

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9

REACH 10.2



— BUREAU OF —
RECLAMATION

NGWSP BBN9 PUMPING PLANT 12 TO PUMPING PLANT 13

July 2025

PROJECT DESCRIPTION

REACH 10.2 IS COMPRISED OF THE FOLLOWING FEATURES:

APPROXIMATELY 4,175 FEET OF 16-INCH PVC DR 14 TRANSMISSION PIPELINE AND APPURTENANCES;
APPROXIMATELY 13,155 FEET OF 16-INCH PVC DR 18 TRANSMISSION PIPELINE AND APPURTENANCES;
APPROXIMATELY 27,646 FEET OF 16-INCH PVC DR 21 TRANSMISSION PIPELINE AND APPURTENANCES;
TWO (2) 75,000 GALLON REGULATING WATER STORAGE TANKS AND APPURTENANCES;
ONE (1) TRANSMISSION PIPELINE SURGE TANK INCLUDING BUILDING AND APPURTENANCES;
PUMPING PLANT NO. 12 INCLUDING BUILDING AND APPURTENANCES.

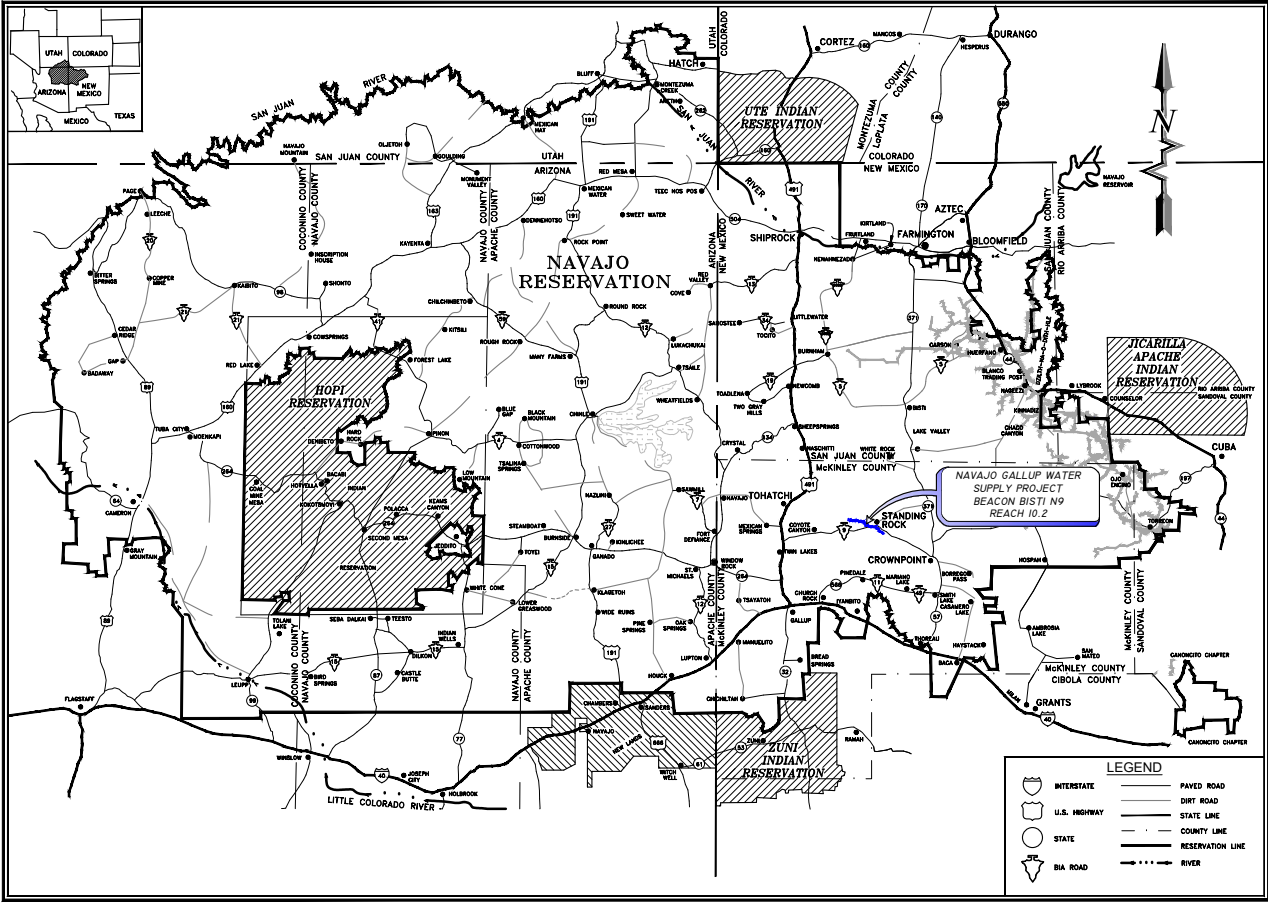
PROJECT SUMMARY:

THE NAVAJO GALLUP WATER SUPPLY PROJECT (NGWSP) WILL PROVIDE TREATED SURFACE WATER FROM THE SAN JUAN RIVER TO NAVAJO CHAPTERS AND THE CITY OF GALLUP IN NEW MEXICO VIA THE SAN JUAN LATERAL (SJL). THE NGWSP BEACON BISTI / N9 (BBN9) LATERAL WILL TIE INTO THE SJL AND SEND WATER EASTWARD TO SUPPLY NAVAJO CHAPTERS ALONG NAVAJO SERVICE ROUTE N9 AND HIGHWAY 371.

NGWSP BBN9 REACH 10.2 IS THE SECOND SEGMENT OF THE MAIN BBN9 LATERAL AND IS COMPRISED OF APPROXIMATELY 8.5 MILES OF 16" PVC WATERLINE, A PUMP STATION, A SURGE TANK, TWO (2) STORAGE TANKS, A TURNOUT FOR THE BBN9 REACH 10.2.1 TRANSMISSION LINE AND ASSOCIATED APPURTENANCES. REACH 10.2 BEGINS AT THE FIRST PUMPING PLANT SITE OF THE BBN9 PROJECT, PUMPING PLANT 12 (PP12) AND PUMPS PROJECT WATER TO THE BBN9 PUMPING PLANT 13 (PP13) SITE. REACH 10.2 ALSO INCLUDES THE TURNOUT FOR REACH 10.2.1, WHICH IS THE BBN9 CONNECTION TO THE NTUA STANDING ROCK COMMUNITY WATER SYSTEM (CWS).

THE PP12 SITE INCLUDES THE PP12 REGULATING TANKS (TO BE CONSTRUCTED AS PART OF REACH 10.1), PP12 PUMP STATION (TO BE CONSTRUCTED AS PART OF REACH 10.2), AND SURGE TANK BUILDING (TO BE CONSTRUCTED AS PART OF REACH 10.2). THE PP12 SURGE TANK IS LOCATED ON THE DISCHARGE SIDE OF THE PP12 PUMP STATION AND MITIGATES DAMAGING TRANSIENT PRESSURES FROM OPERATION OF THE TRANSMISSION SYSTEM.

THE PP13 SITE INCLUDES THE PP13 REGULATING TANKS (TO BE CONSTRUCTED AS PART OF REACH 10.2), PP13 PUMP STATION (TO BE CONSTRUCTED AS PART OF REACH 10.3), AND SURGE TANK BUILDING (TO BE CONSTRUCTED AS PART OF REACH 10.3).



NAVAJO RESERVATION
PROJECT SITE MAP

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- C-3 PLAN AND PROFILE STA 56+00 TO STA 84+00
- C-4 PLAN AND PROFILE STA 84+00 TO STA 112+00
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- C-6 PLAN AND PROFILE STA 140+00 TO STA 168+00
- C-7 PLAN AND PROFILE STA 168+00 TO STA 196+00
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- C-10 PLAN AND PROFILE STA 252+00 TO STA 280+00
- C-11 PLAN AND PROFILE STA 280+00 TO STA 308+00
- C-12 PLAN AND PROFILE STA 308+00 TO STA 336+00
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- C-14 PLAN AND PROFILE STA 364+00 TO STA 392+00
- C-15 PLAN AND PROFILE STA 392+00 TO STA 420+00
- C-16 PLAN AND PROFILE STA 420+00 TO STA 448+00
- C-17 PLAN AND PROFILE STA 448+00 TO STA 450+93.6

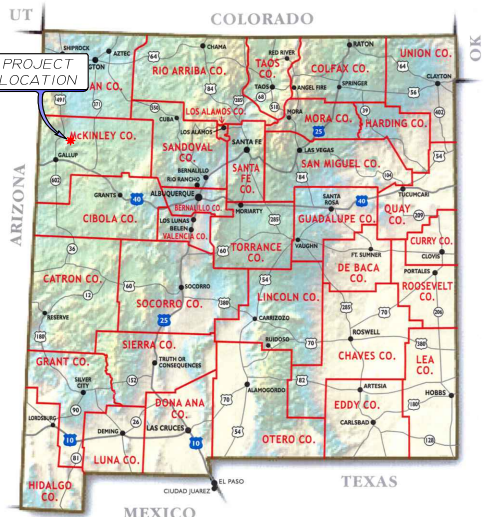
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PROJECT VICINITY MAP

SOUDER, MILLER & ASSOCIATES

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Client: The Navajo Nation

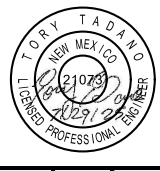
Location: Tsel'ehi, NM

COVER SHEET & DRAWING INDEX

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/Aav Checked: TTT

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED



Date: August 2025

Scale: Horiz: N/A Vert: N/A

Project No: 6922268

Sheet: G-1

P:\6-Beacon Bisti N9 Water Line (6922268)\CA\Civil\Reach 10.2 Plan Set\Construction Plans\BBN9 Reach 10.2 Cover-Gem Notes.dwg
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GENERAL NOTES

- THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND IS NOT LIABLE FOR PROBLEMS THAT MAY ARISE FROM CONTRACTOR'S FAILURE TO FOLLOW THESE DRAWINGS, SPECIFICATIONS, AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS ARISING FROM FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS.
- IF THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS AND/OR MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, FOR CLARIFICATION AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION OF SAID DEVICE, PART, OR MATERIAL.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE LOCATION OF ALL UTILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION. THE GENERAL LOCATION OF KNOWN EXISTING UTILITIES HAS BEEN SHOWN ON THE CONSTRUCTION DRAWINGS TO INDICATE THAT CAUTION MUST BE EXERCISED WHEN WORKING IN THESE AREAS. IN MANY CASES THE EXACT LOCATION OF THE FACILITIES IS NOT KNOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL OVERHEAD AND UNDERGROUND UTILITIES WITHIN THE VICINITY OF THE NEW CONSTRUCTION. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR, WORKING WITH THE RESPECTIVE UTILITY COMPANIES, SHALL ACCURATELY LOCATE AND MARK ALL BURIED FACILITIES, INCLUDING SERVICE LINES. ALL EQUIPMENT LABOR, ETC. NECESSARY TO PROPERLY LOCATE THE EXISTING UTILITIES SHALL BE FURNISHED BY THE CONTRACTOR, THE COST OF WHICH SHALL BE INCIDENTAL TO THE WORK.
- CONTRACTOR SHALL REPAIR ANY EXISTING STRUCTURE OR UTILITY PIPELINE DAMAGED DURING THE EXECUTION OF THE PROJECT, AT NO ADDITIONAL COSTS TO THE OWNER.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTING THE PROJECT ACCORDING TO CURRENT NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (NMSSPWC) AWWA SPECS AND NAVAJO NATION / NTUA STANDARDS, INCLUDING WHERE PARTICULAR WORK ITEMS ARE NOT SPECIFIED HEREIN.
- CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AS SET FORTH IN THE TECHNICAL SPECIFICATIONS AND CONTRACT DOCUMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE ENGINEER REGARDING ANY QUESTION ARISING FROM ANY ASPECT OF THIS PROJECT NOT SPECIFICALLY COVERED IN THE PLANS AND TECHNICAL SPECIFICATIONS, OR ANY CHANGES OR CORRECTIONS TO THE PLANS AND SPECS.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY, WHICH SHALL REMAIN WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL (OSHA), STATE, TRIBAL AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING SAFETY AND HEALTH. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P - EXCAVATIONS.
- CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO ANY LOCAL BUSINESSES AND RESIDENTS AS REQUIRED FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL ADVISE OF AND SCHEDULE ACCESS CLOSURES AT LEAST 24 HOURS IN ADVANCE WITH PROPERTY OWNERS AND THE ENGINEER.
- THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND SHALL IN NO WAY ENCROACH ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE PROVIDED OR SECURED BY THE CONTRACTOR. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.
- THE DRAWINGS CONTAIN SPECIFIC EROSION CONTROL FEATURES DESIGNED BY THE ENGINEER TO PROTECT PROJECT FACILITIES FROM EROSION. THESE FEATURES ARE NOT DESIGNED TO PREVENT POLLUTION OF WATERWAYS DUE TO SEDIMENT. THE CONTRACTOR IS WHOLLY RESPONSIBLE TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IMPLEMENT THE BEST MANAGEMENT PRACTICES (BMPs) REQUIRED THEREIN, IN ADDITION TO THE FEATURES SHOWN ON THE DRAWINGS. ALL BID ITEMS REFERRING TO SPECIFIC EROSION CONTROL FEATURES, SUCH AS RIPRAP OR ROCK DAMS, ARE APPLICABLE ONLY TO FEATURES DESIGNED BY THE ENGINEER. A SEPARATE BID ITEM(S) IS PROVIDED FOR PREPARATION AND IMPLEMENTATION OF THE CONTRACTOR'S SWPPP.
- ALL RIPRAP, ROCK CHECK DAMS AND OTHER EROSION CONTROL FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE WITH REGARD TO QUANTITY, LOCATION, DIMENSIONS, SPACING, AND ORIENTATION. EXACT PLACEMENT WILL BE DETERMINED IN FIELD BY ENGINEER AFTER FINAL GRADING IS COMPLETE.
- ALL AREAS DISTURBED BY THE CONSTRUCTION ACTIVITIES OF THIS PROJECT SHALL BE RESTORED AND RE-GRADED IN A MANNER ACCEPTABLE TO THE OWNER, ENGINEER, AND LAND OWNER. ALL DISTURBED AREAS SHALL BE RE-SEEDDED PER THE CONTRACT DOCUMENTS.
- FUSIBLE PVC PIPE SHALL BE USED IN LIEU OF ALL RESTRAINED JOINTS AND SHALL BE USED ON BOTH SIDES OF ALL ISOLATION VALVES, CASINGS, TEES, AND BENDS. REFER TO SPECIFICATIONS AND DETAIL, SHEET DT-3. IN ADDITION, THE PLAN AND PROFILE SHEETS INDICATE SPECIFIC ADDITIONAL LOCATIONS WHERE FUSIBLE PVC PIPE MUST BE USED IN LIEU OF BELL-AND-SPIGOT PIPE. IN THE ABSENCE OF ANY REQUIREMENT TO USE FUSIBLE PVC PIPE, CONTRACTOR HAS THE OPTION TO USE EITHER FUSIBLE OR BELL-AND-SPIGOT PIPE. IN THESE DRAWINGS, THE TERMS "BELL-AND-SPIGOT PIPE" AND "JOINTED PIPE" ARE USED SYNONYMOUSLY.
- THE PLAN AND PROFILE SHEETS SHOW HORIZONTAL ANGLES WITH DI ELL(S) OR FUSIBLE PVC SWEEP(S) CALLED OUT. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE SPECIFIED FITTINGS AT EACH LOCATION. IN ADDITION TO THE SPECIFIED FITTINGS(S), USE JOINT DEFLECTION TO ACHIEVE THE SPECIFIED HORIZONTAL ANGLE. IF A LOCATION IS SHOWN WITHOUT SPECIFYING A FITTING, USE JOINT DEFLECTION TO ACHIEVE THE HORIZONTAL ANGLE.
- ALL PRESSURE RATINGS GIVEN HEREIN FOR PIPES, VALVES, FITTINGS AND OTHER COMPONENTS REFER TO COLD WATER WORKING PRESSURE RATING, UNLESS OTHERWISE NOTED.
- VERTICAL CLEARANCES AT WATERLINE CROSSINGS ON PLAN AND PROFILE SHEETS CALLED OUT AS "MIN CLR" REFER TO MINIMUM CLEARANCE FROM BOTTOM OF EXISTING WATERLINE TO TOP OF PROPOSED WATERLINE. VERTICAL CLEARANCES FOR CASINGS CALLED OUT AS "MIN CLR TO CASING" REFER TO MINIMUM CLEARANCE FROM BOTTOM OF EXISTING PIPELINE OR FINISHED GRADE TO TOP OF PROPOSED CASING. VERTICAL CLEARANCES AT WASH CROSSINGS CALLED OUT AS "MIN TO CL" REFER TO MINIMUM PIPE DEPTH, MEASURED FROM BOTTOM OF WASH TO VERTICAL CENTERLINE OF PROPOSED WATERLINE.

- REFER TO PROFESSIONAL REGISTRANTS IDENTIFIED ON INDIVIDUAL PLAN SHEETS AS THE RESPONSIBLE PARTY FOR THOSE DISCIPLINES. THE SEAL AND SIGNATURE OF THE PROFESSIONAL REGISTRANT IDENTIFIED ON THIS COVER SHEET DOES NOT INDICATE RESPONSIBLE CHARGE FOR ALL SHEETS COMPLETED WITHIN THIS PACKAGE OR ANY PLAN SHEETS NOT SIGNED AND SEALED.
- ALL SCALES ARE BASED ON 11" x 17" SHEET SIZE.

CONTACT INFORMATION:

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JASON JOHN (928) 729-4004

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NAVAJO TRIBAL UTILITY AUTHORITY (NTUA):
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NAVAJO NATION DIVISION OF TRANSPORTATION :
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MARATHON PETROLEUM CO.

DUANE HOWE (505) 444-0084

ENERGY TRANSFER PARTNERS

PATRICK GONZALES (505) 979-1414

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
A.C.	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
AC	ACRE
AC-FT.	ACRE FEET
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALIGN.	ALIGNMENT
ALUM	ALUMINUM
AMSL	ABOVE MEAN SEA LEVEL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BFV	BUTTERFLY VALVE
BIA	BUREAU OF INDIAN AFFAIRS
BLDG	BUILDING
BLM	BUREAU OF LAND MANAGEMENT
BV	BALL VALVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL	CENTERLINE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLR.	CLEARANCE
CMP	CORRUGATED METAL PIPE
COMM.	COMMUNICATION
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONT.	CONTINUED
COR.	CORNER
COUP.	COUPLING
CP	CONTROL POINT
CTR	CENTER
CU	CUBIC
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
DIMS	DIMENSIONS
DR	DIMENSION RATIO
DW	DRIVEWAY
E	EAST
E	EASTING
EA	EACH
ED.	EDITION
EG	EXISTING GRADE
ELEC.	ELECTRICAL
EL., ELEV.	ELEVATION
EOP	EDGE OF PAVEMENT
EQ.	EQUAL
ESMT.	EASEMENT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX, EXIST.	EXISTING
FBE	FUSION BONDED EPOXY
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FIG.	FIGURE
FL	FLANGE
FND.	FOUND
FNPT	FEMALE NATIONAL PIPE THREAD
FRP	FIBER REINFORCED PLASTIC
FT.	FEET
FV	FLUSH VALVE
GA.	GAUGE
GALV.	GALVANIZED
GI	GALVANIZED IRON
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ.	HORIZONTAL
HP	HORSE POWER
HT	HEIGHT
HWY	HIGHWAY
I.A.	INDIAN ALLOTMENT
I.D.	INNER DIAMETER
I.E.	THAT IS, FOR EXAMPLE
IN.	INCH
INV	INVERT
IPS	IRON PIPE SIZE
KSI	KILO POUNDS PER SQUARE INCH
LAT	LATITUDE
L, LEN	LENGTH
LF	LINEAR FEET

LT	LEFT
LONG	LONGITUDE
LVC	LENGTH VERTICAL CURVE
MANUF	MANUFACTURER
MAX.	MAXIMUM
MIL	ONE THOUSANDTHS OF AN INCH
MIN.	MINIMUM
M.J.	MECHANICAL JOINT
MNPT	MALE NATIONAL PIPE THREAD
M.S.L.	MEAN SEA LEVEL
N	NORTH
N	NORTHING
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NG	NATURAL GAS
NGWSP	NAVAJO GALLUP WATER SUPPLY PROJECT
NM	NEW MEXICO
NMDOT	NEW MEXICO DEPARTMENT OF TRANSPORTATION
NMED	NEW MEXICO ENVIRONMENT DEPARTMENT
NN	NAVAJO NATION
NO.	NUMBER
N.O.	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
O.C.	ON CENTER
O.C.E.W.	ON CENTER EACH WAY
O.D.	OUTER DIAMETER
OHE	OVERHEAD ELECTRICAL
PE	PLAIN END
P.G.P.	PER GRADING PLAN
PI	POINT OF INFLECTION
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLY VINYL CHLORIDE
PVI	POINT VERTICAL INFLECTION
PVT	PRIVATE
Q	FLOW
QTY.	QUANTITY
R	RADIUS
R.	RANGE
REF	REFERENCE
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SCO	SANDOVAL COUNTY
SDR	STANDARD DIMENSION RATIO
SEC.	SECTION
SF	SAFETY FACTOR
SHT	SHEET
SPECS.	SPECIFICATIONS
SS	STAINLESS STEEL
STA	STATION
STD.	STANDARD
SW	SIDEWALK
T	TOWNSHIP
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TELE.	TELEPHONE
TEMP.	TEMPORARY
THK	THICK
TNT	NAVAJO TRIBAL TRUST
T.O.	TOP OF
TRANS	TRANSFORMER
TS	TOP OF SUBGRADE
TW	TOP OF WALL
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VOLUME
VB	VACUUM BREAKER
VERT.	VERTICAL
VLV	VALVE
VR	VACUUM RELIEF
W	WATER
W	WEST
W/	WITH
WL	WATERLINE
WP	WORKING PRESSURE
WT	WALL THICKNESS
WW	WATER VALVE
YDS	YARDS
Z	ZENITH

LEGEND

	EXISTING ISOLATION VALVE
	WATER VAULT
	WATER METER
	HYDRANT
	POWER POLE
	GUY ANCHOR
	ELECTRICAL J-BOX
	TELEPHONE PEDESTAL
	STORM DRAIN INLET / OUTLET
	BUILDING
	CATTLE GUARD
	ROAD SIGN

	EXISTING DRAINAGE WASH
	GUARD RAIL
	PAVED ROAD EDGE
	DIRT ROAD EDGE
	ROAD CENTER
	CONTOUR MAJOR
	CONTOUR MINOR
	SECTION CORNER
	CULTURALLY SENSITIVE AREA DO NOT ENCROACH
	CURRENT LAND STATUS (OWNER)
	SECTION LINE
	TOWNSHIP / RANGE LINE
	FENCE
	OVERHEAD POWER LINE
	UNDERGROUND POWER LINE
	OVERHEAD TELEPHONE LINE
	UNDERGROUND TELEPHONE LINE
	WATER LINE
	GAS LINE

LEGEND

PROPOSED

	WATER LINE		CONTOUR MAJOR
	POWER LINE		CONTOUR MINOR
	FENCE		40' WATERLINE EASEMENT
	PIPE CASING		TEMPORARY CONSTRUCTION EASEMENT
	GATE VALVE		ACCESS DRIVE / ROAD
	BUTTERFLY VALVE		RIP RAP OR CABLE CRETE
	VACUUM BREAKER AIR RELEASE VALVE COMBO		GRAVEL OVER BASE COURSE
	FLUSH VALVE		SWALE
	POWER POLE		DIRECTION OF FLOW
	GUY ANCHOR		MATCH LINE
	DOUBLE SWING GATE		

SOUDER, MILLER & ASSOCIATES



Client: The Navajo Nation Location: Tsel'ihani, NM

GENERAL NOTES & LEGEND
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



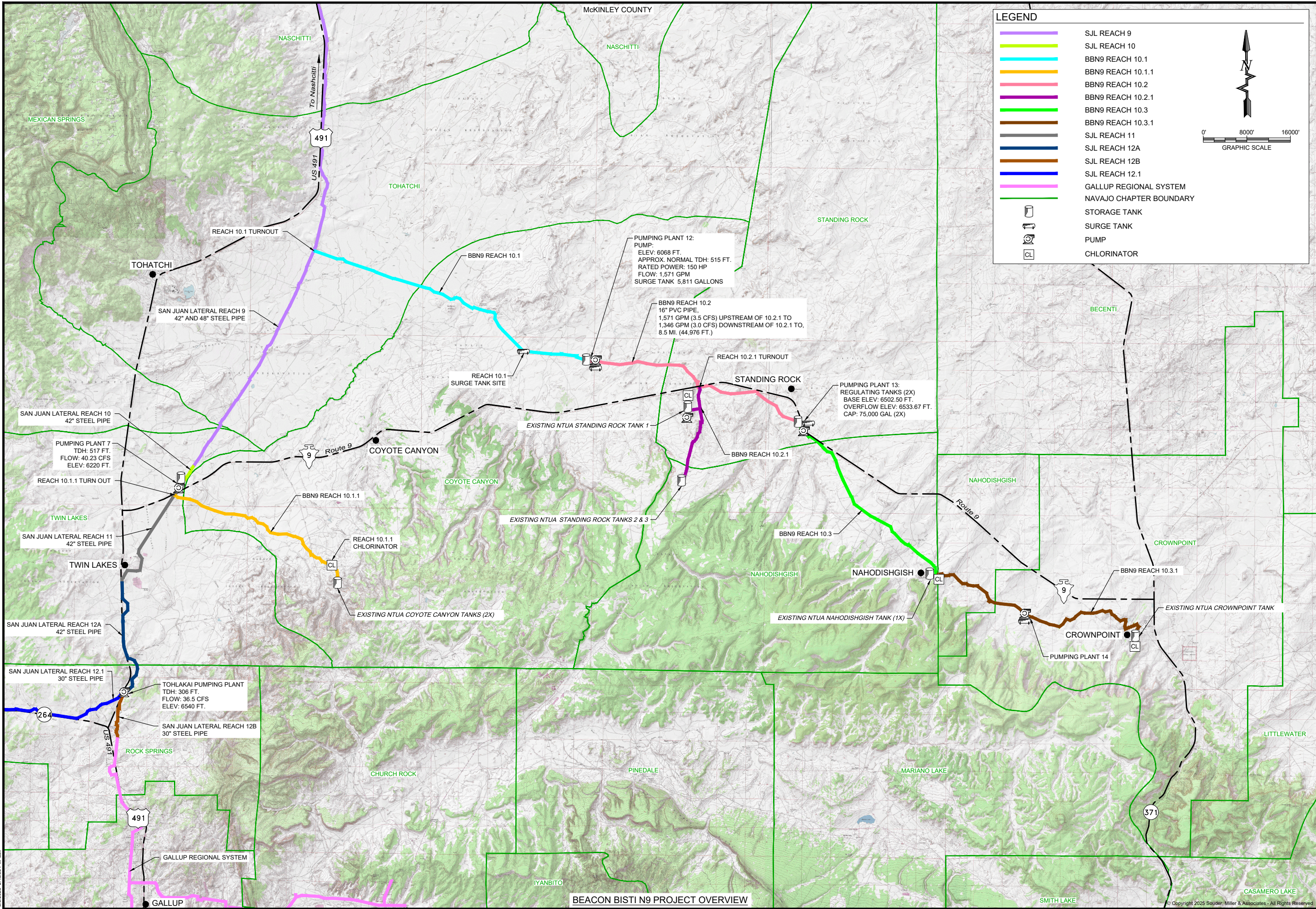
Designed EAP	Drawn MvH/AaV	Checked TTT
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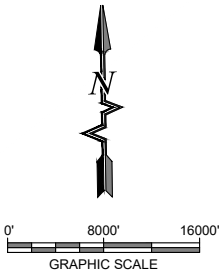
Date:	August 2025
Scale:	Horiz: N/A Vert: N/A
Project No:	6922268
Sheet:	G-2

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 BBN9 Project Overview.dwg
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LEGEND

- SJL REACH 9
- SJL REACH 10
- BBN9 REACH 10.1
- BBN9 REACH 10.1.1
- BBN9 REACH 10.2
- BBN9 REACH 10.2.1
- BBN9 REACH 10.3
- BBN9 REACH 10.3.1
- SJL REACH 11
- SJL REACH 12A
- SJL REACH 12B
- SJL REACH 12.1
- GALLUP REGIONAL SYSTEM
- NAVAJO CHAPTER BOUNDARY
- STORAGE TANK
- SURGE TANK
- PUMP
- CHLORINATOR



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Client: The Navajo Nation Location: Tsel'ihani, NM

BEACON BISTI N9 PROJECT OVERVIEW
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/AaV Checked: TTT

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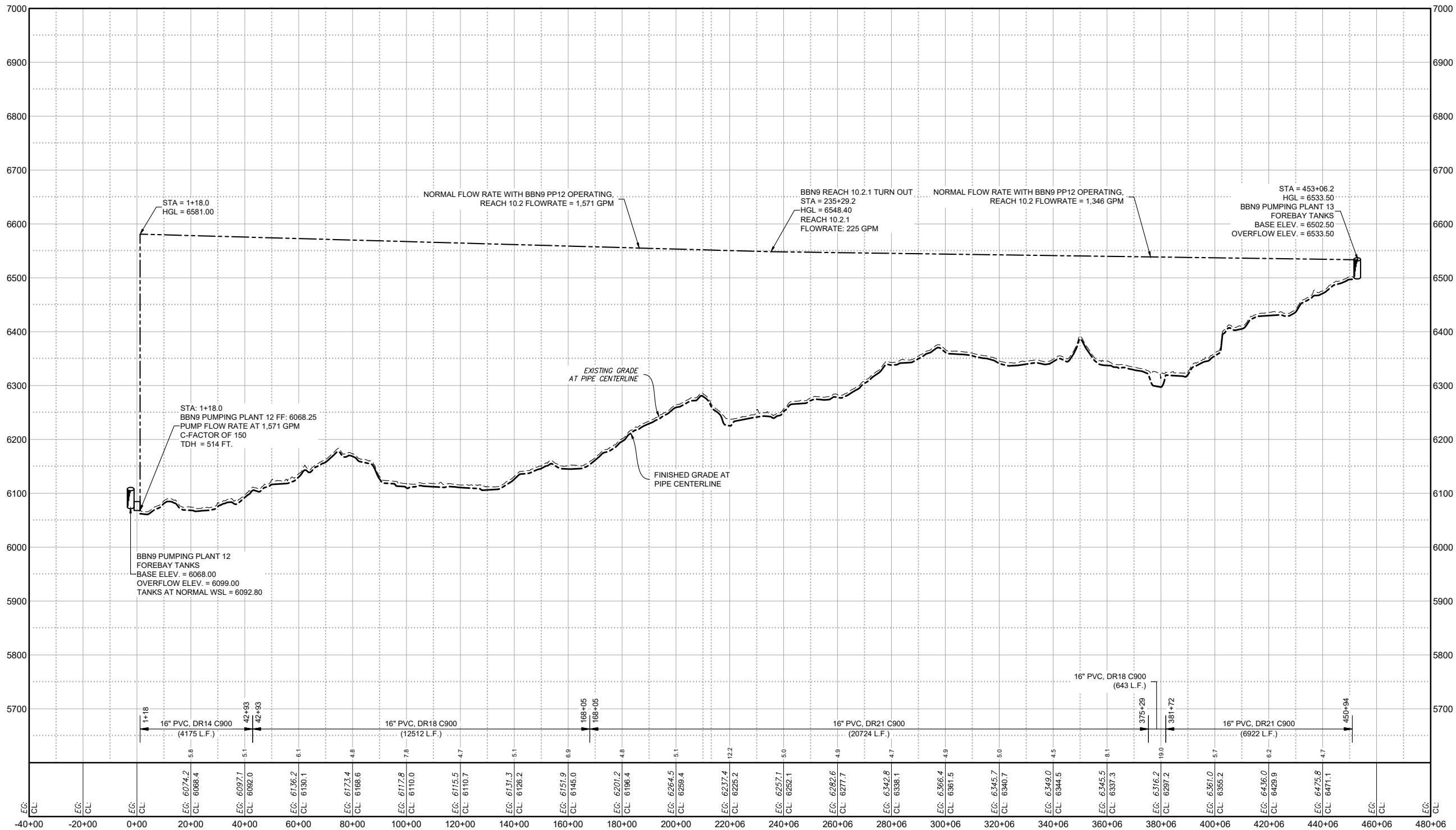
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Scale: Horiz: 1" = 16,000' Vert: N/A
Project No: 6922268
Sheet: G-3

BEACON BISTI N9 PROJECT OVERVIEW

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8/5/2025 2:43:40 PM aay



0' 2000' 4000'
GRAPHIC SCALE
BBN9 REACH 10.2 HYDRAULIC PROFILE
16" WATERLINE

Revision	Date	Description	By	Chk'd

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Client: The Navajo Nation
Location: Tsel'ihai, NM

HYDRAULIC PROFILE
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

Designed: EAP
Drawn: MvH/AaV
Checked: TTT

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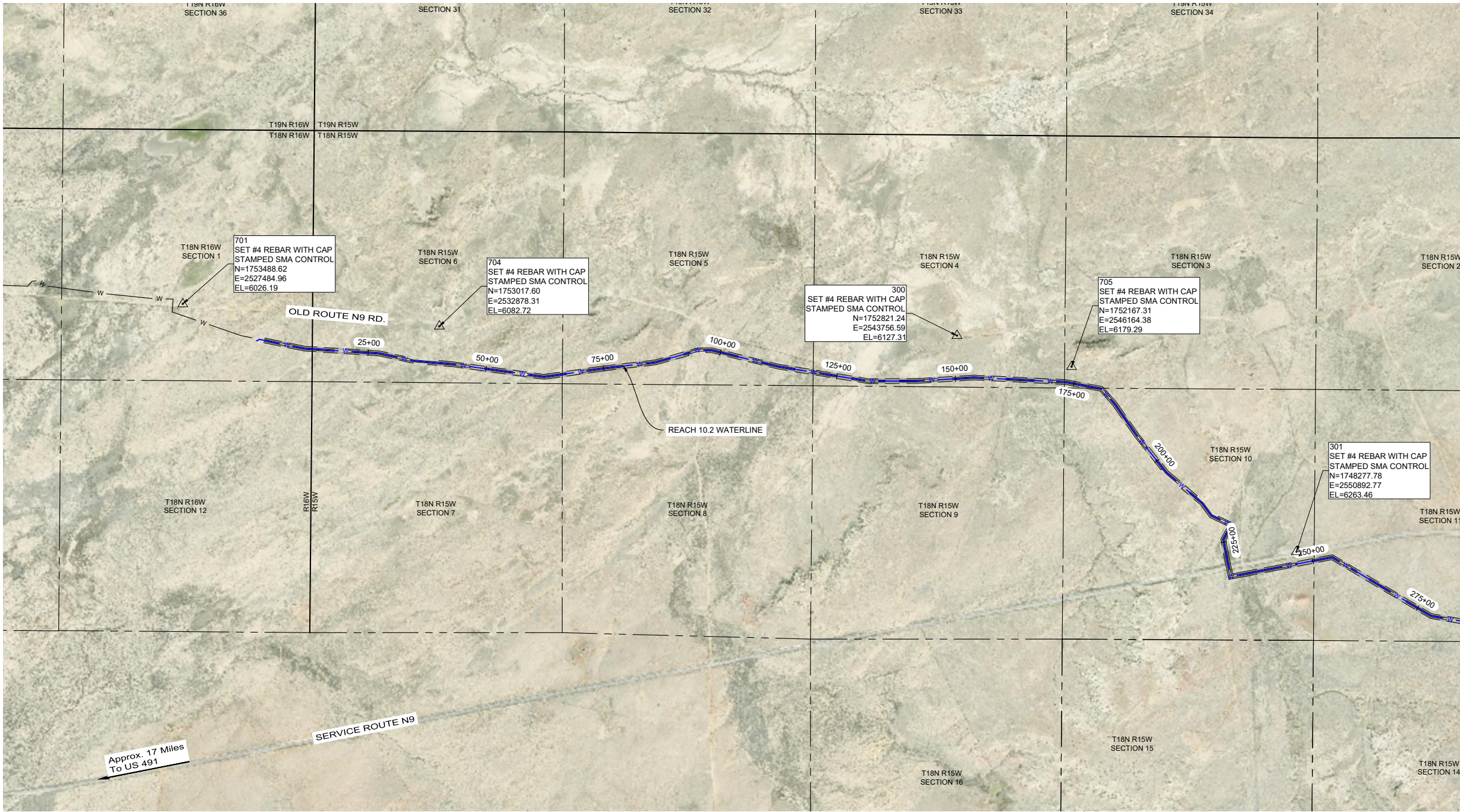
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Date: August 2025
Scale: Horiz: 1" = 4000'
Vert: 1" = 200'

Project No: 6922268
Sheet: **G-4**

FOR TADANO
NEW MEXICO
210723
7/29/25
PROFESSIONAL
ENGINEER

SURVEY CONTROL SHEET
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9-REACH 10.2
McKINLEY COUNTY, NEW MEXICO



CONTINUED ON
SHEET G-8 (2 of 2)

PROJECT COORDINATE SYSTEM INFORMATION:

REFERENCE FRAME: NAD1983 (2011) (EPOCH 2010.0000)
U.S. STATE PLANE NEW MEXICO WEST ZONE
ALL DISTANCES ARE GRID DISTANCES

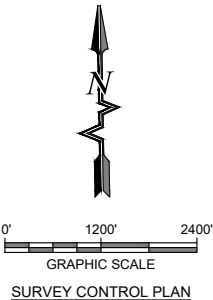
VERTICAL DATUM

NAVD 1988
GEOID 12B(CONUS) WAS UTILIZED TO ESTABLISH ORTHO
HEIGHTS

METHODS

ALL CONTROL ON THIS PROJECT WAS OBSERVED AND SET
BETWEEN MAY 8, 2019 AND NOVEMBER 11, 2019 WITH FINAL
ADJUSTMENTS MADE BY NOVEMBER 20, 2019. ALL POINTS
WERE OBSERVED USING TRIMBLE R8 GPS RECEIVERS
UTILIZING RTK GPS METHODS.

Point Table				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	1752821.24	2543756.59	6127.31	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
301	1748277.78	2550892.77	6263.46	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
302	1740668.60	2568872.38	6488.09	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
601	1741606.13	2550092.24	6374.76	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
602	1734810.70	2548327.75	6574.13	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
701	1753488.62	2527484.96	6026.19	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
704	1753017.60	2532878.31	6082.72	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
705	1752167.31	2546164.38	6179.29	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
707	1747554.48	2555934.93	6353.95	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
854	1746550.16	2560207.41	6417.90	SET #4 REBAR WITH CAP STAMPED SMA CONTROL



I, WILLIAM F. BREWSTER, NEW MEXICO PROFESSIONAL SURVEYOR NO. 10855, DO HEREBY
CERTIFY THAT THIS CONTROL SURVEY REPORT WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION BASED ON AN ACTUAL SURVEY ON THE GROUND AS DESCRIBED
HEREIN; THAT I AM RESPONSIBLE FOR THIS SURVEY; AND THAT THE SURVEY AND REPORT
MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

William F. Brewster
WILLIAM F. BREWSTER, N.M.P.S. 10855



5/04/2022
DATE

Designed By: WFB
Drawn By: AMD
Checked By: WFB

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Date: August 2025

Scale: Horiz: 1" = 2400'
Vert: N/A

Project No: 6922268

Sheet: G-7

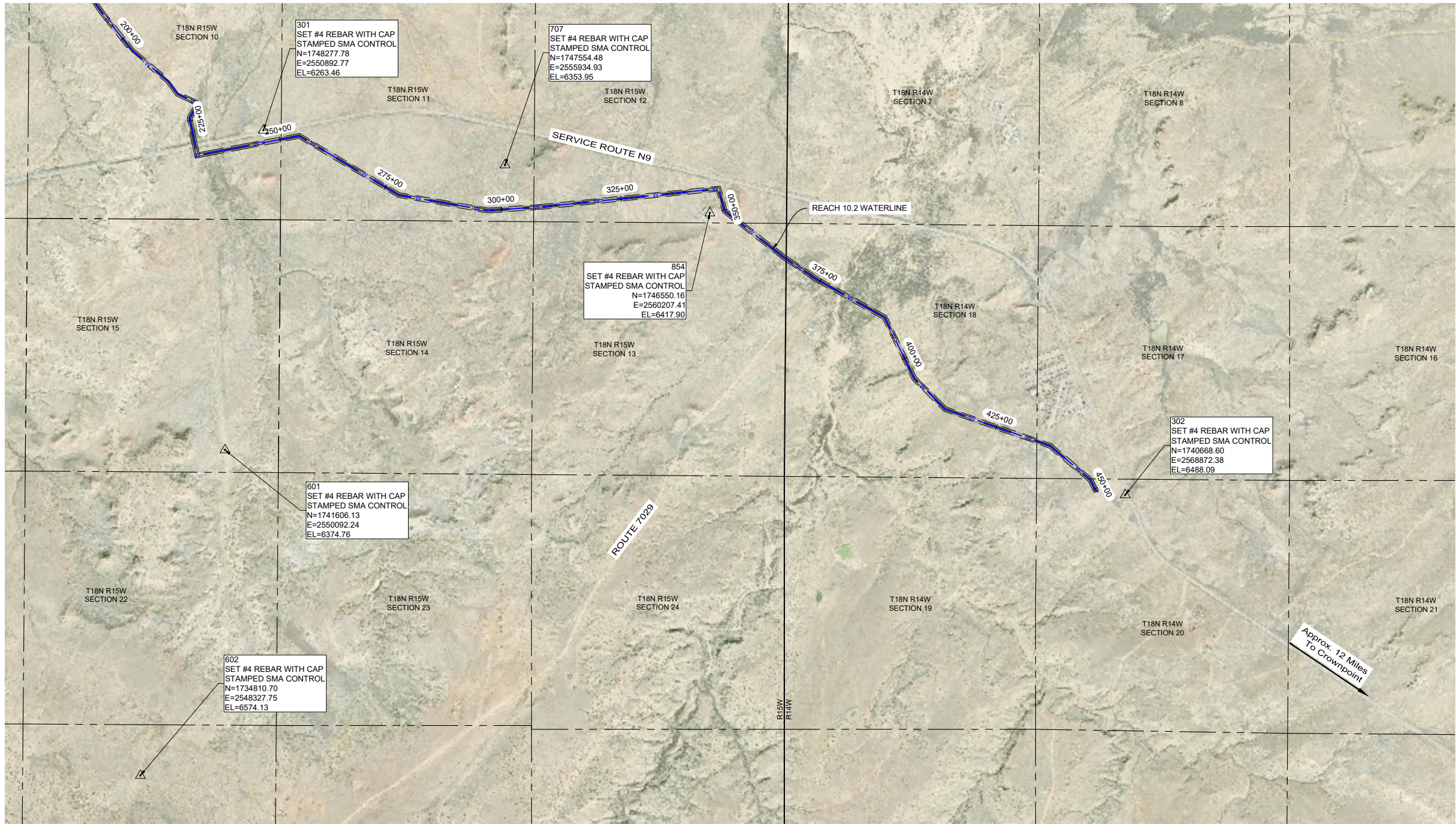
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Client: The Navajo Nation
Location: Tsel'ihani, NM
SURVEY CONTROL (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO

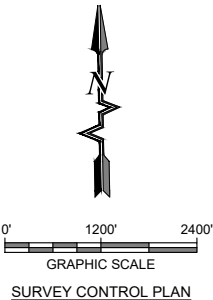
Revision	Date	Description	By	CHKD

SURVEY CONTROL SHEET
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9-REACH 10.2
McKINLEY COUNTY, NEW MEXICO

CONTINUED ON
SHEET G-7 (1 of 2)



Point Table				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	1752821.24	2543756.59	6127.31	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
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William F. Brewster
WILLIAM F. BREWSTER, N.M.P.S. 10855



5/04/2022
DATE

Designed Drawn Checked
AMD WFB

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Date: August 2025

Scale: Horiz: 1" = 2400'
Vert: N/A

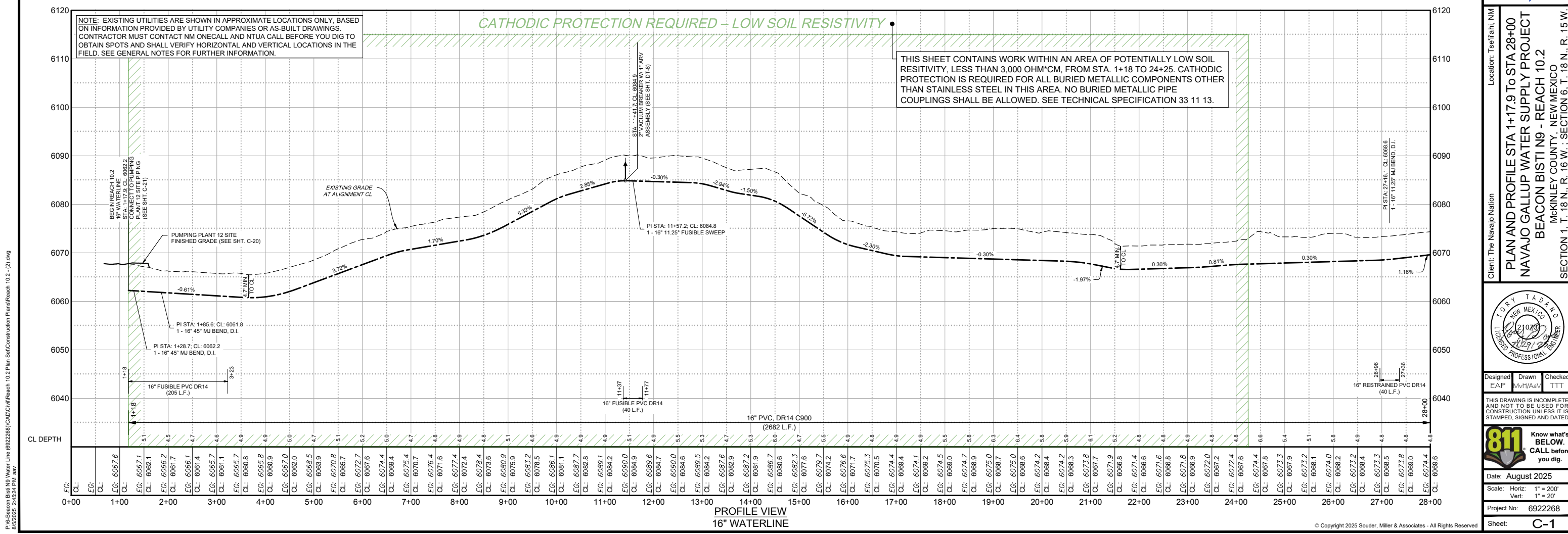
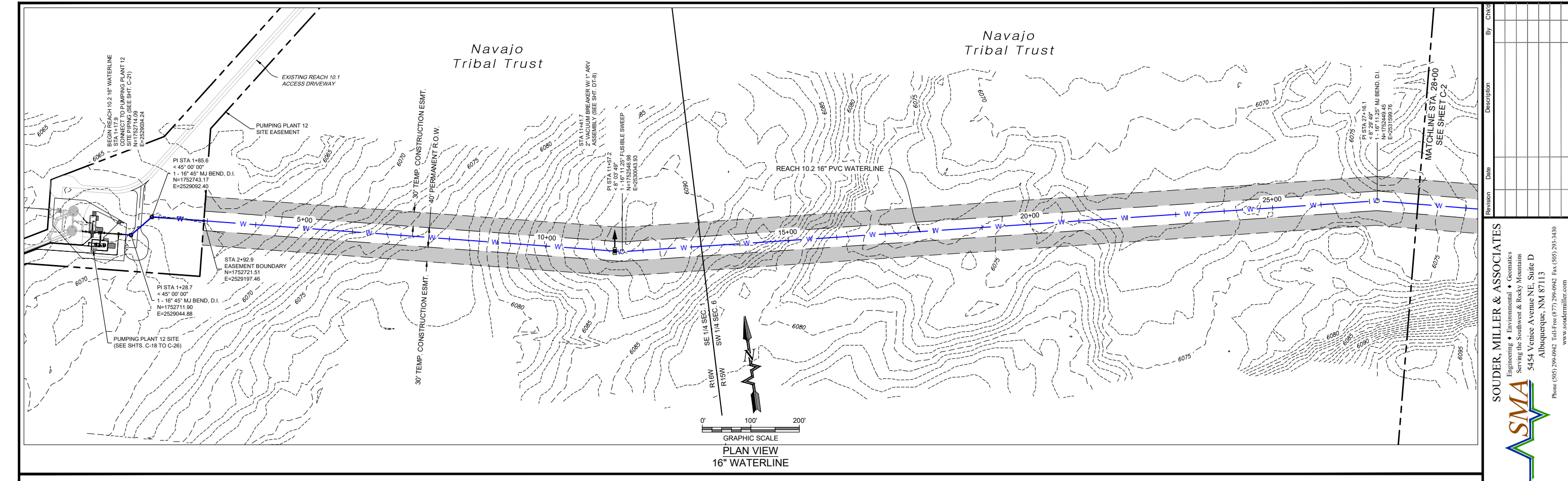
Project No: 6922268

Sheet: G-8

Client: The Navajo Nation
Location: Tsel'ihani, NM
SURVEY CONTROL (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO

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Revision	Date	Description	By	CHKD



Client: The Navajo Nation

Location: Tsel'ehi, NM

DESIGNED BY: EAP

DRAWN BY: MvH/AaV

CHECKED BY: TTT

DATE: August 2025

Scale: Horiz: 1" = 200'

Vert: 1" = 20'

Project No: 6922268

Sheet: C-1

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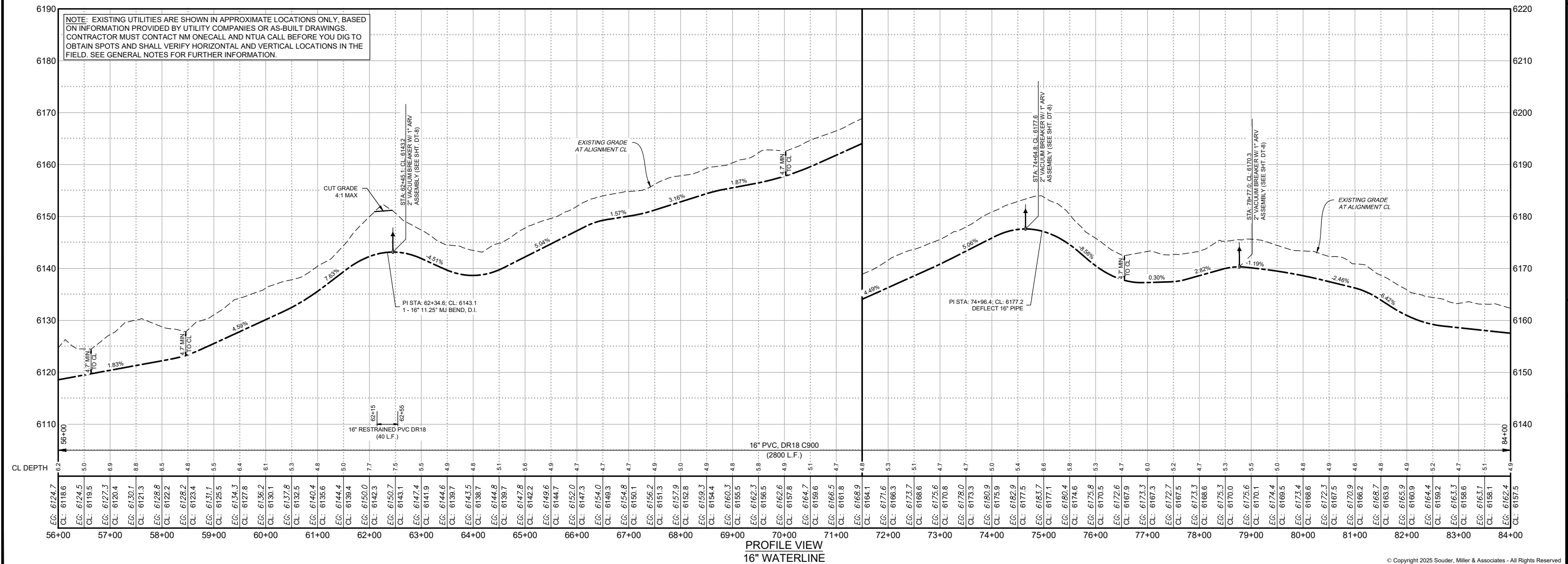
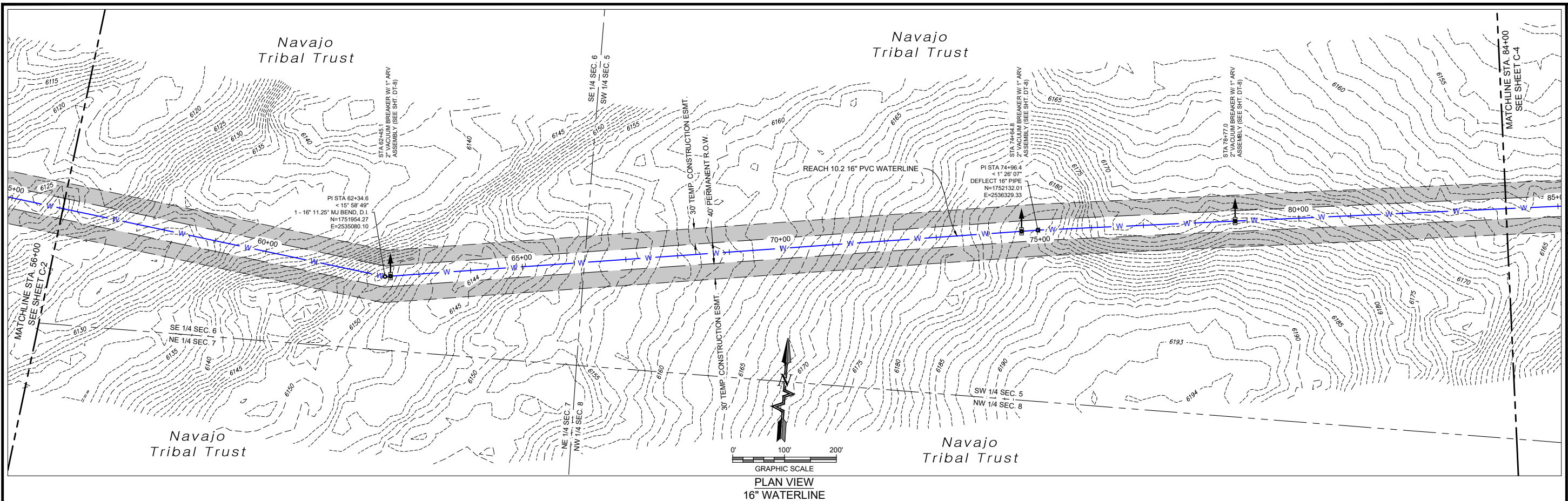
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Client: The Navajo Nation Location: Tse'i/ahi, NM

**PLAN AND PROFILE STA 56+00 To STA 84+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTIONS 5 & 6, T. 18 N., R. 15 W.**



Designed	Drawn	Checked
EAP	MvH/AaV	TTT

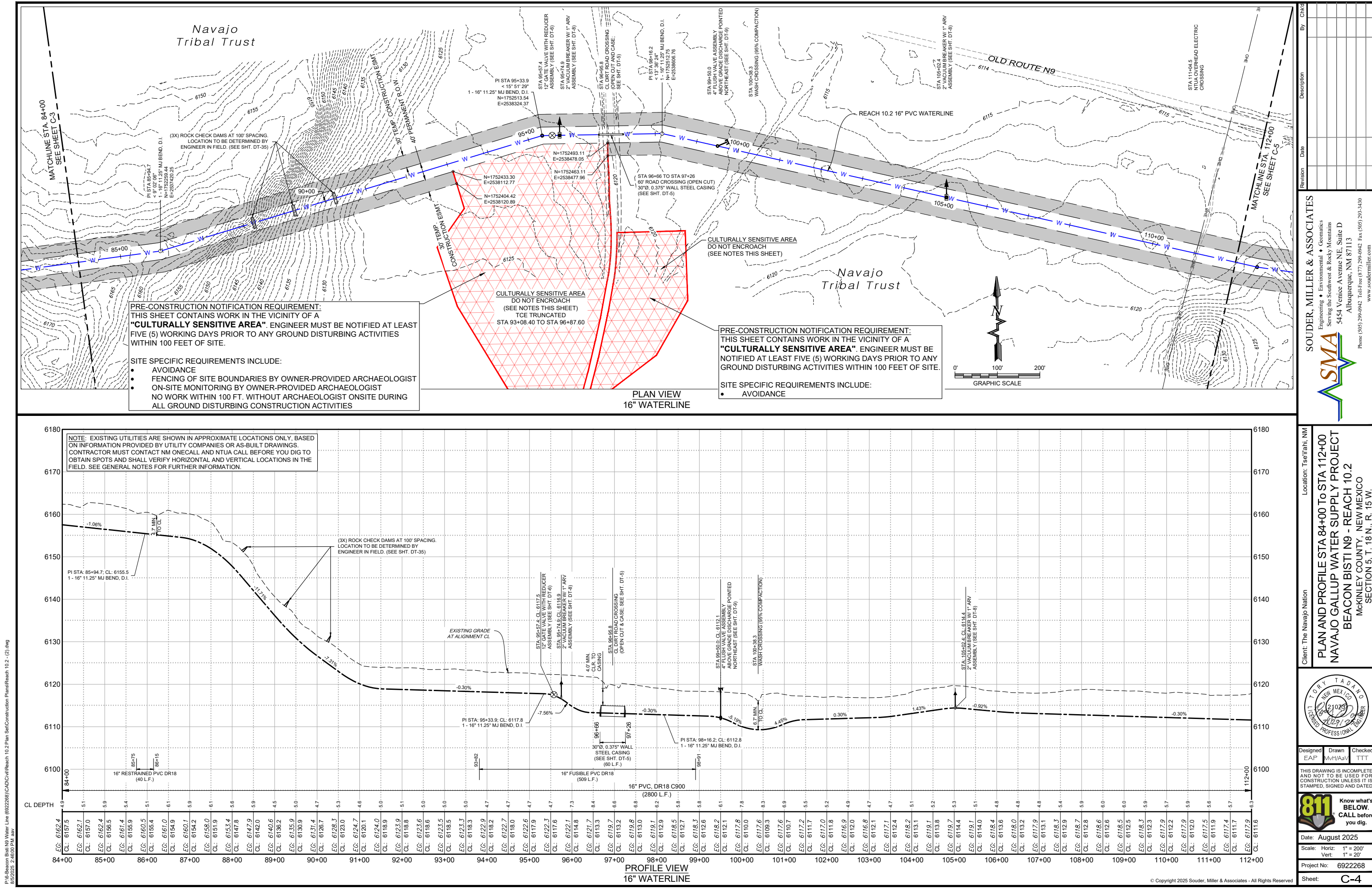
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Project No: 6922268

Sheet: C-3



Client: The Navajo Nation

Location: Tsel'ehi, NM

Designed: EAP

Drawn: MvH/AaV

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Vert: 1" = 20'

Project No: 6922268

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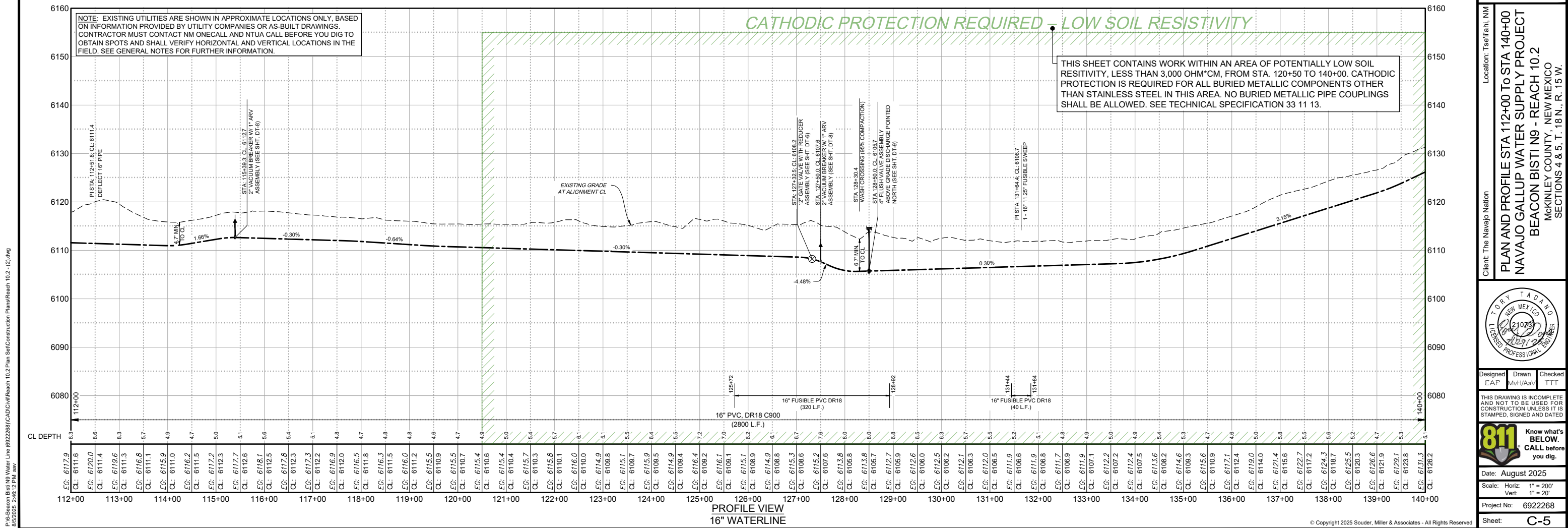
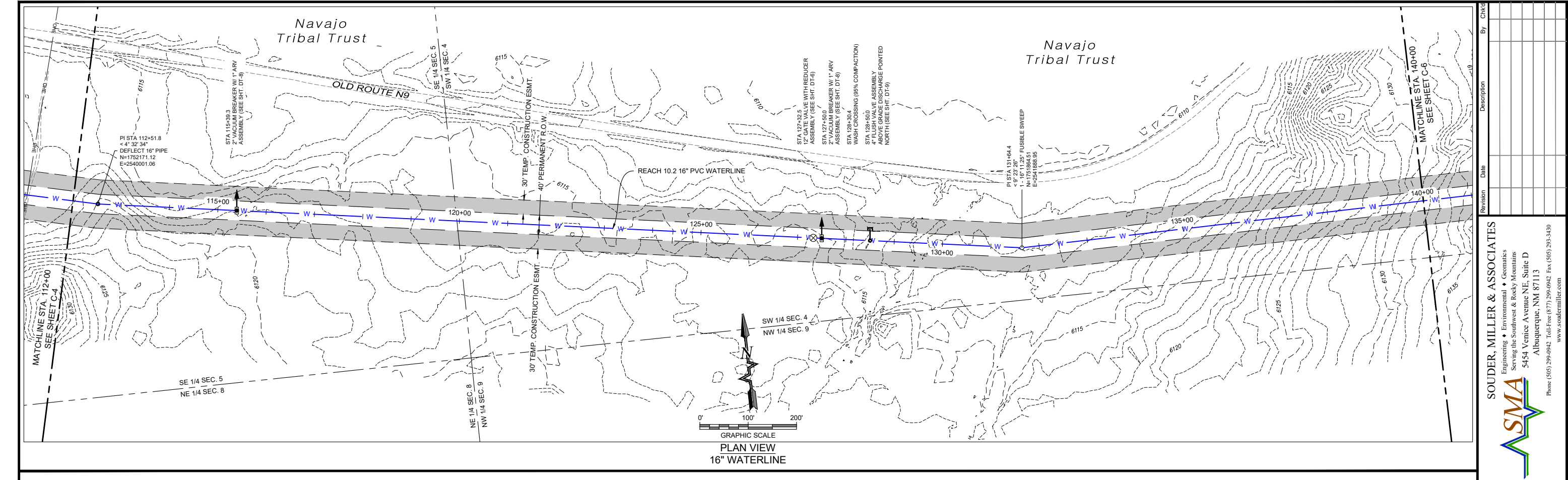
Revision

Date

Description

By

CHK'd



Client: The Navajo Nation

Location: Tsel'eh, NM

PLAN AND PROFILE STA 112+00 TO STA 140+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 4 & 5, T. 18 N., R. 15 W.

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Project No: 6922268

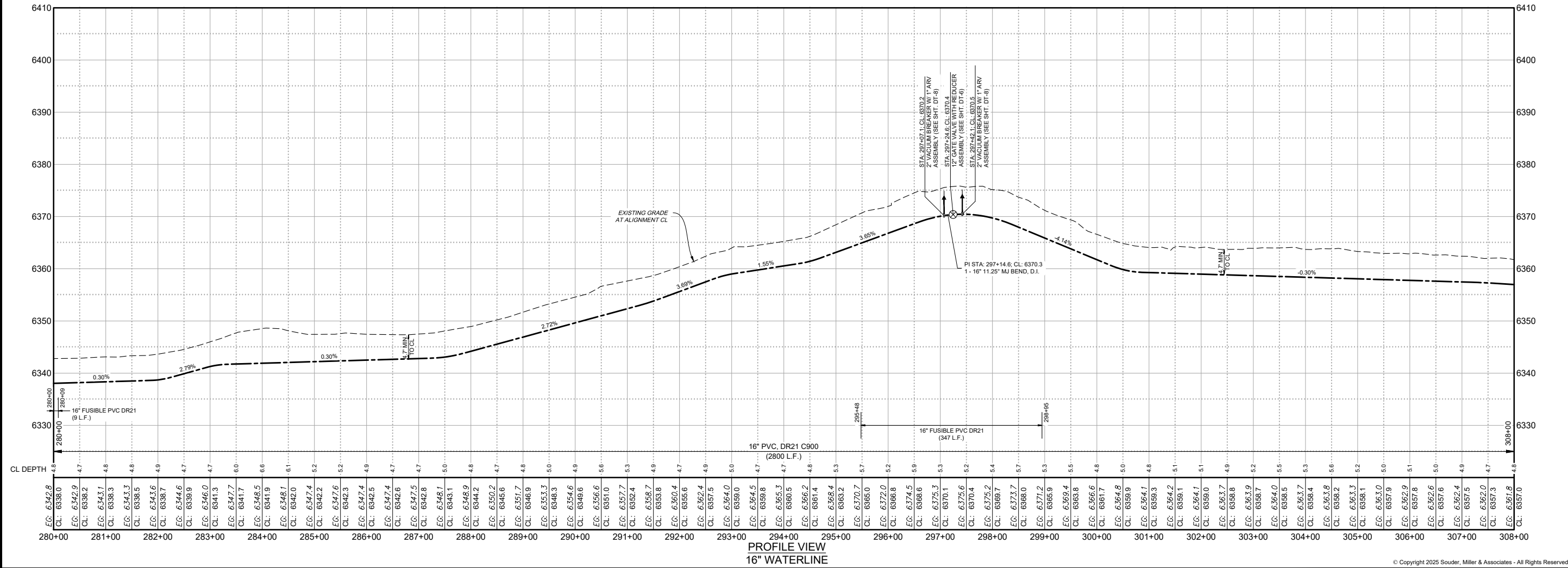
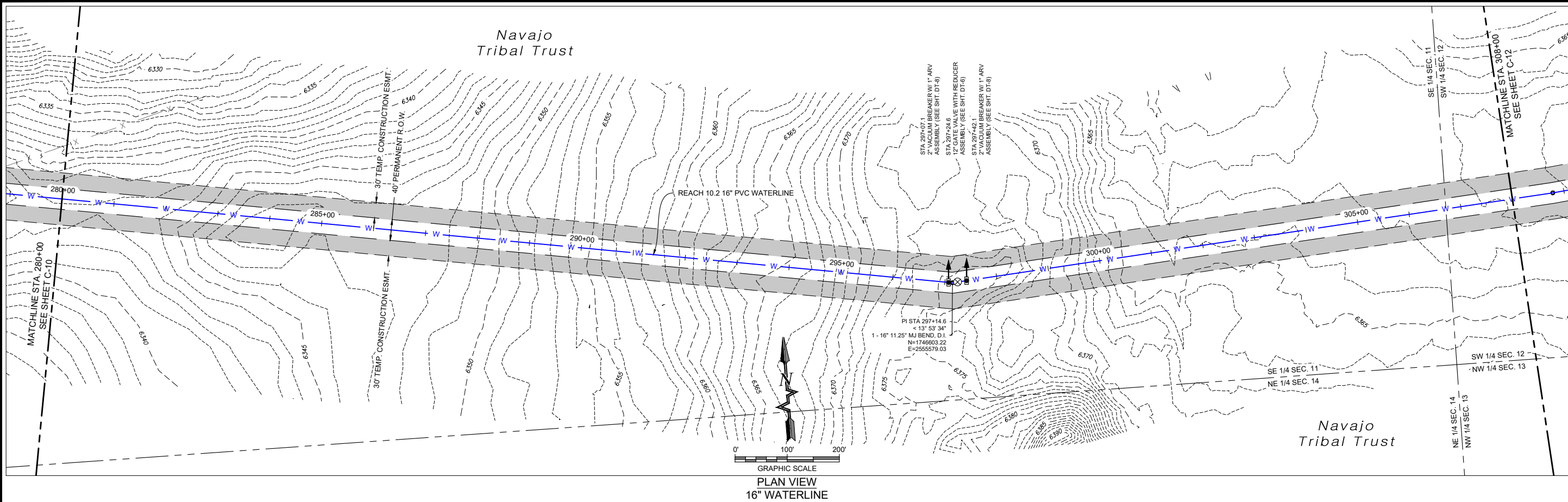
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Description
By
CHK'd



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Client: The Navajo Nation

Location: Tsel'ihai, NM

PLAN AND PROFILE STA 280+00 TO STA 308+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 11 & 12 T. 18 N., R. 15 W.

Designed: EAP
Drawn: MvH/AaV
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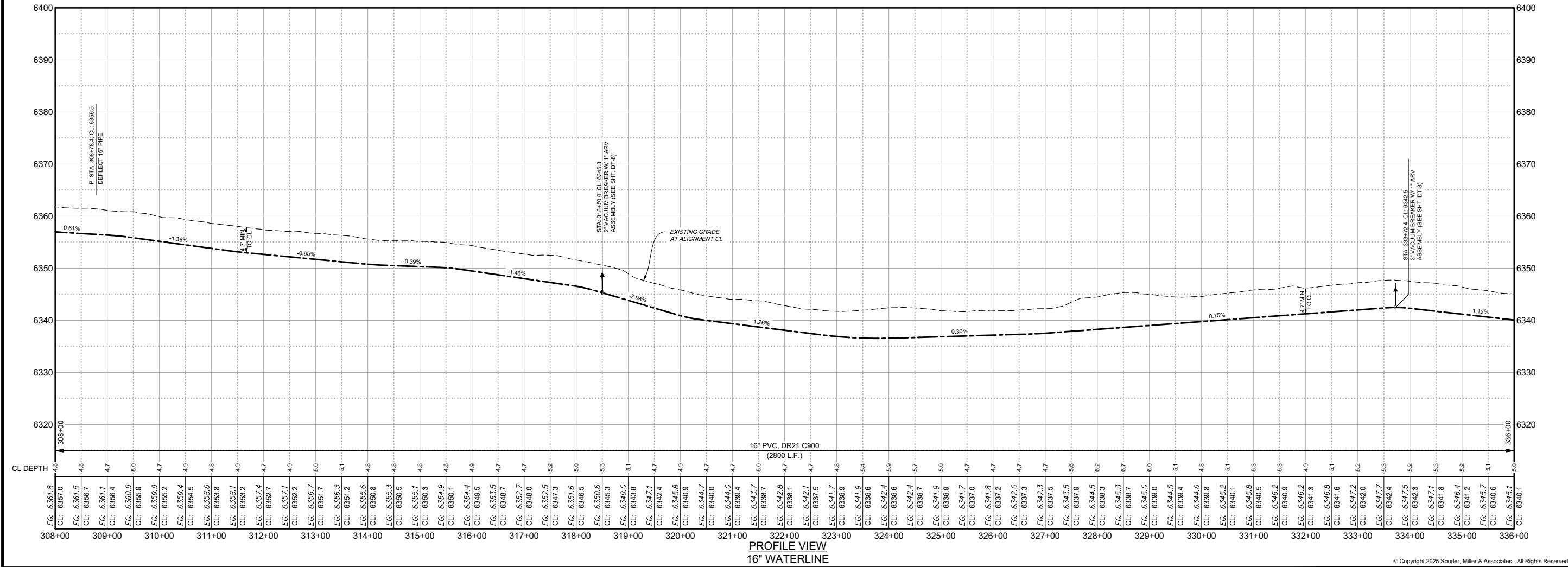
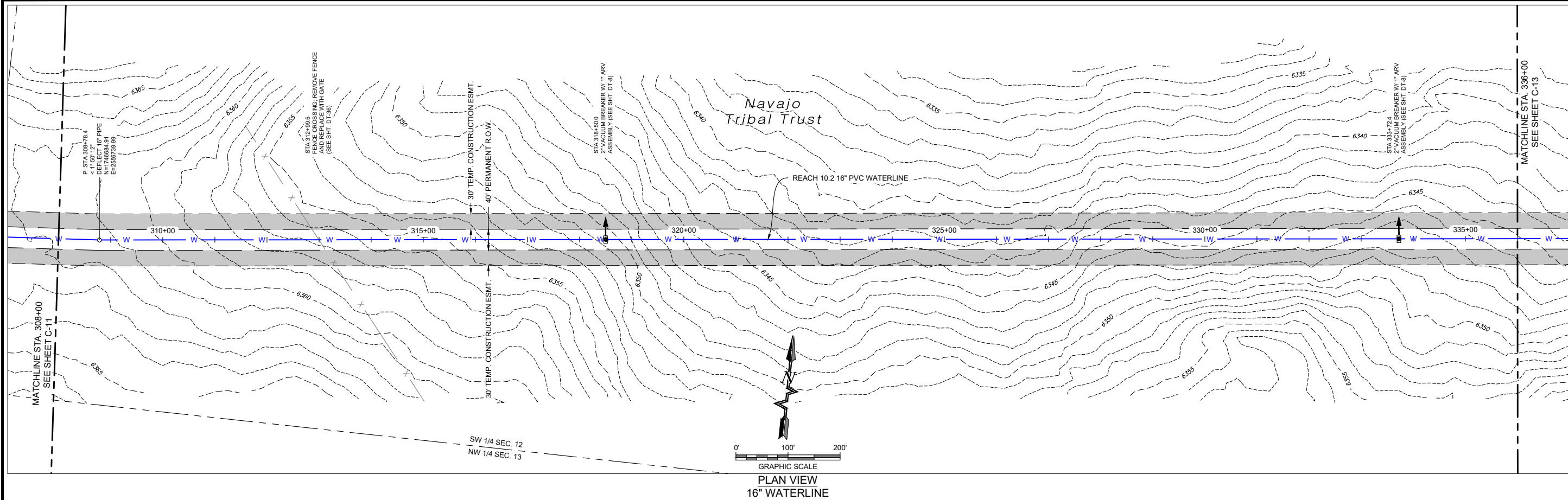
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Project No: 6922268
Sheet: C-11

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Date: _____
By: CHK

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Client: The Navajo Nation

Location: Tsel'ihai, NM

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Vert: 1" = 20'

Project No: 6922268

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Revision

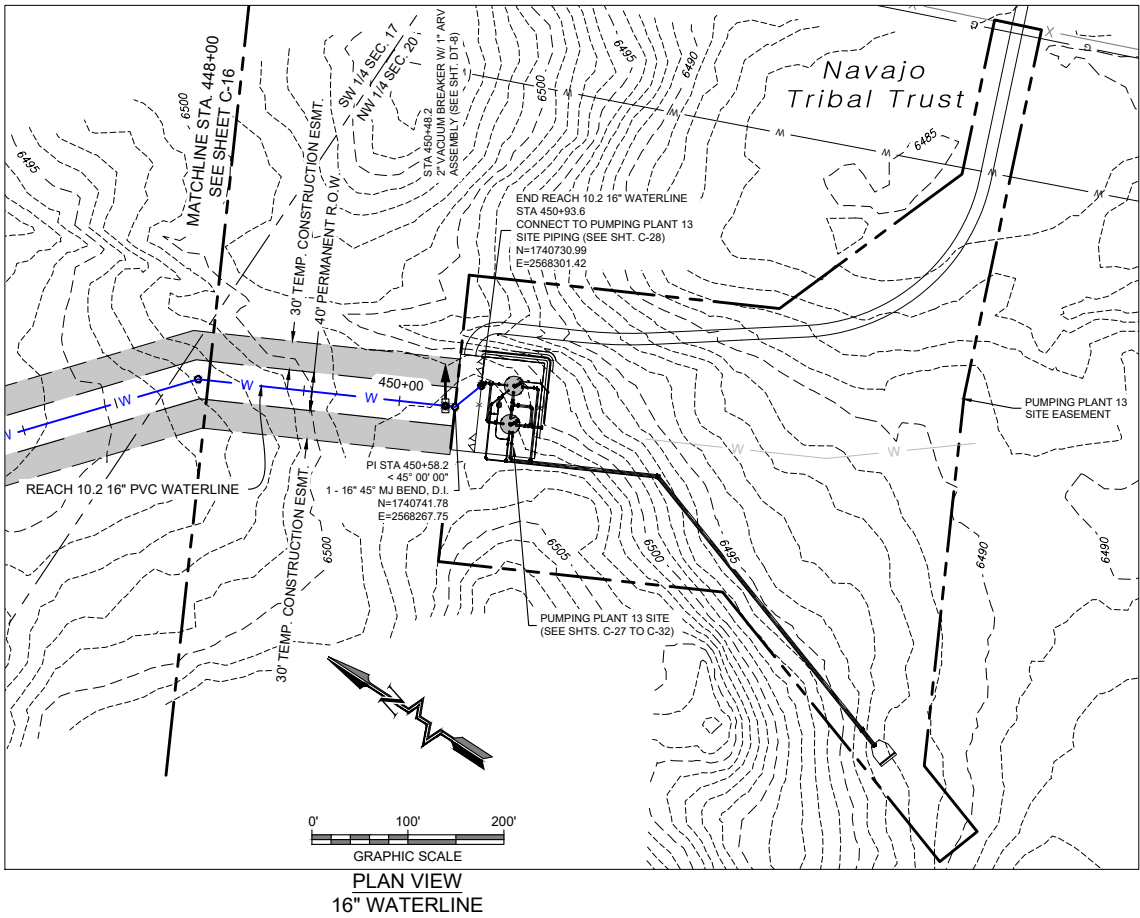
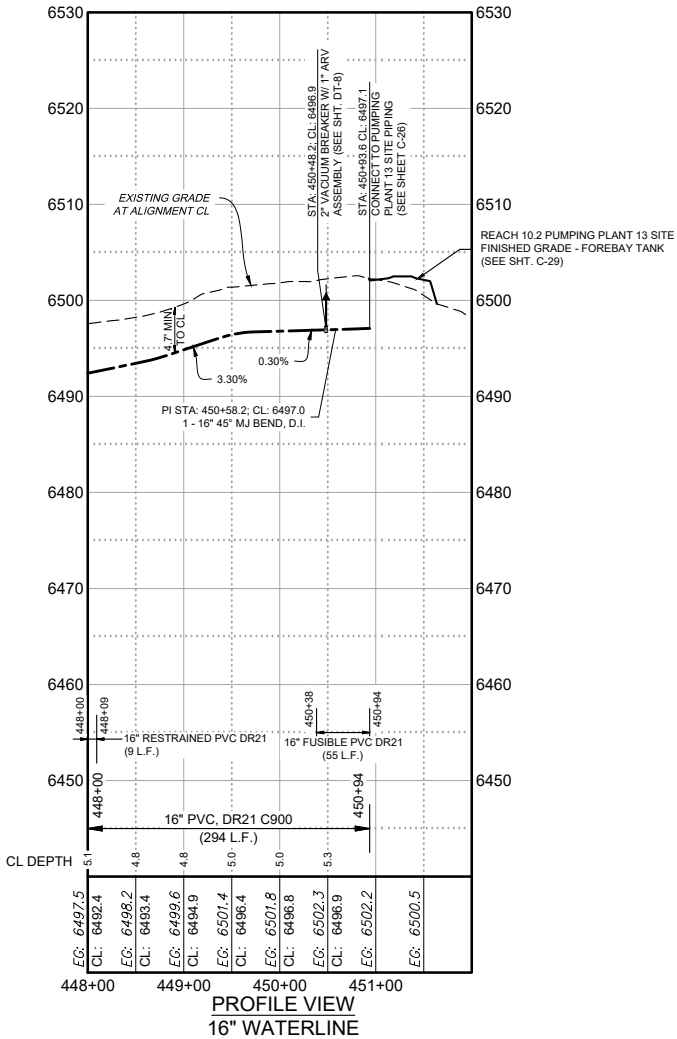
Date

Description

By

Chkd

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Vert: 1" = 20'

Project No: 6922268

Sheet: C-17

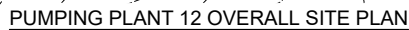
Client: The Navajo Nation
Location: Tsel'ihani, NM
PLAN AND PROFILE STA 448+00 TO STA 450+93.6
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20 T. 18 N., R. 14 W.



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Revision	Date	Description	By	Chkd

	2" GRAVEL OVER 4" NMDOT SPECIFICATION BASE COURSE
	6" COMPACTED BASE COURSE
	CONCRETE PAD



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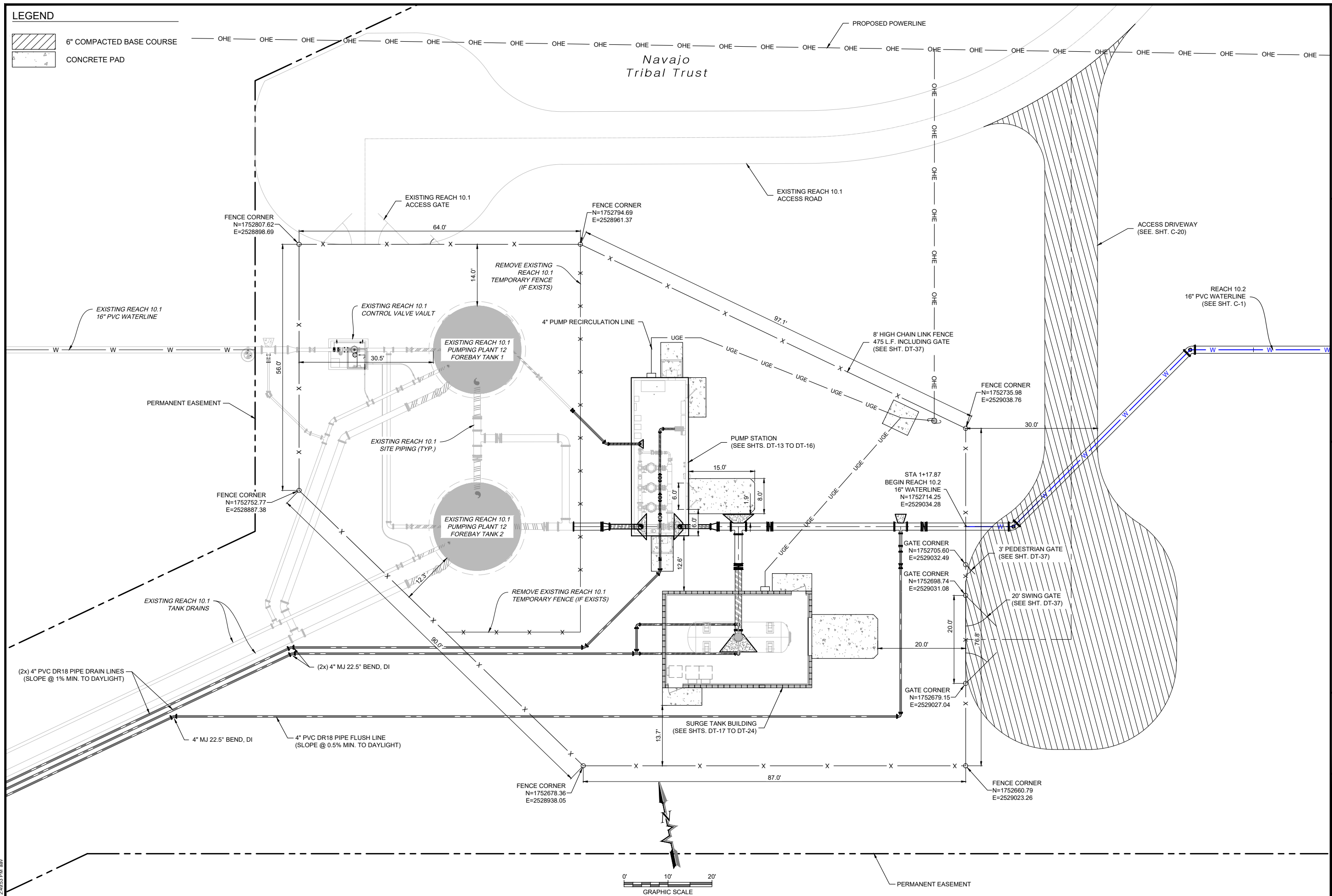
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Project No:	6922268
Sheet:	C-18

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Plan Set\Construction Plans\Reach 10.2 PP12 Siteplan.dwg
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6" COMPACTED BASE COURSE
CONCRETE PAD



PUMPING PLANT 12 SITE PLAN

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Client: The Navajo Nation Location: Tse'i'lahi, NM

PUMPING PLANT 12 SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N, R. 16 W.



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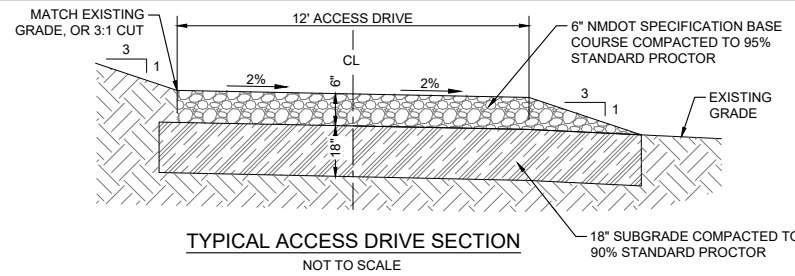
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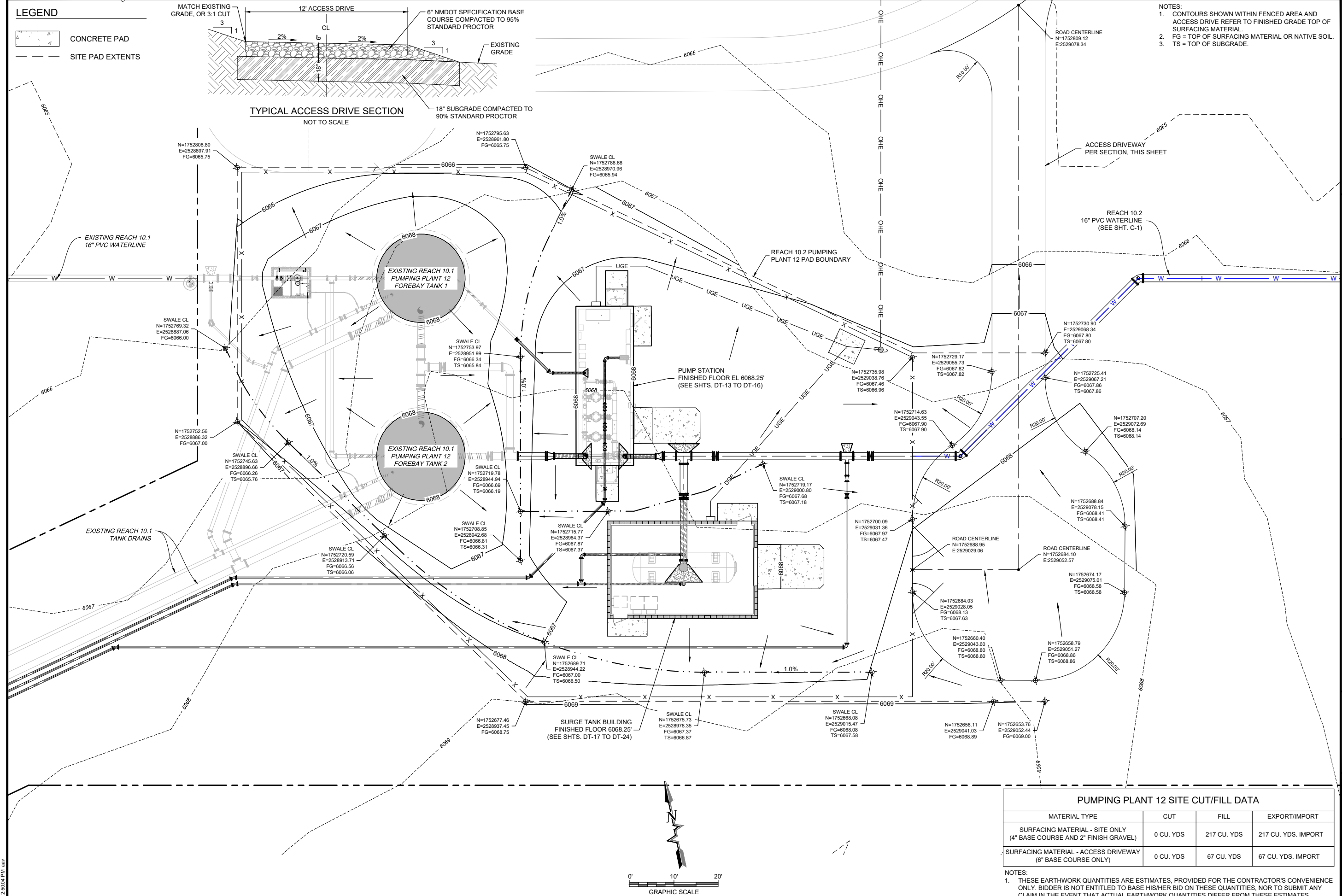
Project No: 6922268

Sheet: C-19

10.2 PP12 Siteplan.dwg



- NOTES:
1. CONTOURS SHOWN WITHIN FENCED AREA AND ACCESS DRIVE REFER TO FINISHED GRADE TOP OF SURFACING MATERIAL.
 2. FG = TOP OF SURFACING MATERIAL OR NATIVE SOIL.
 3. TS = TOP OF SUBGRADE.



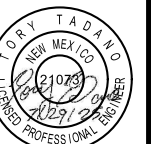
PUMPING PLANT 12 SITE CUT/FILL DATA			
MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
SURFACING MATERIAL - SITE ONLY (4" BASE COURSE AND 2" FINISH GRAVEL)	0 CU. YDS	217 CU. YDS	217 CU. YDS. IMPORT
SURFACING MATERIAL - ACCESS DRIVEWAY (6" BASE COURSE ONLY)	0 CU. YDS	67 CU. YDS	67 CU. YDS. IMPORT

NOTES:

1. THESE EARTHWORK QUANTITIES ARE ESTIMATES, PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. BIDDER IS NOT ENTITLED TO BASE HIS/HER BID ON THESE QUANTITIES, NOR TO SUBMIT ANY CLAIM IN THE EVENT THAT ACTUAL EARTHWORK QUANTITIES DIFFER FROM THESE ESTIMATES.
2. ALL GRADING WORKS SHALL BE COMPACTED TO 95% STANDARD PROCTOR.

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PUMPING PLANT 12 SITE GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.



Designed AP	Drawn MvH/AaV	Checked TTT
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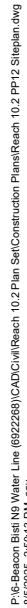
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Subject No: 6922268

Sheet: C-20

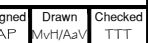


0' 5' 10'

GRAPHIC SCALE

[illegible]

PUMPING PLANT 12 SITE DETAILED GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.



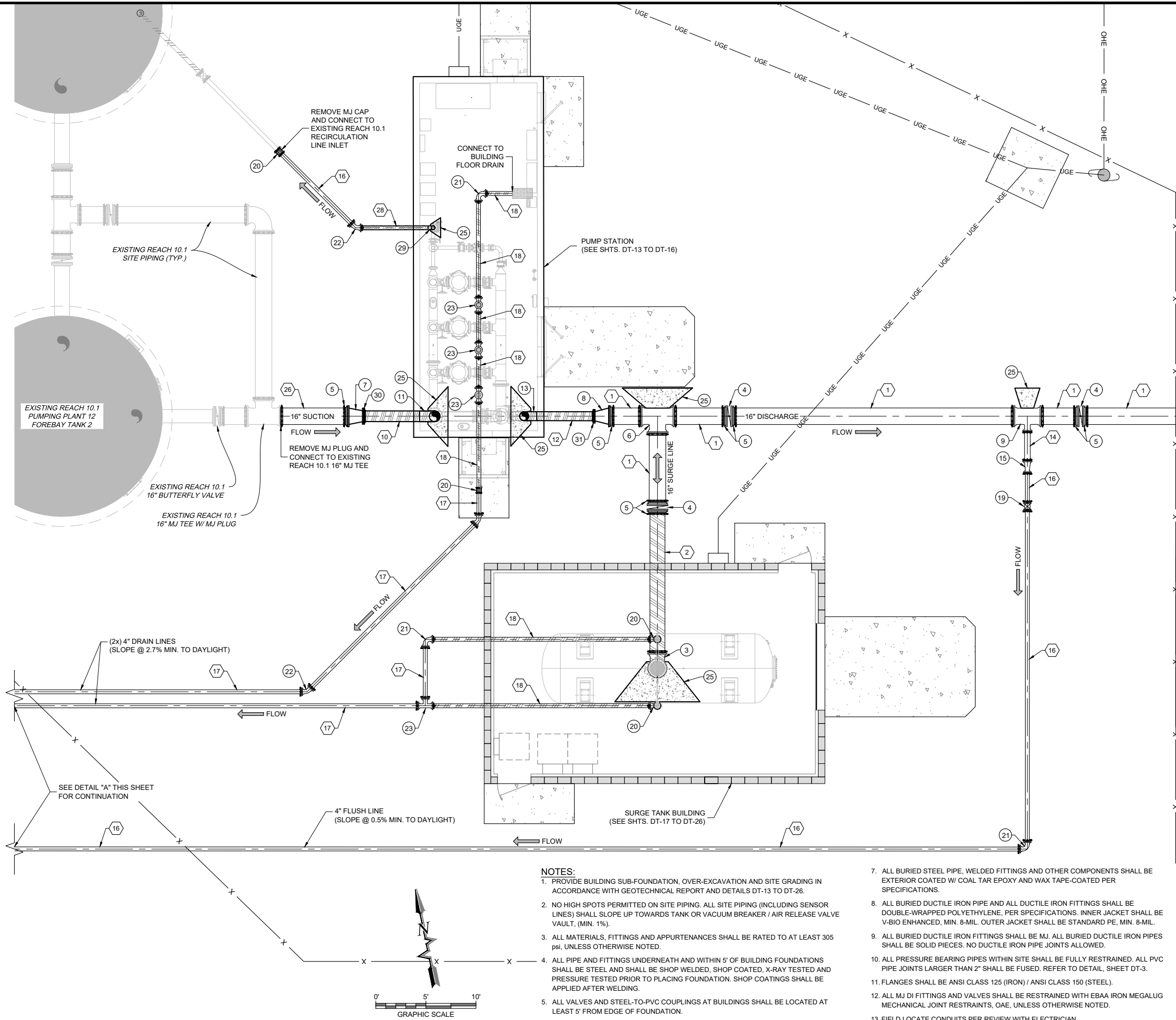
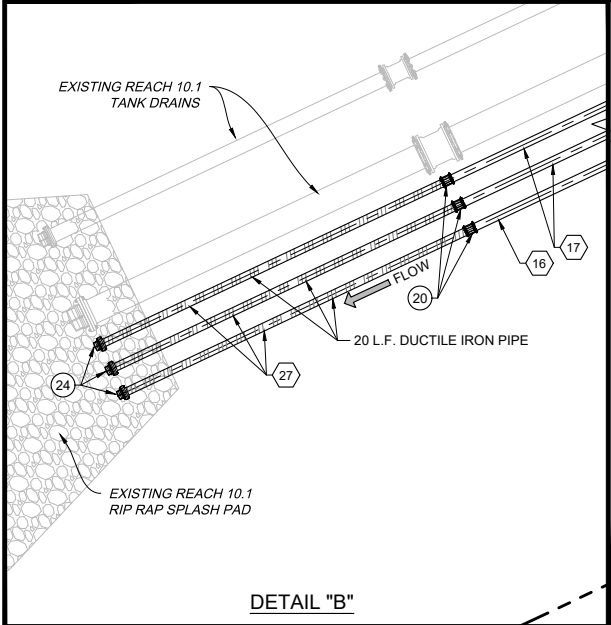
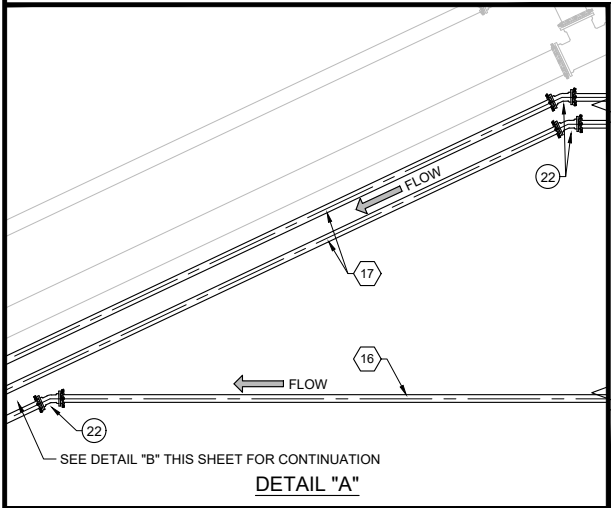
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Sheet: C-21

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KEYED NOTES PUMPING PLANT 12 SITE	
Item No.	Description
1	16" PVC DR14 PIPE, FUSIBLE PVC REQUIRED FOR PIPE SECTIONS LONGER THAN 20 FEET
2	16" DUCTILE IRON PIPE
3	16" MJ 90° BEND, DI
4	16" FL x FL BUTTERFLY VALVE (SEE SHT. DT-7) 250 psi
5	16" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
6	16" MJ TEE, DI
7	16" x 12" MJ x MJ REDUCER, DI
8	16" x 10" MJ x MJ REDUCER, DI
9	16" x 6" MJ x MJ REDUCING TEE, DI
10	12" STEEL PIPE, STANDARD WALL
11	12" 90° BEND, WELDED STEEL
12	10" STEEL PIPE, STANDARD WALL
13	10" 90° BEND, WELDED STEEL
14	6" PVC DR14 PIPE
15	6" x 4" MJ x MJ REDUCER, DI
16	4" PVC DR14 PIPE
17	4" PVC DR18 PIPE
18	4" DUCTILE IRON PIPE
19	4" MJ x MJ GATE VALVE (SEE SHT. DT-7) 350 psi
20	4" MJ SHORT SLEEVE, DI
21	4" MJ 90° BEND, DI
22	4" MJ 45° BEND, DI
23	4" MJ TEE, DI
24	4" CAST IRON FLAP VALVE (SEE SHT. DT-33)
25	THRUST BLOCK (SEE SHT. DT-3)
26	16" PVC DR21 PIPE
27	4" PL X PE DUCTILE IRON PIPE
28	4" STEEL PIPE, STANDARD WALL
29	4" 90° BEND, WELDED STEEL
30	12" FLANGE, WELDED STEEL
31	10" FLANGE, WELDED STEEL



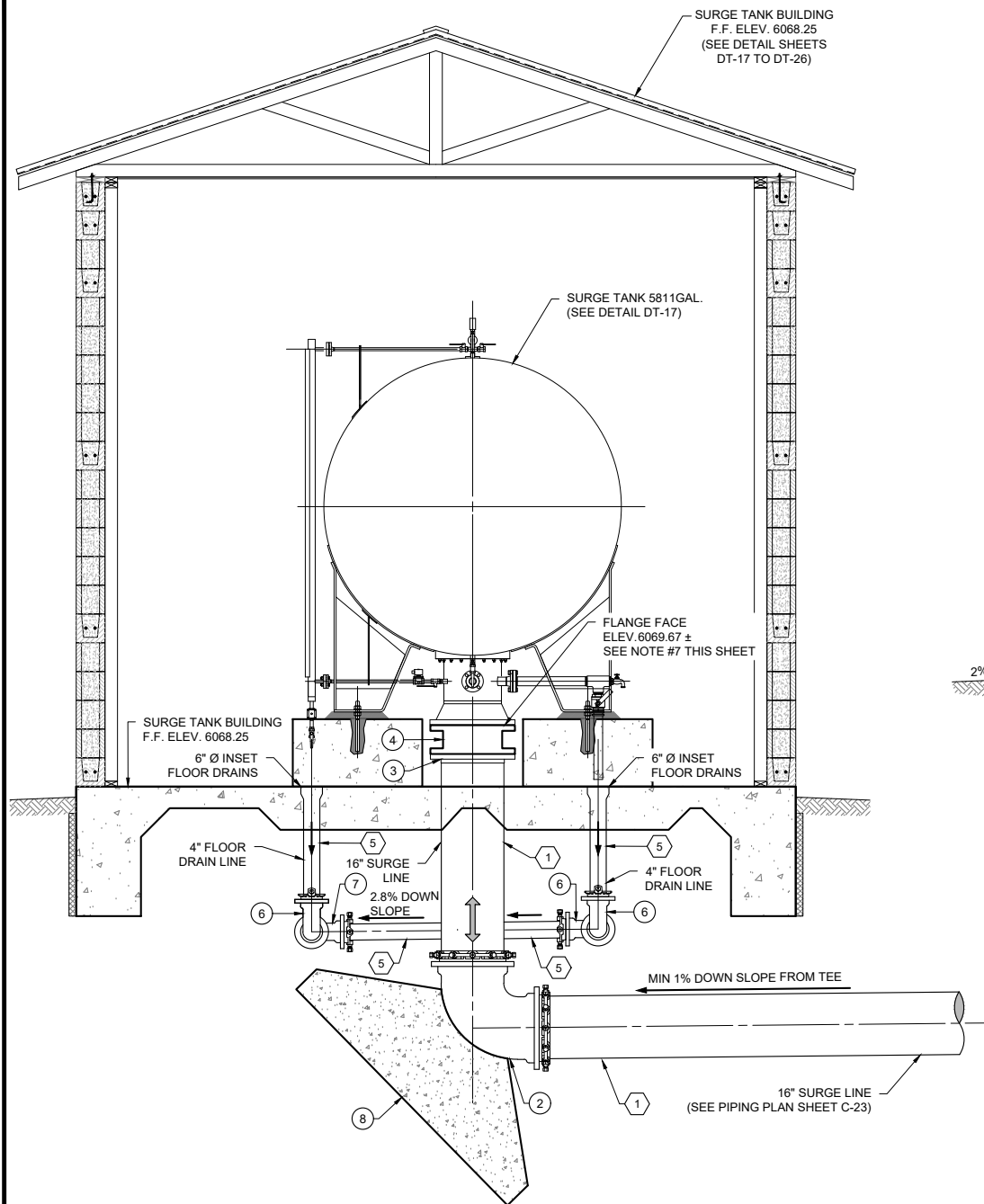
- NOTES:**
1. PROVIDE BUILDING SUB-FOUNDATION, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT AND DETAILS DT-13 TO DT-26.
 2. NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING (INCLUDING SENSOR LINES) SHALL SLOPE UP TOWARDS TANK OR VACUUM BREAKER / AIR RELEASE VALVE VAULT, (MIN. 1%).
 3. ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 305 psi, UNLESS OTHERWISE NOTED.
 4. ALL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF BUILDING FOUNDATIONS SHALL BE STEEL AND SHALL BE SHOP WELDED, SHOP COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO PLACING FOUNDATION. SHOP COATINGS SHALL BE APPLIED AFTER WELDING.
 5. ALL VALVES AND STEEL-TO-PVC COUPLINGS AT BUILDINGS SHALL BE LOCATED AT LEAST 5' FROM EDGE OF FOUNDATION.
 6. ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE WAX TAPE-COATED, PER SPECIFICATIONS.
 7. ALL BURIED STEEL PIPE, WELDED FITTINGS AND OTHER COMPONENTS SHALL BE EXTERIOR COATED W/ COAL TAR EPOXY AND WAX TAPE-COATED PER SPECIFICATIONS.
 8. ALL BURIED DUCTILE IRON PIPE AND ALL DUCTILE IRON FITTINGS SHALL BE DOUBLE-WRAPPED POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL.
 9. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
 10. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. ALL PVC PIPE JOINTS LARGER THAN 2" SHALL BE FUSED. REFER TO DETAIL, SHEET DT-3.
 11. FLANGES SHALL BE ANSI CLASS 125 (IRON) / ANSI CLASS 150 (STEEL).
 12. ALL MJ DI FITTINGS AND VALVES SHALL BE RESTRAINED WITH EBAA IRON MEGALUG MECHANICAL JOINT RESTRAINTS, OAE, UNLESS OTHERWISE NOTED.
 13. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.

Client: The Navajo Nation	Location: Tsel'ihani, NM
PUMPING PLANT 12 SITE PIPING PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.	
Designed EAP	Drawn MvH/AaV
Checked TTT	
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Project No: 6922268	
Sheet: C-23	

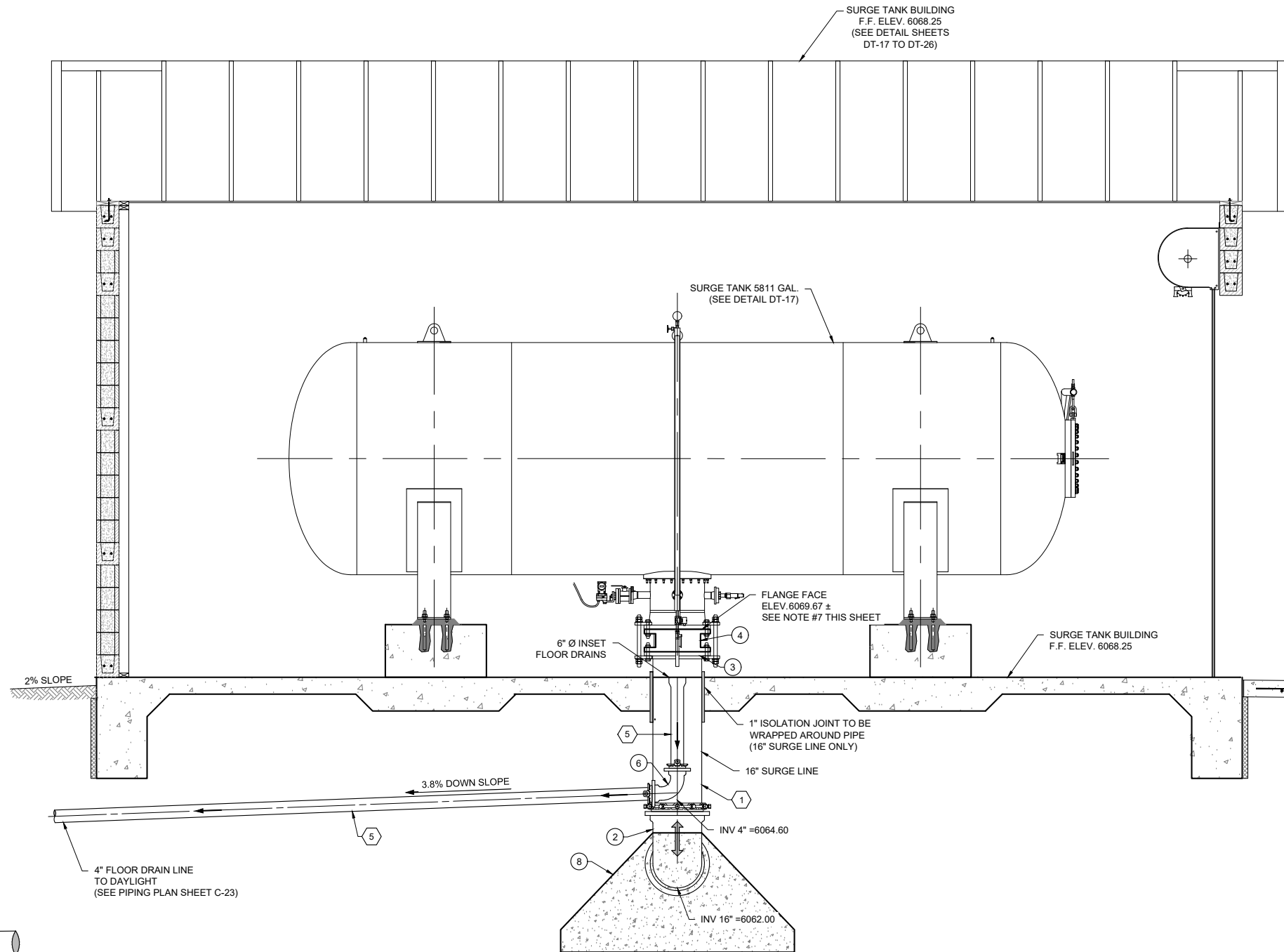
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KEYED NOTES PP12 SURGE TANK BUILDING	
Item No.	Description
1	16" DUCTILE IRON PIPE
2	16" MJ 90° BEND, DUCTILE IRON
3	16" FLANGE, DUCTILE IRON
4	16" PROCO FITTING, 300 psi (SEE NOTE #13, THIS SHEET)
5	4" DUCTILE IRON PIPE
6	4" MJ 90° BEND, DI
7	4" MJ TEE, DI
8	THRUST BLOCK (SEE SHT. DT-3)



VIEW A

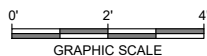


VIEW B

NOTES:

- | | |
|--|---|
| 1. PROVIDE COMPACTION AND FILL REQUIREMENTS FOR BUILDING AND TANK SUB GRADE AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT. | RESPONSIBLE TO VERIFY LOCATION AND ELEVATION OF ALL FLANGE CONNECTIONS TO SURGE TANK AND COORDINATE WITH MATERIAL SUPPLIERS PRIOR TO INSTALLATION. CONTRACTOR WHOLLY RESPONSIBLE TO ALIGN FOUNDATIONS, PIPING INLETS/OUTLETS AND DRAINS WITH ACTUAL SURGE TANK LAYOUT IN FIELD. |
| 2. DO NOT INSTALL PIPE WITH ANY HIGH POINTS WITHOUT AN APPROVED AIR VALVE. | |
| 3. ALL PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE RATED TO AT LEAST 305 psi., UNLESS OTHERWISE NOTED. | 8. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. REFER TO DETAIL, SHEET DT-3. |
| 4. ALL BURIED PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATION. | 9. CONTRACTOR RESPONSIBLE TO VERIFY AND ALIGN ACTUAL FOUNDATION DIMENSIONS AND LOCATIONS OF PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD AND COORDINATE WITH SURGE TANK MANUFACTURERS PRIOR TO CONSTRUCTION. CENTER FLOOR DRAINS UNDER PIPE OUTLETS. |
| 5. ALL BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE DOUBLE-WRAPPED IN POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL. | 10. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN. |
| 6. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED. | 11. INSTALL FLANGE ISOLATION KITS W/ BOLT ISOLATING SLEEVES BETWEEN THE SURGE TANK RISER PIPE FLANGE AND PROCO FITTING. |

12. PROCO JOINT COMPRESSION SHALL BE WITHIN MANUFACTURER'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.
13. INSTALL TEMPORARY 16-INCH ANSI CLASS 125 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. UTILIZE FLUSH VALVE AT PUMP STATION TO FLUSH MAINLINE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 16-INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE. BUT PRIOR TO STARTING UP SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING AT THE PUMP STATION IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE PUMPING PLANT 12 UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL. DO NOT ALLOW FOREIGN OBJECTS OR DEBRIS ENTER SURGE TANK. DO NOT BRING SURGE TANK ONLINE UNTIL SITE PIPING HAS BEEN THOROUGHLY FLUSHED.
14. ALL DRAINS SHALL HAVE REMOVABLE GRATES.
15. ALL MJ DI FITTINGS AND VALVES SHALL BE RESTRAINED WITH EBAA IRON MEGALUG MECHANICAL JOINT RESTRAINTS, OAE.

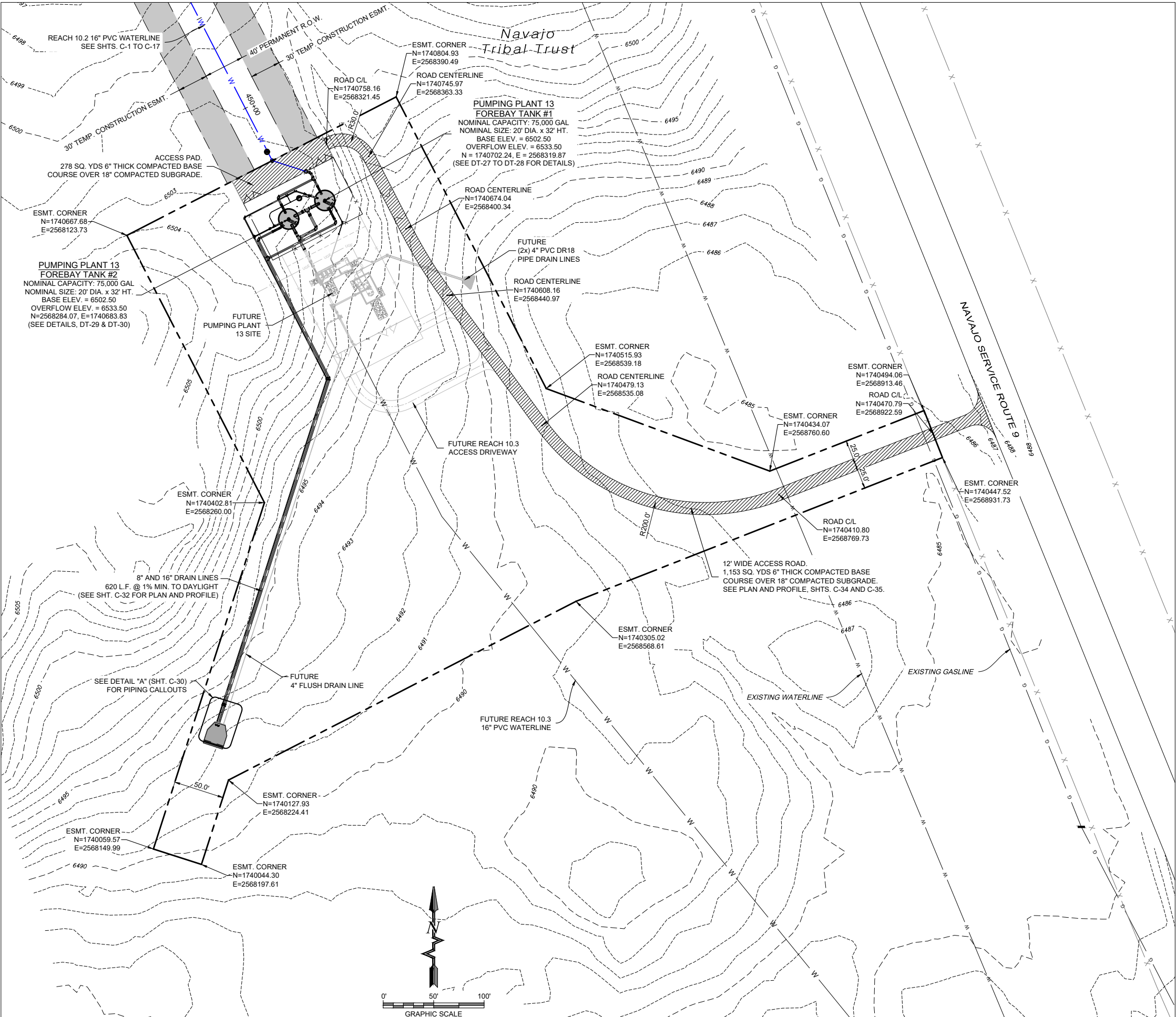


PUMPING PLANT 12 PIPING ELEVATION VIEW

LEGEND

- TEMPORARY CONSTRUCTION EASEMENT
- ACCESS DRIVEWAY, 6" COMPACTED BASE COURSE

- NOTES:
- PUMPING PLANT 13 SITE IS TO BE CONSTRUCTED IN PHASES. THE PP13 REGULATING TANKS ARE TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.2 PROJECT.
 - THE PP13 PUMPING PLANT AND SURGE TANK BUILDING ARE TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.3. SITE SURFACING MATERIAL BASE COURSE AND GRAVEL TO BE INSTALLED AS PART OF THE REACH 10.3 PROJECT.
 - THE ACCESS ROAD AND ACCESS PAD TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.2 PROJECT. THE ACCESS DRIVEWAY TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.3 PROJECT.
 - GRAY LINEWORK IS PROPOSED REACH 10.3 LAYOUT.



PUMPING PLANT 13 OVERALL SITE PLAN

Client: The Navajo Nation

Location: Tsel'ihani, NM

PUMPING PLANT 13 OVERALL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.

Designed
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Drawn
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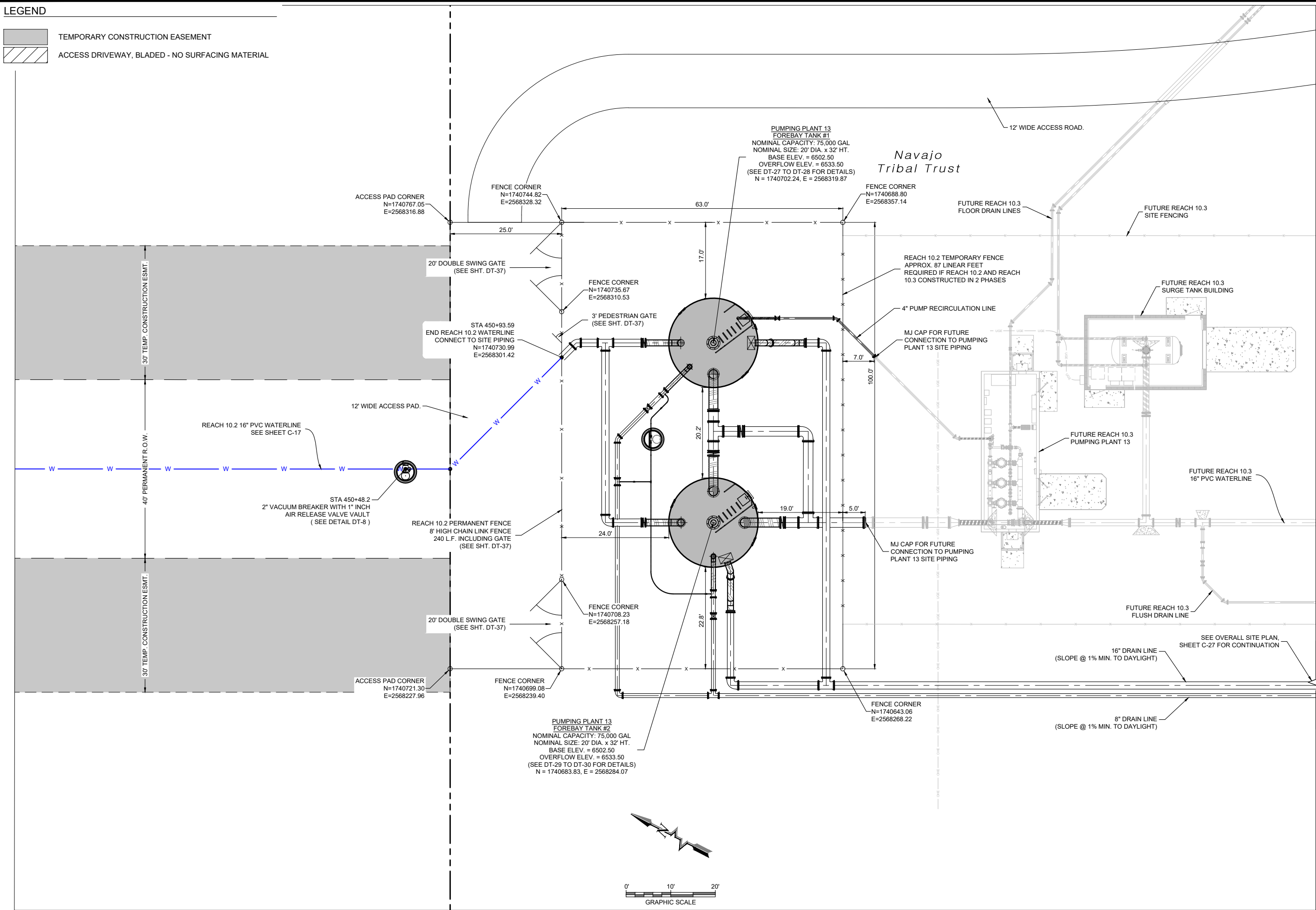
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Revision Date Description By CHK'd

LEGEND

- TEMPORARY CONSTRUCTION EASEMENT
- ACCESS DRIVEWAY, BLADED - NO SURFACING MATERIAL



PUMPING PLANT 13 SITE PLAN

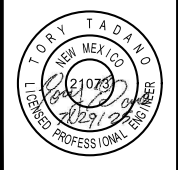
Revision	Date	Description	By	CHK'd

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Client: The Navajo Nation
Location: Tsel'ihai, NM

PUMPING PLANT 13 SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.



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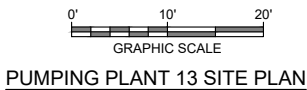
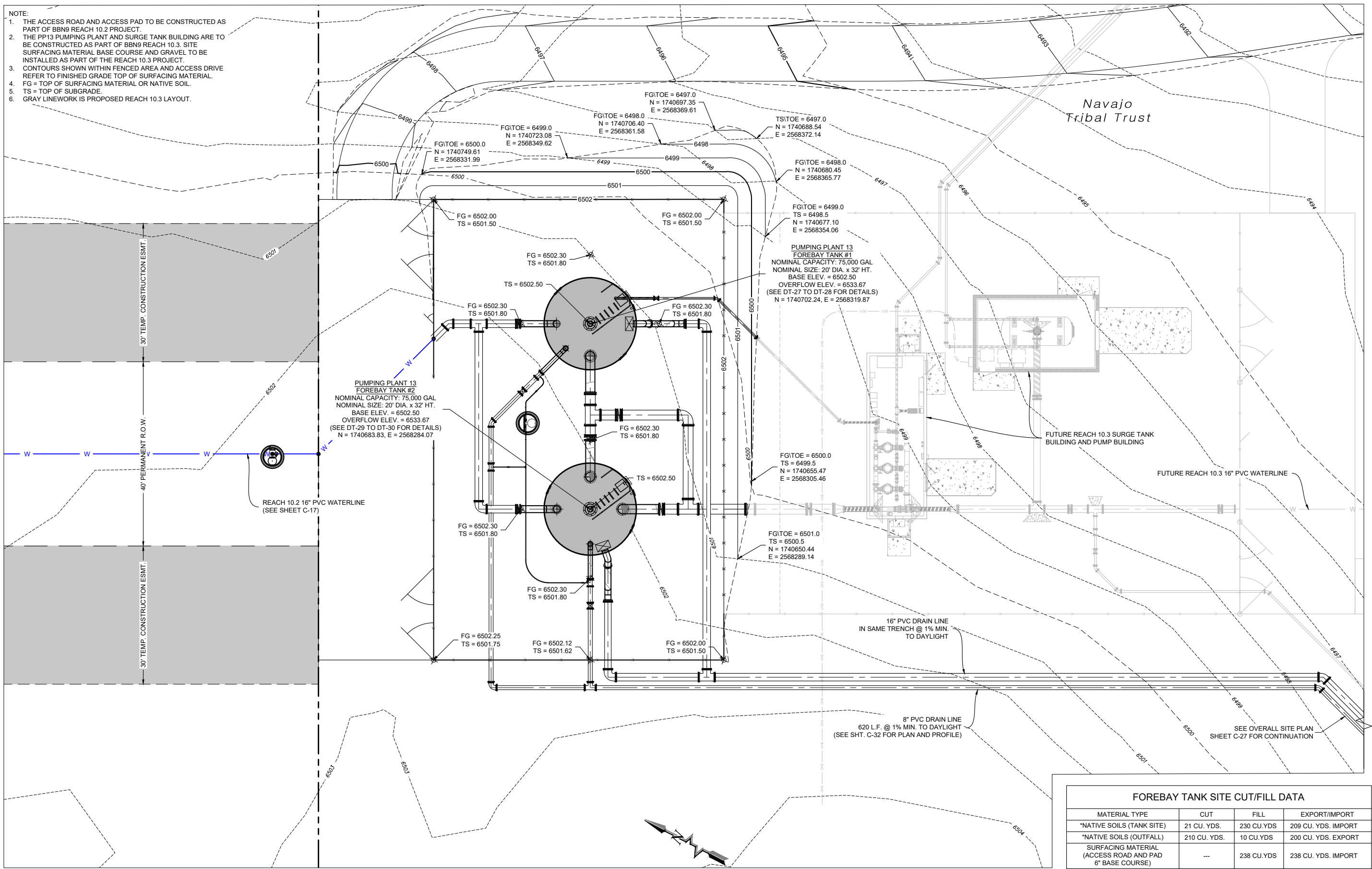
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Project No: 6922268

Sheet: C-28

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- NOTE:
1. THE ACCESS ROAD AND ACCESS PAD TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.2 PROJECT.
 2. THE PP13 PUMPING PLANT AND SURGE TANK BUILDING ARE TO BE CONSTRUCTED AS PART OF BBN9 REACH 10.3. SITE SURFACING MATERIAL BASE COURSE AND GRAVEL TO BE INSTALLED AS PART OF THE REACH 10.3 PROJECT.
 3. CONTOURS SHOWN WITHIN FENCED AREA AND ACCESS DRIVE REFER TO FINISHED GRADE TOP OF SURFACING MATERIAL.
 4. FG = TOP OF SURFACING MATERIAL OR NATIVE SOIL.
 5. TS = TOP OF SUBGRADE.
 6. GRAY LINEWORK IS PROPOSED REACH 10.3 LAYOUT.



PUMPING PLANT 13 SITE PLAN

FOREBAY TANK SITE CUT/FILL DATA

MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS (TANK SITE)	21 CU. YDS.	230 CU.YDS	209 CU. YDS. IMPORT
*NATIVE SOILS (OUTFALL)	210 CU. YDS.	10 CU.YDS.	200 CU. YDS. EXPORT
SURFACING MATERIAL (ACCESS ROAD AND PAD 6" BASE COURSE)	---	238 CU.YDS	238 CU. YDS. IMPORT
RIP RAP (WIRE CAGED)	---	25 CU.YDS	25 CU. YDS. IMPORT

*BASED ON COMPACTION = 1.2, ASSUMED.

NOTES:

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2. ALL GRADING WORKS SHALL BE COMPACTED TO 95% STANDARD PROCTOR.

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Client: The Navajo Nation
Location: Tsel'ihai, NM

PUMPING PLANT 13 SITE GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.



Designed: EAP
Drawn: MvH/AaV
Checked: TTT

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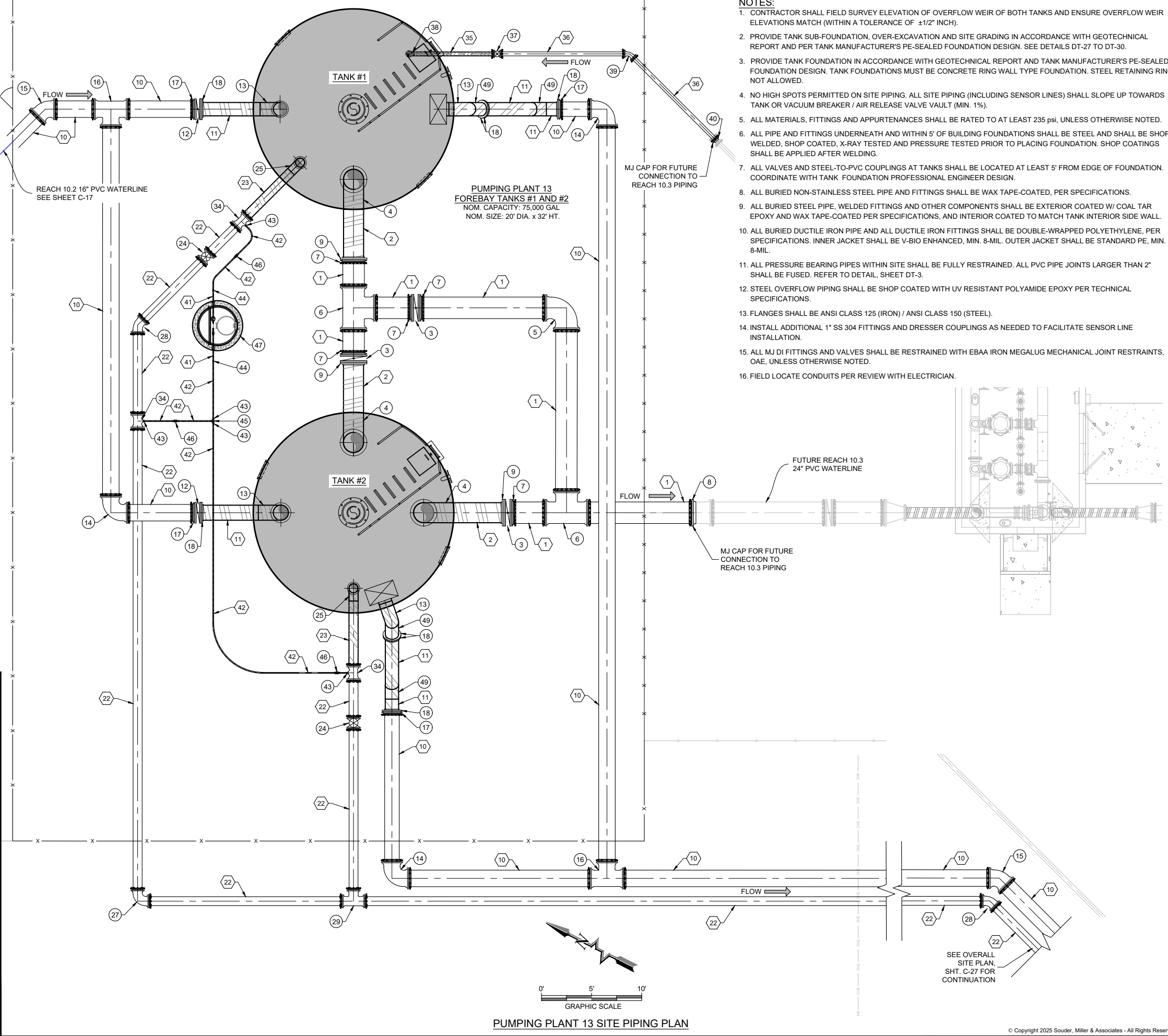
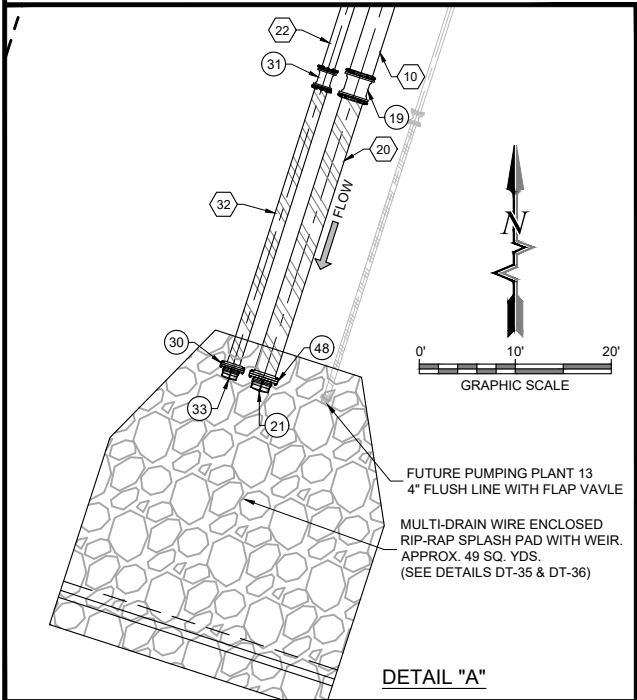
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KEYED NOTES PUMPING PLANT 13 SITE	
Item No.	Description
1	24" PVC DR18 PIPE
2	24" STEEL PIPE, STANDARD WALL
3	24" FL x FL BUTTERFLY VALVE (SEE DETAIL DT-7) 250 psi
4	24" 90° BEND, WELDED STEEL
5	24" MJ 90° BEND, DI
6	24" MJ TEE, DI
7	24" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
8	24" MJ CAP, DI
9	24" FLANGE, WELDED STEEL
10	16" PVC DR21 PIPE
11	16" STEEL PIPE, STANDARD WALL
12	16" FL x FL BUTTERFLY VALVE (SEE DETAIL DT-7) 250 psi
13	16" 90° BEND, WELDED STEEL
14	16" MJ 90° BEND, DI
15	16" MJ 45° BEND, DI
16	16" MJ TEE, DI
17	16" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
18	16" FLANGE, WELDED STEEL
19	16" MJ SHORT SLEEVE, DI
20	16" DUCTILE IRON PIPE
21	16" CAST IRON FLAP VALVE (SEE DETAIL, SHT. DT-34)
22	8" PVC DR21 PIPE
23	8" STEEL PIPE, STANDARD WALL
24	8" MJ x MJ GATE VALVE (SEE DETAIL DT-7) 350 psi
25	8" 90° BEND, WELDED STEEL
26	NOT USED
27	8" MJ 90° BEND, DI
28	8" MJ 45° BEND, DI
29	8" MJ TEE, DI
30	8" EZ FLANGE
31	8" MJ SHORT SLEEVE, DI
32	8" DUCTILE IRON PIPE
33	8" CAST IRON FLAP VALVE (SEE DETAIL, SHT. DT-34)
34	8" x 1" MJ TAPPED TEE, DI
35	4" STEEL PIPE, STANDARD WALL
36	4" PVC DR14 PIPE
37	4" MJ x MJ GATE VALVE (SEE DETAIL DT-7) 350 psi
38	4" 90° BEND, WELDED STEEL
39	4" 45° BEND, DI
40	4" MJ CAP, DI
41	1" STEEL PIPE, NPT, SS 304 (SEE DETAIL, SHT. DT-10)
42	1" ANNEALED STAINLESS STEEL TUBING
43	1" MNPT x COMPRESSION COUPLING
44	1" FNPT x COMPRESSION COUPLING
45	1" STEEL TEE NPT, SS304
46	1" MUELLER 300 BALL CURB VALVE, 300 psi OAE WITH COUPLINGS (SEE DETAIL, SHT. DT-10)
47	PRESSURE TRANSDUCER VAULT (SEE DETAIL DT-11)
48	16" EZ FLANGE
49	16" 45° BEND, WELDED STEEL



- NOTES:
1. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF $\pm 1/2$ " INCH).
 2. PROVIDE TANK SUB-FOUNDATION, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT AND PER TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN. SEE DETAILS DT-27 TO DT-30.
 3. PROVIDE TANK FOUNDATION IN ACCORDANCE WITH GEOTECHNICAL REPORT AND TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN. TANK FOUNDATIONS MUST BE CONCRETE RING WALL TYPE FOUNDATION. STEEL RETAINING RING NOT ALLOWED.
 4. NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING (INCLUDING SENSOR LINES) SHALL SLOPE UP TOWARDS TANK OR VACUUM BREAKER / AIR RELEASE VALVE VAULT (MIN. 1%).
 5. ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi, UNLESS OTHERWISE NOTED.
 6. ALL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF BUILDING FOUNDATIONS SHALL BE STEEL AND SHALL BE SHOP WELDED, SHOP COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO PLACING FOUNDATION. SHOP COATINGS SHALL BE APPLIED AFTER WELDING.
 7. ALL VALVES AND STEEL-TO-PVC COUPLINGS AT TANKS SHALL BE LOCATED AT LEAST 5' FROM EDGE OF FOUNDATION. COORDINATE WITH TANK FOUNDATION PROFESSIONAL ENGINEER DESIGN.
 8. ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE WAX TAPE-COATED, PER SPECIFICATIONS.
 9. ALL BURIED STEEL PIPE, WELDED FITTINGS AND OTHER COMPONENTS SHALL BE EXTERIOR COATED W/ COAL TAR EPOXY AND WAX TAPE-COATED PER SPECIFICATIONS, AND INTERIOR COATED TO MATCH TANK INTERIOR SIDE WALL.
 10. ALL BURIED DUCTILE IRON PIPE AND ALL DUCTILE IRON FITTINGS SHALL BE DOUBLE-WRAPPED POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL.
 11. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. ALL PVC PIPE JOINTS LARGER THAN 2" SHALL BE FUSED. REFER TO DETAIL, SHEET DT-3.
 12. STEEL OVERFLOW PIPING SHALL BE SHOP COATED WITH UV RESISTANT POLYAMIDE EPOXY PER TECHNICAL SPECIFICATIONS.
 13. FLANGES SHALL BE ANSI CLASS 125 (IRON) / ANSI CLASS 150 (STEEL).
 14. INSTALL ADDITIONAL 1" SS 304 FITTINGS AND DRESSER COUPLINGS AS NEEDED TO FACILITATE SENSOR LINE INSTALLATION.
 15. ALL MJ DI FITTINGS AND VALVES SHALL BE RESTRAINED WITH EBAA IRON MEGALUG MECHANICAL JOINT RESTRAINTS, OAE, UNLESS OTHERWISE NOTED.
 16. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.

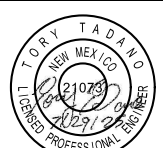
Client: The Navajo Nation

Location: Tsel'ihani, NM

PUMPING PLANT 13 SITE PIPING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.

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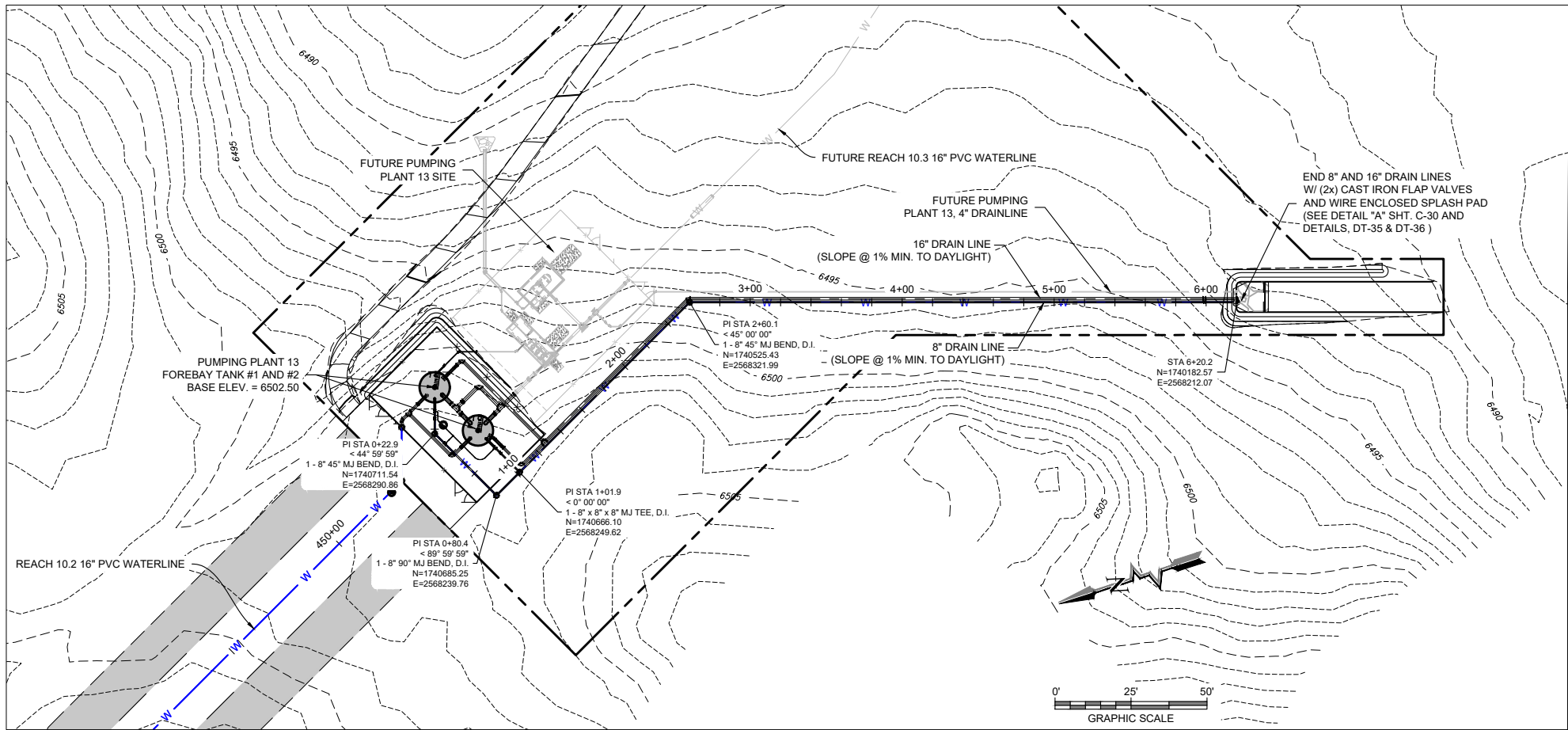
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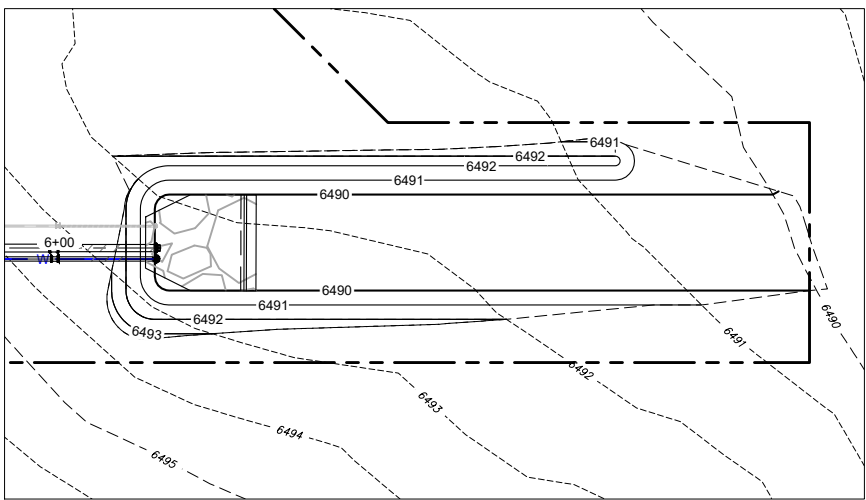
Project No: 6922268

Sheet: C-30

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Grading Base All.dwg
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PUMPING PLANT 13
8" AND 16" DRAINLINES PLAN VIEW



FOREBAY TANK OUTFALL GRADING
ENLARGEMENT

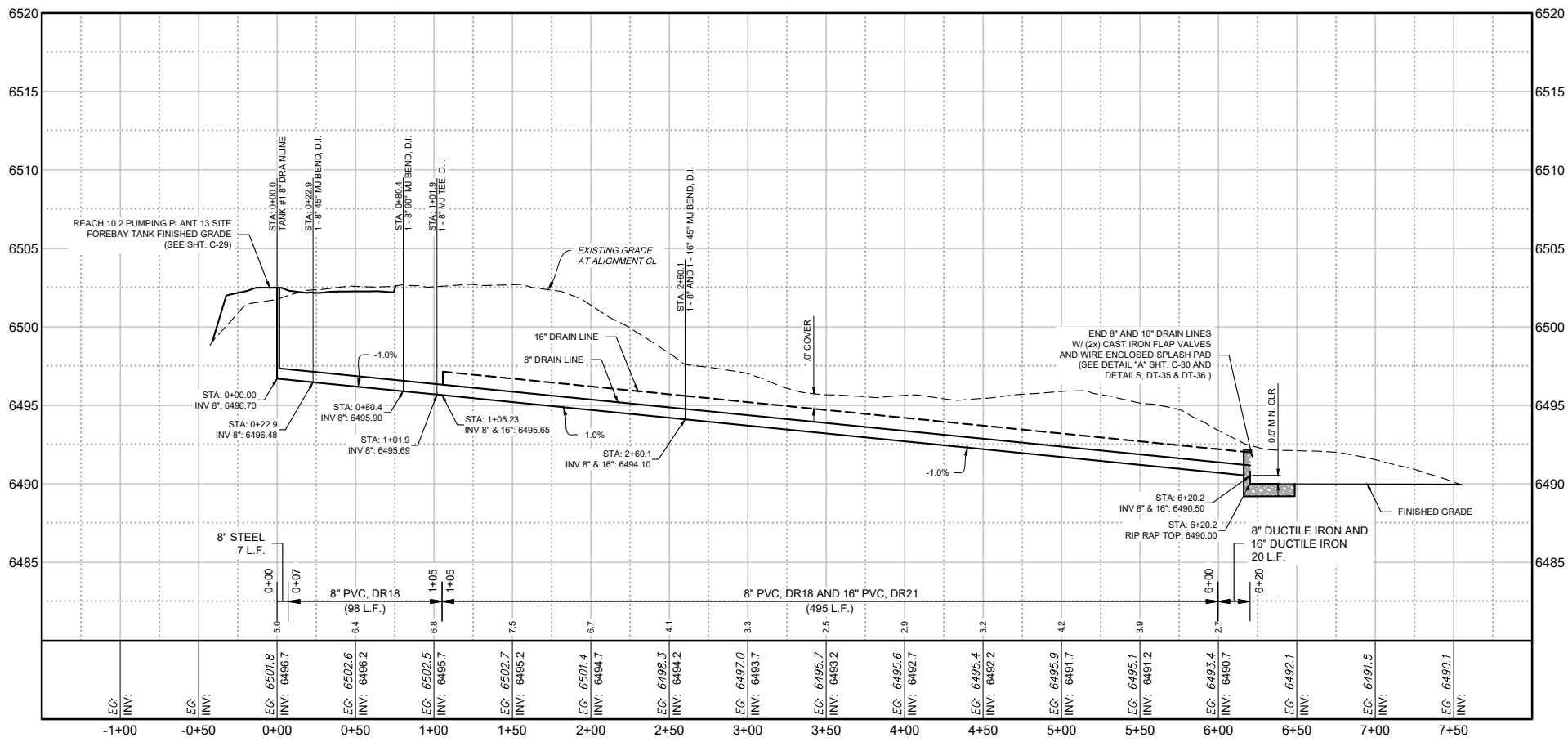
FOREBAY TANK SITE CUT/FILL DATA

MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS (TANK SITE)	21 CU. YDS.	230 CU. YDS.	209 CU. YDS. IMPORT
*NATIVE SOILS (OUTFALL)	210 CU. YDS.	10 CU. YDS.	200 CU. YDS. EXPORT
SURFACING MATERIAL (ACCESS ROAD AND PAD 8" BASE COURSE)	---	223 CU. YDS.	223 CU. YDS. IMPORT
RIP RAP (WIRE CAGED)	---	25 CU. YDS.	25 CU. YDS. IMPORT

*BASED ON COMPACTION = 1.2, ASSUMED.

NOTES:

- THESE EARTHWORK QUANTITIES ARE ESTIMATES, PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. BIDDER IS NOT ENTITLED TO BASE HIS/HER BID ON THESE QUANTITIES, NOR TO SUBMIT ANY CLAIM IN THE EVENT THAT ACTUAL EARTHWORK QUANTITIES DIFFER FROM THESE ESTIMATES.
- ALL GRADING WORKS SHALL BE COMPACTED TO 95% STANDARD PROCTOR.



PUMPING PLANT 13
8" AND 16" DRAINLINES PROFILE

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Client: The Navajo Nation

Location: Tsé'ahí, NM

PUMPING PLANT 13 DRAIN PLAN AND PROFILE
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.



Designed: EAP Drawn: MvH/AaV Checked: TTT

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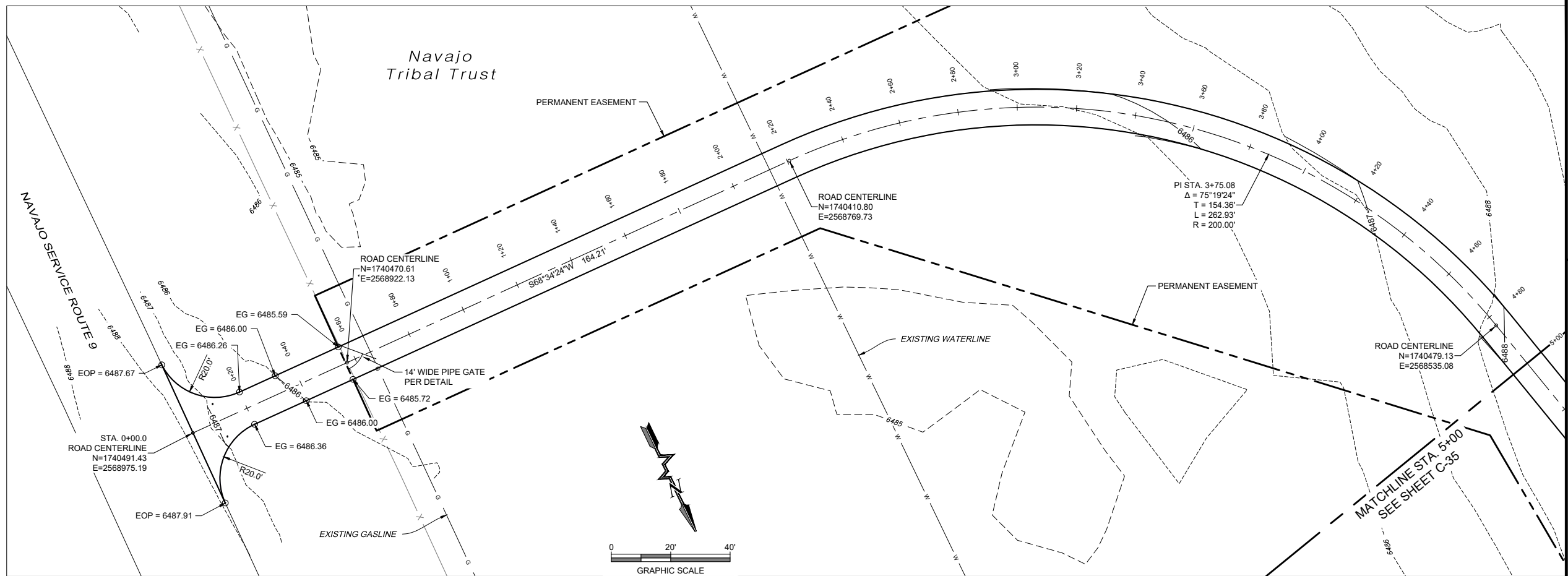
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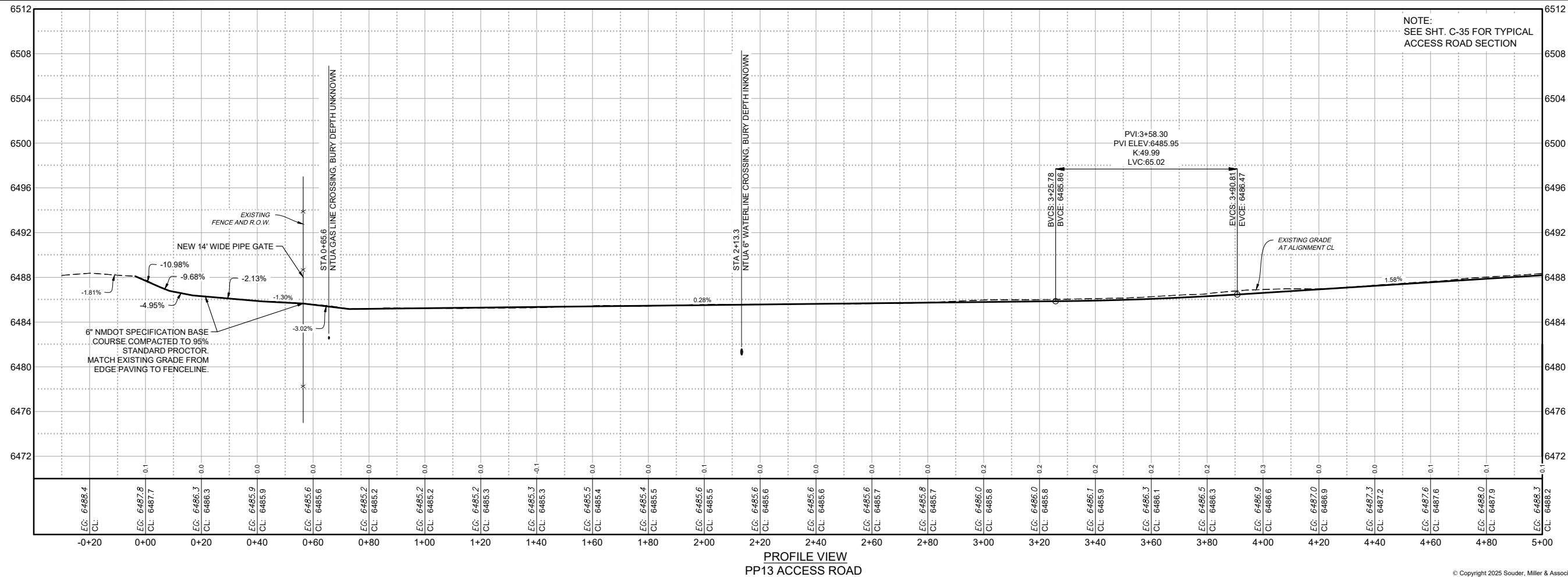
Project No: 6922268

Sheet: C-32

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PLAN VIEW
PP13 ACCESS ROAD



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Revision Date Description By Chkd

Client: The Navajo Nation
Location: Tsel'ihani, NM

PUMPING PLANT 13 ACCESS RD, STA 0+00 TO 5+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.

DESIGNED: EAP
DRAWN: MvH/AaV
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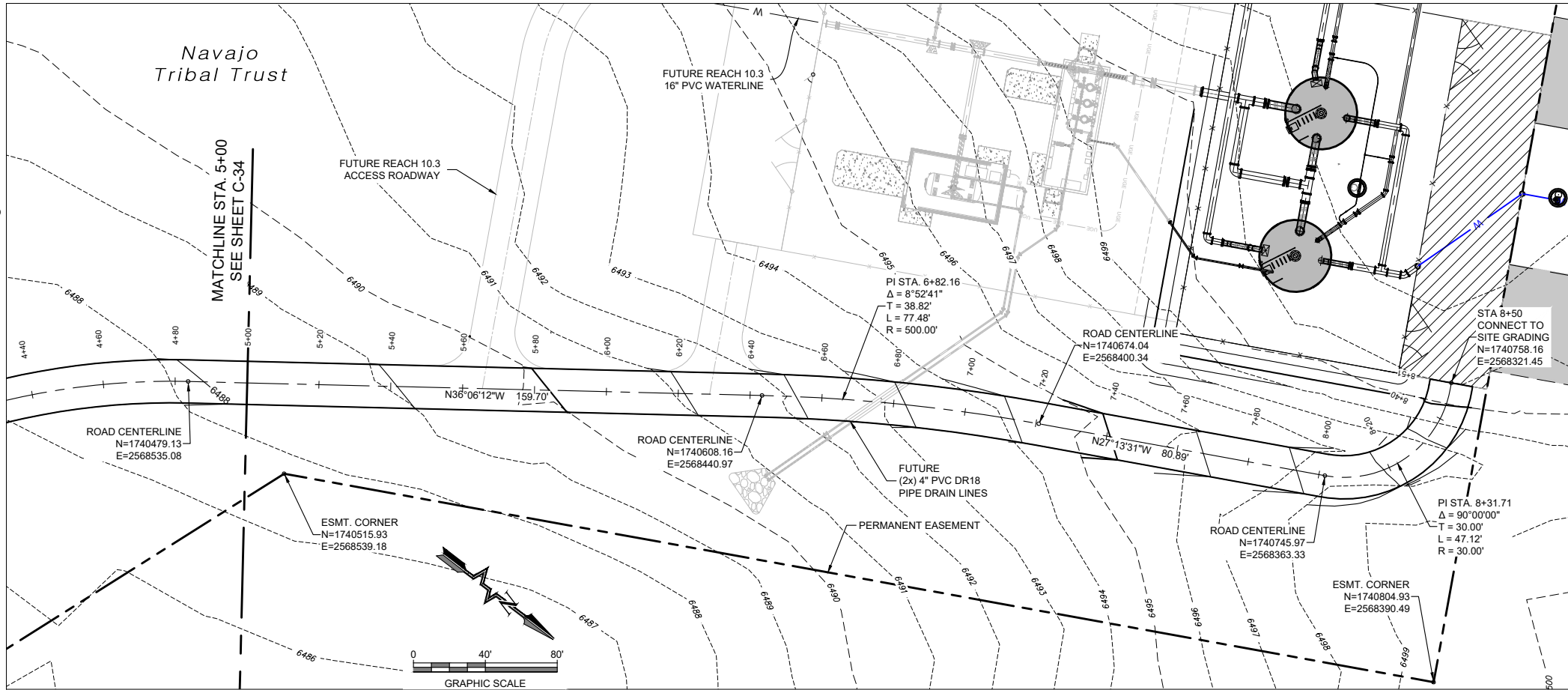
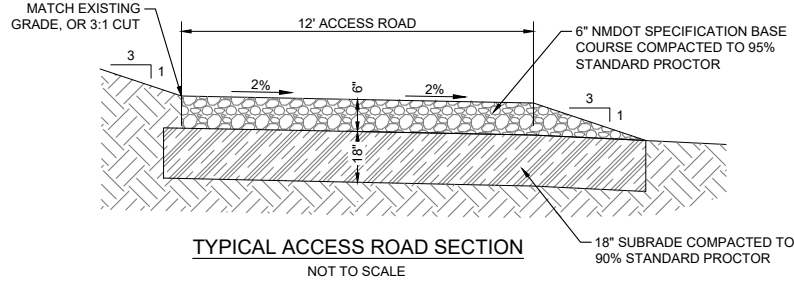
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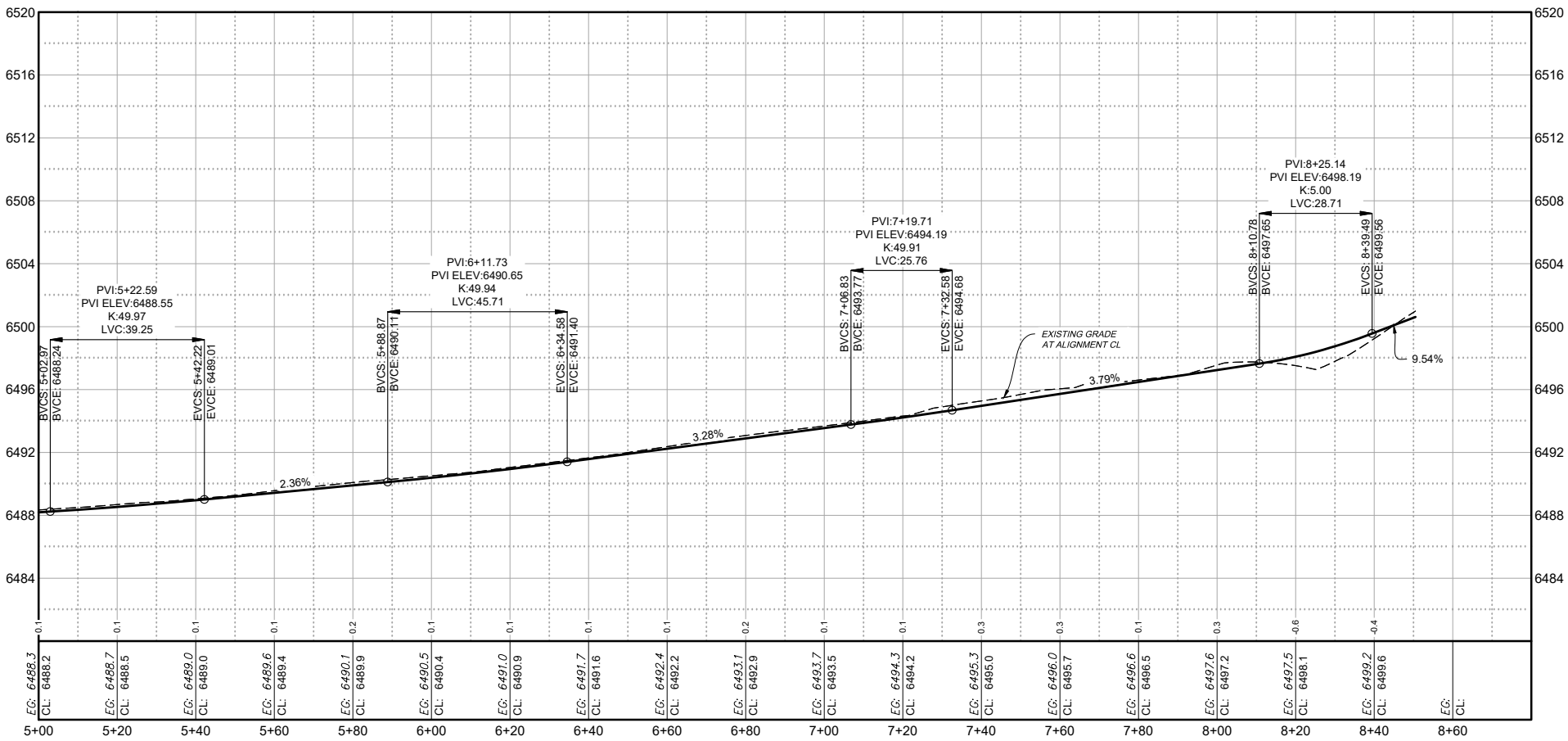
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Project No: 6922268
Sheet: C-34

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PLAN VIEW
PP13 ACCESS ROAD



PROFILE VIEW
PP13 ACCESS ROAD

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Client: The Navajo Nation

Location: Tsel'ihani, NM

PUMPING PLANT 13 ACCESS RD, STA 5+00 TO 8+50
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.



Designed: EAP
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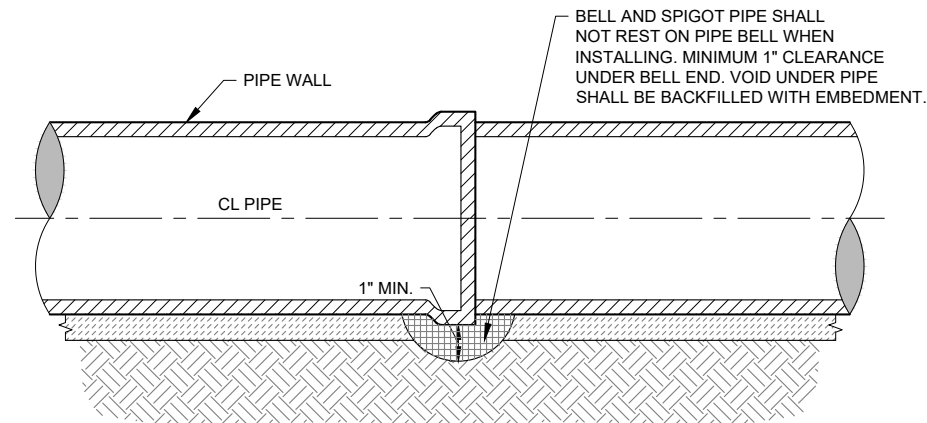
Date: August 2025
Scale: Horiz: 1" = 40'
Vert: 1" = 10'

Project No: 6922268

Sheet: C-35

NOTES:

- SOIL CEMENT SLURRY MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL AT CONTRACTOR'S OPTION AND EXPENSE.
- ANY SECTION OF PIPE EMBEDDED IN COMPACTED SELECT MATERIAL THAT FAILS TO MEET SOIL CLASSIFICATION AND/OR COMPACTION REQUIREMENTS SHALL BE DUG UP, RE-BURIED, RE-COMPACTED AND RE-TESTED AT CONTRACTOR'S SOLE EXPENSE.
- MINIMUM CLEARANCES BETWEEN PIPE AND TRENCH WALL MUST BE MET PRIOR TO PLACING EMBEDMENT (WHETHER COMPACTED SELECT MATERIAL OR SOIL CEMENT SLURRY). INCREASE CLEARANCES AND/OR TRENCH WIDTH AS NEEDED TO ALLOW FOR COMPACTION AND/OR TO ENSURE ADEQUATE SOIL CEMENT SLURRY LAYER THICKNESS IN HAUNCH AREAS AND PIPE SPRING LINE. DO NOT ALLOW PIPE TO REST AGAINST TRENCH WALL.
- ROUNDED TRENCH BOTTOMS MAY BE USED IN CONJUNCTION WITH SOIL CEMENT SLURRY, PROVIDED THE THICKNESS OF SOIL CEMENT AROUND THE PIPE IS AT NO POINT LESS THAN 3".

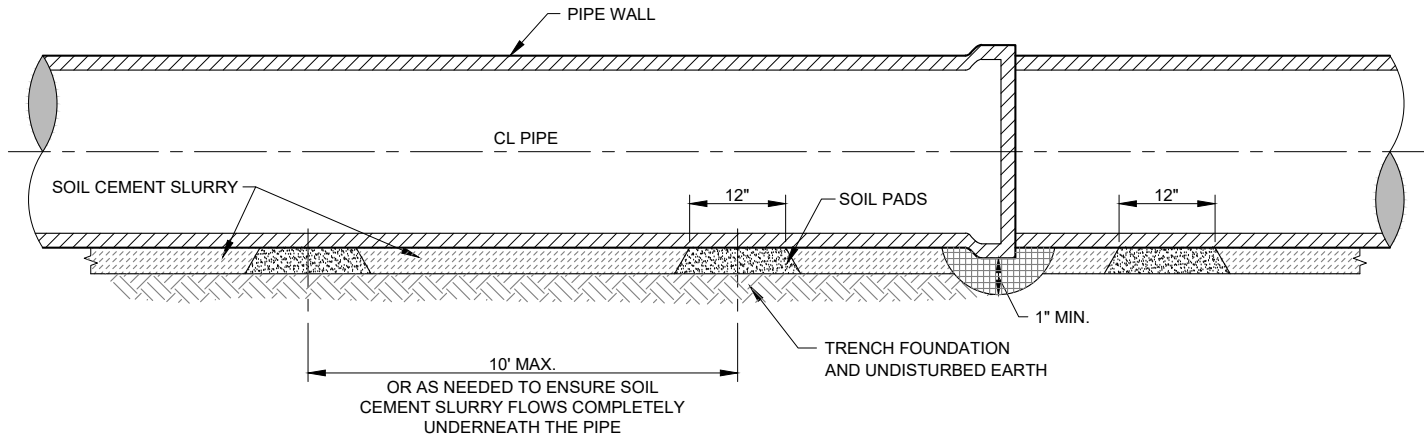


TYPICAL BELL HOLE DETAIL
NOT TO SCALE

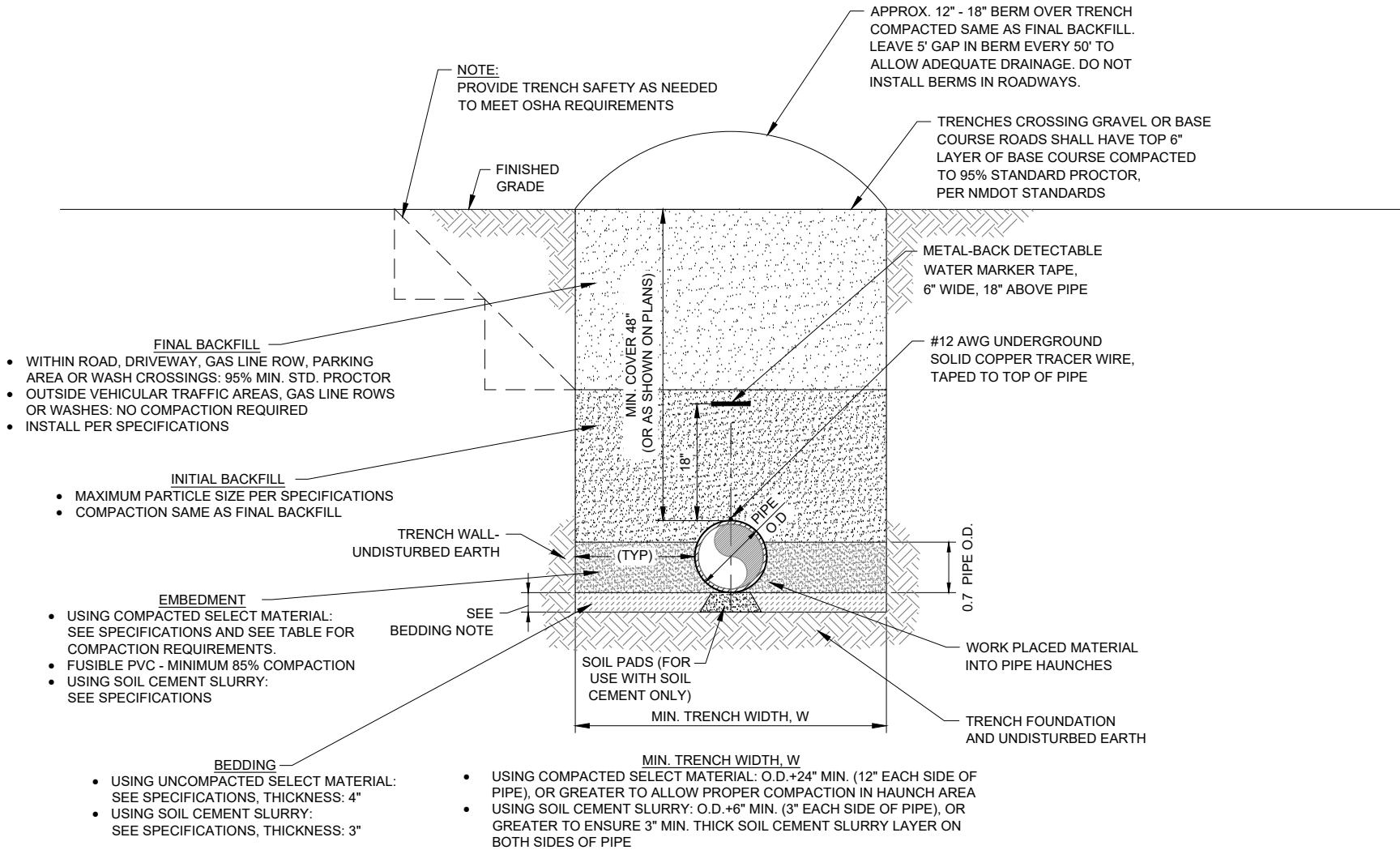
MINIMUM PERCENT COMPACTION FOR EMBEDMENT OUTSIDE TRAFFIC AREAS, GAS LINES ROW, WASH CROSSINGS	
CLEAN COARSE-GRAINED SOILS	
	PVC Pipe
Cover Depth	Minimum Compaction
4' to 20'	85%
> 20'	95%
Coarse-grained soils (sand or gravel), GW, GP, SW, SP, with less than 12% fines	
SANDY OR GRAVELLY FINE-GRAINED SOILS & COARSE-GRAINED SOILS WITH FINES	
	PVC Pipe
Cover Depth	Minimum Compaction
4' to 14'	85%
14' to 20'	90%
> 20'	95%
Fine-grained soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with more than 30% coarse-grained particles, or Coarse-grained soils (sand or gravel), GM, GC, SM, SC, with more than 12% fines	

NOTES ON COMPACTION:

- ALL COMPACTION VALUES BASED ON STD. PROCTOR, ASTM D698. SOIL CLASSIFICATIONS BASED ON ASTM D2487.
- EMBEDMENT WITHIN DRIVING SURFACES OF ALL ROADS, AND DRIVEWAYS AS WELL AS WASH CROSSINGS, AROUND VAULTS AND METER CANS SHALL BE COMPACTED TO AT LEAST 95% STD. PROCTOR, REGARDLESS OF SOIL TYPE. SOIL CEMENT MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL.
- COMPACTION REQUIRED WHERE SHOWN ON DRAWINGS.

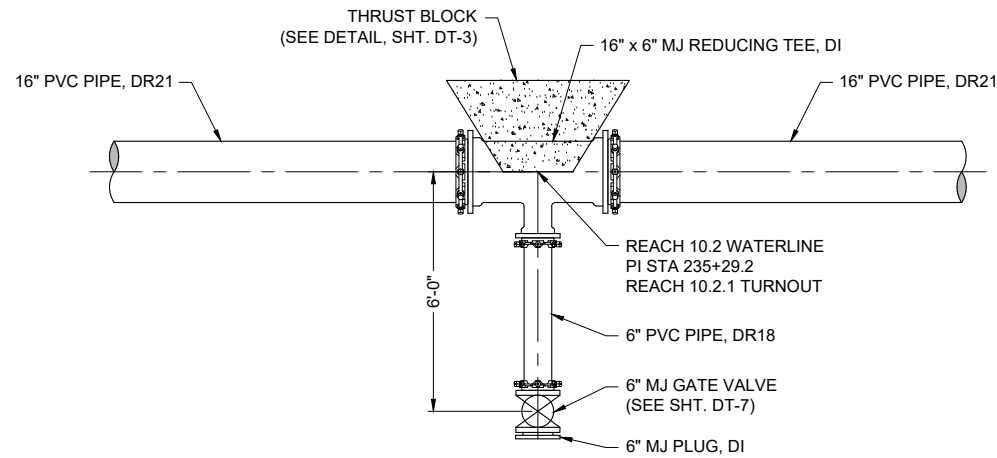


SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE

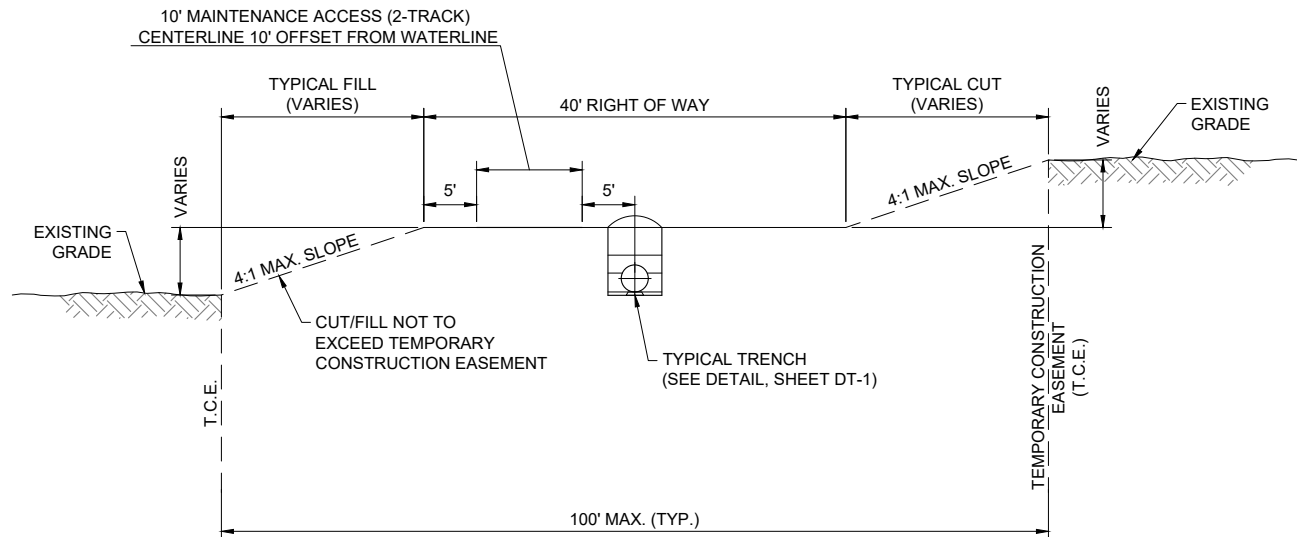


TYPICAL TRENCH DETAIL
NOT TO SCALE

Revision	Date	Description	By	Chkd	
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SMA					
Client: The Navajo Nation Location: Tsel'ihani, NM					
TRENCH DETAILS NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO					
Designed EAP	Drawn MvH/AaV	Checked TTT	THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED		
			Know what's BELOW. CALL before you dig.		
Date: August 2025			Scale: Horiz: N/A Vert: N/A		
Project No: 6922268			Sheet: DT-1		



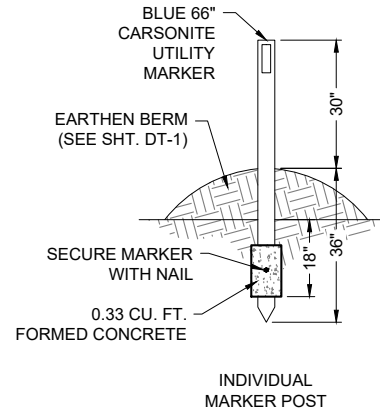
REACH 10.2.1 TURNOUT DETAIL
NOT TO SCALE



TYPICAL PIPELINE ROW FINISHED GRADING DETAIL
NOT TO SCALE

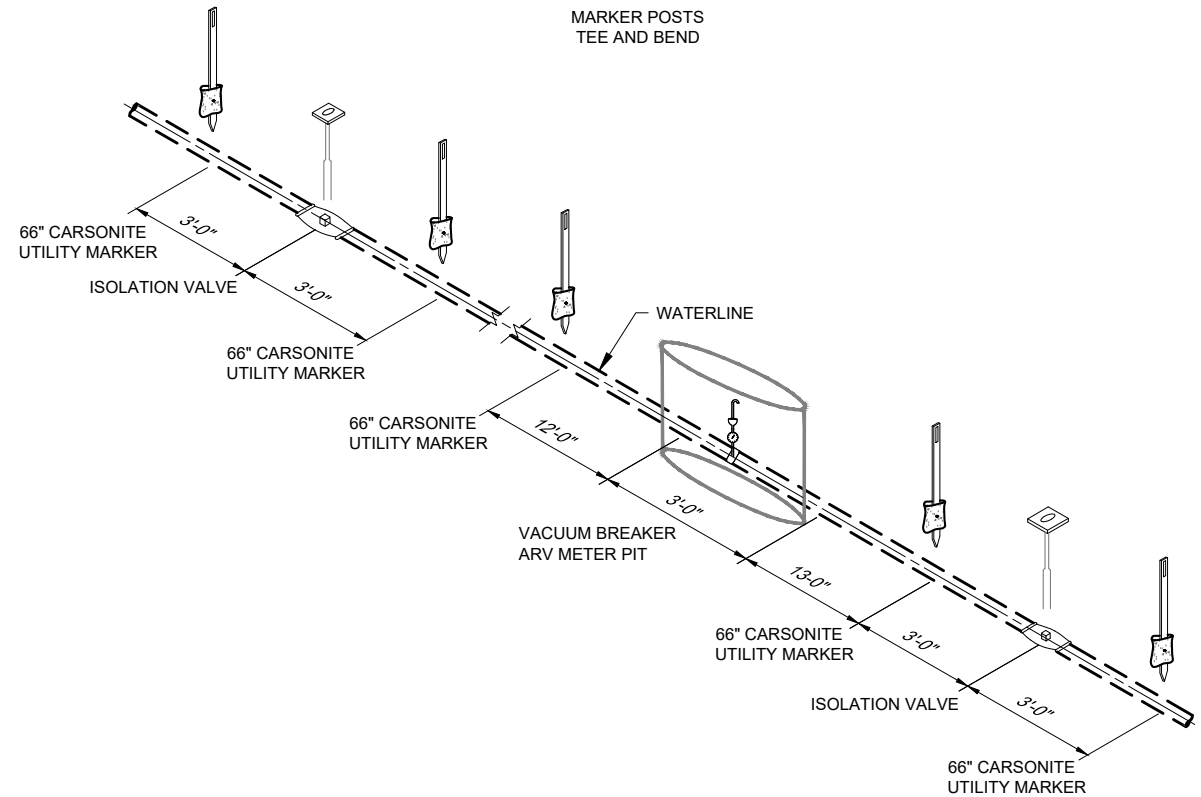
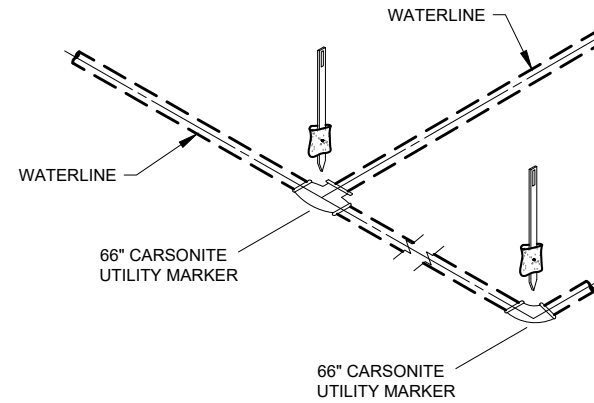
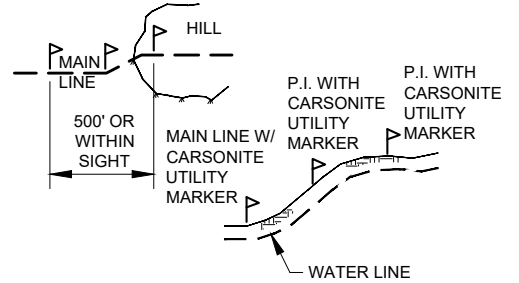
NOTES:

1. ALL DISTURBED EARTH SHALL BE COMPACTED AND RESEED AS REQUIRED PER DT-1 AND SPECIFICATIONS.
2. TOTAL WIDTH REDUCED IN AREAS WHERE TEMPORARY CONSTRUCTION EASEMENT IS TRUNCATED DUE TO ADJACENT CULTURALLY SENSITIVE AREAS.
3. FINAL GRADING AND SLOPE STABILIZATION MUST BE APPROVED BY ENGINEER.
4. IF MAINTENANCE ROAD CROSSES WATERLINE, 95% COMPACTION IS REQUIRED AT CROSSING.
5. MAINTENANCE ROAD IS INCIDENTAL TO PIPE CONSTRUCTION.



NOTE:

1. CARSONITE UTILITY MARKER ON ALL P.I.'S AND GRADE CHANGES.
2. MAXIMUM DISTANCE BETWEEN CARSONITE UTILITY MARKERS SHALL BE 1500 LF.



MARKER POSTS
GATE VALVE WITHOUT BYPASS,
VACUUM BREAKER / ARV VAULT &
BUTTERFLY VALVE WITH BYPASS

TYPICAL MARKER POSTS
NOT TO SCALE

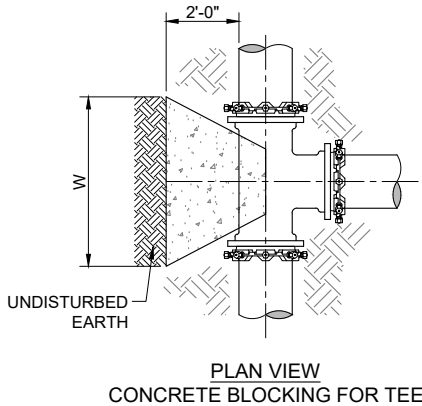
P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Block and Anchor Details.dwg
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Thrust Block Dimension Schedule

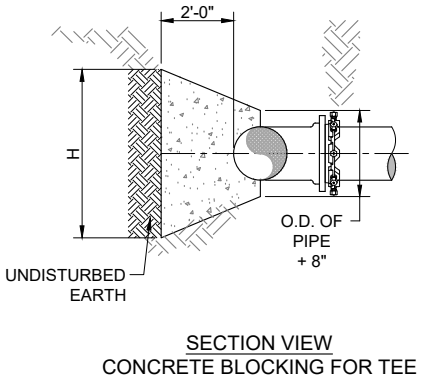
Pipe	Fitting	Required Thrust Block Area (ft ²)	Design Thrust Block Size (H x W x T) (ft)
4"	90° Ell PP12 Recirculating Line	5.2	2.5' x 2.5' x 2'
16"	90° Ell Pump Station, Inlet & Outlet	49.8	7.5' x 7.5' x 2'
16"	90° Ell Surge Tank Inlet/Outlet	49.8	7.5' x 7.5' x 2'
16"	16" x 16" Tee Surge Tank Inlet/Outlet	35.2	6.0' x 6.0' x 2'
16"	16" x 6" Tee at Reach 10.2.1 TO	4.6	2.5' x 2.5' x 2'
16"	16" x 6" Tee for 4" Flush Valve	4.6	2.5' x 2.5' x 2'

GENERAL NOTES

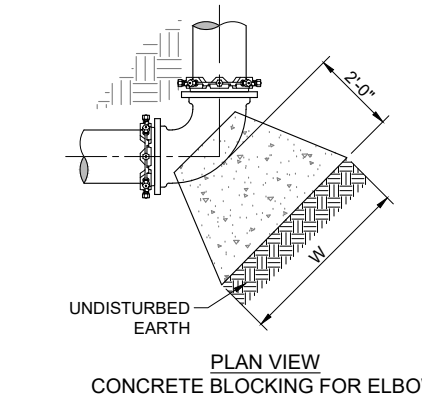
- ASSUMED SOIL BEARING OF 1500 PSF.
- ALL CONCRETE SHALL BE 3000 psi, MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS.
- FOR SIZES GREATER THAN 4' X 4', SEE BOTTOM (2) DETAILS.



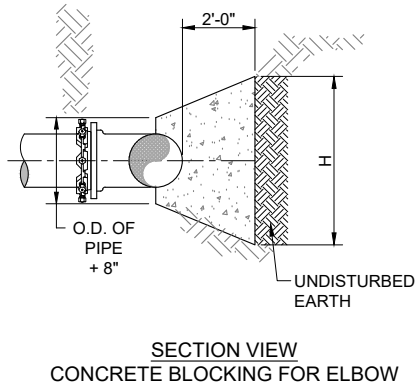
PLAN VIEW
CONCRETE BLOCKING FOR TEE



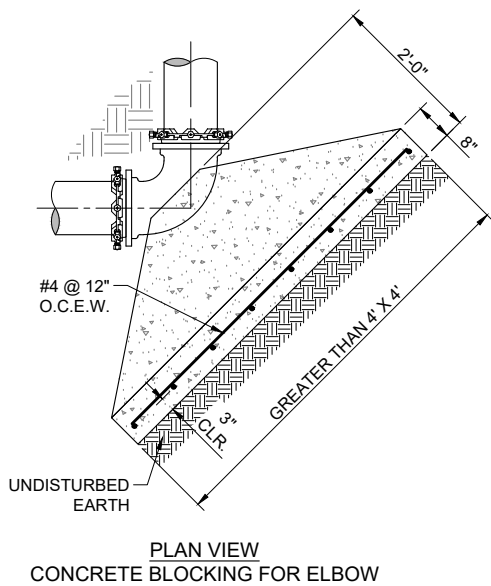
SECTION VIEW
CONCRETE BLOCKING FOR TEE



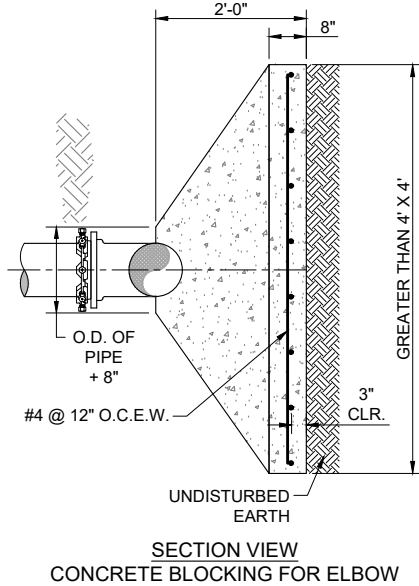
PLAN VIEW
CONCRETE BLOCKING FOR ELBOW



SECTION VIEW
CONCRETE BLOCKING FOR ELBOW



PLAN VIEW
CONCRETE BLOCKING FOR ELBOW



SECTION VIEW
CONCRETE BLOCKING FOR ELBOW

THRUST BLOCK DETAIL
NOT TO SCALE

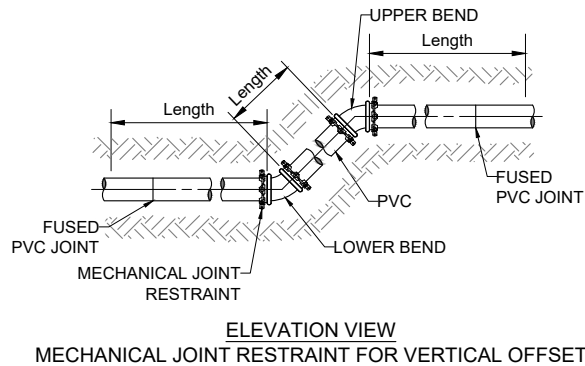
Minimum Required Restraint Lengths for Individual Fittings

Reach 10.2 - 16" DR 14 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Isolation Valve/Dead End	16	14	305	205
From End of Casing	16	14	305	120
Horizontal Bend or Sweep				
90°	16	14	305	75
45°	16	14	305	35
22.5°	16	14	305	20
11.25°	16	14	305	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	14	305	85
45°, Lower Bend	16	14	305	25
22.5°, Upper Bend	16	14	305	45
22.5°, Lower Bend	16	14	305	20
11.25°, Upper Bend	16	14	305	25
11.25°, Lower Bend	16	14	305	20
Reach 10.2 - 16" DR 18 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Isolation Valve/Dead End	16	18	235	160
From End of Casing	16	18	235	100
Horizontal Bend or Sweep				
90°	16	18	235	60
45°	16	18	235	25
22.5°	16	18	235	20
11.25°	16	18	235	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	18	235	70
45°, Lower Bend	16	18	235	20
22.5°, Upper Bend	16	18	235	35
22.5°, Lower Bend	16	18	235	20
11.25°, Upper Bend	16	18	235	20
11.25°, Lower Bend	16	18	235	20
Reach 10.2 - 16" DR 21 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Tee 16 x 6 x 16	16	21	200	20
Isolation Valve/Dead End	16	21	200	135
From End of Casing	16	21	200	85
Horizontal Bend or Sweep				
90°	16	21	200	50
45°	16	21	200	20
22.5°	16	21	200	20
11.25°	16	21	200	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	21	200	60
45°, Lower Bend	16	21	200	20
22.5°, Upper Bend	16	21	200	30
22.5°, Lower Bend	16	21	200	20
11.25°, Upper Bend	16	21	200	20
11.25°, Lower Bend	16	21	200	20

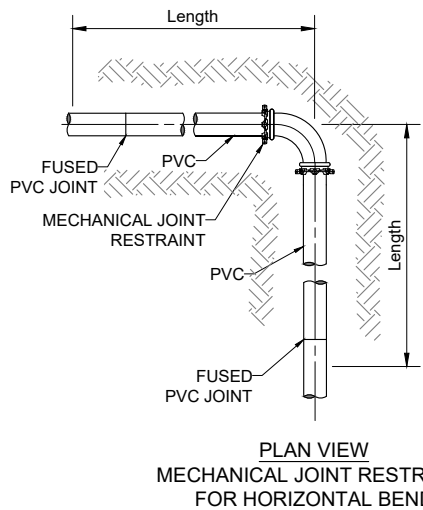
¹ Gives the required restraint length on each side of the specified bend, using a low side depth (from ground surface to top of the lower pipe) of 6-ft.

NOTES:

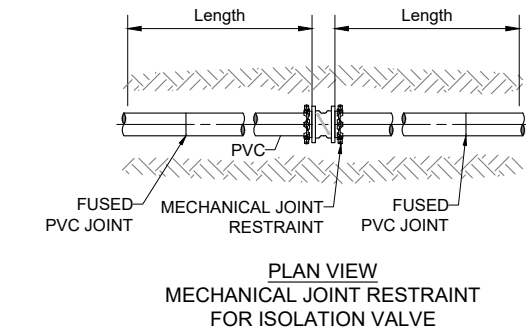
- MECHANICAL JOINT RESTRAINTS SHALL BE RATED TO PIPE PRESSURE RATINGS.
- MECHANICAL JOINT RESTRAINTS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- ALL BURIED METALLIC WATER BEARING COMPONENTS SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
- APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC COMPONENTS LOCATED WITHIN CORROSIVE SOILS ZONES, AS DESIGNATED IN PLANS AND/OR SPECIFICATIONS.
- ALL RESTRAINED PIPE JOINTS SHALL BE FUSIBLE PVC. NO BELL HARNESS RESTRAINTS SHALL BE ALLOWED.
- ALL SITE PIPING SHALL BE FULLY RESTRAINED WITH FUSIBLE PVC EXCLUDING DRAIN LINES.
- WHERE MULTIPLE FITTING / VALVE RESTRAINT LENGTHS OVERLAP, THE RESTRAINT LENGTHS FOR EACH APPURTENANCE SHALL BE SHOWN ON PLANS. CONTRACTOR TO NOTIFY ENGINEER IF NOT SHOWN.
- FOR ANY FITTING OR APPURTENANCE NOT EXPRESSLY CALLED OUT IN PLANS, REFER TO THIS SHEET FOR RESTRAINT LENGTH REQUIREMENTS.
- NO VERTICAL BENDS SHALL BE ALLOWED THAT ARE NOT SHOWN ON DRAWINGS WITHOUT ENGINEER'S PRIOR APPROVAL. IN THE EVENT VERTICAL BENDS ARE ADDED, ADDITIONAL JOINT RESTRAINT SHALL BE REQUIRED AT CONTRACTOR'S EXPENSE.
- FOR RESTRAINED LENGTHS 20 LF OR LESS, JOINTED PVC PIPE MAY BE USED IN LIEU OF FUSIBLE PVC, PROVIDED THAT THERE ARE NO BELL AND SPIGOT JOINTS WITHIN REQUIRED RESTRAINT LENGTH.
- ALL MJ DI FITTINGS AND VALVES SHALL BE RESTRAINED WITH EBAA IRON MEGALUG MECHANICAL JOINT RESTRAINTS, OAE, UNLESS OTHERWISE NOTED.



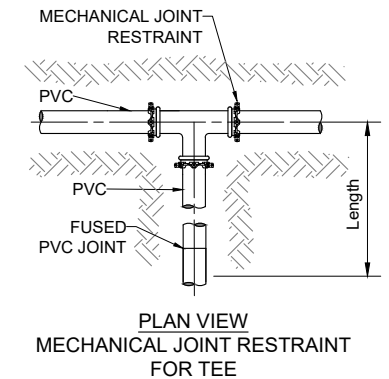
ELEVATION VIEW
MECHANICAL JOINT RESTRAINT FOR VERTICAL OFFSET



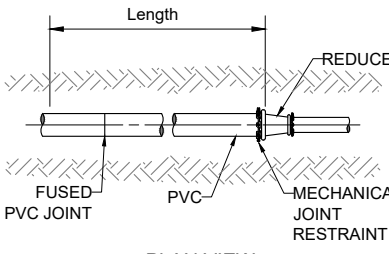
PLAN VIEW
MECHANICAL JOINT RESTRAINT FOR HORIZONTAL BEND



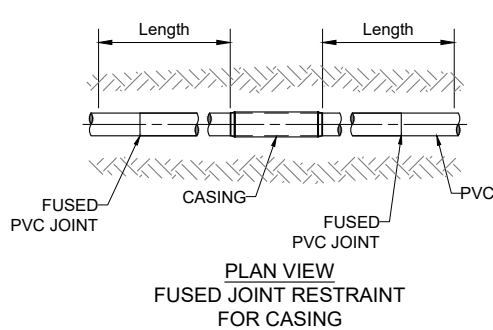
PLAN VIEW
MECHANICAL JOINT RESTRAINT FOR ISOLATION VALVE



PLAN VIEW
MECHANICAL JOINT RESTRAINT FOR TEE



PLAN VIEW
MECHANICAL JOINT RESTRAINT FOR REDUCERS



PLAN VIEW
FUSED JOINT RESTRAINT FOR CASING

MECHANICAL / FUSED JOINT RESTRAINTS
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Client: The Navajo Nation Location: Tsel'ihani, NM

THRUST BLOCK & JOINT RESTRAINT DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/AaV Checked: TTT

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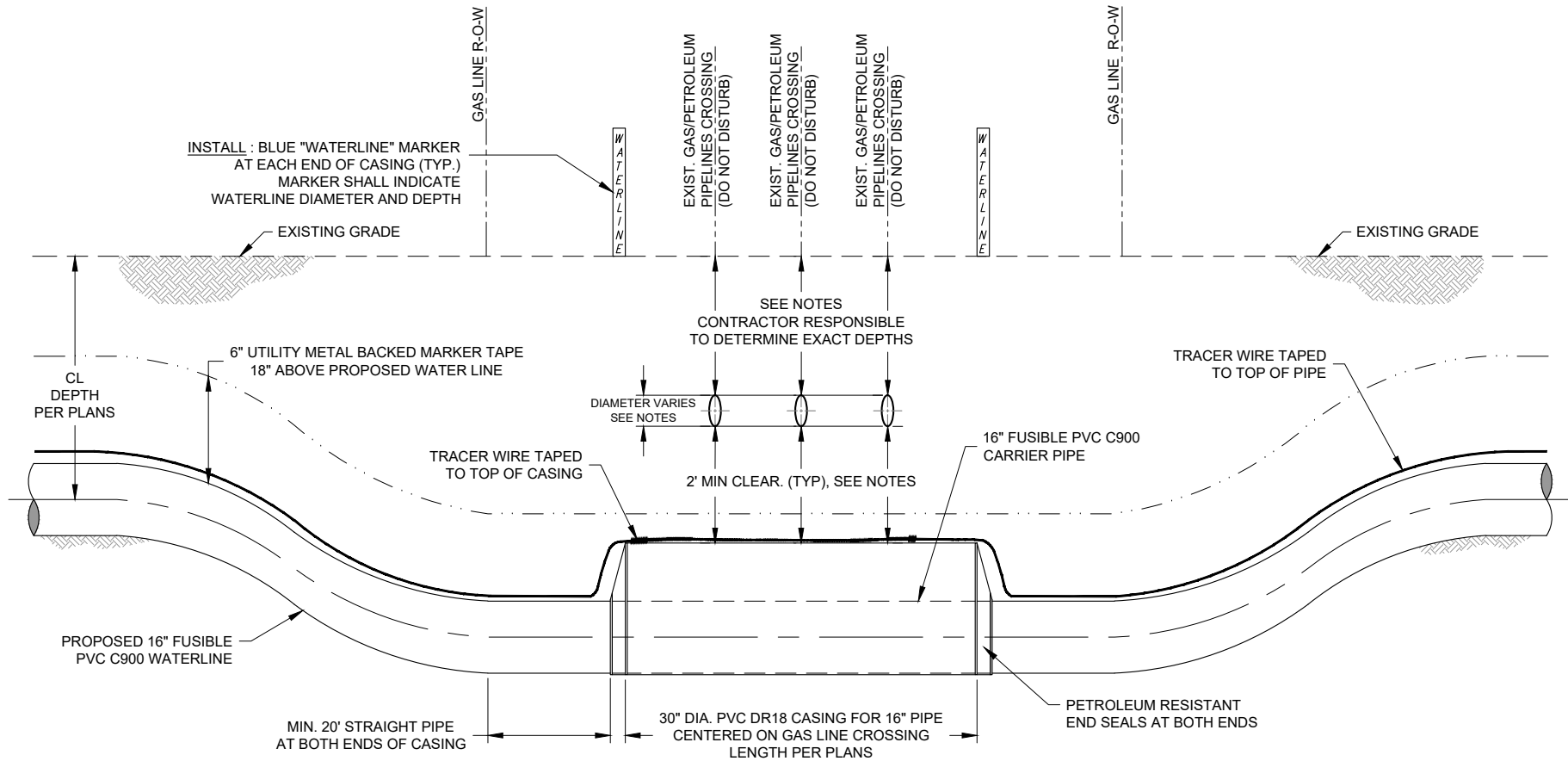
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Project No: 6922268

Sheet: DT-3

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TYPICAL GAS PIPELINE CROSSING DETAIL

NOT TO SCALE

SPECIAL NOTES AND CONTACTS-UTILITY PIPELINE CROSSINGS

NOTES:

1. NOTIFY GAS LINE COMPANIES (LISTED BELOW) 30 WORKING DAYS AND CALL NM ONE-CALL AT LEAST 3 WORKING DAYS PRIOR TO GRADING, CROSSING, MATERIAL STORAGE OR EQUIPMENT MOVING ACROSS GAS LINE RIGHT-OF-WAY OR ADJACENT ACCESS ROADS.
2. GAS LINE COMPANY REPRESENTATIVE **MUST** BE PRESENT DURING ALL CONSTRUCTION ACTIVITIES WITHIN GAS LINE RIGHT-OF-WAY, INCLUDING GRADING, EXCAVATION AND CLEANUP.
3. CONTRACTOR RESPONSIBLE TO LOCATE AND EXPOSE ALL EXISTING GAS / PETROLEUM LINES, IN ACCORDANCE WITH GAS COMPANY REQUIREMENTS.
4. EXCAVATE BY HAND OR VACUUM DRILL WITHIN 2 FEET OF GAS LINE. IF GAS LINE COMPANY APPROVES, CONTRACTOR MAY INSTALL CASING BY BORING, USING FUSIBLE PVC CASING WITH INTERIOR WELD BEAD REMOVED.
5. CROSS UNDER ALL GAS LINES. CROSSINGS REQUIRE 2' MIN. CLEARANCE FROM TOP OF CASING TO BOTTOM OF GAS LINE. WHERE MULTIPLE GAS LINES ARE CROSSED IN THE SAME ROW, MAINTAIN MIN. CLEARANCE UNDER THE LOWEST GAS LINE.
6. CONTRACTOR SHALL NOT SUSPEND EXISTING GAS LINE PIPE MORE THAN 12 FEET WITHOUT SOIL BEDDING OR OTHER SUPPORT APPROVED BY GAS LINE COMPANY.
7. COMPLETE ANY AND ALL ENCROACHMENT AGREEMENTS REQUIRED BY GAS LINE COMPANIES. ABIDE BY ALL CONDITIONS STIPULATED BY GAS LINE COMPANIES AND PROVIDE COPIES TO ENGINEER.
8. HEAVY EQUIPMENT MUST CROSS PIPELINE ONLY AT CROSSING LOCATIONS APPROVED BY GAS LINE COMPANIES.
9. FOR MINIMUM FUSIBLE PVC PIPE RESTRAINT REQUIREMENTS ON EACH SIDE OF CASING, SEE TABLE SHEET DT-3. ALL REMAINING CARRIER PIPE WITHIN A 200 FT. RADIUS OF LIQUID PETROLEUM LINE SHALL EITHER BE FUSIBLE PVC OR BELL-AND-SPIGOT PVC WITH PETROLEUM RESISTANT GASKETS. CASING SHALL EITHER BE FUSIBLE PVC WITH INTERIOR WELD BEAD REMOVED OR BELL AND SPIGOT PVC.
10. TRACER WIRE CONTINUITY SHALL BE MAINTAINED ACROSS THE GAS LINE XING.
11. THE INSIDE OF THE CASING AND THE OUTSIDE OF THE CARRIER PIPE MUST BE FREE OF ANY IRREGULARITIES THAT WOULD CAUSE A POINT LOAD ON CARRIER PIPE. ENGINEER RESERVES THE RIGHT TO REQUIRE SPACERS (MAX. 10' APART) IF CASING OR CARRIER PIPE ARE NOT SUFFICIENTLY SMOOTH AND REGULAR. EXTERIOR WELD BEADS SHALL BE REMOVED FROM FUSIBLE PVC CARRIER PIPE.
12. APPROXIMATE DEPTH CALL OUTS OF GAS LINES ARE MEASURED FROM THE EXISTING GROUND TO THE TOP OF PIPE. APPROXIMATE DEPTH CALL OUTS OF CASING MEASURED FROM BOTTOM OF EXISTING GAS LINES TO TOP OF CASING.

(1) = STA 218+70.3 TO 219+23.2 (APPROX.)
MARATHON PETROLEUM CO.
DUANE HOWE 505-444-0084
1 GAS AND 1 OIL PIPELINE
(8" DIA. STEEL, 28" TO TOP)
(6" DIA. STEEL, 39" TO TOP)

ENERGY TRANSFER PARTNERS
PATRICK GONZALES 505-979-1414
2 GAS PIPELINES
(30" DIA. STEEL, 47" TO TOP)
(36" DIA. STEEL, 61" TO TOP)

(2) = STA 219+78.5 (APPROX.)
NTUA GAS PIPELINE
1-800-528-5011
(2" DIA. PE, 40" TO TOP)

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www.soudermiller.com

Client: The Navajo Nation

Location: Tsé'í'ahí, NM

GAS LINE CROSSING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/AaV Checked: TTT

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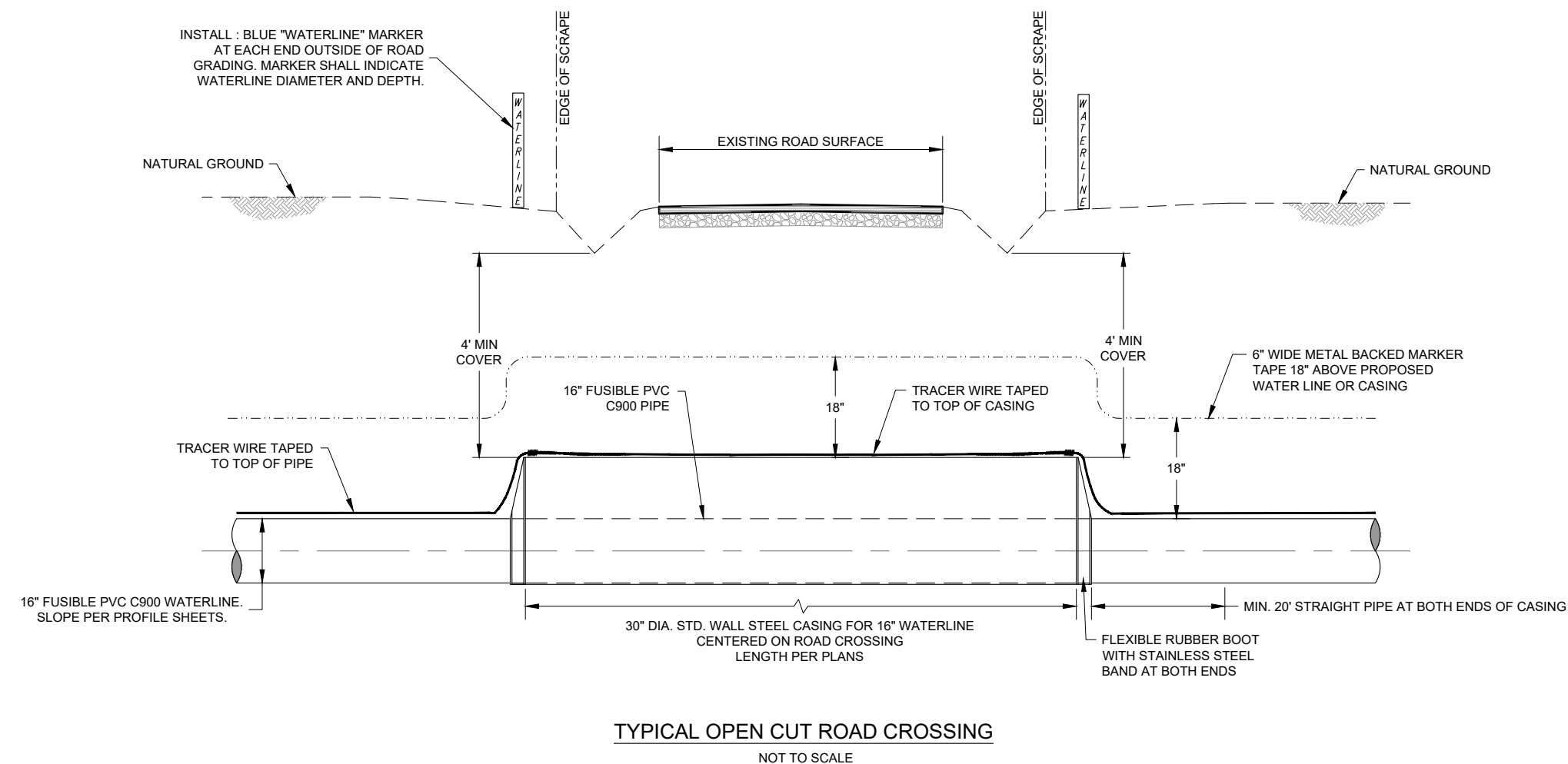
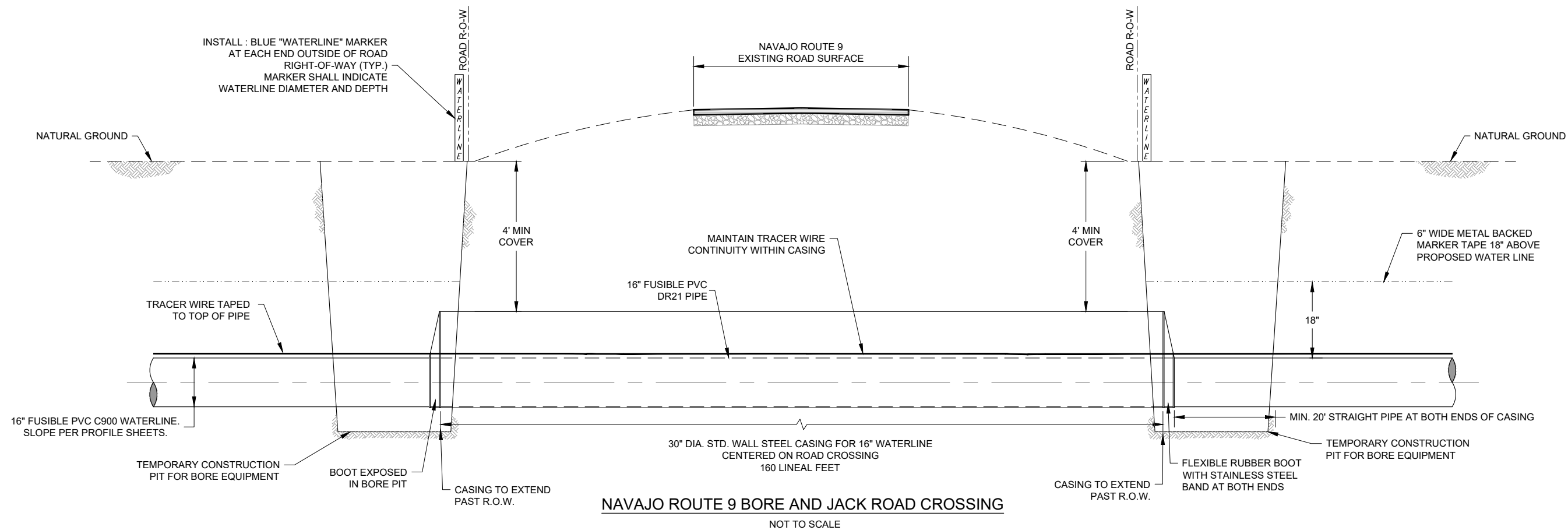


Date: August 2025

Scale: Horiz: N/A Vert: N/A

Project No: 6922268

Sheet: DT-4



- CONSTRUCTION NOTES:

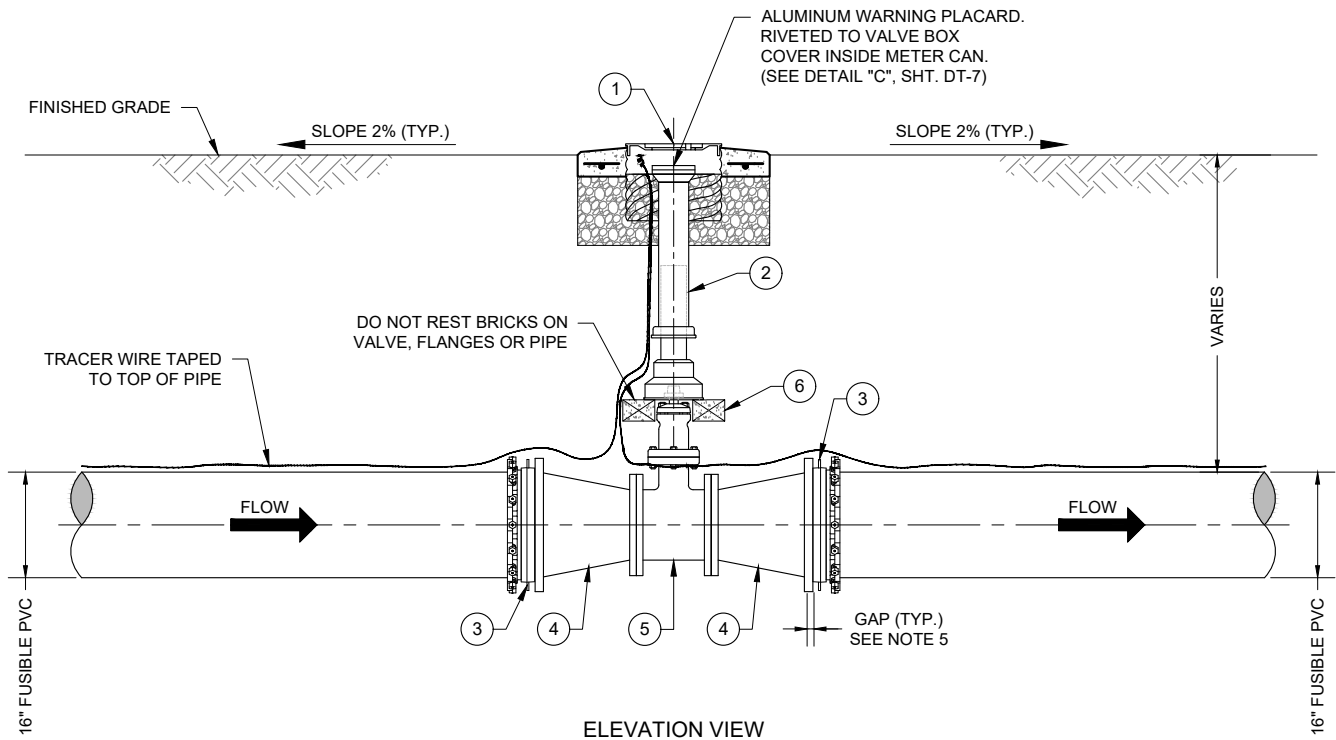
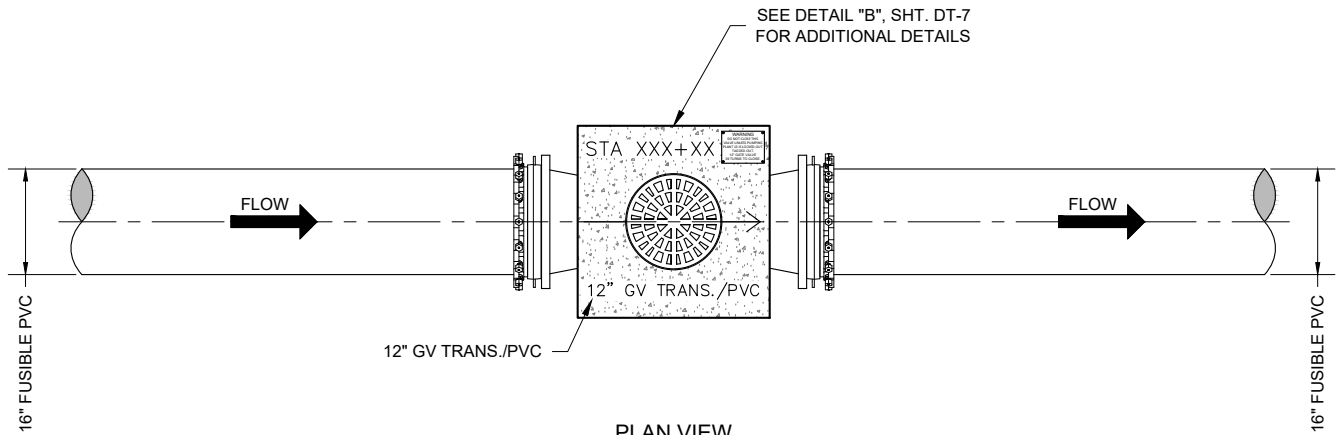
1. EXCAVATIONS OUTSIDE THE ROADWAY BAR DITCH SHALL BE COMPACTED AS SPECIFIED IN THE CONSTRUCTION DOCUMENTS. EXCAVATION WITHIN THE TOE OF THE BAR DITCH SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (STANDARD PROCTOR).
2. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC CASINGS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
3. ALL METALLIC PIPE, WHETHER CATHODICALLY PROTECTED OR NOT, SHALL BE PROVIDED WITH CORROSION MONITORING SYSTEMS.
4. TRACER WIRE CONTINUITY SHALL BE MAINTAINED ACROSS THE ROAD XING FOR BOTH OPEN - CUT & BORED CROSSINGS.
5. FOR MINIMUM FUSIBLE PVC PIPE RESTRAINTS REQUIREMENTS ON EACH SIDE OF CASING, SEE TABLE SHEET DT-3.
6. THE INSIDE OF THE CASING AND THE OUTSIDE OF THE CARRIER PIPE MUST BE FREE OF ANY IRREGULARITIES THAT WOULD CAUSE A POINT LOAD ON CARRIER PIPE. ENGINEER RESERVES THE RIGHT TO REQUIRE SPACERS (MAX. 10' APART) IF CASING OR CARRIER PIPE ARE NOT SUFFICIENTLY SMOOTH AND REGULAR. EXTERIOR WELD BEADS SHALL BE REMOVED FROM FUSIBLE PVC CARRIER PIPE.
7. FOR MCKINLEY COUNTY, NAVAJO DIVISION OF TRANSPORTATION AND BIA ROADS, ADHERE TO ANY ADDITIONAL CROSSING PERMIT REQUIREMENTS.
8. OPEN CUT CASINGS SHALL BE ASPHALTIC COATED PER AWW C104. BORE AND JACK CASINGS, NO COATING REQUIRED.
9. ROAD SURFACE TO BE RESTORED TO ORIGINAL CONDITION OR BETTER. THIS INCLUDES INSTALLATION OF GRAVEL, ASPHALT, OR BASE COURSE SURFACING MATERIAL.

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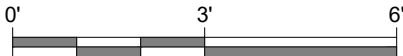
KEYED NOTES - MAINLINE GATE VALVE	
Item No.	DESCRIPTION
1	18" DIA. HEAVY DUTY, TRAFFIC-RATED METER CAN (PAINTED BLUE) W/ LOCKING COVER AND FORMED CONCRETE COLLAR, (3000 psi W/ #4 REBAR)
2	CAST IRON SLIP TYPE VALVE BOX WITH LOCKABLE COVER
3	16" MJ FLANGE ADAPTER, FBE COATED, W/ SS 304 BOLTS, MEGAFLANGE SERIES 2100, OAE, 235 psi
4	16" X 12" FL X FL REDUCER WITH RUBBER ANNULAR RING FLANGE GASKET, 350 PSI
5	12" FL x FL GATE VALVE, 350 psi (SEE SHT. DT-7)
6	12" x 6" x 4" BRICKS, ORIENTATION PER PLAN VIEW

NOTES:

1. ALL BURIED METALLIC PIPE, VALVES AND FITTINGS SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR. ALL BURIED METALLIC PIPE SHALL ALSO BE WAX TAPE-COATED, PER SPECIFICATIONS.
2. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
3. FLANGES SHALL BE ANSI CLASS 125 (IRON).
4. CONTRACTOR SHALL SCRIBE ALL CONCRETE COLLARS PER DETAIL THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING, OR ETCHED AFTER CURING WITH 4" GRINDER.
5. CONTRACTOR SHALL LEAVE A 3/4" MIN. TO 1" MAX. GAP BETWEEN PVC PIPE END AND FLANGE FACE INSIDE MJ FLANGE ADAPTER, TO FACILITATE FUTURE DISASSEMBLY.
6. ALL MATERIALS RATED TO AT LEAST 235 psi UNLESS OTHERWISE NOTED.



MAINLINE GATE VALVE WITH REDUCER ASSEMBLY



Revision	Date	Description	By	Chkd

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Client: The Navajo Nation
Location: Tsé'íłí'ahí, NM

MAINLINE GATE VALVE WITH REDUCER ASSEMBLY
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed	Drawn	Checked
EAP	MvH/AaV	TTT

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CONSTRUCTION UNLESS IT IS
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**Know what's
BELOW.
CALL before
you dig.**

Date:	August 2025
Scale:	Horiz: AS SHOWN Vert: N/A
Project No:	6922268
Sheet:	DT-6

1. CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "A" & "B" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
2. AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
3. AFFIX ALUMINUM VALVE IDENTIFICATION AND WARNING PLACARDS TO ALL SITE VALVE COLLARS, PER DETAILS "A", "B", "E" AND "F" THIS SHEET. REFER TO SHEETS C-26 & C-33 FOR VALVE-SPECIFIC LABELING.
4. ALL MATERIALS SHALL BE WORKING PRESSURE RATED TO AT LEAST THE PRESSURE RATING OF THE PIPE, UNLESS OTHERWISE NOTED.
5. ALL BURIED VALVES SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
6. NOTE VALVE ENDS SHALL BE MJ x MJ OR FL x FL AS INDICATED ON PLANS.
7. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
8. FLANGES SHALL BE ANSI CLASS 125 (IRON).

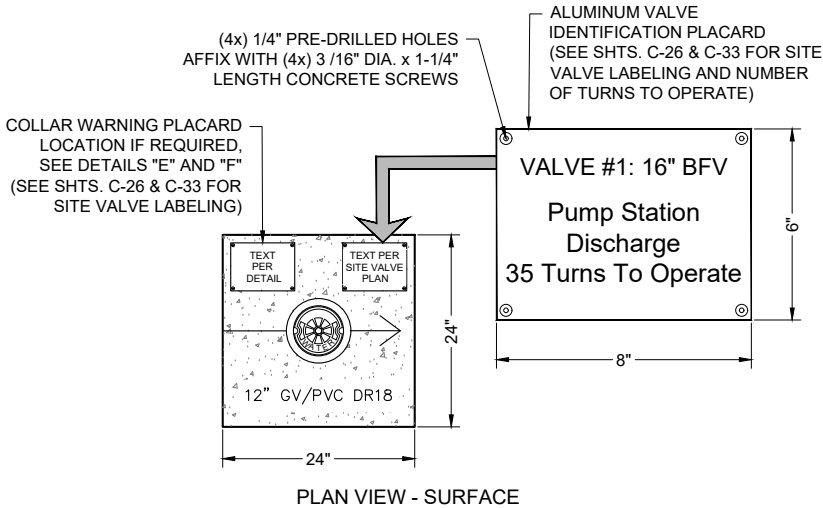
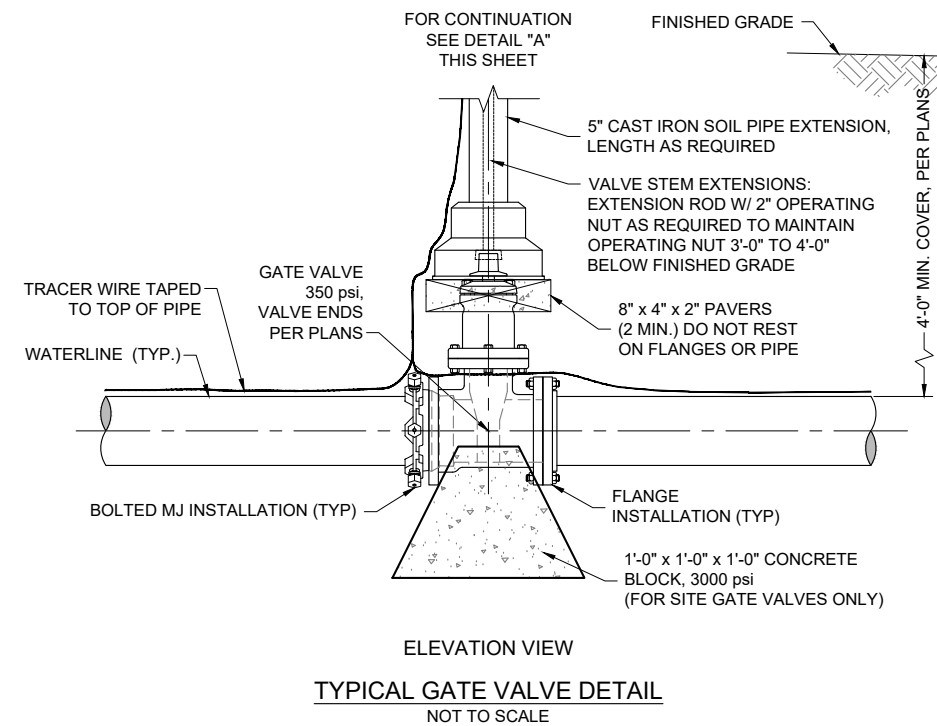
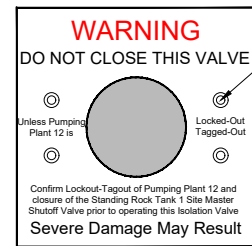


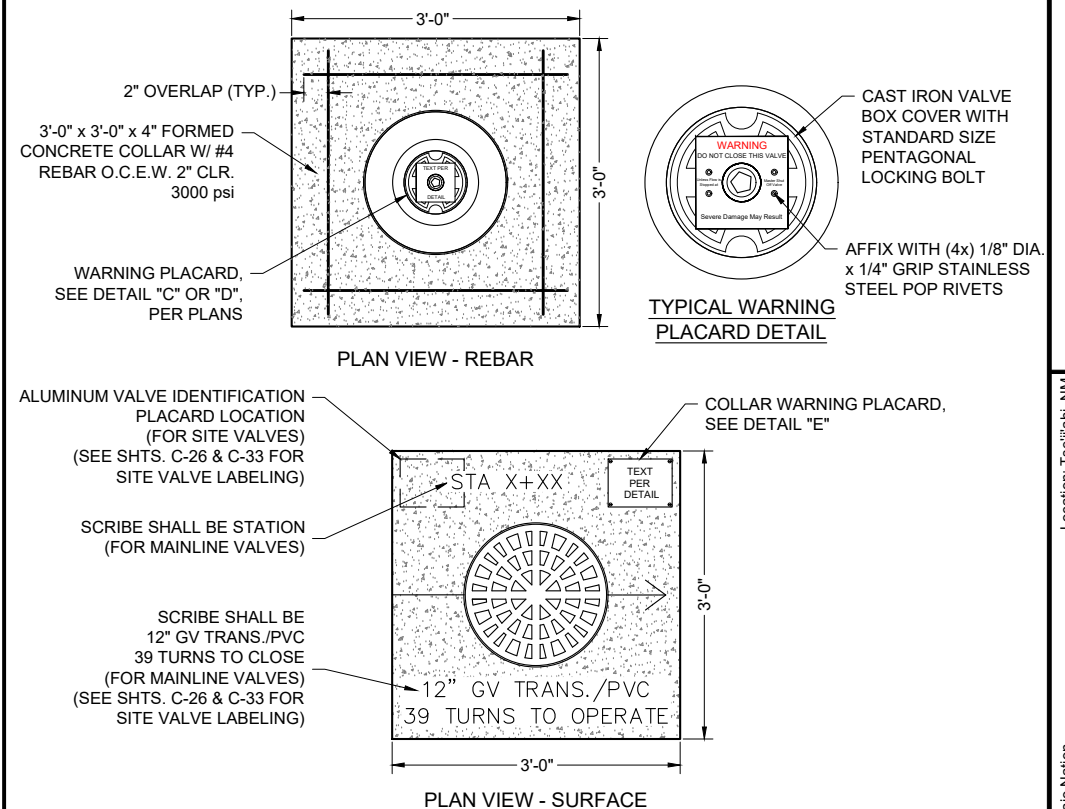
Diagram illustrating the dimensions and warnings for the isolation valve cover:

- Top dimension: 4 1/2" TYP.
- Left dimension: 4 1/2" TYP.
- Inner left dimension: 1 7/8" TYP.
- Warning text: **WARNING**
DO NOT CLOSE THIS VALVE
- Central feature: A large circular valve handle.
- Labels around the handle:
 - Top-left: Unless Pumping Plant 12 is
 - Top-right: Locked-Out Tagged-Out
- Bottom text: Confirm Lockout-Tagout of Pumping Plant 12 prior to operating this Isolation Valve
- Bottom warning: **Severe Damage May Result**

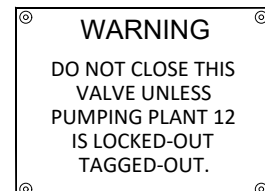
DETAIL "C"
WARNING PLACARD
FOR MAINLINE ISOLATION VALVES
UPSTREAM OF REACH 10.2.1
TURNOUT AND SITE VALVES



DETAIL "D"
WARNING PLACARD
FOR MAINLINE ISOLATION
VALVES DOWNSTREAM OF
REACH 10.2.1 TURNOUT



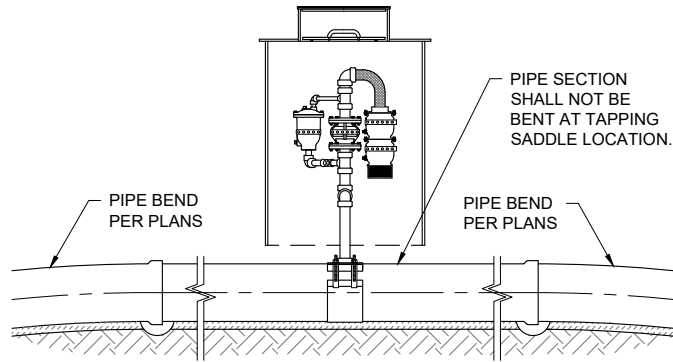
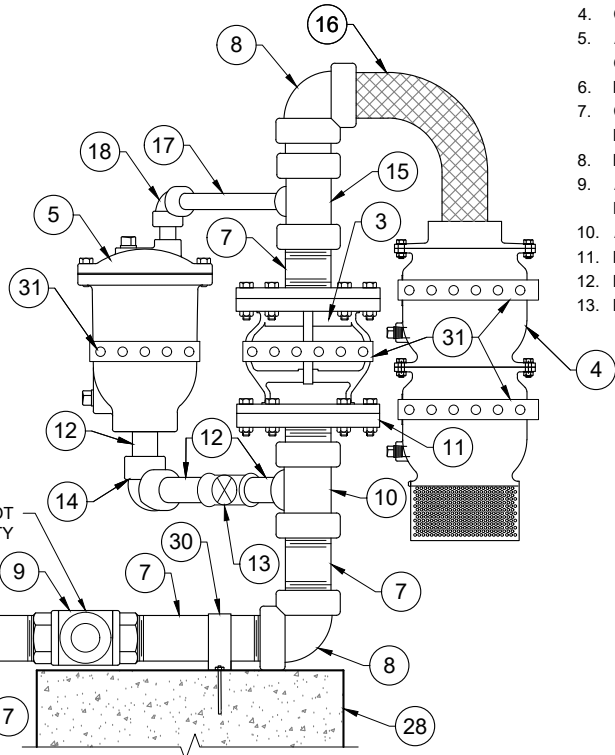
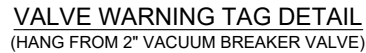
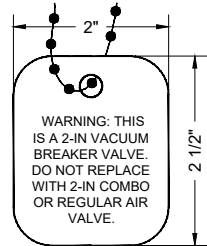
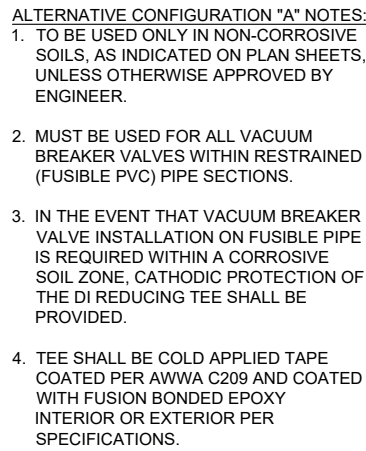
DETAIL "B" TYPICAL MAINLINE OR SITE LOCKING METER CAN AND
VALVE BOX, COLLAR AND VALVE ID PLACARD(S) DETAIL
NOT TO SCALE



DETAIL "E" ALUMINUM
VALVE COLLAR WARNING
PLACARD FOR REACH 10.3
MAINLINE AND SITE VALVES



DETAIL "F" ALUMINUM
VALVE COLLAR WARNING
PLACARD FOR REACH 10.3
MAINLINE AND SITE VALVES



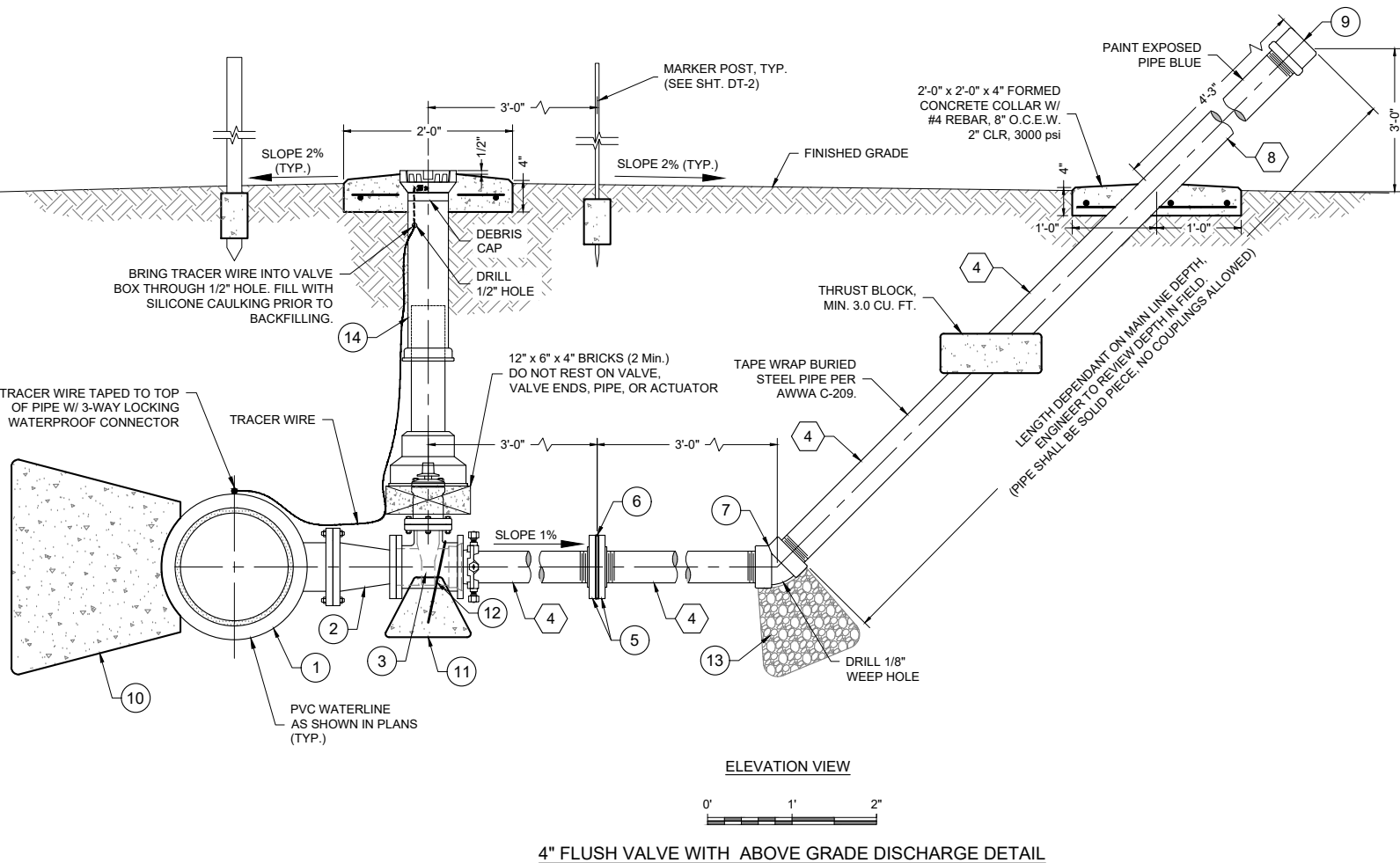
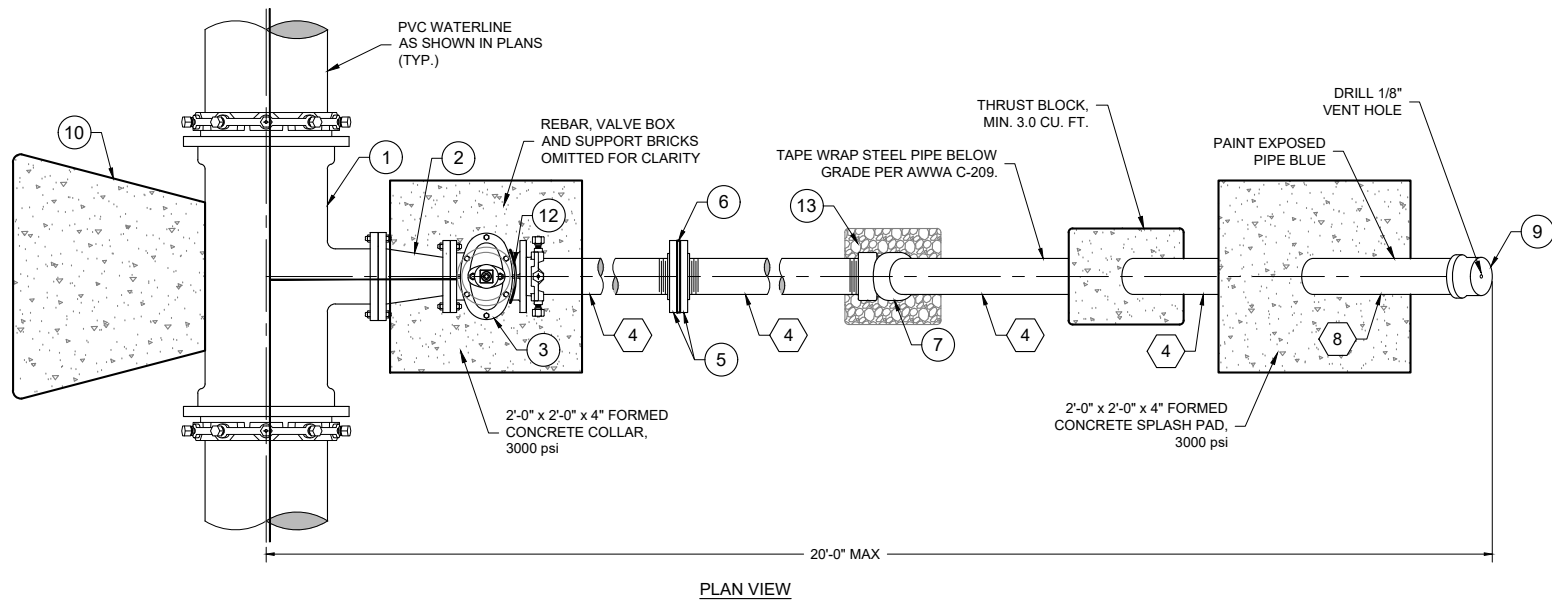
KEYED NOTES - 2" VACUUM BREAKER WITH 1" AIR RELEASE VALVE

Item No.	Description
1	36" DIA. PLASTIC (METER) PIT WITH REMOVABLE FROST LID
2	20" METER PIT LOCKING COVER(CAST IRON)WITH FROST PROOF INNER LID
3	2" VALMATIC MODEL NO. 1852VB 3XFSVH VACUUM BREAKER VALVE W/ SCREENED HOOD, ANSI CLASS 250 FLANGE, 400 psi WP
4	2" VALMATIC FLOODSAFE INFLOW PREVENTER
5	1" VALMATIC MODEL NO. 38HPDISVH AIR RELEASE VALVE, 500 psi WP
6	16" x 2" TAPPING SADDLE, D.I. W/ FUSION BONDED NYLON COATING, SS 304 DUAL STRAPS AND SS 304 BOLT KIT, FNPT, ROMAC 202 NS, OAE, 350 psi WP
7	2" NIPPLE, SS 304, NPT
8	2" 90° ELBOW, SS 304, NPT, SCHEDULE 40
9	2" BALL VALVE, SS 304, STANDARD PORT, NPT, W/ AUMA WORM GEARBOX W/ SQUARE OPERATING NUT, 1500 psi
10	2" x 2" x 1" REDUCING TEE, SS 304, NPT, SCHEDULE 40
11	2" FLANGE (THREADED), ANSI CLASS 300, SS 304, FLAT FACE
12	1" x 2" LENGTH NIPPLE, SS 304, NPT
13	1" BALL VALVE, SS 304, NPT, 2000 psi
14	1" 90° ELBOW, SS 304, NPT, SCHEDULE 40
15	2" x 1/2" REDUCING TEE, SS 304, NPT, SCHEDULE 40
16	2" STAINLESS STEEL BRAIDED HOSE, NPT
17	1/2" NIPPLE, SS 304, NPT
18	1/2" 90° ELBOW, SS 304, NPT, SCHEDULE 40
19	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT
20	4" FREEZE PREVENTION DRAFT DAMPENER, VALMATIC FROSTSAFE MODEL #1504, OAE
21	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
22	2" STD. GALVANIZED IRON PIPE, THREADED END (BELOW GRADE, PIPE EXTERIOR COLD-APPLIED TAPE COATED)
23	2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
24	2" STD. GALVANIZED IRON PIPE (ABOVE GRADE, PIPE EXTERIOR PAINTED BLUE)
25	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
26	VARMINT SCREEN
27	1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
28	CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16"
29	2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE)
30	1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS)
31	STAINLESS STEEL PERFORATED METAL HANGER STRAP
32	16" x 16" x 6" MJ x MJ REDUCING TEE, D.I., 350 psi WP
33	6" x 2" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED

NOTES:

1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
2. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE WAX TAPE-COATED PER AWWA C209.
3. FOR VACUUM BREAKERS LOCATED AT HIGH POINTS, VACUUM BREAKER TO BE LOCATED IN THE FIELD AT THE LOCALIZED HIGH POINT.
4. COIL TRACER WIRE ON INSIDE WALLS AT TOP OF METER PIT.
5. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
6. REMOVE ALL PVC CUTTINGS FROM INSIDE MAIN LINE AFTER TAPPING.
7. CONTRACTOR SHALL ATTACH PLACARD TO ALL VACUUM BREAKER METER BOX LIDS, INFORMATION AS FOLLOWS: PIPE STATION, VALVE SIZE, "VB / ARV", PIPE SIZE AND MATERIAL. SEE DETAIL, THIS SHEET.
8. DO NOT TAP FUSIBLE OR RESTRAINED PIPE. USE ALTERNATIVE CONFIGURATION "A" IN LIEU OF TAPPING.
9. APPLY CATHODIC PROTECTION TO ALL NON-STAINLESS METALLIC COMPONENTS IN CONTACT WITH SOIL LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
10. ALL MATERIALS RATED TO AT LEAST THE PIPE PRESSURE RATING UNLESS OTHERWISE NOTED.
11. PIPE SECTION SHALL NOT BE BENT AT VACUUM BREAKER INSTALLATION LOCATIONS, SEE DETAIL THIS SHEET.
12. ENSURE ALL BALL VALVE HANDLES ARE UNIMPEDED THROUGH THEIR FULL RANGE OF MOTION.
13. PROVIDE MIN. 3" HORIZONTAL CLEARANCE ON ALL SIDES AROUND 2" BALL VALVE OPERATING NUT.

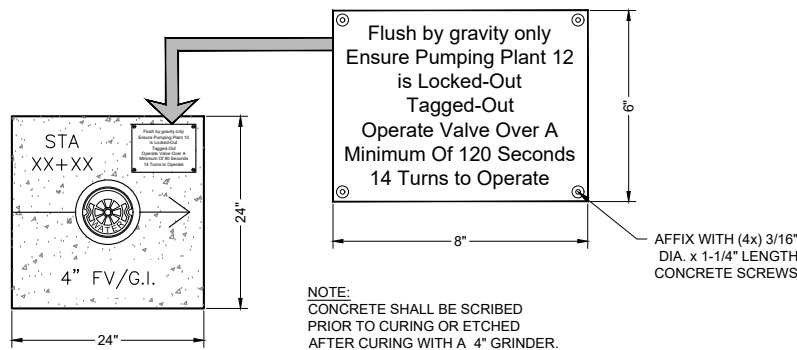
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4" FLUSH VALVE WITH ABOVE GRADE DISCHARGE DETAIL

KEYED NOTES - 4" FLUSH VALVE WITH ABOVE GRADE DISCHARGE	
Item No.	DESCRIPTION
1	16" x 6" MJ x FL REDUCING TEE, D.I., 250 psi
2	6" x 4" FL x FL REDUCER, D.I., 250 psi
3	4" GATE VALVE, FL x MJ, 350 psi (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-7)
4	4" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
5	4" G.I.-HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, ANSI CLASS 150
6	3/8" THK. STAINLESS STEEL ORIFICE PLATE, ANSI CLASS 150 DRILLING PATTERN (SEE DETAIL, THIS SHEET)
7	4" G.I. 45° ELL, NPT, 300 psi
8	4" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
9	4" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
10	THRUST BLOCK (SEE DETAIL DT-3)
11	1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi
12	#4 REBAR RESTRAINT
13	ROUNDED ROCK (1.5 CU. YD.)
14	VALVE BOX SLIP TYPE WITH LOCKING CAST IRON COVER (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-7)

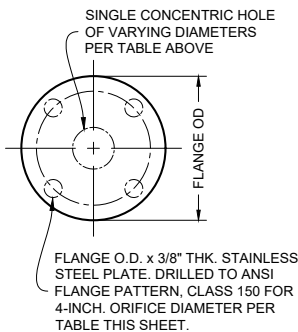
- NOTES:
- ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL).
 - ALL NON STAINLESS STEEL PIPE AND FITTINGS SHALL BE TWO-PART EPOXY COATED, INTERIOR AND EXTERIOR. ALL NON STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE WAX TAPE-COATED PER AWWA C-209 AND SPECIFICATIONS.
 - ORIENTATION AND LOCATION OF OUTLET TO BE DETERMINED IN FIELD BY ENGINEER.
 - APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC WATER-CARRYING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
 - ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.
 - ALL COMPONENTS SHALL REMAIN WITHIN THE 40' PERMANENT RIGHT-OF-WAY.
 - ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
 - SEE TABLE FOR ORIFICE PLATE DRILLING AND FLUSH VALVE TYPE REQUIREMENTS.



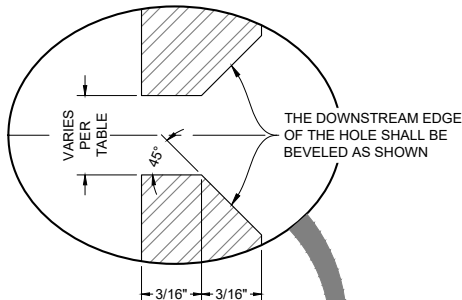
NOT TO SCALE

SUMMARY OF FLUSH VALVE ORIFICE PLATE DRILLING			
Station	Required	Orifice Plate Hole Ø (in.)	Elevation
43+10	YES	2.70	6105.7
99+50	YES	2.70	6112.1
128+50	YES	2.70	6105.7
168+40	YES	2.70	6155.0
236+05	YES	3.00	6239.7
278+84	YES	3.00	6339.0
342+55	YES	3.00	6349.9
382+12	YES	3.00	6319.2
424+30	YES	3.00	6431.1

- NOTES:
- HOLE TO BE DRILLED CENTERED ON THE ORIFICE PLATE.



NOT TO SCALE



NOT TO SCALE

Client: The Navajo Nation

Location: Tseil'ihai, NM

4 INCH FLUSH ABOVE-GRADE DISCHARGE DETAIL

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

MCKINLEY COUNTY, NEW MEXICO

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FORRY TADANO

NEW MEXICO

21073

7/29/20

REGISTERED PROFESSIONAL

Designed EAP

Drawn MvH/AaV

Checked TTT

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811

Know what's BELOW. CALL before you dig.

Date: August 2025

Scale: Horiz: AS SHOWN

Vert: N/A

Project No: 6922268

Sheet: DT-9

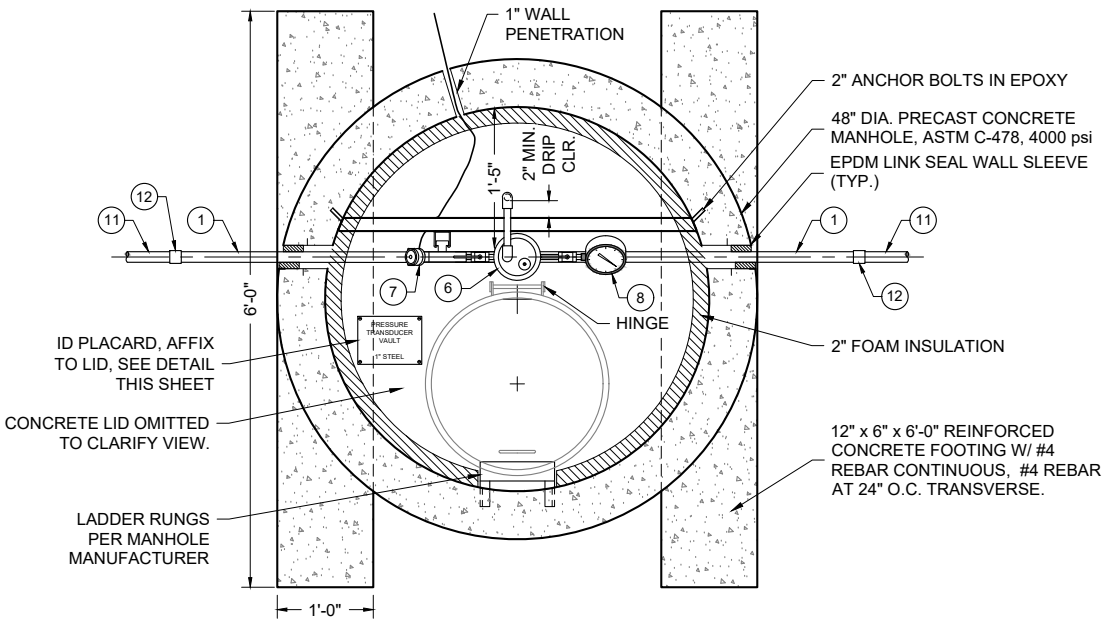
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KEYED NOTES - PRESSURE TRANSDUCER VAULT

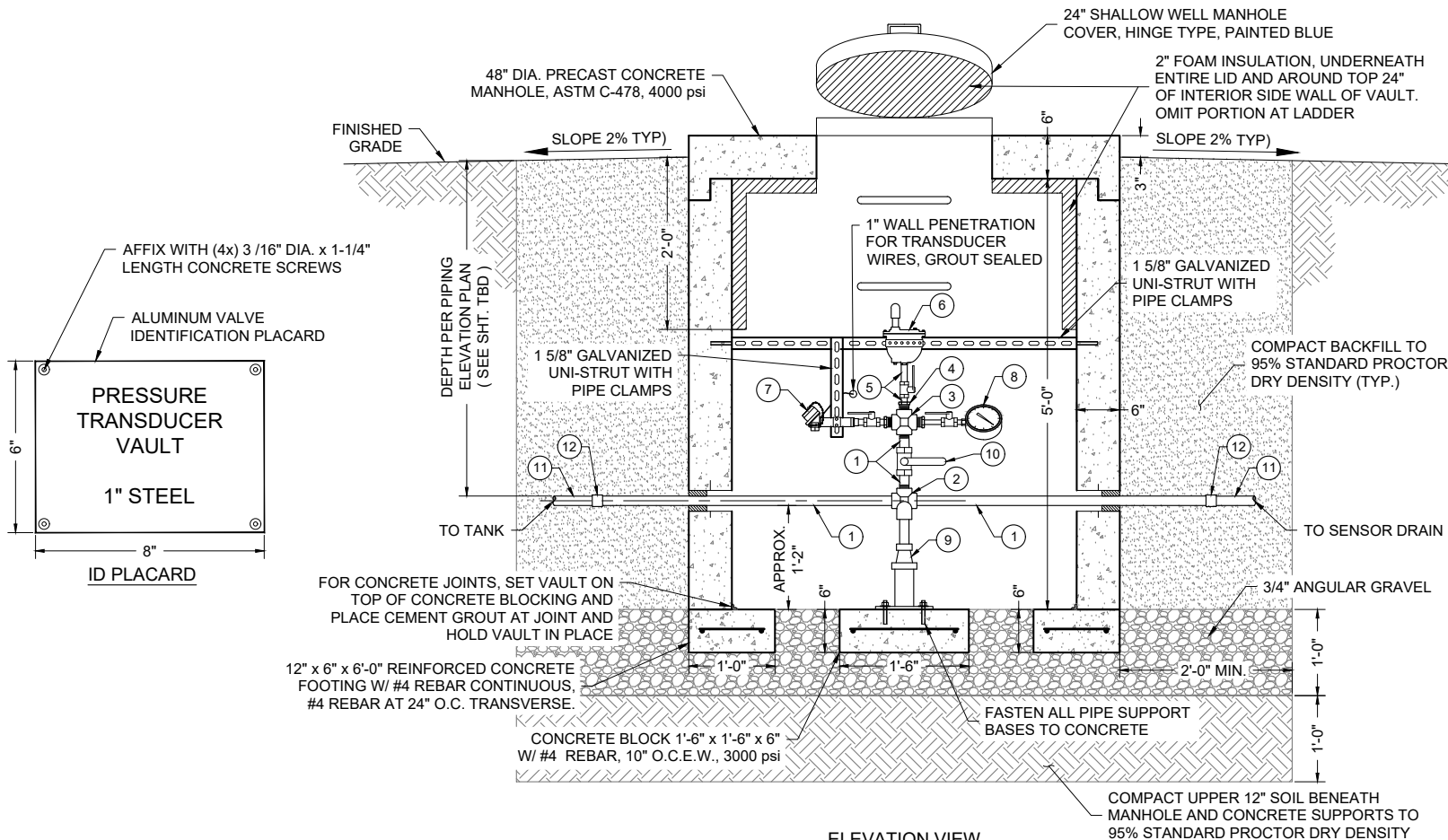
ITEM NO.	DESCRIPTION
1	1" STEEL PIPE, SS 304, NPT, SCHEDULE 40
2	1" TEE, SS 304, NPT, SCHEDULE 40
3	1" CROSS, SS 304, NPT, SCHEDULE 40
4	1" x 1/2" REDUCING BUSHING, SS 304, NPT, SCHEDULE 40
5	1/2" SS 304 PIPE, NPT, SCHEDULE 40
6	AIR RELEASE VALVE, 1/2" VALMATIC 15ASV, 175 psi W/ 1/2" SS 304 BALL VALVE, 1500 psi & 1/2" SCHEDULE 80 PVC RETURN (SECURED TO UNISTRUT SUPPORT)
7	HORIZONTAL MOUNT PRESSURE TRANSDUCER 0-30 psi, WIKA TYPE C10, W/ 1/4" SS 304 BALL VALVE, 2000 psi, 1" x 1/4" SS 304 REDUCING BUSHING & 1/4" SS 304 PIPE, NPT (SECURED TO UNISTRUT SUPPORT)
8	PRESSURE GAUGE 0-25 psi W/ 1/4" SS 304 BALL VALVE, 2000 psi, 1" x 1/4" SS 304 REDUCING BUSHING & 1/4" SS 304 PIPE, NPT
9	ADJUSTABLE PIPE SUPPORT W/ U-SHAPED CRADLE
10	1" BALL VALVE, NPT SS 304
11	1" ANNEALED STAINLESS STEEL TUBING
12	1" FNPT x COMPRESSION COUPLING

NOTE:

- ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.



PLAN VIEW



ELEVATION VIEW

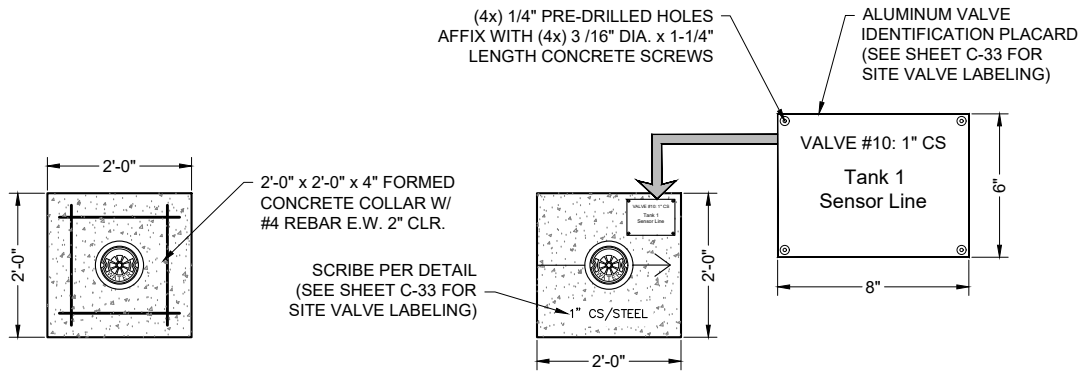
PRESSURE TRANSDUCER VAULT DETAIL

KEYED NOTES - 1" SENSOR LINE AND CURB VALVE

ITEM NO.	DESCRIPTION
1	1" BALL CURB VALVE, FNPT, MINNEAPOLIS PATTERN, MUELLER B-20287, OAE WP 300 psi, OAE (COVER PAINTED BLUE)
2	1" ANNEALED STAINLESS STEEL TUBING, 100 psi (SEE NOTE #2)
3	1" MNPT x COMPRESSION COUPLING
4	CURB STOP BOX, EXTENSION TYPE MUELLER H-10302, OAE W/ MUELLER STATIONARY ROD WHICH EXTENDS 2'-4" BELOW CURB BOX LID, TOP PAINTED BLUE

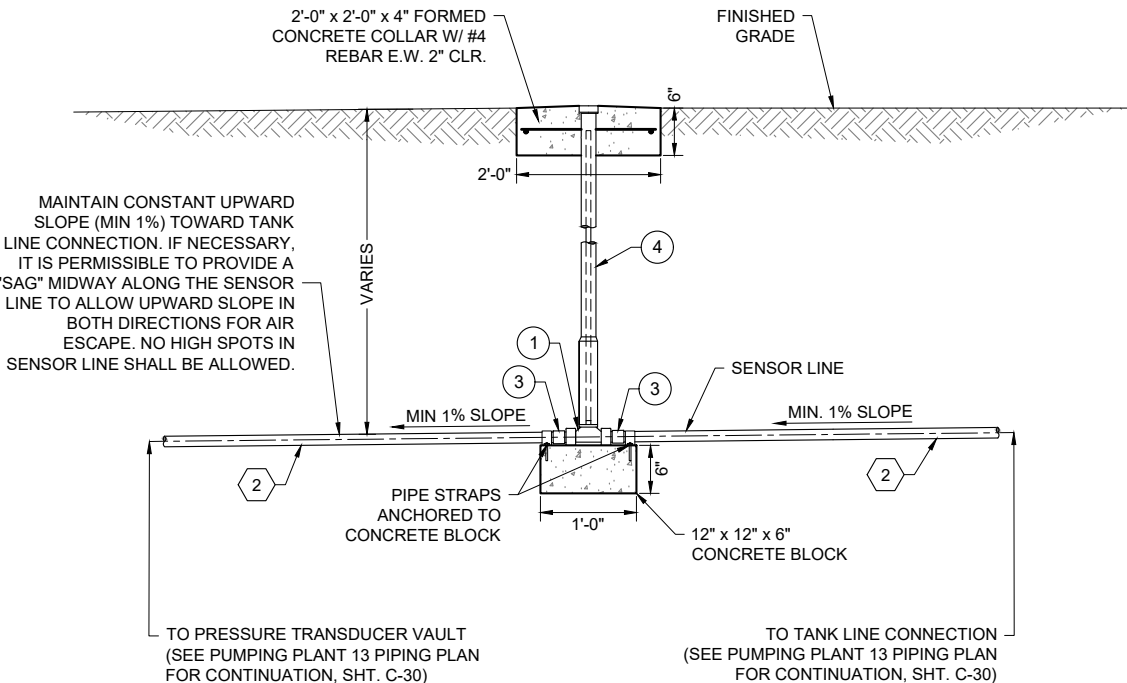
NOTES:

- ALL MATERIALS, FITTINGS, AND APPURTENANCES SHALL BE RATED TO AT LEAST 150 psi, UNLESS OTHERWISE NOTED.
- ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL, UNLESS OTHERWISE NOTED.
- ALL NON-STAINLESS METALLIC PIPE, VALVES AND FITTINGS IN CONTACT WITH SOIL SHALL BE WAX TAPE-COATED PER SPECIFICATIONS.
- CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAIL THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.



PLAN VIEW - REBAR

PLAN VIEW - SURFACE



1" TYPICAL SENSOR LINE AND CURB VALVE

NOT TO SCALE

SOUDER, MILLER & ASSOCIATES



Location: Tsell'ah, NM

Client: The Navajo Nation

PRESSURE TRANSDUCER VAULT & SENSOR LINE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/AaV Checked: TTT

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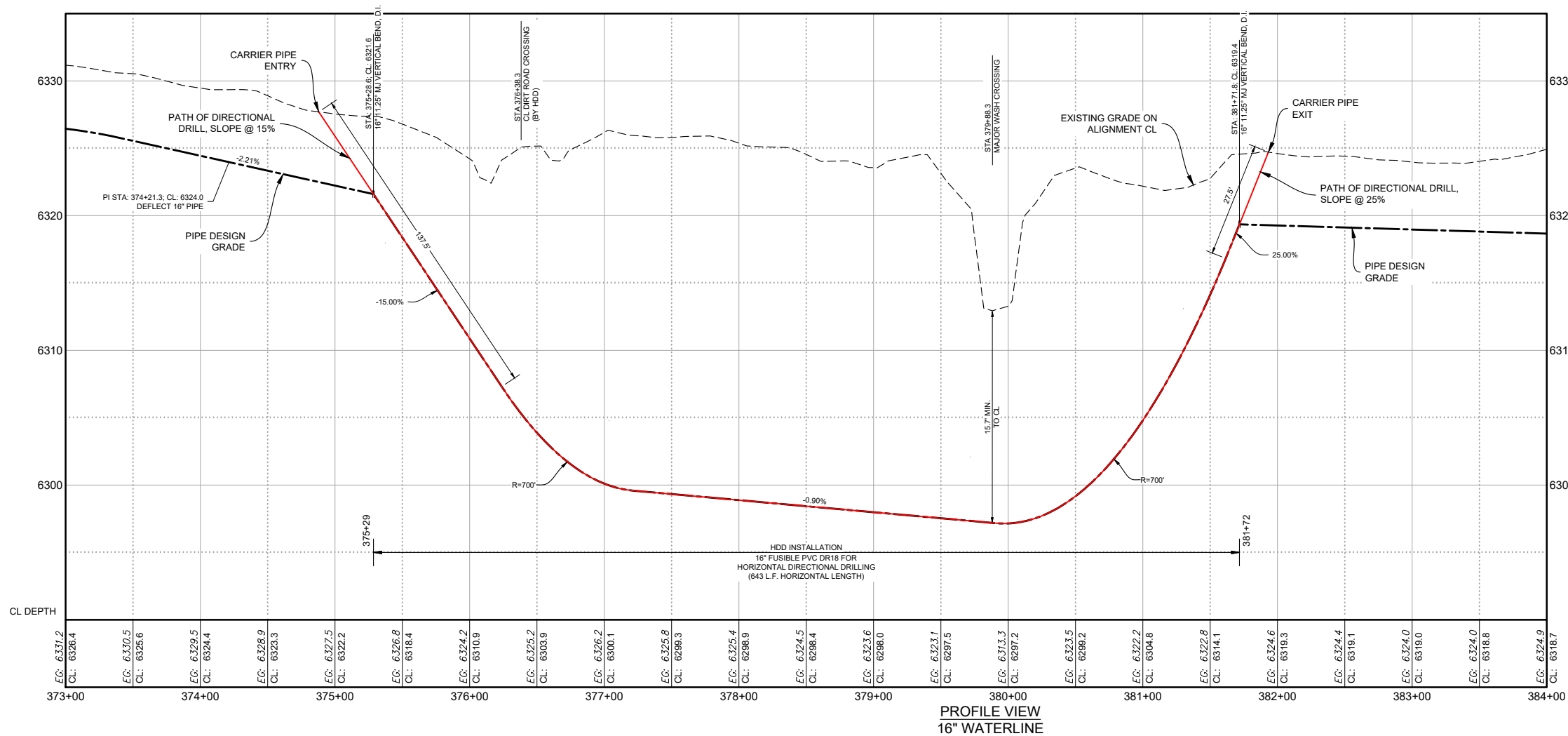
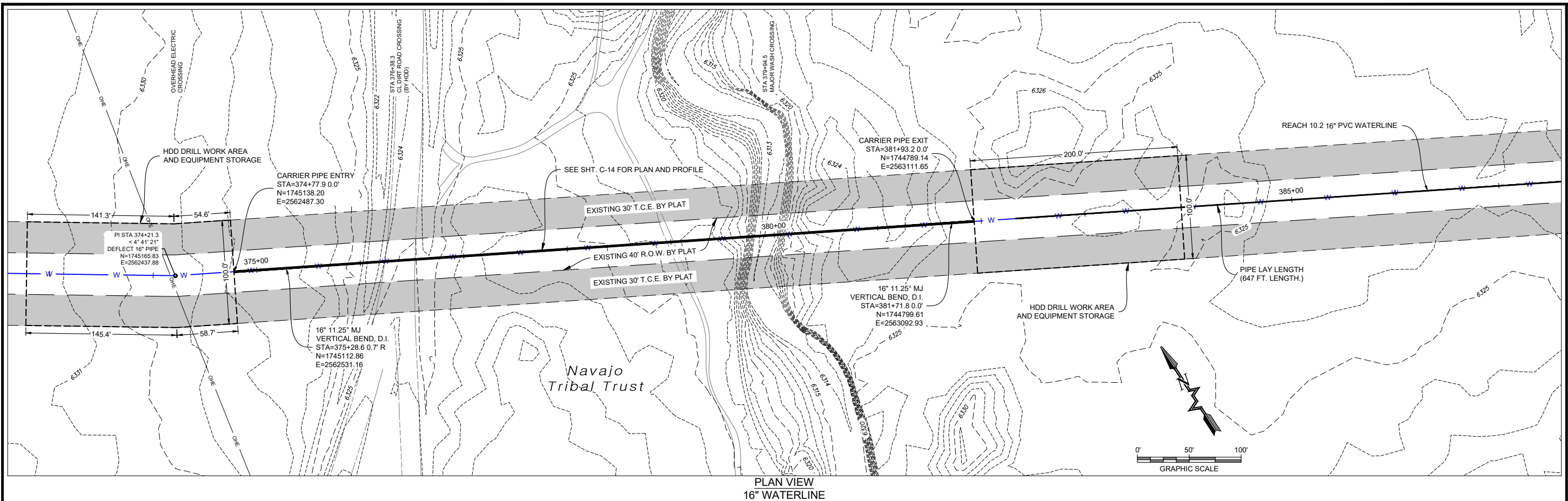


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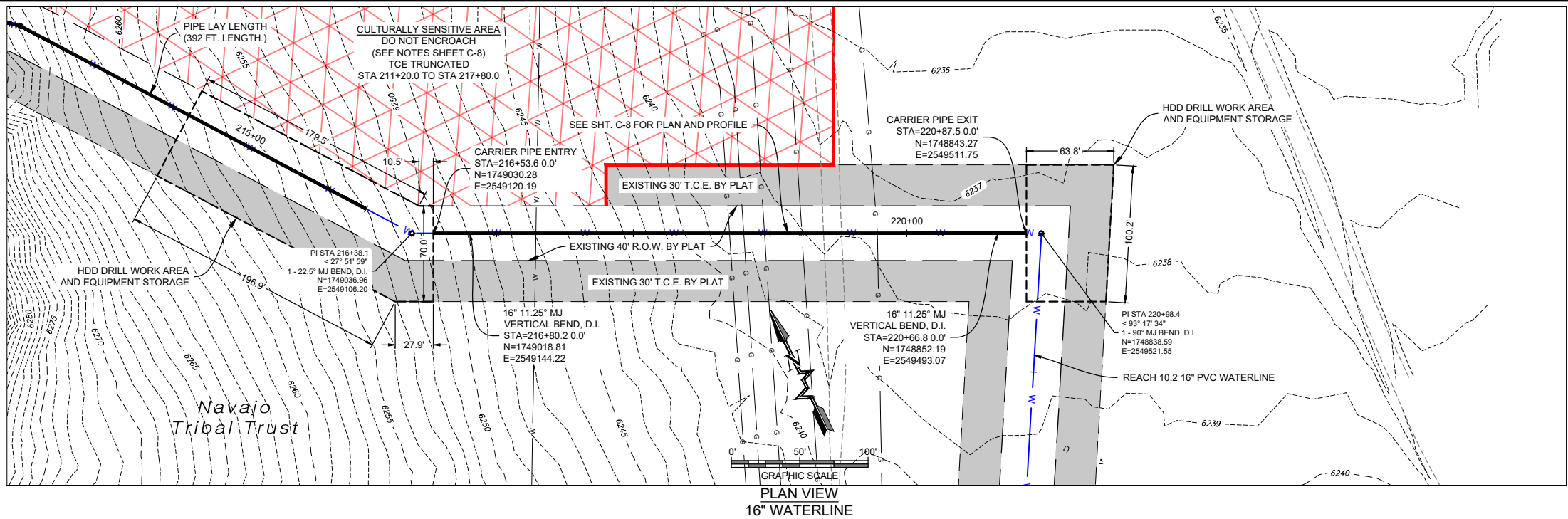
Project No: 6922268

Sheet: DT-10

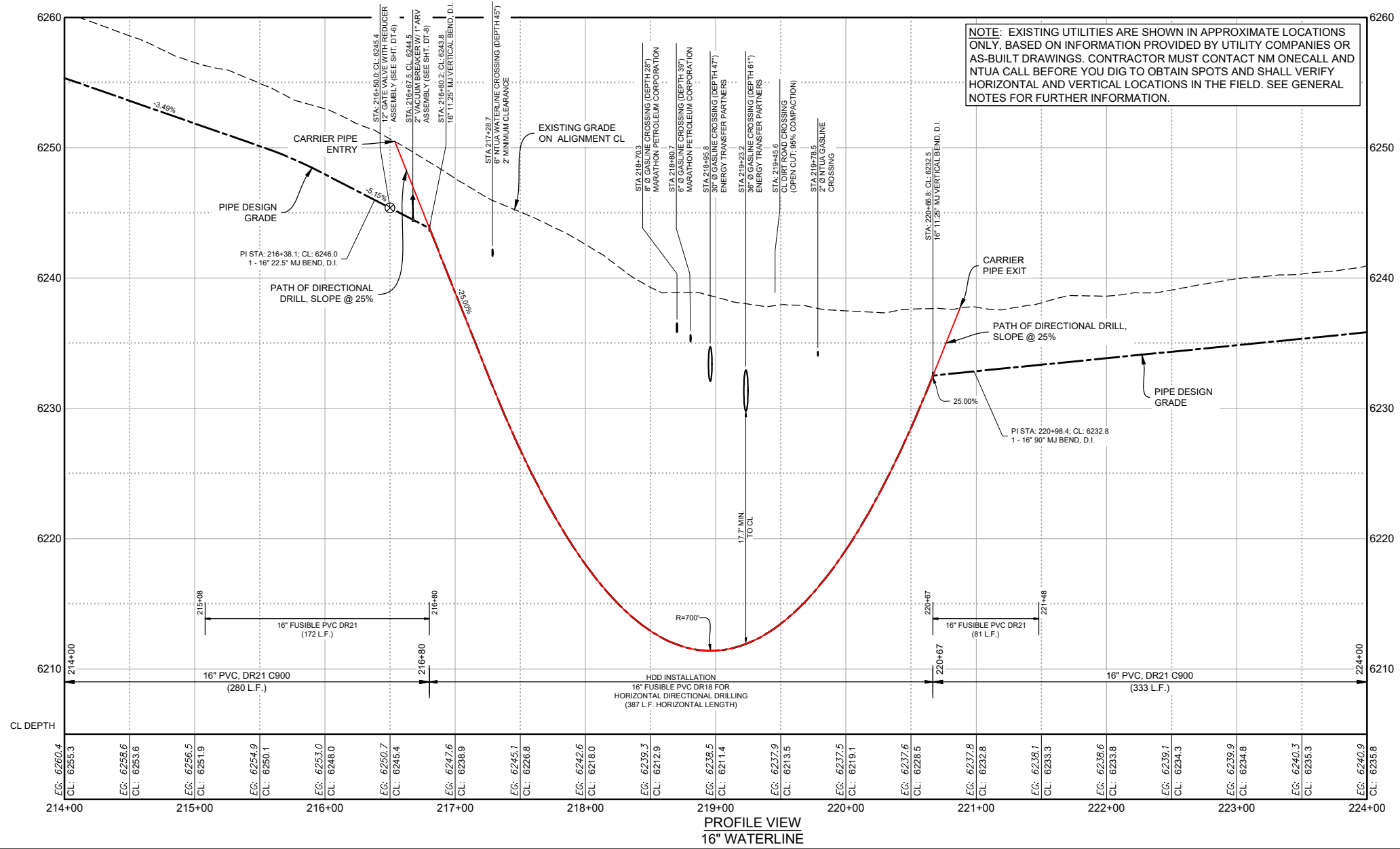


NOTES: 1. MINIMUM ALLOWABLE BEND RADIUS = 700' 2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.
--

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 HDD Drill.dwg
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PLAN VIEW
16" WATERLINE



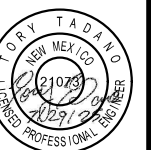
PROFILE VIEW
16" WATERLINE

- NOTES:
1. CONTRACTOR HAS OPTION OF INSTALLING MULTIPLE UTILITY LINE CROSSING AT APPROXIMATE STATION 219+00 VIA OPEN-CUT WITH PVC CASING (AS SHOWN ON SHEET C-8) OR BY HORIZONTAL DIRECTIONAL DRILLING (HDD) AS SHOWN.
 2. OPEN CUT INSTALLATION INCLUDES 387 LF OF 16-INCH DR21 C900 FPVC WATERLINE WITH 30-INCH DR18 PVC CASING.
 3. HDD INSTALLATION REQUIRES 387 LF OF 16-INCH DR18 FPVC WATERLINE.

- NOTES:
1. MINIMUM ALLOWABLE BEND RADIUS = 700'
 2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

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5454 Venice Avenue NE, Suite D
Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-4430
www.soudermiller.com

Client: The Navajo Nation
Location: Tsel'ihai, NM
GAS CROSSING STA 219+00 BID ALTERNATE HDD DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 18 T. 18 N., R. 14 W.; SECTION 13 T. 18 N., R. 15 W.



Designed: EAP
Drawn: MvH/AaV
Checked: TTT

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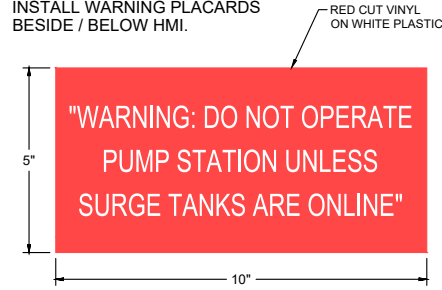


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Vert: 1" = 10'

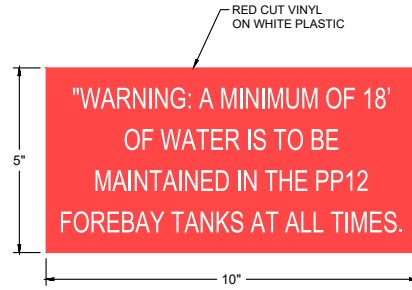
Project No: 6922268

Sheet: DT-12

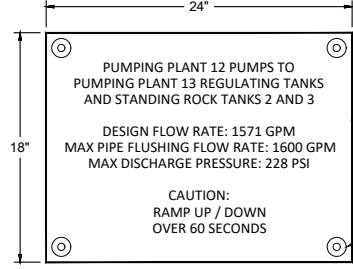
NOTE:
INSTALL WARNING PLACARDS
BESIDE / BELOW HMI.



WARNING PLACARD DETAIL



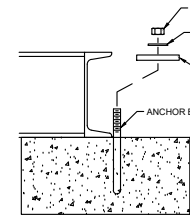
WARNING PLACARD #2 DETAIL



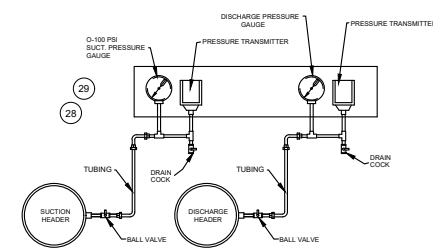
PP 13 INTERIOR
SIGNAGE DETAIL

WHITE 24" X 18" ALUMINUM SIGN
BLANK WITH MOUNTING HOLES:
3/4" PERMANENT LETTERING (NO VINYL)

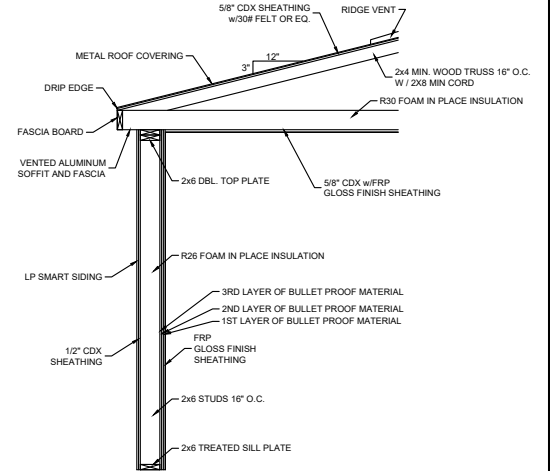
(4x) 5/16" PRE-DRILLED HOLES
AFFIX WITH (4x) 1/4" DIA. x 1-1/4"
LENGTH SELF TAPPING SCREWS



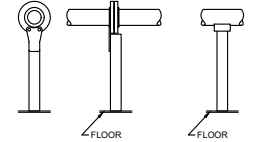
POSSIBLE
RETENTION DETAIL



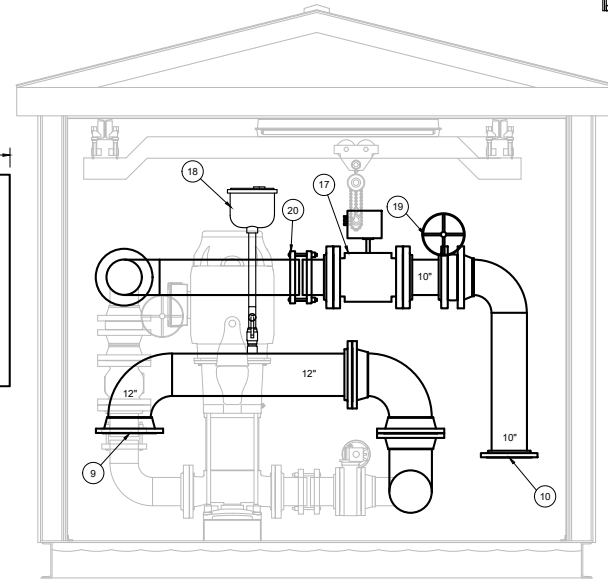
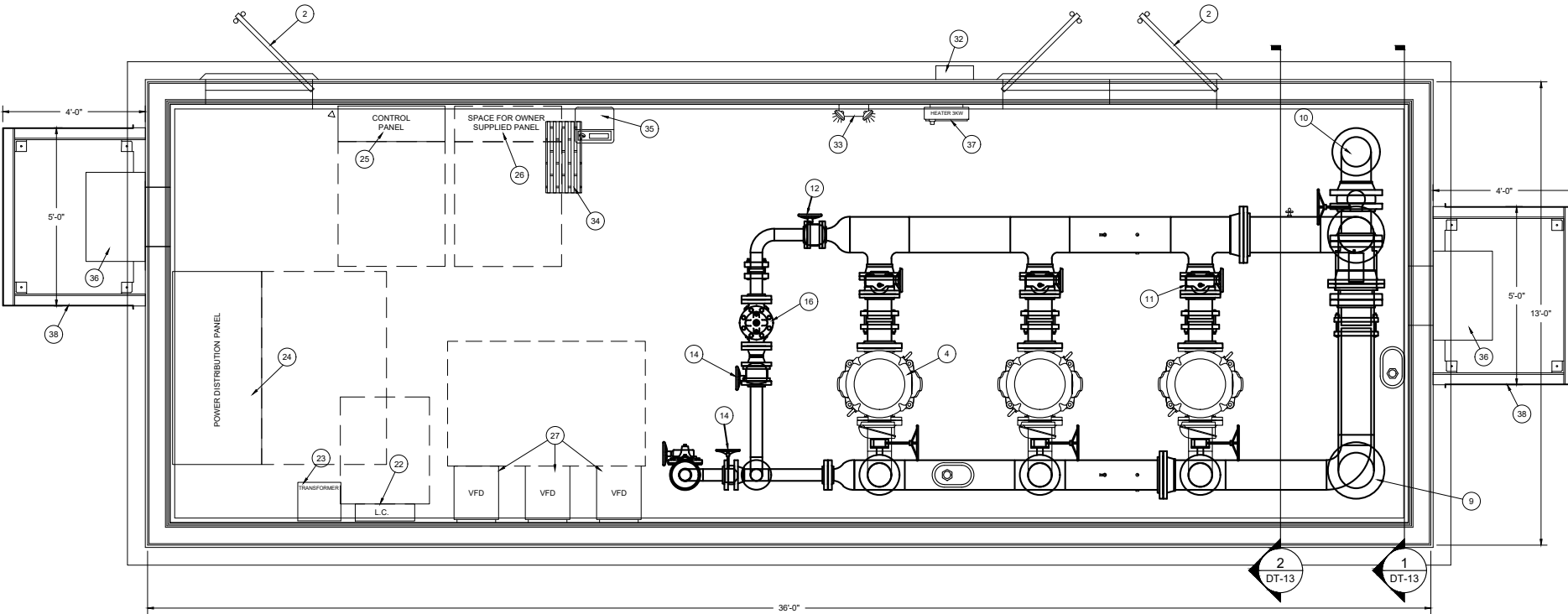
SUCTION/DISCHARGE PRESSURE
GAUGE/TRANSMITTER DETAIL



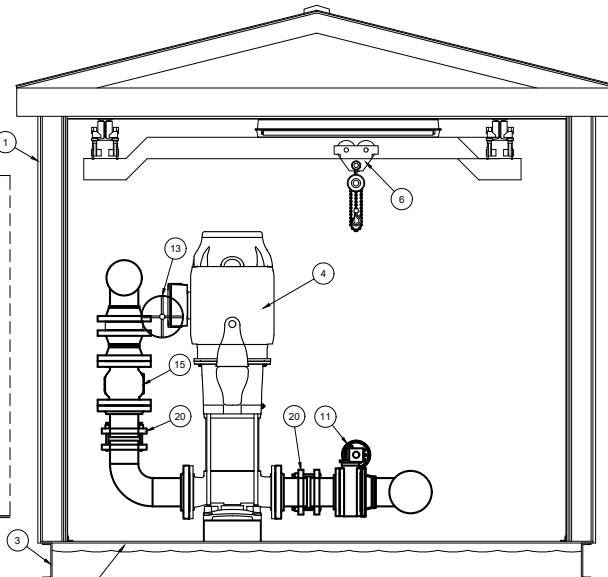
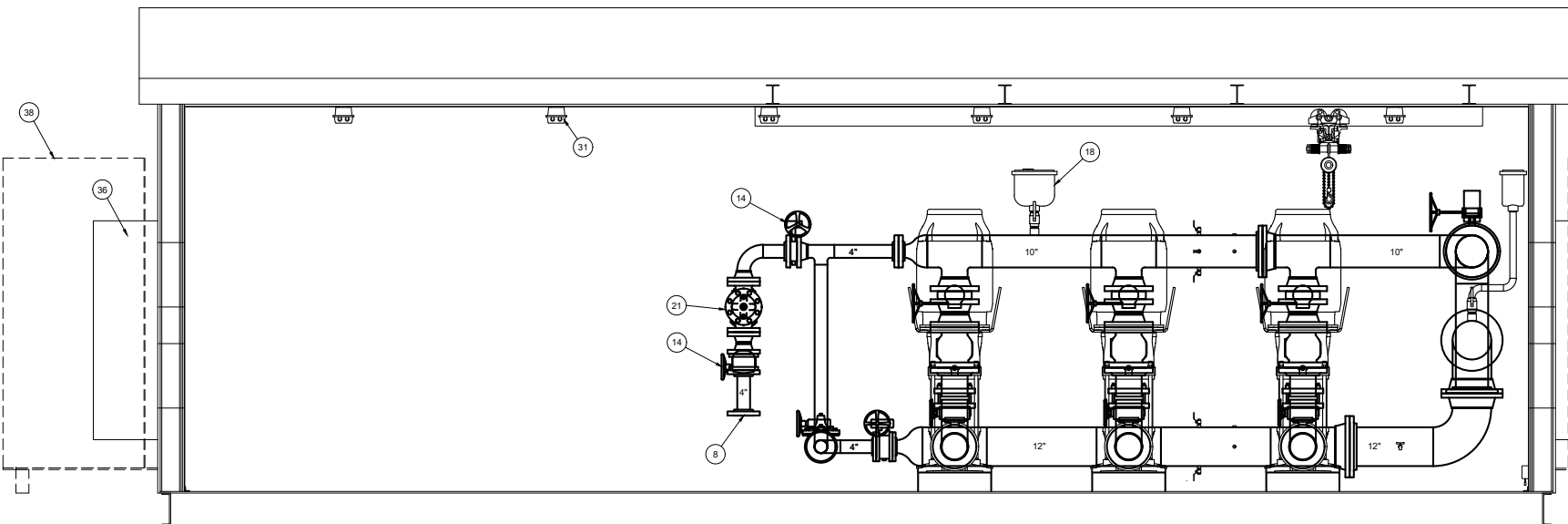
WALL SECTION



PIPE SUPPORT DETAIL



SECTION 1



SECTION 2

SHIMS (PROVIDED BY THE INSTALLING CONTRACTOR) AROUND THE PERIMETER
BASE OF THE BUILDING MAY BE REQUIRED TO INSURE PROPER LEVEL.
WITHOUT PROPER LEVEL, THE DOOR(S) MAY NOT OPERATE PROPERLY.

PLEASE CONFIRM THE FLOW DIRECTIONS AND THE SUCTION
AND DISCHARGE LOCATIONS ARE IN CORRECT LOCATIONS.

DAKOTA PUMP
25524 413TH AVE. t. (605)-996-6636
MITCHELL, SD 57301 w. dakotapump.com

ITEM	QUANTITY	DESCRIPTION
38	2	HVAC SHIELD
37	1	3000 WATT BACK UP HEATER
36	2	HVAC UNITS
35	1	DEHUMIDIFIER
34	1	FLOOR DRAIN OPENING
33	1	EMERGENCY LIGHT
32	1	EXTERIOR LED LIGHT
31	6	INTERIOR LED LIGHTS
30		
29	2	PRESSURE GAUGES
28	2	PRESSURE TRANSDUCERS
27	1	VARIABLE SPEED DRIVES
26	1	SPACE ALLOWANCE FOR OWNER SUPPLIED PANEL
25	1	CONTROL / PLC PANEL
24	1	SINGLE PHASE TRANSFORMER
23	1	SINGLE PHASE LOAD CENTER
22	1	480 VOLT POWER PANEL
21	1	4" HIGH PRESSURE BACK PRESSURE/SOLENOID SHUTOFF VALVE
20	8	COUPLINGS
19	1	10" HIGH PRESSURE BUTTERFLY VALVE WITH GEAR OP
18	2	AIR VALVES WITH BALL ISOLATION VALVES
17	1	10" HIGH PRESSURE FLOW METER
16	1	4" HIGH PRESSURE RELIEF VALVE
15	3	8" HIGH PRESSURE GLOBE STYLE CHECK VALVES
14	3	4" HIGH PRESSURE BUTTERFLY VALVES WITH GEAR OP
13	3	8" HIGH PRESSURE BUTTERFLY VALVES WITH GEAR OP
12	1	4" BUTTERFLY VALVE WITH GEAR OP
11	3	8" BUTTERFLY VALVES WITH GEAR OP
10	1	10" FLANGED DISCHARGE CONNECTION
9	1	12" FLANGED SUCTION CONNECTION
8	1	4" FLANGED DISCHARGE CONNECTION
7	-	POLYURETHANE BASE INSULATION
6	1	BI-DIRECTIONAL TROLLEY AND HOIST
5		
4	3	PUMPS & MOTORS GRUNDFOS CR185-3, 150 HP, 3550 RPM, 480V/3PH/60HZ, CONDITIONS - 673 GPM @ 542' TDH
3	1	STEEL BASE - 12" FLOOR PLATE WITH STRUCTURAL REINF.
2	2	7' HIGH DOORS WITH HARDWARE - BULLET RESISTANT
1	1	DPI MODULAR BUILDING - BULLET RESISTANT

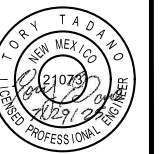
PROJECT:
Navajo Gallup Water, New Mexico
Pumping Plant #12

DRAWN-BY: BILL DATE: 03-21-25

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LAYOUT IS FOR SUBMITTAL DATA ONLY AND CAN VARY IN THE SHOP
CERTIFIED DIMENSIONS CAN BE FURNISHED UPON REQUEST.

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Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
www.soudermiller.com

Client: The Navajo Nation
Location: Tsel'eh, NM
PP 12 PUMP STATION (AS FURNISHED BY SUPPLIER)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed: EAP Drawn: MvH/AaV Checked: TTT

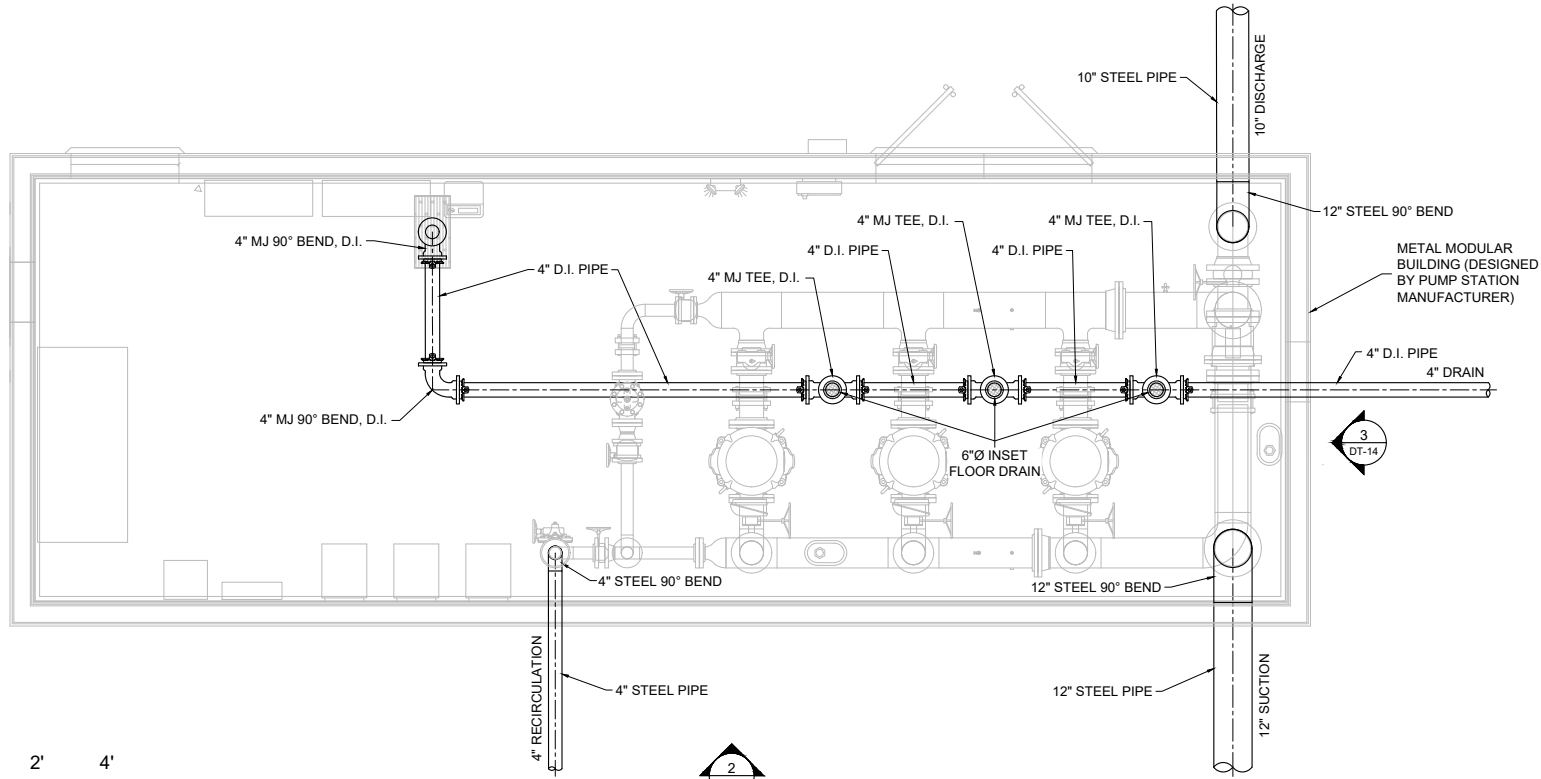
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811 Know what's
BELOW.
CALL before
you dig.

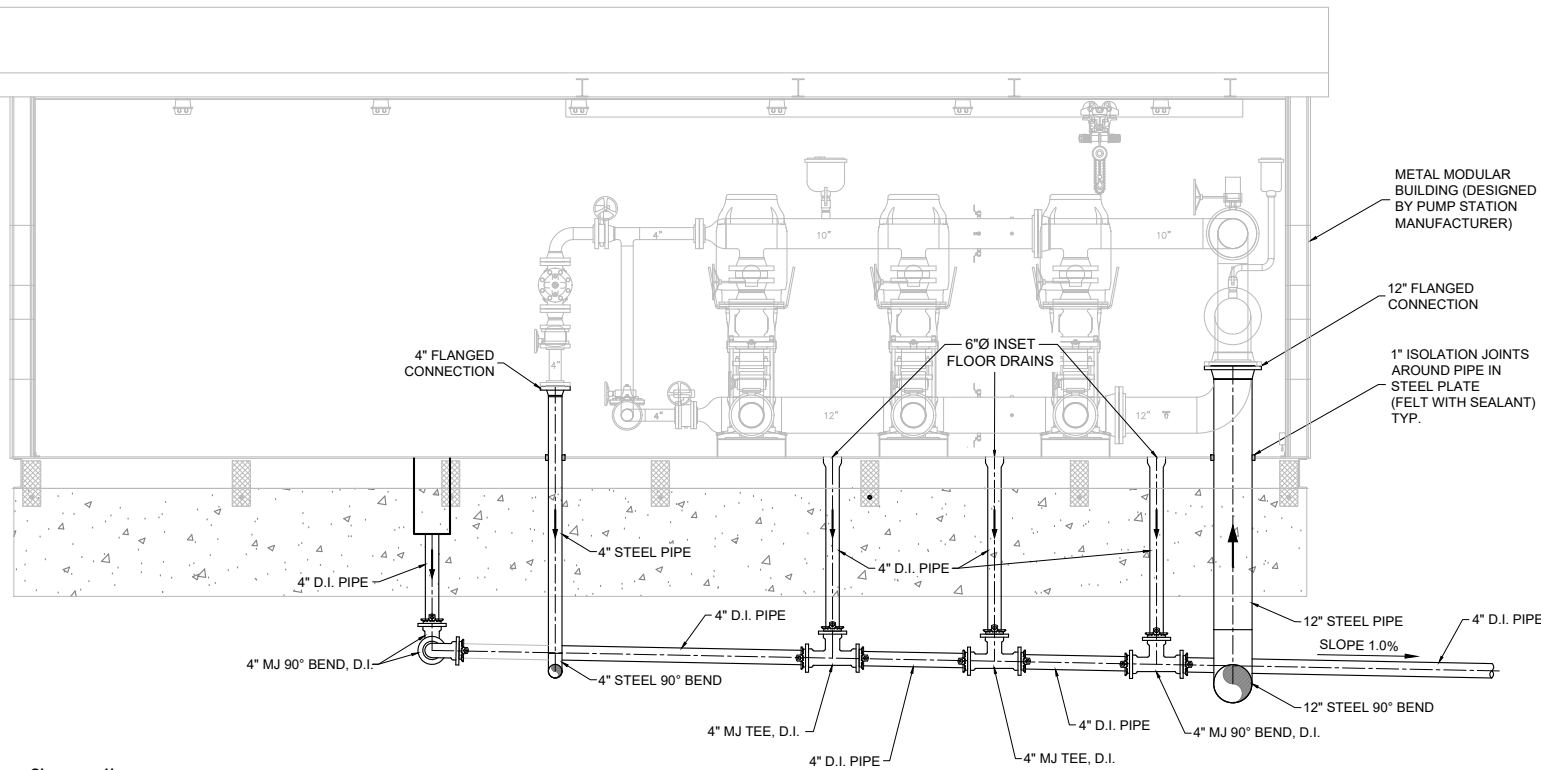
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Project No: 6922268
Sheet: DT-13

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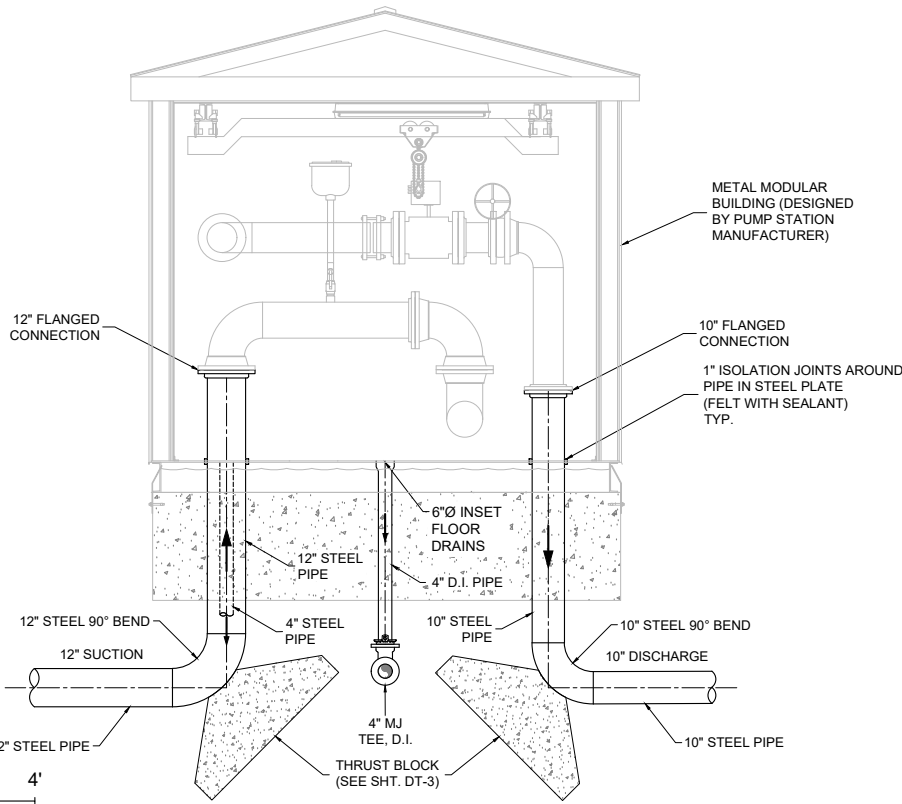


1 PIPING PLAN
3/16"=1'-0"



2 PIPING ELEVATION PLAN
3/16"=1'-0"

- NOTES:
1. CONTRACTOR WHOLLY RESPONSIBLE TO VERIFY ACTUAL PRE-FAB PUMP STATION BUILDING AND PIPING DIMENSIONS AND COORDINATE WITH PUMP STATION MANUFACTURER PRIOR TO CONSTRUCTION. CONTRACTOR RESPONSIBLE TO ALIGN FOUNDATION, PIPING, INLETS & OUTLETS AND DRAINS WITH ACTUAL PUMP STATION LAY-OUT IN FIELD. VERIFY ALL BUILDING SKID BEAMS & MATING LINES PRIOR TO INSTALLING FOUNDATION.
 2. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.
 3. CONTRACTOR SHALL GROUT UNDER SOLE PLATES OF PUMPS USING POLYMER TYPE GROUT. DO NOT LEAVE ANY VOIDS.
 4. CONTRACTOR SHALL GROUT PIPE PENETRATIONS PER SPECIFICATIONS.
 5. FOR CONTINUATION OF PUMP STATION UNDERGROUND PIPING SEE PUMPING PLANT 12 PIPING PLAN, SHEET C-23.



3 PIPING ELEVATION PLAN
3/16"=1'-0"

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www.soudermiller.com

Client: The Navajo Nation
Location: Tsel'ihani, NM
PP 12 PUMP STATION PIPING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

FORNEY TADANO
NEW MEXICO
LICENSED PROFESSIONAL ENGINEER
21073
10/29/2025

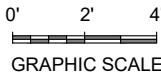
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Date: August 2025
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Project No: 6922268
Sheet: DT-14

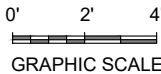
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1 FOUNDATION PLAN

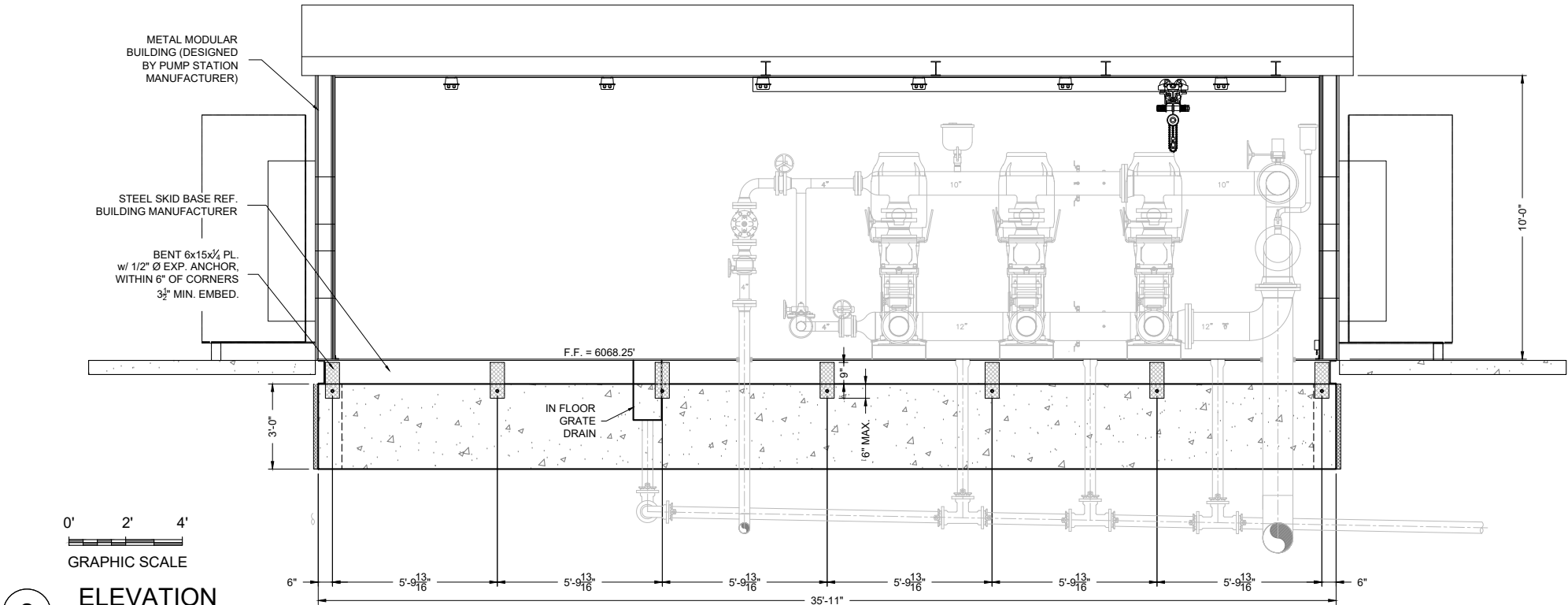
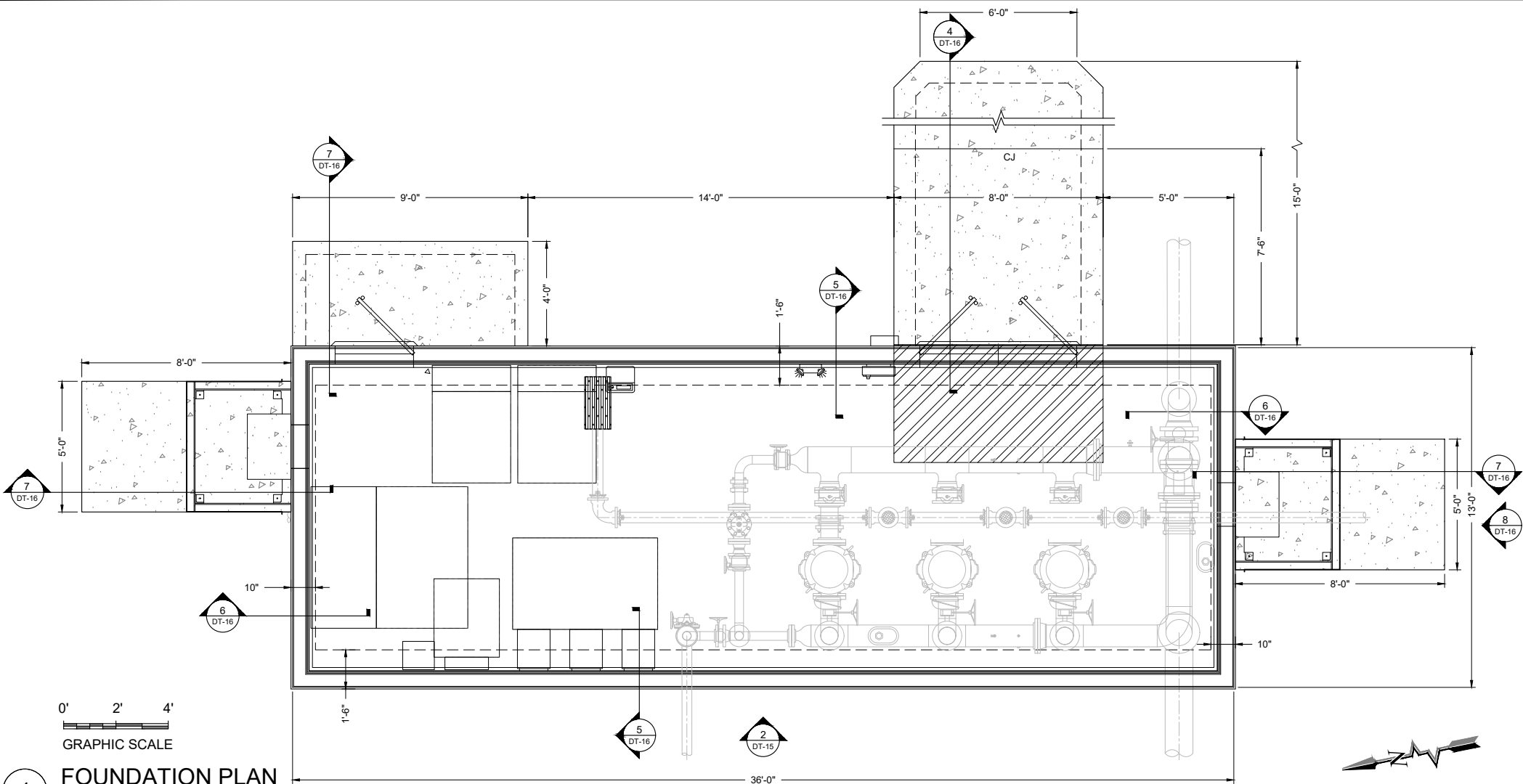


3/16"=1'-0"

2 ELEVATION



3/16"=1'-0"



CODE INFORMATION

2015 NEW MEXICO COMMERCIAL BUILDING CODE
2015 INTERNATIONAL BUILDING CODE
ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES
RISK CATEGORY III (WATER SUPPLY)

LOAD

MINIMUM DESIGN LOADS:
ROOF DEAD LOAD 15 PSF
ROOF LIVE LOAD 20 PSF
GROUND SNOW LOAD (pg) 20 PSF

WIND

BASIC WIND SPEED 120 MPH
EXPOSURE C

SEISMIC

DESIGN CATEGORY B
SITE SOIL CLASS D
IMPORTANCE FACTORY (I) 1.25
S-S 0.189
S-1 0.056
S-DS 0.202
S-D1 0.090

CONCRETE

ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE II (LOW ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 psi WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 7% ($\pm 1\%$) AIR ENTRAINMENT FOR EXTERIOR CONCRETE AND SHOULD BE PLACED AND CURED IN ACCORDANCE WITH THE ACI MANUAL OF CONCRETE PRACTICE, VOLUMES 1 THRU 5. SLUMP AT THE TIME OF PLACEMENT SHOULD NOT EXCEED FOUR (4) INCHES, AND MECHANICAL VIBRATION SHOULD BE EMPLOYED FOR CONSOLIDATION TO ELIMINATE VOIDS AND HONEYCOMBING.

REINFORCEMENT

ALL REINFORCING SHALL BE HIGH-STRENGTH DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 EXCEPT TIES, STIRRUPS AND PLATE ANCHORS WHICH SHALL BE DEFORMED BARS, ASTM DESIGNATION A615, GRADE 40 OR ASTM A706 GRADE 60.

LAP SPLICES, WHERE PERMITTED, SHALL BE A MINIMUM OF 48 BAR DIAMETERS FOR #6 BARS AND SMALLER AND SHALL BE A MINIMUM OF 80 BAR DIAMETERS FOR #7 AND #8 REINFORCEMENT UNLESS NOTED OTHERWISE. MAKE ALL BARS CONTINUOUS AROUND CORNERS.

REINFORCEMENT PROTECTION UNLESS NOTED OTHERWISE:

CONCRETE POURED AGAINST EARTH	3"
CONCRETE POURED IN FORMS (EXPOSED TO WEATHER OR EARTH)	2"
COLUMNS AND BEAMS (TIE BARS)	1-1/2"
SLABS AND WALLS (NOT EXPOSED TO WEATHER)	3/4"

FOUNDATION

BUILDING FOUNDATION SHALL BEAR ON A MINIMUM OF 1 FOOT OF ENGINEERED FILL. SLABS SHALL BEAR ON A MINIMUM OF 1 FOOT OF ENGINEERED FILL. ENGINEERED FILL SHALL EXTEND MINIMUM OF 1 FOOT LATERALLY BEYOND FOUNDATION. INCREASE DEPTH OF OVER-EXCAVATION, IF NECESSARY, TO ENSURE ENGINEERED FILL BEARS UNIFORMLY ON CUT; DO NOT ALLOW TRANSITION FORM CUT TO FILL TO PASS UNDERNEATH OR WITHIN 5 HORIZONTAL FEET OF BUILDING OR SLAB.

REFER TO GEOTECH REPORT BY GEO-TEST INC. REPORT #1-00909, DATED DECEMBER 1, 2020 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.

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5454 Venice Avenue NE, Suite D
Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
www.soudermiller.com

Location: Tsell'ahni, NM

Client: The Navajo Nation

PP 12 PUMP STATION FOUNDATION PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed EUAM	Drawn AAV	Checked HCR
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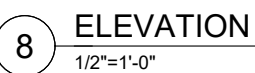


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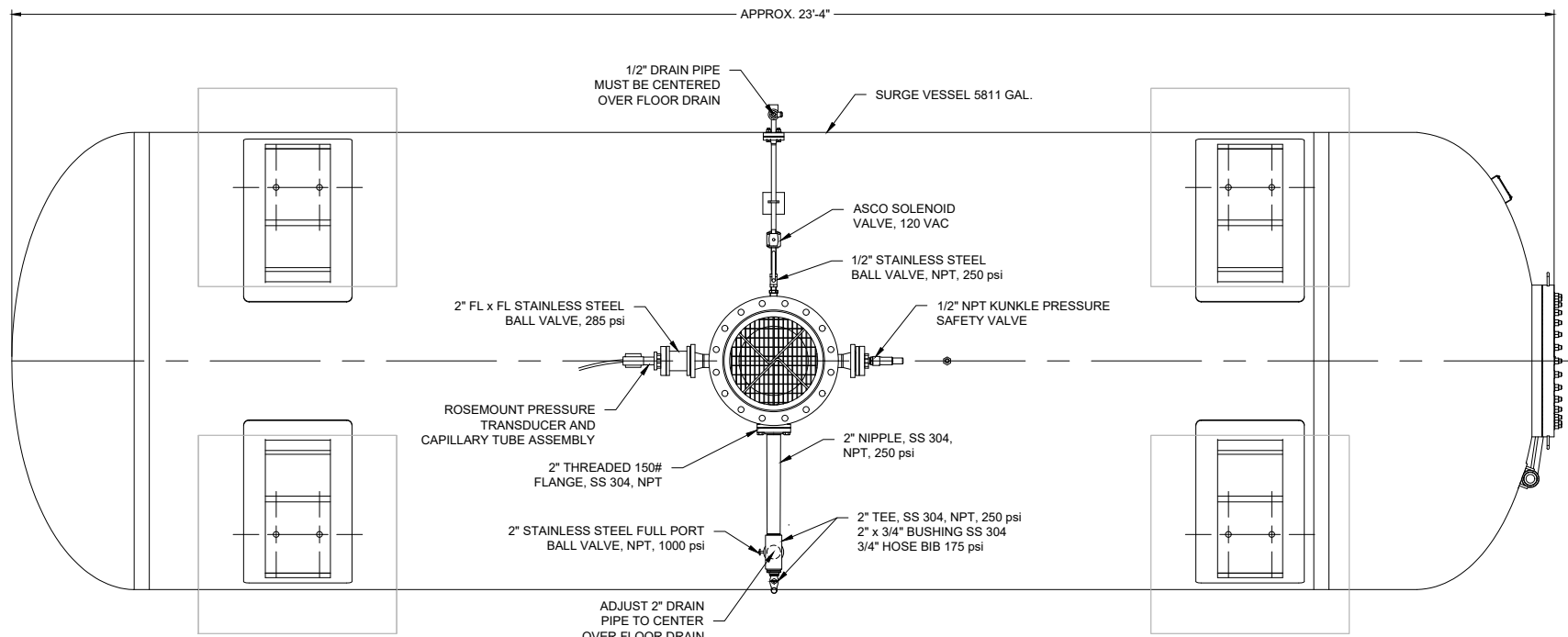
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Project No: 6922268

Sheet: DT-15

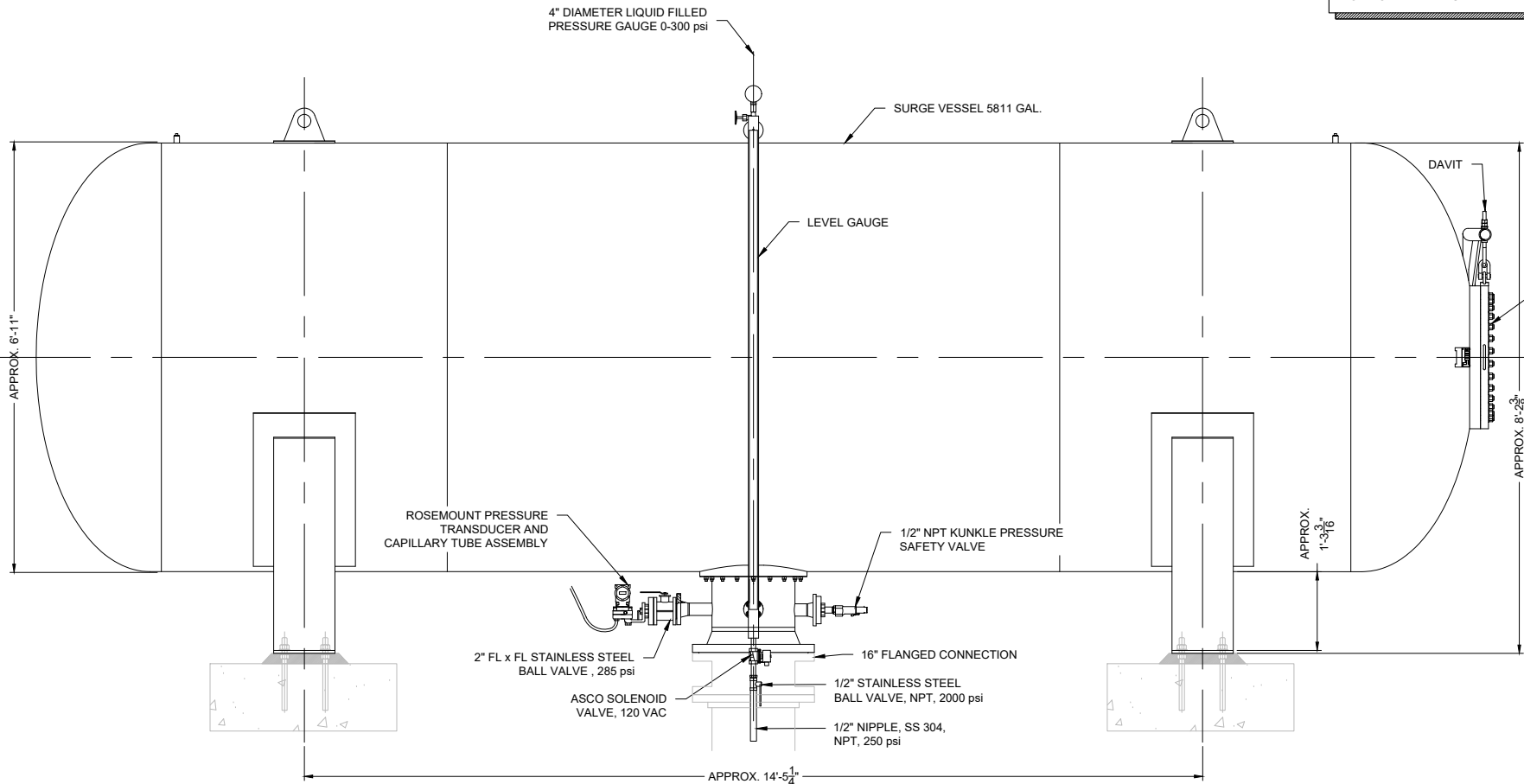
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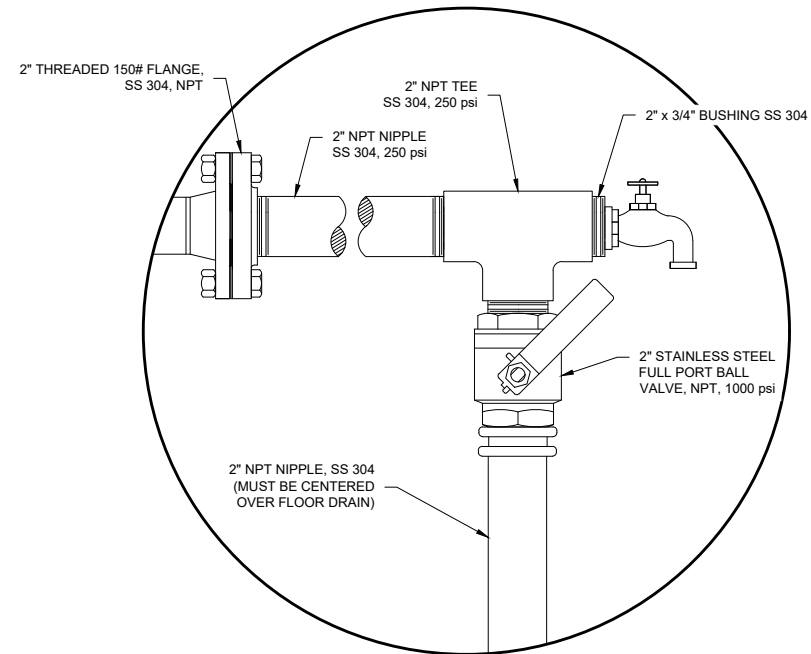
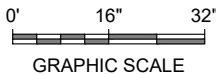


UNDERSIDE VIEW OF SURGE TANK
3/8" = 1' - 0"

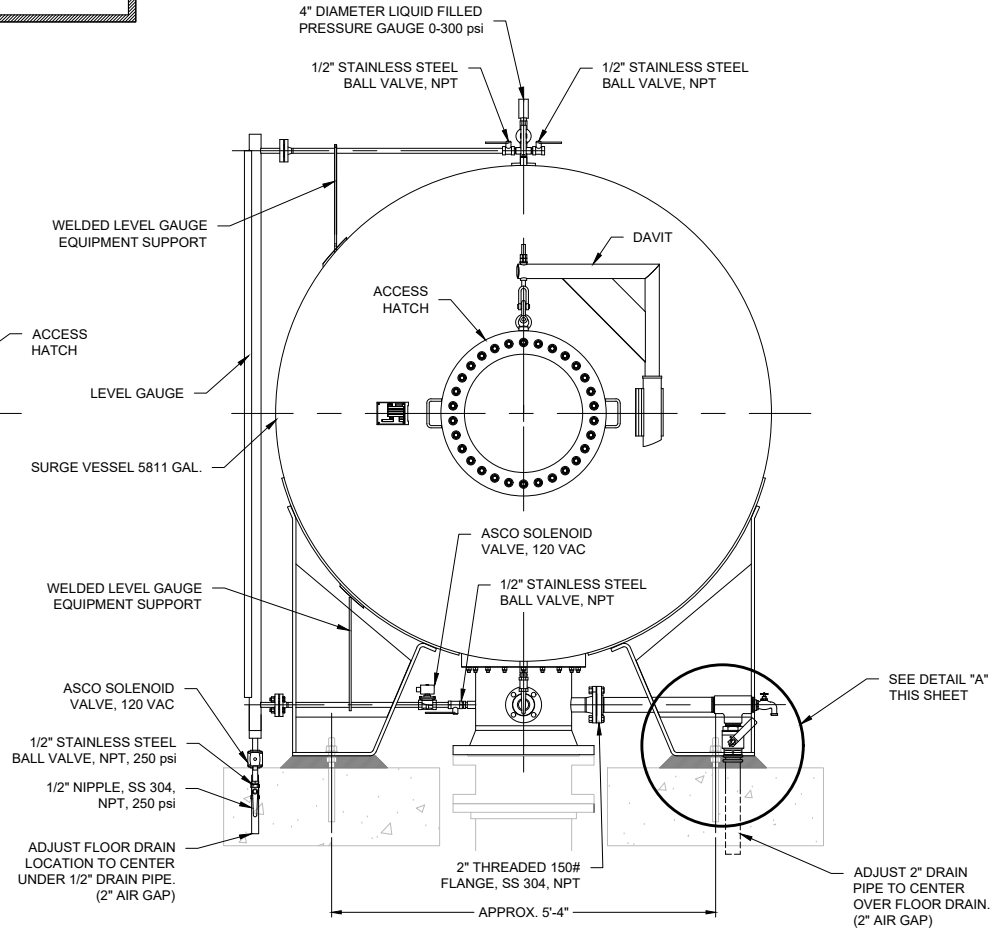
NOTE:
ALL DIMENSIONS RELATED TO TANK SIZES, LEG
SPACING, ETC. ARE APPROXIMATE, CONTRACTOR
TO FIELD VERIFY ACTUAL TANK DIMENSIONS
BEFORE FOUNDATION CONSTRUCTION OR DRAIN
PIPE INSTALLATION. PROVIDE MEASUREMENTS
TO ENGINEER AS SUBMITTAL.



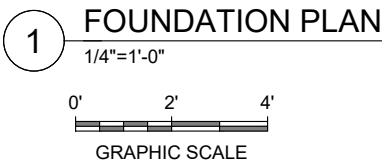
ELEVATION VIEW OF SURGE TANK
3/8" = 1' - 0"



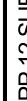
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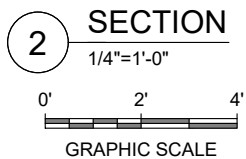


END VIEW OF SURGE TANK
3/8" = 1' - 0"



ALL CMU WALLS REQUIRE A MINIMUM OF (2) (#5) IN BOND BEAMS ABOVE ALL DOORS AND WINDOWS, AT FLOOR AND ROOF LINES, AND TOP OF PARAPETS UNLESS OTHERWISE NOTED.

Client: The Navajo Nation	Location: Tseili, NM	 SMA Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430 www.soudermiller.com	
PP 12 SURGE TANK BUILDING FOUNDATION PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO			
Designed: UAM	Drawn: AAV	Checked: HCR	
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 811		Know what's BELOW. CALL before you dig.	
Date: August 2025			
Scale: Horiz: AS SHOWN Vert: N/A		Project No: 6922268	
Sheet:		DT-18	



- 
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Client: The Navajo Nation
Location: Tse'i'lahi, NM
PP 12 SURGE TANK BUILDING SECTION (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BIST N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed EUAM	Drawn AAV	Checked HCR
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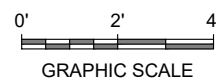
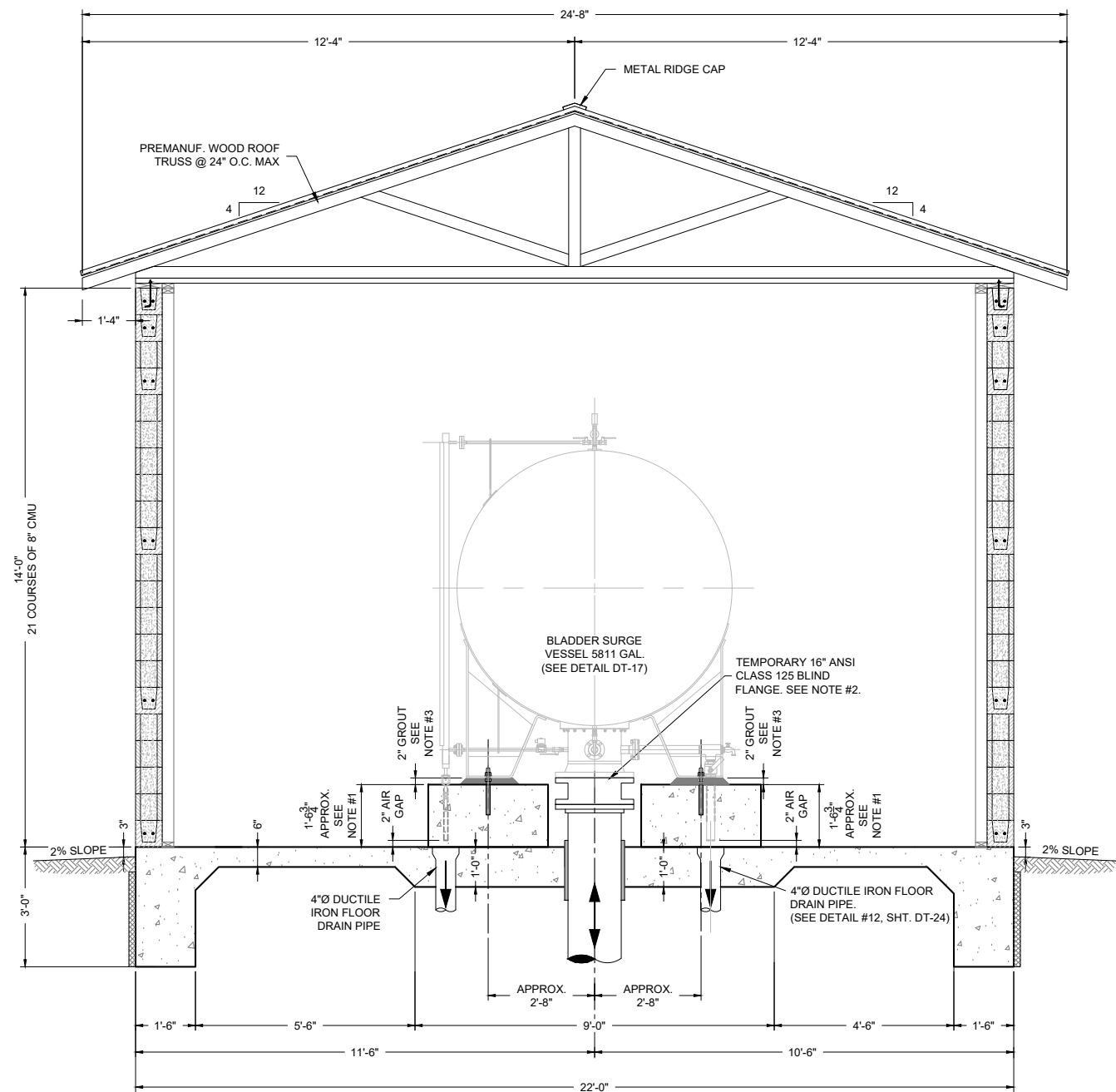
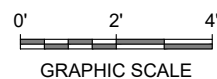
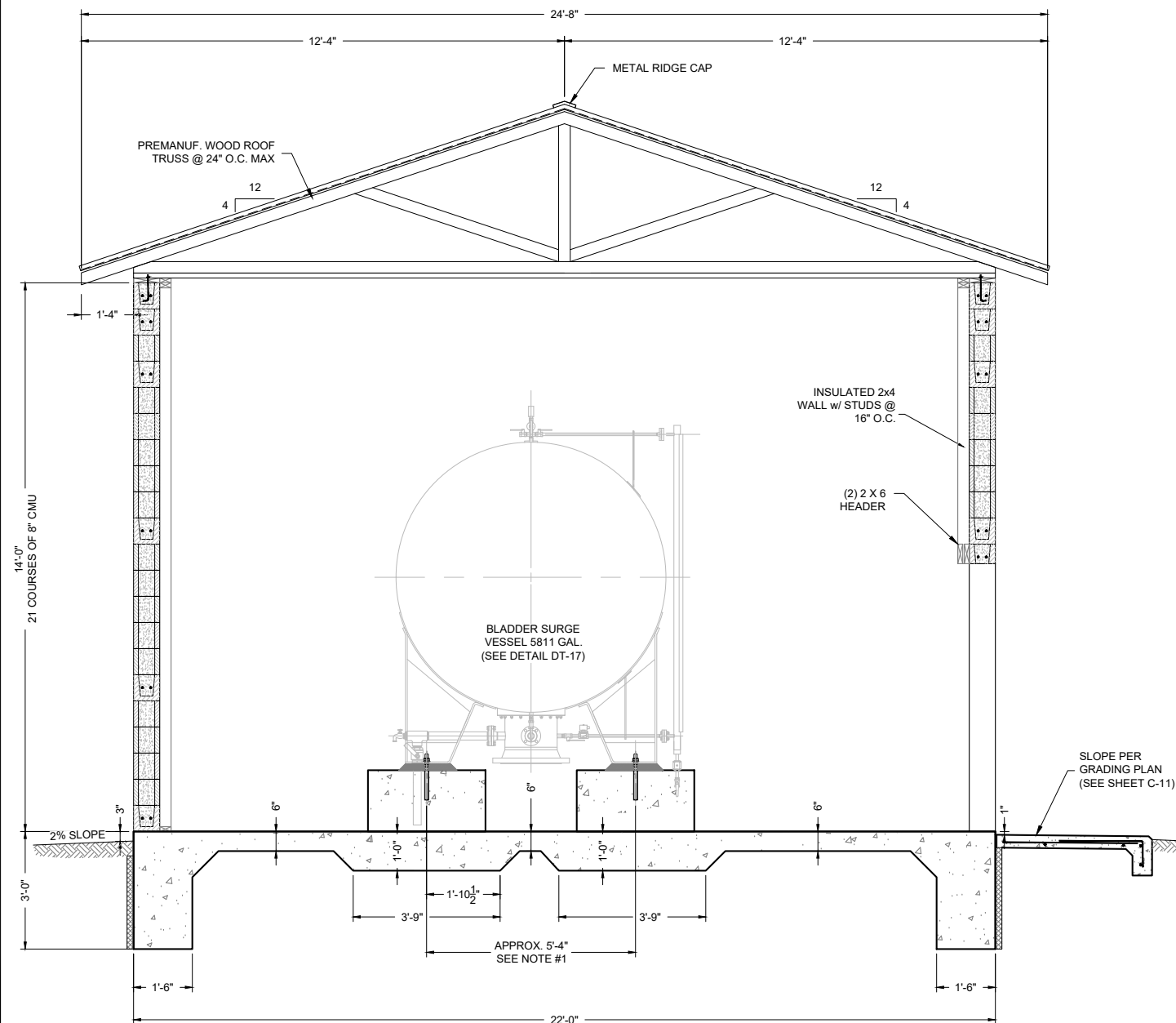


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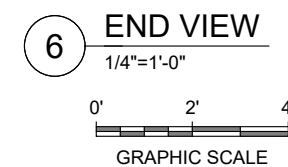
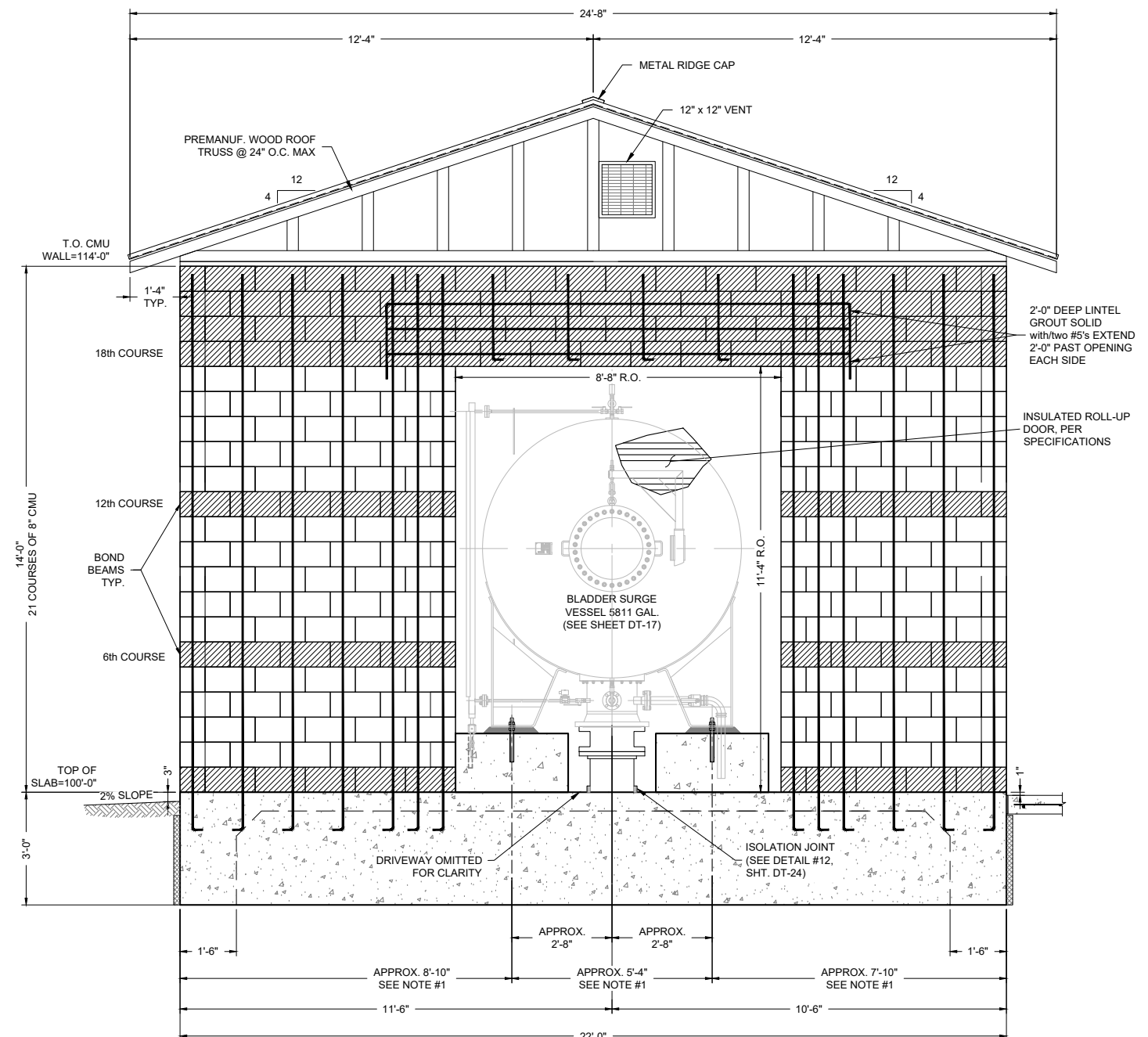
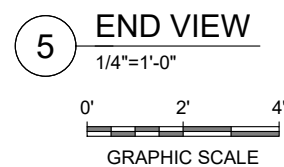
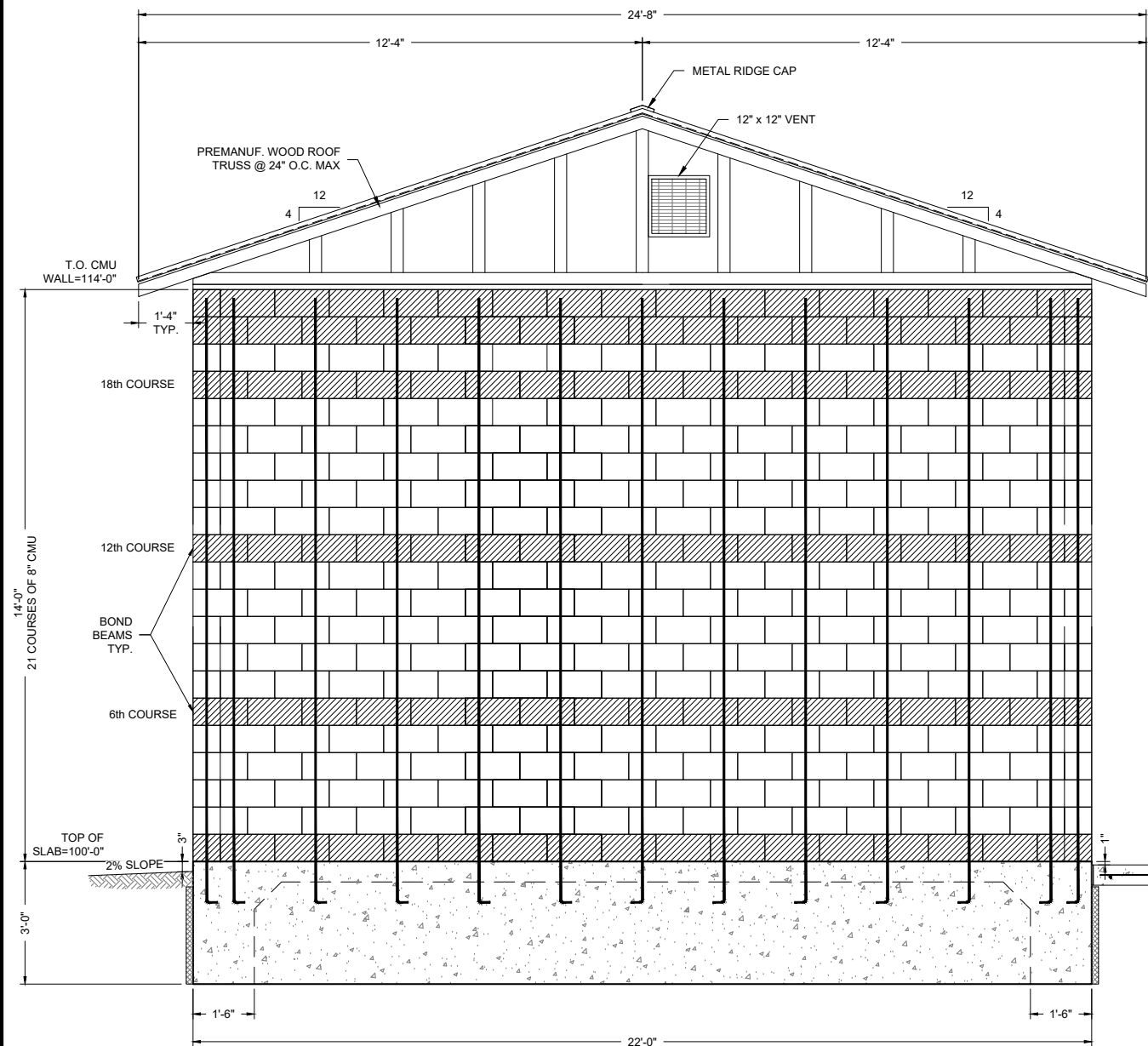
Project No: 6922268

Sheet: DT-19



- ## NOTES

1. ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE, CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL TANK DIMENSIONS AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
2. INSTALL TEMPORARY 16-INCH ANSI CLASS 125 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. UTILIZE FLUSH VALVE AT PUMP STATION TO FLUSH MAINLINE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 16-INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE, BUT PRIOR TO STARTING UP SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING AT THE PUMP STATION IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE PUMPING PLANT 12 UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL. DO NOT ALLOW FOREIGN OBJECTS OR DEBRIS ENTER SURGE TANK. DO NOT BRING SURGE TANK ONLINE UNTIL SITE PIPING HAS BEEN THOROUGHLY FLUSHED.
3. USE DOUBLE NUTS AT TANK PEDESTALS TO ADJUST SURGE TANK HEIGHT AND LEVEL. DO NOT PLACE NON-SHRINK GROUT BETWEEN PEDESTAL AND TANK BASE UNTIL BLIND FLANGE IS REMOVED, PROCO FITTING INSTALLATION IS FINALIZED, AND TANK HEIGHT AND PROCO COMPRESSION ARE APPROVED IN THE FIELD BY ENGINEER.



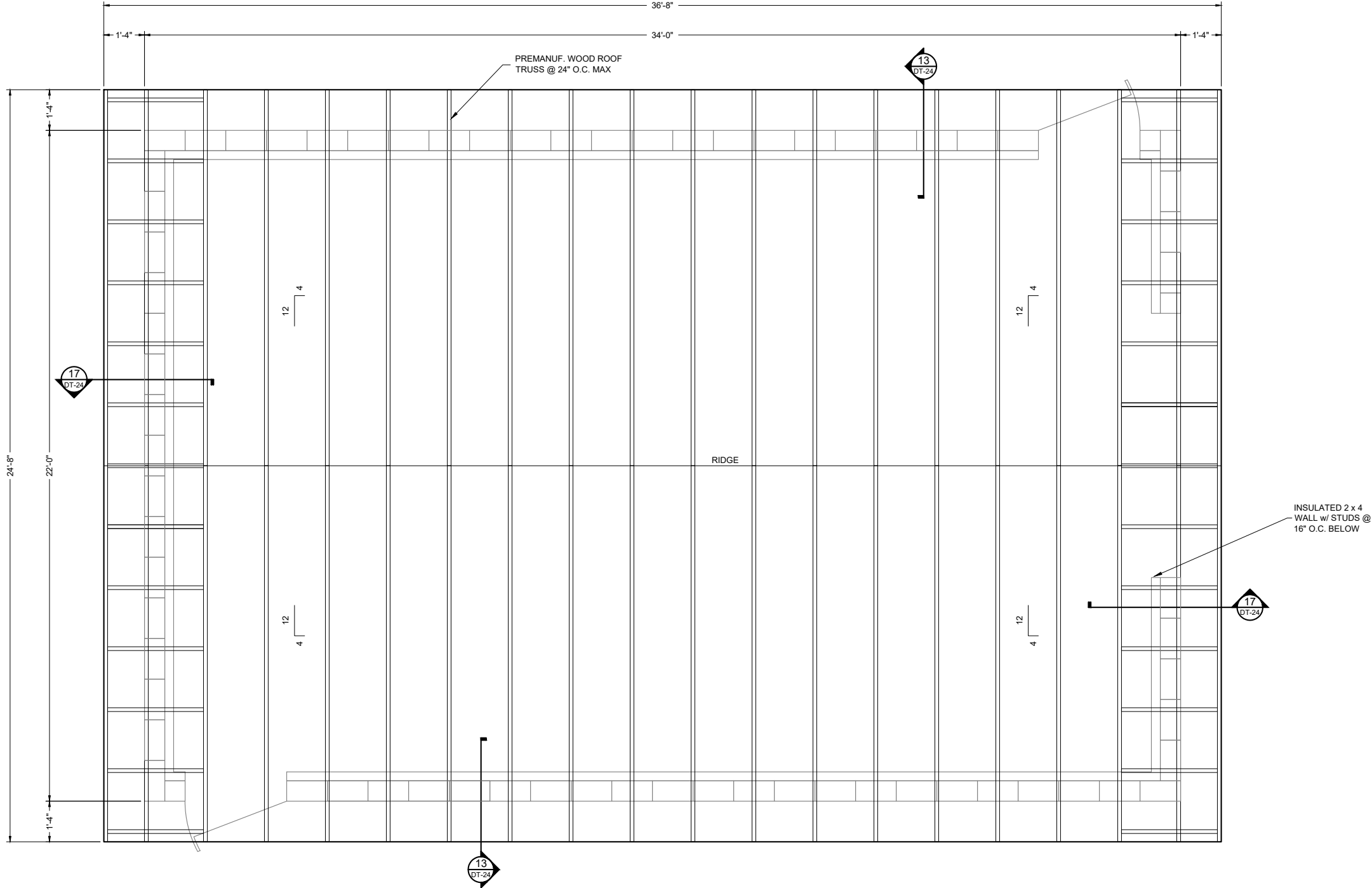
NOTES

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2. FOR CONTINUATION OF SURGE TANK UNDERGROUND PIPING SEE SURGE TANK SITE PIPING PLANS, SHEETS C-18 TO C-26.
3. FOR BLOCK PATTERN DETAILS, SEE SHEETS DT-25 & DT-26.
4. CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, PER SPECIFICATIONS, TO EXTERIOR OF BUILDING.

LEGEND

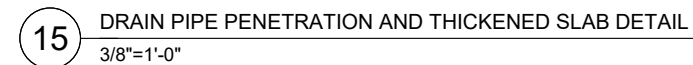
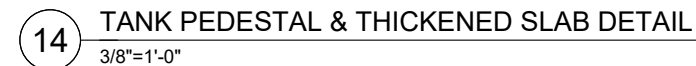
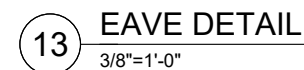
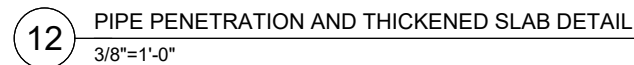
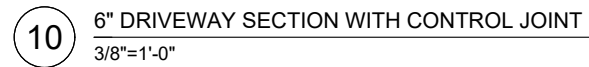
 BOND BEAM

P:\6-Beacon Bldg N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Surge Tank Bldg Details.dwg
8/5/2025, 2:57:54 PM aav



8 ROOF PLAN
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

Client: The Navajo Nation Location: Tseil'ihni, NM	PP 12 SURGE TANK BUILDING ROOF PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO		Designed EUAM	Drawn AAV	Checked HCR
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Scale: Horiz: AS SHOWN Vert: N/A			Project No: 6922268		
Sheet: DT-23			Revision Date Description By Chkd		



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Client: The Navajo Nation	Location: Tseil'ihali, NM
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PP 12 SURGE TANK BUILDING DETAILS	
NAVAJO GALLUP WATER SUPPLY PROJECT	
BEACON BISTI N9 - REACH 10.2	
McKINLEY COUNTY, NEW MEXICO	



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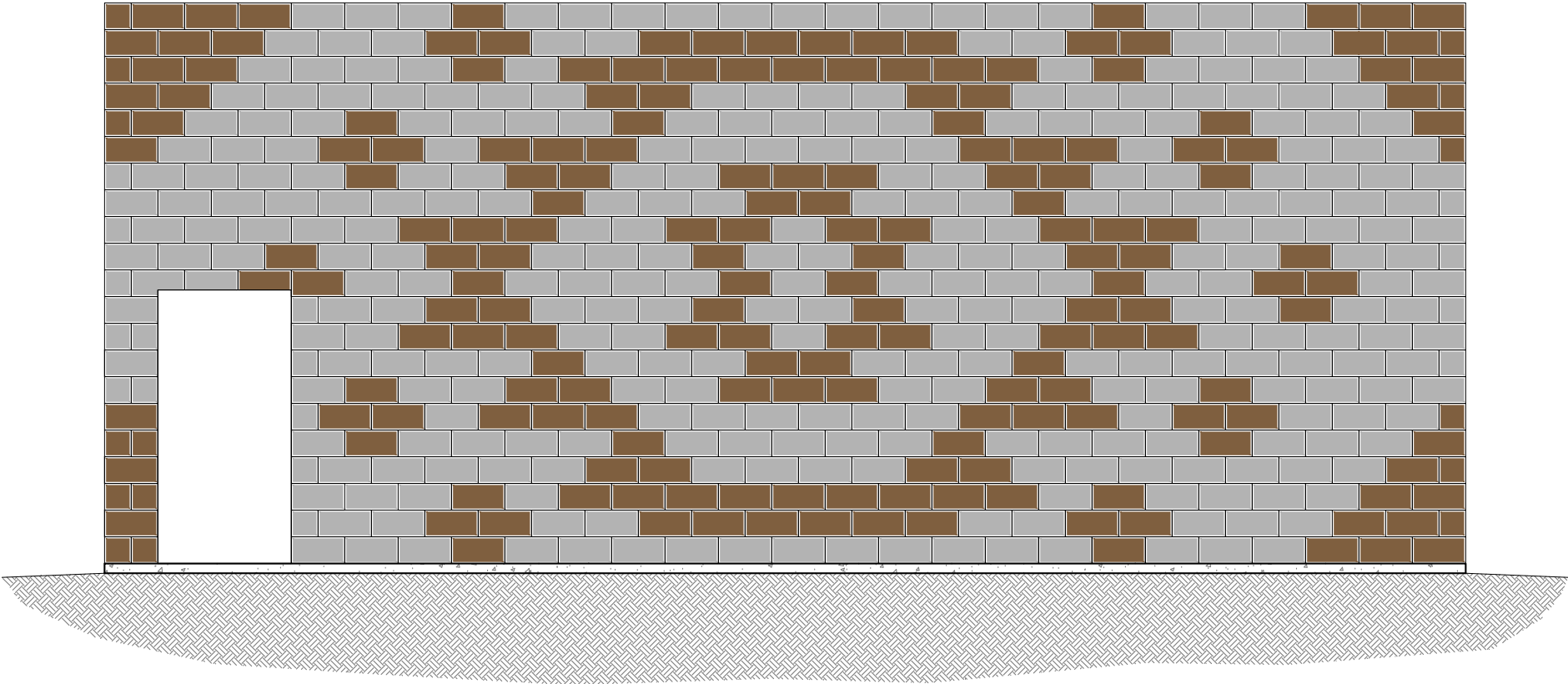
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8/5/2025 2:38:03 PM aav

CMU BLOCK COLOR LEGEND

- CANYON BROWN
- GRAY

SURGE BUILDING BLOCK QUANTITIES		
COLOR	FULL BLOCK 16" LENGTH	HALF BLOCK 8" LENGTH (AROUND DOOR)
CANYON BROWN	612	6
GRAY	933	31

- NOTES:
- QUANTITIES TABLE REFLECTS ENTIRE SURGE TANK BUILDING.
 - CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO PURCHASING.
 - MORTAR COLOR TO MATCH COLOR OF ADJACENT BLOCK.
 - CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, PER SPECIFICATIONS, TO EXTERIOR OF BUILDING.



7 CMU BLOCK PATTERN FRONT VIEW AND BACK VIEW
1/4"=1'-0"

0'

2'

4'

GRAPHIC SCALE

Revision

Date

Description

By

CHK'd

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Client: The Navajo Nation

Location: Tsé'í'ahí, NM

PP 12 SURGE TANK BUILDING BLOCK DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

MCKINLEY COUNTY, NEW MEXICO

Professional Engineer

23567

NEW MEXICO

PAUL C. SOUTER

Designed

Drawn

Checked

EUAM

AAV

HCR

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Project No: 6922268

Sheet: DT-25

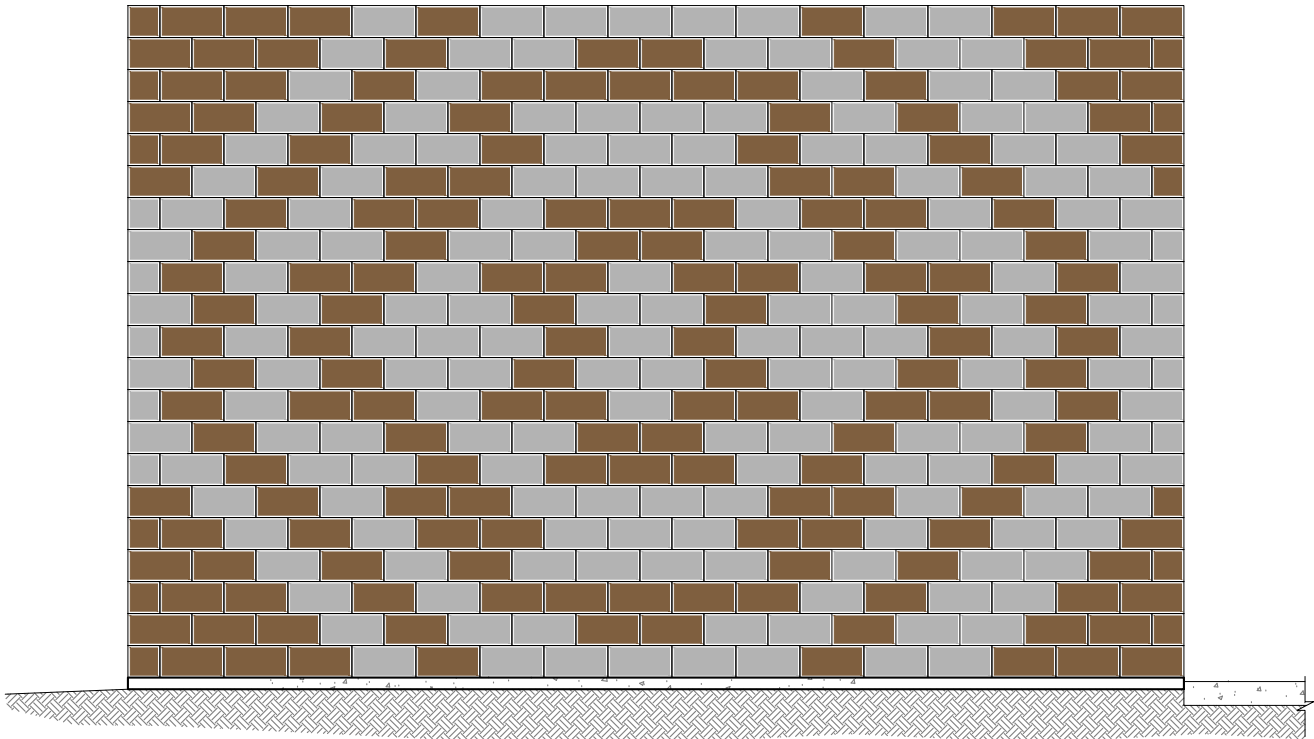
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CMU BLOCK COLOR LEGEND

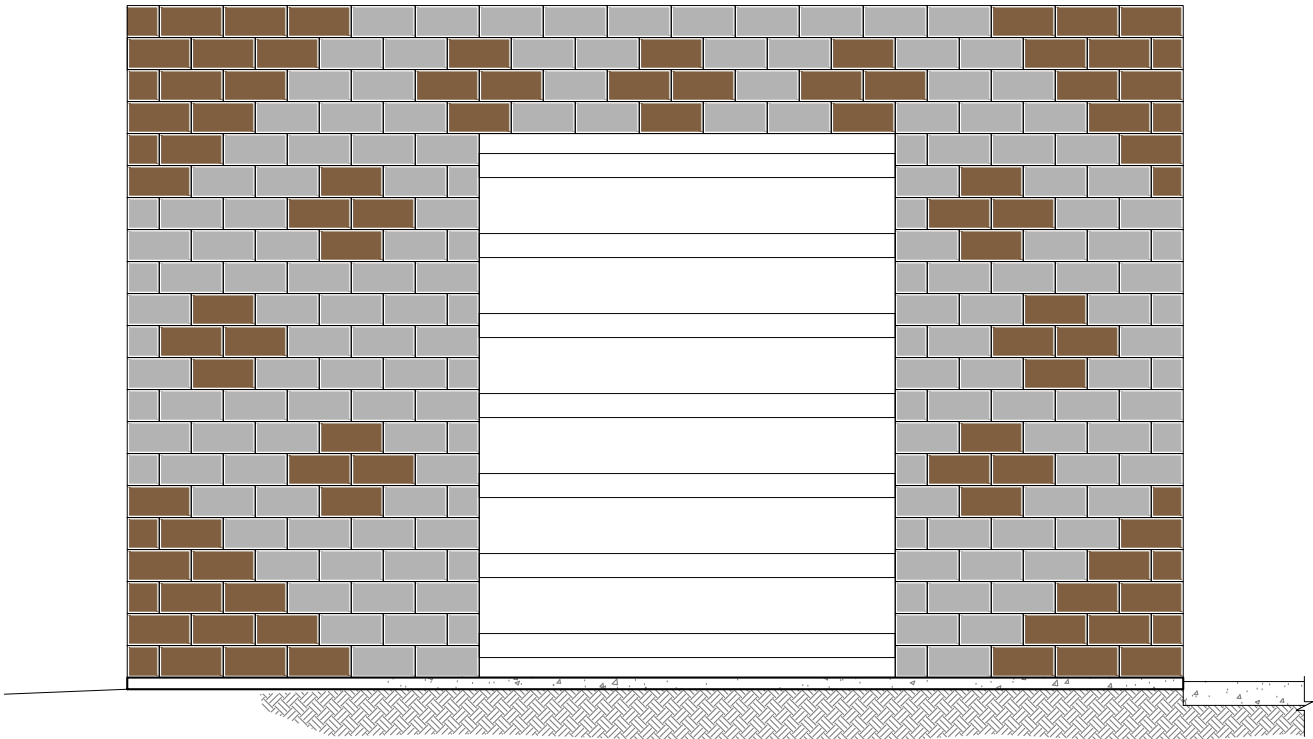
- CANYON BROWN
- GRAY

SURGE BUILDING BLOCK QUANTITIES		
COLOR	FULL BLOCK 16" LENGTH	HALF BLOCK 8" LENGTH (AROUND DOOR)
CANYON BROWN	612	6
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 - CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, PER SPECIFICATIONS, TO EXTERIOR OF BUILDING.



5 CMU BLOCK PATTERN END VIEW
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE



6 CMU BLOCK PATTERN END VIEW
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

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Client: The Navajo Nation

Location: Tsé'í'ahí, NM

PP 12 SURGE TANK BUILDING BLOCK DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



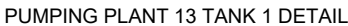
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Project No:	6922268
Sheet:	DT-26

1. FOUNDATION, TANK ROOF AND STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER..
2. TANK FOUNDATIONS MUST BE CONCRETE RING WALL TYPE FOUNDATION. STEEL RETAINING RING NOT ALLOWED. REFER TO GEO-TEST GEOTECHNICAL ENGINEERING SERVICES REPORT NO. 1-00908, DATED DECEMBER 1, 2020 AND ADDENDUM DATED SEPTEMBER 24, 2021, FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
3. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH REGULATING TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF $\pm 1/2"$ INCH).
4. STATED TANK VOLUMES ARE NOMINAL. ACTUAL TANK VOLUMES SHALL BE WITHIN 2% OF THE STATED NOMINAL VALUE.
5. TANK COLOR TO BE TAN.
6. ALL COURSE OF TANK WALLS SHALL BE 1/4" THICK STEEL.
7. TANK APPURTENANCES SHOWN IN ELEVATION VIEW HAVE BEEN ROTATED INTO VIEW FOR DEPICTION PURPOSES.
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11. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL UNLESS OTHERWISE NOTED.
12. SANDBLASTING WASTE SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED SOLID WASTE FACILITY AT THE CONTRACTOR'S EXPENSE.
13. ALL BASE AND OVERFLOW ELEVATIONS PROVIDED IN THESE DRAWINGS ARE APPROXIMATE.
14. ALL STEEL PIPE FLANGES SHALL BE ANSI CLASS 150.
15. EXACT ORIENTATION OF ALL TANK FEATURES AND PIPE PENETRATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER. TANK MANUFACTURER SHALL CONFIRM ALL LOCATIONS W/ ENGINEER PRIOR TO FABRICATION. SOME FEATURES MAY BE ROTATED IN ELEVATION VIEW FOR CLARITY.
16. IMPRESSED CURRENT CATHODIC PROTECTION REQUIRED.
17. REFER TO PUMPING PLANT 13 SITE PIPING PLAN SHT. C-30 FOR CONTINUATION.

[illegible]

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Client: The Navajo Nation Location: Tse'i'ahí, NM

PP 13 TANK 1 DETAILS (1 OF 2)

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

McKINLEY COUNTY, NEW MEXICO



Designed EAP	Drawn MvH/AaV	Checked TTT
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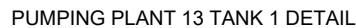
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Project No: 6922268

Sheet: DT-27

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17. REFER TO PUMPING PLANT 13 SITE PIPING PLAN SHT. C-30 FOR CONTINUATION.

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Client: The Navajo Nation
Location: Tse'iitah, NM



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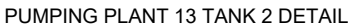
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Vert: N/A

Project No: 6922268

Sheet: DT-28

1. FOUNDATION, TANK ROOF AND STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER..
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16. IMPRESSED CURRENT CATHODIC PROTECTION REQUIRED.
17. REFER TO PUMPING PLANT 13 SITE PIPING PLAN SHT. C-30 FOR CONTINUATION.

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Client: The Navajo Nation Location: Tseili'ahi, NM

PP 13 TANK 2 DETAILS (1 OF 2)

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

McKINLEY COUNTY, NEW MEXICO



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Project No: 6922268

Sheet: DT-29

1. FOUNDATION, TANK ROOF AND STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER..
2. TANK FOUNDATIONS MUST BE CONCRETE RING WALL TYPE FOUNDATION. STEEL RETAINING RING NOT ALLOWED. REFER TO GEO-TEST GEOTECHNICAL ENGINEERING SERVICES REPORT NO. 1-00908, DATED DECEMBER 1, 2020 AND ADDENDUM DATED SEPTEMBER 24, 2021, FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
3. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH REGULATING TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF $\pm 1/2"$ INCH).
4. STATED TANK VOLUMES ARE NOMINAL. ACTUAL TANK VOLUMES SHALL BE WITHIN 2% OF THE STATED NOMINAL VALUE.
5. TANK COLOR TO BE TAN.
6. ALL COURSE OF TANK WALLS SHALL BE 1/4" THICK STEEL.
7. TANK APPURTENANCES SHOWN IN ELEVATION VIEW HAVE BEEN ROTATED INTO VIEW FOR DEPICTION PURPOSES.
8. STEEL OVERFLOW PIPING SHALL BE SHOP COATED WITH UV RESISTANT POLYAMIDE EPOXY PER TECHNICAL SPECIFICATIONS.
9. ALL UNDERGROUND NON STAINLESS STEEL PIPE AND FITTINGS SHALL BE WAX TAPE-COATED EXTERIOR.
10. ALL STEEL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF TANKS OR BUILDINGS SHALL BE SHOP WELDED AND COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO POURING FOUNDATIONS.
11. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL UNLESS OTHERWISE NOTED.
12. SANDBLASTING WASTE SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED SOLID WASTE FACILITY AT THE CONTRACTOR'S EXPENSE.
13. ALL BASE AND OVERFLOW ELEVATIONS PROVIDED IN THESE DRAWINGS ARE APPROXIMATE.
14. ALL STEEL PIPE FLANGES SHALL BE ANSI CLASS 150.
15. EXACT ORIENTATION OF ALL TANK FEATURES AND PIPE PENETRATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER. TANK MANUFACTURER SHALL CONFIRM ALL LOCATIONS W/ ENGINEER PRIOR TO FABRICATION. SOME FEATURES MAY BE ROTATED IN ELEVATION VIEW FOR CLARITY.
16. IMPRESSED CURRENT CATHODIC PROTECTION REQUIRED.
17. REFER TO PUMPING PLANT 13 SITE PIPING PLAN SHT. C-30 FOR CONTINUATION.

[illegible]

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Client: The Navajo Nation
Location: Tsé'ahli, NM

PP 13 TANK 2 DETAILS (2 OF 2)

NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed	Drawn	Checked
EAP	MvH/AaV	TTT

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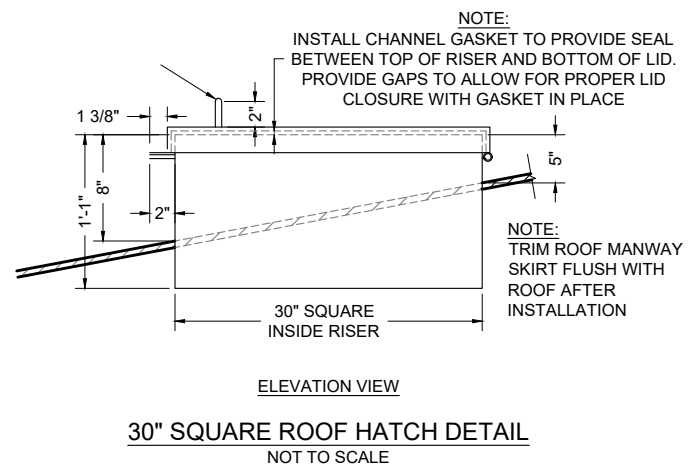
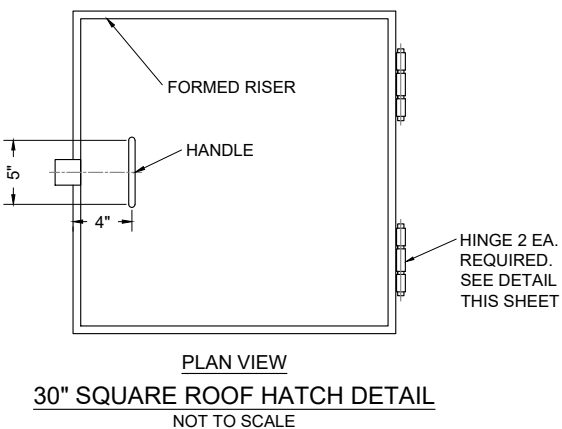
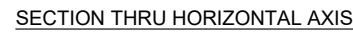
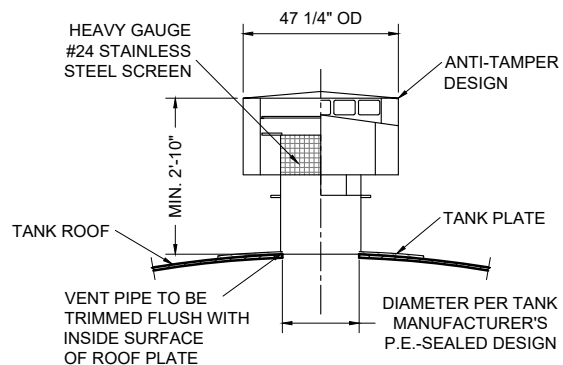
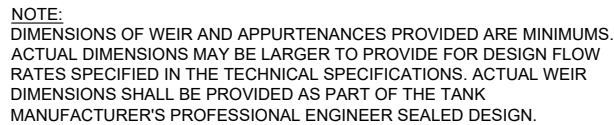
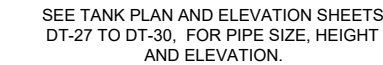


Date: August 2025

Scale: Horiz: 1" = 6'
Vert: N/A

Project No: 6922268

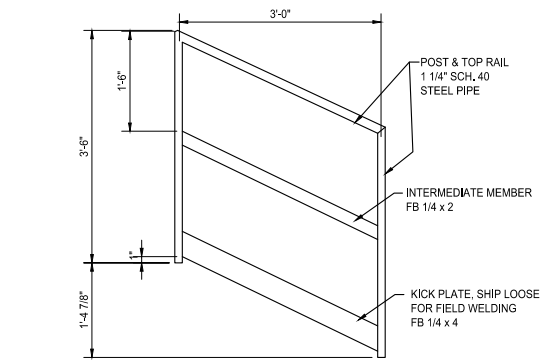
Sheet: DT-30



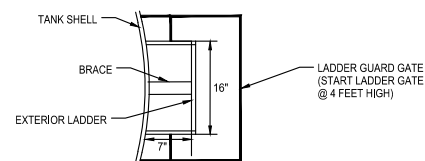
- NOTES:**
1. DIMENSIONS INDICATING SEPARATION BETWEEN WEIR FROM ROOF ARE MINIMUMS ONLY. ACTUAL DIMENSIONS MAY BE GREATER TO ACCOMMODATE SLOSH WAVE, AS CALCULATED BY TANK MANUFACTURER.
 2. TANK MANUFACTURER SHALL PROVIDE DESIGN CALCULATIONS AND FABRICATION DRAWINGS SEALED BY A NEW MEXICO LICENSED PROFESSIONAL ENGINEER.
 3. OVERFLOW WEIR BOX SHALL BE DESIGNED TO ACCOMMODATE A ANTICIPATED FLOWRATE OF 1,814 GPM OR HIGHER.

NOTE:
1. VENT SHALL BE DESIGNED TO ACCOMMODATE A
ANTICIPATED FLOWRATE OF 1.814 GPM OR GREATER.

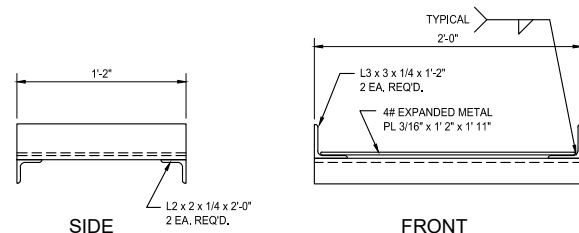
- * ROOF SINGLE HANDRAILING IS DEPICTED AS CLOSE AS POSSIBLE DUE TO THE CONE ROOF CONFIGURATION. THEREFORE, ALL DIMENSIONS FOR HANDRAILING SHOULD BE VERIFIED DURING FABRICATION.
- * (4) D-RINGS WELDED ON TOP ROOF FOR TIE-IN OF PERSONNEL - SAFETY REASONS FOR FALL PROTECTION



The elevation view shows a series of vertical components, likely roof vents, arranged in a row. The first component on the left is a circular vent with a central crosshair and a label "ROOF VENT". To its right are several vertical rectangular components. A dimension line indicates a height of 2'-0" for the first component, and another dimension line indicates a height of 1'-6" for the second component. A callout line points to the right side of the row of components with the text "SEE ELEV. VIEW".

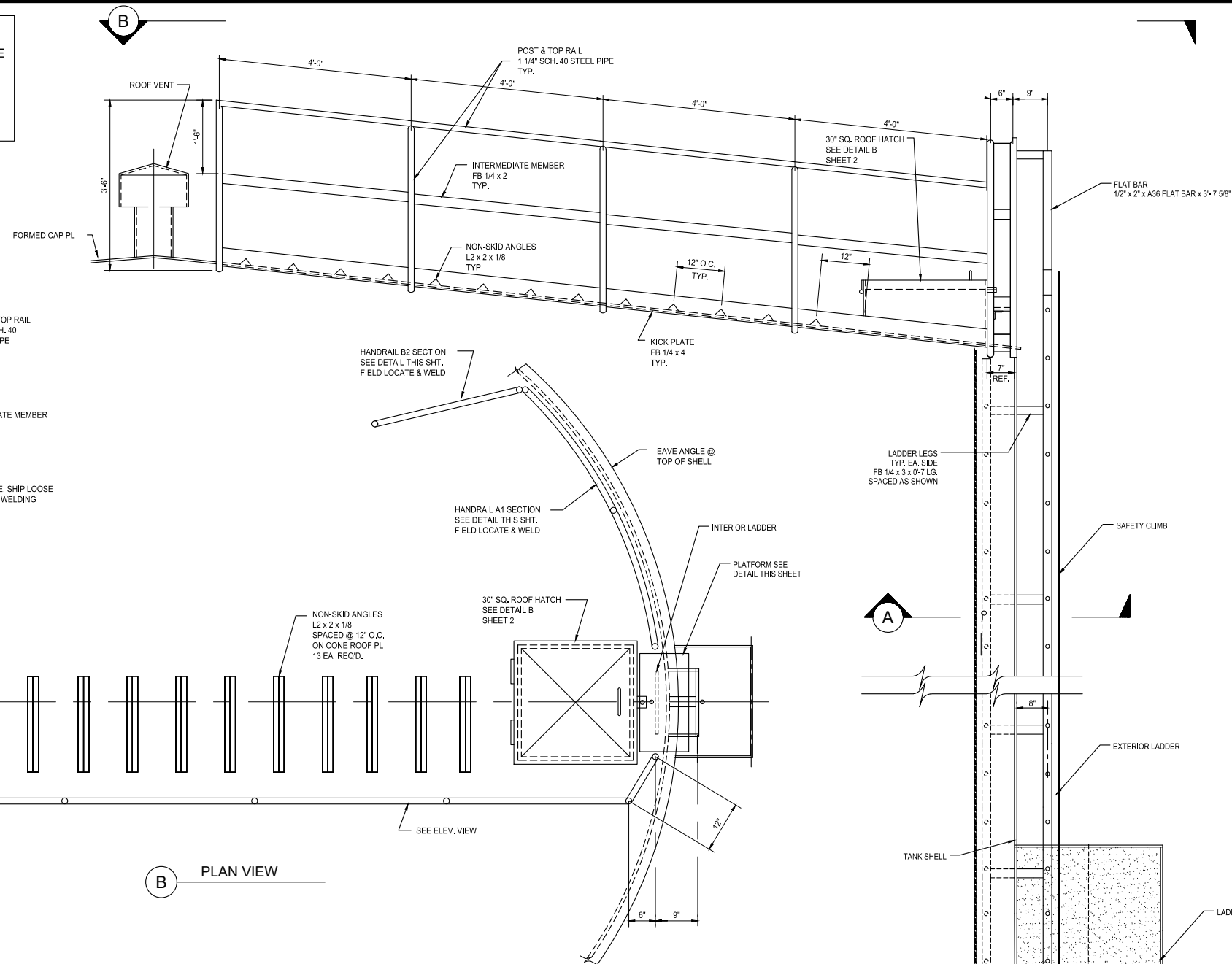


A VIEW - LOOKING UP

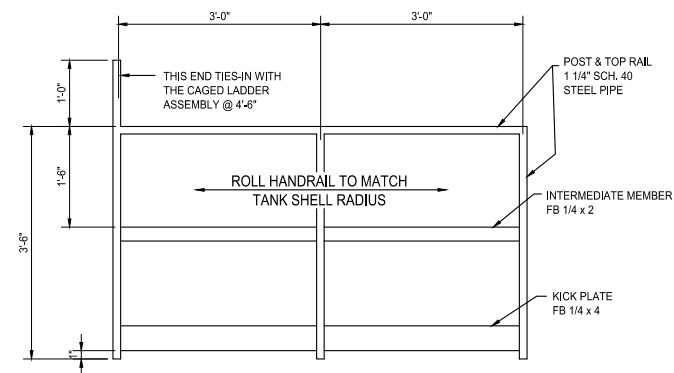


G EXTERIOR ROOF HANDRAILING

FOR ALL TANKS



B PLAN VIEW



TANK CUTAWAY ELEVATION - UPPER HALF
FOR ALL TANKS

BRACE 1/4" x 3" A36
FLAT BAR x 0'-9"

ROOF HANDRAIL

1/2" x 2" A36 FLAT
BAR x 3'-7 5/8"

TANK ROOF

SAFETY CLIMBING RAIL
x REQUIRED HEIGHT

FRENCH CREEK
4-1000 LADDER
GUARD SYSTEM, OAE

BRACE

8'-0"

BRACE

6" MIN TO 8" MAX SPACING

4'-0"

TANK SHELL

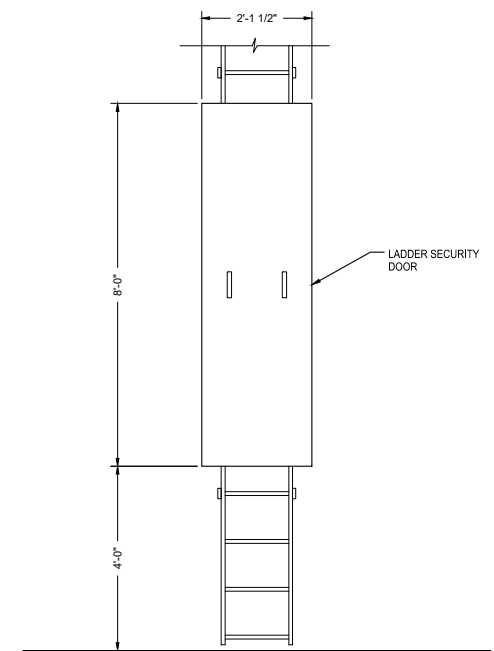
2'-0"

TANK FLOOR

2'-0"

SIDE VIEW

SIDE VIEW

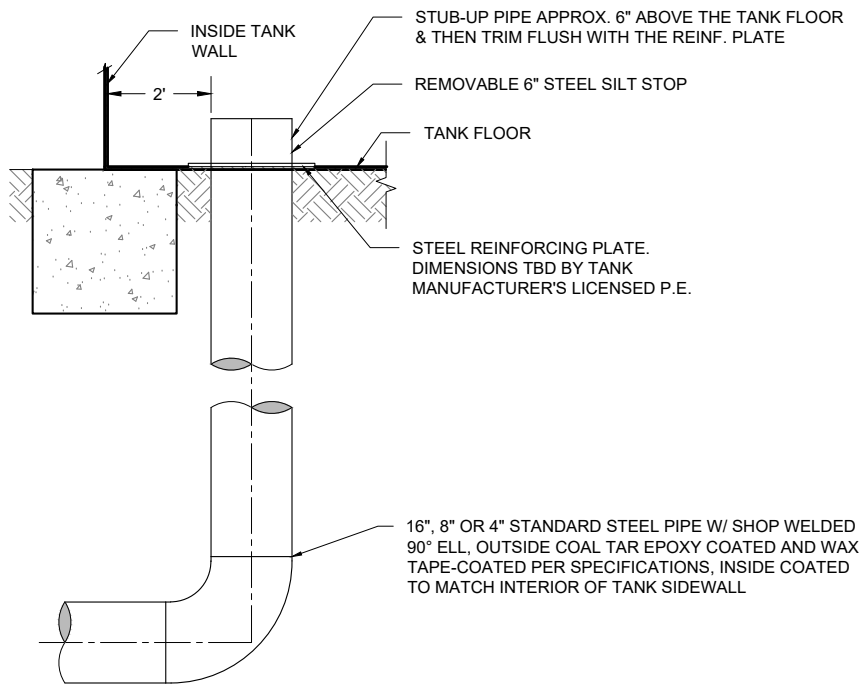


FRONT VIEW

LADDER SECURITY DOOR DETAILS
NOT TO SCALE

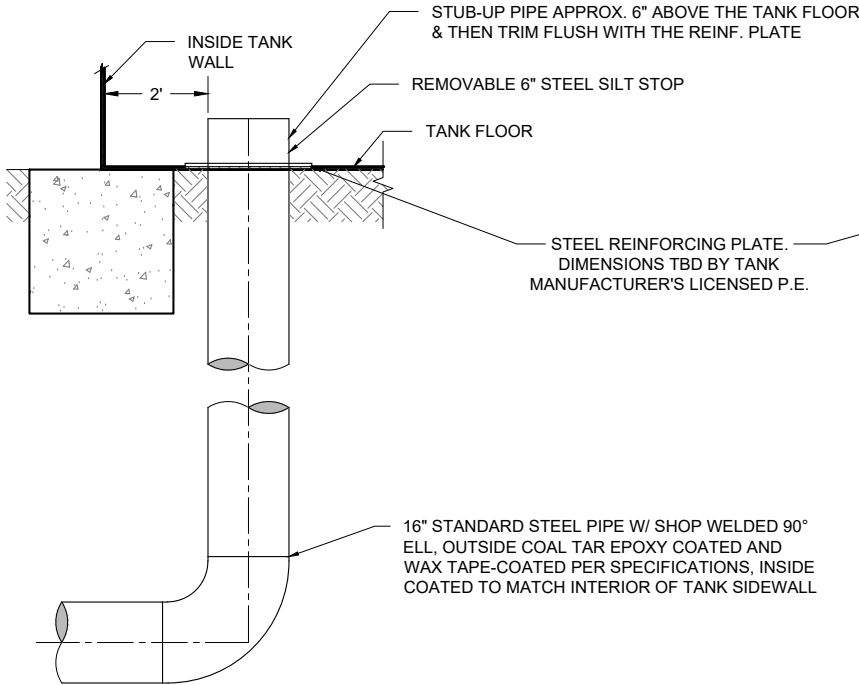
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8/5/2025, 2:58:51 PM aay



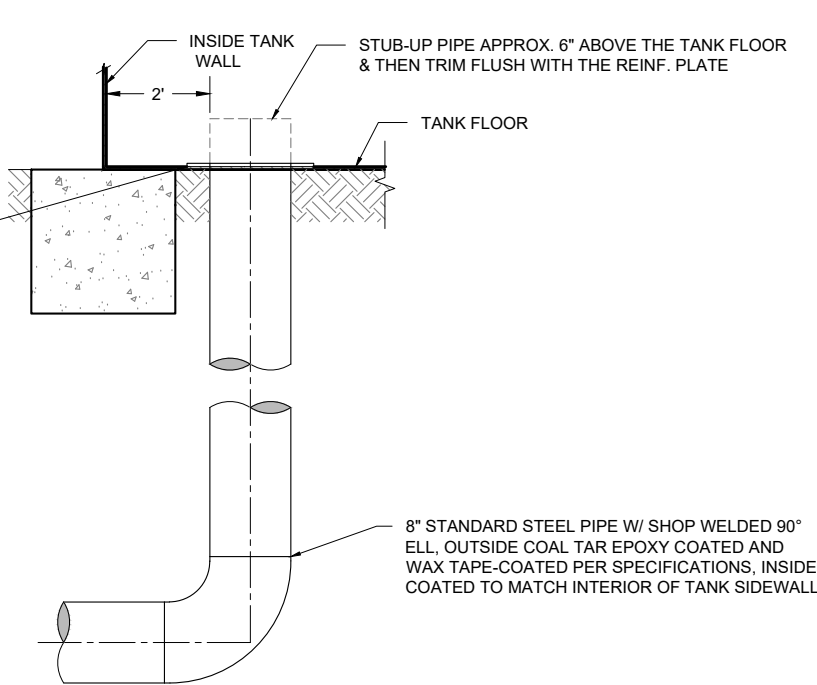
ELEVATION VIEW

24", 16" AND 4" INLET DETAILS
NOT TO SCALE



ELEVATION VIEW

24" OUTLET DETAIL
NOT TO SCALE



ELEVATION VIEW

8" TANK FLOOR DRAIN DETAIL
NOT TO SCALE

Revision	Date	Description	By	Chk'd

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Client: The Navajo Nation
Location: Tsé'íłí'ahí, NM
TYPICAL WATER STORAGE TANK DETAILS (4 OF 4)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO



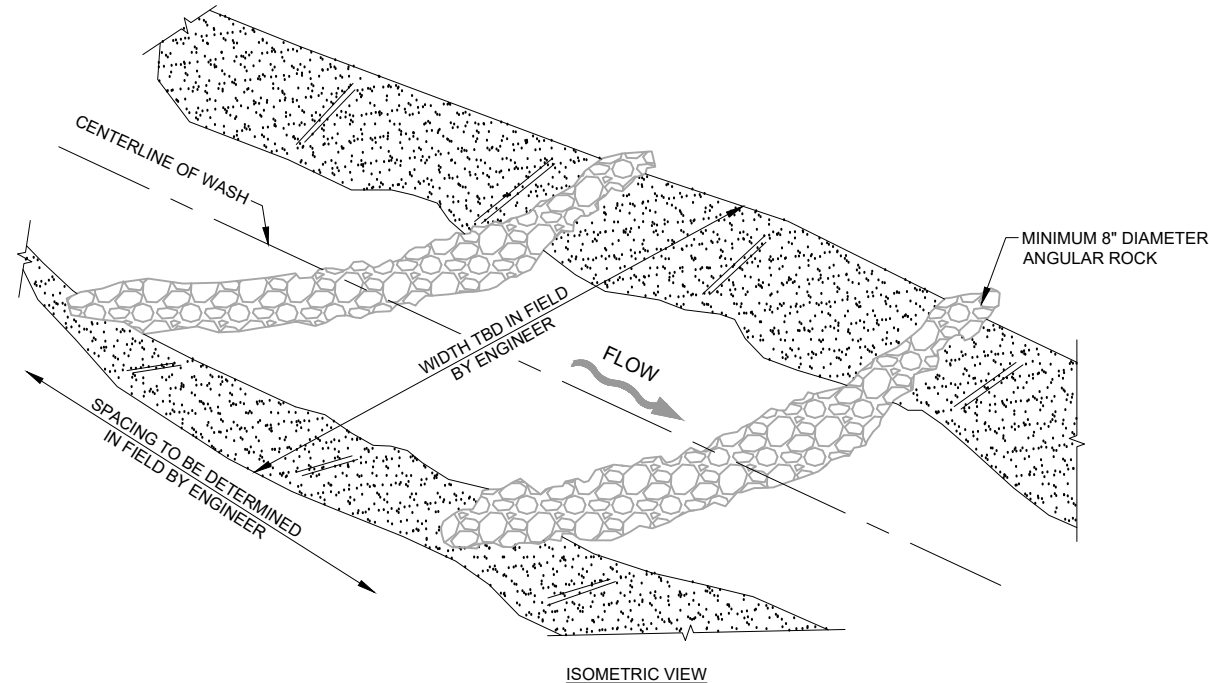
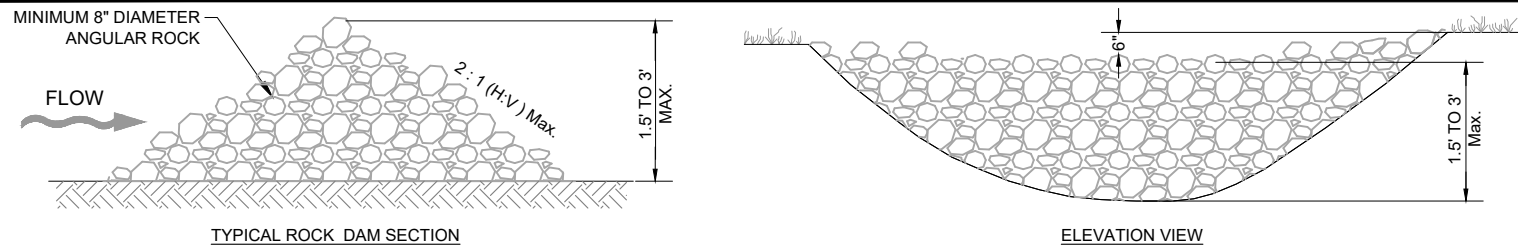
Designed EAP	Drawn MvH/AaV	Checked TTT
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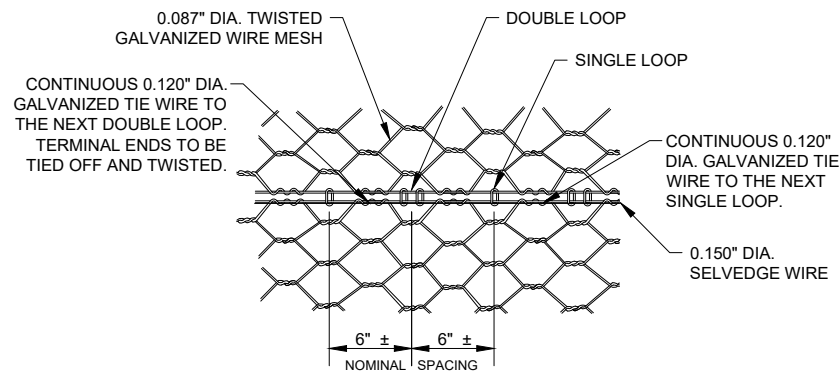
811 Know what's
BELOW.
CALL before
you dig.

Date:	August 2025
Scale:	Horiz: AS SHOWN Vert: N/A
Project No:	6922268
Sheet:	DT-34

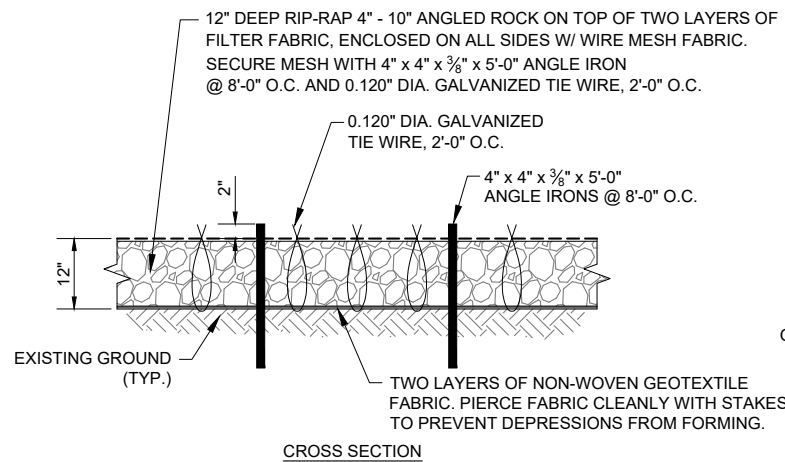
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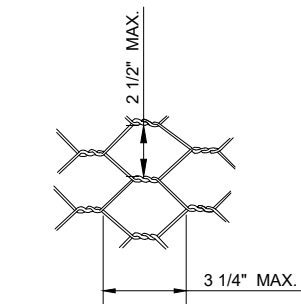
ROCK CHECK DAM DETAIL
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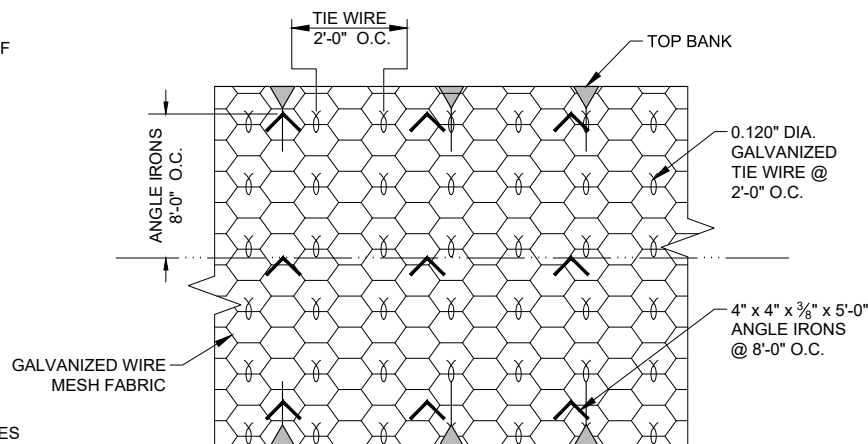
STANDARD JOINT CONNECTION DETAIL
NOT TO SCALE



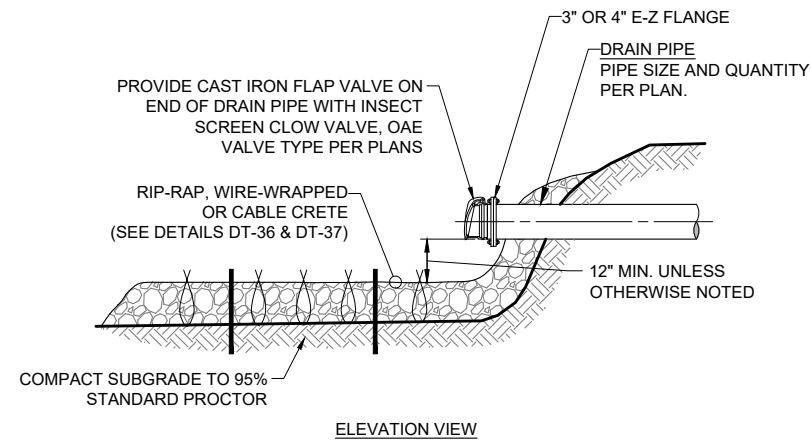
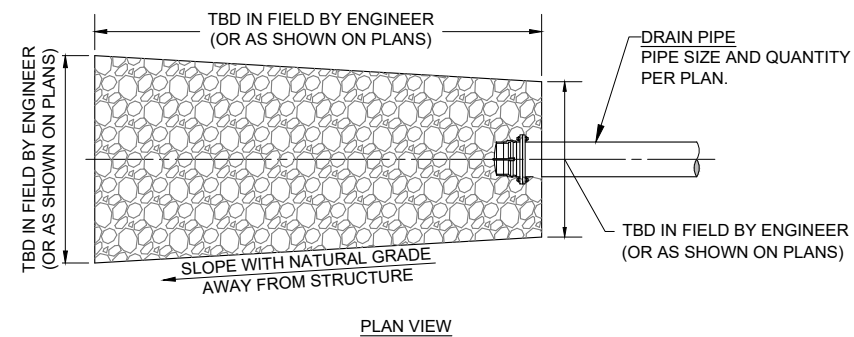
TYPICAL 12" RIP-RAP DETAIL
NOT TO SCALE



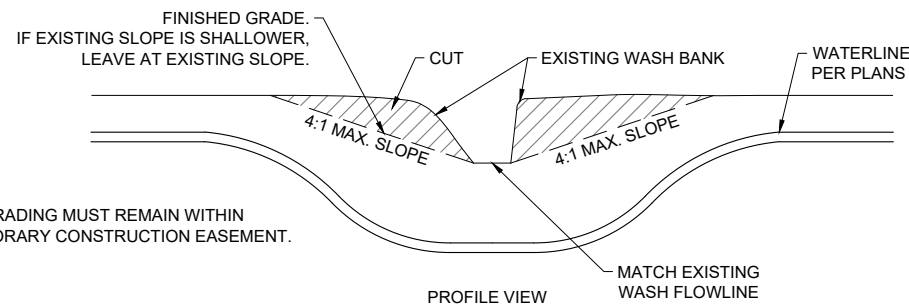
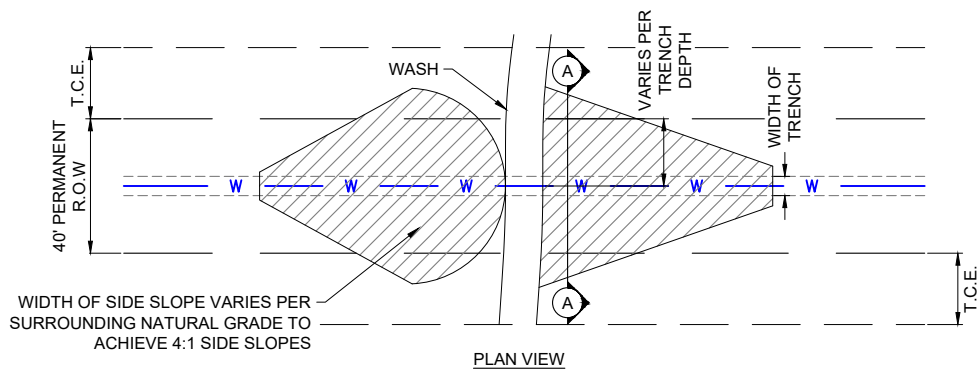
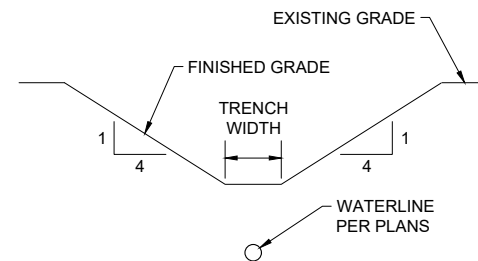
TWISTED MESH MATTRESS
NOT TO SCALE



TYP. 12" RIP-RAP CAGE & ANCHORING
NOT TO SCALE

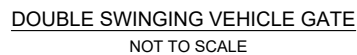
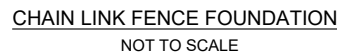
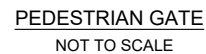
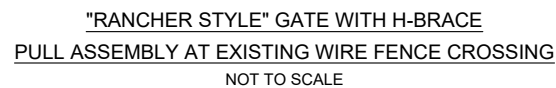
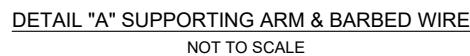
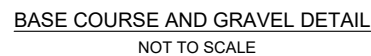
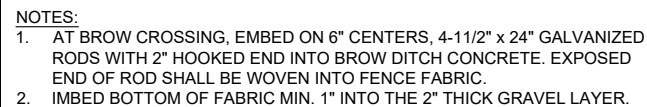


TYPICAL SPLASH PAD DETAIL
NOT TO SCALE



- NOTE:
1. ALL GRADING MUST REMAIN WITHIN TEMPORARY CONSTRUCTION EASEMENT.

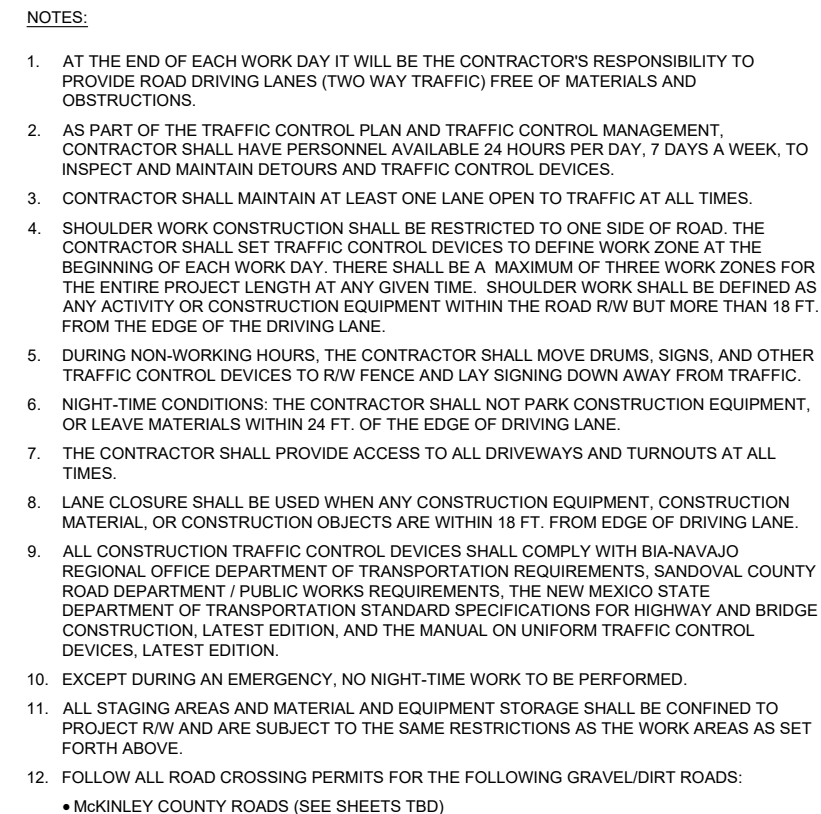
WASH CROSSING GRADING DETAIL
NOT TO SCALE



LINE AND TERMINAL POSTS				
FABRIC HEIGHT	TYPE POST	"A" DIAM	"B" DEPTH	"C" POST EMBED.
8'-0"	LINE	12"	38"	36"
	TERMINAL	12"	38"	36"

- NOTES:**
1. COMMON LOCKS SHALL BE PROVIDED FOR ALL FENCE GATES
 2. TERMINAL POSTS INCLUDE END, CORNER, AND PULL POSTS

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOLS, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.



LANE CLOSURE (LEFT AND RIGHT)
OPEN CUT GRAVEL/DIRT ROADWAYS

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Client: The Navajo Nation
Location: Tse'iitahi, NM
TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO



Designed EAP	Drawn MvH/AaV	Checked TTT
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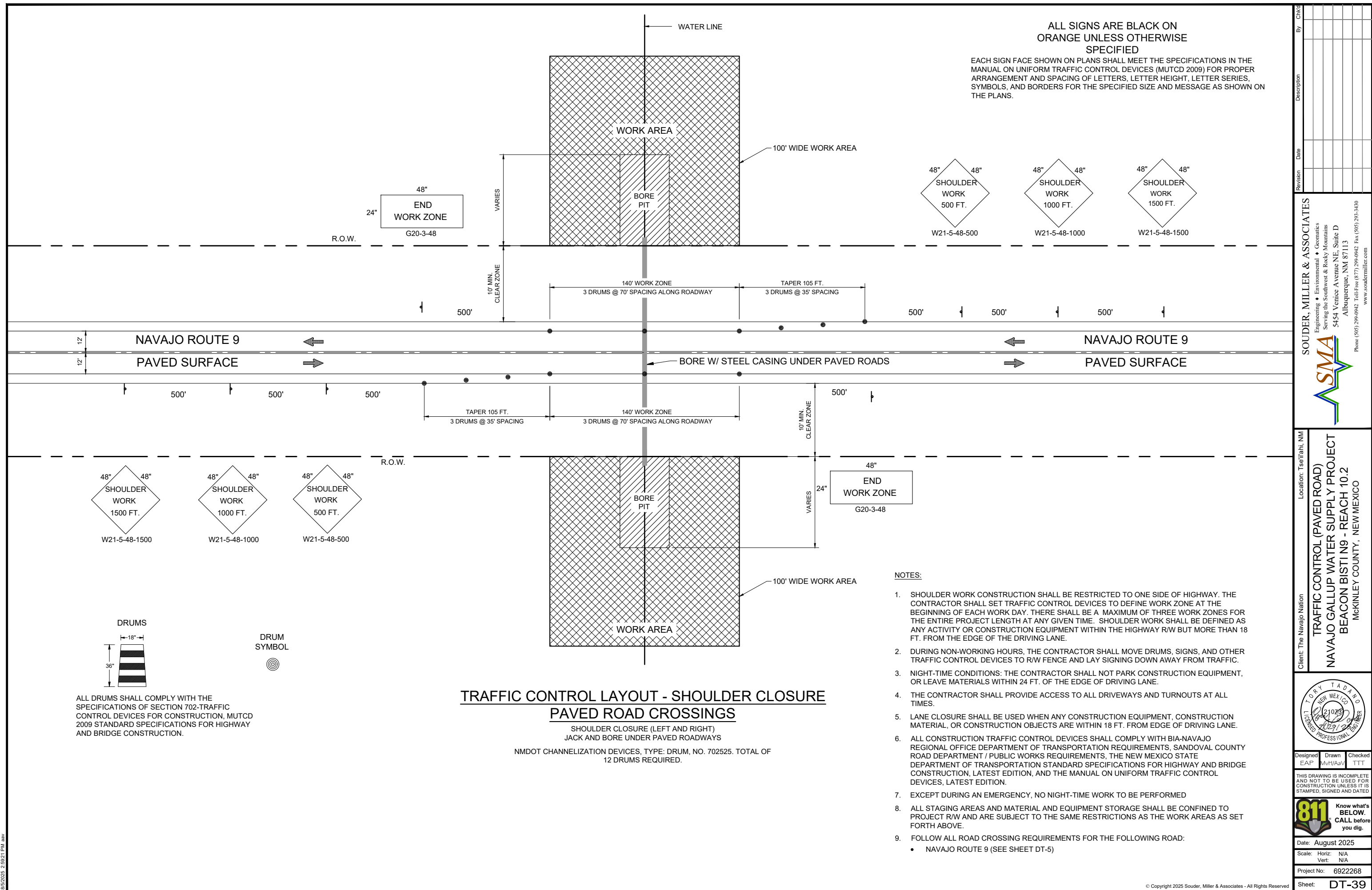
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Date:	August 2025		
Scale:	Horiz:	N/A	
	Vert:	N/A	

Project No: 6922268

Sheet: DT-38



ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	WALL OUTLET AND SURFACE MOUNTED FIXTURE
	LED OUTLET AND FIXTURE
	SINGLE POLE SWITCH, FLUSH MOUNTED 48" A.F.F.
	DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	WEATHERPROOF DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	DUPLEX CONVENIENCE OUTLET, GROUND FAULT CIRCUIT INTERRUPTER, 18" A.F.F.
	JUNCTION BOX INSTALLED ABOVE LAY-IN CEILING WITH FLEXIBLE CONDUIT CONNECTION TO LAY-IN FIXTURES. MAXIMUM 4'-0" LENGTH OF CONDUIT, WITH REQUIRED CONDUCTORS ALONG WITH GREEN GROUND CONDUCTOR
	JUNCTION BOX FLUSH IN WALL, HEIGHT AS INDICATED ON DRAWINGS, WITH CONNECTION TO EQUIPMENT
	CONCEALED BRANCH CIRCUIT WITH CONDUCTORS AS INDICATED. NEUTRAL, HOT, SWITCH LEG AND GROUND RESPECTIVELY
	BRANCH CIRCUIT OR CONDUIT INSTALLED UNDERGROUND OR UNDER FLOOR
	HOMERUN TO PANELBOARD WITH BRANCH CIRCUIT NUMBERS INDICATED
	SOLENOID VALVE
	LIMIT SWITCH
	PRESSURE TRANSMITTER
	FIRE ALARM SMOKE AND HEAT DETECTOR, PHOTOELECTRIC TYPE, 120V AUX CONTACTS
	MOTOR CONNECTION FOR FRACTIONAL HP MOTOR (1/3 HP OR LESS). PROVIDE THERMAL OVERLOAD SWITCH (WEATHERPROOF IF OUTSIDE) ADJACENT TO MOTOR UNLESS SWITCH IS SHOWN ELSEWHERE ON PLANS
	MOTOR CONNECTION FOR MOTOR WITH HP INDICATED
	DISCONNECT SWITCH, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	FUSED DISCONNECT SWITCH, FUSE, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	COMBINATION MAGNETIC MOTOR CONTROLLER/DISCONNECT SWITCH. SIZE, POLES, FUSES AND OVERLOADS PER MOTOR SERVED
	MAGNETIC MOTOR CONTROLLER, SIZE AND POLES PER MOTOR SERVED
	TRANSFORMER, DRY TYPE, SIZE AS INDICATED
	THERMOSTAT(M), 48" A.F.F.
	120V PANELBOARD, REFER TO PANEL SCHEDULE
	277V PANELBOARD, REFER TO PANEL SCHEDULE
	SPECIAL PURPOSE CABINET, AS INDICATED ON DRAWINGS
	INTRUSION ALARM DOOR CONTACT MAGNETIC
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	CONTACTOR
	MOTOR OVERLOADS
	RED PILOT LIGHT
	GREEN PILOT LIGHT
	TRANSFORMER
	RELAY
	SWITCH
	FUSE(S)
	CIRCUIT BREAKER
PLC	PROGRAMMABLE LOGIC CONTROLLER
RTU	REMOTE TERMINAL UNIT
	THERMOSTAT
WP	WEATHERPROOF (NEMA 3R)
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
NOTES: • LIGHTING FIXTURES ARE OF TYPE AS INDICATED ON LIGHT FIXTURE SCHEDULE U.N.O. • MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 18" A.F.F. ARE TO THE BOTTOM OF THE DEVICE UNLESS OTHERWISE NOTED. • MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 48" A.F.F. ARE TO THE TOP OF THE DEVICE UNLESS OTHERWISE NOTED. • ANY SPECIFIC DETAILS ABOVE (MOUNTING HEIGHTS, PART NUMBERS, CONNECTION METHODS, ETC.) MAY BE MODIFIED OR REPLACED BY INFORMATION ON PLANS, SCHEDULES, DETAILS, RISERS, ETC. DETAILS NOT SPECIFICALLY MODIFIED REMAIN AS GIVEN ABOVE.	

GENERAL NOTES

SPECIFICATIONS

G1) IF THERE IS A CONFLICT BETWEEN PLANS/SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY IN WRITING THE ENGINEER FOR CLARIFICATION.

G2) THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH THE PLANS, AND THE SITE CONDITIONS PRIOR TO BID OPENING AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY AMBIGUITIES, CONTRADICTIONS OR IRREGULARITIES IN THE PLANS.

G3) IF, DURING BIDDING OR CONSTRUCTION, THE CONTRACTOR IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE PLANS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS, OR DISCREPANCIES IN OR POSSIBLE OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS, THEY SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND REQUEST AN INTERPRETATION OF CORRECTION THEREOF. DURING THE BIDDING PROCESS AN ADDENDUM (IF NEEDED) WILL BE ISSUED.

G3.1) THE CONTRACT, IF AWARDED, WILL BE ON THE BASIS OF MATERIAL AND EQUIPMENT SPECIFIED OR DESCRIBED IN THE BIDDING DOCUMENTS WITHOUT CONSIDERATION OF POSSIBLE SUBSTITUTE OR "OR EQUAL" ITEMS. WHEREVER A BRAND NAME IS SPECIFIED OR DESCRIBED IN THE BIDDING DOCUMENTS A SUBSTITUTE OR "OR EQUAL" ITEM OF MATERIAL OR EQUIPMENT MAY BE FURNISHED OR USED BY CONTRACTOR IF ACCEPTABLE TO ENGINEER. APPLICATION FOR SUCH ACCEPTANCE WILL NOT BE CONSIDERED BY ENGINEER UNTIL AFTER THE EFFECTIVE DATE OF AGREEMENT. THE PROCEDURE FOR SUBMISSION OF ANY SUCH APPLICATION BY CONTRACTOR AND CONSIDERATION BY ENGINEER IS SET FORTH IN THE GENERAL CONDITIONS.

EXISTING UTILITIES & OBSTACLES TO WORK

G4) THE CONTRACTOR IS RESPONSIBLE TO INSTALL ALL ITEMS DESCRIBED IN THESE PLANS IN A MANNER THAT PROTECTS THE EXISTING FACILITY. THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY IF HE IS UNABLE TO PERFORM THIS WORK WITHOUT DAMAGE TO THE EXISTING FACILITY. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING INFORMATION SHOWN ON THESE PLANS. DESIGN ELEMENTS OF THIS PROJECT WILL NOT CHANGE WITHOUT CHANGE ORDER UNLESS THE CONTRACTOR NOTIFIES THE ENGINEER IN A TIMELY MANNER REGARDING ITEMS DESCRIBED IN THIS NOTE. CHANGES IN ALIGNMENT CAUSED BY UNKNOWN OR UNANTICIPATED SITE CONDITIONS SHALL BE ACCOUNTED FOR BY THE APPROPRIATE UNIT PRICES, AS RECOMMENDED BY THE ENGINEER AND APPROVED BY THE OWNER.

G5) THE EXISTENCE, CONDITION AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WAS OBTAINED BY A CAREFUL SEARCH OF AVAILABLE RECORDS. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THERE ARE NO EXISTING UNDERGROUND UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THEIR LOCATING, PROTECTION OF, OR ANY DAMAGE TO THESE LINES OR STRUCTURES. THIS DOES NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND OBTAIN LINE SPOTS.

G6) THE FOLLOWING IS A LIST OF POSSIBLE OBSTRUCTIONS AND SHALL NOT BE CONSIDERED A COMPLETE LIST OF POSSIBLE OBSTRUCTIONS: EXISTING UTILITIES, STRUCTURE, GEOTECHNICAL FEATURES, ALL CONDUIT, CABLES, PIPES, WATERLINES, SEWER LINES, GAS LINES, POWER LINES, TELEPHONE AND TELEGRAPH LINES, TREES, MONUMENTS, TRAFFIC CONTROL DEVICES AND OTHER STRUCTURES, BOTH BELOW AND ABOVE GROUND.

G7) CONTRACTOR SHALL BE HELD RESPONSIBLE FOR COSTS OF REPAIR OF ANY AND ALL DAMAGE TO ANY UTILITY (WHICH IS PREVIOUSLY KNOWN AND DISCLOSED TO HIM BY THE UTILITY OR SHOWN ON THESE PLANS) AS MAY BE CAUSED BY HIS OPERATIONS.

G8) FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE-CALL SYSTEM, INC. (505) 260-1990, FOR LOCATION OF EXISTING UTILITIES.

G9) CONTRACTOR SHALL GIVE ALL PUBLIC AND PRIVATE UTILITY COMPANIES NOTICE AS SOON AS POSSIBLE, IN NO EVENT LESS THAN FORTY EIGHT (48) HOURS, FOR ANY WORK THAT IS UNDERSTOOD TO INTERFERE WITH THE SERVICE OF ANY EXISTING PUBLIC OR PRIVATE UTILITY. IF SUCH PUBLIC OR PRIVATE UTILITY DOES NOT COOPERATE FOR THE PROTECTION OF ITS SERVICES, CONTRACTOR SHALL NOTIFY ENGINEER.

G10) CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGES TO PUBLIC OR PRIVATE PROPERTY TO THE OWNER OF THE PROPERTY INVOLVED AND TO THE ENGINEER. CONTRACTOR SHALL REPAIR OR RESTORE AT HIS OWN EXPENSE ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY, FOR WHICH THEY ARE DIRECTLY OR INDIRECTLY RESPONSIBLE, TO A CONDITION EQUAL TO THAT EXISTING BEFORE DAMAGE. CONTRACTOR SHALL PROMPTLY NOTIFY HIS INSURANCE CARRIER OF SUCH DAMAGE. IF CONTRACTOR FAILS TO GIVE SUCH NOTICE TO HIS INSURANCE CARRIER OR REFUSES TO EFFECT SUCH REPAIRS OR RESTORATION UPON RECEIPT OF NOTICE, THE ENGINEER MAY CAUSE SUCH REPAIRS OR RESTORATION AND DEDUCT THE COST THEREOF FROM MONEYS DUE, OR WHICH MAY BECOME DUE, TO THE CONTRACTOR.

G11) CONTRACTOR IS RESPONSIBLE FOR RECORDING EXISTING CONDITIONS IN ACCORDANCE WITH THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT BEFORE CONSTRUCTION BEGINS. THE RECORD OF EXISTING CONDITIONS SHALL BE USED AS THE "EQUAL CONDITION BEFORE DAMAGE" IN THE EVENT OF DAMAGE TO PUBLIC OR PRIVATE PROPERTY. CONTRACTOR FAILURE TO RECORD EXISTING CONDITIONS WILL MAKE THE OWNERS CLAIM OF "EQUAL CONDITION BEFORE DAMAGE" THE STANDARD THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING AND THE ENGINEER WILL BE IN THE POSITION OF NOT BEING ABLE TO SUPPORT THE CONTRACTOR IN THE MEDIATION OF ANY DISPUTE.

G12) THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES.

SITE CONDITIONS

G13) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL FACILITIES ADJACENT TO THE CONSTRUCTION AREA.

G14) THE CONTRACTOR SHALL USE WATERING EQUIPMENT FOR DUST POLLUTION ABATEMENT AS REQUIRED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER. THIS WORK AND MATERIAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

G15) EPA STORM WATER DISCHARGE REGULATIONS, THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE TO APPLICABLE PORTIONS OF THE EPA STORM WATER DISCHARGE REGULATIONS.

SITE DESIGN

G16) SUBGRADE. ALL SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO 95 % OF STANDARD PROCTOR. ALL SUBGRADE AND BACKFILL SHALL BE COMPACTED IN MAXIMUM 8" LOOSE LIFTS. MOISTURE CONTENT AT THE TIME OF COMPACTION SHALL NOT EXCEED OPTIMUM OR BE LESS THAN 5 PERCENTAGE POINTS BELOW OPTIMUM. DRIVEWAYS, APRONS, FILLETS, CURB AND GUTTER, AND OTHER CONCRETE PAVEMENT SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE.

G17) RESTORE SURFACE AT TRENCH TO EXISTING CONDITIONS.

COMMUNICATION

G18) CONTRACTOR SHALL KEEP THE OWNER AND THE ENGINEER UPDATED WEEKLY ON THE CONSTRUCTION SCHEDULE AND/OR PHASE SCHEDULE, AND PROGRESS TO DATE.

STAGING STORAGE & DEBRIS DISPOSAL

G19) DEBRIS GENERATED BY CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF AT A PERMITTED LANDFILL OR OTHER DULY CERTIFIED REFUSE FACILITY. THE DISPOSAL OF DEBRIS IS NOT A PAY ITEM.

RECORD DRAWINGS

G20) THE CONTRACTOR SHALL PROVIDE A RECORD SKETCH ON THESE PLANS FOR THE AS-CONSTRUCTED CONDITIONS.

PHASE AND SCHEDULE

G21) CONTRACTOR SHALL PHASE AND SCHEDULE WORK IN SUCH A WAY AS TO PROVIDE MINIMAL POWER OUTAGES AT THE FACILITY. A PROJECT SCHEDULE SHALL BE SUBMITTED TO THE OWNER FOR REVIEW PRIOR TO ISSUANCE OF NOTICE-TO-PROCEED. CHANGES IN SCHEDULE SHALL BE PRESENTED TO OWNER AND ENGINEER AT LEAST 7 DAYS PRIOR TO PROPOSED IMPLEMENTATION. THESE SCHEDULES, SCHEMATICS AND DIAGRAMS SHALL BE UPDATED WEEKLY AS THE WORK PROGRESSES. MOST CHANGE OVER SHALL BE DONE ON WEEKENDS OR AFTER HOURS.

SUBMITTALS

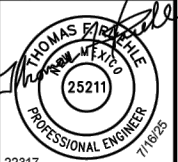
G22) CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL EQUIPMENT, MATERIALS, PROCESSES AND SCHEDULES AND AS REQUESTED BY ENGINEER.

By	Chkd								
Description									
Date									
Revision									

SOUDER, MILLER & ASSOCIATES



Client: ###	Location: ###
ELECTRICAL LEGEND AND PROJECT NOTES NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 McKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.	



22317

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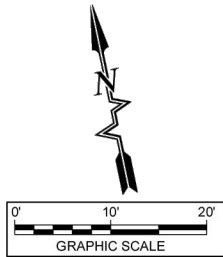
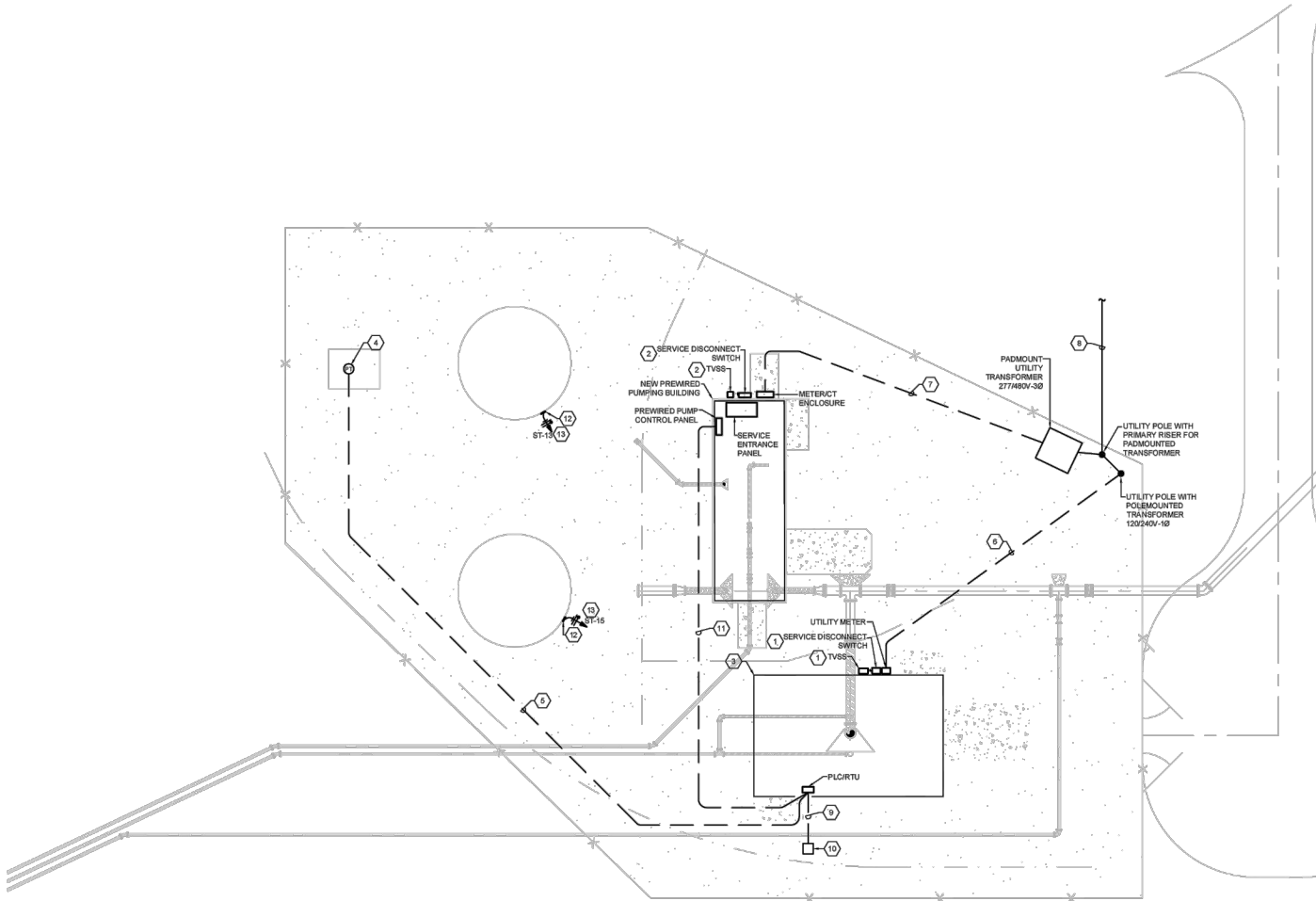
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Scale: Horiz:
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Project No: 6922268

Sheet: E-01





ELECTRICAL SITE PLAN

GENERAL NOTES

- A. ALL CONDUITS SHOWN DASHED SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. ALL CONDUITS THAT COME IN CONTACT WITH THE GROUND SHALL BE PVC OR DOUBLE LAPPED WRAPPED WITH SCOTCHWRAP-51.
- B. REFER TO SHEET E-01 FOR "ELECTRICAL SYMBOL LEGEND" AND "GENERAL NOTES".
- C. REFER TO SHEET E-51 FOR "POWER RISER DIAGRAM - SURGE TANK" AND SHEET E-52 FOR "POWER RISER DIAGRAM - PUMPING BUILDING".
- D. FIELD COORDINATE ALL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
- E. ALL UTILITY EQUIPMENT SHALL BE FULLY COORDINATED WITH NTUA PRIOR TO INSTALLATION.

KEYED NOTES

1. REFER TO "POWER RISER DIAGRAM - SURGE TANK" ON SHEET E-51 FOR SERVICE EQUIPMENT SIZES AND WIRING.
2. REFER TO "POWER RISER DIAGRAM - PUMPING BUILDING" ON SHEET E-52 FOR SERVICE EQUIPMENT SIZES AND WIRING.
3. NEW SURGE TANK BUILDING. REFER TO "LIGHTING PLAN - SURGE TANK" ON SHEET E-11, "POWER AND SPECIAL SYSTEMS PLAN - SURGE TANK" ON SHEET E-21 AND "LIGHTING PROTECTION PLAN - SURGE TANK" ON SHEET E-31 FOR ADDITIONAL INFORMATION.
4. PROVIDE AND INSTALL NEW PRESSURE TRANSDUCER IN VAULT. PRESSURE TRANSDUCER TO BE 4-20mA, 4 WIRE (ANALOG POSITIVE, ANALOG NEGATIVE, POWER POSITIVE AND POWER NEGATIVE) AND SEND SIGNAL TO SCADA SYSTEM. COORDINATE EXACT LOCATION IN FIELD. PROGRAM PLC AS REQUIRED.
5. 3/4" CONDUIT BURIED 36" BELOW FINISHED GRADE WITH RED WARNING TAPE BURIED 12" ABOVE FINISHED GRADE. CONDUIT TO HAVE 4#14 THWN CU (ANALOG POSITIVE, ANALOG NEGATIVE, POWER POSITIVE AND POWER NEGATIVE). MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
6. 3#2 THWN CU IN 2" CONDUIT BURIED 36" BELOW FINISHED GRADE (OR AS REQUIRED BY NTUA), WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. REFER TO "POWER RISER DIAGRAM - SURGE TANK" ON SHEET E-51 FOR ADDITIONAL INFORMATION.
7. 2 PARALLEL RUNS OF 4#350 THWN CU IN 3" CONDUIT OR 2 PARALLEL RUNS OF 4#500 XHHW AI IN 3 1/2" CONDUIT. CONDUIT SHALL BE BURIED 36" BELOW FINISHED GRADE (OR AS REQUIRED BY NTUA), WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. REFER TO "POWER RISER DIAGRAM - PUMPING BUILDING" ON SHEET E-52 FOR ADDITIONAL INFORMATION.
8. NEW OVERHEAD UTILITY CONDUCTORS. COORDINATE ALL REQUIREMENTS WITH NTUA.
9. 2" CONDUIT WITH LONG SWEEPING BENDS FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE. EXTEND CONDUIT TO PLC/RTU CABINET AND FLUSH IN GRADE QUAZITE BOX. CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. PROVIDE RED WARNING TAPE 12" ABOVE CONDUIT. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
10. PROVIDE AND INSTALL FLUSH IN GRADE TRAFFIC RATED QUAZITE BOX FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE.
11. 3" CONDUIT BURIED A MINIMUM OF 36" BELOW FINISHED GRADE WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. PROVIDE AND INSTALL CONTROL WIRING AS REQUIRED FOR PUMP BUILDING.
12. NEW IMPRESSED CURRENT CATHODIC PROTECTION RECTIFIER PANEL INSTALLED ON NEW TANK FOR CATHODIC PROTECTION OF NEW STEEL TANK PER SPECIFICATIONS. CONTRACTOR SHALL FULLY COORDINATE EXACT LOCATION WITH CATHODIC PROTECTION INSTALLER PRIOR TO COMMENCEMENT OF WORK.
13. NEW 120 VOLT UNDERGROUND BRANCH CIRCUIT TO NEW CATHODIC PROTECTION PANEL. 1" CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE WITH RED METALLIC WARNING TAPE BURIED 12" ABOVE CONDUIT. COORDINATE EXACT ROUTING OF CONDUIT IN FIELD. WIRE WITH 2#12 THWN CU AND 1#12 THWN CU GROUND.



Revision	Date	Description	By	Chkd

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SMA

Client: ### Location: ###

ELECTRICAL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKinley County, New Mexico
SECTION 1, T. 18 N., R. 16 W.

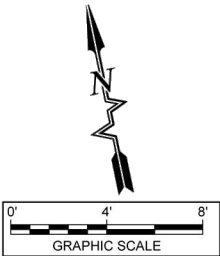
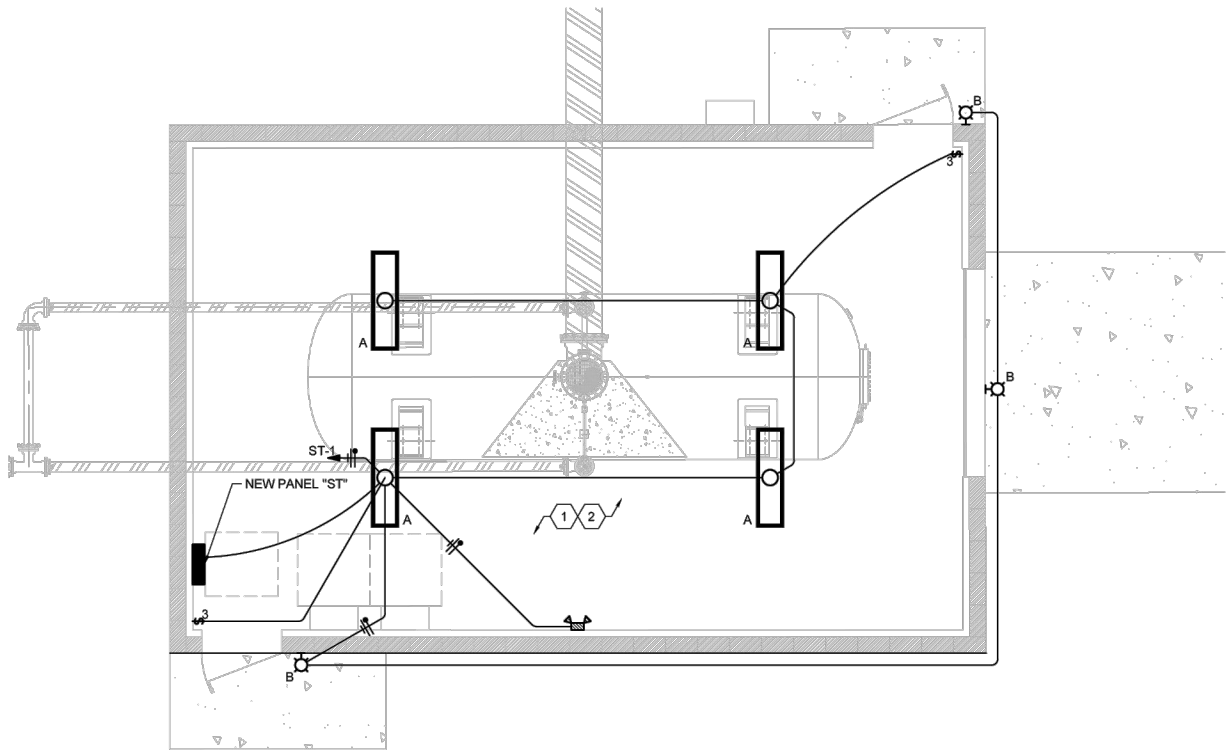


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Sheet:	ES-01



SURGE TANK BUILDING LIGHTING PLAN

LIGHT FIXTURE SCHEDULE			
TYPE	FIXTURE DESCRIPTION	LAMPS	MOUNTING
A	VAPOR TIGHT LED FIXTURE, UL LISTED FOR WET LOCATIONS, UNIVERSAL VOLTAGE METALUX #4VT2-LD5-4-DR-UNV-L840-WL-U	LED (30W) 4000°K 4000 LM	CEILING SURFACE
B	LED WALL PACK, FULL CUTOFF, PHOTOCELL, 120V LUMARK #LDWP-FC-4B-120V-PE	32W LED	SURFACE MOUNTED AT +8'-0" A.F.F.
	EMERGENCY EGRESS LIGHT FIXTURE, INTEGRAL BATTERY BACKUP, (2) AIMABLE HEADS (FIELD LOCATE HEADS FOR BEST LIGHTING) SURE LITES #APELMINI	WITH UNIT	UNIVERSAL

KEYED NOTES

- ALL CONDUITS SHALL BE RUN OVERHEAD.
- ALL EXPOSED CONDUITS INSTALLED WITHIN THE BUILDING SHALL BE RIGID STEEL CONDUITS WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATIONS.

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LIGHTING PLAN - SURGE TANK
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.

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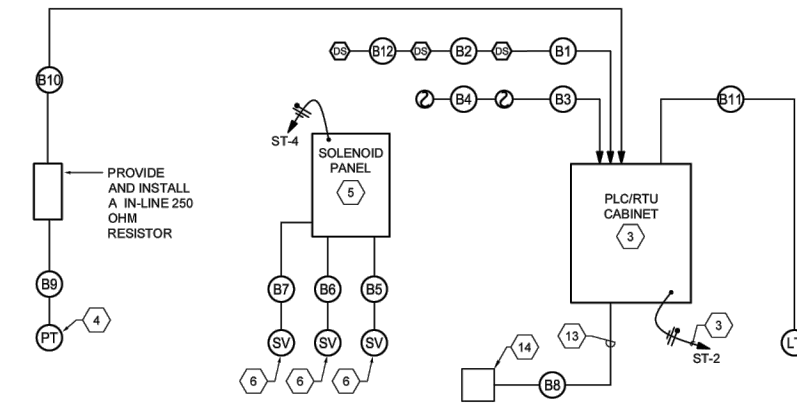
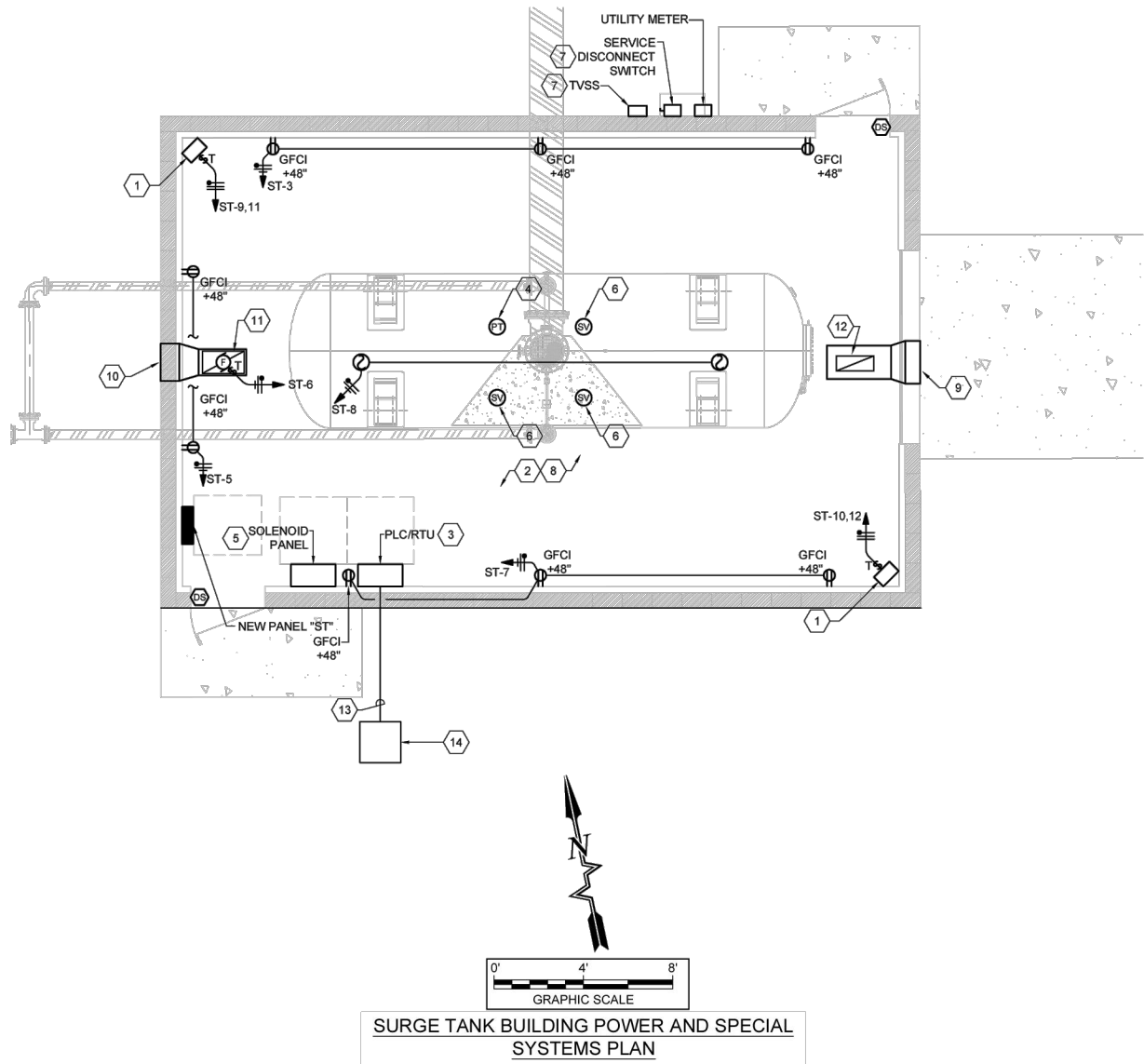
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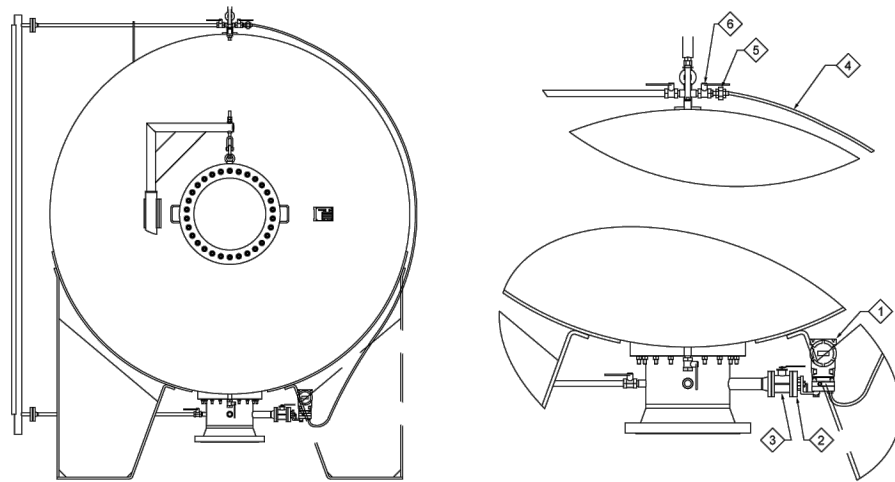
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SURGE TANK BUILDING - CONTROL RISER DIAGRAM

SCALE: NONE



ROSEMOUNT - PRESSURE DIFFERENTIAL TRANSMITTER - CONNECTION DETAIL

SCALE: NONE

KEYED NOTES

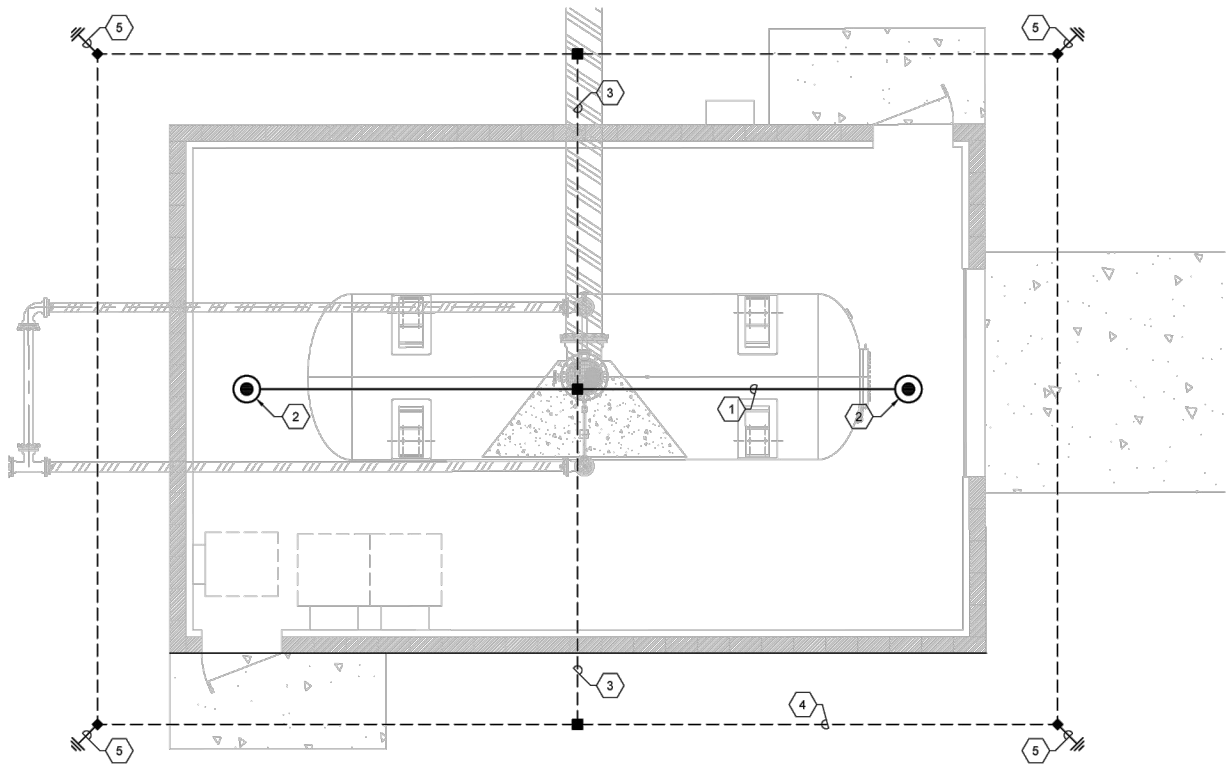
1. PROVIDE AND INSTALL A 2.6 KW, 240 VOLTS, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. HOMERUN #10 Cu IN 3/4" CONDUIT TO CIRCUIT INDICATED. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX #HVH-2-2-1-00-TL-D-0-0-0-S-HVV-1
2. ALL CONDUITS SHALL BE RUN OVERHEAD.
3. NEW PLC/FIBER OPTIC TRANSMITTER CABINET. CABINET SHALL BE A NEMA 4X ENCLOSURE. PLC CONFIGURED TO OWNER STANDARDS AND REQUIREMENTS. REFER TO SHEETS E-31 THROUGH E-33 AND SPECIFICATIONS. MOUNT ON WALL ADJACENT TO PLC CABINET. REFER TO CONTROL WIRING SCHEDULE ON SHEET E-51 FOR ADDITIONAL INFORMATION.
4. FIELD COORDINATE THE LOCATION OF THE PRESSURE TRANSMITTER PRIOR TO THE EXTENSION OF THE CONTROL WIRING. PRESSURE TRANSMITTER SHALL BE AS MANUFACTURED BY ROSEMOUNT # 3051L, RANGE 2-5, COORDINATE ALL ADDITIONAL OPTIONS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM WITH THE EQUIPMENT SUPPLIER.
5. FIELD COORDINATE THE LOCATION OF THE SOLENOID VALVE CONTROL PANEL PRIOR TO THE EXTENSION OF POWER AND CONTROL WIRING. SOLENOID LEVEL INDICATION SYSTEM CONTROL PANEL SHALL BE AS MANUFACTURED BY GOLDER, NEMA 3R ENCLOSURE.
6. FIELD COORDINATE THE LOCATION OF THE SURGE TANK SOLENOID VALVE LOCATIONS PRIOR TO THE EXTENSION OF CONTROL WIRING. SOLENOID VALVES SHALL BE AS MANUFACTURED BY ASCO, SERIES 8210, 304 STAINLESS STEEL, #238610 & SERIES 8262, 304 STAINLESS STEEL, # 238210. COORDINATE ALL ADDITIONAL OPTIONS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM WITH THE SUPPLIER.
7. REFER TO "POWER RISER DIAGRAM - SURGE TANK" ON SHEET E-51 FOR SERVICE EQUIPMENT SIZES AND WIRING.
8. ALL EXPOSED CONDUITS INSTALLED WITHIN THE BUILDING SHALL BE RIGID STEEL CONDUITS WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATIONS.
9. 18x18 AIR INTAKE GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION AS REQUIRED.
10. 18x18 EXHAUST GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION FROM EXHAUST FAN.
11. CEILING EXHAUST FAN. GREENHECK SP-A 1050. 885 CFM, .0375"WC, 5.5 SONES, 420 WATTS, 6.3 AMPS. OVERALL DIMENSIONS 14.5" TALL, 23.75"WIDE, 14.5" DEEP. CONTROL FROM LINE VOLTAGE WALL. THERMOSTAT WITH ON/OFF OVERRIDE.
12. 12X24 TITUS MODEL EGC CEILING RETURN GRILLE. 18X12 AIR INTAKE METAL DUCTWORK. TRANSITION FROM OUTSIDE LOUVER. INSULATE WITH 1-1/2" FIBERGLASS ALUMINUM FACED SEALED WITH TAPED JOINTS.
13. 2" CONDUIT WITH LONG SWEEPING BENDS FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE. EXTEND CONDUIT TO PLC/RTU CABINET AND FLUSH IN GRADE QUARTZITE BOX. CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. PROVIDE RED WARNING TAPE 12" ABOVE CONDUIT. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
14. PROVIDE AND INSTALL FLUSH IN GRADE TRAFFIC RATED QUARTZITE BOX FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE.

ITEM	DESCRIPTION
1	PRESSURE DIFFERENTIAL TRANSMITTER ROSEMOUNT 3051
2	2" FLANGED CONNECTION HIGH PRESSURE DIAPHRAGM SEAL
3	2" BALL VALVE
4	STAINLESS STEEL FLEXIBLE TUBING TEFLON LINED
5	1/2" NPT UNION FITTING
6	1/2" NPT BALL VALVE



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Client: ###	Location: ###	By: Chkd
POWER AND SPECIAL SYSTEMS PLAN - SURGE TANK NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.		
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SURGE TANK BUILDING LIGHTNING
PROTECTION PLAN

KEYED NOTES

1. LIGHTNING PROTECTION CLASS 1 ROOF-MOUNTED LATERAL CONDUCTOR AND MOUNTING HARDWARE.
2. LIGHTNING PROTECTION AERIAL TERMINAL. 1/2" x 18" TUBULAR COPPER AERIAL TERMINAL AND MOUNTING HARDWARE, MOUNTED AT ROOF PARAPET, PENTHOUSE AND ROOFTOP UNITS AS INDICATED.
3. LIGHTNING PROTECTION 4/0 BARE ALUMINUM DOWN-CONDUCTOR. SPLICE ALUMINUM CONDUCTOR TO 2/0 BARE COPPER CONDUCTOR USING ALUMINUM TO COPPER SPLICE KIT. PROVIDE AND INSTALL 1" CONDUIT FOR COPPER CONDUCTOR WHERE CONDUCTOR IS EXPOSED ABOVE GROUND.
4. LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
5. 3/4" X 10'-0" GROUND ROD.
6. LIGHTNING PROTECTION SYSTEM LAYOUT ON THIS PLAN IS FOR BIDDING PURPOSES ONLY. INSTALLATION TO BE PER NFPA-780, U.S. GOVERNMENT STANDARDS. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL.

SYMBOL LEGEND - LIGHTNING PROTECTION

- LIGHTNING AIR TERMINAL
- LIGHTNING CABLE CADWELD
- GROUND ROD
- EXPOSED #4/0 BARE ALUMINUM GROUND CABLE
- CONCEALED BELOW GRADE #2/0 BARE COPPER GROUND CABLE COUNTERPOISE

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LIGHTNING PROTECTION PLAN - SURGE TANK
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.

THOMAS F. BUSTLE

NEW MEXICO
25211
PROFESSIONAL ENGINEER
7/18/25

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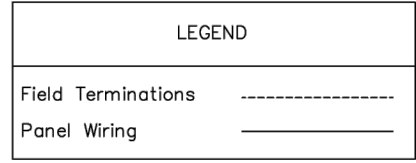
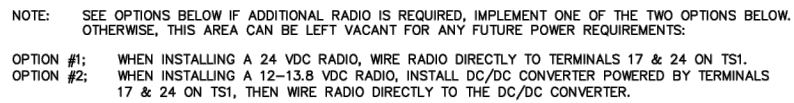
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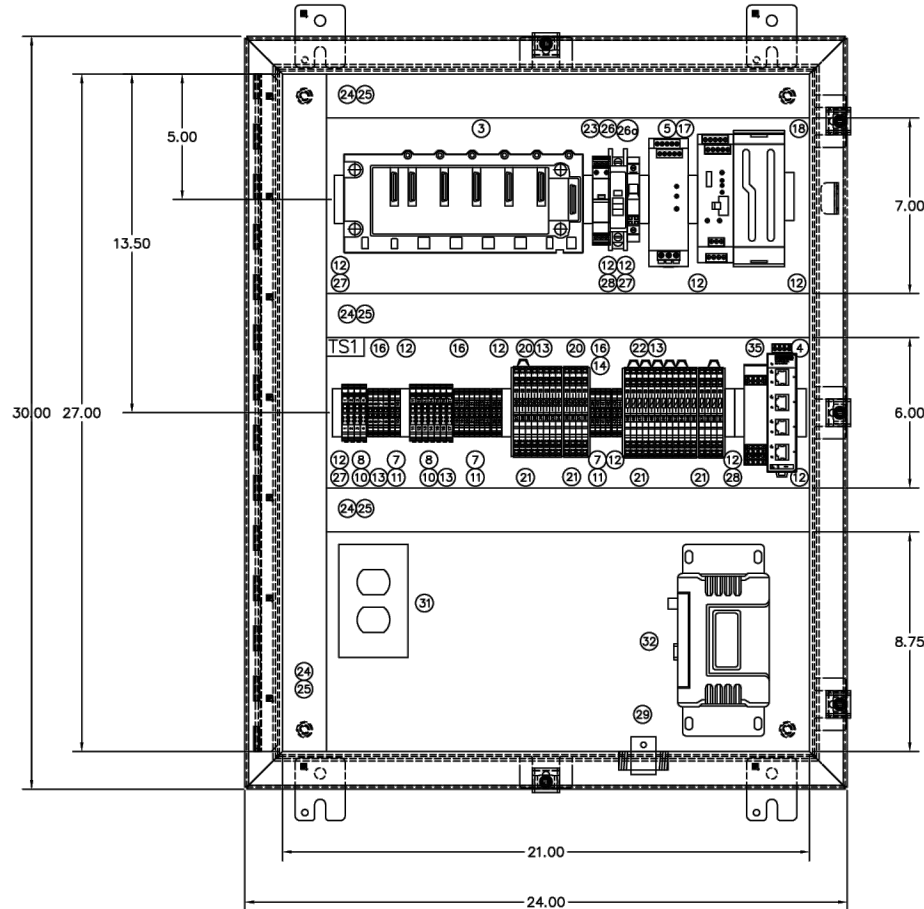
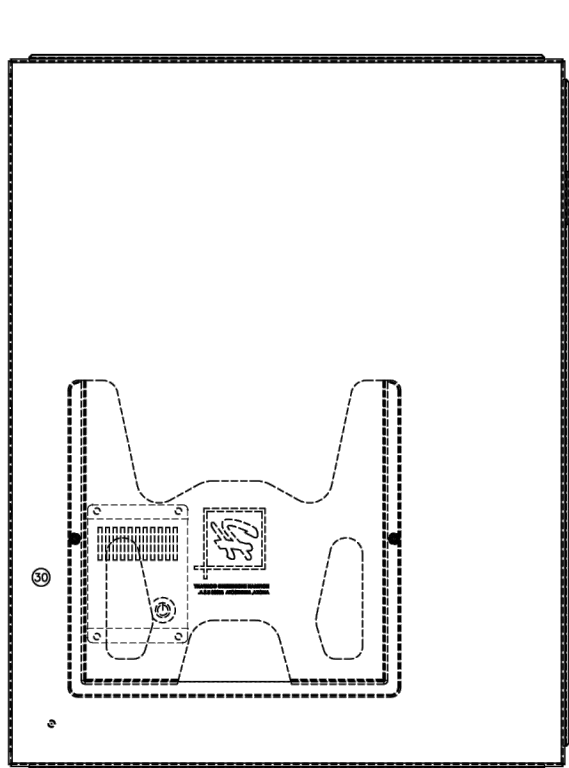
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[illegible]



BILL OF MATERIALS			
ITEM	QTY	PART NO.	DESCRIPTION
1	1	A3QH24DLP	SINGLE-DOOR TYPE 4 ENCLOSURE
2	1	A3QP24	BACKPLANE
3*	1	M340	MODICON M340 BOM
3a	1	BMXXBM0400	4-SLOT RACK
3b	1	BMXCP3020	POWER SUPPLY
3c	1	BMXP342020	CPU PROCESSOR
3d	1	BMXDDM16025	DIGITAL INPUT/OUTPUT
3e	1	BMXMM0600	ANALOG INPUT/OUTPUT
3f	2	BMXFTB2010	REMOVABLE CONNECTION BLOCK - SCREW CLAMP
3g*	1	BMXNOM0200	MODULE
4	1	FL SWITCH	INDUSTRIAL ETHERNET
5	1	QUINT4-PS/1AC/24DC/5	POWER SUPPLY
6	1	UT2,5	22-5-28.5V ADJUSTABLE
7	14	UT2,5	UT2,5 TERMINALS
8	10	UT4TG	FUSE TERMINAL BASE
9	7	P-FU5X20LED24	FUSE PLUG
10	4	P-FU5X20LA250	FUSE PLUG
11	6	UT2,5PE	GROUNDING TERMINAL
12	15	E/NS35N	END CLAMP
13	3	FBS 20-6 BU #3032208	FIXED BRIDGE
14	3	FBS 20-5 BU #3036929	INSERTION BRIDGE
15	8	D-UT2,5/10	END COVER
16	4	ATP-UT	PARTITION PLATES
17	2	QUINT4-UPS/24DC/24DC/10	UNINTERRUPTIBLE POWER SUPPLY
18	2	UPS-BAT/VRLA/24DC/1.3AH	ENERGY STORAGE
19	1	TTC-6-TVSD-C-24DC-UT-I	SURGE PROTECTION
20	12	TTC-6-LCP #2908729	END COVER
21	6	TTC-6-MOV-C-24DC-UT-I	SURGE PROTECTION
22	16	PLT-SEC-T3-120-FM #2905228	TYPE 3 SURGE PROTECTION DEVICE
23	1	AN FZK4LG6	TYPE F NARROW SLOT WIRING DUCT
24	1	AN C2LG6	WIRING DUCT COVER
25	1	TMC 61C 10A #0902072	CIRCUIT BREAKER
26a	1	UT6-TMCM 10A #0916610	CIRCUIT BREAKER
27	1	AN 1492DR6	EXTENDED DIN RAIL
28	1	AN 1492-DR5	DIN RAIL
29	1	IS-50NX-C2	LIGHTNING ARRESTER
30	1	D-AH1001A	HEATER
31	1	DRUBGF115	100W 115V .9A DIN RAIL UTILITY BOX
32	1	ORBIT OR TRANSNET CAT6	902 - 928 MHz RADIO SPREAD SPECTRUM CABLE - PLC TO HMI
33	1	MINI-PS-12-24 DC/5-15/2	CABLE - PLC TO MODEM (TO LENGTH) DC/DC CONVERTER
34*	1		
35*	1		

AN - As needed
3* - BOM - To include items 3a-3g.
3g* - Include in the event item 35* is required.
34* - Include (1) additional in the event item 33* is required.
35* - Include in the event a 13.8 VDC radio is required.

01	3/19	OWG UPDATES	NTUA
NO.	DATE	DESCRIPTION	BY
NAVAJO TRIBAL UTILITY AUTHORITY			
SCALE:	NONE	REVISIONS	BY DATE
DATE:			
DRAWN:			
APPROVED:			
TITLE	AC TANK CONTROL PANEL	SHEET	5 OF 6



Client: ###

Location: ###

NTUA DIAGRAM

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

McKINLEY COUNTY, NEW MEXICO

SECTION 1, T. 18 N., R. 16 W.

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Date: 7-16-2025

Scale: Horiz: Vert:

Project No: 6922268

Sheet: E-42

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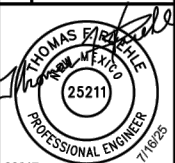
NTUA DIAGRAM

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9 - REACH 10.2

McKINLEY COUNTY, NEW MEXICO

SECTION 1, T. 18 N, R. 16 W.



22517		
Designed	Drawn	Checked

Designed TRG/rhp	Drawn TRG/rhp	Checked TRG/tfr
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Date: 7-16-2025

Scale: Horiz:
Vert:

Project No: 6922268

Sheet: E-43

PANEL SCHEDULE - NEW PANEL "ST"											
LOCATION: Surge Tank Building			VOLTAGE: 120/240V-1P-3W			CAPACITY: 100A			Main: 100A/2P MCB		
FED FROM: 100 Amp Fusible Disconnect			ENCLOSURE: NEMA 3R			MOUNTING: SURFACE			AIC: 10,000		
BKR SIZE	DESCRIPTION	DEMAND CODE	LOAD (VA)	# CH	LOAD (VA)		# CH	LOAD (VA)	DEMAND CODE	DESCRIPTION	BKR SIZE
					PHASE A	PHASE B					
20A-1P	LIGHTING	LITG	221	1	421		2	200	EQP	PLC/RTU CABINET	20A-1P
20A-1P	RECEPTACLES	REC	720	3		920	4	200	EQP	SOLENOID PANEL	20A-1P
20A-1P	RECEPTACLES	REC	540	5	1370		6	830	MECH	EXHAUST FAN	20A-1P
20A-1P	RECEPTACLES	REC	540	7		640	8	100	EQP	SMOKE DETECTORS	20A-1P
20A-2P	UNIT HEATER	LMECH	1370	9	2740		10	1370	MECH	UNIT HEATER	20A-2P
20A-1P	CATHODIC PROTECTION - TANK 1	EQP	840	13	840		14			SPARE	20A-1P
20A-1P	CATHODIC PROTECTION - TANK 2	EQP	840	15		840	16			SPARE	20A-1P
20A-1P	SPARE			17			18			SPARE	20A-1P
20A-1P	SPARE			19			20			SPARE	20A-1P
20A-1P	SPARE			21			22			SPARE	20A-1P
20A-1P	SPARE			23			24			SPARE	20A-1P
1P	SPACE ONLY			25			26			SPACE ONLY	1P
1P	SPACE ONLY			27			28			SPACE ONLY	1P
1P	SPACE ONLY			29			30			SPACE ONLY	1P

Total Phase Loads (VA): 5,371 5,140
Total Phase Loads (Amps): 44.8 42.8
Total Connected Loads (KVA): 10.5

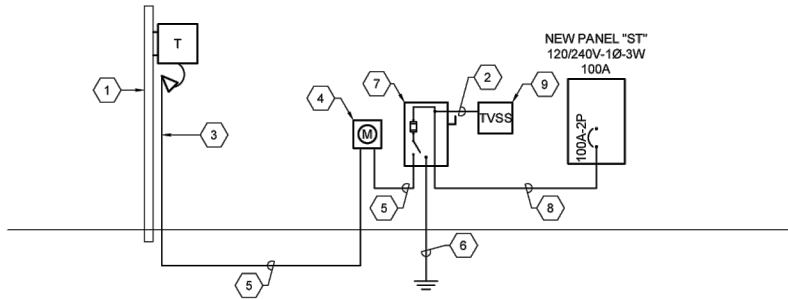
Notes: 1. New Panelboard
2. 30-Circuit, Lockable Enclosure
3. Copper Neutral and Ground Bus Bars
4. Door-in-Door Enclosure.

LOAD CALCULATIONS - NEW PANEL "ST"											
Connected (kVA) by Type:			Estimated Demand (kVA) by Type:								
LTG	Lighting	0.2	Lighting at 125% (kVA)	0.3	Total Estimated Demand (kVA)	11.3					
REC	Receptacles	1.8	Receptacles	1.8	Amps at 120/240V-1 Phase (Amps)	48.9					
			10kVA at 100% (kVA)	1.8	Panel Ampacity (Rating)	100					
			Rest at 50% (kVA)	0.0							
EQP	Equipment	2.2	Eqp at 100% (kVA)	2.2	Spare Capacity	53.1%					
LMECH	Largest Mech	2.7	Largest at 125% (kVA)	3.4							
MECH	Mechanical	3.6	Rest at 100% (kVA)	3.6							

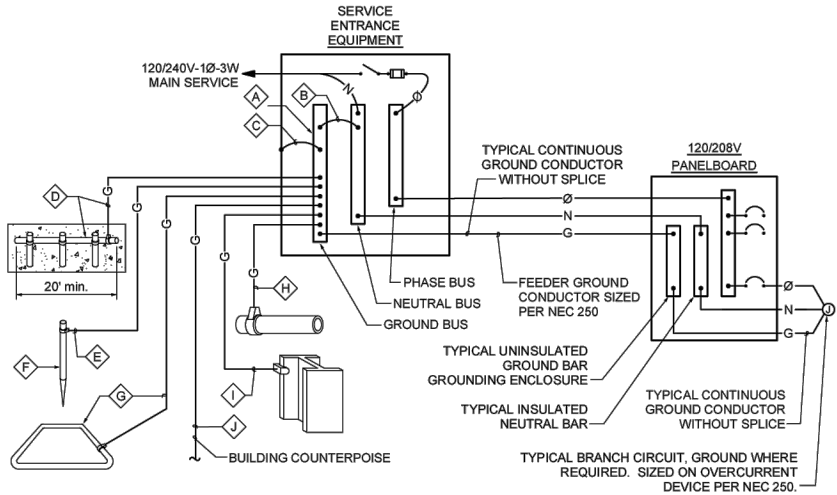
Control Wiring Schedule - Surge Tank Building			
TAG #	FED FROM	TO	WIRE REQUIREMENTS
B1	Door Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B2	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B3	Smoke Detector	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B4	Smoke Detector	Smoke Detector	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B5	Solenoid Valve	Solenoid Panel	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B6	Solenoid Valve	Solenoid Panel	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B7	Solenoid Panel	Solenoid Panel	3 # 14, 1 # 14 GND - 1/2" Conduit
B8	Fiber Optic Transmitter Unit	Quazite Box	2" Conduit
B9	250 OHM resistor	Pressure Transmitter	2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
B10	250 OHM resistor	PLC	2/C #18 Twisted Pair Shielded Cable - 3/4" Conduit
B11	Low Temperature Sensor	PLC	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B12	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit

DISCRETE & ANALOG I/O LIST

Site Name	I/O Name	Tag	Point	Type	Local	SCADA	Notes
Surge Tank Building							Remote I/O talks to SCADA system through Fiber Optic Cable. Relays info to and from
	Surge Bldg. Intrusion Man Door		I1	DI		Yes	
	Surge Bldg. Intrusion Roll Up Door		I2	DI		Yes	
	Surge Bldg. Smoke Detector		I3	DI		Yes	
	Low Pressure Alarm		I4	DI		Yes	
	Low Temperature Sensor		I5	DI		Yes	
	Pulse Modular Low Battery		I8	DI		Yes	
	Surge Bldg Intrusion North Door		I11	DI		Yes	
	Surge Tank Level		AI1	AI		Yes	
	Pressure Transmitter		AI3	AI		Yes	



POWER RISER DIAGRAM



GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

NOT TO SCALE

GROUNDING SYSTEM GENERAL NOTES

- THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS A, B, C, D, E, F, AND G, WHERE APPLICABLE.
- ITEMS D, I, AND J MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- ITEM D, CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10" COPPER GROUND ROD CUT INTO 2 SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.
- THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- ALL SPLICING SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.

GROUNDING SCHEDULE										
	 FACTORY INSTALLED GROUND BUS BAR	 INTEGRATED BUS BAR MAIN BOND JUMPER	 INTEGRATED BUS BAR CASE BOND JUMPER	 CONCRETE ENCASED ELECTRODE (UFER)	 GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	 CU or CU-CLAD STEEL GROUND ROD	 COPPER GROUND RING CONDUCTOR	 METALLIC PIPING BONDING CONDUCTOR	 BUILDING STEEL BONDING CONDUCTOR	 BUILDING COUNTER POISE
 CODE REFERENCE AMPACITY		N.E.C. 250.102	N.E.C. 250.102	N.E.C. 250.50(c) 250.66(b)	N.E.C. 250.52(c) 250.52(d) 250.66(a)	N.E.C. 250.52(c)(2)	N.E.C. 250.50(d) 250.66(c)	N.E.C. 250.50(a) 250.66	N.E.C. 250.50(b) 250.66	N.E.C. 250.66
100 AMP		#4	#4	#4	#6	5/8"x8'	#2	#4	#4	#2/0
225 AMP		#2	#2	#4	#6	5/8"x8'	#2	#2	#2	#2

SHALL BE SIZED TO ACCOMMODATE ALL GROUND WIRE LUGS AS INDICATED ON GROUNDING DIAGRAM AND/OR REFERENCED ELSEWHERE ON PLANS OR SPECIFICATIONS

KEYED NOTES

- PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER AND TRANSFORMER.
- 4#8 THWN Cu IN 1" CONDUIT BETWEEN TVSS AND DISCONNECT SWITCH.
- PROVIDE A 2" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH UTILITY COMPANY PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUITS
- PROVIDE AND INSTALL A 100 AMP 120/240 VOLT METER SOCKET PER THE LOCAL UTILITY COMPANY REQUIREMENT. REFER TO "ELECTRICAL SITE PLAN" ON SHEET ES-11 FOR LOCATION OF METER.
- 3#2 THWN Cu IN 2" CONDUIT.
- REFER TO "GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM" ON THIS SHEET FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL A FUSIBLE DISCONNECT SWITCH, 100 AMPS, 250 VOLTS, 2 POLE, SOLID NEUTRAL AND GROUND LUG, NEMA 3R ENCLOSURE. FUSE AT 100 AMPS. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" WIDE IN FRONT OF DISCONNECT SWITCH PER NEC.
- 3#2 THWN Cu AND 1#8 THWN Cu GROUND IN 1 1/4" CONDUIT.
- PROVIDE AND INSTALL A TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE. THE TVSS SHALL BE MANUFACTURED BY RAYCAP #120-2S-M3-3-06-A-H OR APPROVED EQUAL, NEMA 3R ENCLOSURE.



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Client: ###

Location: ###

By: Chkd

Description

Revision

Date

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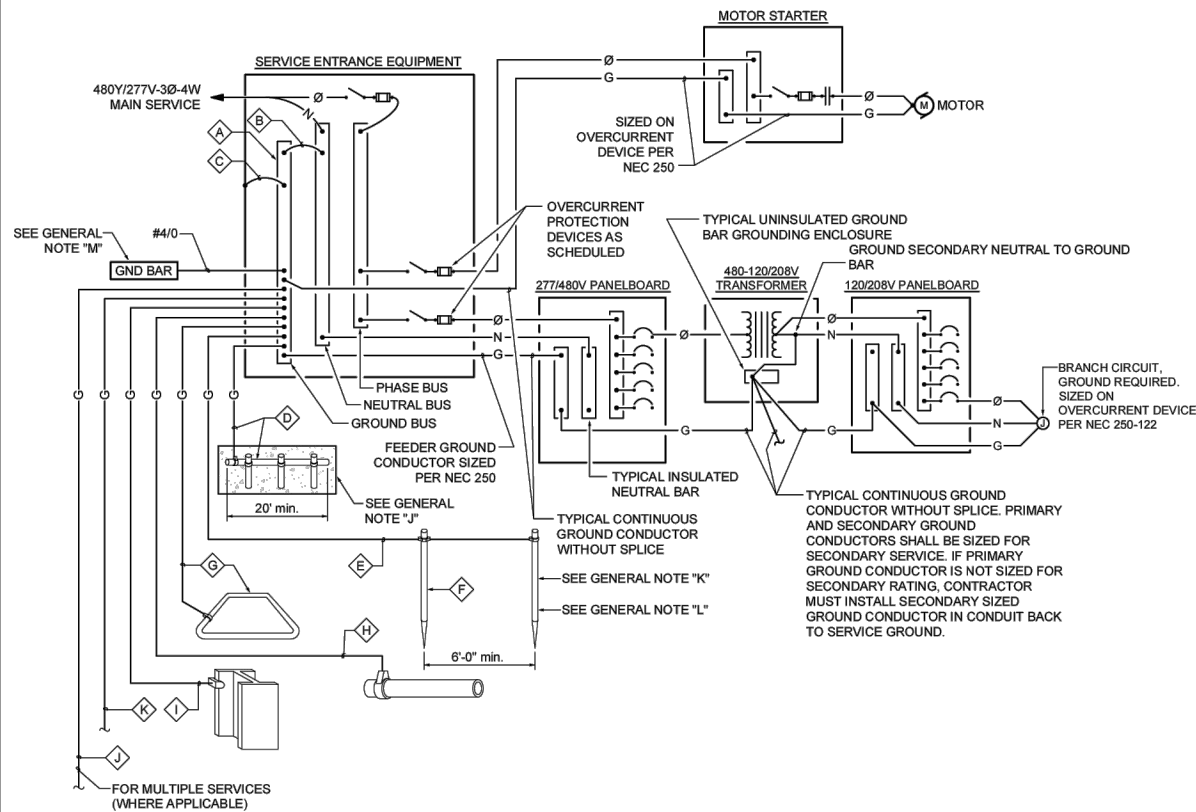
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GROUNDING SYSTEM DIAGRAM 480Y/277V
NOT TO SCALE

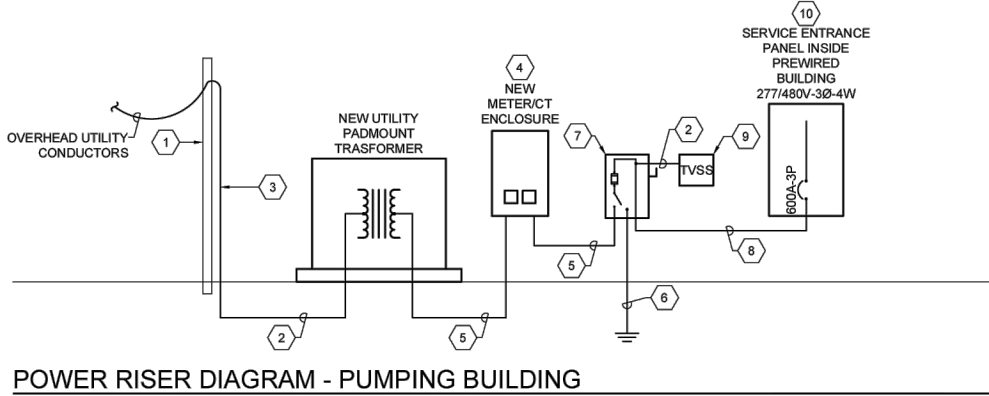
GROUNDING SYSTEM GENERAL NOTES

2018

- A. THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS **A**, **B**, **C**, **D**, **E**, **F**, AND **G**, WHERE APPLICABLE.
- B. ITEMS **H**, **I**, AND **J** MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- C. ITEM **D**, CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10" COPPER GROUND ROD CUT INTO 2' SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.
- D. THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- E. ALL SPLICING AND UNDERGROUND CONNECTIONS SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- F. ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- G. ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- H. ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- I. THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.
- J. IF A 20'-0" LONG (MINIMUM) CONCRETE ENCASED ELECTRODE IS NOT AVAILABLE, CONTRACTOR MAY INSTALL A 20'-0" (MINIMUM) UFER GROUND 30" BELOW GRADE WITH AT LEAST TWO GROUND RODS (ONE AT EACH END).
- K. PROVIDE SECOND GROUND ROD AT LEAST 6'-0" FROM INITIAL GROUND ROD.
- L. WHEN INDICATED ON DRAWINGS, PROVIDE AND INSTALL HORIZONTAL CHEMICAL GROUND ELECTRODE KIT. 10' COPPER ELECTRODE LENGTH, FACTORY ATTACHED 6" #4/0 COPPER PIGTAIL, AND HIGH DENSITY POLYETHYLENE INSPECTION WELL & COVER. ERICO #ECRH102Q8U OR APPROVED EQUAL. CONTRACTOR SHALL USE MANUFACTURER RECOMMENDED ELECTROLYTIC SALTS, BENTONITE CLAY BACKFILL MATERIAL, AND GROUND ENHANCEMENT MATERIAL (GEM). CONTRACTOR SHALL INSTALL PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR SHALL MAINTAIN 6'-0" SEPARATION (MINIMUM) BETWEEN GROUNDING ELECTRODES. INSPECTION WELL INSTALLED FLUSH WITH FINAL GRADE.
- M. PROVIDE AND INSTALL 1/4" X 4" X 18" COPPER MAIN GROUNDING BUS BAR WITH BRACKETS AND INSULATORS. CONTRACTOR SHALL COORDINATE PRE-DRILLED (12)-1/4" HOLES REQUIREMENTS WITH PNM (OWNER), ERICO OR APPROVED EQUAL. EXTEND 1#4/0 CU GROUNDING CONDUCTOR TO MAIN GROUND. COORDINATE EXACT LOCATION AND ROUTING IN THE FIELD. CONTRACTOR SHALL MAKE ALL FINAL TERMINATIONS AS REQUIRED.

GROUNDING SCHEDULE											
	A FACTORY INSTALLED GROUND BUS BAR	B INTEGRATED BUS BAR MAIN BOND JUMPER	C INTEGRATED BUS BAR CASE BOND JUMPER	D CONCRETE ENCASED ELECTRODE (UFER)	E GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	F CU or CU-CLAD STEEL GROUND ROD	G COPPER GROUND RING CONDUCTOR	H METALLIC PIPING BONDING CONDUCTOR	I BUILDING STEEL BONDING CONDUCTOR	J MULTIPLE SERVICE BONDING CONDUCTOR	K TELEPHONE SYSTEM GROUNDING CONDUCTOR
CODE REFERENCE AMPACITY		N.E.C. 250.102(C)	N.E.C. 250.102(C)	N.E.C. 250.52(A)(3) 250.66(B)	N.E.C. 250.52(A)(5) 250.52(A)(7) 250.66(A)	N.E.C. 250.52(A)(5)	N.E.C. 250.52(A)(4) 250.66(C)	N.E.C. 250.52(A)(1) 250.66	N.E.C. 250.50(A)(2) 250.66	N.E.C. 250.66	
200 AMP		#4	#4	#4	#6	5/8"x8'	#2	#4	#4	#4	#6
225 AMP		#2	#2	#4	#6	5/8"x8'	#2	#2	#2	#6	
400 AMP		#1/0	#1/0	#4	#6	5/8"x8'	#1/0	#1/0	#1/0	#6	
600 AMP		#2/0	#2/0	#4	#6	5/8"x8'	#2/0	#2/0	#2/0	#2/0	#6

SHALL BE SIZED TO ACCOMMODATE ALL
GROUND WIRE LUGS AS INDICATED ON
GROUNDING DIAGRAM AND/OR REFERENCED
ELSEWHERE ON PLANS OR SPECIFICATIONS



LOAD SUMMARY - SERVICE DISC

DESCRIPTION	
600A SERVICE FUSIBLE DISCONNECT SWITCH ESTIMATED DEMAND PER NEC 220	
PUMPS (3) AT 150 HP (ONLY 2 RUN AT A TIME) LIGHTING AT 2WSQFT (400 SQFT) (0.8 KVA CONN) AT 125% (CONTINUOUS LOAD)	299.2 KVA 1.0 KVA 2.0 KVA
RECEPTACLES AT 5WSQFT (400 SQFT) ELECTRIC HEAT	4.0 KVA
TOTAL ESTIMATED LOAD:	306.2 KVA
368 AMPERES AT 480Y/277V-3Ø-4W	
MINIMUM SERVICE CAPACITY =125% x TOTAL ESTIMATED LOAD	382.8 KVA
460 AMPERES AT 480Y/277V-3Ø-4W	
MINIMUM RECOMMENDED SERVICE SIZE =	600 AMPS

KEYED NOTES

- PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER.
- 3" CONDUIT BURIED A MINIMUM OF 36" (OR PER LOCAL UTILITY REQUIREMENTS) WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT FOR PRIMARY CONDUCTORS. COORDINATE EXACT REQUIREMENTS WITH NTUA PRIOR TO WORK BEING PERFORMED. PROVIDE AND INSTALL PULLTAPE IN CONDUIT.
- PROVIDE A 3" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH UTILITY COMPANY PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUITS
- PROVIDE AND INSTALL A 480VOLT CT/METER ENCLOSURE PER THE LOCAL UTILITY COMPANY REQUIREMENTS. REFER TO "ELECTRICAL SITE PLAN" ON SHEET ES-11 FOR LOCATION.
- 2 PARALLEL RUNS OF 4#350 THWN Cu IN 3" CONDUIT OR 2 PARALLEL RUNS OF 4#500 XHHW AI IN 3 1/2" CONDUIT.
- REFER TO "GROUNDING SYSTEM DIAGRAM - 277/480 VOLT SYSTEM" ON THIS SHEET FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL A FUSIBLE DISCONNECT SWITCH, 600 AMPS, 600 VOLTS, 3 POLE, SOLID NEUTRAL AND GROUND LUG, NEMA 3R ENCLOSURE. FUSE AT 600 AMPS. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" WIDE IN FRONT OF DISCONNECT SWITCH PER NEC.
- 2 PARALLEL RUNS OF 4#350 THWN Cu AND 1#1 THWN Cu GROUND IN 3" CONDUIT OR 2 PARALLEL RUNS OF 4#500 XHHW AI AND 1#1/0 XHHW AI GROUND IN 3 1/2" CONDUIT.
- PROVIDE AND INSTALL A TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE. THE TVSS SHALL BE MANUFACTURED BY RAYCAP #277-3Y-M3-4-06-C-H OR APPROVED EQUAL, NEMA 3R ENCLOSURE.
- MAKE ALL REQUIRED CONNECTIONS FOR POWER ENTRANCE TO PREWIRED BUILDING. COORDINATE EXACT LOCATION OF EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.

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POWER RISER DIAGRAM AND DETAILS - PUMP BUILDING
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.



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