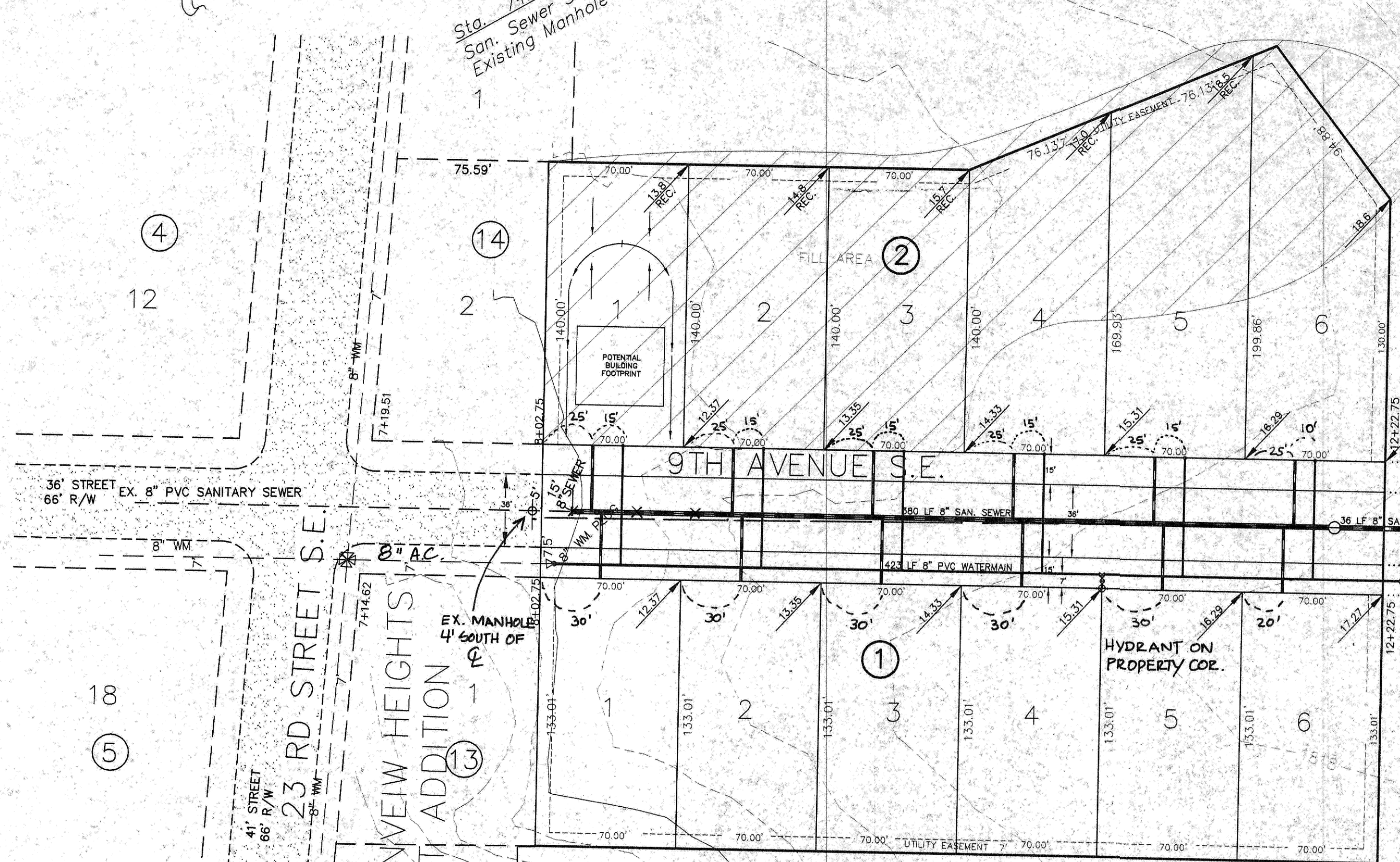
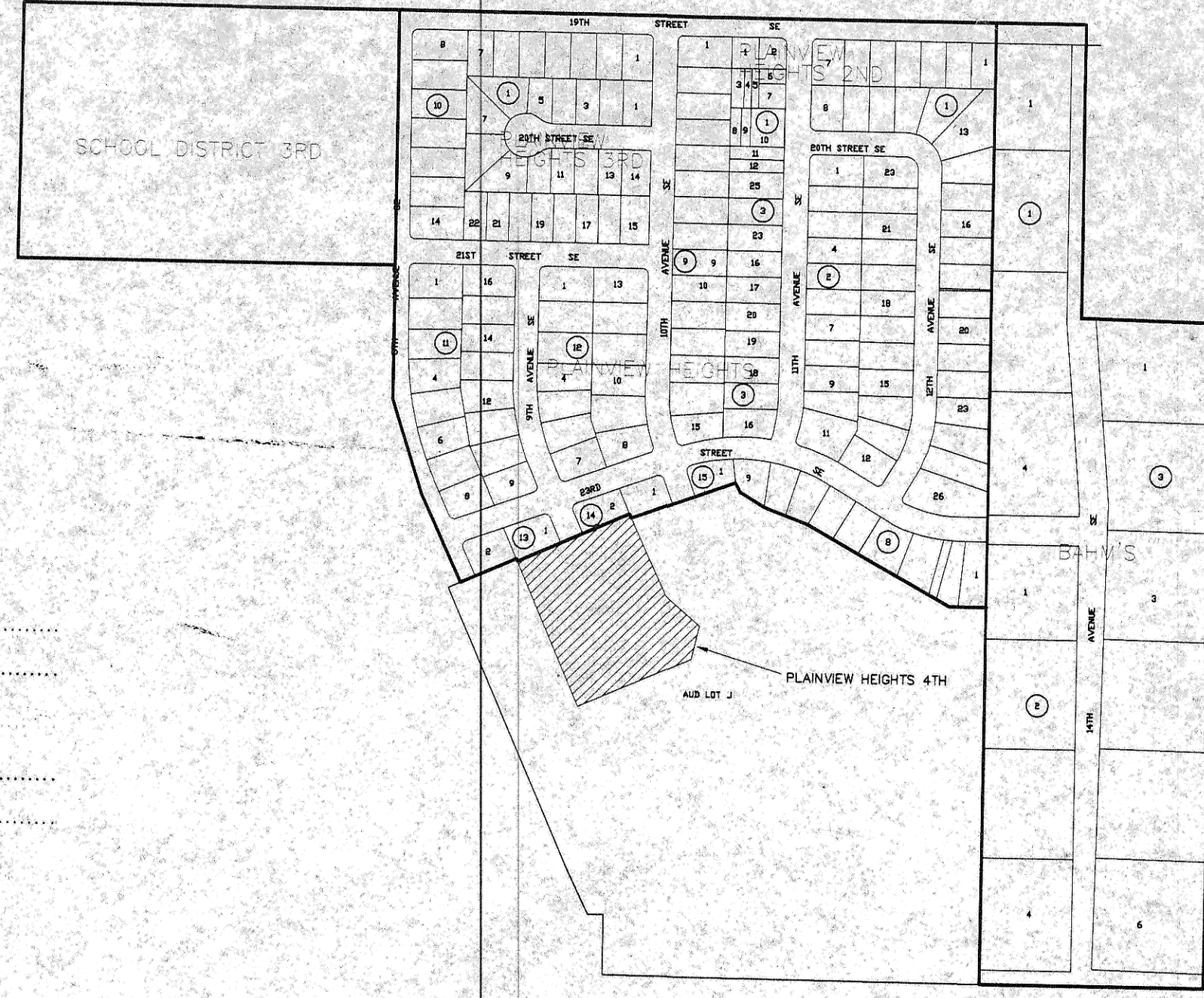


1"=50'

12  
18  
5



AREA MAP

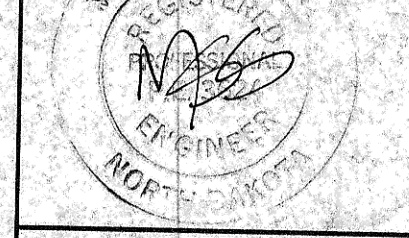


CONSTRUCTION NOTES

- Grading shall be done by others prior to construction. Flags located on the right of way indicate actual final finish right of way elevations. Flags on the rear of lots 1-6 Block 2 indicate recommended back of lot elevations. It is recommended that cut from the street, basements, and possibly other sources be used to bring the fill area to these grades.
- Backfill shall be Class "A"
- Assuming that no grout breakout is necessary, adjust the existing sanitary sewer stub to the new grade. Adjustment of existing stub, assuming no grout breakout, shall be considered incidental to other bid items. If the stub cannot be adjusted to the new grade, break out the grout in the existing manhole to adjust stub to new grade. Regrout the adjusted stub. If grout breakout is necessary, relaying the existing stub shall be paid by the linear foot under the 8" sanitary sewer bid item.
- Install curb stops on property line.
- Connection to existing water & sewer mains shall be considered incidental to other bid items.
- Six inch watermain (3 LF) shall be considered incidental to the "Six Inch Hydrant" bid item.

ENGINEER'S CERTIFICATE

I, MARK S. SWENSON, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE PLANS FOR SEWER AND WATER IMPROVEMENT PROJECT 98-15 MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.



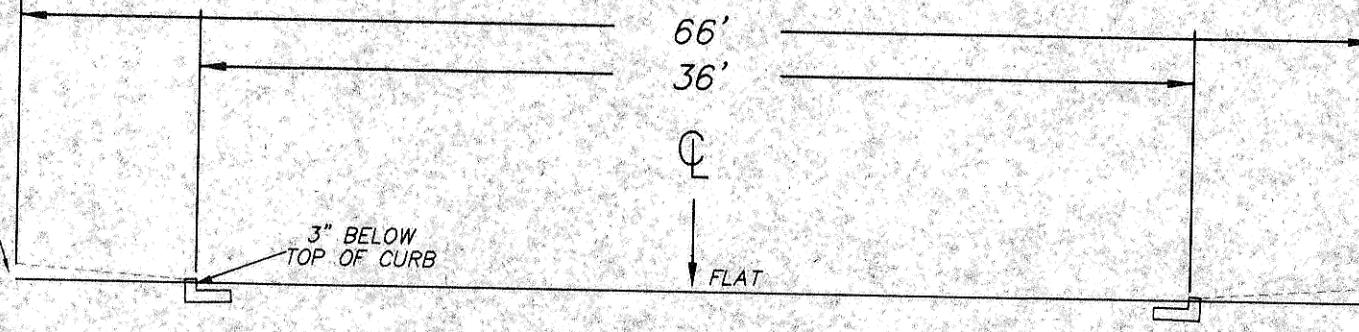
Mark S. Swenson  
REGISTERED PROFESSIONAL ENGINEER  
NORTH DAKOTA REGISTRATION NO. 3624

APPROVAL OF CITY ENGINEER

I, TOM LITTLE, CITY ENGINEER FOR THE CITY OF MANDAN, NORTH DAKOTA, HEREBY APPROVE THIS PLAN FOR SEWER AND WATER IMPROVEMENT PROJECT 98-15 MANDAN, NORTH DAKOTA, AS SHOWN.

Tom Little  
REGISTERED PROFESSIONAL ENGINEER  
CITY ENGINEER  
MANDAN, NORTH DAKOTA

GRADED SECTION AT TIME OF CONSTRUCTION



APPROXIMATE WYE LOCATIONS

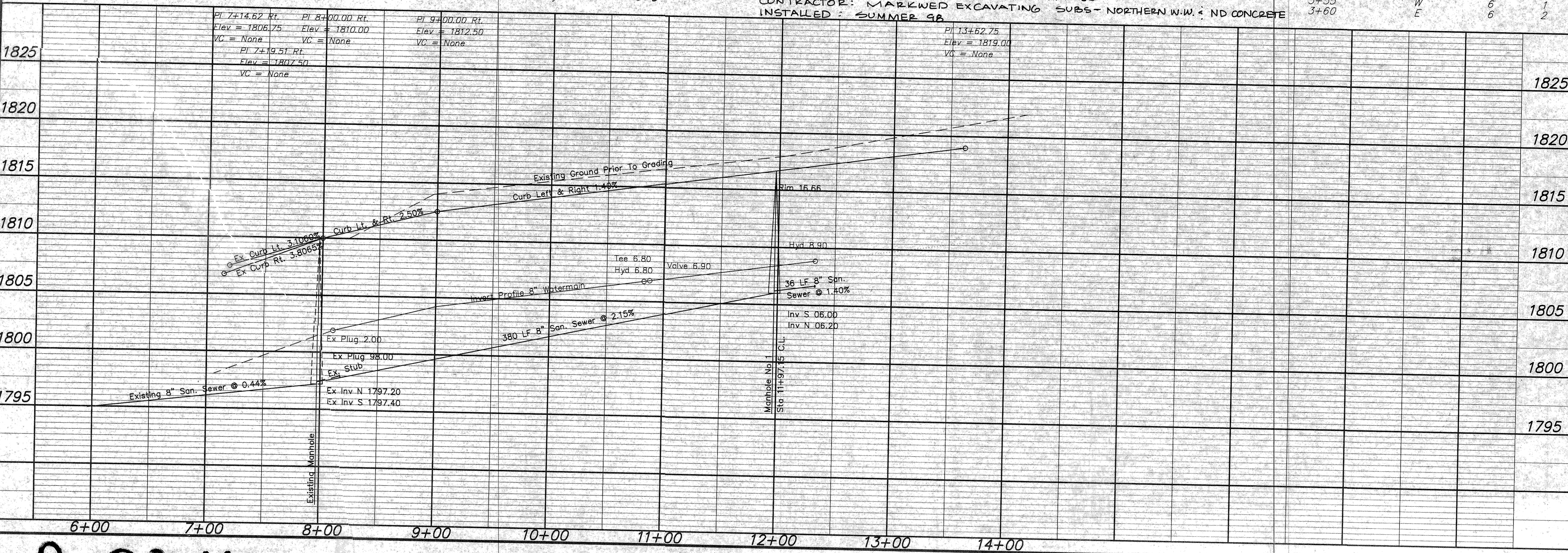
STATION	DIRECTION	LOT	BLOCK
0+00 at 20' South Of Existing Manhole			
0+10	E	1	2
0+15	W	1	1
0+80	E	2	1
0+85	W	2	2
1+50	E	3	2
1+55	W	3	1
2+20	E	4	2
2+25	W	4	1
2+90	E	5	2
2+95	W	5	1
3+55	W	6	1
3+60	E	6	2

Sta. 10+82.75  
8" x 6" Tee  
3.5 LF 6" WM  
8" Gate Valve & Box AFC  
Remove Plug - COUPLING  
8" Gate Valve & Box AFC  
6" Hydrant - WATERDUS

Sta. 12+32.75  
6" Hydrant - WATERDUS

WATERMAIN - JM AWWA C900 CL150  
SAN. SEWER - NORTHERN ASTM 3034 D SDR 35  
CONTRACTOR: MARKWED EXCAVATING SUBS - NORTHERN W.W. & ND CONCRETE  
INSTALLED: SUMMER 98

PI 7+14.62 RL Elev = 1806.75 VC = None	PI 8+00.00 RL Elev = 1810.00 VC = None	PI 9+00.00 RL Elev = 1812.50 VC = None	PI 13+62.75 Elev = 1819.00 VC = None
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APPROXIMATE QUANTITIES

San. Sewer Items	Quantity
8" San. Sewer	416 LF
Pitrun Gravel - IMPORTED	65 TON
Concrete Manhole	1 EA
4" Sewer Service Pipe	396 LF
8" x 4" Wye Branch	12 EA
4" 45° Bend	12 EA
Rock Excavation	10 CY

Watermain Items	Quantity
Pitrun Gravel - IMPORTED	155 TON
8" PVC Watermain	423 LF
6" Hydrant	1 EA
8" Hydrant	1 EA
8" Gate Valve & Box	2 EA
Ductile Iron Fittings (incidental)	
1" Water Copper Serv. Pipe	354 LF
1" Water Serv. Connection	6 EA
1" Ball Valve Curb Stop	6 EA
And 1 1/4" Box	
Rock Excavation	15 CY

SWENSON, HAGEN & CO. P.C.  
PLANNING CIVIL ENGINEERING SURVEYING  
SITE DESIGN CONSTRUCTION MANAGEMENT  
908 BASIN AVE P.O. BOX 1185 (701) 823-2800  
BISMARCK, N.D. 58504 FAX (701) 823-2806

PLAINVIEW HEIGHTS  
FOURTH ADDITION  
9TH AVE SE

SEWER & WATER IMPROVEMENT PROJECT NO. 98-15  
SHEET NO. 1 OF 1 SHEETS  
MANDAN, ND JULY 27, 1998

P 98-15

RECORD DRAWING 11-18-98