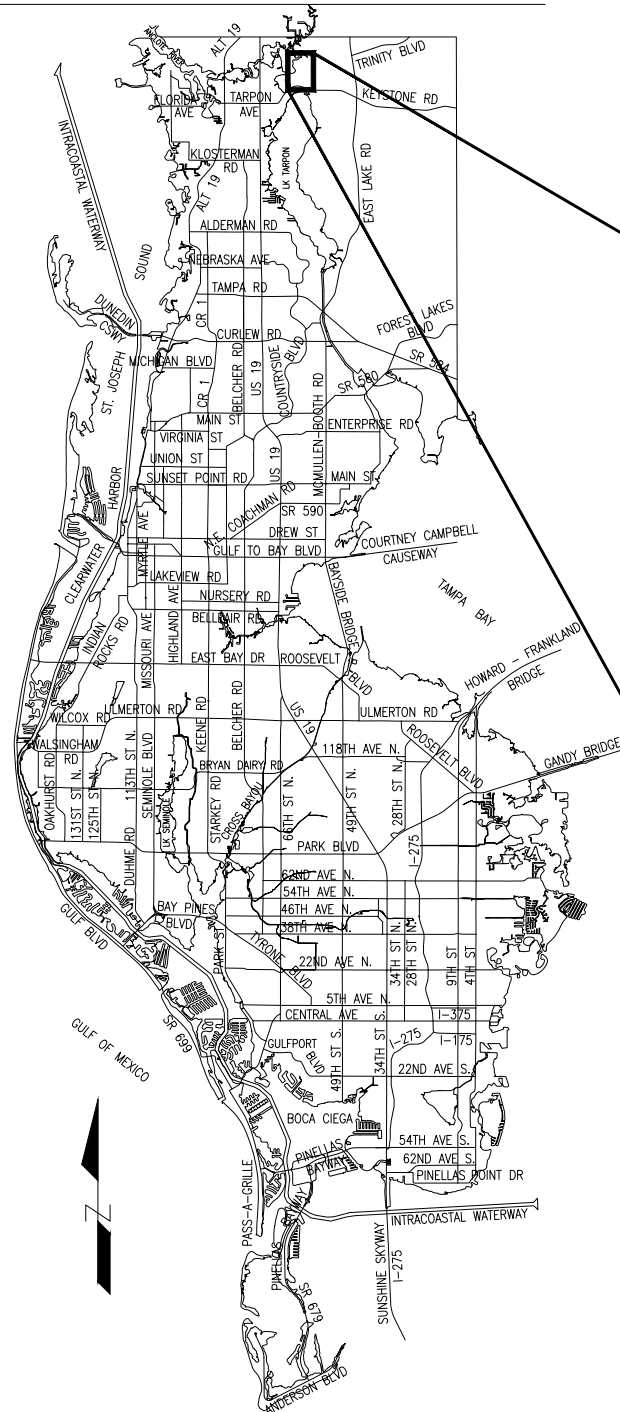


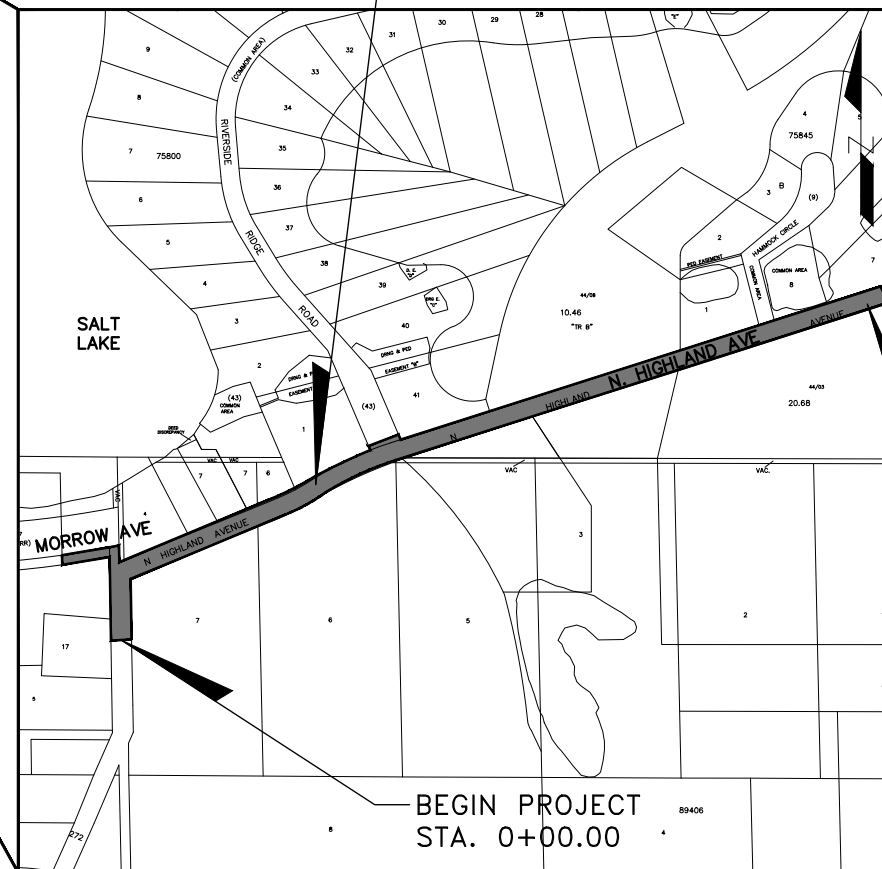
N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I UTILITIES RELOCATION N. HIGHLAND AVE. & MORROW RD.

PINELLAS COUNTY
LOCATION MAP



PID 001333B

PROJECT LOCATION



SECTION 4, TOWNSHIP 27 SOUTH, RANGE 16 EAST
SECTION 5, TOWNSHIP 27 SOUTH, RANGE 16 EAST
SECTION 8, TOWNSHIP 27 SOUTH, RANGE 16 EAST

KEY MAP
NOT TO SCALE

INDEX OF PLANS

| SHEET NO. | SHEET TITLE |
|-----------|---|
| PCU-1 | KEY SHEET |
| PCU-2 | HIGHLAND AVE. UTILITIES RELOCATION PLAN & PROFILE (1) |
| PCU-3 | HIGHLAND AVE. UTILITIES RELOCATION PLAN & PROFILE (2) |
| PCU-4 | HIGHLAND AVE. UTILITIES RELOCATION PLAN & PROFILE (3) |
| PCU-5 | HIGHLAND AVE. UTILITIES RELOCATION PLAN (4) |
| PCU-6 | MORROW RD. UTILITIES RELOCATION PLAN & PROFILE |
| PCU-7 | UTILITIES DETAILS & NOTES (1) |
| PCU-8 | UTILITIES DETAILS & NOTES (2) |
| PCU-9 | UTILITIES DETAILS & NOTES (3) |

END PROJECT
STA. 43+31.18

PROJECT MANAGER: VICTORIA PRESTON
(727) 464-3687
PINELLAS COUNTY
14 SOUTH FORT HARRISON AVENUE
CLEARWATER, FLORIDA 33756
PHONE: (727)464-3588

PREPARED BY:
PINELLAS COUNTY
PUBLIC WORKS DEPARTMENT



DENNIS M. SIMPSON, P.E. No. 44143 DATE
ENGINEER OF RECORD

PRINTED COPIED OF THIS DOCUMENT
ARE NOT CONSIDERED SIGNED AND
SEALED AND THE SIGNATURE MUST BE
VERIFIED ON ANY ELECTRONIC COPIES.

P:\001333A - N Highland Ave Drainage\CAD files Jan 25 2021\001333A\Plans\Dwg\Production\Utilities\1333A-UTIL-KEY.dwg, Dec 07, 2021 - 2:01pm

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NOTE: THESE PLANS REFLECT THE PINELLAS COUNTY UTILITY SYSTEM'S PROPOSED WATER AND SEWER LINE CONSTRUCTION ONLY. FOR DETAILS ON DRAINAGE AND ROAD DESIGN, REFER TO PINELLAS COUNTY STORMWATER AND VEGETATION MANAGEMENT DIVISION PID 0001333A

CLEANOUT #3
STA. 5+11, 14.00' LT.
CONST. CLEANOUT AT R/W LINE
PER PC DETAIL ID PCU SD 4
TOP EL = 5.42'
INV. = -1.65'

EX. SANITARY SEWER SYSTEM TO REMAIN

SS-2
STA. 5+87, -3.11' LT.
CONST. 48" DIA. SAN. MH
PC DETAIL ID PCU SD 1a
RIM EL = 6.20'
INV. W. = -7.08'
INV. E. = -7.08'

CLEANOUT #4
STA. 6+20, 14.54' LT.
CONST. CLEANOUT AT R/W LINE
PER PC DETAIL ID PCU 4
TOP EL = 6.18'
INV. N. = -1.98'

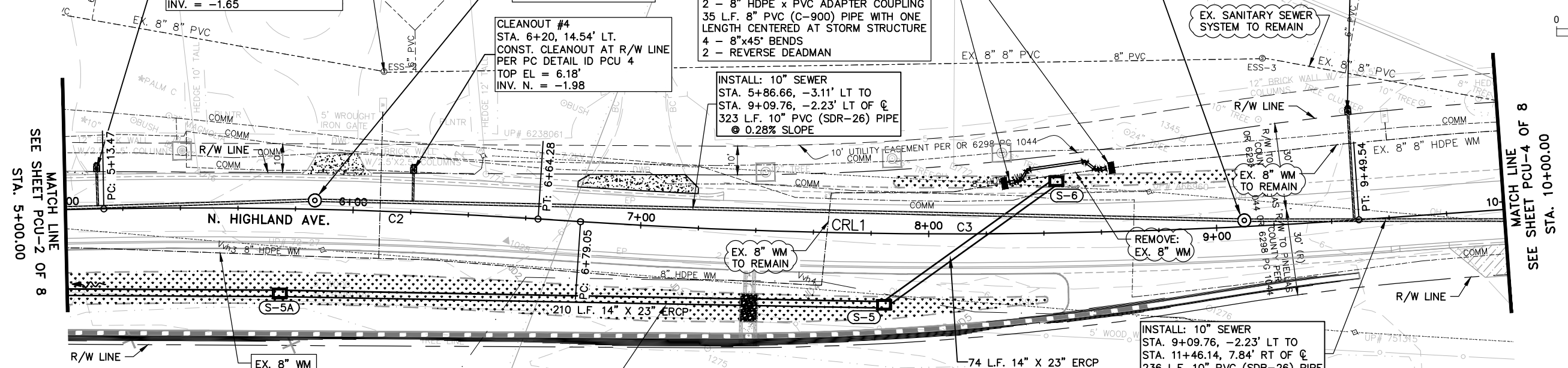
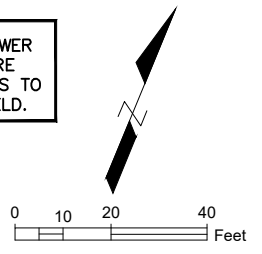
INSTALL 8" WATERMAIN
STA. 8+30.02, -18.01' LT. TO
STA. 8+34.65, -22.13' LT. TO
STA. 9+54.77, -24.66' LT. TO
STA. 8+60.50, -21.80' LT. OF C
2 - 8" HDPE x PVC ADAPTER COUPLING
35 L.F. 8" PVC (C-900) PIPE WITH ONE
LENGTH CENTERED AT STORM STRUCTURE
4 - 8"x45" BENDS
2 - REVERSE DEADMAN

INSTALL 10" SEWER
STA. 5+86.66, -3.11' LT TO
STA. 9+09.76, -2.23' LT OF C
323 L.F. 10" PVC (SDR-26) PIPE
@ 0.28% SLOPE

SS-1
STA. 9+10, -2.23' LT.
CONST. 48" DIA. SAN. MH
PC DETAIL ID PCU SD 1a
RIM EL = 6.07'
INV. W. = -7.98'
INV. E. = -7.98'

CLEANOUT #5
STA. 9+48, 37.68' LT.
CONST. CLEANOUT AT R/W LINE
PER PC DETAIL ID PCU SD 4
TOP EL = 5.88'
INV. = -3.66'

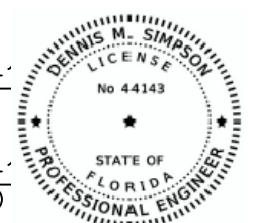
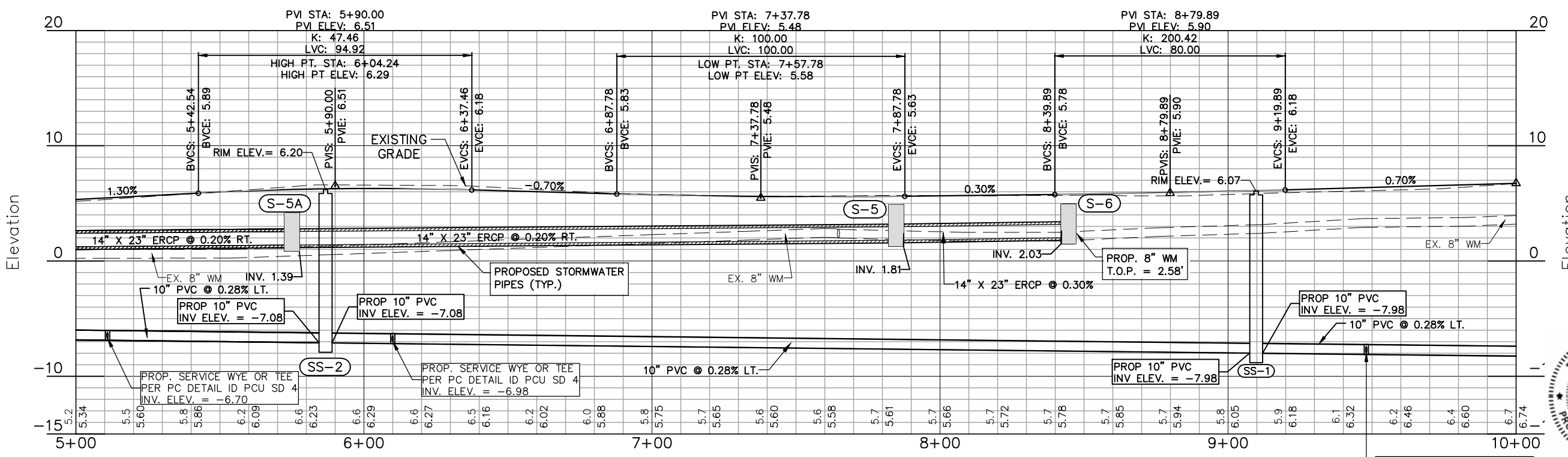
NOTE: EXISTING SANITARY SEWER SERVICE LATERALS SHOWN ARE APPROXIMATE. CONTRACTOR IS TO VERIFY LOCATIONS IN THE FIELD.



UTILITY WARNING NOTE
ABOVE GROUND OR UNDERGROUND UTILITIES MAY BE IN THE AREA OF THIS PROJECT - PROCEED WITH CAUTION. CALL "SUNSHINE" (1-800-432-4770) AND THE UTILITY OWNER(S) NOT LESS THAN 48 HOURS OR MORE THAN FIVE DAYS PRIOR TO BEGINNING WORK.

S.P. DENOTES SAMPLING POINT
CL₂ DENOTES CHLORINE INJECTION POINT

EXISTING WETLAND
N. HIGHLAND AVE. PLAN





Scale: 1" = 40' Horiz.
1" = 10' Vert.

P:\001333A - N Highland Ave Drainage\CAD files Jan 25 2021\001333A\Plans\Drawg\Production\Utilities\1333A-UTIL-URL01.dwg, Dec 07, 2021 - 2:03pm

| | | | | | | | | | |
|----------------------|------|-------------|---|--------------|---|--------------|---|--------|---------------|
| DESIGNED: V.V.P. | | PROJECT: | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | DESCRIPTION: | N. HIGHLAND AVE UTILITIES RELOCATION PLAN & PROFILE (2) | APPROVED BY: | DENNIS M. SIMPSON, P.E. FLA. LIC. NO 44143 | DATE: | DECEMBER 2021 |
| DRAWN: D.E.C./M.S.M. | | PROJECT: | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | DESCRIPTION: | N. HIGHLAND AVE UTILITIES RELOCATION PLAN & PROFILE (2) | APPROVED BY: | DENNIS M. SIMPSON, P.E. FLA. LIC. NO 44143 | DATE: | DECEMBER 2021 |
| CHECKED: P.M.S. | | PROJECT: | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | DESCRIPTION: | N. HIGHLAND AVE UTILITIES RELOCATION PLAN & PROFILE (2) | APPROVED BY: | DENNIS M. SIMPSON, P.E. FLA. LIC. NO 44143 | DATE: | DECEMBER 2021 |
| REV. NO. | DATE | DESCRIPTION | REV. BY | CHECKED | DATE | PROJECT NO. | 001333A | SHEET: | PCU-3 OF 8 |

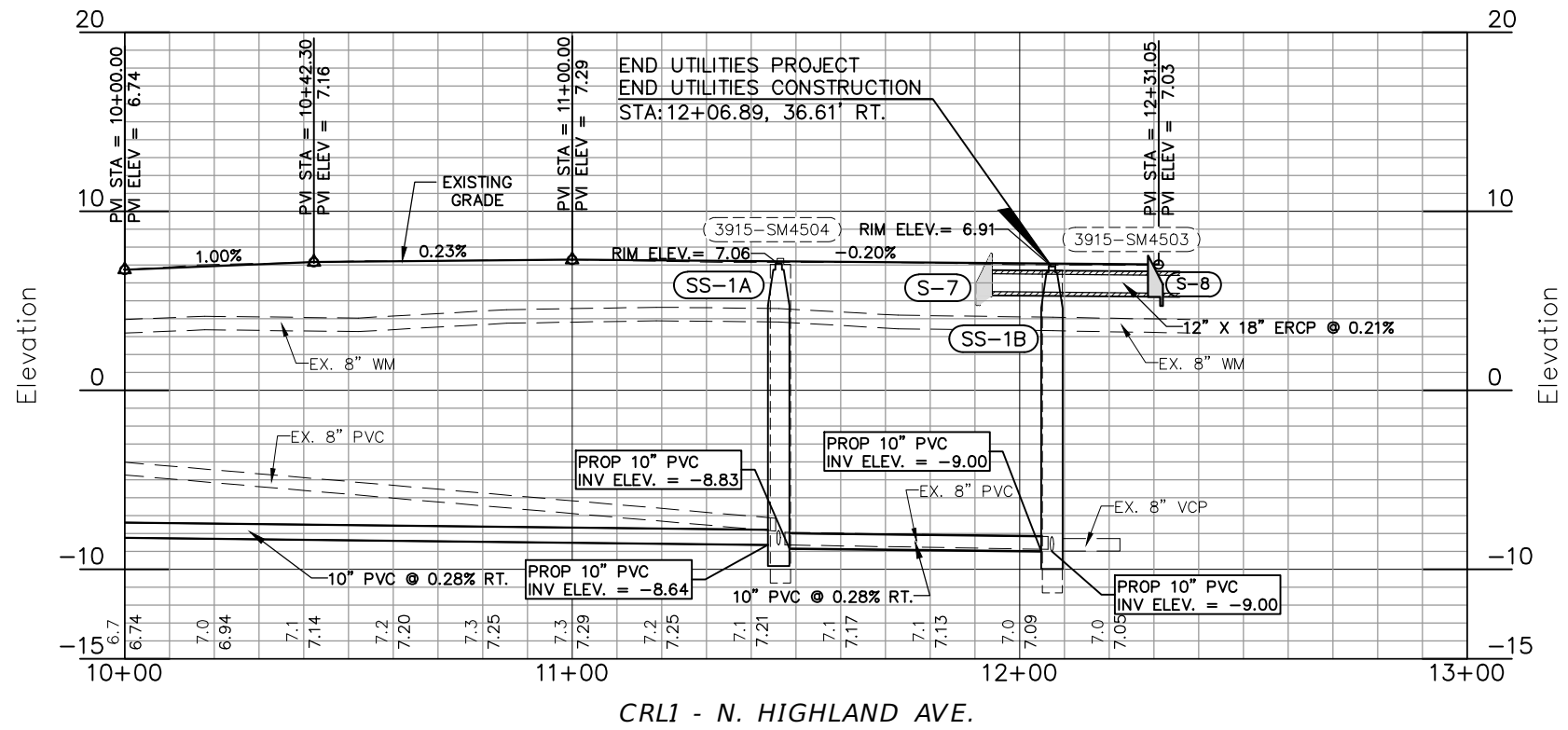
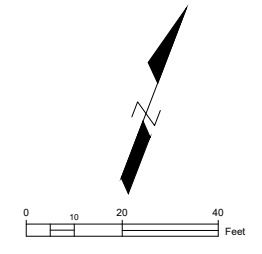
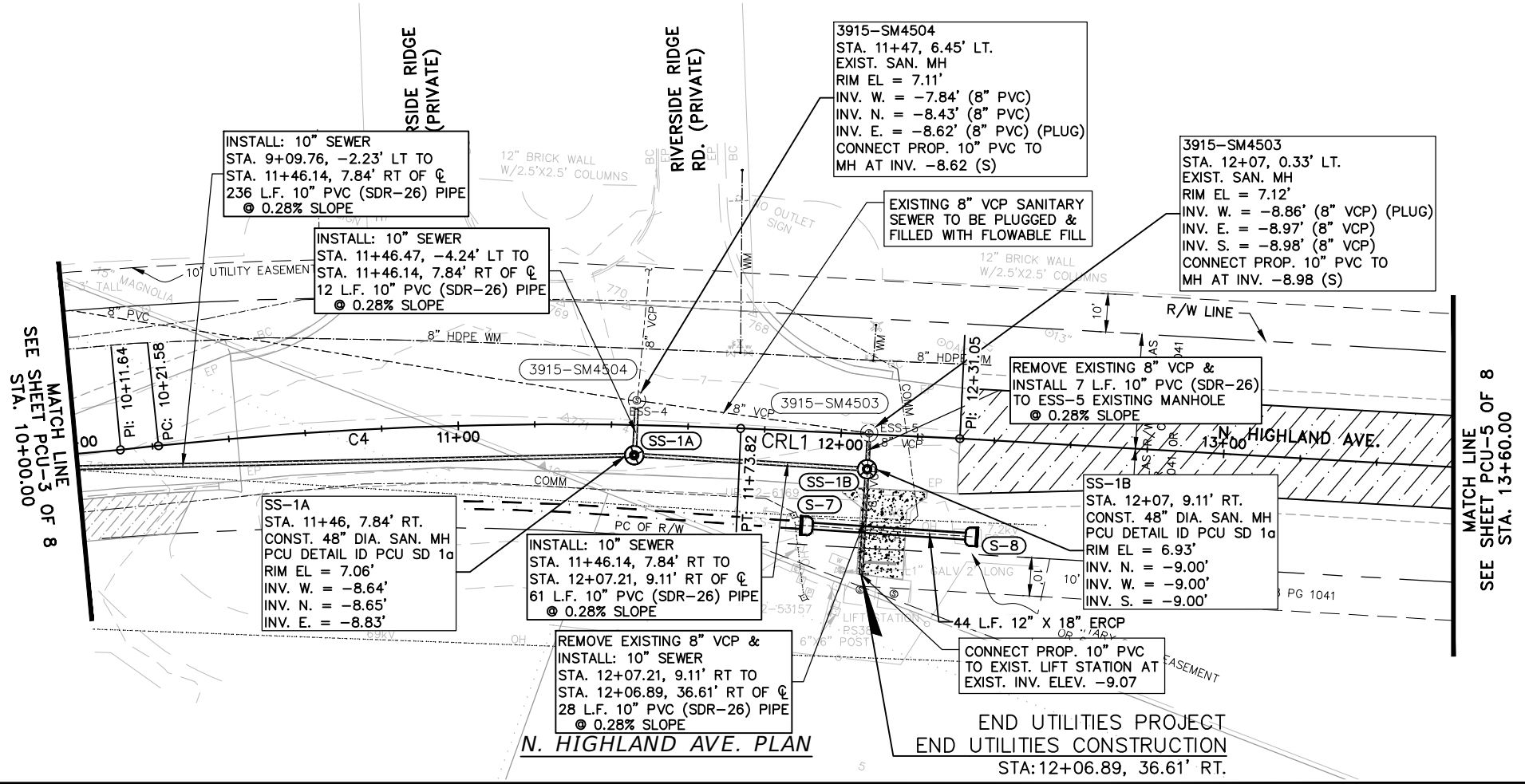
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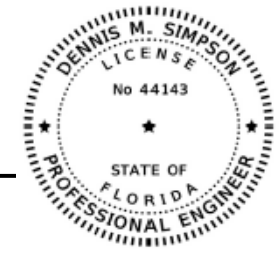
-  DENOTES SAMPLING POINT
-  DENOTES CHLORINE INJECTION POINT

NOTE: THESE PLANS REFLECT THE PINELLAS COUNTY UTILITY SYSTEM'S PROPOSED WATER AND SEWER LINE CONSTRUCTION ONLY. FOR DETAILS ON DRAINAGE AND ROAD DESIGN, REFER TO PINELLAS COUNTY STORMWATER AND VEGETATION MANAGEMENT DIVISION PID 0001333A

UTILITY WARNING NOTE
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CRL1 - N. HIGHLAND AVE.

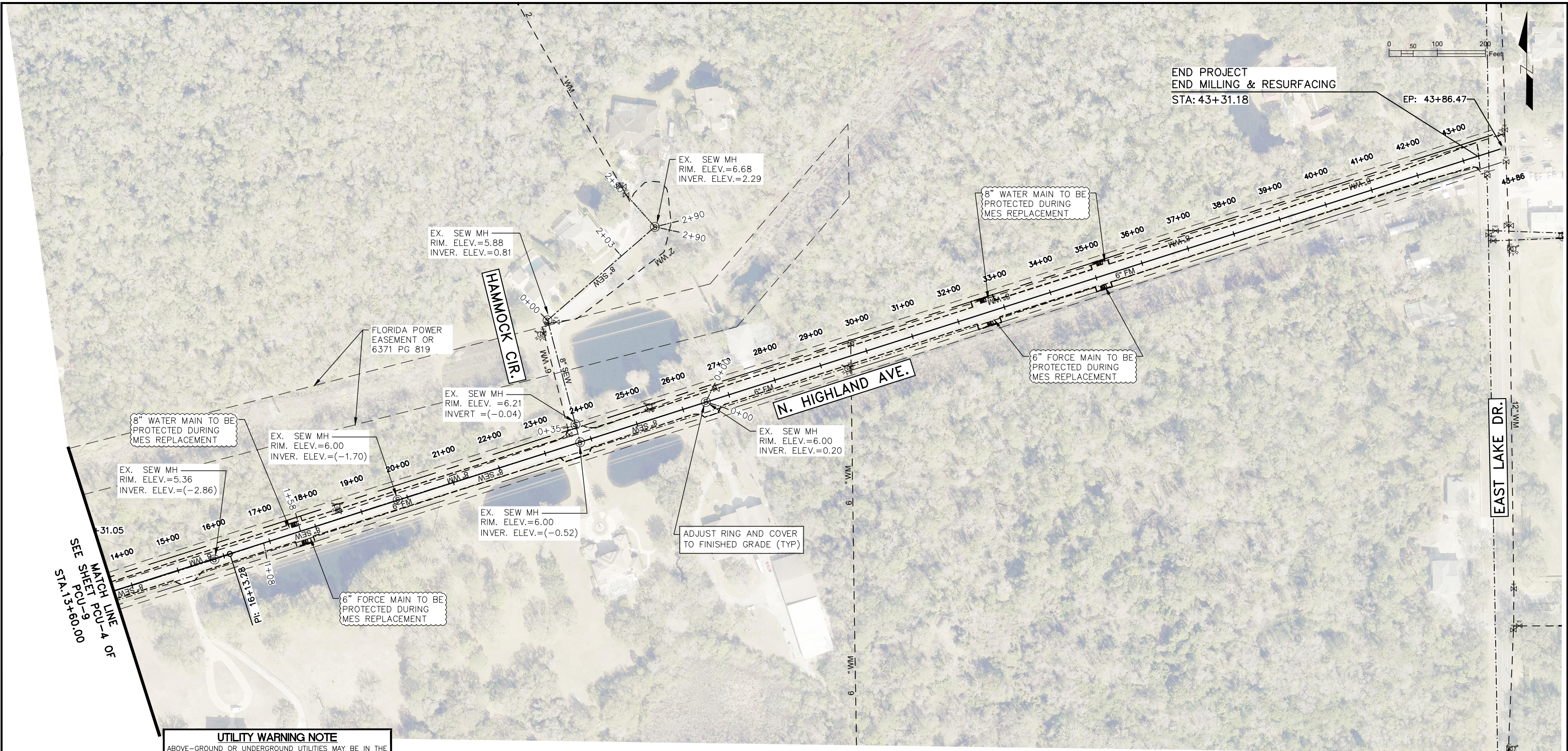


Scale: 1" = 40' Horiz.
 1" = 10' Vert.

| | | | | | | | | | | | | |
|----------|---------------|---|-------------|---|--------------|---|-----------|---|--------------|---|-------------|---------------|
| DESIGNED | V.V.P. |  | PROJECT: | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | DESCRIPTION: | N. HIGHLAND AVE UTILITIES RELOCATION PLAN & PROFILE (3) | UTILITIES | 14 S. FT. HARRISON AVE., CLEARWATER, FL 33756 | APPROVED BY: | DENNIS M. SIMPSON, P.E. FLA. LIC. NO 44143 | DATE: | DECEMBER 2021 |
| DRAWN | D.E.C./M.S.M. | | CHECKED | P.M.S. | | | | | | | PROJECT NO. | 001333A |
| REV. NO. | DATE | | DESCRIPTION | REV. BY | | | | | | | SHEET: | PCU-4 OF 8 |

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END PROJECT
END MILLING & RESURFACING
STA: 43+31.18

EP: 43+86.47

EAST LAKE DR.

HAMMOCK CIR.

N. HIGHLAND AVE.

8" WATER MAIN TO BE PROTECTED DURING MES REPLACEMENT

EX. SEW MH
RIM. ELEV.=6.00
INVER. ELEV.=(-1.70)

EX. SEW MH
RIM. ELEV.=5.88
INVER. ELEV.=0.81

6" FORCE MAIN TO BE PROTECTED DURING MES REPLACEMENT

EX. SEW MH
RIM. ELEV.=6.00
INVER. ELEV.=(-0.52)

ADJUST RING AND COVER TO FINISHED GRADE (TYP)

EX. SEW MH
RIM. ELEV.=6.00
INVER. ELEV.=0.20

8" WATER MAIN TO BE PROTECTED DURING MES REPLACEMENT

6" FORCE MAIN TO BE PROTECTED DURING MES REPLACEMENT

SEE SHEET 9 OF MATCH LINE - A OF PCU-9
STA. 13+90.00

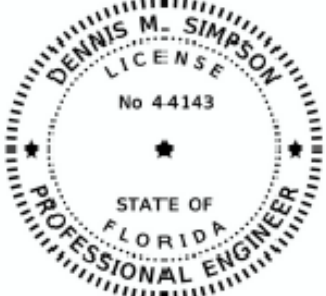
UTILITY WARNING NOTE
ABOVE-GROUND OR UNDERGROUND UTILITIES MAY BE IN THE AREA OF THIS PROJECT - PROCEED WITH CAUTION - CALL "SUNSHINE" 1-800-432-4770 AND THE UTILITY OWNER(S) NOT LESS THAN 48 HOURS OR MORE THAN FIVE DAYS PRIOR TO BEGINNING WORK.

NOTE:
THESE PLANS REFLECT THE PINELLAS COUNTY UTILITY SYSTEM'S PROPOSED WATER AND SEWER LINE CONSTRUCTION ONLY. FOR DETAILS ON DRAINAGE AND ROAD DESIGN, REFER TO PINELLAS COUNTY PUBLIC WORKS ENGINEERING DEPARTMENT PID NO. 001333A

-  DENOTES SAMPLING POINT
-  DENOTES CHLORINE INJECTION POINT

LEGEND:

--- CONSTRUCTION LIMITS



| REV. NO. | DATE | DESCRIPTION | REV. BY |
|----------|------|-------------|---------|
| | | | |

DESIGNED T.C.C.
DRAWN D.E.C./M.S.M.
CHECKED T.C.C.



PROJECT:
**N. HIGHLAND AVE.
ROAD AND DRAINAGE
IMPROVEMENTS PHASE I**

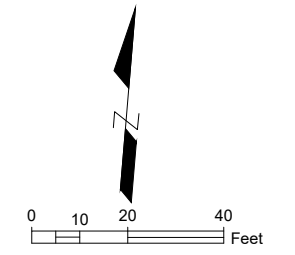
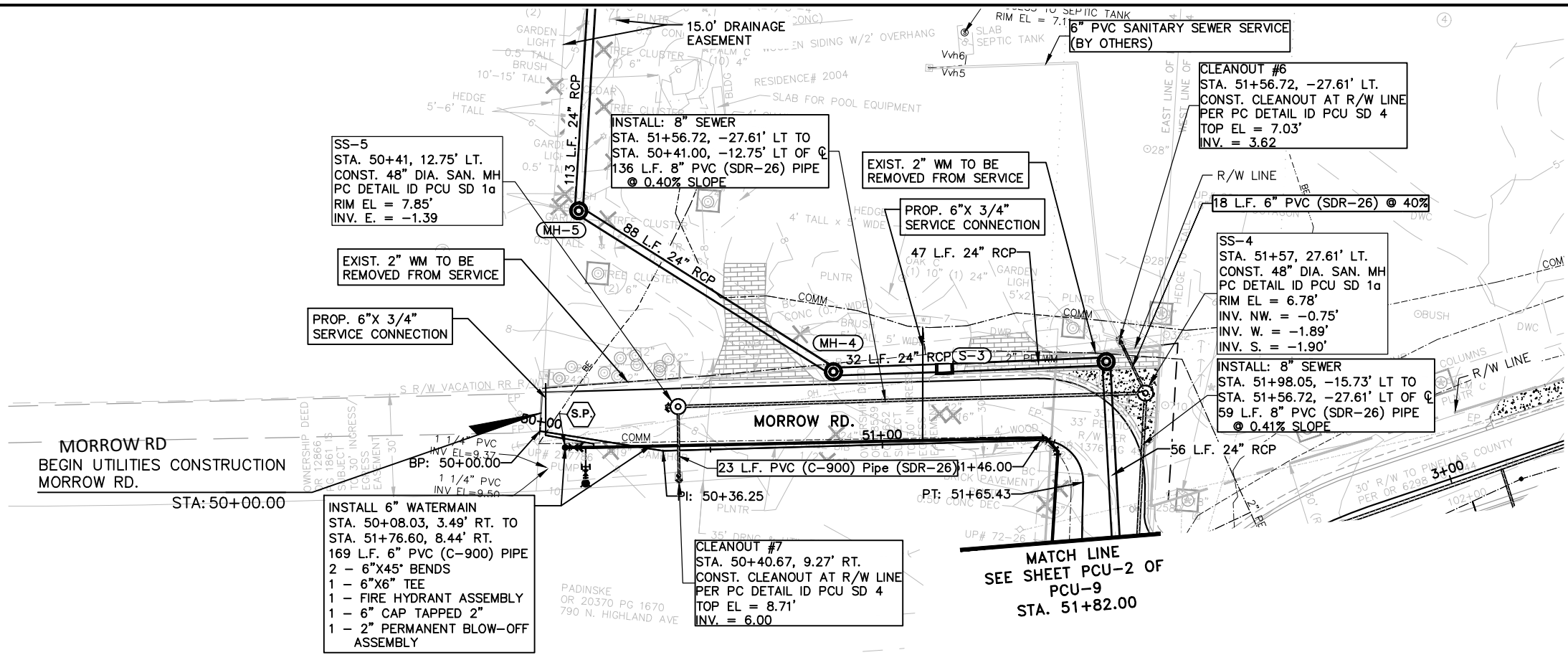
DESCRIPTION:
**N. HIGHLAND AVE,
UTILITIES RELOCATION
PLAN (4)**

PUBLIC WORKS
14 S. FT. HARRISON AVE.,
CLEARWATER, FL 33756

APPROVED BY:
DENNIS M. SIMPSON, P.E.
FLA. LIC. NO 44143

DATE: DECEMBER 2021
PROJECT NO. 001333B
SHEET: PCU-5 OF PCU-9

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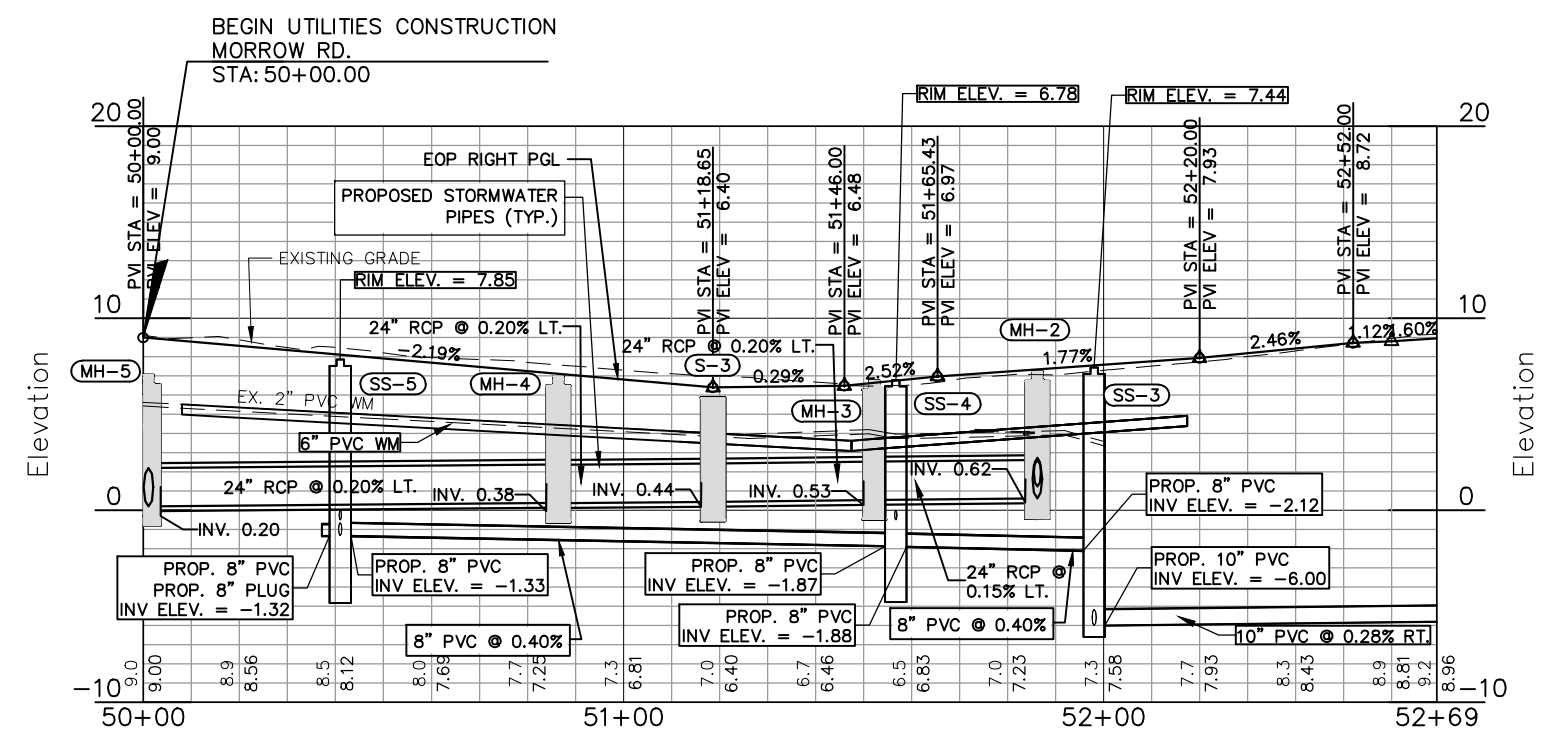


S.P. DENOTES SAMPLING POINT
CL₂ DENOTES CHLORINE INJECTION POINT

NOTE: THESE PLANS REFLECT THE PINELLAS COUNTY UTILITY SYSTEM'S PROPOSED WATER AND SEWER LINE CONSTRUCTION ONLY. FOR DETAILS ON DRAINAGE AND ROAD DESIGN, REFER TO PINELLAS COUNTY STORMWATER AND VEGETATION MANAGEMENT DIVISION PID 0001333A

UTILITY WARNING NOTE
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MORROW RD. PLAN



MORROW RD EOP RIGHT



1"=40' Horiz.
 1"=10' Vert.

| | | | | | | | | | | |
|----------|---------------|--|-------------|---|--------------|---|--------------|--|-------------|----------------|
| DESIGNED | T.C.C. | | PROJECT: | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | DESCRIPTION: | MORROW RD. UTILITIES RELOCATION PLANS & PROFILE (5) | APPROVED BY: | DENNIS M. SIMPSON, P.E. FLA. LIC. NO. 44143 | DATE: | DECEMBER 2021 |
| DRAWN | D.E.C./M.S.M. | | CHECKED | T.C.C. | | | | | PROJECT NO. | 001333B |
| REV. NO. | DATE | | DESCRIPTION | REV. BY | | | | | SHEET: | PCU-6 OF PCU-9 |
| | | | | | | | | | | |

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P:\001333A - N Highland Ave Drainage\CAD files Jan 25 2021\001333A\Plans\Dwg\Production\Utilities\1333A-UTL-DLT01.dwg, Dec 07, 2021 - 2: 08pm

NOTE:
 1. ALL MATERIALS, WORK AND TESTING SHALL MEET PINELLAS COUNTY STANDARD SPECIFICATIONS.
 2. ASPHALT PAVEMENT SHALL BE IN ACCORDANCE WITH THE LATEST PINELLAS COUNTY PUBLIC WORKS ROADWAY PAVEMENT GUIDELINES. PROPOSED THICKNESS SHALL NOT BE LESS THAN 1.5" IN DEPTH.
 3. PAVEMENT REPLACEMENT SHALL BE DETERMINED BY THE LOCATION & DEPTH OF THE TRENCH. CONTRACTOR SHALL KEEP OPEN TRENCH WIDTH TO A MINIMUM IN ORDER TO MINIMIZE IMPACTS AND RESTORATION LIMITS WITHIN PINELLAS COUNTY'S RIGHT-OF-WAY, SEE PLAN.
 4. CONTRACTOR SHALL RESTORE PAVEMENT, PAVEMENT MARKINGS, R.P.M.'S, LOOPS, CURB, ETC. TO ENSURE THAT THE CONDITIONS THAT EXISTED PRIOR TO CONSTRUCTION. ANY ADDITIONAL SURVEY NECESSARY TO MATCH THIS REQUIREMENT IS MET SHALL BE PERFORMED BY THE CONTRACTOR AT HIS EXPENSE.
 5. 12" RESIDENTIAL ROADWAYS: 15'-0" ARTERIAL, COLLECTOR, COMMERCIAL/INDUSTRIAL ROADWAYS.

TYPICAL SECTION FOR FLEXIBLE PAVEMENT RESTORATION WITHIN PINELLAS COUNTY RIGHT-OF-WAY

PINELLAS COUNTY UTILITIES ENGINEERING FLEXIBLE PAVEMENT RESTORATION (ROAD CROSSING/POINT REPAIR)

DETAIL INDEX I.D.: PCU XX XX
 DATE: MAY/2008
 DIRECTOR, PC UTILITIES ENGINEERING: KEVIN BECOTTE, P.E.
 REVISION:

HORIZONTAL CLEARANCE (N.T.S.)

VERTICAL CLEARANCE (N.T.S.)

| PIPE | VACUUM-TYPE SANITARY SEWER, STORM WATER, FORCE MAIN, RECLAIMED WATER (2) | CROSSINGS (1) | JOINT SPACING @ CROSSINGS (FEET) (SEE NOTES) |
|-------------------|--|--|--|
| 3 FT. MINIMUM | 12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, WHICH SHALL BE 12 INCHES IS PREPARED | 12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, WHICH SHALL BE 12 INCHES IS PREPARED | 12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, WHICH SHALL BE 12 INCHES IS PREPARED |
| 6 FT. MINIMUM (3) | 10 FT. PREPARED | 10 FT. PREPARED | 10 FT. PREPARED |
| 10 FT. MINIMUM | 10 FT. PREPARED | 10 FT. PREPARED | 10 FT. PREPARED |

NOTES: (IN ACCORDANCE WITH F.A.C. RULE 68-565.314)
 1. POTABLE WATER MAIN SHOULD CROSS ABOVE OTHER PIPES WHEN POTABLE WATER MAIN IS NOT REGULATED UNDER PART III OF CHAPTER 68-610, F.A.C.
 2. RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 68-610, F.A.C.
 3. LAD AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
 4. RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 68-610, F.A.C.
 5. SPECIFICATIONS MANUAL.

PINELLAS COUNTY MAIN CLEARANCES DETAIL

DETAIL INDEX I.D.: PCU GD 2
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. USE 2-#14 GAUGE (MINIMUM) SOLID CORE COPPER WIRE WITH COLOR CODED INSULATION PER SERVICE.
 3. THERE SHALL BE SUFFICIENT SLACK IN TRACER WIRE TO EXTEND A MIN. OF 12" ABOVE VALVE BOX.
 4. WIRE IS TO CONTINUE THROUGH TRENCH ON MAIN LINE WHERE NO VALVES EXIST.
 5. ATTACH WIRE TO TOP CENTER LINE OF MAIN USING DUCT TAPE OR APPROVED EQUAL @ 5'-0" INTERVALS.
 6. DUMMY BOXES ARE TO CONSIST OF A TOP SECTION OF A VALVE BOX ASSEMBLY ENCASED IN A CONCRETE VALVE BOX COLLAR PER P.C.U. APPROVED STANDARD DETAIL.

REFER TO P.C.U. APPROVED STANDARD DETAIL FOR VALVE BOX/TRACER WIRE INSTALLATION

PINELLAS COUNTY TRACER WIRE INSTALLATION DETAIL

DETAIL INDEX I.D.: PCU GD 3a
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. FILTER FABRIC REQUIRED ON VALVES WHEN PIPE LINE HAS 5' OR MORE OF COVER.
 VALVE KEY EXTENSION REQUIRED ON VALVES WITH OPERATOR NUT OVER 3" DEEP.
 COLOR CODED POLY WRAP REQUIRED ON ALL BURIED VALVES AND FITTINGS.

LOCK RING 6" PVC(SDR35) OR APPROVED EQUAL 1'-3" WIDE BAND w/3" SECTION CUT OUT. 2 REQUIRED FOR EACH VALVE BOX

ADJUSTABLE VALVE BOX BOTTOM SECTION PER P.C.U. APPROVED MATERIALS SPECIFICATIONS

1" TO 1 1/4" NOTCH IN LINE w/PIPE DIRECTION (UP TO 4 REQUIRED)

2-#14 GAUGE SOLID COPPER STRAND WIRES

6" C-900 OR D.I.P. VALVE BOX RISER COLOR CODED PER SERVICE RISER REQUIRED (EVEN IF VALVE DEPTH DOES NOT REQUIRE IT) IN ORDER TO KEEP TRACER WIRE AWAY FROM VALVE OPERATION NUT.

LOAD FROM VALVE BOX IS NOT TO BE TRANSFERRED TO RISER

3" MIN.

12" MIN.

3"

1'-3"

TRACER WIRE (2 EA. DIRECTION) 12" MIN.

VALVE BOX TOP SECTION

3"

12" MIN.

DUCT TAPE

FILTER FABRIC VALVE DRAPE SECURED TO PVC RISER

PINELLAS COUNTY VALVE BOX/TRACER WIRE INSTALLION DETAIL

DETAIL INDEX I.D.: PCU GD 4
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. IF VALVE IS LOCATED WITHIN A SIDEWALK CONCRETE COLLAR MAY BE ELIMINATED AND DISK SET FLUSH DIRECTLY IN SIDEWALK.
 3. BRONZE DISK REQUIRED: FOR ALL VALVES, AND DUMMY BOXES.
 4. THE 24"x24"x6" THICK CONCRETE VALVE BOX COLLAR CAN BE INSTALLED BELOW THE FRICTION COARSE AND THE BRONZE DISK ANCHORED IN A NEAR-BY CURB OR SIDEWALK.
 5. ALL VALVES/BOXES SHALL BE LOCATED BY MEANS OF A PERPENDICULAR 6"x2" BLUE STRIPE ACROSS THE CURB. THE DISTANCE FROM THE BACK OF THE CURB TO THE VALVE SHALL BE STENCILED ON THE CURB WITH NUMBERS FOUR INCHES HIGH, PAINTED BLUE, BY THE CONTRACTOR.

SECTION A-A

PLAN VIEW

BRONZE DISK DETAIL

VALVE SIZE

VALVE TYPE (GV=GATE VALVE) (BF=BUTTER FLY VALVE) (PW=POTABLE WATER) (RW=RECLAIMED WATER) (PM=FORCE MAIN)

DIRECTION AND NUMBER OF TURNS TO OPEN AND CLOSE VALVE MUST LIST DIRECTION BY (L=LEFT) (R=RIGHT) DUMMY BOXES SHALL BE STAMPED "WIRE ONLY"

3" x 1/4" THICK BRONZE DISK ANCHORED IN PAD WITH 1/4" x 2" SERRATED ANCHOR PINS

24"x24"x6" THICK CONCRETE VALVE BOX COLLAR APPLICABLE VALVE BOX PER MAIN SERVICE (SEWER-ROUND) (WATER-ROUND) (RECLAIM-SQUARE)

PINELLAS COUNTY CONCRETE VALVE BOX AND COLLAR DETAIL

DETAIL INDEX I.D.: PCU GD 5
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED MATERIAL SPECIFICATION MANUAL.
 2. FITTING CONNECTION TO EXISTING PIPE AND REVERSE DEADMAN MUST BE PART OF ONE INTEGRAL JOINT OF PIPE.
 3. REVERSE DEADMAN FOR 16" AND LARGER PIPES SHALL BE DESIGNED BY ENGINEER.

PLAN

PROFILE

3" MIN.

MIN. SPEC. COVER

8"-12"

18"

3000 P.S.I. CONCRETE WITH MAX. 4" SLUMP AND MIN. 72 HR. CURE TIME

PINELLAS COUNTY REVERSE DEADMAN RESTRAINT DETAIL

DETAIL INDEX I.D.: PCU GD 6
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. MANUAL TEST VALVES SHALL BE UTILIZED FOR ALL PRESSURE MAIN INSTALLATIONS. ALL FITTINGS SHALL BE RESTRAINED TO THE LENGTHS INDICATED AT A MINIMUM. THIS TABLE HAS DEVELOPED USING THE FOLLOWING ASSUMPTIONS:
 • 1.5" PIPE WITH POLY WRAP
 • SAFETY FACTOR OF 1.5 TO 1
 • TEST PRESSURE OF 150 P.S.I.
 • SOLE TYPES - S.L.M.
 • TYPE 3 TRENCH
 • DEPTH OF COVER = 2.5' UP TO 18" AND 3' FOR 30" AND ABOVE
 3. WHEN A TEE HAS A VALVE ON THE RUN, THE BRANCH AND THE RUNS SHALL BE RESTRAINED AS A 90° BEND FOR THE SIZE OF THE PIPE.
 4. ALL BENDS, TEES, AND VALVES SHALL BE RESTRAINED ON EACH SIDE OF THE FITTING.
 5. ALL RESTRAINED PIPE LENGTHS ARE IN FEET.
 6. HOPE TRANSITION VALVE IS FOR STRAIGHT TEE-INS. IF A BEND IS USED, THE VALVE FOR THE BEND MUST BE ADDED.
 7. LINE VALVES SHALL BE RESTRAINED UPSTREAM AND DOWNSTREAM AS A DEAD END.

| PIPE SIZE | FITTINGS | | | | | |
|-----------|-----------------|-----|-----|---------|---------|----------|
| | TEE BRANCH ONLY | 90° | 45° | 22 1/2° | 11 1/4° | DEAD END |
| 2" | F | 40 | 17 | F | F | 40 |
| 4" | 19 | 49 | 20 | 10 | F | 49 |
| 6" | 33 | 69 | 28 | 14 | F | 69 |
| 8" | 58 | 88 | 37 | 18 | F | 88 |
| 10" | 76 | 107 | 44 | 21 | 11 | 107 |
| 12" | 93 | 125 | 52 | 25 | 12 | 125 |
| 14" | 110 | 142 | 59 | 28 | 14 | 142 |
| 16" | 127 | 159 | 66 | 32 | 16 | 159 |
| 18" | 143 | 175 | 73 | 35 | 17 | 175 |
| 20" | 132 | 164 | 68 | 33 | 16 | 164 |
| 24" | 159 | 192 | 79 | 38 | 19 | 192 |
| 30" | 195 | 229 | 95 | 46 | 23 | 229 |
| 36" | 230 | 264 | 109 | 53 | 26 | 264 |

| LG. SIZE | REDUCERS | | LARGER PIPE |
|----------|----------|--------|-------------|
| | SM. SIZE | LENGTH | |
| 4" | 2" | 17" | 24 |
| 6" | 4" | 50" | 35 |
| 8" | 4" | 91" | 64 |
| 8" | 6" | 53" | 37 |
| 4" | 12 1/2" | 87" | 87 |
| 6" | 9 3/4" | 66" | 66 |
| 8" | 5 1/2" | 51" | 56 |
| 8" | 15 1/4" | 108" | 108 |
| 8" | 12 1/2" | 94" | 94 |
| 8" | 14" | 94" | 94 |
| 8" | 16" | 113" | 113 |
| 8" | 18" | 131" | 131 |
| 8" | 18" | 131" | 92 |
| 10" | 8 1/2" | 84" | 84 |
| 10" | 12" | 129" | 129 |
| 10" | 14" | 134" | 134 |
| 10" | 16" | 155" | 155 |
| 10" | 18" | 177" | 177 |
| 12" | 12" | 147" | 103 |
| 12" | 14" | 117" | 92 |
| 12" | 16" | 137" | 137 |
| 12" | 18" | 155" | 155 |
| 12" | 20" | 177" | 177 |
| 14" | 18" | 149" | 104 |
| 14" | 20" | 177" | 177 |
| 14" | 22" | 197" | 197 |
| 14" | 24" | 217" | 217 |
| 14" | 26" | 237" | 237 |
| 14" | 28" | 257" | 257 |
| 14" | 30" | 277" | 277 |
| 14" | 32" | 297" | 297 |
| 14" | 34" | 317" | 317 |
| 14" | 36" | 337" | 337 |

PINELLAS COUNTY PRESSURE MAIN RESTRAINED JOINT DETAIL

DETAIL INDEX I.D.: PCU GD 11
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:

NOTE:
 1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL AND TECHNICAL SPECIFICATIONS.
 2. ALL WORK SHOWN ON THIS DRAWING SHALL BE PAID FOR UNDER THE OFFSET PAY-ITEM FOR THE APPLICABLE SIZE OF THE EXISTING PIPE TO BE RELOCATED DUE TO CONFLICT. NO SEPARATE PAYMENT SHALL BE MADE UNDER INDIVIDUAL PAY-ITEMS UNLESS "A" IS GREATER THAN 50'.

2-45° BENDS
 1- SLEEVED CONNECTION (IF NECESSARY)
 1- REVERSED DEADMAN
 CONCRETE CURE TIME=72 HOURS
 RESTRAIN ALL JOINTS AND POLYWRAP PER COLOR CODE.

2-45° BENDS
 1- SLEEVED CONNECTION (IF NECESSARY)
 1- REVERSED DEADMAN
 CONCRETE CURE TIME=72 HOURS
 RESTRAIN ALL JOINTS AND POLYWRAP PER COLOR CODE.

CL-350 D.I.P. w/COLOR-CODED POLYWRAP 20 L.F. - MINIMUM WIDTH

VARIES 10' MIN. w/SANITARY SEWER

12" MIN.

3'-0"

12"

PIPE SEPARATION-MINIMUM

PINELLAS CO TYPICAL PRESSURE OFFSET RELOCATION DETAIL

DETAIL INDEX I.D.: PCU GD 13
 DATE: FEB/2016
 KEVIN BECOTTE, P.E.
 REVISION:



| REV. NO. | DATE | DESCRIPTION | REV. BY | CHECKED | DESIGNED | DRAWN | PROJECT | DESCRIPTION | APPROVED BY | DATE |
|----------|------|-------------|---------|---------|----------|-------|---|-----------------------------|-------------------------|---------------|
| | | | | | T.C.C. | | N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I | UTILITIES DETAILS AND NOTES | DENNIS M. SIMPSON, P.E. | DECEMBER 2021 |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

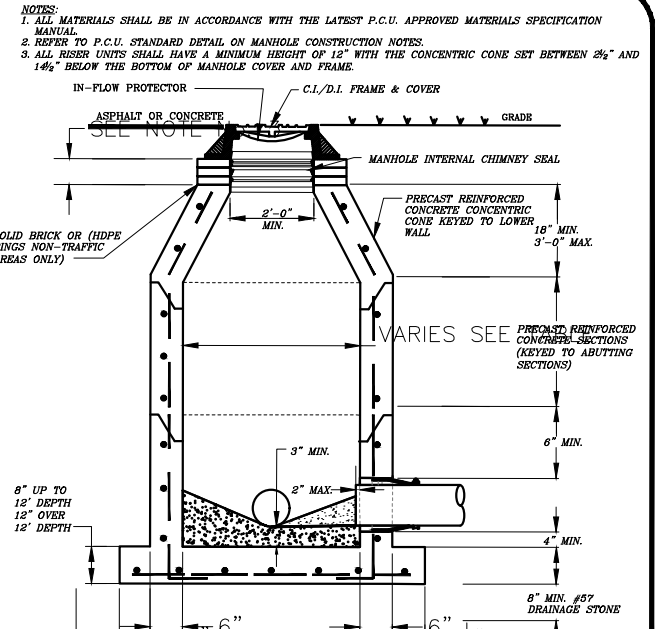
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SANITARY SEWER MANHOLE CONSTRUCTION NOTES

- ALL MANHOLES**
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. PRECAST MANHOLE SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF ASTM C-478 WITH 4000 P.S.I. TYPE II PORTLAND CEMENT.
 3. ALL RISER UNITS SHALL HAVE A MINIMUM HEIGHT OF 12" WITH THE CONCENTRIC CONE SET BETWEEN 2 1/2" AND 1 1/2" BELOW THE BOTTOM OF MANHOLE COVER AND FRAME.
 4. ALL KEYED JOINTS SHALL BE SEALED WITH TWO CONTINUOUS RINGS OF FLEXIBLE JOINT SEALANT, OR APPROVED EQUAL.
 5. ALL INTERIOR AND EXTERIOR MANHOLE SURFACES SHALL BE PREPARED FOR COATING AND COATED IN ACCORDANCE WITH P.C.U. STANDARD SPECIFICATIONS AND APPROVED MATERIAL SPECIFICATIONS. INSIDE COATING OF MANHOLE MAY BE ELIMINATED IF USING P.C.U. APPROVED LINING SYSTEM.
 6. MANHOLE BASE AND BOTTOM SECTION SHALL BE MONOLITHICALLY CAST.
 7. ALL PIPE PENETRATIONS IN MANHOLE SHALL BE PRECAST OR CORE DRILLED.
 8. MANHOLE COVERS SHALL BE EQUIPPED WITH AN IN-FLOW PROTECTOR.
 9. A DROP CONNECTION IS REQUIRED WHERE THE PIPE INVERT IS GREATER THAN 2' ABOVE THE MANHOLE INVERT. FOR DROPS 2' OR LESS A FLUME SHALL BE CONSTRUCTED.
 10. ALL MANHOLES 4' IN DIAMETER OR GREATER SHALL REQUIRE THE USE OF A DOUBLE RING AND COVER.
 11. ALL MANHOLES WITH A DEPTH OF 14' OR GREATER SHALL BE DESIGNED FOR ANTI-FLOATATION AND SHALL REQUIRE SUBMITTAL OF CALCULATIONS.
- INSIDE DROP MANHOLES**
12. THERE SHALL BE NO MORE THAN 2 INSIDE DROPS PER MANHOLE.
 13. WHEN USING A 90° BEND ON RISER, IT SHALL BE ROTATED BETWEEN 22 1/2° AND 45° IN THE DIRECTION OF FLOW AND GROUTED INTO BENCH.
 14. ALL FORCE MAIN CONNECTIONS REQUIRE THE USE OF A FORCE MAIN HOOD WITH INSIDE DROP BOWL.
 15. ALL INSIDE DROPS SHALL BE CONSTRUCTED USING P.V.C. SDR-35 PIPE.
- OUTSIDE DROP MANHOLES**
16. OUTSIDE DROP PIPING SHALL BE CONSTRUCTED USING THE SAME MATERIAL AS THE MAIN LINE.

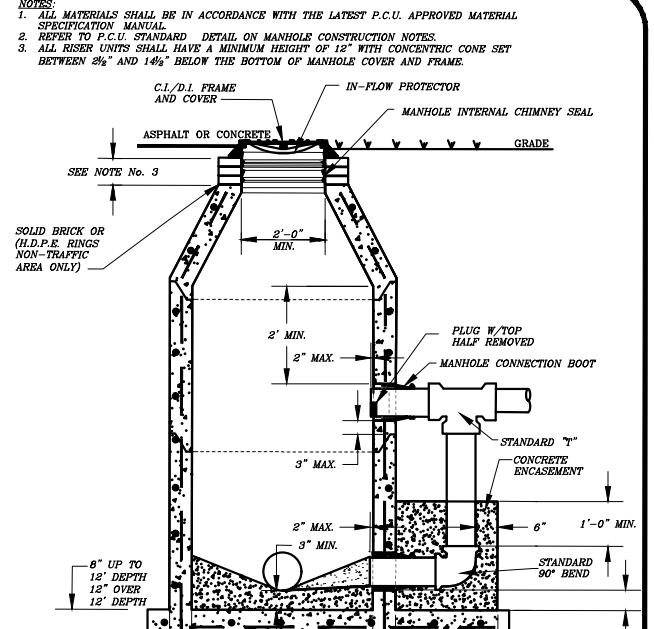
| DIA. | FOR PIPES | CASTING SIZE CLEAR OPENING |
|-------|--|----------------------------|
| 4'-0" | 24" & UNDER | 22.375" |
| 5'-0" | 30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES | 35" |
| 6'-0" | 42" & OVER | 48" |

PINELLAS COUNTY
MANHOLE CONSTRUCTION NOTES
DETAIL INDEX I.D.: PCU SD 1
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



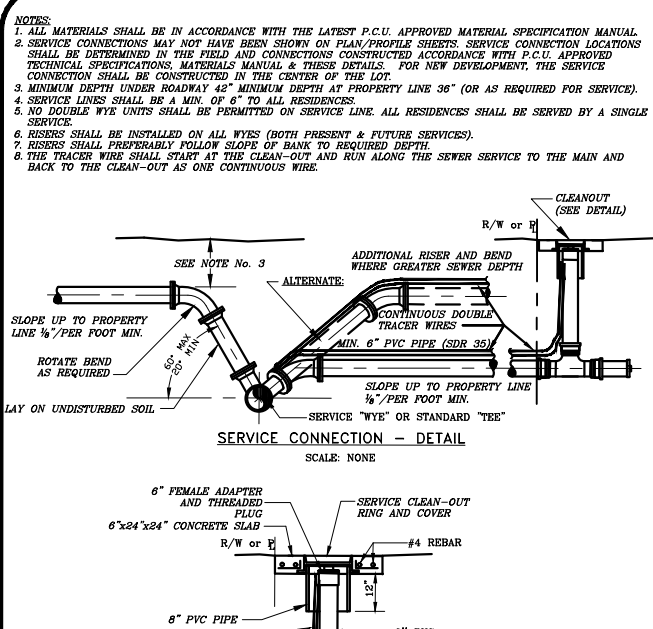
| DIA. | FOR PIPES | CASTING SIZE CLEAR OPENING |
|-------|--|----------------------------|
| 4'-0" | 24" & UNDER | 22.375" |
| 5'-0" | 30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES | 35" |
| 6'-0" | 42" & OVER | 48" |

PINELLAS COUNTY
STANDARD MANHOLE (PRE-CAST) DETAIL
DETAIL INDEX I.D.: PCU SD 1a
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



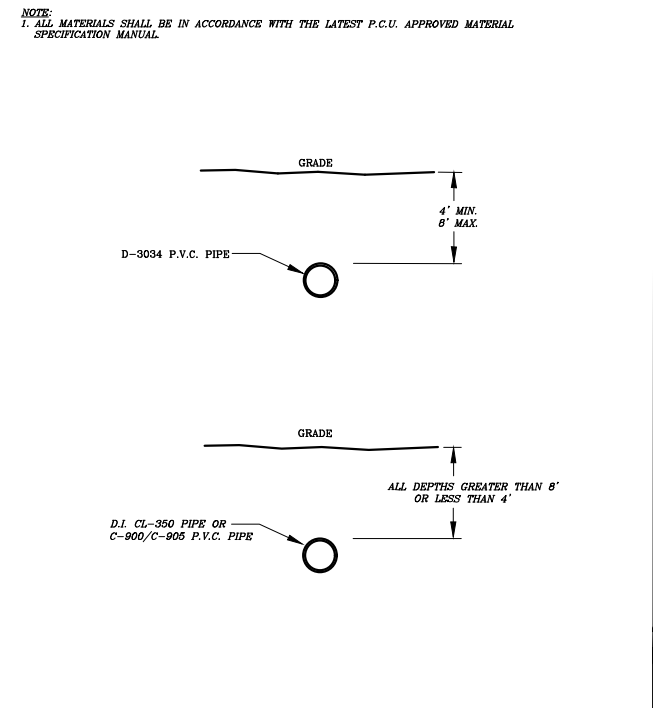
| DIA. | FOR PIPES | CASTING SIZE CLEAR OPENING |
|-------|--|----------------------------|
| 4'-0" | 24" & UNDER | 22.375" |
| 5'-0" | 30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES | 35" |
| 6'-0" | 42" & OVER | 48" |

PINELLAS COUNTY
OUTSIDE DROP MANHOLE CONNECTION DETAIL
DETAIL INDEX I.D.: PCU SD 1c
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:

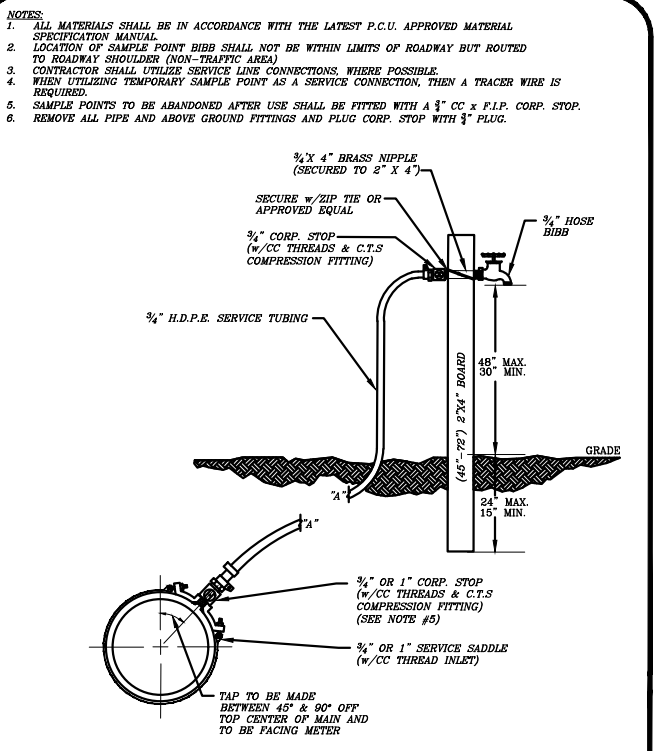


| DIA. | FOR PIPES | CASTING SIZE CLEAR OPENING |
|-------|--|----------------------------|
| 4'-0" | 24" & UNDER | 22.375" |
| 5'-0" | 30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES | 35" |
| 6'-0" | 42" & OVER | 48" |

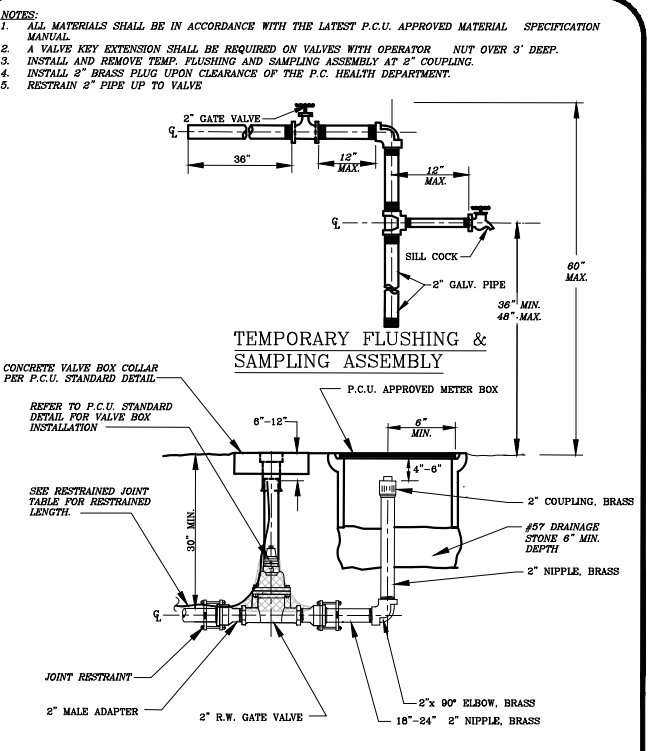
PINELLAS COUNTY
SEWER SERVICE CONNECTION AND CLEAN-OUT DETAIL
DETAIL INDEX I.D.: PCU SD 4
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



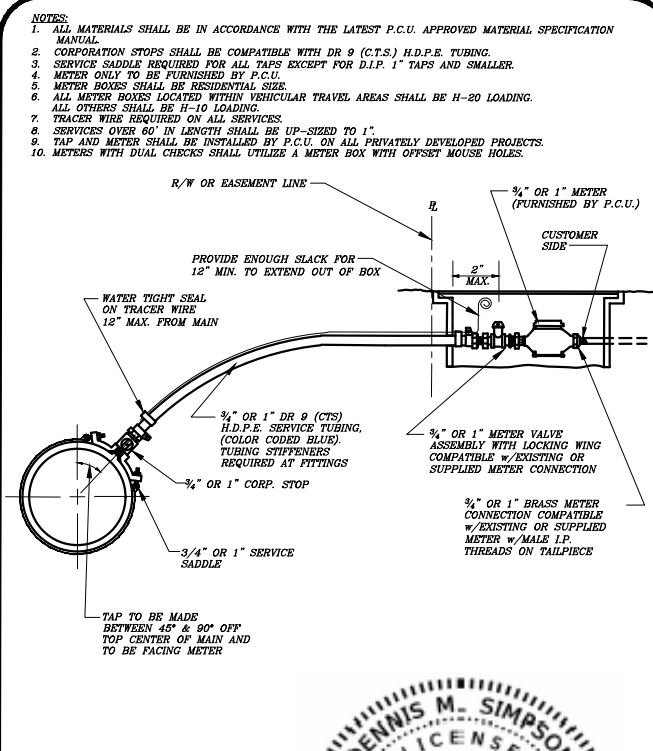
PINELLAS COUNTY
DEPTH LIMITATIONS OF SANITARY SEWER PIPE DETAIL
DETAIL INDEX I.D.: PCU SD 5
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



PINELLAS COUNTY
TEMPORARY SAMPLING POINT DETAIL
DETAIL INDEX I.D.: PCU WD 1
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



PINELLAS COUNTY
2" PERMANENT WATER BLOW-OFF DETAIL
DETAIL INDEX I.D.: PCU WD 2
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



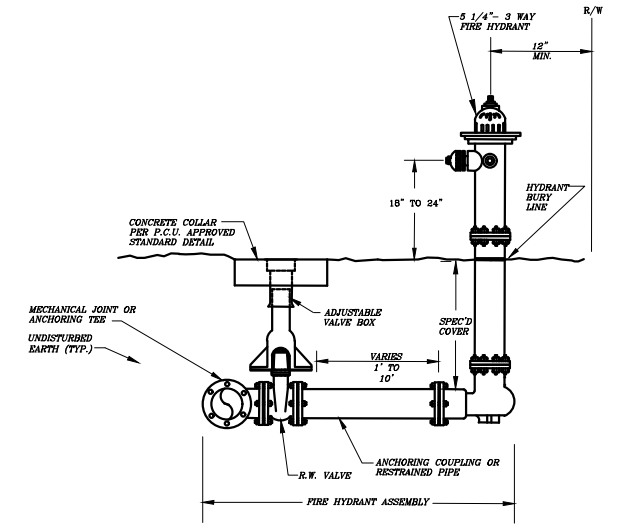
PINELLAS COUNTY
3/4" OR 1" POTABLE WATER SERV DETAIL
DETAIL INDEX I.D.: PCU WD 3
DATE: FEB/2016
KEVIN BECOTTE, P.E.
REVISION:



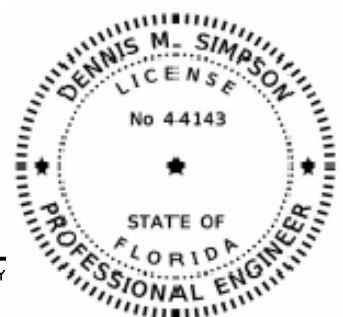
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- NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. ALL BOLTED FITTINGS SHALL BE POLYETHYLENE WRAPPED, COLOR CODED PER SERVICE.
 3. VALVE BOX(ES) SHALL HAVE A CONCRETE COLLAR PER P.C.U. APPROVED STANDARD DETAIL.
 4. IF FIRE HYDRANT IS INSTALLED WITHIN AN OFF-STREET VEHICULAR AREA, AND IS LOCATED WITHIN 10 FT. OR LESS OF A VEHICULAR USE AREA, GUARD POSTS (BOLLARDS) SHALL BE INSTALLED PER P.C.U. APPROVED STANDARD DETAIL UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
 5. IF DISTANCE BETWEEN VALVE AND HYDRANT IS 10 FT. OR GREATER, AN ADDITIONAL VALVE SHALL BE INSTALLED FOR CONTROL OF HYDRANT UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
 6. HYDRANT SHALL BE INSTALLED PLUMB.
 7. HYDRANT SHALL BE PAINTED UPON INSTALLATION PER P.C.U. APPROVED MATERIAL SPECIFICATIONS.
 8. ALL CHAINS SHALL BE REMOVED AFTER INSTALLATION.



| | | |
|---|---------------------|----------|
| PINELLAS COUNTY FIRE HYDRANT ASSEMBLY DETAIL | DETAIL INDEX ID: | PCU WD 6 |
| | DATE: | FEB/2016 |
| | KEVIN BECOTTE, P.E. | |
| | REVISION: | |



| REV. NO. | DATE | DESCRIPTION | REV. BY |
|----------|------|-------------|---------|
| | | | |
| | | | |

| | |
|----------|---------------|
| DESIGNED | T.C.C. |
| DRAWN | D.E.C./M.S.M. |
| CHECKED | T.C.C. |



PROJECT: N. HIGHLAND AVE. ROAD AND DRAINAGE IMPROVEMENTS PHASE I

DESCRIPTION: UTILITIES DETAILS AND NOTES

UTILITIES
14 S. FT. HARRISON AVE., CLEARWATER, FL 33756

APPROVED BY: DENNIS M. SIMPSON, P.E.
FLA. LIC. NO 44143

DATE: _____

DATE: DECEMBER 2021
PROJECT NO. 001333B
SHEET: PCU-9 OF PCU-9

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.