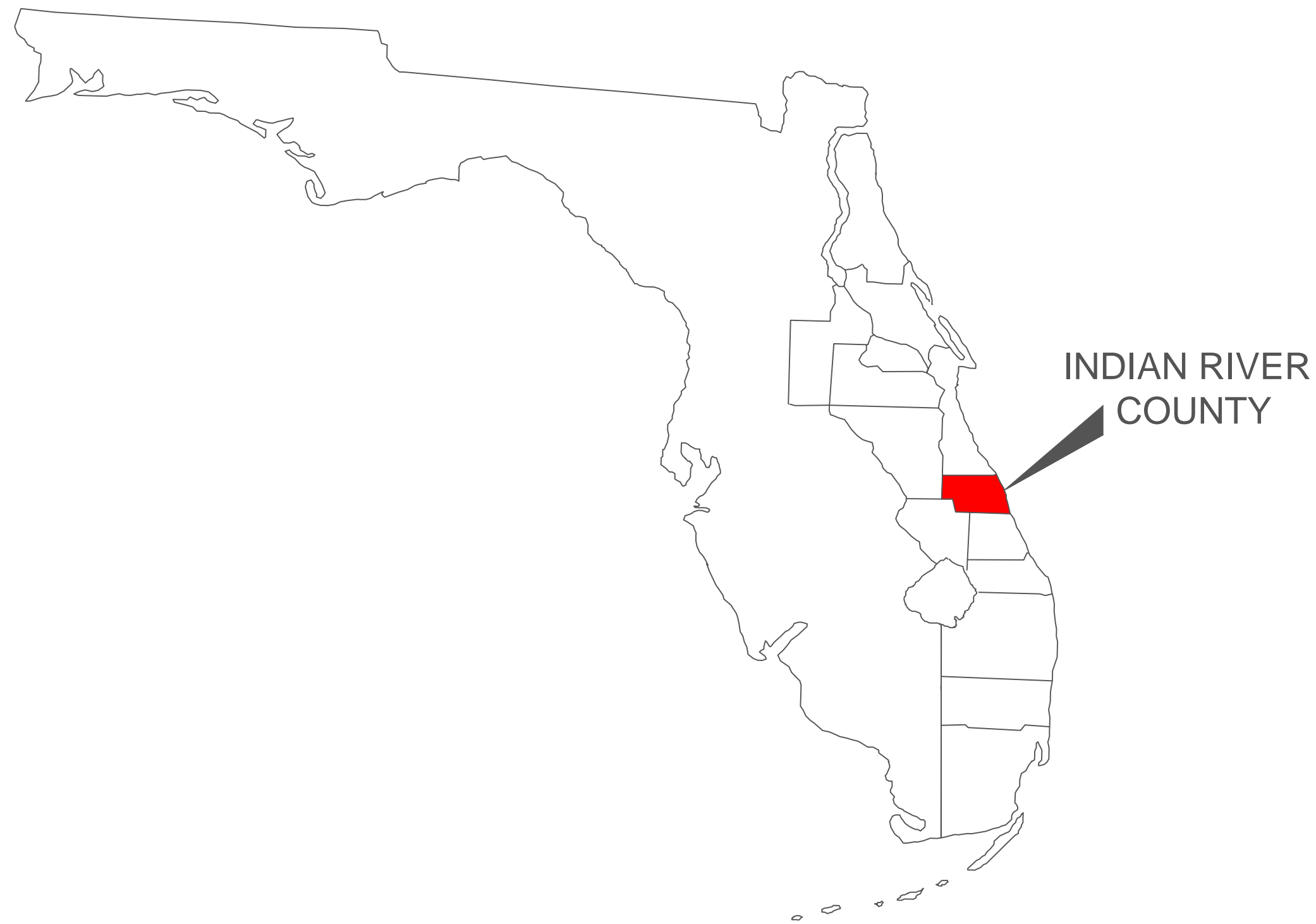


INDIAN RIVER COUNTY

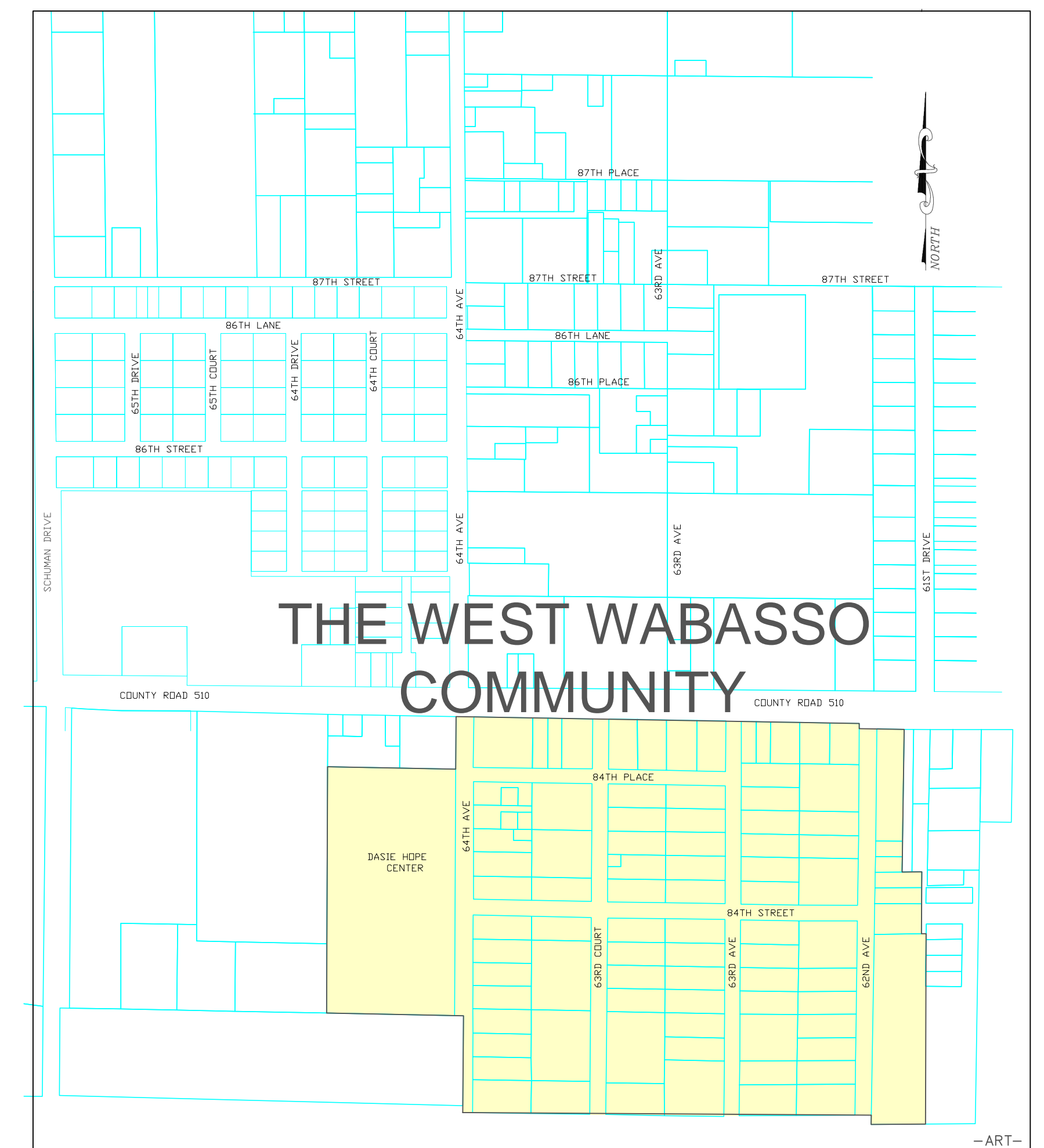
WEST WABASSO COMMUNITY SEWER SYSTEM

GRAVITY SEWER PLAN – PHASE 2

UCP 4103 BID No. 2019-020



LOCATION MAP



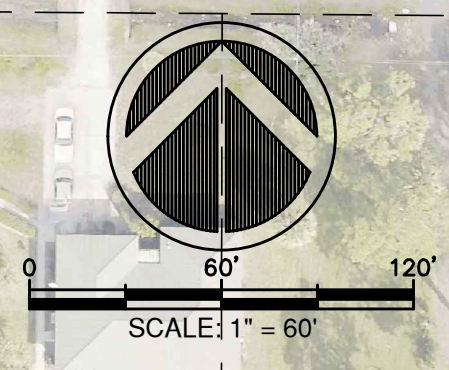
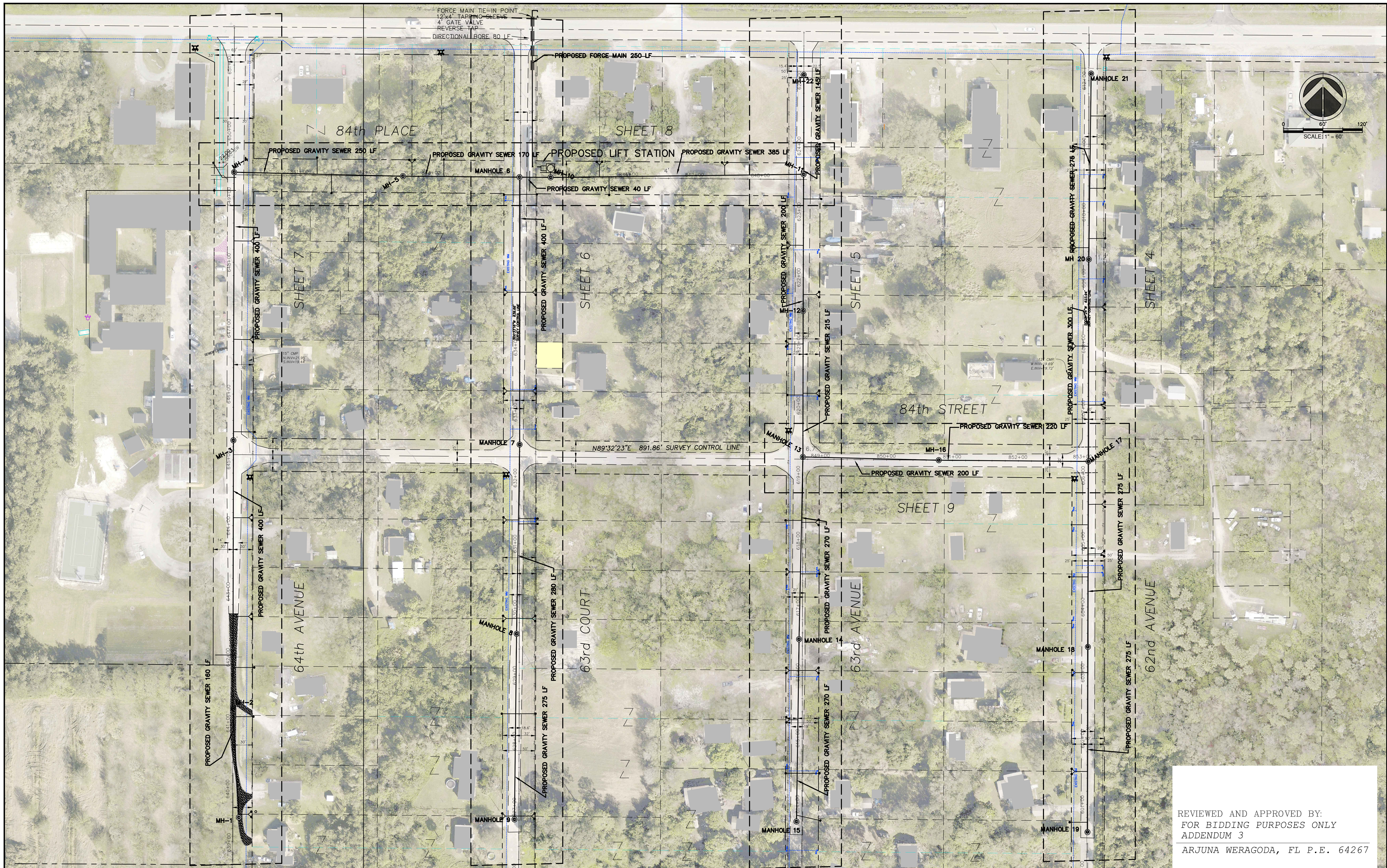
VICINITY MAP
PROJECT AREA SHOWN IN YELLOW

INDEX OF SHEETS

1. COVER SHEET
2. PROJECT PLAN – OVERALL VIEW
3. DATUM
- 4.-10. CONSTRUCTION PLANS AND PROFILES
- 11.-15. DETAILS UTILITY CONSTRUCTION STANDARDS
16. DETAILS STORMWATER CONTROL STANDARDS

REVIEWED AND APPROVED BY: FOR BIDDING PURPOSES ONLY
ADDENDUM 3

ARJUNA WERAGODA, FL P.E. 64267



REVIEWED AND APPROVED BY:
 FOR BIDDING PURPOSES ONLY
 ADDENDUM 3
 ARJUNA WERAGODA, FL P.E. 64267

Revision	Date	By

INDIAN RIVER COUNTY
 1801 27TH STREET
 VERO BEACH, FLORIDA 32960
 (772) 226-567-8000

DEPARTMENT OF
UTILITY SERVICES

DRAWN BY: --ART--
 DESIGNED BY: --ART--
 CHECKED BY:
 APPROVED BY:

DATE: DECEMBER 10, 2018
 SCALE: 1" = 60'
 UCP No. 4103

**WEST WABASSO PHASE 2
 GRAVITY SEWER SYSTEM**

**PROJECT PLAN OVERVIEW
 DOUGLAS SUBDIVISION**

SHEET
 2
 OF 16

NOTES

1. ALL MANHOLES REQUIRE DENSITY TEST
 - A) (1) ONE SET BETWEEN MANHOLES LESS THAN 200' APART
 - B) (2) TWO SETS BETWEEN MANHOLES 200'-400' APART
 - C) (3) THREE SETS FOR MANHOLES MORE THAN 400' APART
2. LIFT STATION WETWELL DENSITY TESTING REQUIRED
3. VALVE VAULT UNDERNEATH AND SIDE DENSITY TESTING REQUIRED
4. SERVICE LATERAL LOCATIONS PER DEPARTMENT OF UTILITY SERVICES INSPECTORS
5. LIFT STATION FENCE SHALL HAVE 12" WIDE OPENING WITH (2) 6" SWING GATE. TYPICAL FENCE CONSTRUCTION DETAIL SHEET 10 OF 15
6. FPL TO DROP POWER SERVICE FOR LIFT STATION. BUILDING PERMIT REQUIRED TO CONSTRUCT ELECTRICAL.
- 7) CBDG SIGN REQUIRED. SHEET 10 OF 15 FOR CONSTRUCTION DETAILS.

REPORT OF SURVEY:

- TYPE OF SURVEY: LIMITED TOPOGRAPHIC OF THE DOUGLAS SUBDIVISION AS RECORDED IN PLAT BOOK 2, PAGE 52 OF THE PUBLIC RECORDS OF INDIAN RIVER COUNTY, FLORIDA.
- SURVEYOR IN RESPONSIBLE CHARGE: DAVID TAYLOR P.S.M. 5243
 MASTELLER, MOLER, REED & TAYLOR INC. CERTIFICATE OF AUTHORIZATION L.B. 4644
 1655 27TH STREET, SUITE 2, VERO BEACH, FLORIDA 32960
 PHONE (772) 564-8050
- THIS SURVEY AND REPORT IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. ADDITIONS OR DELETIONS TO THE SURVEY MAP AND/OR REPORT OF SURVEY BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
- HORIZONTAL CONTROL ACCURACY: THE EXPECTED USE OF THE SURVEY MAP AND REPORT FOR THE LAND, AS CLASSIFIED IN THE MINIMUM TECHNICAL STANDARDS (5J-17 FAC) IS SUBURBAN. THE MINIMUM RELATIVE DISTANCE ACCURACY FOR THIS TYPE OF BOUNDARY CONTROL SURVEY IS 1 FOOT IN 7500 FEET. THE ACCURACY OBTAINED BY MEASUREMENT AND CALCULATION OF A CLOSED GEOMETRIC FIGURE OR REDUNDANCY OF MEASUREMENT WAS FOUND TO MEET OR EXCEED THIS REQUIREMENT.
- HORIZONTAL FEATURE ACCURACY: TOPOGRAPHIC LAND FEATURES (SIGNS, INLETS, VALVES, MAILBOXES, POWERPOLES, DRIVEWAYS, CULVERTS AND SIMILAR FEATURES) HAVE A HORIZONTAL FEATURE ACCURACY OF PLUS OR MINUS 0.25 FEET.
- VERTICAL CONTROL ACCURACY: VERTICAL CONTROL AS ESTABLISHED FOR THIS PROJECT SITE IS ACCURATE TO PLUS OR MINUS 0.05 FEET TIMES THE SQUARE ROOT OF THE DISTANCE IN MILES.
- ELEVATIONS OF WELL-IDENTIFIED FEATURES CONTAINED IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL POSITION ACCURACY OF PLUS OR MINUS 0.10 FEET.
- DATA ACQUISITION WAS OBTAINED DURING THE FOLLOWING TIME FRAME OR DATE: 12/2013
- THE BEARING BASE FOR THIS SURVEY IS AS FOLLOWS:
 - A) GRID NORTH
 - B) THE LINE BETWEEN TWO SET CONTROL POINTS AS DEPICTED.
 - C) SAID LINE BEARS SOUTH 89°27'01" EAST.

NO INSTRUMENTS OF RECORD REFLECTING EASEMENTS, RIGHTS-OF-WAY AND/OR OWNERSHIP WERE FURNISHED TO THIS SURVEYOR EXCEPT AS SHOWN. NO TITLE OPINION IS EXPRESSED OR IMPLIED.

THIS SURVEY DOES NOT CERTIFY TO THE EXISTENCE OR LOCATION OF ANY FOUNDATIONS, UTILITIES, UNDERGROUND ENCROACHMENTS OR IMPROVEMENTS EXCEPT AS SHOWN.

UNLESS A COMPARISON IS SHOWN, PLAT VALUES & MEASURED VALUES ARE THE SAME.

ALL MEASUREMENTS ARE IN FEET AND DECIMAL PARTS THEREOF AND ARE IN ACCORDANCE WITH THE STANDARDS OF THE UNITED STATES.

THE HORIZONTAL VALUES SHOWN HEREON REFER TO THE STATE PLANE COORDINATE SYSTEM, FLORIDA EAST ZONE, NAD 83 (NGS ADJUSTMENT OF 1990).

PROPERTY LINE AND RIGHT-OF-WAY INFORMATION SHOWN HEREON ARE APPROXIMATE AND DEPICTED FOR INFORMATIONAL PURPOSES ONLY. THE LINES, AS DEPICTED WERE PROVIDED BY INDIAN RIVER COUNTY. NO SURVEY HAS BEEN PERFORMED TO CONFIRM THEIR ACCURACY.

BENCHMARK NOTE:

THE ELEVATIONS AS SHOWN ON THIS SURVEY ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. THE PRIMARY BENCHMARKS FOR THIS SURVEY IS INDIAN RIVER COUNTY BENCHMARKS BM#023003 ELEVATION = 23.84' AND BM# 217012 ELEVATION=23.61'NAVD 1988. SITE BENCHMARKS ARE AS DEPICTED.

VERTICAL CONTROL ACCURACY: VERTICAL CONTROL AS ESTABLISHED FOR THIS PROJECT SITE IS ACCURATE TO PLUS OR MINUS 0.05 FEET TIMES THE SQUARE ROOT OF THE DISTANCE IN MILES.

ELEVATIONS OF WELL-IDENTIFIED FEATURES CONTAINED IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL POSITION ACCURACY OF PLUS OR MINUS 0.10 FEET.

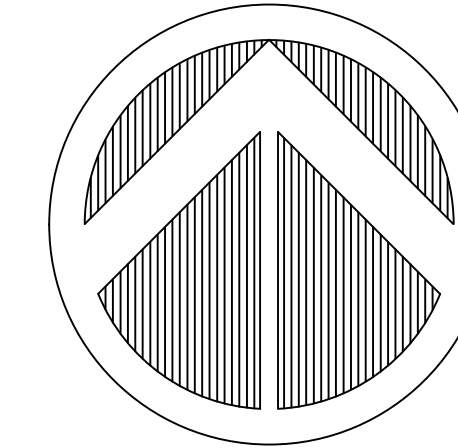
CERTIFIED TO:

- 1) INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

THE CONVERSION FROM THE DEPICTED NAVD 88 ELEVATIONS TO NGVD 29 ELEVATIONS IS 1.43' BASED UPON THE PUBLISHED ELEVATIONS OF INDIAN RIVER COUNTY BM #023003, 25.27'(NGVD '29) - 23.84'(NAVD '88) = 1.43'.

UTILITY CONSTRUCTION NOTES:

1. SOD ALL DISTURBED AREAS IN KIND
2. RESTORE ALL DRIVEWAYS IN KIND IF DISTURBED. CONCRETE DRIVEWAYS IF DISTURBED SHALL BE REPLACED FROM RIGHT OF WAY LINE TO EDGE OF PAVEMENT.
3. CONTRACTOR SHALL NOT DISTURB POTABLE WATER SERVICES SERVING EXISTING CUSTOMERS.



ABBREVIATIONS AND SYMBOLS

A/C	AIR CONDITIONING PAD	⊙	SANITARY MANHOLE	—	STREET SIGN
B/L	BASELINE	⊕	DRAINAGE MANHOLE	⊙	YARD LIGHT
BM	BENCHMARK	⊖	WELL	■	MAIL OR PAPER BOX
(C)	CALCULATED	⊗	HYDRANT	⊙	SOUTHERN BELL BOX
CH	CHORD	⊗	WATER VALVE	⊙	CABLE TV BOX
CHB	CHORD BEARING	⊗	WATER METER	⊙	POWER POLE
CM	4X4 CONCRETE MONUMENT	⊗	CLEANOUT	⊙	ELECTRIC BOX
(D)	DEED	⊗	CATCH BASIN	⊙	UNDERGROUND UTILITIES SIGN
Δ OR D	DELTA	⊗	CURB INLET	⊙	MONITORING WELL
D.E.	DRAINAGE EASEMENT	⊗	REUSE WATER VALVE	⊙	SANITARY VALVE
ELEV.	ELEVATION	⊗	IRRIGATION VALVE	⊙	TELEPHONE MANHOLE
EP OR EOP	EDGE OF PAVEMENT	⊗	YARD DRAIN	⊙	POST WOOD OR STEEL
F.A.C.	FLORIDA ADMINISTRATIVE CODE	⊗	PROPOSED DRAINAGE	⊙	CONCRETE POWER POLE
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	⊗	FIRE WATER CONNECTION	⊙	TRANSFORMER PAD
F.F.	FINISH FLOOR	⊗	REUSE WATER METER	⊙	BACK FLOW PREVENTER
FND.	FOUND	⊗	BLOW-OFF	⊙	SPRINKLER HEAD
GR.	GRADE	⊗	PULL BOX	⊙	BENCHMARK
I.D.	IDENTIFICATION	⊗	GAS VALVE	⊙	GUY WIRE
INV	INVERT	⊗	STOP SIGN	⊙	STREET LIGHT
IR	IRON ROD	⊗	TRAFFIC SIGN	⊙	STOP LIGHT
IRC	IRON ROD AND CAP	⊗	TELEPHONE PAD	⊙	ELECTRIC MANHOLE
IP	IRON PIPE	⊗	SEPTIC TANK	⊙	DRAIN CLEAN OUT
L	LENGTH	⊗	N.G.V.D.	⊙	NATIONAL GEODETIC VERTICAL DATUM
LB	LICENSED BUSINESS	⊗	N.A.V.D.	⊙	NORTH AMERICAN VERTICAL DATUM
(M)	MEASURED	⊗	OB	⊙	CONCRETE BLOCK STUCCO
MES	MITERED END SECTION	⊗	OE	⊙	OVERHEAD ELECTRIC
N.D.	NAIL & DISK	⊗	F.D.E.P.	⊙	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NO.	NUMBER	⊗			
O.R.B.	OFFICIAL RECORD BOOK	⊗			
P.C.P.	PERMANENT CONTROL POINT	⊗			
(P)	PLAT	⊗			
P/E	POOL EQUIPMENT PAD	⊗			
P.L.S.	PROFESSIONAL LICENSED SURVEYOR	⊗			
P.B.	PLAT BOOK	⊗			
P.I.	POINT OF INTERSECTION	⊗			
P.R.D.	PLANNED RESIDENTIAL DEVELOPMENT	⊗			
P.R.M.	PERMANENT REFERENCE MONUMENT	⊗			
P.S.M.	PROFESSIONAL SURVEYOR & MAPPER	⊗			
P.U.D.E.	PUBLIC UTILITY AND DRAINAGE EASEMENT	⊗			
R	RADIUS	⊗			
RGE	RANGE	⊗			
R.L.S.	REGISTERED LAND SURVEYOR	⊗			
RCP	REINFORCED CONCRETE PIPE	⊗			
R/W	RIGHT OF WAY	⊗			
SEC.	SECTION	⊗			
STA	STATION	⊗			
S.P.C.	STATE PLANE COORDINATE	⊗			
OFF.	OFFSET	⊗			
TWP.	TOWNSHIP	⊗			
U.E.	UTILITY EASEMENT	⊗			

VERTICAL DATUM 1988 NAVD

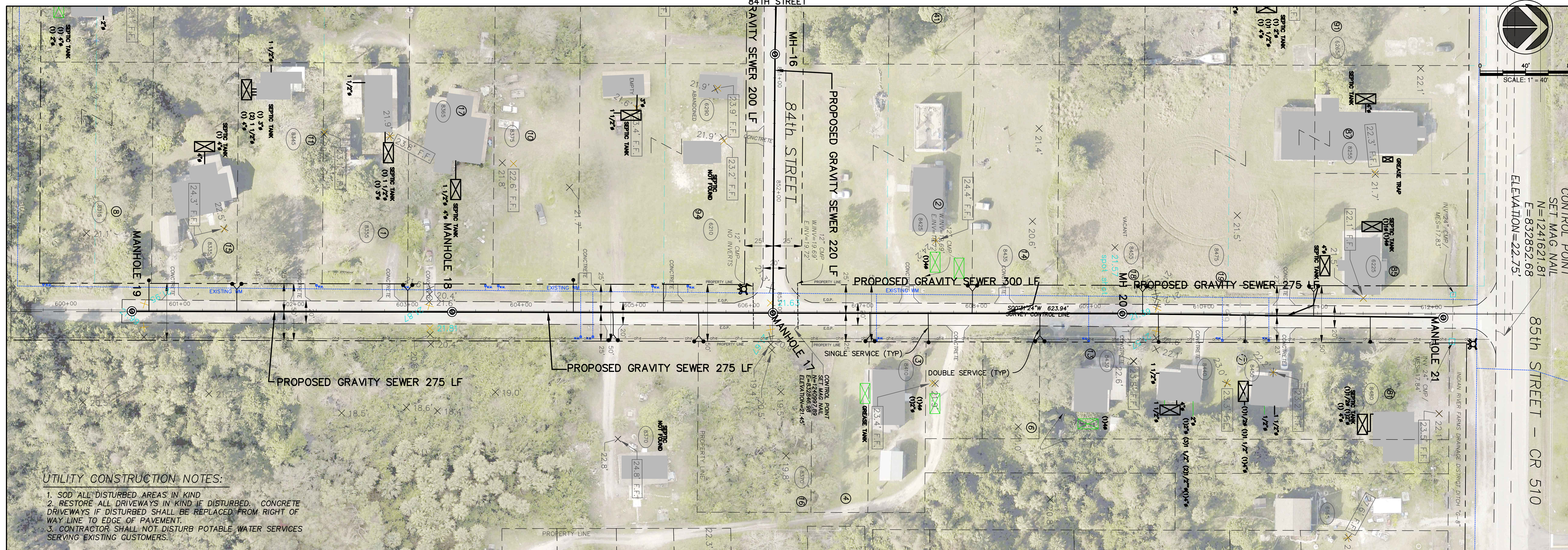
REVIEWED AND APPROVED BY:

FOR BIDDING PURPOSES ONLY - ADDENDUM 3
 ARJUNA WERAGODA, FL P.E. 64267

NOTE: CONTRACTOR SHALL NOTIFY PUBLIC WORKS DIVISION BEFORE COMMENCEMENT OF WORK IN THE RIGHT OF WAY

Revision	Date	By	INDIAN RIVER COUNTY 1801 27TH STREET VERO BEACH, FLORIDA 32960 (772) 567-8000	DEPARTMENT OF UTILITY SERVICES	DRAWN BY: -ART- DESIGNED BY: -ART- CHECKED BY: APPROVED BY:	DATE: DECEMBER 10, 2018 SCALE: NONE UCP No. 4103	WEST WABASSO PHASE 2 GRAVITY SEWER SYSTEM	DATUM - DOUGLAS SUBDIVISION 64TH AVE, 63RD CT, 63RD AVE, 62ND AVE, 84TH ST	SHEET 3 OF 16
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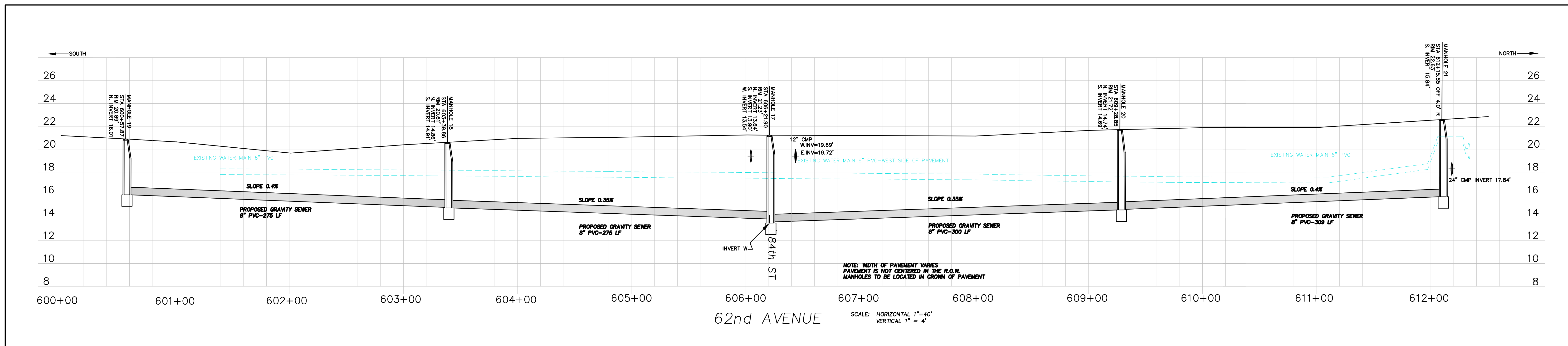
SEE SHEET 9



UTILITY CONSTRUCTION NOTES:

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62nd AVENUE – SOUTH OF CR 510



NOTE: CONTRACTOR SHALL NOTIFY PUBLIC WORKS DIVISION BEFORE COMMENCEMENT OF WORK IN THE RIGHT OF WAY

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ARJUNA WERAGODA, FL P.E. 64267

Revision	Date	By

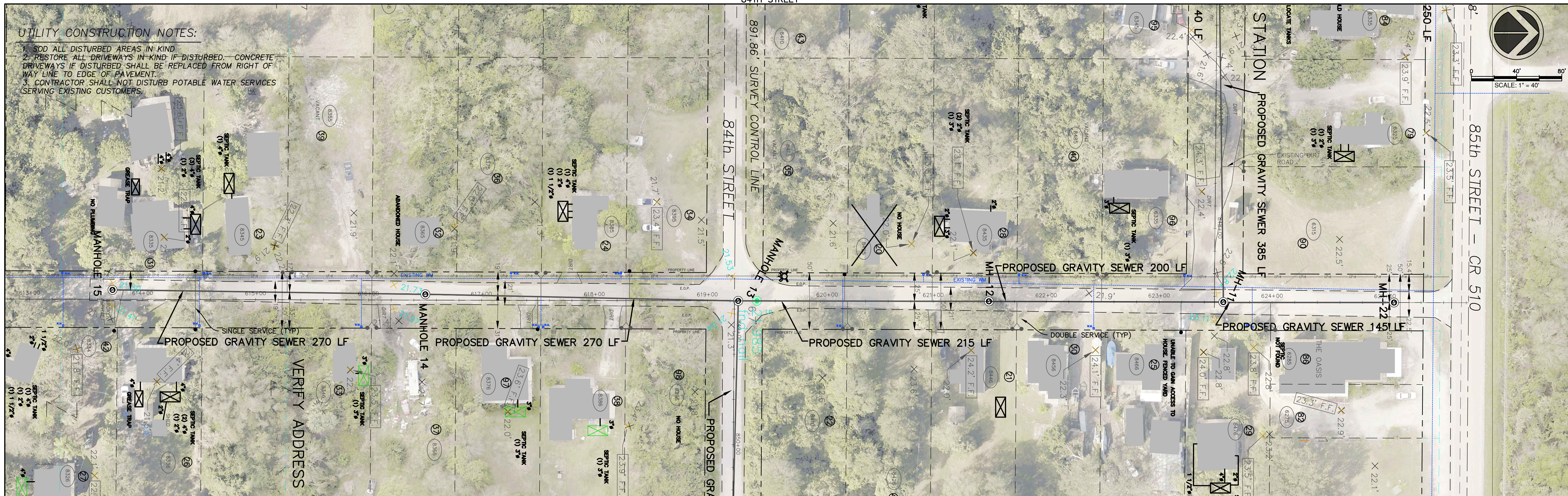
INDIAN RIVER COUNTY
1801 27TH STREET
VERO BEACH, FLORIDA 32960
(772) 567-8000

DEPARTMENT OF
UTILITY SERVICES

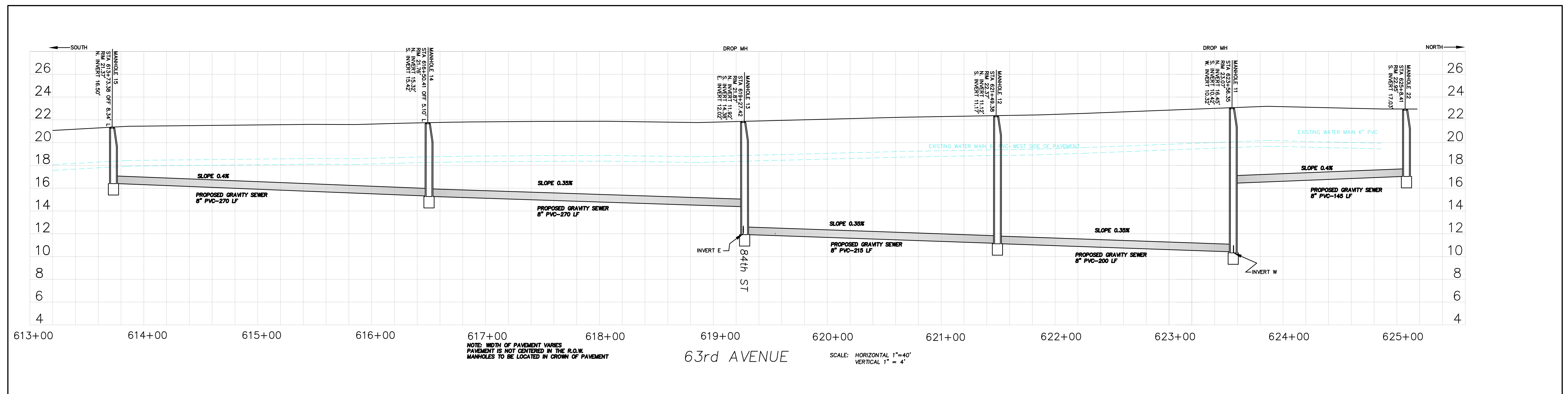
DRAWN BY: -ART-	DATE: DECEMBER 10, 2018
DESIGNED BY: -ART-	SCALE: NOTED
CHECKED BY:	UCP No. 4103
APPROVED BY:	

**WEST WABASSO PHASE 2
GRAVITY SEWER SYSTEM**

**CONSTRUCTION PLAN & PROFILE
62ND AVENUE SOUTH OF COUNTY ROAD 510**



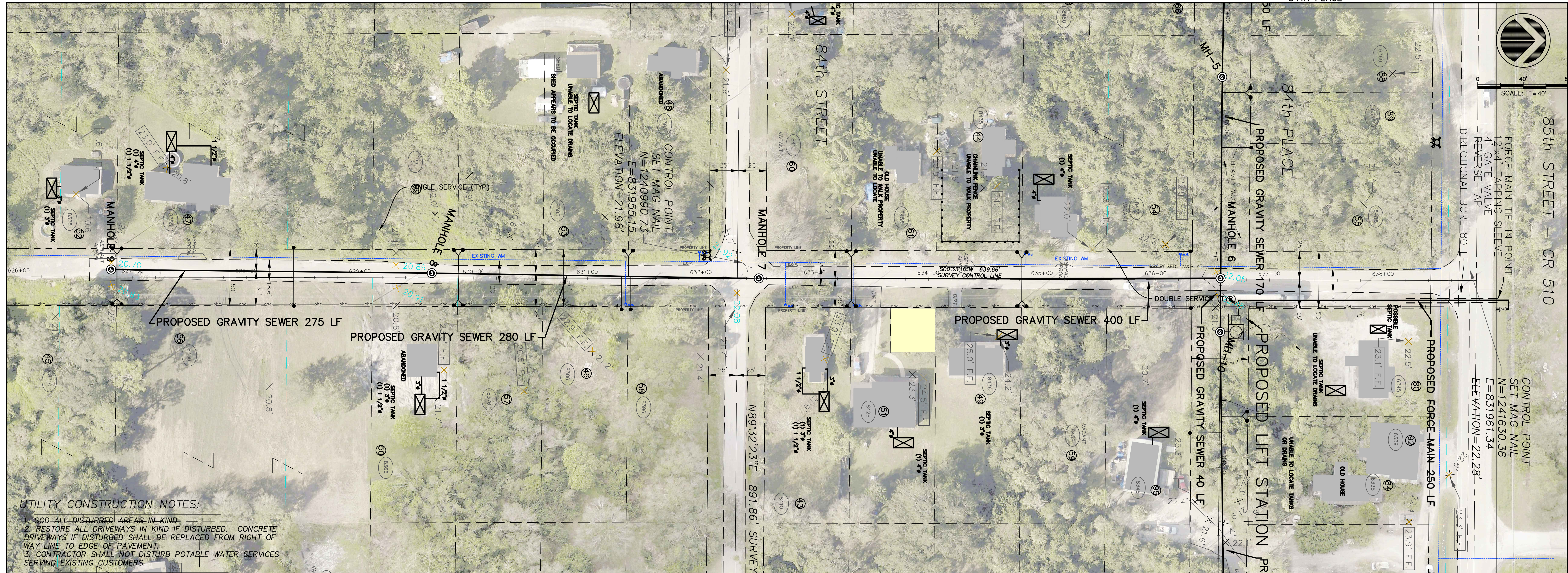
63rd AVENUE – SOUTH OF CR 510



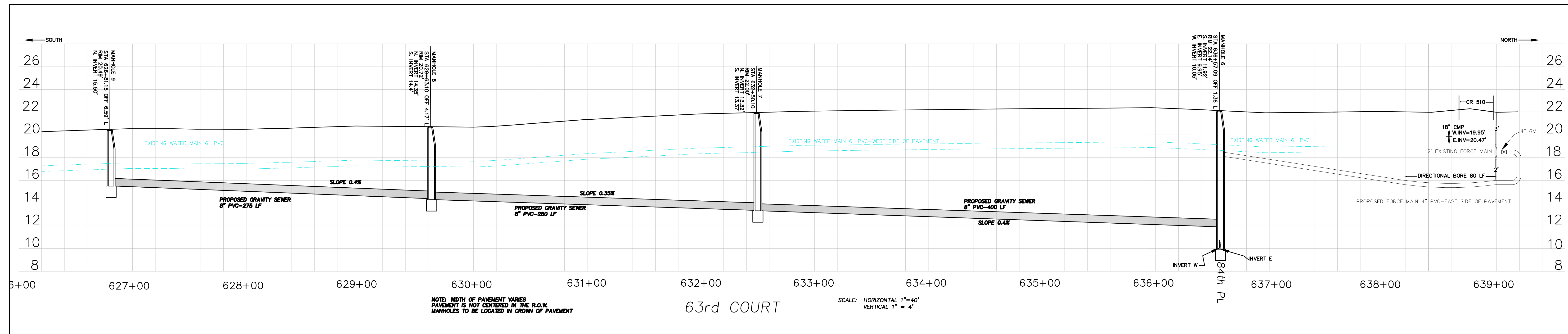
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Revision	Date	By	INDIAN RIVER COUNTY 1801 27TH STREET VERO BEACH, FLORIDA 32960 (772) 567-8000	DEPARTMENT OF	DRAWN BY: -ART- DESIGNED BY: -ART- CHECKED BY: APPROVED BY:	DATE: DECEMBER 10, 2018 SCALE: NOTED UCP No. 4103	WEST WABASSO PHASE 2 GRAVITY SEWER SYSTEM	CONSTRUCTION PLAN & PROFILE 63RD AVENUE SOUTH OF COUNTY ROAD 510	SHEET 5 OF 16
				UTILITY SERVICES					



63rd COURT – SOUTH OF CR 510



NOTE: CONTRACTOR SHALL NOTIFY PUBLIC WORKS DIVISION BEFORE COMMENCEMENT OF WORK IN THE RIGHT OF WAY

REVIEWED AND APPROVED BY: FOR BIDDING PURPOSES ONLY – ADDENDUM 3
ARJUNA WERAGODA, FL P.E. 64267

Revision	Date	By

INDIAN RIVER COUNTY
1801 27TH STREET
VERO BEACH, FLORIDA 32960
(772) 567-8000

DEPARTMENT OF
UTILITY SERVICES

DRAWN BY: -ART-	DATE: DECEMBER 10, 2018
DESIGNED BY: -ART-	SCALE: NOTED
CHECKED BY:	UCP No. 4103
APPROVED BY:	

**WEST WABASSO PHASE 2
GRAVITY SEWER SYSTEM**

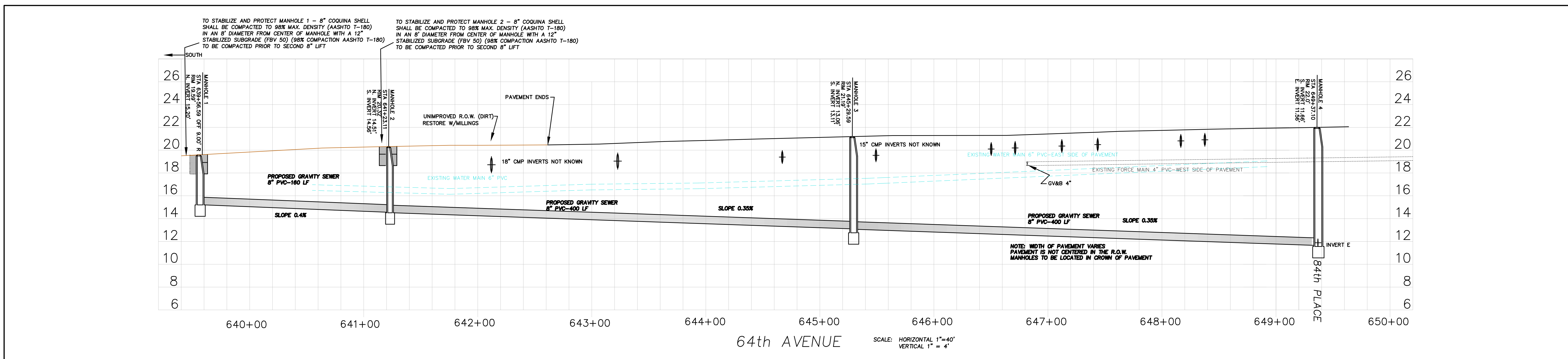
**CONSTRUCTION PLAN & PROFILE
63RD COURT SOUTH OF COUNTY ROAD 510**

UTILITY CONSTRUCTION NOTES:

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64th AVENUE – SOUTH OF CR 510



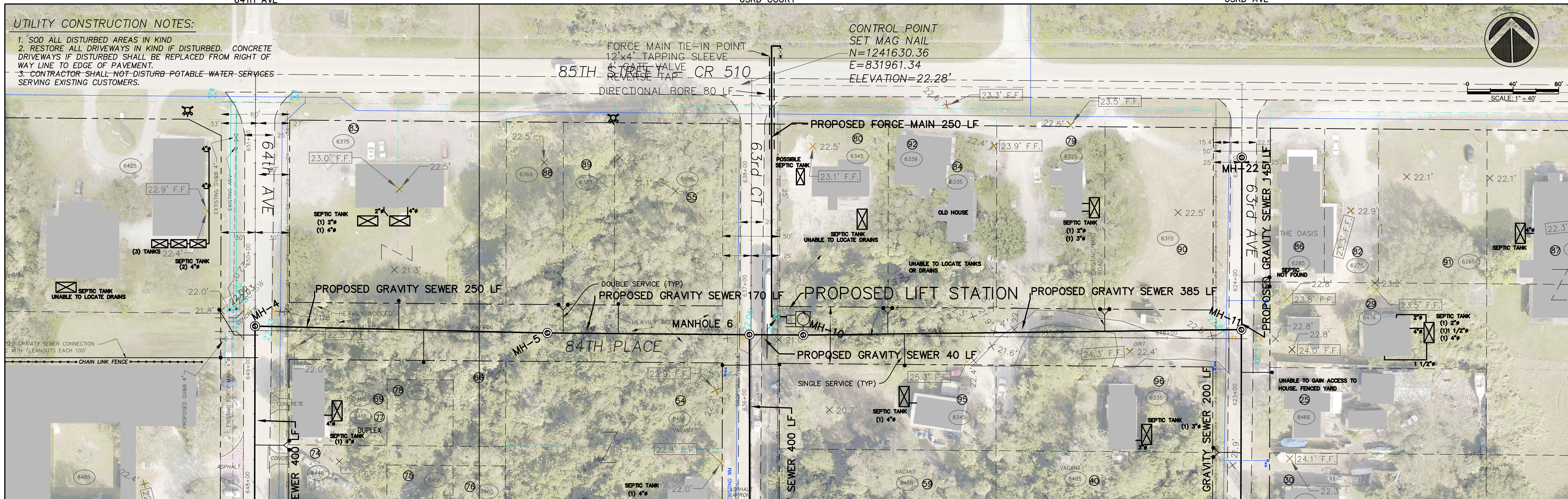
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ARJUNA WERAGODA, FL P.E. 64267

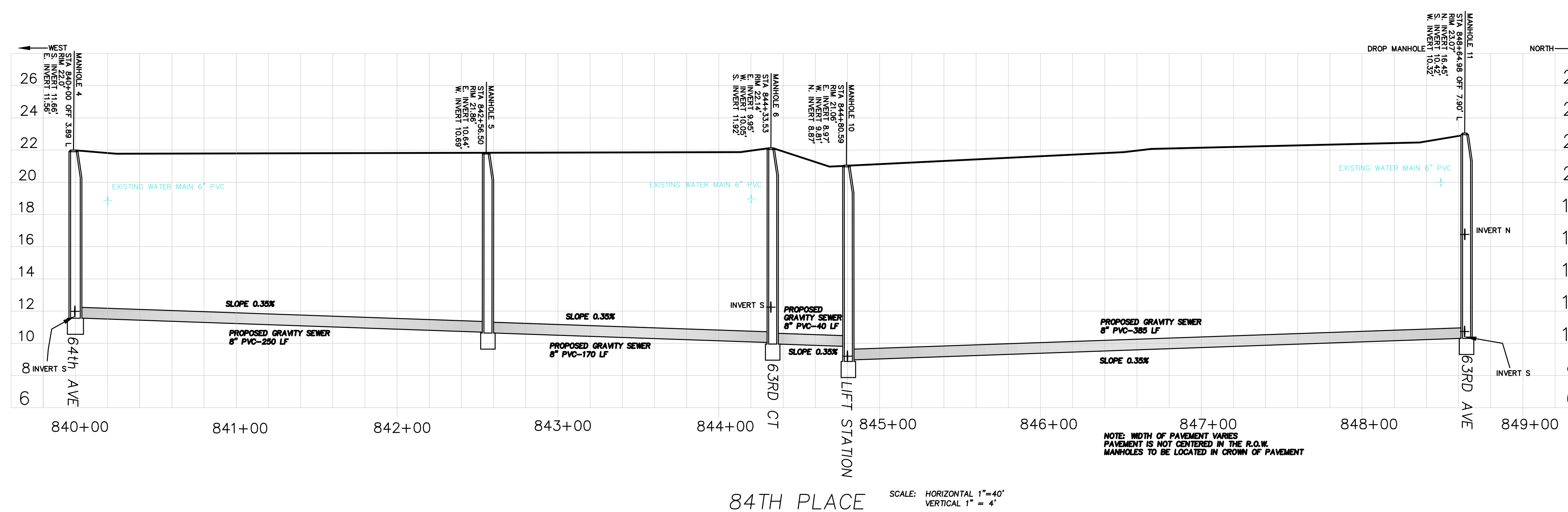
Revision	Date	By	<p>INDIAN RIVER COUNTY 1801 27TH STREET VERO BEACH, FLORIDA 32960 (772) 567-8000</p>	DEPARTMENT OF	DRAWN BY: -ART-	DATE: DECEMBER 10, 2018	WEST WABASSO PHASE 2 GRAVITY SEWER SYSTEM	CONSTRUCTION PLAN & PROFILE 64TH AVENUE SOUTH OF COUNTY ROAD 510	SHEET 7 OF 16
				UTILITY SERVICES	DESIGNED BY: -ART-	SCALE: NOTED			
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					APPROVED BY:				

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84TH PLACE - SOUTH OF CR 510



84TH PLACE

SCALE: HORIZONTAL 1"=40'
VERTICAL 1"= 4'

NOTE: CONTRACTOR SHALL NOTIFY PUBLIC WORKS DIVISION BEFORE COMMENCEMENT OF WORK IN THE RIGHT OF WAY

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Revision	Date	By

INDIAN RIVER COUNTY
1801 27TH STREET
VERO BEACH, FLORIDA 32960
(772) 567-8000

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DRAWN BY: -ART-	DATE: DECEMBER 10, 2018
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**WEST WABASSO PHASE 2
GRAVITY SEWER SYSTEM**

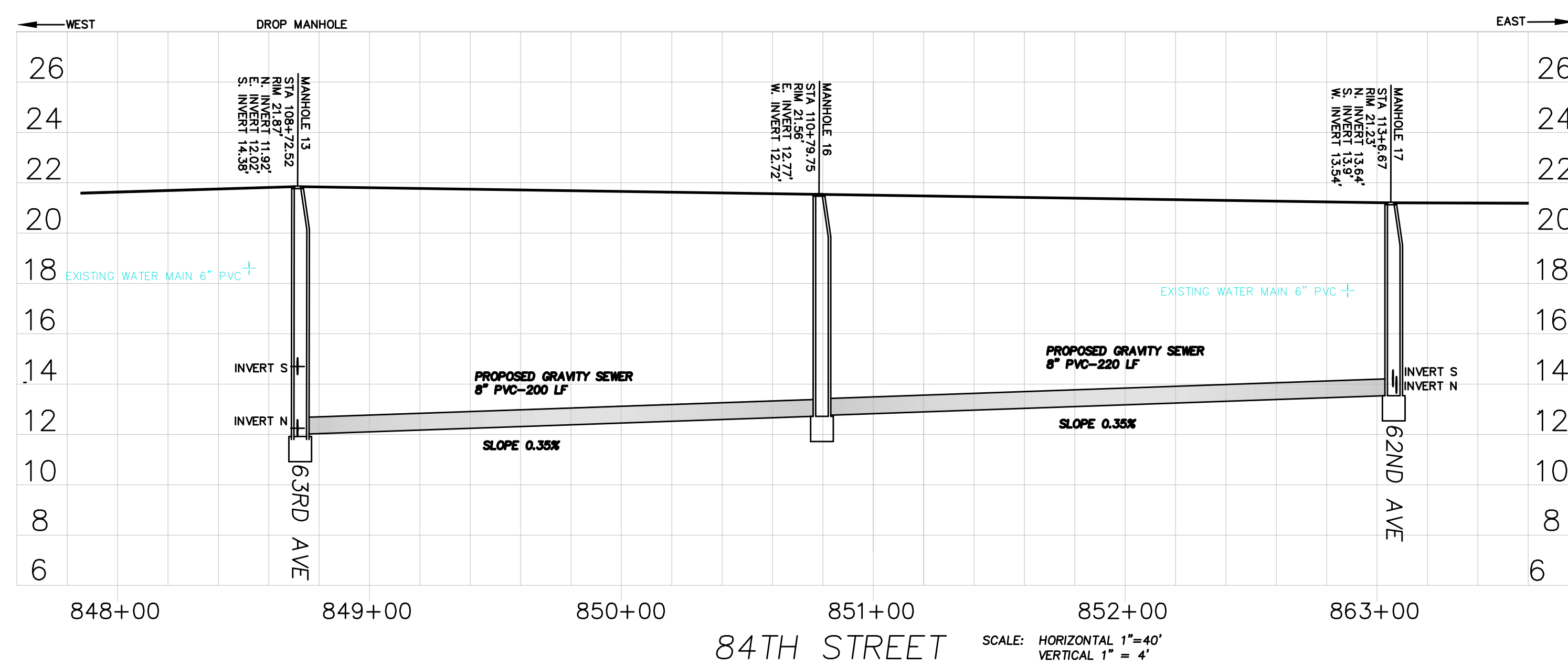
**CONSTRUCTION PLAN & PROFILE
84TH PLACE SOUTH OF CR 510**

SEE SHEET 5

SEE SHEET 4



84TH STREET - SOUTH OF CR 510



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1801 27TH STREET
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DEPARTMENT OF
UTILITY SERVICES

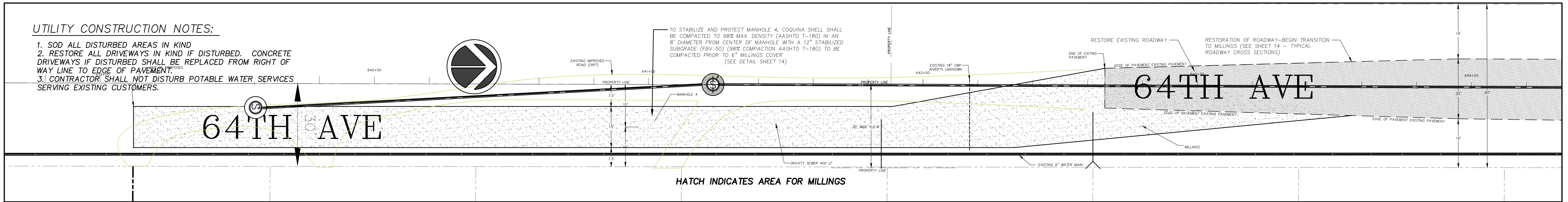
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**WEST WABASSO PHASE 2
GRAVITY SEWER SYSTEM**

**CONSTRUCTION PLAN & PROFILE
84th STREET SOUTH OF COUNTY ROAD 510**

UTILITY CONSTRUCTION NOTES:

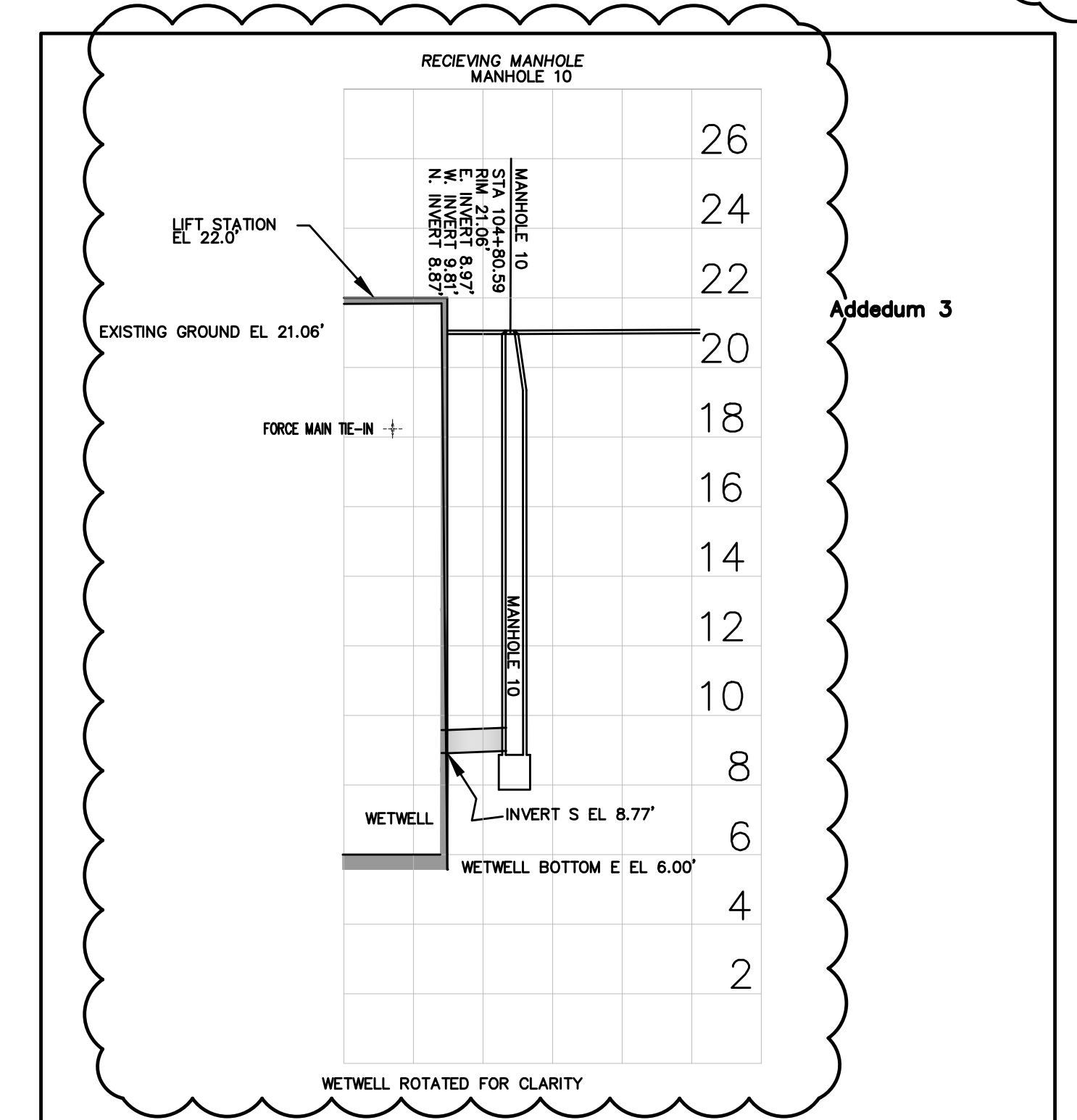
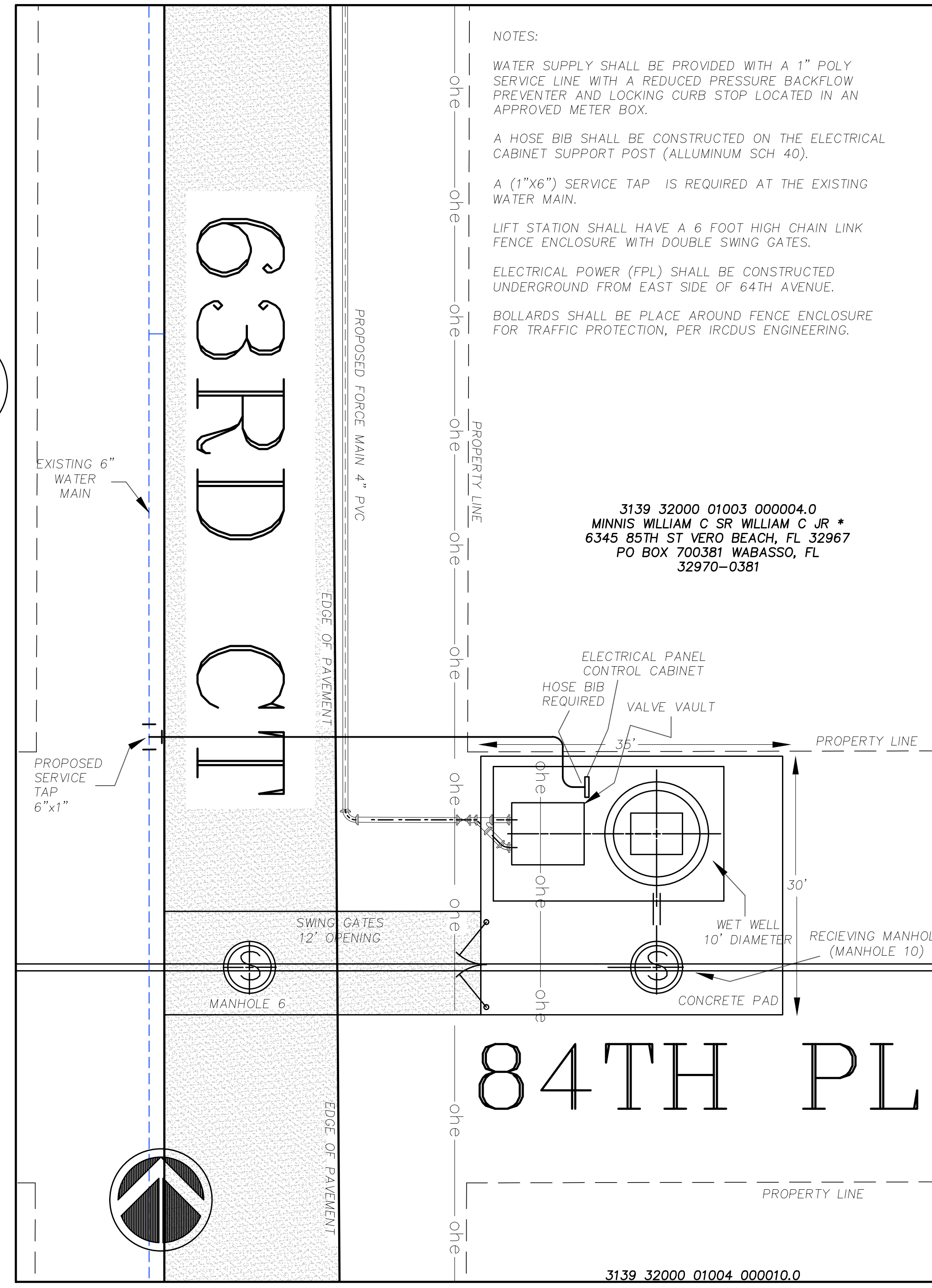
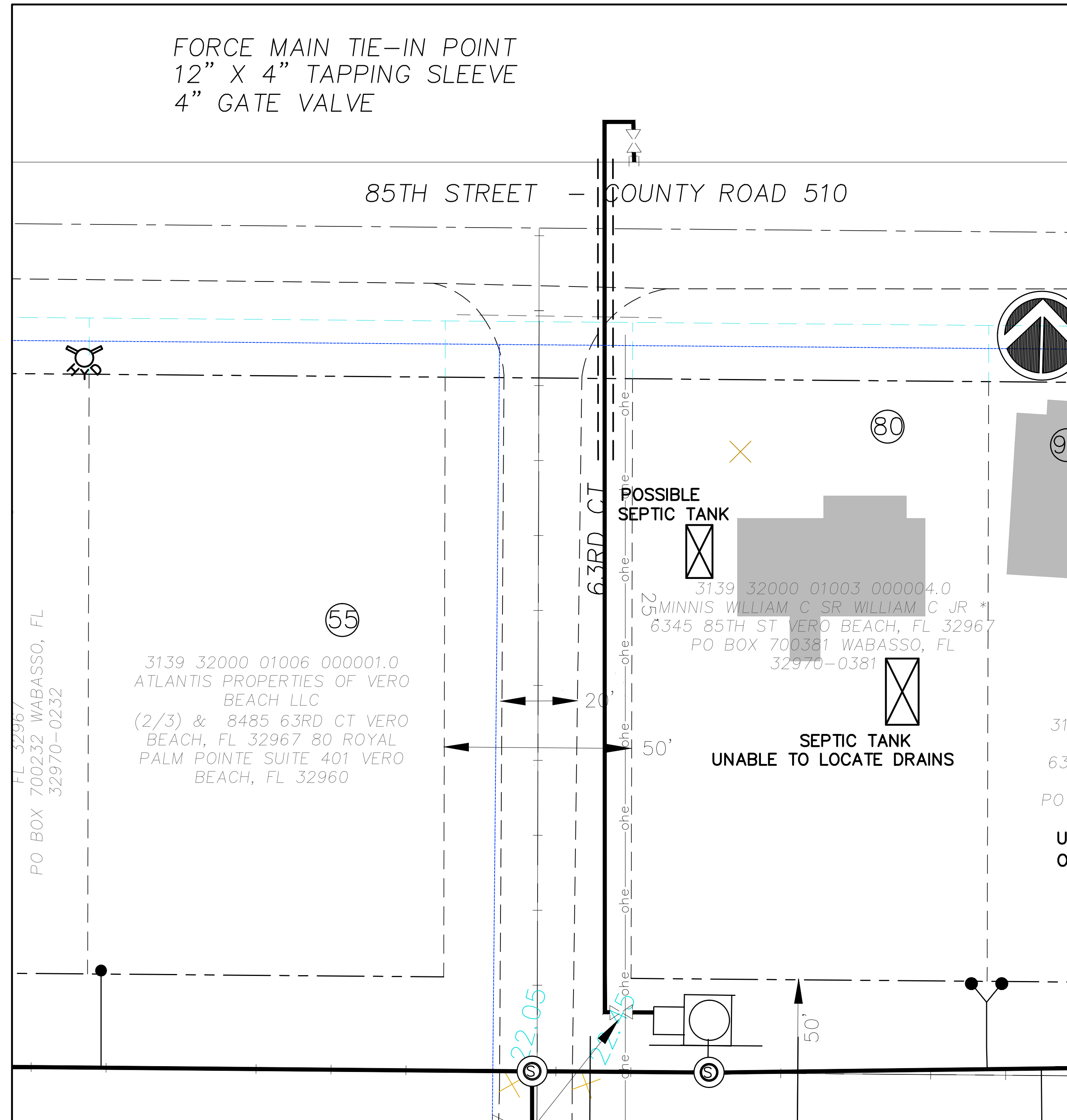
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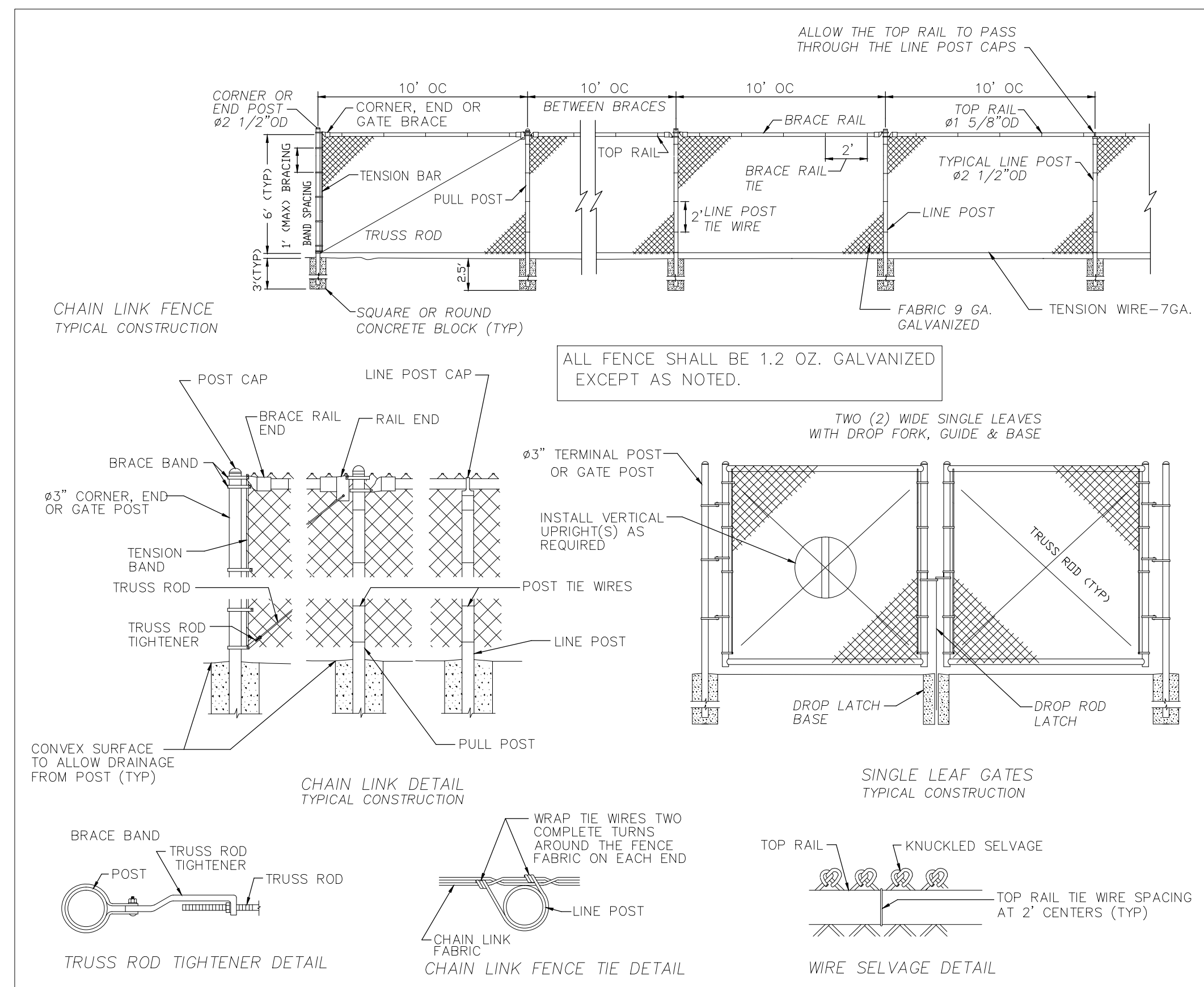
RESTORATION 64TH AVENUE – SOUTH OF 84TH STREET

SCALE: 1"=200'

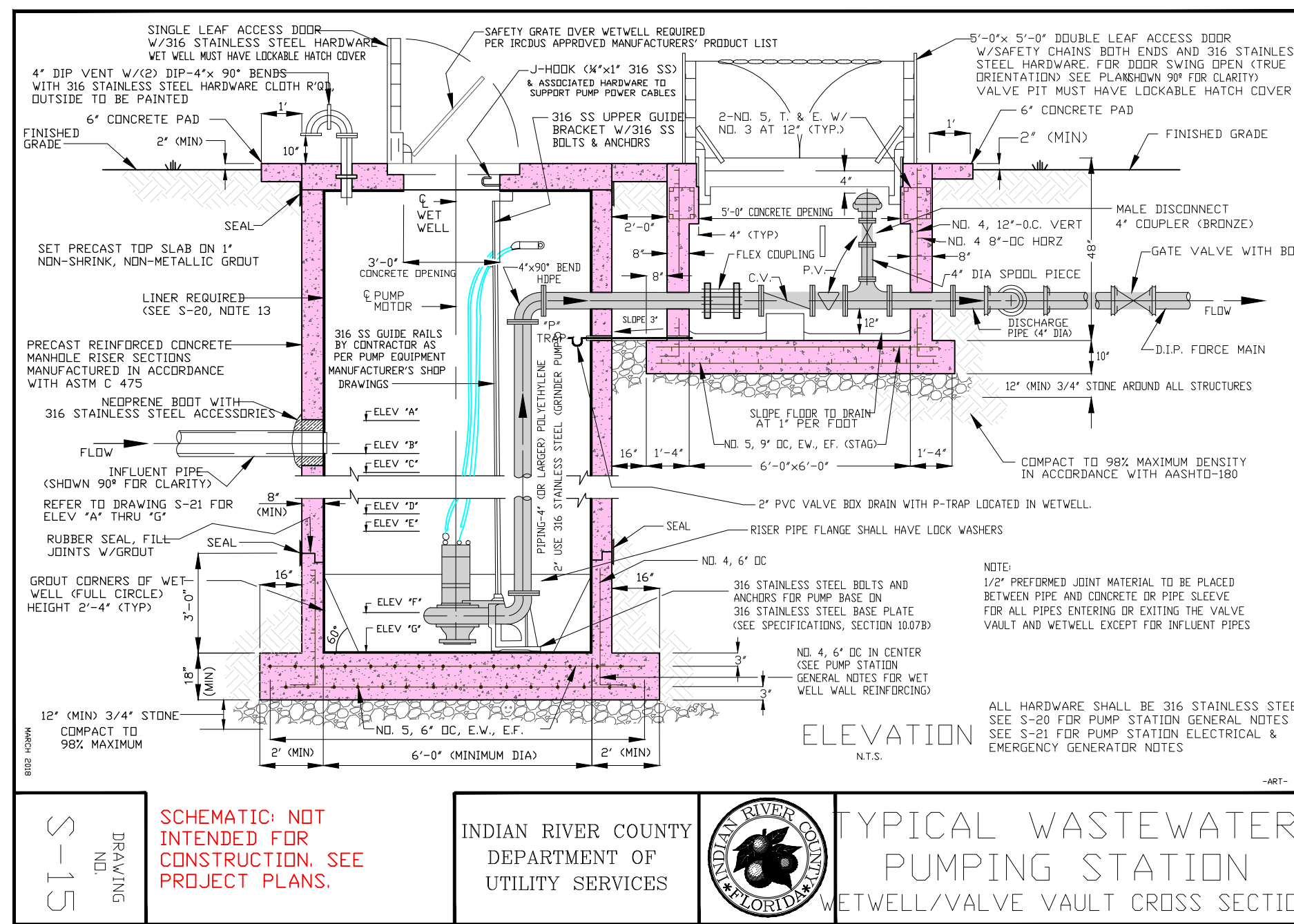
MANHOLE SCHEDULE										
LOCATION	No.	INVERT ELEVATION				TOP	BOTTOM	DEPTH	DIAMETER	Addendum 3
		N	S	E	W					
WETWELL						22	6.00	16.00		
64th AVE	1	15.20	8.77			19.59	15.20	4.39		
64th AVE	2	14.51	14.56			20.32	14.51	5.81		
64th AVE	3	13.06	13.11			21.19	13.06	8.13		
64th AVE	84th PL	4		11.66	11.56	22.00	11.56	10.44		
84th PL	5			10.64	10.69	21.86	10.64	11.22		
63rd CRT	84th PL	6		11.92	9.95	22.14	9.95	12.19		
63rd CRT	7	13.32	13.37			22.00	13.32	8.68		
63rd CRT	8	14.35	14.40			20.72	14.35	6.37		
63rd CRT	9	15.50				20.49	15.50	4.99		
84th PL	REC'ING	10	8.87		8.97	9.81	21.06	8.97	12.09	
63rd AVE	84th PL	11	16.45	10.42		10.32	23.07	10.32	12.75	
63rd AVE	12	11.12	11.17			22.37	11.12	11.25		
63rd AVE	84th ST	13	11.92	14.38	12.02		21.87	11.92	9.95	
63rd AVE	14	15.32	15.42			21.76	15.32	6.44		
63rd AVE	15	16.50				21.37	16.50	4.87		
84th ST	16			12.77	12.72	21.56	12.72	8.84		
62nd AVE	84th ST	17	13.64	13.90		13.54	21.23	13.54	7.69	
62nd AVE	18	14.86	14.91			20.61	14.86	5.75		
62nd AVE	19	16.01				20.89	16.01	4.88		
62nd AVE	20	14.74	14.69			21.72	14.69	7.03		
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63rd AVE	22		17.03			22.95	17.03	5.92		



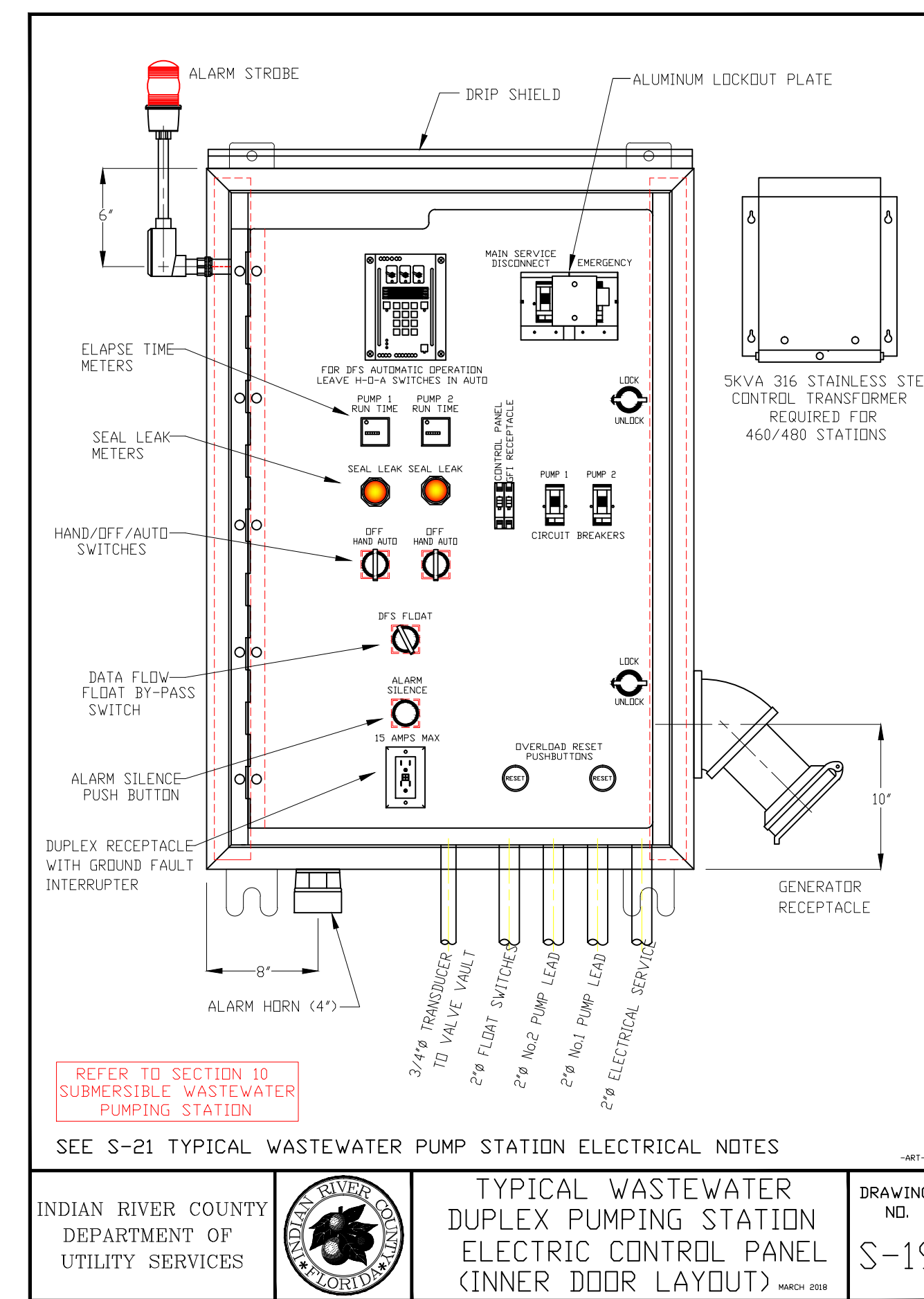
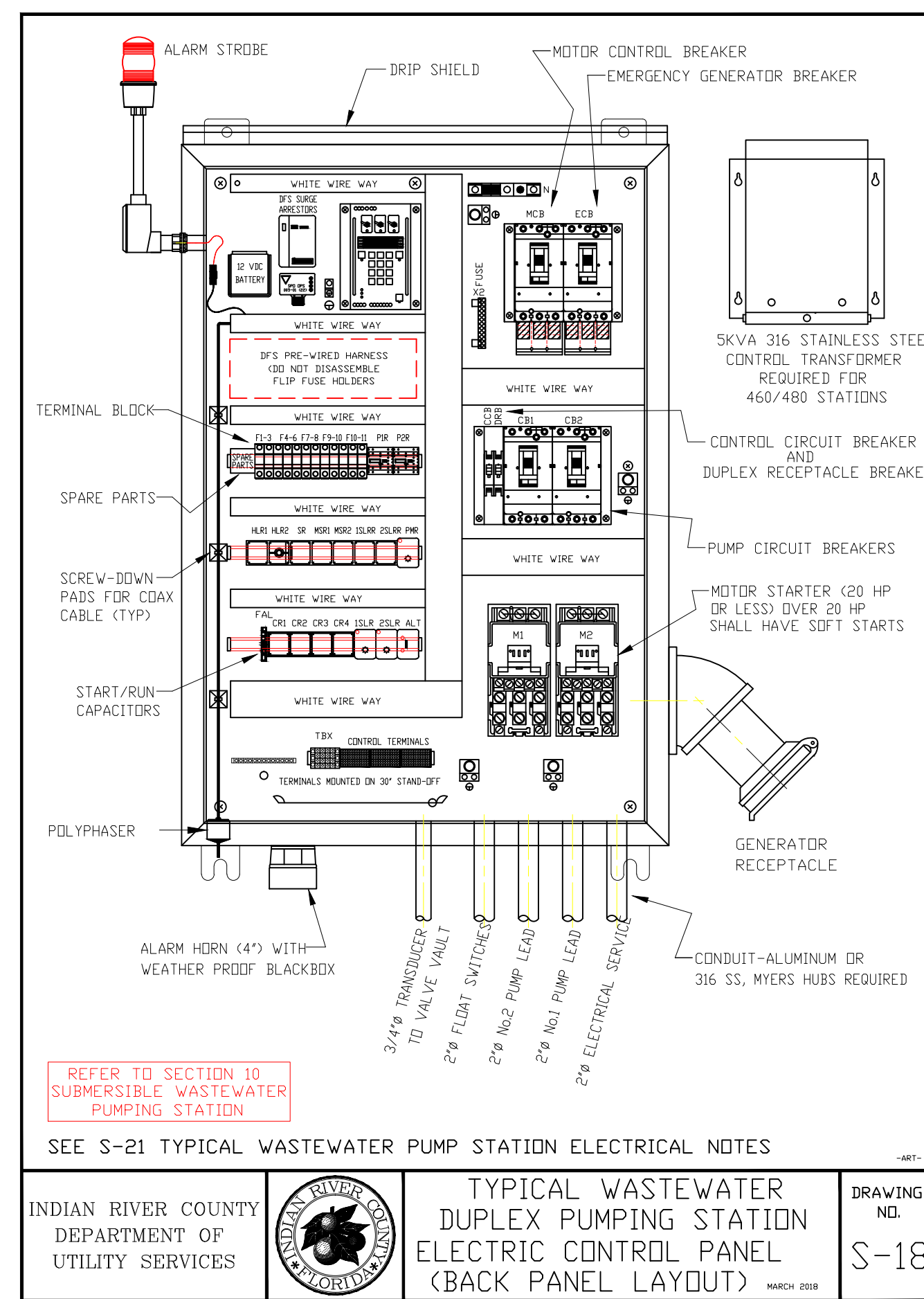
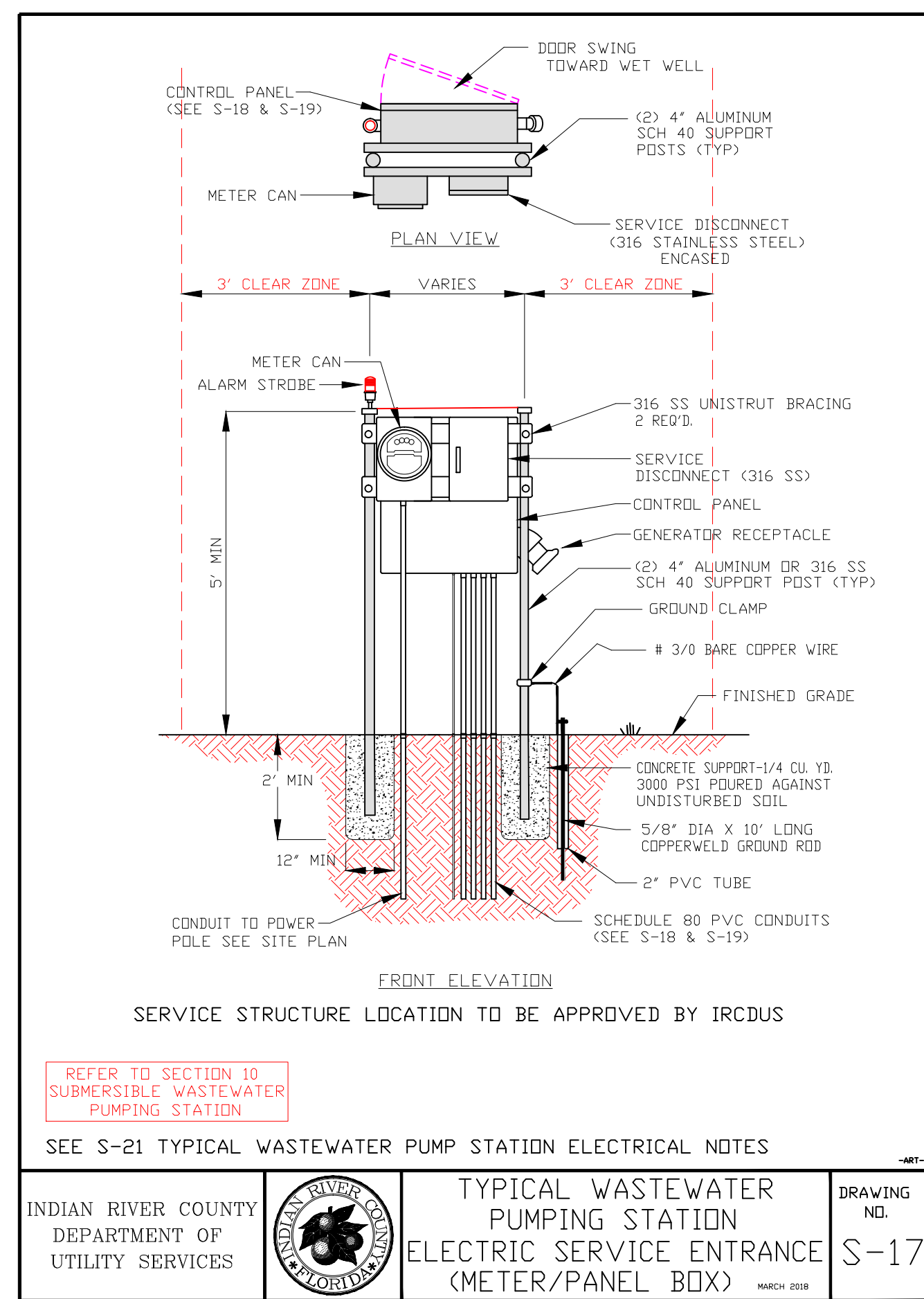
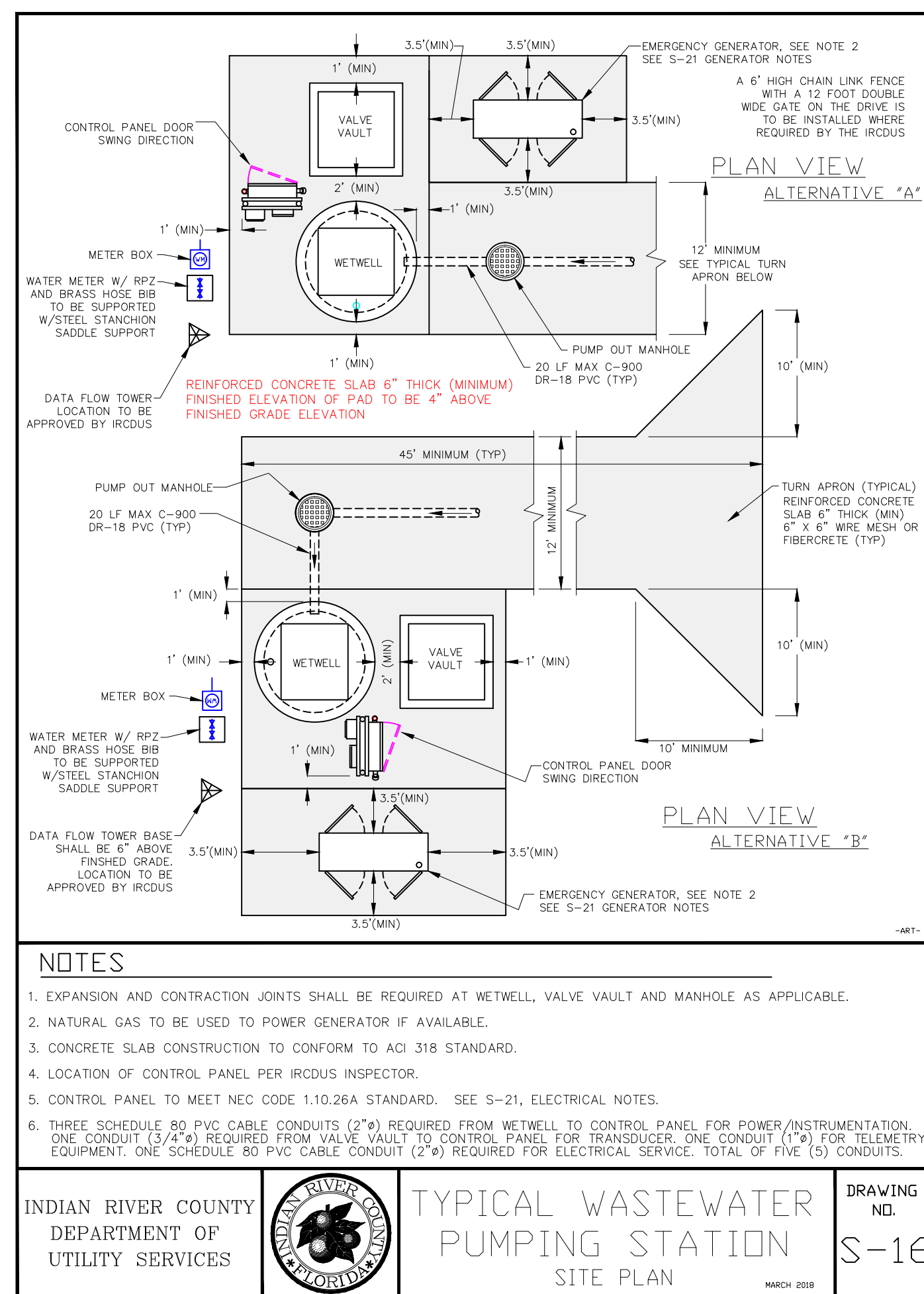
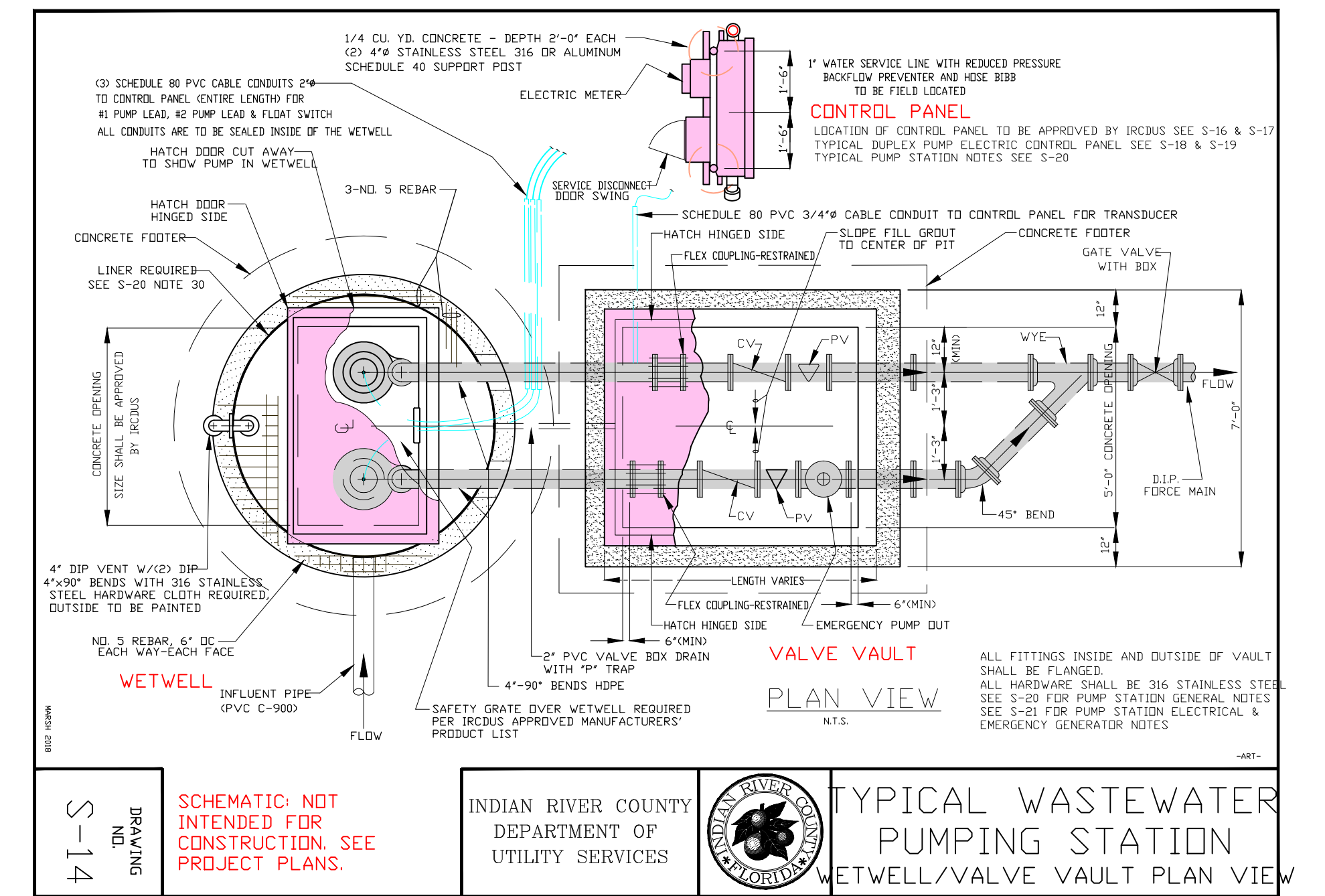
REVIEWED AND APPROVED BY:
FOR BIDDING PURPOSES ONLY - ADDENDUM 3
ARJUNA WERAGODA, FL P.E. 64267



TYPICAL FENCE CONSTRUCTION FOR LIFT STATION ENCLOSURE



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ARJUNA WERAGODA, FL P.E. 64267

PUMP STATION GENERAL NOTES

- Contractor shall take necessary precautions against floatation of wet well until all backfill is in place.
- All concrete shall be class A-A (4,000 PSI for precast and 3,000 PSI for cast-in-place) unless otherwise specified.
- Reinforcing steel shall be grade 60 fabricated and placed in accordance with ACI code splices and shall be six (6) times the bar diameter number size or 18" minimum unless otherwise noted (STAG, SPL, TYP).
- All backfill around the pump station site shall be compacted @ 98% of maximum density, per AASHTO-T-180.
- Chamfer exposed concrete edges 1/4" (TYP).
- Wetwell wall shall contain a minimum of .022 sq in/linear foot reinforcement, each way top to bottom.
- All piping at the pump station site shall be restrained.
- All Pumps and Pumping Equipment - See IRCDUS Approved Manufacturers' Product List.
- Stainless steel (316) cable holder shall be located on opposite side of wetwell from the influent pipe.
- Buoyancy calculations shall be required for all pump stations along with the required pump station calculations.
- No uni-flange pipe connections allowed.
- Maintain minimum of 6" between any piping, fittings etc. and precast concrete.
- Fiberglass liners shall be installed on all pump station wetwells and manholes receiving pumped sewage, plus 5 manholes in each direction.
- All new manholes shall be coated per IRCDUS Approved Manufacturers' Product List.
- Pump station control panel shall be provided with appropriate lightning arrestor. Verify all driven grounding grids per N.E.C. 250.56 and SCADA (latest standards).
- An access drive shall be provided to all IRCDUS maintained lift stations. All access drives shall be a minimum of 12' wide. If fence is installed, gate shall have a 12' opening.
- All proposed private station owners are to sign an agreement acknowledging station is to remain private unless subject station is constructed to IRCDUS standards.
- Pumps shall be designed to provide a minimum pump run time equal to half the cycle time.
- Pumps shall be designed to provide a maximum clearance of ten feet outside of lift station wetwell for future maintenance.
- All re-pump stations shall have bio-cube odor control systems as required by manufacturer, and approved by IRCDUS.
- Lift Station is to be located in a dedicated utility easement, 200' away from homes, cul-de-sacs and surface body water.
- A safety grate with stainless steel (316) hardware is required for all wetwells.
- Contractor to install permanent signage with contact information and phone number at all IRCDUS and private lift stations. Contractor to provide security for private lift stations per IRCDUS plans review. Security to include, but not limited to, lockable hatch cover lids for the wetwell and valve pit.
- Contractor to contact IRCDUS inspector prior to pump station construction.
- See Drawing S-14 Plan View and S-15 Typical Pumping Station Cross Section. See Drawing S-16 for Typical Pumping Station general layout and driveway. See S-17, S-18 and S-19 for electrical details.
- Structure dimensions may vary upon approval by the IRCDUS due to buoyancy compensation or other requirements.
- Gate valve to be located at force main junction.
- Stainless steel (316) lifting balls shall be used for pumps in lift stations.
- Grinder pumps shall be a maximum of 5.0 HP unless otherwise approved by IRCDUS.
- Electrical control panel shall conform to pump manufacturers' & SCADA system requirements.
- Liner for all wet wells shall be HDPE or fiberglass.
- All wet wells 15' deep or greater than 10' diameter must be approved by IRCDUS engineering.
- Outside walls and underside of wetwell top slab and valve box shall be painted with (2) two coats of water base epoxy.
- All hardware to be 316 stainless steel.
- Pump station power supply from Florida Power & Light and City of Vero Beach electric power pole or transformer to the pump station electrical control panel shall be included on the Record Drawing.
- Paint outside of walls, underside of wetwell top slab and valve vault with two coats of water base epoxy.

REFER TO SECTION 10 SUBMERISIBLE WASTEWATER PUMPING STATION

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

TYPICAL WASTEWATER PUMPING STATION GENERAL NOTES

DRAWING NO. S-20

PUMP STATION GENERAL NOTES

- Contractor shall take necessary precautions against floatation of wet well until all backfill is in place.
- All concrete shall be class A-A (4,000 PSI for precast and 3,000 PSI for cast-in-place) unless otherwise specified.
- Reinforcing steel shall be grade 60 fabricated and placed in accordance with ACI code splices and shall be six (6) times the bar diameter number size or 18" minimum unless otherwise noted (STAG, SPL, TYP).
- All backfill around the pump station site shall be compacted @ 98% of maximum density, per AASHTO-T-180.
- Chamfer exposed concrete edges 1/4" (TYP).
- Wetwell wall shall contain a minimum of .022 sq in/linear foot reinforcement, each way top to bottom.
- All piping at the pump station site shall be restrained.
- All Pumps and Pumping Equipment - See IRCDUS Approved Manufacturers' Product List.
- Stainless steel (316) cable holder shall be located on opposite side of wetwell from the influent pipe.
- Buoyancy calculations shall be required for all pump stations along with the required pump station calculations.
- No uni-flange pipe connections allowed.
- Maintain minimum of 6" between any piping, fittings etc. and precast concrete.
- Fiberglass liners shall be installed on all pump station wetwells and manholes receiving pumped sewage, plus 5 manholes in each direction.
- All new manholes shall be coated per IRCDUS Approved Manufacturers' Product List.
- Pump station control panel shall be provided with appropriate lightning arrestor. Verify all driven grounding grids per N.E.C. 250.56 and SCADA (latest standards).
- An access drive shall be provided to all IRCDUS maintained lift stations. All access drives shall be a minimum of 12' wide. If fence is installed, gate shall have a 12' opening.
- All proposed private station owners are to sign an agreement acknowledging station is to remain private unless subject station is constructed to IRCDUS standards.
- Pumps shall be designed to provide a minimum pump run time equal to half the cycle time.
- Pumps shall be designed to provide a maximum clearance of ten feet outside of lift station wetwell for future maintenance.
- All re-pump stations shall have bio-cube odor control systems as required by manufacturer, and approved by IRCDUS.
- Lift Station is to be located in a dedicated utility easement, 200' away from homes, cul-de-sacs and surface body water.
- A safety grate with stainless steel (316) hardware is required for all wetwells.
- Contractor to install permanent signage with contact information and phone number at all IRCDUS and private lift stations. Contractor to provide security for private lift stations per IRCDUS plans review. Security to include, but not limited to, lockable hatch cover lids for the wetwell and valve pit.
- Contractor to contact IRCDUS inspector prior to pump station construction.
- See Drawing S-14 Plan View and S-15 Typical Pumping Station Cross Section. See Drawing S-16 for Typical Pumping Station general layout and driveway. See S-17, S-18 and S-19 for electrical details.
- Structure dimensions may vary upon approval by the IRCDUS due to buoyancy compensation or other requirements.
- Gate valve to be located at force main junction.
- Stainless steel (316) lifting balls shall be used for pumps in lift stations.
- Grinder pumps shall be a maximum of 5.0 HP unless otherwise approved by IRCDUS.
- Electrical control panel shall conform to pump manufacturers' & SCADA system requirements.
- Liner for all wet wells shall be HDPE or fiberglass.
- All wet wells 15' deep or greater than 10' diameter must be approved by IRCDUS engineering.
- Outside walls and underside of wetwell top slab and valve box shall be painted with (2) two coats of water base epoxy.
- All hardware to be 316 stainless steel.
- Pump station power supply from Florida Power & Light and City of Vero Beach electric power pole or transformer to the pump station electrical control panel shall be included on the Record Drawing.
- Paint outside of walls, underside of wetwell top slab and valve vault with two coats of water base epoxy.

REFER TO SECTION 10 SUBMERISIBLE WASTEWATER PUMPING STATION

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

TYPICAL WASTEWATER PUMPING STATION GENERAL NOTES

DRAWING NO. S-20

PIPE JOINT DETAIL AT MANHOLE

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE INFLUENT & EFFLUENT PIPING DETAIL

DRAWING NO. S-12

UTILITY CROSSINGS

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

UTILITY CROSSINGS

DRAWING NO. M-4

PIPE DIAMETER (INCHES)	RESTRAINED LENGTH IN FEET FOR REDUCER												PIPE DIAMETER (INCHES)	LENGTH OF RESTRAINED LENGTHS FOR LARGER DIAMETER PIPE											
	D. I. P.						P. V. C.							D. I. P.						P. V. C.					
	3"	4"	6"	8"	10"	12"	3"	4"	6"	8"	10"	12"		3"	4"	6"	8"	10"	12"	3"	4"	6"	8"	10"	12"
30"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
48"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

RESTRAINED PIPE LENGTHS AND SCHEDULE NOTES

DRAWING NO. M-3

VALVE BOX PAD

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

VALVE BOX PAD

DRAWING NO. M-6

AIR RELEASE VALVE MANHOLE BELOW GROUND

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

AIR RELEASE VALVE MANHOLE BELOW GROUND (AUTOMATIC - WATER/WASTEWATER)

DRAWING NO. M-7

AIR RELEASE VALVE ASSEMBLY ABOVE GROUND

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

AIR RELEASE VALVE ASSEMBLY ABOVE GROUND (AUTOMATIC - WATER/WASTEWATER)

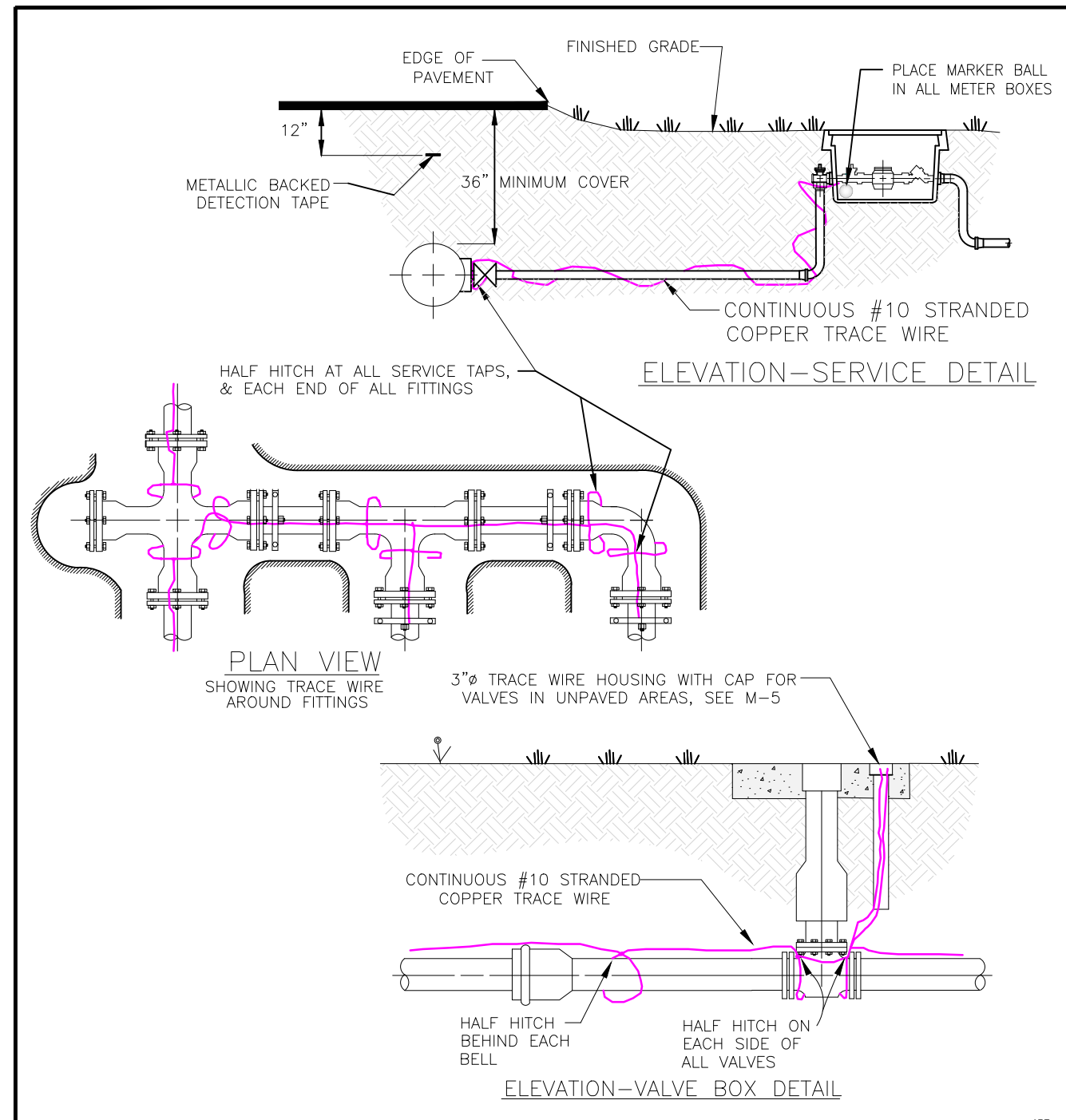
DRAWING NO. M-8

REVIEWED AND APPROVED BY:

FOR BIDDING PURPOSES ONLY - ADDENDUM 3

ARJUNA WERAGODA, FL P.E. 64267

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- NOTES**
- TRACE WIRE IS REQUIRED ON ALL PIPES REGARDLESS OF MATERIAL.
 - INCLUDE ALL COST OF MATERIAL AND LABOR TO INSTALL TRACE WIRE IN PRICE OF PIPE.
 - CONTRACTOR IS RESPONSIBLE FOR CONTINUITY THROUGHOUT ENTIRE PROJECT OF ALL TRACE WIRE.
 - ALL CONNECTIONS SHALL BE MADE WITH DIRECT BURY CONNECTORS.
 - ALL MATERIALS ARE TO BE PER IRCUDS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

TRACE WIRE DETAILS

DRAWING NO. **M-13**

MARCH 2018

- GENERAL NOTES**
- All As-Built Record Drawings shall meet the minimum requirements of the Chapter AJ-17, Florida Administration Code Pursuant to Section 472 of the Florida Statutes
 - All As-Built Record Drawings shall be in State Plane Coordinates. State Plane Coordinates shall be based on the Florida State Plane Horizontal data (East Zone); or Florida High Precision Geodetic Network (superstation) and NAD 83/1999 - final adjustment, or the most current datum adopted by Indian River County.
 - Florida State Plane Horizontal data and station off-set shall be tied to valves, meters, fittings, manholes, blow-offs, water services, fire hydrants, service saddles, corp stops and pipe (pipe at 200' intervals).
 - All elevations shown shall be based on 1988 NAVD (North American Vertical Datum).
 - All As-Built Record Drawings shall be tied to a minimum of one (1) permanent reference monument (P.R.M.) at the end of each project. One P.R.M. shall be tied to a minimum of one (1) section corner or one-quarter (1/4) section corner whichever is closest to the project. State plane coordinates shall be physically shown on the drawing next to the P.R.M. used.
 - Horizontal Control Monumentation for utility lines shall be a minimum of two (2) points at a maximum of 1,400 feet between points and shown on all plans.
 - Vertical Control (when required) for linear utility lines, such as water and sewer, shall have a maximum of 1,100 feet between existing construction or established benchmarks.
 - All incoming As-Built Record Drawings (24"x36") shall state in 1" lettering "RECORD DRAWING" and the datum used in 1" lettering in the lower right hand side of the drawing original and/or copies along with as-built date. All incoming Record Drawings shall be received on a CD as an electronic copy, AutoCad 2015 format, or latest version, with a tie to a minimum of two (2) state plane coordinates. (NOTE: Prior to submitting the electronic copy, one (1) copy of each as-built shall be submitted for review and approval. After all approvals, (3) three (24"x36") signed and sealed copies of each as-built shall be submitted. All Record Drawings shall be in a minimum scale of 1"=40'.
 - A minimum text size of 1/8" is required on all construction/route survey and Record Drawings.
 - All As-Built Record Drawings shall be certified by the project engineer or contracting surveyor.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

AS-BUILT RECORD DRAWING GENERAL NOTES

DRAWING NO. **M-15**

MARCH 2018

- ROUTE SURVEY REQUIREMENTS**
- All surveys that are required for engineering design use, and are located within a distance of one (1) mile from any Indian River County Global Positioning System (G.P.S.) control project monuments, shall be tied into the GPS monument from one (1) permanent reference point or the subdivision corner that is along the survey route and shall then be tied to the survey base line.
 - Existing right-of-way limits and/or easements within the limits of construction.
 - Survey baseline stationing every 100', control points set every 500', and at angle change of direction.
 - Show cross section spot elevations at grade every 100' for gravity sewer line construction and 100' for water line and force main construction. Elevations that reflect any significant change in grade between the previously stated footage shall be shown on plans.
 - Existing parcels, tracts, and lot corner locations shown with front footage dimensions per plat when platting. If construction project is along back of lots, then show back lot dimensions.
 - Existing roadway edge of pavement or edge of dirt road.
 - Existing utilities as located in field (water, sewer, telephone, electric, cable TV, street lights, etc.) (NOTE: Sunshine One to be contacted by surveying firm prior to survey locate; with the intent of county excavation.)
 - Existing utilities as associated with Note 6 above (example: valves, meters, manholes, etc.)
 - Existing curbs, sidewalks, driveway widths and types.
 - Existing drainage pipe crossings, catch basins, manholes, and driveway culverts (type, sizes and invert elevations.)
 - Existing swales and/or ditches. Take cross section spot elevations every 100' at top and bottom if within area of construction.
 - Existing fences.
 - Existing trees and/or shrubbery.
 - All other non-movable items such as mailboxes, flag poles, etc.
 - All street names. Street names shall appear on every printable sheet.
 - All commercial and single/multi family residence must have parcel I.D. and street address indicated on the plan.
 - All fire hydrants and fire hydrant valves shall be clearly identified.
 - All utility valves shall be clearly identified.
 - Route surveys performed for water assessment projects may require residential well locations.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

ROUTE SURVEY REQUIREMENTS

DRAWING NO. **M-17**

MARCH 2018

PUMP STATION ELECTRICAL NOTES

- A minimum 3' clear zone is required around the electrical area. The minimum workspace requirements shall adhere to the National Electrical Code (NEC), Section 110.26(A).
- A 3/4" conduit shall be installed between the control panel and the valve vault for the transducer.
- Three (3) schedule 80, 2" conduits shall be installed between the control panel and the wet well for No. 1 pump lead, No. 2 pump lead and the float switches.
- All buried conduit shall be Schedule 80 PVC. All exposed conduit shall be stainless steel (316) or aluminum. Conduit to be sealed.
- A mastic coating is required where panel post and aluminum or stainless steel (316) conduit is in direct contact with concrete.
- The control panel door must open toward the wet well.
- Electric service shall be 3 phase.
- Alarm horn shall be sealed to prevent leakage.
- Control panel shall be approved by IRCUDS before installation.
- Refer to Section 10 for Pumping Station specifications.
- Bottom of control panel to be 28" to 34" above ground.
- All hardware and fasteners to be stainless steel (316).
- Tools and spare parts are required (see Section 10.05).
- Control panel shall meet the requirements of service entrance by properly bonding or shall be UL service entrance rated.
- Control panel shall have a data flow, float by-pass switch.
- The maximum horsepower rating for a 120/240 volt wastewater pumping station panel is 20 HP. Any pump size greater than 20 HP shall have 480 volt service and be designed by an electrical engineer.
- The control panel shall be 4X NEMA, white powder coated stainless steel.
- A water service line (1"Ø) with reduced pressure backflow preventer, water meter and hose bibb is required.
- All penetrations into electric control panel require Meyer hubs. Corrosive materials will not be allowed.
- Disconnect between meter and panel to be 316 stainless steel, non-fusible. Stations with generators shall be fused.
- Pump station control panel shall be provided with appropriate lightning arrester. Verify all driven grounding grids per N.E.C. 250.56 and SCADA (latest standards)

EMERGENCY GENERATOR NOTES

- Housing developments of 200 or more units shall provide backup generator sets for emergency use as required. Generator shall be provided with automatic throw over switch that senses power interruption from the main power source, starts the generator and shifts the power supply to the lift station from the generator.
- If less than 200 homes are constructed initially, but in future phases the build-out is 200 homes or greater, an emergency generator will be required. The pumping station shall be constructed with space available for an emergency generator to be installed when 200 homes are constructed.
- IRCUDS may connect additional developments into a proposed pumping station and may require an emergency generator.
- Natural gas to be used for power when available.
- See Section 17 Engine Driven Generator Sets for specifications.

PLANT CONTROL SYSTEM

PUMPING STATION DATA TABLE	
LIFT STATION NUMBER	
PRIMARY CONDITION	
PUMPING CAPACITY	GPM 245
TOTAL HEAD (±)	FEET 98
EFFICIENCY	% 80%
PUMPING CAPACITY	GPM --
TOTAL HEAD	FEET --
EFFICIENCY	% --
SECONDARY CONDITION	
PUMPING CAPACITY	GPM 160
TOTAL HEAD	FEET 115
EFFICIENCY	% --
MIN. SOLIDS PASS. IMPELLER	INCHES 6"
PUMP MODEL NUMBER	ND RFP B1E
PUMP IMPELLER	INCHES 6.5"
PUMP SPEED (DESIGN)	R.P.M. 3521
MDTR NAMEPLATE HP	HP 16.8
MAX. PUMP BRAKE HP	HP 7.00
MAX. NPSH @ SECONDARY	FEET --
MDTR MOTOR SPEED	R.P.M. 3521
INITIAL INFLUENT PEAK	GPM 62
MIN. PUMP CYCLE TIME	MINS. 20
ALARM SIGNAL ON ELEV.	ELEV.± 10.00
INFLUENT PIPE INV. ELEV.	ELEV.± 8.77
LAG PUMP ON ELEV.	ELEV.± 8.75
LEAD PUMP ON ELEV. (±)	ELEV.± 8.25
PUMPS OFF ELEVATION	ELEV.± 7.50
ALARM SIGNAL ON ELEV.	ELEV.± 7.00
BOTTOM OF WET WELL	ELEV.± 6.00
PUMP MANUFACTURER	SUBZER

REFER TO SECTION 10 SUBMERGIBLE WASTEWATER PUMPING STATION

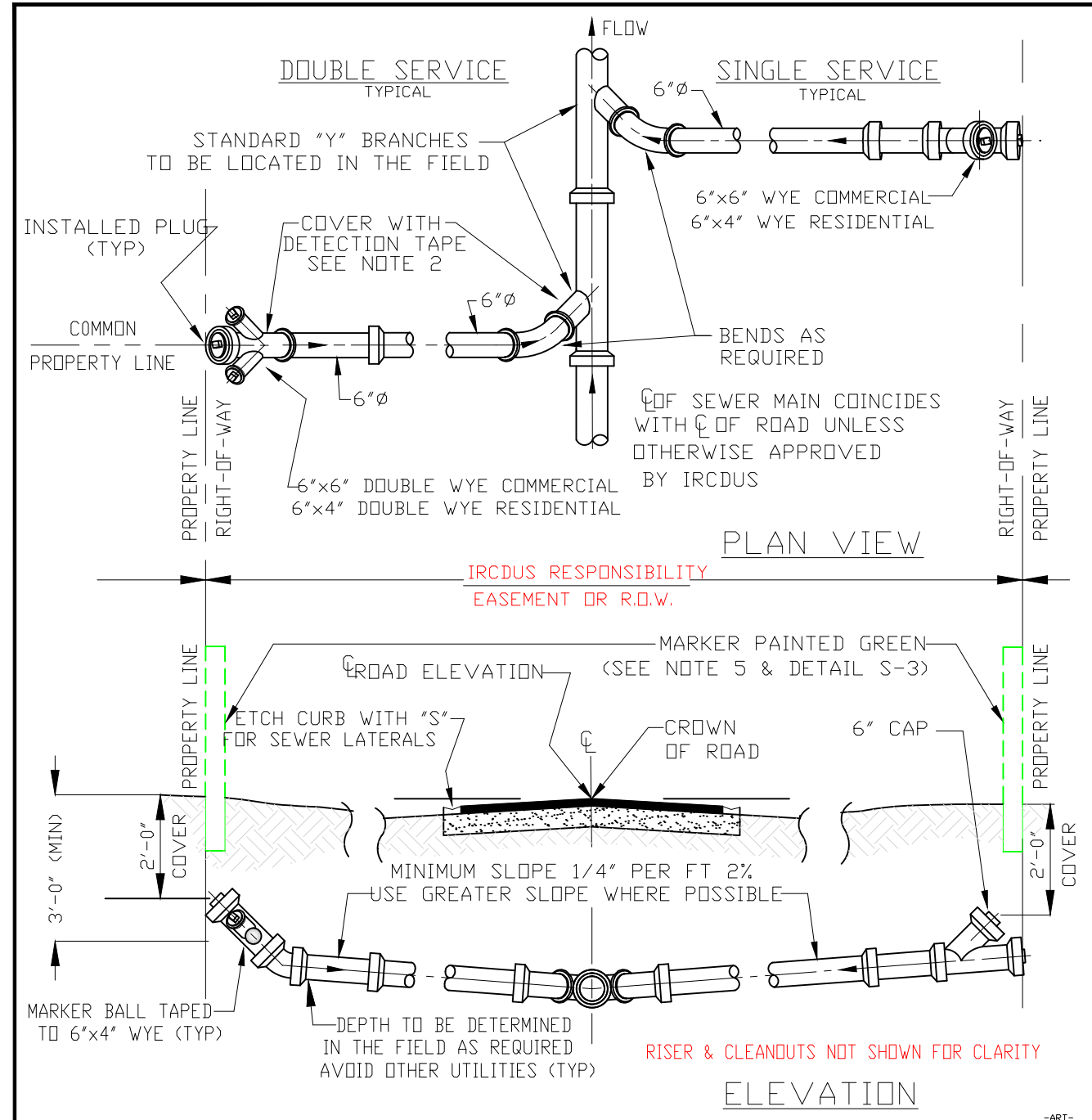
*** PUMP WILL OPERATE BETWEEN PRIMARY AND SECONDARY POINTS**

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

TYPICAL WASTEWATER PUMPING STATION ELECTRICAL & GENERATOR NOTES

DRAWING NO. **S-21**

MARCH 2018



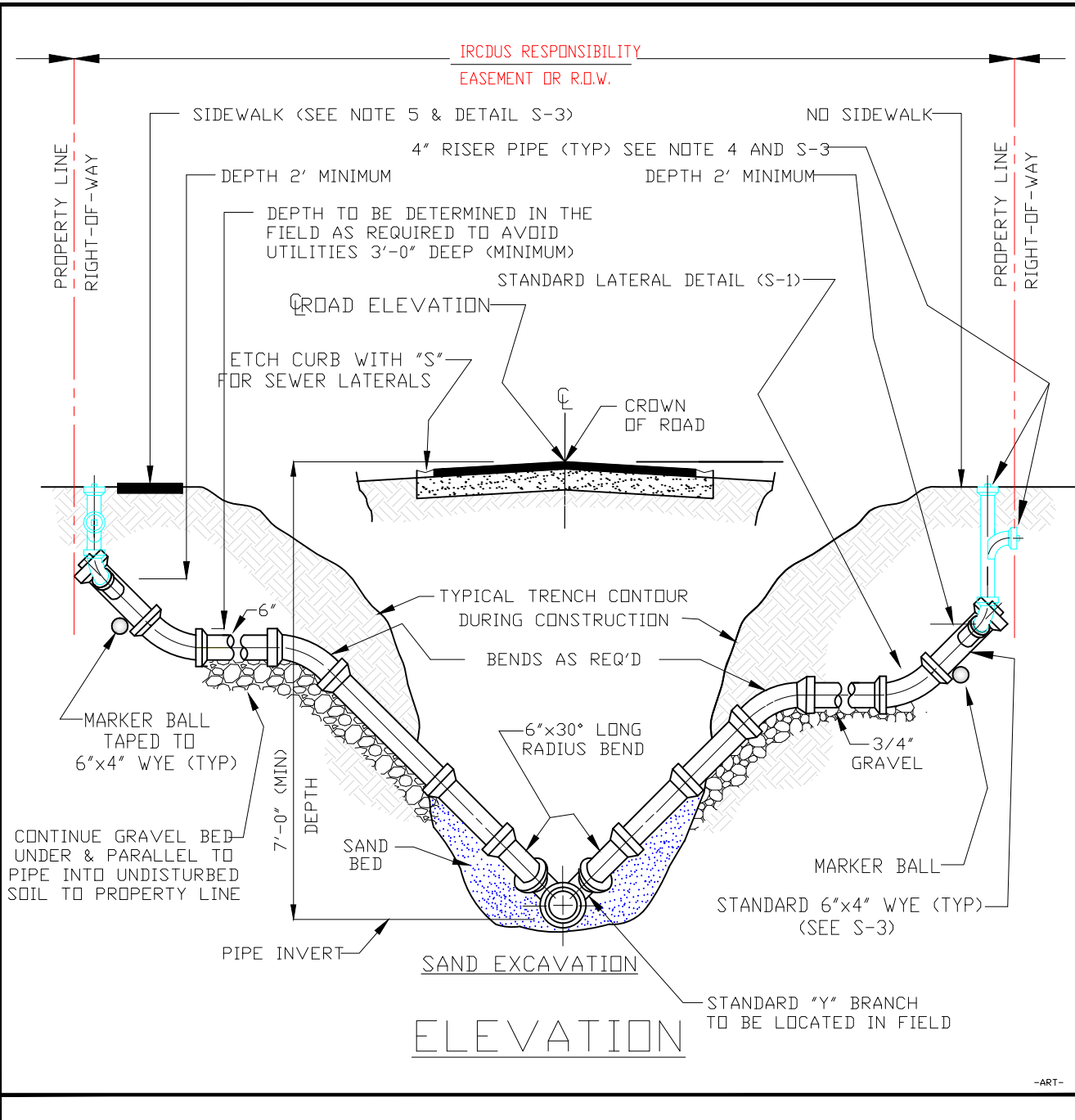
- NOTES**
- SANITARY SEWER LATERALS SHALL BE A MINIMUM OF 6" IN DIAMETER.
 - MAGNETIC DETECTION TAPE SHALL BE INSTALLED OVER TOP OF ALL SEWER MAINS AND SERVICE LATERALS.
 - ALL MATERIALS ARE TO BE PER IRCUDS APPROVED MANUFACTURERS' PRODUCT LIST.
 - 4" ELECTRONIC MARKER BALLS TO BE TAPED TO 6"x4" WYE 24" BELOW FINISHED GRADE.
 - FOR RISER AND CLEANDOUT DETAIL SEE DRAWING S-3.
 - AND FOR CUTTING SEWER CLEANDOUT TO FINISH GRADE PRIOR TO CONNECTION. SEE DETAIL S-3.
 - RISERS AND CLEANDOUT SHALL NOT BE CONSTRUCTED WITHIN 12" OF SIDEWALK.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

STANDARD LATERAL (SHALLOW SEWER)

DRAWING NO. **S-1**

MARCH 2018



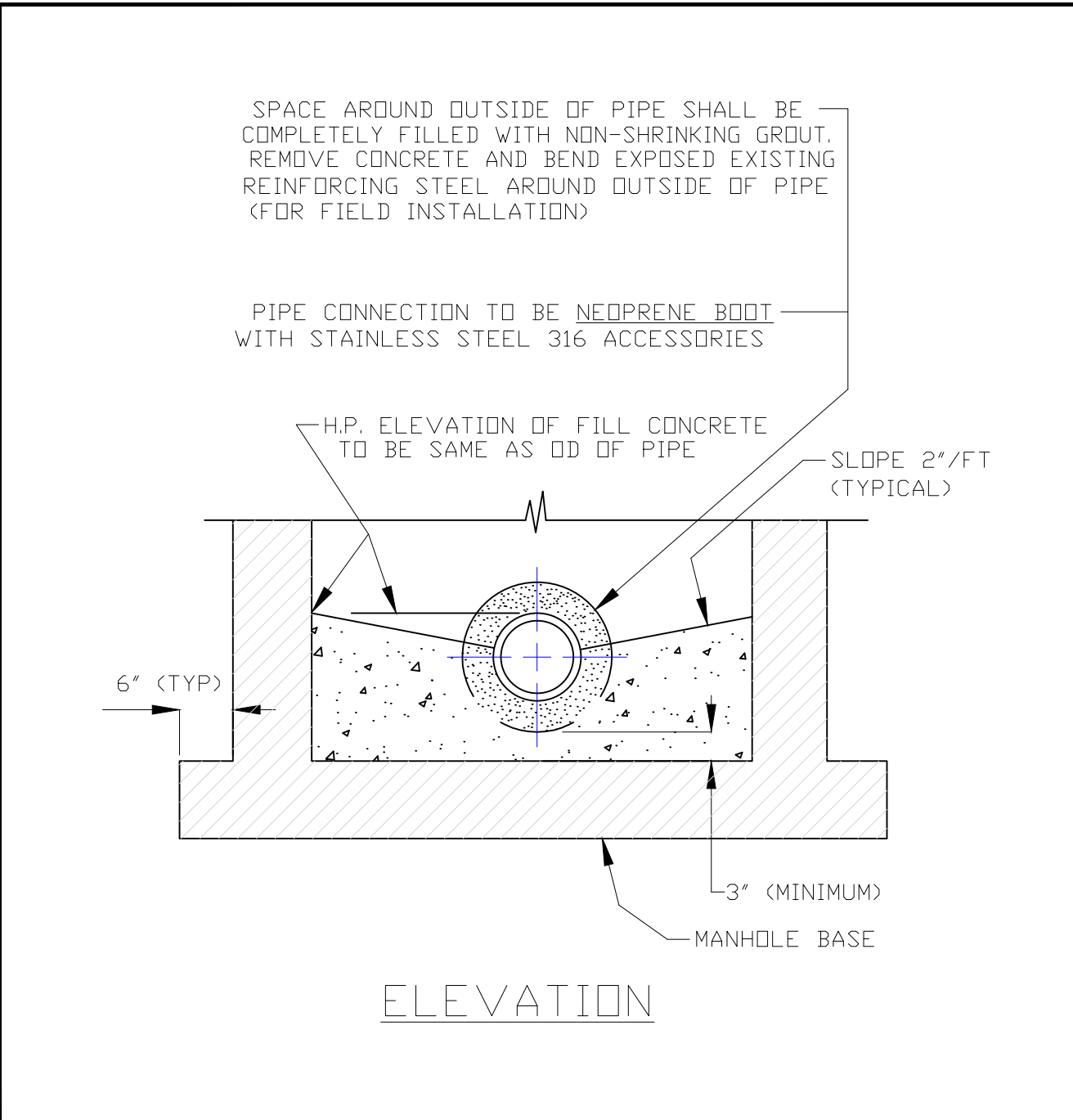
- NOTES**
- 3/4" GRAVEL BEDDING SHALL BE USED FOR EXCAVATION IN ROCK. SAND BEDDING SHALL BE USED FOR EXCAVATION IN SAND.
 - ALL MATERIALS ARE TO BE PER IRCUDS APPROVED MANUFACTURERS' PRODUCT LIST.
 - MARKER BALLS TO BE TAPED TO 6"x4" WYE 24" BELOW FINISHED GRADE.
 - PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR RISER PIPE WITH BEND FOR SERVICE CONNECTION AND FOR SETTING 4" SEWER CLEANDOUT TO FINISH GRADE PRIOR TO CONNECTION.
 - RISERS AND CLEANDOUTS SHALL NOT BE CONSTRUCTED WITHIN 12" OF SIDEWALK.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MODIFIED RISER LATERAL (DEEP SEWER)

DRAWING NO. **S-2**

MARCH 2018



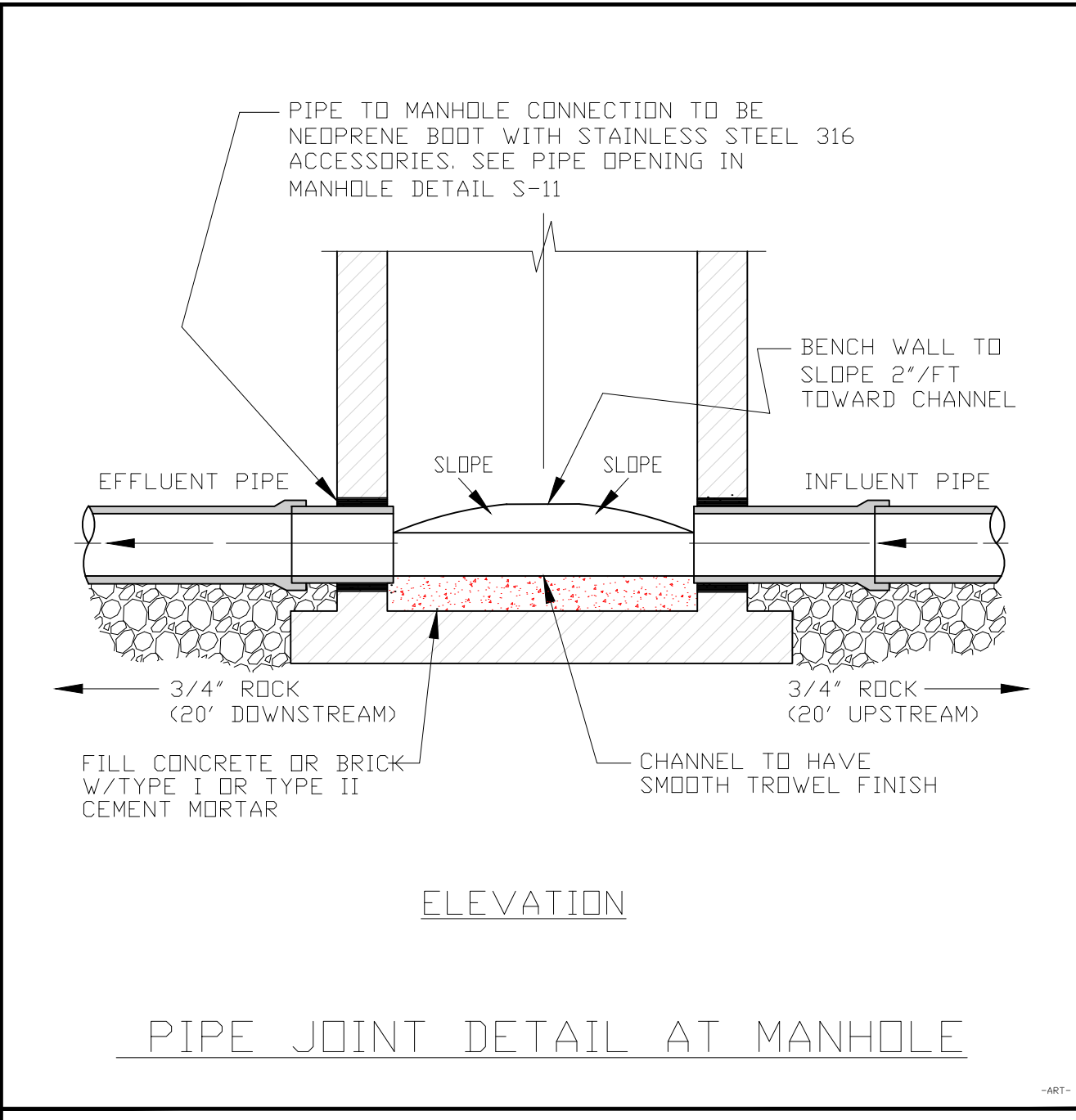
- NOTES**
- SEE MANHOLE NOTES ON DRAWING NO. S-5, NOTES 2,4,5,7,10, AND 16.
 - ALL MATERIALS ARE TO BE PER IRCUDS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

PIPE OPENING IN MANHOLE DETAIL

DRAWING NO. **S-11**

MARCH 2018



- NOTES**
- PIPE JOINT DETAIL IS TYPICAL FOR ALL PIPE TO MANHOLE CONNECTIONS.
 - ALL MATERIALS ARE TO BE PER IRCUDS APPROVED MANUFACTURERS' PRODUCT LIST.
 - 3/4" ROCK TO BE USED AS BEDDING FOR 20' UPSTREAM AND DOWNSTREAM OF MANHOLE.
 - SEE MANHOLE NOTES ON DRAWING S-5, NOTE 16.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

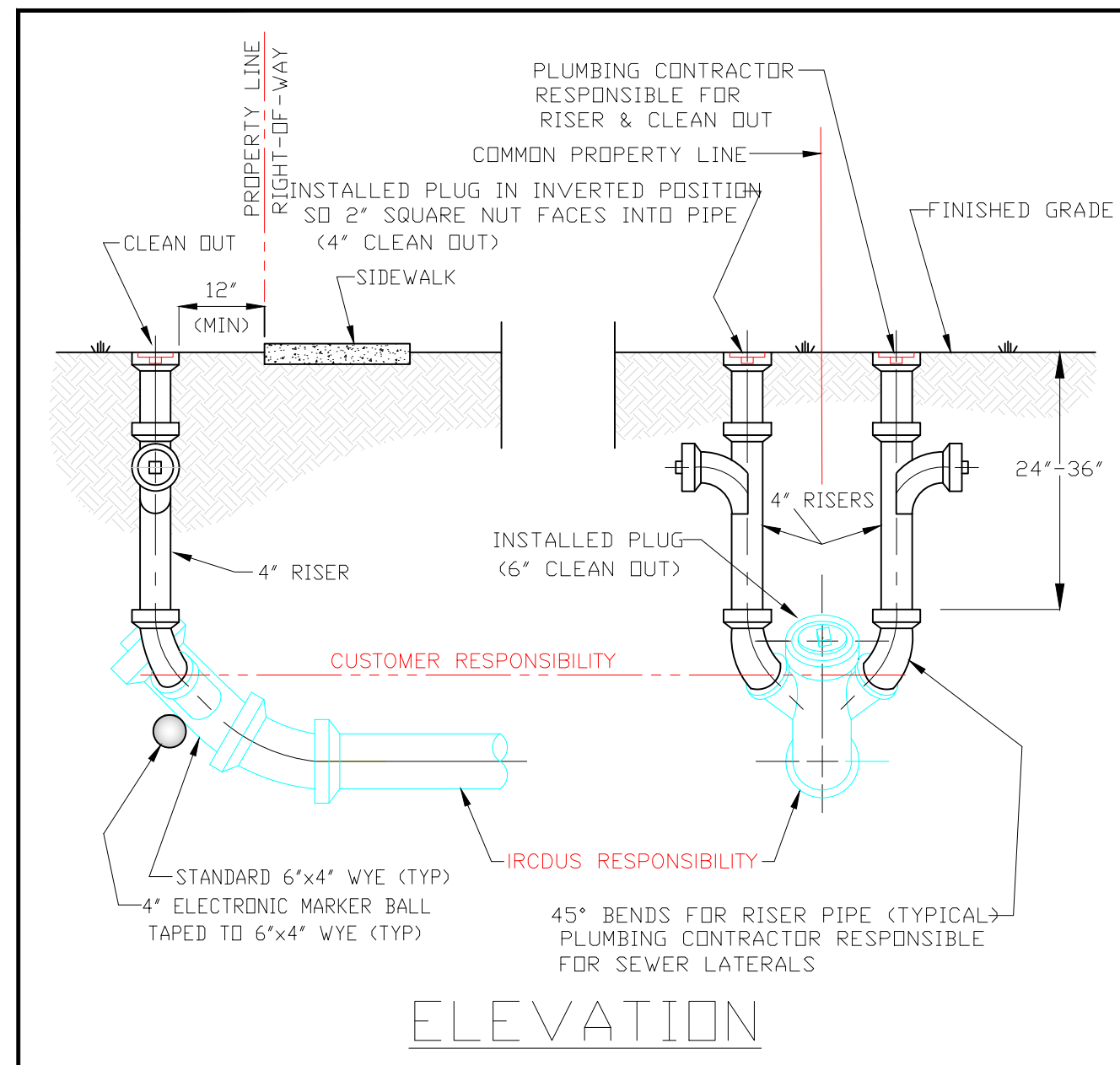
MANHOLE INFLUENT & EFFLUENT PIPING DETAIL

DRAWING NO. **S-12**

MARCH 2018

REVIEWED AND APPROVED BY: **FOR BIDDING PURPOSES ONLY - ADDENDUM 3**
ARJUNA WERAGODA, FL P.E. 64267

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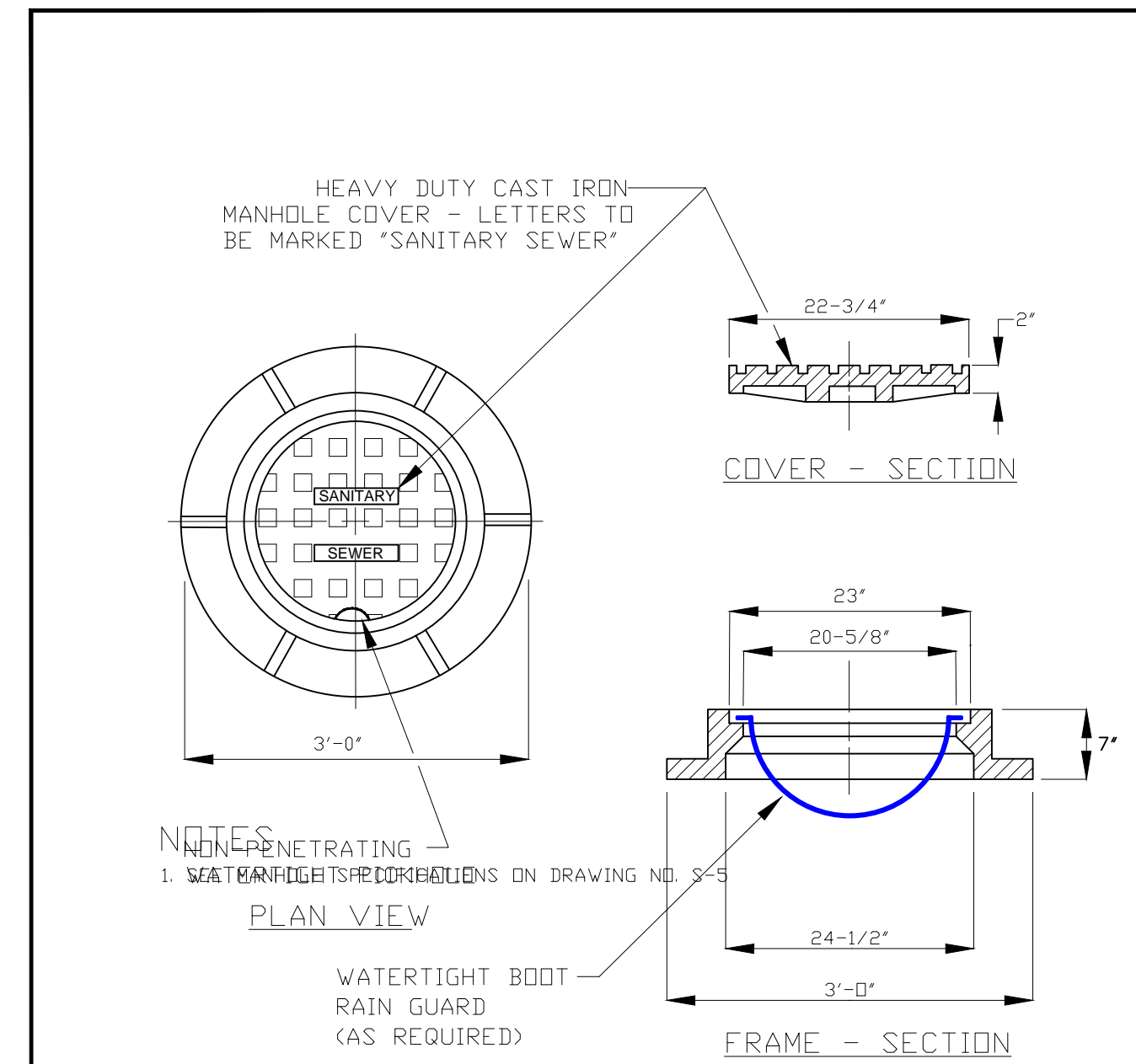
- NOTES**
1. ALL SEWER LATERALS (SINGLE, DOUBLE, DEEP OR SHALLOW) SHALL HAVE A RISER PIPE WITH BENDS AS REQUIRED FOR SERVICE CONNECTIONS AND WITH A 4" SEWER CLEANOUT AT FINISHED GRADE.
 2. CONTRACTOR SHALL BE RESPONSIBLE FOR RISER PIPE WITH BEND FOR SERVICE CONNECTION AND FOR SETTING 4" SEWER CLEANOUT TO FINISH GRADE PRIOR TO CONNECTION.
 3. MARKER BALLS TO BE TAPED TO 6"x4" WYE 24" BELOW FINISHED GRADE.
 4. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
 5. CLEANOUT SHALL NOT BE CONSTRUCTED WITHIN 12" OF SIDEWALK.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

SEWER LATERAL RISER DETAILS

DRAWING NO. S-3

MARCH 2018



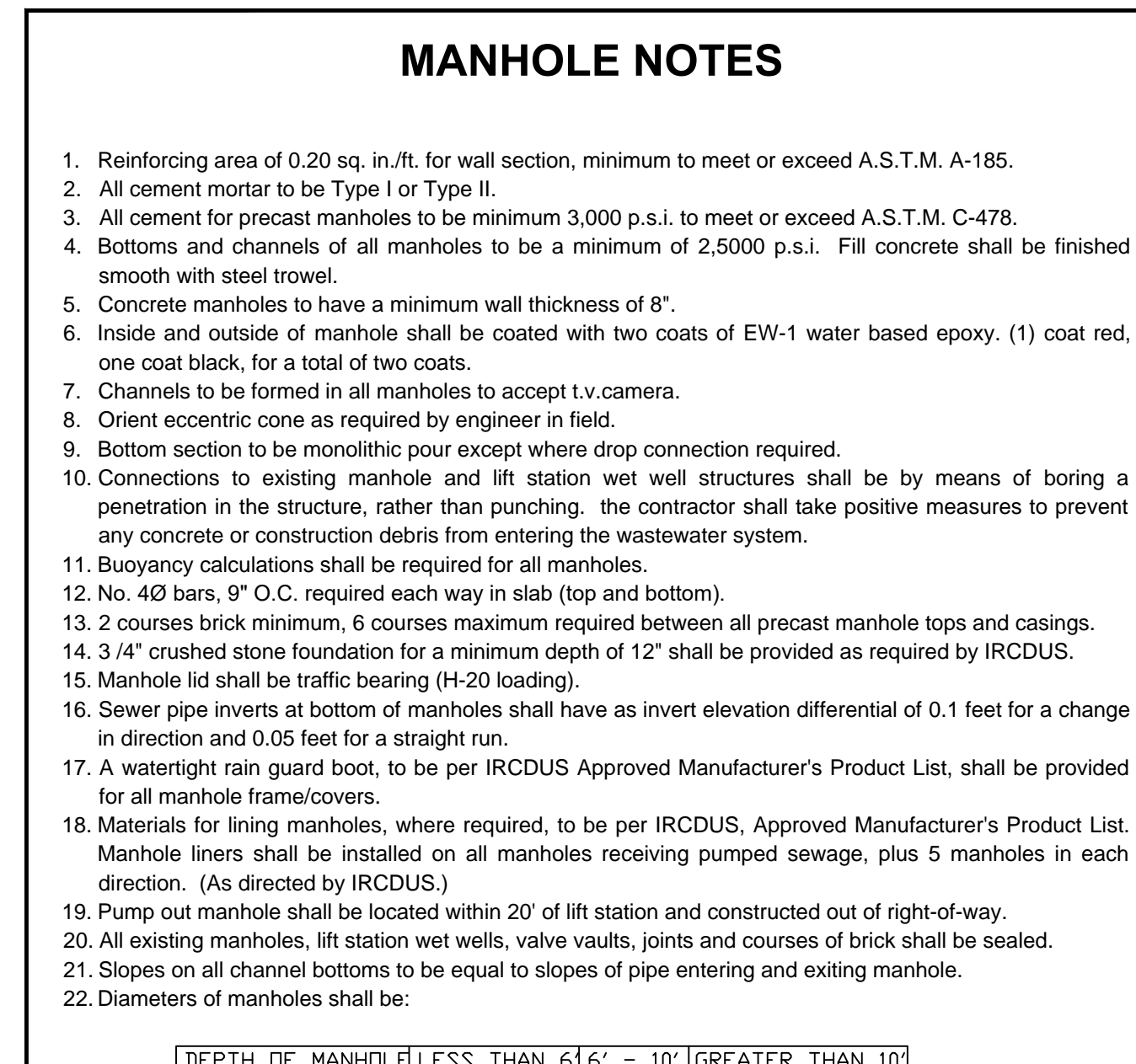
- NOTES**
1. A WATERTIGHT BOOT RAIN GUARD SHALL BE PROVIDED FOR ALL MANHOLE FRAME/COVERS AND APPROVED BY INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES.
 2. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
 3. A U.S. FOUNDRY 420 RING AND "C" COVER IS SHOWN IN ABOVE DRAWING.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

STANDARD MANHOLE CASTING

DRAWING NO. S-4

MARCH 2018

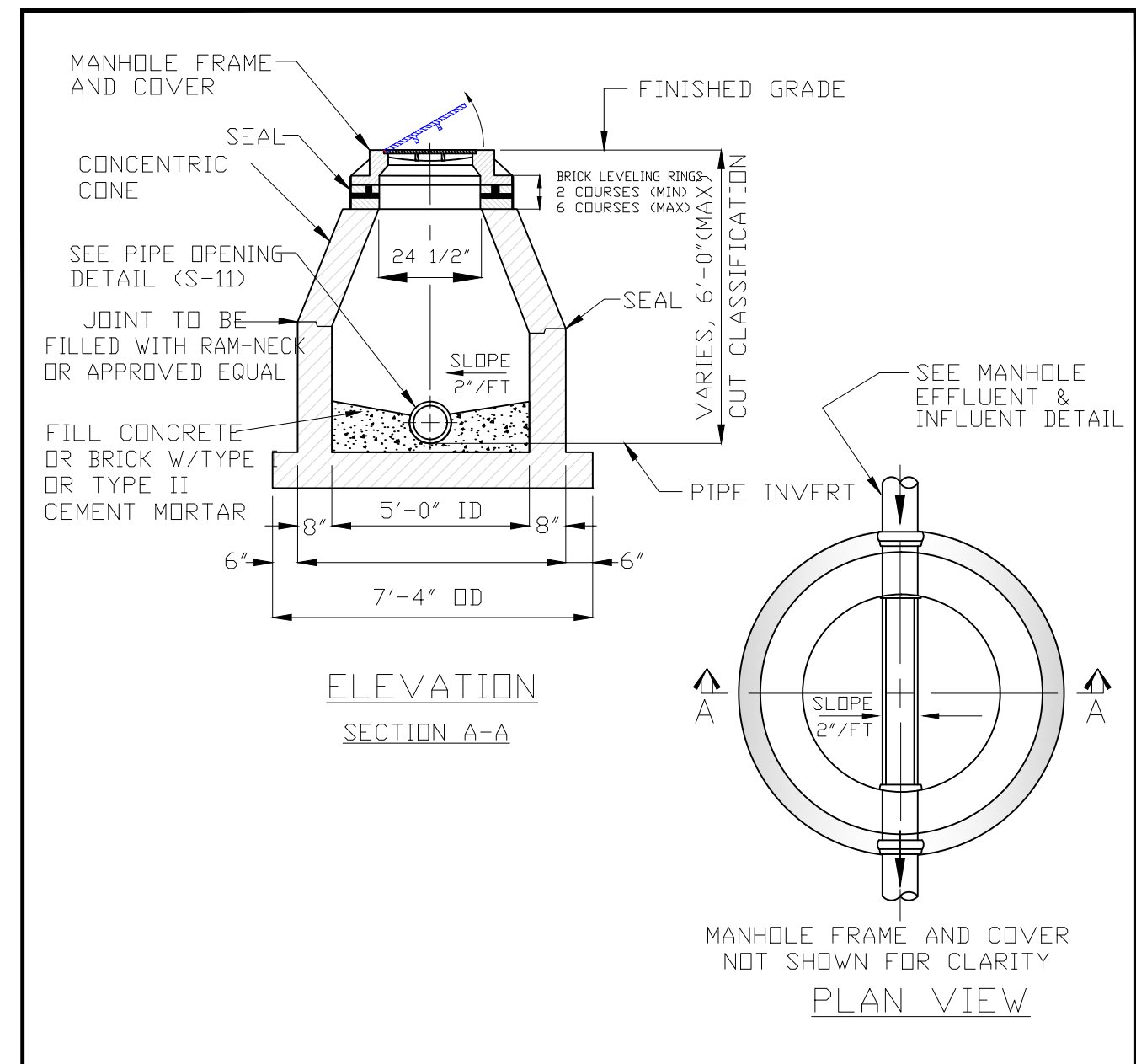


INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE NOTES

DRAWING NO. S-5

MARCH 2018



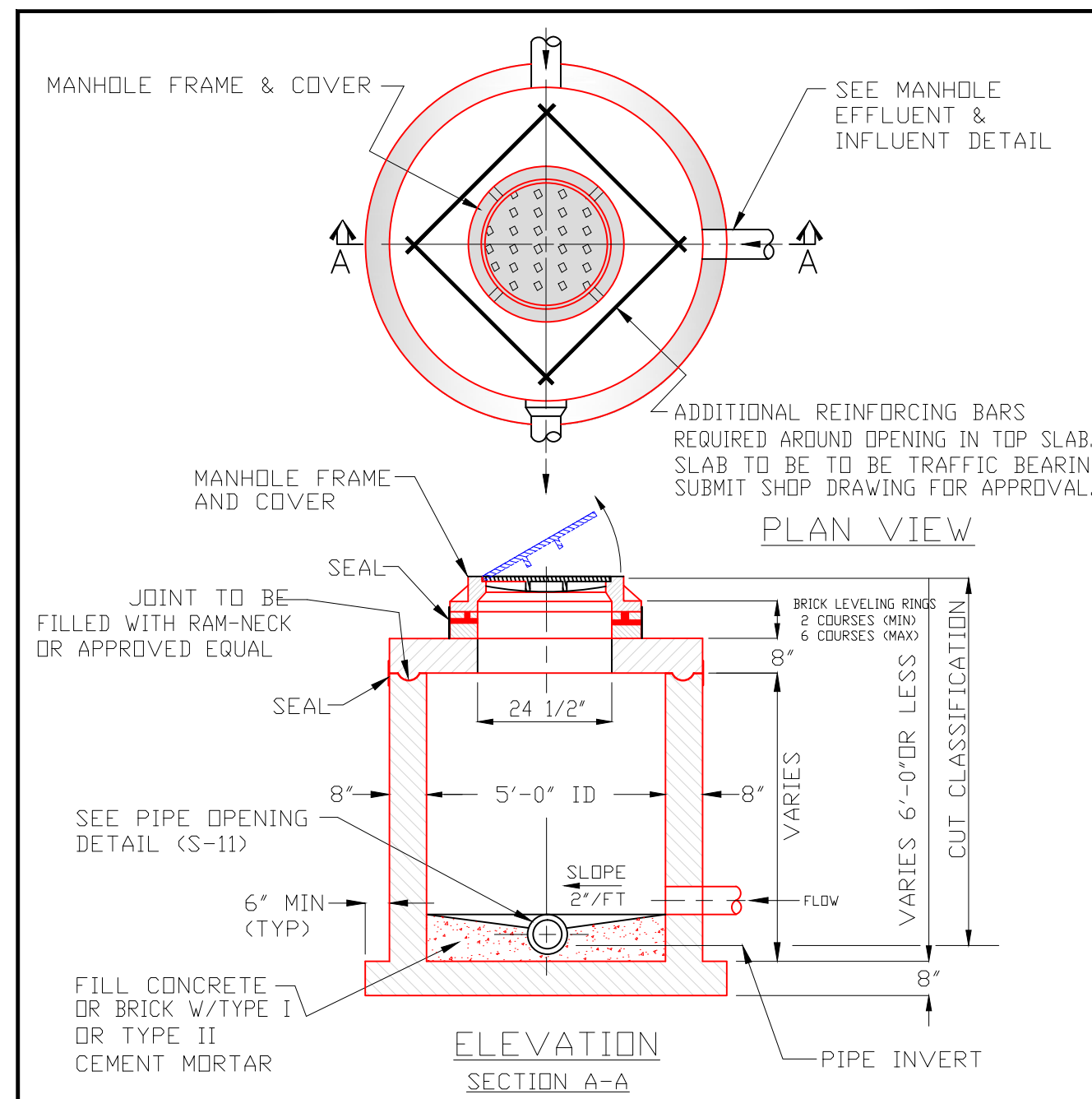
- NOTES**
1. SEE MANHOLE NOTES DRAWING NO. S-5
 2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-4
 3. SEE PIPE OPENING DETAIL DRAWING NO. S-11
 4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-12
 5. SEAL SHALL BE USED AT ALL JOINTS. SEE DRAWING S-5, NOTE 20.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE STANDARD-SHALLOW

DRAWING NO. S-6

MARCH 2018



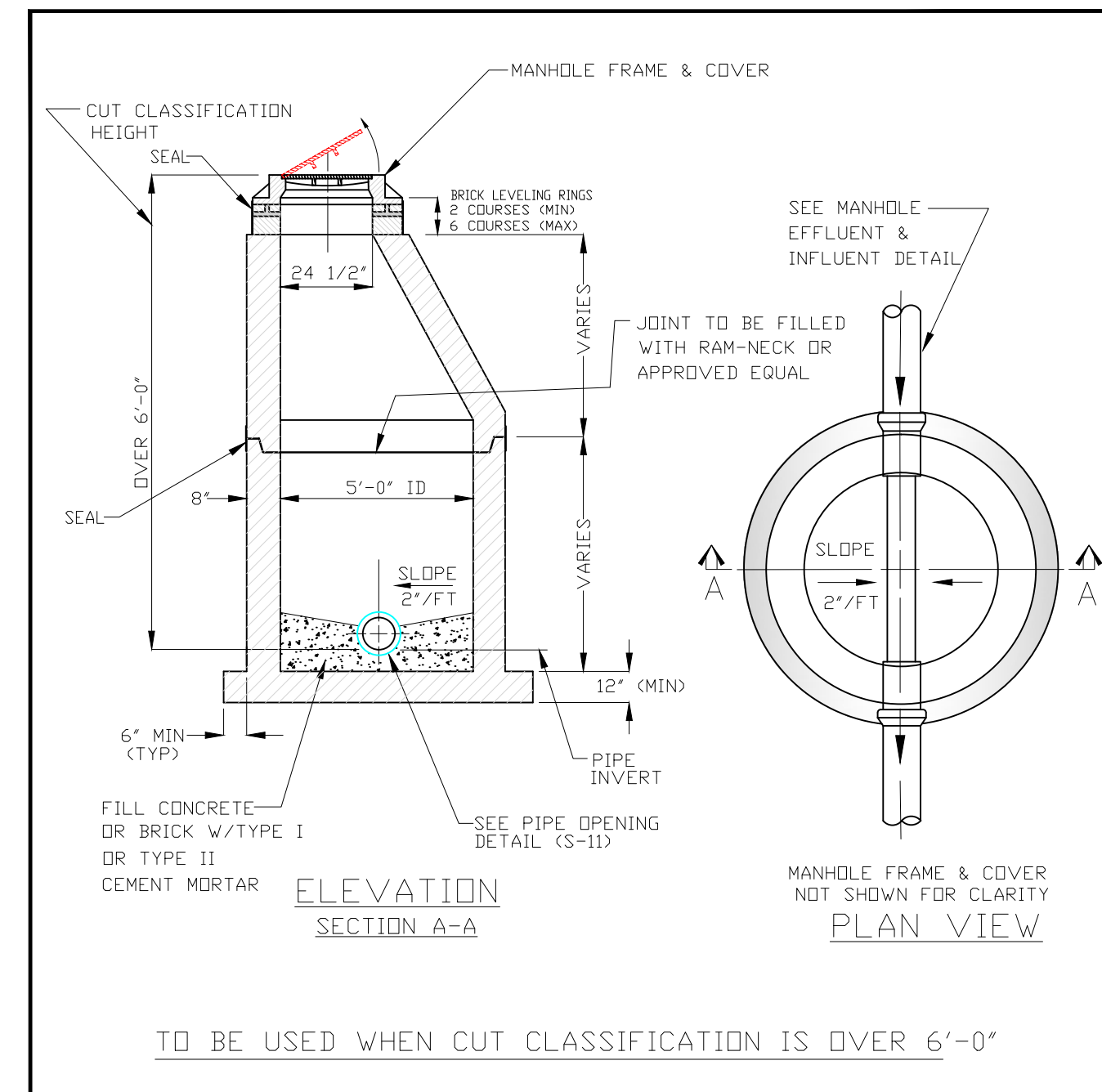
- NOTES**
1. SEE MANHOLE NOTES ON DRAWING NO. S-5
 2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-4
 3. SEE PIPE OPENING DETAIL DRAWING NO. S-11
 4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-12
 5. USE 5'-0" I.D. MANHOLE AS DIRECTED BY THE IRCDUS.
 6. SEAL SHALL BE USED AT ALL JOINTS. SEE DRAWING S-5, NOTE 20.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE SLAB-TOP DETAILS

DRAWING NO. S-7

MARCH 2018



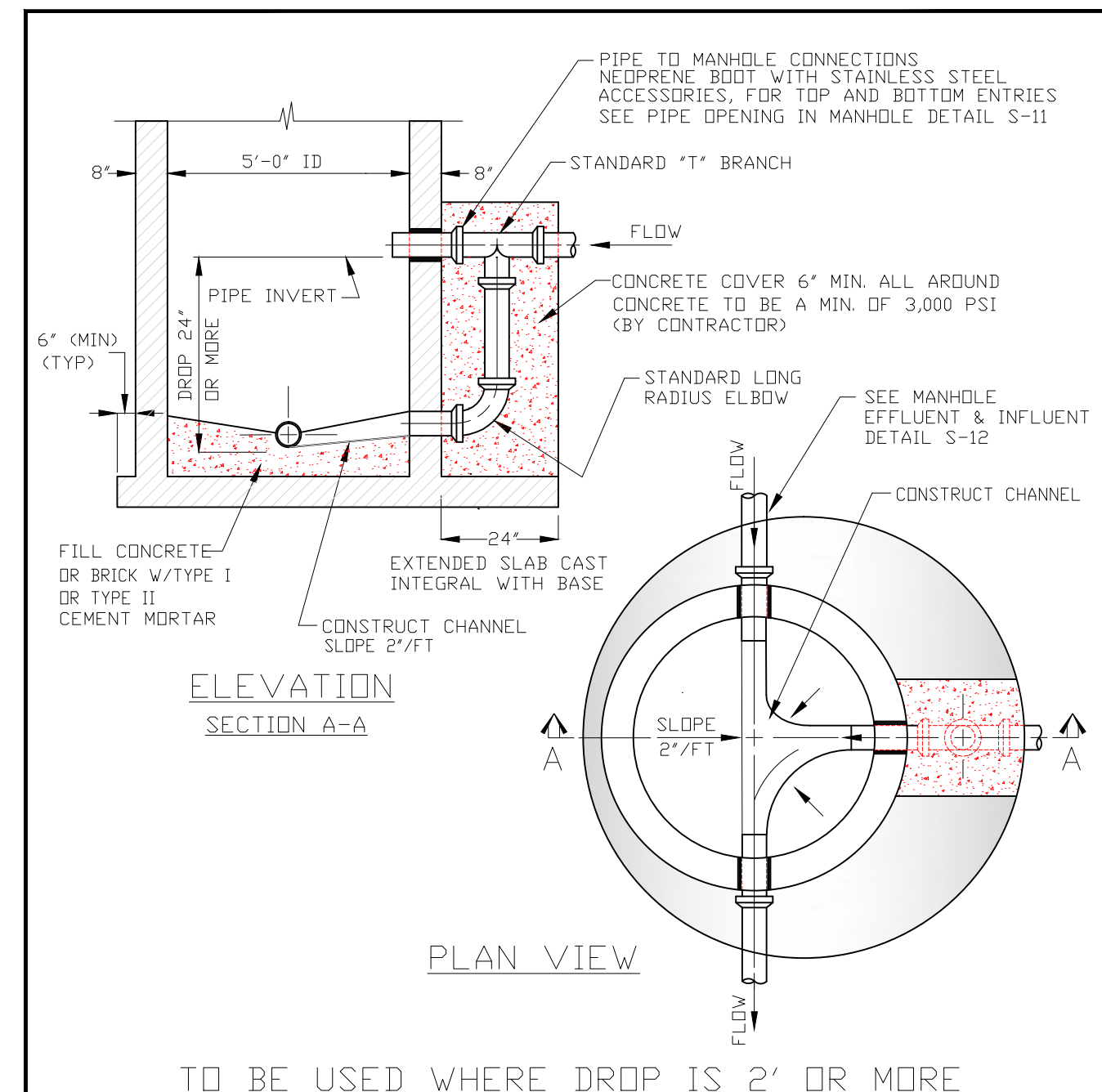
- NOTES**
1. SEE MANHOLE NOTES ON DRAWING NO. S-5
 2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-4
 3. SEE PIPE OPENING DETAIL DRAWING NO. S-11
 4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-12
 5. SEAL SHALL BE USED AT ALL JOINTS. SEE DRAWING S-5, NOTE 20.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE STANDARD-DEEP

DRAWING NO. S-8

MARCH 2018



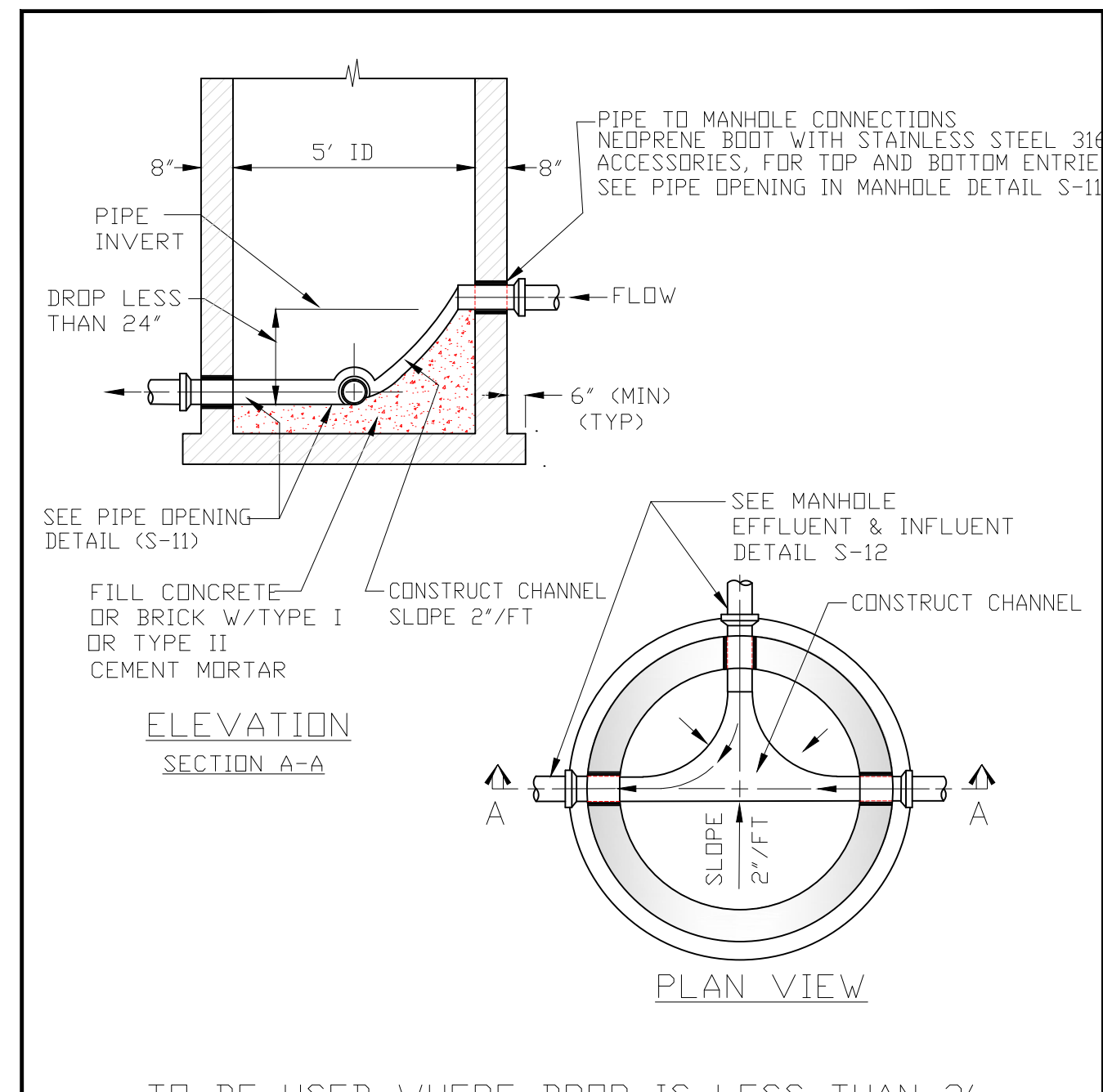
- NOTES**
1. SEE MANHOLE NOTES DRAWING NO. S-5
 2. SEE PIPE OPENING DETAIL DRAWING NO. S-11
 3. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-12
 4. SOLVENT JOINTS SHALL NOT BE USED FOR DROP PIPE
 5. SEWER LATERALS SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE OUTSIDE-DROP

DRAWING NO. S-9

MARCH 2018



- NOTES**
1. SEE MANHOLE NOTES ON DRAWING NO. S-5
 2. SEE PIPE OPENING DETAIL DRAWING NO. S-11
 3. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-12

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES

MANHOLE INSIDE-DROP

DRAWING NO. S-10

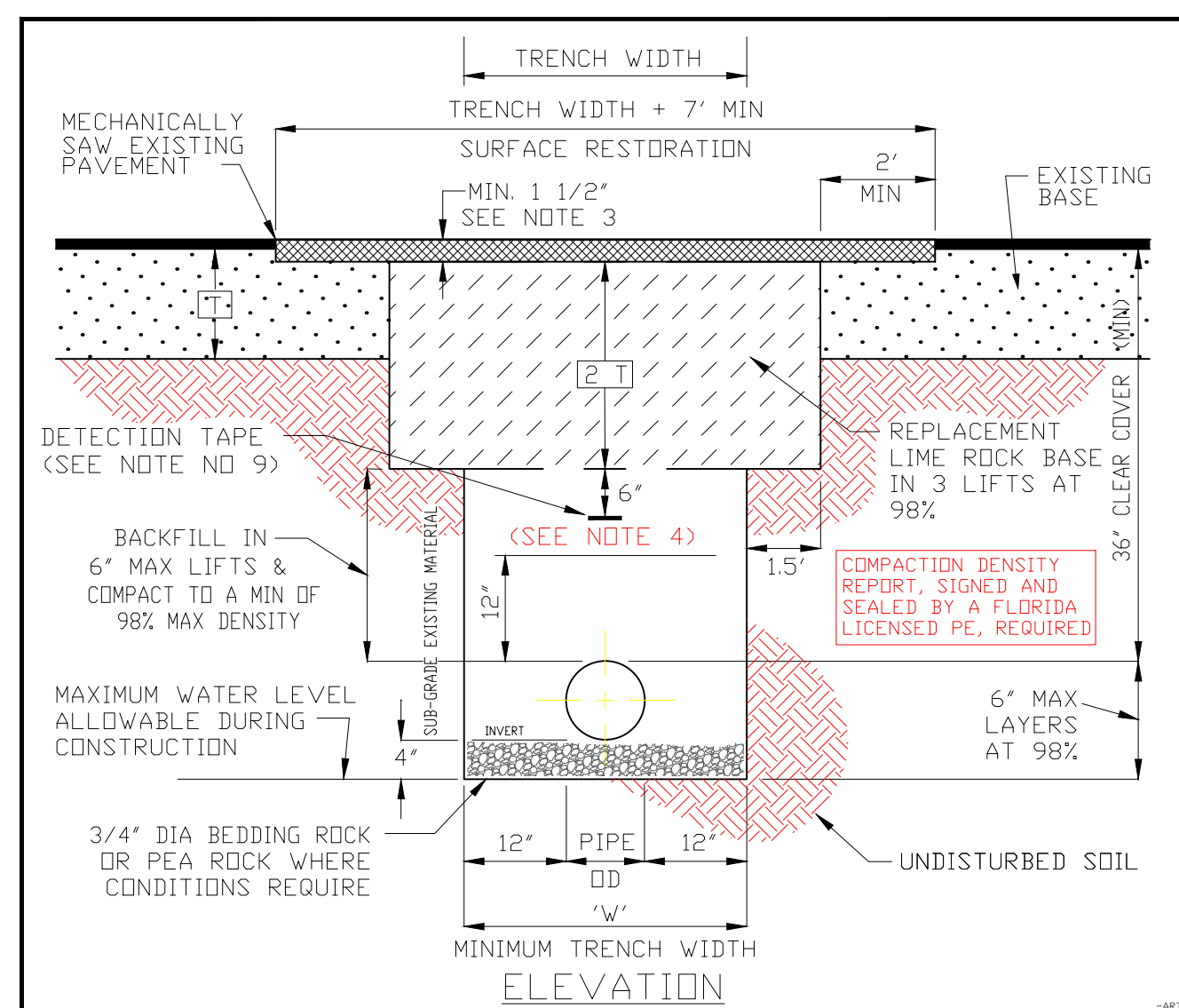
MARCH 2018

REVIEWED AND APPROVED BY:

FOR BIDDING PURPOSES ONLY - ADDENDUM 3

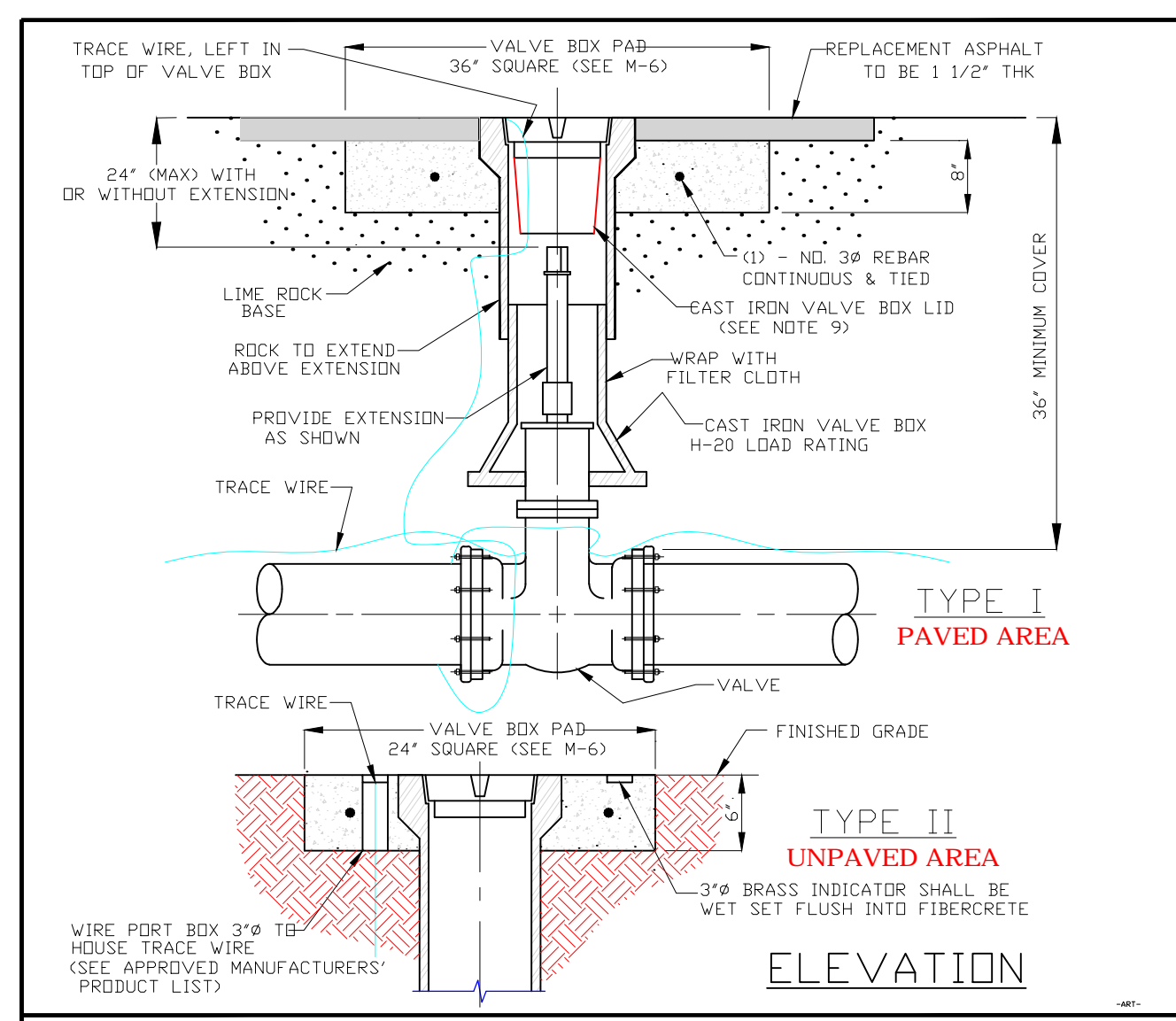
ARJUNA WERAGODA, FL P.E. 64267

CONTRACTORS ARE ADVISED TO REVIEW THE INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES WATER, WASTEWATER AND RECLAIMED WATER UTILITY CONSTRUCTION STANDARDS - MARCH 2018 AVAILABLE ON-LINE AT www.ircgov.com



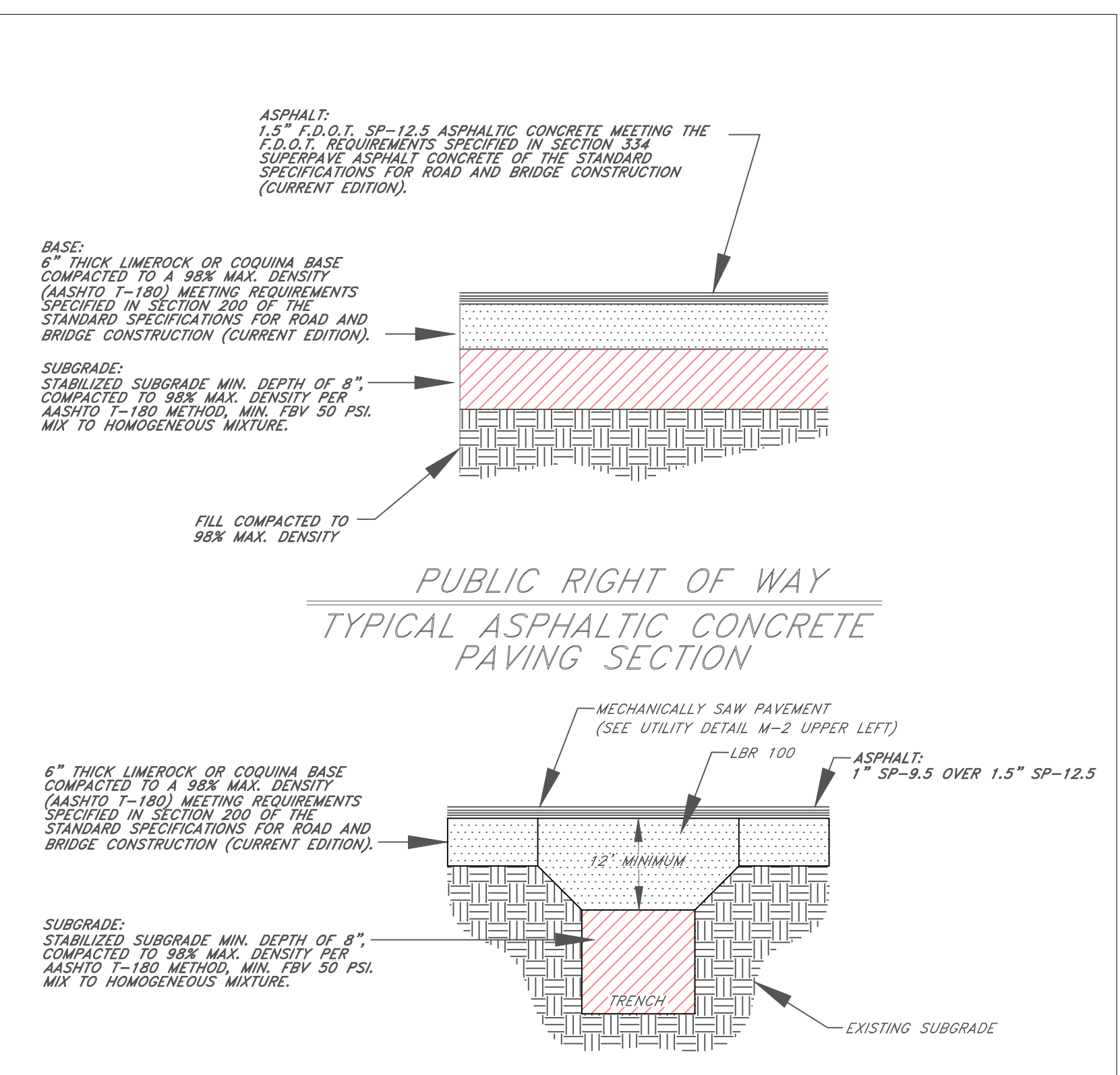
- NOTES**
- WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE METHOD OF CONSTRUCTION TO IRC/DOT FOR APPROVAL.
 - SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD IN ACCORDANCE WITH OSHA REGULATIONS.
 - NEW SURFACE MATERIALS SHALL BE CONSISTENT IN DEPTH WITH EXISTING MATERIALS AND SHALL HAVE LAPPED JOINTS (1-1/2" MIN. THK). PAVEMENT MATERIAL TYPE TO BE SPECIFIED.
 - MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL OTHER THAN HAND VIBRATORY MEANS.
 - COMPACTION PERCENTAGES SHOWN REFER TO AASHTO T-180 MODIFIED PROCTOR METHOD.
 - ALL ROADWAY RESTORATION SHALL COMPLY WITH INDIAN RIVER COUNTY PUBLIC WORKS/FDOT STANDARDS (SEE PUBLIC WORKS PER TYPICAL SECTION DRAWINGS).
 - COMPACTION REPORTS REQUIRED BY IRC/DOT.
 - MINIMUM TRENCH WIDTH "W" = PIPE O.D. PLUS 2'-0".
 - 2" DETECTION TAPE WITH 12" MIN. TRENCH TO BE INSTALLED OVER MAIN 6" BELOW BOTTOM OF BASE COURSE. TAPE TO BE MARKED "CAUTION-WATER LINE BELOW", "CAUTION-FORCE MAIN BELOW", OR "CAUTION-REUSE MAIN BELOW". TRACE WIRE SHALL BE USED CONTINUOUSLY ON ALL PIPE. SEE TRACE WIRE DETAIL M-2.
 - COMPACT SHOULDER TO A MINIMUM OF 98% OF MAXIMUM DENSITY IN RIGHT-OF-WAY.
 - ALL PIPE TO BE LOCATED A MINIMUM OF 5' O.C. (TYPICAL) FROM EDGE OF PAVEMENT. ALL RESTORATION (CODDING) SHALL BE PER FDOT INDEX 105.
 - EXCAVATABLE FLOWABLE FILL IS ALLOWED WITH PRIOR APPROVAL OF PROPOSED MATERIAL STRENGTH BY COUNTY PUBLIC WORKS ENGINEER OR DESIGNER.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
TRENCH DETAIL
 (PAVED AREAS & SHOULDERS)
 DRAWING NO. M-2
 MARCH 2018

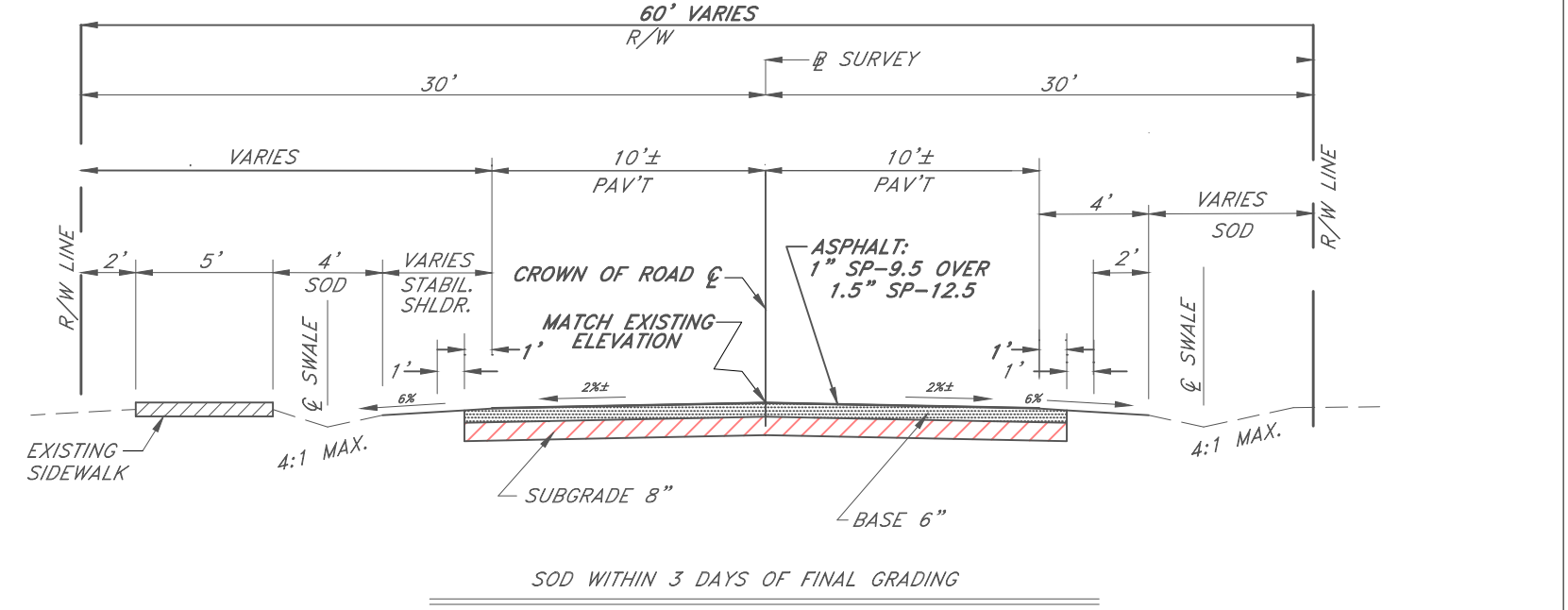


- NOTES**
- VALVE BOXES SHALL BE CONSTRUCTED PER MANUFACTURERS' SPECIFICATION.
 - THE USE OF A PVC RISER IS NOT ACCEPTABLE.
 - ALL VALVE BOXES SHALL BE SHAFT/SCREW TYPE OR SHAFT/SLIP TYPE AND CANNOT REST ON THE VALVE.
 - ALL VALVE BOLTS SHALL BE STAINLESS STEEL WITH BRASS NUTS.
 - PERMANENT LAND MARKERS ARE TO BE INSTALLED ADJACENT TO ALL VALVES IN UNPAVED AREAS AS DIRECTED BY IRC/DOT. (SEE PERMANENT LAND MARKER DETAIL M-9)
 - ALL VALVES REQUIRE STATE PLANE COORDINATES.
 - TRACE WIRE IS REQUIRED. (SEE TRACE WIRE DETAIL M-13)
 - REFLECTIVE MARKERS ARE TO BE LOCATED IN ROADWAY FOR ALL VALVES. (DETAIL V-1)
 - REFLECTIVE MARKERS FOR: FIRE HYDRANT - BLUE, WATER MAIN VALVE - WHITE, FORCE MAIN VALVE - GREEN, REUSE MAIN VALVE - PURPLE, BRINE - BROWN
 - REFLECTIVE MARKERS SHALL NOT BE PLACED IN BIKE LANES.
 - VALVE BOX LID LOCATED IN PAVEMENT SHALL BE A MINIMUM 24 LBS. WITH A MINIMUM 6' LONG TRAPEZOID.
 - VALVE BOX SHALL COMPLY WITH FDOT STANDARDS AS APPLICABLE.
 - VALVE EXTENSIONS OVER 36" REQUIRE IRC/DOT ENGINEERING APPROVAL.
 - VALVE SPACING ON WATER MAINS SHALL NOT EXCEED 1,000' MAXIMUM.

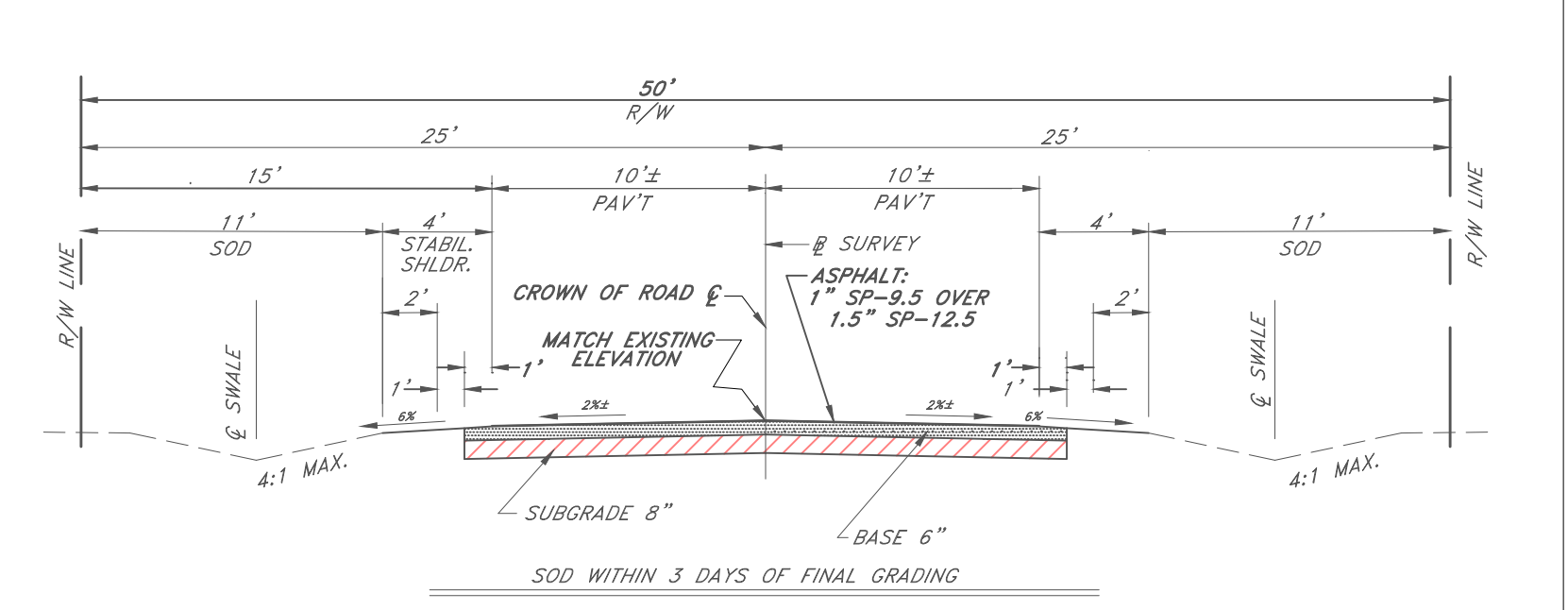
INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
VALVE AND BOX
 DRAWING NO. M-5
 MARCH 2018



**84TH STREET, 62ND AVE, 63RD AVE
 63RD COURT, 64TH AVE**

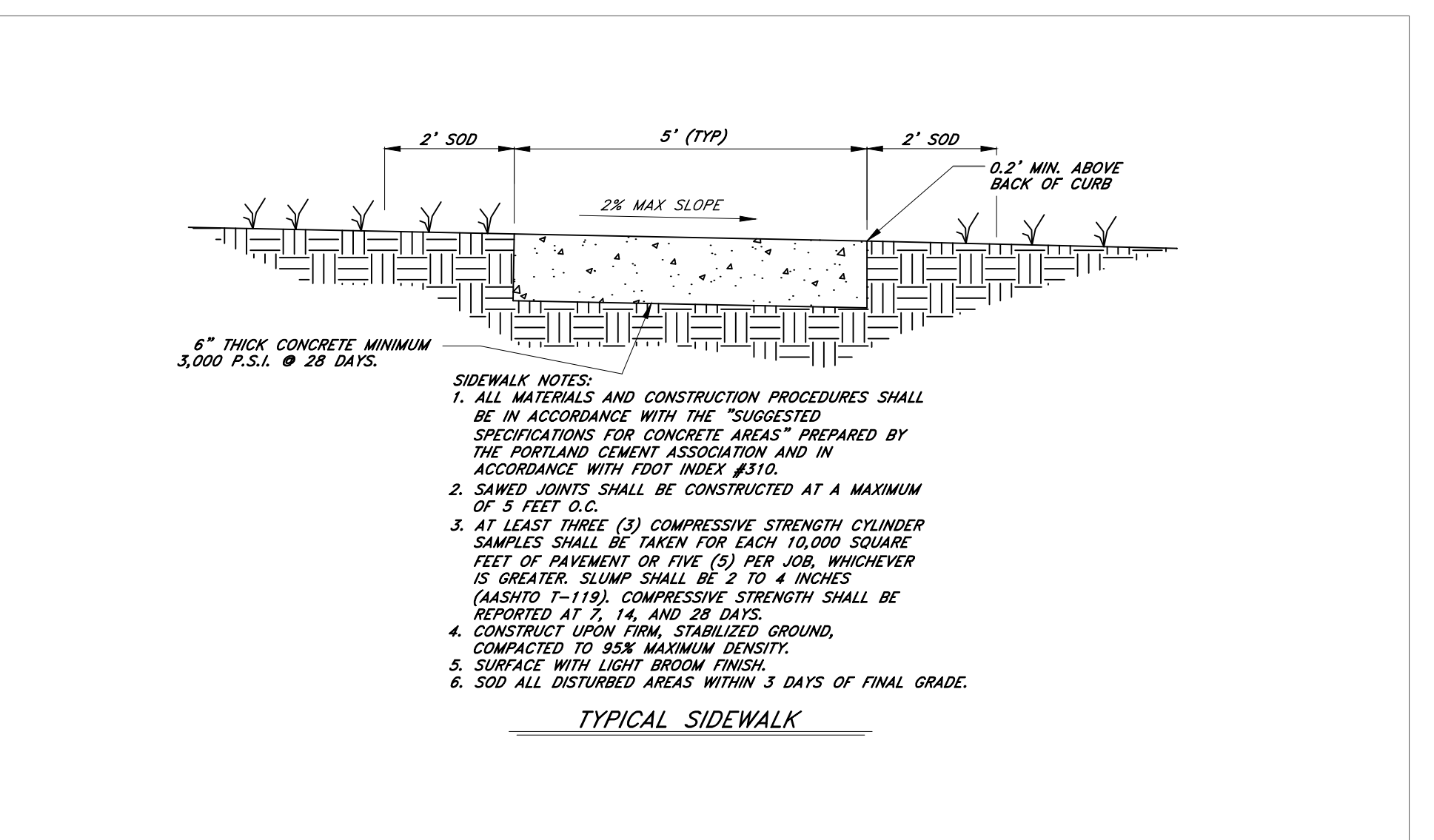


64TH AVENUE
 RIGHT OF WAY WIDTH VARIES 30' - 60'
 PROPOSED RESTORATION FROM STA. 308+90.00 TO STA. 317+00.00
 PROPOSED RESTORATION MINIMUM ROAD CROWN AND EDGE OF PAVEMENT ELEVATIONS SHALL BE AT OR HIGHER THAN EXISTING GRADE
NOTE: WIDTH OF EXISTING PAVEMENT ON 64TH AVENUE VARIES AND ROADWAY IS NOT CENTERED IN RIGHT OF WAY. CONTRACTOR SHALL PLACE MANHOLES IN THE CROWN OF PAVEMENT.

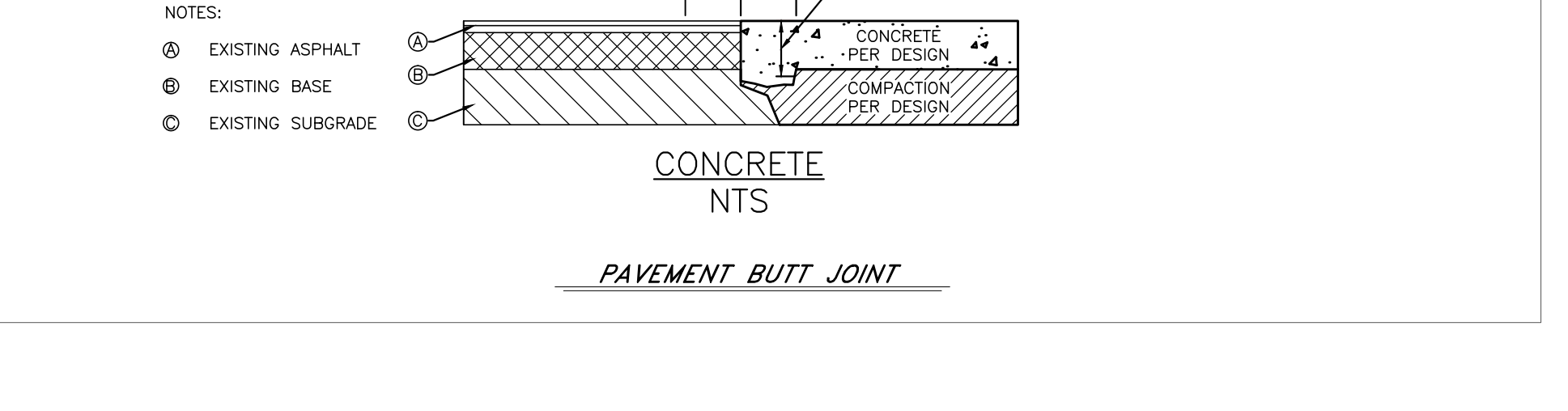
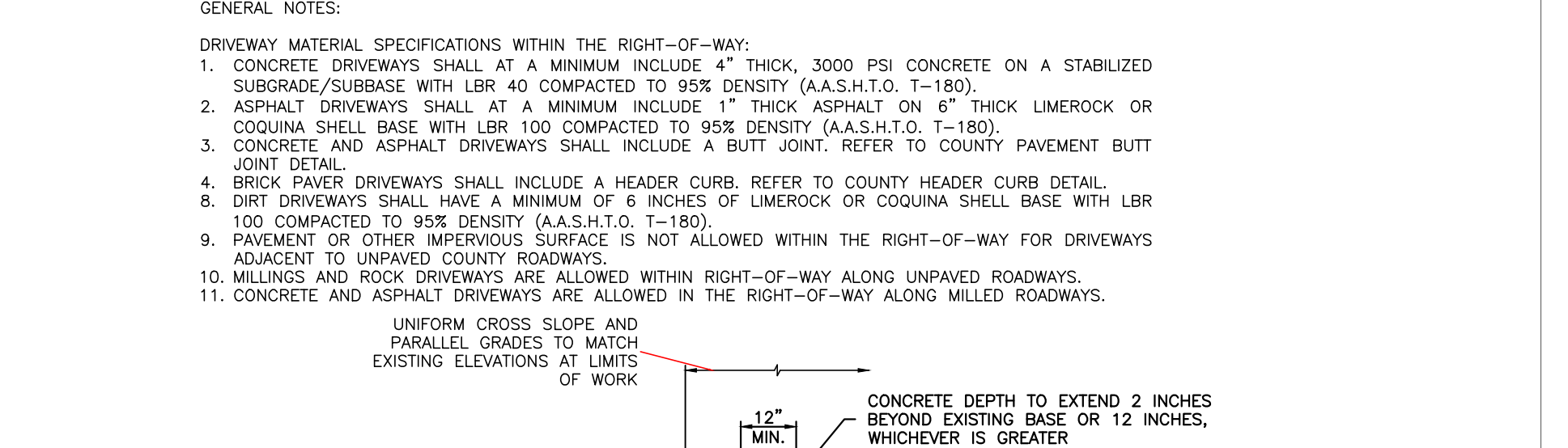


**84TH STREET, 62ND AVE, 63RD AVE
 63RD COURT**
 RIGHT OF WAY WIDTH 50'
 PROPOSED RESTORATION MINIMUM ROAD CROWN AND EDGE OF PAVEMENT ELEVATIONS SHALL BE AT OR HIGHER THAN EXISTING GRADE

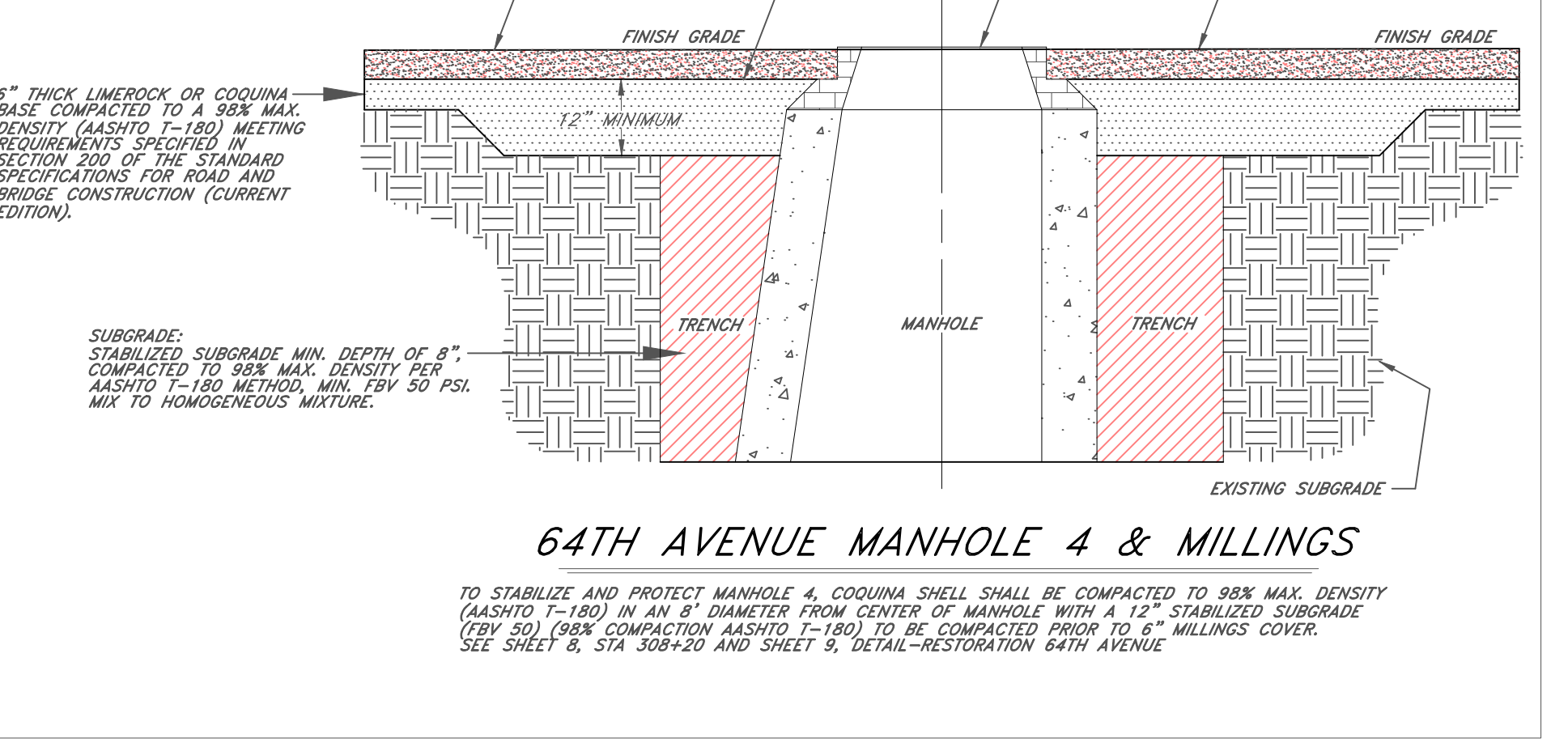
TYPICAL ROADWAY RESTORATION CROSS SECTIONS - FULL RESTORATION



- NOTES:**
- MAINTENANCE OF TRAFFIC**
- CONTRACTOR SHALL INSTALL STAND MOUNTED ADVANCE CONSTRUCTION SIGNING IN ACCORDANCE WITH F.D.O.T. STANDARD INDEX 602 FOR ANY WORK LESS THAN 15 FEET FROM THE EDGE OF PAVEMENT.
 - THERE SHALL BE NO EXCAVATIONS LEFT OPEN WHEN WORK IS NOT ACTIVELY BEING PERFORMED.
 - TRAFFIC SHALL BE RESTRICTED TO A SINGLE LANE WHEN ANY WORK ENROACHES THE AREA BETWEEN THE CENTERLINE AND 2 FEET OUTSIDE THE EDGE OF PAVEMENT. ONE-LANE CLOSURES SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD INDEX 603. TRAFFIC ENGINEERING SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY LANE CLOSINGS.
 - ALL CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED A MINIMUM OF 15 FEET FROM THE EDGE OF PAVEMENT AND SHALL BE PROTECTED BY TYPE II BARRICADES WITH FLASHING LIGHTS.
 - CONSTRUCTION FENCING USED IN THE WORK AREA TO PROTECT EQUIPMENT OR EXCAVATIONS SHALL NOT BLOCK SIGHT DISTANCE NEAR INTERSECTIONS OR DRIVEWAYS.
 - THE APPLICANT/CONTRACTOR SHALL NOTIFY IRC TRAFFIC ENGINEERING AT (772) 226-1326, 72 HOURS PRIOR TO BEGINNING CONSTRUCTION. TRAFFIC ENGINEERING STAFF WILL NOTIFY ALL EMERGENCY AGENCIES WITHIN INDIAN RIVER COUNTY.
 - ACCESS TO PROPERTY OWNERS AS WELL AS EMERGENCY ACCESS SHALL BE MAINTAINED AT ALL TIMES.
 - INDIAN RIVER COUNTY TRAFFIC ENGINEERING HAS UNDERGROUND CONDUIT FOR TRAFFIC SIGNAL INTERCONNECTIONS IN THIS AREA AS WELL AS OTHER TRAFFIC SIGNAL EQUIPMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT SUNSHINE STATE ONE CALL SYSTEM AT 1-800-432-4770 FOR LOCATIONS OF THIS EQUIPMENT AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION.



64TH AVENUE MANHOLE 4 & MILLINGS
 TO STABILIZE AND PROTECT MANHOLE 4, COQUINA SHELL SHALL BE COMPACTED TO 98% MAX. DENSITY (AASHTO T-180) IN AN 8' DIAMETER FROM CENTER OF MANHOLE WITH A 12" STABILIZED SUBGRADE (FBY 50) OVER COMPACTION (AASHTO T-180) TO BE COMPACTED UP TO 6" MILLINGS COVER. SEE SHEET 8, STA 308+20 AND SHEET 9, DETAIL-RESTORATION 64TH AVENUE



NOTE: CONTRACTOR SHALL NOTIFY PUBLIC WORKS DIVISION BEFORE COMMENCEMENT OF WORK IN THE RIGHT OF WAY

REVIEWED AND APPROVED BY:

CONTRACTORS ARE ADVISED TO REVIEW THE INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES WATER, WASTEWATER AND RECLAIMED WATER UTILITY CONSTRUCTION STANDARDS - MARCH 2018 AVAILABLE ON-LINE AT www/ircgov.com

FOR BIDDING PURPOSES ONLY - ADDENDUM 3
 ARJUNA WERAGODA, FL P.E. 64267

Revision	Date	By

INDIAN RIVER COUNTY
 1801 27TH STREET
 VERO BEACH, FLORIDA 32960
 (561) 567-8000

DEPARTMENT OF
 UTILITY SERVICES

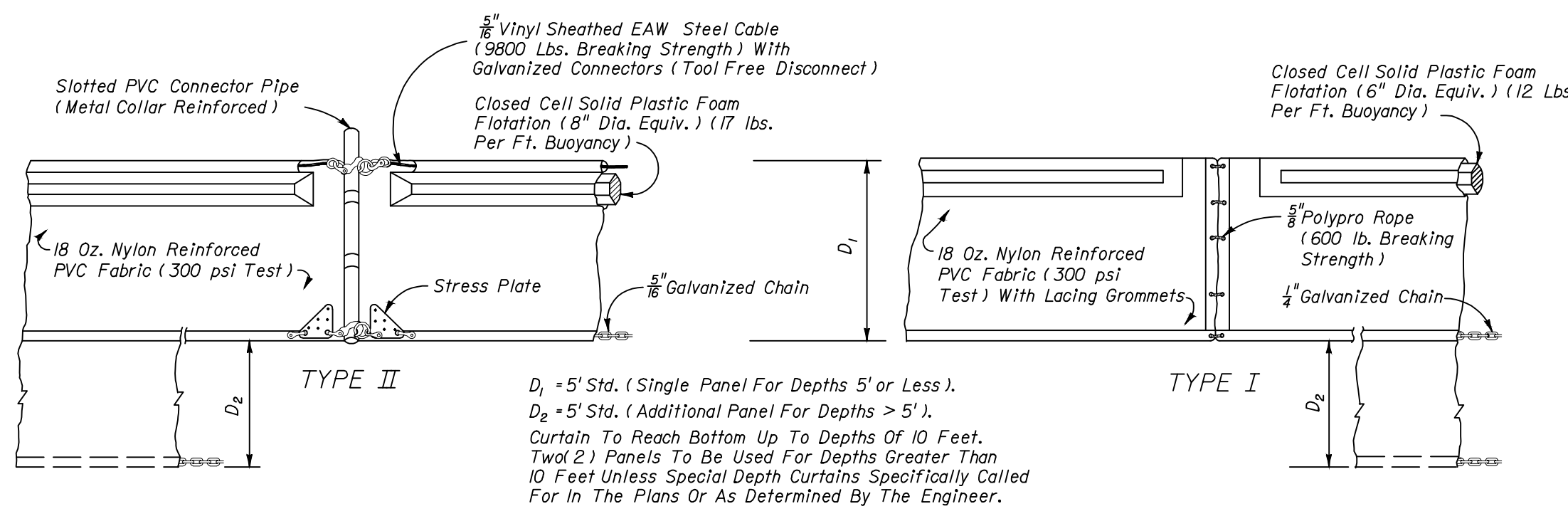
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 DESIGNED BY: -ART-
 CHECKED BY:
 APPROVED BY:

DATE: DECEMBER 10, 2018
 SCALE: NO SCALE
 UCP No. 4103

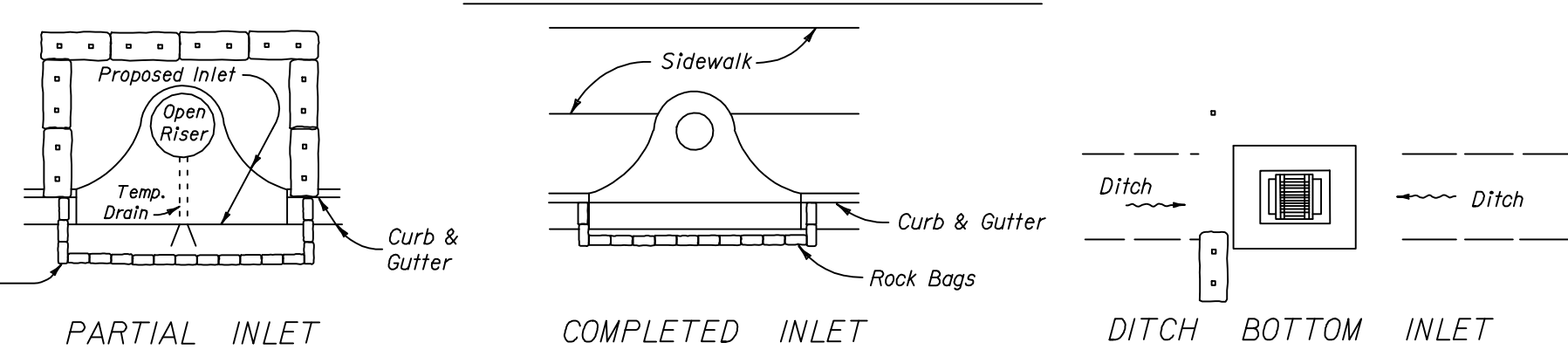
WEST WABASSO PHASE 2
 GRAVITY SEWER SYSTEM

UTILITY CONSTRUCTION STANDARDS
 RIGHT OF WAY RESTORATION

SHEET 15 OF 16

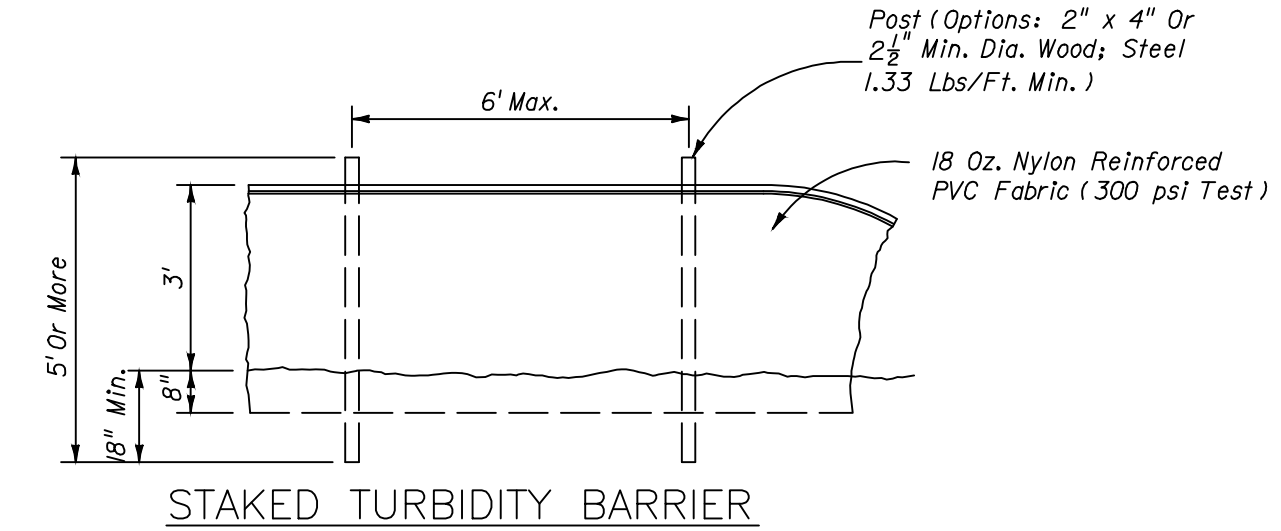


FLOATING TURBIDITY BARRIERS

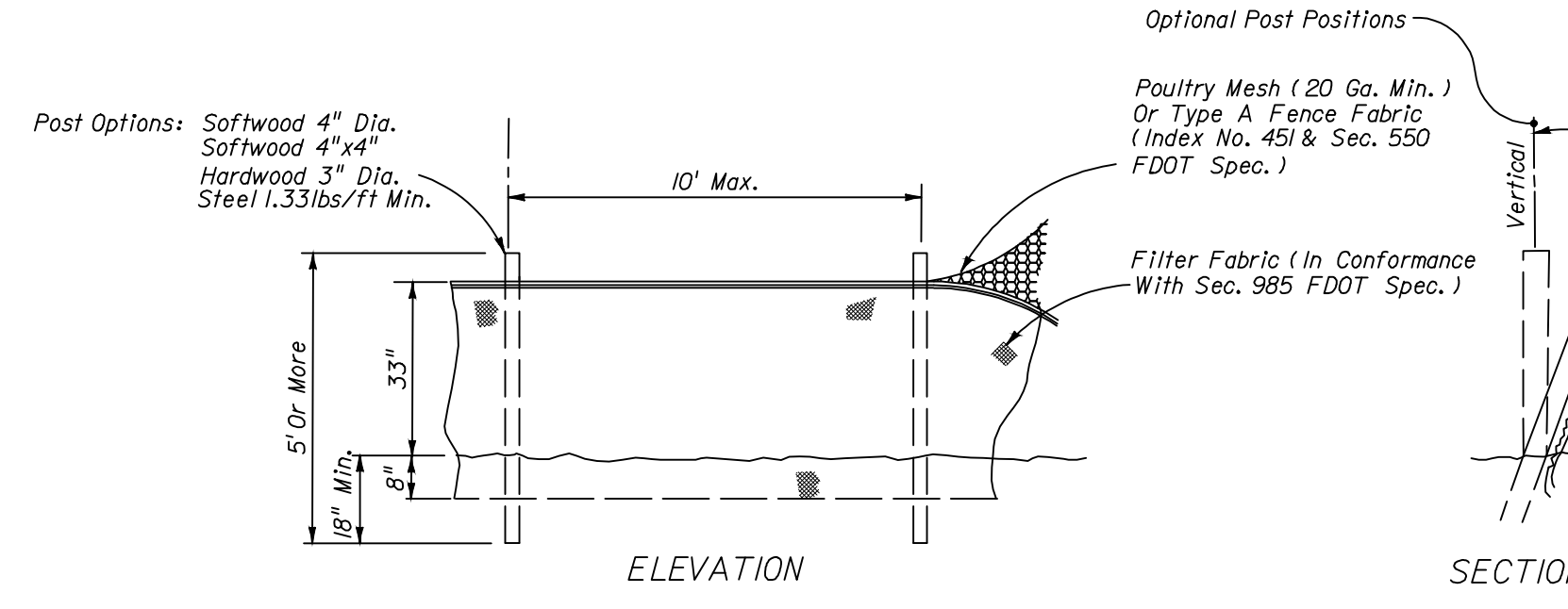


PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

- NOTES:
- Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
 - Number and spacing of anchors dependent on current velocities.
 - Deployment of barrier around pile locations may vary to accommodate construction operations.
 - Navigation may require segmenting barrier during construction operations.
 - For additional information see Section 104 of the Standard Specifications.

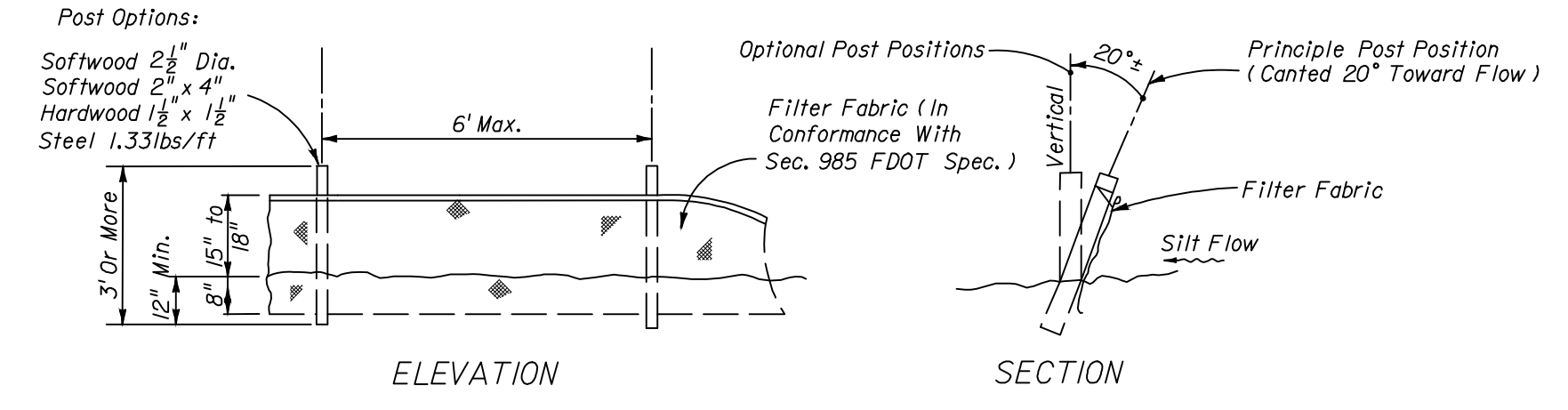


STAKED TURBIDITY BARRIER

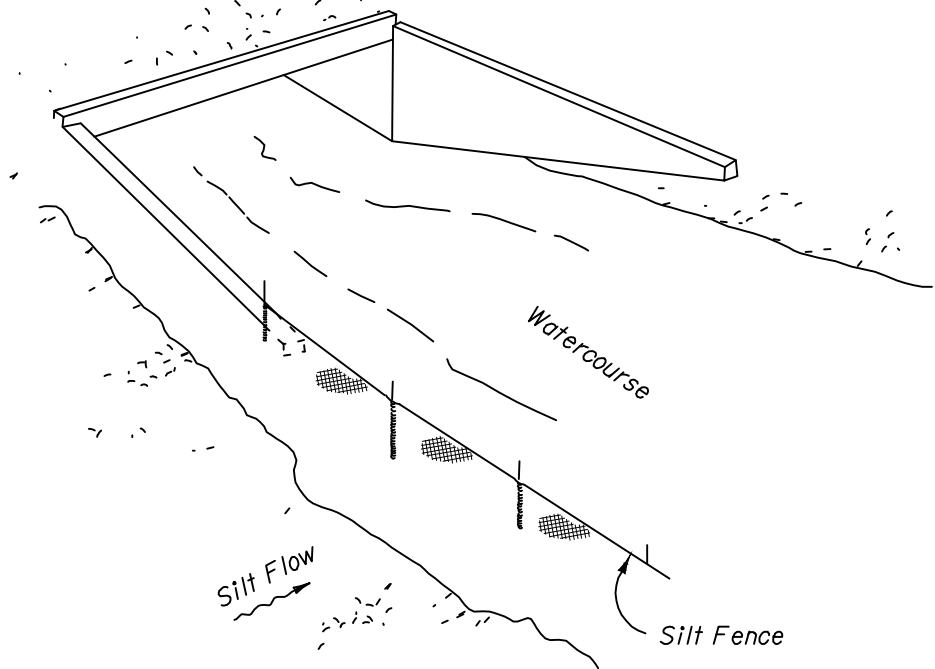


TYPE IV SILT FENCE

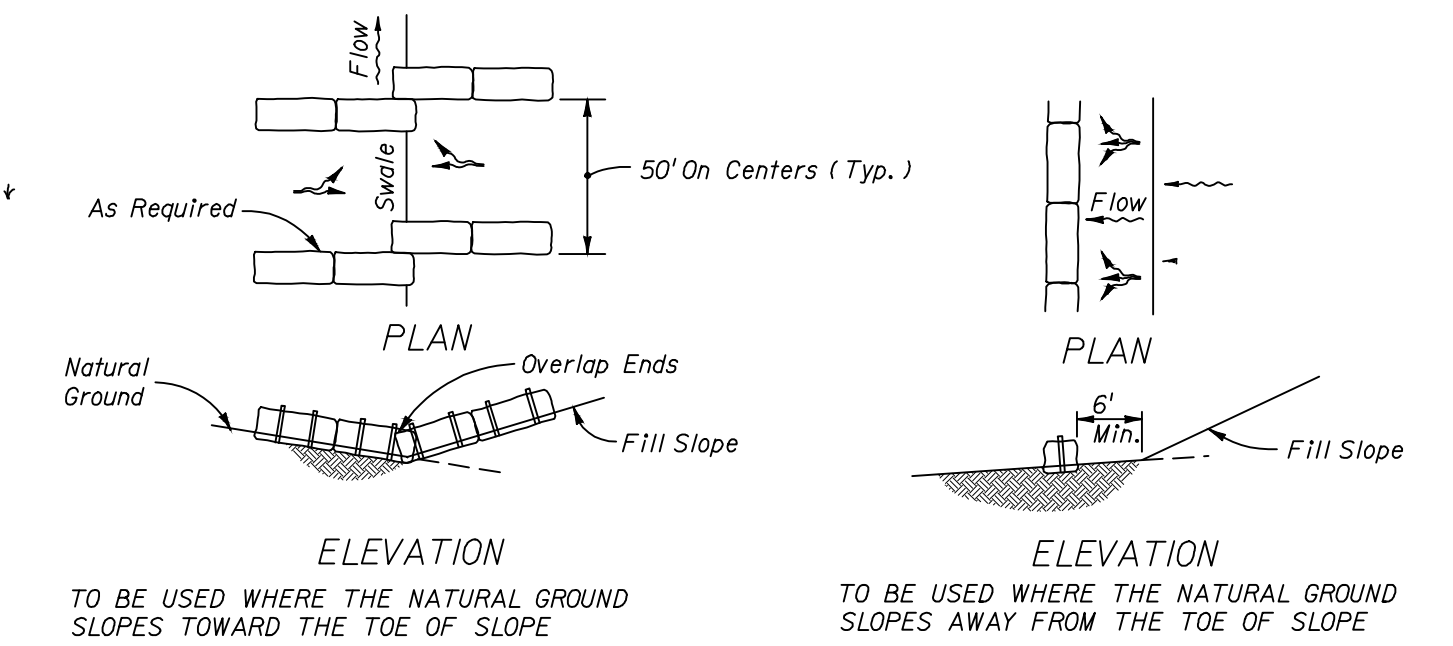
NOTICE: COMPONENTS OF TYPE I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPE I AND II SHALL BE AS APPROVED BY THE ENGINEER.



TYPE III SILT FENCE



SILT FENCE APPLICATIONS



AT TOE OF SLOPE BARRIERS FOR FILL SLOPES

GENERAL NOTES

NOTICE TO CONTRACTORS

In order to secure permits to construct this project, the OWNER may have obtained an N.P.D.E.S. (Generic Permit for Stormwater Discharge from Large and Small Construction Activities) from the Florida Department of Environmental Protection. CONTRACTOR is hereby notified that upon execution of contract for construction of the project improvements, owner may file a "Notice of Termination" (N.O.T.) of the N.P.D.E.S. "Generic Permit" coverage. Contractor shall within ten (10) days submit a NEW "Notice of Intent" (N.O.I.) to the F.D.E.P. and "Compliance Certification Statement" with copies to owner and engineer.

The completion of this project by the CONTRACTOR requires compliance with the State of Florida Department of Environmental Protection "Generic Permit for Stormwater Discharge from Large and Small Construction Activities" per FDEP document number 62-621.300(4)(a). It is the CONTRACTOR'S responsibility to perform and maintain the project site in accordance with conditions of the "Generic Permit". The CONTRACTOR shall be considered the "OPERATOR" as defined herein. The OPERATOR is defined as: The legal entity that owns or operates the construction activity and that has the authority to control those activities at the project necessary to ensure compliance with the terms and conditions of the permit. The Operator responsibilities are as a minimum as follows:

- Prepare Stormwater Pollution Prevention Plan and maintain the site in accordance with that plan.
- File a "Notice of Intent", (DEP form 62-621.300(4) (d)) including applicable permit processing fees 48 hours prior to commencement of construction. A copy of the "NOI" or a letter from the DEP confirming coverage under the permit shall be posted on the site for public viewing.
- Provide a "Qualified Inspector" perform the required inspections in accordance with the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Doc #62-621 (4) (a).
- Before conducting any project activities the OPERATOR and all Subcontractors shall sign and provide to the FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, the OWNER/DEVELOPER, and the ENGINEER a copy of the following certification:

I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities (DEP Doc. #62-621.300(4) (a)) and the "Stormwater Pollution Prevention Plan."

The certification must include the name and title of the person providing the signature; the name, address, and telephone number of the contracting firm; and the date the certification is made.

- Within 14 days of a different OPERATOR taking responsibility of the construction activities a "Notice of Termination" (DEP form 62-621-300(6)) shall be submitted. If a "N.O.T." is submitted due to a change of OPERATOR, within 48 hours before assuming control of the construction activities, the new OPERATOR shall file a signed " in accordance with this permit.
- Within 14 days of final stabilization of the site, OPERATOR shall file a "Notice of Termination" (DEP form 62-621-300(6)), to the F.D.E.P., with copies to the OWNER and ENGINEER.

GRUBBING, CLEARING AND TREE REMOVAL/LAND CLEARING PERMITS:

This site requires a permit for tree removal, grubbing and land clearing. The contractor shall post a copy of the permit at the site prior to commencement of grubbing, tree removal or land clearing.

GRUBBING
The application for a grubbing permit shall be filed with the building department on forms furnished by the building director. The application shall include a copy of the recorded deed indicating the current owner.

The staff shall then inspect the site for protected trees, historic trees, specimen trees, or mangroves and gopher tortoises. If gopher tortoises are found, the applicant shall be required to obtain the necessary permits from the state of Florida.

TREE REMOVAL AND LAND CLEARING
The application for a tree removal permit or land clearing permit shall be filed with the building department concurrent with an application for a development order permit. Existing native vegetation: Existing natural vegetation to be saved is intended to be incorporated into the landscape plan. Protective barriers shall be installed, prior to land clearing, to prevent damage to natural vegetation to be saved.

SPECIMEN TREES
The removal of a specimen tree requires a removal permit from the building director.

PROHIBITED AND UNDESIRABLE EXOTIC VEGETATION
All prohibited and undesirable exotic vegetation must be removed by the developer at the time of clearing. Prohibited and undesirable exotic vegetation shall not be used to meet the tree or landscaping requirements of the land development code. Prohibited and undesirable exotic vegetation may be removed without a permit after receiving verification from the building director.

EROSION CONTROL NOTES

- The contractor shall be responsible for erosion control within best management practices for the duration of the project until such time as the project has been certified as complete.
- The contractor shall seed and mulch or sod all open space areas to be grassed immediately following final grading and completion of all underground utilities.
- Silt fences shall be installed along limits of construction.
- Silt fences shall be inspected after each rainfall and repaired immediately if damaged.
- All side slopes of stormwater management areas shall be sodded on completion of final grading.
- All inlets shall be protected from collection of eroded materials by installation of temporary filter fabric and/or hay bales.
- Floating turbidity barriers shall be installed within all water bodies downstream of construction activities where protection against turbid waters discharge may occur.
- The contractor shall provide dust control, such as an on site water truck.

STORMWATER POLLUTION PREVENTION PLAN

NATURE OF CONSTRUCTION ACTIVITY: Paving and Drainage Improvements

- SEQUENCE OF CONSTRUCTION EVENTS:
- Place soil erosion control
 - Clear vegetation from R/W
 - Install drainage structures and pipework
 - Cut road subgrade and mix
 - Add base rock
 - Pave
 - Sod

(EXAMPLE)
TOTAL AREA OF THE SITE: 4.07 Acres
AREA TO BE DISTURBED: 4.07 Acres
SOIL DESCRIPTION: MANTEE LOAMY FINE SAND, WINDER FINE SAND
DRAINAGE AREA SIZE: 4.07 Acres

BEST MANAGEMENT PRACTICES (BMP'S)

TEMPORARY AND PERMANENT STABILIZATION
No temporary seeding will be placed as project will be active at all times. Permanent sod will be placed following asphalt and final dressing of the swales.

TEMPORARY STORMWATER CONTROLS
Turbidity barriers will be placed in the Sub-Lateral B-8 Canal.

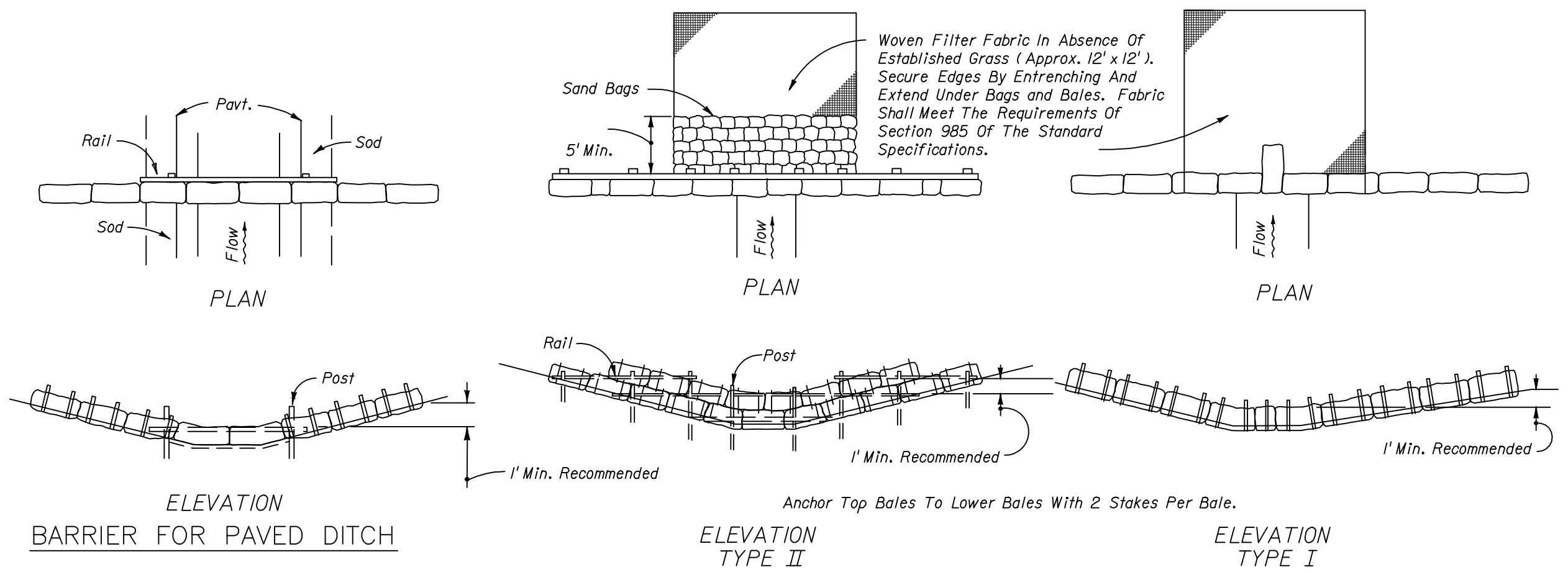
PERMANENT STORMWATER CONTROLS
Normal runoff is routed to Stormwater management tracts with overflow structures routed to Sub-Lateral B-8 Canal.

POTENTIAL POLLUTANTS: All construction debris will be hauled off-site to the landfill. No materials shall be buried on-site.

INSPECTIONS: The job foreman will inspect all points of discharge, all disturbed areas of construction that have not been stabilized, and all constructed areas at least once every 7 calendar days or after a storm event that is 0.50 inches or greater. Weekend rain events will be checked on Monday morning. Copies of all inspections will be kept in project file at the Road and Bridge office.

NOTES FOR SILT FENCES

- Type III Silt Fence to be used at most locations. Where used in ditches, the spacing for Type III Silt fence shall be in accordance with Chart I, Sheet 1.
- Type IV Silt Fence to be used where large sediment loads are anticipated. Suggested use is where fill slope is 1:2 or steeper and length of slope exceeds 25 feet, avoid use where the detained water may back into travel lanes or off the right of way.
- Do not construct silt fences across permanent flowing watercourses. Silt fences are to be at upland locations and turbidity barriers used at permanent bodies of water.
- Where used as slope protection, Silt Fence is to be constructed on 0% longitudinal grade to avoid channelizing runoff along the length of the fence.
- Silt Fence to be paid for under the contract unit price for Staked Silt Fence, (LP).



NOTES FOR BAILED HAY OR STRAW BARRIERS

- Type I and II Barriers should be spaced in accordance with Chart 1, Sheet 1
- Hay bales shall be trenched 3" to 4" and anchored with (2) two 1"x2" (or 1" dia.) x4" wood stakes. Stakes of other material or shapes providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project
- Rails and post shall be 2"x4" wood. Other materials providing equivalent strength may be used if approved by the Engineer.
- Adjacent bales shall be butted firmly together. Unavoidable gaps shall be plugged with hay or straw to prevent silt from passings.
- Where used in conjunction with silt fence, hay bales shall be placed on the upstream side of the fence.
- Bales to be paid for under the contract unit price for Baled Hay or Straw, Ea. The unit price shall include the cost of filter fabric for Type I and II Barriers. Sand bags shall be paid for under the unit price for Sand Bagging, CY. Rock bags to be paid for under the unit price of Rock Bags, EA.

REVIEWED AND APPROVED BY:

FOR BIDDING PURPOSES ONLY - ADDENDUM 3
ARJUNA WERAGODA, FL P.E. 64267