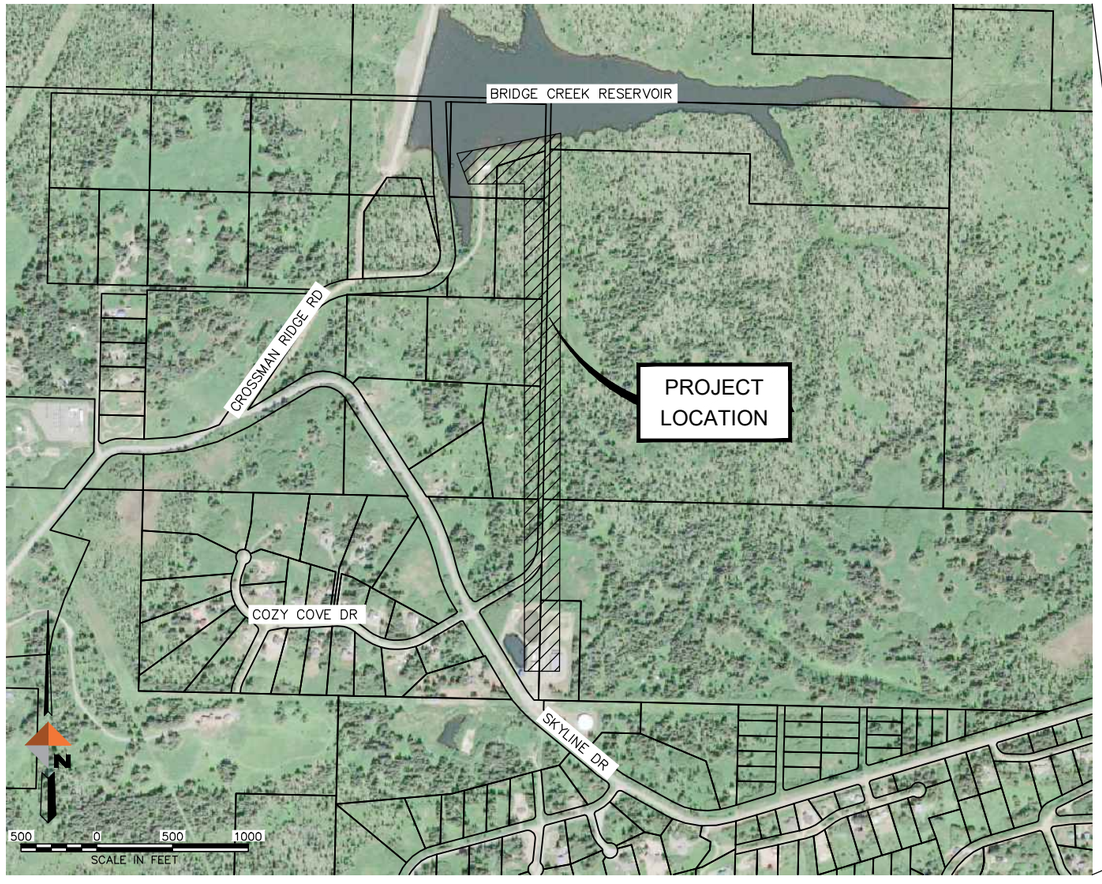
RAW WATER TRANSMISSION LINE REPLACEMENT

HOMER, ALASKA



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LOCATION MAP

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
Christopher J. Maus
CE 156282
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

DOWL
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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

COVER SHEET

PROJECT	62417.03
DATE	6/24/2022
SHEET	G1

C:\dowl_pw\d0390295\SC-GN-CV-62417.dwg PLOT DATE 2022-6-24 13:50 SAVED DATE 2022-06-24 13:14 USER: cmaus

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		ADJACENT PROPERTY
		ROW CENTERLINE
		EASEMENT LINE
NUM		CONTROL POINT NUMBER
		CONTROL POINT SYMBOL
		ALCAP
		TEMPORARY BENCH MARK
		SURVEY MONUMENT
		BUILDING
		CONCRETE
		EDGE OF PAVEMENT
		CURB AND GUTTER
W	W	WATER LINE
		VALVE / KEYBOX
		FIREHYDRANT
		CAP
S	S	SEWER LINE
	S	SEWER MANHOLE
		CLEAN OUT
SD	SD	STORM DRAIN LINE
	D	STORM DRAIN MANHOLE
		CATCH BASIN FIELD INLET
		CATCH BASIN CURB & GUTTER INLET
		YARD DRAIN
G	G	GAS LINE
C	C	COMMUNICATION LINE
C	C	COMMUNICATIONS PEDESTAL
OE	OE	OVERHEAD ELECTRIC LINE
E	E	UNDERGROUND ELECTRIC LINE
		POWER POLE / UTILITY POLE
		LIGHTPOLE
		ANCHOR
E	E	ELECTRIC PEDESTAL
	E	ELECTRIC METER
		JUNCTION BOX
		BOLLARD
MB		MAIL BOX
		TRANSFORMER
x x	x x	FENCE
		SIGN
℄	℄	CONTROL LINE
	12+00	CONTROL LINE & LABEL
		DECIDUOUS TREE
		CONIFEROUS TREE
		SHRUB
		BOULDER
		VEGETATION
B	B	GEOTECHNICAL BORING LOCATION

SOIL LEGEND

GM	FILL, SILTY GRAVEL WITH SAND
PT	PEAT(MUSKEG)
SM	SILTY SAND TO POORLY GRADED SANDED WITH SILT AND GRAVEL
GP GM	FILL, POORLY GRADED GRAVEL WITH SILTLY GRAVEL AND SAND
ML	SILT
SP SM	POORLY GRADED SAND WITH SILT AND GRAVEL
BR	BEDROCK
ASPH	ASPHALT
BLDR	BOULDER
CL	CLAY

BID SET

GENERAL CONSTRUCTION NOTES

1. EXISTING GROUND CONTOURS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY SITE CONDITIONS.
2. SOILS INFORMATION IS DERIVED FROM A DESKTOP STUDY (PERFORMED BY DOWL) OF EXISTING GEOLOGICAL AND GEOTECHNICAL INFORMATION. SEE GEOTECHNICAL REPORT DATED MARCH 2021 AND TITLED: RAW WATER TRANSMISSION LINE REPLACEMENT GEOTECHNICAL CONDITIONS DESKTOP STUDY.
3. LOCATIONS OF UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS PRIOR TO BEGINNING CONSTRUCTION. EXERCISE CAUTION DURING EXCAVATION TO EXPOSE UTILITIES WITHOUT DAMAGE. CONTRACTOR SHALL CALL 811 FOR UTILITY LOCATES BEFORE DIGGING PER A.S. 42.30.410.
4. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED PRIOR TO CONSTRUCTION. REPORT DISCREPANCIES FROM PLANS IMMEDIATELY TO ENGINEER. RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS-BUILT DRAWINGS.
5. RESTORE ALL DISTURBED PROPERTY OUTSIDE OF WORK LIMITS TO ORIGINAL CONDITIONS.
6. DEWATERING MAY BE REQUIRED FOR ALL EXCAVATIONS THAT PENETRATE THE GROUND WATER SURFACE. WATER FROM CONTRACTOR DEWATERING EFFORTS MAY NOT BE PUMPED OR DIVERTED INTO EXISTING STORM DRAINS UNLESS ALL REQUIRED PERMITS, INCLUDING APPROVAL BY THE CITY OF HOMER PUBLIC WORKS ENGINEER, ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS AND APPROVALS. CONTRACTOR SHALL PROVIDE COPIES OF PERMITS AND APPROVALS TO THE COH ENGINEERING OFFICE.
7. THE CONTRACTOR SHALL FOLLOW ALL CITY OF HOMER REGULATIONS FOR NOISE, HOURS OF OPERATIONS, AND DUST CONTROL.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AS NECESSARY TO COMPLY WITH FEDERAL, STATE, AND MUNICIPAL LAWS THAT PROHIBIT UNPERMITTED DISCHARGE OF POLLUTANTS, INCLUDING SEDIMENTS, THAT ARE A RESULT OF EROSION AND OTHER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONDUCT ALL WORK SO SEDIMENT IS NOT TRANSPORTED ONTO THE ROADWAY OR ADJACENT PROPERTY. AT A MINIMUM, THE CONTRACTOR SHALL SWEEP UP SEDIMENT TRACKED ONTO PAVED SURFACES IN PUBLIC RIGHT-OF-WAY WITHIN 24 HOURS OF THE TRACKING TO MINIMIZE THE WASH-OFF OF SEDIMENT INTO THE STORM DRAINS OR WATERWAYS.
9. ALL BEDDING SHALL BE CLASS B OR C BEDDING AS SPECIFIED IN THE CITY OF HOMER STANDARD CONSTRUCTION SPECIFICATIONS DIVISION 200, SECTION 211.2.
10. ALL COMPACTION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
11. PROVIDE GEOTEXTILE BEDDING WRAP IN LOCATIONS WHERE THE GROUNDWATER LEVEL IS ABOVE THE SPRINGLINE OF THE NEW PIPE OR AS DIRECTED BY THE ENGINEER. THE LOCATIONS SHOWN HEREIN ARE ESTIMATED FROM LIMITED SUBSURFACE INVESTIGATION.
12. PIPE DEFLECTION AND JOINT DEFLECTION SHALL NOT EXCEED ONE-HALF OF THE MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION.
13. ALL DIRECT BURY PIPE, FITTINGS, AND TRANSITIONS BETWEEN PIPE MATERIAL SHALL BE RESTRAINED JOINT.

GENERAL NOTES

1. TOGETHER THE DRAWINGS AND CONSTRUCTION SPECIFICATIONS CONSTITUTE A COMPLETE AND INSEPARABLE SET OF CONSTRUCTION DOCUMENTS, INCLUDING ALL NECESSARY CONSTRUCTION AND MATERIALS SPECIFICATIONS TO ENSURE THE PROJECT AS CONSTRUCTED MEETS THE DESIGN INTENT. ANY CHANGES TO CONSTRUCTION METHODS OR MATERIALS SHALL BE APPROVED IN WRITING IN ADVANCE BY THE RESPONSIBLE REGISTERED PROFESSIONAL.
2. THIS IS A STANDARD SHEET OF SYMBOLOGY AND NOT ALL SYMBOLS MAY HAVE BEEN USED IN THIS PLANSET.

ABBREVIATIONS

AC	ASBESTOS CEMENT
ACP	ASPHALT CONCRETE PAVEMENT
ADA	AMERICANS WITH DISABILITIES ACT
ARFS	AS REQUIRED FOR SAFETY
ASD	ABANDONED STORM DRAIN
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
ATM	ALASKA TRAFFIC MANUAL
AVAP	AS VERTICAL AS POSSIBLE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BLVD	BOULEVARD
BOP	BOTTOM OF PIPE
BV	BUTTERFLY VALVE
C&G	CURB & GUTTER
CAP	CORRUGATED ALUMINUM PIPE
CBMH	CATCH BASIN MANHOLE
CI	CAST IRON
CIPP	CURED-IN-PLACE-PIPE
CL	CLASS
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COH	CITY OF HOMER
CONC	CONCRETE
CPEP	CORRUGATED POLYETHYLENE PIPE
CPPP	CORRUGATED POLYPROPYLENE PIPE
CSP	CORRUGATED STEEL PIPE
CSSP	CORRUGATED STRUCTURAL STEEL PIPE
CSSPA	CORRUGATED STRUCTURAL STEEL PIPE ARCH
CTE	CONNECT TO EXISTING
CU	COPPER
CY	CUBIC YARD
ø	DIAMETER
DIA	DIAMETER
DEC	DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIP	DUCTILE IRON PIPE
DR	DIMENSION RATIO
E	EAST
EA	EACH
EG	EXISTING GRADE
ELEV	ELEVATION
EOP	END OF PROJECT
EX	EXISTING
FF	FINISH FLOOR
F&I	FURNISH & INSTALL
FL	FLANGE
FT	FEET
G	GAS
GB	GRADE BREAK
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
KSI	KILOPOUNDS PER SQUARE INCH
LB	POUNDS
LC	LEVELING COURSE
LF	LINEAR FEET
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MCL	MATERIALS CERTIFICATION LIST
ME	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NFS	NON FROST SUSCEPTIBLE
NO	NUMBER
NSF	NATIONAL SANITATION FOUNDATION
NTS	NOT TO SCALE
O&M	OPERATION & MAINTENANCE
OC	ON CENTER
OD	OUTER DIAMETER
OGS	OIL GRIT SEPARATOR
OH	OVERHEAD
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PCC	PORTLAND CEMENT CONCRETE
PE	PLAIN END
PI	POINT OF INTERSECTION
PPI	PLASTIC PIPE INSTITUTE
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS
R&R	REMOVE & REPLACE
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SDR	STANDARD DIMENSION RATIO
SDYD	STORM DRAIN YARD DRAIN
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
SW	SIDEWALK
T	TELEPHONE
TB	TEST BORING
TBC	TOP BACK OF CURB
TBD	TO BE DETERMINED
TYP	TYPICAL
UG	UNDERGROUND
VB	VALVE BOX
W	WEST
W/O	WITHOUT
WT	WEIGHT
WWTP	WASTEWATER TREATMENT PLANT
YD	YARD DRAIN

REVISIONS			
REV	DATE	DESCRIPTION	BY

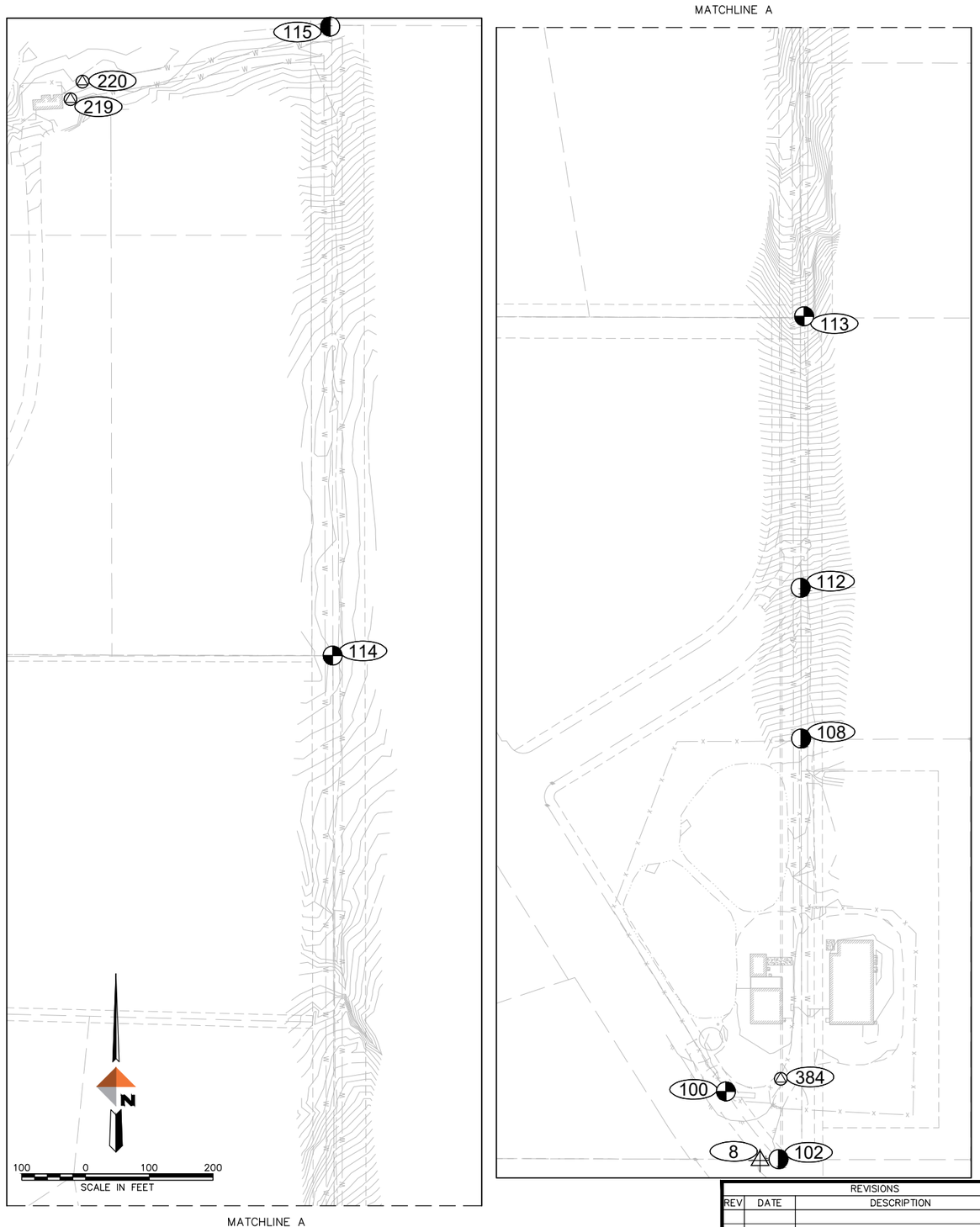
STATE OF ALASKA · 10TH · Christopher J. Maus · CE 156282 · 2022-07-12 · REGISTERED PROFESSIONAL ENGINEER

DOWL · WWW.DOWL.COM

RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

GENERAL LEGEND, NOTES, & ABBREVIATIONS

PROJECT	62417.03
DATE	7/12/2022
SHEET	G2



SURVEY CONTROL NOTES

HORIZONTAL CONTROL – HOMER COMPREHENSIVE COORDINATE SYSTEM, NAD83(2011)

COORDINATES ARE ON A LOCAL COORDINATE SYSTEM "HOMER COMPREHENSIVE COORDINATE SYSTEM", NAD83(2011) IN U.S. SURVEY FEET. BASIS OF COORDINATES IS FROM GPS OBSERVATIONS TAKEN ON THE MONUMENT POSITIONS AS SHOWN ON THIS DRAWING. NAD83 ALASKA STATE PLANE GRID COORDINATES (ZONE 4) OBTAINED FROM THE GPS OBSERVATIONS WERE BASED ON THE NGS PUBLISHED VALUES FOR USC&GS TRISTATION "HOMAIR", N=2063049.7570 E=1364435.5700.

TRUE BEARINGS AND DISTANCES WERE DETERMINED BY ROTATING AND SCALING FROM GRID USING USC&GS TRISTATION "HOMAIR" AS A SCALING POINT. TRUE BEARINGS WERE DETERMINED BY ROTATING GRID INVERSE AZIMUTHS –1°17'13.4". TRUE DISTANCES WERE OBTAINED BY DIVIDING GRID INVERSE DISTANCES BY 0.999986696.

THE RESULTING SCALED COORDINATES WERE TRANSLATED TO A LOCAL COORDINATE SYSTEM BASED ON USC&GS TRISTATION "HOMAIR" N=100,000 E=100,000. ALL COORDINATE VALUES REPRESENT GROUND DISTANCES ORIENTED TO TRUE NORTH.

VERTICAL CONTROL – NAVD88
ELEVATIONS ARE NAVD–88 ORTHOMETRIC HEIGHTS IN U.S. SURVEY FEET AND ARE BASED ON AN OPUS SOLUTION ON TRISTATION "HOMAIR", ELEV=70.52 FEET. THE BASIS OF ELEVATIONS IS LOCAL SURVEY CONTROL POINT "8", A P–K NAIL IN THE PAVEMENT NAMED "WATERPLANT CONTROL P–K", WITH A DERIVED ELEVATION OF 1099.46 FEET.

TBM 384 IS THE NE BOLT OF THE EXISTING FIRE HYDRANT AT THE SOUTHERN ENTRANCE TO THIS SITE, HAVING AN ELEVATION OF 1100.21 FEET.

TBM 219 & 220 ARE THE TOP OF NUT WITHIN THE EXISTING 6" GATE VALVES LOCATED AT THE NORTHERN PARCEL OF THIS SITE, HAVING ELEVATIONS OF 930.30 FEET & 930.16 FEET, RESPECTIVELY.

UTILITY NOTE
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

WE HAVE LOCATED AND IDENTIFIED GATE VALVES IN THE CONSTRUCTION CORRIDOR THAT HELP TO ASCERTAIN LOCATION OF THE UNDERGROUND PIPING. WE ARE UNABLE TO CORRELATE THE ASBUILT INFORMATION FOR UNDERGROUND PIPING WITH THE FIELD RECOVERED POSITIONS OF GATE VALVES.

HORIZONTAL CONTROL POINTS

SURVEY CONTROL POINTS

Point #	Northing	Easting	Elevation	Description
8	110451.4969	90182.2952	1099.46'	WATERPLANT CONTROL P–K
100	110556.3790	90119.6860	1100.09'	TIE 2.5" BC ON 1" IP 7610S 1994 PT37
102	110449.6640	90201.5510	1099.37'	TIE 2" AC IN GRAV 7968S 2011 PT35
108	111109.0370	90237.7390	1098.93'	TIE 2" AC 7968S 2011 PT32
112	111347.1050	90237.2160	1074.76'	TIE 2" AC 7968S 2011 PT31
113	111770.6130	90236.5640	1032.15'	TIE 2.5" BC ON 1" IP 3686S 1977 PT30
114	113089.5020	90233.7510	968.01'	TIE 2.5" AC ON 2" IP 4469S 1984 PT26
115	114078.7160	90231.9460	932.03'	TIE 1" IP PT23

TEMPORARY BENCHMARKS

SURVEY CONTROL POINTS

Point #	Northing	Easting	Elevation	Description
8	110451.4969	90182.2952	1099.46'	WATERPLANT CONTROL P–K
219	113962.7360	89822.9120	930.30'	CL GV 6" CASE TOP NUT
220	113990.0340	89841.4900	930.16'	CL GV 6" CASE TOP NUT
384	110574.0080	90204.3390	1100.21'	HYD TBM NE BOLT

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH Kenton T. Bloom LS-7968 6/28/2022 Registered Professional Land Surveyor

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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

SURVEY CONTROL

PROJECT	62417.03
DATE	6/28/2022

SHEET V1

BID SET

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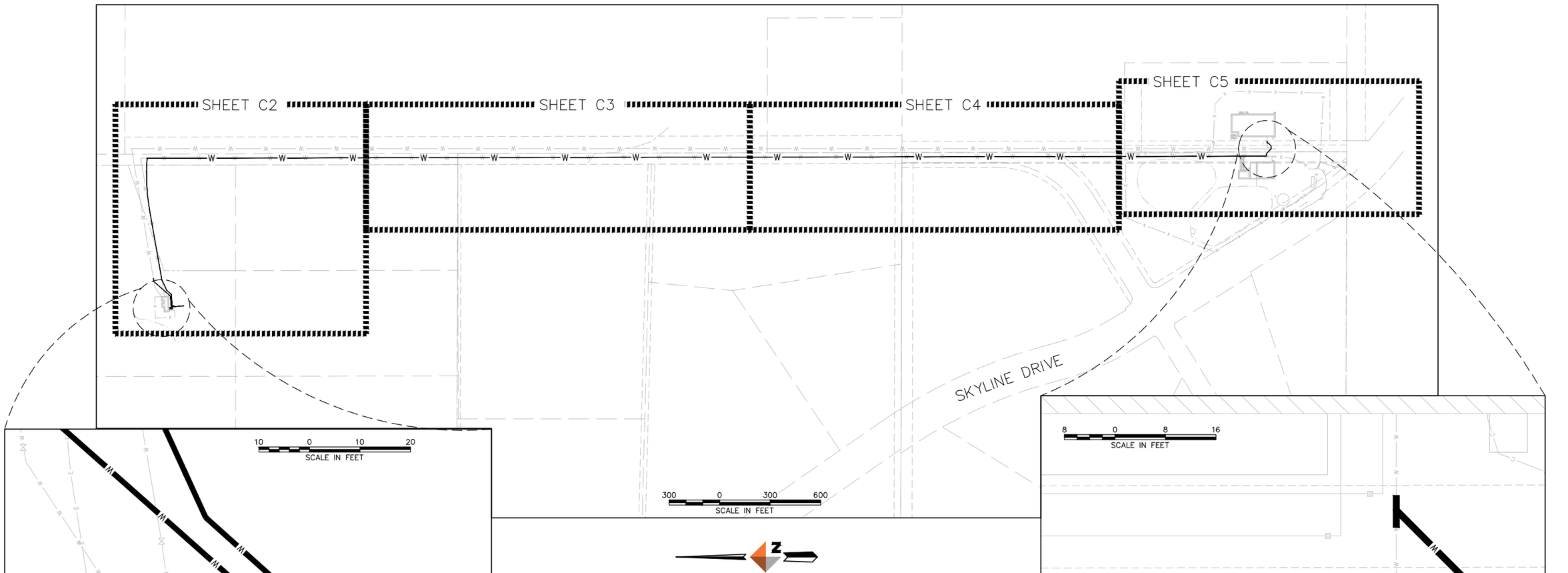
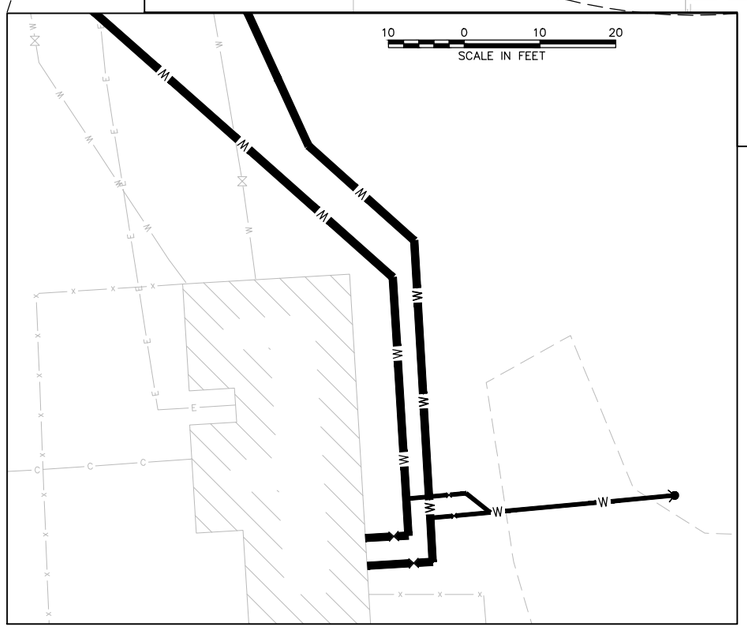
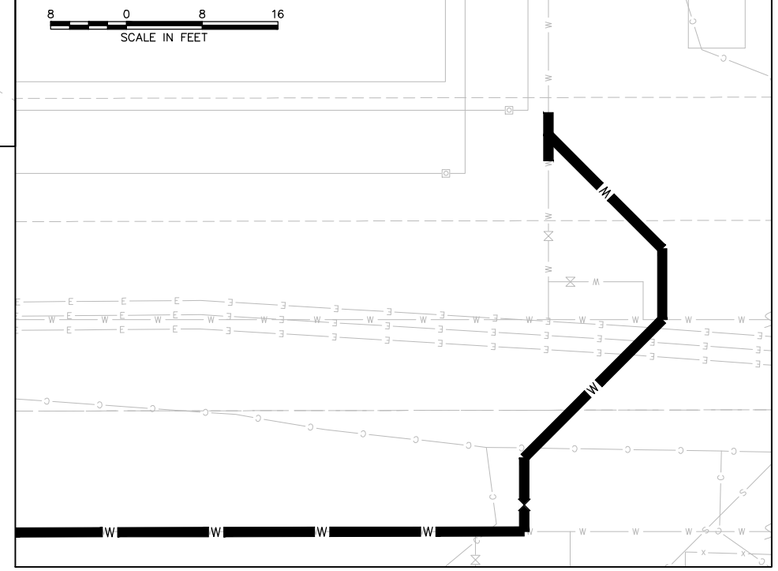




1 C1 NORTH CONNECTION PLAN
1" = 10'



2 C1 SOUTH CONNECTION PLAN
1" = 8'

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
Christopher J. Maus
CE 156282
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

KEY MAP

PROJECT	62417.03
DATE	6/24/2022
SHEET	C1

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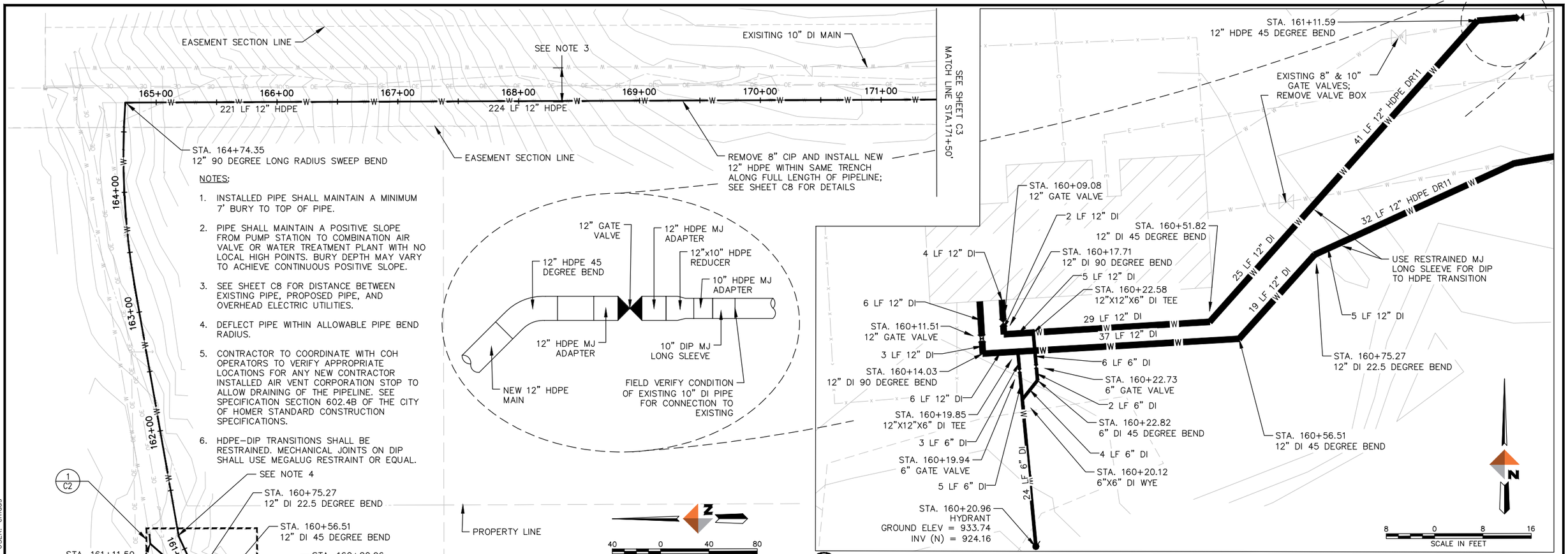
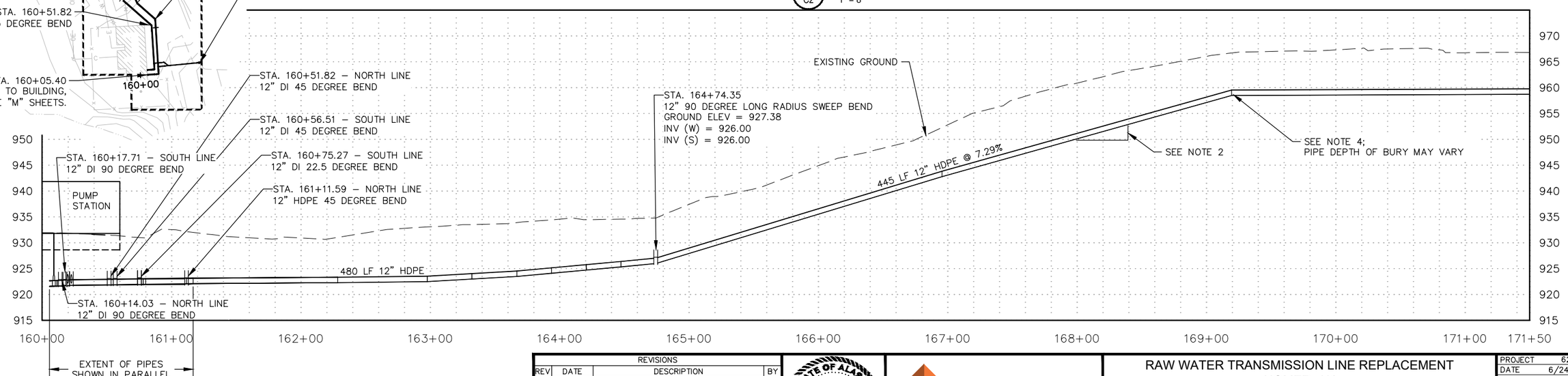


NOTES:

1. INSTALLED PIPE SHALL MAINTAIN A MINIMUM 7' BURY TO TOP OF PIPE.
2. PIPE SHALL MAINTAIN A POSITIVE SLOPE FROM PUMP STATION TO COMBINATION AIR VALVE OR WATER TREATMENT PLANT WITH NO LOCAL HIGH POINTS. BURY DEPTH MAY VARY TO ACHIEVE CONTINUOUS POSITIVE SLOPE.
3. SEE SHEET C8 FOR DISTANCE BETWEEN EXISTING PIPE, PROPOSED PIPE, AND OVERHEAD ELECTRIC UTILITIES.
4. DEFLECT PIPE WITHIN ALLOWABLE PIPE BEND RADIUS.
5. CONTRACTOR TO COORDINATE WITH COH OPERATORS TO VERIFY APPROPRIATE LOCATIONS FOR ANY NEW CONTRACTOR INSTALLED AIR VENT CORPORATION STOP TO ALLOW DRAINING OF THE PIPELINE. SEE SPECIFICATION SECTION 602.4B OF THE CITY OF HOMER STANDARD CONSTRUCTION SPECIFICATIONS.
6. HDPE–DIP TRANSITIONS SHALL BE RESTRAINED. MECHANICAL JOINTS ON DIP SHALL USE MEGALUG RESTRAINT OR EQUAL.

1 C2 PUMP STATION SITE PLAN
1" = 8'



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REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH — Christopher J. Maus — CE 156282 — 2022-06-24 — REGISTERED PROFESSIONAL ENGINEER

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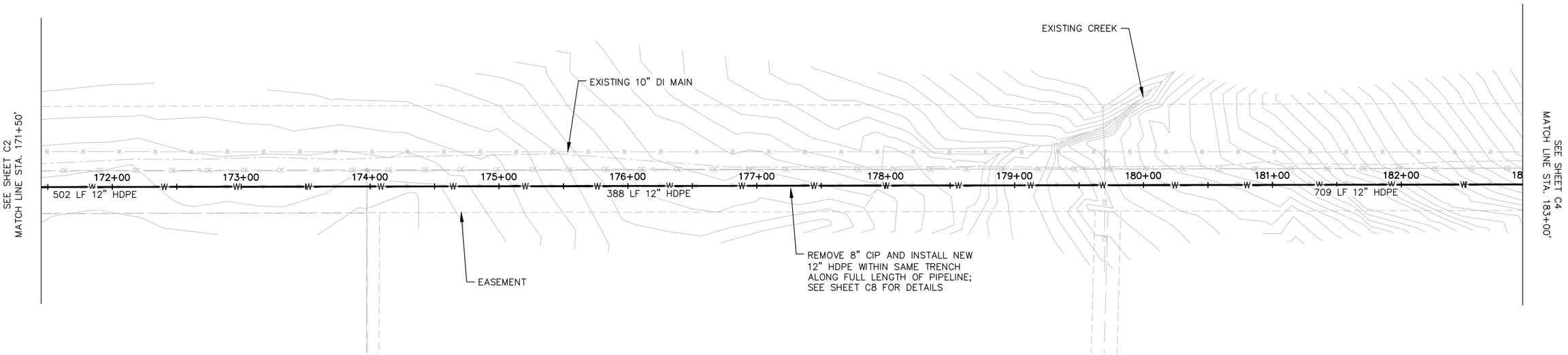
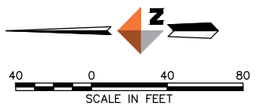
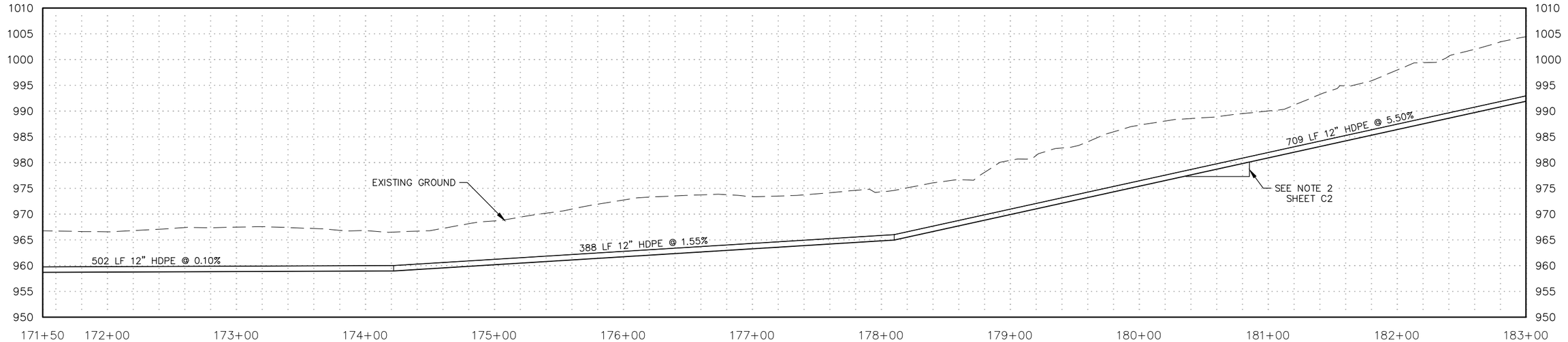
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

RAW WATER PLAN & PROFILE
STA 160+00 TO STA 171+50

PROJECT	62417.03
DATE	6/24/2022
SHEET	C2







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REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
19TH
Christopher J. Maus
CE 156282
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

RAW WATER PLAN & PROFILE
STA 171+50 TO STA 183+00

PROJECT	62417.03
DATE	6/24/2022
SHEET	C3

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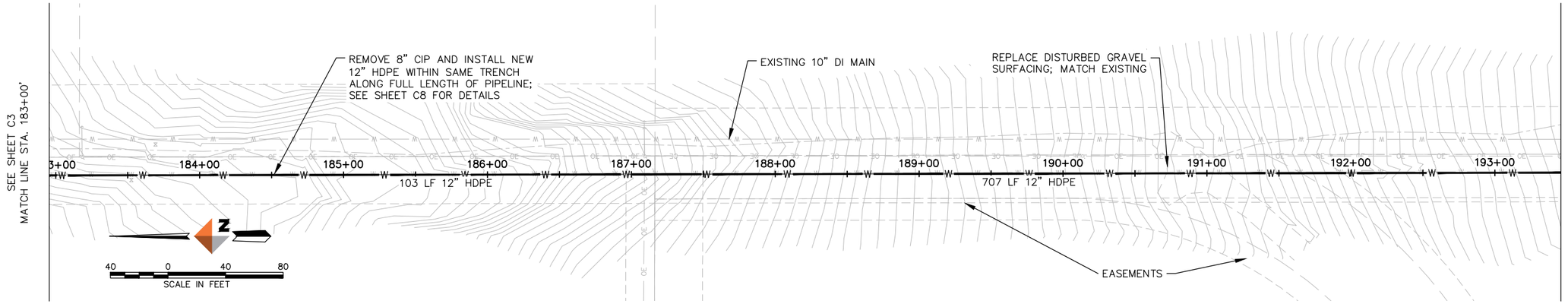

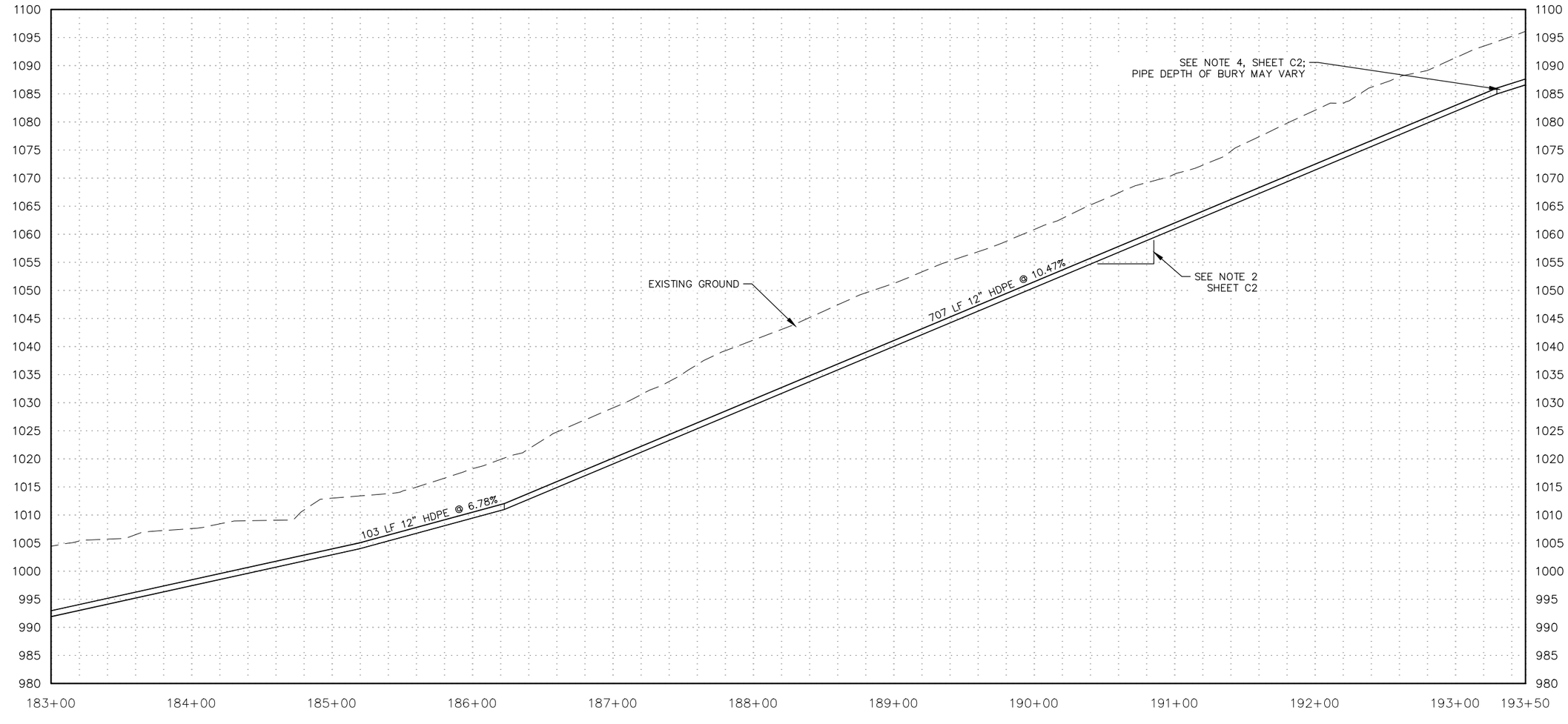

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
40TH
Christopher J. Maus
CE 15628Z
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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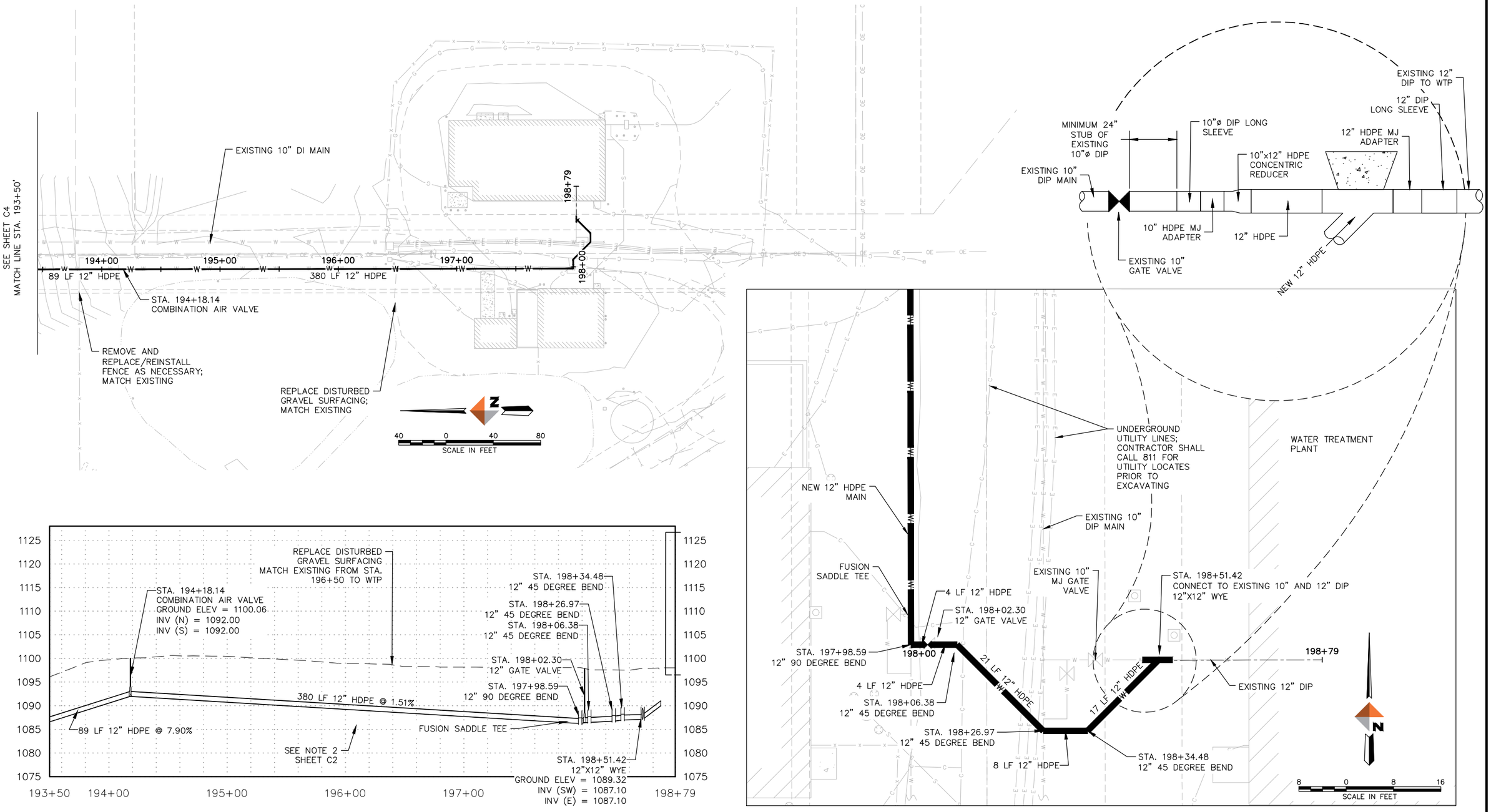
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

RAW WATER PLAN & PROFILE
STA 183+00 TO STA 193+50

PROJECT	62417.03
DATE	6/24/2022

SHEET
C4



1 C4 WATER TREATMENT PLANT SITE PLAN
1" = 8'

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
Christopher J. Mous
CE. 156282
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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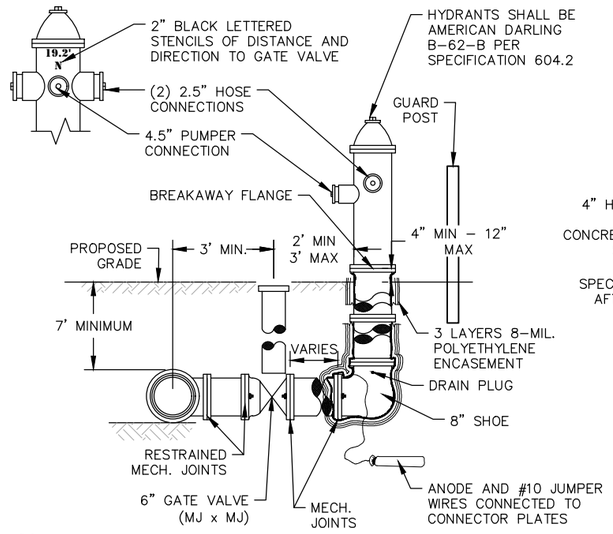
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

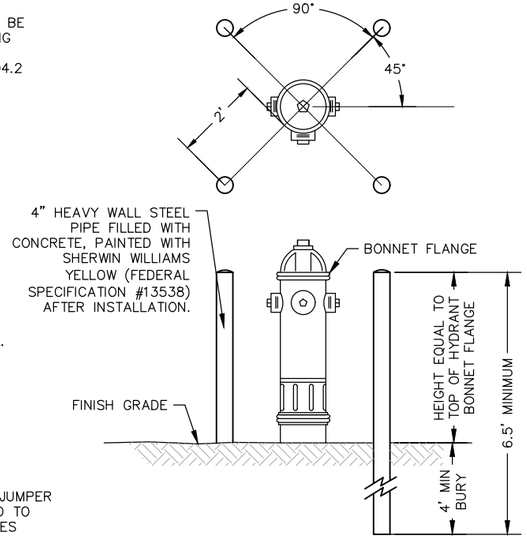
RAW WATER PLAN & PROFILE
STA 193+50 TO STA 198+81

PROJECT	62417.03
DATE	6/24/2022
SHEET	C5

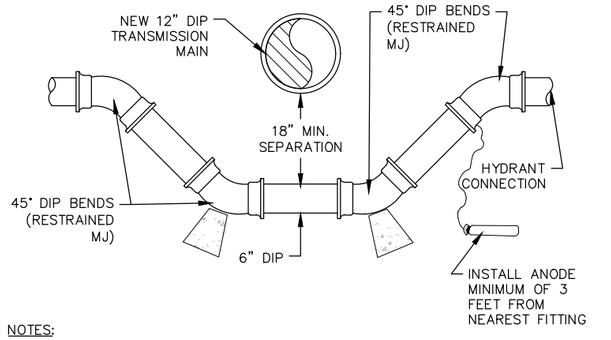
C:\dowl_pw\d0391642\SC-CU-WA-PP-62417.dwg PLOT DATE 2022-6-24 13:54 SAVED DATE 2022-06-24 11:51 USER: cmous



1 C6 HYDRANT DETAIL
NTS

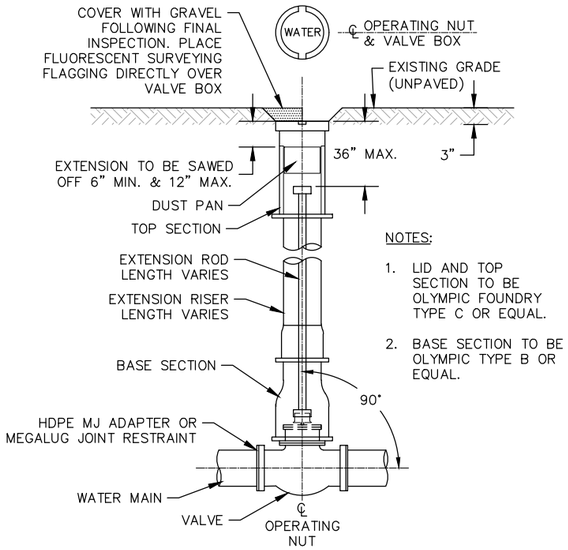


2 C6 HYDRANT GUARD POSTS
NTS



NOTES:
1. THRUST BLOCKS FOR DOWNWARD THRUST BENDS SHALL BE THE SAME SIZE AS FOR HORIZONTAL BENDS. SEE DETAIL 5 FOR HORIZONTAL THRUST BLOCKS.
2. PLACE TYPE 1 PIPE BEDDING TO 6 INCHES OVER THE TOP OF THE WATER PIPE.
3. INSTALL TOP OF ANODE EQUAL TO OR BELOW THE TOP OF HIGHEST WATER PIPE.
4. DO NOT COVER OR OBSTRUCT FITTING BOLTS WITH CONCRETE.
5. WRAP ALL FITTINGS WITH POLYETHYLENE PRIOR TO THRUST BLOCK PLACEMENT.

3 C6 VERTICAL HYDRANT LINE ADJUSTMENT
NTS

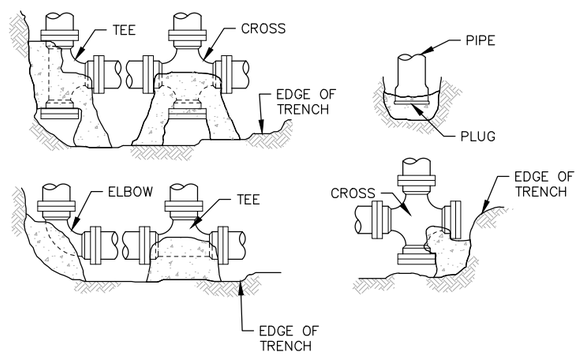


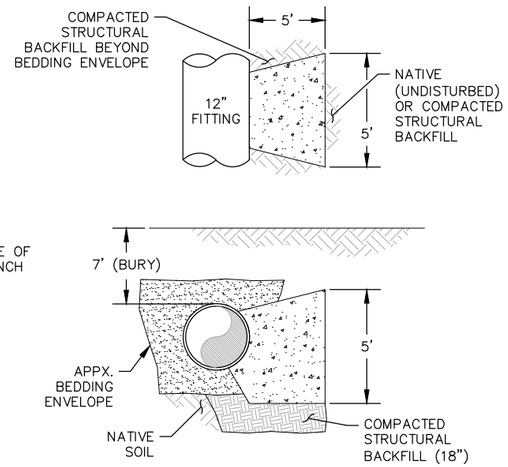
NOTES:
1. LID AND TOP SECTION TO BE OLYMPIC FOUNDRY TYPE C OR EQUAL.
2. BASE SECTION TO BE OLYMPIC TYPE B OR EQUAL.

4 C6 TYPICAL MAIN LINE VALVE WITH OPERATING ROD
NTS

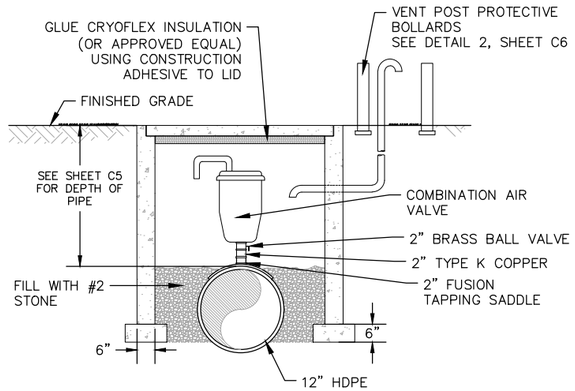
NOTES:
1. THIS TABLE IS BASED ON A 7' BURY DEPTH, 200 PSI TEST PRESSURE AND 1000 PSF SOIL BEARING PRESSURE. THE THRUST BLOCK SIZING CALCULATIONS INCLUDE A FACTOR OF SAFETY OF 1.50. THRUST BLOCK SIZES MAY BE MODIFIED, AS DETERMINED BY THE ENGINEER, BASED ON ACTUAL SOIL CONDITIONS ENCOUNTERED IN THE FIELD.
2. WRAP ALL DUCTILE IRON FITTINGS WITH POLYETHYLENE.
3. ALL THRUST BLOCK SHALL BE FORMED TO THE SHAPES BELOW. UNFORMED BLOCKS WILL BE REJECTED.
4. THRUST BLOCKS ARE REQUIRED AT ALL TEES, PLUGS, REDUCERS, CAPS, AND BENDS DEFLECTING 11.25° OR MORE REGARDLESS OF WHETHER THEY ARE IN A RESTRAINED JOINT SECTION OF PIPE. ALL HYDRANTS SHALL REQUIRE A THRUST BLOCK AT THE HYDRANT IN ADDITION TO THE BEARING BLOCK.

BASE AREA TABLE				
PIPE SIZE	MIN BASE AREA SQ FT			
	90° BEND	45° BEND	22.5° BEND	TEES & PLUGS
6"	4.2	3.1	2.2	6.7
8"	5.5	4.0	2.9	11.4
10"	6.8	5.0	3.6	17.7
12"	8.1	5.9	4.2	25.0
14"	8.9	6.5	4.7	30.1
16"	10.1	7.5	5.3	39.3
24"	15.2	11.2	8.0	88.4





5 C6 THRUST BLOCK DETAILS
NTS



6 C6 COMBINATION AIR VALVE MANHOLE ASSEMBLY
NTS

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH Christopher J. Maus CE 156282 2022-06-24 REGISTERED PROFESSIONAL ENGINEER

DOWL WWW.DOWL.COM

RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

GENERAL DETAILS

PROJECT 62417.03
DATE 6/24/2022

SHEET C6

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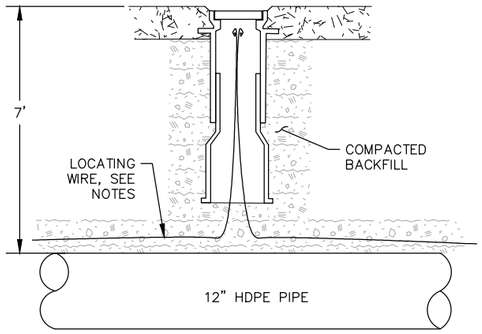
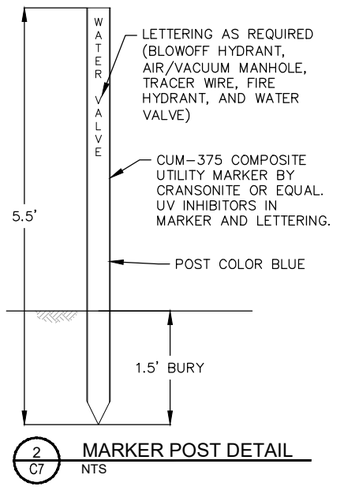


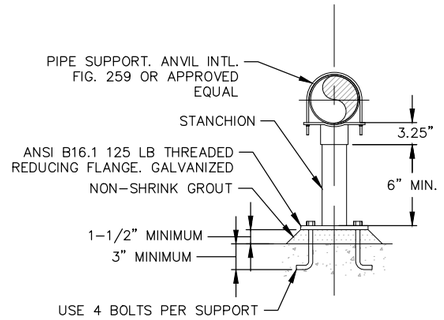
NOTES:

1. INSTALL TWO NO. 6 BARE COPPER WIRES TO TRACER WIRE ACCESS BOX FOR UPSTREAM AND DOWNSTREAM PIPING ALONG HDPE PIPE ALIGNMENT.
2. INSTALL ONE WIRE TO TRACER WIRE ACCESS BOX AT END POINTS OF HDPE PIPING.
3. LOCATE VALVE BOX ABOVE HDPE PIPE COIL. TIE 8" OF LOCATE WIRE BELOW BOX LID TO ALLOW FOR CONNECTION TO LOCATE EQUIPMENT

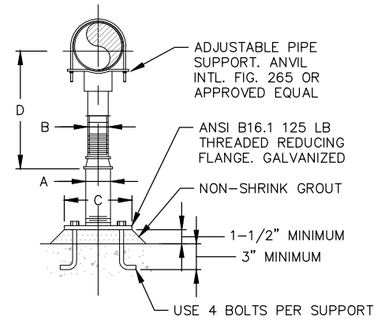
1 / C7 TRANSMISSION MAIN - TRACER WIRE ACCESS BOX
NTS



2 / C7 MARKER POST DETAIL
NTS



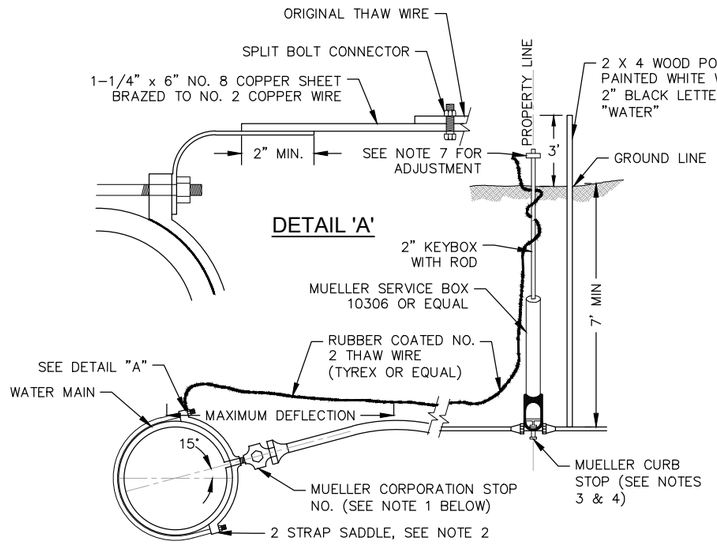
FIXED PIPE SADDLE SUPPORT



ADJUSTABLE PIPE SADDLE SUPPORT

ADJUSTABLE PIPE SUPPORT DIMENSIONS						
PIPE SIZE	A	B	C	D MIN.	D MAX.	ANCHOR BOLT DIA.
4	4"	3"	9"	9-1/2"	14"	5/8"
6	4"	3"	9"	10-3/4"	15-1/4"	5/8"
8	4"	3"	9"	12-1/4"	16-3/4"	5/8"
10	4"	3"	9"	13-3/4"	18-1/4"	5/8"
12	4"	3"	12"	14-5/8"	19-1/8"	5/8"

3 / C7 TYPICAL PIPE SADDLE SUPPORT
NTS



NOTES:
1. USE MUELLER CORPORATION STOP NO. 15025 OR EQUAL
2. MUELLER SERVICE CLAMP WITH (2) TWO STRAPS OR EQUAL SHALL BE USED ON ALL PIPE.
3. ROD TO BE ATTACHED TO CURB STOP WITH NO. 6 GAUGE COPPER WIRE-NO SUBSTITUTIONS
4. USE MUELLER CURB STOP NO. H15214 ORISEAL
5. HDPE MAINLINES SHALL UTILIZE A SIDEWALL BRANCH SADDLE WITH INTEGRAL BRASS CC THREAD INSERT TO RECEIVE CORPORATION STOP
6. CURB BOX FINISH ELEVATION SHALL BE AS FOLLOWS:
   - PAVED AREA .5" BELOW FINISH GRADE
   - GRAVEL AREA 1"-3" BELOW FINISH GRADE
   - YARD/UNDEVELOPED AREA 0"-3" BELOW FINISH GRADE

4 / C7 CORPORATION STOP DETAIL
NTS

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REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH — Christopher J. Maus — CE 156282 — 2022-06-24 — REGISTERED PROFESSIONAL ENGINEER

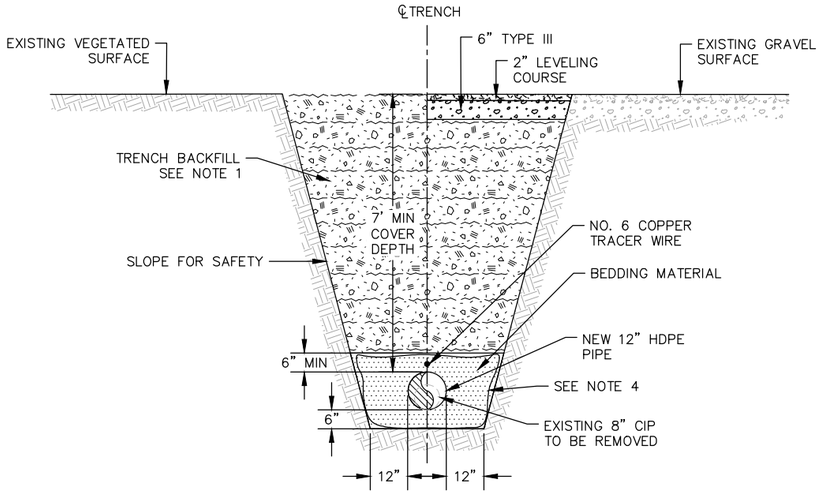
DOWL — WWW.DOWL.COM

RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

GENERAL DETAILS

PROJECT 62417.03
DATE 6/24/2022

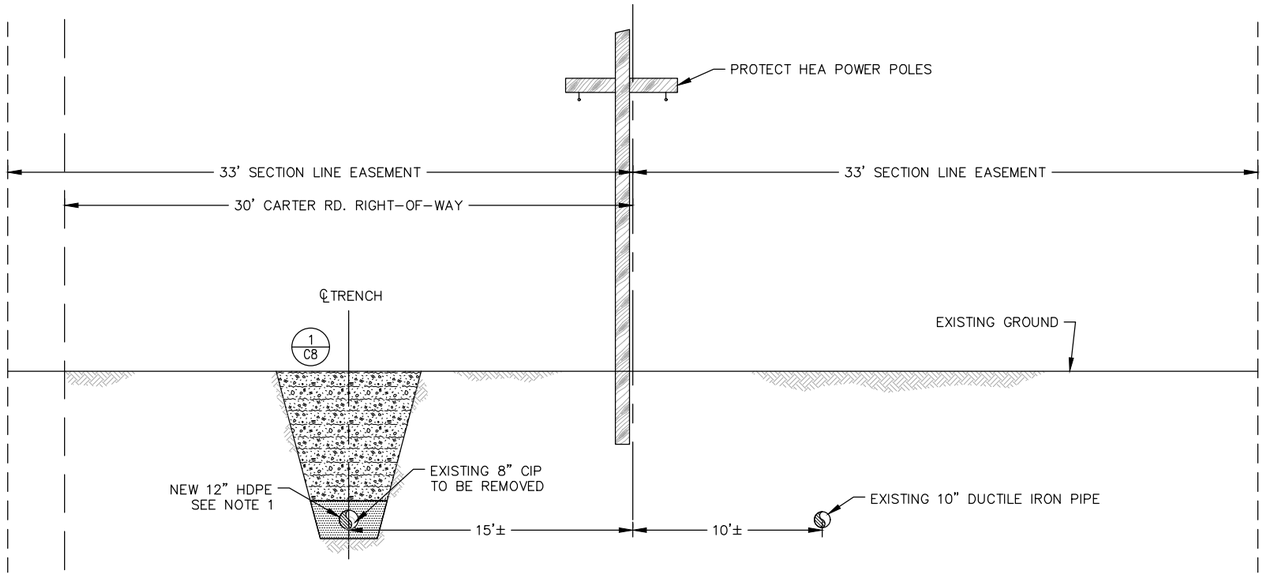
SHEET C7



NOTES:

1. ALL MATERIAL THAT IS TO BE BACKFILLED WITHIN THE ABOVE-DESCRIBED AREA WILL BE REPLACED IN ONE FOOT (12") LIFTS & COMPACTED TO A MINIMUM OF 90% MAX DENSITY.
2. BEDDING MATERIAL SHALL BE CLASS B OR C. A MINIMUM OF 6" OF BEDDING MATERIAL SHALL BE COMPACTED TO 95% MAX DENSITY WHEN SUITABLE BEDDING MATERIAL DOES NOT ALREADY EXIST IN THE TRENCH BOTTOM. SEE DIVISION 200, SECTION 207.3c OF THE STANDARD SPECIFICATIONS.
3. THE COMPACTION OF THIS BACKFILL WILL BE ACCOMPLISHED BY MECHANICAL MEANS WITHOUT THE AID OF WATER.
4. GEOTEXTILE FABRIC SHALL BE USED IF SILTY MATERIAL IS ENCOUNTERED AT THE BOTTOM OF EXCAVATION AND IF SILTY EXCAVATED MATERIAL IS APPROVED FOR REUSE AS BACKFILL ABOVE THE PIPE BEDDING.

1/C8 TRENCH DETAIL
NTS



NOTE:
1. REMOVAL OF EXISTING 8" CIP MAIN AND INSTALLATION OF NEW 12" HDPE MAIN SHALL OCCUR WITHIN THE SAME TRENCH. NEW 12' HDPE MAIN SHALL BE INSTALLED IN PLACE OF 8" CIP. ANY 8" CIP MAIN ENCOUNTERED BUT NOT NECESSARY TO REMOVE WILL BE GROUTED AND ABANDONED IN PLACE.
2. SEPARATE STOCKPILED EXCAVATED MATERIAL FROM THE EXISTING GROUND USING GEOTEXTILE FABRIC IN WETLAND AREAS. REPLACE ALL ORGANICS TO ORIGINAL LOCATION.

2/C8 TRENCH DETAIL CROSS SECTION
1" = 2'

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER Christopher J. Maus CE 156282 2022-06-24

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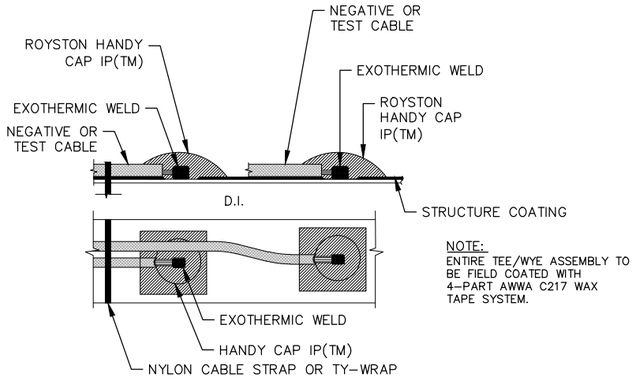
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

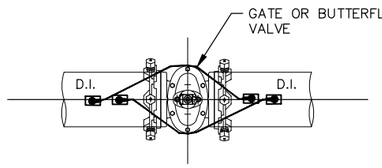
TRENCH DETAILS

PROJECT	62417.03
DATE	6/24/2022

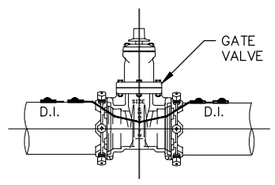
SHEET C8



DETAIL 'A'



VALVE PLAN VIEW



NOTE:
ENTIRE VALVE ASSEMBLY TO BE FIELD COATED WITH 4-PART AWWA C217 WAX TAPE SYSTEM.

VALVE ELEVATION VIEW

ANODE WIRE CONNECTION NOTES:

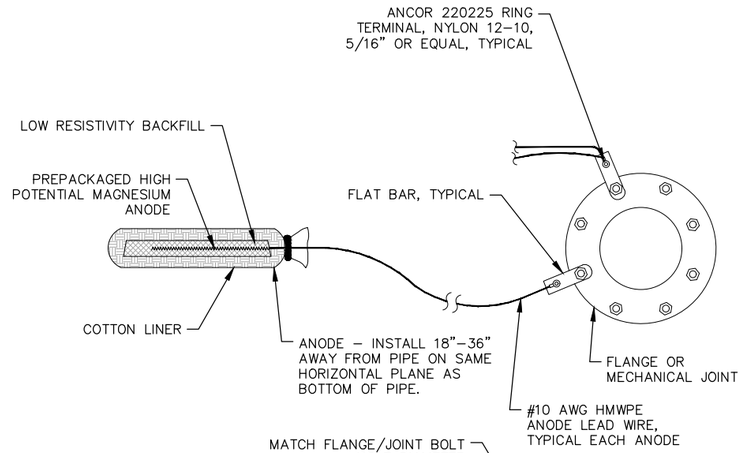
1. CONTRACTOR TO FABRICATE FLAT BAR.
2. INSTALL FLAT BAR ON BODY SIDE OF FLANGE OR MECHANICAL JOINT. REMOVE COATING AT THE FLAT BAR LOCATION PRIOR TO INSTALLATION. METAL TO METAL CONTACT IS REQUIRED. REPAIR VISIBLE COATING DAMAGE WITH DENSYL TAPE AND PRIMER.
3. CONNECT WIRE WITH COMPRESSION RING CONNECTOR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

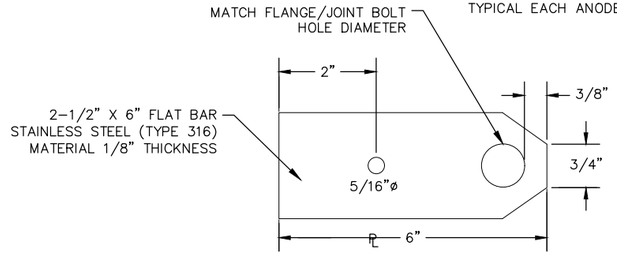
ANODE NOTES:

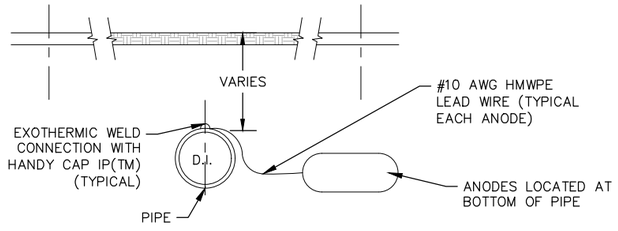
1. HIGH POTENTIAL MAGNESIUM ANODES SHALL BE PREPACKAGED IN A CLOTH BAG WITH A BACKFILL MIXTURE OF 75% GYPSUM, 20% BENTONITE AND 5% SODIUM SULFATE. THE ANODES SHALL HAVE A 20LB BARE WEIGHT AND APPROXIMATELY 70LB PACKAGED WEIGHT.
2. ANODES SHALL BE INSTALLED AT EACH VALVE AND HYDRANT ON THE HDPE LINE. ANODES SHALL BE INSTALLED AT A MAXIMUM SPACING OF 18 FEET OF BURIED DUCTILE IRON 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.
3. CONTRACTOR SHALL PROVIDE COORDINATES OR PIPE STATIONING FOR EACH ANODE INSTALLED.
4. ALL CABLES SHALL BE SINGLE CONDUCTOR, STRANDED COPPER, WITH TYPE HMWPE INSULATION RATED FOR 600 VOLTS.
5. SPLIT-BOLT CONNECTIONS SHALL NOT BE ALLOWED ON ANY UNDERGROUND CONDUCTORS. IF SPLICES ARE REQUIRED, COMPRESSION CONNECTIONS SHALL BE SEALED WITH A HEAT SHRINK SLEEVE RATED FOR BELOW GRADE USE.

EXOTHERMIC WELD NOTES:

1. 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.
2. EXOTHERMIC WELD MOLDS AND WELD METAL SHALL BE SIZED FOR THE PIPE SIZE, WIRE TYPE, WIRE SIZE AND PIPE MATERIAL. DUCTILE IRON PIPE SHALL USE MOLDS AND WELD METAL FOR CAST IRON.







1 / C9 CATHODIC PROTECTION DETAILS
NTS

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REVISIONS			
REV	DATE	DESCRIPTION	BY

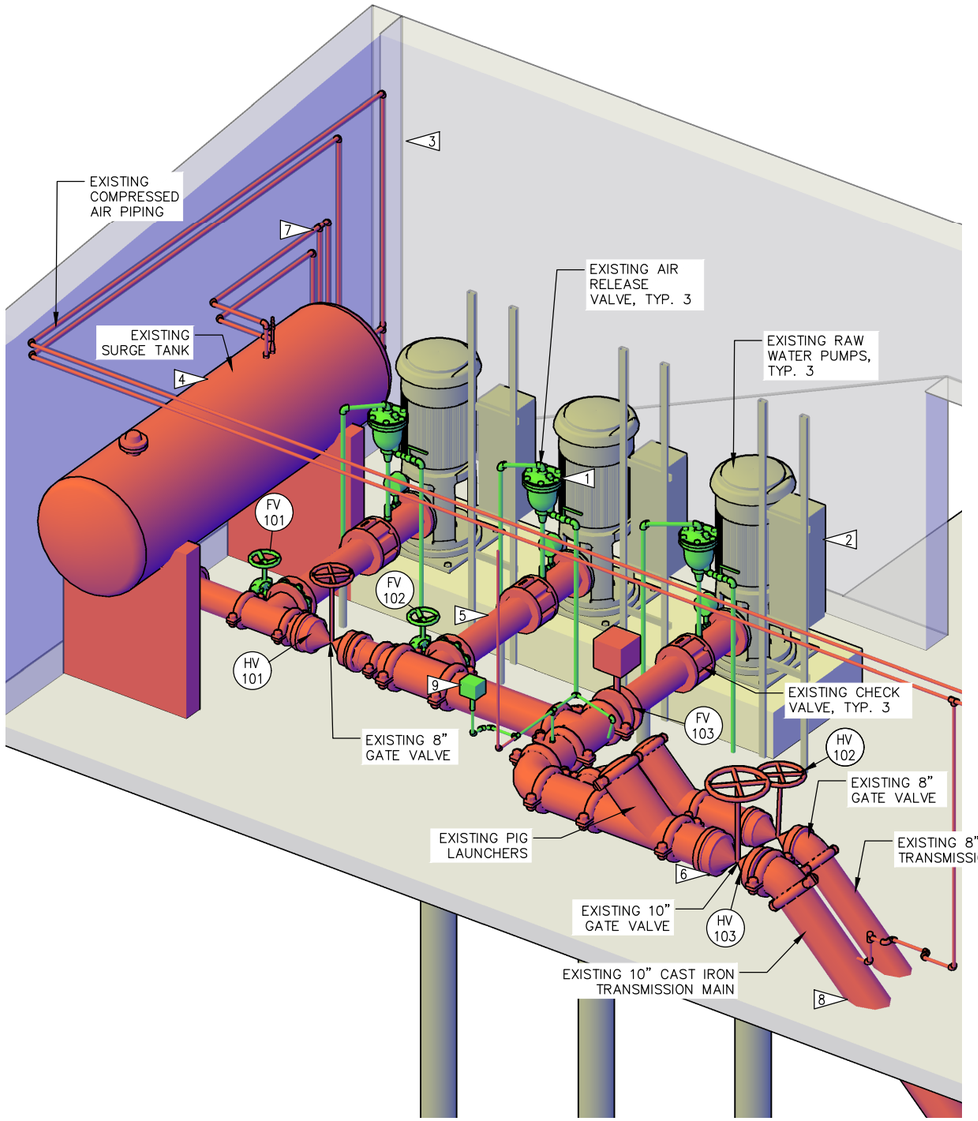
STATE OF ALASKA 49TH — Christopher J. Maus — CE 156282 — 2022-06-24 — REGISTERED PROFESSIONAL ENGINEER

DOWL — WWW.DOWL.COM

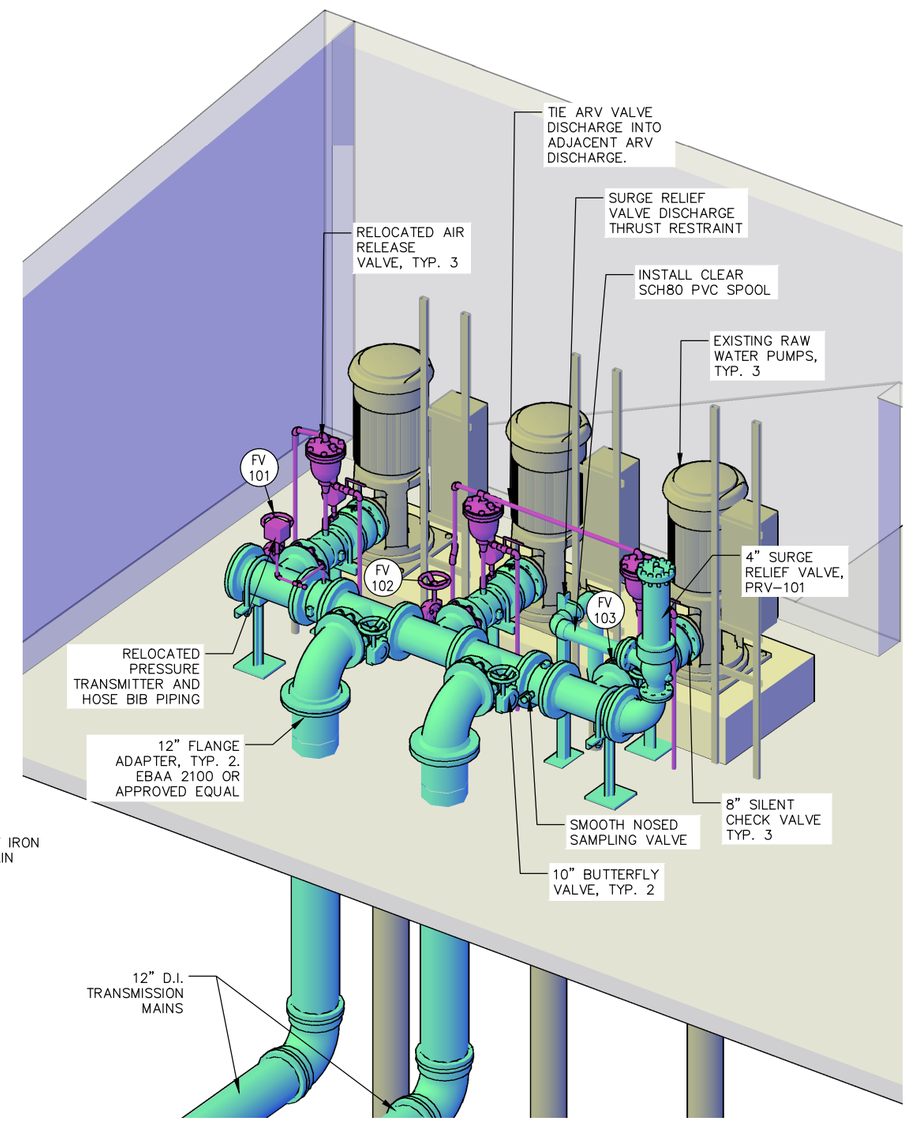
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

CATHODIC PROTECTION DETAILS

PROJECT	62417.03
DATE	6/24/2022
SHEET	C9



ISOMETERIC VIEW - EXISTING PIPING AND DEMOLITION



ISOMETERIC VIEW - PROPOSED PIPING

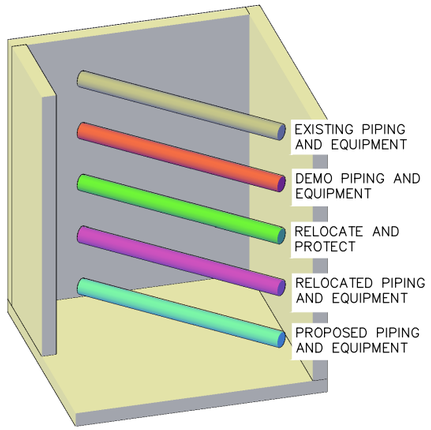
GENERAL NOTES

1. CONTRACTOR TO VERIFY DEMOLITIONS LIMITS IN THE FIELD WITH OWNER.
2. NOT ALL MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN. FOR CLARITY.
3. SEE SPECIFICATIONS FOR ELECTRICAL DEMOLITION DETAILS.

DEMOLITION NOTES

1. PROTECT EXISTING PUMPS AND PUMP PAD. RELOCATE EXISTING AIR RELEASE VALVE TREE, PROTECT FOR RE-INSTALLATION.
2. PROTECT EXISTING LOCAL PUMP CONTROL PANELS.
3. PROTECT EXISTING HEATER, NOT SHOWN.
4. DEMO EXISTING SURGE TANK, SURGE TANK SUPPORT CONCRETE, AND ASSOCIATED COMPRESSED AIR PIPING AND INSTRUMENTATION. SALVAGE INSTRUMENTS TO OWNER.
5. DEMO EXISTING PUMP DISCHARGE HEADER AND PUMP DISCHARGE CHECK VALVES. DEMO EXISTING 8" GATE VALVE (HV-101) AND EXISTING 8" MOTOR OPERATED BUTTERFLY VALVE FV-103. PROTECT EXISTING MOTOR OPERATED BUTTERFLY VALVES FV 101 AND FV-102 AND SAVE FOR RE-INSTALLATION..
6. DEMO EXISTING 8" AND 10" CAST IRON TRANSMISSION MAINS TO FLOOR PENETRATIONS. DEMO EXISTING TRANSMISSION MAIN GATE VALVES (HV-102 AND HV-103).
7. DEMO EXISTING COMPRESSORS AND ASSOCIATED COMPRESSED AIR PIPING AND EQUIPMENT. SALVAGE EQUIPMENT, VALVES AND INSTRUMENTS TO OWNER.
8. ABANDON EXISTING BELOW GRADE 8" AND 10" TRANSMISSION MAINS IN PLACE. CUT PIPES FLUSH WITH FLOOR AND GROUT TO SEAL.
9. RELOCATE EXISTING PRESSURE TRANSMITTER AND ASSOCIATED WASH DOWN PIPING.

LEGEND



BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
STEPHAN A. BRADLEY
CE-12444
REGISTERED PROFESSIONAL ENGINEER
2022-06-24

DOWL
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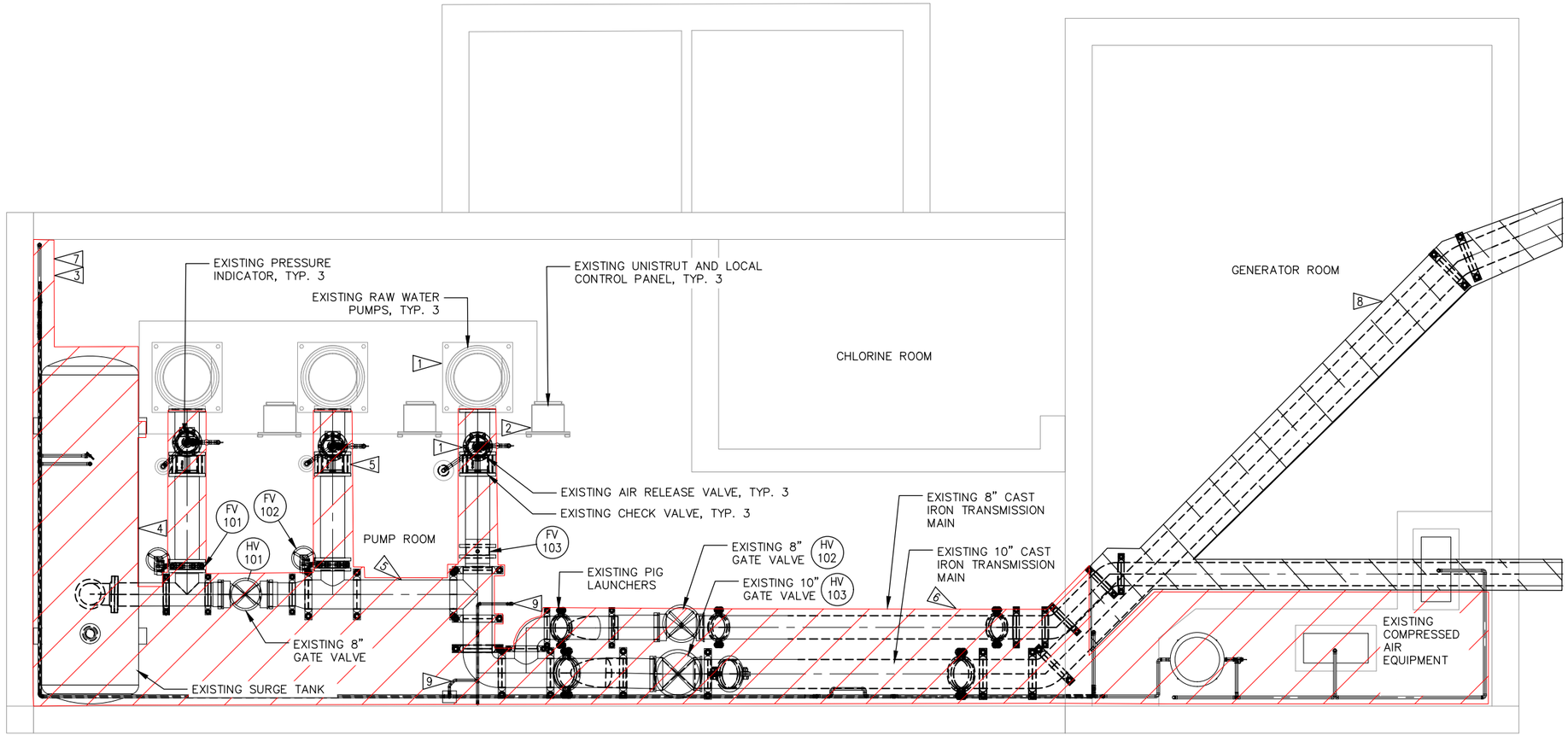
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

MECHANICAL ISOMETRIC VIEW - EXISTING AND PROPOSED PIPING

PROJECT	62417.03
DATE	06/24/2022
SHEET	M1



PLAN VIEW - EXISTING PIPING AND DEMOLITION

2 0 2 4
SCALE IN FEET

GENERAL NOTES

1. CONTRACTOR TO VERIFY DEMOLITIONS LIMITS IN THE FIELD WITH OWNER.
2. NOT ALL MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN FOR CLARITY.
3. SEE SPECIFICATIONS FOR ELECTRICAL DEMOLITION DETAILS.

DEMOLITION NOTES

1. PROTECT EXISTING PUMPS AND PUMP PAD. RELOCATE EXISTING AIR RELEASE VALVE TREE, PROTECT FOR RE-INSTALLATION.
2. PROTECT EXISTING LOCAL PUMP CONTROL PANELS.
3. PROTECT EXISTING HEATER, NOT SHOWN.
4. DEMO EXISTING SURGE TANK, SURGE TANK SUPPORT CONCRETE, AND ASSOCIATED COMPRESSED AIR PIPING AND INSTRUMENTATION. SALVAGE INSTRUMENTS TO OWNER.
5. DEMO EXISTING PUMP DISCHARGE HEADER AND PUMP DISCHARGE CHECK VALVES. DEMO EXISTING 8" GATE VALVE (HV-101) AND EXISTING 8" MOTOR OPERATED BUTTERFLY VALVE FV-103. PROTECT EXISTING MOTOR OPERATED BUTTERFLY VALVES FV-101 AND FV-102 AND SAVE FOR RE-INSTALLATION.
6. DEMO EXISTING 8" AND 10" CAST IRON TRANSMISSION MAINS TO FLOOR PENETRATIONS. DEMO EXISTING TRANSMISSION MAIN GATE VALVES (HV-102 AND HV-103).
7. DEMO EXISTING COMPRESSORS AND ASSOCIATED COMPRESSED AIR PIPING AND EQUIPMENT. SALVAGE EQUIPMENT, VALVES AND INSTRUMENTS TO OWNER.
8. ABANDON EXISTING BELOW GRADE 8" AND 10" TRANSMISSION MAINS IN PLACE. CUT PIPES FLUSH WITH FLOOR AND GROUT TO SEAL.
9. RELOCATE EXISTING PRESSURE TRANSMITTER AND ASSOCIATED WASH DOWN PIPING.

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
STEPHAN A. BRADLEY
CE-12444
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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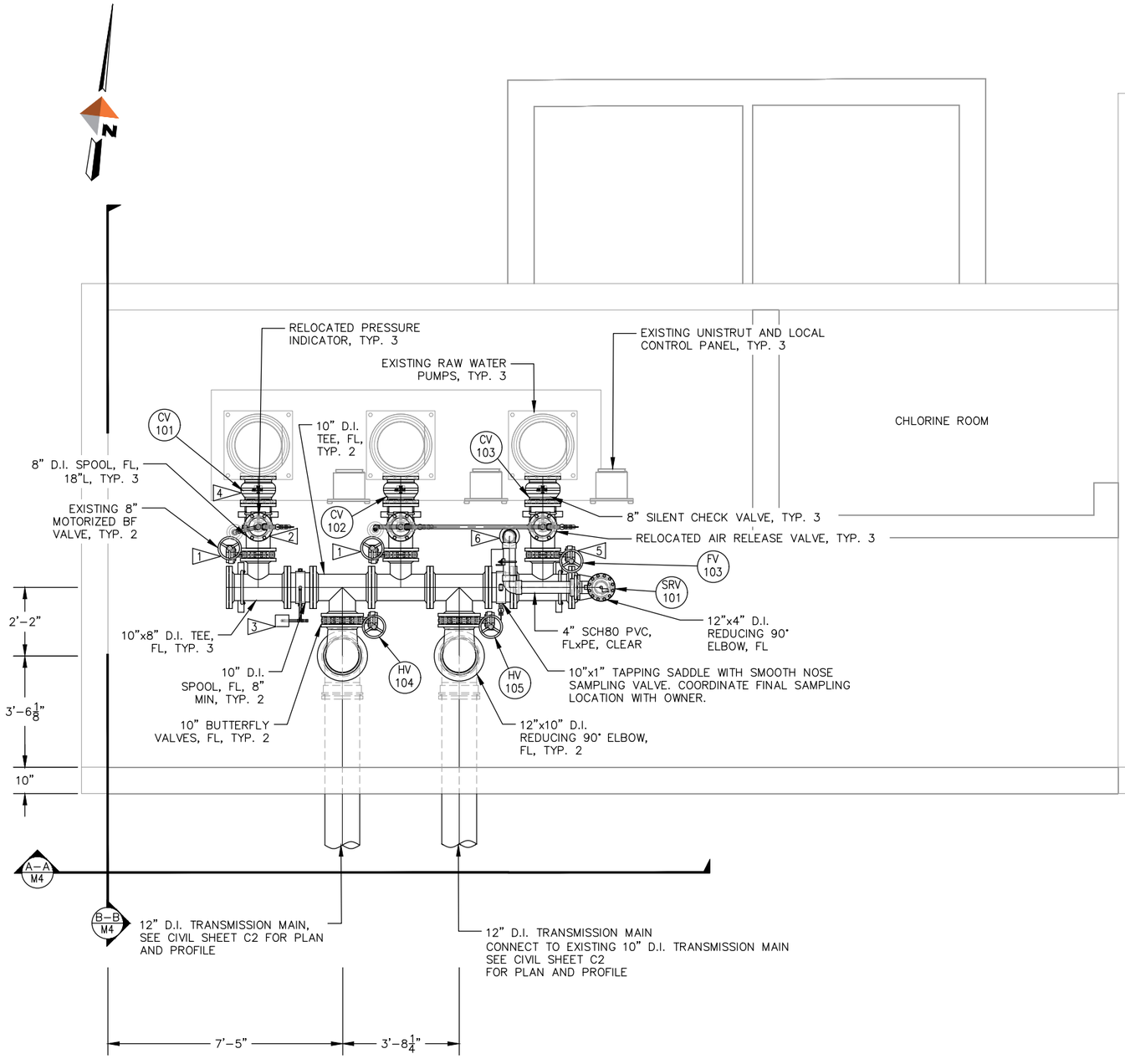
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

MECHANICAL PLAN VIEW - EXISTING PIPING AND EQUIPMENT

PROJECT	62417.03
DATE	06/24/2022
SHEET	M2



PLAN VIEW - PROPOSED PIPING

2 0 2 4
SCALE IN FEET

GENERAL NOTES

1. CONTRACTOR TO VERIFY PIPE LENGTHS, ELEVATIONS, AND RELATIVE DISTANCES IN THE FIELD.
2. NOT ALL MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS ON ALL PIPING AS INDICATED ON THE DRAWINGS. IF SUPPORTS ARE NOT SHOWN, CONTRACTOR SHALL PROVIDE PIPE SUPPORTS AS REQUIRED PER THE SPECIFICATIONS. NO PIPING SHALL BE SUPPORTED BY EQUIPMENT OR WALL PENETRATIONS.

CONSTRUCTION NOTES

1. RELOCATE EXISTING MOTOR OPERATED BUTTERFLY VALVES (FV-101, FV-102)
2. RELOCATE EXISTING AIR RELEASE VALVE TREES AND PRESSURE INDICATORS
3. RELOCATE EXISTING PRESSURE TRANSMITTER AND ASSOCIATED WASH DOWN/SAMPLE PIPING.
4. INSTALL NEW SILENT CHECK VALVES DIRECTLY ON PUMP DISCHARGE FLANGE.
5. INSTALL NEW MOTOR OPERATED BUTTERFLY VALVE. MAINTAIN EXISTING VALVE TAG.
6. ROUTE 4" SCH80 PVC SURGE RELIEF VALVE DISCHARGE TO EXISTING 3" D.I. DRAIN FLANGE.

BILL OF MATERIALS

ITEM	ND	QTY	UNIT	DESCRIPTION/COMMENTS
SCH80 PVC PIPE	4"	2'-11"	FT-IN	PIPE LENGTH IS APPROXIMATE, CONTRACTOR TO FIELD VERIFY
SCH80 PVC PIPE	4"	1'-9"	FT-IN	CLEAR, FLxPE, PIPE LENGTH IS APPROXIMATE, CONTRACTOR TO FIELD VERIFY
D.I. PIPE, FL	8"	4'-6"	FT-IN	PIPE LENGTH IS APPROXIMATE, CONTRACTOR TO FIELD VERIFY
D.I. PIPE, FL	10"	1'-7"	FT-IN	PIPE LENGTH IS APPROXIMATE, CONTRACTOR TO FIELD VERIFY
D.I. PIPE, FL	12"	2'-10"	FT-IN	PIPE LENGTH IS APPROXIMATE, CONTRACTOR TO FIELD VERIFY
SCH80 PVC 90° ELBOW	4"	2	EA	GLUED
SCH80 PVC REDUCER	4"x3"	1	EA	GLUED
D.I. BLIND FLANGE	10"	1	EA	PER SPEC
TAPPING SADDLE	10"x1"	2	EA	COORDINATE FINAL SAMPLE TAP LOCATION WITH OWNER
D.I. REDUCING ELBOW	10"x4"	1	EA	FLANGED
D.I. TEE	10"	2	EA	FLANGED
D.I. REDUCING TEE	10"x8"	3	EA	FLANGED
D.I. FLANGE ADAPTER	12"	2	EA	RESTRAINED, EBAA IRON MEGAFLANGE SERIES 2100 OR APPROVED EQUAL
D.I. REDUCING ELBOW	12"x10"	2	EA	FLANGED
SURGE RELIEF ANGLE VALVE	4"	1	EA	APCO SURGE RELIEF ANGLE VALVE OR APPROVED EQUAL, RELIEF PRESSURE SET POINT 120 PSI, FLANGED
SILENT CHECK VALVE	8"	3	EA	GLOBE STYLE, APCO CSC SILENT CHECK VALVE, OR APPROVED EQUAL
BUTTERFLY VALVE	8"	1	EA	LUG STYLE, ELECTRIC ACTUATOR, BRAY SERIES 31 OR EQUAL, BRAY SERIES 70 ACTUATOR, OR APPROVED EQUALS
BUTTERFLY VALVE	10"	2	EA	LUG STYLE, HAND ACTUATED, BRAY SERIES 31 OR APPROVED EQUAL

NOTE: QUANTITIES ARE ESTIMATES AND CONTRACTOR SHALL FIELD VERIFY. QUANTITIES ARE ONLY REPRESENTATIVE OF PROPOSED PIPE, FITTINGS, AND EQUIPMENT INSIDE THE PUMP HOUSE AND DO NOT INCLUDE PIPING AND FITTINGS LESS THAN 4" NOM. DIAMETER

BID SET

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
STEPHAN A. BRADLEY
CE-12444
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

DOWL
WWW.DOWL.COM

RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

MECHANICAL PLAN VIEW - PROPOSED PIPING AND EQUIPMENT

PROJECT 62417.03
DATE 06/24/2022

SHEET
M3

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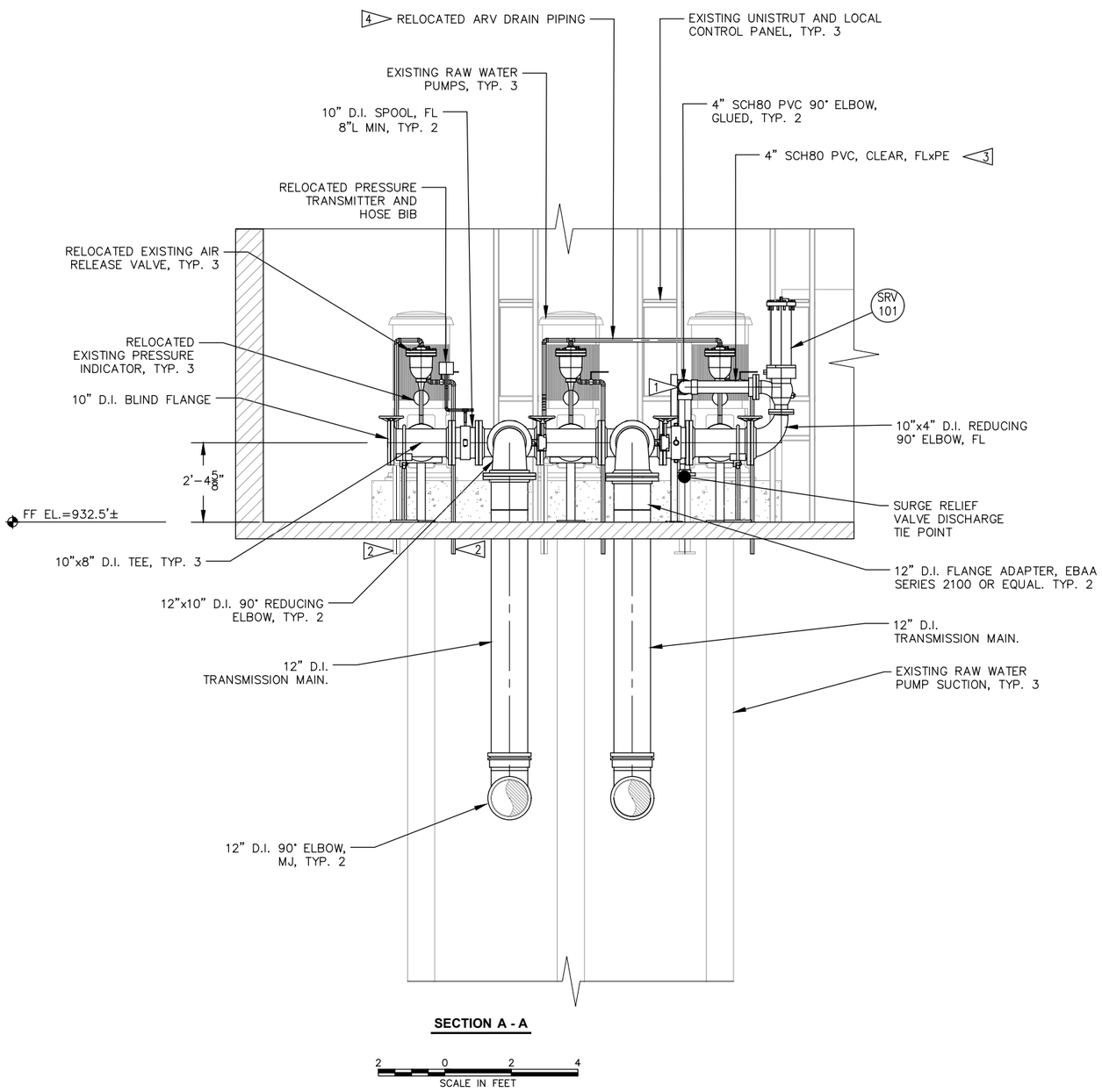

SECTION A - A

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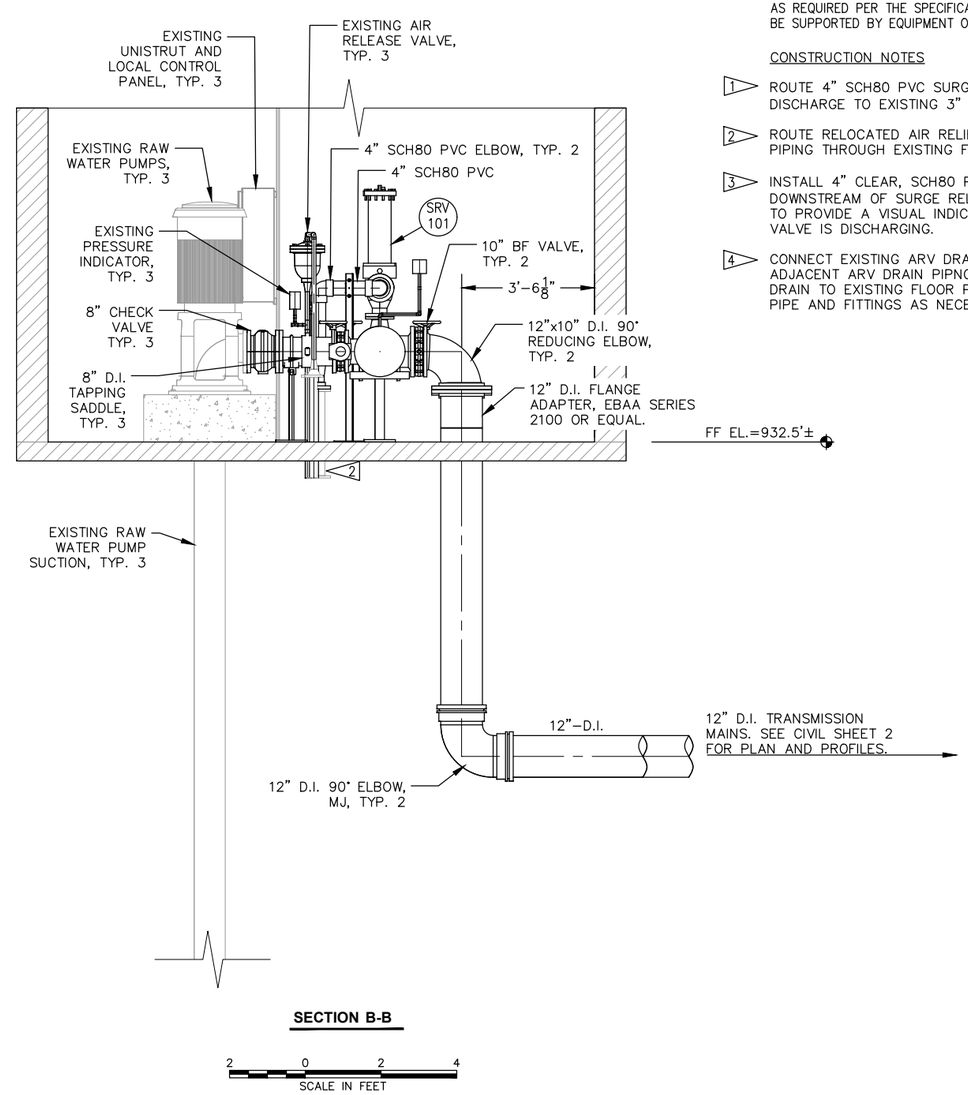
SCALE IN FEET



SECTION B-B

2 0 2 4
SCALE IN FEET

GENERAL NOTES

1. CONTRACTOR TO VERIFY PIPE LENGTHS, ELEVATIONS, AND RELATIVE DIMENSIONS IN THE FIELD.
2. NOT ALL MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS ON ALL PIPING AS INDICATED ON THE DRAWINGS. IF SUPPORTS ARE NOT SHOWN, CONTRACTOR SHALL PROVIDE PIPE SUPPORTS AS REQUIRED PER THE SPECIFICATIONS. NO PIPING SHALL BE SUPPORTED BY EQUIPMENT OR WALL PENETRATIONS.

CONSTRUCTION NOTES

1. ROUTE 4" SCH80 PVC SURGE RELIEF VALVE DISCHARGE TO EXISTING 3" D.I. DRAIN FLANGE.
2. ROUTE RELOCATED AIR RELIEF VALVE DISCHARGE PIPING THROUGH EXISTING FLOOR PENETRATIONS.
3. INSTALL 4" CLEAR, SCH80 PVC FLxPE SPOOL DOWNSTREAM OF SURGE RELIEF VALVE (SRV-101) TO PROVIDE A VISUAL INDICATION WHEN RELIEF VALVE IS DISCHARGING.
4. CONNECT EXISTING ARV DRAIN PIPING TO THE ADJACENT ARV DRAIN PIPNG. ROUTE COMMON DRAIN TO EXISTING FLOOR PENETRATION. PROVIDE PIPE AND FITTINGS AS NECESSARY.

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
STEPHAN A. BRADLEY
CE-12444
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

DOWL
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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

MECHANICAL SECTION VIEWS - PROPOSED PIPING AND EQUIPMENT

PROJECT	62417.03
DATE	06/24/2022
SHEET	M4

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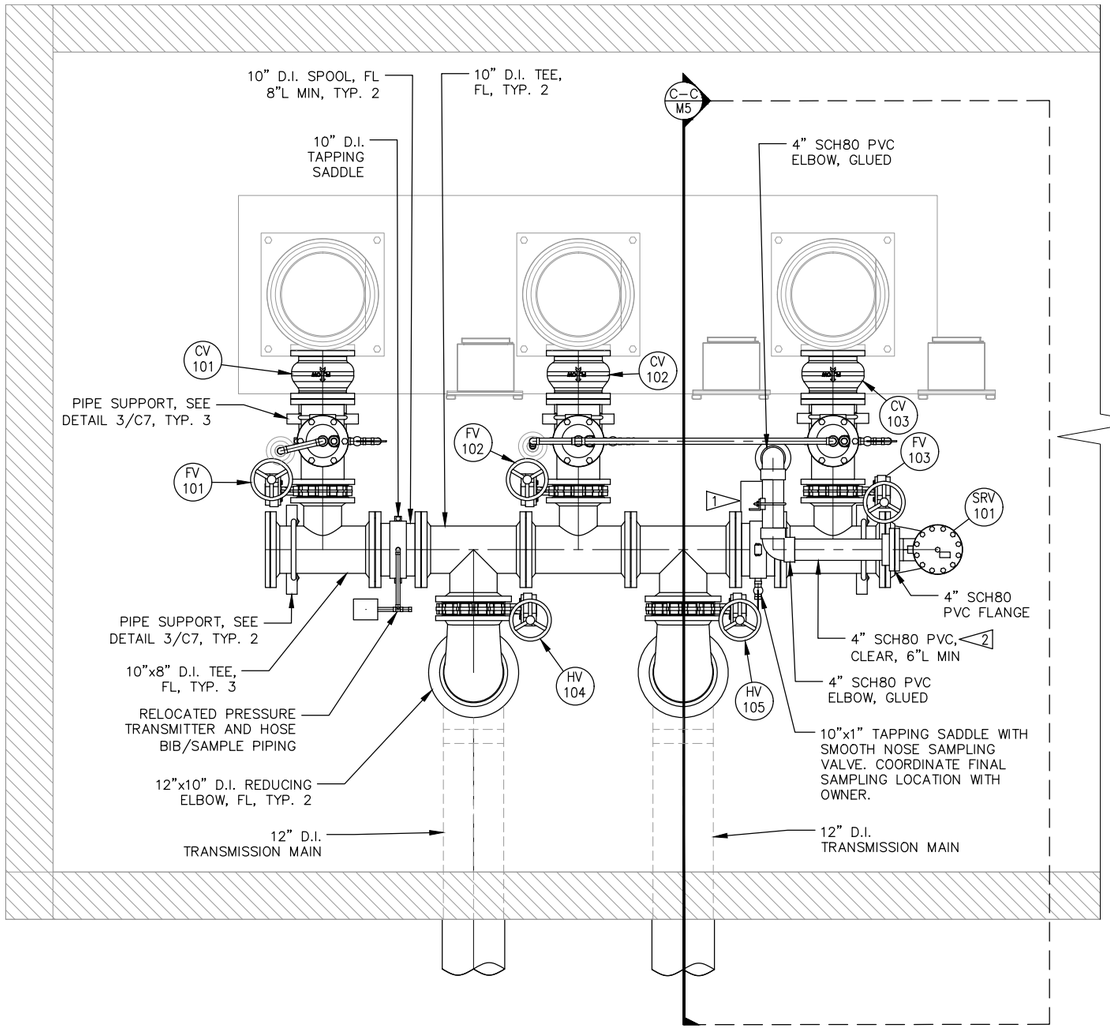
GENERAL NOTES

1. CONTRACTOR TO VERIFY PIPE LENGTHS, ELEVATIONS, AND RELATIVE DIMENSIONS IN THE FIELD.
2. NOT ALL MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN FOR CLARITY. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS ON ALL PIPING AS INDICATED ON THE DRAWINGS. IF SUPPORTS ARE NOT SHOWN, CONTRACTOR SHALL PROVIDE PIPE SUPPORTS AS REQUIRED PER THE SPECIFICATIONS. NO PIPING SHALL BE SUPPORTED BY EQUIPMENT OR WALL PENETRATIONS.

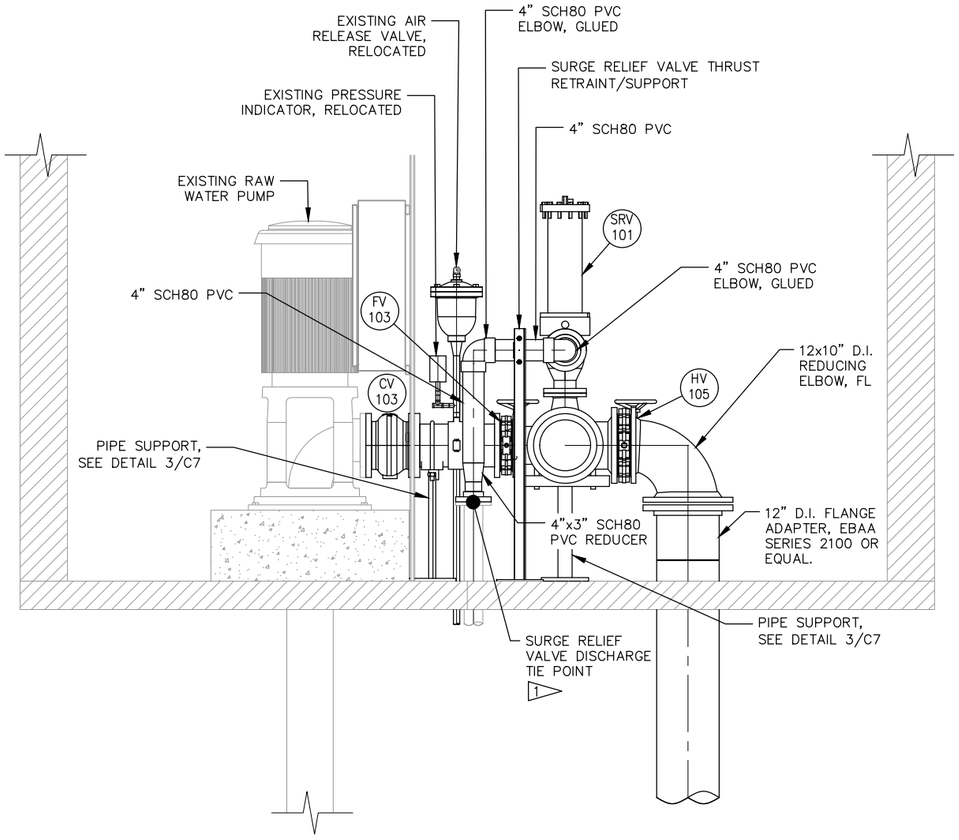
CONSTRUCTION NOTES

1. ROUTE 4" SURGE RELIEF VALVE DISCHARGE TO EXISTING 3" D.I. DRAIN FLANGE. INSTALL THRUST RESTRAINT DOWNSTREAM OF SRV-101. SEE SPECIFICATIONS FOR DETAILS.
2. INSTALL 4" CLEAR, SCH80 PVC FLANGED SPOOL DOWNSTREAM OF SRV-101 TO PROVIDE A VISUAL INDICATION WHEN RELIEF VALVE IS DISCHARGING. 4" CLEAR SCH80 PVC SPOOL SHALL BE A MINIMUM OF 6" LONG.



ENLARGED PLAN VIEW - PROPOSED PIPING AND EQUIPMENT

1 0 1 2
SCALE IN FEET



SECTION C-C

1 0 1 2
SCALE IN FEET

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
STEPHAN A. BRADLEY
CE-12444
2022-06-24
REGISTERED PROFESSIONAL ENGINEER

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RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

MECHANICAL ENLARGED PLAN AND SECTION VIEW - PROPOSED PIPING

PROJECT	62417.03
DATE	06/24/2022
SHEET	M5

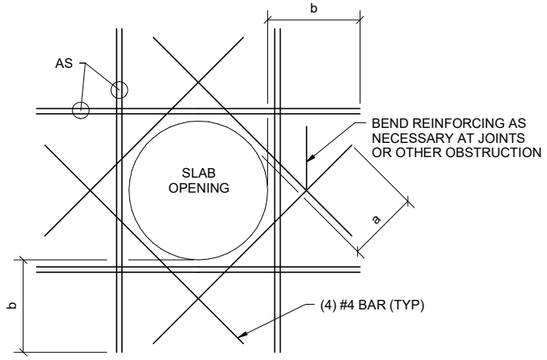
GENERAL STRUCTURAL NOTES

1. APPLICABLE SPECIFICATIONS AND CODES
   a. CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION, AND WITH THE LATEST EDITION OF THE APPLICABLE SPECIFICATIONS AND THE REQUIREMENTS NOTED AS FOLLOWS.
2. SPECIAL INSPECTION
   a. SOILS - TABLE 1705.6 OF THE IBC
      A. PERIODIC INSPECTION OF THE FOUNDATION SOIL BEARING CAPACITY, DEPTH, FILL MATERIALS CLASSIFICATION AND SUBGRADE PREPARATION AND COMPACTION
      B. FULL TIME INSPECTION OF ENGINEERED FILL PLACEMENT AND COMPACTION
   b. CONCRETE - TABLE 1705.3 OF THE IBC
      A. PERIODIC INSPECTION OF REINFORCEMENT BEFORE CONCRETE IS PLACED.
      B. FULL TIME INSPECTION OF ANCHOR RODS AND OTHER EMBEDDED ITEMS AS INDICATED HEREIN.
      C. FULL TIME INSPECTION DURING PLACEMENT OF CONCRETE INCLUDING THE TAKING OF TEST SPECIMENS, SLUMP AND AIR CONTENT MEASUREMENT. INSPECTION AND TESTING SHALL BE LIMITED TO STRUCTURAL REINFORCED CONCRETE WITH TESTING FREQUENCY IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATIONS.
   c. STEEL - AISC 360 FOR STRUCTURAL STEEL, IBC SECTION 1705.2 FOR STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (COLD FORMED STEEL REBAR, ETC.)
3. DESIGN LOADS
   a. DESIGN LOADS AND LOAD APPLICATIONS SHALL BE IN ACCORDANCE WITH IBC.
   b. LIVE LOAD
      A. MANUFACTURING - 125 PSF OR 2 KIP CONCENTRATED LOAD
4. CONSTRUCTION LOADS
   a. STRUCTURES HAVE BEEN DESIGNED FOR DEAD LOADS AND THE DESIGN LOADS NOTED ABOVE. PROVIDE TEMPORARY BRACING, SHORING OR OTHER SUPPLEMENTAL SUPPORT DURING CONSTRUCTION AS NECESSARY TO PROTECT THE STRUCTURES FROM EXCESSIVE CONSTRUCTION LOADS.
5. CONCRETE
   a. CONCRETE CONSTRUCTION SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE BUILDING CODE FOR REINFORCED CONCRETE (ACI 318).
   b. DETAILING, FABRICATION AND PLACEMENT OF REINFORCEMENT SHALL CONFORM TO DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI 315).
   c. MATERIALS
      A. STRUCTURAL CAST-IN-PLACE CONCRETE - - - f'c = 4,000 PSI
      B. REINFORCING BARS - ASTM A615 GRADE 60
   d. ALL BENT REINFORCING BARS SHALL BE SHOP FABRICATED ONLY. REBENDING OR WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS AUTHORIZED BY ENGINEER.
   e. END HOOKS IN REINFORCING BARS, SHOWN ON THE DRAWINGS BUT NOT DIMENSIONED, SHALL CONFORM TO ACI318.
   f. CONCRETE COVER OVER REINFORCEMENT SHALL BE 2" CLEAR EXCEPT CONCRETE PLACED AGAINST AND PERMANENTLY IN CONTACT WITH EARTH SHALL BE 3" CLEAR.
   g. REINFORCEMENT SPLICES NOT PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY ENGINEER. LAP REINFORCING BARS THE FOLLOWING MINIMUMNS AT ALL SPLICES, CORNERS AND INTERSECTIONS, UNLESS OTHERWISE INDICATED. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BAR.

BAR SIZE	REG. BARS	TOP BARS
#3	1'-3"	1'-7"
#4	1'-7"	2'-1"
#5	2'-0"	2'-7"

   h. STAGGER ADJACENT REINFORCEMENT LAP SPLICES IN WALLS 18" MIN.
   i. PROVIDE BAR SUPPORTS TO PROPERLY SECURE AND SUPPORT REINFORCING BARS AT POSITIONS SHOWN ON THE DRAWINGS. IN ADDITION TO NORMAL ACCESSORIES PROVIDE #3 STANDEES AT 36" O.C. TO SUPPORT TOP REINFORCEMENT IN BASE SLAB.
   j. DOWELS, PIPES AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION DURING CONCRETE PLACEMENT.
   k. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PART EMBEDDED IN CONCRETE. PROVIDE 2" CLEARANCE IN ALL CASES UNLESS OTHERWISE INDICATED. NO EMBEDDED ITEM SHALL BE SUSPENDED FROM, SUPPORTED BY, OR BRACED IN PLACE FROM THE STRUCTURAL REINFORCEMENT.
   l. THOROUGHLY CLEAN BY MECHANICAL SCARIFICATION ALL BONDED CONSTRUCTION JOINTS PRIOR TO PLACING CONCRETE IN ADJACENT POUR.
   m. BEGIN SPACING OF BARS WHICH PARALLEL CONSTRUCTION AND EXPANSION JOINTS 2" CLEAR FROM EACH SIDE OF JOINT.
   n. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4", UNLESS OTHERWISE INDICATED.

6. EXISTING CONSTRUCTION
   a. DIMENSIONS, ELEVATIONS AND DETAILS OF EXISTING CONSTRUCTION HAVE BEEN OBTAINED FROM FIELD INVESTIGATIONS AND AS-CONSTRUCTED DOCUMENTS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS NECESSARY TO PROPERLY COORDINATE NEW AND EXISTING CONSTRUCTION AND SHALL NOTIFY THE ENGINEER OF ALL VARIATIONS IN THE DETAIL, DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION WITH THAT SHOWN ON THE DRAWINGS.
   b. CLEAN AND PREPARE ALL EXISTING SURFACES WHICH WILL BE IN CONTACT WITH NEW CONSTRUCTION AS INDICATED AND AS ACCEPTABLE BY THE ENGINEER. APPLY BONDING AGENT TO ALL EXISTING CONCRETE SURFACES WHICH WILL BE IN CONTACT WITH NEW CONCRETE IMMEDIATELY PRIOR TO PLACEMENT.
   c. PROTECT EXISTING MATERIALS FROM DAMAGE DURING CONSTRUCTION.
   d. FURNISH AND INSTALL TEMPORARY SHORING OR BRACING AS NECESSARY TO PROVIDE SUPPORT AND STABILITY FOR EXISTING FOUNDATION WALLS AND FRAMING DURING DEMOLITION AND CONSTRUCTION. IN NO CASE CAN THE EXISTING PERIMETER FOUNATION BE ALLOWED TO SPAN MORE THAN 9' - 0" OVER AN OPEN EXCAVATION.



CIRCULAR OPENINGS

NOTES:

1. 'AS' = ADDITIONAL BARS EQUAL IN TOTAL NUMBER TO REGULAR REINFORCEMENT CUT BY THE OPENING. PLACE ONE-HALF TOTAL BARS TO EACH SIDE OF OPENING & IN THE SAME TRANSVERSE POSITION AS THE REGULAR REINFORCEMENT.
2. 'AS' BAR SIZE TO BE SAME AS REGULAR REINFORCEMENT IN EACH DIRECTION.
3. THIS DETAIL APPLIES UNLESS ADDITIONAL REINFORCEMENT SPECIFICALLY INDICATED AT OPENINGS ON DRAWINGS.
4. ADDITIONAL BARS TO BE PLACED AT TOP OF WALL OR SLAB WHERE ONE LAYER OF REINFORCING IS PROVIDED AND AT EACH FACE WHERE TWO LAYERS OF REINFORCING ARE PROVIDED.
5. ADDITIONAL HORIZONTAL AND VERTICAL BARS ARE NOT NECESSARY FOR HOLES 8 TO 11 INCHES. USE ONLY THE DIAGONAL BARS. FOR HOLES SMALLER THAN 8 INCHES DO NOT CUT BARS, SPREAD NORMAL REINFORCING AROUND HOLE (NO DIAGONALS NEEDED).

BAR SIZE	a	b
#4	18"	24"
#5	24"	30"
#6	30"	36"
#7	42"	54"
#8	48"	62"
#9	54"	70"
#10	61"	79"

1 / GS1 DETAIL
TYPICAL ADDITIONAL REINFORCEMENT AT OPENINGS

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH — MATTHEW J. METTLER SE 13920 2022-6-24 — REGISTERED PROFESSIONAL STRUCTURAL ENGINEER

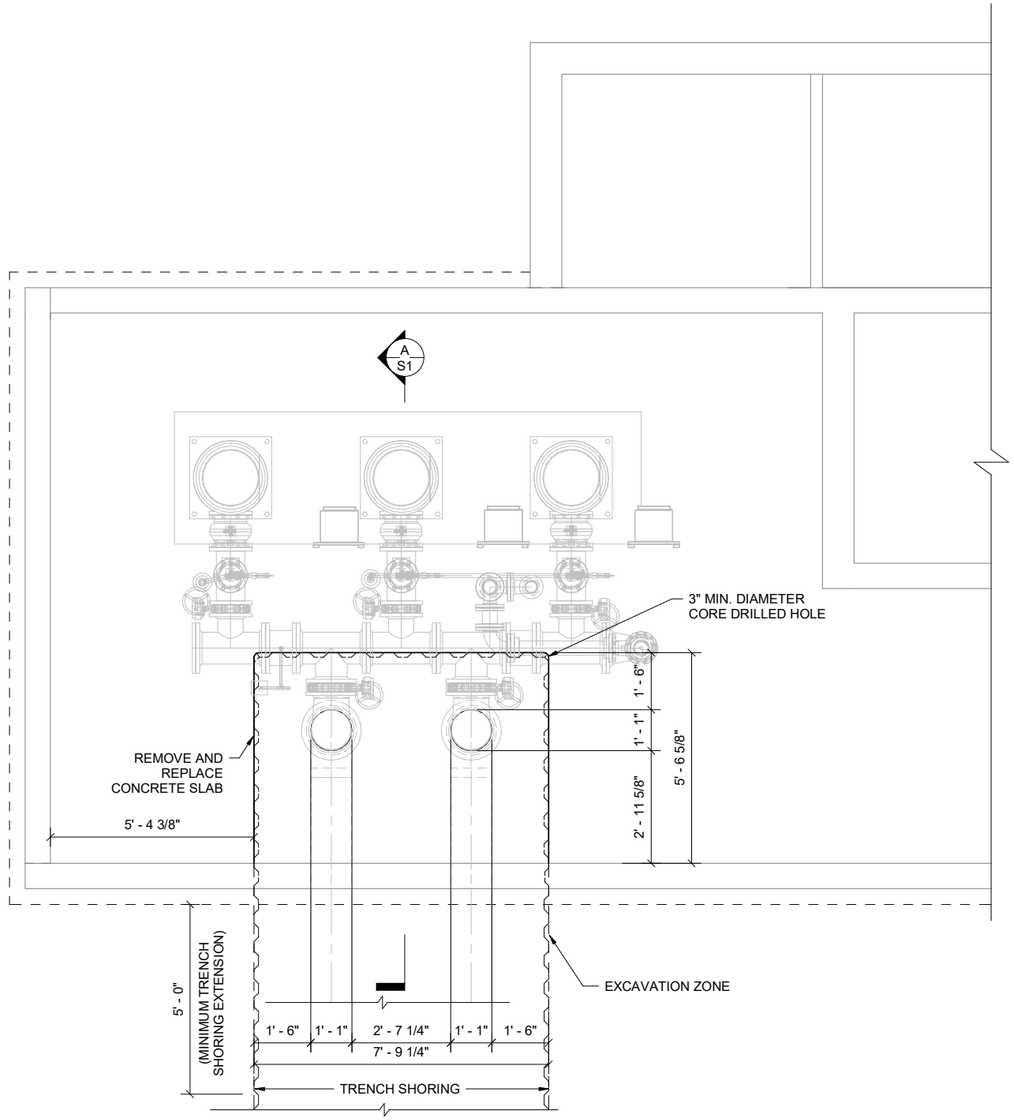
DOWL WWW.DOWL.COM

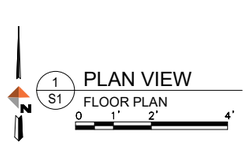
RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

GENERAL STRUCTURAL NOTES

PROJECT 62417.03
DATE 06/24/2022

SHEET GS1

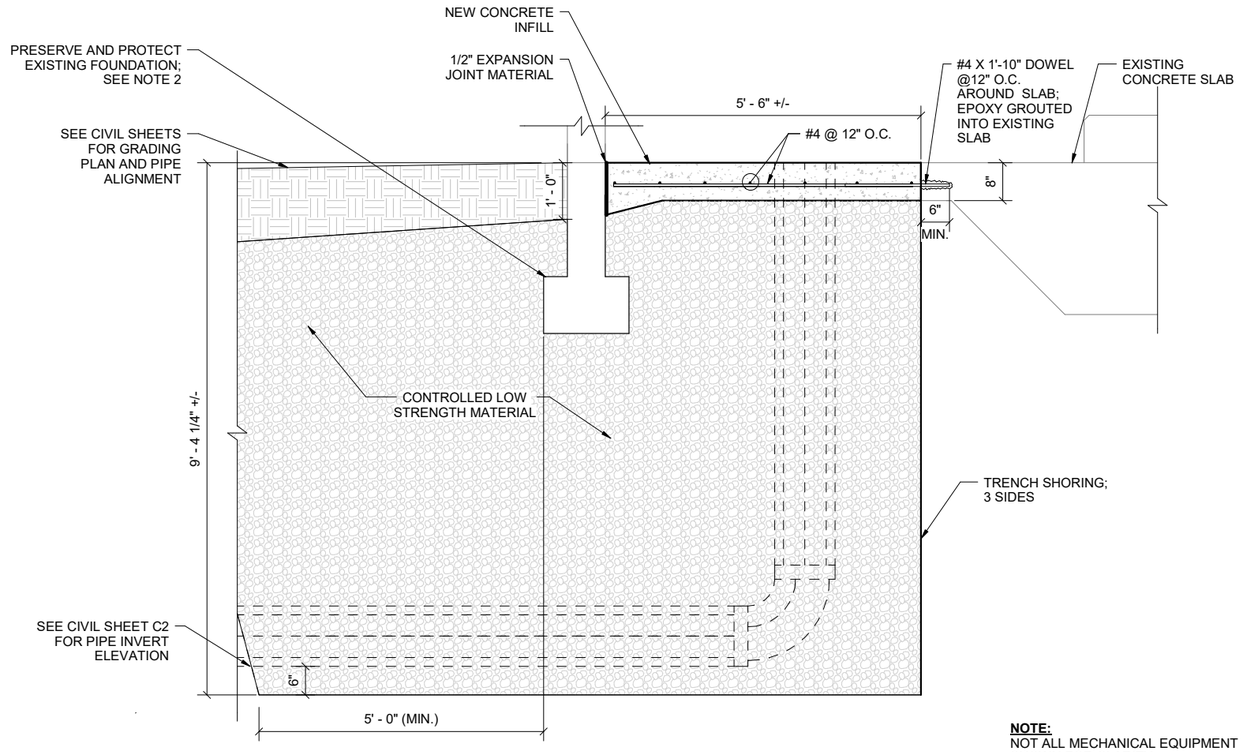




1 S1 PLAN VIEW
FLOOR PLAN
0 1' 2' 4'

CONSTRUCTION NOTES

1. CONTRACTOR TO DESIGN AND PROVIDE TRENCH SHORING AND BRACING FOR EXCAVATION AS SHOWN.
2. MAX CLEAR SPAN OVER THE OPEN EXCAVATION NOT TO EXCEED 9' - 0".



NOTE:
NOT ALL MECHANICAL EQUIPMENT SHOWN FOR CLARITY

A S1 SECTION
BUILDING SECTION
0 1' 2' 3'

BID SET

REVISIONS			
REV	DATE	DESCRIPTION	BY

STATE OF ALASKA 49TH
MATTHEW J. METTLER
SE 13920
2022-6-24
REGISTERED PROFESSIONAL STRUCTURAL ENGINEER

DOWL
WWW.DOWL.COM

RAW WATER TRANSMISSION LINE REPLACEMENT
HOMER, AK

STRUCTURAL - PLAN VIEW AND SECTION

PROJECT	62417.03
DATE	06/24/2022
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