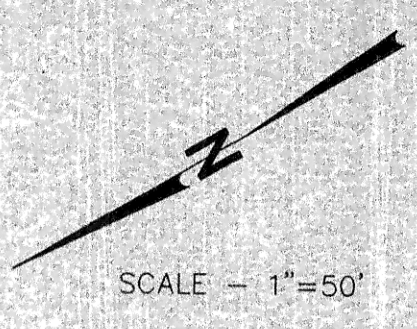


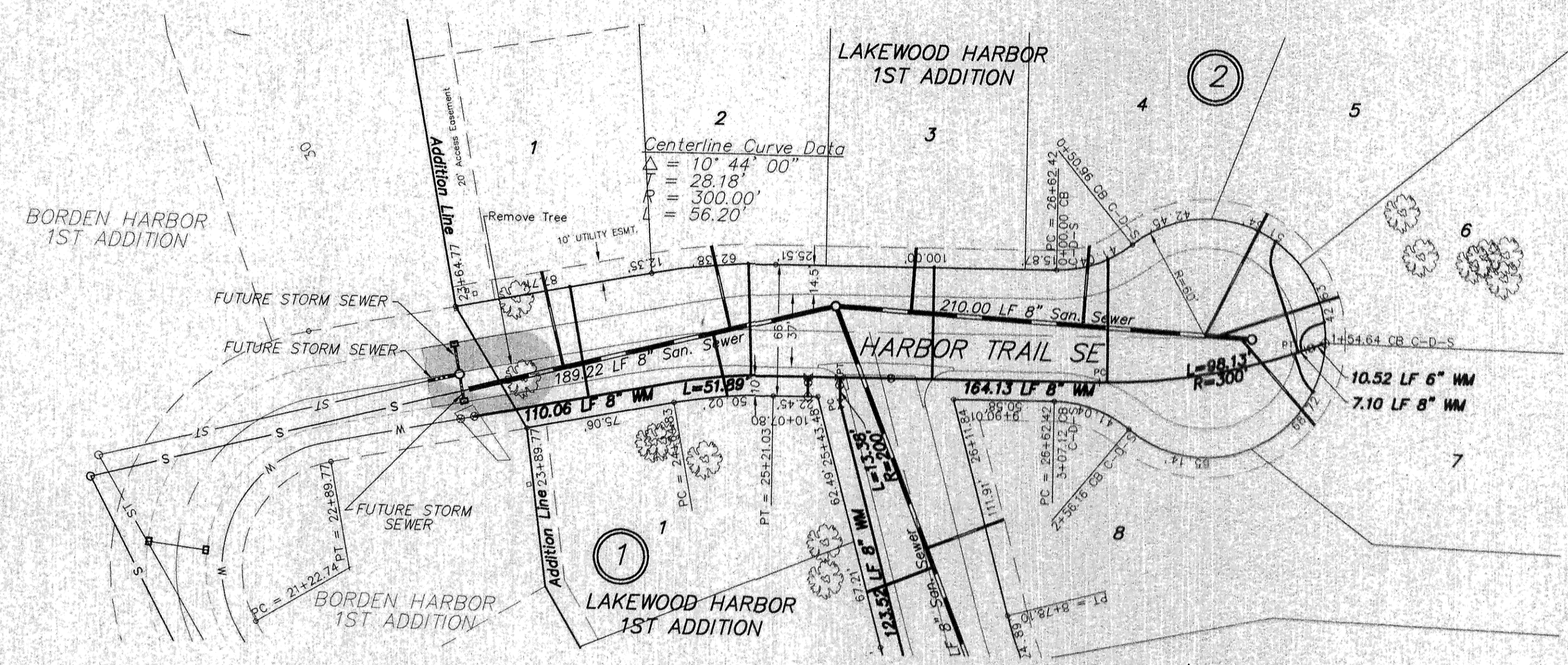
Sta. 21+97.29 50.69' Lt. Ex. Manhole
 Sta. 23+64.36 9.08' Rt. San. Sewer Sta. 1+95.61 Bk. Remove Cleanout/Connect
 Sta. 25+51.77 12.75' Lt. San. Sewer Sta. 0+00 Ahd. Manhole No. 7 Sta. 3+84.83 Bk.
 Sta. 27+61.38 2+10.00 Cl. San. Sewer Sta. 2+10.00 Bk. Manhole No. 9



APPROXIMATE WYE LOCATIONS			
STATION	DIRECTION	LOT	BLOCK
FROM EX. MANHOLE TO MANHOLE NO. 7			
2+43	SE	1	2
3+20	NW	1	1
3+30	SE	2	2
FROM MANHOLE NO. 7 TO MANHOLE NO. 9			
0+38	SE	3	2
1+24	SE	4	2
1+86	SE	5	2
1+92	S	6	2
2+05	SW	7	2

- CONSTRUCTION NOTES (THIS SHEET)**
- BACKFILL SHALL BE CLASS 'A'.
 - GRADING SHALL BE BY OTHERS, PRIOR TO CONSTRUCTION.
 - 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.
 - THE CONTRACTOR SHALL REMOVE AND DISPOSE OF OFFSITE THE EXISTING CLEANOUT AT STA. 23+64.36 AND CONNECT TO THE EXISTING SANITARY SEWER LINE. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "8" SANITARY SEWER" BID ITEM.
 - THE CONTRACTOR SHALL REMOVE AND DISPOSE OF OFFSITE ALL ASPHALT PAVEMENT AS REQUIRED TO MAKE THE CONNECTIONS TO THE EXISTING UTILITIES. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE "REMOVE PAVEMENT" BID ITEM.
 - RECORD DRAWINGS FOR BORDEN HARBOR 1ST ADD. SHOW A GATE VALVE AT APPROXIMATELY STA. 23+55. HOWEVER, THIS HAS NOT BEEN VERIFIED IN THE FIELD. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE CLOSEST GATE VALVE PRIOR TO SALVAGING THE HYDRANT AND TURNING OFF THE WATER IN BORDEN HARBOR 1ST ADD. IF THE CONTRACTOR LOCATES A GATE VALVE CLOSE TO THE HYDRANT AT STA. 23+64.77 THAT IS TO BE SALVAGED, A NEW GATE VALVE SHOULD NOT BE INSTALLED AT THE CONNECTION POINT.
 - THE CONTRACTOR SHALL SALVAGE THE 6" HYDRANT FROM STA. 23+64.77 ON THE EAST END OF HARBOR TRAIL SE AND RESET IT AT STA. 11+44.48 BORDEN HARBOR DRIVE SE AS REQUIRED. ALL WORK AND MATERIALS REQUIRED TO SALVAGE AND RESET HYDRANT SHALL BE CONSIDERED INCIDENTAL TO THE "RESET HYDRANT" BID ITEM LISTED ON SHEET 2 OF THESE PLANS.
 - THE STORM SEWER IS NOT PART OF THIS PROJECT.
 - THE HYDRANT AT STA. 27+98.23 SHALL HAVE A 9.0' BURY DEPTH.
 - EXERCISE CAUTION WHEN CROSSING THE SEWER SERVICES WITH THE WATERMAIN OR CROSSING THE WATERMAIN WITH THE SEWER SERVICES.

Lot	Block	4" Sewer Service	4" x 45' Bend	4" x 22 1/2' Bend	8" x 4" Wye Branch	1" Copper Water Serv. Connection	1" Water Service Pipe	1" Ball Valve & 1 1/4" Box
1	2	49	1	1	30.41	56	1	1
1	1	32	1	1	32.20	---	---	---
2	2	43	1	1	30.68	56	1	1
3	2	33	1	1	30.98	56	1	1
4	2	41	1	1	31.42	62	1	1
5	2	69	---	1	32.02	58	1	1
6	2	65	---	1	32.00	21	1	1
7	2	57	---	1	31.95	22	1	1
TOTAL		389	5	8	NA	331	7	7



Begin Watermain Quantities
 Sta. 23+64.77
 Begin San. Sewer Quantities
 Sta. 23+64.36

Sta. 23+64.77
 Salvage Hydrant
 Connect
 8" Gate Valve & Box

Sta. 25+38.48
 8" x 6" Tee
 3.00 LF 6" WM
 6" Gate Valve & Box
 7.00 LF 6" WM
 6" Hydrant

Sta. 25+54.30
 8" x 8" Tee

Sta. 25+80.14
 8" Gate Valve & Box

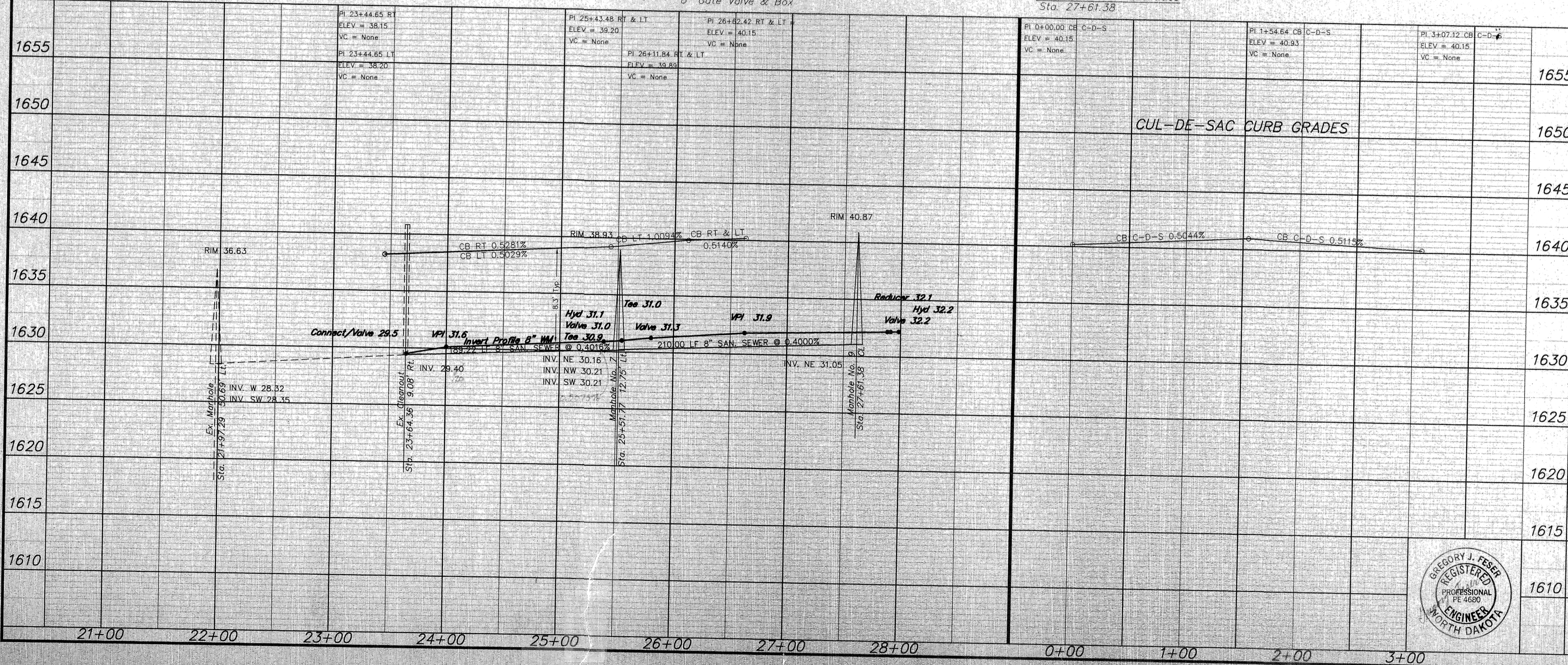
Sta. 27+88.27 4.81' Rt.
 8" x 6" Reducer

Sta. 27+91.11 3.85' Rt.
 6" Gate Valve & Box

Sta. 27+98.23 1.43' Rt.
 6" Hydrant

End Watermain Quantities
 Sta. 27+98.23
 End San. Sewer Quantities
 Sta. 27+61.38

Manhole Number	9
Casting Elev.	40.87
Top P.C. Section	39.87
Invert Elev. (a)	31.05
Invert Elev. (b)	
Invert Elev. (c)	
Length P.C. Section	8.82'



APPROXIMATE QUANTITIES

San. Sewer Items	Quantity
8" Sanitary Sewer	399 LF
8" x 4" Wye Branch	8 EA
Pitrun Gravel	5 TON
Subcut Gravel	5 TON
Concrete Manhole	1 EA
4" Sewer Service Pipe	389 LF
4" 45' Bend	5 EA
4" 22 1/2' Bend	2 EA
Remove Tree	1 EA
Remove Pavement	1 LS
Watermain Items	Quantity
Pitrun Gravel	5 TON
6" PVC Watermain	21 LF
8" PVC Watermain	431 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	331 LF
1" Water Serv. Connection	7 EA
1" Ball Valve Curb Stop And 1 1/4" Box	7 EA

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 E-mail: shagen@swensonhagen.com



HARBOR TRAIL SE
 FROM THE NORTH ADDITION LINE OF LAKWOOD HARBOR 1ST ADDITION SOUTH TO THE CUL-DE-SAC
 WATER AND SEWER IMPROVEMENT PROJECT 2002-04
 SHEET NO. 5 OF 5
 MANDAN, ND MAY 5, 2002