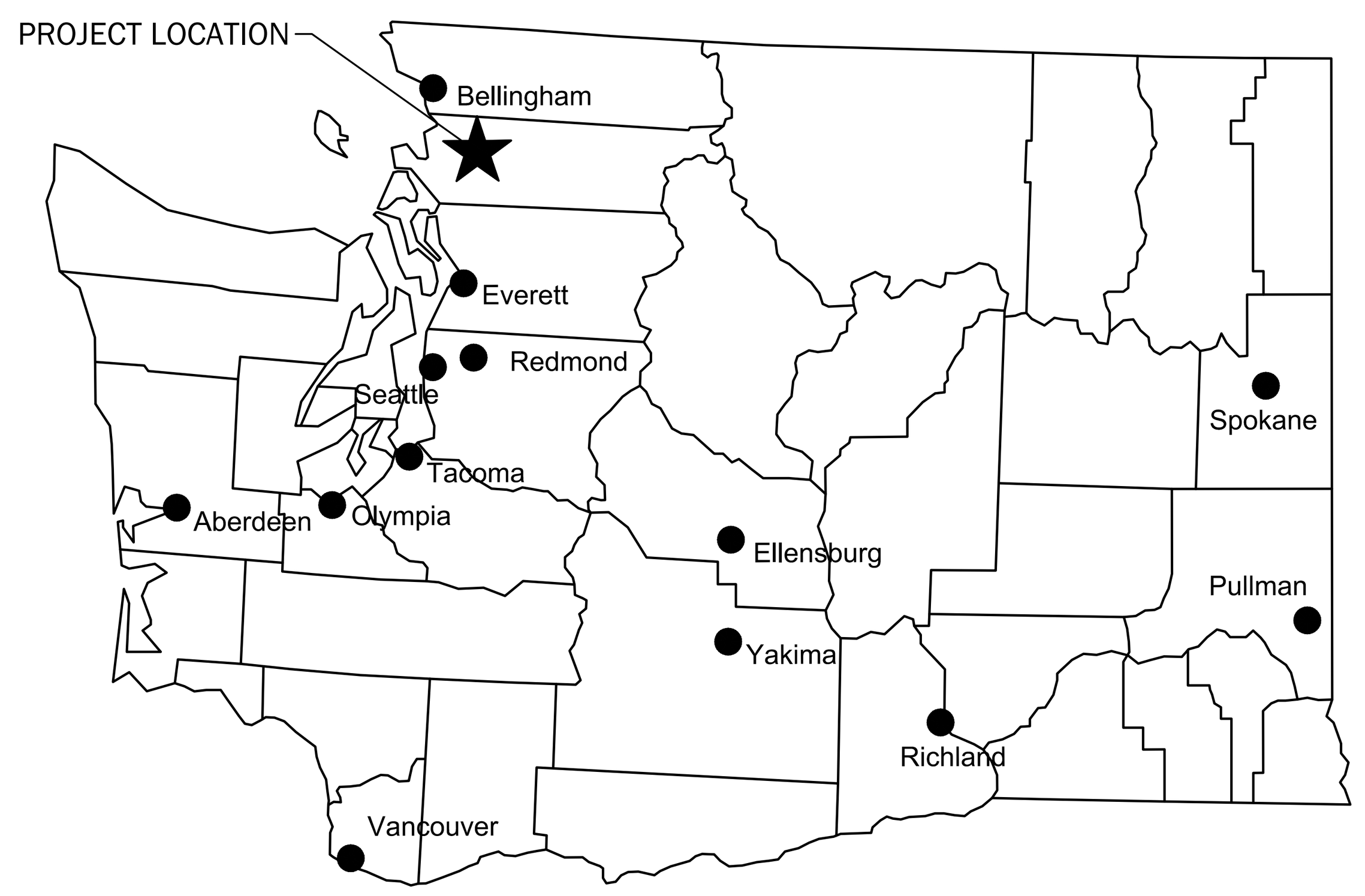
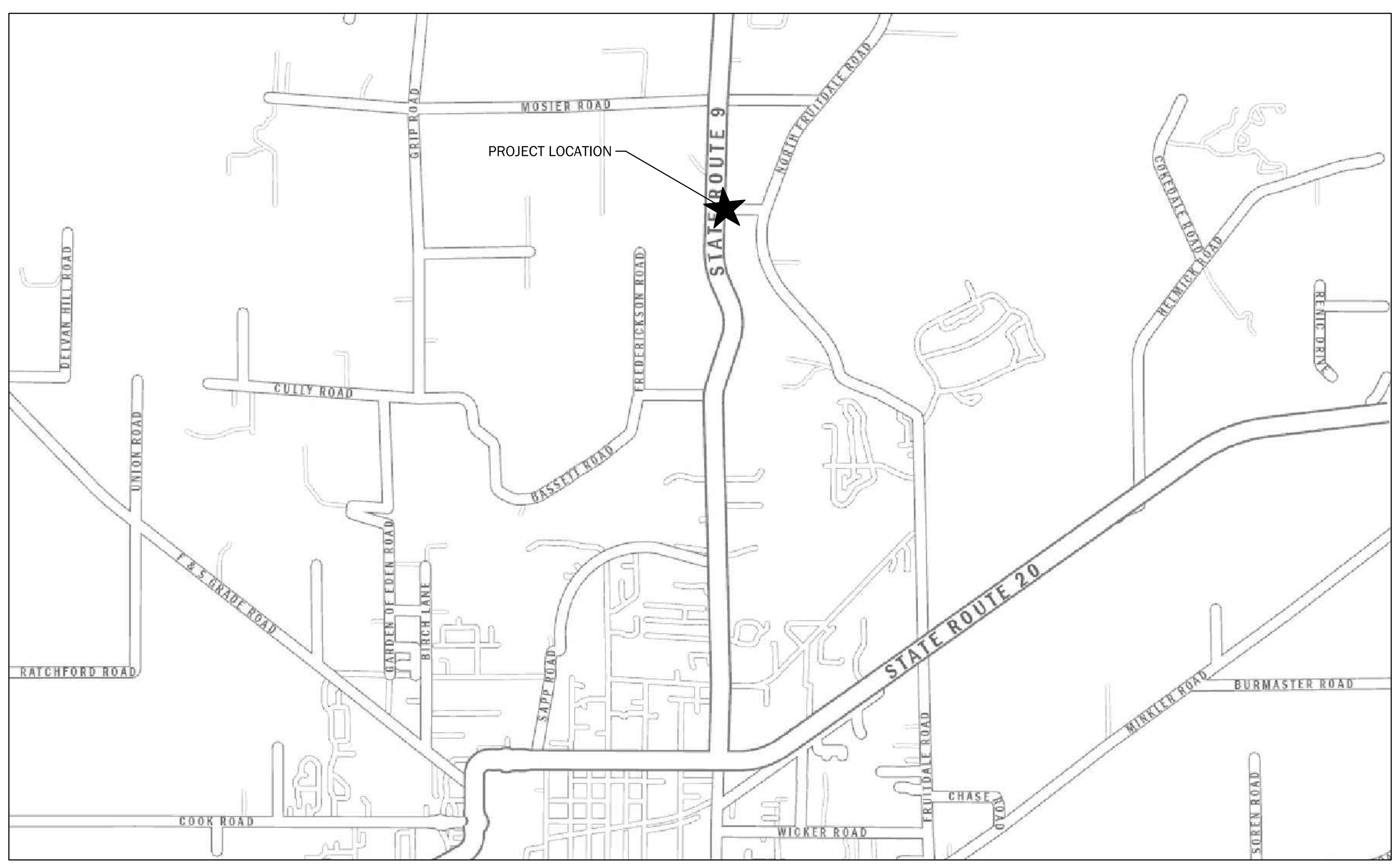
SCHEDULE B: PIPELINE RELOCATION AT SR-9 NORTH OF KALLOCH ROAD

SKAGIT COUNTY, WASHINGTON



LOCATION MAP
NTS



VICINITY MAP
Scale: 1" = 2000'

SKAGIT COUNTY, WASHINGTON
CP15741
CO 2023 - 000386
ISSUED FOR BIDDING
JANUARY 4, 2024

DISTRICT NO. 1 OF SKAGIT COUNTY

DISTRICT OFFICIALS

JOE LINDQUIST	PRESIDENT
ANDREW MILLER	VICE PRESIDENT
CORRIN HAMBURG	SECRETARY
GEORGE SIDHU, P.E.	GENERAL MANAGER
MARK C. HANDZLIK, P.E.	ENGINEERING MANAGER
MICHAEL FOX	OPERATIONS MANAGER

DRAWING INDEX

SHEET	DESCRIPTION	SHEET NO.
G-1	COVER SHEET	1 OF 7
G-2	GENERAL NOTES AND ABBREVIATIONS	2 OF 7
C-1	SITE PREPARATION, TESC AND HORIZONTAL CONTROL PLAN	3 OF 7
C-2	TRENCHLESS PLAN AND PROFILE	4 OF 7
C-3	NOTES AND DETAILS	5 OF 7
C-4	SKAGIT PUD STANDARD DETAILS	6 OF 7
C-5	TRAFFIC CONTROL AND CLASS A SIGNAGE PLAN	7 OF 7

Washington811
Know what's below. Call or click before you dig. washington811.com

MARICA OTTO
STATE OF WASHINGTON
20123343
REGISTERED
PROFESSIONAL ENGINEER
1/4/2024

REV.	DESCRIPTION	DATE	APPR.
-	ISSUED FOR BID	1/4/24	MCH

Skagit PUD
PUBLIC UTILITY DISTRICT

Aspect CONSULTING

DESIGNED BY: MOO
DRAWN BY: CMV
REVISED BY: JPR
PROJECT NUMBER: 230205
REVISION: -
DATE: 1/04/2024

COVER SHEET

SCHEDULE B: PIPELINE RELOCATION AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:
G-1
SHEET 1 OF 7

SURVEY INFORMATION

1. SEMRAU ENGINEERING & SURVEYING, PLLC. SURVEY DATED 7/27/23.
2. BASIS OF BEARING: THE MONUMENTED EAST LINE OF THE NORTHEAST QUARTER OF SECTION 12 AS PER RECORD OF SURVEY RECORDED UNDER AUDITOR'S FILE NUMBER 9608280100, BEARING: S 02°32'19" W.
3. DATUM: NAVD88, BENCH MARK, MAG NAIL AND SHINER, 2' SOUTH OF SOUTH RIM WATER VALVE, AND 8' N 45' W FROM CENTER WHEELCHAIR RAMP AT BACK OF CURB. ELEV = 34.11 FEET NAVD88.
4. INSTRUMENTATION: LEICA MS50 THEODOLITE DISTANCE METER, LEICA GS14 RTK GPS RECEIVER.
5. SURVEY PROCEDURE: STANDARD FIELD TRAVERSE.
6. LOT LINES SHOWN ARE FROM SKAGIT COUNTY ASSESSORS MAPS.
7. EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS SURVEY MAP, THIS SURVEY DOES NOT PURPORT TO REFLECT ALL OF THE FOLLOWING, WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE: EASEMENTS, BUILDING SETBACKS LINES, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND-USE REGULATIONS AND ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
8. REFERENCE SURVEYS:
   a. R1 RECORD OF SURVEY RECORDED UNDER AFN 9608280100
   b. R2 SHORT CARD PLAT 90-32 RECORDED UNDER AFN 9007310009
   c. R3 SHORT CARD PLAT 91-03 RECORDED UNDER AFN 9207130049

GENERAL NOTES

1. THE CONTRACTOR SHALL PROTECT BUILDINGS, FENCES, APPURTENANCES, ABOVE GROUND UTILITIES, AND OTHER PROPERTY ADJACENT TO ALL CONSTRUCTION AREAS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIRING ALL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES.
2. ONSITE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND BE IN PLACE PRIOR TO GROUND DISTURBANCE. ANY PROBLEMS OCCURRING BEFORE FINAL ACCEPTANCE BY THE DISTRICT SHALL BE CORRECTED BY THE CONTRACTOR. UPON FINAL ACCEPTANCE BY THE DISTRICT, OR AS OTHERWISE DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER.
3. ANY REVISIONS TO PLANS MUST BE APPROVED BY THE ENGINEER AND THE DISTRICT PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
4. A COPY OF THE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. MATERIALS SAMPLING AND TESTING SHALL BE AT A FREQUENCY AND MAGNITUDE AS SPECIFIED IN THE STANDARD SPECIFICATIONS OR DETERMINED BY THE ENGINEER. A PRIVATE AND INDEPENDENT TESTING LABORATORY SHALL PERFORM TESTING AND SAMPLING. CERTIFIED TEST REPORTS SHALL BE FURNISHED FOR ALL TESTS PERFORMED BY PRIVATE TESTING LABORATORIES.

GENERAL TRENCHLESS WATER MAIN CONSTRUCTION NOTES

1. ALL PERMIT DOCUMENTS ASSUME THAT THIS TRENCHLESS CROSSING WILL BE INSTALLED USING DIRECTIONAL DRILLING METHODS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR OBTAINING NEW PERMITS IF A DIFFERENT METHOD IS PROPOSED.
2. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING DIMENSIONS AND LOCATIONS OF LAUNCH/RECEIVING PITS.
3. PROFILE STATIONING REFERENCES CONTROL ALIGNMENT. PROFILE ELEVATIONS SHOWN ARE DIRECTLY ABOVE PROPOSED WATERMAIN ALIGNMENT.
4. THE CONTRACTOR SHALL CONTAIN WORK TO WITHIN RIGHT OF WAY OR THE TEMPORARY CONSTRUCTION EASEMENT LIMITS AS ILLUSTRATED ON THE PLANS.

SITE RESTORATION NOTES

1. REPAIR ALL DAMAGE TO WSDOT AND PRIVATE PROPERTY TO THE SATISFACTION OF THE AFFECTED HOMEOWNER AT NO ADDITIONAL COST TO THE DISTRICT.
2. REPAIR ALL LANDSCAPING AND GRAVEL AREAS TO EXISTING OR BETTER CONDITION.

DISTRICT STANDARD GENERAL NOTES
(MINIMUM REQUIREMENTS)

1. UNLESS STATED OTHERWISE, ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AND THE DISTRICT REQUIREMENTS AS OUTLINED IN THE DISTRICT'S WATER POLICY MANUAL.
2. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE DISTRICT ENGINEERING DEPARTMENT, (360) 424-7104, A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
3. ALL PERMITS NECESSARY FOR THE INSTALLATION OF THE PROPOSED WATER SYSTEM IMPROVEMENTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER, ENGINEER, OR CONTRACTOR TO ACQUIRE. A COPY OF THE PERMITS WILL BE SUBMITTED TO THE DISTRICT, PRIOR TO CONSTRUCTION. ALL RIGHTS SHALL BE GRANTED TO, OR TRANSFERRED TO THE DISTRICT.
4. DISTRICT REFERENCE DOCUMENTS, SUCH AS STANDARD DETAILS, WATER POLICY MANUAL, DRAWING STANDARDS, ETC., CAN BE FOUND ON THE DISTRICT WEBSITE AT WWW.SKAGIT PUD.ORG.
5. ALL TIE-INS, SHUTDOWN, FLUSHING, AND HEALTH SAMPLES SHALL BE COORDINATED WITH THE DISTRICT. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES.
6. A LIST OF ALL MATERIALS, INDICATING THE MANUFACTURER, MODEL, AND SIZE, FOR THE WATER SYSTEM IMPROVEMENTS WILL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION. CONTACT DISTRICT FOR SUBMITTAL REQUIREMENTS.
7. PVC PIPE SHALL BE IN ACCORDANCE WITH SECTION 9-30.1(5)A OF THE STANDARD SPECIFICATIONS.
8. ALL BOLTS USED IN BURIED FLANGES SHALL BE ASTM A307 GRADE B UNFINISHED WITH NUTS TO ASTM A563 GRADE A AND WASHERS TO ASTM F8444, OR ASTM A325 TYPE 3 (CORTEN STEEL) UNFINISHED, WITH NUTS TO ASTM A563C3 OR A563DH3 AND WASHERS TO ASTM F436-1. ALL BOLTS, NUTS AND WASHERS USED IN EXPOSED OR ABOVE GROUND LOCATIONS SHALL BE ASTM A307 GRADE B UNFINISHED OR HOT-DIP GALVANIZED.
9. ALL GATE VALVES TO BE RESILIENT SEATED GATE VALVES, AWWA C515 OR C509 (DUCTILE IRON BODY ONLY) WITH STAINLESS STEEL NUTS, BOLTS AND TRIM.
10. ALL BUTTERFLY VALVES TO BE RUBBER SEATED BUTTERFLY VALVES, AWWA C504 WITH STAINLESS STEEL NUTS, BOLTS AND TRIM.
11. RESTRAINED JOINTS MAY BE USED IN PLACE OF CONCRETE BLOCKING AS DIRECTED BY THE PROJECT'S DESIGN ENGINEER AND ACCEPTED BY THE DISTRICT.
12. ALL FIRE HYDRANTS SHALL CONFORM TO AWWA C502 WITH STORZ ADAPTORS. ACCEPTABLE FIRE HYDRANTS INCLUDE CLOW MEDALLION, MUELLER CENTURION OR SUPER CENTURION, AMERICAN DARLING B62B AND AMERICAN AVK NOSTALGIC.
13. A #10 SOLID COPPER WIRE WITH BLUE INSULATION IS TO BE INSTALLED WITH/AND ATTACHED TO ALL NEW WATER PIPELINES AND SERVICE PIPELINES. REFER TO DISTRICT DETAILS FOR INSTALLATION REQUIREMENTS.
14. UNLESS OTHERWISE SPECIFIED, ALL WATER PIPELINE INSTALLATIONS REQUIRE A 36-INCH MINIMUM COVER AND 48-INCH TYPICAL TRENCH DEPTH TO EXISTING OR FUTURE FINISH GRADE AND A MINIMUM OF 1-FOOT VERTICAL AND 5-FOOT HORIZONTAL CLEARANCE BETWEEN WATER PIPELINE AND ALL OTHER UTILITIES UNLESS OTHERWISE SPECIFIED.
15. WHEN INSTALLING WATER PIPELINE ACROSS EXISTING OR PROPOSED SANITARY SEWER, A FULL LENGTH OF PIPE SHALL BE INSTALLED WITH MID-SPAN OF THE WATER PIPE OVER THE SEWER. A MINIMUM 10-FOOT HORIZONTAL SEPARATION AND 18-INCH VERTICAL SEPARATION BETWEEN WATER PIPELINES AND SANITARY SEWER PIPELINES IS REQUIRED, UNLESS AN ALTERNATIVE PROPOSAL FROM THE DESIGN ENGINEER IS SUBMITTED TO AND APPROVED BY THE DISTRICT.
16. BEDDING MATERIAL FOR THE DUCTILE IRON PIPE SHALL BE SELECT, NATIVE, GRANULAR MATERIAL FREE FROM WOOD, WASTE, ORGANIC MATERIAL OR OTHER EXTRANEOUS OR OBJECTIONABLE MATERIALS AND SHALL BE A MAXIMUM SIZE OF 1 1/2-INCHES OR APPROVED PIPE BEDDING PER WSDOT SPECIFICATION 7-09.3(9) AND 9-03.12(3). PEA GRAVEL AND BUCKSHOT ARE NOT ACCEPTABLE.
17. BACKFILL TRENCHES IN PAVEMENT AREAS WITH PIT-RUN GRAVEL COMPACTED TO AT LEAST 95 PERCENT MINIMUM DENSITY PER WSDOT SPECIFICATION 7-09.3(11). THE CONTRACTOR SHALL MAKE ALL PAVEMENT REPAIRS AND PERFORM ALL RESTORATION.
18. PRESSURE TESTING AND DISINFECTION SHALL BE IN ACCORDANCE WITH SKAGIT PUD WATERLINE TESTING AND DISINFECTION PROCEDURES.
19. ALL SALVAGED USABLE DISTRICT OWNED MATERIALS ARE TO BE DELIVERED TO THE DISTRICT OFFICE AT 1415 FREEWAY DRIVE, MOUNT VERNON, OR AS DIRECTED BY THE DISTRICT.
20. THE UTILITY LOCATIONS MARKED ON THIS MAP ARE APPROXIMATE. THE CONTRACTOR IS TO VERIFY ACTUAL LOCATION AND DEPTH PRIOR TO CONSTRUCTION. CALL THE UNDERGROUND UTILITY LOCATE CENTER AT 800- 424-5555.
21. ALL PRIVATE FIRE SPRINKLERS OR PRIVATE FIRE HYDRANT PIPELINES ARE REQUIRED TO BE INSTALLED WITH A WASHINGTON STATE DEPARTMENT OF HEALTH (WSDOH) APPROVED DOUBLE CHECK DETECTOR ASSEMBLY(IES) OR REDUCED PRESSURE DETECTOR ASSEMBLY(IES), LOCATED IMMEDIATELY AFTER THE FIRE SERVICE CONNECTION. A BADGER RECORDALL METER WITH A REMOTE TOUCH-READ PAD WILL BE SUPPLIED AND INSTALLED BY THE DISTRICT WITHIN 6-INCHES OF THE VAULT LID'S HINGE AND BRASS PLUGS IN THE TEST PORTS. METER SUPPLY AND INSTALLATION WILL BE INCLUDED WITH THE CHARGES IN THE WORK ORDER.
22. A LEAD FREE, WASHINGTON STATE APPROVED, REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED AT TEMPORARY CONNECTIONS BETWEEN THE EXISTING DISTRICT PIPELINES AND NEW WATER PIPELINES FOR FILLING, FLUSHING AND PRESSURE TESTING OF THE IMPROVEMENTS. UPON TEMPORARY CONNECTION, AND PRIOR TO FILLING, THE ASSEMBLY SHALL HAVE BEEN SUCCESSFULLY TESTED BY A BACKFLOW ASSEMBLY TESTER (BAT) AND THE TEST REPORT IS TO BE PROVIDED TO THE DISTRICT.
23. BEFORE FINAL CONNECTION TO THE EXISTING DISTRICT SYSTEM, ALL NEW WATER PIPELINES AND REPAIRED PORTIONS OF/OR EXTENSION TO EXISTING PIPELINES SHALL BE ADEQUATELY DISINFECTED AND A SATISFACTORY BACTERIOLOGICAL REPORT OBTAINED.

EXISTING FEATURES LEGEND

⊗	MW	MONITORING WELL
Ⓒ	CPT	CONE PENETRONMETER TEST
⊘		SOIL BORING
		SIGN, AS NOTED
▭	MB	MAILBOX
○	GP	GATE POST
○	WP	WOOD POST
○	SP	STEEL POST FENCE
□	TP	TELEPHONE PEDESTAL
○	PP	POWER ON POST
◇	UP	UTILITY POLE
	GA	GUY ANCHOR
⊠	PJB	POWER JUNCTION BOX
⋈	WV	WATER VALVE
⊞	WM	WATER METER
⊡	GV	GAS VALVE
⊠	GM	GAS METER
○	SL	SEPTIC LID 2' DIAMETER
○	SCO	SEPTIC CLEAN OUT 4" PVC
□	CB	CATCH BASIN, AS NOTED
	EP	EDGE OF PAVEMENT
— P —		POWER
— T —		TELEPHONE
— C —		TV CABLE
— FO —		FIBER OPTIC
— X —		FENCE, AS NOTED
T		TELEPHONE VAULT
P		POWER VAULT
— w — w —		EXISTING 8-INCH DIAMETER DUCTILE IRON WATERMAIN
-//-w-//-w-//-		WATER PIPELINE TO BE REMOVED BY DISTRICT CREWS
P38589		PARCEL NUMBER
ROW		WSDOT RIGHT-OF-WAY

PROPOSED FEATURES LEGEND

CP-04	PROJECT CONTROL POINT
	PROPOSED WATER PIPELINE ALIGNMENT
	45° DI ELL
	WATER VALVE

ABBREVIATIONS

APPROX	APPROXIMATELY
AWWA	AMERICAN WATER WORKS ASSOCIATION
CB	CATCH BASIN
CONC.	CONCRETE
CMP	CORRUGATED METAL PIPE
CPE	CORRUGATED POLYETHYLENE
DI	DUCTILE IRON
DISTRICT	PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY
I.E.	INVERT ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
PVC	POLYVINYL CHLORIDE
ROW	RIGHT-OF-WAY
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

PRESSURE TEST LOG

TEST DATE	_____	TEST PRESSURE	_____
TIME START	_____	TIME END	_____
PRESSURE DROP	_____	MAKE-UP WATER	_____

MARICA OTTO
STATE OF WASHINGTON
20123343
REGISTERED
PROFESSIONAL ENGINEER

1/4/2024

REV.	DESCRIPTION	DATE	APPR.
-	ISSUED FOR BID	1/4/24	MCH

Skagit PUD
PUBLIC UTILITY DISTRICT

DESIGNED BY: MOO
DRAWN BY: CMV
REVISED BY: JPR

Aspect CONSULTING

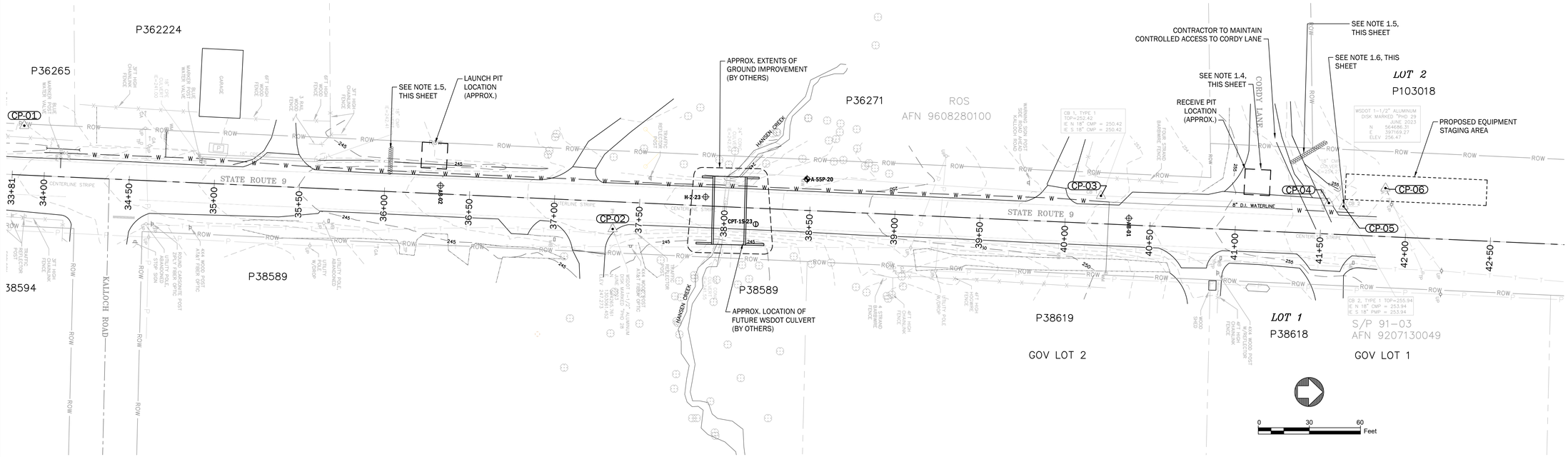
PROJECT NUMBER: 230205
REVISION: -
DATE: 1/04/2024

GENERAL NOTES AND ABBREVIATIONS

SCHEDULE B: PIPELINE RELOCATION
AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:
G-2

SHEET 2 OF 7



PROJECT CONTROL POINTS					
Point ID	Station	Northing	Easting	Elevation	Description
CP-01	33+87.80, 28.97 RT	563920.34	1303000.79	240.96	N/A
CP-02	37+35.60, 16.03 RT	564265.76	1303061.45	247.22	WSDOT 1 1/2" Aluminum Disk Marked PHD 28
CP-03	40+21.12, 16.36 LT	564552.46	1303041.98	252.42	CB 1
CP-04	41+55.03, 18.20 LT	564686.31	1303046.19	256.50	WSDOT 1 1/2" Aluminum Disk Marked PHD 29
CP-05	41+63.70, 16.63 LT	564694.91	1303048.15	255.94	CB 2
CP-06	41+87.80, 28.43 LT	564719.50	1303037.45	256.88	N/A

1. SITE PREPARATION NOTES:

1.1. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE, CONTRACTOR SHALL POTHOLE AT CRITICAL LOCATIONS AS NECESSARY TO IDENTIFY EXACT SIZES, MATERIALS, AND CONFIGURATIONS AND NOTIFY DISTRICT OF ANY CONFLICTS. STORM PIPES TO/FROM STRUCTURES HAVE NOT BEEN LOCATED AND ARE NOT SHOWN. CONTRACTOR TO COORDINATE WITH UTILITY PURVEYORS TO HAVE UTILITY POLES TEMPORARILY SUPPORTED AS REQUIRED TO PREVENT DAMAGE DURING CONSTRUCTION.

1.2. PROVIDE 48-HR NOTICE TO THE DISTRICT AND HOMEOWNERS PRIOR TO DISTURBING ANY HOMEOWNER ACCESS.

1.3. PRESERVE AND PROTECT EXISTING LANDSCAPING TO THE MAXIMUM EXTENT PRACTICAL. REPAIR ANY DAMAGE TO EXISTING OR BETTER CONDITIONS, AS DETERMINED BY THE DISTRICT.

1.4. REMOVE AND STOCKPILE EXISTING GRAVEL SURFACING AS REQUIRED. RE-USE GRAVEL FOR DRIVEWAY RESTORATION, SUBJECT TO DISTRICT APPROVAL.

1.5. INSTALL STRAW WATTLES IN GENERAL ACCORDANCE WITH WSDOT STANDARD PLAN I-30.30.02 AND BEST MANAGEMENT PRACTICES. PREVENT ANY UNCONTROLLED RUNOFF TO PRIVATE PROPERTY OR WSDOT RIGHT OF WAY.

1.6. INSTALL STORM DRAIN INLET PROTECTION PER WSDOT STANDARD PLAN I-40.20-00.

1.7. CONTRACTOR SHALL USE TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES PER SPECIFICATION 02270.

MARICA OTTO
STATE OF WASHINGTON
20123343
REGISTERED
PROFESSIONAL ENGINEER

1/4/2024

REV.	DESCRIPTION	DATE	APPR.
-	ISSUED FOR BID	1/4/24	MCH

Skagit PUD
PUBLIC UTILITY DISTRICT

DESIGNED BY: MOO
DRAWN BY: CMV
REVISED BY: JPR

Aspect CONSULTING

PROJECT NUMBER: 230205
REVISION: -
DATE: 1/04/2024

SITE PREPARATION, TESC AND HORIZONTAL CONTROL PLAN

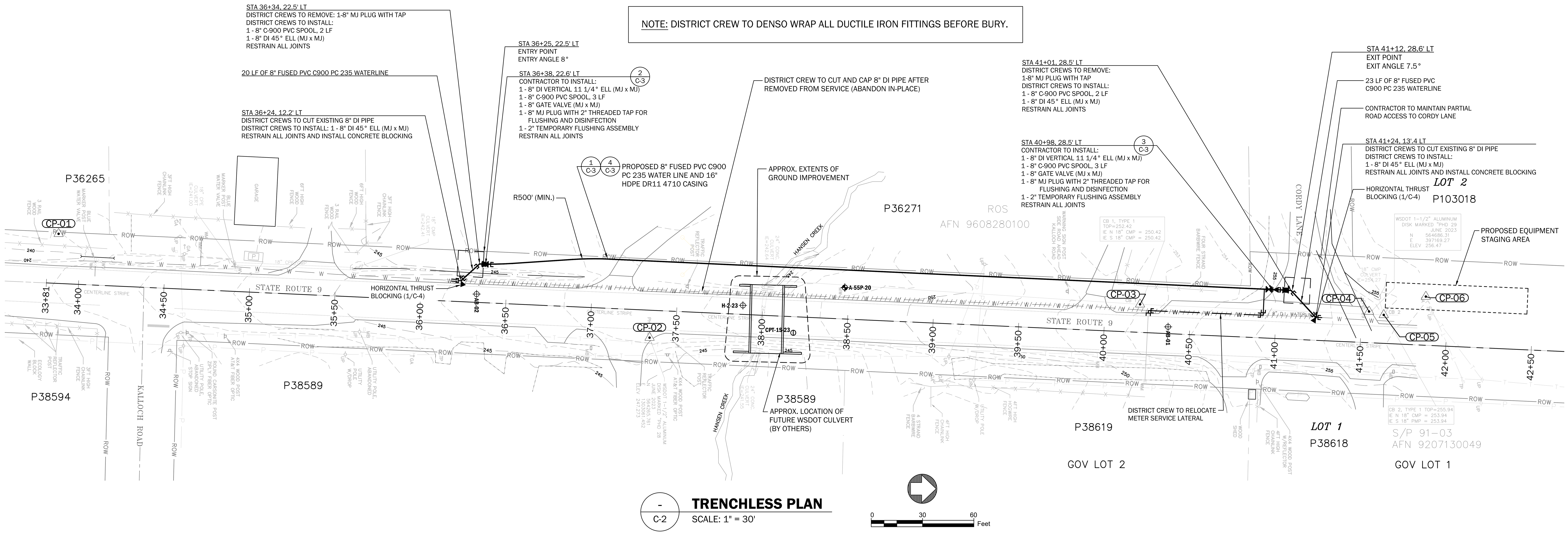
SCHEDULE B: PIPELINE RELOCATION
AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:

C-1

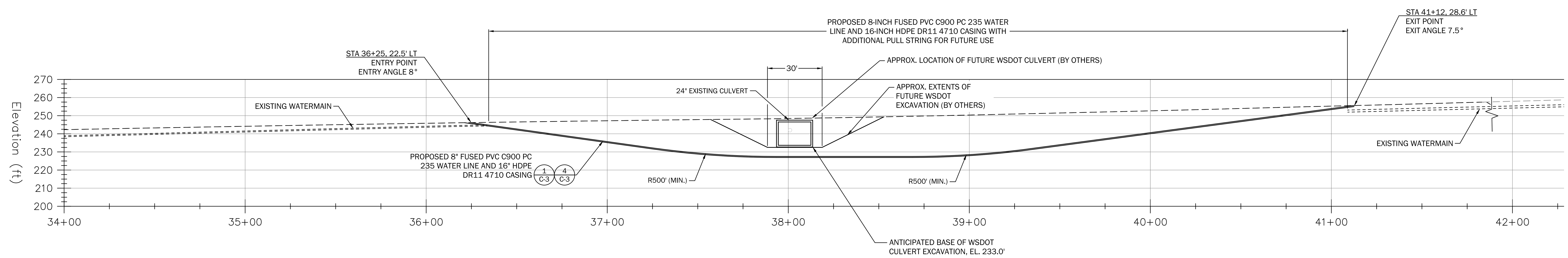
SHEET **3** *OF* **7**

NOTE: DISTRICT CREW TO DENSO WRAP ALL DUCTILE IRON FITTINGS BEFORE BURY.



TRENCHLESS PLAN (- / C-2)

SCALE: 1" = 30'



TRENCHLESS PROFILE (- / C-2)

SCALE: 1" = 30'

Horizontal Scale: 1" = 30'
Vertical Scale: 1" = 30'
Vertical Exaggeration 1x

NOTE:

THE 5 FEET OF VERTICAL SEPARATION SHOWN BETWEEN THE PROPOSED WATER MAIN AND THE ANTICIPATED BASE OF WSDOT CULVERT ELEVATION IS BASED ON CURRENT WSDOT PLANS DATED 9/22/23 WITH A BOX CULVERT BASE ELEVATION OF EL. 233.0.

MARICA OTTO, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER, 20123343 — 1/4/2024

REV.	ISSUED FOR BID	DATE	APPR.
	ISSUED FOR BID	1/4/24	MCH

Skagit PUD — PUBLIC UTILITY DISTRICT

Aspect CONSULTING

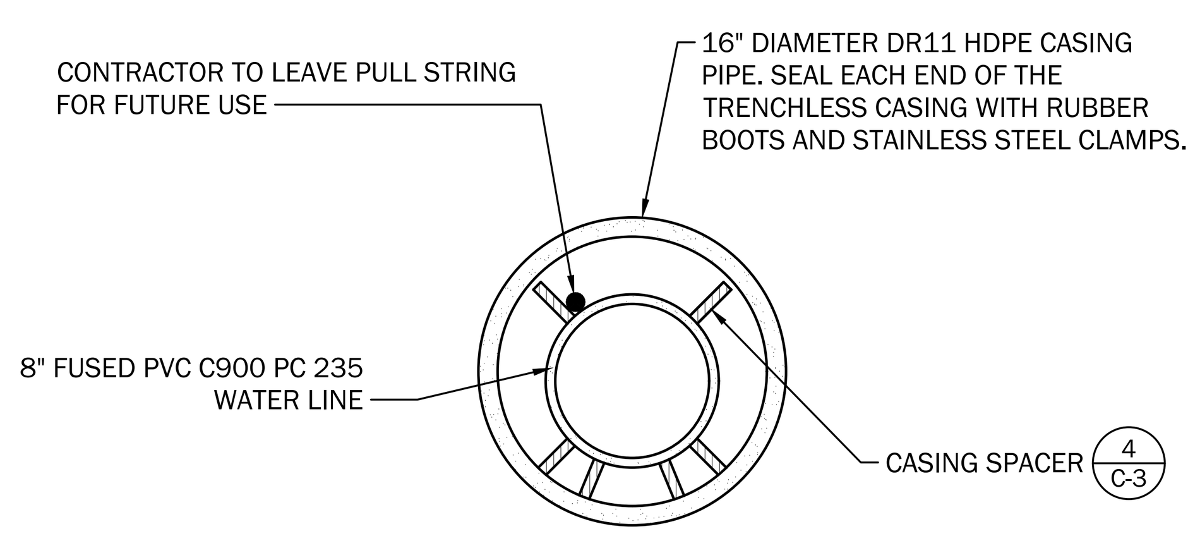
DESIGNED BY: MOO | DRAWN BY: CMV | REVISED BY: JPR

PROJECT NUMBER: 230205 | REVISION: - | DATE: 1/04/2024

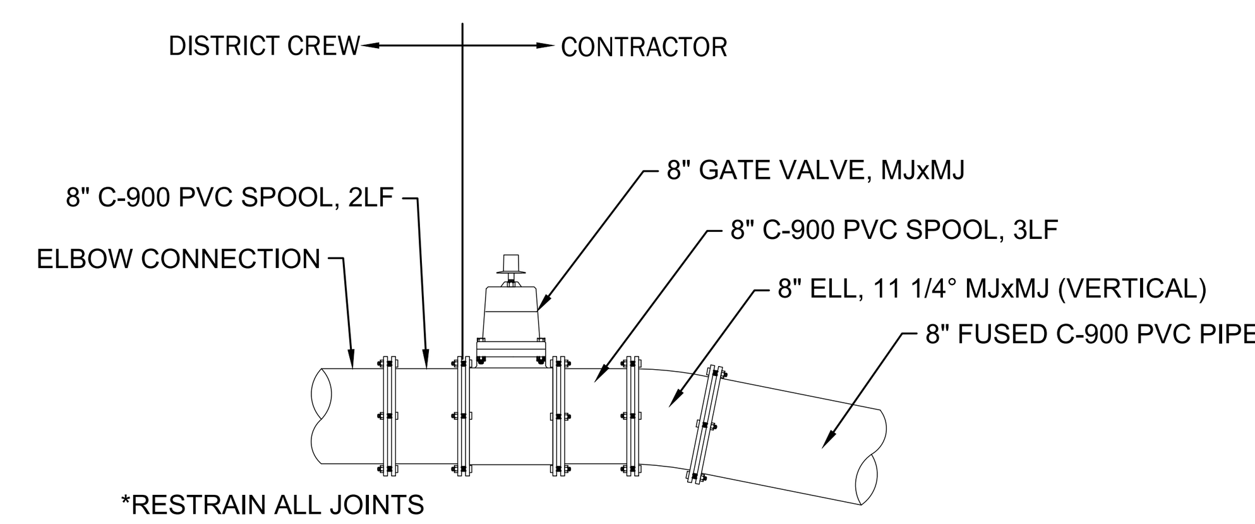
TRENCHLESS PLAN AND PROFILE

SCHEDULE B: PIPELINE RELOCATION AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

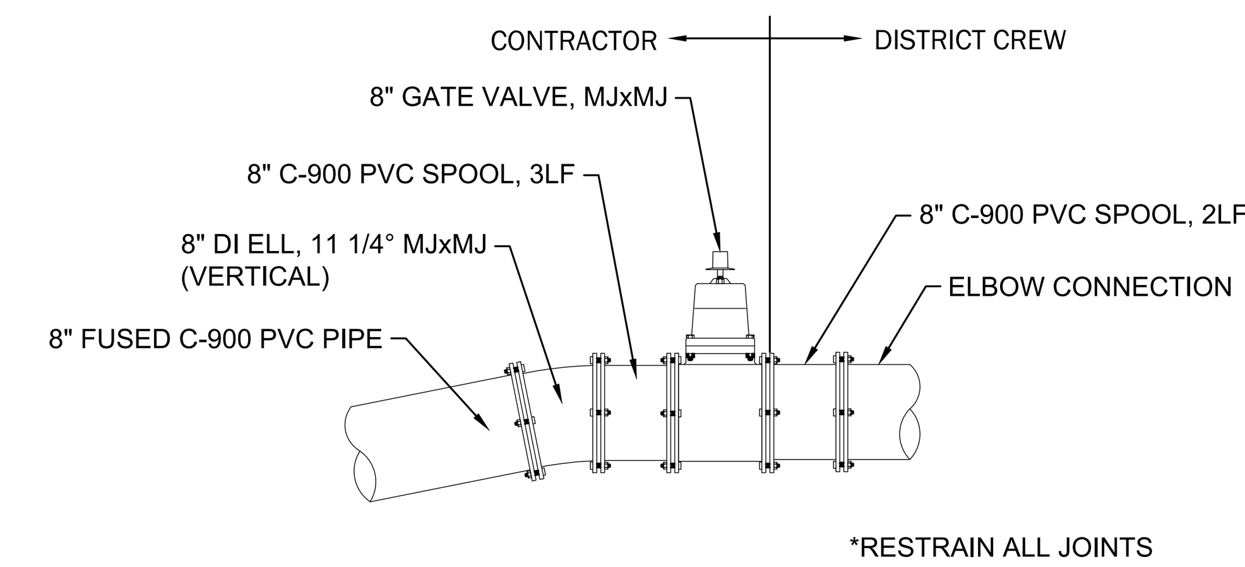
SHEET REFERENCE NUMBER: **C-2**



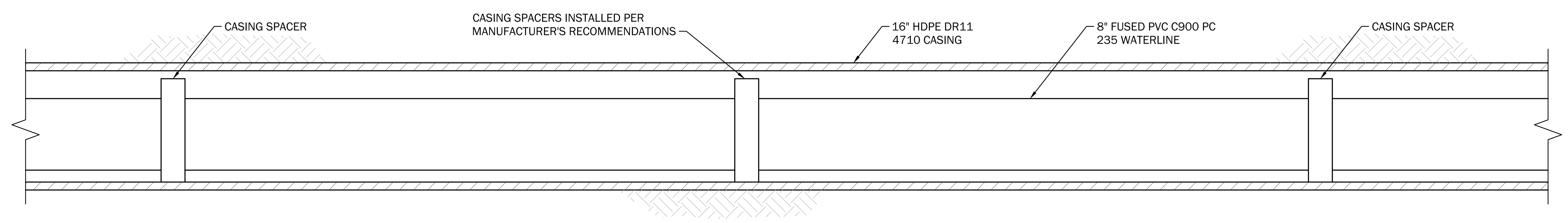
1 / C-2 **TRENCHLESS SECTION**
SCALE: NTS



2 / C-2 **DIRECTIONAL DRILLING SOUTH CONNECTION DETAIL**
SCALE: NTS



3 / C-2 **DIRECTIONAL DRILLING NORTH CONNECTION DETAIL**
SCALE: NTS



4 / C-2 **STANDARD PIPE CASING INSTALLATION**
SCALE: NTS

1/4/2024

REV.	DESCRIPTION	DATE	APPR.
-	ISSUED FOR BID	1/4/24	MCH
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Skagit PUD
PUBLIC UTILITY DISTRICT

DESIGNED BY: MOO
DRAWN BY: CMV
REVISED BY: JPR

Aspect CONSULTING

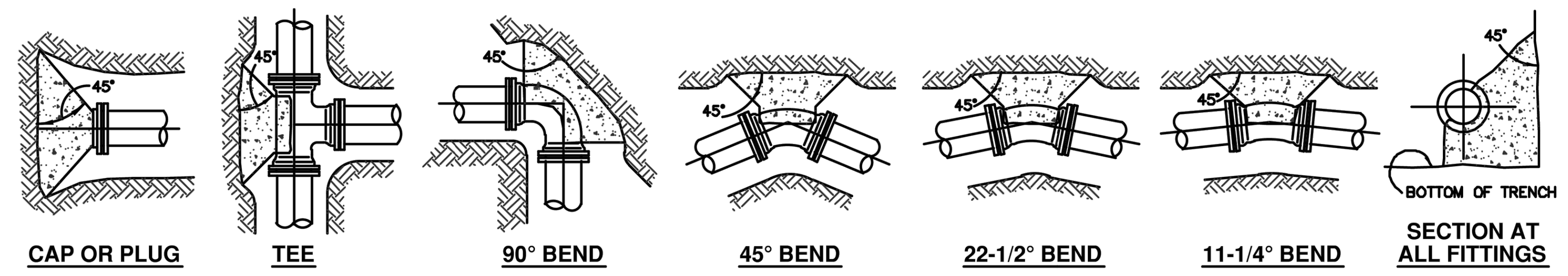
DATE: 1/04/2024
REVISION: -
PROJECT NUMBER: 230205

NOTES AND DETAILS

SCHEDULE B: PIPELINE RELOCATION
AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

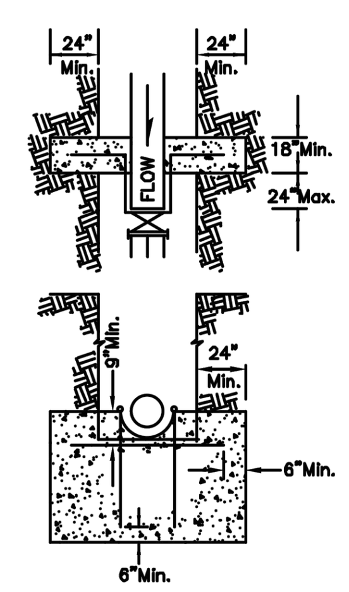
SHEET REFERENCE NUMBER:
C-3
SHEET **5** OF **7**

1 — HORIZONTAL THRUST BLOCKING DETAILS (C-4)
SCALE: TBD



THRUST BLOCK REQUIREMENTS																	
		BEARING AREA REQUIRED IN SQUARE FEET															
		KEY BLOCK** & TEE/CAP OR PLUG test pressures			90 Degree BEND test pressures			45 Degree BEND test pressures			22.5 Degree BEND test pressures			11.25 Degree BEND test pressures			
PIPE SIZE nominal	PIPE SIZE outside dia.	200 psi	225 psi	250 psi	200 psi	225 psi	250 psi	200 psi	225 psi	250 psi	200 psi	225 psi	250 psi	200 psi	225 psi	250 psi	
4	4.80	1.8	2.0	2.3	2.6	2.9	3.2	1.4	1.6	1.7	0.7	0.8	0.9	0.4	0.4	0.4	
6	6.90	3.7	4.2	4.7	5.3	5.9	6.6	2.9	3.2	3.6	1.5	1.6	1.8	0.7	0.8	0.9	
8	9.05	6.4	7.2	8.0	9.1	10.2	11.4	4.9	5.5	6.2	2.5	2.8	3.1	1.3	1.4	1.6	
12	13.20	13.7	15.4	17.1	19.4	21.8	24.2	10.5	11.8	13.1	5.3	6.0	6.7	2.7	3.0	3.4	
16	17.40	23.8	26.8	29.7	33.6	37.8	42.0	18.2	20.5	22.7	9.3	10.4	11.6	4.7	5.2	5.8	
18	19.50	29.9	33.6	37.3	42.2	47.5	52.8	22.9	25.7	28.6	11.7	13.1	14.6	5.9	6.6	7.3	
24	25.80	52.3	58.8	65.3	73.9	83.2	92.4	40.0	45.0	50.0	20.4	22.9	25.5	10.2	11.5	12.8	

KEY BLOCKING SPECIFICATION:
MATERIALS SHALL INCLUDE 3/4-INCH RESTRAINING RODS, HEX NUTS AND WASHERS OF HIGH STRENGTH LOW ALLOY STEEL MEETING AWWA C-111-90 COMPOSITION SPECIFICATIONS, ROMAC "DUCTILE LUG" OR 90° EYE BOLTS AND "600" SERIES PIPE RESTRAINING SYSTEM. THRUST RESTRAINT TO BE CALCULATED AT 7500 POUNDS PER BOLT OR AS RECOMMENDED BY ENGINEER. ALL RODS, EYE BOLTS AND PIPE RESTRAINTS ARE TO BE CLEAN. TWO SEPARATE BRUSH COATS OF ASPHALT COATING AS APPROVED BY THE ENGINEER TO BE APPLIED. A 3-INCH MINIMUM CLEARANCE IS REQUIRED BETWEEN WATER PIPE AND CONCRETE. SOIL IS TO BE COMPACTED TO 95%. REBAR TO BE MINIMUM #6 (3/4") SIZE AND HAVE A MINIMUM 9-INCH CLEARANCE FROM ANY CONCRETE SURFACE.



NOTES:

1. ALL CONCRETE BLOCKING SHALL BE POURED AGAINST DRY, UNDISTURBED SUBGRADE. TABLE IS BASED ON 2000 POUNDS PER SQUARE FOOT ALLOWABLE SOIL BEARING. WEAKER SOIL WILL REQUIRE INCREASED BEARING AREA. SEE SOIL BEARING LOAD CHART.
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES. USE FORMING AS NECESSARY.
3. HORIZONTAL ANCHOR BLOCKING CONFIGURATIONS FOR FITTINGS NOT SHOWN SHALL HAVE APPROVAL OF THE P.U.D.
4. THE SQUARE FOOT AREAS REQUIRED FOR BEARING ARE CALCULATED BY THE FOLLOWING FORMULAS:
   FORMULA AT TEE & CAP OR PLUG:
   $T = PA$
   $T \div K$ = BEARING AREA REQUIRED IN SQUARE FEET
   FORMULA AT ALL PIPE BENDS:
   $T = 2PA$ (SIN 1/2 ANGLE) WHERE ANGLE = THE DEGREE BEND OF THE FITTING
   $T \div K$ = BEARING AREA REQUIRED IN SQ. FEET
   WHEN:
   T = THRUST IN POUNDS
   P= TEST PRESSURE IN PSI
   A= CROSS-SECTIONAL AREA OF PIPE IN SQ. INCHES
   K= ASSUMED 2000 PSF SOIL BEARING PRESSURE
5. FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT WITH A MIN. OF 8-MIL THICKNESS. IT MUST BE INSTALLED AS PER W.S.D.O.T. STANDARDS AND IN ACCORDANCE WITH A.W.W.A. C105.

BEARING AREA REQUIRED IN SQUARE FEET

THE SAFE SOIL BEARING LOADS SHOWN BELOW ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE BEARING LOAD LBS/SQ. FT.
*MUCK, PEAT, ETC.	0
SOFT CLAY, SILT	1,000
SAND, SANDY SILT	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/ CLAY	4,000
HARD SHALE	10,000

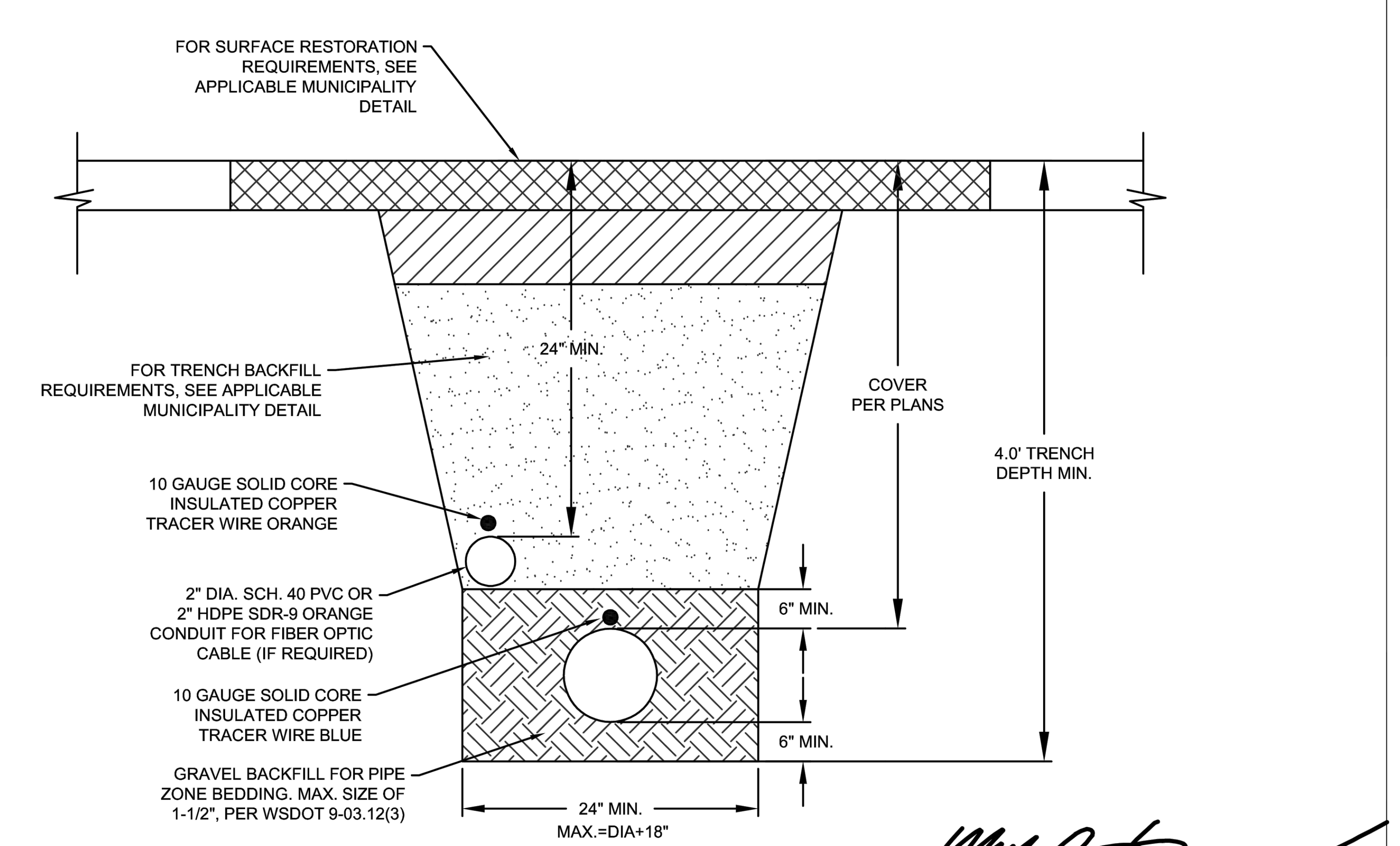
*IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUSTS.

KEY BLOCK USE
THE INSTALLATION OF A KEY BLOCK IS TO BE CONSIDERED ONLY FOR TEMPORARY BLOCKING FOR 5-10 YEARS. IF THE PIPELINE IS TO REMAIN A DEADEND OR AN EXTENSION IS LIKELY TO BE MORE THAN 10 YEARS AWAY, THEN A STANDARD BLOCK FOR CAP OR PLUG WILL BE INSTALLED. USE OF KEY BLOCK IS TO BE APPROVED BY THE DISTRICT.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER
APPROVED ON: MAY 6, 2014

Skagit PUD PUBLIC UTILITY DISTRICT — HORIZONTAL THRUST BLOCKING DETAILS — SCALE: NTS; DATE: 3-05-05; REVISED: 5/6/14; DRAWN BY: CAS; APPROVED BY: GJS — STANDARD WT-1

2 — TYPICAL TRENCH SECTION (C-4)
SCALE: TBD



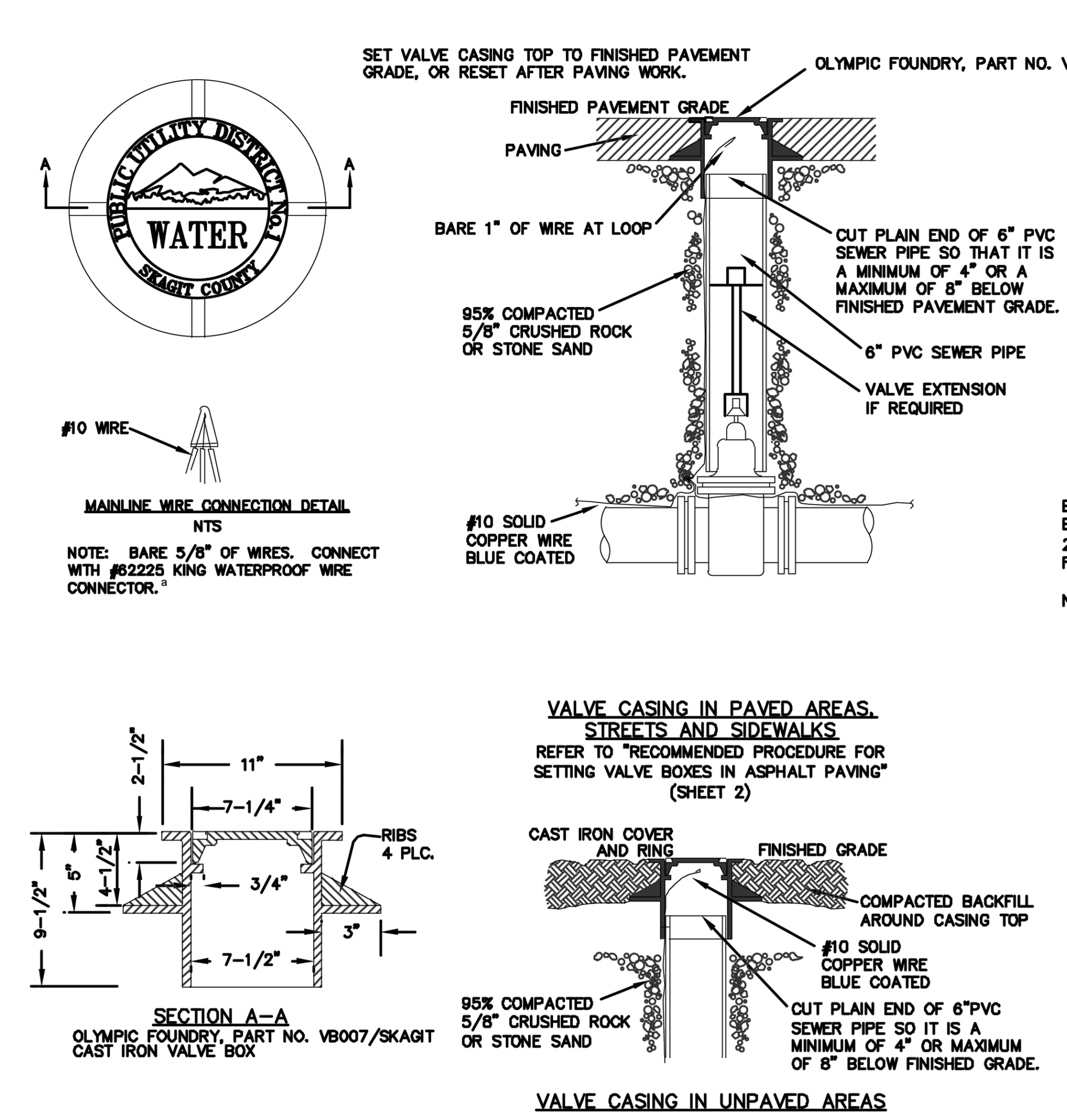
NOTES:

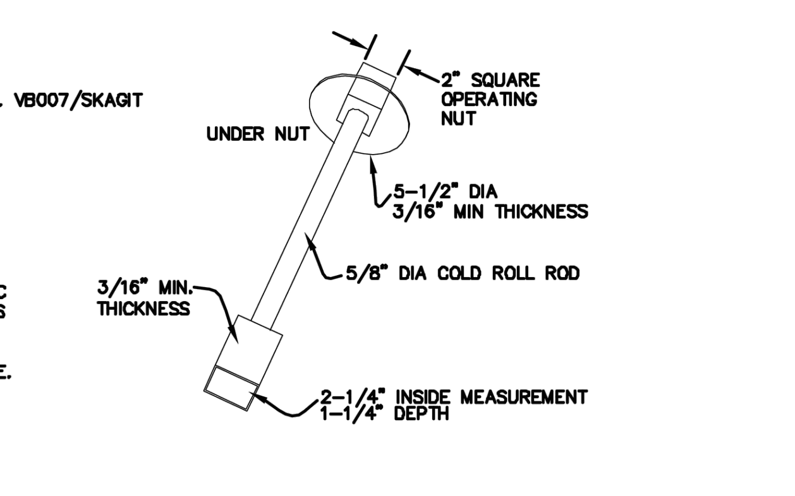
1. DEPTH OF BEDDING BELOW PIPE DEPENDANT ON SOIL CONDITIONS. CONSULT WITH ENGINEER.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER
APPROVED ON: SEPTEMBER 9, 2022

Skagit PUD PUBLIC UTILITY DISTRICT — TYPICAL TRENCH SECTION — SCALE: 1" = 1'; DATE: 11-15-11; REVISED: 9/8/22; DRAWN BY: JLB; APPROVED BY: MCH — STANDARD WT1-1

3 — STD INSTALLATION OF CAST IRON VALVE BOX AND VALVE OPERATING NUT EXTENSION (C-4)
SCALE: TBD





VALVE OPERATING NUT EXTENSION

EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN THREE (3) FEET BELOW FINISHED GRADE. THE FINISH ELEVATION OF THE OPERATING NUT IS TO BE 2' - 3' BELOW FINISH GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION TO BE USED PER VALVE.

NOTE: 1) ALL EXTENSIONS ARE TO BE MADE OF STEEL SIZED AS NOTED, AND PAINTED WITH TWO COATS OF METAL PAINT. WELD ALL PARTS.
2) A CARSONITE CWV-116 BLUE MARKER POST WILL BE INSTALLED AT ALL VALVE(S) LOCATIONS UNLESS DIRECTED OTHERWISE BY DISTRICT REPRESENTATIVE.

VALVE CASING EXTENSION

IF THE 6" PVC VALVE CASING PIPE DOES NOT EXTEND HIGH ENOUGH TO SUPPORT THE CAST IRON VALVE BOX, AN EXTENSION CAN BE ADDED FOLLOWING THE PROCEDURE BELOW:

1. CUT A 6" PVC SEWER PIPE 6" - 8" LONGER THAN THE RISE NECESSARY.
2. SPLIT THE 6" PVC SEWER PIPE THE FULL LENGTH.
3. CURL CASING EXTENSION INTO ITSELF AND PLACE INSIDE EXISTING PVC VALVE CASING THE 6"-8" ALLOWED FOR IN STEP 1. INSTALL VALVE BOX.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER
APPROVED ON: MAY 6, 2014

Skagit PUD PUBLIC UTILITY DISTRICT — STANDARD INSTALLATION OF CAST IRON VALVE BOX & VALVE OPERATING NUT EXTENSION — SHEET 1/2 — SCALE: NTS; DATE: 3-25-05; REVISED: 5/6/14; DRAWN BY: CAS; APPROVED BY: GJS — STANDARD WV-1a

4 — NOTES FOR STD INSTALLATION OF CAST IRON VALVE BOX AND VALVE OPERATING NUT EXTENSION (C-4)
SCALE: TBD

RECOMMENDED PROCEDURE FOR RAISING AND SETTING CAST IRON VALVE BOX IN ASPHALT PAVING

1. LOCATE BURIED VALVE BOX USING REFERENCE MEASUREMENTS AND/OR ELECTRONIC OR MAGNETIC LOCATOR. MARK LOCATION WITH WHITE PAINT.
2. BREAK OUT SMALL HOLE IN PAVEMENT AND LOCATE THE VALVE BOX COVER.
3. CAREFULLY BREAK OUT AN 18-INCH DIAMETER HOLE WITH 9-INCH RADIUS FROM THE CENTER OF THE VALVE BOX. A CIRCLE TEMPLATE 18 INCHES IN DIAMETER IS HANDY TO MARK OUT THE PERIMETER OF THIS HOLE. USE A CURVED SPADE WITH A JACKHAMMER TO CUT A NEAT VERTICAL FACE HOLE IN THE ASPHALTIC CONCRETE PAVEMENT. DO NOT CRACK OR DAMAGE THE PAVEMENT BEYOND THIS HOLE. IF IT IS SUSPECTED THE VALVE CASING IS NOT VERTICAL OR CENTERED OVER THE VALVE OPERATING NUT, REMOVE JUST ENOUGH PAVEMENT TO ALLOW REMOVAL OF THE VALVE BOX LID SO IT CAN BE DETERMINED IF CASING ADJUSTMENT IS NEEDED. IT IS VERY IMPORTANT TO NOT REMOVE ANY MORE FINISHED PAVEMENT THAN ABSOLUTELY NECESSARY.
4. COMPLETELY REMOVE THE WHOLE VALVE BOX. DO NOT DISTURB THE SURROUNDING EARTH ANY MORE THAN NECESSARY. EXAMINE THE CASING PIPE. MAKE SURE IT IS VERTICAL, SYMMETRICAL AROUND THE VALVE NUT AND CLEAN OF ALL ROCKS, DEBRIS AND DIRT. CLEAN AND CORRECT AS NECESSARY. CHECK WITH A VALVE WRENCH TO VERIFY OPERATION IS SMOOTH.
5. TRIM OR ADD TO THE CASING PIPE (6-INCH PVC PLASTIC OR CONCRETE) AS NEEDED SO THE TOP OF THE CASING PIPE IS A MINIMUM OF 4 INCHES TO MAXIMUM OF 8 INCHES BELOW THE FINISHED PAVEMENT GRADE. THE LID WILL NOT FIT TIGHT IF THE CASING IS HIGHER. VALVE BOX WILL HAVE POOR SUPPORT IF THE CASING PIPE IS LOWER. TO ADD CASING PIPE, USE A PIECE OF 6-INCH PVC PLASTIC SEWER PIPE CUT 12 INCHES LONGER THAN NEEDED. SAW-CUT THIS PIECE ALONG ONE SIDE IN A STRAIGHT LINE THE FULL LENGTH. FOLD THE PIPE OVER THE SAW-CUT AND INSERT IT INSIDE THE CASING PIPE IN THE GROUND. SLIDE UP OR DOWN TO ACHIEVE DESIRED LEVEL.
6. IF THE VALVE OPERATING NUT IS OVER 3 FEET BELOW FINISH PAVEMENT GRADE, INSTALL A STANDARD VALVE OPERATING EXTENSION, PER STANDARD SPECIFICATIONS.
7. USING A 1-INCH ROD OR CAPPED 3/4-INCH PIPE, THOROUGHLY POUND THE EARTH ALL AROUND THE CASING PIPE TO OBTAIN MAXIMUM EARTH COMPACTION.
8. FILL THE VOID BETWEEN THE CASING PIPE AND EARTH WALL UP TO EXACTLY 12 INCHES (1 FOOT) BELOW FINISH PAVEMENT GRADE WITH 5/8-INCH MINUS CRUSHED ROCK AND THOROUGHLY COMPACT USING ROD OR PIPE AS IN STEP 7. KEEP ADDING AND COMPACTING CRUSHED ROCK UNTIL HARD, TIGHT LEVEL SURFACE IS EXACTLY 12 INCHES BELOW PAVEMENT GRADE.
9. INSERT THE VALVE BOX. USING A STRAIGHT BOARD OR ROD, CHECK THAT THE TOP RIM OF THE VALVE BOX IS EXACTLY LEVEL WITH THE FINISHED PAVEMENT. THE BOX MUST SET EVENLY ON THE CRUSHED ROCK BASE. IT MUST NOT ROCK OR WIGGLE. REMOVE THE BOX AND ADJUST THE CRUSHED ROCK AS OFTEN AS NECESSARY TO ACHIEVE EXACT GRADE WITH PAVEMENT AND UNIFORM BOX SUPPORT. PUT CAST IRON LID ON THE BOX. MAKE SURE IT FITS CORRECTLY AND IS FLUSH WITH THE BOX RIM. REPLACE LID IF INCORRECT FIT. REPLACE ENTIRE VALVE BOX IF BOX RIM PREVENTS A SNUG FIT OF THE LID.
10. ADD 5/8-INCH MINUS CRUSHED ROCK UNIFORMLY IN THE SPACE BETWEEN THE VALVE BOX AND OUTSIDE EARTH WALL IN MAXIMUM 4-INCH LIFTS. COMPACT EACH LIFT COMPLETELY WITH 1-INCH ROD OR PIPE AS BEFORE. FILL AND COMPACT THE SPACE UP TO 2 INCHES BELOW FINISHED PAVEMENT GRADE.
11. ADD HOT MIX ASPHALTIC CONCRETE MATERIAL AND THOROUGHLY COMPACT WITH ROD OR PIPE TO THE FINISH PAVEMENT GRADE. SMOOTH OFF THE SURFACE AS MUCH AS POSSIBLE.
12. USING A BRUSH, PAINT THE SURFACE OF THE PATCH WITH ASPHALT TACK MATERIAL, EXTENDING MINIMUM OF 1 INCH OVER PAVEMENT AND ONTO EDGE OF VALVE BOX METAL RIM. DO NOT ALLOW ANY TACK MATERIAL TO FLOW INTO METAL RIM OR ON BOX COVER. USE A BRUSH TO CONTROL APPLICATION OF THIS TACK COAT AND PROVIDE A NEAT SEAL SURFACE.
13. CHECK AGAIN THAT VALVE CASING IS CLEAR, THAT VALVE WRENCH CAN BE PUT ON OPERATING NUT AND VALVE CAN BE OPERATED PROPERLY.
14. SPREAD CLEAN FINE SAND OVER THE TACK COAT SO THAT VEHICLE TIRES WILL NOT LIFT THE TACK MATERIAL BEFORE IT CURES AND SETS UP.
15. EACH VALVE BOX IN A CLUSTER OF TWO TO FOUR VALVES MUST BE ADJUSTED INDEPENDENTLY AS OUTLINED ABOVE. CUTTING OUT TRIANGLES OR SQUARES OF FINISHED PAVEMENT RESULTS IN VALVE BOXES THAT DO NOT REMAIN EVEN WITH PAVEMENT, LEAN TOGETHER, AND BREAK OUT UNDER TRAFFIC BEATING.

CAREFULLY FOLLOWING THIS OUTLINED PROCEDURE RESULTS IN VALVE BOX SETTINGS THAT WILL REMAIN FIRM AND IN PLACE, AND ARE VIRTUALLY UNNOTICED BY THE PUBLIC PASSING OVER THEM IN THEIR VEHICLES.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER
APPROVED ON: MAY 6, 2014

Skagit PUD PUBLIC UTILITY DISTRICT — STANDARD INSTALLATION OF CAST IRON VALVE BOX & VALVE OPERATING NUT EXTENSION — SHEET 2/2 — SCALE: NTS; DATE: 3-25-05; REVISED: 5/6/14; DRAWN BY: CAS; APPROVED BY: GJS — STANDARD WV-1b

---

MARICA OTTO — STATE OF WASHINGTON — 20123341 — REGISTERED PROFESSIONAL ENGINEER
1/4/2024

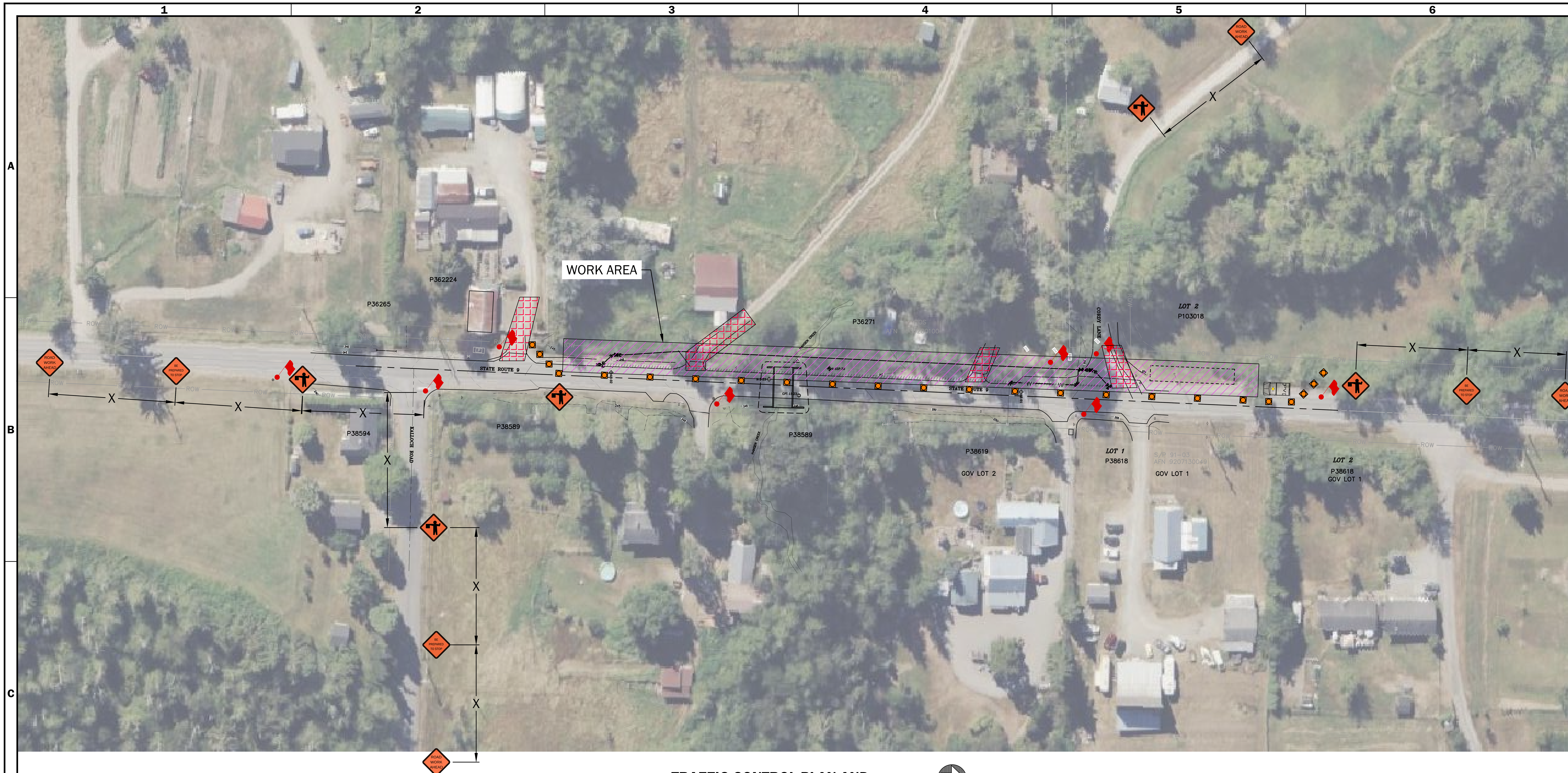
REV.	DESCRIPTION	DATE	APPR.
.	ISSUED FOR BID	1/4/24	MCH

Skagit PUD PUBLIC UTILITY DISTRICT
DESIGNED BY: MOO — DRAWN BY: CMV — REVIEWED BY: JPR

Aspect CONSULTING
PROJECT NUMBER: 230205 — REVISION: . — DATE: 1/04/2024

SKAGIT PUD STANDARD DETAILS
SCHEDULE B: PIPELINE RELOCATION AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER: **C-4**
SHEET 6 OF 7



TRAFFIC CONTROL PLAN AND CLASS A SIGNAGE PLAN

- C-5

SCALE: 1" = 50'

0 50 100 Feet

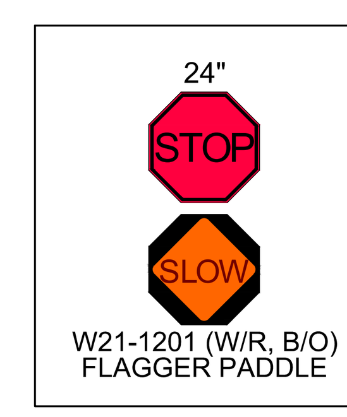
LEGEND

TRAFFIC CHANNELIZATION DEVICE (CONES OR BARRELS) SPACED 5' O.C.

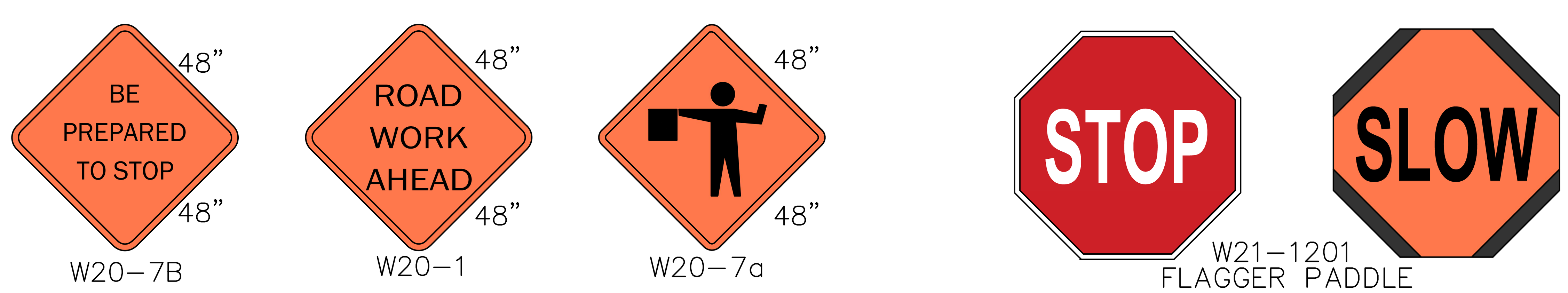
WORK ZONE

10' CLEAR WIDTH FOR DRIVEWAY ACCESS

FLAGGER



W21-1201 (W/R, B/O) FLAGGER PADDLE



W20-7B
NTS

W20-1
NTS

W20-7a
NTS

W21-1201
NTS

SIGNAGE DETAILS

1 C-5

SCALE: NTS

SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800' +/-
RURAL ROADS	45-55 MPH	500' +/-
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS AT-GRADE INTERSECTION AND DRIVEWAYS.		

LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	45	50	55	60	65
LENGTH (feet)	360	425	495	570	645

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50-65	10 to 20	80
45	10 to 20	80

TRAFFIC CONTROL NOTES

1. NOTHING IN THIS PLAN SHALL BE CONSTRUED AS RELIEVING THE CONTRACTOR OF THE TRAFFIC CONTROL REQUIREMENTS OF THE MOST RECENT EDITION OF THE MUTCD.
2. MAINTAIN SAFE ACCESS FOR UTILITY, POSTAL, GARBAGE, AND RECYCLING SERVICE.
3. MAINTAIN SAFE ACCESS FOR RESIDENTS.

DRIVEWAY ACCESS NOTES

1. THE CONTRACTOR IS NOT PERMITTED TO CONTINUOUSLY OBSTRUCT ACCESS FOR PROLONGED PERIODS, EXCEPT FOR PROPERTIES ACCESSED AT THE PLANNED RECEIVE PIT LOCATION.
2. THE CONTRACTOR SHALL EITHER (1) MAKE PROVISIONS IN THEIR OPERATIONS TO TIMELY RELOCATE EQUIPMENT AND MATERIALS TO FACILITATE VEHICULAR INGRESS/EGRESS AS REQUESTED BY THE AFFECTED HOMEOWNERS , OR (2) MAINTAIN CONTINUOUS 10' CLEAR ACCESS WIDTH FOR SAFE INGRESS/EGRESS THROUGHOUT CONSTRUCTION.
3. THE CONTRACTOR MUST PROVIDE MINIMUM 48 HOURS ADVANCE NOTICE TO CITY AND AFFECTED HOMEOWNERS PRIOR TO OBSTRUCTING ANY DRIVEWAYS.

MARICA OTTO
STATE OF WASHINGTON
20123343
REGISTERED PROFESSIONAL ENGINEER
1/4/2024

REV.	DESCRIPTION	DATE	APPR.
.	ISSUED FOR BID	1/4/24	MCH

DESIGNED BY: MOO
DRAWN BY: CMV
REVISED BY: JPR

Skagit PUD PUBLIC UTILITY DISTRICT

Aspect CONSULTING

PROJECT NUMBER: 230205
REVISION: .
DATE: 1/04/2024

TRAFFIC CONTROL AND CLASS A SIGNAGE PLAN

SCHEDULE B: PIPELINE RELOCATION AT SR9 NORTH OF KALLOCH ROAD
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:
C-5