CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	1	50
Plotting Date: 11/14/2024			

FOR BIDDING PURPOSES ONLY

City of Sioux Falls

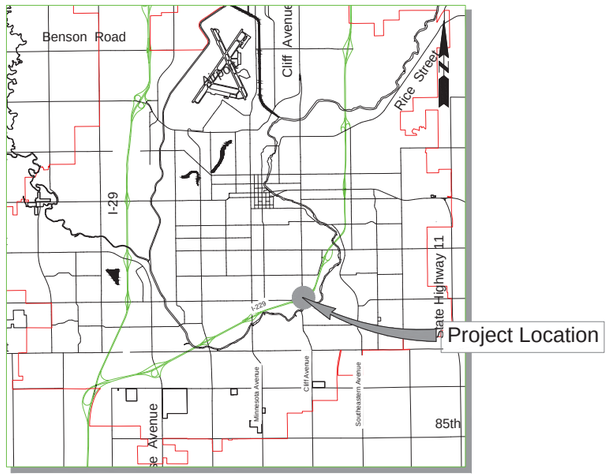
Minnehaha County

Plans for

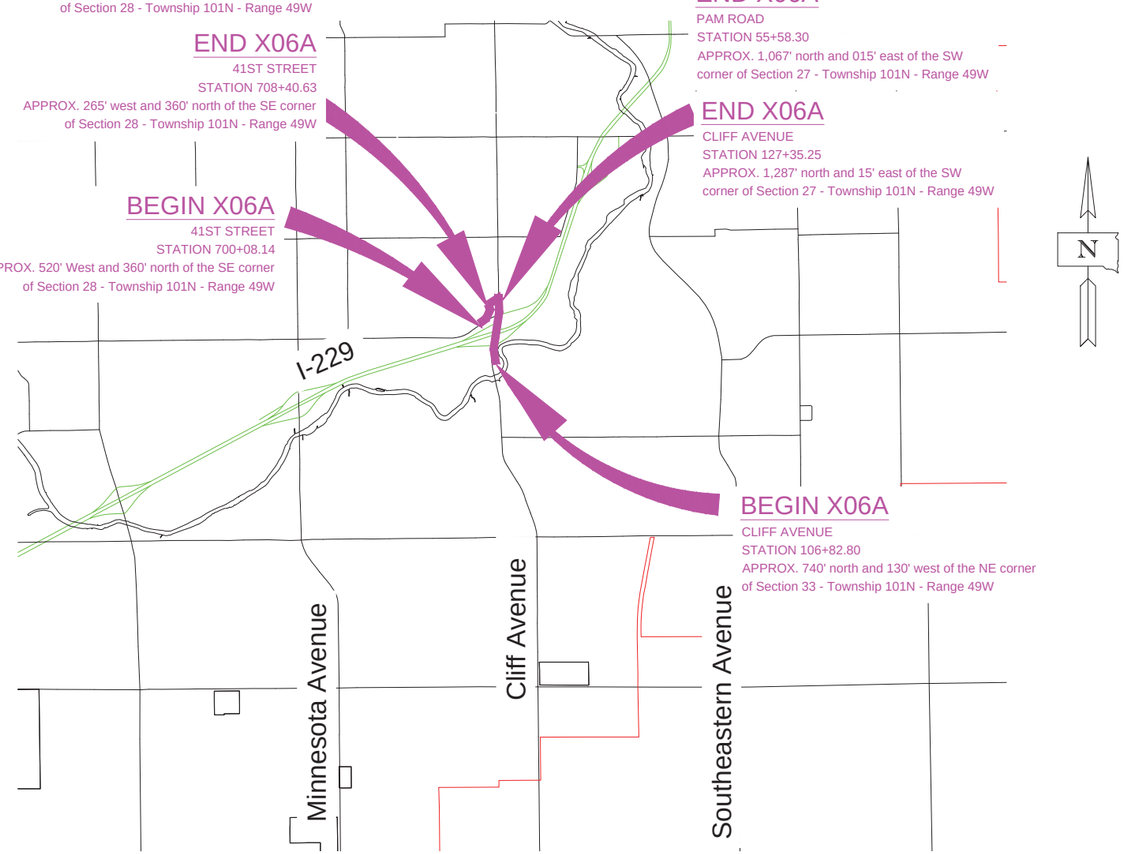
CLIFF AVENUE UTILITY IMPROVEMENTS

41ST ST, CLIFF AVENUE & I-229 SANITARY SEWER AND WATER MAIN CROSSING

PCN X06A
CIP No. 11100



Vicinity Map



Index of Sheets

Drawing indicates general utility locations only. Neither the correctness or completeness of locations are guaranteed.

Prior to excavation contact:
SOUTH DAKOTA ONE CALL (1-800-781-7474)

Plans By:

PHONE: 605.330.7000
5016 S BUR OAK PL
SUITE 1
SIOUX FALLS, SD 57108
WWW.SEHINC.COM

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

I, Kelsey Waltz, hereby certify that these plans were prepared by me, or under my direct supervision and that I am a duly registered engineer under the laws of the State of South Dakota.

11.15.2024

KELSEY B. WALTZ | S.D. No. 14872 | Date

City of Sioux Falls
PUBLIC WORKS - DIVISION OF ENGINEERING
CITY CENTER
231 NORTH DAKOTA AVENUE
SIOUX FALLS, SD 57104 (605) 367-8601

Approved

City Engineer | Date

2

CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Friday, February 9, 2025

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LEGEND OF SYMBOLS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	2	50

Plotting Date: 11/14/2024

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush/Hedge
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Concrete Symbol
- Control Point
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Gutter
- Guy Pole
- Haystack
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Sign Double Face
- Traffic Sign One Post
- Traffic Sign Two Post
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

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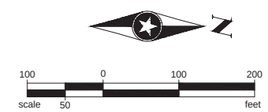
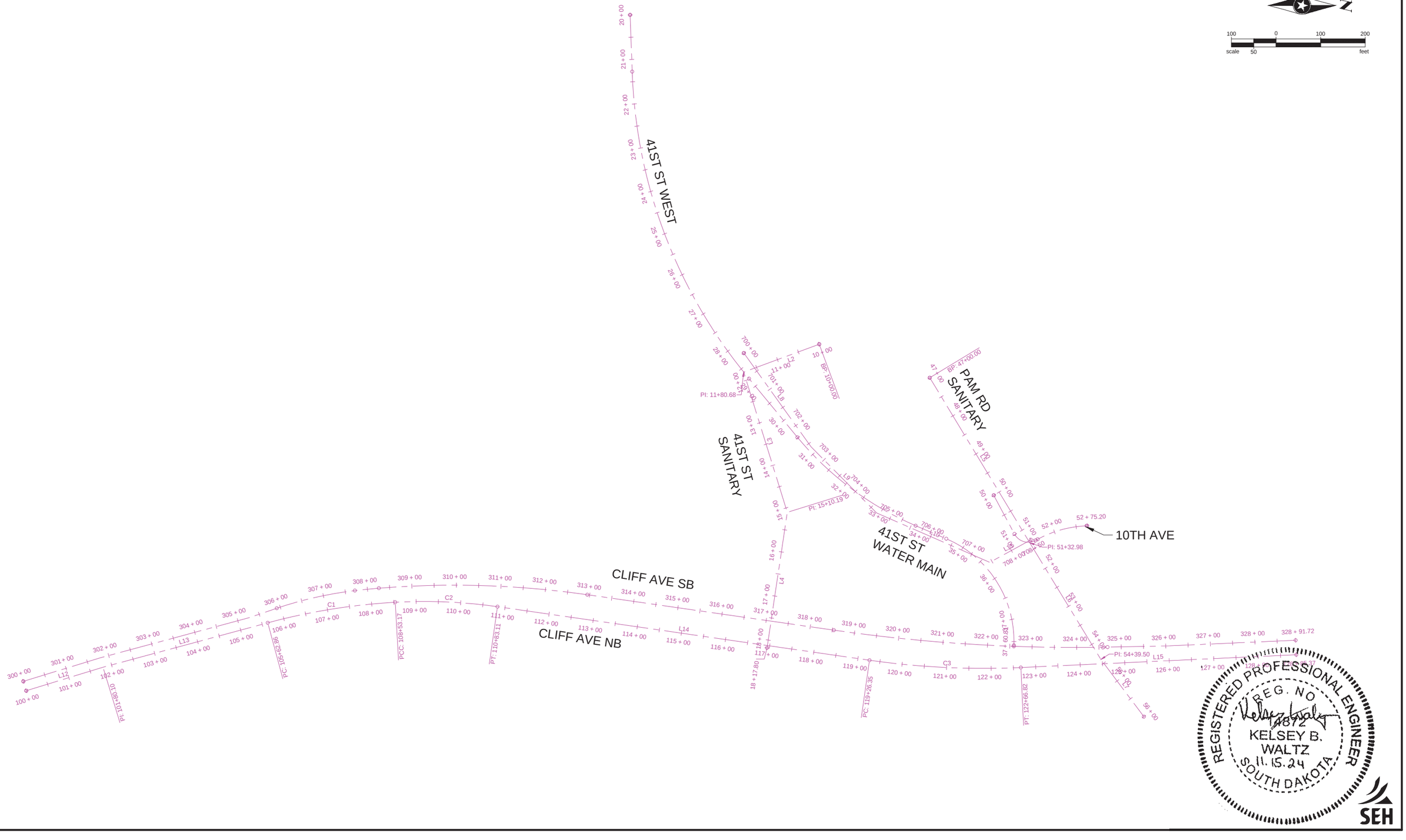
HORIZONTAL ALIGNMENT PLAN

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	3	50
Plotting Date: 11/14/2024			





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HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	4	50
Plotting Date: 11/14/2024			

ALIGNMENT TABULATION - 41ST ST SANITARY

SEGMENT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
L4	15+10.19				307.62	451868.6065	2928602.4008	S 81° 30' 36" E	15+10.19	18+17.80	451868.6065	2928602.4008	451823.1912	2928906.6454
L3	11+80.68				329.50	451770.8085	2928287.7467	N 72° 44' 03" E	11+80.68	15+10.19	451770.8085	2928287.7467	451868.6065	2928602.4008
L2	10+00.00				180.68	451940.3241	2928225.2088	S 20° 15' 00" E	10+00.00	11+80.68	451940.3241	2928225.2088	451770.8085	2928287.7467

ALIGNMENT TABULATION - PAM RD SANITARY

SEGMENT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
L7	54+39.50				160.50	452572.2410	2928932.4170	N 53° 07' 37" E	54+39.50	56+00.00	452572.2410	2928932.4170	452668.5490	2929060.8129
L6	51+32.98				306.52	452412.6050	2928670.7450	N 58° 36' 51" E	51+32.98	54+39.50	452412.6050	2928670.7450	452572.2410	2928932.4170
L5	47+00.00				432.98	452188.3555	2928300.3660	N 58° 48' 24" E	47+00.00	51+32.98	452188.3555	2928300.3660	452412.6050	2928670.7450

ALIGNMENT TABULATION - 41ST ST WM

SEGMENT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
L11	707+44.74				105.26	452322.9105	2928714.6637	N 28° 43' 09" W	707+44.74	708+50.00	452322.9105	2928714.6637	452415.2203	2928664.0854
L10	704+67.74				277.00	452069.0584	2928603.8201	N 23° 35' 18" E	704+67.74	707+44.74	452069.0584	2928603.8201	452322.9105	2928714.6637
L9	702+58.85				208.90	451921.9909	2928455.4664	N 45° 14' 58" E	702+58.85	704+67.74	451921.9909	2928455.4664	452069.0584	2928603.8201
L8	700+00.00				258.85	451771.1102	2928245.1416	N 54° 20' 44" E	700+00.00	702+58.85	451771.1102	2928245.1416	451921.9909	2928455.4664

ALIGNMENT TABULATION - CLIFF AVE NB

SEGMENT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
L15	122+66.82				618.55	452392.6840	2928950.6230	N 02° 39' 07" W	122+66.82	128+85.37	452392.6840	2928950.6230	453010.5751	2928922.0023
L14	110+83.11				843.24	451218.4680	2928814.1552	N 08° 11' 07" E	110+83.11	119+26.35	451218.4680	2928814.1552	452053.1188	2928934.2134
L13	101+80.10				382.76	450333.4672	2928949.9442	N 15° 05' 32" W	101+80.10	105+62.86	450333.4672	2928949.9442	450703.0281	2928850.2835
L12	100+00.00				180.10	450161.2380	2929002.6042	N 17° 00' 05" W	100+00.00	101+80.10	450161.2380	2929002.6042	450333.4672	2928949.9442
C3	119+26.35	010° 50' 15"	1800.00	170.74	340.47	452053.1188	2928934.2134		119+26.35	122+66.82	452053.1188	2928934.2134	452392.6840	2928950.6230
C2	108+53.17	011° 23' 48"	1156.00	115.35	229.94	450989.1227	2928804.1937		108+53.17	110+83.11	450989.1227	2928804.1937	451218.4680	2928814.1552
C1	105+62.86	011° 52' 51"	1400.00	145.67	290.30	450703.0281	2928850.2835		105+62.86	108+53.17	450703.0281	2928850.2835	450989.1227	2928804.1937

REGISTERED PROFESSIONAL ENGINEER
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KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

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HORIZONTAL AND VERTICAL CONTROL POINTS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	5	50
Plotting Date: 11/14/2024			

SYMBOL	POINT NO.	NAME	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
△	11	CP211	NA	25.6' LT	ALUMINUM CAP BEHIND CURB	452197.008	2928264.923	1405.14
△	10	CP210	49+04.3	26.1' RT	ALUMINUM CAP BEHIND CURB	452271.814	2928488.751	1404.38
△	9	CP209	52+07.6	7.7' RT	ALUMINUM CAP BEHIND CURB	452444.927	2928738.39	1405.89

* Horizontal Datum is NAD83 South Dakota State Planes, South
** Vertical Datum is NAVD 88

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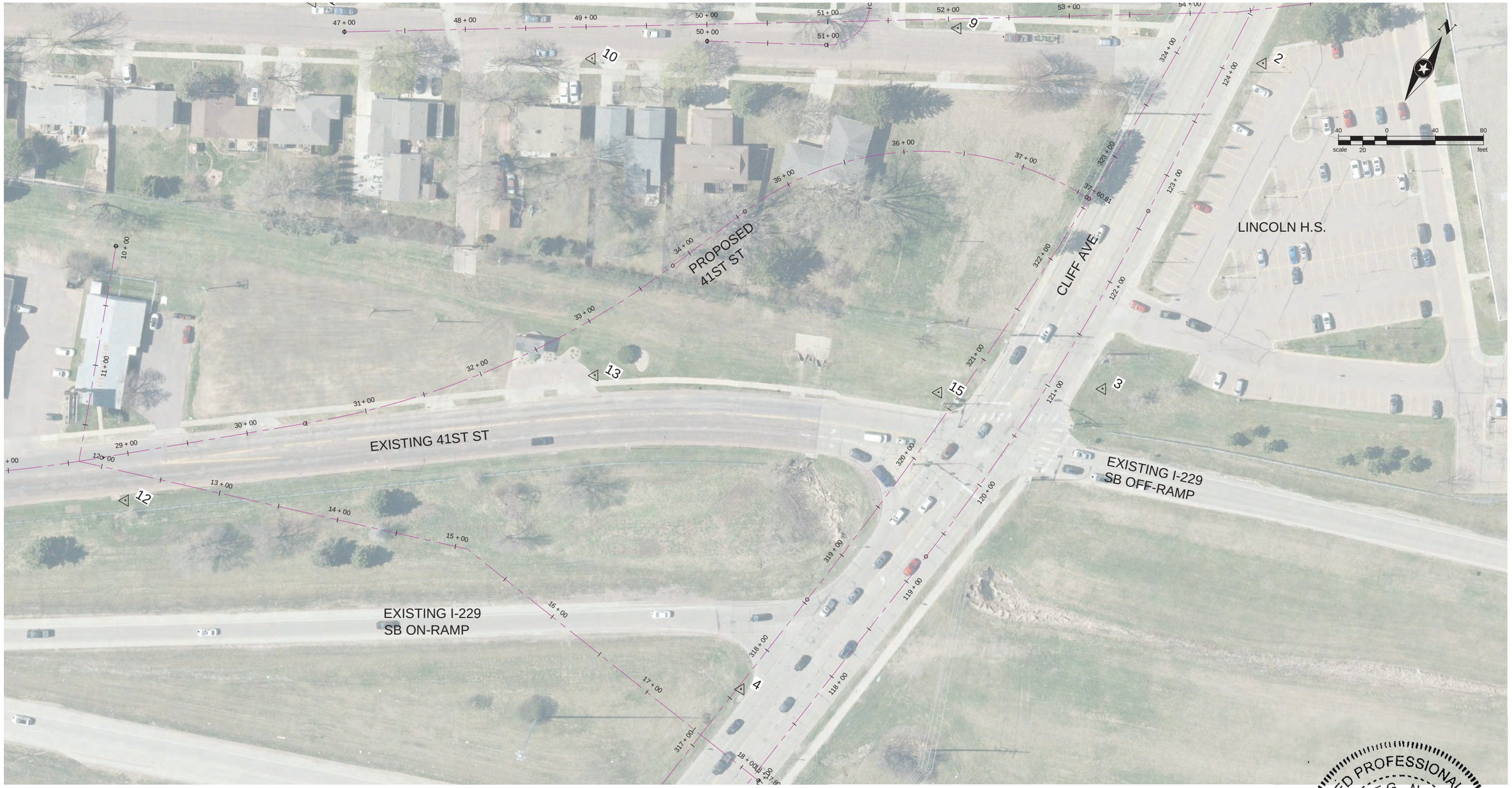
HORIZONTAL AND VERTICAL CONTROL POINTS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	6	50
Plotting Date: 11/14/2024			



SYMBOL	POINT NO.	NAME	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
△	12	CP215	28+95.0	29.4' RT	ALUMINUM CAP IN BOULEVARD	451762.118	2928337.089	1399.99
△	13	CP216	32+92.0	18.6' RT	ALUMINUM CAP BACK OF CURB	452046.011	2928621.785	1401.36

* Horizontal Datum is NAD83 South Dakota State Planes, South
** Vertical Datum is NAVD 88

REGISTERED PROFESSIONAL ENGINEER
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HORIZONTAL AND VERTICAL CONTROL POINTS

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CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	7	50
Plotting Date: 11/14/2024			

SYMBOL	POINT NO.	NAME	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
△	4	CP204	117+45.5	57.7' LT	ALUMINUM CAP BEHIND STORM SEWER	451881.624	2928856.34	1402.70
△	5	CP205	113+31.3	30.6' RT	ALUMINUM CAP BEHIND SIDEWALK	451459.832	2928879.769	1403.36
△	6	CP206	106+77.1	51.2' LT	ALUMINUM CAP BEHIND STORM SEWER	451011.267	2928751.943	1403.39
△	14	CP222	113+05.2	344.3' LT	ALUMINUM CAP BEHIND GUARDRAIL	451487.356	2928504.982	1420.43

* Horizontal Datum is NAD83 South Dakota State Planes, South
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HORIZONTAL AND VERTICAL CONTROL POINTS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	8	50

Plotting Date: 11/14/2024

SYMBOL	POINT NO.	NAME	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
△	1	CP200	NA	NA	ALUMINUM CAP IN ISLAND	453257.581	2928997.459	1428.44
△	2	CP202	124+19.0	28.1' RT	ALUMINUM CAP BEHIND CURB	452546.000	2928971.599	1405.86
△	3	CP203	121+21.9	39.8' RT	ALUMINUM CAP IN BOULEVARD	452245.451	2928991.279	1401.45
△	15	CP229	120+44.5	72.2' LT	ALUMINUM CAP IN BOULEVARD	452176.07	2928875.237	1400.71

* Horizontal Datum is NAD83 South Dakota State Planes, South
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FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	9	50
Plotting Date: 11/14/2024			

ESTIMATED QUANTITIES

ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION	NOTES	UNIT	APPROX. QUANT.
1	009E0010	MOBILIZATION		LS	1
2	100E0020	CLEAR & GRUB TREE		EA	2
3	120E7000	SELECT GRANULAR BACKFILL		TON	200
4	250E0010	INCIDENTAL WORK		LS	1
5	260E1010	BASE COURSE		TON	297
6	320E6000	TEMPORARY ASPHALT		TON	63
7	451E0116	16" STEEL ENCASEMENT PIPE		FT	110
8	451E0124	24" STEEL ENCASEMENT PIPE		FT	200
9	451E4400	PIPE INSULATION		SQ FT	200
10	451E4905	TRENCH STABILIZATION MATERIAL		TON	200
WATER MAIN					
11	110E1910	REMOVE FIRE HYDRANT		EA	3
12	110E1960	REMOVE VALVE BOX		EA	1
13	110E1970	REMOVE WATER MAIN		FT	3,250
14	451E0802	1" COPPER PIPE		FT	146
15	451E0804	1.25" COPPER PIPE		FT	65
16	451E0806	1.5" COPPER PIPE		FT	65
17	451E2207	6" X 6" PIPE TEE		EA	1
18	451E2214	8" X 8" PIPE TEE		EA	1
19	451E2250	16" X 4" PIPE TEE		EA	1
20	451E2251	16"X6" PIPE TEE		EA	4
21	451E2413	8" X 6" PIPE REDUCER		EA	2
22	451E2432	12" X 8" PIPE REDUCER		EA	1
23	451E2802	1" CORPORATION STOP WITH TAPPING SADDLE		EA	2
24	451E2804	1.25" CORPORATION STOP WITH TAPPING SADDLE		EA	1
25	451E2806	1.5" CORPORATION STOP WITH TAPPING SADDLE		EA	1
26	451E2902	1" CURB STOP WITH BOX		EA	2
27	451E2904	1.25" CURB STOP WITH BOX		EA	1
28	451E2906	1.5" CURB STOP WITH BOX		EA	1
29	451E3006	6" PIPE BEND		EA	1
30	451E3008	8" PIPE BEND		EA	7
31	451E3016	16" PIPE BEND		EA	12
32	451E3504	4" RETAINER GLAND		EA	5
33	451E3506	6" RETAINER GLAND		EA	27
34	451E3508	8" RETAINER GLAND		EA	26
35	451E3512	12" RETAINER GLAND		EA	1
36	451E3516	16" RETAINER GLAND		EA	50
37	451E3604	4" PIPE SLEEVE		EA	1
38	451E3606	6" PIPE SLEEVE		EA	1
39	451E3616	16" PIPE SLEEVE		EA	2
40	451E4204	4" GATE VALVE WITH BOX		EA	1
41	451E4206	6" GATE VALVE WITH BOX		EA	5
42	451E4208	8" GATE VALVE WITH BOX		EA	3
43	451E4216	16" GATE VALVE WITH BOX		EA	6
44	451E4580	STANDARD FIRE HYDRANT		EA	4
45	451E4581	TEMPORARY FIRE HYDRANT		EA	2
46	451E4920	PIPE BEDDING MATERIAL	1	FT	130
47	451E4926	WATER MAIN BEDDING MATERIAL		FT	2,380
48	451E5021	TRENCH DEWATERING, WATER MAIN		FT	1,700
49	451E5190	BORE OBSTRUCTION		EA	2
50	451E0604	4" PVC WATER MAIN		FT	10
51	451E0606	6" PVC WATER MAIN		FT	170
52	451E0608	8" PVC WATER MAIN		FT	628
53	451E0616	16" PVC WATER MAIN		FT	1,576
54	451E0658	8" PVC RESTRAINED JOINT WATER MAIN		FT	215
55	451E0666	16" PVC RESTRAINED JOINT WATER MAIN		FT	467
56	451E5124	BORE AND JACK 24' PIPE		FT	40
57	451E6050	TEMPORARY WATER SERVICE		EA	3
58	451E6080	ADJUST WATER VALVE BOX		EA	15
59	451E6100	RECONNECT WATER SERVICE		EA	2
60	451E6106	CUT AND TIE TO EXISTING WATER MAIN		EA	9

ITEM NO.	STD. BID ITEM	ITEM DESCRIPTION		UNIT	APPROX. QUANT.
SANITARY SEWER					
61	110E0460	REMOVE MANHOLE		EA	9
62	110E0480	REMOVE MANHOLE FRAME & LID		EA	3
63	110E0520	REMOVE SEWER PIPE		FT	2,035
64	451E1008	8" PVC SEWER PIPE		FT	1,140
65	451E1010	10" PVC SEWER PIPE		FT	1,113
66	451E1018	18" PVC SEWER PIPE		FT	425
67	451E1206	6" SEWER SERVICE		FT	40
68	451E2013	8"X6" PIPE WYE		EA	1
69	451E3108	8" PIPE CAP		EA	4
70	451E3206	6" PIPE COUPLINGS		EA	1
71	451E3208	8" PIPE COUPLINGS		EA	1
72	451E4945	8" SEWER PIPE BEDDING MATERIAL		FT	1,140
73	451E4946	10" SEWER PIPE BEDDING MATERIAL		FT	1,113
74	451E4949	18" SEWER PIPE BEDDING MATERIAL		FT	425
75	451E5022	TRENCH DEWATERING, SEWER MAIN		FT	1,113
76	451E5051	TRENCH 6' TO 8' DEEP		FT	425
77	451E5052	TRENCH 8' TO 10' DEEP		FT	892
78	451E5053	TRENCH 10' TO 12' DEEP		FT	610
79	451E5054	TRENCH 12' TO 14' DEEP		FT	389
80	451E5055	TRENCH 14' TO 16' DEEP		FT	362
81	451E7010	RECONNECT SEWER SERVICE		EA	1
82	451E7016	CONNECT TO EXISTING SEWER MAIN		EA	1
83	451E7020	SEWER BYPASS PUMPING		LS	1
84	451E7500	LOCATE UTILITIES		EA	3
85	451E8000	PVC PIPE DEFLECTION TEST		FT	2,678
86	451E8010	PIPE EXFILTRATION TESTING		FT	2,678
87	632E2520	TYPE 2 OBJECT MARKER	2	EA	1
88	671E1131	48" MANHOLE 6' TO 8' DEEP		EA	5
89	671E1133	48" MANHOLE 10' TO 12' DEEP		EA	2
90	671E1134	48" MANHOLE 12' TO 14' DEEP		EA	1
91	671E2008	8" MANHOLE BOOT		EA	14
92	671E2010	10" MANHOLE BOOT		EA	6
93	671E2018	18" MANHOLE BOOT		EA	4
94	671E4200	MANHOLE DROP SECTION		EA	1
95	671E6000	TEMPORARY MANHOLE COVER		EA	10
96	671E6100	MANHOLE FRAME & LID, INSTALL		EA	11
97	671E7010	ADJUST MANHOLE		EA	2
98	671E7020	CONNECT INTO EXISTING MANHOLE		EA	4
99	671E9000	MANHOLE EXFILTRATION\VACUUM TEST		EA	8

NOTES:

1. USED FOR WATER SERVICE BEDDING MATERIAL.
2. PROVIDE ACCORDING TO CITY STANDARD PLATE 950.20, INCLUDES ALL WORK AND MATERIALS.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

SEH

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CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	10	50
Plotting Date: 11/14/2024			

SANITARY SEWER MANHOLE SCHEDULE

		STRUCTURE INFORMATION						48" MANHOLE DEPTH			PIPE BOOTS			ADJUST MANHOLE	MANHOLE DROP SECTION	MANHOLE FRAME & LID, INSTALL	CONNECTION INTO EXIST. MH	TEMPORARY MH COVER	TYPE 2 OBJECT MARKER
								6'-8'	10'-12'	12'-14'	8"	10"	18"						
STRUCTURE	ALIGNMENT	STATION	OFFSET	DRAINS TO	RIM ELEV.	INCOMING INVERT	OUTGOING INVERT	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)
SSMH-P8	CLIFF AVE NB	127+25.3	16.1' L	SSMH-P7	1411.9	1403.89 (8") (N)	1403.79 (8") (N)	1			2					1		1	
EX. PIPE	CLIFF AVE NB	126+37.8	51.4' L	SSMH-P7		1401.81 (8") (W)	1401.81 (8") (E)												
SSMH-P7	CLIFF AVE NB	126+36.9	14.6' L	SSMH-P3	1409.3	1401.67 (8") (W) 1401.58 (8") (N)	1401.48 (8") (S)	1			3					1		1	
08C0007	PAM RD SANITARY	51+32.9	0.0'	SSMH-P3	1401.60	1399.98 (18") (SW) 1400.60 (8") (N)	1399.98 (18") (NE)						1	1		1	1	1	
SSMH-P3	CLIFF AVE NB	124+46.4	11.0' L	08C0004B SSMH-P2*	1401.4	1400.45 (8") (N) 1399.66 (18") (SW)	1399.66 (18") (NE) 1399.68 (10") (S)	1			1	1	2			1		1	
08C0004B	PAM RD SANITARY	55+58.3	0.0'	EXIST. 18"	1401.4	1399.53 (18") (SW)	1399.53 (18") (NE)						1			1	1		
SSMH-P2	CLIFF AVE NB	120+84.0	4.0' L	SSMH-P1	1401.8	1391.50 (10") (N)	1391.40 (10") (S)		1			2				1		1	
SSMH-P1	CLIFF AVE NB	116+94.8	22.2' L	06A0006	1403.6	1390.81 (8") (W) 1390.31 (10") (N)	1390.21 (10") (S)		1		1	2				1		1	
06A0006	CLIFF AVE NB	113+33.2	26.9' L	EXIST. 54"	1404.5	1389.20 (10") (N) 1379.72 (54") (SW)	1379.72 (54") (E)					1		1	1	1	1	1	
06AB007	41ST ST SANITARY	10+16.3	50.0' L	SSMH-P6	1400.4	1394.34 (8") (W)	1394.34 (8") (E)				1						1		
SSMH-P6	41ST ST SANITARY	10+15.4	0.0'	SSMH-P5	1398.8	1394.22 (8") (W)	1394.11 (8") (S)	1			2					1		1	1
SSMH-P5	41ST ST SANITARY	11+80.7	0.0'	SSMH-P4	1400.3	1393.45 (8") (N)	1393.35 (8") (E)	1			2					1		1	
SSMH-P4	41ST ST SANITARY	15+10.2	0.0'	SSMH-P1	1403.2	1392.03 (8") (W)	1391.93 (8") (E)			1	2					1		1	
TOTAL								5	2	1	14	6	4	2	1	11	4	10	1

*OVERFLOW OUTLET

WATER MAIN TRENCHLESS CONSTRUCTION

		CASING PIPE	BORE OBSTRUCTION (SURFACE EXCAVATION)	BORE OBSTRUCTION (HORIZONTAL EXCAVATION)
		24"		
STA. START	STA. END	(FT)	(EA)	(EA)
41ST STREET				
25+84.6				
*41ST STREET				
700+08.1	704+67.7			
704+67.7	708+40.6			
708+30.7				
CLIFF AVENUE				
106+82.8	110+74.6			
110+74.6	119+10.6	40	1	1
119+10.6	120+84.1			
120+84.1	127+24.8			
TOTAL		40	1	1

WATER MAIN TABULATIONS

		CUT & TIE TO EXIST. WM	STANDARD FIRE HYDRANT	WATERMAIN & BEDDING MATERIAL						TEE				SLEEVE			REDUCER		11.25° BEND		22.5° BEND		45° BEND			GATE VALVE WITH BOX				RETAINER GLAND					STEEL ENCASEMENT PIPE	
				4"	6"	8" (RESTRAINED)	8"	16" (RESTRAINED)	16"	6" x 6"	8" X 8"	16" X 4"	16" X 6"	4"	6"	16"	8" X 6"	12" X 8"	8"	16"	8"	16"	6"	8"	16"	4"	6"	8"	16"	4"	6"	8"	12"	16"	16"	24"
STA. START	STA. END	(EA)	(EA)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(FT)	(FT)
41ST STREET																																				
25+84.6		2	1		15					1																1				6					
*41ST STREET																																				
700+08.1	704+67.7	1				130	330										1		1		1			2				1			1	11			50	
704+67.7	708+40.6	1				85	288				1						1				2			1				1			1	11			20	
708+30.7		1					10											1										1				4	1			
CLIFF AVENUE																																				
106+82.8	110+74.6	1	1		35			112	280				1			1							1		2		1		1		4			12		20
110+74.6	119+13.0		1		30			195	643				1										4				1		3		4			16		40
119+13.0	120+84.1							120	52											1			4						1					12		40
120+84.1	127+24.8	3	1	10	90			40	601			1	2	1	1	1								1		2		1	5	11				10		20
	TOTAL	9	4	10	170	215	628	467	1576	1	1	1	4	1	1	2	2	1	1	1	3	9	1	3	2	1	5	3	6	5	27	26	1	50	70	120

*BASED ON 41ST ST WATER MAIN ALIGNMENT

SANITARY SEWER TABULATIONS

				SANITARY SEWER PIPE DEPTH						SEWER COUPLINGS	CASING PIPE	CASING PIPE	CONNECT TO EXIST. SEWER MAIN
				8"		10"			18"				
				8' - 10'	10' - 12'	8' - 10'	12' - 14'	14' - 16'	6' - 8'	8"	16"	24"	
STR. START	STA. START	STR. END	STA. END	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(EA)	(FT)	(FT)	(EA)
PAM ROAD													
08C0007	51+32.8	SSMH-P3	54+38.2						305			20	
SSMH-P3	54+38.2	08C0004B	55+58.3						120			20	
41ST STREET													
06AB007	10+16.3	SSMH-P6	10+15.4	50									
SSMH-P6	10+15.4	SSMH-P5	11+80.7	165									
SSMH-P5	11+80.7	SSMH-P4	15+10.2		330								
SSMH-P4	15+10.2	SSMH-P1	17+90.2		280								
CLIFF AVENUE													
SSMH-P1	116+94.8	06A0006	113+33.2					362					
SSMH-P2	120+84.0	SSMH-P1	116+94.8				389				40		
SSMH-P3	124+46.4	SSMH-P2	120+84.0			362							
SSMH-P7	126+36.9	SSMH-P3	124+46.4	190									
EXIST. PIPE	126+37.8	SSMH-P7	126+36.9	37						1			1
SSMH-P8	127+25.3	SSMH-P7	126+36.9	88									
TOTAL				530	610	362	389	362	425	1	40	40	1

WATER MAIN SERVICES

	COPRORATION STOP W/TAPPING SADDLE			CURB STOP WITH BOX			COPPER PIPE & SERVICE BEDDING			RECONNECT WATER SERVICE	
	16" X 1"	16" X 1-1/4"	16" X 1-1/2"	1"	1-1/4"	1-1/2"	1"	1-1/4"	1-1/2"	1-1/4"	1-1/2"
STATION	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(FT)	(FT)	(FT)	(FT)	(FT)
108+84.7		1			1			65		1	
114+00.0	1			1			88				
117+57.3	1			1			58				
125+59.5			1			1			65		1
TOTAL	2	1	1	2	1	1	146	65	65	1	1

SANITARY SEWER SERVICES

	SANITARY SEWER SERVICE	SEWER WYE/TAP	SEWER BENDS	SEWER COUPLINGS	RECONNECT SEWER SERVICE
	6"	8" X 6"	6"	6"	
STATION	(FT)	(EA)	(EA)	(EA)	(EA)
125+96.2	40	1	2	1	1
TOTAL	40	1	2	1	1

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 16872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

SEH

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FOR BIDDING PURPOSES ONLY

GENERAL NOTES

PROJECT SCOPE

This project consists of complete reconstruction of sanitary sewer and watermain on: 41st Street along the re-alignment of 41st Street for proposed ramp construction; Pam Road from 10th Avenue to Cliff Avenue; Cliff Avenue from 38th Street to Park Road. Work will include replacement of water main and sanitary sewer.

Storm sewer, grading, surfacing, lighting, and private utility improvements will be included under a separate contract.

SPECIFICATIONS TO BE USED

The most current edition of the City of Sioux Falls General Conditions for Public Improvements and Supplemental Standard Specifications, together with Division II and Division III of the most current edition of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata, City and DOT Standard Plates and required provisions, supplemental specifications, and/or special provisions as included in the Project Manual are hereby made a part of these specifications in its entirety unless otherwise revised, deleted, or supplemented herein.

The City of Sioux Falls Engineer's Office will provide a copy of the City of Sioux Falls General Conditions for Public Improvements and the City of Sioux Falls Supplemental Standard Specifications free of charge to all prospective bidders upon request. The Supplemental Standard Specifications can also be downloaded from the City of Sioux Falls website at http://www.siouxfalls.gov/public-works/engineering/construction-mgmt/resources/specs-policies-manuals. The South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata can be downloaded from the SDDOT's website at https://dot.sd.gov/

ELECTRONIC DESIGN FILES

Electronic design files WILL be available to the Contractor prior to the bid letting if requested, subject to the following conditions:

a. A signed disclaimer agreement shall be required from each Contractor requesting the electronic design files prior to distribution.

b. Electronic design files will be distributed as DWG files. The Contractor will be responsible for obtaining the appropriate software to open, analyze, and/or convert these file formats for their own use, and understand the risks and limitations associated with that software.

c. The electronic design files for distribution may be limited to the following: existing survey line work, existing ground surface model, proposed design utility and surfacing line work, and finished ground surface model. Additional information may be distributed at the Engineer's discretion.

d. The electronic design files will not include any modifications due to addendum unless specifically noted in an addendum.

e. The electronic design files are provided for reference only. In the event of a discrepancy between the electronic design files and the contract documents, the contract documents shall prevail.

Requests for the electronic design files should be made by signing the disclaimer agreement posted on the Bonfire site and submitting it to the email address listed in the agreement. Electronic design files will be furnished to the Contractor within two (2) business days from receipt of the signed disclaimer agreement.

CHANGE ORDER ITEMS

The Engineer may request a breakdown of costs for change order items, and the Contractor must supply the breakdown, if requested, prior to proceeding with the work. Unit bid prices are firm for the entire duration of the contract. For new work items, all costs must be approved by the City prior to proceeding with the work.

CONSTRUCTION LIMITS

The construction limits shall be within the right-of-way and easement areas. Material storage and vehicle and equipment traffic shall be limited to the construction limits. All paved streets adjacent to the project are to be cleaned at the end of each working day.
It shall be the responsibility of the Contractor to coordinate with the property owners relating to access to their property and any subsequent damages.

The Contractor will not be allowed to store materials, equipment, etc. on structures or use structures as a staging area.

PROPERTY PIN AND SECTION CORNER MONUMENTATION

Property corners or section corner monuments within the work limits shall be carefully preserved by the Contractor. In no case shall excavation be made within five feet (5') of such monument until it has been accurately located, witnessed, or otherwise cared for by the Engineer, and permission is given to proceed with the work. If the Contractor discovers monuments that have not been previously located, the Contractor shall immediately notify the Engineer so efforts can be made to protect, preserve, or reset them.

Property corner or section corner monuments disturbed or removed through the carelessness of the Contractor, or without proper permission, will be reset by the Engineer or the City and may result in a price adjustment to the contract.

CONSTRUCTION STAKES AND BENCHMARKS

Reference points, lines, grade stakes, and benchmarks set by the Engineer in connection with the work shall be carefully preserved by the Contractor and shall not be disturbed or moved from the exact position and elevation as set by the Engineer. No excavated material shall be placed over or against said stakes and, except where necessary to remove the stakes as the work progresses, stakes shall be carefully preserved in the original position and elevation until the work has been accepted. Stakes which must be removed as the work progresses shall be removed only upon concurrence by the Engineer.

Staking required to complete the work will be completed by the Engineer unless otherwise noted. Staking will be completed one time for each work item. Stakes disturbed or removed through the carelessness of the Contractor will be restaked by the Engineer and may result in a price adjustment to the contract.

NOISE PERMIT

The Contractor shall obtain a noise permit from the City of Sioux Falls Health Department (Dominic Miller 605-367-8768) if working between 10:30 PM and 6:00 AM. The Contractor shall submit a request in writing to the Engineer and City Project Manager for approval 24 hours in advance of obtaining a noise permit from the Health Department when nighttime work is contemplated.

If a noise permit is approved by the City, the Contractor shall make every effort to minimize the impact of working at night near residential buildings. This could include, but is not limited to, completing a concrete pour early enough so sawing can be completed by a reasonable hour, or completing a concrete pour late enough so sawing does not have to occur until the morning.

When work has to occur between 10:30 pm and 6:00 am, the Contractor is responsible for notifying all residents that will be adversely impacted by the noise generated from construction activities at least 24 hours in advance. This notice shall, at a minimum, include the following information: expected activity occurring, why the activity has to occur overnight, expected start time, expected end time, and expected duration (i.e., one night only, several nights in a row, etc.). This notice can take the form of a door hanger, postcard, etc., and shall be either hand delivered or placed in a location that residents will see, such as the front door. For multi-unit housing complexes, the notices can be placed in a conspicuous location where residents will see them when entering and/or exiting the complex, such as on main entrance doors, near the mailboxes, etc. The notice must be approved by the Engineer prior to delivery. All costs for preparing and delivering these notices shall be incidental to the contract.

SUBMITTALS

The following documents shall be submitted by the Contractor. Documentation requirements elsewhere in the contract are not waived if not listed in the following table.

Submittals	Date Submitted
Shop drawings	
Construction schedule	
South Dakota State sewer and water plumbing contractor's license	
Discharge chlorinated water plan	
Dewatering plan for groundwater	
DANR Contractor Certification Form (SD Form – 2110LD)	
Sanitary sewer temporary bypass plan Temporary water main layout	

CONSTRUCTION SCHEDULE

This work is to be constructed in conjunction with the interchange reconstruction project. The Contractor shall reference the Phasing and Staging Plan that is included in the I-229 and Cliff Avenue Interchange project for street and utility phasing.

The Contractor shall prepare a construction schedule for approval by the Engineer that will ensure the completion of the project within the time frame specified. This schedule must be provided to the Engineer for review a minimum of 3 days prior to the preconstruction meeting. The notice to proceed will not be issued until the schedule has been approved by the City. The construction schedule shall be in bar or network diagram form and show the start and completion dates for significant items of work in their respective phases. Significant items of work include but is not limited to: erosion control, removals, the installation of watermain, sanitary sewer, pavement restoration. When applicable the schedule shall include submission dates for shop drawings, manufacturing and installation of materials, supplies, equipment, and testing for various parts of the work.

The construction schedule shall be updated on a bi-weekly basis. If it appears the rate of progress is such that the contract will not be completed within the time frame allowed the Contractor will be required to provide written documentation as to what measures they will take to complete the project within the specified time frame or to prosecute work in a satisfactory manner. Failure to submit the schedule on a bi-weekly basis will result in the City withholding the pay applications until the updated schedule is submitted.

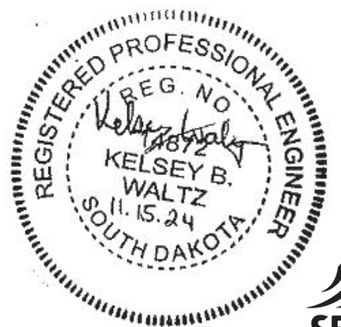
COORDINATION MEETINGS

This work is to be constructed in conjunction with the I-229 Interchange reconstruction project.

The Contractor shall attend any coordination and project update meetings for the interchange reconstruction project.

Landowners, business owners, and the general public will be invited to the first half of the meeting. The Contractor will give a brief summary of the project schedule and will answer any questions. The public will then be dismissed and the Contractor can discuss construction coordination and other issues as needed.

All costs to conduct the coordination meetings shall be incidental to the project.



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FOR BIDDING PURPOSES ONLY

CONTRACTOR SAFETY REQUIREMENTS

The Contractor is responsible for following all local, state, and federal rules and regulations regarding site safety. The Contractor is solely responsible for site safety from the issuance of the Notice to Proceed until Final Acceptance. The City shall not be responsible for the Contractor's failure to follow all applicable rules and regulations.

CITY TOBACCO POLICY

The use of tobacco products is prohibited in all City-owned and City-shared buildings, facilities, vehicles, parking lots, equipment, worksites, and walkways leading into City facilities. This policy does not extend to work occurring within the right of way.

For purposes of this policy, tobacco is defined as any product made or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. Tobacco is also defined and includes all forms of nicotine delivery devices, which may or may not include actual tobacco (such as electronic cigarettes).

PORTABLE TOILET FACILITIES

The Contractor will be responsible for providing portable toilet facilities for the project at no cost to the City.

ACCEPTANCE TESTING

The City will be responsible for taking the first acceptance test and a backup test if required. All subsequent tests required, due to failures, will be paid by the Contractor by deducting the cost from the pay request unless otherwise specified.

Testing methods and equipment shall be as outlined in Section 6 of the General Conditions and the current version of the Engineering Division's Policy Letter on Minimum Testing Requirements for Public Improvements. Testing *frequency* shall be as outlined in the current version of the Engineering Division's Policy Letter on Minimum Testing Requirements for Public Improvements or at the discretion of the Engineer. If there are conflicts, the Engineering Division's Policy Letter on Minimum Testing Requirements for Public Improvements shall govern over the General Conditions.

The City reserves the right to require work or material that does not meet specifications, whether subject to acceptance testing or not, to be removed and replaced. The City also reserves the right to assess a price deduction in lieu of removal and replacement at the City's sole discretion. The method of assessing a price deduction for work not meeting specifications shall be at the sole discretion of the City.

DRAINAGE

Drainage is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

UTILITIES

All utilities shall be verified by the Contractor prior to starting work. Any time existing utilities impede the progress of work, the Contractor shall immediately notify the Engineer.

All utilities, whether privately or publicly owned, shall be moved, relocated, and/or replaced as necessary, by the respective utility company or companies except as noted in the plans. These modifications shall take place in advance of construction when applicable or when advised by the Engineer. No payment shall be made to the Contractor unless specified in the contract documents.

The Contractor shall safeguard all utilities and coordinate his efforts to coincide with utility work by others in order to minimize inconvenience to the public and utility companies. When pipe utility installation crosses existing utilities, the Contractor shall be responsible for supporting the utilities in a manner that is acceptable to the owner of the utility. Any damage caused to the utilities due to Contractor carelessness shall be repaired at the Contractor's expense to the satisfaction of the utility owner.

Abandoned utilities (gas lines, telephone lines, etc.) encountered during construction shall be removed and disposed of by the Contractor. Costs associated with this work shall be incidental to the various bid items associated with work adjacent to the abandoned utility.

The Contractor shall be responsible for the coordination of all work associated with the disturbance, removal, or replacement of unidentified metallic natural gas mains or services when encountered. The Contractor shall, in advance and prior to proceeding with the work, coordinate with the City of Sioux Falls, MidAmerican Energy Company, and all other companies related to the associated work.

Existing utility locations shown on drawings are approximate. There is no guarantee that the utilities shown include all such utilities or that the locations indicated are exact. The Contractor shall contact South Dakota One Call system, utility companies, and the City of Sioux Falls to verify locations of all existing utilities prior to excavation.

The Contractor shall be responsible for notifying South Dakota One Call 1-800-781-7474 to have utilities field located.

The following utility companies are known to have facilities on the project:

Sioux Falls Water Maintenance Darin McDonnel 668 W. Algonquin Street Sioux Falls, SD 57104 (605) 367-6376	Lumen 125 S. Dakota Avenue Sioux Falls, SD 57104 Attn: Andrew Wixon Office: (605) 681-2049
Sioux Falls Water Reclamation - Sanitary Shad Hochstein 4500 N Sycamore Ave Sioux Falls, SD 57117 (605) 941-1163	Midco 3507 S. Duluth Avenue Sioux Falls, SD 57105 Attn: Al Mullinix Office (605) 274-8546 Cell: (605) 231-0388
Sioux Falls Water Reclamation - Storm Austin Waldron 4500 N Sycamore Ave Sioux Falls, SD 57117 (605) 367-3547	Xcel Energy - Distribution 500 W Russell Street Sioux Falls, SD 57104 Attn: Mike Ronfeldt Office: (605) 339-8358
South Dakota Network (SDN) 2900 W 10th St, Sioux Falls, SD 57104 Attn: Tyler Larson Office: (605) 310-8301	Xcel Energy - Transmission 500 W Russell Street Sioux Falls, SD 57104 Attn: Mitchell Dienger Office: (605) 386-2233
Windstream Attn: Kelly Wingfield (Construction Manager) Office: (515) 559-4031	MidAmerican Energy Company 1200 S. Blauvelt Avenue Sioux Falls, SD 57105 Attn: Nicole Rasmusson Office: (605) 373-6081
Vast (Bluepeak) 5101 South Broadband Ln, Sioux Falls, SD 57108 Attn: Jordan Huber Office: (605) 498-4922	

The Contractor shall cooperate with and coordinate his efforts to work with the utility companies and their contractors. Each bidder shall be responsible prior to bid letting, for determining the effects of utility work on the project work scope and schedule, and shall account for all such effects in his bid. No consideration will be given to the Contractor after the bid letting on account of utility work done by others.

A summary of anticipated work by others is as follows but not limited to:

1. See I-229 and Cliff Avenue Interchange project for utility relocations and work completed by others.

CONTRACTOR INSTALLED UTILITIES

The Contractor shall be responsible for locating City utilities installed within the project until final acceptance is granted. City of Sioux Falls cannot provide one call locates to new City utilities installed within the project limits during active construction projects until final acceptance of the project. Furthermore, the City of Sioux Falls is not responsible for any damage to new City utilities during project construction due to inaccurate or absent locates on the part of the Contractor. All costs associated with locating City utilities installed with the project until final acceptance shall be incidental to the project.

PROTECTION OF EXISTING WATER MAIN, SANITARY SEWER, AND STORM SEWER SYSTEMS

For the protection of existing public underground utilities and the surrounding work area, consideration shall be given to isolating portions of the existing water distribution system within the construction limits while maintaining fire protection. During underground utility installation such as, but not limited to, sanitary sewer, water main, storm sewer, sump pump drain, etc., in the proximity of existing water main and/or water services, the existing water main distribution shall be isolated within the work area. Upon receiving notice from the Contractor 24 hours in advance of any work, City staff will operate designated water valves, where appropriate, to isolate the work area as much as reasonably possible. The Contractor shall become aware of the location and status (open/closed) of any designated isolation valve(s). Sioux Falls Water Maintenance staff shall be notified immediately in the event of a water service emergency or interruption. It will be permissible for the Contractor to operate the designated valve(s) in the event of a water main or water service failure within the construction area. The Contractor is required to have a valve operating key on site in the event of such a failure. Sioux Falls Water Maintenance (367-8810) shall be notified immediately after the shutdown. City crews will operate the valves after repairs have been made and inspections have been completed.

Existing sanitary sewer lines and manholes within the construction limits shall be protected at all times during construction. The upstream ends of existing sanitary sewer lines downstream from new sanitary sewer construction shall be plugged at locations to be approved by the Engineer. Water, stone, dirt, gravel, asphalt, concrete or any other debris shall not be allowed to enter the City's sanitary sewer system during flushing operations or at any other time. Construction taking place in the vicinity of any existing City sanitary sewer lines or manholes shall not cause any inflow of surface water, ground water, water from damaged water lines, or debris to enter the City's sanitary sewer system. The Contractor shall be responsible for any damages or costs incurred to the City's sanitary sewer system, Water Reclamation Division, and/or private property, and any actions imposed by SDDANR due to spills, overflows, inflows, lift station surcharges, City Water discharge, sanitary sewer discharges to surface waters, sanitary sewer backups into homes, etc.

Existing storm sewer inlets and pipes within the construction limits shall be protected from the entrance of stone, dirt, gravel, asphalt, concrete or any other debris during construction. The SWPPP must be followed at all times.

LOCATING UTILITY

This work consists of excavating material to locate a utility line, (Private or Public), when the utility owner cannot find said line, or utility line is not within four (4) feet either side of markings established by the utility owner. Payment for this item will be at the contract unit price per each. 3 locates are estimated for this project.

VERIFY UTILITY

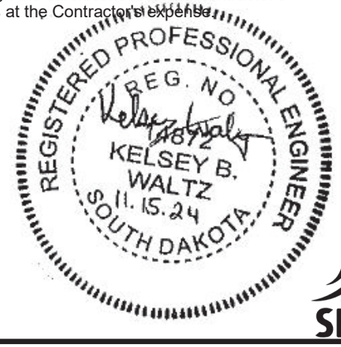
This work consists of excavating material to verify the depth of an existing utility line, (Private or Public), to avoid possible conflicts, when directed by the Engineer. Payment for this item will be at the contract unit price per each. 4 verifications are estimated for this project. Does not include work to verify connection to existing water main.

After verification, the Contractor shall coordinate information with the Engineer.

ADJUSTMENT OF MANHOLE CASTINGS AND VALVE BOXES

Under these items of work, the sanitary sewer manholes and castings, and water main valve boxes are to be adjusted in accordance with the applicable standard plate. The Contractor shall furnish the new manhole frames and covers and water valve boxes in accordance with the supplemental standard specifications, where shown on the plan sheets.

Existing frames and/or lids cracked or broken through the carelessness of the Contractor's forces shall be replaced with new frames and/or lids at the Contractor's expense.



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WASTE DISPOSAL SITE

All material generated from this project for disposal must be disposed of at a state-permitted solid waste disposal site. Depending on what material is generated and whether it is contaminated or uncontaminated will determine which permitted facility can accept it. Permitted facilities include construction and demolition debris sites, restricted use sites, and regional landfills. The Contractor can contact the Sioux Falls Regional Sanitary Landfill at (605) 367-8162 to identify locally permitted disposal sites for various categories of contaminated and uncontaminated materials.

All costs associated with disposing of waste shall be incidental to the various contract items.

DEWATERING

It is anticipated that groundwater will be encountered during construction. Dewatering shall be paid for under the lump sum bid item "Trench Dewatering, Water Main OR Sewer Main" and shall be full compensation for all permits, materials, equipment, and labor needed to perform the work.

It shall be the responsibility of the Contractor to discharge and dispose of the water in an approved manner. No water shall be allowed to enter the sanitary sewer. The Contractor shall dispose of water in a suitable manner without damage to adjacent property. The water shall be filtered using an approved method to remove sand and fine-sized soil particles before disposal into any drainage system. Discharge from dewatering operations shall be controlled to prevent erosion and scour.

The Contractor is responsible for obtaining a Temporary Water Use Permit from the SD DANR prior to commencing dewatering operations. Prior to excavating, the Contractor shall submit for review a dewatering plan to be approved by the Engineer.

INCIDENTAL WORK, UTILITIES

The contract lump sum for "Incidental Work" shall be full compensation for all work listed below. The following is a list of major items of Incidental Work:

1. Coordination of traffic control with Cliff Avenue and I-229 Interchange project to complete utility service work north of the Lincoln High School entrance.
2. Additional work for horizontal and/or vertical adjustments that may be involved when installing proposed utilities (sanitary and water) around existing utilities.
3. Removal and proper offsite disposal of existing water and sanitary sewer main and appurtenances for which no pay item exists. The removal and disposal of unmarked or abandoned conduit or pipe required in order to place proposed underground utilities at plan elevation and alignment.
4. Additional work required for supporting and working around existing utilities, both public and private, when installing proposed utilities.

SANITARY SEWER

SANITARY SEWER - GENERAL

1. Sanitary sewer work consists of installation of new sanitary sewer mains and manholes, removal or abandonment of existing sanitary sewer main and manholes.

2. Contractors License. The Contractor shall obtain a "South Dakota State Sewer and Water Plumbing Contractor's License" prior to commencing construction.

3. The Contractor shall notify the City Engineer's office upon completion of the sanitary sewer work. Inspection of the sanitary sewer will be made by the City Engineer's office, or consultant if applicable, and the Contractor to identify and note any deficiencies. The expense of the initial television inspection will be borne entirely by the City. The expense of any additional television inspections beyond the initial inspection due to Contractor errors will be borne entirely by the Contractor. Televising will not occur unless the following conditions are met:

- Appropriate vehicle access i.e. level, free of mud holes, and capable of supporting televising vehicles is provided to all sanitary sewer manholes access points.
- Manholes/structures are exposed and easily accessible. Buried manholes are not acceptable.
- Manhole frames and lids per the City's standard plates are properly installed.
- Interior manhole work is complete, i.e. manhole inverts and pipe penetration complete, welding complete.
- Manholes, pipes, etc. are clean and free of debris including lumber or wood forms, gravel/dirt, etc. More than a one-half gallon container of gravel or dirt per 400' and in each manhole is unacceptable.
- The Contractor shall place water in pipes to assist in identifying sags

Corrective actions will be provided to the Project Manager or the subdivision inspector, who will provide them to the Contractor. After corrections are made, the television request may be submitted again, in writing, and the process will begin again and be repeated until the infrastructure has been accepted. Paving may occur but is not recommended until the sewer infrastructure has been reviewed and accepted. A time extension will not be considered due to the Contractor waiting for the sewer to be televised. The Contractor is still responsible for correcting items not meeting the Engineering Design Standards after the initial inspection through the warranty period. Cleaning and maintenance of the sanitary sewer and storm drainage systems shall be the responsibility of the Contractor until final completion. Weather delays and unforeseen circumstances may delay televising. The Contractor is responsible for reinstalling inlet/manhole protection, as required, prior to and following the television inspection at no additional cost to the City.

4. The Contractor and consultant are required to fill out the City's Sanitary Sewer Backup Prevention Plan checklist on a daily basis when sanitary sewer manholes and/or sewer pipes are exposed to construction related activities. The Contractor and consultant shall submit the completed forms to the City's Project Manager every two weeks, or more often if requested by the City's Project Manager. This form is available from the City's Project Manager. All costs associated with filling out and submitting this form shall be incidental to the project.

MANHOLE BENCH AND PIPE INVERT

When specified by the Engineer, the Manhole Bench and Pipe Invert shall be constructed per Standard Plate 950.08. Work is incidental to manhole construction.

Manhole No. SSMH-P3

Changes in pipe diameter will not be allowed in Pipe Invert manholes. The inverts in the manholes shall be constructed by using PVC solvent weld bends, wyes, tees, or crosses in the appropriate sizes and angles. The pipe line design grade shall be carried through the manhole. The manhole design shall accommodate standard bends, wyes and angles. Only after the manhole and pipe, wyes or bends have been installed can the benches be poured to the spring-line of the pipe and the top portion of the pipe allowed to be removed.

TEMPORARY MANHOLE CONSTRUCTION FRAME AND COVER

Temporary Manhole Protection shall be constructed in accordance with Standard Plate 950.22 or 950.22SP.

Temporary Manhole Protection shall be installed on existing manholes immediately after construction surfacing removals have been completed and on new manholes immediately after installation. The Contractor shall ensure that all manholes are secured, protected, and watertight at the end of each workday. Under no circumstances shall an uncompleted or completed manhole be left uncovered, unprotected, or not watertight overnight.

Any manholes that are not watertight or not in compliance with the plans will result in a price adjustment to the contract. The minimum price adjustment to the contract will be $100 per day per occurrence.

The Contractor is responsible for ensuring that manholes are located and opened for scheduled televising by City crews. The City will not locate or excavate buried manholes. If access to a manhole is not prepared for scheduled televising, the Contractor may be charged for rescheduling the televising crews – this may be withheld from future pay applications if not paid in a timely manner. Furthermore, the City televising crews are not bound to the originally scheduled timeline if they have to reschedule due to inaccessible manholes. The Engineer and/or City Project Manager shall be responsible for including the Contractor in the communications chain in the event that televising is scheduled through a subcontractor.

The Contractor is responsible for ensuring that the temporary manhole plates are properly replaced and sealed water tight in the event that access to the manholes is required for any reason.

RECONNECT SEWER SERVICE

Approximate locations of the existing sanitary sewer services are shown on the plans. Due to the age of the neighborhood, detailed records do not exist for the sewer service locations for some of the houses in the project area. The City's Water Reclamation department has televised the existing sewer main lines. The approximate locations of existing service wyes and /or taps are shown in the television inspection reports and are available if needed. Some of the wyes and /or taps may be "inactive" or may have never been used. It shall be the responsibility of the Contractor to determine, as the sewer installation progresses the location of active services to be reconnected by dye testing, televising or running water from the property. City personnel will be available in unique situation to assist working with property owners in unique situations to investigate which services are active and need to be reconnected. Locating the sewer service, dye testing, and property owner coordination shall be included in the unit price bid per each for "Reconnect Sewer Service. Locating the sewer service and dye testing the service shall be included in the unit price bid per each for "Reconnect Sewer Service".

SANITARY SEWER TEMPORARY BYPASS

Where existing flow cannot be maintained, interruption of service shall be minimized such that no discharge of sanitary sewage to any natural waterway, storm sewer, open trench, ground surface, streets or gutters occurs nor shall such interruption create a public health hazard from sewage backups or overflows. Bypass operations must be approved by the City before starting. Contractor shall provide a detailed written plan, including a drawing, of how the bypass operation will be performed, for approval, before or at the preconstruction meeting and at least two weeks prior to the operation. Sewage bypassing shall comply with the requirements of subsections 3.3.8 and 4.34 of the City of Sioux Falls Supplemental Standard Specifications for Sanitary Sewer Construction.

The bypass system shall be of sufficient capacity to handle peak flow of the pipe. Contractor shall provide the necessary labor and supervision to set up and operate the bypassing system. If the peak flow is not directly called out in the bypass pumping plan sheets, the depth of flow in the pipe shall be measured in the field by the Contractor and correlated to a peak capacity using the table below.

Bypass Pumping System (Based on Minimum Pipe Slope)

	Pipe Flow with Peaking Factor (gpm)						
Depth of Flow (in)	Pipe Diameter (Inches)						
	8	10	12	15	18	21	24
1	40	40	40	40	40	40	40
2	150	150	160	150	160	160	150
3	260	290	310	320	330	340	340
4	350	430	480	520	550	580	580
5		530	640	720	800	860	870
6			750	910	1050	1150	1180
7				1070	1280	1440	1510
8					1480	1720	1840
9						1970	2150
10							2440
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Table Notes:

1. The table above provides the estimated peak flow based on the depth of flow assuming the pipe has been placed at the minimum recommended slope per the Engineering design standards. Engineer to adjust flow assumptions accordingly based on slope.
2. The Contractor shall provide a bypass pumping system capable of conveying the peak flow indicated in the table above.
3. Bypass pumping system shall meet the requirements provided in the Engineering Design Standards.
4. Plugging the sanitary sewer (rather than bypassing) must be approved by the Engineer prior to proceeding.

REGISTERED PROFESSIONAL ENGINEER
REG. NO 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

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5. The use of flow through plugs (rather than bypassing) must be approved by the Engineer prior to proceeding.
6. Field Engineer shall document estimated peak flow, selected bypass pumping system (bypass pumps, plugs, or flow through plugs), selected pumps when applicable, and the capacity of selected pump at the time of construction.
7. Engineer to verify the existence and approximate flow from upstream Pumping Stations through the City's Utility Mapping Application.
8. Pipes with flows that fall into the grey areas should not normally operate in this range. City approval is required before proceeding.
9. Engineer approval is required for overnight pumping operations. Additional requirements and restrictions may be required to minimize the risk of sanitary sewer overflows, back-ups and service interruption.

Contractor shall comply with City sound ordinance and obtain a noise permit if pumping is required between the hours of 10:00 PM and 6:00 AM. Pumping equipment shall be manned continuously. During bypass pumping operations, the Contractor shall provide the necessary labor to continually monitor the operation and ensure uninterrupted and sufficient pumping at all times.

Bypass pumping equipment shall include pumps, conduits, engines, and related equipment necessary to divert the flow of sewage around the section in which the work is to be performed. In addition, the Contractor shall maintain at the same location and in operable condition, duplicate equipment to be used in case there is equipment failure. In this event, the Contractor shall promptly repair or replace the failed equipment to the satisfaction of the Engineer.

The new sewer line may be used by the Contractor to carry the sanitary flows after the new pipe has passed inspection and testing. Any “temporary” connections to the new sewer are subject to City approval.

SANITARY SEWER TEMPORARY BYPASS NOTIFICATION

Where temporary sanitary sewer bypassing is necessary to complete the proposed work, the City shall send the following Sanitary Sewer Temporary Bypass Notification to the South Dakota DANR as required by the City’s discharge permit.

Project Name: Cliff Avenue & I-229 Utility Improvements CIP No. 11100

Estimated Start Date: The project will bid on March 1, 2025 Notice to proceed will be given with within 30 days of acceptance of the bid. The Contractor will coordinate bypass pumping operations to best fit their intended construction operations and the sequencing requirements outlined in the plans.

Estimated Completion date: The final project completion date is November 30, 2026. Bypass pumping activities are not allowed past this date without additional notification.

Bypass Location: Bypass operations will occur in the repair and construction locations shown in the plan sheets.

Bypass Requirements: The Contractor is required to comply with the SANITARY SEWER TEMPORARY BYPASS requirements outlined in the General Notes section of the plans, the City’s Supplemental Standard Specifications, and any special provisions provided in the contract documents.

Final notice for each bypass shall be provided a minimum of 48 hours in advance of the actual bypass to the Sioux Falls Water Reclamation contact provided in the UTILIITY section above.

WATER

WATER MAIN - GENERAL

1. Water main work consists of installation of new water main, valves, and hydrants, and the removal of existing water main and appurtenant items.

2. Contractors License. The Contractor shall obtain a “South Dakota State Sewer and Water Plumbing Contractor’s License” prior to commencing construction.

WATER MAIN AND APPURTENANCES

All valve operation will be done by the City of Sioux Falls water department.

All ductile iron pipe and fittings shall be wrapped with polyethylene tube material to protect the pipe from any future corrosion. The poly material shall be installed as detailed in the supplemental specifications and the ductile iron handbook from DIPRA and ANSI A21.5 (AWWA C105).

All water distribution materials shall meet NSF / ANSI Standard 61 – Drinking Water System Components, Health Effects, NSF/ANSI 61, and NSF/ANSI 372. The Contractor or Supplier may submit appropriate documentation to the Engineer for any materials not listed in the City’s Supplemental Standard Specifications for Water Main Construction, Section 300. This documentation must be provided no later than 7 days prior to bid opening

WATER MAIN PARALLELING OR CROSSING SEWERS

Installation of water mains parallel to sanitary or storm sewer lines shall be completed in a manner such that the water mains shall be laid at least 10 feet horizontal distance when measured edge to edge from any existing or proposed sanitary sewer, storm sewer, or sewer manhole. Where water mains cross above storm sewers or sanitary sewers, there shall be at least 18 inches vertical clearance between the bottom of the water main and the top of the sewer pipe and one full length of water pipe must be located so both joints will be as far from the sewer as possible.

A water main may cross below a non-perforated sewer main if minimum vertical separation of 18 inches is provided and the sewer main is of acceptable water main pipe material and is a continuous piece of at least 20 feet in length with the length of the water pipe located so both joints are as far as possible from the sewer main. A water main may cross either above or below a non-perforated sewer line with a vertical separation of less than 18 inches if either the water or sewer line is encased in PVC or steel for at least 10 feet each side of the crossing. If PVC or steel is used as encasement material, the ends shall be adequately sealed with a rubber boot. Where water mains are to be installed in parallel with a sewer or a sewer manhole that is less than 10 feet away horizontally and is not at least 18 inches below the water main, the water main shall be encased in PVC or steel for the entire distance that the sewer is too close to the water main. If PVC or steel is used as encasement material, the ends shall be adequately sealed with a rubber boot. PVC casing pipe shall meet the requirements of restrained joint PVC pipe material in Section 300 Supplemental Standard specifications for Water Main Construction. Payment for crossings shall be incidental to the contract unit prices for the water main items.

WATER MAIN DISINFECTION

After disinfection and final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken 24 hours apart, shall be collected from the new main. The samples must be submitted to a health laboratory acceptable to the state DANR, which includes the City of Sioux Falls health lab. The samples must be free of coliform bacteria before the system can be placed into service.

When minor water main work occurs (i.e. tie-in connections of new water main to existing water main, water main adjustments, installation of new valves on existing main or any other work deemed minor by the Engineer) the existing main, prior to the completion of the bacteria testing, may be returned to service once the line has been flushed and a boil order has been issued. The boil order will be rescinded with the passing of the bacteria test.

Water that is discharged during water main flushing shall not reach a stream, river or water way if the chlorine residual exceeds 0.05 mg/L.

The City or its representative shall notify all consumers affected by any interruption of water service at least 24 hours before the interruption of water service. Consumers shall be verbally notified when possible. In the event a consumer cannot be verbally notified, a door hanger shall be secured to the most frequently used entrance by the City or its representative.

WATER SERVICE TAPS (2” OR SMALLER)

Water service taps to the water main system will be made by the Contractor.

WATER SERVICE BEDDING MATERIAL

Contractor shall furnish and install bedding material for services. Material shall conform to material used for Water Main Bedding Material. Water service bedding material shall be paid for by lineal foot under Pipe Bedding Material.

WATER MAIN CONNECTIONS (4” OR LARGER)

Smith Taps: Smith Taps to the water main system shall be made by the City’s Water Maintenance Team. The Developer/Contractor shall coordinate with Engineering-Water (Erika Delgehausen 367-8612) at least 48 hours in advance. The construction requirements and method of measurement and payment shall be as stated in Section 300 of the City’s Supplemental Specifications. The valve box shall be provided by the Contractor and paid separately.

Cut and Tie to Existing Water Main: The construction requirements and method of measurement and payment shall be as stated in Section 300 of the City’s Supplemental Specifications.

DISCHARGE OF CHLORINATED WATER

Water from the City’s Water Distribution System that is drained into work areas or open trenches must be discharged without impact to the environment. The Contractor shall review locations of discharge hydrants relative to open areas and shall meet with property owners to discuss discharge locations and obtain property owner approval if water will be discharged across their private property. The following is a prioritized list for the disposition of chlorinated or heavily chlorinated water from the distribution system:

a. If the discharge location is close to Waters of the State, discuss excavation of depressions or berms (BMP’s) with the City and property owner(s) to accommodate discharge volumes. Water from the distribution system shall be pumped or flushed to these BMP’s and shall be stored and discharged through infiltration. Overland flow is not allowed.

b. Water from the distribution system may be pumped into vac trucks or septic tank trucks and hauled to the Water Reclamation Plant or other facility permitted by (DANR) to accept such discharge.

c. Permission must be obtained by the City for the discharge of Water from the distribution system into City’s sanitary sewer system. Contractor is responsible for verifying hydraulic loading on existing sanitary sewer system during trench dewatering operations to ensure that sewer backups do not occur.

TRENCHLESS CONSTRUCTION – WATER

Trenchless construction will be performed as specified in the Special Provisions for Trenchless Construction.

The trenchless construction will consist of fully furnishing and installing the 24” diameter steel casing beneath an existing 8’x 6’ CIP Box Culvert located at STA. 14+01.8 Cliff Ave NB.
The 16” carrier pipe installed within the casing pipes shall be 16” Restrained Joint PVC Pipe.

The Contractor shall be responsible for choosing the trenchless construction method. Additional payment will not be made to the Contractor in the event the trenchless construction method chosen by the Contractor fails, thus requiring the Contractor to change the trenchless construction method. This would include abandoning or removing the materials installed prior to failure and filling the annular space with controlled low strength material.

TEMPORARY WATER METER AND BACKFLOW ASSEMBLY

Temporary water usage will be metered by the City. The Contractor shall coordinate the installation and removal of a temporary water meter and backflow assembly with City Water Billing (367-8131). The Contractor shall coordinate the meter installation with City staff at least 48 hours in advance. City crews will install and remove the meter and backflow assembly.

If meter and backflow assembly are lost, damaged, or stolen, the Contractor will be responsible for all costs for repairs or for the full replacement cost. The Contractor will be responsible for paying a deposit for the temporary water meter and backflow assembly, which will be refunded upon its return in an undamaged condition. All costs will be as defined in City Ordinance 51.010. The Contractor is not responsible for any set, daily, and removal fees associated with the temporary water meters. The Contractor is not responsible for the water use fees.

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TEMPORARY WATER MAIN

This work shall be paid under the bid item “Temporary Water Main” and/or “Temporary Water Service”. Payment will include layout, pipe, appurtenances, and any additional items and labor necessary to complete the work.

The Contractor, with the approval of the inspector on site, shall coordinate with all property owners when a disruption in water service is expected. Contractor will be expected to complete water service reconnections to the temporary water main either during the day (9 AM until 4 PM during the work week) or at other suitable times that meet the needs and requirements of the property owners.

The Contractor must provide a 24-hour contact person with adequate parts and equipment to make necessary repairs to temporary water service in a timely manner.

All temporary water main shall require a meter and backflow assembly. Reference the temporary water meter and backflow assembly plan note for additional information.

All temporary water piping and fittings shall be NSF approved for potable water use. The Contractor is responsible for verifying all connections are water tight and functioning properly. Any damage by connection, equipment or part failures are the responsibility of the Contractor. Any damage to private property during the installation, usage and removal of the temporary water is the responsibility of the Contractor.

Temporary water main shall be minimum 2 inch diameter. No additional payment will be made for temporary water main larger than 2 inch diameter. Temporary water main and its appurtenances shall meet the requirements of the City of Sioux Falls Supplemental Standard Specifications. Temporary water main is required to be tested for pressure and coliform bacteria prior to any service connections. The temporary water main shall be tested at static main pressure. The temporary watermain shall be filled, disinfected, flushed and sampled. A single passing test will be required prior to the temporary water main being put into service. Two consecutive coliform bacteria tests shall be taken 24 hours apart when specified (SRF funded ONLY).

Gravel Ramps shall be constructed over the temporary water main where necessary and at all driveway approaches and will be paid for separately as “Base Course”. The Contractor shall be responsible for maintaining sidewalk ADA accessibility. Maintaining ADA accessibility shall be incidental to the temporary water main bid item(s). A quantity of 40 tons has been included in the plan’s quantity for aggregate material needed to construct ramps over temporary water.

Chlorination, testing, pipe, necessary isolation valves, bends, fittings, hydrants, all necessary appurtenances, gravel ramp construction, maintenance and removal, and all other materials and labor necessary to construct the temporary water main and flush each individual service before connection to the City water system shall be considered incidental to bid item for temporary water main.

Submittals:
Contractor is to submit temporary water main layout, sequence of operations, schedule, material and fitting specifications to the project Engineer four days prior to the project preconstruction meeting. Any changes to the proposed temporary water service layout shall be approved by the Project Engineer prior to the preconstruction submittal.

Approved Products: CertainTeed – Certa-Lok Yelomine or prebid Engineer approved equal.

STEEL CASING FOR WATER MAIN

The proposed steel casing shall meet the following requirements:

- Casing Nominal Diameter = 16” or 24” (See plans for locations)
- Minimum wall thickness = 0.25”
- Steel casing material = ASTM A53 Grade B (35,000 psi minimum yield strength)
- Refer to the Special Provisions for Trenchless Construction for additional requirements.

WATER MAIN CONSTRUCTION SPECIAL CONDITIONS

Water Main Shutdowns:

- Shutdowns affecting services within and outside of the project limits shall be for a maximum of a 4 hour period, from either 8:00 a.m. to 12:00 p.m. or 1:00 p.m. to 5:00 p.m.
- The Contractor shall coordinate with City, Engineer, and with each existing business and resident for the scheduled time the water main / services will be shut down.
  - This includes necessary over-night shutdowns as required by the business owner if day-time shutdowns are infeasible.
- Any overnight shutdowns shall be coordinated with the City one week prior to shutdown.
- Shutdowns shall be coordinated one week prior to completing any shutdown.

Temporary Fire Hydrant:

- Temporary fire hydrants may be installed along the proposed water main for periodic pressure testing and disinfection. Upon completion of passing results for pressure testing and disinfection of the proposed water main, the temporary hydrants and their necessary fittings / connections to the proposed water main shall be fully removed for later use.
- The contract unit price per each for “Temporary Fire Hydrant” shall include all costs to furnish and install the items mentioned in the City of Sioux Falls Supplemental Standard Specifications for temporary fire hydrants; as well as any reducers, bends, tees, bolts, nuts, restraining devices and all appurtenances to ensure a waterproof connection to the proposed water main. The bid item shall also include all hoses, gaskets, connections and all appurtenances to make the above ground connection between the existing fire hydrant and temporary fire hydrant, for filling of the proposed water main.

TRENCH STABILIZATION MATERIAL

The Contractor shall notify the Engineer when material considered unstable for pipe foundations is encountered. When authorized, the Contractor may replace unsuitable material with trench stabilization material. The use of bedding material is still required when trench stabilization material is used.

A quantity of 200 tons has been included in the plan’s quantity for trench stabilization material. All costs to furnish and install the trench stabilization material shall be incidental to the contract unit price per ton for “Trench Stabilization Material”. For final measurement of material, weight tickets shall be provided to the Engineer at the time of construction.

A quantity of 200 tons has been included in the plan’s quantity for suitable backfill material. All costs to furnish and install the trench backfill material shall be incidental to the contract unit price per ton for “Select Granular Backfill”. For final measurement of material, weight tickets shall be provided to the Engineer at the time of construction.

TEMPORARY ASPHALT PAVEMENT

The Contractor shall install a temporary surface where temporary water service is installed for Phase 2 – 2C. Temporary surface includes base course and asphalt pavement. Water for aggregate material and tack for pavement lifts incidental to unit price bid for respective items.

BASE COURSE

Base Course shall be in accordance with SDDOT Standard Specifications Section 260. Material for base course shall meet requirements set forth in SDDOT Standard Specifications Section 882.

Base Course shall be compacted with pneumatic rollers and shall continue on each lift of the base course until the surface is firm and unyielding, and attains a density of 97% of the maximum dry density as determined by SD 104, Method 4 and SD 105 or SD 114.

Water for compaction is estimated at 12 gallons per ton and shall be incidental to Base Course item.

Payment shall be made on a per ton basis. Any aggregate base course delivered to the site without a scale ticket will not be measured for payment.

Contractor shall install aggregate base course under temporary asphalt. See plans for depth. Material shall be paid for separately as “Base Course.”

TEMPORARY ASPHALT

“Temporary Asphalt” shall be installed in locations shown in the plans or as directed by the Engineer. The minimum depth of all asphalt concrete patching shall be 4-inches.

Compaction of asphalt concrete shall be by the specified density method. The minimum density requirement is 92% (Rice Method) of specified density or to the satisfaction of the Engineer.

Asphalt concrete composite shall conform to the SDDOT Specifications for Class G, Asphalt Concrete. The top lift shall conform to Class G-2 for the mineral aggregate specifications. All lower lift(s) shall conform to Class G-1 for the mineral aggregate specifications unless otherwise noted or by direction of the Engineer. The surface course shall not exceed 2” in thickness when laid and compacted.

A maximum of 20% (by weight) of Recycled Asphalt Pavement (RAP) will be allowed in the asphalt concrete composite mix. RAP stockpiles containing concrete chunks, grass, dirt, wood, metal, coal tar, or other foreign or environmentally restricted materials shall not be used. No other recycled material will be allowed.

The asphalt cement used in the mixture shall be Performance Graded AASHTO Designation PG58-28 and shall conform to the current SDDOT Specifications. Certificates of compliance will be required on the asphalt concrete composite mix and the performance graded asphalt binder. The Engineer may accept the mixture on the basis of the certificate of compliance and visual inspection or may test the mixture for specification compliance.

Tack coat (SS-1h or CSS-1h) shall be applied between each lift of asphalt and along existing concrete and asphalt faces and any areas as determined by the Engineer at an application rate resulting in undiluted residual asphalt of .05 gal/sq. yd. Payment for this work shall be incidental to the unit price for asphalt.

SEH

SEQUENCE OF OPERATIONS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	16	50
Plotting Date: 11/12/2024			

PHASE PLAN

- PHASE YEAR 1-1A
- PHASE YEAR 1-1B
- PHASE YEAR 2 - 2C

PHASING NOTES:

GENERAL:

1. NIGHT CLOSURES PERMITTED. COORDINATE WITH INTERCHANGE PROJECT.
2. SINGLE LANE CLOSURES PERMITTED DURING NON-PEAK HOURS. COORDINATE WITH INTERCHANGE PROJECT.

PHASE YEAR 1 - 1A:

1. CLIFF AVENUE:
   - A. INSTALL SANITARY SEWER FROM I-229 SB BRIDGE TO SSMH-P1 AFTER BRIDGE REMOVAL. COORDINATE ACTIVITIES WITH BRIDGE CONTRACTOR.
     - i. INSTALL TEMPORARY SANITARY SEWER CONNECTION NORTH OF SSMH-P1 TO EXISTING SEWER (INCIDENTAL).
   - B. INSTALL WATER MAIN FROM I-229 SB BRIDGE TO TEMPORARY SEWER CONNECTION NORTH OF SSMH-P1.
     - i. INSTALL TEMPORARY WATER MAIN CONNECTION TO EXISTING WATER MAIN (INCIDENTAL).
2. 41ST STREET:
   - A. INSTALL SANITARY SEWER FROM SSMH-P1 TO SSMH-P6.
   - B. INSTALL WATER MAIN ALONG 41ST ST TO PAM RD.

PHASE YEAR 1 - 1B

1. CLIFF AVENUE:
   - A. INSTALL SANITARY SEWER AND WATER MAIN FROM PHASE 1-1A TEMPORARY CONNECTION TO 38TH ST.
   - B. TEMPORARY WATER SERVICE TO BE IN PLACE PRIOR TO WATER SHUT OFF FOR WATER MAIN INSTALLATION ON CLIFF AVE.
2. PAM ROAD
   - C. INSTALL SANITARY SEWER FROM LINCOLN H.S. TO PAM RD.

PHASE YEAR 2 - 2C

1. CLIFF AVENUE:
   - A. INSTALL SANITARY SEWER FROM EXISTING MANHOLE 06A0006 TO TEMPORARY SEWER CONNECTION SOUTH OF SSMH-P1.
   - B. INSTALL WATER MAIN FROM SOUTHERN EXISTING CONNECTION TO PHASE YEAR 1 - 1A TEMPORARY CONNECTION.
   - C. TEMPORARY WATER SERVICE TO BE IN PLACE PRIOR TO WATER SHUT OFF FOR WATER MAIN INSTALLATION ON CLIFF AVE.
     - i. INSTALL 12" AGGREGATE BASE COURSE 4" TEMPORARY ASPHALT PAVEMENT ON DISTURBED TRAFFIC LANES. COORDINATE PAVEMENT LOCATION AND CONSTRUCTION WITH INTERCHANGE PROJECT.
   - D. COORDINATE UTILITY INSTALLATION WITH BRIDGE REMOVAL OPERATIONS.

PHASE Y2-2C TEMPORARY WATER SERVICE.: REMOVE PAVEMENT (BY OTHERS) AND PLACE TEMPORARY WATER AT 3' BURY. INSTALL 12" BASE COURSE AND 4" TEMPORARY ASPHALT PAVEMENT FOR AREAS UNDER TRAFFIC. REMOVE SERVICE AFTER COMPLETION OF WATER MAIN & SERVICE CONSTRUCTION, INCLUDING TESTING.

MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION IN COORDINATION WITH THE I-229 INTERCHANGE PROJECT.

PHASE Y2-2C:
COMPLETE REMAINDER OF WATERMAIN

PHASE Y1-1A
CONNECT TO EXISTING SANITARY SEWER AND REMOVE / ABANDON EXISTING SEWER TO EAST PER REMOVAL DRAWINGS..

PHASE Y1-1A
INSTALL TEMPORARY SANITARY SEWER & WATER MAIN CONNECTION.

PHASE Y1-1A
INSTALL WATER MAIN TO 10TH AVE / PAM RD

PHASE Y1-1B:
TEMPORARY WATER TO QUAD-PLEX.

PHASE Y1-1B
INSTALL SANITARY SEWER TO 10TH AVE / PAM RD

TEMPORARY PAVEMENT AREA FOR INTERCHANGE PROJECT. KEEP MANHOLE CASTING 1' BELOW PROPOSED RIM ELEVATION. ADJUST TO FINISH GRADE FOR PERMANENT PAVING.

PHASE Y1-1B
INSTALL SANITARY SEWER & WATER MAIN FROM SSMH-P1 TO 38TH ST.

PHASE Y1-1B
INSTALL SANITARY SEWER FROM 08C0004B TO 08C0007.

PHASE Y1-1B:
TEMPORARY WATER TO LINCOLN H.S.. COORDINATE CONNECTION TO BUILDING SERVICE WITH SCHOOL PERSONNEL.

41ST ST WEST
I-229 SB ON-RAMP
I-229 NB
I-229 SB
PRIOR ASSIST ST
PAM RD
10TH AVE
38TH ST
CLIFF AVE SB
CLIFF AVE NB
RAMP D
RAMP G
RAMP C
RAMP B
RAMP A
RAMP E
RAMP F
I-229 NB ON-RAMP
I-229 SB OFF-RAMP
SSMH-P1
SSMH-P2
SSMH-P3
SSMH-P4
SSMH-P5
SSMH-P6
SSMH-P7
SSMH-P8
06A0006
08C0004B
08C0006A
08C0007

scale 50 0 100 200 feet

REGISTERED PROFESSIONAL ENGINEER
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11.15.24
SOUTH DAKOTA

SEH

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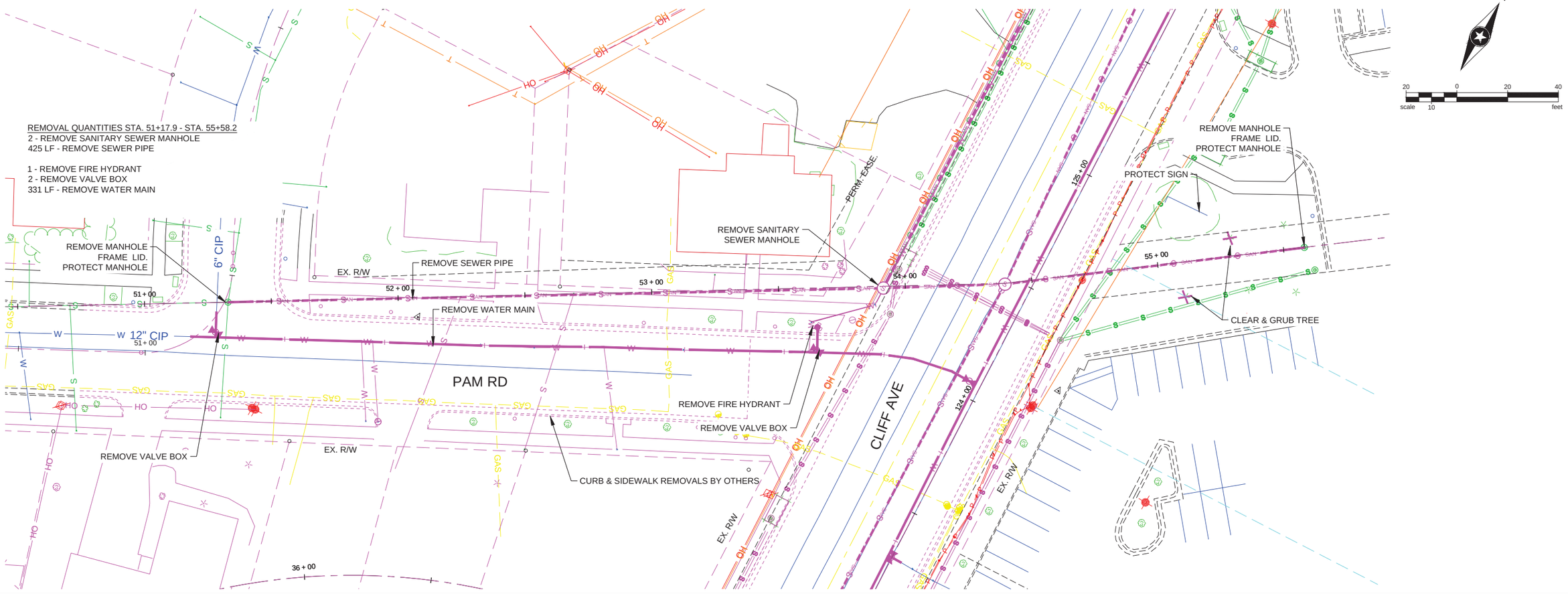
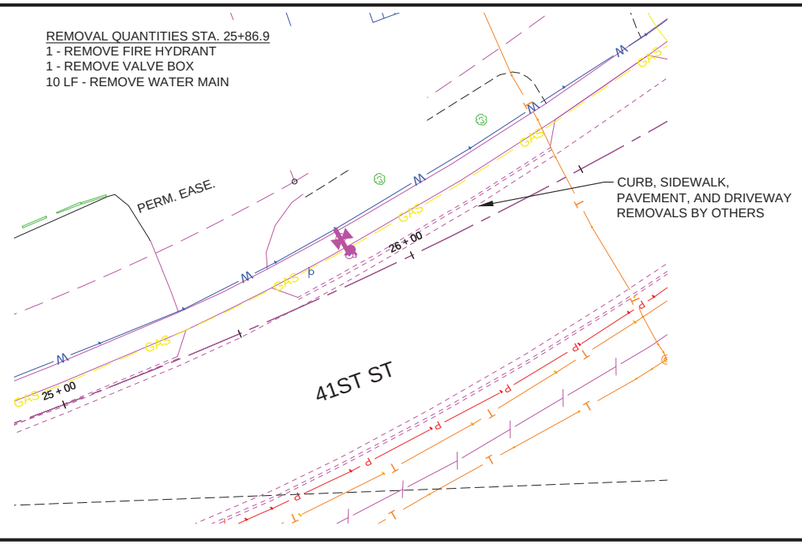
EXISTING CONDITIONS & REMOVALS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	17	50
Plotting Date: 11/14/2024			





LEGEND:

- REMOVE WATER MAIN
- REMOVE FIRE HYDRANT
- REMOVE VALVE BOX
- REMOVE SEWER PIPE
- ABANDON SANITARY SEWER (REMOVED BY OTHERS)
- REMOVE MANHOLE (SANITARY)
- CLEAR & GRUB TREE

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EXISTING CONDITIONS & REMOVALS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	18	50

Plotting Date: 11/14/2024

ABANDON SANITARY SEWER PLUGS ENDS

REMOVE MANHOLE (SANITARY)

NOTE:
EXISTING SANITARY SEWER TO REMAIN IN PLACE AND IN SERVICE UNTIL PROPOSED SEWER IS INSTALLED FROM SSMH-1 - SSMH-6 THE EXISTING MANHOLES CAN THEN BE REMOVED AND PIPE ENDS PLUGGED AFTER COMPLETION OF THE PROPOSED SANITARY SEWER.

SANITARY SEWER EASTMENT (MISC. BK 101, PG 49)

SANITARY SEWER EASTMENT (MISC. BK 232, PG 302)

REMOVE WATER MAIN

REMOVE VALVE BOX

REMOVE FIRE HYDRANT

CURB, SIDEWALK, PAVEMENT, AND DRIVEWAY REMOVALS BY OTHERS

41ST ST

6" CIP

28+00 29+00 30+00 31+00 32+00 33+00

20 0 20 40
scale 10 feet

LEGEND:

- REMOVE WATER MAIN
- REMOVE FIRE HYDRANT
- REMOVE VALVE BOX
- REMOVE SEWER PIPE
- ABANDON SANITARY SEWER (REMOVED BY OTHERS)
- REMOVE MANHOLE (SANITARY)
- CLEAR & GRUB TREE

REMOVAL QUANTITIES STA. 28+33.5 (41ST ST) - STA. 120+66.2 (CLIFF AVE)
580 LF - ABANDON SANITARY SEWER PIPE (INCIDENTAL)
4 EA - 8" SEWER PLUG
2 - REMOVE SANITARY SEWER MANHOLE
190 LF - REMOVE SEWER PIPE

4 - REMOVE VALVE BOX
1 - REMOVE FIRE HYDRANT
830 LF - REMOVE WATER MAIN

ABANDON SANITARY SEWER PLUGS ENDS

REMOVE MANHOLE (SANITARY)

REMOVE SANITARY SEWER AS NEEDED FOR WATERMAIN CONSTRUCTION AND PLACE 8" PIPE CAPS ON ENDS OF SEWER TO BE ABANDONED IN PLACE.

CURB, SIDEWALK, PAVEMENT, AND DRIVEWAY REMOVALS BY OTHERS

41ST ST

CLIFF AVE

32+00 33+00 120+00 121+00

20 0 20 40
scale 10 feet

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EXISTING CONDITIONS & REMOVALS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	19	50

Plotting Date: 11/14/2024

REMOVAL QUANTITIES STA. 106+86.6 - STA. 125+11.9
215 LF - ABANDON SANITARY SEWER PIPE
5 - REMOVE MANHOLE (SANITARY)
1400 LF - REMOVE SEWER PIPE

1 - REMOVE FIRE HYDRANT
7 - REMOVE VALVE BOX
2050 LF - REMOVE WATER MAIN

CLIFF AVE

CURB, SIDEWALK, PAVEMENT, AND DRIVEWAY REMOVALS BY OTHERS

ABANDONED

107 + 00
108 + 00
109 + 00
110 + 00
111 + 00
112 + 00

REMOVE FIRE HYDRANT

REMOVE VALVE BOX

REMOVE WATER MAIN

PROTECT IRRIGATION METER

16" CIP

20 0 20 40
scale 10 feet

I-229 NB OFF RAMP

I-229 NB

I-229 SB

LEGEND:

- REMOVE WATER MAIN
- REMOVE FIRE HYDRANT
- REMOVE VALVE BOX
- REMOVE SEWER PIPE
- ABANDON SANITARY SEWER (REMOVED BY OTHERS)
- REMOVE MANHOLE (SANITARY)
- CLEAR & GRUB TREE

REMOVE MANHOLE FRAME LID. PROTECT MANHOLE

REMOVE SEWER PIPE

REMOVE SANITARY SEWER MANHOLE

REMOVE WATER MAIN

CURB, SIDEWALK, PAVEMENT, AND DRIVEWAY REMOVALS BY OTHERS

112 + 00
113 + 00
114 + 00
115 + 00
116 + 00
117 + 00

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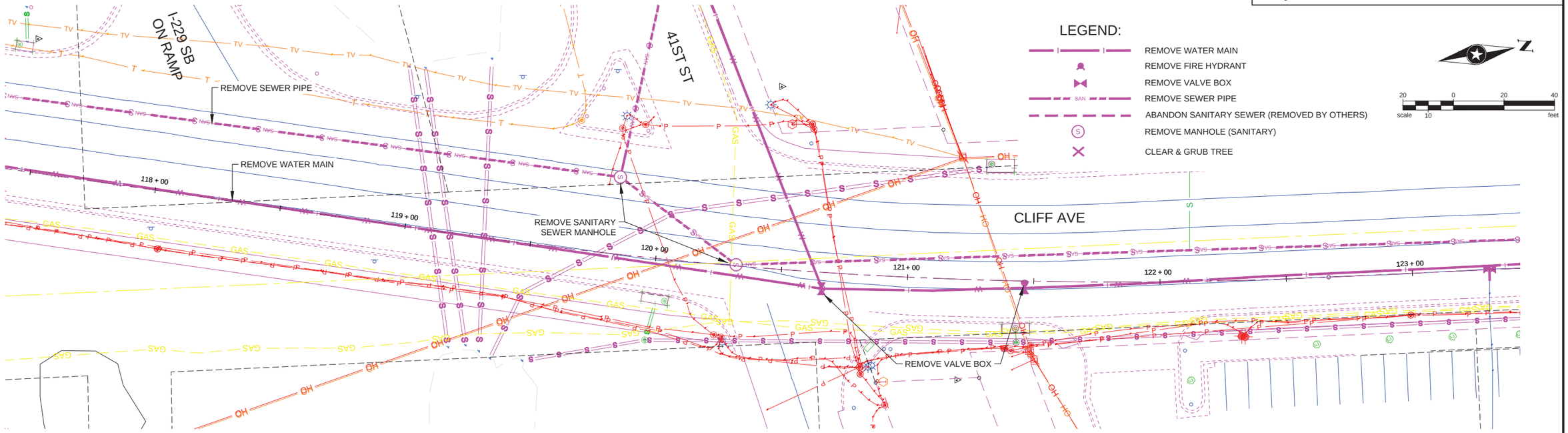
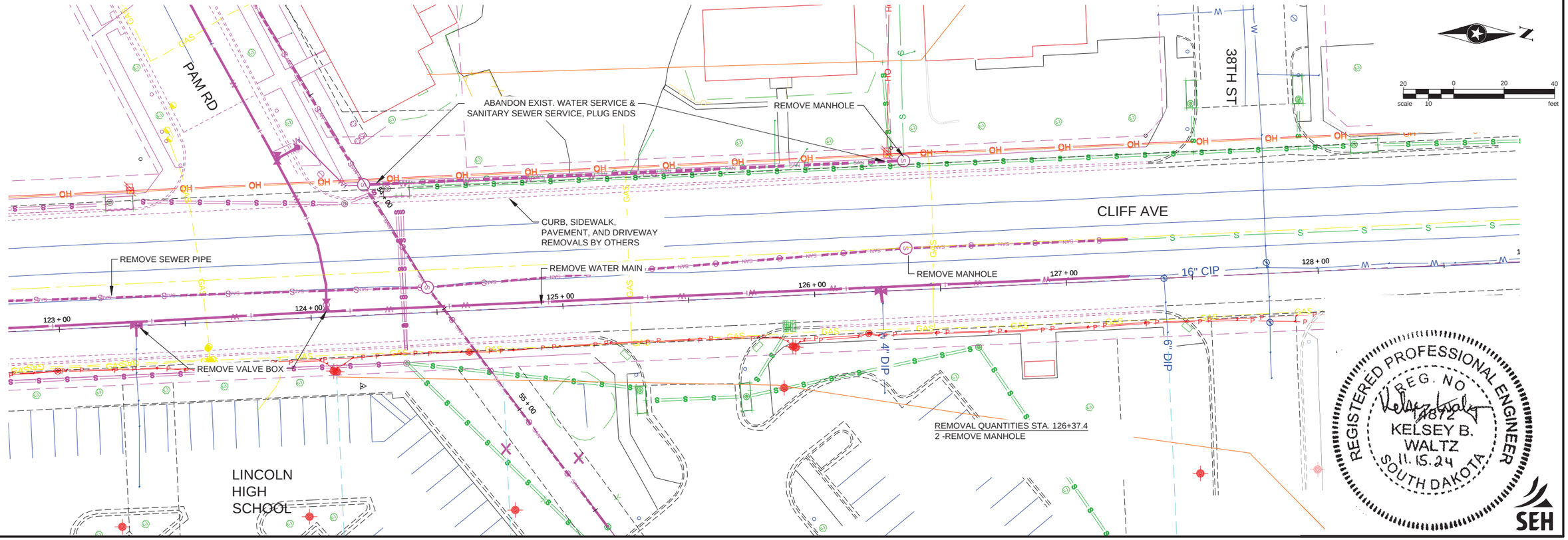
EXISTING CONDITIONS & REMOVALS

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	20	50
Plotting Date: 11/14/2024			





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41ST ST WATER MAIN LAYOUT

FOR BIDDING PURPOSES ONLY

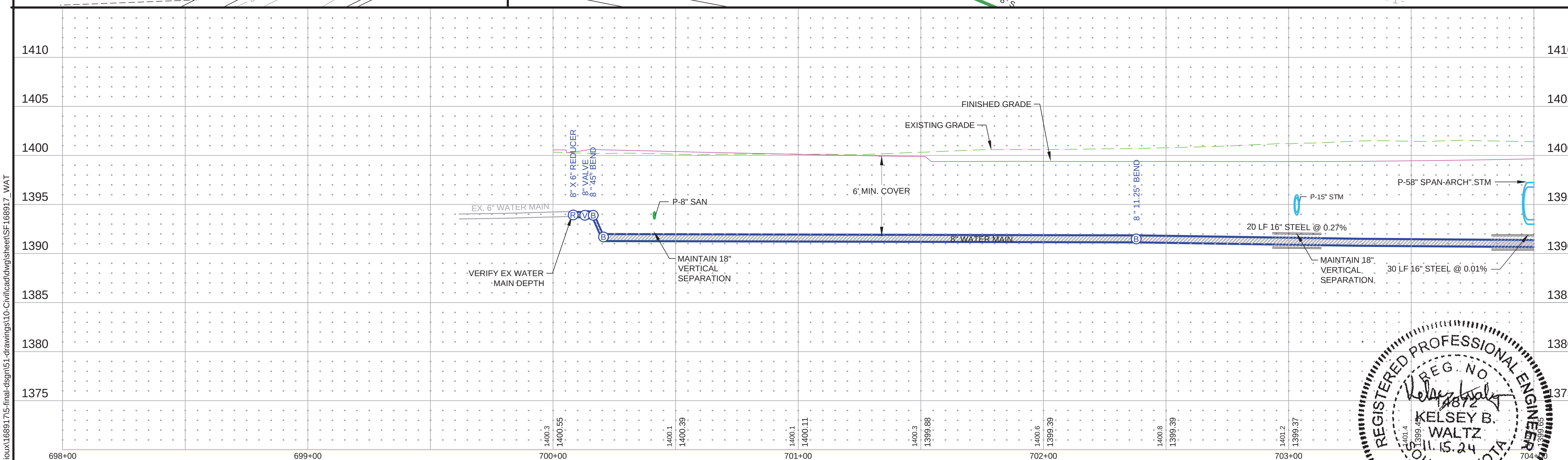
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	21	50

Plotting Date: 11/14/2024

UTILITY LEGEND

	PROPOSED STORM SEWER	T	PROPOSED TEE
	PROPOSED SANITARY SEWER	B	PROPOSED BEND
6"W	PROPOSED 6" WATER MAIN	S	PROPOSED SLEEVE
8"W	PROPOSED 8" WATER MAIN	R	PROPOSED REDUCER
16"W	PROPOSED 16" WATER MAIN	V	PROPOSED VALVE
	PROPOSED WATER MAIN CASING	H	PROPOSED HYDRANT
	PROPOSED SANITARY SEWER CASING		

STA.25+84.62 29.9' LT
INSTALL 6" X 15' PVC WATER MAIN
1 - HYDRANT
1 - 6" X6" M.J. TEE
1 - 6" MJ. GATE VALVE & BOX
6 - 6" M.J. RESTRAINING DEVICE
2 - CUT & TIE TO EXISTING WATER MAIN
41ST STREET
STA.700+08.1 0.0' LT TO 704+67.7 0.0' LT
INSTALL 8" X 330' PVC WATER MAIN
INSTALL 8" X 130' RESTRAINED JOINT PVC PIPE
STA.700+08.0 0.0' LT TO 704+67.7 0.0' LT
1 - 8" X 6" MJ REDUCER
1 - 8" M.J. GATE VALVE WITH BOX
2 - 8" M.J. 45° BEND (VERTICAL)
1 - 8" M.J. 11.25° BEND
1 - 8" M.J. 22.5° BEND
1 - 6" M.J. RESTRAINING DEVICE
11 - 8" M.J. RESTRAINING DEVICES
50 LF 20" DIP CASING PIPE
1 - CUT & TIE TO EXISTING WATER MAIN
SANITARY SEWER EASTMENT (MISC. BK 232, PG 302)
SEWER EASTMENT BK 101, PG 49
VERIFY UTILITY
RESTRAIN 10 LF 8" WM
EX 6" WATER MAIN
8" WATER MAIN
20 LF 16" STEEL @ 0.27%
RESTRAIN 40 LF 8" WM
RESTRAIN 10 LF 8" WM EACH SIDE OF BEND
SSMH-P5
41ST STREET
scale 20 10 0 20 40 feet



1410
1405
1400
1395
1390
1385
1380
1375
FINISHED GRADE
EXISTING GRADE
6' MIN. COVER
8" X 6" REDUCER
8" VALVE
8" 45° BEND
8" 11.25° BEND
EX. 6" WATER MAIN
P-8" SAN
P-15" STM
P-58" SPAN-ARCH" STM
8" WATER MAIN
20 LF 16" STEEL @ 0.27%
30 LF 16" STEEL @ 0.01%
VERIFY EX WATER MAIN DEPTH
MAINTAIN 18" VERTICAL SEPARATION
MAINTAIN 18" VERTICAL SEPARATION
698+00
699+00
700+00
701+00
702+00
703+00
704+00

REGISTERED PROFESSIONAL ENGINEER REG. NO. 14872 KELSEY B. WALTZ 11.15.24 SOUTH DAKOTA

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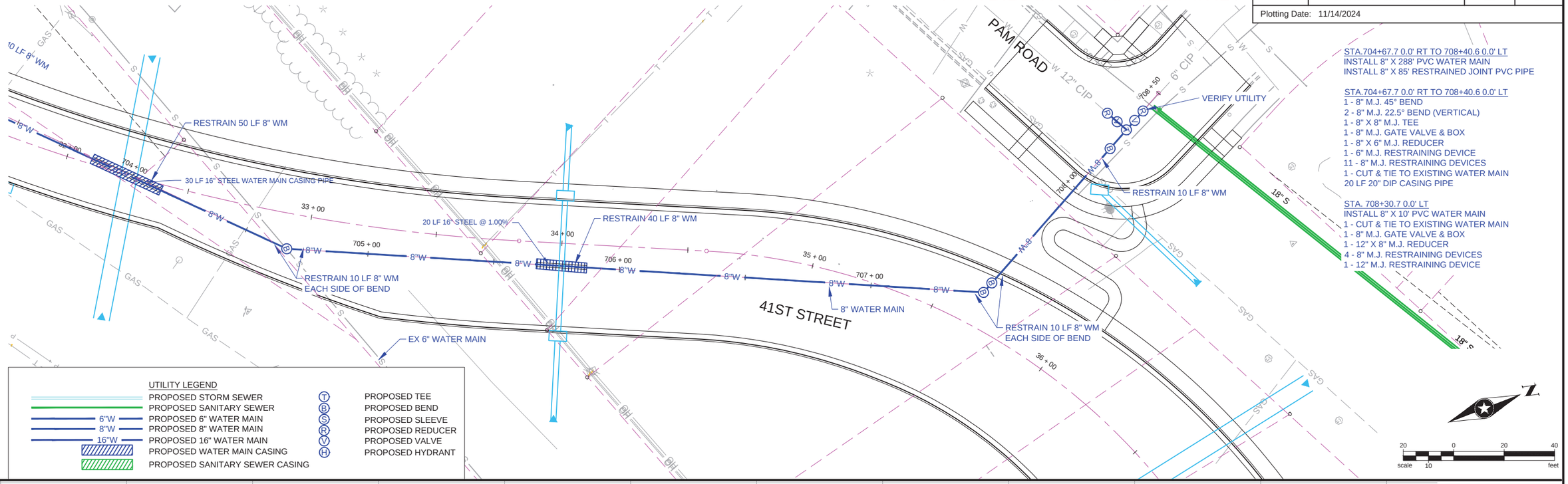
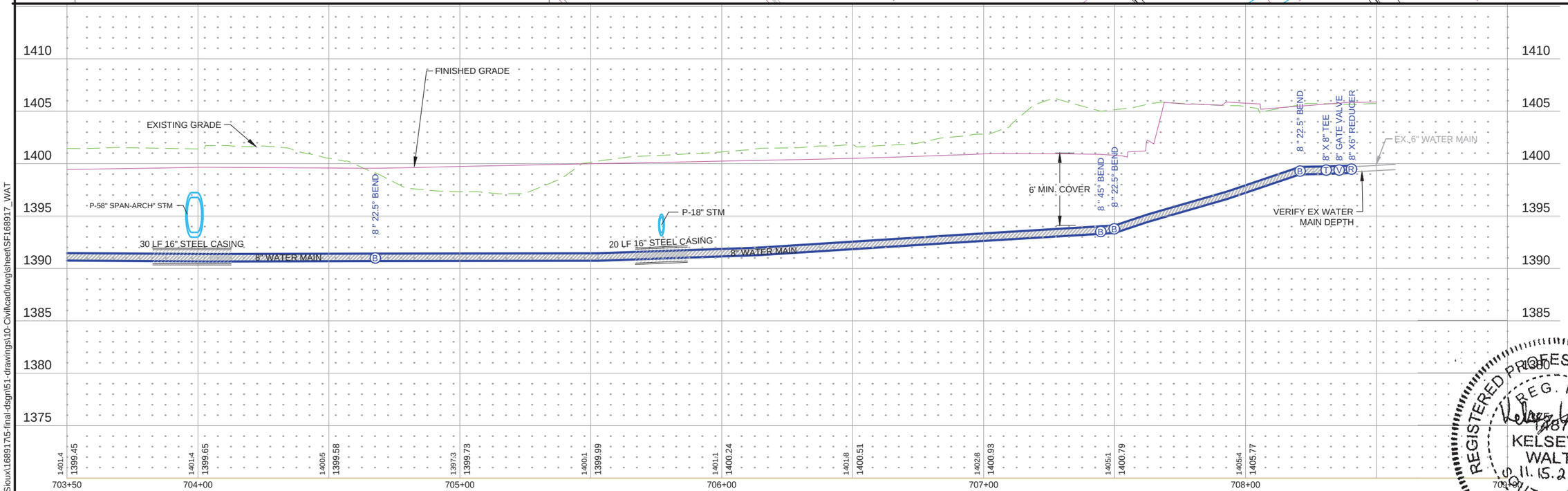
41ST ST WATER MAIN LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	22	50

Plotting Date: 11/14/2024





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REGISTERED PROFESSIONAL ENGINEER
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SOUTH DAKOTA

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CLIFF AVENUE WATER MAIN LAYOUT

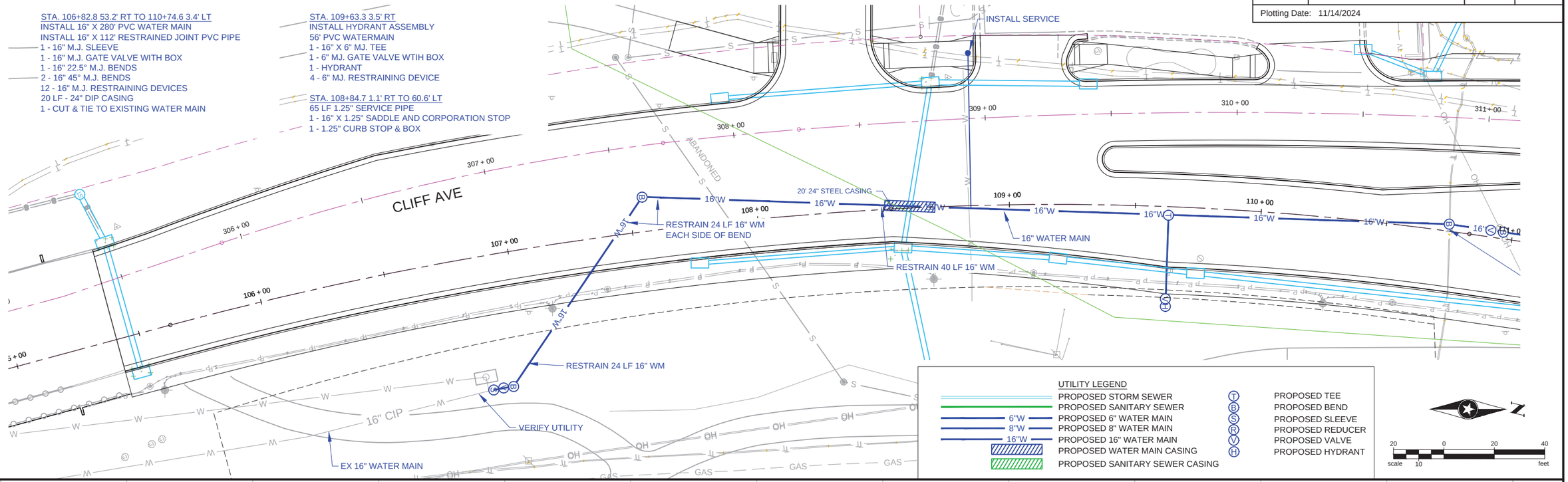
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	23	50
Plotting Date: 11/14/2024			

STA. 106+82.8 53.2' RT TO 110+74.6 3.4' LT
INSTALL 16" X 280' PVC WATER MAIN
INSTALL 16" X 112' RESTRAINED JOINT PVC PIPE
1 - 16" M.J. SLEEVE
1 - 16" M.J. GATE VALVE WITH BOX
1 - 16" 22.5° M.J. BENDS
2 - 16" 45° M.J. BENDS
12 - 16" M.J. RESTRAINING DEVICES
20 LF - 24" DIP CASING
1 - CUT & TIE TO EXISTING WATER MAIN

STA. 109+63.3 3.5' RT
INSTALL HYDRANT ASSEMBLY
56' PVC WATERMAIN
1 - 16" X 6" MJ. TEE
1 - 6" MJ. GATE VALVE WTIH BOX
1 - HYDRANT
4 - 6" MJ. RESTRAINING DEVICE

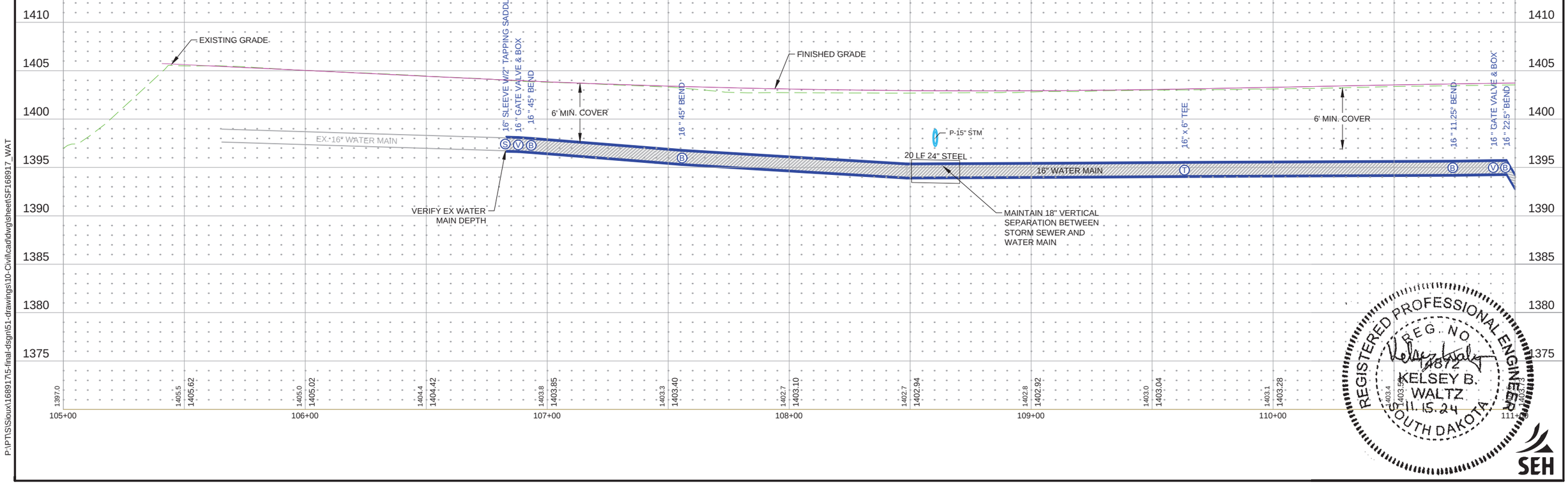
STA. 108+84.7 1.1' RT TO 60.6' LT
65 LF 1.25" SERVICE PIPE
1 - 16" X 1.25" SADDLE AND CORPORATION STOP
1 - 1.25" CURB STOP & BOX



UTILITY LEGEND

PROPOSED STORM SEWER		(T)	PROPOSED TEE
PROPOSED SANITARY SEWER		(B)	PROPOSED BEND
6"W	PROPOSED 6" WATER MAIN	(S)	PROPOSED SLEEVE
8"W	PROPOSED 8" WATER MAIN	(R)	PROPOSED REDUCER
16"W	PROPOSED 16" WATER MAIN	(V)	PROPOSED VALVE
	PROPOSED WATER MAIN CASING	(H)	PROPOSED HYDRANT
	PROPOSED SANITARY SEWER CASING		

scale 10 (20 0 20 40) feet



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CLIFF AVENUE WATER MAIN LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	24	50

Plotting Date: 11/14/2024

UTILITY LEGEND

- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- 6"W — PROPOSED 6" WATER MAIN
- 8"W — PROPOSED 8" WATER MAIN
- 16"W — PROPOSED 16" WATER MAIN
- PROPOSED WATER MAIN CASING
- PROPOSED SANITARY SEWER CASING
- (T) PROPOSED TEE
- (B) PROPOSED BEND
- (S) PROPOSED SLEEVE
- (R) PROPOSED REDUCER
- (V) PROPOSED VALVE
- (H) PROPOSED HYDRANT

STA. 110+74.6 3.4' LT TO 119+10.6 0.4' LT
INSTALL 16" X 643' PVC WATER MAIN
INSTALL 16" X 195' RESTRAINED JOINT PVC PIPE
4 - 16" M.J. 22.5° BEND
3 - 16" MJ GATE VALVE & BOX
16 - 16" MJ. RESTRAINING DEVICES
40 LF 24" DIP CASING PIPE
40 LF 24" DIP CASING PIPE (TRENCHLESS CONSTRUCTION)

CLIFF AVE

TRENCHLESS CONSTRUCTION
40' 24" STEEL CASING

16" WATER MAIN

20' 24" STEEL CASING

RESTRAIN 40 LF 16" WM

RESTRAIN 115 LF 16" WM

INSTALL SERVICE FOR IRRIGATION

STA. 114+00.0 0' LT
INSTALL 1" X 88' COPPER PIPE
1 - 16' X 1" CORPORATION & TAPPING SADDLE
1 - 1" CURB STOP & BOX

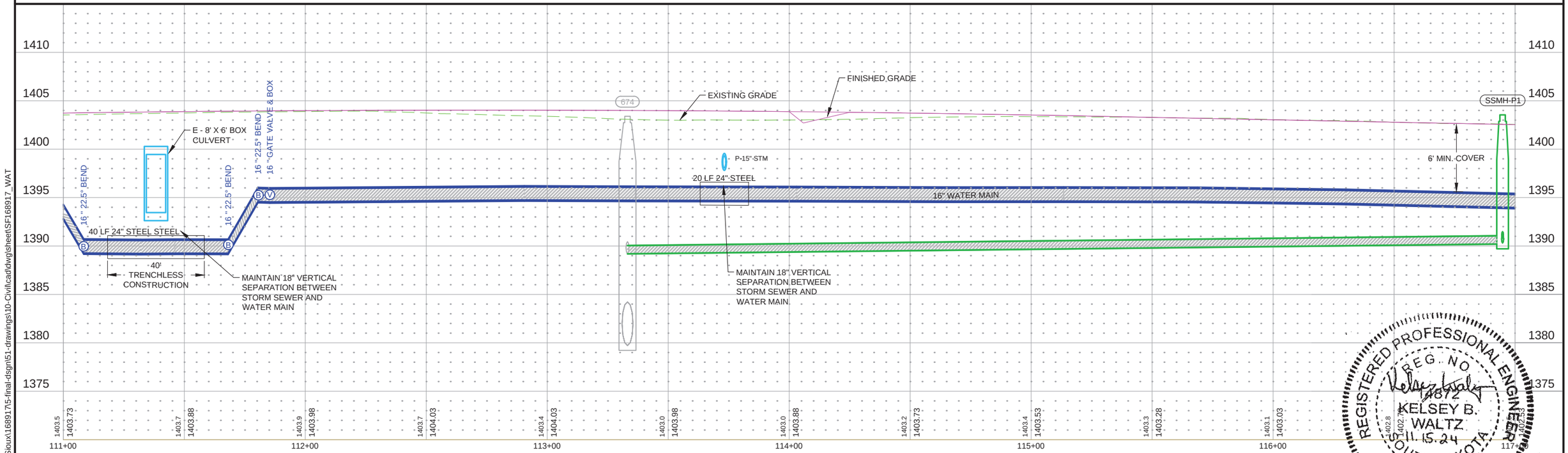
BRING SERVICE PIPE TO SURFACE.
BACKFLOW PREVENTOR TO BE INSTALLED BY OTHERS. VERIFY LOCATION OF PIPE RISER WITH LANDSCAPING PLAN.

I-229 NB OFF RAMP
I-229 NB ON RAMP
I-229 SB ON RAMP
I-229 SB OFF RAMP
I-229 NB
I-229 SB

10" S

SSMH-P1

scale 10 — 20 0 20 40 feet



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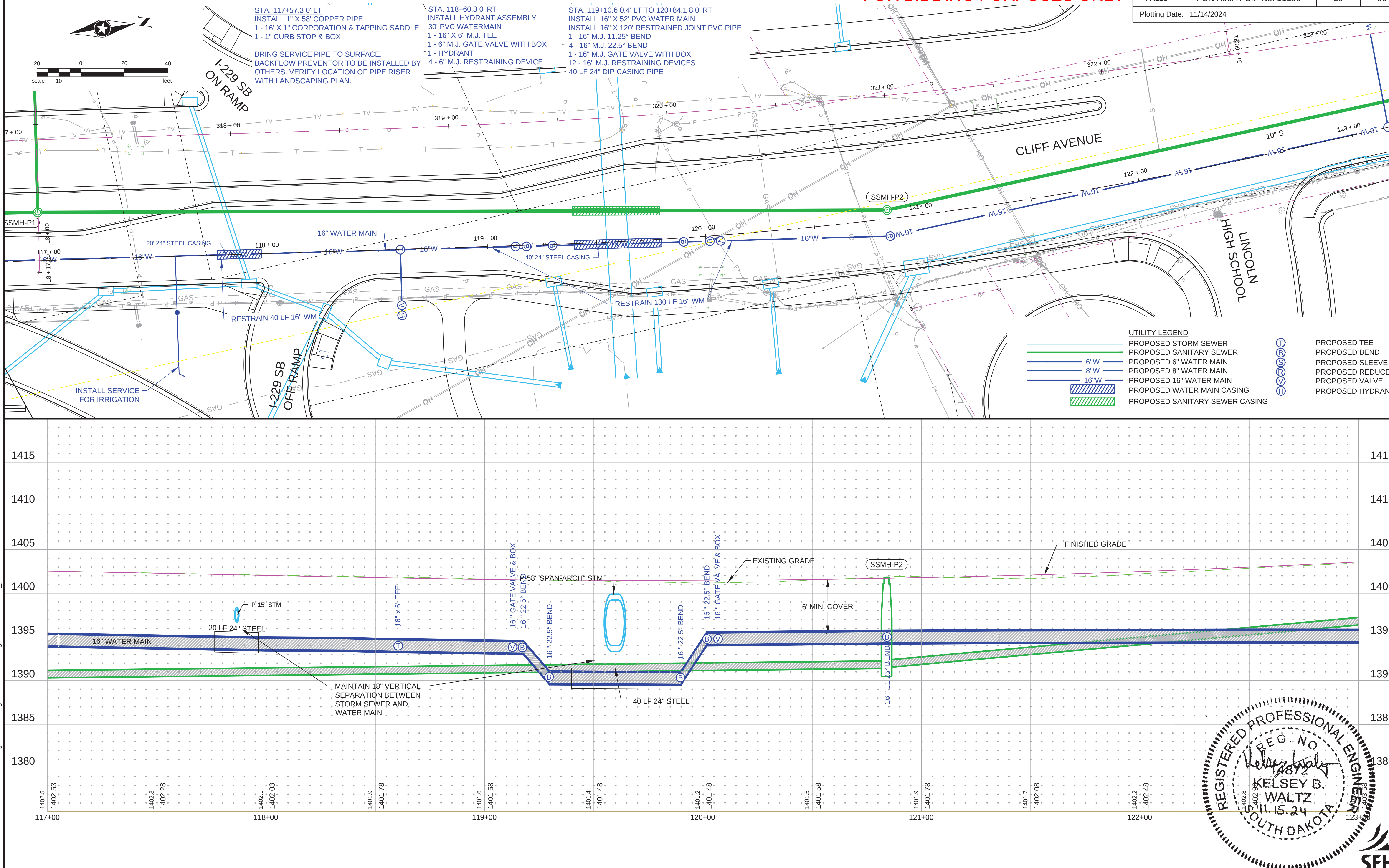
CLIFF AVENUE WATER MAIN LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	25	50

Plotting Date: 11/14/2024



STA. 117+57.3 0' LT
INSTALL 1" X 58' COPPER PIPE
1 - 16' X 1" CORPORATION & TAPPING SADDLE
1 - 1" CURB STOP & BOX
BRING SERVICE PIPE TO SURFACE. BACKFLOW PREVENTOR TO BE INSTALLED BY OTHERS. VERIFY LOCATION OF PIPE RISER WITH LANDSCAPING PLAN.
STA. 118+60.3 0' RT
INSTALL HYDRANT ASSEMBLY
30' PVC WATERMAIN
1 - 16" X 6" M.J. TEE
1 - 6" M.J. GATE VALVE WITH BOX
1 - HYDRANT
4 - 6" M.J. RESTRAINING DEVICE
STA. 119+10.6 0.4' LT TO 120+84.1 8.0' RT
INSTALL 16" X 52' PVC WATER MAIN
INSTALL 16" X 120' RESTRAINED JOINT PVC PIPE
1 - 16" M.J. 11.25° BEND
4 - 16" M.J. 22.5° BEND
1 - 16" M.J. GATE VALVE WITH BOX
12 - 16" M.J. RESTRAINING DEVICES
40 LF 24" DIP CASING PIPE
scale 10 feet
20 0 20 40
I-229 SB ON RAMP
I-229 SB OFF RAMP
CLIFF AVENUE
LINCOLN HIGH SCHOOL
SSMH-P1
SSMH-P2
20' 24" STEEL CASING
16" WATER MAIN
40' 24" STEEL CASING
RESTRAIN 40 LF 16" WM
RESTRAIN 130 LF 16" WM
INSTALL SERVICE FOR IRRIGATION
10" S
117+00
118+00
119+00
120+00
121+00
122+00
123+00
318+00
319+00
320+00
321+00
322+00
323+00
UTILITY LEGEND
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
6"W PROPOSED 6" WATER MAIN
8"W PROPOSED 8" WATER MAIN
16"W PROPOSED 16" WATER MAIN
PROPOSED WATER MAIN CASING
PROPOSED SANITARY SEWER CASING
T PROPOSED TEE
B PROPOSED BEND
S PROPOSED SLEEVE
R PROPOSED REDUCER
V PROPOSED VALVE
H PROPOSED HYDRANT
1415
1410
1405
1400
1395
1390
1385
1380
16" WATER MAIN
P-15" STM
20 LF 24" STEEL
16" x 6" TEE
16" GATE VALVE & BOX
16" 22.5° BEND
P-58" SPAN-ARCH" STM
40 LF 24" STEEL
EXISTING GRADE
FINISHED GRADE
6' MIN. COVER
16" 11.25° BEND
MAINTAIN 18" VERTICAL SEPARATION BETWEEN STORM SEWER AND WATER MAIN
1402.5 1402.53
1402.3 1402.28
1402.1 1402.03
1401.9 1401.78
1401.6 1401.58
1401.4 1401.48
1401.2 1401.48
1401.5 1401.58
1401.9 1401.78
1401.7 1402.08
1402.2 1402.48
117+00
118+00
119+00
120+00
121+00
122+00
123+00
REGISTERED PROFESSIONAL ENGINEER
REG. NO 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA
SEH

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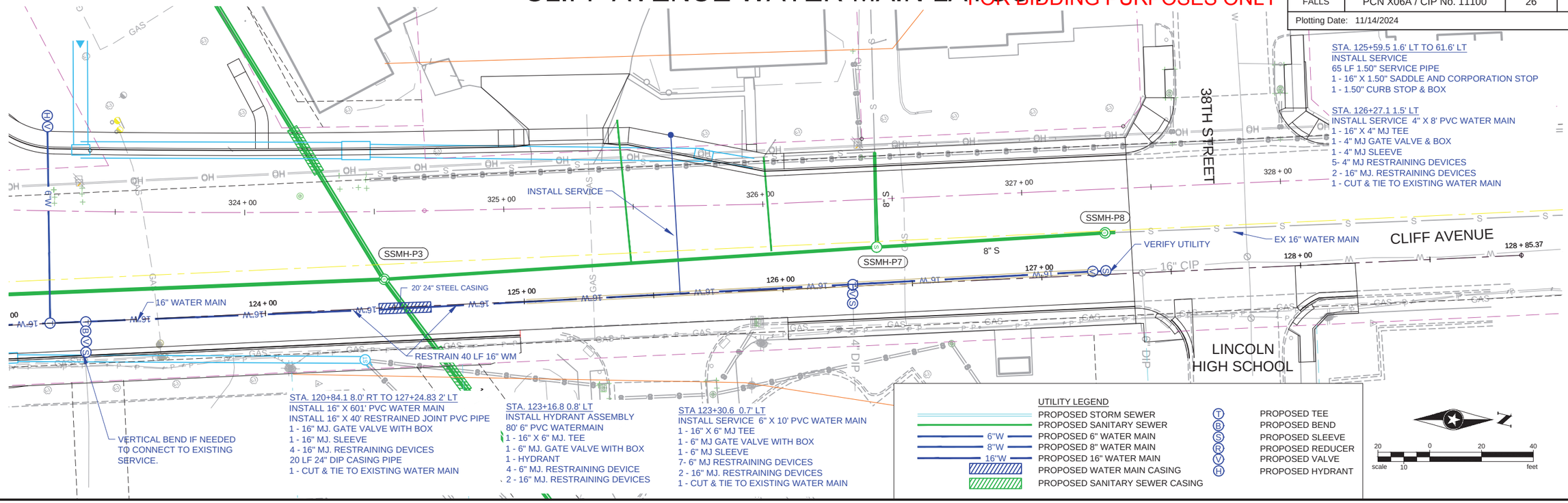
CLIFF AVENUE WATER MAIN LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	26	50

Plotting Date: 11/14/2024



STA. 125+59.5 1.6' LT TO 61.6' LT
INSTALL SERVICE
65 LF 1.50" SERVICE PIPE
1 - 16" X 1.50" SADDLE AND CORPORATION STOP
1 - 1.50" CURB STOP & BOX

STA. 126+27.1 1.5' LT
INSTALL SERVICE 4" X 8' PVC WATER MAIN
1 - 16" X 4" MJ TEE
1 - 4" MJ GATE VALVE & BOX
1 - 4" MJ SLEEVE
5- 4" MJ RESTRAINING DEVICES
2 - 16" MJ. RESTRAINING DEVICES
1 - CUT & TIE TO EXISTING WATER MAIN

VERTICAL BEND IF NEEDED TO CONNECT TO EXISTING SERVICE.

STA. 120+84.1 8.0' RT TO 127+24.83 2' LT
INSTALL 16" X 601' PVC WATER MAIN
INSTALL 16" X 40' RESTRAINED JOINT PVC PIPE
1 - 16" MJ. GATE VALVE WITH BOX
1 - 16" MJ. SLEEVE
4 - 16" MJ. RESTRAINING DEVICES
20 LF 24" DIP CASING PIPE
1 - CUT & TIE TO EXISTING WATER MAIN

STA. 123+16.8 0.8' LT
INSTALL HYDRANT ASSEMBLY
80' 6" PVC WATERMAIN
1 - 16" X 6" MJ. TEE
1 - 6" MJ. GATE VALVE WITH BOX
1 - HYDRANT
4 - 6" MJ. RESTRAINING DEVICE
2 - 16" MJ. RESTRAINING DEVICES

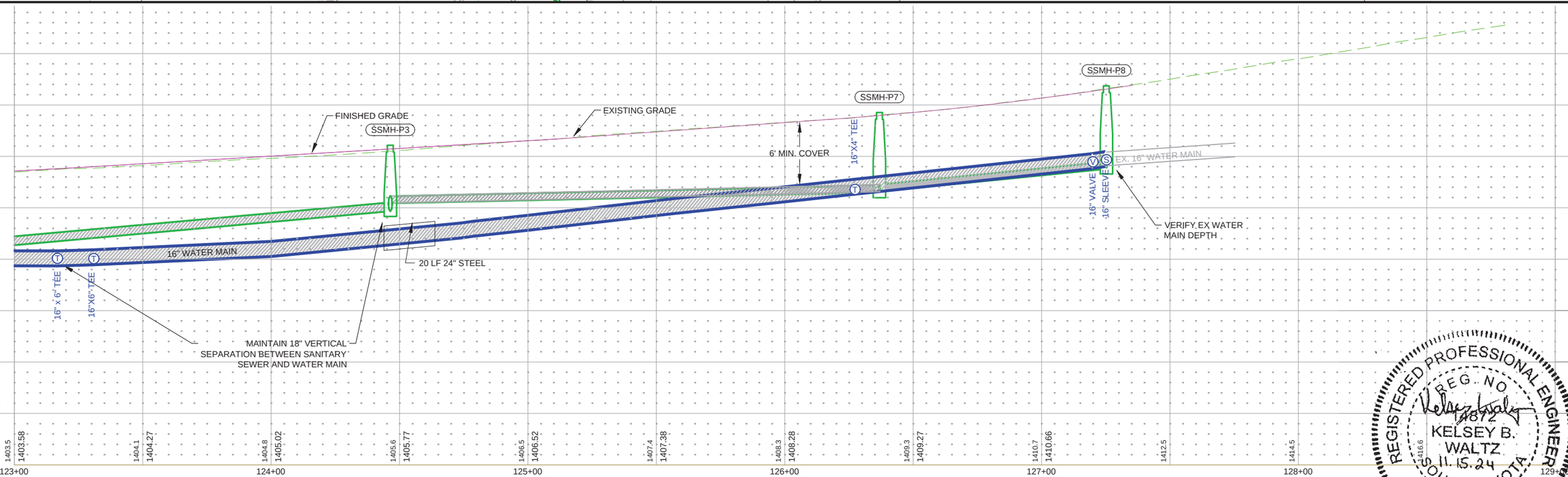
STA 123+30.6 0.7' LT
INSTALL SERVICE 6" X 10' PVC WATER MAIN
1 - 16" X 6" MJ TEE
1 - 6" MJ GATE VALVE WITH BOX
1 - 6" MJ SLEEVE
7- 6" MJ RESTRAINING DEVICES
2 - 16" MJ. RESTRAINING DEVICES
1 - CUT & TIE TO EXISTING WATER MAIN

UTILITY LEGEND

PROPOSED STORM SEWER	PROPOSED TEE
PROPOSED SANITARY SEWER	PROPOSED BEND
6"W PROPOSED 6" WATER MAIN	PROPOSED SLEEVE
8"W PROPOSED 8" WATER MAIN	PROPOSED REDUCER
16"W PROPOSED 16" WATER MAIN	PROPOSED VALVE
PROPOSED WATER MAIN CASING	PROPOSED HYDRANT
PROPOSED SANITARY SEWER CASING	

N

20 0 20 40
scale 10 feet



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 16872
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11.15.24
SOUTH DAKOTA

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PAM ROAD SANITARY SEWER LAYOUT

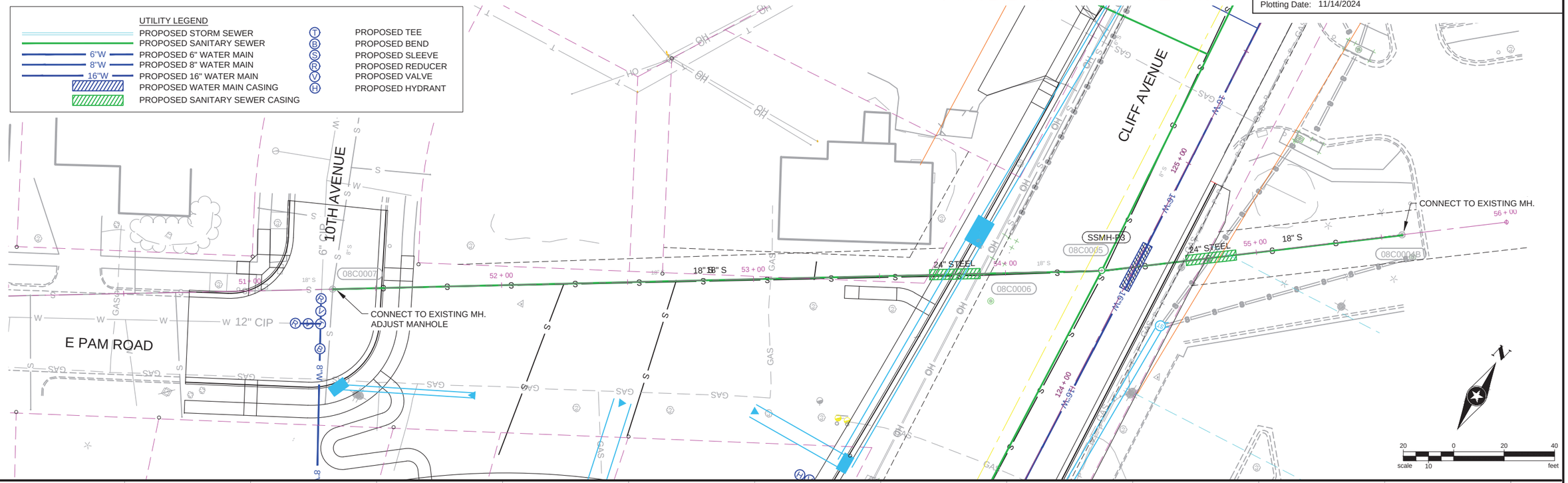
FOR BIDDING PURPOSES ONLY

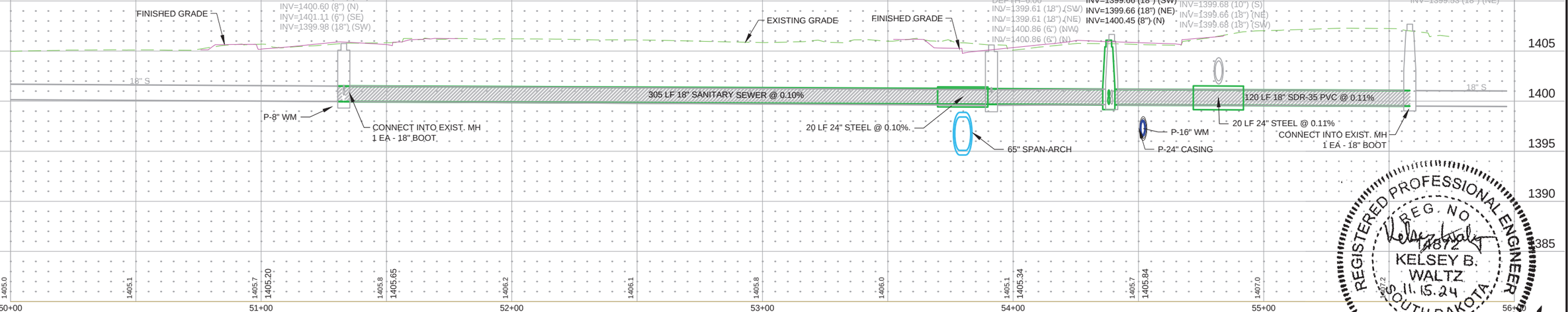
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	27	50

Plotting Date: 11/14/2024

UTILITY LEGEND

- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- 6"W PROPOSED 6" WATER MAIN
- 8"W PROPOSED 8" WATER MAIN
- 16"W PROPOSED 16" WATER MAIN
- PROPOSED WATER MAIN CASING
- PROPOSED SANITARY SEWER CASING
- (T) PROPOSED TEE
- (B) PROPOSED BEND
- (S) PROPOSED SLEEVE
- (R) PROPOSED REDUCER
- (V) PROPOSED VALVE
- (H) PROPOSED HYDRANT





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REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14872
KELSEY B. WALTZ
11.15.24
SOUTH DAKOTA

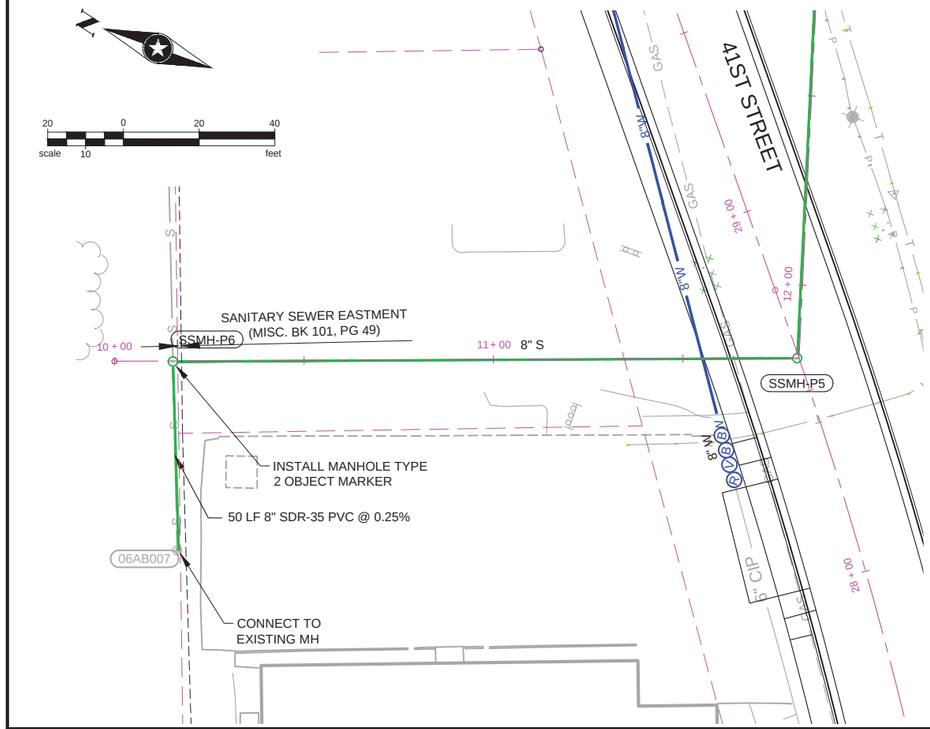
SEH

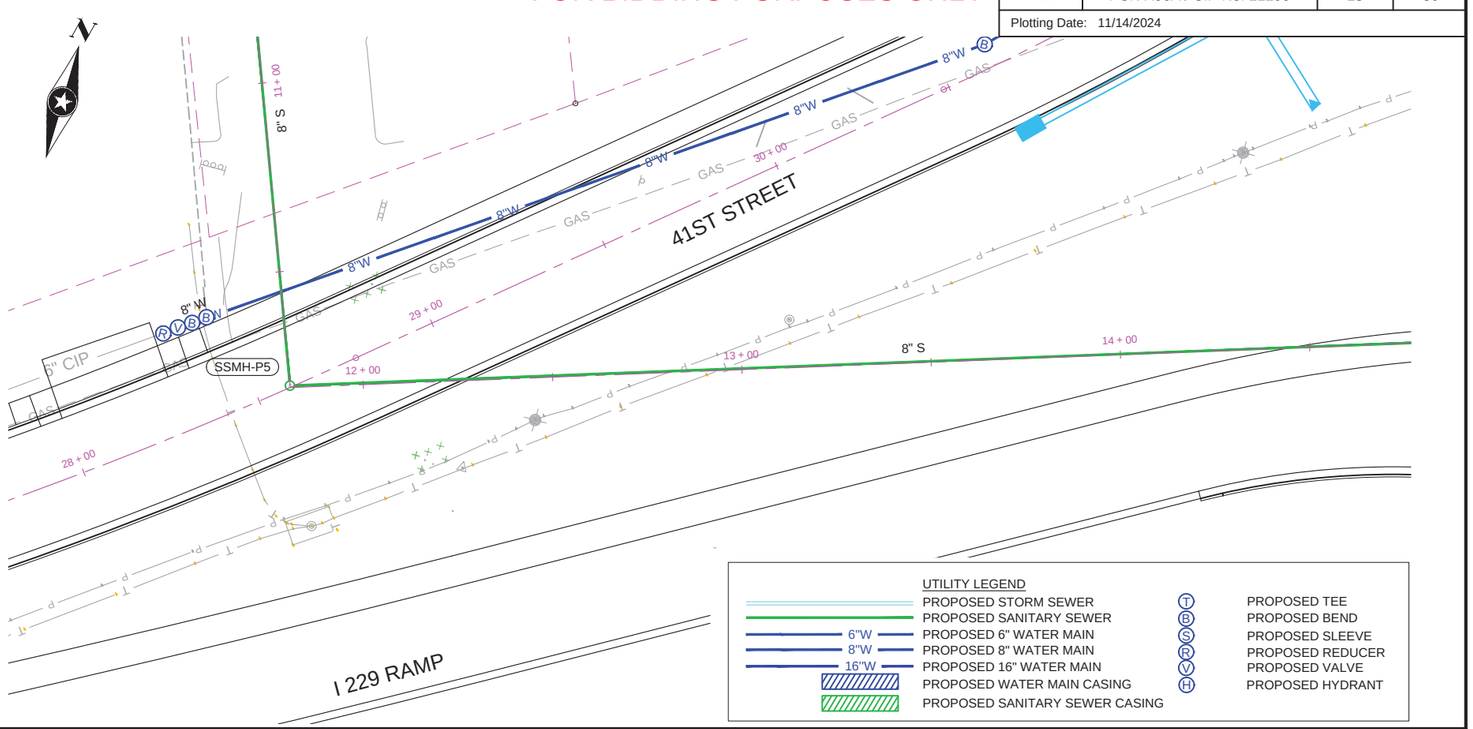
41ST STREET SANITARY SEWER LAYOUT

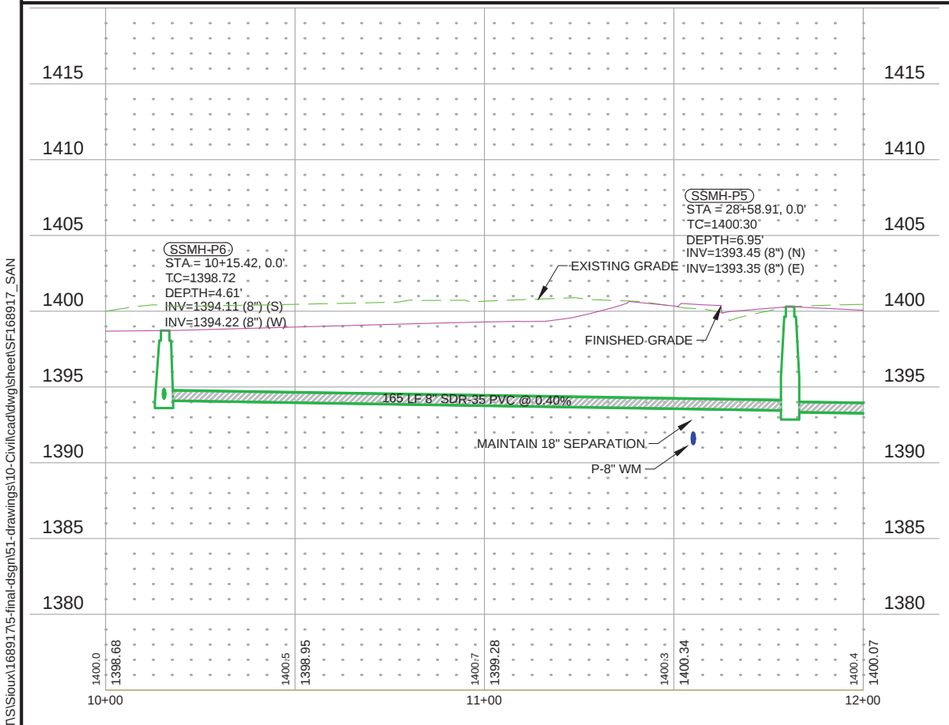
FOR BIDDING PURPOSES ONLY

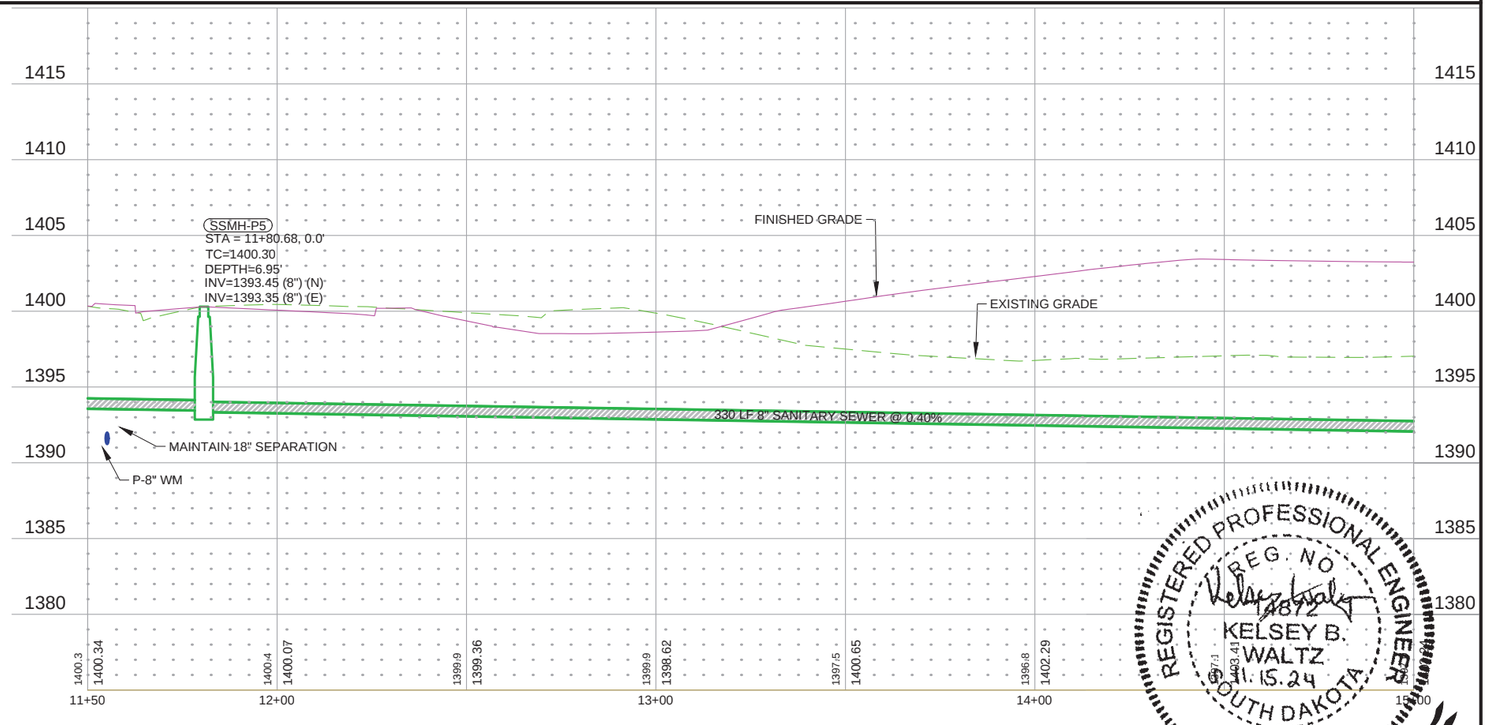
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	28	50

Plotting Date: 11/14/2024









REGISTERED PROFESSIONAL ENGINEER
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11.15.24
SOUTH DAKOTA

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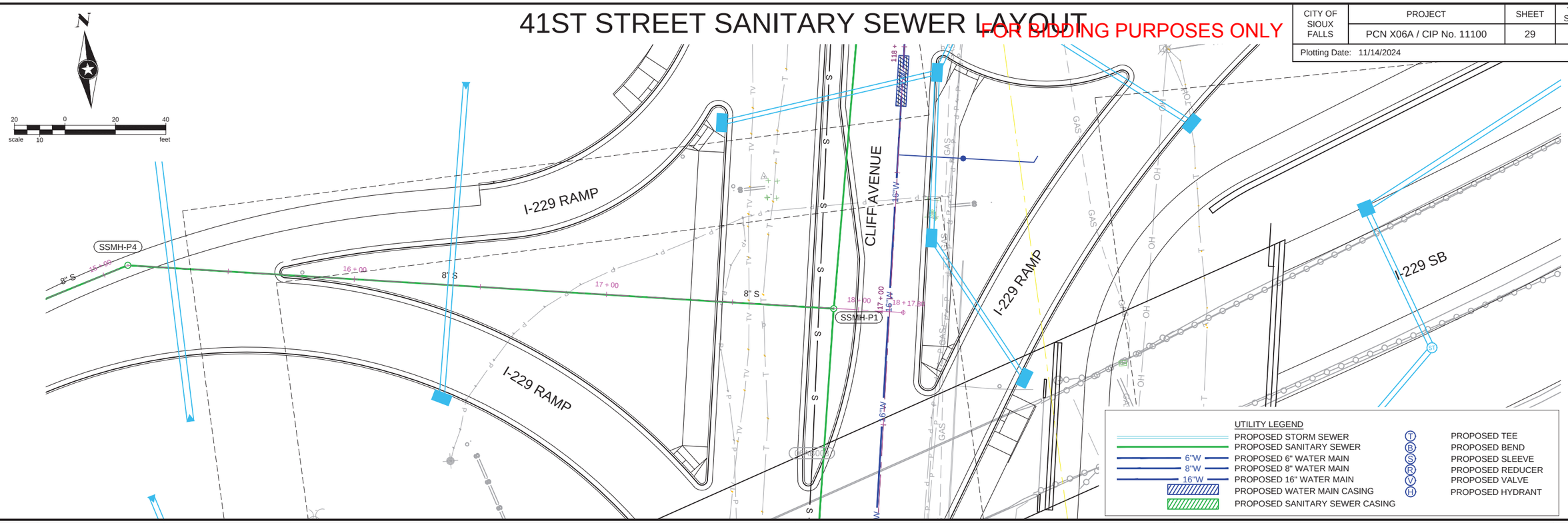
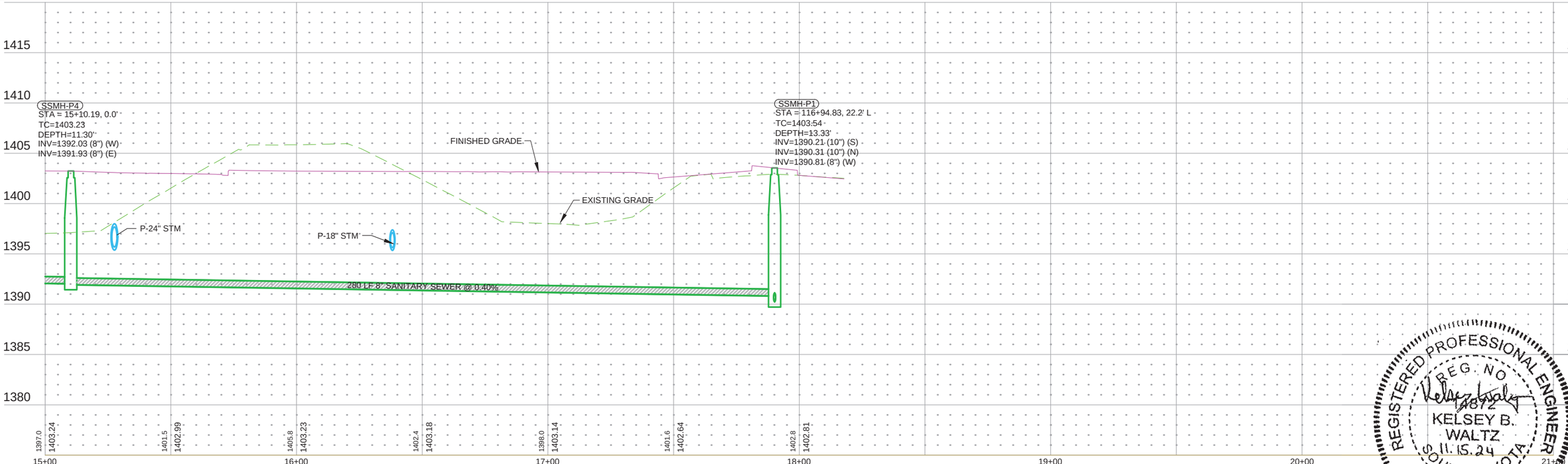
41ST STREET SANITARY SEWER LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	29	50

Plotting Date: 11/14/2024





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11.15.24
SOUTH DAKOTA

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CLIFF AVENUE SANITARY SEWER LAYOUT

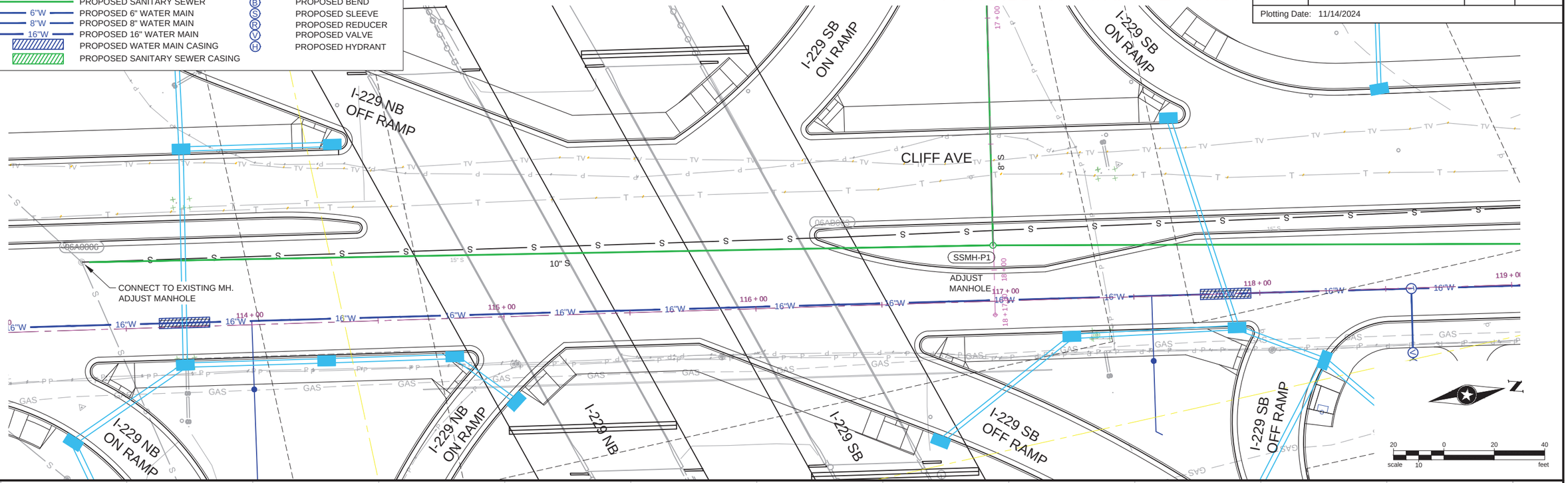
FOR BIDDING PURPOSES ONLY

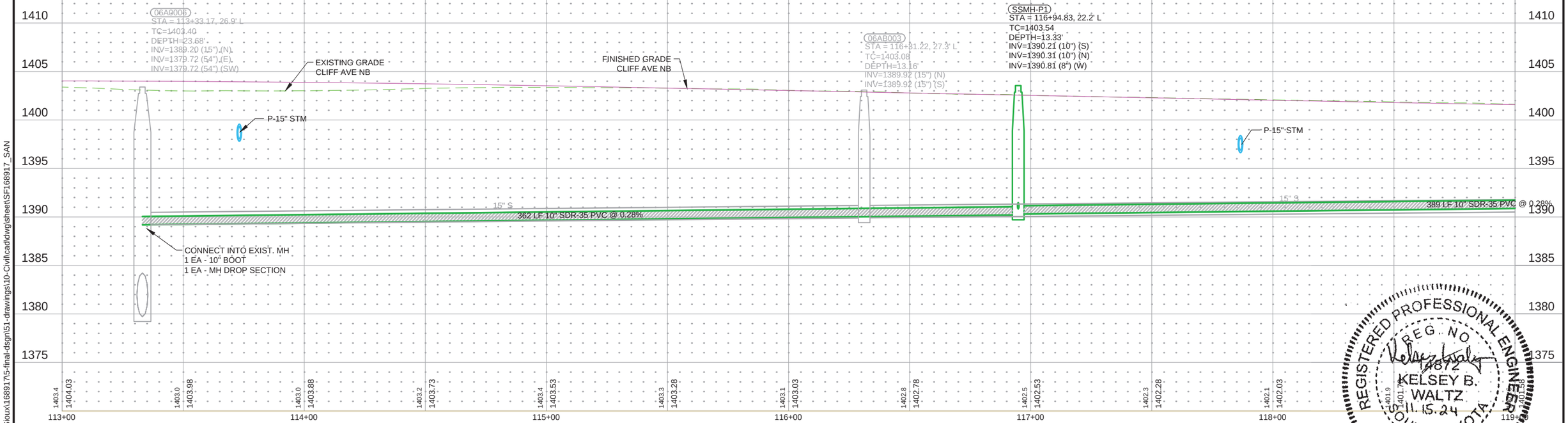
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	30	50

Plotting Date: 11/14/2024

UTILITY LEGEND

- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- 6"W PROPOSED 6" WATER MAIN
- 8"W PROPOSED 8" WATER MAIN
- 16"W PROPOSED 16" WATER MAIN
- PROPOSED WATER MAIN CASING
- PROPOSED SANITARY SEWER CASING
- (T) PROPOSED TEE
- (B) PROPOSED BEND
- (S) PROPOSED SLEEVE
- (R) PROPOSED REDUCER
- (V) PROPOSED VALVE
- (H) PROPOSED HYDRANT





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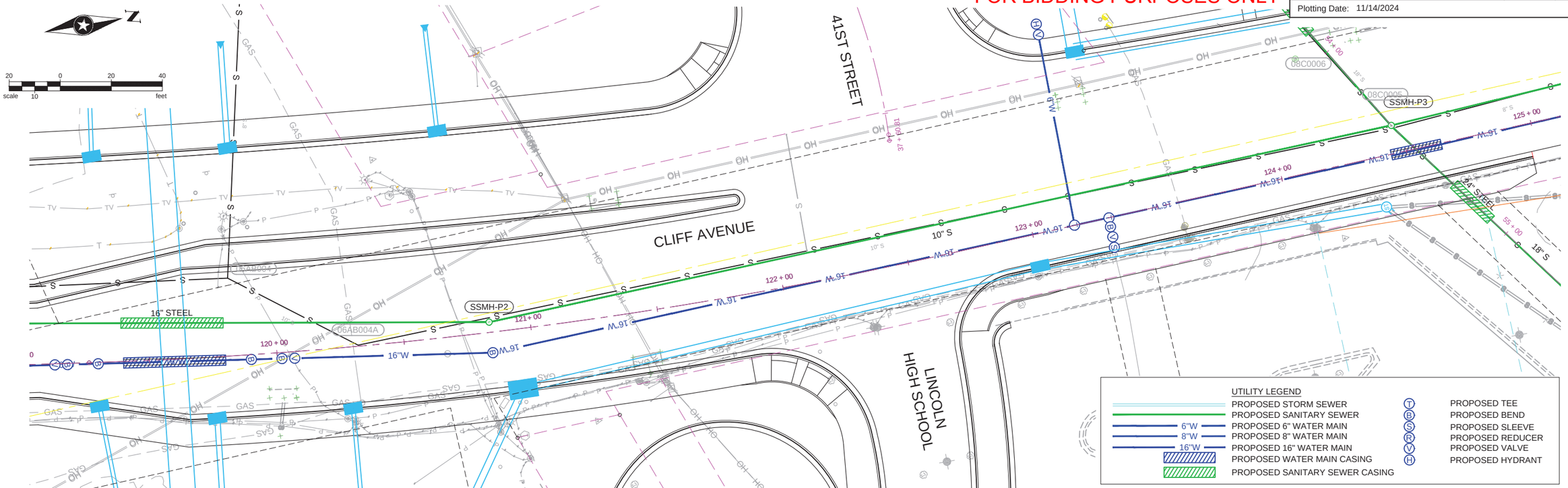
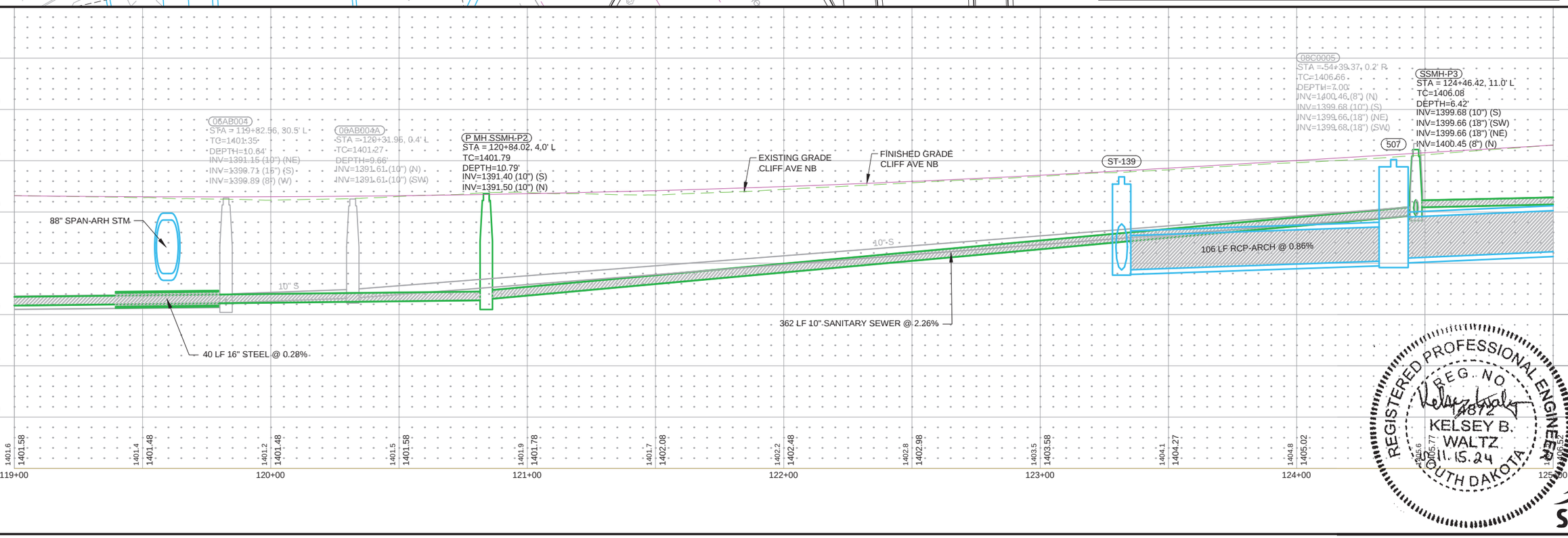
CLIFF AVENUE SANITARY SEWER LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	31	50

Plotting Date: 11/14/2024





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SOUTH DAKOTA

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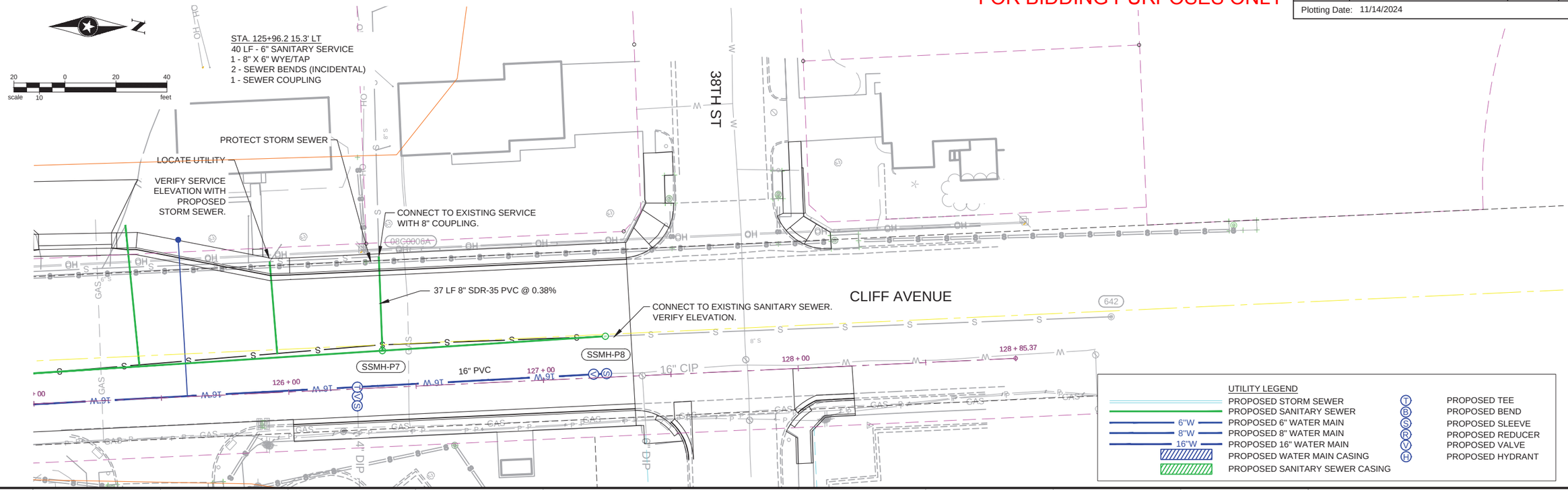
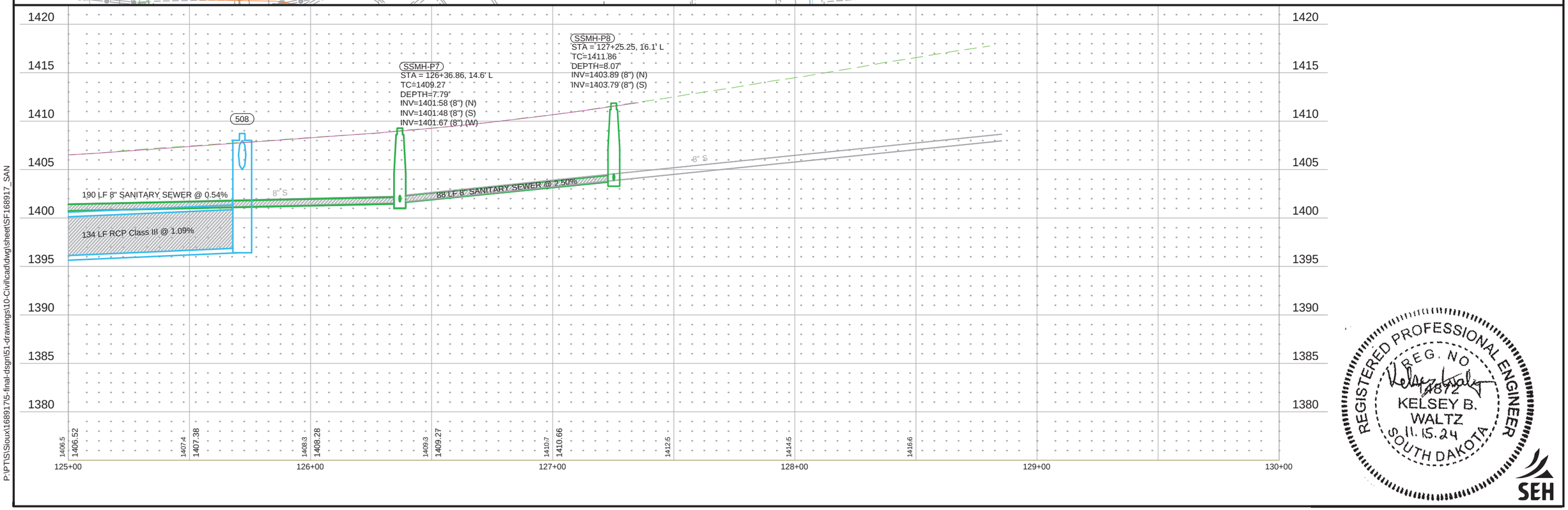
CLIFF AVENUE SANITARY SEWER LAYOUT

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	32	50

Plotting Date: 11/14/2024





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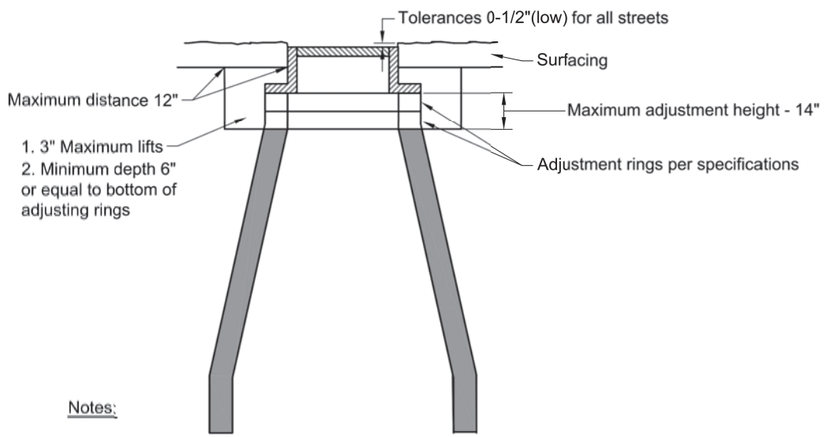
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	33	50
Plotting Date: 11/13/2024			



Notes:

1. The adjustment of manhole and junction box castings involves adding or removing adjusting rings under the frame. If the elevation of the cover is too high, it may be necessary for the contractor to remove the upper course of brick and/or break down the concrete walls in the manhole or junction box and seat the frames in mortar, so that the elevations for the covers are flush with the top of the finished surface. Adjustment of frame and covers shall be in accordance with this standard plate and the supplemental standard specifications for sanitary sewer construction.

2. Manhole and casting shall be adjusted to final grade prior to placement of surfacing.

3. If the 0" to 1/2" tolerance cannot be met by adjusting the manhole casting and cover prior to placement of the surfacing, then the contractor shall be required to adjust the casting using a cutout. The pavement must be replaced with material that matches the adjacent surfacing at no additional cost to the City.

4. Concealed pick holes and the seal between the frame and cover shall be protected from asphalt, concrete pavement, slurry seal and soil. It shall be the contractor's responsibility to provide a system to prevent material from entering the concealed pick hole and frame and cover seal during the work.

5. For slurry seal projects, the entire manhole cover and frame shall be protected from the slurry seal installation.

6. Compaction testing shall be performed within 4' of each manhole.

7. If the surfacing settles below the top of casting during the two-year warranty period, the manhole casting must be cut out and adjusted to meet the tolerance shown above at no additional cost to the City.

Revised: November 2021

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Manhole Casting and Cover Adjustment - City Streets**	Specification Reference No. 671	Plate Number 671.05 SP

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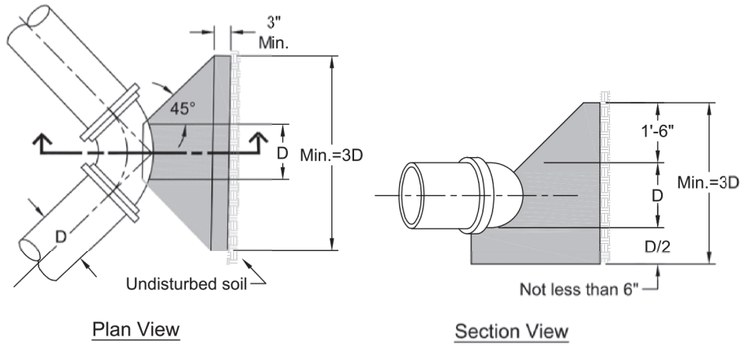
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	34	50

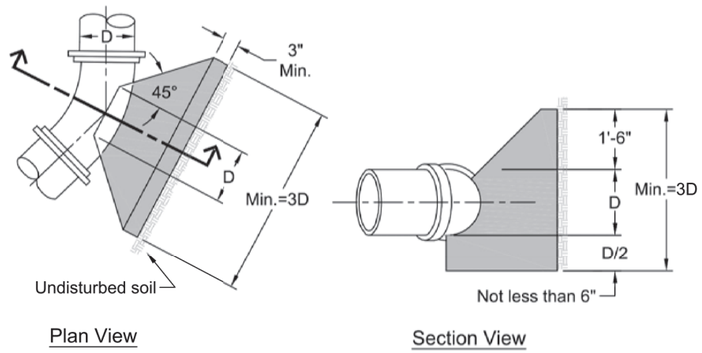
Plotting Date: 11/13/2024

Concrete Thrust Blocks



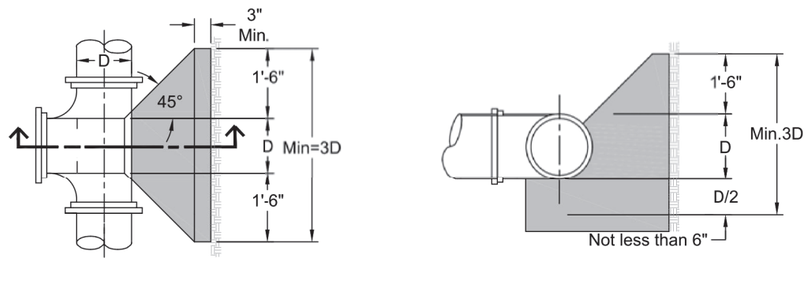
Plan View — Section View

90 - Degree Bend



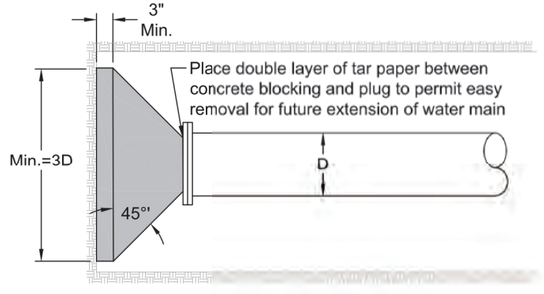
Plan View — Section View

11 1/4 - Degree, 22 1/2 - Degree and 45 - Degree Bends



Plan View — Section View

Tee



S.J./M.J. Plug

Revised: December 2020

Concrete Thrust Blocks

CITY OF SIOUX FALLS
PUBLIC WORKS
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Specification Reference	Plate Number
No. 900	900.01

SEH

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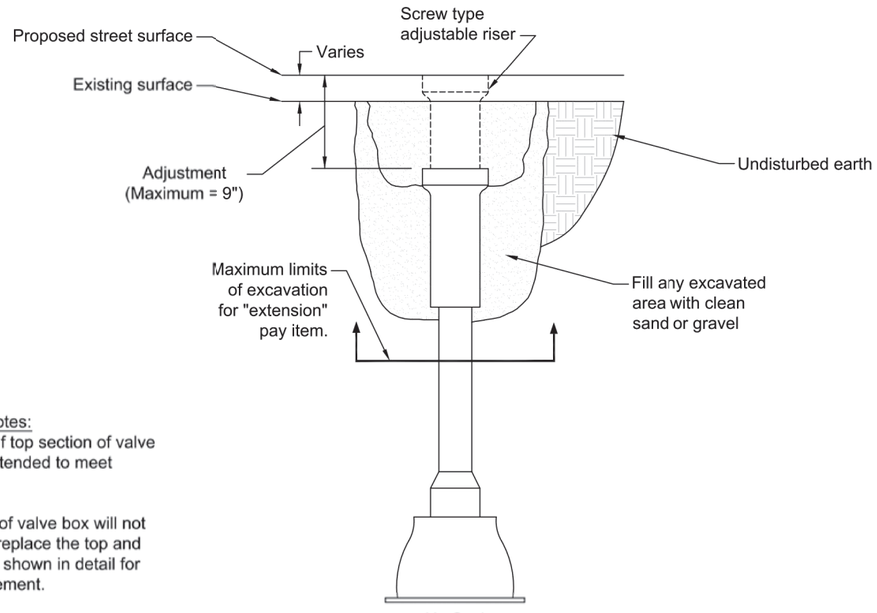
Valve Box Extension
(or replacement of top section)

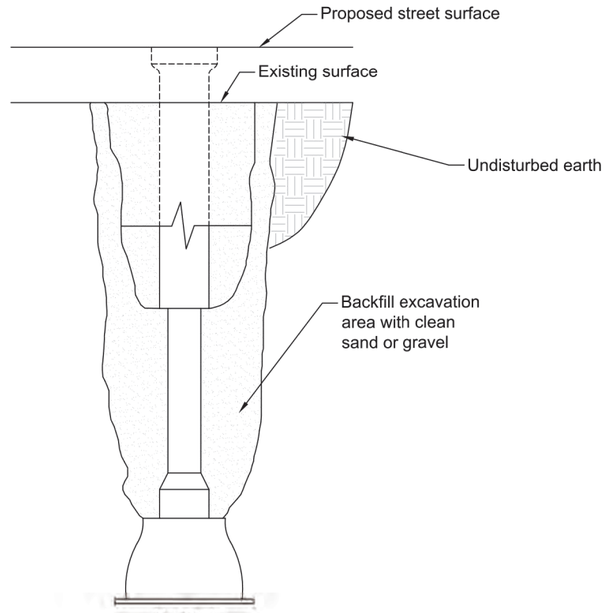


No Scale

Valve Box Extension Notes:

1. Use this method if top section of valve box cannot be extended to meet proposed grade.
2. If the top section of valve box will not accept the riser, replace the top and center section as shown in detail for valve box replacement.

Valve Box Installation



No Scale

General Notes:

1. Non-threaded adjustments will not be allowed.
2. Plumb valve box prior to backfilling. All valve boxes shall be adjusted to be flush with the pavement surface prior to placement of the pavement surfacing. The allowable vertical tolerance between the pavement surface and any part of the valve box shall be 0" to $\frac{1}{2}$" low. In no case shall the valve box be above the surface of the pavement.
3. It shall be the contractor's responsibility to provide a system to prevent material from entering the valve box during the work.
4. All adjustments shall be completed prior to opening up the street to traffic.

Revised: December 2020

Valve Box Installation and Extension

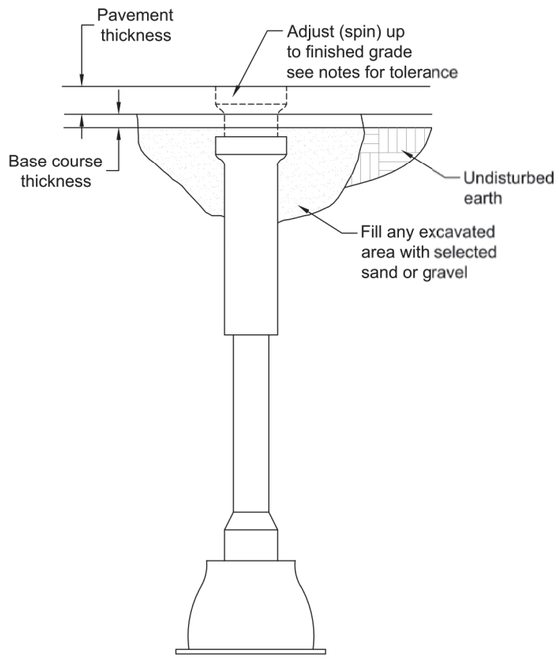
CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Specification Reference	Plate Number
No. 900	900.02

SEH

Valve Box Adjustment

Spin Up Method



No Scale

Spin Up Method:

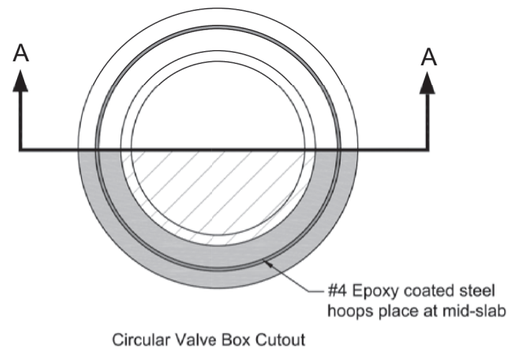
1. Use this method if top section of valve box can be adjusted to finished grade.

2. If the 0" to 1/2" tolerance cannot be met by the "spin up" method on asphalt streets, then the contractor shall be required to adjust the valve box by the circular cutout method. This additional work, if required, shall be incidental to the "valve box adjustment" bid item.

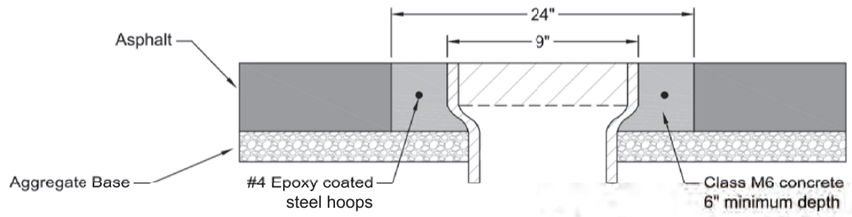
3. If the 0" to 1/2" tolerance can not be met by the "spin up" method on concrete streets, the repair method will be determined by the engineer. This additional work shall be incidental to the "valve box adjustment" bid item.

4. If the valve box needs minor adjustment, a minimal amount of heat can be applied to break the bond between the valve box and the asphalt. Full depth heating of the asphalt will not be allowed. If the asphalt appears to show signs of deterioration, it will be at the discretion of the engineer to require the cut out method.

Cutout Method



Circular Valve Box Cutout



Section A-A

Cut Out Method:

1. The circular concrete cutout shall be centered on the valve box frame.

2. The circular concrete cutout shall be constructed after the installation of the top lift of asphalt. The pavement shall be sawed full depth with a vertical face. The contractor shall ensure that the adjacent asphalt surface is left intact and undamaged when removing the circular cutout.

3. The circular concrete cutout diameter shall be 24".

4. Apply tack coat to the vertical asphalt surfaces prior to placement of concrete cutout.

5. Class M6 concrete shall be used for the cutout. Fast track concrete may be used at the discretion of the engineer.

6. Steel reinforcing shall be epoxy coated grade 40.

7. Steel reinforcing shall consists of #4 hoops (variable length) supported by approved chairs.

8. Maintain a minimum of 2" clearance on all steel reinforcing.

9. All work associated with constructing the circular concrete cutout, including, but not limited to: all materials, sawing, steel reinforcing, chairs, concrete, labor, tools, removal and replacement, excavation and backfilling and other appurtenances shall be incidental to the "valve box adjustment" bid item.

General Notes:

1. Non-threaded adjustments will not be allowed.
2. Plumb valve box prior to backfilling. All valve boxes shall be adjusted to be flush with the pavement surface prior to placement of the pavement surfacing. The allowable vertical tolerance between the pavement surface and any part of the valve box shall be 0" to $\frac{1}{2}$" low. In no case shall the valve box be above the surface of the pavement.
3. It shall be the contractor's responsibility to provide a system to prevent material from entering the valve box during the work.
4. All adjustments shall be completed prior to opening up the street to traffic.

Revised: December 2020

Valve Box Adjustment

CITY OF SIOUX FALLS PUBLIC WORKS
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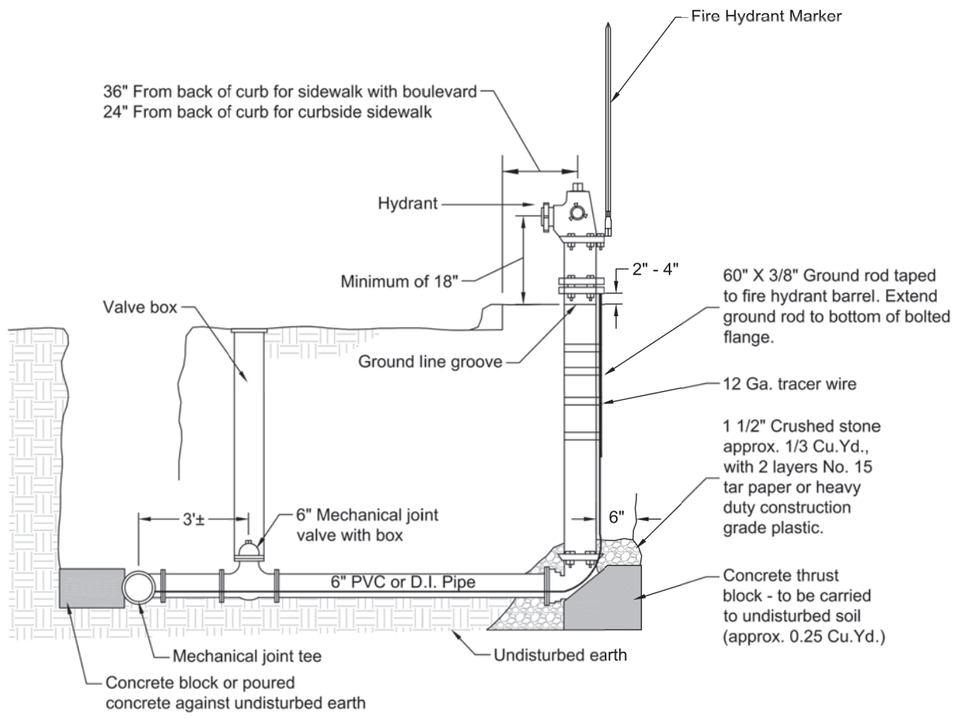
Specification Reference	Plate Number
No. 900	900.03

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	37	50
Plotting Date: 11/13/2024			

Hydrant Connection



General Notes:

1. Hydrant grade to be shown on plans.
2. Valve on fire hydrant lateral shall be restrained.
3. All exposed pipe joints shall be restrained on hydrant lateral.
4. Install V-bio polywrap on fire hydrant barrel to the ground surface before installing tracer wire system. Do not cover weep holes with polywrap.

Revised: December 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Hydrant Connection	Specification Reference No. 900	Plate Number 900.06

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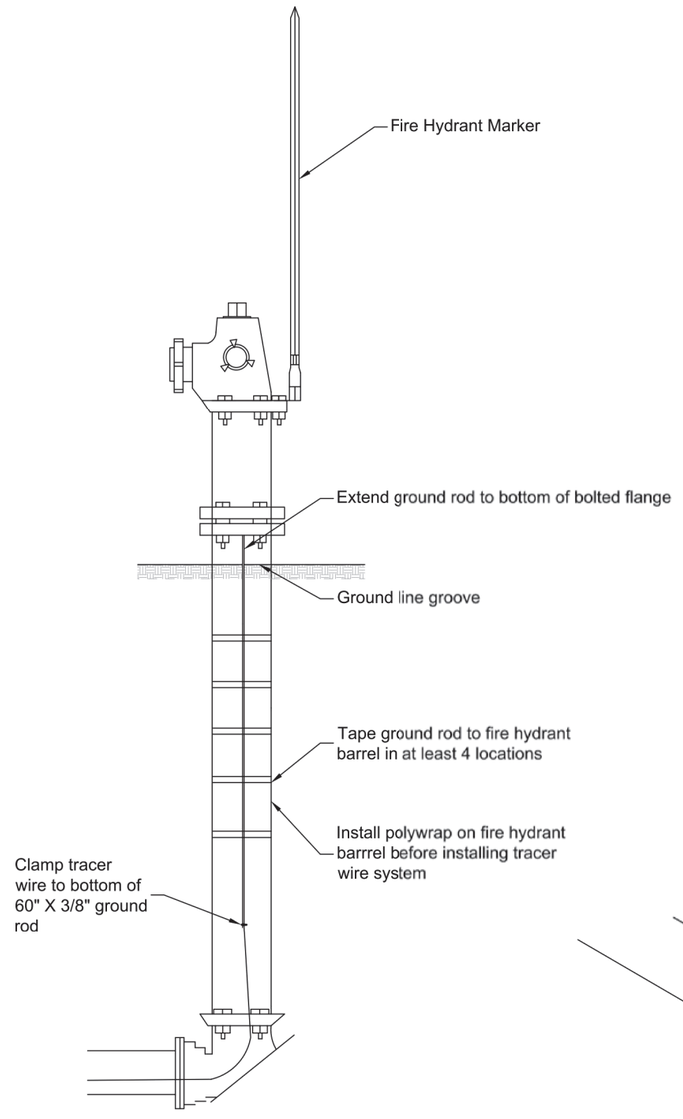
FOR BIDDING PURPOSES ONLY

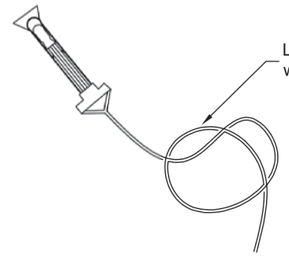
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	38	50

Plotting Date: 11/13/2024



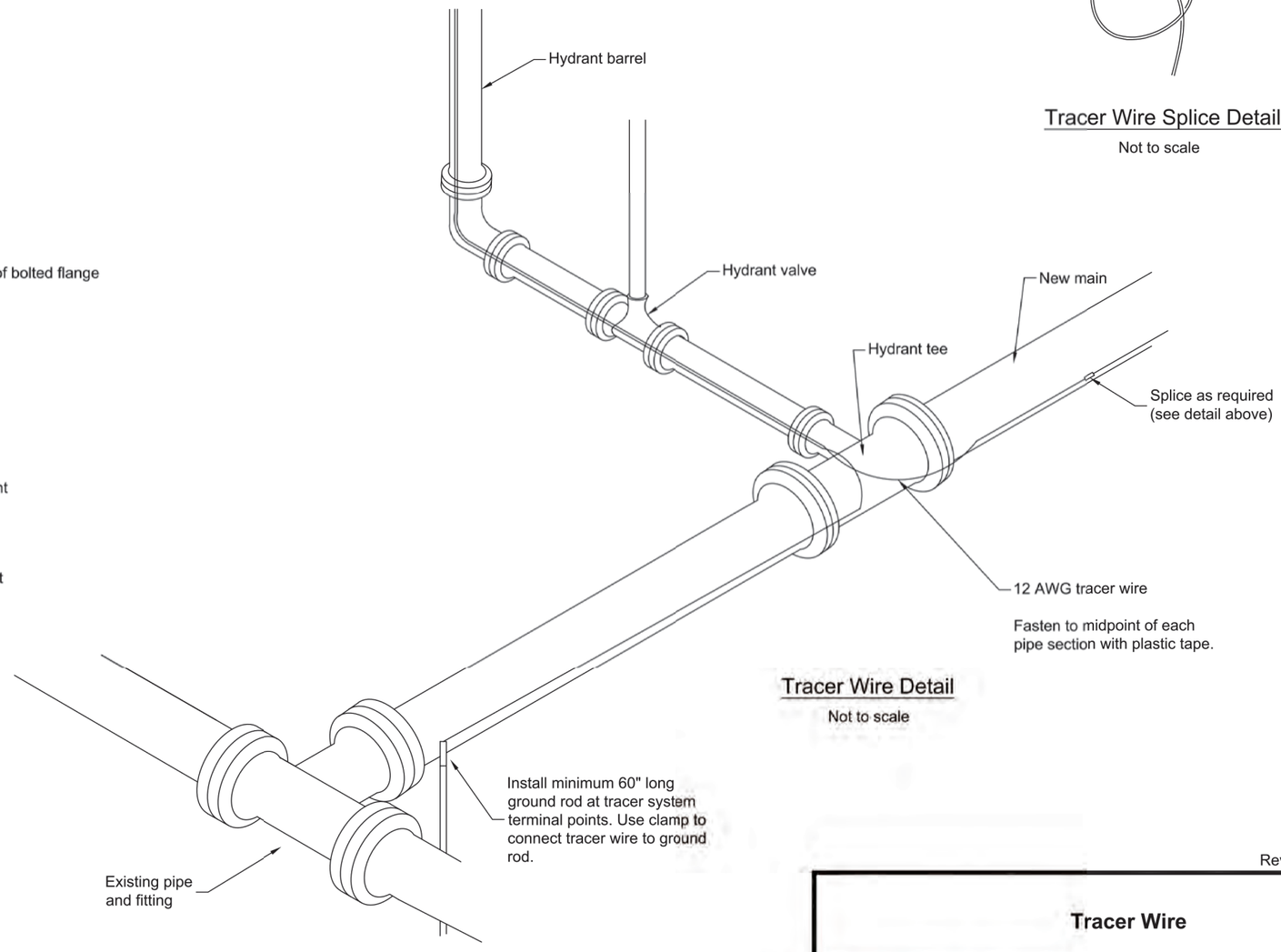
Tracer Wire Detail at Fire Hydrant

Not to scale



Tracer Wire Splice Detail

Not to scale



Tracer Wire Detail

Not to scale

Revised: December 2020

Tracer Wire

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Specification Reference	Plate Number
No. 900	900.07

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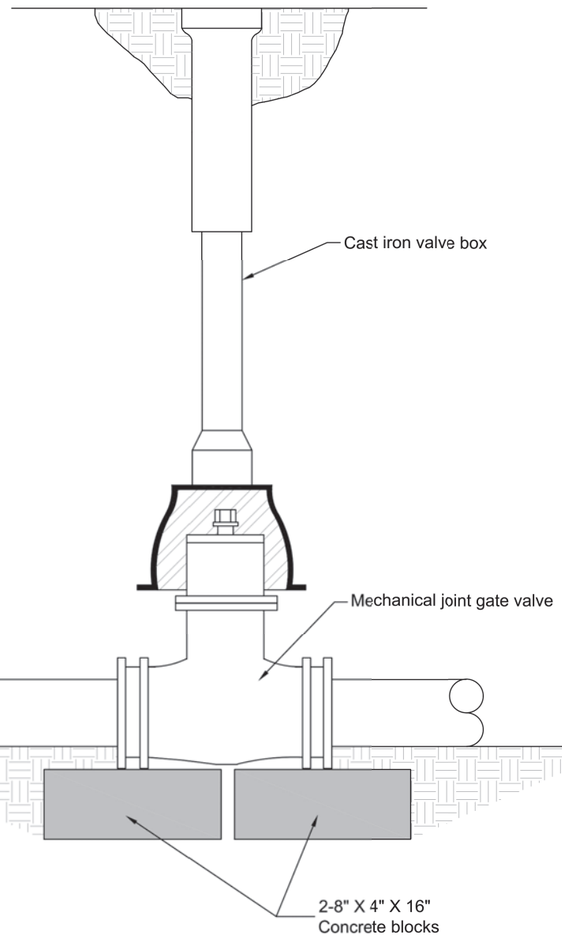
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	39	50

Plotting Date: 11/13/2024

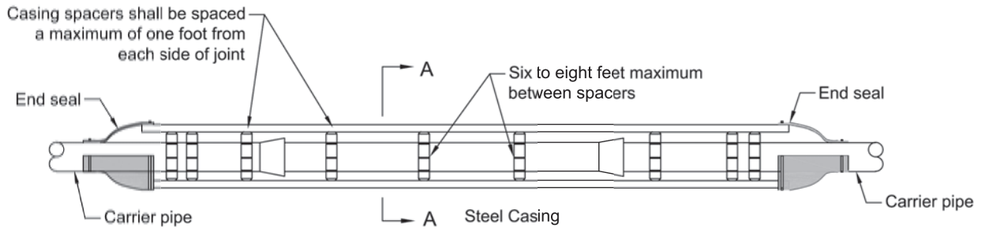


PVC Gate Valve Installation

Not to scale

Revised: January 1999

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	PVC Gate Valve Installation	Specification Reference No. 900	Plate Number 900.08



Elevation

Casing spacers and end seals shall be manufactured by Advanced Products and Systems, Inc. P.O. Box 60399 Lafayette, LA. 70596-0399 or equal and meet these requirements.

Casing Spacers - Model SSI-8 (Pipe sizes 24 inches in diameter and smaller) or Model SSI-12-2 (pipe sizes 30 inches in diameter and greater) with T-304 stainless steel spacer.
Band - 10 Gauge T-304 stainless steel.
Riser - 10 Gauge T-304 stainless steel.

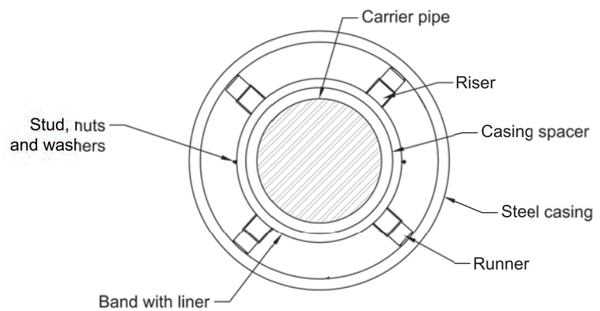
Runners - Two inch wide minimum glass reinforced plastic. The number of risers shall be as recommended by the manufacturer, but four is the minimum.

Studs, Nuts and Washers - T-304 stainless steel.

Heights - As required for center restraining

End Seals - Conical shaped wrap-around 1/8 inch rubber with T-304 stainless steel straps.

Casing pipe must conform to ASTM A53 grade B minimum yield strength of 35,000 pounds per square inch.



Section A-A

Pipe Size	Casing Size
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
20"	30"
24"	36"
30"	42"
>36"	*

*As recommended by manufacturer

Revised: December 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Standard Casing/Carrier for Water Pipe	Specification Reference No. 900	Plate Number 900.09

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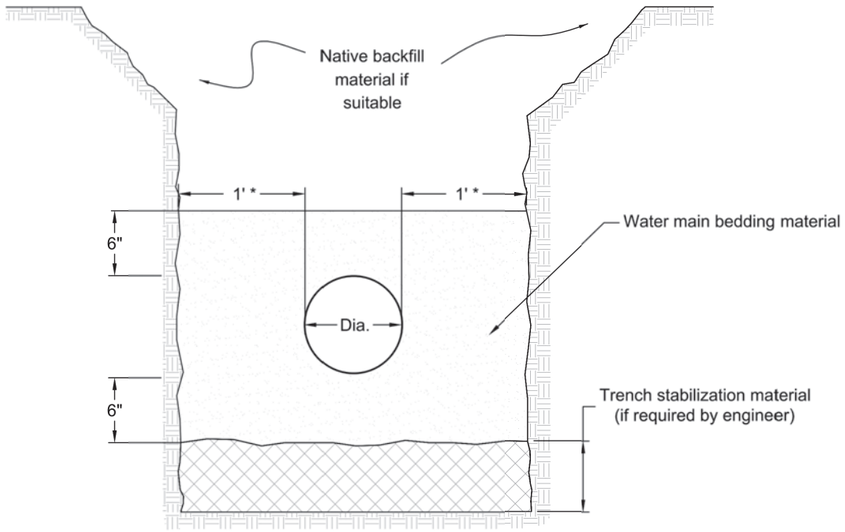
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	40	50
Plotting Date: 11/13/2024			

Water Main Bedding



Pipe Size Diameter	Trench Width	Trench Height	Trench Area	Pipe Area	Water Main Bedding Mat. Area	Water Main Bedding Mat. Tons/LF
4"	28"	16"	3.11 Sq.Ft.	.09 Sq.Ft.	3.02 Sq.Ft.	0.21
6"	30"	18"	3.75 Sq.Ft.	.20 Sq.Ft.	3.55 Sq.Ft.	0.25
8"	32"	20"	4.44 Sq.Ft.	.35 Sq.Ft.	4.10 Sq.Ft.	0.29
10"	34"	22"	5.19 Sq.Ft.	.55 Sq.Ft.	4.65 Sq.Ft.	0.33
12"	36"	24"	6.00 Sq.Ft.	.79 Sq.Ft.	5.22 Sq.Ft.	0.37
16"	40"	28"	7.78 Sq.Ft.	1.40 Sq.Ft.	6.38 Sq.Ft.	0.45
20"	44"	32"	9.78 Sq.Ft.	2.18 Sq.Ft.	7.60 Sq.Ft.	0.53
24"	48"	36"	12.00 Sq.Ft.	3.14 Sq.Ft.	8.86 Sq.Ft.	0.62
30"	60"	42"	17.50 Sq.Ft.	4.91 Sq.Ft.	12.59 Sq.Ft.	0.88

* If >30" use dia./2 on each side of water main pipe.

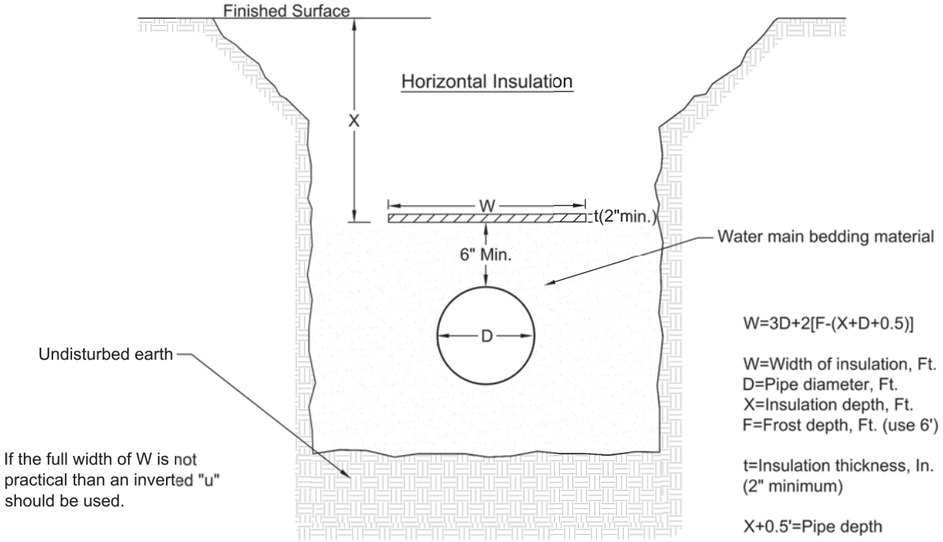
* Length based on one (1) foot of main.

Revised: December 2020

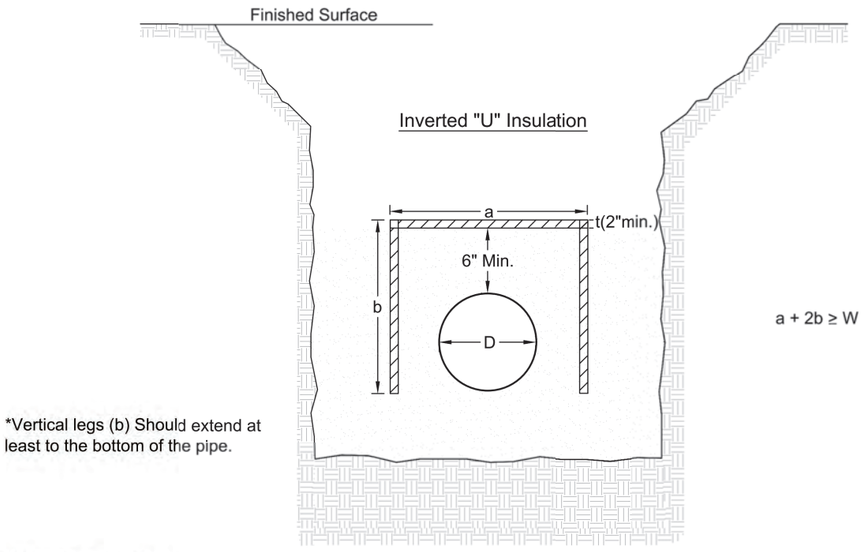
CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Water Main Bedding	Specification Reference No. 900	Plate Number 900.11

Water Main Insulation

Horizontal Insulation



Inverted "U" Insulation



*Vertical legs (b) Should extend at least to the bottom of the pipe.

**This detail is a general guideline. Insulation of water main will be determined on a case by case situation depending on the following factors: depth, pipe diameter, flow, location, and proximity to bedrock. Insulation material and installation methods should follow the water main supplemental specification Sec. 300.

Revised: December 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Water Main Insulation	Specification Reference No. 900	Plate Number 900.13

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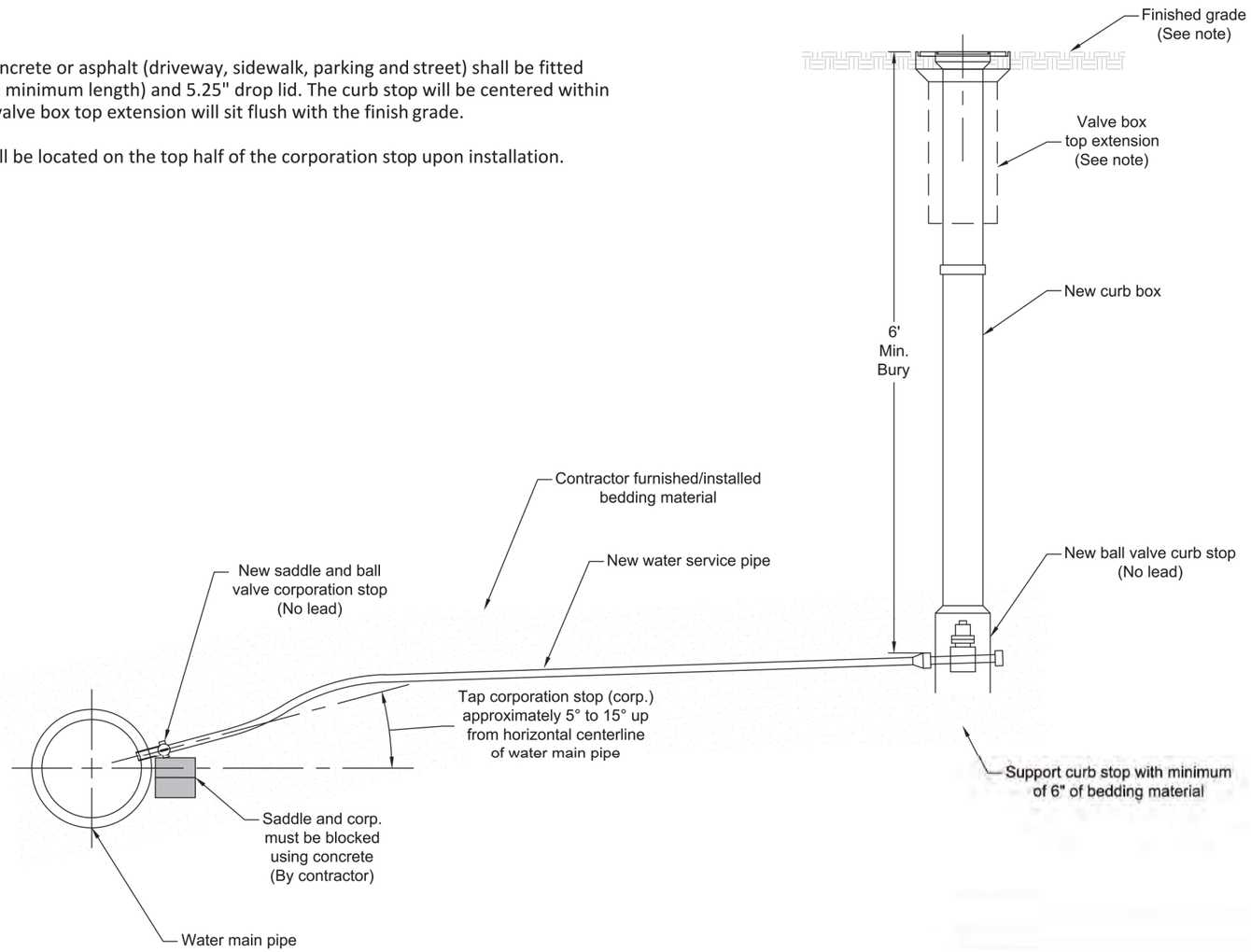
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	41	50

Plotting Date: 11/13/2024

General Notes:

1. Curb stop boxes located within concrete or asphalt (driveway, sidewalk, parking and street) shall be fitted with a valve box top extension (8" minimum length) and 5.25" drop lid. The curb stop will be centered within the valve box top extension. The valve box top extension will sit flush with the finish grade.

2. The ball valve operational nut shall be located on the top half of the corporation stop upon installation.



Revised: December 2020

Water Service Installation

CITY OF SIOUX FALLS
PUBLIC WORKS
Providing a Better Quality of Life for You!

Specification Reference No. 900

Plate Number 900.15

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FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	42	50
Plotting Date: 11/13/2024			

ALL WATER MAIN SHALL BE INSTALLED WITH APPROVED JOINT RESTRAINT CLAMPS, RODS, AND DEVICES AS ACCEPTED BY THE ENGINEER AT EACH FITTING. BASED UPON A 150 PSI TEST PRESSURE AND 8.0' COVER. THE FOLLOWING SHOWS THE MINIMUM LENGTH OF PIPE EACH WAY OF A FITTING TO BE RESTRAINED.

PIPE DIAMETER	DEAD END TEE BRANCH OR 90° BEND	45° BEND	22 1/2° BEND
6"	23 LF	7 LF	0 LF
8"	30 LF	10 LF	2 LF
10"	38 LF	12 LF	3 LF
12"	50 LF	14 LF	3 LF
16"	72 LF	24 LF	10 LF

WHERE RESTRAINED JOINTS ARE REQUIRED AND THE PIPE IS IN A CASING NEAR THE FITTING TO BE RESTRAINED, THE LENGTH OF PIPE IN THE CASING SHALL NOT BE INCLUDED IN THE LENGTH OF PIPE NECESSARY TO DEVELOP SUFFICIENT SOIL FRICTION TO OVERCOME THRUST.

ALL HYDRANTS, VALVES, SERVICES, FITTINGS AND PLUGS, STUBS AND EXTENSIONS, AND BLIND FLANGES USED FOR RETAINING WATER PRESSURE MUST BE TIED WITH TIE RODS OR RISER CLAMPS AND MEGA LUG COMBINATION AS A PRESSURE RESTRAINT. ALL TIE RODS OR BARE METALS SHALL HAVE TWO COATS OF BITUMASTIC OR ACCEPTED EQUAL.

NTS

SEH

THRUST RESTRAINT

Revised:
Oct. 2011

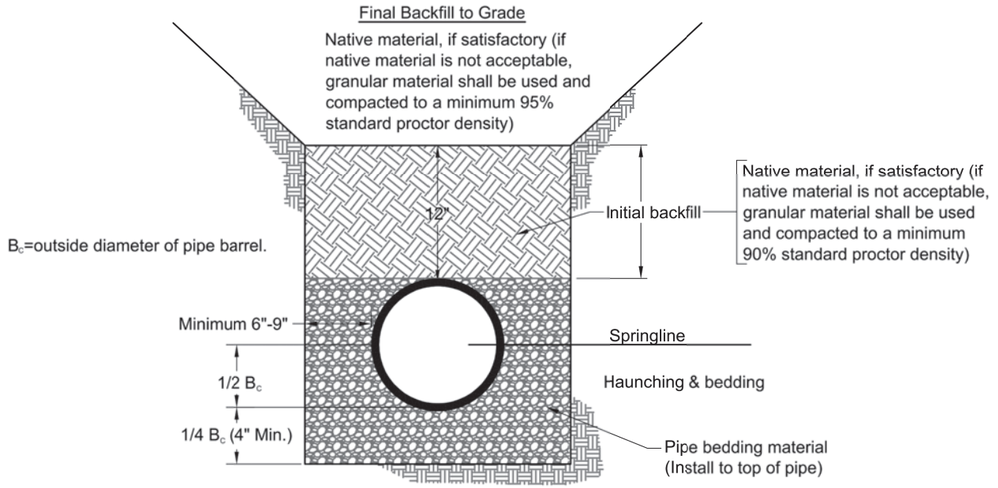
SEH Plate No.
WAT-18

SEH

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	43	50

Plotting Date: 11/13/2024



Note:

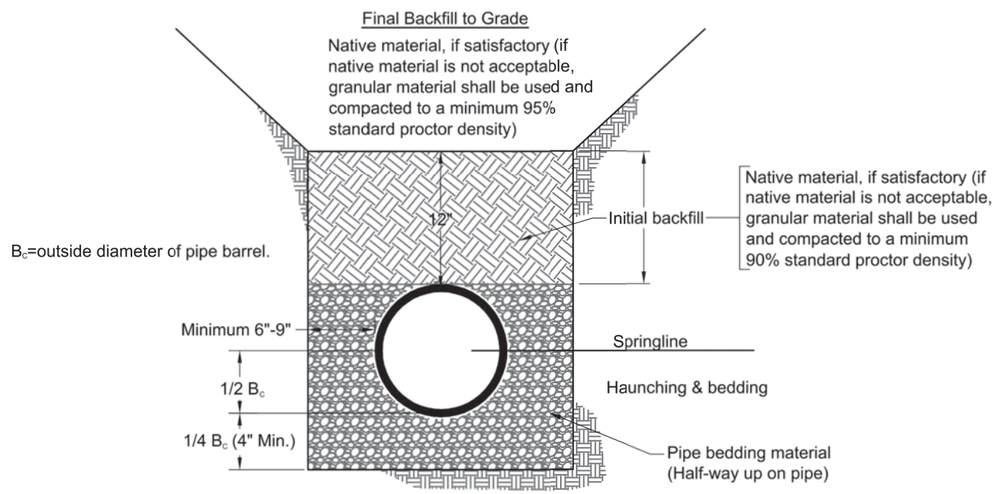
1. If base is unstable, trench shall be undercut and stabilized with trench stabilization material. Specifications as per manufacturer's recommendations and A.S.T.M. C12.
2. Bedding Material

   95% Passing 3/4" sieve
   95% Retained #4 sieve

   (Clean angular, well-graded, crushed rock. Pea rock may be used for sanitary sewer service lines.)
3. The required bedding material under the bottom of the pipe shall be installed prior to pipe installation.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Bedding and Backfill Requirements For 4" to 12" Sanitary Sewer Pipe**	Specification Reference No. 950	Plate Number 950.01



Note:

1. If base is unstable, trench shall be undercut and stabilized with trench stabilization material. Specifications as per manufacturer's recommendations and A.S.T.M. C12.
2. Bedding Material

   95% Passing 3/4" sieve
   95% Retained #4 sieve

   (Clean angular, well-graded, crushed rock.)
3. The required bedding material under the bottom of the pipe shall be installed prior to pipe installation.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Bedding and Backfill Requirements For 14" to 60" Sanitary Sewer Pipe**	Specification Reference No. 950	Plate Number 950.02

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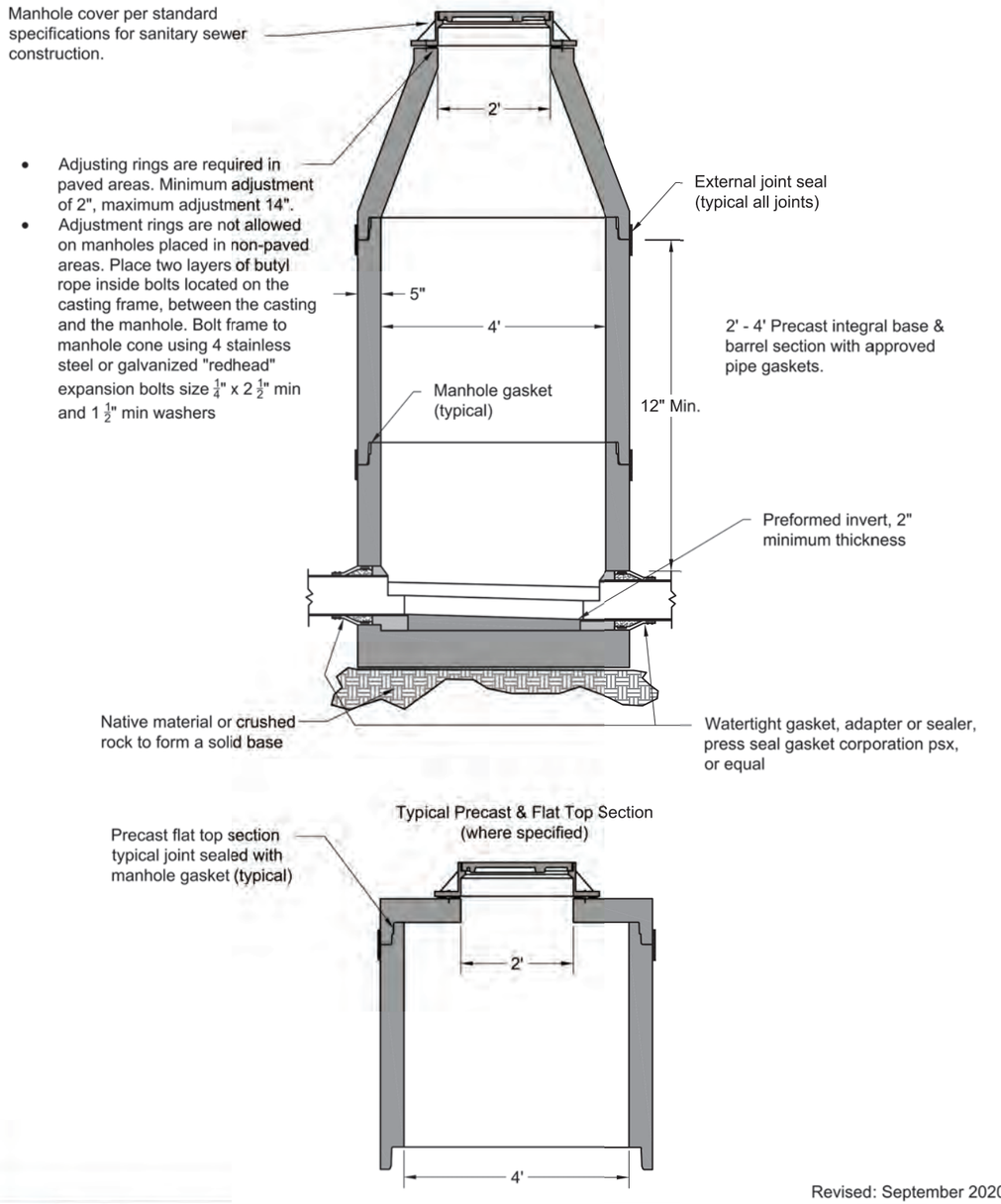
FOR BIDDING PURPOSES ONLY

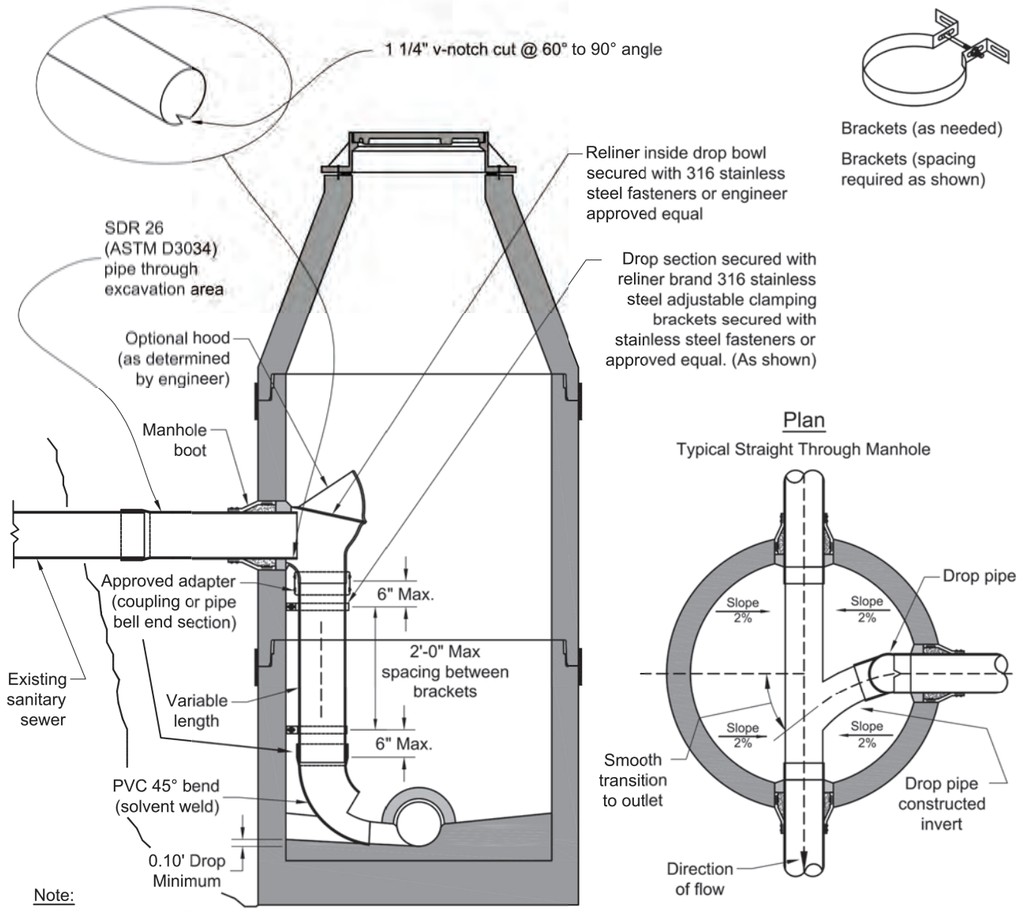
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	44	50

Plotting Date: 11/13/2024



Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Sanitary Sewer Manhole	Specification Reference No. 950	Plate Number 950.03



Note:

The lower bend shall be securely set on the concrete invert and angled to create a smooth transition to discharge with the flow. The manhole bench shall be constructed with an invert for the drop pipe to discharge into. When drop sections are added to existing manholes, a channel shall be formed in the bench by removing a portion of the bench and forming a flow line to a depth of half the pipe radius.

The PVC drop section shall be secured to the barrel section with approved non-corrosive adjustable clamping bracket(s), and the lower bend shall be secured and formed into the bench of the flowline. The drop bowl shall be secured with stainless steel fasteners or engineer approved equal and connected to the drop pipe with approved adapters. The drop bowl shall allow clearance for maintenance equipment into the existing line. SDR 26 (ASTM D3034) pipe shall be laid through the excavation area (to prevent breakage during settlement) and connected to the existing manhole through a manhole boot. The cost of the SDR 26 (ASTM D3034) pipe shall be absorbed in the unit price bid for the manhole drop section.

The manhole boot shall be similar to the manhole base section specification minimum of 8" between the opening for the drop section and the nearest joint.

The diameter of the drop pipe shall be the same diameter as the incoming pipe.

Revised: November 2018

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Sanitary Sewer Manhole Bowl Type Drop Section For 8"-15" Pipe	Specification Reference No. 950	Plate Number 950.05

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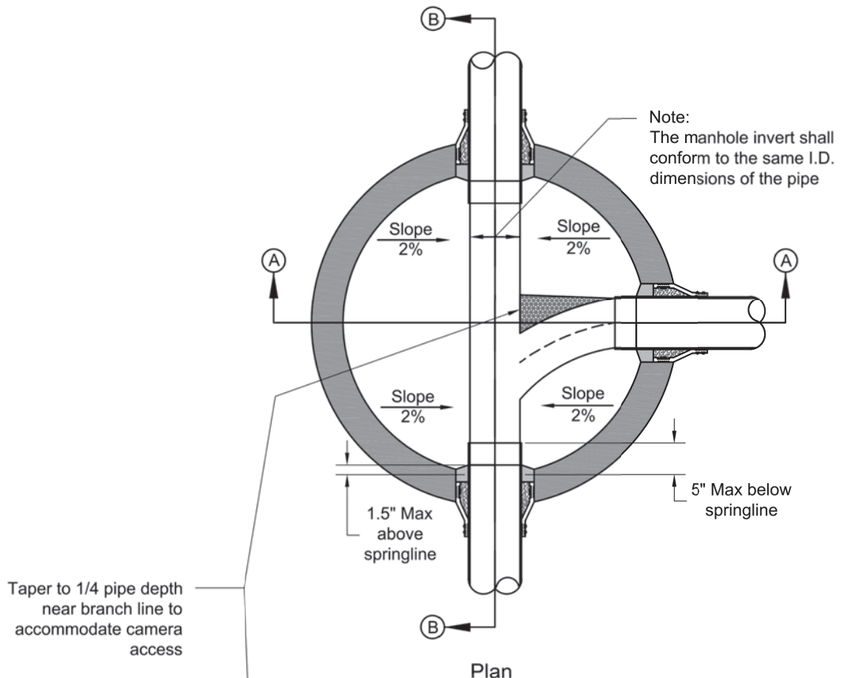
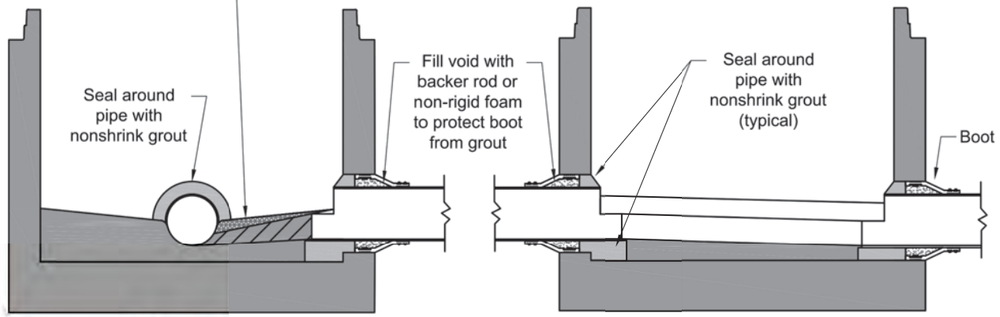
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	45	50
Plotting Date: 11/13/2024			



Plan

Typical Straight Through Manhole

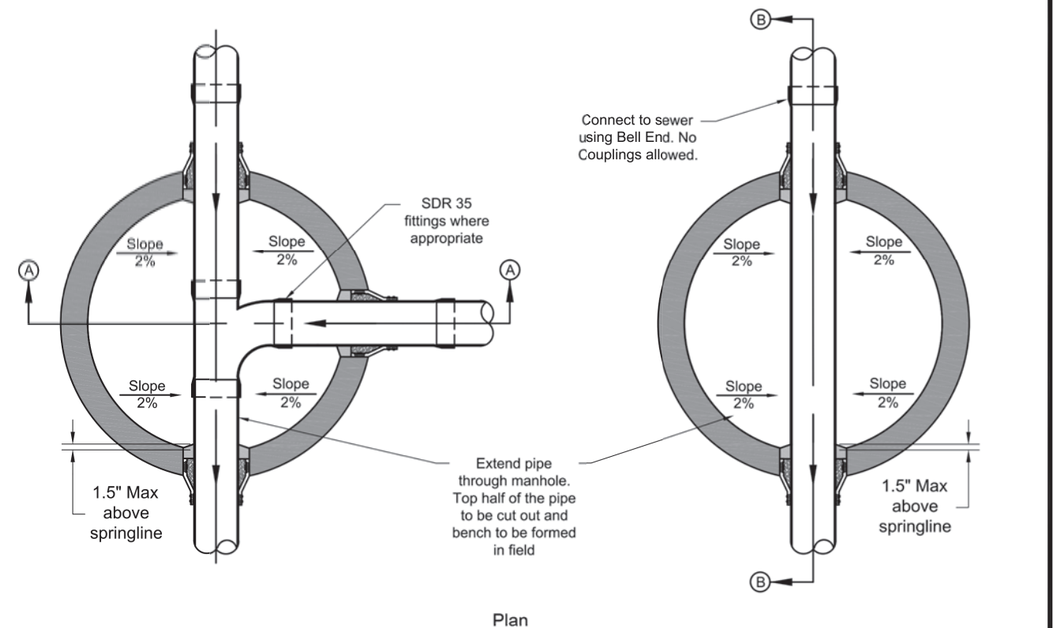


Section A-A

Section B-B

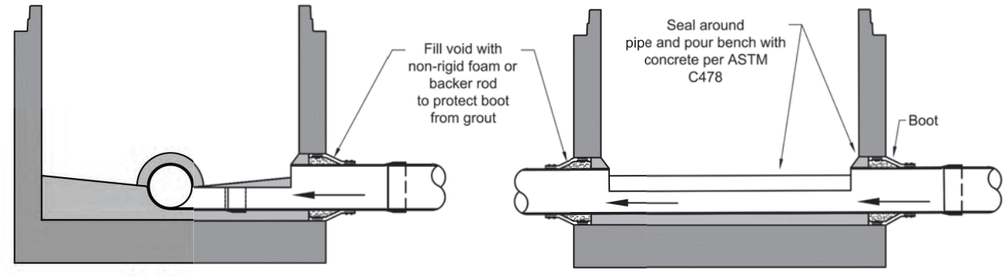
Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Manhole Bench and Invert Detail**	Specification Reference No. 950	Plate Number 950.07



Plan

Typical Straight Through Manhole



Section A-A

Section B-B

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Manhole Bench and Pipe Invert Detail**	Specification Reference No. 950	Plate Number 950.08

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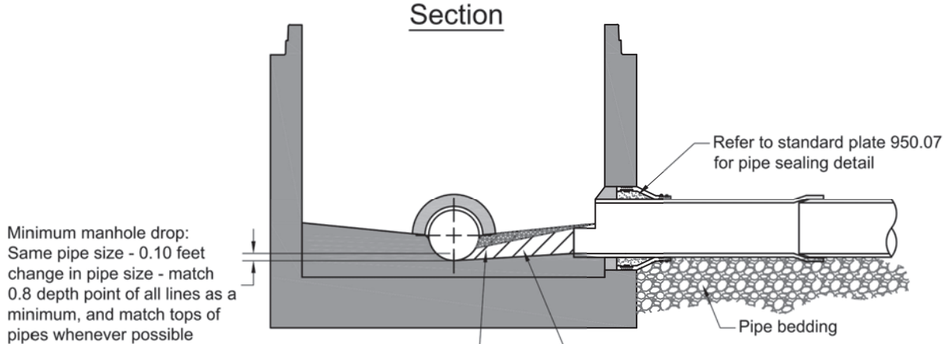
FOR BIDDING PURPOSES ONLY

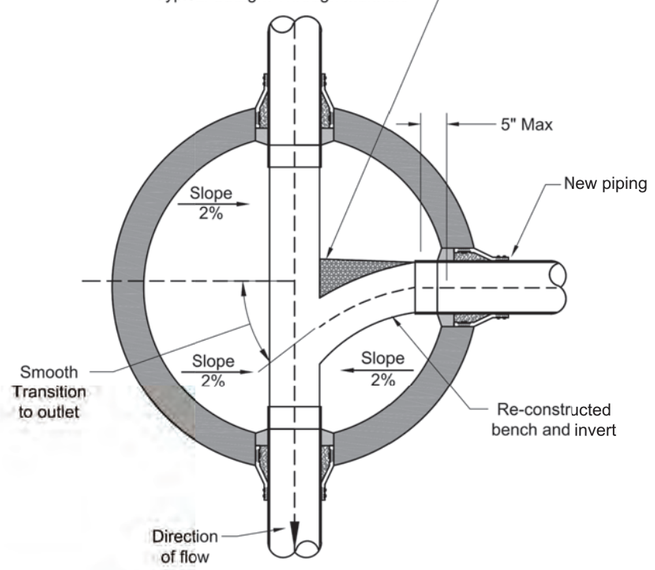
CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	46	50
Plotting Date: 11/13/2024			

Section



Plan

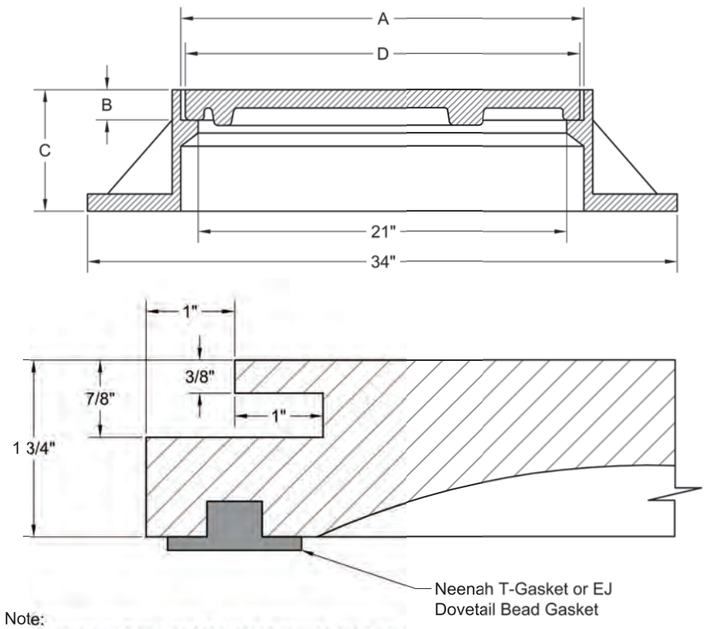
Typical Straight Through Manhole



Note:
The concrete bench and invert shall be angled (30° & 45° degree) to discharge with the flow. The manhole bench shall be reconstructed with a smooth as glass invert for the new pipe to discharge into.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Connection to Existing Manhole	Specification Reference No. 950	Plate Number 950.09



Note:
Concealed pick holes and the seal between the frame and cover shall be protected from asphalt, concrete pavement, chip seal and soil. It shall be the contractors responsibility to provide a system to prevent material from entering the concealed pick hole and frame and cover seal during the work.

Approved Frames:						
Applications	Neenah/Deeter Frame	EJ Series Number	EJ Product Number	Opening for Lid (in)	Thickness for Lid (in)	Frame Height (in)
				A	B	C
Asphalt and concrete streets less than or equal to 6 inches thick	R-1772	1022Z1	102310	23	1.75	7
Asphalt and concrete streets greater than 6 inches thick	R-1713	1050Z1	105015	23	1.75	9
Non-paved easement areas (grass, rock, landscaping, etc.)	R-1712	1050Z1	105011	23	1.75	9
Protection over cleanouts	R-1976	1578Z	157810	11.5	1.25	8

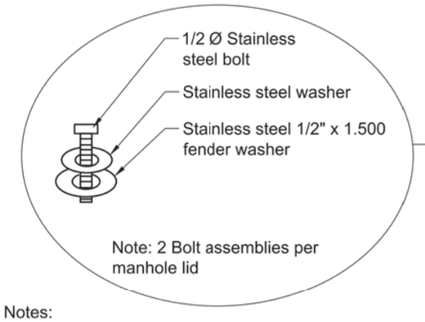
Approved Lids:					
Lid Applications	Neenah/Deeter Frame	EJ Series Number	EJ Product Number	Lid Diameter (in)	Lid Thickness (in)
				D	B
Standard lid for use in all applications	R-1772	1020A	102108	22.75	1.75
Composite lid with limited applications. City engineering approval required	N/A	COM1020	COM102057	22.75	1.75
Protection over cleanouts	R-1976	1578A	157824	11.25	1.25

Revised: September 2020

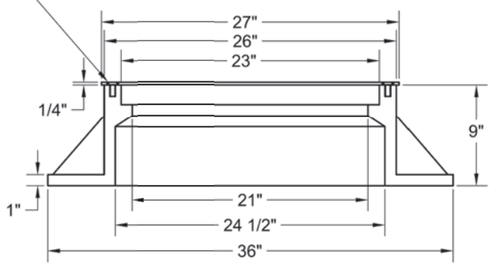
CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Concealed Pick Hole For Sanitary Manhole Covers	Specification Reference No. 950	Plate Number 950.11

FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	47	50
Plotting Date: 11/13/2024			

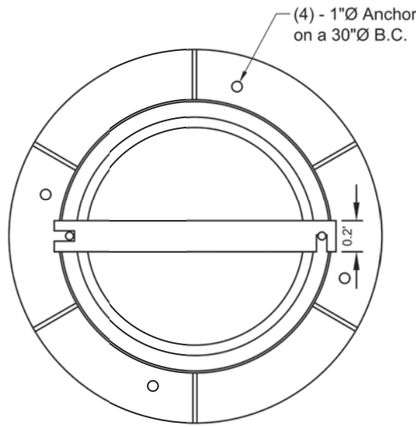


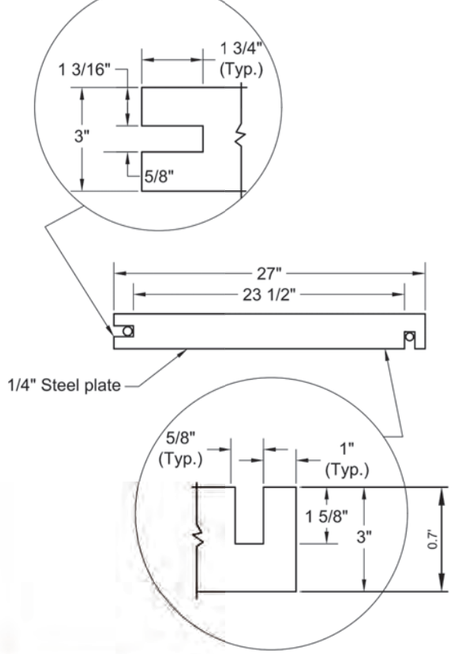
Note:
The Neenah R1712 or East Jordan 1050Z1/105011 bolt down manhole casting shall be used in all easement areas and areas outside of paved roadways, unless otherwise notated by the city engineers office.



Notes:

1. (2) Drill and tap frame for 1/2Ø-13 x 1" ss hex HD cap screws with reinforced rubber and stainless steel washers. The holes shall be 1 1/2" deep.
2. The bolts and threads shall be thoroughly coated with an anti-seize lubricant material. the anti-seize lubricant material shall be "Zep Groovy-Paste" as manufactured by Zep Manufacturing Company or approved equal.



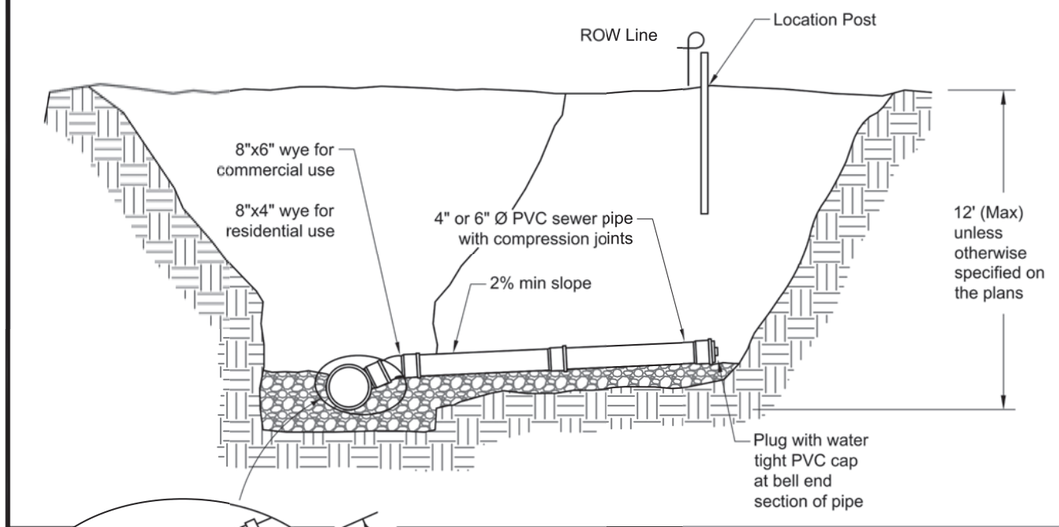


Note:
The plate shall be oriented such that when the bolts are tightened in a (clockwise) rotation, the plate is pulled into the bolt and not pushed away from it.

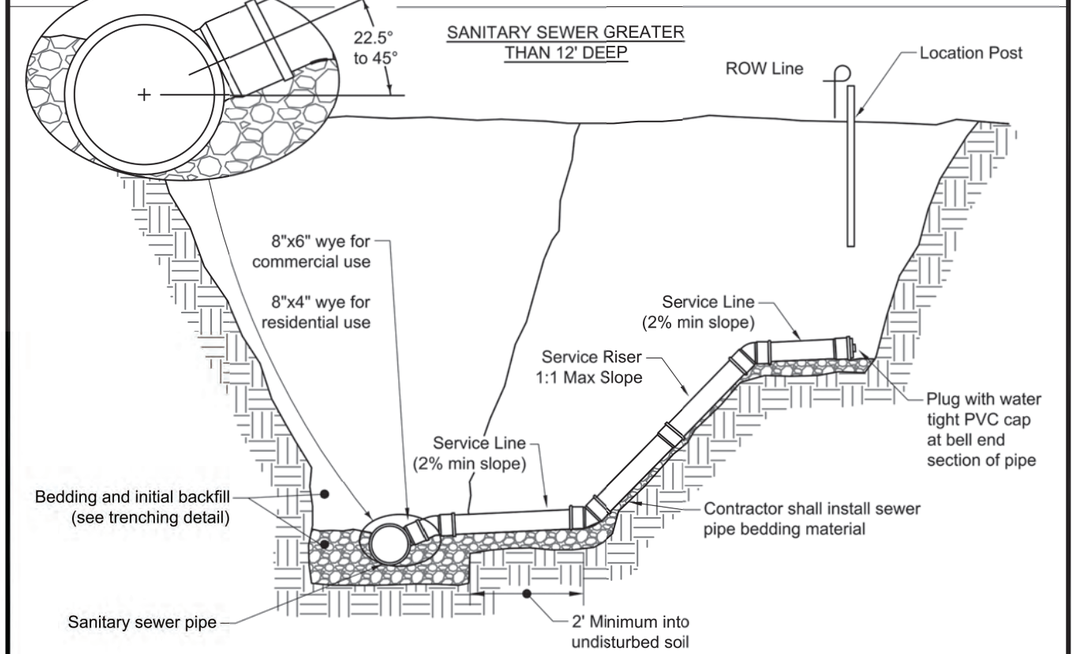
Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Sanitary Sewer Watertight Frame and Bolted Cover	Specification Reference No. 950	Plate Number 950.12

TYPICAL SANITARY SEWER LESS THAN 12' DEEP



SANITARY SEWER GREATER THAN 12' DEEP



Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	Typical Sanitary Sewer Service and Riser	Specification Reference No. 950	Plate Number 950.13

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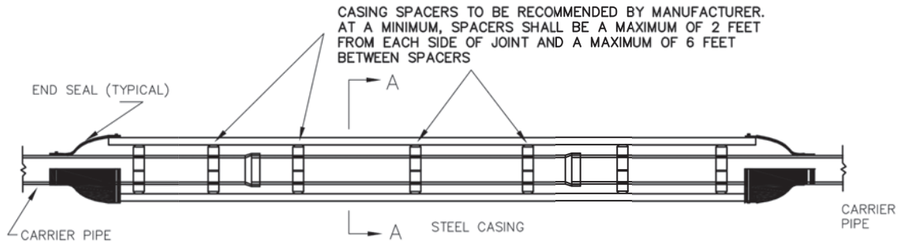
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	48	50

Plotting Date: 11/13/2024



ELEVATION

CASING SPACERS AND END SEALS SHALL BE MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC. P.O. BOX 60399 LAYAYETTE, LA. 70596-0399 OR EQUAL AND MEET THESE REQUIREMENTS.

CASING SPACERS – MODEL SSI8. (PIPE SIZES 36 INCHES IN DIAMETER AND SMALLER)
BAND – 14 GAUGE T-304 STAINLESS STEEL
RISER – 10 GAUGE T-304 STAINLESS STEEL

ROLLERS – SHALL BE APOGEE-AERO MANUFACTURED BY ADVANCE PRODUCTS AND SOLUTIONS INC. THE NUMBER OF ROLLERS SHALL BE RECOMMENDED BY THE MANUFACTURER, BUT FOUR IS THE MINIMUM

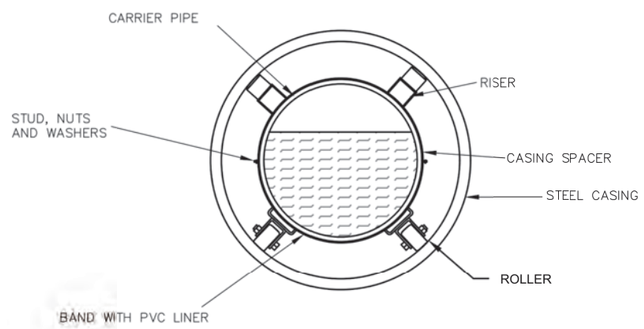
STUDS, NUTS, AND WASHERS – T-304 STAINLESS STEEL.

HEIGHT – AS REQUIRED FOR CENTER RESTRAINING OR AS SHOWN IN THE DRAWINGS

END SEALS – CONICAL SHAPED WRAP-AROUND ⅛ INCH SYNTHETIC RUBBER WITH T-304 STAINLESS STEEL STRAPS

CASINGS AND CARRIER PIPE: SHALL BE AS SPECIFIED IN THE SUPPLEMENTAL STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, OR DRAWINGS

GROUTING OF THE ANNULAR SPACE WILL NOT BE REQUIRED UNLESS OTHERWISE NOTED



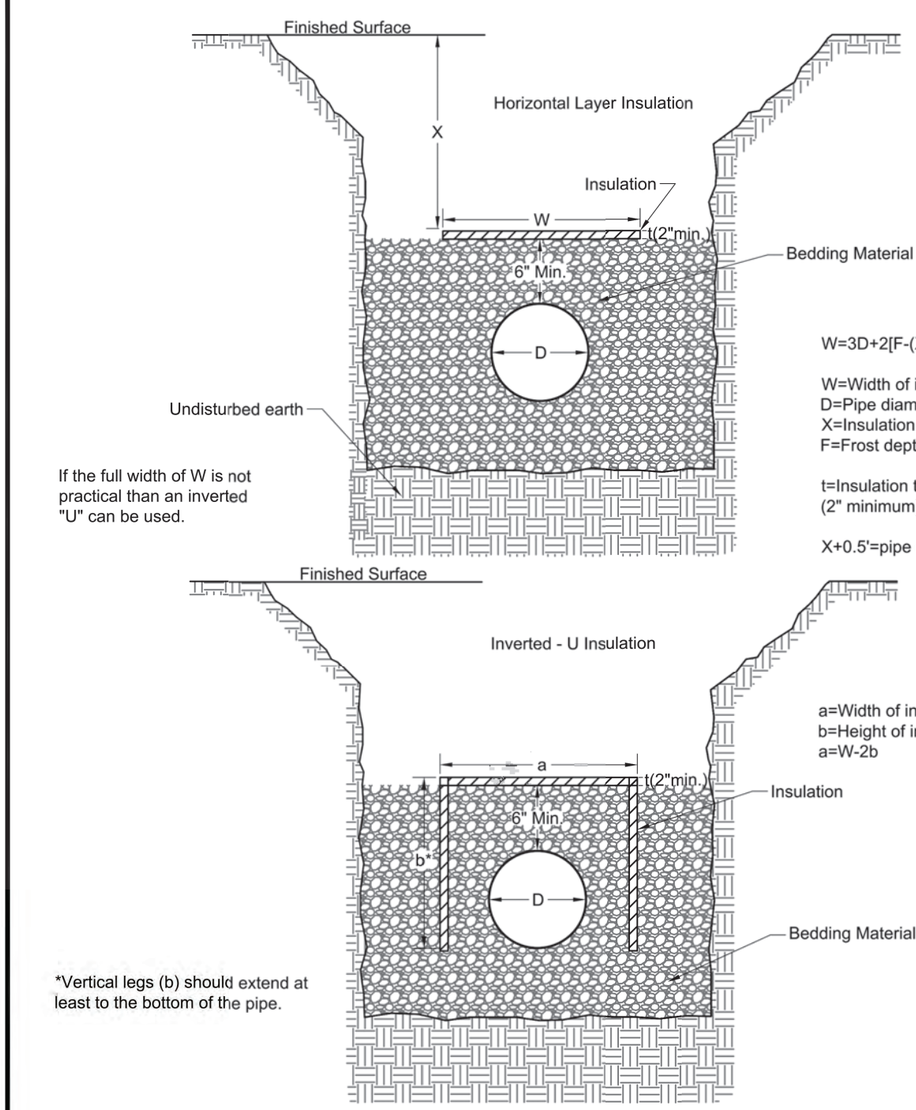
SECTION A-A

PIPE SIZE	CASING SIZE
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
20"	30"
24"	36"
30"	42"
>36"	*

* AS RECOMMENDED BY MANUFACTURER

REVISED: NOVEMBER 2018

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Standard Casing/Carrier For Sanitary Sewer Pipe**	Specification Reference No. 950	Plate Number 950.16



Note: This detail is a general guideline. Insulation of sanitary sewer pipe will be determined on a case by case situation depending on the following factors: depth, pipe diameter, flow, location, and proximity to bedrock.

Revised: November 2004

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Sanitary Sewer & Sump Pump Collector Pipe Insulation**	Specification Reference No. 950	Plate Number 950.17

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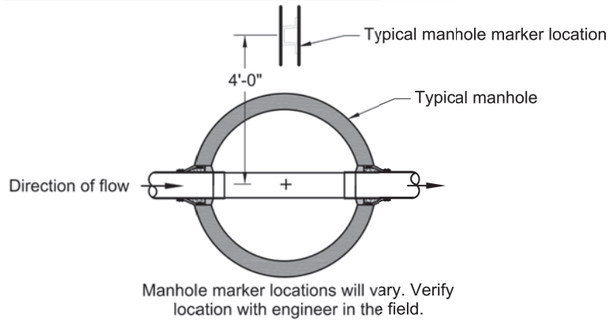
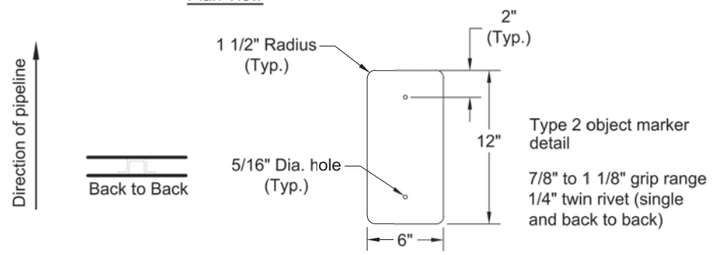
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	49	50

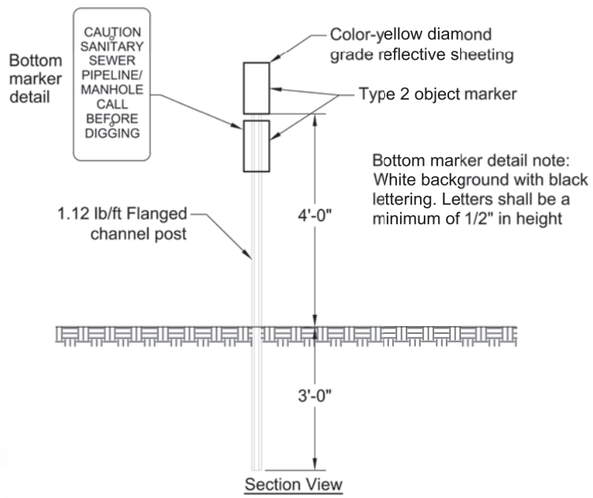
Plotting Date: 11/13/2024



Plan View



Type 2 Object Marker Details and Post Orientation



Section View

General Notes:

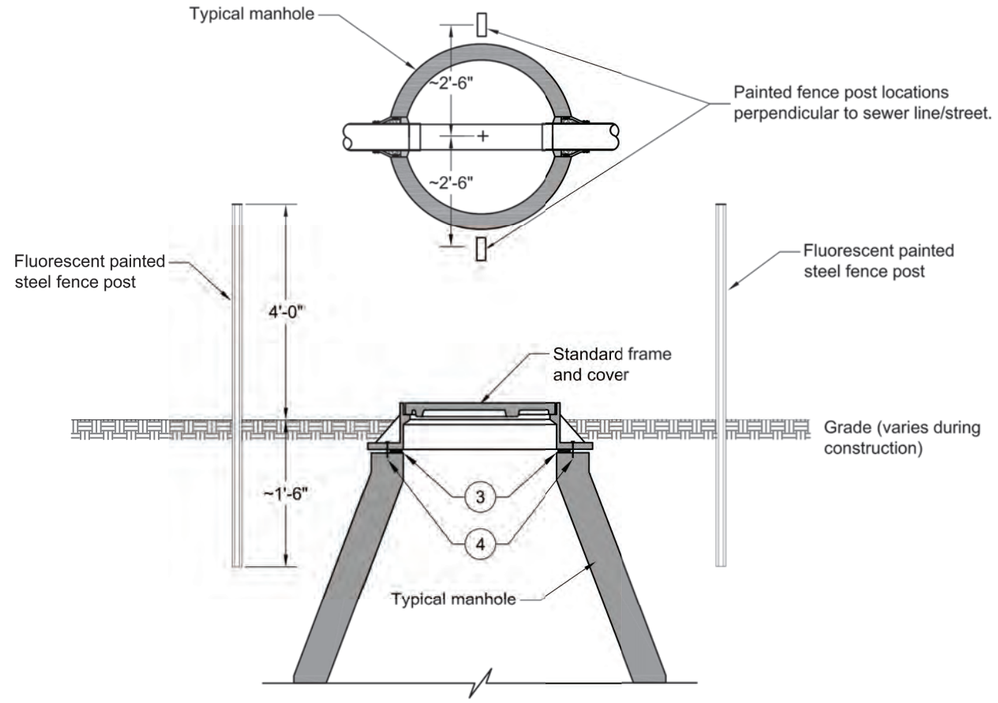
The Type 2 object markers shall conform to SDDOT Standard Specifications Section 982.2 I.

The 1.12 lb/ft flanged channel post shall conform to SDDOT Standard Specifications Section 982.2 I. 6.

Type 2 manhole markers shall be used in all interstate and highway ditch right-of-way areas and where specified.

Revised: September 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Manhole Marker Type 2**	Specification Reference No. 950	Plate Number 950.20



Notes:

1. The manhole frame and cover shall be installed immediately after surfacing removals and/or upon installation of the manhole. At no time shall a manhole be left overnight or when workers are not present without a Temporary Manhole Construction Frame and Cover.
2. A water tight seal shall be a continuous gasket of butyl rope or butyl caulk (3/16" to 1/4" thickness). The butyl rubber material shall be placed between the anchor bolts and the inside edge of the manhole cone.
3. Bolt frame to manhole cone using 4 stainless steel or galvanized "redhead" expansion bolts size 1/4" X 2 1/2" min. and 1 1/2" min. washers. Cut bolts flush to cone after removing casting for asphalt paving operations.
4. Manhole access shall be exposed and accessible at all times.
5. The temporary sanitary sewer bolt down manhole frame and cover shall remain in place until immediately before asphalt paving operations and adjustment of the frame and cover for the associated paving operation.

Revised: January 2021

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Temporary Manhole Construction Frame and Cover**	Specification Reference No. 950	Plate Number 950.22

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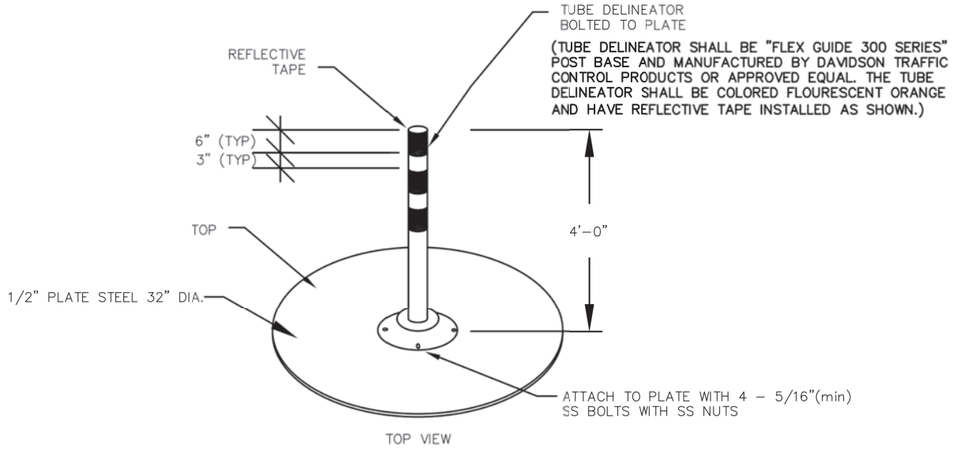
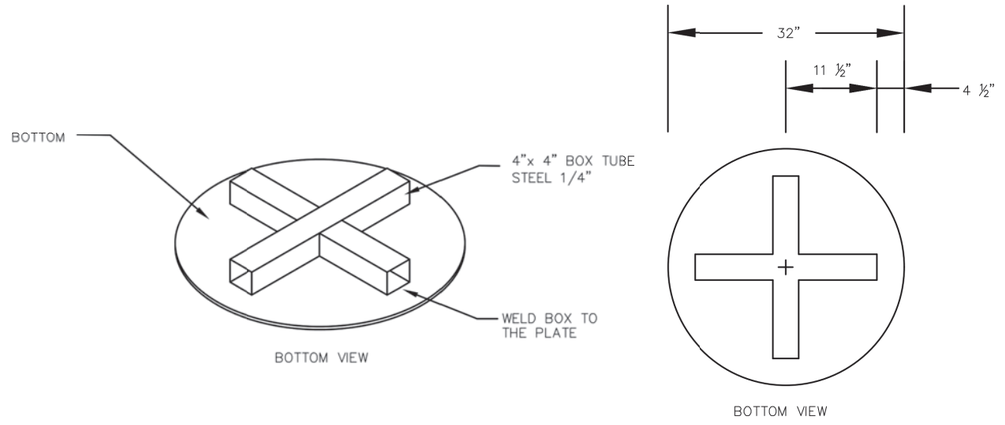
FOR BIDDING PURPOSES ONLY

CITY OF SIOUX FALLS	PROJECT	SHEET	TOTAL SHEETS
	PCN X06A / CIP No. 11100	50	50

Plotting Date: 11/13/2024



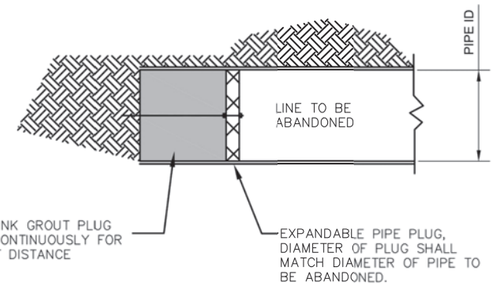


NOTE:
1. A SEALANT MATERIAL SHALL BE INSTALLED BETWEEN THE MANHOLE CONSTRUCTION PLATE MARKER AND THE MANHOLE TO FORM A WATERTIGHT SEAL.

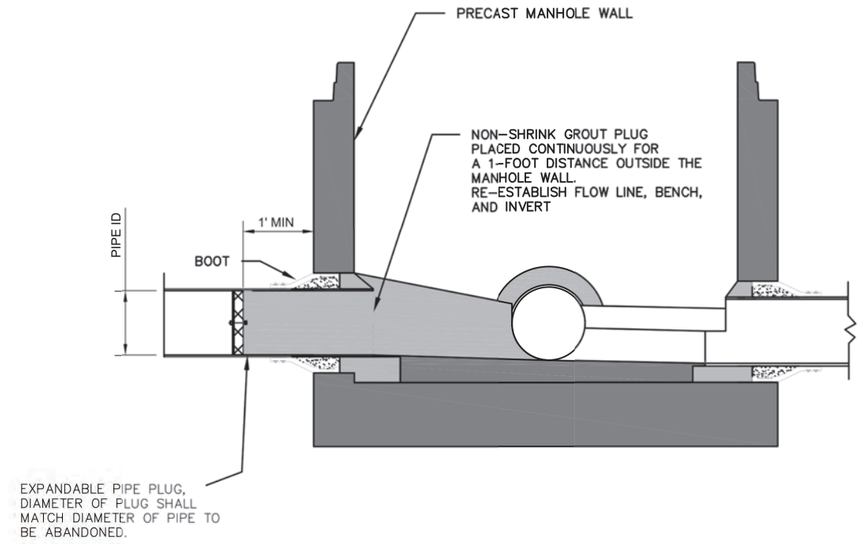
2. BREAKAWAY LIFT HOOKS WILL BE ALLOWED ON THE TOP OF THE PLATE FOR USE IN INSTALLING AND REMOVING THE PLATE. THE LIFT HOOKS SHALL BE LOCATED WITHIN A 10 INCH RADIUS OF THE PLATE CENTER.

Issued: January 2023

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Temporary Manhole Construction Plate Marker**	Specification Reference No. 950	Plate Number 950.22 SP



PLUG ABANDONED SEWER LINE



PLUG ABANDONED SEWER LINE FROM MANHOLE

Revised: October 2020

CITY OF SIOUX FALLS PUBLIC WORKS Providing a Better Quality of Life for You!	**Plug Existing Sanitary Sewer Line**	PLATE NUMBER 950.23

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