NO. 334176-2203
BRAD WALLACE
STATE OF UTAH

NOV 22 2022

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801-567-9661

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Brigham City, Utah 84302
Phone (435) 734-9700
Fax (435) 734-9519
MVE JOB NUMBER: 211403

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										PROJECT ENGR: B. WALLACE
										SURVEYOR:
										ENGR MNGR: W. RADFORD
										CONSTR MNGR:

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DESCRIPTION: STANDARD DRAWING
ADDRESS: DOMINION ENERGY 12'-0" x 12'-0" BUILDING
NOTES, PLANS, ELEVATIONS, AND SECTION

CITY	COUNTY	STATE
VARIES	VARIES	UTAH

DRAWING NUMBER	SHEET	REVISION
DE-V-BLD-CCS-010	1 OF 4	0

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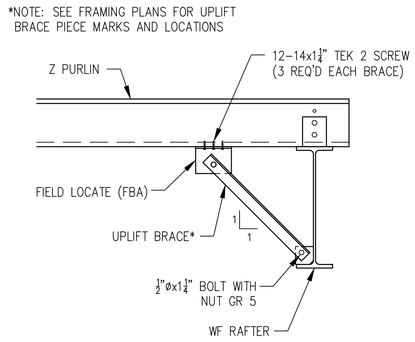

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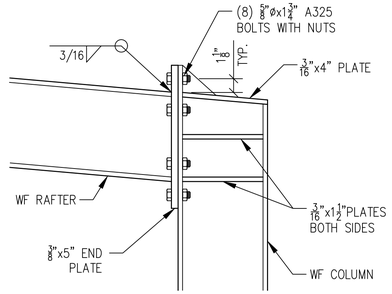

2 RAFTER TO COLUMN CONNECTION
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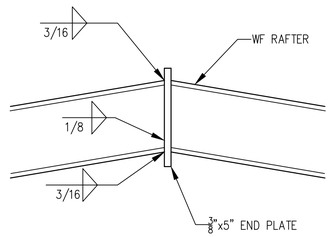

3 RIDGE CONNECTION
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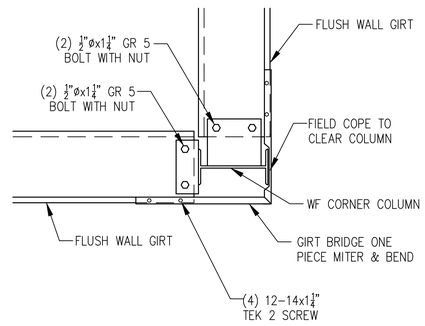

4 GIRT BRIDGING DETAIL
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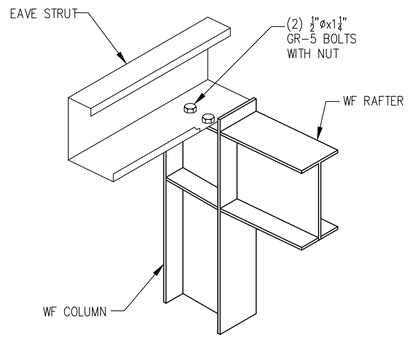

5 EAVE STRUT TO ENDWALL COLUMN
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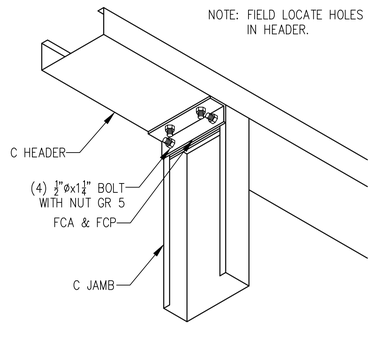
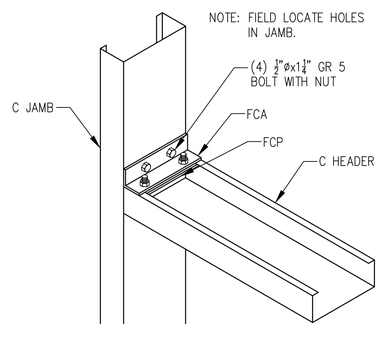


6 JAMB TO HEADER CONNECTION
1 1/2"=1'-0"



7 HEADER TO JAMB CONNECTION
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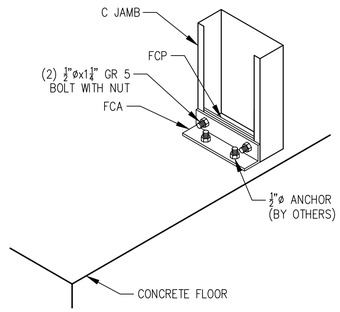

8 JAMB TO FLOOR
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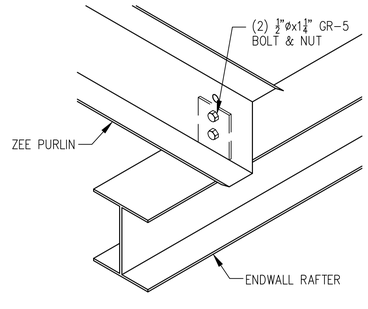

9 Z PURLIN TO RAFTER
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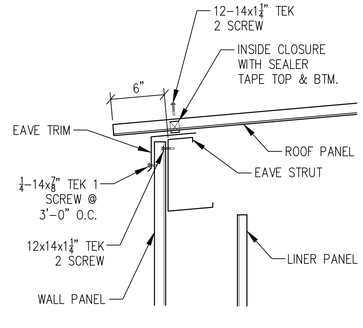

10 EAVE DETAIL
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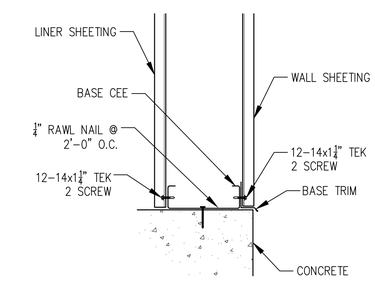

11 BASE DETAIL
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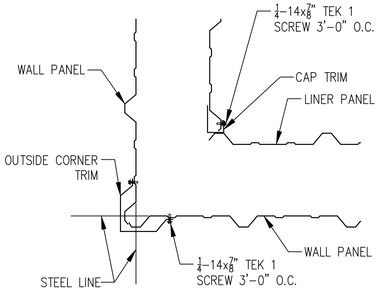

12 CORNER TRIM DETAIL
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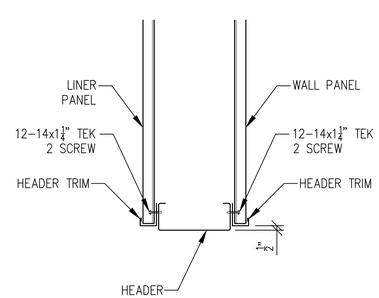
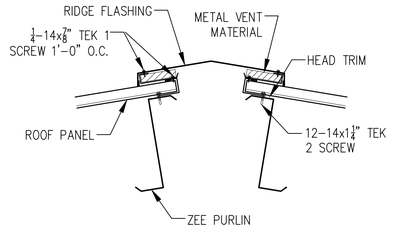


13 HEADER DETAIL
1 1/2"=1'-0"



14 RIDGE VENT DETAIL
1 1/2"=1'-0"

Construction
3064 South Hunter Canyon DR
West Valley City, UT 84128
801-567-9661

PROFESSIONAL STRUCTURAL ENGINEER NO. 334176-2203 BRAD WALLACE STATE OF UTAH

NOV 22 2022

Design by:
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345 No. Main St., Suite A
Brigham City, Utah 84302
Phone (435) 734-9700
Fax (435) 734-9519
MVE JOB NUMBER: **211403**

REFERENCE DRAWINGS		
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WORK ORDERS	
WO NUMBER	DESCRIPTION
VARIES	VARIES

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
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ENGINEERING RECORD
DRAWN BY: T.W.
CHECKED BY: E. BUSH
PROJECT ENGR: B. WALLACE
SURVEYOR:
ENGR MNGR: W.RADFORD
CONSTR MNGR:

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LINE NUMBER:
FACILITY:
TITLE: STANDARD DRAWING
DESCRIPTION: DOMINION ENERGY 12'-0" x 12'-0" BUILDING
ADDRESS: NOTES, PLANS, ELEVATIONS, AND SECTION

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
DE-V-BLD-CCS-010	2 OF 4	0

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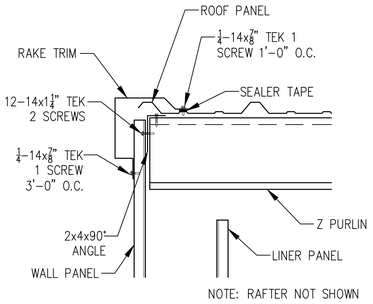

15 RAKE DETAIL
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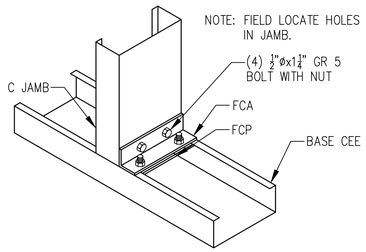

16 JAMB TO BASE GIRT CONNECTION
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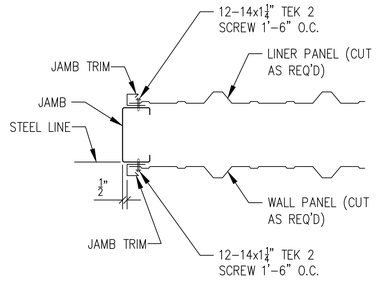

17 JAMB TRIM DETAIL
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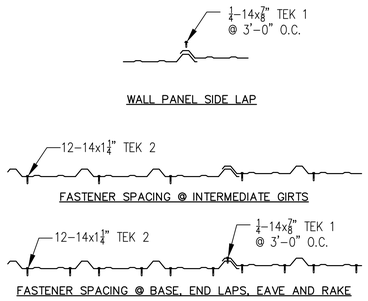

18 WALL PBR PANEL FASTENER SPACING
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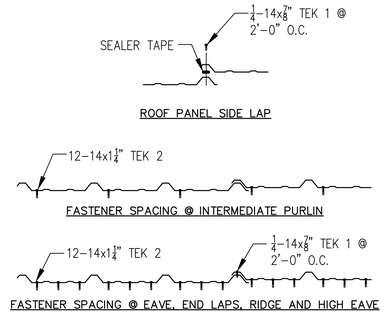

19 ROOF PBR PANEL FASTENER SPACING
N.T.S.

PROFESSIONAL STRUCTURAL ENGINEER
NO. 334176-2203
BRADLEY WALLACE
STATE OF UTAH

NOV 22 2022

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STANDARD DRAWING
DOMINION ENERGY 12'-0" x 12'-0" BUILDING
NOTES, PLANS, ELEVATIONS, AND SECTION

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
DE-V-BLD-CCS-010	3 OF 4	0

DOMINION ENERGY_ANSI_D

FOUNDATION NOTES

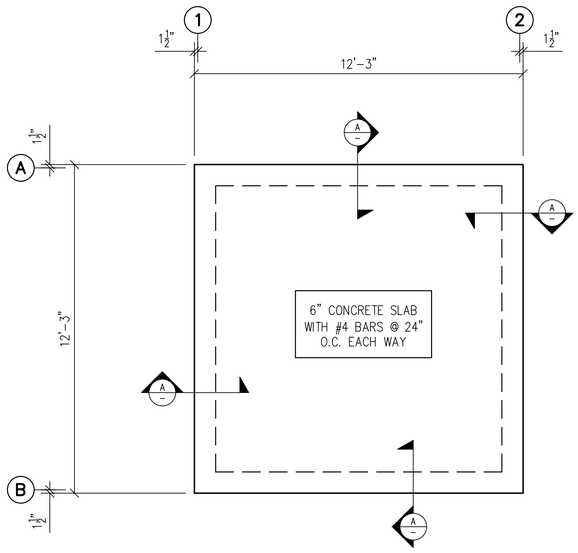
1. Earthwork

A. Foundation Design Values (assumed)
   i. Allowable Soil Bearing Pressure – 1500 psf
   ii. Coefficient of Friction – 0.25
   iii. Passive Earth Pressure – 150 psf/ft of depth
B. The building pad area shall be stripped of all frozen soil, debris, vegetation, and topsoil. All fill soils and any remaining loose natural soils shall be excavated to expose suitable natural soils.
C. Proof roll the entire building pad area to locate and remove all soft spots. Replace with compacted structural fill.
D. Place all footings and slabs on undisturbed natural soil or on properly compacted structural fill. Contractor shall verify that soil under footings is suitable to support footings.
E. Structural Fill: Structural fill should consist of well-graded sandy gravels with a maximum particle size of 3 inches and 5 to 15 percent fines (materials passing the No. 200 sieve). The liquid limit of fines should not exceed 35 and the plasticity index should be below 15. All fill soils should be free from topsoils, highly organic material, frozen soil, and other deleterious materials. Structural fill should be placed in maximum 8-inch thick loose lifts at a moisture content within 2 percent of optimum and compacted to at least 95 percent of modified proctor density (ASTM D1557) under the building and 95 percent under concrete flatwork.
F. It is the responsibility of the contractor to ensure that the depth of the bottom of the foundation is far enough below the adjacent grade to ensure adequate frost protection.

2. Concrete and Reinforcement

A. Material Standards
   i. Concrete
      a. Footings and foundation walls – f'c = 3000** p.s.i.
      b. Slabs on grade – f'c = 3500 p.s.i.
      ** Concrete has been designed using f'c = 2500 p.s.i. Special Inspection not required unless noted otherwise, see Special Inspection Notes.
      c. Normal weight aggregates – ASTM C33
   ii. Cement
      a. Use Type I/II cement as per ASTM C150
      b. Air-entraining admixtures (where required) – ASTM C260
      c. Calcium chloride shall not be used.
   iii. Reinforcing
      a. Rebar – ASTM A615 Grade 60 (Fy = 60 ksi)
      b. Welded wire – ASTM A1064
      c. Epoxy – Simpson SET-XP (ICC-ES ESR-2508) or Hilti HIT-RE 500-SD (ICC-ES ESR-2322)
   iv. Anchor Rods/Bolts
      a. $\frac{5}{8}$"ø Simpson Titen HD 6" min. embedment.
B. Detail reinforcing to comply with ACI 315 "Manual of Standard Practice for Detailing Reinforcing Concrete Structures" and the Concrete Reinforcing Steel Institute (CRSI) recommendations.

   i. Minimum clear concrete cover for reinforcement shall be as follows unless noted otherwise:
      a. Concrete cast directly against and permanently exposed to earth – 3"
      b. Concrete exposed to weather or earth:
         1. #5 bars or smaller – $1\frac{1}{2}$"
         2. #6 bars or larger – 2"
      c. Concrete not exposed to weather or in contact with the ground – $\frac{3}{4}$"
      d. Slabs on grade – as shown in details, $\frac{3}{4}$" min. from top of slabs not exposed to weather
   ii. Lap Splice Lengths (unless noted otherwise)
      a. f'c = 2500-3500 p.s.i.
         1. #6 and smaller – 36 bar diameters
         2. #7 and larger – 45 bar diameters
      b. f'c = 4000 p.s.i. or greater
         1. #6 and smaller – 29 bar diameters
         2. #7 and larger – 36 bar diameters
      c. Lap splice lengths may be decreased by 25% for slabs on grade and horizontal wall reinforcing.
      d. Increase lap splice lengths by 50% where epoxy coated bars are used.
   iii. Stagger splices in walls so that no two adjacent bars are spliced in the same location, unless shown otherwise.
   iv. Make all bars continuous around corners or provide corner bars of equal size and spacing.
   v. Vertical bars in walls, grade beams, and piers to terminate in footings with ACI standard hooks (12 bar diameters) to within 4" of the bottom of the footing unless noted otherwise.
   vi. Horizontal wall reinforcing shall terminate at the ends of walls with a 90 degree hook plus a 6 bar diameter extension, unless shown otherwise.
   vii. Horizontal wall reinforcing shall be continuous through construction and control joints.
   viii. Splices in horizontal reinforcement shall be staggered. Splices in two curtains (where used) shall not occur in the same location.
   ix. Use chairs or other support devices as required for proper clearance.
   x. Unless noted otherwise, openings in walls shall be reinforced with #5 bar on all sides of the opening. Reinforcing shall extend 24" min. past the edge of the opening. For one layer of wall reinforcing provide (1) #5 bar around openings, for two layers provide (2) #5 bars.
C. Slabs and grade beams shall not have joints in a horizontal plane. All reinforcement shall be continuous through all construction joints.
D. Floor slab thickness and reinforcing shown in these drawings are adequate to support typical uniform loads only. Mountain View Engineering has not designed the slab for any specific concentrated forces such as those from vehicles, storage racks, or heavy equipment (unless noted otherwise).
E. Welding of rebar is not allowed unless specifically indicated in the drawings. All embedments, reinforcing, and dowels shall be securely tied to framework or to adjacent reinforcing prior to placement of the concrete. Tack welding of rebar joints in grade beams, walls, or cages is not allowed. Where welding of rebar is shown in the drawings, all rebar to be welded shall be ASTM A706 Grade 60.

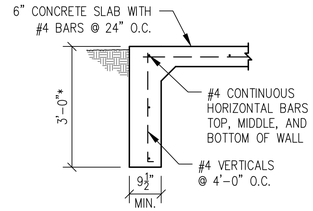


FOUNDATION PLAN
SCALE: 3/8"=1'-0"

F1 INDICATES APPLICABLE FOOTING DETAIL.

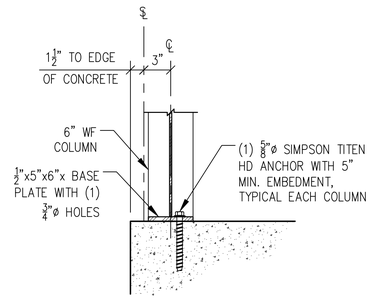
FOUNDATION LOADS (AT EACH COLUMN) ASD
UP 640 lbs
DOWN 2300 lbs
SHEAR 510 lbs

NOTES:
1: GRID LINES ARE AT STEEL LINE.
2: OUTSIDE OF CONCRETE IS $1\frac{1}{2}$" OUT FROM STEEL LINE.



* 3'-0" MIN. INCREASE AS NEED FOR LOCAL FROST REQUIREMENTS

A PERIMETER GRADE BEAM DETAIL
1/2"=1'-0"



B ANCHOR ROD DETAIL
1 1/2"=1'-0"

Construction
3064 South Hunter Canyon DR
West Valley City, UT 84128
801-567-9661

Design by:
MOUNTAIN VIEW ENGINEERING, INC.
345 No. Main St., Suite A
Brigham City, Utah 84302
Phone (435) 734-9700
Fax (435) 734-9519
MVE JOB NUMBER: 211403

PROFESSIONAL STRUCTURAL ENGINEER — NO. 7733476-2203 — BRAD WALLACE — STATE OF UTAH

NOV 22 2022

REFERENCE DRAWINGS			WORK ORDERS		REVISIONS					ENGINEERING RECORD
DRAWING NUMBER	REV	DRAWING DESCRIPTION	WO NUMBER	DESCRIPTION	NO	DESCRIPTION	DATE	BY	CHECK	DRAWN BY: T.W.
					0	ISSUE FOR CONSTRUCTION - SUPERCEDES QGC-V-BLD-CCS-010	11-22-22	T.W.		CHECKED BY: E. BUSH
										PROJECT ENGR: B. WALLACE
										SURVEYOR:
										ENGR MNGR: W. RADFORD
										CONSTR MNGR:

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Dominion Energy®
DOMINION ENERGY UTAH

SECTION: VARIES TVARIES R VARIES
ELEVATION: VARIES
LAT: VARIES LONG: VARIES
SCALE: AS NOTED

LINE NUMBER:
FACILITY:
TITLE:
DESCRIPTION:
ADDRESS:

STANDARD DRAWING
DOMINION ENERGY 12'-0" x 12'-0" BUILDING
FOUNDATION PLAN, DETAILS, & NOTES

CITY	COUNTY	STATE
VARIES	VARIES	UTAH

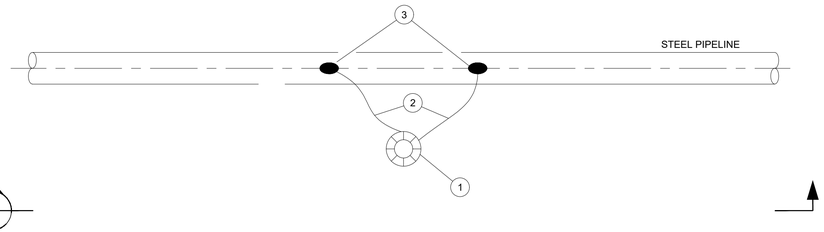
DRAWING NUMBER	SHEET	REVISION
DE-V-BLD-CCS-010	4 OF 4	0

DOMINION ENERGY_ANSI_D

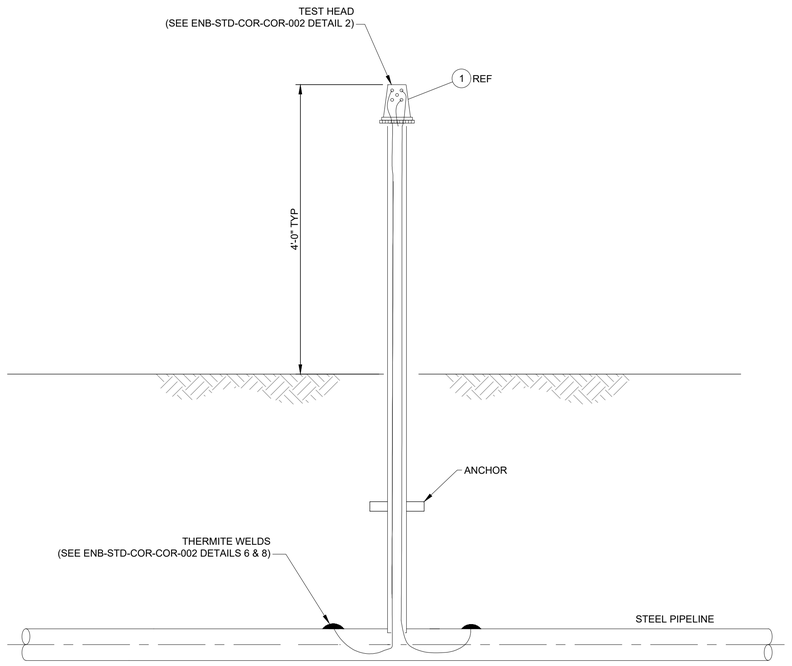
MATERIAL LIST

ITEM #	QTY	SIZE	DESCRIPTION	WH #
1	1	N/A	TEST STATION, MARKER TEST STATION QGC 72-IN YELLOW, 6TERMINALS, YELLOW HEAD	Q3903610
2	AS REQ	#10	WIRE, DIRECT BURIAL CABLE AWG #10 SOILD WIRE THHN/THWN, BLACK - 500 FT SPOOL	Q6135010
3	2	N/A	FUSION CARTRIDGE, CADWELD MODEL CA-15	Q3504020

1. INSTALL PER ENBRIDGE STANDARD PRACTICES:
   - 7-00-01 - GENERAL CORROSION CONTROL PROCEDURES
   - 7-10-01 - DESIGNING CATHODIC SYSTEMS
   - 7-10-02 - CADWELD AND CADWELD PLUS PROCEDURE
   - 2-13-10 - SURFACE PREPARATION AND PROTECTIVE COATINGS FOR BURIED PIPELINE SYSTEMS
2. ABOVE GRADE MATERIALS TO BE INSTALLED OUTSIDE HARD SURFACE OF ROAD.
   - SEE ENB-STD-COR-COR-002 DETAIL 3 FOR PLACING CABLES IN CONDUIT WHEN TEST STATION IS PLACED 5-FEET OR MORE AWAY FROM THE PIPELINE.
3. TYPICALLY OFFSET TEST STATION WITHIN 6" FROM EDGE OF PIPE, DEPTH AT CENTER OF PIPE.
4. INSTALL AND LABEL EACH WIRE IN TEST STATION. ENBRIDGE EMPLOYEE WILL CONNECT THE WIRES TO THE TEST HEAD.



PLAN VIEW



SECTION A ~

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-STD-COR-COR-002	2	STANDARD CORROSION DETAILS

WORK ORDERS	
WO NUMBER	DESCRIPTION

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION - SUPERSEDES QGC-STD-COR-COR-007	02/21/17	KJK	PHH
1	CORRECTION TO MATERIALS	04/06/21	PHH	EN
2	GENERAL UPDATES	04/06/22	PHH	KH
3	IFC- UPDATED DWG #, SUPERSEDES DE-STD-COR-COR-007	09/17/24	TA	IAT

ENGINEERING RECORD
DRAWN BY: T ABEGGLEN
CHECKED BY: I TORRES
PROJECT ENGR: K HOFFMANN
SURVEYOR: N/A
ENGR MNGR: M GILL
CONSTR MNGR: J FOX
MEAS & CTRLS: N/A
AUTOM ENGR: N/A

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ENBRIDGE

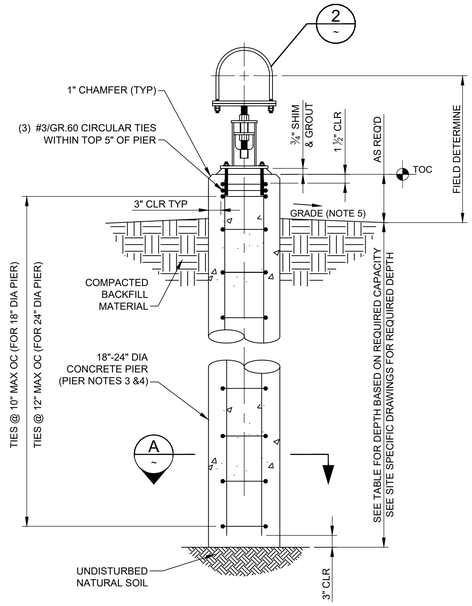
SECTION: N/A T N/A R N/A
ELEVATION: N/A
LAT: N/A LONG: N/A
SCALE: NONE

LINE NUMBER:
FACILITY:
TITLE: STANDARD DRAWING
DESCRIPTION: ABOVE GROUND CATHODIC LOCATING STATION
ADDRESS: PLAN VIEW, SECTION, DETAILS & MATERIAL LIST

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-COR-COR-007	1 OF 1	4

ENBRIDGE GAS - ANSI D

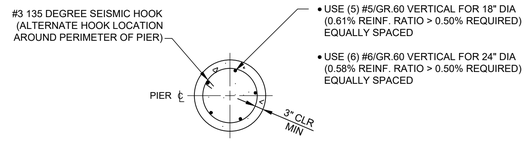


CONCRETE PIER DETAIL 1
ELEVATION VIEW - FOR 2"-36" PIPE

PIER DEPTH (ft)	CONCRETE PIER ALLOWABLE LOAD CAPACITY (kips)							
	SOFT FINE GRAINED		MEDIUM STIFF TO STIFF FINE GRAINED		MEDIUM DENSE GRANULAR		DENSE GRANULAR	
	18" DIA	24" DIA	18" DIA	24" DIA	18" DIA	24" DIA	18" DIA	24" DIA
4	5.6	9.0	8.9	14.8	7.8	12.7	13.2	23.6
5	6.2	9.7	9.5	15.5	9.3	15.5	16.3	28.3
6	6.8	10.5	10.1	16.3	11.1	18.5	19.3	33.5
7	7.4	11.3	10.7	17.1	12.9	21.4	22.2	38.5
8	8.0	12.1	11.2	17.9	14.7	24.3	25.3	43.5
9	8.6	12.9	11.8	18.7	16.4	27.2	28.3	48.7
10	9.2	13.7	12.4	19.5	18.2	30.0	31.2	53.7

PIER NOTES:

1. IF SUBSURFACE CONDITIONS ARE ASSUMED, SOFT FINE GRAINED VALUES SHALL BE USED FOR DETERMINING PIER CAPACITY.
2. GROUND WATER CONDITIONS ARE ASSUMED AT GROUND LEVEL FOR ALL CAPACITY CALCULATIONS.
3. DO NOT INSTALL SONOTUBE IN THE COLUMN HOLE. THE REBAR CAGE SHALL BE PLACED AND CENTRALIZED IN THE DRILLED OR VAC TRUCK EXCAVATED SHAFT MEASURING 18"-24" IN DIAMETER. CONCRETE SHALL BE POURED AGAINST NATIVE SOIL.
4. RECOMMENDED A 24" DIAMETER PIER BE INSTALLED FOR 12" AND LARGER PIPE SUPPORTS.
5. FINISHED GRADE TO SLOPE AWAY FROM CONCRETE PIER.



TYPICAL PIER REINF A
SECTION

E-Z LINE FIGURE FIR SCHEDULE			
PIPE SIZE	MODEL #	MIN "D"	BOLT DIA "F"
2"	204	1'-3 ¼"	½"
4"	204	1'-4 ¼"	½"
6"	510	1'-5 ¾"	½"
8"	510	1'-6 ¾"	½"
10"	510	1'-7 ¾"	½"
12"	1218	1'-10 ⅜"	⅝"
14"	1218	1'-11"	⅝"
16"	1218	2'-0"	⅝"
18"	1218	2'-1"	⅝"
20"	2024	2'-3"	⅝"
22"	2024	2'-4"	⅝"
24"	2024	2'-5"	⅝"
26"	2636	2'-6"	¾"
28"	2636	2'-7"	¾"
30"	2636	2'-8"	¾"
32"	2636	2'-9"	¾"
34"	2636	2'-10"	¾"
36"	2636	2'-11"	¾"

PIPE SUPPORT NOTES:

1. PIPE SUPPORT ASSEMBLY SHALL BE BY E-Z LINE PIPE SUPPORT COMPANY: MANVEL, TX.
2. PIPE SUPPORTS SHALL BE PER E-Z LINE FIG. F WITH COATED DOUBLE "U" BOLTS AND HALF ROUND THERMOPLASTIC I-ROD.
3. POLYMER I-BAR PER E-Z LINE OR NU-BOLT PIPING SUPPORT SYSTEM WITH POLYSHRINK U-BOLT COATING AND I-ROD HALF ROUND SUPPORT PAD (TYP)
4. PIPE SUPPORT HAS AN ADJUSTABLE UP AND DOWN TRAVEL OF 2".

E-Z LINE FIGURE FIR BASE PLATE SCHEDULE							
PIPE SIZE	MODEL #	"N"	"P"	"T"	"S"	SLOTTED HOLES	BOLT DIA "F" x LENGTH
2" - 4"	204	8 ½"	6"	5"	3 ½"	⅝" x 1 ½"	½" x 6 ¾"
6" - 10"	510	10"	8"	7"	5 ½"	⅝" x 1 ½"	½" x 6 ¾"
12" - 18"	1218	1'-0"	10"	9"	7 ½"	¾" x 1 ½"	⅝" x 6 ¾"
20" - 24"	2024	1'-0"	10"	9"	7 ½"	¾" x 1 ½"	¾" x 6 ¾"
26" - 36"	2636	1'-2"	1'-0"	11"	9 ½"	⅞" x 1 ½"	¾" x 6 ¾"

BASE PLATE NOTES:

1. MOUNTING BOLT / WASHER & NUT WILL BE SUPPLIED BY CONTRACTOR, (REFER TO PLATE SCHEDULE FOR PROPER SIZE OF HARDWARE.
2. BASE PLATES ARE INCLUDED IN THE PIPE SUPPORT ASSEMBLY. THICKNESS SHALL BE TO MANUFACTURER'S SPECIFICATIONS.

CONCRETE:

A. REINFORCING STEEL

1. REFERENCES
   A: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
   B: ACI "DETAILING MANUAL"
   C: CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"
2. REINFORCING STEEL: ASTM A706 DEFORMED BARS OR ASTM A615 GRADE 60 DEFORMED BARS WITH AN ACTUAL YIELD STRENGTH NOT EXCEEDING 78,000 PSI AND A RATIO OF ACTUAL ULTIMATE TENSILE STRENGTH TO ACTUAL YIELD STRENGTH NOT LESS THAN 1.25.
3. PROVIDE MINIMUM CONCRETE COVER OVER REINFORCING STEEL AS FOLLOWS, UNLESS STATED OTHERWISE:
   3 INCHES FOR CONCRETE CAST AGAINST EARTH
   2 INCHES OTHERWISE
   PROVIDE MINIMUM 1 ½" CONCRETE COVER TO TOP OF FLATWORK IF APPLICABLE.
4. FOR DRILLED PIERS: SECURE ALL REINFORCING IN POSITION INCLUDING 'ROLLER AND CHAIR' DEVICES ON SIDES AND BOTTOM BEFORE CONCRETE PLACEMENT. MINIMUM CONCRETE COVER OVER REINFORCING IS 3 INCHES EXCEPT WHEN TEMPORARY CASING IS USED, COVER IS THEN 4 INCHES.
5. SECURE ALL REINFORCING, INCLUDING DOWELS, IN POSITION WITH BAR SUPPORTS PER CRSI BEFORE CONCRETE PLACEMENT.

B. CONCRETE MATERIALS

1. PORTLAND CEMENT: ASTM C150 TYPE I/II.
2. FLY ASH: ASTM 618 CLASS C OR F INCLUDING TABLE 3 SPECIFICATIONS
   A. CONTENT BY WEIGHT: 15% MINIMUM EXCEPT SLABS - 25% MAXIMUM
3. NORMAL WEIGHT AGGREGATES: ASTM C33, CLASS 3S OR GREATER
4. WATER: POTABLE, IN CONFORMANCE WITH ASTM C94
5. WATER-REDUCING ADMIXTURE: ASTM C494
6. AIR-ENTRAINING ADMIXTURE: ASTM C260
7. STRUCTURAL CONCRETE: ACI 318, CHAPTERS 3 AND 5.
8. CONCRETE SHALL DEVELOP THE FOLLOWING COMPRESSIVE STRENGTH WITHIN 28 DAYS (f'c) DRILLED PIERS AND FOOTINGS - 4000 PSI.
9. USE AIR-ENTRAINED CONCRETE OF 5%-7% AIR BY VOLUME.
10. CONCRETE SLUMP RANGE OF 3"-6".

C. CONRETE ANCHORS

1. POST INSTALLED ANCHORS: USE HILTI HIT-RE-500 SD INJECTABLE MORTER OR SIMILAR. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND LATEST ICC EVALUATION SERVICES, INC ES REPORT (ESR-1771).

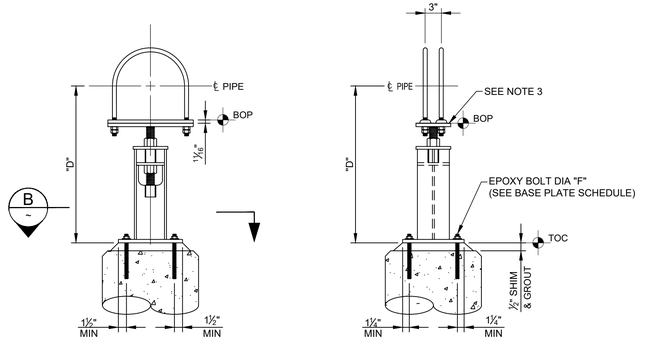
EARTHWORK:

A. EXCAVATION

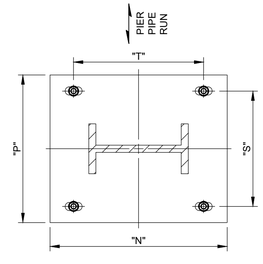
1. LOCATE UNDERGROUND UTILITIES BEFORE EXCAVATING.
2. FOOTINGS MAY BE CAST AGAINST EARTH PROVIDED THAT THE SCHEDULED MINIMUM DIMENSIONS ARE MAINTAINED. THE SONOTUBED PIERS MAY BE PLACED MONOLITHICALLY AT THE CONTRACTOR'S OPTION.

B. DRILLED PIERS

1. REFERENCES
   A. ACI 336.1 "STANDARD SPECIFICATION FOR THE CONSTRUCTION OF DRILLED PIERS"
   B. PROJECT GEOTECHNICAL REPORT
2. INSTALL DRILLED PIERS IN ACCORDANCE WITH REFERENCED SPECIFICATION PER THE DRY OR TREMIE METHODS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED HEREIN.
3. REFERENCE THE CONCRETE SECTION OF THESE NOTES FOR CONCRETE AND REINFORCING MATERIALS AND TESTING. USE A SET RETARDING ADMIXTURE IN THE CONCRETE MIX WHEN TEMPORARY CASING IS USED.
4. LAYOUT OF PLAN LOCATION AND PIER TOP ELEVATION ARE THE CONTRACTOR'S RESPONSIBILITY.
5. SECURE ALL REINFORCING IN POSITION INCLUDING 'ROLLER AND CHAIR' DEVICES ON SIDES AND BOTTOM BEFORE CONCRETE PLACEMENT. MINIMUM CONCRETE COVER OVER REINFORCING IS 3 INCHES EXCEPT WHEN TEMPORARY CASING IS USED, COVER IS THEN 4 INCHES.
6. IF SUBSURFACE WATER IS ENCOUNTERED DURING INSTALLATION, CONTACT PROJECT ENGINEER.
7. FOR TEMPORARY STEEL CASING, CASING WALL THICKNESS WILL BE DETERMINED BY THE CONTRACTOR.
8. FORM THE PIER TOP, AS REQUIRED, TO MAINTAIN A CONSISTENT SHAFT DIAMETER.
9. PLACE CONCRETE IN ONE, CONTINUOUS POUR. COLD LAPS NOT ACCEPTABLE.
10. FINISHED GRADE TO SLOPE AWAY FROM CONCRETE PIER.



E-Z LINE FIGURE FIR PIPE SUPPORT DETAIL 2



SECTION B
BASE PLATE

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION

WORK ORDERS	
WO NUMBER	DESCRIPTION

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION - SUPERSEDES QGC-STD-GEN-CCS-002	10/17/17	IAT	KWB
1	ISSUED FOR CONSTRUCTION - UPDATED CONCRETE PIER DETAILS	04/01/21	IAT	TC
2	ISSUED FOR CONSTRUCTION - UPDATED CONCRETE PIER DETAILS	07/13/21	IAT	IAT
3	ISSUED FOR CONSTRUCTION - SUPERSEDES DE-STD-GEN-CCS-002	09/25/24	JAJ	IAT

ENGINEERING RECORD
DRAWN BY: I. TORRES
CHECKED BY: K. BATES
PROJECT ENGR: T. CORDINGLY
SURVEYOR: N/A
ENGR MNGR: W. RADFORD
CONSTR MNGR: D. FRANCIS
MEAS & CTRLS: N/A
AUTOM ENGR: N/A

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ENBRIDGE

SECTION: N/A T N/A R N/A
ELEVATION: N/A
LAT: N/A LONG: N/A
SCALE: NONE

LINE NUMBER:
FACILITY:
TITLE: STANDARD DRAWING
DESCRIPTION: E-Z LINE PIPE SUPPORTS
ADDRESS: FIGURE "F" W/ I-ROD HEAD
PIPE SUPPORT DETAILS

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-GEN-CCS-002	1 OF 1	3

ENBRIDGE GAS, ANSI D

MAOP DETERMINATION

(STANDARD PRACTICES 1-01-02, 1-90-01, 1-97-04)

MAOP SEGMENT NAME:	1000 MAOP		
PIPELINE FACILITY CLASSIFICATION:	REGULATOR STATION		
DESIGN CLASS LOCATION:	CLASS 3		
MINIMUM TEST PRESSURE:	1500		
TEST FACTOR:	1.5		
PRESSURE LIMITS	**PSIG**		**%SMYS**
A. PIPE = (2St/D) × F × E × T	2197		49.98%
	S=52000 F=0.5	t=0.28 E=1	D=6.625 T=1
B. FITTING = (2St/D) × F × E × T	2197		49.98%
	S=52000 F=0.5	t=0.28 E=1	D=6.625 T=1
C. RATED ITEM	1333		N/A
	GASKET		
D. MAXIMUM DESIGN PRESSURE	1000		22.75%
E. REGION PRESSURE LIMITATION	1000		22.75%
MAOP (MIN A, B, C, D, E)	**1000**		**22.75%**

TEST SPECIFICATION

(STANDARD PRACTICE 1-90-01 FOR HP OR 3-10-04 FOR IHP)

TEST SPECIFICATION DESIGNATION:	**TS-1**	
PRESSURE-TEST PRESSURES:	**PSIG**	**%SMYS**
MINIMUM REQUIRED:	1500	38.63%
MAXIMUM (WATER):	2000	51.51%
MAXIMUM (NITROGEN):	N/A	N/A
MAXIMUM (CNG):	N/A	N/A
PRESSURE-TEST DURATIONS:	**SHOP**	**FIELD**
MINIMUM DURATION:	1 HR	1 HR
SMYS CALCULATION INPUTS:	S = 52000 t = 0.322	D = 8.625

FABRICATION SPECIFICATION

(STANDARD PRACTICE 2-10-01)

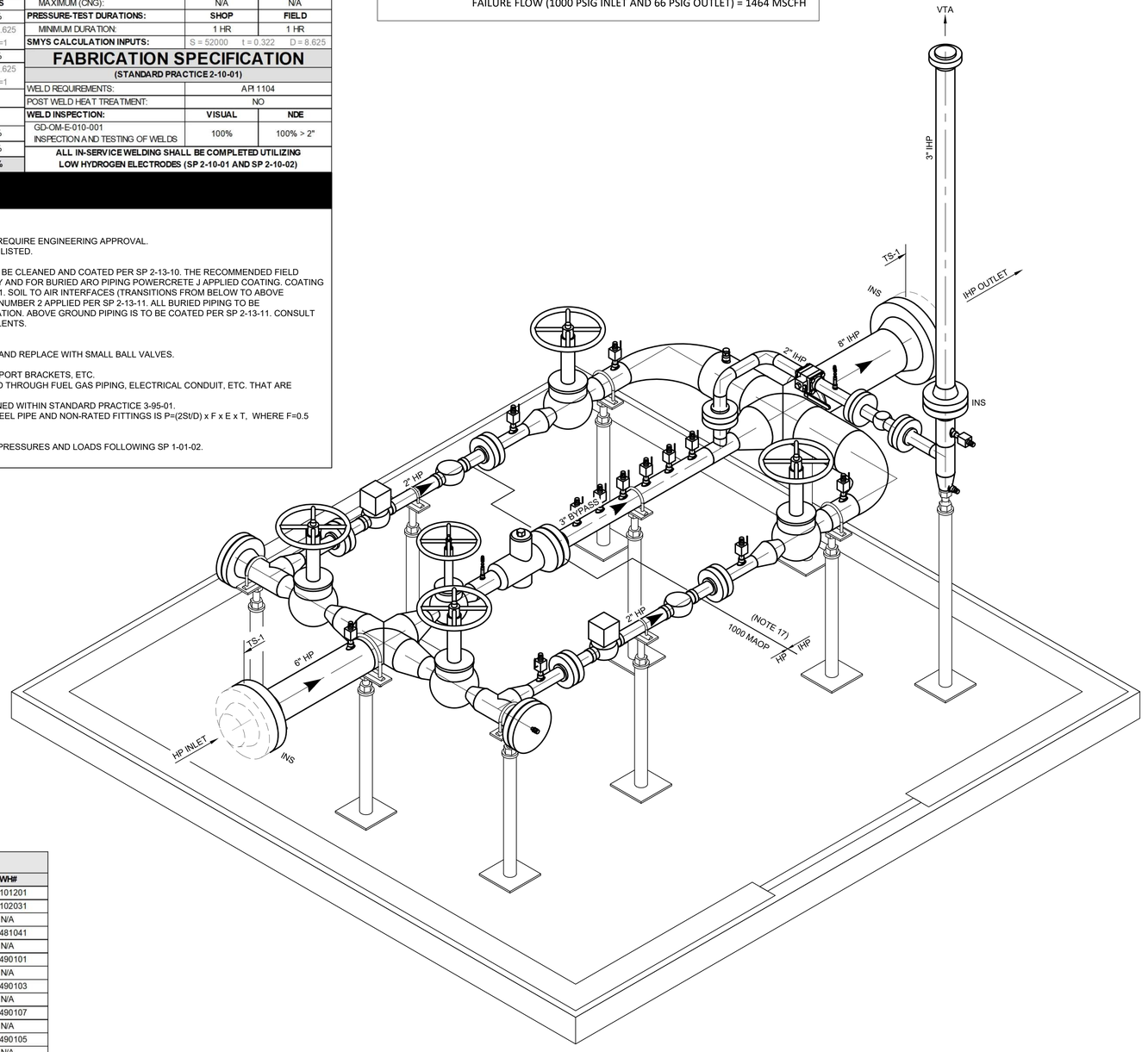
WELD REQUIREMENTS:	API 1104	
POST WELD HEAT TREATMENT:	NO	
WELD INSPECTION:	**VISUAL**	**NDE**
GD-OM-E-010-001 INSPECTION AND TESTING OF WELDS	100%	100% > 2"

ALL IN-SERVICE WELDING SHALL BE COMPLETED UTILIZING LOW HYDROGEN ELECTRODES (SP 2-10-01 AND SP 2-10-02)

NOTE:

2"x2" MOONEY FLOWGRID STATION CAPACITY = 360 MSCFH
2" REGULATOR SPOOL CAPACITY (125 PSIG INLET AND 45 PSIG OUTLET) = 180 MSCFH
FAILURE FLOW (1000 PSIG INLET AND 66 PSIG OUTLET) = 1464 MSCFH

1. BOLD LINES AND/OR CLOUDS REPRESENT NEW PIPING.
2. Rp IDENTIFIES GUIDE BARRED TEES.
3. ANY MATERIAL SUBSTITUTION OR FIELD DESIGN CHANGES REQUIRE ENGINEERING APPROVAL.
4. SEE SPECIFICATION 9-00-01 FOR MATERIAL NOTE NUMBERS LISTED.
5. LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. CORROSION CONTROL: BURIED FABRICATION PIPING SHALL BE CLEANED AND COATED PER SP 2-13-10. THE RECOMMENDED FIELD APPLIED COATING FOR BURIED FBE PIPING IS 2-PART EPOXY AND FOR BURIED ARO PIPING POWERCRETE J APPLIED COATING. COATING TRANSITIONS ARE TO BE APPLIED PER ENB-TYP-GEN-PIP-001. SOIL TO AIR INTERFACES (TRANSITIONS FROM BELOW TO ABOVE GROUND) REQUIRE AN OVERCOAT OF TRENTON WAX TAPE NUMBER 2 APPLIED PER SP 2-13-11. ALL BURIED PIPING TO BE CATHODICALLY PROTECTED WITHIN ONE YEAR OF INSTALLATION. ABOVE GROUND PIPING IS TO BE COATED PER SP 2-13-11. CONSULT CORROSION ENGINEERING FOR PIPELINE COATING EQUIVALENTS.
7. FIELD VERIFY WALL THICKNESS AT ALL TIE-IN LOCATIONS.
8. ALL VALVES MUST HAVE APPROPRIATE LOCKING DEVICES.
9. BALL VALVES - REMOVE ALL MANUFACTURER VENT PLUGS AND REPLACE WITH SMALL BALL VALVES.
10. ALL CHECK VALVES TO BE VENTED.
11. INSULATE GAUGE AND CONTROL LINES, RELIEF STACK, SUPPORT BRACKETS, ETC.
12. ENSURE INSULATION POINTS ARE NOT SHORTED /BYPASSED THROUGH FUEL GAS PIPING, ELECTRICAL CONDUIT, ETC. THAT ARE ATTACHED TO THE PIPE SUPPORTS.
13. ALL PIPE SHALL HAVE MILL TEST REPORTS (MTR'S) AS DEFINED WITHIN STANDARD PRACTICE 3-95-01.
14. THE FORMULA USED TO CALCULATE THE MAWP FOR ALL STEEL PIPE AND NON-RATED FITTINGS IS P=(2St/D) x F x E x T, WHERE F=0.5 FOR A CLASS 3 LOCATION, E=1, AND T=1.
15. 2" IN SERVICE FILLET WELDS SHALL RECEIVE 100% NDE.
16. PIPE IS DESIGNED TO WITHSTAND ANTICIPATED EXTERNAL PRESSURES AND LOADS FOLLOWING SP 1-01-02.
17. IHP MAOP SEGMENT IS LOCATION DEPENDENT.



ISOMETRIC VIEW

MATERIAL LIST

NOTE 3

ITEM #	QTY	SIZE	DESCRIPTION	MAWP NOTE 14	MATL NOTES NOTE 4	WH #
1	12	8"	BOLT, STUD, 1-1/8 x 8" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 1-1/8, ASTM A194 GR-2H	N/A	7	Q3481020
2	1	8"	CROSS, CS, STRT, BW, 8.625 OD 0.322 WT, Y-52, ASTM A694, MSS SP75	1941	3	Q1608005
3	2	8"x4"	ELL, CS, 90 DEG LR, RDCD, BW, 8.625 OD 0.322 WT x 4.500 OD 0.237 WT, Y52, MSS SP75, ASTM A694	1941	3	42336468
4	1	8"	FLANGE, RFWN, CL600, 8 NPS, 0.322 WT, F-52, ASTM A694, MSS SP44	1480	6	Q1808025
5	1	8"	GASKET, INSULATING, CL600, RF, 8 NPS, GEORG FISCHER, TYPE F, PHENOLIC GASKET, MINLON SLEEVE, 1 PHENOLIC WASHER PER BOLT (450 FT LBS)	1480	10	Q4438061
6	1	8"x3"	REDUCER, CS, CONC, BW, 8.625 OD 0.322 WT x 3.500 OD 0.216 WT, Y52, MSS SP75, ASTM A694	1941	3	Q2258035
7	12	6"	BOLT, STUD, 1 x 7 1/4" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 1, ASTM A194 GR-2H	N/A	7	Q3400219
8	1	6"	CROSS, CS, STRT, BW, 6.625 OD 0.280 WT, Y-52, ASTM A694, MSS SP75	2197	3	Q1606005
9	1	6"	FLANGE, RFWN, CL600, 6 NPS, 0.280 WT, F-52, ASTM A694, MSS SP44	1480	6	Q1806007
10	1	6"	GASKET, INSULATING, CL600, RF, 6 NPS, GEORG FISCHER, TYPE F, PHENOLIC GASKET, MINLON SLEEVE, 1 PHENOLIC WASHER PER BOLT (320 FT LBS)	1480	10	Q4436061
11	1	6"x3"	REDUCER, CS, CONC, BW, 6.625 OD 0.280 WT x 3.500 OD 0.216 WT, Y52, MSS SP75, ASTM A694	2197	3	Q2256032
12	2	6"x4"	REDUCER, CS, CONC, BW, 6.625 OD 0.280 WT x 4.500 OD 0.237 WT, Y52, MSS SP75, ASTM A694	2197	3	Q2256045
13	4	4"x2"	REDUCER, CS, CONC, BW, 4.500 OD 0.237 WT x 2.375 OD 0.218 WT, Y52, ASTM A694, MSS SP75	2738	3	Q2254024
14	4	4"	VALVE, CS, BALL, CL600, 4 NPS, FULL PORT, BW x BW, 0.237 WT, UNION TECH, API 6D, Z4, DD3B2AHI	1480	1	42336470
15	8	3"	BOLT, STUD, 3/4 x 5 1/2" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 3/4, ASTM A194 GR-2H	N/A	7	Q3400142
16	8	3"	BOLT, STUD, 3/4 x 5" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 3/4, ASTM A194 GR-2H	N/A	7	Q3400138
17	1	3"	CAP, WEATHER, FLIP LID, 3"	150	N/A	Q1143002
18	3	3"	FLANGE, RFWN, CL600, 3 NPS, 0.300 WT, GR-B, ASME B16.5, ASTM A105	1480	5	Q1803070
19	1	3"	GASKET, 3" ND, 600 LB, GARLOCK 9900 (200 FT LBS)	1333	9	Q1903003
20	1	3"	GASKET, INSULATING, CL600, RF, 3 NPS, GEORG FISCHER, TYPE F, PHENOLIC GASKET, MINLON SLEEVE, 1 PHENOLIC WASHER PER BOLT (150 FT LBS)	1480	10	Q4433061
21	1	3"x2"	REDUCER, CS, ES, CONC, BW, 3.500 OD 0.300 WT x 2.375 OD 0.218 WT, GR-B, ASTM A234 WPB	3000	2	Q2253023
22	2	3"x2"	TEE, CS, RDCD, BW, 3.500 OD 0.300 WT x 2.375 OD 0.218 WT, GR-B, ASTM A234 WPB	3000	2	Q2553025
23	1	3"	VALVE, CS, BALL, CL600, 3 NPS, FULL PORT, BW x BW, 0.300 WT, UNION TECH, API 6D, Z4, CC3B2AHI	1480	1	42336077
24	1	3"	VALVE, CS, PLUG, CL600, 3 NPS, (XH .300) BW x RF, NORDSTROM, 2245 1/4, W/ LOCKING DEVICE # 3710701	1480	1	Q2743214
25	56	2"	BOLT, STUD, 5/8 x 4 1/4" LG, ASTM A193 GR-B7, W/2 HEX NUTS, 5/8, ASTM A194 GR-2H	N/A	7	Q3400112
26	2	2"	ELL, CS, ES, 90 DEG, BW, LR, 2.375 OD 0.218 WT, GR-B, ASTM A234 WPB	3212	2	Q1752011
27	12	2"	FLANGE SW, 2" ND, 600 LB, RF, XH BORE, ASME B16.5	1440	5	Q1802083
28	7	2"	GASKET, 2" ND, 600 LB, GARLOCK 9900 (108 FT LBS)	1333	9	Q1902003
29	1	2"	VALVE, CS, BALL, 2200 CWP, 2 NPS, SWE x SWE, SWA GELOK, S-68TSW32P, W/ LOCKING DEVICE	2200	1	Q2702024
30	1	3/4"	PARKER BLEED PLUG, CS, 10000#, MNPT, 3/4", BV10N6-80	10000	17	Q2700810
31	1	3/4"	THREADOLET, 3/4 NPS 3000# OUTLET, GR-B, FOR RUN SIZES 1 1/2 TO 36, ASTM A105, B16.9	3000	4	Q1280501
32	14	1/2"	NIPPLE, CS, NPT x NPT, 1/2 NPS x 2 LG, XXH, 0.294 WT, GR-B A106 SMLS	9875	19	Q2000553
33	17	1/2"	PARKER BLEED PLUG, CS, 10000#, MNPT, 1/2", BV10N4-80	10000	17	Q2700510
34	15	1/2"	THREADOLET, 1/2 NPS 3000# OUTLET, GR-B, FOR RUN SIZES 3/4 TO 36, ASTM A105, B16.9	3000	4	Q1250501
35	14	1/2"	VALVE, CS, BALL, 2200 CWP, 1/2 NPS, FNPT x FNPT, SWA GELOK, S-63TF8, W/ LOCKING DEVICE	2200	N/A	Q2700522
36	2	1/4"	BULL PLUG, CS, 3000# MNPT THD, 1/4 NPS, SOLID, ASTM A105, SAW CUT INIT THDS	3000	11	Q2130201
37	2	1/4"	NIPPLE, CS, NPT x NPT, 1/4 NPS x 2 LG, 0.119 WT, GR-B SMLS, A106	4796	19	Q2000015
38	2	1/4"	THREADOLET, 1/4 NPS 3000# OUTLET, GR-B, FOR RUN SIZE 1/2 TO 36, ASTM A105, B16.9	3000	4	Q1250201
39	2	1/4"	VALVE, CS, NEEDLE, 3000# FNPT THD, 1/4 NPS, ANDERSON GREENWOOD, H5RIC-2	3000	-	Q2730251

EQUIPMENT / INSTRUMENT LIST

ID	QTY	SIZE	DESCRIPTION	MAWP NOTE 14	MATL NOTES NOTE 4	WH #
STR-9001 STR-9002	2	4"	STRAINER, T-TYPE, WEAMCO – TVW, (INLET / OUTLET: 4" BW, 0.237 WT) (CLOSURE: 4" – 600# ANSI RF), (VENT: 1/2" NPT), (HOUSING: CS – MSS SP-75 WPHY 52, A-694 F52, A-105) (BASKET: PERFORATED 304SS, 1/8" HOLES ON 3/16" CENTERS), (MESH: 304SS, 100 x 100)	1480	13	42511033
PV-9001 PSHH-9001 PV-9003 PSHH-9003	2	2"	REGULATOR, CL600, 2 NPS, SW x SW, w / OP SERIES 50 CONTRL, FLOWGRID - (SG-28-100DH-75-ANOB-R20) (PRESSURE LIMITS [PSI]: INLET=1480, OUTLET=900, MIN dP=30, MAX dP=800*), (-20°F TO 150°F)	1480	N/A	SO
PV-9002 PV-9004	2	2"	REGULATOR, CL600, 2 NPS, SW x SW, FLOWGRID - (FG-28-100DH-75) (PRESSURE LIMITS [PSI]: INLET=1480, OUTLET=900, MIN dP=30, MAX dP=800*), (-20°F TO 150°F)	1480	N/A	Q7362104
PSV-9005	1	2"	REGULATOR, CL600, 2 NPS, RF x RF, FISHER EZR, w / BODY TAPS, w / MTRs MAIN VALVE: 17E97 DIAPHRAGM & OVER 500# SPRING (RED OR PURPLE), 100% CAGE (PRESSURE LIMITS [PSI]: INLET=1050, OUTLET=1000, MIN dP=31, MAX dP=800), (0°F TO 150°F)	1480	N/A	42416949
PC-9001 PC-9002 PC-9003 PC-9004	4	1/4"	PILOT, MOONEY SERIES 20 BRASS PILOT FP-7, (25-90 PSIG) BLUE SPRING (PRESSURE REDUCING MODE) (PRESSURE LIMITS [PSIG]: INLET = 1500; LOADING = 1500; OUTLET = 1500; SENSING = 1000, SET = 450)	1500	N/A	Q7420102
PC-9005	1	1/4"	PILOT, MOONEY SERIES 20 BRASS PILOT FP-17, (25-90 PSIG) BLUE SPRING (BACK PRESSURE MODE) (PRESSURE LIMITS [PSIG]: INLET = 1500; LOADING = 1500; OUTLET = 1500; SENSING = 1000, SET = 450)	1500	N/A	Q7420120
FILTER	4	1/4"	FILTER, MOONEY TYPE 30A (-40°F to 175°F, 1500 PSIG), (10 MICRON POLYETHYLENE), Cg=19,C1=35,Cv=0.54	1500	N/A	Q7420001
RESTRICTOR	5	1/4"	RESTRICTOR, MOONEY TYPE 24, w / NITRILE O-RING (-20°F TO 150°F, 1500 PSIG), C1=35	1500	N/A	Q7420000

PRESSURE PIPING

NOTE 6

ITEM #	SIZE	DESCRIPTION	FOOTAGE	O.D.	SMYS	W.T.	MAWP NOTE 14	WH #
P1	8"	PIPE, CS, BARE, 8.625 OD, 0.322 WT, X52, API 5L PSL2, ERW	4'	8.625"	52,000	0.322"	1941	Q0108012
P2	6"	PIPE, CS, BARE, 6.625 OD, 0.280 WT, X52, API 5L PSL2, ERW	2'	6.625"	52,000	0.280"	2197	Q0106045
P3	4"	PIPE, CS, BARE, 4.500 OD, 0.237 WT, X52, API5L PS2, ERW	2'	4.500"	52,000	0.237"	2738	Q0104003
P4	3"	PIPE, CS, BARE, 3.500 OD, 0.300 WT, GR B, ASTM A106, SMLS	11'	3.500"	35,000	0.300"	3000	Q0103011
P5	2"	PIPE, CS, BARE, 2.375 OD, 0.218 WT, GR B, ASTM A106, SMLS	16'	2.375"	35,000	0.218"	3212	Q0102031

PIPE SUPPORT MATERIALS

QTY	DESCRIPTION	WH#
20'	1 1/4" DIA PIPE	Q0101201
27.5'	2" DIA PIPE	Q0102031
10	1/2" x 2 1/2" DIA CAP PLATE	N/A
10	1 1/4" x 9 1/2" STUD ASSEMBLY WITH 2 NUTS	Q3481041
10	8" x 8" x 3/8" BASE PLATE	N/A
2	1/2" NU-BOLT KIT TO FIT 2" DIA PIPE	Q3490101
2	6" x 3" x 3/8" TOP PLATE	N/A
1	1/2" NU-BOLT KIT TO FIT 3" DIA PIPE	Q3490103
1	6 1/2" x 3" x 3/8" TOP PLATE	N/A
4	1/2" NU-BOLT KIT TO FIT 4" DIA PIPE	Q3490107
4	7 1/2" x 3" x 3/8" TOP PLATE	N/A
1	1/2" NU-BOLT KIT TO FIT 6" DIA PIPE	Q3490105
1	10 1/2" x 3" x 3/8" TOP PLATE	N/A
1	1/2" NU-BOLT KIT TO FIT 8" DIA PIPE	Q3490109
1	1'-1" x 3" x 3/8" TOP PLATE	N/A
1	REDUCER PLATE	N/A

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS

DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-V-BLD-CCS-010	1	STANDARD 12'x12' STEEL REGULATOR BUILDING

WORK ORDERS

WO NUMBER	DESCRIPTION

REVISIONS

NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION - SUPERSEDES QGC-STD-REG-PIP-001	09/25/2017	IAT	DGB
1	ISSUED FOR CONSTRUCTION - ADDED 3" PLUG VALVE TO BYPASS	04/20/2018	KJK	IAT
2	IFC - UPRATED TO CL600, ADDED SLAMSHUT, ADDED Z4 VALVES	10/03/2019	IAT	DGB
3	IFC - REVERTED TO CL300 TO USE UP SURPLUS INVENTORY	11/01/2019	IAT	DGB
4	ISSUED FOR CONSTRUCTION - UPRATED TO CL600 & PIPE GRADES	10/25/2024	IAT	DGB
5	ISSUED FOR CONSTRUCTION - UPDATED WH#'s	02/25/2025	IAT	IAT
6	ISSUED FOR CONSTRUCTION - UPDATED 2" REGS TO FXF	05/01/2025	IAT	IAT
7	ISSUED FOR CONSTRUCTION - REVERTED BACK TO SW REGS	06/13/2025	IAT	IAT

ENGINEERING RECORD

DRAWN BY: I. TORRES
CHECKED BY: D. BROX
PROJECT ENGR: C. DEMILL
SURVEYOR: N/A
ENGR MNGR: W. RADFORD
CONSTR MNGR: D. FRANCIS
MEAS & CTRLS: N/A
AUTOM ENGR: N/A

ENBRIDGE

SECTION: N/A T N/A R N/A
ELEVATION: N/A
LAT: N/A LONG: N/A
SCALE: NONE

LINE NUMBER:
FACILITY: 2"x2" MOONEY FLOWGRID REGULATOR STATION
TITLE: STANDARD DRAWING
DESCRIPTION: 6" HP INLET AND 8" IHP OUTLET
ADDRESS: ISOMETRIC VIEW AND MATERIALS

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-REG-PIP-001	1 OF 2	7

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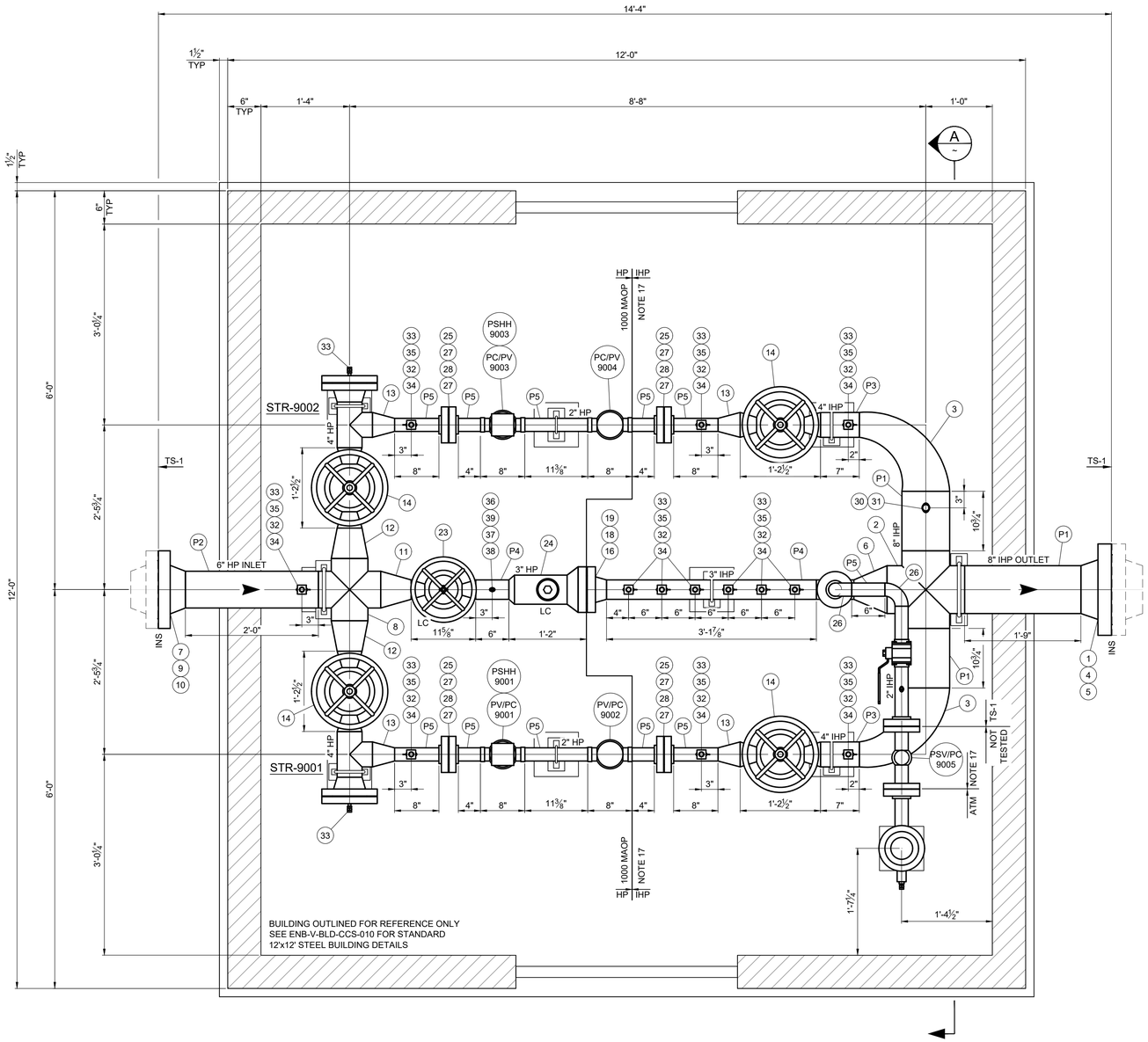
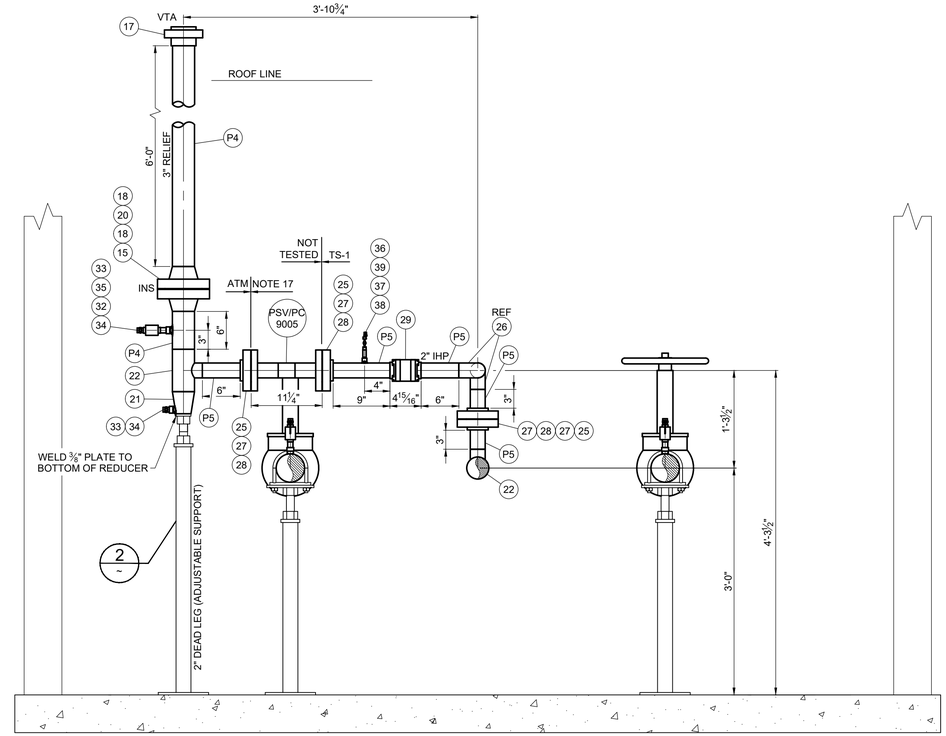


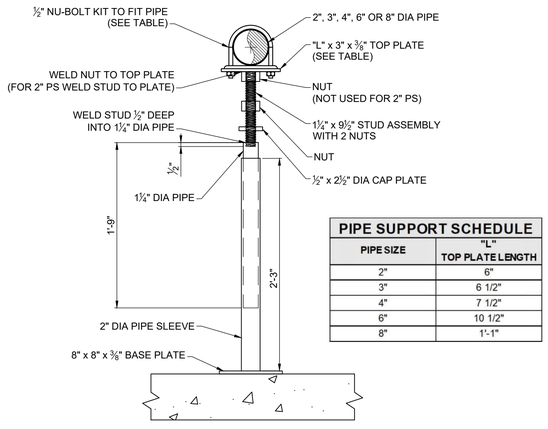
PLAN VIEW

SCALE: 1"=1'-0"



SECTION A

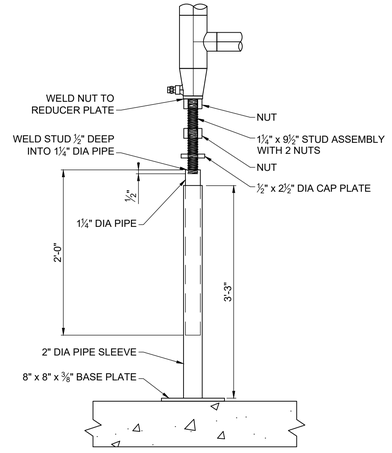
SCALE: 1"=1'-0"



PIPE SUPPORT SCHEDULE	
PIPE SIZE	"L" TOP PLATE LENGTH
2"	6"
3"	6 1/2"
4"	7 1/2"
6"	10 1/2"
8"	1'-1"

ADJUSTABLE PIPE SUPPORT DETAIL 1

FOR 2", 3", 4", 6", AND 8" DIA PIPE SCALE: NONE



ADJUSTABLE STACK SUPPORT DETAIL 2

SCALE: NONE

ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS		
DRAWING NUMBER	REV	DRAWING DESCRIPTION
ENB-V-BLD-CCS-010	1	STANDARD 12'x12' STEEL REGULATOR BUILDING

WORK ORDERS	
WO NUMBER	DESCRIPTION

REVISIONS				
NO	DESCRIPTION	DATE	BY	CHECK
0	ISSUED FOR CONSTRUCTION - SUPERSEDES QGC-STD-REG-PIP-001	09/25/2017	IAT	DGB
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7	ISSUED FOR CONSTRUCTION - REVERTED BACK TO SW REGS	06/13/2025	IAT	IAT

ENGINEERING RECORD	
DRAWN BY: I. TORRES	
CHECKED BY: D. BROX	
PROJECT ENGR: C. DEMILL	
SURVEYOR: N/A	
ENGR MNGR: W. RADFORD	
CONSTR MNGR: D. FRANCIS	
MEAS & CTRLS: N/A	
AUTOM ENGR: N/A	

ENBRIDGE

SECTION: N/A T N/A R N/A

ELEVATION: N/A

LAT: N/A LONG: N/A

SCALE: AS NOTED

LINE NUMBER:

FACILITY: 2"x2" MOONEY FLOWGRID REGULATOR STATION

TITLE: 6" HP INLET AND 8" IHP OUTLET

DESCRIPTION: PLAN, SECTION AND DETAILS

ADDRESS:

STANDARD DRAWING

CITY	COUNTY	STATE
VARIES	VARIES	VARIES

DRAWING NUMBER	SHEET	REVISION
ENB-STD-REG-PIP-001	2 OF 2	7

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