

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9

REACH 10.1.1

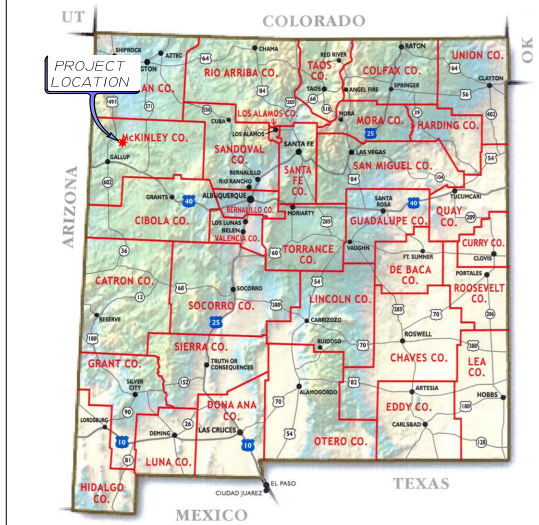
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3/15/22

NOTE: ALL NOTES IN RED ARE DESIGN NOTES ONLY AND WILL NOT BE INCLUDED IN THE FINAL PLAN SET. THESE ARE TO ASSIST IN INTERNAL DESIGN AND REVIEW ONLY.



BUREAU OF RECLAMATION



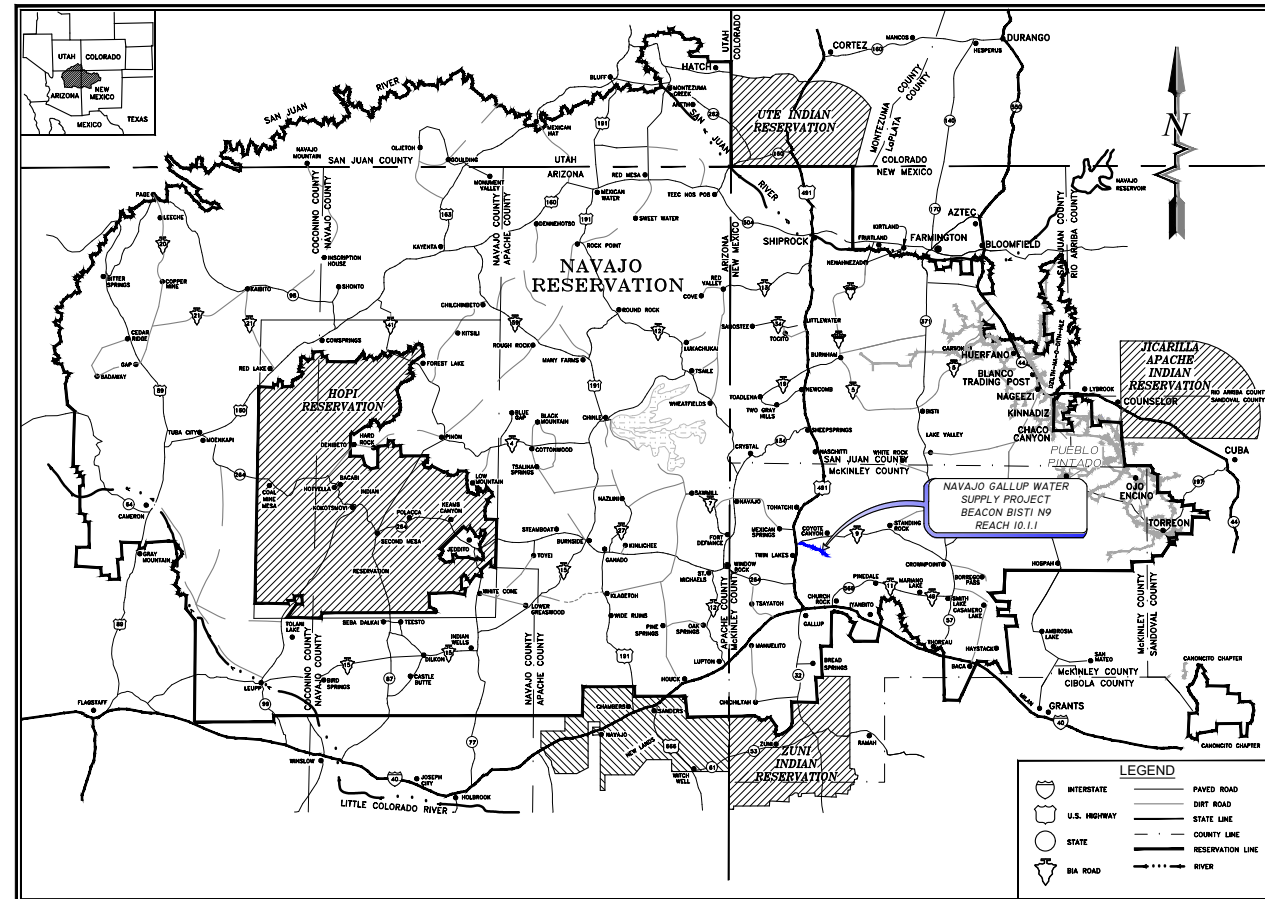
PROJECT VICINITY MAP

NGWSP SAN JUAN LATERAL REACH 11 TO COYOTE CANYON TANK SITE

March 2022

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTION OF 6.91 MILES OF 8" PVC WATERLINE AND A CHLORINATOR.



NAVAJO RESERVATION PROJECT SITE MAP

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
COVER SHEET & DRAWING INDEX
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
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 PRELIMINARY
 NOT FOR CONSTRUCTION
 3/2022

| | | |
|-----------------|------------------|----------------|
| Designed TTT | Drawn MvH/AaV | Checked JMG |
|-----------------|------------------|----------------|

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

Date: March 2022
 Scale: Horiz: N/A
 Vert: N/A

Project No: 6922268
 Sheet: **G-1**

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\BN9 Reach 10.1.1 Cover-Gem Notes.dwg
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GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. CONTRACTOR SHALL REPAIR ANY EXISTING STRUCTURE OR UTILITY PIPELINE DAMAGED DURING THE EXECUTION OF THE PROJECT, AT NO ADDITIONAL COSTS TO THE OWNER.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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-SEEDED PER THE CONTRACT DOCUMENTS.
13. 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.
14. 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.
15. ALL PRESSURE RATINGS GIVEN HEREIN FOR PIPES, VALVES, FITTINGS AND OTHER COMPONENTS REFER TO COLD WATER WORKING PRESSURE RATING, UNLESS OTHERWISE NOTED.
16. 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.

17. 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 CONTAINED WITHIN THIS PACKAGE OR ANY PLAN SHEETS NOT SIGNED AND SEALED.
18. ALL SCALES ARE BASED ON 11" x 17" SHEET SIZE.

CONTACT INFORMATION:

NAVAJO NATION WATER MANAGEMENT BRANCH (OWNER):

JASON JOHN (928) 729-4004

SOUDER, MILLER & ASSOCIATES (ENGINEER):

TORY TADANO, P.E (OFFICE) (505) 299-0942

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA):

DANIEL STEVENS (928) 729-5721

ABBREVIATIONS

| | | | |
|--|---|--|---|
| <p>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 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 EA EASTING EA. EACH ED. EDITION EG EXISTING GRADE ELEC. ELECTRICAL EL. ELEV. EOP EDGE OF PAVEMENT EQ EQUAL ESMT. EASEMENT EVCE END VERTICAL CURVE ELEVATION EVCS END VERTICAL CURVE STATION EX. EXIST. 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 IA. INDIAN ALLOTMENT ID. 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</p> | <p>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.C. NOTHING N.E.C. NATIONAL ELECTRICAL CODE NEC NORMALLY CLOSED 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 TW TOP OF WALL TYP. TYPICAL UGE UNDERGROUND ELECTRIC USGS UNITED STATES GEOLOGICAL SURVEY VOLUME VOLUME VB VACUUM BREAKER VERT. VERTICAL VLV VALVE VR VACUUM RELIEF W WATER W. WEST WI WITH WL WATERLINE WP WORKING PRESSURE WT WALL THICKNESS WW WATER VALVE YDS YARDS Z ZENITH</p> | <p>W WATER LINE OHE POWER LINE X FENCE PIPE CASING GATE VALVE BUTTERFLY VALVE VACUUM BREAKER AIR RELEASE VALVE COMBO FLUSH VALVE POWER POLE GUY ANCHOR DOUBLE SWING GATE</p> | <p>6965 CONTOUR MAJOR 6964 CONTOUR MINOR 40' WATERLINE EASEMENT TEMPORARY CONSTRUCTION EASEMENT ACCESS DRIVE / ROAD RIP RAP OR CABLE CRETE GRAVEL OVER BASE COURSE SWALE DIRECTION OF FLOW MATCH LINE</p> |
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LEGEND

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| <p>WV ISOLATION VALVE W WATER VAULT WM 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</p> | <p>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</p> |
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LEGEND

PROPOSED

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| <p>W WATER LINE OHE POWER LINE X FENCE PIPE CASING GATE VALVE BUTTERFLY VALVE VACUUM BREAKER AIR RELEASE VALVE COMBO FLUSH VALVE POWER POLE GUY ANCHOR DOUBLE SWING GATE</p> | <p>6965 CONTOUR MAJOR 6964 CONTOUR MINOR 40' WATERLINE EASEMENT TEMPORARY CONSTRUCTION EASEMENT ACCESS DRIVE / ROAD RIP RAP OR CABLE CRETE GRAVEL OVER BASE COURSE SWALE DIRECTION OF FLOW MATCH LINE</p> |
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| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM

GENERAL NOTES & LEGEND
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
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| Designed TTT | Drawn MvH/AaV | Checked JMG |
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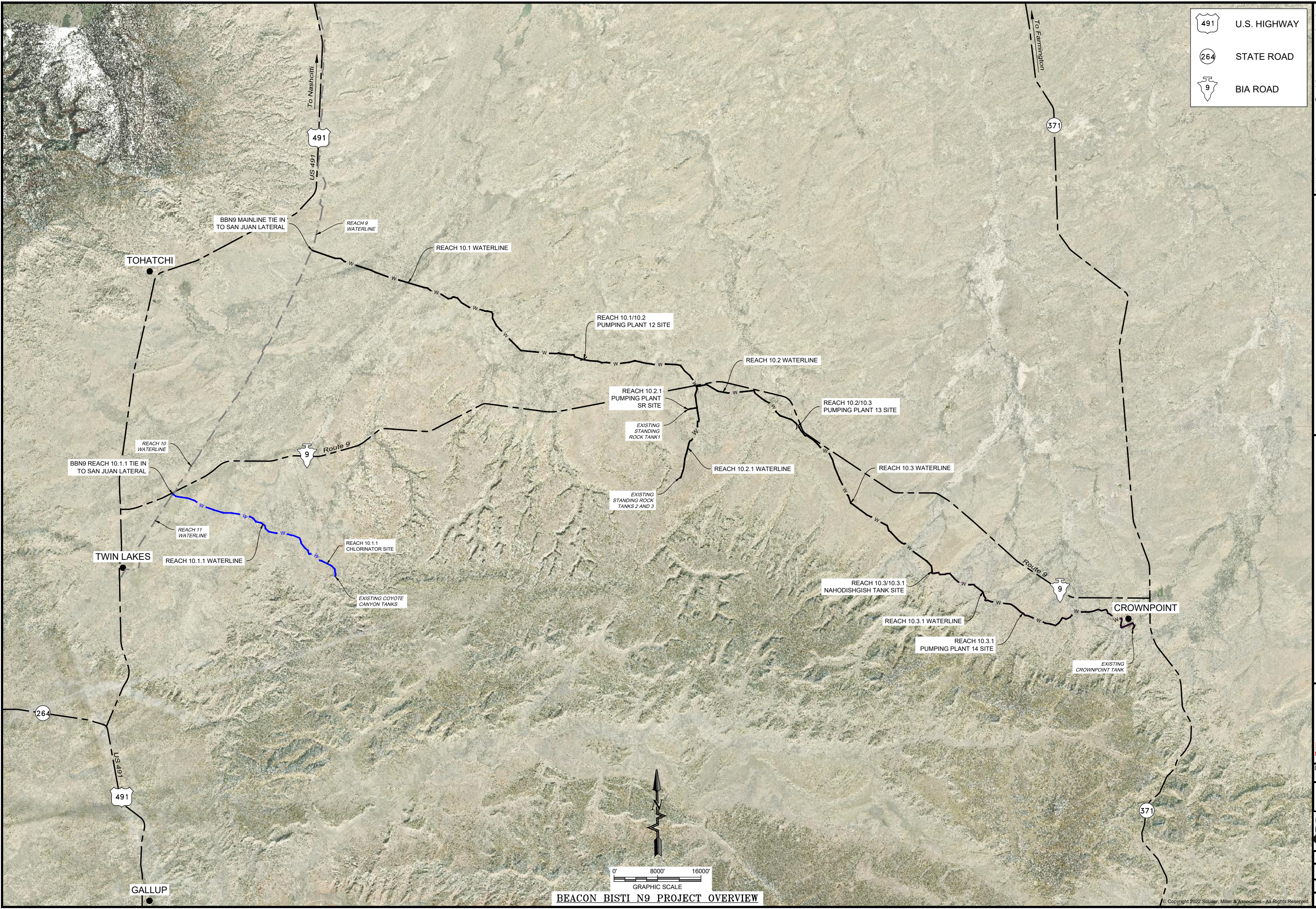
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Date: March 2022
Scale: Horiz: N/A
Vert: N/A

Project No: 6922268
Sheet: **G-2**

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 BBN9 Project Overview.dwg
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| | |
|--|--------------|
| | U.S. HIGHWAY |
| | STATE ROAD |
| | BIA ROAD |

| Revision | Date | Description | By | CHKD |
|----------|------|-------------|----|------|
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Client: The Navajo Nation
 Location: Coyote Canyon, NM

BEACON BISTI N9 PROJECT OVERVIEW
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 MCKINLEY COUNTY, NEW MEXICO

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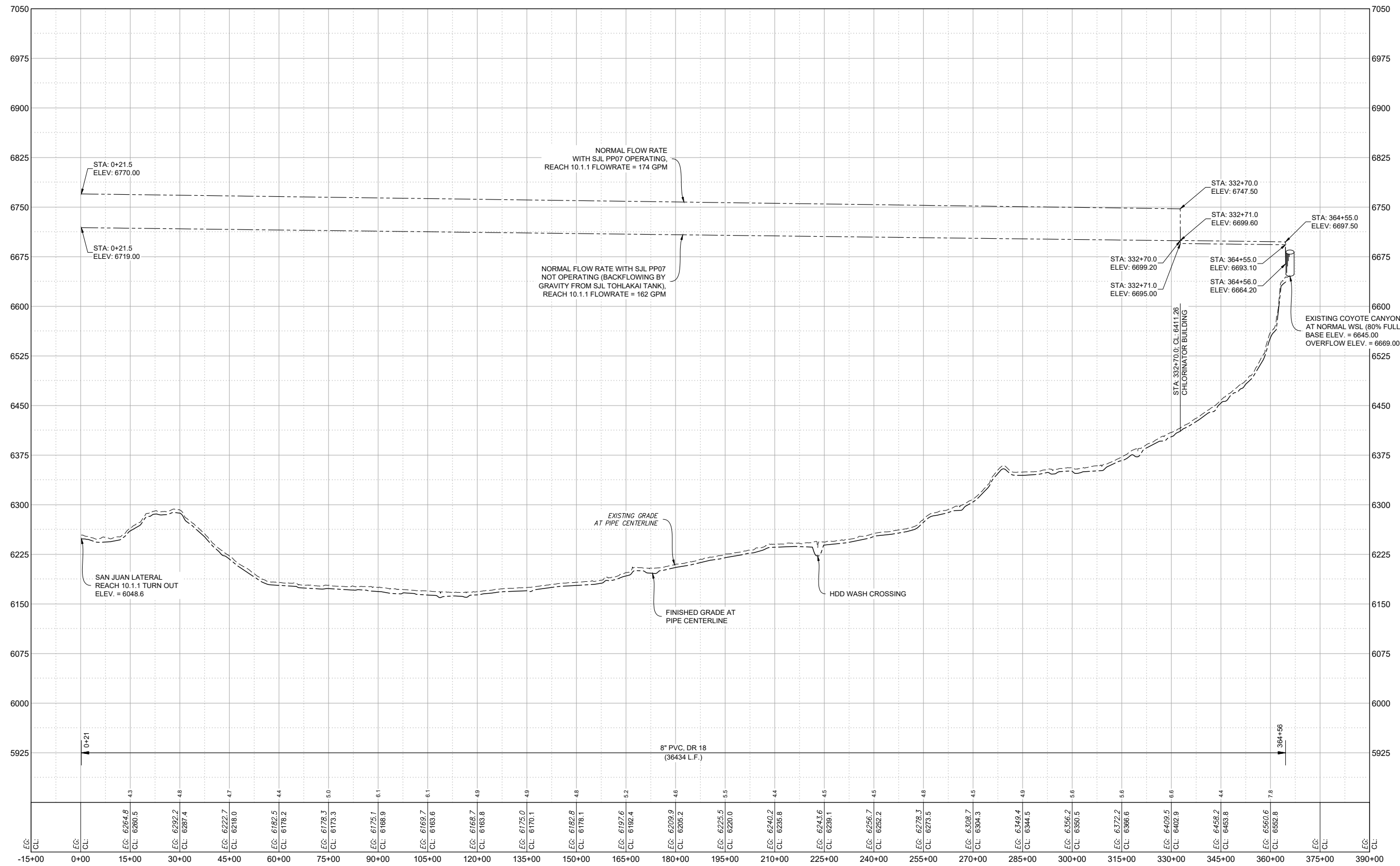
Date: March 2022
 Scale: Horiz: 1" = 16000'
 Vert: N/A

Project No: 6922268
 Sheet: G-3

BEACON BISTI N9 PROJECT OVERVIEW

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P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Hydraulic Profile.dwg
3/15/2022 2:03:34 PM anv



GRAPHIC SCALE
0' 1500' 3000'
BBN9 REACH 10.1 PROFILE VIEW
8" WATERLINE

| | |
|-------------|------|
| By | CHKD |
| Revision | Date |
| Description | |

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Location: Coyote Canyon, NM

HYDRAULIC PROFILE
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BEACON BISTI N9 - REACH 10.1.1
McKINLEY COUNTY, NEW MEXICO

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| Designed | Drawn | Checked |
| TTT | MvH/AaV | JMG |

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

Date: March 2022
Scale: Horiz: 1" = 3000'
Vert: 1" = 150'

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

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BEGIN REACH 10.1.1 WATERLINE
 PI STA 0+21.5 =
 REACH 9 APPROX. STA 11070+80
 N=172837.90
 E=2453429.04

EXISTING REACH 11
 42" WATERLINE

REACH 10.1.1 8" PVC WATERLINE

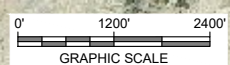
CHLORINATOR SITE
 (SEE SHTS. C-15 THRU C-19)

COYOTE CANYON TANK SITE
 (SEE SHTS. C-20 THRU C-22)

CONTACT INFORMATION:
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 MANAGEMENT BRANCH
 JASON JOHN (928) 729-4004

ENGINEER: SOUDER, MILLER & ASSOCIATES
 TORY TADANO, P.E. (505) 299-0942 Office

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
 (928) 729-5721



PROJECT SITE PLAN AND DRAWING KEY INDEX

| Revision | Date | Description |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM

SITE PLAN AND DRAWING KEY INDEX
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

30% REVIEW

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 3/2022

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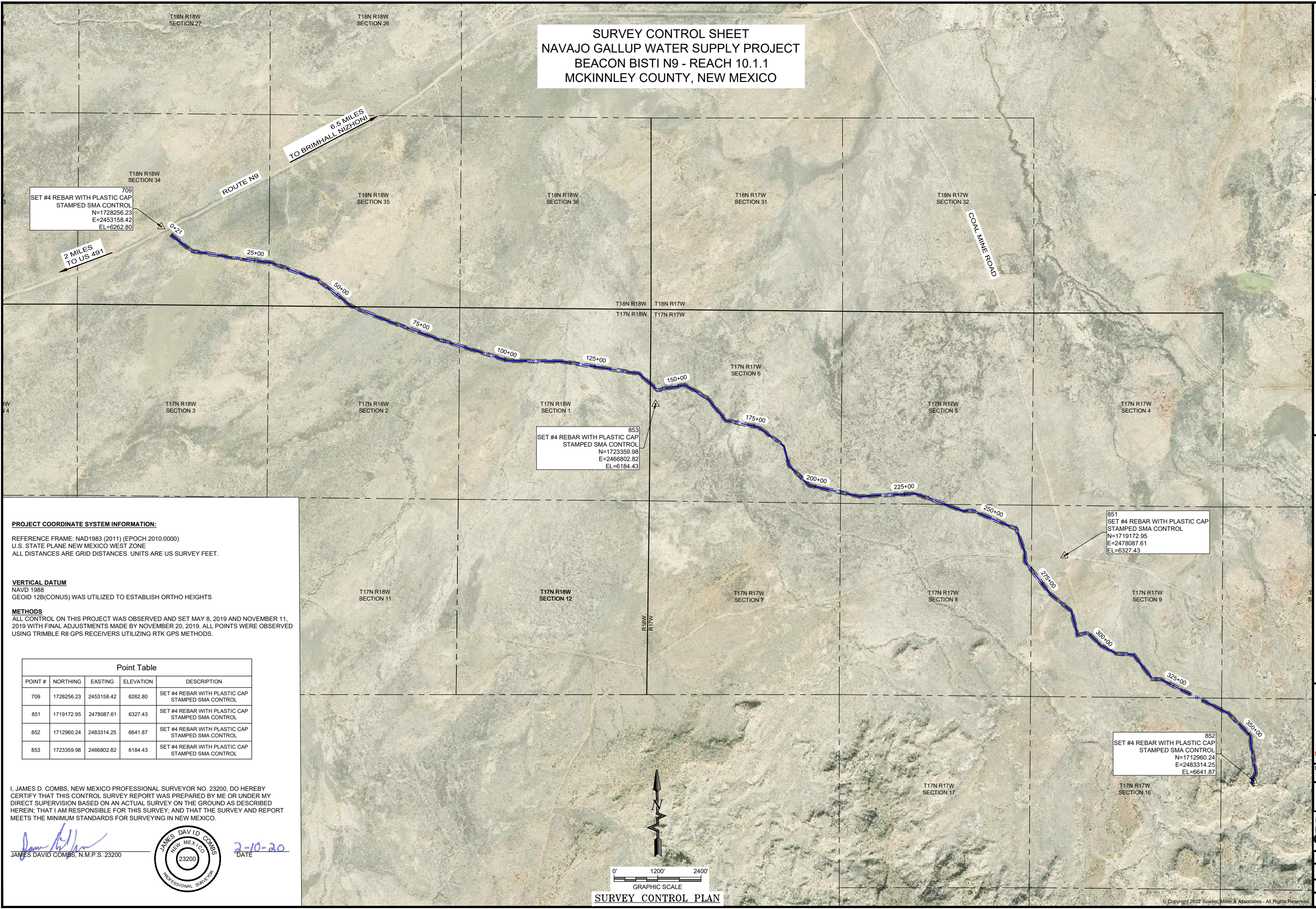
Date: March 2022
 Scale: Horiz: 1" = 2400'
 Vert: N/A

Project No: 6922268
 Sheet: **G-5**

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**SURVEY CONTROL SHEET
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO**




PROJECT COORDINATE SYSTEM INFORMATION:
REFERENCE FRAME: NAD1983 (2011) (EPOCH 2010.0000)
U.S. STATE PLANE NEW MEXICO WEST ZONE
ALL DISTANCES ARE GRID DISTANCES. UNITS ARE US SURVEY FEET.

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


METHODS
ALL CONTROL ON THIS PROJECT WAS OBSERVED AND SET 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 # | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---------|------------|------------|-----------|---|
| 709 | 1728256.23 | 2453158.42 | 6262.80 | SET #4 REBAR WITH PLASTIC CAP STAMPED SMA CONTROL |
| 851 | 1719172.95 | 2478087.61 | 6327.43 | SET #4 REBAR WITH PLASTIC CAP STAMPED SMA CONTROL |
| 852 | 1712960.24 | 2483314.25 | 6641.87 | SET #4 REBAR WITH PLASTIC CAP STAMPED SMA CONTROL |
| 853 | 1723359.98 | 2466802.82 | 6184.43 | SET #4 REBAR WITH PLASTIC CAP STAMPED SMA CONTROL |

I, JAMES D. COMBS, NEW MEXICO PROFESSIONAL SURVEYOR NO. 23200, 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.

James D. Combs
JAMES DAVID COMBS, N.M.P.S. 23200

 DATE: 2-10-20

| Revision | Date | Description |
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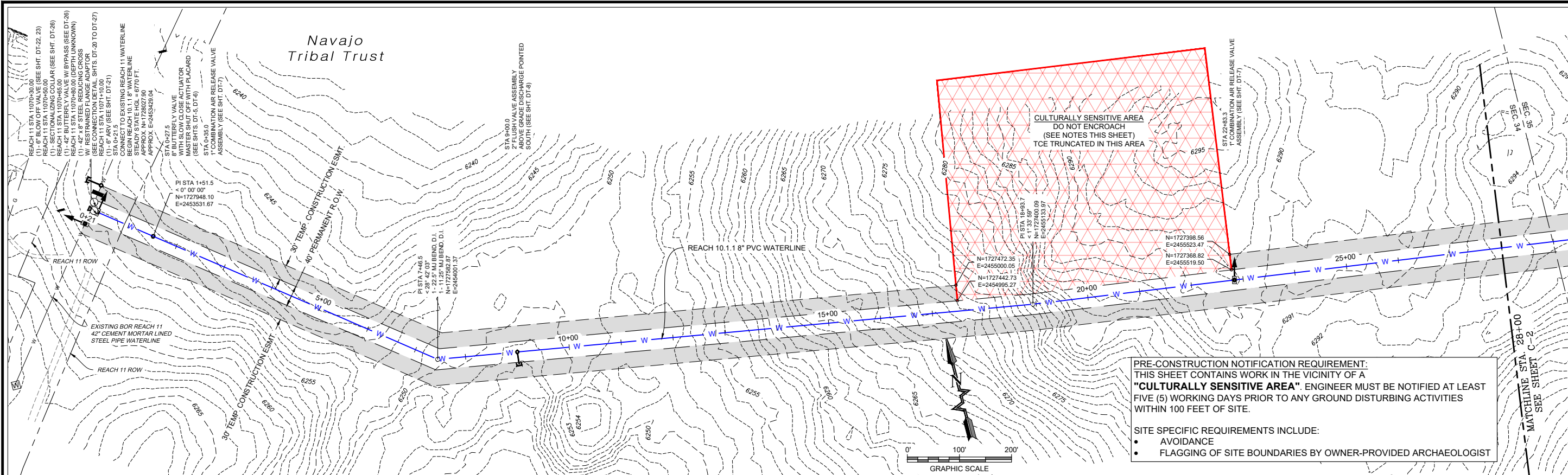
Client: The Navajo Nation
 Location: Coyote Canyon, NM
SURVEY CONTROL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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 Date: March 2022
 Scale: Horiz: 1" = 2400'
 Vert: N/A
 Project No: 6922268
 Sheet: G-6

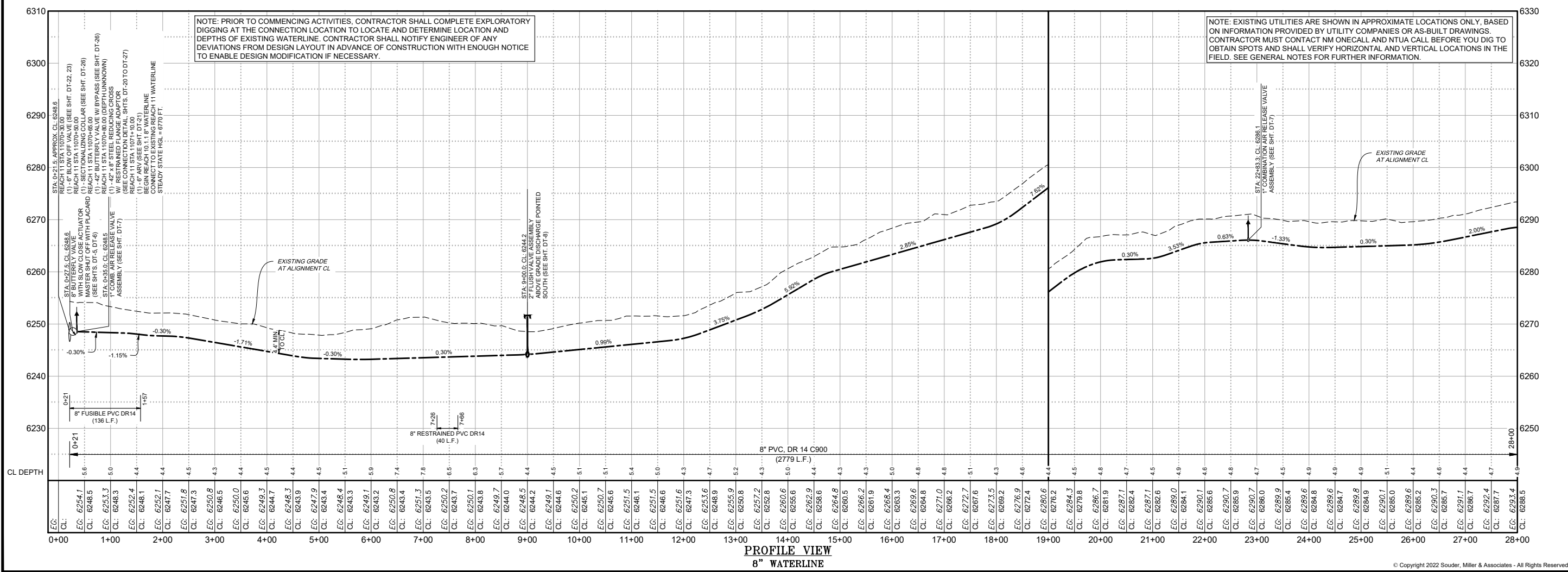


PLAN VIEW
8" WATERLINE

PRE-CONSTRUCTION NOTIFICATION REQUIREMENT:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A
"CULTURALLY SENSITIVE AREA". ENGINEER MUST BE NOTIFIED AT LEAST
FIVE (5) WORKING DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES
WITHIN 100 FEET OF SITE.

SITE SPECIFIC REQUIREMENTS INCLUDE:

- AVOIDANCE
- FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST



PROFILE VIEW
8" WATERLINE

Revision Date Description By

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Client: The Navajo Nation Location: Coyote Canyon, NM

PLAN AND PROFILE STA 0+21.5 TO STA 28+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO
SECTION 34, T. 18 N., R. 18 W.

90% REVIEW DRAFT

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NOT FOR CONSTRUCTION
3/2022

Designed: TTT Drawn: MvH/AaV Checked: JMG

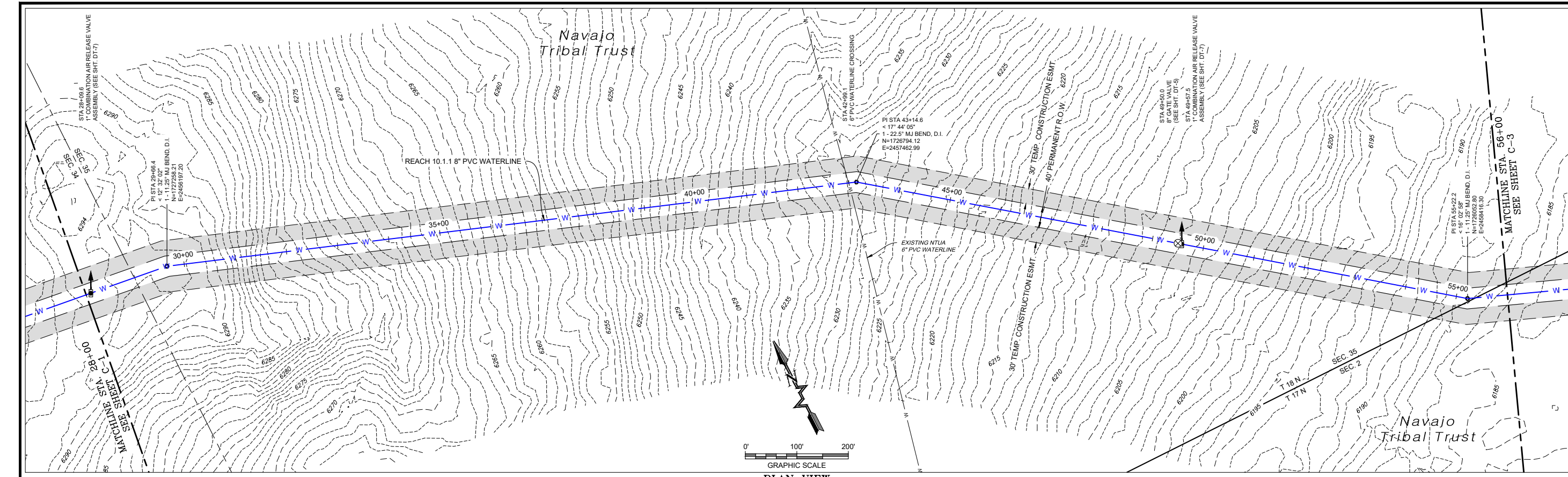
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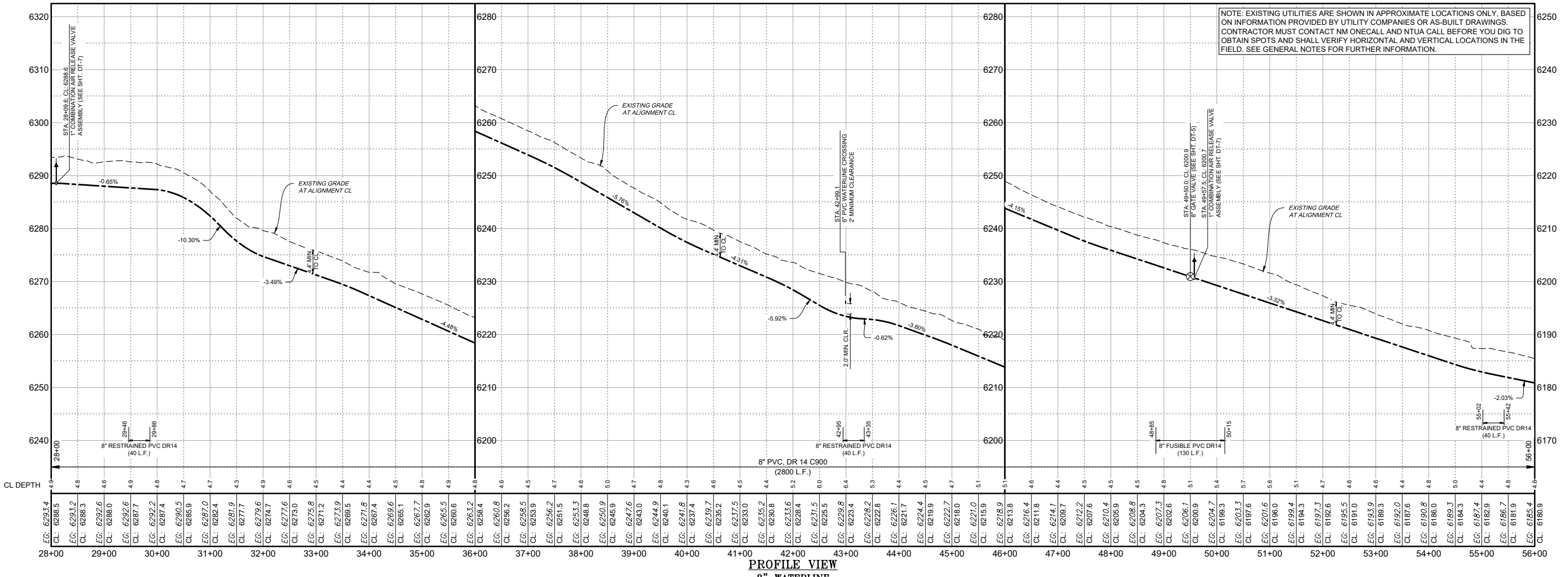
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Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6922268
Sheet: C-1

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PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

NOTE: EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY, BASED ON INFORMATION PROVIDED BY UTILITY COMPANIES OR AS-BUILT DRAWINGS. CONTRACTOR MUST CONTACT NM ONECALL AND NTUA CALL BEFORE YOU DIG TO OBTAIN SPOTS AND SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD. SEE GENERAL NOTES FOR FURTHER INFORMATION.

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Client: The Navajo Nation
Location: Coyote Canyon, NM

PLAN AND PROFILE STA 28+00 TO STA 56+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKinley County, New Mexico
SEC. 34 & 35, T. 18 N., R. 18 W.; SEC. 2, T. 17 N., R. 18 W.

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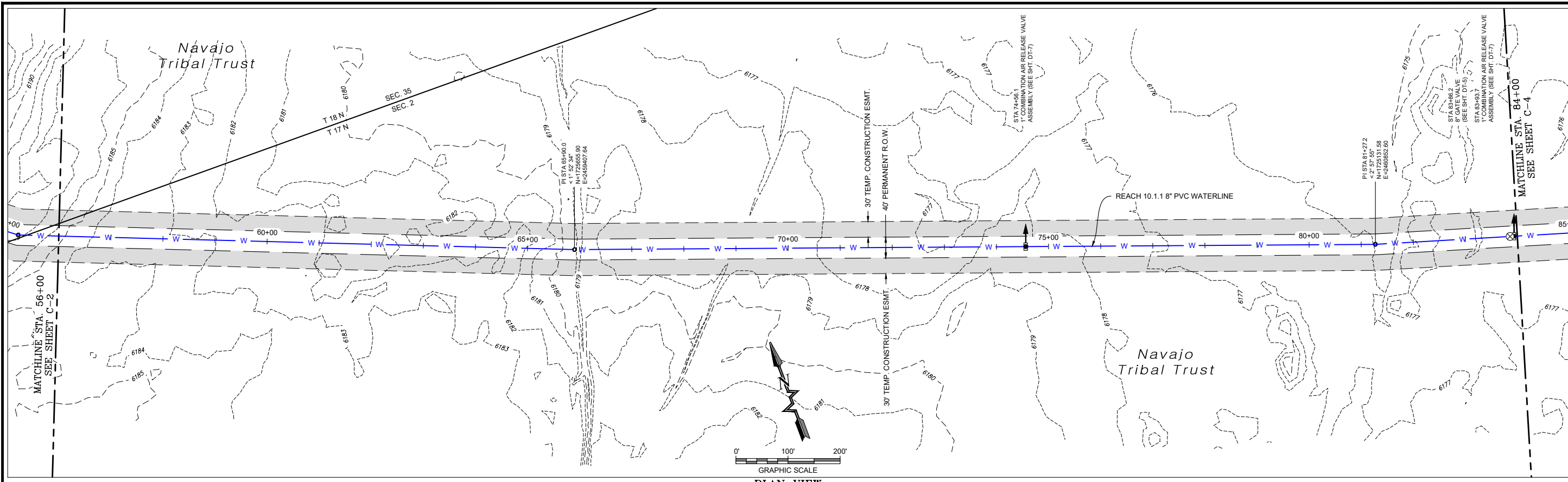
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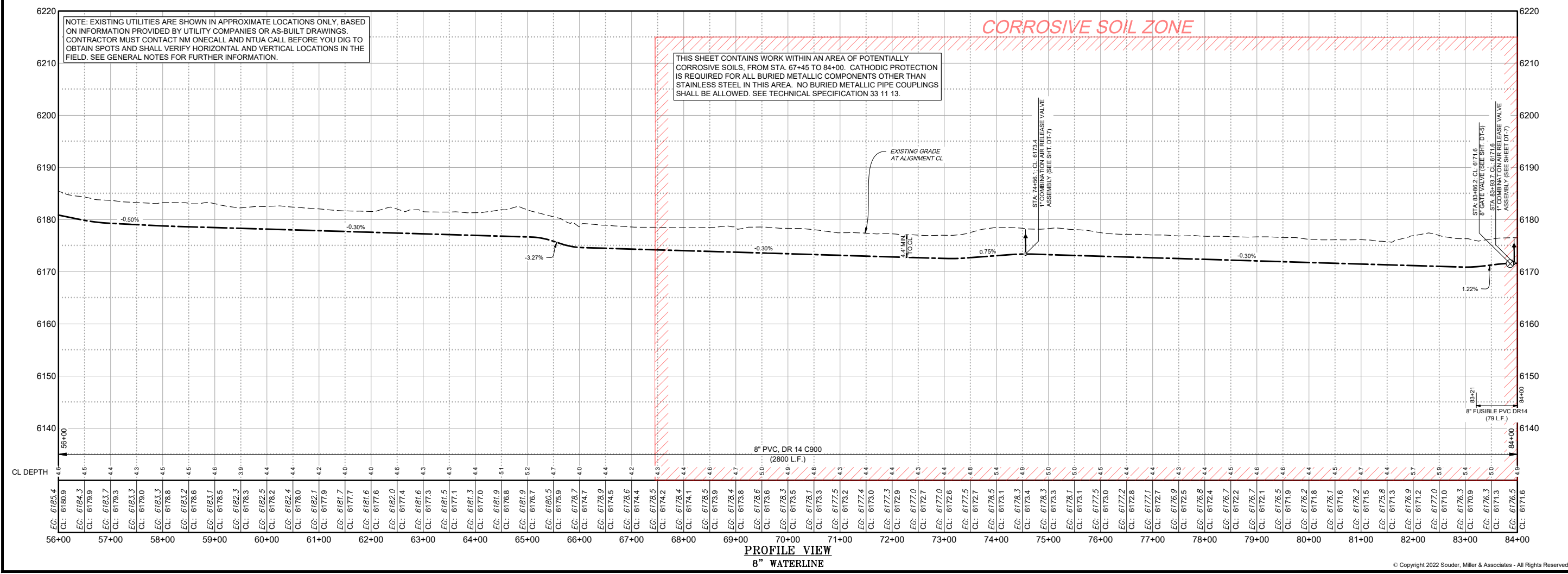
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Vert: 1" = 20'

Project No: 6922268
Sheet: C-2

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PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

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Client: The Navajo Nation
Location: Coyote Canyon, NM

PLAN AND PROFILE STA 56+00 TO STA 84+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKinley County, New Mexico
SECTION 2, T. 17 N., R. 18 W.

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3/2022

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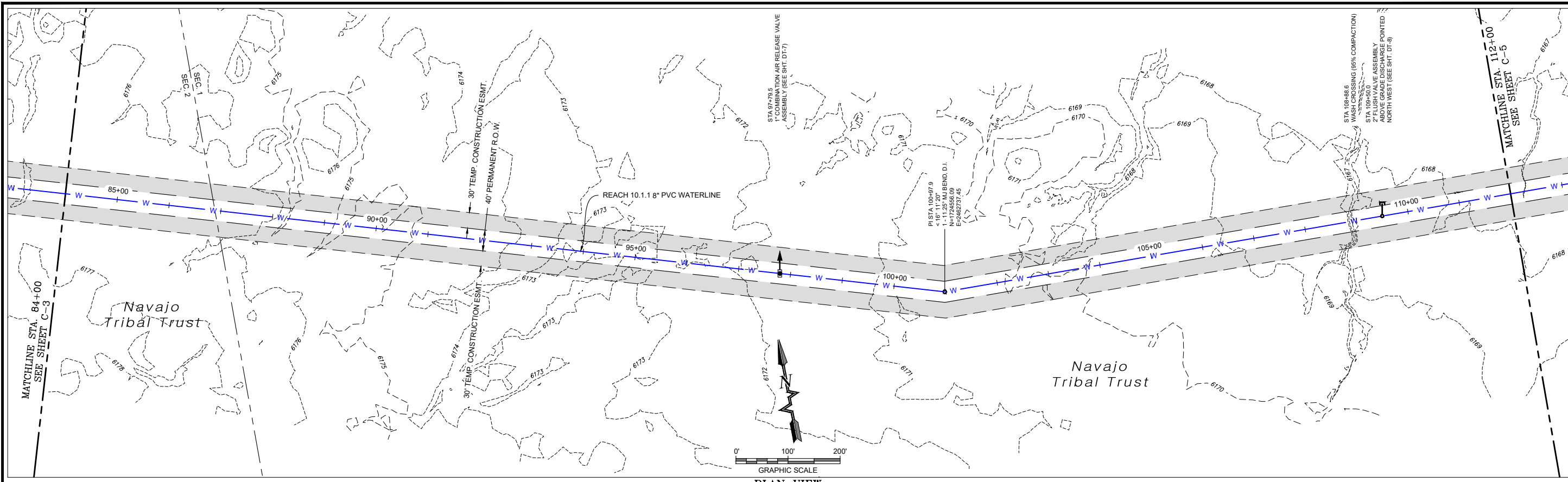
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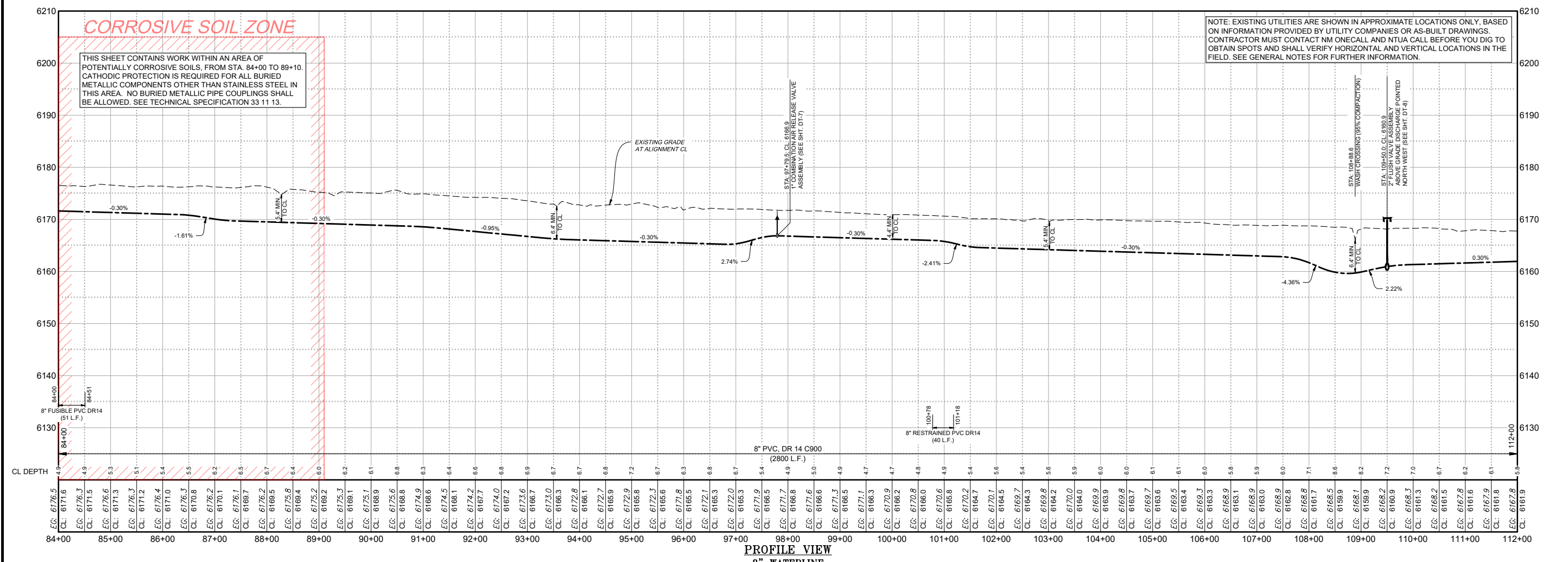
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Project No: 6922268
Sheet: **C-3**

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PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

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CORROSIVE SOIL ZONE

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 84+00 TO 89+10. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED. SEE TECHNICAL SPECIFICATION 33 11 13.

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Client: The Navajo Nation
Location: Coyote Canyon, NM

PLAN AND PROFILE STA 84+00 TO STA 112+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 1 & 2, T. 17 N., R. 18 W.

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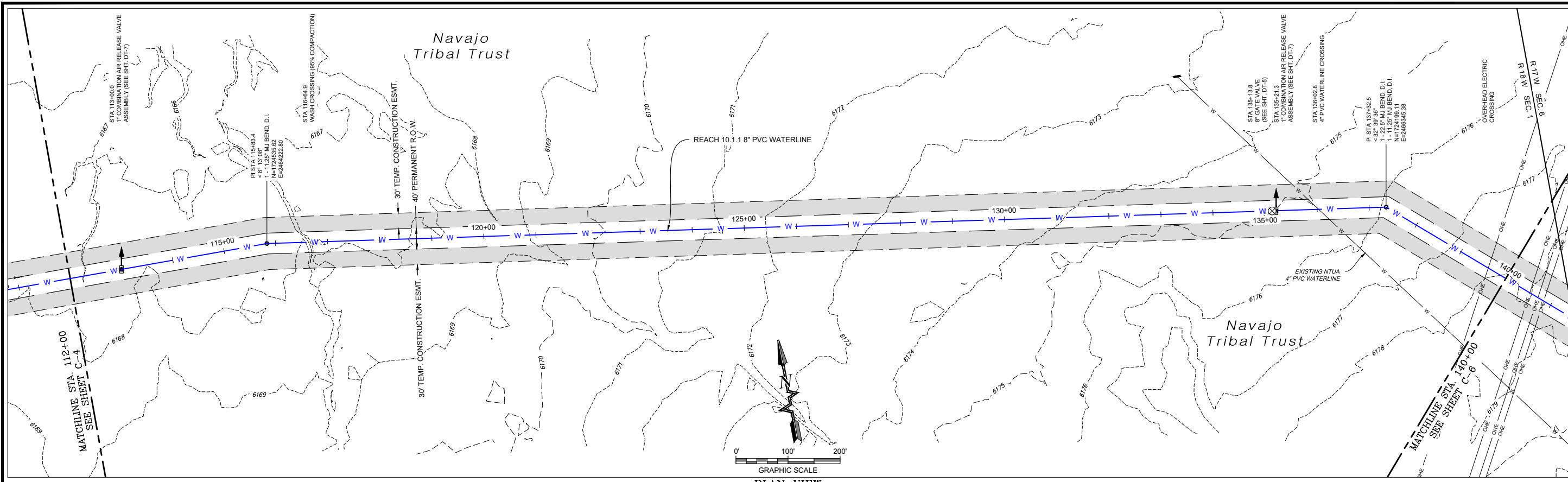
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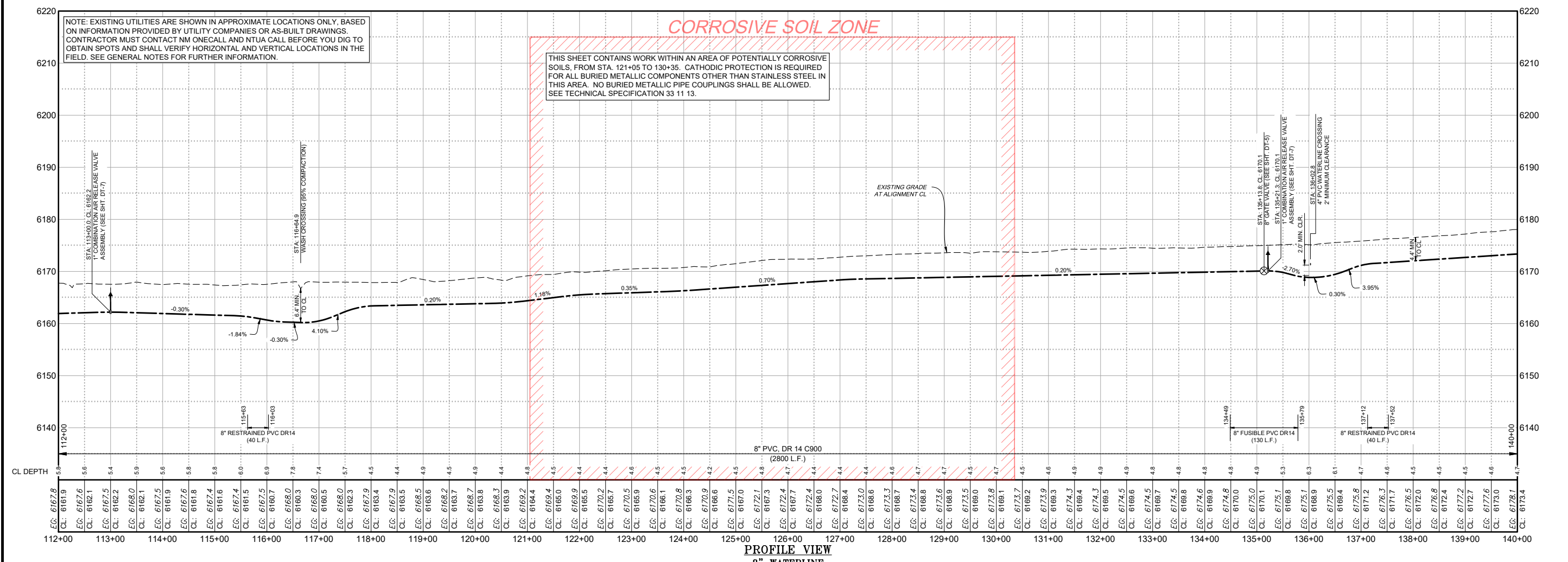
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Vert: 1" = 20'

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



PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

Client: The Navajo Nation
Location: Coyote Canyon, NM

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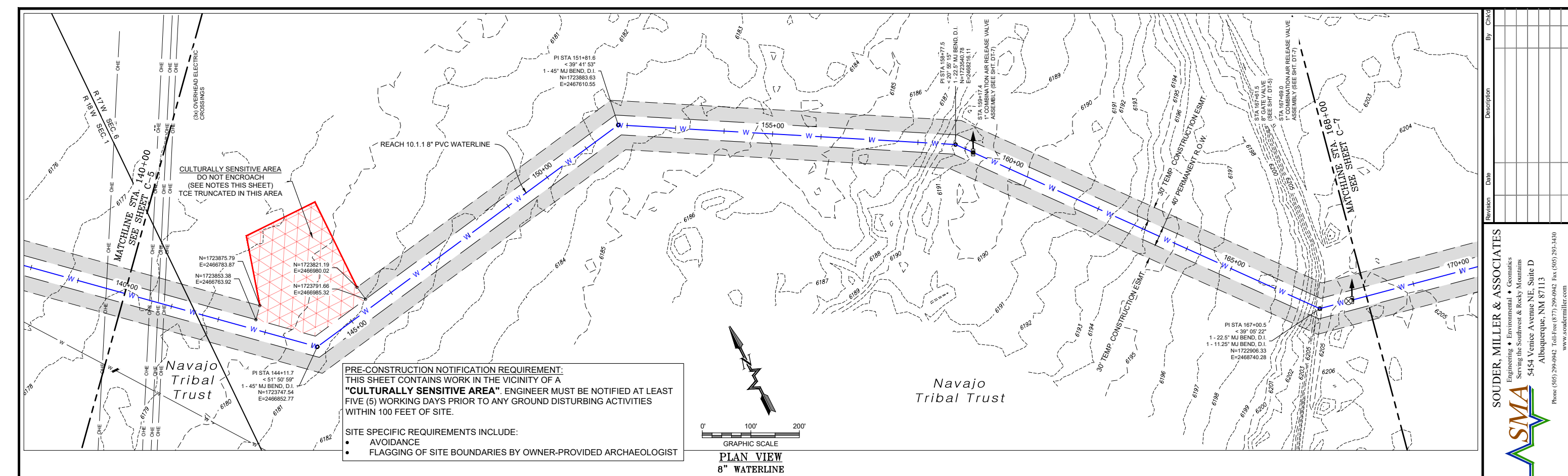
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Project No: 6922268
Sheet: C-5

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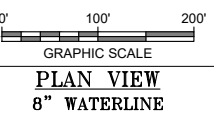
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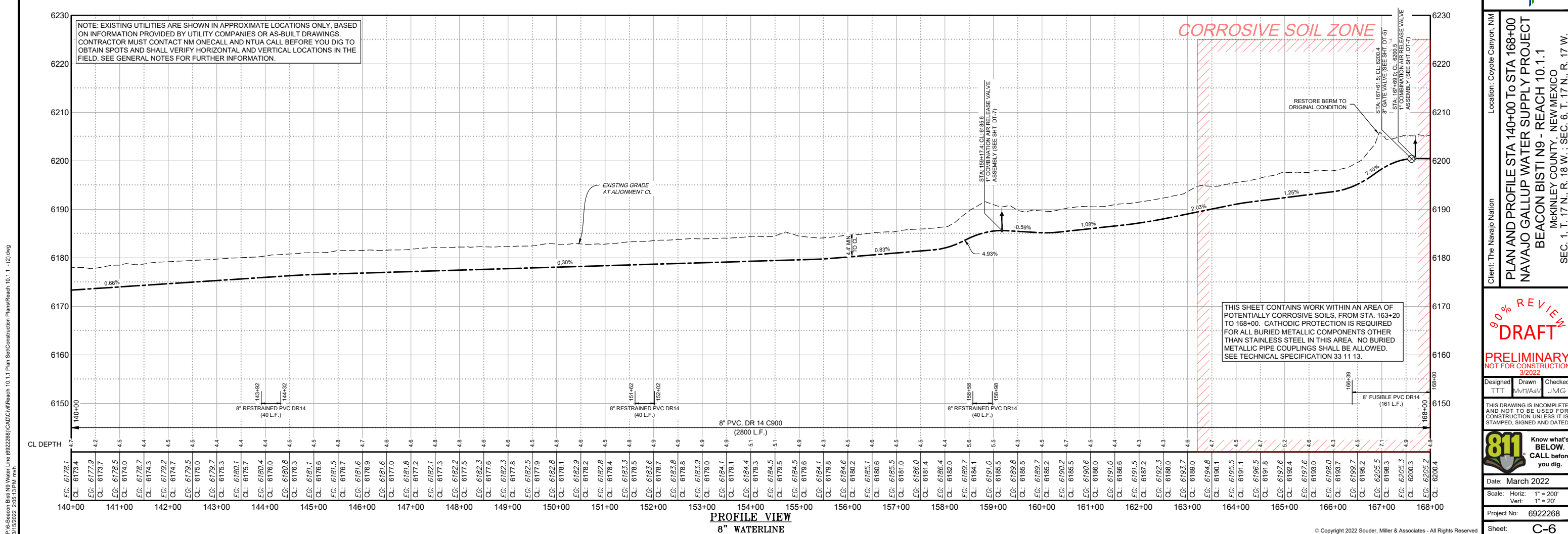
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 WITHIN 100 FEET OF SITE.

SITE SPECIFIC REQUIREMENTS INCLUDE:

- AVOIDANCE
- FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST



PLAN VIEW
 8" WATERLINE



PROFILE VIEW
 8" WATERLINE

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Client: The Navajo Nation
 Location: Coyote Canyon, NM

PLAN AND PROFILE STA 140+00 TO STA 168+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SEC. 1, T. 17 N., R. 18 W.; SEC. 6, T. 17 N., R. 17 W.

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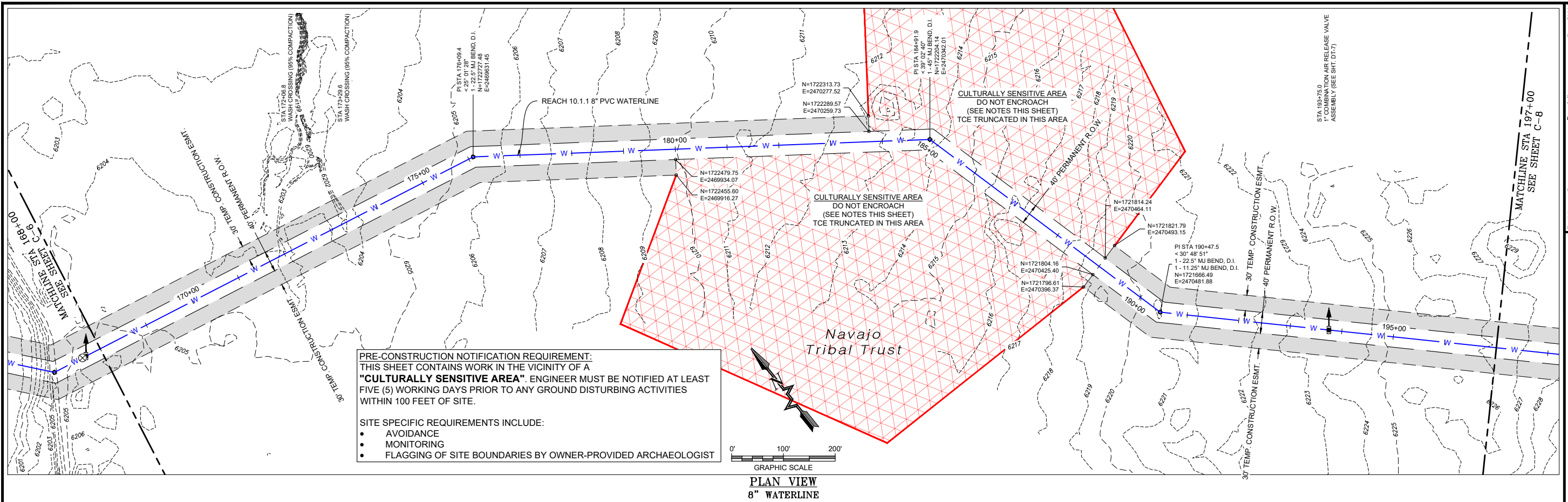
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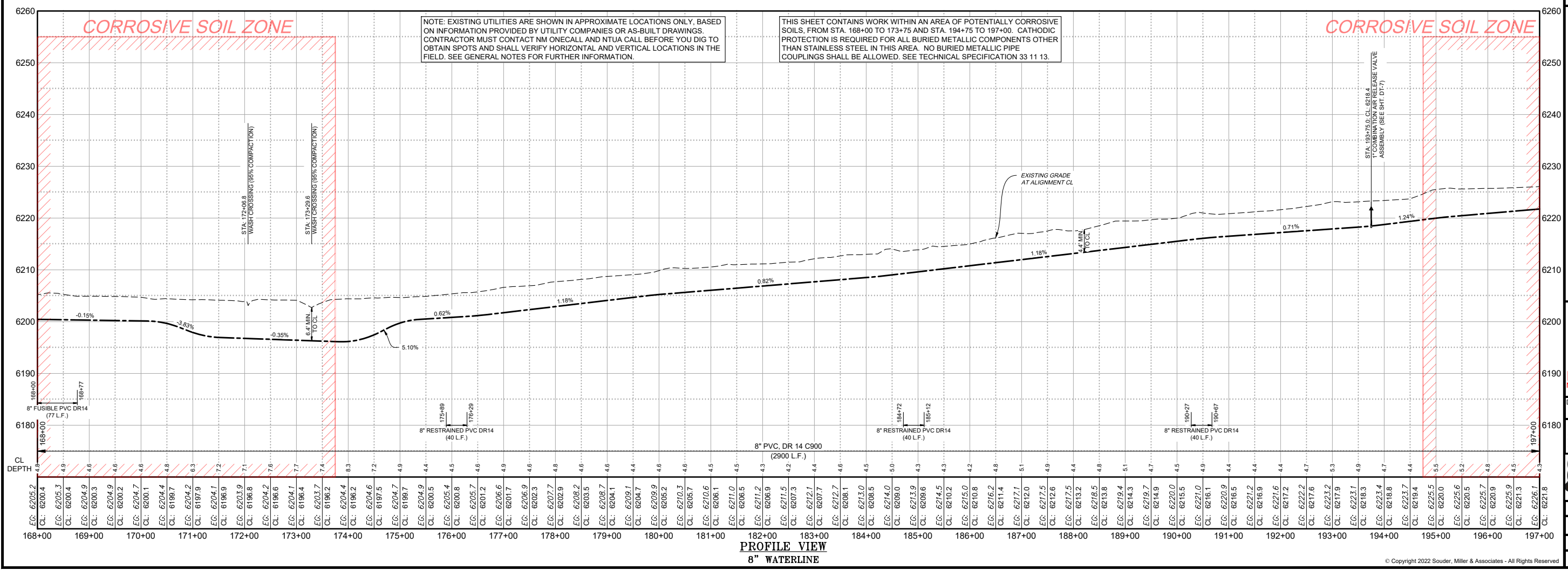
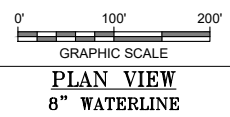
Project No: 6922268
 Sheet: **C-6**



PRE-CONSTRUCTION NOTIFICATION REQUIREMENT:
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SITE SPECIFIC REQUIREMENTS INCLUDE:

- AVOIDANCE
- MONITORING
- FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST



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THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 168+00 TO 173+75 AND STA. 194+75 TO 197+00. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED. SEE TECHNICAL SPECIFICATION 33 11 13.

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By: CHK

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Client: The Navajo Nation
 Location: Coyote Canyon, NM

PLAN AND PROFILE STA 168+00 TO STA 197+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 6, T. 17 N., R. 17 W.

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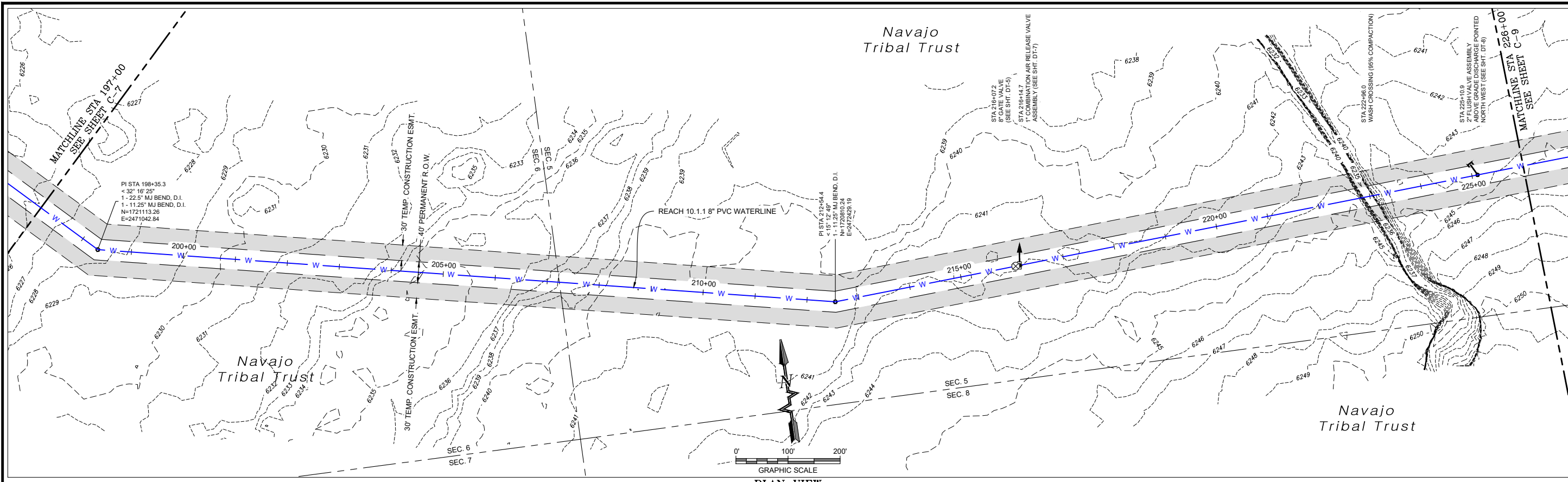
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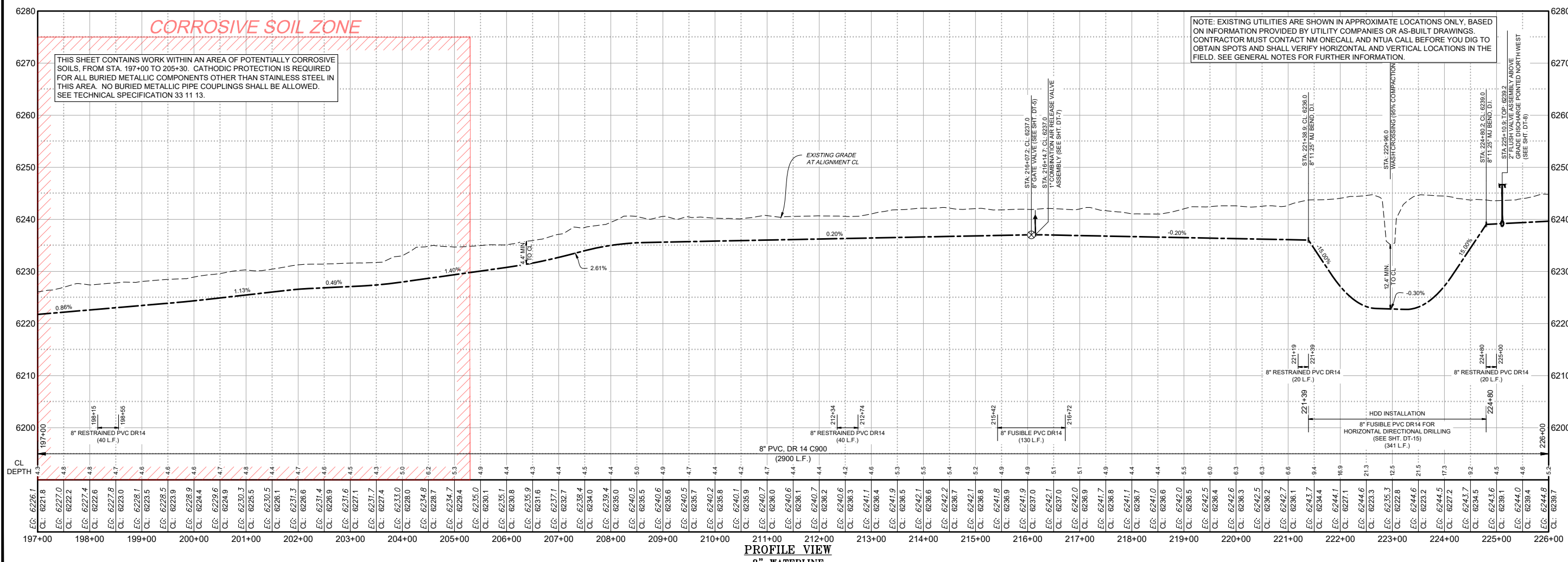
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Date: March 2022
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Project No: 6922268
 Sheet: C-7



PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

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Client: The Navajo Nation
Location: Coyote Canyon, NM

PLAN AND PROFILE STA 197+00 TO STA 226+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 5 & 6, T. 17 N., R. 17 W.

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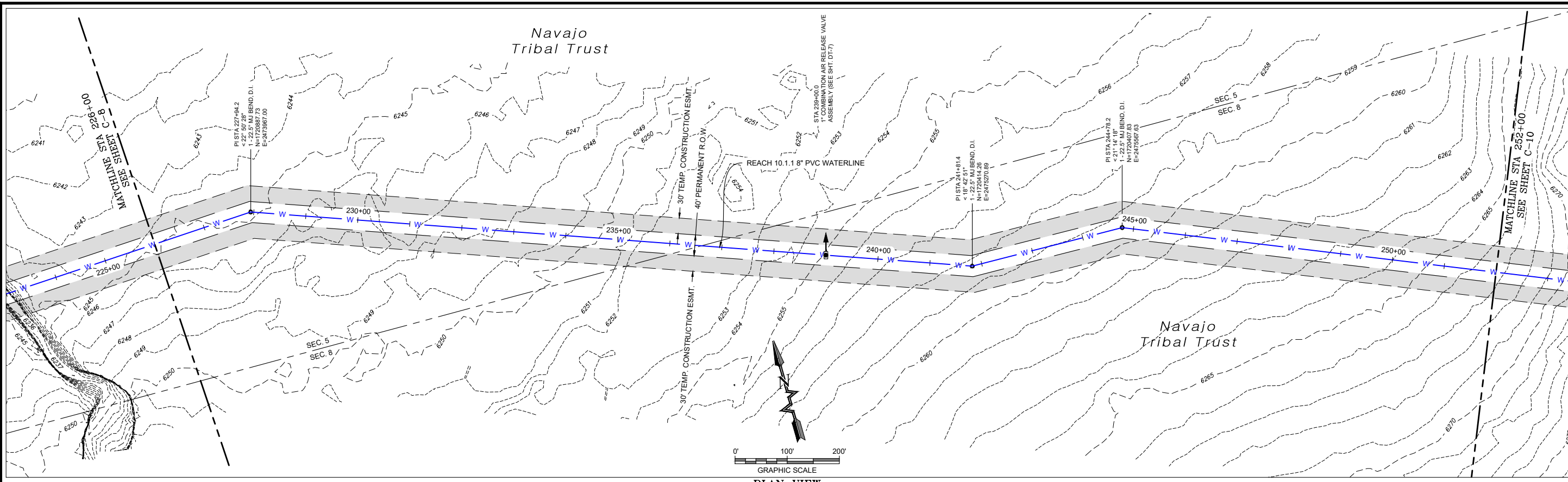
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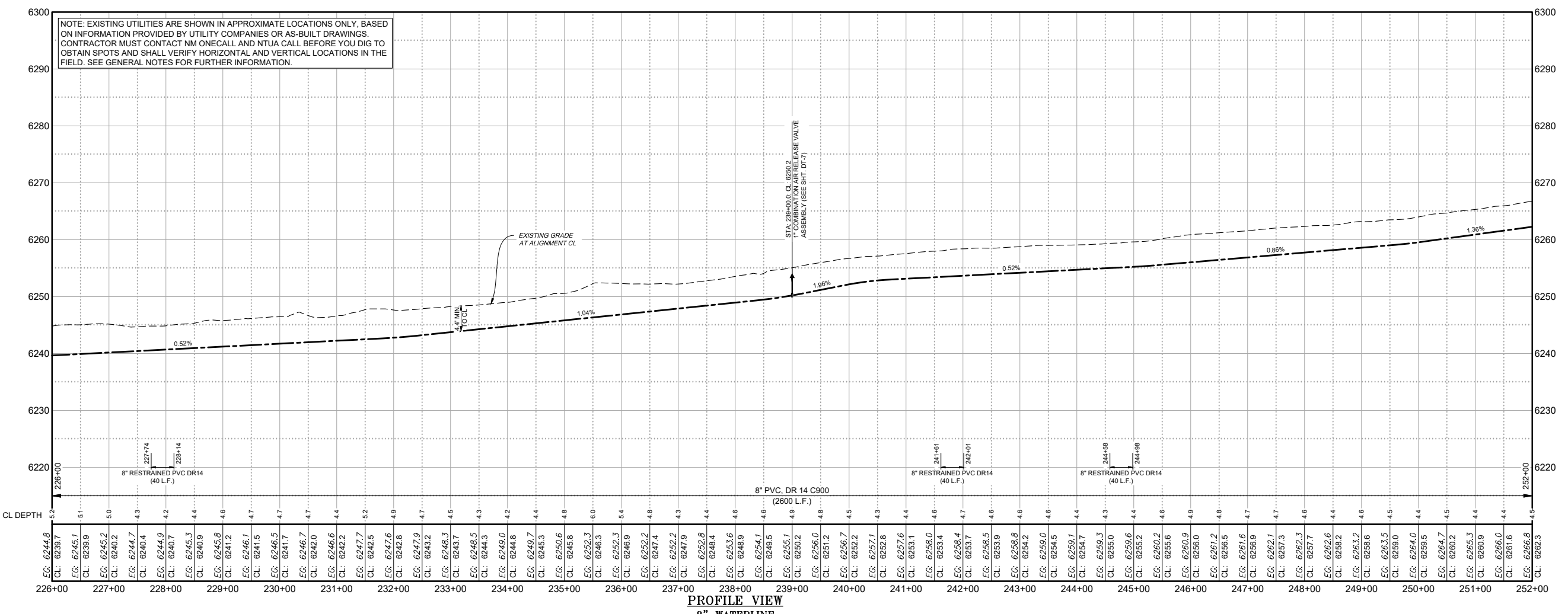
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Project No: 6922268
Sheet: **C-8**

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PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
PLAN AND PROFILE STA 226+00 TO STA 252+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SECTIONS 5 & 8, T. 17 N., R. 17 W.

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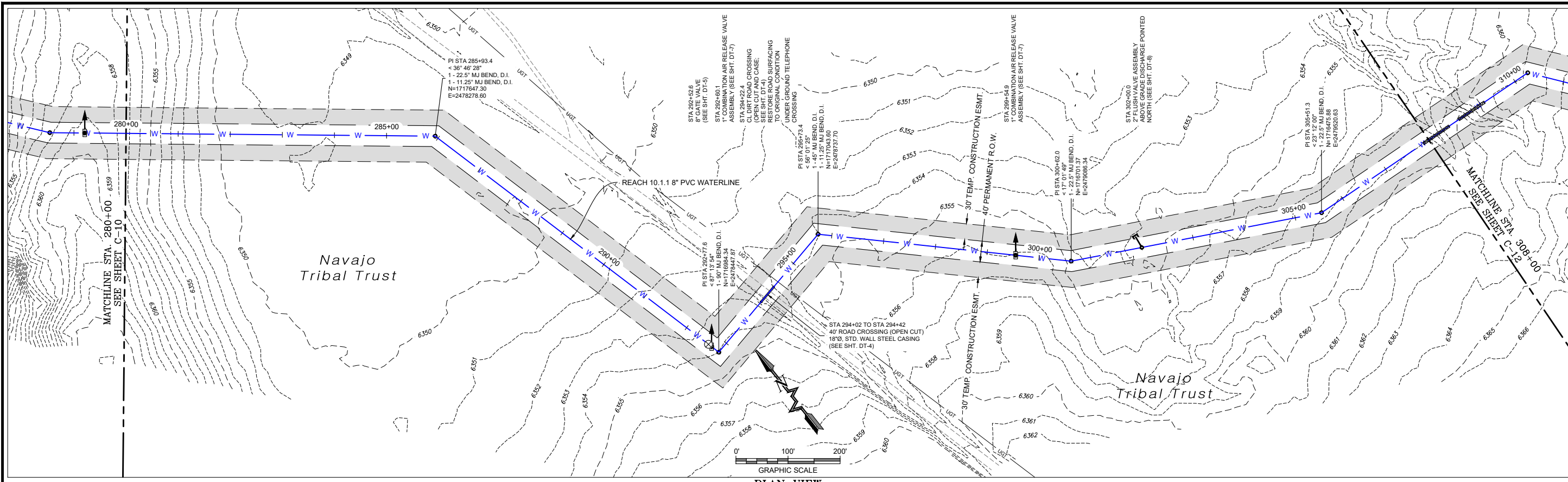
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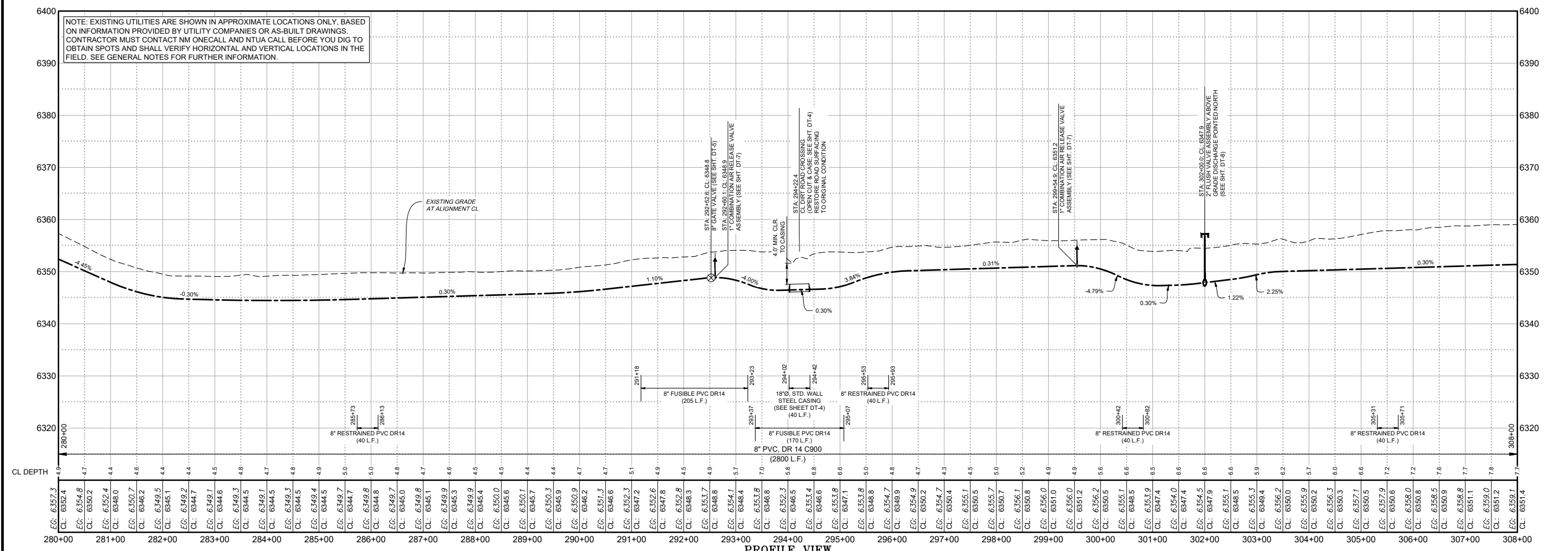
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Date: March 2022
 Scale: Horiz: 1" = 200'
 Vert: 1" = 20'
 Project No: 6922268
 Sheet: **C-9**

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PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

NOTE: EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY, BASED ON INFORMATION PROVIDED BY UTILITY COMPANIES OR AS-BUILT DRAWINGS. CONTRACTOR MUST CONTACT NM ONECALL AND NTUA CALL BEFORE YOU DIG TO OBTAIN SPOTS AND SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD. SEE GENERAL NOTES FOR FURTHER INFORMATION.

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
PLAN AND PROFILE STA 280+00 TO STA 308+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 9, T. 17 N., R. 17 W.

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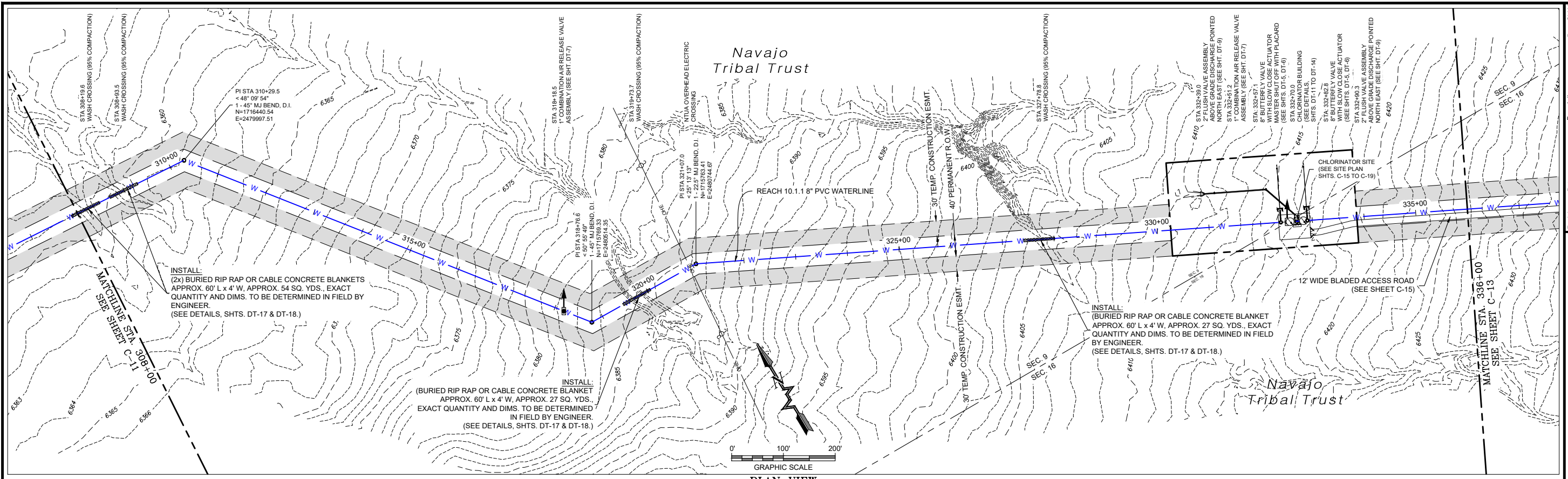
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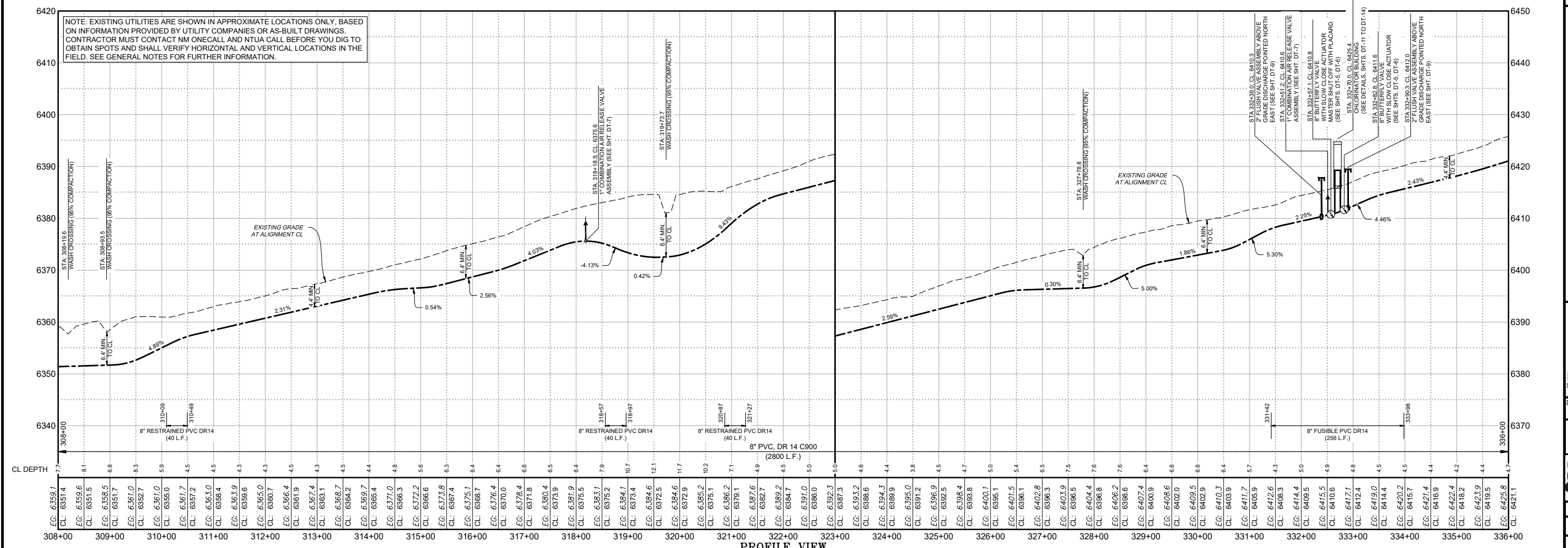
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Date: March 2022
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Project No: 6922268
 Sheet: C-11



PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
PLAN AND PROFILE STA 308+00 TO STA 336+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SECTIONS 9 & 16, T. 17 N., R. 17 W.

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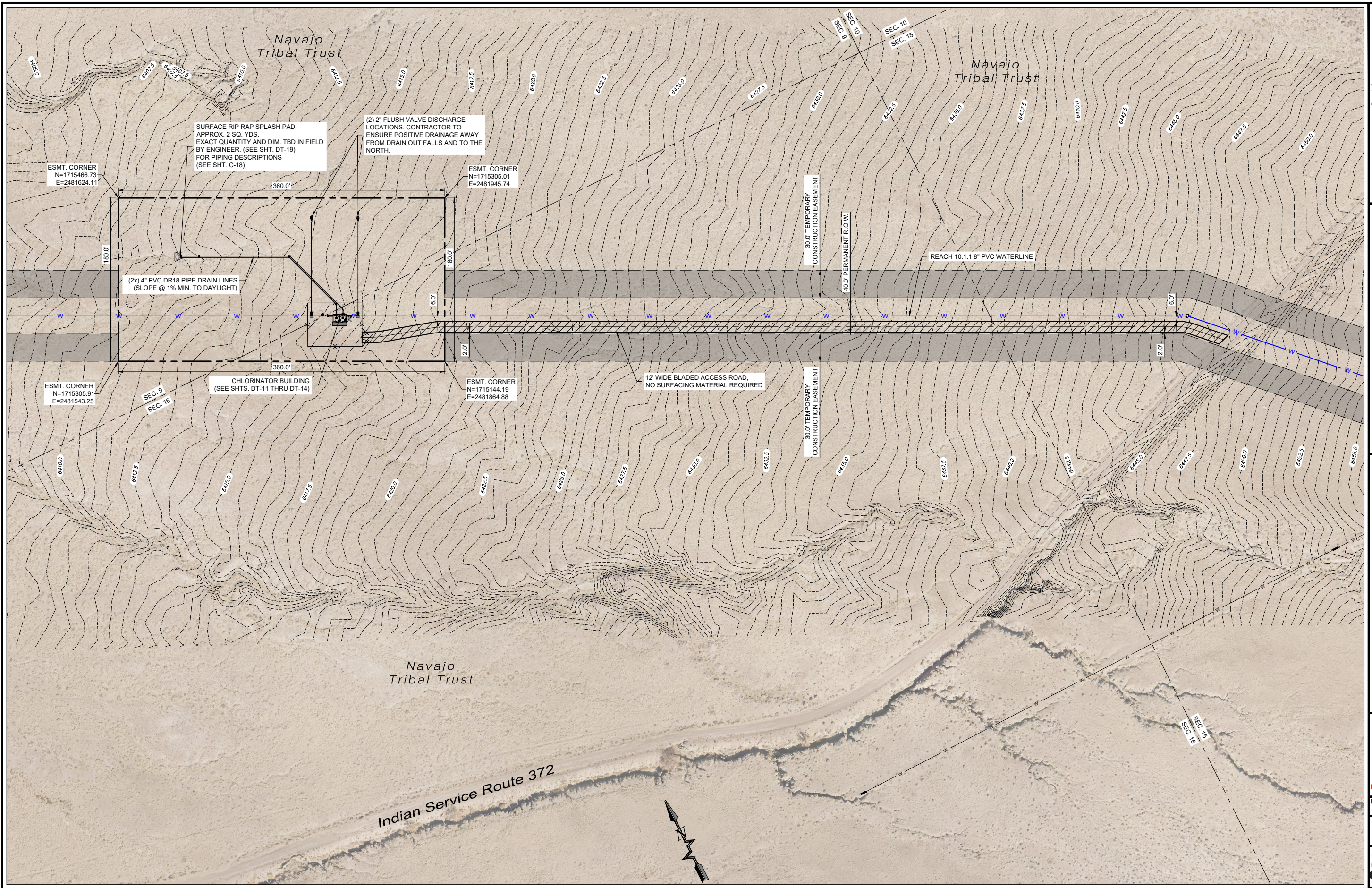
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 Project No: 6922268
 Sheet: C-12

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SURFACE RIP RAP SPLASH PAD.
APPROX. 2 SQ. YDS.
EXACT QUANTITY AND DIM. TBD IN FIELD
BY ENGINEER. (SEE SHT. DT-19)
FOR PIPING DESCRIPTIONS
(SEE SHT. C-18)

(2) 2" FLUSH VALVE DISCHARGE
LOCATIONS. CONTRACTOR TO
ENSURE POSITIVE DRAINAGE AWAY
FROM DRAIN OUT FALLS AND TO THE
NORTH.

(2x) 4" PVC DR18 PIPE DRAIN LINES
(SLOPE @ 1% MIN. TO DAYLIGHT)

CHLORINATOR BUILDING
(SEE SHTS. DT-11 THRU DT-14)

12' WIDE BLADED ACCESS ROAD,
NO SURFACING MATERIAL REQUIRED

REACH 10.1.1 8" PVC WATERLINE

30.0' TEMPORARY
CONSTRUCTION EASEMENT

40.0' PERMANENT R.O.W.

30.0' TEMPORARY
CONSTRUCTION EASEMENT

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E=2481624.11

ESMT. CORNER
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E=2481945.74

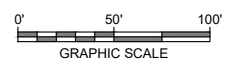
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SEC. 9
SEC. 16

SEC. 9
SEC. 10
SEC. 15

SEC. 15
SEC. 16



OVERALL CHLORINATOR SITE PLAN

| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM
OVERALL CHLORINATOR SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 9, 10, 15 & 16, T. 17 N., R. 17 W.

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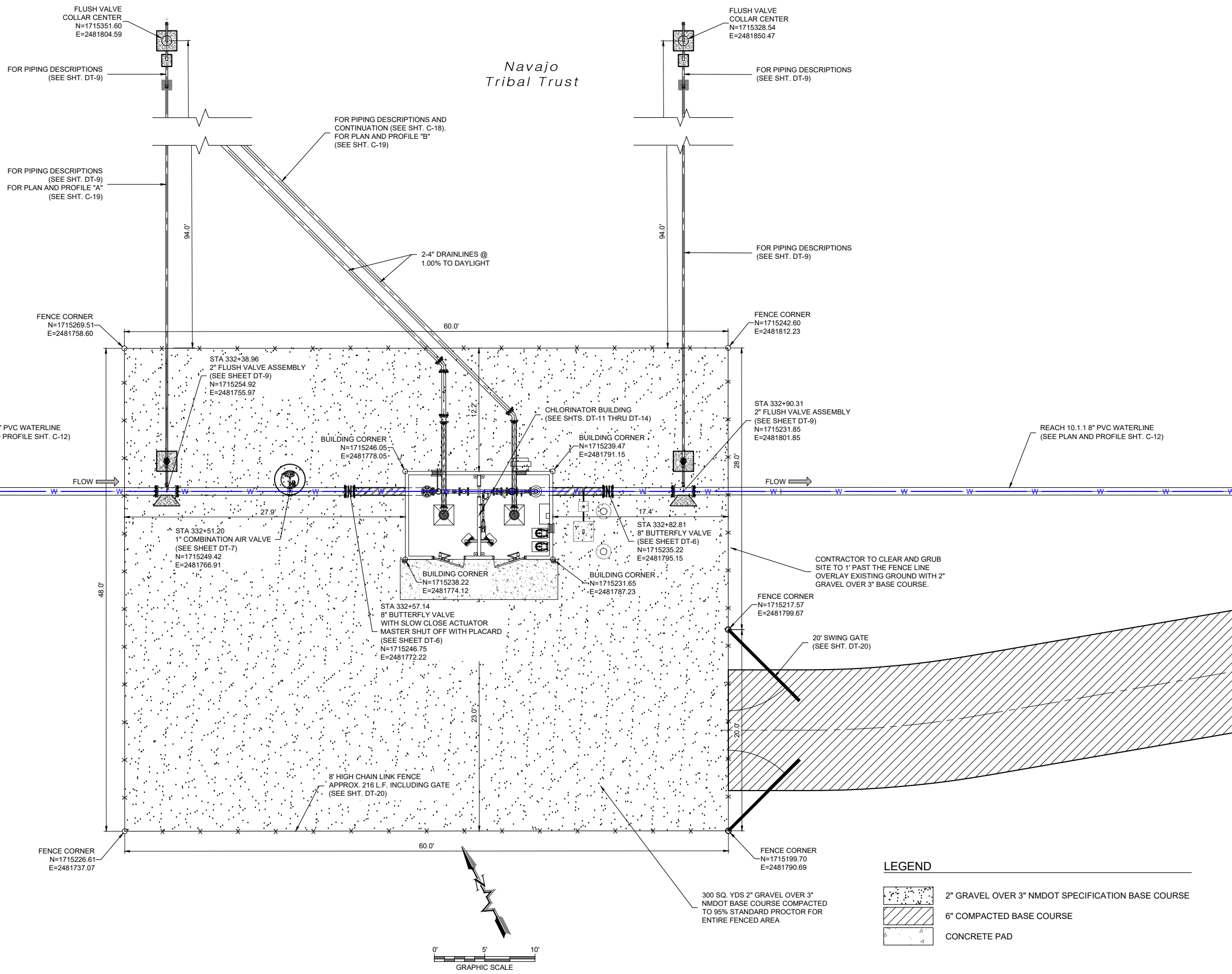
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Date: March 2022
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Project No: 6922268
Sheet: **C-15**



DETAILED CHLORINATOR SITE PLAN

| | | | | | | | |
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| By | | Date | | Revision | | Description | |
| SMA | SMA | SMA | SMA | SMA | SMA | SMA | SMA |

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Client: The Navajo Nation
Location: Coyote Canyon, NM

DETAILED CHLORINATOR SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 9 & 16, T. 17 N., R. 17 W.

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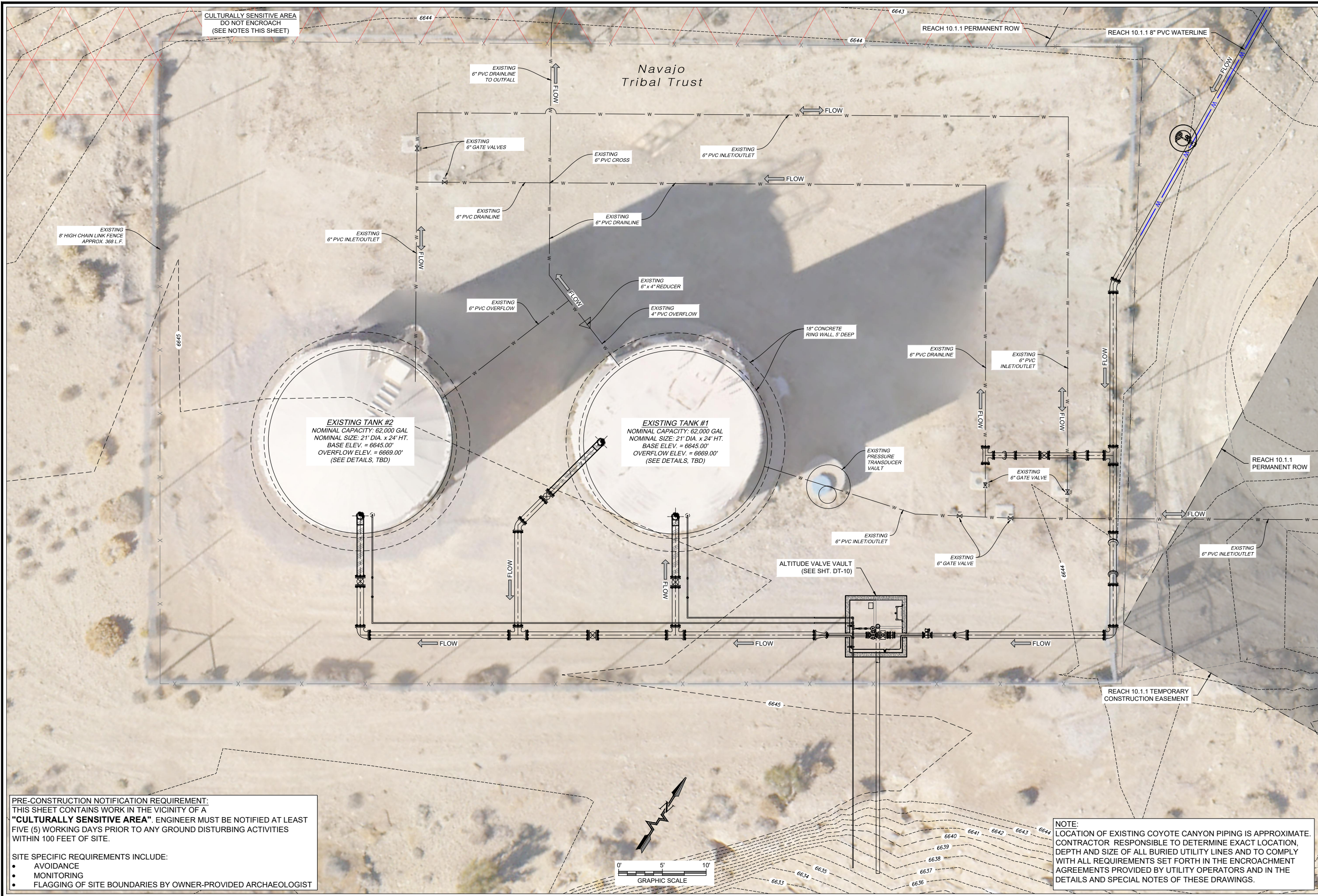
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Vert: N/A

Project No: 6922268
Sheet: **C-16**

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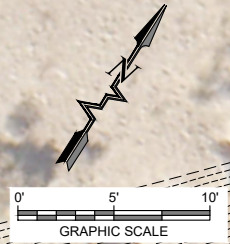
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PRE-CONSTRUCTION NOTIFICATION REQUIREMENT:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A "CULTURALLY SENSITIVE AREA". ENGINEER MUST BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES WITHIN 100 FEET OF SITE.

- SITE SPECIFIC REQUIREMENTS INCLUDE:**
- AVOIDANCE
 - MONITORING
 - FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST



NOTE:
LOCATION OF EXISTING COYOTE CANYON PIPING IS APPROXIMATE. CONTRACTOR RESPONSIBLE TO DETERMINE EXACT LOCATION, DEPTH AND SIZE OF ALL BURIED UTILITY LINES AND TO COMPLY WITH ALL REQUIREMENTS SET FORTH IN THE ENCROACHMENT AGREEMENTS PROVIDED BY UTILITY OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.

COYOTE CANYON TANK SITE PLAN

| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM
COYOTE CANYON TANK SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKINLEY COUNTY, NEW MEXICO
SECTION 15, T. 17 N., R. 17 W.

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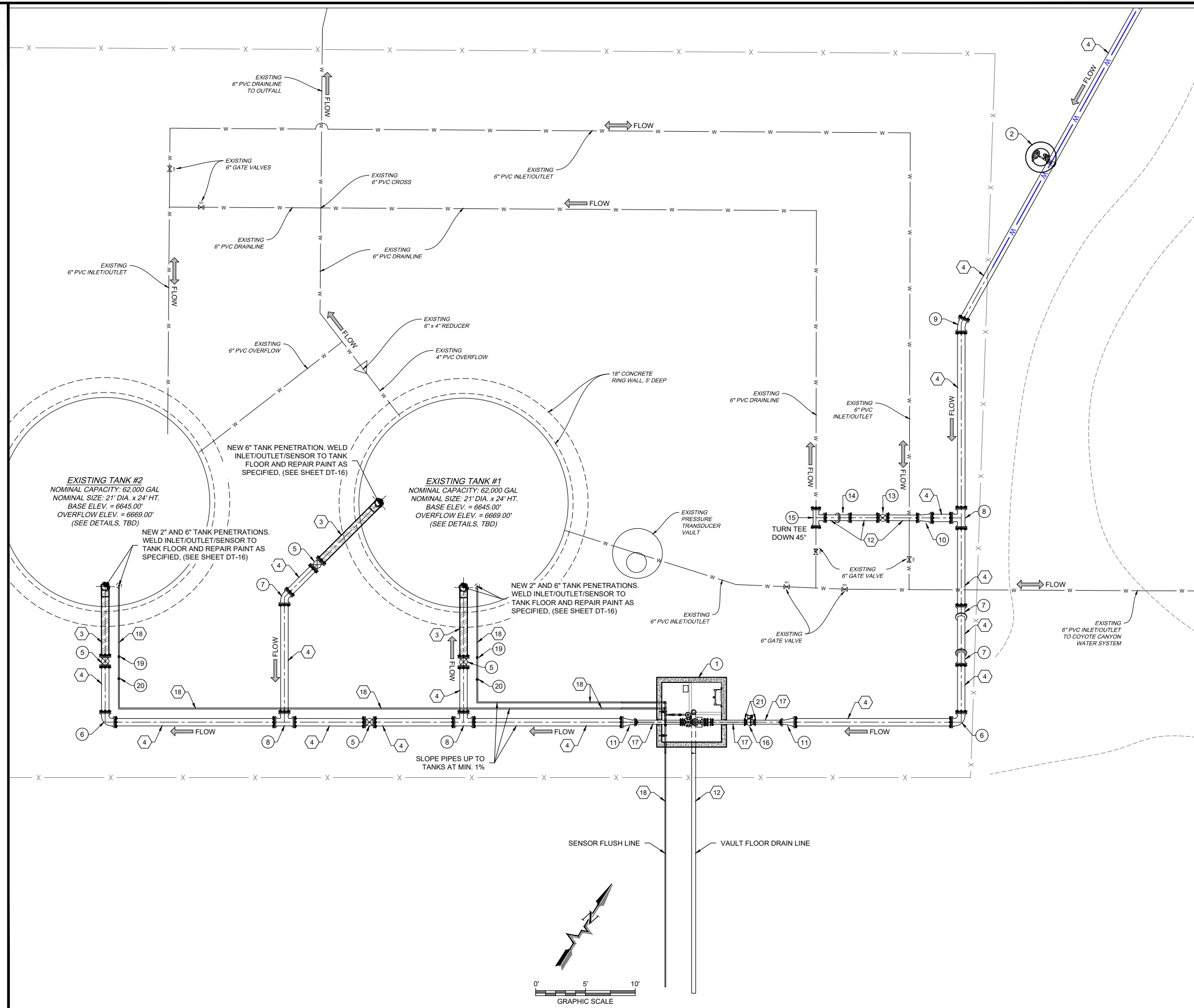
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Date: March 2022
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Vert: N/A
Project No: 6922268
Sheet: C-20

KEYED NOTES - REACH 10.1.1 TANK SITE

| Item No. | Description |
|----------|---|
| 1 | 4" ALTITUDE VALVE ASSEMBLY (SEE DETAIL DT-10) |
| 2 | 1" COMBINATION AIR RELEASE VALVE (SEE DETAIL DT-7) |
| 3 | 8" STEEL PIPE, STANDARD WALL, WITH POLYIMIDE EPOXY PER SPECIFICATIONS |
| 4 | 6" PVC DR14 C900 PIPE |
| 5 | 8" MJ x MJ GATE VALVE (SEE DETAIL DT-5) 350 psi |
| 6 | 8" MJ x MJ 90° ELL, D.I. 350 psi |
| 7 | 8" MJ x MJ 45° ELL, D.I. 350 psi |
| 8 | 8" MJ x MJ TEE, D.I. 350 psi |
| 9 | 8" MJ x MJ 22.5° ELL, D.I. 350 psi |
| 10 | 8" x 6" MJ x MJ REDUCER, D.I. 350 psi |
| 11 | 8" x 4" MJ x MJ REDUCER, D.I. 350 psi |
| 12 | 6" PVC DR14 C900 PIPE |
| 13 | 6" MJ x MJ GATE VALVE (SEE DETAIL DT-5) 350 psi |
| 14 | 6" MJ x MJ 45° ELL, D.I. 350 psi |
| 15 | 6" MJ x MJ TEE, D.I. 350 psi |
| 16 | 4" FL x FL BALL VALVE WITH GEARED ACTUATOR, AUMA GS100.3, 160:1 REDUCTION RATIO, 250 psi, WITH LOCKING METER CAN AND WARNING PLACARD (SEE DETAILS "B" & "C", SHT. DT-6) |
| 17 | 4" DUCTILE IRON PIPE |
| 18 | 1" STEEL PIPE, STAINLESS STEEL, NPT |
| 19 | 1" CURB STOP, STAINLESS STEEL, NPT |
| 20 | 1" STEEL UNION, STAINLESS STEEL, NPT |
| 21 | 4" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE |

NOTES:

- NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING SHALL SLOPE UP TOWARDS VACUUM BREAKER / AIR RELEASE VALVE VAULT OR TANKS (MIN. 1%).
- ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi, UNLESS OTHERWISE NOTED.
- ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
- 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. DUCTILE IRON RISERS UNDER CHLORINATION BUILDING SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
- ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
- ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. ALL PVC PIPE JOINTS SHALL BE FUSED. REFER TO DETAIL, SHEET DT-3.



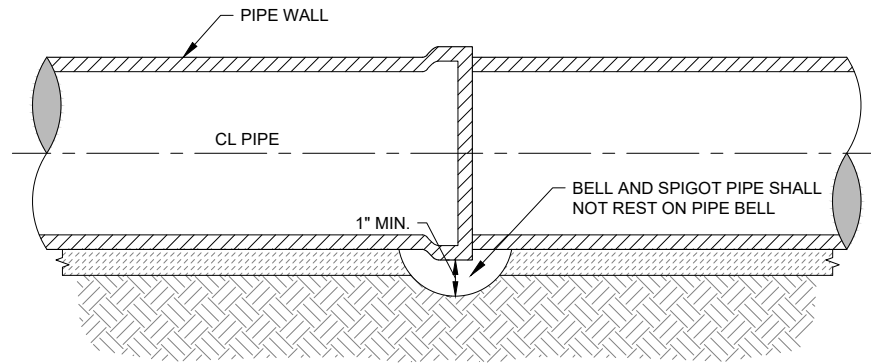
COYOTE CANYON TANK SITE PIPING PLAN

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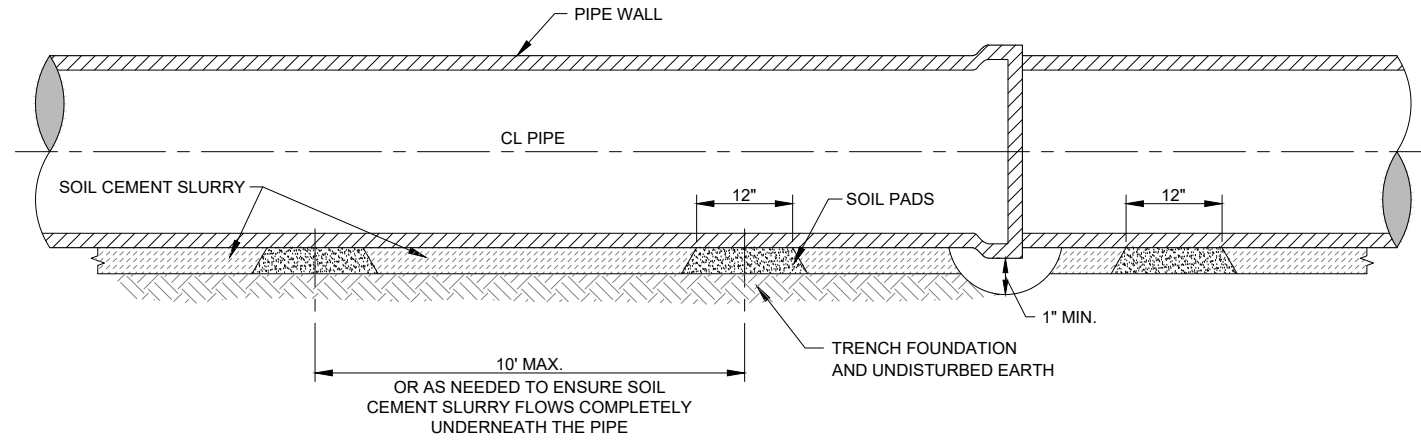
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|---|--|---|
| Client: The Navajo Nation Location: Coyote Canyon, NM | COYOTE CANYON TANK PIPING PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.1.1 MCKINLEY COUNTY, NEW MEXICO SECTION 34, T. 18 N., R. 18 W. | By: CHK Description: Date: Revision: |
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| Project No: 6922268 Sheet: C-21 | | |

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

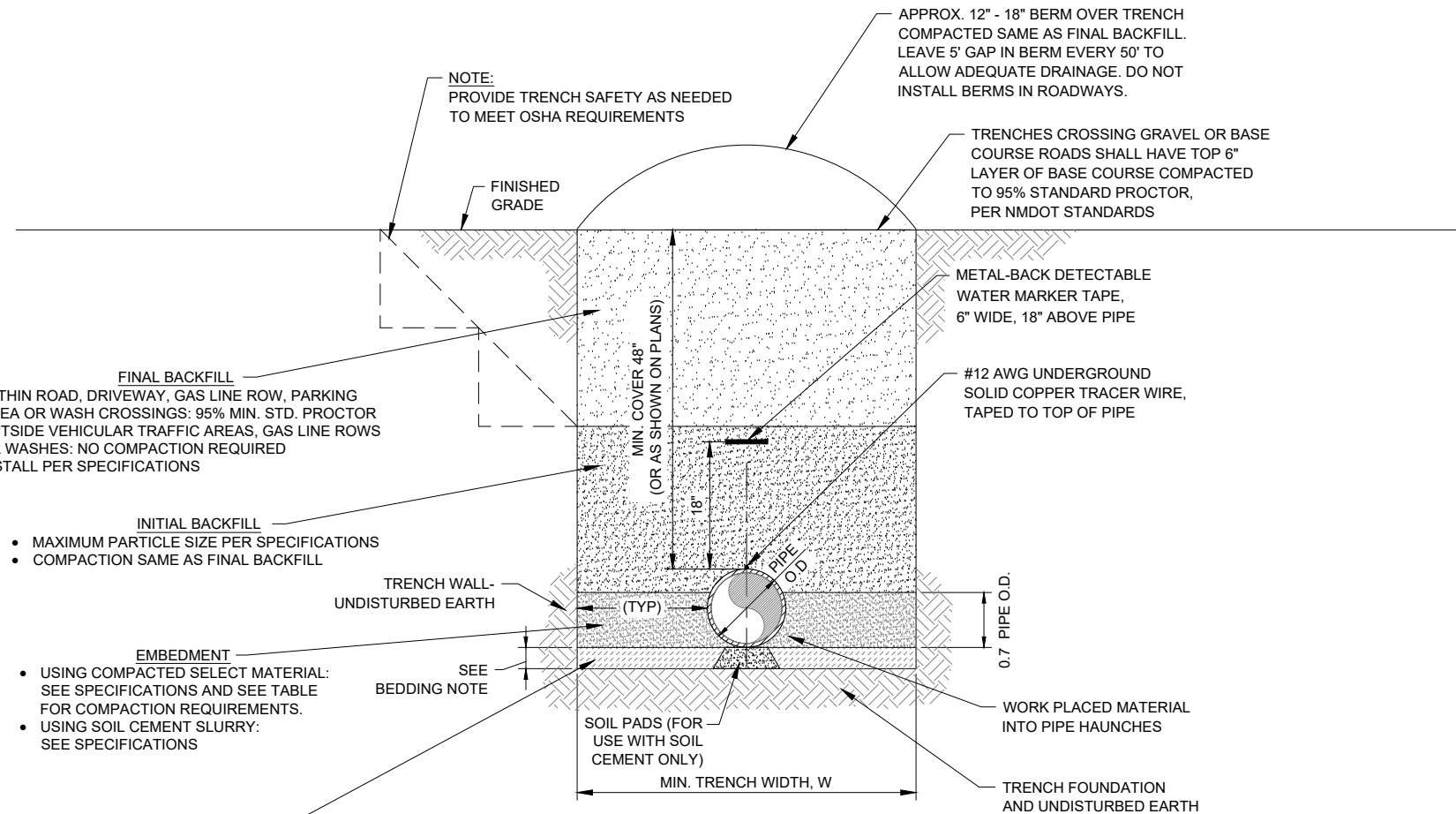


SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE

| MINIMUM PERCENT COMPACTION FOR EMBEDMENT OUTSIDE TRAFFIC AREAS, GAS LINES ROW, WASH CROSSINGS | |
|---|--------------------|
| CLEAN COARSE-GRAINED SOILS | |
| | 8" Pipe |
| Cover Depth | Minimum Compaction |
| 4' to 20' | 85% |
| <i>Coarse-grained soils (sand or gravel), GW, GP, SW, SP, with less than 12% fines</i> | |
| SANDY OR GRAVELLY FINE-GRAINED SOILS & COARSE-GRAINED SOILS WITH FINES | |
| | 8" Pipe |
| Cover Depth | Minimum Compaction |
| 4' to 14' | 85% |
| 14' to 20' | 90% |
| <i>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</i> | |

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.



TYPICAL TRENCH DETAIL
NOT TO SCALE

- FINAL BACKFILL**
- WITHIN ROAD, DRIVEWAY, GAS LINE ROW, PARKING AREA OR WASH CROSSINGS: 95% MIN. STD. PROCTOR
 - OUTSIDE VEHICULAR TRAFFIC AREAS, GAS LINE ROWS OR WASHES: NO COMPACTION REQUIRED
 - INSTALL PER SPECIFICATIONS

- INITIAL BACKFILL**
- MAXIMUM PARTICLE SIZE PER SPECIFICATIONS
 - COMPACTION SAME AS FINAL BACKFILL

- EMBEDMENT**
- USING COMPACTED SELECT MATERIAL: SEE SPECIFICATIONS AND SEE TABLE FOR COMPACTION REQUIREMENTS.
 - USING SOIL CEMENT SLURRY: SEE SPECIFICATIONS

- BEDDING**
- USING UNCOMPACTED SELECT MATERIAL: SEE SPECIFICATIONS, THICKNESS: 4"
 - USING SOIL CEMENT SLURRY: SEE SPECIFICATIONS, THICKNESS: 3"

- MIN. TRENCH WIDTH, W**
- USING COMPACTED SELECT MATERIAL: O.D.+24" MIN. (12" EACH SIDE OF PIPE), OR GREATER TO ALLOW PROPER COMPACTION IN HAUNCH AREA
 - USING SOIL CEMENT SLURRY: O.D.+6" MIN. (3" EACH SIDE OF PIPE), OR GREATER TO ENSURE 3" MIN. THICK SOIL CEMENT SLURRY LAYER ON BOTH SIDES OF PIPE

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By: CHKD
Description:
Revision: Date:

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Client: The Navajo Nation
Location: Coyote Canyon, NM

TRENCH DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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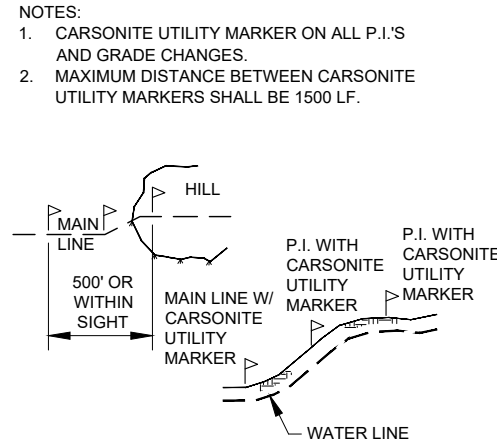
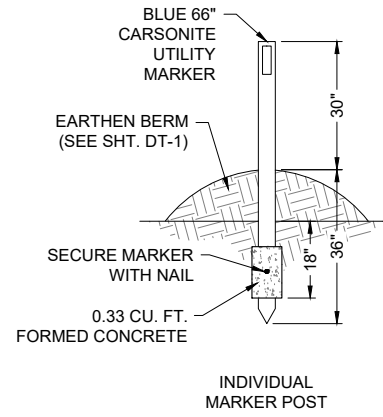
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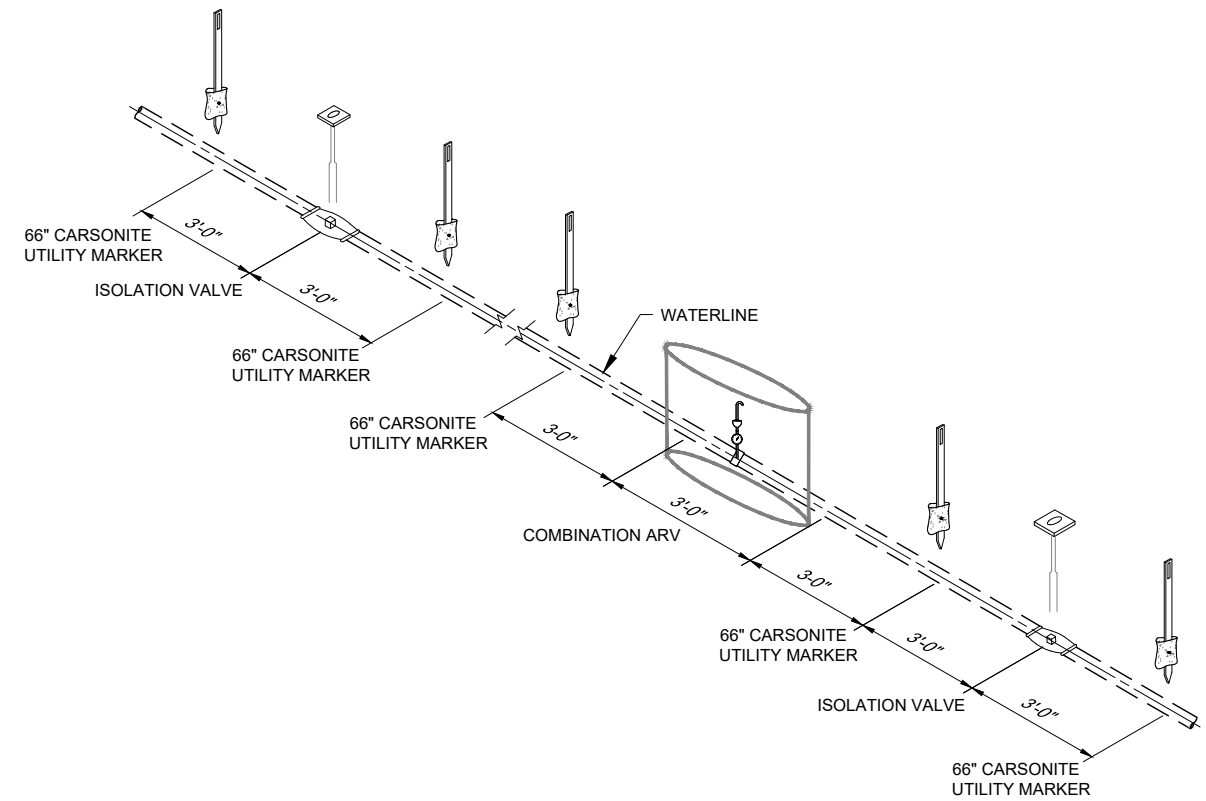
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Project No: 6922268
Sheet: **DT-1**

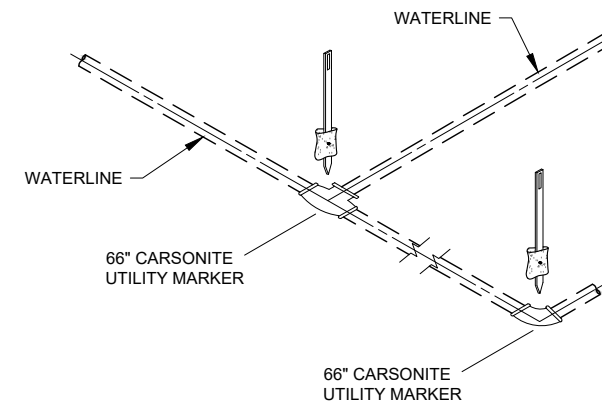
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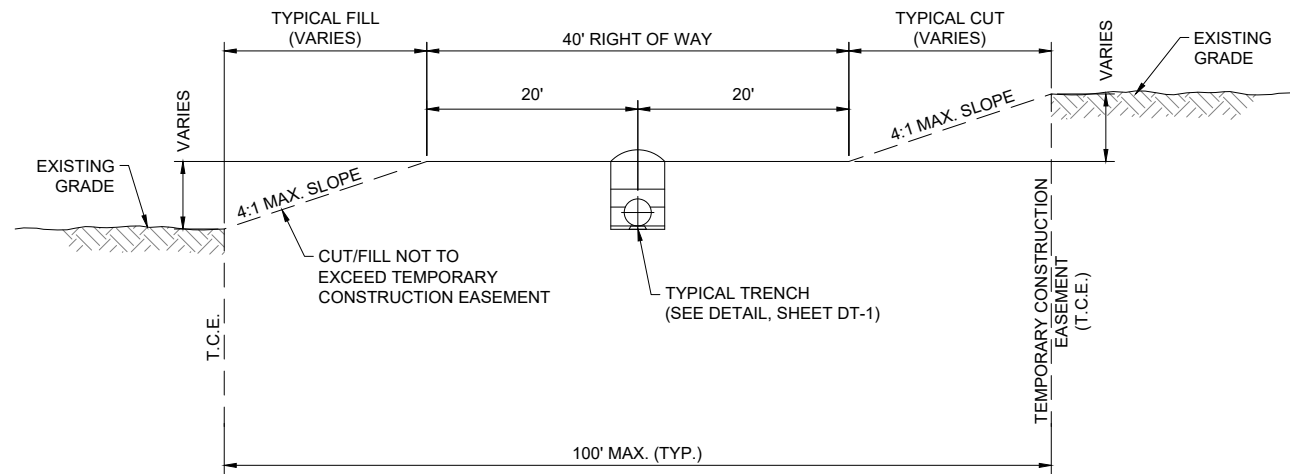
- NOTES:
1. CARSONITE UTILITY MARKER ON ALL P.I.'S AND GRADE CHANGES.
 2. MAXIMUM DISTANCE BETWEEN CARSONITE UTILITY MARKERS SHALL BE 1500 LF.



MARKER POSTS
GATE VALVE, ARV VAULT



TYPICAL MARKER POSTS
NOT TO SCALE



TYPICAL PIPELINE ROW FINISHED GRADING DETAIL
NOT TO SCALE

- NOTES:
1. ALL DISTURBED EARTH SHALL BE COMPACTED AND RESEEDED 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.

| Revision | Date | Description |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
MISCELLANEOUS CONSTRUCTION DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
DRAFT
 PRELIMINARY
 NOT FOR CONSTRUCTION
 3/2022

| | | |
|-----------------|--------------|----------------|
| Designed TTT | Drawn AAV | Checked JMG |
|-----------------|--------------|----------------|

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

Date: March 2022
 Scale: Horiz: N/A
 Vert: N/A

Project No: 6922268
 Sheet: DT-2

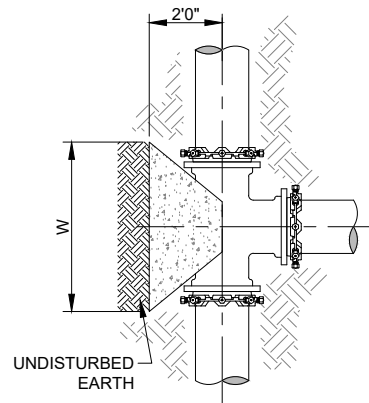
Thrust Block Dimension Schedule

| Pipe | Fitting | Required Thrust Block Area (ft ²) | Design Thrust Block Size (H x W x T) ¹ (ft) |
|------|-----------------------------|---|--|
| 8" | Reach 11 Tie-In | 13.1 | 4' x 4' x 2' |
| 8" | Chlorinator, Inlet & Outlet | 18.5 | 4.5' x 4.5' x 2' |
| 8" | Flush Valve (2" Tee) | 0.6 | 2' x 2' x 2' |

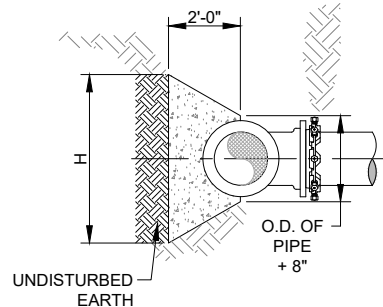
¹ Minimum Thrust Block H x W size 2' x 2' x 2'

GENERAL NOTES

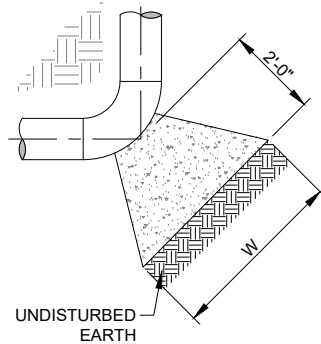
- SOIL BEARING FROM GEOTEST REPORT NO. 1-10912B, DATED 12-6-2021.
- ALL CONCRETE SHALL BE 3000 psi, MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS



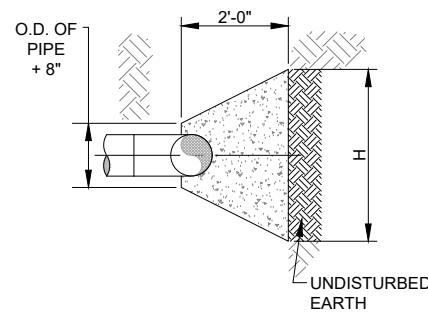
PLAN VIEW
CONCRETE BLOCKING
FOR TEE



ELEVATION VIEW
CONCRETE BLOCKING
FOR TEE



PLAN VIEW
CONCRETE BLOCKING
FOR ELBOW



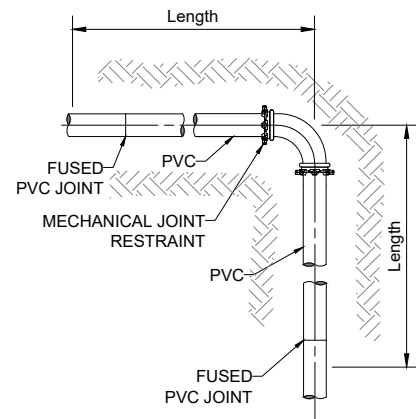
ELEVATION VIEW
CONCRETE BLOCKING
FOR ELBOW

THRUST BLOCK DETAIL
NOT TO SCALE

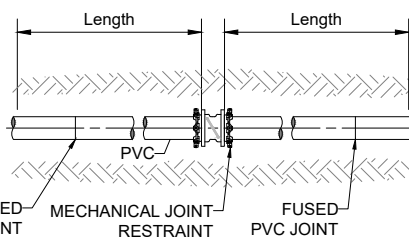
Minimum Required Restraint Lengths for Individual

| Reach 10.1.1 - 8" DR14 PVC | | | | |
|-------------------------------------|-----------|---------|------|--------|
| Fitting | Pipe Size | Pipe DR | Test | Design |
| Tee | 42 x 8 | 14 | 305 | 20 |
| Isolation Valve/ Dead End | 8 | 14 | 305 | 115 |
| From End of Casing | 8 | 14 | 305 | 65 |
| Horizontal Bend or Sweep | | | | |
| 90° | 8 | 14 | 305 | 45 |
| 45° | 8 | 14 | 305 | 20 |
| 22.5° | 8 | 14 | 305 | 20 |
| 11.25° | 8 | 14 | 305 | 20 |
| Vertical Bend or Sweep ¹ | | | | |
| 45°, upper bend | 8 | 14 | 305 | 50 |
| 45°, lower bend | 8 | 14 | 305 | 20 |
| 22.5°, upper bend | 8 | 14 | 305 | 25 |
| 22.5°, lower bend | 8 | 14 | 305 | 20 |
| 11.25°, upper bend | 8 | 14 | 305 | 20 |
| 11.25°, lower bend | 8 | 14 | 305 | 20 |
| Transition | | | | |
| Reducer | 8 x 4 | 18 | 305 | 80 |

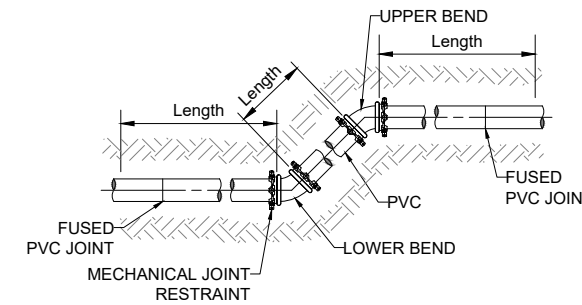
¹ Gives the required restraint length on each side of the specified bend, using a low side depth (from ground surface to top of the lower pipe) of 6-ft.



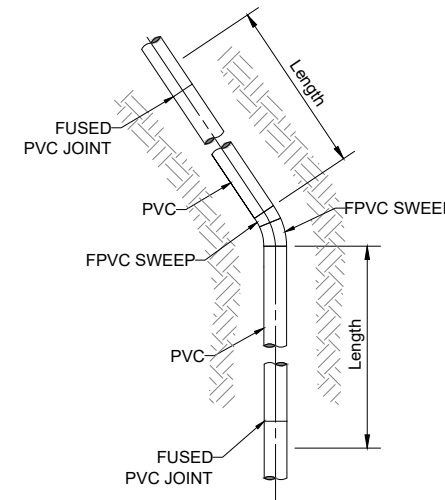
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR HORIZONTAL BEND



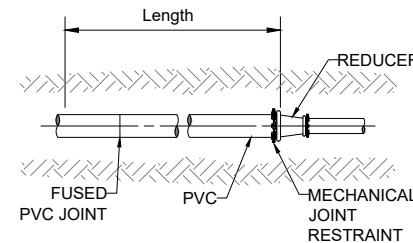
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR ISOLATION VALVE



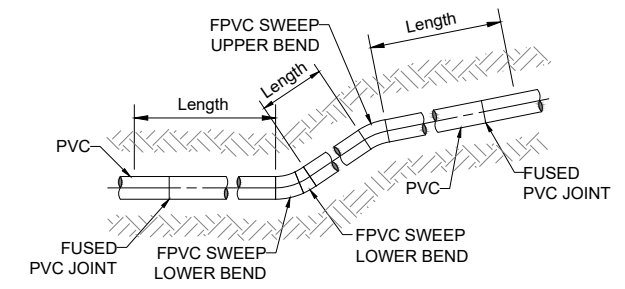
ELEVATION VIEW
MECHANICAL JOINT RESTRAINT
FOR VERTICAL OFFSET



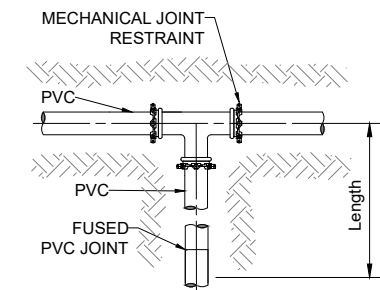
PLAN VIEW
FUSED JOINT RESTRAINT
FOR HORIZONTAL SWEEP



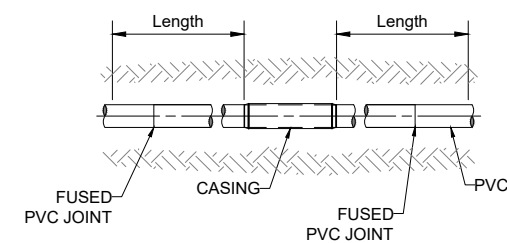
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR REDUCERS



ELEVATION VIEW
FUSED JOINT RESTRAINT
FOR VERTICAL SWEEP



PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR TEE



PLAN VIEW
FUSED JOINT RESTRAINT
FOR CASING

MECHANICAL / FUSED JOINT RESTRAINTS
NOT TO SCALE

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.

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Block and Anchor Details.dwg
3/15/2022 2:09:24 PM mnh

By: CHKD
Description:
Revision Date:

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Client: The Navajo Nation
Location: Coyote Canyon, NM

THRUST BLOCK & JOINT RESTRAINT DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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| | | |
|-----------------|--------------|----------------|
| Designed TTT | Drawn AAV | Checked JMG |
|-----------------|--------------|----------------|

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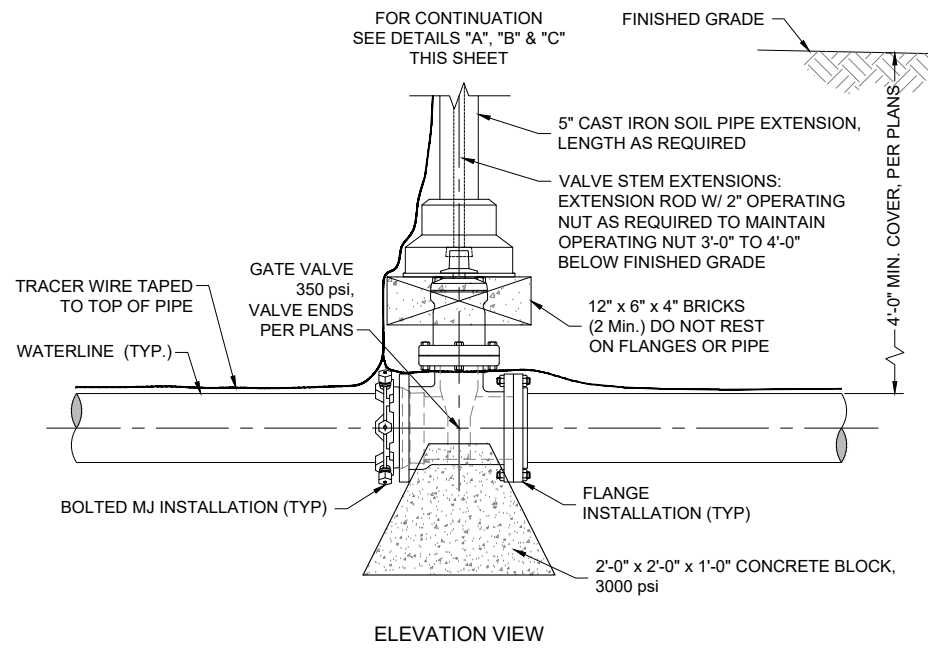
811 Know what's BELOW. CALL before you dig.

Date: March 2022
Scale: Horiz: N/A
Vert: N/A
Project No: 6922268
Sheet: **DT-3**

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NOTES:

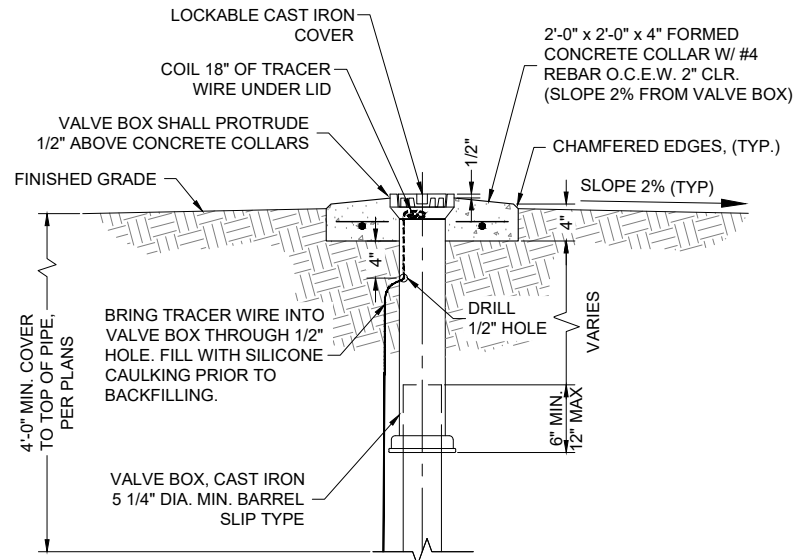
- CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "A" & "B" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
- AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
- AFFIX ALUMINUM VALVE IDENTIFICATION PLATES TO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



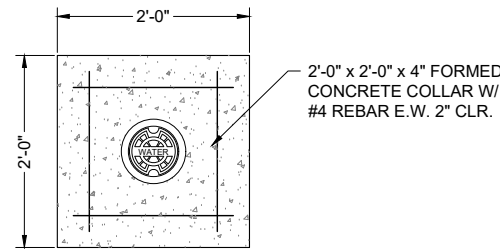
TYPICAL GATE VALVE DETAIL
NOT TO SCALE

| SUMMARY OF VALVE TYPE AND VALVE ACTUATOR TYPE | | | | |
|---|---------------------------|-----------------|--------------------------|---------------------------|
| Station | Actuator Type | Valve Type | Is Master Shutoff Valve? | Warning Placard |
| 00+27.5 | Slow Close (AUMA GS100.3) | Butterfly Valve | Yes | Warning Placard #3 (DT-6) |
| 49+50.0 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 83+86.2 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 135+13.8 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 167+61.5 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 216+07.2 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 264+82.5 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 292+52.6 | Standard | Gate Valve | No | Mainline Placard (DT-5) |
| 332+57.1 | Slow Close (AUMA GS100.3) | Butterfly Valve | Yes | Warning Placard #2 (DT-6) |
| 332+82.8 | Slow Close (AUMA GS100.3) | Butterfly Valve | No | Mainline Placard (DT-5) |
| Tank Site | Slow Close (AUMA GS100.3) | Ball Valve | Yes | Warning Placard #2 (DT-6) |

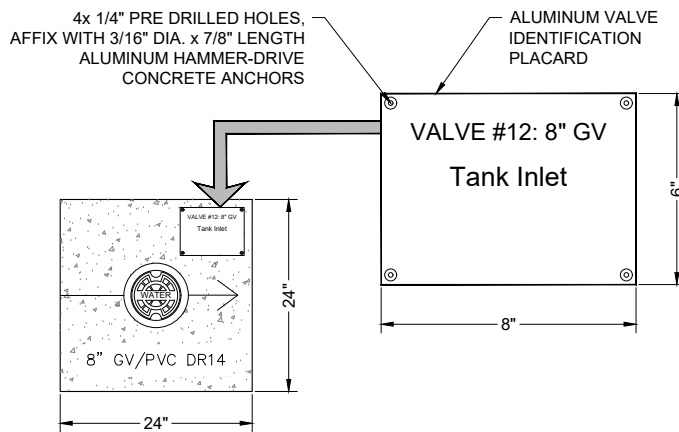
MAINLINE VALVE SUMMARY



ELEVATION VIEW

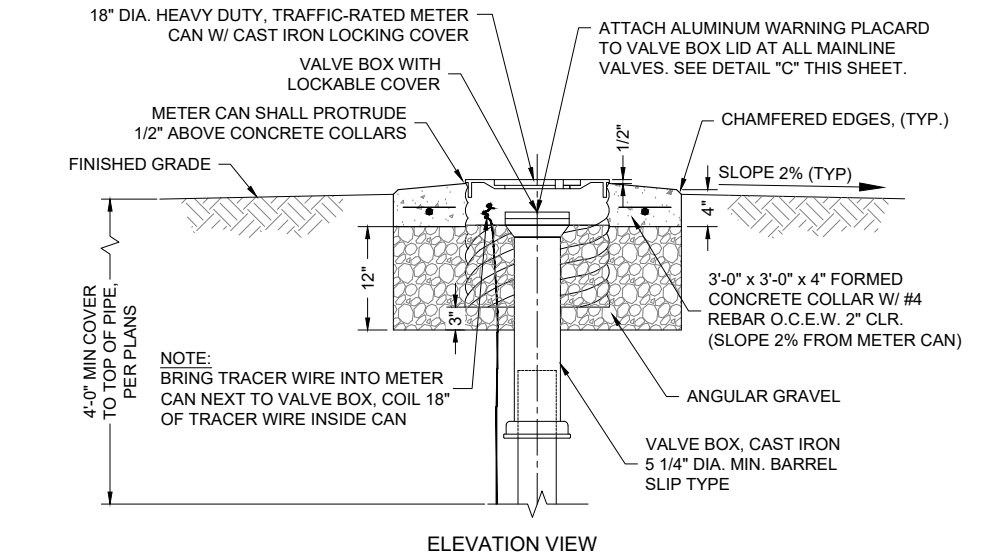


PLAN VIEW - REBAR

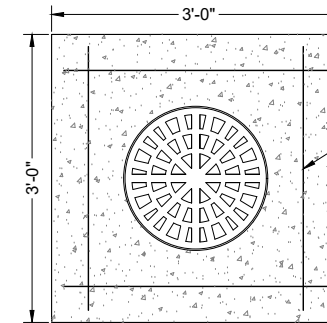


PLAN VIEW - SURFACE

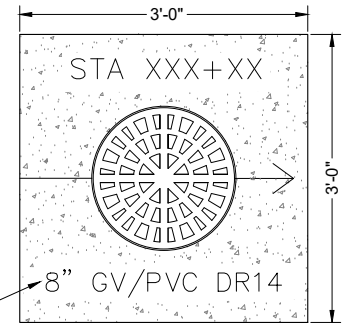
DETAIL "A" TYPICAL SITE GATE VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL, USE WITHOUT WARNING PLACARD
NOT TO SCALE



ELEVATION VIEW

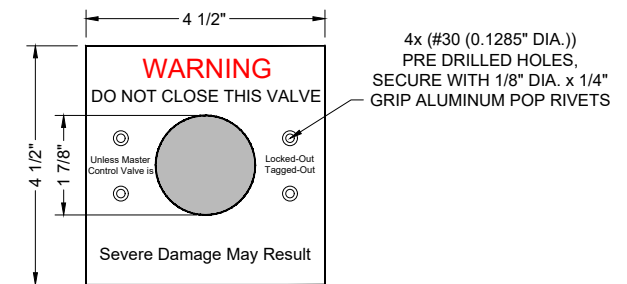


PLAN VIEW - REBAR

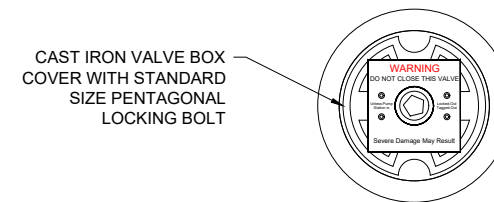


PLAN VIEW - SURFACE

DETAIL "B" TYPICAL MAINLINE VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL - USE WITH WARNING PLACARD
NOT TO SCALE



WARNING PLACARD FOR MAINLINE VALVES EXCEPT STA 0+28 AND 332+44



PLAN VIEW

DETAIL "C" TYPICAL WARNING PLACARD DETAIL
NOT TO SCALE

P:\6-Beacon Bisti Ng Water Line (6922268)\CADD\10.1.1 Plan Set\Construction Plans\Reach 10.1.1 Gate Valve Detail.dwg 3/15/2022 2:09:47 PM mhh

Client: The Navajo Nation
Location: Coyote Canyon, NM

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GATE VALVE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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| Designed | Drawn | Checked |
| JTT | AAV | JMG |

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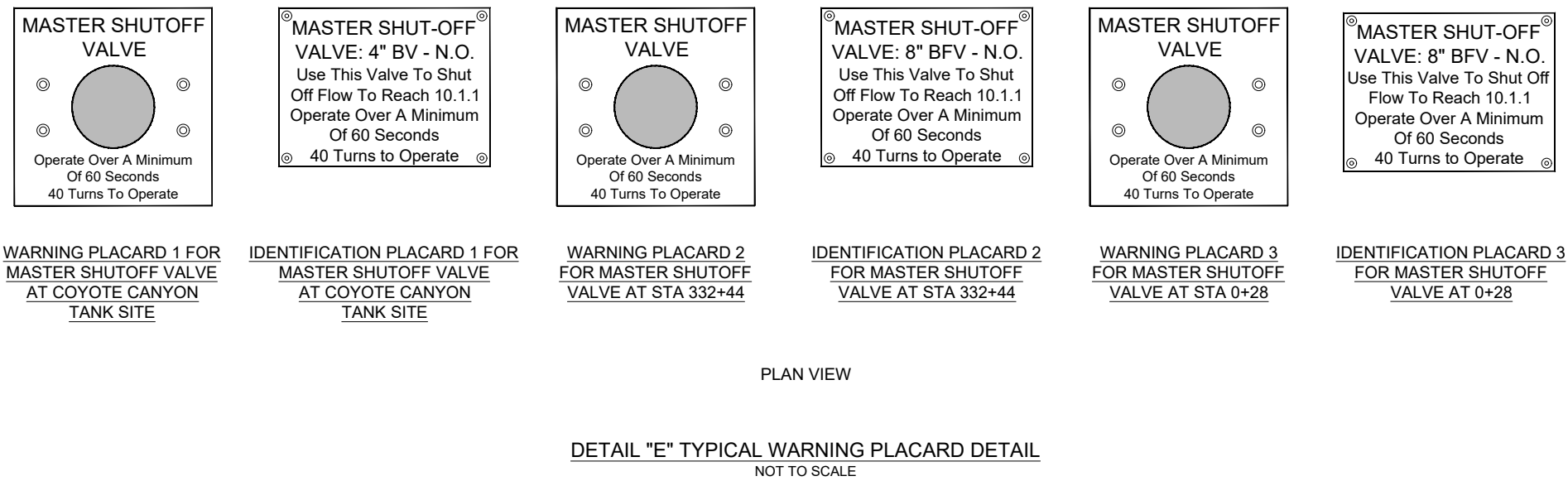
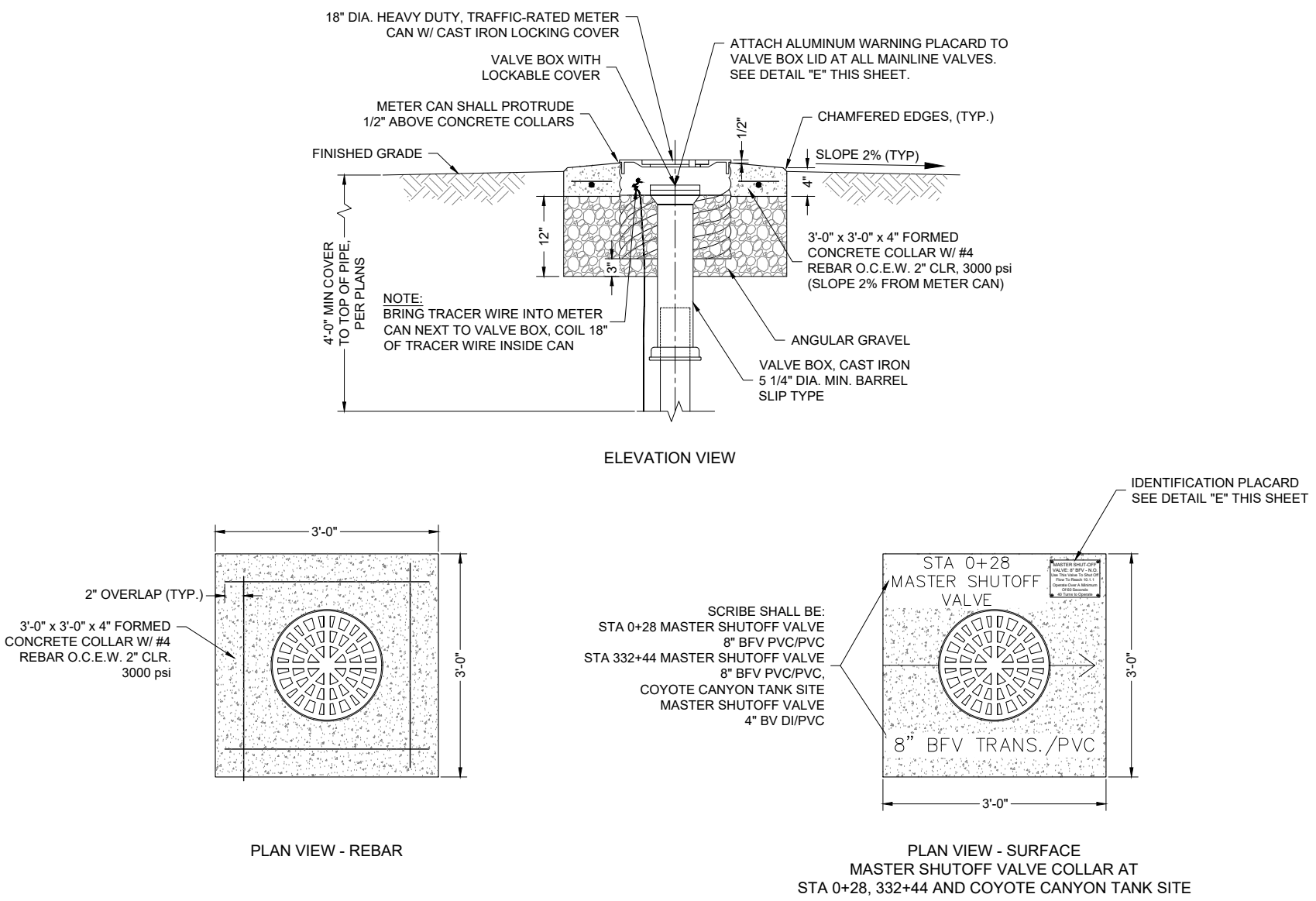
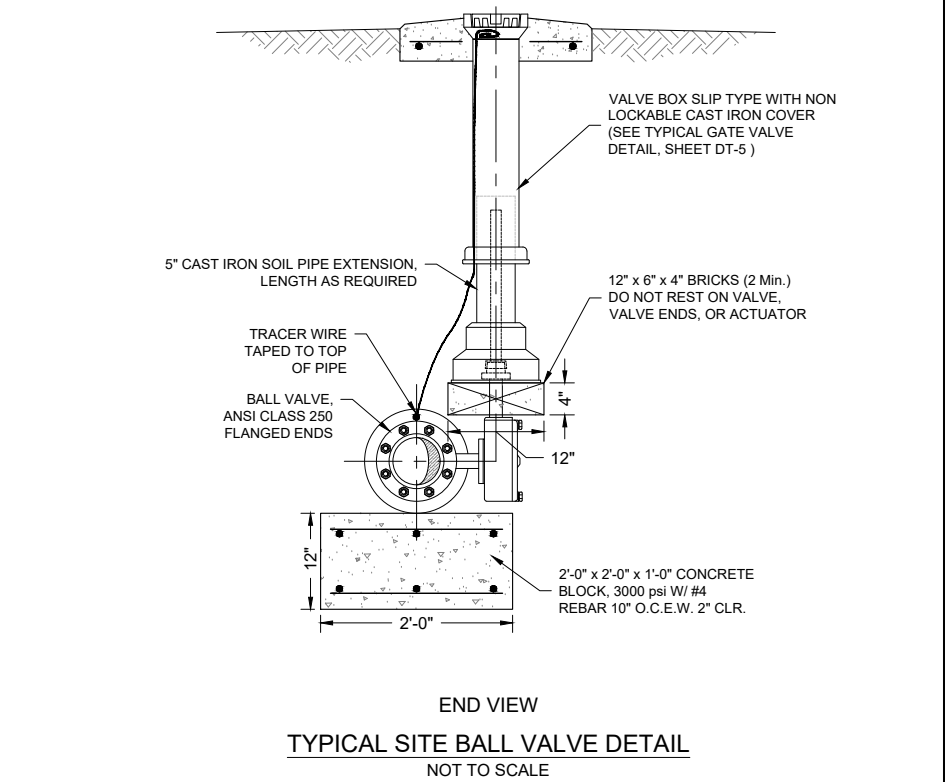
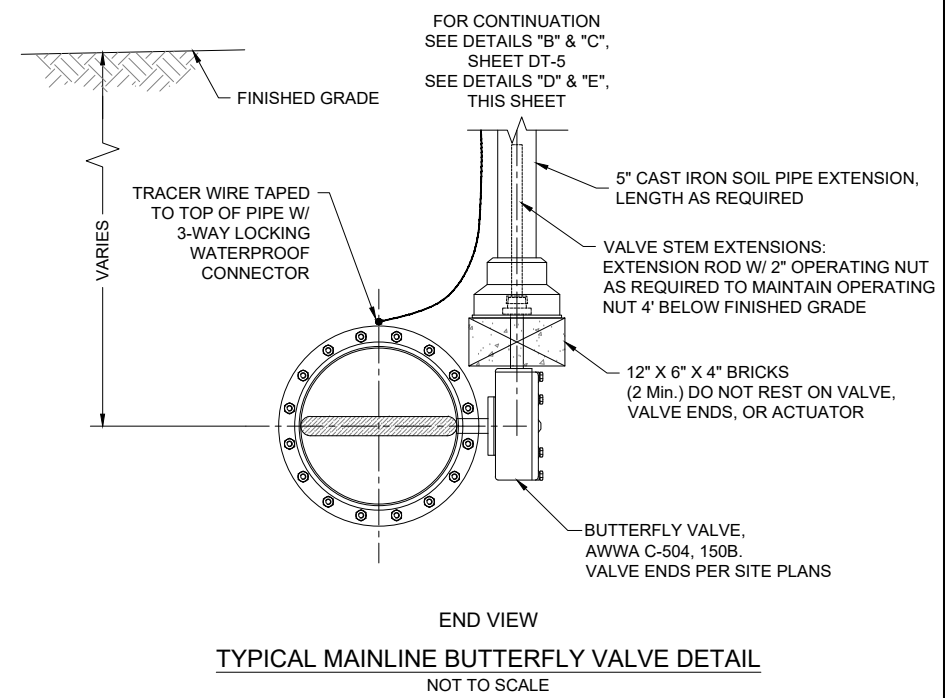
Date: March 2022
Scale: Horiz: N/A
Vert: N/A

Project No: 6922268
Sheet: DT-5

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NOTES:

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 PLATES TO ALL SITE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. REFER TO SHEET TBD 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. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
7. FLANGES SHALL BE ANSI CLASS 125 (IRON).



P:\6-Beacon Bisti NS Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Gate Valve Detail.dwg 3/15/2022 2:09:50 PM mwh

| | |
|--------------|--|
| By: CHKD | |
| Description: | |
| Revision: | |
| Date: | |

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SMA

Location: Coyote Canyon, NM

BUTTERFLY VALVE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKINLEY COUNTY, NEW MEXICO

Client: The Navajo Nation

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|---------------|------------|--------------|
| Designed: TTT | Drawn: AAV | Checked: JMG |
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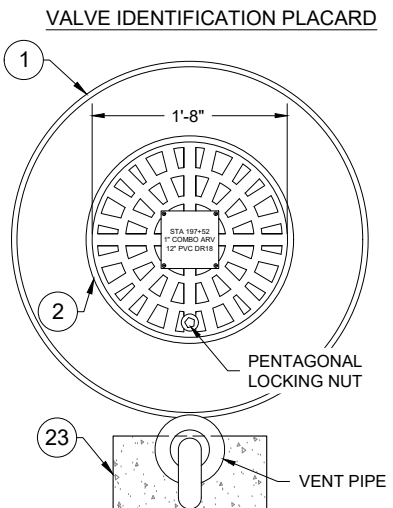
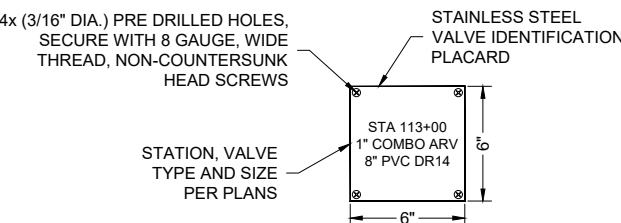
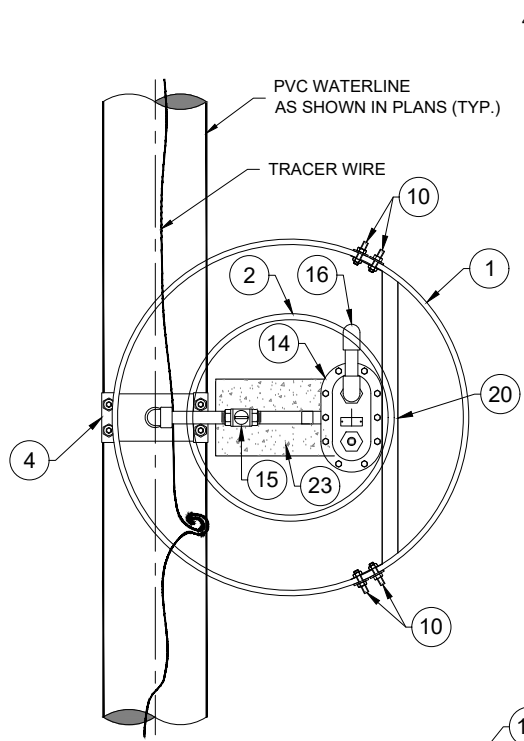
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Date: March 2022
Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6922268

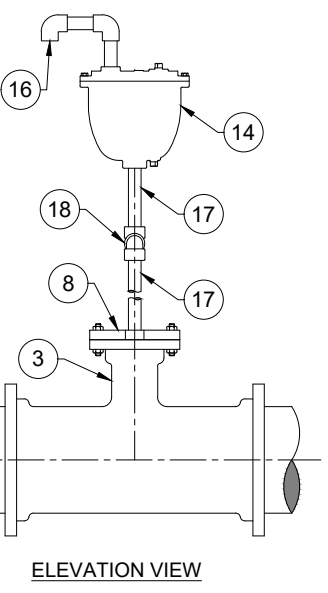
Sheet: **DT-6**

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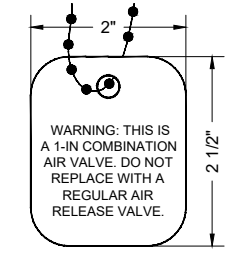


ALTERNATIVE CONFIGURATION "A" NOTES:

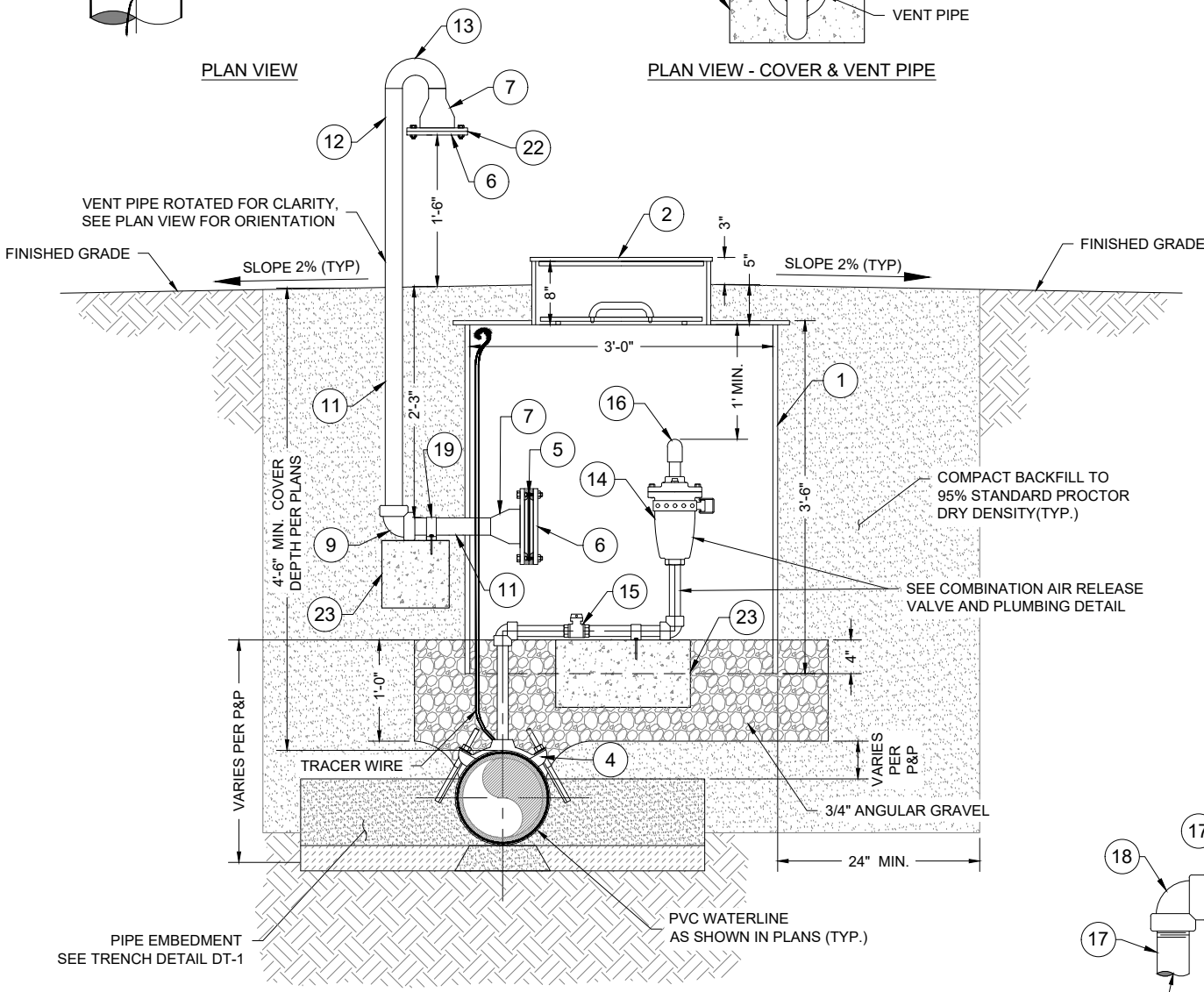
1. TO BE USED ONLY IN NON-CORROSIVE SOILS, AS INDICATED ON PLAN SHEETS, UNLESS OTHERWISE APPROVED BY ENGINEER.
2. MUST BE USED FOR ALL COMBINATION AIR VALVES WITHIN RESTRAINED (FUSIBLE PVC) PIPE SECTIONS.
3. IN THE EVENT THAT COMBINATION AIR VALVE INSTALLATION ON FUSIBLE PIPE IS REQUIRED WITHIN A CORROSIVE SOIL ZONE, CATHODIC PROTECTION OF THE DI REDUCING TEE SHALL BE PROVIDED.
4. TEE SHALL BE COLD APPLIED TAPE COATED PER AWWA C209 AND COATED WITH FUSION BONDED EPOXY INTERIOR AND EXTERIOR PER SPECIFICATIONS.



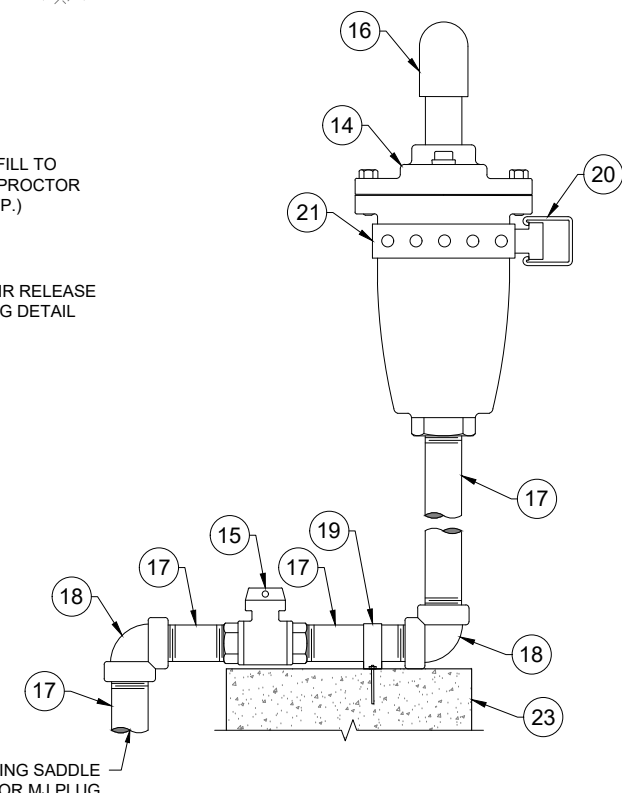
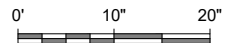
ALTERNATIVE CONFIGURATION "A"
N.T.S.



VALVE WARNING TAG DETAIL
(HANG FROM 1" COMBINATION AIR VALVE)



COMBINATION AIR VALVE DETAIL
ELEVATION VIEW

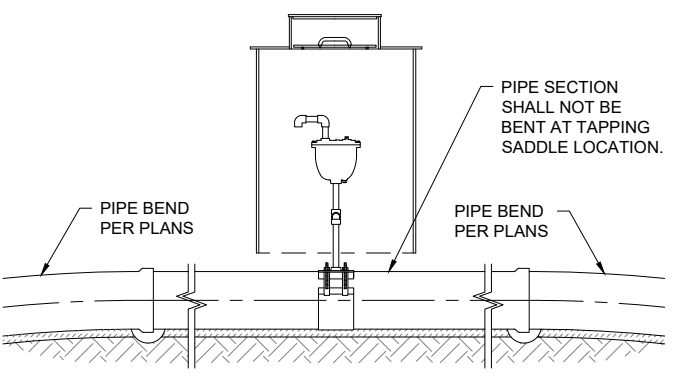


COMBINATION AIR VALVE AND PLUMBING DETAIL
ELEVATION VIEW
N.T.S.

KEYED NOTES - 1" COMBINATION AIR VALVE ASSEMBLY

| 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 | 8" x 8" x 4" MJ x MJ REDUCING TEE, D.I., 350 psi WP |
| 4 | 8" x 1" 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 |
| 5 | 4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE |
| 6 | 4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT |
| 7 | 4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE) |
| 8 | 4" x 1" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED |
| 9 | 2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED) |
| 10 | 2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE) |
| 11 | 2" STD. GALVANIZED IRON PIPE, THREADED END (PIPE EXTERIOR COLD-APPLIED TAPE COATED) |
| 12 | 2" STD. GALVANIZED IRON PIPE (PIPE EXTERIOR PAINTED BLUE) |
| 13 | 2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE) |
| 14 | 1" VALMATIC MODEL NO. 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi |
| 15 | 1" CURB STOP, SS 304, NPT |
| 16 | 1" DOWN SPOUT W/ SCREEN, SCHEDULE 80 PVC |
| 17 | 1" NIPPLE, SS 304, NPT |
| 18 | 1" 90° ELBOW, SS 304, NPT, SCHEDULE 40 |
| 19 | 1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS) |
| 20 | 1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING) |
| 21 | STAINLESS STEEL PERFORATED METAL HANGER STRAP |
| 22 | VARMINT SCREEN |
| 23 | CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16" (MIN. 3" FROM EDGE OF PIPE) |

- NOTES:**
1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
 2. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE-COATED PER AWWA C209.
 3. COMBINATION AIR VALVE TO BE LOCATED IN FIELD BY ENGINEER.
 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 COMBO AIR VALVE METER BOX LIDS, INFORMATION AS FOLLOWS: AS BUILT PIPE STATION, VALVE SIZE, "COMBO 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 COMBO AIR VALVE INSTALLATION LOCATIONS, SEE DETAIL THIS SHEET.



PIPE BENDING RESTRICTIONS FOR USE WITH TAPPING SADDLE
ELEVATION VIEW
N.T.S.

P:\6-Beacon Bisti NS Water Line (6922268)\CAD\Civil\Reach 10.1.1 Plan Set\Construction Plans\Reach 10.1.1 Air Valve Details.dwg
 3/15/2022 2:10:00 PM mwh

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 Location: Coyote Canyon, NM
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COMBINATION AIR VALVE DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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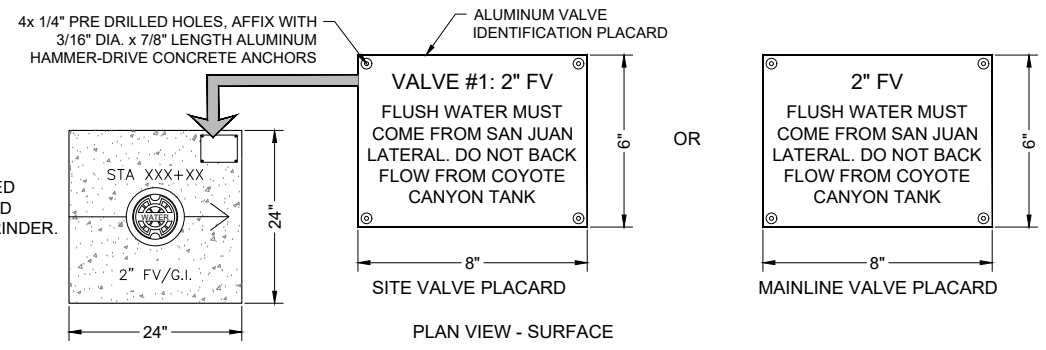
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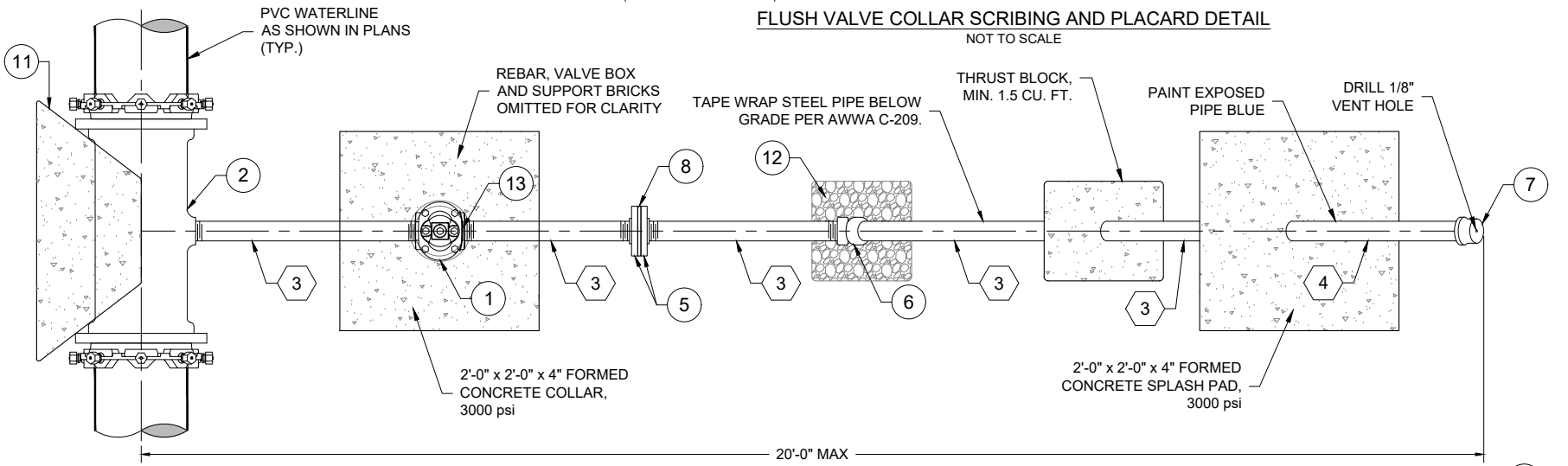
Date: March 2022
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 Project No: 6922268
 Sheet: DT-7

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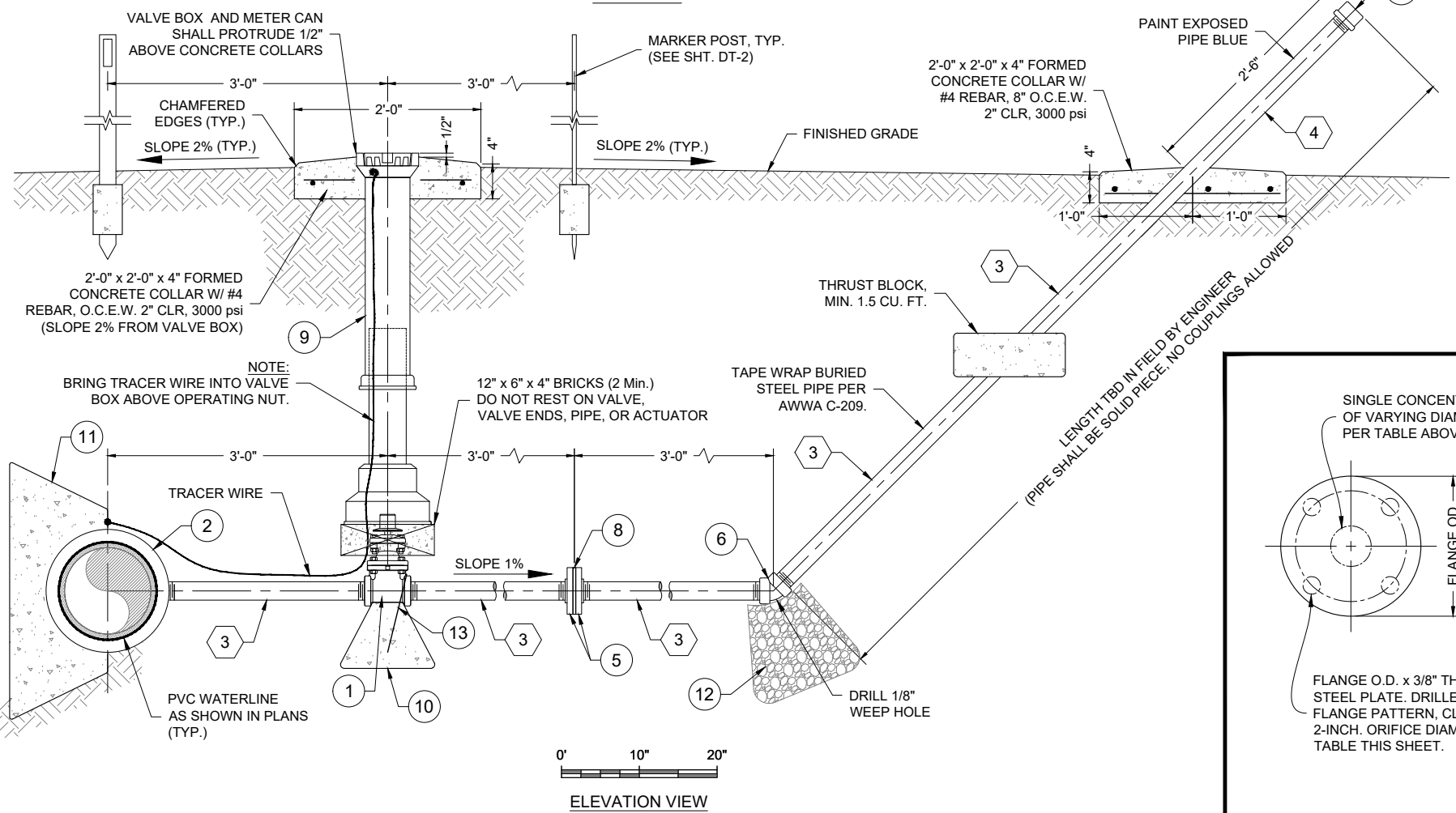


NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

FLUSH VALVE COLLAR SCRIBING AND PLACARD DETAIL
NOT TO SCALE



PLAN VIEW



2" FLUSH VALVE WITH ORIFICE PLATE AND ABOVE-GRADE DISCHARGE DETAIL

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

NOTES:

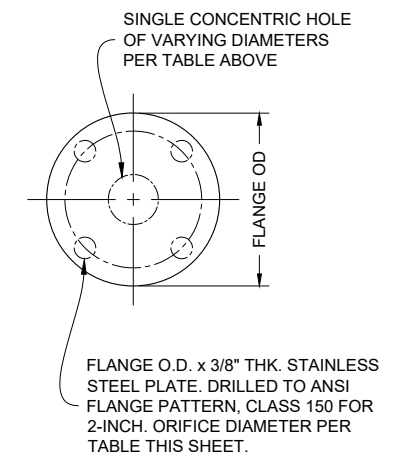
- ALL FLANGES SHALL BE ANSI CLASS 300 (STEEL).
- ALL NON STAINLESS STEEL PIPE AND FITTINGS SHALL BE TWO-PART EPOXY COATED, INTERIOR AND EXTERIOR. ALL NON STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER AWWA C-209 AND SPECIFICATIONS.
- ORIENTATION AND LOCATION OF 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 THIS SHEET FOR ORIFICE PLATE DRILLING REQUIREMENTS.

SUMMARY OF FLUSH VALVE ORIFICE PLATE DRILLING

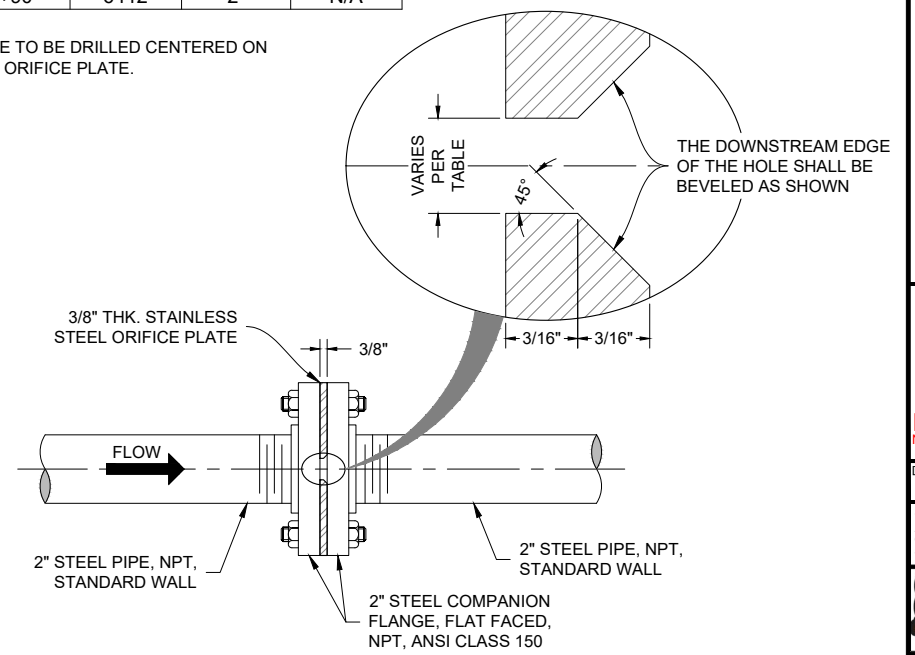
| Station | Elevation | Flush Valve Size | Orifice Plate Hole Ø (in.) |
|---------|-----------|------------------|----------------------------|
| 9+00 | 6244 | 2" | 1.30 |
| 109+50 | 6161 | 2" | 1.30 |
| 225+11 | 6239 | 2" | 1.40 |
| 302+00 | 6348 | 2" | 1.50 |
| 332+39 | 6410 | 2" | N/A |
| 332+90 | 6412 | 2" | N/A |

NOTES:

- HOLE TO BE DRILLED CENTERED ON THE ORIFICE PLATE.



ORIFICE PLATE
NOT TO SCALE



ORIFICE PLATE ASSEMBLY
NOT TO SCALE

P:\6-Beacon Bldg NG Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Flush Valve Details.dwg
3/15/2022 2:10:11 PM mwh

Client: The Navajo Nation
Location: Coyote Canyon, NM
2-INCH FLUSH VALVE, ORIFICE PLATE, RISER DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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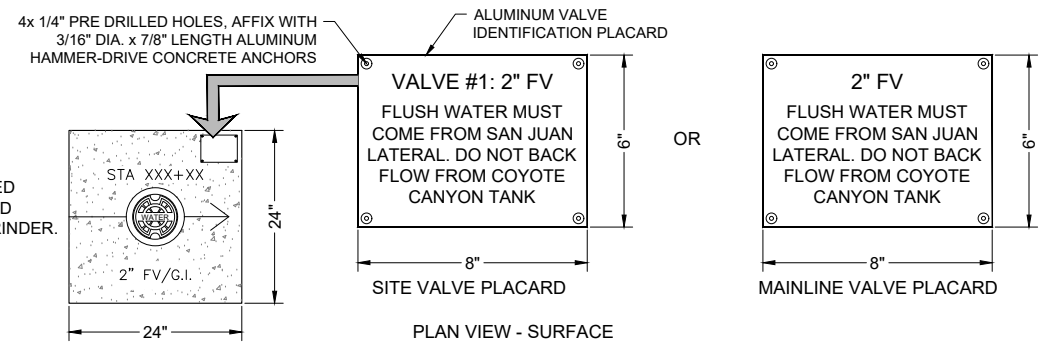
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| Designed TTT | Drawn AAV | Checked JMG |
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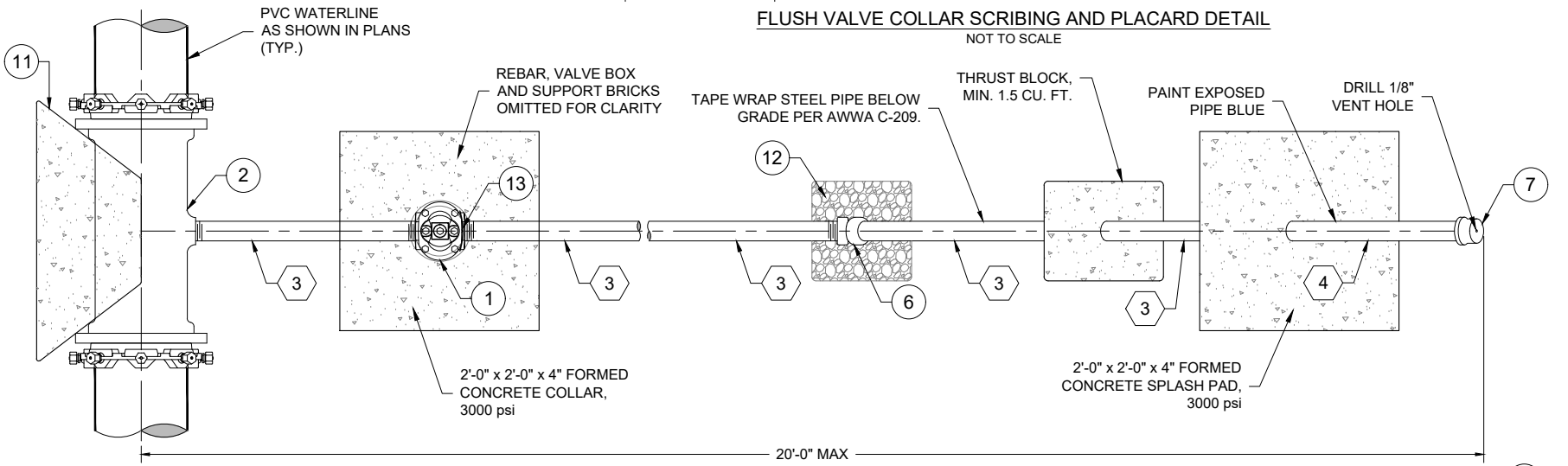
Date: March 2022
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Vert: N/A
Project No: 6922268
Sheet: DT-8

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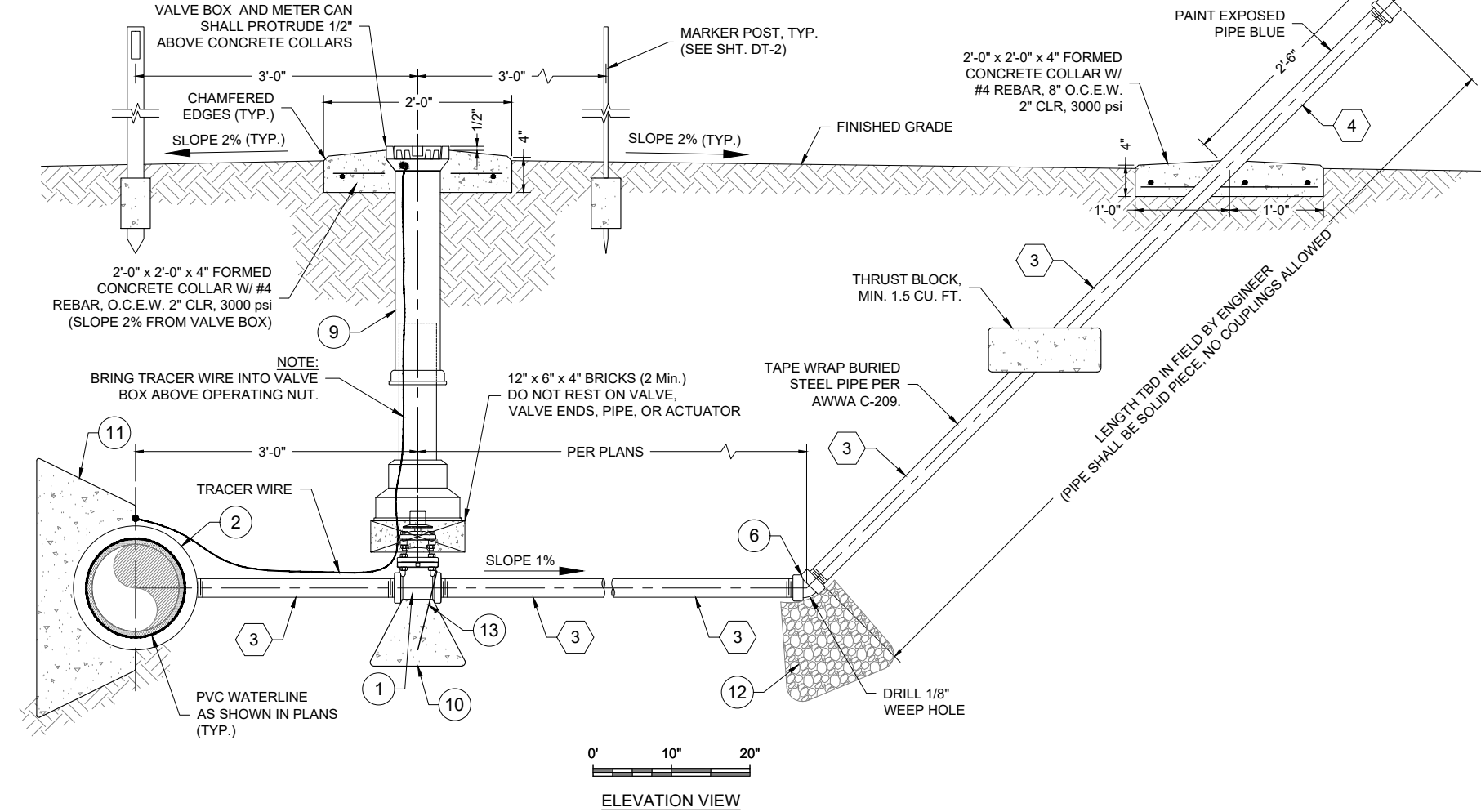


NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

FLUSH VALVE COLLAR SCRIBING AND PLACARD DETAIL
NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

CHLORINATOR BUILDING 2" FLUSH VALVE WITH ABOVE-GRADE DISCHARGE DETAIL

| KEYED NOTES - 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE | |
|---|--|
| Item No. | DESCRIPTION |
| 1 | 2" GATE VALVE, FBE COATED, NPT, W/ 2" OPERATING NUT, 250 psi |
| 2 | 8" x 2" MJ TAPPED TEE, D.I., 350 psi |
| 3 | 2" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE |
| 4 | 2" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE |
| 5 | NOT USED |
| 6 | 2" G.I. 45° ELL, NPT, 300 psi |
| 7 | 2" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE |
| 8 | NOT USED |
| 9 | VALVE BOX SLIP TYPE WITH LOCKING CAST IRON COVER (SEE DETAIL DT-6) |
| 10 | 1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi |
| 11 | THRUST BLOCK (SEE DETAIL DT-3) |
| 12 | ROUNDED ROCK (1.5 CU. YD.) |
| 13 | #4 REBAR RESTRAINT |

- NOTES:
- ALL FLANGES SHALL BE ANSI CLASS 300 (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 COLD APPLIED 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 THIS SHEET FOR ORIFICE PLATE DRILLING REQUIREMENTS.

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Flush Valve Details.dwg
3/15/2022 2:10:15 PM mwh

Client: The Navajo Nation
Location: Coyote Canyon, NM
2-INCH FLUSH VALVE WITH RISER DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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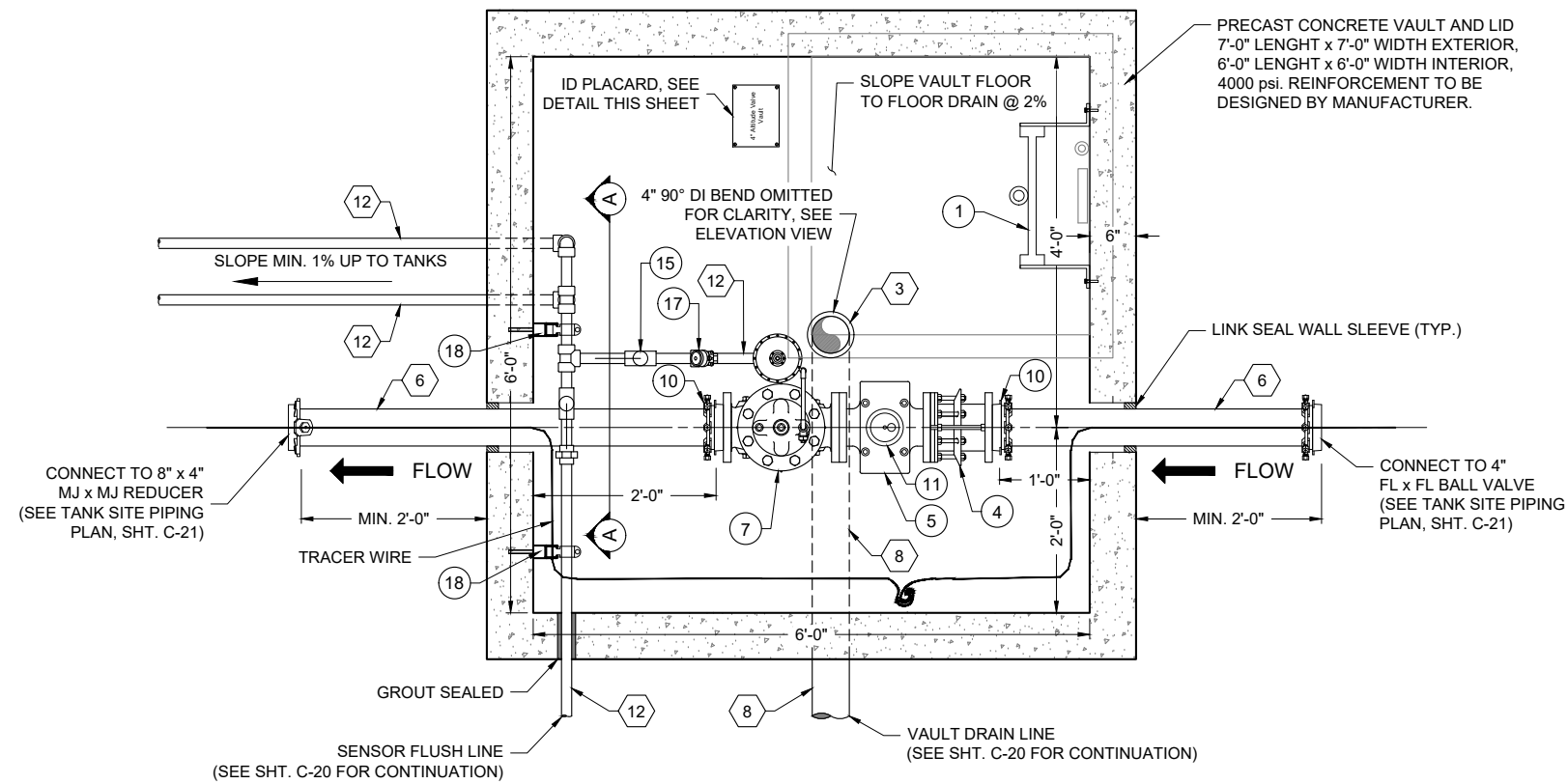
811 Know what's BELOW. CALL before you dig.

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Vert: N/A
Project No: 6922268
Sheet: DT-9

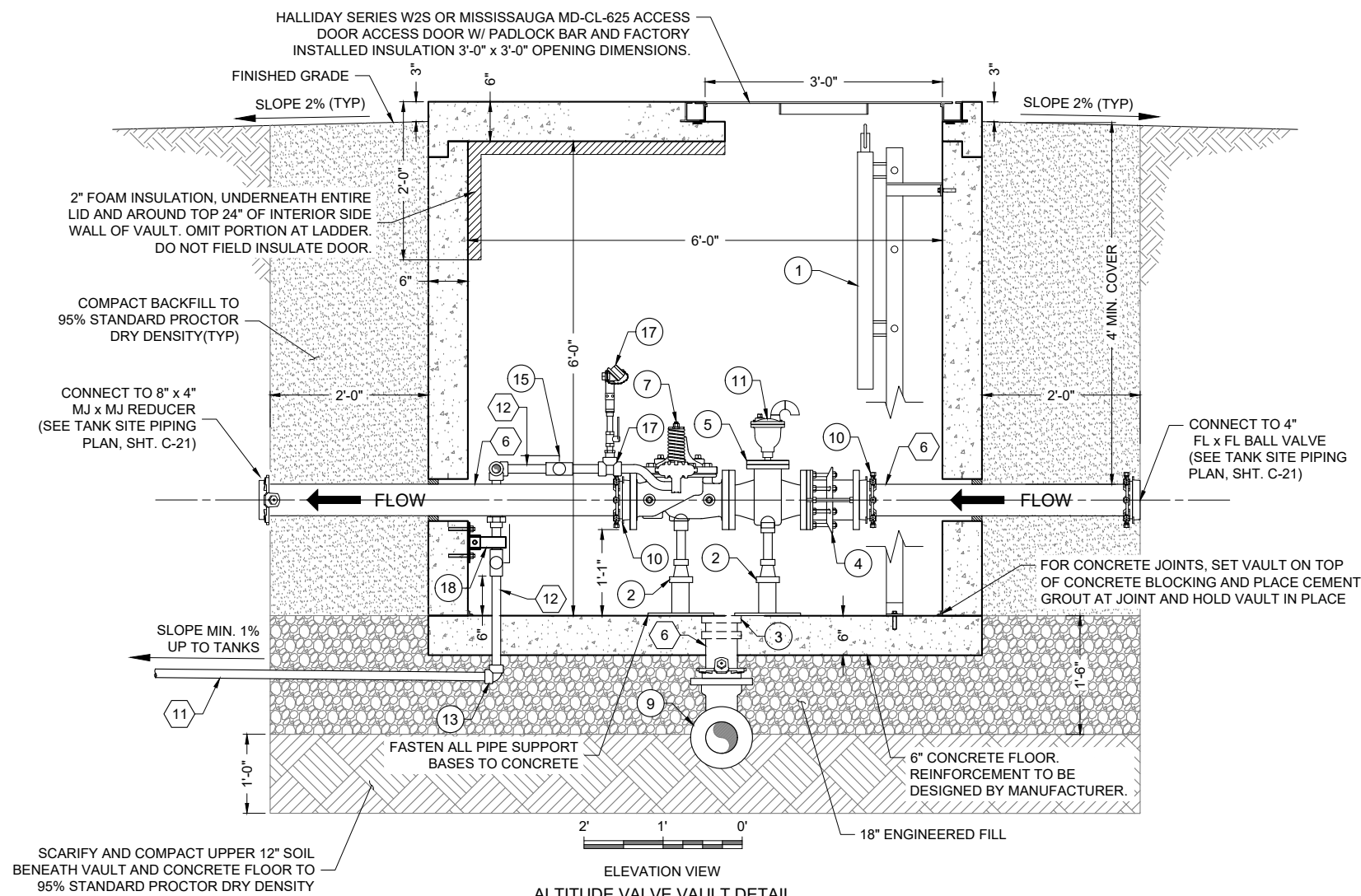
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Description:
Date:
Revision:

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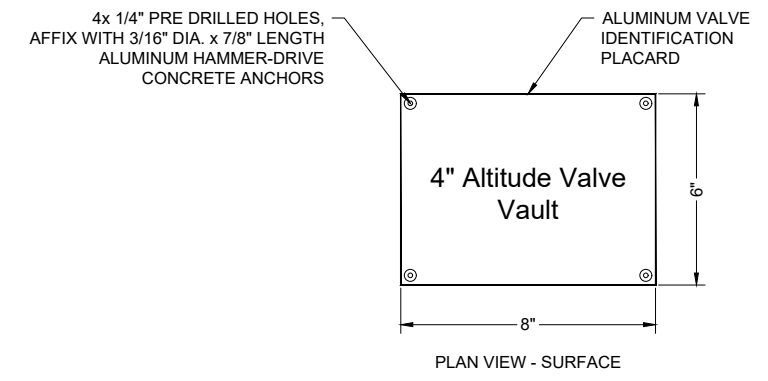
PLAN VIEW



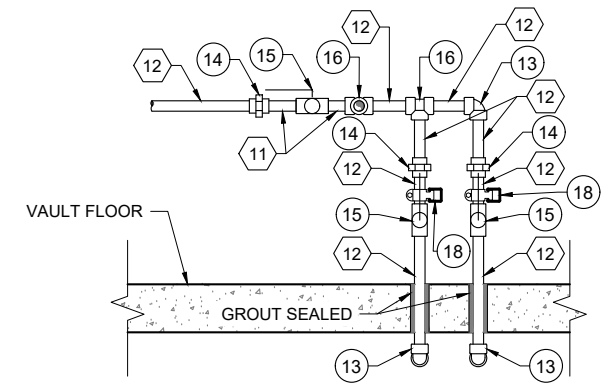
ELEVATION VIEW
ALTITUDE VALVE VAULT DETAIL

| KEYED NOTES - 4" ALTITUDE VALVE ASSEMBLY | |
|--|--|
| Item No. | DESCRIPTION |
| 1 | ALUMINUM LADDER W/ SAFETY POST ANCHORED TO VAULT OPENING AND FLOOR |
| 2 | ADJUSTABLE PIPE SUPPORT W/ CRADLE |
| 3 | 4" INSET FLOOR DRAIN |
| 4 | 4" DISMANTLING JOINT, FBE COATED W/ 304 SS BOLTS, ROMAC MODEL DJ400, AWWA C207 CLASS E FLANGE, OAE |
| 5 | 4" H STYLE STRAINER, CLA-VAL, OAE |
| 6 | 4" PE x PE SPOOL, DUCTILE IRON |
| 7 | 4" ALTITUDE VALVE, CLA-VAL VALVE WITH PRESSURE RELIEF BYPASS, MODEL 100-20KO |
| 8 | 4" DUCTILE IRON PIPE |
| 9 | 4" 90° MJ BEND, DI |
| 10 | 4" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE |
| 11 | 1/2" AIR RELEASE VALVE |
| 12 | 1" ANNEALED STAINLESS STEEL PILOT LINE |
| 13 | 1" STEEL 90° BEND, NPT, SS 304 |
| 14 | 1" STEEL UNION, NPT, SS 304 |
| 15 | 1" BALL VALVE, NPT, SS 304 |
| 16 | 1" STEEL TEE, NPT, SS 304 |
| 17 | VERTICAL MOUNT PRESSURE TRANSDUCER, W/ 1/2" SS 304 BALL VALVE (SEE ELECTRICAL DETAIL, SHT. TBD) |
| 18 | 1 5/8" GALVANIZED UNI-STRUT |

- NOTES:
- ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON). CONTRACTOR SHALL ENSURE ALL FLANGES / GASKETS ARE COMPATIBLE.
 - CONTRACTOR SHALL ETCH VAULT LID WITH 4" GRINDER AS FOLLOWS: PIPE STATION, PIPE AND MATERIAL, WITH DIRECTIONAL ARROWS.
 - ALL MATERIALS RATED TO AT LEAST 235 PSI UNLESS OTHERWISE SPECIFIED.
 - ALL 1" PIPE TO BE SECURED WITH PIPE CLAMPS MOUNTED TO UNISTRUTS OR VAULT WALL. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.



PLAN VIEW - SURFACE
VAULT ID PLACARD DETAIL
NOT TO SCALE



SECTION A-A
SENSOR LINES PLUMBING DETAIL

Client: The Navajo Nation
Location: Coyote Canyon, NM

ALTITUDE VALVE VAULT
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKINLEY COUNTY, NEW MEXICO

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| Designed TTT | Drawn AAV | Checked JMG |
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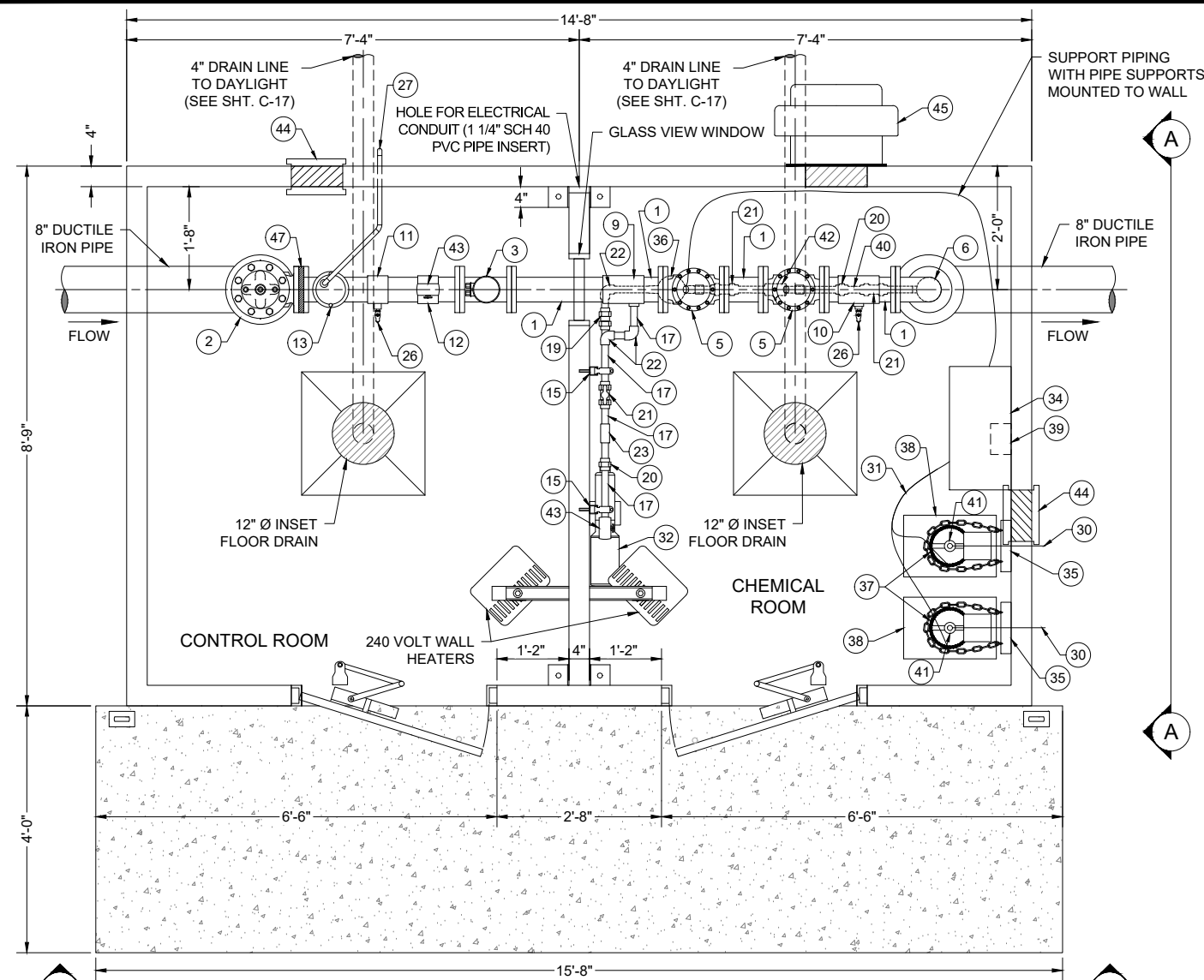
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Scale: Horiz: 1" = 2"
Vert: N/A

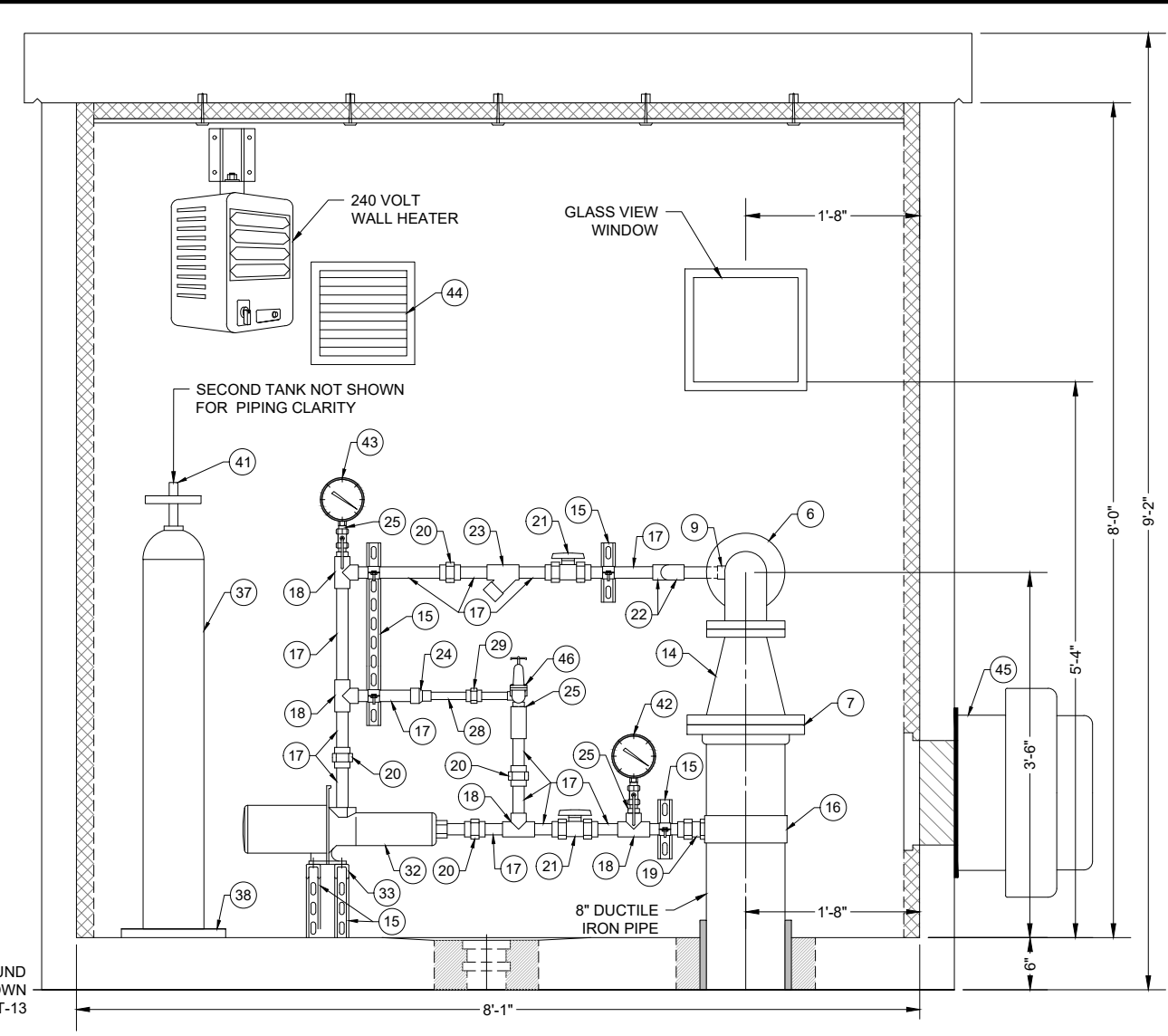
Project No: 6922268
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PLAN VIEW
REACH 10.1.1 CHLORINATION SYSTEM DETAIL



END VIEW SECTION A-A
REACH 10.1.1 CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

| | |
|----|--|
| 1 | 4" DUCTILE IRON PIPE |
| 2 | 4" FLANGED FULL-PORT ELECTRONIC FLOW CONTROL VALVE, CLA-VAL 631A-57 FHBYSCKKOP-X105LCW-N (0-160 PSI INLET/OUTLET GAUGES) W/ CLA-VAL VC-22D CONTROLLER |
| 3 | 4" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30" IN FRONT AND >12" BEHIND CENTER OF METER. |
| 4 | 4" BALL VALVE AUMA GS100.3 (BIG GEAR) WITH 8" HANDWHEEL, FL x FL WITH GEARED ACTUATOR AND LOCK AND CHAIN TO PREVENT OPENING WHILE PIPELINE IS FLOWING. DI WITH FLANGE ISOLATION KIT. |
| 5 | 4" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.) |
| 6 | 4" 90° FL x FL ELBOW, DI |
| 7 | 8" FLANGE ISOLATION KIT |
| 8 | 4" x 1" TAPPING SADDLE, DI |
| 9 | 4" x 1" TAPPING SADDLE, SS 304 |
| 10 | 4" x 3/4" TAPPING SADDLE, SS 304 |
| 11 | 4" x 3/4" TAPPING SADDLE, DI |
| 12 | 4" x 1/4" TAPPING SADDLE, DI |
| 13 | 1" VALMATIC MODEL NO. 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi |
| 14 | 8" x 4" REDUCER, FL x FL DI, WP 250 PSI |
| 15 | 1 5/8" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS |
| 16 | 8" x 1" TAPPING SADDLE, SS 316 |
| 17 | 1" PVC SCHED 80 PIPE |
| 18 | 1" TEE, PVC SCHED 80 |
| 19 | 1" TRUE UNION CHECK VALVE, PVC SCHED 80 |
| 20 | 1" UNION, PVC SCHED 80 |
| 21 | 1" TRUE UNION BALL VALVE, PVC SCHED 80 |
| 22 | 1" 90° ELBOW, PVC SCHED 80 |
| 23 | 1" Y-STRAINER, PVC SCHED 80 |
| 24 | 1" x 1/2" REDUCER, PVC SCHED 80 |
| 25 | 1" x 1/2" PVC BUSHING |

| | |
|----|--|
| 26 | 3/4" HOSE BIB WITH VACUUM BREAKER, NPT, SMOOTH END |
| 27 | 1/2" 90° ELL & 1/2" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT |
| 28 | 1/2" PVC SCHED 80 PIPE |
| 29 | 1/2" UNION, PVC SCHED 80 |
| 30 | 1/2" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS) |
| 31 | 3/8" PE VACUUM TUBING |
| 32 | BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.) |
| 33 | SS UNISTRUT PEDESTAL FOR CHLORINATION BOOSTER PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9" ABOVE FLOOR. |
| 34 | CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.) |
| 35 | WALL MOUNTED CHAIN BRACKET, INSTALL 40" ABOVE FLOOR, WITH SAFETY CHAIN |
| 36 | CHLORINE INJECTOR, WALLACE & TIERNAN S10K W/ 99D THROAT/TAIL PIECE (O.A.E.) W/ PVC/TEFLON DIAPHRAM VALVE ON VACUUM LINE WITH PEDESTAL. SUPPORT WITH UNISTRUTS. |
| 37 | CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL) |
| 38 | ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR |
| 39 | CHLORINE GAS DETECTOR SENSOR/TRANSMITTER, WALLACE & TIERNAN ACUTEC 35 W/ AUTOTEST (O.A.E.), MOUNTED 6" ABOVE FLOOR, LOCATION TBD BY ENGINEER IN FIELD. CHLORINE GAS DETECTOR RECEIVER, WALLACE & TIERNAN ACUTEC 35 (O.A.E.) LOCATION AS INDICATED IN ELECTRICAL PLANS OR TBD BY ENGINEER IN FIELD. |
| 40 | INSERTION DIFFUSER, MTE (O.A.E.) |
| 41 | VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.) |
| 42 | PRESSURE GAUGE, 0-250 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2" BALL VALVE, STAINLESS STEEL |
| 43 | PRESSURE GAUGE, 0-250 PSI WITH ISOLATION 1/4" SS BALL VALVE |
| 44 | LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT |
| 45 | 19 1/2" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER |
| 46 | 1/2" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI |
| 47 | 4" ORIFICE PLATE ASSEMBLY, CLAVAL X52E WITH 2" ORIFICE |

NOTES:

- POSITION PRESSURE GAUGES SUCH THAT VIEW IS NOT OBSCURED BY OTHER EQUIPMENT IN FRONT.
- CONTRACTOR RESPONSIBLE TO PROVIDE ALL FITTINGS NECESSARY (SUCH AS BUSHINGS, FLANGES, ADAPTERS, NIPPLES, ETC.), WHETHER EXPLICITLY SHOWN OR NOT, TO COMPLETE THE INSTALLATION AS INDICATED.
- ALL 1" AND SMALLER PIPE TO BE SECURED WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS MOUNTED TO THE WALL. ALL UNISTRUTS ATTACHED TO WALL SHALL BE IN VERTICAL POSITION. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
- 6" MINIMUM SPACING BETWEEN SCHED 80 PVC GLUED FITTINGS, UNLESS UNION IS PRESENT.
- ALL BOLTS, NUTS AND WASHERS IN CHEMICAL ROOM SHALL BE 316 SS.
- ALL VALVES WHICH MAY DISCHARGE WATER (CONTROL VALVE AND PRESSURE RELEASE VALVE) SHALL HAVE 1/2" GI DISCHARGE PIPE FROM VALVE OUTLET TO FLOOR DRAIN. DISCHARGE PIPING SHALL BE ROUTED ALONG WALL TO AVOID BLOCKING ACCESS TO OTHER COMPONENTS AND SHALL BE ATTACHED TO WALL WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS FOR SUPPORT. PAINT GI PIPE BLUE. DISCHARGE PIPING NOT SHOWN FOR CLARITY.
- ALL MATERIALS SHALL BE RATED TO AT LEAST 125 psi, UNLESS OTHERWISE NOTED.
- ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON).
- ALL BURIED PIPE WITHIN 5 FT OF BUILDING SHALL BE DUCTILE IRON, 350 psi WP, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
- BURIED DUCTILE IRON PIPE FOR DRAINS AND PIPE PENETRATIONS SHALL BE AWWA C-209 COLD-APPLIED TAPE-COATED PER SPECIFICATIONS ABOVE THE BURIED ELL. ALL OTHER BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE TWO-PART EPOXY-COATED, PER SPECIFICATIONS.
- ALL STEEL COMPONENTS IN THE CHEMICAL ROOM SHALL BE SS 316, UNLESS OTHERWISE NOTED.
- ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
- CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, GRAFFITI PROOFER GPA-300, TO EXTERIOR OF BUILDING.

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.1.1 Plan Set\Construction Plans\Reach 10.1.1 Chlor System Details.dwg
3/15/2022 2:10:45 PM mwh

Client: The Navajo Nation
Location: Coyote Canyon, NM

CHLORINATION SYSTEM DETAILS (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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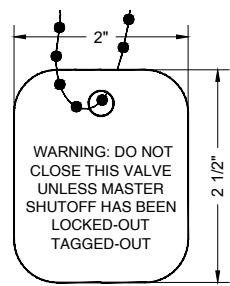
Date: March 2022
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Vert: N/A

Project No: 6922268
Sheet: DT-11

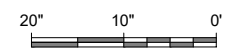
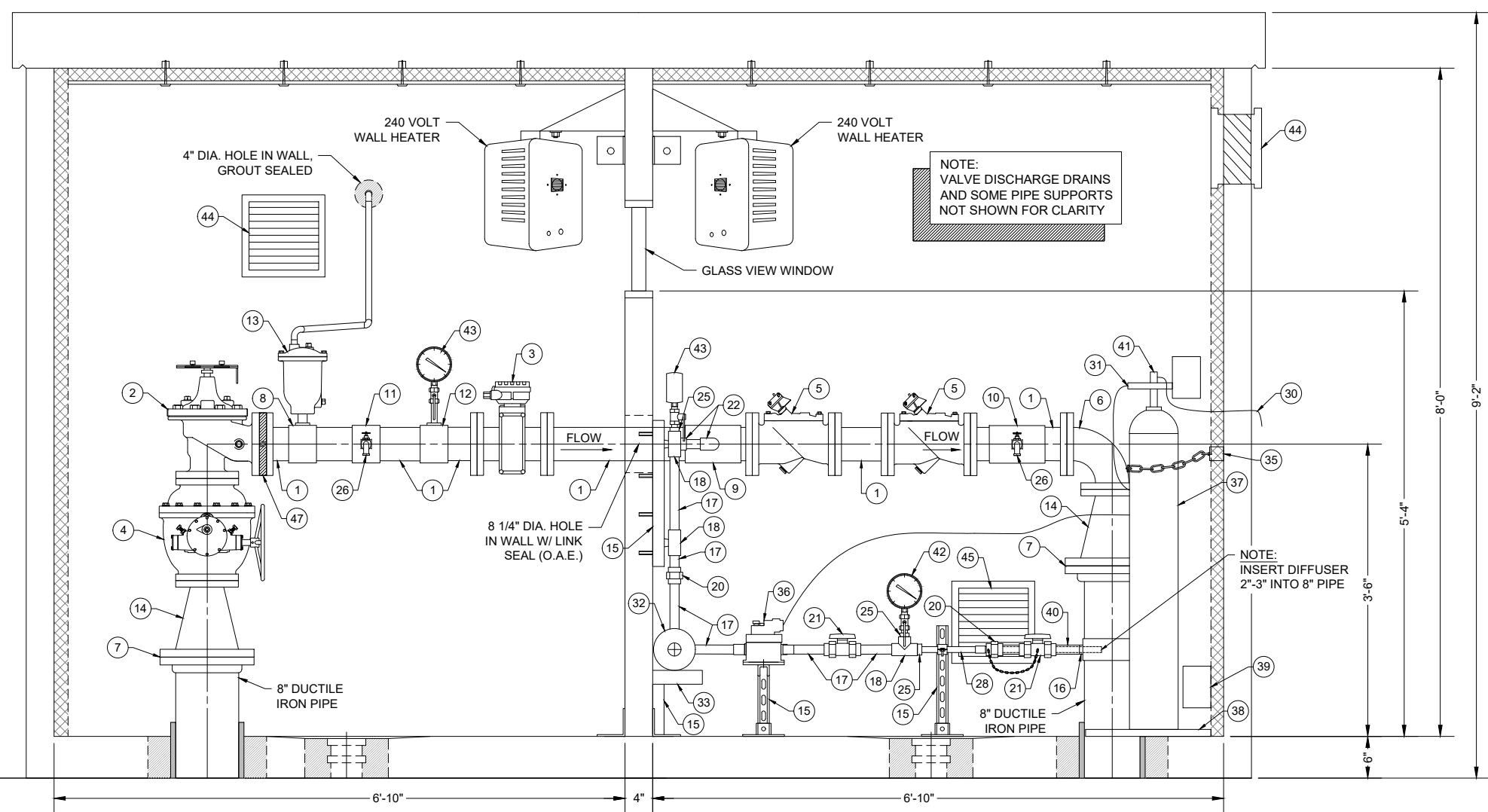
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Revision: _____
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VALVE WARNING TAG DETAIL
(HANG FROM BALL VALVES)



ELEVATION VIEW SECTION B-B
REACH 10.1.1 CONTROL ROOM CHLORINATION SYSTEM DETAIL

ELEVATION VIEW SECTION B-B
REACH 10.1.1 CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

| | |
|----|--|
| 1 | 4" DUCTILE IRON PIPE |
| 2 | 4" FLANGED FULL-PORT ELECTRONIC FLOW CONTROL VALVE, CLA-VAL 631A-57 FHBYSCKKOP-X105LCW-N (0-160 PSI INLET/OUTLET GAUGES) W/ CLA-VAL VC-22D CONTROLLER |
| 3 | 4" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30" IN FRONT AND >12" BEHIND CENTER OF METER. |
| 4 | 4" BALL VALVE AUMA GS100.3 (BIG GEAR) WITH 8" HANDWHEEL, FL x FL WITH GEARED ACTUATOR AND LOCK AND CHAIN TO PREVENT OPENING WHILE PIPELINE IS FLOWING. DI WITH FLANGE ISOLATION KIT. |
| 5 | 4" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.) |
| 6 | 4" 90° FL x FL ELBOW, DI |
| 7 | 8" FLANGE ISOLATION KIT |
| 8 | 4" x 1" TAPPING SADDLE, DI |
| 9 | 4" x 1" TAPPING SADDLE, SS 304 |
| 10 | 4" x 3/4" TAPPING SADDLE, SS 304 |
| 11 | 4" x 3/4" TAPPING SADDLE, DI |
| 12 | 4" x 1/4" TAPPING SADDLE, DI |
| 13 | 1" VALMATIC MODEL NO. 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi |
| 14 | 8" x 4" REDUCER, FL x FL DI, WP 250 PSI |
| 15 | 1 5/8" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS |
| 16 | 8" x 1" TAPPING SADDLE, SS 316 |
| 17 | 1" PVC SCHED 80 PIPE |
| 18 | 1" TEE, PVC SCHED 80 |
| 19 | 1" TRUE UNION CHECK VALVE, PVC SCHED 80 |
| 20 | 1" UNION, PVC SCHED 80 |
| 21 | 1" TRUE UNION BALL VALVE, PVC SCHED 80 |
| 22 | 1" 90° ELBOW, PVC SCHED 80 |
| 23 | 1" Y-STRAINER, PVC SCHED 80 |
| 24 | 1" x 1/2" REDUCER, PVC SCHED 80 |
| 25 | 1" x 1/2" PVC BUSHING |

| | |
|----|--|
| 26 | 3/4" HOSE BIB WITH VACUUM BREAKER, NPT, SMOOTH END |
| 27 | 1/2" 90° ELL & 1/2" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT |
| 28 | 1/2" PVC SCHED 80 PIPE |
| 29 | 1/2" UNION, PVC SCHED 80 |
| 30 | 1/2" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS) |
| 31 | 3/8" PE VACUUM TUBING |
| 32 | BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.) |
| 33 | SS UNISTRUT PEDESTAL FOR CHLORINATION BOOSTER PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9" ABOVE FLOOR. |
| 34 | CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.) |
| 35 | WALL MOUNTED CHAIN BRACKET, INSTALL 40" ABOVE FLOOR, WITH SAFETY CHAIN |
| 36 | CHLORINE INJECTOR, WALLACE & TIERNAN S10K W/ 99D THROAT/TAIL PIECE (O.A.E.) W/ PVC/TEFLON DIAPHRAM VALVE ON VACUUM LINE WITH PEDESTAL. SUPPORT WITH UNISTRUTS. |
| 37 | CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL) |
| 38 | ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR |
| 39 | CHLORINE GAS DETECTOR SENSOR/TRANSMITTER, WALLACE & TIERNAN ACUTEC 35 W/ AUTOTEST (O.A.E.), MOUNTED 6" ABOVE FLOOR, LOCATION TBD BY ENGINEER IN FIELD. CHLORINE GAS DETECTOR RECEIVER, WALLACE & TIERNAN ACUTEC 35 (O.A.E.) LOCATION AS INDICATED IN ELECTRICAL PLANS OR TBD BY ENGINEER IN FIELD. |
| 40 | INSERTION DIFFUSER, MTE (O.A.E.) |
| 41 | VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.) |
| 42 | PRESSURE GAUGE, 0-250 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2" BALL VALVE, STAINLESS STEEL |
| 43 | PRESSURE GAUGE, 0-250 PSI WITH ISOLATION 1/4" SS BALL VALVE |
| 44 | LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT |
| 45 | 19 1/2" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER |
| 46 | 1/2" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI |
| 47 | 4" ORIFICE PLATE ASSEMBLY, CLAVAL X52E WITH 2" ORIFICE |

- NOTES:**
1. POSITION PRESSURE GAUGES SUCH THAT VIEW IS NOT OBSCURED BY OTHER EQUIPMENT IN FRONT.
 2. CONTRACTOR RESPONSIBLE TO PROVIDE ALL FITTINGS NECESSARY (SUCH AS BUSHINGS, FLANGES, ADAPTERS, NIPPLES, ETC.), WHETHER EXPLICITLY SHOWN OR NOT, TO COMPLETE THE INSTALLATION AS INDICATED.
 3. ALL 1" AND SMALLER PIPE TO BE SECURED WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS MOUNTED TO THE WALL. ALL UNISTRUTS ATTACHED TO WALL SHALL BE IN VERTICAL POSITION. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
 4. 6" MINIMUM SPACING BETWEEN SCHED 80 PVC GLUED FITTINGS, UNLESS UNION IS PRESENT.
 5. ALL BOLTS, NUTS AND WASHERS IN CHEMICAL ROOM SHALL BE 316 SS.
 6. ALL VALVES WHICH MAY DISCHARGE WATER (CONTROL VALVE AND PRESSURE RELEASE VALVE) SHALL HAVE 1/2" GI DISCHARGE PIPE FROM VALVE OUTLET TO FLOOR DRAIN. DISCHARGE PIPING SHALL BE ROUTED ALONG WALL TO AVOID BLOCKING ACCESS TO OTHER COMPONENTS AND SHALL BE ATTACHED TO WALL WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS FOR SUPPORT. PAINT GI PIPE BLUE. DISCHARGE PIPING NOT SHOWN FOR CLARITY.
 7. ALL MATERIALS SHALL BE RATED TO AT LEAST 125 psi, UNLESS OTHERWISE NOTED.
 8. ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON).
 9. ALL BURIED PIPE WITHIN 5 FT OF BUILDING SHALL BE DUCTILE IRON, 350 psi WP, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
 10. BURIED DUCTILE IRON PIPE FOR DRAINS AND PIPE PENETRATIONS SHALL BE AWWA C-209 COLD-APPLIED TAPE-COATED PER SPECIFICATIONS ABOVE THE BURIED ELL. ALL OTHER BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE TWO-PART EPOXY-COATED, PER SPECIFICATIONS.
 11. ALL STEEL COMPONENTS IN THE CHEMICAL ROOM SHALL BE SS 316, UNLESS OTHERWISE NOTED.
 12. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
 13. CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, GRAFFITI PROOFER GPA-300, TO EXTERIOR OF BUILDING.

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Chlor System Details.dwg
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Client: The Navajo Nation
Location: Coyote Canyon, NM

CHLORINATION SYSTEM DETAILS (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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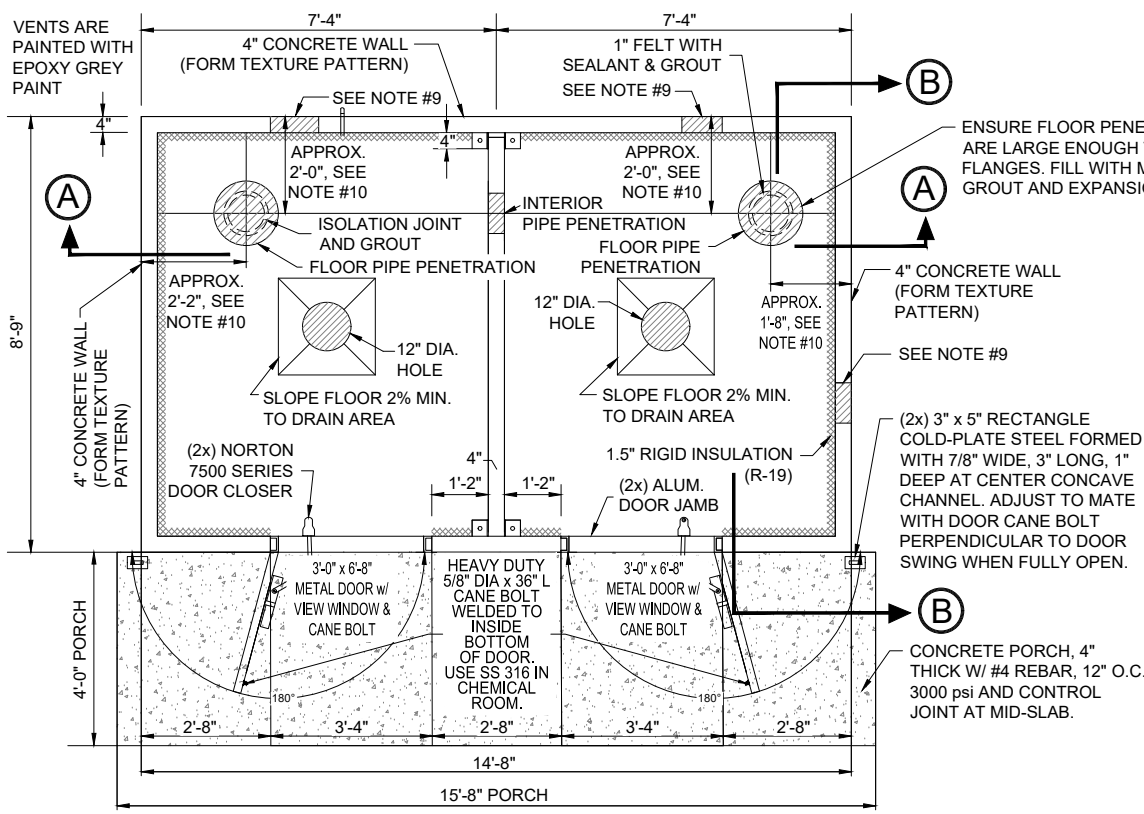
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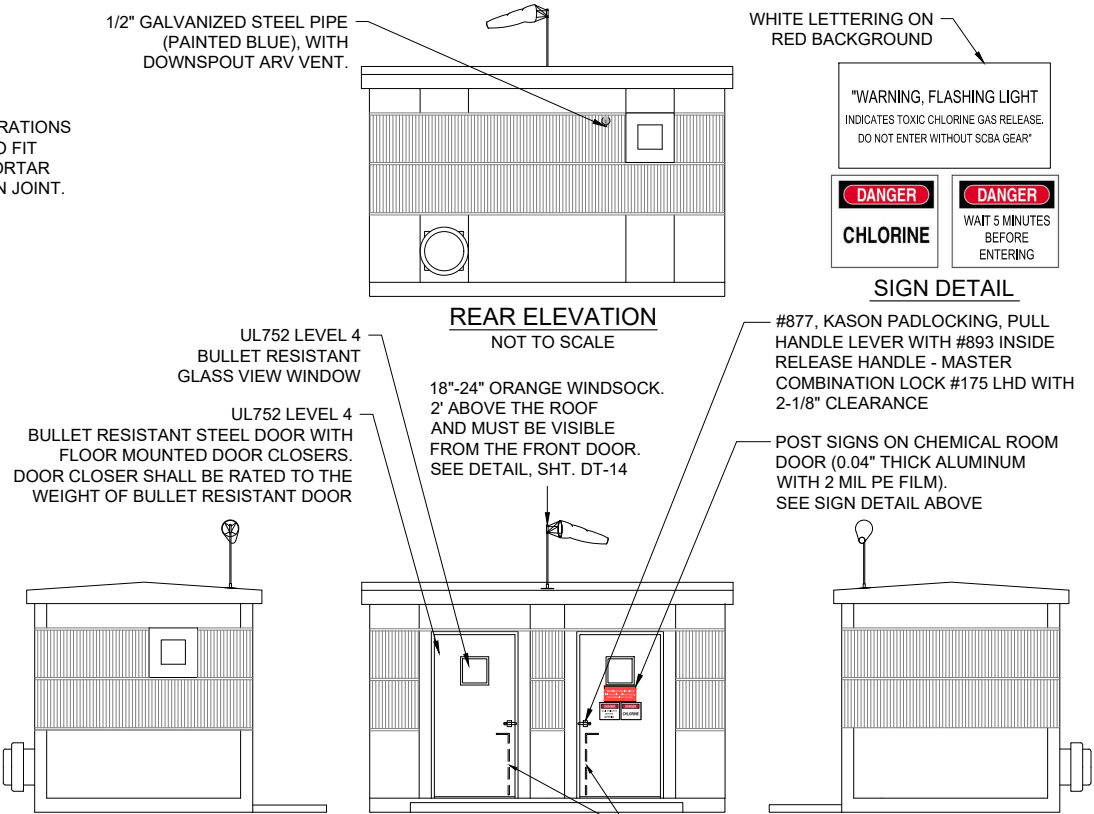
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Project No: 6922268
Sheet: DT-12

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PLAN VIEW OF BUILDING
NOT TO SCALE



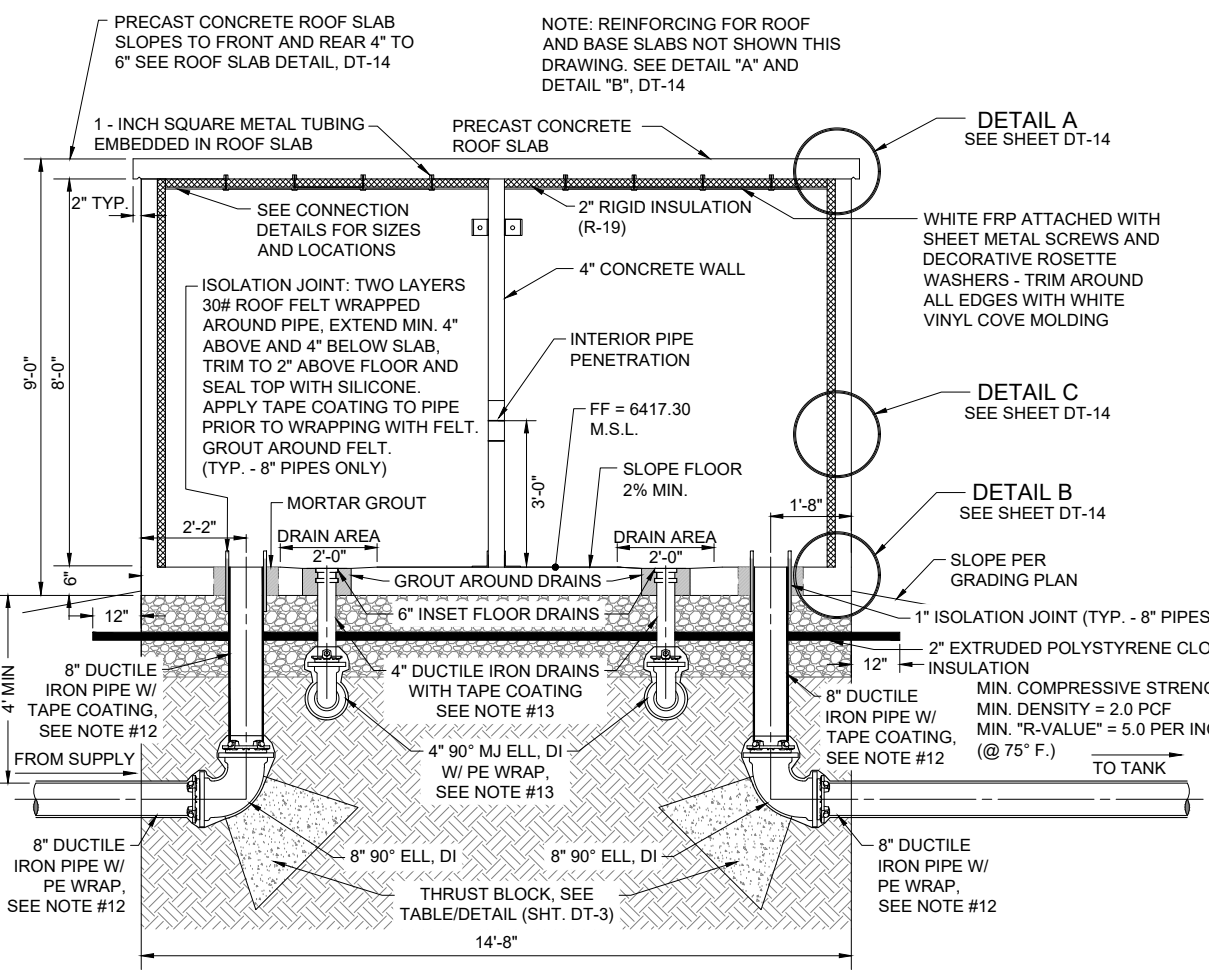
LEFT SIDE ELEVATION
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FRONT ELEVATION
NOT TO SCALE

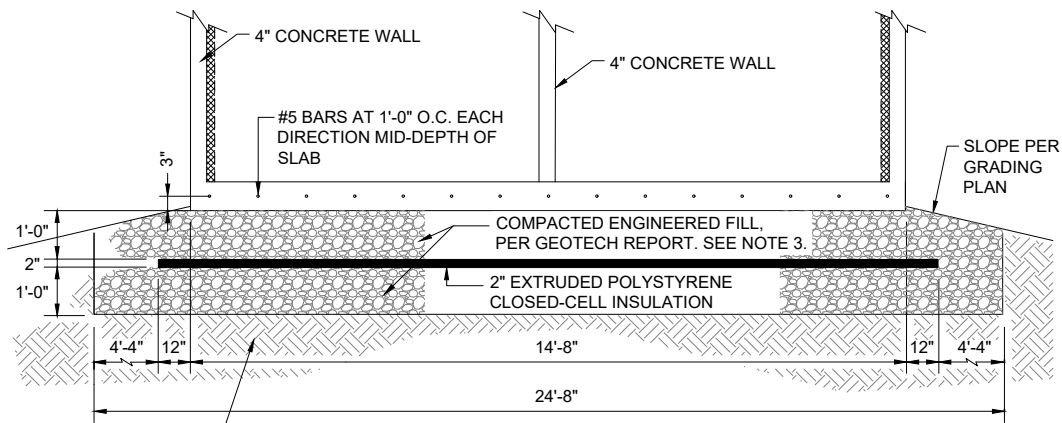
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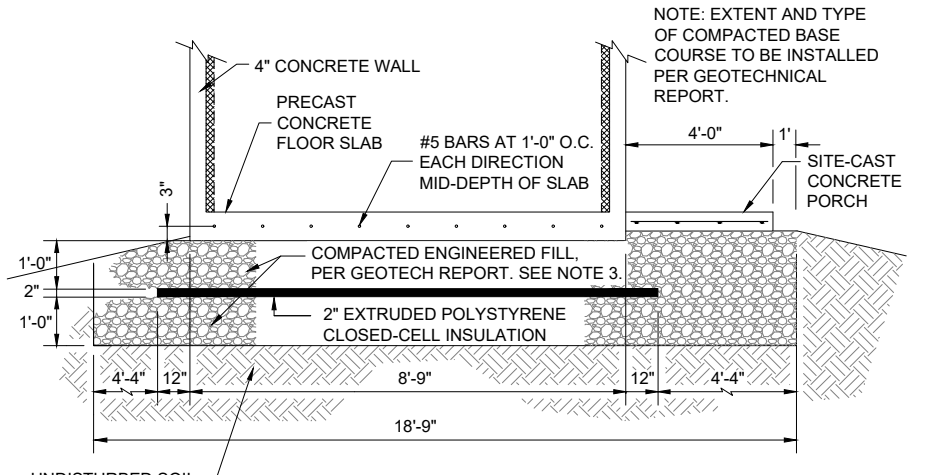
SIGN DETAIL



ELEVATION VIEW OF BUILDING AND UNDERGROUND PIPING
NOT TO SCALE



SECTION A-A LONGITUDINAL
NOT TO SCALE



SECTION B-B TRANSVERSE
NOT TO SCALE

NOTES

1. THE GOVERNING CODE IS THE INTERNATIONAL BUILDING CODE, MOST RECENT EDITION.
2. MINIMUM DESIGN LIVE LOADS SHALL BE:
25 PSF - ROOF SNOW LOAD
25 PSF - HORIZONTAL WIND LOAD
35 PCF - EQUIVALENT BACKFILL FLUID PRESSURE
SEISMIC ZONE II REQUIREMENTS
3. BUILDING FOUNDATION, SUB-FOUNDATION, AND SITE GRADING SHALL BE PROVIDED AS SPECIFIED IN GEOTECHNICAL REPORT, PROVIDED AS APPENDIX TO CONTRACT DOCUMENTS. REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.
4. ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE V (ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 5% (±1%) AIR ENTRAINMENT 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.
5. PRECAST CONCRETE COMPONENTS SHALL BE CERTIFIED BY THE SUPPLIER TO HAVE ATTAINED A MINIMUM STRENGTH OF 3,000 PSI AT TRANSPORT TIME WITH FINAL CONCRETE STRENGTH TO BE AT LEAST 3,500 PSI WITHIN 28 DAYS. VERIFICATION OF CONCRETE STRENGTH SHALL BE PROVIDED BY THE SUPPLIER UPON REQUEST AND SHALL BE CONFIRMED THROUGH CYLINDER BREAKS FROM NORMAL PRODUCTION PROCEDURES AND IN-HOUSE QUALITY CONTROL. A SET OF FOUR (4) CYLINDERS SHALL BE TAKEN AT RANDOM IN THE PLANT NOT LESS THAN ONCE DURING EACH WEEK OF PRODUCTION.
6. CONCRETE REINFORCING STEEL SHALL BE ASTM A-615 BILLET BARS, GRADE 40. BARS SHALL BE LAPPED AT LEAST THIRTY (30) BAR DIAMETERS AT SPLICES AND CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING.
7. STRUCTURAL STEEL, EMBEDMENT STEEL, AND CONNECTIONS SHALL CONFORM TO ASTM A-36. ALL EXPOSED STEEL PLATES AND CONNECTIONS SHALL BE PAINTED WITH ONE FIELD COAT OF COMPATIBLE PRIMER AND ONE COAT OF EPOXY PAINT.
8. FIELD WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO STANDARDS OF THE AMERICAN WELDING SOCIETY FOR WELDING IN BUILDING CONSTRUCTION.
9. ALL DOOR FRAMES, FAN AND VENT ASSEMBLIES AND SLAB PENETRATION SHALL BE CAST INTO THEIR RESPECTIVE SLABS.
10. CONTRACTOR RESPONSIBLE TO DETERMINE SPACE REQUIREMENTS FOR PLUMBING TRAIN, AS WELL AS EXHAUST FAN, VENTS, AND ELECTRICAL CONDUITS, AND SUBMIT SHOP DRAWINGS OF BUILDING, INCLUDING LOCATIONS AND SIZES OF FLOOR, EXTERIOR WALL AND INTERIOR WALL PENETRATIONS, FOR ENGINEER'S APPROVAL PRIOR TO FABRICATING PRE-CAST CONCRETE BUILDING. ADEQUATE WALL CLEARANCE SHALL BE PROVIDED FOR O&M OF ALL FLANGES, VALVES AND OTHER APPURTENANCES.
11. ALL BURIED PIPE WITHIN 5 FEET OF BUILDING SHALL BE DUCTILE IRON, 350 PSI, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
12. 8" DUCTILE IRON PIPE, TWO-PART EPOXY-COATED AND MORTAR LINED. COLD APPLIED TAPE-COATED PER SPECIFICATIONS FROM TOP OF FLOOR TO BURIED ELL. DOUBLE WRAP WITH POLYETHYLENE FROM ABOVE ELL TO PVC TRANSITION BEYOND FOUNDATION (TYP.).
13. 4" DUCTILE IRON DRAIN LINE, TWO-PART EPOXY-COATED AND MORTAR LINED. COLD APPLIED TAPE-COATED PER SPECIFICATIONS FROM INSET DRAIN TO BURIED ELL. DOUBLE WRAP WITH POLYETHYLENE FROM ABOVE ELL TO PVC TRANSITION BEYOND FOUNDATION (TYP.).
14. CONTRACTOR RESPONSIBLE FOR LOCATING AND DETERMINING ELECTRICAL CONDUIT PENETRATIONS.

Client: The Navajo Nation
Location: Coyote Canyon, NM

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CHLORINATION BUILDING AND PIPING
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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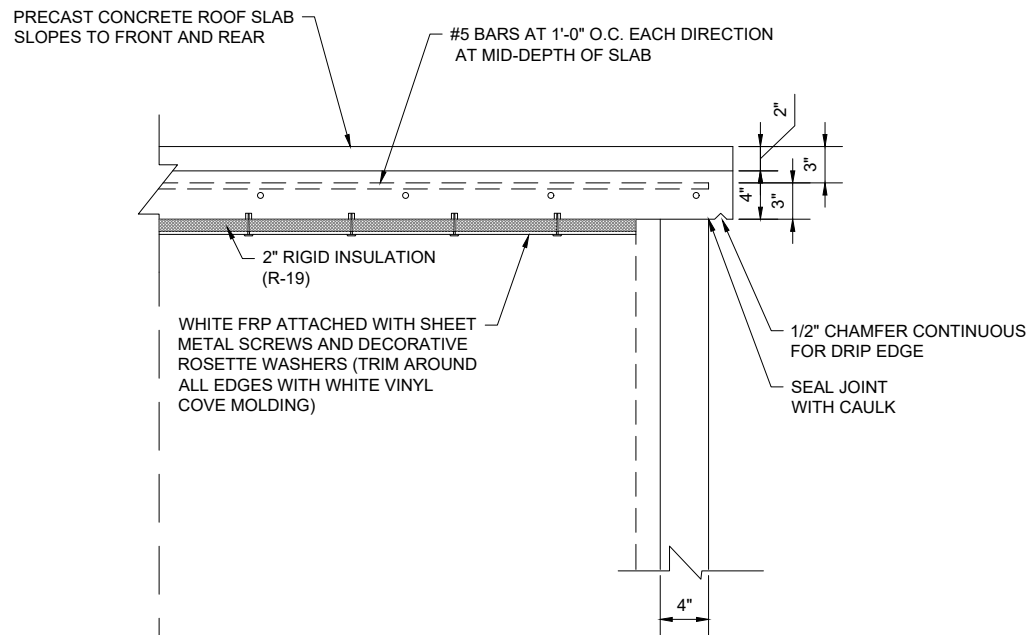
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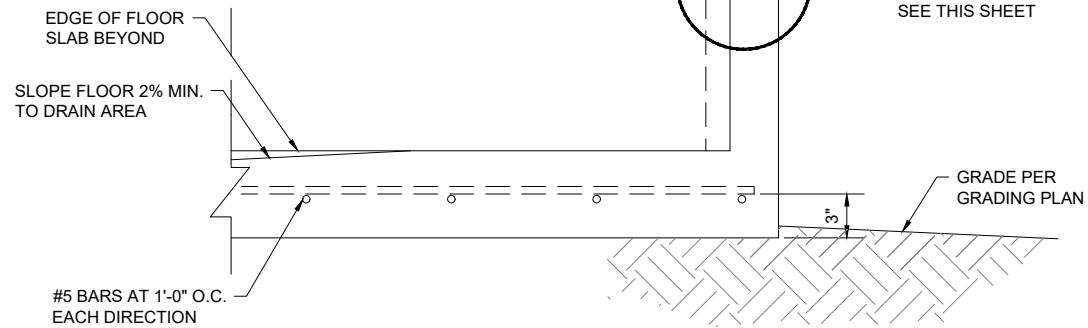
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Vert: N/A
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Sheet: DT-13

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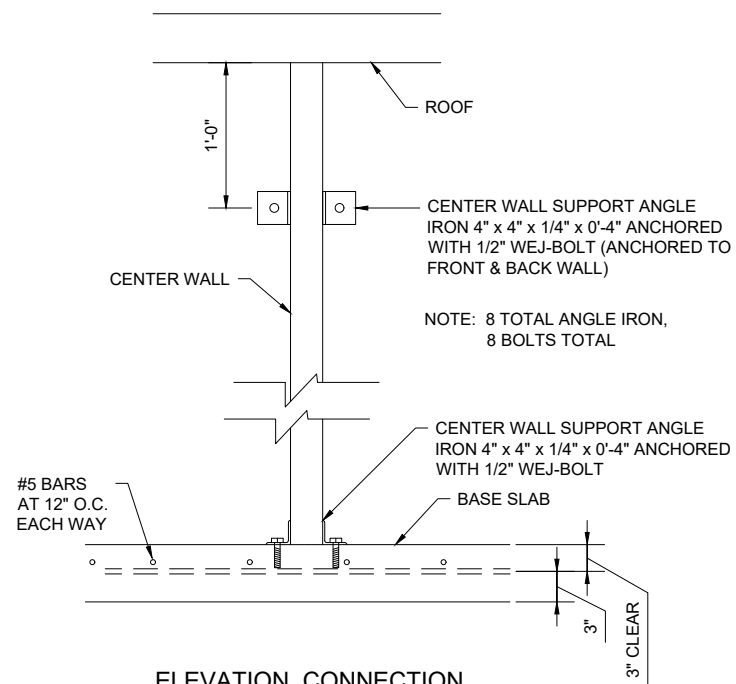


**ROOF CONNECTION
DETAIL A**
NOT TO SCALE

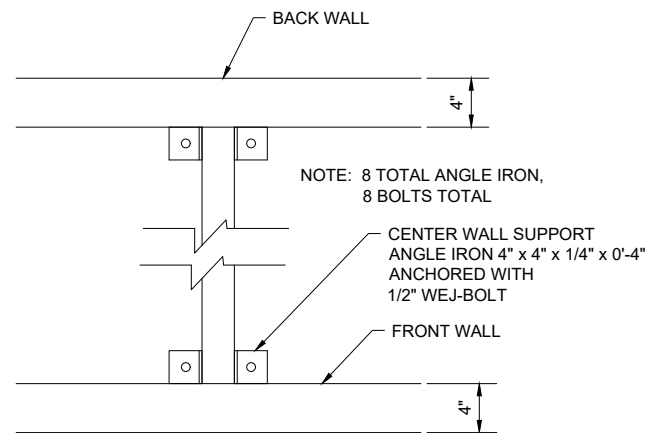


**FLOOR CONNECTION
DETAIL B**
NOT TO SCALE

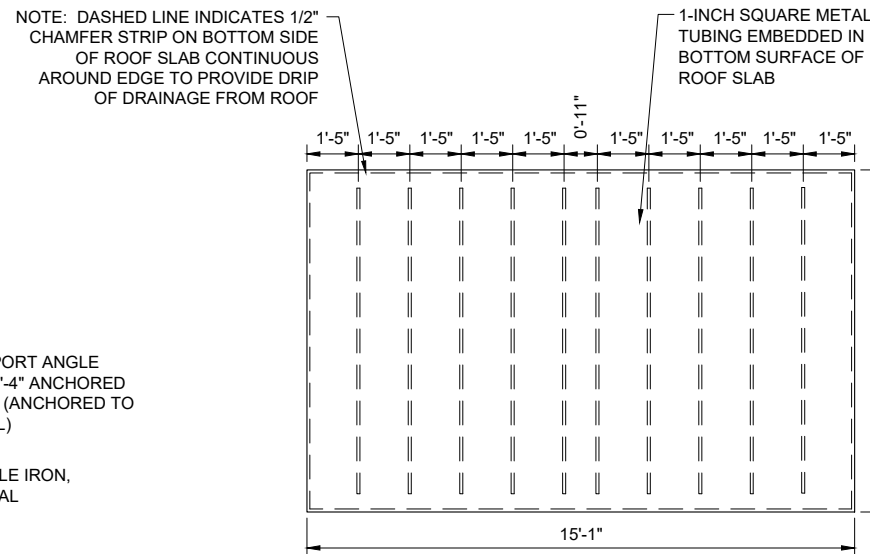
NOTE: REBAR AT LIFT JOINTS ARE #6 REBAR, 12" SEPARATION, CENTERED ON LIFT POINTS. REBARS ARE CENTERED THE ENTIRE LENGTH AND WIDTH OF SLAB (BOTH DIRECTIONS OF EACH LIFT POINT)



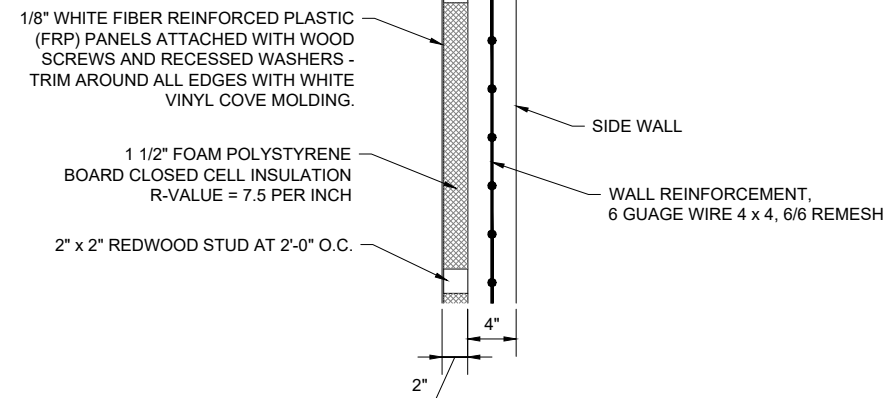
**ELEVATION CONNECTION
ANGLE IRON
AT CENTER WALL**
NOT TO SCALE



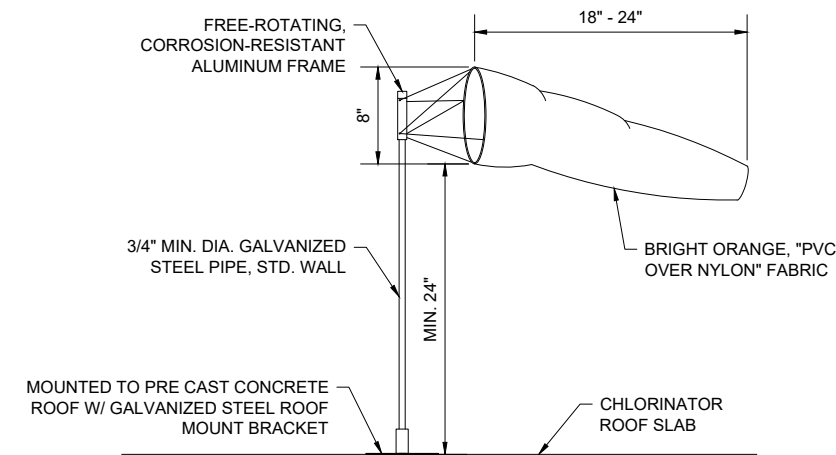
**PLAN CONNECTION
ANGLE IRON
AT CENTER WALL**
NOT TO SCALE



ROOF SLAB
NOT TO SCALE



**WALL SECTION
DETAIL C**
NOT TO SCALE



WIND SOCK DETAIL
NOT TO SCALE

| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM

CHLORINATION BUILDING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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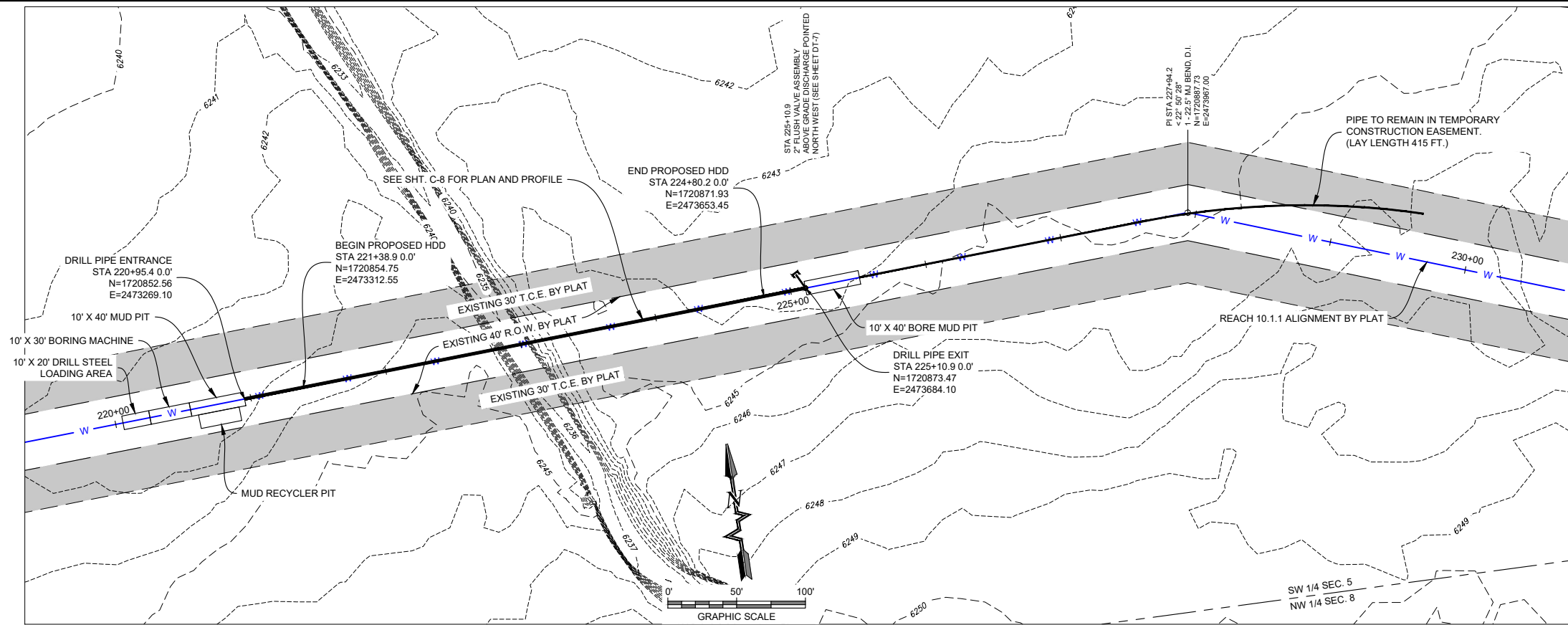
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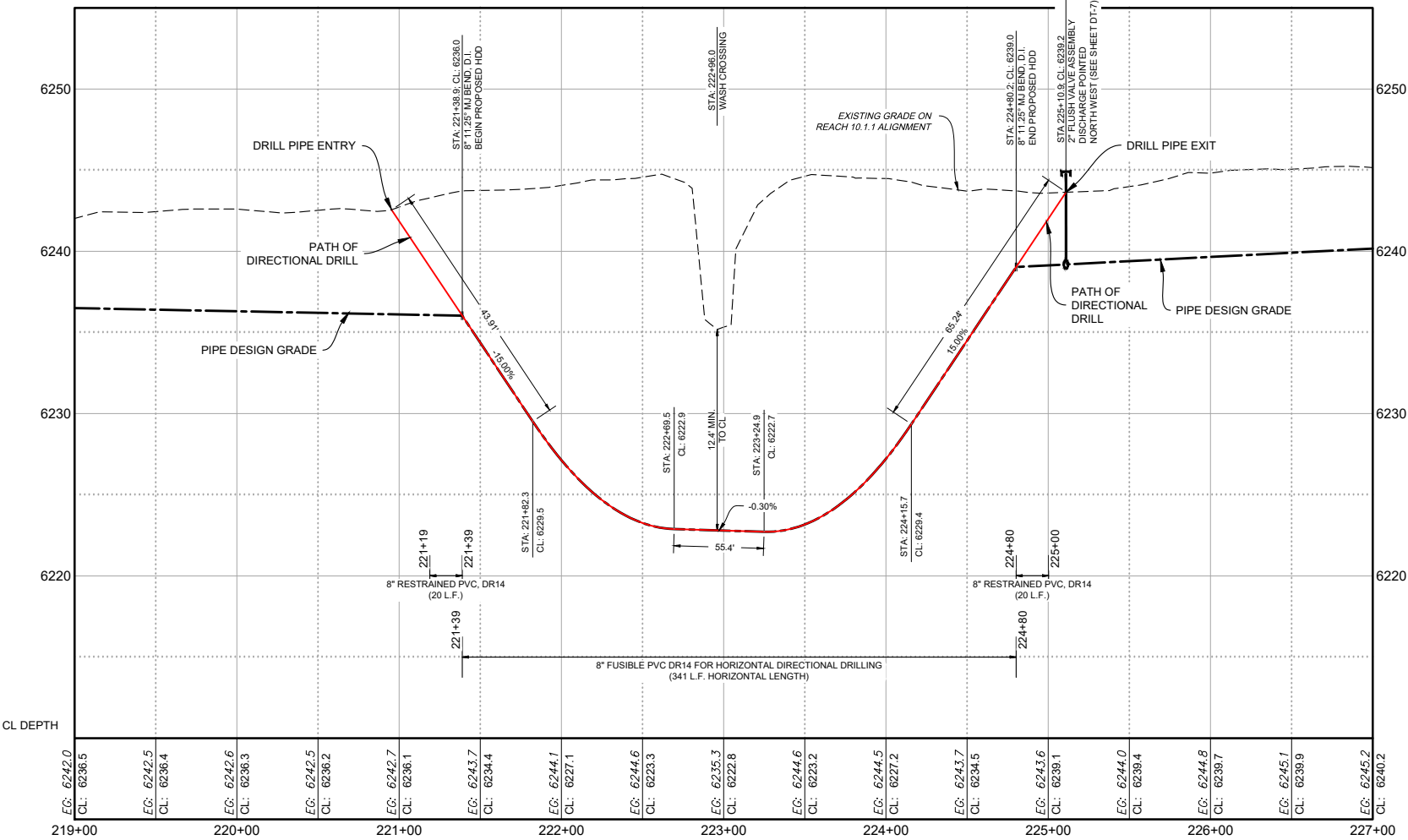
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Project No: 6922268
Sheet: **DT-14**



PLAN VIEW
8" WATERLINE



PROFILE VIEW
8" WATERLINE

NOTES:
1. MINIMUM ALLOWABLE BEND RADIUS = 600'
2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

| Revision | Date | Description |
|----------|------|-------------|
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
WASH CROSSING STA 222+96 HDD BORE DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 5, T. 17 N., R. 17 W.

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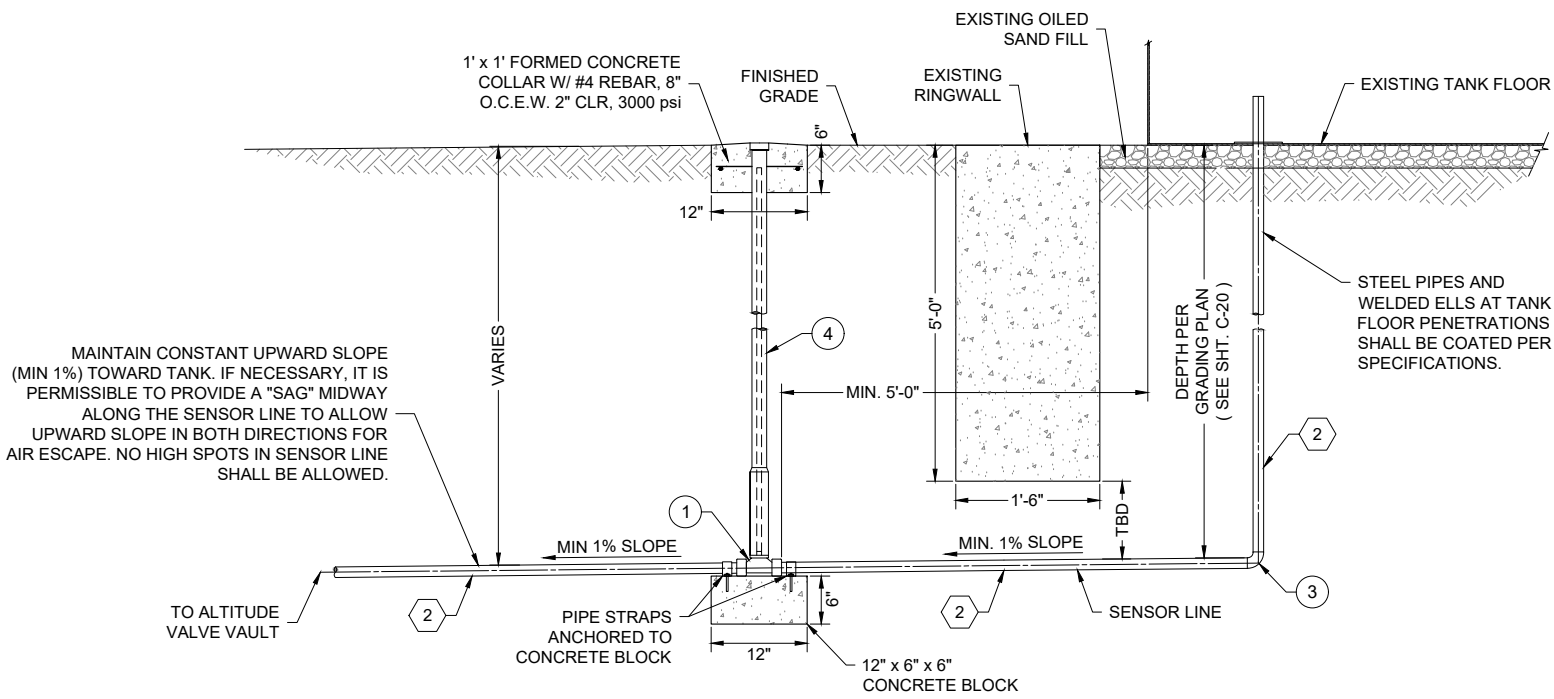
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Date: March 2022
 Scale: Horiz: 1" = 100'
 Vert: 1" = 10'
 Project No: 6922268
 Sheet: **DT-15**

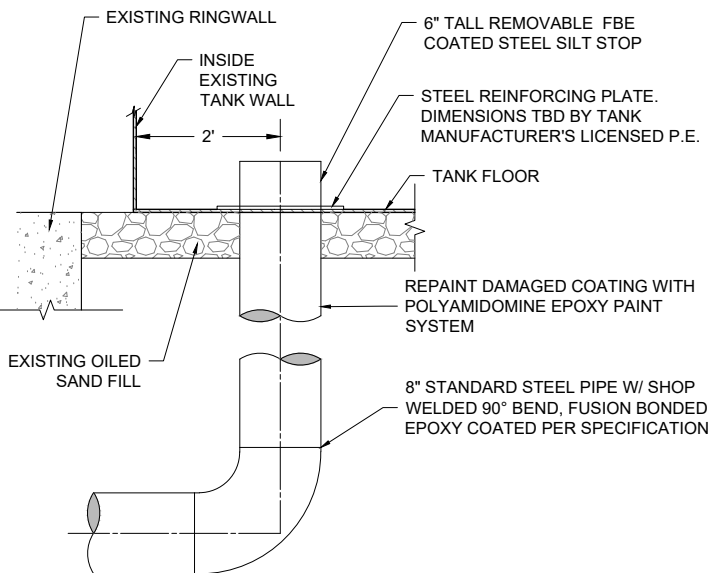
KEYED NOTES - 1" SENSOR LINE CONNECTION

| Item No. | Description |
|----------|---|
| 1 | 1" CURB STOP, NPT (COVER PAINTED BLUE) |
| 2 | 1" STEEL PIPE, NPT, SCHEDULE 40 (SEE NOTE #2, THIS SHEET) |
| 3 | 1" 90° ELL, WELDED STEEL (SEE NOTE #2, THIS SHEET) |
| 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 |

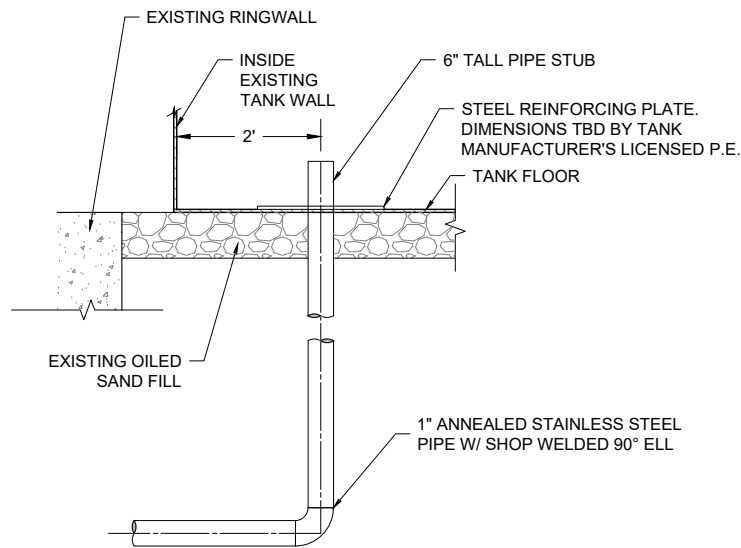
- NOTES:**
- ALL MATERIALS, FITTINGS, AND APPURTENANCES SHALL BE RATED TO AT LEAST 150 psi, UNLESS OTHERWISE NOTED.
 - STEEL PIPES AND FITTINGS SHALL BE INTERIOR COATED SAME AS TANK INTERIOR AND EXTERIOR COATED WITH COAL TAR EPOXY.
 - ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL, UNLESS OTHERWISE NOTED.



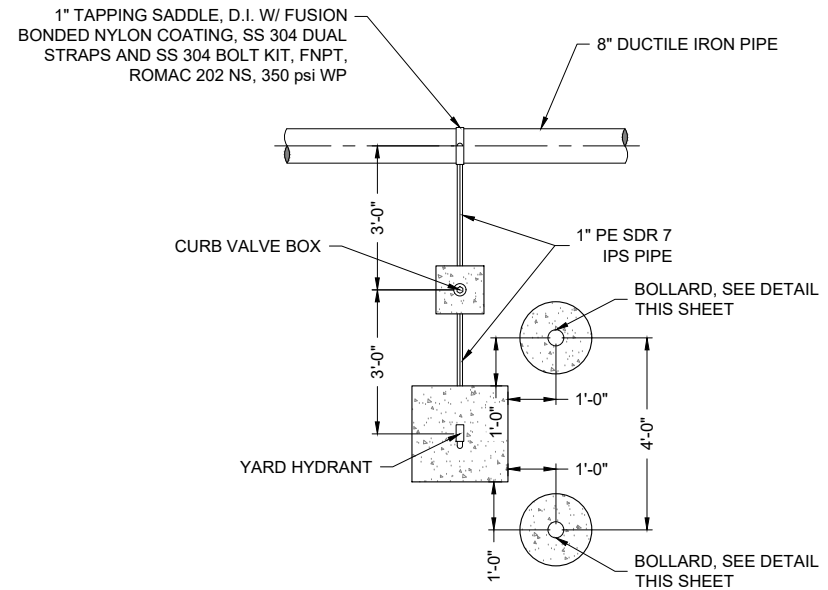
1" TYPICAL SENSOR LINE CONNECTION TO TANK
NOT TO SCALE



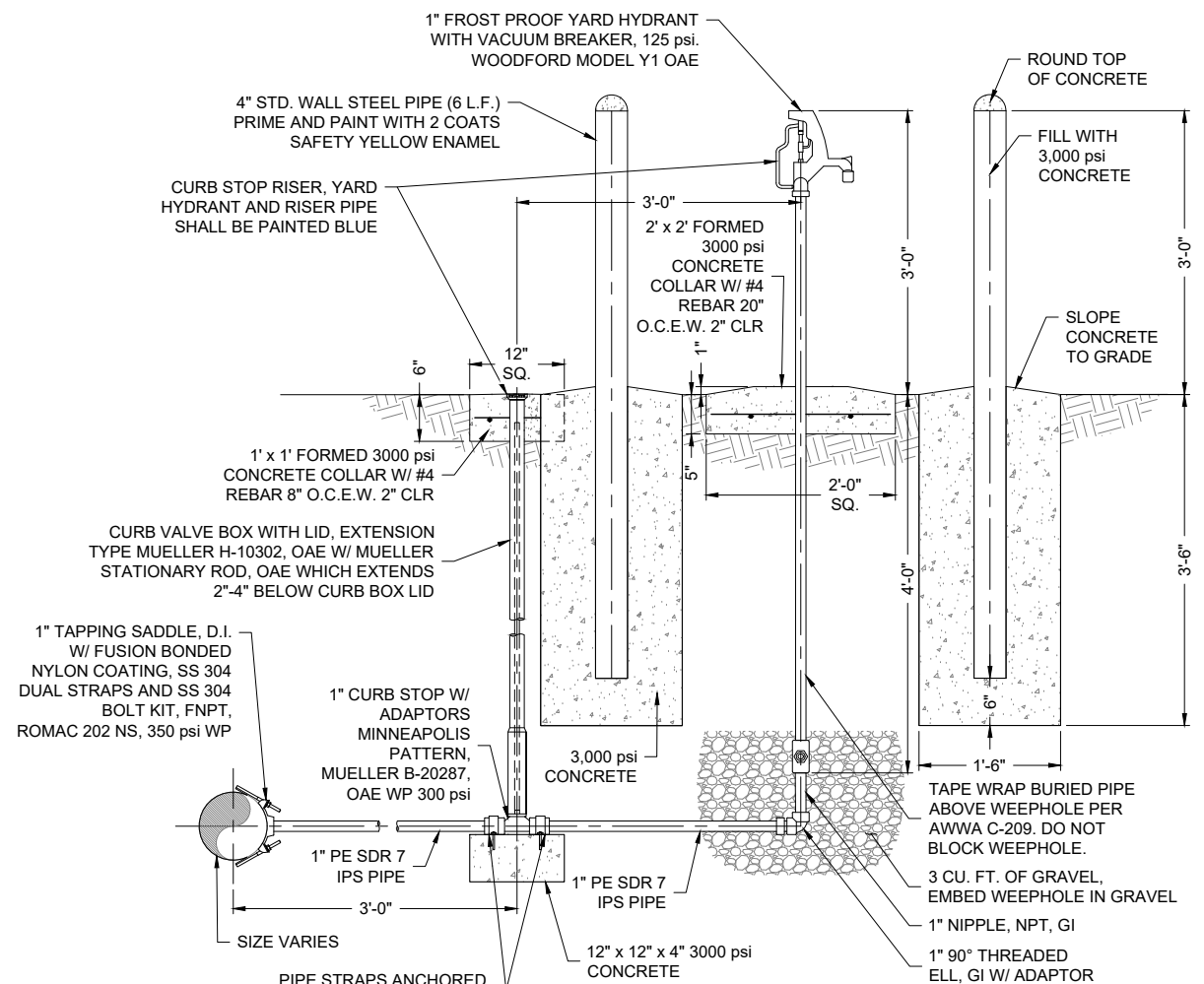
8" INLET DETAIL
NOT TO SCALE



1" SENSOR LINE DETAIL
NOT TO SCALE



YARD HYDRANT AND ASSEMBLY PLAN VIEW DETAIL
NOT TO SCALE



YARD HYDRANT AND ASSEMBLY DETAIL
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Client: The Navajo Nation
Location: Coyote Canyon, NM
TANK PENETRATION, SENSOR LINE & HYDRANT DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
McKinley County, New Mexico

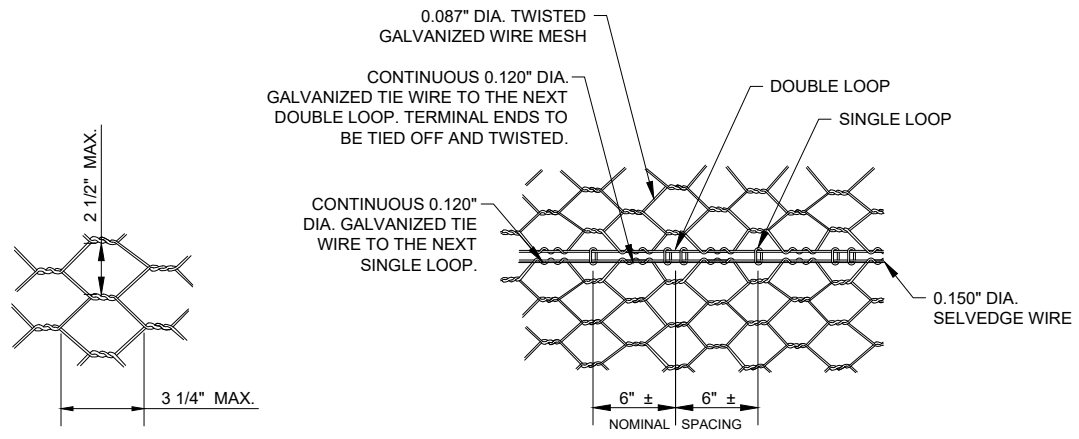
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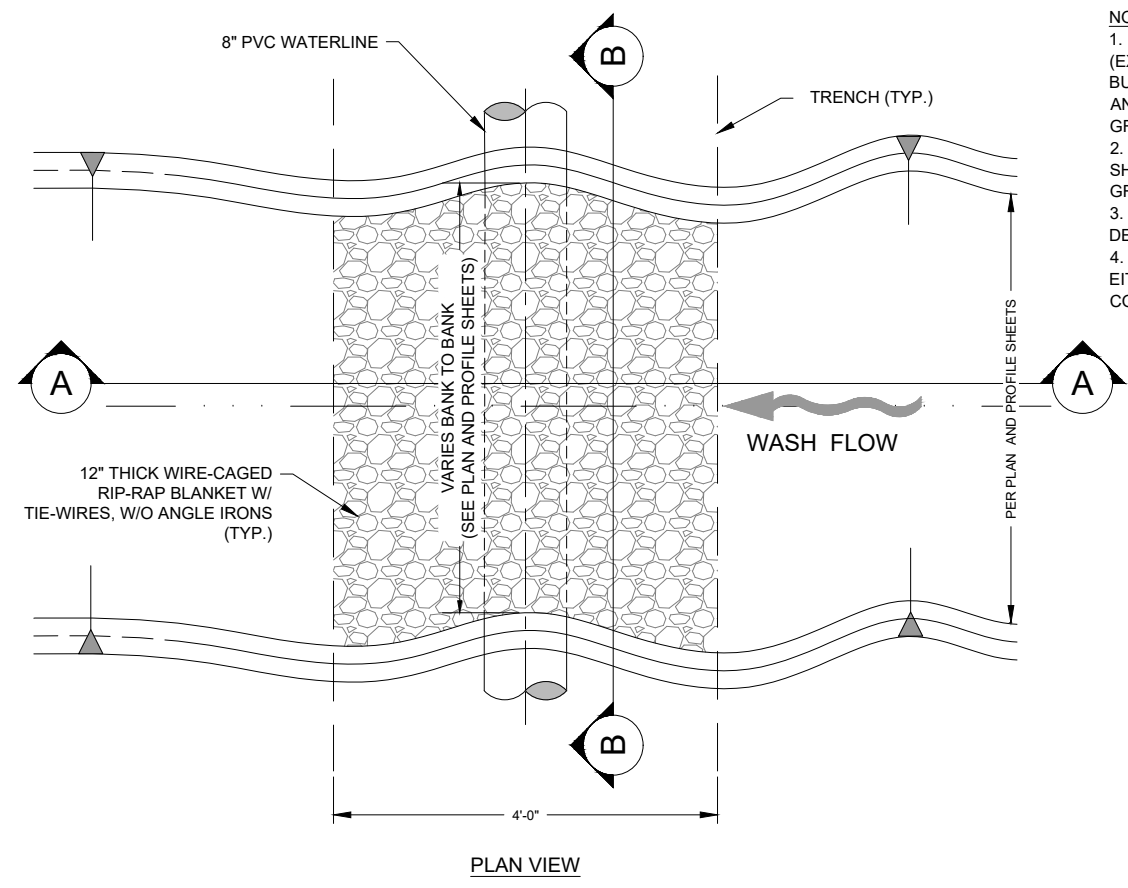
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Project No: 6922268
Sheet: **DT-16**



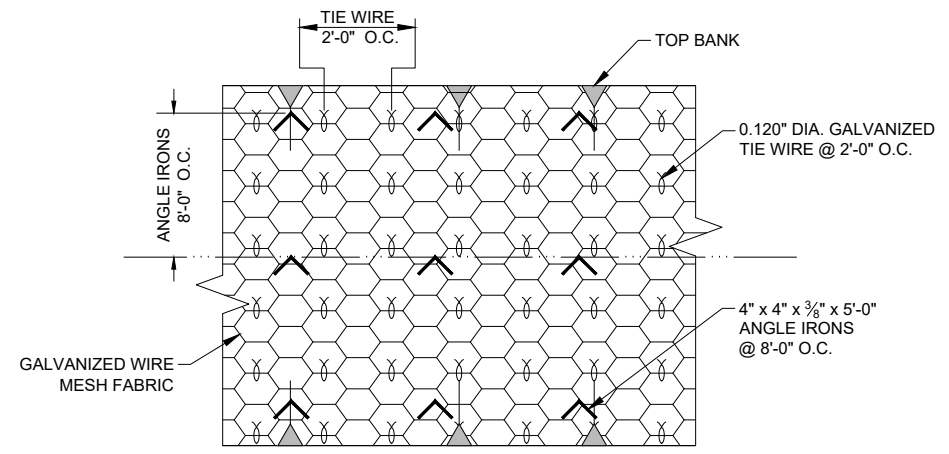
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NOT TO SCALE

STANDARD JOINT CONNECTION DETAIL
NOT TO SCALE

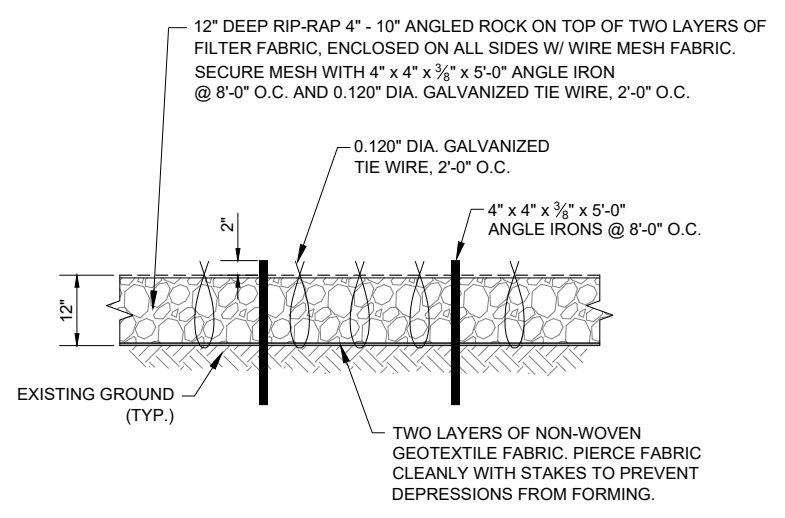


PLAN VIEW

- NOTE:**
1. FOR RIP-RAP BLANKETS IN NATURAL WATERWAYS (EXCEPT FLUSH VALVE OUTLETS), BLANKET SHALL BE BURIED AS SHOWN. COVER BLANKET WITH NATURAL SOIL AND REGRADE TO RESTORE WASH FLOWLINE TO NATURAL GRADE.
 2. RIP-RAP BLANKETS AT SITES AND FLUSH VALVE OUTLETS SHALL BE INSTALLED FLUSH WITH SURROUNDING FINISHED GRADE.
 3. FINAL QUANTITIES, DIMENSIONS AND LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER.
 4. FOR ALL WASH CROSSINGS AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION

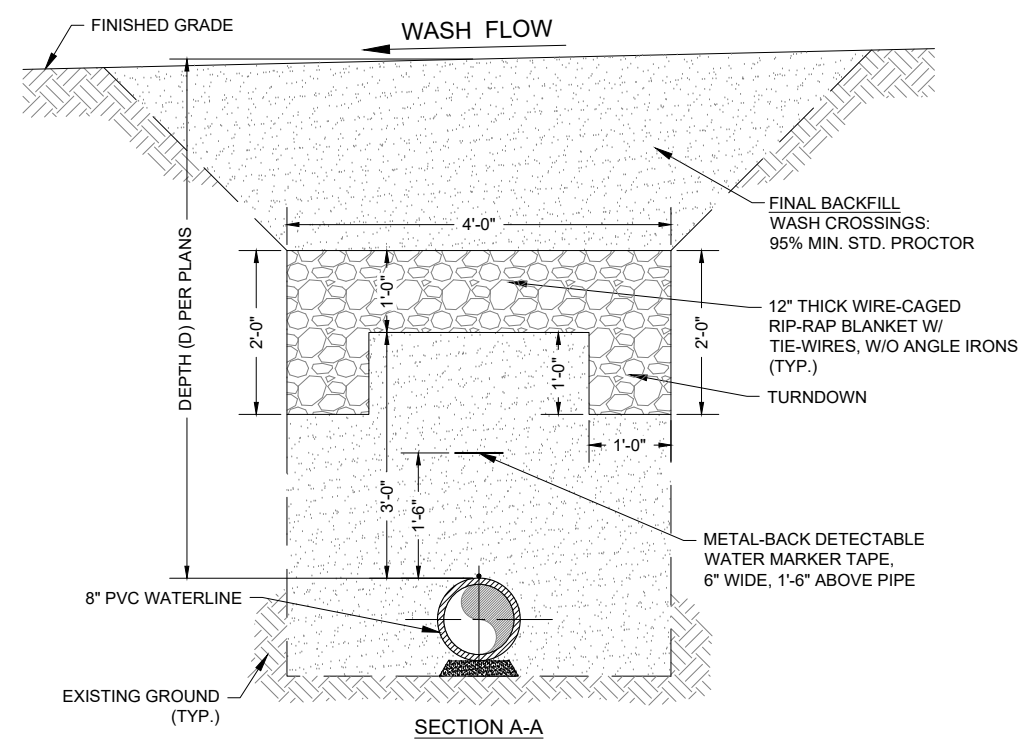


TYP. 12" RIP-RAP CAGE & ANCHORING
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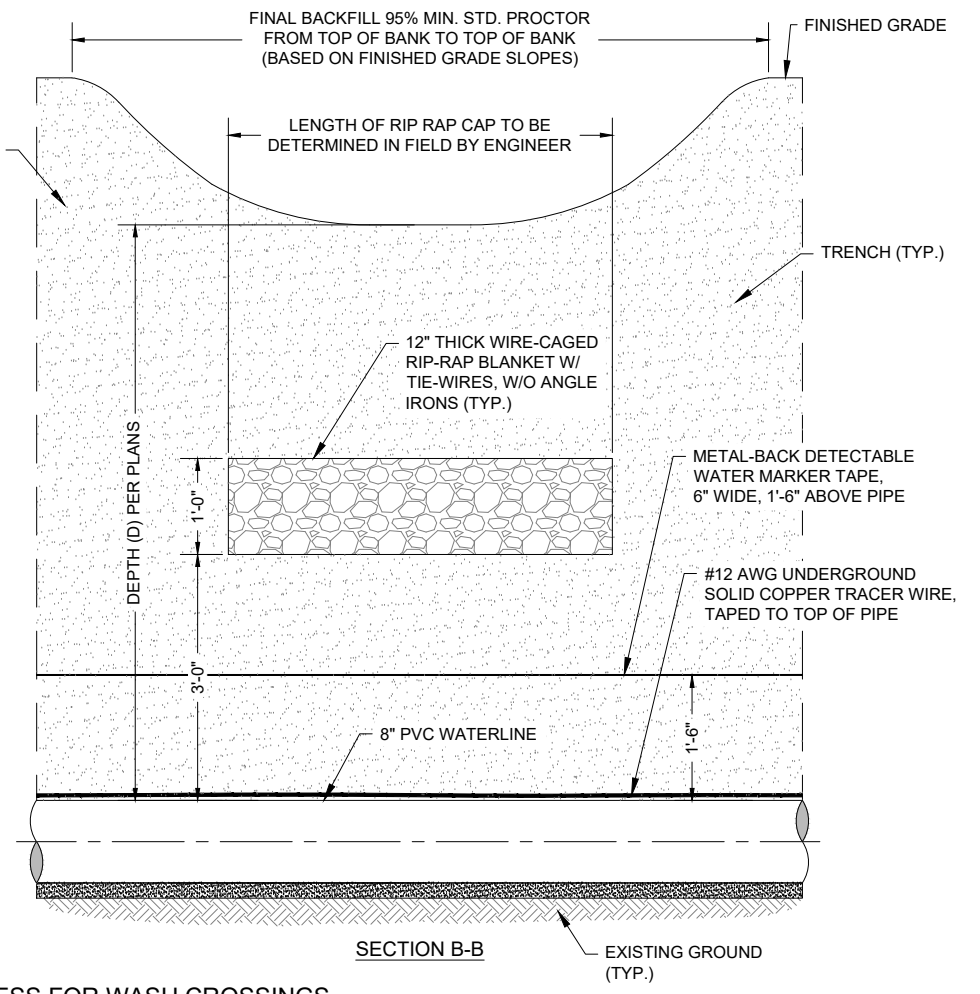
CROSS SECTION

TYPICAL 12" RIP-RAP DETAIL
NOT TO SCALE



SECTION A-A

TYPICAL BURIED 12" RIP-RAP MATTRESS FOR WASH CROSSINGS
NOT TO SCALE



SECTION B-B

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 Erosion Control Details.dwg 3/15/2022 2:11:46 PM anv

Client: The Navajo Nation
Location: Coyote Canyon, NM

EROSION CONTROL DETAILS (1 OF 3)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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| TTT | AAV | JMG |

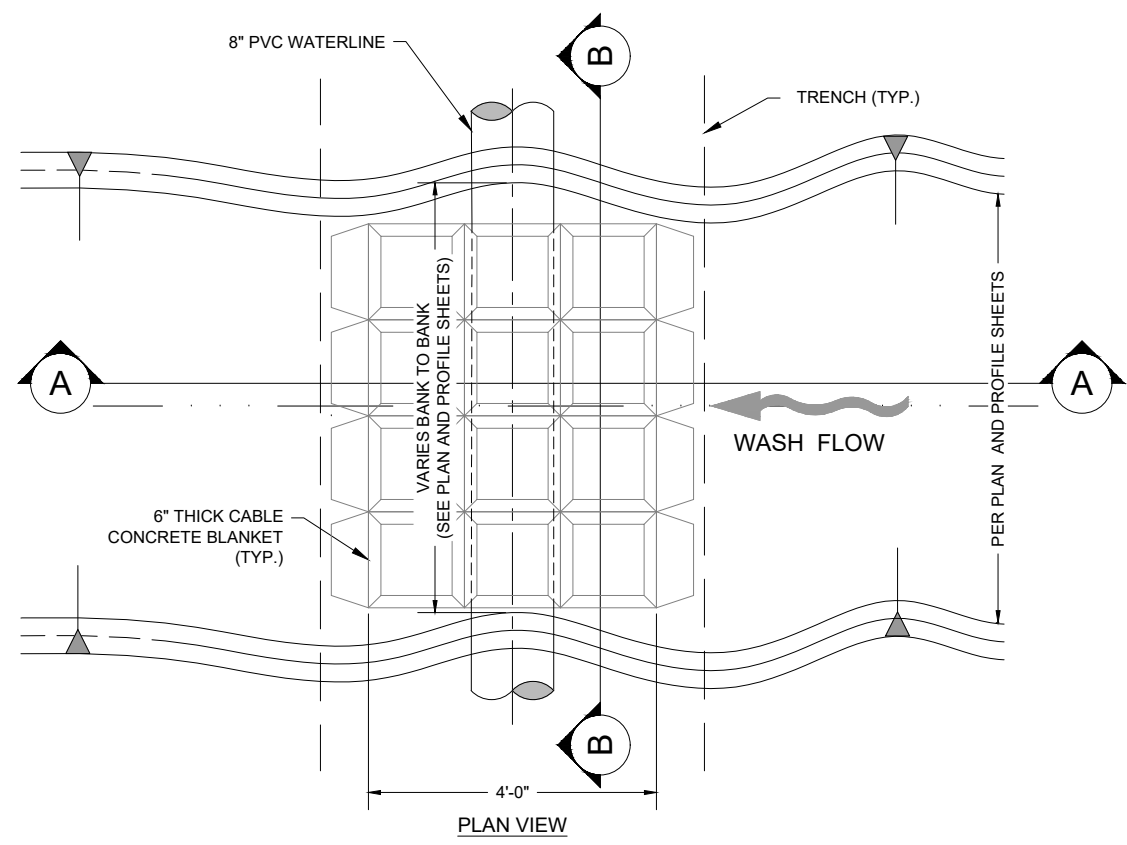
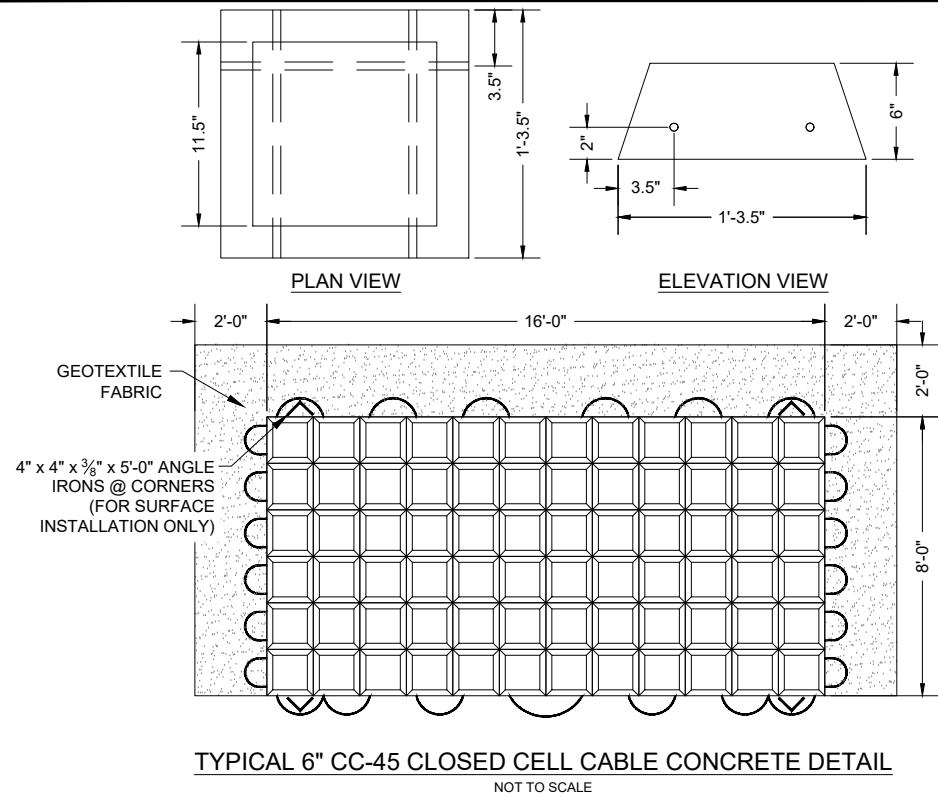
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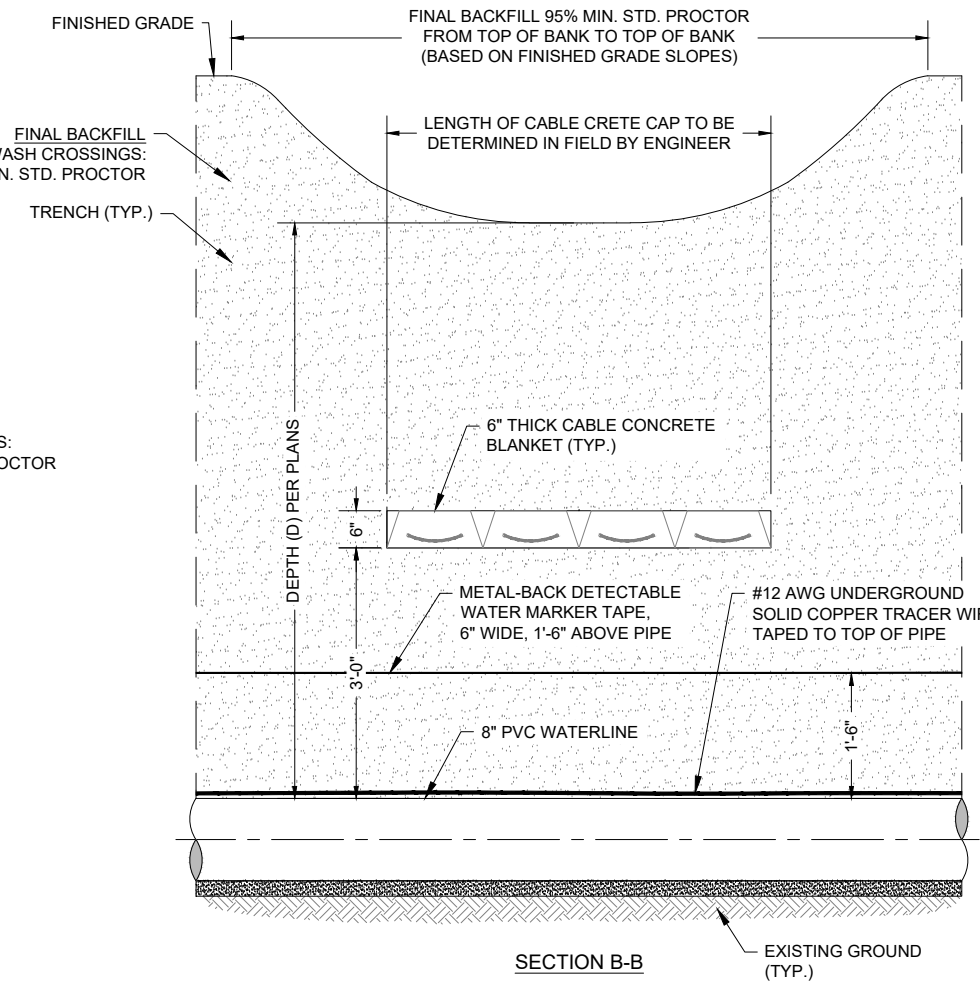
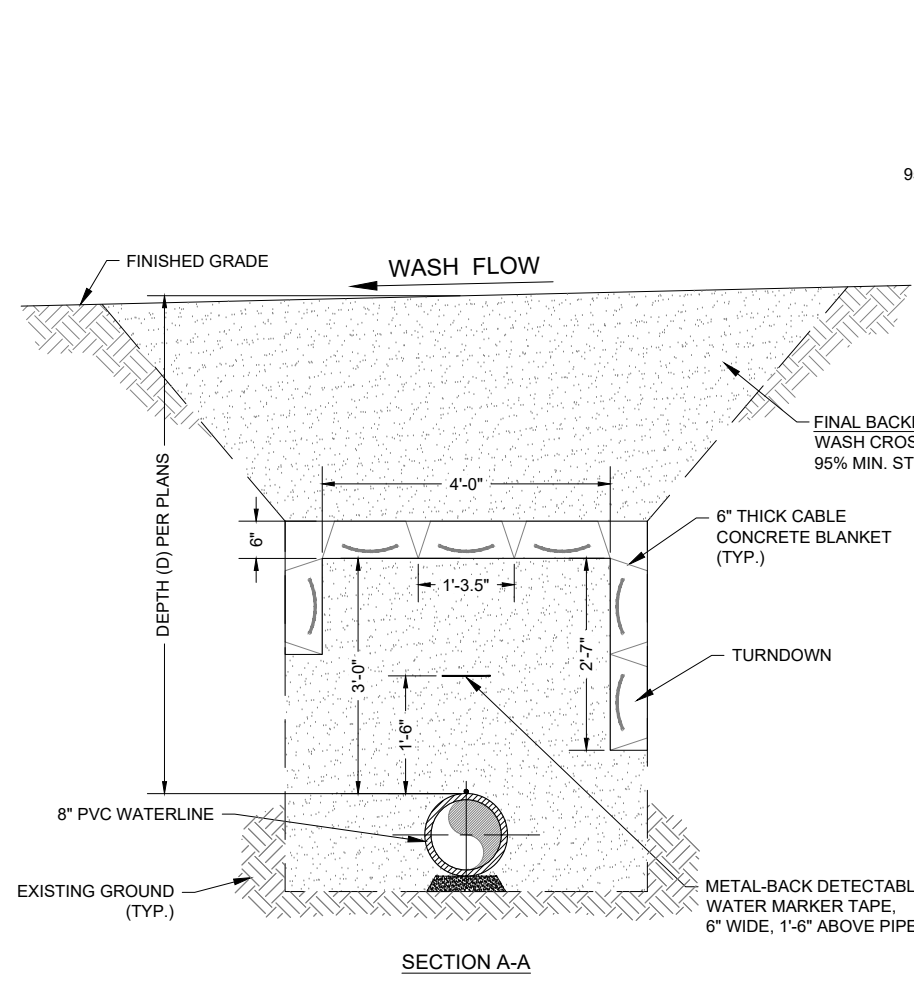
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Project No: 6922268
Sheet: DT-17

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NOTE:
 1. FOR CABLE CONCRETE BLANKETS IN NATURAL WATERWAYS (EXCEPT FLUSH VALVE OUTLETS), BLANKET SHALL BE BURIED AS SHOWN. COVER BLANKET WITH NATURAL SOIL AND REGRADE TO RESTORE WASH FLOWLINE TO NATURAL GRADE.
 2. CABLE CONCRETE BLANKETS AT SITES AND FLUSH VALVE OUTLETS SHALL BE INSTALLED FLUSH WITH SURROUNDING FINISHED GRADE.
 3. FINAL QUANTITIES, DIMENSIONS AND LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER.
 4. FOR ALL WASH CROSSINGS AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION.



TYPICAL BURIED 6" CABLE CONCRETE MATTRESS FOR WASH CROSSINGS
NOT TO SCALE

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
 EROSION CONTROL DETAILS (2 OF 3)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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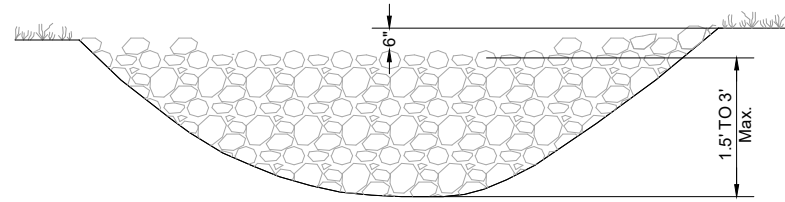
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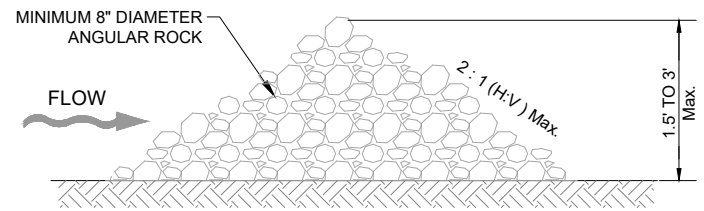
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Date: March 2022
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 Vert: N/A
 Project No: 6922268
 Sheet: DT-18

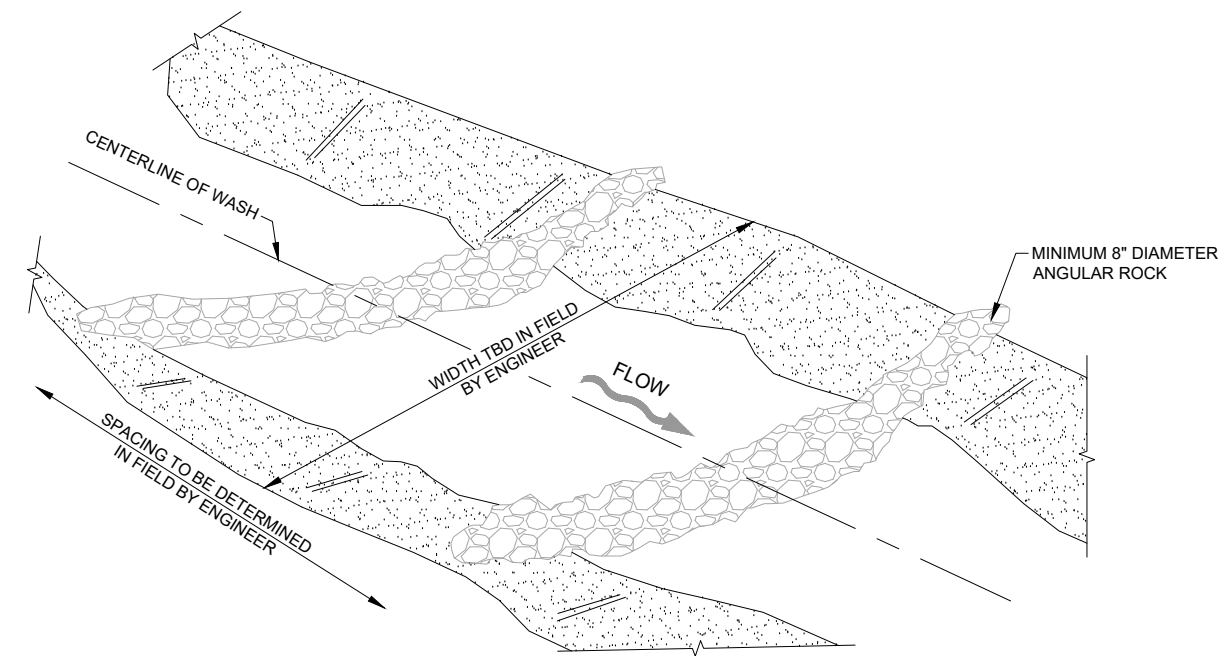
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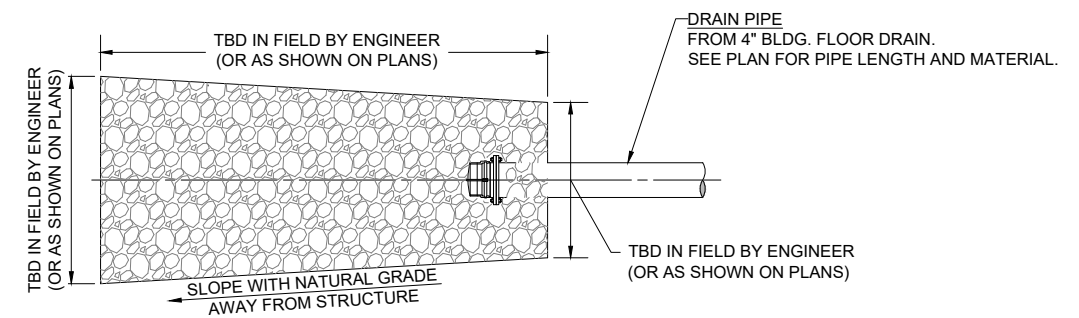
ELEVATION VIEW



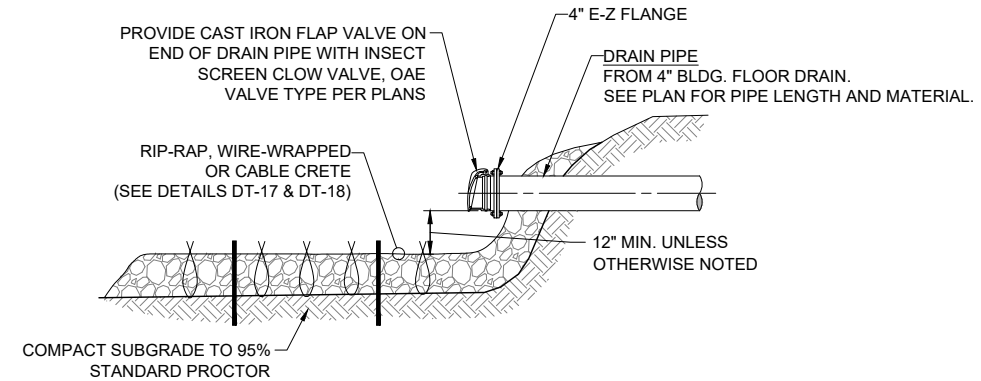
TYPICAL ROCK DAM SECTION



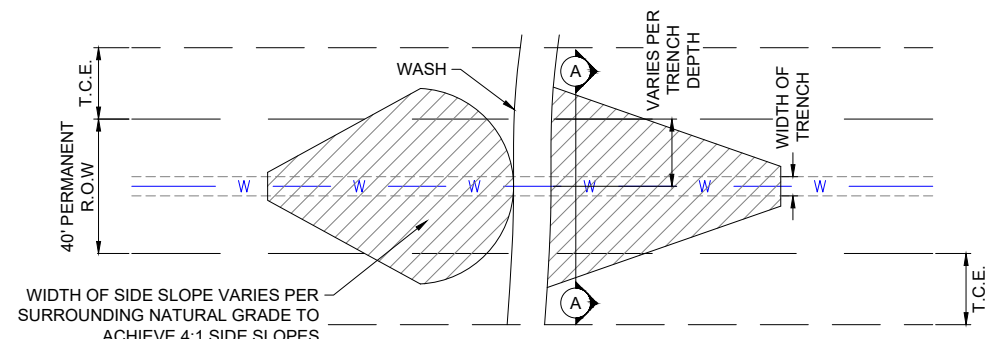
ROCK CHECK DAM DETAIL
NOT TO SCALE



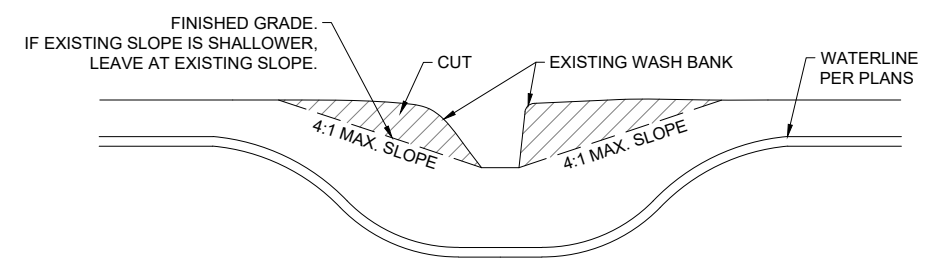
PLAN VIEW



TYPICAL SPLASH PAD DETAIL
NOT TO SCALE

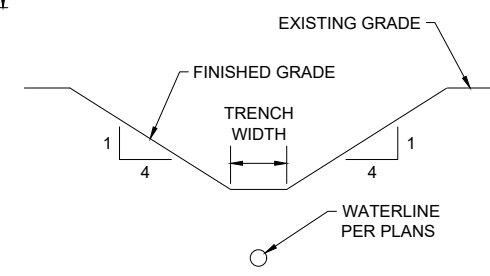


PLAN VIEW



PROFILE VIEW

WASH CROSSING GRADING DETAIL
NOT TO SCALE



SECTION A-A

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

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| Revision | Date | Description |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
EROSION CONTROL DETAILS (3 OF 3)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

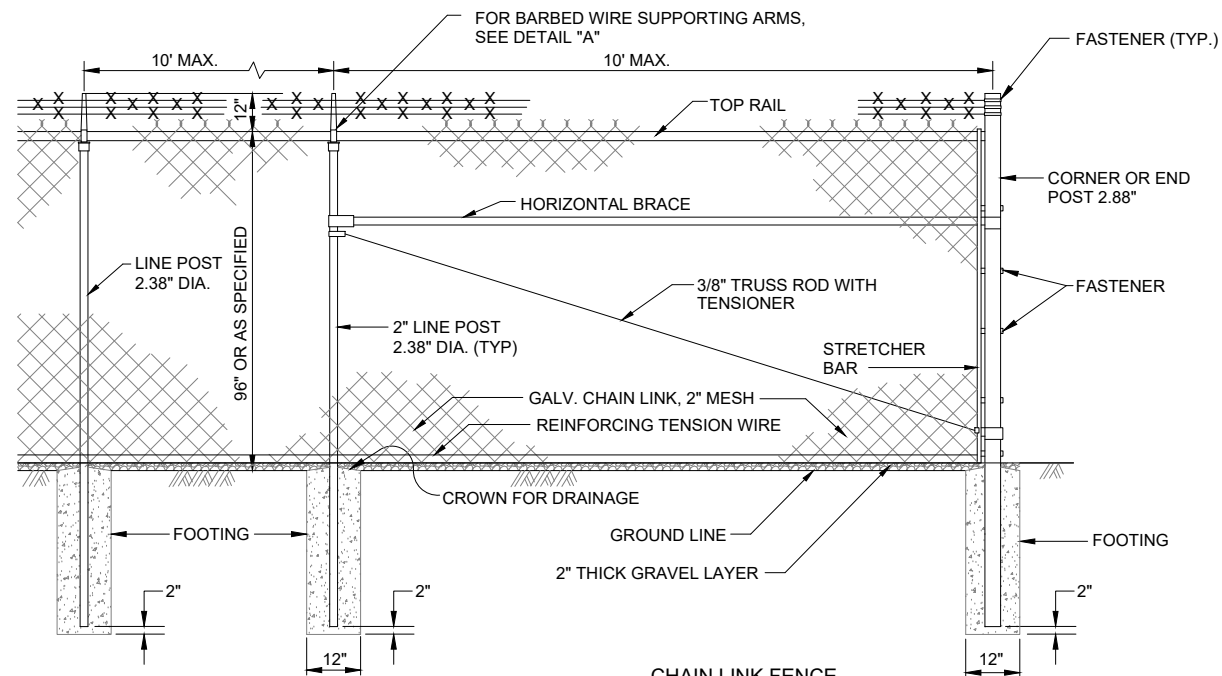
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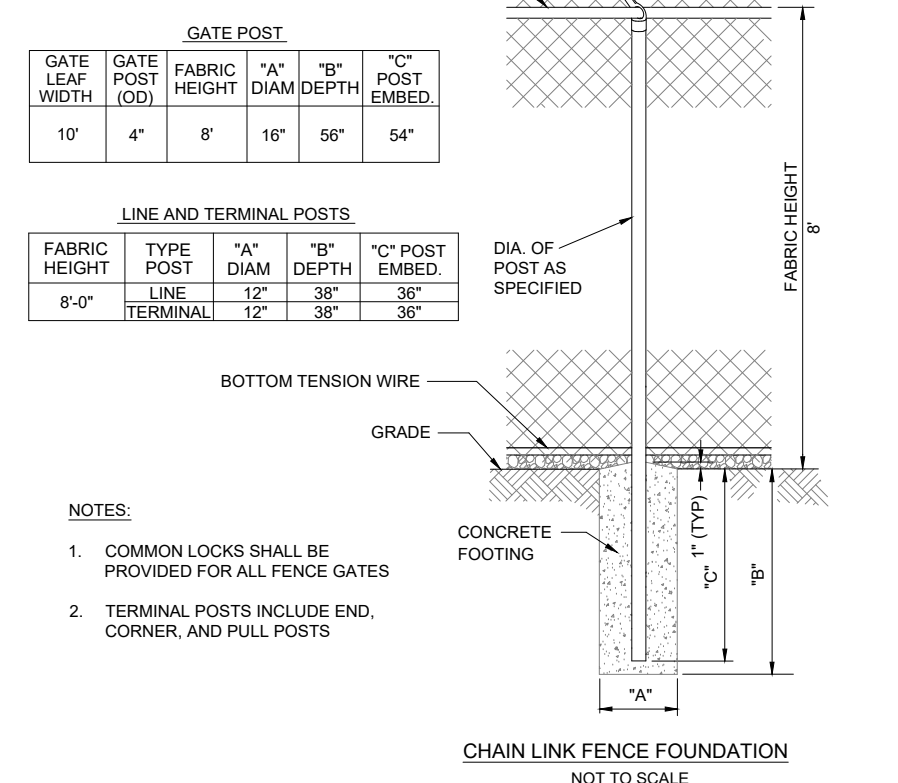
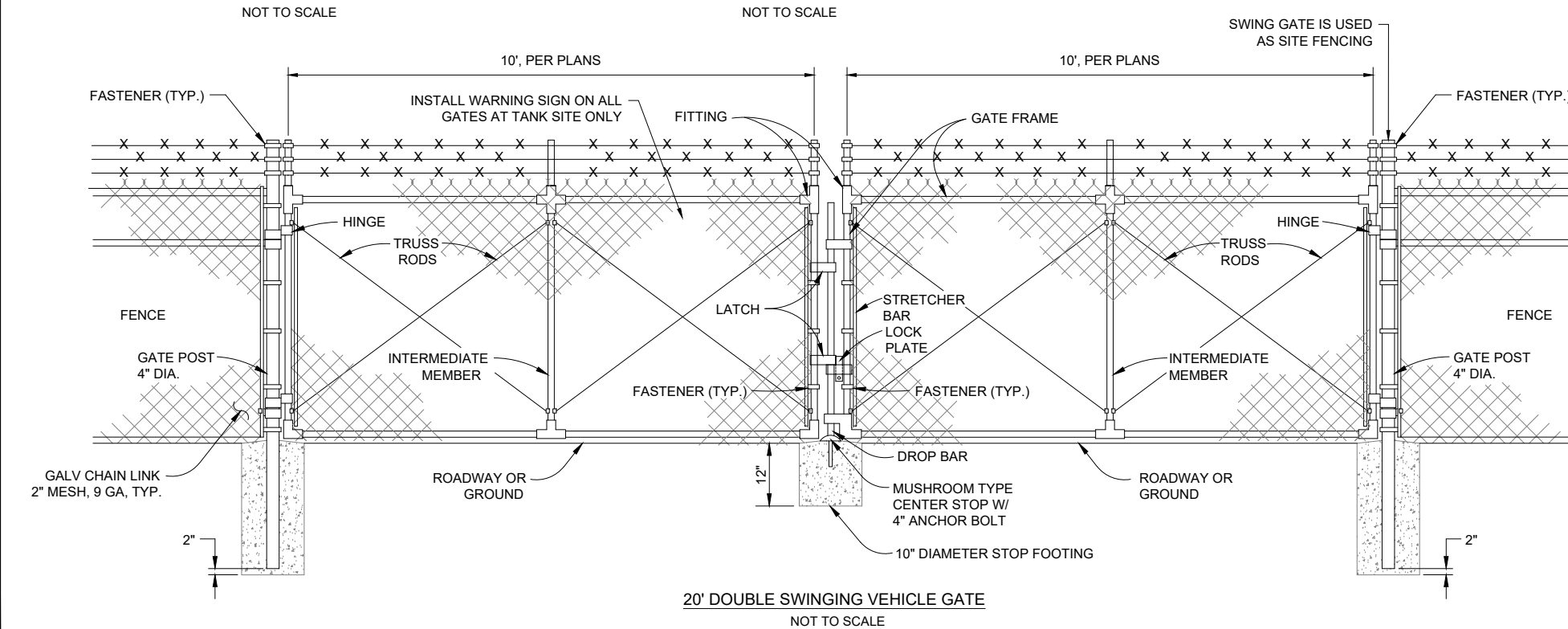
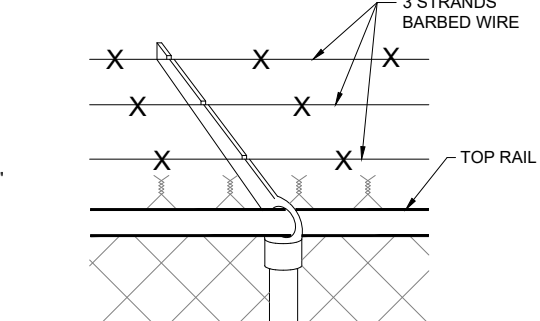
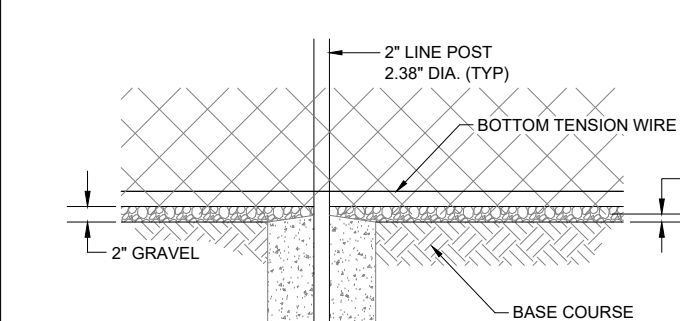
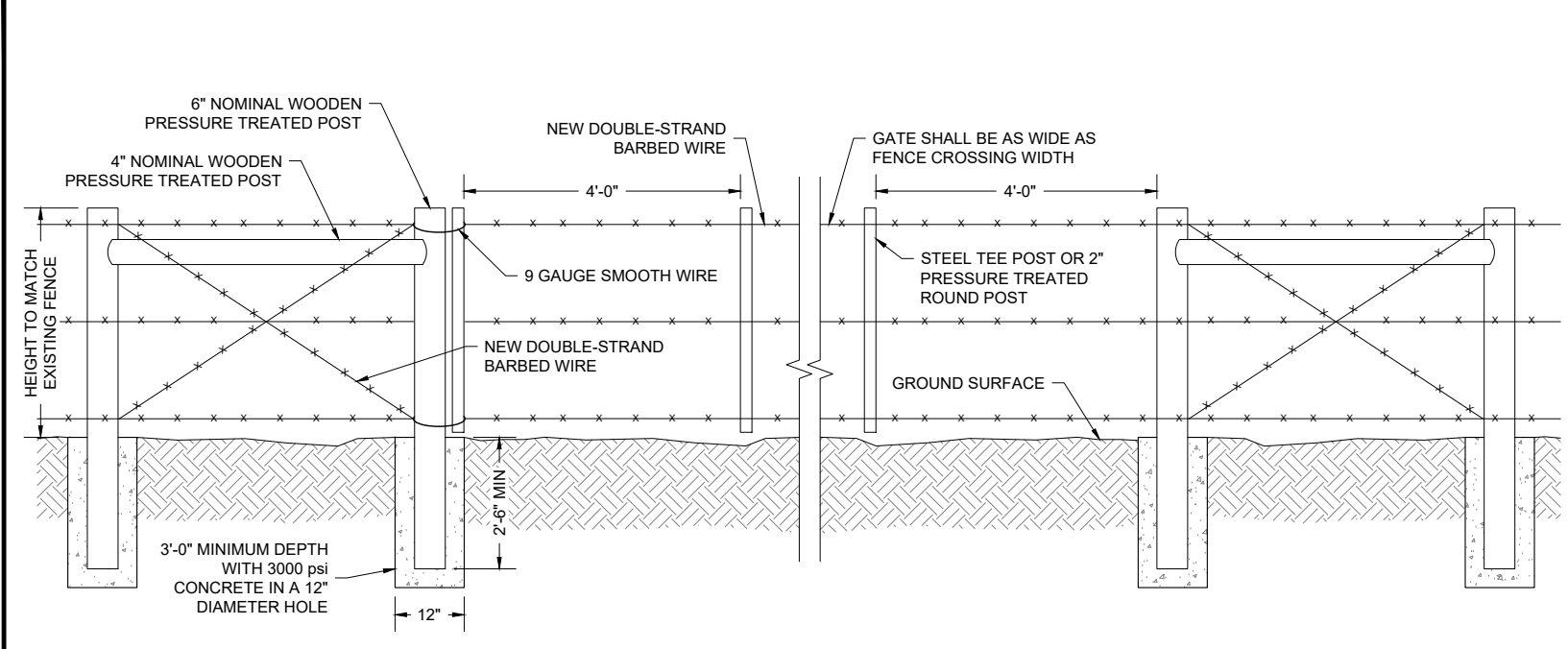
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 Vert: N/A
 Project No: 6922268
 Sheet: **DT-19**



- NOTES:**
1. AT BROW CROSSING, EMBED ON 6" CENTERS, 4-11/2" x 24" GALVANIZED RODS WITH 2" HOOKED END INTO BROW DITCH CONCRETE. EXPOSED END OF ROD SHALL BE WOVEN INTO FENCE FABRIC.
 2. IMBED BOTTOM OF FABRIC MIN. 1" INTO THE 2" THICK GRAVEL LAYER.



| GATE POST | | | | | |
|-----------------|----------------|---------------|----------|-----------|-----------------|
| GATE LEAF WIDTH | GATE POST (OD) | FABRIC HEIGHT | "A" DIAM | "B" DEPTH | "C" POST EMBED. |
| 10' | 4" | 8' | 16" | 56" | 54" |

| 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" |

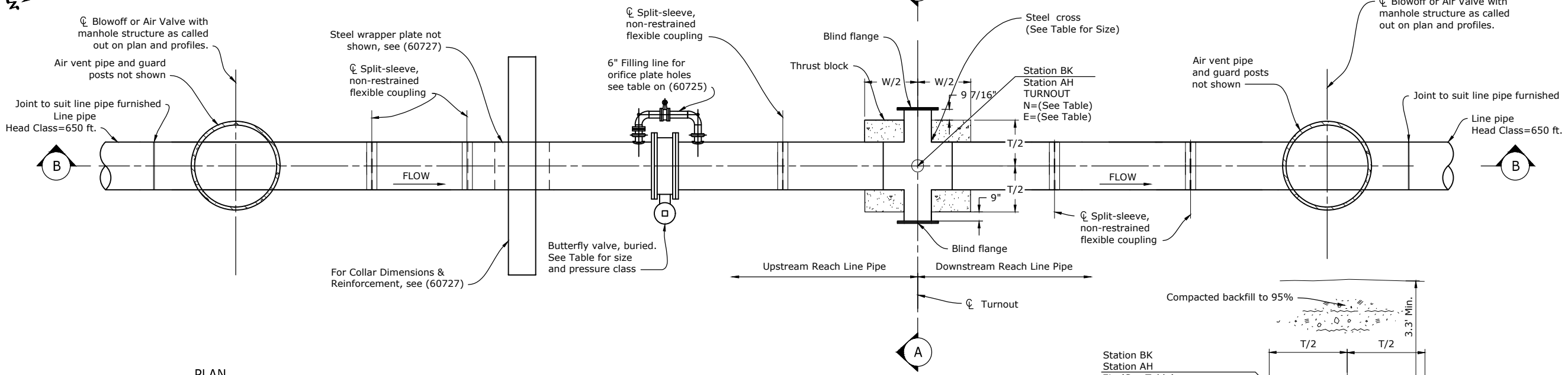
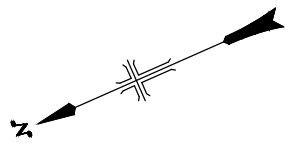
- NOTES:**
1. COMMON LOCKS SHALL BE PROVIDED FOR ALL FENCE GATES
 2. TERMINAL POSTS INCLUDE END, CORNER, AND PULL POSTS

By: CHKD
 Description:
 Date:
 Revision:
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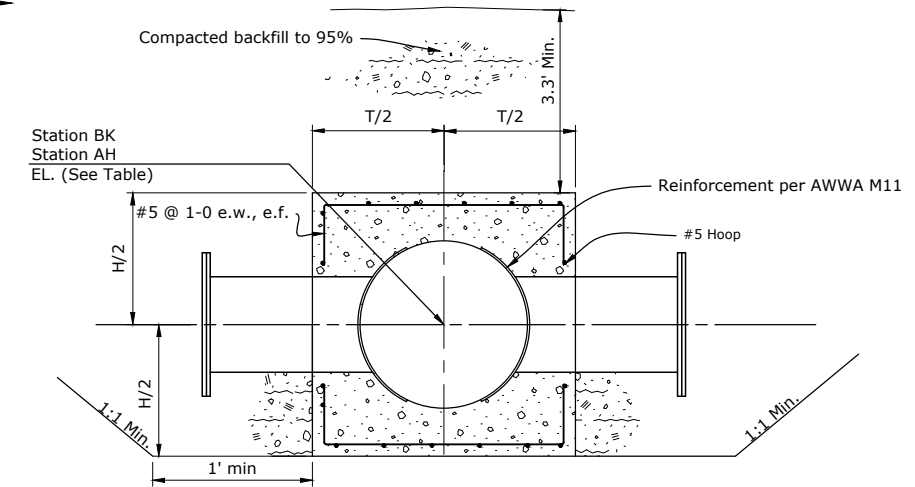
Client: The Navajo Nation
 Location: Coyote Canyon, NM
FENCE DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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 Vert: N/A
 Project No: 6922268
 Sheet: DT-20

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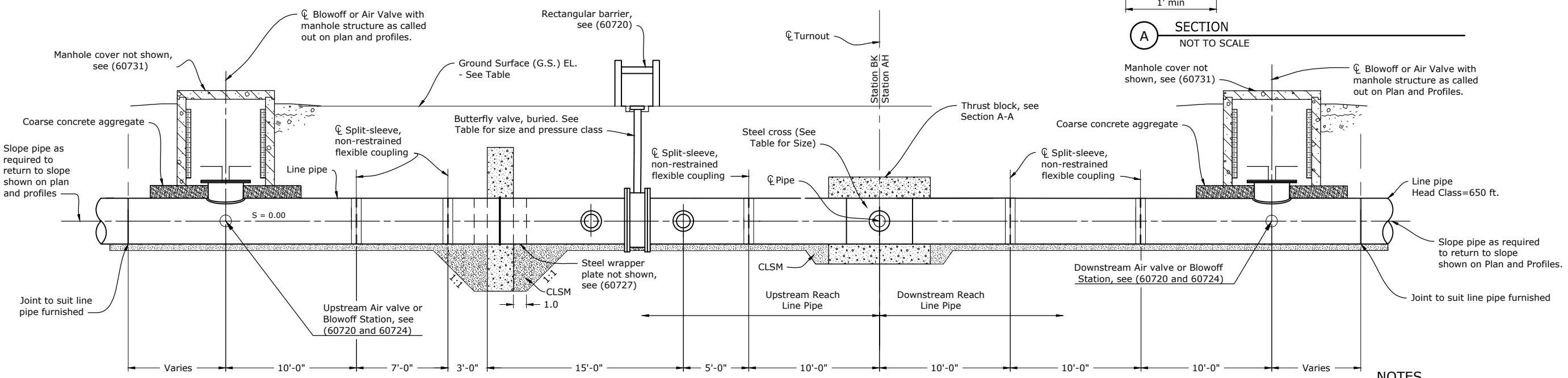


PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE

| REACH 10.1.1 Turnout Summary | | | | | | | | | | | | | | |
|------------------------------|--------------|------------|------------------------------|--------------|-------------------|--------------|--------------|------------------------|--------------------------|------------|------------------|--------|--------|--------|
| Reach | Turnout Name | Flow (cfs) | Max. Transient Pressure (ft) | Cross (inch) | Valve Size (inch) | N | E | Upstream Reach Sta. BK | Downstream Reach Sta. AH | G.S. Elev. | CenterLine Elev. | H (ft) | T (ft) | W (ft) |
| 10.1.1 | REACH 10.1.1 | 0.39 | 528 | 42x42x8 | 42 | 1,728,027.90 | 2,453,429.04 | 11070+80.0 | 11070+80.0 | 6,254.33 | 6,248.60 | 4'-0" | 4'-0" | 4'-0" |



SECTION B-B
NOT TO SCALE

- NOTES**
1. For Plan and Profiles, see (C-1).
 2. Concrete compressive strength, f'c, is 4,500 psi and specified yield point for reinforcement fy, is 60,000 psi.
 3. Outlet pipes to be blind flanged.
 4. Turnout assembly piping is metallic.

| Revision | Date | Description |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
TYPICAL TURNOUT DETAILS (60728)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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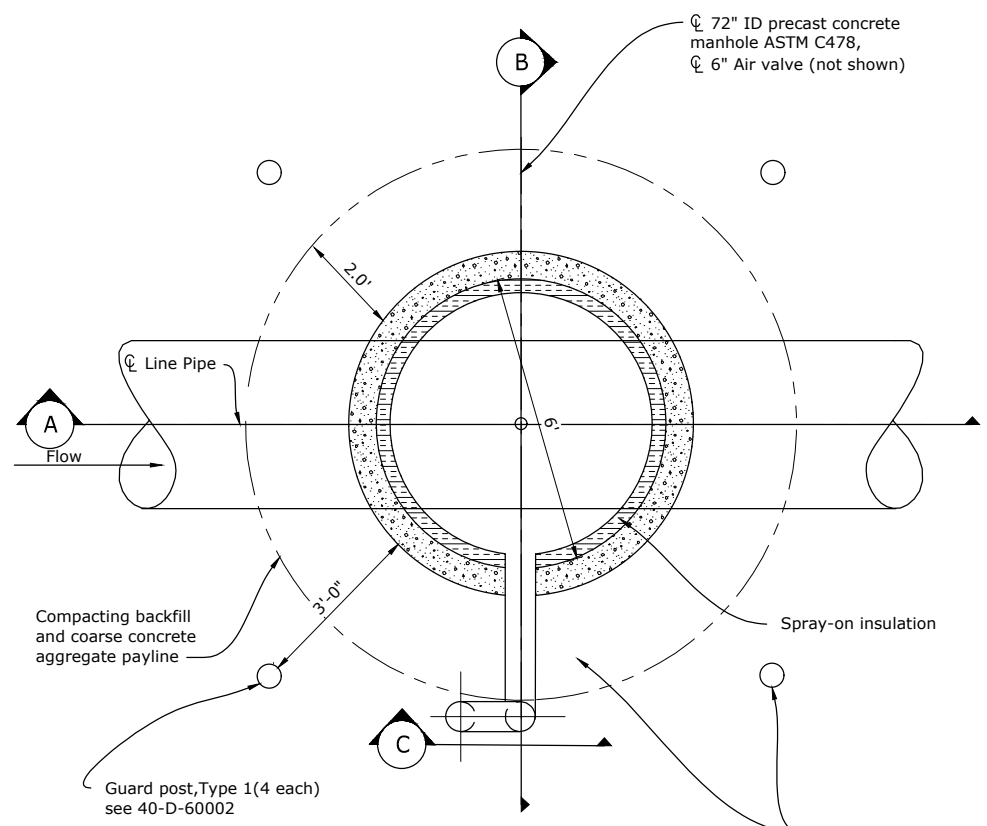
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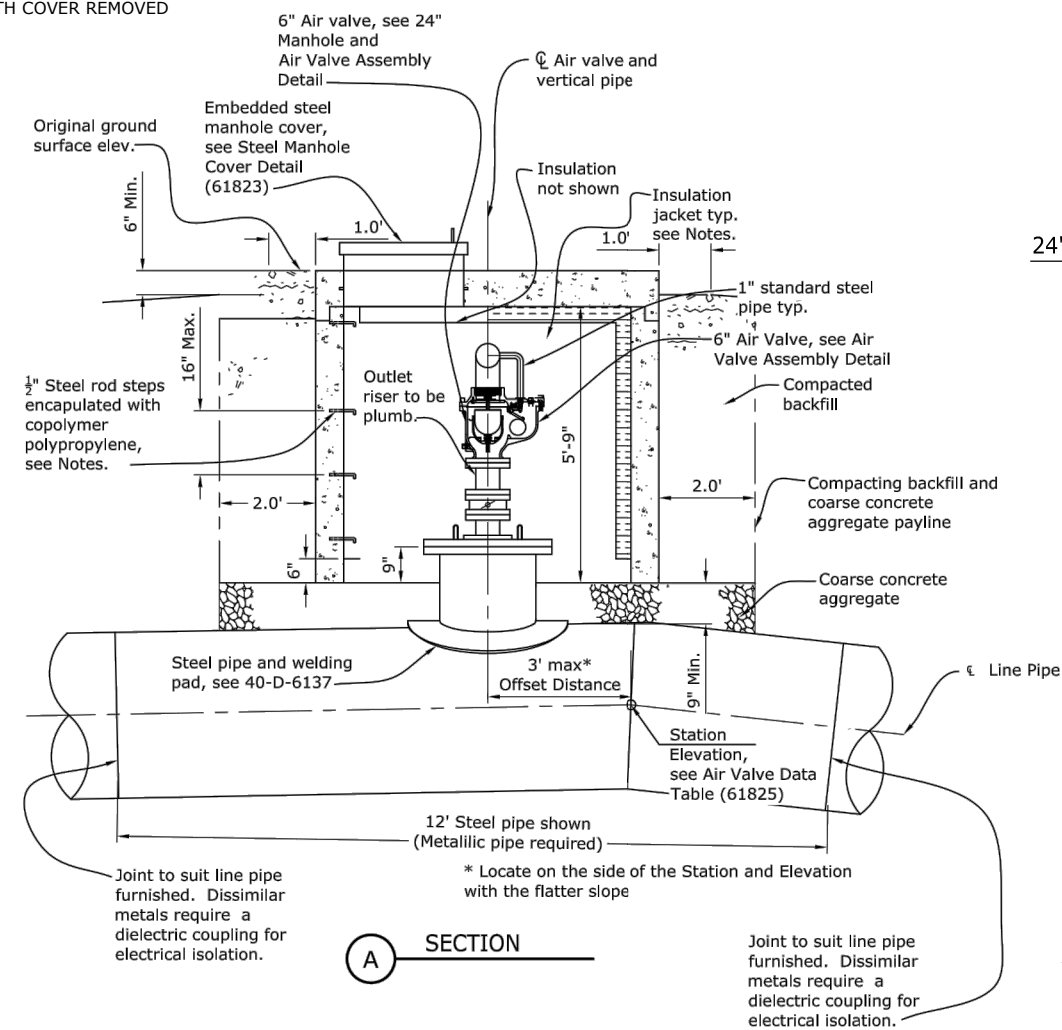
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Project No: 6922268
 Sheet: DT-21

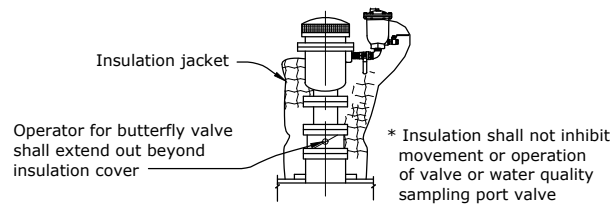
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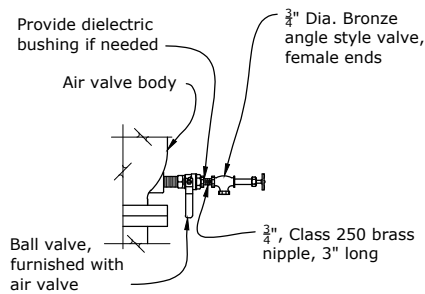
PLAN
WITH COVER REMOVED



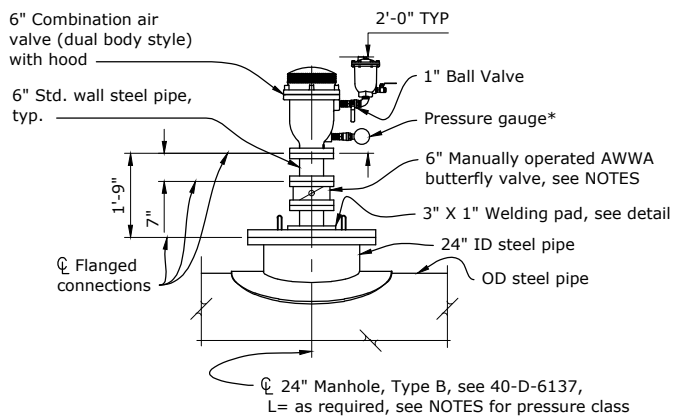
SECTION A



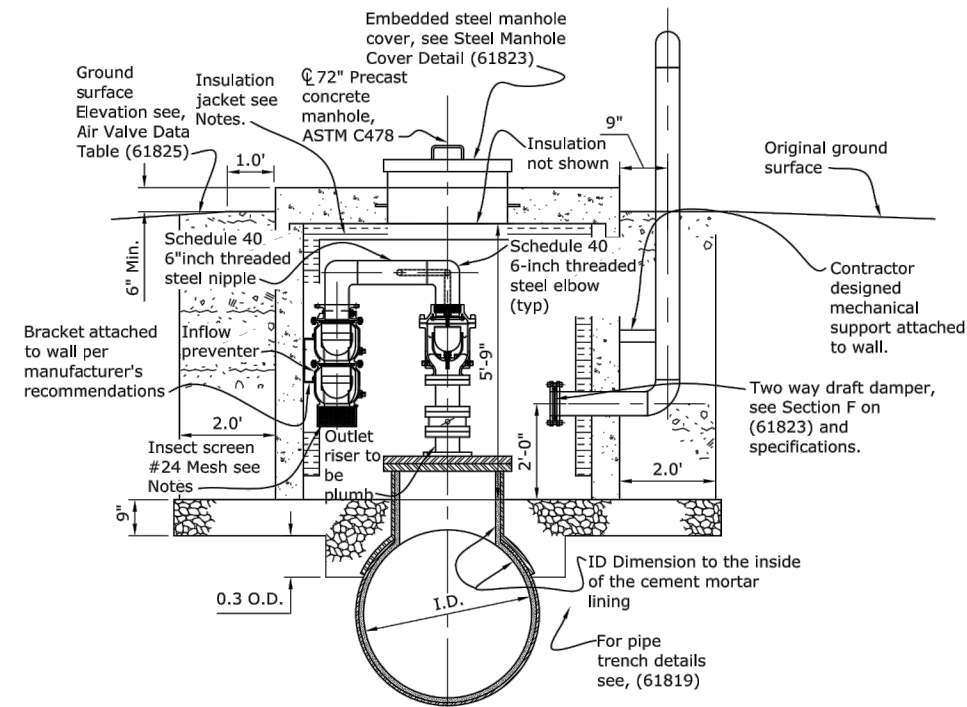
1 AIR VALVE INSULATION DETAIL



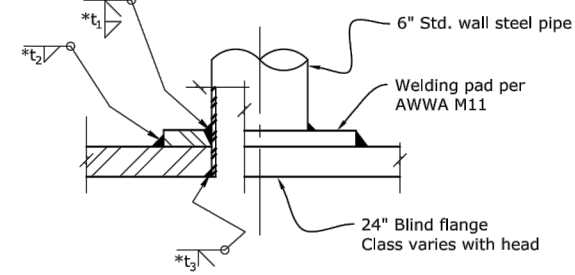
WATER QUALITY SAMPLING PORT DETAIL



24" MANHOLE AND AIR VALVE ASSEMBLY

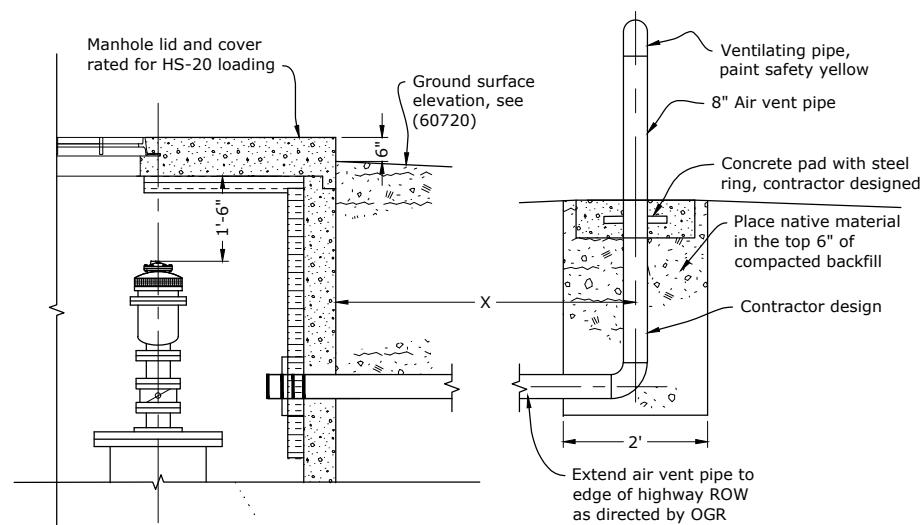


SECTION B



DETAIL

AWWA M11 WELDED PIPE TAP TO BLIND FLANGE
* t₁, t₂, t₃ per AWWA M11 requirements



HIGHWAY ROW AIR VALVE DETAIL

See Note 11

NOTES

1. For Air valve data table, see (60720)
2. Flanges should be AWWA class D when the head class is less than or equal to 346 ft, AWWA class F when the head class is greater than 346 ft and is less than or equal to 692 ft.
3. The butterfly valve shall be AWWA class 150B when the head class is less than or equal to 346 ft, AWWA class 250B when the head class is less than or equal to 577 ft. See specifications for butterfly valves with head classes greater than 577 ft.
4. The air valve inlet flange shall be ANSI B16.1 class 125 or ANSI B16.5 class 150 when the head class of the pipe is less than 346 ft and ANSI B16.1 class 250 or ANSI B16.5 class 350 for a head class of pipe greater than or equal to 692 ft.
5. The Manhole class shall be Class 150 when the head class of the pipe is less than 346 feet and Class 300 for a head class of pipe less than or equal to 692 ft.
6. Drawing not to scale.
7. Construct air valve vertical.
8. Earthwork compacted backfill and excavation minimums are shown. Actual slope will depend on soil conditions.
9. The height of 72" vertical pipe shall be high enough to allow enough clearance between the top of the air valve and the bottom of the insulation on the cover as per the air valve manufacturer's recommendations.
10. Match all mating flanges with highest rated flanges.
11. For manholes installed within NMDOT ROW, do not install guard posts. Design to withstand HS-20 loading.

Client: The Navajo Nation
Location: Coyote Canyon, NM

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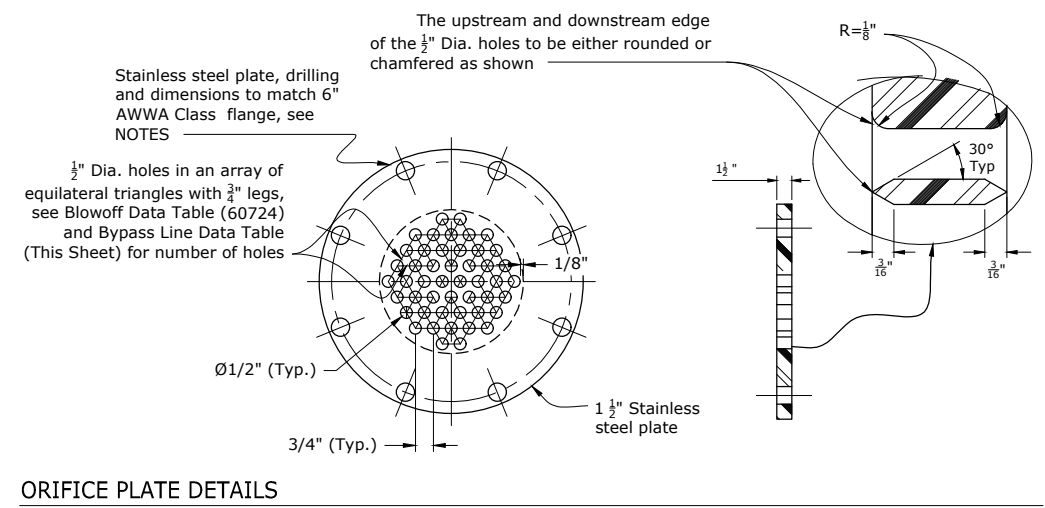
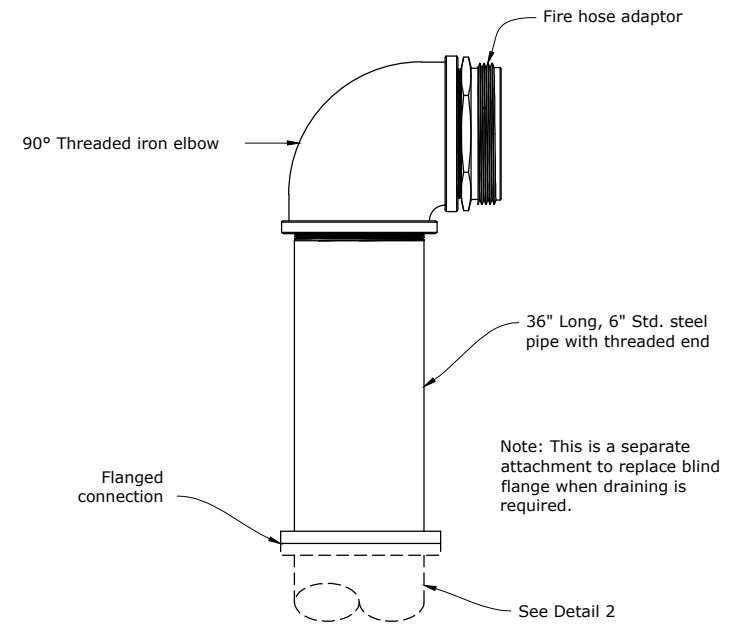
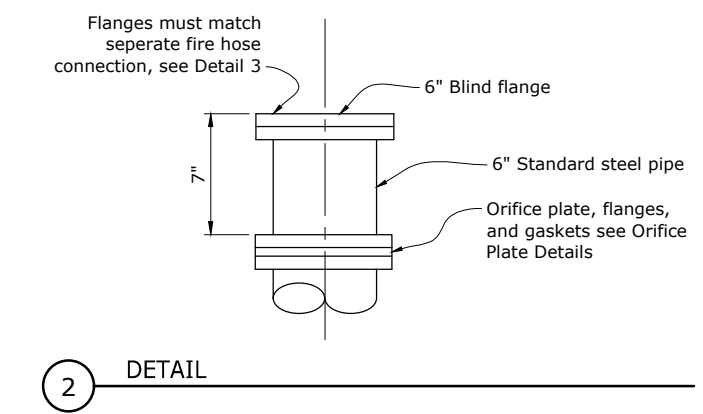
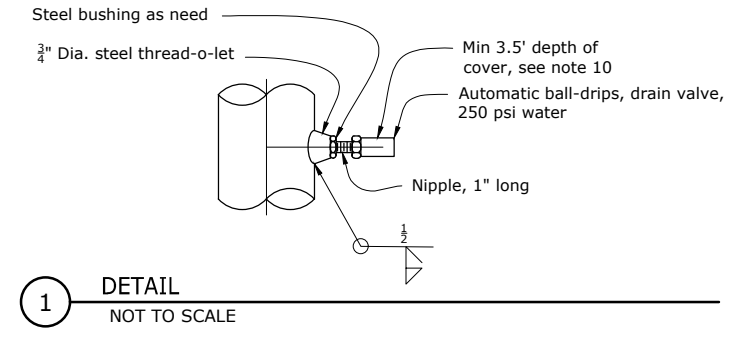
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Project No: 6922268
Sheet: DT-22

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3/15/2022 8:08:39 AM mwh



3 FIRE HOSE CONNECTION DETAIL
See Note 10

- NOTES**
1. The minimum steel cylinder thickness for the section of line pipe with the blowoff outlet shall be the thickness of the steel line pipe. For the steel line pipe thickness see the specification.
 2. For coating and lining requirements, see specification paragraphs.
 3. Install four Guard posts Type 1 around each blowoff as directed by the COR. Install posts in accordance with (40-D-60002).
 4. See Plan and Profile drawings for location of blowoff stations and (C-1).
 5. I.D. is inside diameter. O.D. is outside diameter.
 6. For Flange ratings, CLASS 150.
 7. Match all mating flanges with highest rated flange.
 8. Minimum 3" of clearance between bottom of flange and coarse concrete aggregate.
 9. Minimum 3.5' of ground cover from ground surface and centerline of automatic ball-drip, drain valve.

| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM
BLOWOFF DETAILS (60723)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

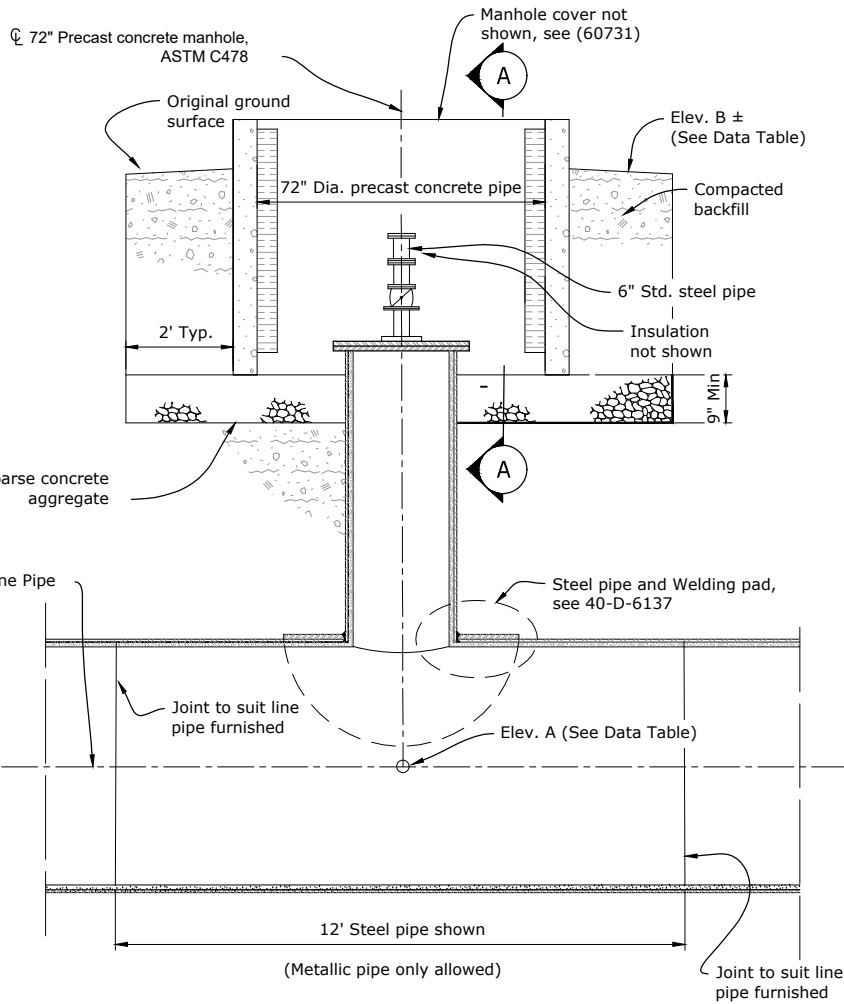
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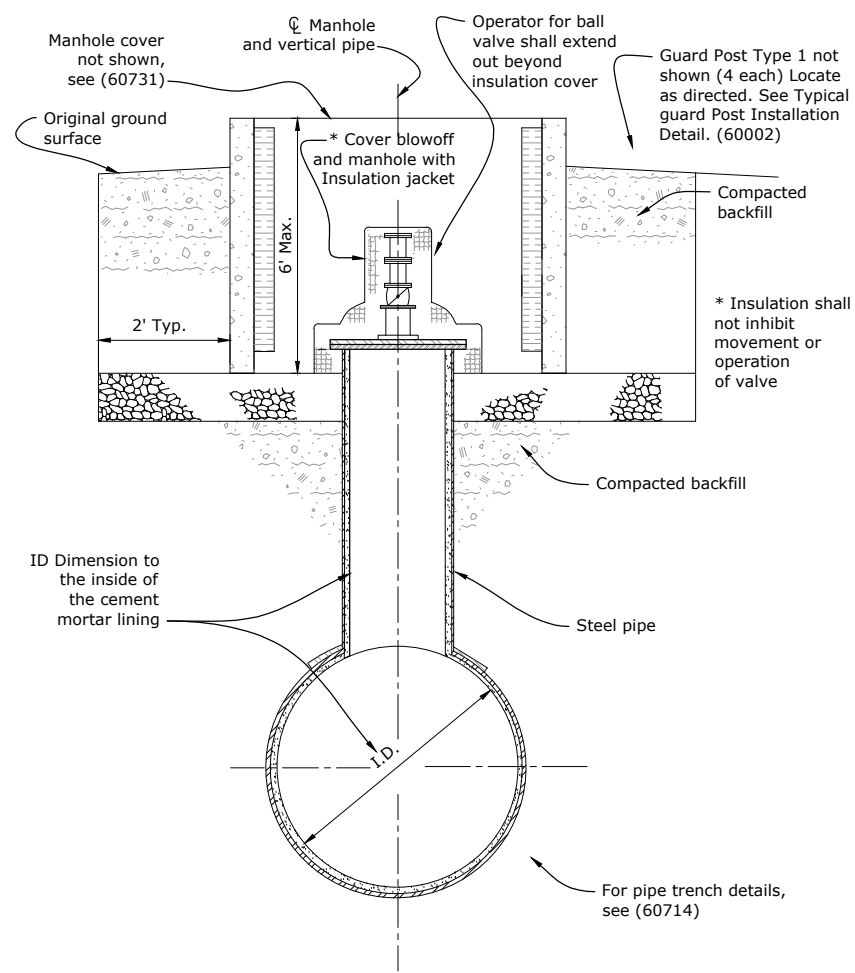
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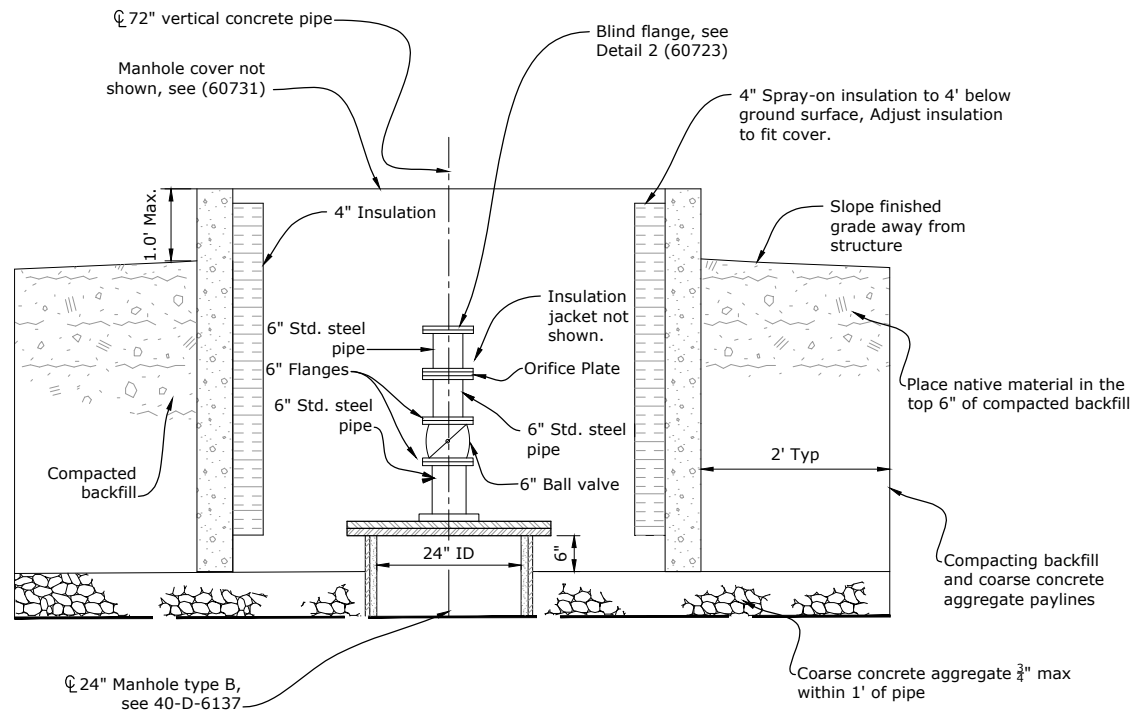
Date: March 2022
Scale: Horiz:
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Project No: 6922268
Sheet: DT-23



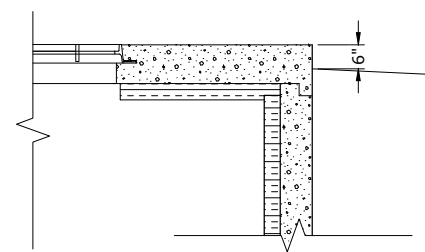
LONGITUDINAL SECTION



TRANSVERSE SECTION



SECTION



HIGHWAY ROW BLOWOFF DETAIL

See Note 6

NOTES

1. For blowoff locations, see Plan and Profiles (C-1).
2. For coating and lining requirements for std. steel pipe and fittings, see specification paragraphs.
3. For 6" flange ratings, see Table. Match all mating flanges with highest rated flange.
4. For orifice plate, see Blowoff Sections and Details (60723).
5. Any welding to be completed prior to cement mortar lining application.
6. For manholes installed within NMDOT ROW at Sta. 8260+00 and Sta. 8294+20, do not install guard posts. Design to withstand HS-20 loading.

| BLOWOFF DATA TABLE-REACH 10.1.1 | | | | | | | | |
|---------------------------------|-----------------|-------------------------|-----------------|-------------------------|---------------------|----------------------------|-------------------------|----------|
| STATION | HEAD CLASS (FT) | LINE PIPE DIAMETER (IN) | BALL VALVE TYPE | ORIFICE PLATE NO. HOLES | PIPE CL ELEV A (FT) | GROUND SURFACE ELEV B (FT) | DEPTH OF COVER +/- (FT) | MANHOLE? |
| 11070+30.0 | 650 | 42 | CLASS 300 | N/A | 6247.35 | 6253.10 | 5.75 | YES |

SMA RESPECTFULLY REQUESTS RECLAMATION TO SIZE ORIFICE PLATE

P:\6-Beacon Bistl NG Water Line (6922268)\CAD\Civil\Reach 10.1.1 BOR Manhole Blowoff Details (60724).dwg
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
BLOWOFF MANHOLE DETAILS (60724)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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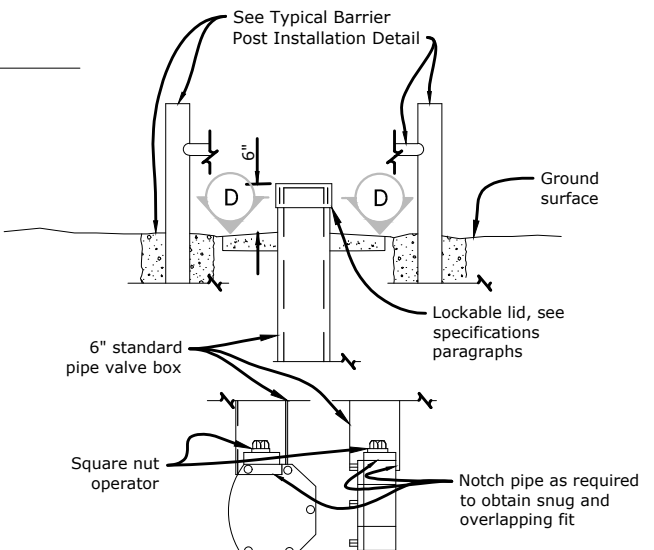
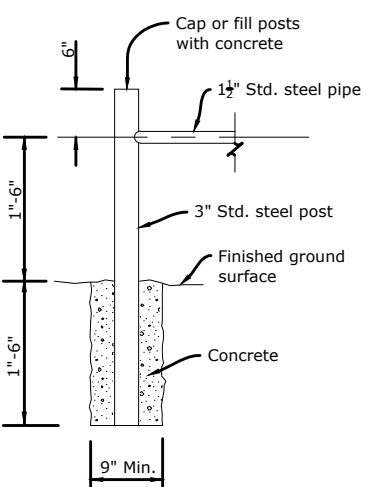
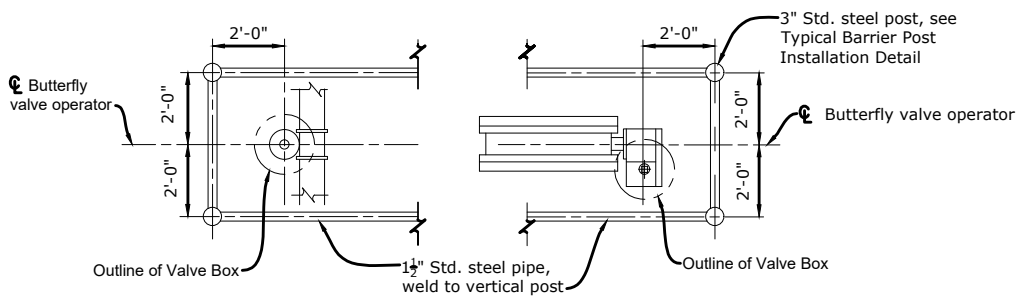
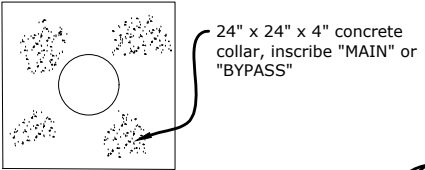
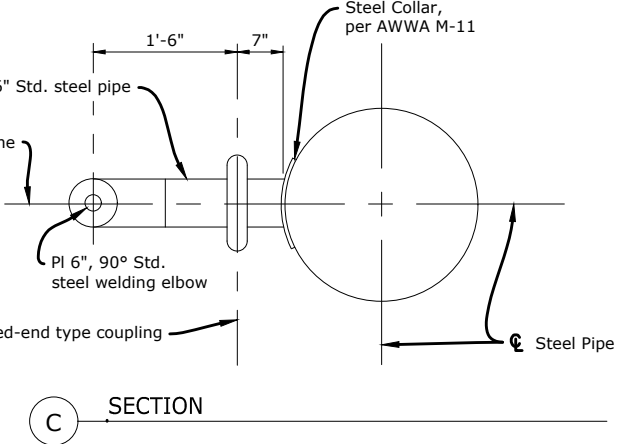
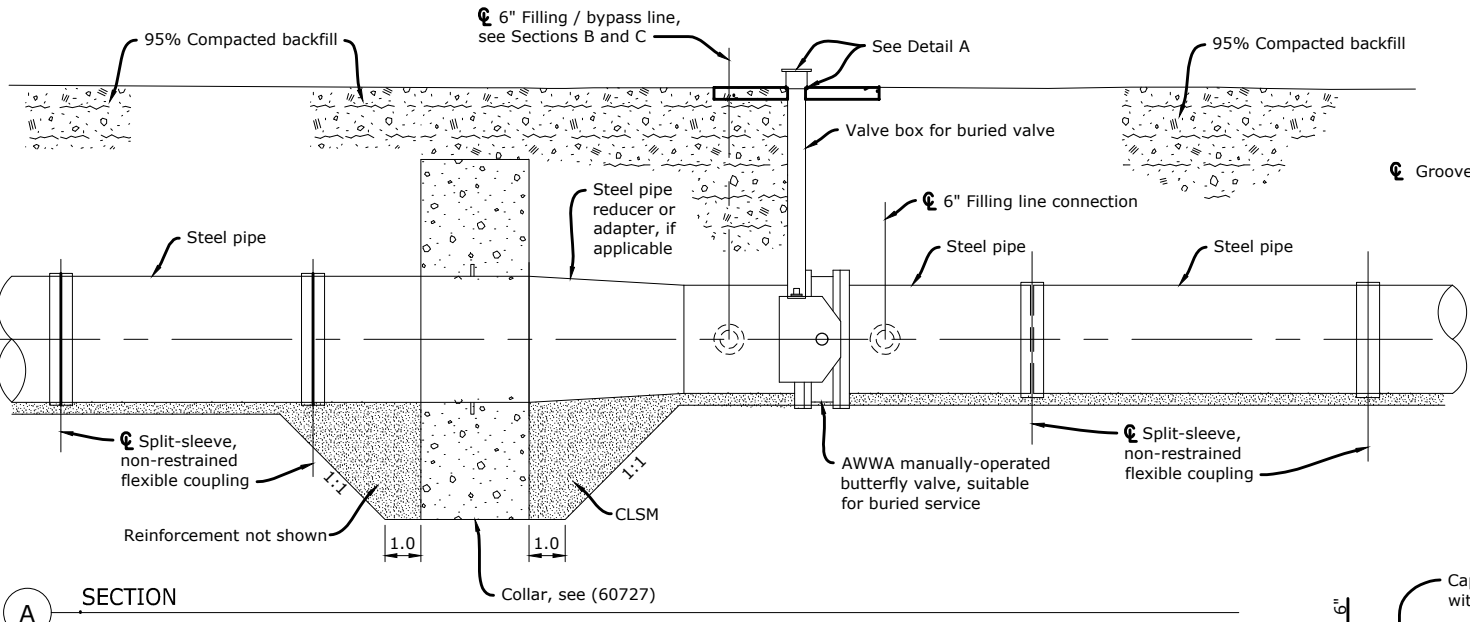
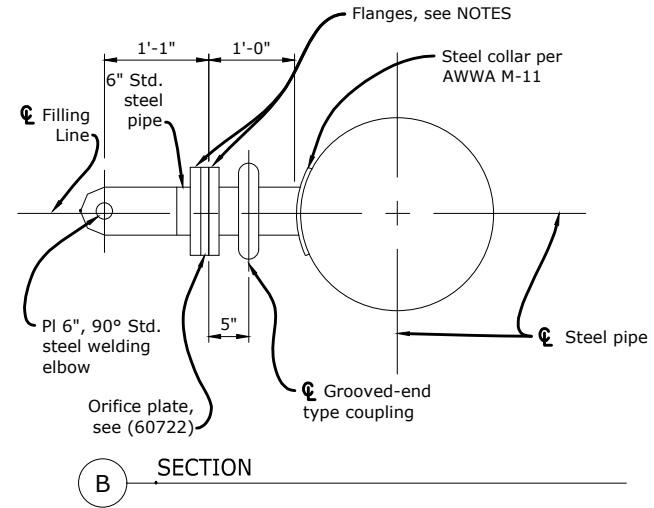
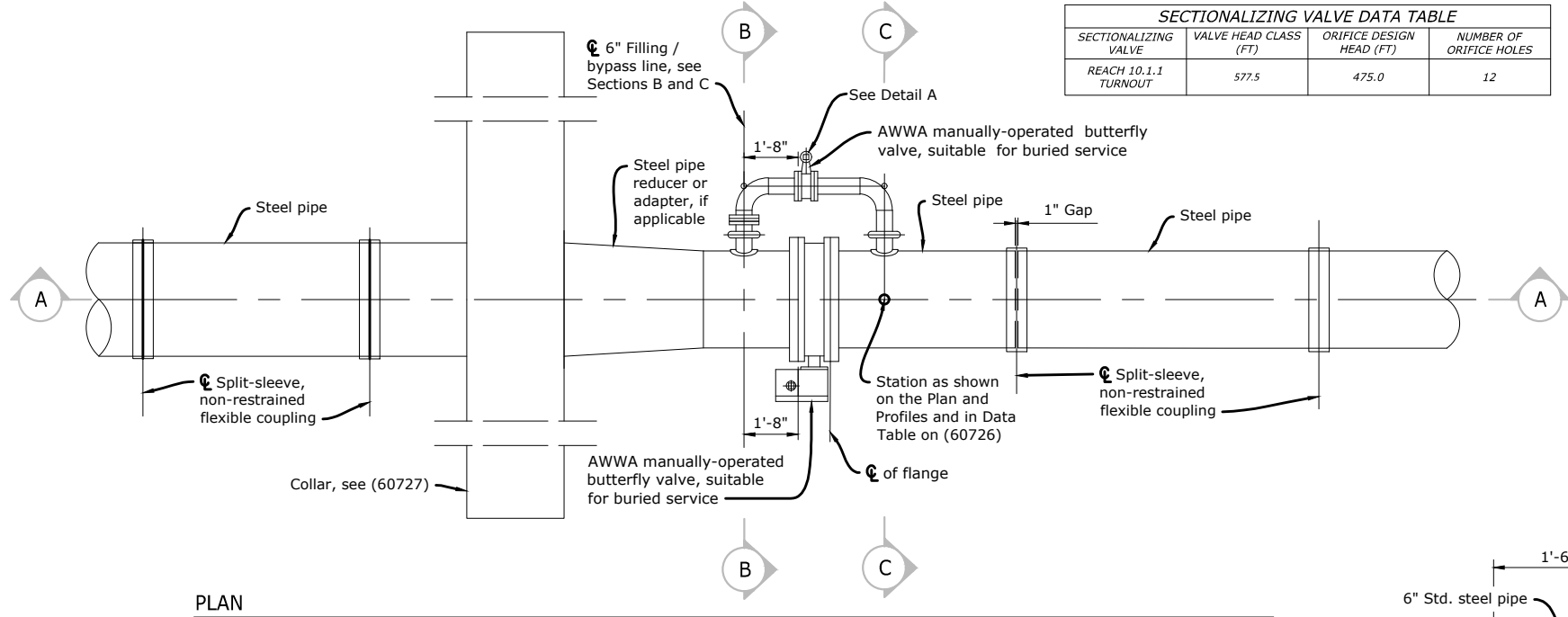
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Date: March 2022
 Scale: Horiz:
 Vert:

Project No: 6922268
 Sheet: DT-24

| SECTIONALIZING VALVE DATA TABLE | | | |
|---------------------------------|-----------------------|--------------------------|-------------------------|
| SECTIONALIZING VALVE | VALVE HEAD CLASS (FT) | ORIFICE DESIGN HEAD (FT) | NUMBER OF ORIFICE HOLES |
| REACH 10.1.1 TURNOUT | 577.5 | 475.0 | 12 |



OPERATING CRITERIA

1. High performance Bypass butterfly valve shall be fully open when operated.
2. Excavation around blocking shall not occur when the pipeline is under hydrostatic pressure.

NOTES

1. Drawing not to scale.
2. All sectionalizing valves will require a bypass.
3. The minimum steel cylinder thickness for the section of line pipe with the valve outlet shall be the thickness of the steel line pipe. For the steel line pipe thickness see the specification.
4. Piping next to butterfly valves may require 1" oversizing so that the applied interior lining will not reduce the inside dimension to a smaller size which could prevent the butterfly valve from opening. Valve bypass piping shall be epoxy lined.
5. For details of tapers, adaptors and collars, see (60727).
6. Flange class shall meet pressure requirement designated by adjacent line pipe. Flange drilling shall match mating flange.
7. For Flange and Valve ratings, see notes (60722).
8. For sectionalizing valve in NMDOT ROW at Sta. 8315+60, do not install barrier posts.

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Location: Coyote Canyon, NM
SECTIONALIZING VALVE INSTALLATION (60726)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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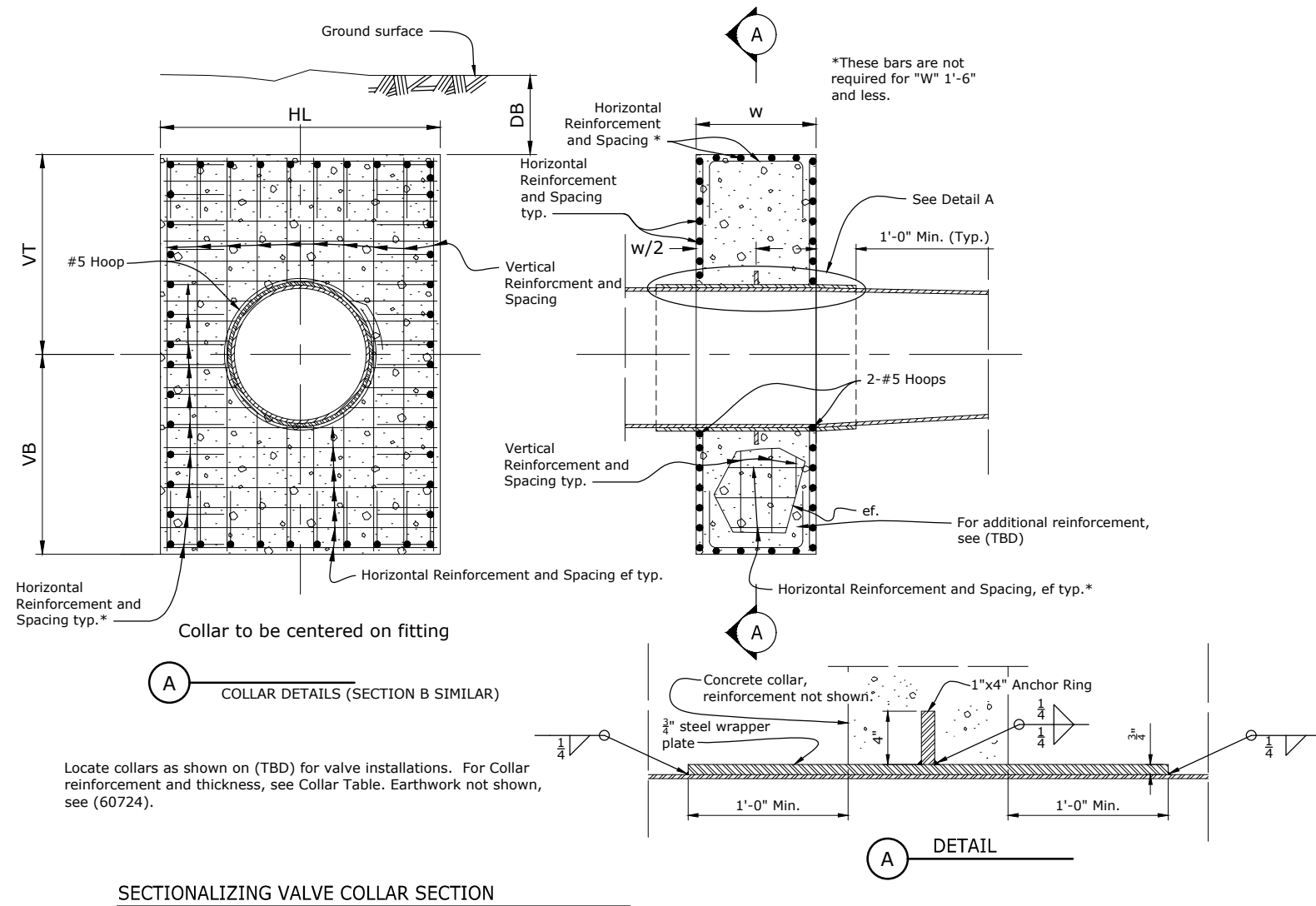
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 Project No: 6922268
 Sheet: DT-25

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.1.1 Plan Set\Construction Plans\Reach 10.1.1 BOR Sec Valve Install (60726).dwg
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P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.1.1 BOR Collar Details (60727).dwg
3/15/2022 1:47:37 PM mwh

| SECTIONALIZING VALVE COLLAR TABLE REACH 10.1 | | | | | | | | | |
|--|------------------|--------------------|---------|---------|---------|---------|-------|------------------------------------|--------------------------------------|
| SECTIONALIZING VALVE STATION | DESIGN HEAD (FT) | PIPE DIAMETER (IN) | HL (FT) | VT (FT) | VB (FT) | DB (FT) | W | VERTICAL REINFORCEMENT AND SPACING | HORIZONTAL REINFORCEMENT AND SPACING |
| 1070+50.00 | 296.00 | 42.00 | 17.00 | 4.50 | 12.50 | 1.50 | 2'-1" | #5 @1'-0" | #9 @6" |



OPERATING CRITERIA

- Excavation around the blocking shall not occur when the pipeline is under hydrostatic pressure.

NOTES

- Drawing not to scale.
- Flange class shall meet pressure requirement designated by adjacent symbol line pipe. Flange drilling shall match mating flange.
- Steel plate minimum thickness, t , shall not be less than specification requirements.
- Concrete compressive strength, f_c , is 4,500 psi and specified yield point for reinforcement, f_y , is 60,000 psi.
- For coating and lining options, see specification paragraphs.

| Revision | Date | Description | By | CHKD |
|----------|------|-------------|----|------|
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Client: The Navajo Nation
Location: Coyote Canyon, NM
COLLAR AND ANCHOR DETAILS (60727)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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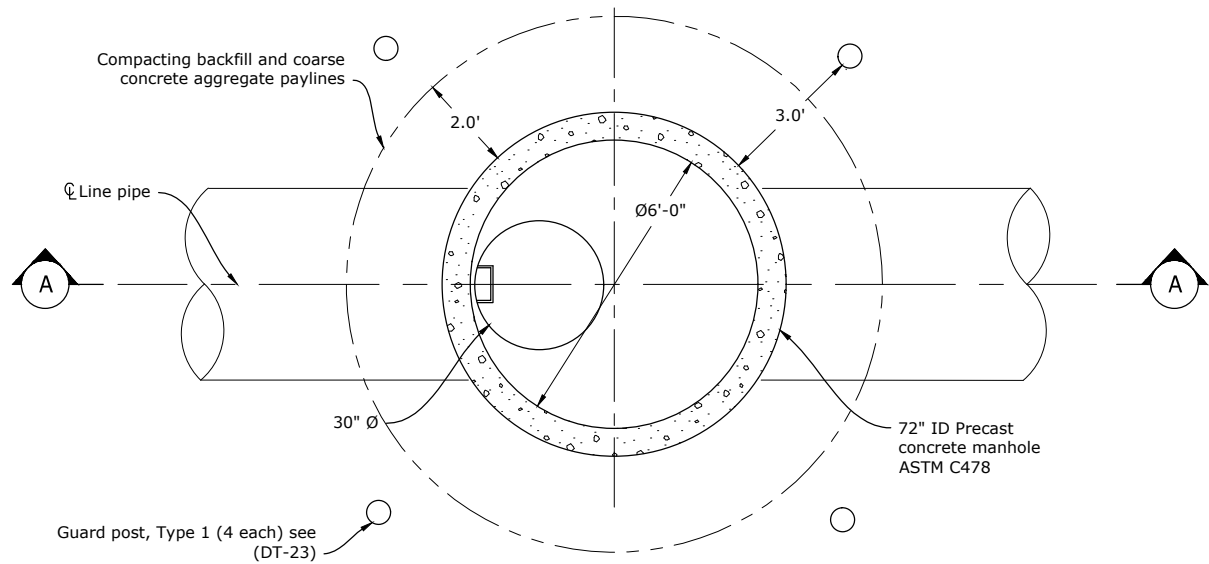
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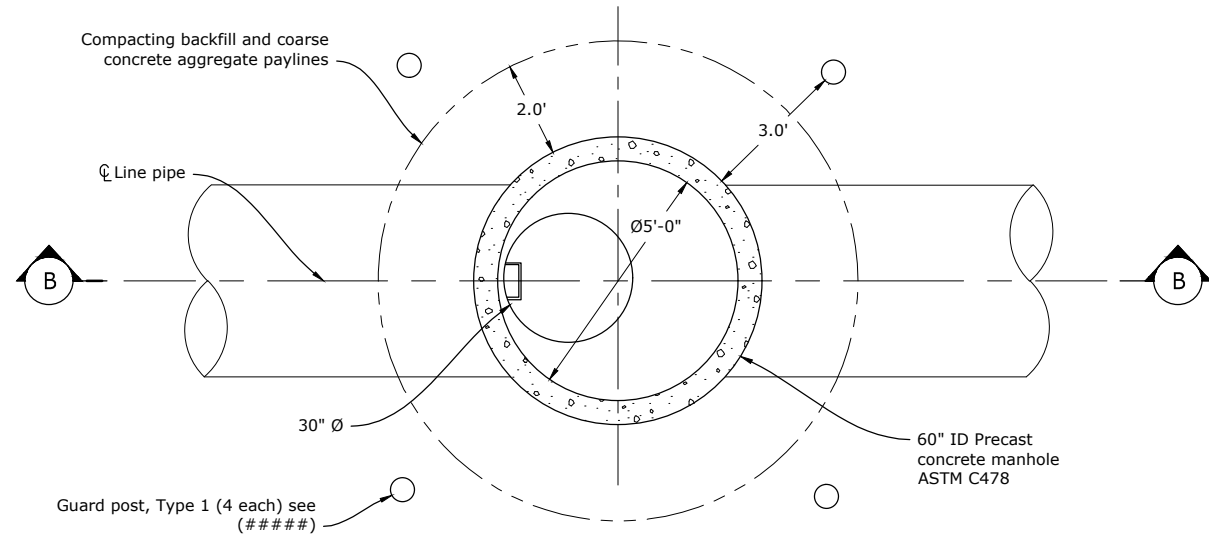
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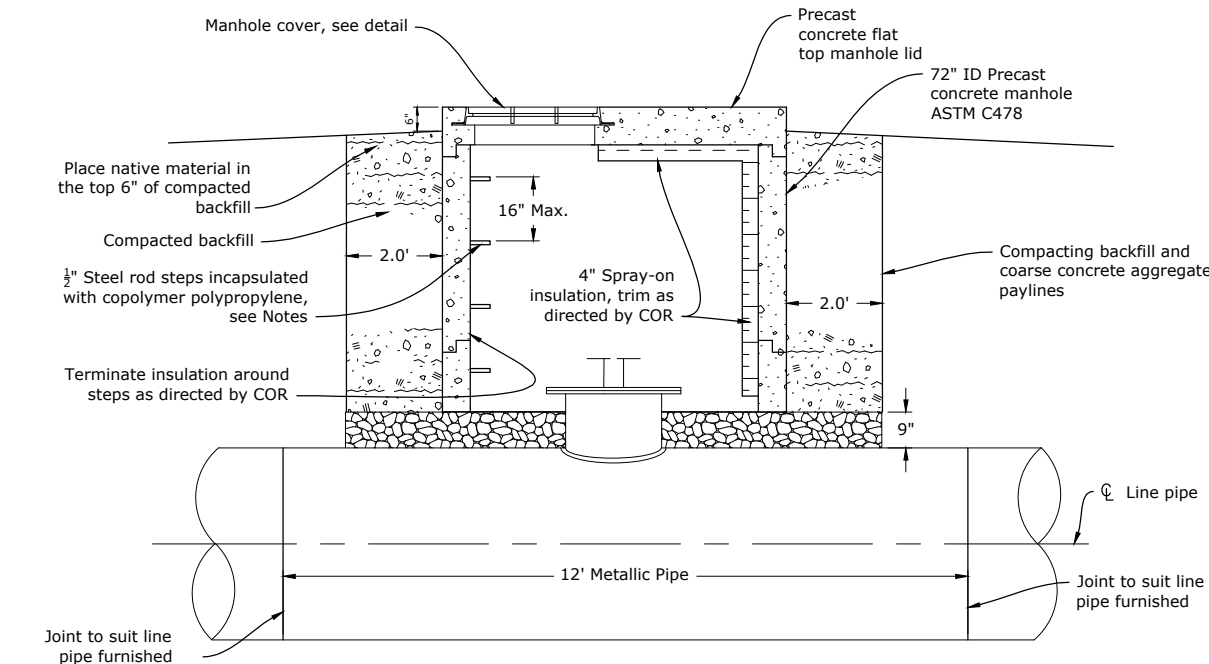
Project No: 6922268
Sheet: DT-26



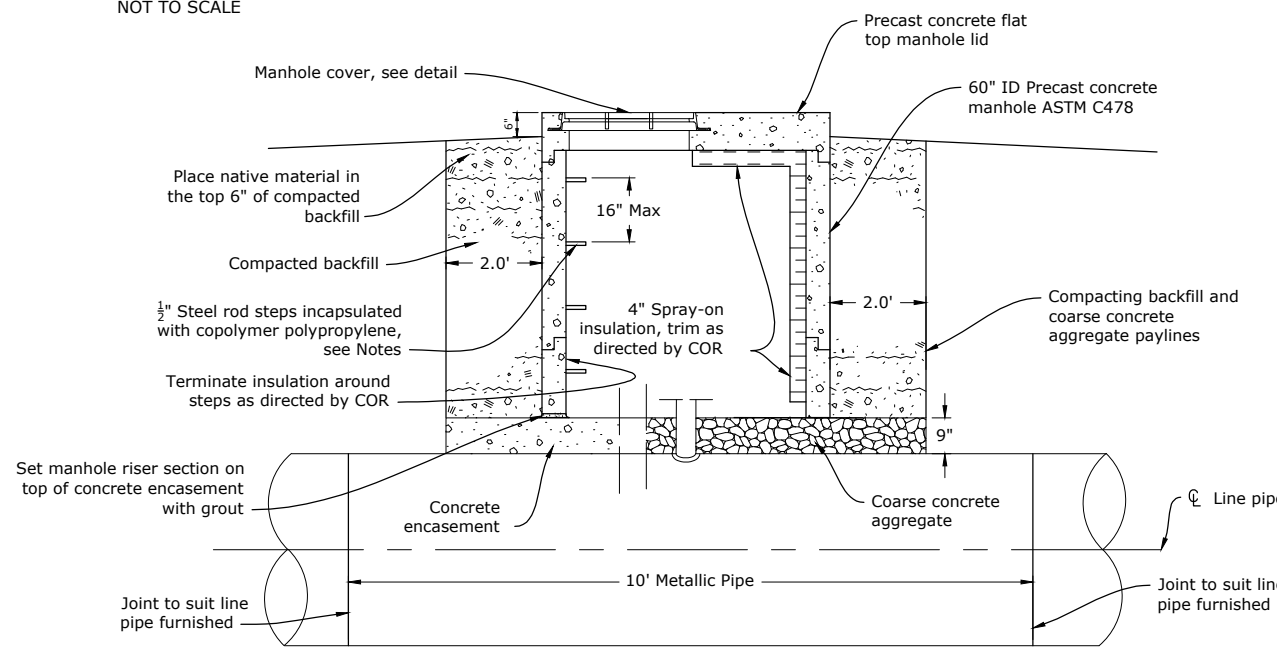
PLAN - 72" Ø MANHOLE
NOT TO SCALE



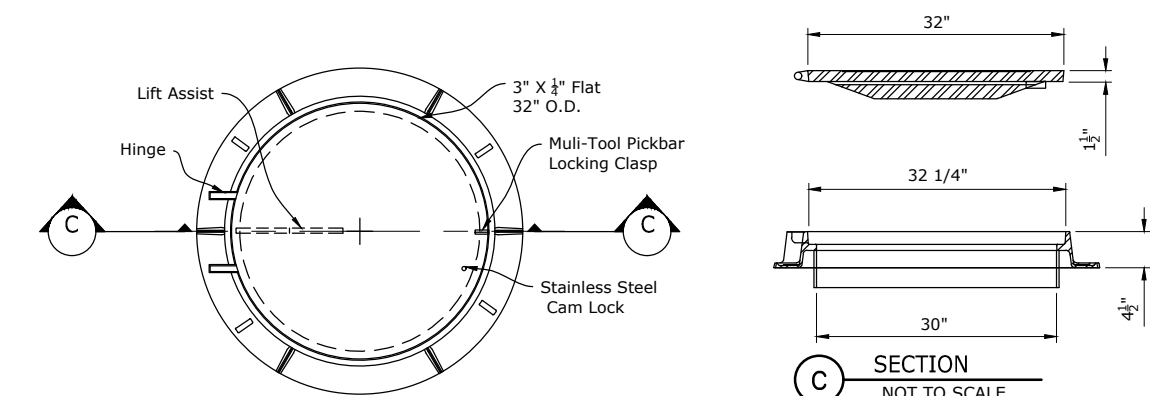
PLAN - 60" Ø MANHOLE
NOT TO SCALE



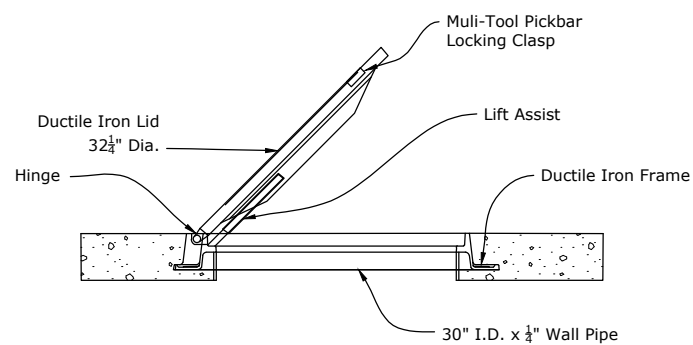
A SECTION
NOT TO SCALE



B SECTION
NOT TO SCALE



MANHOLE COVER DETAILS
NOT TO SCALE



- NOTES**
- Manhole steps shall be made of 1/2-inch steel rod encapsulated with copolymer polypropylene or approved equal and shall conform to ASTM C478. Steps shall have minimum projections of 4-inches, spaced no more than 16" apart, minimum overall widths of 14 inches and anchored into the walls at least 3 1/2 inches deep.
 - Manhole cover shall be provided with a lockable lid.
 - Drawing not to scale.

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By: CHK/

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SMA

Location: Coyote Canyon, NM
PRECAST CONCRETE MANHOLE DETAILS (60731)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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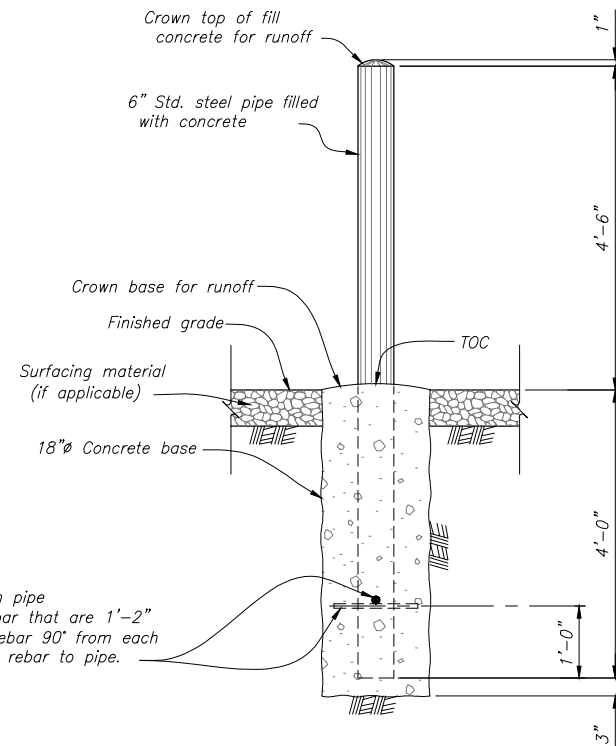
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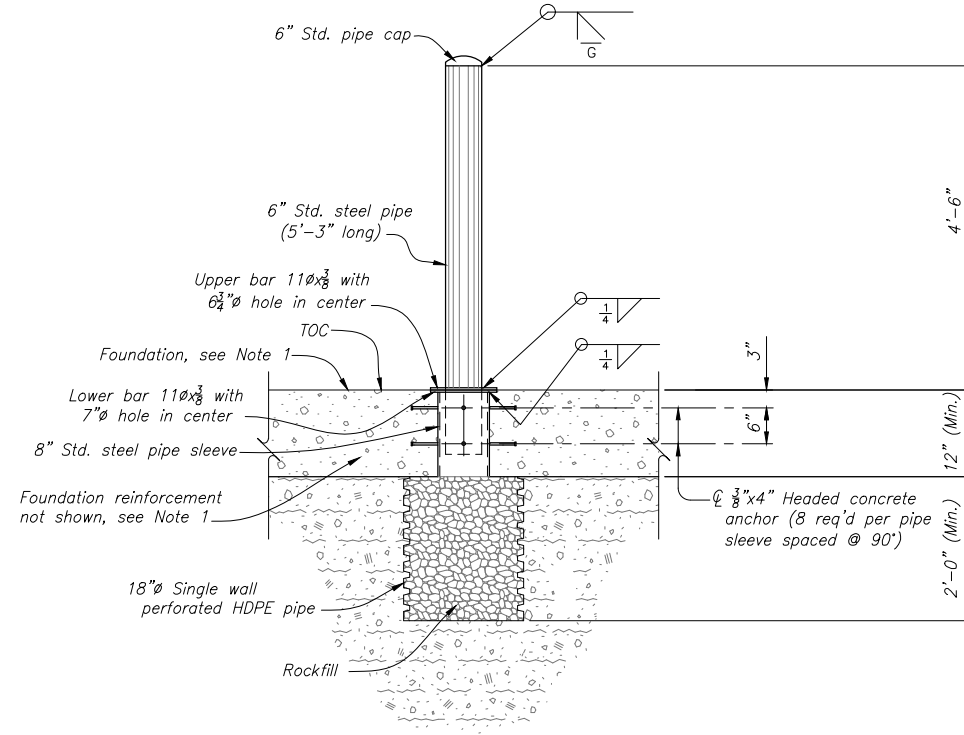
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Scale: Horiz:
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Project No: 6922268
Sheet: DT-27



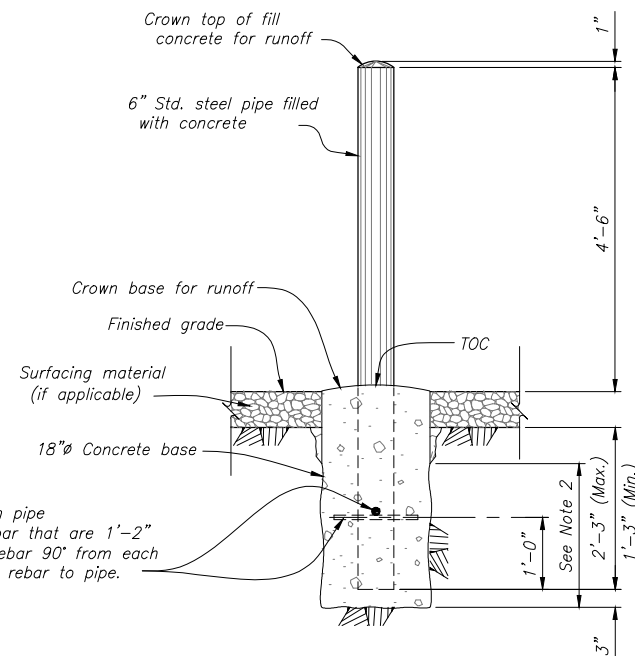
GUARD POST, TYPE I

FOR FOUNDATION EMBEDDED IN COMMON SOIL CONDITION
DO NOT GALVANIZE STEEL PIPE



GUARD POST, TYPE III

REMOVABLE GUARD POST AND SLEEVE FOR SLAB-ON-GRADE CONDITION
GALVANIZE PIPE SLEEVE
DO NOT GALVANIZE STEEL PIPE



GUARD POST, TYPE II

FOR FOUNDATION EMBEDDED IN ROCK CONDITION
DO NOT GALVANIZE STEEL PIPE

GENERAL NOTES

ASTM denotes American Society for Testing and Materials.

AWS denotes American Welding Society.

AWWA denotes American Water Works Association.

COR denotes Contracting Officer's Representative.

HDPE denotes high density polyethylene.

Max. denotes maximum.

Min. denotes minimum.

psi denotes pounds per square inch.

Rebar denotes concrete reinforcement.

Std. denotes standard.

TOC denotes top of concrete.

Typ. denotes typical.

All welds, sections and details are typical for all similar conditions.

Coat steel guard post and upper bar per specifications or as directed by COR.

Unless noted otherwise, galvanize pipe sleeve and lower bar after fabrication per ASTM A385.

Fabricated Metalwork:

Bars _____ ASTM A36

Std. Steel Pipe _____ ASTM A53, Grade B

Rebar _____ ASTM A615

HDPE Pressure Pipe: ASTM F405.

Unless noted otherwise, make all welds continuous and in the shop.

Unless noted otherwise, fabricator shall determine edge preparation and root opening for groove welds.

Arc-Welding Electrodes: Filler metal and required shielding gases or fluxes shall be per AWS D1.1 with filler metal for steel having a minimum tensile strength of 70,000 psi.

Rockfill per ASTM C33, Coarse Aggregate, Size No. 57.

Unless noted otherwise, concrete structural design is based on concrete with a minimum compressive strength of 2,500 psi at 28 days and reinforcement with a minimum yield strength of 60,000 psi.

NOTES

1. Foundation design engineer shall verify foundation stability and the concrete and reinforcement strength requirements.
2. 12" Embedment in moderately weathered or less weathered rock and 24" embedment in intensely-to-moderately weathered or more weathered rock.
3. Install guard posts at locations shown on specifications drawings and/or as directed by COR.

| Revision | Date | Description |
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Client: The Navajo Nation
Location: Coyote Canyon, NM
GUARD POST DETAILS (60002)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

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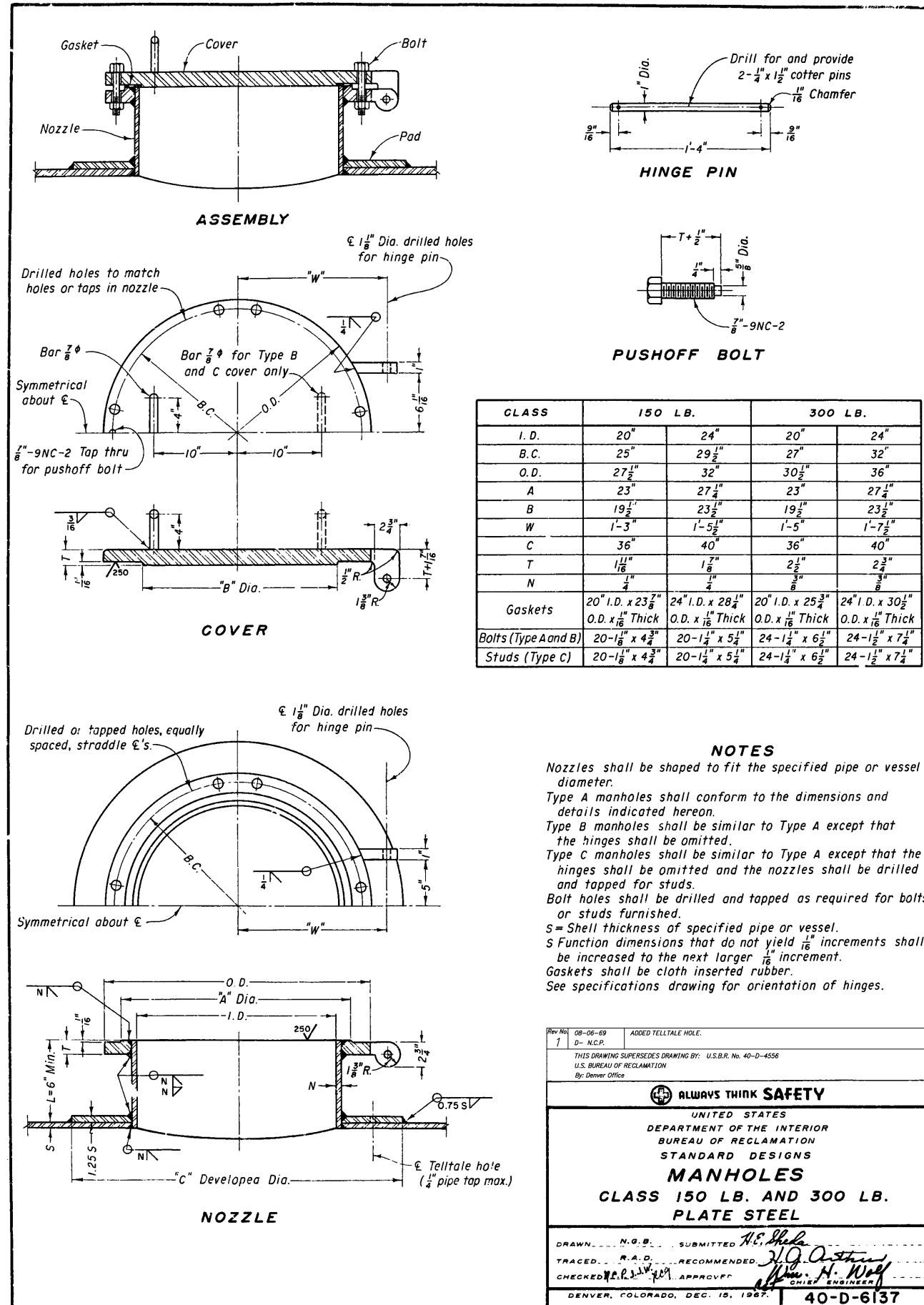
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Project No: 6922268
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P:\6-Beacon Blist N9 Water Line (6922268)\CAD\DWG\10.1.1 BOR Manhole (40-D-6137).dwg
3/15/2022 8:25:04 AM mmh



| CLASS | 150 LB. | | 300 LB. | |
|----------------------|---|---|---|---|
| I. D. | 20" | 24" | 20" | 24" |
| B. C. | 25" | 29 $\frac{1}{2}$ " | 27" | 32" |
| O. D. | 27 $\frac{1}{4}$ " | 32" | 30 $\frac{1}{2}$ " | 36" |
| A | 23" | 27 $\frac{1}{4}$ " | 23" | 27 $\frac{1}{4}$ " |
| B | 19 $\frac{1}{2}$ " | 23 $\frac{1}{2}$ " | 19 $\frac{1}{2}$ " | 23 $\frac{1}{2}$ " |
| W | 1'-3" | 1'-5 $\frac{1}{2}$ " | 1'-5" | 1'-7 $\frac{1}{2}$ " |
| C | 36" | 40" | 36" | 40" |
| T | 1 $\frac{1}{8}$ " | 1 $\frac{7}{8}$ " | 2 $\frac{1}{2}$ " | 2 $\frac{3}{4}$ " |
| N | 4" | 4" | 6" | 6" |
| Gaskets | 20" I.D. x 23 $\frac{7}{8}$ " O.D. x $\frac{1}{16}$ " Thick | 24" I.D. x 28 $\frac{1}{4}$ " O.D. x $\frac{1}{16}$ " Thick | 20" I.D. x 25 $\frac{3}{4}$ " O.D. x $\frac{1}{16}$ " Thick | 24" I.D. x 30 $\frac{1}{2}$ " O.D. x $\frac{1}{16}$ " Thick |
| Bolts (Type A and B) | 20-1 $\frac{1}{8}$ " x 4 $\frac{3}{4}$ " | 20-1 $\frac{1}{4}$ " x 5 $\frac{1}{4}$ " | 24-1 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ " | 24-1 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ " |
| Studs (Type C) | 20-1 $\frac{1}{8}$ " x 4 $\frac{3}{4}$ " | 20-1 $\frac{1}{4}$ " x 5 $\frac{1}{4}$ " | 24-1 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ " | 24-1 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ " |

Rev No: 1
 08-06-69 D- N.C.P.
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 U.S. BUREAU OF RECLAMATION
 By: Denver Office

ALWAYS THINK SAFETY

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF RECLAMATION
 STANDARD DESIGNS
MANHOLES
 CLASS 150 LB. AND 300 LB.
 PLATE STEEL

DRAWN: N.G.B. SUBMITTED: H.E. Shala
 TRACED: R.A.D. RECOMMENDED: J.O. Austin
 CHECKED: R.P. APPROVED: H. Wolf
 DENVER, COLORADO, DEC. 15, 1967. **40-D-6137**

CADD FILENAME:400188.TIF

Client: The Navajo Nation
 Location: Coyote Canyon, NM
MANHOLES (40-D-6137)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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| ELECTRICAL SYMBOL LEGEND | |
|--------------------------|---|
| SYMBOL | DESCRIPTION |
| | WALL OUTLET AND SURFACE MOUNTED FIXTURE |
| | LIGHTING 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 |
| | RTU |
| | THERMOSTAT |
| | WP |
| | NIC |
| | NTS |
| | A.F.F. |
| | A.F.G. |

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

G15) DUST ABATEMENT, 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 SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

SITE DESIGN

G16) SUBGRADE, ALL ELECTRICAL 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.

PROGRAMMING OF PLC + SCADA SYSTEMS

G23) CONTRACTOR RESPONSIBLE FOR PROVIDING, INSTALLING, AND PROGRAMMING A COMPLETE AND WORKING SYSTEM.

G24) CONTRACTOR SHALL COORDINATE ALL PROGRAMMING REQUIREMENTS WITH OWNER AND SHALL REFER TO PLANS AND SPECIFICATIONS FOR SEQUENCE OF OPERATIONS. REFER TO CONTROL WIRING SCHEDULE, DISCRETE & ANALOG I/O LIST, CONTROL AND WIRING DIAGRAMS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
ELECTRICAL LEGEND, GENERAL NOTES
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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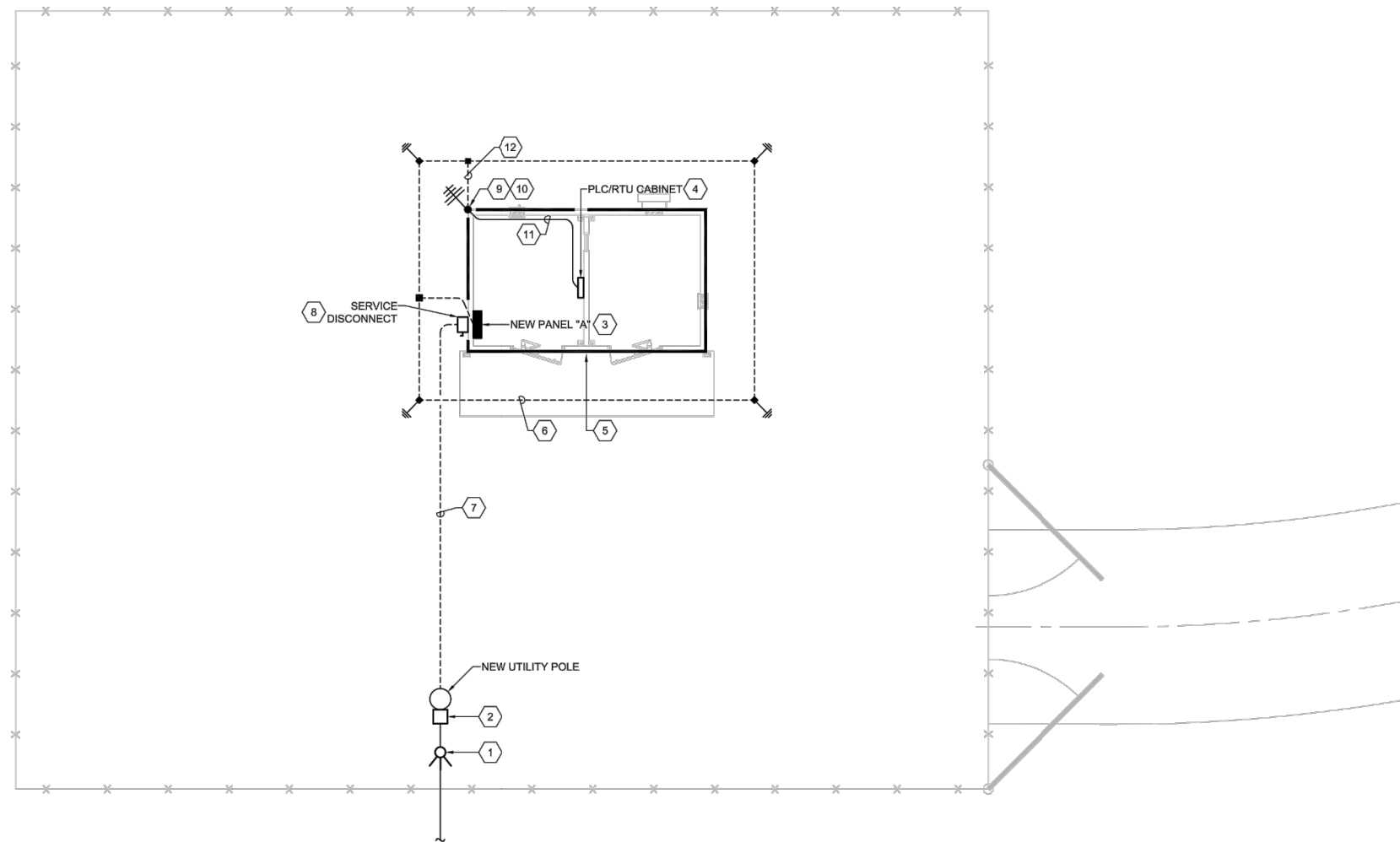
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| Sheet: | E001 |

THE RESPONSE GROUP, INC.
 An Electrical Engineering Corporation
 6705 Academy Rd. NE, Suite B
 Albuquerque, New Mexico 87109
 Phone: (505) 323-7629 Fax: (505) 323-7594
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ELECTRICAL SITE PLAN

SCALE: 1" = 5'-0"



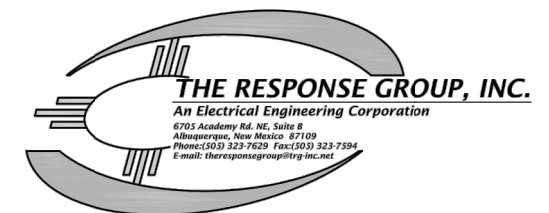
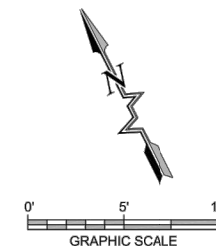
KEYED NOTES

1. NEW OVERHEAD 240 VOLT, SINGLE PHASE LINE OF OVERHEAD CONDUCTORS TO POLE BY JEMEZ UTILITY COMPANY. POLE INSTALLED BY CONTRACTOR PER JEMEZ ELECTRIC COOP SPECIFICATION. VERIFY POWER POLE LOCATION WITH ENGINEER AND UTILITY PRIOR TO FINAL PLACEMENT. MAINTAIN 3'-0" CLEARANCE BETWEEN METER AND FENCE.
2. CONTRACTOR SHALL PROVIDE A METER ENCLOSURE MOUNTED ON POLE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS. METER SHALL FACE TOWARDS FENCE. 25'-0" POLE PROVIDED AND INSTALLED BY THE CONTRACTOR. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" BETWEEN METER AND FENCE PER N.E.C. REQUIREMENTS.
3. BUILDING PANEL "A". REFER TO "POWER RISER DIAGRAM" AND PANEL SCHEDULE ON SHEET E501 FOR ADDITIONAL REQUIREMENTS.
4. PLC/RTU CABINET. REFER TO "CHLORINATION BUILDING - POWER PLAN" ON SHEET E102 FOR LOCATION.
5. NEW CHLORINATION BUILDING. REFER TO BUILDING PLANS ON SHEET E102 AND E103 FOR EQUIPMENT LOCATIONS.
6. REFER TO "CHLORINATION BUILDING - LIGHTNING PROTECTION PLAN" ON SHEET E104 FOR ADDITIONAL REQUIREMENTS.
7. REFER TO "POWER RISER DIAGRAM" ON SHEET E501 FOR UNDERGROUND CONDUIT AND CONDUCTOR SIZES FOR SECONDARY SERVICE.
8. PROVIDE AND INSTALL A BUILDING MOUNTED SERVICE DISCONNECT SWITCH. REFER TO POWER RISER ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
9. INSTALL A YAGI ANTENNA ON TOP OF A 2" RGS CONDUIT MAST AND MOUNT TO THE SIDE OF THE CHLORINATOR BUILDING. ADJUST ANTENNA FOR MAXIMUM SIGNAL STRENGTH. REFER TO SHEET E103 FOR COAXIAL ANTENNA CABLE REQUIREMENT.
10. REFER TO "RADIO ANTENNA AND MAST DETAIL" ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
11. 1" CONDUIT WITH CABLES FROM PLC/RTU TO ANTENNA MAST.
12. BOND ANTENNA CABLE CONDUIT AND ANTENNA MAST TO A 8" X 5/8" COPPER-CLAD STEEL GROUND ROD AND TO BUILDING COUNTER POISE WITH #4 COPPER GROUND CONDUCTORS.

WARNING

IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OR PIPELINE COMPANY, THE OWNER OR BY OTHERS, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES.

THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF TO THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE OF ANY AND ALL DAMAGE CAUSED BY IT'S FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES, AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES IN PLANNING AND CONDUCTING EXCAVATION, WHETHER BY CALLING OR NOTIFYING THE UTILITIES, COMPLYING WITH "NM ONE CALL" PROCEDURES, OR OTHERWISE.



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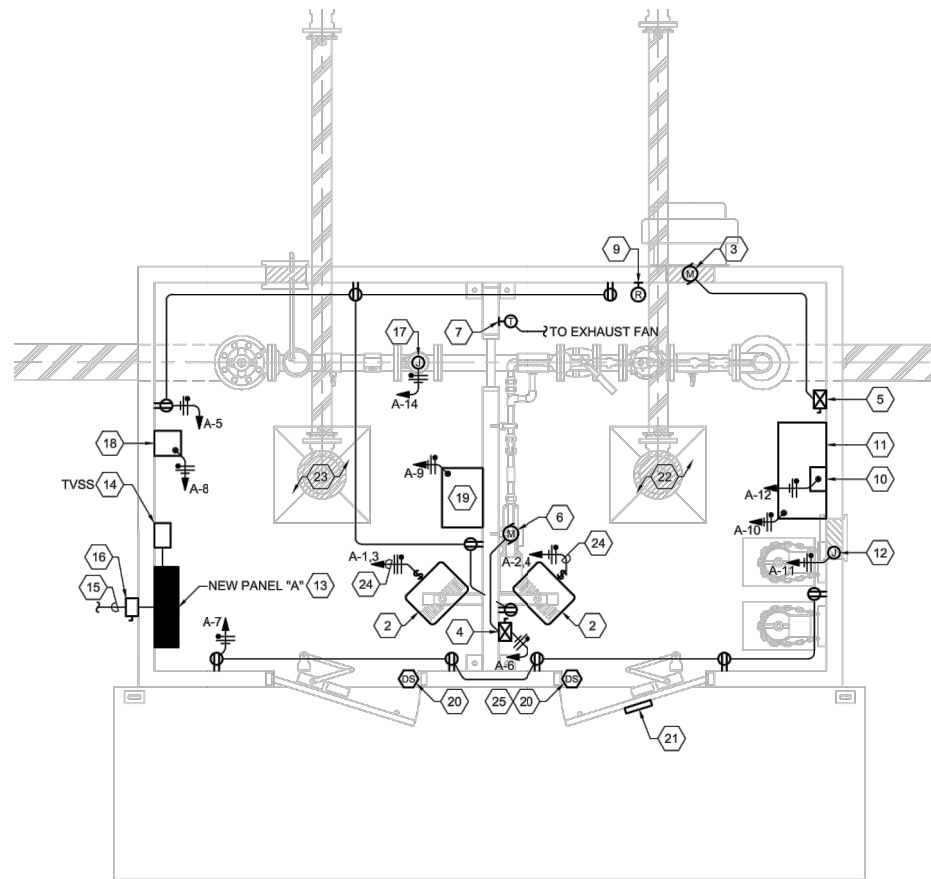
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
ELECTRICAL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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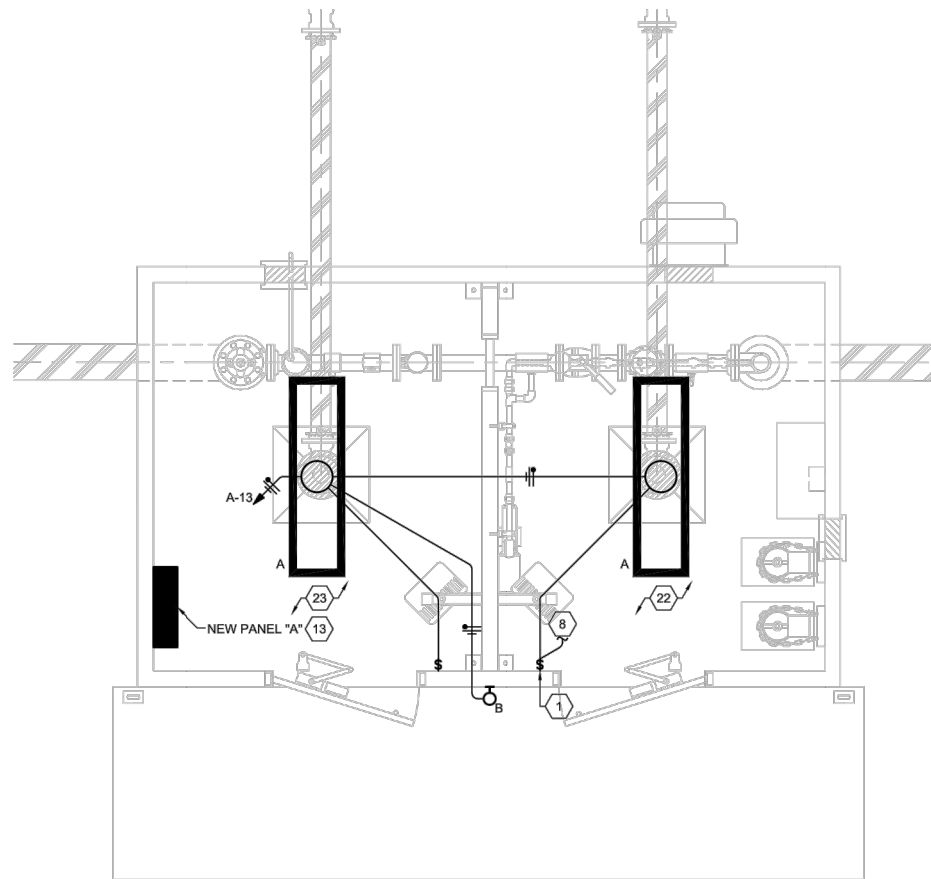
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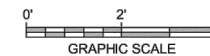
CHLORINATION BUILDING - POWER PLAN

SCALE: 3/4" = 1'



CHLORINATION BUILDING - LIGHTING PLAN

SCALE: 3/4" = 1'



GENERAL NOTES

- A. ALL RECEPTACLES SHALL BE GFCI PROTECTED, IN A WEATHERPROOF JUNCTION BOX AND MOUNTED AT +48" A.F.F.

LIGHT FIXTURE SCHEDULE

| TYPE | FIXTURE DESCRIPTION | LAMPS | MOUNTING |
|------|--|--------------------------------|--|
| A | INDUSTRIAL VAPOR TIGHT LED FIXTURE, 30W INPUT, UNIVERSAL VOLTAGE INPUT, 4000 LUMEN (NOMINAL) OUTPUT UL LISTED FOR WET LOCATIONS METALUX #4VT2-LD5-4-DR-UNV-L835-CD1-WL-SSL-VT2-CHAIN/SET-U | LED (30W) 4000 LM 3500°K | CHAIN HUNG AT 8'-0" A.F.F. |
| B | WALL PACK - LED, 32W INPUT, 120 VOLT INPUT, 2200 LUMEN (NOMINAL) OUTPUT, DARK SKY COMPLIANT WITH PHOTOCCELL LUMARK #LDWP-FC-4B-120V-PE-WG/WPFC | LED (32W) 4000 LM 4000°K | MOUNT AT 8'-0" TO TOP OF FIXTURE |

KEYED NOTES

- PROVIDE AND INSTALL A SINGLE THROW, DOUBLE POLE LIGHTING SWITCH, 120 VOLT. SWITCH SHALL CONTROL THE LIGHTING FIXTURE AND EXHAUST FAN. REFER TO "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201 FOR ADDITIONAL REQUIREMENTS. INSTALL A NEMA 4X POLYESTER RATED COVER.
- PROVIDE AND INSTALL 4 KW 240 VOLT, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. AS MANUFACTURED BY CHROMALOX #VH-04-21-00-TL-D-00-0-S-HVW-1. FAN SHALL BE RATED FOR EXTERIOR USE. PROVIDE AND INSTALL FIELD INSTALLATION DISCONNECT KIT.
- PROVIDE AND INSTALL A THROUGH WALL EXHAUST FAN - 430 CFM, 1/4 HP, 120 VOLTS, WITH BACKDRAFT DAMPER. EXHAUST FAN SHALL BE INTERLOCKED WITH DOOR CONTACT, LIGHT SWITCH, AND THERMOSTAT. REFER TO "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201 FOR ADDITIONAL REQUIREMENTS. MOTOR ENCLOSURE AND WIRING COMPONENTS SHALL BE RATED FOR EXTERIOR USE. MOUNTED AT 18" AFF. EXHAUST FAN SHALL BE CONNECTED TO LIGHTING CIRCUIT IN BUILDING.
- PROVIDE AND INSTALL A COMBINATION STARTER/NON FUSED DISCONNECT SWITCH, 30 AMPS, 2 POLE, NEMA 4X POLYESTER ENCLOSURE, NEMA SIZE 0, H-A SELECTOR SWITCH. THE CHLORINE PUMP STARTER SHALL BE AUTO CONTROLLED FROM THE VC-22D SYSTEM.
- PROVIDE AND INSTALL A COMBINATION STARTER/NON FUSED DISCONNECT SWITCH, 30 AMPS, 2 POLE, NEMA 4X POLYESTER ENCLOSURE, NEMA SIZE 0, H-A SELECTOR SWITCH. THE EXHAUST FAN SHALL BE AUTO CONTROLLED AS SHOWN ON "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201.
- CHLORINE FEED BOOSTER PUMP, 1/3 HP, 120 VOLTS. CONTROLLED FROM THE CHLORINATION SYSTEM. EXTEND CONTROL CONDUCTORS AS REQUIRED BETWEEN THE STARTER AND CHLORINATION SYSTEM.
- PROVIDE AND INSTALL A 120 VOLT THERMOSTAT FOR THE CONTROL OF EXHAUST FAN. REFER TO "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
- EXTEND CONDUIT AND CONDUCTORS FROM THE EXHAUST FAN STARTER TO THE DOOR SWITCH. REFER TO "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201 FOR ADDITIONAL INFORMATION.
- CHLORINE GAS ALARM STROBE LIGHT, HEAVY-DUTY, RED IMPACT RESISTANT LENS, 120 VAC, NEMA 4X ENCLOSURE. WALL STROBE SHALL BE VISIBLE FROM VIEW WINDOW IN CHLORINE ROOM DOOR. THE CHLORINE GAS DETECTOR SHALL ACTIVATE THE STROBE AT THE GAS ALARM SET POINT. PROVIDE AN INTERPOSING RELAY ON CHLORINE GAS DETECTOR ALARM OUTPUT. EXTEND POWER TO INTERPOSING RELAY AND STROBE FROM CHLORINE GAS DETECTOR AT 120 VAC. PROVIDE WITH CHLORINE SYSTEM. EXTEND CONDUIT AND CONDUCTORS FROM STROBE LIGHT LOCATION TO CONTROL PANEL. TERMINATE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION. STROBE BEACON # 105STR-H5-120V-60HZ.
- CHLORINE GAS DETECTOR, SIEMENS, WITH INTEGRAL ALARM HORN AND LED INDICATORS, SENSOR AUTO TEST FEATURE, AND BATTERY BACKUP, NEMA 4X ENCLOSURE. MOUNT GAS DETECTOR/RECEIVER TO WALL AT 6' AFF TO TOP OF PANEL. MOUNT GAS SENSOR/TRANSMITTER 6' AFF ADJACENT TO CHLORINE GAS CYLINDERS, AND WIRE TO DETECTOR/RECEIVER WITH MANUFACTURER PROVIDED SENSOR CABLE. PROVIDE INTERLOCK WITH THE ALARM STROBE TO ACTIVATE ON GAS ALARM. PROVIDE WARNING ALARM AND SENSOR TROUBLE SIGNAL TO PLC. REFER TO SHEET E103 TERMINATE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION.
- NON-PROPORTIONAL CHLORINE GAS FLOW CONTROL PANEL. PROVIDE AND IN NEMA 4X, HINGED ENCLOSURE. PROVIDE CONDUIT AND FIELD WIRING TO MOTOR CONTROLLER ACTUATOR. COORDINATE FINAL LOCATION OF EQUIPMENT GENERAL CONTRACTOR PRIOR TO EXTENDING CIRCUITING AND CONTROL CIRCUITS. CONTRACTORS TO SEAL CONDUIT PENETRATIONS.
- CHLORINE TANK SCALE, WITH DIGITAL DISPLAY, NEMA 4X ENCLOSURE. TERMINATE POWER CIRCUIT TO EQUIPMENT PER MANUFACTURER'S RECOMMENDATION. FORCE FLOW MODEL GR150-2 WITH FORCE FLOW SOLO G2 DIGITAL INDICATOR.
- NEW PANEL "A". REFER TO "POWER RISER DIAGRAM" ON SHEET E501 FOR ADDITIONAL REQUIREMENTS.
- REFER TO "POWER RISER DIAGRAM" ON SHEET E501 FOR TVSS REQUIREMENTS.
- EXTEND UNDERGROUND SERVICE FROM THE SERVICE DISCONNECT SWITCH TO THE METER AT POLE. REFER TO "POWER RISER DIAGRAM" ON SHEET E501 AND "ELECTRICAL SITE PLAN" ON SHEET E101 FOR ADDITIONAL REQUIREMENTS.
- PROVIDE AND INSTALL A BUILDING MOUNTED SERVICE DISCONNECT SWITCH. REFER TO ADDITIONAL REQUIREMENTS. ELSTER EVO Q4 WITH INTEGRAL TRANSMITTER INSTALL WITH FLOW IN PROPER DIRECTION AS INDICATED.
- FLOW METER, HOMERUN TO CIRCUIT INDICATED. REFER TO CONTROL FLOOR PLAN FOR ADDITIONAL REQUIREMENTS.
- FLOW CONTROL VALVE CONTROLLER CLA-VAL VC-22D. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF EQUIPMENT WITH THE GENERAL CONTRACTOR PRIOR TO THE EXTENSION OF CIRCUIT AND CONTROLS. TERMINATE POWER AND CONTROL CABLING TO CONTROLLER PER EQUIPMENT MANUFACTURER'S RECOMMENDATION. PROVIDE AND INSTALL MANUFACTURER'S NEMA 4X HINGED COVER ENCLOSURE.
- PLC/RTU CABINET, NEMA 4X ENCLOSURE. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF EQUIPMENT WITH THE GENERAL CONTRACTOR PRIOR TO THE EXTENSION OF CIRCUIT AND CONTROLS. TERMINATE POWER AND CONTROL CABLING TO CONTROLLER PER EQUIPMENT MANUFACTURER'S RECOMMENDATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- DOOR LIMIT SWITCH WITH ADJUSTABLE LEVER ARM AS MANUFACTURED BY SQUARE D #9007C82B2, ARM #H41. REFER TO CONTROL DIAGRAM FOR ADDITIONAL REQUIREMENTS.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL A SIGN SHOWING: "WARNING: FLASHING LIGHT INDICATES TOXIC CHLORINE GAS RELEASE. DO NOT ENTER WITHOUT SCBA GEAR". SIGN SHALL BE RED IN COLOR WITH WHITE 1" LETTERING, MOUNTED BELOW WINDOW.
- ALL EXPOSED CONDUIT RUNS WITHIN THE CHLORINATION CHEMICAL SIDE OF THE BUILDING SHALL BE PVC CONDUIT. ALL HANGERS AND FITTINGS SHALL BE PVC COATED. CONDUITS THAT EXIT THE CHEMICAL SIDE OF THE BUILDING SHALL BE PROVIDED WITH A SEAL OFF FITTING AFTER EXITING. ALL EQUIPMENT AND MOTOR ENCLOSURE SHALL BE RATED FOR USE WITHIN A CORROSIVE AGENTS AND WET LOCATION.
- ALL EXPOSED CONDUIT INSTALLED WITHIN THE CONTROL ROOM SIDE OF THE CHLORINATION BUILDING SHALL BE RIGID STEEL CONDUIT WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATION.
- 2#10 THWN Cu AND 1#10 THWN Cu GROUND IN 3/4" CONDUIT.
- DOOR SWITCH INDICATED SHALL CONTROL EXHAUST FAN LOCATED IN CHLORINATION CHEMICAL SIDE OF THE BUILDING. REFER TO "CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM" ON SHEET E201 FOR ADDITIONAL INFORMATION.

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ELECTRICAL BUILDING PLAN
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 MCKINLEY COUNTY, NEW MEXICO

THOMAS F. FORT
 25211
 PROFESSIONAL ENGINEER
 7/25/22

22098
 Designed RHF Drawn KD Checked TFR

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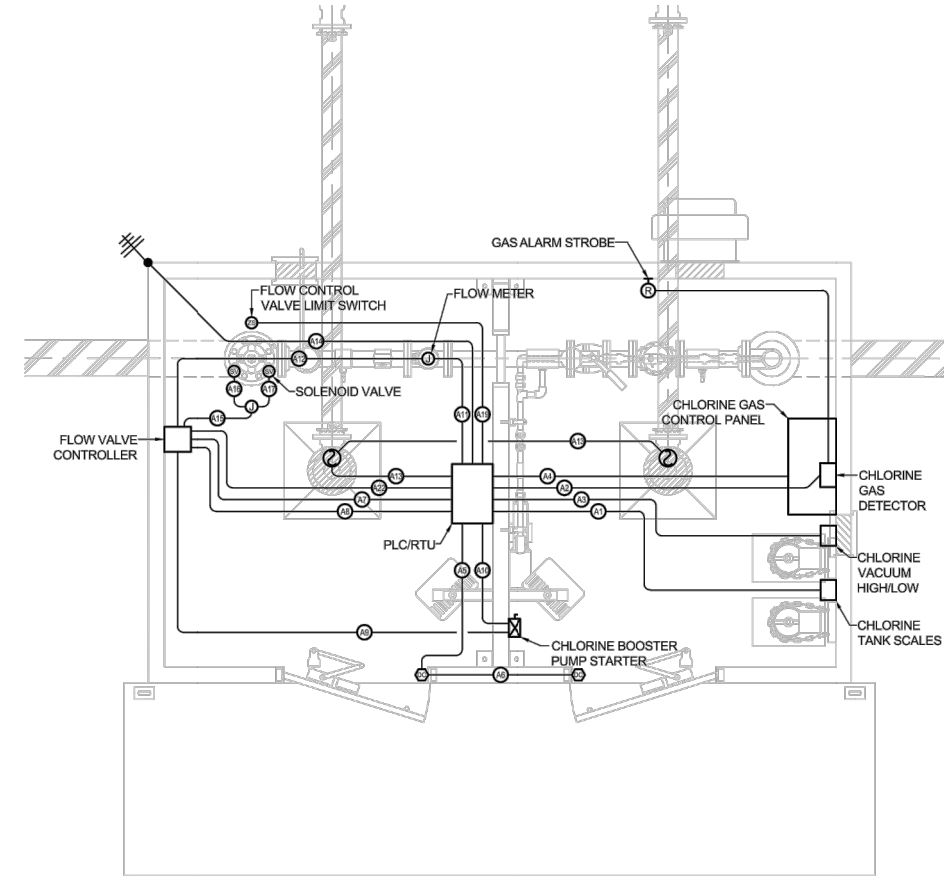
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Date: 2-25-2022
 Scale: Horiz: 3/4" = 1' Vert: N/A

Project No: 6922268
 Sheet: E102



| Control Wiring Schedule | | | |
|-------------------------|---------------------------------|-------------------------------|---|
| TAG # | FED FROM | TO | WIRE REQUIREMENTS |
| A1 | Chlorine Scale | PLC Panel | 2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit |
| A2 | Chlorine Gas Detector | PLC Panel | 6 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A3 | High/Low Vacuum Switch | PLC Panel | 6 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A4 | Chlorine Gas Control Panel | PLC Panel | 4 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A5 | Door Switch | PLC Panel | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A6 | Door Switch | Door Switch | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A7 | PLC Panel | Flow Valve Control | 2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit |
| A8 | Flow Valve Control | PLC Panel | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A9 | Flow Valve Control | Chlorine Booster Pump Starter | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A10 | Chlorine Booster Pump Starter | PLC Panel | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A11 | Flow Meter | PLC Panel | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A12 | Flow Meter | Flow Valve Control | 2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit |
| A13 | Smoke Detectors | PLC | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A14 | Radio Transmitter Unit (RTU) | YAGI Antenna | 1" Conduits each with Cable - Refer to Specification 27 43 30 2.4.C2 for Cable Requirements |
| A15 | Flow Valve Control | Solenoid Valves J-box | 3 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A16 | Solenoid Valve J-box | Solenoid Valve Open | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A17 | Solenoid Valve J-box | Solenoid Valve Closed | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A18 | not used | not used | not used |
| A19 | Flow Control Valve Limit Switch | PLC Panel | 2 # 14, 1 # 14 Gnd - 1/2" Conduit |
| A20 | not used | not used | not used |
| A21 | not used | not used | not used |
| A22 | Flow Rate Signal | PLC/RTU | 1 - 2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit. |

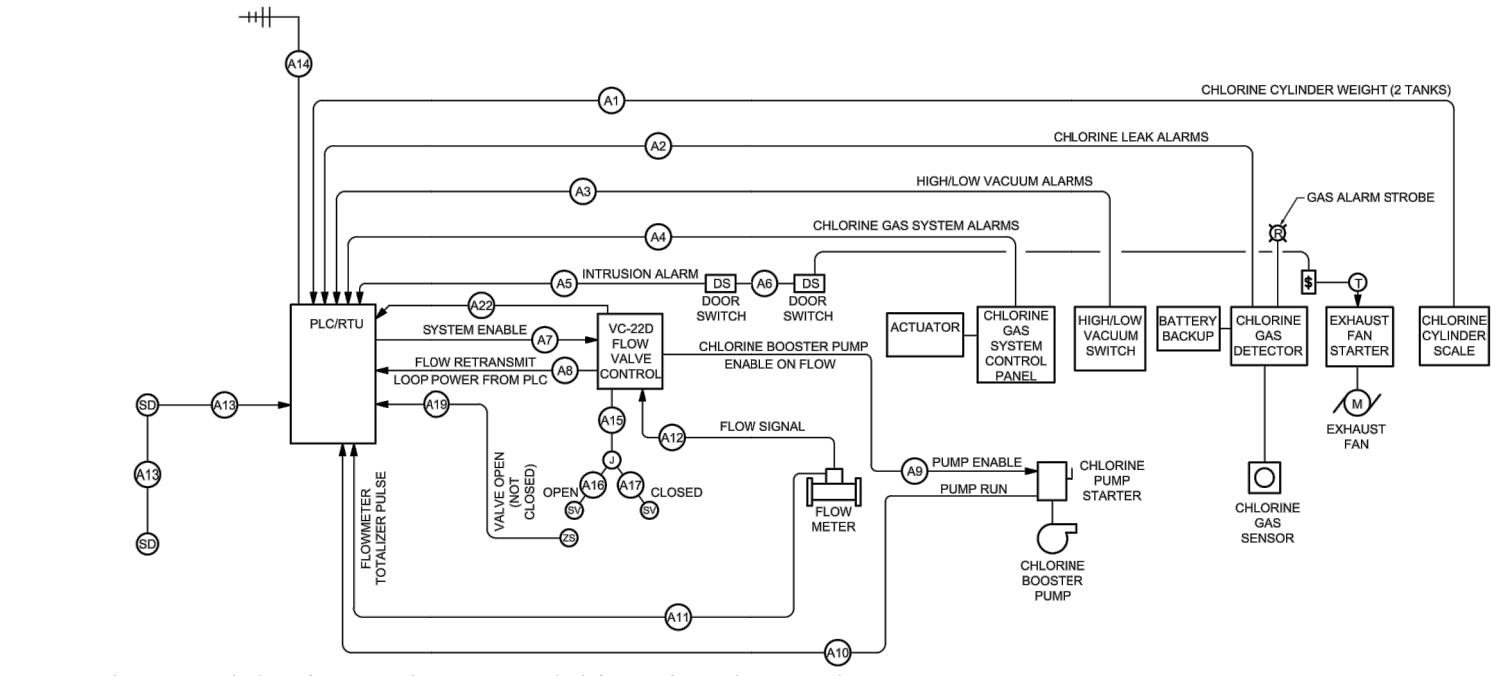


KEYED NOTES

- PROVIDE (2) 1" CONDUIT SLEEVES THROUGH WALL WITH J-BOXES ON EACH SIDE OF WALL AND FIRE SEAL GAS TIGHT. ALL CONTROL CABLES AND WIRING BETWEEN ROOMS SHALL BE ROUTED THROUGH SLEEVES. ONE CONDUIT FOR ANALOG CABLES THE OTHER FOR DIGITAL CABLES. SIZE J-BOXES PER NUMBER OF CONDUITS TERMINATIONS.

CHLORINATION BUILDING - CONTROL PLAN

SCALE: 3/4" = 1'



PUEBLO PINTADO CHLORINATION BUILDING CONTROL RISER DIAGRAM

SCALE: NONE

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Client: The Navajo Nation
 Location: Coyote Canyon, NM
CONTROL PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

THOMAS F. RICHIE
 25211
 PROFESSIONAL ENGINEER
 22098

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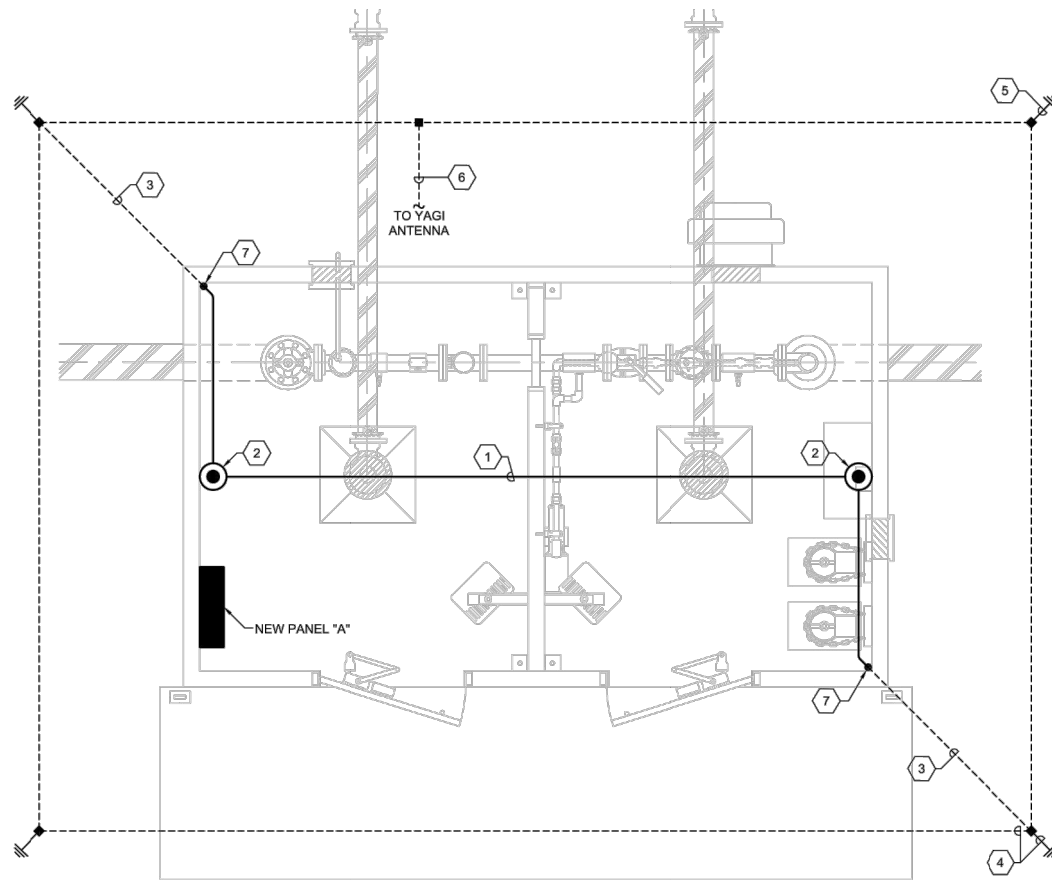
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 Vert: N/A

Project No: 6922268

Sheet: E103





CHLORINATION BUILDING - LIGHTNING PROTECTION PLAN 8

SCALE: 3/4" = 1'



| SYMBOL LEGEND - LIGHTNING PROTECTION | |
|--------------------------------------|--|
| | LIGHTNING AIR TERMINAL |
| | LIGHTNING CABLE CADWELD |
| | GROUND ROD |
| | EXPOSED #2/0 BARE GROUND CABLE |
| | CONCEALED BELOW GRADE #2/0 BARE GROUND CABLE COUNTER POISE |

GENERAL NOTES

- A. REFER TO LIGHTNING PROTECTION SPECIFICATION SECTION 26 60 10 FOR ADDITIONAL INFORMATION.
- B. CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM DRAWING BEFORE INSTALLATION, INCLUDING GROUND RODS AND GROUNDING CABLES (BELOW GROUND AND ABOVE ROOF)
- C. AFTER THE SYSTEM HAS BEEN INSTALLED, THE UL LISTED INSTALLER SHALL COMPLETE AND SUBMIT THE CERTIFICATION APPLICATION.
- D. THE UL LISTED INSTALLER SHALL FORWARD THE CERTIFICATION TO THE OWNER AND PROVIDE PROOF THAT THE LIGHTNING PROTECTION SYSTEM IS IN COMPLIANCE WITH UL, NFPA, OR U.S. GOVERNMENT STANDARDS.
- E. GROUND ROD AND BUILDING COUNTER POISE DEPTH SHALL BE 24" BELOW GRADE.
- F. ALL GROUNDING WIRING SHALL BE PROPERLY CONNECTED PER SPECS SECTION 26 45 00.
- G. THE CONTRACTOR SHALL SELECT AN ADHESIVE FOR THE AIR TERMINALS THAT MANUFACTURED RECOMMENDED AND IS COMPATIBLE FOR USE WITH THE ROOFING SYSTEM.
- H. ALL WIRING CONNECTIONS, AIR TERMINAL BASES, CLAMPS, AND PLATES THAT COME IN CONTACT WITH THE ROOFING MATERIAL SHALL BE INSTALLED USING AN APPROVED ADHESIVE. THE LIGHTNING PROTECTION SYSTEM INSTALLER SHALL NOT CREATE ANY PENETRATION IN THE ROOF WHEN INSTALLING THEIR EQUIPMENT.
- I. ALL WIRING CONNECTORS, AIR TERMINALS, CLAMPS, ETC SHALL BE UL APPROVED FOR A LIGHTNING PROTECTION SYSTEM.

KEYED NOTES 8

1. LIGHTNING PROTECTION CLASS 1 ROOF-MOUNTED LATERAL CONDUCTOR AND MOUNTING HARDWARE. LATERAL CONDUCTOR SHALL BE ALUMINUM.
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 2/0 BARE COPPER DOWN-CONDUCTOR IN 1" CONDUIT.
4. LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
5. GROUND ROD. 3/4" X 10'-0" GROUND ROD.
6. BOND ANTENNA CABLE CONDUIT AND ANTENNA MAST TO A 8" X 5/8" COPPER-CLAD STEEL GROUND ROD AND TO BUILDING COUNTER POISE WITH #4 COPPER GROUND CONDUCTORS.
7. TRANSITION FROM ALUMINUM CONDUCTOR TO COPPER CONDUCTOR USING A LISTED COPPER TO ALUMINUM WIRE CONNECTOR.
8. LIGHTNING PROTECTION SYSTEM LAYOUT ON THIS PLAN IS FOR BIDDING PURPOSES ONLY. INSTALLATION TO BE PER NFPA-780, U.S. GOVERNMENT STANDARDS AND SPECIFICATIONS SECTION 26 60 10. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL.



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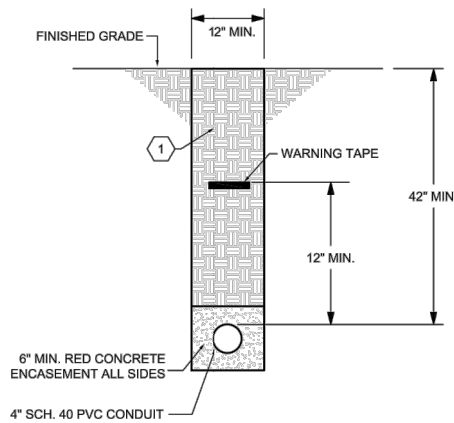
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
LIGHTNING PROTECTION PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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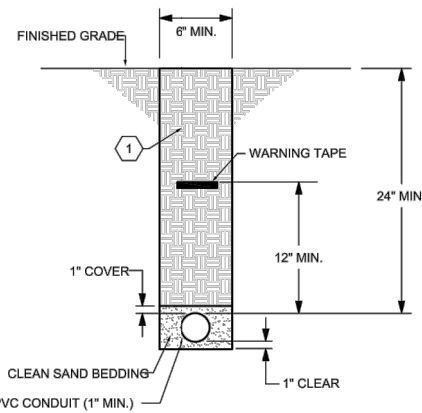
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| Sheet: E104 |



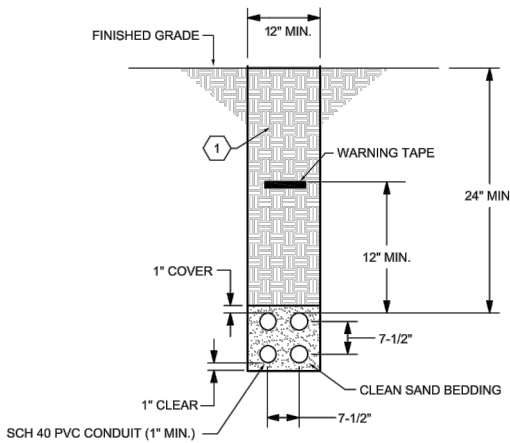
TYPICAL PRIMARY CONDUIT TRENCH DETAIL

SCALE: NONE



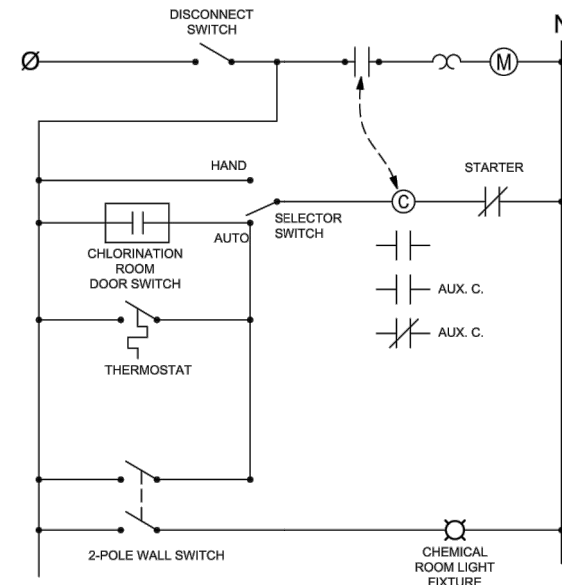
TYPICAL SINGLE CONDUIT TRENCH DETAIL

SCALE: NONE



TYPICAL MULTIPLE CONDUIT TRENCH DETAIL

SCALE: NONE

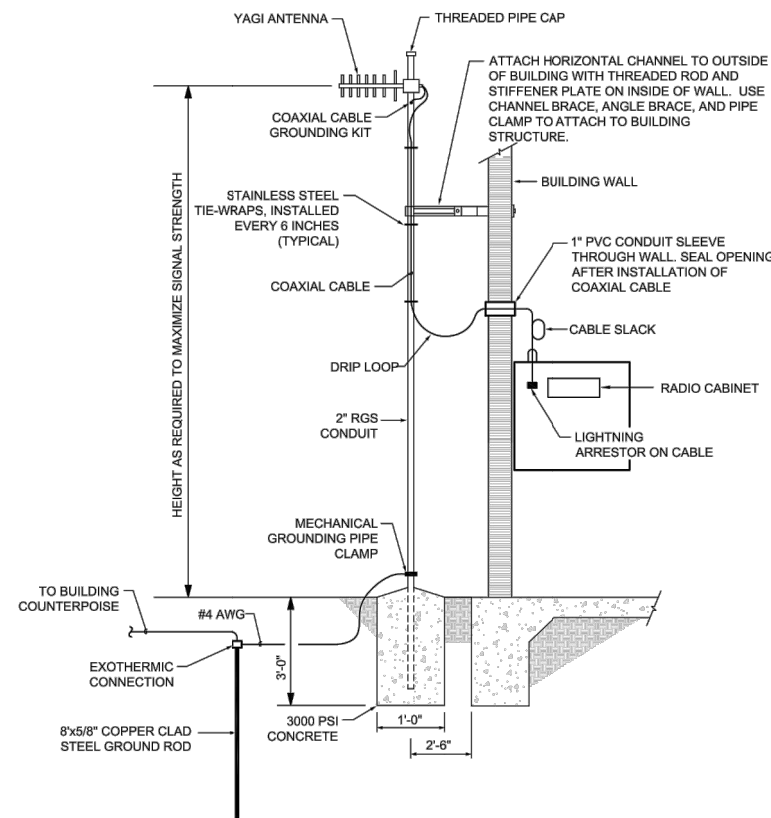


CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM

NO SCALE

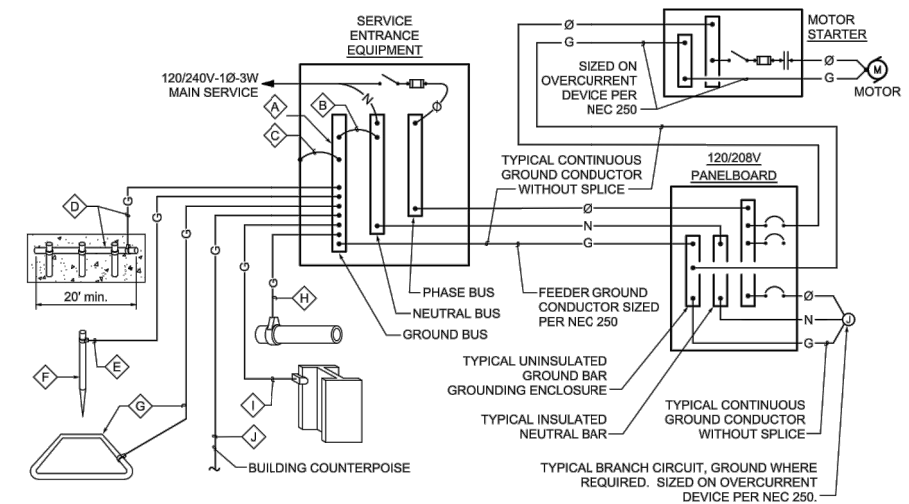
CHLORINATION ROOM EXHAUST FAN OPERATES AS FOLLOWS:
WITH THE STARTER SWITCH IN AUTO:

1. THE FAN WILL TURN ON WHEN THE DOOR IS OPEN VIA THE DOOR SWITCH.
2. WITH THE DOOR CLOSED THE FAN WILL TURN ON WHEN THE LIGHTING SWITCH IS SWITCHED ON.
3. WITH THE DOOR CLOSED AND LIGHTING SWITCH OFF, THE FAN WILL TURN ON BY THERMOSTAT.



RADIO ANTENNA AND MAST DETAIL

SCALE: NONE



GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

NOT TO SCALE

GROUNDING SYSTEM GENERAL NOTES

- 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 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.

| GROUNDING SCHEDULE | | | | | | | | | | |
|---|----------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|---|--------------------------------|------------------------------|-----------------------------------|----------------------------------|------------------------|
| | A | B | C | D | E | F | G | H | I | J |
| | 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 | | 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 | | | | | | | | | | |



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Location: Coyote Canyon, NM

ELECTRICAL DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

Client: The Navajo Nation

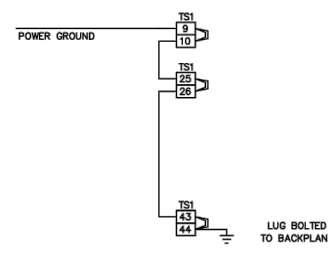
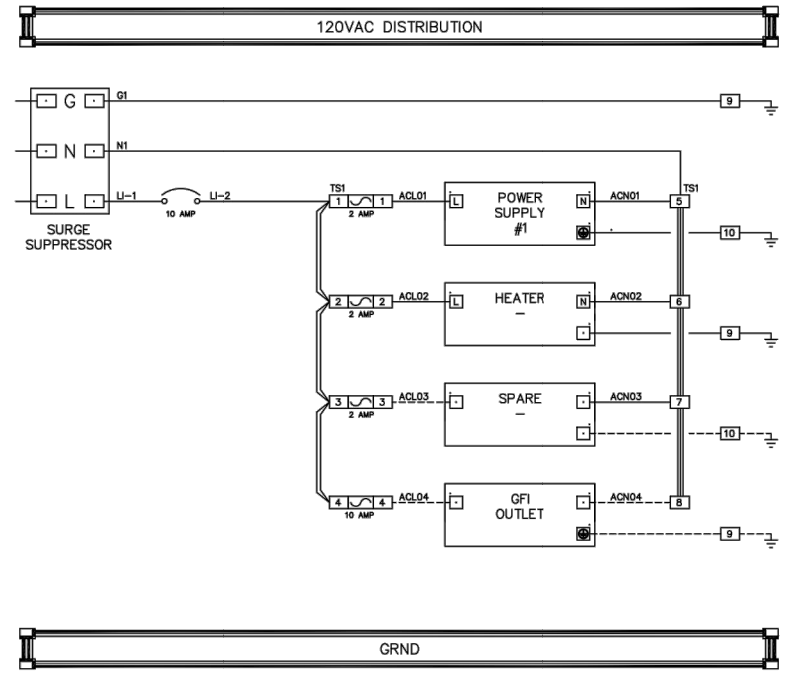
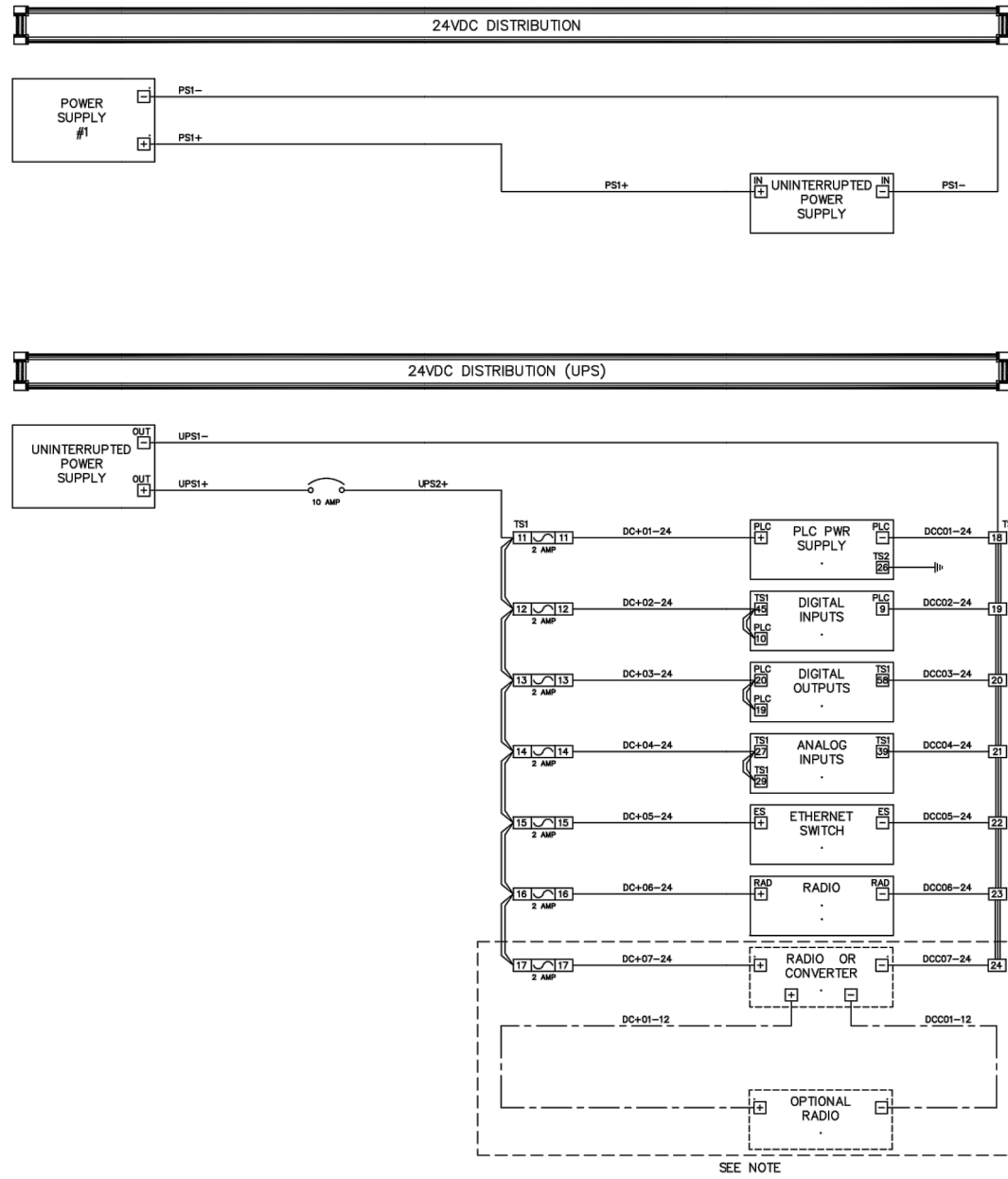
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 25211
 PROFESSIONAL ENGINEER
 7/25/22

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| Project No: | 6922268 |
| Sheet: | E201 |



NOTE: SEE OPTIONS BELOW IF ADDITIONAL RADIO IS REQUIRED, IMPLEMENT ONE OF THE TWO OPTIONS BELOW. OTHERWISE, THIS AREA CAN BE LEFT VACANT FOR ANY FUTURE POWER REQUIREMENTS:
 OPTION #1: WHEN INSTALLING A 24 VDC RADIO, WIRE RADIO DIRECTLY TO TERMINALS 17 & 24 ON TS1.
 OPTION #2: WHEN INSTALLING A 12-13.8 VDC RADIO, INSTALL DC/DC CONVERTER POWERED BY TERMINALS 17 & 24 ON TS1, THEN WIRE RADIO DIRECTLY TO THE DC/DC CONVERTER.

| LEGEND | |
|--------------------|-------|
| Field Terminations | ----- |
| Panel Wiring | _____ |

| NO. | DATE | DESCRIPTION | BY |
|-----|------|-------------|------|
| 01 | 3/19 | DWG UPDATES | NTUA |

NAVAJO TRIBAL UTILITY AUTHORITY

| NO. | DATE | DESCRIPTION | BY |
|-----|------|-------------|----|
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AC TANK CONTROL PANEL
POWER DISTRIBUTION

| Revision | Date | Description |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
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NTUA DIAGRAM
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

THOMAS F. FRIEDEL
 25211
 PROFESSIONAL ENGINEER
 2/25/22

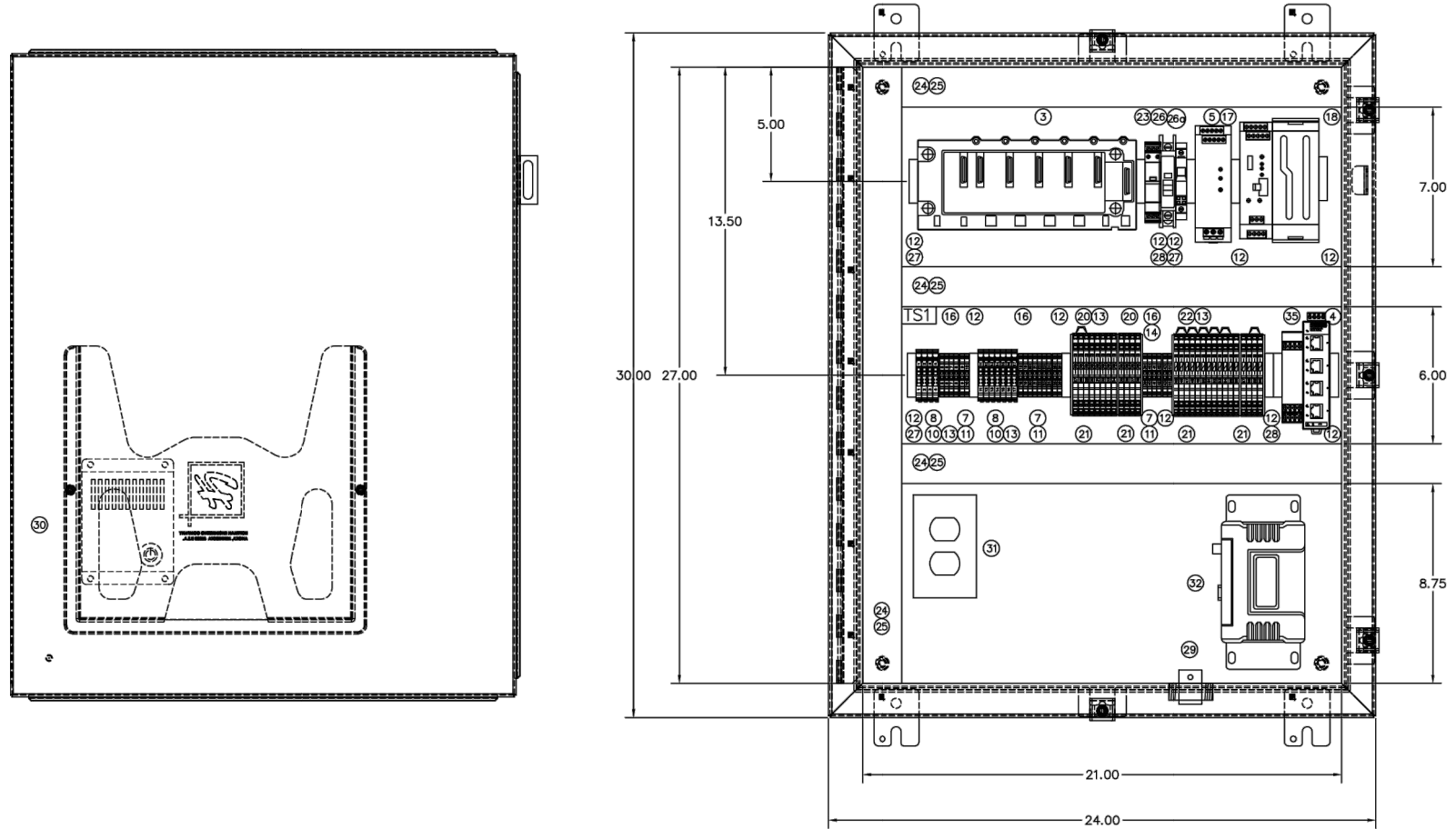
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| Project No.: | 6922268 |
| Sheet: | E301 |





| BILL OF MATERIALS | | | | |
|-------------------|-----|---------------------------------|--|--------------------|
| ITEM | QTY | PART NO. | DESCRIPTION | MFG |
| 1 | 1 | A30H24DLP | SINGLE-DOOR TYPE 4 ENCLOSURE | HOFFMAN |
| 2 | 1 | A30P24 | BACKPLANE | HOFFMAN |
| 3* | | M340 | MODICON M340 BOM | SCHNEIDER ELECTRIC |
| 3a | 1 | BMXXBM0400 | 4-SLOT RACK MODULE | SCHNEIDER ELECTRIC |
| 3b | 1 | BMXGPS3020 | POWER SUPPLY MODULE | SCHNEIDER ELECTRIC |
| 3c | 1 | BMXP342020 | CPU PROCESSOR MODULE | SCHNEIDER ELECTRIC |
| 3d | 1 | BMXDDM16025 | DIGITAL INPUT/OUTPUT MODULE | SCHNEIDER ELECTRIC |
| 3e | 1 | BMXAMM0600 | ANALOG INPUT/OUTPUT MODULE | SCHNEIDER ELECTRIC |
| 3f | 2 | BMXFTB2010 | REMOVABLE CONNECTION BLOCK - SCREW CLAMP | SCHNEIDER ELECTRIC |
| 3g* | 1 | BMXNOM0200 | SERIAL LINK MODULE | SCHNEIDER ELECTRIC |
| 4 | 1 | FL SWITCH SFN 5TX | INDUSTRIAL ETHERNET SWITCH | PHOENIX CONTACT |
| 5 | 1 | QUINT4-PS/1AC/24DC/5 | POWER SUPPLY | PHOENIX CONTACT |
| 6 | | | | |
| 7 | 14 | UT2,5 | UT2,5 TERMINALS | PHOENIX CONTACT |
| 8 | 10 | UT4TG | FUSE TERMINAL BASE | PHOENIX CONTACT |
| 9 | 7 | P-FU5X20LED24 | FUSE PLUG | PHOENIX CONTACT |
| 10 | 4 | P-FU5X20LA250 | FUSE PLUG | PHOENIX CONTACT |
| 11 | 6 | UT2,5PE | GROUNDING TERMINAL | PHOENIX CONTACT |
| 12 | 15 | E/NS35N | END CLAMP | PHOENIX CONTACT |
| 13 | 3 | FBS 20-6 BU #3032208 | FIXED BRIDGE | PHOENIX CONTACT |
| 14 | 3 | FBS 20-5 BU #3036929 | INSERTION BRIDGE | PHOENIX CONTACT |
| 15 | 8 | D-UT2,5/10 | END COVER | PHOENIX CONTACT |
| 16 | 4 | ATP-UT | PARTITION PLATES | PHOENIX CONTACT |
| 17 | 2 | QUINT4-UPS/24DC/24DC/10 | UNINTERRUPTIBLE POWER SUPPLY | PHOENIX CONTACT |
| 18 | 2 | UPS-BAT/VRLA/24DC/1.3AH | ENERGY STORAGE | PHOENIX CONTACT |
| 19 | | | | |
| 20 | 12 | TTC-6-TVSD-C-24DC-UT-I #2906831 | SURGE PROTECTION | PHOENIX CONTACT |
| 21 | 6 | TTC-6-LCP #2908729 | END COVER | PHOENIX CONTACT |
| 22 | 18 | TTC-6-MOV-C-24DC-UT-I #2906837 | SURGE PROTECTION | PHOENIX CONTACT |
| 23 | 1 | PLT-SEC-T3-120-FM #2905228 | TYPE 3 SURGE PROTECTION DEVICE | PHOENIX CONTACT |
| 24 | AN | FZX4LG6 | TYPE F NARROW SLOT WIRING DUCT | PANDUIT |
| 25 | AN | C2LG6 | WIRING DUCT COVER | PANDUIT |
| 26 | 1 | TMC 61C 10A #0902072 | CIRCUIT BREAKER | PHOENIX CONTACT |
| 26a | 1 | UT6-TMCM 10A #0916610 | CIRCUIT BREAKER | PHOENIX CONTACT |
| 27 | AN | 1492DR6 | EXTENDED DIN RAIL | ALLEN BRADLEY |
| 28 | AN | 1492-DR5 | DIN RAIL | ALLEN BRADLEY |
| 29 | 1 | IS-50NX-C2 | LIGHTNING ARRESTER | POLYPHASER |
| 30 | 1 | D-AH1001A | HEATER 100W 115V .9A | HOFFMAN |
| 31 | 1 | DRUBGF15 | DIN RAIL UTILITY BOX | HUBBELL |
| 32 | 1 | ORBIT OR TRANSNET | 902 - 928 MHz RADIO SPREAD SPECTRUM | GEMDS |
| 33 | 1 | CAT6 | CABLE - PLC TO HMI | BELDEN |
| 34* | 1 | | CABLE - PLC TO MODEM (TO LENGTH) | |
| 35* | 1 | MINI-PS-12-24 DC/5-15/2 | DC/DC CONVERTER | PHOENIX CONTACT |

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.

| NO. | DATE | DESCRIPTION | BY |
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| 01 | 3/19 | DWG UPDATES | NTUA |

NAVAJO TRIBAL UTILITY AUTHORITY
 TITLE: AC TANK CONTROL PANEL BACKPLANE
 SHEET 5 OF 6

THE RESPONSE GROUP, INC.
 An Electrical Engineering Corporation
 6705 Academy Rd. NE, Suite B
 Albuquerque, New Mexico 87109
 Phone: (505) 323-7629 Fax: (505) 323-7594
 E-mail: theresponsegroup@trg-inc.net

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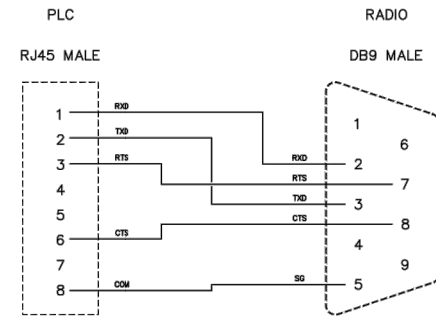
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BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO

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| Project No.: | 6922268 |
| Sheet: | E302 |



A CABLE DIAGRAM: PLC TO RADIO

| NO. | DATE | DESCRIPTION | BY |
|-----|------|-------------|------|
| 01 | 3/19 | DWG UPDATES | NTUA |

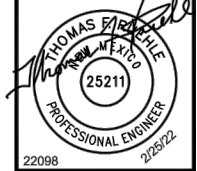
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|-------|------|----------|----|------|
| SCALE | NONE | REVISION | BY | DATE |
| DATE | | | | |
| DRN | | | | |
| CHK | | | | |
| APP | | | | |

| | | | |
|-------|-----------------------|-----|--------------|
| TITLE | AC TANK CONTROL PANEL | NO. | |
| | CABLE PINOUT | | SHEET 6 OF 6 |

| Revision | Date | Description | By | Check |
|----------|------|-------------|----|-------|
| | | | | |
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Client: The Navajo Nation
 Location: Coyote Canyon, NM
NTUA DIAGRAM
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
 MCKINLEY COUNTY, NEW MEXICO



| | | | |
|-------|----------|-------|---------|
| 22098 | Designed | Drawn | Checked |
| | RHF | KD | TFR |

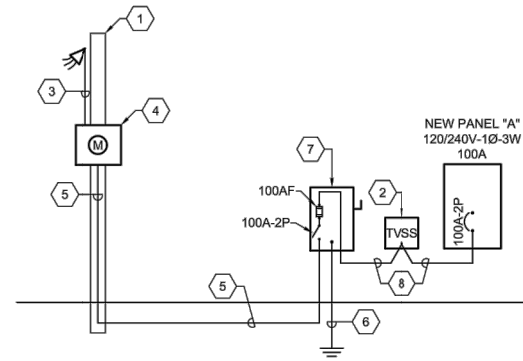
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|--------------|-------------------------|
| Date: | 2-25-2022 |
| Scale: | Horiz: N/A Vert: N/A |
| Project No.: | 6922268 |
| Sheet: | E303 |

THE RESPONSE GROUP, INC.
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| DISCRETE & ANALOG I/O LIST - REFER TO PLANS & SPECIFICATIONS FOR SEQUENCE OF OPERATIONS | | | | | | | |
|---|------------------------------------|-----|-------|------|-------|-------|--|
| Site Name | I/O Name | Tag | Point | Type | Local | SCADA | Notes |
| Pueblo Pintado Chlorination Building | Intrusion Alarm Control Room | | I11 | DI | | Yes | |
| | Intrusion Alarm Chlorine Room | | I12 | DI | | Yes | |
| | Smoke Detector | | I3 | DI | | Yes | |
| | Chlorine Leak Warning | | I4 | DI | | Yes | |
| | Chlorine Leak Alarm | | I5 | DI | | Yes | |
| | Chlorine Detector Fault | | I6 | DI | | Yes | |
| | Chlorine High Vacuum Alarm | | I7 | DI | | Yes | |
| | Chlorine Low Vacuum Alarm | | I8 | DI | | Yes | |
| | Chlorination System Alarm | | I9 | DI | | Yes | |
| | Chlorine Booster Pump Running | | I10 | DI | | Yes | |
| | Flow Valve Open | | I11 | DI | | Yes | |
| | Low Temperature Alarm | | I12 | DI | | Yes | |
| | Manual Flow Control Valve Override | | I13 | DO | | YES | SCADA override tank level function and close control valve |
| | | | | I14 | DI | | |
| | | | | I15 | DI | | |
| | | | | I16 | DI | | |
| | Flow Meter (Totalizer Pulses) | | PI1 | DI | | Yes | SCADA shows totalized volume of water (gallons) |
| | | | PI2 | DI | | | |
| | Flow Enable | | DO1 | DO | Yes | | Interpose Relay From Distribution Tank Level |
| | | | DO2 | DO | | | Interpose Relay |
| | Distribution Tank Level | | AI1 | AI | | Yes | |
| | Flow Meter (Flow Rate) | | AI2 | AI | | Yes | SCADA shows flow rate (gpm) |
| | Chlorine Bottle #1 Weight | | AI3 | AI | | Yes | |
| | Chlorine Bottle #2 Weight | | AI4 | AI | | Yes | |



POWER RISER DIAGRAM

SCALE: NONE

KEYED NOTES

- PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER, METER AND DISCONNECT. LOCATE POLE TO PROVIDE A MINIMUM OF 3'-0" CLEARANCE BETWEEN FENCE AND FACE OF METER.
- 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.
- PROVIDE AND INSTALL A 2" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH JEMEZ ELECTRIC PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUIT.
- PROVIDE AND INSTALL A 100 AMP 120/240 VOLT METER SOCKET, FACING THE FENCE, PER THE LOCAL UTILITY COMPANY REQUIREMENTS.
- 3#2 THWN CU IN 2" CONDUIT OR 3#1/0 THWN AI IN 2" CONDUIT.
- REFER TO "GROUNDING SYSTEM DIAGRAM" ON SHEET E201 FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL A 100 AMP, 250 VOLT, 2-POLE (PLUS SOLID NEUTRAL), GROUND LUG, SERVICE ENTRANCE RATED, FUSIBLE DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE AND INSTALL 100 AMP RK5 FUSES.
- 3#2 THWN CU AND 1#8 THWN CU GROUND IN 1 1/4" CONDUIT OR 3#1/0 THWN AI AND 1#6 THWN AI GROUND IN 1 1/2" CONDUIT.

| PANEL / LOAD SCHEDULE - NEW PANELBOARD "A" | | | | | | | | | | | |
|--|--------------------------|-------------|-----------|---|---------|---------|-----------|-------------------|-------------|-----------------------|--------|
| LOCATION: Chlorination Building | | | | VOLTAGE: 120/240V-1Ph, 3W, AMPACITY: 100 AMPERE | | | | Main: 100A/2P MCB | | | |
| FED FROM: 100A-2P Service Disconnect | | | | ENCLOSURE: NEMA 4X | | | | MOUNTING: SURFACE | | | |
| | | | | AIC: 10,000 | | | | | | | |
| BKR SIZE | DESCRIPTION | DEMAND CODE | LOAD (VA) | PHASE A | PHASE B | PHASE C | LOAD (VA) | DEMAND CODE | DESCRIPTION | BKR SIZE | |
| 30A-2P | UNIT HEATER | LMECH | 2000 | 1 | 4000 | | 2 | 2000 | MECH | UNIT HEATER | 30A-2P |
| | | LMECH | 2000 | 3 | 4000 | | 4 | 2000 | MECH | | |
| 20A-1P | RECEPTACLES | REC | 900 | 5 | 1784 | | 6 | 864 | MECH | CHLORINE PUMP | 20A-1P |
| 20A-1P | RECEPTACLES | REC | 900 | 7 | 1150 | | 8 | 250 | EQP | VALVE CONTROL V/C-22D | 20A-1P |
| 20A-1P | PLC PANEL | EQP | 600 | 9 | 700 | | 10 | 200 | EQP | CHLORINE PANEL | 20A-1P |
| 20A-1P | CHLORINE SCALE | EQP | 100 | 11 | | | 12 | 100 | EQP | CHLORINE DETECTOR | 20A-1P |
| 20A-1P | LIGHTING AND EXHAUST FAN | LTG | 788 | 13 | 988 | | 14 | 200 | EQP | FLOW METER | 20A-1P |
| 20A-1P | SPARE | | | 15 | | | 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 |
| 20A-1P | SPARE | | | 25 | | | 26 | | | SPARE | 20A-1P |
| 20A-1P | SPARE | | | 27 | | | 28 | | | SPARE | 20A-1P |
| 20A-1P | SPARE | | | 29 | | | 30 | | | SPARE | 20A-1P |
| 20A-1P | SPARE | | | 20 | | | | | | SPARE | 20A-1P |

| | | | |
|------------------------------|-------|-------|--|
| Total Phase Loads (VA): | 7,452 | 5,350 | |
| Total Phase Loads (Amps): | 62.1 | 44.6 | |
| Total Connected Loads (kVA): | 12.8 | | |

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

| LOAD CALCULATIONS | | Connected (kVA) by Type: | | Estimated Demand (kVA) by Load Type: | | Total Estimated Demand (kVA): | |
|-------------------|--------------|--------------------------|--|--------------------------------------|-----|---------------------------------------|--|
| LTG | Lighting | 0.8 | | Lighting at 125% (kVA): | 1.0 | Total Estimated Demand (kVA): 14.0 | |
| REC | Receptacles | 1.8 | | Receptacles: | 1.8 | Amps at 240/120V-1 Phase (Amps): 58.3 | |
| | | | | 10kVA at 100% (kVA): | 1.8 | Panel Ampacity (Rating): 100 | |
| | | | | Rest at 50% (kVA): | 0.0 | | |
| EQP | Equipment | 1.4 | | Eqp at 100% (kVA): | 1.4 | Spare Capacity: 41.7% | |
| LMECH | Largest Mech | 4.0 | | Largest at 125% (kVA): | 5.0 | | |
| MECH | Mechanical | 4.9 | | Rest at 100% (kVA): | 4.9 | | |

By: Checked
Description:
Date:
Revision:

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SMA

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NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.1.1
MCKINLEY COUNTY, NEW MEXICO

THOMAS F. FRENCH
25211
PROFESSIONAL ENGINEER
2/25/22

| | | |
|----------|-------|---------|
| Designed | Drawn | Checked |
| RHP | KD | TFR |

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Date: 2-25-2022
Scale: Horiz: N/A
Vert: N/A

Project No: 6922268

Sheet: E501

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