Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

April 13, 2015

SUBJECT: FAU Route 2421 (Sheffer Road)
Section 11-00298-00-BR (Aurora)
Kane County
Contract No. 61B08
Item 171
April 24, 2015 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Due to clarify information necessary to revise the following:

1. **Revised Plan sheets 7, 16, 29, 30 and 45 to incorporation the pay item Steel Casing Pipe, Bored and Jacked 24"**
2. **Revised pages 1-10 of the Scheule of Prices due to adding the pay item Steel Casing Pipe, Bored and Jacked 24"**
3. **Revised the Table of Contents and pages 47, 48, 225-228 of the Special Provisions due to adding the Special for Steel Casing Pipe, Bored and Jacked 24" and for deleting the special for HMA-Quantity Correction (BMPR) (D1)**

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

John Baranzelli, P.E.
Acting Engineer of Design and Environment

By: Ted B. Walschleger, P.E.
Engineer of Project Management

STATE JOB #- C-91-252-12
PPS NBR -

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 61B08

RUN DATE - 04/10/15
RUN TIME - 183103

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
KANE	089	01	11-00298-00-BR (AURORA)	BRM-9003/992/000	FAU 2421

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
XX002895	SAN MAN REC F&L	EACH	3.000	X		=		
XX007169	NON-PRESSURE CONN	EACH	1.000	X		=		
XX008945	WATER VALVES TO BE REMOVED	EACH	1.000	X		=		
X0326806	WASHOUT BASIN	L SUM	1.000	X		=		
X0327367	STL CAS P BOR/JKD 24	FOOT	40.000	X		=		
X0350810	BOLLARD REMOVAL	EACH	2.000	X		=		
X2090215	SELECT GRAN BACK SPEC	CU YD	17.000	X		=		
X2130010	EXPLOR TRENCH SPL	FOOT	100.000	X		=		
X4021000	TEMP ACCESS- PRIV ENT	EACH	4.000	X		=		
X4022000	TEMP ACCESS- COM ENT	EACH	2.000	X		=		
X4401198	HMA SURF REM VAR DP	SQ YD	1,094.000	X		=		
X5030305	CONC WEARING SURF 5	SQ YD	184.000	X		=		
X5610662	WATER MAIN ABANDON 12	FOOT	211.000	X		=		
X5860110	GRANULAR BACKFILL STR	CU YD	97.000	X		=		
X6020074	INLETS TA T3V F&G	EACH	3.000	X		=		

revised 4-13-15

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
X6020116	CONTROL STRUCT 6D SPL	EACH	1.000	X			=		
X6310195	TBT T1 SPL TANG MOD	EACH	2.000	X			=		
X6310214	TRAF BAR TERM T6 SPL	EACH	2.000	X			=		
X7010216	TRAF CONT & PROT SPL	L SUM	1.000	X			=		
X7010237	CHANGE MESSAGE SN SPL	CAL DA	28.000	X			=		
Z0013797	STAB CONSTR ENTRANCE	SQ YD	150.000	X			=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X			=		
Z0030850	TEMP INFO SIGNING	SQ FT	68.000	X			=		
Z0041900	POLY ENCASEMENT	FOOT	236.000	X			=		
Z0045100	PRESS CONNECT 12X12	EACH	1.000	X			=		
Z0055905	TEMP CONSTR FENCE	FOOT	200.000	X			=		
Z0056608	STORM SEW WM REQ 12	FOOT	53.000	X			=		
Z0056612	STORM SEW WM REQ 18	FOOT	45.000	X			=		
Z0076600	TRAINEES	HOUR	500.000	X	0	.80	=	400	.00
Z0076604	TRAINEES TPG	HOUR	500.000	X	15	.00	=	7,500	.00

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
20100110	TREE REMOV 6-15	UNIT	91.000	X			=		
20100210	TREE REMOV OVER 15	UNIT	40.000	X			=		
20200100	EARTH EXCAVATION	CU YD	530.000	X			=		
20201200	REM & DISP UNS MATL	CU YD	266.000	X			=		
20300100	CHANNEL EXCAVATION	CU YD	175.000	X			=		
20800150	TRENCH BACKFILL	CU YD	50.000	X			=		
21001000	GEOTECH FAB F/GR STAB	SQ YD	797.000	X			=		
21101505	TOPSOIL EXC & PLAC	CU YD	385.000	X			=		
25000210	SEEDING CL 2A	ACRE	0.500	X			=		
25000312	SEEDING CL 4A	ACRE	0.250	X			=		
25000400	NITROGEN FERT NUTR	POUND	45.000	X			=		
25000600	POTASSIUM FERT NUTR	POUND	45.000	X			=		
25100630	EROSION CONTR BLANKET	SQ YD	3,001.000	X			=		
28000250	TEMP EROS CONTR SEED	POUND	232.000	X			=		
28000305	TEMP DITCH CHECKS	FOOT	100.000	X			=		

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
28000400	PERIMETER EROS BAR	FOOT	1,039.000	X			=		
28000500	INLET & PIPE PROTECT	EACH	6.000	X			=		
28000510	INLET FILTERS	EACH	12.000	X			=		
28001100	TEMP EROS CONTR BLANK	SQ YD	2,801.000	X			=		
28100105	STONE RIPRAP CL A3	SQ YD	11.000	X			=		
28100107	STONE RIPRAP CL A4	SQ YD	454.000	X			=		
28200200	FILTER FABRIC	SQ YD	465.000	X			=		
30300001	AGG SUBGRADE IMPROVE	CU YD	266.000	X			=		
30300112	AGG SUBGRADE IMPR 12	SQ YD	1,997.000	X			=		
31101100	SUB GRAN MAT B	CU YD	44.000	X			=		
40600275	BIT MATLS PR CT	POUND	6,445.000	X			=		
40600982	HMA SURF REM BUTT JT	SQ YD	30.000	X			=		
40600990	TEMPORARY RAMP	SQ YD	136.000	X			=		
40603080	HMA BC IL-19.0 N50	TON	648.000	X			=		
40603335	HMA SC "D" N50	TON	381.000	X			=		

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS	TOTAL PRICE DOLLARS	TOTAL PRICE CTS
42001430	BR APPR PVT CON (FLX)	SQ YD	67.000 X			=	
42300400	PCC DRIVEWAY PAVT 8	SQ YD	109.000 X			=	
42400200	PC CONC SIDEWALK 5	SQ FT	126.000 X			=	
44000100	PAVEMENT REM	SQ YD	1,512.000 X			=	
44000200	DRIVE PAVEMENT REM	SQ YD	394.000 X			=	
44000300	CURB REM	FOOT	133.000 X			=	
44000500	COMB CURB GUTTER REM	FOOT	191.000 X			=	
44000600	SIDEWALK REM	SQ FT	333.000 X			=	
44201725	CL D PATCH T1 7	SQ YD	5.000 X			=	
44201729	CL D PATCH T2 7	SQ YD	6.000 X			=	
44201733	CL D PATCH T3 7	SQ YD	29.000 X			=	
44201761	CL D PATCH T1 10	SQ YD	2.000 X			=	
48101500	AGGREGATE SHLDS B 6	SQ YD	7.000 X			=	
48203017	HMA SHOULDERS 5	SQ YD	244.000 X			=	
50100100	REM EXIST STRUCT	EACH	1.000 X			=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS	TOTAL PRICE DOLLARS	TOTAL PRICE CTS
50105220	PIPE CULVERT REMOV	FOOT	227.000 X			=	
50200300	COFFERDAM EXCAVATION	CU YD	714.000 X			=	
50201121	COFFERDAM TYP 2 LOC 1	EACH	1.000 X			=	
50201122	COFFERDAM TYP 2 LOC 2	EACH	1.000 X			=	
50300225	CONC STRUCT	CU YD	216.300 X			=	
50300255	CONC SUP-STR	CU YD	146.000 X			=	
50300260	BR DECK GROOVING	SQ YD	423.000 X			=	
50300280	CONCRETE ENCASEMENT	CU YD	12.600 X			=	
50300300	PROTECTIVE COAT	SQ YD	474.000 X			=	
50400305	P P CONC DK BM 17 DP	SQ FT	1,647.000 X			=	
50800205	REINF BARS, EPOXY CTD	POUND	54,950.000 X			=	
51201600	FUR STL PILE HP12X53	FOOT	1,054.000 X			=	
51202305	DRIVING PILES	FOOT	1,054.000 X			=	
51203600	TEST PILE ST HP12X53	EACH	2.000 X			=	
51204650	PILE SHOES	EACH	36.000 X			=	

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
51500100	NAME PLATES	EACH	1.000	X		=		
542A0220	P CUL CL A 1 15	FOOT	40.000	X		=		
542A0229	P CUL CL A 1 24	FOOT	32.000	X		=		
54213660	PRC FLAR END SEC 15	EACH	4.000	X		=		
54213663	PRC FLAR END SEC 18	EACH	1.000	X		=		
54213669	PRC FLAR END SEC 24	EACH	4.000	X		=		
550A0050	STORM SEW CL A 1 12	FOOT	227.000	X		=		
550A0090	STORM SEW CL A 1 18	FOOT	73.000	X		=		
55100500	STORM SEWER REM 12	FOOT	30.000	X		=		
56100050	DI WAT MN TEE, 12X 6	EACH	1.000	X		=		
56100900	WATER MAIN 12	FOOT	236.000	X		=		
56105200	WATER VALVES 12	EACH	2.000	X		=		
56109412	DI WT MNF 12 22.50 DB	EACH	2.000	X		=		
56109424	DI WT MNF 12 45.0 DB	EACH	4.000	X		=		
56400510	FIRE HYDNT REM & REPL	EACH	2.000	X		=		

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS	TOTAL PRICE DOLLARS	TOTAL PRICE CTS
56400825	FIRE HYD W/A V VB & T	EACH	1.000 X			=	
59100100	GEOCOMPOSITE WALL DR	SQ YD	69.000 X			=	
60107600	PIPE UNDERDRAINS 4	FOOT	200.000 X			=	
60203905	CB TA 5 DIA T1F CL	EACH	1.000 X			=	
60205605	CB TA 5 DIA	EACH	1.000 X			=	
60218400	MAN TA 4 DIA T1F CL	EACH	1.000 X			=	
60219200	MAN TA 4 DIA T10F&G	EACH	1.000 X			=	
60219570	MAN TA 4 DIA T3V F&G	EACH	1.000 X			=	
60236200	INLETS TA T8G	EACH	1.000 X			=	
60236700	INLETS TA T10F&G	EACH	1.000 X			=	
60248900	VV TA 5 DIA T1F CL	EACH	2.000 X			=	
60255500	MAN ADJUST	EACH	1.000 X			=	
60260505	INLETS ADJ NEW T3VF&G	EACH	1.000 X			=	
60265700	VV ADJUST	EACH	1.000 X			=	
60266600	VALVE BOX ADJ	EACH	2.000 X			=	

revised 4-13-15

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE DOLLARS	UNIT PRICE CENTS	TOTAL PRICE DOLLARS	TOTAL PRICE CTS
60404305	FR & GRATES T3V	EACH	1.000 X			=	
60500050	REMOV CATCH BAS	EACH	1.000 X			=	
60603800	COMB CC&G TB6.12	FOOT	797.000 X			=	
63100045	TRAF BAR TERM T2	EACH	2.000 X			=	
63100070	TRAF BAR TERM T5	EACH	2.000 X			=	
67000500	ENGR FIELD OFFICE B	CAL MO	5.000 X			=	
67100100	MOBILIZATION	L SUM	1.000 X			=	
70300100	SHORT TERM PAVT MKING	FOOT	200.000 X			=	
70301000	WORK ZONE PAVT MK REM	SQ FT	100.000 X			=	
72000100	SIGN PANEL T1	SQ FT	18.000 X			=	
72400100	REMOV SIN PAN ASSY TA	EACH	7.000 X			=	
72800100	TELES STL SIN SUPPORT	FOOT	55.000 X			=	
78000100	THPL PVT MK LTR & SYM	SQ FT	42.000 X			=	
78000200	THPL PVT MK LINE 4	FOOT	3,087.000 X			=	
78000400	THPL PVT MK LINE 6	FOOT	168.000 X			=	

revised 4-13-15

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
78000600	THPL PVT MK LINE 12	FOOT	51.000	X			=		
78000650	THPL PVT MK LINE 24	FOOT	43.000	X			=		
78200410	GUARDRAIL MKR TYPE A	EACH	4.000	X			=		
78200520	BAR WALL MKR TYPE B	EACH	4.000	X			=		
78201000	TERMINAL MARKER - DA	EACH	2.000	X			=		
88600600	DET LOOP REPL	FOOT	220.000	X			=		
							TOTAL $		

NOTE:

1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

Revised 4-13-15

Revised 4/14/15

criteria are being met. No additional mixture shall be produced until the Engineer receives passing Hamburg Wheel tests.

Method of Measurement:

Add the following after the fourth paragraph of Article 406.13 (b):

"The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's G_{mb}."

Basis of Payment.

Replace the seventh paragraph of Article 406.14 of the Standard Specifications with the following:

> "For all mixes designed and verified under the Hamburg Wheel criteria, the cost of furnishing and introducing anti-stripping additives in the HMA will not be paid for separately, but shall be considered as included in the contract unit price of the HMA item involved.

No additional compensation will be awarded to the Contractor because of reduced production rates associated with the addition of the anti-stripping additive."

~~HOT MIX ASPHALT - QUANTITY CORRECTION (BMPR) (D-1)~~
~~Effective: October 1, 2014~~
~~Revised: October 2, 2014~~

Revise the fifth paragraph of Article 406.13(b) of the Standard Specifications to read as follows:

"HMA and Stone Matrix Asphalt (SMA) mixture in excess of 103 percent of the quantity shown on the plans or the plan quantity as specified by the Engineer will not be measured for payment. The "adjusted quantity to be placed" and the "adjusted pay quantity" for HMA and SMA mixtures will be calculated as follows.

Adjusted Quantity To Be Placed = C x quantity shown on the plans or the plan quantity as specified by the Engineer

where: C = English: $C = \frac{G_{mb} \times 46.8}{U}$ Metric: $C = \frac{G_{mb} \times 24.99}{U}$

and where: G_{mb} = average bulk specific gravity from approved mix design
U = unit weight of HMA shown on the plans in lb/sq yd/in. (kg/sq m/25 mm), used to estimate plan quantity
46.8 = English constant
24.99 = metric constant

Adjusted Pay Quantity (not to exceed 103 percent of the quantity shown on the plans or the plan quantity as specified by the Engineer) = B x HMA tons actually placed

Revised 9/14/15

~~where: $B = \frac{1}{C}$~~

If project circumstances warrant a new mix ~~design~~, the above equations shall be used to calculate the adjusted plan quantity and adjusted pay quantity for each mix design using its respective ~~average bulk~~ specific gravity."

MAINTENANCE OF ROADWAYS
Effective: September 30, 1985
Revised: November 1, 1996

Beginning on the date that work begins on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer, but shall not include snow removal operations. Traffic control and protection for maintenance of roadways will be provided by the Contractor as required by the Engineer.

If items of work have not been provided in the contract, or otherwise specified for payment, such items, including the accompanying traffic control and protection required by the Engineer, will be paid for in accordance with Article 109.04 of the Standard Specifications.

PUBLIC CONVENIENCE AND SAFETY (D-1)
Effective: May 1, 2012
Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

> "If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply."

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

> "The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After"

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

> "On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical."

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)
Effective: November 1, 2012
Revise: January 2, 2015

Revised 4/14/15

STEEL CASING PIPE, BORED AND JACKED, 24"

Description: The work covered by this Section includes furnishing all labor, materials and equipment required to jack and bore pipe and/or casings to properly complete construction as described herein as directed by the Engineer and/or as shown on the plans.

General:

A. It is the Contractors responsibility for the interpretation of soil investigation reports and data, investigating the site and determination of the site soil conditions prior to construction.

B. Pipe and casing installation shall be performed in a way that will not interfere with, interrupt or endanger roadway surface and activity thereon, and minimize subsidence of the surface, structures, and utilities above and in the vicinity of the bore. The Contractor shall be responsible for all settlement resulting from boring operations and shall repair and restore damaged property to its original or better condition at no additional cost to the project.

C. The face of the excavation shall be protected from the collapse of the soil into the pipe or casing.

D. Design of the jacking/receiving pit and required bearing loads to resist jacking forces are the responsibility of the Contractor. The excavation method selected shall be compatible with expected ground conditions. The length of the bore shown on the plans is the minimum length required. The length of the bore may be extended for the convenience of the Contractor, at no additional cost to the project. Due to restrictive right-of-way and construction easements, bore lengths less than the nominal 20 foot length may be necessary.

E. Contractor shall dewater during installation in accordance with the SWPPP, Erosion Control Plan and the Standard Specifications for Water and Sewer Construction in Illinois.

Materials: Contractor shall comply with all manufacturers' recommendations for the approved products.

A. Carrier Pipe: The carrier pipe shall be as specified in the Section for "Water Main and Appurtenances" in these specifications. All water mains within the casing pipe shall be restrained joint pipe.

B. Casing: Casing pipe shall be 24" diameter, 0.375 inch thick rolled steel sheet with a continuous welded bead. The steel casing pipe shall have a minimum yield strength of 35,0000 psi and shall meet the requirements of ATSM A139, Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding. Casing pipe shall have welded joints with entire circumference welded by a certified welder shall be in accordance with AWWA C200-86 Section 3. The thicknesses of casing shown is a minimum thicknesses. Actual thicknesses shall be determined by the casing installer based on an evaluation of the required jacking forces.

C. Casing Chocks/Spacers: Casing spacers shall be required in all casing pipes. The casing spacers shall be affixed to the carrier pipe at a spacing of 6'-8" or per the manufacturers recommendations if less than 6'-8". The casing runner height shall be large enough so that it does not interfere with the pipe restrained joints. The spacer shall adhere to the following:

- Casing chocks (spacers) shall be bolt-on style fabricated of 304 stainless steel with stainless steel nuts and bolts.
- Runners in contact with casing shall be fabricated of high-density plastic with a low coefficient of friction.
- Design runners to provide electrical discontinuity between water main pipe and casing pipe.
- Provide chocks with an insulating liner.

D. Casing End Seals: End seals shall be made of synthetic rubber, conical shape, pull-on or wrap-around style with Type 304 stainless steel bands. For carrier pipe greater than 24 inches in nominal diameter the annular space between the carrier pipe and the casing pipe at the ends shall be bricked in conjunction with the end seals.

Construction Methods:

A. Welding of Casing Pipe:

1. Welding requirements shall be in accordance with ANSI/AWWA C206. Welding procedures shall be required for, at a minimum, longitudinal and girth or special welds for pipe cylinders, casing joint welds, reinforcing plates, and grout coupling connections.

2. Welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the type of materials to be used. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent local, approved testing agency not more than 6 months prior to commencing work on the casing or pipeline. Machines and electrodes similar to those used in the Work shall be used in qualification tests. The Contractor shall be responsible for all material and bear the expense of qualifying welders.

Submittals:

A. Documentation that pipe and/or casing pipe material including the standard to which it is manufactured, outside diameter, wall thickness, joint configuration, and certificate of compliance certifying that the pipe and/or casing pipe meets these specifications.

B. Details of casing spacers, including manufacturer's recommended spacing.

C. Details of end seals for casing.

D. Dewatering Plan as required by the NPDES Permit and approved by Kane-DuPage Storm Water Conservation District.

Added 4/14/15

Equipment: Contractor shall utilize equipment and methods designed to install pipe and/or casing as shown in the plans. Operation of equipment shall be performed by qualified personnel, experienced in this type of work. Selected equipment shall be capable of accurate alignment and grade control, and shall protect against subsidence or other disturbance of ground, existing utilities, existing road surface, and existing structures.

Preparation: Confirm location of all known existing utilities prior to start of jacking/receiving pit excavation and pipe installation. The Contractor shall provide the detailed layout required to keep the bore on grade. The Contractor shall notify the Engineer no less than seven (7) working days before beginning shaft excavation. Before beginning construction of jacking/receiving pit, adequately protect existing structures, utilities, trees, shrubs, and other existing facilities. Place fencing, gates, lights, and signs, as necessary around shafts and staging areas to provide for public safety. When preparing to install casing pipe, verify casing pipe minimum wall thickness is adequate for anticipated jacking loads.

Installation:

A. Jacking/Receiving Pit: Required boring and jacking pits or shafts shall be excavated and maintained to the minimum dimension necessary to perform the operation. Said excavations shall be adequately barricaded, sheeted, braced and dewatered, as required, in accordance with the applicable portions of OSHA requirements.

B. Lubrication of Exterior of Pipe and/or Casing: Bentonite slurry may be used to lubricate exterior of pipe and/or casing during installation. Use of water to facilitate removal of spoil is permitted; however, water jetting is not allowed.

C. Boring: The boring shall be accomplished by means of auguring to the size, line and grade shown on the plans or as directed by Engineer. The diameter of the bore shall be minimal to complete the jack and boring operations. Re-drill pilot hole when bore does not meet specifications.

D. Jacked and Bored Pipe and/or Casing: The boring and jacking operations shall be done simultaneously, with continuous installation, until the casing pipe is in final position. Correct line and grade shall be carefully maintained. Add on sections of casing pipe shall be full-ring welded to the preceding length, developing watertight total pipe strength joints. The casing installation shall produce no upheaval, settlement, cracking, movement, or distortion of the existing roadbed or other facilities. Following placement of the carrier pipe within the steel casing, each end shall be sealed as specified herein. Unless approved otherwise by the Engineer, a two-inch vent pipe shall be installed on the casing.

   Casing pipe holes shall be mechanically bored through the soil by a cutting head on a continuous auger mounted inside the pipe. The auger shall extend a minimum distance beyond the end of the casing pipe to preclude formation of voids outside of the pipe shell.

E. Grouting Jacked and Bored Casings: Overcutting in excess of one (1) inch shall be

remedied by pressure grouting the entire length of the installation. Should appreciable loss of ground occur during jacking or boring operations, Contractor shall backpack all voids promptly. Fill all remaining voids upon completion of operations: such filling or backpacking shall be with grout unless otherwise approved.

F. Installation of Carrier Pipe within Casing: Entire length of casing shall be installed complete and inspected and approved by Engineer before any carrier pipe is placed therein. Repair defects in casing pipe or leakage at joints. Install a minimum of three casing spacers to each length of carrier pipe in such a manner that electrical continuity will not occur between casing pipe and carrier pipe. Spacers shall be placed on each side of each joint and at 6'-8" maximum spacing between joints. Check each joint makeup and pipe segment prior to pushing carrier pipe segments into casing. When the carrier pipe is a ductile iron or PVC pressure pipe install restrained joint pipe or mechanical joint with restrainers. Casing end seals shall be provided at the end of the casing pipe after installation of the carrier pipe.

G. Casing Pipe: The casing pipe shall be adequately protected to prevent crushing or other damage under jacking pressures. Backstops shall be provided or adequately distributing the jack thrust without causing deformation of the soil or other damage. Should the casing pipe be damaged, such damaged portion, if not in the hole, shall be replaced; however, if inserted, the encasement pipe shall be abandoned in place, grouted full, and suitably plugged, and an alternate installation made.

H. Filling Void in Casing Pipe: All void spaces between the casing pipe and carrier pipe shall be filled with natural sand 2NS or 1/8-inch pea stone. The sand or pea stone shall be placed by flushing or other methods approved by Engineer. The Contractor shall furnish sand fill holes in the carrier pipe as required to ensure complete filling of all void spaces.

I. Removal of Jacking/Receiving Pit Support System: Remove support elements, except those required by Engineer to remain in place, from excavation. In addition, remove support elements as needed to install the pipeline. Removal of support system shall be performed in a manner that will not disturb or harm adjacent construction or facilities. Fill voids created by removal of support system with clean sand, flowable fill, or a similar granular fill material approved by Engineer.

J. Backfilling of Jacking/Receiving Pit: Seal jacking/receiving pit opening and backfill at shafts when no longer required.

Basis Of Payment: This work shall be paid for and measured at the contract unit price per Foot for STEEL CASING PIPE, BORED AND JACKED, 24" which shall include submittals, sheeting and shoring, jacking and receiving pits, restrained joints, pipe spacers, end seals, casing aggregate, bedding, backfill, compaction, disposal of excess materials full and compensation for all labor, materials and equipment to complete the work as specified.

Ductile iron water main pipe shall be measured separately for payment as WATER MAIN of the size specified.

Added 4/14/15