

SCALE - 1"=50'

Sta. 43+06.02 CL 3+35.00 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
MH 5

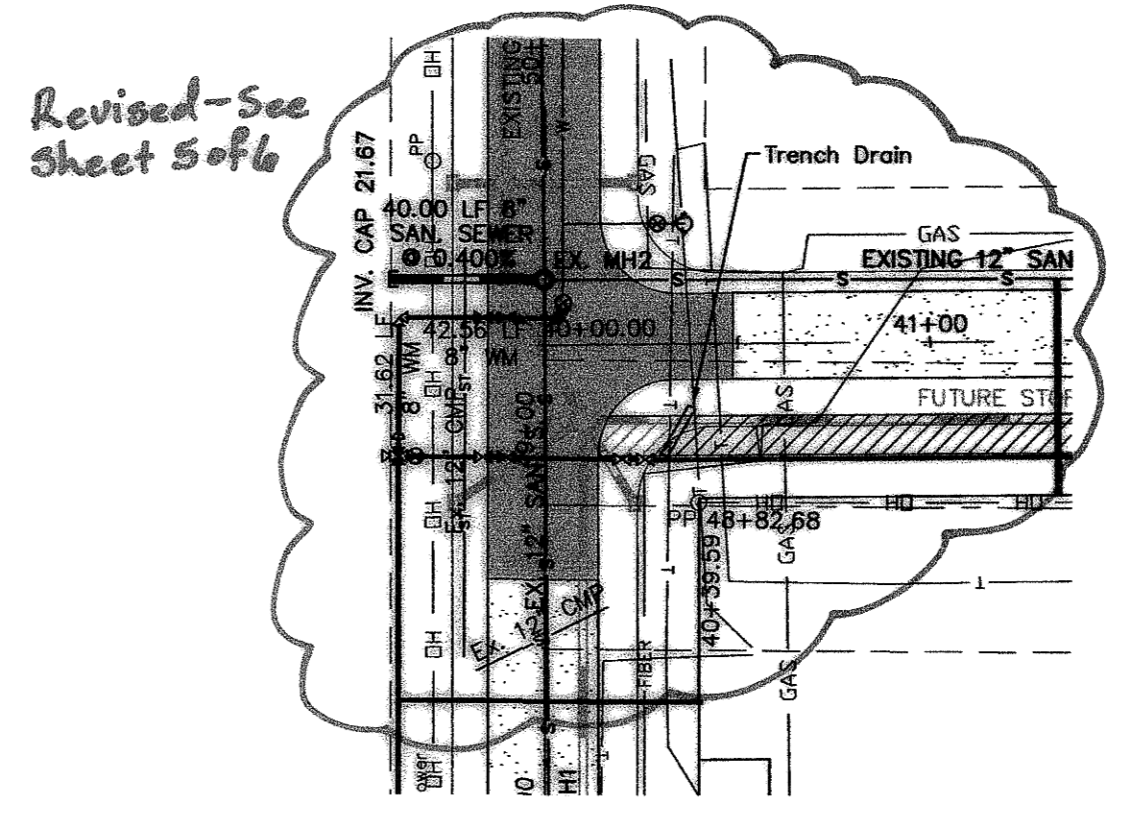
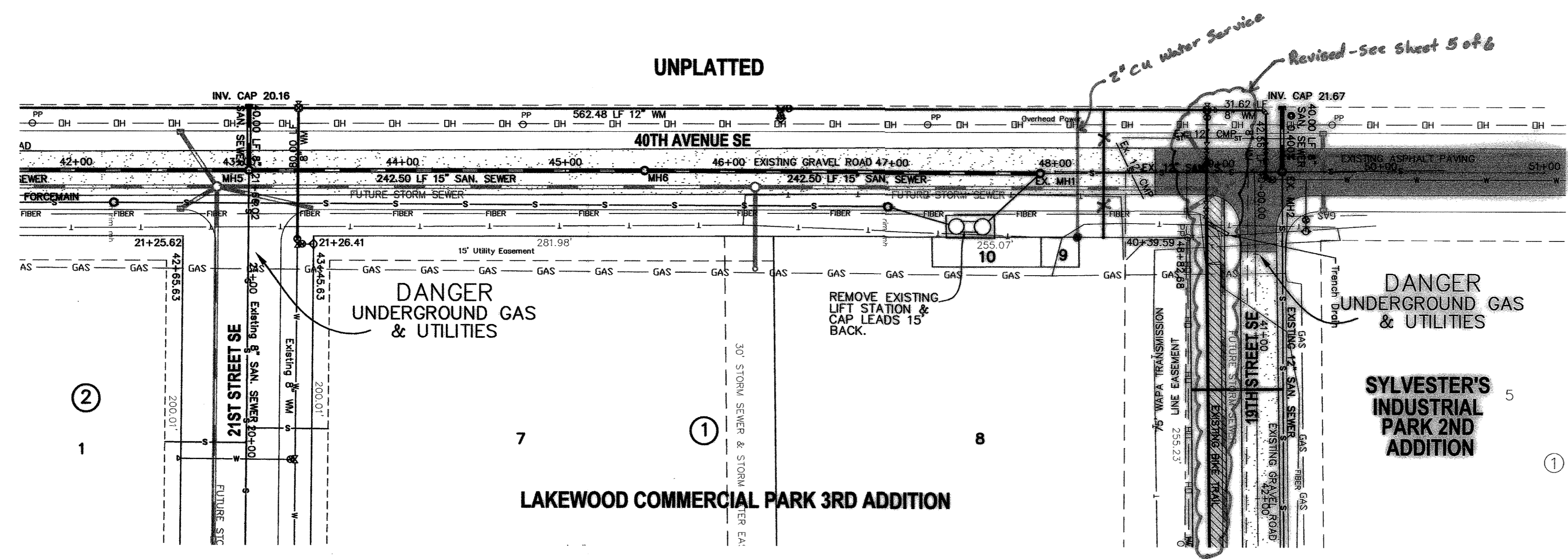
Sta. 45+48.52 CL 2+42.50 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
MH 6

Sta. 47+89.52 CL 2+42.40 Bk.  
=San. Sewer Sta. 0+00 Ahd.  
EX. MH 1

Sta. 49+39.23 CL 1+49.71 Bk.  
=San. Sewer Sta. 0+00 Ahd.  
EX. MH 2

**CONSTRUCTION NOTES (THIS SHEET)**

- BACKFILL SHALL BE CLASS "A".
- THE CONTRACTOR SHALL CLOSE 40TH AVENUE SE AS REQUIRED TO CONSTRUCT THE IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SIGNAGE, TRAFFIC CONTROL AND NOTIFICATION TO THE APPROPRIATE AGENCIES. TYPE III "ROAD CLOSED" BARRICADES AT THE NORTH AND SOUTH ENDS OF THE PROJECT SHALL BE MAINTAINED UNTIL THE PAVING CONTRACTOR TAKES OVER CONTROL OF THE SITE. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "15" SANITARY SEWER" BID ITEM.
- THE EXISTING GROUND PROFILE FOR THE CENTER OF THE ROAD IS SHOWN TO REPRESENT THE EXISTING GROUND ELEVATION AT THE TIME OF CONSTRUCTION. THE STREETS WILL BE BUILT UP TO FINISHED GRADE BY THE PAVING CONTRACTOR AFTER THE COMPLETION OF THIS PROJECT.
- THE CONTRACTOR SHALL VERIFY THE ELEVATION OF THE GROUND WATER AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DEWATERING OR SOIL STABILIZATION (OTHER THAN USING SUBCUT GRAVEL) OF THE CONSTRUCTION SITE AS REQUIRED TO INSTALL THE PROPOSED UTILITIES. IT IS EXPECTED THAT DEWATERING WILL BE REQUIRED.
- PROTECT EXISTING UTILITIES AND MINIMIZE AREAS DISTURBED.
- REMOVE AND DISPOSE OF OFFSITE THE BARB WIRE FENCE ON EITHER SIDE OF THE ROADS AS REQUIRED TO CONSTRUCT THE IMPROVEMENTS. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM REQUIRING THE WORK.
- AFTER THE 15" SANITARY SEWER IS CONSTRUCTED MAKE THE FINAL CONNECTION TO THE EXISTING MANHOLE AT STA. 47+89.52 BY CUTTING IN A NEW INVERT, GROUTING IN A NEW FLOW LINE, GROUTING THE ANNULAR SPACE AND SEALING THE GROUT. DIVERT THE EXISTING SEWAGE FLOW PERMANENTLY INTO THE NEW LINE AFTER EVERYTHING HAS CURED APPROPRIATELY. GROUT AND SEAL THE OLD 12" SEWER LINE AND INVERT IN THIS MANHOLE. THE CONTRACTOR SHALL BE RESPONSIBLE TO BYPASS PUMP THE SEWAGE WHILE WORKING IN THIS MANHOLE IF REQUIRED. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "15" SANITARY SEWER" BID ITEM.
- CUT IN A NEW INVERT INTO THE EXISTING MANHOLE AT STA. 49+39.23 AS REQUIRED TO CONSTRUCT THE NEW 8" SANITARY SEWER TO THE WEST. GROUT IN A NEW FLOW LINE, GROUT THE ANNULAR SPACE AND SEAL THE GROUT.
- THE CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE CONSTRUCTION OF THE 12" WATERMAIN AND 8" WATERMAIN THAT CROSS 40TH AVENUE SE AT APPROXIMATELY STA. 48+93 AND STA. 49+29 RESPECTIVELY. RESTRAIN ALL OF THE BENDS AND THE PIPE SECTIONS BETWEEN THE BENDS. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "12" PVC WATERMAIN" AND "8" PVC WATERMAIN" BID ITEMS RESPECTIVELY.
- REMOVE AND DISPOSE OF OFFSITE ASPHALT AS REQUIRED TO MAKE THE CONNECTIONS TO THE EXISTING SANITARY SEWER AND WATERMAIN AND TO CONSTRUCT THE NEW IMPROVEMENTS. CONSTRUCT A 4" TEMPORARY GRAVEL PATCH IN THESE LOCATIONS.
- THE CONTRACTOR SHALL COORDINATE WORK AROUND THE EXISTING POWER POLES ON THE WEST SIDE OF 40TH AVENUE SE WITH THE APPROPRIATE UTILITY COMPANY. ALL EXPENSES INCURRED FROM PROTECTING AND TEMPORARILY SUPPORTING THE POWER POLES SHALL BE BORNE BY THE CONTRACTOR.
- REMOVE AND DISPOSE OF OFFSITE THE CASTING, ADJUSTING RINGS, COVER AND TOP SECTION OF THE CHECK VALVE MANHOLES AT APPROXIMATELY STA. 22+24, 27+25, 32+24, 37+24, 42+24 AND 46+98. CUT A HOLE IN THE BASE OR THE BOTTOM OF ONE SIDE OF THE REMAINING MANHOLES SO THAT THEY DO NOT HOLD WATER. FILL THE REMAINING MANHOLES WITH ON-SITE MATERIAL AND COMPACT IN 18" MAXIMUM LIFTS. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "ABANDON CHECK VALVE MANHOLE" BID ITEM.
- THE CONTRACTOR SHALL REMOVE AND STOCKPILE ANY TOPSOIL ALONG 40TH AVENUE SE AND 19TH STREET SE IN AREAS TO BE DISTURBED. TWO STOCKPILE LOCATIONS WILL BE ALLOWED ON THE WEST SIDE OF 40TH AVENUE SE AND WILL BE DETERMINED AT THE TIME OF CONSTRUCTION. THE TOPSOIL WILL BE REPLACED BY THE PAVING CONTRACTOR.
- ALL MANHOLES SHALL HAVE THE 15" SEWER PIPE RUN THROUGH THE MANHOLES. CUT OFF THE TOP HALF OF THE PIPE WITHIN THE MANHOLE AND GROUT THE PIPE IN PLACE.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE GRAY OIL COMPANY AT ALL TIMES.



NOTE:  
ALL WATER MAIN  
ON 36.00' LEFT  
OF CENTERLINE  
UNLESS OTHERWISE  
STATED

Sta. 43+03.02  
Begin Sewermain Quantities

Sta. 43+36.32  
Begin Watermain Quantities

Sta. 43+36.32 (West)  
12" x 8" Cross  
2.00 LF 8" WM  
8" Plug

Sta. 43+36.32 (East)  
12" x 8" Cross  
80.00 LF 8" WM  
8" Gate Valve  
& Box

Sta. 46+32.00  
12" x 8" Tee  
4.50 LF 8" WM  
8" Gate Valve & Box  
1.50 LF 8" WM  
8" Hydrant

Sta. 46+37.00  
12" Gate Valve  
& Box

Sta. 48+93.17  
12" x 12" Cross

Sta. 48+98.17  
12" x 8" Reducer

Sta. 49+29.23 16.00' Lt.  
8" 90° Bend

Sta. 49+29.23 10.00' Lt.  
8" 90° Bend  
8" Gate Valve & Box/Connect

Sta. 39+62.00  
8" 90° Bend

Sta. 39+78.00  
8" 45° Vertical Bend

Sta. 39+84.00  
8" 45° Vertical Bend

Sta. 40+05.00  
8" 90° Vertical Bend  
8" Gate Valve & Box  
Connect

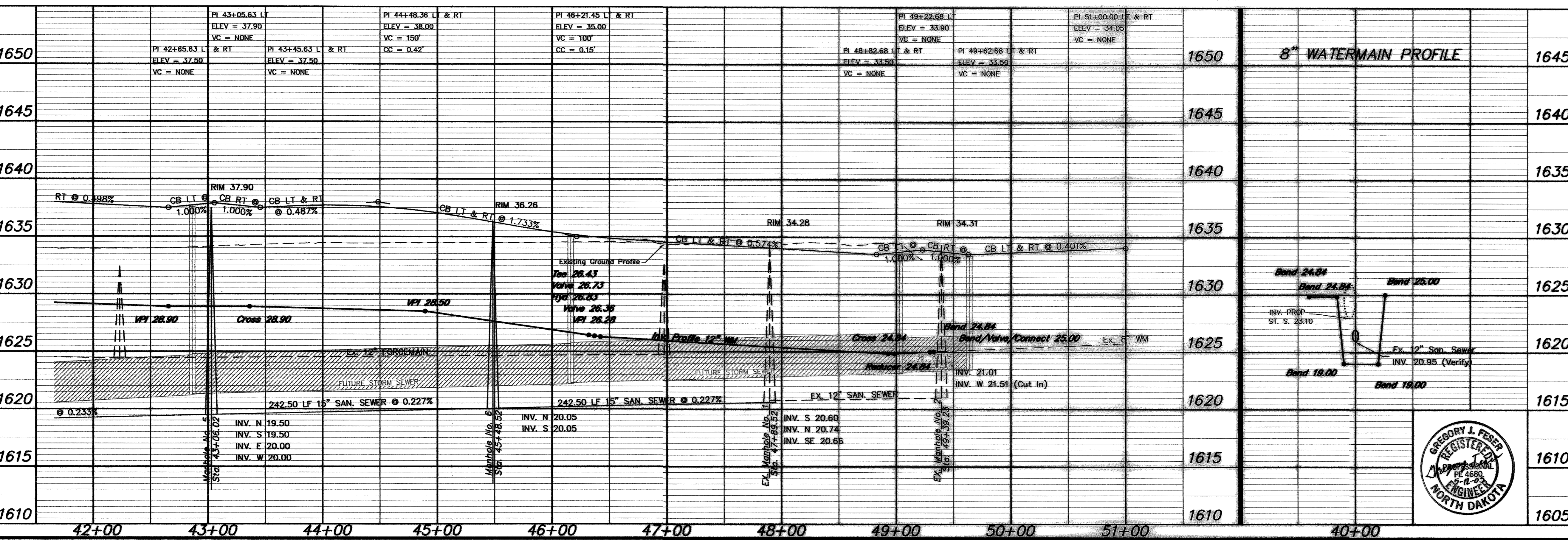
Sta. 40+05.00  
8" 90° Vertical Bend

Sta. 49+29.23  
End Watermain Quantities

Sta. 49+39.23  
End Sewermain Quantities

Lot	Block	6" Sewer Service	8" x 4" Wye Branch	Sewer Service Invert	At The Cap	2" Water Copper	2" Water Service Pipe	2" Ball Valve	2" Curb Stop	Water Service Invert	At The Curb Stop
8	1	---	---	70.0	1	1	1	1	1	26.20	---
<b>TOTALS</b>		---	---	70.0	1	1	1	1	1	---	---

Manhole Number	6
Casting Elev.	36.26
Top P.C. Section	35.22
Invert Elev. (a)	20.05
Invert Elev. (b)	20.05
Length P.C. Section	15.75



**APPROXIMATE QUANTITIES**

San. Sewer Items	Quantity
15" Sanitary Sewer	485 LF
Subcut Gravel	290 TON
Concrete Manhole	1 EA
Abandon Check Valve Manhole	1 EA
Abandon Lift Station	1 LS

Watermain Items	Quantity
Subcut Gravel	10 TON
12" PVC Watermain	562 LF
8" PVC Watermain	155 LF
8" Hydrant	1 EA
8" Gate Valve & Box	2 EA
12" Gate Valve & Box	1 EA
Ductile Iron Fittings	Incidental
2" Water Copper Serv. Pipe	70 LF
2" Water Serv. Connection	1 EA
2" Ball Valve Curb Stop	1 EA
And 2" Box	1 EA
Remove & Stockpile Topsoil	1 LS
Remove Asphalt/Class V Gravel	1 LS

**SWENSON, HAGEN & COMPANY P.C.**

909 Basin Avenue P.O. Box 1135  
Bismarck, North Dakota 58504  
shen@swensonhagen.com  
Phone (701) 223-2600  
Fax (701) 223-2606

Surveying  
Hydrology  
Land Planning  
Civil Engineering  
Landscape & Site Design  
Construction Management

**40TH AVENUE**  
FROM 21ST STREET SE NORTH TO 19TH STREET

1610 WATER AND SEWER IMPROVEMENT DISTRICT 47  
SHEET NO. 4 OF 6 PROJECT 2005-14  
1605 MANDAN, ND MAY 11, 2005

