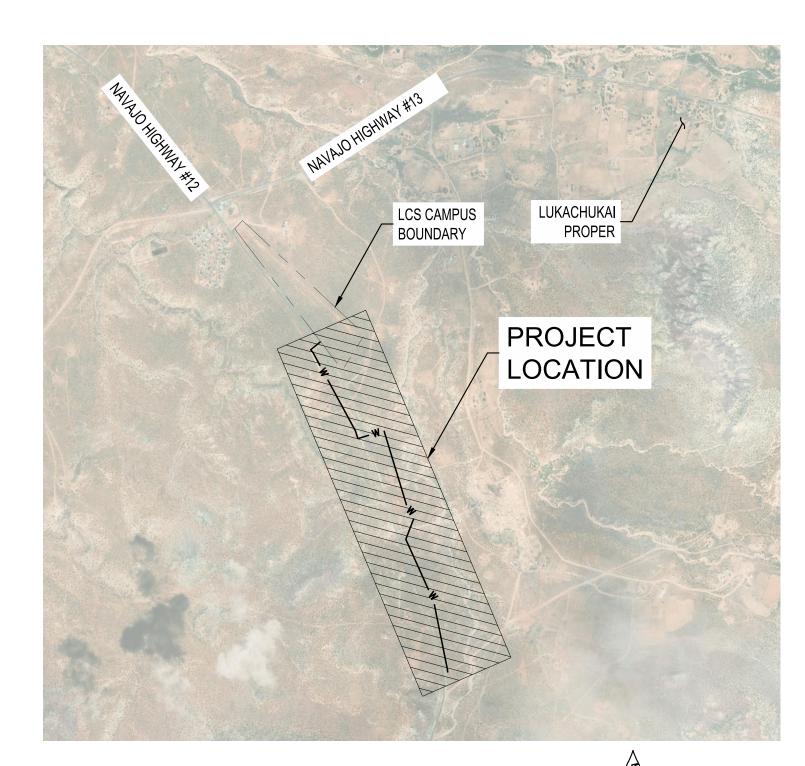
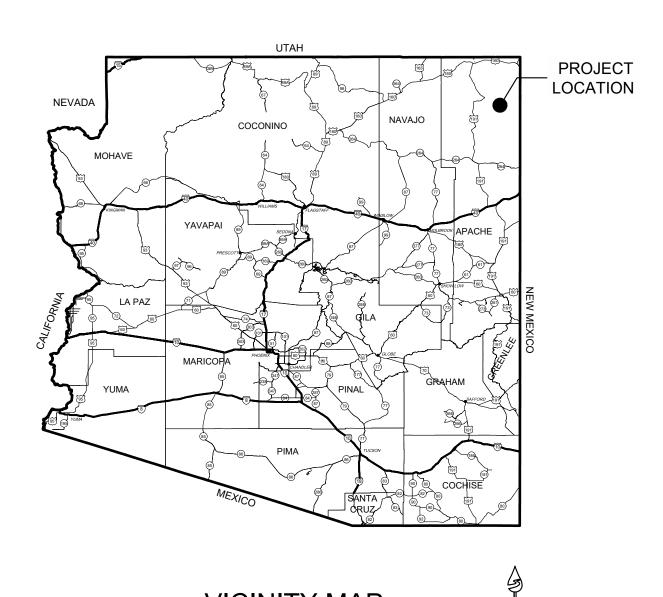
# FOR LUKACHUKAI COMMUNITY SCHOOL WATERLINE SUPPLY LUKACHUKAI, ARIZONA OCTOBER 2021

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SCALE: 1"=2000' (ZONE ATLAS MAP NO. D-16)



SCALE: 1"=80 MILES

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09/03/2021

PROJECT NO.

20-7002.001

DRAWING NAME

LCS WATERLINE SUPPLY COVER SHEET

#### CONSTRUCTION NOTES:

- 1. ABIDE BY ALL LOCAL, NAVAJO NATION, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS.
- 2. PRIOR TO PURCHASE OF WATERLINE PIPE, VERIFY BY POTHOLING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS WITH POTENTIAL TO CHANGE PIPE ALIGNMENT. SHOULD A CONFLICT EXIST, NOTIFY THE ENGINEER OR CONSTRUCTION OBSERVER WITH ENOUGH NOTICE SO THE CONFLICT CAN BE RESOLVED WITHOUT DELAY. EXISTING UTILITY ELEVATION DATA REPRESENTED ON THE PROFILE ARE FIELD MEASUREMENTS FROM SURVEYING OF DATA POINTS AND AS-BUILTS. HOWEVER NEITHER THE ENGINEER NOR THE OWNER ASSUMES RESPONSIBILITY FOR COMPLETENESS OR INTERPRETATION OF SUCH SUPPLEMENTARY INFORMATION.
- 3. ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER PRIVATE UTILITY LINES, CABLES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION PER THE PLANS, SHALL BE COORDINATED WITH THAT UTILITY. COORDINATE ALL NECESSARY UTILITY ADJUSTMENTS (AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.)
- 4. PROTECT THE EXISTING PUBLIC AND PRIVATE UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE UNLESS OTHERWISE NOTED ON THE PLANS AND APPROVED BY THE CONSTRUCTION OBSERVER.
- 5. LIMIT CONSTRUCTION ACTIVITY TO THE RIGHTS-OF-WAY AND EASEMENTS, PROPERTY LIMITS AND/OR PROJECT LIMITS OF DISTURBANCE. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. ANY COSTS INCURRED FOR REPAIRS SHALL BE THE COST OF THE CONTRACTOR.
- 6. REPLACE AT CONTRACTOR'S EXPENSE ANY AND ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION. ALL PROPERTY CORNERS SHALL BE RESET BY AN ARIZONA REGISTERED PROFESSIONAL SURVEYOR.
- 7. REPLACE IN KIND ALL EXISTING PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNING DAMAGED BY CONSTRUCTION. ALL COSTS THEREFORE SHALL BE AT CONTRACTORS EXPENSE.
- 8. REPAIR DAMAGE TO EXISTING PAVEMENTS, PAVEMENT MARKINGS, CURB & GUTTER, DRIVE PADS, WHEELCHAIR RAMPS, AND SIDEWALK DURING CONSTRUCTION, APART FROM THOSE SECTIONS INDICATED FOR REMOVAL ON THE PLANS, AND REPAIR OR REPLACE PER NTUA STANDARDS, AT CONTRACTORS EXPENSE.
- 9. COMPLY WITH OSHA 29 CFR 1926.650 SUBPART P AS A MINIMUM ACCEPTABLE STANDARD.
- 10. SUPPORT EXPOSED EXISTING UTILITIES INCLUDING SEWER SERVICE LATERALS SUSPENDED ACROSS OR PARALLEL WITH TRENCH EXCAVATION. A SUPPORT PLAN SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL UTILITIES WATER, SAS AND SD GREATER THAN 16 INCHES, UNLESS OTHERWISE REQUESTED, WHERE THE NEW PIPELINE IS CONSTRUCTED UNDERNEATH THE NEW UTILITY.
- 11. UTILIZE FLOWABLE FILL WHERE NOTED ON PLANS OR WHEREVER BACKFILL MATERIAL CAN NOT BE PLACED AND COMPACTED PER SPECIFICATION BETWEEN THE NEW PIPE LINE AND EXISTING UTILITIES OR IF THE VERTICAL SEPARATION BETWEEN THE NEW PIPE LINE AND EXISTING UTILITY IS LESS THAN 18 INCHES OR IF REQUIRED BY THE DRAWINGS. THIS COST IS INCIDENTAL TO BACKFILL COSTS.
- 12. DURING THE CONSTRUCTION OF THE NEW WORK, INSTALL ANY TEMPORARY DRAINAGE MEASURES NECESSARY TO SAFELY CONVEY STORM WATER RUNOFF TO EXISTING OUTFALLS. SILT FENCES AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SHOWN IN THE SWPPP. ANY DAMAGES TO PRIVATE PROPERTY OR IMPROVEMENTS CONSTRUCTED BY THE CONTRACTOR RESULTING FROM STORM WATER FLOWS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 13. USE CAUTION AT ALL EXISTING STRUCTURES INCLUDING ALL MASONRY WALLS, BUILDING, ETC.
- 14. ALL STRUCTURAL CONCRETE TO BE 4000 PSI UNLESS OTHERWISE NOTED ON PLANS OR SPECIFICATIONS.
- 15. ALL BURIED DUCTILE IRON PIPE SHALL BE ENCASED IN POLYETHYLENE SHEETING PER SECTION 3.02.01 OF THE TECHNICAL PROVISIONS.
- 16. CONTRACTOR SHALL MAINTAIN WATER AND SEWER SERVICE TO USERS THROUGHOUT CONSTRUCTION. MEASURES FOR TEMPORARY SHOE-FLY OR BYPASS PUMPING REQUIRED DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COSTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- 17. IF SIGNIFICANT CHANGES ARE REQUIRED, THE CONTRACTOR SHALL CONTACT NTUA TRAFFIC ENGINEER BEFORE REMOVING AND/OR INSTALLING ANY TRAFFIC SIGNS OR PERMANENT STRIPING AND MARKINGS. ALL STRIPING, PAVEMENT MARKINGS INCLUDING CROSSWALKS, LEGENDS AND SYMBOLS ARE TO BE CONSTRUCTED OF INTERSECTION GRADE COLD PLASTIC AND LINE MARKINGS ARE TO BE CONSTRUCTED OF DURABLE PAINT IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION. ANY PAVEMENT MARKINGS AND SIGNS REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT EXISTING LOCATIONS. SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF THE PROJECT.

#### NOTICE TO CONTRACTORS:

- 1. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN AND OBTAIN APPROVAL OF SUCH PLAN FROM THE BIA TRAFFIC ENGINEERING DEPARTMENT, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
- PERFORM ALL WORK DETAILED ON THESE PLANS IN ACCORDANCE WITH THE LATEST VERSION OF THE NAVAJO TRIBAL UTILITY AUTHORITY CONSTRUCTION REQUIREMENTS TECHNICAL SPECIFICATIONS FOR MATERIALS AND WORKMANSHIP FOR WATER AND WASTEWATER FACILITIES.
- 3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES. CONTACT DARRYL BEGAYE, NTUA, (928) 225-0358.
- 4. MAINTAIN A GRAFFITI-FREE WORK SITE. PROMPTLY REMOVE ANY GRAFFITI FROM ALL EQUIPMENT, WHETHER PERMANENT OR TEMPORARY.
- 5. ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
- 6. THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND THE BEGINNING OF EACH DAY.
- 7. THE CONTRACTOR SHALL COMPLY WITH ALL NNEPA RULES AND REGULATIONS WHICH REGULATE THE DISCHARGE OF POLLUTANTS IN STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY AS DEFINES IN THE NPDES STORM WATER REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR SWPPP IMPLEMENTATION, INSPECTION, AND MAINTENANCE. THE CONTRACTOR WILL POST THE SWPPP ON SITE AS REQUIRED, AS WELL AS SUBMIT COPIES OF SWPPP INSPECTION REPORTS TO OWNER. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO ENSURE N.O.I.S. AND N.O.T.S. ARE COMPLETED IN A TIMELY FASHION.

#### ADDITIONAL NOTES:

- 1. A MINIMUM 10 FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES AND A MINIMUM OF 12 INCH VERTICAL SEPARATION SHALL BE MAINTAINED AT A WATERLINE CROSSING A SEWER LINE. WHERE A WATERLINE PASSES BENEATH OR LESS THAN 12 INCH ABOVE AN EXISTING SEWER LINE, THE SEWER LINE SHALL BE A MINIMUM 18 FOOT LONG DUCTILE IRON PIPE CENTERED ABOVE/BELOW THE WATERLINE CROSSING WITH GASKETED JOINTS WITH NO JOINTS CLOSER THAN 9 FEET TO THE WATERLINE IN EACH DIRECTION. WHERE A NEW WATERLINE IS CONSTRUCTED MORE THAN 12 INCHES BELOW AN EXISTING SEWER LINE, THE WATERLINE SHALL BE 20 FOOT LONG PVC PIPE CENTERED UNDER THE SEWER LINE PER NTUA STANDARD DRAWING WS-20, SHEET D-03.
- 2. REFER TO NTUA STANDARD DRAWING WS-15, SHEET D-02 FOR TYPICAL TRENCH AND BACKFILL DETAIL.
- 3. THE CONTRACTOR SHALL CONSTRUCT THE WATERLINE IN ACCORDANCE WITH ELEVATIONS SHOWN ON THE PLAN AND PROFILE SHEETS. THE CONTRACTOR SHALL MAINTAIN A 42-INCH MINIMUM BURY DEPTH OF THE PIPELINE THROUGHOUT.

#### **LEGEND**

**—— w ——— w ———** PROPOSED WATER LINE EXISTING WATER LINE (SURVEYED) EXISTING OVERHEAD ELECTRIC (SURVEYED) PARCEL BOUNDARY ROAD / WASH BOUNDARY EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED GATE VALVE PROPOSED PRESSURE REDUCING VALVE PROPOSED FLUSH VALVE PROPOSED COMBINATION AIR VALVE EXISTING GATE VALVE EXISTING WATER MANHOLE **EXISTING WATER SHUT-OFF** EXISTING UTILITY POLE **EXISTING GUY POLE** FOUND MONUMENT AS DESCRIBED

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DATE

09/03/2021

PROJECT NO.

20-7002.001

DRAWING NAME

LCS WATERLINE SUPPLY GENERAL NOTES AND LEGEND

SHEET NO.

G-02

OE



#### Lukachukai Waterline Control Report

Control is for Lukachukai Waterline Project. Based on GPS RTK measurements and an OPUS solution using Trimble R8 receivers. The intended use for the control is engineering design and construction for a waterline.

#### **Coordinate System Definition:**

Arizona State Plane East 0201 - Modified to ground Geodetic Coordinates: NAD83 (2011) Vertical Datum: NAVD 88 - Geoid18 Project Origin: Point #400 Project Origin Northing: 1965112.095

Project Origin Easting: 967758.249 Project Origin Latitude: N 36°23'49.88062"

Project Origin Longitude: W 109°15'24.63001" Ground Scale Factor: 1.000220724

Basis of Bearings: Grid Bearings

Units: International Feet

# Coordinate Table: Point Latitude

Point Number	Latitude	Longitude	Ellipsoid Height	Orthometric Elevation	Modified Northing	Modified Easting	Description
102	36.404093	-109.255364	6340.88	6404.86	1967630.14	968169.64	3IN AC S29 S30 S31 S32 BLM
200	36.400024	-109.261931	6353.08	6417.07	1966130.37	966250.57	1IN YPC - NO 4 REBAR LS93818
201	36.40034	-109.261958	6354.77	6418.76	1966245.38	966241.55	1.5IN YPC LS36760
203	36.383408	-109.249685	6475.00	6538.78	1960113.96	969912.68	NO. 4 REBAR NO CAP
400	36.397189	-109.256842	6384.55	6448.49	1965112.10	967758.25	CP-Waterline
10301	36.375097	-109.246365	6504.54	6568.24	1957097.04	970919.03	3IN AC 1/4 S5 S8 2000 BLM
10302	36.375097	-109.255329	6551.52	6615.27	1957071.96	968279.42	3IN AC S5 S6 S7 S8 2000 BLM
10306	36.379795	-109.248821	6489.30	6553.05	1958800.75	970179.57	3IN AC IN CONC B.I.A ROADS 19
10307	36.382346	-109.255338	6491.64	6555.45	1959711.46	968251.83	3IN AC 1/4 S6 S5 2000 BLM
10308	36.389595	-109.255347	6406.49	6470.35	1962350.92	968224.24	3IN AC S31 S32 S16 S5 2000 BLM

#### SURVEYOR'S CERTIFICATE:

I, Timothy A. Barnett, being a Registered Professional Land Surveyor, licensed in the State of Colorado, do hereby certify that this Control Report was prepared on September 24<sup>th</sup>, 2021, from a survey performed in July and August, 2021 under my direct supervision and checking, and that this Control Report is true and accurate to the best of my knowledge and belief.

Timothy A. Barnett Colorado PLS # 38404 For, and on behalf of SGM

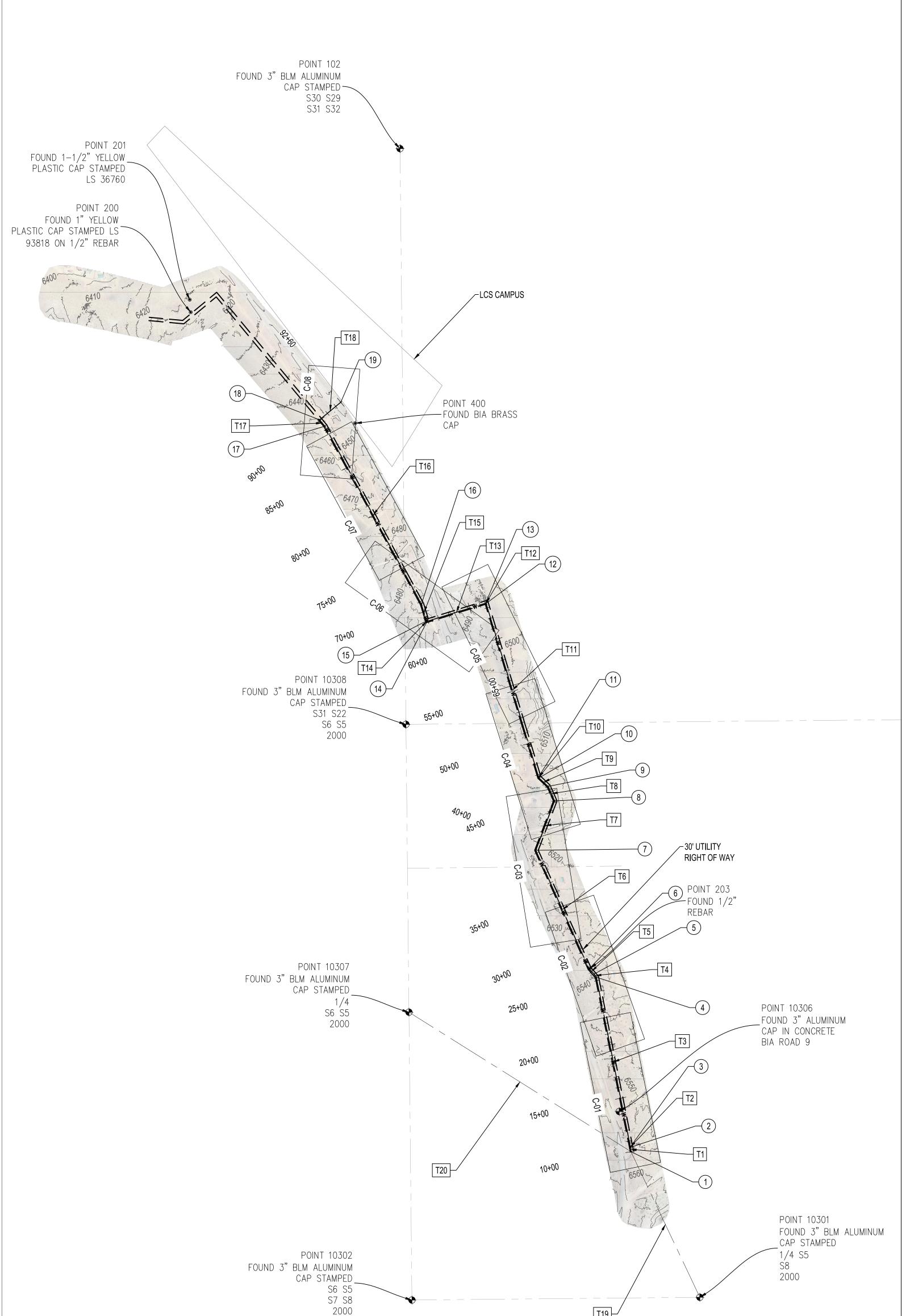


DURANGO 555 RiverGate Lane, Suite B4-82 | Durango, CO 81301 | 970.385.2340

	POINT TABLE				
POINT#	DESCRIPTION	NORTHING	EASTING	ELEVATION	
1	ВОР	1958433.22	970286.67	6552.07	
2	45° BEND	1958471.75	970278.92	6551.45	
3	45° BEND	1958476.46	970282.06	6551.29	
4	22.5° BEND	1960032.48	969969.44	6534.65	
5	11.25° BEND	1960061.87	969949.72	6534.33	
6	22.5° BEND	1960108.76	969902.66	6533.71	
7	45° BEND	1961195.92	969414.39	6519.21	
8	45° BEND	1961649.04	969586.65	6515.10	
9	22.5° BEND	1961781.57	969527.13	6515.26	
10	22.5° BEND	1961859.99	969443.96	6513.29	
11	11.25° BEND	1961868.91	969439.95	6513.11	
12	45° BEND	1963459.62	968959.31	6495.17	
13	45° BEND	1963461.95	968954.89	6495.22	
14	45° BEND	1963296.13	968419.40	6472.37	
15	45° BEND	1963299.38	968413.24	6472.24	
16	11.25° BEND	1963452.46	968365.83	6476.19	
17	11.25° BEND	1965085.35	967480.73	6439.85	
18	6" CROSS	1965143.54	967432.41	6437.76	

1965304.98 967626.80 6438.79

TANGENT TABLE				
ID	LENGTH	BEARING		
T1	39.30	N11° 21' 36"W		
T2	5.66	N33° 38' 24"E		
T3	1587.12	N11° 21' 36"W		
T4	35.39	N33° 51' 36"W		
T5	66.43	N45° 06' 34"W		
T6	1191.77	N24° 11' 09"W		
T7	484.76	N20° 48' 51"E		
T8	145.28	N24° 11' 09"W		
Т9	114.31	N46° 41' 10"W		
T10	9.78	N24° 11' 09"W		
T11	1661.74	N16° 48' 44"W		
T12	5.00	N62° 12' 24"W		
T13	560.57	S72° 47' 37"W		
T14	6.97	N62° 12' 24"W		
T15	160.25	N17° 12' 33"W		
T16	1857.35	N28° 27' 34"W		
T17	75.63	N39° 42' 34"W		
T18	252.69	N50° 17' 26"E		



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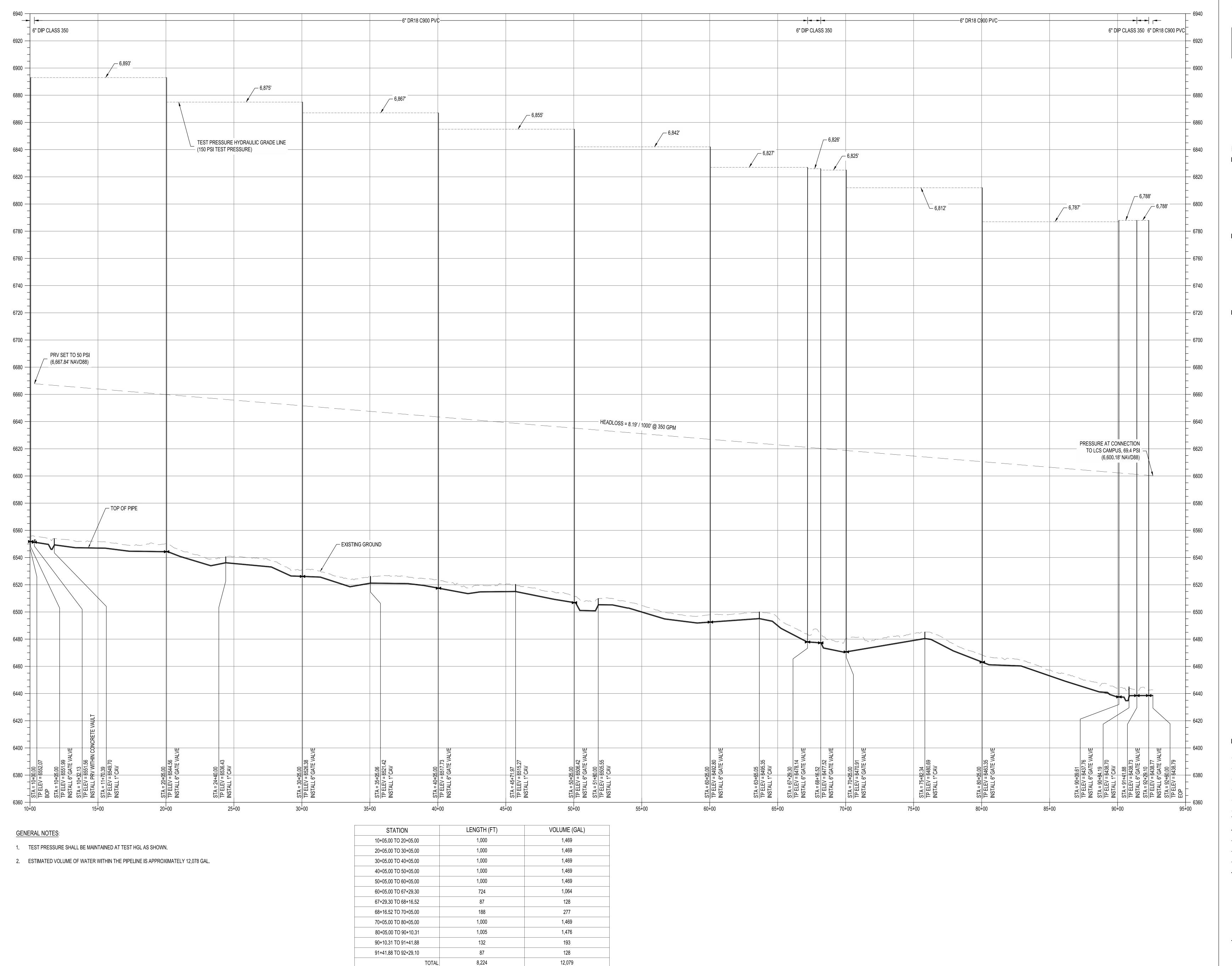
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REVIEWED BY NDR
DATE 09/03/2021

DATE 09/03/2020
PROJECT NO. 20-7002.000
DRAWING NAME
LCS WATERLINE
SUPPLY

SURVEY CONTROL SHEET

SHEET NO.



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Waterline Supply
Lukachukai, AZ 86507

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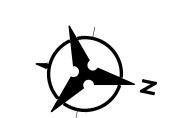
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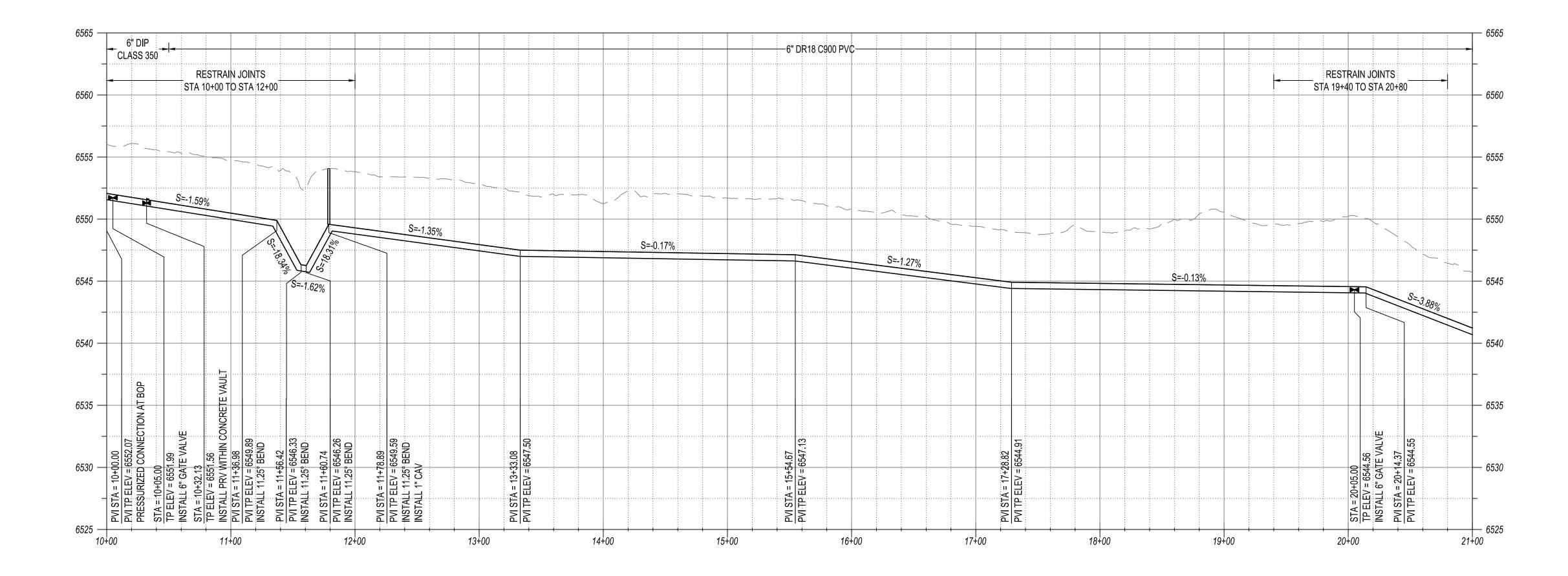
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PROJECT NO.	20-7002.001
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LCS WATERLINE
SUPPLY
HYDRAULIC
PROFILE

SHEET NO.

G-04





- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
  - 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
- 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET D-03.
- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

# KEYED NOTES:

- TIE IN TO EXISTING HIGH-POWER 6" DR14 C900 PVC TRANSMISSION LINE. SEE DETAIL 1, THIS SHEET.
- 2 INSTALL 6" DUCTILE IRON WATERLINE.
- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02
- INSTALL 6" PRESSURE REDUCING VALVE AND VAULT INCLUDING FLUSH HYDRANTS UPSTREAM AND DOWNSTREAM OF VAULT PER NTUA STD DWGS WS-5 & WS-5A. SEE SHEET D-01.
- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-02.
- 10 INSTALL 45° BEND (MJ X MJ).
- 19 INSTALL 45° LATERAL (MJ X MJ).
- 20 INSTALL 6" PRESSURE RELIEF VALVE AND VAULT PER APWA STD DWG 2353. SEE SHEET D-04.

∕-STA 10+00.00 PRESSURIZED CONNECTION NEW 6" DIP WATERLINE TO EXISTING 6" PVC WATERLINE SMITH-BLAIR TAPPING SADDLE MODEL 662 \_STA 10+05.00 6" GATE VALVE (FL X MJ) /-NEW 6" DIP WATERLINE PRV WITHIN 6'X6' VAULT /-NEW 6" PVC STA 10+49.96 ¬ / WATERLINE STA 10+39.30 45° BEND STA 10+49.96 3.0-FT RIGHT 6" GATE VALVE 5-6' TYP. STA 10+44.96 -/ 45° BEND NEW 6" DIP EXISTING 2" PVC
WATERLINE PRV VAULT ∽EXISTING 6" PVC WATERLINE STA 10+49.96, 12.5-FT RIGHT 6" PRESSURE RELIEF VALVE WITHIN 6' MANHOLE

WATERLINE CONNECTION DETAIL
SCALE: NOT TO SCALE

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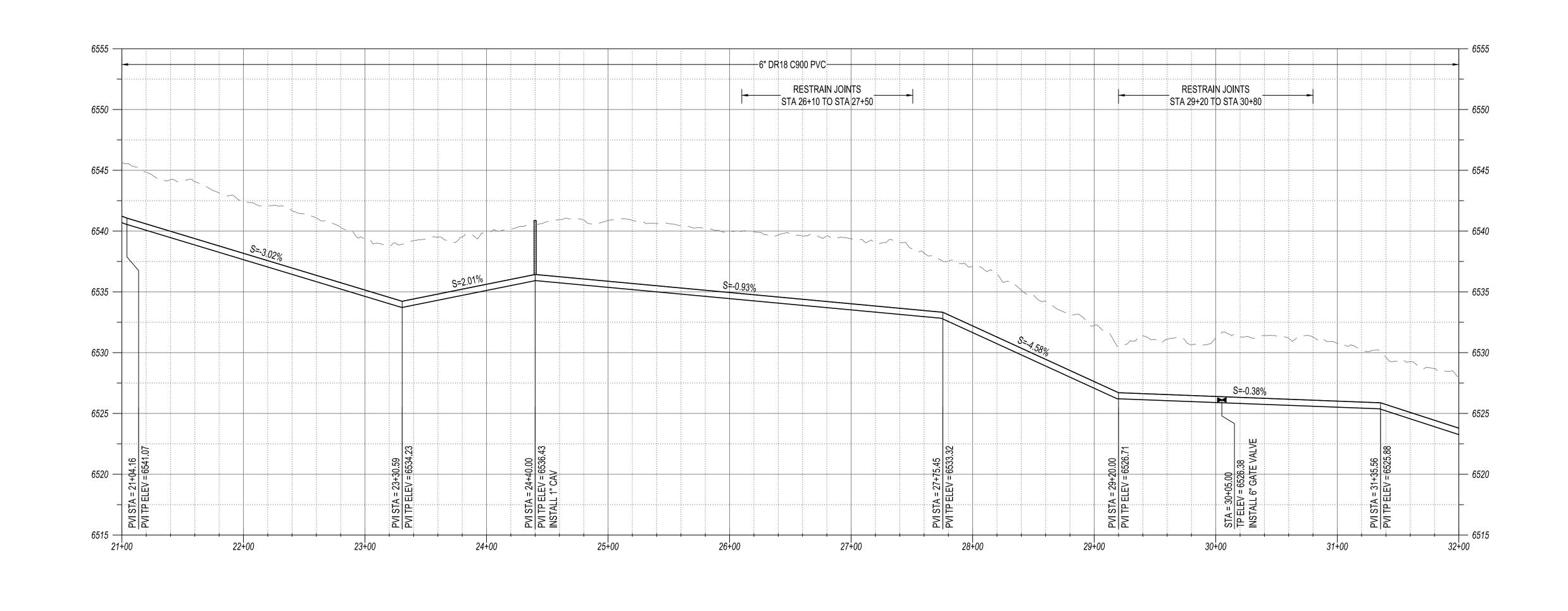
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LCS WATERLINE SUPPLY PLAN & PROFILE STA 10+00 TO STA 21+00



- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
- 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET
- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

KEYED NOTES:

- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02
- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-02
- 8 INSTALL SERVICE SADDLE FOR FUTURE SERVICE EXTENSION TO RESIDENT GREATER THAN 200' AWAY PER NTUA STD DWGS WS-3 & WS-3A. SEE SHEET D-01. CAP 2" LATERAL.
- 9 INSTALL SERVICE SADDLE FOR CUSTOMER CONNECTION PER NTUA STD DWGS WS-2 & WS-2A. SEE SHEET D-01.
- 11 INSTALL 22.5° BEND (MJ X MJ). 12 INSTALL 11.25° BEND (MJ X MJ).

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PROJECT NO. 09/03/2021 20-7002.001 DRAWING NAME

LCS WATERLINE SUPPLY PLAN & PROFILE STA 21+00 TO STA 32+00

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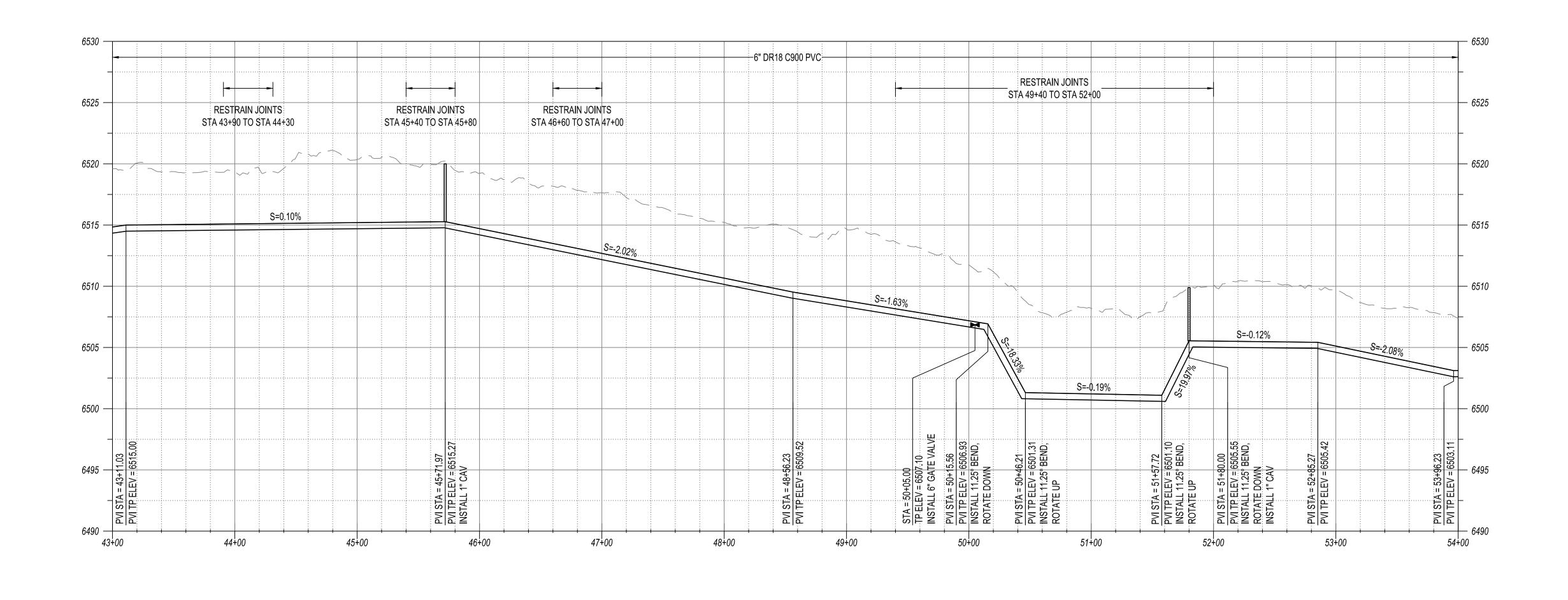
LCS WATERLINE SUPPLY PLAN & PROFILE STA 32+00 TO STA 43+00

SHEET NO.

C-03

----6" DR18 C900 PVC \_\_\_\_ RESTRAIN JOINTS STA 39+10 TO STA 40+70 S=-0.12%

# Z z



#### GENERAL NOTES:

- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
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- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

#### KEYED NOTES:

- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-04.
- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-04.
- 9 INSTALL SERVICE SADDLE FOR CUSTOMER CONNECTION PER NTUA STD DWGS WS-2 & WS-2A. SEE SHEET D-01.
- 10 INSTALL 45° BEND (MJ X MJ).
- 11 INSTALL 22.5° BEND (MJ X MJ).
- 12 INSTALL 11.25° BEND (MJ X MJ).
- 18 REMOVE AND REPLACE EXISTING FENCE IN KIND.

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DEKKER PERICH SABATINI

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ARCHITECT

ENGINEER

PROJECT

ai Community Schools

PRE-FINAL

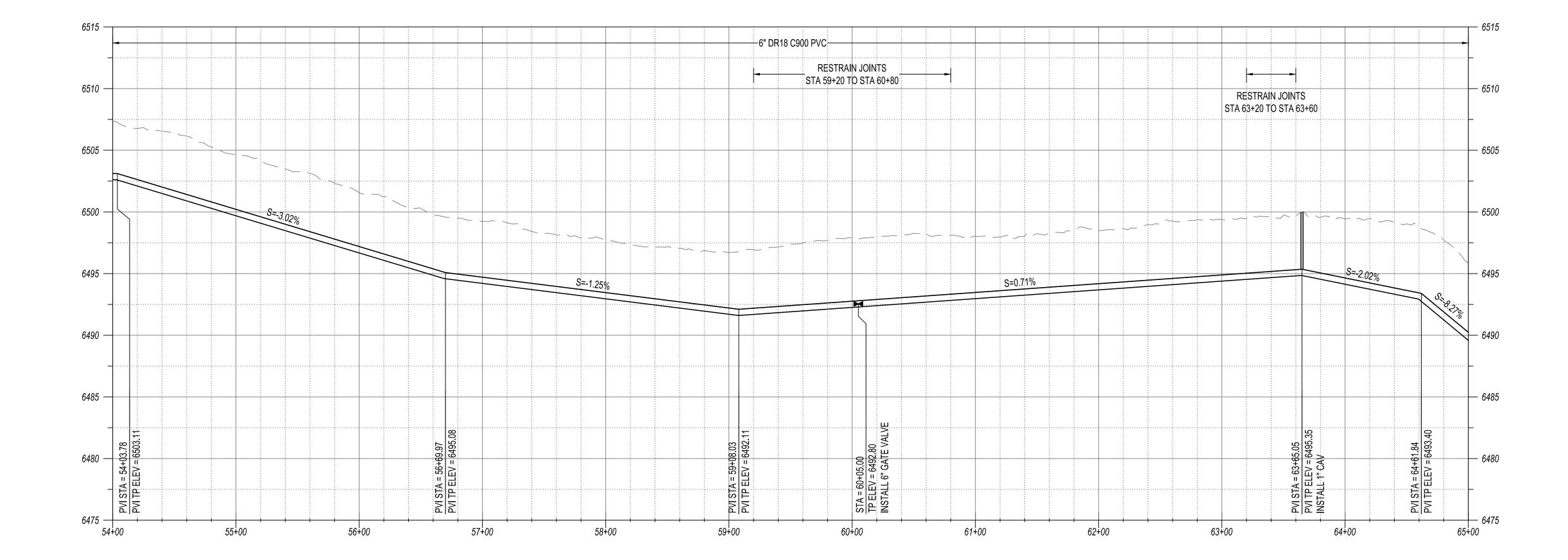
DRAWN BY	JTL
REVIEWED BY	NDR
DATE	09/03/2021
PROJECT NO.	20-7002.001
DRAWING NAME	

LCS WATERLINE SUPPLY PLAN & PROFILE STA 43+00 TO STA 54+00

SHEET NO.

C-04

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- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
- 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET D-03
- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

#### KEYED NOTES:

- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02.
- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-02.
- 10 INSTALL 45° BEND (MJ X MJ).

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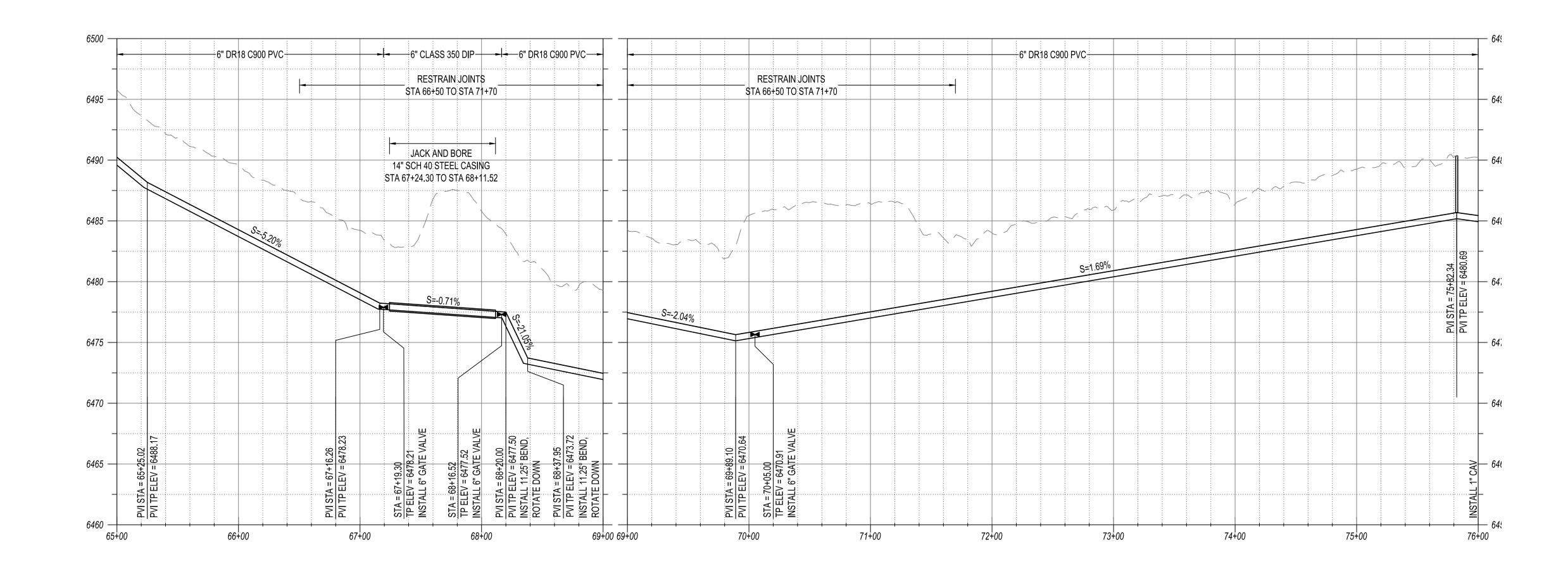
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REVIEWED BY	NDR
DATE	09/03/2021
PROJECT NO.	20-7002.001
DRAWING NAME	

LCS WATERLINE SUPPLY PLAN & PROFILE STA 54+00 TO STA 65+00





- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
- 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET
- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.
- INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02.
- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-02.
- JACK AND BORE BENEATH ROADWAY PER NTUA STD DWG WS-17A. SEE SHEET D-03.

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REVII	EWED BY	NDR
DATE		09/03/2021
PROJ	ECT NO.	20-7002.001
DRAV	VING NAME	

LCS WATERLINE SUPPLY PLAN & PROFILE STA 65+00 TO STA 76+00

- 1. FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
  - 2. DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
  - 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
  - 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET D-03.
  - 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- 4 INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02.

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DATE	09/03/2021
PROJECT NO.	20-7002.001
DRAWING NAME	

DRAWING NAME LCS WATERLINE SUPPLY PLAN & PROFILE

STA 76+00 TO STA 87+00 SHEET NO.

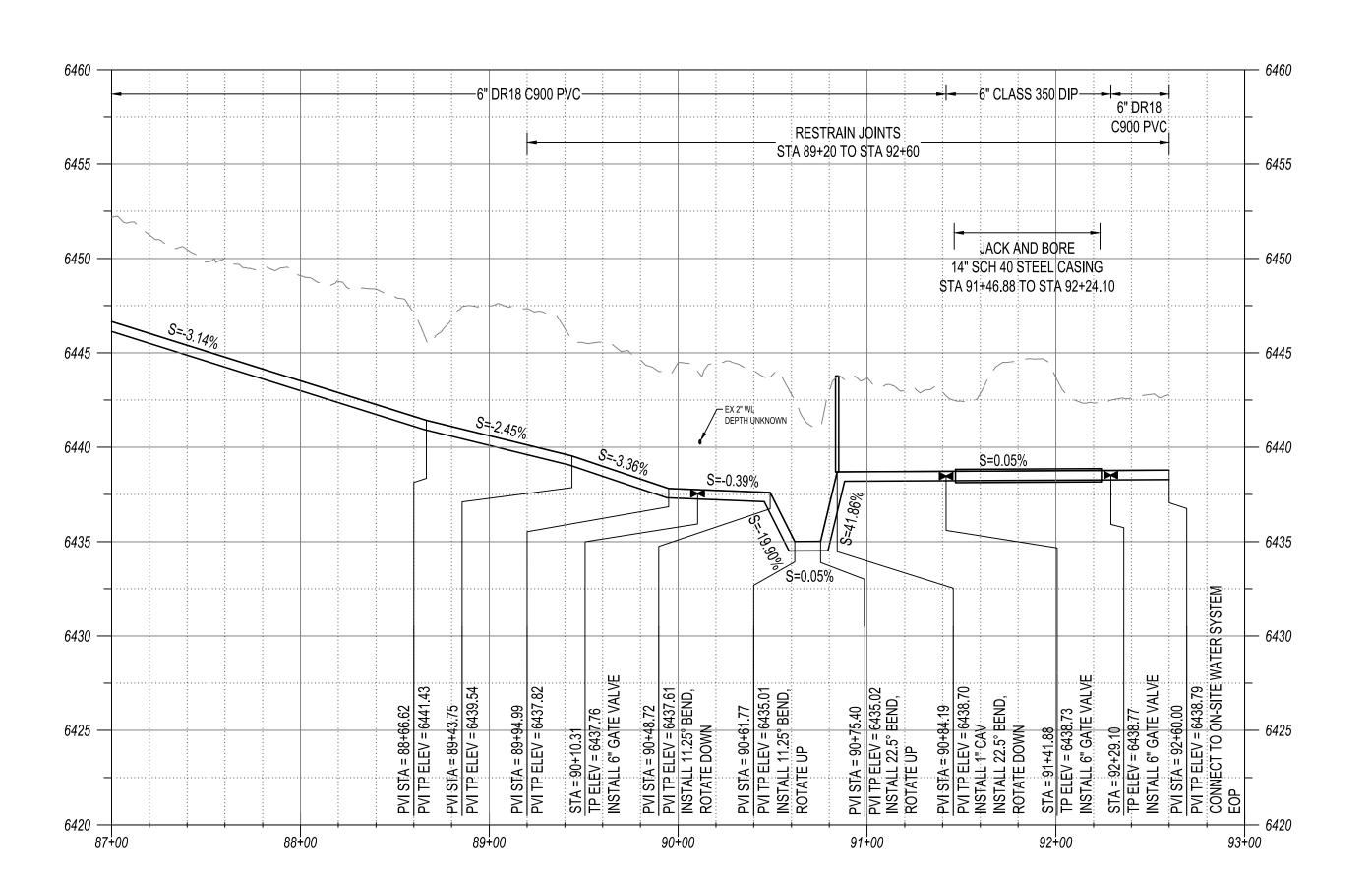
C-07

- . FIELD VERIFY ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

- 5. TRENCHING SHALL BE DONE IN ACCORDANCE WITH NTUA STANDARD DRAWING WS-15, SHEET D-02.

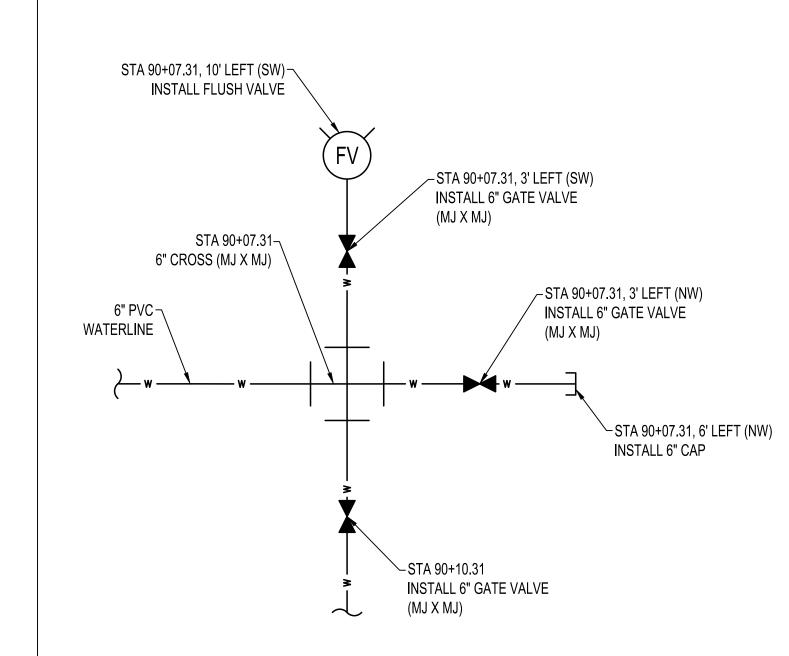
### KEYED NOTES:

- 3 INSTALL 6" DR18 C900 PVC WATERLINE.
- 4 INSTALL 6" GATE VALVE (MJ X MJ) AND VALVE CAN PER NTUA STD DWG WS-14. SEE SHEET D-02.
- 7 INSTALL FLUSH VALVE PER NTUA STD DWG WS-11. SEE SHEET D-02.
- 12 INSTALL 11.25° BEND (MJ X MJ).
- JACK AND BORE BENEATH ROADWAY PER NTUA STD DWG WS-17A. SEE SHEET D-03.
- 14 BORE PIT.
- 15 INSTALL 6" CROSS (MJ X MJ). REFER TO DETAIL 01, THIS SHEET.
- 16 INSTALL 6" CAP.
- 17 REMOVE CAP, CONNECT TO 6" ON-SITE WATERLINE.



- DAMAGE TO UTILITIES OR FACILITIES WITHIN THE PROJECT RIGHT-OF-WAY SHALL BE RESTORED TO EXISTING CONDITIONS UNLESS OTHERWISE DENOTES IN PLANS.
- 3. STATIONS SHOWN ARE ALONG CENTERLINE OF PIPE AND ELEVATIONS SHOWN ARE ALONG TOP OF PIPE.
- 4. JOINTS TO BE RESTRAINED AS SHOWN ON PLANS. IF PIPE CANNOT BE RESTRAINED AT JOINTS, INSTALL THRUST BLOCKS PER NTUA STANDARD DRAWINGS WS-19 & WS-19A, SHEET

- 6 INSTALL 1" CAV PER NTUA STD DWG WS-10. SEE SHEET D-02.



WATERLINE CROSS DETAIL
SCALE: NOT TO SCALE

NOTES:
1. RESTRAIN ALL JOINTS.

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REVIEWED BY DATE
PROJECT NO.
DRAWING NAME 09/03/2021 20-7002.001 LCS WATERLINE

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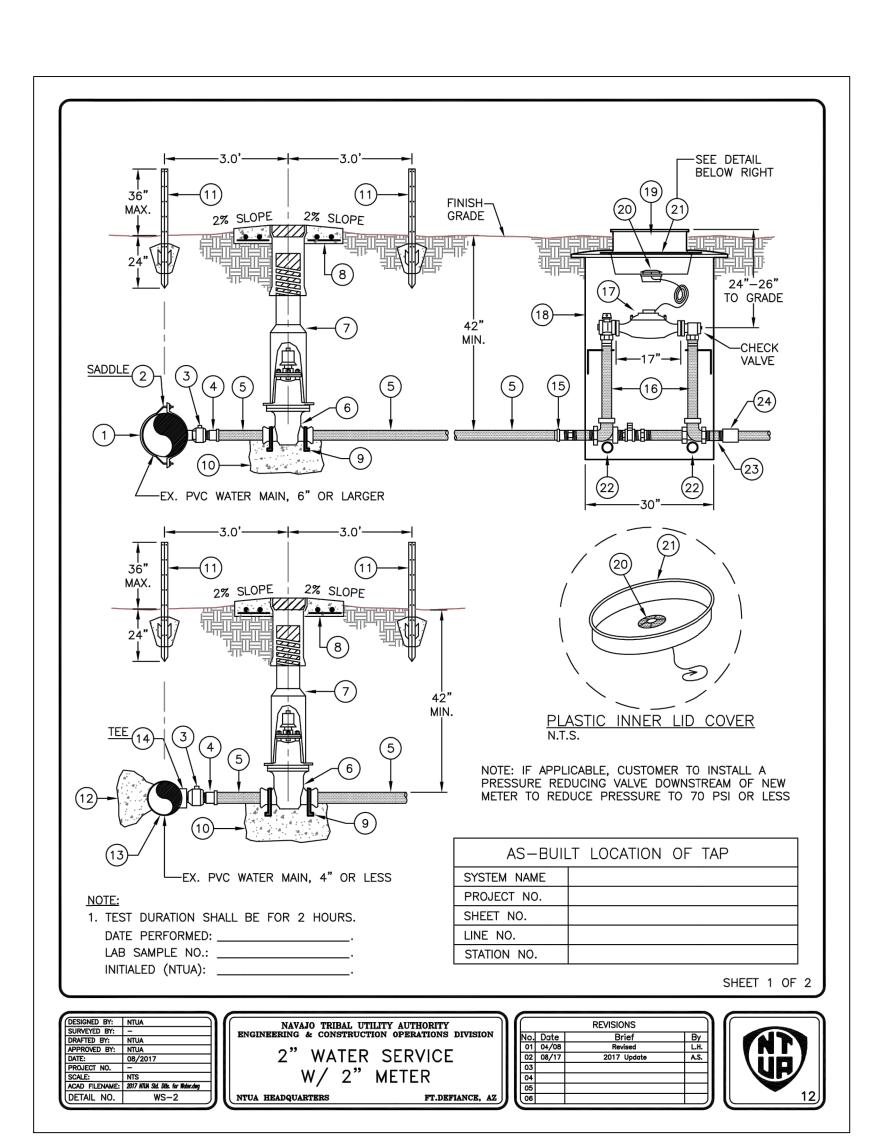
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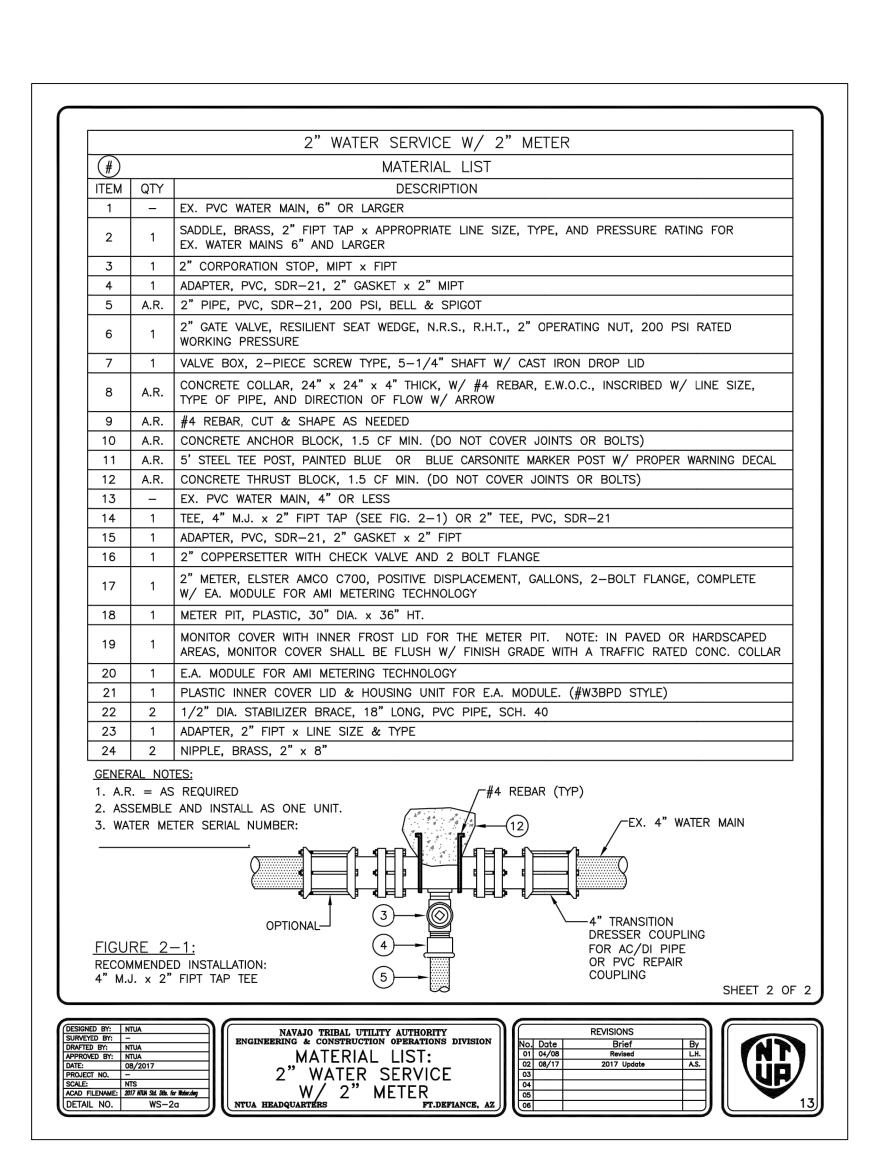
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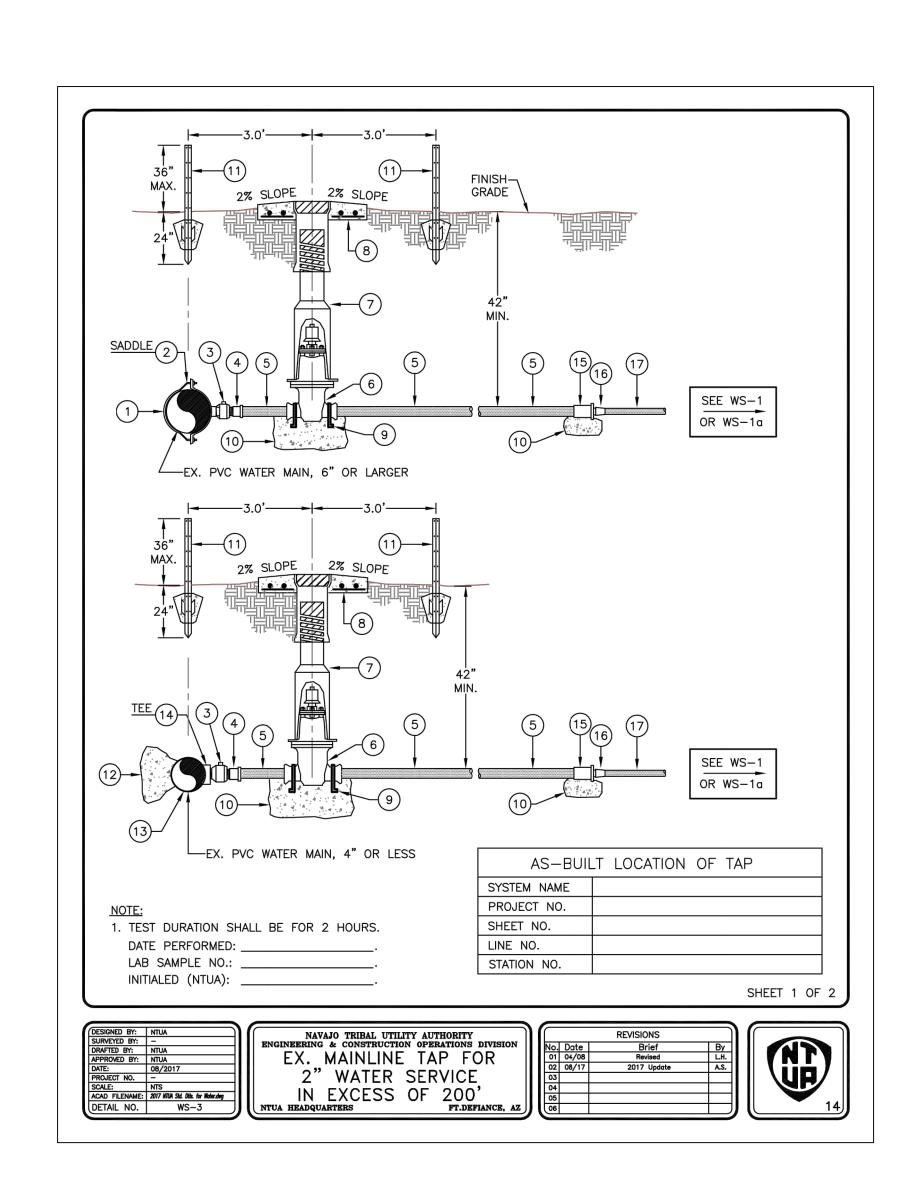
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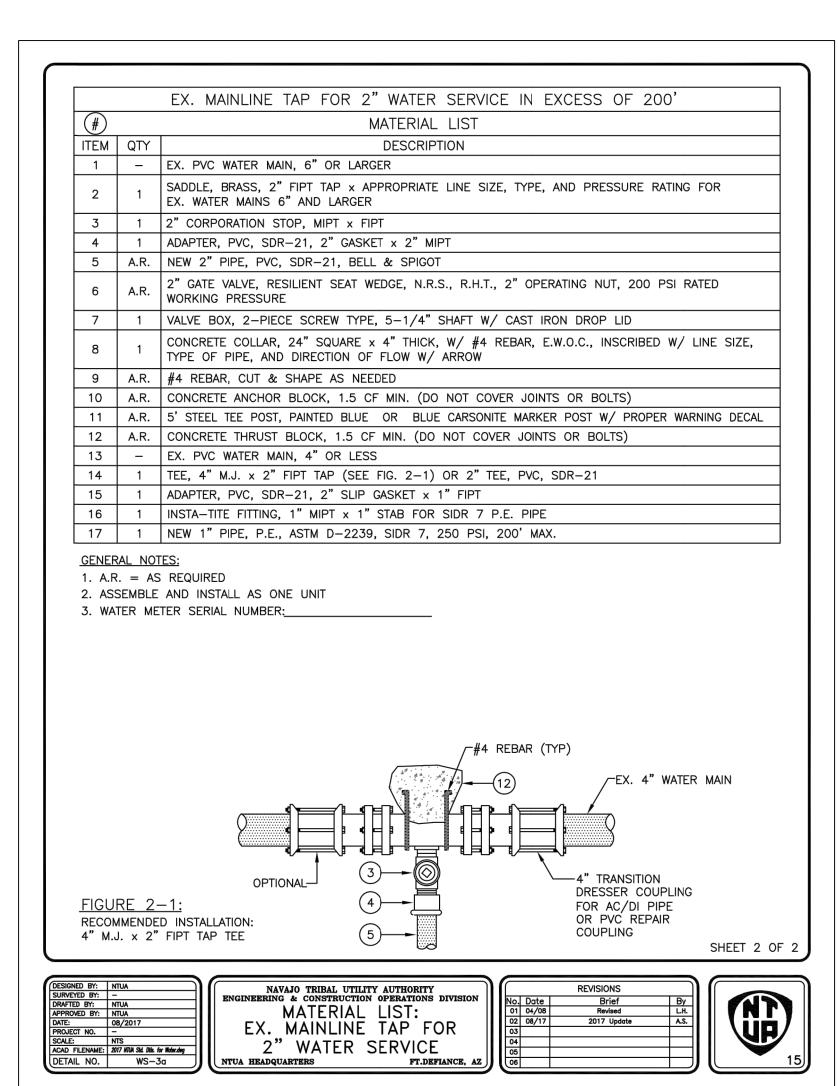
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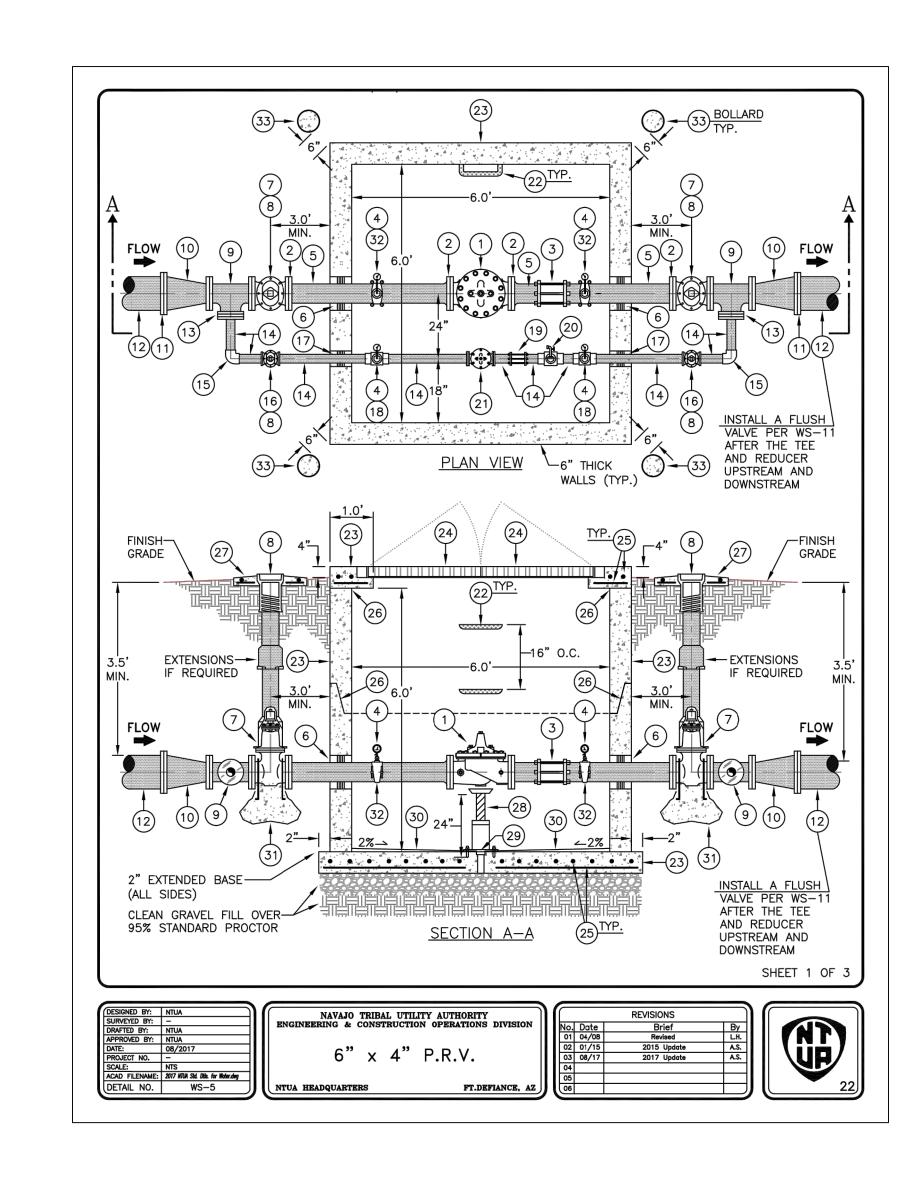
SUPPLY PLAN & PROFILE STA 87+00 TO STA 92+60

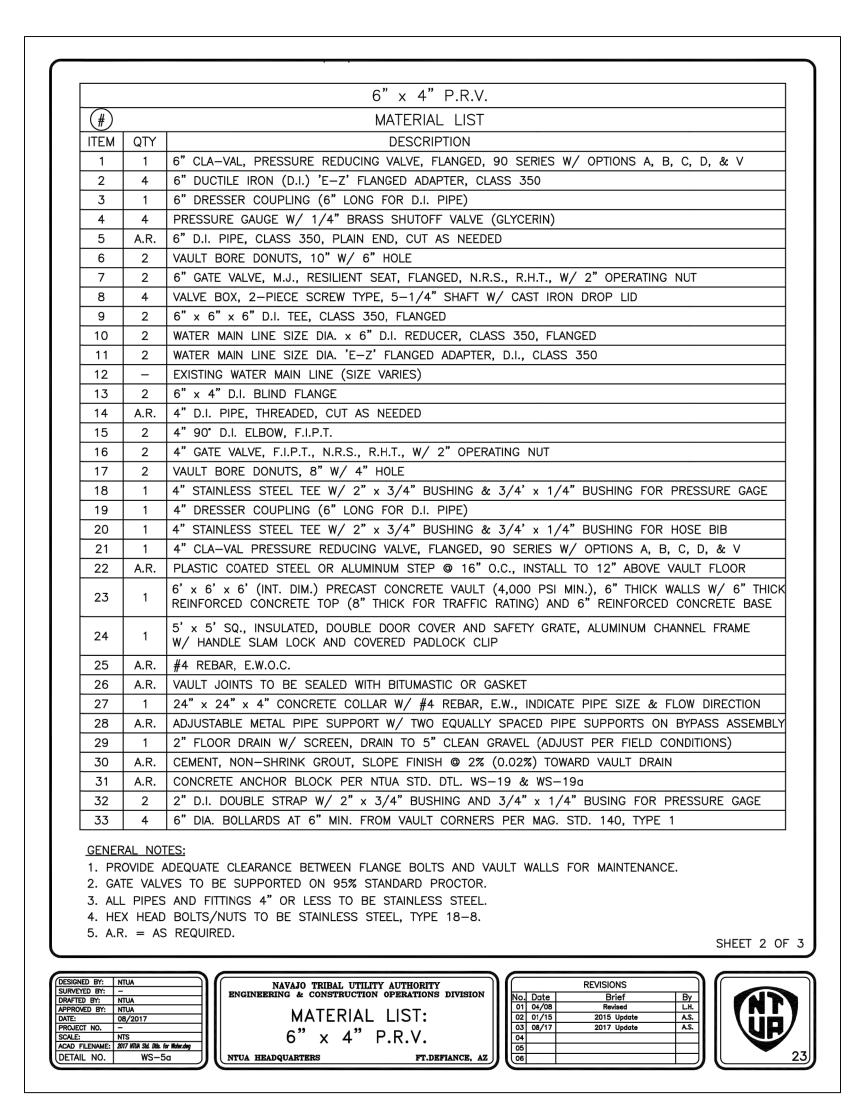












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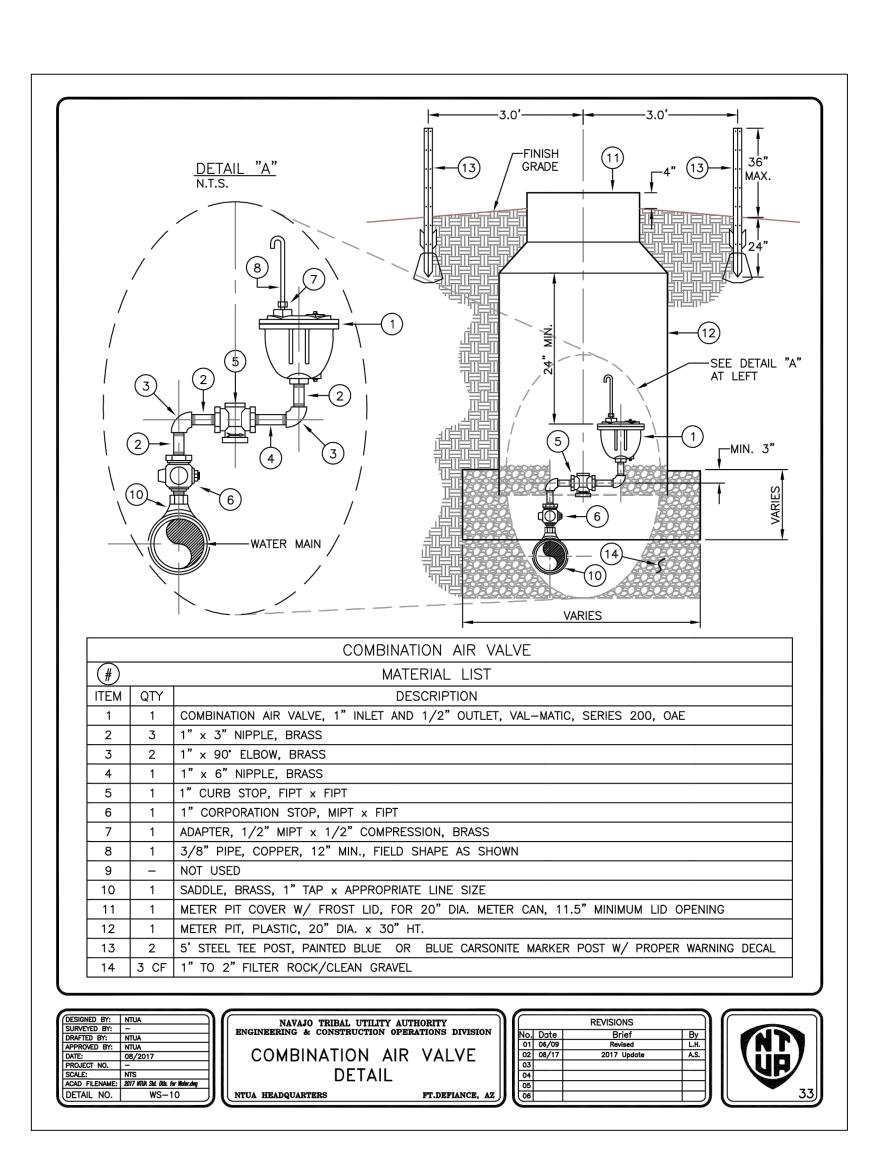
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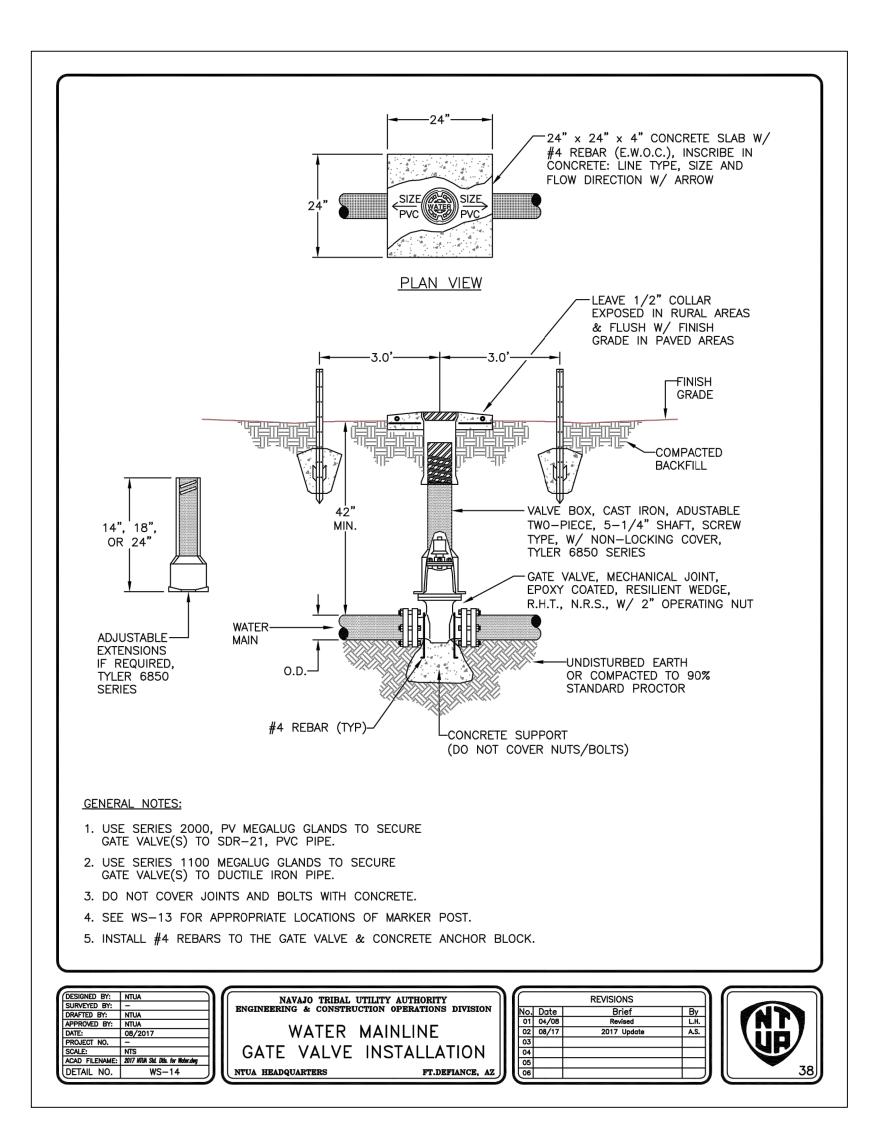
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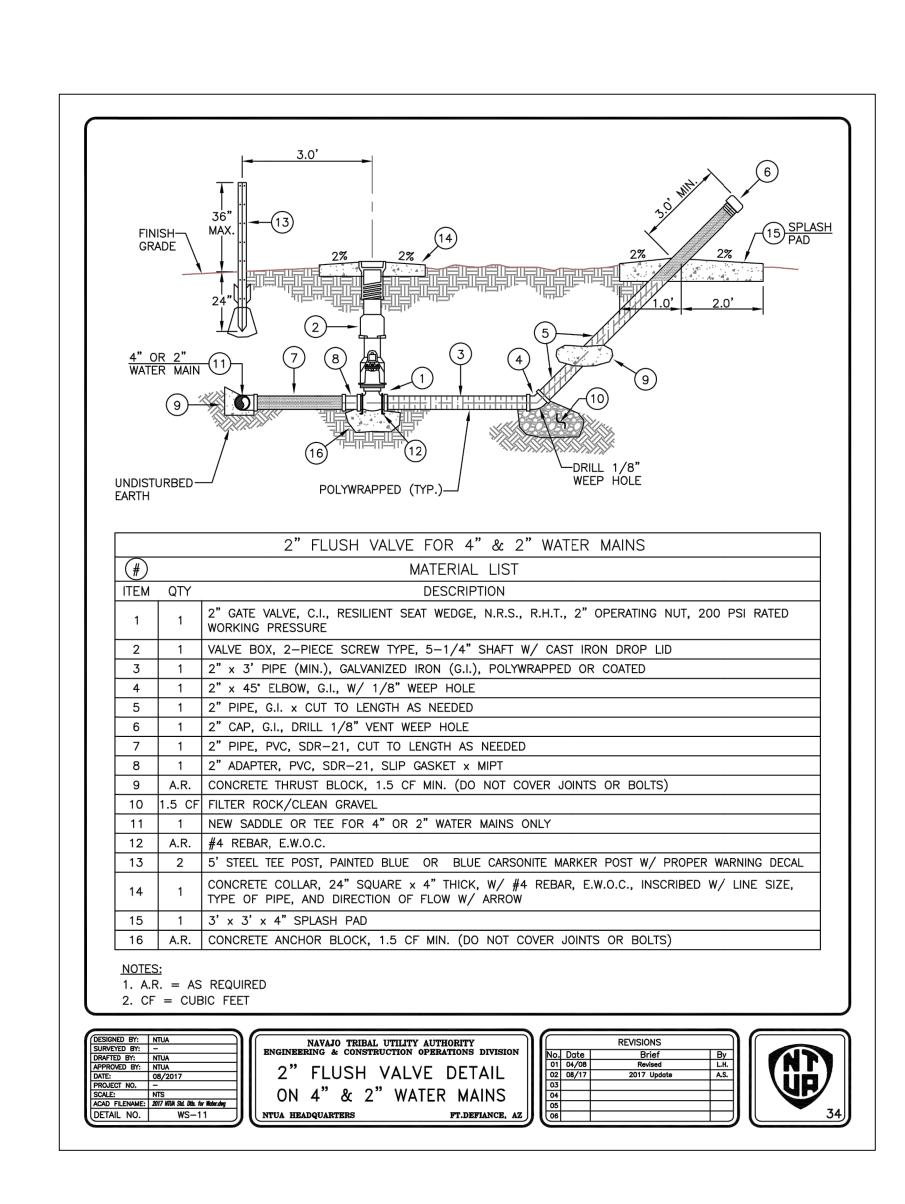
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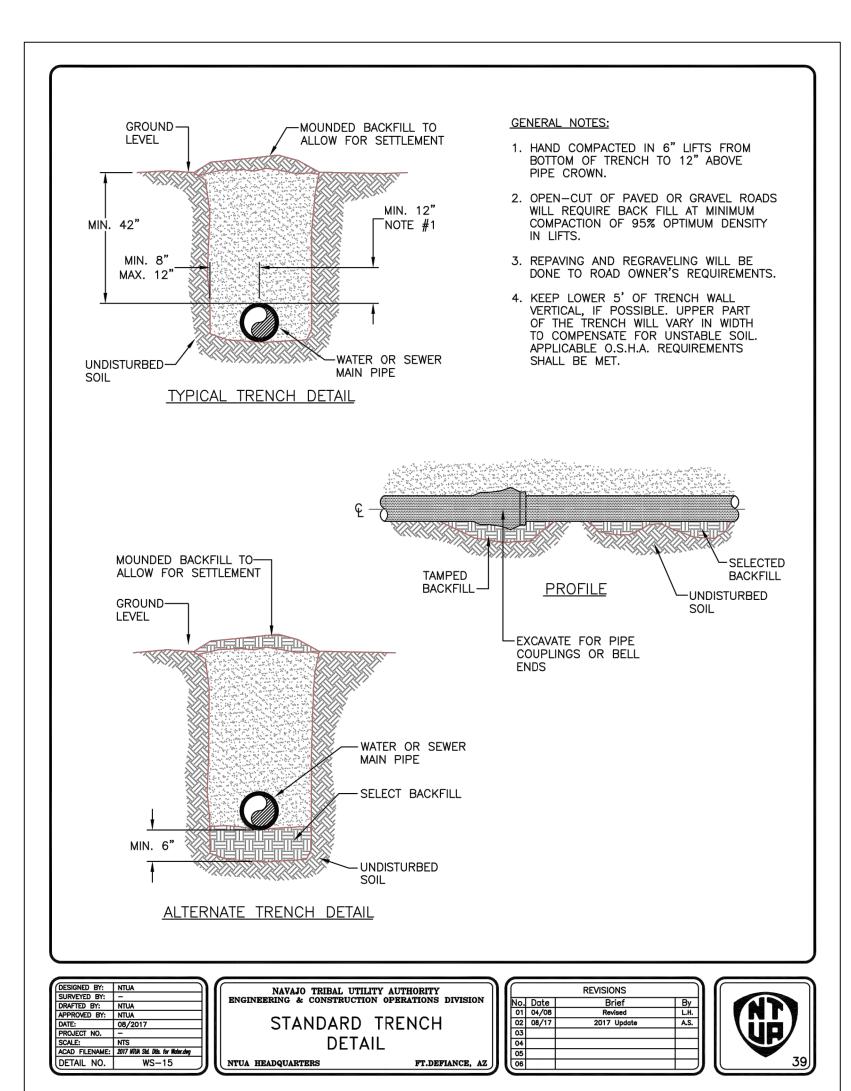
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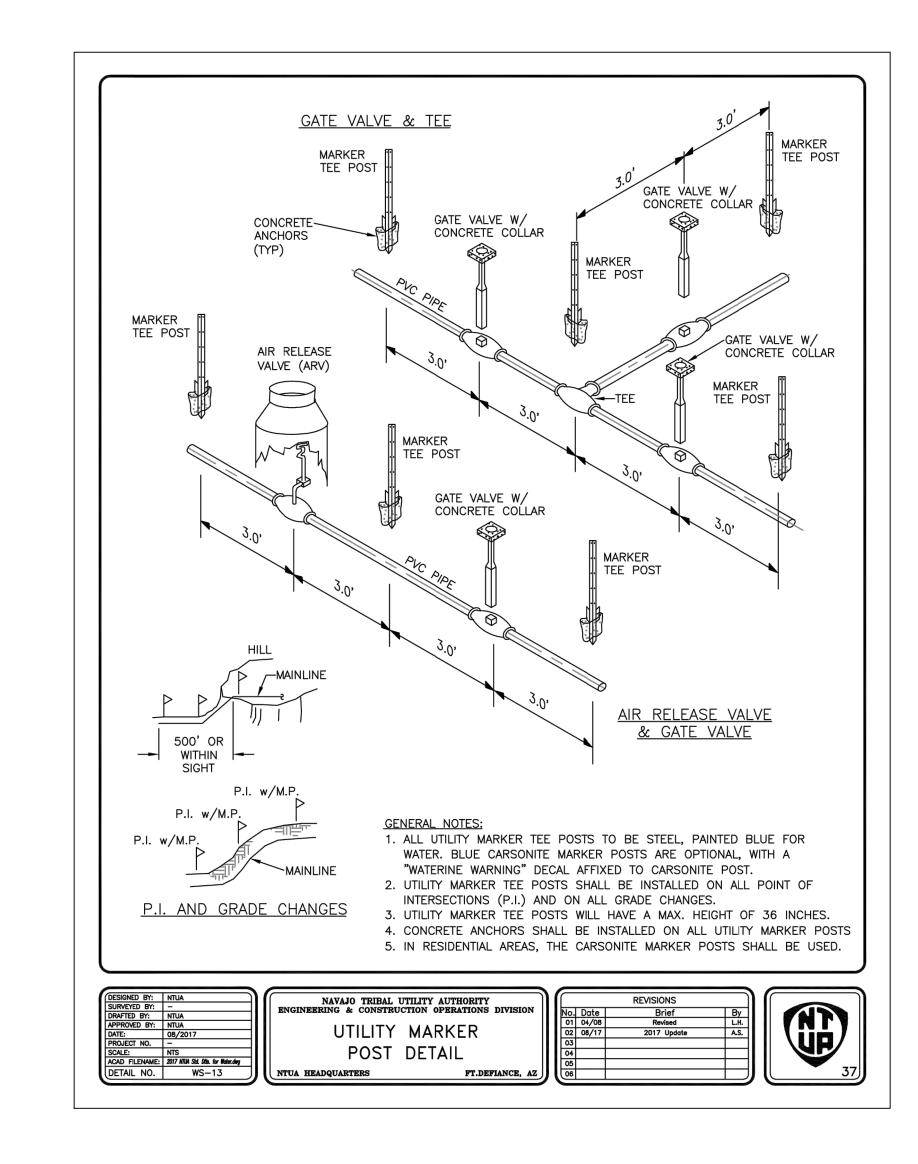
DRAWING NAME LCS WATERLINE SUPPLY NTUA STANDARD DRAWINGS (1)

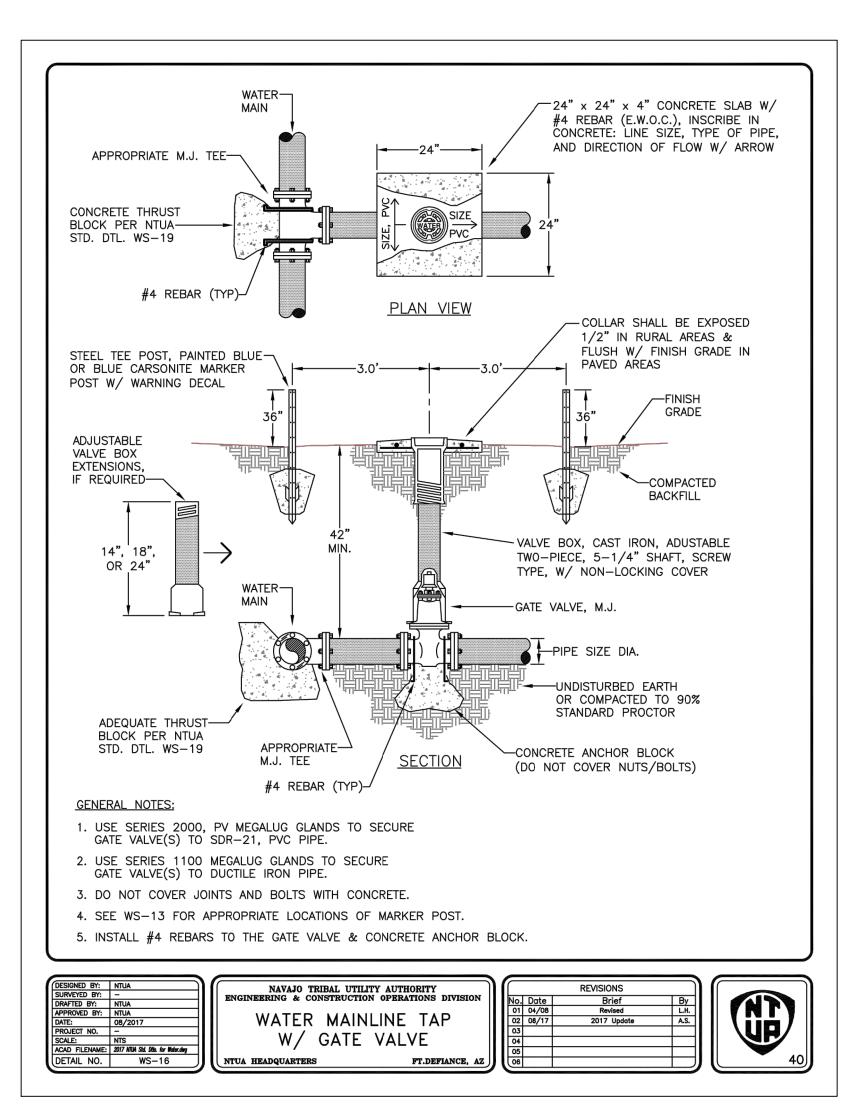












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PROJECT

K-8 Academics

achukai Community Schools

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REVIEWED BY

DATE

09/03/2021

PROJECT NO.

20-7002.001

DRAWING NAME

LCS WATERLINE SUPPLY NTUA STANDARD DRAWINGS (2)

SHEET NO.

D-02

2

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**ENGINEER** 

PROJECT

demica

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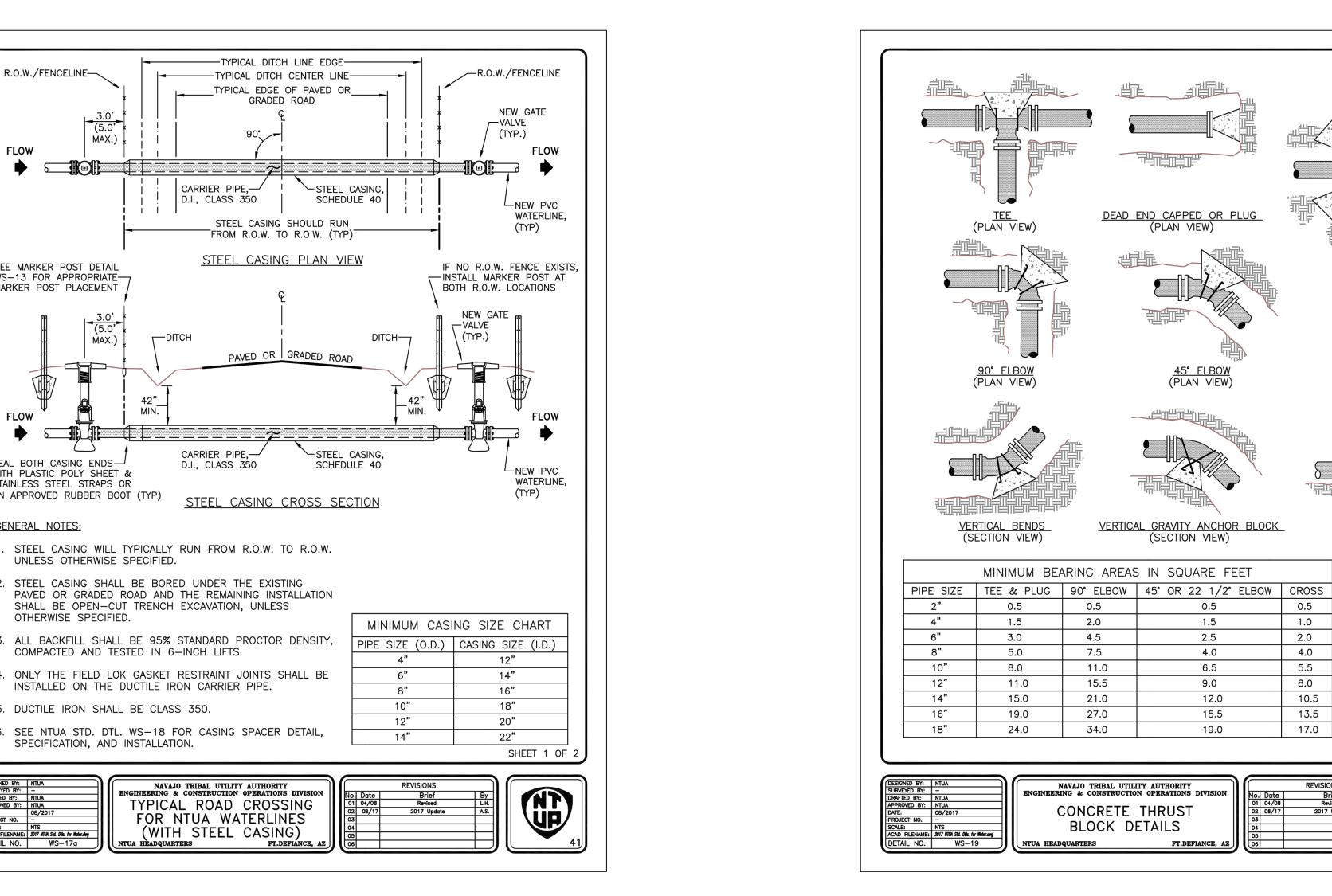
SUBMITTAL REVISIONS

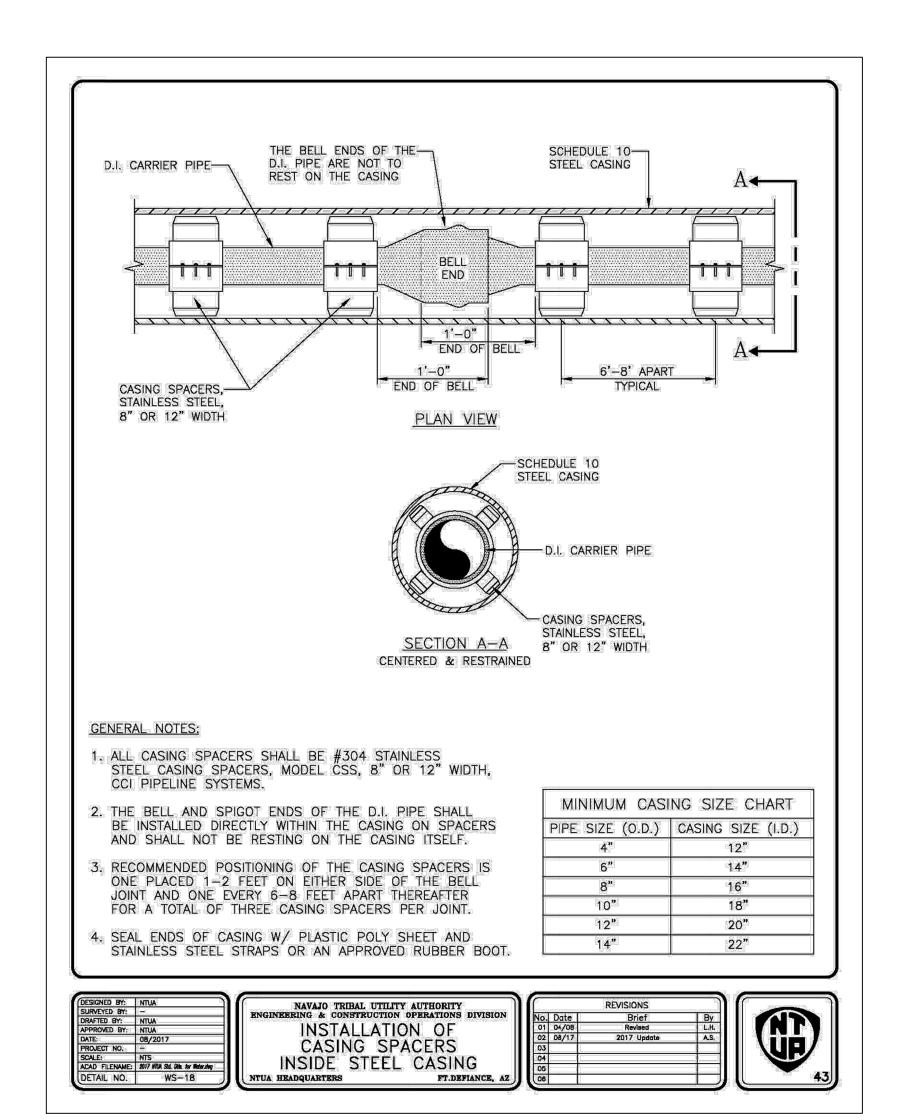
DRAWN BY	JTL
REVIEWED BY	NDR
DATE	09/03/2021
PROJECT NO.	20-7002.001

LCS WATERLINE SUPPLY NTUA STANDARD DRAWINGS (3)

SHEET NO. D-03

DRAWING NAME





—TYPICAL DITCH LINE EDGE———

-TYPICAL DITCH CENTER LINE ----\_\_TYPICAL EDGE OF PAVED OR\_\_\_\_\_

GRADED ROAD

STEEL CASING SHOULD RUN

STEEL CASING PLAN VIEW

PAVED OR GRADED ROAD

STEEL CASING CROSS SECTION

STEEL CASING,

SCHEDULE 40

FROM R.O.W. TO R.O.W. (TYP)

CARRIER PIPE,—/

D.I., CLASS 350

NAVAJO TRIBAL UTILITY AUTHORITY NEERING & CONSTRUCTION OPERATIONS DIVISION

TYPICAL ROAD CROSSING

FOR NTUA WATERLINES

(WITH STEEL CASING)

1. STEEL CASING WILL TYPICALLY RUN FROM R.O.W. TO R.O.W.

PAVED OR GRADED ROAD AND THE REMAINING INSTALLATION

2. STEEL CASING SHALL BE BORED UNDER THE EXISTING

SHALL BE OPEN-CUT TRENCH EXCAVATION, UNLESS

COMPACTED AND TESTED IN 6-INCH LIFTS.

INSTALLED ON THE DUCTILE IRON CARRIER PIPE.

3. ALL BACKFILL SHALL BE 95% STANDARD PROCTOR DENSITY,

4. ONLY THE FIELD LOK GASKET RESTRAINT JOINTS SHALL BE

6. SEE NTUA STD. DTL. WS-18 FOR CASING SPACER DETAIL,

NTUA HEADQUARTERS

R.O.W./FENCELINE-

SEE MARKER POST DETAIL

WS-13 FOR APPROPRIATE— MARKER POST PLACEMENT

SEAL BOTH CASING ENDS—

**GENERAL NOTES:** 

WITH PLASTIC POLY SHEET &

STAINLESS STEEL STRAPS OR AN APPROVED RUBBER BOOT (TYP)

UNLESS OTHERWISE SPECIFIED.

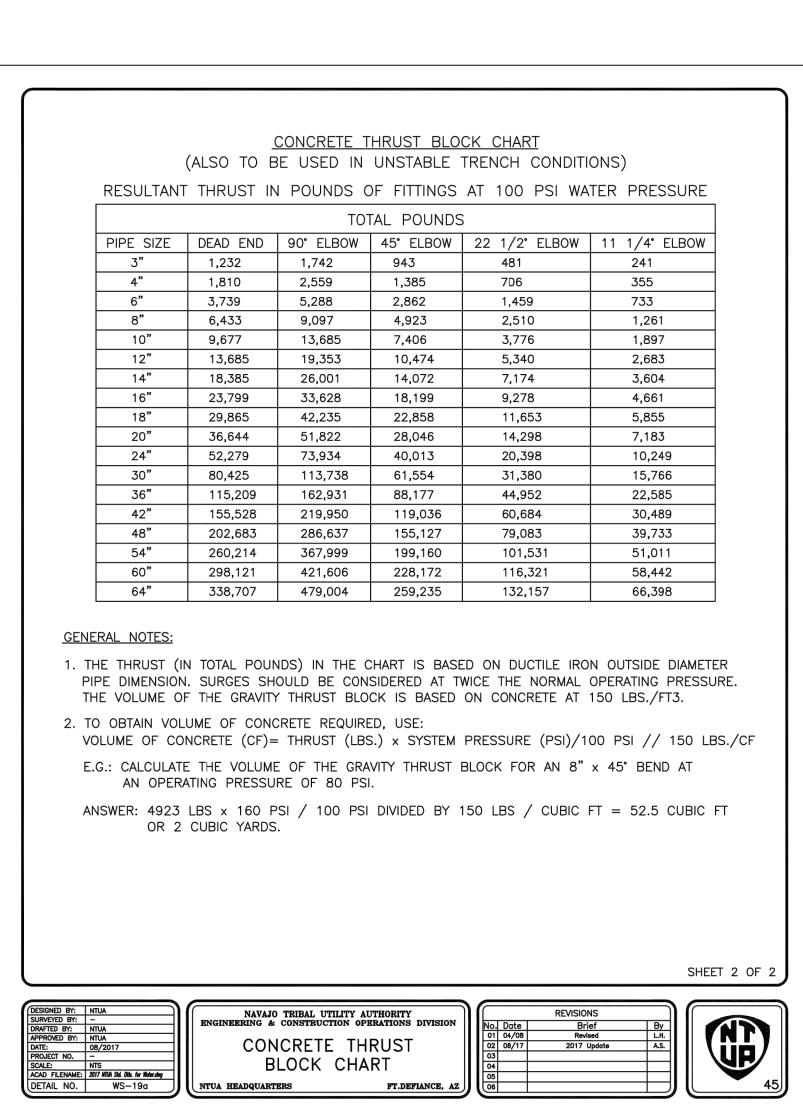
5. DUCTILE IRON SHALL BE CLASS 350.

SPECIFICATION, AND INSTALLATION.

OTHERWISE SPECIFIED.

SCALE: NIS
ACAD FILENAME: 2017 MIUA Std. Dits. for Water.dwg
DETAIL NO. WS—17a

FLOW



<u>CROSS</u> (PLAN VIEW)

BEARING AREA (SECTION VIEW)

1. DO NOT COVER

GASKETED JOINTS AND NUTS/BOLTS.

. PRESSURE TESTING

SHALL NOT COMMENCE UNTIL THE CONCRETE HAS SET A MINIMUM

OF 48 HRS., UNLESS

OTHERWISE SPECIFIED.

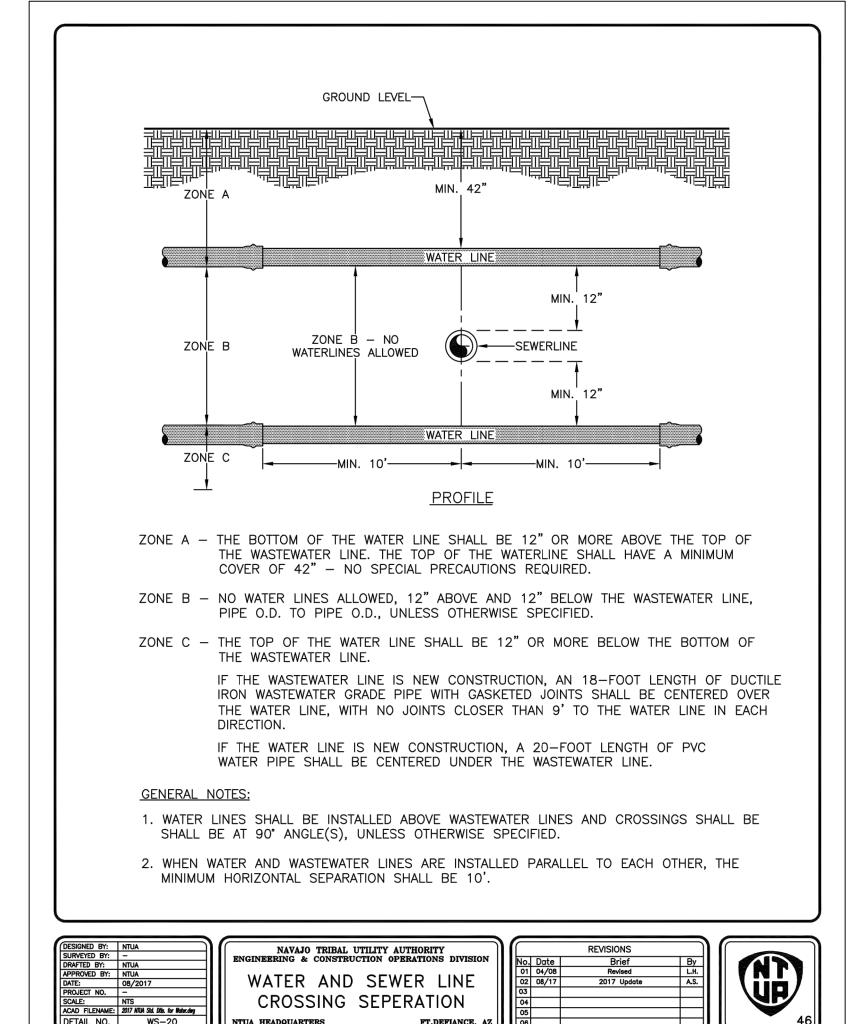
SHEET 1 OF 2

WP/

3. #4 REBARS AS SHOWN.

NOTES:

Brief Revised 2017 Update



1	DESIGNED BY:	NTUA	$\mathcal{M}$	NAVAJO TRIBAL U	UTILITY AUTHORITY	ITY	1	REVISIONS			-	
ı	SURVEYED BY: DRAFTED BY:	NTUA	Ш	ENGINEERING & CONSTRU	JCTION OPERATIO	ONS DIVISION	Ш		Date	Brief	$\Box$	Į
	APPROVED BY: DATE:	NTUA 08/2017	П	WATER AND	SEWER	LINE	Ш	01	04/08 08/17	Revised 2017 Update	$\dashv$	$\frac{1}{i}$
ı	PROJECT NO.	-	П				Ш	03		·	$\Box$	_
	SCALE: ACAD FILENAME:	NTS 2017 NTUA Std. Dtls. for Water.dwg	П	CROSSING	SEPERA	HON	Ш	04			$\dashv$	_
l	DETAIL NO.	WS-20	Ц	NTUA HEADQUARTERS	FT	DEFIANCE, AZ	U	06			二	_
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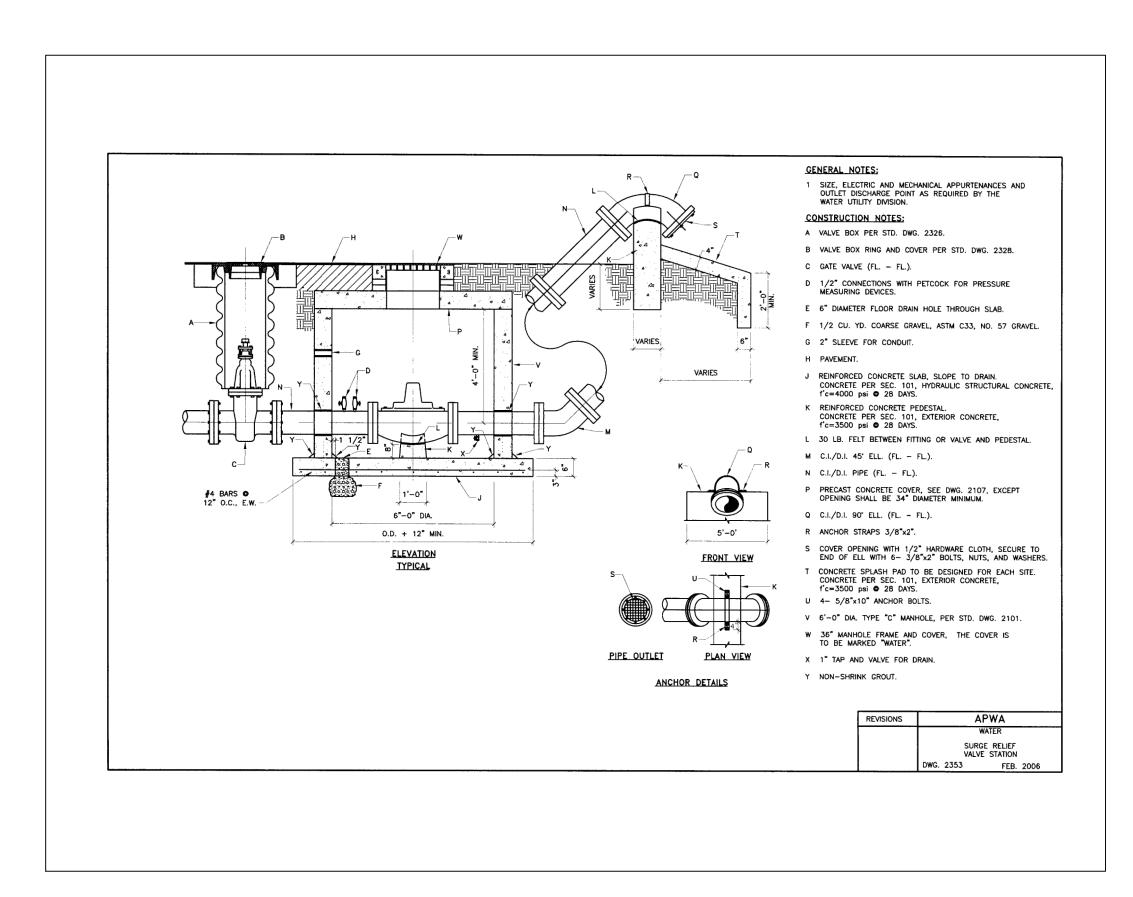
PROJECT

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	DRAWN BY	JTL
F	REVIEWED BY	NDR
	DATE	09/03/2021
F	PROJECT NO.	20-7002.001
	RAWING NAME	

LCS WATERLINE SUPPLY APWA STANDARD DRAWINGS

SHEET NO.

D-04



#### NOTES:

- 1. CONSTRUCTION NOTES A AND B DO NOT APPLY TO THIS PROJECT. GATE VALVE, VALVE BOX, AND VALVE BOX COLLAR TO BE INSTALLED IN ACCORDANCE WITH NTUA STANDARD DETAIL WS-14. DO NOT REFERENCE APWA STANDARD DETAILS 2326 OR 2328.
- 2. CONSTRUCTION NOTE C DOES NOT APPLY TO THIS PROJECT. GATE VALVE SHALL BE MJ X MJ.
- 3. LOCATION OF GATE VALVE SHALL BE CONSISTENT WITH PLACEMENT IDENTIFIED ON SHEET C-01.
- 4. PRESSURE RELIEF VALVE SHALL BE GA INDUSTRIES 6" FIGURE 5670 PILOT OPERATED PRESSURE RELIEF / PRESSURE SUSTAINING VALVE, FLANGED, CLASS 150.
- 5. INCLUDE EBAA IRON SERIES 2000 MEGAFLANGE ADAPTER DOWNSTREAM OF THE PRESSURE RELIEF VALVE.

