GARDEN OAKS

LOTS 1 THRU 147 INCLUSIVE & OUTLOTS "A" THRU "D"

SANITARY SEWER - SECTION I

Located in the SE 1/4 of Section 17, Township 14, Range 11, of the 6th P.M.

SID NO. 313

SARPY COUNTY COUNTY, NEBRASKA

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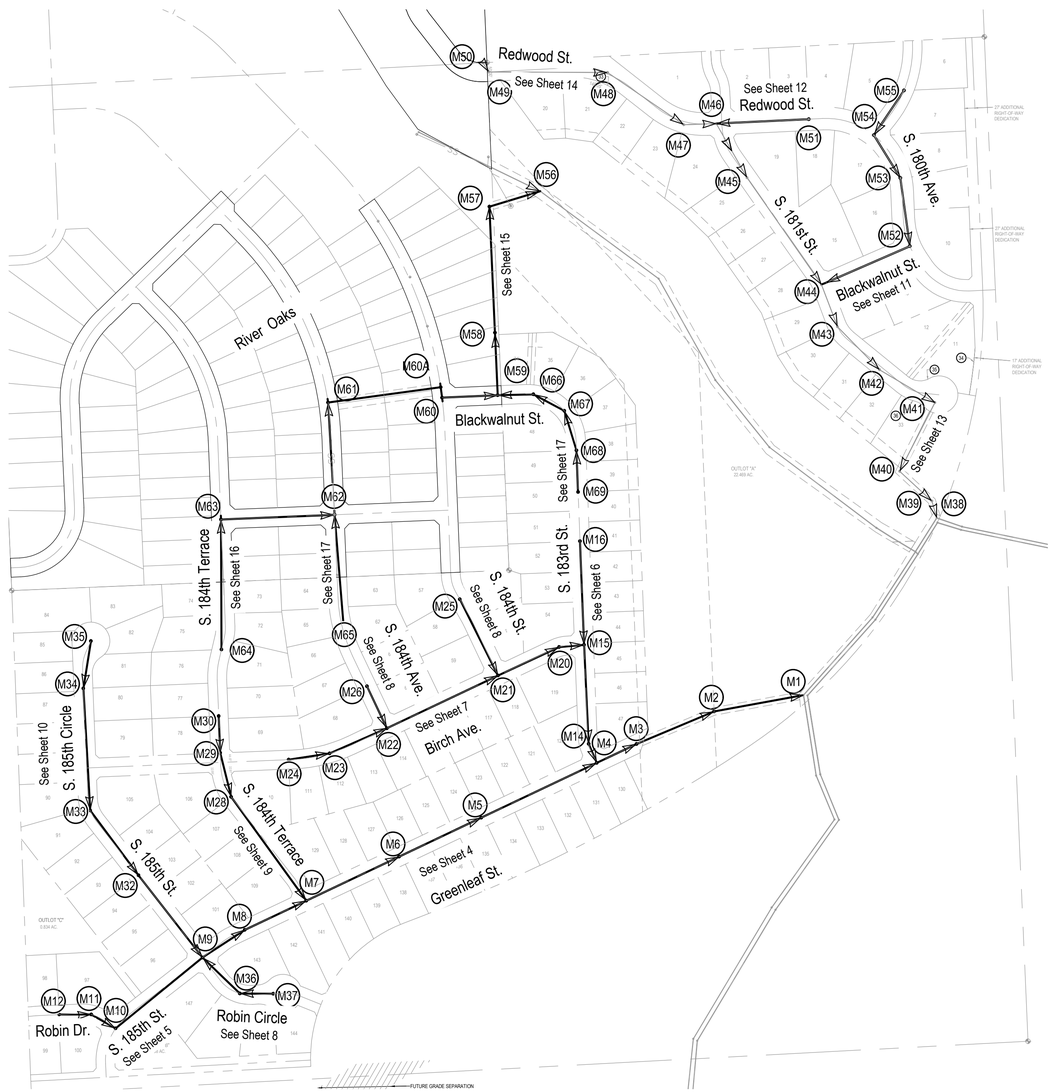
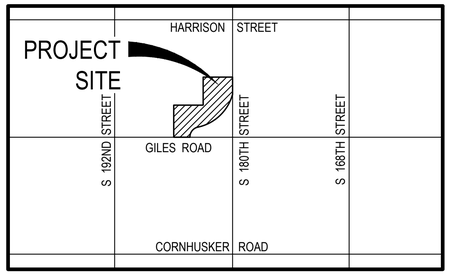
APPROXIMATE BID QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
1	CONSTRUCT 8" PVC SANITARY SEWER PIPE	9,425 ~~9,690~~	LF
2	CONSTRUCT 6" PVC SANITARY SEWER PIPE	5,440 ~~5,020~~	LF
3	CONSTRUCT 54" I.D. SANITARY MAHOLE (48)	630	VF
4	TAP EXISTING MANHOLE	2	EA
5	CONNECT TO EXISTING SANITARY SEWER	2	EA
6	CONSTRUCT CONCRETE MANHOLE RING RETAINER	0 ~~3~~	EA
7	CONSTRUCT 8" DIAMETER DROP CONNECTION (3)	22	VF
8	CONSTRUCT 6" PVC SANITARY SEWER SERVICE RISER	68	VF
9	REMOVE 8" SANITARY SEWER PIPE	20	LF
10	ADJUST MANHOLE TO GRADE	35.5 ~~38~~	VF
EXTRAS			
A	CONSTRUCT SADDLE WYE CONNECTION	2	EA
B	REPAIR DAMAGED MANHOLE	1	EA
C	ADDITIONAL AIR TESTING REQD. BY ENGINEER	1	LS
D	ADDITIONAL MOBILIZATION	1	LS

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	COVER
2	NOTES
3	DETAILS
4	GREENLEAF STREET SANITARY SEWER PLAN & PROFILE
5	185TH & GREENLEAF STREET SANITARY SEWER PLAN & PROFILE
6	SOUTH 183rd STREET SANITARY SEWER PLAN & PROFILE
7	BIRCH AVENUE SANITARY SEWER PLAN & PROFILE
8	S 184th ST & S 184th AVE & ROBIN CIRCLE SAN SEWER PLAN & PROFILE
9	S 184th TERRACE SANITARY SEWER PLAN & PROFILE
10	S 185th ST & S 185th CIRCLE SANITARY SEWER PLAN & PROFILE
11	S 180TH AVE & BLACKWALNUT ST SANITARY SEWER PLAN & PROFILE
12	REDWOOD ST SANITARY SEWER PLAN & PROFILE
13	S 181st ST SANITARY SEWER PLAN & PROFILE
14	REDWOOD ST & S 181st ST SANITARY SEWER PLAN & PROFILE
15	S 184TH TERRACE (RIVER OAKS) SANITARY SEWER PLAN & PROFILE
16	S 184TH TERRACE (RIVER OAKS) SANITARY SEWER PLAN & PROFILE
17	BLACKWALNUT ST & S 184TH AVE (RIVER OAKS) SS PLAN & PROFILE





VICINITY MAP

200 0 200
1 inch = 200 ft.

RECORD DRAWINGS

THESE PLANS HAVE BEEN REVISED TO CONFORM TO CONSTRUCTION RECORDS

REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

E & A CONSULTING GROUP, INC.

PROJECT INFORMATION

Project Number Assigned by PWD	Grading Permit Project Number Assigned by PWD	SID Number	Estimated Start Date	Estimated Completion Date
	SAR-20160414-3523-GP1	313	9/1/2016	5/1/2017

Project Name	Subdivision Name
Garden Oaks (Lots 1-147 & OL 'A'-'D')	Garden Oaks

Address	City	State	Zip Code
S 180TH & Giles Road	Sarpy County	NE	68136

City Council Resolution Number Granting Project Approval	City Council Ordinance Number Granting Project Approval	City Council Resolution/Ordinance Approval Date

PROJECT DESCRIPTION

Sanitary Sewer System

APPLICANT
MWSD,LLC
Tom Falcone
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tfalcone300@hotmail.com

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INSPECTOR
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CONTRACTOR
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E & A CONSULTING GROUP, INC.
Engineering Answers

GARDEN OAKS
LOTS 1 THRU 147 INCLUSIVE & OUTLOTS "A" THRU "D"
SARPY COUNTY, NEBRASKA

COVER

PROFESSIONAL CIVIL ENGINEER
JAMIE L. WINTERSTEIN
NEBRASKA
6/19/2018

No.	Date	Revisions Description
0	6/19/2018	As-Built

Proj No: P2015.497.001
Date: 10/20/2016
Designed By: JLW
Drawn By: JJN
Scale: SEE PLAN
Sheet: 1 of 17

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GENERAL CONSTRUCTION NOTES

1. The time limit to complete all work shall be Fifty (50) working days.

2. All project procedures, materials, bonds and reserves shall conform to the City of Omaha Specifications for Public Works Construction 2014, Third Edition, and any additions thereto. It will be the responsibility of the CONTRACTOR to be aware of the contents of the aforementioned specifications. The aforementioned publication can be found at http://www.cityofomaha.org/pw/index.php/standard-specifications

3. Barricades shall conform to Omaha Public Works "Barricading Standards, Specifications, Methods & Materials", and/or the "Manual on Uniform Traffic Control Devices", and any additions thereto. The aforementioned publications can be found at http://cityofomaha.org/pwredo/images/stories/pdfs/City%20of%20Omaha%20Barricading%20Standards.pdf

4. The INSPECTOR must assure the CONTRACTOR adheres to and meets all construction specifications & plans; maintenance, safety, workmanship, & testing requirements; and applicable regulatory compliance issues.

5. Approval must be obtained from the Sarpy County Engineer for all applicable public improvements prior to the commencement of construction. The CONTRACTOR shall check with the INSPECTOR for Sarpy County Public Works approval of the project before starting work.

6. The CONTRACTOR and INSPECTOR must assure all impacted government agencies (Sarpy County, State of Nebraska, Corps of Engineers, Papio-Missouri River Natural Resource District, United States Federal Government, etc.) have granted all applicable permission to proceed with construction prior to mobilization. Furthermore, 48 hours prior to the commencement of construction, the INSPECTOR must notify all concerned parties that work will be proceeding within each impacted government agency jurisdictional boundary.

7. Construction found to be unacceptable to the Sarpy County Public Works Department shall be removed and replaced at the CONTRACTORS expense.

8. The INSPECTOR must notify the following Sarpy County Public Works Department personnel 48 hours prior to all preconstruction meetings and 48 hours prior to the start of any construction: Bill Herr (Phone: 402-537-6909; email: HerrB@sarpy.com)

9. The INSPECTOR must submit weekly progress reports to the following City of Omaha Public Works Department employee no later than the following week ending date: Brian Becker (Phone: 402-537-6909; email: HerrB@sarpy.com)

10. The INSPECTOR must notify the following City of Omaha Public Works Department personnel 48 hours prior to lane closures and 24 hours prior to lane restrictions: Bill Herr Becker (Phone: 402-537-6909; email: HerrB@sarpy.com)

11. All operations conducted on the premises, including the warming-up, repair, arrival, departure, or running of trucks, earthmoving equipment, construction equipment, and any other associated equipment shall be limited to the period between 7:00 A.M. and 6:00 P.M. Monday thru Friday; and, no earthmoving or grading operations shall be conducted on the premises on Saturdays or Sundays or legal holidays, unless waived by the INSPECTOR and Sarpy County Public Works Department.

12. The CONTRACTOR shall notify all impacted utility companies via One Call (dial 811 or 800-331-5666), 48 hours before work is started to verify utility locations.

13. The existence and location of any overhead or underground utility lines, pipes, or structures shown on these plans are obtained by a research of the available records. Existing utilities are approximate and for record purposes. Existing utilities are located on plans only for the convenience of the CONTRACTOR. Existing utility service laterals may not be shown on the plans. The CONTRACTOR shall locate all underground and overhead interference's which may affect his operation during construction and shall take all necessary precautions to avoid damage to same.

14. The CONTRACTOR shall take all precautionary measures necessary to protect existing utility lines, structures and street improvements which are to remain in place, from damage, and all such improvements or structures damaged by the CONTRACTOR'S operations shall be repaired or replaced satisfactory to the INSPECTOR and owning utility company at the expense of the CONTRACTOR.

15. All construction shall be as shown on these plans. Any revisions shall have the prior written approval of the DESIGNER and Sarpy County Public Works Department.

16. Construction may require the disturbance of existing drainage and erosion control measures. The CONTRACTOR shall make himself aware of the existing drainage and erosion control measures prior to bidding this work. A copy of the Grading and Erosion Control Plan SAR-20160414-3523-GP1 is available for review at the office of the DESIGNER and INSPECTOR. The function of these items must be maintained throughout construction with emphasis placed on restoring their integrity prior to any rainfall event. Erosion control improvements have been constructed on this site, including terraces, silt fencing, and temporary sediment basins. The CONTRACTOR shall be responsible for prompt reconstruction of any erosion control improvements disturbed by his operations. All disturbed erosion control improvements shall be fully reconstructed at the end of each working day prior to leaving the site.

17. Elevations are referenced to U.S.G.S. Datum.

18. CONTRACTOR shall adjust all new and existing inlets, valve boxes, manhole rims, and sewer clean outs, etc. to finish grade as applicable whether or not they are shown on the plans.

19. The CONTRACTOR must adhere to good housekeeping best management practices at all times. Good housekeeping best management practices focus on keeping the work site clean and orderly while handling materials and waste in a manner that eliminates the potential for pollutant runoff.

GENERAL CONSTRUCTION NOTES

20. The construction documents (e.g., Contract, Bond, Insurance, Specifications, and Plans) are essential and a requirement in one part is as binding as though occurring in all. Thus, the construction documents are complementary in nature. The documents describe and provide the complete construction project. The CONTRACTOR may not take advantage of any apparent construction project errors or omissions. The CONTRACTOR shall notify the INSPECTOR promptly of any omissions or errors. In the case of a discrepancy between parts of the construction documents, the most stringent construction methodology shall rule.

21. The Contractor shall be responsible for coordinating their work with the Engineer in requesting line stakes and grades. The Owner will not be responsible for delays due to lack of grades or line stakes.

22. The Contractor shall be charged for replacing construction stakes and lot pins which are destroyed by his operations.

23. The Contractor is hereby referred to Subsection 4.07 of the Standard Specifications relative to cleaning of the work area. The final estimate will not be processed until the Contractor has satisfactorily cleaned and flushed the pavement slab of all rubbish, excess material, mud and debris, and all parts of the work area have been left in a neat and presentable manner. All disturbed right-of-way areas shall be restored to a level and smooth section prior to acceptance of the work.

24. The Contractor shall place silt fence as shown and as directed by the Engineer to prevent sediment from leaving the construction site.

25. Contractor is referred to the following City of Omaha Standard Plates:

ITEMS	STANDARD PLATE	REVISION DATE
Sewer Bedding Detail	700-01	12/10/2013
Cast Iron Manhole Rings, Covers, Manhole Steps	700-90 (1& 2)	12/10/2013
Manhole Detail	700-45	06/18/2014
Manhole Ring Retainer	700-45	06/18/2014
Typical Riser Detail	700-45	12/10/2013

Standard Plates are available from the City of Omaha Public Works Department, 1819 Farnam St.,Suite 600, Omaha NE. 68183, PH 402.444.5220. Plates may also be downloaded via the Internet from the City of Omaha Web Site at: http://www.cityofomaha.org/pw/index.php/contractors-consultants2/contractors

26. Service line max slope shall be 12%. Mainline sewers deeper than 16' deep require service risers.

SANITARY SEWER CONSTRUCTION NOTES

1. All project procedures, materials, bonds and reserves shall conform to the City of Omaha Specifications for Public Works Construction 2014, and any additions thereto. The aforementioned publication can be found at: http://www.cityofomaha.org/pw/index.php/contractors-consultants2/contractors/standard-plates-curb-ramps-and-specification

2. The sanitary sewer system (pipe, manholes, special structures, service lateral, etc.) must be placed, compacted, and backfilled in accordance with City of Omaha Specifications for Public Works Construction.

3. The INSPECTOR is required to be on site at all times during construction of the sanitary sewer. The CONTRACTOR shall give the INSPECTOR at least 48 hours notice prior to beginning work at the start of construction or after an interval of not working on the sanitary sewer.

4. The slope on 6" & 8" sanitary sewer service stubs shall be between 1/4" per foot and 3/8" per foot Unless Noted Otherwise.

5. Solid cast iron covers shall be used on all sanitary sewer manholes.

6. The INSPECTOR must assure all sanitary lines, manholes and service laterals are cleaned of debris (leaves, stone, dirt, construction material, etc.) prior to the APPLICANT taking ownership.

7. No sanitary sewer service connections to any building shall be permitted prior to final acceptance by the Sarpy County Public Works Department, Bill Herr (Phone: 402.537.6909; Email: HerrB@sarpy.com), which shall include approved rectification of all punch list items and the submittal of mylar as-built drawings.

8. Concrete for manholes and pipe shall be L65M using either Type II Portland cement or Type I Portland cement if modified to require that the tricalcium aluminate content shall not exceed eight percent (8%). The cement for manhole grout shall be the same as that for manhole concrete.

9. The sanitary sewer pipe may be VCP, PVC (Solid Wall) or DIP. The 6 inch pipe shall be VCP, PVC (solid wall, SDR 23.5), or DIP. Solid wall PVC pipe and fittings having an inside diameter 8" or greater shall be in accordance with SDR35. Solid wall PVC pipe and fittings 18" and greater shall be in accordance with ASTM F679, Std. Spec. for Large Diameter Plastic Gravity Sewer Pipe and Fittings.

10. Six inch & Eight inch sewer stubs shall be installed from the main sewer to the locations shown on the plans and properly marked in accordance with the specifications. The slope of the sewer stubs shall be a minimum of 2 percent, and in no case shall the stub depth at the property line be less than 10 feet unless otherwise approved by the Engineer. All wyes and stubs shall be placed as directed by the Engineer. Service line max slope shall be 12%. Mainline sewers deeper than 16' deep require service risers.

11. The Contractor shall be required to perform a low pressure air leakage test for all Sanitary Sewer Pipe per Section 703.04 of the City of Omaha Standard Specifications and ASTM F-1417, Low Pressure Air Testing. Use 0.5 psi drop test. Test equipment to have 0-15 psi maximum pressure gauge with minimum divisions of 0.10 psi up to a maximum of 0.25 psi divisions and an accuracy of +- 0.04 psi. Test times are provided in the table below per diameter and length.

MINIMUM SPECIFIED TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

1 Pipe Diameter (in.)	2 Minimum Time (min: sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	Specificatation Time for Length (L) Shown (min: sec)							
				100 Ft	150 Ft	200 Ft	250 Ft	300 Ft	350 Ft	400 Ft	450 Ft
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9.55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	1:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:32	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	19:54	57	20.942 L	34.54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	22:47	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09
54	25:31	44	34.618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47	259:38
60	28:20	40	42.738 L	71:14	106:51	142:28	178:05	213:41	249:18	284:55	320:32

Note: If there has beem no leakage (zero psig drop) after one hour of testing, the test section shal be accepted and the test complete. (See Section 7.5.)

12. Deflection tests shall be performed on all flexible pipe installations in accordance with Section 703.04 of the City of Omaha Standard Specifications and State of Nebraska Title 123.

13. All sewer pipe 8 inch internal diameter and larger installed under this project shall be inspected by T.V. camera by an independent sewer inspection service. The T.V. inspection will be paid for by the Owner. Video shall be compatible DVD format.

14. The contractor shall use caution in placing the backfill around and above the pipe to prevent disturbance of the joints or pipe alignment. No rock or stone larger than six (6) inches shall be placed within three (3) feet of the top of the pipe. A minimum four (4) feet of compacted cover above the top of the pipe shall be provided before the use of wheel mounted mechanical tampers (free drop hammers), hydraulic ram tampers or other heavy tamping equipment will be permitted.

15. Manholes shall be installed in accordance with Section 703 of the City of Omaha Standard Specifications including, but not limited to, frame seal installation and infiltration testing.

16. Welded steel pipe encasement shall have a smooth interior wall with minimum thickness of 3/16". Manufactured casing spacers, skids and end seal caps shall be considered subsidiary to Line Items 13 and 14.

17. All work shall conform to Title 123 - Rules and Regulations for the Design, Operation, and Maintenance of Wastewater Works.

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RECORD DRAWINGS

THESE PLANS HAVE BEEN REVISED TO CONFORM TO CONSTRUCTION RECORDS

REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

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LOTS 1 THRU 147 INCLUSIVE &
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SARPY COUNTY, NEBRASKA

NOTES

PROFESSIONAL CIVIL ENGINEER
JAMIE L. WINTERSTEIN
E-11387
STATE OF NEBRASKA
ORIGINALLY APPROVED ON 01/31/2017

Revisions		
No.	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
Designed By:	JLW
Drawn By:	JJN
Scale:	SEE PLAN
Sheet:	2 of 17

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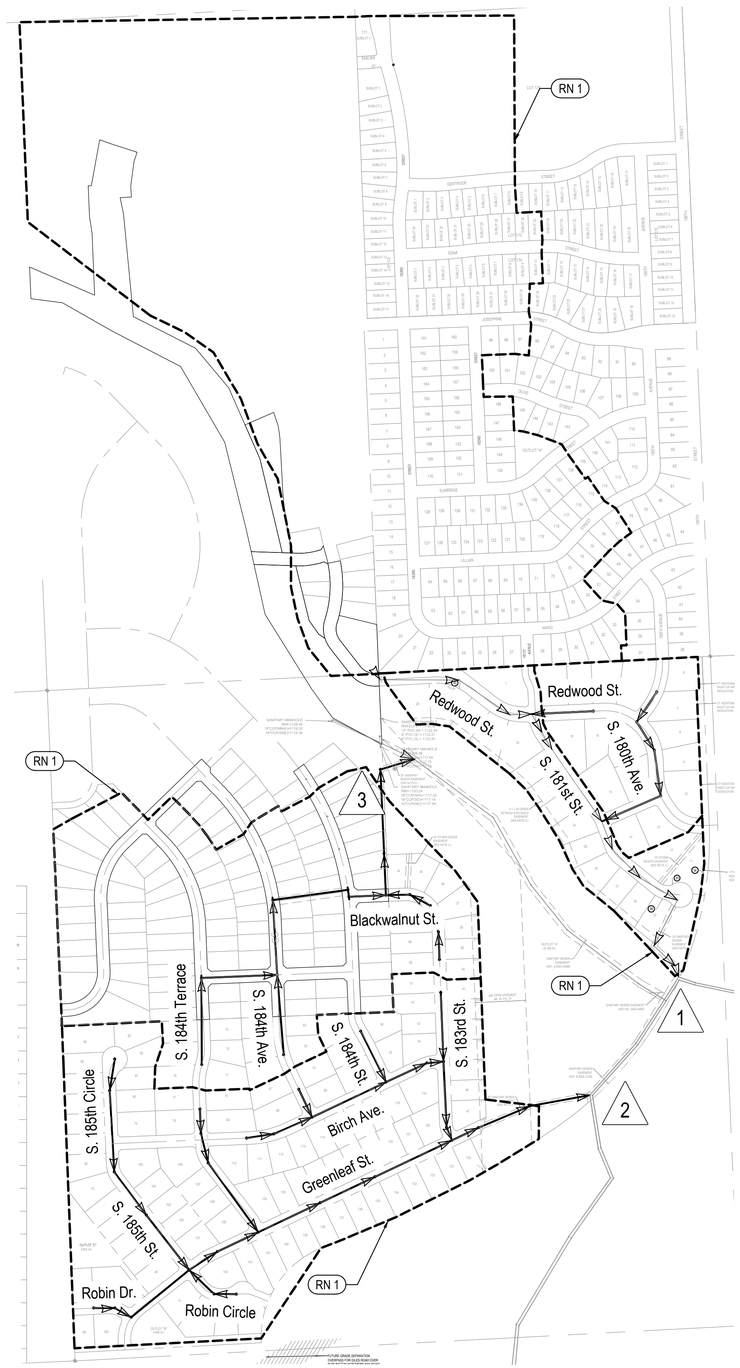
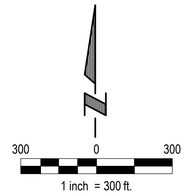


BASIN MAP



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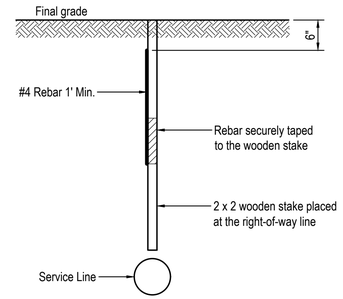
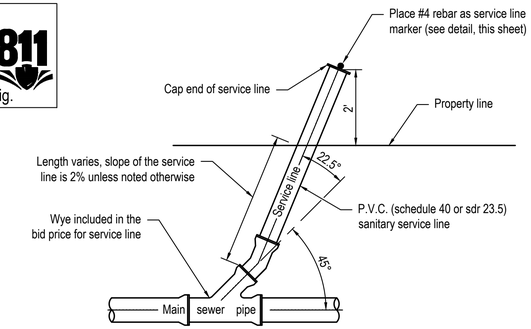


(Cost of Service Line Marker Is Subsidiary to Service Line)

SERVICE LINE MARKER

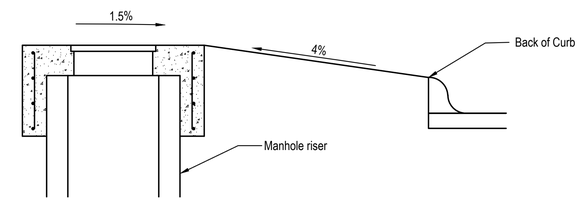
NOT TO SCALE



NOTE:
Wye stations determined from above fittings

SANITARY SERVICE WYE DETAIL

NOT TO SCALE



REINFORCED CONCRETE RING RETAINER

NOT TO SCALE

NO **REFERENCE NOTES**

RN 1 Drainage Boundary

DESIGN ASSUMPTIONS

Manning "n" - 0.013	
Aggregate Baseline Average Flow - 100 GPCD	Ref. Table 1-1 City of Omaha Sanitary Interceptor Sewer Element
Single Family Units Per Acre (Undeveloped Areas) - 4.26	Ref. Table 3-6 City of Omaha Sanitary Interceptor Sewer Element
Multi Family Units Per Acre (Undeveloped Areas) - 15.37	Ref. Table 3-6 City of Omaha Sanitary Interceptor Sewer Element
Capita per Unit - 2.58 SF, 1.76 MF	Ref. Table 3-5 City of Omaha Sanitary Interceptor Sewer Element
Commercial / Industrial Density - 100 people per 3.6 acres	Ref. Section 3.4 City of Omaha Sanitary Interceptor Sewer Element
Peaking Factor = 4.5 - 0.5* Log (Population) *Standard City of Omaha Equation*	Ref. Section 1.4 City of Omaha Sanitary Interceptor Sewer Element

SANITARY SEWER FLOW CALCULATIONS

IMPACT POINT 1	CONTRIBUTING AREA TYPE	AC.	UNITS	CAPITA	BASE FLOW (GPCD)	PEAKING FACTOR	PEAK FLOW* (GPCD)	PEAK FLOW* (GPD)	TOTAL PEAK FLOW (CFS)	COMMENTS
1	Sunridge - Single Family		166	428	100	3.18	318	136,370	0.211	8"at 0.4% Grade = 0.77 cfs
	Sunridge - Commercial	6.50		181	100	3.37	337	60,878	0.094	8"at 0.4% Grade = 0.77 cfs
	River Oaks - Single Family		131	338	100	3.24	324	109,355	0.169	8"at 0.4% Grade = 0.77 cfs
	Garden Oaks - Single Family		33	85	100	3.53	353	30,096	0.047	10"at 0.4% Grade = 1.39 cfs
	Accumulated								0.521	10"at 0.4% Grade = 1.39 cfs
2	Garden Oaks - Single Family		93	240	100	3.31	331	79,419	0.123	8"at 0.4% Grade = 0.77 cfs
3	River Oaks - Single Family		90	232	100	3.32	332	77,022	0.119	8"at 0.4% Grade = 0.77 cfs
	Garden Oaks - Single Family		21	54	100	3.63	363	19,684	0.030	8"at 0.4% Grade = 0.77 cfs
	Accumulated								0.273	8"at 0.4% Grade = 0.77 cfs

* Includes Calculated Peaking Factor (PF x 100 GPCD)

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LOTS 1 THRU 147 INCLUSIVE &
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SARPY COUNTY, NEBRASKA

DETAILS

PROFESSIONAL CIVIL ENGINEER
JAMIE J. WINTERSTEIN
E-19600
STATE OF NEBRASKA
ORIGINAL PROFESSIONAL ENGINEER

No.	Date	Description
0	6/19/2018	As-Built

Revisions

Proj No:	P2015.497.001
Date:	10/20/2016
Designed By:	JLW
Drawn By:	JJN
Scale:	SEE PLAN
Sheet:	3 of 17

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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.	SERVICE RISER
	DIST.	PROP. CORNER				
120	15'	SE	29'	11.5'	6+16	
121	15'	SE	29'	12'	6+91	
122	15'	SE	29'	12'	7+66	
123	15'	SE	29'	13'	8+41	
124	15'	SE	31'	13.5'	MH 5	
125	15'	SE	29'	13.5'	10+00	
126	15'	SE	29'	13.5'	10+80	2'
127	15'	SE	31'	13'	MH 6	4'
128	15'	SE	29'	13'	12+40	
130	15'	NE	29'	11'	5+13	
131	15'	NE	29'	11'	5+93	6'
132	15'	NE	29'	12'	6+73	

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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.	SERVICE RISER
	DIST.	PROP. CORNER				
133	15'	NE	29'	12'	7+53	
134	15'	NE	29'	12'	8+33	
135	15'	NE	29'	13'	MH 5	
136	15'	NE	29'	13'	9+93	
137	15'	NE	29'	13'	10+73	2'
138	15'	NE	29'	13'	MH 6	4'
139	15'	NE	29'	13'	12+33	6'

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
2	2+40.01	54 "	RIM = 1121.34 INV IN = 1113.54 (8") INV OUT = 1113.34 (8")	512997.57	2685958.38	8.0	
3	4+61.86	54 "	RIM = 1125.20 INV IN = 1114.63 (8") INV OUT = 1114.43 (8")	512911.67	2685753.93	10.8	
4	5+78.04	54 "	RIM = 1127.29 INV IN = 1115.29 (8") INV IN = 1115.29 (8") INV OUT = 1115.09 (8")	512861.88	2685649.00	12.2	
5	9+15.65	54 "	RIM = 1139.29 INV IN = 1124.67 (8") INV OUT = 1124.47 (8")	512717.22	2685344.10	14.8	
6	11+55.65	54 "	RIM = 1150.11 INV IN = 1134.69 (8") INV OUT = 1134.49 (8")	512614.38	2685127.34	15.6	

50 0 50
1 inch = 50 ft.

RECORD DRAWINGS

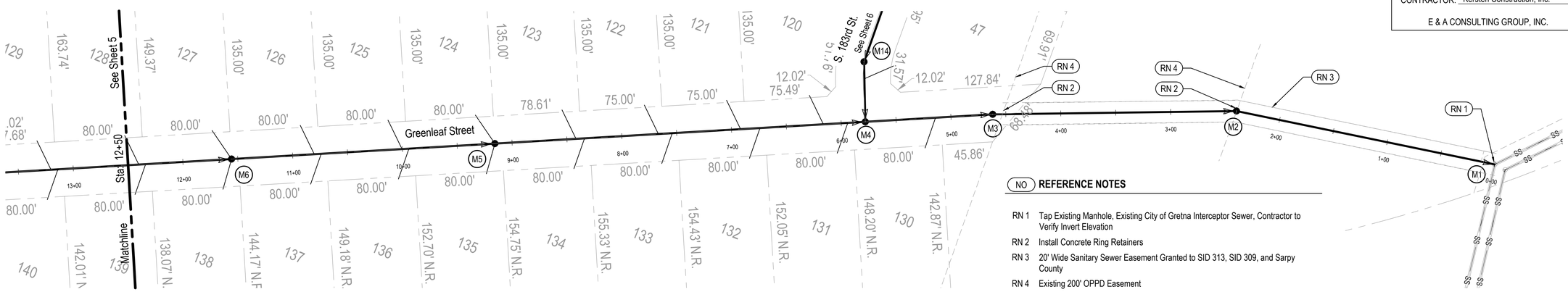
THESE PLANS HAVE BEEN REVISED TO CONFORM TO CONSTRUCTION RECORDS

REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

E & A CONSULTING GROUP, INC.



NO REFERENCE NOTES

RN 1 Tap Existing Manhole, Existing City of Gretna Interceptor Sewer, Contractor to Verify Invert Elevation

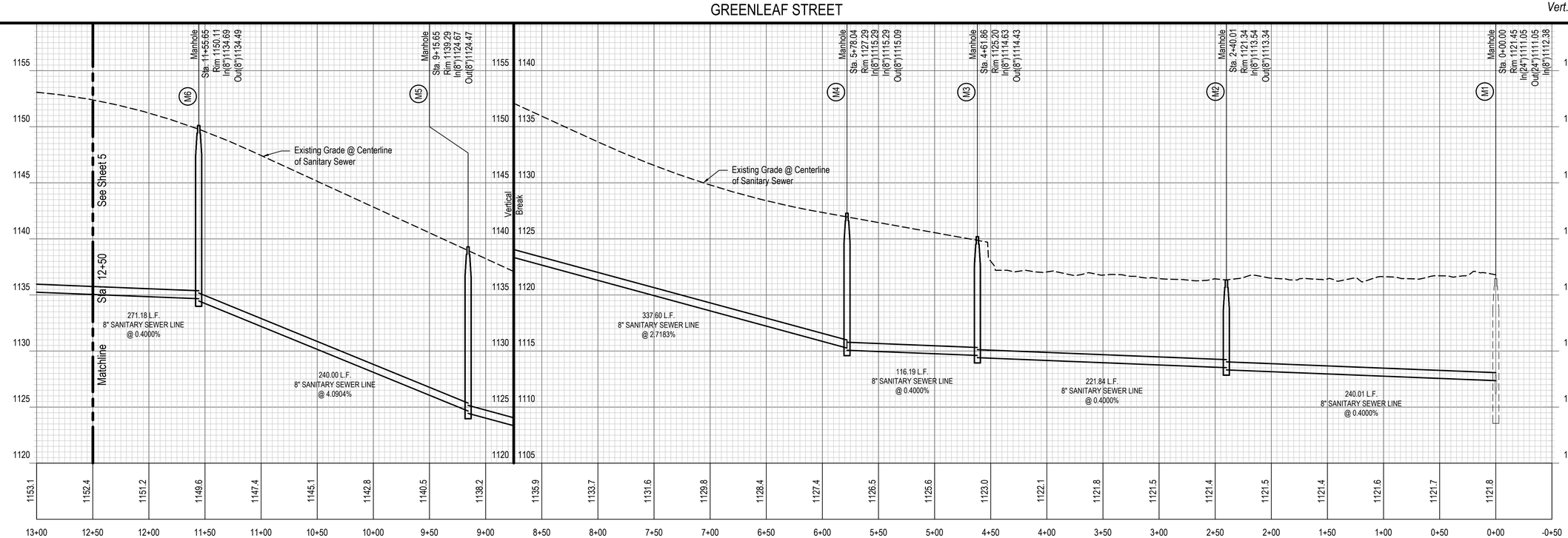
RN 2 Install Concrete Ring Retainers

RN 3 20' Wide Sanitary Sewer Easement Granted to SID 313, SID 309, and Sarpy County

RN 4 Existing 200' OPPD Easement

Scale: Horiz. 1"=50'
Vert. 1"=5'

GREENLEAF STREET



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GREENLEAF STREET
SANITARY SEWER PLAN
& PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMES L. WINTERSTEIN
11361
STATE OF NEBRASKA
ORIGINAL ISSUE 6/19/2018

Revisions		
	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
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Sheet:	4 of 17

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CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
7	14+26.82	54 "	RIM = 1154.32 INV IN = 1135.97 (8") INV IN = 1139.53 (8") INV OUT = 1135.77 (8")	512498.18	2684882.43	18.5	
8	16+06.54	54 "	RIM = 1155.59 INV IN = 1136.89 (8") INV OUT = 1136.69 (8")	512421.17	2684720.13	18.9	
9	17+39.82	54 "	RIM = 1157.28 INV IN = 1143.90 (8") INV IN = 1137.62 (8") INV IN = 1143.90 (8") INV OUT = 1137.42 (8")	512348.40	2684608.52	19.9	
10	20+35.91	54 "	RIM = 1159.23 INV IN = 1145.28 (8") INV OUT = 1145.08 (8")	512161.23	2684379.24	14.1	
11	21+09.82	54 "	RIM = 1161.28 INV IN = 1149.24 (8") INV OUT = 1149.04 (8")	512197.94	2684315.12	12.2	
12	21+94.40	54 "	RIM = 1166.17 INV OUT = 1154.15 (8")	512197.92	2684230.57	12.0	

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.	SERVICE RISER
	DIST.	PROP. CORNER				
97	15'	SE	33'	12'	20+68	
98	15'	SE	31'	12'	MH 12	
99	15'	NE	33'	12'	MH 12	
100	15'	NE	25'	12'	20+75	
129	15'	SE	29'	12'	13+20	6'
140	15'	NE	29'	12'	13+13	6'
141	15'	NE	29'	12'	13+93	7'
142	15'	NE	29'	12'	14+73	7'
143	15'	NE	29'	12'	15+53	7'

NO **REFERENCE NOTES**

RN 1 Construct 8" Diameter Drop Connection, 7.0 VF

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RECORD DRAWINGS

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REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

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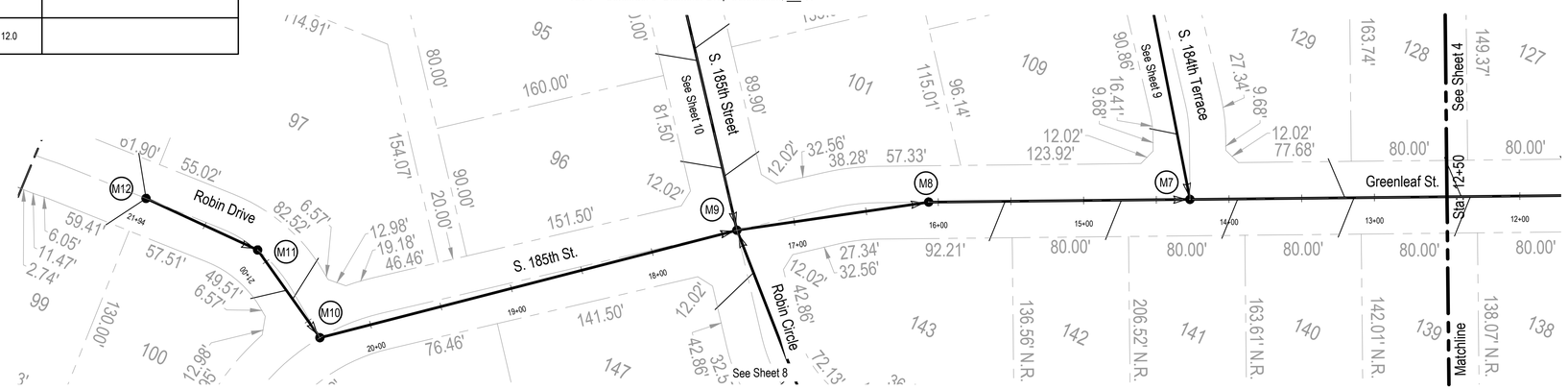
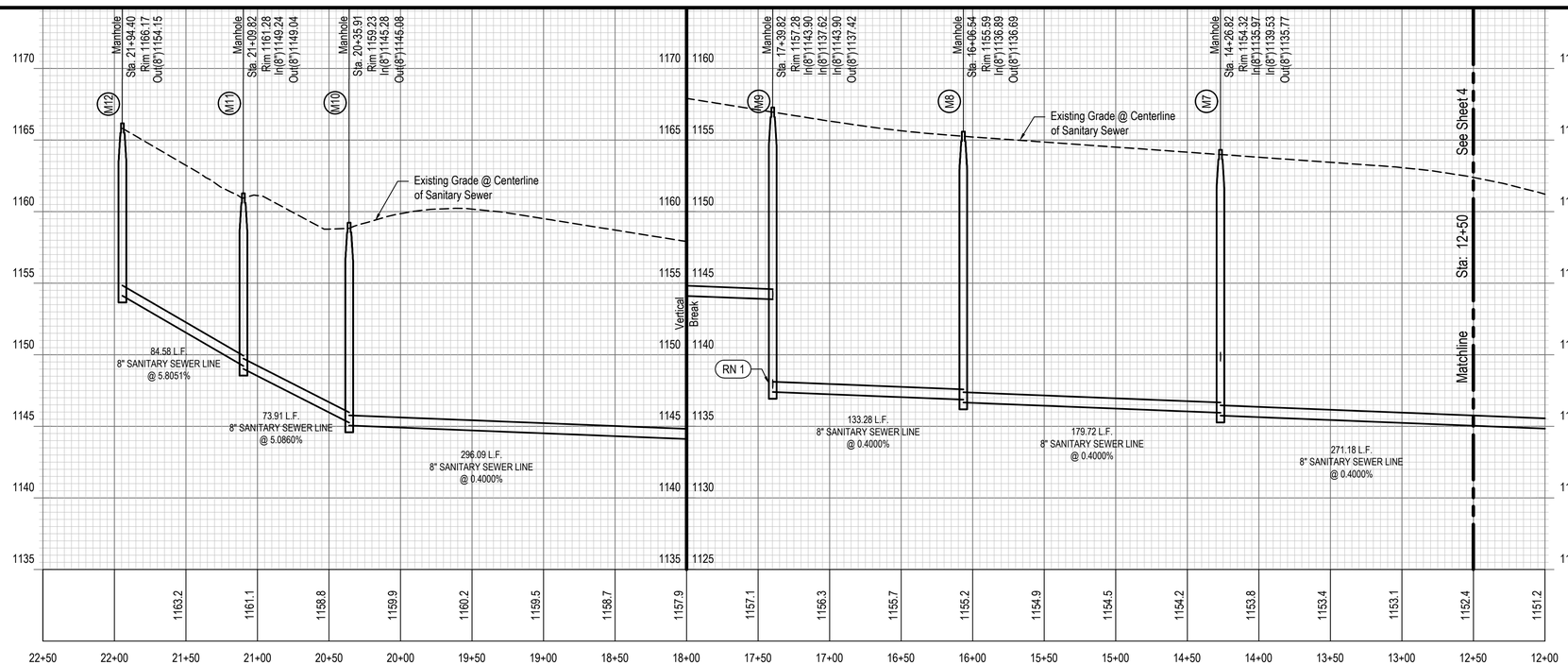


185TH STREET & GREENLEAF STREET

Scale: Horiz. 1"=50'
Vert. 1"=5'



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STREET SANITARY
SEWER PLAN & PROFILE

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JAMES L. WINTERSTEIN
6-11-18
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Revisions		
	Date	Description
0	6/19/2018	As-Built

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6 INCH SERVICE LINE LOCATIONS

	LOT NO.	DIST. FROM PL: DIST.	DIST. FROM PL: PROP. CORNER	LENGTH L.F.	DEPTH FT.	WYE STA.
*	~~34~~	~~15'~~	~~SE~~	~~31'~~	~~12'~~	~~10+41~~
*	~~35~~	~~15'~~	~~SE~~	~~40'~~	~~12'~~	~~9+84~~
*	~~36~~	~~15'~~	~~SW~~	~~27'~~	~~12'~~	~~9+39~~
*	~~37~~	~~15'~~	~~SW~~	~~39'~~	~~12'~~	~~8+69~~
*	~~38~~	~~15'~~	~~SW~~	~~29'~~	~~12'~~	~~8+04~~
*	~~39~~	~~15'~~	~~SW~~	~~29'~~	~~11.5'~~	~~7+24~~
*	~~40~~	~~15'~~	~~SW~~	~~29'~~	~~12'~~	~~6+44~~
	41	15'	SW	29'	12'	5+64
	42	15'	SW	29'	12'	4+84
	43	15'	SW	29'	11.5'	4+04
	44	15'	SW	29'	12'	3+24

6 INCH SERVICE LINE LOCATIONS

	LOT NO.	DIST. FROM PL: DIST.	DIST. FROM PL: PROP. CORNER	LENGTH L.F.	DEPTH FT.	WYE STA.
	45	15'	SW	29'	12.5'	2+44
	46	15'	SW	28'	11.5'	1+64
	47	15'	SW	29'	11.5'	0+39
*	~~48~~	~~15'~~	~~SE~~	~~29'~~	~~12'~~	~~8+34~~
*	~~49~~	~~15'~~	~~SE~~	~~29'~~	~~12'~~	~~7+54~~
*	~~50~~	~~15'~~	~~SE~~	~~29'~~	~~12.5'~~	~~6+74~~
	51	15'	SE	31'	12'	MH 16
	52	15'	SE	29'	12.5'	5+14
	53	15'	SE	29'	12'	4+34
	54	15'	SE	29'	11.5'	3+60

* SEE SHEET 17

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
14	0+54.68	54 "	RIM = 1127.88 INV IN = 1115.90 (8") INV OUT = 1115.70 (8")	512912.14	2685627.50	12.2	
15	3+16.27	54 "	RIM = 1133.13 INV IN = 1119.89 (8") INV IN = 1119.89 (8") INV OUT = 1119.69 (8")	513173.35	2685615.33	13.4	
16	5+90.01	54 "	RIM = 1141.44 INV OUT = 1129.45 (8")	513446.78	2685604.62	12.0	

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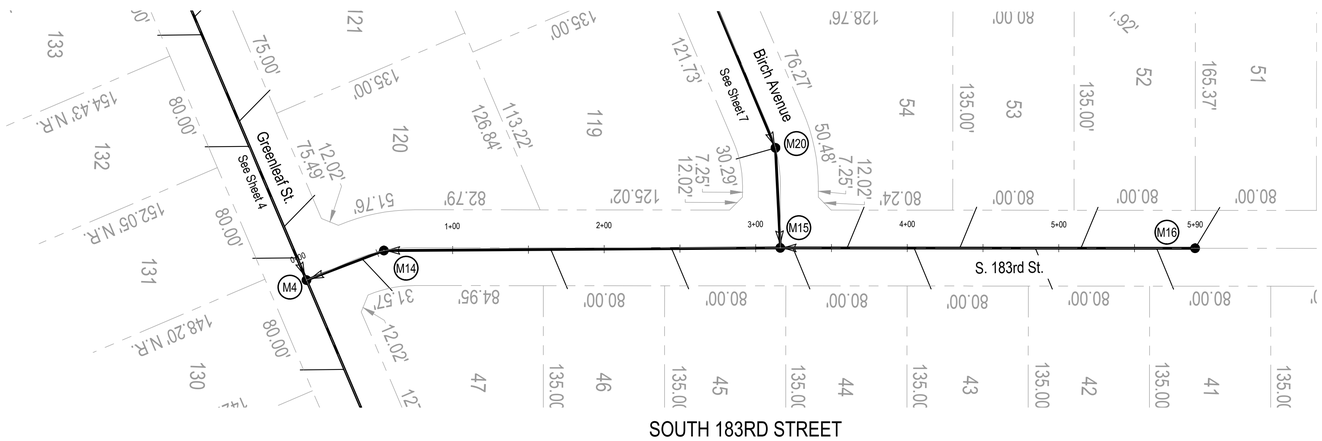
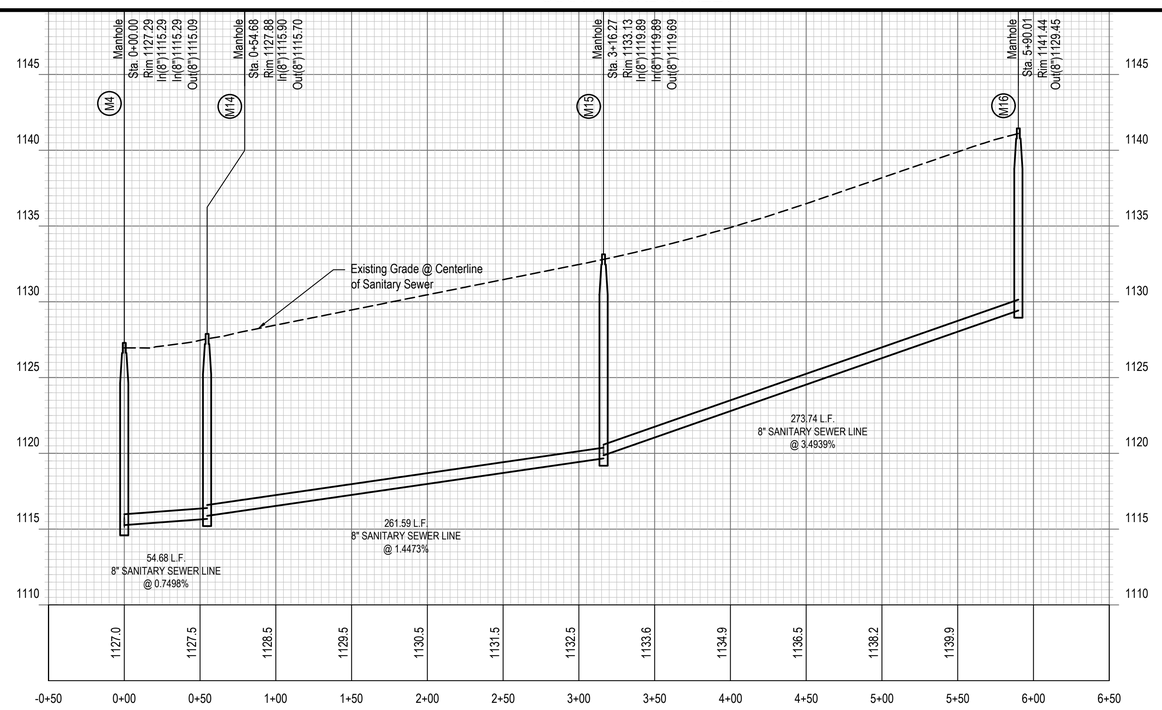


Scale: Horiz. 1"=50'
Vert. 1"=5'



RECORD DRAWINGS

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REVISION DATE: 6/19/2018 BY: HLB

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SOUTH 183rd STREET
SANITARY SEWER PLAN
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PROFESSIONAL CIVIL ENGINEER
JAMIE L. WINTERSTEIN
E-13367
01/31/20
ORIGINAL PROFESSIONAL ENGINEER ON FILE
STATE OF NEBRASKA

Revisions			
	No.	Date	Description
	0	6/19/2018	As-Built

Proj No:	P2015.497.001
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CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
20	0+66.09	54 "	RIM = 1133.49 INV IN = 1120.35 (8") INV OUT = 1120.15 (8")	513167.53	2685549.51	13.3	
21	2+44.11	54 "	RIM = 1140.99 INV IN = 1127.60 (8") INV IN = 1127.60 (8") INV OUT = 1127.40 (8")	513092.24	2685388.27	13.6	
22	5+68.78	54 "	RIM = 1165.08 INV IN = 1152.02 (8") INV IN = 1152.02 (8") INV OUT = 1151.82 (8")	512953.12	2685095.05	13.3	
23	7+33.91	54 "	RIM = 1172.97 INV IN = 1161.17 (8") INV OUT = 1160.97 (8")	512886.83	2684943.87	12.0	
24	8+43.25	54 "	RIM = 1175.17 INV OUT = 1163.17 (8")	512870.44	2684835.81	12.0	

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
110	15'	NE	31'	12'	MH 24
111	15'	NE	33'	12'	7+70
112	15'	NE	32'	12'	6+98
113	15'	NE	31'	12'	6+16
114	15'	NE	29'	12'	5+34
115	15'	NE	29'	12'	4+51
116	15'	NE	29'	12'	3+67
117	15'	NE	29'	12'	2+87
118	15'	NE	29'	12'	2+07
119	26'	NE	27'	12'	MH 20

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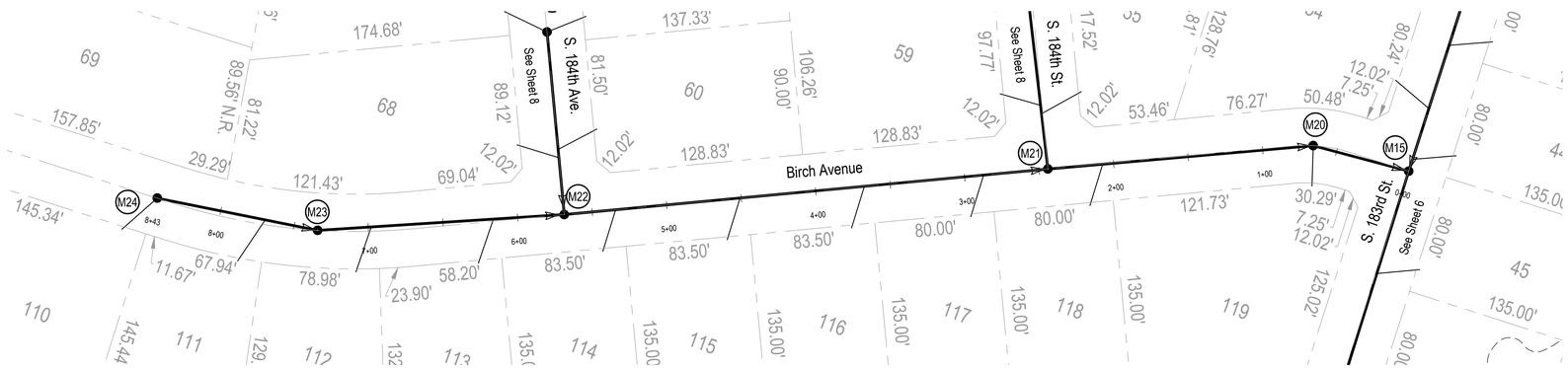
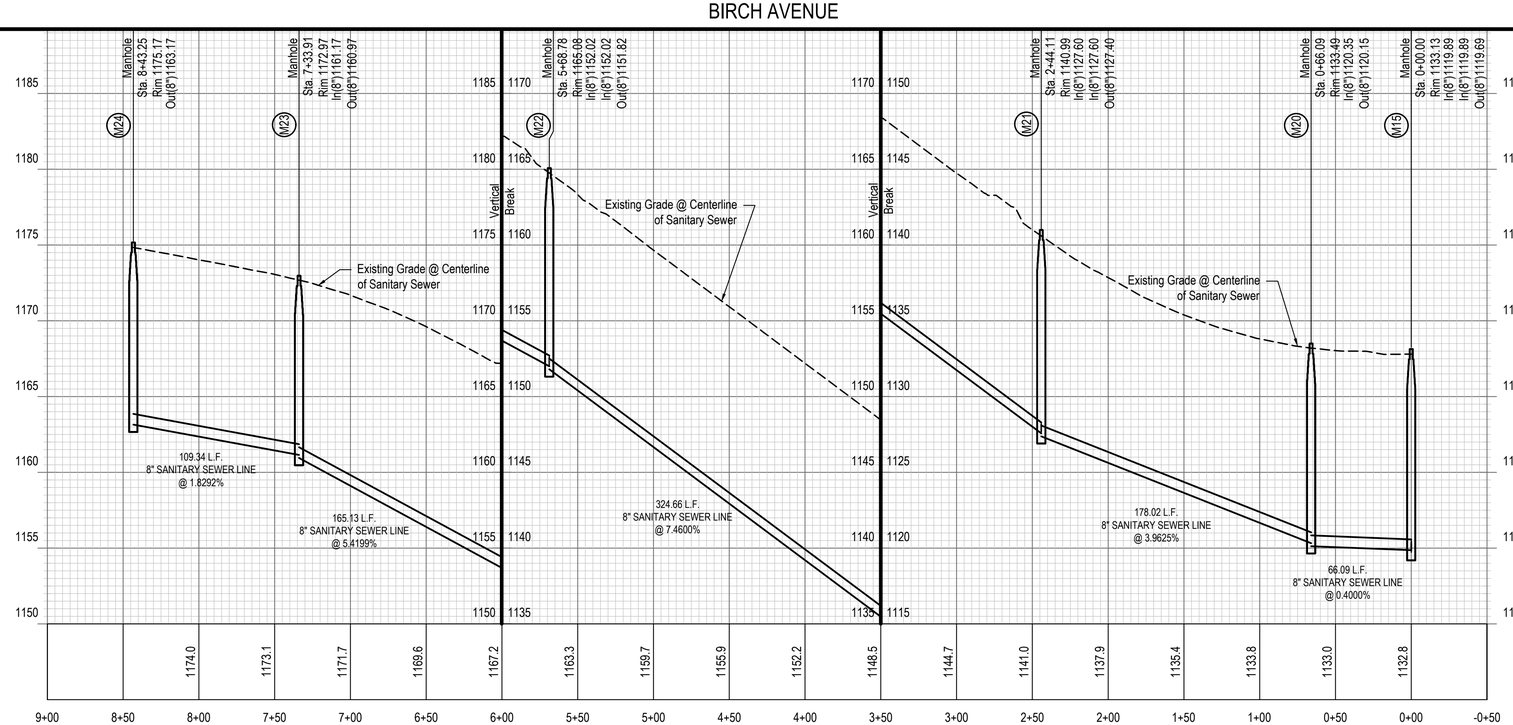


BIRCH AVENUE

Scale: Horiz. 1"=50'
Vert. 1"=5'



RECORD DRAWINGS

THESE PLANS HAVE BEEN REVISED TO CONFORM TO CONSTRUCTION RECORDS

REVISION DATE: 6/19/2018 BY: HLB

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CONTRACTOR: Kersten Construction, Inc.

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BIRCH AVENUE
SANITARY SEWER PLAN
& PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMES L. WINTERSTEIN
No. 15382
COMMISSION EXPIRES DEC. 31, 2018
STATE OF NEBRASKA

Revisions			
		Date	Description
1	0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
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Sheet:	7 of 17

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Holy Baty

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
55	15'	SW	31'	12'	0+37
56	15'	SW	33'	12'	1+62
57	15'	SE	33'	12'	MH 25
58	15'	SE	26'	12'	1+37
59	19'	SE	28'	12'	0+42

50 0 50
1 inch = 50 ft.

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
60	21'	SW	29'	12'	0+43
61	15'	SW	28'	12'	MH 26
67	15'	SE	31'	12'	MH 26
68	15'	SE	29'	12'	0+37

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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.	SERVICE RISER
	DIST.	PROP. CORNER				
144	15'	NW	53'	8.5'	MH 37	
145	15'	NW	33'	12'	1+53	
146	15'	NW	38'	12'	1+05	
147	15'	NW	37'	12'	0+31	4'

50 0 50
1 inch = 50 ft.

CONSTRUCT SANITARY SEWER MANHOLE

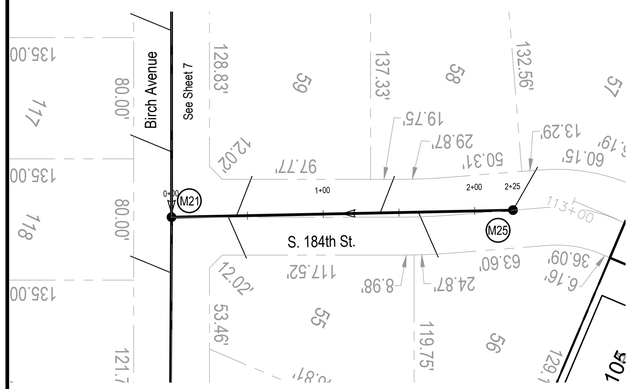
ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
25	2+25.31	54 "	RIM = 1149.38 INV OUT = 1135.67 (8")	513293.69	2685287.54	13.7	

CONSTRUCT SANITARY SEWER MANHOLE

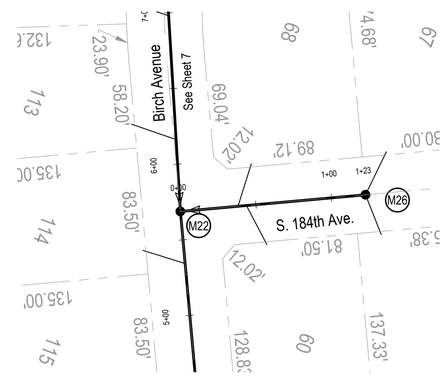
ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
26	1+22.62	54 "	RIM = 1167.07 INV OUT = 1154.94 (8")	513063.86	2685042.51	12.1	

CONSTRUCT SANITARY SEWER MANHOLE

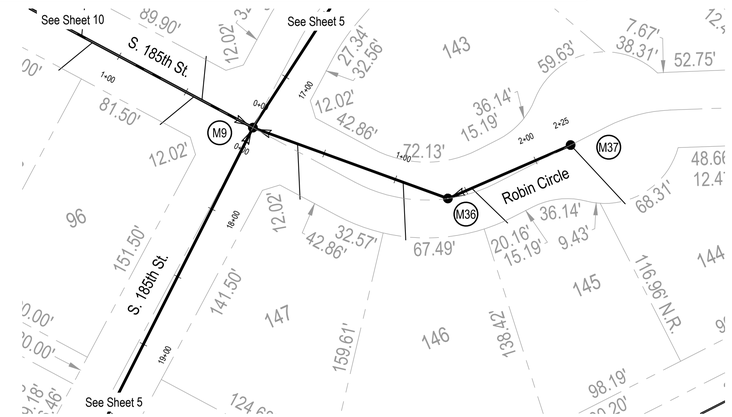
ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
36	1+36.95	54 "	RIM = 1152.00 INV IN = 1138.37 (8") INV OUT = 1138.17 (8")	512253.42	2684707.10	13.8	
37	2+25.22	54 "	RIM = 1148.70 INV OUT = 1138.99 (8")	512252.73	2684795.34	9.7	



SOUTH 184TH STREET



SOUTH 184TH AVENUE



ROBIN CIRCLE

Scale: Horiz. 1"=50'
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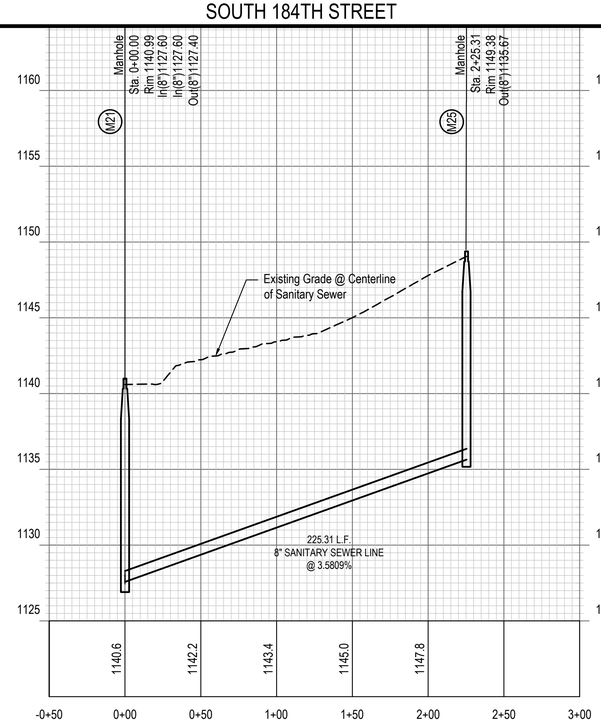
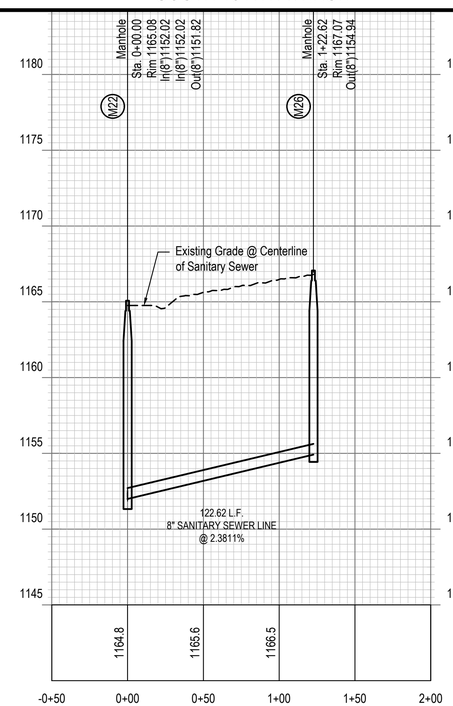
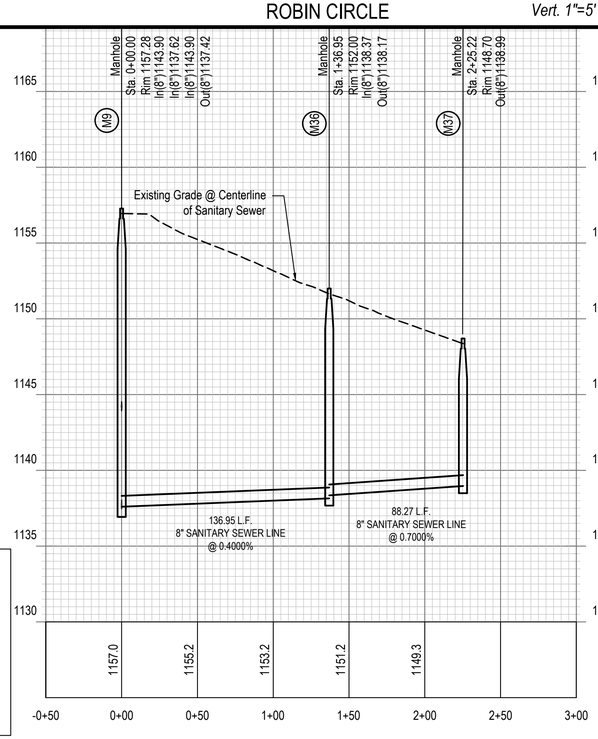


SOUTH 184TH STREET



SOUTH 184TH AVENUE



ROBIN CIRCLE

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No. 11861
ORIGINAL SEAL IN THE STATE OF NEBRASKA

Revisions			
	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
Designed By:	JLW
Drawn By:	JJN
Scale:	SEE PLAN
Sheet:	8 of 17

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50 0 50
1 inch = 50 ft.

6 INCH SERVICE LINE LOCATIONS

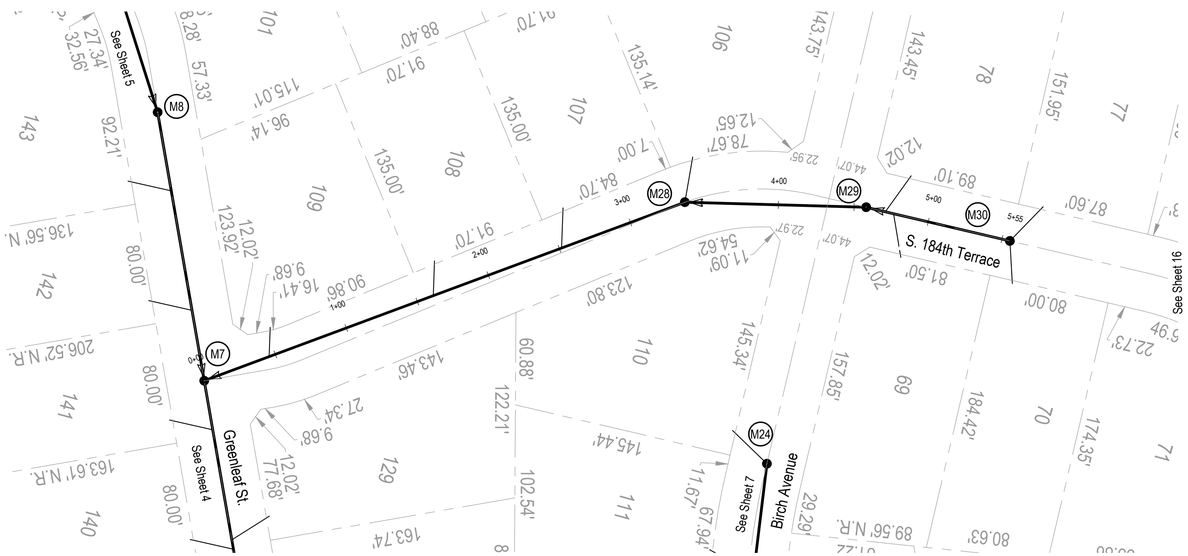
LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
69	21'	SW	30'	12'	4+76
70	15	SW	28'	12'	MH 30
77	15'	SE	31'	12'	MH 30
78	15	SE	29'	12'	4+70
106	15	SE	30'	12'	MH 28
107	15	SE	27'	12'	2+51
108	15'	SE	23'	12'	1+61
109	15	SE	20'	12'	0+45

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
28	3+38.32	54 "	RIM = 1173.56 INV IN = 1161.56 (8") INV OUT = 1161.36 (8")	512772.14	2684684.14	12.2	
29	4+58.00	54 "	RIM = 1178.52 INV IN = 1166.52 (8") INV OUT = 1166.32 (8")	512888.26	2684655.31	12.2	
30	5+55.38	54 "	RIM = 1179.72 INV OUT = 1167.72 (8")	512985.52	2684651.31	12.0	

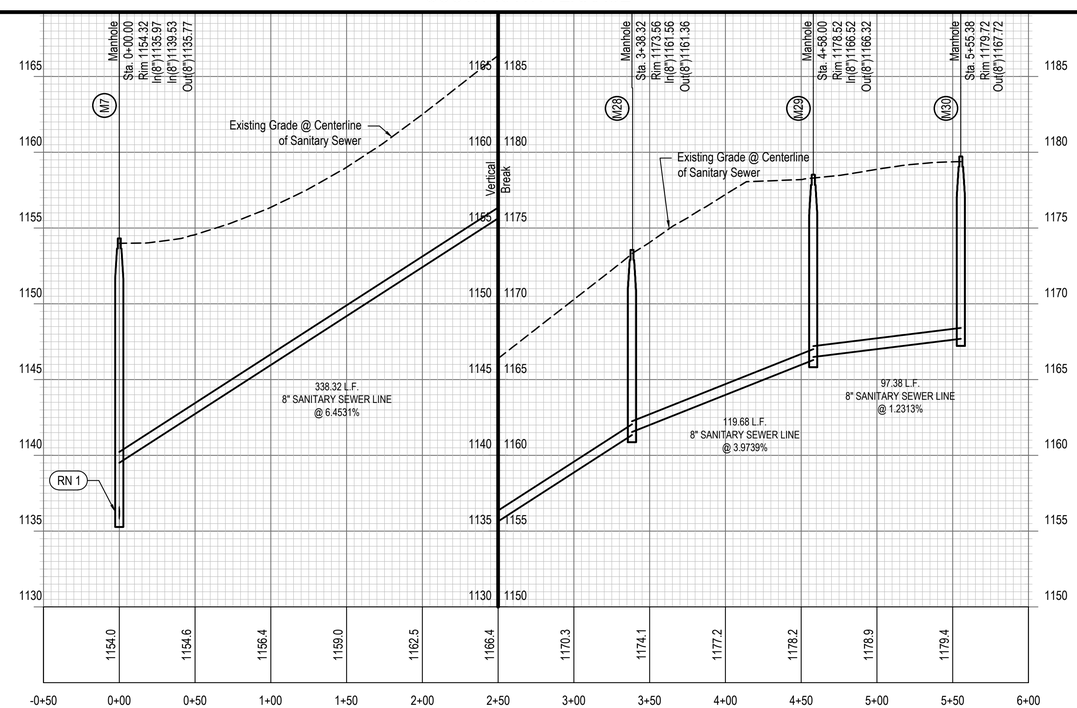
(NO) REFERENCE NOTES

RN 1 Construct 8" Diameter Drop Connection, 7.0 VF



Scale: Horiz. 1"=50'
Vert. 1"=5'

SOUTH 184TH TERRACE



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S 184th TERRACE
SANITARY SEWER PLAN
& PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMES WINTERSTEIN
ORIGINAL SEAL ENTERED
DATE OF 01/11/16
STATE OF NEBRASKA

Revisions		
	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
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Holly Baby

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
79	15'	SW	27'	12'	6+39
80	15'	SW	28'	12'	7+28
81	15'	SW	26'	12'	8+21
82	15'	SW	54'	12'	9+02
83	15'	SW	52'	12'	MH 35
84	15'	SE	52'	12'	MH 35

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
85	15'	SE	48'	12'	8+74
86	15'	SE	28'	12'	MH 34
87	20'	SE	31'	12'	7+33
88	15'	SE	32'	12'	6+47
89	15'	SE	33'	12'	5+67
90	15'	SE	36'	12'	MH 33

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
91	15'	SE	34'	12'	4+37
92	15'	NE	32'	12'	3+58
93	15'	NE	31'	12'	MH 32
94	15'	NE	29'	12'	1+99
95	15'	NE	29'	12'	1+19
96	21'	NE	29'	12'	0+43

6 INCH SERVICE LINE LOCATIONS

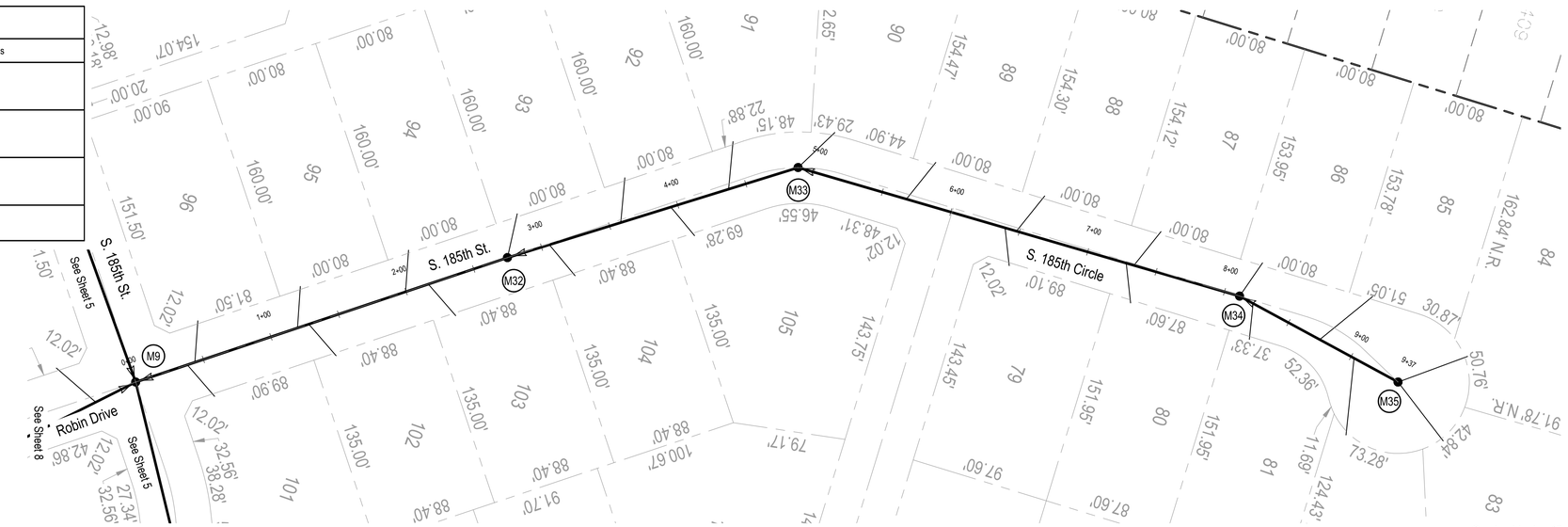
LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
101	15'	SW	29'	12'	0+38
102	15'	SW	29'	12'	1+27
103	15'	SW	29'	12'	2+16
104	15'	SW	28'	12'	3+05
105	15'	SW	26'	12'	3+94

50 0 50

1 inch = 50 ft.

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
32	2+75.00	54 "	RIM = 1169.92 INV IN = 1158.13 (8") INV OUT = 1157.93 (8")	512565.28	2684439.59	12.0	
33	4+88.47	54 "	RIM = 1182.57 INV IN = 1170.77 (8") INV OUT = 1170.57 (8")	512736.52	2684312.26	12.0	
34	8+11.06	54 "	RIM = 1195.69 INV IN = 1183.27 (8") INV OUT = 1183.07 (8")	513058.48	2684294.24	12.6	
35	9+37.49	54 "	RIM = 1199.11 INV OUT = 1187.11 (8")	513183.29	2684314.13	12.0	



Scale: Horiz. 1"=50'
Vert. 1"=5'

SOUTH 185TH STREET & SOUTH 185TH CIRCLE

REFERENCE NOTES

NO

RN 1 Construct 8" Diameter Drop Connection, 8.0 VF

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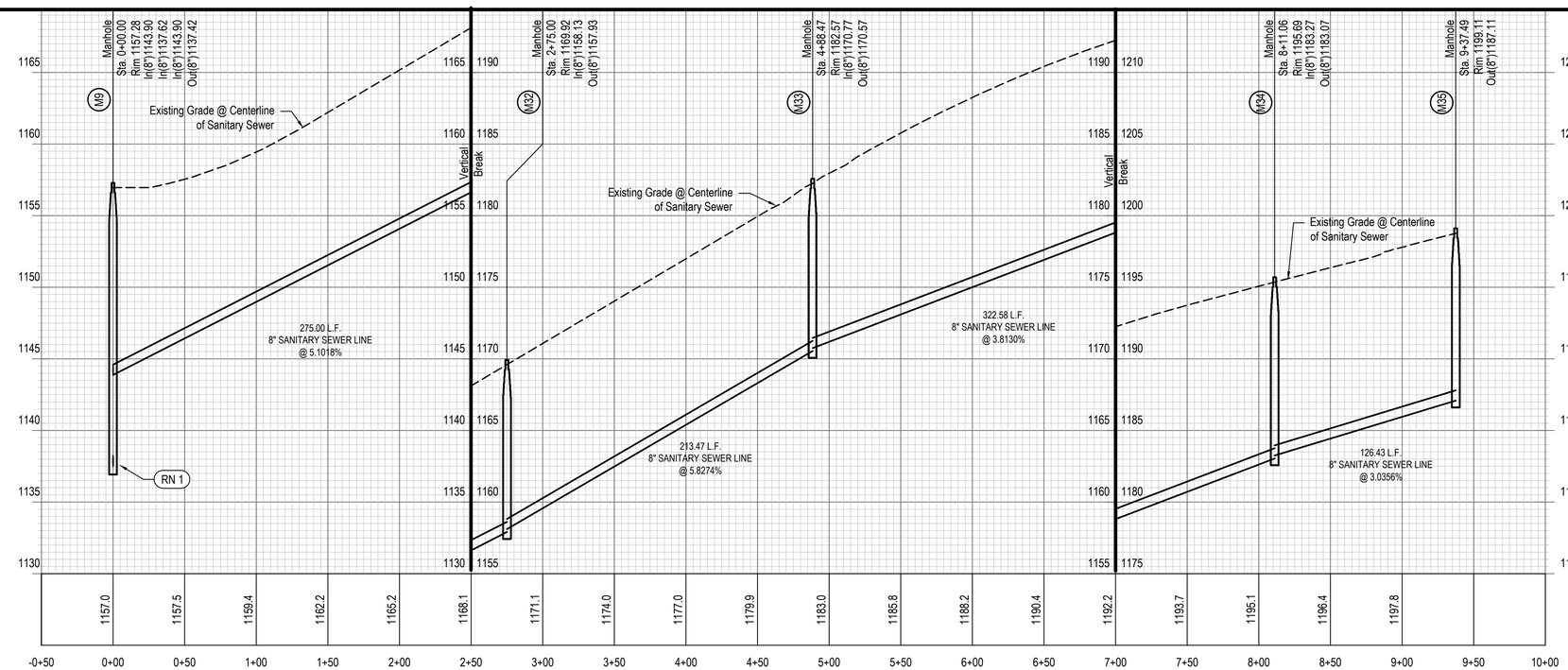

RECORD DRAWINGS

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S 185th ST & S 185th
CIRCLE SANITARY
SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMES L. WINTERSTEIN
STATE OF NEBRASKA

Revisions		
	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
5	15'	SE	25'	12'	6+14
6	15'	SW	38'	12'	MH 55
7	15'	SW	34'	12'	6+06
8	15'	SW	34'	12'	MH 53
9	15'	SW	31'	12'	3+52
10	86'	NW	32'	12'	MH 10
13	18'	NW	29'	12'	1+41
14	19'	NW	29'	12'	0+41
15	15'	SW	30'	12'	0+35
16	15'	SW	30'	12'	1+35
17	15'	SE	34'	12'	MH 53

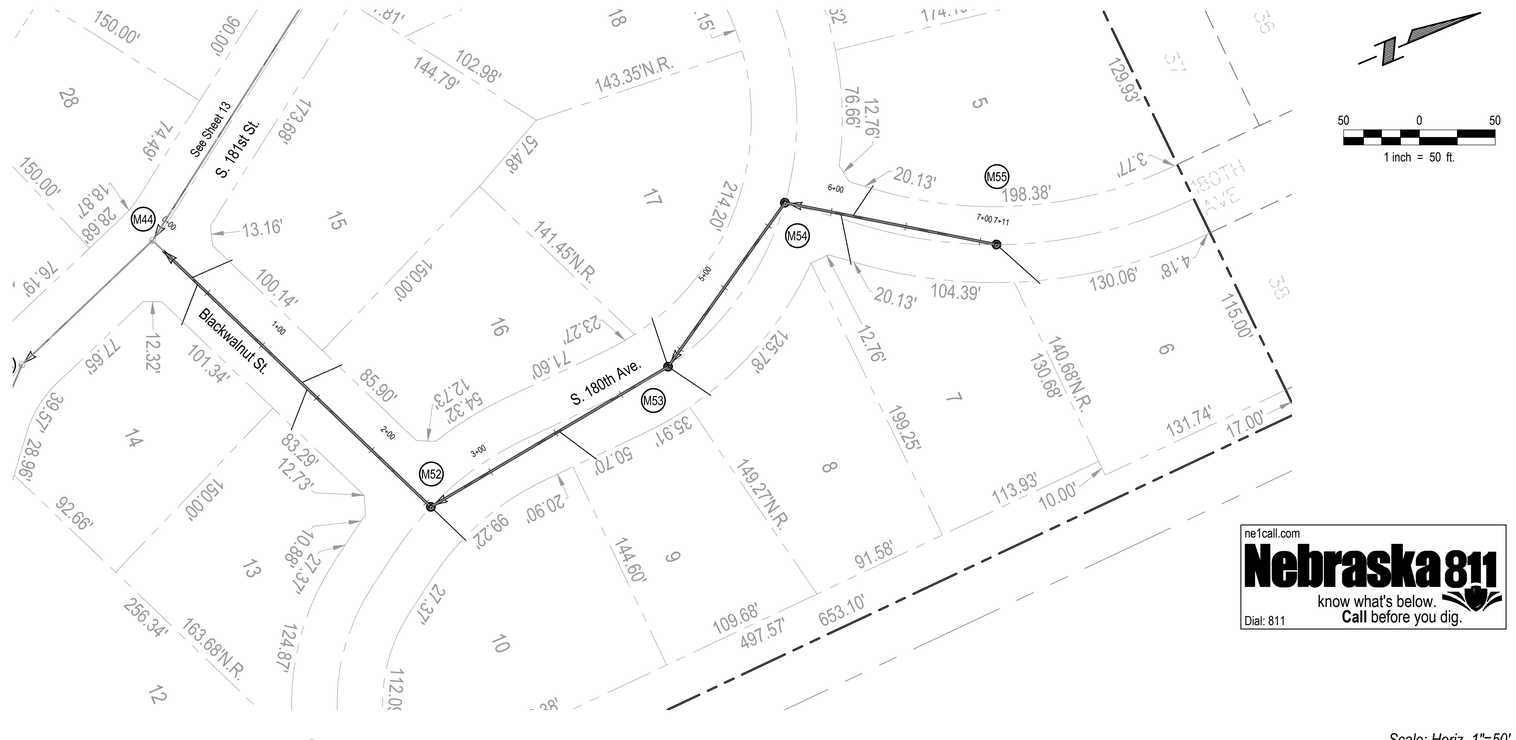
CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
52	2+54.21	54 "	RIM = 1135.17 ~~INV IN = 1124.29 (8")~~ ~~INV OUT = 1124.09 (8")~~	514225.05	2686474.84	~~11.1~~ 12.3	INV IN = 1223.00 (8") INV OUT = 1222.80 (8")
53	4+35.95	54 "	RIM = 1147.02 INV IN = 1135.02 (8") INV OUT = 1134.82 (8")	514405.02	2686450.04	12.2	
54	5+68.81	54 "	RIM = 1154.68 INV IN = 1140.33 (8") INV OUT = 1140.13 (8")	514517.94	2686380.13	14.5	
55	7+11.13	54 "	RIM = 1160.75 INV OUT = 1147.75 (8")	514635.98	2686459.56	13.0	

REFERENCE NOTES

(NO)

RN 1 Connect to Stub



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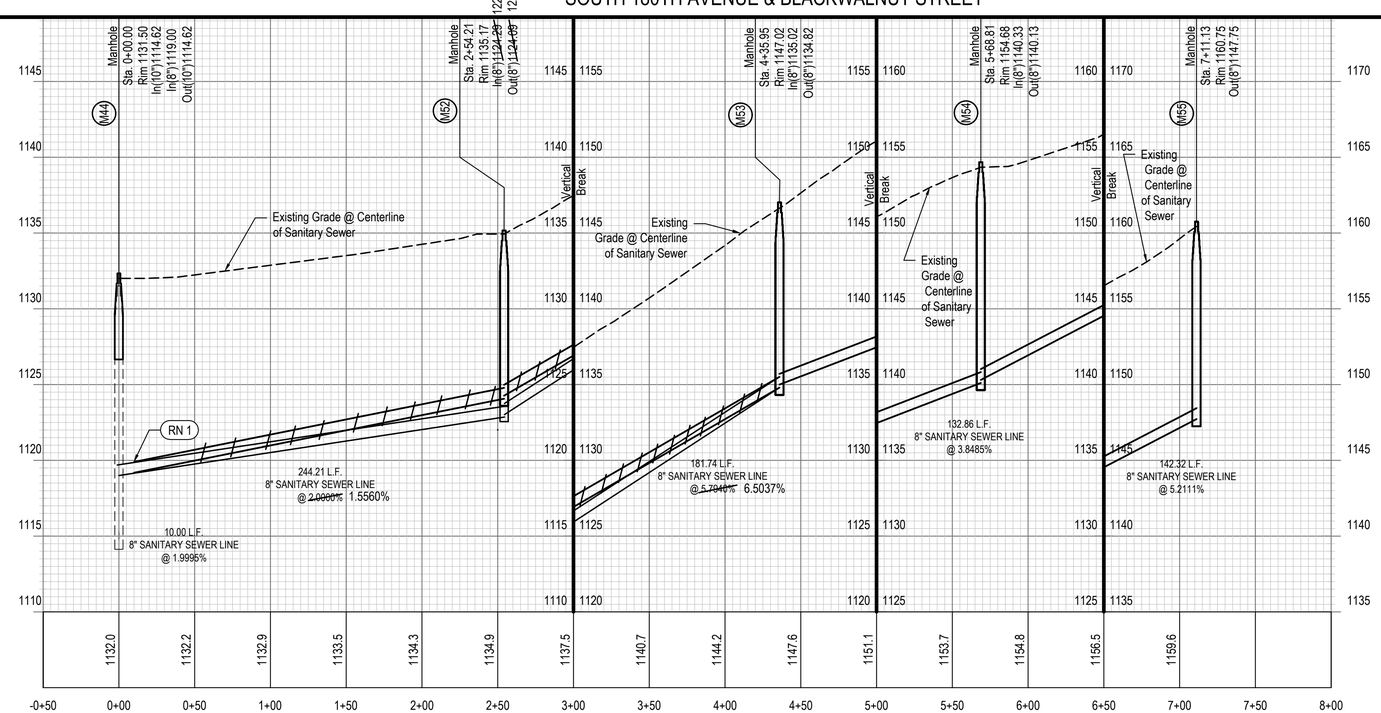
SOUTH 180TH AVENUE & BLACKWALNUT STREET



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SANITARY SEWER PLAN
& PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMIE ROY WINTERSTEIN
E-13360
ORIGINAL SEAL IN THE STATE OF NEBRASKA

Revisions			
		Date	Description
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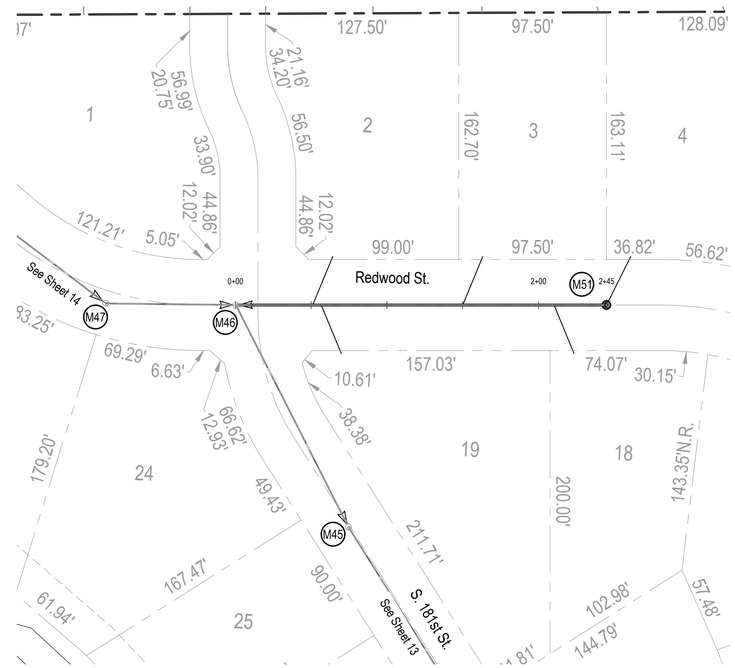
6 INCH SERVICE LINE LOCATIONS					
LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
2	15'	SW	35'	12'	0+50
3	15'	SW	~~35'~~ 31'	12'	1+49
4	15'	SW	36'	12'	MH 51
18	15'	NW	35'	12'	2+10
19	18'	NW	35'	12'	0+56

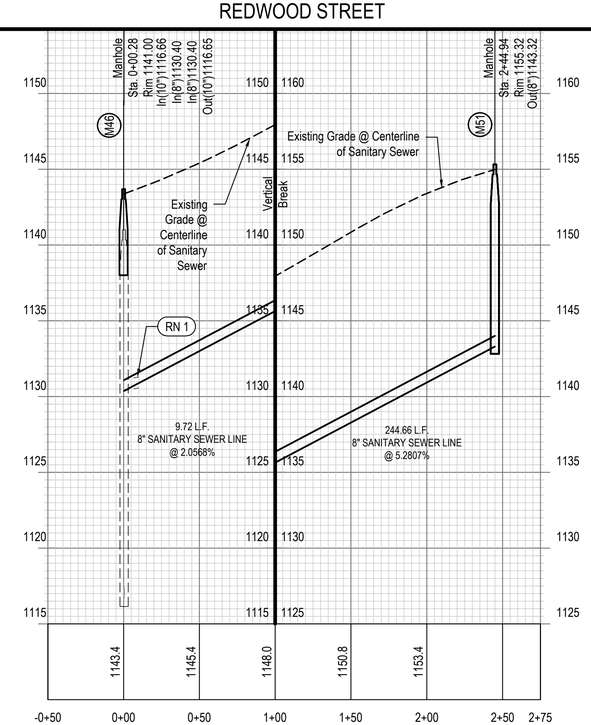
CONSTRUCT SANITARY SEWER MANHOLE							
ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
51	2+44.94	54 "	RIM = 1155.32 INV OUT = 1143.32 (8")	514560.18	2686208.50	12.0	

NO **REFERENCE NOTES**

RN 1 Remove Stub, Connect to Existing Manhole



REDWOOD STREET



Scale: Horiz. 1"=50'
Vert. 1"=5'

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REDWOOD ST SANITARY
SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMIE J. WINTERSTEIN
NEBRASKA

Revisions		
	Date	Description
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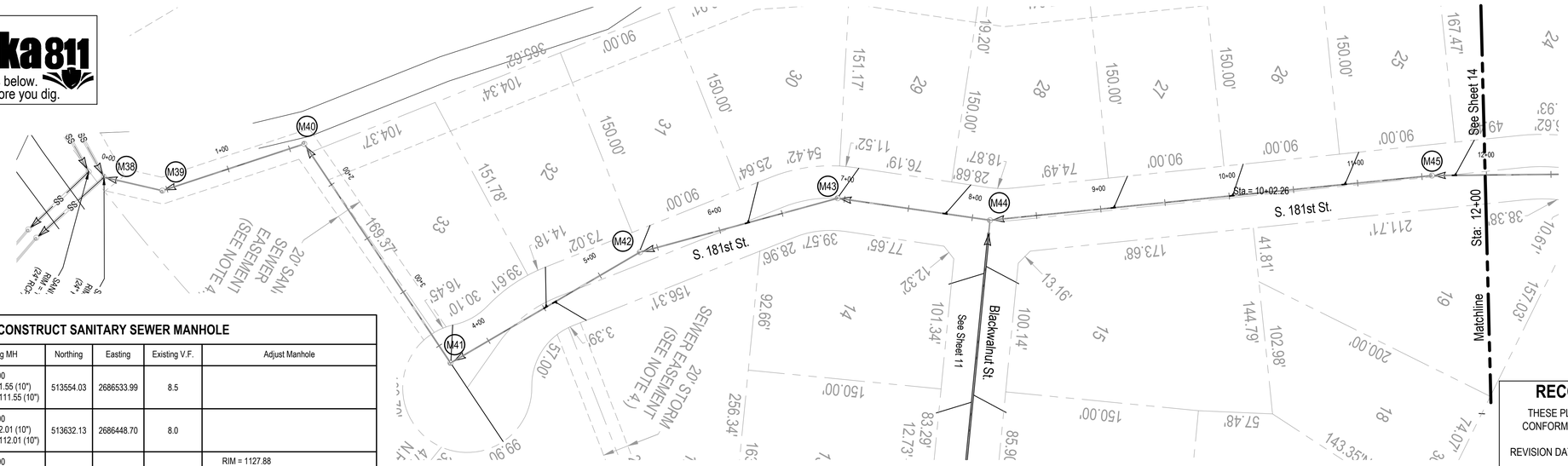

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Existing MH	Northing	Easting	Existing V.F.	Adjust Manhole
39	0+47.43	54 "	RIM = 1120.00 INV IN = 1111.55 (10") INV OUT = 1111.55 (10")	513554.03	2686533.99	8.5	
40	1+63.12	54 "	RIM = 1120.00 INV IN = 1112.01 (10") INV OUT = 1112.01 (10")	513632.13	2686448.70	8.0	
41	3+67.12	54 "	RIM = 1120.90 INV IN = 1112.83 (10") INV OUT = 1112.83 (10")	513813.54	2686541.84	8.1	RIM = 1127.88 **Adjust Manhole 7 V.F.**
42	5+36.97	54 "	RIM = 1121.70 INV IN = 1113.50 (10") INV OUT = 1113.51 (10")	513898.54	2686394.87	8.2	RIM = 1129.57 **Adjust Manhole 7.87 V.F.**
43	6+95.79	54 "	RIM = 1123.90 INV IN = 1114.14 (10") INV OUT = 1114.14 (10")	514012.40	2686284.21	9.8	RIM = 1131.11 **Adjust Manhole 7.21 V.F.**
44	8+14.90	54 "	RIM = 1131.50 INV IN = 1114.62 (10") INV IN = 1119.00 (8") INV OUT = 1114.62 (10")	514123.66	2686241.82	16.9	RIM = 1132.34 **Adjust Manhole 0.84 V.F.**
45	11+58.90	54 "	RIM = 1140.10 INV IN = 1115.99 (10") INV OUT = 1116.00 (10")	514407.20	2686047.25	24.1	RIM = 1140.40 **Adjust Manhole 0.3 V.F.**

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
11*	15'	SE	72'	12'	4+59.29
12*	15'	SE	27'	12'	M41
24	15'	NE	31'	12'	11+75.22
25	15'	NE	29'	11'	10+89.50
26	15'	NE	26'	12'	10+02.26
27	15'	NE	31'	12'	9+09.78

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
28	15'	NE	32'	12'	7+78.59
29	15'	NE	29'	11'	M43
30	15'	NE	30'	12'	6+22.08
31	15'	NE	28'	12'	M42
32	15'	NE	40'	12'	4+51.34
33	15'	NE	32'	11'	M41

RECORD DRAWINGS

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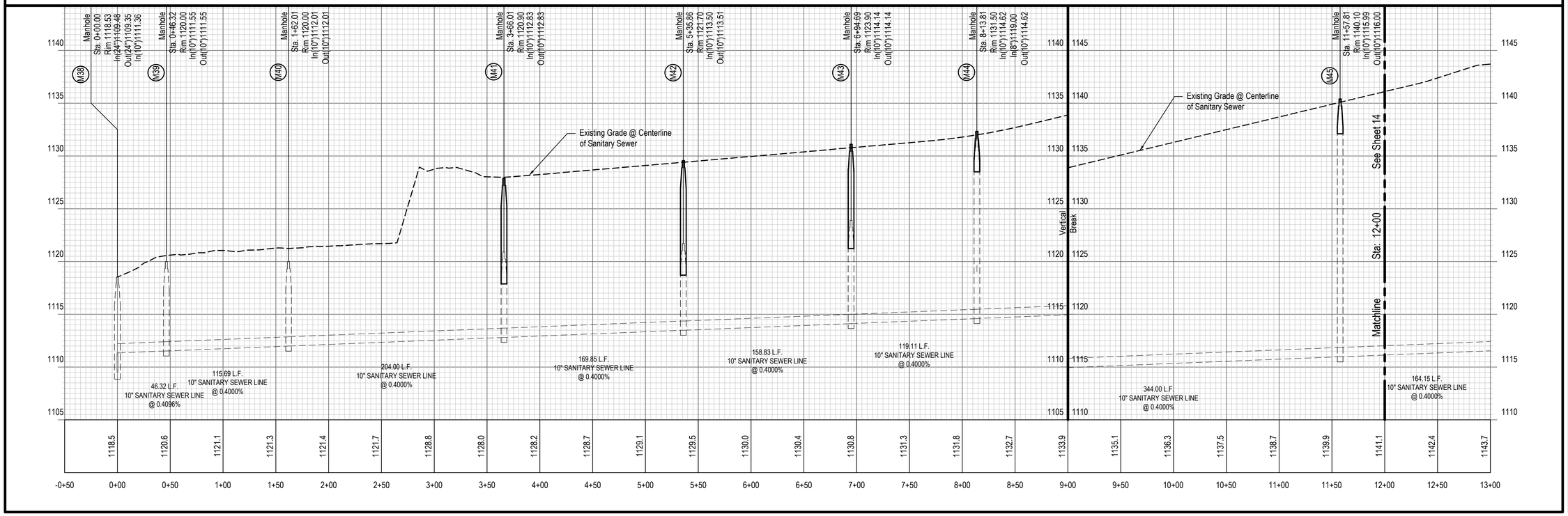
Existing Manholes will be buried by grading operation. Adjust Manhole to grade bid item includes contractor exposing existing Manhole for adjustment

Scale: Horiz. 1"=50'
Vert. 1"=5'

S. 181st STREET



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S 181st ST SANITARY SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMIE L. WINTERSTEIN
E-13367
6/19/2018
STATE OF NEBRASKA

Revisions		
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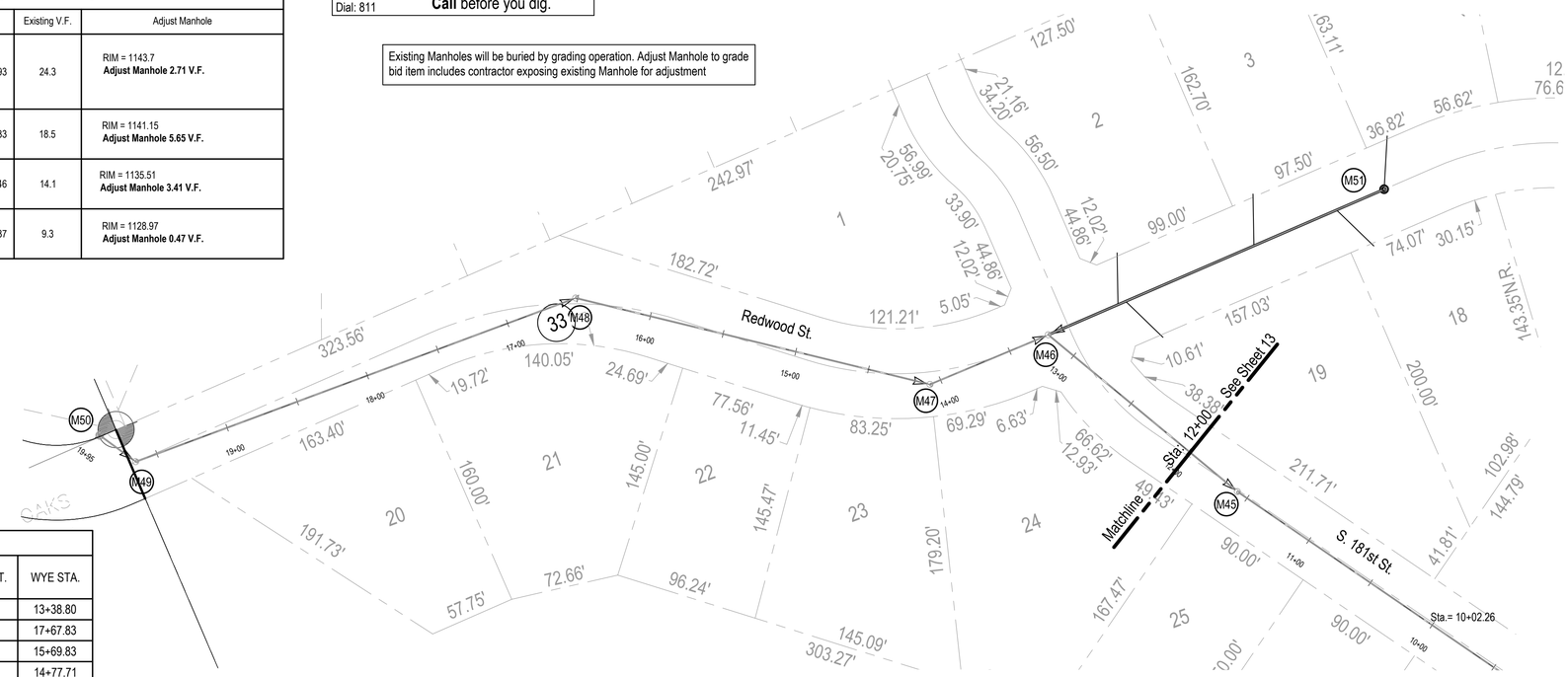
Existing Manholes will be buried by grading operation. Adjust Manhole to grade bid item includes contractor exposing existing Manhole for adjustment

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Existing MH	Northing	Easting	Existing V.F.	Adjust Manhole
46	13+23.05	54 "	RIM = 1141.00 INV IN = 1116.66 (10") INV IN = 1130.40 (8") INV IN = 1130.40 (8") INV OUT = 1116.65 (10")	514548.56	2685963.93	24.3	RIM = 1143.7 **Adjust Manhole 2.71 V.F.**
47	14+08.77	54 "	RIM = 1135.50 INV IN = 1116.99 (10") INV OUT = 1117.00 (10")	514544.62	2685878.33	18.5	RIM = 1141.15 **Adjust Manhole 5.65 V.F.**
48	16+52.53	54 "	RIM = 1132.10 INV IN = 1117.98 (10") INV OUT = 1117.97 (10")	514678.09	2685674.46	14.1	RIM = 1135.51 **Adjust Manhole 3.41 V.F.**
49	19+66.25	54 "	RIM = 1128.50 INV IN = 1119.23 (10") INV OUT = 1119.23 (10")	514695.96	2685361.37	9.3	RIM = 1128.97 **Adjust Manhole 0.47 V.F.**



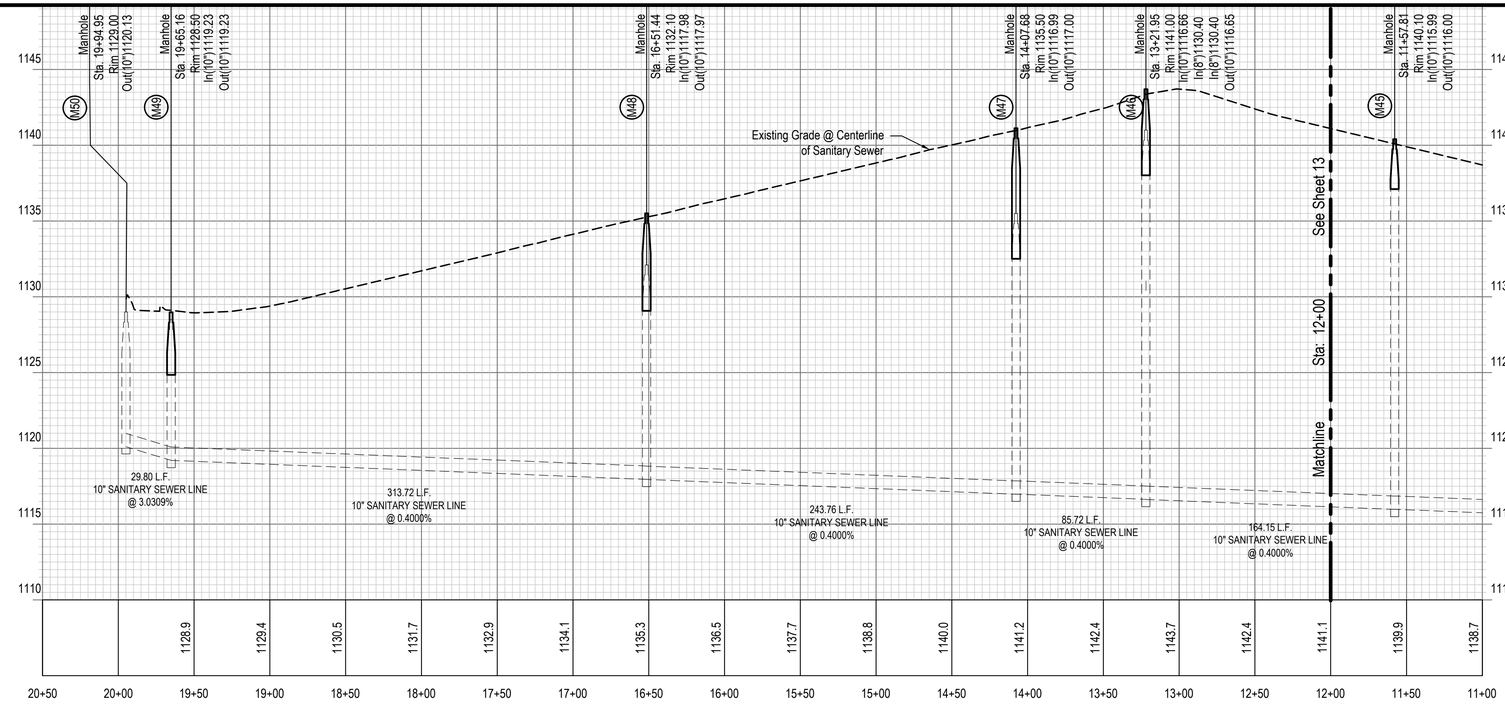
* Service line locations were constructed from the Sanitary Improvement District No. 235 Sanitary Siphon Replacement (Sunridge) plan by Lamp Rynearson & Associates. All locations and depths are estimates.

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
1*	15'	SE	33'	12'	13+38.80
20*	15'	NE	33'	12'	17+67.83
21*	15'	NE	31'	12'	15+69.83
22*	15'	NE	38'	12'	14+77.71
23*	15'	NE	24'	12'	M47

REDWOOD STREET & SOUTH 181ST STREET

Scale: Horiz. 1"=50'
Vert. 1"=5'



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LOTS 1 THRU 147 INCLUSIVE & OUTLOTS "A" THRU "D"
SARPY COUNTY, NEBRASKA

REDWOOD ST & S 181st ST SANITARY SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMES L. WINTERSTEIN
STATE OF NEBRASKA
ORIGINAL PLANS APPROVED

Revisions		
	Date	Description
0	6/19/2018	As-Built

Proj No:	P2015.497.001
Date:	10/20/2016
Designed By:	JLW
Drawn By:	JJN
Scale:	SEE PLAN
Sheet:	14 of 17

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SOUTH 184TH TERRACE (RIVER OAKS)

RECORD DRAWINGS

THESE PLANS HAVE BEEN REVISED TO CONFORM TO CONSTRUCTION RECORDS

REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

E & A CONSULTING GROUP, INC.

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
98*	72'	SW	29'	11'	6+67
99*	73'	NW	29'	11'	6+62
111*	61'	SE	27'	11'	7+85
112*	46'	NE	35'	11'	8+13
127*	50'	SE	12'	11'	10+09
128*	45'	NE	25'	11'	9+99

* River Oaks Lots

50 0 50
1 inch = 50 ft.

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
57	1+40.31	54 "	RIM = 1132.08 INV IN = 1118.55 (8") INV OUT = 1118.35 (8")	514329.36	2685365.65	13.7	
58	4+73.23	54 "	RIM = 1131.08 INV IN = 1120.08 (8") INV OUT = 1119.88 (8")	513996.89	2685380.23	11.2	
59	6+38.46	54 "	RIM = 1133.36 INV IN = 1120.94 (8") INV IN = 1120.94 (8") INV OUT = 1120.74 (8")	513831.88	2685387.39	12.6	
60	7+85.15	54 "	RIM = 1135.86 INV IN = 1124.66 (8") INV OUT = 1124.56 (8")	513825.49	2685240.89	11.3	
60A	8+12.89	54 "	RIM = 1135.82 INV IN = 1124.91 (8") INV OUT = 1124.81 (8")	513852.97	2685237.20	11.0	

NO REFERENCE NOTES

RN 1 Tap Existing Manhole, Existing Sarpy County Interceptor Sewer, Contractor to Verify Invert Elevation

RN 2 20' Wide Sanitary Sewer Easement Granted to SID 313, SID 309, and Sarpy County

RN 3 50' Wide Sanitary Sewer Easement Granted to SID 313, SID 309, and Sarpy County

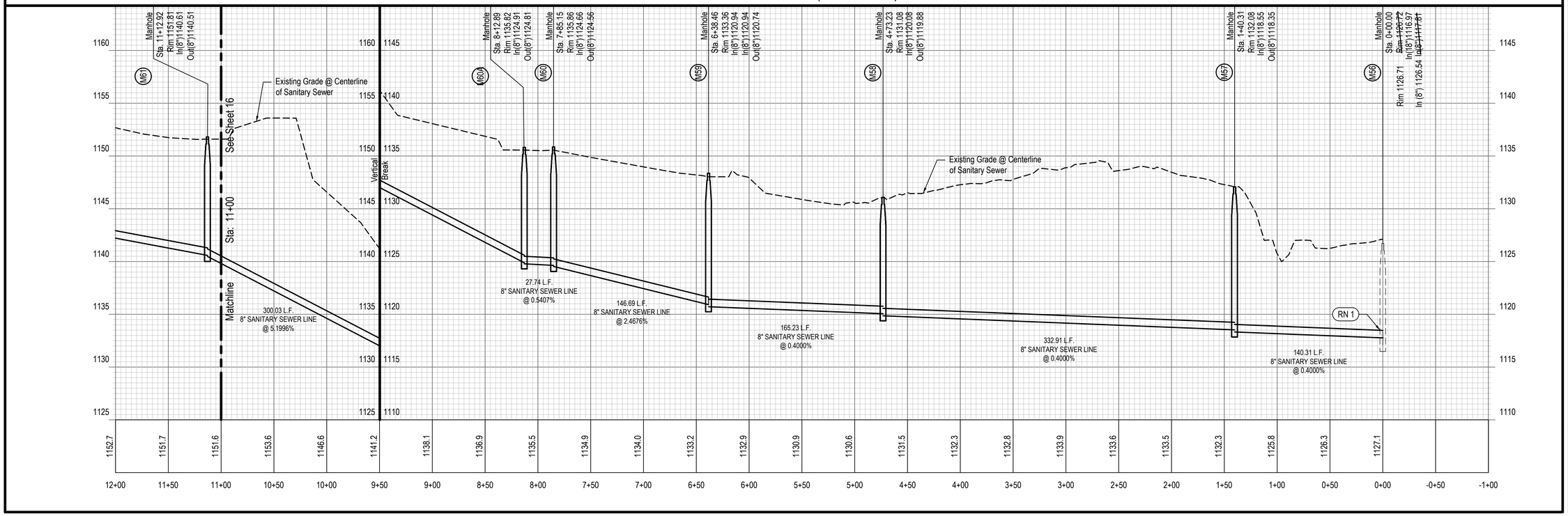
RN 4 Provide 8" Sanitary Sewer with Capped end, 10 LF @ 2.92%

RN 5 Provide 8" Sanitary Sewer with Capped end, 10 LF @ 4.98%

RN 6 Coordinate Connection to Interceptor Sewer with City of Gretna. City Representative Shall be Notified of Connection Schedule and be Present at the Time of Connection.

RN 7 30' Wide Sanitary Sewer Easement Granted to SID 313, SID 309, and Sarpy County

Scale: Horiz. 1"=50'
Vert. 1"=5'



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Engineering Answers

GARDEN OAKS
LOTS 1 THRU 147 INCLUSIVE & OUTLOTS "A" THRU "D"
SARPY COUNTY, NEBRASKA

S 184TH TERRACE
(RIVER OAKS) SANITARY SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
ORIGINAL LICENSED PROFESSIONAL ENGINEER
NATHAN L. WINTERSTEIN
E-19567
6 | 19 | 2018
STATE OF NEBRASKA

Revisions		
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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
71	15'	NW	32'	11'	20+33
72	15'	NW	40'	11'	19+57
73	15'	NW	37'	11'	18~~17~~+75
74	15'	NE	22'	11'	18+82
75	15'	NE	19'	11'	19+69
76	15'	NE	36'	11'	20+53
129*	10'	NW	33'	11'	11+88
130*	10'	NW	32'	11'	12+48
131*	10'	NW	31'	11'	13+14
136*	9'	NE	28'	11'	13+08
137*	8'	NE	27'	11'	12+43
138*	10'	NE	26'	11'	11+94
139*	23'	NE	27'	11'	11+35
140*	11'	SE	27'	11'	11+13
157*	49'	SE	29'	11'	15+98
158*	45'	NE	29'	11'	15+93
159*	10'	NW	34'	11'	18+06
160*	10'	NE	24'	11'	18+26
161*	13'	NE	27'	11'	17+63
162*	28'	NE	31'	11'	~~17+10~~ MH63

* River Oaks Lots

50 0 50
1 inch = 50 ft.

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CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
61	11+12.92	54 "	RIM = 1151.81 INV IN = 1140.61 (8") INV OUT = 1140.51 (8")	513812.57	2684940.02	11.3	
62	0+00.00	54 "	RIM = 1157.46 INV IN = 1146.26 (8") INV IN = 1146.26 (8") INV OUT = 1146.16 (8")	513516.40	2684957.05	11.3	
63	17+09.69	54 "	RIM = 1163.53 INV IN = 1152.33 (8") INV OUT = 1152.23 (8")	513504.16	2684657.41	11.3	
64	20+52.87	54 "	RIM = 1175.49 INV OUT = 1163.49 (8")	513161.10	2684658.70	12.0	

RECORD DRAWINGS

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REVISION DATE: 6/19/2018 BY: HLB

CHECKED BY: RP

CONTRACTOR: Kersten Construction, Inc.

E & A CONSULTING GROUP, INC.

Scale: Horiz. 1"=50'
Vert. 1"=5'

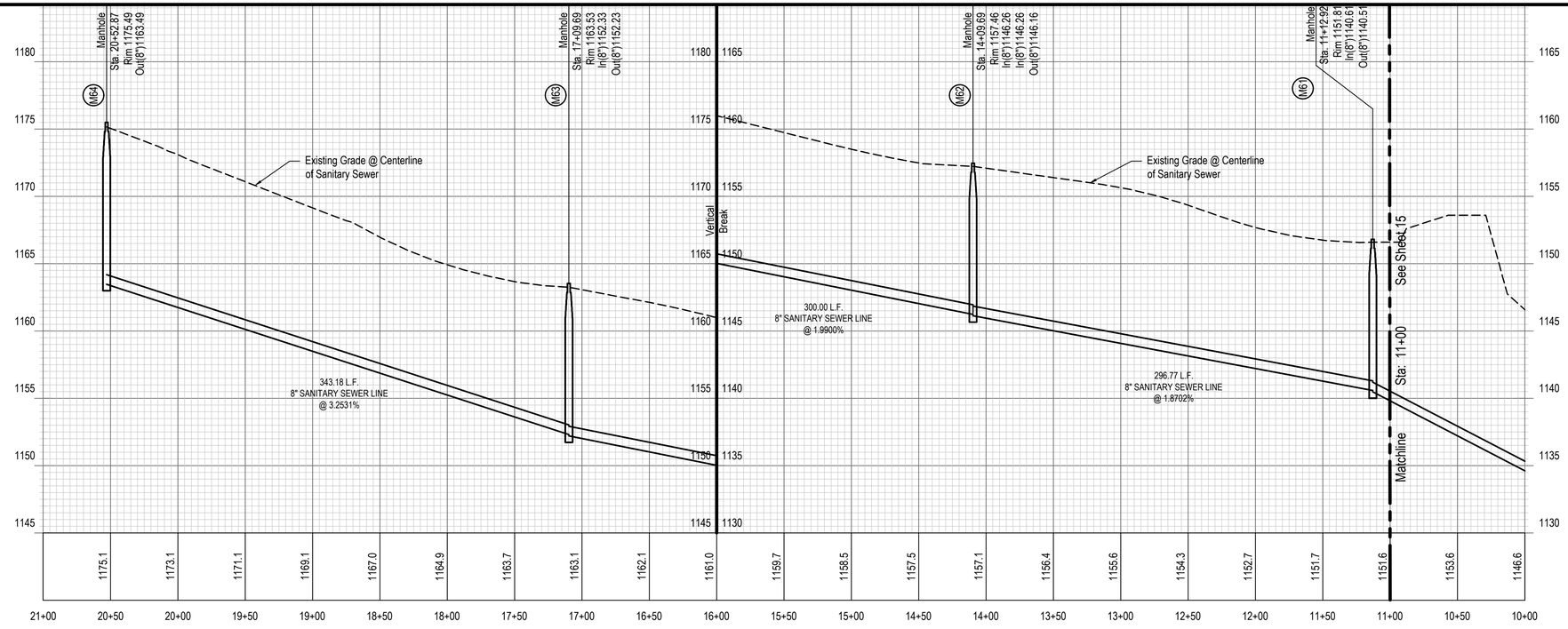
(NO) **REFERENCE NOTES**

RN 1 50' Wide Sanitary Sewer Easement Granted to SID 313, SID 309, and Sarpy County

RN 2 Provide 8" Sanitary Sewer with Capped end, 10 LF @ 1.08%

RN 3 Provide 8" Sanitary Sewer with Capped end, 10 LF @ 2.10%

SOUTH 184TH TERRACE (RIVER OAKS)



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GARDEN OAKS
LOTS 1 THRU 147 INCLUSIVE &
OUTLOTS "A" THRU "D"
SARPY COUNTY, NEBRASKA

S 184TH TERRACE
(RIVER OAKS) SANITARY
SEWER PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMIE A. WINTERSTEIN
E-14963
6/19/2018
ORIGINAL DOCUMENT SEALED
STATE OF NEBRASKA

Revisions

	Date	Description
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6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
34	15'	SW	30'	11'	0+14
35	15'	SW	27'	12'	MH 66
36	15'	SW	38'	12'	1+41
37	15'	NW	38'	11'	MH 67
38	15'	NW	37'	12'	2+57
39	15'	NW	29'	12'	3+29
40	15'	NW	31'	11.5'	MH 69
48	20'	NW	29'	12'	0+19
49	15'	NE	31'	12'	MH 68
50	15'	NE	29'	12'	3+79

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
66	0+94.22	54 "	~~RIM = 1134.28~~ INV IN = 1122.90 (8") ~~INV OUT = 1122.70 (8")~~	513834.23	2685481.55	~~11.8~~ 12.5	RIM= 1135.33 INV OUT= 1122.84 (8")
67	1+87.01	54 "	RIM = 1136.73 INV IN = 1125.25 (8") ~~INV OUT = 1125.05 (8")~~	513790.59	2685563.40	11.7	INV OUT= 1125.06 (8")
68	2+95.89	54 "	~~RIM = 1139.62~~ INV IN = 1128.06 (8") ~~INV OUT = 1127.86 (8")~~	513686.50	2685595.23	~~11.8~~ 12.0	RIM= 1139.89 INV OUT= 1127.90 (8")
69	4+05.99	54 "	RIM = 1142.20 INV OUT = ~~1130.37 (8")~~	513576.53	2685599.53	~~11.8~~ 11.7	INV OUT= 1130.48 (8")

6 INCH SERVICE LINE LOCATIONS

LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
62	15'	NW	21'	12'	2+52
63	15'	NW	22'	12'	1+73
64	15'	NE	37'	11'	1+65
65	15'	NE	38'	12'	2+45
66	15'	NE	30'	12'	3+17

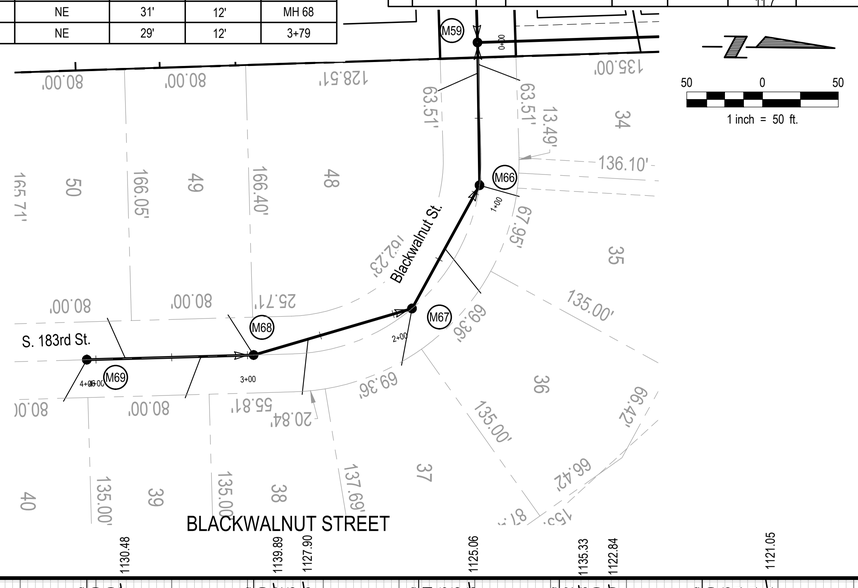
6 INCH SERVICE LINE LOCATIONS

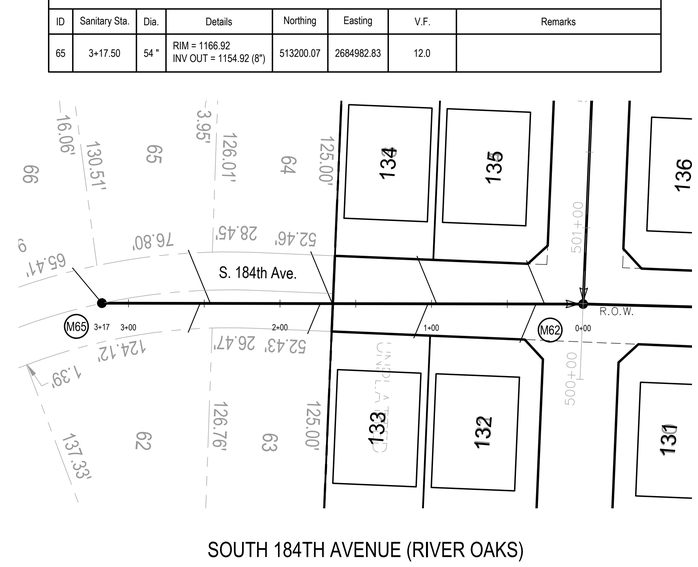
LOT NO.	DIST. FROM PL		LENGTH L.F.	DEPTH FT.	WYE STA.
	DIST.	PROP. CORNER			
132*	60'	SW	28'	11'	0+31
133*	10'	NW	25'	11'	1+02
134*	10'	NE	34'	11'	0+96
135*	62'	SE	31'	11'	0+25

* River Oaks Lots

CONSTRUCT SANITARY SEWER MANHOLE

ID	Sanitary Sta.	Dia.	Details	Northing	Easting	V.F.	Remarks
65	3+17.50	54 "	RIM = 1166.92 INV OUT = 1154.92 (8")	513200.07	2684982.83	12.0	





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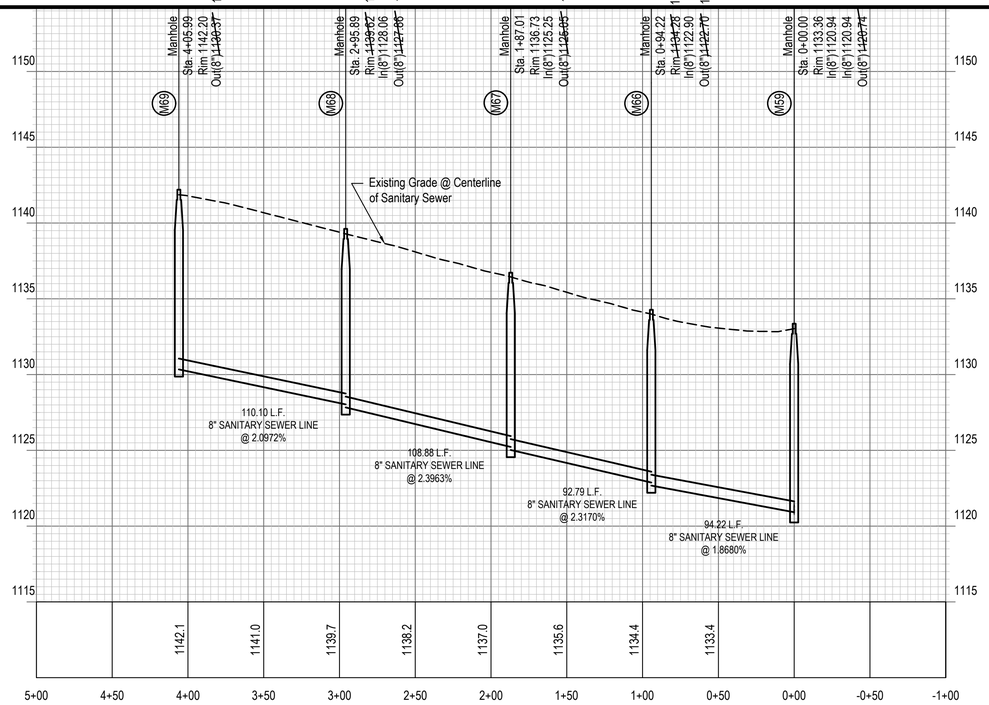

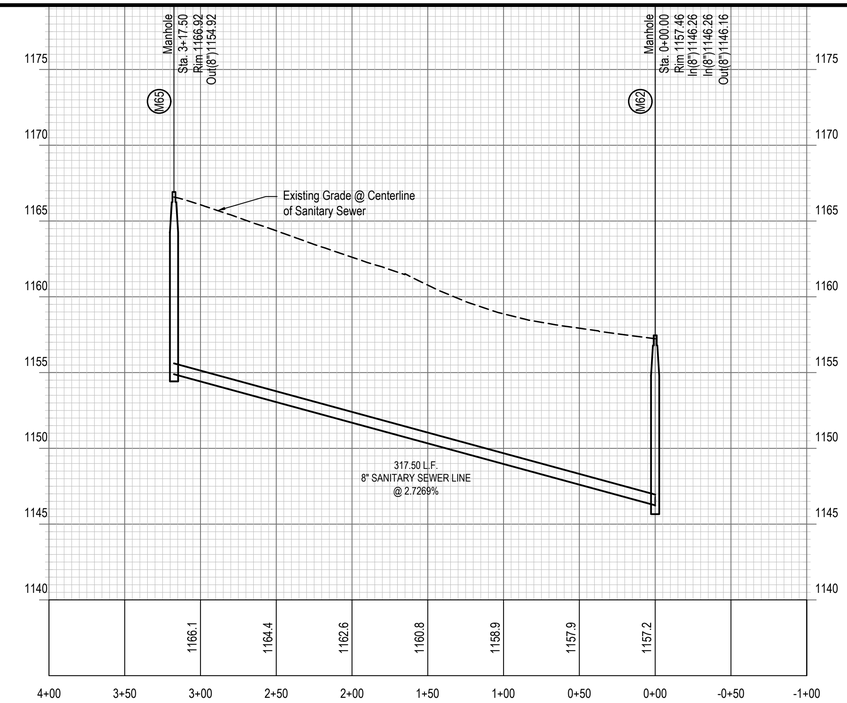

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SARPY COUNTY, NEBRASKA

BLACKWALNUT ST & S 184TH AVE (RIVER OAKS) SS PLAN & PROFILE

PROFESSIONAL CIVIL ENGINEER
JAMIE L. WINTERSTEIN
E-11262
6/19/2018
STATE OF NEBRASKA
ORIGINAL PROFESSIONAL ENGINEER

Revisions

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