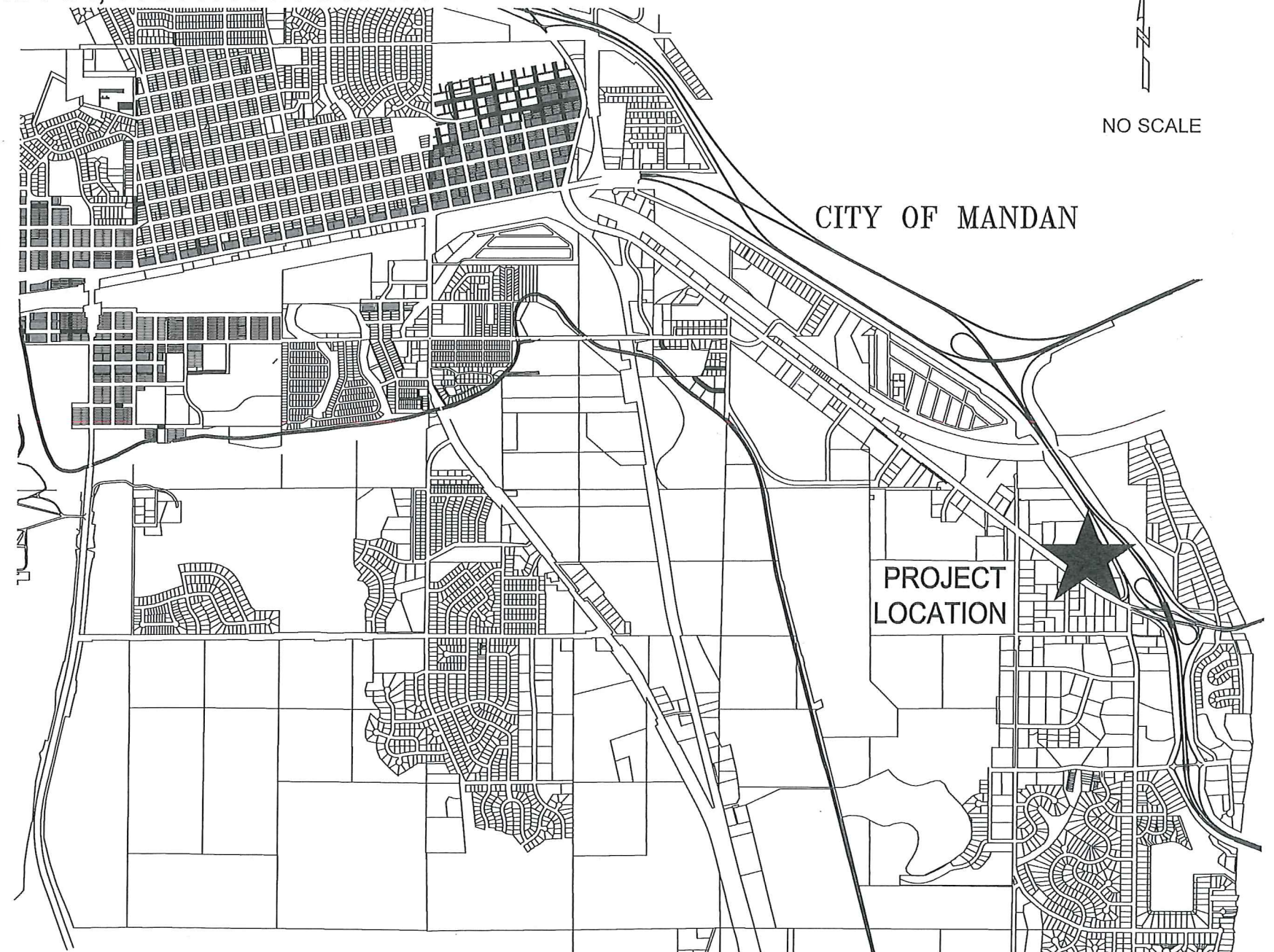
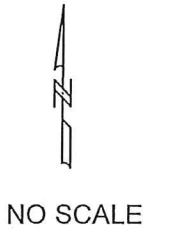


MIDWAY 14TH ADDITION
 WATER & SEWER IMPROVEMENTS
 CITY PROJECT NO. 2014-07
 MANDAN, NORTH DAKOTA

ASBUILT

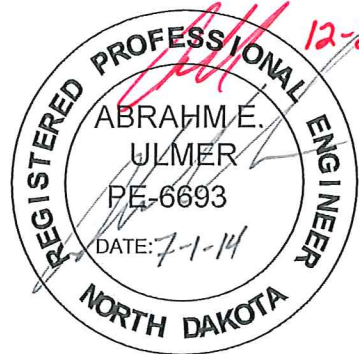
INDEX OF DRAWINGS

SHT NO	TITLE
1	TITLE SHEET
2	PROJECT LAYOUT
3	ACTION DRIVE SE (PHASE I)
4	ACTION DRIVE SE (PHASE II) NOT Constructed at this Time
5	CONSTRUCTION DETAILS



DESIGN ENGINEER'S CERTIFICATE

I, ABRAHM E. ULMER, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE PLANS FOR MIDWAY 14TH ADDITION, WATER & SEWER IMPROVEMENTS, CITY PROJECT NO. 2014-07, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

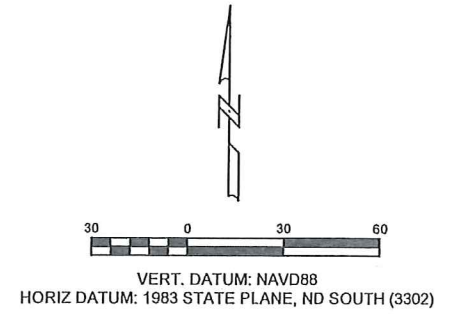
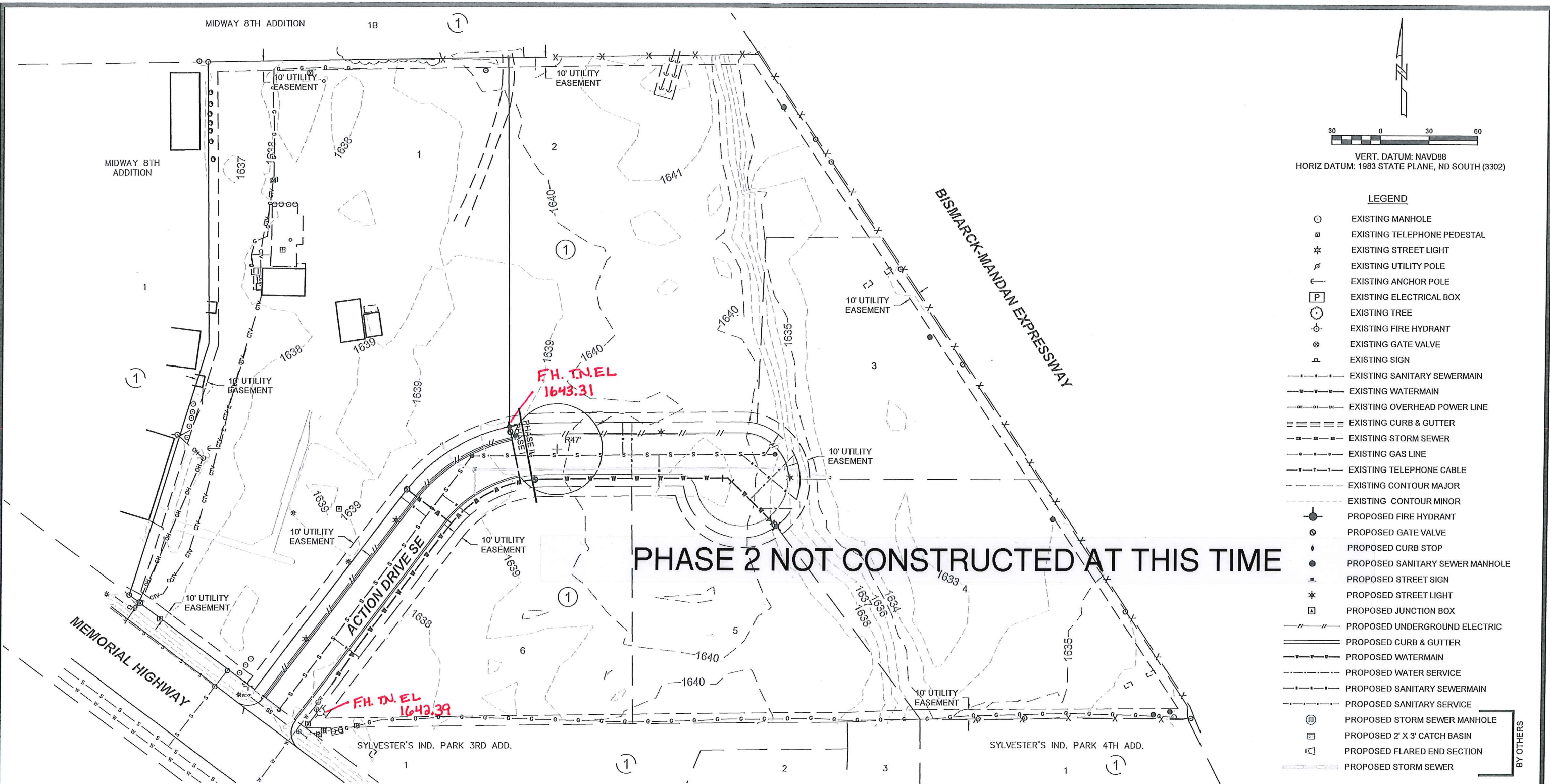


ABRAHM E. ULMER, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 6693

CAUTION
 UTILITY LOCATIONS ARE
 APPROXIMATE. CONTRACTOR IS
 RESPONSIBLE FOR VERIFYING
 LOCATION PRIOR TO
 EXCAVATION.

TE TOMAN ENGINEERING
 501 1st Street NW, Mandan, ND 58554
 Phone: 701-663-6483 * Fax: 701-663-0923
 COPYRIGHT 2014 TOMAN ENGINEERING COMPANY

TITLE SHEET
 MIDWAY 14TH ADDITION
 ACTION DRIVE SE *As-built*
 WATER & SEWER IMPROVEMENT
 CITY PROJECT NO. 2014-07
 MANDAN, NORTH DAKOTA
 SHEET 1 OF 5
 MAY, 2014



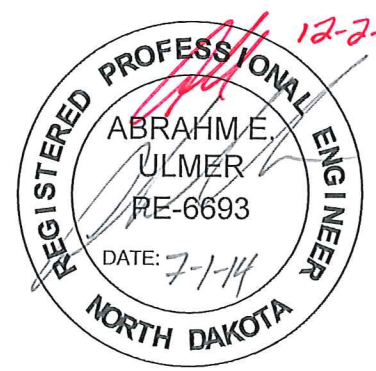
LEGEND

○	EXISTING MANHOLE
□	EXISTING TELEPHONE PEDESTAL
*	EXISTING STREET LIGHT
⊕	EXISTING UTILITY POLE
⊖	EXISTING ANCHOR POLE
⊠	EXISTING ELECTRICAL BOX
⊙	EXISTING TREE
⊕	EXISTING FIRE HYDRANT
⊗	EXISTING GATE VALVE
⊠	EXISTING SIGN
---	EXISTING SANITARY SEWERMAIN
---	EXISTING WATERMAIN
---	EXISTING OVERHEAD POWER LINE
---	EXISTING CURB & GUTTER
---	EXISTING STORM SEWER
---	EXISTING GAS LINE
---	EXISTING TELEPHONE CABLE
---	EXISTING CONTOUR MAJOR
---	EXISTING CONTOUR MINOR
⊕	PROPOSED FIRE HYDRANT
⊗	PROPOSED GATE VALVE
⊖	PROPOSED CURB STOP
⊕	PROPOSED SANITARY SEWER MANHOLE
⊠	PROPOSED STREET SIGN
*	PROPOSED STREET LIGHT
⊠	PROPOSED JUNCTION BOX
---	PROPOSED UNDERGROUND ELECTRIC
---	PROPOSED CURB & GUTTER
---	PROPOSED WATERMAIN
---	PROPOSED WATER SERVICE
---	PROPOSED SANITARY SEWERMAIN
---	PROPOSED SANITARY SERVICE
⊠	PROPOSED STORM SEWER MANHOLE
⊠	PROPOSED 2' X 3' CATCH BASIN
⊠	PROPOSED FLARED END SECTION
---	PROPOSED STORM SEWER

BY OTHERS

PHASE 2 NOT CONSTRUCTED AT THIS TIME

CAUTION
 UTILITY LOCATIONS ARE APPROXIMATE.
 CONTRACTOR IS RESPONSIBLE FOR
 VERIFYING LOCATION PRIOR TO
 EXCAVATION

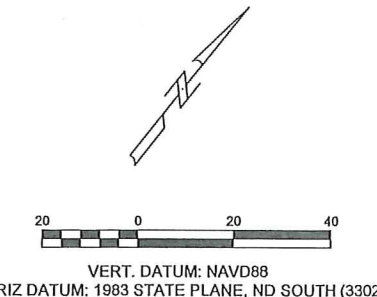
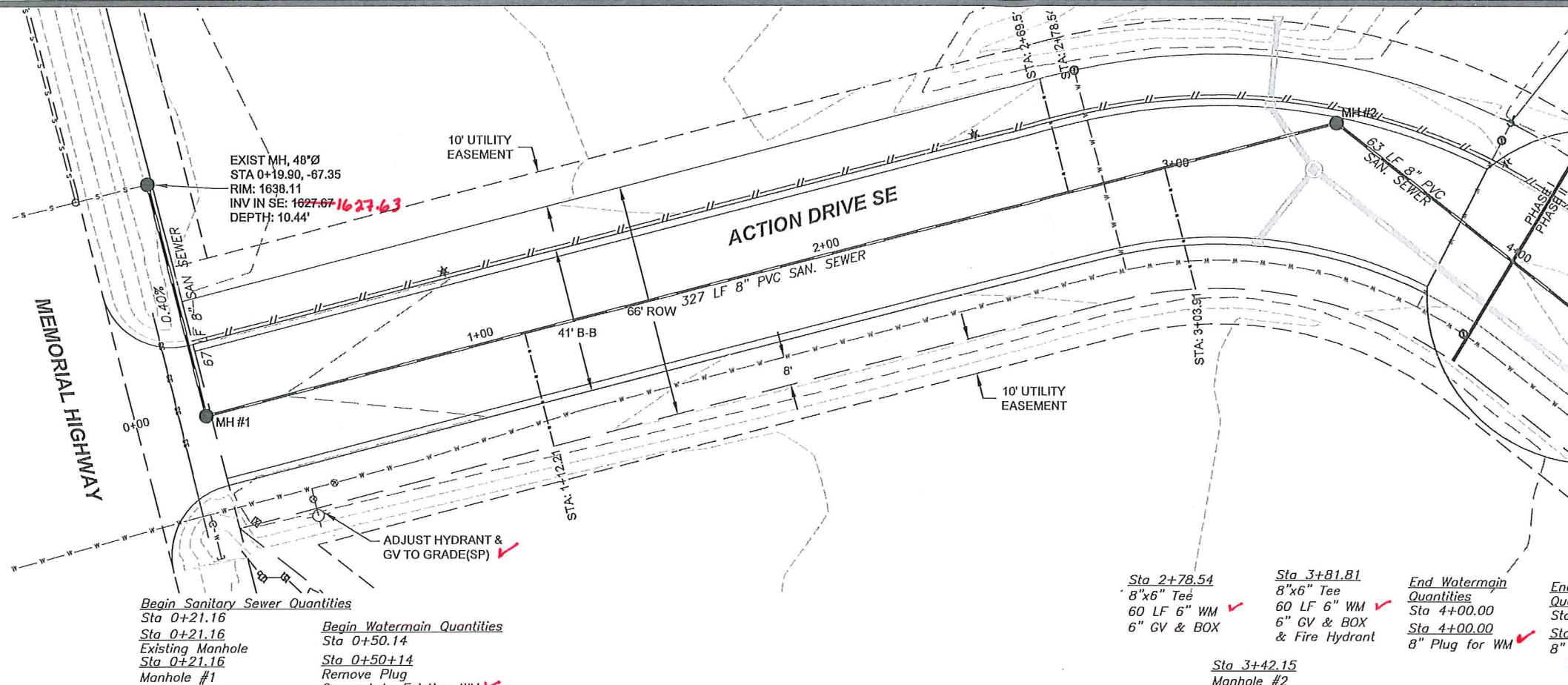


TOMAN ENGINEERING
 501 1st Street NW, Mandan, ND 58554
 Phone: 701-663-6483 * Fax: 701-663-0923
 COPYRIGHT 2014 TOMAN ENGINEERING COMPANY

PROJECT LAYOUT
 MIDWAY 14TH ADDITION
 ACTION DRIVE SE *As-built*

WATER & SEWER IMPROVEMENT
 CITY PROJECT NO. 2014-07
 MANDAN, NORTH DAKOTA
 SHEET 2 OF 5
 MAY, 2014

H:\Projects\1000\1266 Midway 14th\03-04 1266 Action Drive.dwg, 7/17/2014 2:56:58 PM, andra, 1:2

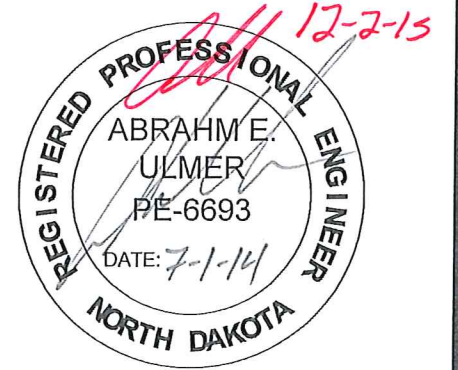
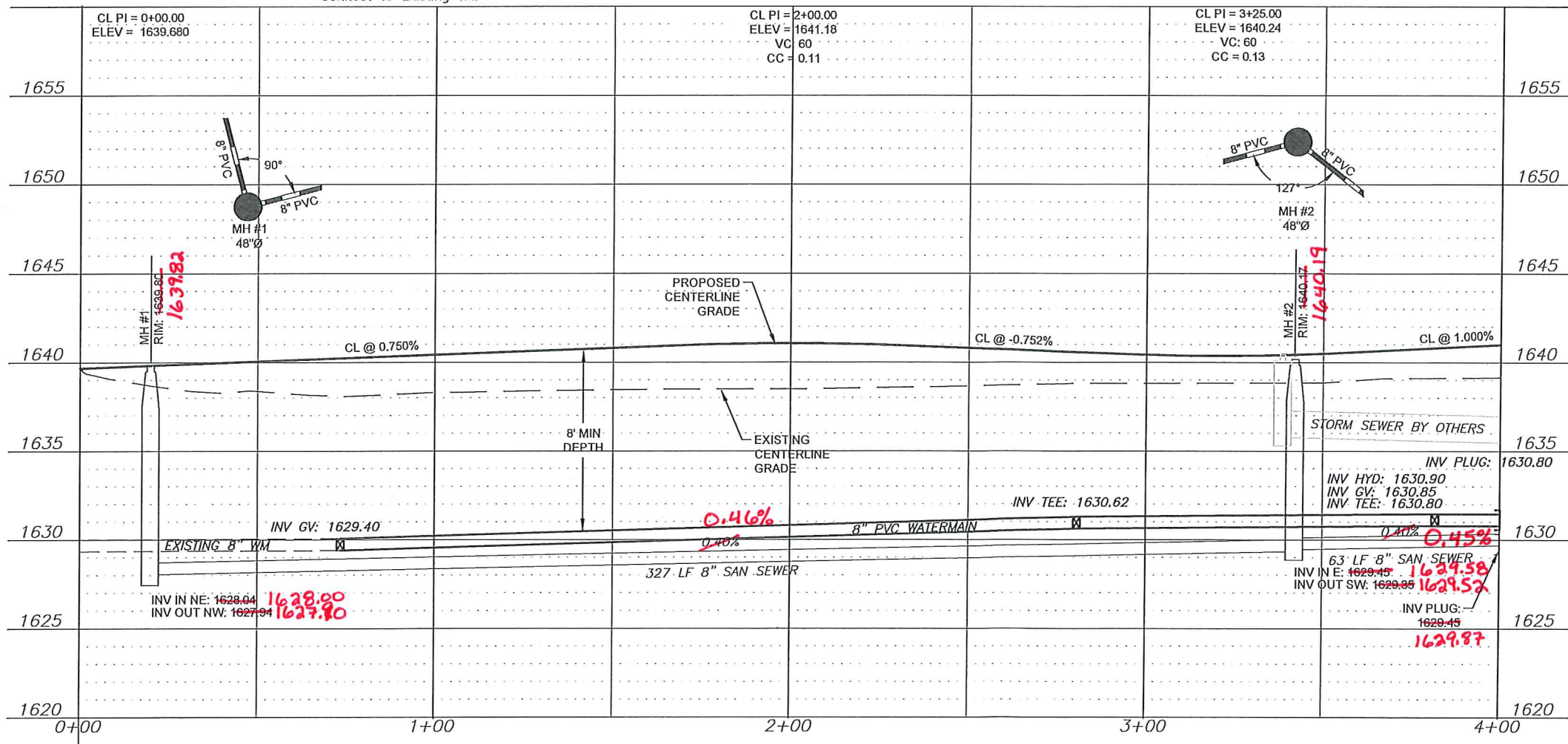


1. GRADING OF SITE WILL BE COMPLETED BY OTHERS PRIOR TO CONSTRUCTION.
2. BACKFILL SHALL BE CLASS 'A' PER CITY OF MANDAN SPECIFICATIONS. MOISTURE REQUIREMENTS SHALL BE NO MORE THAN 3% ABOVE OR 2% BELOW OPTIMUM MOISTURE AS DETERMINED BY ASTM-D-1557.
3. BREAK INTO EXISTING MANHOLE & POUR NEW INVERT (INCIDENTAL TO PROJECT).
4. LOWERING OF WATERMAIN FROM STA 0+50 TO STA 3+81 TO AVOID HIGH SPOT SHALL BE CONSIDERED INCIDENTAL TO WATERMAIN INSTALLATION.

APPROXIMATE QUANTITIES

Spec No.	Sanitary Sewermain Items	Quantity
801-4.2	8" Sanitary Sewermain	457 LF
801-4.51	8"x6" Wye Branch	3 Ea
801-4.60	Bedding Material	100 Ton
1205-4.1	Manhole	2 Ea
1209-4.2	6" Sanitary Sewer Pipe	102 LF
1209-4.7	6" - 45° Bend	3 Ea

Spec No.	Watermain Items	Quantity
801-4.60	Bedding Material	120 Ton
901-4.10	6" Watermain	116 LF
901-4.11	8" Watermain	306 LF
901-4.51	6" Gate Valve & Box	2 Ea
901-4.70	6" Hydrant	1 Ea
SP	2' Hydrant Extension	1 Ea

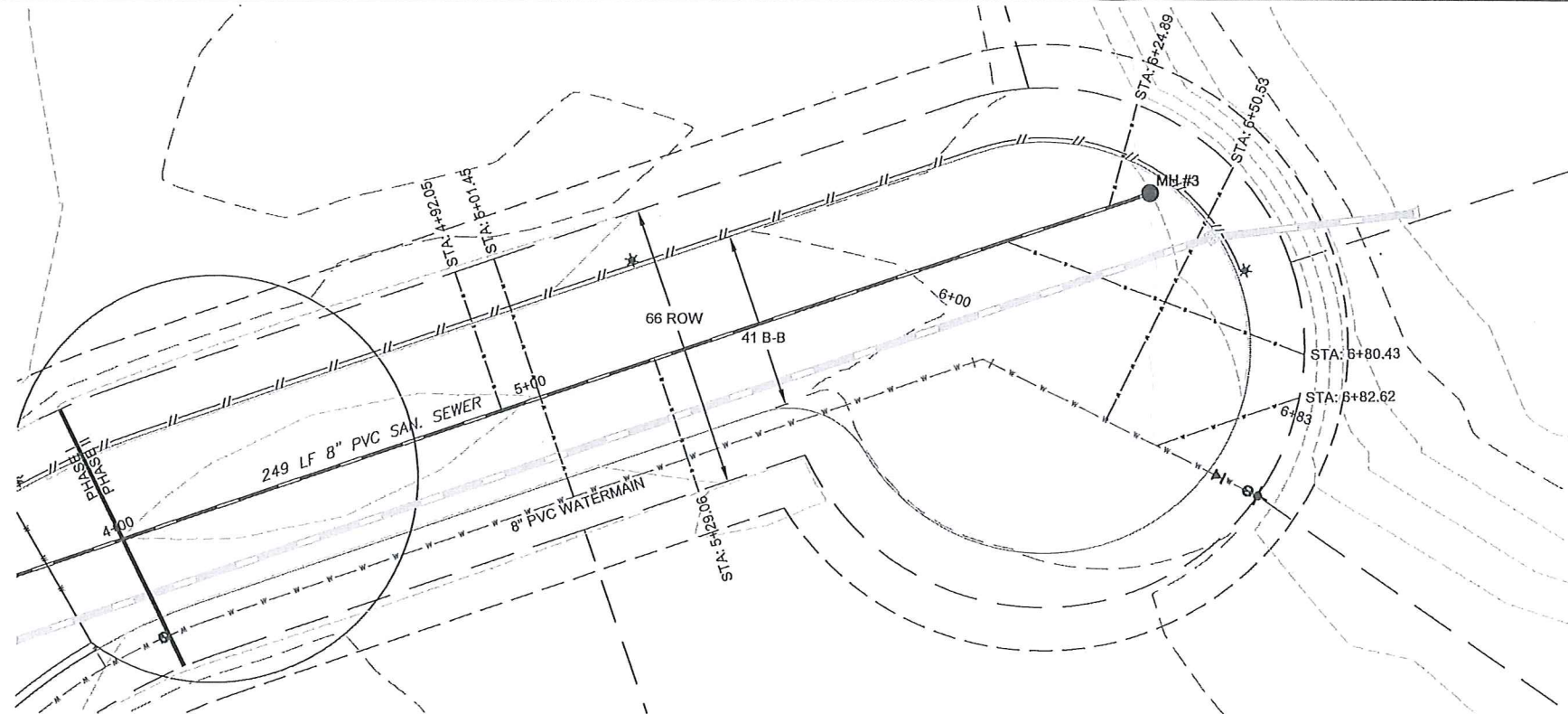


CAUTION
UTILITY LOCATIONS ARE APPROXIMATE.
CONTRACTOR IS RESPONSIBLE FOR
VERIFYING LOCATION PRIOR TO
EXCAVATION

TOMAN ENGINEERING
1266
501 1st Street NW, Mandan, ND 58554
Phone: 701-663-6483 * Fax: 701-663-0923
COPYRIGHT 2014 TOMAN ENGINEERING COMPANY

ACTION DRIVE PLAN & PROFILE
STA 0+00 TO END OF PHASE I
MIDWAY 14TH ADDITION
As-built

WATER & SEWER IMPROVEMENT
CITY PROJECT NO. 2014-07
MANDAN, NORTH DAKOTA
SHEET 3 OF 5
MAY, 2014



VERT. DATUM: NAVD88
 HORIZ DATUM: 1983 STATE PLANE, ND SOUTH (3302)

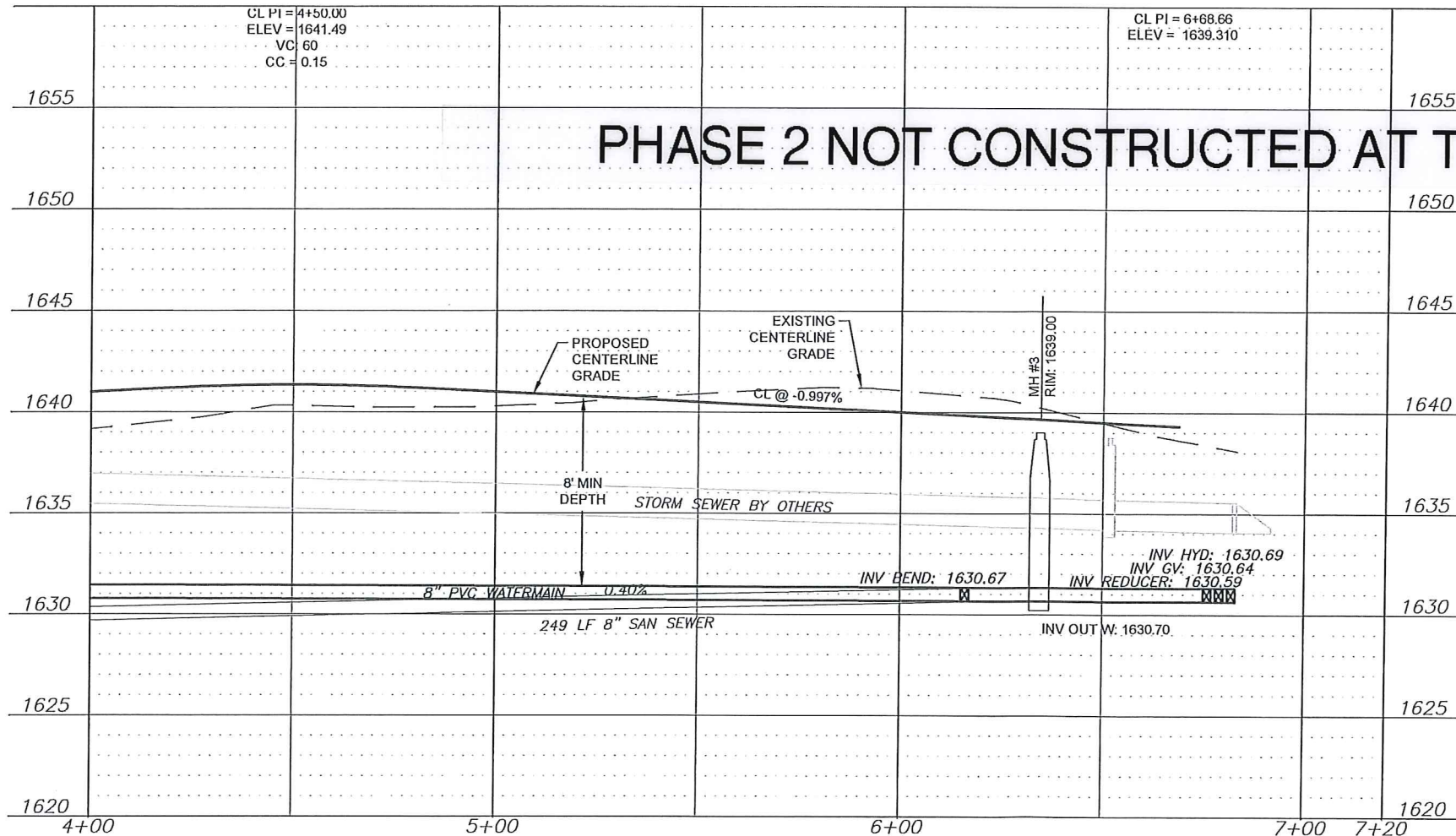
1. GRADING OF SITE WILL BE COMPLETED BY OTHERS PRIOR TO CONSTRUCTION.
2. BACKFILL SHALL BE CLASS 'A' PER CITY OF MANDAN SPECIFICATIONS. MOISTURE REQUIREMENTS SHALL BE NO MORE THAN 3% ABOVE OR 2% BELOW OPTIMUM MOISTURE AS DETERMINED BY ASTM D-1557.

Begin Watermain Quantities
 Sta 4+00.00
 Sta 4+00.00
 Remove Plug
 Connect to Ex WM
 8" GV & BOX

Sta 6+13.96
 8" 45° Bend

Sta 6+34.44
 MH #3

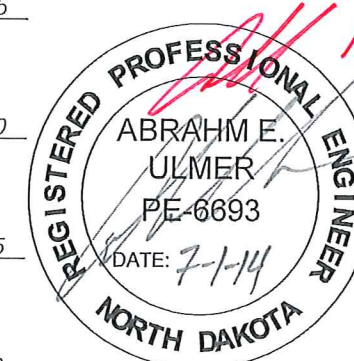
Sta 6+75.46
 8"x6" Reducer
 6 LF 6" WM
 6" Fire Hydrant
 & 6" Gate Valve



APPROXIMATE QUANTITIES

Spec No.	Sanitary Sewermain Items	Quantity
801-4.2	8" Sanitary Sewermain	249 LF
801-4.51	8"x6" Wye Branch	4 Ea
801-4.60	Bedding Material	75 Ton
1205-4.1	Manhole	1 Ea
1209-4.2	6" Sanitary Sewer Pipe	165 LF
1209-4.7	6" - 45° Bend	4 Ea
Spec No.	Watermain Items	Quantity
801-4.60	Bedding Material	80 Ton
901-4.10	6" Watermain	6 LF
901-4.11	8" Watermain	269 LF
901-4.51	6" Gate Valve & Box	1 Ea
901-4.52	8" Gate Valve & Box	1 Ea
901-4.70	6" Hydrant	1 Ea
1209-4.15	2" Water Service Pipe	158 LF
1209-4.44	2" Water Service Connection	3 Ea
1209-4.54	2" Curb Stop & 1-1/4" Box	3 Ea

CAUTION
 UTILITY LOCATIONS ARE APPROXIMATE.
 CONTRACTOR IS RESPONSIBLE FOR
 VERIFYING LOCATION PRIOR TO
 EXCAVATION

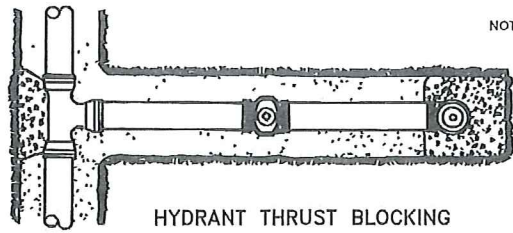


TOMAN ENGINEERING
 501 1st Street NW, Mandan, ND 58554
 Phone: 701-663-6483 * Fax: 701-663-0923
 COPYRIGHT 2014 TOMAN ENGINEERING COMPANY

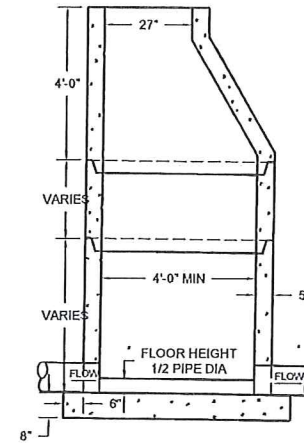
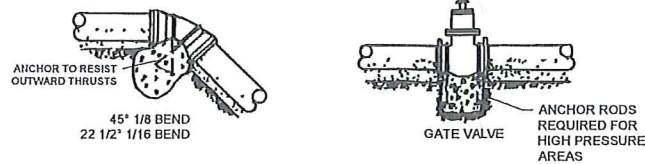
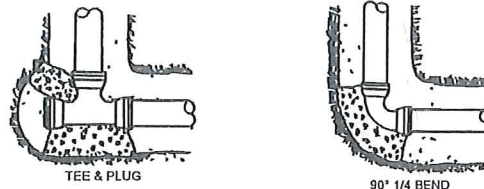
ACTION DRIVE PLAN & PROFILE
 BEGIN PHASE II TO END OF PROJECT
 MIDWAY 14TH ADDITION
 WATER & SEWER IMPROVEMENT
 CITY PROJECT NO. 2014-07
 MANDAN, NORTH DAKOTA
 SHEET 4 OF 5
 MAY, 2014

As-built

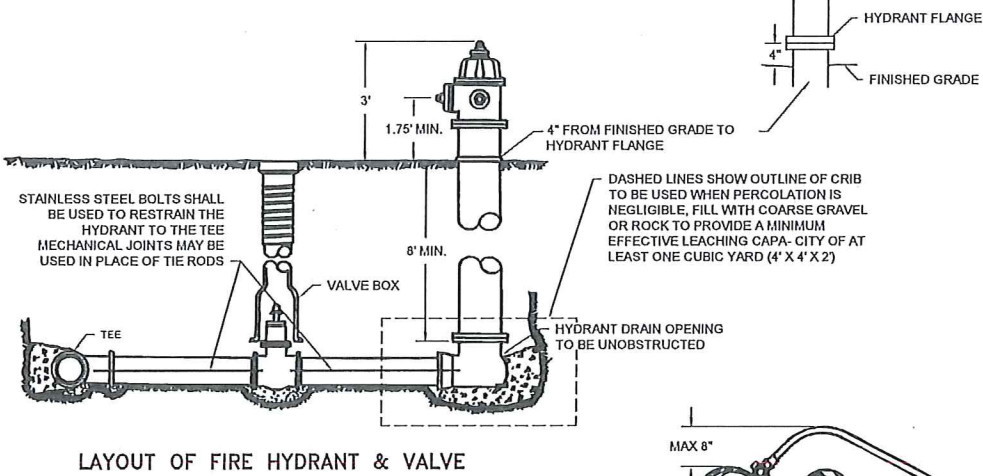
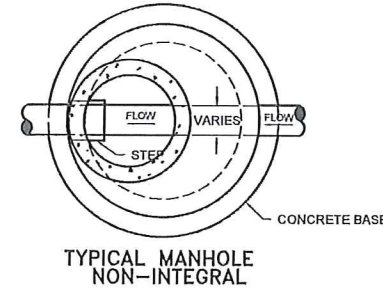
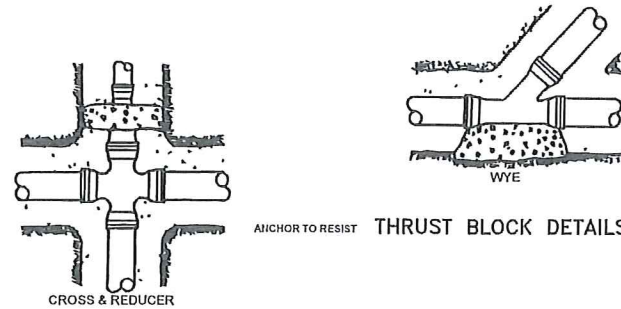
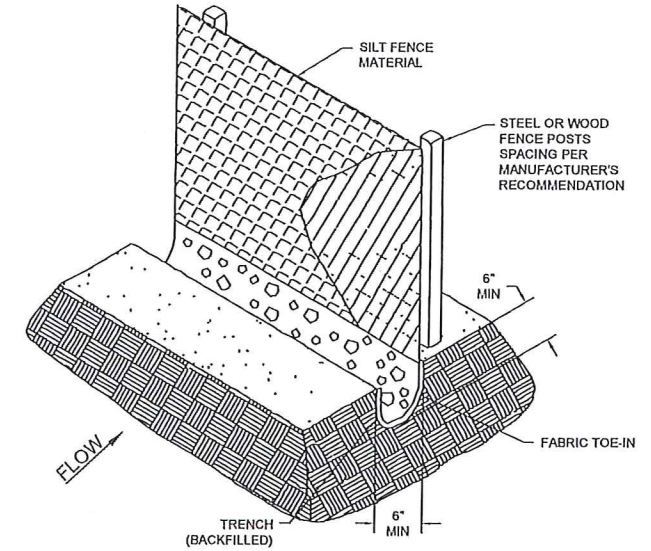
H:\Projects\1000\1266 Midway 14th\03-04 1266 Action Drive.dwg, 7/7/2014 2:57:10 PM, andra, 1:2



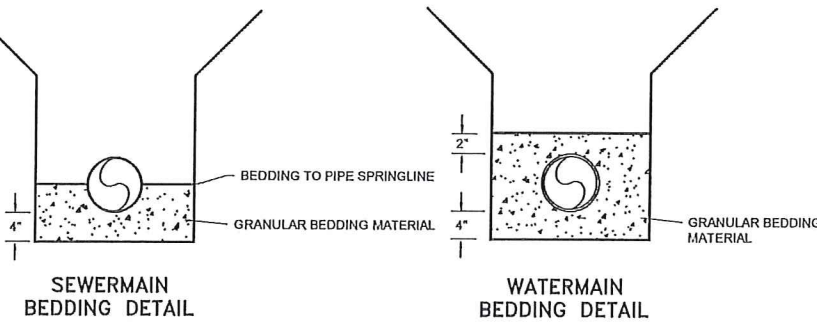
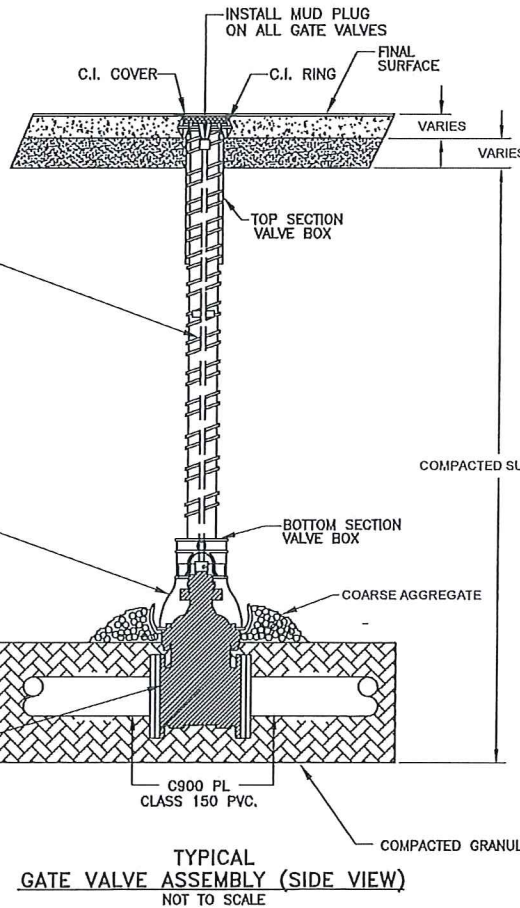
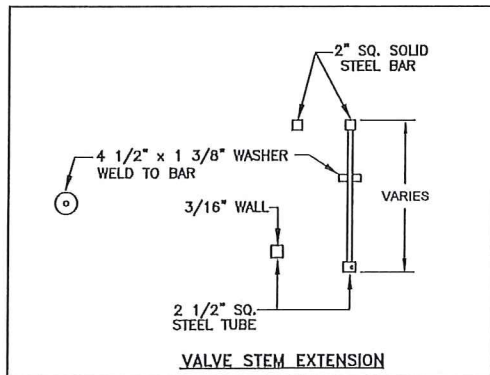
- NOTES:**
- (1) PIPE DEFLECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION
 - (2) BEDDING REQUIREMENTS SHALL BE AS INDICATED HEREON UNLESS MODIFIED IN THE SPECIFICATION
 - (3) CONCRETE FOR THRUST BLOCKS SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND MAX. SLUMP OF 3 INCHES AT TIME OF PLACEMENT



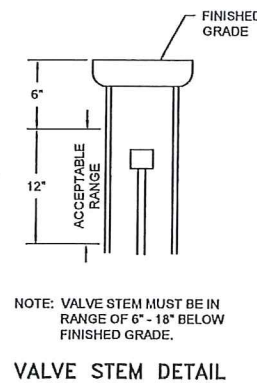
- NOTES:**
1. SILT FENCE FABRIC SHALL BE ONE OF THE FOLLOWING
A. BURLAP: ASHTO M182
B. POLYPROPYLENE FABRIC: ASTM D4397
C. NYLON NETTING REINFORCED FABRIC
D. PREMANUFACTURED SILT FENCE MEETING EQUAL PROPERTIES OF ABOVE.
 2. SILT FENCE FABRIC SHALL HAVE A MINIMUM BURSTING STRENGTH 150 PSI
 3. SILT FENCE FABRIC SHALL HAVE EDGES TREATED TO PREVENT UNRAVELING.
 4. MINIMUM HEIGHT OF THE SILT FENCE TO BE 2'-6" WITH A MINIMUM OF 6" CLEARANCE BETWEEN THE TOP OF THE SILT FENCE AND THE TOP OF THE POSTS.
 5. INSTALL THE POSTS ON SLIGHT ANGLE TOWARDS THE ANTICIPATED RUNOFF SURFACE.



SERVICE LINE CORPORATION COCK DIRECT TAP POSITION



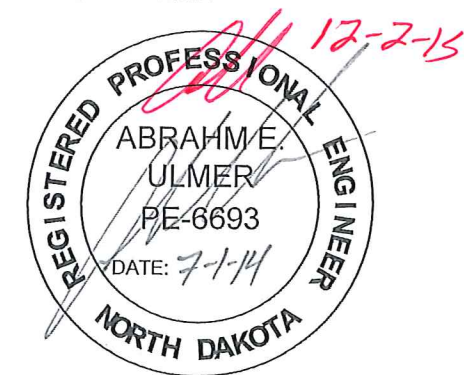
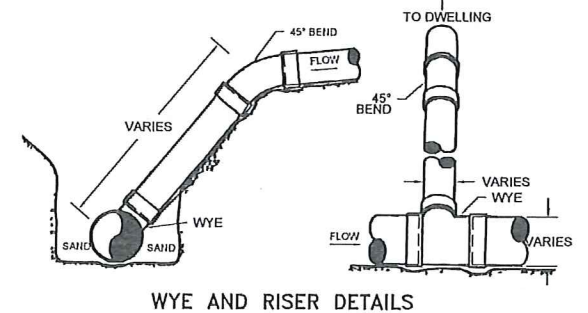
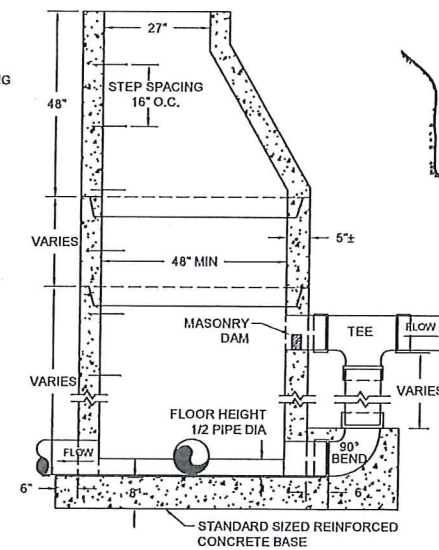
SAND CUSHION BEDDING—SUPPORT ENTIRE LENGTH OF PIPE SPECIAL COMPACTION REQUIRED TO PIPE SPRING LINE



SADDLES FOR PVC WATERMAIN

MAXIMUM SIZE OF OUTLET RECOMMENDED WITH SERVICE CLAMPS (INCHES)

NOMINAL PIPE SIZE	(CLASSES 100-150-200)	DOUBLE STRAP
4"		1"
6"		1 1/2"
8"		2"
10"		2"
12"		2"
14"		2"
16"		2"



TOMAN ENGINEERING
501 1st Street NW, Mandan, ND 58554
Phone: 701-663-6483 * Fax: 701-663-0923
COPYRIGHT 2014 TOMAN ENGINEERING COMPANY

CONSTRUCTION DETAILS
BEGIN PHASE II TO END OF PROJECT
MIDWAY 14TH ADDITION *As-built*

WATER & SEWER IMPROVEMENT
CITY PROJECT NO. 2014-07
MANDAN, NORTH DAKOTA
SHEET 5 OF 5

MAY, 2014