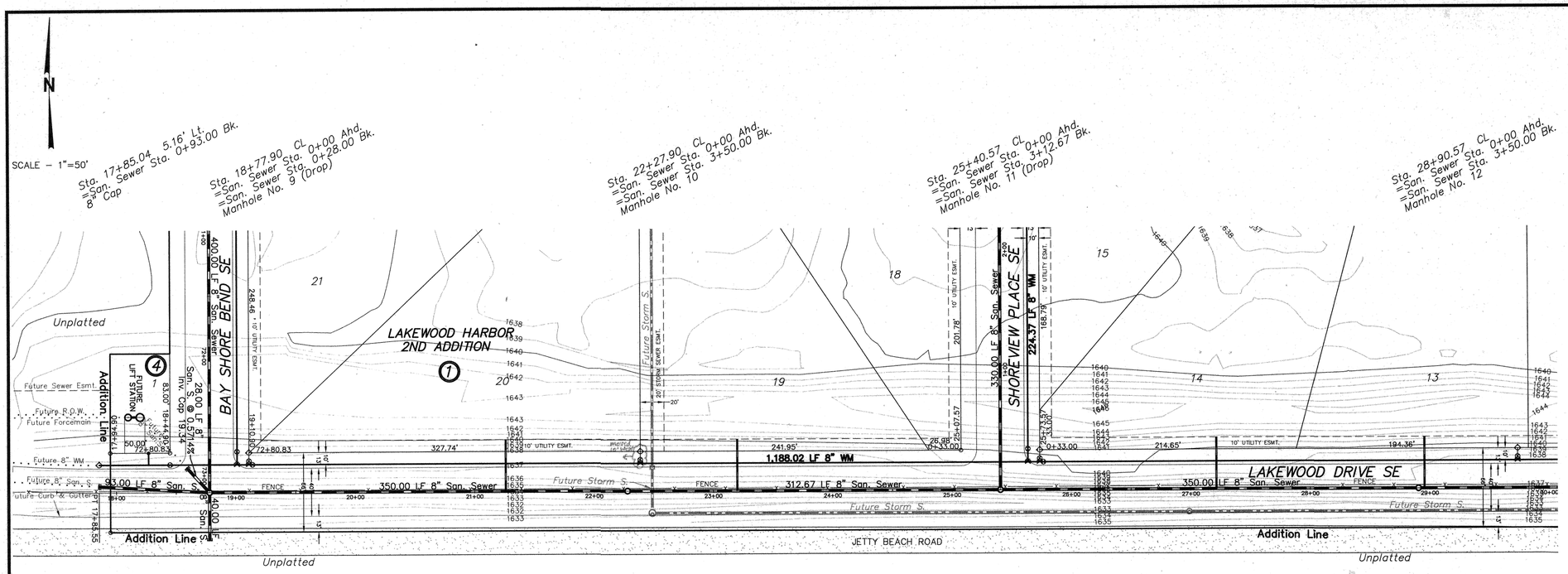


Sta. 17+85.55
8" x 6" Reducer
1.00 LF 6" WM
6" Hydrant

Sta. 18+44.90
8" Gate Valve & Box

Sta. 19+00.90
8" x 8" Tee

Sta. 19+10.90
8" x 6" Tee
3.00 LF 6" WM
6" Gate Valve & Box
7.00 LF 6" WM
6" Hydrant

Begin Watermain Quantities
Sta. 17+85.55

Begin San. Sewer Quantities
Sta. 17+85.04

Sta. 19+13.90
8" Gate Valve & Box

Sta. 22+38.64
8" x 6" Tee
3.00 LF 6" WM
6" Gate Valve & Box
7.00 LF 6" WM
6" Hydrant

Sta. 25+63.57
8" x 8" Tee

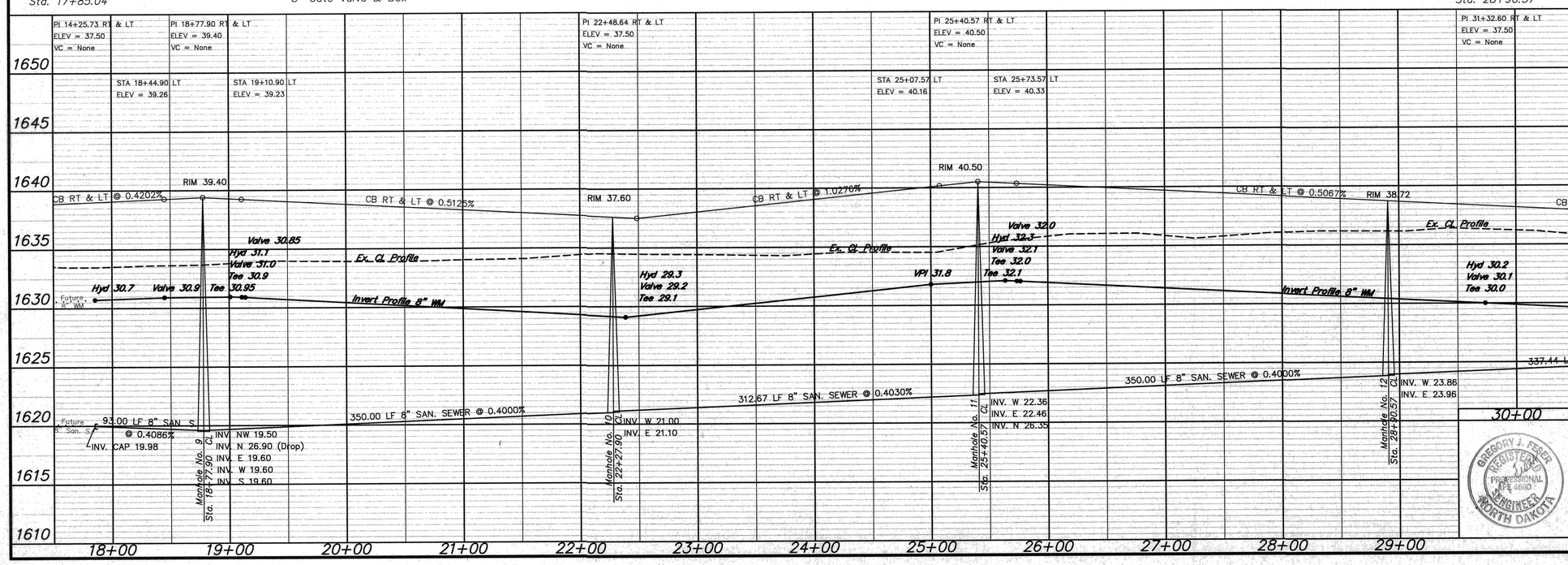
Sta. 25+73.57
8" x 6" Tee
3.00 LF 6" WM
6" Gate Valve & Box
7.00 LF 6" WM
6" Hydrant

Sta. 25+76.57
8" Gate Valve & Box

Sta. 29+73.57
8" x 6" Tee
3.00 LF 6" WM
6" Gate Valve & Box
7.00 LF 6" WM
6" Hydrant

End Watermain Quantities
Sta. 29+73.57

End San. Sewer Quantities
Sta. 28+90.57



CONSTRUCTION NOTES (THIS SHEET)

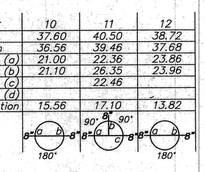
1. BACKFILL SHALL BE CLASS 'A'.
2. GRADING SHALL BE BY OTHERS, PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE ELEVATION OF THE GROUND WATER AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DEWATERING OR SOIL STABILIZATION (OTHER THAN USING SUBCUT GRAVEL) OF THE CONSTRUCTION SITE AS REQUIRED TO INSTALL THE PROPOSED UTILITIES.
4. THE STORM SEWER IS NOT PART OF THIS CONTRACT.
5. PROTECT ALL SURVEY MONUMENTS. MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. SEE SHEET 8 FOR EXTERIOR DROP DETAIL FOR MANHOLE NO. 11.
7. THE EXISTING CONTOURS ARE SHOWN ALONG LAKEWOOD DRIVE SE. THESE CONTOURS WILL REMAIN LIKE THIS THROUGH THE DURATION OF THIS PROJECT. THIS MATERIAL WILL BE MOVED BY OTHERS TO BUILD UP LAKEWOOD DRIVE AT THE COMPLETION OF THIS PROJECT.
8. MAINTAIN ACCESS ON JETTY BEACH ROAD AT ALL TIMES. DO NOT DISTURB.
9. REMOVE AND DISPOSE OF OFFSITE BARB WIRE FENCE ALONG LAKEWOOD DRIVE SE AS REQUIRED TO CONSTRUCT THE PROPOSED IMPROVEMENTS INCIDENTAL TO THE "8" SANITARY SEWER" BID ITEM.

Lot	Block	4" Sewer Service	4" 45° Bend	8" x 4" Wye Branch	Sewer Service Invert At The Cap	1" Copper Water Service Pipe	1" Water Service Connection	1" Ball Valve Curb Stop & 1 1/2" Box
20	1	43	1	1	28.00	--	--	--
19	1	43	1	1	28.00	--	--	--
14	1	43	1	1	28.00	--	--	--
1	4	--	--	--	--	10	1	1
TOTAL		129	3	3	--	10	1	1

APPROXIMATE WYE LOCATIONS

STATION	DIRECTION	LOT	BLOCK
FROM MANHOLE NO. 9 TO MANHOLE NO. 10			
2+49	N	20	1
FROM MANHOLE NO. 10 TO MANHOLE NO. 11			
0+42	N	19	1
FROM MANHOLE NO. 11 TO MANHOLE NO. 12			
1+80	N	14	1

Manhole Number		10	11	12
Casting Elev.		37.60	40.50	38.72
Top P.C. Section		36.56	39.46	37.68
Invert Elev.	(a)	21.00	22.36	23.86
Invert Elev.	(b)	21.10	26.35	23.96
Invert Elev.	(c)		22.46	
Invert Elev.	(d)			-
Length P.C. Section		15.56	17.10	13.82



APPROXIMATE QUANTITIES

San. Sewer Items	Quantity
8" Sanitary Sewer	1,106 LF
8" x 4" Wye Branch	3 EA
Subcut Gravel	520 TON
Concrete Manhole	2 EA
Concrete Drop Manhole	1 EA
4" Sewer Service Pipe	129 LF
4" 45° Bend	3 EA

Watermain Items	Quantity
6" PVC Watermain	41 LF
8" PVC Watermain	1,188 LF
6" Hydrant	5 EA
6" Gate Valve & Box	4 EA
8" Gate Valve & Box	3 EA
Ductile Iron Fittings	(incidental)
1" Water Copper Serv. Pipe	10 LF
1" Water Serv. Connection	1 EA
1" Ball Valve Curb Stop And 1 1/2" Box	1 EA

SWENSON, HAGEN & CO. P.C.
PLANNING CIVIL ENGINEERING SURVEYING
SITE DESIGN CONSTRUCTION MANAGEMENT
909 BASIN AVE P.O. BOX 1185 (701) 223-2600
BISMARCK, N.D. 58504 FAX (701) 223-2606
E-mail: shemp@swensonhagen.com

GREGORY J. FESER REGISTERED PROFESSIONAL ENGINEER PE 4680 NORTH DAKOTA

LAKEWOOD DRIVE SE

FROM THE WEST ADDITION LINE TO STA. 29+73.57

WATER AND SEWER IMPROVEMENT PROJECT 2002-15

SHEET NO. 6 OF 8

MANDAN, ND APRIL 25, 2003