

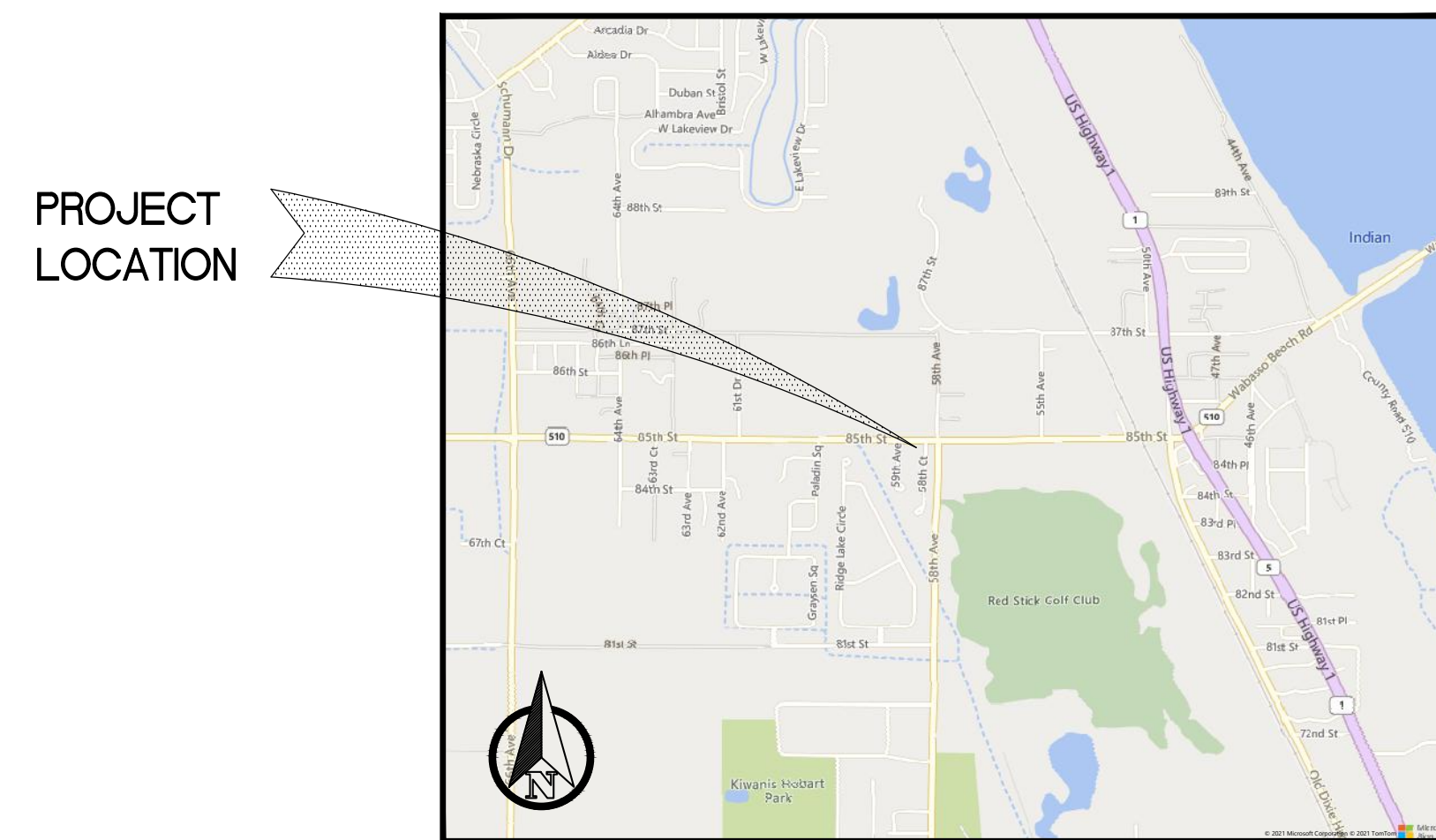
# PROPOSED IMPROVEMENTS FOR: PHASE 3B SEPTIC TO SEWER 59TH AVE & 58TH CT VERO BEACH, FL 32967



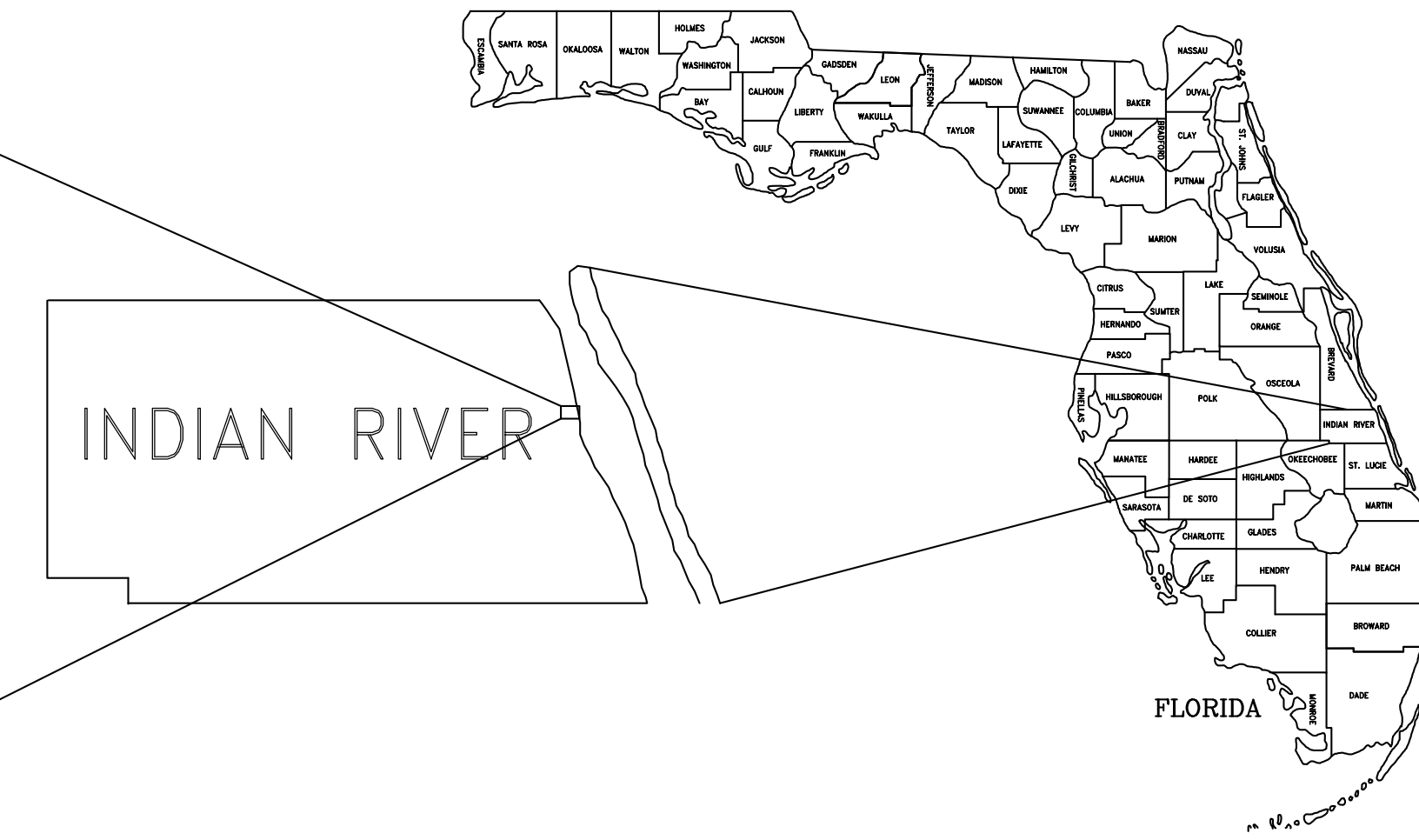
DEPARTMENT OF UTILITY SERVICES  
WATER, WASTEWATER,  
& RECLAIMED WATER  
UTILITY CONSTRUCTION STANDARDS

**MAY  
2019**  
SUPERSEDES ALL PREVIOUS VERSIONS

3B: SECTION 32, TOWNSHIP 31 SOUTH, RANGE 39 EAST



**SITE LOCATION MAP**



## GENERAL STATEMENT

THE PROPOSED WORK SHALL INCLUDE INSTALLATION OF A GRAVITY SEWER MAIN WITH SERVICE LATERALS TO ALL EXISTING PROPERTIES AND STUB OUTS TO PROPOSED FUTURE LOTS. PROPOSED GRAVITY SEWER WILL DRAIN TO PROPOSED IRCUDS LIFT STATION.

## UTILITY AGENCY AND CONTACTS

SANITARY SEWER & WATER	INDIAN RIVER COUNTY UTILITIES 1801 27TH ST. VERO BEACH, FL 32960 CONTACT: ROBERT J. TOBAR, E.I. PHONE: (772) 226-1801
NATURAL GAS	FLORIDA PUBLIC UTILITIES 209 N SAPODILLA AVE. WEST PALM BEACH, FL 33401 CONTACT: DALE BUTCHER PHONE: (321) 638-3424
TRAFFIC	INDIAN RIVER COUNTY TRAFFIC 1800 27TH ST. VERO BEACH, FL 32960 CONTACT: ERIK FERGUSON, P.E. PHONE: (772) 226-1568
ELECTRIC	FLORIDA POWER & LIGHT CO. 3301 ORANGE AVE. FT PIERCE, FL 34947 CONTACT: ROBERT MORRIS PHONE: (772) 223-4215
COUNTY FIBER	INDIAN RIVER COUNTY TELECOMMUNICATIONS 1801 27TH ST. VERO BEACH, FL 32960 CONTACT: DAN RUSSELL PHONE: (772) 226-1698
TELECOMMUNICATION	ROAD MOVES-AT&T 3300 OKEECHOBEE RD. ROOM 237 FORT PIERCE, FL 34947 CONTACT: MARK GUTIERREZ PHONE: (772) 460-4443

## DIRECTIONS TO PROJECT SITE

FROM INTERSTATE 95, TAKE EXIT 156 FOR CR-512 (SEBASTIAN BLVD), TURN EAST FOR APPROXIMATELY 2.5 MILES. TURN RIGHT, HEADING SOUTH ON 90TH AVE FOR APPROXIMATELY 1.2 MILES. THE ROAD WILL TURN EAST AND BECOME 85TH ST. SITE IS LOCATED APPROXIMATELY 4 MILES FROM THIS BEND AND LOCATED ON THE RIGHT.

FROM THE INTERSECTION OF US-1 AND CR-510, TURN WEST APPROXIMATELY 3,600 FEET AND THE SITE WILL BE LOCATED ON THE SOUTH SIDE OF THE ROAD.

PREPARED FOR THE BOARD OF COUNTY COMMISSIONERS  
INDIAN RIVER COUNTY, FLORIDA  
PETER D. O'BRYAN, CHAIRMAN (DISTRICT 4)  
JOE EARMAN, VICE-CHAIRMAN (DISTRICT 3)  
COMMISSIONER JOSEPH E. FLESCHER (DISTRICT 2)  
COMMISSIONER SUSAN ADAMS (DISTRICT 1)  
COMMISSIONER LAURA MOSS (DISTRICT 5)  
SEAN LIESKE, - DIRECTOR OF UTILITY SERVICES

**LAND SURVEYOR**  
INFRASTRUCTURE SOLUTIONS  
SERVICES, INC.  
7175 MURRELL RD.  
MELBOURNE, FL 32940  
PHONE: (321) 622-4646

**CIVIL ENGINEER**  
BOWMAN CONSULTING  
ENGINEER OF RECORD  
ZACHARY D. KOMNINOS, P.E.  
4450 W. EAU GALLIE BLVD., SUITE 144  
MELBOURNE, FL - 32934  
PHONE: (321) 255-5434

Sheet List Table	
Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	GENERAL NOTES
C2.0	KEY MAP
C2.1	PLAN & PROFILE
C2.2	PLAN & PROFILE
C2.3	PLAN & PROFILE
C3.0	DETAILS

## DATUM NOTE

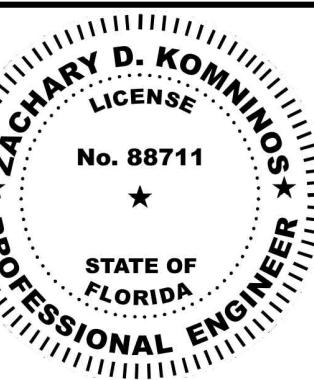
ALL ELEVATIONS SHOWN HEREON ARE REFERENCED IN FEET TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

**BID SET  
05/04/2022**

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CONSULTING

Bowman Consulting Group, Ltd.  
4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
Fax: (321) 255-7751  
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**COVER SHEET**  
**WABASSO SEPTIC TO SEWER PROJECT**  
**PHASE 3B**  
**VERO BEACH, FLORIDA 32967**  
INDIAN RIVER COUNTY, FL



ZACHARY D. KOMNINOS  
LICENSE NO. 88711

PLAN STATUS



DATE	DESCRIPTION
ELF DESIGN	VDP DRAWN
ZDK CHKD	
SCALE	NONE
JOB No.	010514-01-004
DATE	May, 2022
FILE	010514-01-004-00-COV-3A

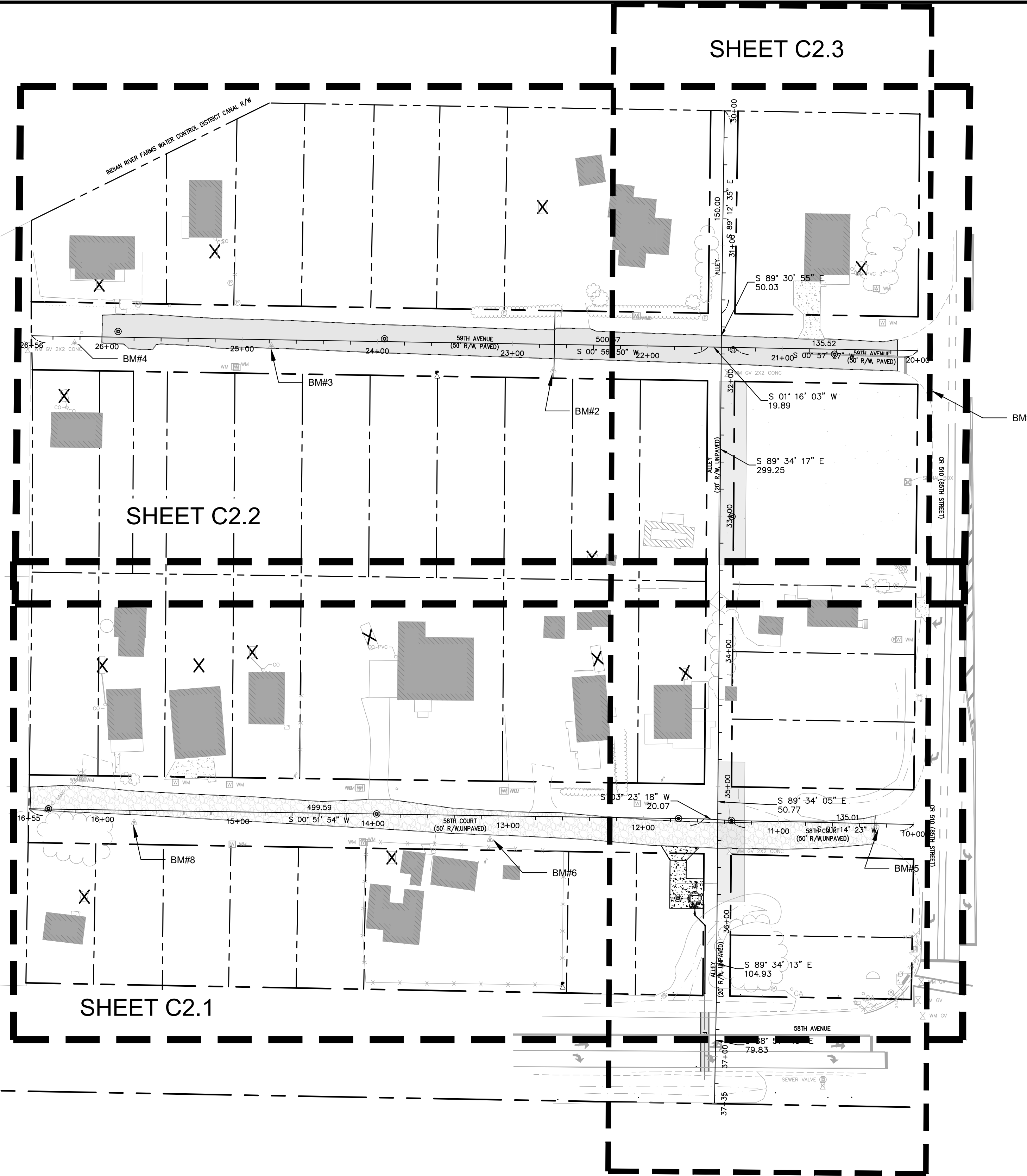
SHEET **C0.0**

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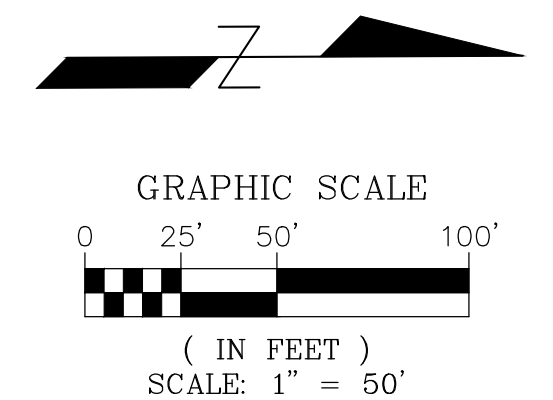
**GENERAL NOTES**

- SERVICE LATERALS SHALL BE INSTALLED PER INDIAN RIVER COUNTY UTILITY DETAILS S-1, S-2, S-3, AND S-3A.
- ALL ROADWAYS, PAVED AND UNPAVED, SHALL BE REPLACED IN KIND ACCORDING TO INDIAN RIVER COUNTY LAND DEVELOPMENT DESIGN STANDARDS AND SPECIFICATIONS INDEX 16.
- RESTORE ALL DRIVEWAYS IN KIND IF DISTURBED FROM RIGHT OF WAY LINE TO EDGE OF PAVEMENT OR EDGE OF ROADWAY.
- SOD ALL DISTURBED AREAS IN KIND.
- CONTRACTOR SHALL NOT DISTURB EXISTING POTABLE WATER SERVICES.
- MANHOLES SHALL BE PER INDIAN RIVER COUNTY UTILITY DETAILS S-4 THRU S-12.
- LIFTSTATION SHALL BE INSTALLED PER INDIAN RIVER COUNTY UTILITY DETAILS S-14 THRU S-21
- ALL MANHOLES REQUIRE SOIL 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
- LIFT STATION WETWELL SOIL DENSITY TESTING REQUIRED.
- VALVE VAULT UNDERNEATH AND SIDE SOIL DENSITY TESTING REQUIRED.
- SERVICE LATERAL LOCATIONS PER DEPARTMENT OF UTILITY SERVICE INSPECTORS.
- CONTRACTOR SHALL RESTORE DISTURBED DITCHES TO ORIGINAL CONDITION.
- CONTRACTOR SHALL REPLACE ANY STREET SIGNS REMOVED OR DAMAGED DURING CONSTRUCTION. STREET SIGNS SHALL BE IN ACCORDANCE WITH INDIAN RIVER COUNTY STANDARDS.

**SEPTIC TANK ABANDONMENT PROCEDURE**

- THE CONTRACTOR SHALL FOLLOW THE PROCEDURE OUTLINED IN THE FLORIDA ADMINISTRATIVE CODE CH 64E-6.011 "ABANDONMENT OF SYSTEMS", SECTIONS 64E-6.011(1), 64E-6.011(2), AND 64E-6.011(3).
- THE TANK SHALL BE PUMPED BY A LICENSED SEPTAGE DISPOSAL COMPANY.
- THE BOTTOM OF THE TANK SHALL BE OPENED OR RUPTURED. BROKEN PIECES AND DEBRIS SHALL BE REMOVED.
- THE TANK SHALL BE FILLED WITH CLEAN SAND OR OTHER SUITABLE MATERIAL, WITHOUT VOIDS, COMPACTED TO 95% OF THE MODIFIED PROCTOR DRY DENSITY TEST (ASTM D-1557), AND COMPLETELY COVERED WITH SOIL.
- THE TANK LID SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

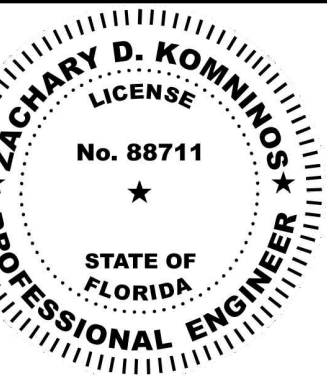
BM #1 MAG NAIL AND DISK "ISS SITE CONTROL" N:1241599.9880 E:83577.1650 EL.: 23.17' N.A.V.D. 1988	BM #2 5" I.R. WITH CAP "ISS SITE CONTROL" N:1241320.5140 E:835062.2430 EL.: 21.33' N.A.V.D. 1988
BM #3 MAG NAIL AND DISK "ISS SITE CONTROL" N:1241112.0120 E:835044.4540 EL.: 19.28' N.A.V.D. 1988	BM #4 5" I.R. WITH CAP "ISS SITE CONTROL" N:1240966.3500 E:835042.1690 EL.: 18.31' N.A.V.D. 1988
BM #5 MAG NAIL AND DISK "ISS SITE CONTROL" N:1241559.5430 E:835396.9810 EL.: 23.90' N.A.V.D. 1988	BM #6 5" I.R. WITH CAP "ISS SITE CONTROL" N:1241273.7710 E:835409.5130 EL.: 23.30' N.A.V.D. 1988
BM #7 NOT USED	BM #8 5" I.R. WITH CAP "ISS SITE CONTROL" N:1241010.3910 E:835396.8300 EL.: 21.865' N.A.V.D. 1988



**Bowman**  
CONSULTING

Bowman Consulting Group, Ltd.  
4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
Fax: (321) 255-7751  
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KEY MAP  
WABASSO SEPTIC TO SEWER PROJECT  
PHASE 3B  
VERO BEACH, FLORIDA 32967  
INDIAN RIVER COUNTY, FL



ZACHARY D. KOMINOS  
LICENSE NO. 88711

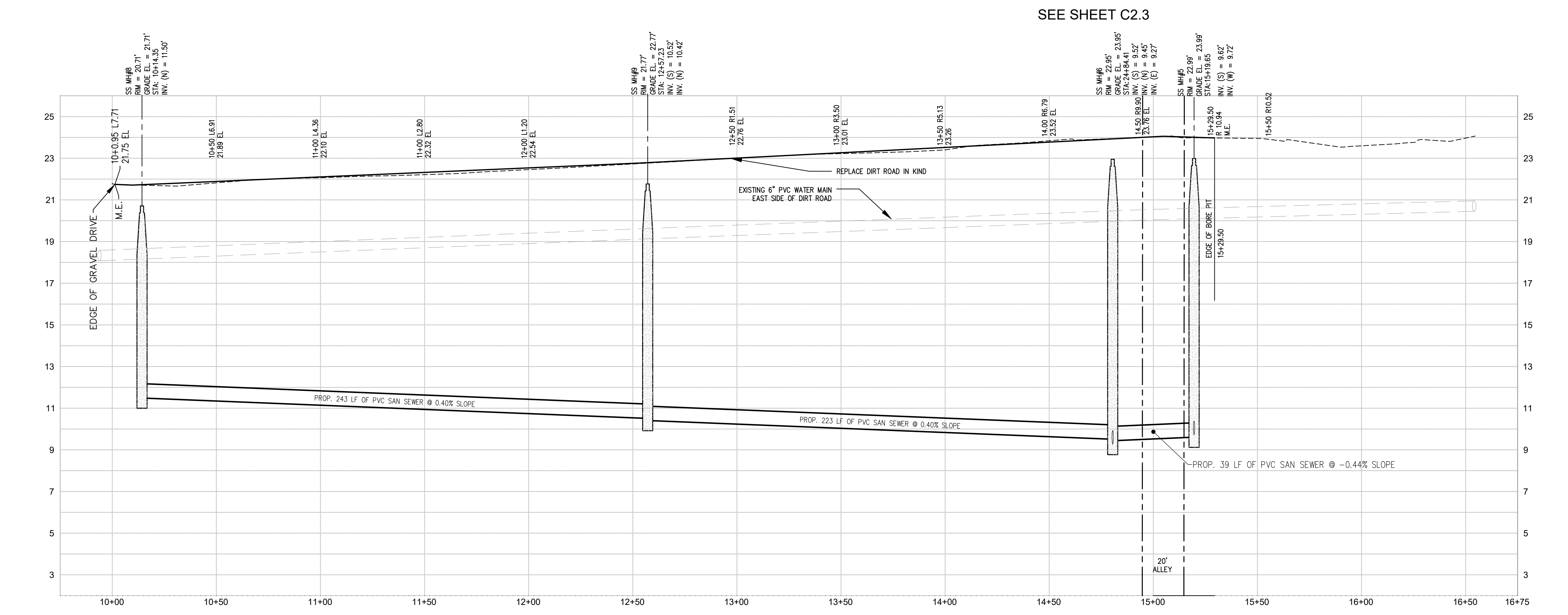
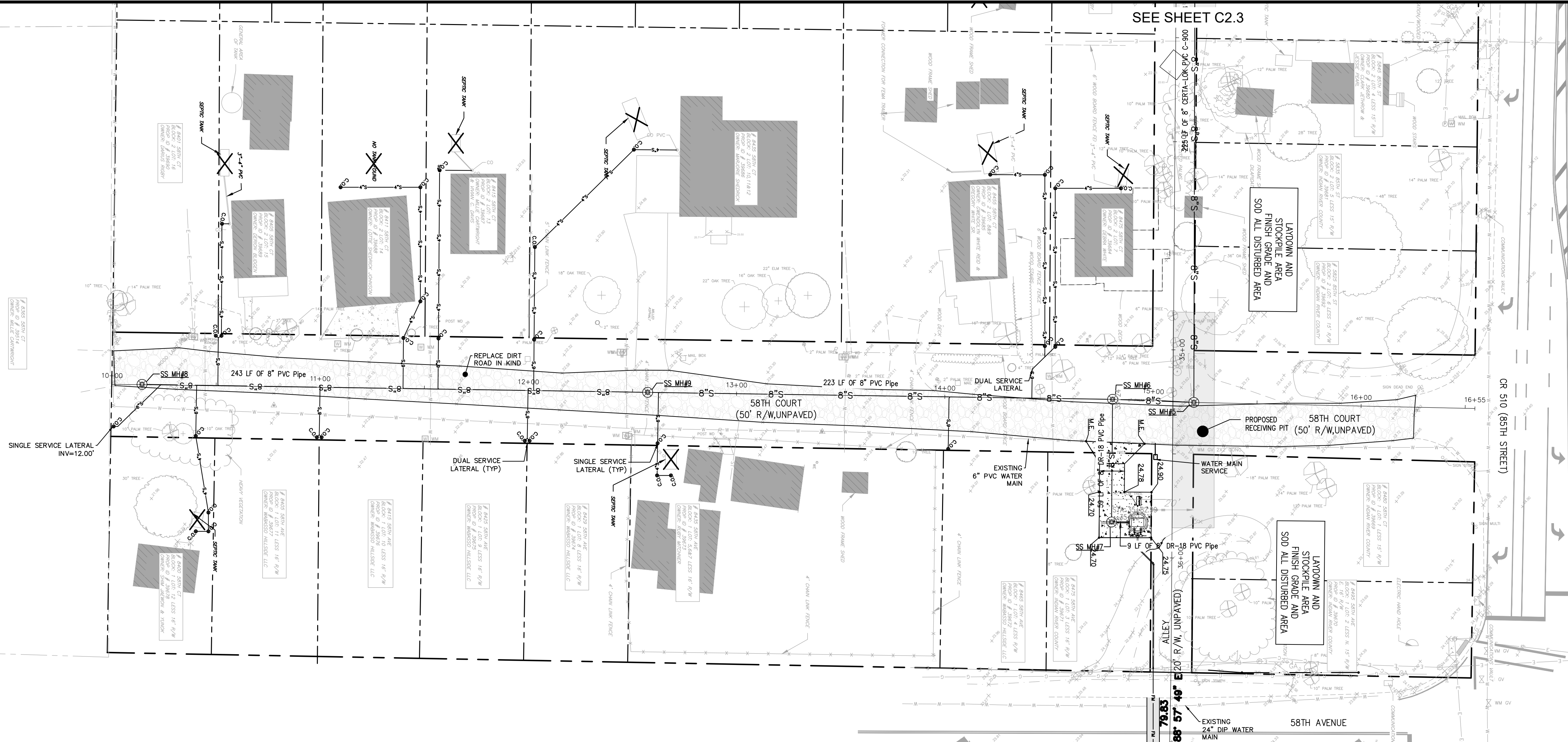
PLAN STATUS



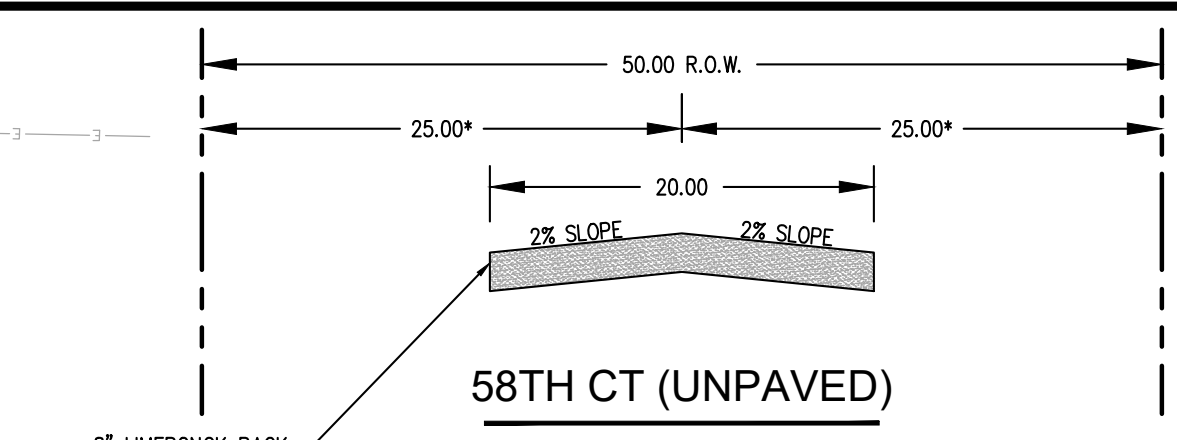
DATE	DESCRIPTION
ELF DESIGN	VDP DRAWN
ZDK	CHKD
SCALE	1" = 50'
JOB No.	010514-01-004
DATE	April, 2022
FIL#	010514-01-004-06-PL-PL00

SHEET **C2.0**

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58TH COURT PROFILE VIEW  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'



**PROPOSED LEGEND**

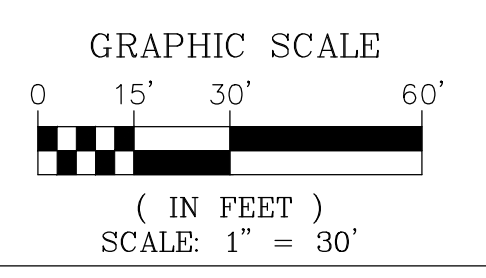
- CLEAN OUT
- SANITARY SEWER MANHOLE
- #\"/> SANITARY SEWER PIPE
- PROPOSED ASPHALT
- ABANDONED SEPTIC TANK
- PROPOSED BORE / RECEIVING PIT
- PROPOSED CONCRETE

**EXISTING LEGEND**

- LINE TYPE AND SYMBOL LEGEND**
- RIGHT OF WAY
  - PROPERTY BOUNDARY
  - EASEMENT BOUNDARY
  - EDGE OF CONCRETE
  - EDGE OF PAVEMENT
  - TOP OF BANK
  - TOE OF SLOPE
  - VEGETATION LINE
  - WATER MAIN
  - WATER SERVICE
  - WATER PIPE
  - OVERHEAD ELECTRIC
  - UNDERGROUND ELECTRIC
  - STORM WATER
  - UNDERGROUND COMMUNICATION
  - SANITARY SEWER FORCE MAIN
  - SANITARY SEWER
  - SANITARY SEWER SERVICE
  - NATURAL GAS
  - CHAIN LINK FENCE
  - BARBED WIRE FENCE
  - ORNAMENTAL METAL FENCE
  - SURVEY POINT
  - SIGN
  - MAILBOX
  - SANITARY MANHOLE
  - STORM MANHOLE
  - TRAFFIC SIGNAL BOX
  - SEWER VALVE
  - WELL
  - WOOD POWER POLE
  - WOOD UTILITY POLE
  - LIGHT POLE
  - CONCRETE POWER POLE
  - CONCRETE MANHOLE
  - CONCRETE UTILITY POLE
  - CONCRETE LIGHT POLE
  - WATER METER
  - RAILROAD SIGNAL ARM
  - NATURAL GAS VALVE
  - GUY WIRE ANCHOR
  - WATER SPIGOT
  - GAS METER
  - GATE VALVE
  - BACK FLOW PREVENTER
  - POST
  - TEST HOLE
  - CONCRETE
  - PAVERS

**LEGEND**

- BM — BENCHMARK
- BLDG — BUILDING
- CB — CONCRETE BLOCK STRUCTURE
- CB — CATCH BASIN
- CMP — CORRUGATED METAL PIPE
- E — EAST
- ECMP — ELLIPTICAL CORRUGATED METAL PIPE
- ELCP — ELLIPTICAL REINFORCED CONCRETE PIPE
- FTE — FINISHED FLOOR ELEVATION
- HOPE — HIGH DENSITY POLYETHYLENE PIPE
- IR — IRON ROD
- INV — INVERT
- N — NORTH
- NAD 83 — NORTH AMERICAN VERTICAL DATUM OF 1983
- ORB — OPTICAL RECORD BOOK
- PC — POINT OF CURVATURE
- PCD — POINT OF CURVATURE DISTANCE
- PI — POINT OF INTERSECTION
- POC — POINT OF INTERSECTION
- PT — POINT OF TANGENCY
- R/W — RIGHT OF WAY
- RCF — REINFORCED CONCRETE PIPE
- S — SOUTH
- W — WEST
- WM — CROSS WALK



**Bowman**  
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Bowman Consulting Group, Ltd.  
4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
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**PLAN & PROFILE**  
**WABASSO SEPTIC TO SEWER PROJECT**  
**PHASE 3B**  
**VERO BEACH, FLORIDA 32967**  
INDIAN RIVER COUNTY, FL

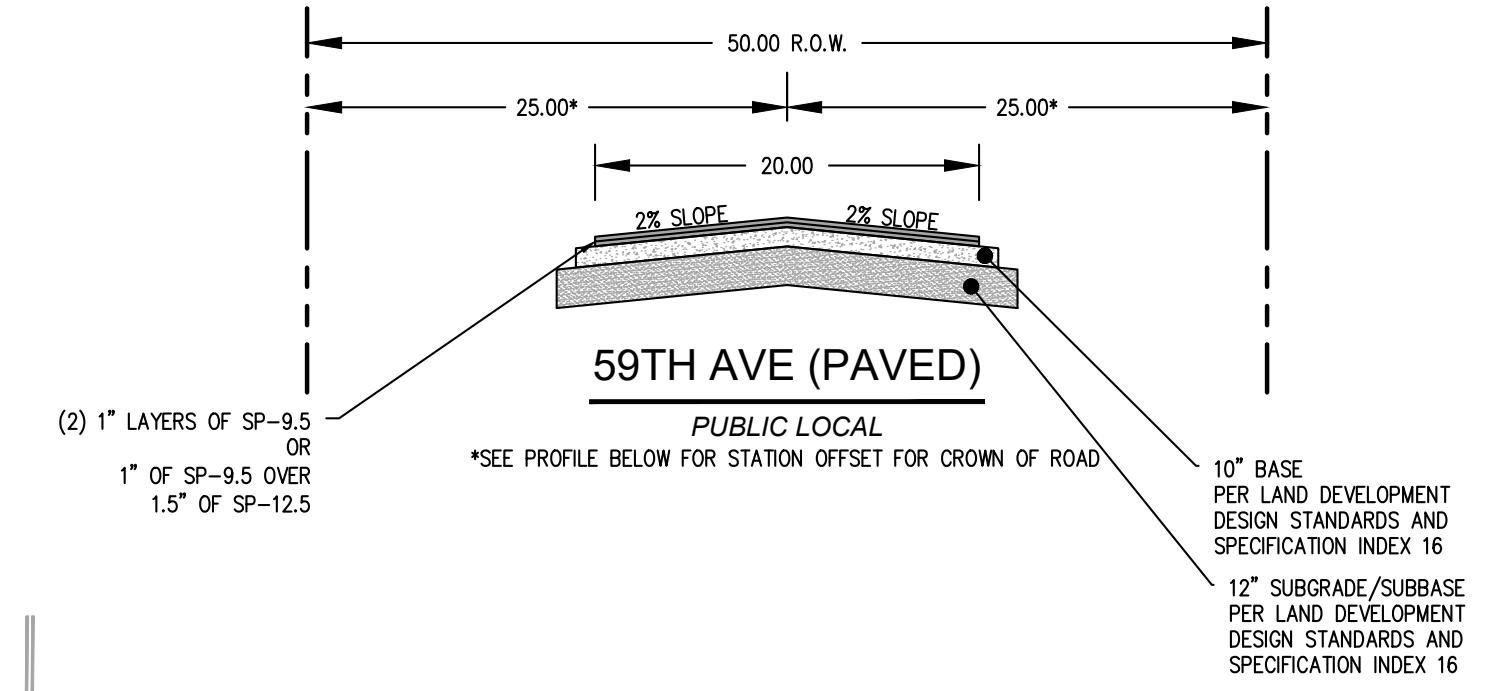
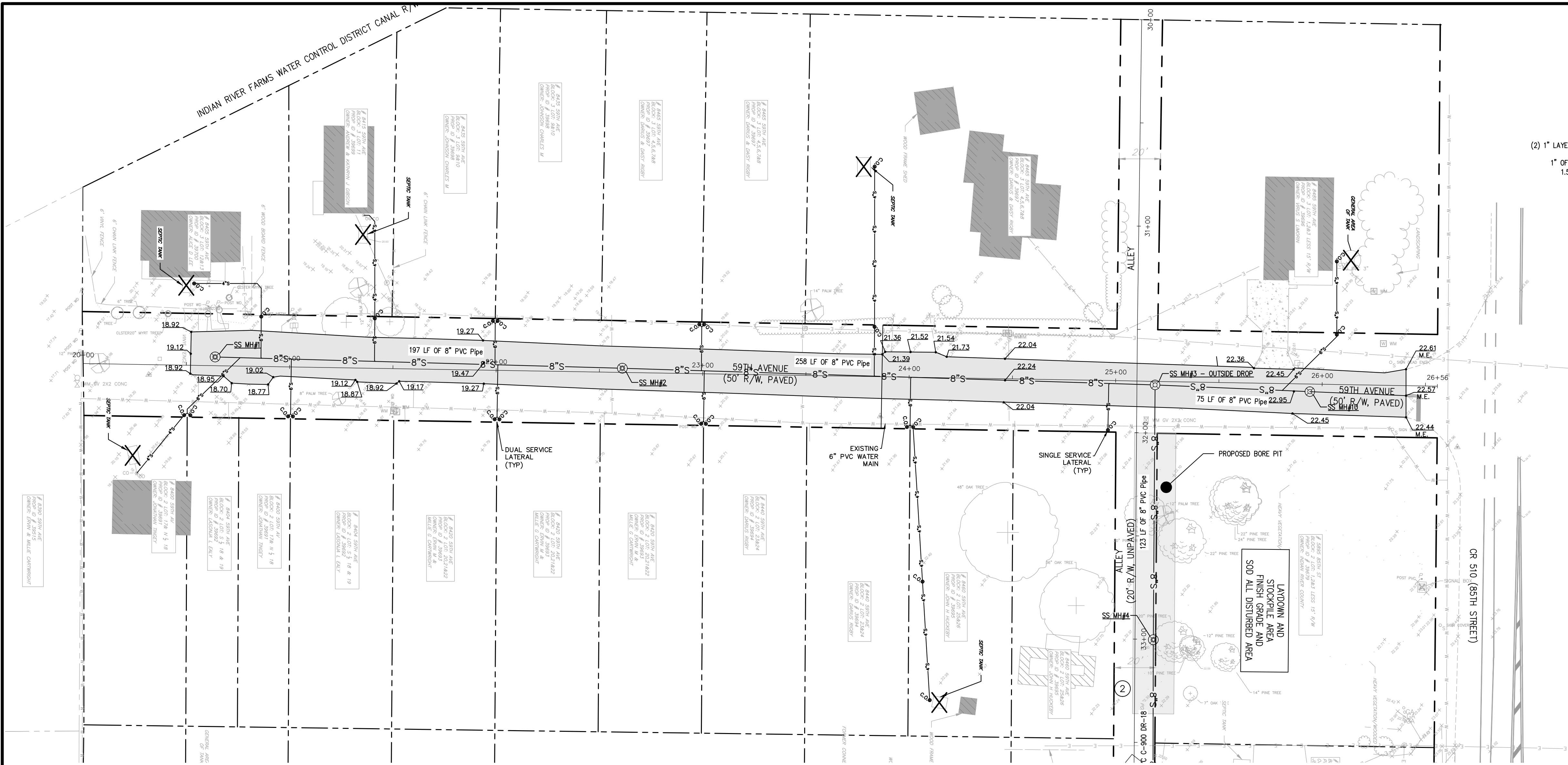
**ZACHARY D. KOMNINOS**  
LICENSE  
No. 88711  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

ZACHARY D. KOMNINOS  
LICENSE No. 88711

PLAN STATUS		
DATE	DESCRIPTION	ZDK
ELF DESIGN	VDP DRAWN	ZDK CHKD
SCALE 1" = 30'		
JOB No. 010514-01-004		
DATE April, 2022		
FILE 010514-01-004-06-PL-PL01		

SHEET **C2.1**

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**PROPOSED LEGEND**

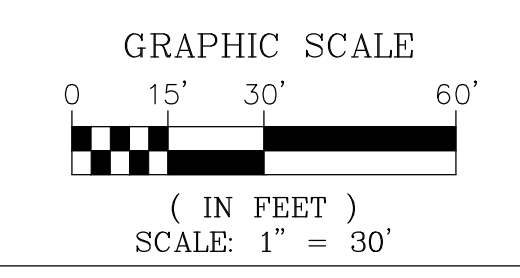
- CLEAN OUT
- SANITARY SEWER MANHOLE
- SANITARY SEWER PIPE
- PROPOSED ASPHALT
- ABANDONED SEPTIC TANK
- PROPOSED BORE / RECEIVING PIT
- PROPOSED CONCRETE

**EXISTING LEGEND**

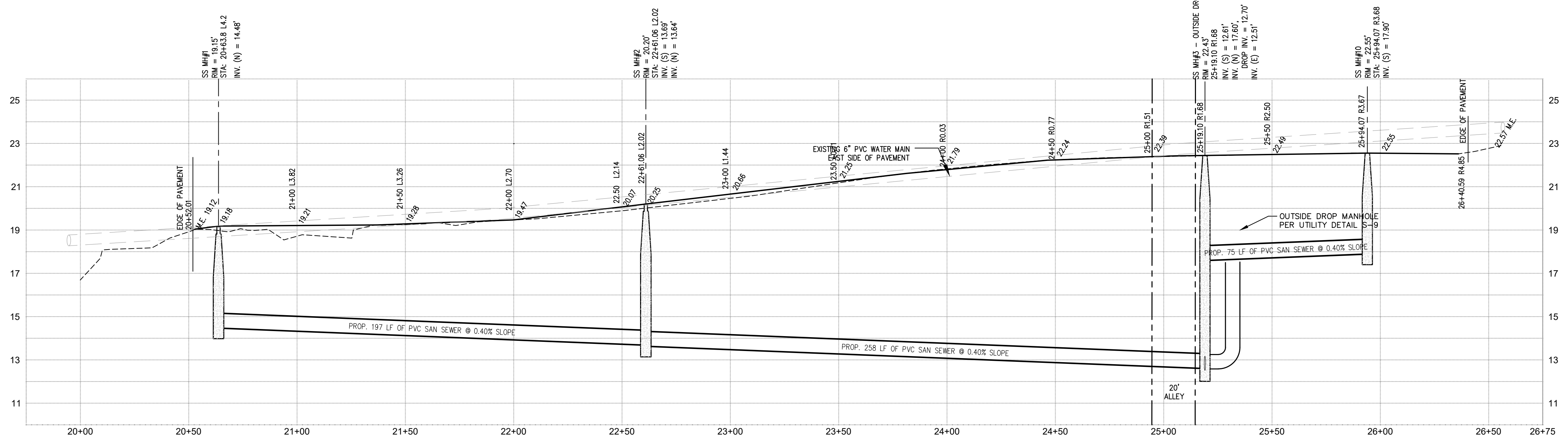
LINE TYPE AND SYMBOL LEGEND			
	RIGHT OF WAY		OVERHEAD ELECTRIC
	PROPERTY BOUNDARY		UNDERGROUND ELECTRIC
	EASEMENT BOUNDARY		STORM WATER
	EDGE OF CONCRETE		UNDERGROUND COMMUNICATION
	EDGE OF PAVEMENT		SANITARY SEWER FORCE MAIN
	TOP OF BANK		SANITARY SEWER
	TOE OF SLOPE		SANITARY SEWER SERVICE
	VEGETATION LINE		NATURAL GAS
	WATER MAIN		CHAIN LINK FENCE
	WATER SERVICE		BARBED WIRE FENCE
	WATER PIPE		ORNAMENTAL METAL FENCE
	SURVEY POINT		NATURAL GAS VALVE
	SIGN		GUY WIRE ANCHOR
	MAILBOX		WATER SPIGOT
	SANITARY MANHOLE		GAS METER
	STORM MANHOLE		GATE VALVE
	TRAFFIC SIGNAL BOX		BACK FLOW PREVENTER
	SEWER VALVE		POST
	WELL		RAILROAD SIGNAL ARM
	TEST HOLE		

**LEGEND**

- BM — BENCHMARK
- BLDG — BUILDING
- CB — CONCRETE BLOCK STRUCTURE
- CB — DITCH BASIN
- CM — CORRUGATED METAL PIPE
- E — EAST
- ELCP — ELLIPTICAL CORRUGATED METAL PIPE
- ELCP — ELLIPTICAL REINFORCED CONCRETE PIPE
- FE — FINISHED FLOOR ELEVATION
- HDPPE — HIGH DENSITY POLYETHYLENE PIPE
- IR — IRON ROD
- IR — IRON
- N — NORTH
- NAD83 — NORTH AMERICAN VERTICAL DATUM OF 1983
- ORB — OFFICIAL RECORD BOOK
- PC — POINT OF CURVATURE
- PD — PAVED
- PI — POINT OF INTERSECTION
- POC — POINT ON CURVE
- PT — POINT OF TANGENCY
- R/W — RIGHT OF WAY
- RC — REINFORCED CONCRETE PIPE
- S — SOUTH
- W — WEST
- XWALK — CROSS WALK



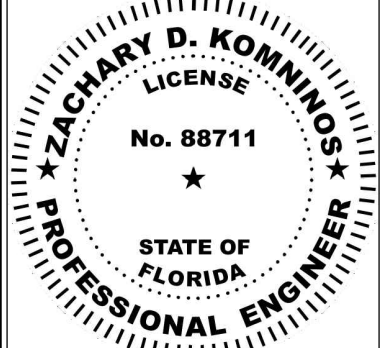
SEE SHEET C2.3



59TH AVENUE PROFILE VIEW  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

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4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
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**PLAN & PROFILE**  
**WABASSO SEPTIC TO SEWER PROJECT**  
**PHASE 3B**  
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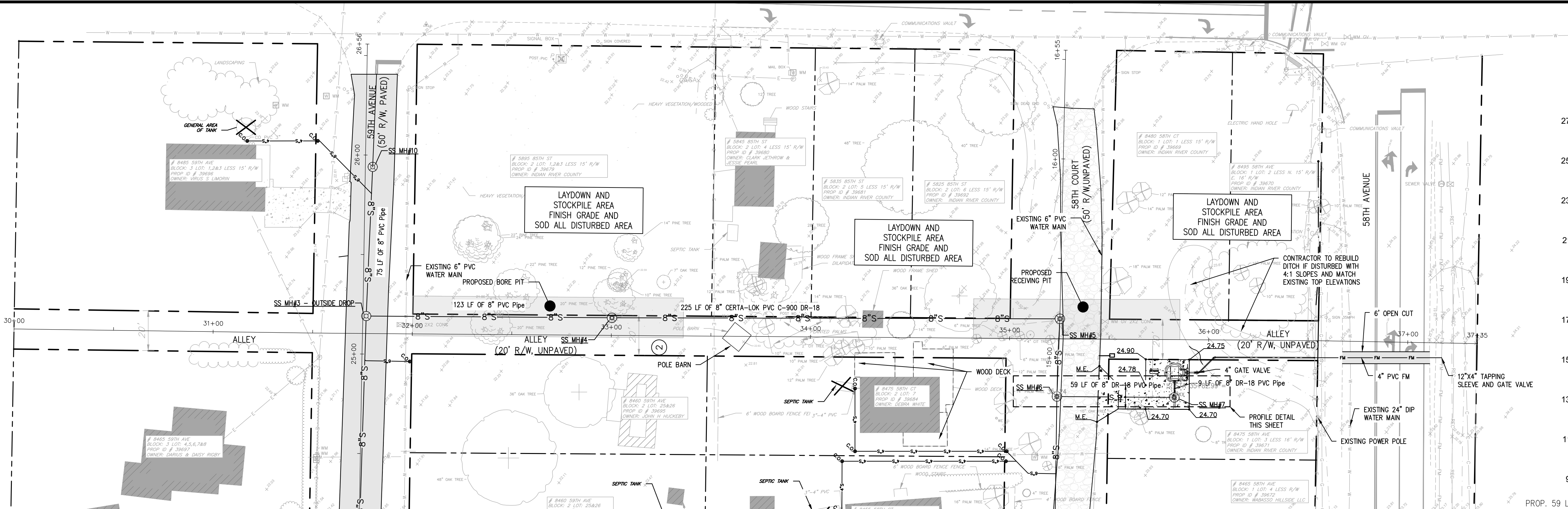
ZACHARY D. KOMINOS  
LICENSE NO. 88711

PLAN STATUS	
DATE	DESCRIPTION
ELF DESIGN	VDP DRAWN
	ZDK CHKD
SCALE	1" = 30'
JOB No.	010514-01-004
DATE	April, 2022
FILE	010514-01-004-06-PL-PL01
SHEET	C2.2



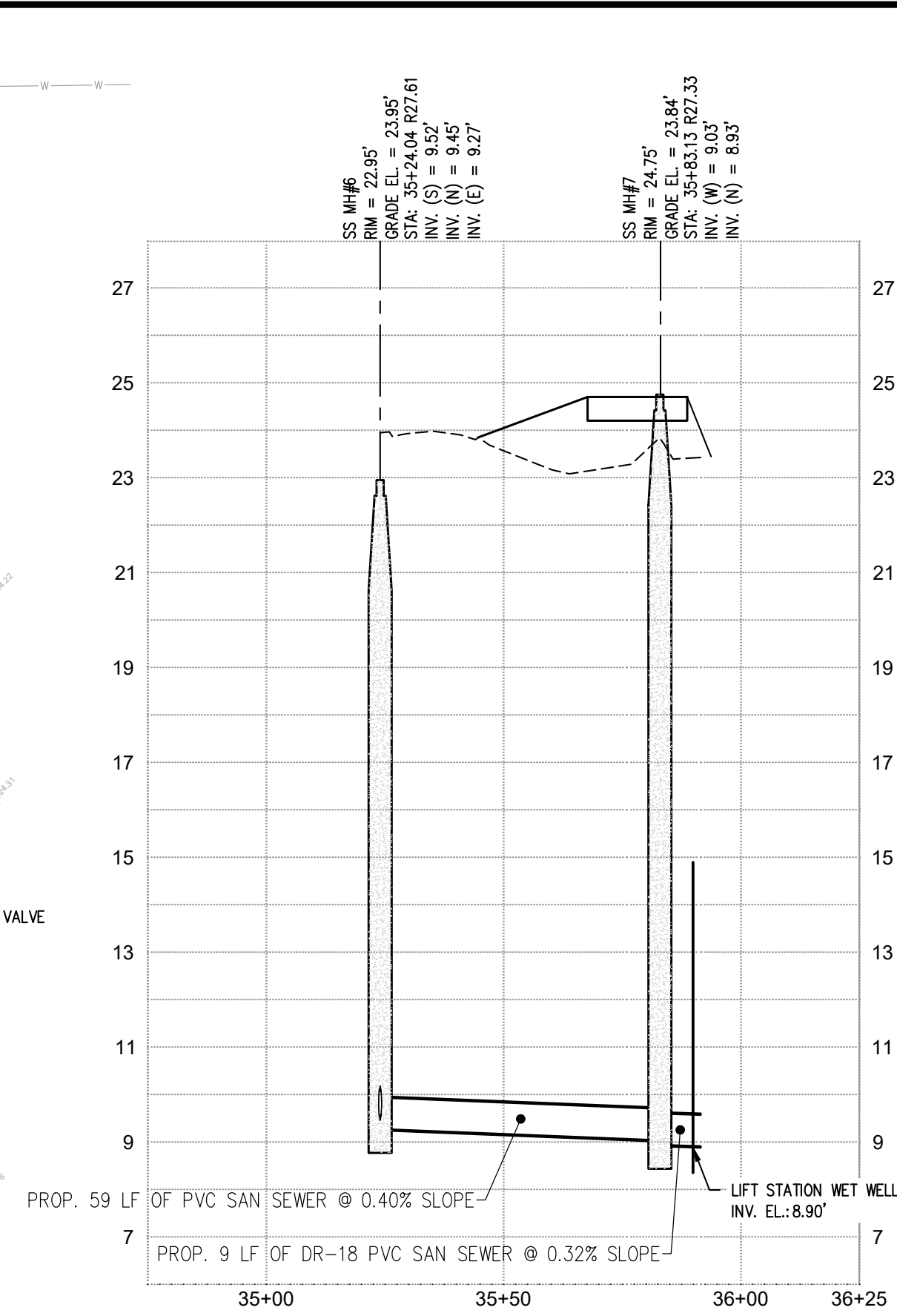
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SEE SHEET C2.2

SEE SHEET C2.1



SS MH#6 - LIFT STATION PROFILE VIEW  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

**PROPOSED LEGEND**

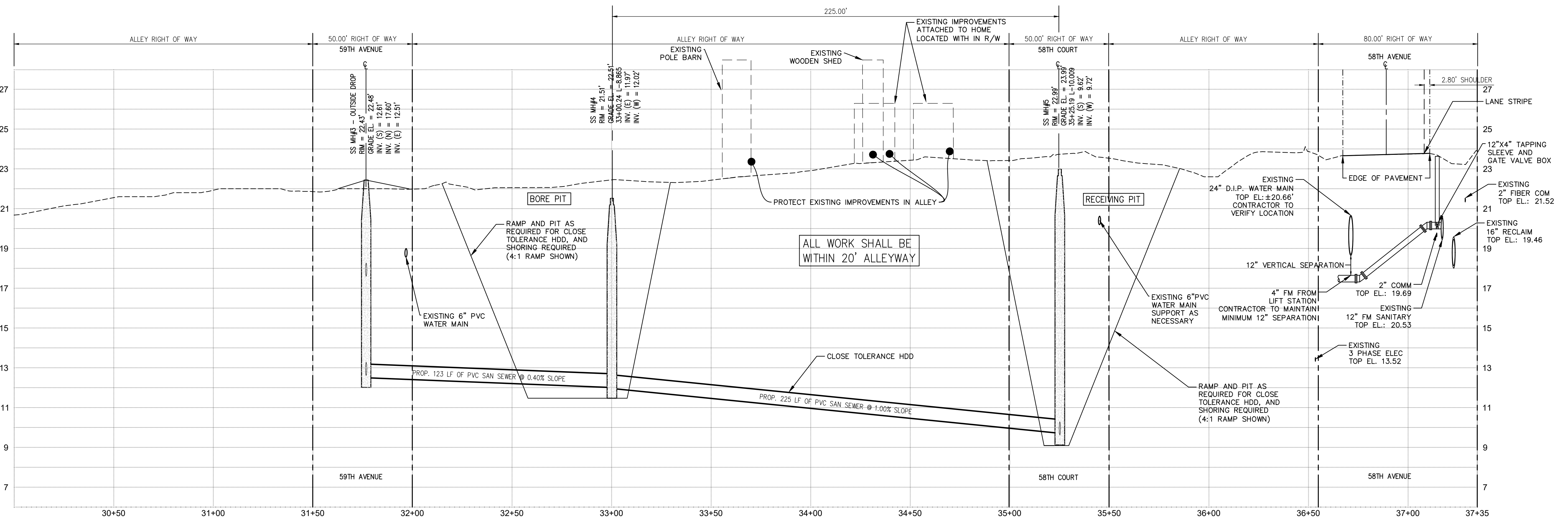
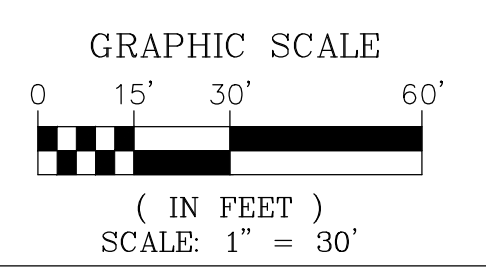
- CLEAN OUT
- SANITARY SEWER MANHOLE
- #S SANITARY SEWER PIPE
- PROPOSED ASPHALT
- ABANDONED SEPTIC TANK
- PROPOSED BORE / RECEIVING PIT
- PROPOSED CONCRETE

**EXISTING LEGEND**

- | LINE TYPE AND SYMBOL LEGEND |                       |
|-----------------------------|-----------------------|
|                             | RIGHT OF WAY          |
|                             | PROPERTY BOUNDARY     |
|                             | EASEMENT BOUNDARY     |
|                             | EDGE OF CONCRETE      |
|                             | EDGE OF PAVEMENT      |
|                             | TOP OF BANK           |
|                             | TOE OF SLOPE          |
|                             | VEGETATION LINE       |
|                             | WATER MAIN            |
|                             | WATER SERVICE         |
|                             | WATER PIPE            |
|                             | SURVEY POINT          |
|                             | SIGN                  |
|                             | MAILBOX               |
|                             | SANITARY MANHOLE      |
|                             | STORM MANHOLE         |
|                             | TRAFFIC SIGNAL BOX    |
|                             | SEWER VALVE           |
|                             | WELL                  |
|                             | WOOD POWER POLE       |
|                             | WOOD UTILITY POLE     |
|                             | LIGHT POLE            |
|                             | CONCRETE POWER POLE   |
|                             | CONCRETE UTILITY POLE |
|                             | CONCRETE LIGHT POLE   |
|                             | WATER METER           |
|                             | RAILROAD SIGNAL ARM   |
|                             | NATURAL GAS VALVE     |
|                             | GUY WIRE ANCHOR       |
|                             | WATER SPIGOT          |
|                             | GAS METER             |
|                             | GATE VALVE            |
|                             | BACK FLOW PREVENTER   |
|                             | POST                  |
|                             | TEST HOLE             |
|                             | CONCRETE              |
|                             | PAVERS                |

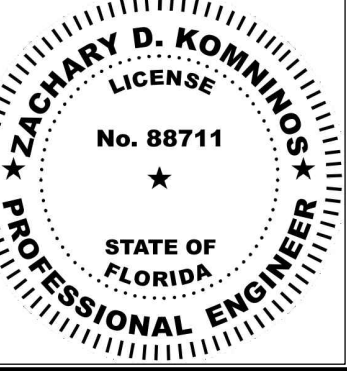
**LEGEND**

- BM — BENCHMARK
- BLOC — BUILDING
- CBS — CONCRETE BLOCK STRUCTURE
- CB — CATCH BASIN
- CMP — CORRUGATED METAL PIPE
- E — EASE
- ELMP — ELLIPTICAL CORRUGATED METAL PIPE
- ERCP — ELLIPTICAL REINFORCED CONCRETE PIPE
- FPE — FINISHED FLOOR ELEVATION
- HDPE — HIGH DENSITY POLYETHYLENE PIPE
- IR — IRON ROD
- INV — INVERT
- N — NORTH
- NAVD — NORTH AMERICAN VERTICAL DATUM OF 1988
- TRB — TRAIL
- ORB — OFFICIAL RECORD BOOK
- PC — POINT OF CURVATURE
- PED — PEDESTRIAN
- PI — POINT OF INTERSECTION
- PCC — POINT ON CURVE
- PT — POINT OF TANGENCY
- R/W — RIGHT OF WAY
- RCP — REINFORCED CONCRETE PIPE
- S — SOUTH
- W — WEST
- XWALK — CROSS WALK



Bowman Consulting Group, Ltd.  
4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
Fax: (321) 255-7751  
www.bowmanconsulting.com  
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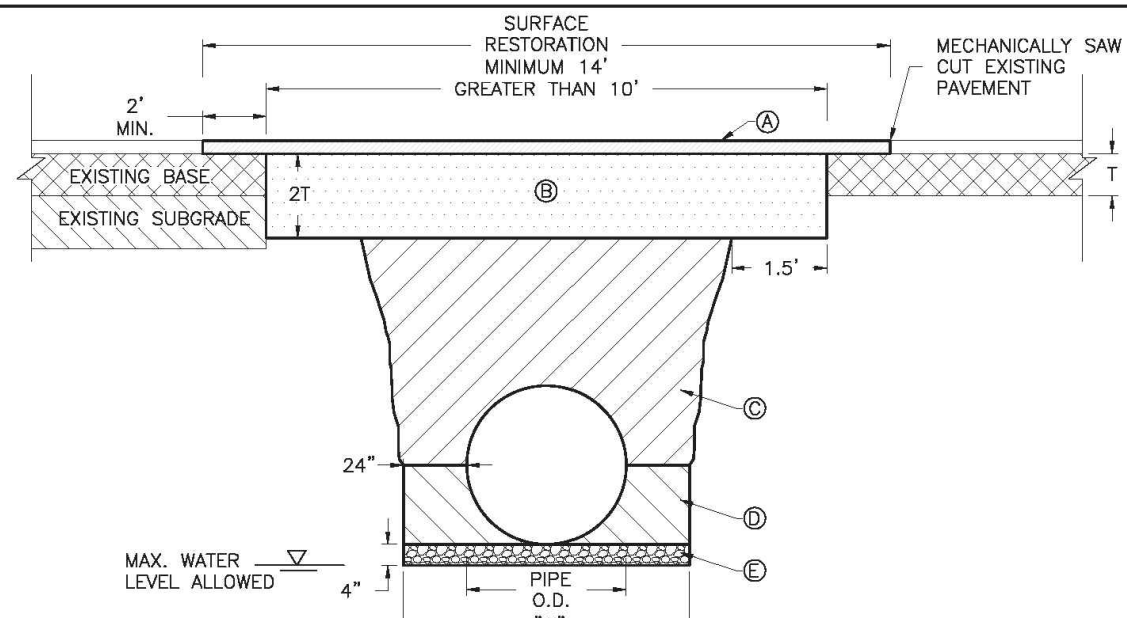
**PLAN & PROFILE**  
**WABASSO SEPTIC TO SEWER PROJECT**  
**PHASE 3B**  
**VERO BEACH, FLORIDA 32967**  
INDIAN RIVER COUNTY, FL



ZACHARY D. KOMINIOS  
LICENSE No. 88711

PLAN STATUS		
DATE	DESCRIPTION	
ELF DESIGN	VDP DRAWN	ZDK CHKD
SCALE 1" = 30'		
JOB No. 010514-01-004		
DATE April, 2022		
FILE 010514-01-004-06-PL-01		
SHEET		<b>C2.3</b>

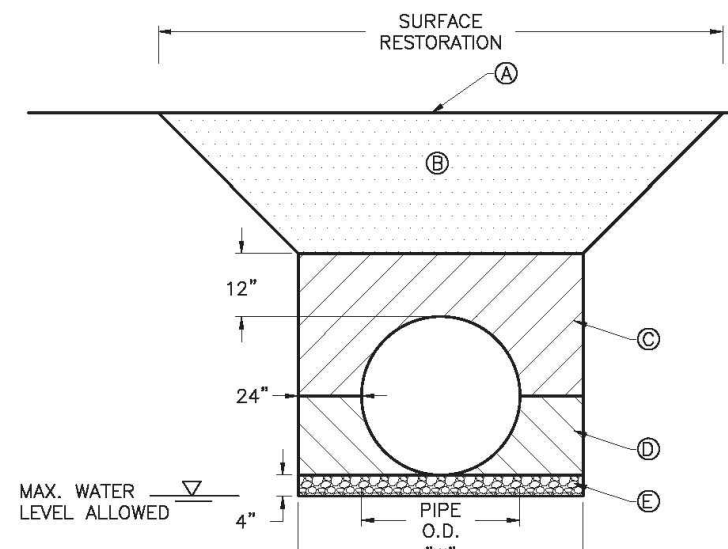
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BOWMAN CONSULTING SHALL BE WITHOUT LIABILITY TO BOWMAN CONSULTING.



**STORMWATER/UTILITY PIPE INSTALLATION**

- NOTES:
- UTILITY CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL COMPLY WITH COUNTY CODE CHAPTER 312.
  - ALL INSTALLATIONS LESS THAN 12" DIAMETER AND NON GRAVITY UTILITIES SHALL BE BY DIRECTIONAL BORE.
  - PARTIAL LANE CUTS REQUIRE A MINIMUM OF SINGLE LANE RESTORATION.
  - WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION FOR APPROVAL BY THE COUNTY ENGINEER OR DESIGNER PRIOR TO INSTALLATION.
  - SHORING MAY BE REQUIRED IN ACCORDANCE WITH ALL INDUSTRY STANDARDS.
  - NEW SURFACING MATERIALS SHALL BE CONSISTENT OR BETTER THAN EXISTING CONDITIONS AND SHALL HAVE BUTT JOINTS (2.5 INCH MINIMUM THICKNESS).
  - ALL ROADWAY RESTORATION SHALL COMPLY WITH INDIAN RIVER COUNTY PUBLIC WORKS AND FDOT STANDARDS (LATEST EDITION).
  - MINIMUM TRENCH WIDTH "W" = PIPE O.D. PLUS 2'-0" ON EACH SIDE.
  - MINIMUM EXISTING PAVEMENT DEPTH OR PER COUNTY ROADWAY DESIGN CRITERIA DETAIL, WHICHEVER IS GREATER.
  - REPLACEMENT LIMEROCK BASE WITH THICKNESS (2T) PER COUNTY ROADWAY DESIGN CRITERIA DETAIL, INSTALLED WITH MAXIMUM 6" LIFTS, MINIMUM 12" FINISHED THICKNESS. COMPACTION BY USE OF A 12 TON COMPACTORY ROLLER.
  - A.A.S.H.T.O. TYPE A-3 MATERIAL IN MAXIMUM 6" LIFTS COMPACTED AT 98% A.A.S.H.T.O. T-180.
  - A.A.S.H.T.O. TYPE A-3 MATERIAL IN MAXIMUM 4" LIFTS COMPACTED AT 98% A.A.S.H.T.O. T-180. EXCAVATABLE FLOWABLE FILL IS ALLOWED WITH PRIOR APPROVAL OF PROPOSED MATERIAL STRENGTH BY THE COUNTY ENGINEER OR DESIGNER.
  - 3/4" DIAMETER, WASHED BEDDING ROCK OR PEA ROCK WHERE UNSUITABLE BEDDING MATERIAL EXISTS OR IF DOWNSIZING IS REQUIRED. SUITABLE MATERIAL IS DEFINED AS STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION, OTHER FOREIGN FORMATIONS AND CONSTRUCTED TO UNIFORM GRADE AND LINE.

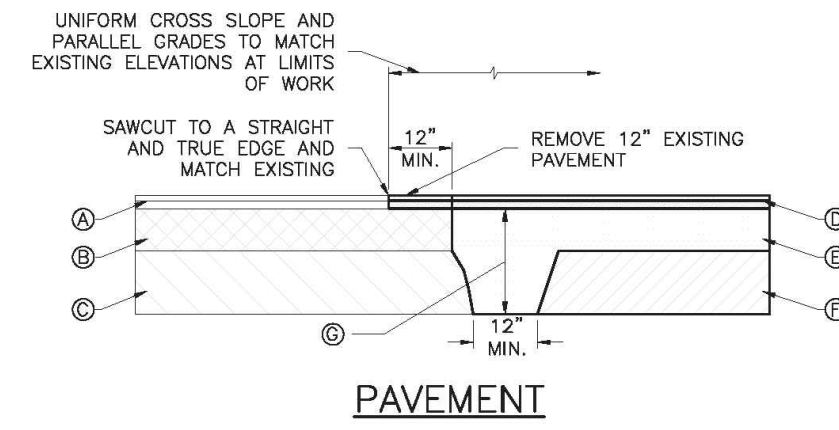
LAND DEVELOPMENT DESIGN STANDARDS AND SPECIFICATIONS		<b>TRENCH (PAVED AREAS) GREATER THAN 10' CUT</b>
DATE: 11/1/2016	James William Ennis, P.E. Florida Reg. No. 71938 Public Works - County Engineer	
INDEX: 1A		



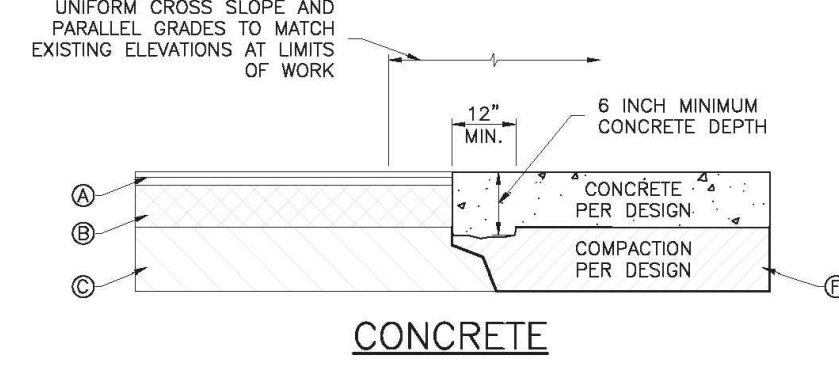
**STORMWATER/UTILITY PIPE INSTALLATION**

- NOTES:
- UTILITY CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL COMPLY WITH COUNTY CODE CHAPTER 312.
  - WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE METHOD OF CONSTRUCTION FOR APPROVAL BY THE COUNTY ENGINEER OR DESIGNER PRIOR TO INSTALLATION.
  - SHORING MAY BE REQUIRED IN ACCORDANCE WITH ALL INDUSTRY STANDARDS.
  - MINIMUM TRENCH WIDTH "W" = PIPE O.D. PLUS 2'-0" ON EACH SIDE.
  - MATCH EXISTING GROUND WITH SMOOTH, LEVEL, TRANSITION.
  - UNPAVED ROADS IN ROW SHALL CONSIST OF 8" LIMEROCK BASE OR COQUINA SHELL IN A MINIMUM OF (2) 4" LIFTS WITH A MINIMUM LBR OF 100 COMPACTED TO 98% MAXIMUM DENSITY PER A.A.S.H.T.O. T-180. WHEN INSTALLATION IS NOT LOCATED IN A TRAVEL LANE, RESTORATION SHALL BE ACCORDING TO D BELOW WITH SOD LAID WITHIN THREE DAYS OF FINAL GRADING.
  - A.A.S.H.T.O. TYPE A-3 MATERIAL IN MAXIMUM 6" LIFTS COMPACTED AT 98% A.A.S.H.T.O. T-180.
  - A.A.S.H.T.O. TYPE A-3 MATERIAL IN MAXIMUM 4" LIFTS COMPACTED AT 98% A.A.S.H.T.O. T-180. EXCAVATABLE FLOWABLE FILL IS ALLOWED WITH PRIOR APPROVAL OF PROPOSED MATERIAL STRENGTH BY COUNTY ENGINEER OR DESIGNER.
  - 3/4" DIAMETER, WASHED BEDDING ROCK OR PEA ROCK WHERE UNSUITABLE BEDDING MATERIAL EXISTS OR DOWNSIZING IS REQUIRED. SUITABLE MATERIAL IS DEFINED AS STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION, OTHER FOREIGN FORMATIONS AND CONSTRUCTED TO UNIFORM GRADE AND LINE.

LAND DEVELOPMENT DESIGN STANDARDS AND SPECIFICATIONS		<b>TRENCH (UNPAVED AREAS)</b>
DATE: 11/1/2016	James William Ennis, P.E. Florida Reg. No. 71938 Public Works - County Engineer	
INDEX: 2		



**PAVEMENT**



**CONCRETE**

- NOTES:
- EXISTING ASPHALT
  - EXISTING BASE
  - EXISTING SUBGRADE
  - PROPOSED ASPHALT PER COUNTY SINGLE FAMILY DRIVEWAY DETAIL.
  - PROPOSED BASE PER COUNTY SINGLE FAMILY DRIVEWAY DETAIL.
  - PROPOSED SUBGRADE/SUBBASE PER SINGLE FAMILY DRIVEWAY DETAIL.
  - ASPHALT BUTT JOINT TO BE A MINIMUM LBR 100 COMPACTED IN 6" LIFTS TO 98% MAXIMUM DENSITY PER A.A.S.H.T.O. T-180 WITH A MINIMUM DEPTH OF 12".

LAND DEVELOPMENT DESIGN STANDARDS AND SPECIFICATIONS		<b>BUTT JOINT (RESIDENTIAL)</b>
DATE: 11/1/2016	James William Ennis, P.E. Florida Reg. No. 71938 Public Works - County Engineer	
INDEX: 8		

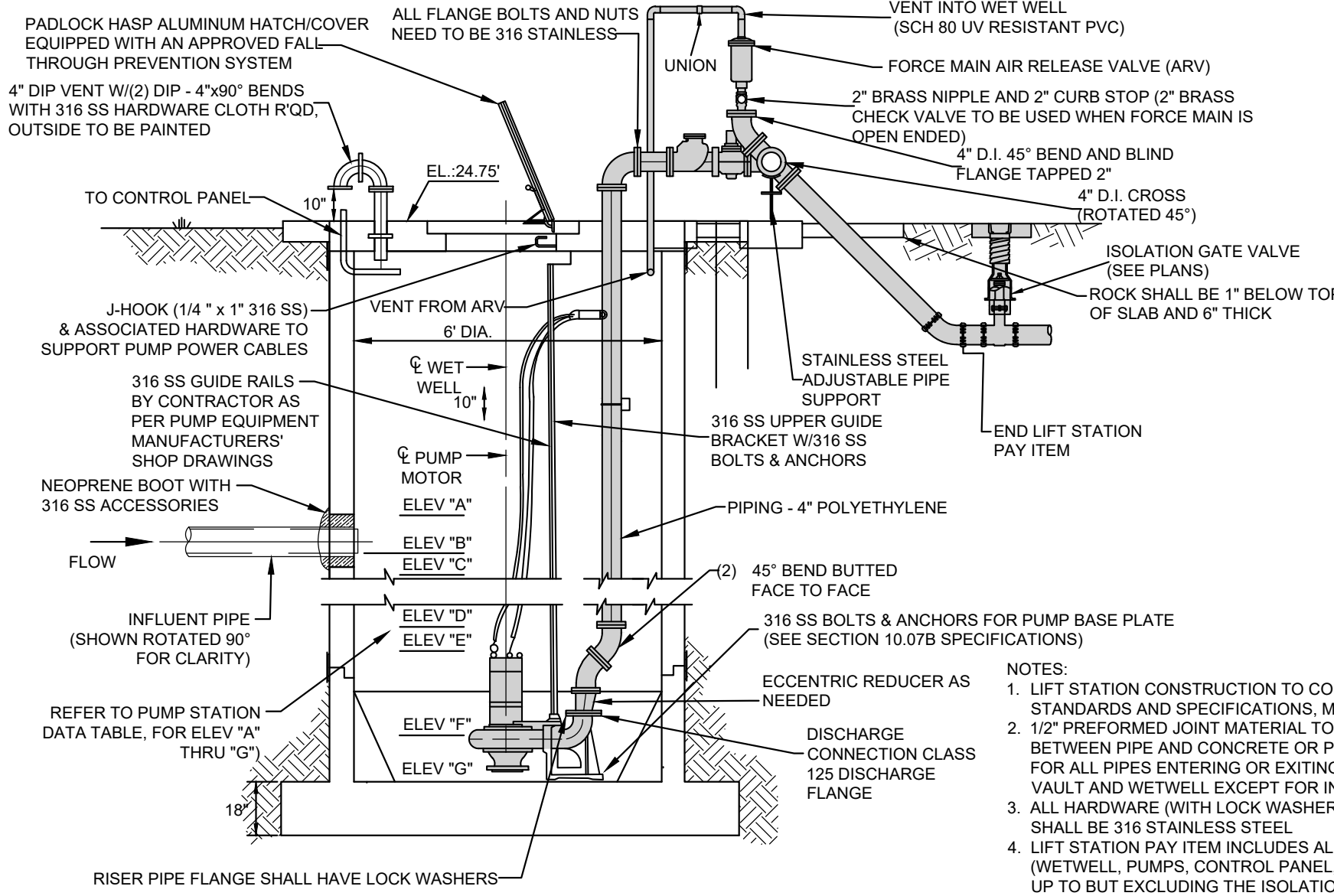
ROAD CLASSIFICATION	ASPHALT	BASE	SUBGRADE/SUBBASE
	TYPE AND THICKNESS	THICKNESS	THICKNESS
1.5A.7 PRIVATE LOCAL SUBDIVISION	(1) 1.5" LAYER OF SP-9.5 (2) 1" LAYERS OF SP-9.5 1" OF SP-9.5 OVER 1.25" OF SP-12.5	6"	8"
2A.7 PUBLIC LOCAL	(2) 1" LAYERS OF SP-9.5 1" OF SP-9.5 OVER 1.5" OF SP-12.5	8"	12"
2A.7 PUBLIC COLLECTOR OR ARTERIAL RIGHT TURNLANE	1" OF SP-9.5 OVER 1.5" OF SP-9.5 1" OF SP-9.5 OVER 1.5" OF SP-12.5 (1) 2.5" LAYER OF SP-12.5 (2) 1.5" LAYERS OF SP-9.5	10"	12"
2.5A.7 PUBLIC ARTERIAL	1" OF SP-9.5 OVER 2" OF SP-12.5 (2) 1.5" LAYER OF SP-12.5	10"	12"

- NOTES:
- IRC 913.09(3)(j)(1)
  - FDOT TOPIC #625-010-002, FDOT FLEXIBLE PAVEMENT DESIGN MANUAL, TABLE 5.11, PG 5-32 (LATEST EDITION).
  - PRIVATELY OWNED AND MAINTAINED ROADWAYS SHALL HAVE A STABILIZED SUB-GRADE WITH A LIMEROCK BEARING RATIO OF 40 AND SHALL BE COMPACTED TO NINETY-EIGHT (98) PERCENT MAXIMUM DRY DENSITY AS ESTABLISHED BY A.A.S.H.T.O. PROCEDURE T-180.
  - PRIVATELY OWNED AND MAINTAINED ROADWAYS SHALL HAVE A BASE CONSISTING OF CEMENTED COQUINA SHELL OR LIMEROCK WITH A LIMEROCK BEARING RATIO OF 100 MEETING FDOT SPECIFICATIONS COMPACTED TO NINETY-EIGHT (98) PERCENT DRY DENSITY AS ESTABLISHED BY A.A.S.H.T.O. PROCEDURE T-180.
  - ALL ASPHALT MIXES TO MEET FDOT STANDARD SPECIFICATIONS SECTION 334 - (LATEST EDITION).
  - ASPHALT TRAFFIC LEVEL C FOR ALL CONDITIONS EXCEPT THAT ARTERIAL MAY REQUIRE TRAFFIC LEVEL D. SP-9.5 SHALL NOT BE INSTALLED IN TRAFFIC LEVEL C CONDITIONS.
  - PUBLICLY OWNED AND MAINTAINED ROADWAYS SHALL MEET FDOT SPECIFICATIONS FOR MATERIAL AND COMPACTION.

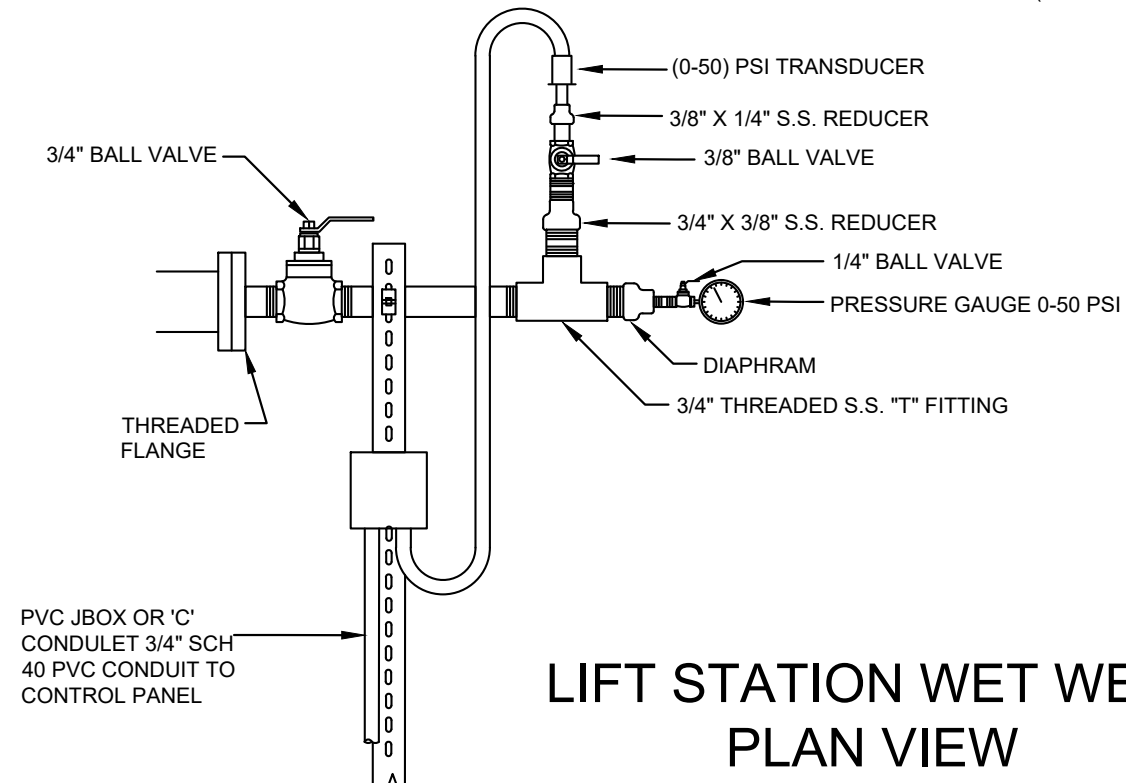
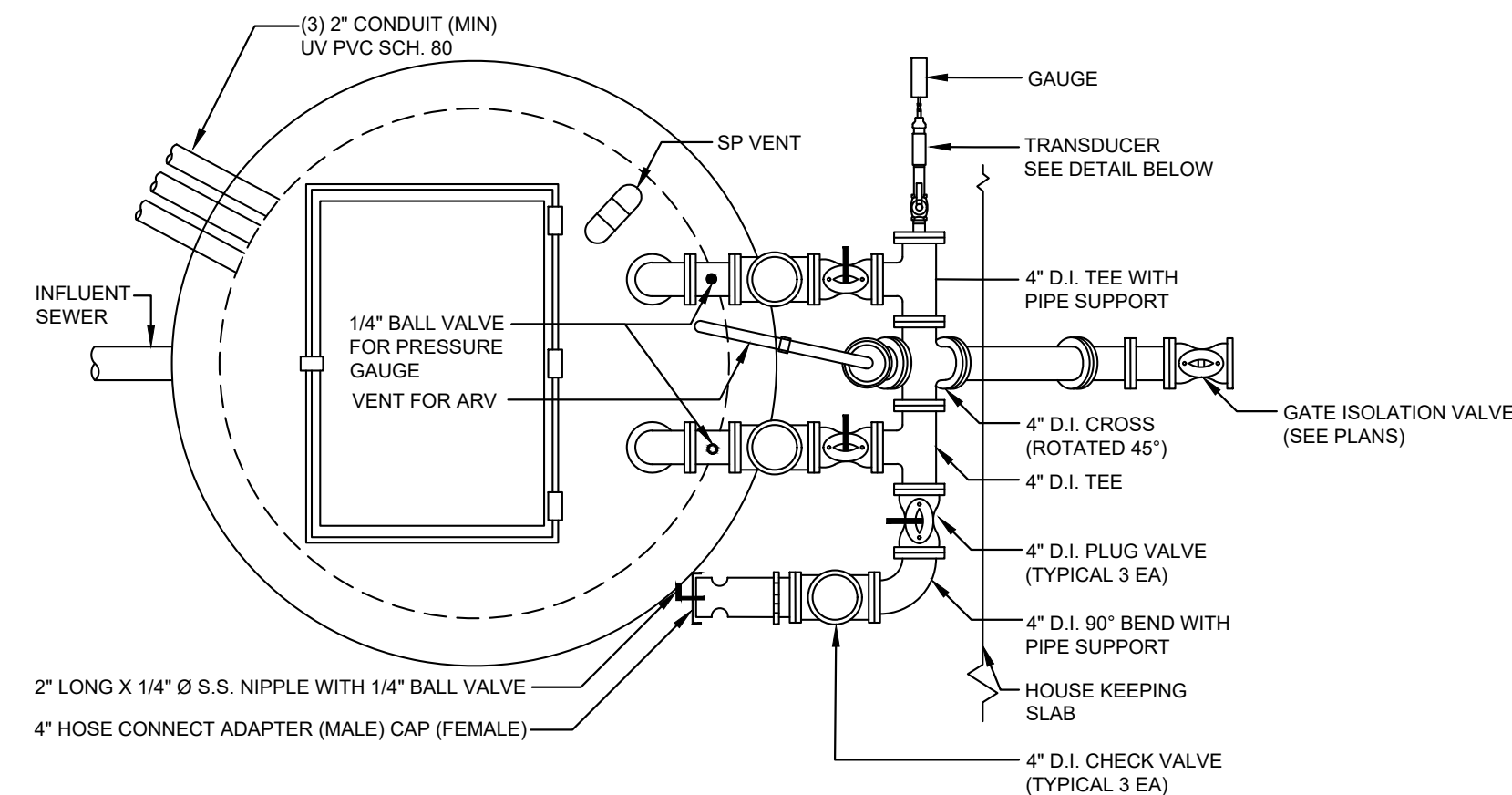
LAND DEVELOPMENT DESIGN STANDARDS AND SPECIFICATIONS		<b>ROADWAY DESIGN CRITERIA</b>
DATE: 11/1/2016	James William Ennis, P.E. Florida Reg. No. 71938 Public Works - County Engineer	
INDEX: 16		

PUMPING STATION DATA TABLE			
LIFT STATION NUMBER			
PRIMARY CONDITION	PUMPING CAPACITY	GPM	140
	TOTAL HEAD ±	FEET	110'
	EFFICIENCY	%	-
INTERMEDIATE CONDITION	PUMPING CAPACITY	GPM	-
	TOTAL HEAD ±	FEET	-
	EFFICIENCY	%	-
SECONDARY CONDITION	PUMPING CAPACITY	GPM	220
	TOTAL HEAD	FEET	95'
	EFFICIENCY	%	-
MINIMUM SOLIDS PASS. IMPELLER		INCHES	-
PUMP MODEL NUMBER		NO.	XP80E
PUMP IMPELLER		INCHES	1.77
PUMP SPEED (DESIGN)		R.P.M.	3520
MOTOR NAMEPLATE H.P.		H.P.	16.8
MAXIMUM PUMP BRAKE H.P.		H.P.	-
MAXIMUM NPSPHR @ SECONDARY		FEET	-
MAXIMUM MOTOR SPEED		R.P.M.	-
INITIAL INFLUENT FLOW RATE PEAK		G.P.M.	-
MINIMUM PUMP CYCLE TIME		MINS.	-
ALARM SIGNAL ON ELEVATION		ELEV. "A"	9.5'
INFLUENT PIPE INVERT ELEVATION		ELEV. "B"	8.90'
LAG PUMP ON ELEVATION		ELEV. "C"	8.90'
LEAD PUMP ON ELEVATION ±		ELEV. "D"	8.40'
PUMPS OFF ELEVATION		ELEV. "E"	7.40'
ALARM SIGNAL ON ELEVATION		ELEV. "F"	6.90'
BOTTOM OF WET WELL		ELEV. "G"	4.80'
PUMP MANUFACTURER			HYRDA SERVICE

REFER TO SPECIFICATION SECTION 02635 SUBMERSIBLE WASTEWATER PUMPING STATION



**PUMP, PIPING & MECHANICAL DETAILS - SECTION VIEW**



**LIFT STATION WET WELL PLAN VIEW**

**Bowman**  
CONSULTING

Bowman Consulting Group, Ltd.  
4450 W. Eau Gallie Blvd  
Suite 144  
Melbourne, FL 32934  
Phone: (321) 255-5434  
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WABASSO SEPTIC TO SEWER PROJECT  
PHASE 3B  
VERO BEACH, FLORIDA 32967  
INDIAN RIVER COUNTY, FL

ZACHARY D. KOMNINOS  
LICENSE No. 88711  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

ZACHARY D. KOMNINOS  
LICENSE No. 88711

PLAN STATUS		
DATE	DESCRIPTION	
ELF	VDP	ZDK
DESIGN	DRAWN	CHKD
SCALE NONE		
JOB No. 010514-01-004		
DATE May, 2022		
FILB0514-01-004-00-DTL-000		

SHEET **C3.0**