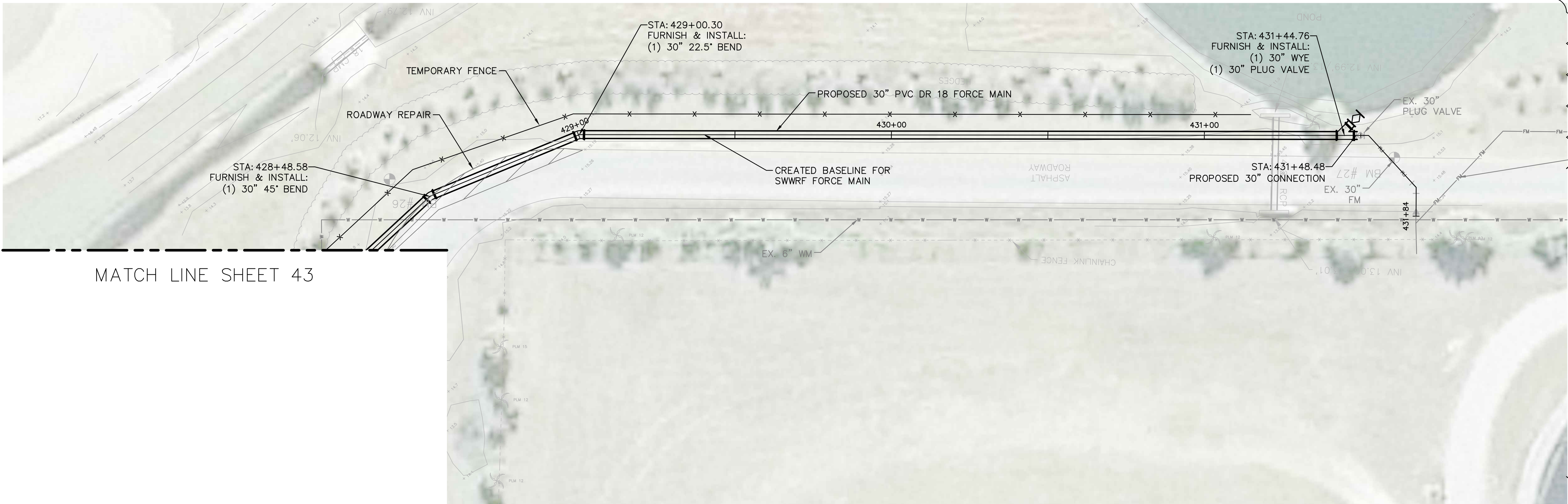
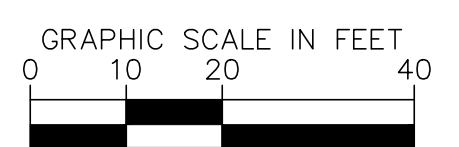
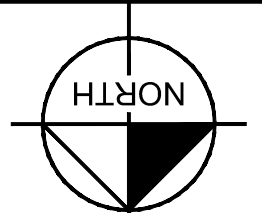


Plotted By:Behrmann, Lindsey Sheet Set:MANATEE COUNTY FMTM REHABILITATION Layout:44 PLAN & PROFILE February 17, 2017 11:02:51am K:\Torn\_civil\148400 - monatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-0.1 SWWRF PLAN & PROFILE.dwg

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



MATCH LINE SHEET 43

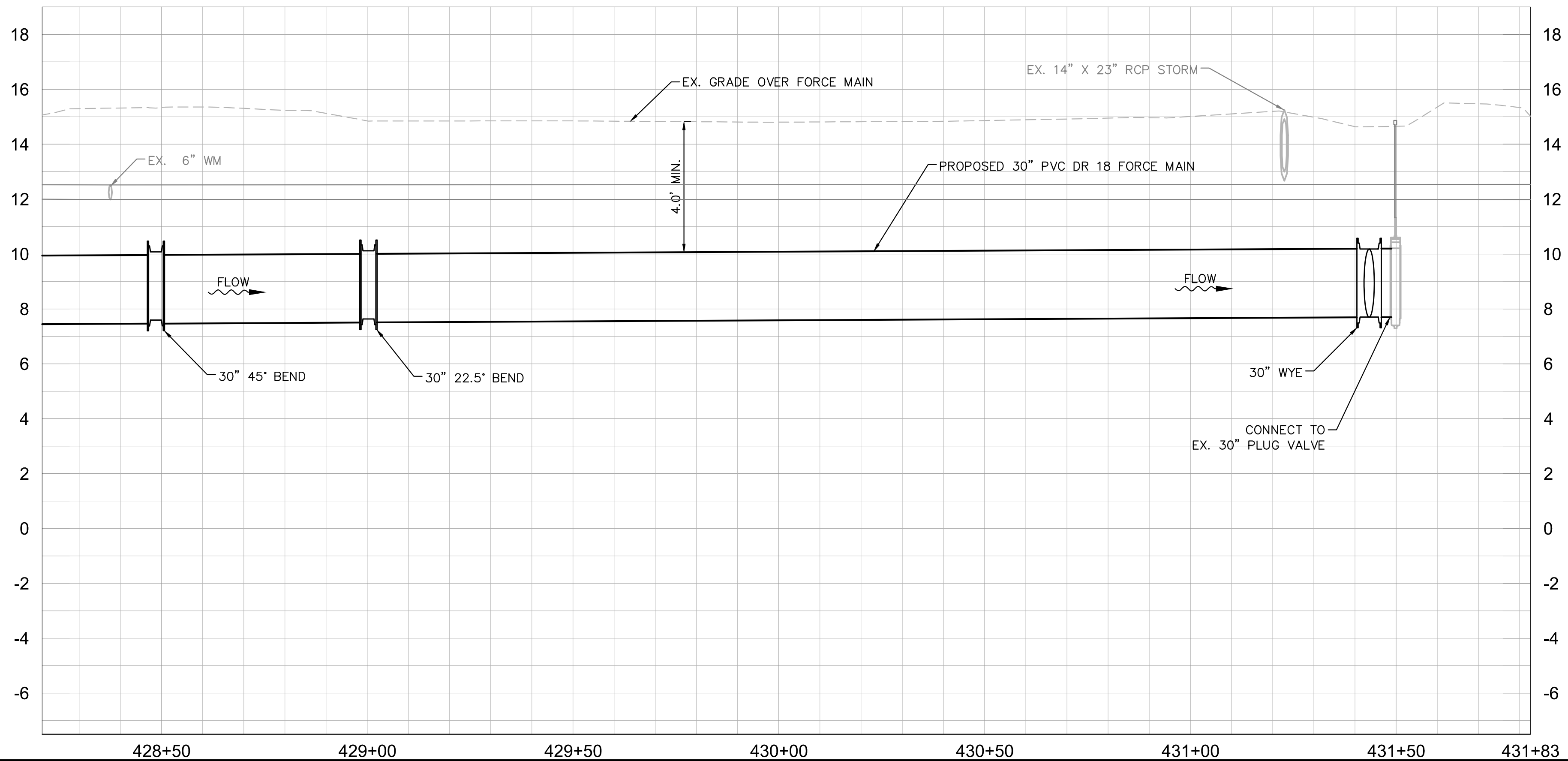
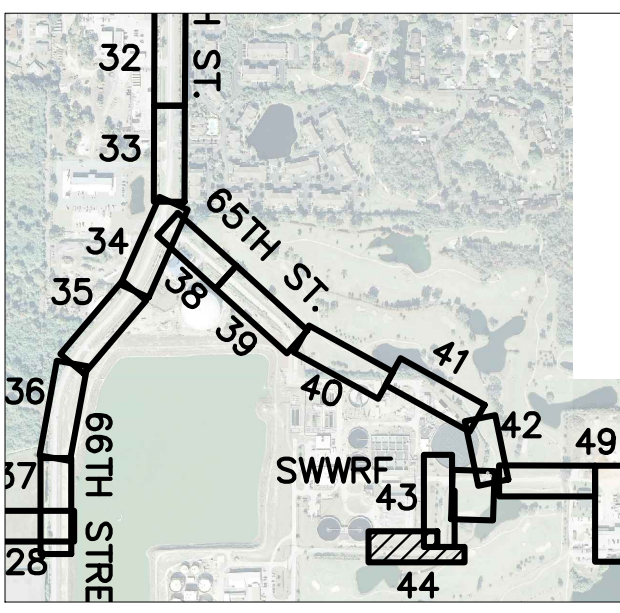


HORIZONTAL SCALE = 1"=20'  
VERTICAL SCALE = 1"=2'

NOTES:

1. CONTRACTOR SHALL MARK AND IDENTIFY ALL TREES WITHIN HIS/HERS PROPOSED WORK ZONE THAT WILL NEED TO BE REMOVED. ONCE COMPLETED CONTRACTOR SHALL NOTIFY OWNER/ENGINEER FOR APPROVAL TO REMOVE TREES.
2. REFER TO SHEET 2 FOR SUE INFORMATION.
3. CONTRACTOR SHALL PROVIDE A TEMPORARY FENCE TO PROTECT CONSTRUCTION AND LANDSCAPING.
4. CONTRACTOR SHALL PROVIDE MEANS FOR A TEMPORARY DRIVE TO ALLOW ACCESS TO GOLF COURSE MAINTENANCE AND COUNTY PARKS AND RECREATION.

KEY SHEET




GROUNDWATER / DEWATERING NOTE:

THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



No.	ADDENDUM 4		02/03/2017	WWW
REVISIONS		DATE	BY	



© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT	148400003
DATE	SEPT 2016
SCALE	AS SHOWN
DESIGNED BY	AMM
DRAWN BY	JRT
CHECKED BY	WWW



**FORCE MAIN 1M  
REHABILITATION**

MANATEE COUNTY

LICENSED PROFESSIONAL
W. WADE WOOD, P.E.
FL LICENSE NUMBER
69051

**PLAN & PROFILE  
(SWWRF)**

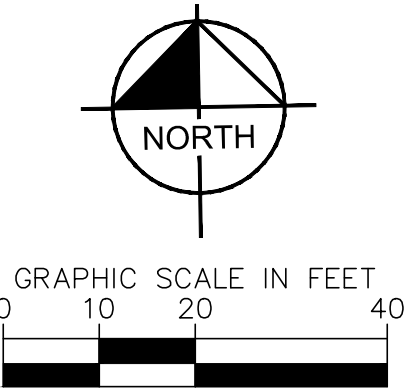
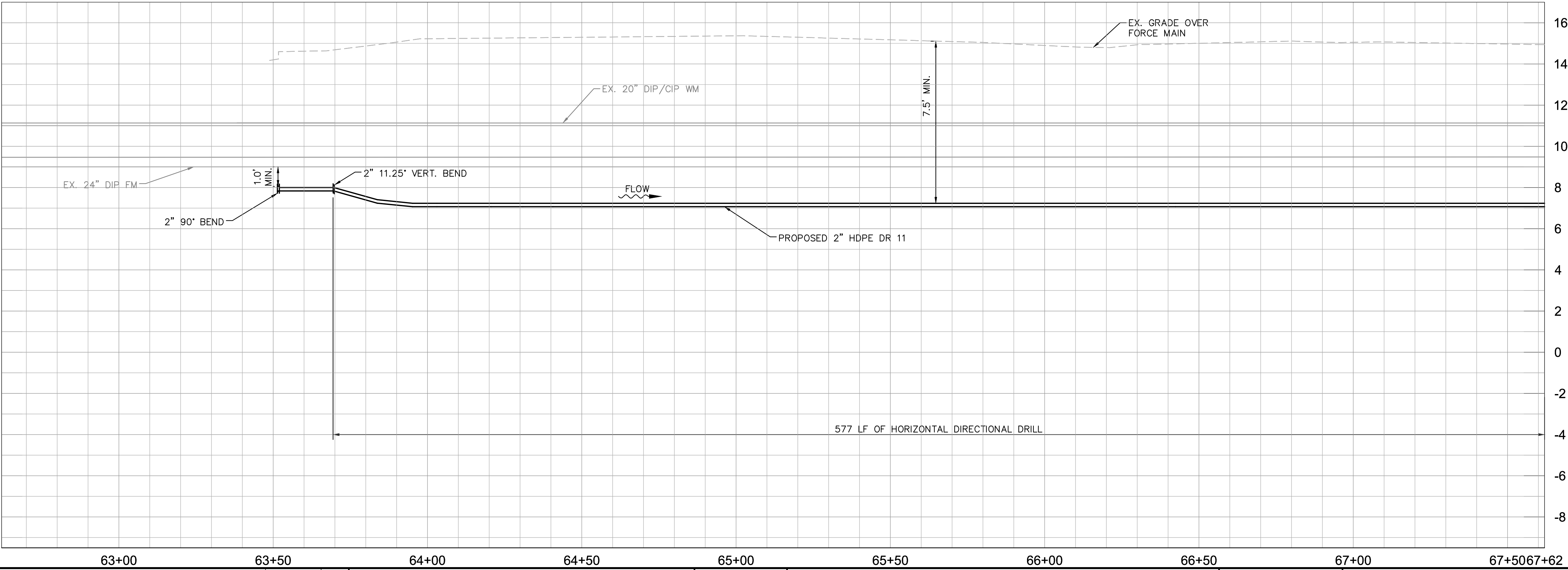
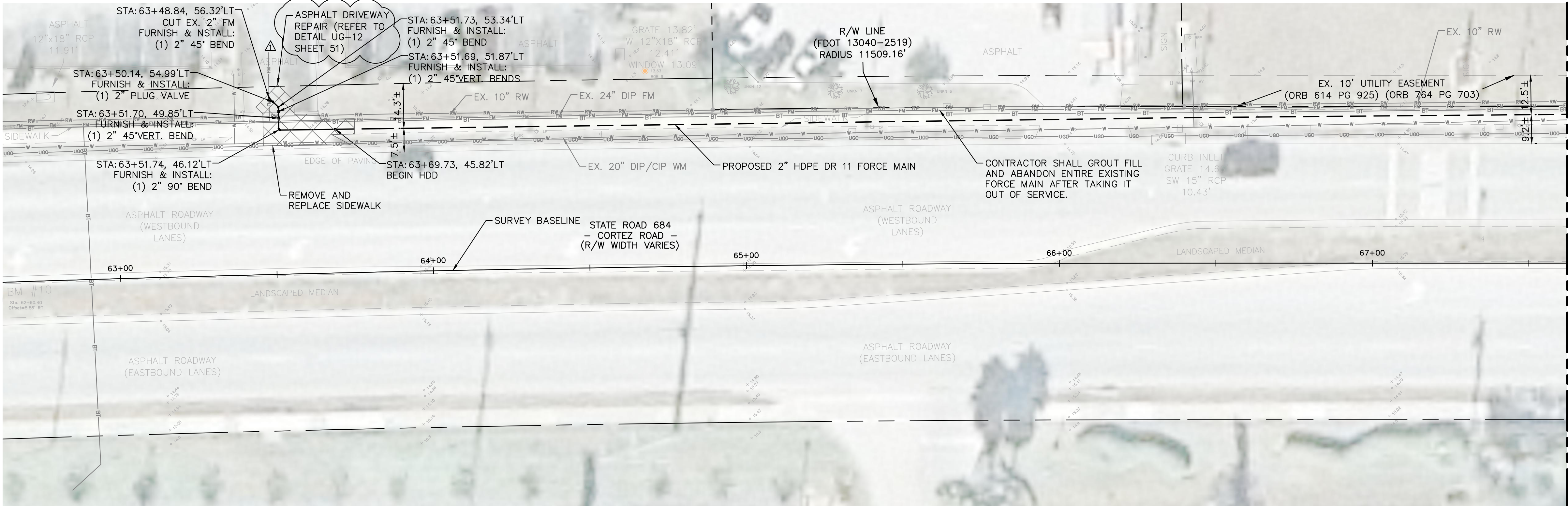
FL DATE:

SHEET NUMBER
44



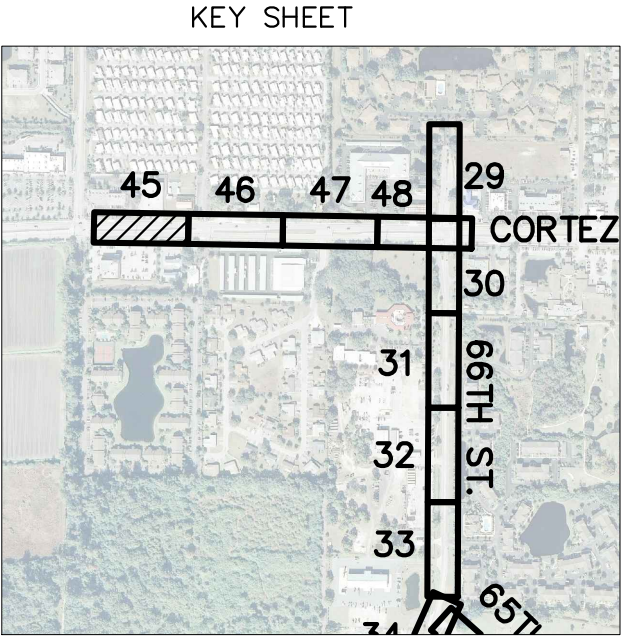
By:Bohmann, Lindsey Sheet Set:MANATEE COUNTY FMM REHABILITATION Layout:45 PLAN & PROFILE February 17, 2017 10:08:34am K:\tom\_civil\148400 -- manatee county\003 -- force main 1m rehabilitation\CADD\plansheets\0-0.8 CORTEZ to 66th PLAN & PROFILE.dwg

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



HORIZONTAL SCALE = 1"=20'  
VERTICAL SCALE = 1"=3'

NOTE:  
1. MILL & RESURFACE TRAVEL LANE EFFECTED BY DRIVEWAY REPAIR



**GROUNDWATER / DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



No.	ADDENDUM 4 02/03/2017 WWW	
REVISIONS		DATE BY

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT 148400003  
DATE SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

**FORCE MAIN 1M REHABILITATION**

MANATEE COUNTY

LICENSED PROFESSIONAL  
W. WADE WOOD, P.E.  
FL LICENSE NUMBER 69051  
FL DATE:

**PLAN & PROFILE (CORTEZ)**

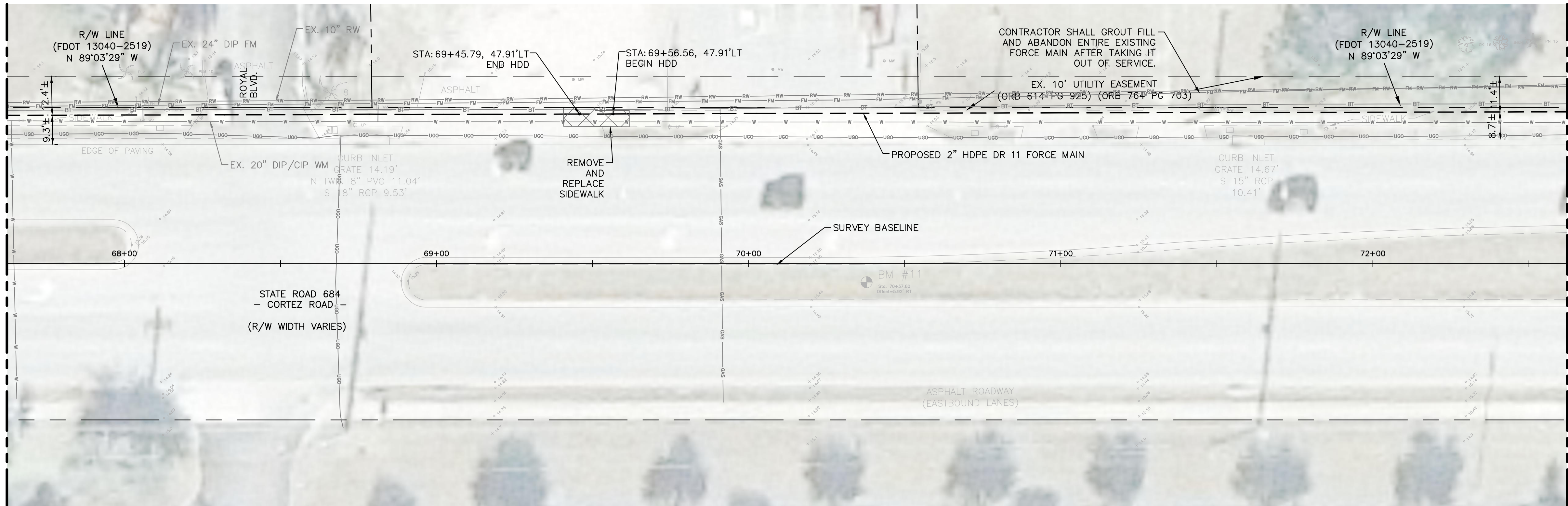
SHEET NUMBER  
**45**



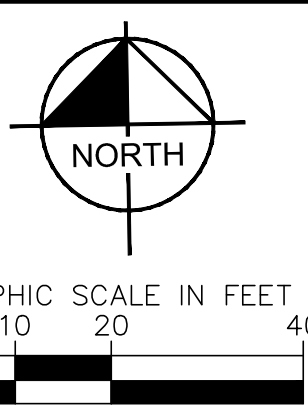
By:Kender, Madeline Sheet Set:MANATEE COUNTY FM1M REHABILITATION Layout:46 PLAN & PROFILE September 06, 2016 05:25:13pm K:\m\_civ\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-0.8 CORTEZ to 66th PLAN & PROFILE.dwg

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

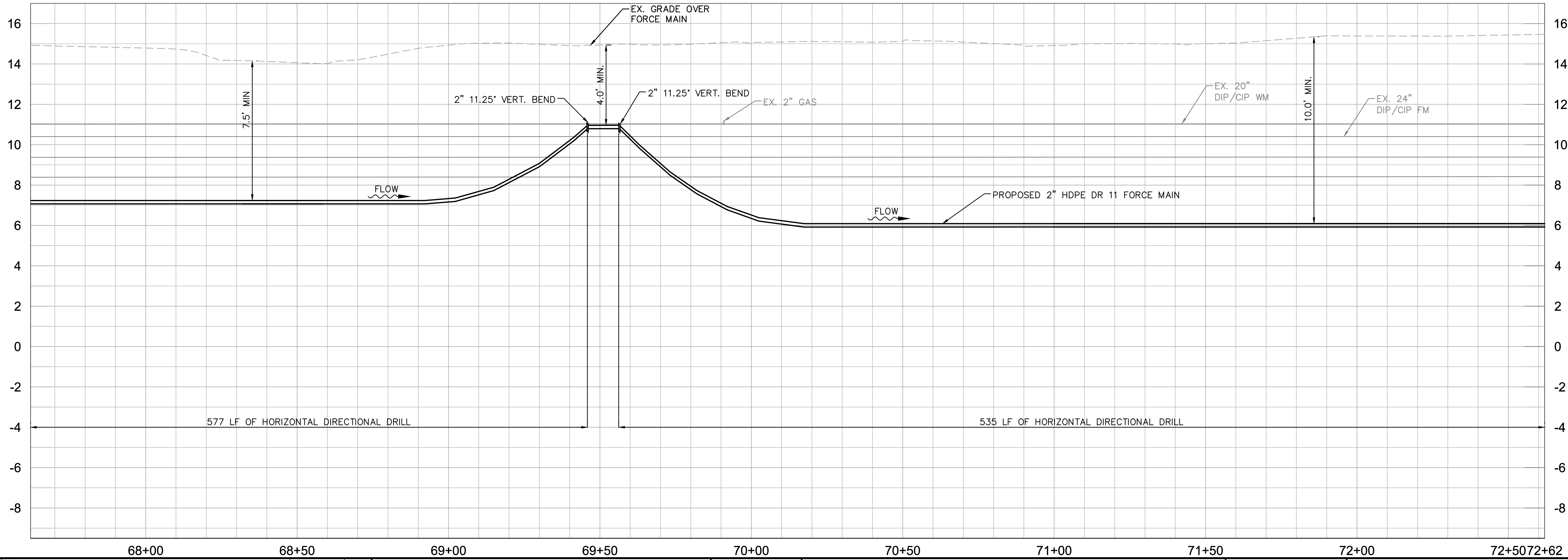
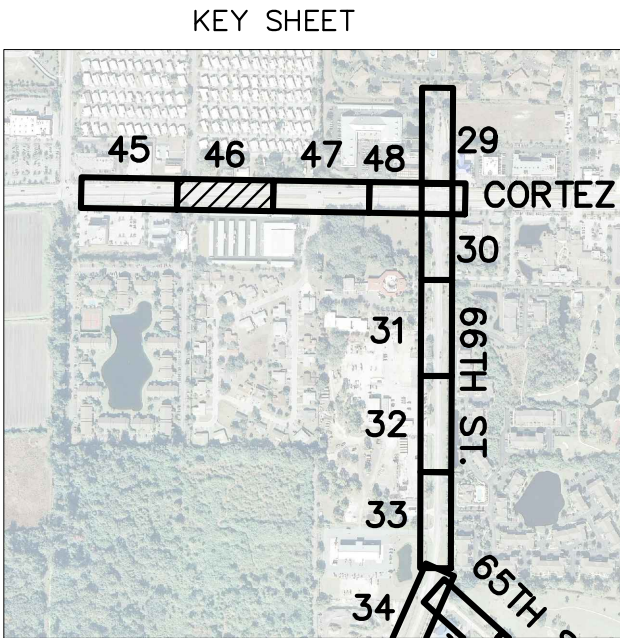
MATCH LINE SHEET 45



MATCH LINE SHEET 47



HORIZONTAL SCALE = 1"=20'  
VERTICAL SCALE = 1"=3'



**GROUNDWATER / DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



No.	REVISIONS	DATE	BY

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT  
148400003  
DATE  
SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

**FORCE MAIN 1M  
REHABILITATION**

MANATEE COUNTY

LICENSED PROFESSIONAL

W. WADE WOOD, P.E.

FL LICENSE NUMBER  
69051

FL DATE:

**PLAN & PROFILE (CORTEZ)**

SHEET NUMBER

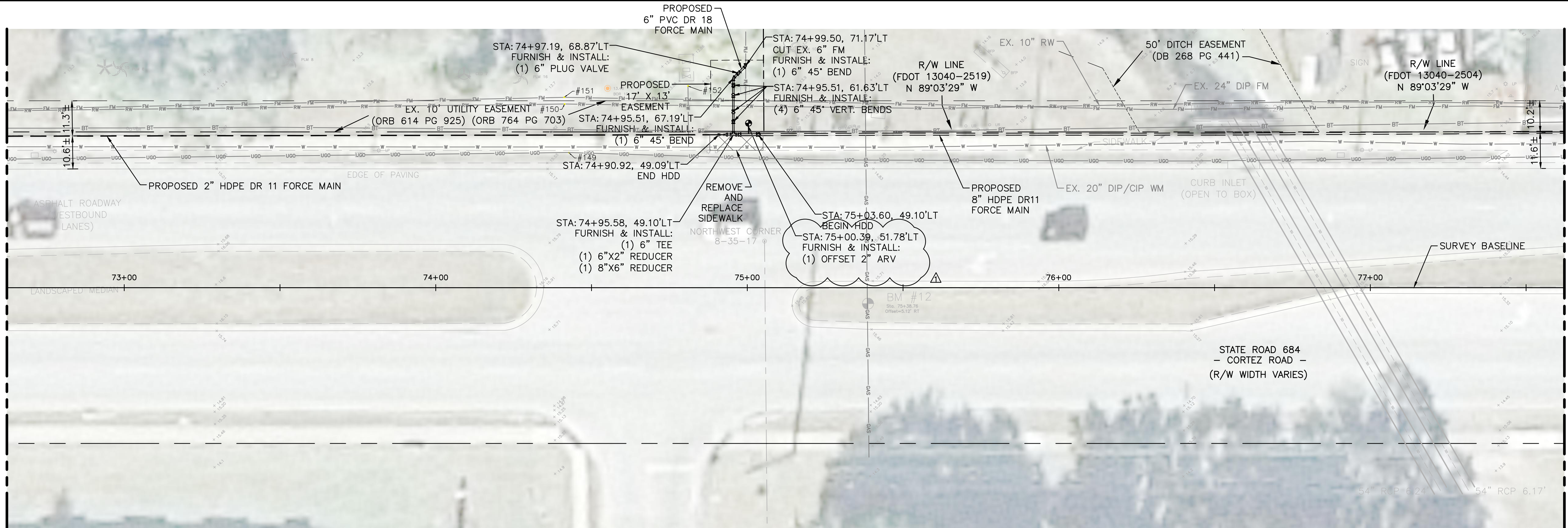
**46**



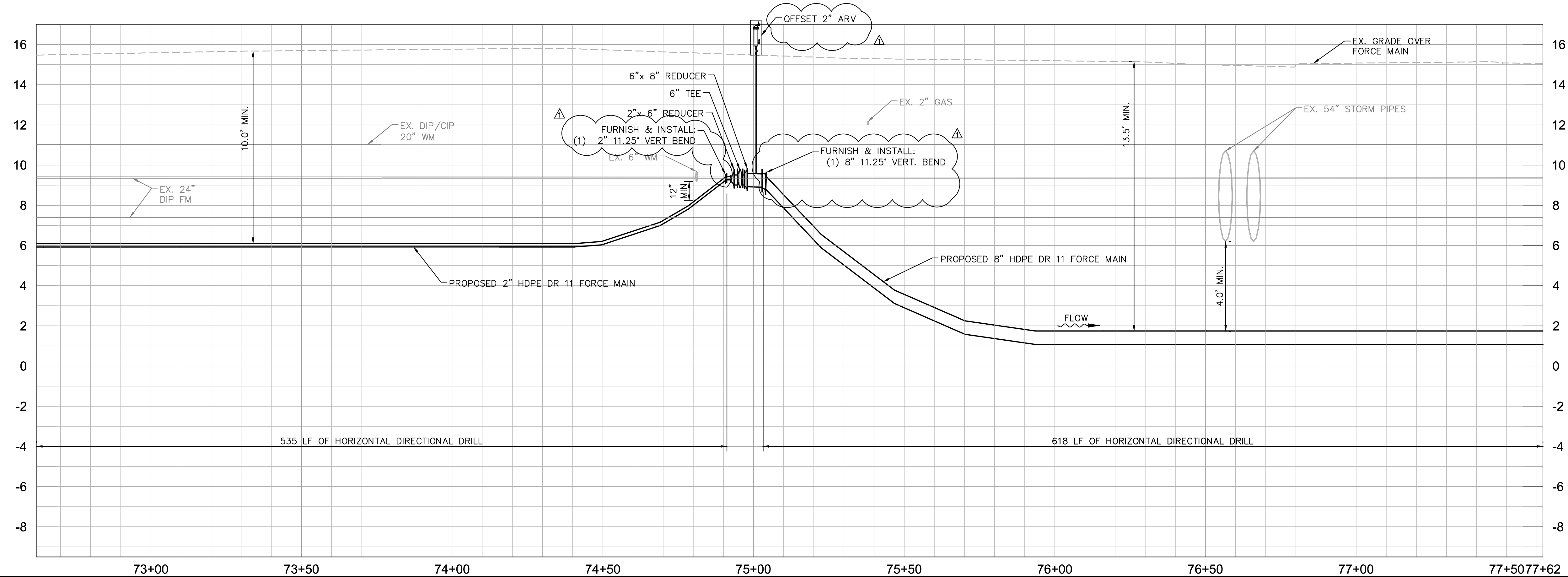
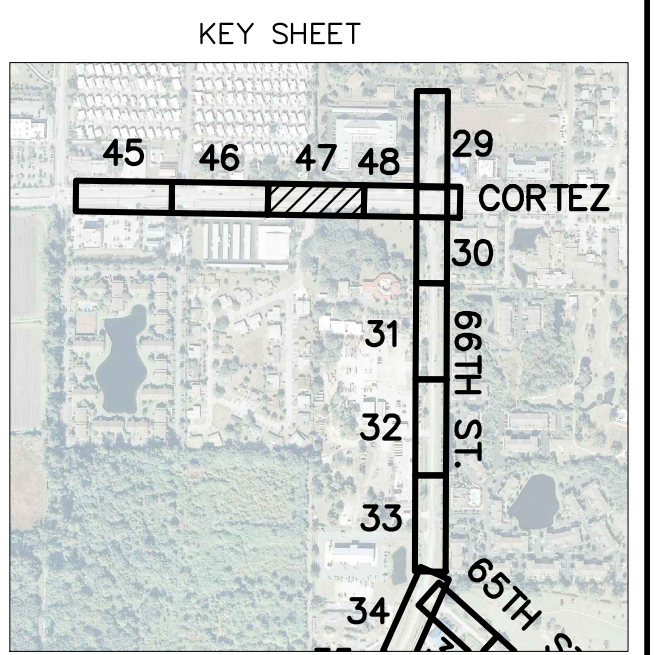
By:Bohmann, Lindsey Sheet Set:MANATEE COUNTY FMM REHABILITATION Layout:47 PLAN & PROFILE February 17, 2017 10:09:11am K:\atom\_civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\C-0.8 CORTEZ to 66th PLAN & PROFILE.dwg

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

MATCH LINE SHEET 46



MATCH LINE SHEET 48



**GROUNDWATER / DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



△	ADDENDUM 4		02/03/2017	WWW
No.	REVISIONS		DATE	BY

**Kimley»Horn**

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT 148400003  
DATE SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

**FORCE MAIN 1M REHABILITATION**

MANATEE COUNTY

LICENSED PROFESSIONAL

W. WADE WOOD, P.E.

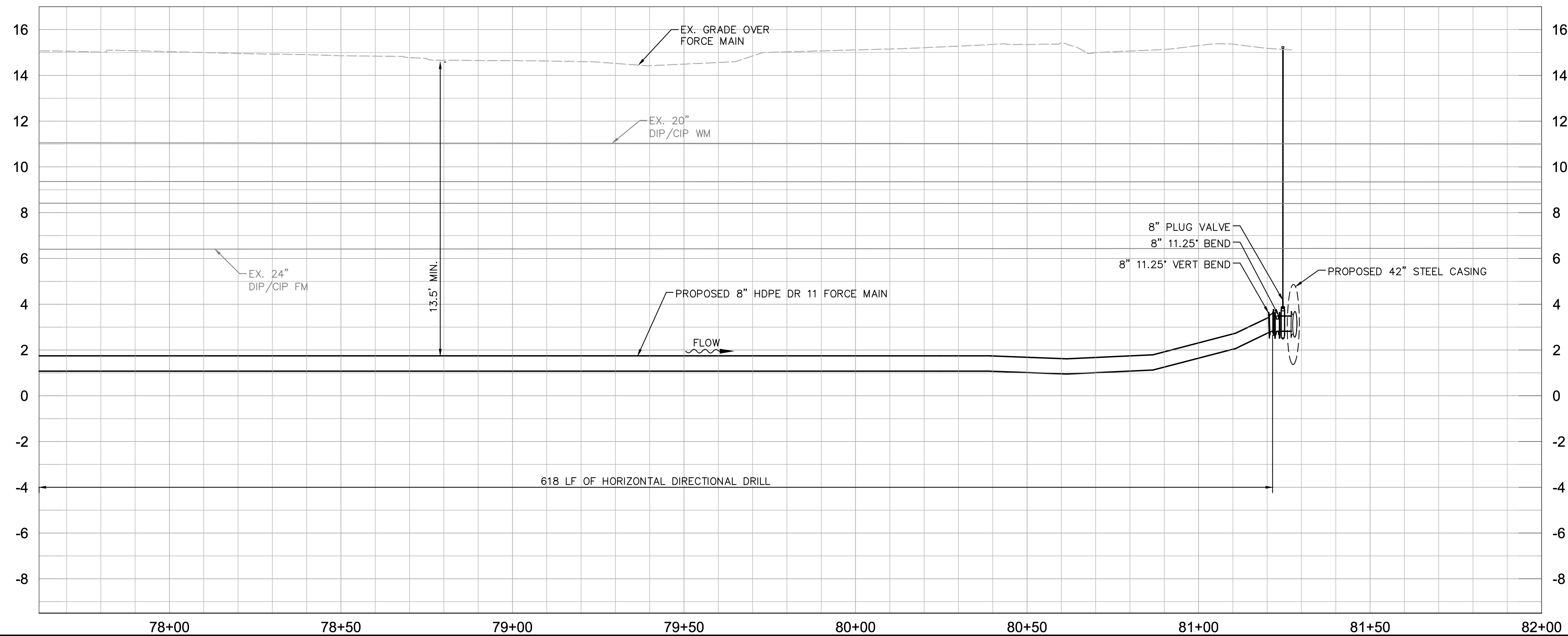
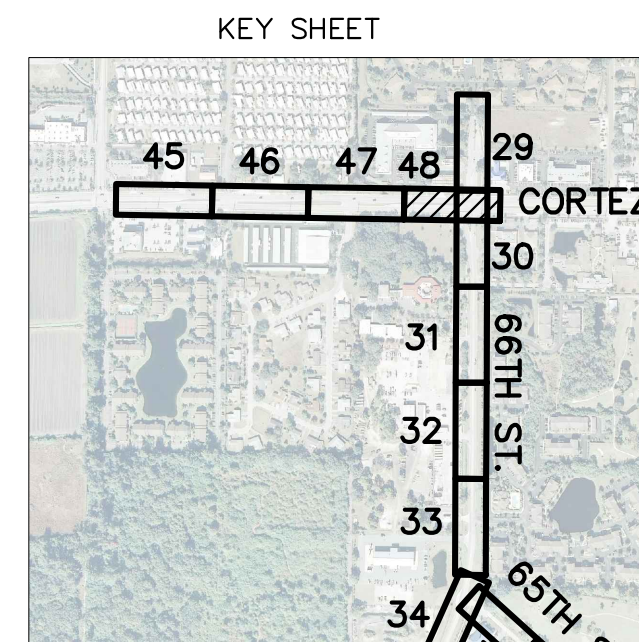
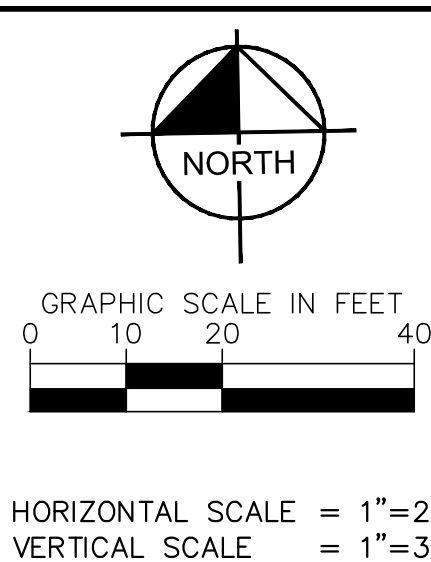
FL LICENSE NUMBER 69051

FL DATE:

PLAN & PROFILE (CORTEZ)

SHEET NUMBER 47





**GROUNDWATER /  
DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER  
SHOULD BE ANTICIPATED ON THIS  
PROJECT. CONTRACTOR'S BID SHALL  
INCLUDE CONSIDERATION FOR THIS  
ISSUE. WHEN PERFORMING GRADING  
OPERATIONS DURING PERIODS OF WET  
WEATHER, PROVIDE ADEQUATE  
DEWATERING, DRAINAGE AND GROUND  
WATER MANAGEMENT TO CONTROL  
MOISTURE OF SOILS.

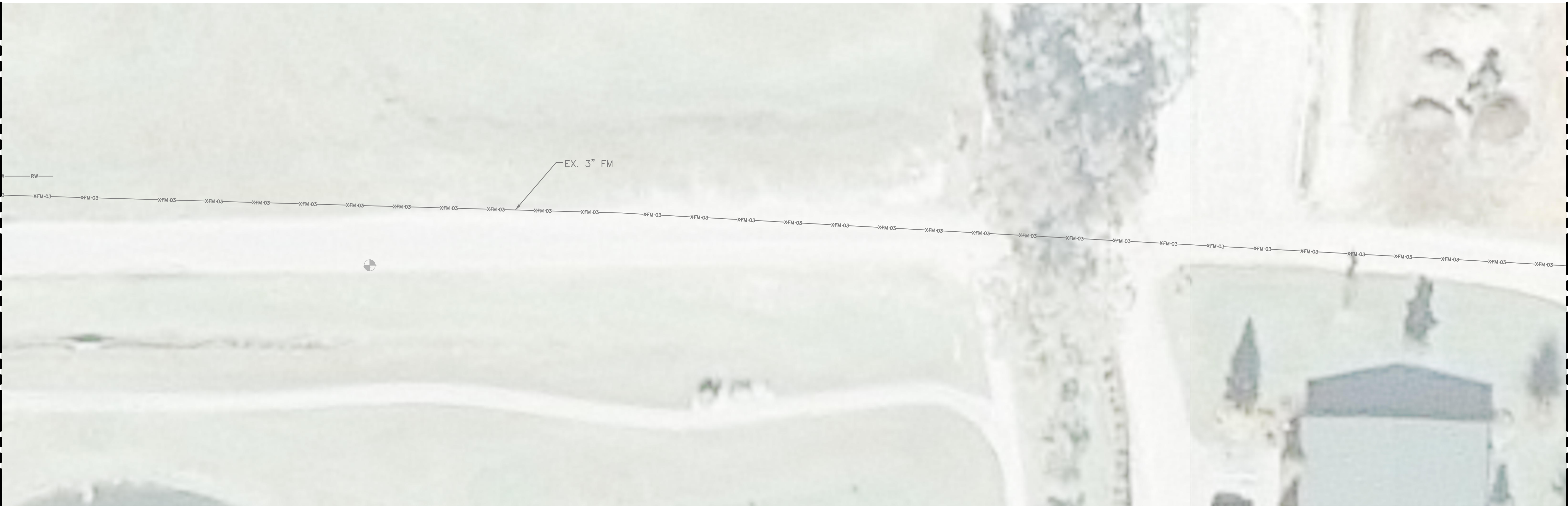
[illegible]



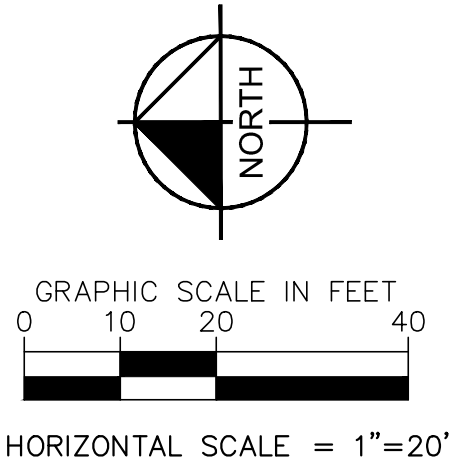
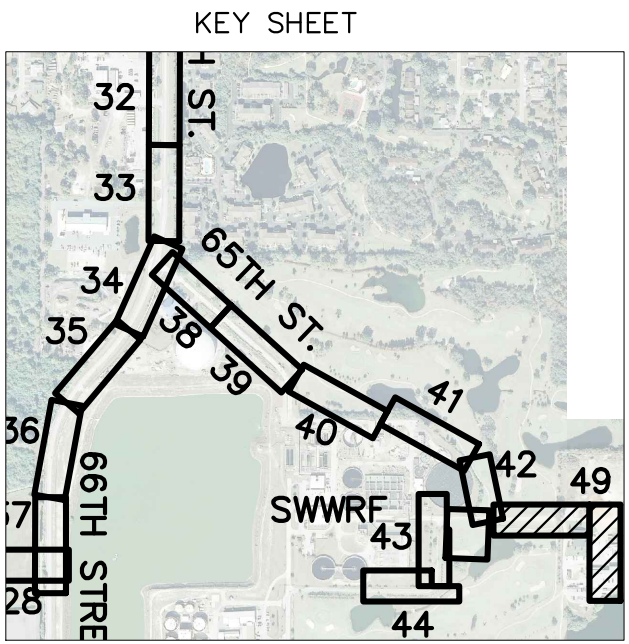
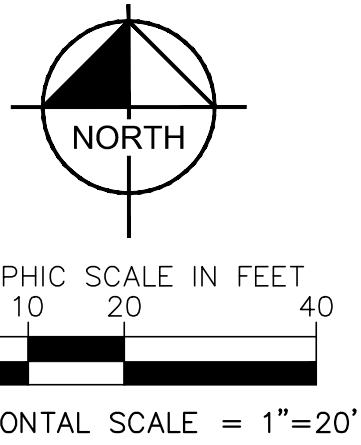
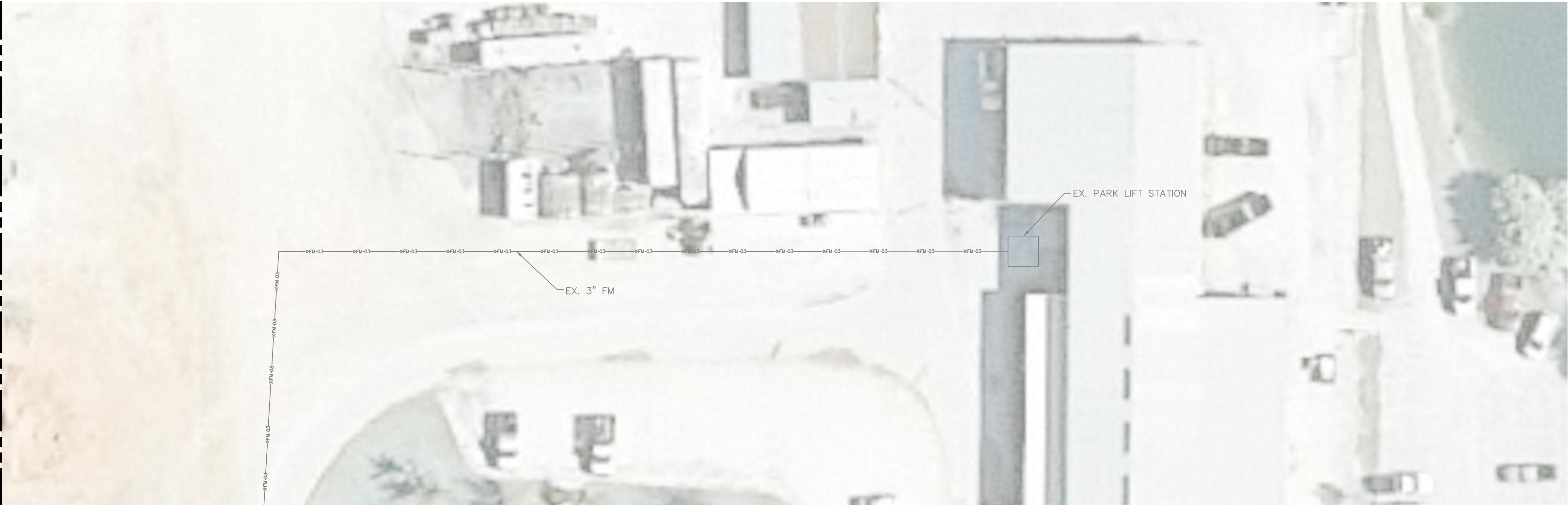
Plotted By: Kender, Madeline    Sheet Set: MANATEE COUNTY FMM REHABILITATION    Layout: 49    September 06, 2016    05:28:13pm    K:\tom\_civil\148400 - manatee county\003 - force main 1m rehabilitation\CADD\plansheets\SMALL FORCE MAIN PLANS.dwg

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

MATCH LINE SHEET 42



MATCH LINE THIS SHEET



**GROUNDWATER /  
DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



No.	REVISIONS	DATE	BY

# Kimley»Horn

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM    CA 00000696

KHA PROJECT  
148400003

DATE  
SEPT 2016

SCALE    AS SHOWN

DESIGNED BY    AMM

DRAWN BY    JRT

CHECKED BY    WWW



## FORCE MAIN 1M REHABILITATION

MANATEE COUNTY

LICENSED PROFESSIONAL

W. WADE WOOD, P.E.

FL LICENSE NUMBER  
69051

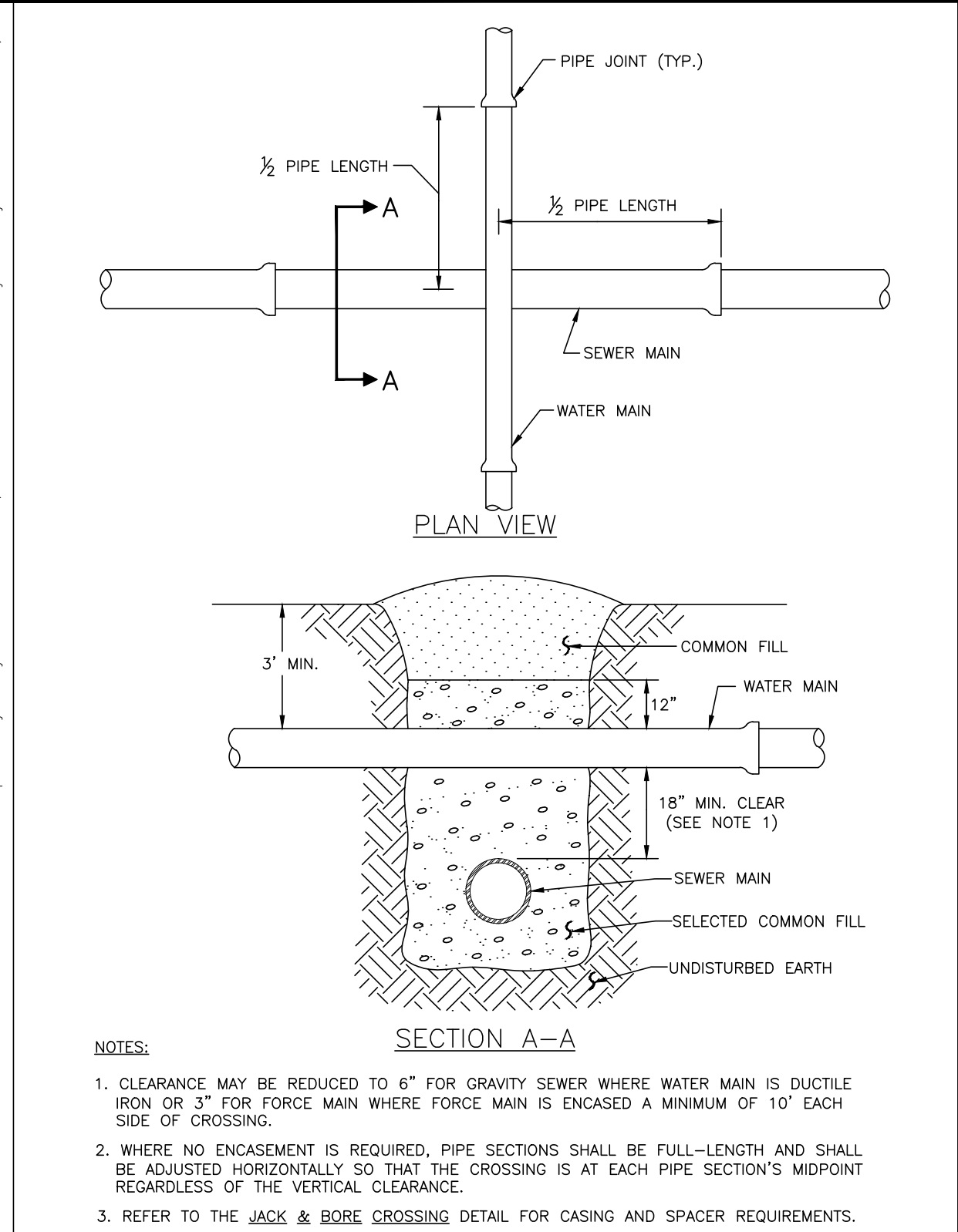
EXISTING PARK  
FORCE MAIN PLAN

SHEET NUMBER

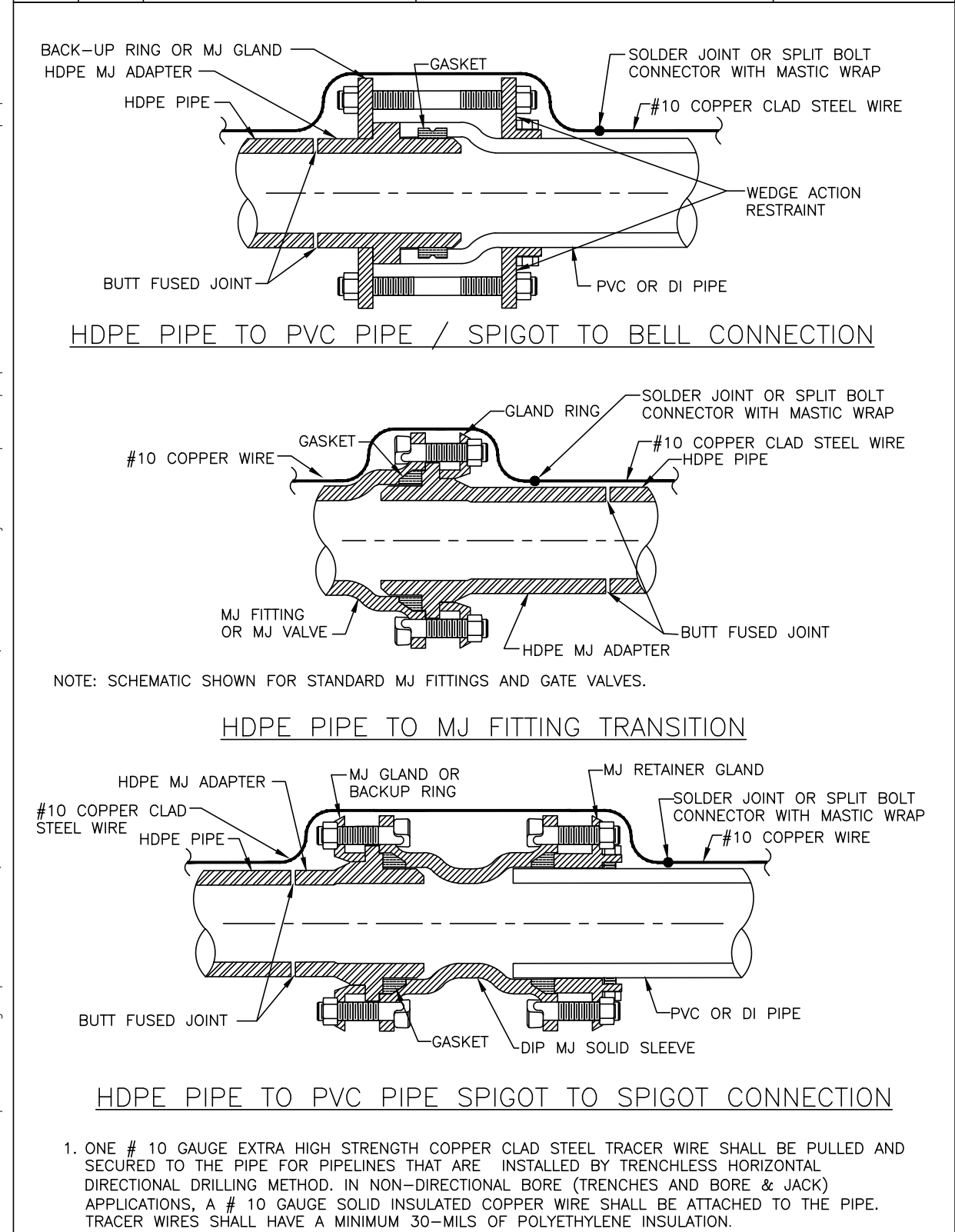
49



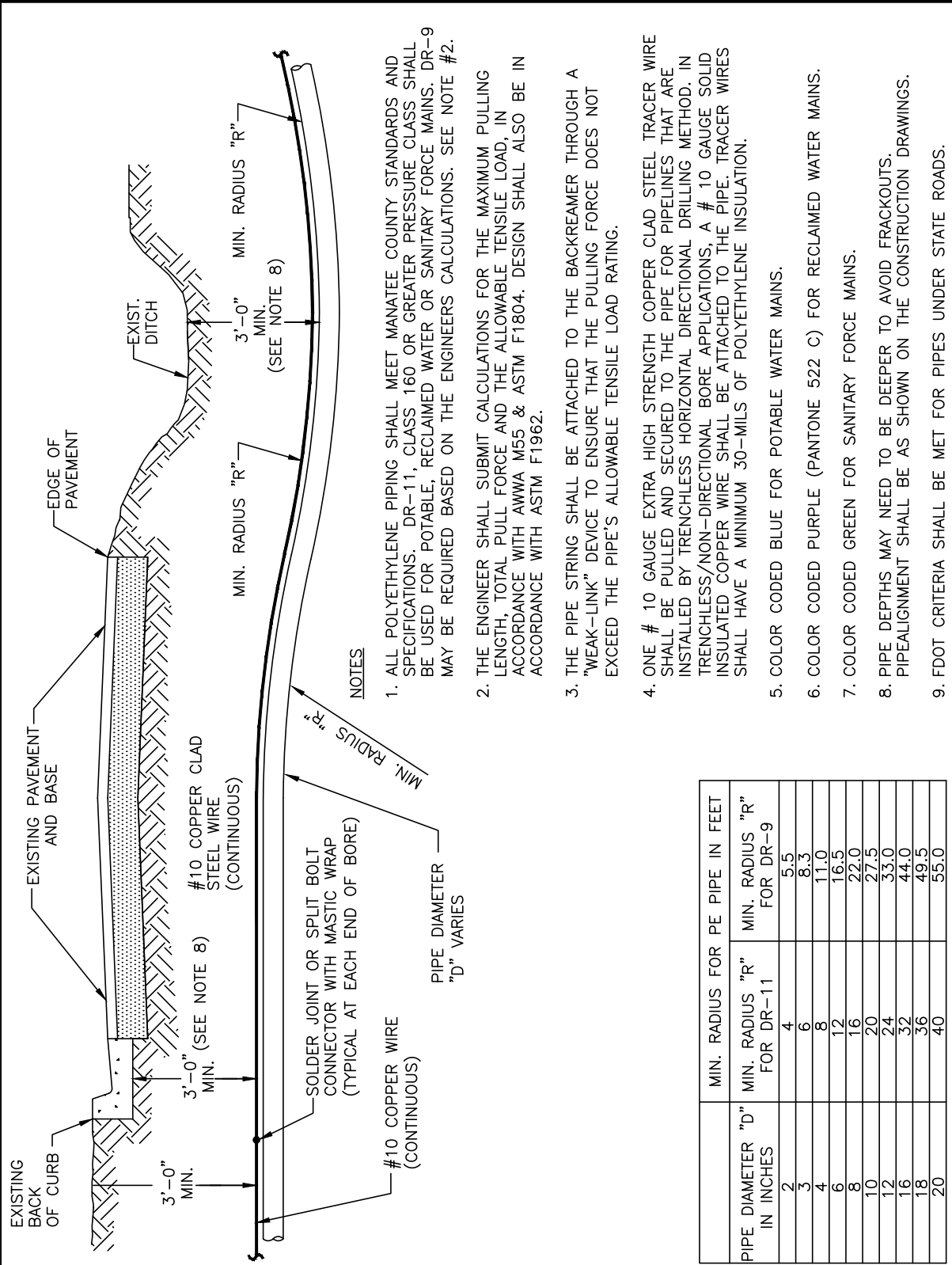
This document, together with the concepts and designs presented herein, is an instrument of service, is intended only for the specific purpose and client for which it was prepared. Release of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



MANATEE COUNTY PUBLIC WORKS DEPARTMENT			TYPICAL NEW WATER & SEWER LINE CROSSING	UG-2
REV. BY	DATE			
CLB/BR	11/10	MAY 10, 2011		
		DATE OF APPROVAL		PAGE 102



MANATEE COUNTY PUBLIC WORKS DEPARTMENT			HDPE TO PVC OR DI PIPE ADAPTER	UG-6
REV. BY	DATE			
CLB/BR	11/10	MAY 10, 2011		
		DATE OF APPROVAL		PAGE 106



MANATEE COUNTY PUBLIC WORKS DEPARTMENT			TYPICAL NEW WATER & SEWER LINE CROSSING	UG-2
REV. BY	DATE			
CLB/BR	11/10	MAY 10, 2011		
		DATE OF APPROVAL		PAGE 104

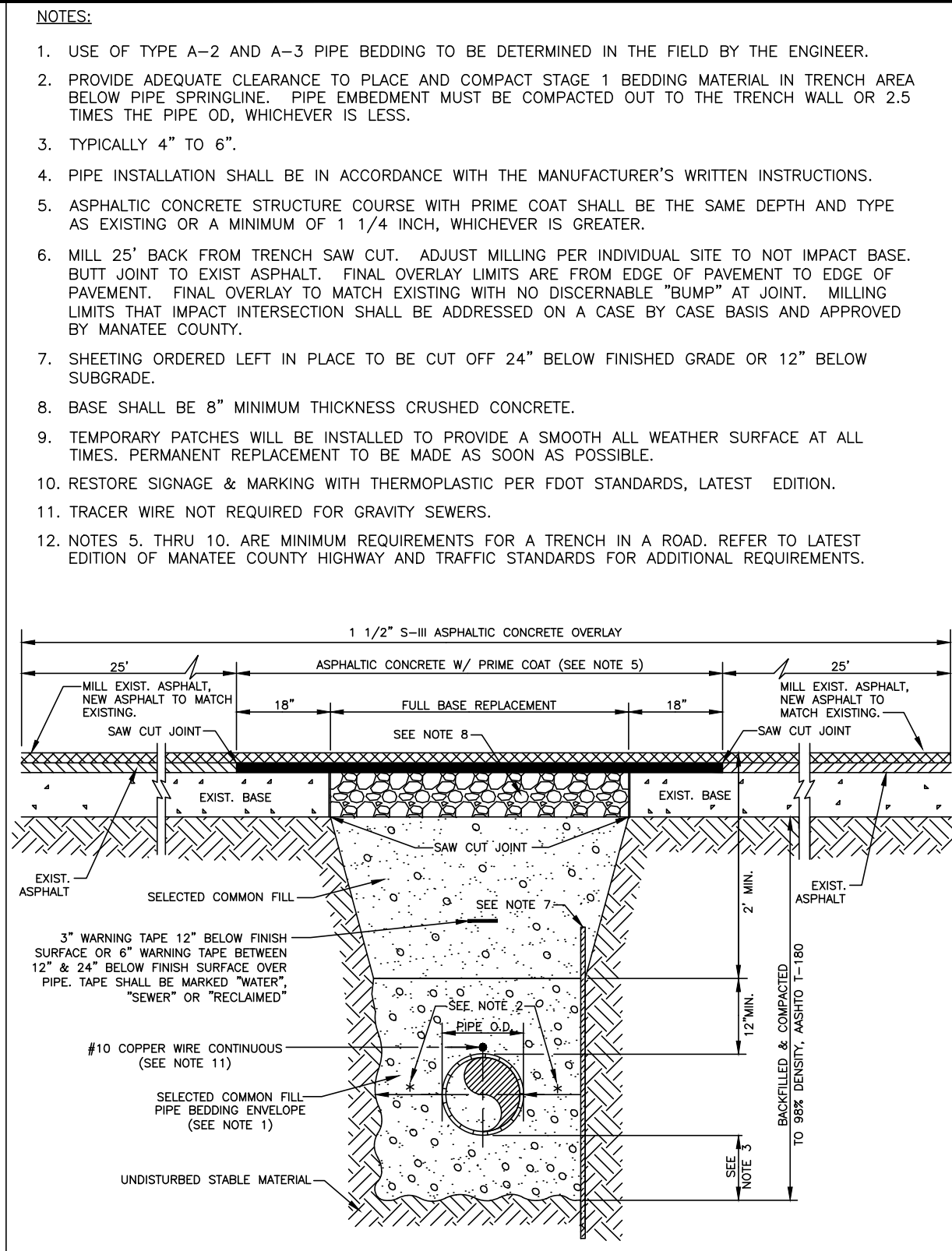
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE																
MAIN PIPE SIZE	HORIZ. BENDS			TEES						REDUCERS			PLUGS & VALVES			
	90°	45°	22.5°	SIZE LENGTH						SIZE LENGTH						
				X24	X16	X12	X10	X8	X6	X4	X3	X2				
24	90	38	18	X169	X132	X90	X12	X38	X10	X6	X20	X16	X12	X12	158	214
20	90	32	16	X16	X12	X8	X10	X24	X8	X6	X16	X12	X11	X10	148	184
16	66	27	13	X16	X12	X8	X10	X41	X8	X12	X12	X64	X10	X10	X8	151
12	52	22	10	X12	X8	X10	X56	X8	X31	X6	X10	X58	X8	X6	X86	118
10	44	18	9	X10	X8	X6	X40	X8	X7	X1	X8	X58	X8	X6	X81	100
8	37	15	7	X8	X6	X4	X49	X8	X4	X1	X6	X35	X4	X60	X8	83
6	29	12	6	X6	X4	X1	X4	X1	X4	X1	X4	X33	X4	X1	X1	63
4	21	8	4	X4	X2	X1	X4	X1	X4	X1	X4	X3	X1	X1	X1	45

NOTES:

1. RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
2. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
3. ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
4. PIPE SIZES ARE GIVEN IN INCHES.
5. RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
6. LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
7. THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFETY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.
8. RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL RESTRAINED LENGTHS FOR PIPE.
9. IF FITTING TYPE OR PIPE SIZE IS NOT SHOWN, REFER TO THE ADDITIONAL RESTRAIN LENGTHS DETAIL FOR SECONDARY REFERENCE ON THIS SHEET.



This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. Reuse of any information or reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



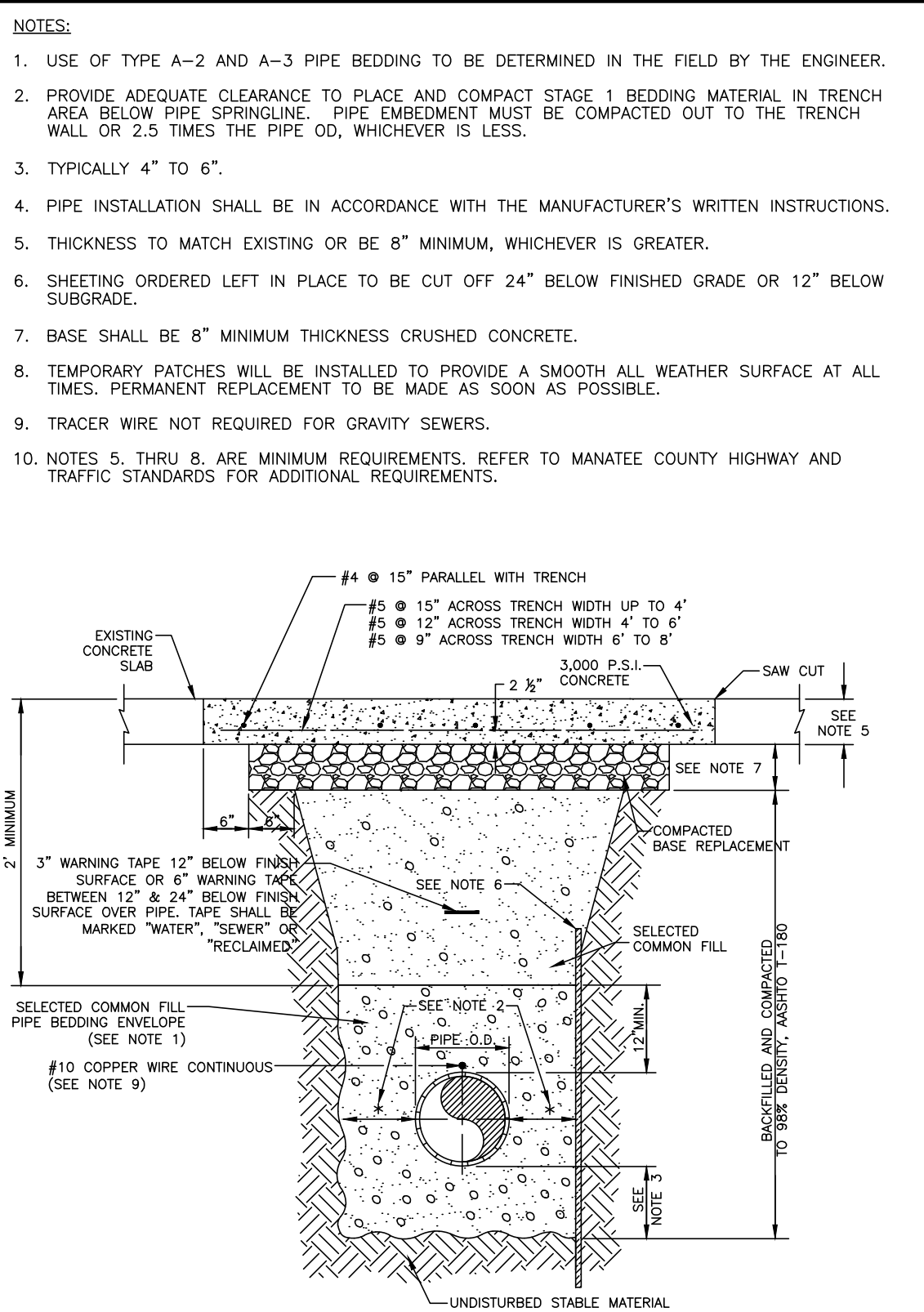
MANATEE COUNTY		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-12
REV. BY	DATE		
WRT/KGE	03/11		
	MAY 10, 2011		
	DATE OF APPROVAL		PAGE 112

GENERAL NOTES

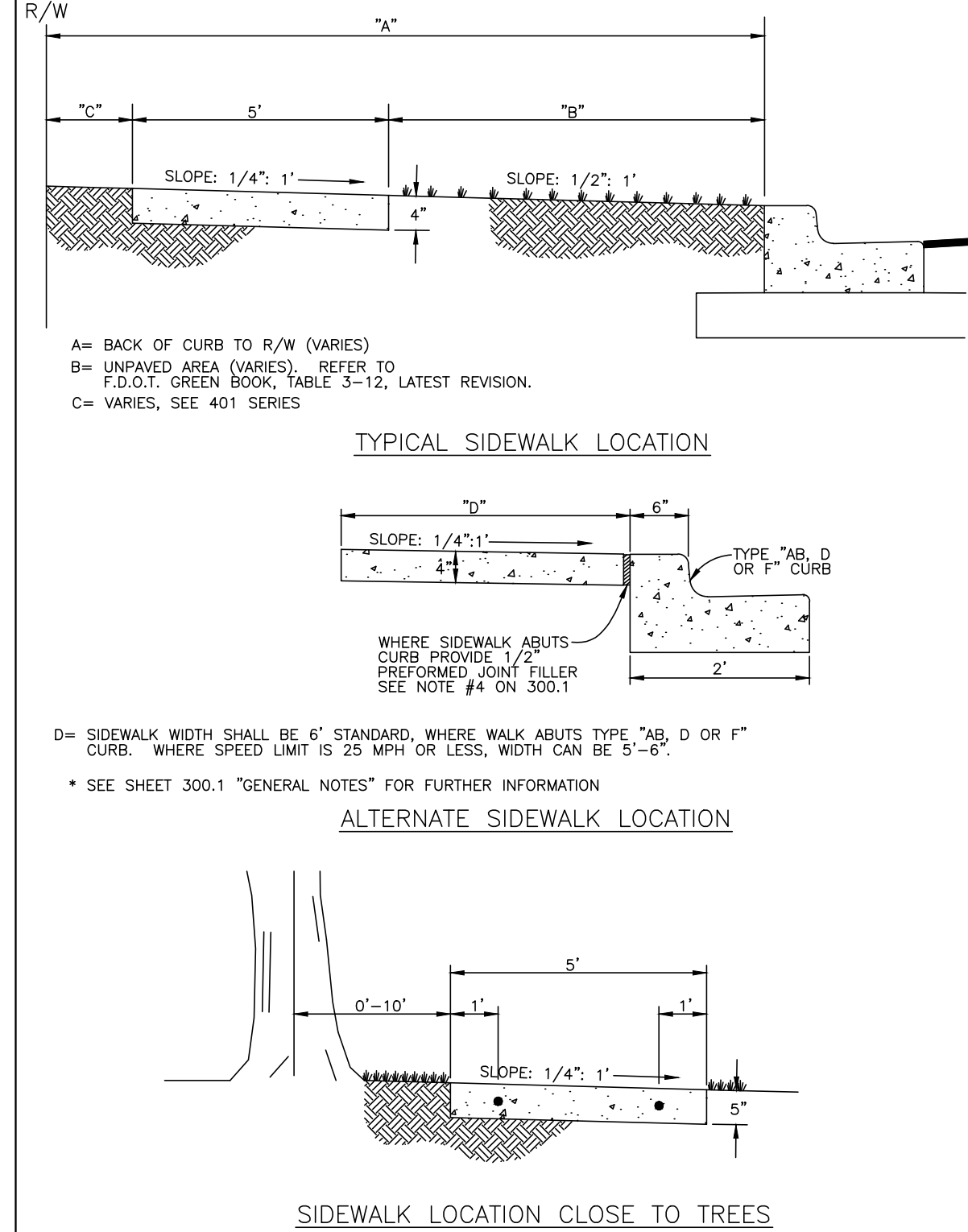
- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE. WHERE SIDEWALK BURETS A DRIVEWAY THE MINIMUM SHALL BE 6" OF CLASS I CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.  
\* SEE SHEETS #101.2 & 101.3.
- ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.
- THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE FOOT TRAVEL SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
- EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
- CONTRACTION JOINTS:  
OPEN TYPE JOINTS  
OPEN TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.  
SAWED JOINTS  
A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
- SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
- HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.
- ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

\*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 310, SHEETS 1 & 2.

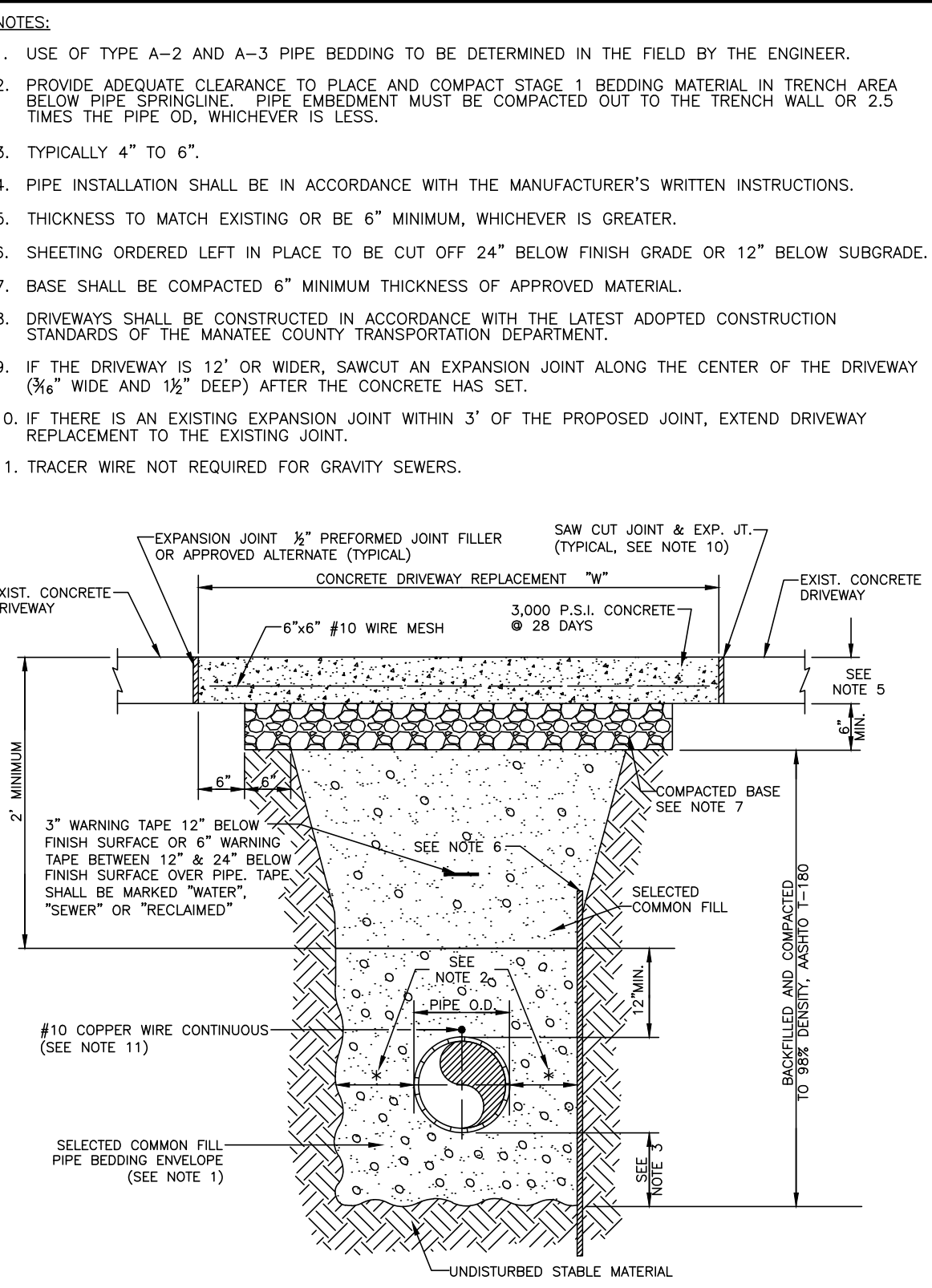
MANATEE COUNTY		SIDEWALKS GENERAL NOTES	301.0
REV. BY	DATE		
	6/12/07		
	DATE OF B.O.C.C. APPROVAL		



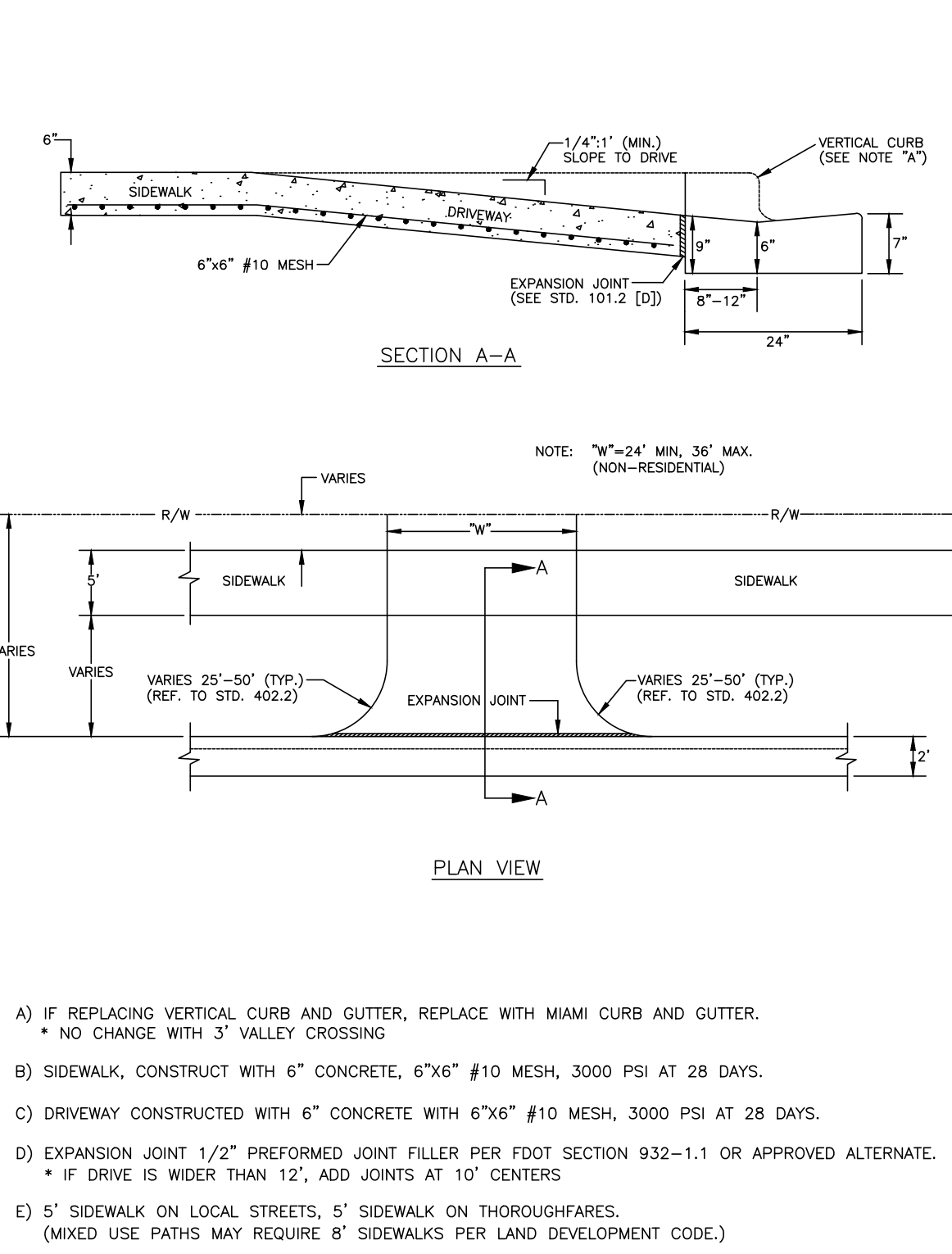
MANATEE COUNTY		TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-13
REV. BY	DATE		
GLB/BR	11/10		
	MAY 10, 2011		
	DATE OF APPROVAL		PAGE 113



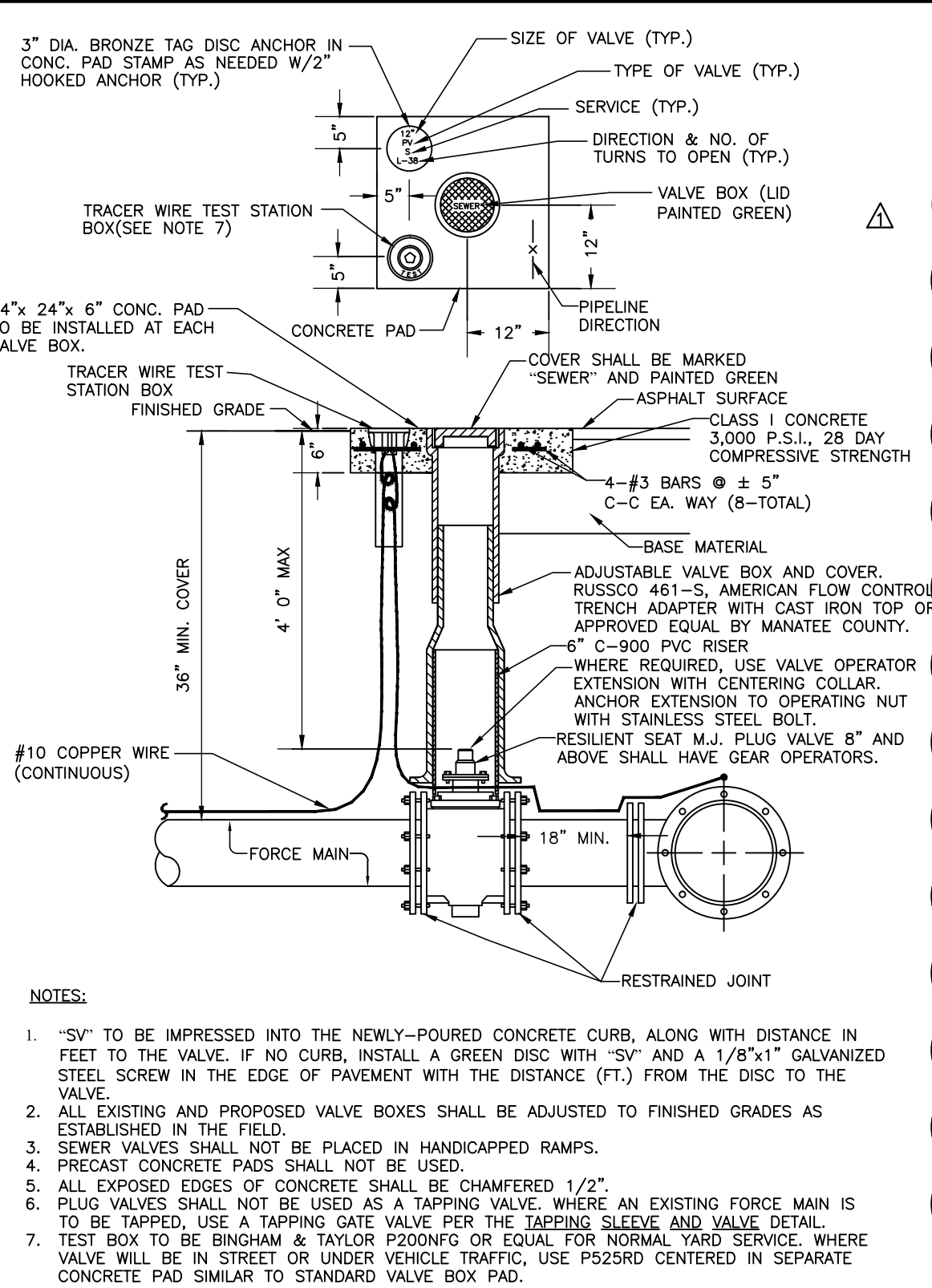
MANATEE COUNTY		SIDEWALK REQUIREMENTS	301.1
REV. BY	DATE		
	6/12/07		
	DATE OF B.O.C.C. APPROVAL		



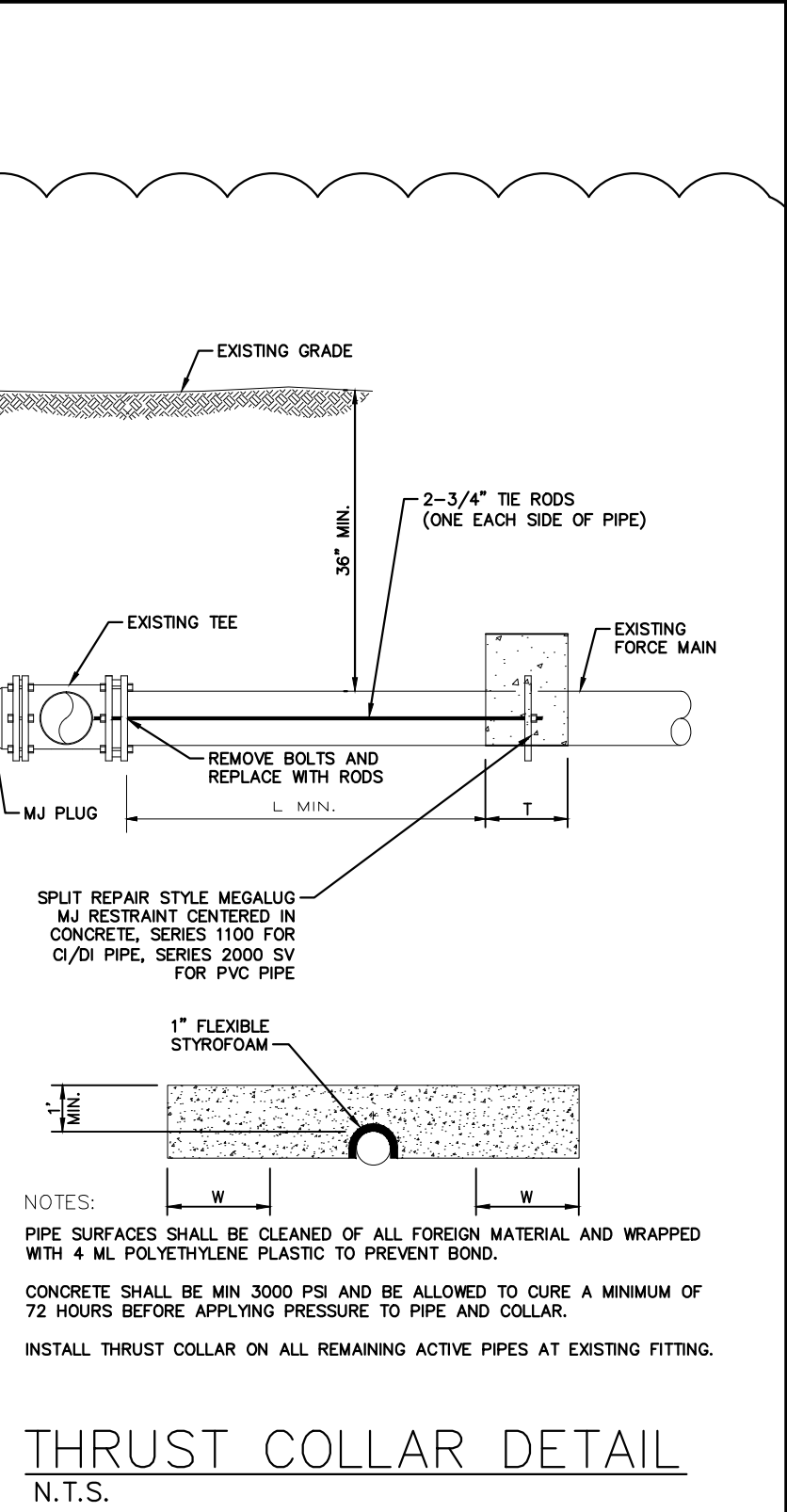
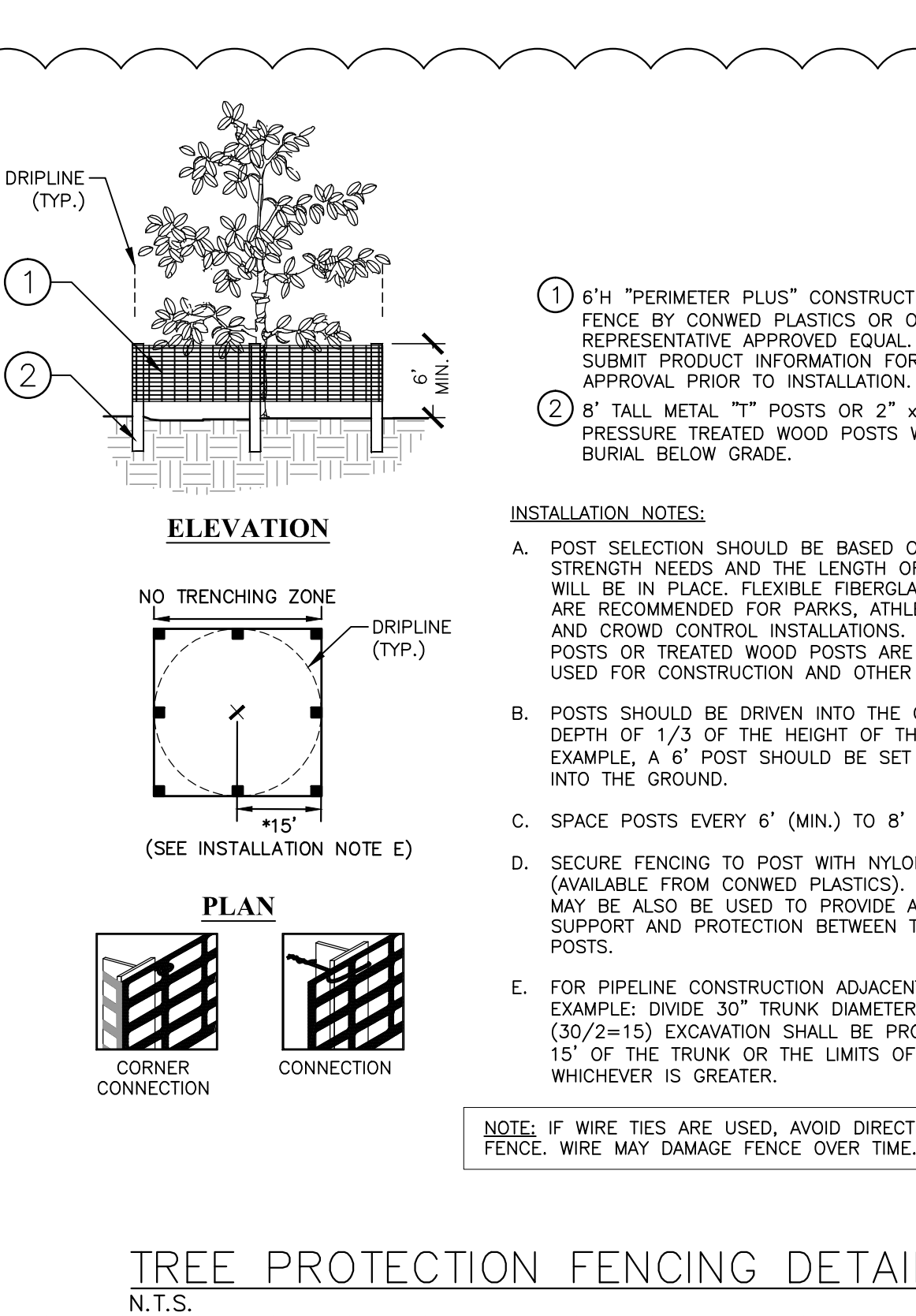
MANATEE COUNTY		TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING	UG-14
REV. BY	DATE		
GLB/BR	11/10		
	MAY 10, 2011		
	DATE OF APPROVAL		PAGE 114



MANATEE COUNTY		COMMERCIAL & INDUSTRIAL DRIVE	101.3
REV. BY	DATE		
	6/12/07		
	DATE OF B.O.C.C. APPROVAL		



MANATEE COUNTY		PLUG VALVE, BOX, COVER AND TAG	US-12
REV. BY	DATE		
GLB/BR	11/10		
	MAY 10, 2011		
	DATE OF APPROVAL		PAGE 152



ADDENDUM 4 02/03/2017 WWW			
No.	REVISIONS	DATE	BY

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT 148400003  
DATE SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

FORCE MAIN 1M REHABILITATION

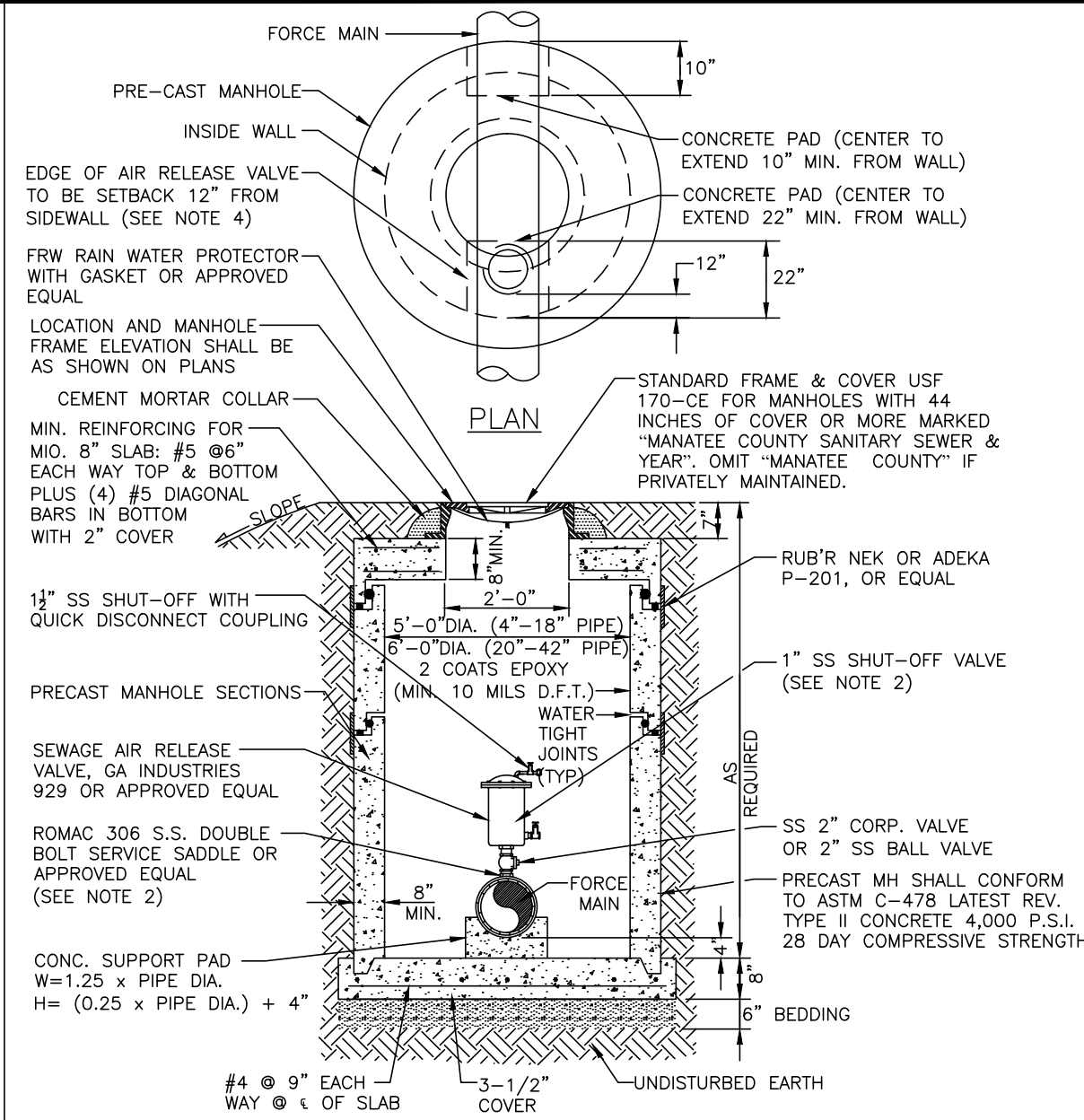
MANATEE COUNTY

LICENSED PROFESSIONAL
W. WADE WOOD, P.E.
FL LICENSE NUMBER 69051

CONSTRUCTION DETAILS



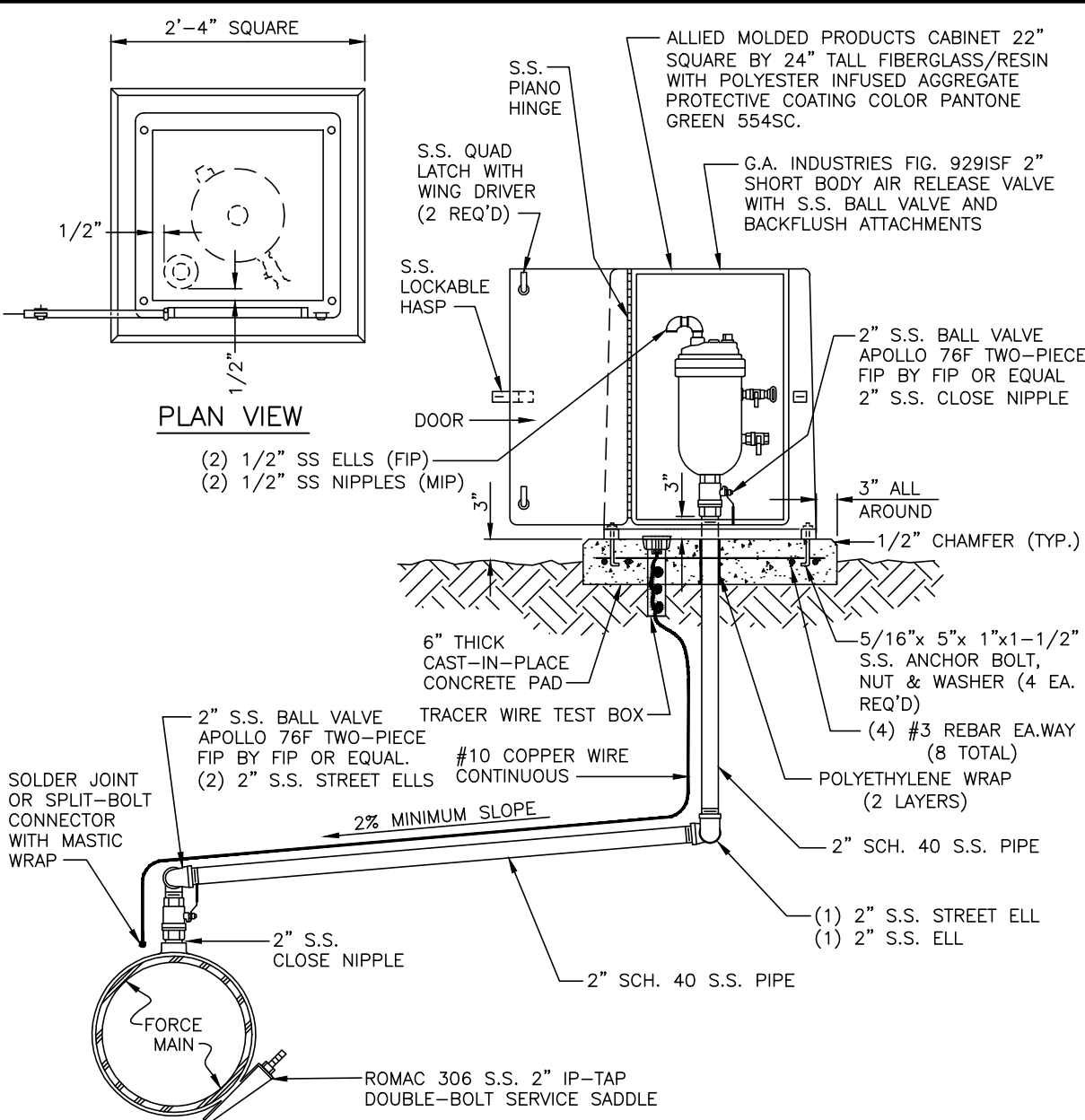
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document, without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



NOTES:

1. AIR RELEASE VALVES WHERE REQUIRED ON 4" AND LARGER FORCE MAINS.
2. ARV TO BE SIZED ACCORDING TO MANUFACTURER'S RECOMMENDATION FOR FORCE MAIN SIZE.
3. SERVICE SADDLE, NIPPLES AND CORPORATION BALL VALVE SHALL BE STAINLESS STEEL.
4. FOR MANHOLES WITH LESS THAN 44 INCHES OF COVER FROM TOP-OF-PIPE TO TOP-OF-FRAME, FRAME & COVER TO BE 32-INCH FRAME WITH 32 INCH OPENING. OFFSET ARV 7.5 INCHES FROM CENTER OF OPENING. MINIMUM ALLOWABLE COVER IS 36 INCHES.
5. ALL PIPE PENETRATING MANHOLE SHALL HAVE RESILIENT PIPE TO MANHOLE SEALS PER ASTM-923.
6. FINAL GRADE TO BE SLOPED AWAY FROM MANHOLE.

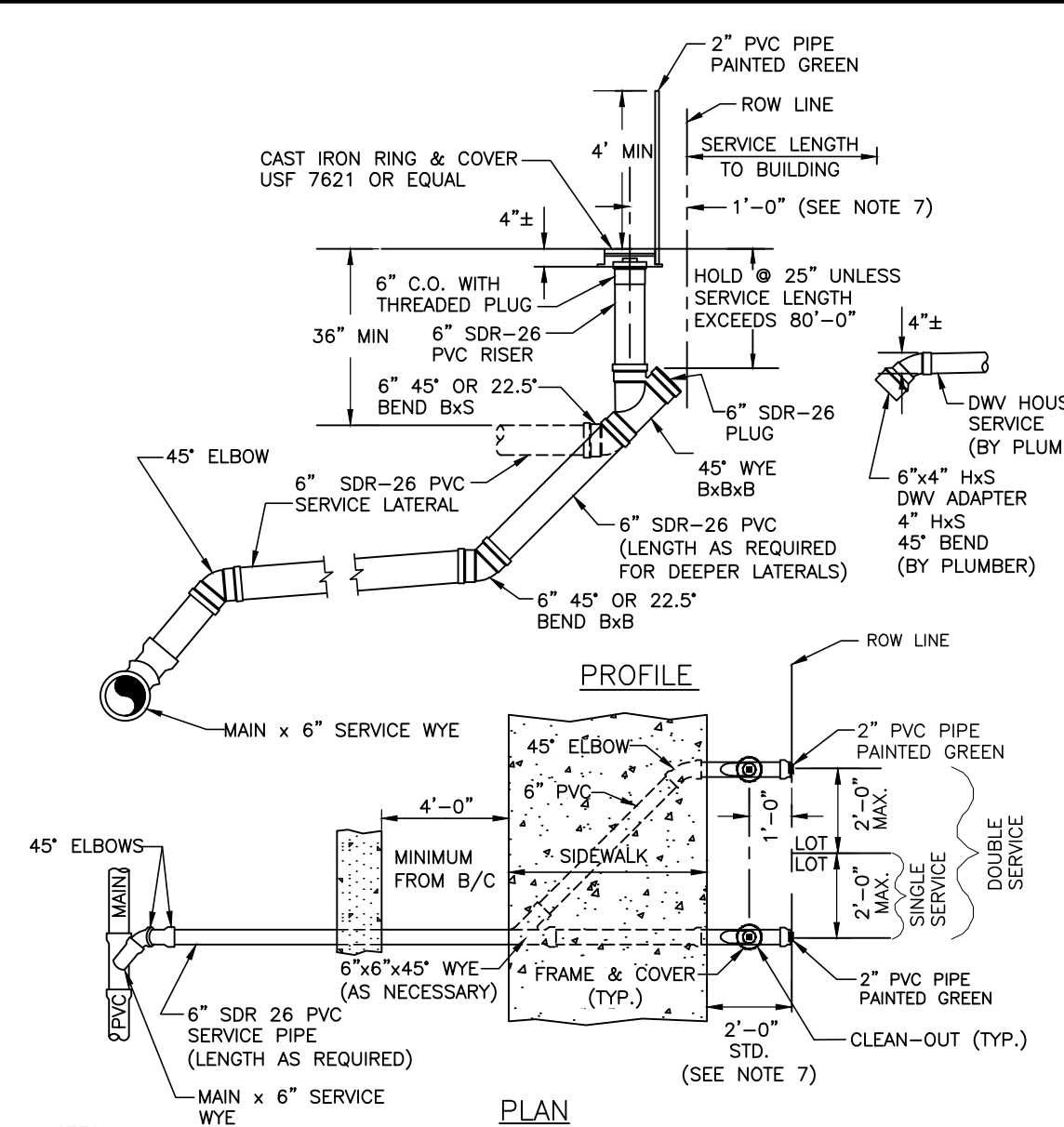
MANATEE COUNTY		BELOW GRADE AIR RELEASE VALVE FOR FORCE MAINS	US-10	PAGE 150
REV. BY	DATE			
CLB/KE	11/10			
	MAY 10, 2011			
	DATE OF APPROVAL			



NOTES:

1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS, OR WHERE AIR WOULD BE ENTRAPPED, ALONG 4" AND LARGER FORCE MAINS.
2. "SCO" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE CLEAN-OUT. IF NO CURB INSTALL A GREEN DISC WITH "SCO" AND 1/2" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE CLEAN-OUT.
3. SANITARY SEWER CLEAN-OUTS SHALL NOT BE LOCATED IN DRAINAGE SWALES, EASEMENTS, SIDEWALKS OR DRIVEWAYS.
4. NO SERVICE CONNECTIONS TO BE MADE TO THE CLEAN-OUT RISER. ALL DOMESTIC CONNECTIONS SHALL BE MADE TO THE STUB-OUT PROVIDED.
5. SEWER SERVICE SHALL BE 5" MIN. FROM WATER SERVICE OR FIRE HYDRANT.
6. CLEAN-OUT ADAPTER TO BE SOLVENT-WELDED TO RISER TOP. CLEAN-OUT THREADS SHALL BE WRAPPED WITH TEFLON PLUMBERS TAPE TO SEAL PLUG WATER TIGHT.
7. WHEN THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK & THE ROW LINE IS ONE FOOT (CUL-DE-SAC W/MEDIAN) THE DISTANCE BETWEEN THE CENTER OF THE CO RISER & THE ROW LINE SHALL BE 6".

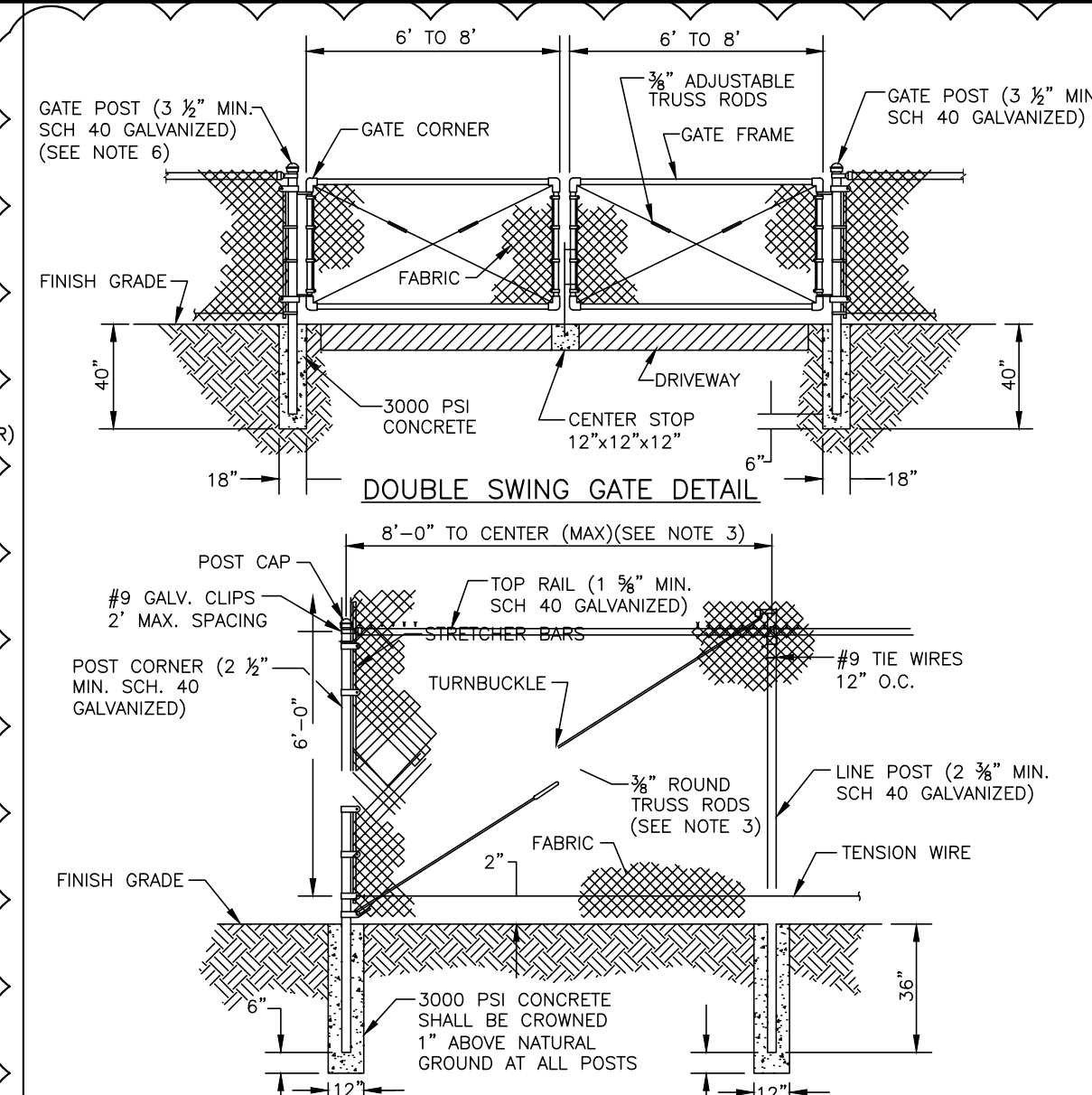
MANATEE COUNTY		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR FORCE MAINS	US-25	PAGE 165
REV. BY	DATE			
CLB/KE	11/10			
	MAY 10, 2011			
	DATE OF APPROVAL			



NOTES:

1. RUBBER DONUTS ARE NOT TO BE USED.
2. "SCO" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE CLEAN-OUT. IF NO CURB INSTALL A GREEN DISC WITH "SCO" AND 1/2" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE CLEAN-OUT.
3. SANITARY SEWER CLEAN-OUTS SHALL NOT BE LOCATED IN DRAINAGE SWALES, EASEMENTS, SIDEWALKS OR DRIVEWAYS.
4. NO SERVICE CONNECTIONS TO BE MADE TO THE CLEAN-OUT RISER. ALL DOMESTIC CONNECTIONS SHALL BE MADE TO THE STUB-OUT PROVIDED.
5. SEWER SERVICE SHALL BE 5" MIN. FROM WATER SERVICE OR FIRE HYDRANT.
6. CLEAN-OUT ADAPTER TO BE SOLVENT-WELDED TO RISER TOP. CLEAN-OUT THREADS SHALL BE WRAPPED WITH TEFLON PLUMBERS TAPE TO SEAL PLUG WATER TIGHT.
7. WHEN THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK & THE ROW LINE IS ONE FOOT (CUL-DE-SAC W/MEDIAN) THE DISTANCE BETWEEN THE CENTER OF THE CO RISER & THE ROW LINE SHALL BE 6".

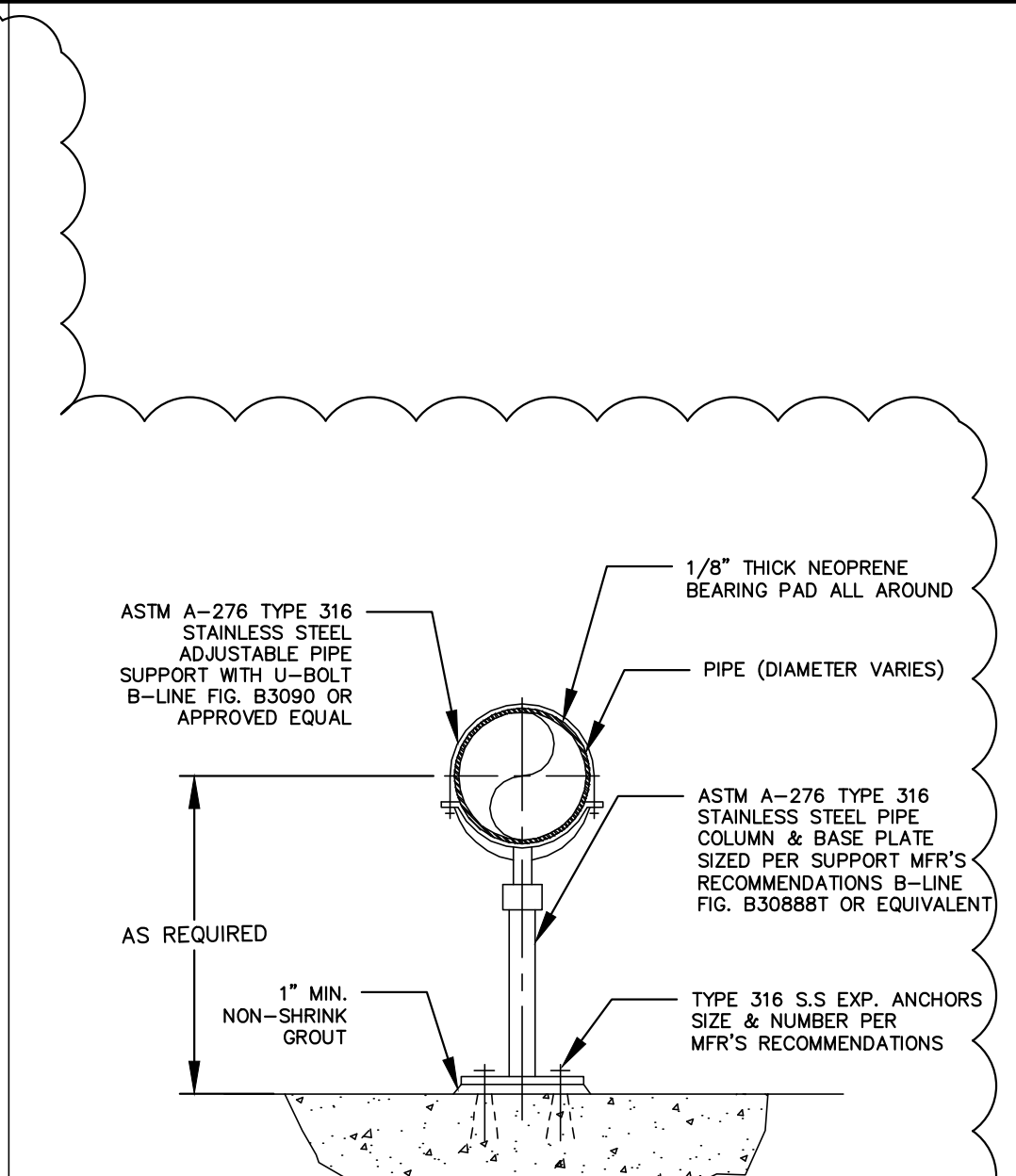
MANATEE COUNTY		SINGLE AND DOUBLE SERVICE CONNECTION	US-13	PAGE 153
REV. BY	DATE			
CLB/DOH	11/10			
	MAY 10, 2011			
	DATE OF APPROVAL			



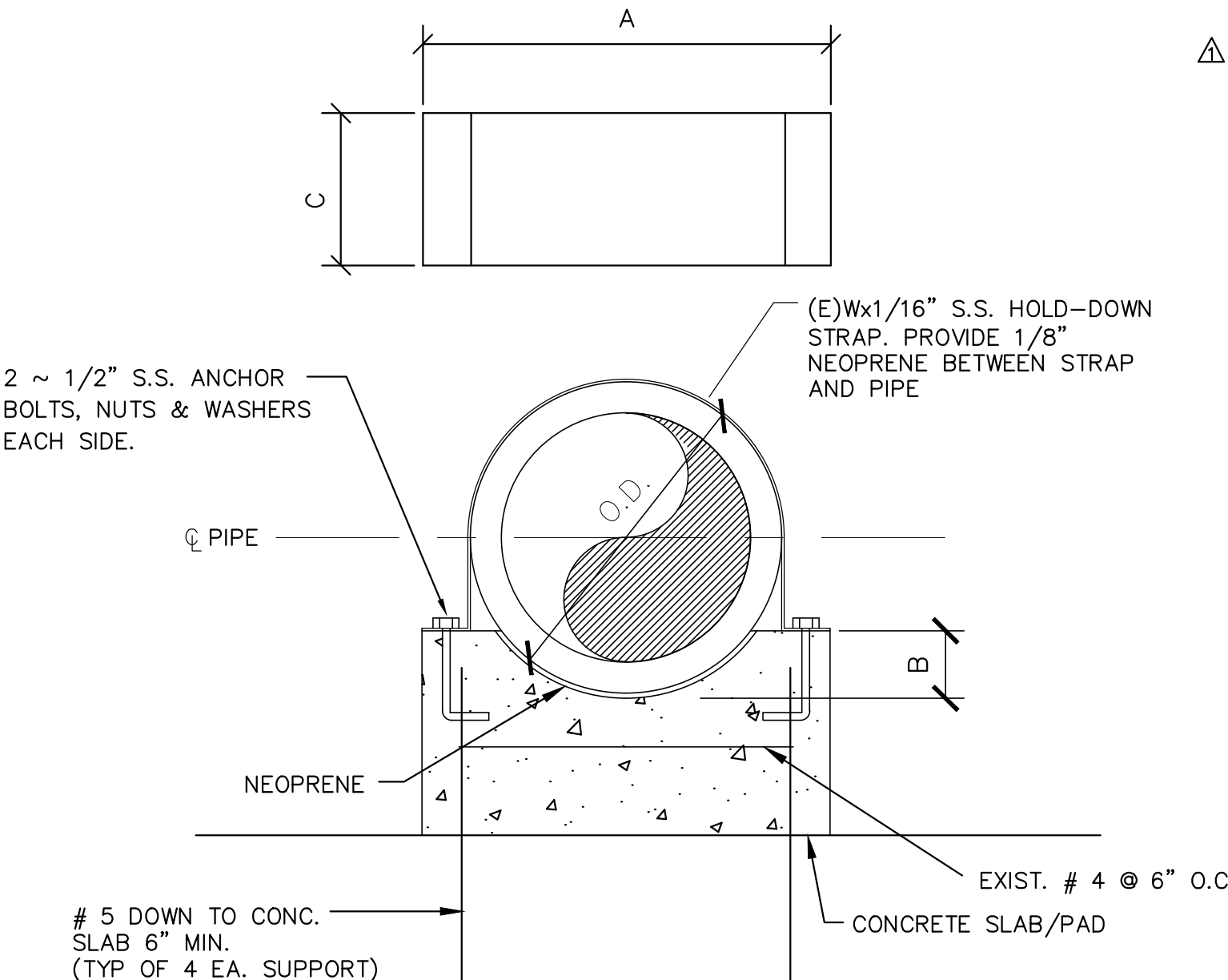
NOTES:

1. FENCING SHALL BE CONCRETE AGGREGATE, STUCCO, BRICK, STONE, SPLIT FACE CONCRETE MASONRY, OR CHAIN LINK.
2. CHAIN LINK FENCING SHALL BE #9 GAUGE, GALVANIZED STEEL WITH VINYL COATING.
3. TRUSS BARS ON CHAIN LINK FENCES ARE REQUIRED FOR THE FIRST SPAN ON EACH SIDE OF THE CORNER POST AND FOR EACH GATE SECTION.
4. LANDSCAPE SCREENING SHALL BE LOCATED ON THE EXTERIOR OF LIFT STATION FENCING.
5. SWING GATES SHALL BE CAPABLE OF SWINGING BOTH INWARDS AND OUTWARDS. CANTILEVER SLIDE GATES AND ROLL SLIDE GATES MEETING DOT DESIGN STANDARDS MAY BE USED AS AN OPTION TO SWING GATES.
6. GATE POSTS AND TRACK LINE POSTS SHALL BE 4 INCH SCHEDULE 40 FOR CANTILEVER SLIDE GATES AND ROLL SLIDE GATES.
7. VINYL COATINGS FOR FABRIC, POSTS, RAILS, AND ALL OTHER FITTINGS SHALL BE THERMALLY FUSED POLYVINYL CHLORIDE; HEAVY MIL COATING PER ASTM F 668. COATING SHALL BE 6-GAUGE VINYL FINISH.

MANATEE COUNTY		SECURITY FENCING	UG-18	PAGE 118
REV. BY	DATE			
CLB/BR	11/10			
	MAY 10, 2011			
	DATE OF APPROVAL			

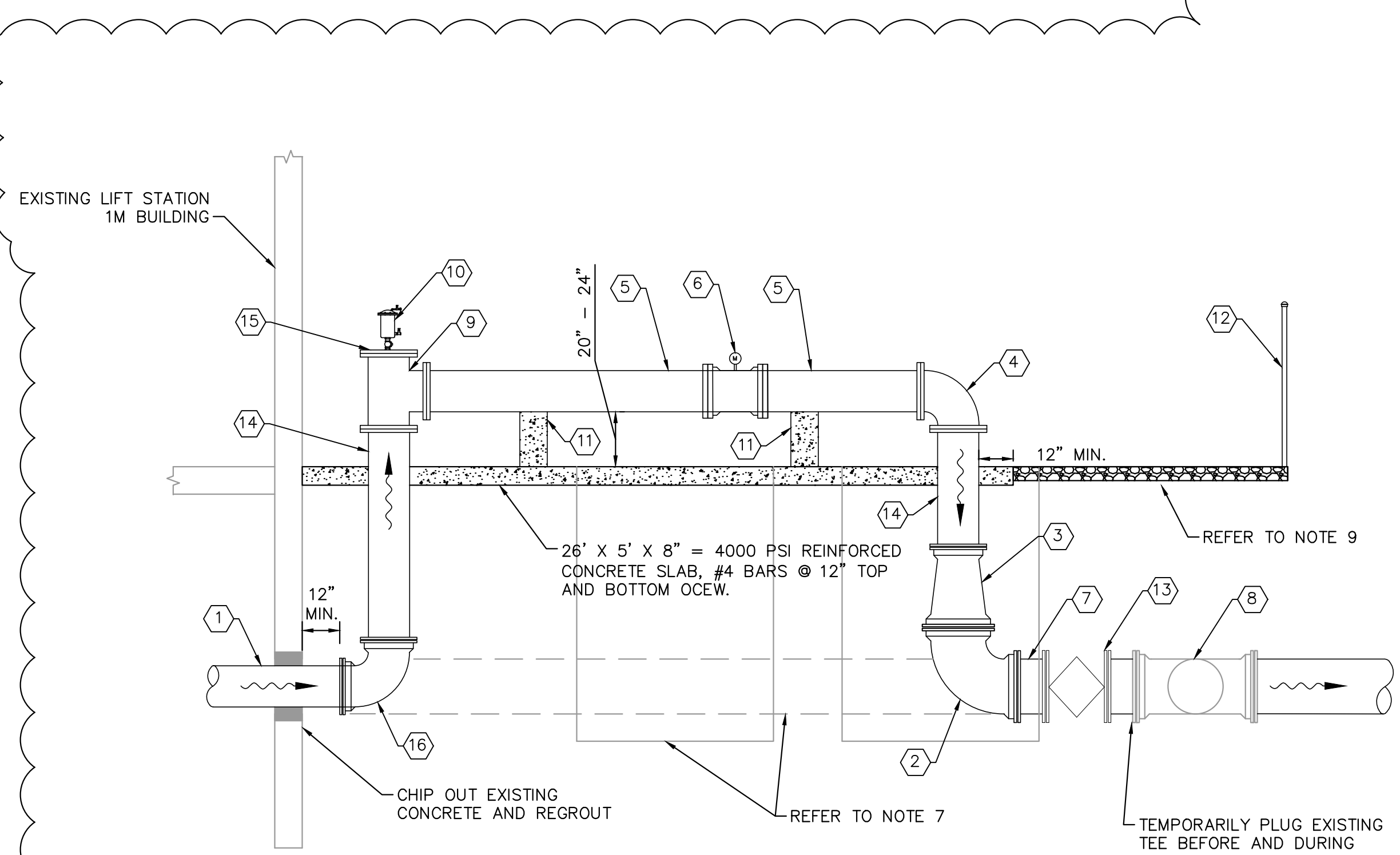


PIPE SUPPORT DETAIL  
N.T.S.



CONCRETE PIPE SUPPORT  
N.T.S.

SCHEDULE				
PIPE SIZE	A	B	C	E
4"	1'-2"	2"	8"	2"
6"	1'-6"	2"	8"	4"
8"	1'-8"	3"	1'-0"	4"
10"	1'-8"	3"	1'-0"	4"
12"	2'-0"	4"	1'-0"	6"
16"	2'-0"	4"	1'-0"	6"
18"	2'-6"	6"	1'-0"	8"
20"	2'-8"	6"	1'-6"	12"
24"	3'-0"	6"	1'-6"	12"
30"	3'-6"	8"	1'-9"	12"
36"	4'-0"	8"	1'-9"	12"



MAG METER DETAIL  
1/4" = 1'-0"

NOTES:

1. ABOVE GROUND PIPING SHALL BE IRON BODY FLANGED FITTINGS.
2. ALL PIPING SHALL BE COLOR CODED AND COATED IN ACCORDANCE W/ MANATEE COUNTY STANDARDS.
3. PIPE THROUGH SLAB AND ABOVE GROUND SHALL BE D.I. PIPE AND FITTINGS.
4. ALL METAL APPURTENANCES INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE STAINLESS STEEL (TYPE 316) UNLESS OTHERWISE NOTED. ALL STAINLESS STEEL BOLTS SHALL BE TREATED WITH NEVER-SIEZE PRIOR TO ASSEMBLY.
5. CONTRACTOR TO PROVIDE REQUIRED LENGTH OF PIPE DOWNSTREAM AND UPSTREAM OF THE PROPOSED METER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. ALL BELOW GROUND PIPING SHALL BE RESTRAINED ACCORDINGLY.
7. CONTRACTOR TO REMOVE/ABANDON EXISTING VAULTS AND FORCE MAIN AS NECESSARY TO PROPERLY INSTALL PROPOSED METER ASSEMBLY. ALL VOIDED AREAS SHALL BE REFILLED WITH FLOWABLE FILL.
8. ALL BELOW GROUND D.I. PIPE AND FITTINGS SHALL BE POLYETHYLENE WRAPPED.
9. INSTALL 6" OF COMPACTED 1" WASHED, CRUSHED SHELL OVER ONE LAYER OF WEED BARRIER OVER ALL EXPOSED GROUND SURFACES. ONE LAYER OF WEED BARRIER IS TO BE LAID AND EXTEND TO THE FENCE LINE. THE WEED BARRIER SHALL BE MIRASCAPE MANUFACTURED BY MIFAFI OR APPROVED EQUAL. ALL FINISHED GRADE SURFACES SHALL SLOPE AWAY FROM THE CONCRETE SLABS AT A MINIMUM SLOPE OF 2% EXTENDING TO THE FENCE LINE. ALL DISTURBED GROUND SHALL BE COMPACTED TO 95% MAX DENSITY, AASHTO T-180, BEFORE INSTALLING THE WEED BARRIER.

PIPING LEGEND

- 1 18" D.I. SPOOL PIECE, FLG X PE
- 2 24" D.I. 90° BEND (COMPACT), MJ
- 3 24" x 18" D.I. REDUCER, MJ
- 4 18" D.I. 90° BEND (COMPACT), FLG
- 5 18" D.I. SPOOL PIECE, FLG
- 6 18" D.I. MAG METER, FLG (ABB MAG METER, MODEL FEW325)
- 7 24" D.I. SPOOL PIECE, MJ
- 8 EX. 24" D.I. TEE, MJ
- 9 18" x 18" D.I. TEE, FLG
- 10 2" ARV (REFER TO DETAIL US-10)
- 11 CONCRETE PIPE SUPPORT (REFER TO DETAIL THIS PAGE)
- 12 FENCE (REFER TO DETAIL UG-18)
- 13 24" PLUG VALVE, MJ
- 14 18" D.I. SPOOL PIECE, FLG X PE
- 15 18" D.I. BLIND FLANGE FOR ARV
- 16 18" D.I. 90° BEND (COMPACT), MJ

**GROUNDWATER DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



ADDENDUM 4 02/03/2017 WWW			
No.	REVISIONS	DATE	BY

**Kimley»Horn**

© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT 148400003  
DATE SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

**Manatee County**  
FLORIDA

**FORCE MAIN 1M REHABILITATION**

MANATEE COUNTY

LICENSED PROFESSIONAL

W. WADE WOOD, P.E.

FL LICENSE NUMBER 69051

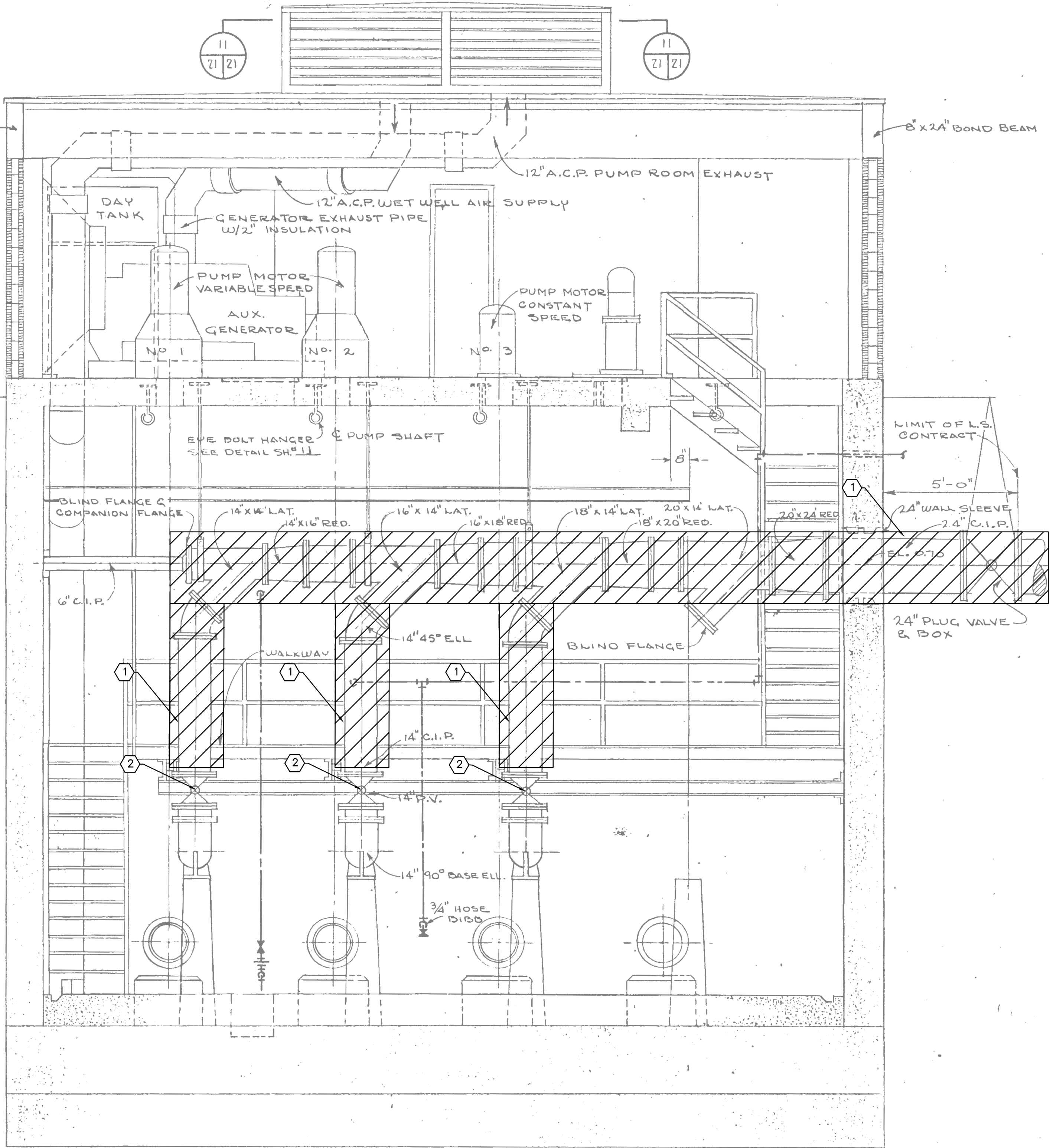
FL DATE:

**CONSTRUCTION DETAILS**

SHEET NUMBER 52



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of any improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



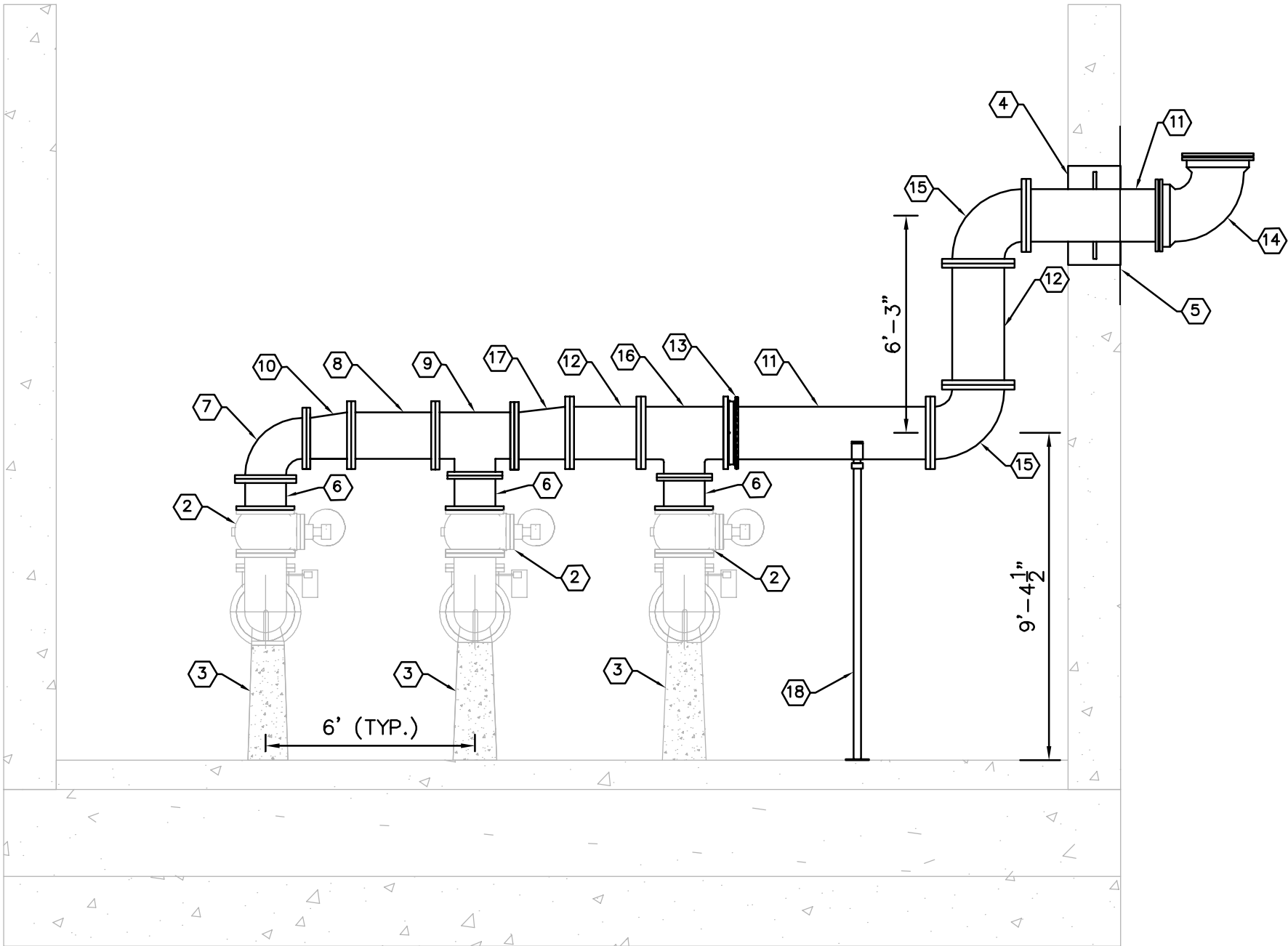
EXISTING LS 1M WET WELL SECTION  
NTS

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT, UTILITIES, STRUCTURES, AND PERSONNEL FROM DAMAGE OR INJURY DURING CONSTRUCTION.
3. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SEQUENCE SCHEDULE AS PART OF HIS SUBMITTALS FOR REVIEW AND APPROVAL FROM OWNER/ENGINEER TO MINIMIZE FLOW INTERRUPTIONS.
4. THE COUNTY RESERVES THE RIGHT FOR FIRST RIGHT OF REFUSAL. ANY TAGGED EQUIPMENT SHALL BE REMOVED AND STORED IN A SAFE PLACE PRIOR TO HANDING OVER TO THE COUNTY.
5. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIAL. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

KEY NOTES

- ① EXISTING PIPING TO BE REMOVED AND REPLACED
- ② EXISTING 14" PLUG VALVE TO REMAIN
- ③ EXISTING CONCRETE PEDESTAL
- ④ CONTRACTOR SHALL CHIP OUT CONCRETE FROM AROUND EXISTING FM AT BUILDING IN ORDER TO REMOVE AND REINSTALL PIPING. REMOVE PIPING AND INSTALL NEW PIPING INTO THE BUILDING, SECURE TO EXISTING HEADER PIPING IN DRYWELL AND MUD UP AROUND NEW FM PIPING WITH NON-SHRINK GROUT INSIDE AND OUT.
- ⑤ PREPARE AND PAINT SURROUNDING CONCRETE WITH COAL TAR-EPOXY (SYSTEM NO. 46-31) PER THE SPECIFICATIONS
- ⑥ PROPOSED 14" D.I. SPOOL PIECE, FLG
- ⑦ PROPOSED 14" D.I. 90° BEND, FLG
- ⑧ PROPOSED 16" D.I. SPOOL PIECE, FLG
- ⑨ PROPOSED 16" X 14" D.I. TEE, FLG
- ⑩ PROPOSED 16" X 14" D.I. ECCENTRIC REDUCER, FLG
- ⑪ PROPOSED 18" D.I. SPOOL PIECE, FLG X PE
- ⑫ PROPOSED 18" D.I. SPOOL PIECE, FLG
- ⑬ PROPOSED 18" FLANGED COUPLING ADAPTOR
- ⑭ PROPOSED 18" D.I. 90° BEND, MJ
- ⑮ PROPOSED 18" D.I. 90° BEND, FLG
- ⑯ PROPOSED 18" X 14" D.I. TEE, FLG
- ⑰ PROPOSED 18" X 16" D.I. ECCENTRIC REDUCER, FLG
- ⑱ PIPE COLUMN SUPPORT PER DETAIL ON SHEET 52



PROPOSED DISCHARGE HEADER PIPING  
1/4"=1'-0"

**GROUNDWATER / DEWATERING NOTE:**  
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



No.	ADDENDUM 4 02/03/2017 WWW		
REVISIONS		DATE	BY

**Kimley»Horn**  
© 2016 KIMLEY-HORN AND ASSOCIATES, INC.  
655 NORTH FRANKLIN STREET, SUITE 150, TAMPA, FL 33602  
PHONE: 813-620-1460  
WWW.KIMLEY-HORN.COM CA 00000696

KHA PROJECT  
148400003  
DATE  
SEPT 2016  
SCALE AS SHOWN  
DESIGNED BY AMM  
DRAWN BY JRT  
CHECKED BY WWW

MANATEE COUNTY

**Manatee County**  
**FORCE MAIN 1M  
REHABILITATION**

LICENSED PROFESSIONAL  
W. WADE WOOD, P.E.  
FL LICENSE NUMBER  
69051  
FL DATE:

HEADER PIPING PLAN

SHEET NUMBER

58