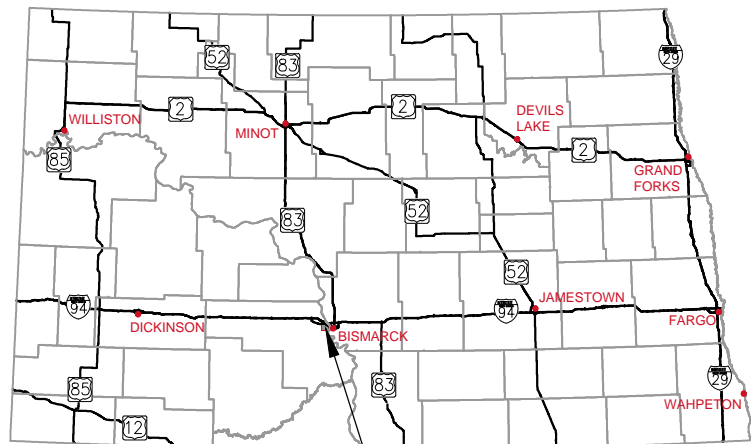
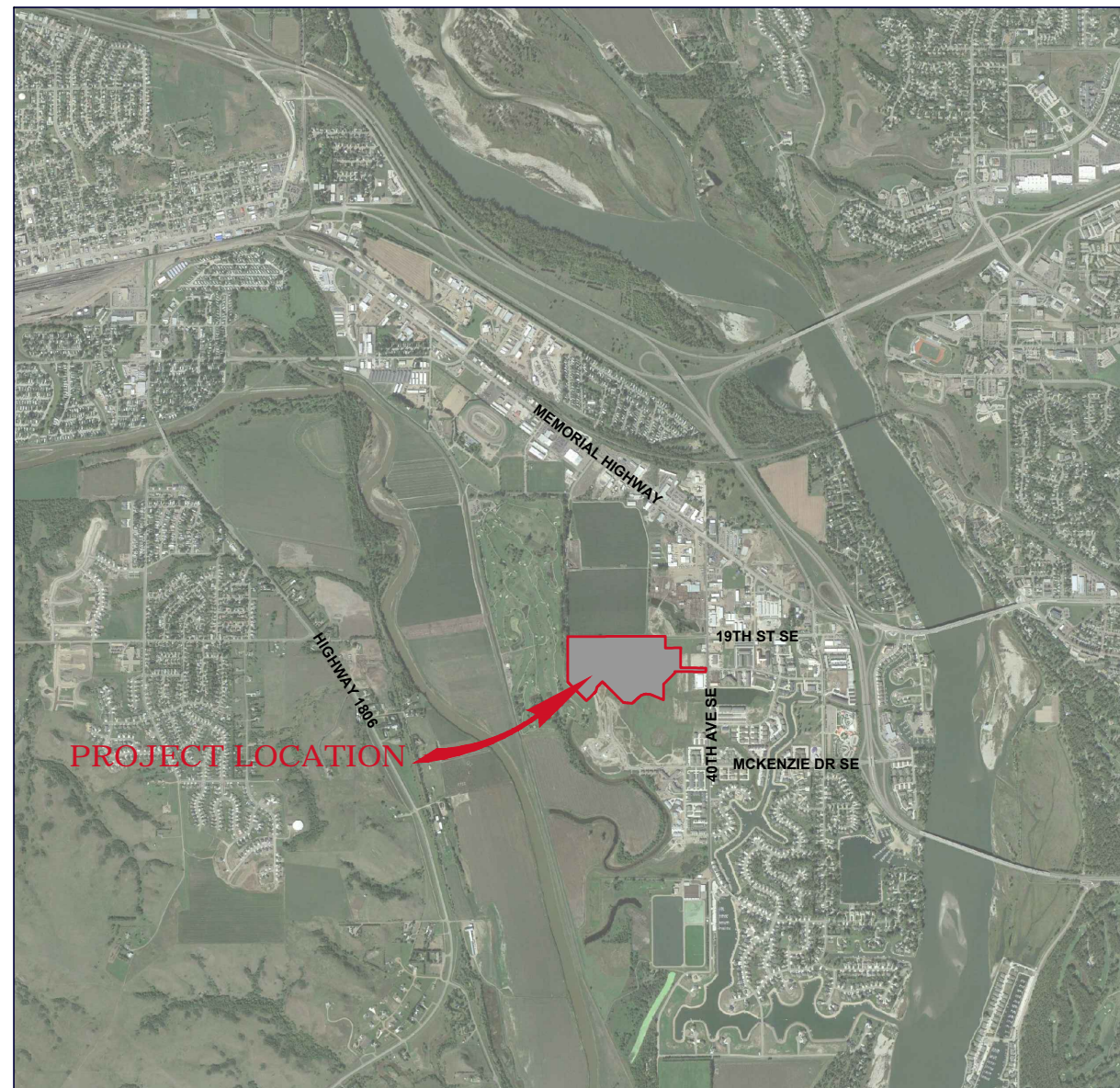


LAKWOOD 9TH ADDITION WATER AND SANITARY SEWER IMPROVEMENTS

OCTOBER 23, 2015



STATE OF NORTH DAKOTA PROJECT LOCATION



VICINITY MAP

NO SCALE

INDEX OF SHEETS

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- 10-11 34TH AVENUE SE PLAN & PROFILE
- 12-13 AMITY CIRCLE SE PLAN & PROFILE
- 14 DETAILS

UTILITY COMPANIES

GAS:
MONTANA-DAKOTA UTILITIES CO.
308 1ST STREET NW
MANDAN, ND 58554
PH: 701-663-8713

CITY OF MANDAN
PUBLIC WORKS DEPARTMENT
411 6TH AVENUE SW
MANDAN, ND 58554
PH: 701-667-3240
JEFF WRIGHT

ELECTRIC:
MOR-GRAN-SOU ELECTRIC COOP. INC.
2816 37TH ST. NW
MANDAN, ND 58554
PH: 701-663-0297

CABLE:
MIDCONTINENT COMMUNICATIONS
719 MEMORIAL HIGHWAY
BISMARCK, ND 58501
PH: 1-800-888-1300

PHONE:
CENTURYLINK
1101 16TH STREET NE
MANDAN, ND 58554
PH: 701-222-6820

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ONE CALL
BEFORE DIGGING
1-800-795-0555

BASIS OF SURVEY

ALL CONTOURS, ELEVATIONS, AND COORDINATES FOR THE PROJECT ARE BASED ON NAD83 STATE PLANE COORDINATE SYSTEM, NORTH DAKOTA SOUTH ZONE, INTERNATIONAL FEET, AND NAVD 88.

REVISED SET 10-23-15

3203 32ND AVE S, SUITE 201
FARGO, ND 58103
PH: 701.232.5353
FAX: 855.288.8055
www.kljeng.com



KLJ PROJECT NO. 14615136



NO.	DATE	REVISION	CITY COMMENTS
1	10/23/15		

DRAFTED	JA
REVIEWED	JP
PROJECT NUMBER	14615136
ISSUE DATE	9/15/15

LAKewood 9th ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA
LEGEND & ESTIMATED QUANTITIES

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ESTIMATED QUANTITIES

WATER & SANITARY SEWER ESTIMATED QUANTITIES			
Item No.	Description	Unit	Quantity
1	MOBILIZATION	LS	1
2	SUBCUT GRAVEL	TON	160
3	8" SDR-35 PVC SANITARY SEWER	LF	3712
4	TELEWISE SEWER MAIN	LF	3712
5	8" PVC C-900 WATER MAIN	LF	4299
6	6" PVC C-900 WATERMAIN	LF	121
7	6" HYDRANT	EA	8
8	8" GATE VALVE AND BOX	EA	10
9	6" GATE VALVE AND BOX	EA	8
10	8" TAPPING SLEEVE WITH 8" VALVE	EA	1
11	10" TAPPING SLEEVE WITH 8" VALVE	EA	1
12	48" SANITARY SEWER MANHOLE	EA	14
13	4" SDR-35 PVC SEWER SERVICE	LF	2464
14	8" X 4" SEWER SERVICE CONNECTION	EA	68
15	1" TYPE K COPPER WATER SERVICE	LF	2263
16	1" CURB STOP AND BOX	EA	68
17	8" X 1" WATER SERVICE CONNECTION	EA	68

8-23-15 REVISION SUMMARY

1. RAISE SANITARY SEWER BY 0.80' ON 21ST STREET AND AMITY CIRCLE
2. REMOVE ALL STORM SEWER ITEMS. STORM SEWER TO BE INSTALLED BY OTHERS
3. MOVE ALL WATERMAIN TO A MINIMUM OF 8' FROM BACK OF CURB
4. RELOCATE STORM SEWER ALIGNMENT THROUGH AMITY CIRCLE LOTS. MOVE WATER AND SEWER SERVICES AWAY FROM STORM SEWER. REVISE WATERMAIN DEPTH UNDER STORM SEWER.
5. ADD BID ITEMS FOR TAPPING SLEEVES TO CONNECT TO EXISTING WATERMAINS.

LEGEND		
EXISTING	ITEM	PROPOSED
	WATER MAIN	
	FIRE HYDRANT	
	GATE VALVE	
	CURB STOP	
	BEND	
	TEE	
	CROSS	
	REDUCER	
	WATER MANHOLE	
	SPRINKLER HEAD	
	WATER METER	
	SANITARY SEWER MAIN	
	SANITARY MANHOLE	
	CLEANOUT	
	STORM SEWER MAIN	
	STORM SEWER MANHOLE	
	CURB INLET	
	CATCH BASIN	
	UNDER GROUND ELECTRIC	
	OVERHEAD ELECTRIC	
	POWER POLE	
	GUY WIRE	
	LIGHT POLE	
	ELECTRICAL JUNCTION BOX	
	ELECTRICAL METER	
	ELECTRICAL OUTLET/PLUG-IN	
	UNDERGROUND TELEPHONE	
	TELEPHONE MANHOLE	
	TELEPHONE PEDESTAL	
	UNDERGROUND CABLE TV	
	CABLE TV PEDESTAL	
	GAS METER	
	GAS LINE	
	FUEL LINE	
	CONCRETE CURB & GUTTER	
	EDGE OF ASPHALT SURFACE	
	EDGE OF GRAVEL SURFACE	
	BITUMINOUS/CONCRETE SURFACE	
	BUILDING	
	SILT FENCE	
	CHAIN LINK FENCE	
	WOOD FENCE	
	BARB WIRE FENCE	
	TREES CONIFEROUS/ DECIDUOUS	
	BUSH	
	CULVERT	
	DRAINAGE DIRECTION	
	SIGN	
	MAIL BOX	
	PROPERTY PIN	
	CONTROL POINT	



GENERAL

- ALL CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS; THE CITY OF MANDAN STANDARD SPECIFICATIONS AND DETAILS; AND THE CONSTRUCTION DOCUMENTS TITLED LAKEWOOD 9TH WATER, SANITARY SEWER, AND STORM SEWER IMPROVEMENTS MANDAN, NORTH DAKOTA.
- THESE NOTES APPLY TO THE ENTIRE PROJECT EXCEPT AS INDICATED OTHERWISE. CONTRACTOR SHOULD NOTE THAT ADDITIONAL CONSTRUCTION NOTES ARE INCLUDED ON INDIVIDUAL DRAWINGS.
- THESE NOTES ARE FOR GENERAL REFERENCE IN CONJUNCTION WITH AND AS A SUPPLEMENT TO THE WRITTEN SPECIFICATIONS, DETAILS, ADDENDA AND CHANGE ORDERS ASSOCIATED WITH THE CONTRACT DOCUMENTS.
- REQUESTS BY THE CONTRACTOR OR OWNER SHALL BE APPROVED IN WRITING BY THE ENGINEER AND CITY PRIOR TO IMPLEMENTATION.
- ANY ERRORS OR OMISSIONS DISCOVERED BY THE CONTRACTOR IN THE PLAN SET SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WHEN DISCOVERED. THE CONTRACTOR SHALL ALLOW TIME FOR CLARIFICATION.
- ITEMS NOT INCLUDED IN THE PLANS AS A PAY ITEM BUT INCLUDED ELSEWHERE IN THE PLANS SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND SHALL BE CONSIDERED INCIDENTAL ITEMS.
- THIS PLAN SET HAS A LIST OF GENERAL ABBREVIATIONS AND SYMBOLS AND MATERIALS LEGENDS LISTED ON IT. SOME SYMBOLS, MATERIALS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- THE CONTRACTOR SHALL PROVIDE A ONE (1) WEEK NOTICE TO THE ENGINEER, OWNER AND THE CITY OF MANDAN PRIOR TO BEGINNING ANY CONSTRUCTION.
- ALL DITCH GRADES, CONTOURS AND CROSS SECTIONS REPRESENT THE FINISHED GRADE (TOP OF THE TOPSOIL). IN AREAS WHERE TOPSOIL IS TO BE PLACED, THE GRADING SHALL BE COMPLETED BY CUTTING OR FILLING EARTHWORK TO A POINT 10 INCHES BELOW THE FINAL GRADE; WITH TOPSOIL BRINGING THE GRADING TEMPLATE TO FINISHED GRADE ELEVATIONS. THE EARTHWORK SHALL BE CONSTRUCTED TO THE LINES AND GRADES AS SHOWN ON THE PLANS.

PROTECTION OF EXISTING UTILITIES AND MONUMENTS

- THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. UNDERGROUND LOCATES MAY BE MADE USING THE "ONE CALL" NUMBER 1-800-795-0555 OR 811.
- THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS. MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

REMOVALS

- EXCESS EXCAVATED MATERIAL INCLUDING PIPE, STUMPS, ROOTS, SOIL MATERIALS AND ANY OTHER ITEMS THE OWNER DOES NOT WISH TO SALVAGE SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY, INCIDENTAL TO THE CONTRACT. ASPHALT AND CONCRETE SHALL BE DISPOSED OF OFFSITE AT A LICENSED LANDFILL, INCIDENTAL TO THE CONTRACT.

WATER & SANITARY SEWER

- PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, ELEVATION, MATERIAL AND SIZE OF THE EXISTING WATER AND SEWER MAIN AT THE POINTS OF CONNECTION. CONNECTIONS BETWEEN NEW AND EXISTING PIPES SHALL USE PROPER FITTINGS TO SUIT THE ACTUAL CONDITIONS ENCOUNTERED. FITTINGS NECESSARY TO MAKE ALL CONNECTIONS SHALL BE INCIDENTAL.
- THE CONTRACTOR IS TO PROVIDE AND MAINTAIN ADEQUATE DEWATERING EQUIPMENT TO REMOVE AND DISPOSE OF ANY SURFACE AND GROUNDWATER ENTERING THE TRENCH. ALL COSTS ASSOCIATED WITH WELLPOINT DEWATERING, AND OTHER PUMP SYSTEMS, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. PERMITS REQUIRED FOR DEWATERING SHALL BE OBTAINED BY THE CONTRACTOR.
- DEPTH OF COVER FOR ALL WATERLINES SHALL BE A MINIMUM OF 7 FEET 6 INCHES MEASURED FROM THE GROUND SURFACE TO THE TOP OF PIPE. MAINS SHALL BE LOWERED, AS REQUIRED, TO AVOID CONFLICTS WITH EXISTING UTILITIES AND TO MAINTAIN SPECIFIED SEPARATIONS.
- WATER MAIN DEFLECTIONS FROM A STRAIGHT LINE OR GRADE ARE TO BE MADE WITH FITTINGS, DEFLECTED JOINTS, SHORTER PIPE SECTIONS OR A COMBINATION OF THESE METHODS TO CONFORM TO THE ALIGNMENT AND PROFILE INDICATED ON THE DRAWINGS AND SPECIFICATIONS. DEFLECTED JOINTS SHALL NOT EXCEED THE PIPE MANUFACTURERS RECOMMENDATION.
- ALL SANITARY SEWER MANHOLES SHALL HAVE A MONOLITHIC BASE WITH PRECAST INVERTS.
- ALL PIPE BEDDING SHALL BE CONSIDERED INCIDENTAL TO THE PIPE INSTALLED.
- WHERE THE BOTTOM OF THE TRENCH UNCOVERED AT SUBGRADE IS UNSUITABLE AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, FURTHER DEPTH AND/OR WIDTH SHALL BE EXCAVATED AND REFILLED TO THE PIPE FOUNDATION GRADE WITH SUBCUT GRAVEL THOROUGHLY COMPACTED. SUBCUT GRAVEL SHALL BE MEASURED BY THE TON AND PAID FOR AT THE UNIT PRICE FOR "SUBCUT GRAVEL" COMPLETE IN PLACE AND ACCEPTED BY THE ENGINEER.

TRAFFIC CONTROL AND SIGNAGE

- THE CONTRACTOR SHALL MAINTAIN INGRESS/EGRESS ACCESS TO INDIVIDUAL PROPERTY OWNERS AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE DETOURS AND ANY TEMPORARY CLOSURES WITH EACH PROPERTY OWNER AND THE CITY OF MANDAN ENGINEERING DEPARTMENT. THE CONTRACTOR SHALL KEEP THE DURATION OF ALL CLOSURES AND DETOURS TO A MINIMUM.
- THE CONTRACTOR SHALL MAINTAIN TEMPORARY DETOUR ROADS UNTIL DETOUR IS NO LONGER NECESSARY. MAINTENANCE COSTS SHALL BE INCIDENTAL TO THE CONTRACT.
- THE CONTRACTOR SHALL FOLLOW THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND GUIDES FOR TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION.
- THE CONTRACTOR SHALL FOLLOW NORTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS WHEN SETTING UP THE TRAFFIC CONTROL DEVICES.

STORM WATER POLLUTION PREVENTION

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A GENERAL PERMIT (NPDES) FROM THE NORTH DAKOTA DEPARTMENT OF HEALTH. AN APPLICATION PACKAGE WITH ALL RELATED AND SUBSEQUENT REQUIREMENTS MAY BE ACQUIRED BY CONTACTING THE NORTH DAKOTA DEPARTMENT OF HEALTH AT 701-328-5210.
- THE CONTRACTOR IS RESPONSIBLE FOR MINIMIZING TRACKING OF SOIL AND DEBRIS ONTO ADJACENT PROPERTIES AND ROADWAYS. TRACKING MUST BE REMOVED BY THE END OF EACH DAY.
- THE CONTRACTOR SHALL BE REQUIRED TO CLEAN STREETS AND SIDEWALKS AND REPAIR TO THE CONDITION THEY WERE IN PRIOR TO THE START OF CONSTRUCTION BEFORE OPENING UP TO TRAFFIC.
- THE CONTRACTOR SHALL INSTALL A CENTRAL CONCRETE WASHOUT LOCATION AND PROVIDE A SIGN TO IDENTIFY THE CONCRETE WASHOUT AREA. THE CONTRACTOR SHALL CONSTRUCT A PIT TO PREVENT WASHOUT WATER FROM FLOWING TO THE STORM WATER COLLECTION SYSTEM.

LIST OF CITY OF MANDAN STANDARD DETAILS:

- 1308A - SANITARY SEWER MANHOLE
- 1325A - WATER-SEWER MAIN CROSSING
- 1326 - CONCRETE TRUST BLOCKING
- 1327 - PIPE BACKFILL

BENCHMARKS

PT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
11	MA NAIL IN ASPHALT #154	416073.473	1881325.653	1637.066
13	3/4" RBR LATA 5008	414878.664	1883085.464	1635.584
400	2 1/2" AL CAP IN MON. BOX	416112.792	1883763.046	1634.374
404	YLW CAP LS 4623	415115.200	1883473.954	1639.669
405	3" BRASS CAP	416101.722	1881119.378	1636.951
406	1" AL CAP RLS 2615	414788.122	1881622.916	1637.288

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REVISION			
CITY COMMENTS			
DATE	10/23/15		
NO.	1		

DRAFTED	JA
REVIEWED	JP
PROJECT NUMBER	14615136
ISSUE DATE	9/15/15

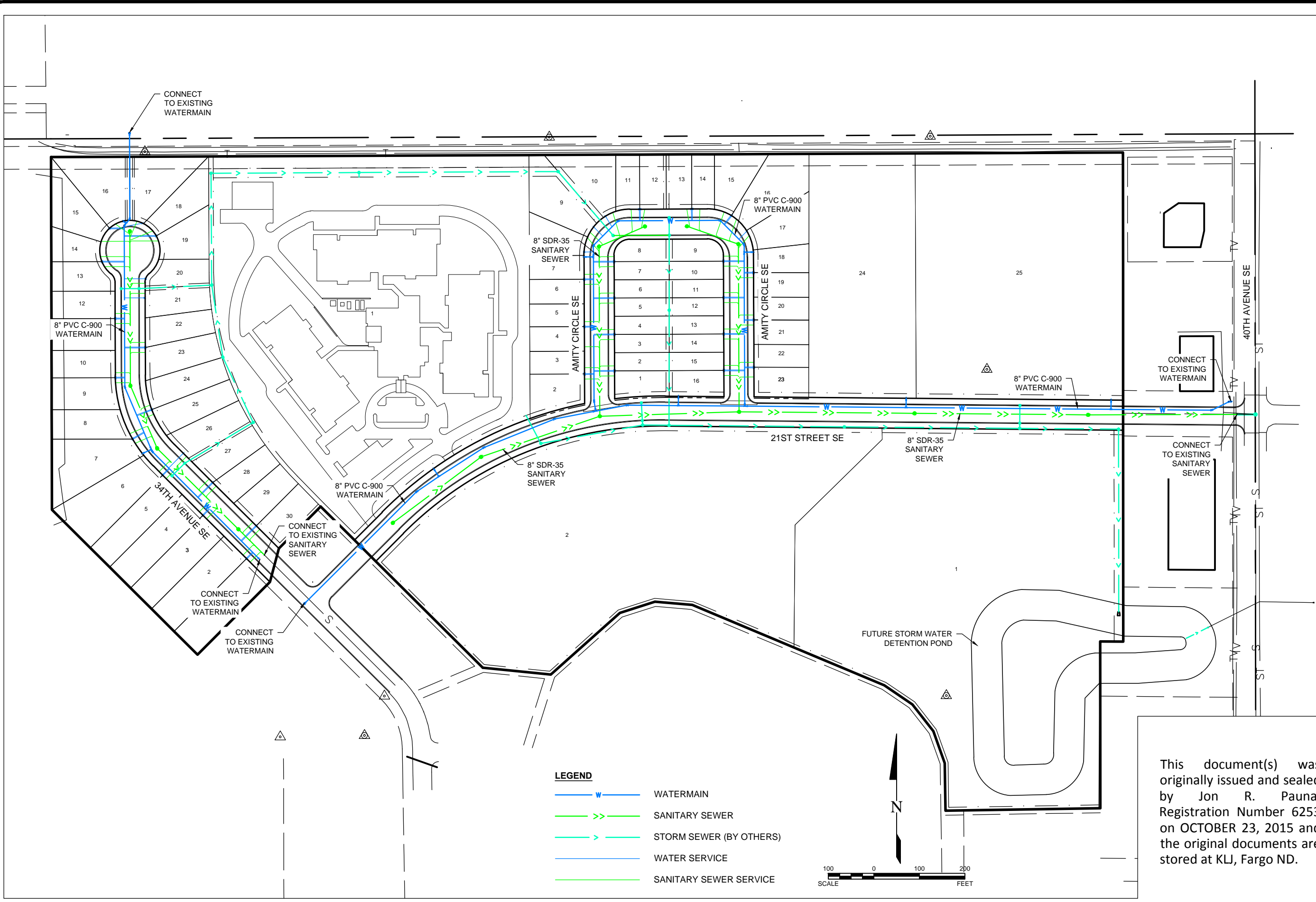
LAKWOOD 9TH ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA
GENERAL NOTES



NO.	DATE	REVISION
1	10/23/15	CITY COMMENTS

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LAKewood 9th ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA
UTILITIES SCOPE OF WORK



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STRUCTURE SUMMARY

- SANITARY SEWER MANHOLE CASTING:
- NEENAH FOUNDRY COMPANY R-1733
 - EAST JORDAN IRON WORKS 1205
 - MUNICIPAL CASTINGS, INC 301
 - APPROVED EQUAL.

SSMH1
48" DIA.
STA. 3+57.54, 0.00'
RIM = 1638.39
NE INV= 1629.13

SSMH6
48" DIA.
STA. 19+50.00, 0.00'
RIM = 1638.05
W INV= 1622.37
E INV= 1622.27

SSMH11
48" DIA.
STA. 49+05.36, 4.15' LT
RIM = 1639.04
NE INV= 1628.55
S INV= 1628.45

SSMH2
48" DIA.
STA. 6+00.00, 0.00'
RIM = 1638.98
SW INV= 1628.16
E INV= 1628.06

SSMH7
48" DIA.
STA. 27+32.61, 0.00'
RIM = 1641.14
S INV= 1633.15

SSMH12
48" DIA.
STA. 50+21.59, 0.00' RT
RIM = 1638.66
SW INV= 1628.99

SSMH3
48" DIA.
STA. 8+76.94, 0.00'
RIM = 1637.87
W INV= 1626.96
N INV= 1626.96
E INV= 1626.86

SSMH8
48" DIA.
STA. 30+72.05, 1.14' RT
RIM = 1639.69
N INV= 1631.79
SE INV= 1631.69

SSMH13
48" DIA.
STA. 51+13.91, 0.00' RT
RIM = 1638.61
E INV= 1627.69

SSMH4
48" DIA.
STA. 11+83.53, 0.00'
RIM = 1638.57
E INV= 1625.54
W INV= 1625.64
N INV= 1625.64

SSMH9
48" DIA.
STA. 32+23.39, 0.88' RT
RIM = 1639.09
NW INV= 1631.09
SE INV= 1630.99

SSMH14
48" DIA.
STA. 52+38.78, 5.63' LT
RIM = 1638.99
W INV= 1627.21
S INV= 1627.11

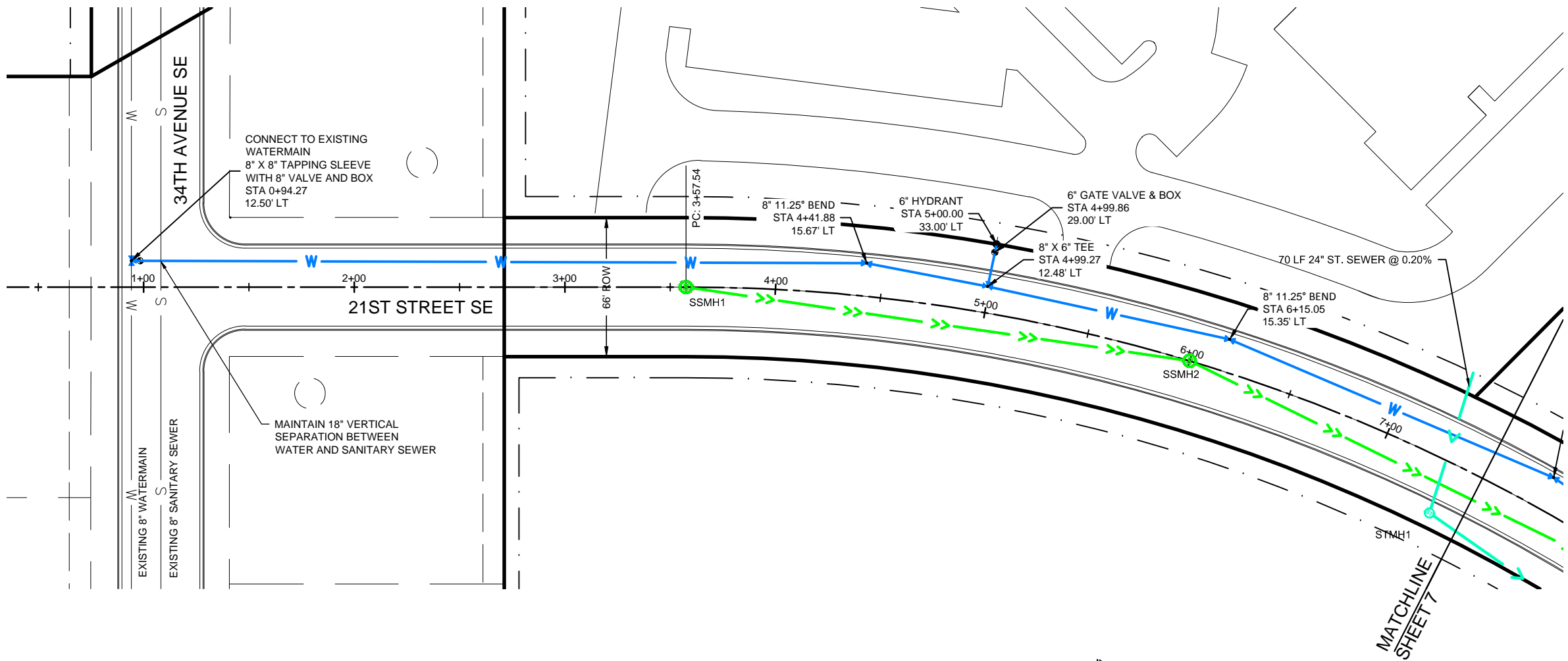
SSMH5
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STA. 15+68.72, 0.00'
RIM = 1638.72
E INV= 1623.90
W INV= 1624.00

SSMH10
48" DIA.
STA. 34+75.01, 0.00'
RIM = 1638.22
NW INV= 1629.98
SE INV= 1629.88

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PROJECT NUMBER 14615136			
ISSUE DATE 9/15/15			

LAKELWOOD 9TH ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA
STRUCTURE & CASTING SUMMARY



QUANTITIES THIS SHEET

SANITARY SEWER

48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	392 LF

WATERMAIN

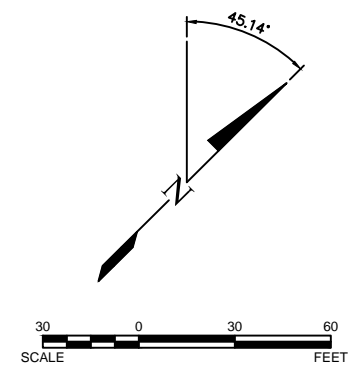
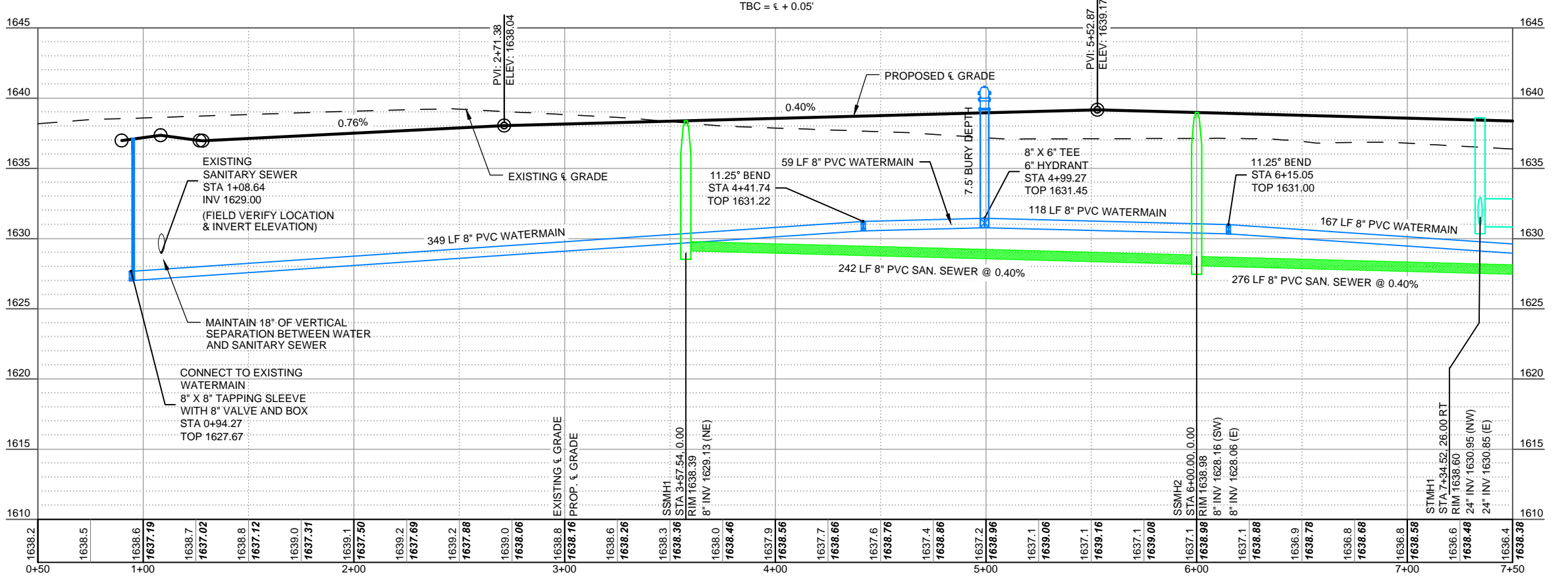
8" PVC C-900 WATERMAIN	663 LF
6" PVC C-900 WATERMAIN	20 LF
6" HYDRANT	1 EA
6" GATE VALVE & BOX	1 EA
8" TAPPING SLEEVE WITH 8" VALVE	1 EA

NOTES:

AS AN ALTERNATIVE TO INSTALLING 11.25° BENDS, CONTRACTOR MAY DEFLECT WATERMAIN IN ACCORDANCE WITH THE FOLLOWING CHART. WATERMAIN SHALL MAINTAIN A MINIMUM DISTANCE OF 10' FROM SANITARY AND STORM SEWERS. PIPE DEFLECTION SHALL NOT OCCUR AT JOINTS.

PRESSURE PIPE BENDING ALLOWANCE

PIPE DIA. (INCH)	PIPE LENGTH (FT)	MIN RADIUS (FT)	MAX OFFSET (INCH)
6	20	165	15
	40	165	30
8	20	215	11
	40	215	45
10	20	265	10
	40	265	36

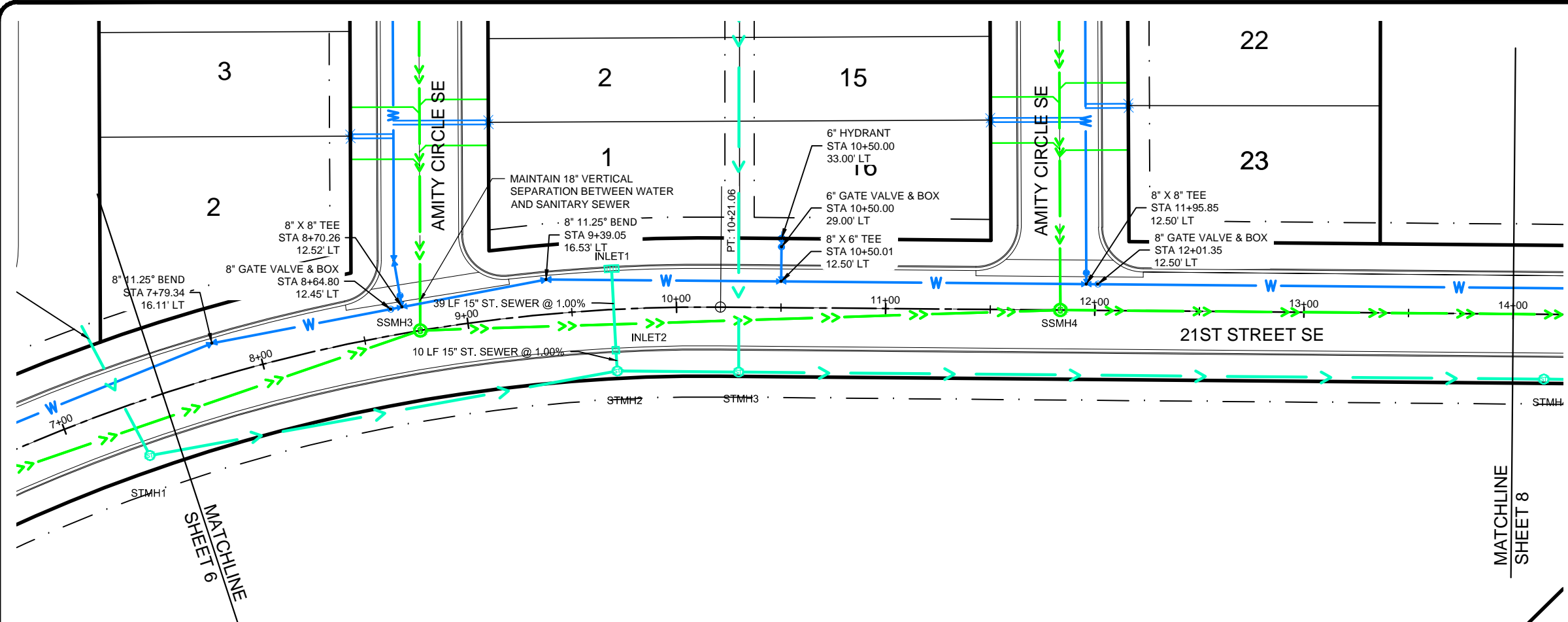


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LAKWOOD 9TH ADDITION
VE LAND COMPANY LLC.
MANDAN, NORTH DAKOTA

21ST STREET PLAN & PROFILE, STA 0+50 - 7+50



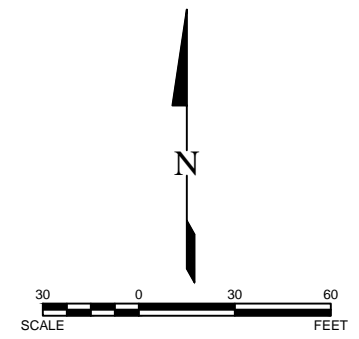
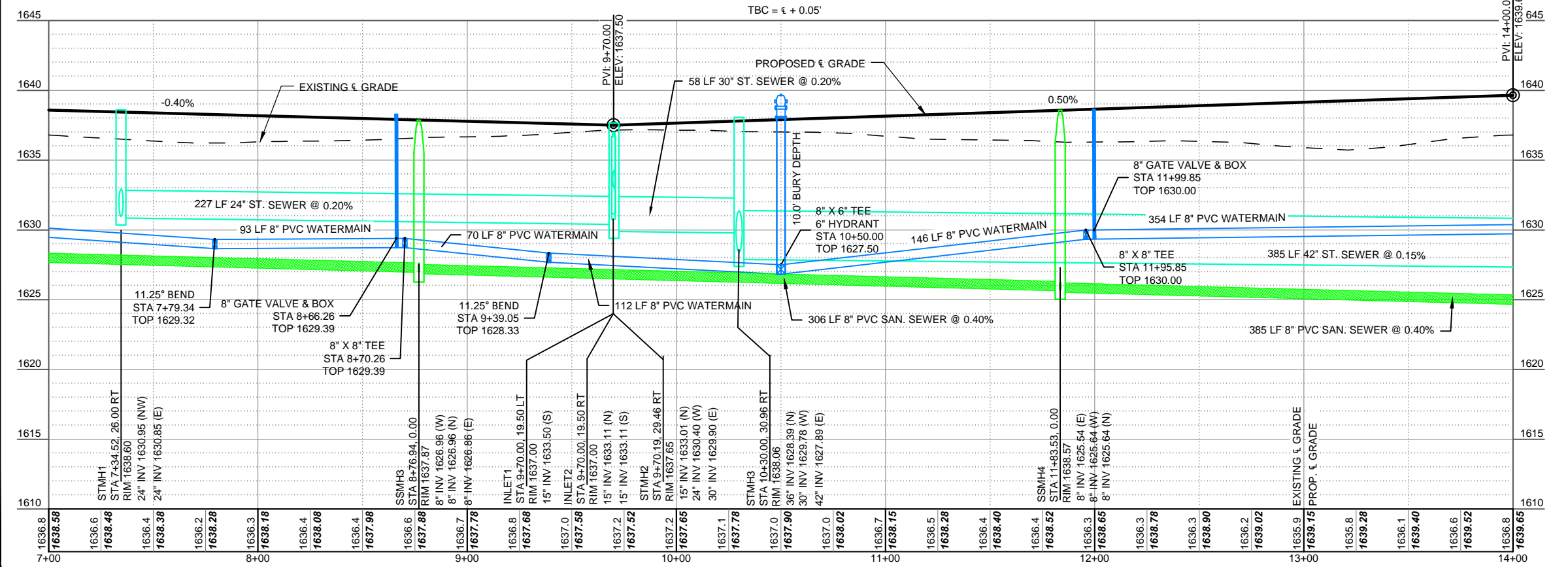
QUANTITIES THIS SHEET

SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	649 LF
WATERMAIN	
8" PVC C-900 WATERMAIN	655 LF
6" PVC C-900 WATERMAIN	19 LF
6" HYDRANT	1 EA
8" GATE VALVE & BOX	2 EA
6" GATE VALVE & BOX	1 EA

NOTES:
 AS AN ALTERNATIVE TO INSTALLING 11.25° BENDS, CONTRACTOR MAY DEFLECT WATERMAIN IN ACCORDANCE WITH THE FOLLOWING CHART. WATERMAIN SHALL MAINTAIN A MINIMUM DISTANCE OF 10' FROM SANITARY AND STORM SEWERS. PIPE DEFLECTION SHALL NOT OCCUR AT JOINTS.

PRESSURE PIPE BENDING ALLOWANCE

PIPE DIA. (INCH)	PIPE LENGTH (FT)	MIN RADIUS (FT)	MAX OFFSET (INCH)
6	20	165	15
	40	165	30
8	20	215	11
	40	215	45
10	20	265	10
	40	265	36



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NO.	DATE	REVISION	CITY COMMENTS
1	10/23/15		

DRAFTED	JA
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PROJECT NUMBER	14615136
ISSUE DATE	9/15/15

LAKewood 9th ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA

21ST STREET PLAN & PROFILE, STA 7+50 - 14+00



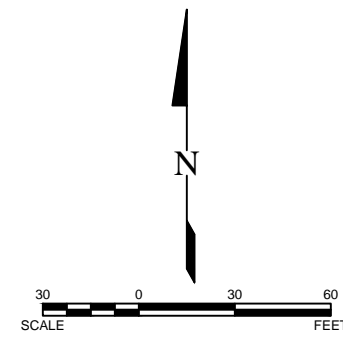
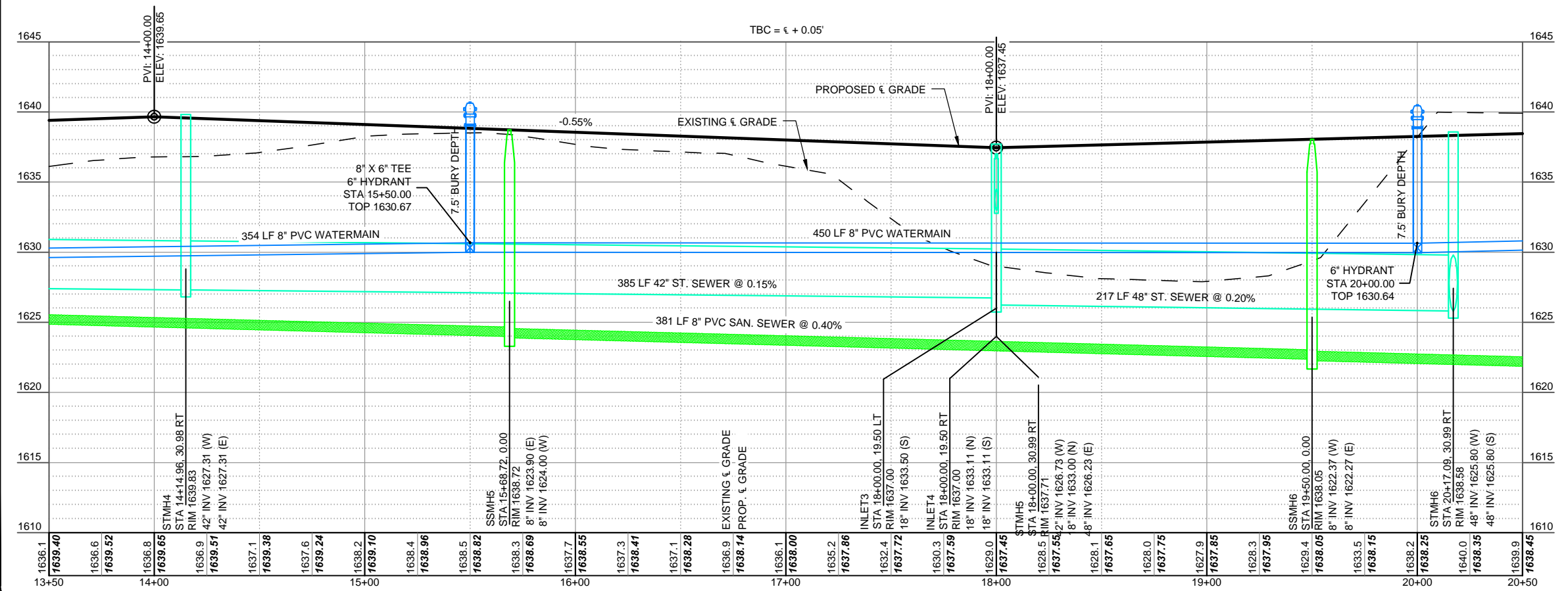
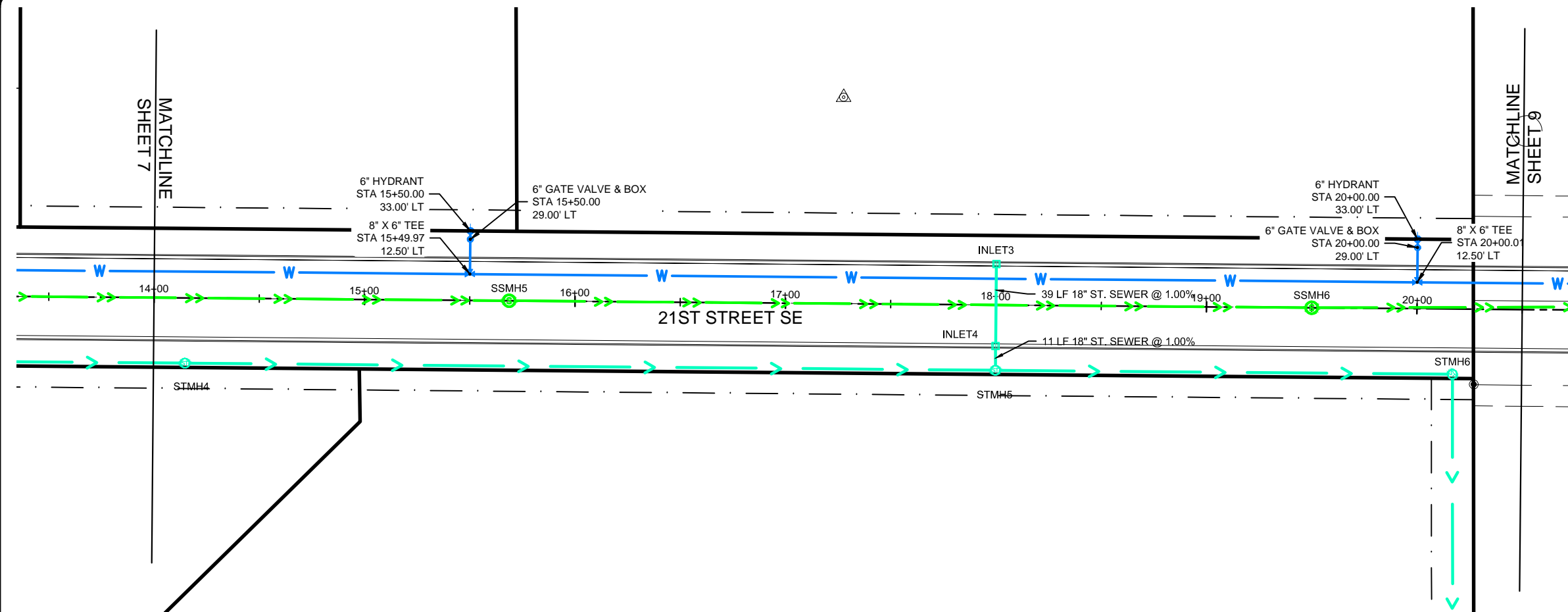
NO.	DATE	REVISION	CITY COMMENTS
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LAKewood 9th ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA
21ST STREET PLAN & PROFILE, STA 14+00- 20+50

QUANTITIES THIS SHEET

SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	650 LF
WATERMAIN	
8" PVC C-900 WATERMAIN	650 LF
6" PVC C-900 WATERMAIN	38 LF
6" HYDRANT	2 EA
6" GATE VALVE & BOX	2 EA

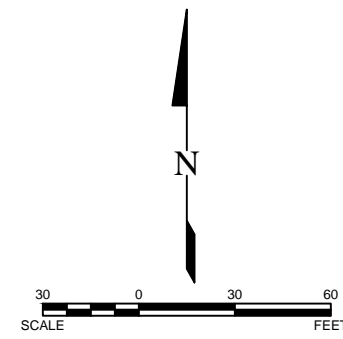
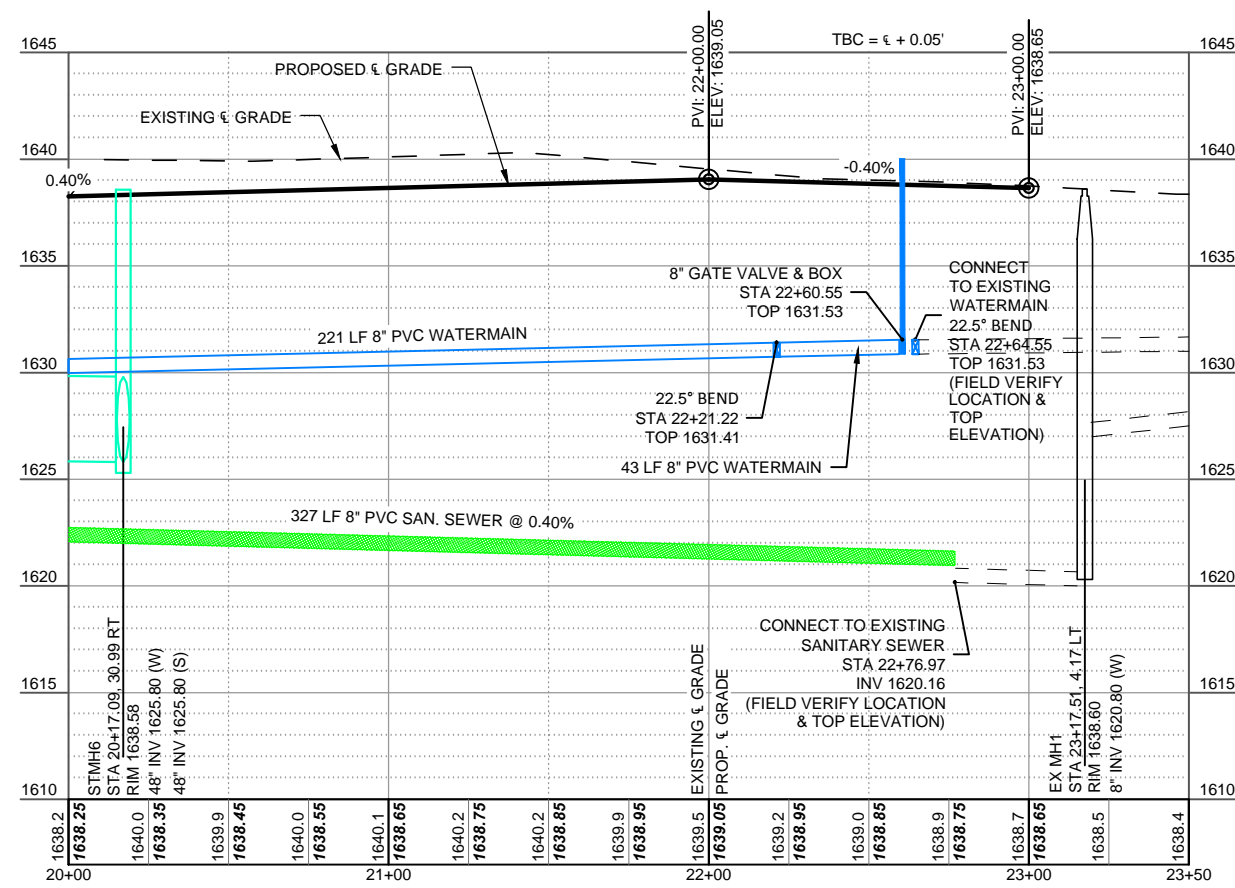
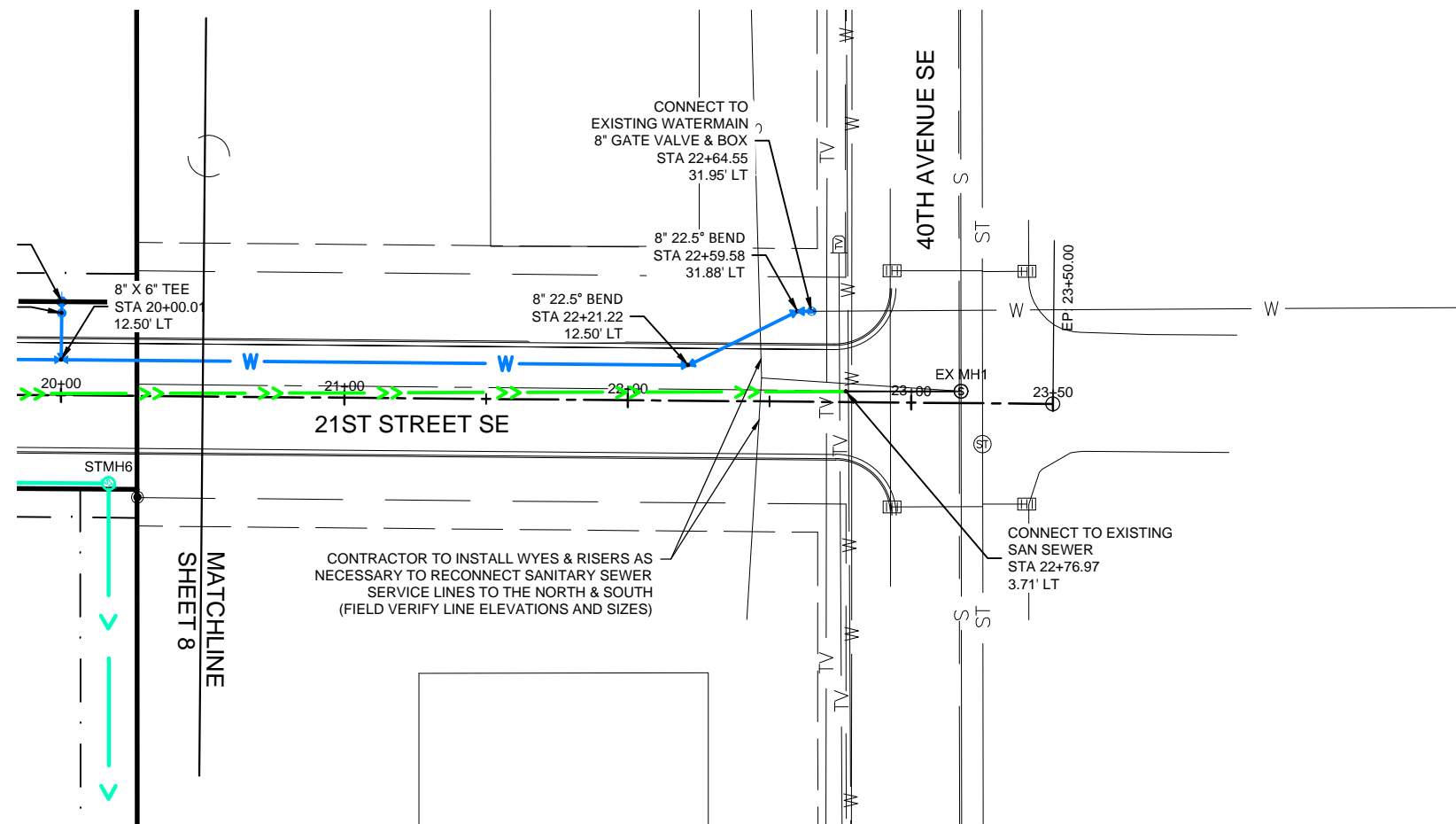


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QUANTITIES THIS SHEET

SANITARY SEWER	
8" SDR-35 PVC SANITARY SEWER	227 LF
WATERMAIN	
8" PVC C-900 WATERMAIN	218 LF
8" GATE VALVE & BOX	2 EA



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1	10/23/15		
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ISSUE DATE 9/15/15			

LAKELWOOD 9TH ADDITION
VE LAND COMPANY LLC.
MANDAN, NORTH DAKOTA

21ST STREET PLAN & PROFILE; STA 20+50 - 23+50



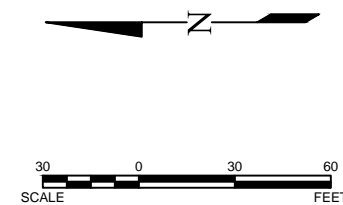
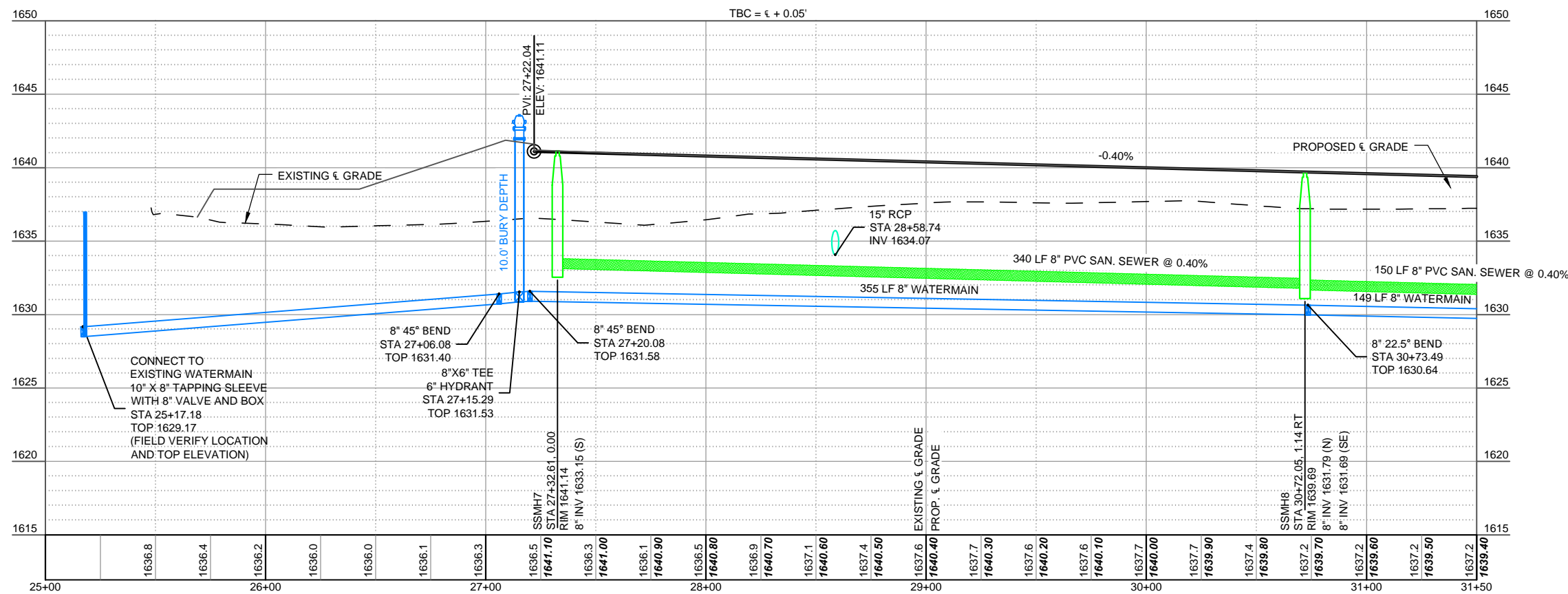
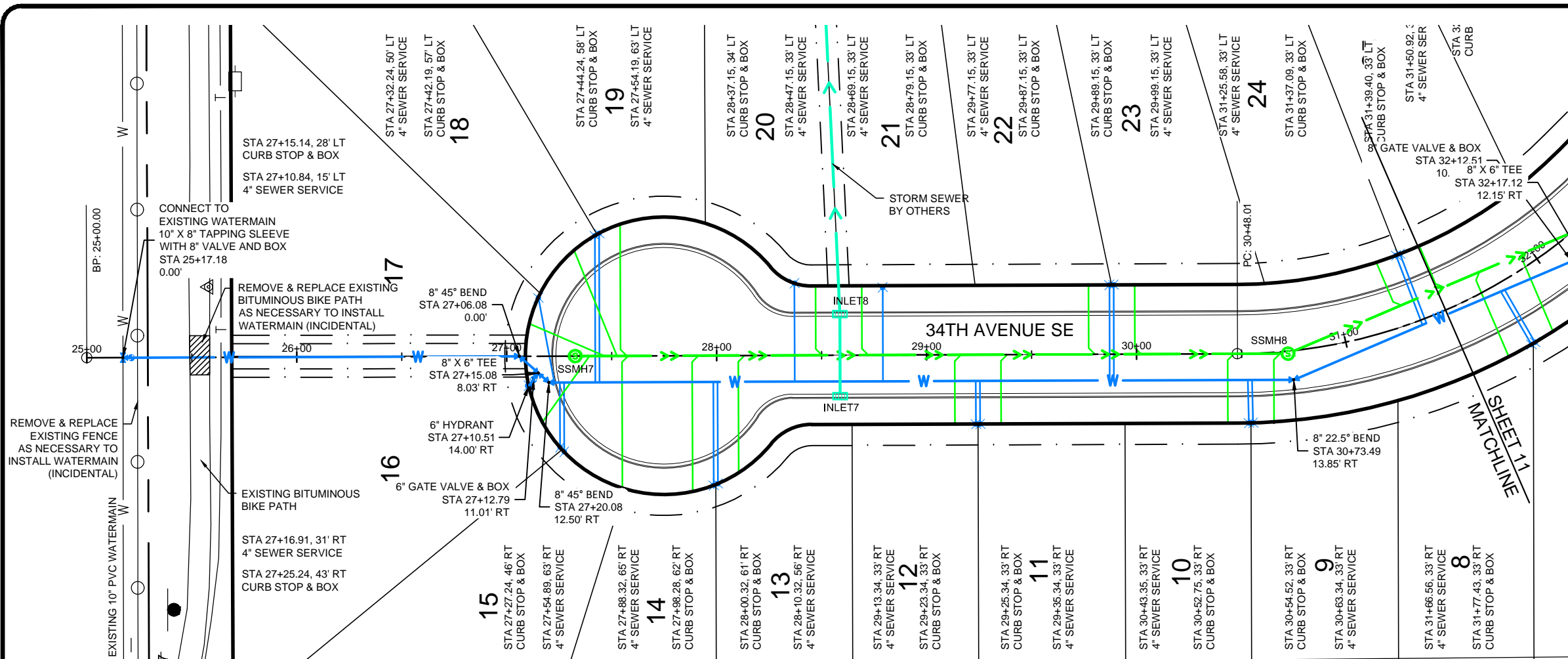
NO.	DATE	REVISION	CITY COMMENTS
1	10/23/15		

DRAFTED	JA
REVIEWED	JP
PROJECT NUMBER	14615136
ISSUE DATE	9/15/15

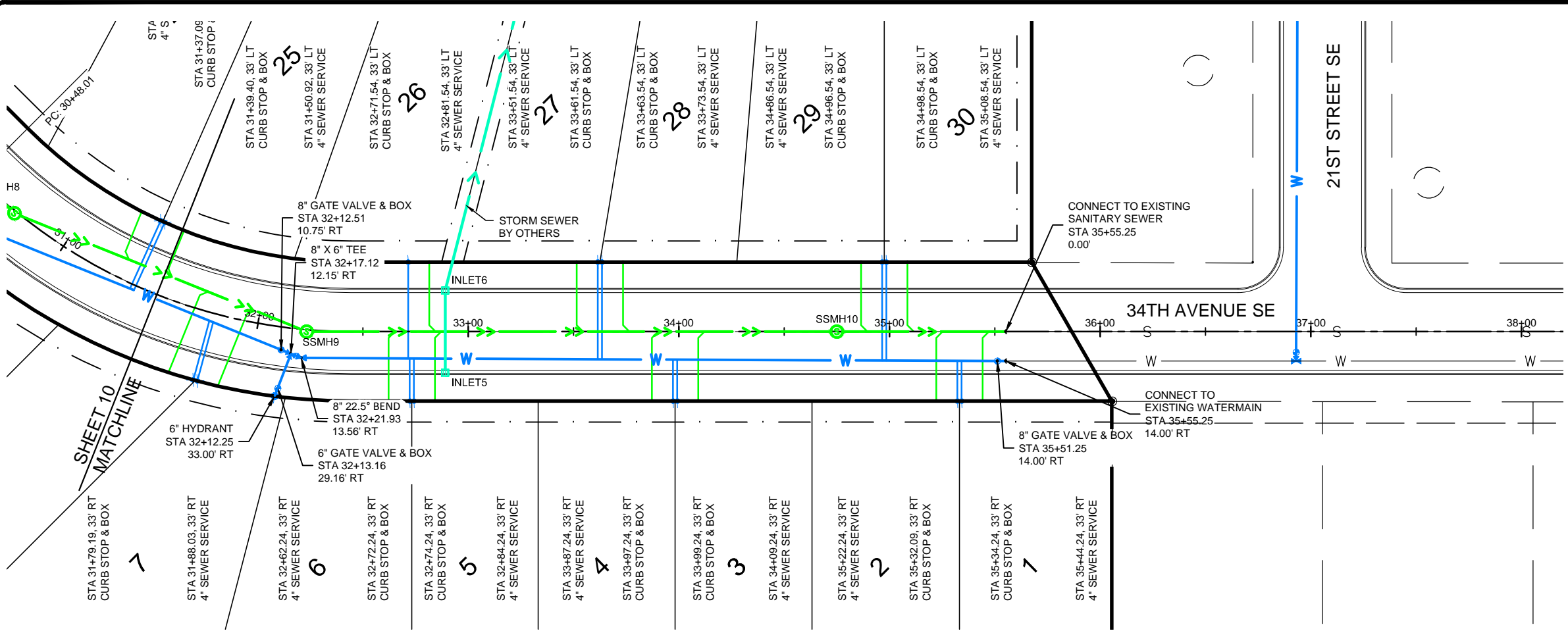
LAKewood 9th ADDITION
 VE LAND COMPANY LLC,
 MANDAN, NORTH DAKOTA
34TH AVENUE PLAN & PROFILE; STA. 25+00 - 31+50

QUANTITIES THIS SHEET

SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	417 LF
4" SDR-35 PVC SEWER SERVICE	667 LF
8" X 4" SEWER SERVICE CONNECTION	16 EA
WATERMAIN	
8" PVC C-900 WATERMAIN	644 LF
6" PVC C-900 WATERMAIN	7 LF
6" HYDRANT	1 EA
6" GATE VALVE & BOX	1 EA
10" TAPPING SLEEVE WITH 8" VALVE	1 EA
1" TYPE K COPPER WATER SERVICE	708 LF
1" CURB STOP AND BOX	17 EA
8" X 1" WATER SERVICE CONNECTION	17 EA



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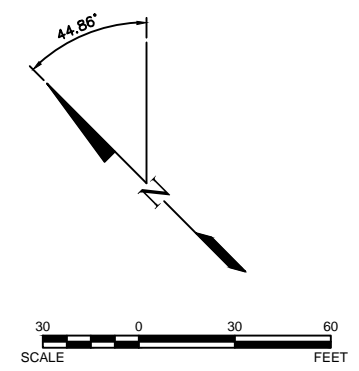
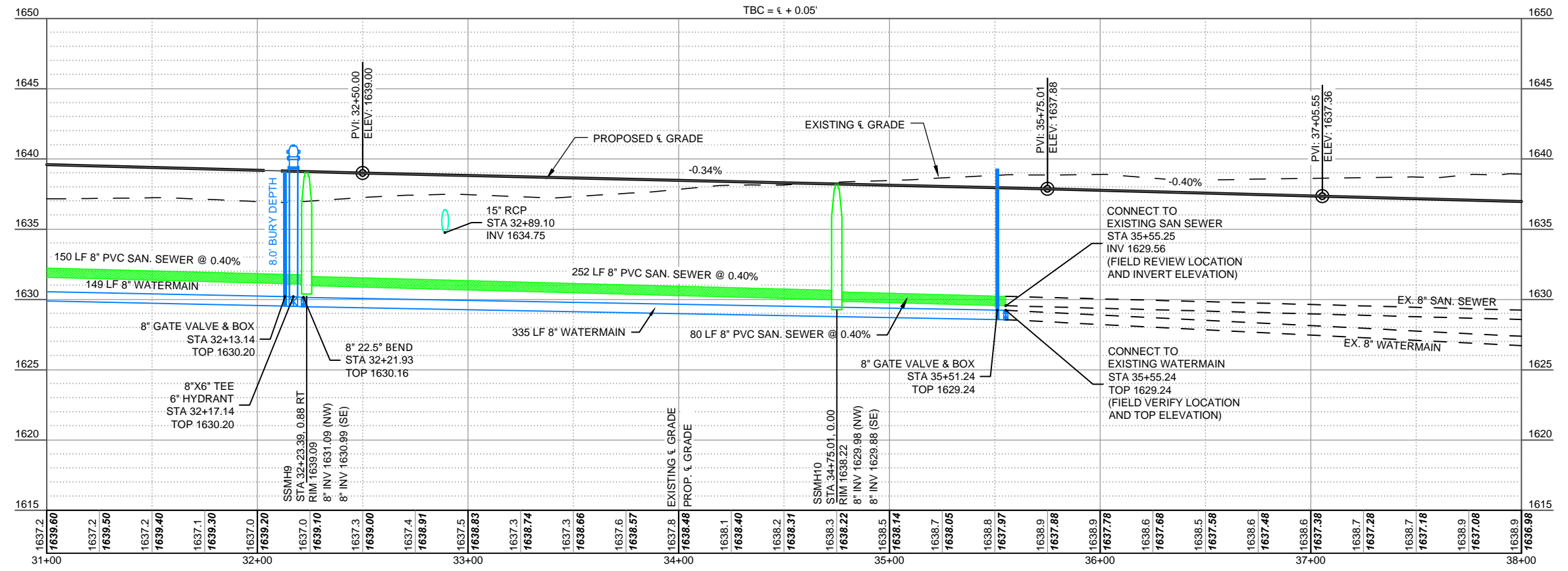
QUANTITIES THIS SHEET

SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	405 LF
4" SDR-35 PVC SEWER SERVICE	471 LF
8" X 4" SEWER SERVICE CONNECTION	14 EA
WATERMAIN	
8" PVC C-900 WATERMAIN	410 LF
6" PVC C-900 WATERMAIN	20 LF
6" HYDRANT	1 EA
8" GATE VALVE & BOX	2 EA
6" GATE VALVE & BOX	1 EA
1" TYPE K COPPER WATER SERVICE	403 LF
1" CURB STOP AND BOX	13 EA
8" X 1" WATER SERVICE CONNECTION	13 EA

NO.	DATE	REVISION	CITY COMMENTS
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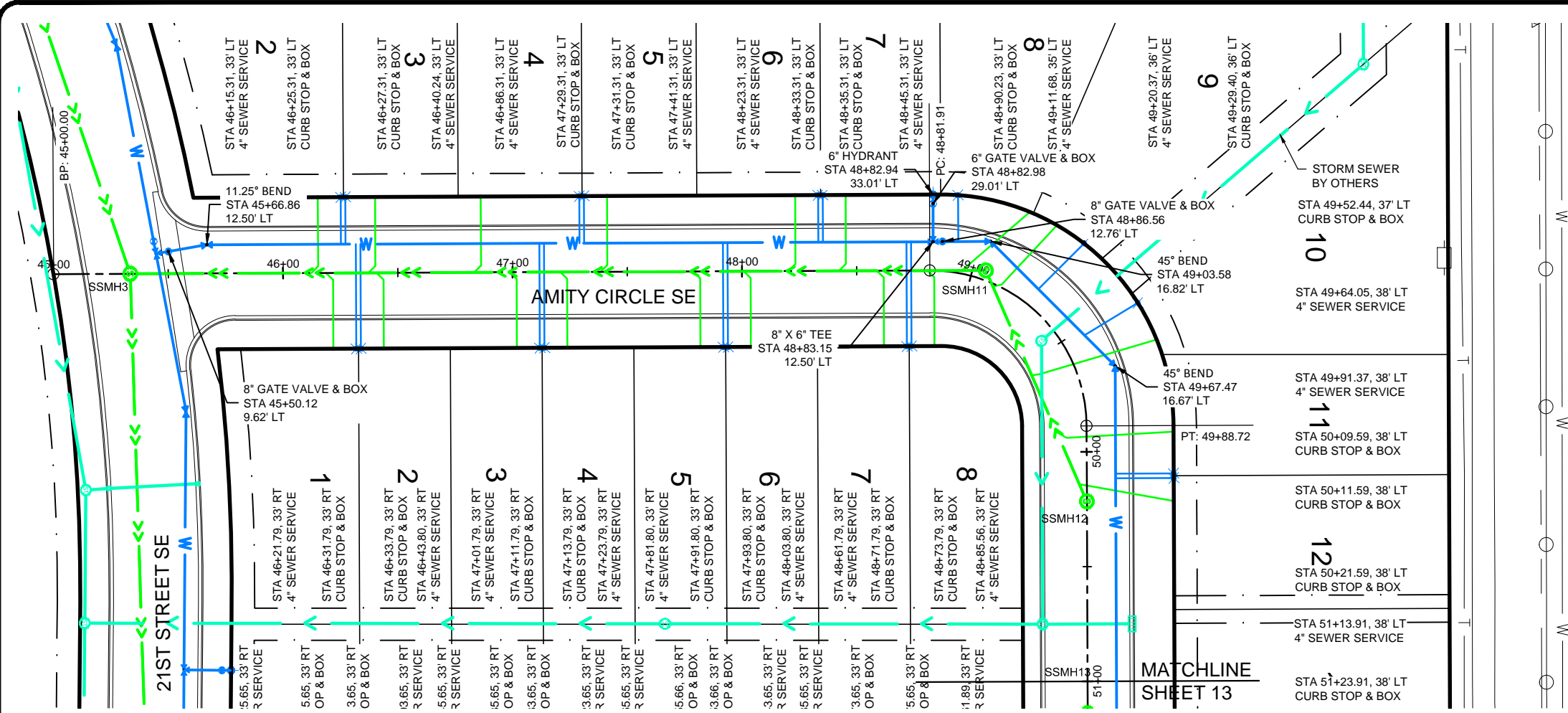
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LAKewood 9th ADDITION
VE LAND COMPANY LLC.
MANDAN, NORTH DAKOTA
34TH AVENUE PLAN & PROFILE; STA. 31+50 - 38+00

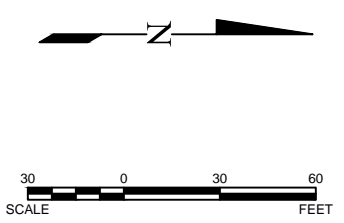
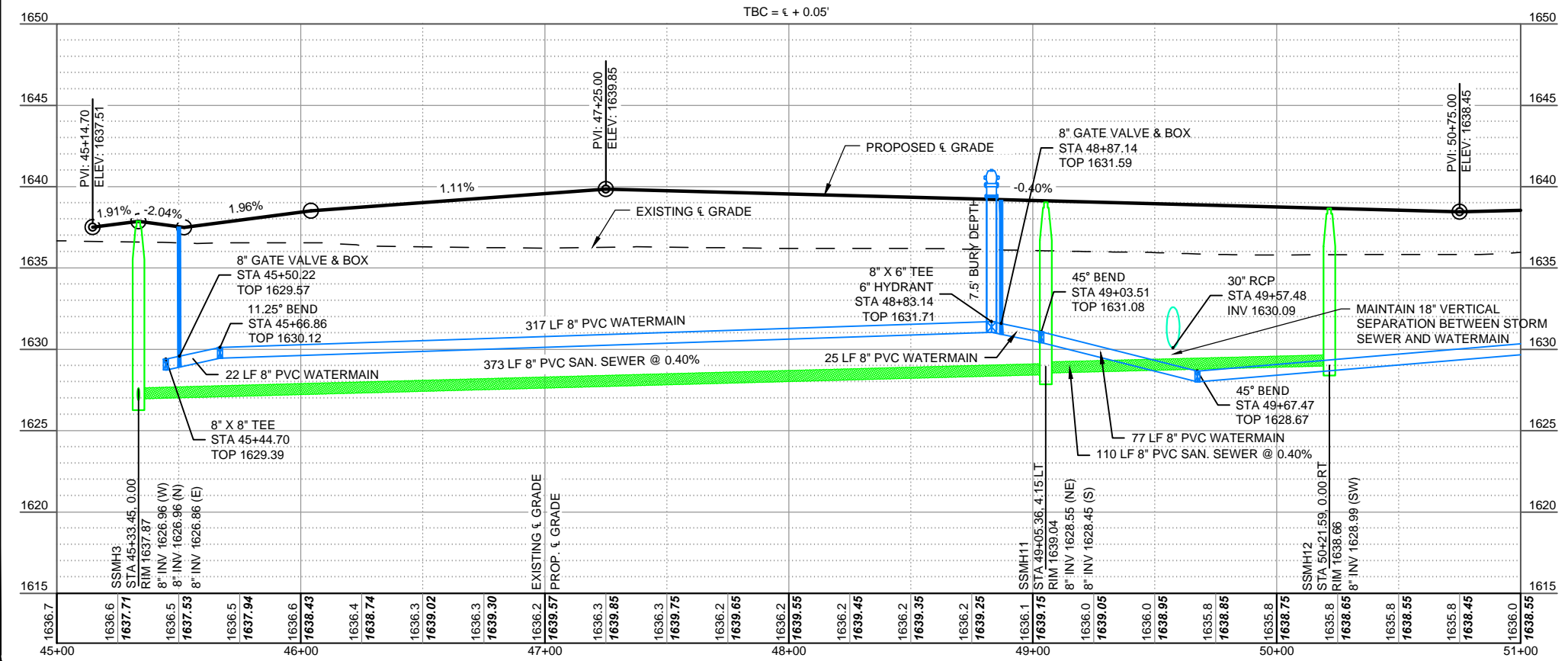


QUANTITIES THIS SHEET

SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	483 LF
4" SDR-35 PVC SEWER SERVICE	663 LF
8" X 4" SEWER SERVICE CONNECTION	19 EA
WATERMAIN	
8" PVC C-900 WATERMAIN	560 LF
6" PVC C-900 WATERMAIN	19 LF
6" HYDRANT	1 EA
8" GATE VALVE & BOX	2 EA
6" GATE VALVE & BOX	1 EA
1" TYPE K COPPER WATER SERVICE	585 LF
1" CURB STOP AND BOX	19 EA
8" X 1" WATER SERVICE CONNECTION	19 EA

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LAKewood 9th ADDITION
 VE LAND COMPANY LLC.
 MANDAN, NORTH DAKOTA

AMITY CIRCLE PLAN & PROFILE, STA. 45+00 - 51+00



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VE LAND COMPANY LLC.
MANDAN, NORTH DAKOTA

AMITY CIRCLE PLAN & PROFILE, STA. 51+00 - 56+00

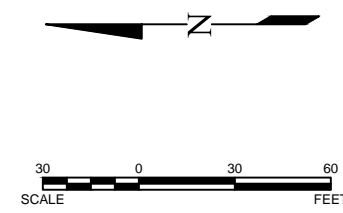
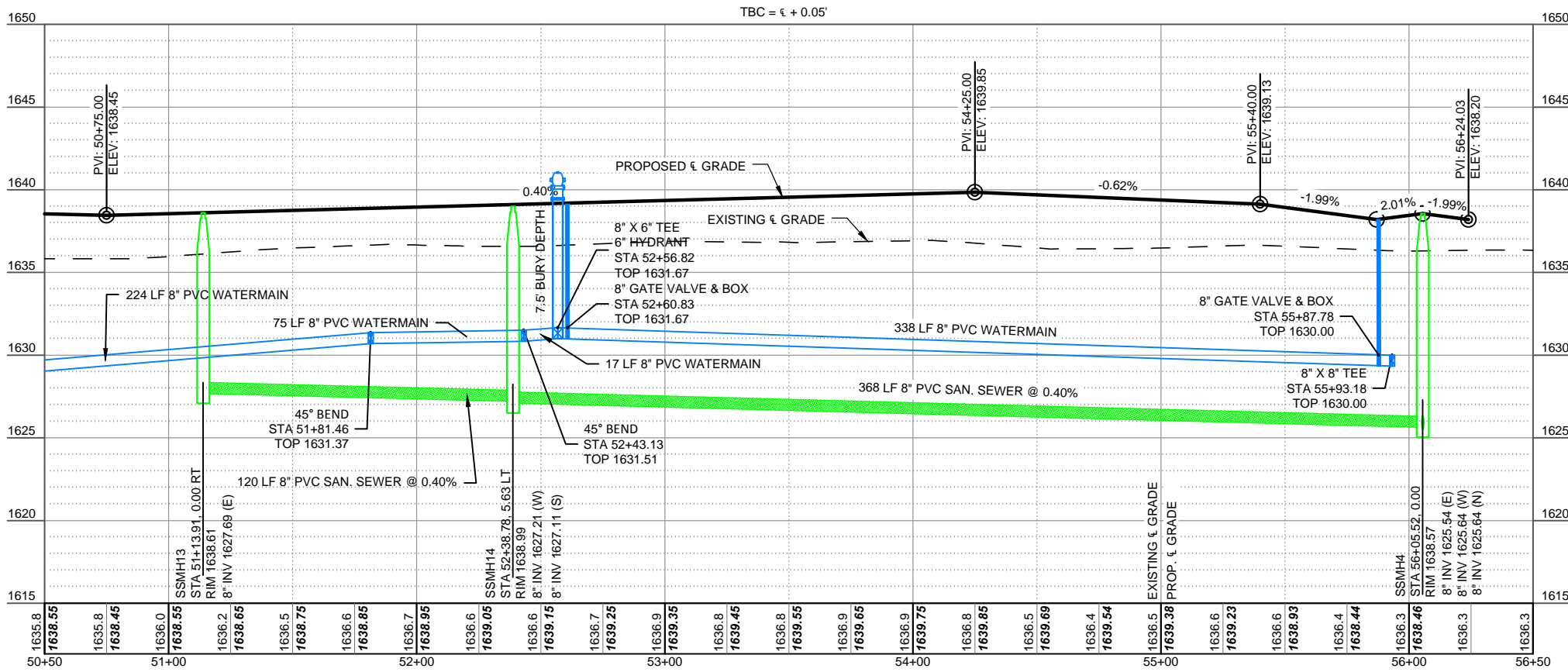
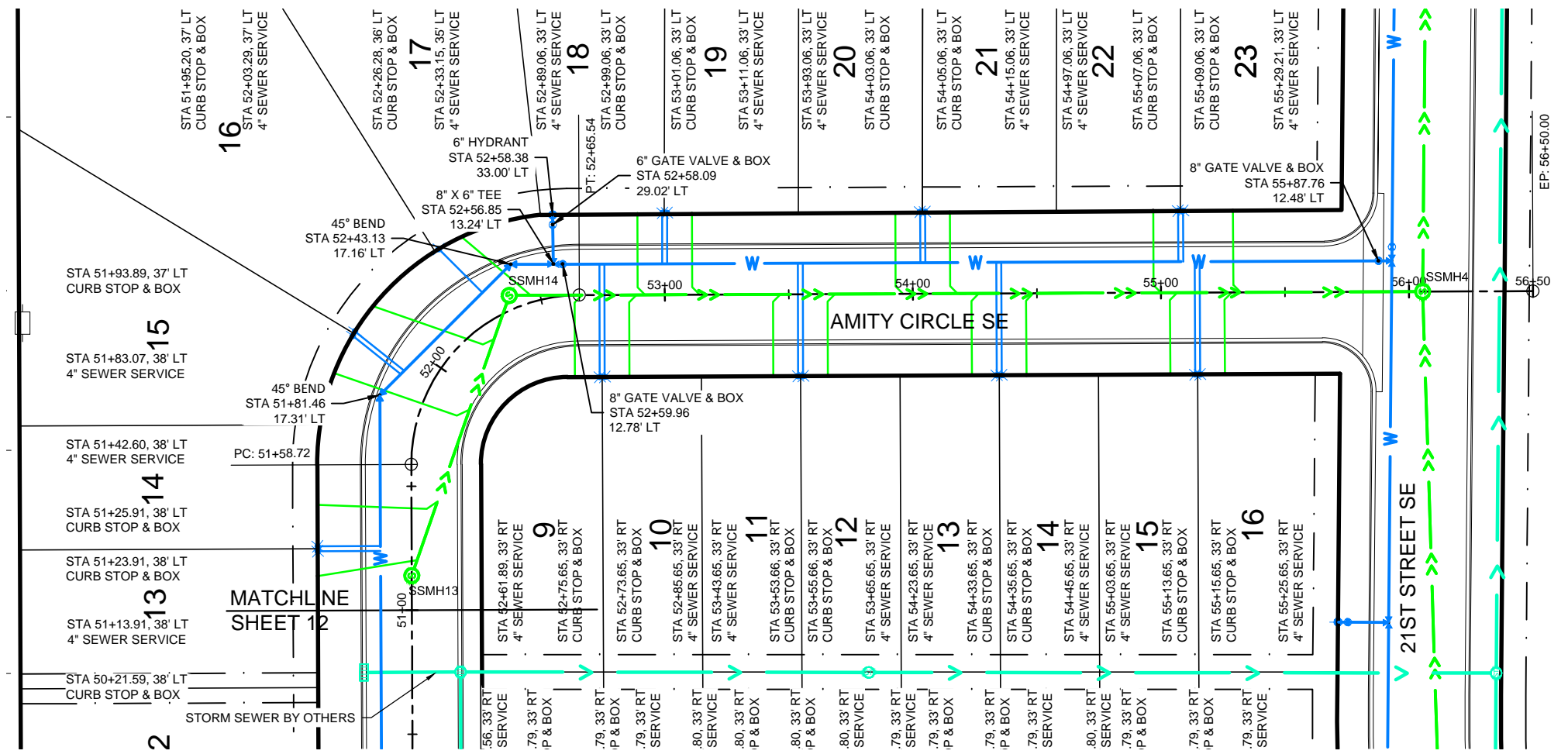
QUANTITIES THIS SHEET

SANITARY SEWER

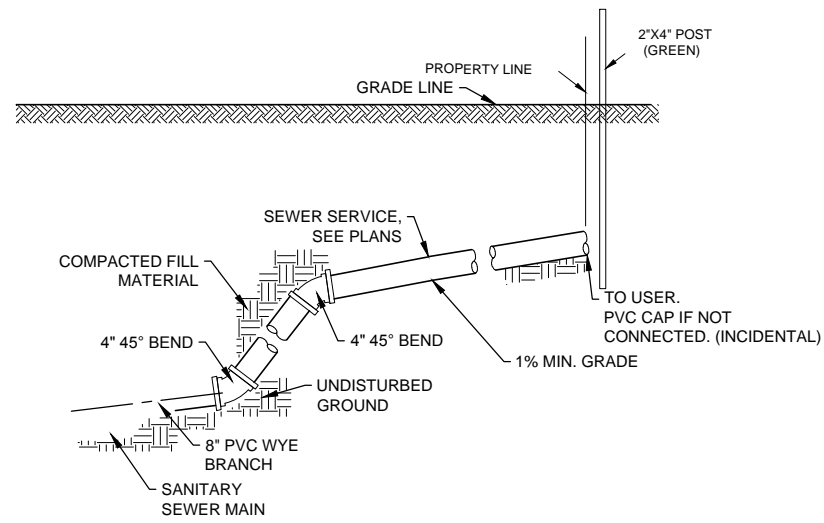
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	489 LF
4" SDR-35 PVC SEWER SERVICE	663 LF
8" X 4" SEWER SERVICE CONNECTION	19 EA

WATERMAIN

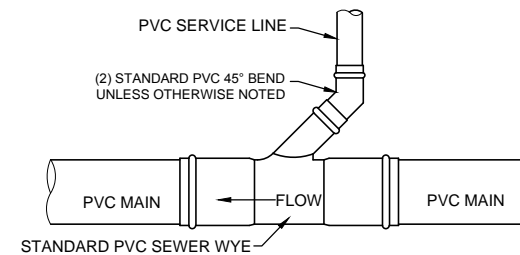
8" PVC C-900 WATERMAIN	499 LF
6" PVC C-900 WATERMAIN	18 LF
6" HYDRANT	1 EA
8" GATE VALVE & BOX	2 EA
6" GATE VALVE & BOX	1 EA
1" TYPE K COPPER WATER SERVICE	567 LF
1" CURB STOP AND BOX	19 EA
8" X 1" WATER SERVICE CONNECTION	19 EA



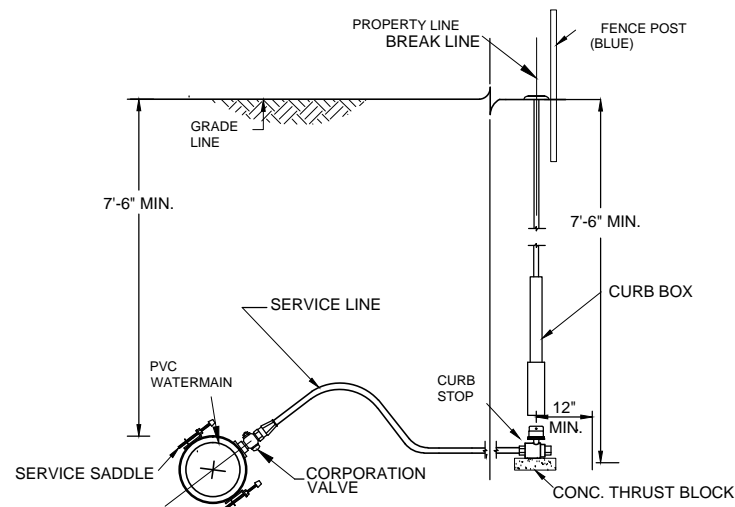
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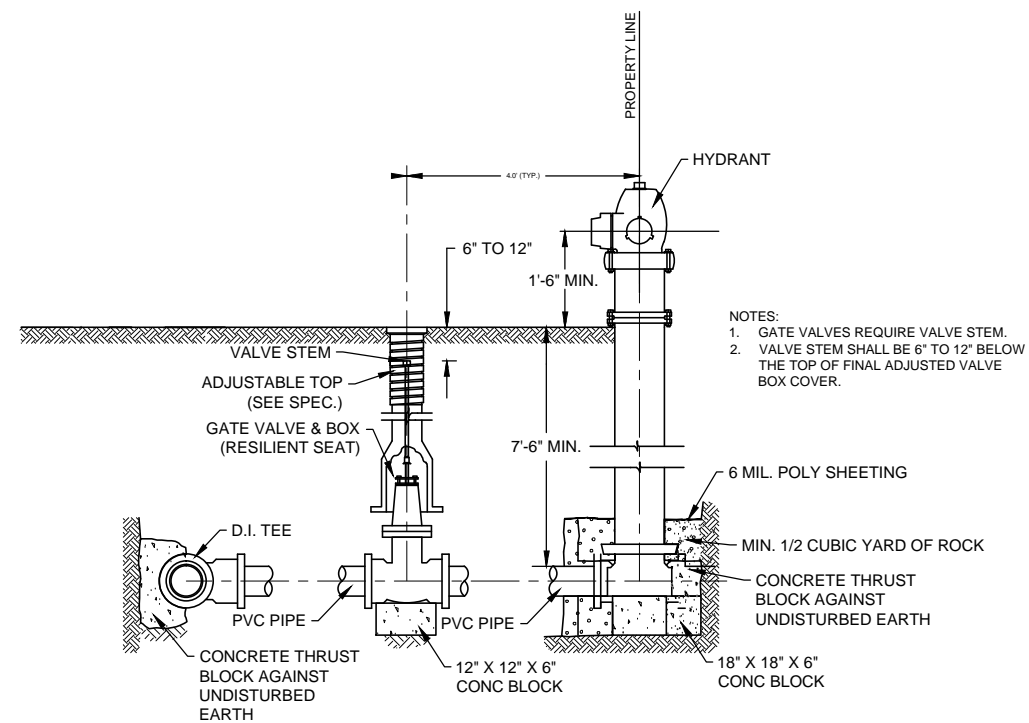
SANITARY SEWER SERVICE CONNECTION



SANITARY SEWER CONNECTION
NO SCALE



WATER SERVICE LINE CONNECTION
NO SCALE



TYPICAL HYDRANT & GATE VALVE DETAIL
NO SCALE

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LAKELWOOD 9TH ADDITION
VE LAND COMPANY LLC.
MANDAN, NORTH DAKOTA

DETAILS