

City of Unalaska

CAPTAINS BAY ROAD WATERLINE (WA22B)

DPW Project No. 22402



LOCATION MAP

FOR BID
04/22/2024

NEW WATER MAIN
CAPTAINS BAY ROAD

PHASE I - WSI TO OSI

PHASE II - OSI TO TRIDENT
(NIC)

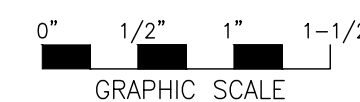


VICINITY MAP

LOCATION ABBREVIATIONS

ABR	AIRPORT BEACH ROAD
CBR	CAPTAINS BAY ROAD
WSI	WESTWARD SEAFOODS, INC.
NPF	NORTH PACIFIC FUEL
OSI	OFFSHORE SYSTEMS, INC.
TRIDENT	TRIDENT SEAFOODS, INC.
NIC, N.I.C.	NOT-IN-CONTRACT

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



REGAN ENGINEERING, P.C.	
PROJECT:	CITY OF UNALASKA CAPTAINS BAY ROAD WATER MAIN EXTENSION
TITLE:	COVER SHEET
DESIGNED BY:	TR DATE: 04/22/24 SHEET NO:
CHECKED BY:	TR DPW PROJECT NO: 22402 G1 of 25

GENERAL NOTES:

- THIS PROJECT IS FOR CONSTRUCTION OF A NEW 16" DIP AND PVC WATER MAIN EXTENSION ALONG CAPTAINS BAY ROAD FROM WESTWARD SEAFOODS, INC. (WSI) TO THE TRIDENT SEAFOODS DEVELOPMENT SITE (FORMALLY BERING SHAI ROCK AND GRAVEL). WSI TO OFFSHORE SYSTEMS, INC. (OSI), WHICH IS DESIGNED AS PHASE 1. THE WATERLINE FROM OSI TO TRIDENT SEAFOODS IS PHASE 2.
- WORK INCLUDES THE WATER MAIN, VALVES, HYDRANTS, COMBINATION AIR VACUUM/RELIEF MANHOLES, SERVICES, BLOW-OFFS, BRIDGE CROSSING, CATHODIC PROTECTION SYSTEM, THRUST BLOCKS, AND APPURTENANT ITEMS AS SHOWN, SPECIFIED AND DETAILED.
- THE WATER MAIN IN THIS AREA IS NORMALLY SERVED FROM THE CHLORINE CONTACT TANK LOCATED IN PYRAMID VALLEY. THE STATIC WATER PRESSURE IN THE MAIN ALONG CAPTAINS BAY ROAD IS APPROXIMATELY 135 PSI.
- SEE SHEET G4 FOR A KEY MAP DEPICTING LOCATIONS OF PLAN AND PROFILE DESIGN DRAWINGS.
- THE PVC PIPE WILL BE DR18 MEETING THE REQUIREMENTS OF ANSI/AWWA C905-16. ALL LATERALS AND FITTINGS WILL BE DUCTILE IRON C153 MECHANICAL JOINT (MJ) COMPACT FITTINGS WITH A 350 PSI PRESSURE RATING. ALL PIPE JOINTS SHALL BE RESTRAINED. ALL DUCTILE IRON MJ FITTINGS SHALL BE RESTRAINED WITH AN EBBA IRON SERIES 2000PV MEGALUG RETAINER GLAND FOR PVC PIPE OR AN EBBA IRON SERIES 1100 MEGALUG FOR DUCTILE IRON PIPE. ALL PVC PIPE JOINTS SHALL HAVE INTEGRATED RESTRAINING GASKETS OR A RESTRAINT HARNESS. BELL PROTECTION OVER-INSERTION PREVENTION COLLARS SHALL BE INSTALLED ON ALL MALE PVC PIPE ENDS PRIOR TO INSERTION INTO THE PVC BELLS. CONCRETE THRUST BLOCKS SHALL BE PROVIDED IN ADDITION TO THE RESTRAINT SYSTEMS DESCRIBED ABOVE.
- THE 16" PVC PIPE ALIGNMENT WAS DESIGNED STRAIGHT WITH ZERO HORIZONTAL DEFLECTION AT PIPE JOINTS BETWEEN BENDS. THERE IS A MAXIMUM ALLOWABLE DEFLECTION OF 0.5-DEGREES AT EACH PVC JOINT (2.1" FOR A 20' SECTION OF PIPE) AND 2-DEGREES AT EACH DUCTILE IRON JOINT USED WITH PVC PIPE (8" FOR A 20' SECTION OF PIPE). THE ALLOWABLE PVC TO PVC PIPE DEFLECTION SHALL BE RESERVED FOR ADJUSTMENTS TO THE VERTICAL ALIGNMENT OR GRADE. ADJUSTMENTS TO THE HORIZONTAL ALIGNMENT CAN BE ACCOMPLISHED AT THE DUCTILE IRON PIPE JOINTS. SEE TABLE THIS SHEET FOR ACCUMULATED OFFSET DISTANCES USING 0.5° DEFLECTION PER 20' PIPE SECTION.
- THE WATER MAIN IS DESIGNED TO BE LEVEL AND/OR WITH CONSTANT UPHILL/DOWNHILL GRADES TO SPECIFIC LOCATIONS SO ANY AIR IN THE SYSTEM CAN MIGRATE TO THE HIGH POINTS FOR VENTING TO ATMOSPHERE. THE CONTRACTOR SHALL INSTALL THE PIPE SECTIONS AND VENT SYSTEMS TO PROVIDE RELIEF AND PREVENT ENTRAPMENT OF AIR. VENTING WILL BE ACCOMPLISHED WITH HYDRANTS AND/OR COMBINATION AIR/VACUUM RELIEF VALVES AS SHOWN AND DETAILED.
- THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 18" VERTICALLY BETWEEN THE PROPOSED WATER MAIN AND STORM DRAIN SYSTEMS OR SANITARY SEWER LINES. PROVIDE A MINIMUM OF 10' CLEAR HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND SANITARY OR STORM SEWER LINES. NEW WATERLINE PIPE JOINTS SHALL BE STAGGERED SO THEY ARE NO CLOSER THAN 9- FEET FROM THE CROSSING POINTS. ANY WATER PIPE OR SEWER PIPE JOINTS CLOSER THAN 9- FEET FROM ANY CROSSING POINTS SHALL BE SEALED PER DETAIL 2/D4.
- ALL UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL OBTAIN UTILITY LOCATES AND VERIFY THE BEST KNOWN LOCATION OF UTILITIES PRIOR TO ANY EXCAVATION.
- SOME AREAS WITH PROPOSED IMPROVEMENTS HAVE UTILITIES OWNED BY PRIVATE COMPANIES. THESE INCLUDE BURIED WATER, SEWER, ELECTRICAL, FUEL, COMMUNICATION, HEATING PIPES, AND OTHER UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH OWNER(S) OF UTILITIES TO OBTAIN UTILITY LOCATES PRIOR TO THE START OF EXCAVATION.
- THE CONTRACTOR IS RESPONSIBLE TO REPAIR AND/OR REPLACE ANY UTILITIES AND SURVEY MARKERS SHOWN OR FIELD LOCATED THAT ARE DAMAGED DURING CONSTRUCTION.
- AT A SUFFICIENT DISTANCE PRIOR TO ENCOUNTERING A KNOWN OBSTACLE OR TIE INTO AN EXISTING PIPE, THE CONTRACTOR SHALL EXPOSE AND VERIFY THE EXACT LOCATION OF THE OBSTACLE OR PIPE SO THAT ALIGNMENT AND/OR GRADE MAY BE DETERMINED BEFORE THE PIPE SECTIONS ARE LAID IN THE TRENCH AND BACKFILLED. AS-BUILT INFORMATION IS LIMITED AND SOME LOCATIONS OF EXISTING UTILITIES ARE UNKNOWN. VERTICAL LOCATIONS FOR ELECTRICAL, COMMUNICATIONS, TELEPHONE, AND WATER UTILITIES ARE GENERALLY NOT VERIFIED. THE CONTRACTOR SHALL POTHOLE OR OTHERWISE EXCAVATE EXISTING UTILITIES ALONG THE PROPOSED PIPE ALIGNMENT TO VERIFY EXACT UTILITY LOCATIONS SO ADJUSTMENTS TO THE GRADES CAN BE MADE PRIOR TO ANY PIPE BEING INSTALLED. NO EXTRA PAYMENT WILL BE MADE FOR REWORK OF NEWLY INSTALLED UTILITIES REQUIRED BY FAILURE TO EXPOSE EXISTING UTILITIES.
- SOILS INFORMATION BETWEEN WSI TO OSI WAS PROVIDED BY HDL ENGINEERING AS PART OF THE FUTURE PAVING DESIGN. ~~SOILS BETWEEN OSI AND TRIDENT ARE KNOWN TO BE UNCLASSIFIED FILL AND/OR IN-SITU MATERIALS, INCLUDING BEDROCK.~~
- THE CONTRACTOR SHALL MAKE HIS OWN DEDUCTIONS AND CONCLUSIONS AS TO THE NATURE OF MATERIALS TO BE EXCAVATED, THE DIFFICULTIES OF MAKING AND MAINTAINING THE REQUIRED EXCAVATIONS, THE DIFFICULTIES THAT MAY ARISE FROM SUBSURFACE CONDITIONS, AND ANY OTHER WORK AFFECTED BY THE SUBSURFACE CONDITIONS, AND SHALL ACCEPT FULL RESPONSIBILITY THEREOF. EXCAVATION IS UNCLASSIFIED AND INCLUDES EXCAVATION TO SUBGRADE ELEVATIONS INDICATED, REGARDLESS OF THE CHARACTER OR TYPE OF MATERIALS ENCOUNTERED. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND WHATEVER SUBSTANCE ENCOUNTERED, INCLUDING BEDROCK. NO EXTRA PAYMENT WILL BE MADE FOR EXCAVATION THROUGH VARYING MATERIALS, INCLUDING BEDROCK.
- THE CONTRACTOR IS RESPONSIBLE TO PROPERLY DISPOSE OF ALL DEMOLISHED MATERIALS AND WASTE ITEMS GENERATED BY CONSTRUCTION, INCLUDING PAYMENT OF APPLICABLE DISPOSAL FEES.
- ALL REMOVED SOILS BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE OFF SITE STOCKPILE SITE(S) AND OTHERWISE BE RESPONSIBLE FOR PROPER DISPOSAL. EARTHEN MATERIAL DISPOSAL IS CONSIDERED INCIDENTAL TO TRENCH EXCAVATION AND BACKFILL, AND NO SEPARATE PAYMENT WILL BE MADE. THE CITY WILL MAKE THE LAYDOWN AREA ABOVE THE PYRAMID VALLEY WATER TREATMENT PLANT AVAILABLE FOR EXCESS OR UNSUITABLE EARTHEN MATERIAL DISPOSAL THAT CAN BE USED AT THE CONTRACTORS OPTION.

ACCUMULATED OFFSET DISTANCE WITH 0.5° DEFLECTION PER 20-FT PVC PIPE SECTION			
PIPE SECTION	ACCUMULATED LENGTH	DEFLECTION AMT (FT)	DEFLECTION AMT (IN)
20' JOINT	20'	0.175'	2.1"
20' JOINT	40'	0.524'	6.3"
20' JOINT	60'	1.047'	12.6"
20' JOINT	80'	1.745'	20.9"
20' JOINT	100'	2.618'	31.4"

FOR BID 04/22/24



SHEET INDEX

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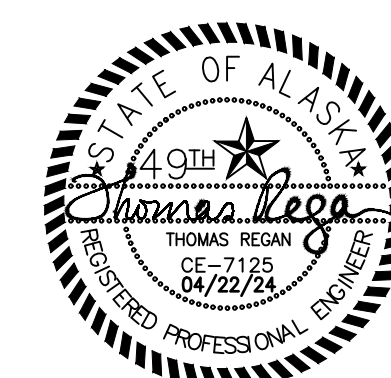
PHASE 1 – WSI TO OSI

PP1 to PP-9	PLAN & PROFILE, STA 0+00 TO STA 75+53	9
PP9.1	PLAN & PROFILE – BLOW-OFF PIPE STA 75+18±	1

PHASE 2 – OSI TO TRIDENT (NIC)

PP10 to PP18	PLAN & PROFILE, STA 0+00B TO STA 42+00B	9
PP18.1	PLAN & PROFILE – BLOW-OFF PIPE STA 41+85±	1
B1 & B2	PYRAMID CREEK BRIDGE – UTILITY CROSSING	2
D1 to D6	MISCELLANEOUS DETAILS	6
D7	TRAFFIC CONTROL PLAN	1

TOTAL 25



REGAN ENGINEERING, P.C.	
PROJECT:	CITY OF UNALASKA CAPTAINS BAY ROAD WATER MAIN EXTENSION
TITLE:	SHEET INDEX, NOTES
DESIGNED BY: TR	DATE: 04/22/24
CHECKED BY: TR	DPW PROJECT NO: 22402
SHEET NO: G2 OF 25	

REV	DATE	DESCRIPTION
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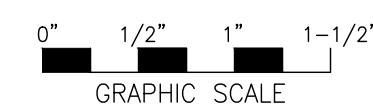
ABBREVIATIONS

ABR	AIRPORT BEACH ROAD
ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ADOT	ALASKA DEPARTMENT OF TRANSPORTATION
ARV	AIR RELIEF VALVE
ATS	ALASKA TIDELAND SURVEY
BFV	BUTTERFLY VALVE
BFV&VB	BUTTERFLY VALVE AND VALVE BOX
BCI	BOREAL CONTROLS, INC.
BGS	BELOW GROUND SURFACE
BOP, B.P.	BOTTOM OF PIPE
CAV	COMBINATION AIR VALVE
CBR	CAPTAINS BAY ROAD
CL	CLASS
CMP	CORRUGATED METAL PIPE
COMMS	COMMUNICATIONS (TV, CABLE, FO, ETC.)
CPP	CORRUGATED PLASTIC PIPE
DIA	DIAMETER
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DR	DIMENSION RATIO (OD/t)
E	EAST
EA	EACH
(E)	EXISTING
E, ELE, ELECT	ELECTRIC
ELEV	ELEVATION
FG	FINAL GRADE
FH	FIRE HYDRANT
FO	FISH OIL, FIBER OPTIC
FT	FEET
G	GLYCOL
GV	GATE VALVE
GV&VB	GATE VALVE AND VALVE BOX
HDG	HOT-DIP GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
HGS, HGR	HEATING GLYCOL SUPPLY, RETURN
HOR, HORIZ	HORIZONTAL
HYD	HYDRANT
INV, I.E.	INVERT, INVERT ELEVATION
IP	IRON PIPE
IW	INDUSTRIAL WASTE
LF	LINEAR FEET
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MHW	MEAN HIGH WATER
MHHW	MEAN HIGHER HIGH WATER
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	NORTH
NFS	NON-FROST SUSCEPTIBLE
NIC, N.I.C.	NOT-IN-CONTRACT
NPF	NORTH PACIFIC FUEL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OSI	OFFSHORE SYSTEMS, INC.
PE	PLAIN END
PVC	POLYVINYL CHLORIDE
PC	POINT OF CURVE
PT	POINT OF TANGENT
RDCR	REDUCER
ROW	RIGHT-OF-WAY
RT	RIGHT
RQMTS	REQUIREMENTS
S	SOUTH
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SS, SST	STAINLESS STEEL
SS, SWR	SANITARY SEWER
STA	STATION
STD	STANDARD
T, TELE	TELEPHONE
t	THICKNESS (PIPE)
TBD	TO BE DETERMINED
TBM	TEMPORARY BENCH MARK
TH, TP	TESTHOLE, TEST PIT
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UNO	UNLESS OTHERWISE NOTED
UT	UNDERGROUND TELEPHONE
VERT	VERTICAL
VPC	VERTICAL POINT OF CURVE
VPT	VERTICAL POINT OF TANGENT
W	WATER, WEST
W/	WITH
WSI	WESTWARD SEAFOODS, INC.
WWF	WELDED WIRE FABRIC
VB	VALVE BOX
YPC	YELLOW PLASTIC CAP

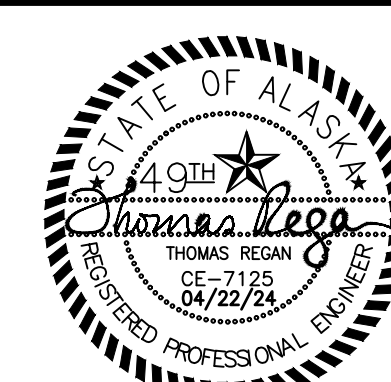
LEGEND

DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED
BUILDING STRUCTURE			UNDERGROUND ELECTRIC		
RIP RAP ARMOR STONE			WATER PIPE		
SINGLE PUMPER HYDRANT			SANITARY SEWER PIPE		
DOUBLE PUMPER HYDRANT			STORM DRAIN PIPE		
AIR/VACUUM RELIEF VALVE			EDGE OF ROAD		
WATER VALVE AND VALVE BOX			UNDERGROUND FUEL PIPE		
WATER SERVICE			HOT WATER SUPPLY/RETURN		
CULVERT			FENCE		
TEST HOLE			CULVERT		
GUARDRAIL			INDUSTRIAL WASTE PIPE		
SANITARY SEWER MANHOLE			UNDERGROUND TELEPHONE		
STORM DRAIN CATCH BASIN OR MANHOLE			UNDERGROUND FIBER OPTIC		
INDUSTRIAL WASTE MANOLE			UNDERGROUND GCI COMMS		
PRIVATE SIGN			RIGHT-OF-WAY		
TRAFFIC SIGN			MEAN HIGH WATER LINE		
SEPTIC SYSTEM STANDPIPE			EASEMENT		
WATER SERVICE KEY BOX			MINOR CONTOUR (1' INTERVAL)		
FIBER OPTIC MANHOLE			MAJOR CONTOUR (5' INTERVAL)		
LIGHT POLE					
TELEPHONE OR COMM PEDESTAL					
TELEPHONE OR COMM PEDESTAL					
ELECTRICAL BOX					

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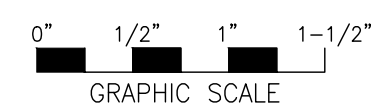
PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **LEGEND, ABBREVIATIONS**

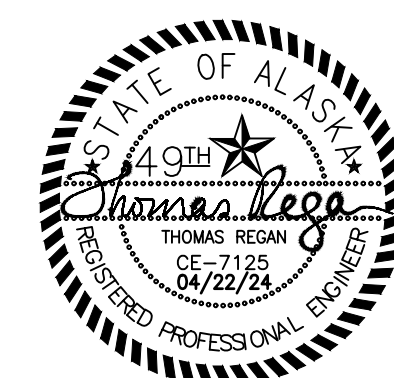
DESIGNED BY: TR DATE: 04/22/24 SHEET NO: G3 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402

Sheet	Station	PHASE 1											PHASE 1 TOTALS	PHASE 2 (NIC)										PHASE 2 TOTALS
		PP1	PP2	PP3	PP4	PP5	PP6	PP7	PP8	PP9	PP9.1	PP10		PP11	PP12	PP13	PP14	PP15	PP16	PP17	PP18	PP18.1		
		0+00 to 4+65	4+65 to 10+00	10+00 to 24+50	24+50 to 39+50	39+50 to 45+30	45+30 to 51+00	51+00 to 56+80	56+80 TO 62+50	62+50 to 75+53		0+00B to 5+00B		5+00B to 8+00B	8+00B to 13+00B	13+00B to 18+00B	18+00B to 23+20B	23+20B to 26+00B	26+00B to 31+00B	31+00B to 36+50B	36+50B to 42+00B			
Bid Item	Description	Unit																						
4	Bedding Material (Class B)	Ton	355	369	1646	1691	613	611	712	673	1491	33	8,192	567	330	584	567	616	325	618	639	622	110	4,978
5	Surfacing Material	Ton	226	235	1047	1076	390	389	453	428	949	21	5,213	364	210	378	364	392	210	406	413	399	70	3,206
6	Furnish and Install 16" PVC Pipe	Linear Foot		315	1456	1517	537	495	577	572	1315		6,784	500	300	500	500	520	280	500	550	550		4,200
7	Furnish and Install 16" Ductile Iron Pipe	Linear Foot	283									30	313									100	100	
8	Furnish and Install 8" Ductile Iron Pipe	Linear Foot							50				50					40						40
9	Connect to Existing Water Line (16")	Each	2	1									3	1										1
10	Furnish and Install 8" Gate Valve	Each							2				2					2						2
11	Furnish and Install 16" Butterfly Valve	Each			1		1	1	1	1	1	1	7					1				1	1	3
12	Furnish and Install Valve Box	Each	1										1											0
13	Remove and Replace Valve Box	Each	1										1											0
14	Furnish and Install Fire Hydrant Assembly (Single Pumper)	Each			1		1					1	3											0
15	Furnish and Install Fire Hydrant Assembly (Double Pumper)	Each	1	1				2	1	1			6	1		1	1		1	1		1		6
16	Furnish and Install 1" Water Service Line	Each											0						2	2				4
17	Furnish and Install 2" Water Service Line	Each					1						1											0
18	Furnish and Install Anode	Each	16	2	2	0	3	4	6	2	3	3	41	5	6	4	6	10	5	5	5	5	6	57
19	Furnish and Install Air/Vac Relief Vault	Each			1	1		1		1	1		5			1				1				2
20	Furnish and Install Rigid Board Insulation	Linear Foot		184	32	16	24	326		248	32		862	438				438	30			16		922
23	Construct 16" Blow-Off	All										1	1									1	1	
24	Construct Bridge Crossing	All						1					1											0
25	Furnish and Install (3) Spare 6" Conduits Sta 19+00B to Sta 23+00B	All											0					1						1

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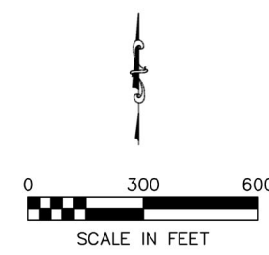
REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **QUANTITY TABLE**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: G4 of 25
 CHECKED BY: TR DPW PROJECT NO: 22402

PLAN VIEW
CAPTAINS BAY ROAD
UNALASKA, ALASKA



PHASE 1 - USE PLATS
TO ESTABLISH CONTROL
THIS AREA

PLAT 94-21 ALASKA
TIDELANDS SURVEY NO. 1448
ROW DEDICATION PLAT 93-23

PLAT 94-43
RIGHTS-OF-WAY
ACQUISITION

PLAT 93-4 ALASKA
US SURVEY 3588
ROW

PLAT 96-2
RIGHTS-OF-WAY
ACQUISITION

PHASE 2 (NIC) - USE
PND SURVEY CONTROL
DIAGRAMS TO ESTABLISH
CONTROL THIS AREA

PLAT 91-22 WESTWARD
SUBDIVISION TRACT 2

WSI

NPF

OSI

TRIDENT

HDL SURVEY NOTES:

- THE FOLLOWING NOTES APPLY TO THE SURVEY USED FOR DESIGN OF THE PHASE 1 PORTION OF THE PROJECT BETWEEN WSI AND OSI.
- FIELD SURVEY FROM WSI TO OSI WAS PERFORMED BY HDL ENGINEERING CONSULTANTS, L.L.C. JULY 17, 2018 TO APRIL 26, 2019.
- A TITLE REPORT WAS NOT PERFORMED. EASEMENTS OF RECORD, OTHER THAN THOSE SHOWN ON THE PLATS OF RECORD, ARE NOT SHOWN HEREON.
- ALL MEASUREMENTS ARE IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
- THE LOCATION OF ABOVE OR UNDERGROUND UTILITIES SHOWN HAS BEEN LOCATED BY FIELD SURVEY METHODS AND FOUND UTILITY EQUIPMENT. ALL UNDERGROUND LOCATES THAT WERE PROVIDED TO HDL WERE FIELD LOCATED AND SHOWN HEREON. OTHER UNDERGROUND UTILITIES MAY EXIST WITHIN THE PROJECT AREA.
- CONTOUR INTERVALS ARE AT 1-FOOT.
- TELALASKA LOCATES: AS PER RODRIGO (LOCATOR) LOCATES SOUTH OF THE INTERSECTION OF AIRPORT BEACH RD AND CAPTAINS BAY RD ARE CO-TRENCHED COAX/COPPER. THEY ARE MARKED AS ONE LINE WHEN CLOSE TOGETHER, BUT WILL BRANCH TO TWO LINES IF THEY SPREAD APART. NO ATTEMPT WAS MADE TO DIFFERENTIATE PED LINES. FIBER WAS PULLED THROUGH EXISTING CONDUIT. LOCATES AT THE INTERSECTION ARE CO-TRENCHED FIBER/COAX/COPPER.
- BUILDING LINES ARE DRAWN FROM POINTS COLLECTED IN FIELD AND FROM IMAGERY WHERE DATA WAS UNAVAILABLE.
- THE COORDINATE SYSTEM, BASIS OF COORDINATES, BASIS OF BEARING, TRANSLATION PARAMETERS, AND VERTICAL DATUM DESCRIBED BELOW FORM THE BASIS OF THE SURVEY PERFORMED BY HDL ENGINEERING CONSULTANTS. THE SURVEY BETWEEN OSI AND TRIDENT WAS PERFORMED BY PND ENGINEERS, INC. PND TIED INTO THE HDL SURVEY TO ESTABLISH COMMON CONTROL POINTS. SEE THE PND SURVEY FOR ADDITIONAL SURVEY INFORMATION.

COORDINATE SYSTEM:

THIS PROJECT IS LOCATED ENTIRELY WITHIN THE "CBR" ADJUSTMENT, A LOCAL SURFACE GRID COORDINATE SYSTEM EXPRESSED IN U.S. SURVEY FEET DEVELOPED BY THE HDL ENGINEERING CONSULTANTS SURVEY DEPARTMENT FOR THE CAPTAINS BAY ROAD PROJECT.

BASIS OF COORDINATES:

THE BASIS OF CONTROL FOR THIS PROJECT IS FROM THE "UNALASKA SURVEY CONTROL DRAWING" (USCD), CREATED BY INTEGRITY SURVEYS IN 1996. THE BASIS OF COORDINATES IS NOS STATION "OBER 3 1991", POINT NO. 551, (USCD POINT NO. 56), A 3-1/2" BRASS CAP MONUMENT IN A CONCRETE BLOCK, 0.1' ABOVE GROUND WITH THE FOLLOWING VALUES: ALASKA STATE PLANE ZONE 10, NAD 83 (USCD) COORDINATES 1,176,156.0294 N, 5,312,200.2659 E. (U.S. SURVEY FEET)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS IS A LOCAL PLANE BEARING BETWEEN NOS STATION "OBER" 3 AND POINT NO. 553, A 3-1/4" ALUMINUM CAP MONUMENT. POINT NO. 553 BEARS N 44°54'46" E A DISTANCE OF 4651.38 U.S. SURVEY FEET FROM NOS STATION OBER 3. POINT NO. 553 HAS "CBR" COORDINATES OF 1179450.0545 N., 5315484.2814 E.

TRANSLATION PARAMETERS:

TO CONVERT LOCAL COORDINATES TO NAD 83 (USCD) STATE PLANE ZONE 10 COORDINATES EXPRESSED IN U.S. SURVEY FEET, TRANSLATE USING +1.9407 NORTH, +8.7651 EAST AND SCALE USING 0.999998350.

THE VERTICAL DATUM FOR THIS PROJECT IS MEAN LOW WATER (MLW). THE BASIS OF VERTICAL CONTROL IS U.S. NATIONAL OCEAN SURVEY (NOS) TIDAL BENCHMARK 2620 M 1992 (CONTROL POINT 601), A 3-1/2 INCH BRASS CAPPED MONUMENT. TIDAL BENCHMARK 2620 M 1992 HAS A MLW, TIDAL EPOCH 1983-2001, ELEVATION OF 3.062 METERS (10.05 FEET). THE ELEVATION WAS CONFIRMED WITH NOS TIDAL BENCHMARK NO 19 1973 (CONTROL POINT 602), A 3-1/2 INCH BRASS CAPPED MONUMENT. TIDAL BENCHMARK NO 19 1973 HAS A MLW, TIDAL EPOCH 1983-2001, ELEVATION OF 4.724 METERS (15.50 FEET). CLOSED DIFFERENTIAL LEVEL LOOPS WERE RUN TO ESTABLISH THE ELEVATIONS OF ALL OTHER CONTROL POINTS AND TEMPORARY BENCH MARKS.

TO CONVERT TO MLLW ADD 0.93 FEET TO THE ELEVATION.

GENERAL NOTES:

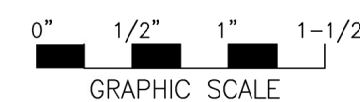
- THE WORK IS BROKEN OUT INTO TWO PHASES; PHASE 1 EXTENDING FROM WSI TO OSI AND PHASE 2 EXTENDING FROM OSI TO TRIDENT. PHASE 2 IS NOT-IN-CONTRACT.
- THE DESIGN BASIS IS DIFFERENT FOR EACH PHASE. PHASE 1 WAS DESIGNED IN THE CITY ROW AND IS CONTROLLED USING THE ROW CENTERLINE WITH OFFSETS. THE HDL (HDL ENGINEERING CONSULTANTS, INC.) SURVEY WAS USED FOR THE DESIGN. PHASE 2 EXTENDS THROUGH PRIVATE PROPERTY SO THE STATIONING IS ALONG THE CENTERLINE OF THE PROPOSED WATER LINE. BENDS ARE LOCATED USING NORTHING AND EASTING COORDINATES THAT ARE TABULATED BELOW. THE PND (PND ENGINEERS, INC.) SURVEY WAS USED FOR THE DESIGN. BOTH SURVEYS USED THE SAME COORDINATE SYSTEM AND DATUM.
- SINCE THE ALLOWABLE PIPE JOINT DEFLECTION IS LIMITED, THE ENTIRE DESIGN WAS DONE USING A STRAIGHT-LINE HORIZONTAL ALIGNMENT BETWEEN BENDS AND THE ALLOWABLE DEFLECTION WAS RESERVED FOR VERTICAL ADJUSTMENTS. SEE SHEET G2 FOR ADDITIONAL INFORMATION REGARDING DEFLECTIONS AT THE PIPE JOINTS.
- FOR THE PHASE 1 SURVEY, THE CONTRACTOR SHALL SURVEY THE ROW AND STATIONING CENTERLINE TO ASSURE ALL WORK IS CONFINED IN THE ROW OR EASEMENTS. PLATS SHALL BE USED FOR CONTROL. RELEVANT PLATS ARE IDENTIFIED ON THE PLAN VIEW SHOWN ON THIS SHEET AND WILL BE PROVIDED AS SUPPORT DOCUMENTS. FOR THE PHASE 2 SURVEY, PND PREPARED SURVEY CONTROL DIAGRAM SHEETS THAT PROVIDE CONTROL AND WERE USED AS THE BASIS OF THE PHASE 2 DESIGN. THE PND INFORMATION WILL BE PROVIDED AS SUPPORT DOCUMENTS FOR USE SURVEYING THE PHASE 2 WORK. FOR BOTH PHASES, OFFSET STAKES SHALL BE SET AT BENDS, HYDRANTS, SERVICES, VALVES, ETC. FOR LOCATING DURING CONSTRUCTION. SEE THE SPECIFICATIONS FOR DETAILED SURVEY REQUIREMENTS.
- EXTENSIVE EARTHWORK HAS BEEN PERFORMED IN THE PHASE 2 AREA BETWEEN OSI AND TRIDENT. FILL HAS BEEN PLACED IN THE BAY ALONG THE PROPOSED PIPE ROUTE AND AT THE TRIDENT DEVELOPMENT SITE. THE AIR PHOTOS AND CONTOURS SHOWN ON THIS SHEET AND IN THE DESIGNS DO NOT ACCURATELY DEPICT THE EXISTING CONDITIONS ADJACENT TO THE BAY.

**CAPTAINS BAY ROAD
PHASE 2 - PIPE/BEND LOCATION SUMMARY**

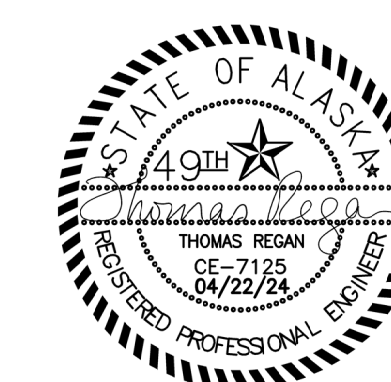
Item	Station	Plan Sheet	Location		Distance (feet)	Cumulative Distance
			Northing	Easting		
Start Phase 2	0+00B	PP10	1172427.3	5309342.8		
11.25-deg bend	1+60B	PP10	1172268.3	5309325.3	160.0	160.0
11.25-deg bend	2+27B	PP10	1172201.9		66.7	226.6
11.25-deg bend	4+20B	PP10	1172017.4		183.7	420.4
11.25-deg bend	4+60B	PP10	1171		9.9	460.3
11.25-deg bend	5+40B	PP11				540.1
90-deg bend	5+80B	PP1			40.0	580.1
11.25-deg bend (Vertical)	7+07B					
11.25-deg bend (Vertical)	7+27"					
45-deg bend				5309628.8	160.0	740.1
45-deg bend				5309648.1	20.0	760.1
11.25-deg bend			1171883.2	5309698.0	99.9	860.0
11.25-deg bend			1171485.6	5309833.3	420.0	1,280.0
45-deg bend		PP13	1171366.6	5309849.0	120.0	1,400.0
45-deg bend		PP13	1171209.0	5309725.9	200.0	1,600.0
45-deg bend		PP13	1171090.0	5309741.7	120.0	1,720.0
22.5-deg bend	17+25B	PP13	1171086.0	5309738.6	5.0	1,725.0
22.5-deg bend	17+75B	PP13	1171061.0	5309695.3	50.0	1,775.0
11.25-deg bend	18+26B	PP14	1171055.2	5309644.3	51.3	1,826.4
11.25-deg bend	18+46B	PP14	1171049.7	5309625.0	20.0	1,846.4
11.25-deg bend	18+96B	PP14	1171003.5	5309526.0	109.3	1,955.7
11.25-deg bend	20+35B	PP14	1170992.1	5309478.2	49.1	2,004.8
11.25-deg bend	22+58B	PP14	1170889.1	5309247.4	252.8	2,257.6
11.25-deg bend					40.0	

22.5-deg bend	22+98B	PP14	1170866.5	5309214.3	100.0	2,297.6
22.5-deg bend	24+00B	PP15	1170783.8	5309158.1	60.0	2,400.0
11.25-deg bend	24+60B	PP15	1170750.9	5309108.0	110.0	2,480.0
45-deg bend	25+70B	PP15	1170673.8	5309029.5	460.0	2,570.0
11.25-deg bend	30+30B	PP16	1170213.8	5309032.2		3,030.0
11.25-deg bend	32+50B	PP17	1169998.3		220.0	3,250.0
11.25-deg bend	33+10B	PP17	1169999"		60.0	3,310.0
11.25-deg bend	33+90B	PP17			9.0	3,390.0
11.25-deg bend	39+30B	PP18				3,890.0
11.25-deg bend	40+70B				140.0	4,070.0
End Phase 2	42+00B				130.0	4,200.0

FOR BID 04/22/24



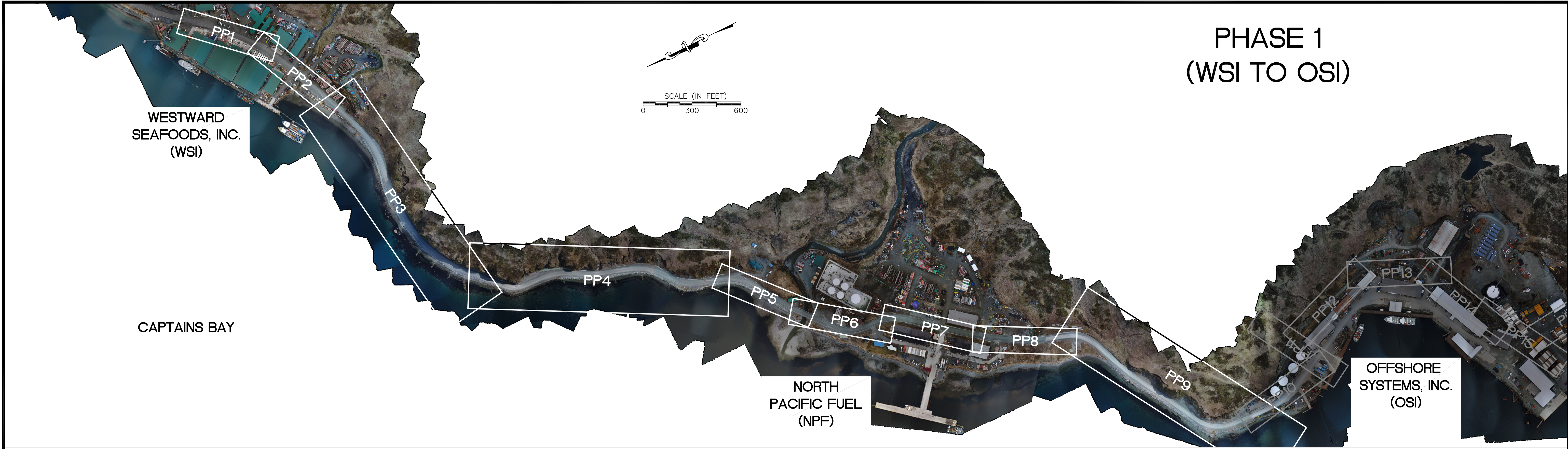
REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



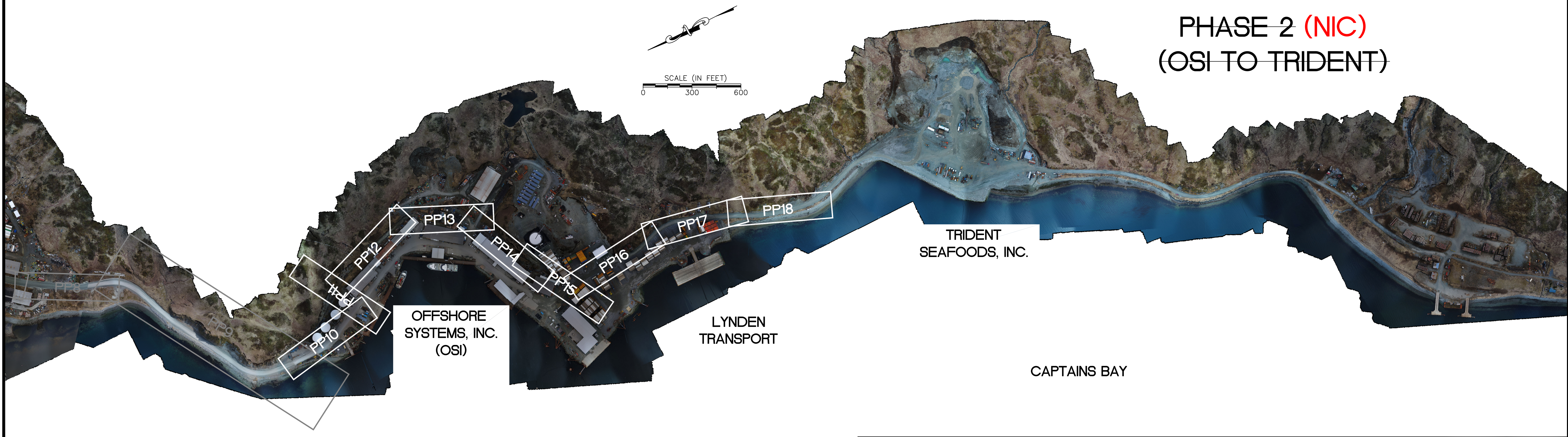
REGAN ENGINEERING, P.C.

PROJECT:	CITY OF UNALASKA CAPTAINS BAY ROAD WATER MAIN EXTENSION
TITLE:	SURVEY CONTROL
DESIGNED BY:	TR
DATE:	04/22/24
CHECKED BY:	TR
DPW PROJECT NO:	22402
SHEET NO:	G5 of 25

PHASE 1 (WSI TO OSI)



PHASE 2 (NIC) (OSI TO TRIDENT)



PHASE 1 - (WSI to OSI)	
Sheet No.	Sheet Stationing
PP1	STA 0+00 - STA 4+65
PP2	STA 4+65 - STA 10+00
PP3	STA 10+00 TO STA 24+50
PP4	STA 24+50 TO STA 39+50
PP5	STA 39+50 - STA 45+30
PP6	STA 45+30 - STA 51+00
PP7	STA 51+00 - STA 56+80
PP8	STA 56+80 - STA 62+50
PP9	STA 62+50 TO STA 75+53

PHASE 2 - (OSI to TRIDENT) (NIC)	
Sheet No.	Sheet Stationing
PP10	STA 0+00B - STA 5+00B
PP11	STA 5+00B - STA 8+00B
PP12	STA 8+00B - STA 13+00B
PP13	STA 13+00B - STA 18+00B
PP14	STA 18+00B - STA 23+20B
PP15	STA 23+20B - STA 26+00B
PP16	STA 26+00B - STA 31+00B
PP17	STA 31+00B - STA 36+50B
PP18	STA 36+50B - STA 41+00B

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID

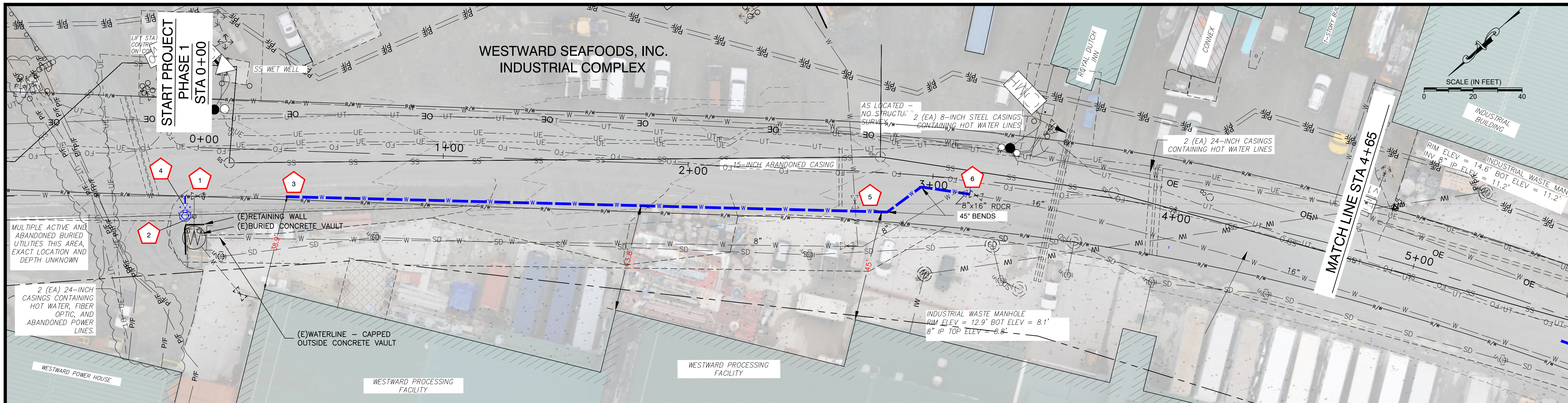


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **KEY MAP - PLAN & PROFILE SHEETS**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: G6 of 25
 CHECKED BY: TR DPW PROJECT NO: 22402

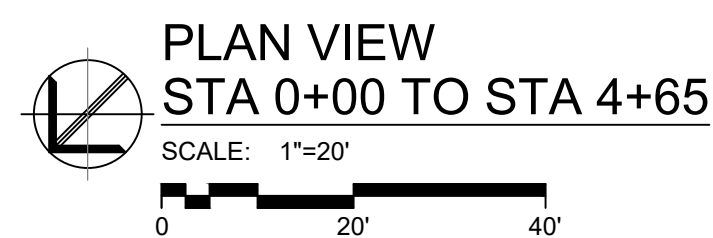


GENERAL NOTES:

1. STATIONING IS ALONG THE CENTERLINE OF THE ROAD ROW WITH OFFSETS FROM CENTERLINE, TYPICAL FOR PHASE 1 PIPE.
2. OBTAIN UTILITY LOCATES PRIOR TO THE START OF ANY EXCAVATION. COORDINATE LOCATES FOR WSI OWNED UTILITIES WITH THE WSI BUILDING MAINTENANCE SUPERVISOR. EXPOSE AND VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO INSTALLING NEW PIPE.
3. THIS SHEET ONLY, LOCATE NEW WATERLINE USING DIMENSIONS FROM EXISTING BUILDINGS AS SHOWN. VERIFY ALL IMPROVEMENTS REMAIN IN THE ROW OR EASEMENT. SEE SHEET PP2 FOR THE TBM THIS AREA. AS-BUILT ELEVATIONS AND DESIGN SHOWN ON SHEETS PP1 AND PP2 WERE BASED ON THIS TBM.
4. COORDINATE SHUTDOWN OF THE EXISTING WATERMAIN FOR INSTALLATION OF THE HYDRANT WITH WSI AND THE CITY. THIS WORK IS REQUIRED TO BE DONE OUTSIDE OF THE ACTIVE FISH PROCESSING SEASONS. COORDINATE SHUTDOWN OF THE EXISTING 16" PIPE NEAR STATION 3+16 WITH WSI TO MINIMIZE DISRUPTIONS TO SERVICE.

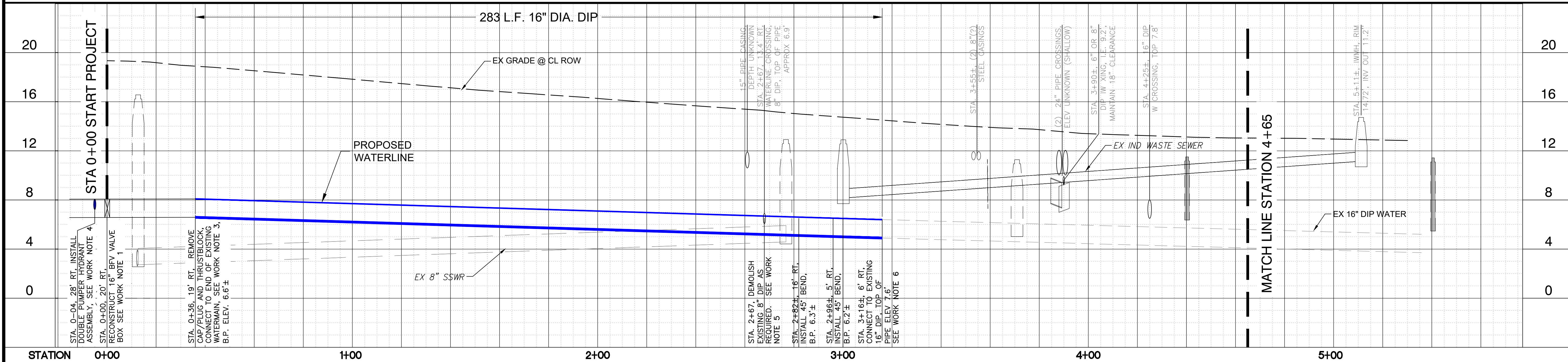
WORK NOTES:

1. TEST 16" BVF AND RECONSTRUCT VALVE BOX. VALVE OPERATING NUT IS CURRENTLY INACCESSIBLE.
2. CORE DRILL HOLE IN TOP OF CONCRETE VAULT DIRECTLY OVER 12" GV TO ALLOW VALVE KEY AND EXTENSION ACCESS WITHOUT ENTERING VAULT. INSTALL VALVE BOX TO GRADE. SEE DETAIL 1/D4.
3. REMOVE THRUST BLOCK, REMOVE CAP OR PLUG, CONNECT TO END OF EXISTING 16" DIP. PND WATER SYSTEM RECORD DRAWING DATED 12/2/91 SHOWS 16" DIA. PIPE EXTENDING 36' PAST BVF.
4. INSTALL DOUBLE PUMPER HYDRANT ASSEMBLY. TAP EXISTING 16" PIPE WITH ROLLED 16x8 TEE PER DETAIL 5/D3, FIT HYDRANT AT SIDE OF EXISTING CONCRETE VAULT OUTSIDE OF TRAVELED WAY. INSTALL (3) BOLLARDS THIS HYDRANT TO PROTECT FROM DRIVEWAY TRAFFIC.
5. SHUT EXISTING 8" GV TO ISOLATE LINE. INSTALL PLUG OR CAP. DEMOLISH 8" DIP WHERE NECESSARY FOR NEW WORK.
6. REMOVE REDUCER, CONNECT TO EXISTING 16" DIP.

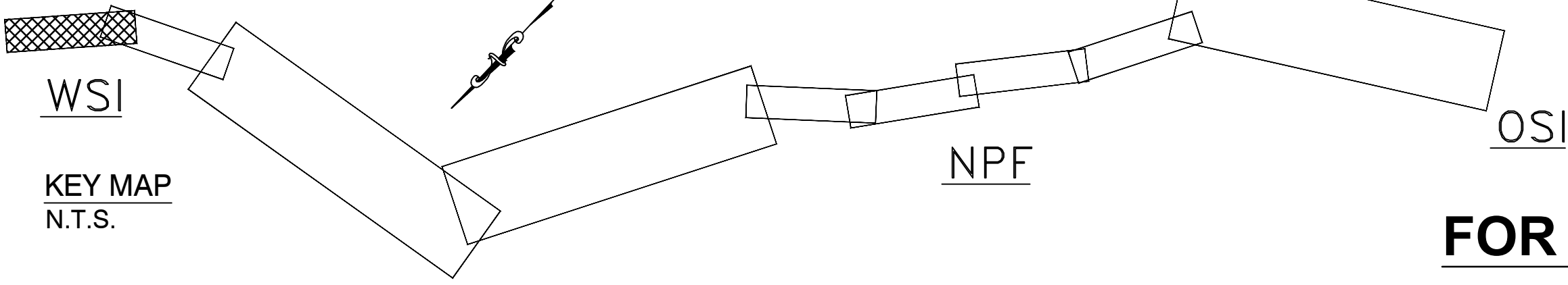
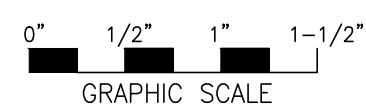


ELEV

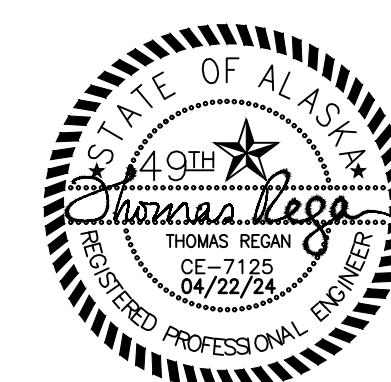
ELEV



PROFILE SCALE
 HORIZ: 1"=20'
 VERT: 1"=4'
 (SHEET 22"x34")

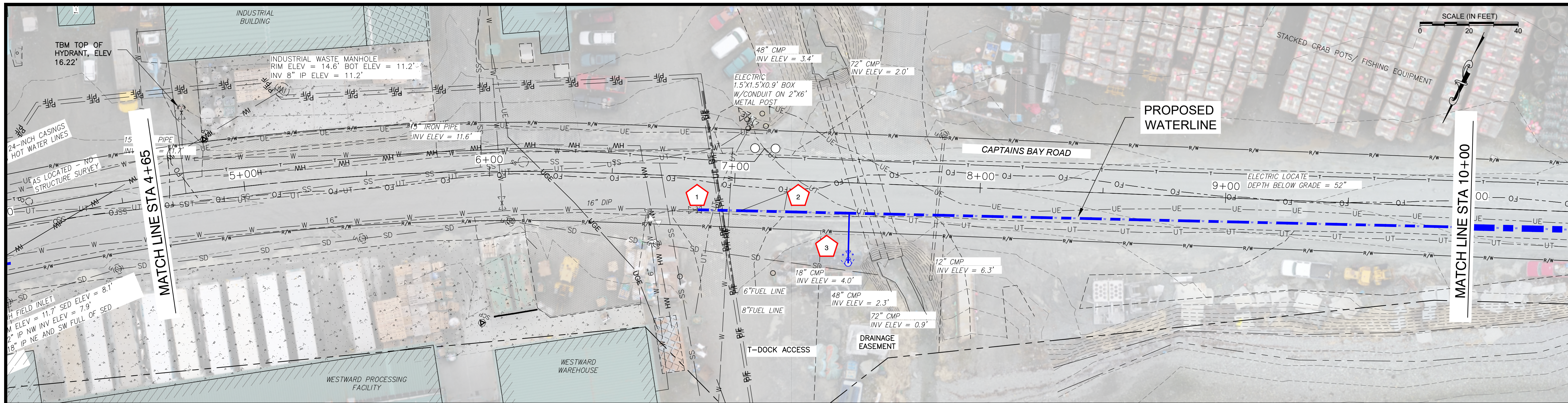


FOR BID 04/22/24



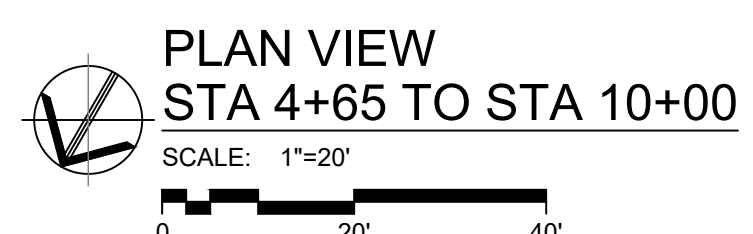
REGAN ENGINEERING, P.C.	
PROJECT:	CITY OF UNALASKA CAPTAINS BAY ROAD WATER MAIN EXTENSION
TITLE:	PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI) PLAN & PROFILE - STA 0+00 to STA 4+65
DESIGNED BY:	TR DATE: 04/22/24 SHEET NO:
CHECKED BY:	TR DPW PROJECT NO: 22402 PP1 OF 25

REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



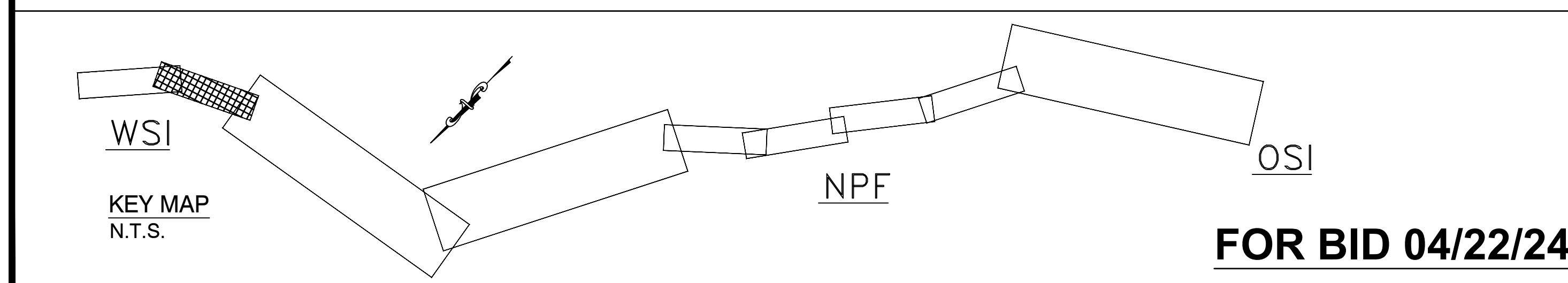
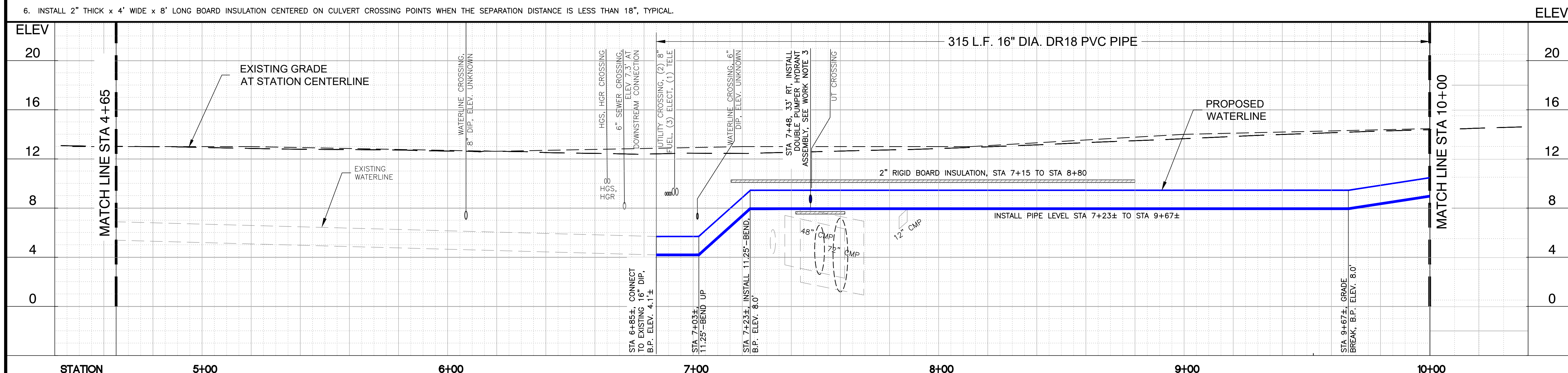
GENERAL NOTES:

1. STATIONING IS ALONG THE CENTERLINE OF THE ROAD ROW WITH OFFSETS FROM CENTERLINE, TYPICAL FOR PHASE 1 PIPE.
2. OBTAIN UTILITY LOCATES PRIOR TO THE START OF ANY EXCAVATION. COORDINATE LOCATES FOR WSI OWNED UTILITIES WITH THE WSI BUILDING MAINTENANCE SUPERVISOR. EXPOSE AND VERIFY EXISTING UTILITIES PRIOR TO INSTALLING NEW PIPE.
3. MAINTAIN CONSTANT UPWARD OR LEVEL PIPE GRADES TO HIGH AND LOW POINTS TO ALLOW MIGRATION OF AIR TO HIGH POINTS, TYPICAL.
4. TRANSITION GRADE BREAKS TO LIMIT PVC PIPE DEFLECTION TO LIMITS SPECIFIED ON SHEET G2, TYPICAL.
5. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS, TYPICAL.
6. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.



WORK NOTES:

1. CONNECT TO END OF EXISTING 16" DIP. THERE IS AN EXISTING 16" BVF. THE DESIGN SAYS THERE IS A 'BLIND FLANGE' SO ACTUAL DETAILS ARE UNCLEAR.
2. VERTICALLY OFFSET NEW WATER MAIN TO CLEAR CREEK CULVERTS. INSTALL CONCRETE THRUST BLOCKS ON VERTICAL BENDS.
3. INSTALL DOUBLE PUMPER HYDRANT ASSEMBLY.



PROFILE SCALE
 HORIZ: 1"=20'
 VERT: 1"=4'
 (SHEET 22"x34")

REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



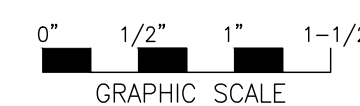
REGAN ENGINEERING, P.C.

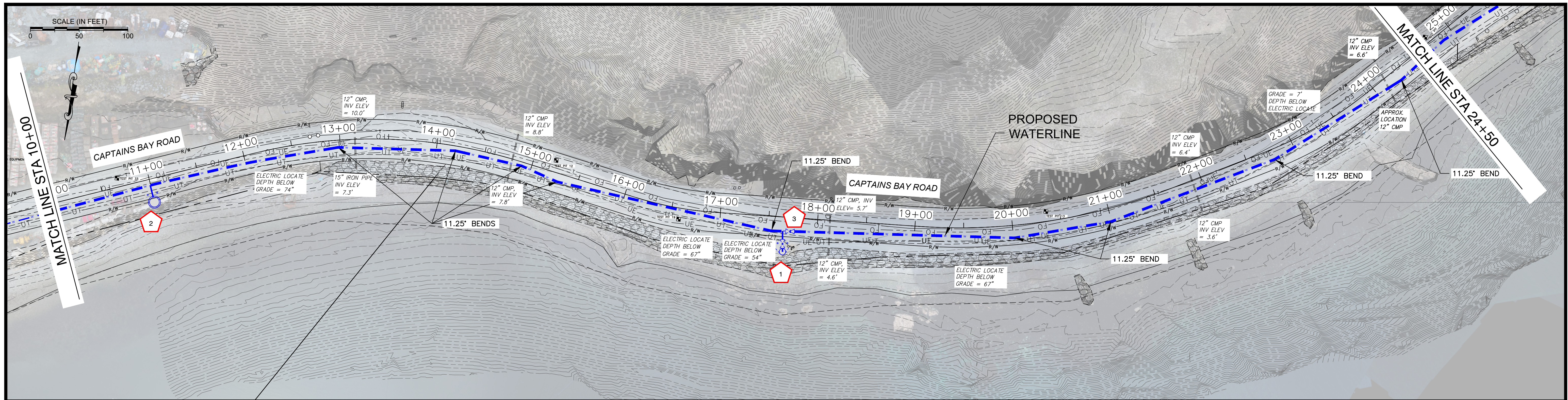
PROJECT: CITY OF UNALASKA
 CAPTAINS BAY ROAD
 WATER MAIN EXTENSION

TITLE: PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
 PLAN & PROFILE - STA 4+65 TO STA 10+00

DESIGNED BY: TR DATE: 04/22/24 SHEET NO.:
 CHECKED BY: TR DPW PROJECT NO: 22402 PP2 of 25

FOR BID 04/22/24



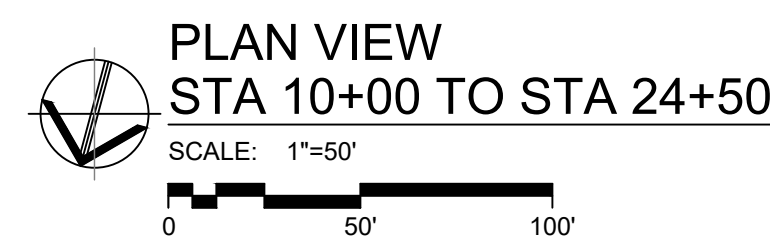


GENERAL NOTES:

1. THE WEST ROW/PROPERTY LINES VARY. STATIONING IS ALONG A 20' OFFSET FROM THE EAST ROW LINE CONSISTENT WITH PREVIOUS SHEETS. OFFSETS ARE FROM ROW OR STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS, TYPICAL ALL SHEETS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

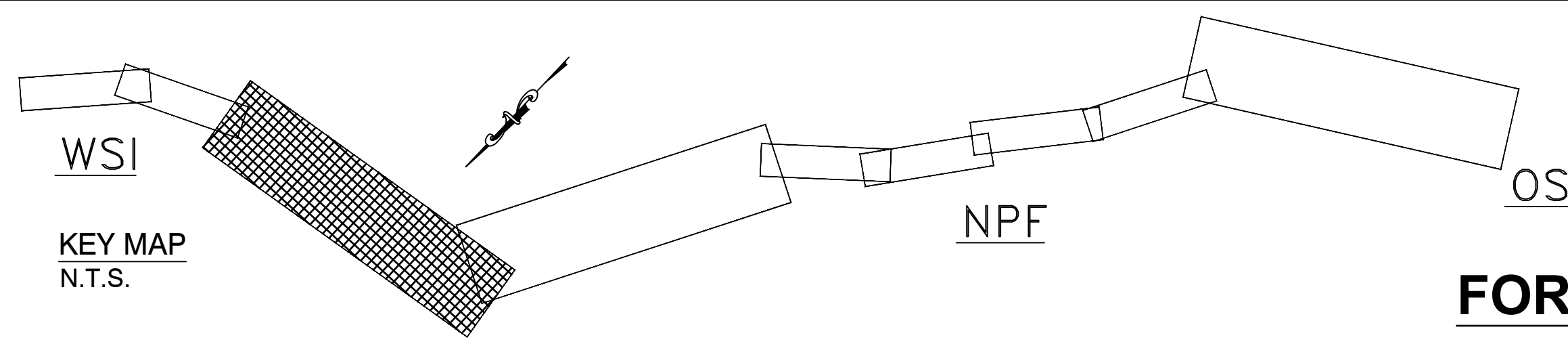
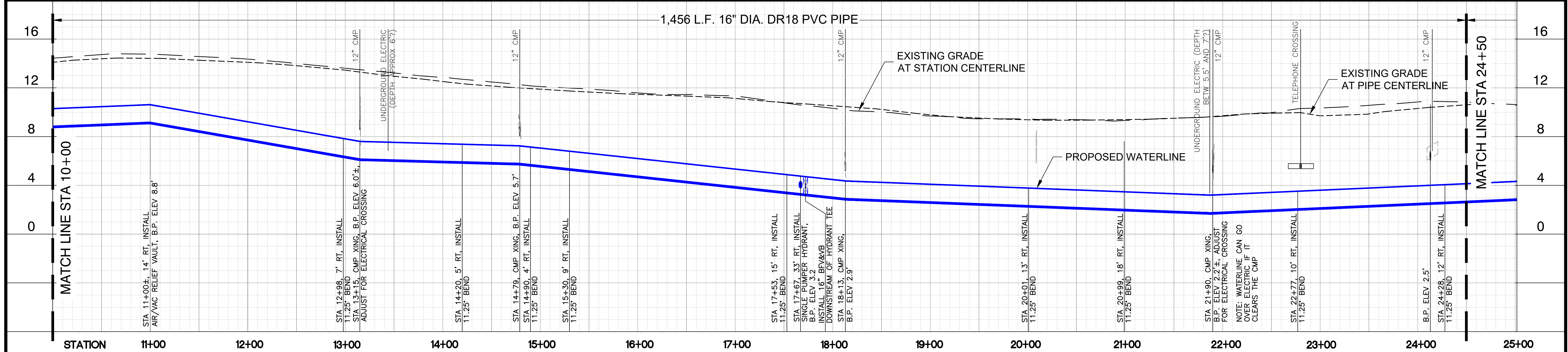
WORK NOTES:

- 1 INSTALL SINGLE PUMPER HYDRANT.
- 2 INSTALL AIR/VAC RELIEF VAULT. SEE DETAILS SHEET D6.
- 3 INSTALL 16" BUTTERFLY VALVE AND VALVE BOX, LOCATOR BOLLARD.



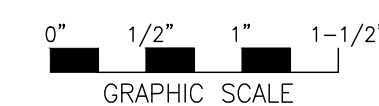
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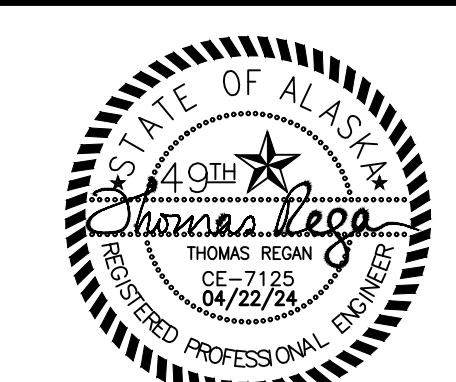


PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=4'
 (SHEET 22"x34")

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID

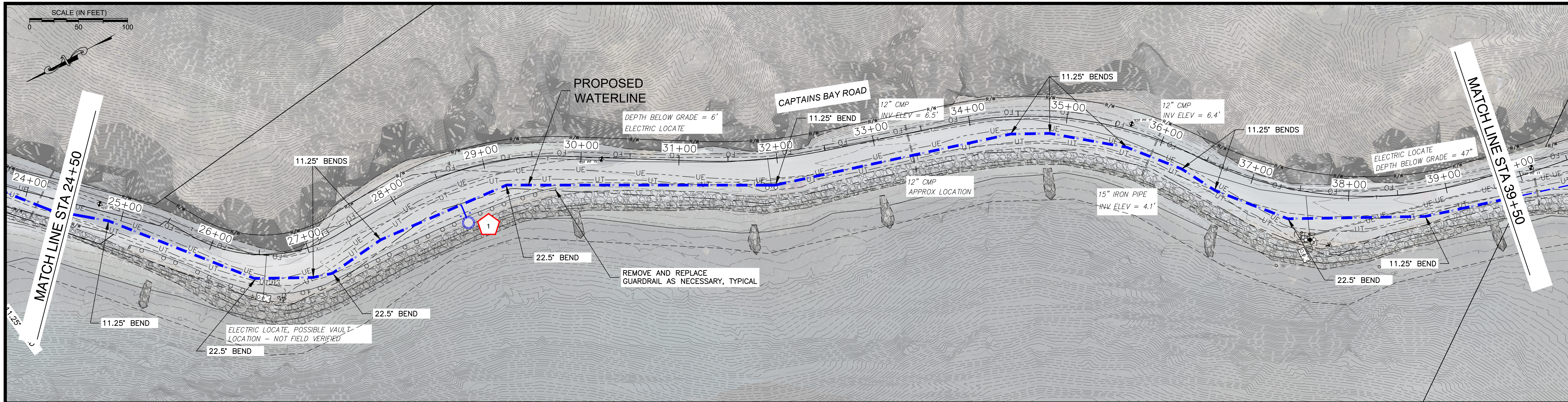


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
 CAPTAINS BAY ROAD
 WATER MAIN EXTENSION**

TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
 PLAN & PROFILE - STA 10+00 TO STA 24+50**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: PP3 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402

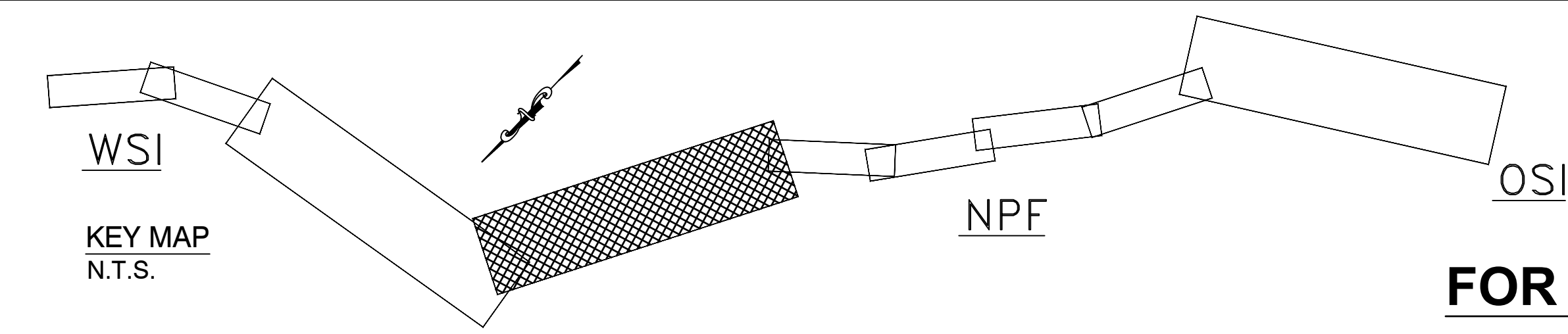
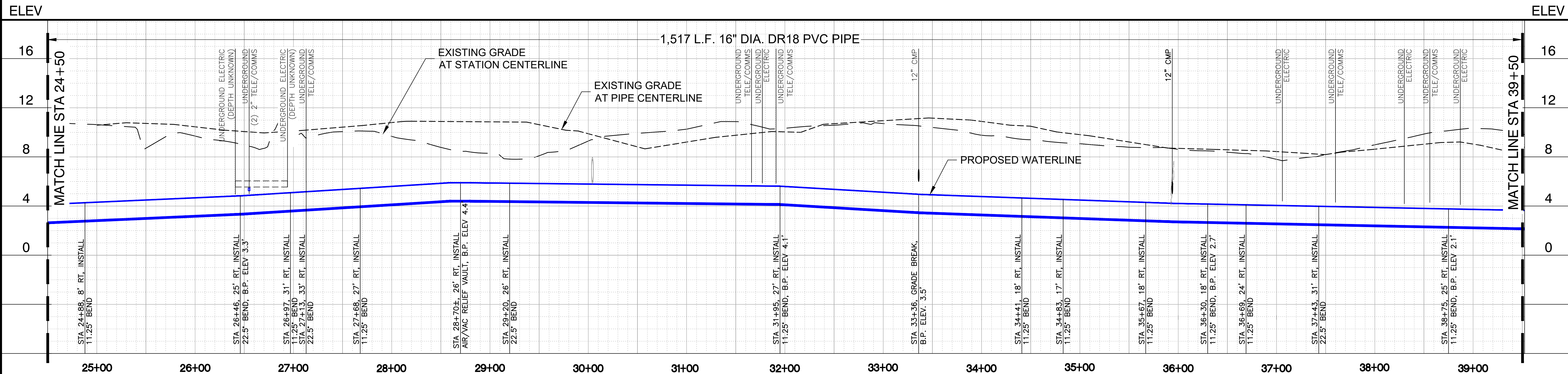
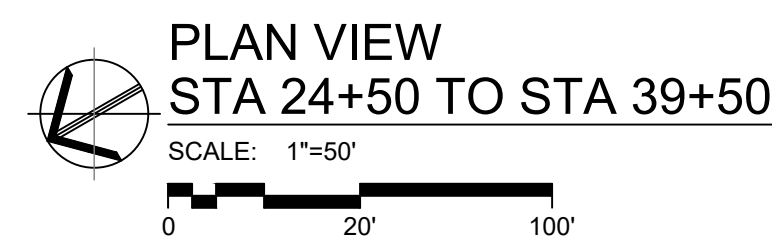


GENERAL NOTES:

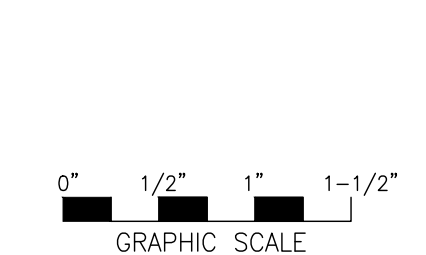
1. THE WEST ROW/PROPERTY LINES VARY. STATIONING IS ALONG A 20' OFFSET FROM THE EAST ROW LINE CONSISTENT WITH PREVIOUS SHEETS. OFFSETS ARE FROM ROW OR STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

WORK NOTES:

1. INSTALL AIR/VAC RELIEF VAULT. SEE DETAILS SHEET D6. EXPAND FILL TO PROVIDE WORKING AREA AROUND VAULT. ONLY ONE MARKER BOLLARD REQUIRED THIS VAULT.

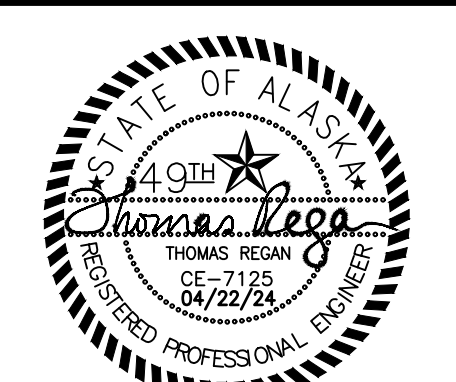


PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=4'
 (SHEET 22"x34")



FOR BID 04/22/24

REV	DATE	DESCRIPTION
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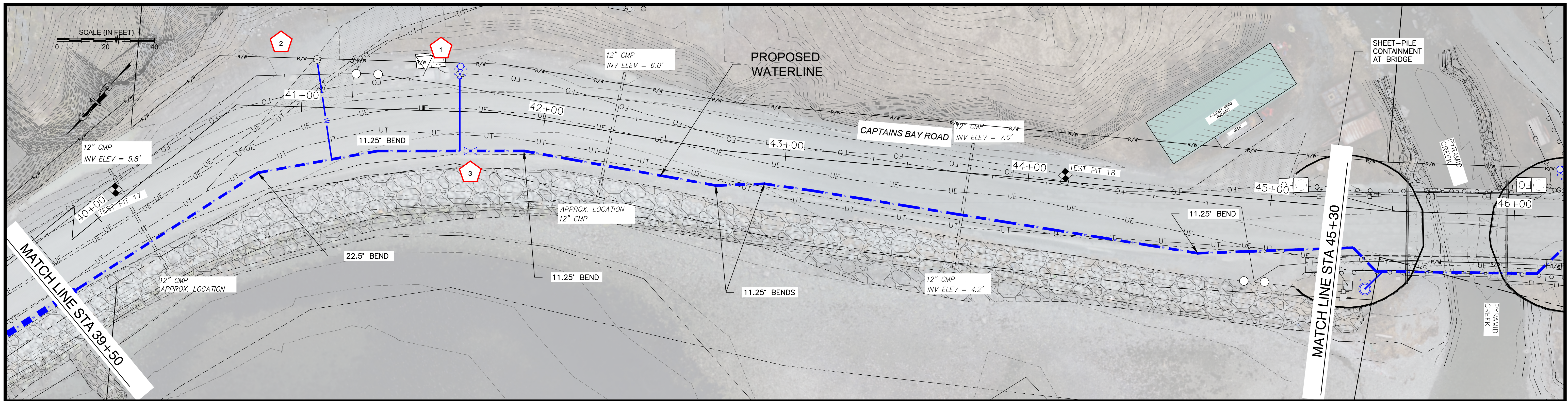


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

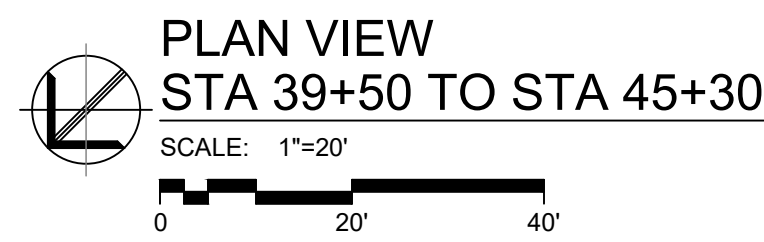
TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - STA 24+50 TO STA 39+50**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: PP4 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402



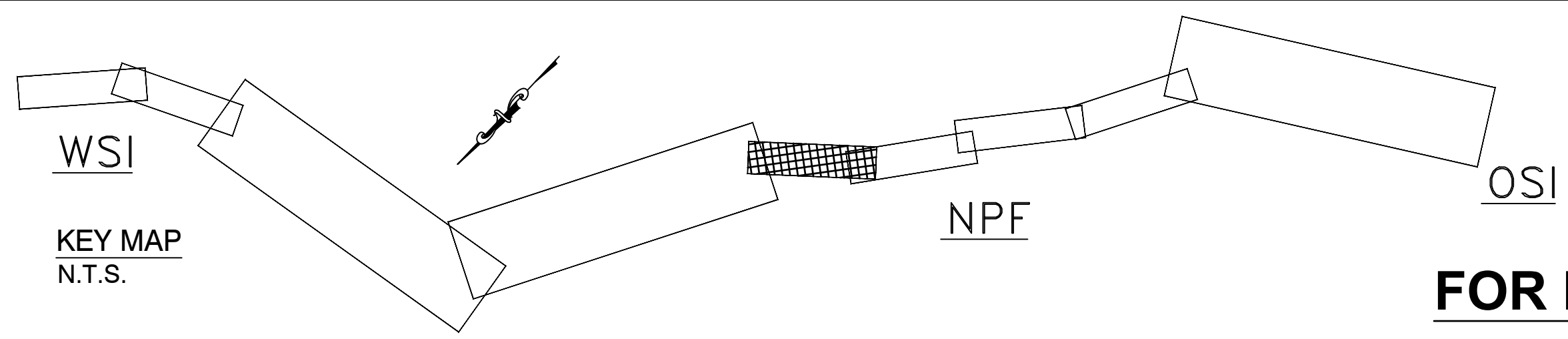
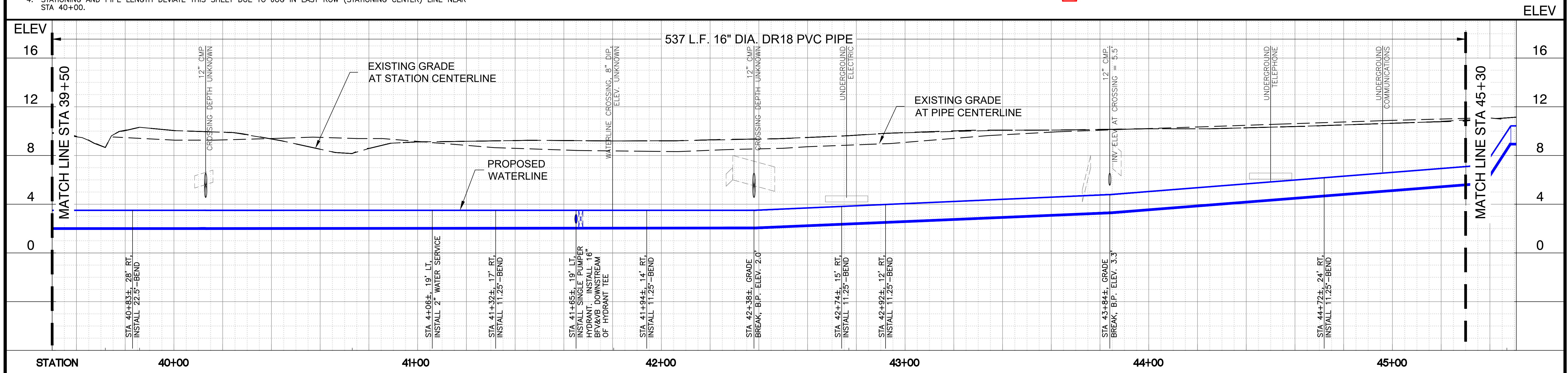
GENERAL NOTES:

1. THE WEST ROW/PROPERTY LINES VARY. STATIONING IS ALONG A 20' OFFSET FROM THE EAST ROW LINE CONSISTENT WITH PREVIOUS SHEETS. OFFSETS ARE FROM ROW OR STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.
4. STATIONING AND PIPE LENGTH DEVIATE THIS SHEET DUE TO JOG IN EAST ROW (STATIONING CENTER) LINE NEAR STA 40+00.



WORK NOTES:

- 1 INSTALL SINGLE PUMPER HYDRANT.
- 2 INSTALL 2" WATER SERVICE. COORDINATE LOCATION WITH PROPERTY OWNER.
- 3 INSTALL 16" BUTTERFLY VALVE AND VALVE BOX, LOCATOR BOLLARD.



PROFILE SCALE
 HORIZ: 1"=20'
 VERT: 1"=4'
 (SHEET 22"x34")

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID

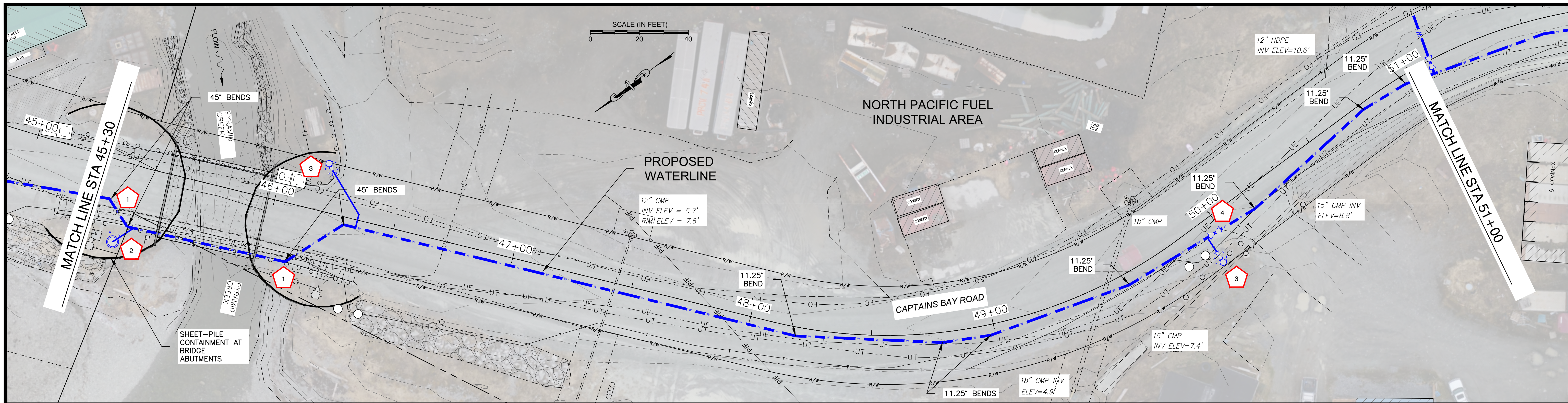


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

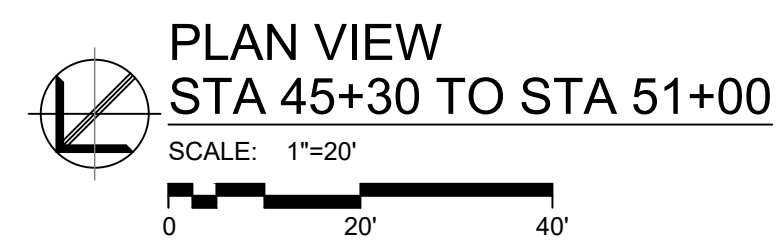
TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - STA 39+50 TO STA 45+30**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: PP5 of 25
 CHECKED BY: TR DPW PROJECT NO: 22402



GENERAL NOTES:

1. STATIONING IS ALONG THE ROW CENTERLINE. OFFSETS ARE FROM ROW/STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

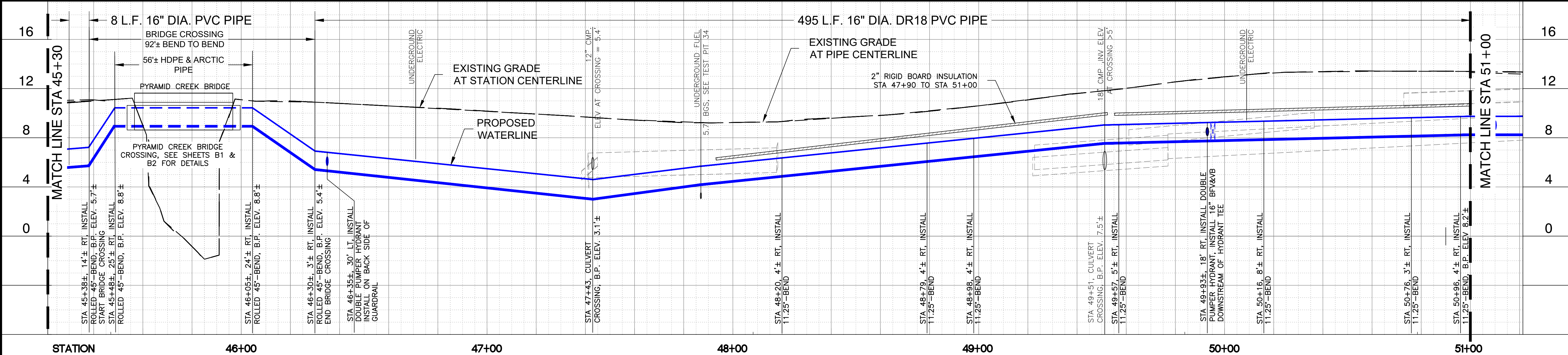


WORK NOTES:

1. EXCAVATE UNDER OR REMOVE AND REPLACE CONCRETE SIDEWALK AND/OR GUARDRAIL AS NECESSARY TO CONSTRUCT WATERMAIN ON APPROACHES AND UNDER BRIDGE STRUCTURE.
2. INSTALL AIR/VAC RELIEF VAULT. TAP AT HIGHEST SECTION OF PIPE. SEE DETAILS SHEET D6.
3. INSTALL DOUBLE PUMPER HYDRANT.
4. INSTALL 16" BUTTERFLY VALVE AND VALVE BOX, LOCATOR BOLLARD

ELEV

ELEV



KEY MAP
N.T.S.

PROFILE SCALE
HORIZ: 1"=20'
VERT: 1"=4'
(SHEET 22"x34")

REGAN ENGINEERING, P.C.

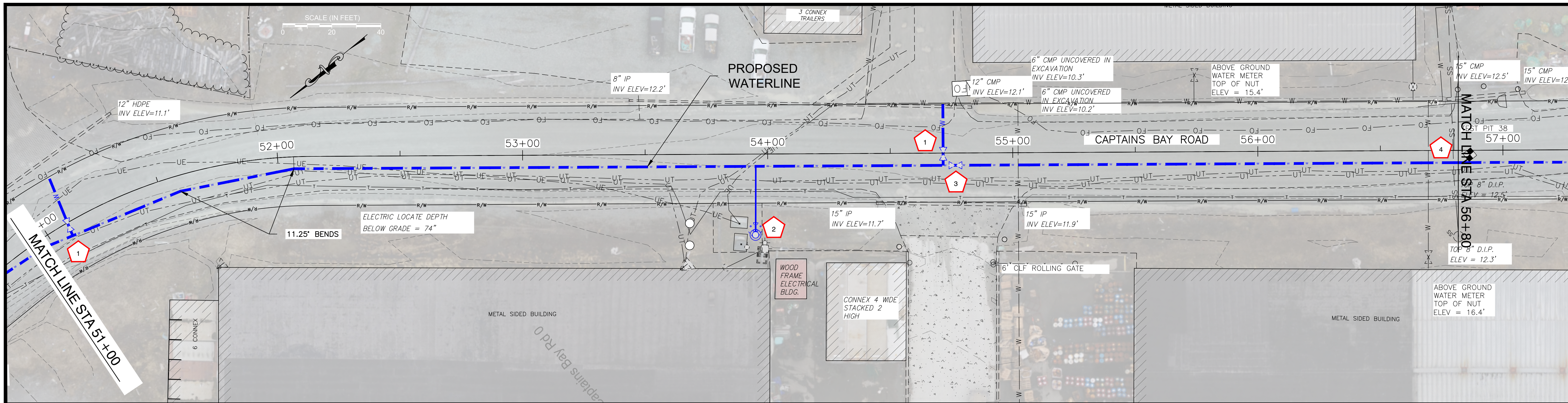
PROJECT: CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION

TITLE: PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - STA 45+30 TO 51+00

DESIGNED BY: TR DATE: 04/22/24 SHEET NO:
CHECKED BY: TR DPW PROJECT NO: 22402

FOR BID 04/22/24

PP6 OF 25

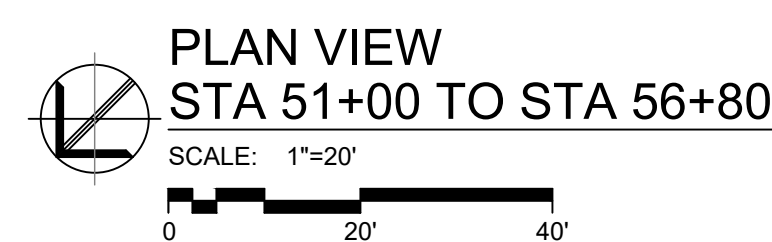


GENERAL NOTES:

1. STATIONING IS ALONG THE ROW CENTERLINE. OFFSETS ARE FROM ROW/STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

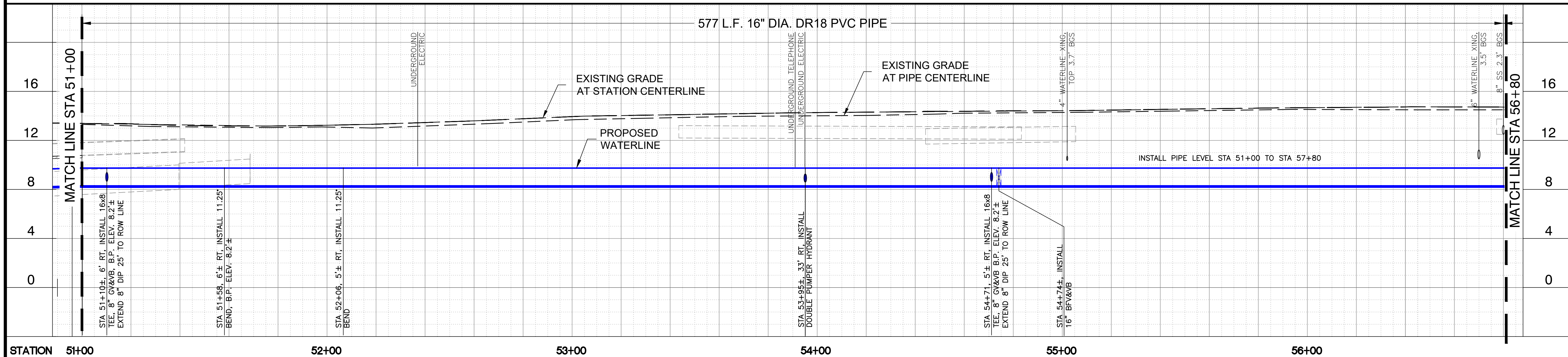
WORK NOTES:

- 1 8-INCH DIP SERVICE LINE TO ROW LINE. INSTALL 8" GATE VALVE AND VALVE BOX.
- 2 INSTALL DOUBLE PUMPER HYDRANT.
- 3 INSTALL 16" BUTTERFLY VALVE AND VALVE BOX. LOCATOR BOLLARD.
- 4 STAGGER WATERMAIN PIPE JOINTS TO BE MINIMUM 9' FROM SEWER PIPE CROSSING POINT, TYPICAL ALL CROSSINGS. EXPOSE SEWERS 10' EITHER SIDE OF CROSSING POINTS AND SEAL ALL SEWER PIPE JOINTS PER DETAIL 2/D4.

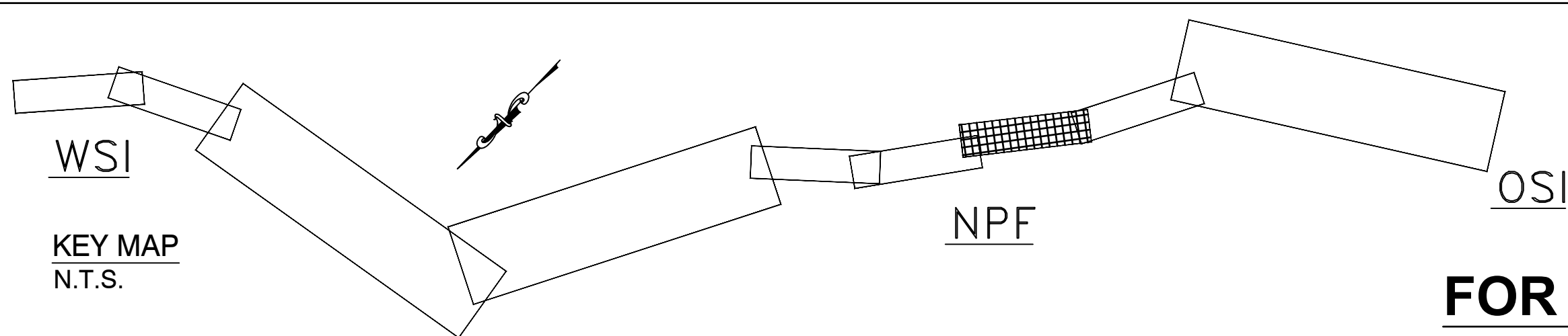


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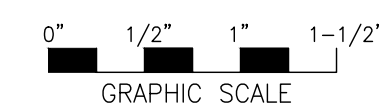
ELEV



STATION 51+00 52+00 53+00 54+00 55+00 56+00

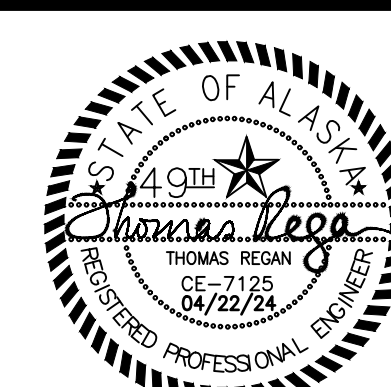


PROFILE SCALE
HORIZ: 1"=20'
VERT: 1"=4'
(SHEET 22"x34")



FOR BID 04/22/24

REV	DATE	DESCRIPTION
0	04/22/24	FOR BID
		DESCRIPTION

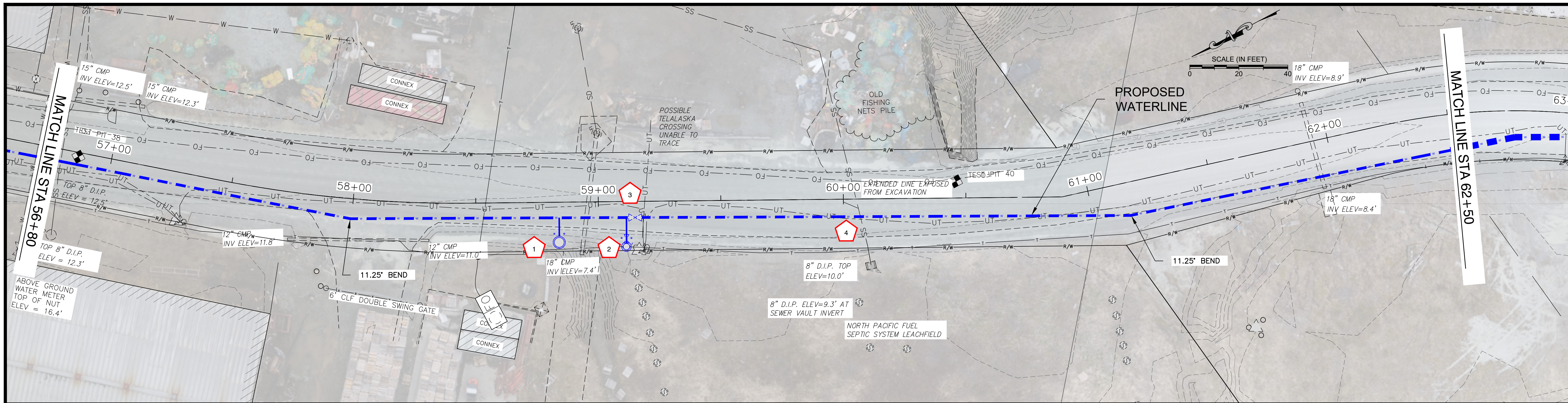


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - STA 51+00 TO 56+80**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO:
CHECKED BY: TR DPW PROJECT NO: 22402 **PP7 OF 25**

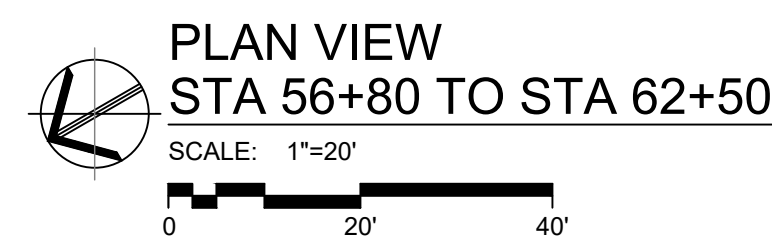


GENERAL NOTES:

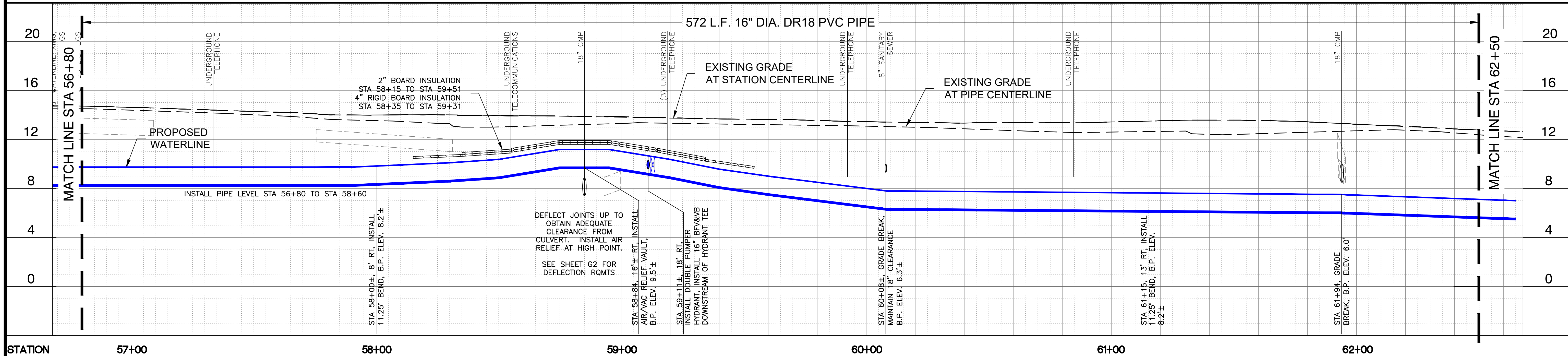
1. STATIONING IS ALONG THE ROW CENTERLINE. OFFSETS ARE FROM ROW/STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

WORK NOTES:

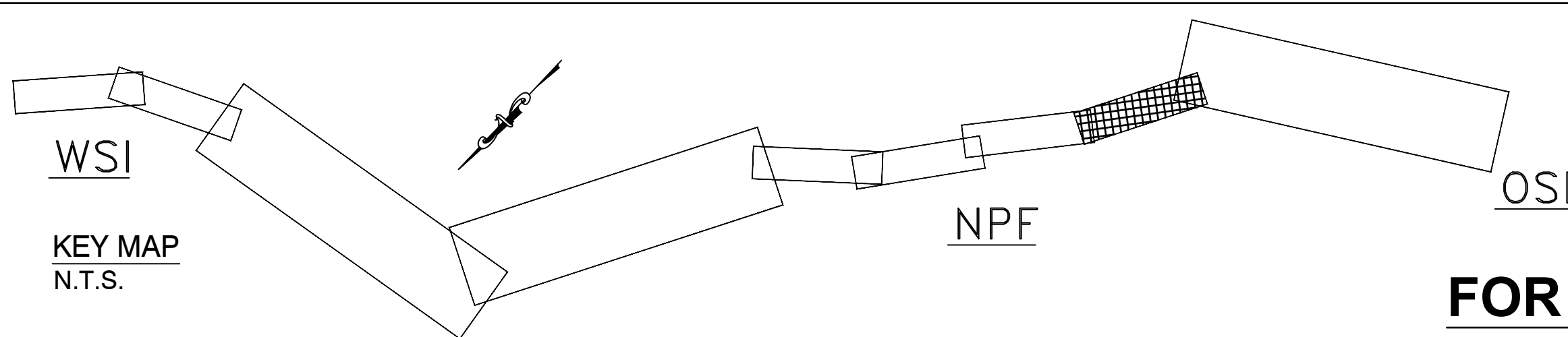
1. INSTALL AIR/VAC RELIEF VAULT. TAP AT HIGHEST SECTION OF PIPE. SEE DETAILS SHEET D6.
2. INSTALL DOUBLE PUMPER HYDRANT.
3. INSTALL 16" BUTTERFLY VALVE AND VALVE BOX, MARKER BOLLARD.
4. STAGGER WATERMAIN PIPE JOINTS TO BE MINIMUM 9' FROM SEWER PIPE CROSSING POINT, TYPICAL ALL CROSSINGS. EXPOSE SEWERS 10' EITHER SIDE OF CROSSING POINTS AND SEAL ALL SEWER PIPE JOINTS PER DETAIL 2/D4.



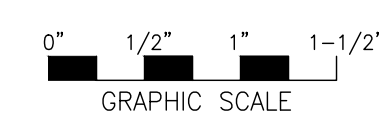
ELEV



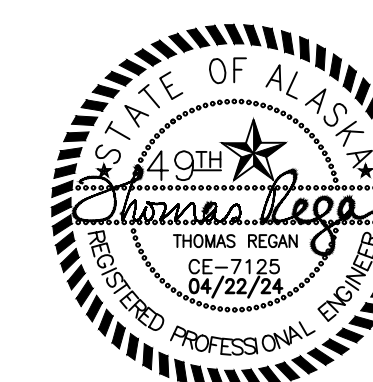
STATION 57+00 58+00 59+00 60+00 61+00 62+00



PROFILE SCALE
 HORIZ: 1"=20'
 VERT: 1"=4'
 (SHEET 22"x34")



FOR BID 04/22/24

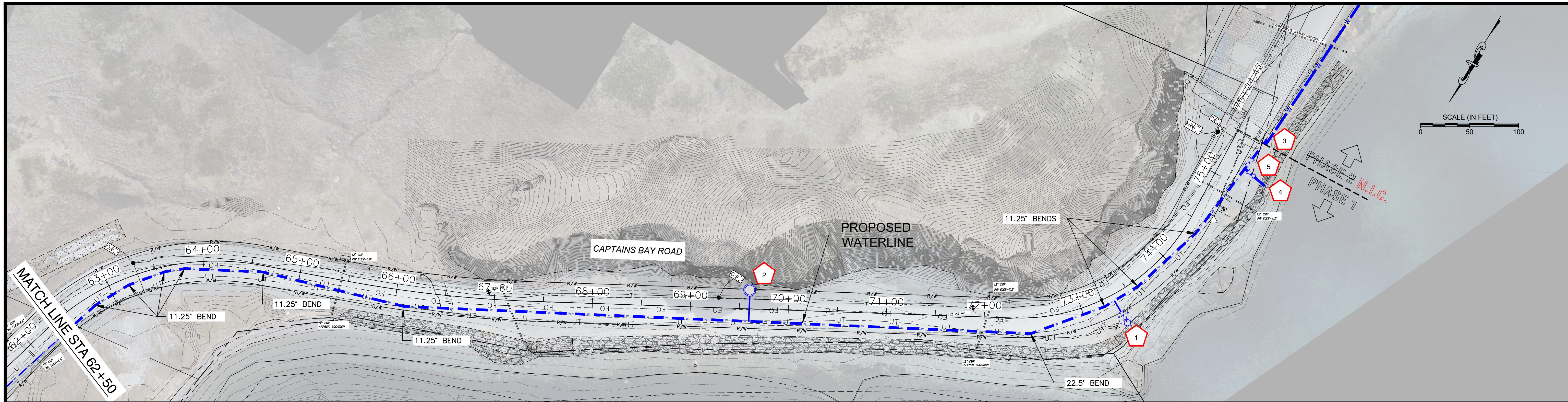


REGAN ENGINEERING, P.C.

PROJECT: CITY OF UNALASKA
 CAPTAINS BAY ROAD
 WATER MAIN EXTENSION

TITLE: PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
 PLAN & PROFILE - STA 56+80 TO 62+50

DESIGNED BY: TR DATE: 04/22/24 SHEET NO:
 CHECKED BY: TR DPW PROJECT NO: 22402 PP8 OF 25

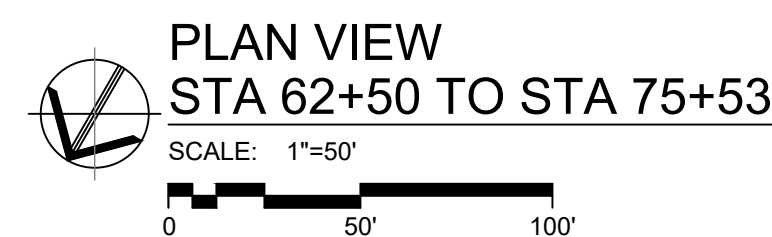


GENERAL NOTES:

1. STATIONING IS ALONG THE ROW CENTERLINE. OFFSETS ARE FROM ROW/STATIONING CENTERLINE, TYPICAL PHASE 1 WORK.
2. WATERLINE ALIGNMENT WAS DETERMINED BY ADJOINING 20' SECTIONS OF PIPE WITH NO HORIZONTAL DEFLECTION BETWEEN BENDS. SEE GENERAL NOTES SHEET G2 FOR ALIGNMENT ADJUSTMENT CONSTRAINTS.
3. INSTALL 2" THICK x 4' WIDE x 8' LONG BOARD INSULATION CENTERED ON CULVERT CROSSING POINTS WHEN THE SEPARATION DISTANCE IS LESS THAN 18", TYPICAL.

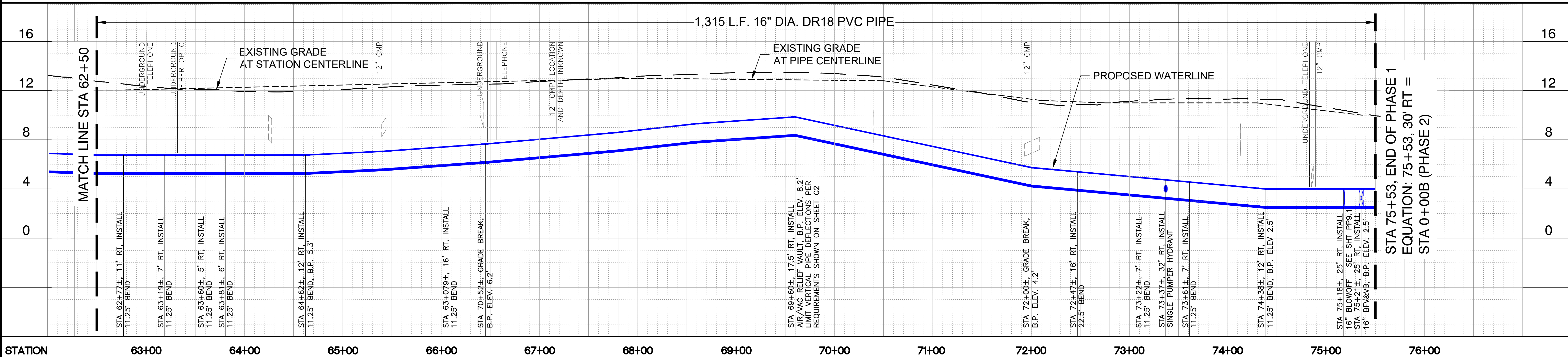
WORK NOTES:

1. INSTALL SINGLE PUMPER HYDRANT ASSEMBLY.
2. INSTALL AIR/VAC RELIEF VAULT. TAP AT HIGHEST SECTION OF PIPE. SEE DETAILS SHEET D6.
3. END OF PHASE 1 WATERLINE. INSTALL PLUG OR CAP WITH THRUST BLOCK IF PHASE 2 WORK IS NOT IN CONTRACT. INSTALL WOOD POST MARKER FOR FUTURE LOCATE.
4. INSTALL 16" BLOW-OFF. SEE SHEET PP9.1.
5. INSTALL 16" BUTTERFLY VALVE AND VALVE BOX.

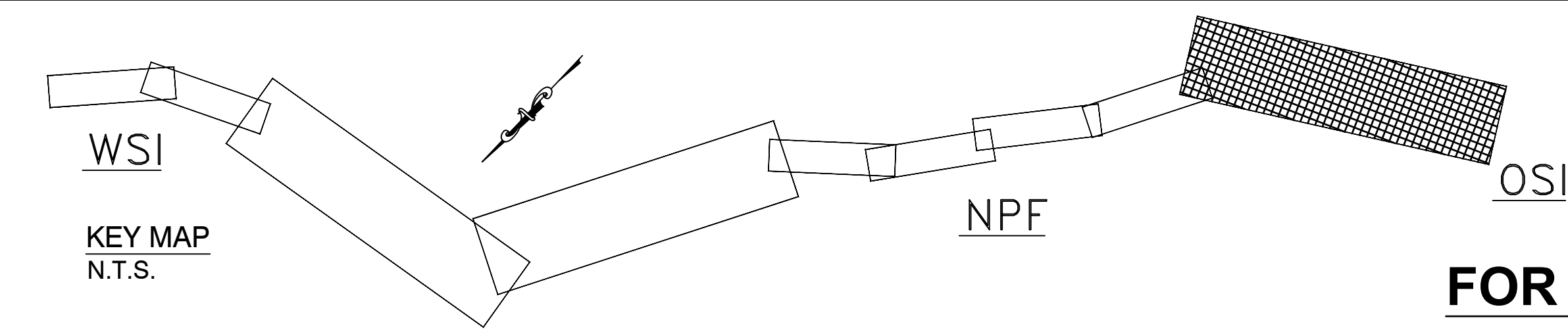


ELEV

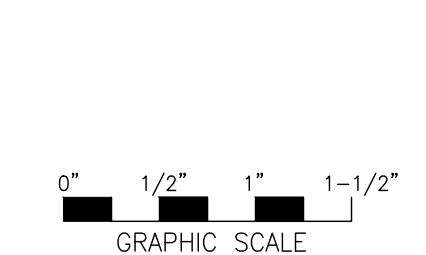
ELEV



STATION	63+00	64+00	65+00	66+00	67+00	68+00	69+00	70+00	71+00	72+00	73+00	74+00	75+00	76+00
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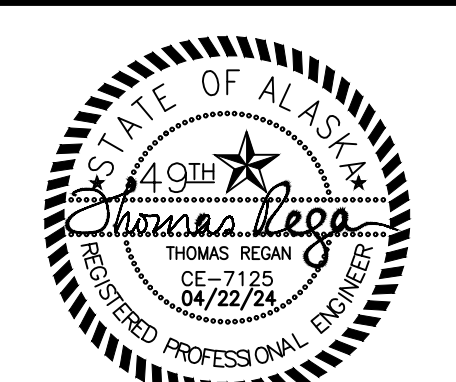


PROFILE SCALE
 HORIZ: 1"=50'
 VERT: 1"=4'
 (SHEET 22"x34")



FOR BID 04/22/24

REV	DATE	DESCRIPTION
0	04/22/24	FOR BID

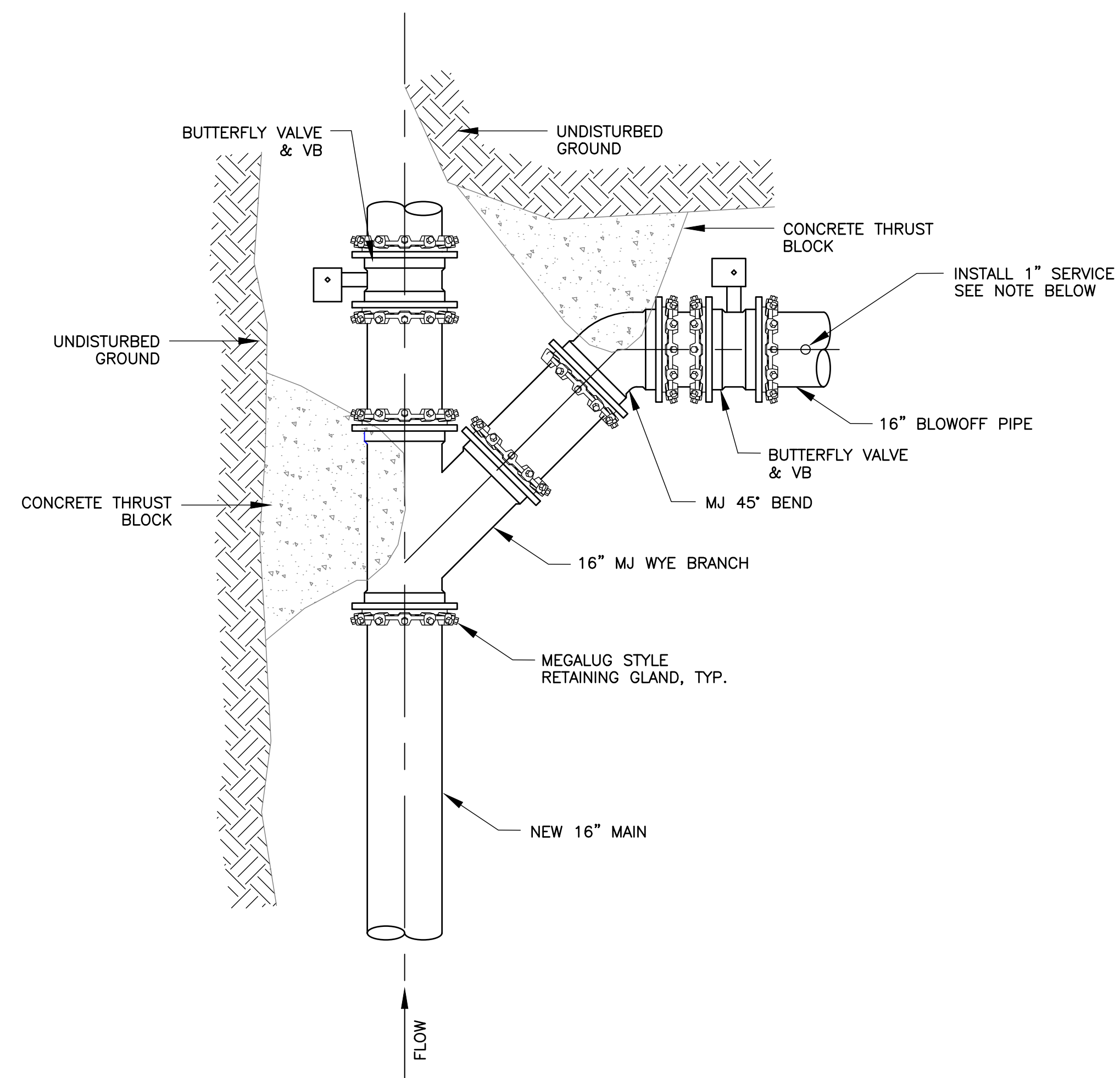


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - STA 62+50 TO 75+53**

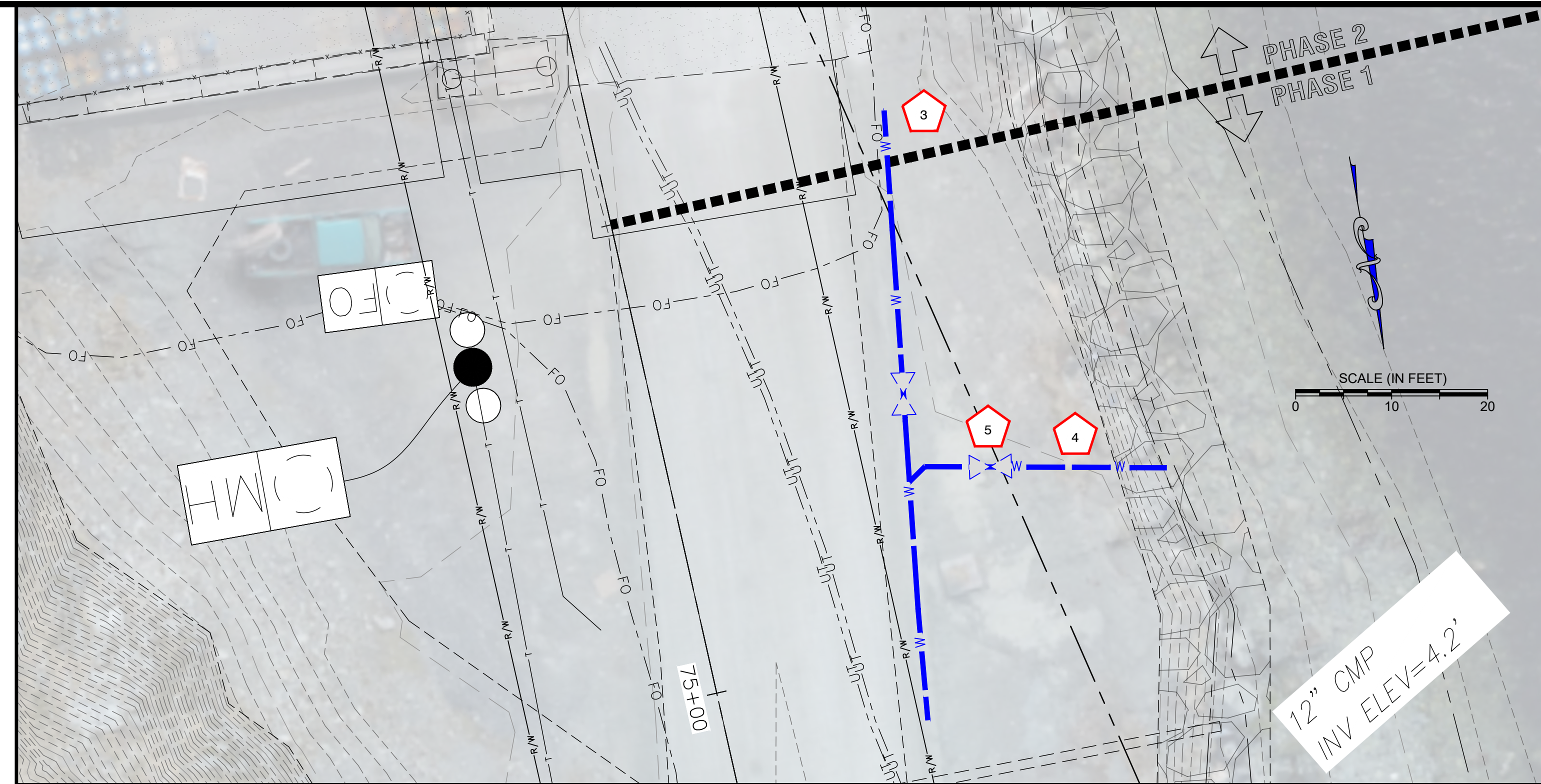
DESIGNED BY: TR DATE: 04/22/24 SHEET NO: PP9 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402



BLOW-OFF DISCHARGE PIPE SHALL HAVE A 1" COPPER SERVICE CONNECTION INSTALLED ON THE DOWNSTREAM SIDE OF THE VALVE FOR FUTURE INJECTION OF DECHLORINATION CHEMICALS. THE TAP SHALL BE SIMILAR TO DETAIL 2/D2 EXCEPT A BOLLARD SHALL BE INSTALLED IN LIEU OF A PAINTED 2x4. THE BOLLARD SHALL BE AS SHOWN IN DETAIL 4/D3. ALL BLOW-OFF PIPES SHALL HAVE A SERVICE LINE AND A BOLLARD.

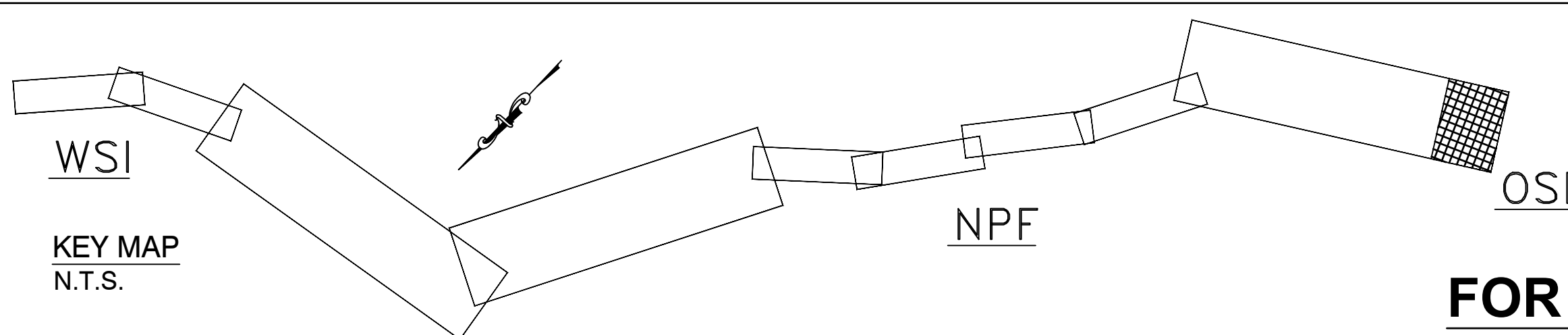
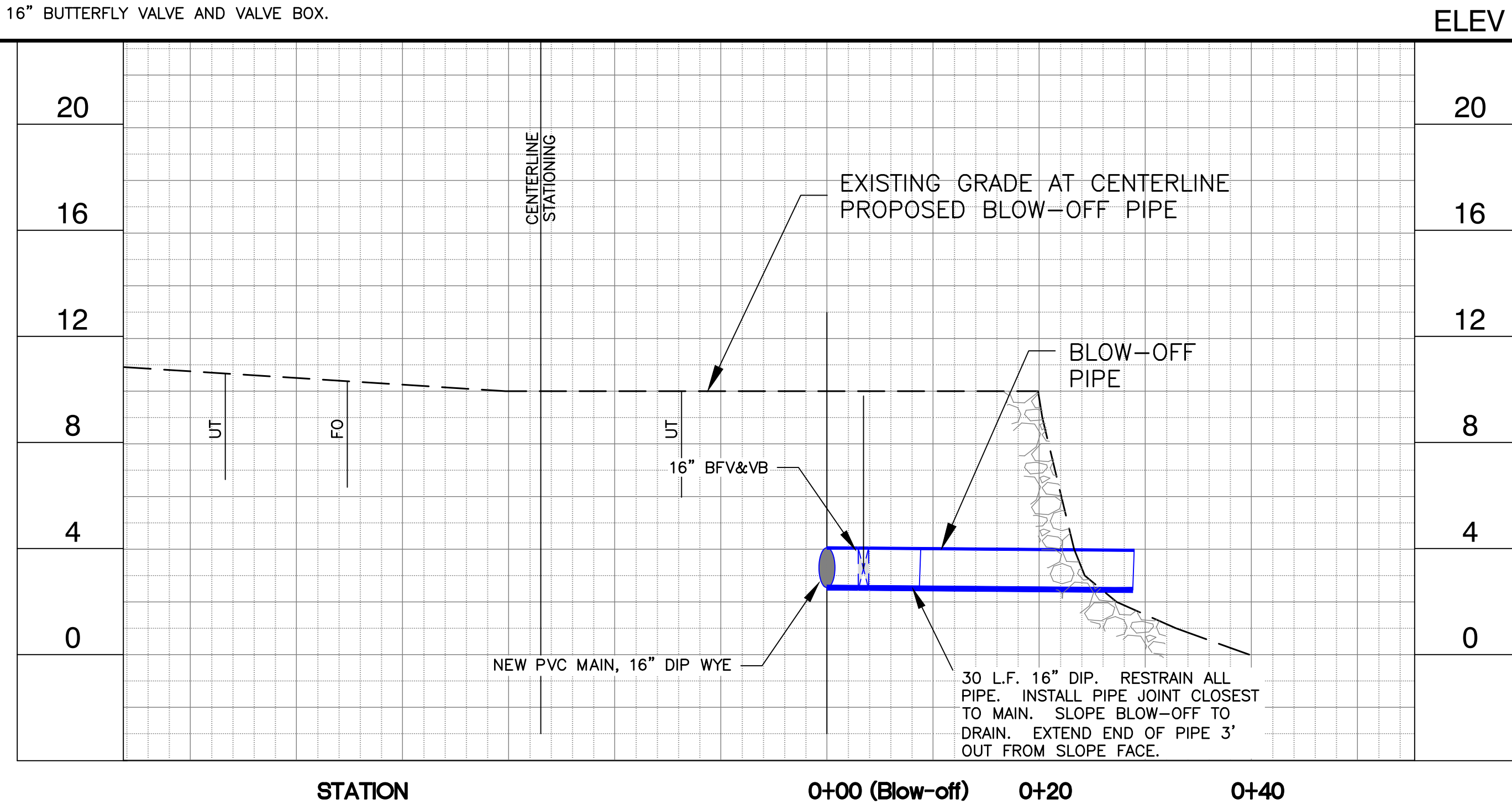
THE BLOW-OFF PIPE PAY ITEM INCLUDES THE FITTINGS, THRUST BLOCKS, COPPER SERVICE CONNECTION, BOLLARD, AND OTHER MISCELLANEOUS ITEMS. THE VALVE, PIPE, BEDDING MATERIAL AND ANODES WILL BE PAID FOR SEPARATELY.

1 - DETAIL, BLOW-OFF PIPE
NTS

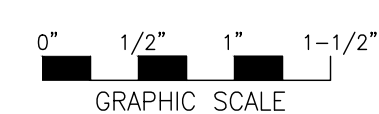


WORK NOTES:

- 1 NOT USED.
- 2 NOT USED.
- 3 END OF PHASE 1 WATERLINE. INSTALL PLUG OR CAP WITH THRUST BLOCK. INSTALL WOOD POST MARKER FOR FUTURE LOCATE.
- 4 INSTALL 16" DIA DIP BLOW-OFF. SEE DETAIL THIS SHEET.
- 5 INSTALL 16" BUTTERFLY VALVE AND VALVE BOX.

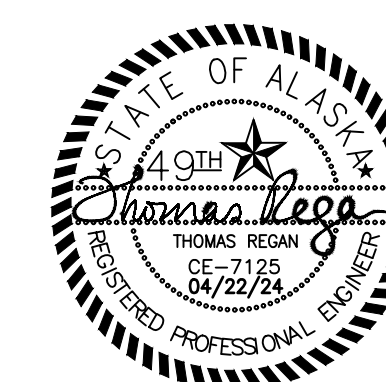


PROFILE SCALE
HORIZ: 1"=10'
VERT: 1"=4'
(SHEET 22"x34")



FOR BID 04/22/24

REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



REGAN ENGINEERING, P.C.

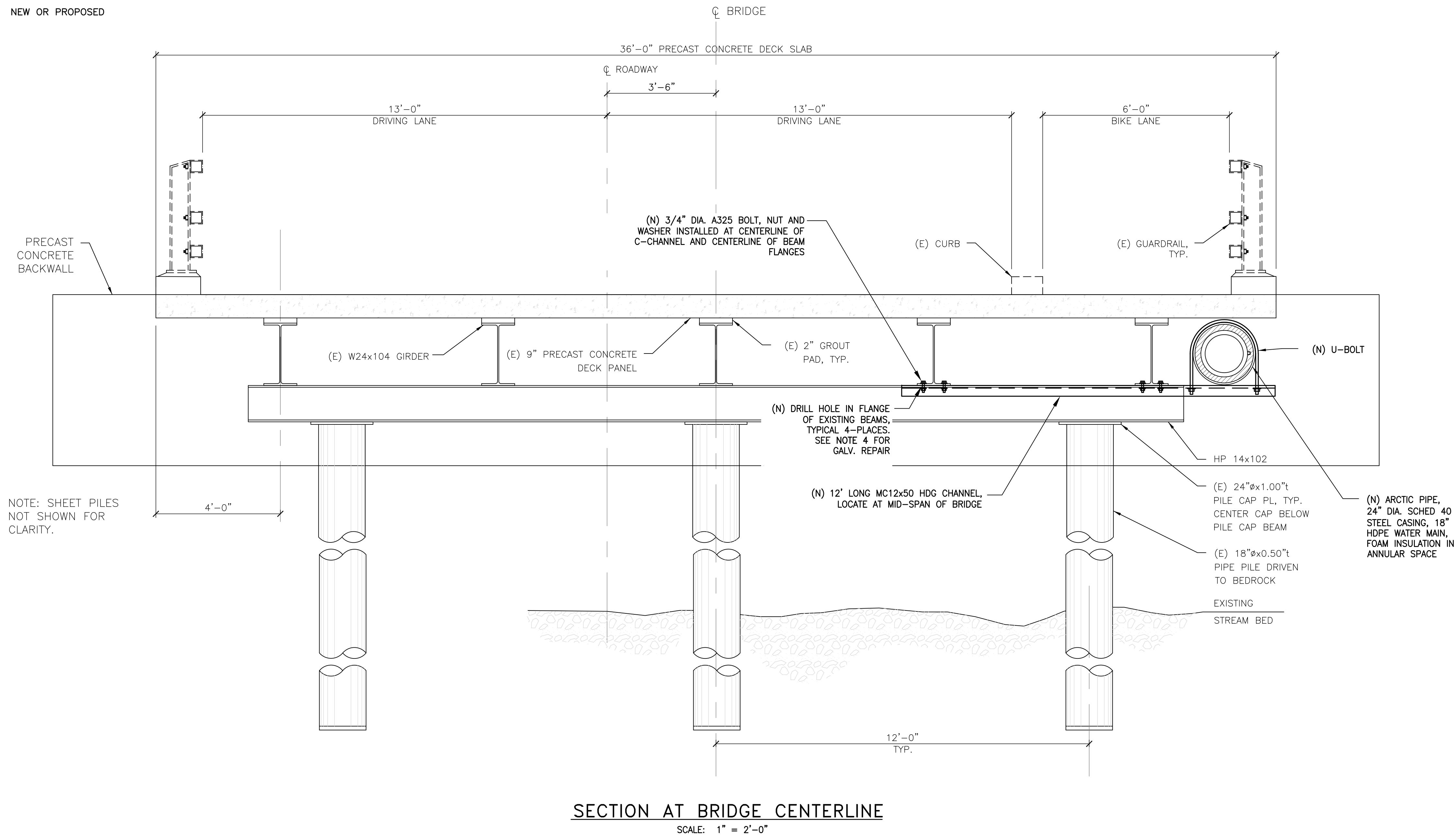
PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **PHASE 1 - WESTWARD SEAFOODS, INC. (WSI) TO OFFSHORE SYSTEMS, INC. (OSI)
PLAN & PROFILE - BLOW-OFF PIPE STA 75+18±**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: PP9.1 OF 25
CHECKED BY: TR DPW PROJECT NO: 22402

WORK LEGEND:

- (E) EXISTING
- (N) NEW OR PROPOSED



SECTION AT BRIDGE CENTERLINE

SCALE: 1" = 2'-0"

GENERAL NOTES:

1. WORK INCLUDED WITH THE BRIDGE CROSSING PAY ITEM INCLUDES WORK DEPICTED ON THESE SHEETS OR NECESSARY TO CONSTRUCT THE BRIDGE CROSSING INCLUDING HEADWALL DEMOLITION, SIDEWALK/GUARDRAIL DEMOLITION/REPLACEMENT, UTILITY SHORING, PIPE SUPPORT, ARCTIC PIPE, HDPE PIPE, FLANGES, BENDS, CONCRETE THRUST BLOCKS (EXCEPT MID-SPAN THRUST BLOCKS), ADAPTERS, REDUCERS, FITTINGS, JOINT RESTRAINT, CONNECTIONS, AND OTHER ITEMS BETWEEN POINTS WHERE THE PIPE TRANSITIONS TO STANDARD 16" DIAMETER PVC PIPE.
2. WORK IN THE ACTUAL STREAMBED IS PROHIBITED. PREVENT DETRITUS AND OTHER ITEMS FROM ENTERING THE CREEK.
3. PRIOR TO SUPPORT CHANNEL FABRICATION, CONTRACTOR SHALL VERIFY FIELD CONDITIONS AND DIMENSIONS TO ASSURE CHANNEL FABRICATION DETAILS ARE CORRECT AND THERE IS ADEQUATE SPACE FOR INSTALLATION. THE SUPPORT CHANNEL SHALL BE CUT AND DRILLED PRIOR TO HOT-DIP GALVANIZING.
4. REPAIR GALVANIZED COATINGS AT HOLES DRILLED INTO EXISTING STRINGERS WITH HEAT APPLIED HOT-STICK "REV-GALV", "GALV-WELD", OR "GALV-OVER" APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. FOLLOW WITH TWO COATS OF BRUSH APPLIED ZINC RICH PAINT.
5. ALL FABRICATIONS, CHANNEL, NUTS, BOLTS, WASHERS, AND U-BOLTS SHALL BE HOT-DIP GALVANIZED PER ASTM A123 OR A153 AFTER FABRICATION.



NW CORNER

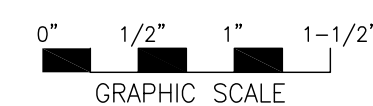


SW CORNER

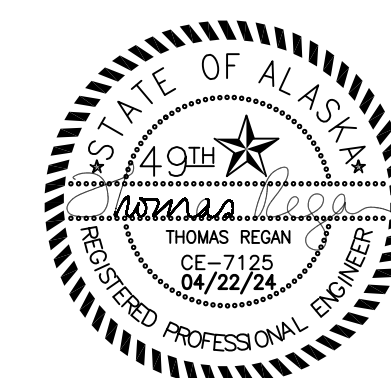


W SIDE

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



REGAN ENGINEERING, P.C.

PROJECT: CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION

TITLE: PYRAMID CREEK BRIDGE
UTILITY CROSSING SECTION

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: B1 OF 25
CHECKED BY: TR DPW PROJECT NO: 22402

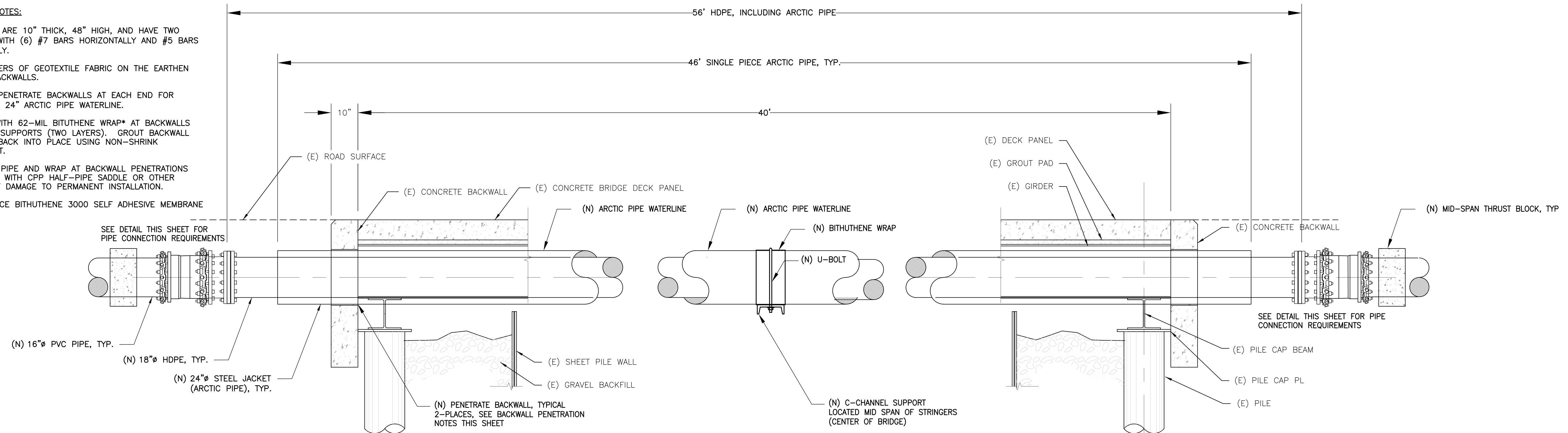
BACKWALL PENETRATION NOTES:

- EXISTING BACKWALLS ARE 10" THICK, 48" HIGH, AND HAVE TWO REBAR MATS, EACH WITH (6) #7 BARS HORIZONTALLY AND #5 BARS AT 12" OC VERTICALLY.
- THERE ARE TWO LAYERS OF GEOTEXTILE FABRIC ON THE EARTHEN FILL SIDE OF THE BACKWALLS.
- CHIP CONCRETE TO PENETRATE BACKWALLS AT EACH END FOR INSTALLATION OF THE 24" ARCTIC PIPE WATERLINE.
- WRAP ARCTIC PIPE WITH 62-MIL BITUTHENE WRAP* AT BACKWALLS AND AT CENTERLINE SUPPORTS (TWO LAYERS). GROUT BACKWALL PENETRATION PIPES BACK INTO PLACE USING NON-SHRINK NON-METALLIC GROUT.
- PROTECT THE STEEL PIPE AND WRAP AT BACKWALL PENETRATIONS DURING INSTALLATION WITH CPP HALF-PIPE SADDLE OR OTHER BARRIER TO PREVENT DAMAGE TO PERMANENT INSTALLATION.

*BITUTHENE WRAP; GRACE BITUTHENE 3000 SELF ADHESIVE MEMBRANE OR EQUAL.

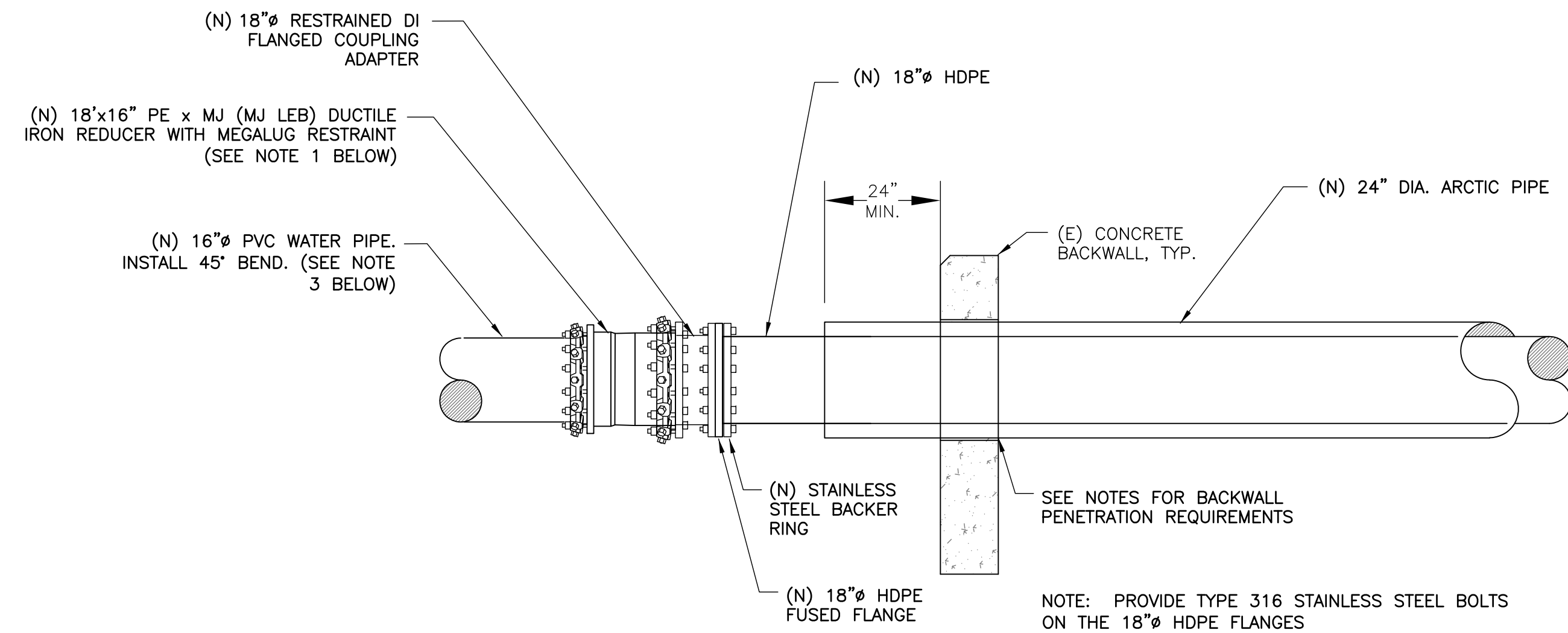
WORK LEGEND:

- (E) EXISTING
- (N) NEW



ELEVATION - UTILITY PIPE CROSSING

SCALE: 1" = 2'-0"



PIPE TRANSITION NOTES:

- IF A MJ LEB REDUCER IS UNAVAILABLE, USE A MJ x MJ REDUCER WITH A SHORT 18" DIAMETER PIPE SECTION, ALL RESTRAINED WITH MEGALUG STYLE RETAINER GLANDS, PLUS A FLANGED COUPLING ADAPTER FOR CONNECTION TO THE HDPE.
- REDUCER AND FLANGED COUPLING ADAPTER REQUIRED ON WATER PIPE TO TRANSITION TO DIFFERENT SIZE HDPE PIPE AND FLANGE.
- INSTALL 45° MJ DIP BEND DOWN AND OVER TO TRANSITION HORIZONTALLY AND VERTICALLY TO MAIN PIPE RUN. SEE SHEET G2 FOR THRUST RESTRAINT REQUIREMENTS.
- THIS DETAIL IS TYPICAL AT BOTH ENDS OF THE BRIDGE. SUBMIT LITERATURE FOR PROPOSED FITTINGS, BOLTS, AND CONNECTION PARTS AND MATERIALS FOR THE ARCTIC PIPE AND THE 18" HDPE TO 16" PVC TRANSITIONS.

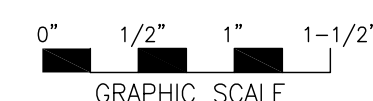
ARCTIC PIPE SPECIFICATIONS:

- JACKET:
WATER MAIN: 24" DIAMETER SCHEDULE 40 STEEL, 24.0" O.D., WALL THICKNESS 0.688".
- STEEL SHALL CONFORM TO ASTM A53 GRADE B. WELDS SHALL BE FULL PENETRATION BUTT-WELDED WITH A 3/16" BACKING RING CURVED FOR TIGHT FIT TO BASE METAL. THE PIPE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 OR A153 AFTER FABRICATION. THE COMPLETED FABRICATION SHALL BE ONE CONTINUOUS PIECE END-TO-END.
- INSULATION: POLYURETHANE, COMPRESSIVE STRENGTH 30 PSI (PER ASTM D1621), MIN. "K" FACTOR OF 0.17 BTU-IN/F-SQ FT-HR (PER ASTM C518), MIN. CLOSED CELL CONTENT OF 90% (PER ASTM D2856), MAX. WATER ABSORPTION OF 0.05LB/SQ FT (PER ASTM D2842).
- CARRIER PIPE:
WATER MAIN: 18" HDPE, BUTT-FUSED, SDR 11 (NSF 61 APPROVED).
- PROVIDE A 1" PVC CONDUIT FOR AN ELECTRIC HEAT TRACE ADJACENT TO THE HDPE PIPE, TYPICAL. HEAT TRACE ELECTRICAL NOT-IN-CONTRACT.

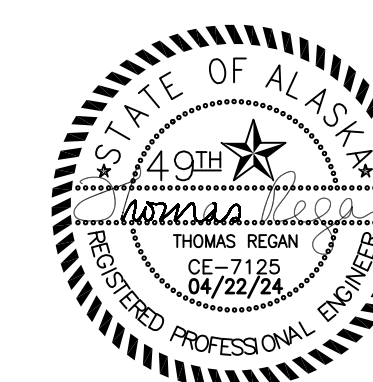
DETAIL - WATER PIPE CONNECTION DIP OR PVC TO HDPE

SCALE: 1" = 2'-0"

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



REGAN ENGINEERING, P.C.

PROJECT: CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION

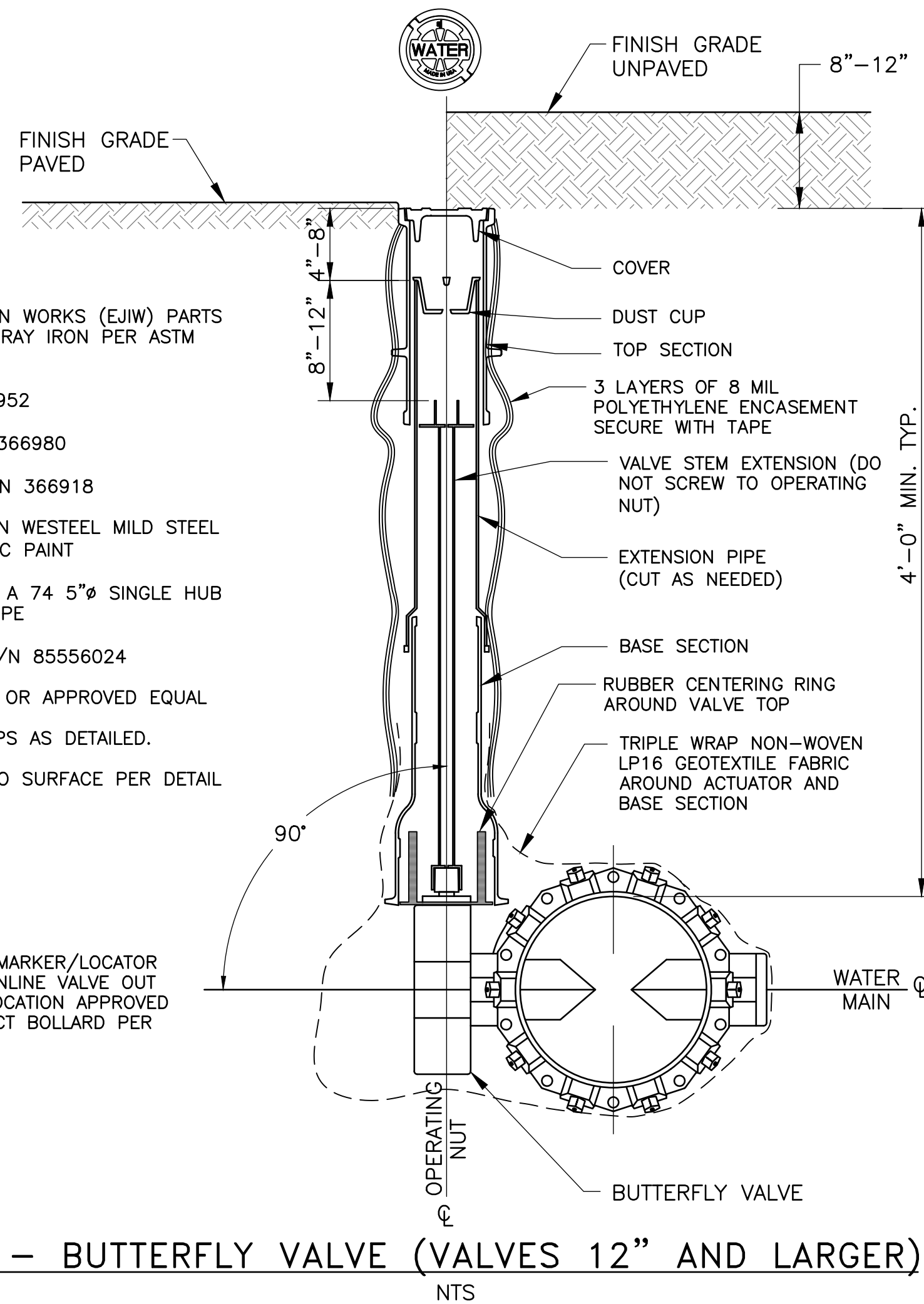
TITLE: PYRAMID CREEK BRIDGE
UTILITY CROSSING ELEVATION

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: B2 OF 25
CHECKED BY: TR DPW PROJECT NO: 22402

NOTES:

1. ALL EAST JORDAN IRON WORKS (EJIW) PARTS DIPPED HEAVY DUTY GRAY IRON PER ASTM A48 CL35B
2. COVER EJIW P/N 366952
3. DUST CUP EJIW P/N 366980
4. TOP SECTION EJIW P/N 366918
5. VALVE STEM EXTENSION WESTEEL MILD STEEL W/ #40 BLACK VITONIC PAINT
6. EXTENSION PIPE ASTM A 74 5" SINGLE HUB SV CAST IRON SOIL PIPE
7. BASE SECTION EJIW P/N 85556024
8. USE SPECIFIED PARTS OR APPROVED EQUAL
9. ADD CONTINUITY STRAPS AS DETAILED.
10. BRING TRACER WIRE TO SURFACE PER DETAIL 3/D2.

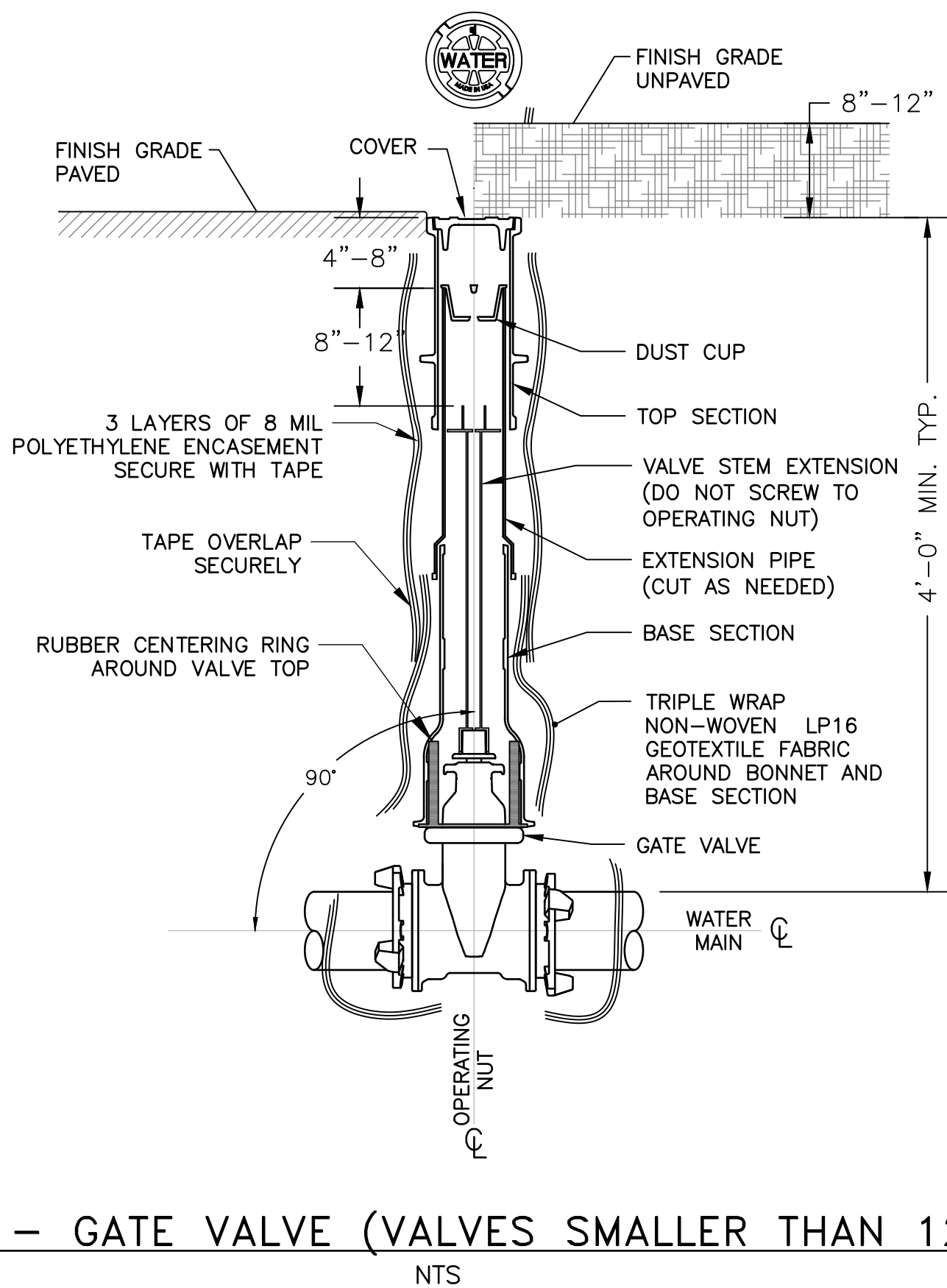
NOTE: PROVIDE SINGLE MARKER/LOCATOR BOLLARD NEAR EACH MAINLINE VALVE OUT OF TRAVELLED WAY AT LOCATION APPROVED BY ENGINEER. CONSTRUCT BOLLARD PER DETAIL 4/D3.



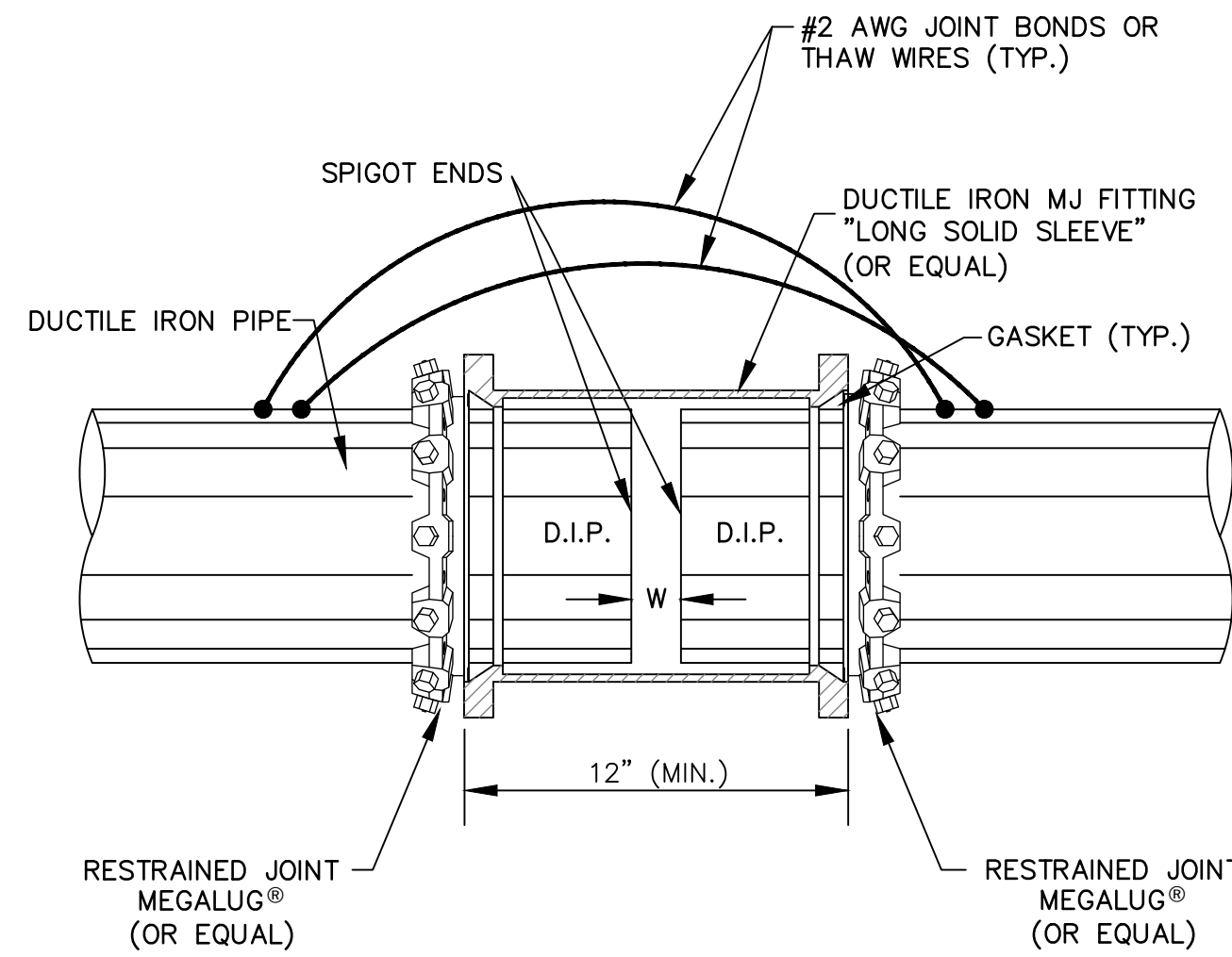
1 - BUTTERFLY VALVE (VALVES 12" AND LARGER)
NTS

NOTES:

1. ALL EAST JORDAN IRON WORKS (EJIW) PARTS DIPPED HEAVY DUTY GRAY IRON PER ASTM A48 CL35B
2. COVER EJIW P/N 366952
3. DUST CUP EJIW P/N 366980
4. TOP SECTION EJIW P/N 366918
5. VALVE STEM EXTENSION WESTEEL MILD STEEL W/ #40 BLACK VITONIC PAINT
6. EXTENSION PIPE ASTM A 74 5" SINGLE HUB SV CAST IRON SOIL PIPE
7. BASE SECTION EJIW P/N 85556024
8. USE SPECIFIED PARTS OR APPROVED EQUAL
9. ADD CONTINUITY STRAPS AS DETAILED (DIP ONLY).
10. BRING TRACER WIRE TO SURFACE PER DETAIL 3/D2.



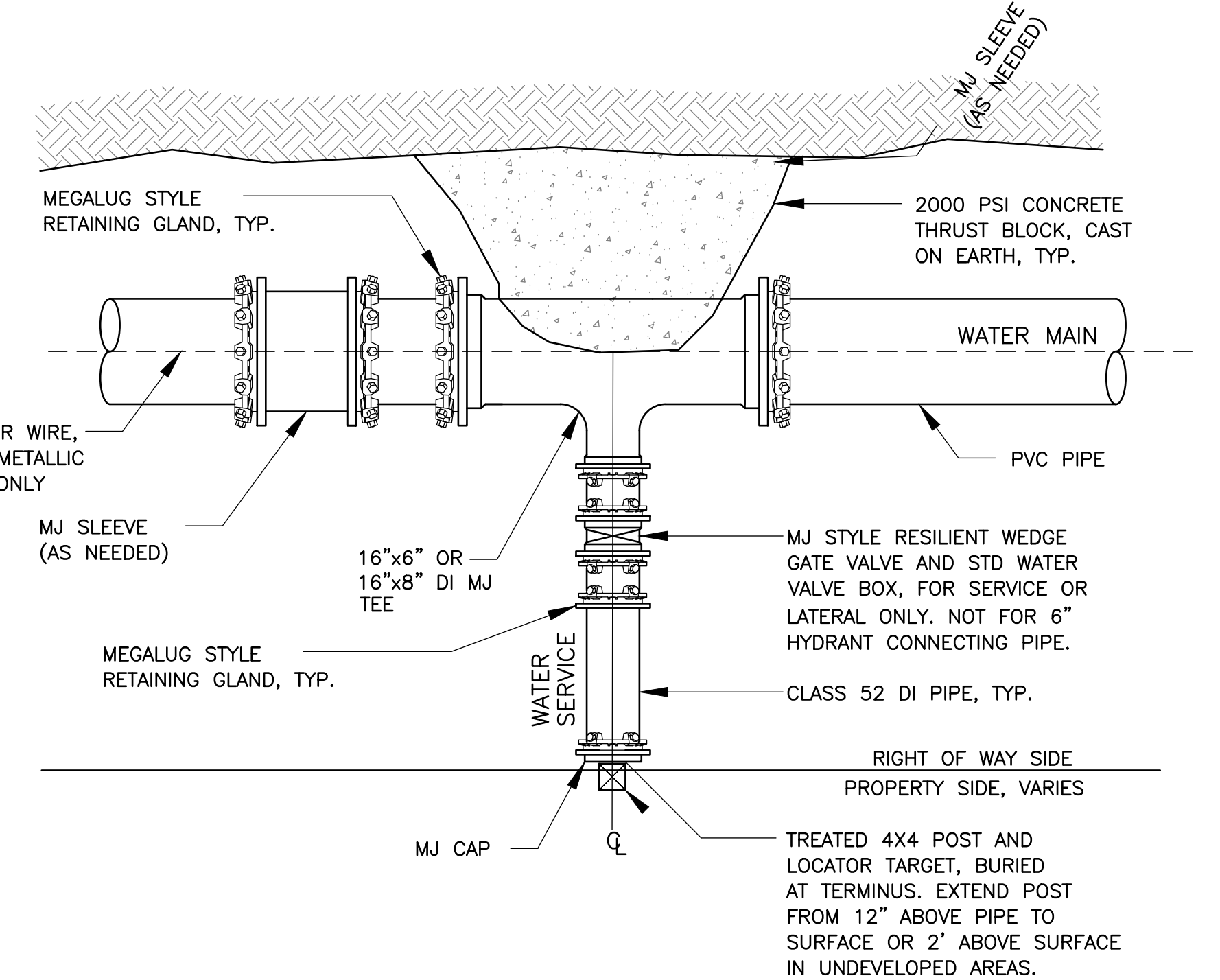
4 - GATE VALVE (VALVES SMALLER THAN 12")
NTS



NOTES:

1. MECHANICAL JOINT (MJ) LONG SOLID SLEEVE SHALL BE USED TO CONNECT SAME SIZE (O.D.) DUCTILE IRON PIPE (D.I.P.) TO D.I.P. ONLY.
2. SEE MANUFACTURERS RECOMENDATIONS FOR DIMENSION "W"
3. ALL D.I.P. FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF AWWA C110/ANSI A21.10 (SEE SPECIFICATION SECTION 02668.02 - FURNISH AND INSTALL PIPE)
4. PVC PIPE SLEEVES SIMILAR EXCEPT CONTINUITY STRAPS OF JOINT BONDS ARE NOT REQUIRED.

2 - DUCTILE IRON PIPE CONNECTION



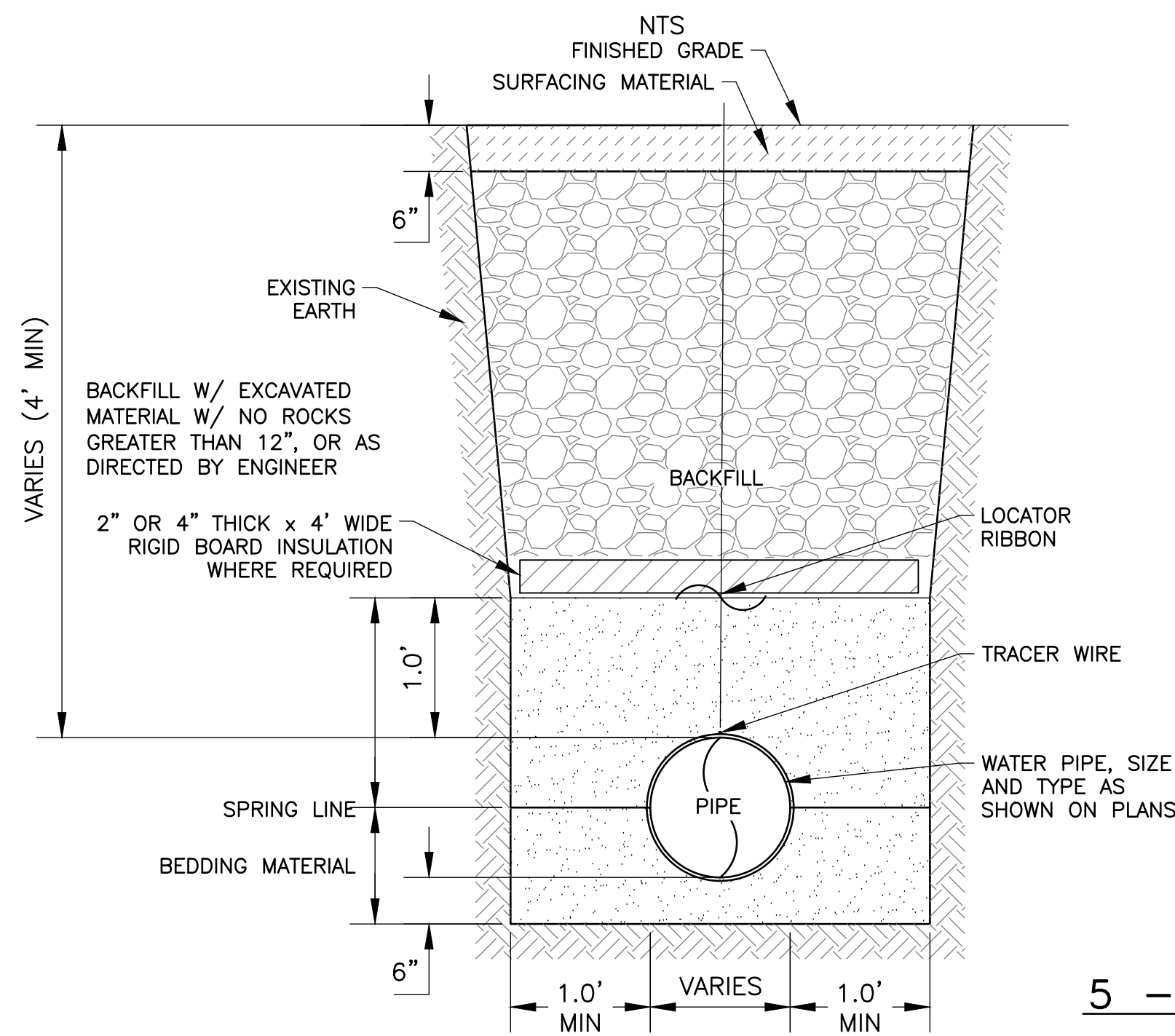
NOTES:

1. RESTRAINED JOINT PIPE SHALL BE RESTRAINED USING MJ FITTINGS WITH MEGALUG STYLE RETAINING GLANDS OR EQUAL.
2. ALL PIPE SHALL BE COVERED WITH A 8 MIL POLYETHYLENE WRAP.
3. REFERENCE SERVICE CAP TO (3) PERMANENT SWING TIE LOCATIONS.
4. INSTALL CONTINUITY STRAPS ON DIP AS DETAILED.
5. SEE DETAILS AND TABLE SHEET D2 FOR THRUST BLOCK REQUIREMENTS.
6. INSTALL ANODES ON TEE'S AND BRANCH LINES AS DETAILED.

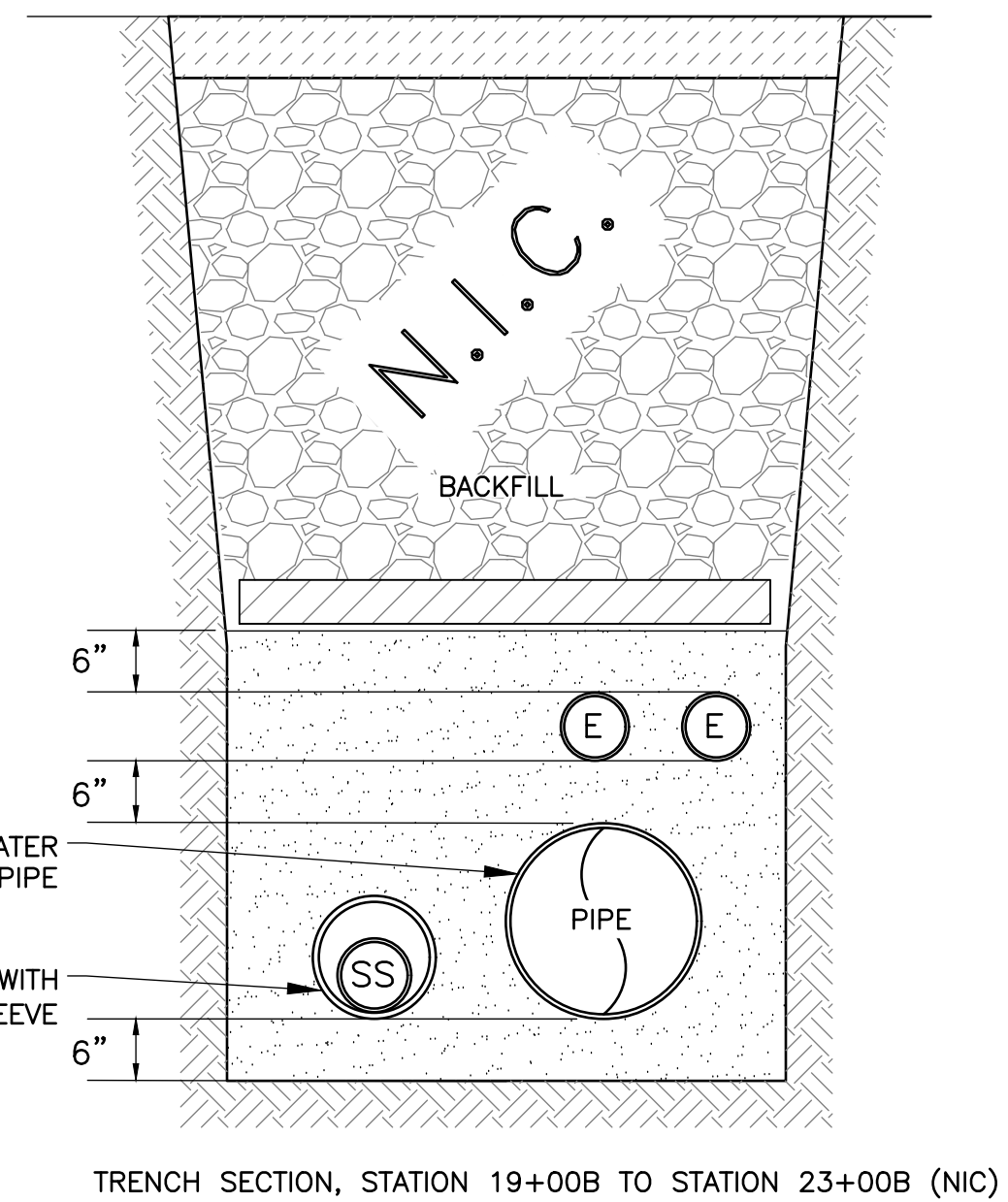
3 - WATER MAIN TEE
NTS

NOTES:

1. TRENCH WALLS SHALL BE SLOPED OR SHORED AS REQUIRED FOR SAFETY.
2. ALL BEDDING AND SURFACING SHALL BE COMPACTED TO THE SPECIFIED PERCENTAGE OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 METHOD D, UNLESS OTHERWISE NOTED.
3. BACKFILL SHALL BE PLACED IN LIFTS AND COMPACTED AS SPECIFIED. FIRST LIFT AFTER PIPE INSTALLATION SHALL NOT BE FILLED ABOVE THE SPRING LINE TO ALLOW HAUNCHING OF THE PIPE.
4. NO ORGANIC MATERIAL WILL BE ALLOWED IN TRENCH BACKFILL.
5. ANY EXCESS TRENCH EXCAVATION SHALL BE REMOVED BY CONTRACTOR AT NO ADDITIONAL COST.
6. PROVIDE INSULATION WHERE INDICATED AND WHERE LESS THAN 4' OF COVER OVER PIPE.
7. AT ALL WATER PIPE CROSSINGS OF SEWER OR STORM PIPES, EXPOSED PORTIONS OF SEWER OR STORM PIPES SHALL BE BEDDED AND BACKFILLED IN ACCORDANCE WITH THE TYPICAL TRENCH SECTION.
8. SEE DETAIL 3/D2 FOR TRACER WIRE REQUIREMENTS.

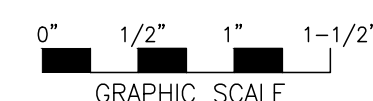


5 - TYPICAL WATER MAIN TRENCH SECTION
NTS



TRENCH SECTION, STATION 19+00B TO STATION 23+00B (NIC)

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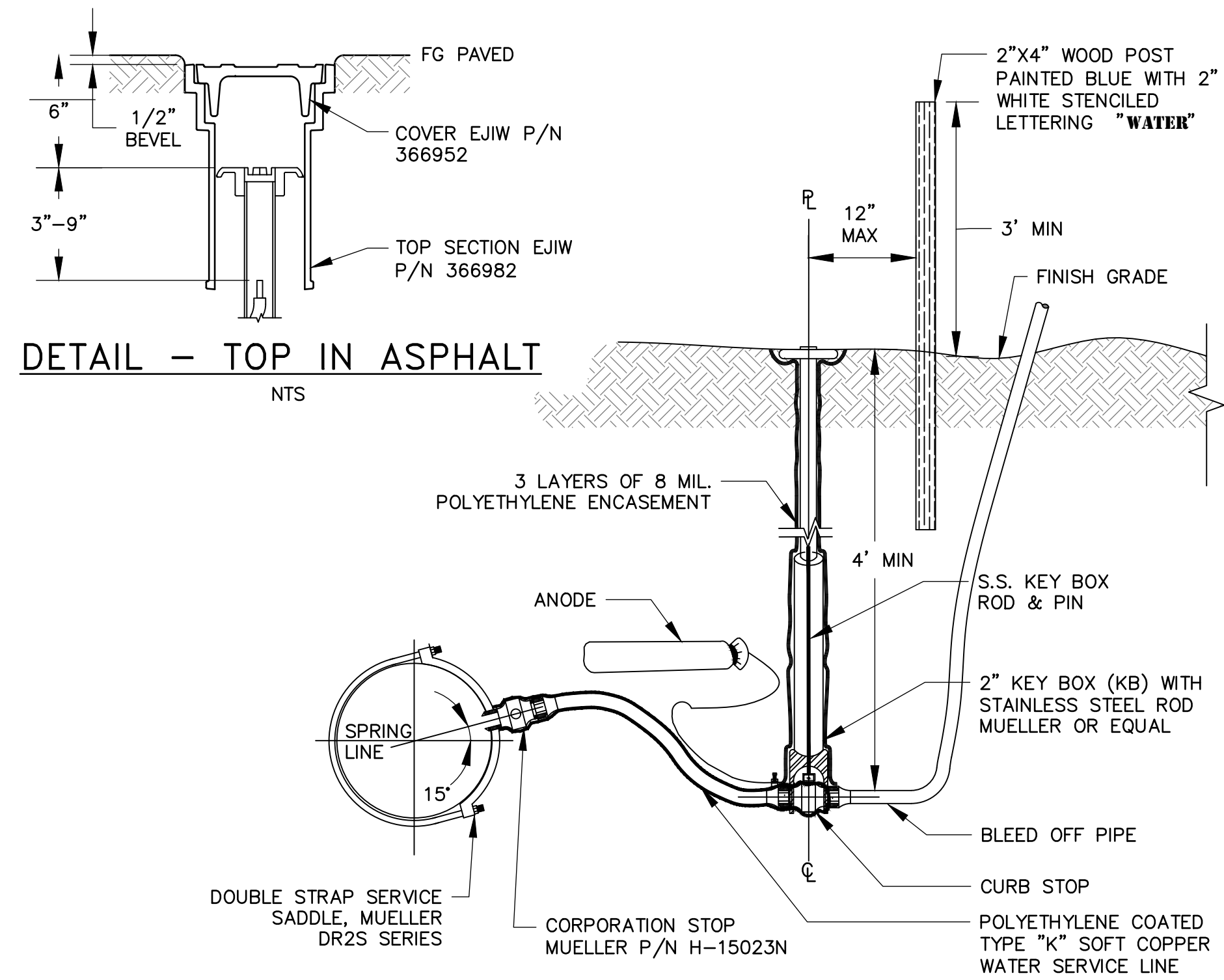
REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

FILE: **DETAILS
MISCELLANEOUS WATER UTILITY**

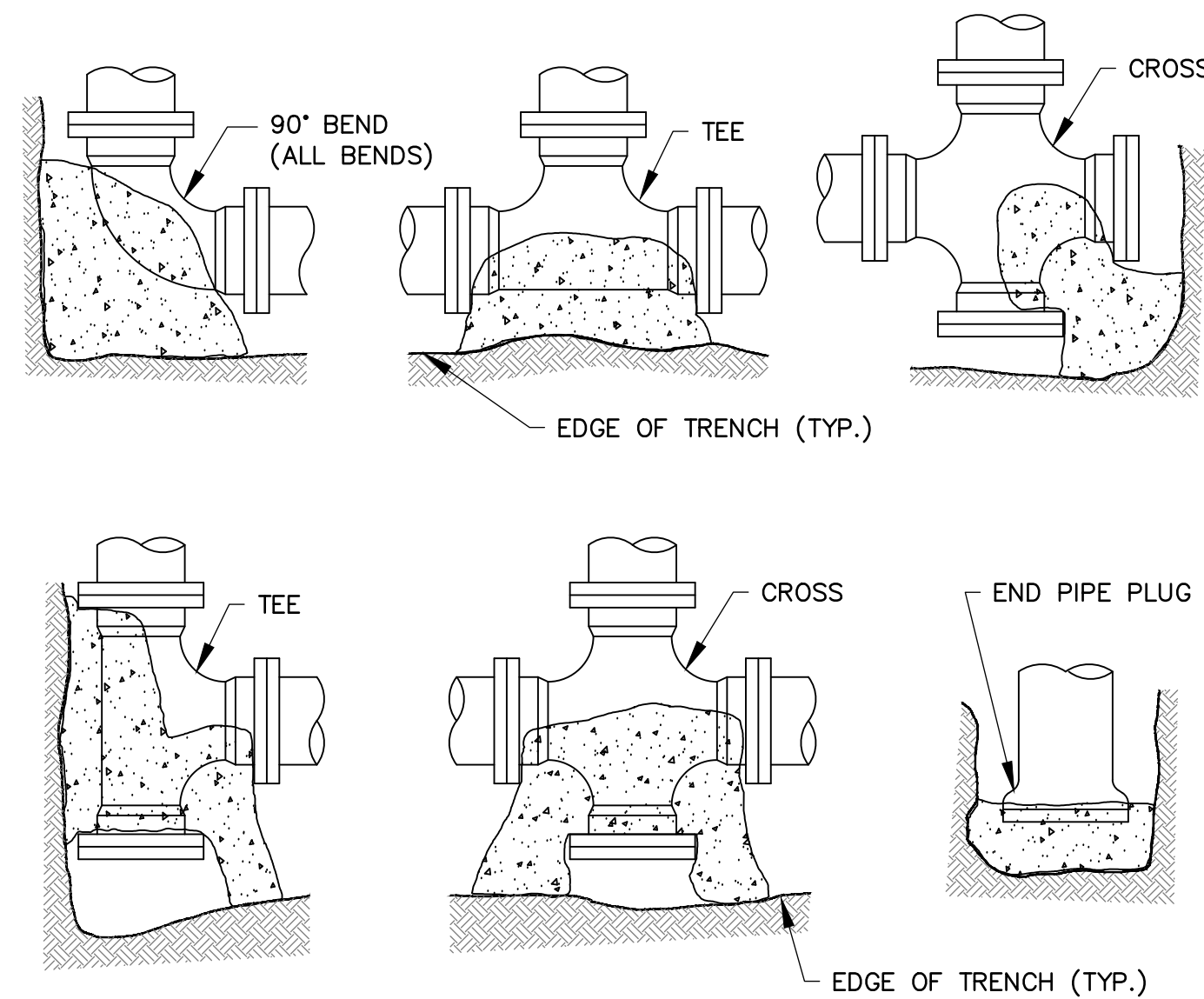
DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D1 OF 25

CHECKED BY: TR DPW PROJECT NO: 22402



- NOTES:
1. STAINLESS STEEL (SS) WRAP AROUND SERVICE SADDLE TO BE USED ON ALL TAPS.

1 - WATER SERVICE CONNECTION 1-1/2" AND 2"
NTS



PIPE SIZE	PLUG	90° BEND	45° BEND	22 1/2° BEND
6"	2.0	2.0	1	1
8"	2.5	2.5	1.5	1.5
10"	4.5	4.5	2.5	2.5
12"	6	6	3.5	3.5
14"	8	8	4.5	4.5
16"	10.5	10.5	6	6
24"	24	24	13	13

- NOTE:
1. MINIMUM THICKNESS OF PRE-CAST CONCRETE THRUST BLOCKS SHALL BE 6-INCH OR AS PER THE CONTRACT SPECIFICATIONS, AND IN CONFORMANCE WITH DIVISION 30 OF MASS.
 2. THRUST BLOCK MAY NOT BE USED IN LIEU OF THRUST RESTRAINT
 3. CAST IN PLACE THRUST BLOCKS MUST BE CAST AGAINST UNDISTURBED SOIL (HATCH)

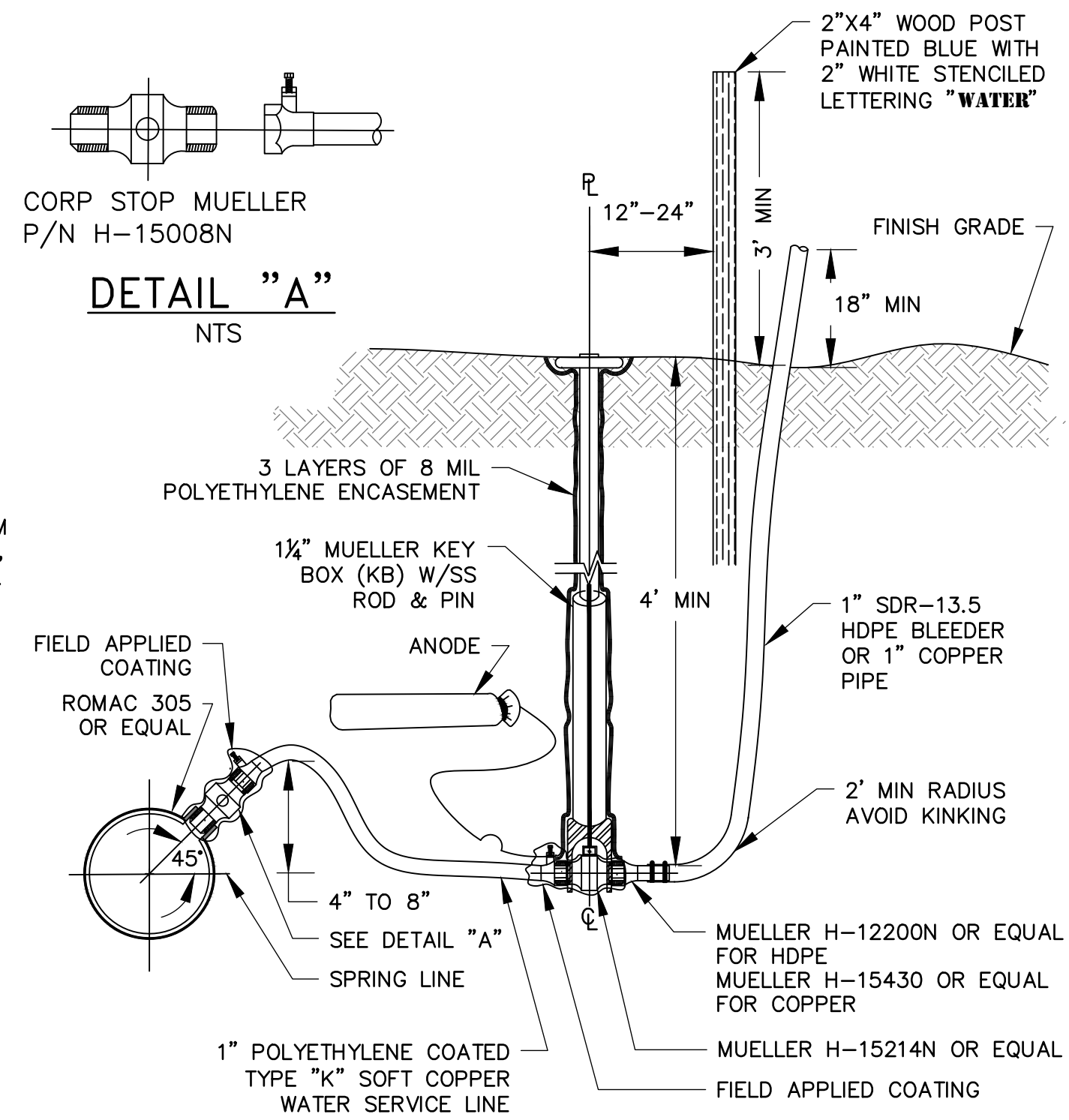
4 - THRUST BLOCKS
NTS

PART NUMBERS:

- LID WITH PENTAGON PLUG
MUELLER P/N 89369/68714
- EXTENSION ROD MUELLER
P/N 84000 SERIES
- CURB BOX MUELLER P/N
H-10306/ H-10310
- CURB STOP MUELLER P/N
H-15219N

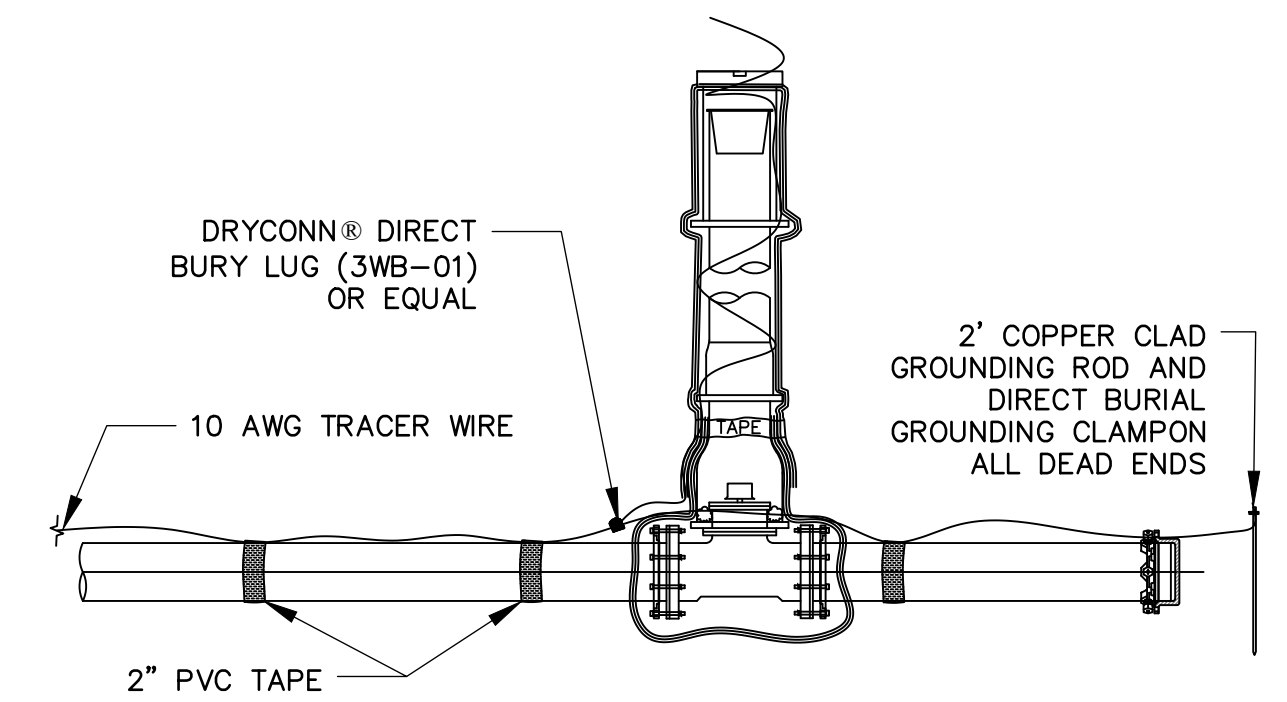
NOTE:

1. WRAP 8 MIL POLYETHYLENE FILM AROUND MAIN, SERVICE SADDLE, AND FIRST 3' OF COPPER TUBE.



- NOTES:
1. STAINLESS STEEL (SS) WRAP AROUND SERVICE SADDLE TO BE USED ON ALL TAPS.

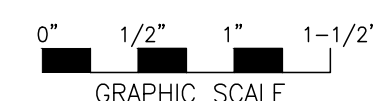
2 - WATER SERVICE CONNECTION 1"
NTS



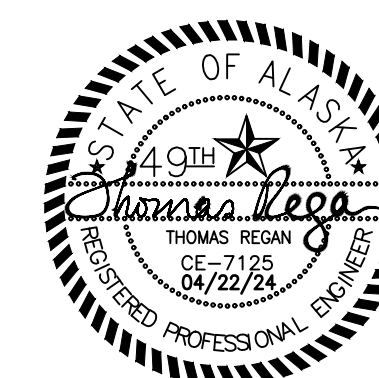
- NOTE:
1. RUN A DIRECT BURIAL #10 AWG SOLID (.1019" DIAMETER), STEEL CORE SOFT DRAWN HIGH STRENGTH TRACER WIRE, 600# AVERAGE TENSILE BREAK LOAD, 30 MIL HIGH MOLECULAR WEIGHT-HIGH DENSITY BLUE POLYETHYLENE JACKET COMPLYING WITH ASTM-D-1248, 30 VOLT RATING TRACER LINE CONTINUOUSLY ALONG THE PVC MAIN LINE, TAPING IT TO THE PIPE EVERY 5' WITH 2" WIDE 10 MIL PVC PIPE TAPE.
 2. SPLICE A WIRE ON AT EVERY VALVE RISER AND BRING LOCATE WIRE UP INTO THE VALVE CAN WITH 3' OF EXTRA WIRE USING A DRYCONN® DIRECT BURY LUG (3WB-01) OR EQUAL, FOLLOWING MANUFACTURERS RECOMMENDATIONS.
 3. INSTALL GROUNDING RODS ON BOTH ENDS AND AS REQUIRED.

3 - TRACER WIRE
NTS

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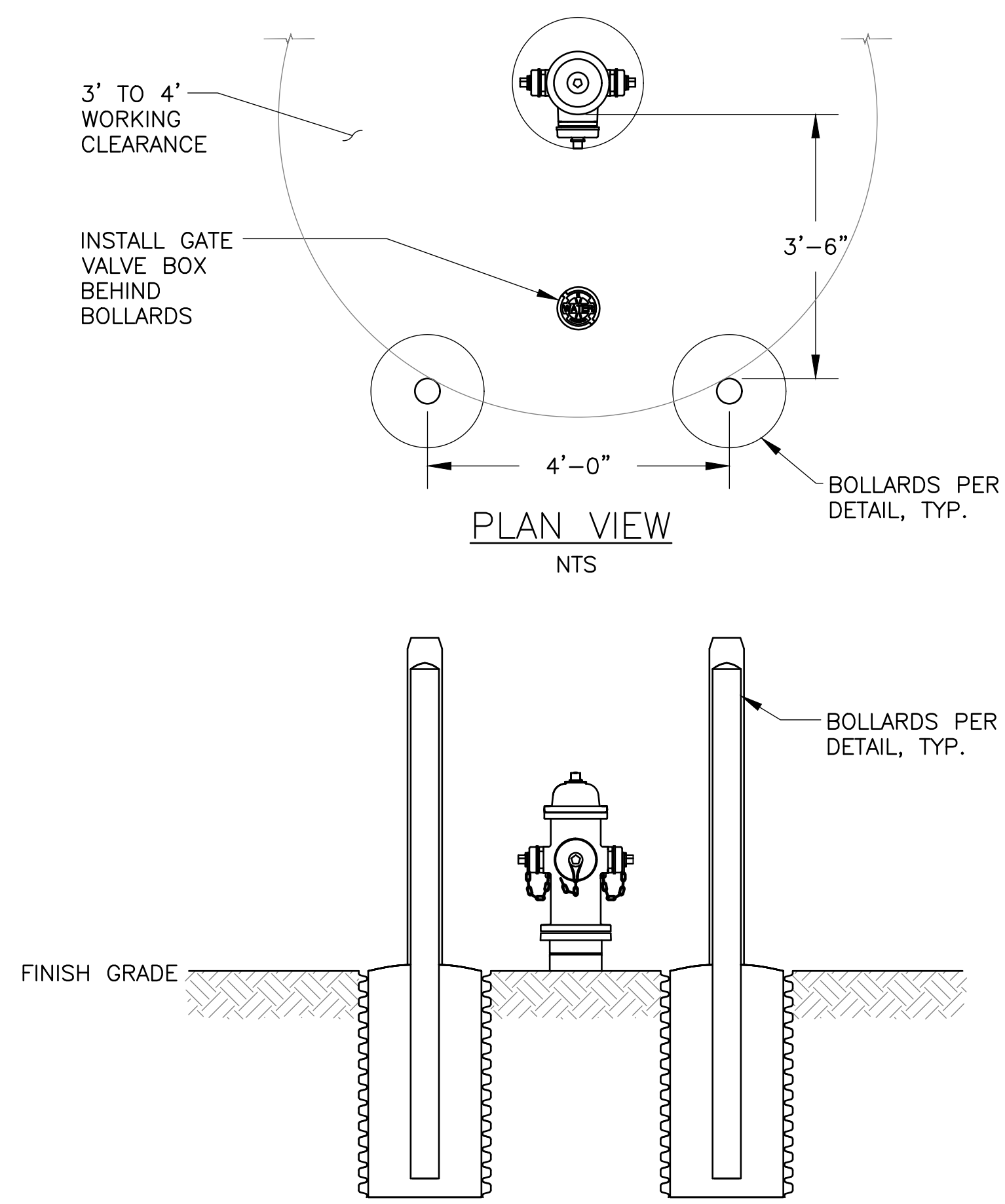
PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **DETAILS
MISCELLANEOUS WATER UTILITY**

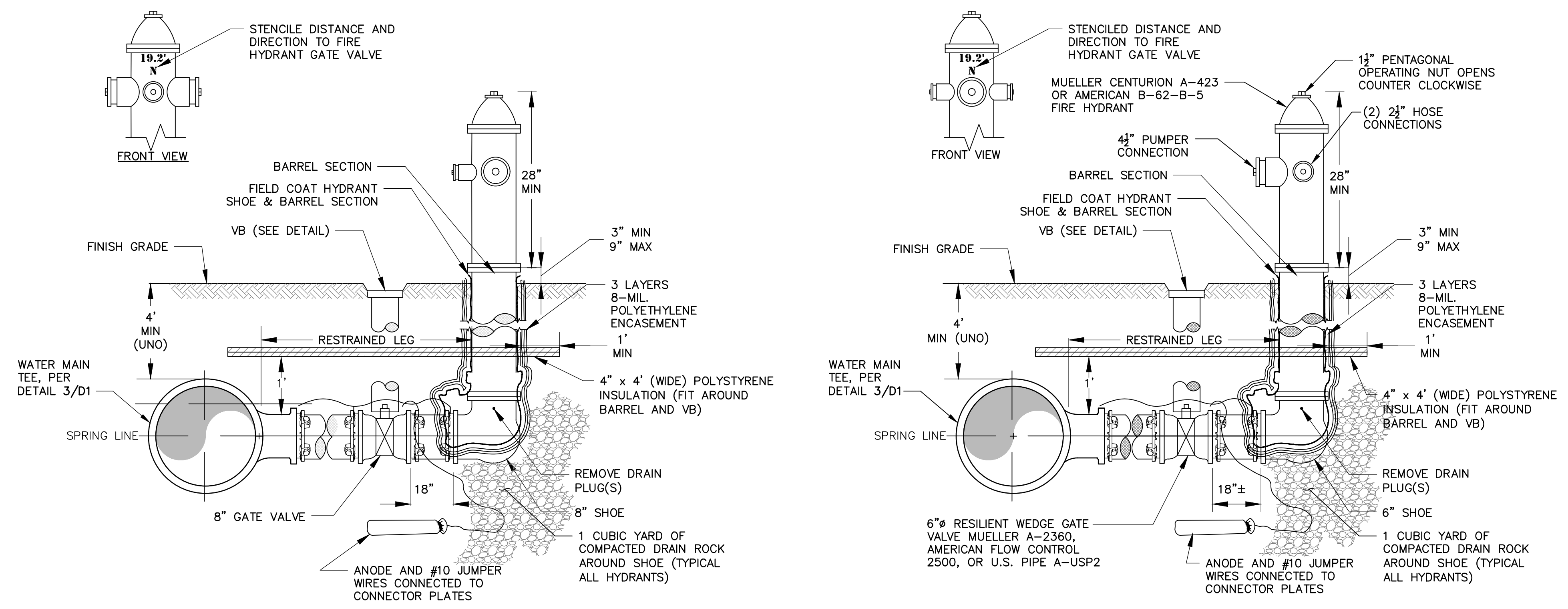
DESIGNED BY: TR DATE: 04/22/24 SHEET NO: 22402

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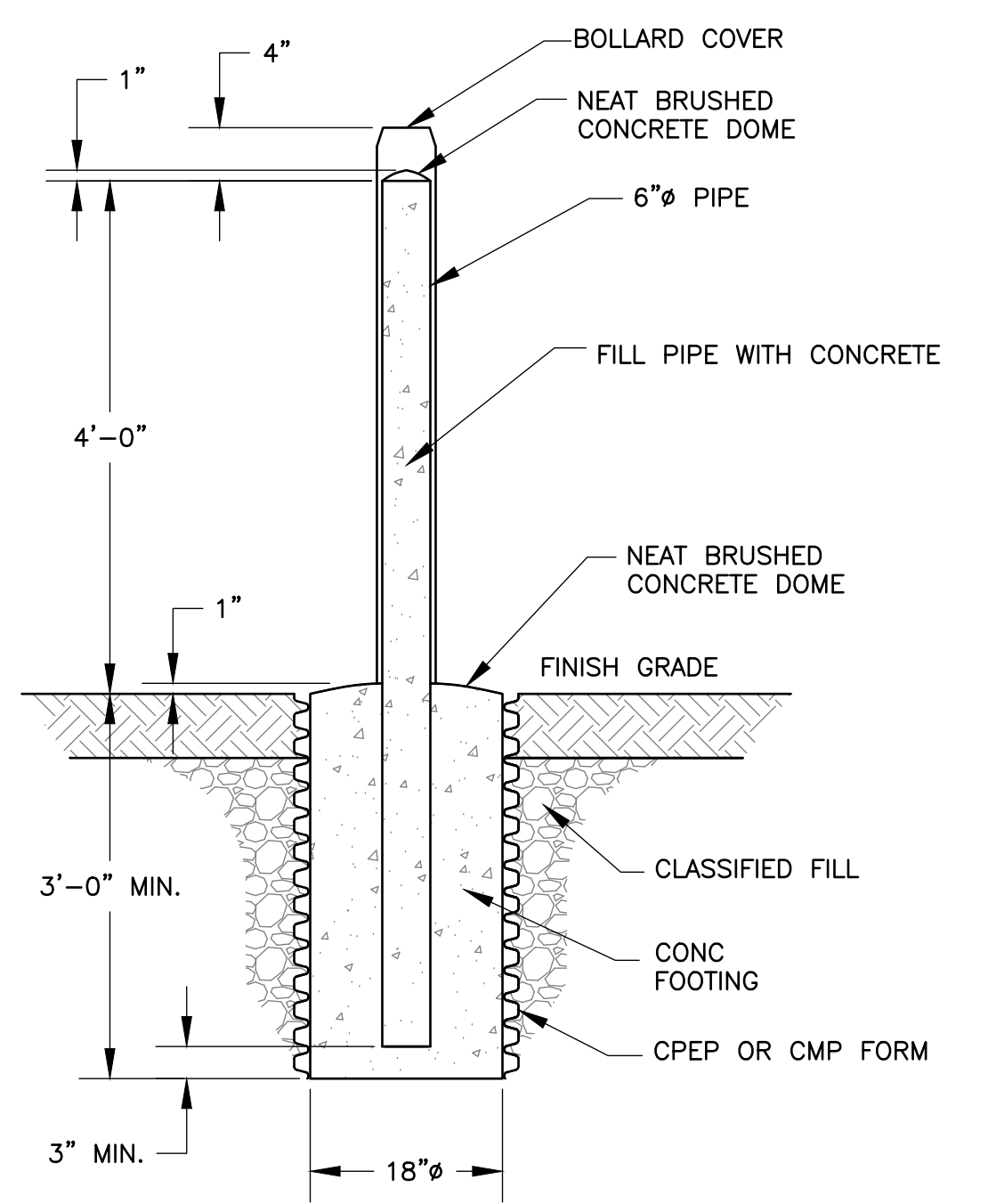
FRONT ELEVATION VIEW
1 - HYDRANT ASSEMBLY
NTS



- NOTES:
1. HYDRANT BARREL SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.
 2. ALL BACKFILL AROUND HYDRANT BARREL AND PIPE SHALL MEET THE REQUIREMENTS FOR BEDDING MATERIAL.
 3. HYDRANTS ARE UL/FM LISTED AND MEET AWWA STANDARDS.
 4. HYDRANTS ARE FACTORY FINISH; MUELLER-YELLOW, AMERICAN-RED
 5. SCREW THREAD CONNECTIONS ARE NFPA #1963
 6. JOINT, FITTING, AND VALVE CONNECTIONS ARE MECHANICAL JOINTS WITH MEGALUG STYLE RETAINING GLANDS EBAA IRON 1100 SERIES
 7. PIPE IS AWWA RATED CLASS 52 CEMENT MORTAR LINED DUCTILE IRON PIPE
 8. BOLLARDS/GUARD POSTS NOT SHOWN FOR CLARITY, SEE DETAILS 1/D3 AND 2/D3.
 9. SEE NOTES SHEET D5 FOR ANODE LOCATION.

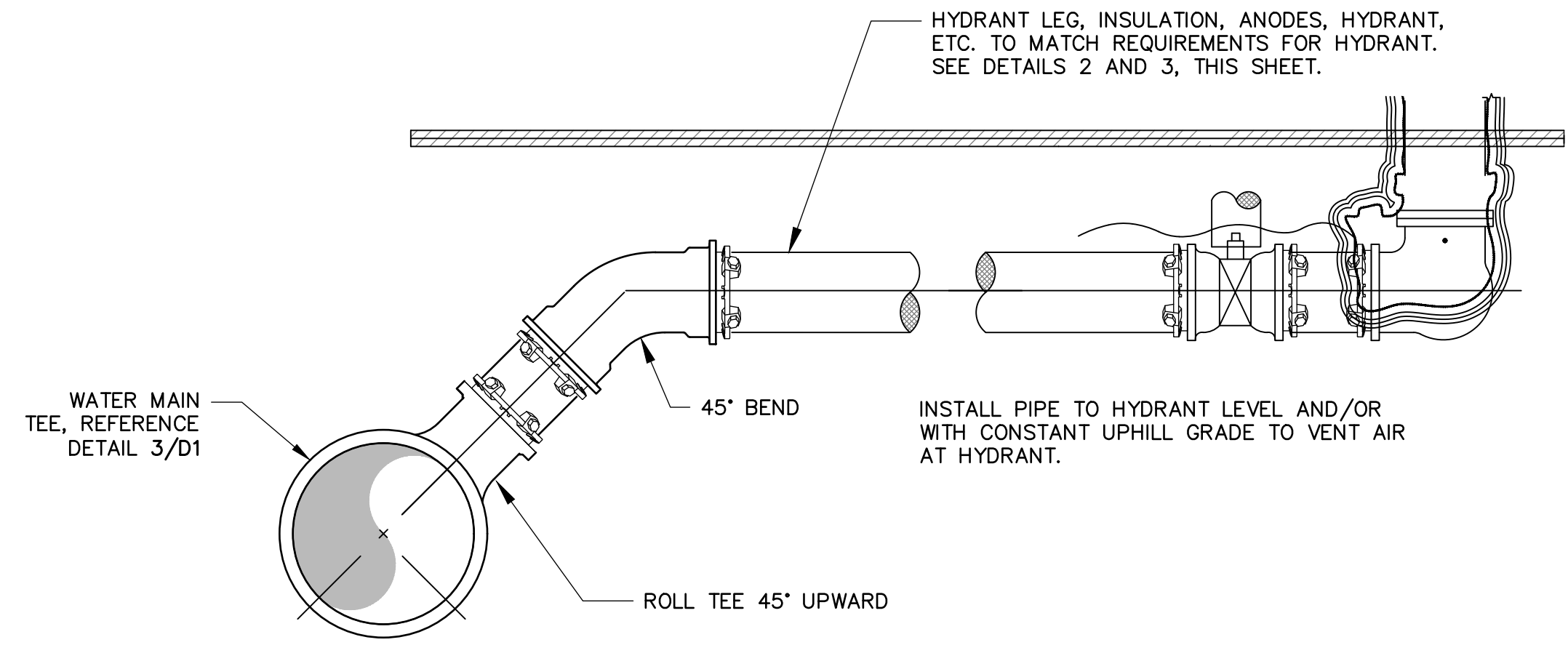
2 - DOUBLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS

3 - SINGLE PUMPER "L" BASE FIRE HYDRANT ASSEMBLY
NTS



4 - BOLLARD
NTS

- NOTES:
1. BOLLARD COVER IS 7"x52" HDPE POST GUARD ENCORE YELLOW
 2. BANDS HYDRANT USE RED BANDS TOP AND BLUE BAND BOTTOM. ALL OTHERS USE RED BANDS TOP AND BOTTOM
 3. PIPE IS 6" SCH 40 STEEL HOT DIP GALV PIPE ASTM 500 B STRUCTURAL GRADE
 4. USE SPECIFIED PARTS OR APPROVED EQUAL

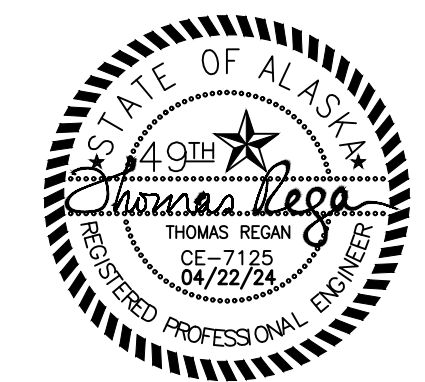


5 - HYDRANT CONNECTION AT LOCATIONS TO VENT AIR

FOR BID 04/22/24



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REGAN ENGINEERING, P.C.

PROJECT: CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION

TITLE: DETAILS
MISCELLANEOUS WATER UTILITY

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D3 OF 25
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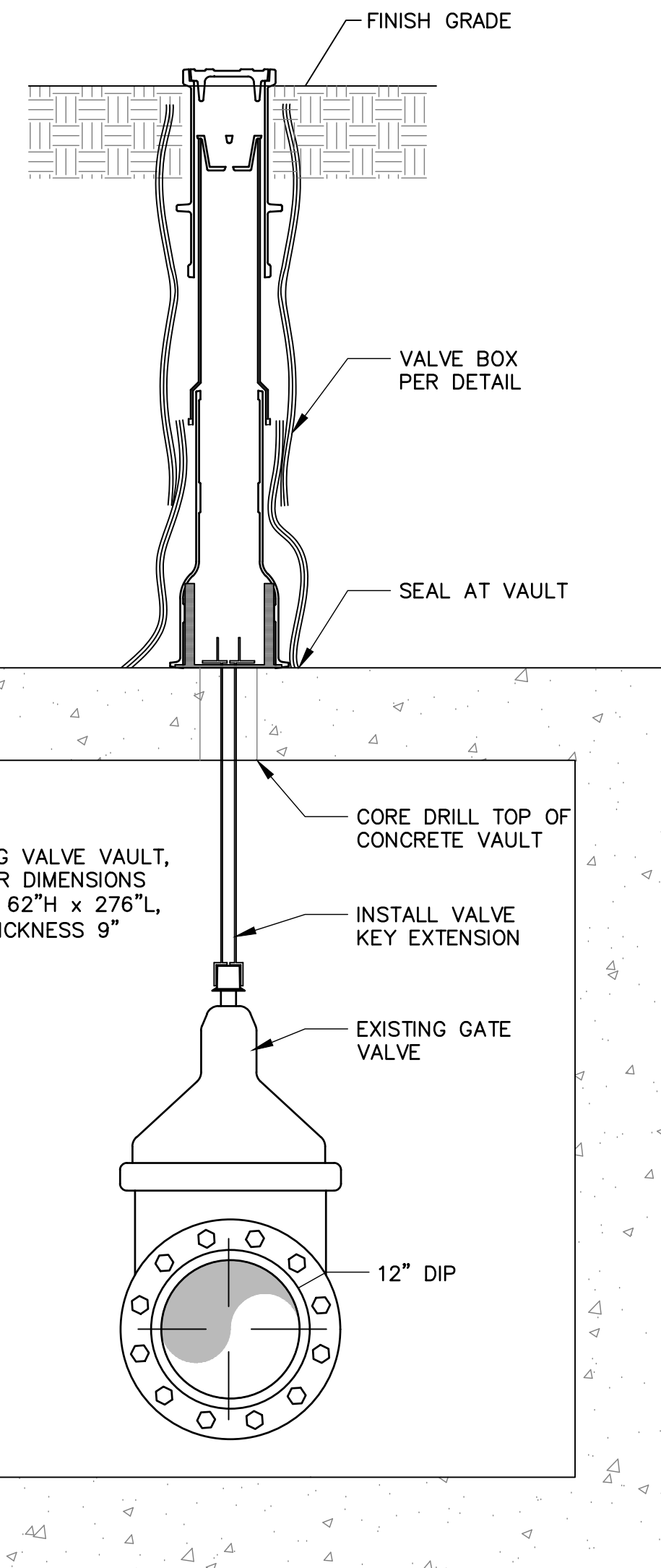
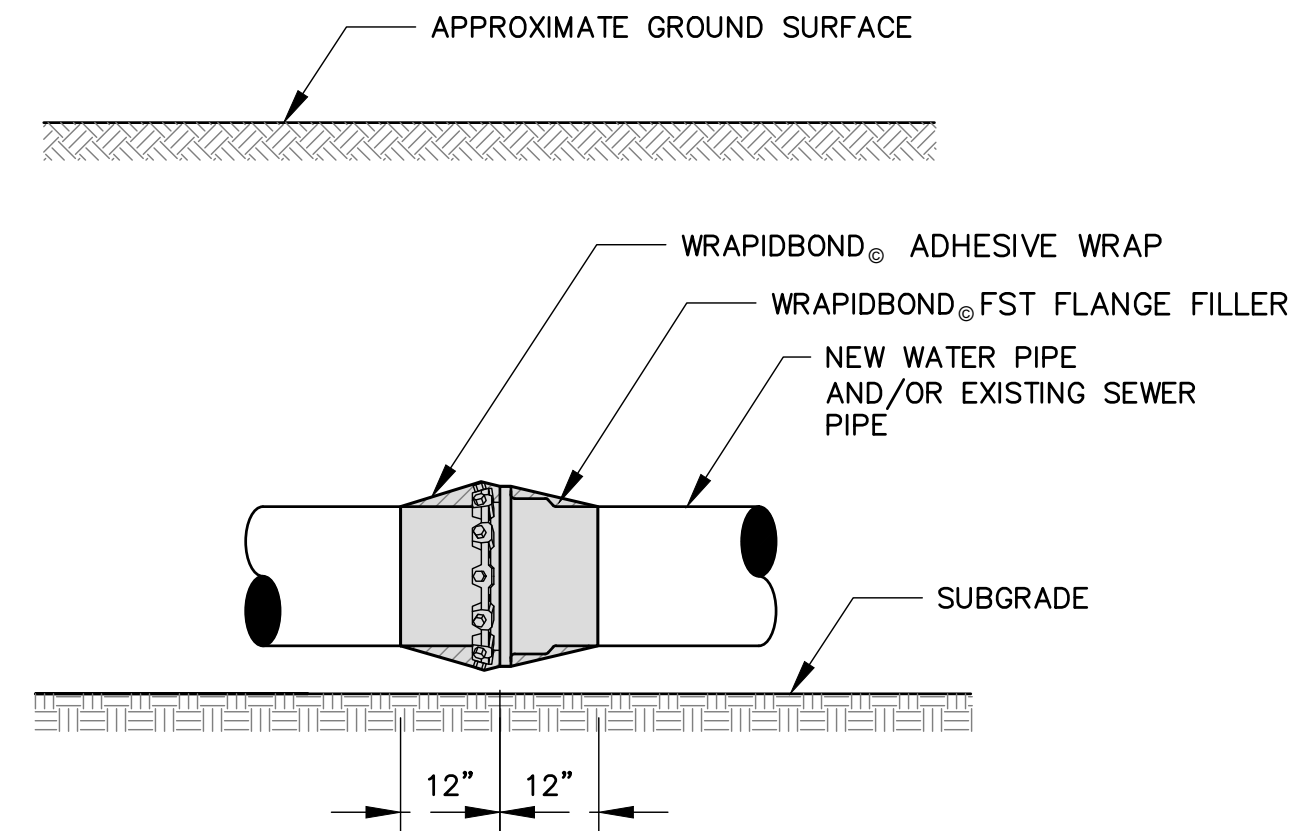


PHOTO - EXISTING VAULT AT WSI

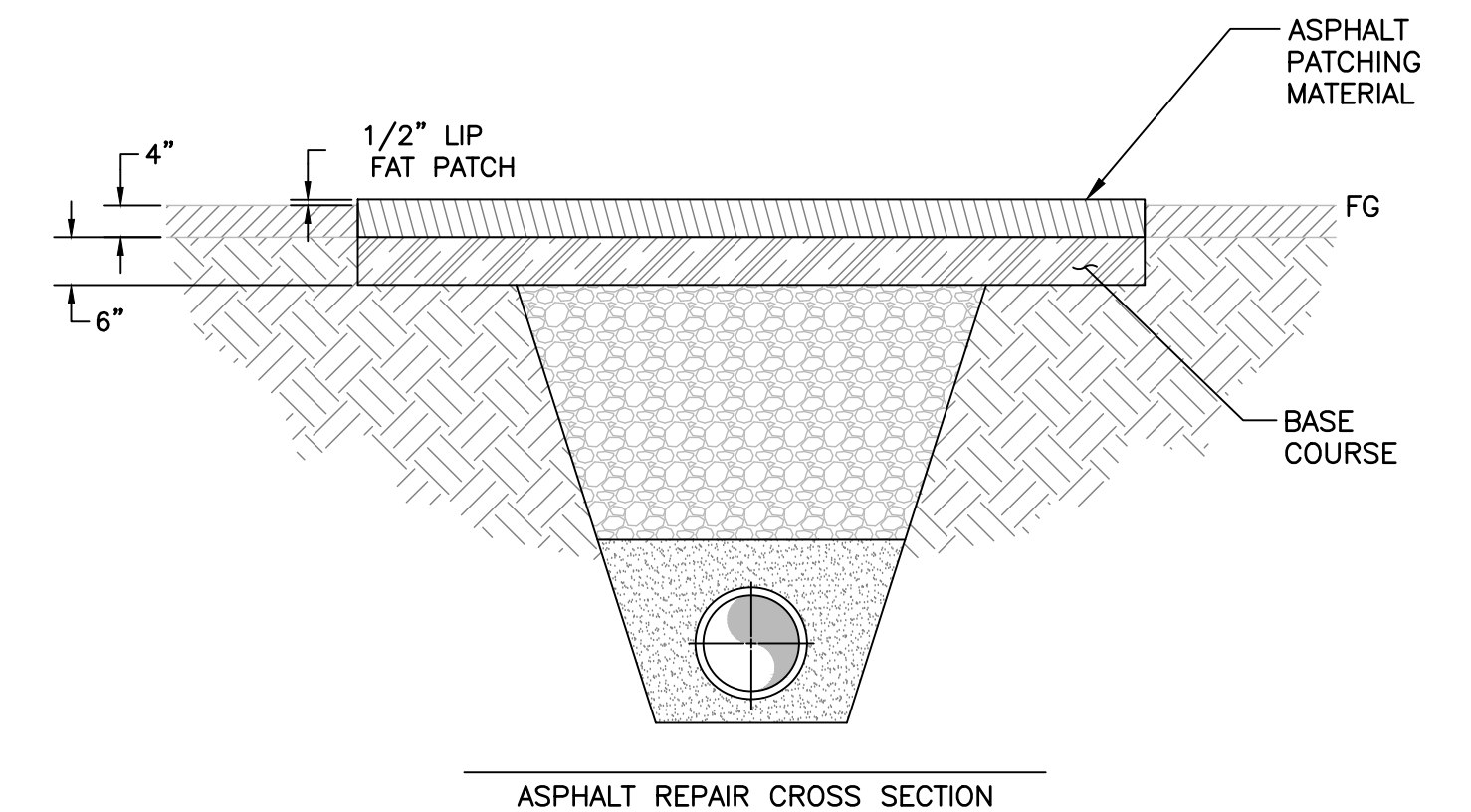
NOTE: THIS WORK IS OUTSIDE THE ROW AND ON WSI PROPERTY. THE EXISTING METER, PRV AND BACKFLOW PREVENTION DEVICES ARE INSIDE THE EXISTING BUILDING. COORDINATE ACCESS AND WORK ON WSI PROPERTY WITH WSI.

1 - DETAIL - VALVE VAULT/VALVE BOX ON WSI SERVICE
NTS



- NOTES:
1. THE INTENT OF THE PIPE JOINT SEAL IS TO PREVENT POTENTIAL CROSS CONTAMINATION OF THE WATER MAIN WHERE WATER AND/OR SEWER PIPE JOINTS ARE LOCATED CLOSER THAN 10' HORIZONTALLY OR 18" VERTICALLY FROM THEIR CROSSING POINT.
 2. SEAL SHALL HAVE MINIMUM DIMENSIONS SHOWN ABOVE AND EXTEND FULL CIRCUMFERENCE AROUND THE PIPE.
 3. WRAPIDBOND® FST IS A VISCO-ELASTIC ADHESIVE BASED SYSTEM SUPPLIED AS A COMPOUND IN PASTE FORM. INSTALL COMPOUND AT JOINT TO FILL AREAS BETWEEN PIPE JOINT AND MEGALUG® RETAINING GLAND. WRAP ENTIRE JOINT WITH WRAPIDBOND® WRAPAROUND FILM.
 4. CLEAN SURFACES TO RECEIVE COMPOUND AND INSTALL IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

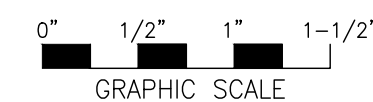
2 - DETAIL - PIPE JOINT SEALANT
NTS



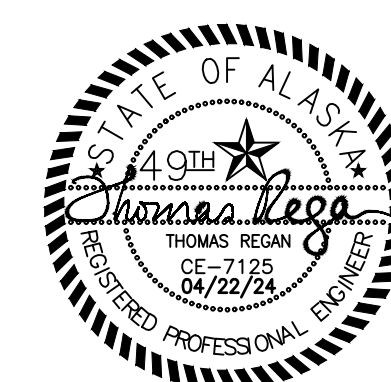
- NOTES:
- SAWCUTS:
1. PERPENDICULAR OR PARALLEL TO THE FLOW OF TRAFFIC WHEN APPLICABLE
 2. NEAT STRAIGHT MECHANICAL CUTS
 3. VERTICAL AND COMPLETELY PERPENDICULAR ASPHALT
 4. ASPHALT PATCHING MATERIAL SHALL BE JLD ASPHALT MANUFACTURED BY EZ STREET ASPHALT
 5. ASPHALT LIFT THICKNESS AT JOINTS SHALL BE 4" NOMINAL
 6. COMPACTION. PLATE COMPACTOR ON BOTTOM LIFT AND VIBRATORY STEEL WHEEL ROLLER ON TOP LIFT
 7. USE SPECIFIED FILL MATERIALS FOR BASE/LEVELING COURSE. BACKFILL

3 - DETAIL - PAVEMENT CUT
NTS

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0	04/22/24	FOR BID



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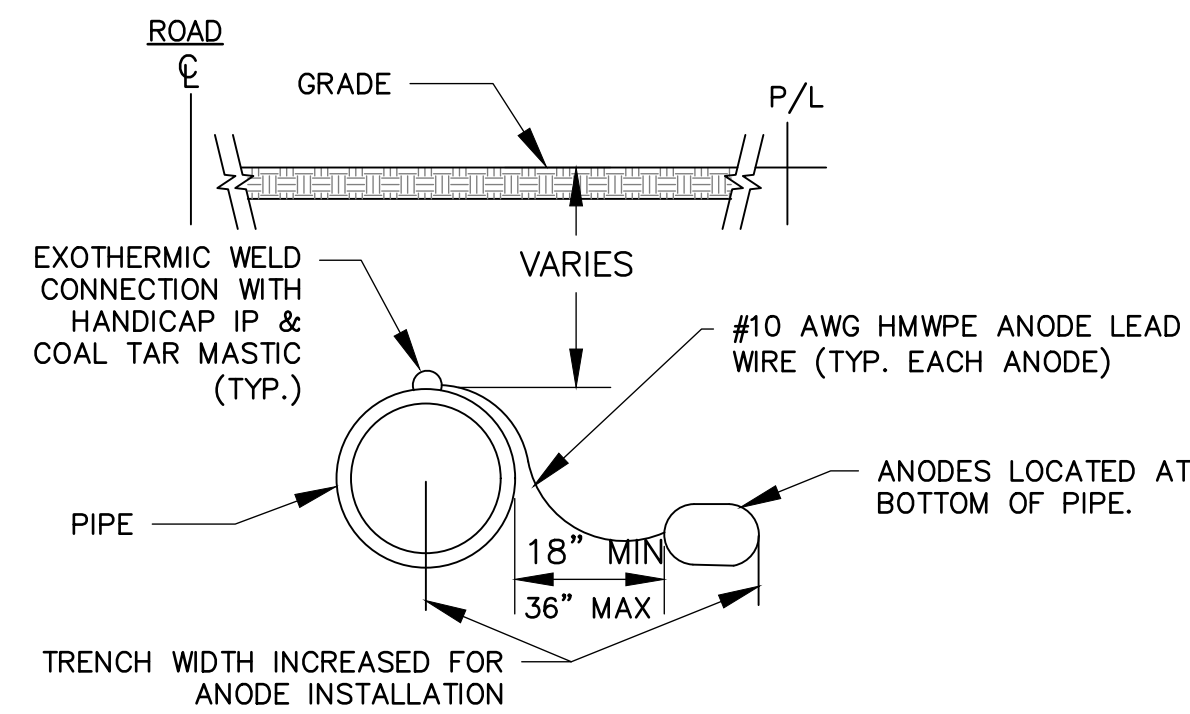
PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **DETAILS
MISCELLANEOUS WATER UTILITY**

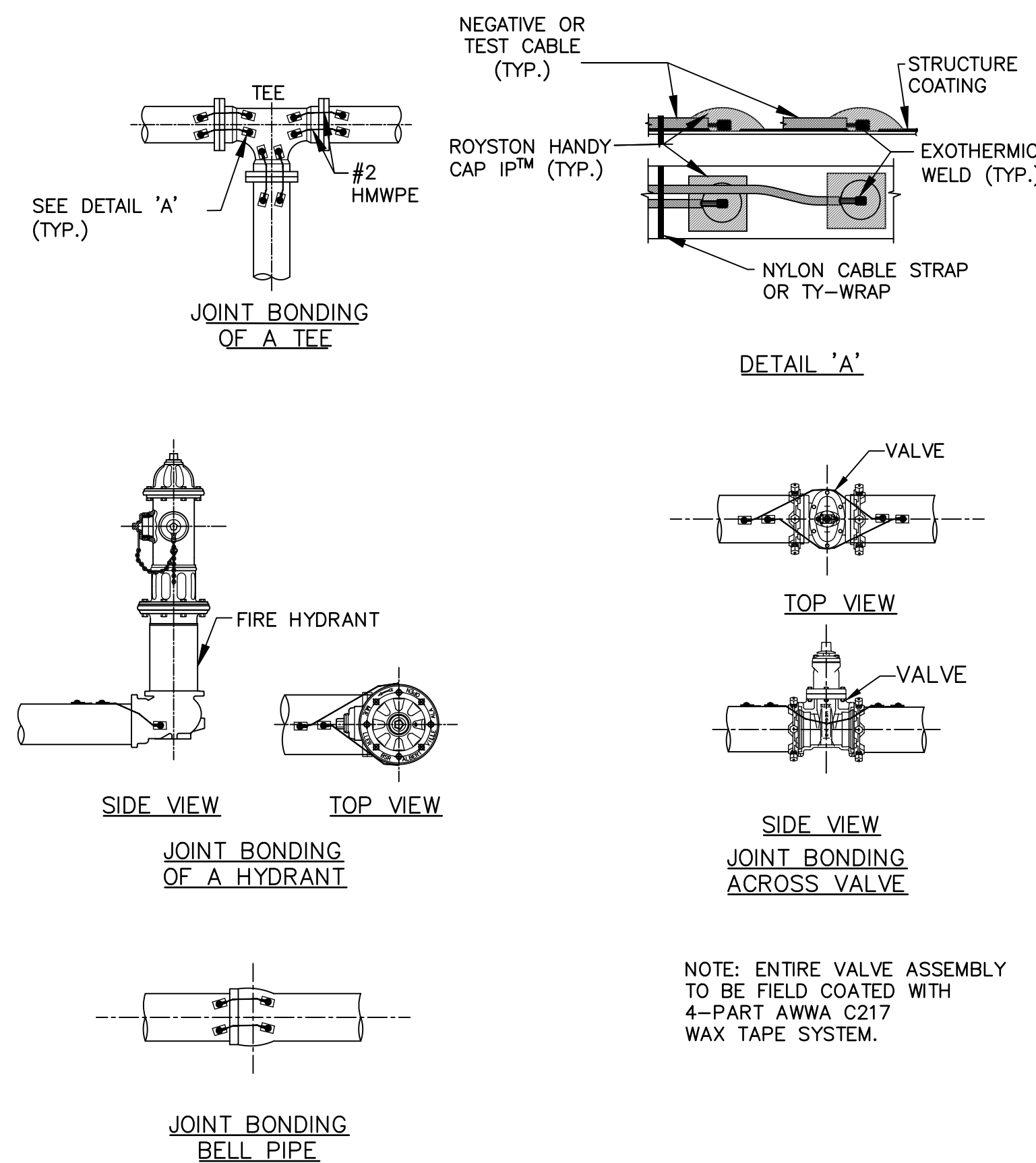
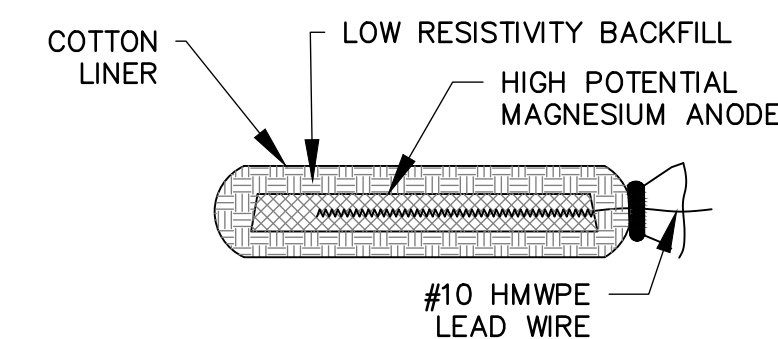
DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D4 OF 25
CHECKED BY: TR DPW PROJECT NO: 22402

GENERAL NOTES:

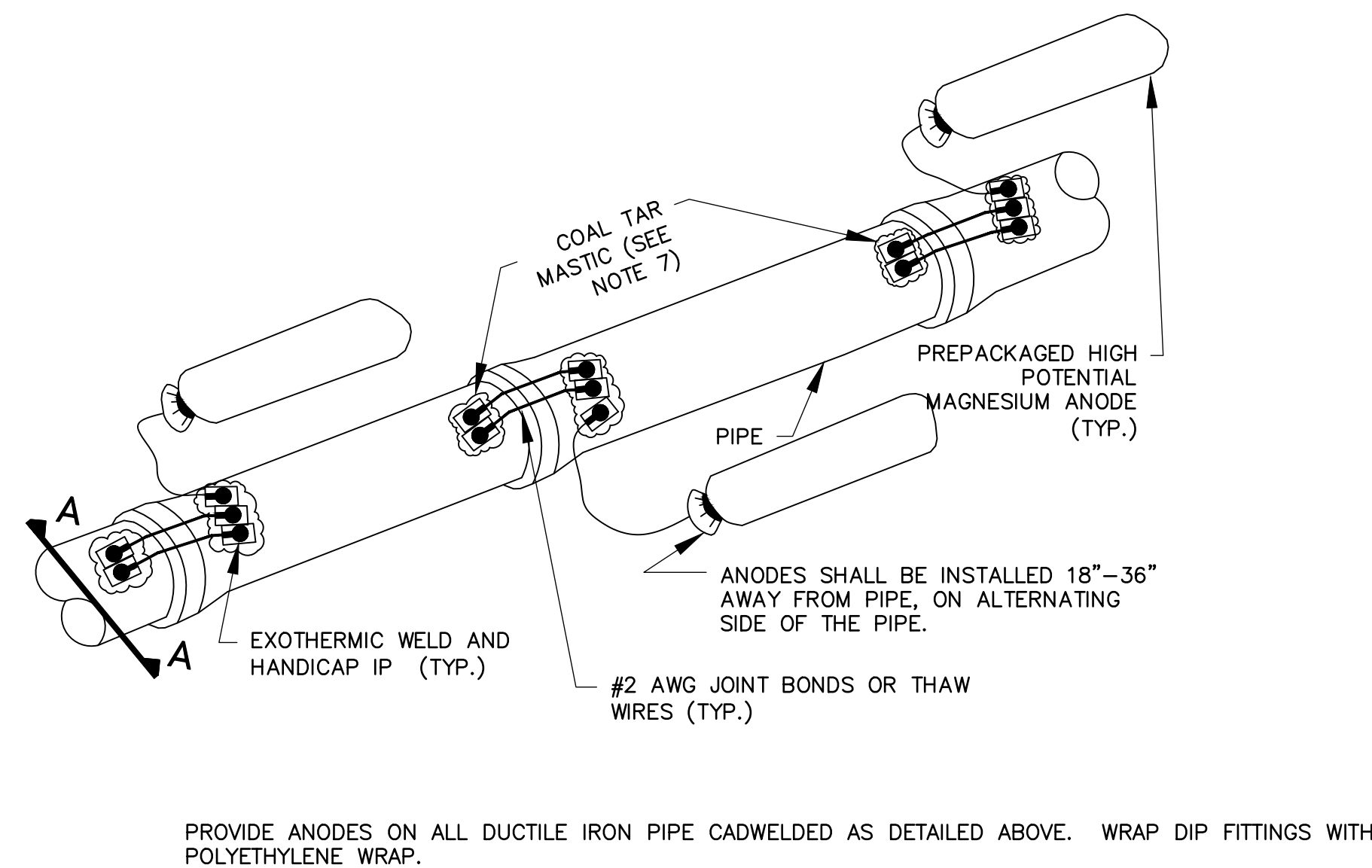
1. PROVIDE ANODES ON ALL DUCTILE IRON PIPE RUNS AS DETAILED HEREIN. ANODES ARE NOT REQUIRED ON ISOLATED BENDS OR FITTINGS.
2. HIGH POTENTIAL MAGNESIUM ANODES SHALL BE PREPACKAGED IN A CLOTH BAG WITH A BACKFILL MIXTURE OF 75% GYPSUM, 20% BENTONITE AND 5% SODIUM SULFATE. THE ANODES SHALL HAVE A 20 lb. BARE WEIGHT AND APPROXIMATELY 70 lb. PACKAGED WEIGHT.
3. ANODES SHALL BE INSTALLED AT A MAXIMUM SPACING OF 18 FEET OF BURIED PIPE BETWEEN ANODES. AN ANODE IS REQUIRED ON THE FIRST AND LAST JOINT OF PIPE. AN ADDITIONAL TWO (2) ANODES MUST BE INSTALLED ON THE EXISTING TIE-IN PIPE.
4. CONTRACTOR SHALL PROVIDE COORDINATES OR PIPE STATIONING FOR EACH ANODE INSTALLED.
5. TWO #2 AWG JOINT BOND WIRES ARE REQUIRED, WHEN ANODE INSTALLATIONS ARE REQUIRED.
6. ALL CABLES SHALL BE SINGLE CONDUCTOR, STRANDED COPPER, WITH TYPE HMWPE INSULATION RATED FOR 600 VOLTS.
7. SPLIT-BOLT CONNECTIONS SHALL NOT BE ALLOWED ON ANY UNDERGROUND CONDUCTORS. IF SPLICES ARE REQUIRED, COMPRESSION CONNECTIONS (BURNDY OR APPROVED EQUAL) SHALL BE USED. COMPRESSION CONNECTIONS SHALL BE SEALED WITH A HEAT SHRINK SLEEVE RATED FOR BELOW GRADE USE.
8. EXOTHERMIC WELDS SHALL BE MADE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS (NOTE: COPPER CONDUCTOR SLEEVES ARE REQUIRED FOR #10 WIRE BY SOME MANUFACTURERS). THE EXOTHERMIC WELD AREA SHALL BE COATED WITH HANDICAP IP OR EQUAL AND ANY BASE METAL EXPOSED AFTER INSTALLATION OF HANDICAP IP MUST BE COATED WITH COAL TAR MASTIC.
9. AT FIRE HYDRANT LOCATIONS, INSTALL ONE ANODE (18"-36" AWAY FROM THE PIPE) AT THE TEE AND MIDPOINT BETWEEN THE TEE FROM THE MAIN LINE PIPE AND THE HYDRANT SHOE FOR PIPE RUNS EXCEEDING 20- FEET IN LENGTH.



SECTION AA



1 - JOINT BONDING - DUCTILE IRON PIPE
NTS

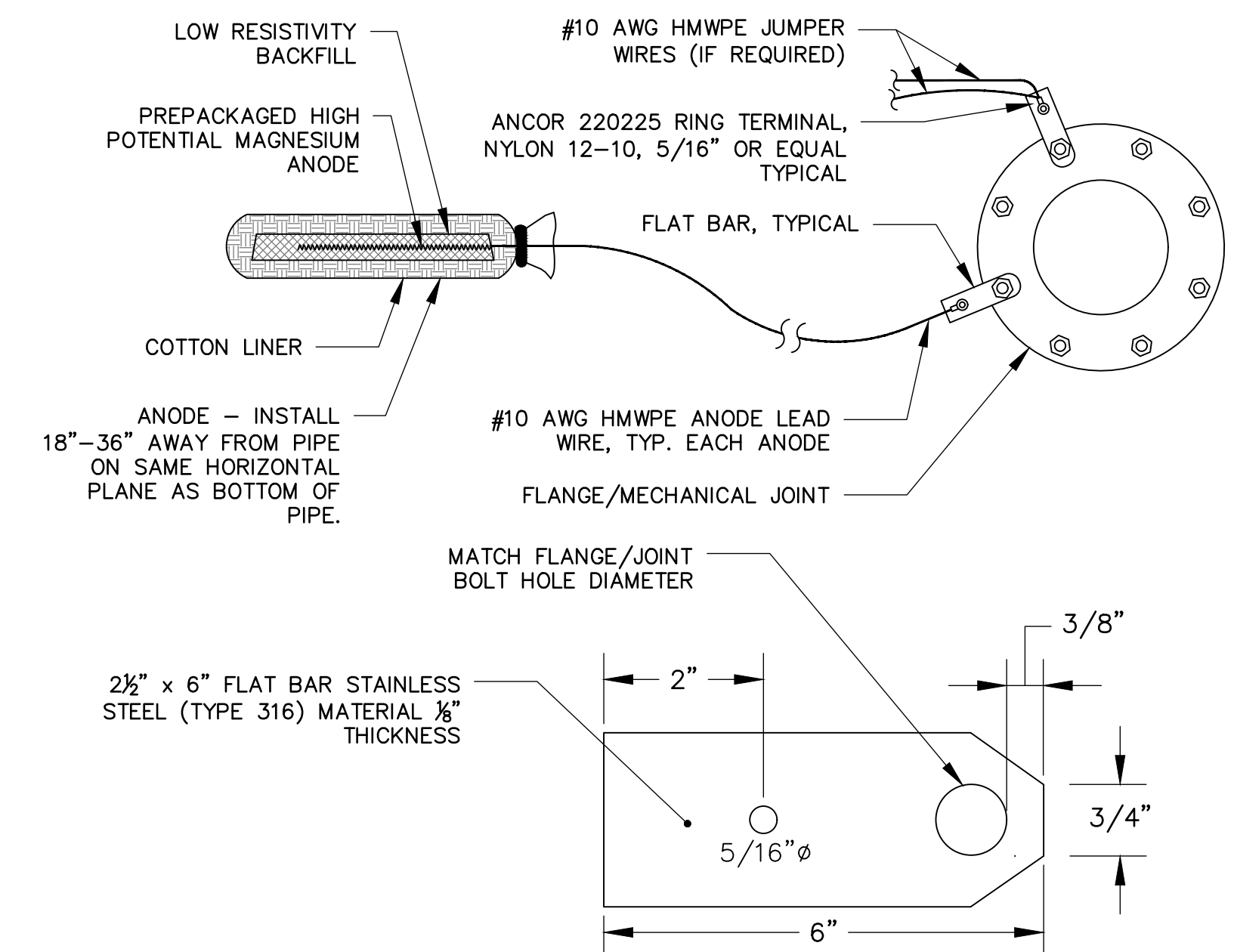


PROVIDE ANODES ON ALL DUCTILE IRON PIPE CADWELDED AS DETAILED ABOVE. WRAP DIP FITTINGS WITH POLYETHYLENE WRAP.

2 - ANODES - DUCTILE IRON PIPE
NTS

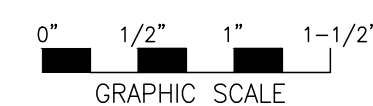
WIRE CONNECTION NOTES:

1. CONTRACTOR TO FABRICATE FLAT BAR.
2. INSTALL FLAT BAR ON BODY SIDE OF FLANGE OR MECHANICAL JOINT. REMOVE COATING AT THE FLAT BAR LOCATION PRIOR TO INSTALLATION. METAL TO METAL CONTACT IS REQUIRED. REPAIR VISIBLE COATING DAMAGE WITH DENSYL TAPE AND PRIMER.
3. CONNECT WIRE WITH COMPRESSION RING CONNECTOR AND 1/4" x 1" STAINLESS STEEL BOLT (TYPE 316) WITH WASHER AND SELF LOCKING NUT.
4. TWO #10 AWG HMWPE JUMPER WIRES REQUIRED TO CONNECT EACH VALVE/HYDRANT.
5. WRAP ELECTRICAL INSULATION TAPE AROUND RING CONNECTOR AND BOND STRAP (WIRE END ONLY). DENSYL TAPE OR APPROVED EQUAL.
6. WRAP ELECTRICAL INSULATION TAPE A MINIMUM OF 3" DOWN ON WIRE INSULATION TO ENCAPSULATE CONNECTION.

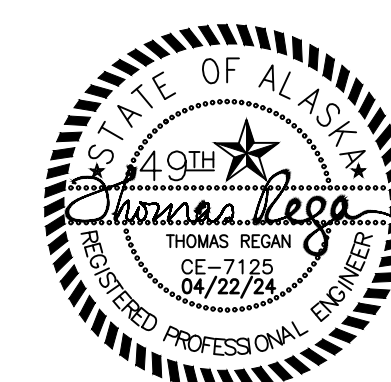


3 - ANODE WIRE CONNECTION
NTS

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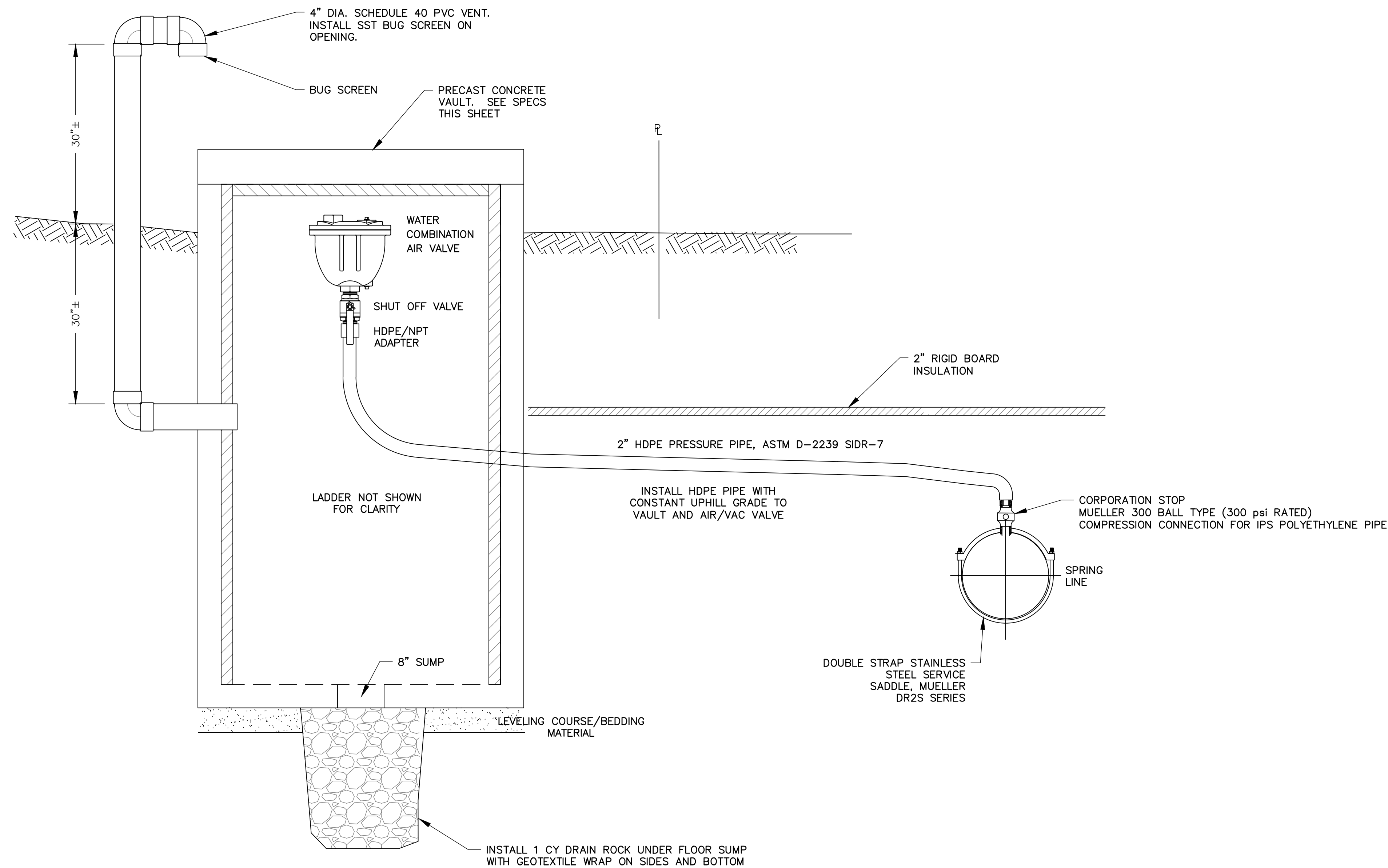


REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **DETAILS
CATHODIC PROTECTION SYSTEM**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D5 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402



NOTES:

1. GLUE 2" RIGID BOARD INSULATION TO WALLS AND CEILING OF VAULT.
2. MOUNT COMBINATION AIR VALVE ON STRUTS ON SIDE OF VAULT OPPOSITE LADDER. SUPPORT PIPE AS APPROPRIATE.
3. SET VAULT ON A 6" LAYER OF COMPACTED BEDDING MATERIAL/DRAIN ROCK.
4. INSTALL AN OVERSIZED PLASTIC SLEEVE WHERE THE HDPE PIPE ENTERS THE VAULT. CAULK ANNULAR SPACE.

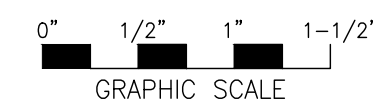
VAULT REQUIREMENTS:

1. VAULT SHALL BE PRECAST CONCRETE WITH AN 8" DIAMETER SUMP HOLE IN CENTER BOTTOM.
2. INTERIOR DIMENSIONS SHALL BE 4'W x 4'D x 7'-6" HIGH (WITH RISERS) PRIOR TO THE INSTALLATION OF RIGID BOARD INSULATION.
3. EACH INTERIOR WALL SHALL BE FURNISHED WITH A 2' STRUT CHANNEL.
4. PROVIDE A H20 RATED GALVANIZED ACCESS HATCH.
5. INSTALL A HOT-DIP GALVANIZED LADDER WITH EXTENDED MOUNTING BRACKETS TO ADJUST FOR INSULATION DEPTH (BY VAULT MANUFACTURER).
6. VAULT SHOWN IS OLDCASTLE OR COLUMBIA PRECAST PRODUCTS 556 LA-13 VAULT OR EQUAL.

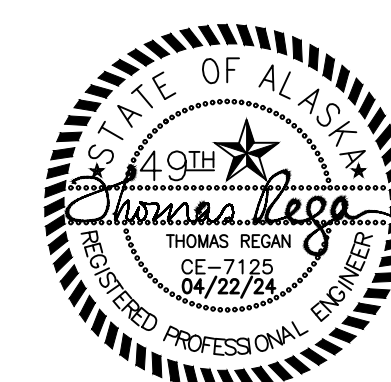
COMBINATION AIR VALVE REQUIREMENTS:

1. COMBINATION AIR VALVE (CAV): VALVE SHALL BE AUTOMATIC FLOAT OPERATED TO EXHAUST LARGE QUANTITIES OF AIR, OPEN DURING DRAINING OR NEGATIVE PRESSURE, AND RELEASE ACCUMULATED AIR WHILE THE SYSTEM IS UNDER OPERATION AND UNDER PRESSURE. THE VALVE SHALL BE SINGLE BODY WITH A 2" NPT INLET/OUTLET AND A 3/32" ORIFICE. VALVE SHALL BE NSF/ANSI 61 CERTIFIED WITH VALVE BODY AND COVER CONSTRUCTED OF ASTM A536 GRADE 65-45-12 DUCTILE IRON AND SHALL BE PROVIDED WITH A FULLY PORTED BRASS BALL ISOLATION VALVE. VALVE INTERIOR SHALL BE COATED WITH NSF/ANSI 61 CERTIFIED FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C550. THE EXTERIOR OF THE VALVE SHALL BE COATED WITH A NON-STICK FUSION BONDED EPOXY. THE FLOAT, GUIDE SHAFTS, AND BUSHINGS SHALL BE TYPE 316 STAINLESS STEEL. RESILIENT SEATS SHALL BE BUNA-N. CAV SHALL BE VAL-MATIC SERIES 201C.2 OR EQUAL.

FOR BID 04/22/24



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REGAN ENGINEERING, P.C.

PROJECT: **CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION**

TITLE: **DETAILS
AIR/VACUUM RELIEF MANHOLE**

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D6 OF 25
 CHECKED BY: TR DPW PROJECT NO: 22402

LEGEND

- CONE OR CANDLE
- ▭ PORTABLE CONCRETE BARRIER
- ≡ TYPE III BARRICADE
- △ TEMPORARY CRASH CUSHION
- ≡≡ TYPE II BARRICADE
- CONSTRUCTION SIGN
- FLAGGER
- ⬇ HIGH LEVEL WARNING DEVICE
- WARNING LIGHT
- ⬇ TRAFFIC SIGNAL

**LANE SHIFT
TAPER LENGTHS**

$$L = \frac{W \times S^2}{60}$$

FOR SPEEDS OF 40 MPH OR LESS

L = TAPER LENGTH (FT)

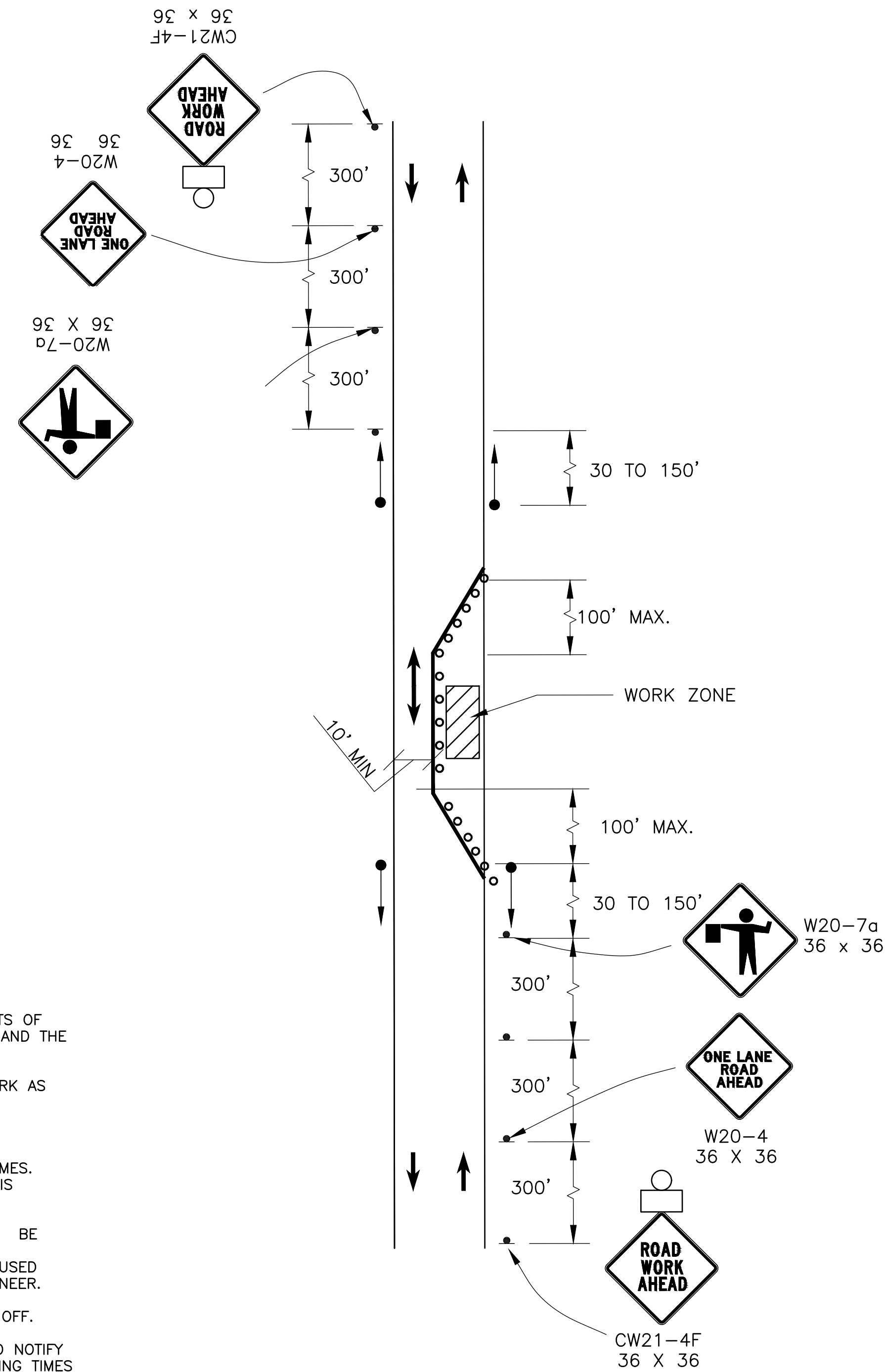
W = WIDTH OF OFFSET (FT)

S = POSTED SPEED LIMIT

REGARDLESS OF THE FORMULA ABOVE, THE MINIMUM TAPER LENGTH IS 50', MAXIMUM 100'

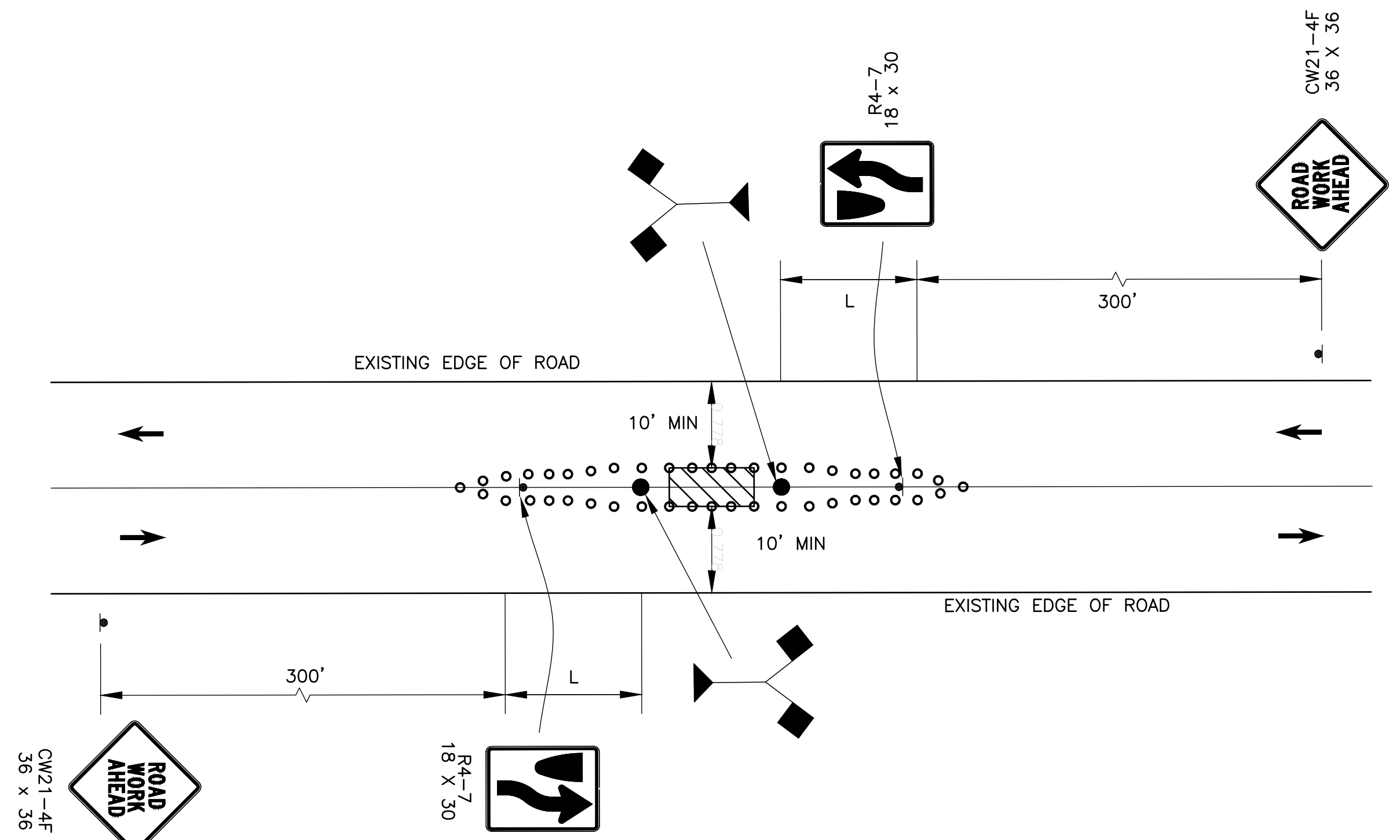
NOTES:

1. ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ALASKA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS.
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TRAFFIC CONTROL WORK AS REQUIRED HEREIN.
3. ALL SIGN DIMENSIONS ARE IN INCHES.
4. THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC OPEN AT ALL TIMES. FLAGGERS OR PORTABLE LIGHTING SHALL BE USED WHENEVER ONE LANE IS CLOSED.
5. IN THE ABSENCE OF ACTIVE FLAGGING, PORTABLE TRAFFIC SIGNALS MAY BE USED WHEN ALTERNATING ONE-WAY TRAFFIC IS MAINTAINED. WHEN CONSTRUCTION IS NOT OCCURRING, PORTABLE TRAFFIC SIGNALS SHALL BE USED UNLESS BOTH LANES ARE OPEN OR FLAGGING IS APPROVED BY THE ENGINEER.
6. WHEN FLAGGING IS USED, PORTABLE TRAFFIC SIGNALS SHALL BE TURNED OFF.
7. THE CONTRACTOR SHALL POST A NOTE ON THE CHANNEL 8 ROLODEX AND NOTIFY THE DEPARTMENT OF PUBLIC SAFETY OF IMPENDING LANE CLOSURES DURING TIMES WHEN CONSTRUCTION IS UNDERWAY.
8. THE CONTRACTOR SHALL MAINTAIN AN 8' MIN WIDTH PEDESTRIAN ROUTE THROUGH THE CONSTRUCTION AREA. THE PEDESTRIAN ROUTE SHALL BE LOCATED WITHIN THE RIGHT OF WAY, OR AREA OF A TEMPORARY CONSTRUCTION PERMIT. THE PEDESTRIAN ROUTE SHALL BE SEPARATED FROM CONSTRUCTION ACTIVITY BY A 4' HIGH PEDESTRIAN FENCE.
9. WARNING LIGHTS SHALL BE USED TO MARK CHANNELIZING DEVICES AT NIGHT. TYPE 'A' FLASHING WARNING LIGHTS SHALL BE USED IN CONJUNCTION WITH TYPE III BARRICADES, ROAD CLOSURES, ADVANCE DETOUR SIGNING AND THE FIRST TYPE II BARRICADE ENCOUNTERED BY TRAFFIC WHEN USED FOR CHANNELIZING. TYPE 'C' STEADY BURN WARNING LIGHTS SHALL BE USED IN CONJUNCTION WITH REMAINING TYPE II BARRICADES USED FOR CHANNELIZING. SEE CHANNELIZATION LIGHTING DETAIL. 10. THE CONTRACTOR CAN AVOID FLAGGERS IF MINIMUM 10' WIDE LANES ARE MAINTAINED IN BOTH DIRECTIONS. THE DRIVEABLE ROAD SURFACE CAN BE WIDENED TO ALLOW TWO WAY TRAFFIC PROVIDED ALL WORK IS MAINTAINED WITHIN THE RIGHTS-OF-WAY



TRAFFIC CONTROL PLAN – ONE LANE TRAFFIC

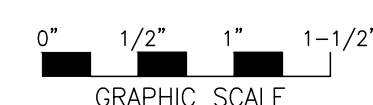
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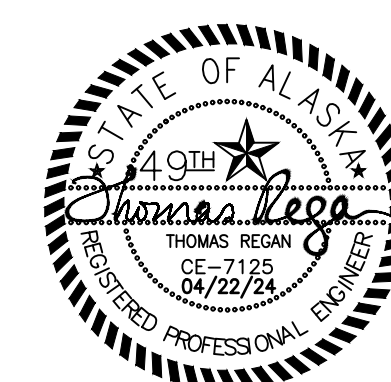
TRAFFIC CONTROL PLAN – WORK IN CENTER

NTS

FOR BID 04/22/24



REV	DATE	DESCRIPTION
0	04/22/24	FOR BID



REGAN ENGINEERING, P.C.

PROJECT: CITY OF UNALASKA
CAPTAINS BAY ROAD
WATER MAIN EXTENSION

TITLE: DETAILS
TRAFFIC CONTROL PLAN

DESIGNED BY: TR DATE: 04/22/24 SHEET NO: D7 OF 25

CHECKED BY: TR DPW PROJECT NO: 22402