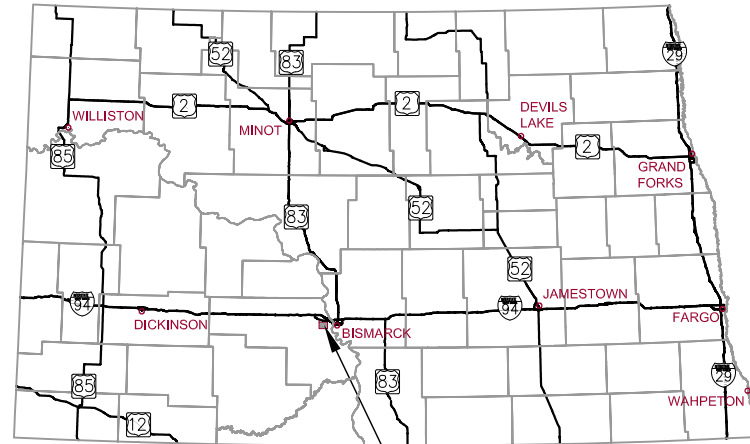


PLAINVIEW HEIGHTS 13TH ADDITION

WATER & SEWER IMPROVEMENTS

MANDAN, NORTH DAKOTA

AUGUST 2012



STATE OF NORTH DAKOTA PROJECT LOCATION



MANDAN, NORTH DAKOTA



VICINITY MAP

NO SCALE

INDEX OF SHEETS

- 1 COVER SHEET
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- 3 BASIS OF ESTIMATE & ESTIMATED QUANTITIES
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- 12 SHIRES DRIVE SE PLAN & PROFILE
- 13 SUFFOLK DRIVE SE PLAN & PROFILE

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
701-663-0297

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

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

CERTIFICATION

I HEREBY CERTIFY THAT THE ATTACHED PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA.

DATE: _____

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BASIS OF SURVEY

ALL CONTOURS AND ELEVATIONS FOR THE PROJECT ARE BASED ON DATUM NAVD 29.

MITZEL BUILDERS, INC.
2401 46TH AVE SE
MANDAN, ND 58554
PH: 701.224.8083

128 SOO LINE DRIVE
BISMARCK, ND 58501
PH: 701.355.8400
FAX: 701.355.8781
www.kljeng.com



KL&J PROJECT NO. 1612153

BASIS OF ESTIMATE

PIPE BEDDING:

8" WATER MAIN = 0.2616 TONS/LF
 HYDRANT = 2.5 TONS/EA
 WATER SERVICE LINE = 0.1000 TONS/LF
 MANHOLES = 5.0 TONS/EA
 4" SEWER SERVICE = 0.108 TONS/LF
 8" SANITARY SEWER = 0.138 TONS/LF

SUBCUT GRAVEL:

0.020 TON/LF OF PIPE

ESTIMATED QUANTITIES

Item No.	Spec. No.	Item	Unit	Quantity
1	SP	MOBILIZATION	LS	1
2	801	PIPE BEDDING	TON	959
3	801	SUBCUT GRAVEL	TON	111
4	801	8" SDR-35 PVC SANITARY SEWER	LF	2,026
5	801	8" SANITARY SEWER CAP	EA	3
6	801	TELEWISE SEWER MAIN	LF	2,026
7	900	6" PVC C-900 HYDRANT LEAD	LF	101
8	900	8" PVC C-900 WATER MAIN	LF	1,696
9	900	REMOVE & REPLACE 6" HYDRANT	EA	1
10	900	6" FIRE HYDRANT	EA	6
11	900	8" X 6" REDUCER	EA	3
12	900	6" GATE VALVE AND BOX	EA	4
13	900	8" GATE VALVE AND BOX	EA	5
14	1205	48" SANITARY SEWER MANHOLES	EA	8
15	1209	4" SDR-35 PVC SEWER SERVICE	LF	834
16	1209	8" X 4" SEWER SERVICE CONNECTION	EA	25
17	1209	1" WATER SERVICE	LF	894
18	1209	1" CURB STOP AND BOX	EA	25
19	1209	8" X 1" WATER SERVICE CONNECTION	EA	25
20	1211	TRAFFIC CONTROL	LS	1

NO.	DATE	REVISION

DRAFTED
LMW
 REVIEWED
AM
 PROJECT NUMBER
1612153
 ISSUE DATE
8/21/2012

PLAINVIEW HEIGHTS 13TH ADDITION
 MITZEL BUILDERS, INC.
 MANDAN, NORTH DAKOTA
BASIS OF ESTIMATE & ESTIMATED QUANTITIES

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REVISION			
DATE			
NO.			

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REVIEWED	AM
PROJECT NUMBER	1612153
ISSUE DATE	8/21/2012

PLAINVIEW HEIGHTS 13TH ADDITION
 MITZEL BUILDERS, INC.
 MANDAN, NORTH DAKOTA
GENERAL NOTES

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 PLAINVIEW 13TH ADDITION WATER & 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 7 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 IT'S 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.
- WHERE EXISTING UTILITY WIRES (TELEPHONE, ELECTRIC) ARE LOCATED ADJACENT TO OR ABOVE THE PROPOSED WATER OR SEWER MAIN, THE CONTRACTOR SHALL TEMPORARILY SUPPORT EXISTING WIRES AND INSTALL MAIN PIPING UNDER EXISTING WIRES. ANY DECISION TO HAVE THE EXISTING UTILITIES MOVED WILL BE AT THE CONTRACTORS EXPENSE.
- 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

- MISCELLANEOUS ITEMS SUCH AS AND NOT LIMITED TO: MAILBOXES, STREET LIGHTS, TRAFFIC LIGHTS, SIGNS, FENCES, POLES, ETC. SHALL BE PROTECTED OR REMOVED AND REINSTALLED BY THE CONTRACTOR WITH THE OWNER'S AND PROPERTY OWNER'S PERMISSION, AND THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.
- ANY EXISTING STRUCTURES DISTURBED BY CONSTRUCTION ARE TO BE RESTORED TO THEIR ORIGINAL LOCATION AND CONDITION. ALL STRUCTURES SUCH AS CURB AND GUTTER, CONCRETE AND BITUMINOUS SIDEWALKS, PAVING BRICKS, FENCING, RETAINING WALLS, ETC., CROSSED BY THE PROPOSED WATER, SEWER, CULVERTS AND ROADWAYS MAY NOT BE INDICATED.
- 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.

GRADING NOTES

- SILT FENCING OR APPROPRIATE EROSION CONTROL MEASURES SHALL BE INSTALLED ON DOWNSTREAM SIDES OF STOCKPILES TO PROTECT RECEIVING WATERS FROM SEDIMENTATION. TOPSOIL STOCKPILES THAT WILL REMAIN FOR PERIODS IN EXCESS OF 60 DAYS SHOULD BE STABILIZED WITH TEMPORARY VEGETATION.
- IF EXCESS FILL MATERIAL IS PRESENT FOLLOWING APPROVAL OF EMBANKMENT COMPACTION THE CONTRACTOR SHALL CONTACT THE ENGINEER TO DETERMINE A SUITABLE LOCATION FOR EXCESS FILL DISPOSAL.
- ALL UTILITY TRENCHES ARE TO BE BACKFILLED & COMPACTED TO THE PROPOSED GRADE.

WATER AND 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.
- ALL SEWER MANHOLES SHALL HAVE A MONOLITHIC BASE WITH PRECAST INVERTS.
- 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.

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

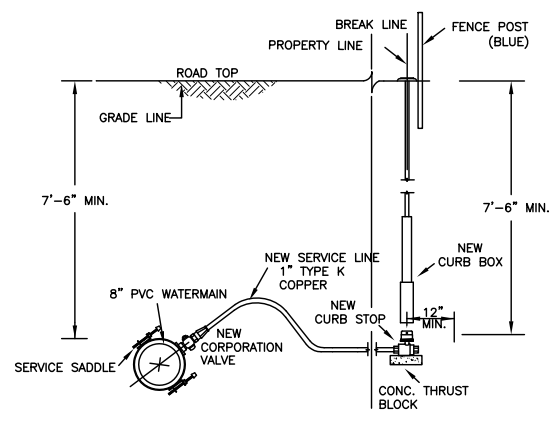
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A GENERAL PERMIT (NPDES) FROM THE NORTH DAKOTA DEPARTMENT OF HEALTH. AN APPLICATION PACKAGE WITH ALL RELATED AND SUBSEQUENT REQUIREMENTS MAY BE ACQUIRED BY CONTACTING THE NORTH DAKOTA DEPARTMENT OF HEALTH AT 701-328-5210.
- THE CONTRACTOR SHALL NOT DISTURB EXISTING SILT FENCE AND WEIGHTED FIBER ROLL. IF SILT FENCE OR WEIGHTED FIBER ROLL HAS BEEN DISTURBED OR HAS DETERIORATED THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT. THE COST OF REPLACING SILT FENCE AND WEIGHTED FIBER ROLL SHALL BE INCIDENTAL TO THE CONTRACT.
- 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.

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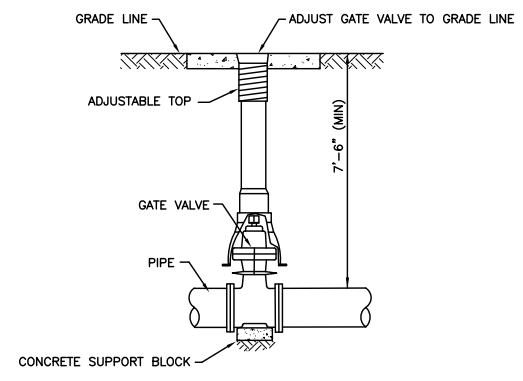
NO.	DATE	REVISION

DRAFTED LMW
REVIEWED AM
PROJECT NUMBER 1612153
ISSUE DATE 8/21/2012

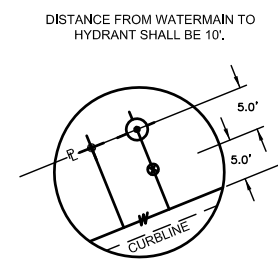
PLAINVIEW HEIGHTS 13TH ADDITION
 MITZEL BUILDERS, INC.
 MANDAN, NORTH DAKOTA
DETAILS



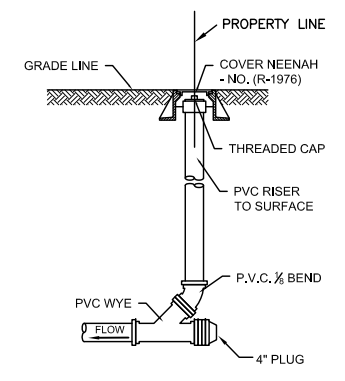
WATER SERVICE LINE CONNECTION
NO SCALE



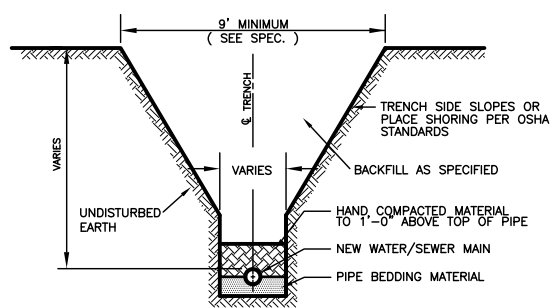
TYPICAL GATE VALVE
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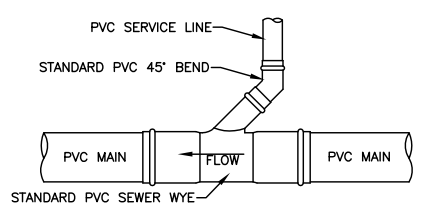
HYDRANT & CURB STOP LOCATION DETAIL
NO SCALE



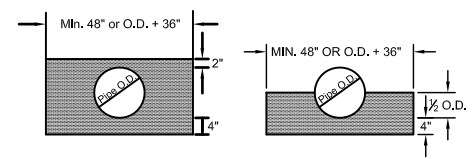
SANITARY SEWER INLINE CLEAN OUT
NO SCALE



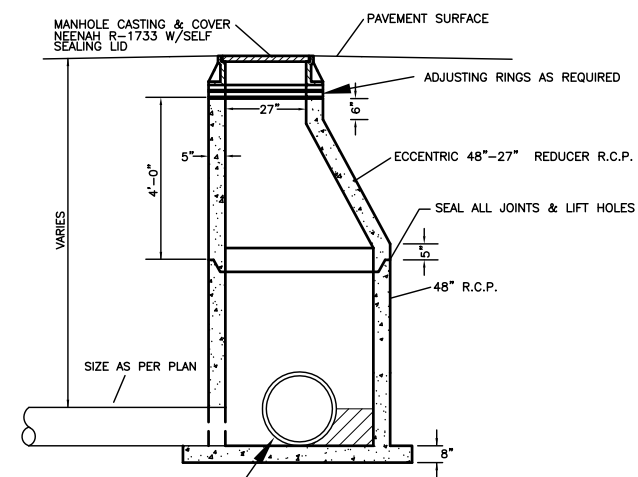
TYPICAL TRENCH DETAIL
NO SCALE



SANITARY SEWER CONNECTION
NO SCALE

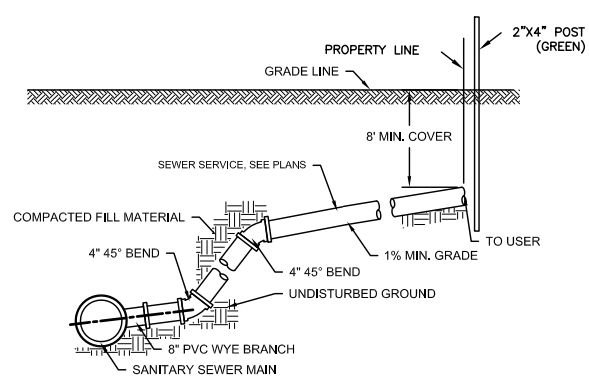
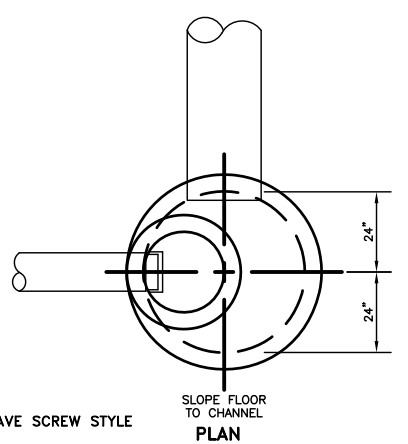


PIPE BEDDING DETAILS
NO SCALE



NOTE:
ALL MANHOLE SECTIONS SHALL HAVE SCREW STYLE LIFT DEVICES.
THE INVERTS ON THE EXTENDED MONOLITHIC (INTEGRAL) BASE MANHOLE SHALL HAVE A SMOOTH PRECAST INVERT WITH PVC BOOTS

SANITARY MANHOLE DETAIL
NO SCALE

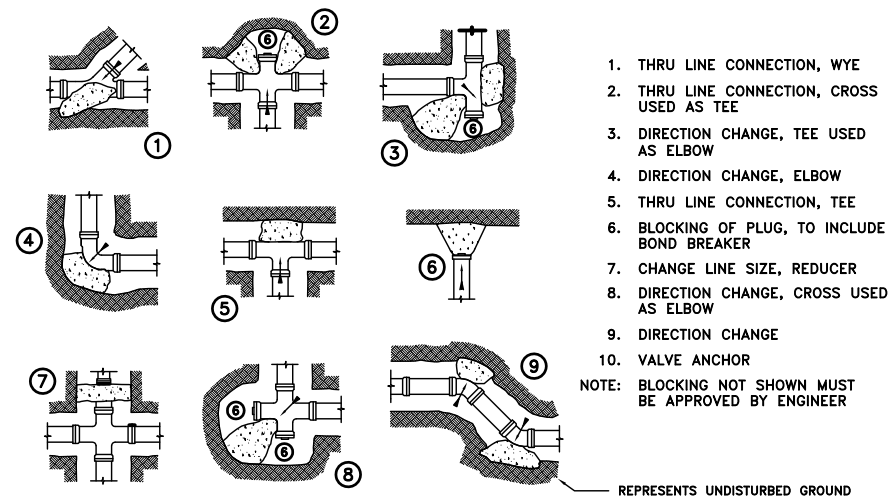


SANITARY SEWER SERVICE CONNECTION
NO SCALE

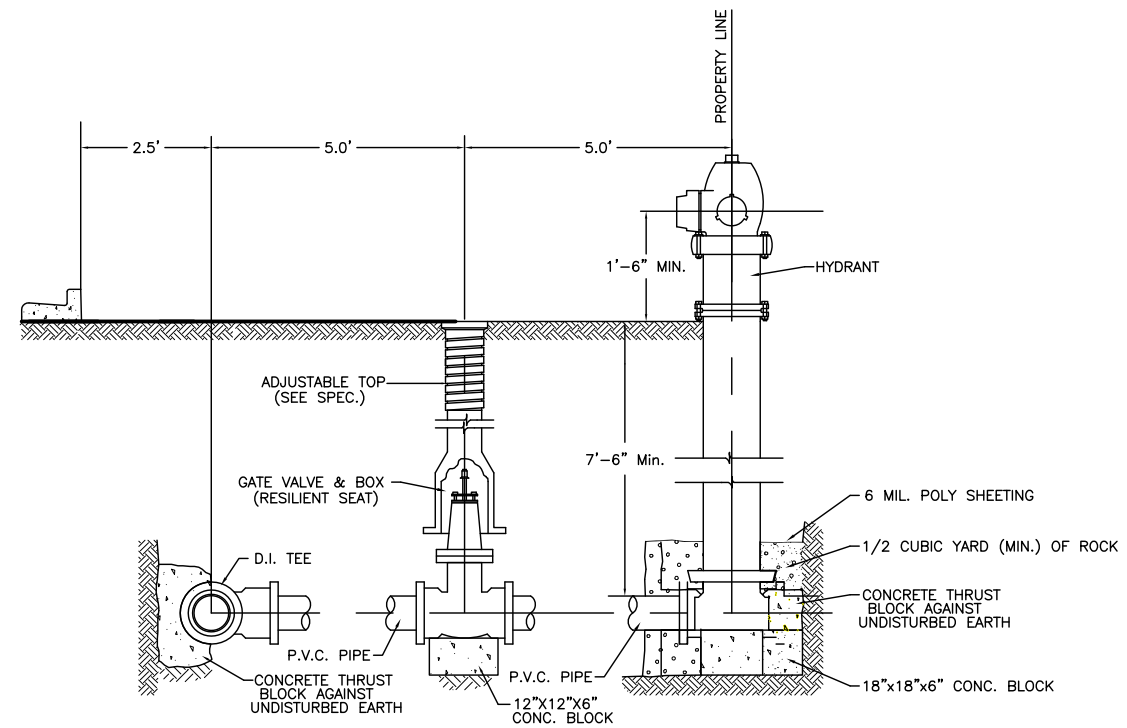
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THRUST BLOCKING DETAILS
NO SCALE



TYPICAL HYDRANT & GATE VALVE DETAIL
NO SCALE

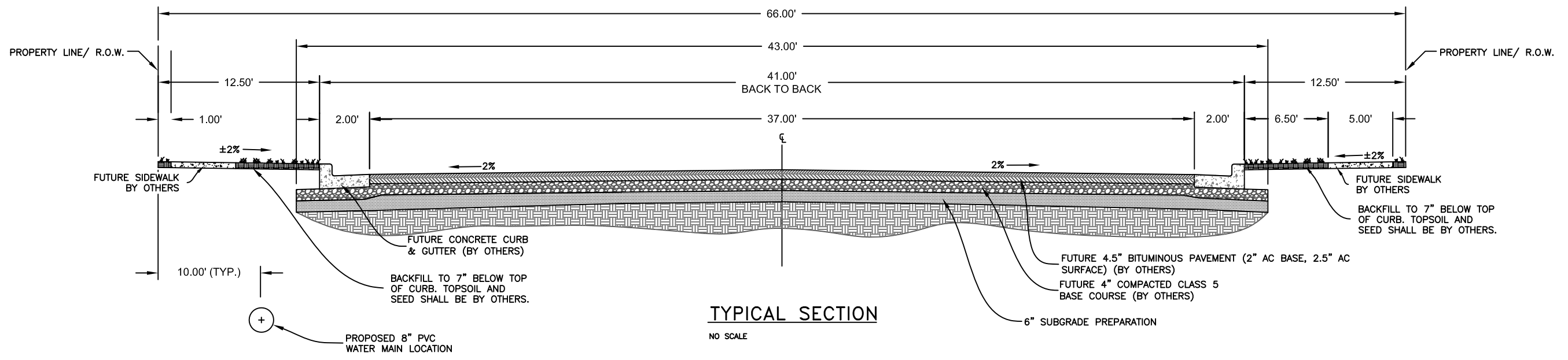
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PLAINVIEW HEIGHTS 13TH ADDITION
MITZEL BUILDERS, INC.
MANDAN, NORTH DAKOTA
DETAILS

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MITZEL BUILDERS, INC.
MANDAN, NORTH DAKOTA
TYPICAL SECTIONS

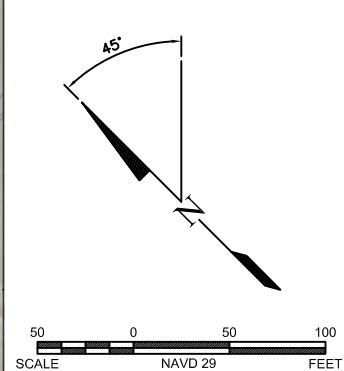


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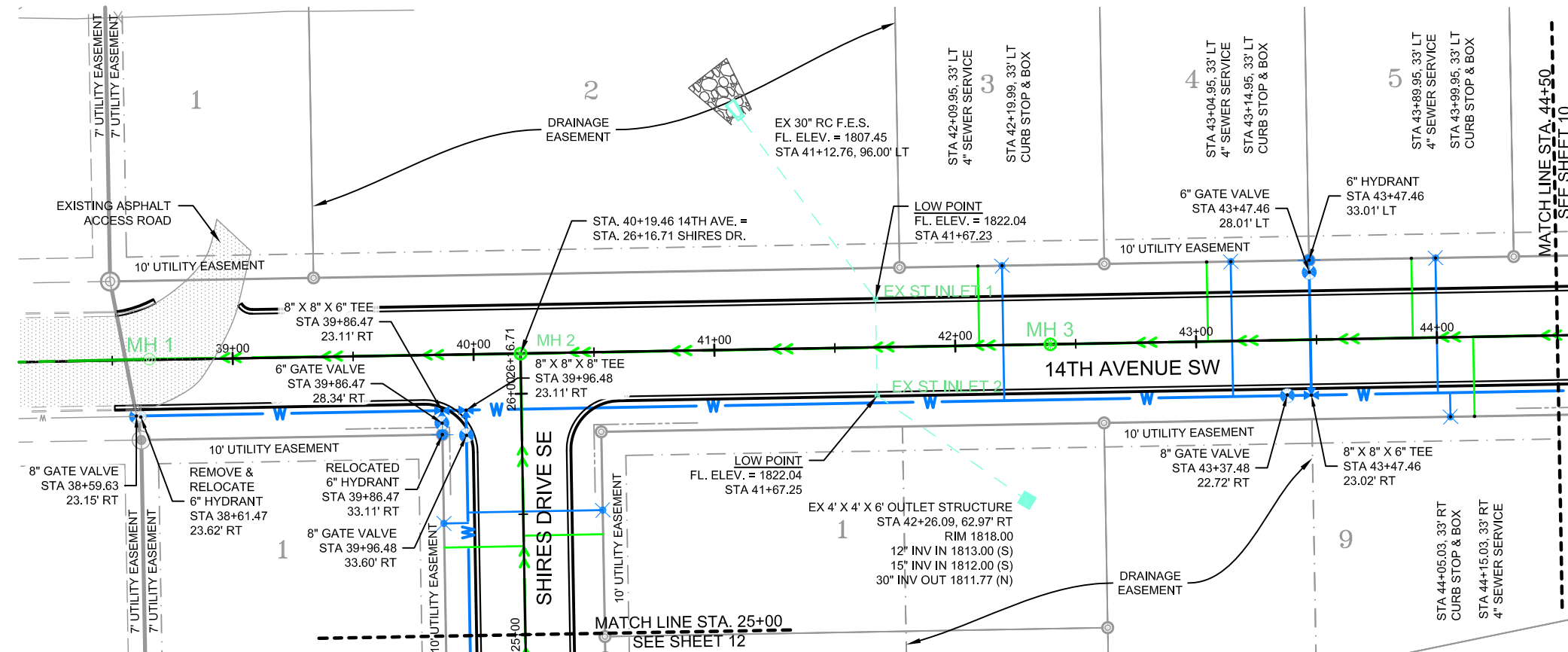
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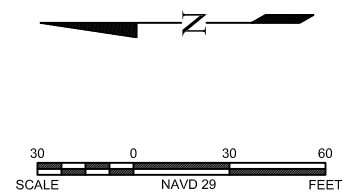
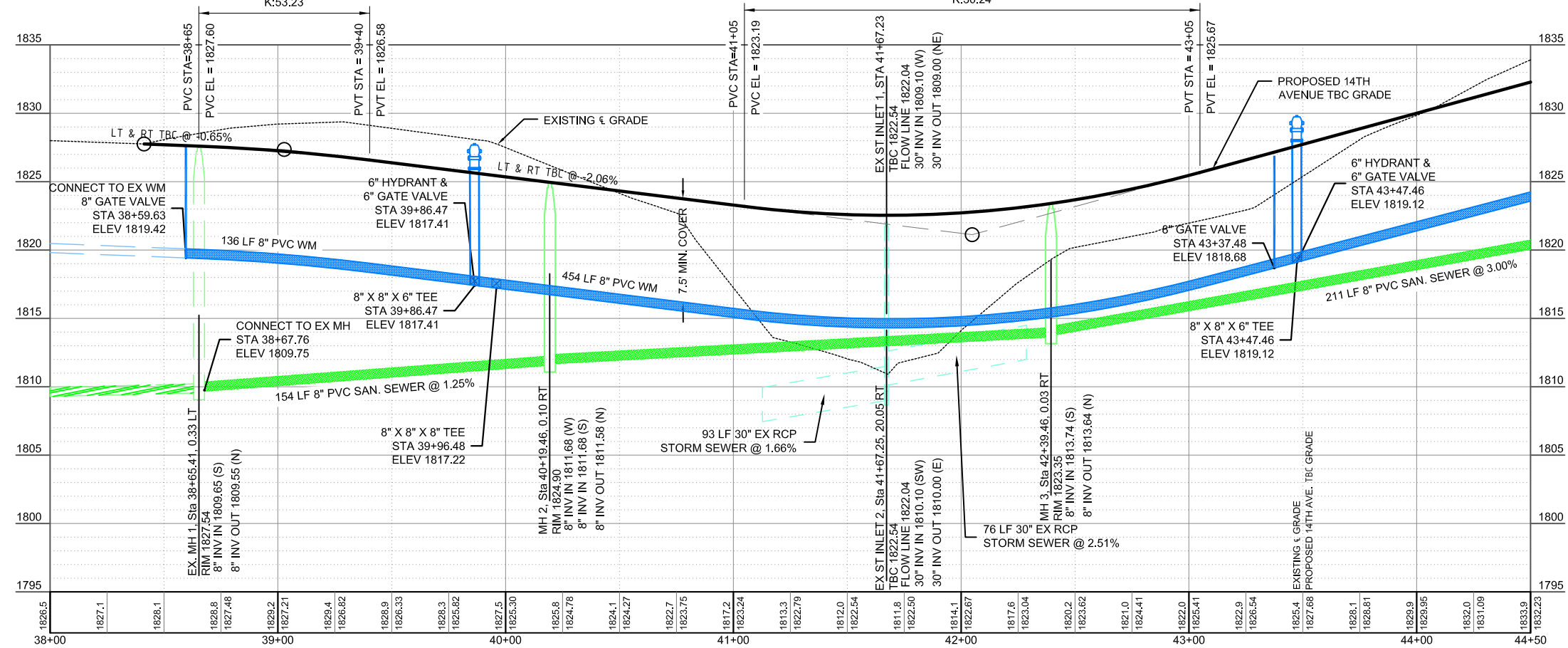


QUANTITIES THIS SHEET

DUCTILE IRON WATER MAIN FITTINGS	
8" X 8" X 6" TEE	2 EA
8" X 8" X 8" TEE	1 EA
WATER MAIN	
6" PVC C-900 HYDRANT LEAD	66 LF
8" PVC C-900 WATER MAIN	590 LF
REMOVE & RELOCATE HYDRANT	1 EA
6" FIRE HYDRANT	1 EA
6" GATE VALVE & BOX	2 EA
8" GATE VALVE & BOX	2 EA
1" WATER SERVICE	178 LF
1" CURB STOP & BOX	4 EA
8" X 1" WATER SERVICE CONNECTION	4 EA
SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	585 LF
4" SDR-35 PVC SEWER SERVICE	132 LF
8" X 4" SEWER SERVICE CONNECTION	4 EA

NOTE:

- ALL STORM SEWER PIPES AND STRUCTURES ARE EXISTING.



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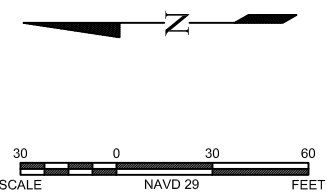
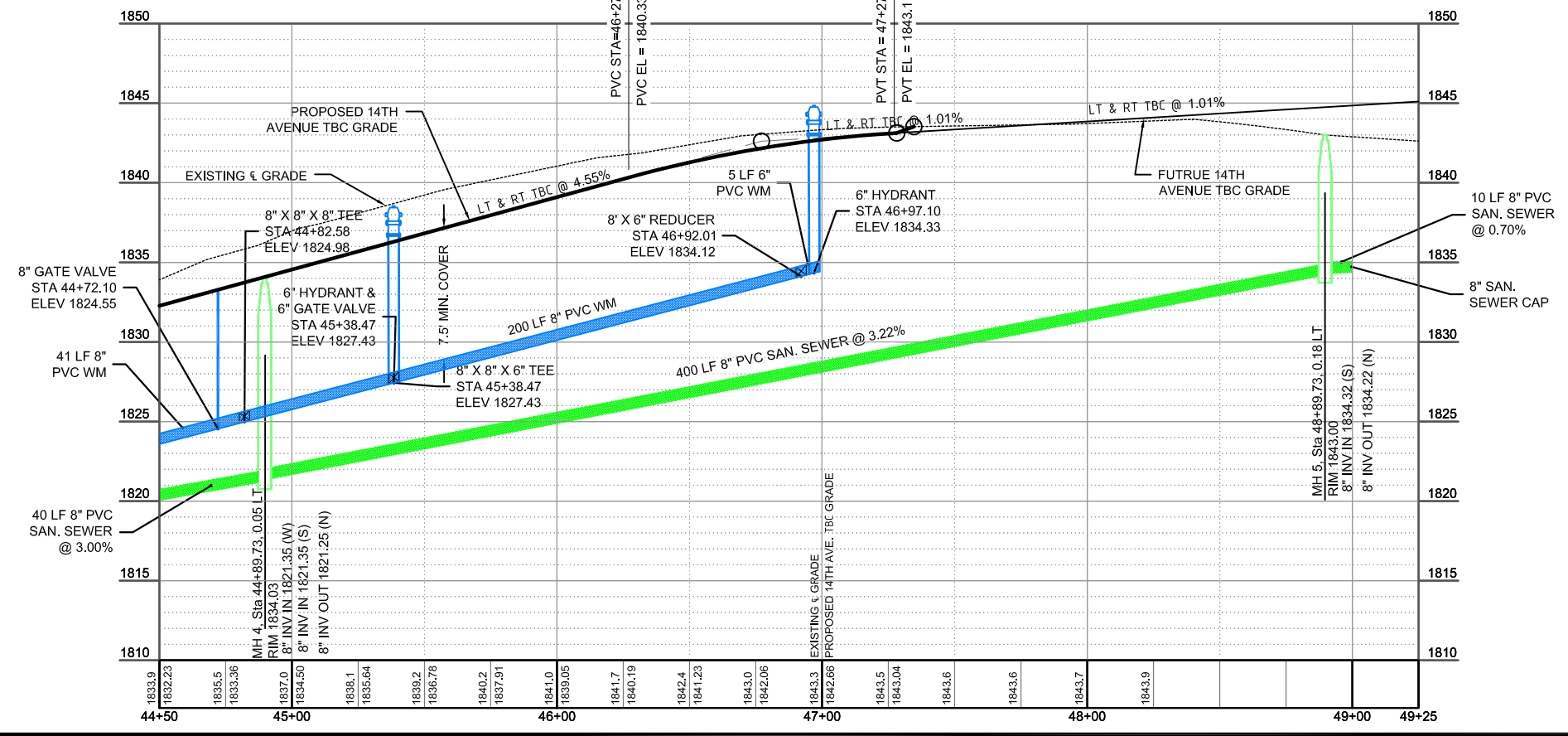
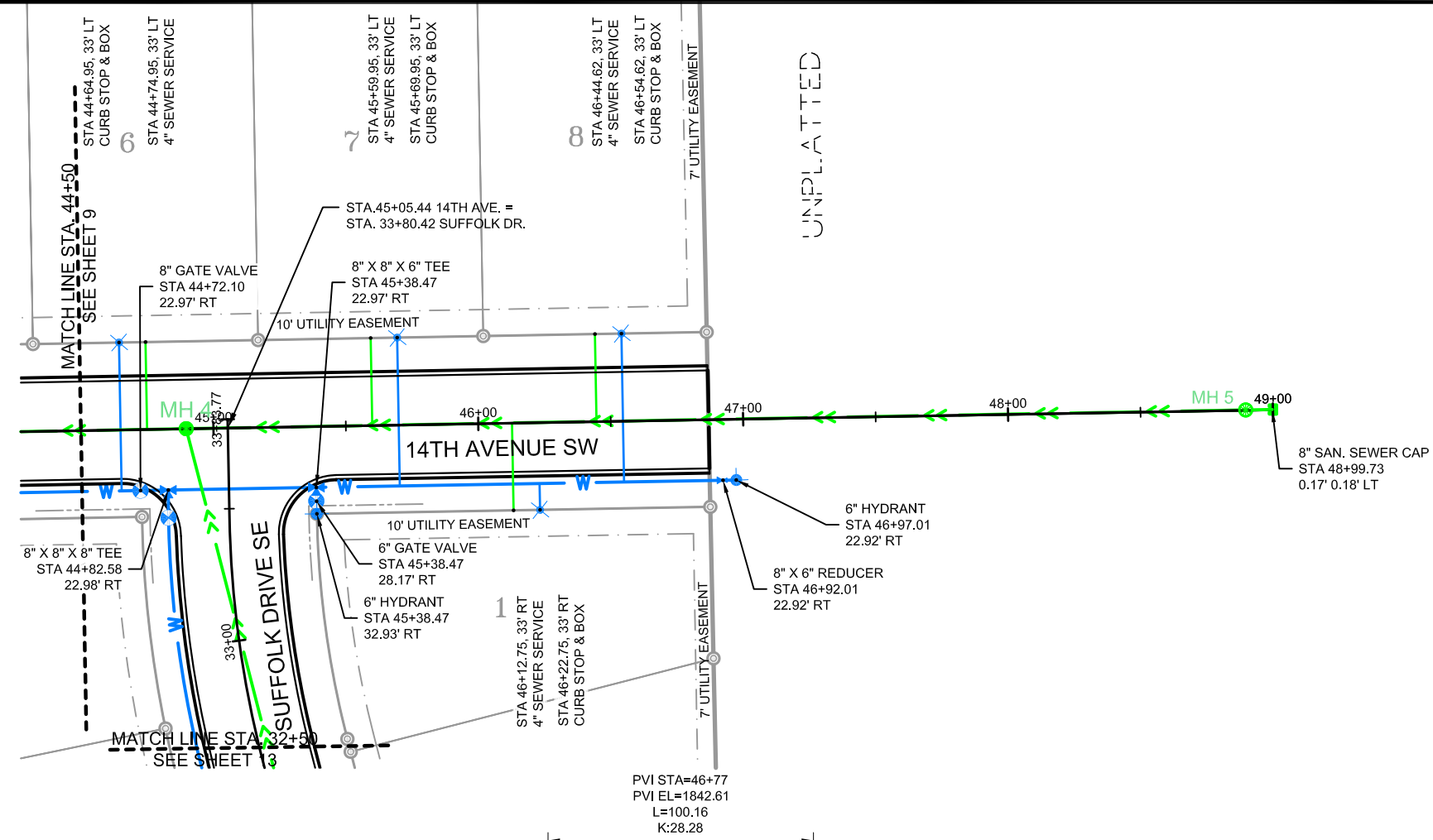
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QUANTITIES THIS SHEET

DUCTILE IRON WATERMAIN FITTINGS	
8" X 8" X 6" TEE	1 EA
8" X 8" X 8" TEE	1 EA
8" X 6" REDUCER	1 EA
WATER MAIN	
6" PVC C-900 HYDRANT LEAD	15 LF
8" PVC C-900 WATER MAIN	241 LF
6" FIRE HYDRANT	2 EA
6" GATE VALVE & BOX	1 EA
8" GATE VALVE & BOX	1 EA
1" WATER SERVICE	178 LF
1" CURB STOP & BOX	4 EA
8" X 1" WATER SERVICE CONNECTION	4 EA
SANITARY SEWER	
48" SANITARY SEWER MANHOLE	2 EA
8" SDR-35 PVC SANITARY SEWER	450 LF
8" SANITARY SEWER CAP	1 EA
4" SDR-35 PVC SEWER SERVICE	132 LF
8" X 4" SEWER SERVICE CONNECTION	4 EA

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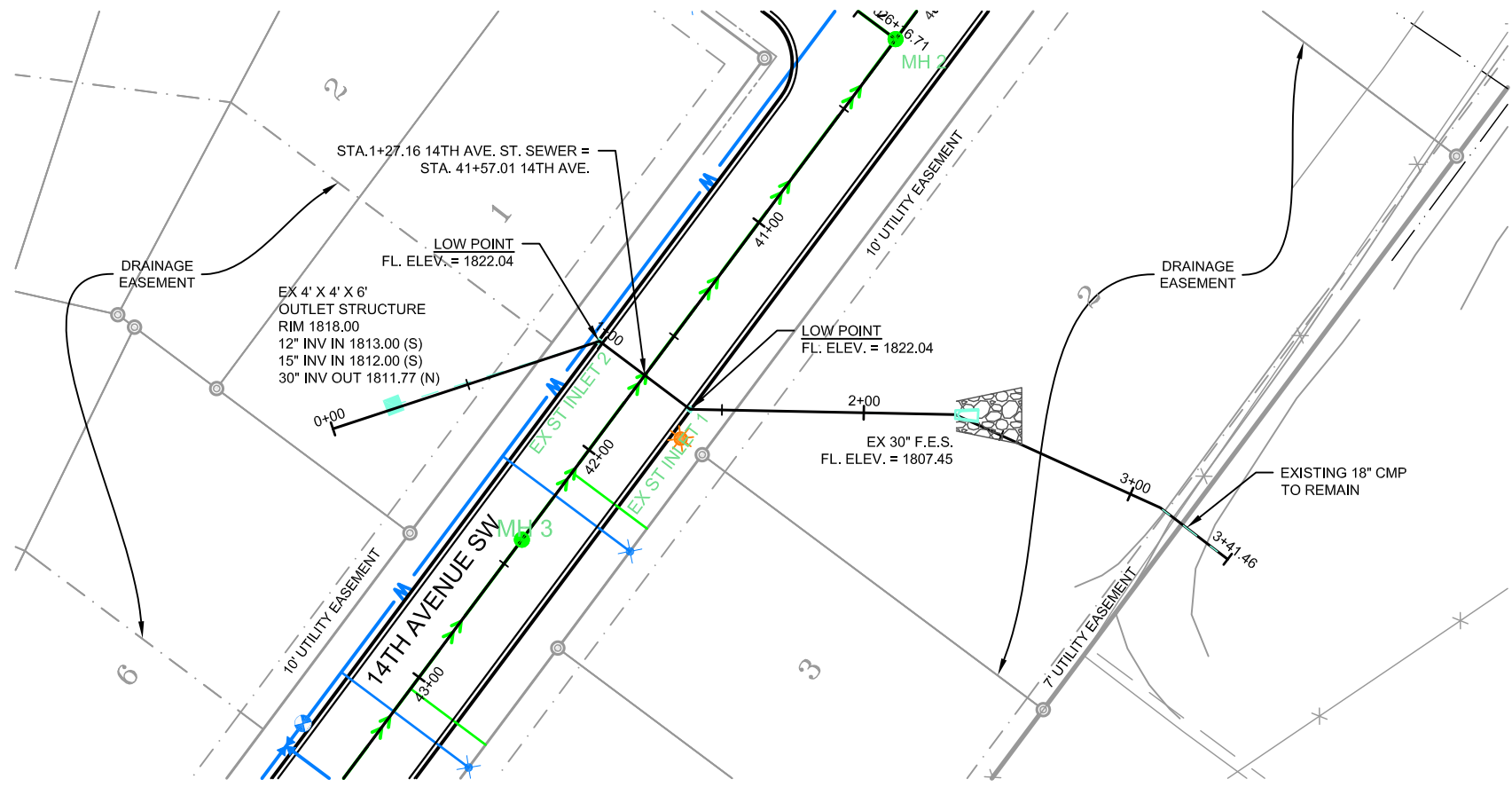


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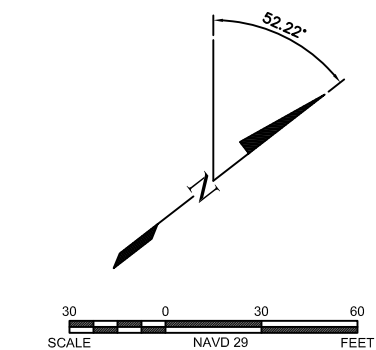
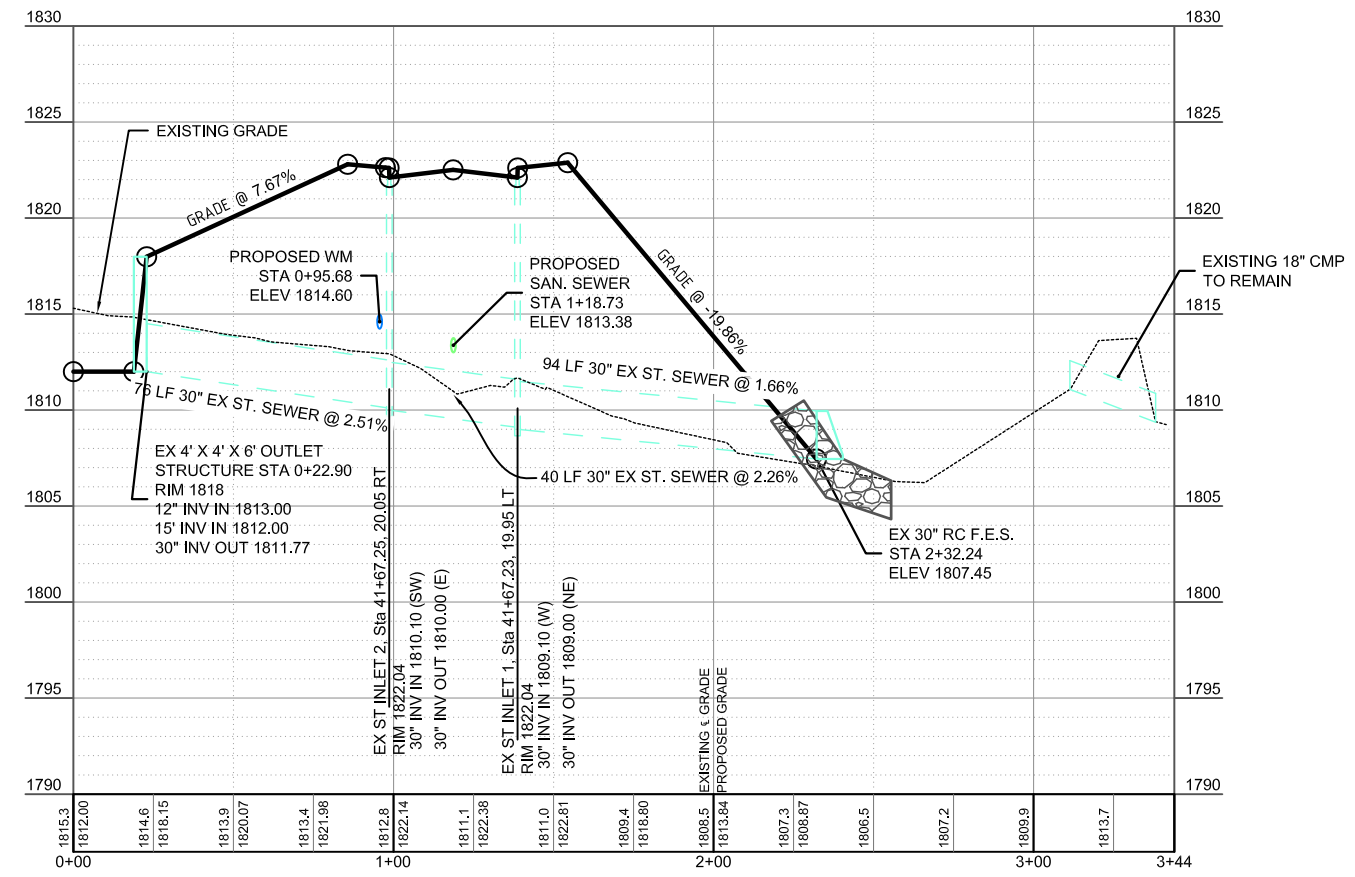
PLAINVIEW HEIGHTS 13TH ADDITION
MITZEL BUILDERS, INC.
MANDAN, NORTH DAKOTA
14TH AVE SW PLAN & PROFILE STA. 44+50 - 49+00

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NOTE:
1. ALL STORM SEWER PIPES AND STRUCTURES ARE EXISTING.



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PLAINVIEW HEIGHTS 13TH ADDITION
MITZEL BUILDERS, INC.
MANDAN, NORTH DAKOTA
14TH AVE SW STORM SEWER PLAN & PROFILE STA. 0+00 - 2+30

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MANDAN, NORTH DAKOTA

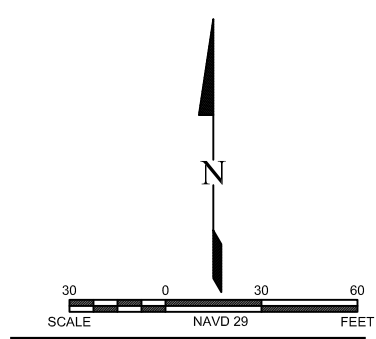
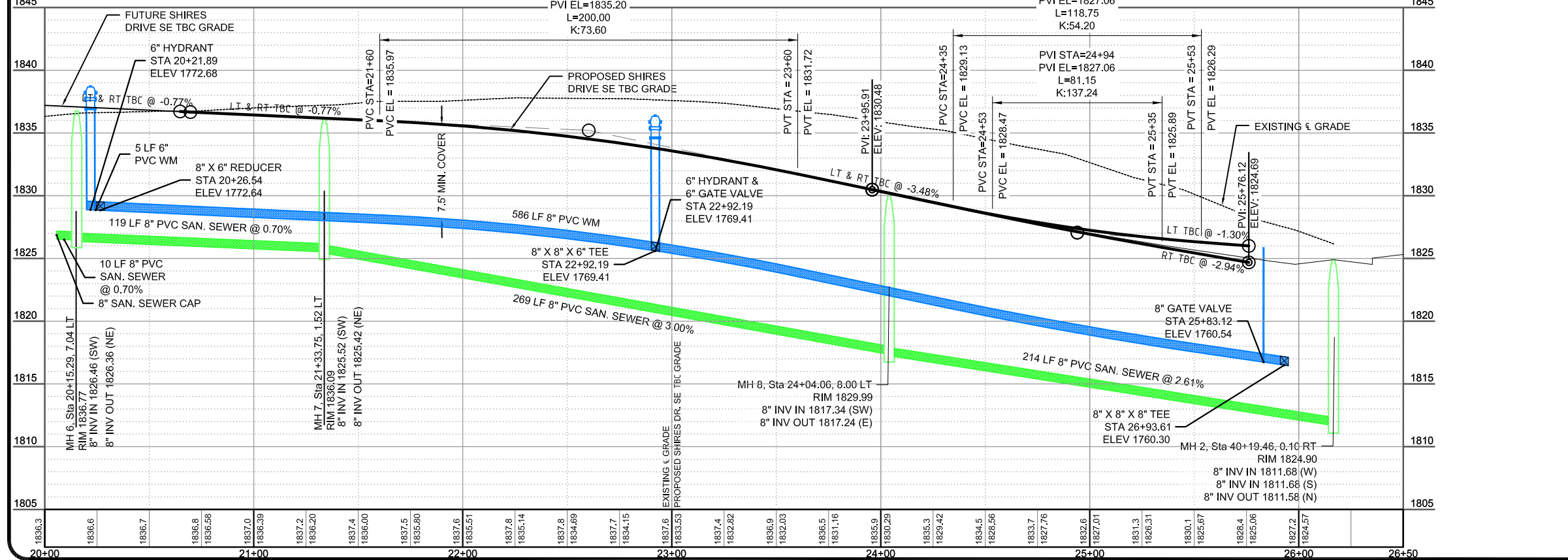
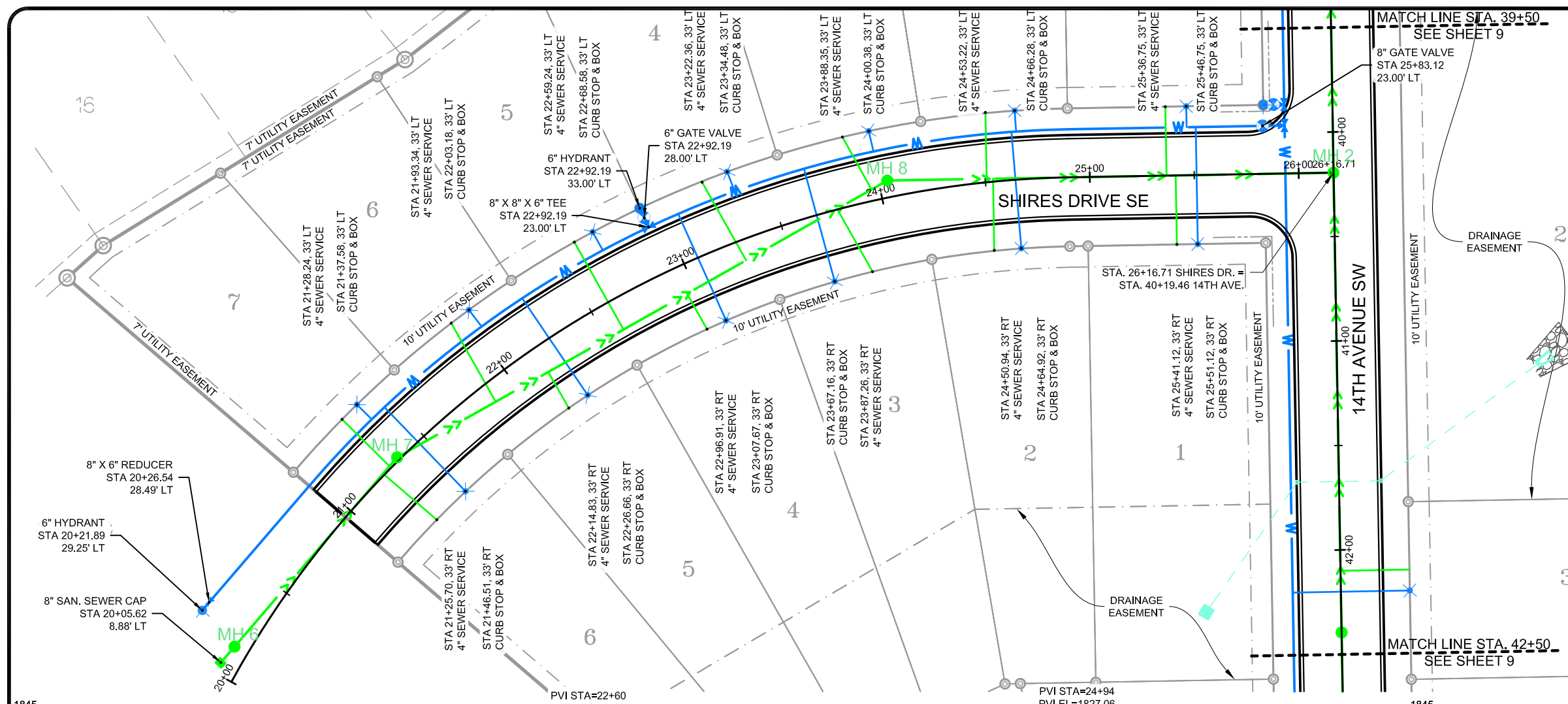
SHIRES DRIVE SE PLAN & PROFILE STA. 20+00 - 26+17

QUANTITIES THIS SHEET

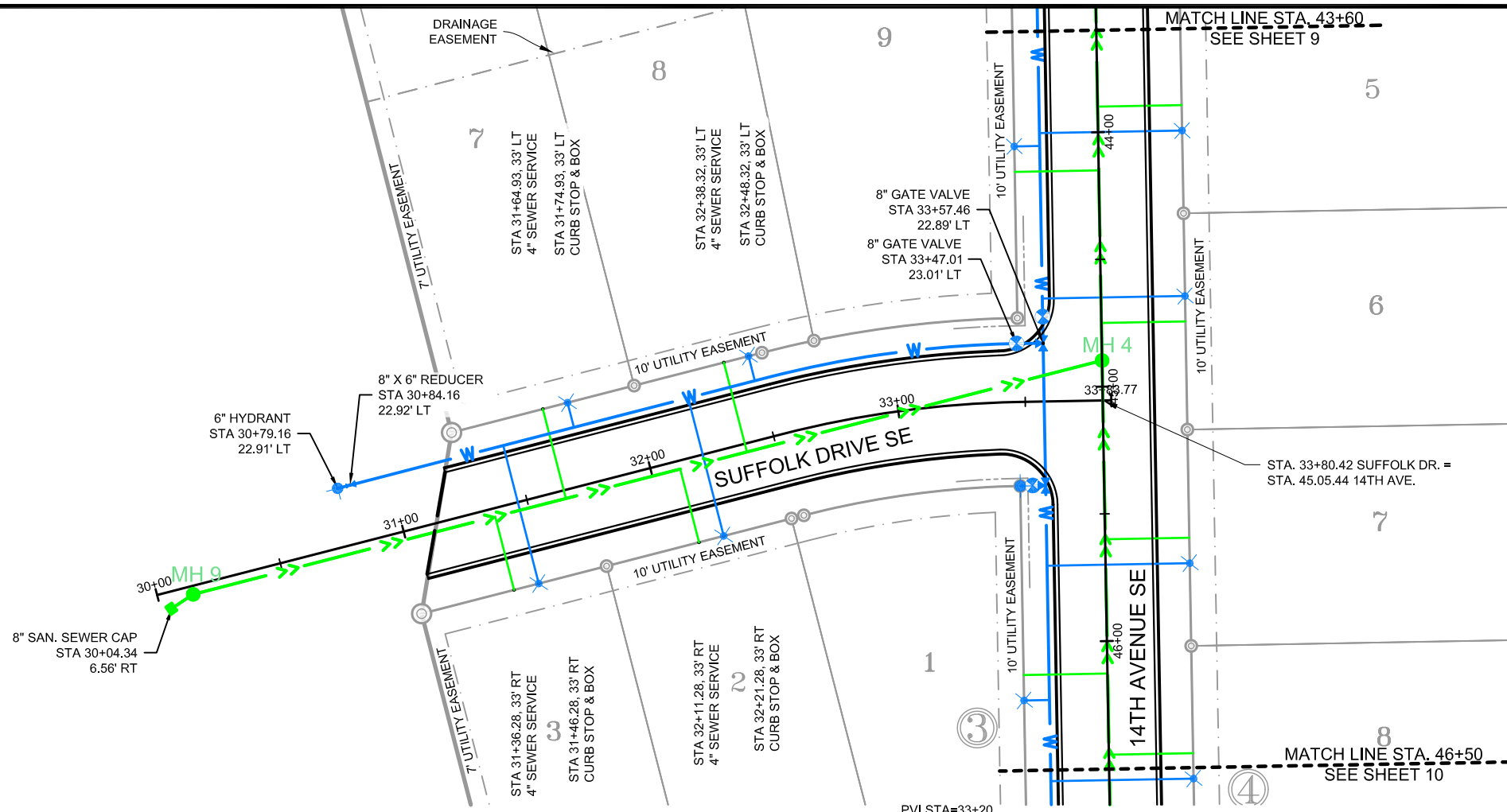
DUCTILE IRON WATERMAIN FITTINGS	
8" X 8" X 6" TEE	1 EA
8" X 6" REDUCER	1 EA
WATER MAIN	
6" PVC C-900 HYDRANT LEAD	15 LF
8" PVC C-900 WATER MAIN	586 LF
6" FIRE HYDRANT	2 EA
6" GATE VALVE & BOX	1 EA
8" GATE VALVE & BOX	1 EA
1" WATER SERVICE	406 LF
1" CURB STOP & BOX	13 EA
8" X 1" WATER SERVICE CONNECTION	13 EA
SANITARY SEWER	
48" SANITARY SEWER MANHOLE	3 EA
8" SDR-35 PVC SANITARY SEWER	612 LF
8" SANITARY SEWER CAP	1 EA
4" SDR-35 PVC SEWER SERVICE	438 LF
8" X 4" SEWER SERVICE CONNECTION	13 EA

NOTE

1. ALL STORM SEWER PIPE AND STRUCTURES ARE EXISTING.



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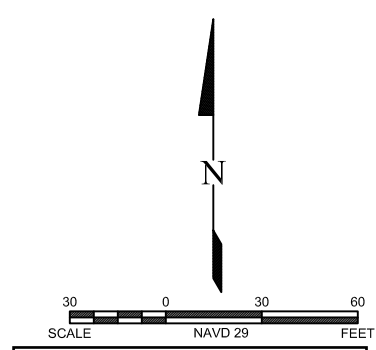
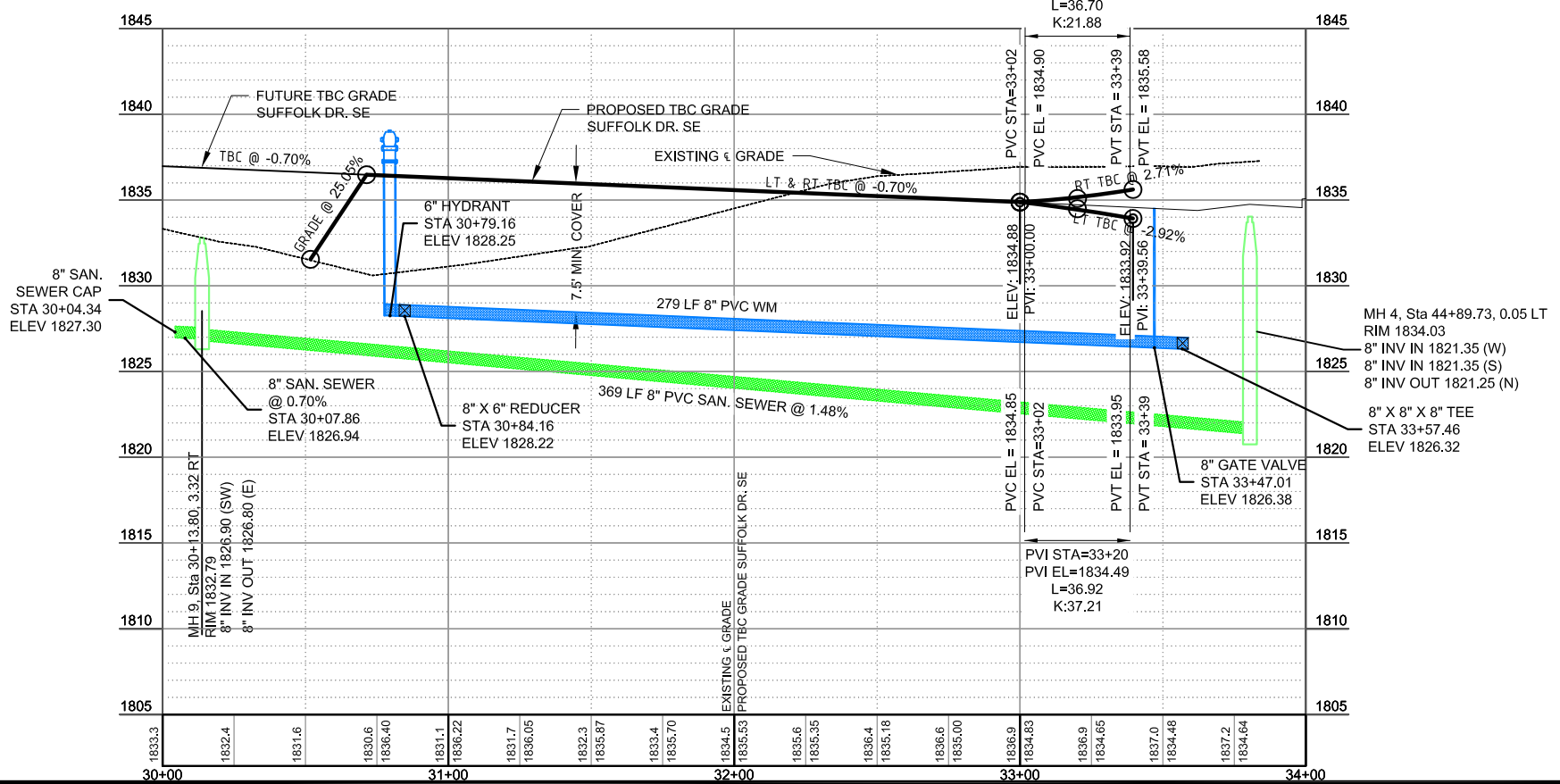
QUANTITIES THIS SHEET

DUCTILE IRON WATER MAIN FITTINGS	
8" X 6" REDUCER	1 EA
WATER MAIN	
6" PVC C-900 HYDRANT LEAD	5 LF
8" PVC C-900 WATER MAIN	279 LF
6" FIRE HYDRANT	1 EA
8" GATE VALVE & BOX	1 EA
1" WATER SERVICE	132 LF
1" CURB STOP & BOX	4 EA
8" X 1" WATER SERVICE CONNECTION	4 EA
SANITARY SEWER	
48" SANITARY SEWER MANHOLE	1 EA
8" SDR-35 PVC SANITARY SEWER	379 LF
8" SANITARY SEWER CAP	1 EA
4" SDR-35 PVC SEWER SERVICE	132 LF
8" X 4" SEWER SERVICE CONNECTION	4 EA

Kadmas Lee & Jackson
Engineers Surveyors Planners
www.kljeng.com

NO.	DATE	REVISION

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REVIEWED: AM
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PLAINVIEW HEIGHTS 13TH ADDITION
MITZEL BUILDERS, INC.
MANDAN, NORTH DAKOTA

SUFFOLK DRIVE SE PLAN & PROFILE STA. 30+00 - 33+83.77

SHEET 13