

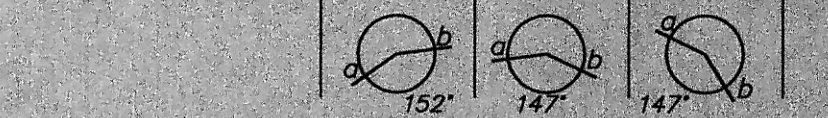
**CONSTRUCTION NOTES (THIS SHEET)**

- BACKFILL SHALL BE CLASS 'A'.
- GRADING SHALL BE BY OTHERS, PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF OFFSITE ALL ASPHALT AND CURB AND GUTTER AS REQUIRED TO MAKE CONNECTIONS TO THE EXISTING UTILITIES. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS.
- 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 OF THE CONSTRUCTION SITE AS REQUIRED TO INSTALL THE PROPOSED UTILITIES.
- PROTECT ALL SURVEY MONUMENTS. MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- CONNECTION TO THE EXISTING 8" SANITARY SEWER LINE SHALL BE CONSIDERED INCIDENTAL TO THE "B" SANITARY SEWER BID" ITEM
- CONNECTION TO THE EXISTING 8" WATERMAIN SHALL BE CONSIDERED INCIDENTAL TO THE "B" PVC WATERMAIN" ITEM.
- EXERCISE CAUTION WHEN CROSSING THE SEWER SERVICES WITH THE 8" WATERMAIN OR CROSSING THE WATERMAIN WITH THE SEWER SERVICES.
- THE STORM SEWER IS NOT PART OF THIS CONTRACT.
- EXISTING CONTOURS ARE SHOWN. NO ADDITIONAL GRADING WILL BE COMPLETED PRIOR TO THE START OF THE WATER/SEWER PROJECT.

**APPROXIMATE WYE LOCATIONS**

STATION	DIRECTION	LOT	BLOCK
<b>FROM MANHOLE NO. 5 TO MANHOLE NO. 6</b>			
0+35	SW	29	3
0+72	NE	15	2
1+11	SW	28	3
1+47	NE	14	2
1+92	SW	27	3
2+22	NE	13	2
2+54	SW	26	3
3+01	NE	12	2
3+07	W	25	3
<b>FROM MANHOLE NO. 6 TO MANHOLE NO. 7</b>			
0+59	SW	24	3
0+79	NE	11	2
1+22	SW	23	3
1+56	NE	10	2
1+84	SW	22	3
<b>FROM MANHOLE NO. 7 TO MANHOLE NO. 8</b>			
0+08	W	21	3
0+15	NE	9	2
0+77	W	20	3
1+16	E	8	2
1+46	W	19	3
1+88	E	7	2
1+99	W	18	3
<b>FROM MANHOLE NO. 8 TO EXISTING MANHOLE</b>			
0+26	NW	7	3
0+61	SE	6	2
0+96	NW	16	3
1+42	SE	5	2
1+47	NW	15	3

Manhole Number	6	7	8
Costing Elev.	39.02	38.04	37.50
Top P.C. Section	37.98	37.00	36.46
Invert Elev. (a)	27.77	28.81	29.85
Invert Elev. (b)	27.87	28.91	29.95
Length P.C. Section	10.21	8.19	6.61



**APPROXIMATE QUANTITIES**

San. Sewer Items	Quantity
8" Sanitary Sewer	959 LF
8" x 4" Wye Branch	26 EA
Concrete Manhole	3 EA
4" Sewer Service Pipe	870 LF

**Watermain Items**

Watermain Items	Quantity
6" PVC Watermain	20 LF
8" PVC Watermain	967 LF
6" Hydrant	2 EA
6" Gate Valve & Box	2 EA
8" Gate Valve & Box	2 EA
Ductile Iron Fittings	(incidental)
1" Water Copper Serv. Pipe	616 LF
1" Water Serv. Connection	11 EA
1" Ball Valve Curb Stop	11 EA
And 1 1/4" Box	

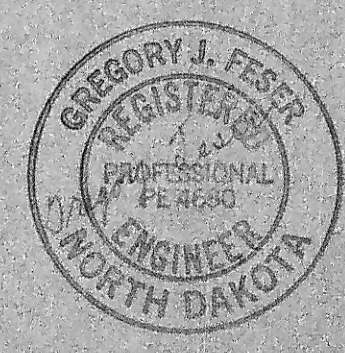
**SWENSON, HAGEN & CO. P.C.**  
 PLANNING CIVIL ENGINEERING SURVEYING  
 SITE DESIGN CONSTRUCTION MANAGEMENT  
 909 BASIN AVE. P.O. BOX 1185 (701) 223-2806  
 BISMARCK, N.D. 58504 FAX (701) 223-2806  
 E-mail: shweg@swensonhagen.com

**BAY SHORE BEND**

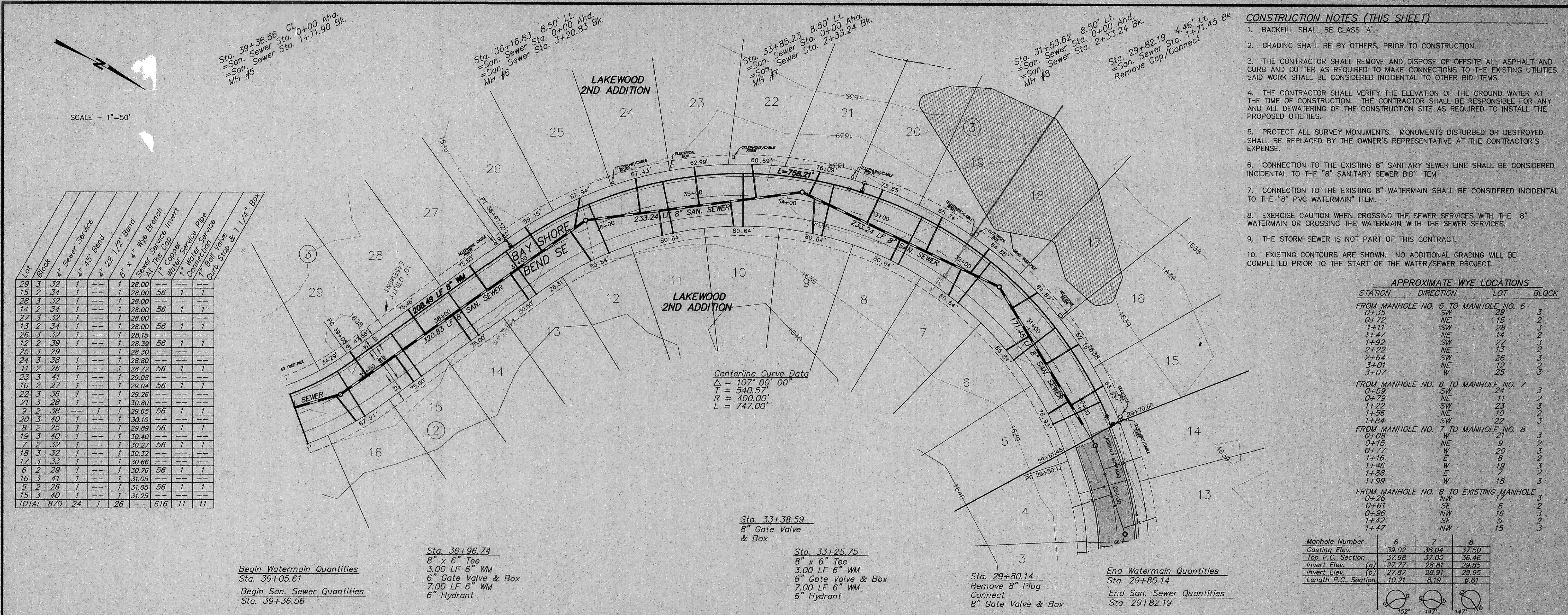
FROM STA. 29+66.47 TO  
 STA. 39+36.56

WATER AND SEWER IMPROVEMENT PROJECT 2004-09  
 SHEET NO. 4 OF 4

MANDAN, ND MARCH 26, 2004



Record Drawing



Lot	Block	4" Sewer Service	4" x 4.5" Bend	4" x 22 1/2" Bend	8" x 4" Wye Branch	Sewer Service At The Cap	7" Copper	1" Water Copper Serv. Pipe	1" Water Serv. Connection	1" Ball Valve Curb Stop & 1 1/4" Box
29	3	32	1	1	1	28.00				
15	2	34	1	1	1	28.00	56	1	1	
28	3	32	1	1	1	28.00				
14	2	34	1	1	1	28.00	56	1	1	
27	3	32	1	1	1	28.00				
13	2	34	1	1	1	28.00	56	1	1	
26	3	32	1	1	1	28.15				
12	2	39	1	1	1	28.39	56	1	1	
25	3	29	1	1	1	28.30				
24	3	38	1	1	1	28.80				
11	2	26	1	1	1	28.72	56	1	1	
23	3	41	1	1	1	29.08				
10	2	27	1	1	1	29.04	56	1	1	
22	3	36	1	1	1	29.26				
21	3	28	1	1	1	30.80				
9	2	38	1	1	1	29.65	56	1	1	
20	3	40	1	1	1	30.10				
8	2	25	1	1	1	29.99	56	1	1	
19	3	40	1	1	1	30.40				
7	2	32	1	1	1	30.27	56	1	1	
18	3	32	1	1	1	30.39				
17	3	33	1	1	1	30.66				
6	2	29	1	1	1	30.76	56	1	1	
16	3	41	1	1	1	31.05				
5	2	26	1	1	1	31.05	56	1	1	
15	3	40	1	1	1	31.25				
TOTAL	870	24	1	26		616	11	11		

Centerline Curve Data  
 $\Delta = 107^{\circ} 00' 00''$   
 $T = 540.57'$   
 $R = 400.00'$   
 $L = 747.00'$

Begin Watermain Quantities  
 Sta. 39+05.61  
 Begin San. Sewer Quantities  
 Sta. 39+36.56

Sta. 36+96.74  
 8" x 6" Tee  
 3.00 LF 6" WM  
 6" Gate Valve & Box  
 7.00 LF 6" WM  
 6" Hydrant

Sta. 33+38.59  
 8" Gate Valve & Box

Sta. 33+25.75  
 8" x 6" Tee  
 3.00 LF 6" WM  
 6" Gate Valve & Box  
 7.00 LF 6" WM  
 6" Hydrant

Sta. 29+80.14  
 Remove 8" Plug  
 Connect  
 8" Gate Valve & Box

End Watermain Quantities  
 Sta. 29+80.14  
 End San. Sewer Quantities  
 Sta. 29+82.19

