

CONSTRUCTION PLANS FOR NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY, FLORIDA

AUGUST 2023

MANATEE COUNTY PROJECT #402-0021309



PROJECT TEAM:

OWNER:
MANATEE COUNTY
1022 26TH AVE. E.
BRADENTON, FL 34208
CONTACT: ANDRES HIDALGO, P.E.
941-708-7450 EXT. 7392

ELECTRICAL ENGINEER:
THOMAS ENGINEERING
777 HARBOR ISLAND BLVD, SUITE 350
TAMPA, FL 33602
CONTACT: TIMOTHY THOMAS, P.E.
813-227-9190

ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
200 CENTRAL AVENUE, SUITE 600
ST. PETERSBURG, FL 33701
CONTACT: MICHAEL A. SEMAGO, P.E.
727-498-3633

UTILITY CONTACTS:

CHARTER COMMUNICATIONS
DAVID SCHISLER
2850 S. LECANTO HIGHWAY,
LECANTO, FL 34461
DAVID.SCHISLER@CHARTER.COM

ZAYO GROUP
BRUCE HERRINGTON
130 N MAIN ST
BUTTE, MT 59701
252-207-2400

FLORIDA POWER AND LIGHT
JOEL BRAY
386-586-6403

MCI
JAMES BARRA & ANDREW COLE
400 INTERNATIONAL PKWY
RICHARDSON, TX 75081
813-928-9881 & 813-847-4037

FRONTIER COMMUNICATIONS
TONI CANNON
3712 W WALNUT ST.
TAMPA, FL 33607
813-875-1014

CROWN CASTLE NG
FIBERDIG TEAM
1500 CORPORATE DR
CANONSBURG, PA 15317
888-632-0931 EXT. 2

MANATEE COUNTY TRANSPORTATION
DEPARTMENT
KATHY MCMAHON
4422-C 66TH ST. W.
BRADENTON, FL 34210
941-792-8811

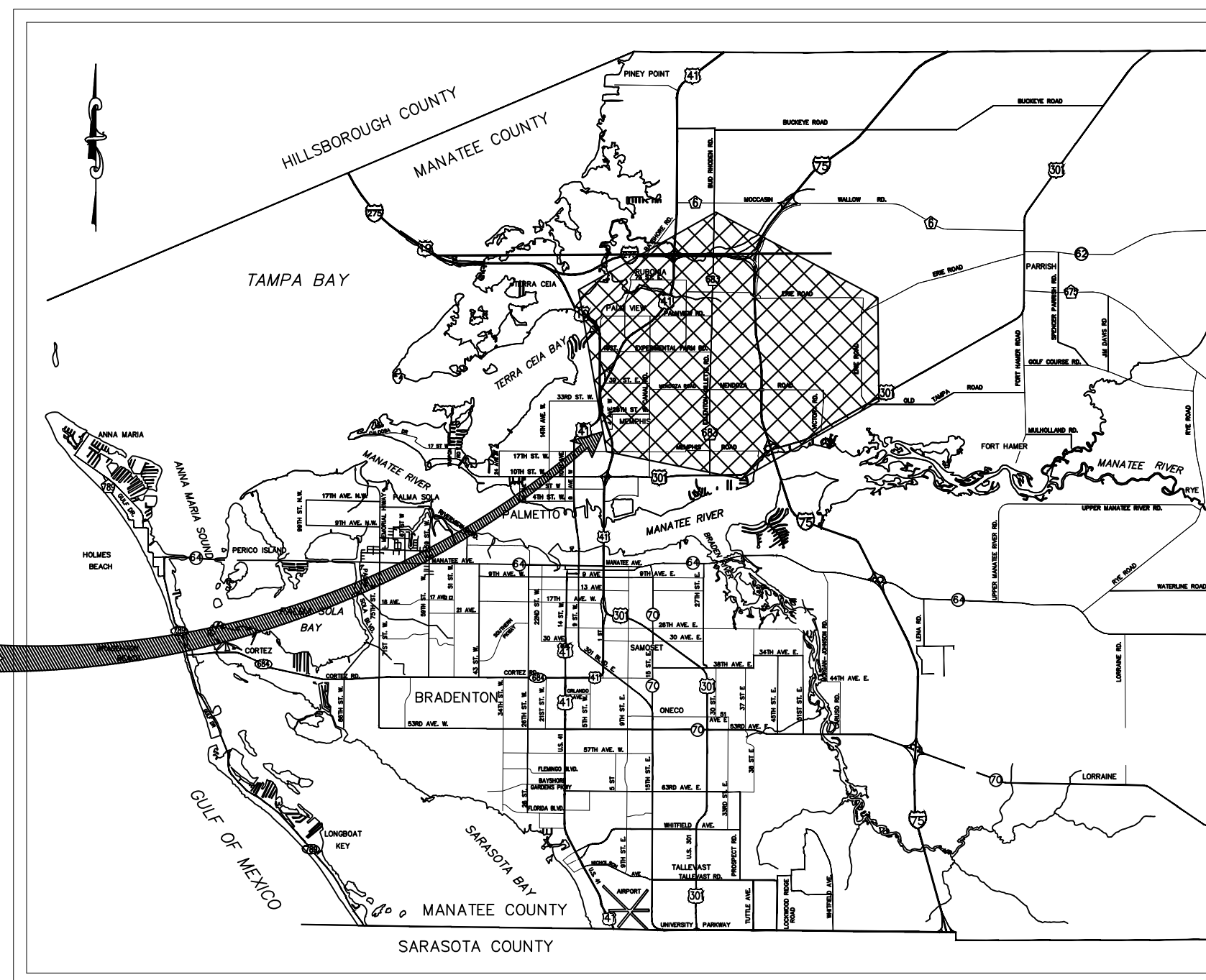
TECO- PEOPLE'S GAS - SARASOTA
JOAN DOMING
8416 PLAM RIVER RD
TAMPA, FL 33619
813-275-3783

MANATEE COUNTY UTILITY
OPERATIONS
KATHY MCMAHON
4422-C 66TH ST. W.
BRADENTON, FL, 34210
941-792-8811

UNITI FIBER LLC
CAHRLIE CROFT
107 ST FRANCIS ST, SUITE 1800
MOBILE, AL 36602
251-214-7059

PEACE RIVER ELECTRIC COOPERATIVE,
INC.
PAUL ROBERTS
P.O. BOX 1310
WAUCHULA, FL 33873-1310
863-767-4650

SITE
LOCATION



PROJECT VICINITY MAP
N.T.S.

100% DESIGN

PREPARED BY
Kimley»Horn

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200 CENTRAL AVENUE, SUITE 600
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PHONE (727) 547-3999
WWW.KIMLEY-HORN.COM Registry No. 3516

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THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE FURNISHED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN AUTOCAD FILES AND SITE CONSTRUCTION PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.

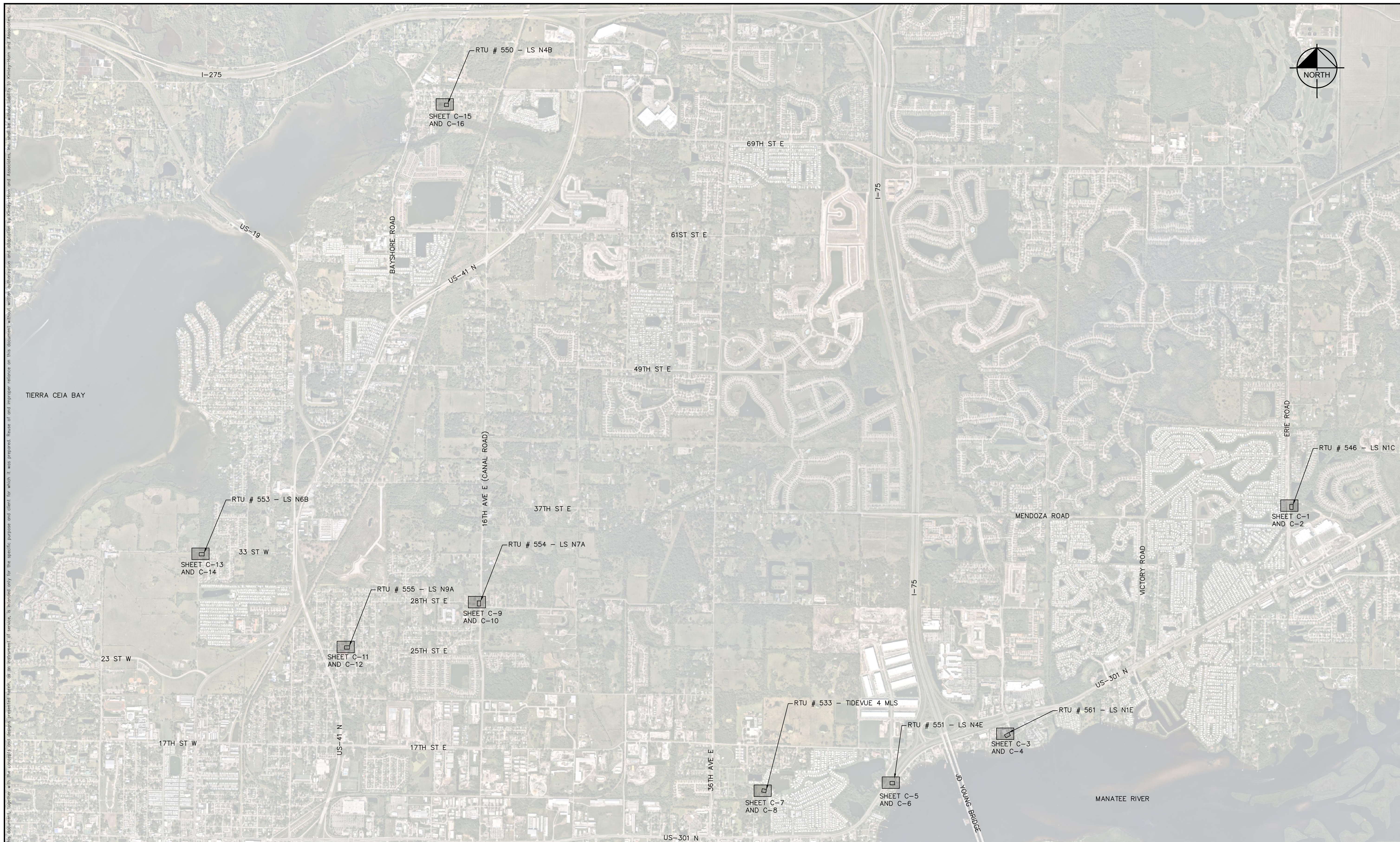
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MICHAEL A. SEMAGO, P.E.
FLORIDA LICENSE NUMBER:
87501

DATE
AUG 2023
PROJECT NO.
148400106
SHEET NUMBER
G-1

DATE:




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KHA PROJECT
148400106
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 SCALE AS SHOWN
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 CHECKED BY JWJ

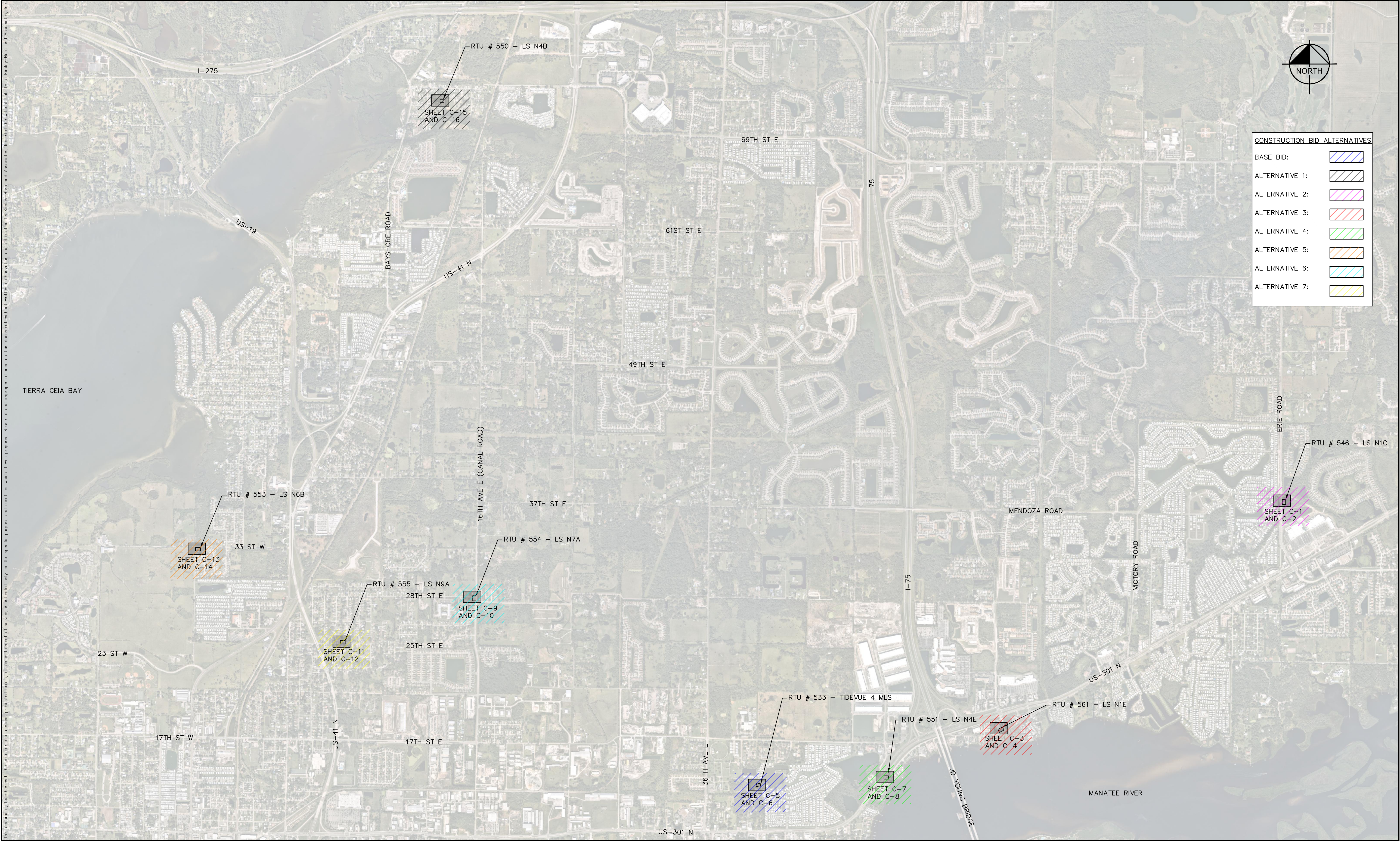

**NORTH COUNTY METAL GRAVITY SEWER
 PIPE REPLACEMENTS**
 MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
87501

KEY SHEET

SHEET NUMBER
G-3

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KHA PROJECT 148400106
DATE AUG 2023
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Manatee County
FLORIDA

**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**

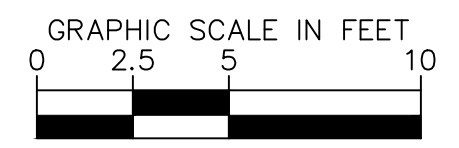
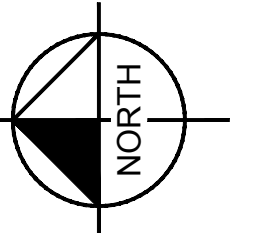
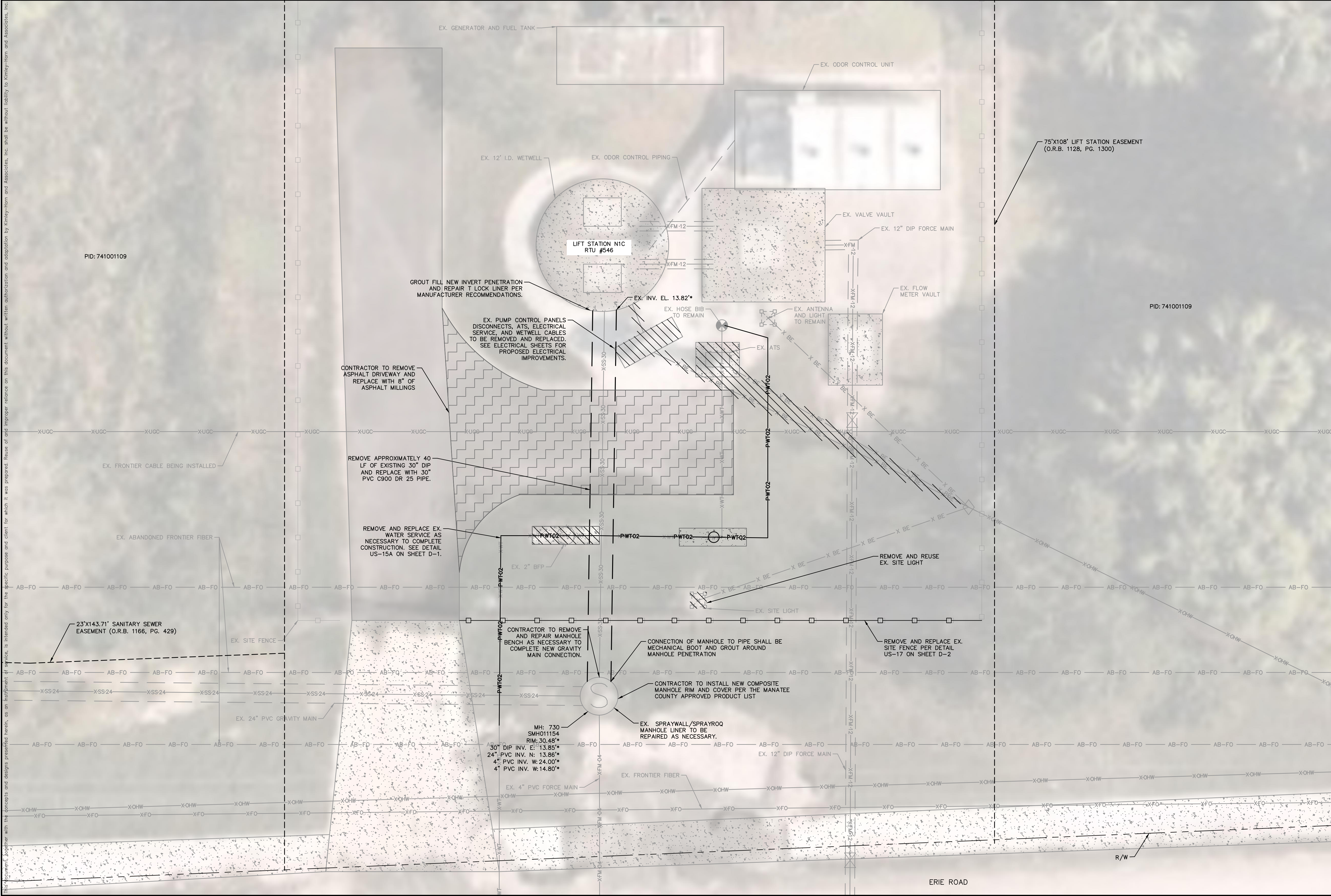
MANATEE COUNTY

LICENSED PROFESSIONAL
MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER 87501
FL DATE:

BID ALTERNATIVES

SHEET NUMBER
G-4

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- LEGEND**
- OPEN CUT
 - SIDEWALK/CONCRETE DRIVEWAY RESTORATION
 - ASPHALT DRIVEWAY RESTORATION
 - ASPHALT FULL ROAD RESTORATION
 - CURB RESTORATION
 - ASPHALT MILLINGS RESTORATION
 - DEMOLISH/REMOVE

- NOTES:**
- CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
 - EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION.
 - WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

(* ELEVATIONS ARE BASED ON MANATEE COUNTY RECORD DRAWINGS OBTAINED FROM MANATEE COUNTY GIS. A SURVEY OF THE EXISTING SITE AND INFRASTRUCTURE WAS NOT PERFORMED TO CONFIRM THE ELEVATIONS. CONTRACTOR TO CONFIRM DEPTH OF PIPE PRIOR TO BIDDING.

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.



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 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
148400106
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DESIGNED BY MAS
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CHECKED BY JWW

Manatee County
 NORTH COUNTY METAL GRAVITY SEWER
 PIPE REPLACEMENTS
 MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
 87501

RTU 546 - LS N1C

SHEET NUMBER
C-1

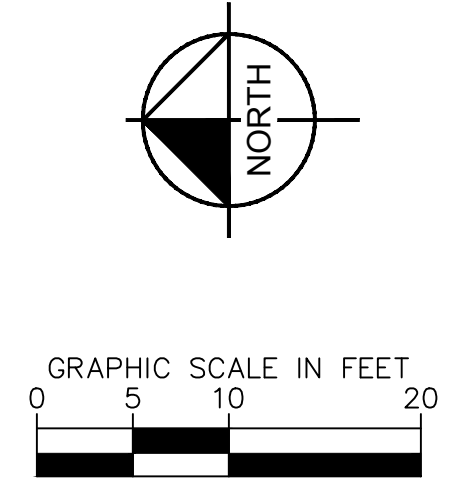
BYPASS NOTES:

EXISTING CONDITIONS: 1460 GPM @ 58.3 FT TDH
 EXISTING PUMPS: HYDROMATIC MODEL S6L5000M4-4, 50 HP, 1750RPM

LIFT STATION N1C BYPASS PHASING PLAN

- PHASE I**
- 1 TEMPORARILY BYPASS FLOW FROM THE LIFT STATION WET WELL TO THE LIFT STATION BYPASS CONNECTION IN THE VALVE VAULT.
 - 2 REMOVE EXISTING LIFT STATION ELECTRICAL EQUIPMENT AND INSTALL PROPOSED ELECTRICAL EQUIPMENT. SEE ELECTRICAL SHEETS FOR DETAILS.
- PHASE II**
- 3 INSTALL 30" PLUG AT THE LIFT STATION WET WELL INVERT.
 - 4 CUT 90° BEND INTO THE EXISTING 4" FORCE MAIN AND INSTALL TEMPORARY FORCE MAIN PIPING TO THE WET WELL. EXISTING 4" FORCE MAIN FLOW FROM PRIVATE TERRA SIESTA LIFT STATION: 120 GPM @ 37 FT TDH
 - 5 INSTALL 24" FLOW THROUGH PLUG AT THE NORTH INVERT OF MANHOLE 730 AND BYPASS FLOW FROM THE MANHOLE TO THE LIFT STATION WET WELL.
 - 6 REMOVE APPROXIMATELY 40 LF OF EXISTING 30" D.I. GRAVITY MAIN AND REPLACE WITH 30" PVC C900 DR 25 PIPE UP TO THE CONNECTION AT THE EXISTING WET WELL.
- PHASE III**
- 7 REMOVE 24" FLOW THROUGH PLUG AT THE MANHOLE NORTH INVERT
 - 8 INSTALL 30" PLUG AT THE MANHOLE 730 EAST INVERT AND BYPASS FLOW FROM THE MANHOLE TO THE VALVE VAULT BYPASS PORT.
 - 9 REMOVE TEMPORARY 4" BYPASS PIPING AND RECONNECT THE 4" FORCE MAIN TO EXISTING MANHOLE 730 WITH D.I. SLEEVES AND PVC C900 DR18 PIPE.
 - 10 REMOVE 30" PLUG AT WET WELL INVERT AND COMPLETE CONNECTION OF 30" PVC C900 DR 25 PIPE TO THE EXISTING WET WELL. REPAIR WET WELL INVERT PENETRATION AND PVC LINER PER MANUFACTURER RECOMMENDATIONS.
 - 11 REMOVE 30" PLUG AT THE MANHOLE EAST INVERT AND TAKE STATION OFF OF BYPASS.

* CONTRACTOR IS REQUIRED TO PROVIDE A 24-HOUR WATCHMEN SHALL BE STATIONED ON SITE FOR DURATION OF BYPASS OPERATION



LEGEND

OPEN CUT	[Symbol]
SIDEWALK/CONCRETE DRIVEWAY RESTORATION	[Symbol]
ASPHALT DRIVEWAY RESTORATION	[Symbol]
ASPHALT FULL ROAD RESTORATION	[Symbol]
CURB RESTORATION	[Symbol]
ASPHALT MILLINGS RESTORATION	[Symbol]
DEMOLISH/REMOVE	[Symbol]

- NOTES:**
- CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
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(* ELEVATIONS ARE BASED ON MANATEE COUNTY RECORD DRAWINGS OBTAINED FROM MANATEE COUNTY GIS. A SURVEY OF THE EXISTING SITE AND INFRASTRUCTURE WAS NOT PERFORMED TO CONFIRM THE ELEVATIONS. CONTRACTOR TO CONFIRM DEPTH OF PIPE PRIOR TO BIDDING.



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

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 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
 148400106
 DATE
 JUL 2023
 SCALE AS SHOWN
 DESIGNED BY MAS
 DRAWN BY GMB
 CHECKED BY JWW

Manatee County Florida

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

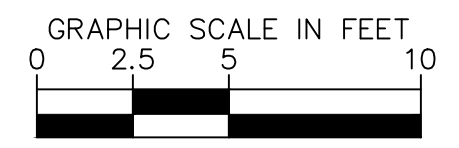
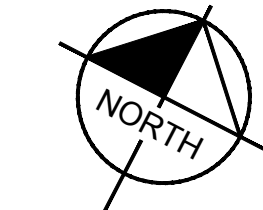
LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
 87501

BYPASS PLAN - RTU 546 - LS N1C

FL DATE:

SHEET NUMBER
C-2

PID: 821600159



LEGEND

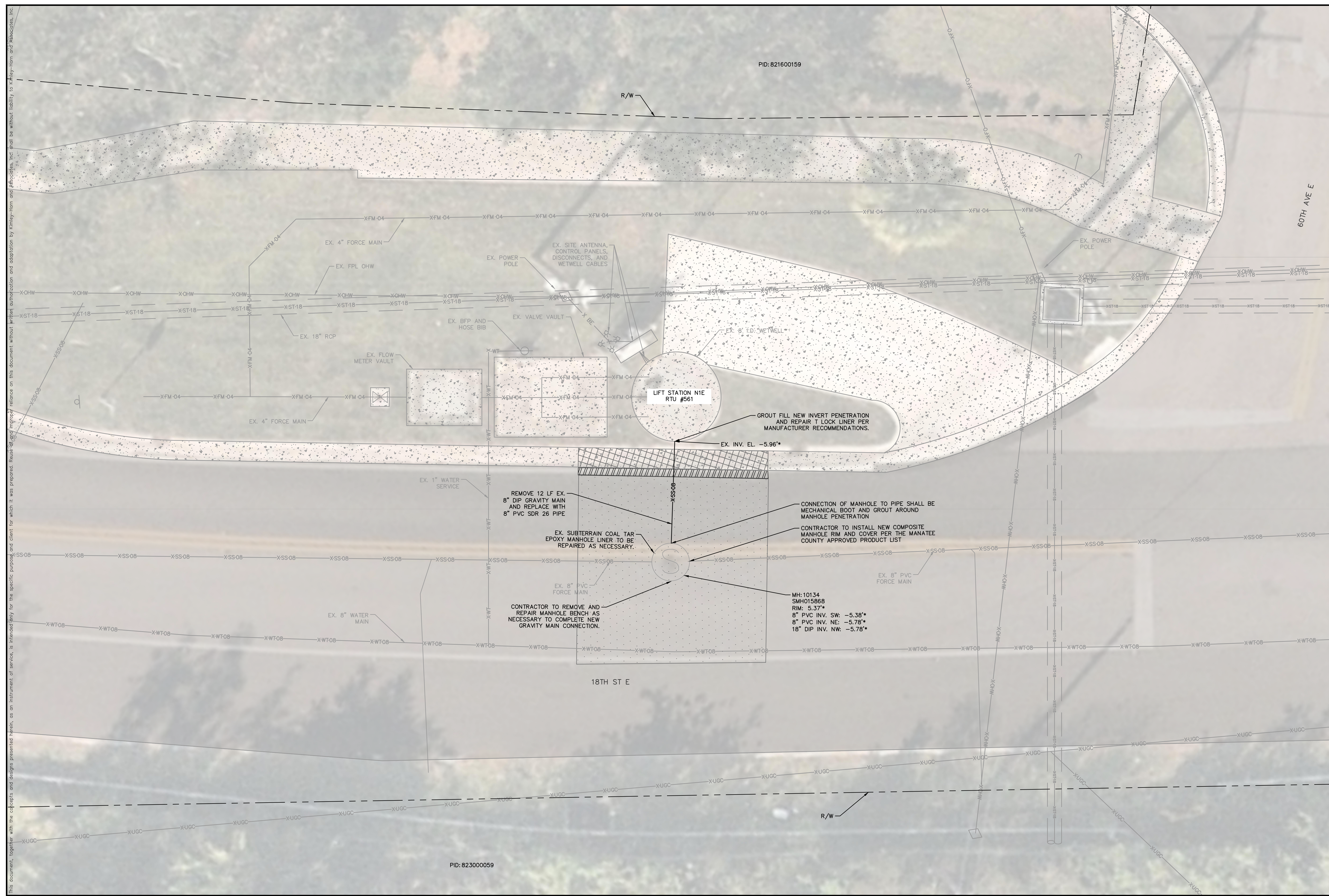
- OPEN CUT
- SIDEWALK/CONCRETE DRIVEWAY RESTORATION
- ASPHALT DRIVEWAY RESTORATION
- ASPHALT FULL ROAD RESTORATION
- CURB RESTORATION
- ASPHALT MILLINGS RESTORATION
- DEMOLISH/REMOVE

NOTES:

1. CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
2. EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION.
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GROUNDWATER / DEWATERING NOTE:
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PID: 823000059

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NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
87501

RTU 561 - LS N1E

FL DATE:

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C-3

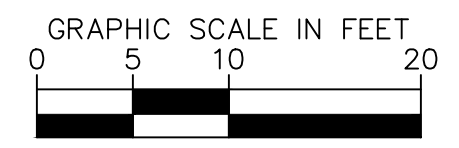
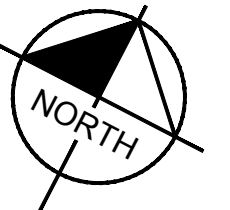


BYPASS NOTES:

EXISTING CONDITIONS: 150 CPM @ 120 FT TDH
 EXISTING PUMPS: HYDROMATIC MODEL S4K2500M3-4, 25 HP, 1750RPM

KEY NOTES

- 1 INSTALL 8" FLOW THROUGH PLUG ON THE EAST AND WEST 8" INVERTS OF MANHOLE 10134 AND BYPASS FLOW FROM THE MANHOLE TO THE LIFT STATION BYPASS CONNECTION IN THE VALVE VAULT
- 2 REMOVE AND REPLACE 12 LF OF EXISTING 8" DIP GRAVITY MAIN WITH 8" PVC SDR 26 PIPE.
- 3 REPAIR INVERT PENETRATION AND COAL TAR LINER PER MANUFACTURER RECOMMENDATIONS.
- 4 REMOVE 8" FLOW THROUGH PLUGS AT MANHOLE 10134 AND TAKE STATION OFF OF BYPASS.



LEGEND

- OPEN CUT
- SIDEWALK/CONCRETE DRIVEWAY RESTORATION
- ASPHALT DRIVEWAY RESTORATION
- ASPHALT FULL ROAD RESTORATION
- CURB RESTORATION
- ASPHALT MILLINGS RESTORATION
- DEMOLISH/REMOVE

NOTES:

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MH:10135
SMH015869
RIM: 5.64*
8" PVC INV. SW: -5.38*
8" PVC INV. NE: -5.38*
8" PVC INV. N: 0.06*

MH:10134
SMH015868
RIM: 5.37*
8" PVC INV. SW: -5.38*
8" PVC INV. NE: -5.78*
18" DIP INV. NW: -5.78*

MH:10133
SMH015867
RIM: 5.18*
8" PVC INV. SW: -5.13*
8" PVC INV. NE: -4.92*

CONTRACTOR TO REMOVE AND REPLACE TOP CONE OF MANHOLE AS NECESSARY TO PROVIDE ENOUGH SEPARATION FROM FLOW THROUGH PLUG BYPASS PIPING TO INSTALL NEW GRAVITY MAIN AND REPAIR MANHOLE LINER.

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BYPASS PLAN - RTU 561 - LS N1E

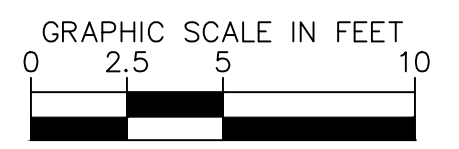
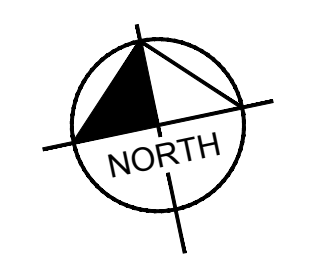
SHEET NUMBER
C-4

GROUNDWATER / DEWATERING NOTE:
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LEGEND

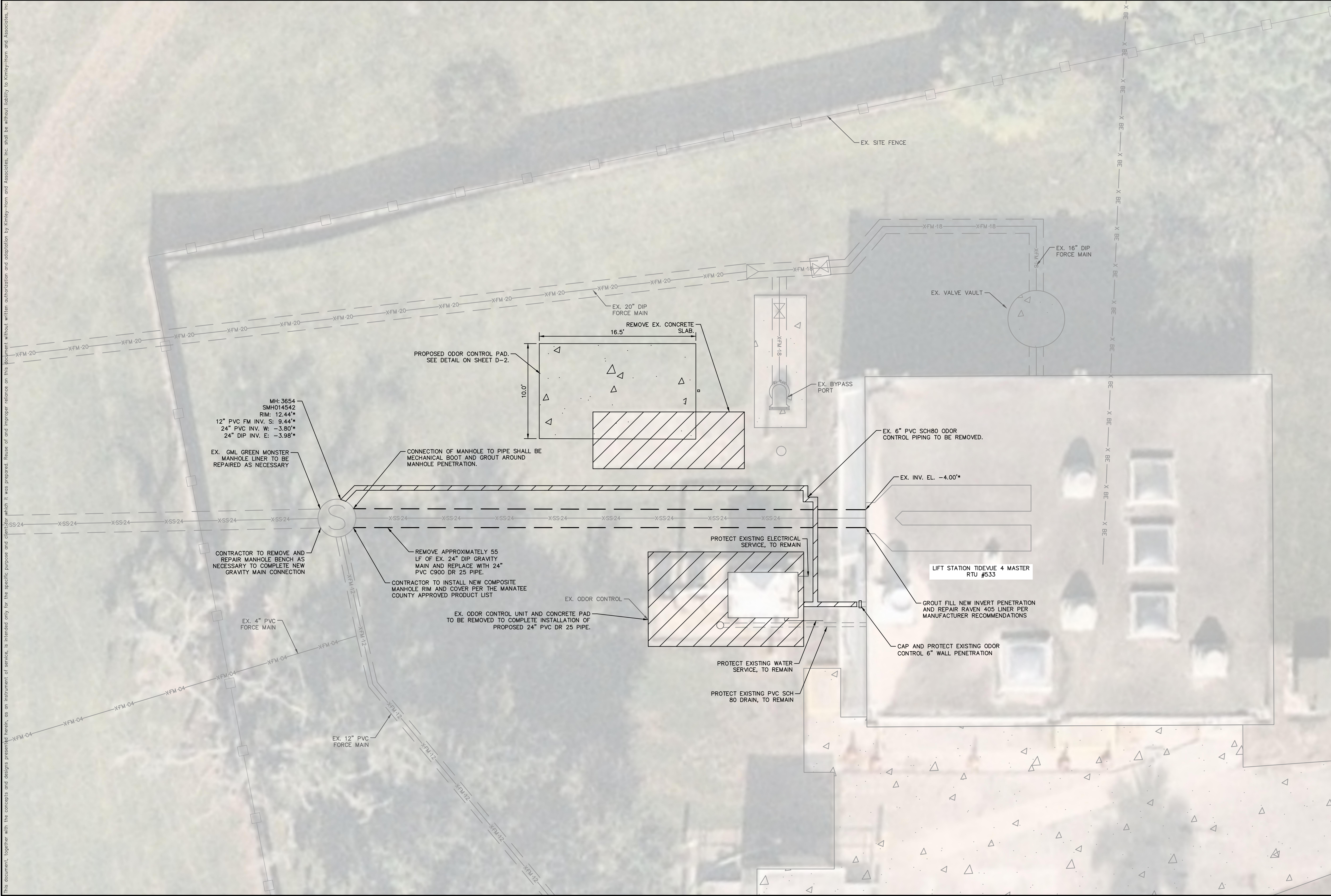
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NOTES:

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2. EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION.
3. WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

(* ELEVATIONS ARE BASED ON MANATEE COUNTY RECORD DRAWINGS OBTAINED FROM MANATEE COUNTY GIS. A SURVEY OF THE EXISTING SITE AND INFRASTRUCTURE WAS NOT PERFORMED TO CONFIRM THE ELEVATIONS. CONTRACTOR TO CONFIRM DEPTH OF PIPE PRIOR TO BIDDING.

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

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 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701
 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
148400106
 DATE
JUL 2023
 SCALE AS SHOWN
 DESIGNED BY MAS
 DRAWN BY GMB
 CHECKED BY JWJ

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

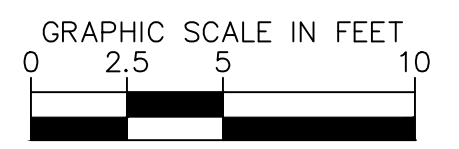
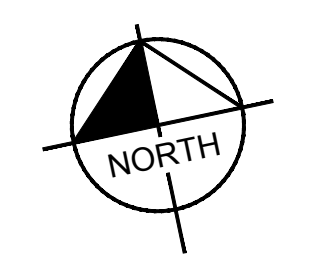
LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
87501

RTU 533 - TIDEVUE 4 MLS

FL DATE:

SHEET NUMBER
C-5

This document, together with the concepts and designs presented herein, is intended only for the specific purpose and shall be without liability to Kimley-Horn and Associates, Inc. should be used for any other purpose or in any other project without the written authorization and adaptation by Kimley-Horn and Associates, Inc.



LEGEND

- OPEN CUT
- SIDEWALK/CONCRETE DRIVEWAY RESTORATION
- ASPHALT DRIVEWAY RESTORATION
- ASPHALT FULL ROAD RESTORATION
- CURB RESTORATION
- ASPHALT MILLINGS RESTORATION
- DEMOLISH/REMOVE

NOTES:

1. CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
2. EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION.
3. WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

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BYPASS NOTES:

EXISTING CONDITIONS: 1629 GPM @ 150 FT TDH
EXISTING PUMPS: HYDRAMATIC MODEL SD4T1000M4.4, 100 HP

KEY NOTES:

1. INSTALL 24" FLOW THROUGH PLUG ON THE WEST 24" INVERT AND BYPASS FLOW FROM THE MANHOLE TO THE LIFT STATION WET WELL.
2. CUT 90° BEND INTO THE EXISTING 12" FORCE MAIN AND INSTALL TEMPORARY 12" FORCE MAIN PIPING TO THE LIFT STATION WET WELL THROUGH THE WET WELL TEMPORARY BUILDING DOOR. CONTRACTOR TO INSTALL TEMPORARY PLYWOOD DOOR OVER BYPASS PIPING TO SEAL OFF THE WET WELL.
3. RELOCATE EXISTING WATER SERVICE, ELECTRICAL SERVICE, AND DUCT PIPING. INSTALL NEW DUCT PIPING FROM TEMPORARY SKID THROUGH PLYWOOD DOOR INTO THE WET WELL.
4. REMOVE AND REPLACE 55 LF OF EXISTING 24" D.I. GRAVITY MAIN AND REPLACE WITH 24" PVC C900 DR-25 PIPE UP TO LIFT STATION PENETRATION.
5. COORDINATE WITH MANATEE COUNTY LIFT STATION OPERATIONS TO LOWER OPERATING RANGE IN LIFT STATION WET WELL.
6. GROUT FILL NEW INVERT PENETRATION AND REPAIR FLOW CHANNEL EPOXY LINER AS NECESSARY PER MANUFACTURER RECOMMENDATIONS.
7. REMOVE TEMPORARY 12" BYPASS PIPING AND RECONNECT THE 12" FORCE MAIN TO EXISTING MANHOLE 3654 WITH D.I. SLEEVES AND 12" PVC C900 DR18 PIPE.
8. REMOVE 24" FLOW THROUGH PLUG AT THE MANHOLE INVERT AND TAKE STATION OF BYPASS.
9. INSTALL PERMANENT 6" ODOR CONTROL PVC SCH80 DUCTWORK PIPING TO LOWER OPERATING RANGE IN LIFT STATION WET WELL.
10. CONTRACTOR TO INSTALL NEW ODOR CONTROL PAD, PLACE ODOR CONTROL UNIT, INSTALL PVC SCH80 DUCTWORK, RECONNECT ELECTRICAL SERVICE, RECONNECT DRAIN, AND RECONNECT WATER SERVICE. SEE DETAILS ON SHEET D-4 FOR ODOR CONTROL LAYOUT

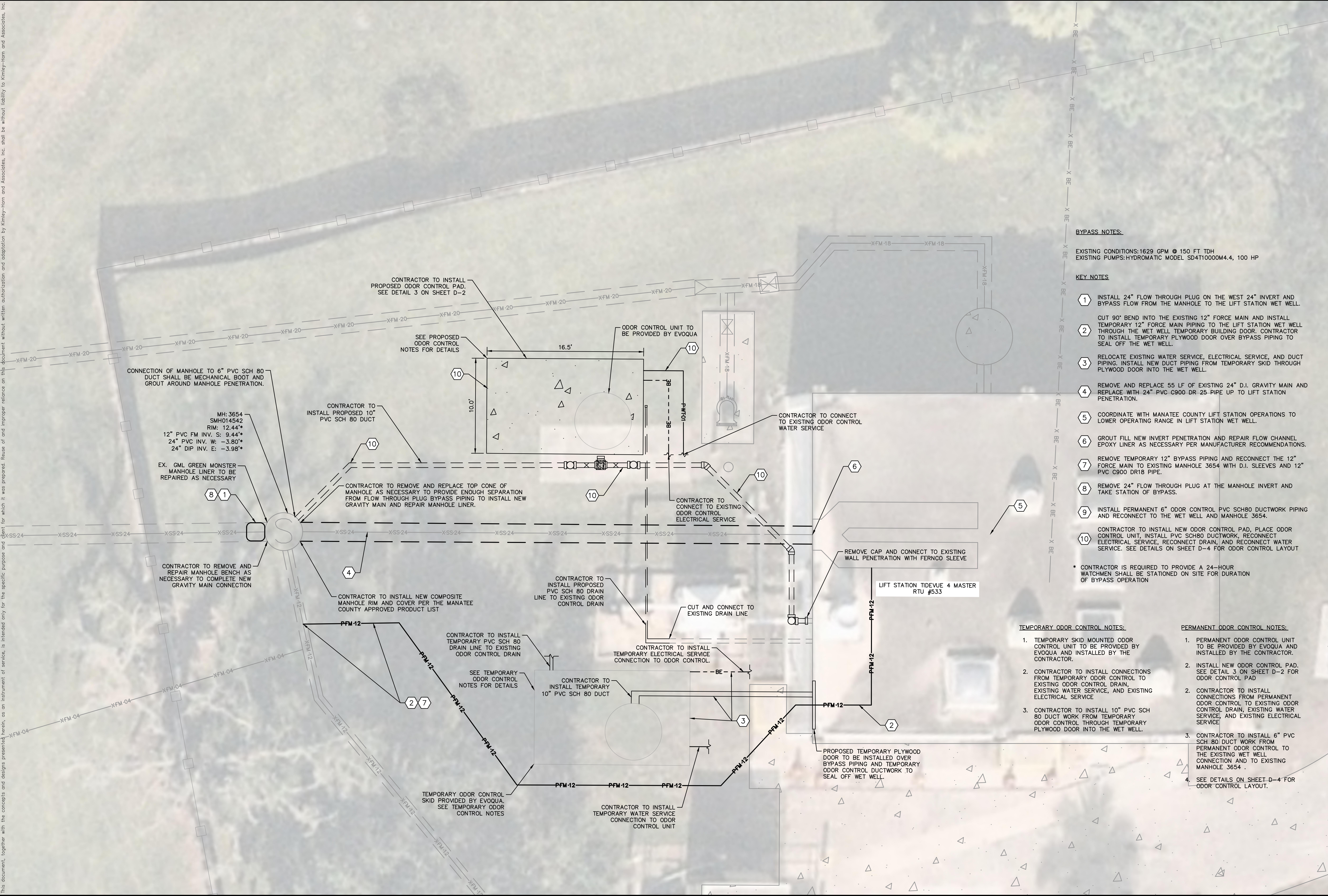
* CONTRACTOR IS REQUIRED TO PROVIDE A 24-HOUR WATCHMEN SHALL BE STATIONED ON SITE FOR DURATION OF BYPASS OPERATION

TEMPORARY ODOR CONTROL NOTES:

1. TEMPORARY SKID MOUNTED ODOR CONTROL UNIT TO BE PROVIDED BY EVOQUA AND INSTALLED BY THE CONTRACTOR.
2. CONTRACTOR TO INSTALL CONNECTIONS FROM TEMPORARY ODOR CONTROL TO EXISTING ODOR CONTROL DRAIN, EXISTING WATER SERVICE, AND EXISTING ELECTRICAL SERVICE
3. CONTRACTOR TO INSTALL 10" PVC SCH 80 DUCT WORK FROM TEMPORARY ODOR CONTROL THROUGH TEMPORARY PLYWOOD DOOR INTO THE WET WELL.

PERMANENT ODOR CONTROL NOTES:

1. PERMANENT ODOR CONTROL UNIT TO BE PROVIDED BY EVOQUA AND INSTALLED BY THE CONTRACTOR.
2. INSTALL NEW ODOR CONTROL PAD. SEE DETAIL 3 ON SHEET D-2 FOR ODOR CONTROL PAD
2. CONTRACTOR TO INSTALL CONNECTIONS FROM PERMANENT ODOR CONTROL TO EXISTING ODOR CONTROL DRAIN, EXISTING WATER SERVICE, AND EXISTING ELECTRICAL SERVICE
3. CONTRACTOR TO INSTALL 6" PVC SCH 80 DUCT WORK FROM PERMANENT ODOR CONTROL TO THE EXISTING WET WELL CONNECTION AND TO EXISTING MANHOLE 3654 .
4. SEE DETAILS ON SHEET D-4 FOR ODOR CONTROL LAYOUT.



No.	REVISIONS	DATE	BY

Kimley-Horn

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PHONE: 727-547-3999
WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
148400106
DATE
JUL 2023
SCALE AS SHOWN
DESIGNED BY MAS
DRAWN BY GMB
CHECKED BY JWW

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

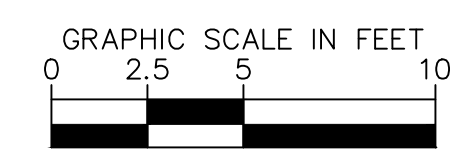
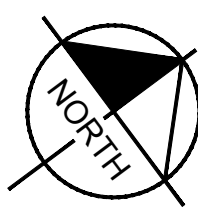
LICENSED PROFESSIONAL
MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER
87501

BYPASS PLAN - RTU 533 - TIDEVUE 4 MLS

SHEET NUMBER
C-6

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.





LEGEND

OPEN CUT	[Symbol]
SIDEWALK/CONCRETE DRIVEWAY RESTORATION	[Symbol]
ASPHALT DRIVEWAY RESTORATION	[Symbol]
ASPHALT FULL ROAD RESTORATION	[Symbol]
CURB RESTORATION	[Symbol]
ASPHALT MILLINGS RESTORATION	[Symbol]
DEMOLISH/REMOVE	[Symbol]

- NOTES:**
- CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
 - EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION.
 - WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

(* ELEVATIONS ARE BASED ON MANATEE COUNTY RECORD DRAWINGS OBTAINED FROM MANATEE COUNTY GIS. A SURVEY OF THE EXISTING SITE AND INFRASTRUCTURE WAS NOT PERFORMED TO CONFIRM THE ELEVATIONS. CONTRACTOR TO CONFIRM DEPTH OF PIPE PRIOR TO BIDDING.

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 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT	148400106
DATE	JUL 2023
SCALE	AS SHOWN
DESIGNED BY	MAS
DRAWN BY	GMB
CHECKED BY	JWW

Manatee County

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL	MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER	87501

RTU 51 - LS N4E

FL DATE:

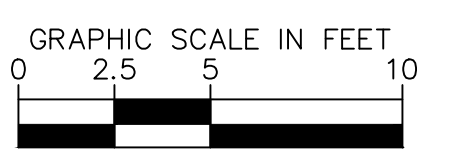
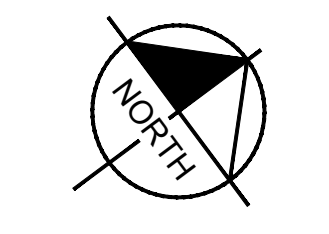
SHEET NUMBER	C-7
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BYPASS NOTES:
 EXISTING CONDITIONS: 150 GPM @ 120 FT TDH
 EXISTING PUMPS: HYDROMATIC MODEL S4K2500M3-4, 25 HP, 1750RPM

- KEY NOTES**
- 1 INSTALL 8" FLOW THROUGH PLUG ON THE SOUTHWEST AND NORTHEAST 8" INVERTS OF MANHOLE 10134 AND BYPASS FLOW FROM THE MANHOLE TO THE LIFT STATION BYPASS CONNECTION IN THE VALVE VAULT
 - 2 REMOVE AND REPLACE EXISTING 8" DIP GRAVITY MAIN WITH 8" PVC SDR 26 PIPE.
 - 3 GROUT FILL NEW INVERT PENETRATION AND REPAIR PVC LINER PER MANUFACTURER RECOMMENDATIONS.
 - 4 REMOVE 8" FLOW THROUGH PLUGS AT MANHOLE 10134 AND TAKE STATION OFF OF BYPASS.



- LEGEND**
- OPEN CUT
 - SIDEWALK/CONCRETE DRIVEWAY RESTORATION
 - ASPHALT DRIVEWAY RESTORATION
 - ASPHALT FULL ROAD RESTORATION
 - CURB RESTORATION
 - ASPHALT MILLINGS RESTORATION
 - DEMOLISH/REMOVE

- NOTES:**
1. CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
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No.	REVISIONS	DATE	BY

Kimley-Horn

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 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701
 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
148400106
 DATE
JUL 2023
 SCALE AS SHOWN
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 CHECKED BY JWW

Manatee County FLORIDA

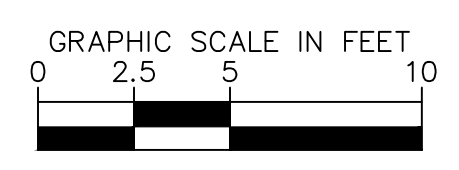
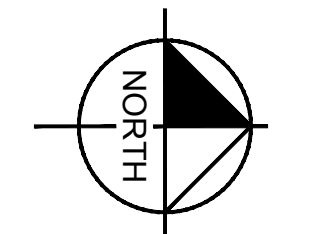
NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
87501

BYPASS PLAN - RTU 551 - LS N4E

SHEET NUMBER
C-8



- LEGEND**
- OPEN CUT
 - SIDEWALK/CONCRETE DRIVEWAY RESTORATION
 - ASPHALT DRIVEWAY RESTORATION
 - ASPHALT FULL ROAD RESTORATION
 - CURB RESTORATION
 - ASPHALT MILLINGS RESTORATION
 - DEMOLISH/REMOVE

- NOTES:**
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DRAWN BY	GMB
CHECKED BY	JWW

Manatee County

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

MICHAEL A. SEMAGO, P.E.

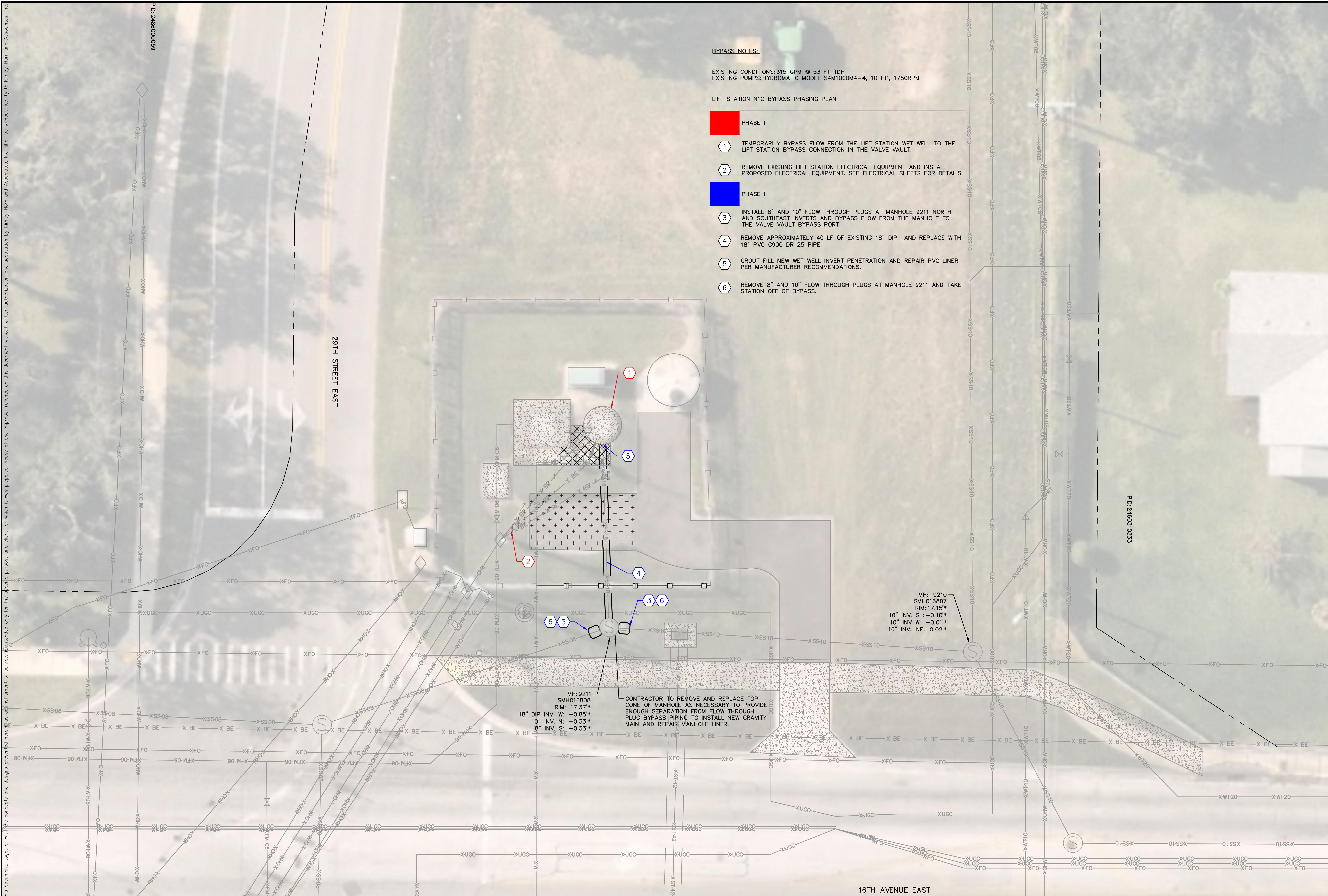
FL LICENSE NUMBER 87501

RTU 554 - LS N7A

DATE:

SHEET NUMBER

C-9

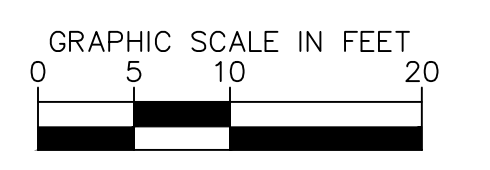
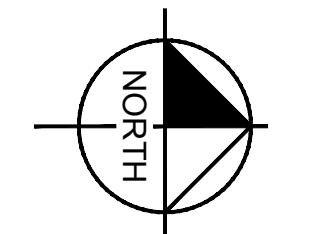


BYPASS NOTES:

EXISTING CONDITIONS: 315 GPM @ 53 FT TDH
 EXISTING PUMPS: HYDRAMATIC MODEL S4M1000M4-4, 10 HP, 1750RPM

LIFT STATION N1C BYPASS PHASING PLAN

- PHASE I**
- 1 TEMPORARILY BYPASS FLOW FROM THE LIFT STATION WET WELL TO THE LIFT STATION BYPASS CONNECTION IN THE VALVE VAULT.
 - 2 REMOVE EXISTING LIFT STATION ELECTRICAL EQUIPMENT AND INSTALL PROPOSED ELECTRICAL EQUIPMENT. SEE ELECTRICAL SHEETS FOR DETAILS.
- PHASE II**
- 3 INSTALL 8" AND 10" FLOW THROUGH PLUGS AT MANHOLE 9211 NORTH AND SOUTHEAST INVERTS AND BYPASS FLOW FROM THE MANHOLE TO THE VALVE VAULT BYPASS PORT.
 - 4 REMOVE APPROXIMATELY 40 LF OF EXISTING 18" DIP AND REPLACE WITH 18" PVC C900 DR 25 PIPE.
 - 5 GROUT FILL NEW WET WELL INVERT PENETRATION AND REPAIR PVC LINER PER MANUFACTURER RECOMMENDATIONS.
 - 6 REMOVE 8" AND 10" FLOW THROUGH PLUGS AT MANHOLE 9211 AND TAKE STATION OFF OF BYPASS.



LEGEND

- OPEN CUT
- SIDEWALK/CONCRETE DRIVEWAY RESTORATION
- ASPHALT DRIVEWAY RESTORATION
- ASPHALT FULL ROAD RESTORATION
- CURB RESTORATION
- ASPHALT MILLINGS RESTORATION
- DEMOLISH/REMOVE

NOTES:

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 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT	148400106
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SCALE	AS SHOWN
DESIGNED BY	MAS
DRAWN BY	GMB
CHECKED BY	JWW

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL

MICHAEL A. SEMAGO, P.E.

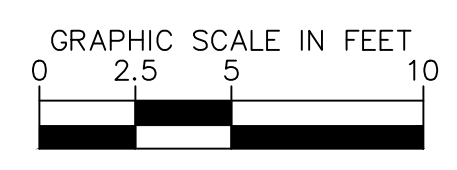
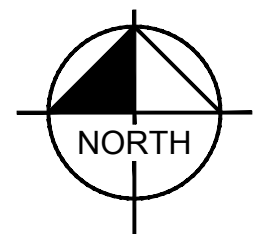
FL LICENSE NUMBER 87501

BYPASS PLAN - RTU 554 - LS N7A

SHEET NUMBER

C-10

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LEGEND

OPEN CUT	
SIDEWALK/CONCRETE DRIVEWAY RESTORATION	
ASPHALT DRIVEWAY RESTORATION	
ASPHALT FULL ROAD RESTORATION	
CURB RESTORATION	
ASPHALT MILLINGS RESTORATION	
DEMOLISH/REMOVE	

- NOTES:**
- CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
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Kimley-Horn

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Manatee County

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

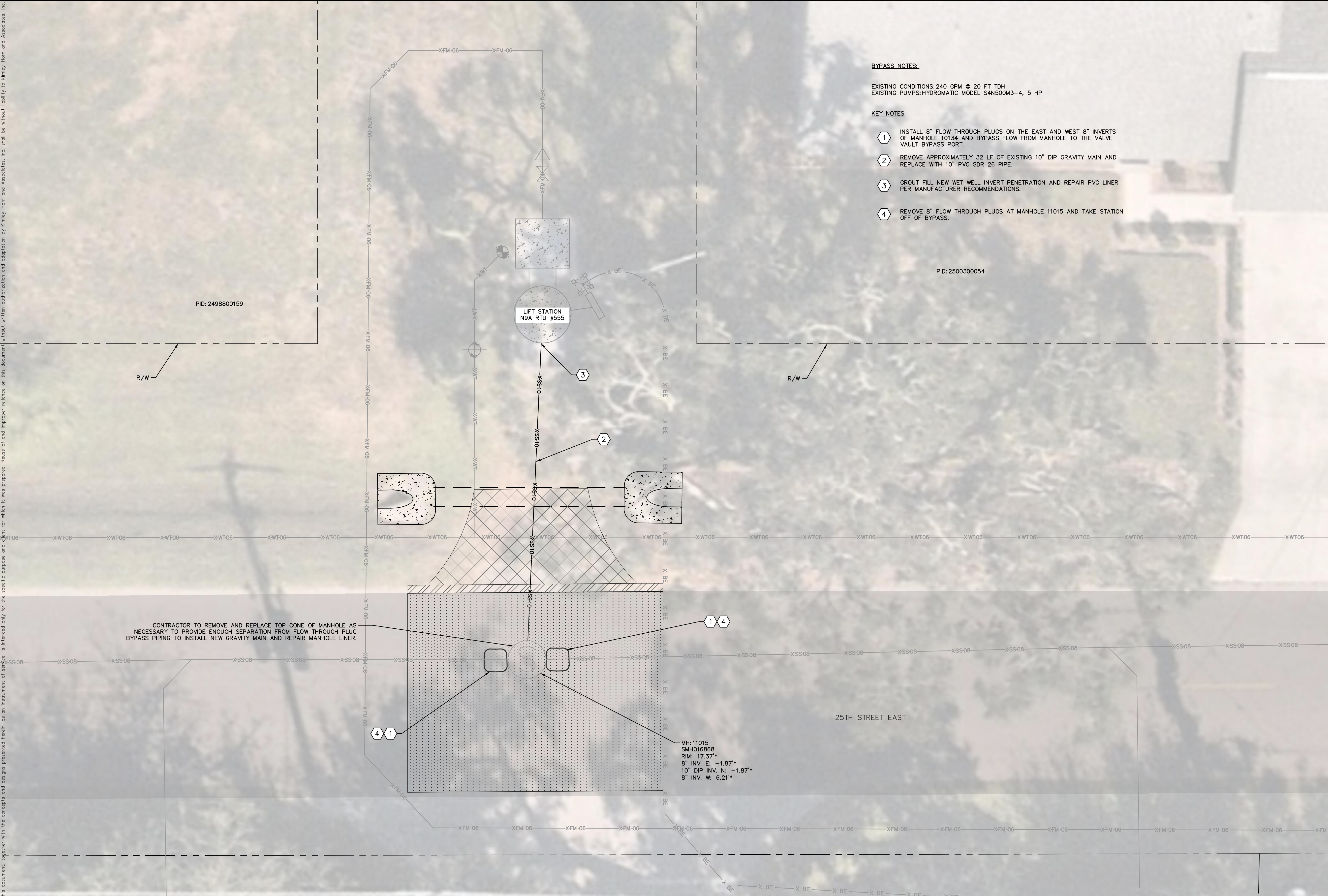
LICENSED PROFESSIONAL	MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER	87501

RTU 555 - LS N9A

FL DATE:

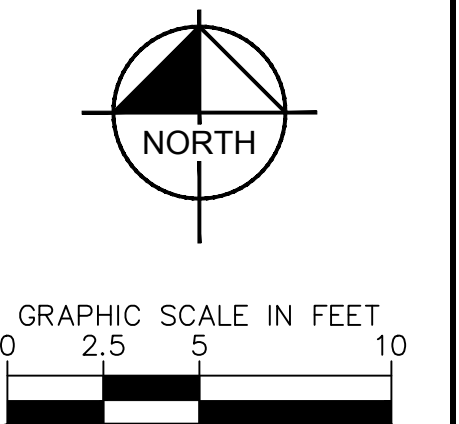
SHEET NUMBER	C-11
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BYPASS NOTES:
 EXISTING CONDITIONS: 240 GPM @ 20 FT TDH
 EXISTING PUMPS: HYDROMATIC MODEL S4N500M3-4, 5 HP

- KEY NOTES:**
- ① INSTALL 8" FLOW THROUGH PLUGS ON THE EAST AND WEST 8" INVERTS OF MANHOLE 10134 AND BYPASS FLOW FROM MANHOLE TO THE VALVE VAULT BYPASS PORT.
 - ② REMOVE APPROXIMATELY 32 LF OF EXISTING 10" DIP GRAVITY MAIN AND REPLACE WITH 10" PVC SDR 26 PIPE.
 - ③ GROUT FILL NEW WET WELL INVERT PENETRATION AND REPAIR PVC LINER PER MANUFACTURER RECOMMENDATIONS.
 - ④ REMOVE 8" FLOW THROUGH PLUGS AT MANHOLE 11015 AND TAKE STATION OFF OF BYPASS.



- LEGEND:**
- OPEN CUT
 - SIDEWALK/CONCRETE DRIVEWAY RESTORATION
 - ASPHALT DRIVEWAY RESTORATION
 - ASPHALT FULL ROAD RESTORATION
 - CURB RESTORATION
 - ASPHALT MILLINGS RESTORATION
 - DEMOLISH/REMOVE

- NOTES:**
1. CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-621.300 AND 62-620 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
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CONTRACTOR TO REMOVE AND REPLACE TOP CONE OF MANHOLE AS NECESSARY TO PROVIDE ENOUGH SEPARATION FROM FLOW THROUGH PLUG BYPASS PIPING TO INSTALL NEW GRAVITY MAIN AND REPAIR MANHOLE LINER.

MH: 11015
 SMH016868
 RM: 17.37*
 8" INV. E: -1.87*
 10" DIP INV. N: -1.87*
 8" INV. W: 6.21*

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

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 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701
 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT
 148400106
 DATE
 JUL 2023
 SCALE AS SHOWN
 DESIGNED BY MAS
 DRAWN BY GMB
 CHECKED BY JWW

Manatee County

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

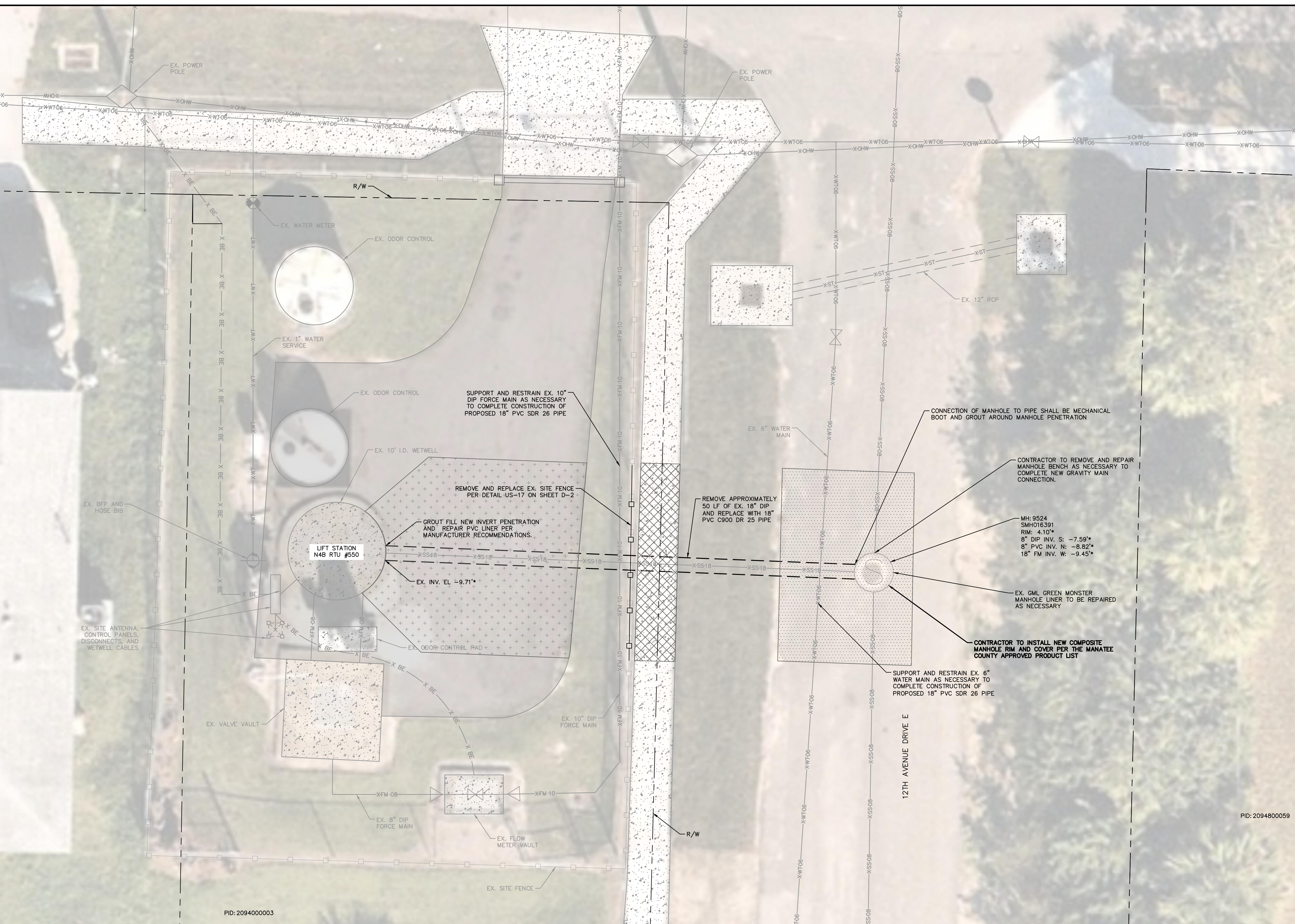
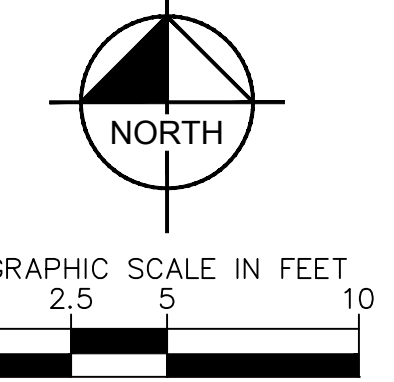
MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER
 87501

BYPASS PLAN - RTU 555 - LS N9A

SHEET NUMBER
C-12

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- LEGEND**
- OPEN CUT
 - SIDEWALK/CONCRETE DRIVEWAY RESTORATION
 - ASPHALT DRIVEWAY RESTORATION
 - ASPHALT FULL ROAD RESTORATION
 - CURB RESTORATION
 - ASPHALT MILLINGS RESTORATION
 - DEMOLISH/REMOVE

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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.



PID: 209400003

PID: 2094800059

No.	REVISIONS	DATE	BY

Kimley >> Horn

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 PHONE: 727-547-3999
 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT	148400106
DATE	JUL 2023
SCALE	AS SHOWN
DESIGNED BY	MAS
DRAWN BY	GMB
CHECKED BY	JWW

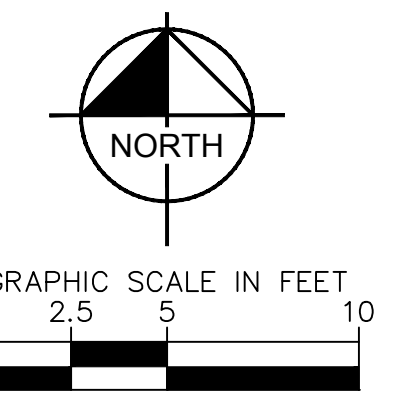
**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL	MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER	87501

RTU 550 - LS N4B

SHEET NUMBER
C-13



BYPASS NOTES:

EXISTING CONDITIONS: 1080 GPM @ 60 FT TDH
EXISTING PUMPS: EMU MODEL FA154-290T, 40.2 HP

KEY NOTES:

- ① INSTALL 8" FLOW THROUGH PLUGS ON THE NORTH AND SOUTH 8" INVERTS OF MANHOLE 9524 AND BYPASS FLOW FROM THE MANHOLE TO THE VALVE VAULT BYPASS PORT.
 - ② REMOVE AND REPLACE APPROXIMATELY 50 LF OF EXISTING 18" DIP GRAVITY MAIN AND REPLACE WITH 18" PVC C900 DR 25 PIPE.
 - ③ GROUT FILL NEW WET WELL INVERT PENETRATION AND REPAIR PVC LINER PER MANUFACTURER RECOMMENDATIONS.
 - ④ REMOVE 8" FLOW THROUGH PLUGS AT MANHOLE 11015 AND TAKE STATION OFF OF BYPASS.
- * CONTRACTOR IS REQUIRED TO PROVIDE A 24-HOUR WATCHMEN SHALL BE STATIONED ON SITE FOR DURATION OF BYPASS OPERATION

MH-9524
SMH016391
RIM: 4.10'
8" DIP INV. S: -7.59'
8" PVC INV. N: -8.82'
18" FM INV. W: -9.45'

CONTRACTOR TO REMOVE AND REPLACE TOP CONE OF MANHOLE AS NECESSARY TO PROVIDE ENOUGH SEPARATION FROM FLOW THROUGH PLUG BYPASS PIPING TO INSTALL NEW GRAVITY MAIN AND REPAIR MANHOLE LINER.

- LEGEND:**
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- NOTES:**
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KHA PROJECT
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DATE
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CHECKED BY JWW

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL
MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER
87501

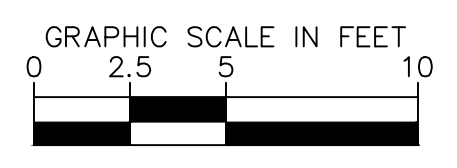
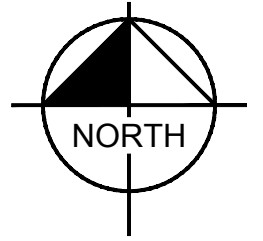
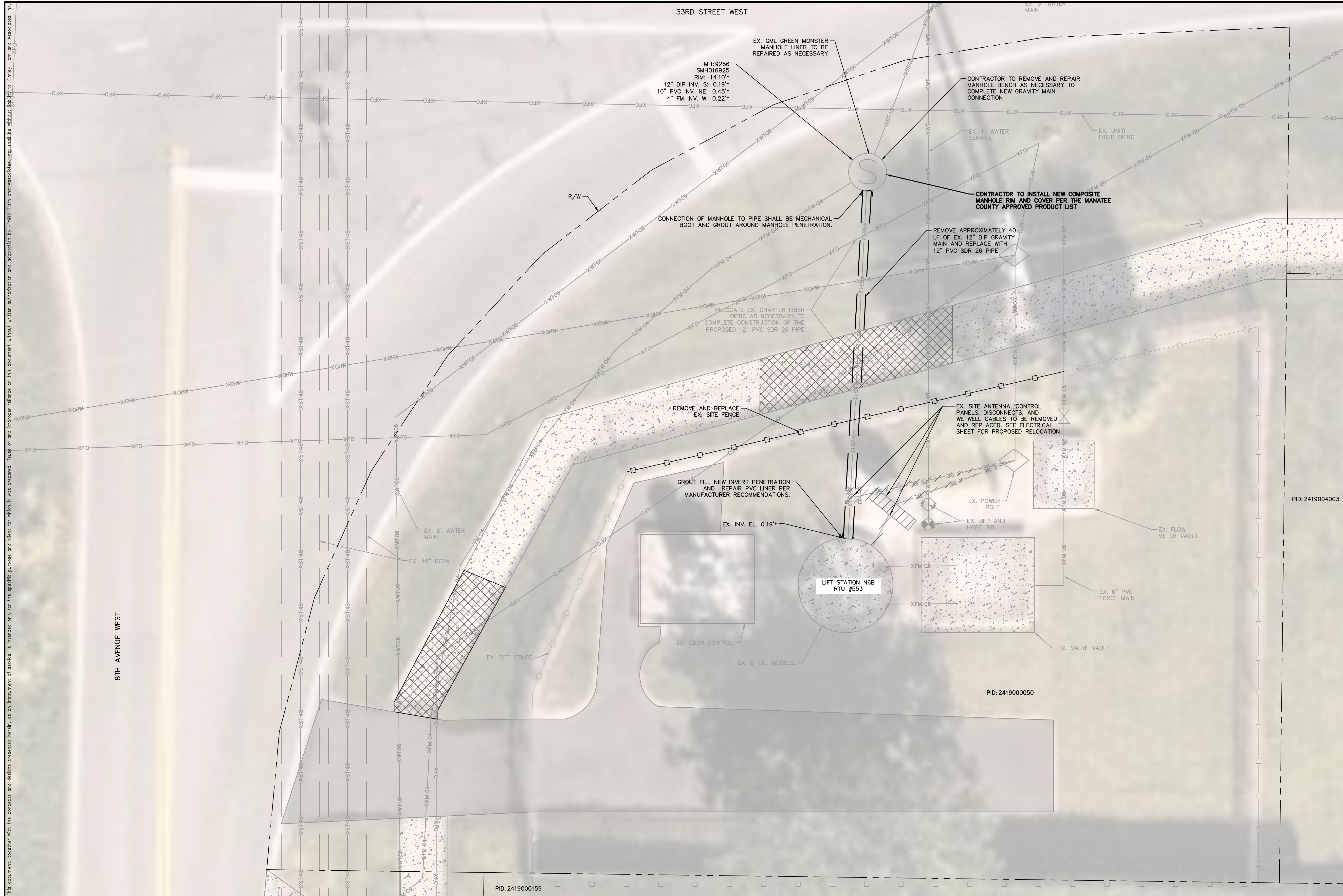
BYPASS PLAN - RTU 550 - LS N4B

SHEET NUMBER
C-14

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PID: 2094000003

PID: 2094800059



- LEGEND**
- OPEN CUT
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- NOTES:**
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WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

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DRAWN BY	GMB
CHECKED BY	JWW

Manatee County FLORIDA

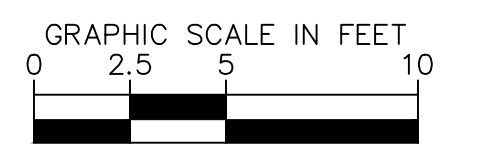
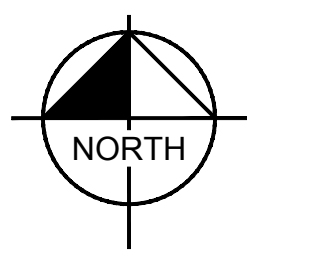
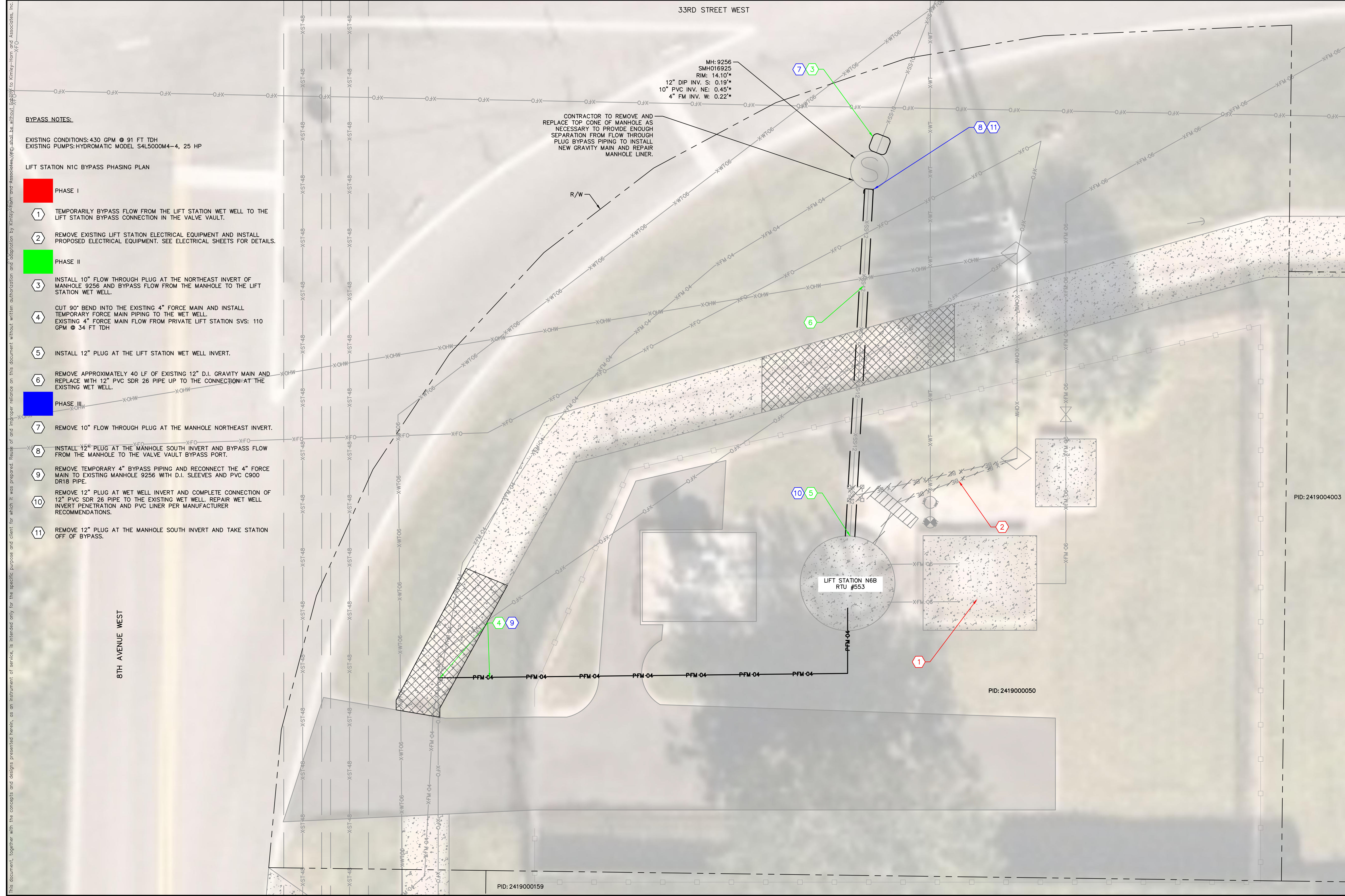
NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL	MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER	87501
FL DATE:	

RTU 553 - LS N6B

SHEET NUMBER	C-15
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BYPASS NOTES:

EXISTING CONDITIONS: 430 GPM @ 91 FT TDH
 EXISTING PUMPS: HYDROMATIC MODEL S4L5000M4-4, 25 HP

LIFT STATION N1C BYPASS PHASING PLAN

- PHASE I**
- 1 TEMPORARILY BYPASS FLOW FROM THE LIFT STATION WET WELL TO THE LIFT STATION BYPASS CONNECTION IN THE VALVE VAULT.
- 2 REMOVE EXISTING LIFT STATION ELECTRICAL EQUIPMENT AND INSTALL PROPOSED ELECTRICAL EQUIPMENT. SEE ELECTRICAL SHEETS FOR DETAILS.
- PHASE II**
- 3 INSTALL 10" FLOW THROUGH PLUG AT THE NORTHEAST INVERT OF MANHOLE 9256 AND BYPASS FLOW FROM THE MANHOLE TO THE LIFT STATION WET WELL.
- 4 CUT 90° BEND INTO THE EXISTING 4" FORCE MAIN AND INSTALL TEMPORARY FORCE MAIN PIPING TO THE WET WELL. EXISTING 4" FORCE MAIN FLOW FROM PRIVATE LIFT STATION SVS: 110 GPM @ 34 FT TDH
- 5 INSTALL 12" PLUG AT THE LIFT STATION WET WELL INVERT.
- 6 REMOVE APPROXIMATELY 40 LF OF EXISTING 12" D.I. GRAVITY MAIN AND REPLACE WITH 12" PVC SDR 26 PIPE UP TO THE CONNECTION AT THE EXISTING WET WELL.
- PHASE III**
- 7 REMOVE 10" FLOW THROUGH PLUG AT THE MANHOLE NORTHEAST INVERT.
- 8 INSTALL 12" PLUG AT THE MANHOLE SOUTH INVERT AND BYPASS FLOW FROM THE MANHOLE TO THE VALVE VAULT BYPASS PORT.
- 9 REMOVE TEMPORARY 4" BYPASS PIPING AND RECONNECT THE 4" FORCE MAIN TO EXISTING MANHOLE 9256 WITH D.I. SLEEVES AND PVC C900 DR18 PIPE.
- 10 REMOVE 12" PLUG AT WET WELL INVERT AND COMPLETE CONNECTION OF 12" PVC SDR 26 PIPE TO THE EXISTING WET WELL. REPAIR WET WELL INVERT PENETRATION AND PVC LINER PER MANUFACTURER RECOMMENDATIONS.
- 11 REMOVE 12" PLUG AT THE MANHOLE SOUTH INVERT AND TAKE STATION OFF OF BYPASS.

- LEGEND**
- OPEN CUT
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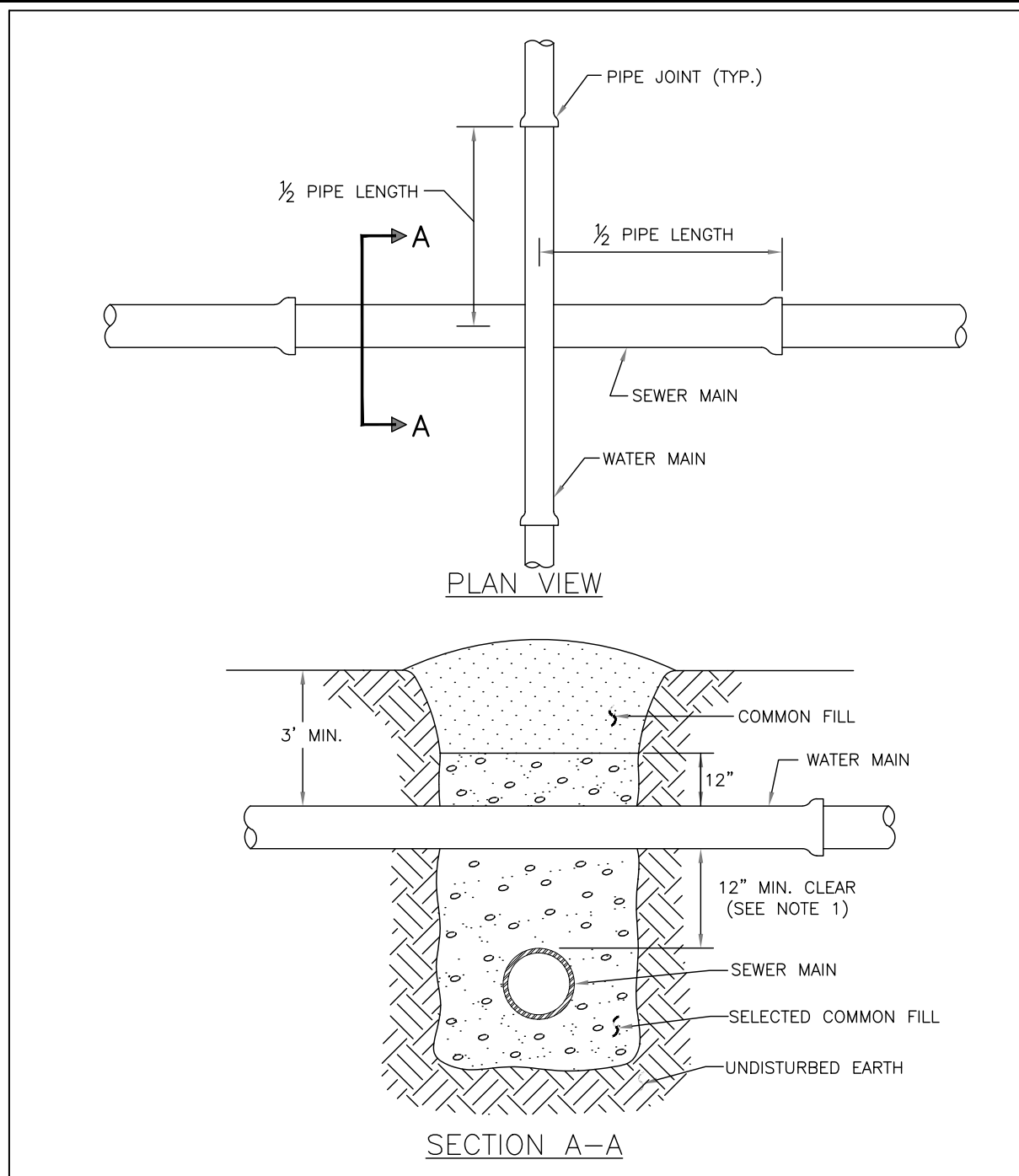
Manatee County
NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS
 MANATEE COUNTY

LICENSED PROFESSIONAL
 MICHAEL A. SEMAGO, P.E.
 FL LICENSE NUMBER 87501

BYPASS PLAN - RTU 553 - LS N6B

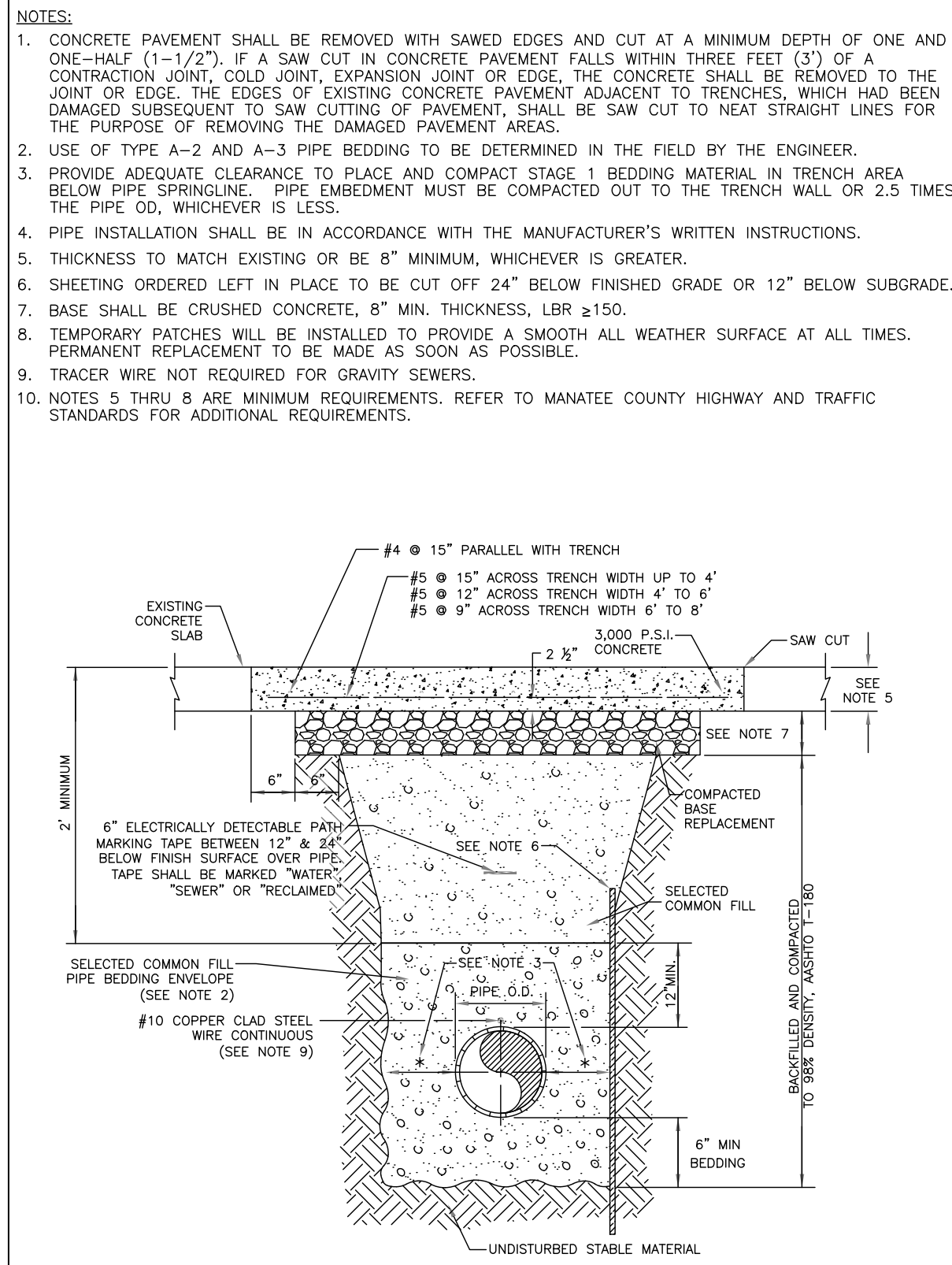
SHEET NUMBER
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- NOTES:**
- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON.
 - PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY, SO THAT THE CROSSING IS AT EACH PIPE SECTION'S MIDPOINT REGARDLESS OF THE VERTICAL CLEARANCE.

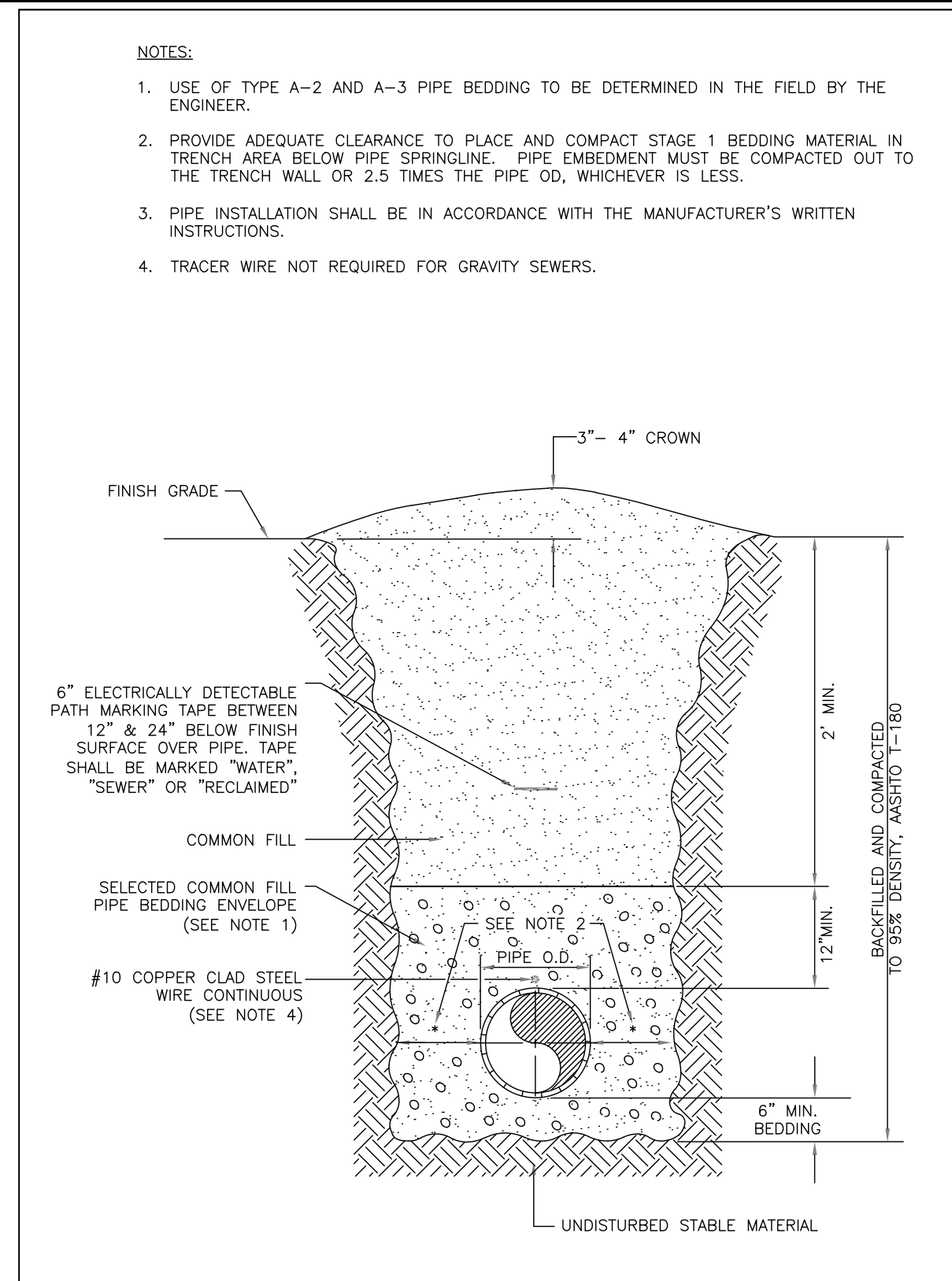
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPICAL NEW WATER & SEWER LINE CROSSING	UG-2
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



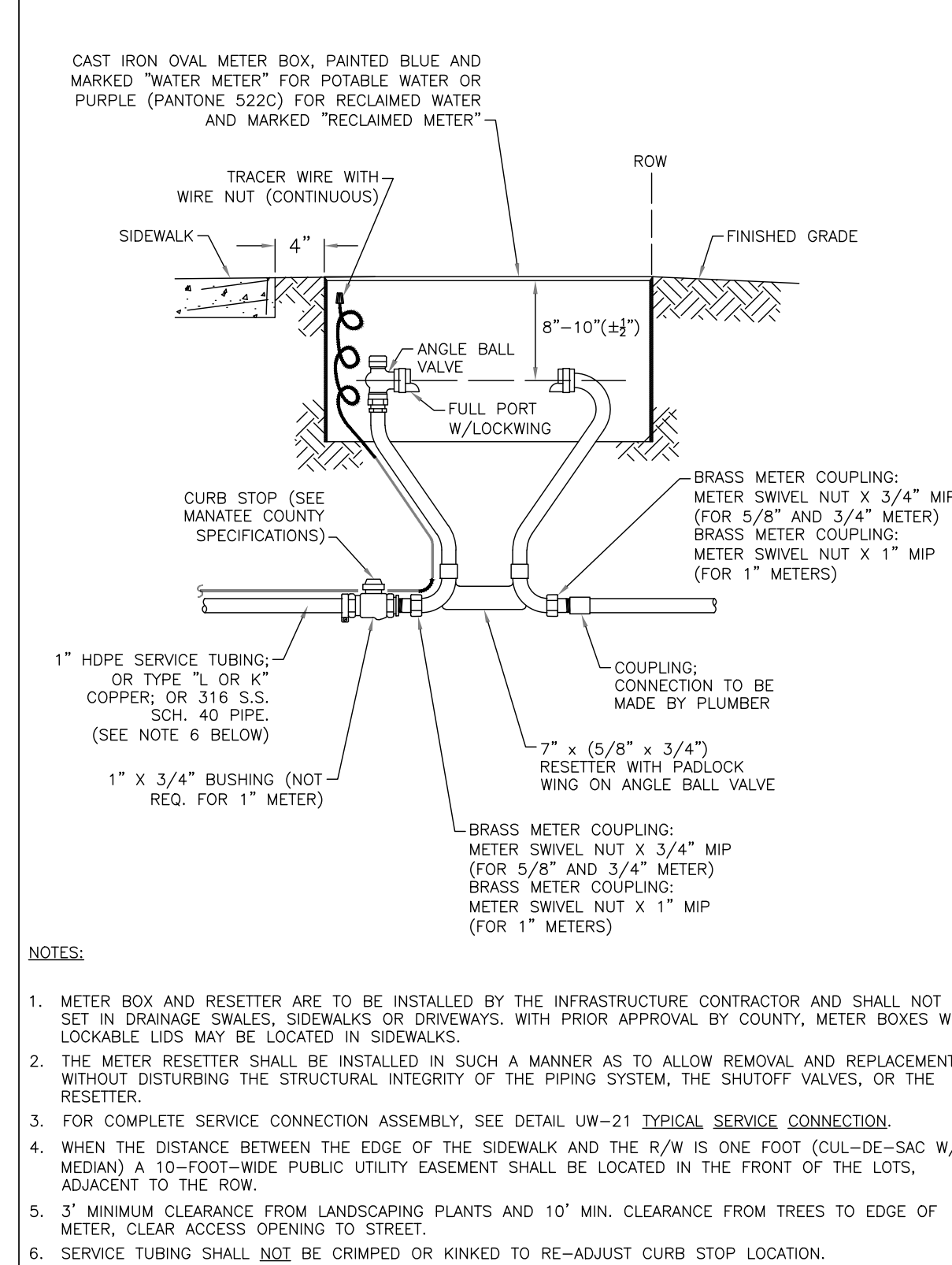
NOTES:

- CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWS EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2"). IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, COLD JOINT, EXPANSION JOINT OR EDGE, THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT, SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
- SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE. BASE SHALL BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR ≥ 150 .
- TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
- NOTES 5 THRU 8 ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-13
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



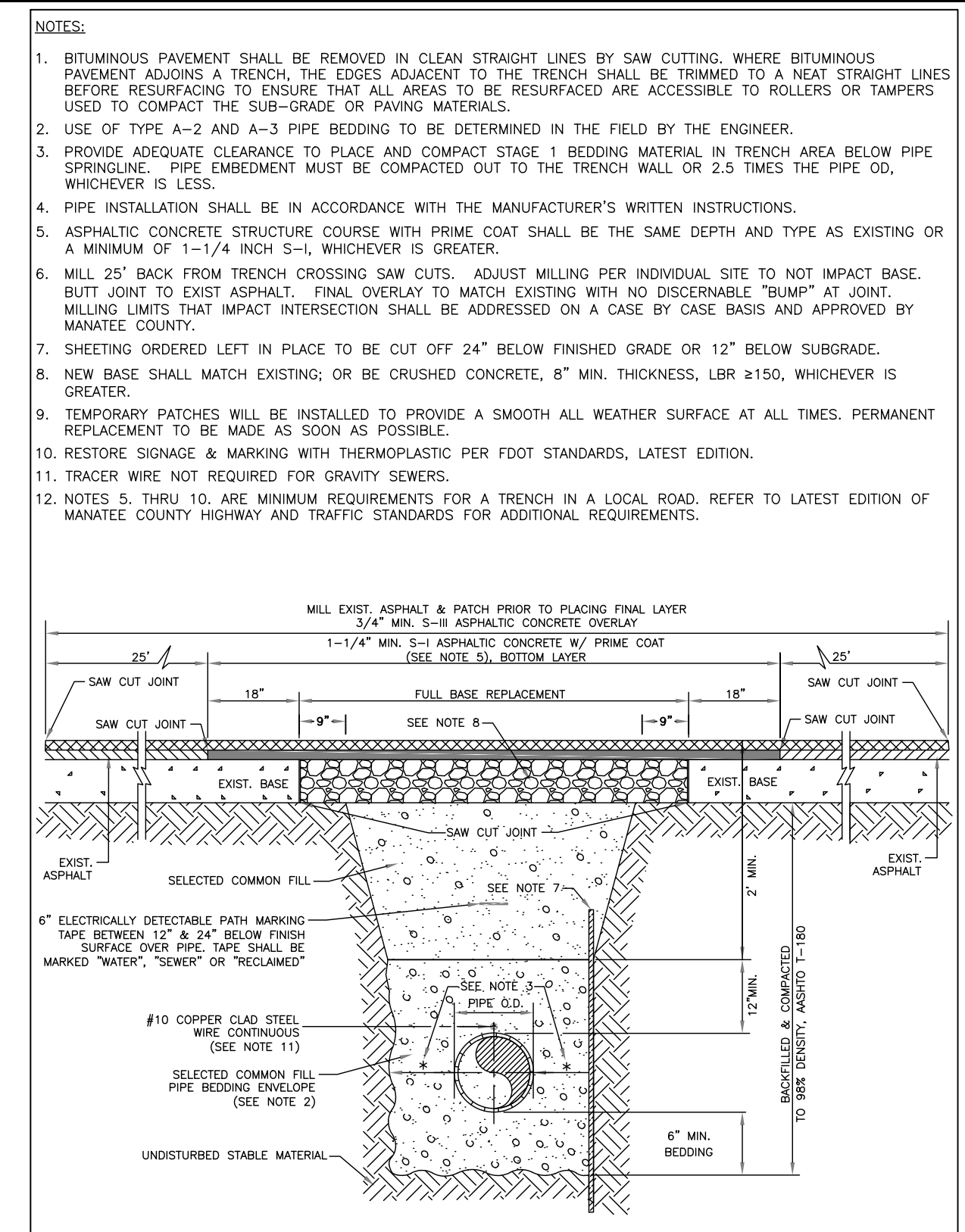
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING	UG-11
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



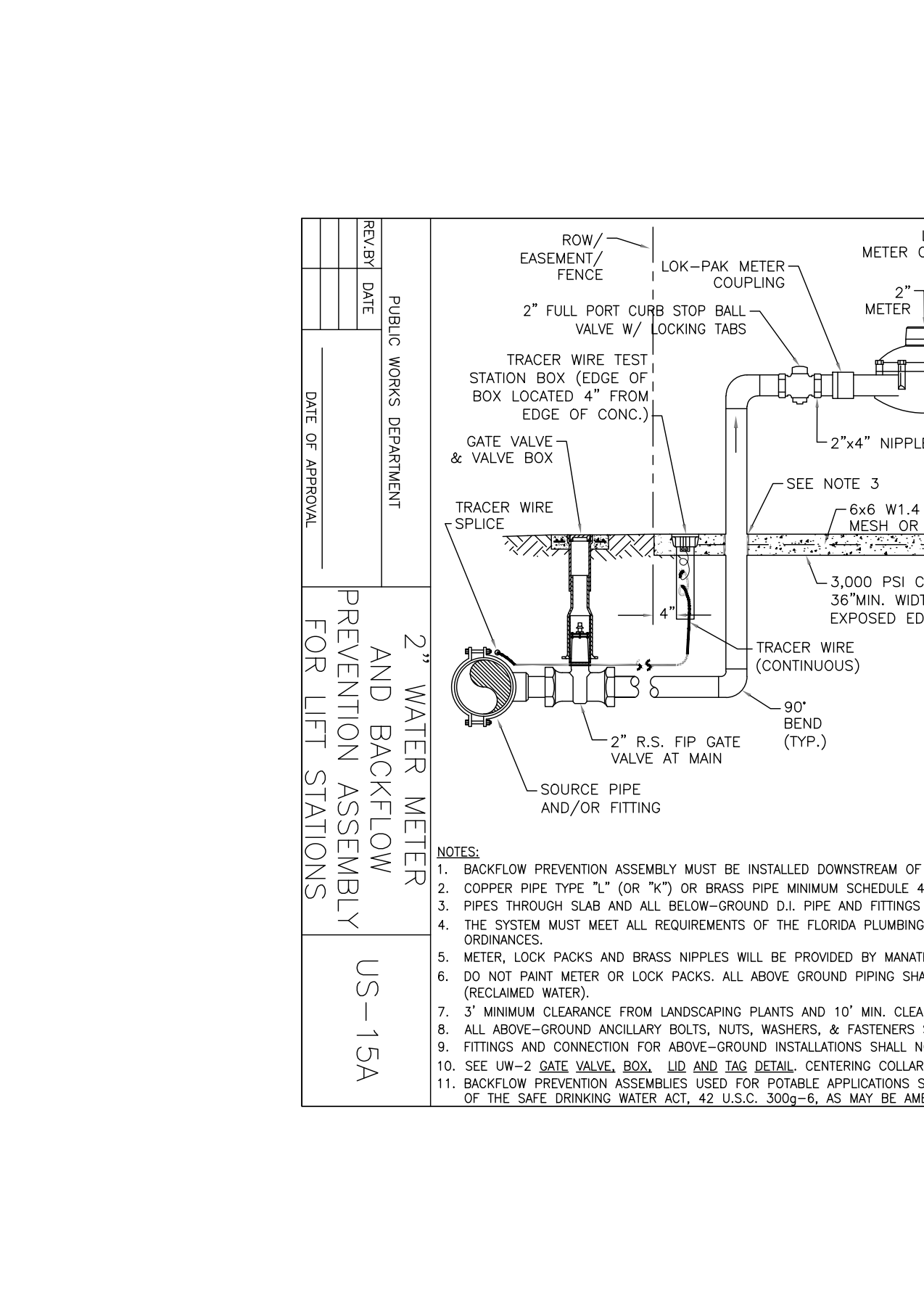
NOTES:

- METER BOX AND RESETTER ARE TO BE INSTALLED BY THE INFRASTRUCTURE CONTRACTOR AND SHALL NOT BE SET IN DRAINAGE SWALES, SIDEWALKS OR DRIVEWAYS, WITH PRIOR APPROVAL BY COUNTY. METER BOXES WITH LOCKABLE LIDS MAY BE LOCATED IN SIDEWALKS.
- THE METER RESETTER SHALL BE INSTALLED IN SUCH A MANNER AS TO ALLOW REMOVAL AND REPLACEMENT WITHOUT DISTURBING THE STRUCTURAL INTEGRITY OF THE PIPING SYSTEM, THE SHUTOFF VALVES, OR THE RESETTER.
- FOR COMPLETE SERVICE CONNECTION ASSEMBLY, SEE DETAIL UW-21 TYPICAL SERVICE CONNECTION.
- THE DISTANCE BETWEEN THE EDGE OF THE SIDEWALK AND THE R/W IS ONE FOOT (CUL-DE-SAC W/ MEDIUM) A 10-FOOT-WIDE PUBLIC UTILITY EASEMENT SHALL BE LOCATED IN THE FRONT OF THE LOTS, ADJACENT TO THE ROW.
- 3" MINIMUM CLEARANCE FROM LANDSCAPING PLANTS AND 10" MIN. CLEARANCE FROM TREES TO EDGE OF METER, CLEAR ACCESS OPENING TO STREET.
- SERVICE TUBING SHALL NOT BE CRIMPED OR KINKED TO RE-ADJUST CURB STOP LOCATION.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		METER BOX ASSEMBLY FOR 5/8" X 3/4", 3/4", AND 1" METERS	UW-18
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



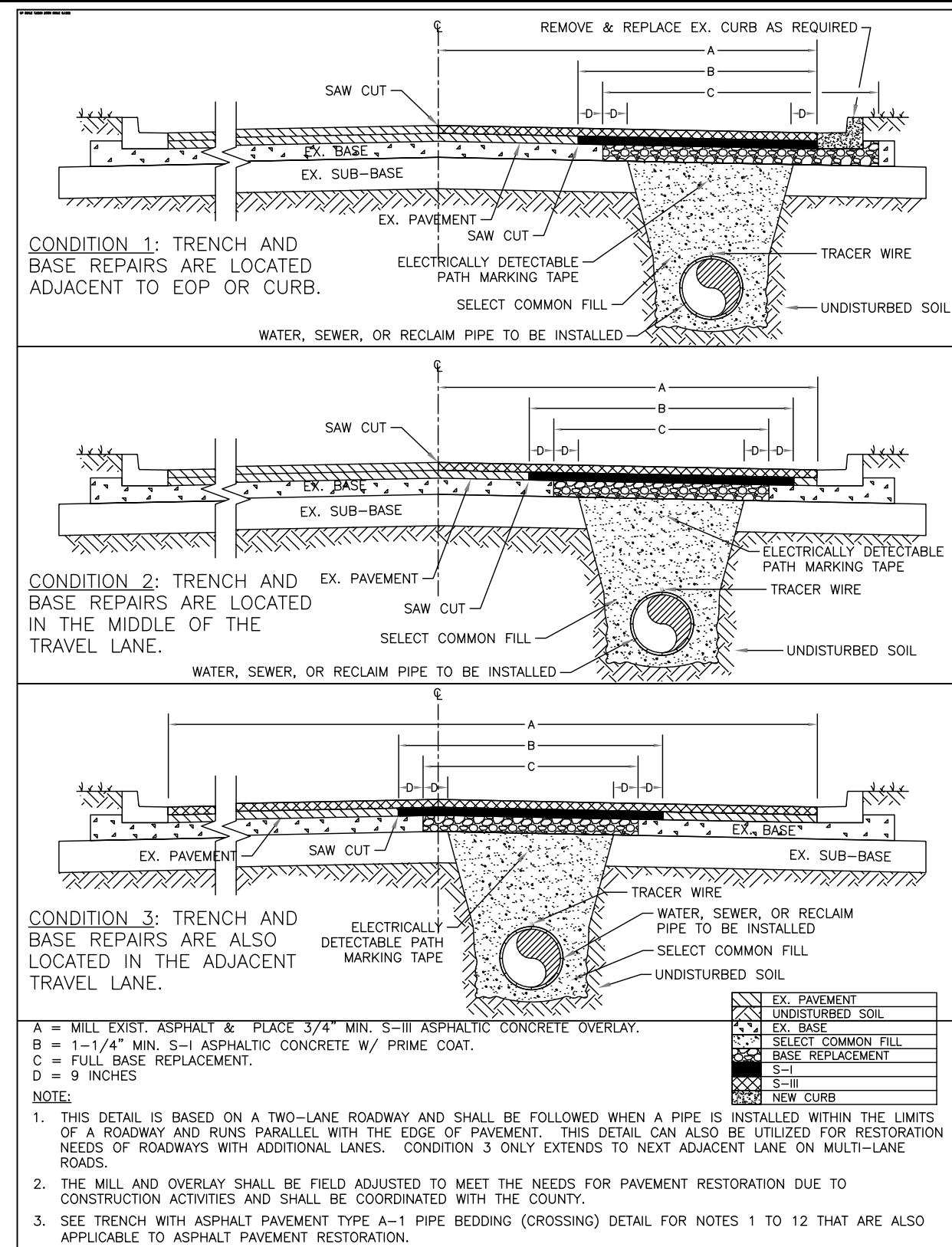
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (CROSSING)	UG-12
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



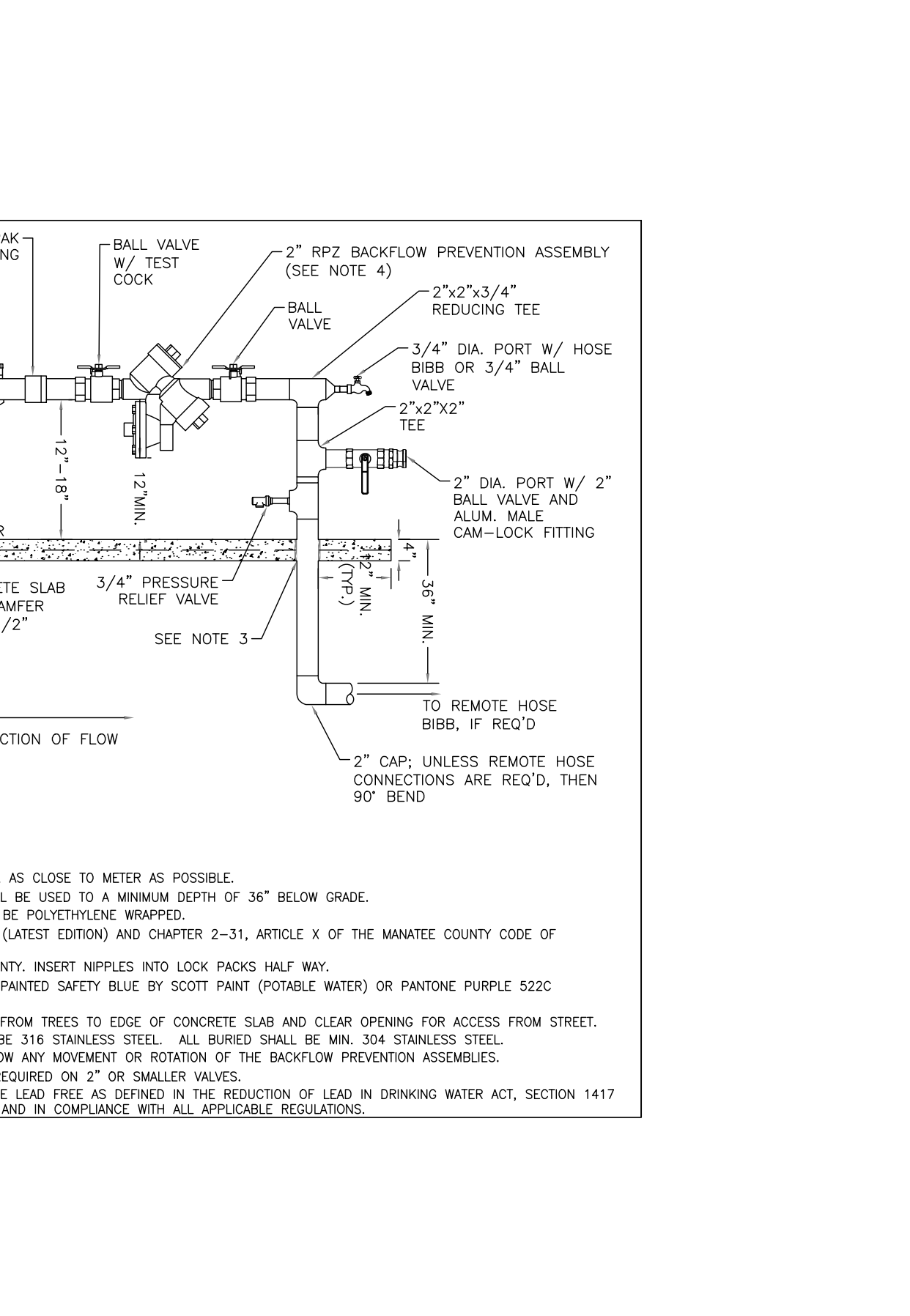
NOTES:

- BITUMINOUS PAVEMENT SHALL BE REMOVED IN CLEAN STRAIGHT LINES BY SAW CUTTING. WHERE BITUMINOUS PAVEMENT ADJACENT TO THE TRENCH SHALL BE TRIMMED TO A NEAT STRAIGHT LINES BEFORE RESURFACING TO ENSURE THAT ALL AREAS TO BE RESURFACED ARE ACCESSIBLE TO ROLLERS OR TAMPERS USED TO COMPACT THE SUB-GRADE OR PAVING MATERIALS.
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1-1/4" INCH S-I, WHICHEVER IS GREATER.
- MILL 25" BACK FROM TRENCH CROSSING SAWS CUTS. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCERNABLE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
- SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
- NEW BASE SHALL MATCH EXISTING; OR BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR ≥ 150 , WHICHEVER IS GREATER.
- TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
- RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FOOT STANDARDS, LATEST EDITION.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
- NOTES 5, THRU 10, ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A LOCAL ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		2" WATER METER AND BACKFLOW PREVENTION ASSEMBLY FOR LIFT STATIONS	US-15A
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (LONGITUDINAL)	UG-12B
REV. BY	DATE	February 25, 2020 DATE OF APPROVAL	



NOTES:

- BACKFLOW PREVENTION ASSEMBLY MUST BE INSTALLED DOWNSTREAM OF METER, AS CLOSE TO METER AS POSSIBLE.
- COPPER PIPE TYPE "L" (OR "K") OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 36" BELOW GRADE.
- PIPES THROUGH SLAB AND ALL BELOW-GROUND D.I. PIPE AND FITTINGS SHALL BE POLYETHYLENE WRAPPED.
- THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND CHAPTER 2-31, ARTICLE X OF THE MANATEE COUNTY CODE OF ORDINANCES.
- METER, LOCK PACKS AND BRASS NIPPLES WILL BE PROVIDED BY MANATEE COUNTY. INSERT NIPPLES INTO LOCK PACKS HALF WAY.
- DO NOT PAINT METER OR LOCK PACKS. ALL ABOVE GROUND PIPING SHALL BE PAINTED SAFETY BLUE BY SCOTT PAINT (POTABLE WATER) OR PANTONE PURPLE 522C (RECLAIMED WATER).
- 3" MINIMUM CLEARANCE FROM LANDSCAPING PLANTS AND 10" MIN. CLEARANCE FROM TREES TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
- ALL ABOVE-GROUND ANCHILARY BOLTS, NUTS, WASHERS, & FASTENERS SHALL BE 316 STAINLESS STEEL. ALL BURIED SHALL BE MIN. 304 STAINLESS STEEL.
- FITTINGS AND CONNECTION FOR ABOVE-GROUND INSTALLATIONS SHALL NOT ALLOW ANY MOVEMENT OR ROTATION OF THE BACKFLOW PREVENTION ASSEMBLIES.
- SEE UW-2 GATE VALVE, BOX, LID AND TAG DETAIL. CENTERING COLLAR NOT REQUIRED ON 2" OR SMALLER VALVES.
- BACKFLOW PREVENTION ASSEMBLIES USED FOR POTABLE APPLICATIONS SHALL BE LEAD FREE AS DEFINED IN THE REDUCTION OF LEAD IN DRINKING WATER ACT, SECTION 1417 OF THE SAFE DRINKING WATER ACT, 42 U.S.C. 300g-6, AS MAY BE AMENDED, AND IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		LICENSED PROFESSIONAL	MICHAEL A. SEMAGO, P.E.
		FL LICENSE NUMBER	87501

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KHA PROJECT 148400106
DATE JUL 2023
SCALE AS SHOWN
DESIGNED BY MAS
DRAWN BY GMB
CHECKED BY JWW

Manatee County

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

FLORIDA

FLORIDA

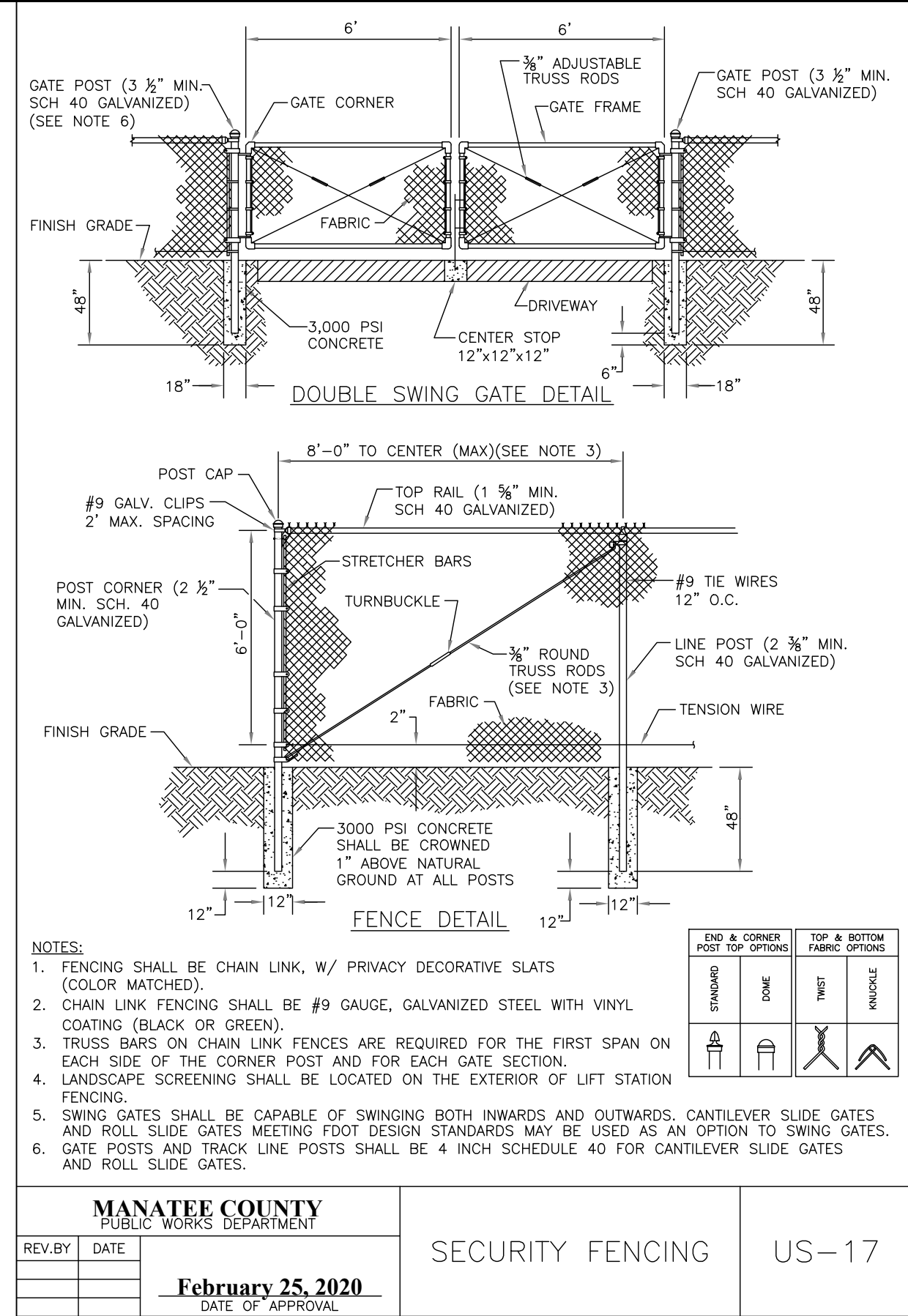
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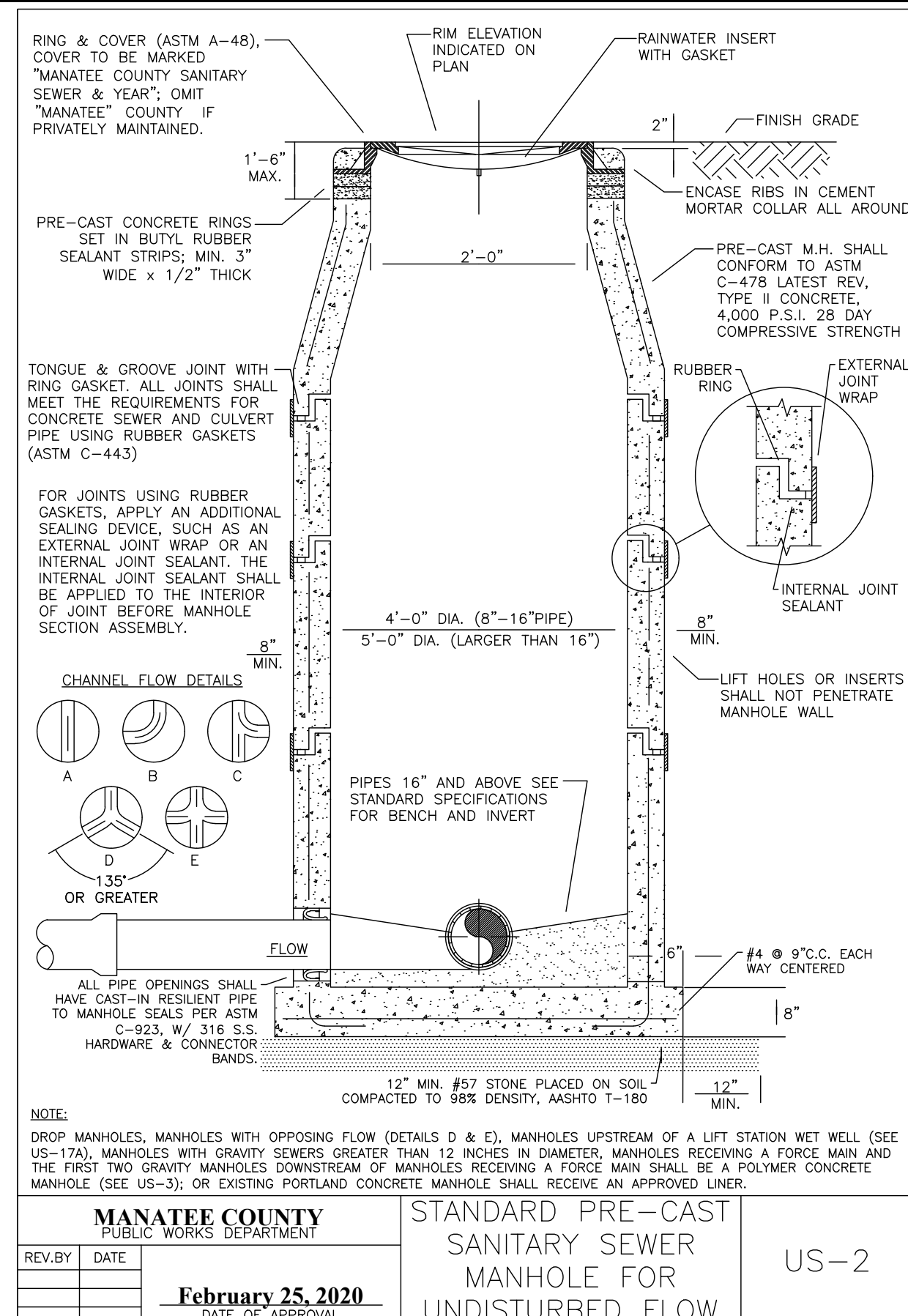
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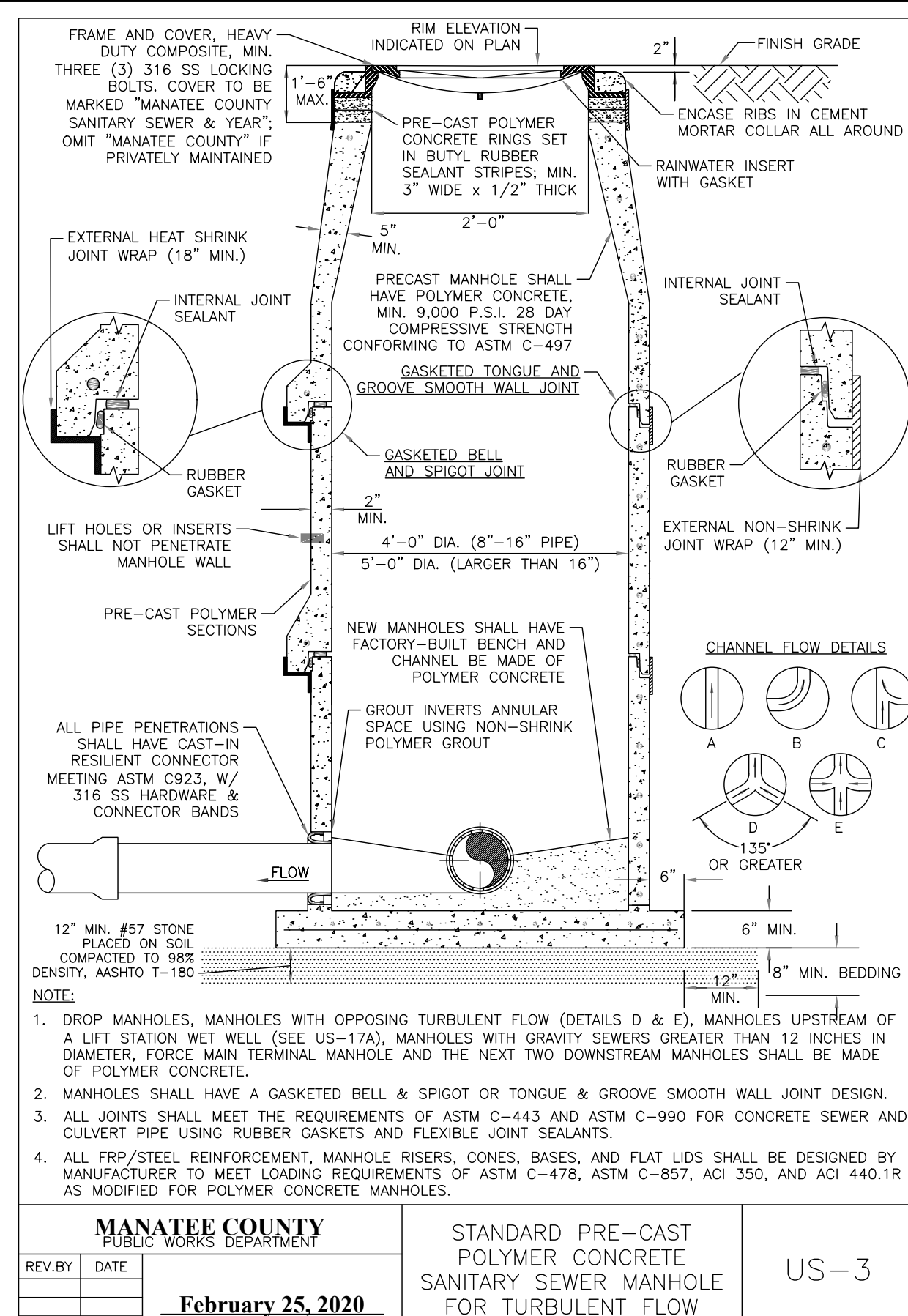
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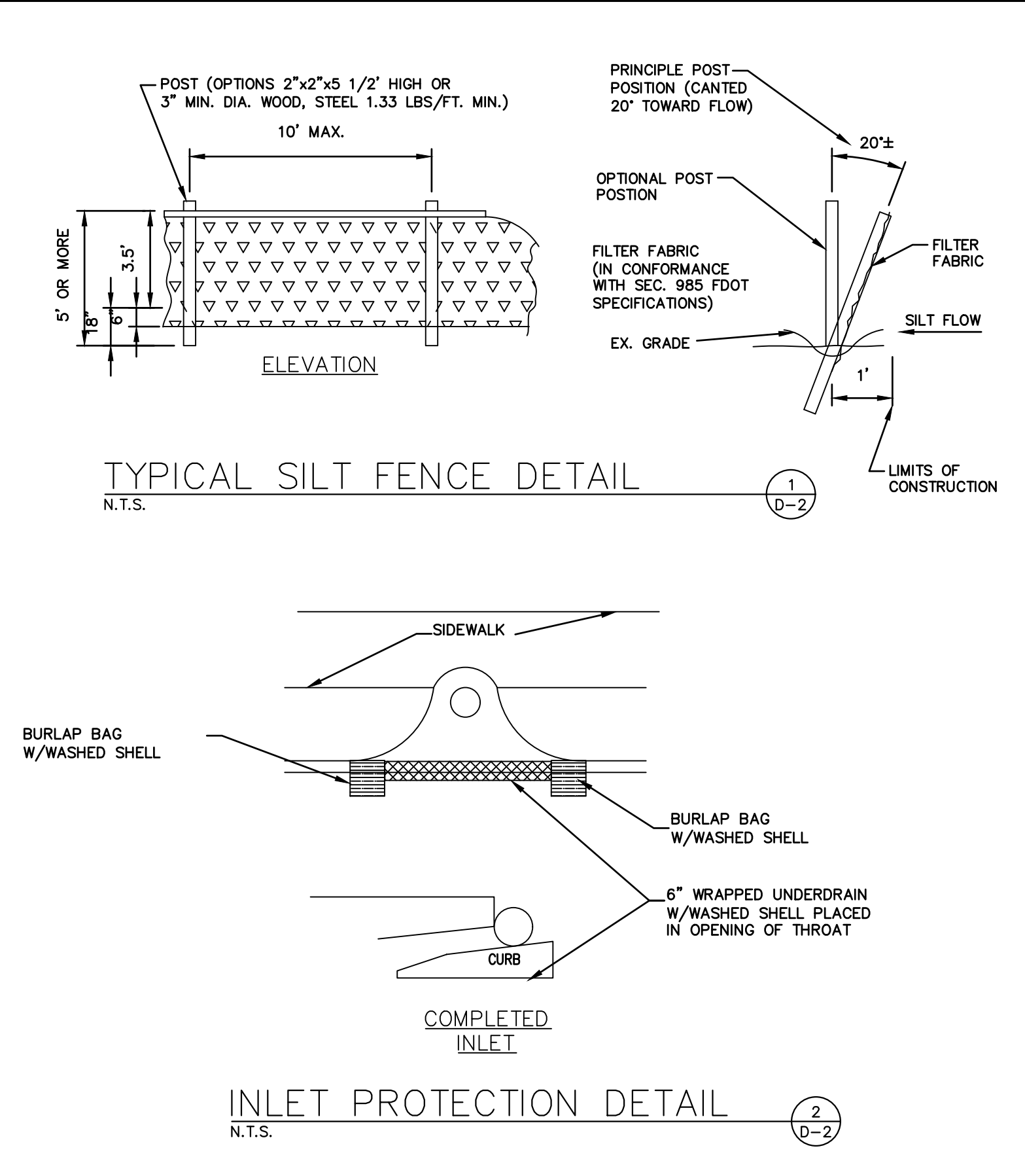
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	DATE OF APPROVAL		



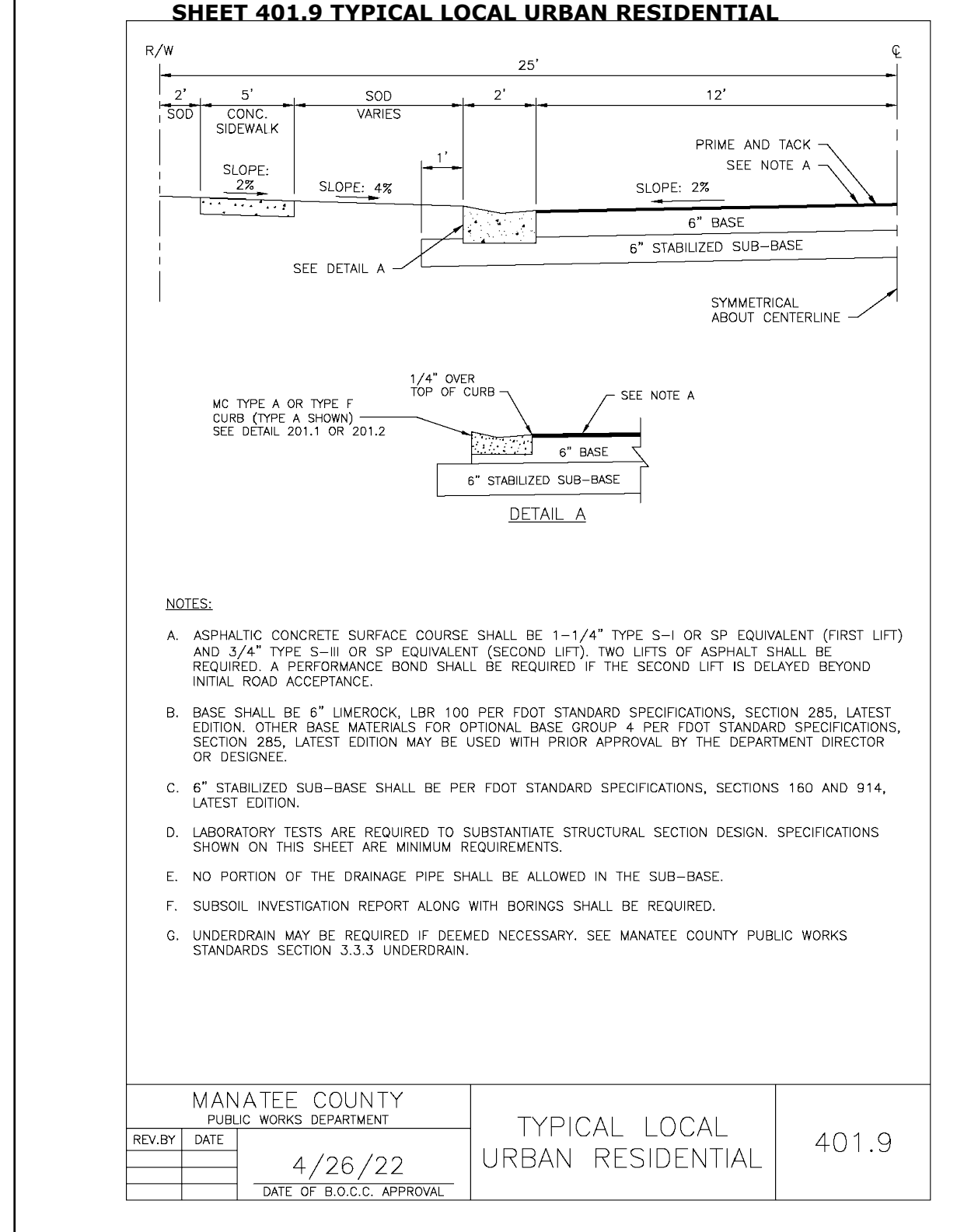
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	February 25, 2020		
	DATE OF APPROVAL		



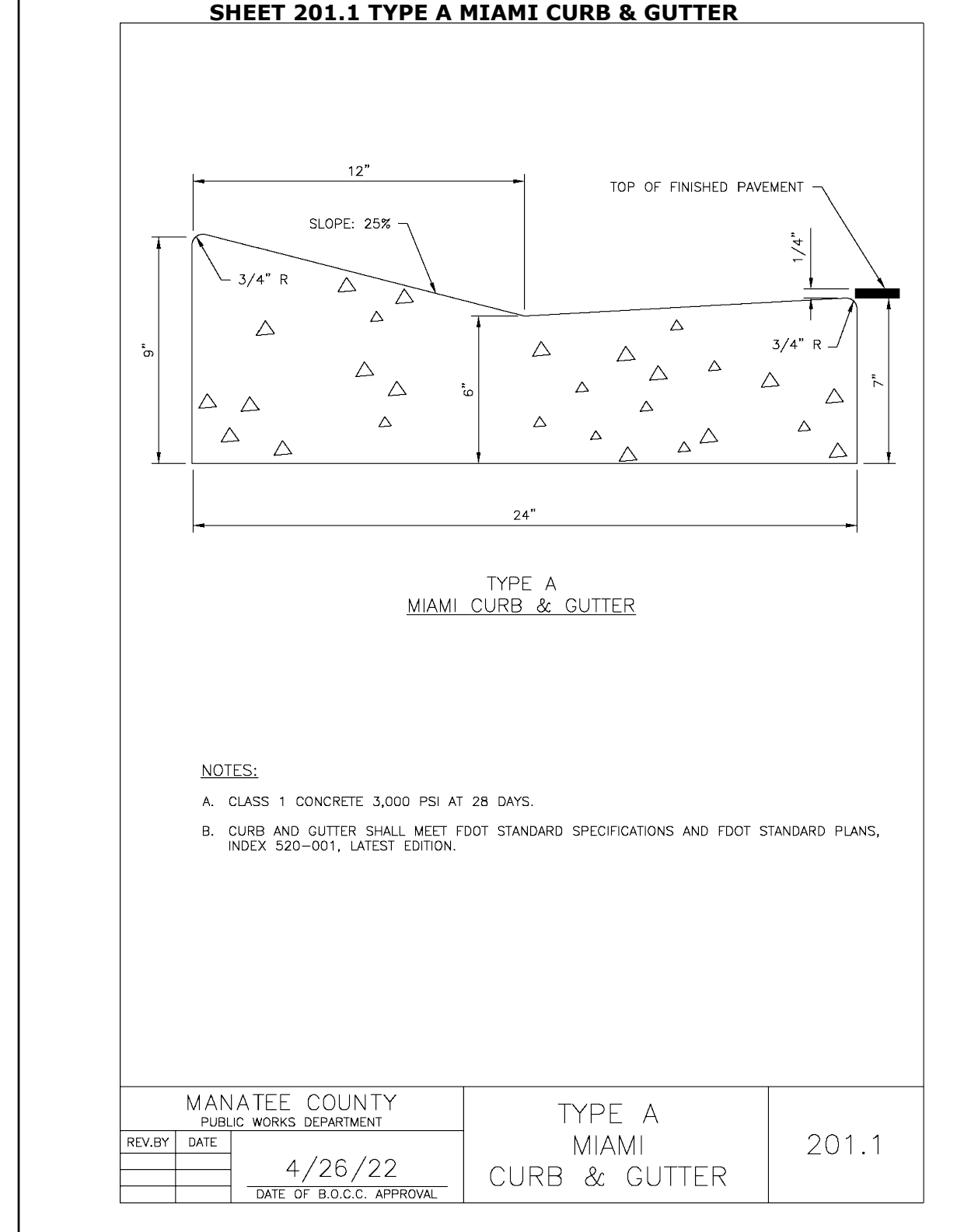
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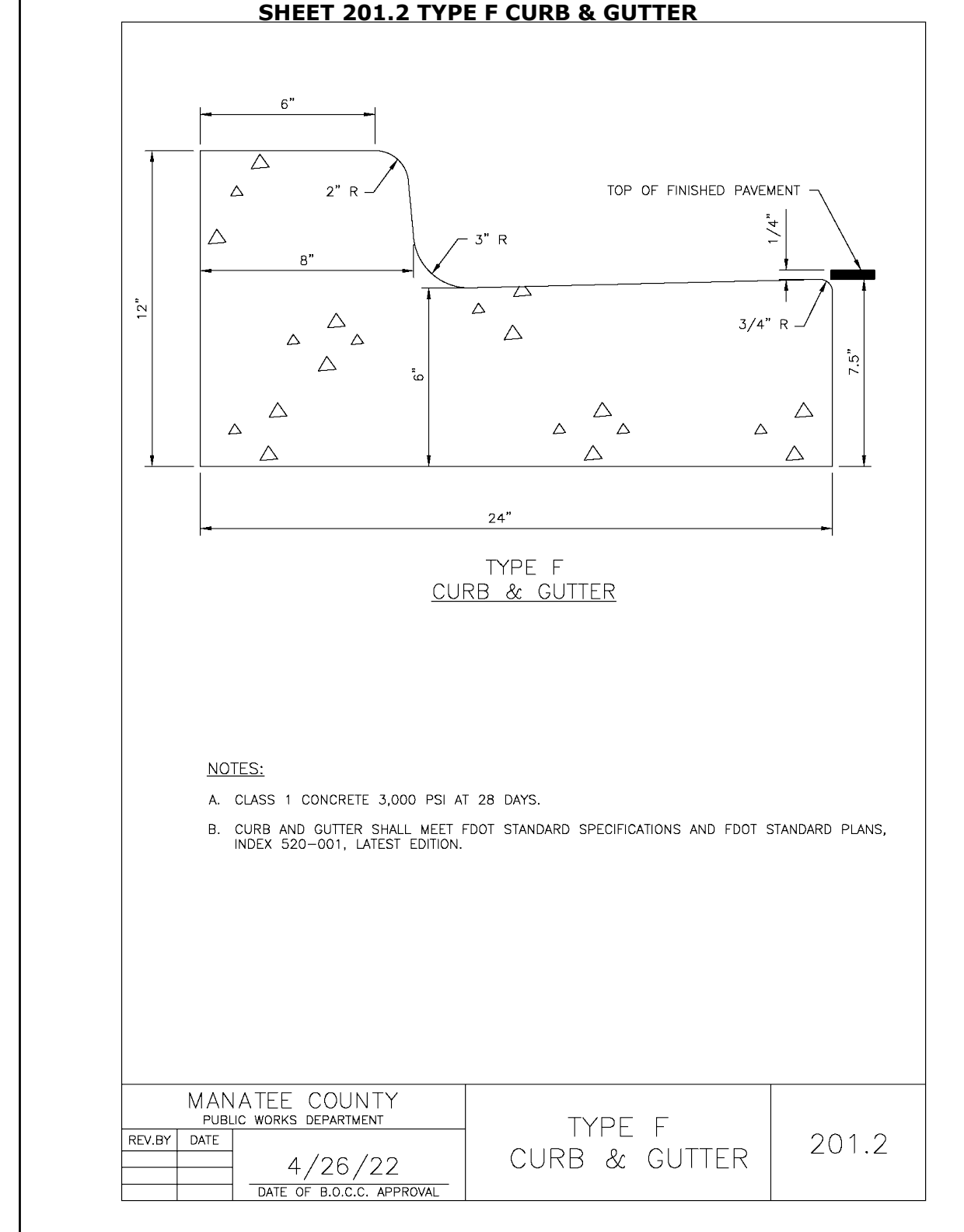
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REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



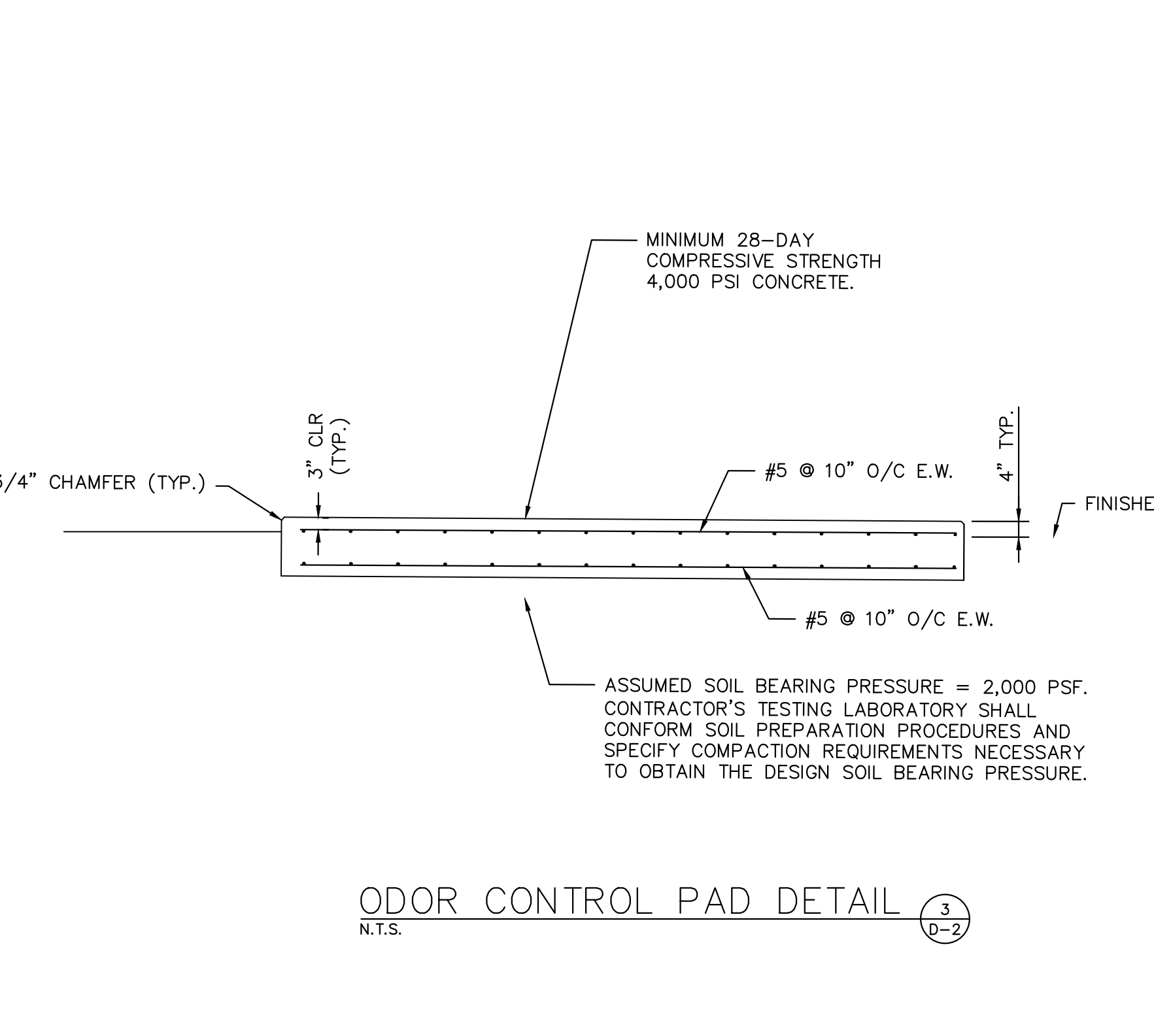
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REV. BY	DATE		
	4/26/22		
	DATE OF B.O.C.C. APPROVAL		



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPE A MIAMI CURB & GUTTER	201.1
REV. BY	DATE		
	4/26/22		
	DATE OF B.O.C.C. APPROVAL		



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPE F CURB & GUTTER	201.2
REV. BY	DATE		
	4/26/22		
	DATE OF B.O.C.C. APPROVAL		



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ODOR CONTROL PAD DETAIL	3-D-2
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Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

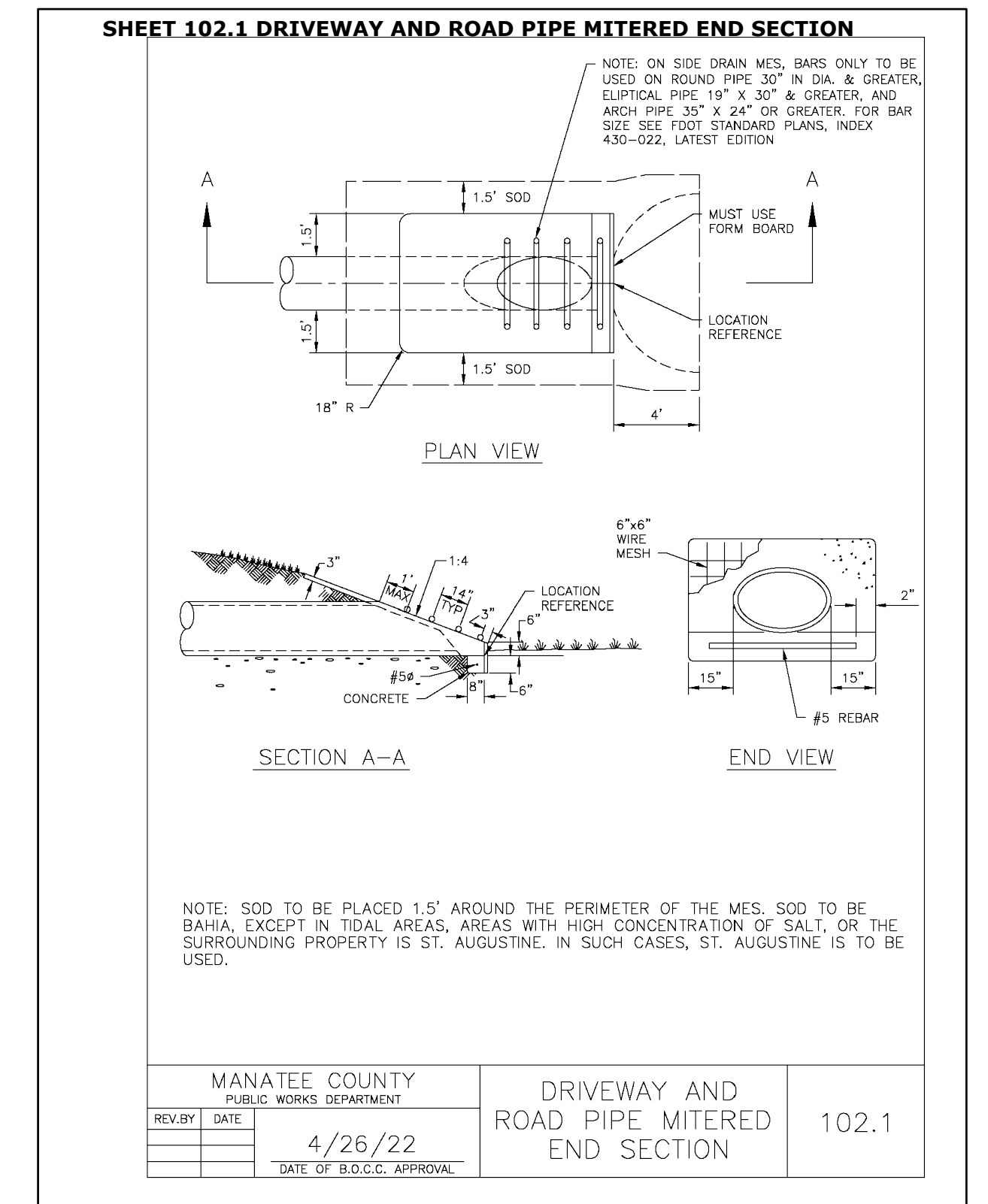
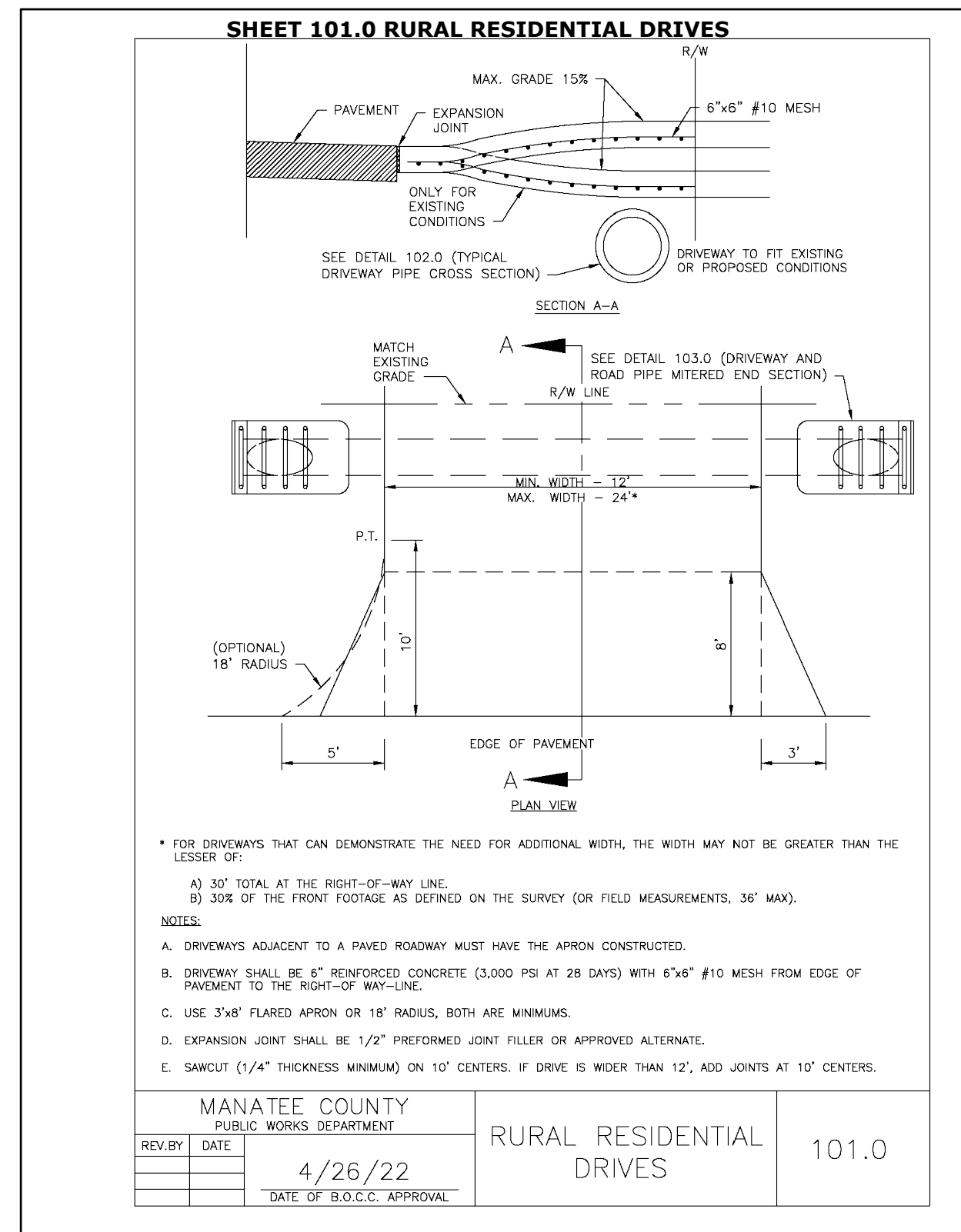
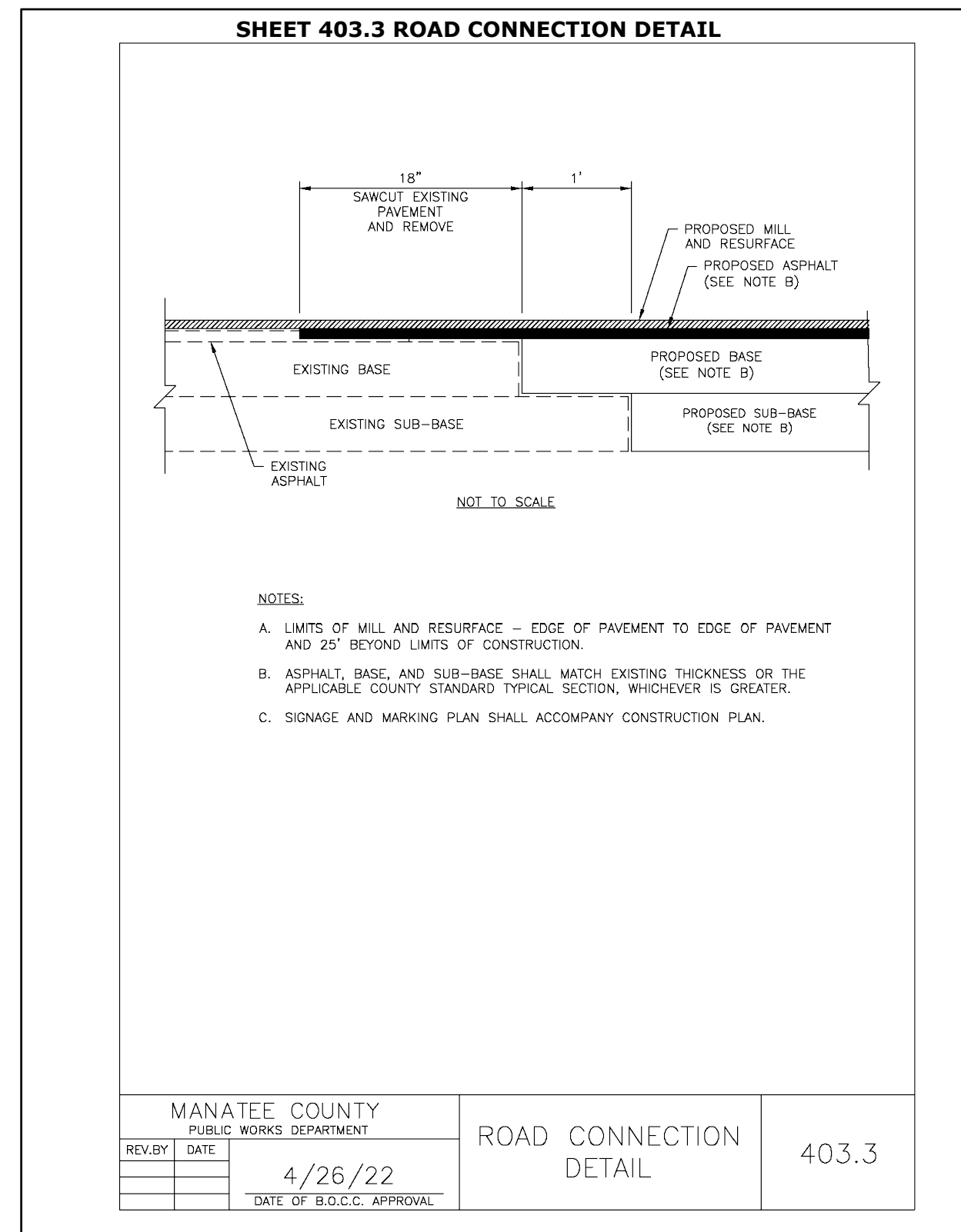
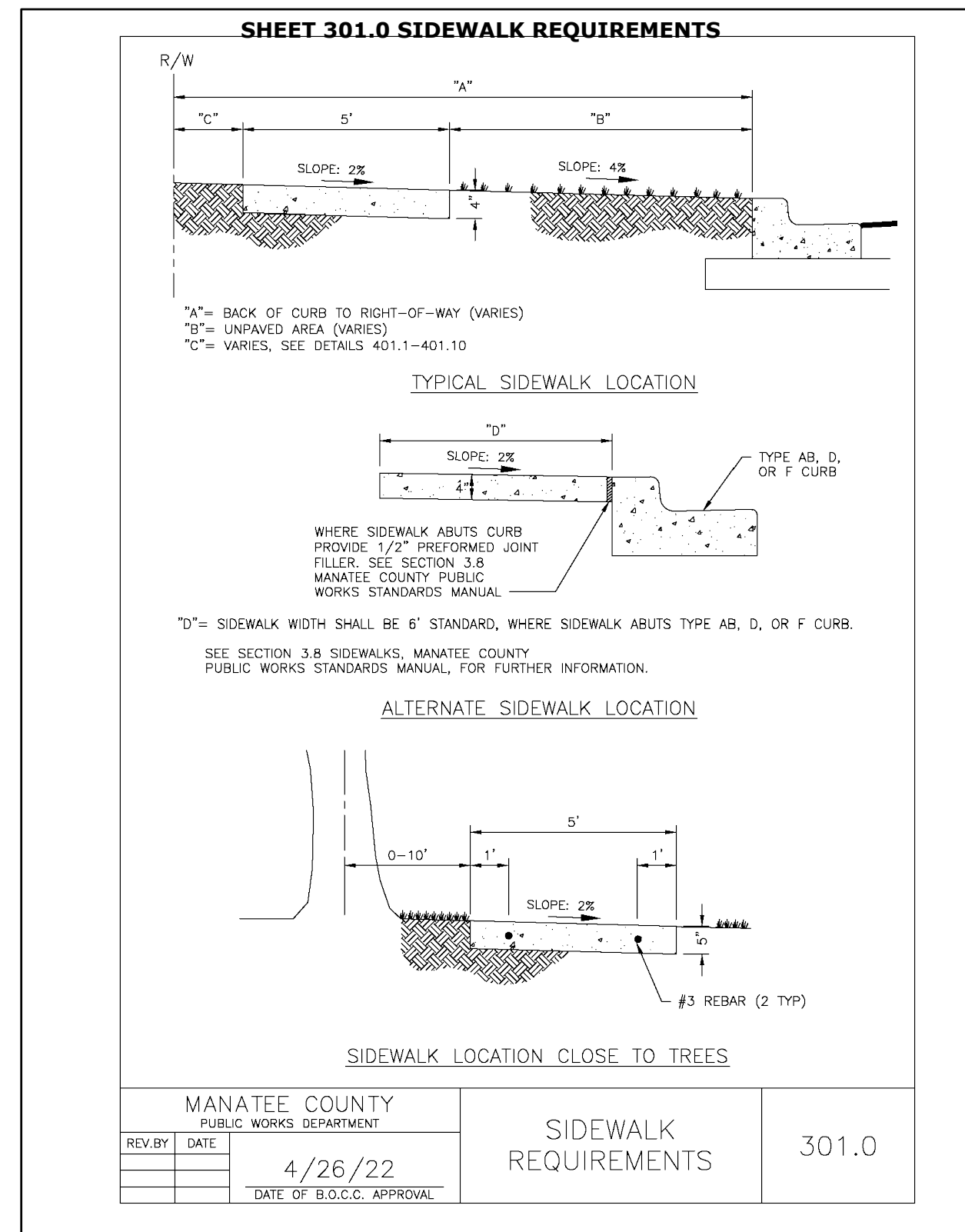
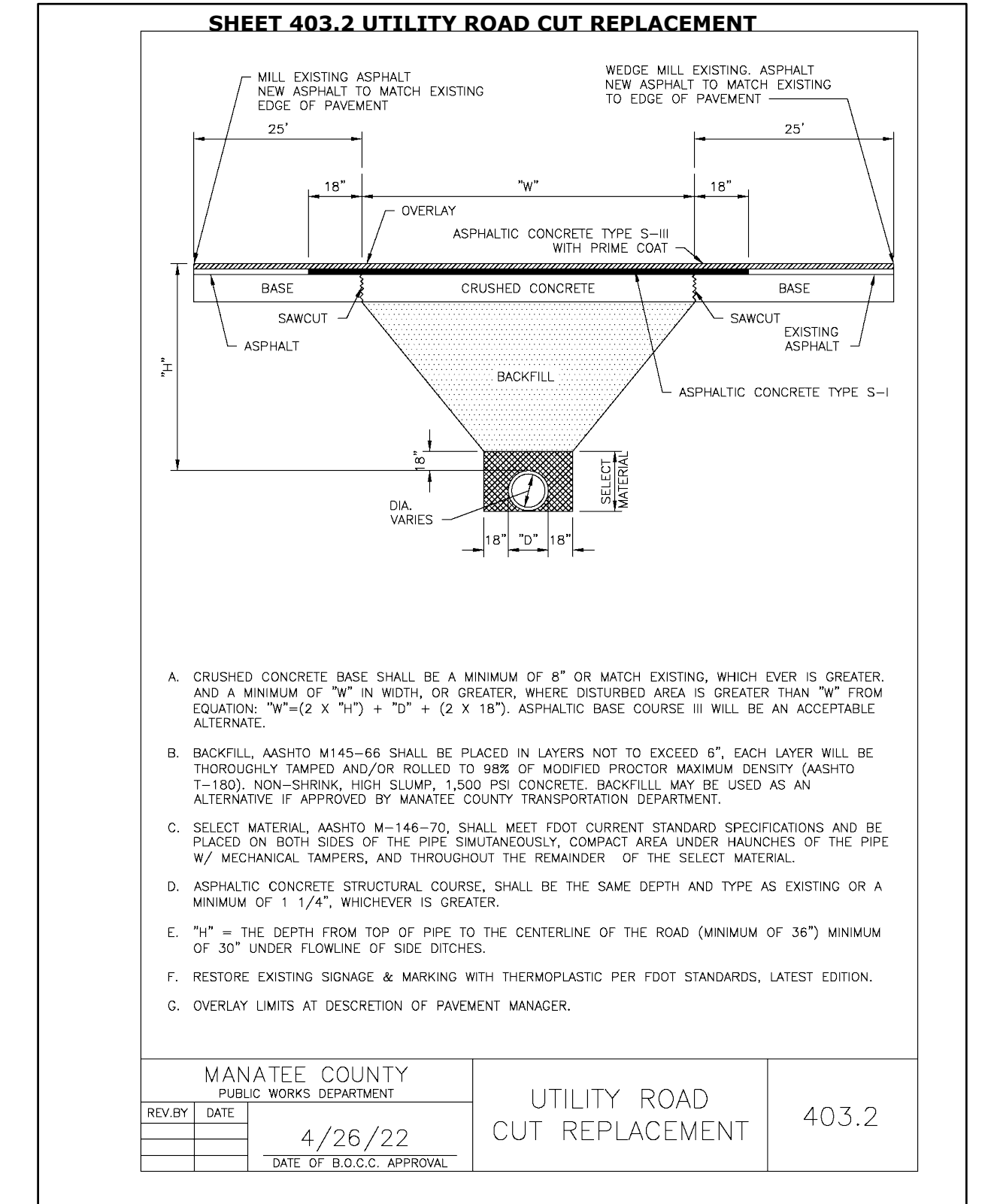
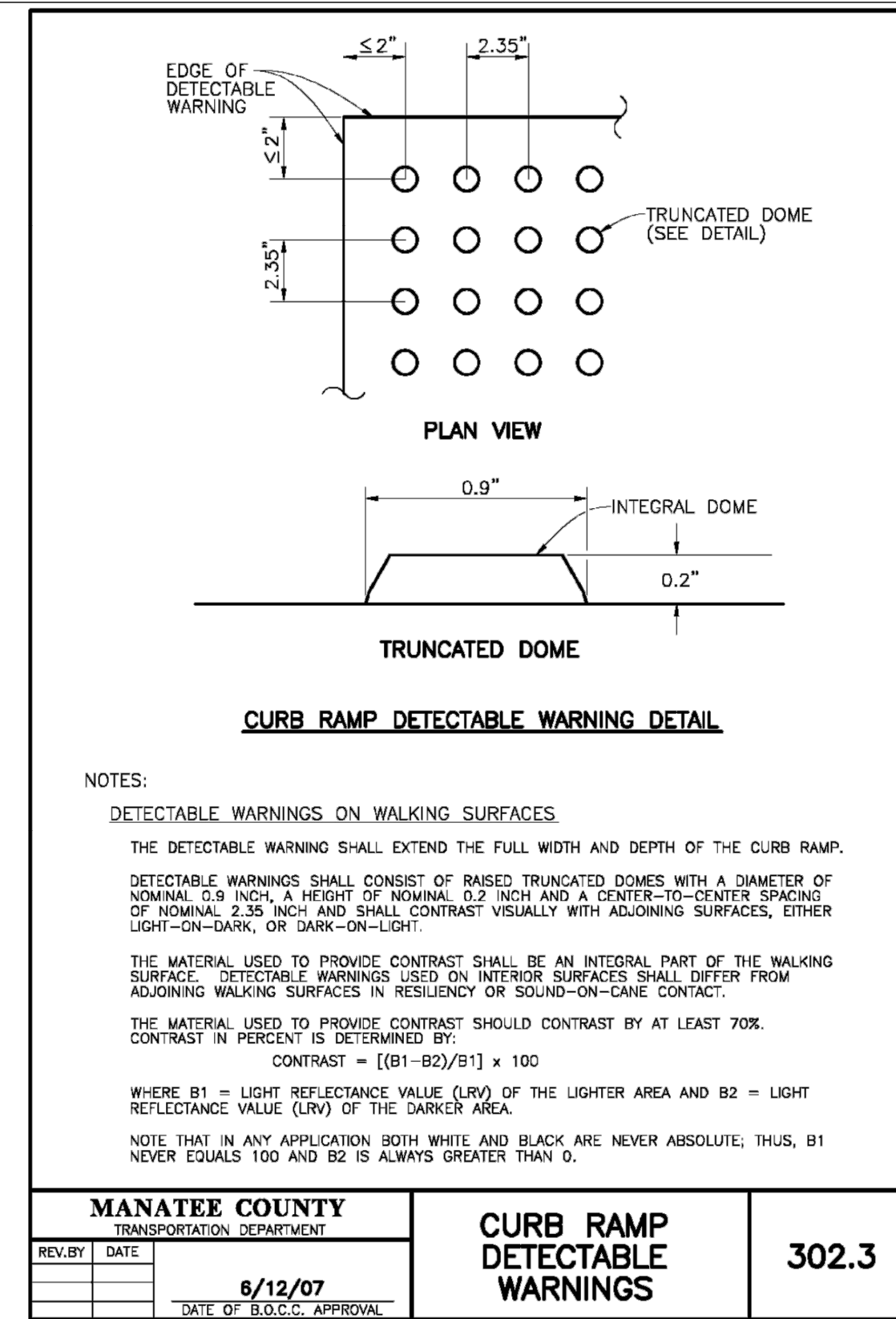
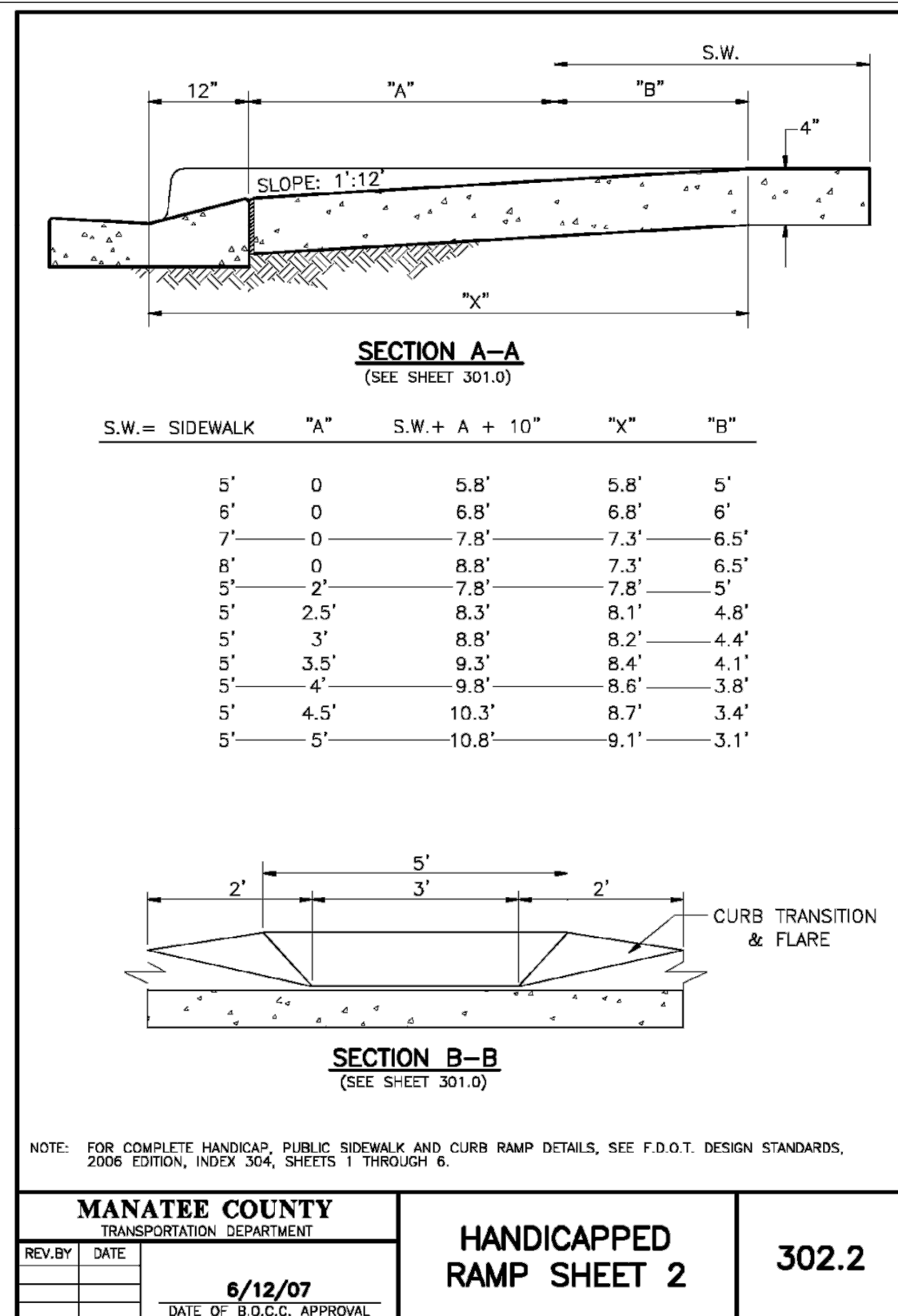
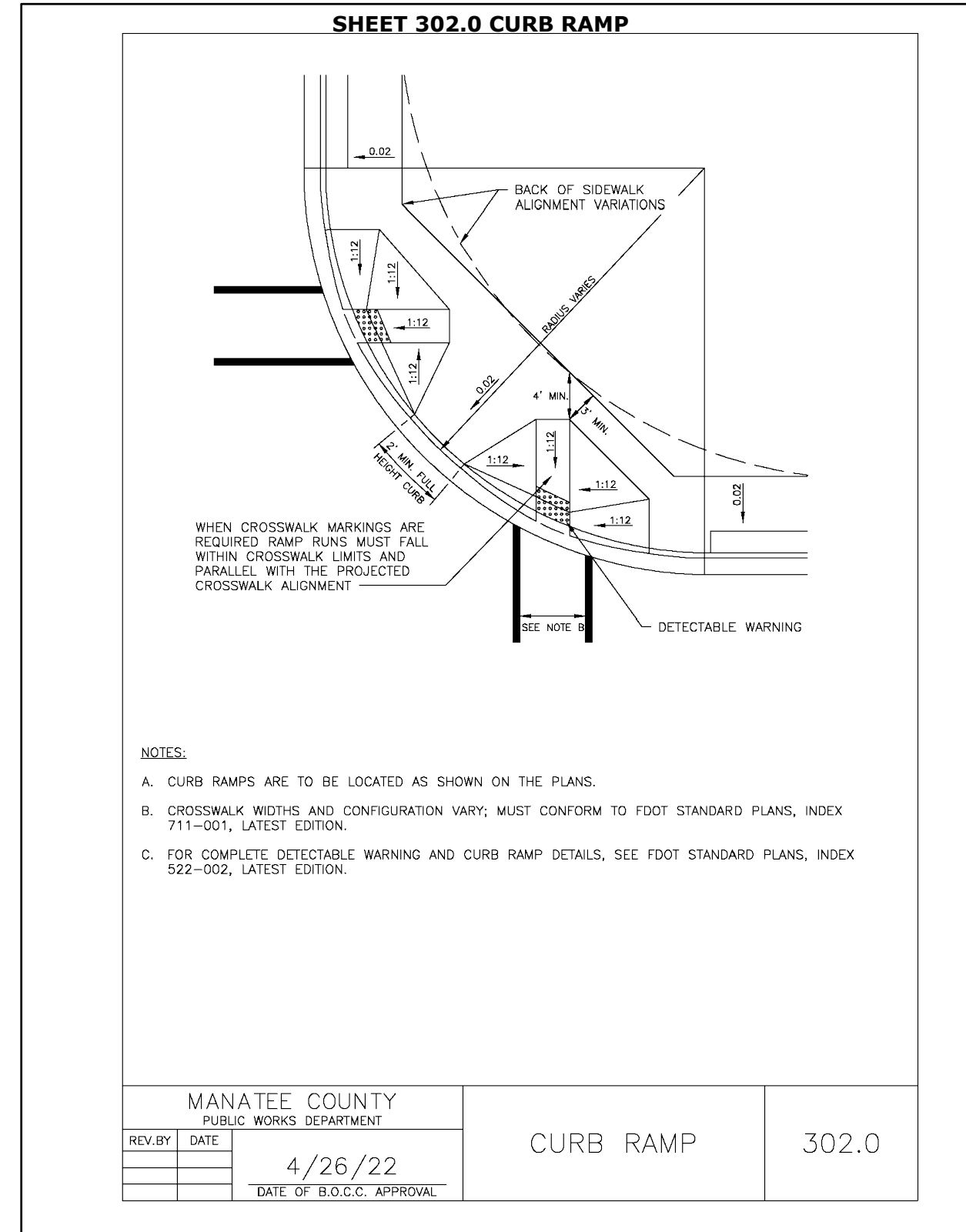
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 FL LICENSE NUMBER 87501

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**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**
 MANATEE COUNTY

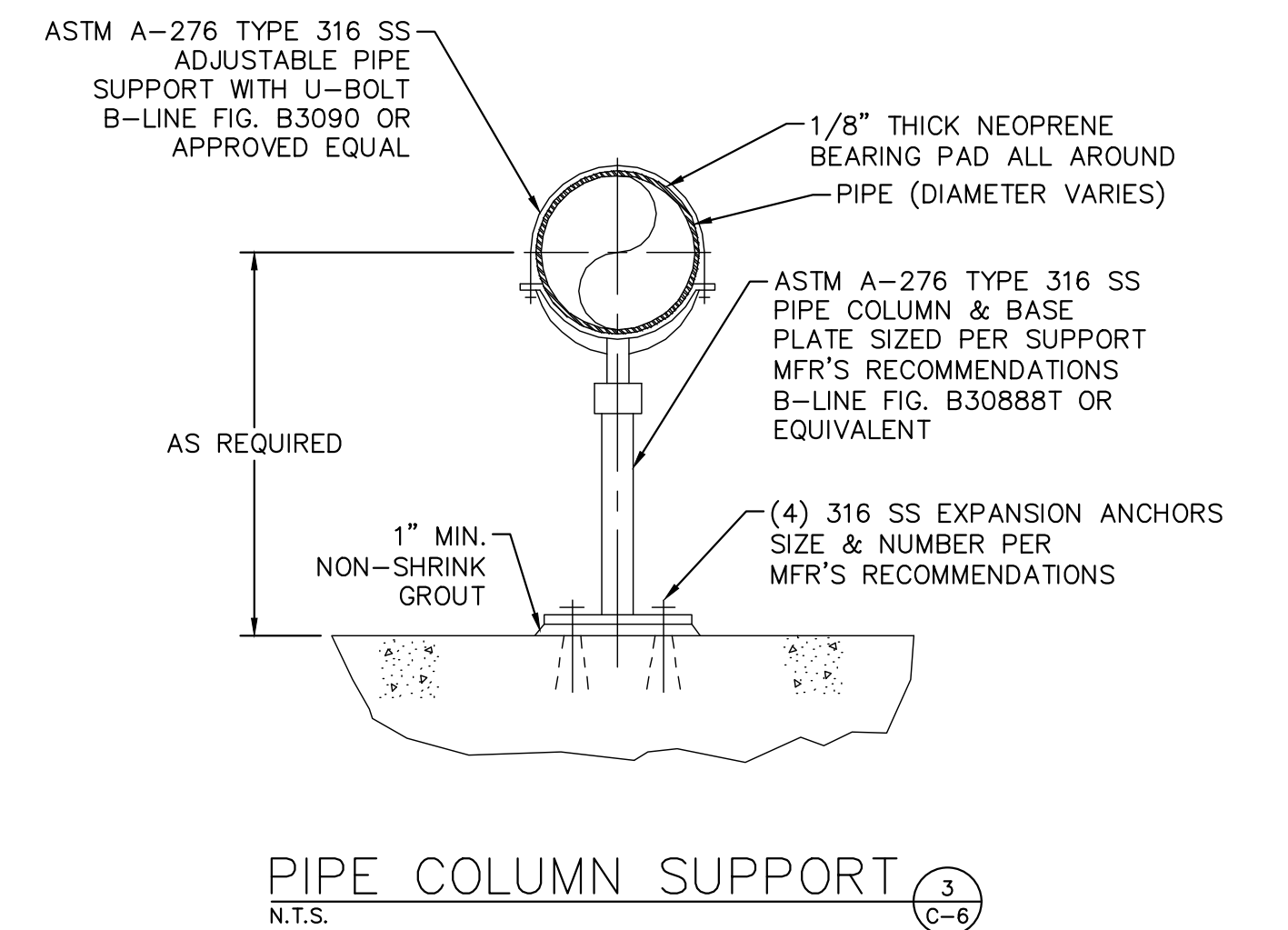
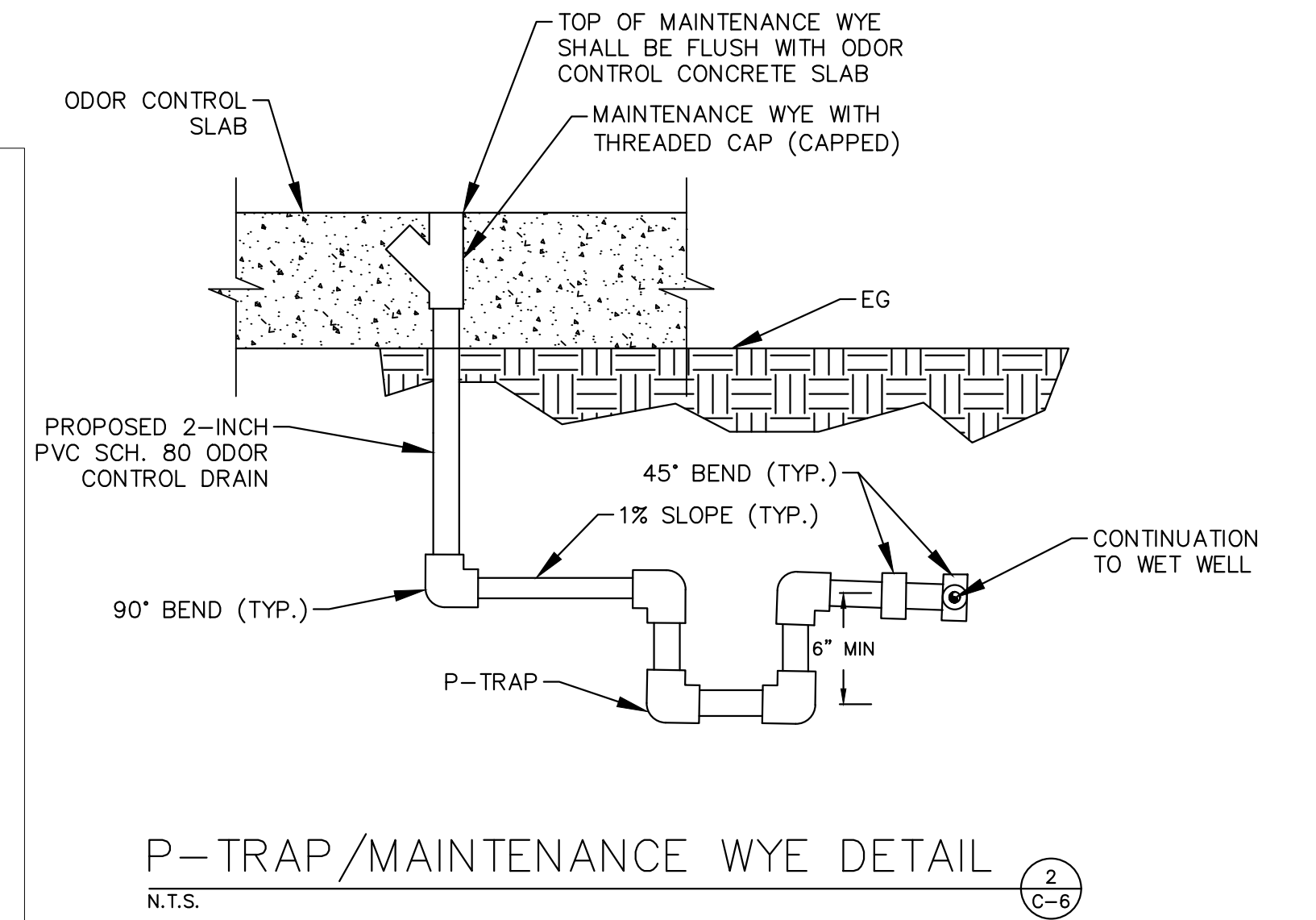
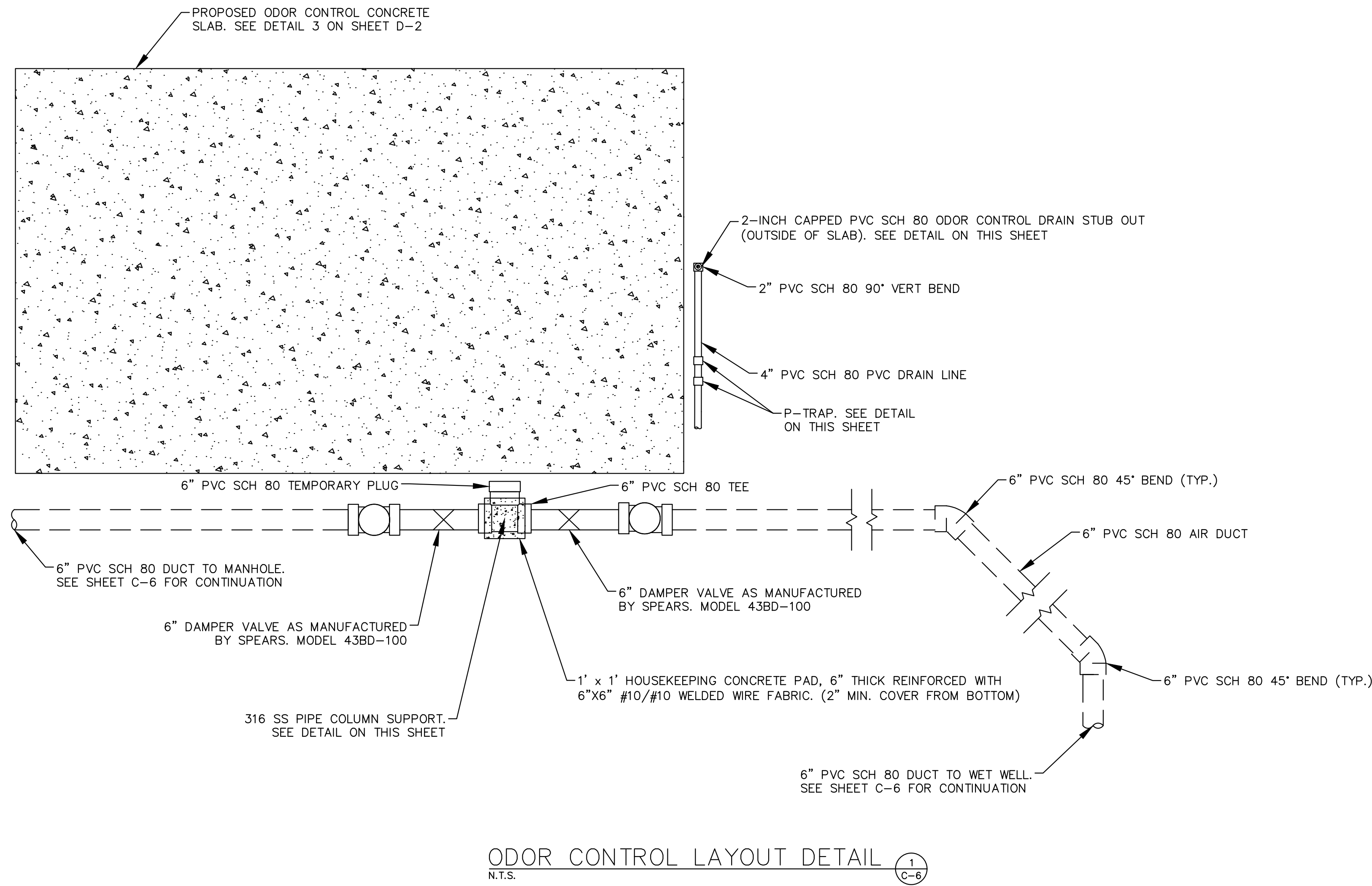
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**NORTH COUNTY METAL GRAVITY SEWER
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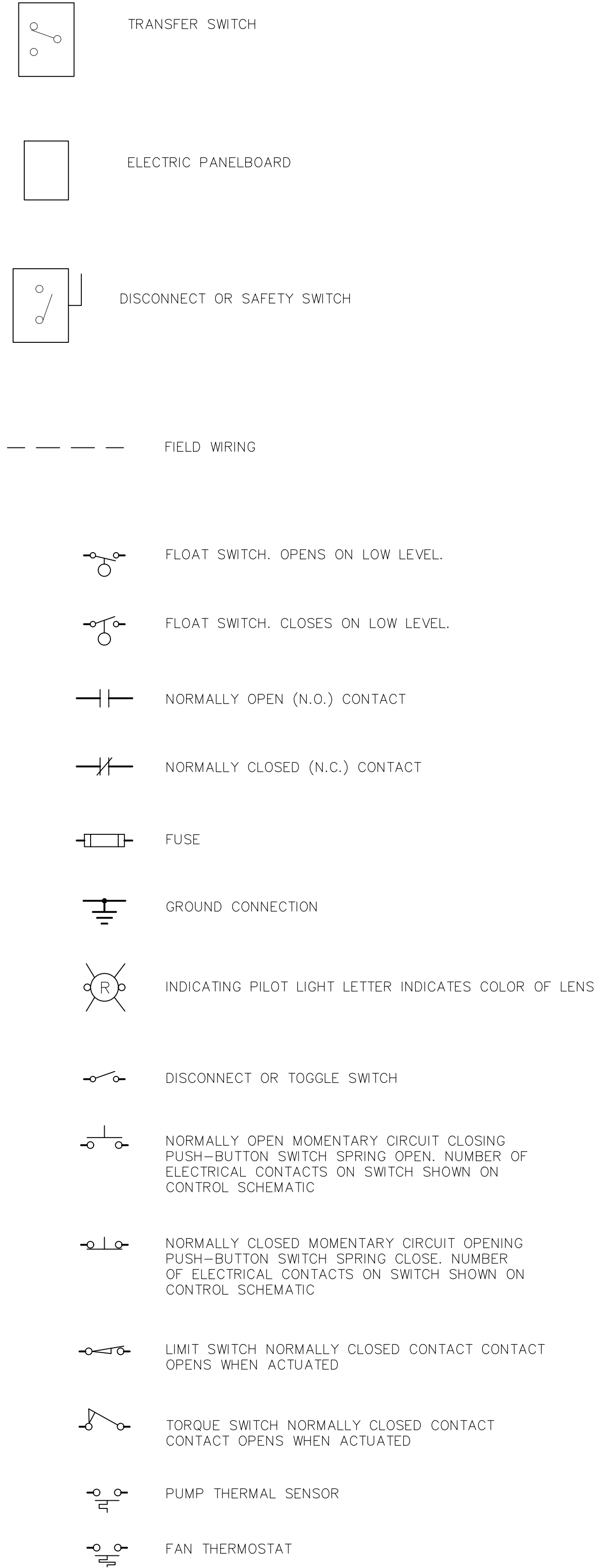
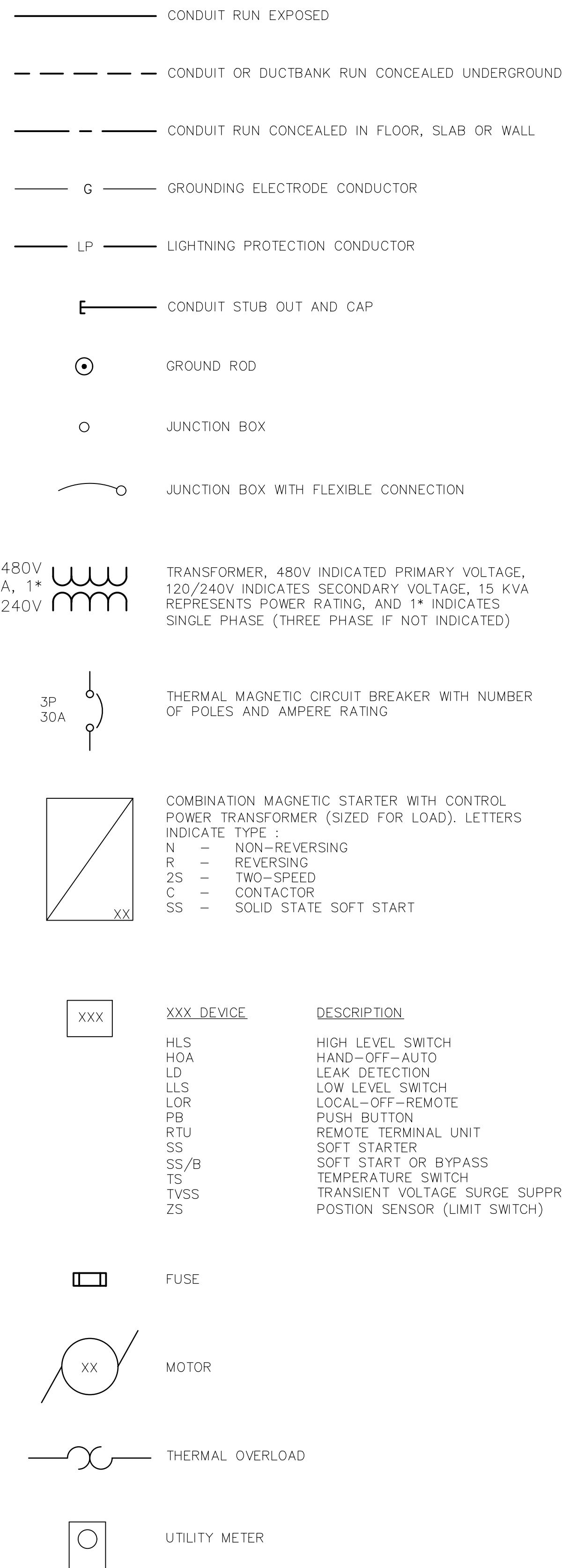
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CIVIL DETAILS

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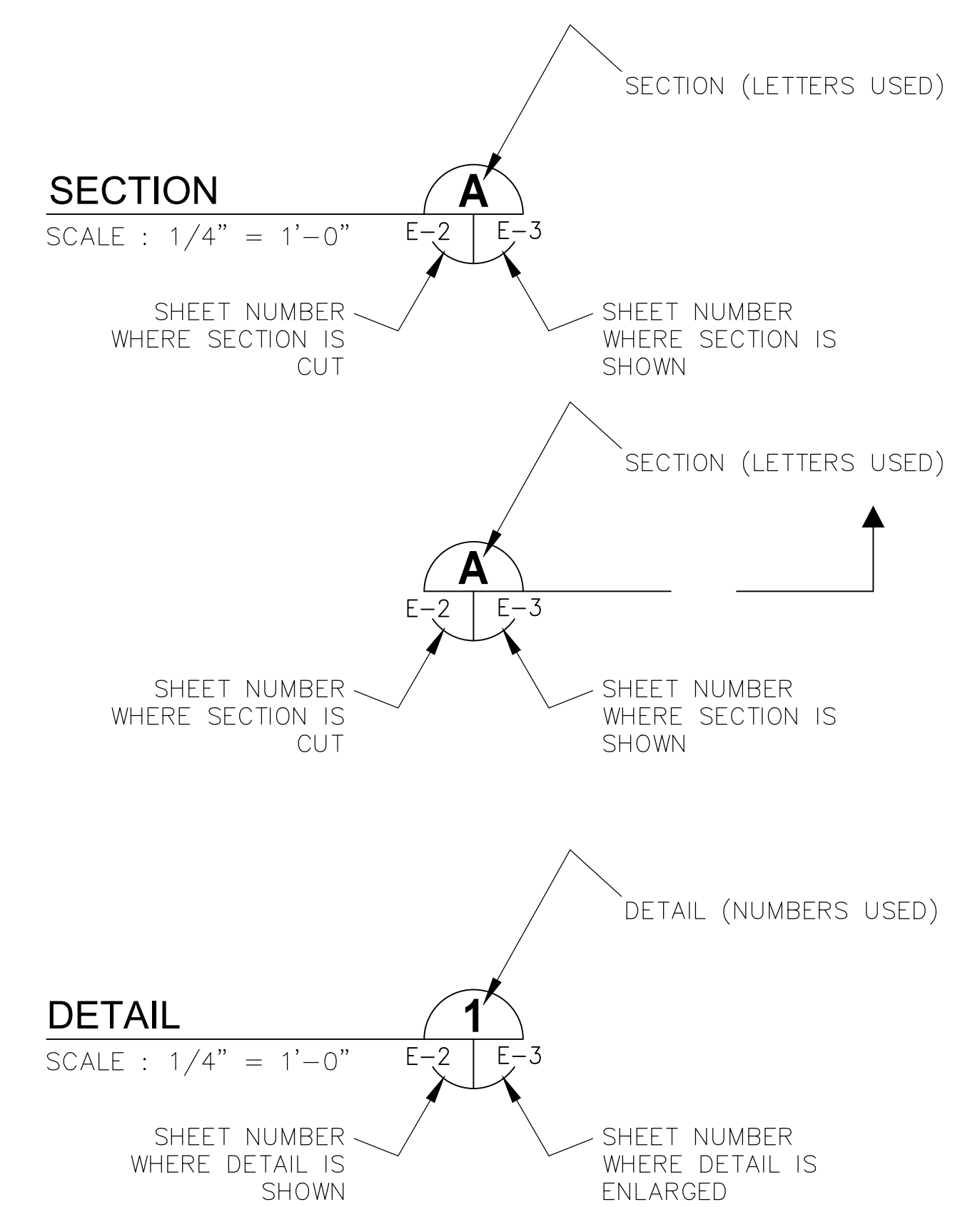
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ELECTRICAL LEGEND		
SYMBOL	DESCRIPTION	MOUNTING/REMARKS
A	8' LED STRIP LIGHTING FIXTURE (1)	CEILING MOUNT
B	LED WALLPACK LIGHTING FIXTURE (1)	EXTERIOR WALL
EM	LED EMERGENCY FLOOD LIGHTING FIXTURE (1)	WALL MOUNTED
X	LED EXIT SIGN FIXTURE (1)	SURFACE UNIVERSAL MOUNT
§	SWITCH: SINGLE-POLE OR AS NOTED, 20A, 120/277VAC	TOP 48" AFF OR AS NOTED
§ ³	SWITCH: THREE-WAY, 20A, 120/277VAC	TOP 48" AFF OR AS NOTED
§ ⁴	SWITCH: 4-WAY, 20A, 120/277VAC	TOP 48" AFF OR AS NOTED
⊕	DUPLEX RECEPTACLE: 20A, 125VAC	TOP 20" AFF OR AS NOTED
⊕	COUNTER-TOP DUPLEX RECEPTACLE: 20A, 125VAC	TOP 44" AFF OR AS NOTED
⊕	QUAD RECEPTACLE: 20A, 125VAC	TOP 20" AFF OR AS NOTED
▷	TELEPHONE/DATA OUTLET (2)	TOP 20" AFF OR AS NOTED
□	ELECTRIC PANEL	REFER TO PANEL SCHEDULE
■	FIRE ALARM PANEL	
□	EQUIPMENT DISCONNECT SWITCH	
○	OUTLET OR JUNCTION BOX	WIRES INDICATED AS FOLLOWS:
CR	CARD READER	— — TWO WIRES:
DL	MAGNETIC DOOR LOCK	— — — — THREE WIRES:
Ⓢ	SMOKE DETECTOR	— — — — — FOUR WIRES, ETC.
○	JUNCTION BOX WITH FLEXIBLE CONNECTION	— — — — — NEUTRAL WIRE
— — — — —	CONDUIT RUN CONCEALED IN CEILING SPACE OR WALL	— — — — — ISOLATED GR. WIRE
— — — — —	CONDUIT RUN CONCEALED IN FLOOR OR UNDERGROUND	PROVIDE 2#12 THWN CU. IN 1/2" C. UNLESS OTHERWISE NOTED AND EQUIPMENT GROUND WIRE (NOT INDICATED) IN ALL POWER AND LIGHTING RACEWAYS.
— — — — —	CONDUIT RUN EXPOSED	
→	HOME RUN TO PANEL/CIRCUIT(S) INDICATED	

ABBREVIATIONS:	
A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
DIA	DIAMETER
EX	EXISTING
ELEC	ELECTRICAL
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
TYP	TYPICAL
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

EXAMPLE OF SECTION CUT AND DETAIL



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KHA PROJECT	148400106
DATE	JUN 2023
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CHECKED BY	GLW

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS
 MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079
DATE:	

ELECTRICAL LEGEND AND ABBREVIATIONS

SHEET NUMBER	E-1
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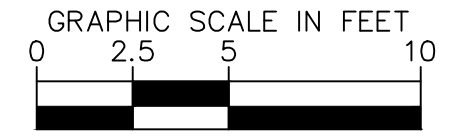
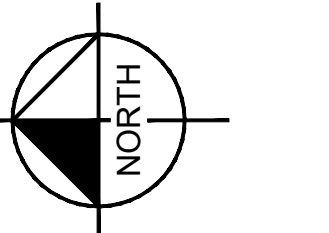


KEYED NOTES:

- ① EXISTING GENERATOR AND FUEL TANK TO REMAIN.
- ② EXISTING ODOR CONTROL UNIT TO REMAIN.
- ③ EXISTING FLOW METER VAULT TO REMAIN. PROVIDE 2/C-#16 TWISTED SHIELDED CABLE IN 1" CONDUIT FROM FROM METER TRANSMITTER TO PUMP CONTROL PANEL FOR FLOW METER 4-20mA FLOW METER SIGNAL. CONFIRM REQUIREMENTS WITH MANATEE COUNTY.
- ④ EXISTING 12' I.D. WET WELL.
- ⑤ EXISTING VALVE VAULT. NO WORK REQUIRED.
- ⑥ EXISTING PUMP CONTROL PANEL, DISCONNECT, DATA FLOW EQUIPMENT AND WET WELL CABLES TO BE REMOVED AND REPLACED. REFER TO KEYED NOTE #7 FOR NEW EQUIPMENT LOCATION.
- ⑦ NEW DISCONNECT, ELECTRIC METER, PUMP CONTROL PANEL, DFS BOX AND JUNCTION BOX. REFER TO SEWAGE LIFT STATION METER & ELECTRIC DETAILS (MANATEE STANDARD US-23) AND SEWAGE LIFT STATION CONTROL PANEL (MANATEE STANDARD US-24) ON SHEET E-8. ALL EQUIPMENT TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY THE CONTRACTOR.
- ⑧ EXISTING AUTOMATIC TRANSFER SWITCH TO BE REMOVED AND RELOCATED. REFER TO KEYED NOTE #23 FOR PROPOSED LOCATION.
- ⑨ EXISTING UTILITY DISTRIBUTION POLE TO REMAIN. EXISTING METER TO BE REMOVED. COORDINATE ALL REQUIREMENTS WITH FPL. REFER ALSO TO ONE LINE ON SHEET E-3.
- ⑩ PROVIDE AND INSTALL 3-3/0 THWN CU + 1-#6 THWN CU GND IN 2" CONDUIT FROM EXISTING UTILITY DISTRIBUTION POLE TO NEW ELECTRIC METER.
- ⑪ PROVIDE AND INSTALL 3-3/0 THWN CU + 1-#6 THWN CU GND IN 2" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO GENERATOR.
- ⑫ PROVIDE AND INSTALL 3-3/0 THWN CU + 1-#6 THWN CU GND IN 2" CONDUIT FROM AUTOMATIC TRANSFER SWITCH THE PUMP CONTROL PANEL.
- ⑬ PROVIDE AND INSTALL 3-3/0 THWN CU + 1-#6 THWN CU GND IN 2" CONDUIT FROM SERVICE DISCONNECT TO AUTOMATIC TRANSFER SWITCH.
- ⑭ PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO THE GENERATOR FOR GENERATOR START CONTROLS.
- ⑮ PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE GENERATOR FOR 120V AC POWER (BATTERY CHARGER AND ANTI-CONDENSATION).
- ⑯ PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE EXISTING ODOR CONTROL PANEL.
- ⑰ PROVIDE AND INSTALL THREE (3) 2" SCHEDULE 80 PVC CONDUITS FROM WET WELL TO JUNCTION BOX.
- ⑱ EXISTING SITE LIGHT, DATA FLOW SYSTEM (DFS) ANTENNA AND DFS TOWER TO REMAIN. SITE LIGHT IS MOUNTED ON DFS TOWER.
- ⑲ PROVIDE AND INSTALL 1" CONDUIT FROM DFS ANTENNA TO PUMP CONTROL PANEL. CONFIRM CONDUIT SIZE WITH DFS. DFS SHALL INSTALL COAXIAL CABLE. ALSO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO EXISTING SITE LIGHTS MOUNTED ON DFS ANTENNA. FIELD VERIFY CONDUCTOR COUNT AND VOLTAGE.
- ⑳ EXISTING SITE LIGHT TO REMAIN.
- ㉑ PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM EXISTING SITE LIGHT ON DFS TOWER IN KEYED NOTE #19 TO EXISTING SITE LIGHT IN KEYED NOTE #20. FIELD VERIFY CONDUCTOR COUNT AND VOLTAGE.
- ㉒ EXISTING GRAVITY MAIN TO BE REPLACED. REFER TO CIVIL DRAWINGS.
- ㉓ PROPOSED LOCATION FOR RELOCATED AUTOMATIC TRANSFER SWITCH. FRONT DOOR OF AUTOMATIC TRANSFER SWITCH SHALL FACE SOUTH. PROVIDE NEW CONCRETE SLAB. CONCRETE SLAB TO BE 6" IN DEPTH, WITH 3" OF THE SLAB EXTENDING ABOVEGROUND. CONCRETE PAD SHALL EXTEND OUT FROM AUTOMATIC TRANSFER SWITCH 4" ON ALL SIDES.

GENERAL NOTES:

- 1. MANATEE COUNTY WILL HAVE FIRST RIGHT OF REFUSAL ON ANY EQUIPMENT THAT IS DEMOLISHED OR REMOVED.
- 2. ROUTING AND DEPTH OF EXISTING CONDUITS IS UNKNOWN.
- 3. CONDUIT ROUTING SHOWN IS DIAGRAMMATICAL.
- 4. NEW CONDUIT TO BE INSTALLED SHALL BE FIELD ROUTED BASED ON EXISTING CONDITIONS.
- 5. WHERE POSSIBLE, EXISTING CONDUIT MAY BE INTERCEPTED AND REROUTED.
- 6. ALL EXISTING CONDUIT TO BE REUSED SHALL BE CLEANED WITH MANDREL PRIOR TO INSTALLING CONDUIT.
- 7. ALL RACEWAY SYSTEMS (NEW CONDUIT AND REUSED CONDUIT) SHALL COMPLY WITH NEC ARTICLE 352.26 OR AS APPLICABLE. PROVIDE AND INSTALL IN GROUND PULL BOXES (QUAZITE PG1324BA18 AND LID OR EQUAL).
- 8. WHERE/IF REQUIRED, IN GROUND PULL BOXES SHALL BE INSTALLED AT LOCATIONS THAT AVOID VEHICULAR TRAFFIC.
- 9. NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.



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**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

TIMOTHY THOMAS, P.E.

FL LICENSE NUMBER
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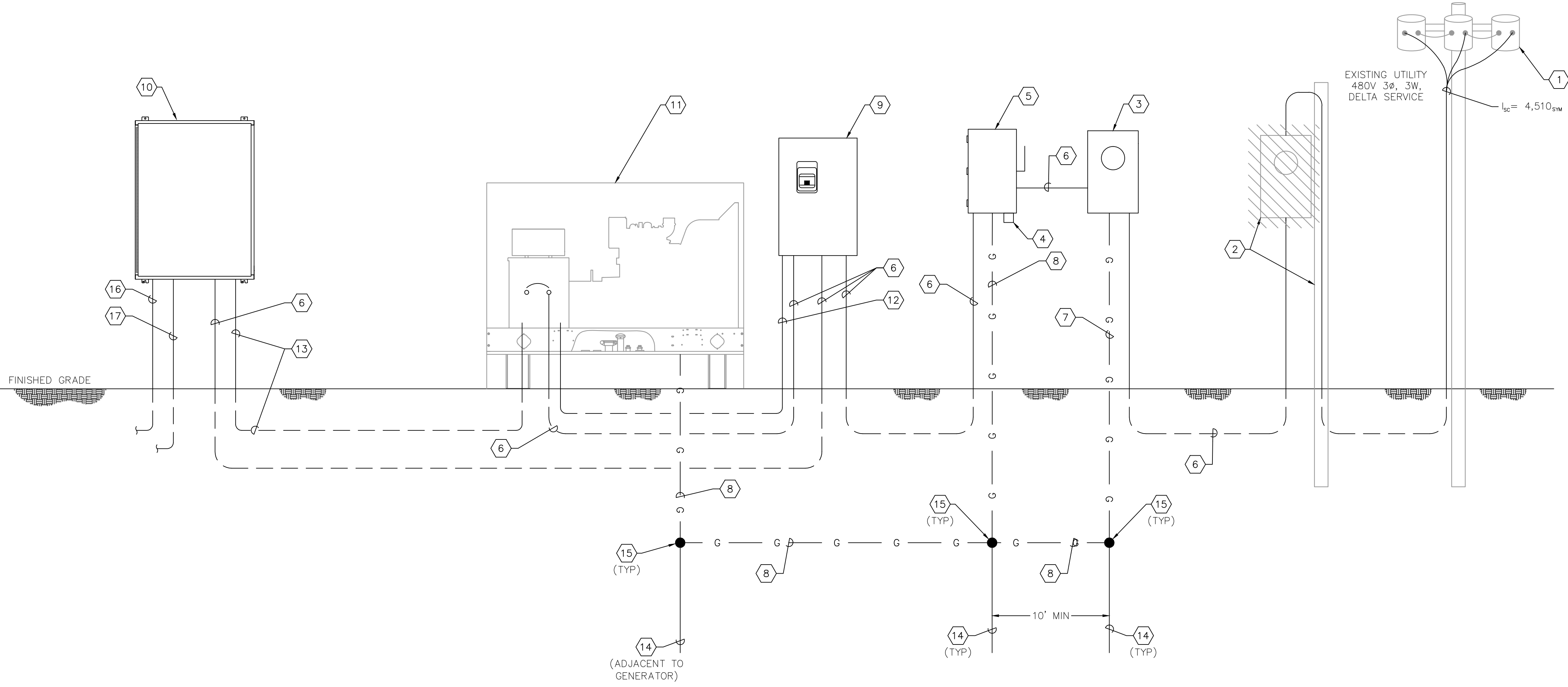
**RTU #546 - LS N1C
ELECTRICAL SITE PLAN**

SHEET NUMBER

E-2



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RTU #546 - LS N1C ONE LINE DIAGRAM

- ONE LINE DIAGRAM NOTES:**
- | | |
|--|--|
| <p>1 EXISTING UTILITY POLE-MOUNTED TRANSFORMERS TO REMAIN. NO WORK REQUIRED.</p> <p>2 EXISTING UTILITY DISTRIBUTION POLE TO REMAIN. EXISTING METER TO BE REMOVED. COORDINATE ALL REQUIREMENTS WITH FPL.</p> <p>3 NEW 200A, 480V, 3Ø METER SOCKET TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. GROUND METER SOCKET PER FPL SPECIFICATIONS. COORDINATE NEW ELECTRICAL SERVICE ENTRANCE REQUIREMENTS WITH FPL.</p> <p>4 NEW LIGHTNING ARRESTOR TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR.</p> <p>5 NEW 200A, 600V, 3-POLE FUSED DISCONNECT SWITCH TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. DISCONNECT TO BE FUSED AT 200A WITH CLASS RK5 FUSES.</p> <p>6 PROVIDE AND INSTALL 3-3/0 THWN CU + 1-#6 THWN CU GND IN 2" C.</p> <p>7 PROVIDE AND INSTALL #8 CU GROUNDING ELECTRODE CONDUCTOR. VERIFY/COORDINATE REQUIREMENTS WITH FPL.</p> <p>8 PROVIDE AND INSTALL #4 CU GROUNDING ELECTRODE CONDUCTOR.</p> <p>9 EXISTING AUTOMATIC TRANSFER SWITCH (ATS) TO BE REUSED, BUT RELOCATED. REFER TO SHEET E-2.</p> | <p>10 NEW PUMP CONTROL PANEL TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR.</p> <p>11 EXISTING GENERATOR TO REMAIN AND BE REUSED.</p> <p>12 PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO THE GENERATOR FOR GENERATOR START CONTROLS.</p> <p>13 PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE GENERATOR FOR 120V AC POWER (BATTERY CHARGER AND ANTI-CONDENSATION).</p> <p>14 PROVIDE AND INSTALL 5/8" X 10'-0" COPPER CLAD GROUNDING ELECTRODE. ELECTRODES TO BE SPACED A MINIMUM OF 10 FEET APART.</p> <p>15 EXOTHERMIC WELD TO GROUND ROD.</p> <p>16 PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE NEW ODOR CONTROL PANEL.</p> <p>17 PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO EXISTING SITE LIGHTS. FIELD VERIFY CONDUCTOR COUNT AND VOLTAGE. PROVIDE AND INSTALL 1" CONDUIT FROM PUMP CONTROL PANEL TO EXISTING DFS ANTENNA. COAXIAL CABLE TO BE INSTALLED BY DFS.</p> |
|--|--|

LIFT STATION LOAD CALCULATION	
MOTORS:	
PUMP NO. 1:	50.0 HP, 480 VAC, 3 Ø, 65.0 A
PUMP NO. 2:	50.0 HP, 480 VAC, 3 Ø, 65.0 A
MOTOR SUB-TOTAL	130.0 A
+ 25% OF LARGEST MOTOR	17.0 A
SUB-TOTAL	147.0 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	167.0 A
SERVICE SIZE:	
200 A, 480 VAC, 3 Ø, 3 - WIRE MINIMUM.	

SHORT CIRCUIT CALCULATIONS	
AVAILABLE SHORT-CIRCUIT CURRENT AT 480V UTILITY SERVICE IS 13,532 AMPERES. CONTRACTOR TO CONFIRM WITH THE UTILITY	
UTILITY SERVICE: 480V, 3 PH, TRANSFORMER BANK AVAILABLE FAULT CURRENT AT SECONDARY SIDE OF UTILITY'S TRANSFORMER: 4,510 AMP RMS SYM. SERVICE CONDUCTOR LENGTH: 100 FEET SERVICE CONDUCTOR SIZE: 3/0 THWN CU. FUSE RATING: 200 AMPS ISCA AT LINE SIDE OF SERVICE DISCONNECT:	
ISCA=	$1 + \frac{1}{\frac{(1.73)(100)(4,510)}{(10,400)(480)}} \times 4,510 = 3,900$
SHORT CIRCUIT CURRENT AVAILABLE AT LINE SIDE LUGS OF THE FUSED DISCONNECT = 3,900 AMPS RMS.	

- GENERAL NOTES:**
- NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.



No.	REVISIONS	DATE	BY

Kimley»Horn

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KHA PROJECT	148400106
DATE	JUN 2023
SCALE	AS SHOWN
DESIGNED BY	TDI
DRAWN BY	JLT
CHECKED BY	GLW

Manatee County FLORIDA

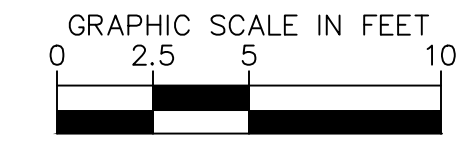
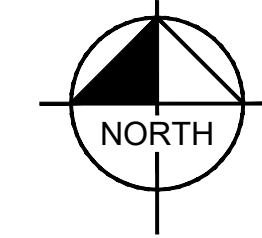
NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

RTU #546 - LS N1C ONE LINE DIAGRAM

SHEET NUMBER	E-3
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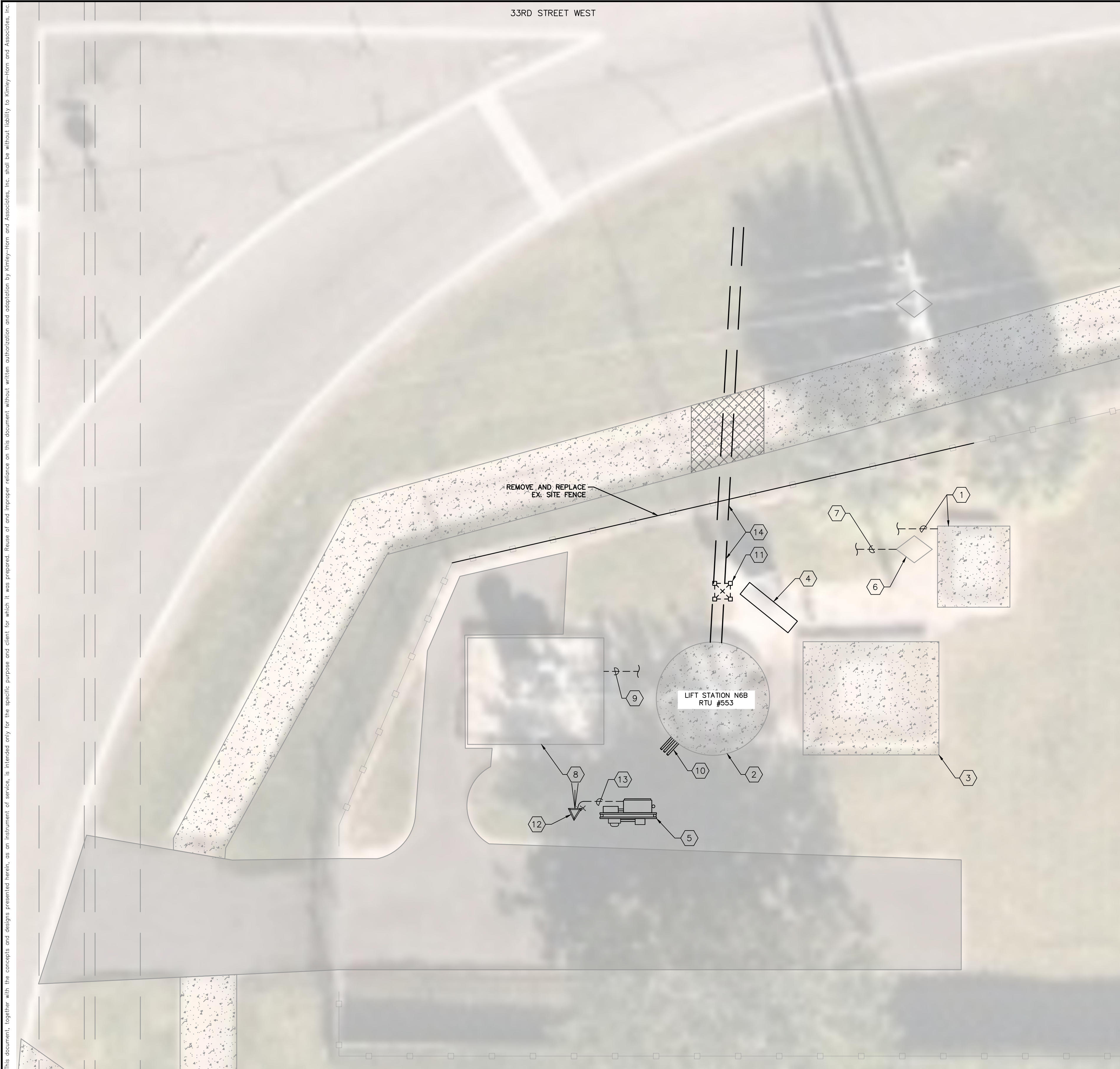


ONE LINE DIAGRAM NOTES:

- ① EXISTING FLOW METER VAULT TO REMAIN. PROVIDE 2/C-#16 TWISTED SHIELDED CABLE IN 1" CONDUIT FROM METER TRANSMITTER TO PUMP CONTROL PANEL FOR FLOW METER 4-20mA FLOW METER SIGNAL. CONFIRM REQUIREMENTS WITH MANATEE COUNTY.
- ② EXISTING 8' I.D. WET WELL.
- ③ EXISTING VALVE VAULT. NO WORK REQUIRED.
- ④ EXISTING PUMP CONTROL PANEL, DISCONNECT, ELECTRIC METER AND WET WELL CABLES TO BE REMOVED AND REPLACED. REFER TO KEYED NOTE #5 FOR NEW EQUIPMENT LOCATION.
- ⑤ NEW DISCONNECT, ELECTRIC METER, PUMP CONTROL PANEL, DFS BOX AND JUNCTION BOX. REFER TO SEWAGE LIFT STATION METER & ELECTRIC DETAILS (MANATEE STANDARD US-23) AND SEWAGE LIFT STATION CONTROL PANEL (MANATEE STANDARD US-24) ON SHEET E-8. ALL EQUIPMENT TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY THE CONTRACTOR.
- ⑥ EXISTING UTILITY DISTRIBUTION POLE TO REMAIN. COORDINATE ALL REQUIREMENTS WITH FPL. REFER ALSO TO ONE LINE ON SHEET E-5.
- ⑦ PROVIDE AND INSTALL 3-1/0 THWN CU + 1-1/0 THWN CU NEUTRAL IN 2" CONDUIT FROM EXISTING UTILITY DISTRIBUTION POLE TO NEW ELECTRIC METER. REFER ALSO TO ONE LINE ON SHEET E-5.
- ⑧ EXISTING ODOR CONTROL UNIT TO REMAIN.
- ⑨ PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE EXISTING ODOR CONTROL PANEL.
- ⑩ PROVIDE AND INSTALL THREE (3) 2" SCHEDULE 80 PVC CONDUITS FROM WET WELL TO JUNCTION BOX.
- ⑪ EXISTING DATA FLOW SYSTEMS (DFS) ANTENNA AND TOWER TO BE REMOVED. REFER TO KEYED NOTE #12 FOR NEW DFS EQUIPMENT LOCATION.
- ⑫ NEW DFS TOWER, ANTENNA AND AREA LIGHT TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. REFER TO SEWAGE LIFT STATION METER & ELECTRIC DETAILS (MANATEE STANDARD US-23) ON SHEET E-8.
- ⑬ PROVIDE AND INSTALL 1" CONDUIT FROM DFS ANTENNA TO PUMP CONTROL PANEL. CONFIRM CONDUIT SIZE WITH DFS. DFS SHALL INSTALL COAXIAL CABLE. ALSO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO NEW SITE LIGHT MOUNTED ON DFS ANTENNA.
- ⑭ EXISTING GRAVITY MAIN TO BE REPLACED. REFER TO CIVIL DRAWINGS.

GENERAL NOTES:

- 1. MANATEE COUNTY WILL HAVE FIRST RIGHT OF REFUSAL ON ANY EQUIPMENT THAT IS DEMOLISHED OR REMOVED.
- 2. ROUTING AND DEPTH OF EXISTING CONDUITS IS UNKNOWN.
- 3. CONDUIT ROUTING SHOWN IS DIAGRAMMATICAL.
- 4. NEW CONDUIT TO BE INSTALLED SHALL BE FIELD ROUTED BASED ON EXISTING CONDITIONS.
- 5. WHERE POSSIBLE, EXISTING CONDUIT MAY BE INTERCEPTED AND REROUTED.
- 6. ALL EXISTING CONDUIT TO BE REUSED SHALL BE CLEANED WITH MANDREL PRIOR TO INSTALLING CONDUIT.
- 7. ALL RACEWAY SYSTEMS (NEW CONDUIT AND REUSED CONDUIT) SHALL COMPLY WITH NEC ARTICLE 352.26 OR AS APPLICABLE. PROVIDE AND INSTALL IN GROUND PULL BOXES (QUAZITE PG1324BA18 AND LID OR EQUAL).
- 8. WHERE/IF REQUIRED, IN GROUND PULL BOXES SHALL BE INSTALLED AT LOCATIONS THAT AVOID VEHICULAR TRAFFIC.
- 9. NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.



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KHA PROJECT
148400106
 DATE
JUN 2023
 SCALE AS SHOWN
 DESIGNED BY TDT
 DRAWN BY JLT
 CHECKED BY GLW



**NORTH COUNTY METAL GRAVITY SEWER
 PIPE REPLACEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL
 TIMOTHY THOMAS, P.E.
 FL LICENSE NUMBER
 47079

FL DATE:

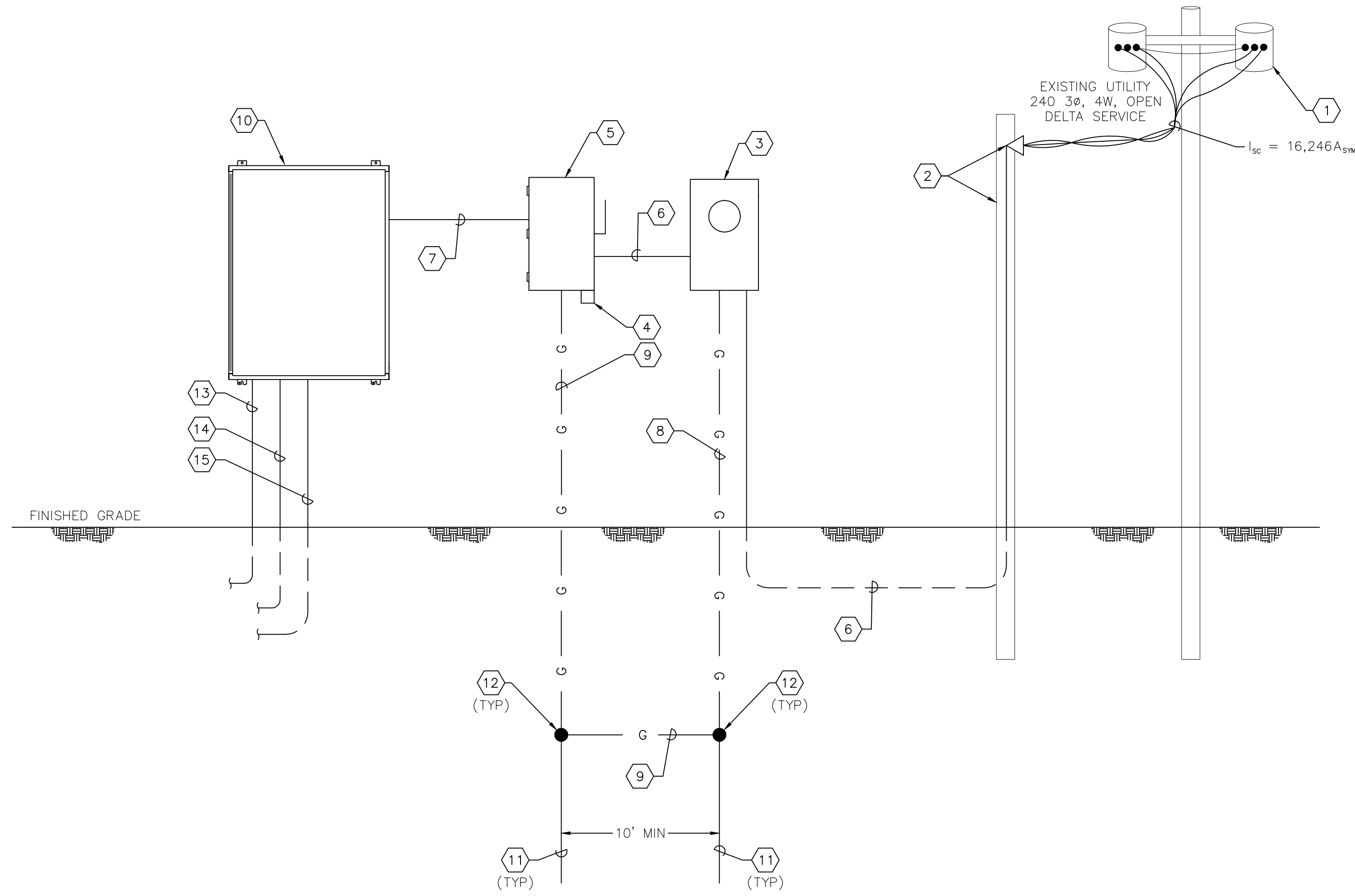
**RTU #553 - LS N6B
 ELECTRICAL SITE PLAN**

SHEET NUMBER

E-4

No.	REVISIONS	DATE	BY

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RTU #553 - LS N6B ONE LINE DIAGRAM

LIFT STATION LOAD CALCULATION	
MOTORS:	
PUMP NO. 1:	25.0 HP, 240 VAC, 3 Ø, 34.0 A
PUMP NO. 2:	25.0 HP, 240 VAC, 3 Ø, 34.0 A
MOTOR SUB-TOTAL	68.0 A
+ 25% OF LARGEST MOTOR	8.5 A
SUB-TOTAL	76.5 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	96.5 A
SERVICE SIZE:	
150 A, 240 VAC, 3 Ø, 4 - WIRE MINIMUM.	

SHORT CIRCUIT CALCULATIONS	
AVAILABLE SHORT-CIRCUIT CURRENT AT 240V UTILITY SERVICE IS 16,246 AMPERES. CONTRACTOR TO CONFIRM WITH THE UTILITY	
UTILITY SERVICE: 240V, 3 PH, TRANSFORMER BANK AVAILABLE FAULT CURRENT AT SECONDARY SIDE OF UTILITY'S TRANSFORMER: 16,246 AMP RMS SYM. SERVICE CONDUCTOR LENGTH: 50 FEET SERVICE CONDUCTOR SIZE: 1/0 THWN CU. FUSE RATING: 150 AMPS ISCA AT LINE SIDE OF SERVICE DISCONNECT:	
$ISCA = \left[1 + \frac{1}{\frac{(1.73)(50)(16,246)}{(7,190)(240)}} \right] * 16,246 = 8,954$	
SHORT CIRCUIT CURRENT AVAILABLE AT LINE SIDE LUGS OF THE FUSED DISCONNECT = 8,954 AMPS RMS.	

ONE LINE DIAGRAM NOTES:	
1	EXISTING UTILITY POLE-MOUNTED TRANSFORMERS TO REMAIN. NO WORK REQUIRED.
2	EXISTING UTILITY DISTRIBUTION POLE WITH WEATHERHEAD TO REMAIN. COORDINATE ALL REQUIREMENTS WITH FPL.
3	NEW 200A, 240V, 3Ø, METER SOCKET TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. GROUND METER SOCKET PER FPL SPECIFICATIONS. COORDINATE NEW ELECTRICAL SERVICE ENTRANCE REQUIREMENTS WITH FPL.
4	PROVIDE AND INSTALL LIGHTNING ARRESTOR.
5	NEW 200A, 240V, 3-POLE FUSED DISCONNECT SWITCH TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. FUSE SWITCH AT 150 AMPERES WITH CLASS RK5 FUSES.
6	PROVIDE AND INSTALL 3-1/0 THWN CU + 1-1/0 THWN CU NEUTRAL IN 2"Ø.
7	PROVIDE AND INSTALL 3-1/0 THWN CU + 1-1/0 THWN CU NEUTRAL + 1-#6 THWN CU GND IN 2"Ø.
8	PROVIDE AND INSTALL #8 CU GROUNDING ELECTRODE CONDUCTOR. VERIFY/COORDINATE REQUIREMENTS WITH FPL.
9	PROVIDE AND INSTALL #4 CU GROUNDING ELECTRODE CONDUCTOR.
10	NEW PUMP CONTROL PANEL TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR.
11	PROVIDE AND INSTALL 5/8" X 10'-0" COPPER CLAD GROUNDING ELECTRODE. ELECTRODES TO BE SPACED A MINIMUM OF 10 FEET APART.
12	EXOTHERMIC WELD TO GROUND ROD.
13	PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE NEW ODOR CONTROL PANEL.
14	PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO NEW SITE LIGHT ON DFS TOWER.
15	PROVIDE AND INSTALL 1" CONDUIT FROM PUMP CONTROL PANEL TO NEW DFS ANTENNA. COAXIAL CABLE WILL BE INSTALLED BY DFS.

GENERAL NOTES:	
1. NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.	



No.	REVISIONS	DATE	BY

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KHA PROJECT	148400106
DATE	JUN 2023
SCALE	AS SHOWN
DESIGNED BY	TDI
DRAWN BY	JLT
CHECKED BY	GLW

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

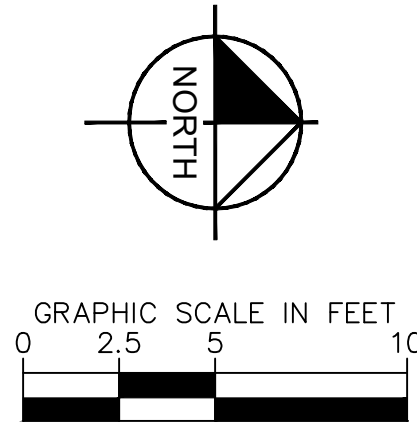
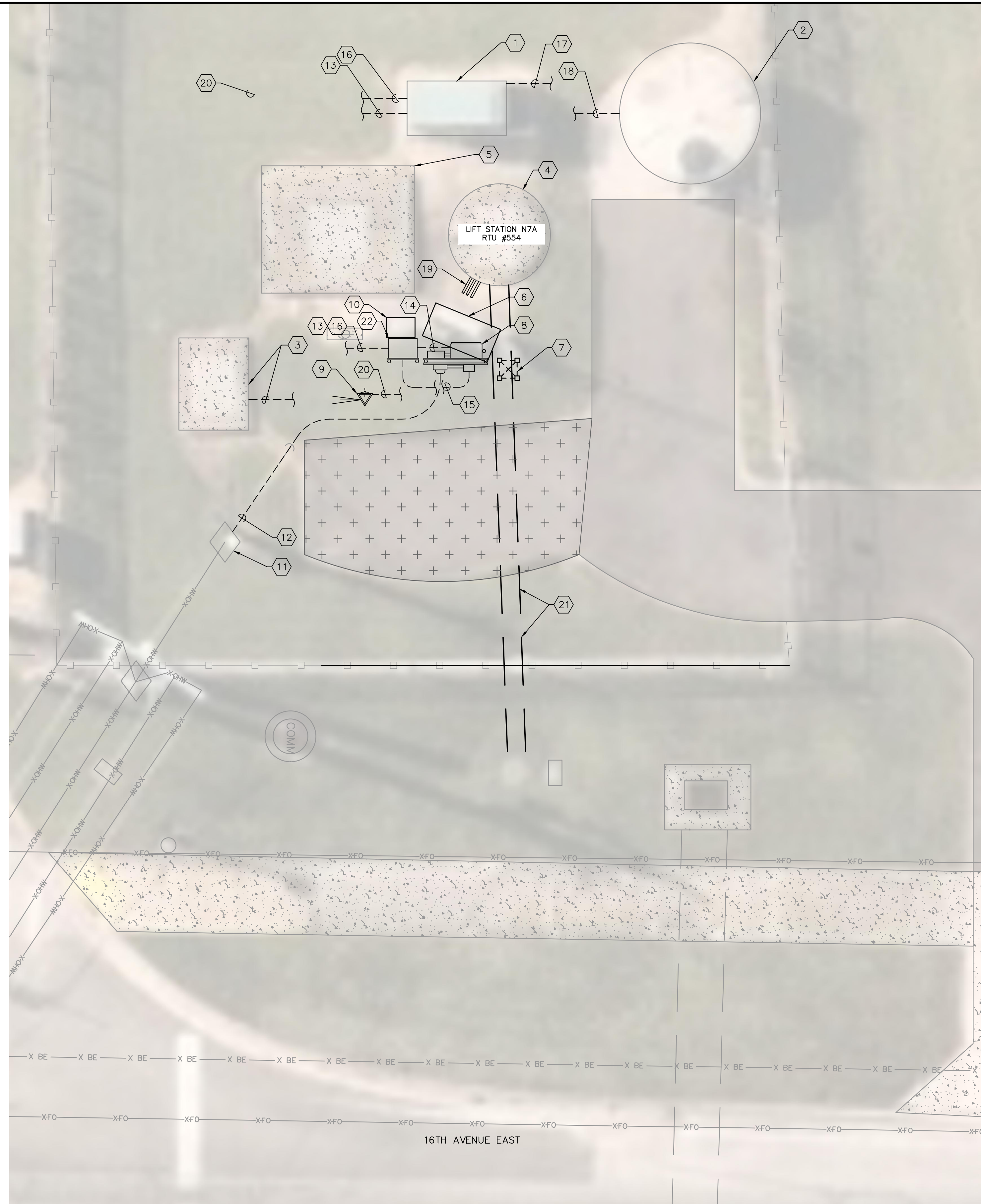
MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

RTU #553 - LS N6B ONE LINE DIAGRAM

SHEET NUMBER	E-5
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ONE LINE DIAGRAM NOTES:

- ① EXISTING GENERATOR TO REMAIN.
- ② EXISTING ODOR CONTROL UNIT TO REMAIN.
- ③ EXISTING FLOW METER VAULT TO REMAIN. PROVIDE 2/C-#16 TWISTED SHIELDED CABLE IN 1" CONDUIT FROM METER TRANSMITTER TO PUMP CONTROL PANEL FOR FLOW METER 4-20mA FLOW METER SIGNAL. CONFIRM REQUIREMENTS WITH MANATEE COUNTY.
- ④ EXISTING 6' I.D. WET WELL.
- ⑤ EXISTING VALVE VAULT. NO WORK REQUIRED.
- ⑥ EXISTING PUMP CONTROL PANEL, DISCONNECT, DATA FLOW EQUIPMENT AND WET WELL CABLES TO BE REMOVED AND REPLACED. REFER TO KEYED NOTE #8 FOR NEW EQUIPMENT LOCATION.
- ⑦ EXISTING DATA FLOW SYSTEMS (DFS) TOWER, ANTENNA AND AREA LIGHT TO BE REMOVED.
- ⑧ NEW ELECTRICAL SERVICE PUMP CONTROL PANEL. REFER TO SEWAGE LIFT STATION METER & ELECTRIC DETAILS (MANATEE STANDARD US-23) AND SEWAGE LIFT STATION CONTROL PANEL (MANATEE STANDARD US-24) ON SHEET E-8. ALL EQUIPMENT TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY THE CONTRACTOR.
- ⑨ NEW DFS TOWER, ANTENNA AND AREA LIGHT TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. REFER TO SEWAGE LIFT STATION METER & ELECTRIC DETAILS (MANATEE STANDARD US-23) ON SHEET E-8.
- ⑩ EXISTING AUTOMATIC TRANSFER SWITCH TO BE REUSED AFTER RELOCATION. AUTOMATIC TRANSFER SWITCH TO BE RELOCATED TO NEW RACK. REFER TO KEYED NOTE #22 FOR PROPOSED LOCATION.
- ⑪ EXISTING UTILITY DISTRIBUTION POLE TO REMAIN. EXISTING METER TO BE REMOVED. COORDINATE ALL REQUIREMENTS WITH FPL. REFER ALSO TO ONE LINE ON SHEET E-7.
- ⑫ PROVIDE AND INSTALL 3-#3 THWN CU + 1-#8 THWN CU GND IN 1-1/2" CONDUIT FROM EXISTING UTILITY DISTRIBUTION POLE TO NEW ELECTRIC METER.
- ⑬ PROVIDE AND INSTALL 3-#3 THWN CU + 1-#8 THWN CU GND IN 1-1/2" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO GENERATOR.
- ⑭ PROVIDE AND INSTALL 3-#3 THWN CU + 1-#8 THWN CU GND IN 1-1/2" CONDUIT FROM AUTOMATIC TRANSFER SWITCH THE PUMP CONTROL PANEL.
- ⑮ PROVIDE AND INSTALL 3-#3 THWN CU + 1-#8 THWN CU GND IN 1-1/2" CONDUIT FROM SERVICE DISCONNECT TO AUTOMATIC TRANSFER SWITCH.
- ⑯ PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO THE GENERATOR FOR GENERATOR START CONTROLS.
- ⑰ PROVIDE AND INSTALL 2-#12 THWN CU + 1-#12 THWN CU GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE GENERATOR FOR 120V AC POWER (BATTERY CHARGER AND ANTI-CONDENSATION).
- ⑱ PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE NEW ODOR CONTROL PANEL.
- ⑲ PROVIDE AND INSTALL THREE (3) 2" SCHEDULE 80 PVC CONDUITS FROM WET WELL TO JUNCTION BOX.
- ⑳ PROVIDE AND INSTALL 1" CONDUIT FROM DFS ANTENNA TO PUMP CONTROL PANEL. CONFIRM CONDUIT SIZE WITH DFS. DFS SHALL INSTALL COAXIAL CABLE. ALSO PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO NEW SITE LIGHT MOUNTED ON DFS ANTENNA.
- ㉑ EXISTING GRAVITY MAIN TO BE REPLACED. REFER TO CIVIL DRAWINGS.
- ㉒ PROPOSED LOCATION FOR RELOCATED AUTOMATIC TRANSFER SWITCH. RELOCATED AUTOMATIC TRANSFER SWITCH SHALL BE INSTALLED ON NEW RACK. REFER TO SHEET E-13 FOR RACK ELEVATION DETAIL.

GENERAL NOTES:

- 1. MANATEE COUNTY WILL HAVE FIRST RIGHT OF REFUSAL ON ANY EQUIPMENT THAT IS DEMOLISHED OR REMOVED.
- 2. ROUTING AND DEPTH OF EXISTING CONDUITS IS UNKNOWN.
- 3. CONDUIT ROUTING SHOWN IS DIAGRAMMATICAL.
- 4. NEW CONDUIT TO BE INSTALLED SHALL BE FIELD ROUTED BASED ON EXISTING CONDITIONS.
- 5. WHERE POSSIBLE, EXISTING CONDUIT MAY BE INTERCEPTED AND REROUTED.
- 6. ALL EXISTING CONDUIT TO BE REUSED SHALL BE CLEANED WITH MANDREL PRIOR TO INSTALLING CONDUIT.
- 7. ALL RACEWAY SYSTEMS (NEW CONDUIT AND REUSED CONDUIT) SHALL COMPLY WITH NEC ARTICLE 352.26 OR AS APPLICABLE. PROVIDE AND INSTALL IN GROUND PULL BOXES (QUAZITE PG1324BA18 AND LID OR EQUAL).
- 8. WHERE/IF REQUIRED, IN GROUND PULL BOXES SHALL BE INSTALLED AT LOCATIONS THAT AVOID VEHICULAR TRAFFIC.
- 9. NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.



No.	REVISIONS	DATE	BY

Kimley»Horn

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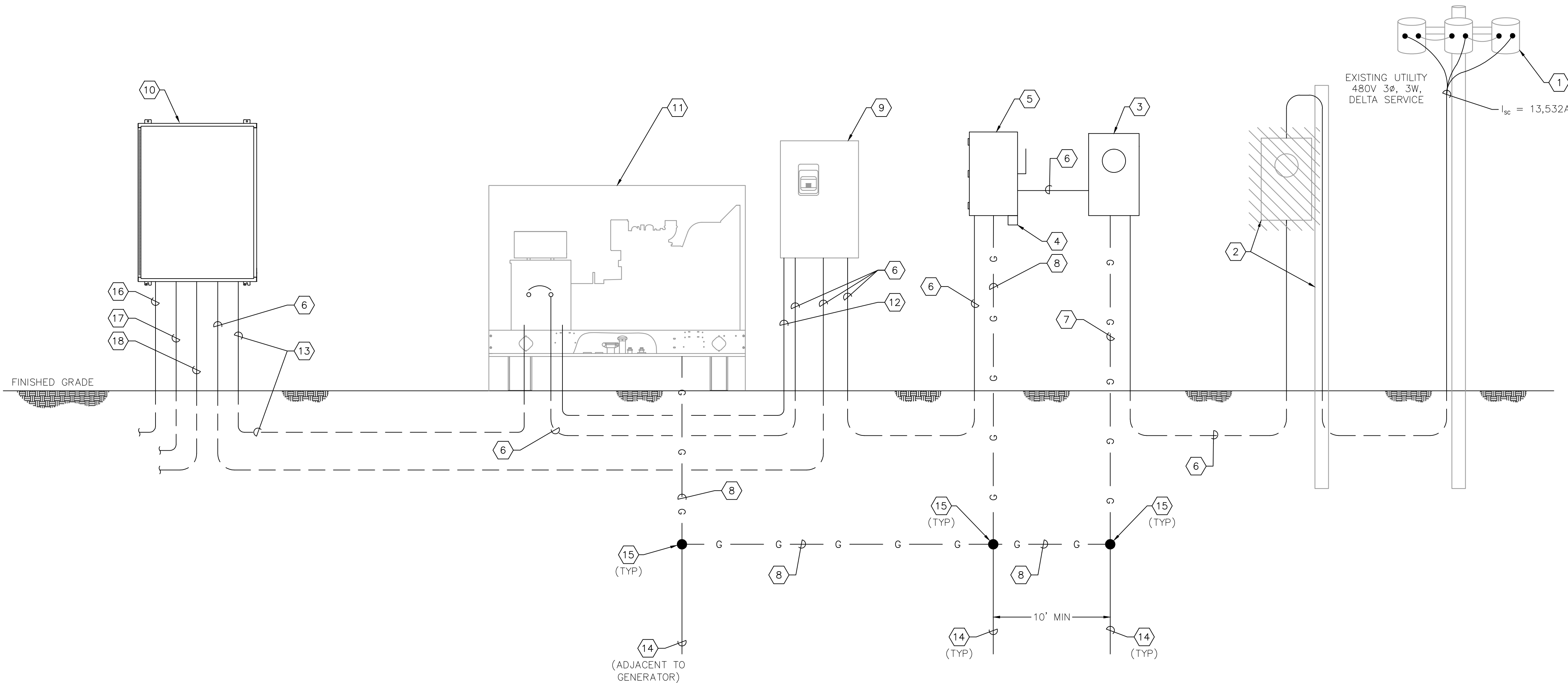

**NORTH COUNTY METAL GRAVITY SEWER
 PIPE REPLACEMENTS**
 MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

**RTU #554 - LS N7A
 ELECTRICAL SITE PLAN**

SHEET NUMBER	E-6
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RTU #554 - LS N7A ONE LINE DIAGRAM

LIFT STATION LOAD CALCULATION	
MOTORS:	
PUMP NO. 1:	10.0 HP, 480 VAC, 3 Ø, 14.0 A
PUMP NO. 2:	10.0 HP, 480 VAC, 3 Ø, 14.0 A
MOTOR SUB-TOTAL	28.0 A
+ 25% OF LARGEST MOTOR	3.5 A
SUB-TOTAL	31.5 A
AUXILIARY EQUIPMENT	20.0 A
TOTAL MAXIMUM PHASE AMPERES	51.5 A
SERVICE SIZE:	
100 A, 480 VAC, 3 Ø, 3 - WIRE MINIMUM.	

SHORT CIRCUIT CALCULATIONS	
AVAILABLE SHORT-CIRCUIT CURRENT AT 480V UTILITY SERVICE IS 13,532 AMPERES. CONTRACTOR TO CONFIRM WITH THE UTILITY	
UTILITY SERVICE: 480V, 3 PH, TRANSFORMER BANK AVAILABLE FAULT CURRENT AT SECONDARY SIDE OF UTILITY'S TRANSFORMER: 13,532 AMP RMS SYM. SERVICE CONDUCTOR LENGTH: 55 FEET SERVICE CONDUCTOR SIZE: #3 AWG CU. FUSE RATING: 100 AMPERES ISCA AT LINE SIDE OF SERVICE DISCONNECT:	
ISCA=	$1 + \frac{1}{\frac{(1.73)(55)(13,532)}{(3,860)(480)}} \times 13,532 = 7,984$
SHORT CIRCUIT CURRENT AVAILABLE AT LINE SIDE LUGS OF THE FUSED DISCONNECT = 7,984 AMPS RMS.	

ONE LINE DIAGRAM NOTES:	
1	EXISTING UTILITY POLE-MOUNTED TRANSFORMERS TO REMAIN. NO WORK REQUIRED.
2	EXISTING UTILITY DISTRIBUTION POLE TO REMAIN. EXISTING METER TO BE REMOVED. COORDINATE ALL REQUIREMENTS WITH FPL.
3	NEW 100A, 480V, 3Ø, METER SOCKET TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. GROUND METER SOCKET PER FPL SPECIFICATIONS. COORDINATE NEW ELECTRICAL SERVICE ENTRANCE REQUIREMENTS WITH FPL.
4	NEW LIGHTNING ARRESTOR TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR.
5	NEW 100A, 600V, 3-POLE FUSED DISCONNECT SWITCH TO BE PROVIDED BY MANATEE COUNTY AND INSTALLED BY CONTRACTOR. FUSE SWITCH AT 100 AMPERES WITH CLASS RK5 FUSES.
6	PROVIDE AND INSTALL 3-#3 THWN CU + 1-#8 THWN CU GND IN 1-1/2" CONDUIT.
7	PROVIDE AND INSTALL #8 CU GROUNDING ELECTRODE CONDUCTOR. VERIFY/COORDINATE REQUIREMENTS WITH FPL.
8	PROVIDE AND INSTALL #4 CU GROUNDING ELECTRODE CONDUCTOR.
9	EXISTING AUTOMATIC TRANSFER SWITCH TO REUSED, BUT RELOCATED TO NEW EQUIPMENT RACK. REFER TO SHEET E-6.
10	EXISTING AUTOMATIC TRANSFER SWITCH (ATS) TO BE REUSED, BUT RELOCATED. REFER TO SHEET E-6.
11	EXISTING GENERATOR TO REMAIN.
12	PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO THE GENERATOR FOR GENERATOR START CONTROLS.
13	PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE GENERATOR FOR 120V AC POWER (BATTERY CHARGER AND ANTI-CONDENSATION).
14	PROVIDE AND INSTALL 5/8" X 10'-0" COPPER CLAD GROUNDING ELECTRODE. ELECTRODES TO BE SPACED A MINIMUM OF 10 FEET APART.
15	EXOTHERMIC WELD TO GROUND ROD.
16	PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO THE NEW ODOR CONTROL PANEL.
17	PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO NEW SITE LIGHT ON DFS TOWER.
18	PROVIDE AND INSTALL 1" CONDUIT FROM PUMP CONTROL PANEL TO NEW DFS ANTENNA. COAXIAL CABLE WILL BE INSTALLED BY DFS.

GENERAL NOTES:
1. NOT ALL REQUIRED CONDUITS AND CONDUCTORS SHOWN FOR CLARITY. REFERENCE OTHER SHEETS FOR ADDITIONAL CONDUIT OR CONDUCTORS THAT ARE REQUIRED.



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200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701
PHONE: 727-547-3999
WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT	148400106
DATE	JUN 2023
SCALE	AS SHOWN
DESIGNED BY	TDT
DRAWN BY	JLT
CHECKED BY	GLW

Manatee County FLORIDA

NORTH COUNTY METAL GRAVITY SEWER PIPE REPLACEMENTS

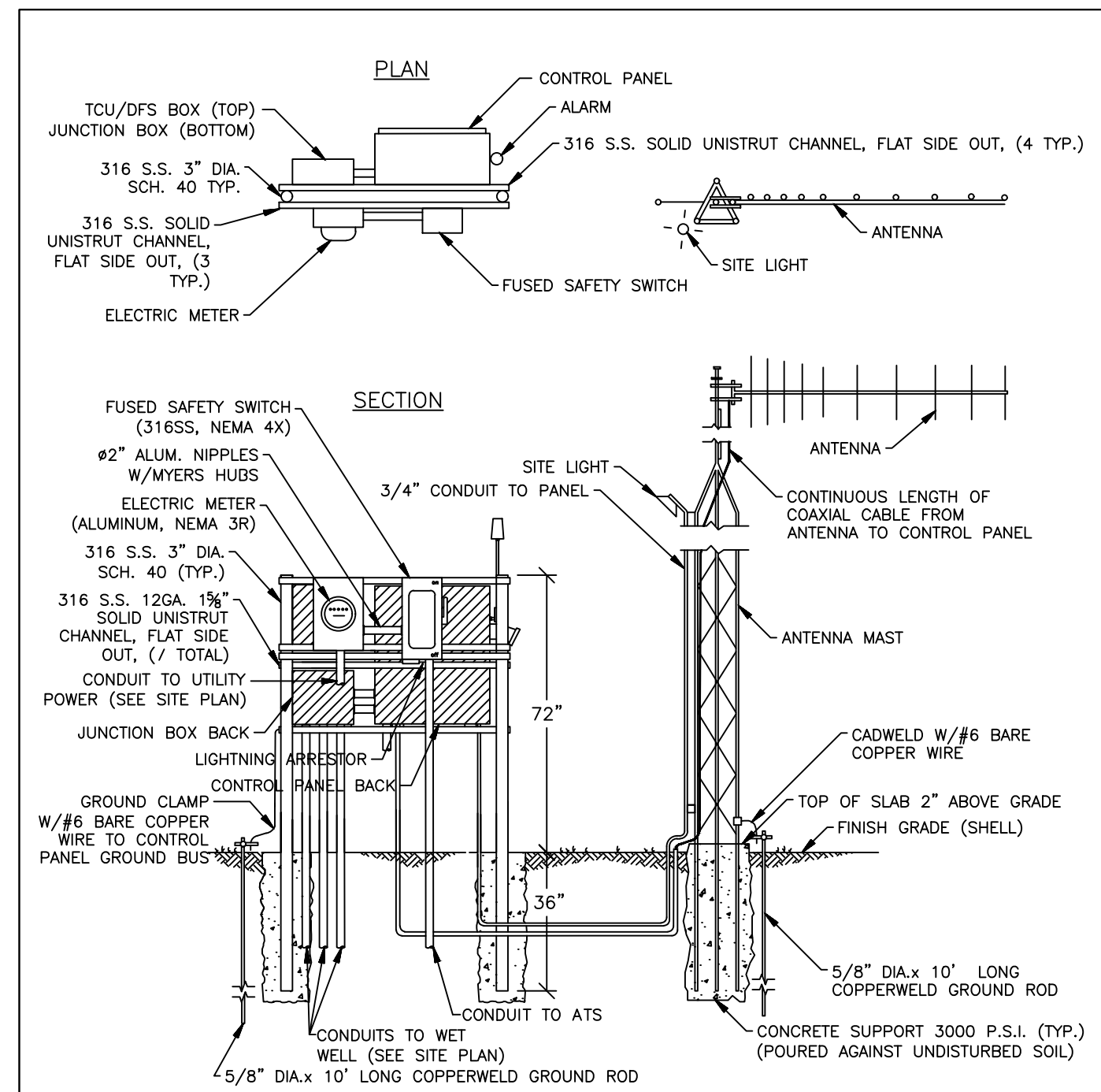
MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

RTU #554 - LS N7A ONE LINE DIAGRAM

SHEET NUMBER	E-7
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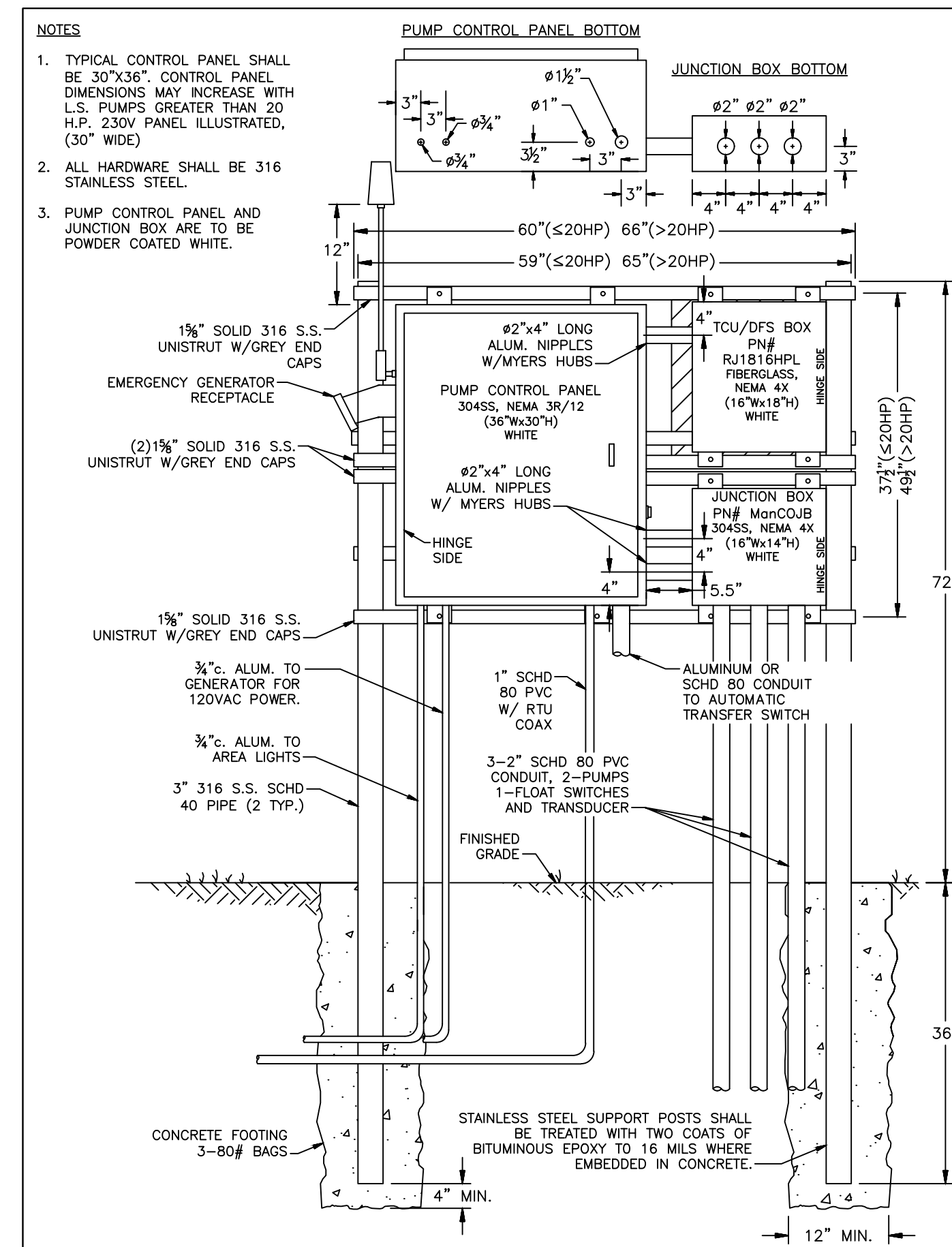
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TYPICAL SERVICE ENTRANCE STRUCTURE

- NOTES**
1. ALL EQUIPMENT FURNISHED FOR THE LIFT STATION SHALL CONFORM TO MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS.
 2. POWER TO BE SUPPLIED AS DIRECTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH PROVIDING TEMPORARY AND PERMANENT ELECTRICAL SERVICE.
 3. STAINLESS STEEL CONTROL PANEL SUPPORT POSTS SHALL BE TREATED WITH TWO COATS OF BITUMINOUS EPOXY TO 16 MILS WHERE EMBEDDED IN CONCRETE.
 4. CONTROL AND FLOW METER ENCLOSURE TO BE NEMA 3R/12 304 STAINLESS STEEL WITH RAIN SHIELD. DISCONNECT ENCLOSURE TO BE NEMA 4X 304 STAINLESS STEEL.
 5. ALL P.V.C. CONDUIT SHALL BE SCHEDULE 80.
 6. ANTENNA MAST SHALL BE RATED FOR 150 MPH WINDS.
 7. IF ANTENNA MAST IS MORE THAN 18\"/>

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION METER & ELECTRICAL DETAILS	US-23
REV. BY	DATE		
	February 25, 2020 DATE OF APPROVAL		



NOTES

1. TYPICAL CONTROL PANEL SHALL BE 30"x36". CONTROL PANEL DIMENSIONS MAY INCREASE WITH L.S. PUMPS GREATER THAN 20 H.P. 230V PANEL ILLUSTRATED, (30" WIDE)
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. PUMP CONTROL PANEL AND JUNCTION BOX ARE TO BE POWDER COATED WHITE.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL	US-24
REV. BY	DATE		
	February 25, 2020 DATE OF APPROVAL		

No.	REVISIONS	DATE	BY

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Manatee County

**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**

MANATEE COUNTY

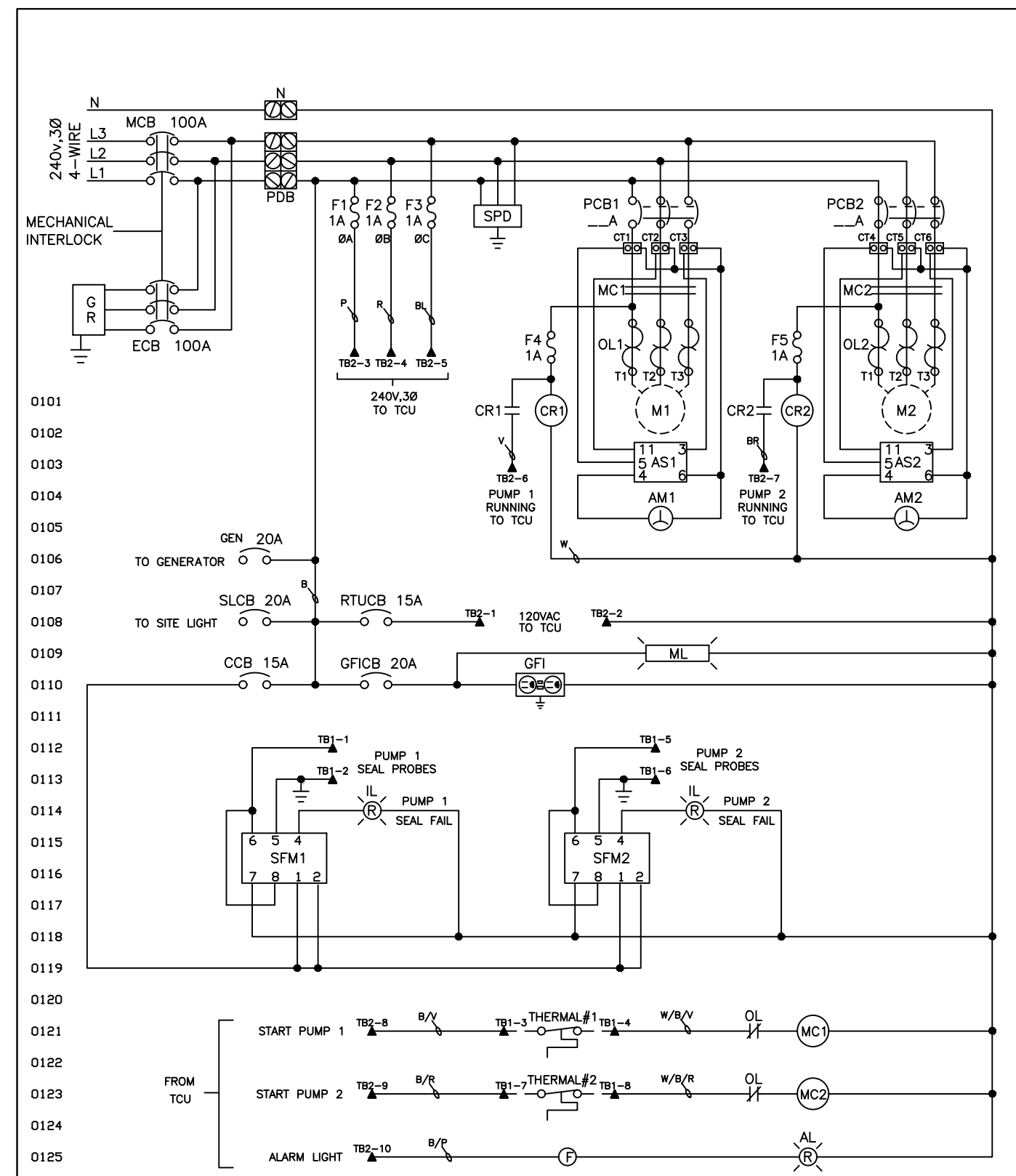
LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

**MANATEE COUNTY
STANDARD LIFT STATION
DETAILS**

SHEET NUMBER	E-8
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1 of 5

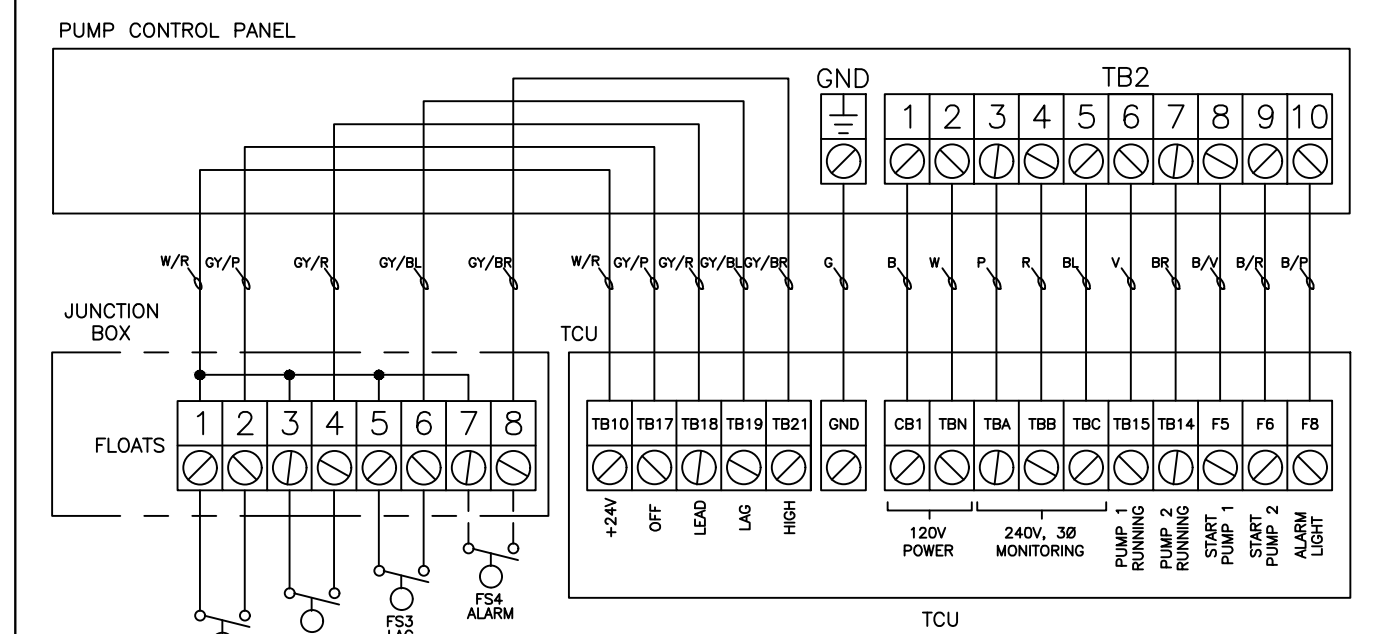
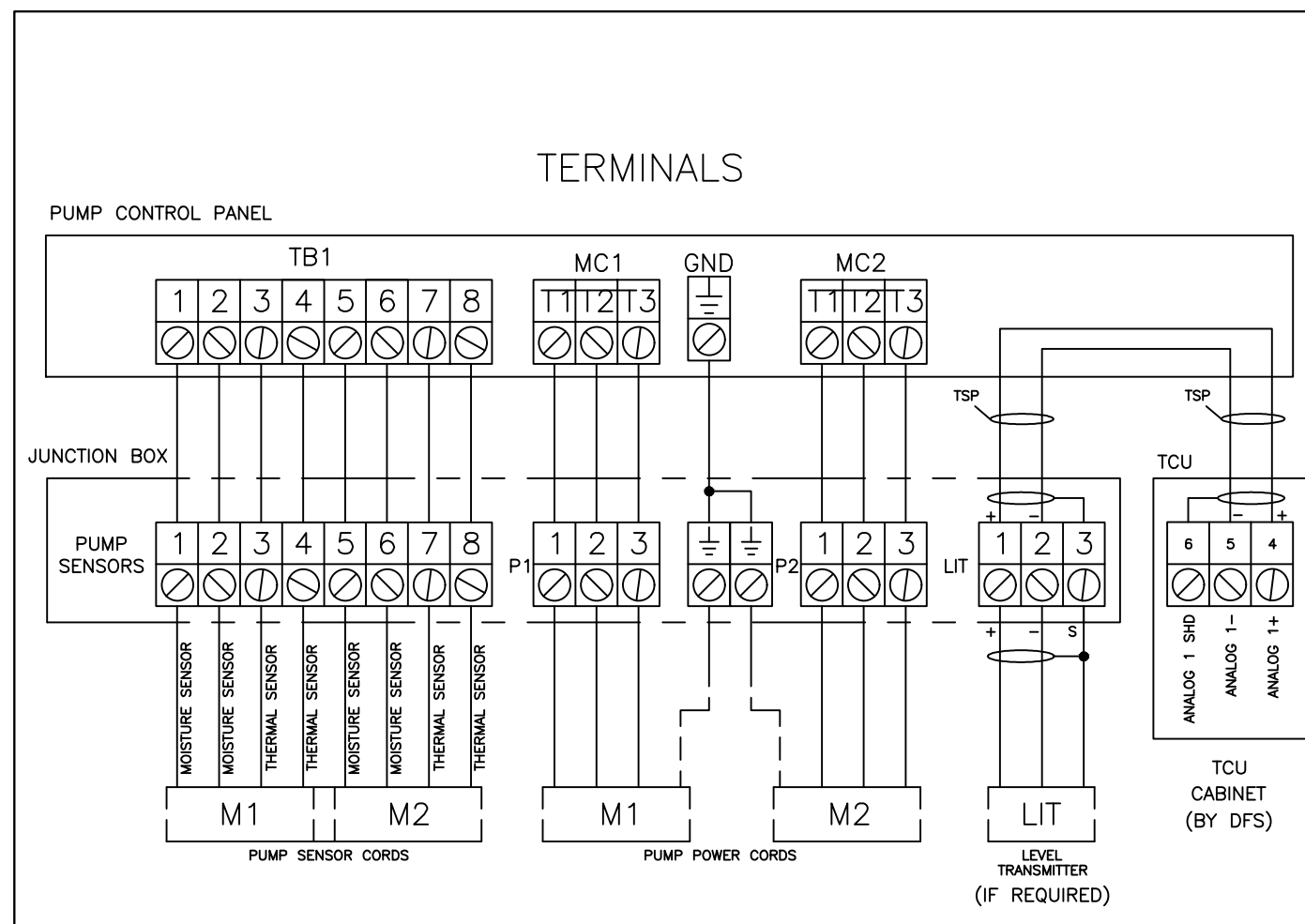
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (230V)	US-25A
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

PUMP CONTROL PANEL BILL OF MATERIALS			
QTY.	ABBR.	DESCRIPTION	MANUFACTURER, PART#
1	ENC	ENCLOSURE, 304SS N3R/12 (WHITE)	HOFFMAN, A36H3012SSLP-P8743 (MINIMUM SIZE)
1	MCB	MAIN CIRCUIT BREAKER	SQ.D, SIZE AS REQUIRED - 100A MIN.
1	ECB	EMERGENCY CIRCUIT BREAKER	SQ.D, SIZE AS REQUIRED - 100A MIN.
2	PCB1,2	PUMP CIRCUIT BREAKER	SQ.D, (SIZE AS REQUIRED)
1	CCB	CONTROL CIRCUIT BREAKER	SQ.D, Q0U115
1	RTUCB	RTU CIRCUIT BREAKER	SQ.D, Q0U115
1	GFICB	GFI CIRCUIT BREAKER	SQ.D, Q0U120
1	SLCB	SITE LIGHT CIRCUIT BREAKER	SQ.D, Q0U120
1	GEN	GENERATOR CB FOR BATT CHARGER	SQ.D, Q0U120
2	MC1,2	NEMA 4 CONTACTOR	CRYDOM, A53TP (SIZE AS REQUIRED)
2	CR1-2	CURRENT RELAY	CRYDOM, CWA2410 + HSS01DR + HSP-2
2	OL1-2	OVERLOAD RELAY	SIEMENS, ESP200 (SIZE AS REQUIRED)
1	GR	GENERATOR RECEPTACLE	RUSSELL STOLL, JRSB1044FR (230V, 100A)
1	SPD	SURGE PROTECTOR	DITEK, DTK-2403CMX+
6	CT1-6	CURRENT TRANSFORMER .5	ELECTRO. IND, 2SFT (SIZE AS REQUIRED)
2	AS1-2	AMMETER SELECTOR SWITCH	SPRECHER & SCHUH, LE2-12-8751
2	AM1-2	AMMETER 0-... A	CROMPTON, 013-75AA-LS-C6-B3 (SIZE AS REQD)
5	FT-5	FUSE, 1A	FERRAZ, ATM-1
1	GFI	120V RECEPTACLE	PASS & SEYMOUR, 1597-1
1	ML	120V MAINTENANCE LIGHT, LED	HOFFMAN, LEDA1S35
2	SFM1,2	SEAL FAIL MODULE	SYRELEC, PNRU-110A
2	IL	INDICATING LIGHT, RED LED	EATON, C22-L-XR-120
1	ASB	ALARM SILENCE BUTTON	SQ.D, 9001-SKR1BH5
1	F	FLASHER	INGRAM, SSF-150W
1	AL	ALARM LIGHT, 120V LED	FEDERAL, LP3PL-120R

WIRE COLOR CODE	
SYMBOL	COLOR
B	BLACK
W	WHITE
G	GREEN
BL	BLUE
R	RED
P	PINK
V	VIOLET
BR	BROWN
B/R	BLACK/RED
B/W	BLACK/WHITE
B/P	BLACK/PINK
G/P	GREEN/PINK
G/Y	GREY/RED
G/YL	GREY/BLUE
G/YB	GREY/BROWN
W/R	WHITE/RED
W/B/Y	WHT/BLK/VIOLET
W/B/R	WHT/BLK/RED

2 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (230V)	US-25B
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



3 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (230V)	US-25C
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

No.	REVISIONS	DATE	BY

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KHA PROJECT	148400106
DATE	JUN 2023
SCALE	AS SHOWN
DESIGNED BY	TDI
DRAWN BY	JLT
CHECKED BY	GLW

**NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS**

MANATEE COUNTY

LICENSED PROFESSIONAL

TIMOTHY THOMAS, P.E.

FL LICENSE NUMBER
47079

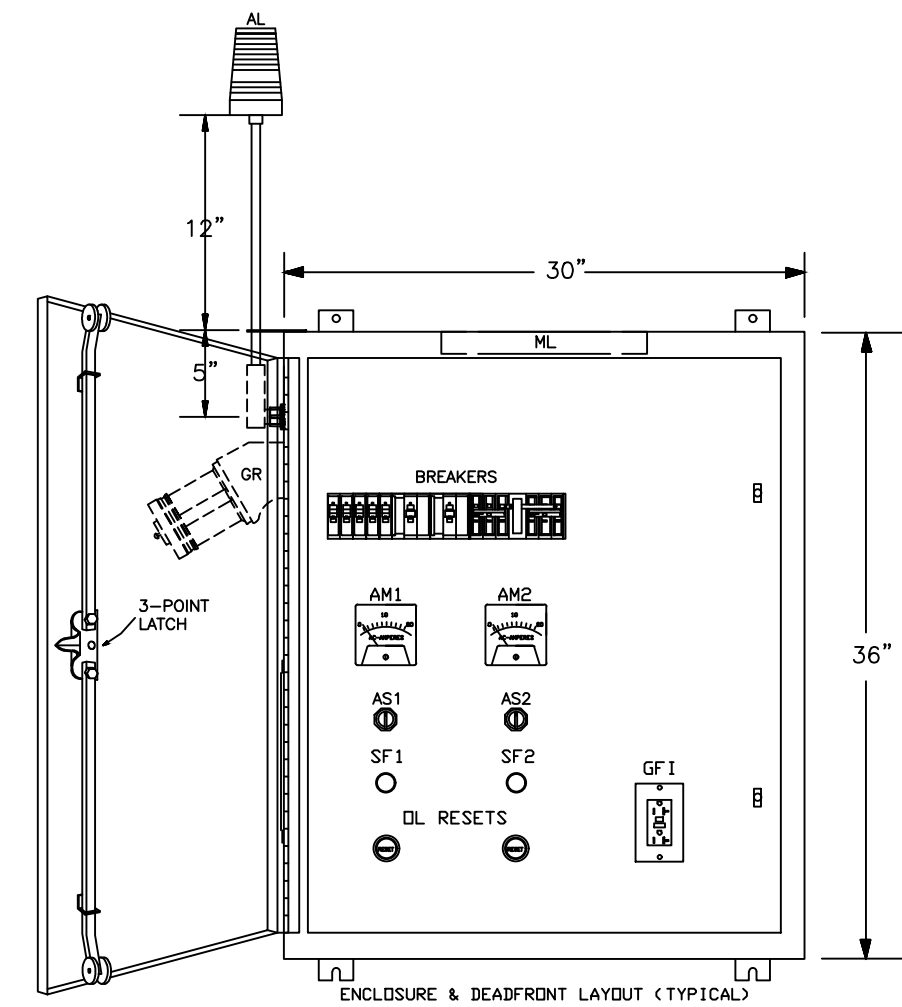
FL DATE:

SHEET NUMBER

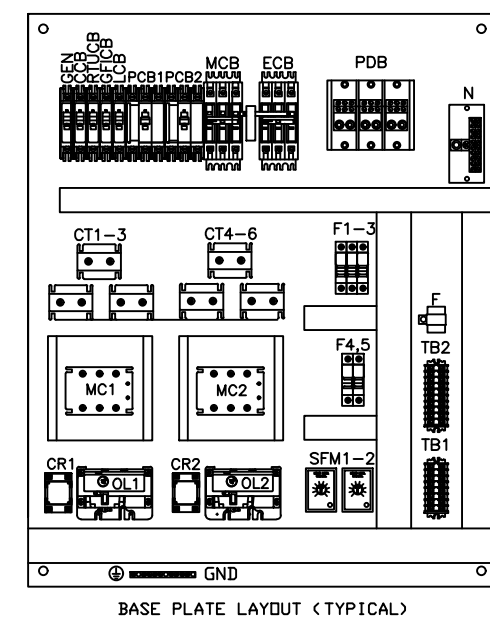
E-9



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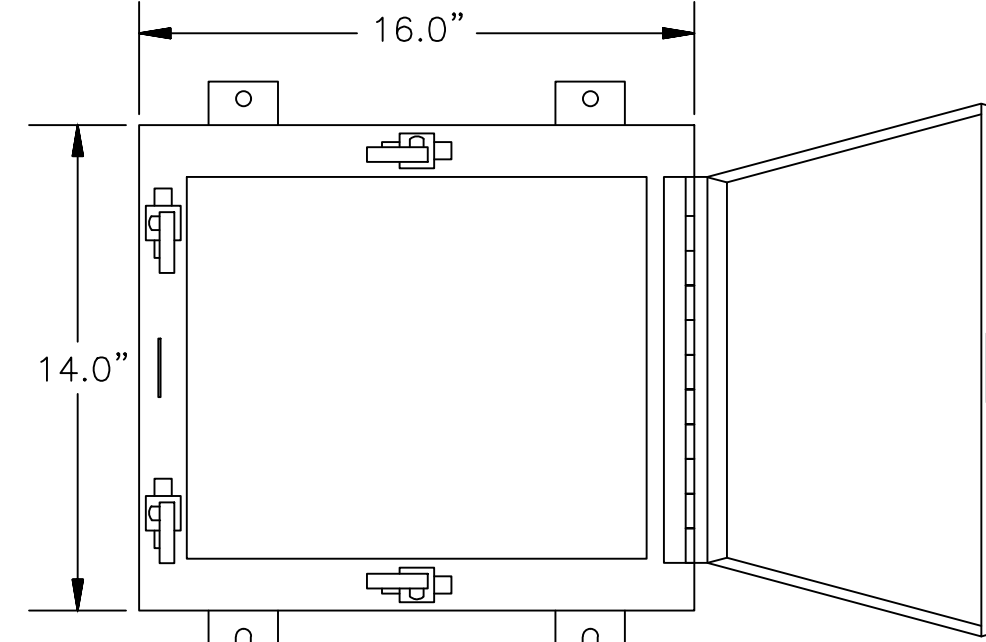
ENCLOSURE
POWDER
COATED
WHITE



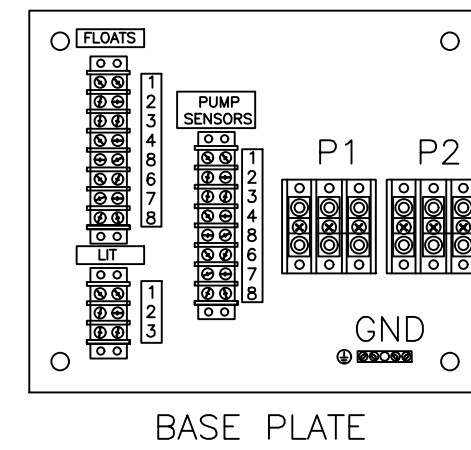
4 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (230V)	US-25D
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

JUNCTION BOX BILL OF MATERIALS			
QTY.	ABBR.	DESCRIPTION	MANUFACTURER, PART#
1	ENC	ENCLOSURE, 304SS N4X (WHITE)	SCHAEFER'S, SPN4SS-14168-587
2		8-POINT TERMINAL BLOCK	IDEAL, 89-208
1		3-POINT TERMINAL BLOCK	IDEAL, 89-203
2		PUMP TERMINAL BLOCK	MARATHON, 1323572
1	G	GROUND BAR	EATON, GBK5



JUNCTION BOX
(POWDER COATED WHITE)



NOTE: J-BOX GROUND
MUST BE BONDED TO
CONTROL PANEL GROUND

5 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (230V)	US-25E
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



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KHA PROJECT	148400106
DATE	JUN 2023
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DESIGNED BY	TDT
DRAWN BY	JLT
CHECKED BY	GLW



NORTH COUNTY METAL GRAVITY SEWER
PIPE REPLACEMENTS

MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
FL LICENSE NUMBER	47079

FL DATE:

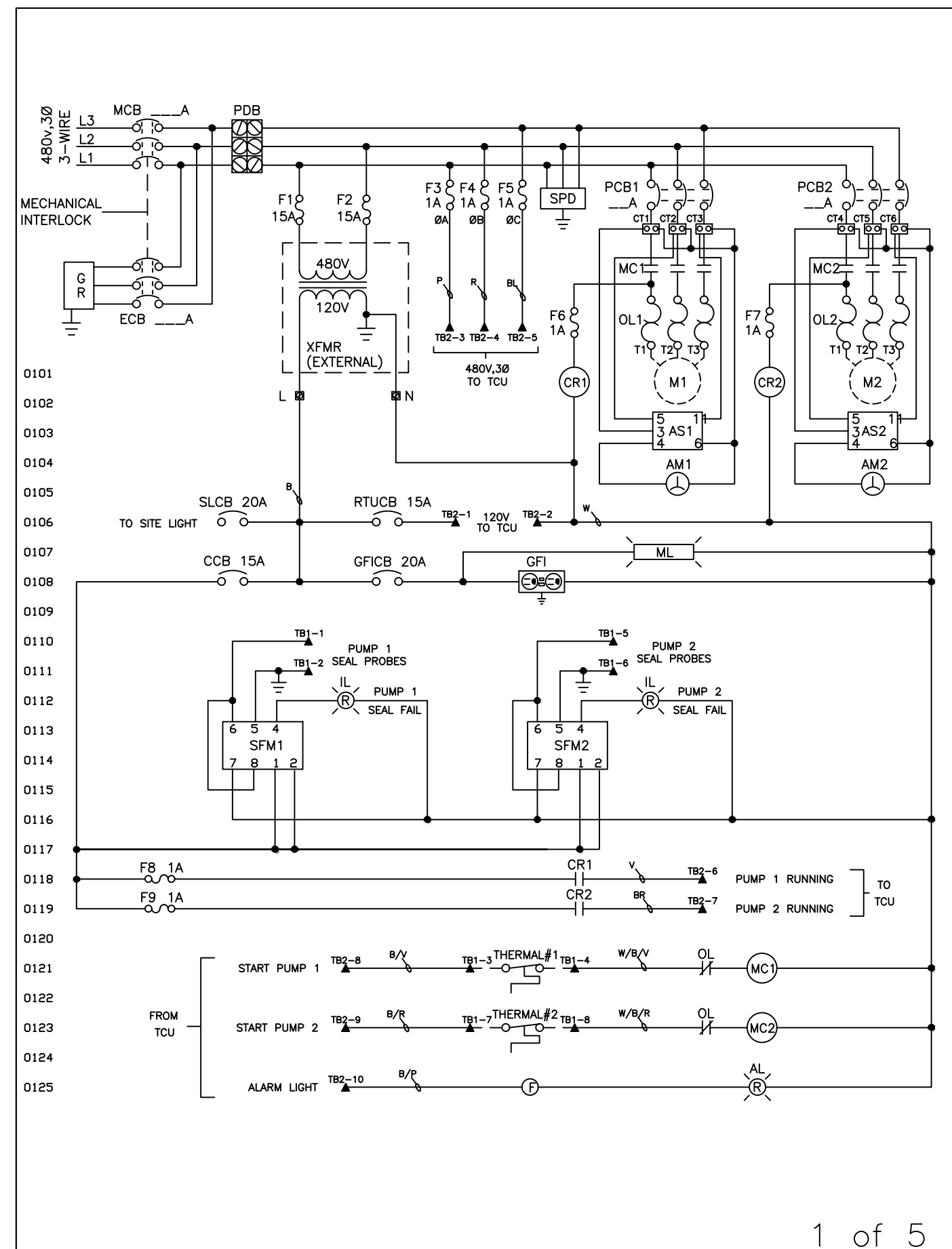
MANATEE COUNTY
STANDARD ELECTRICAL DETAILS
230V LIFT STATIONS

SHEET NUMBER

E-10

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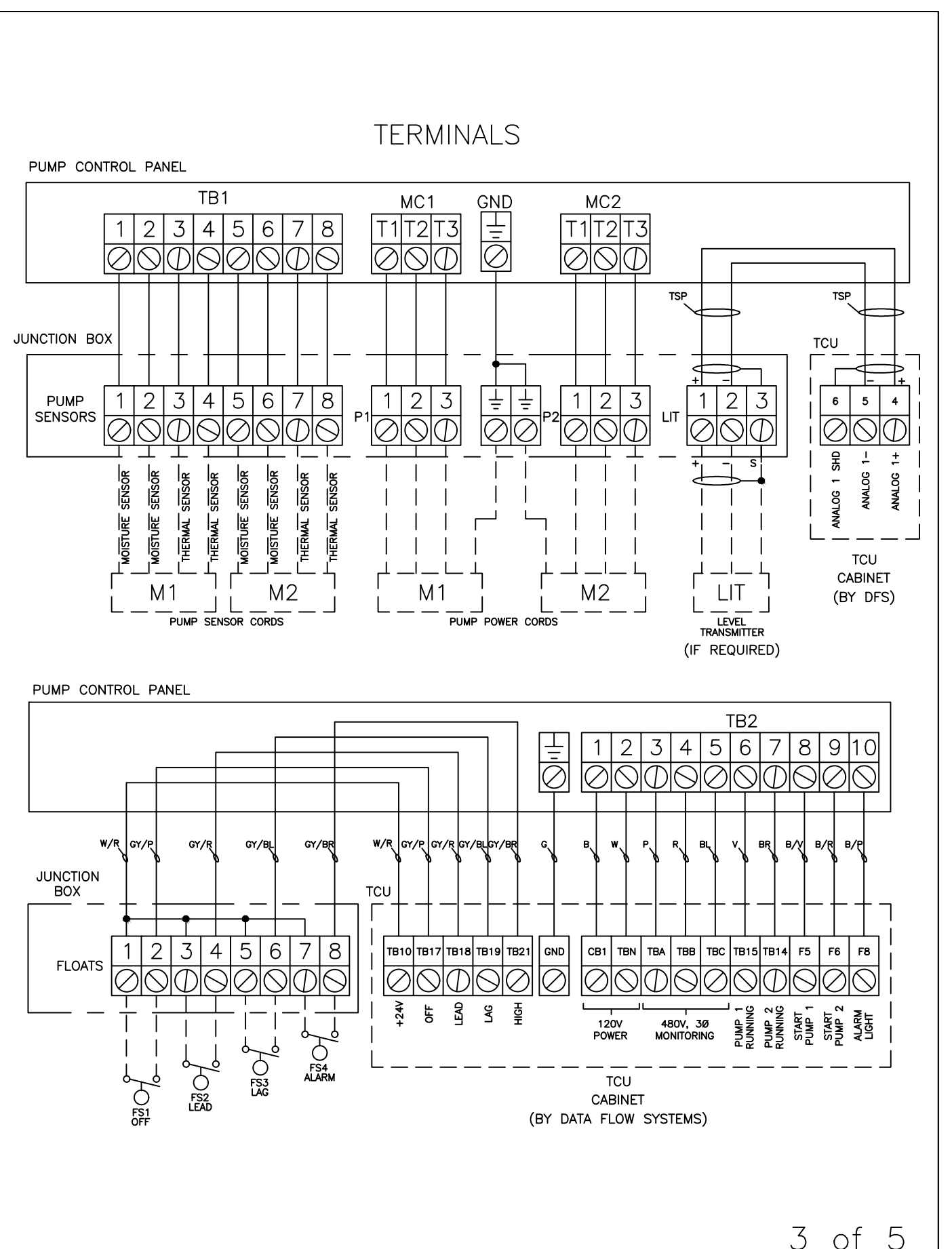
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (460V)	US-26A
REV. BY	DATE		
		DATE OF APPROVAL	

PUMP CONTROL PANEL BILL OF MATERIALS			
QTY.	ABBR.	DESCRIPTION	MANUFACTURER, PART#
1	ENC	ENCLOSURE, 304SS N3R/12 (WHITE)	HOFFMAN, A36H3012SSLP-P8743 (MINIMUM SIZE)
1	MCB	MAIN CIRCUIT BREAKER	SQ.D. HGL (SIZE AS REQUIRED - 100A MIN.)
1	ECB	EMERGENCY CIRCUIT BREAKER	SQ.D. HGL (SIZE AS REQUIRED - 100A MIN.)
2	PCB1,2	PUMP CIRCUIT BREAKER	SQ.D. HGL (SIZE AS REQUIRED) + S29450
1	CCB	CONTROL CIRCUIT BREAKER	SQ.D. QOU115
1	RTUCB	RTU CIRCUIT BREAKER	SQ.D. QOU115
1	GFICB	GFI CIRCUIT BREAKER	SQ.D. QOU120
1	SLCB	SITE LIGHT CIRCUIT BREAKER	SQ.D. QOU120
2	MC1,2	NEMA 4 CONTACTOR	CRYDOM, A53TP- (SIZE AS REQUIRED)
2	CR1-2	CURRENT RELAY	CRYDOM, CWA2410 + H5501DR + HSP-2
2	OL1-2	OVERLOAD RELAY	SIEMENS, ESP200 (SIZE AS REQUIRED)
1	GR	GENERATOR RECEPTACLE	RUSSELL STOLL, JRSB2034HR
1	SPD	SURGE PROTECTOR	DITEK, DTK-4803CMX+
6	CT1-6	CURRENT TRANSFORMER	ELECTRO. IND. 2SFT- (SIZE AS REQUIRED)
2	AS1-2	AMMETER SELECTOR SWITCH	SPRECHER & SCHUH, LE2-12-8751
2	AM1-2	AMMETER 0- A	CROMPTON, 013-75AA-LS-C6-B3 (SIZE AS REQD)
2	F1-2	FUSE, 15A	FERRAZ, ATQR-15
1	XFMR	TRANSFORMER, 480V/120VAC 3KVA	SQ.D. 7400-3S1F (SHIPPED LOOSE)
7	F3-9	FUSE, 1A	FERRAZ, ATMR-1
1	GFI	120V RECEPTACLE	PASS & SEYMOUR, 1597-1
1	ML	MAINTENANCE LIGHT, LED	HOFFMAN, LEDA1S35
2	SFM1,2	SEAL FAIL MODULE	SYRELEC, PNRU-110A
2	IL	INDICATING LIGHT, RED LED	EATON, C22-L-XR-120
1	F	FLASHER	INGRAM, SSF-150W
1	AL	ALARM LIGHT, 120V LED	FEDERAL, LP3PL-120R

WIRE COLOR CODE	
SYMBOL	COLOR
B	BLACK
W	WHITE
G	GREEN
BL	BLUE
R	RED
P	PINK
V	VIOLET
BR	BROWN
B/R	BLACK/RED
B/Y	BLACK/YELLOW
B/P	BLACK/PINK
GY/P	GREY/PINK
GY/R	GREY/RED
GY/BL	GREY/BLUE
GY/BR	GREY/BROWN
W/R	WHITE/RED
W/B/Y	WHT/BLK/YDLET
W/B/R	WHT/BLK/RED

2 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (460V)	US-26B
REV. BY	DATE		
		DATE OF APPROVAL	



3 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (460V)	US-26C
REV. BY	DATE		
		DATE OF APPROVAL	

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148400106

DATE
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SCALE AS SHOWN

DESIGNED BY TDT

DRAWN BY JLT

CHECKED BY GLW

MANATEE COUNTY

LICENSED PROFESSIONAL

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FL LICENSE NUMBER
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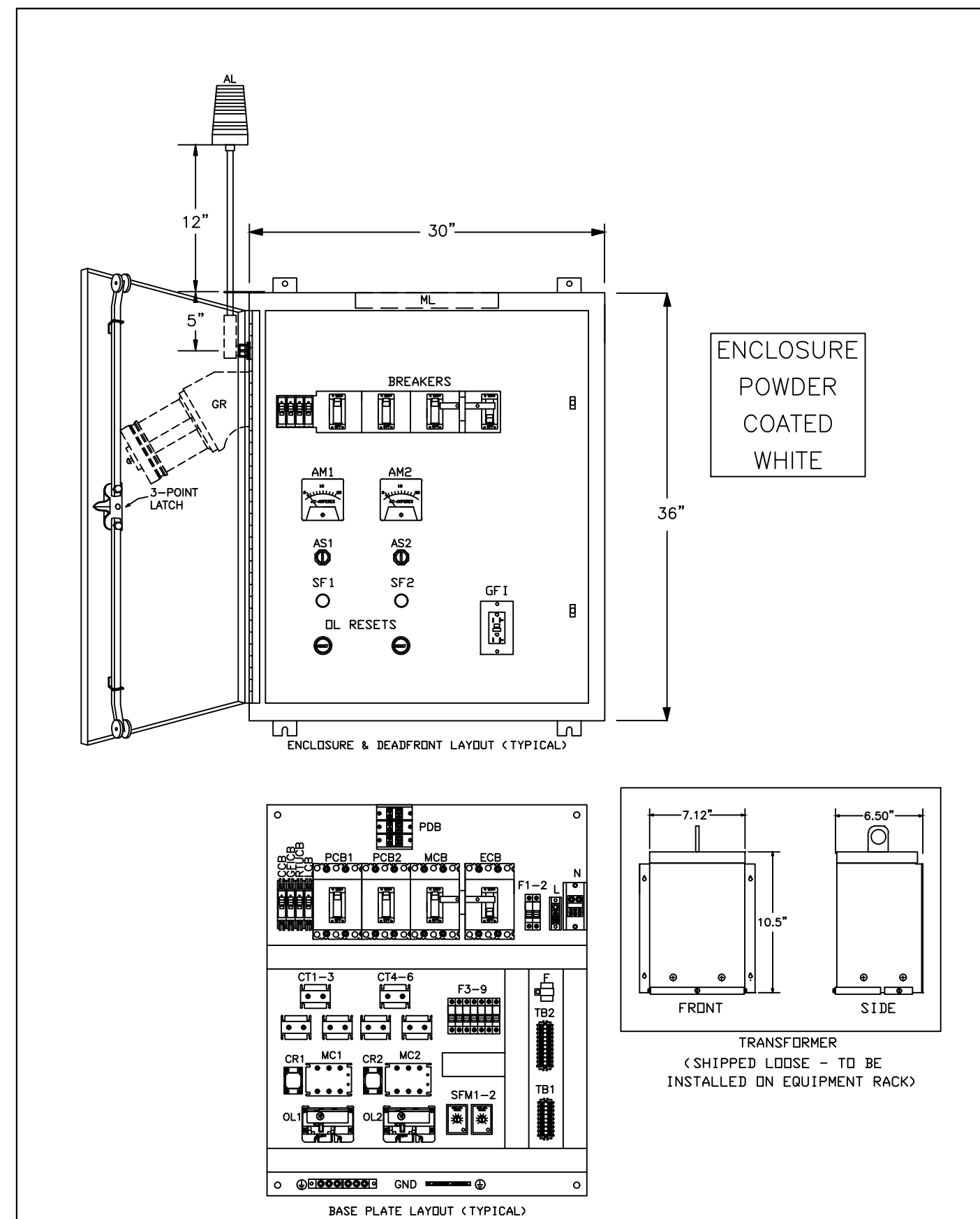
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MANATEE COUNTY
STANDARD ELECTRICAL DETAILS
460V LIFT STATIONS

SHEET NUMBER
E-11



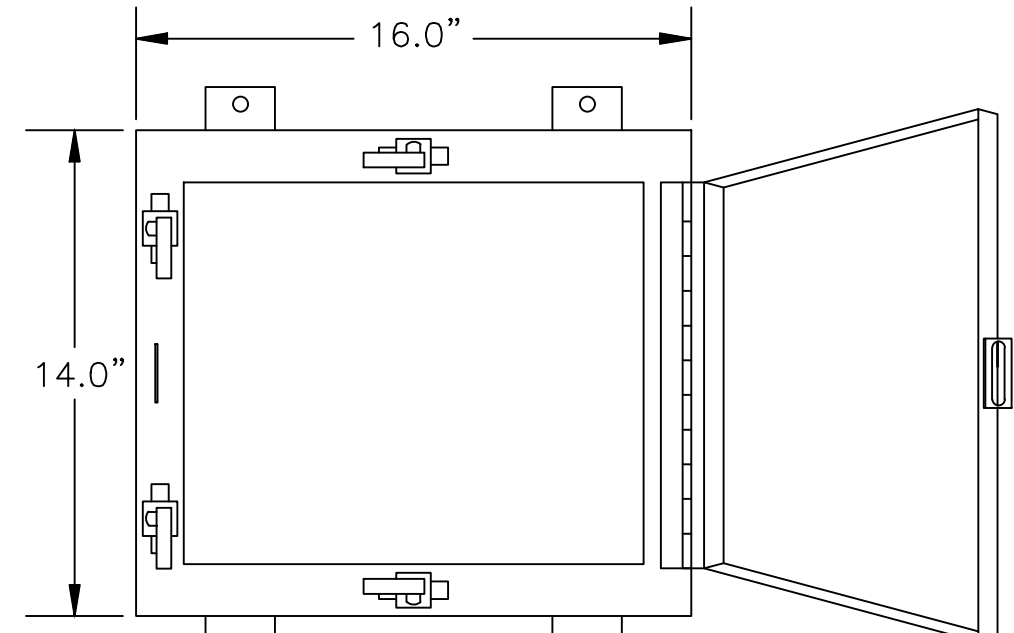
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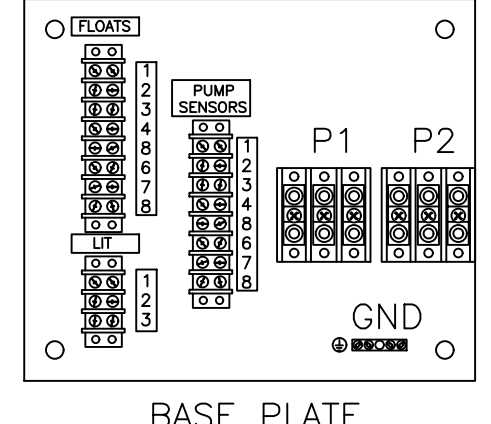
4 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (460V)	US-26D
REV. BY	DATE		
		DATE OF APPROVAL	

JUNCTION BOX BILL OF MATERIALS			
QTY.	ABBR.	DESCRIPTION	MANUFACTURER, PART#
1	ENC	ENCLOSURE, 304SS N4X (WHITE)	SCHAEFER'S, SPN4SS-14168-587
2		8-POINT TERMINAL BLOCK	IDEAL, 89-208
1		3-POINT TERMINAL BLOCK	IDEAL, 89-203
2		PUMP TERMINAL BLOCK	MARATHON, 1323572
1	G	GROUND BAR	EATON, GBK5



JUNCTION BOX (POWDER COATED WHITE)



NOTE: J-BOX GROUND MUST BE BONDED TO CONTROL PANEL GROUND

5 of 5

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		SEWAGE LIFT STATION CONTROL PANEL (460V)	US-26E
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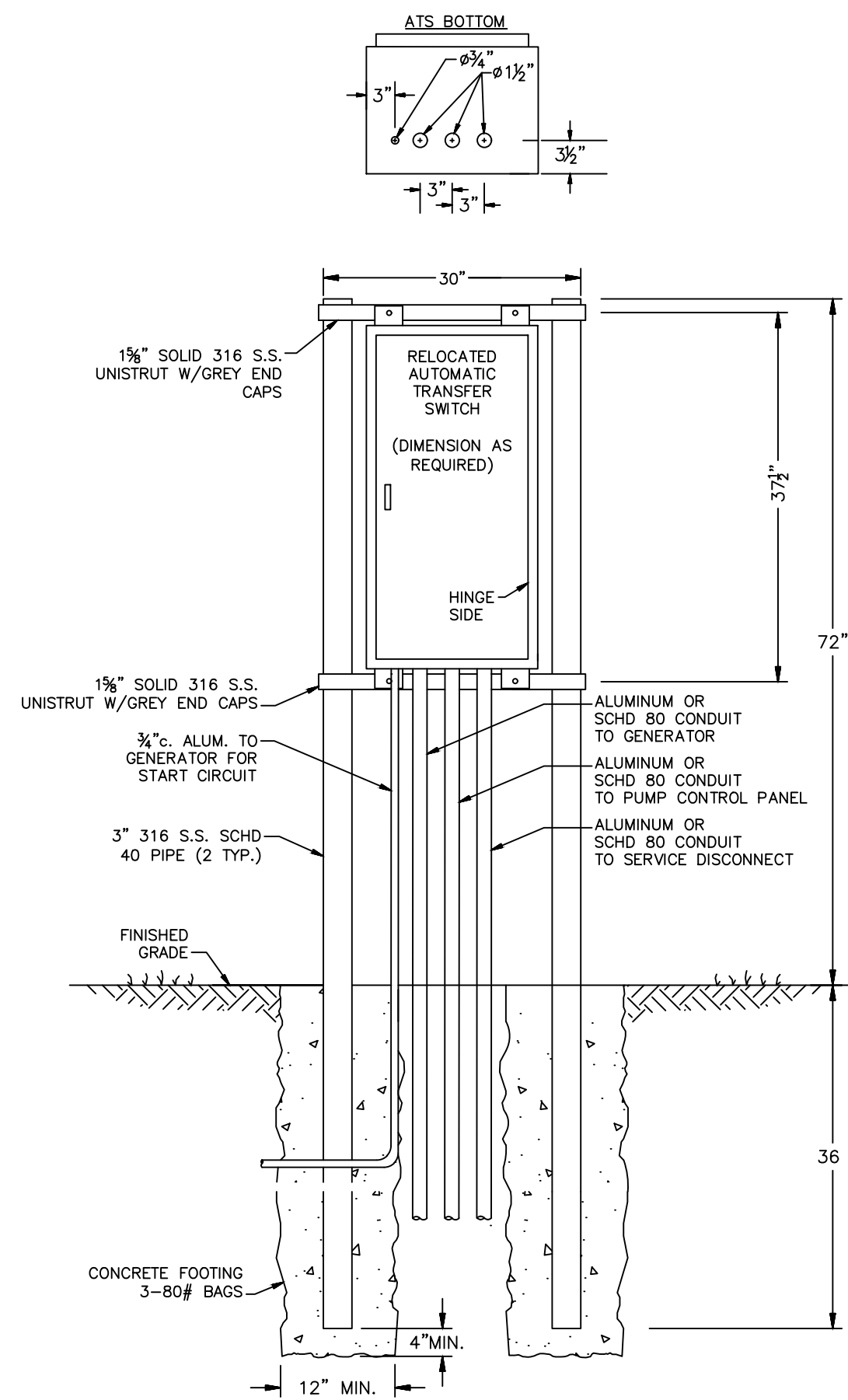
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MANATEE COUNTY

LICENSED PROFESSIONAL	TIMOTHY THOMAS, P.E.
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MANATEE COUNTY
STANDARD ELECTRICAL DETAILS
460V LIFT STATIONS

SHEET NUMBER	E-12
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AUTOMATIC TRANSFER SWITCH ELEVATION **A**
 NO SCALE E-6 | E-13



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**NORTH COUNTY METAL GRAVITY SEWER
 PIPE REPLACEMENTS**
 MANATEE COUNTY

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TYPICAL ELECTRICAL DETAILS

SHEET NUMBER
E-13