



1-800-227-2600
AVOID CUTTING
UNDERGROUND UTILITIES

OWNER/DEVELOPER:

CITY OF ELKO
ATTN: MR. DALE JOHNSON
1550 STP ROAD.
ELKO, NV 89801
PH.: (775) 777-7210
FAX: (775) 774-7388

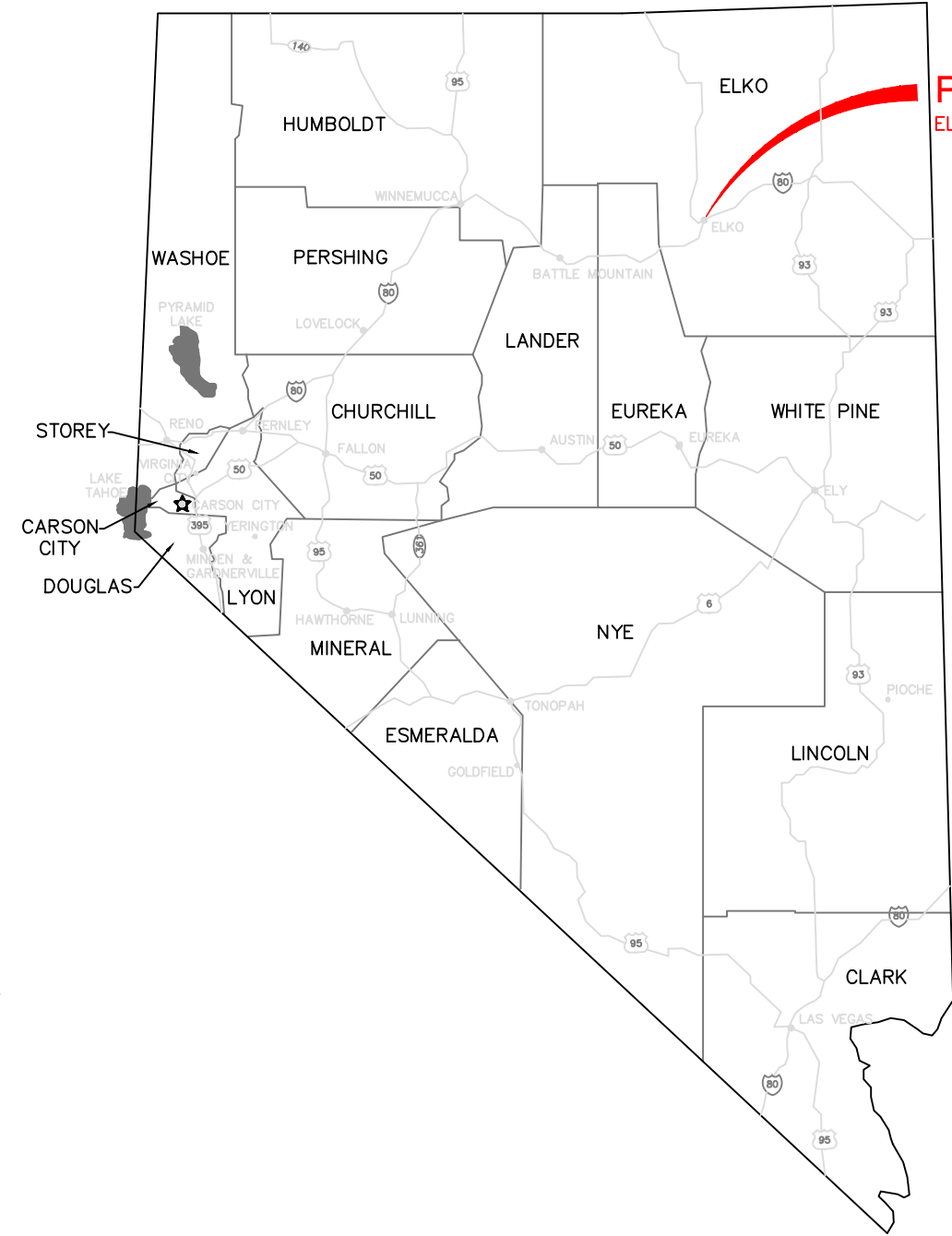
ENGINEER



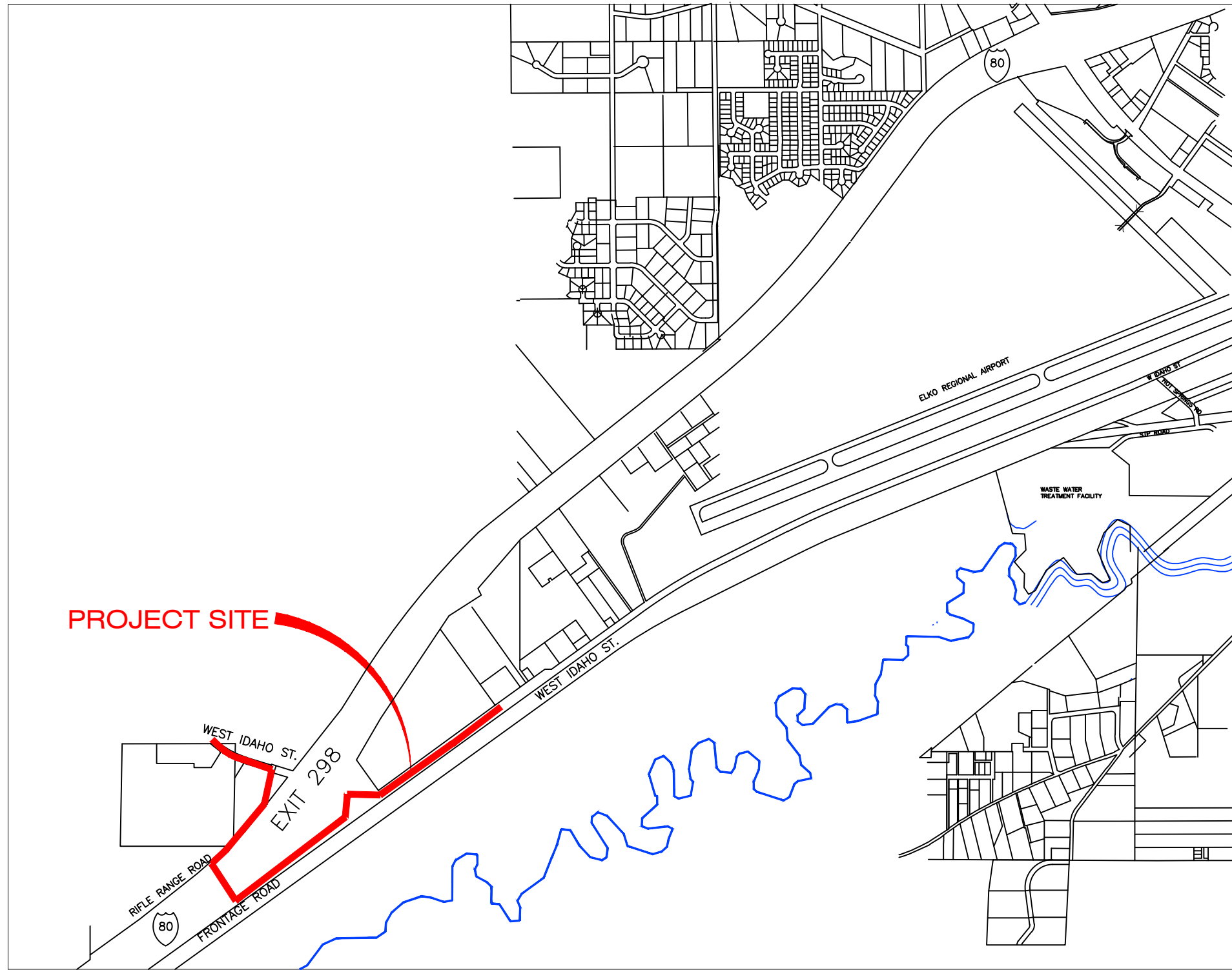
1751 COLLEGE AVE.
ELKO, NV 89801
PH.: (775) 777-7210
FAX: (775) 774-7219

CITY OF ELKO

EXIT 298 SEWER AND WATER DESIGN
PHASE 2 SEWER CONSTRUCTION



LOCATION MAP



VICINITY MAP

BASIS OF BEARING:

NORTH AMERICAN DATUM OF 1983/2007 PER THE NATIONAL GEODETIC SURVEY'S (NGS) PUBLISHED COORDINATES FOR NGS STATION "FUZZY", A STANDARD BRONZE DISK STAMPED "FUZZY 1967" SET IN THE TOP OF A ROUND CONCRETE POST WHICH PROJECTS 2 INCHES ABOVE THE GROUND. OF LATITUDE 40° 54' 25.01325N, LONGITUDE 115° 41' 47.528107W AND NEVADA STATE PLANE COORDINATE SYSTEM EAST ZONE GRID COORDINATES OF 28,488,522.75N, 624,878,27E. GROUND COORDINATES ARE USED HEREIN AND REFLECT GRID COORDINATES MULTIPLIED BY THE CITY OF ELKO ACCEPTED COMBINED GRID TO GROUND SCALE FACTOR OF 1.000357 WITH THE RESULTING GROUND COORDINATES FOR NGS "FUZZY" BEING 28,498,693.15N, 625,101.35E.

BASIS OF ELEVATION:

NORTH AMERICAN VERTICAL DATUM OF 1988, PER THE NATIONAL GEODETIC SURVEY'S (NGS) PUBLISHED ELEVATION FOR NGS BENCHMARK B 52, A STABILITY CLASS A MARK STAMPED "B 52 1934" SET VERTICALLY IN THE NORTHWEST WALL OF THE ELKO MAIN POST OFFICE (BRICK WITH STONE CORNERS), 0.9 FOOT SOUTH-WEST OF THE NORTH CORNER, AND 4 FEET ABOVE THE GROUND.

SHEET INDEX:

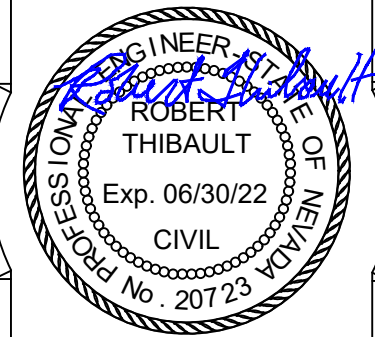
TITLE SHEET	1
KEY SHEET	2
PLAN AND PROFILE	3
PLAN AND PROFILE	4
PLAN AND PROFILE	5
PLAN AND PROFILE	6
PLAN AND PROFILE	7
PLAN AND PROFILE	8
PLAN AND PROFILE	9
DETAIL SHEET	10

GENERAL NOTES:

- IN GENERAL HYDRANTS SHOULD BE LOCATED A MINIMUM DISTANCE OF SIX FEET FROM ABOVE GROUND UTILITIES.
- WATER TAPS ONTO THE WATER MAIN ARE TO BE IN ACCORDANCE WITH CITY DETAIL U-12.1
- WATER TAPS ONTO THE WATER MAIN ARE TO BE A MINIMUM OF SIX FEET FROM HYDRANT TAPS
- ABOVE GROUND UTILITIES ARE NOT PERMITTED WITHIN THE RIGHT-OF-WAY.
- THE OWNER WILL PROVIDE AN AS-BUILT TO THE CITY OF ELKO AND N.D.O.T. THE AS-BUILT WILL INCLUDE ALL RELEVANT QUALITY ASSURANCE AND QUALITY CONTROL INFORMATION AND BE STAMPED BY A PROPERLY LICENSED PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL WORK WITH THE PROJECT ENGINEER TO ENSURE ACCURATE AS-BUILT CAN BE GENERATED AND SUBMITTED TO THE CITY OF ELKO AND N.D.O.T. BY THE PROJECT ENGINEER.
- THE CONTRACTOR SHALL HAVE A STAMPED AGENCY APPROVED SET OF PLANS AT THE WORK SITE DURING CONSTRUCTION. CONSTRUCTION SHALL NOT PROCEED UNTIL THIS SET OF PLANS IS ISSUED WITH INCLUDED REVISIONS AND COMMENTS MADE BY THE AGENCIES.
- THE CONTRACTOR SHALL MAINTAIN A 24-HOUR DUST CONTROL PROGRAM INCLUDING WATERING OF OPEN AREAS. DUST CONTROL PROGRAM SHALL BE IN COMPLIANCE WITH ALL FEDERAL, STATE, COUNTY AND CITY CODES AND ORDINANCES.
- THE CONTRACTOR SHALL MAINTAIN AN ONGOING PROCESS FOR REMOVAL OF SPILLAGE OF EXCAVATED MATERIAL ON ALL PAVED STREETS.
- ALL CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS & DETAILS FOR PUBLIC WORKS CONSTRUCTION-"ORANGE BOOK" AS PUBLISHED BY THE WASHOE COUNTY ETC.
- ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE STABILIZED BY THE APPLICATION OF A DUST PALLIATIVE. ALL AREAS LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN 90 DAYS SHALL BE HYDRO-SEEDED WITH AN APPROVED SEED MIX AND TACKIFIER AND SHALL BE IRRIGATED UNTIL FIRMLY ESTABLISHED AS APPROVED BY THE CITY OF ELKO.
- THE CONTRACTOR SHALL VERIFY IN THE FIELD, ALL ELEVATIONS, DIMENSIONS, FLOW LINES, EXISTING CONDITIONS, AND POINTS OF CONNECTIONS WITH ADJOINING PROPERTY (PUBLIC OR PRIVATE), ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE PROJECT ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE SOILS ENGINEER, THE CITY OF ELKO, AND ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL CALL UNDERGROUND SERVICES ALERT AT 1.800.227.2600 AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION. IT SHALL BE THE CONTRACTOR RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES FOR LOCATIONS PRIOR TO CONSTRUCTION. HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY.
- CONTRACTOR TO OBTAIN A STREET CUT PERMIT FROM THE PUBLIC WORKS DEPARTMENT AND PAY ANY APPLICABLE FEES TO THE CITY OF ELKO PRIOR TO EXCAVATING WITHIN THE CITY RIGHT OF WAY.
- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM N.D.O.T. PRIOR TO WORK IN THEIR RIGHTS-OF-WAY.
- AT ALL POINTS WHERE SEWER (SANITARY OR STORM), WATER MAINS AND LATERALS CROSS, VERTICAL AND HORIZONTAL SEPARATION SHALL BE MAINTAINED PER NAC, ENGINEER AND CONTRACTOR TO REFERENCE SECTION 445A.6715 TO SECTION 445A.6718 OF THE NEVADA ADMINISTRATIVE CODE FOR UTILITY SEPARATION AND CLEARANCES.
- ALL SANITARY SEWER MAINS SHALL BE A MINIMUM OF 8" SDR 35 PVC (GREEN) PIPE. ALL RESIDENTIAL SANITARY SEWER LATERALS SHALL BE 4" SDR 35 PVC PIPE WITH A 2% SLOPE MINIMUM UNLESS OTHERWISE SHOWN. ALL COMMERCIAL SANITARY SEWER LATERALS SHALL BE 6" SDR 35 PVC PIPE WITH A 2% SLOPE MINIMUM UNLESS OTHERWISE SHOWN.
- ALL WATER MAINS SHALL BE A MINIMUM 10" DIAMETER, THICKNESS CLASS 50 OR PRESSURE CLASS 350 DUCTILE IRON PIPE, WITH POLYETHYLENE ENCASEMENT, OR DR 18 0500 PVC PIPE, UNLESS OTHERWISE SHOWN.
- ALL CONSTRUCTION TO BE AWWA C-600 OR AWWA C-605 COMPLIANT AS APPROPRIATE.
- MINIMUM COVER OVER THE WATER MAIN SHALL BE 42".
- THE CITY OF ELKO UTILITY DEPARTMENT SHALL BE CONTACTED TO PERFORM ALL TAPS ONTO CITY OF ELKO UTILITIES.
- THE CITY OF ELKO UTILITY DEPARTMENT SHALL BE CONTACTED FOR AUTHORIZATION TO PLACE ANY NEW WATER SYSTEMS, EXTENSIONS, REPLACEMENTS IN EXISTING SYSTEMS AND VALVED SECTIONS INTO SERVICE FOR TESTING OR FINAL ACCEPTANCE.
- ALL WATER SERVICE LINES SHALL BE 1" IRON PIPE SIZE (IPS), RATED 200 PSI POLYETHYLENE UNLESS OTHERWISE SHOWN.
- BEFORE BEING CERTIFIED BY AN ENGINEER OR ACCEPTED BY THE CITY OF ELKO, ANY NEW WATER SYSTEMS, EXTENSIONS, REPLACEMENTS IN EXISTING SYSTEMS AND VALVED SECTIONS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-651-"DISINFECTING WATER MAINS".
- BEFORE BEING CERTIFIED BY AN ENGINEER OR ACCEPTED BY THE CITY OF ELKO, ANY NEW WATER SYSTEMS, EXTENSIONS, REPLACEMENTS IN EXISTING SYSTEMS AND VALVED SECTIONS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH NAC445A.67145.7 (A) AND (B).
- BEFORE BEING CERTIFIED BY AN ENGINEER OR ACCEPTED BY THE CITY OF ELKO, ANY NEW SEWER SYSTEMS, EXTENSIONS, REPLACEMENTS IN EXISTING SYSTEMS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION; LATEST EDITION.
- A TRAFFIC CONTROL PLAN SHALL BE PROVIDED BY THE CONTRACTOR AND APPROVED BY THE CITY OF ELKO AND N.D.O.T. PRIOR TO CONSTRUCTION.
- ALL WATER MAIN EXTENSIONS ARE TO BE TESTED IN ACCORDANCE WITH AWWA STANDARD C651 REQUIRING TWO SETS OF CONSECUTIVE SAMPLES AT LEAST 24 HOURS APART FROM EVERY 1200 FEET OF MAIN.

ABBREVIATION

AC	ASPHALT CONCRETE	GB	GRADE BREAK	R	RADIUS
ACP	ASBESTOS CEMENT PIPE	GDW	GRAVEL DRIVEWAY	RCP	REINFORCED CONCRETE PIPE
AGG	AGGREGATE	GO	GROUND	REF	REFERENCE
BC	BEGIN CURVE (HORIZONTAL)	GV	GATE VALVE	RET	CURB RETURN
BF	BACK OF WALK	H	HANDICAPPED	RP	RADIUS POINT
BOW	BOTTOM OF FOOTING	HCL	HYDRAULIC GRADE LINE	RT	RIGHT
BV	BUTTERFLY VALVE	HORIZ	HORIZONTAL	R/W, ROW	RIGHT-OF-WAY
BVC	BEGIN VERTICAL CURVE	HP	HIGH POINT	S	SLOPE (FT./FT.)
BF, BOF	BOTH WAYS	ID	INSIDE DIAMETER	SD	SOUTH
CB	CATCH BASIN	IE	INVERT ELEVATION	SD	STORM DRAIN
C&G	CUBIC FEET PER SECOND	INT	INTERSECTION	SDMH	STORM DRAIN MANHOLE
C&G	CURB AND GUTTER	IRR	IRRIGATION	SL	STREET LIGHT
CL	CENTER LINE	LAT	LATERAL	SS	SANITARY SEWER
CMP	CORRUGATED METAL PIPE	LF	LINEAR FEET	SSCO	SANITARY SEWER CLEAN OUT
COMP	COMPACTION	LP	LOW POINT	SSMH	SANITARY SEWER MANHOLE
CONC	CONCRETE	LT	LEFT	SSPWC	STANDARD SPEC. for PUBLIC WORKS CONST.
CONTR/CTR	CONTRACTOR	LX	MAXIMUM	SW	SIDEWALK
CP	CONCRETE PAD	MH	MANHOLE	TELE	TELEPHONE
CTV	CABLE TELEVISION	MIN	MINIMUM	TBO	TEMPORARY BLOW OFF VALVE
DI	DROP INLET	MJ	MECHANICAL JOINT	TR	TOP OF CURB
DIA	DIAMETER	MMD	MAXIMUM MARSHALL DENSITY	TG	TOP OF WALL
DWY	DRIVEWAY	MUTCD	MANUAL FOR TRAFFIC CONTROL DEVICES	TGB	TOP OF BERM
E	EACH	N	NORTH	TF, TOW	TOP OF FOOTING
EA	END CURVE (HORIZONTAL)	NAP	NOT A PART	TS	TOP OF WALL
EC	END CURVE (HORIZONTAL)	NIP	NOT IN PROJECT	TSCB	TRAFFIC SIGNAL
ELL	ELBOW	NTS	NOT TO SCALE	TR	TRAFFIC SIGNAL CONTROL BOX
ELEC	ELECTRICAL	OC	ON CENTER	TRANS	TRANSITION
ELEV	ELEVATION	OD	OUTSIDE DIAMETER	TYP	TYPICAL
EVC	END VERTICAL CURVE	OH	OVERHEAD	USE/P	UNDER GROUND POWER
EX, EXIST, (E)	EXISTING	OP	PROPOSED	UNO	UNLESS NOTED OTHERWISE
EXT	EXTERIOR	PCC	PORTLAND CEMENT CONCRETE	V	VELOCITY AT 5 YEAR PEAK
FCA	FLANGE COUPLING ADAPTER	PG	PAD GRADE	VC	VERTICAL CURVE
FE	FINISH ELEVATION	PI	POINT OF INTERSECTION	VEL	VELOCITY
FES	FLARED END SECTION	PVC	POINT OF INTERSECTION VERTICAL CURVE	VERT	VERTICAL
FF	FINISH FLOOR	POCC	POINT OF COMPOUND CURVATURE	VG	VALLEY GUTTER
FFC	FRONT FACE OF CURB	POT	POINT OF TANGENCY	W	WEST
FG	FINISH GRADE	PP	POWER POLE	W/G	WATER AND GAS
FH	FIRE HYDRANT	PRC	POINT OF REVERSE CURVE	WL	WATER LINE
FL	FLOW LINE	PRVC	POINT OF REVERSE VERTICAL CURVE	WM	WATER METER
FLG	FLANGE	PVC	POLYVINYL CHLORIDE	WS	WATER SURFACE
fps	FEET PER SECOND	PVMT	PAVEMENT	WV	WATER VALVE
FTG	FOOTING	Q5	5 YEAR PEAK FLOW	WWF	WELDED WIRE FABRIC
G	GAS	Q100	100 YEAR PEAK FLOW		
GALV	GALVANIZED				



CITY OF ELKO
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ELKO, NEVADA 89801
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DESIGN BY:	BT
DRAWN BY:	ACAD_C3D_2020
CHECKED BY:	BT
DATE:	6/22/2022 8:30 AM
JOB NO.:	

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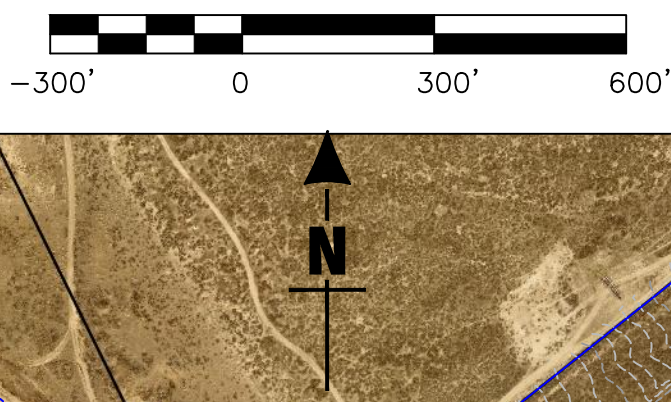
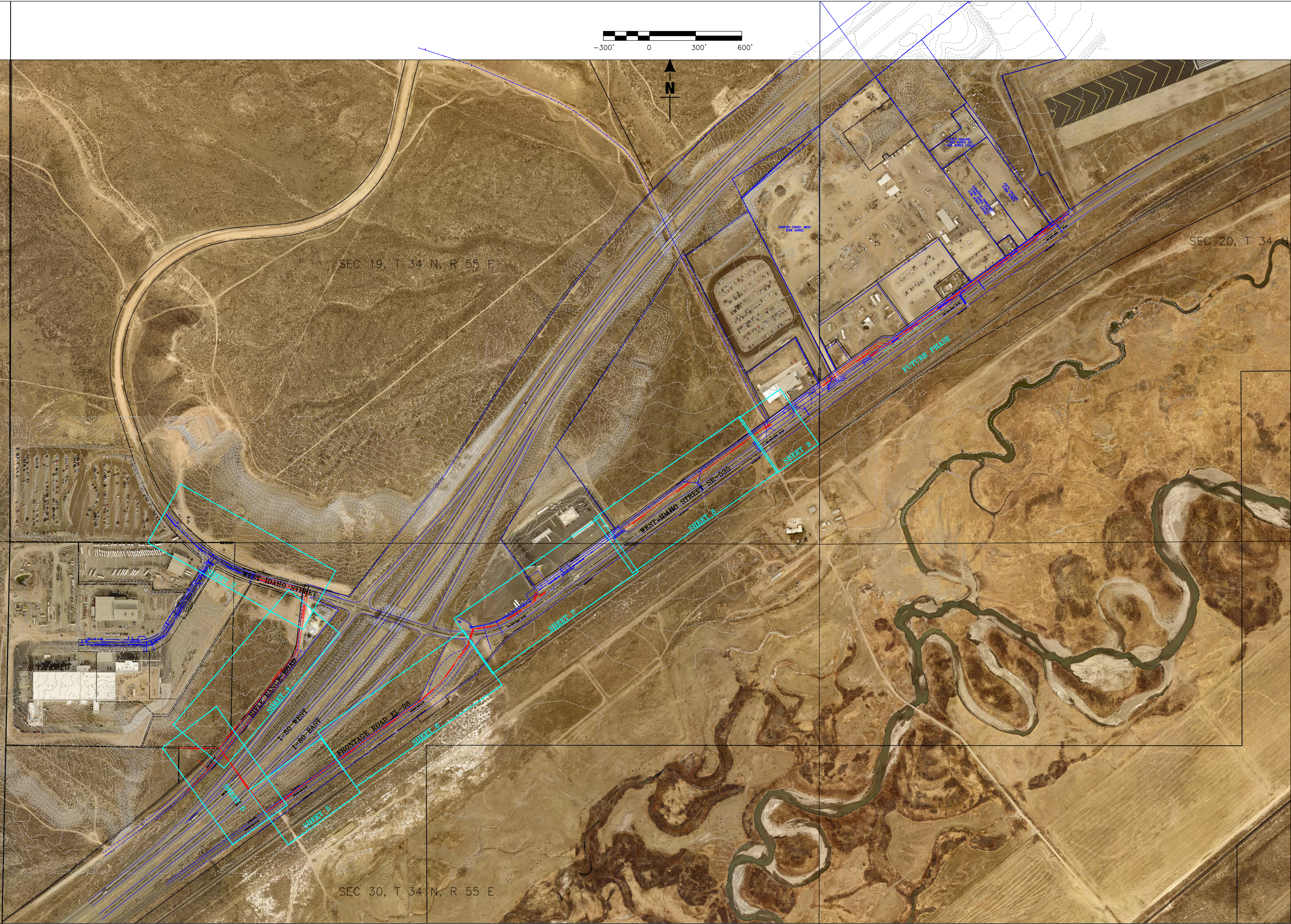
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EXIT 298 SEWER & WATER DESIGN
PHASE 2
TITLE SHEET

SHEET

1 of 10

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ENGINEER

ROBERT THIBAUT

Exp. 06/30/22

CIVIL

Job No. 20723



CITY OF ELKO

1751 COLLEGE AVE

ELKO, NEVADA 89801

(775) 777-7210

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DESIGN BY: BT

DRAWN BY: ACAD_C3D_2020

CHECKED BY: BT

DATE: 6/2/2022 2:56 PM

JOB NO:

REV	DATE	DESCRIPTION	BY	APVD

SCALE

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EXIT 298 SEWER & WATER DESIGN

PHASE 2

KEY INDEX SHEET

ELKO

ELKO COUNTY

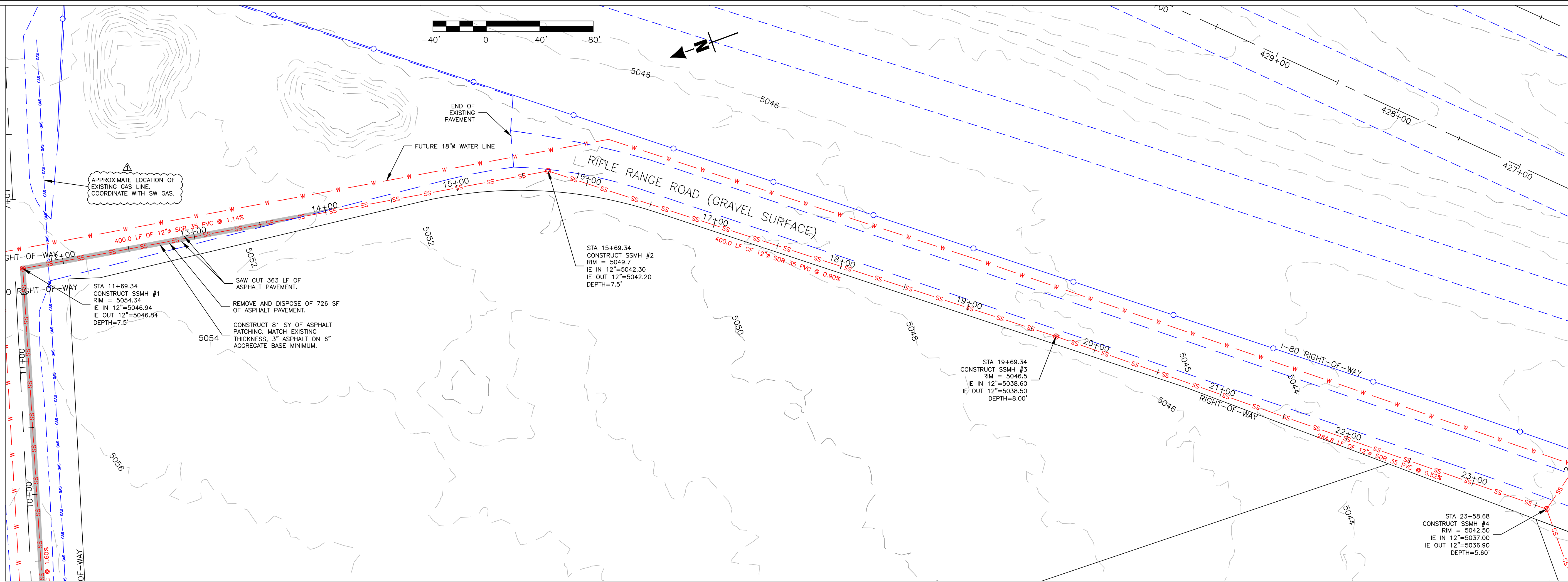
NEVADA

SHEET

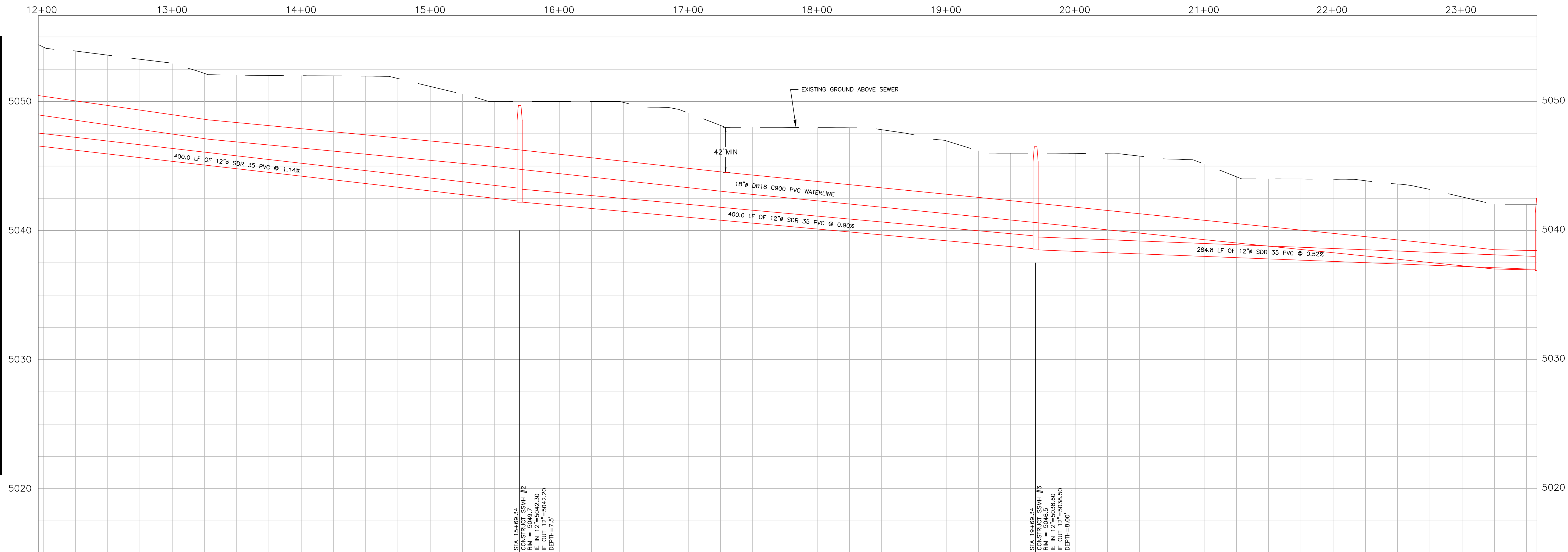
2 of 10

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MATCH LINE 12+00
SEE SHEET 3



MATCH LINE 12+00
SEE SHEET 3



MATCH LINE 23+50
SEE SHEET 5

MATCH LINE 23+50
SEE SHEET 5

ENGINEER
ROBERT
THIBAUT
Exp. 06/30/22
CIVIL
Professional No. 20173 (Nev.)

Elko

CITY OF ELKO
1751 COLLEGE AVE
ELKO, NEVADA 89801
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DESIGN BY: BT
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JOB NO:

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PHASE 2
FRONTAGE ROAD
PLAN AND PROFILE

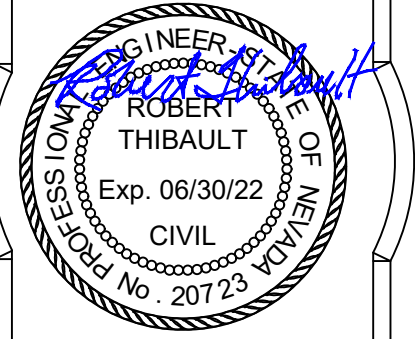
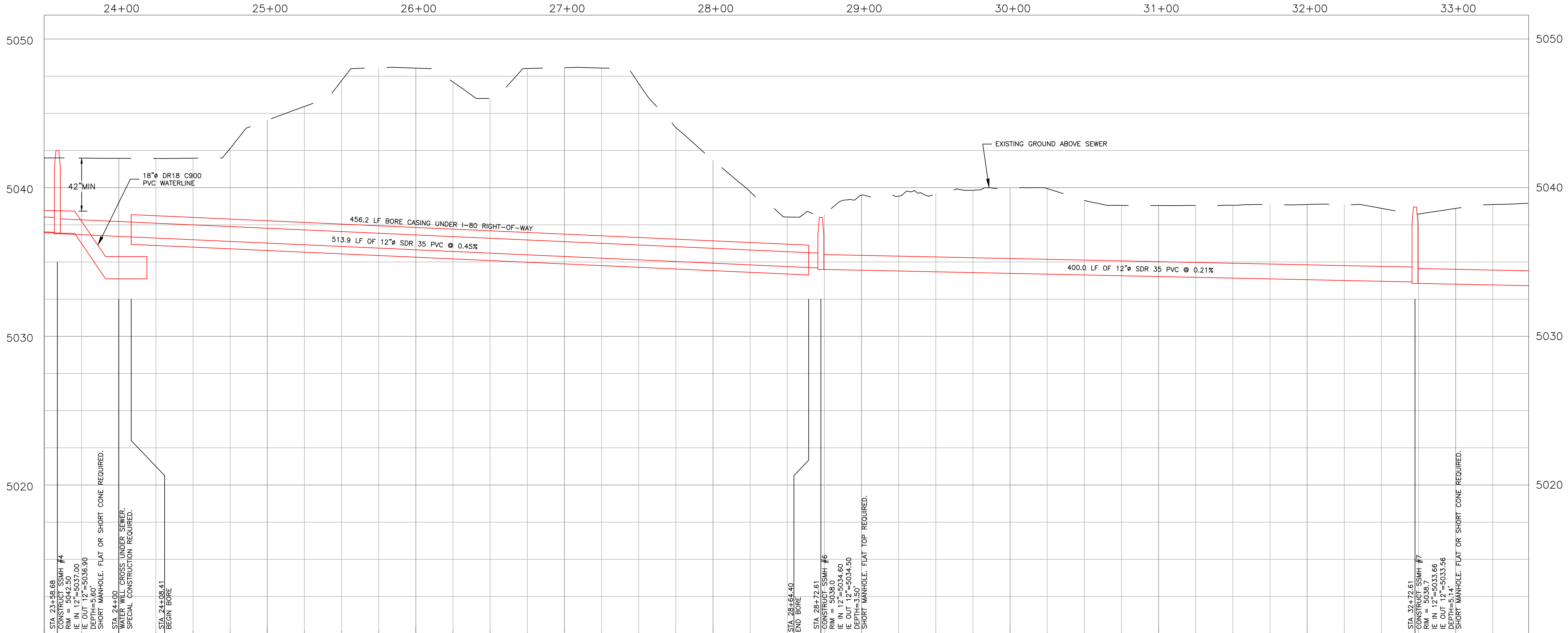
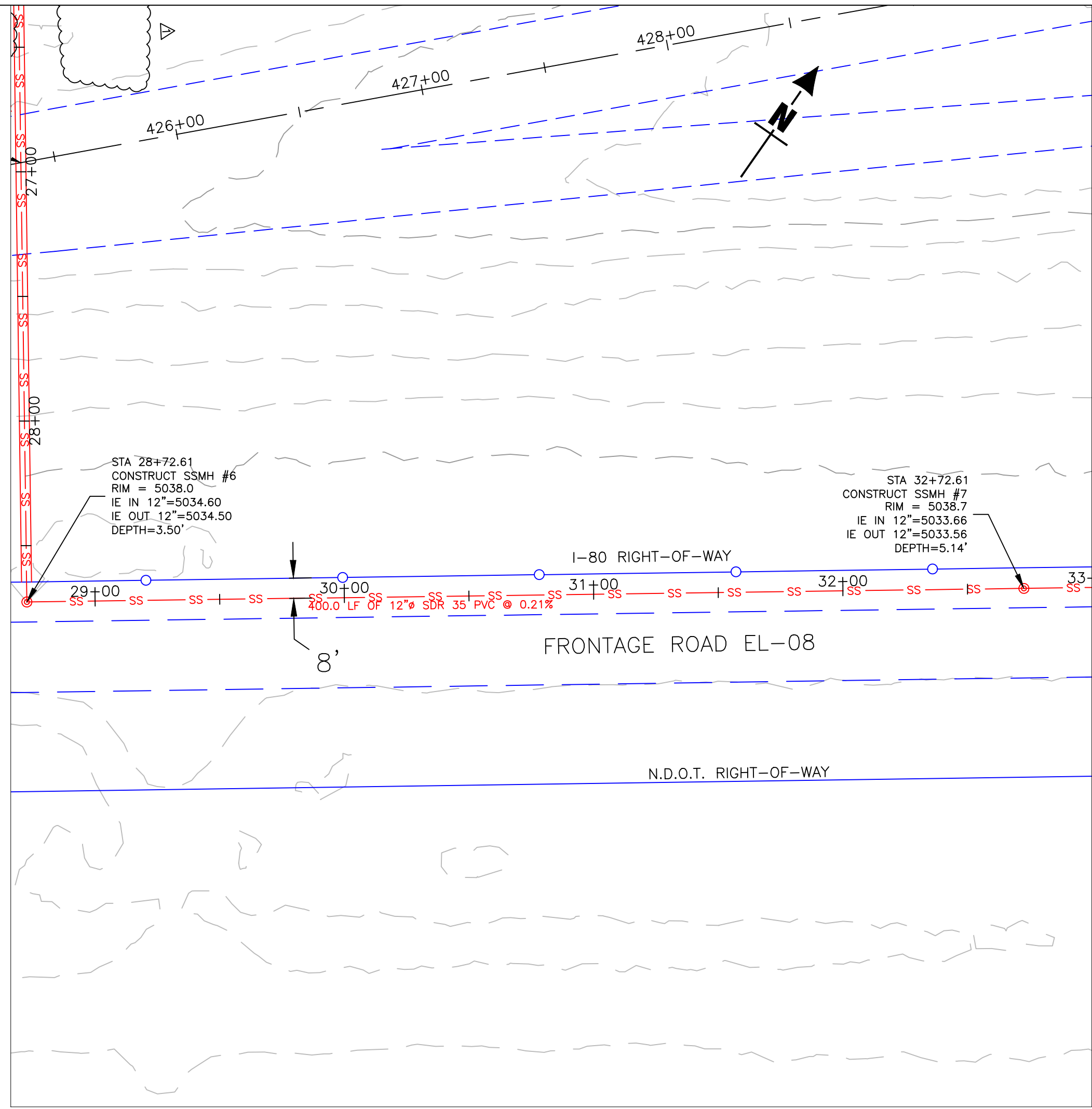
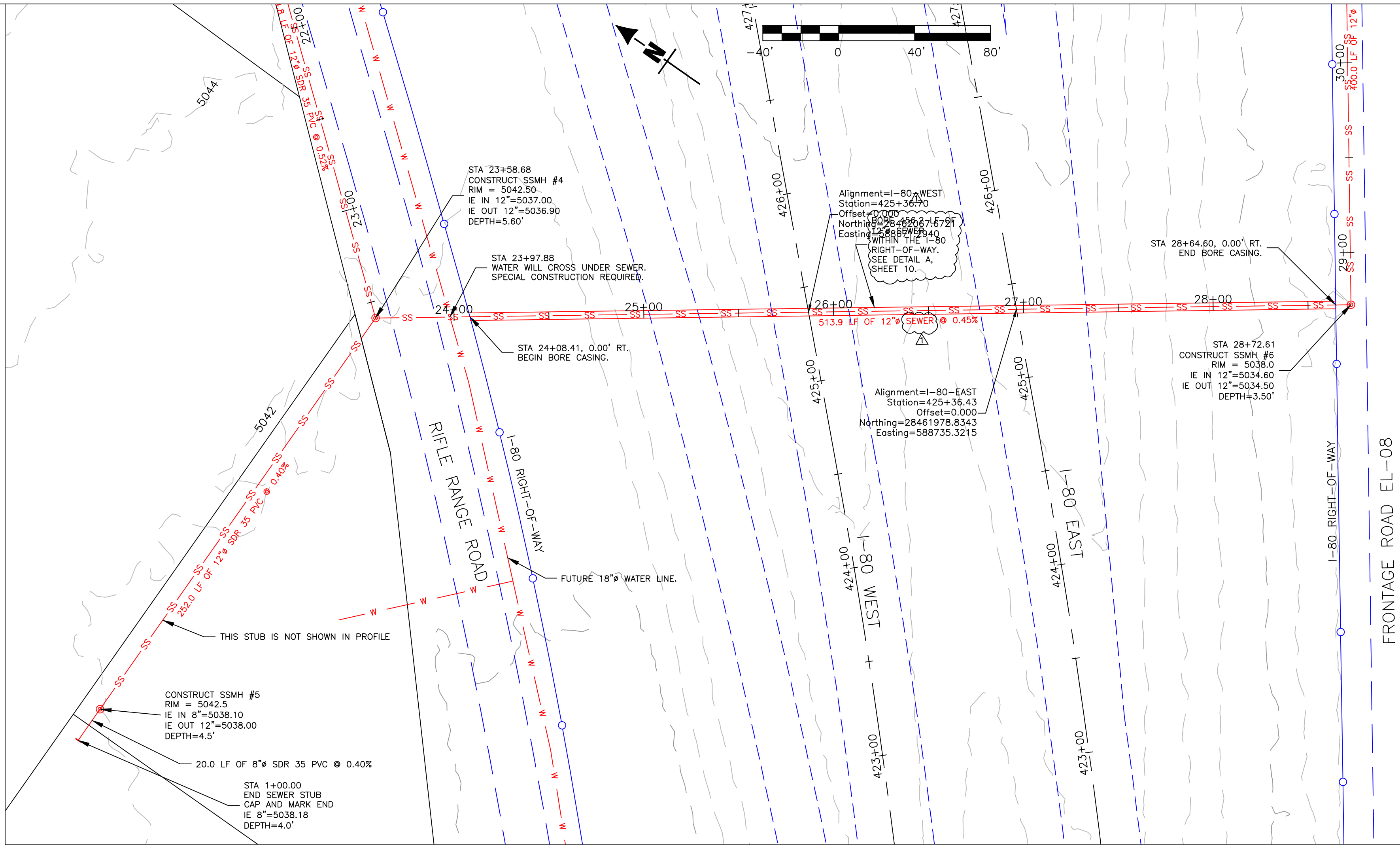
ELKO
ELKO COUNTY
NEVADA

SHEET
4 of 10

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MATCH LINE 23+50
SEE SHEET 4

MATCH LINE 23+50
SEE SHEET 4



CITY OF ELKO
1751 COLLEGE AVE
ELKO, NEVADA 89801
(775) 777-7210
fax: (775) 777-7219

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DRAWN BY: ACAD_C3D_2020
CHECKED BY: BT
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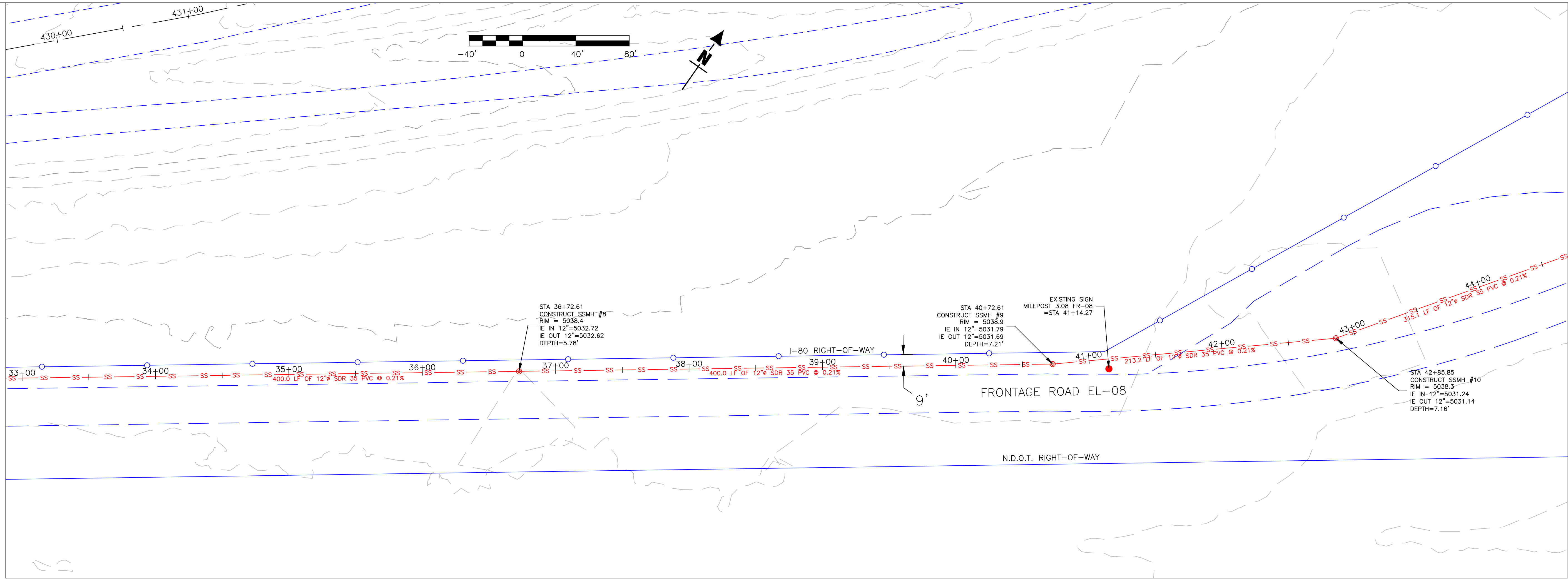
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PHASE 2
I-80 CROSSING
PLAN AND PROFILE
ELKO
ELKO COUNTY
NEVADA

SHEET
5 OF 10

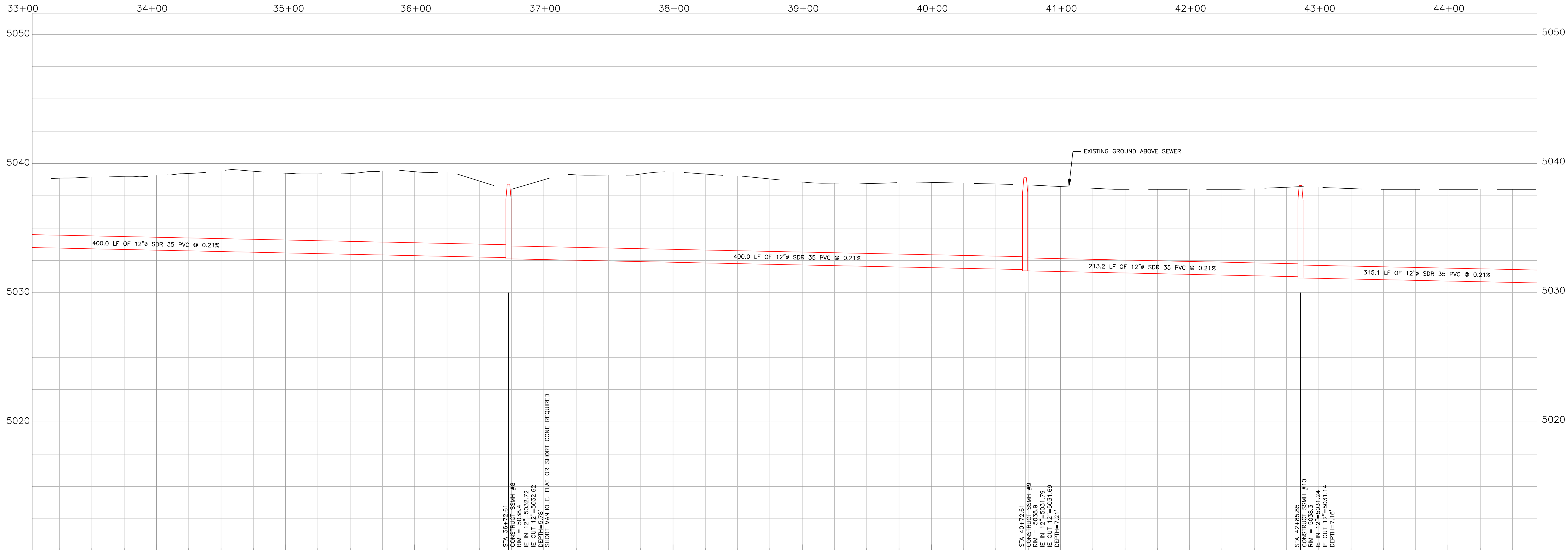
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MATCH LINE 33+00
SEE SHEET 5



MATCH LINE 44+50
SEE SHEET 7

MATCH LINE 33+00
SEE SHEET 5



MATCH LINE 44+50
SEE SHEET 7

ELKO COUNTY

ENGINEER

ROBERT THIBAUT

Exp. 06/30/22

CIVIL

Job No. 20723

ELKO

1751 COLLEGE AVE

ELKO, NEVADA 89801

(775) 777-7210

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DESIGN BY: BT

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CHECKED BY: BT

DATE: 6/22/2022 9:55 AM

JOB NO:

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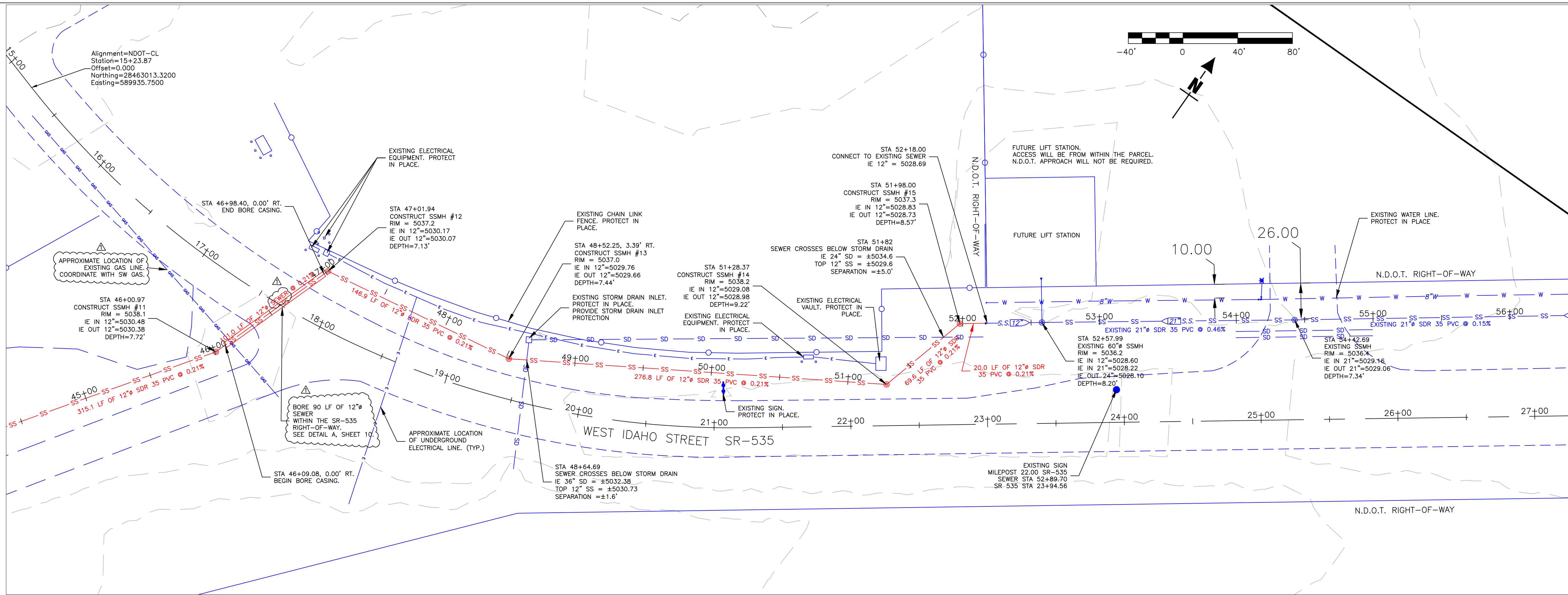
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EXIT 298 SEWER & WATER DESIGN
PHASE 2
FRONTAGE ROAD
PLAN AND PROFILE
ELKO
ELKO COUNTY
NEVADA

SHEET
6 OF 10

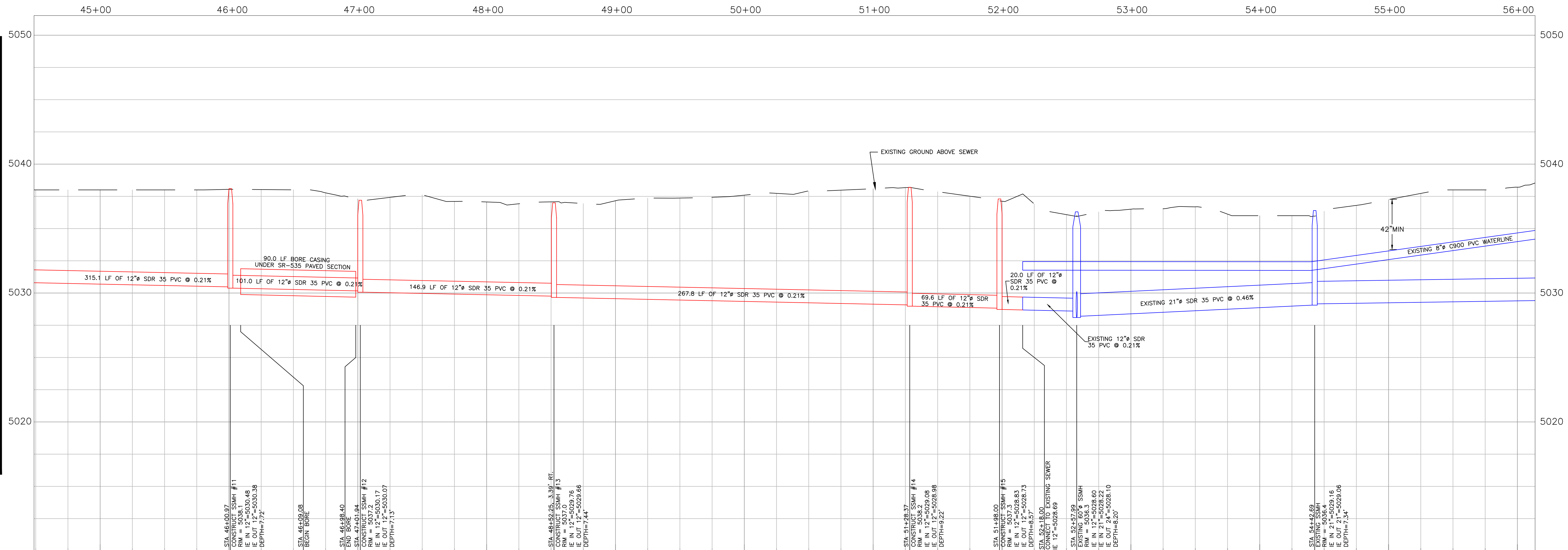
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MATCH LINE 44+50
SEE SHEET 6



MATCH LINE 56+00
SEE SHEET 8

MATCH LINE 44+50
SEE SHEET 6



MATCH LINE 56+00
SEE SHEET 8

ENGINEER
ROBERT
THIBAUT
Exp. 06/30/22
CIVIL
NOVEMBER 30, 2017

CITY OF ELKO
1751 COLLEGE AVE
ELKO, NEVADA 89801
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DESIGN BY:	BT
DRAWN BY:	ACAD, CSD, 2015
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JOB NO.:	

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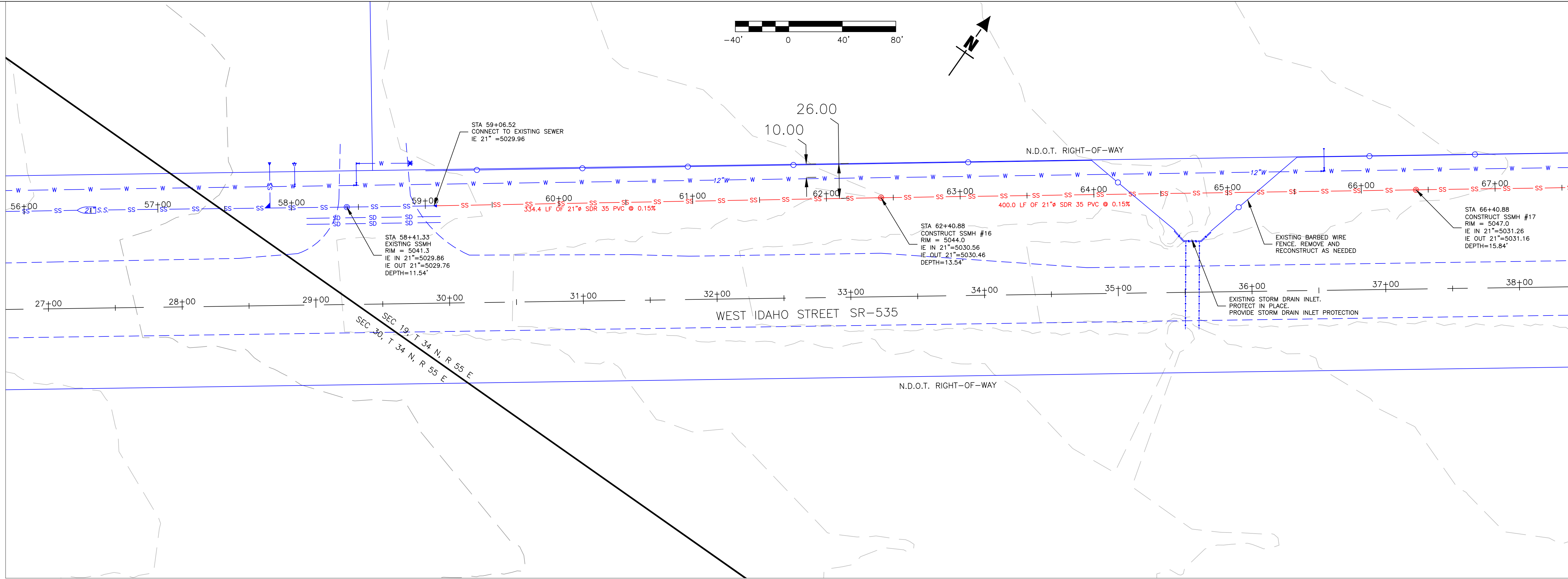
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EXIT 298 SEWER & SEWER DESIGN
PHASE 2
WEST IDAHO STREET
PLAN AND PROFILE
ELKO COUNTY NEVADA
ELKO

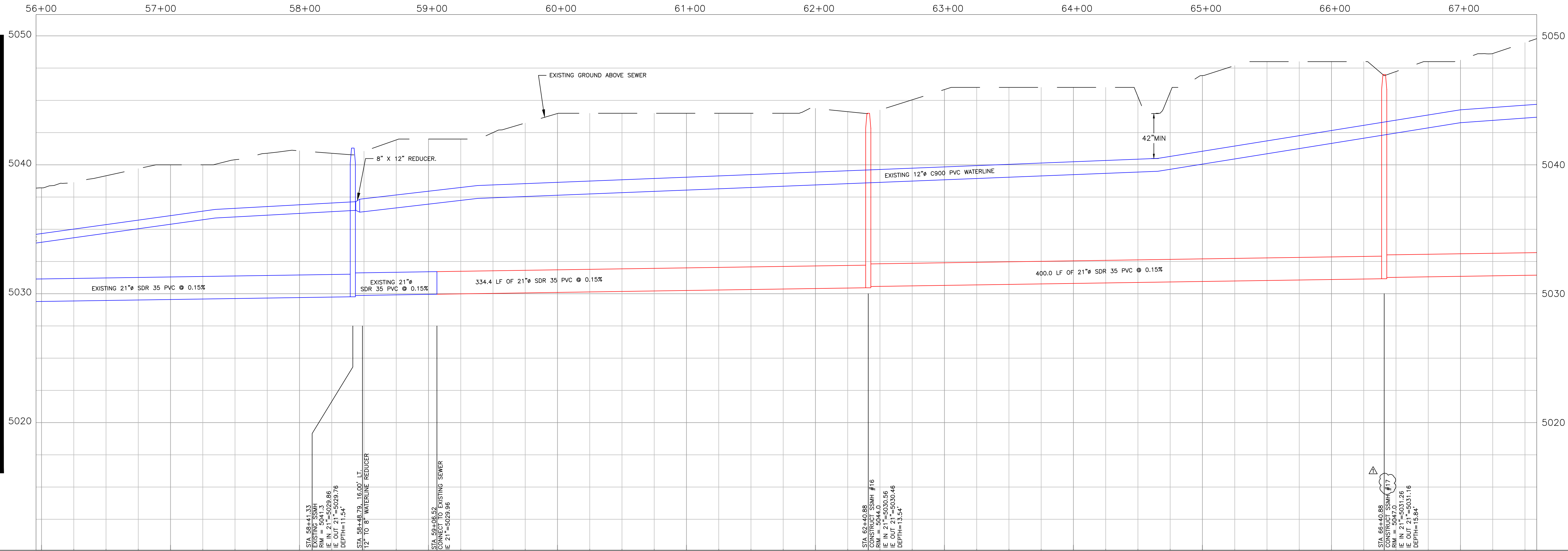
SHEET
7 OF 10

LA Streets & P and H Drive Penetration Drive-6.dwg

MATCH LINE 56+00
SEE SHEET 7



MATCH LINE 56+00
SEE SHEET 7



MATCH LINE 67+50
SEE SHEET 9

MATCH LINE 67+50
SEE SHEET 9

Elko
1751 COLLEGE AVE
ELKO, NEVADA 89801
(775) 777-7210
fax: (775) 777-7219

DESIGN BY: BT
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CHECKED BY: BT
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JOB NO:

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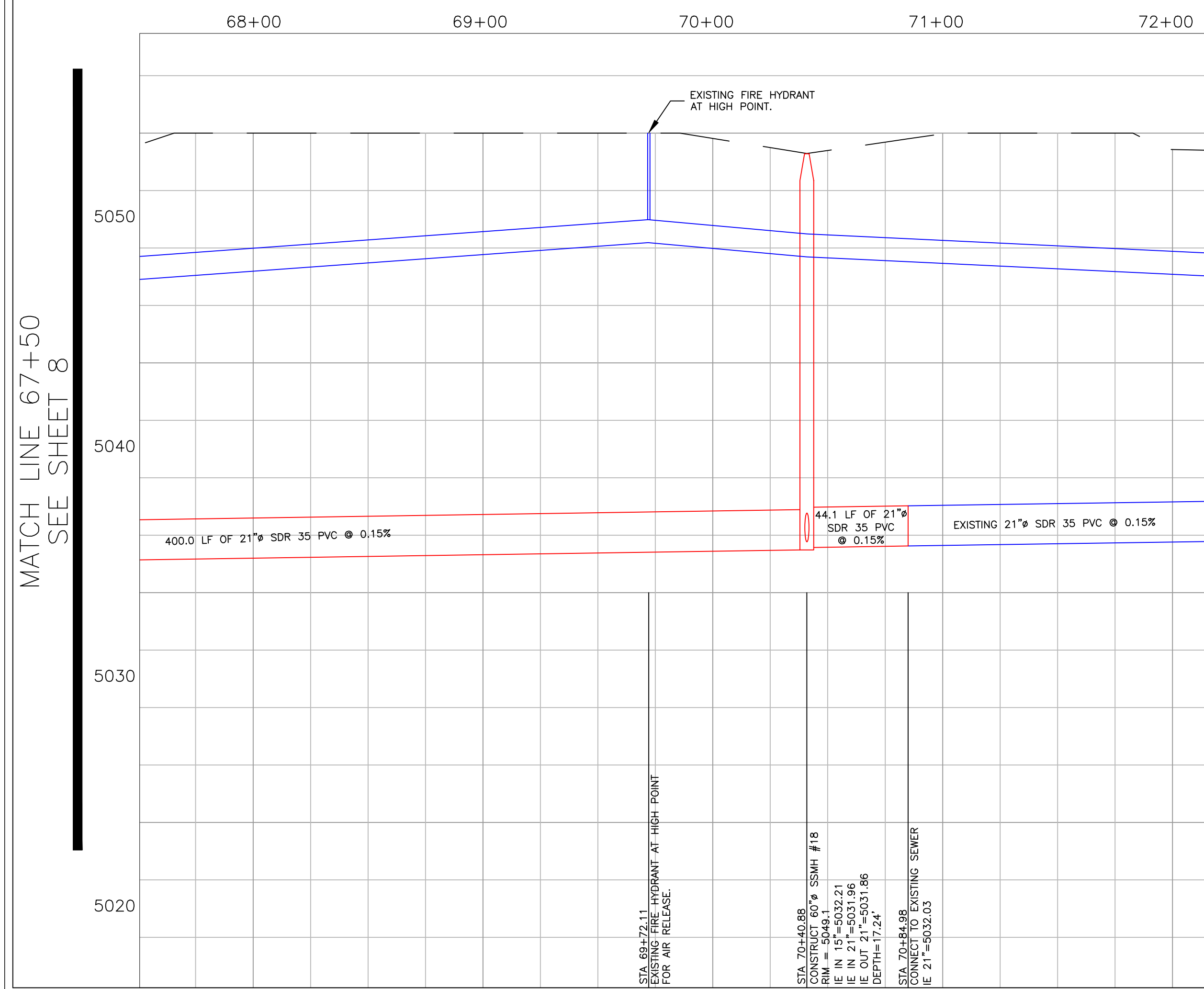
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EXIT 298 SEWER & WATER DESIGN
PHASE 2
WEST IDAHO STREET
PLAN AND PROFILE

ELKO
ELKO COUNTY
NEVADA

SHEET
8 OF 10

U:\Sheets\6 and H Drive\Paradise-Drive-6.dwg



<p>SEWER MAIN Place in separate trench</p> <p>10' MIN.</p> <p>WATER MAIN OR LATERAL</p> <p>SEWER MAIN LOWER THAN THE WATER MAIN</p> <p><u>1&2a</u></p>	<p>SEWER LATERAL Place in separate trench</p> <p>4' MIN.</p> <p>12" MIN.</p> <p>WATER MAIN OR LATERAL</p> <p><u>1</u></p>
<p>SEWER MAIN Place in separate trench</p> <p>5' MIN.</p> <p>18" MIN.</p> <p>WATER MAIN OR LATERAL</p> <p><u>2b</u></p> <p>Note: Construct 2b, if can not construct 1 & 2a.</p> <p>SEWER MAIN Encase in 4" min. of cement slurry</p> <p>6' MIN.</p> <p>WATER MAIN OR LATERAL</p> <p><u>2c.1</u></p> <p>Note: Construct 2c.1, if can not construct 2b and the sewer main already exists. Place sewer main in separate trench.</p> <p>SEWER MAIN PVC pipe with joints complying with ASTM D3212</p> <p>6' MIN.</p> <p>WATER MAIN OR LATERAL</p> <p><u>2c.2</u></p> <p>Note: Construct 2c.2, if can not construct 2b and the sewer main is being constructed. Place sewer main in separate trench.</p> <p>SEWER MAIN Joints shall be watertight that use joint sealant or joint gaskets.</p> <p>6' MIN.</p> <p>WATER MAIN OR LATERAL</p> <p><u>2c.3</u></p> <p>Note: Construct 2c.3, if can not construct 2b and the sewer main is part of a storm sewer and diam. is 24" or greater. Place sewer main in separate trench.</p> <p>SEWER MAIN Encase in 4" min. of cement slurry</p> <p>6' MIN.</p> <p>WATER MAIN OR LATERAL Mechanically restrain joints.</p> <p><u>3a</u></p> <p>Note: Construct 3a, if can not meet separation requirements as shown above but must meet other requirements shown in 2c.1-2c.3.</p>	<p><u>2</u></p> <p>Note: If 1 can not be constructed, then locate in such a manner as is authorized by the Nevada Division of Environmental Protection.</p>
<p>SEWER MAIN PARALLEL TO WATER MAIN OR WATER SERVICE LATERAL</p>	
<p>SEWER SERVICE LATERAL PARALLEL TO WATER MAIN OR WATER SERVICE LATERAL</p>	

1

SEWER MAIN

WATER MAIN

18" MIN.

2a

SEWER MAIN

WATER MAIN

6" MIN.

Note: Construct 2a, if can not construct 1. Pipeline joints of sewer & water mains, other than welded joints, should be an equal distance from the point of crossing. Provide structural support for the sewer and water mains as the supplier of water determines necessary. Sewer main is composed of material that meets the requirements of the latest edition of Standard Specifications for Public Works and the A.W.W.A.

2b

SEWER MAIN

WATER MAIN

6" MIN.

Note: Construct 2b, if can not construct 1. Pipeline joints of sewer & water mains, other than welded joints, should be an equal distance from the point of crossing. Provide structural support for the sewer and water mains as the supplier of water determines necessary. Sewer main consists of PVC which is constructed with joints that comply with ASTM D2272.

2c

SEWER MAIN

WATER MAIN

6" MIN.

Note: Construct 2c, if can not construct 1. Pipeline joints of sewer & water mains, other than welded joints, should be an equal distance from the point of crossing. Provide structural support for the sewer and water mains as the supplier of water determines necessary. Sewer main is minimum of 48" of small slurry and mechanically restrain water main for a distance of at least 10' on each side of point of crossing.

2d

SEWER MAIN

WATER MAIN

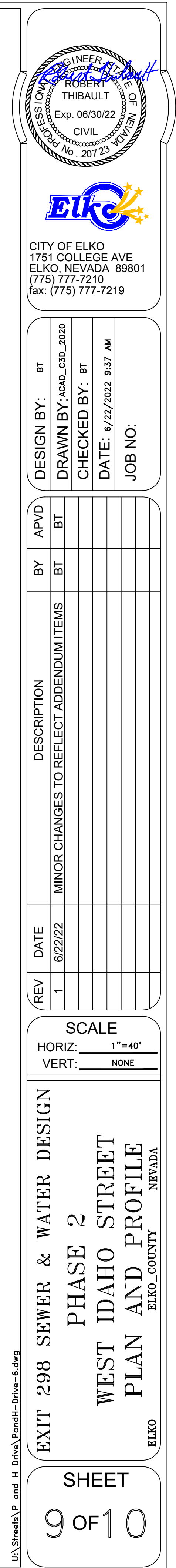
6" MIN.

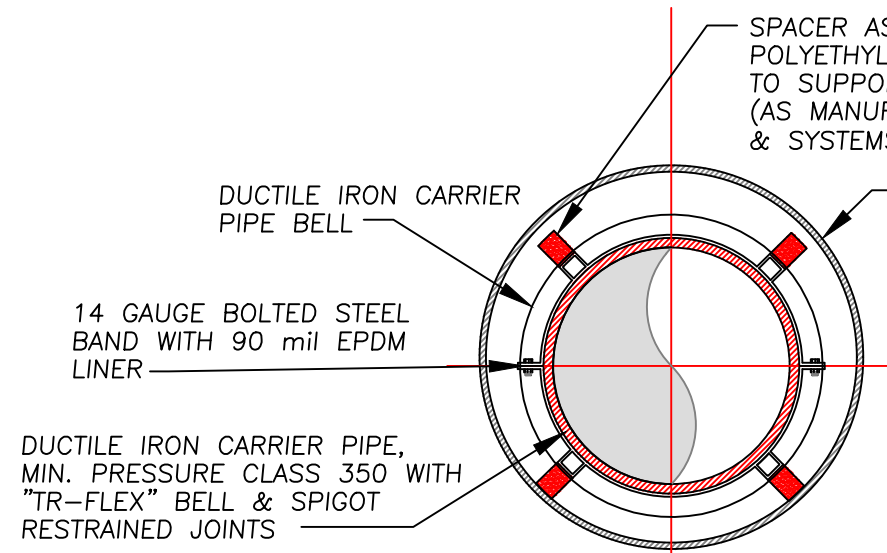
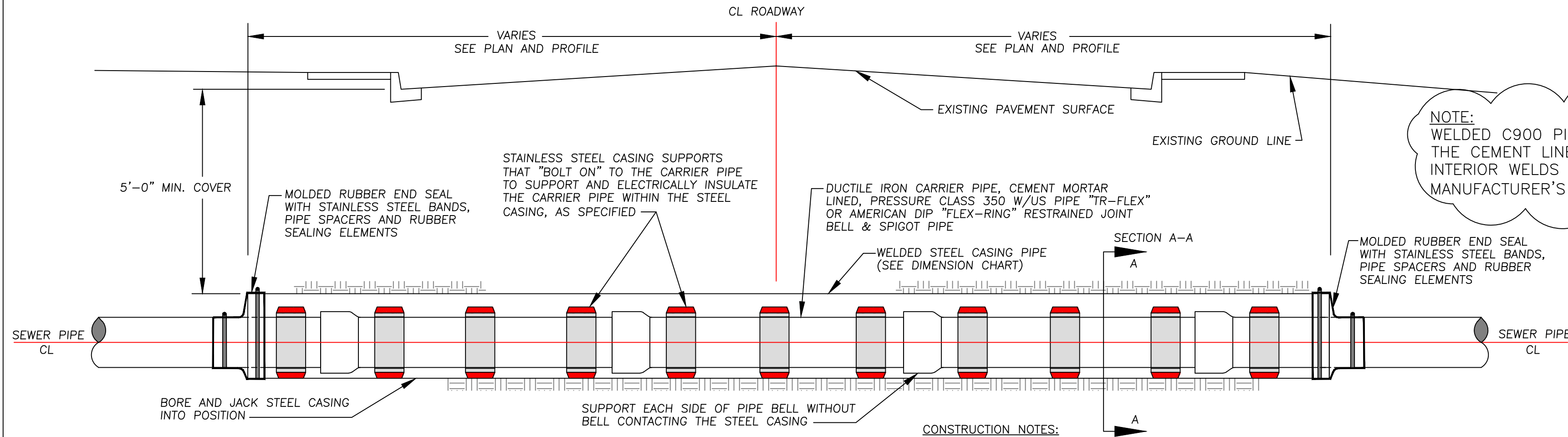
Note: Construct 2d, if can not construct 1. Pipeline joints of sewer & water mains, other than welded joints, should be an equal distance from the point of crossing. Provide structural support for the sewer and water mains as the supplier of water determines necessary. Install sewer or water main to pipe sleeve that extends, without joints, a minimum of 10' each side of point of crossing.

SEWER MAIN CROSSING WATER MAIN

CROSSING LINE SEPARATION

SEWER LATERAL CROSSING WATER MAIN/LATERAL





PIPE/CASING DIMENSIONS		
CARRIER PIPE DIAM.	CASING MIN. O.D.	MINIMUM CASING THICKNESS
6"	16"	3/8"
8"	18"	3/8"
10"	20"	3/8"
12"	24"	7/16"
14"	24"	7/16"
16"	26"	7/16"
18"	30"	1/2"
20"	32"	1/2"
24"	36"	9/16"

CONSTRUCTION NOTES:

1. INSTALL CASING SPACERS ON EACH SIDE OF THE CARRIER PIPE BELL & SPIGOT JOINT AND AT THE MIDPOINT OF EACH PIPE JOINT. THE MANUFACTURER MAY REQUIRE ADDITIONAL SPACERS ON LARGE DIAMETER PIPE IN ORDER TO PROPERLY DISTRIBUTE THE CARRIER PIPE AND CONTAINED FLUID LOAD. CONSULT MANUFACTURER FOR EXACT SPACER REQUIREMENTS.
2. CASING PIPE SHALL BE WELDED STEEL SMOOTH WALL PIPE WITH A MINIMUM YIELD STRENGTH OF 36,000 PSI (ASTM A1011 GRADE 36, OR ASTM A53, GRADE B) MEETING THE MINIMUM REQUIREMENTS OF THE GOVERNING AGENCY.
3. CARRIER PIPE (INSIDE THE CASING) SHALL BE CEMENT MORTAR LINED BELL & SPIGOT RESTRAINED JOINT DUCTILE IRON PIPE, "TR FLEX" BY US PIPE CO., OR "FLEX RING" BY AMERICAN DIP CO., MEETING THE MINIMUM SPECIFICATIONS SHOWN AND AS REQUIRED BY THE UTILITY COMPANY.
4. STEEL CASING SHALL BE INSTALLED BY BORING & JACKING, OR OPEN TRENCH METHODS AS SHOWN ON THE CASING/CARRIER PIPE PLAN & PROFILE. CARRIER PIPE SPACERS AND END SEALS SHALL BE OF THE TYPE AND DESIGN MANUFACTURED AND DISTRIBUTED BY ADVANCE PRODUCTS & SYSTEMS, INC., OR APPROVED EQUAL.
5. CARRIER PIPE SPACERS SHALL BE STAINLESS STEEL WITH INJECTION MOLDED POLYETHYLENE INSULATED PIPE SPACERS/SUPPORTS. STAINLESS STEEL SLEEVES SHALL BE INSULATED FROM DIRECT CONTACT WITH THE DUCTILE IRON CARRIER PIPE USING A 90 mil EPDM LINER.
6. FOR PVC GRAVITY SEWER PIPE INSTALLATIONS INSTALL PIPE ADAPTOR COUPLINGS (PVC TO DIP) APPROXIMATELY 10- FEET UPSTREAM AND DOWNSTREAM FROM EACH END OF THE STEEL CASING AND END SEAL ASSEMBLIES TO TRANSITION TO AND FROM DUCTILE IRON PIPE WITH CEMENT MORTAR LINING.

TYPICAL ROADWAY/STREET
BORE, JACK & CASING DETAIL

NOT TO SCALE

A

DUCTILE IRON PIPE, PVC, PE & HDPE PIPE

NOTES:

1. WATER DENSIFIED BACKFILL AND TUNNELING SHALL NOT BE ALLOWED.
2. BACKFILL SHALL MEET THE REQUIREMENTS FOR CLASS "E" BACKFILL WITH NO ROCKS SIZED OVER 4", COMPACTED IN 6" (MAX.) LIFTS TO 90% (MIN.) RELATIVE COMPACTION.
3. BEDDING MATERIAL FOR THE FOLLOWING PIPE SHALL MEET THE REQUIREMENTS OF SECTION 200 & 305 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND COMPACTED TO A MINIMUM 90% RELATIVE COMPACTION.
A) DUCTILE IRON PIPE - CLASS "C"
B) ALL OTHER PIPE - CLASS "A"
4. FOR TRENCHES & EXCAVATIONS LOCATED WITHIN ROADWAY SECTION, SEE PAVEMENT PATCH DETAIL.
5. ALL TRENCHES AND EXCAVATIONS SHALL CONFORM TO THE LATEST EDITION OF O.S.H.A. AND M.U.T.C.D. REQUIREMENTS.
6. NATIVE MATERIAL MUST BE APPROVED BY THE CITY OF ELKO ENGINEER PRIOR TO USING AS BACKFILL OR BEDDING.
7. UNDERGROUND WARNING TAPE SHALL BE METALLIC AND APPROPRIATLY LABELED AND COLORED.

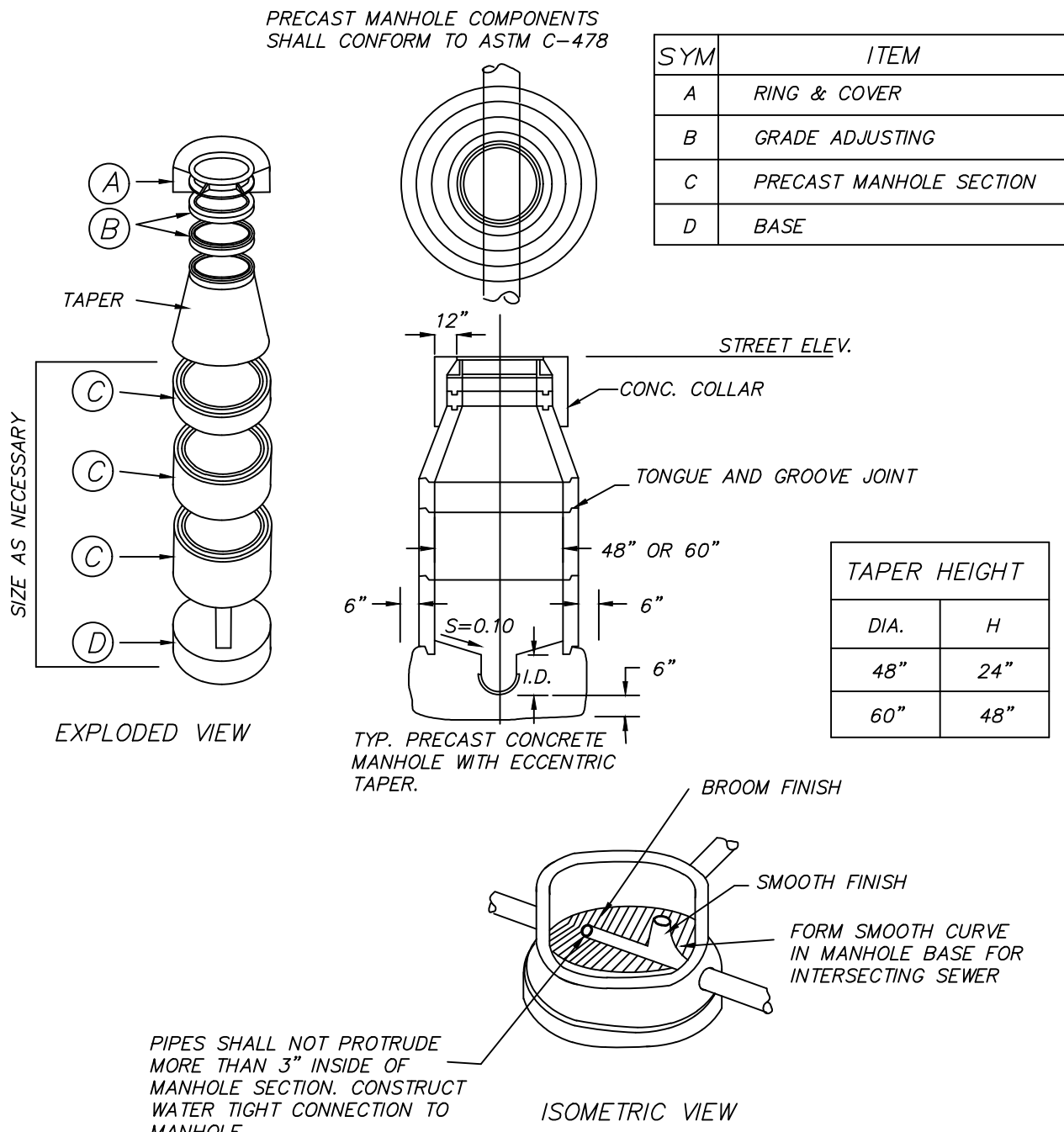
TRENCH EXCAVATION AND BACKFILL

NOT TO SCALE

B

MANHOLES - GENERAL NOTES:

1. ALL MANHOLES SHALL MEET THE REQUIREMENTS OF SECTION 204 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. MANHOLE COVERS SHALL BE IDENTIFIED AS STORM DRAIN, WATER OR SEWER CLEARLY DISPLAYED ON THE COVER.
3. ALL TRENCHES AND EXCAVATIONS SHALL CONFORM WITH THE LATEST EDITION OF THE O.S.H.A. REQUIREMENTS.
4. PRECAST MANHOLE SECTIONS, OTHER THAN GRADE RINGS, SHALL BE JOINED WITH FLEXIBLE PLASTIC GASKET MATERIAL SUCH AS "RAM-NEK" OR EQUAL AS PER MANUFACTURER'S RECOMMENDATIONS.
5. TYPE & SIZE OF MANHOLE TO BE CONSTRUCTED IN A PARTICULAR LOCATION SHALL BE DETERMINED BY THE PIPE SIZE, ALIGNMENT AND GRADE AS FOLLOWS:
TYPE 1 & 2
48" SIZE
A. ALL CASES FOR PIPE 18" AND SMALLER.
B. 24" AND SMALLER PIPE ON TANGENT LINE & GRADE.
60" SIZE
A. 27" THROUGH 36" PIPE ON TANGENT LINE AND GRADE.
B. 21" THROUGH 27" PIPE AT ANGLE POINTS AND CHANGES IN GRADE OR PIPE SIZE.
6. EXCAVATABLE SLURRY BACKFILL MAY BE USED AS STRUCTURAL BACKFILL FOR MANHOLES AND MUST MEET THE REQUIREMENTS OF SECTIONS 305.16 & 337.08 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
7. THE TOTAL HEIGHT OF MANHOLE GRADE RINGS SHALL NOT EXCEED 12 INCHES.
8. MANHOLE ACCESS DIAMETER SHALL BE 24" MINIMUM.



NOTES:

1. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
2. PRECAST BASE MAY BE USED.
3. MANHOLE STEPS ARE NOT REQUIRED.
4. REFER TO DETAIL SHEET (MANHOLE - GENERAL NOTES) FOR ADDITIONAL INFORMATION.

MANHOLE GENERAL NOTES

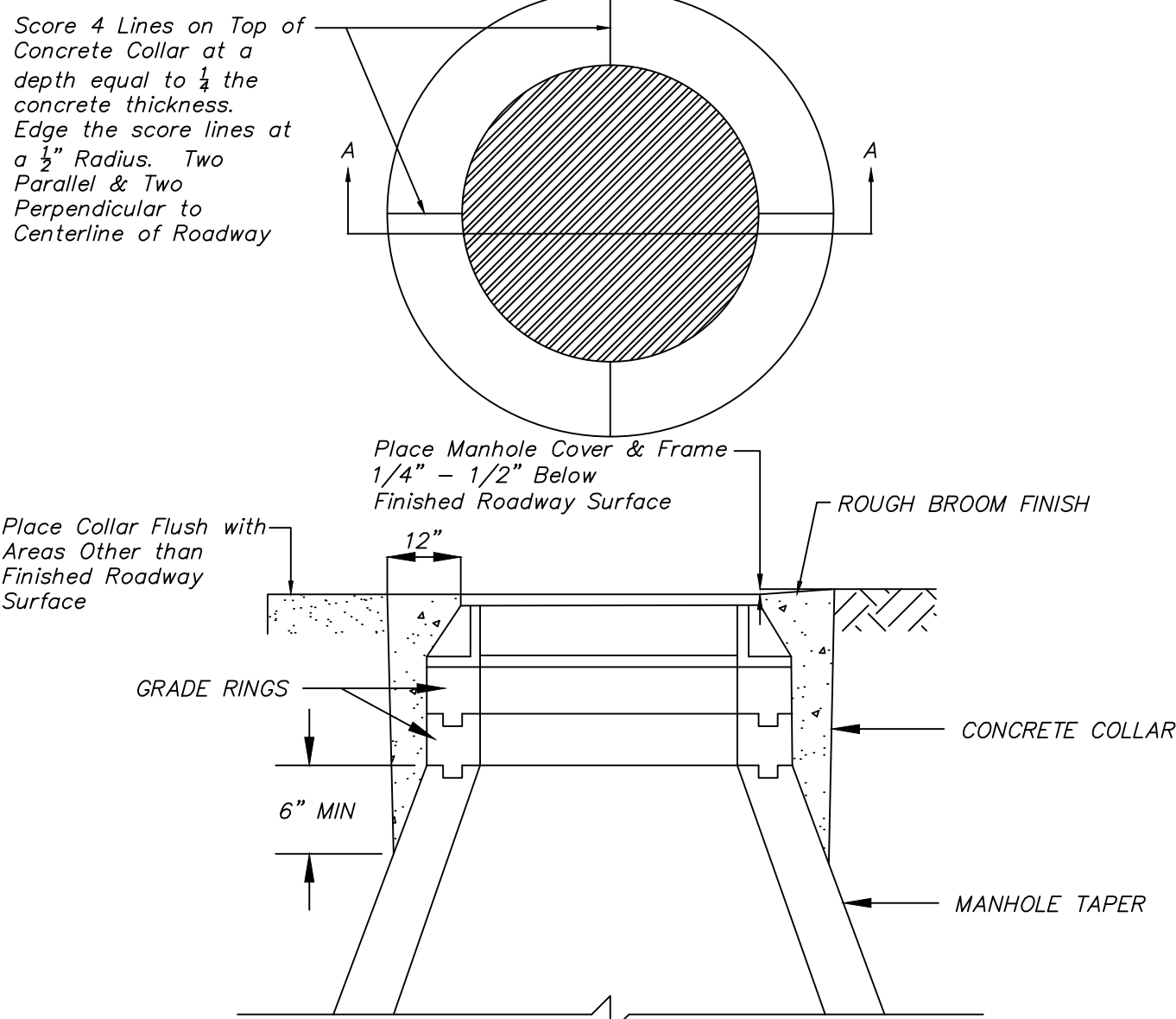
NOT TO SCALE

C

TYPE 1 MANHOLE

NOT TO SCALE

D



NOTES:

1. CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 337.10 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. MANHOLE COVER & FRAME SHALL BE SET 1/4" TO 1/2" BELOW FINISHED CONCRETE OR BITUMINOUS SURFACE. MANHOLE COLLARS IN ALL OTHER AREAS SHALL BE SET FLUSH WITH FINISHED GRADE, UNLESS OTHERWISE SPECIFIED.
3. CONCRETE COLLAR IS REQUIRED WHEN MANHOLE IS NOT LOCATED IN CONCRETE OR BITUMINOUS SURFACE.
4. REFER TO DETAIL SHEET (MANHOLE - GENERAL NOTES) FOR ADDITIONAL INFORMATION.

CONCRETE COLLAR

NOT TO SCALE

E

ADDITIONAL CITY OF ELKO DETAILS CAN BE FOUND AT:

https://www.elkocity.com/departments/engineering_department/standard_details/index.php



CITY OF ELKO
1751 COLLEGE AVE
ELKO, NEVADA 89801
(775) 777-7210
fax: (775) 777-7219

DESIGN BY:	BT
DRAWN BY:	ACAD_C3D_2015
CHECKED BY:	BT
DATE:	6/22/2022 9:37 AM
JOB NO:	

REV	DATE	DESCRIPTION	BY	APVD
1	6/22/22	MINOR CHANGES TO REFLECT ADDENDUM ITEMS	BT	

SCALE	
HORIZ:	1"=300'
VERT:	NONE

EXIT 298 SEWER & WATER DESIGN
PHASE 2
DETAIL SHEET

SHEET

10 of 10