RFP 22-009
KFC Force Main Extension

ADDENDUM #1
Questions & Answers

1) QUESTION:

What percentage of the bid bond is required?

ANSWER:

There is no bid bond requirement for this project. The performance and payment bonds will each be in an amount equal to 100% of the price specified in the contract.

2) QUESTION:

Bid Items 5 through 13 specify 6" DR11 HDPE force main installed via Directional Bore. Can 6" DR18 Fusible PVC® pipe be used as an "equal" to the specified HDPE pipe for the Directional Bore sections of the project?

ANSWER:

The requirement is for 6" DR11 HDPE. No other substitutions will be accepted.

3) QUESTION:

Would it be acceptable to substitute 6" HDPE DR11 green stripe pipe for most of the project?

ANSWER:

The requirement is for 6" DR11 HDPE. No other substitutions will be accepted.

4) QUESTION:

Could you please provide the plans, specs and bid forms for this project?

ANSWER:

Plans and bid form attached. For specs, please refer to Section 3 (Technical Specifications) of the bid document.

5) QUESTION:

Do you have a planholder's list?

ANSWER:

There is no planholder's list available for this project.

ACKNOWLEDGEMENT

It is the vendor's responsibility to ensure their receipt of all addenda, and to clearly acknowledge all addenda within their initial bid or proposal response in the space provided on the Submittal Checklist included in the original solicitation document. Failure to do so may subject the bidder to disqualification.

PLANS OF PROPOSED

CITY OF SEBRING FORCE MAIN EXTENSION -- CONNECTION TO AN EXISTING GRAVITY SEWER SYSTEM

DIRECTIONAL BORE A 6" FORCE MAIN FROM THE NORTHERLY SIDE OF THE ENTRANCE OF SEBRING'S KENTUCKY FRIED CHICKEN RESTAURANT ; THENCE SOUTHEASTERLY ALONG THE EASTERLY R/W OF U.S. 27 A DISTANCE OF 2300± LF; THENCE SOUTHEASTERLY ALONG THE SAID EASTERLY R/W 50± TO A POINT ON THE SOUTHERLY LINE OF AN EXISTING EASEMENT; THENCE EASTERLY ALONG SAID SOUTHERLY EASEMENT LINE A DISTANCE OF 520 LF TO A POINT ON THE WESTERLY R/W OF LAKEVIEW DRIVE; THENCE TIE 6" FM INTO EXISTING MAN HOLE BY MEANS OF OPEN CUTTING LAKEVIEW DRIVE OR DRILLING INTO MANHOLE, SEBRING, FLORIDA HIGHLANDS COUNTY, FLORIDA. SECTIONS 25 & 26 TOWNSHIP 34S RANGE 28E.

CONSTRUCTION NOTES:

--ELEVATIONS SHOWN ARE A REPRESENTATION OF FIELD CONDITIONS AND IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY INFORMATION IN FIELD. THE INTENT FOR THE PROPOSED CONSTRUCTION IS TO CONSTRUCT THE FORCE MAIN AND WATER LINE WITH A MINIMUM OF 3' OF COVER AND A MINIMUM OF 6' CLEAR BETWEEN THE WATER MAIN AND THE FORCE MAIN.

--THESE PLANS HAVE BEEN DRAWN TO DEPICT THE REQUIRED CONSTRUCTION WITHIN THE PROJECT AREA. IN CERTAIN CASES THE SIZE AND/OR LOCATION OF PROPOSED CONSTRUCTION HAS BEEN BLOWN UP TO SHOW ITEMS. THEREFORE, LOCATIONS ON THE DRAWINGS MAY NOT BE EXACT AND SHOULD NOT BE SCALED FOR CONSTRUCTION. THE PROPOSED FORCE MAIN AND WATER LINE WILL NEED TO BE CONSTRUCTED USING EXISTING SITE CONDITIONS AND CURRENT F.D.O.T. CONSTRUCTION REQUIREMENTS AND REGULATIONS.

--THE UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS ARE REPRESENTATIONAL ONLY. FIELD INVESTIGATION FOR EXACT LOCATIONS IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

GOVERNING SPECIFICATIONS: STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, DATED 2016, SUPPLEMENTS AND SPECIAL PROVISIONS THERETO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

AT LEAST 72 HOURS IN ADVANCE OF BEGINNING CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL CONTACT THE LOCAL MAINTENANCE FDOT ENGINEER'S OFFICE TO SECURE GENERAL USE PERMITS AND/OR OTHER PERMITS AS REQUIRED FOR WORKING WITHIN THE DEPARTMENT'S RIGHT-OF-WAY.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 1/1/16
FOR DESIGN STANDARDS MODIFICATIONS, CLICK ON "DESIGN STANDARDS" AT THE FOLLOWING WEB SITE: http://www.dot.state.fl.us/rddesign/

IMPORTANT:
THE INFORMATION AND DESIGN SHOWN ON THESE DRAWINGS IS BASED ON THE BEST AVAILABLE INFORMATION PROVIDED FOR DESIGN. THE DRAWING IS TO SCALE AS MUCH AS POSSIBLE; HOWEVER NO MEASUREMENTS SHOULD BE MADE BY SCALING FROM THESE DRAWINGS AS SOME ITEMS MAY BE NOT TO SCALE FOR DRAWING CLARITY. ANY QUESTIONS OR CONFLICTS SHOULD BE BROUGHT TO THE ENGINEER IMMEDIATELY FOR CLARIFICATION OR RESOLUTION. POLSTON ENGINEERING INC. SHALL NOT BE RESPONSIBLE FOR ANY ERRORS MADE BY OTHERS CAUSED BY MAKING ASSUMPTIONS ABOUT THE PLANS OR ERRORS CAUSED BY SCALING THE PLANS. ALL CONSTRUCTION SHALL FOLLOW THE ACCEPTED SAFETY PROCEDURES AND CONSTRUCTION TECHNIQUES AS REQUIRED BY ANY APPLICABLE GOVERNMENT STANDARDS.

PROJECT LOCATED IN SECS. 25 & 26 TWP. 34S RGE. 28E
HIGHLANDS COUNTY, FLORIDA

PROPOSED ±2900 L.F. OF 6" SEWER FORCE MAIN

FORCE MAIN: 2900 LF TOTAL FORCE MAIN LENGTH

BEING : 880 ~~755~~ LF OF 6" DR-18 C-900 GREEN PVC
2020 ~~2045~~ LF OF 6" SDR 11 H.D.P.E. DIR. BORE PIPE

BORE #1 STARTING KENTUCKY FRIED CHICKEN	160 LF
BORE #2 SANTA MARIA WAY	80 LF
BORE #3 BASSET AUDIO / CAMPBELL MOTORS	200 LF
BORE #4 TIRES PLUS /DOLLAR GENERAL	280 LF
BORE #5 VICKI DRIVE / SONIC DRIVE IN	285 LF
BORE #6 IHOP/GRIFFIN CARPET MART	295 LF
BORE #7 ALAN JAY TOYOTA	120 LF
BORE #8 TIRE KINGDOM	150 LF
BORE #9 DRAINAGE EASEMENT	450 LF
TIE INTO MAN HOLE BY DRILLING OR OPEN CUT	100 LF

PROJECT: CITY OF SEBRING 6" FORCE MAIN EXTENSION

UTILITY PROVIDER: CITY OF SEBRING UTILITIES DEPARTMENT
CONTACT: BOB BOGGUS.
321 NORTH MANGO STREET
SEBRING, FL 33870
863-471-5112

ENGINEER: ROGER DALE POLSTON, P.E.
POLSTON ENGINEERING, INC.
P.O. BOX 588
SEBRING, FL 33871-0588
(863) 385-5564
(863) 385-2462 FAX
dale@polstonengineering.com

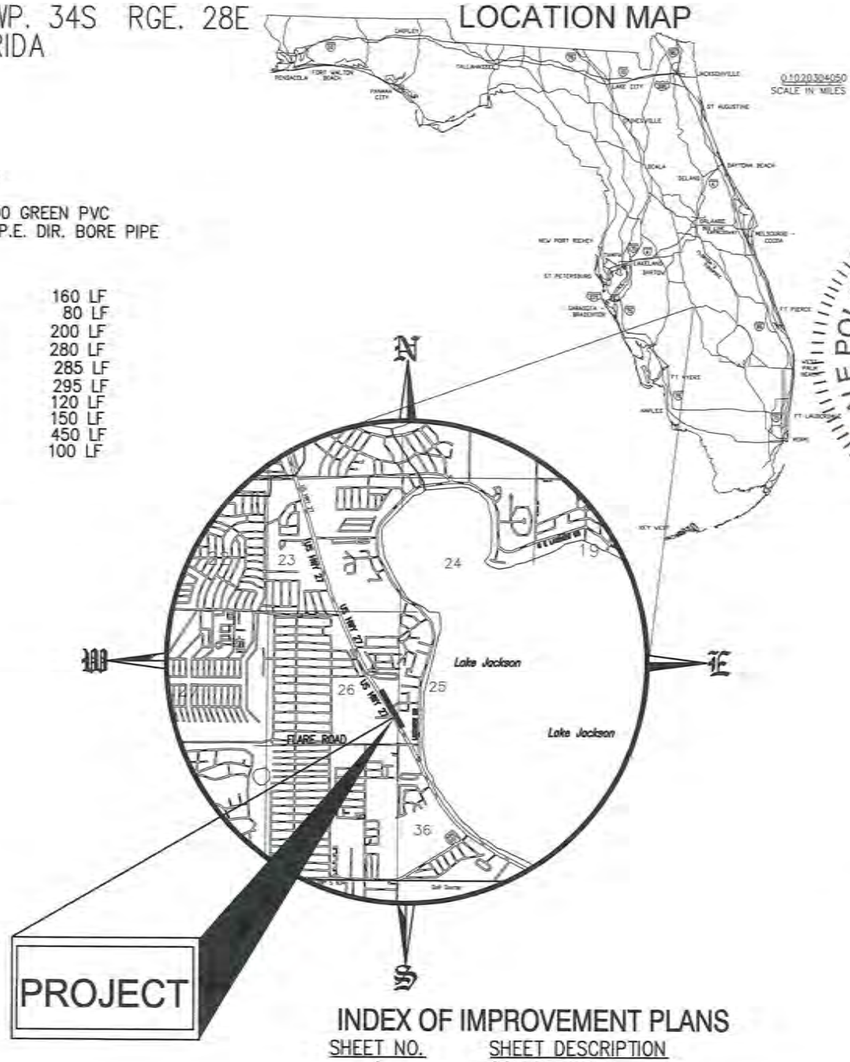
SURVEYOR: GARY L. GERMAINE
GERMAINE SURVEYING, INC
3803 KENILWORTH BLVD.
SEBRING, FLORIDA 33870
813-385-6856
office@germainesurveying.com

CONTRACTOR: PROJECT WILL BE PUT OUT FOR BID

FDEP MATERIALS LIST:

FORCE MAIN	2900 FEET TOTAL
6" SDR 11 HDPE	2020 FEET
6" DR 18 PVC	880 FEET
6" GATE VALVES	2
AIR RELEASE VALVES	6

LOCATION MAP



INDEX OF IMPROVEMENT PLANS

ALWAYS CALL 811 TWO FULL BUSINESS DAYS BEFORE YOU DIG

Sunshine811.com

DATE	REMARK	DR	CH
2-15-17	1 FDOT SUBMITTAL	MLW	
04-APR-17	2 COVER FOR PAVEMENT MODIFICATIONS	MLW	

CERTIFICATE OF AUTHORIZATION #28868
ROGER DALE POLSTON, P.E. #33222
MARVIN LUTHER WOOTEN, JR. #49838

ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

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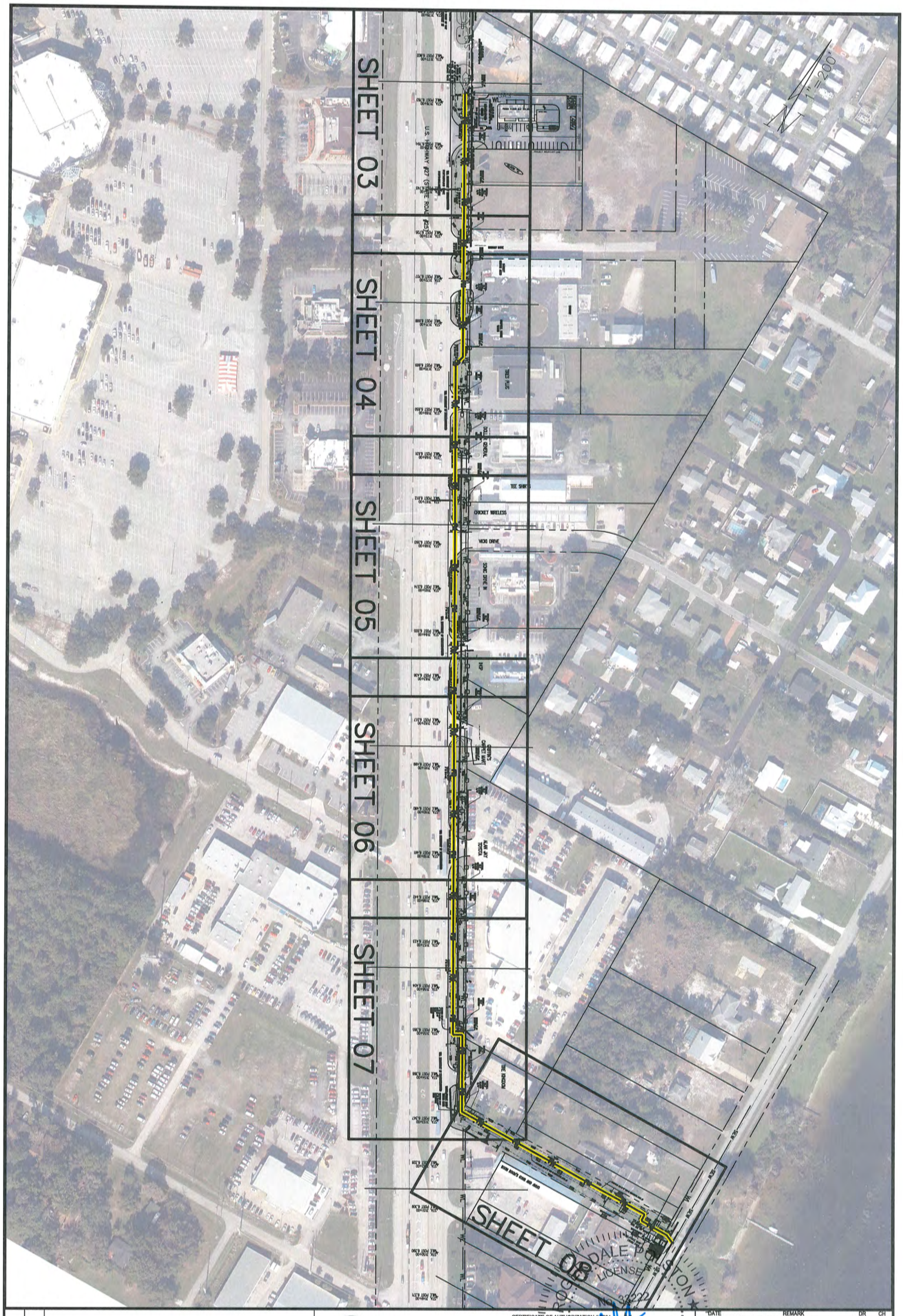
Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-5564 PHONE - 863-385-2462 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE N.T.S.

SHEET 1 OF 19



KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE 1"=200'

SHEET 2 OF 19

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CERTIFICATE OF AUTHORIZATION #3564
ROGER DALE POLSTON P.E. #43223
MARVIN LUTHER WOLFE P.E. #44030

ROGER DALE POLSTON LICENSE NO. 43223 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE	REMARK	DR	CH
2-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT, MODIFICATIONS	MLW	

KENTUCKY FRIED CHICKEN KFC

FINISH FLOOR ELV 134.25

SIGN AREA

STOP

SEPTIC

PROJECT

BLOCK "A"

C-26-34-28-010-00AO-0030
ARNOLD & SONS LLC
960 US 27 N

C-26-34-28-010-00AO-0020
DRJR HOLDINGS IV LLC
1010 US 27 N

N
1"=40'

PROPOSED 2" AIR RELEASE VALVE

INSTALL SILT SCREEN

INSTALL SILT SCREEN ALONG R/W

INSTALL SILT SCREEN

PROPOSED 2" AIR RELEASE VALVE

PROPOSED 2" AIR RELEASE VALVE

INVERT=131.23' (18" RCP)

INVERT=129.64' (18" RCP)
TOP=131.79'

INVERT=128.76' (18" RCP)

OVER-HEAD POWER LINES

PROPOSED 160 LF 6" SDR 11 DIRECTIONAL BORE #1

PROPOSED 146 LF 6" DR 18 C-900

PROPOSED 80 LF 6" SDR 11 DIRECTIONAL BORE #2

PROPOSED 10 L DR 18 C-900

START OF 6" FORCE MAIN 5 FEET OF 6" DR18 C-900, ADD END CAP AND ADD 2" AIR RELEASE VALVE

32.55'

32.55'

E.O.P.

E.O.P.

WHITE LINE

WHITE LINE

200' PUBLIC RIGHT OF WAY
U.S. HIGHWAY 27

U.S. HIGHWAY 27 NORTHBOUND
NORTHBOUND LANE
NORTHBOUND LANE

STA. 3178+00
MILE POST 6.821

STA. 3177+00
MILE POST 6.802

STA. 3176+00
MILE POST 6.783

STA. 3175+00
MILE POST 6.764

STA. 3174+00
MILE POST 6.745

STA. 3173+00
MILE POST 6.726

U.S. HIGHWAY #27 (STATE ROAD #25)

DATE	REMARK	DR	CH
2-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

DALE POLSTON
No. 33222
STATE OF FLORIDA
PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION # 6604
ROGER DALE POLSTON, P.E. # 33222
MARVIN LUTHER WOLFE, P.E. # 44809

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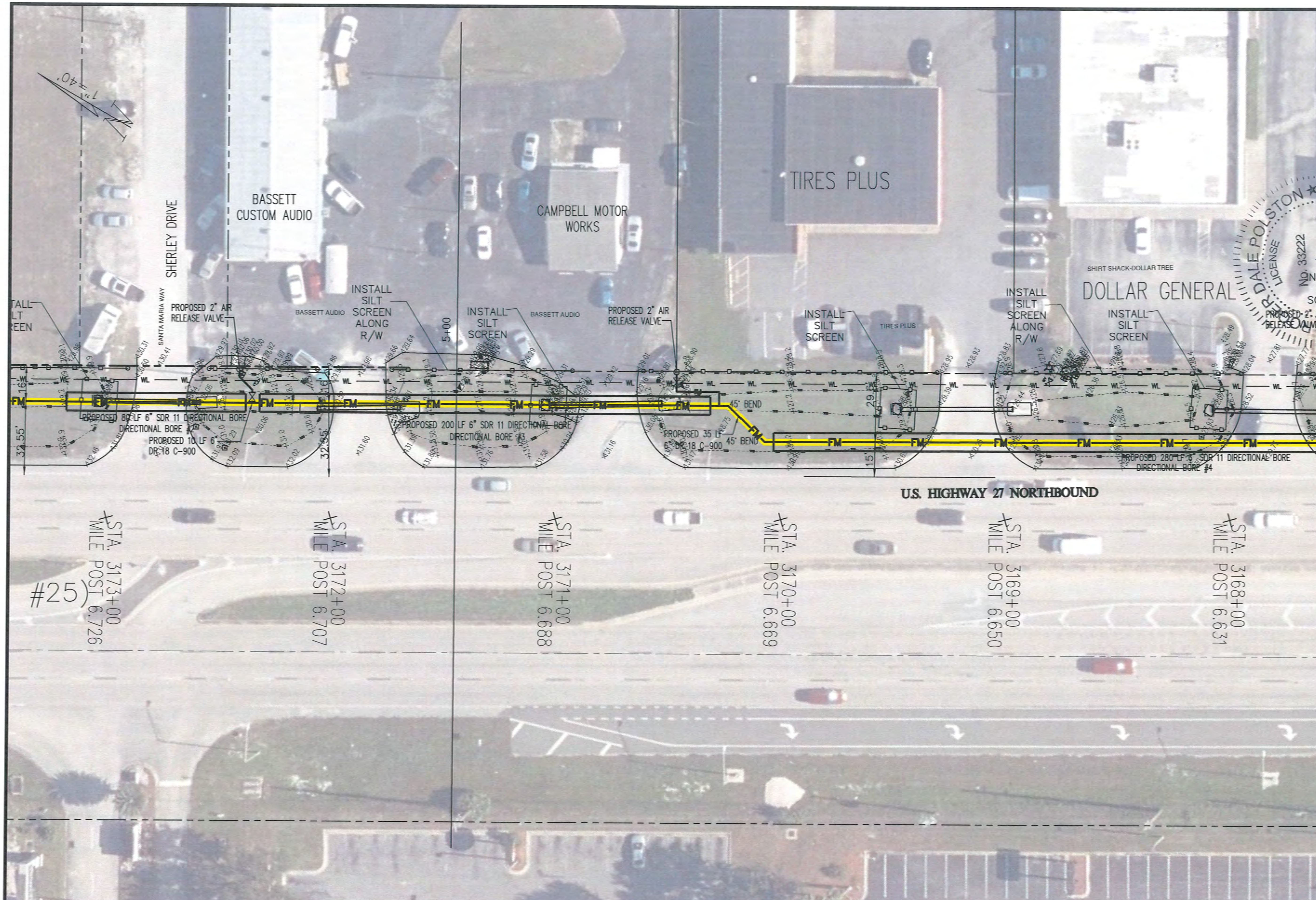
863-385-6064 PHONE • 863-385-2402 FAX

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 18007

DRAWING SCALE
1"=40'

SHEET
3 OF 19



ROGER DALE POLSTON
LICENSE No. 33222
STATE OF FLORIDA
PROFESSIONAL ENGINEER

DATE	REMARK	DR	CH
	FDOT SUBMITTAL	M.W.	
	COVER FOR PAVEMENT MODIFICATIONS	M.W.	

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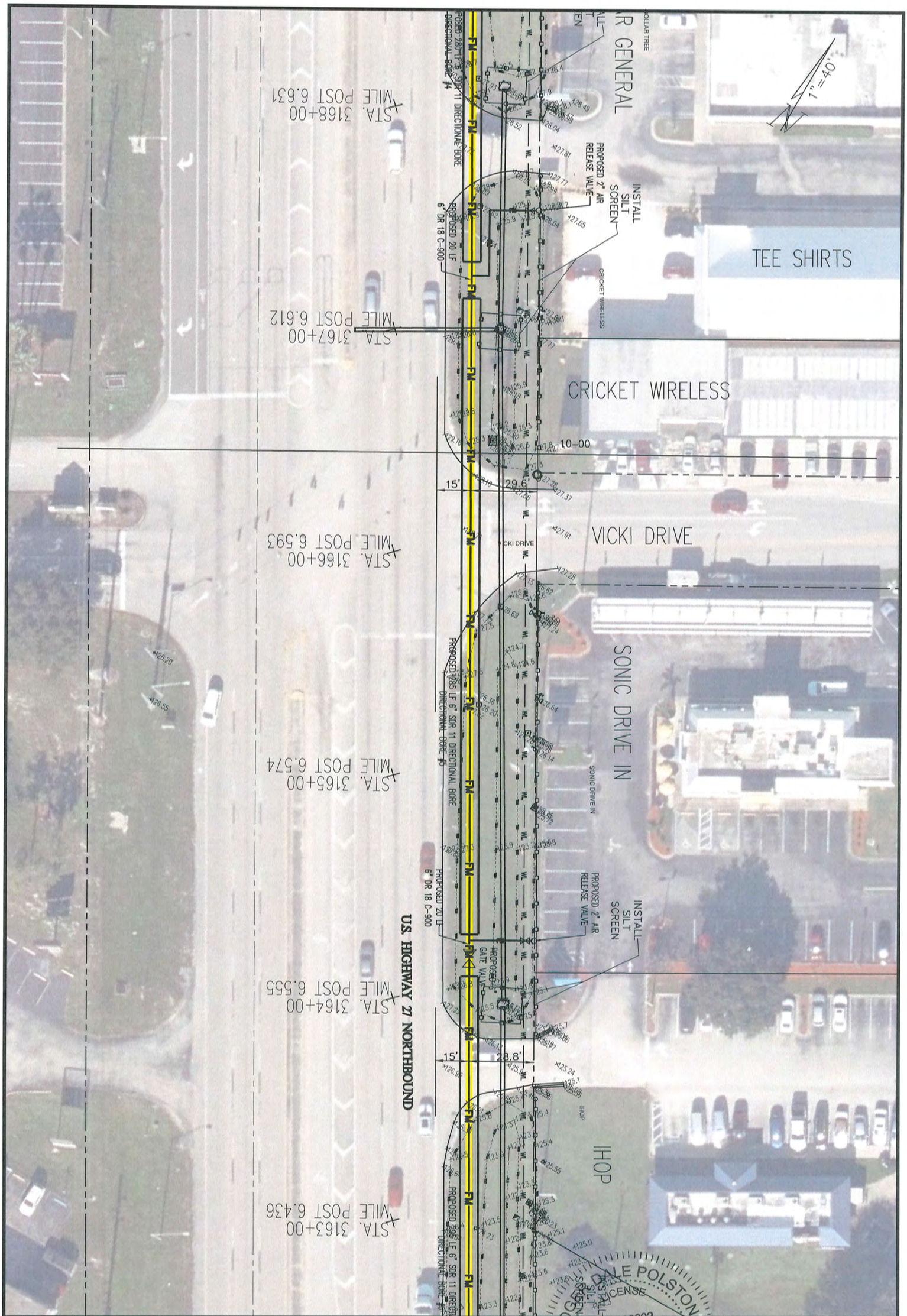
ENGINEER JOB # 21034

KFC FORCE MAIN TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE 1"=40'

SHEET 4 OF 19



KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE 1"=40'

SHEET 5 OF 19

Polston Engineering Inc.
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CERTIFICATE OF AUTHORIZATION # 3222
ROGER DALE POLSTON P. E. # 37122
MARVIN LUTHER WOLFE P.E. #46620

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ROGER DALE POLSTON LICENSE NO. 37122 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE	REMARK	DR	CH
2-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT, MODIFICATIONS	MLW	

IHOP

INSTALL SILT SCREEN

GRIFFIN'S CARPET MART

GRIFFIN'S CARPET MART

PROPOSED 2" AIR RELEASE VALVE

15+00

INSTALL SILT SCREEN ALONG R/W

ALAN JAY TOYOTA

ALAN JAY TOYOTA

INSTALL SILT SCREEN ALONG R/W

INSTALL SILT SCREEN

28.8'

15'

PROPOSED 395 LF 6" SDR 11 DIRECTIONAL BORE
DIRECTIONAL BORE #6

PROPOSED 140 LF
6" DR 18 C-900

PROPOSED 120 LF 6" SDR 11 DIRECTIONAL BORE
DIRECTIONAL BORE #7

U.S. HIGHWAY 27 NORTHBOUND

STA. 3163+00
MILE POST 6.436

STA. 3162+00
MILE POST 6.517

STA. 3161+00
MILE POST 6.499

STA. 3160+00
MILE POST 6.480

STA. 3159+00
MILE POST 6.461

STA. 3158+00
MILE POST 6.442

DATE	REMARK	DR	CH
2-15-22	FDOT SUBMITTAL	M.W	
06-APR-22	COVER FOR PAVEMENT MODIFICATIONS	M.W	

CERTIFICATE OF AUTHORIZATION # 6804
ROGER DALE POLSTON, P.E. # 33222
MARVIN LUTHER WOLFE, P.E. # 46034

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ROGER DALE POLSTON
LICENSE
No. 33222
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
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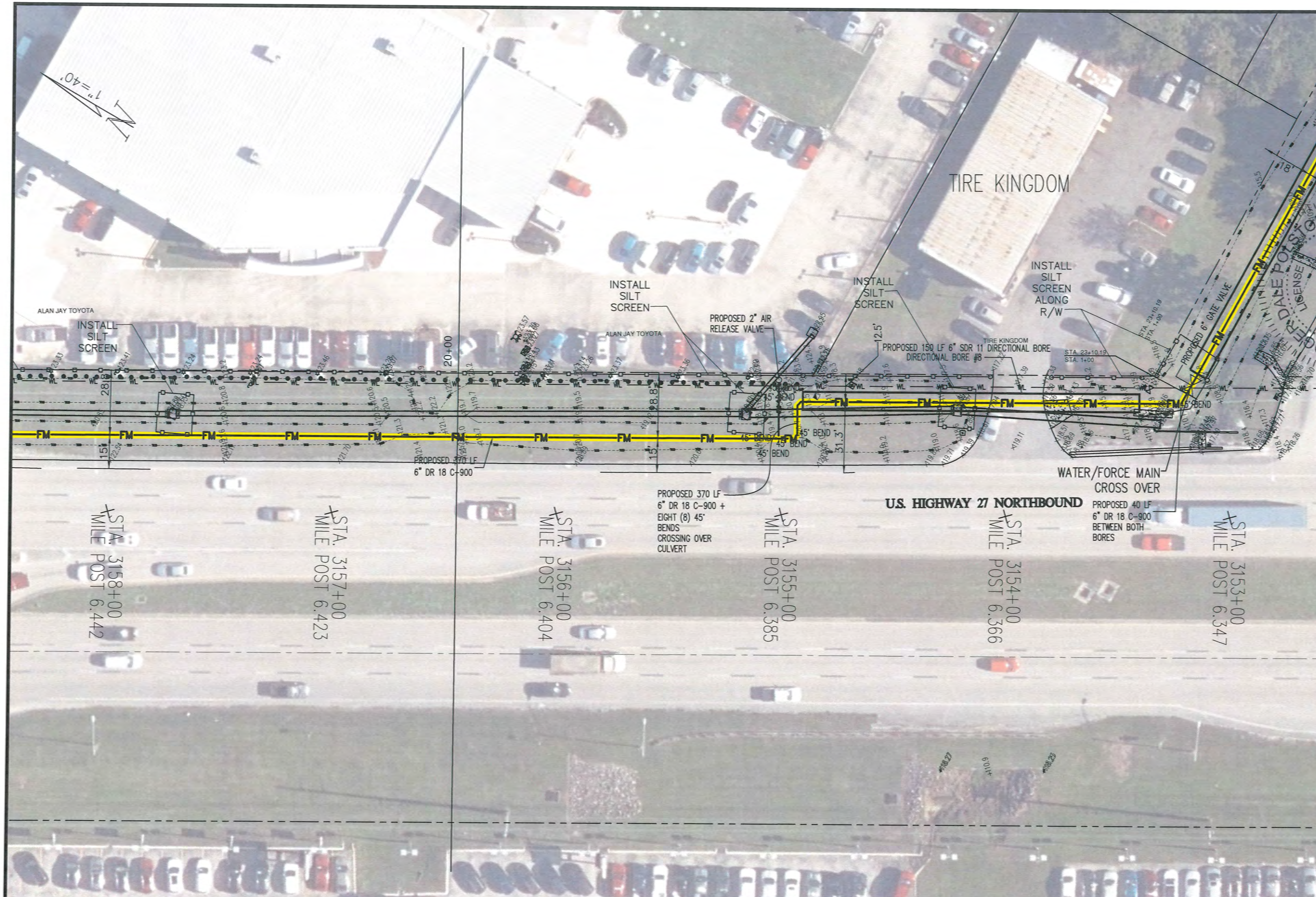
863-385-6064 PHONE – 863-385-2402 FAX

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE
1"=40'

SHEET
6 OF 19



DATE	REMARK	DR	CH
2-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-5564 PHONE – 863-385-2452 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE 1"=40'

SHEET 7 OF 19

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE 1"=40'

SHEET 8 OF 19

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CIVIL ENGINEERING CONSULTANTS
2925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-5564 PHONE -- 863-385-2462 FAX

CERTIFICATE OF AUTHORIZATION # 5004
ROGER DALE POLSTON P.E. # 33222
MARVIN LUTHER WOLFE P.E. # 46035

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ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE	REMARK	DR	CH
2-09-22	PRILIMINARY FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT, MODIFICATIONS	MLW	

1"=20'

PROPOSED 450 LF 6" SDR 11 DIRECTIONAL BORE #9

5+00

PUMP

PUMP

WELL POINT

WELL POINT

WELL POINT

WELL POINT

18'

32'

FM FM FM FM FM FM FM FM FM FM FM

FM FM FM FM

STAKED HAY BALES

06.01

110 LF OF 6" PVC FM + FIVE (5) 45° BENDS

TEMPORARY DITCH BLOCK

TEMPORARY DITCH BLOCK

6" PVC FM

WATER/FORCE MAIN CROSS OVER

OPEN CUT ROAD SAW CUT ASPHALT REMOVE ASPHALT, BASE AND EARTH APPROX. 6± FEET IN DEPTH.

TIE PROPOSED 6" FORCEMAIN INTO THE EXISTING MANHOLE, CORE DRILL THE MANHOLE TO ACCEPT THE 6" FORCEMAIN. INSIDE THE MANHOLE THE FORCEMAIN WILL BE DIRECTED TOWARD THE BOTTOM OF THE MANHOLE WITH A 45° ANGLED OUTLET DIRECTED TOWARD THE DOWNSTREAM OUTLET AND WITHIN 6" OF THE BASE OF THE MANHOLE. THE 6" FORCEMAIN BREACH THROUGH THE WALL WILL BE GROUTED TO SEAL AROUND THE FORCEMAIN. THE INTERIOR OF THE MANHOLE WILL THEN BE LINED AS DETAILED IN THE DETAIL FOR MANHOLE LINING.

DATE	REMARK	DR	CH
2-15-22	PRELIMINARY PDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA ENGINEER

CERTIFICATE OF AUTHORIZATION #5584
ROGER DALE POLSTON, P.E. #33222
MARVIN LUTHER WHITE, JR., P.E. #46513

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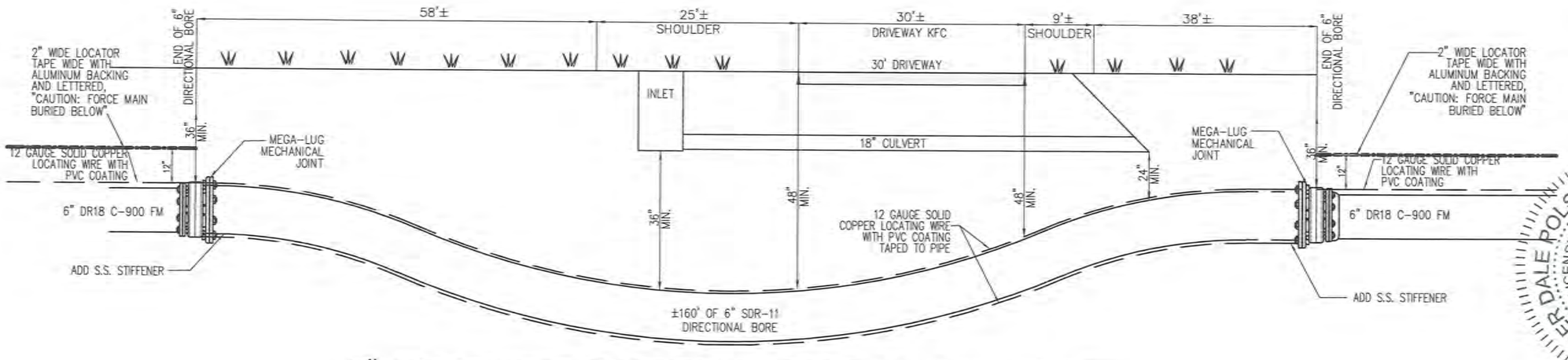
KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE 1"=20'

SHEET 9 OF 19

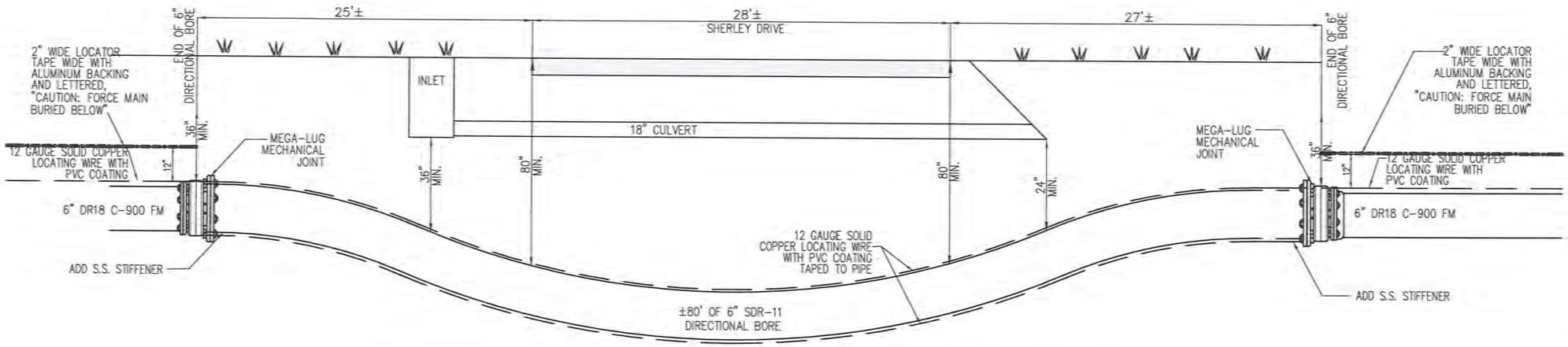


6" FORCE MAIN DIRECTIONAL BORE DRIVEWAY @ KFC

N.T.S.

DIRECTIONAL BORE – ±160 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #1



6" FORCE MAIN DIRECTIONAL BORE SHERLEY DRIVE

N.T.S.

DIRECTIONAL BORE – ±80 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY EFFORT SHOULD BE MADE DURING THE DIRECTIONAL BORE TO CENTER A SINGLE 40' LENGTH OF PIPE UNDER THE ROAD SO THERE ARE NO JOINTS LOCATED UNDER THE PAVEMENT. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #2

DR.	CH	REMARK	DATE
MLW		FDOT SUBMITTAL	2-25-22
MLW		COVER FOR PAVEMENT, MODIFICATIONS	04-APR-22

ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION # 6684
ROGER DALE POLSTON P.E. # 33222
MARVIN LUTHER WILLIS P.E. # 46930

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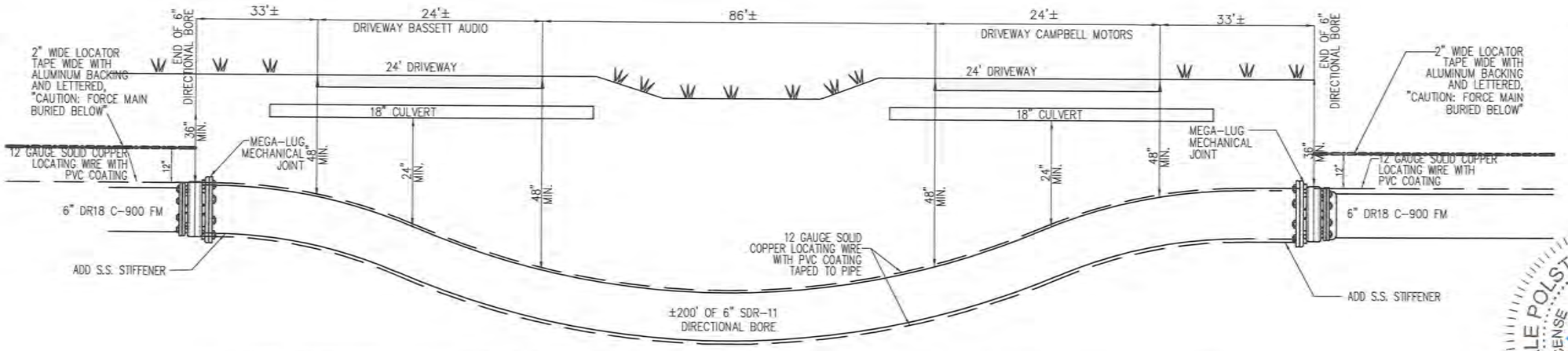
Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-386-5664 PHONE – 863-385-2405 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE
N.T.S.

SHEET
10 OF 19

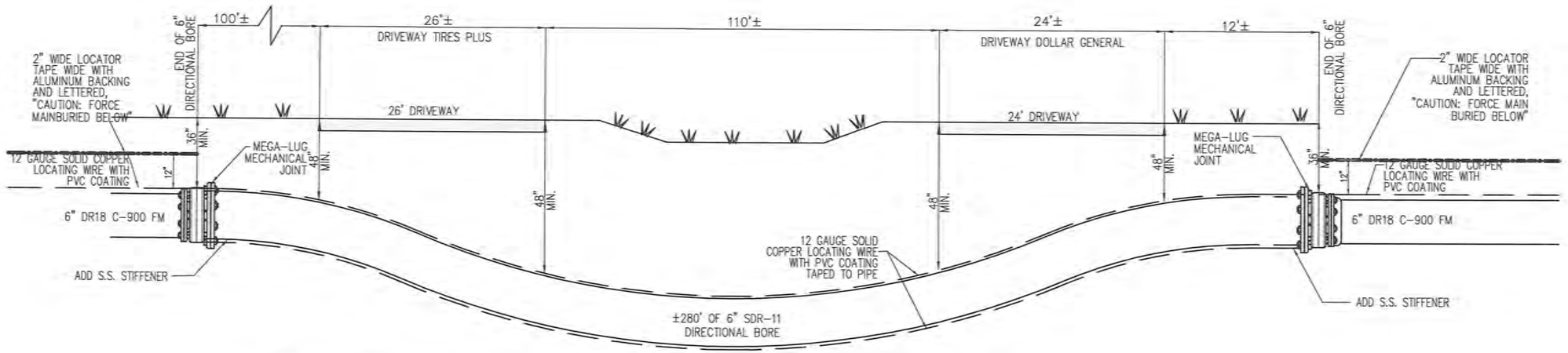


6" FORCE MAIN DIRECTIONAL BORE DRIVEWAYS BASSET AUDIO AND CAMPBELL MOTORS

N.T.S.

DIRECTIONAL BORE – ±200 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #3



6" FORCE MAIN DIRECTIONAL BORE DRIVEWAYS TIRES PLUS AND DOLLAR GENERAL

N.T.S.

DIRECTIONAL BORE – ±280 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #4

DATE	REMARK	DR	CH
12-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

ROGER DALE POLSTON LICENSE NUMBER 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION #5264
ROGER DALE POLSTON, P.E. #33222
MARVIN LUTHER WOLFE, P.E. #46008

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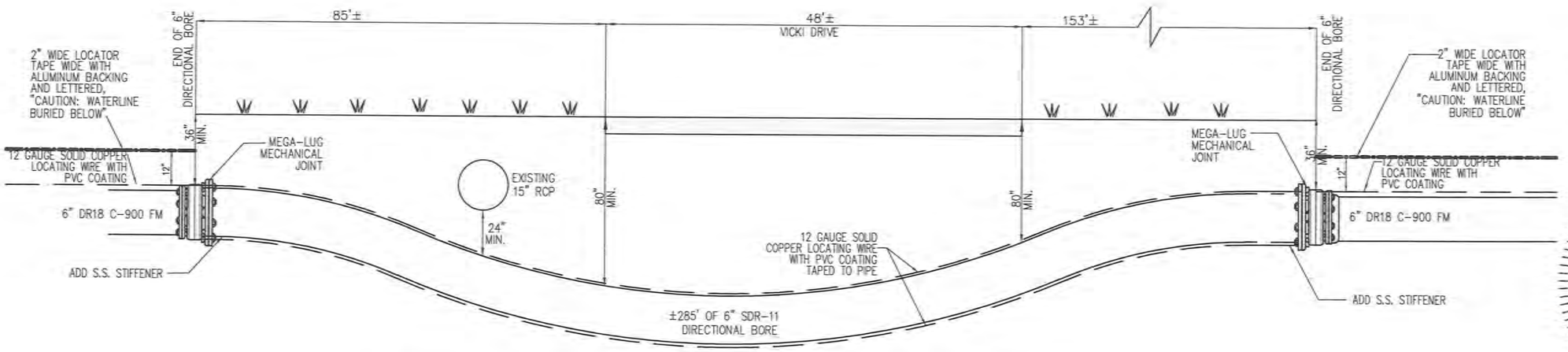
KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE
N.T.S.

SHEET
11 OF 19

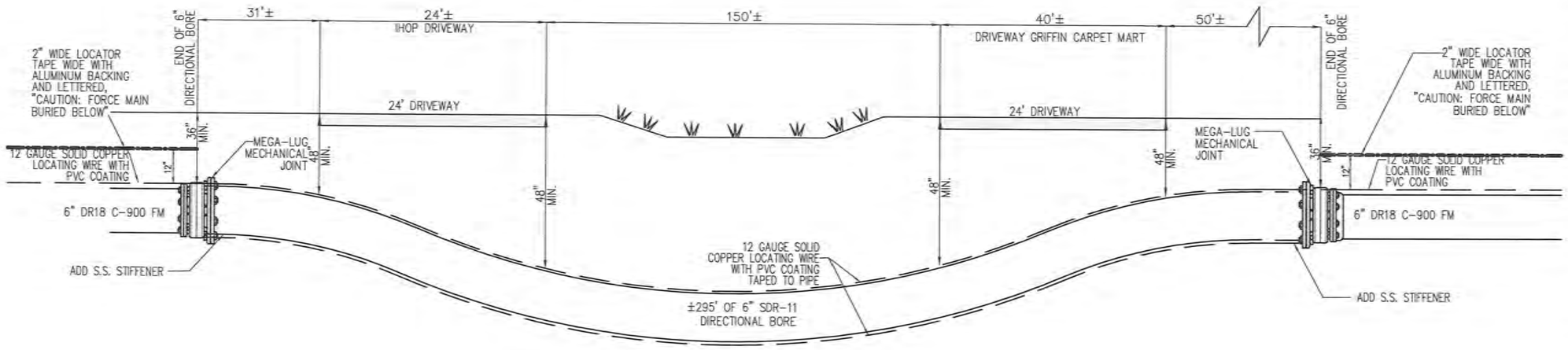


6" FORCE MAIN DIRECTIONAL BORE VICKI DRIVE

N.T.S.

DIRECTIONAL BORE – ±285 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY EFFORT SHOULD BE MADE DURING THE DIRECTIONAL BORE TO CENTER A SINGLE 40' LENGTH OF PIPE UNDER THE ROAD SO THERE ARE NO JOINTS LOCATED UNDER THE PAVEMENT. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #5



6" FORCE MAIN DIRECTIONAL BORE DRIVEWAYS IHOP AND GRIFFIN CARPET MART

N.T.S.

DIRECTIONAL BORE – ±295 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #6

REMARK	DR	CH
2-15-22 FDOT SUBMITTAL	MLW	
04-APR-22 COVER FOR PAVEMENT MODIFICATIONS	MLW	

ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION #28284
ROGER DALE POLSTON, P.E. #33222
MARVIN LUTHER WOLFE, P.E. #46827

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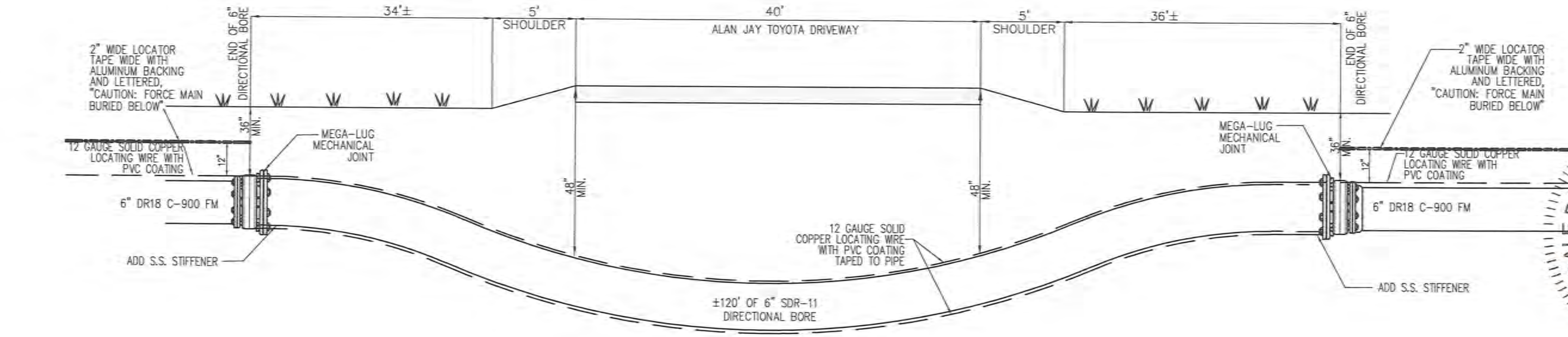
KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE
N.T.S.

SHEET
12 OF 19

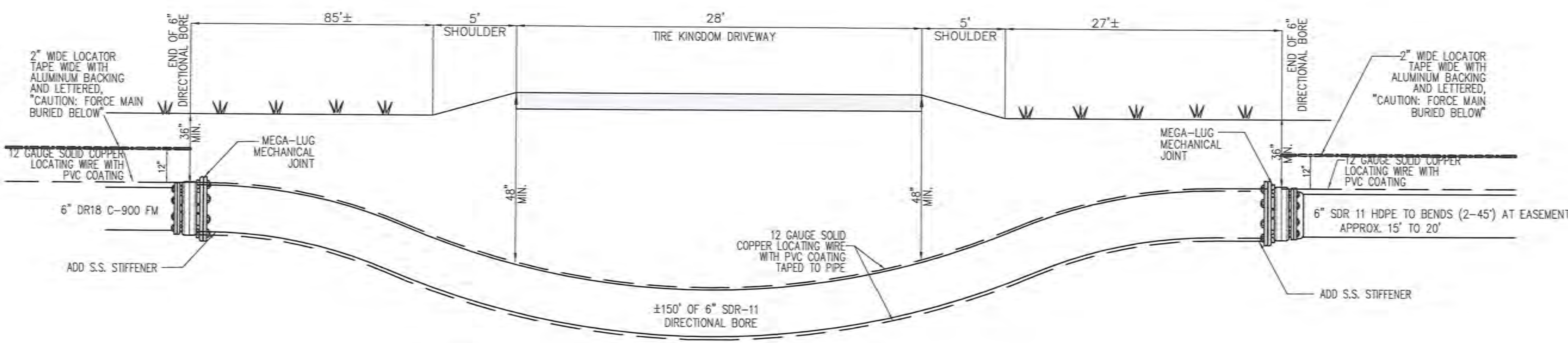


6" FORCE MAIN DIRECTIONAL ALAN JAY TOYOTA

N.T.S.

DIRECTIONAL BORE – ±120 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #7



6" FORCE MAIN DIRECTIONAL TIRE KINGDOM

N.T.S.

DIRECTIONAL BORE – ±150 LF OF 6" SDR 11 – FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #8

FDOT SUBMITTAL
04-APR-22 COVER FOR PAVEMENT MODIFICATIONS M.W M.W

Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2025 KENILWORTH BLVD, SEBRING, FLORIDA 33870
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KFC FORCE MAIN TO THE CITY OF SEBRING COLLECTION SYSTEM 6" FORCE MAIN EXTENSION PLAN VIEW

ENGINEER JOB # 21034

DRAWING SCALE N.T.S.

SHEET 13 OF 19

SEWER FORCE MAINS SPECIFICATIONS

1.0 POLYVINYLCHLORIDE PIPE

1.01 POLYVINYLCHLORIDE PIPE: AWWA C900; PRESSURE CLASS 100, DR 25 FOR OPERATING PRESSURE LESS THAN 50 PSI; CLASS 150, DR 18, FOR OPERATING PRESSURE GREATER THAN 50 PSI. FORCE MAIN UNDER PAVED AREAS SHALL BE AWWA C900, DR 14, PRESSURE CLASS 200. FOR PIPE LESS THAN 4 INCHES IN DIAMETER, USE ASTM D2241, SDR 21, PRESSURE CLASS 200; FOR PRESSURE GREATER THAN 50 PSI, USE ASTM 1785 SCHEDULE 80.

1.02 ALL POLYVINYLCHLORIDE (PVC) PIPE SHALL BE LAID WITH METAL LOCATOR TAPE BURIED ONE FOOT ABOVE AND PARALLEL TO THE PIPE CENTERLINE. THE LOCATOR TAPE SHALL BE AT LEAST 2 INCHES WIDE WITH ALUMINUM BACKING AND SHALL BE LETTERED, "CAUTION FORCEMAIN BELOW" IN LARGE LETTERS.

AND

ALL POLYVINYLCHLORIDE (PVC) PIPE SHALL BE LAID WITH A 12 GAUGE SOLID COPPER LOCATING WIRE WITH PVC COATING BURIED ON TOP OF THE PIPE. WIRE AND INSTALLATION SHALL MEET NATIONAL ELECTRICAL CODE FEDERAL SPECIFICATION J-C-30B.

1.03 ALL FITTINGS ON PVC PIPE SHALL BE MEGA-LUG TYPE OR APPROVED ALTERNATE. BY EBAA ONLY.

2.0 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

2.01 POLYETHYLENE PIPING MATERIAL: THE PIPE AND FITTINGS SHALL BE MADE OF HIGH DENSITY, EXTRA HIGH MOLECULAR WEIGHT (EHMW) POLYETHYLENE WITH A STANDARD THERMOPLASTIC MATERIAL DESIGNATION CODE OF PE3408 AND HAVING A CELL CLASSIFICATION OF 345464E PER ASTM D3350. THE MOLECULAR WEIGHT CATEGORY SHALL BE EXTRA HIGH (25,000 TO 1,500,000) AS PER THE GEL PERMEATION CHROMATOGRAPHY DETERMINATION PROCEDURE WITH A TYPICAL VALUE OF 300,000 TO 330,000. THE PIPE WILL BE THE COLOR GREEN AND SHALL MEET THE UTILITY LOCATION AND COORDINATION COUNCIL "UNIFORM COLOR CODE," FOR SEWER AND DRAIN LINES, PER APWA/LCC STANDARDS COMMITTEE.

2.02 THE POLYETHYLENE PIPE MANUFACTURER SHALL PROVIDE CERTIFICATION THAT THE STRESS REGRESSION TESTING HAS BEEN PERFORMED ON THE SPECIFIC PRODUCT. THE SAID CERTIFICATION SHALL INCLUDE A STRESS LIVE CURVE PER ASTM D2837. THE STRESS REGRESSION TESTING SHALL HAVE BEEN PERFORMED IN ACCORDANCE WITH ASTM D2837, AND THE MANUFACTURER SHALL PROVIDE A PRODUCT SUPPLYING A MINIMUM HYDROSTATIC DESIGN BASIS (HDB) OF 1,600 PSI AS DETERMINED BY ASTM D2837.

2.03 THE MATERIAL SHALL BE LISTED BY THE PLASTICS PIPE INSTITUTE (PPI), A DIVISION OF THE SOCIETY OF THE PLASTICS INDUSTRY IN PPI TR-4. THE PIPE MATERIAL SHALL HAVE A HYDROSTATIC DESIGN BASIS OF 1600 PSI AT 730F AND 800 PSI AT 1400F. THE PPI LISTING SHALL BE IN THE NAME OF THE PIPE MANUFACTURER AND TESTING AND VALIDATION OF SAMPLES OF THE PIPE MANUFACTURER'S PRODUCTION PIPE SHALL BE BASED UPON ASTM D2837 AND PPI TR-3.

2.04 THE MANUFACTURER'S CERTIFICATION SHALL STATE THAT THE PIPE WAS MANUFACTURED FROM ONE SPECIFIC RESIN IN COMPLIANCE WITH THESE SPECIFICATIONS. THE CERTIFICATE SHALL STATE THE SPECIFIC RESIN USED AND ITS SOURCE.

2.05 HDPE PIPE MANUFACTURED FROM MATERIALS MEETING THE SPECIFICATIONS OF THIS SECTION SHALL HAVE AN ENVIRONMENTAL STRESS CRACK RESISTANCE OF NO FAILURES IN 10,000 HRS. (ESCR: FO>10,000) WHEN TESTED IN ACCORDANCE WITH ASTM F1248.

2.06 PIPE AND FITTINGS SHALL BE MANUFACTURED FROM MATERIAL MEETING THE REQUIREMENTS OF THIS SECTION. PIPE SUPPLIED UNDER THIS SPECIFICATION SHALL HAVE A NOMINAL IPS (IRON PIPE SIZE) OUTSIDE DIAMETER UNLESS OTHERWISE SPECIFIED. THE DIMENSION RATIO (DR) AND PRESSURE RATING OF THE PIPE AT 73* SHALL MATCH THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:

DR 7.3 – 250 PSI DR 13.5 – 130 PSI DR 21 – 80 PSI
DR 9 – 200 PSI DR 15.5 – 110 PSI DR 26 – 65 PSI
DR 11 – 160 PSI DR 17 – 100 PSI DR 32.5 – 50 PSI

2.07 THE PIPE AND FITTINGS SHALL HAVE PRODUCT TRACEABILITY. THE MANUFACTURER SHALL INCLUDE A PRINTLINE ON THE PIPE. THIS SHALL NOTATE THE MANUFACTURER'S NAME, ADDRESS, DATE OF MANUFACTURE, THE LOT AND SUPPLIER OF RAW MATERIAL, PLANT LOCATION, AND PRODUCTION SHIFT. THE ASTM STANDARD SHALL ALSO APPEAR AS ASTM F714 WITH THE MATERIAL DESIGNATION AS PE3408. THE PRINTLINH SHALL BE BLACK ON THE GREEN PIPE.

2.08 BOTH PIPE AND FITTINGS SHALL CARRY THE SAME PRESSURE RATING. ALL FITTINGS SHALL BE PRESSURE RATED TO MATCH THE SYSTEM PIPING TO WHICH THEY ARE JOINED. AT THE POINT OF FUSION, THE OUTSIDE DIAMETER AND MINIMUM WALL THICKNESS OF THE FITTING SHALL MATCH THE OUTSIDE DIAMETER AND MINIMUM WALL THICKNESS SPECIFICATIONS OF ASTM F714 FOR THE SAME SIZE PIPE. FITTINGS SHALL BE MANUFACTURED BY THE MANUFACTURER OF THE PIPE. ELLS, TEES, AND WYES SHALL BE MANUFACTURED BY MITERED FABRICATION. FOR FORCE MAINS OR PRESSURE RATED FITTINGS, ALL FITTINGS SHALL BE DERATED ACCORDING TO THE MANUFACTURER'S WRITTEN SPECIFICATIONS, AND CLEARLY LABELED ON THE FITTING AS SUCH. FOR GRAVITY OR SANITARY SEWER, EITHER DIRECT BURY OR INSERTION LINING FITTINGS WILL BE FULLY PRESSURE RATED. ALL FITTINGS WILL HAVE A QUALITY CONTROL LABEL AS APPROVED BY THE MANUFACTURER.

2.09 HEAT FUSION JOINING SYSTEMS: PIPE AND FITTINGS SHALL BE THERMAL BUTT FUSION, SADDLE FUSION, OR SOCKET FUSION ACCORDING TO MANUFACTURER RECOMMENDED PROCEDURES.

2.10 THE MANUFACTURER SHALL PROVIDE FUSION TRAINING. THE CONTRACTOR (ACTUAL INSTALLERS) AND THE ONSITE JOINT INSPECTOR SHALL BE TRAINED BY THE MANUFACTURER OR MANUFACTURER'S AUTHORIZED REPRESENTATIVE.

2.11 IT WILL NOT BE PERMITTED TO JOIN UNLIKE DR'S TO ONE ANOTHER. TRANSITION FROM UNLIKE SDR'S SHALL BE ACCOMPANIED BY MECHANICAL COUPLINGS CAPABLE OF IDENTICAL PRESSURE RATINGS OR MACHINED POLYETHYLENE NIPPLES WHERE A THICKER WALL POLYETHYLENE HAS BEEN MATCHED TO THE COMPANION PIPE WALL.

2.12 MECHANICAL JOINING SYSTEMS: POLYETHYLENE PIPE AND FITTINGS SHALL BE CONNECTED BY MEANS OF A POLYETHYLENE FLANGE ADAPTER AND BACKUP RING. THE POLYETHYLENE FLANGE ADAPTER WILL BE OF THE SAME SPECIFICATIONS AS THE LIGHTVIEW EXCEPT WILL BE MADE FROM BLACK PLATE STOCK. THIS METHOD IS ALSO APPROVED TO JOIN TO ANOTHER PIPING SYSTEM OR VALVES. MECHANICAL COMPRESSION COUPLINGS OR FULL CIRCLE ENCASEMENT CLAMPS MAY BE USED DEPENDING ON THE TEST SPECIFICATIONS.

2.13 MECHANICAL COUPLINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MECHANICAL COUPLING MANUFACTURER'S RECOMMENDED PROCEDURES.

2.14 EQUIPMENT: THE FUSION EQUIPMENT AND OPERATOR SHALL BE REQUIRED TO DEMONSTRATE SUCCESSFUL FIELD EXPERIENCE. REGARDING FUSION OVER 36" CAPABILITY, THE FUSION UNIT SHALL BE FIELD TESTED FOR A PERIOD OF FIVE YEARS AND THE FUSION OPERATOR SHALL HAVE PIPE SIZE EXPERIENCE OF THE SAME SIZE PIPE ON THIS PROJECT FOR FIVE YEARS OR LONGER.

3.0 DUCTILE IRON PIPE

DUCTILE IRON PIPE SHALL MEET THE REQUIREMENTS OF ANSI SPECIFICATIONS A21.51, AWWA C151. PIPE WALL THICKNESS SHALL CONFORM TO A MINIMUM OF CLASS 50 WITH 350 PSI WORKING PRESSURE. EXTERIOR OF PIPE SHALL HAVE BITUMINOUS COATING. INTERIOR OF PIPE SHALL BE POLYLINED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND BE RESISTANT TO THE CORROSIVE ELEMENTS NORMALLY FOUND IN MUNICIPAL WASTE WATER.

4.0 AIR RELEASE VALVE UNIT:

AS SHOWN ON THE PLANS.

5.0 TESTS, INSPECTION, AND REPAIRS:

5.01 ALL MATERIALS SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, ASTM, OR AWWA SPECIFICATION AND THE BASIS FOR REJECTION SHALL BE AS SPECIFIED THEREIN. CERTIFIED COPIES OF THE TESTS SHALL BE SUBMITTED WITH EACH SHIPMENT OF MATERIAL.

5.02 ALL MATERIALS WILL BE SUBJECT TO INSPECTION AND APPROVED BY THE PROJECT ENGINEER AFTER DELIVERY AND NO BROKEN, CRACKED, MISSHAPEN, IMPERFECTLY COATED, OR OTHERWISE DAMAGED, OR UNSATISFACTORY MATERIAL SHALL BE USED.

5.03 ALL MATERIAL FOUND DURING THE PROGRESS OF THE WORK TO HAVE CRACKS, FLAWS, OR OTHER DEFECTS SHALL BE REJECTED AND PROMPTLY REMOVED FROM THE SITE.

5.04 IF DAMAGE OCCURS TO ANY PIPE, FITTINGS, VALVES HYDRANTS, OR WATER MAIN ACCESSORIES IN HANDLING, THE DAMAGE SHALL BE IMMEDIATELY BROUGHT TO THE PROJECT ENGINEER'S ATTENTION. THE PROJECT ENGINEER SHALL PRESCRIBE CORRECTIVE REPAIRS, OR REJECTION OF THE DAMAGE ITEMS.

6.00 CONSTRUCTION:

6.01 EXCAVATING THE TRENCH:

A) AS A GENERAL RULE, DO NOT OPEN THE TRENCH TO FAR AHEAD OF THE PIPE LAYING SO AS TO: AVOID POSSIBLY FLOODING THE TRENCH, REDUCE OR ELIMINATE PUMPING OR SHEETING, REDUCE CAVING CAUSED BY GROUND WATER, REDUCE POTENTIAL WORKMEN AND TRAFFIC HAZARD.

B) THE TRENCH WIDTH AT THE GROUND SURFACE MAY VARY WITH AND DEPEND UPON THE DEPTH, TYPE OF SOILS AND POSITION OF SURFACE STRUCTURES. THE MINIMUM CLEAR WIDTH OF THE TRENCH IN THE PIPE ZONE SHOULD BE ONE FOOT GREATER THAT THE OUTSIDE DIAMETER OF THE PIPE. THE MAXIMUM CLEAR WIDTH OF THE TRENCH AT THE TOP OF THE PIPE SHOULD NOT EXCEED A WIDTH EQUAL TO THE PIPE DIAMETER PLUS TWO FEET. IF THE ABOVE DEFINED TRENCH WIDTHS MUST BE EXCEEDED OR IF THE PIPE IS INSTALLED IN A COMPACTED EMBANKMENT, PIPE EMBEDMENT SHOULD BE COMPACTED TO A POINT OF AT LEAST 2.5 PIPE DIAMETERS ON BOTH SIDES OF THE PIPE OR TO THE TRENCH WALLS, WHICHEVER IS LESS.

C) MINIMUM COVER FOR THE TOP OF THE PIPE IS 36 INCHES BELOW THE FINISHED GRADE.

D) THE TRENCH BOTTOM SHOULD BE SMOOTH AND FREE FROM LARGE STONES, ROCKS OR LARGE DIRT CLODS. EXCAVATION OF BELLS SHOULD BE PROVIDED SO THAT THE PIPE IS UNIFORMLY SUPPORTED ALONG ITS LENGTH. USUALLY, LOOSE MATERIAL LEFT BY THE EXCAVATOR ON THE TRENCH BOTTOM WILL BE ADEQUATE FOR BEDDING THE PIPE BARREL AND PROVIDING FULL SUPPORT. WHEN ROCK OR OTHER NON-CUSHIONING MATERIAL IS ENCOUNTERED, EXCAVATION SHALL BE EXTENDED TO 6 INCHES BELOW THE OUTSIDE BOTTOM OF THE PIPE AND A BEDDING CUSHION OF SAND OR OTHER SELECTED BACKFILL USED AS THE PIPE BED.

6.02 PIPE LAYING:

A) WATER SHALL NOT BE ALLOWED IN THE TRENCHES WHILE THE PIPES ARE BEING LAID AND/OR TESTED. THE CONTRACTOR SHALL NOT OPEN UP MORE TRENCH THAN THE AVAILABLE PUMPING FACILITIES ARE ABLE TO DEWATER TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR DISPOSING OF ALL WATER SO AS NOT TO INJURE OR INTERFERE WITH THE NORMAL DRAINAGE OF THE TERRITORY IN WHICH HE IS WORKING. IN NO CASE SHALL PIPELINES BE USED AS DRAINS FOR SUCH WATER, AND THE ENDS OF THE PIPE SHALL BE KEPT PROPERLY AND ADEQUATELY BLOCKED DURING CONSTRUCTION BY THE USE OF APPROVED STOPPERS AND NOT BY IMPROVISED EQUIPMENT. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT THE ENTRANCE OF MUD, SAND, OR OBSTRUCTING MATTER INTO THE PIPELINES. IF ON COMPLETION OF THE WORK, ANY SUCH MATERIAL HAS ENTERED THE PIPELINES, IT MUST BE CLEANED AS DIRECTED BY THE ENGINEER SO THAT THE ENTIRE SYSTEM WILL BE LEFT CLEAN AND UNOBSTRUCTED.

B) CLEANLINESS: THE INTERIOR OF THE PIPE SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATTER BEFORE BEING GENTLY LOWERED INTO THE TRENCH AND SHALL BE KEPT CLEAN DURING THE LAYING OPERATIONS BY MEANS OF PLUGS OR OTHER APPROVED METHODS. DURING SUSPENSION OF WORK FOR ANY REASON AT ANY TIME, A SUITABLE STOPPER SHALL BE PLACED IN THE END OF THE PIPE LAST LAID TO PREVENT MUD OR OTHER FOREIGN MATERIAL FROM ENTERING THE PIPE.

C) GRADIENT: LINES SHALL BE LAID STRAIGHT, AND DEPTH OF COVER SHALL BE MAINTAINED UNIFORM WITH RESPECT TO FINISH GRADE, WHETHER GRADING IS EITHER COMPLETED OR PROPOSED AT TIME OF PIPE INSTALLATION. WHEN A GRADE OF SLOPE IS SHOWN ON THE DRAWINGS, BATTER BOARDS WITH STRING LINE PARALLELING DESIGN GRADE, OR OTHER PREVIOUSLY APPROVED MEANS, SHALL BE USED BY THE CONTRACTOR TO ASSURE CONFORMANCE TO REQUIRED GRADE. ALL PIPE SHALL BE LAID WITHIN A PIPE DIAMETER OF LINES AND GRADES INDICATED.

D) PIPE JOINT DEFLECTION: WHENEVER IT IS DESIRABLE TO DEFLECT PIPE, THE AMOUNT OF DEFLECTION SHALL NOT EXCEED THE FOLLOWING MAXIMUM LIMITS: A) FOR DUCTILE IRON PIPE, AWWA STANDARD C900; B) FOR PVC PIPE, NO DEFLECTION IS ALLOWED AT THE JOINTS, AND LONGITUDINAL DEFLECTION IS LIMITED TO THE MAXIMUM SHOWN IN AWWA PUBLICATION M23. ADDITIONALLY, JOINT DEFLECTION FOR DUCTILE IRON PIPE SHALL NOT EXCEED THE MAXIMUM ALLOWED BY THE MANUFACTURER.

E) PVC PIPE STORAGE: POLYVINYLCHLORIDE PIPE EXTERIOR MAY BE DAMAGED BY PROLONGED EXPOSURE TO DIRECT SUNLIGHT AND THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS DURING STORAGE AND INSTALLATION TO AVOID THIS DAMAGE. PIPE SHALL BE STORED UNDER COVER AND SUFFICIENT BACKFILL TO SHIELD FROM THE SUN SHALL BE PLACED AS THE PIPE IS INSTALLED.

F) JOINT COMPOUNDS: NO SULPHUR BASE JOINT COMPOUND SHALL BE USED.

G) ANCHORS: CONCRETE THRUST BLOCKS SHALL BE PLACED AT ALL BENDS, TEES, PLUGS, AND OTHER FITTINGS TO PROVIDE LATERAL SUPPORT. THRUST BLOCKS SHALL CONFORM TO THE DETAILS SHOWN ON THE ILLUSTRATIVE STANDARDS. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 2500 PSI AFTER 28 DAYS, AND SHALL HAVE A MINIMUM CURING TIME OF 3 DAYS. THE POURED CONCRETE SHALL BE LEFT EXPOSED FOR A MINIMUM OF 24 HOURS BEFORE BACKFILLING AND NOT MORE THAN 48 HOURS.

H) JOINTS: THE JOINTS OF ALL PIPELINES SHALL BE MADE ABSOLUTELY TIGHT. THE PARTICULAR JOINT SHALL BE APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION. WHERE SHOWN ON PLANS OR WHERE, IN THE OPINION OF THE PROJECT ENGINEER, SETTLEMENT OR VIBRATION IS LIKELY TO OCCUR, ALL PIPE JOINTS SHALL BE BOLTED, OR RETAINED ACCORDINGLY.

I) MECHANICAL JOINTS: ALL MECHANICAL JOINTS SHALL BE MEGA-LUG TYPE BY EBAA, AND SHALL BE LAID AND JOINTED IN FULL CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.

J) PUSH-ON JOINTS: PUSH-ON JOINTS SHALL BE MADE IN STRICT, COMPLETE COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. LUBRICANT, IF REQUIRED, SHALL BE AN INERT, NONTOXIC, WATER SOLUBLE COMPOUND INCAPABLE OF HARBORING, SUPPORTING, OR CULTURING BACTERIAL LIFE. MANUFACTURER'S RECOMMENDATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL BEFORE WORK IS BEGUN.

K) POLYVINYLCHLORIDE PIPE JOINTS: THE JOINTS OF ALL PIPELINES SHALL BE MADE IN CONFORMITY WITH THE RECOMMENDATIONS OF THE PIPE MANUFACTURER. THE PARTICULAR JOINT USED SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

L) SANITARY SEWERS AND FORCE MAINS SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL CLEARANCE WITH PARALLEL POTABLE WATER LINES, AND 18 INCHES VERTICAL CLEARANCE WHEN CROSSING. CONCRETE ENCASEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON THE DRAWINGS USING 2500 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE. ENCASEMENT SHALL BE CONSTRUCTED WHERE:

1) THE WATER LINE CROSSES UNDER, OR AT A DEPTH WHICH PROVIDES LESS THAN 18 INCHES CLEAR DISTANCE BETWEEN PIPES WHEN CROSSING OVER SEWER LINES; ENCASEMENT SHALL EXTEND A MINIMUM OF TEN FEET ON EACH SIDE OF THE POINT OF CROSSING; OR

2) THE ENGINEER SHALL ORDER THE LINE ENCASED.

THE POINTS OF BEGINNING AND ENDING OF PIPE ENCASEMENT SHALL BE NOT MORE THAN 6 INCHES FROM A PIPE JOINT TO PROTECT THE PIPE FROM CRACKING DUE TO UNEVEN SETTLEMENT OF ITS FOUNDATION, OR THE EFFECTS OF SUPERIMPOSED LIVE LOADS.

CLASS I CONCRETE (MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI) ENCASEMENT, SHALL BE REQUIRED FOR BOTH GRAVITY SEWER MAINS AND FORCE MAINS WHEN THE ABOVE CRITERIA FOR SEPARATION OF WATER AND SEWER LINES CANNOT BE MAINTAINED.

M) FLUSHING: ALL SEWER MAINS SHALL BE FLUSHED TO REMOVE ALL SAND AND OTHER FOREIGN MATTER. THE VELOCITY OF THE FLUSHING WATER SHALL BE AT LEAST 4 FEET PER SECOND. FLUSHING SHALL BE TERMINATED AT THE DIRECTION OF THE ENGINEER. THE CONTRACTOR SHALL DISPOSE OF THE FLUSHING WATER WITHOUT CAUSING A NUISANCE OR PROPERTY DAMAGE.

DEWATERING NOTES:

PART 1: GENERAL

1.01 DESCRIPTION

A. SCOPE OF WORK: THE WORK TO BE PERFORMED UNDER THIS SECTION SHALL INCLUDE FURNISHING ALL EQUIPMENT AND LABOR NECESSARY TO REMOVE STORM OR SUBSURFACE WATERS FROM EXCAVATION AREAS IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH AND AS SHOWN ON THE DRAWINGS.

1.02 QUALITY ASSURANCE

A. THE DEWATERING OF ANY EXCAVATION AREAS AND THE DISPOSAL OF THE WATER SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REVISION OF ALL LOCAL AND STATE GOVERNMENT RULES AND REGULATIONS.

PART 2: PRODUCTS (NOT APPLICABLE)

PART 3: EXECUTION

3.01 DEWATERING

A. CONTRACTOR SHALL PROVIDE ADEQUATE EQUIPMENT FOR THE REMOVAL OF STORM OR SUBSURFACE WATERS WHICH MAY ACCUMULATE IN THE EXCAVATION.

B. IF SUBSURFACE WATER IS ENCOUNTERED, CONTRACTOR SHALL UTILIZE SUITABLE EQUIPMENT TO ADEQUATELY DEWATER THE EXCAVATION SO THAT IT WILL BE DRY FOR WORK AND PIPE LAYING. A WELLPOINT SYSTEM OR OTHER ENGINEER APPROVED DEWATERING METHOD SHALL BE UTILIZED IF NECESSARY TO MAINTAIN THE EXCAVATION IN A DRY CONDITION FOR PREPARATION OF THE TRENCH BOTTOM AND FOR PIE LAYING.

C. DEWATERING BY TRENCH PUMPING WILL NOT BE PERMITTED IF MIGRATION OF FINE GRAINED NATURAL MATERIAL FROM BOTTOM, SIDE WALLS OR BEDDING MATERIAL WILL OCCUR.

D. IN THE EVENT THAT SATISFACTORY DEWATERING CANNOT BE ACCOMPLISHED DUE TO SUBSURFACE CONDITIONS OR WHERE DEWATERING COULD DAMAGE EXISTING STRUCTURES, CONTRACTOR SHALL OBTAIN THE ENGINEER'S APPROVAL OF WET TRENCH CONSTRUCTION OR PROCEDURE BEFORE COMMENCING

3.02 DISPOSAL

A. WATER PUMPED FROM THE TRENCH OR OTHER EXCAVATION SHALL BE DISPOSED OF IN STORM SEWERS HAVING ADEQUATE CAPACITY, CANALS OR SUITABLE DISPOSAL PITS.

B. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL PERMITS REQUIRED TO DISCHARGE THE WATER AND SHALL PROTECT WATERWAYS FROM TURBIDITY DURING THE OPERATION.

C. IN AREAS WHERE ADEQUATE DISPOSAL SITES AREA NOT AVAILABLE, PARTIALLY BACKFILLED TRENCHES MAY BE USED FOR WATER DISPOSAL ONLY WHEN THE CONTRACTOR'S PLAN FOR TRENCH DISPOSAL IS APPROVED IN WRITING BY THE ENGINEER. THE CONTRACTOR'S PLAN SHALL INCLUDE TEMPORARY CULVERTS, BARRICADES AND OTHER PROTECTIVE MEASURES TO PREVENT DAMAGE TO PROPERTY OR INJURY TO ANY PERSON OR PERSONS.

D. NO FLOODING OF STREETS, ROADWAYS, DRIVEWAYS OR PRIVATE PROPERTY WILL BE PERMITTED. ENGINES DRIVING DEWATERING PUMPS SHALL BE EQUIPPED WITH RESIDENTIAL TYPE MUFFLERS.

TRACER WIRE REQUIREMENTS:

TRACER WIRE FOR BURIED PIPE:

-SHALL BE (#12 AWG) HIGH-STRENGTH COPPER-CLAD STEEL CONDUCTOR (HS-CCS), INSULATED WITH A 30 MIL, HIGH-DENSITY, HIGH MOLECULAR WEIGHT POLYETHYLENE (HDPE) INSULATION, AND RATED FOR DIRECT BURIAL USE AT 30 VOLTS. HS-CCS CONDUCTOR MUST BE A 21% CONDUCTIVITY FOR LOCATING PURPOSES, BREAK LOAD 250# MINIMUM.

TRACER WIRE FOR DIRECTIONAL DRILLING/BORING:

-SHALL BE #12 AWG (0.0808" DIAMETER) HARD DRAWN, HIGH CARBON 1055 GRADE STEEL, SOLID EXTRA-HIGH-STRENGTH COPPER-CLAD STEEL CONDUCTOR (EHS-CCS), INSULATED WITH A 45 MIL, HIGH-DENSITY, HIGH MOLECULAR WEIGHT POLYETHYLENE (HDPE) INSULATION, AND RATED FOR DIRECT BURIAL USE AT 30 VOLTS. EHS-CCS CONDUCTOR MUST BE AT 21% CONDUCTIVITY FOR LOCATE PURPOSES. BREAK LOAD OF 1150 LBS.

DATE	REMARK	DR	CH
02-15-22	FDOT SUBMITTAL	MLW	
01-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

ROGER DALE POLSTON No. 33222 LICENSE STATE OF FLORIDA PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION # 5043
ROGER DALE POLSTON P.E. # 33222
MARVIN LUTHER WOLIN P.E. # 44030

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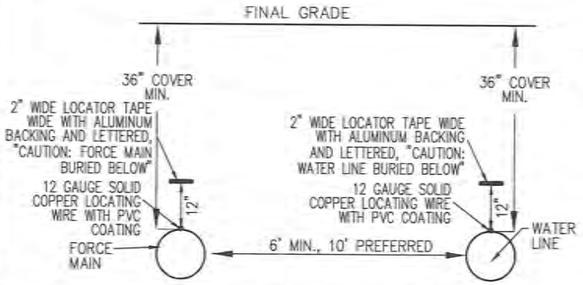
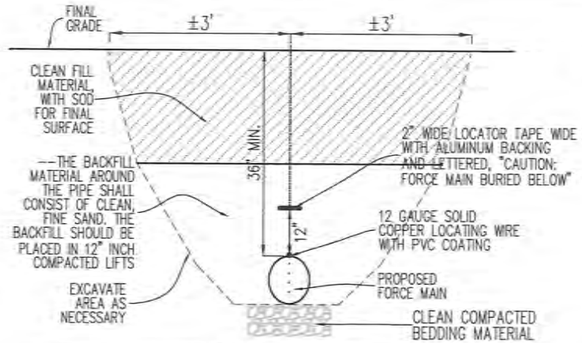
ENGINEER JOB # 21034

DRAWING SCALE N.T.S.



--ALL POLYVINYLCHLORIDE (PVC) WATER LINE PIPE SHALL BE LAID WITH METAL LOCATOR TAPE BURIED ONE FOOT ABOVE AND PARALLEL TO THE PIPE CENTERLINE. THE LOCATOR TAPE SHALL BE AT LEAST 2 INCHES WIDE WITH ALUMINUM BACKING AND SHALL BE LETTERED, "CAUTION: WATER LINE BURIED BELOW".
--ALL POLYVINYLCHLORIDE (PVC) FORCE MAIN PIPE SHALL BE LAID WITH METAL LOCATOR TAPE BURIED ONE FOOT ABOVE AND PARALLEL TO THE PIPE CENTERLINE. THE LOCATOR TAPE SHALL BE AT LEAST 2 INCHES WIDE WITH ALUMINUM BACKING AND SHALL BE LETTERED, "CAUTION: FORCE MAIN BURIED BELOW".
--ALL POLYVINYLCHLORIDE (PVC) PIPE SHALL BE LAID WITH A 12 GAUGE SOLID COPPER LOCATING WIRE WITH PVC COATING BURIED ON TOP OF THE PIPE. WIRE AND INSTALLATION SHALL MEET NATIONAL ELECTRICAL CODE FEDERAL SPECIFICATION J-C-308.

WATER LINE - FORCE MAIN SEPARATION



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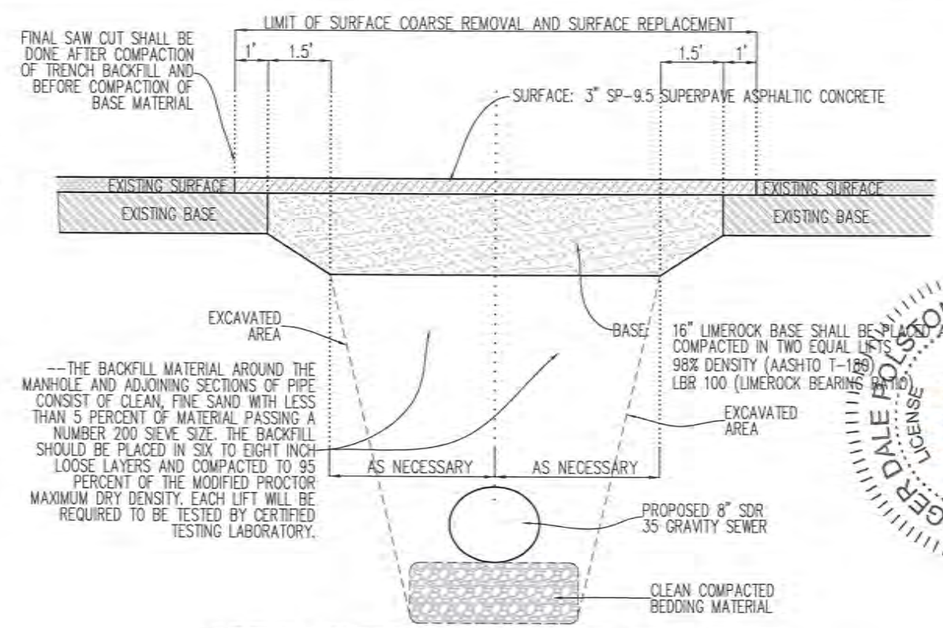
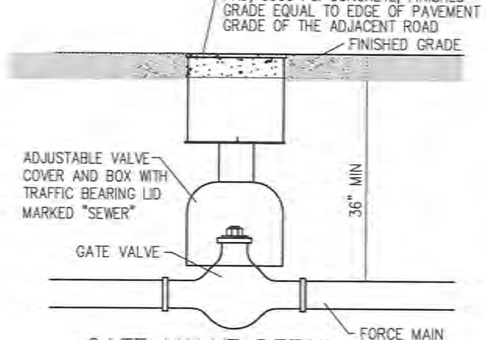
TYPICAL OPEN CUT FORCE MAIN IN OPEN TERRAIN DETAIL



OPEN-CUT OF ROAD AND PAVEMENT REPLACEMENT DETAIL N.T.S.

CONSTRUCTION NOTE:
ALL CONSTRUCTION WITHIN THE RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH THE CURRENT CITY OF SEBRING MUNICODE STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION.



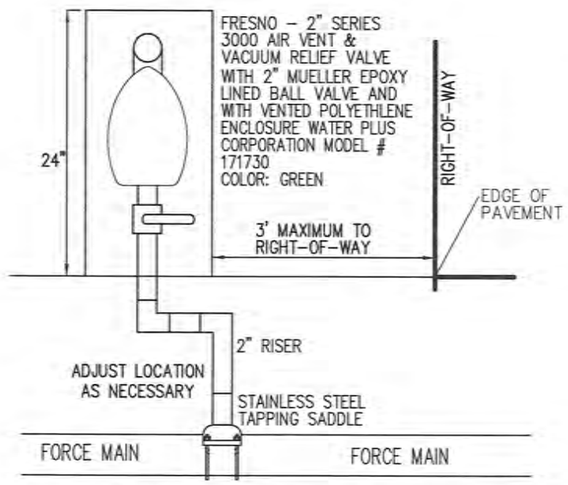
GATE VALVE DETAIL N.T.S.

(REFERRED TO AS "VALVE" OR "V&B" ON PLAN VIEW)
ALL GATE VALVES BY KENNEDY, MUELLER OR EQUIVALENT

	HORIZONTAL SEPARATION	CROSSING (1)	JOINT SPACING • CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER (2)	WATER MAIN 3' MINIMUM OTHER	WATER MAIN 12" IS THE MINIMUM, EXCEPT FOR STORM SEWER, THEN 6" IS THE MINIMUM AND 12" IS PREFERRED OTHER	ALTERNATE 3' MINIMUM OTHER WATER MAIN
VACUUM SANITARY SEWER	WATER MAIN 10' PREFERRED 3' MINIMUM OTHER	WATER MAIN 12" IS PREFERRED 6" IS THE MINIMUM OTHER	ALTERNATE 3' MINIMUM OTHER WATER MAIN
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER (4)	WATER MAIN 10' PREFERRED 6' MINIMUM (3) OTHER	WATER MAIN 12" IS THE MINIMUM, EXCEPT FOR GRAVITY SEWER, THEN 6" IS THE MINIMUM AND 12" IS PREFERRED OTHER	ALTERNATE 6" MINIMUM OTHER WATER MAIN

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE THE MINIMUM SEPARATION IS 12 INCHES.
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FEET FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

UTILITY NOTES:
--THE UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS ARE REPRESENTATIONAL ONLY. FIELD INVESTIGATION FOR EXACT LOCATIONS IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
--ALL DISTURBED PREVIOUSLY IMPROVED AREAS WILL BE COMPLETELY RESTORED TO ORIGINAL CONDITIONS, THIS INCLUDES SODDING, LANDSCAPING, IRRIGATION SYSTEMS, STRUCTURES, ETC.
--ALL CONSTRUCTION WITHIN THE COUNTY RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH THE CURRENT HIGHLANDS COUNTY STANDARD.



AIR RELEASE VALVE

REMARK	DATE	DR.	CH
FDOT SUBMITTAL	2-25-22	MLW	
COVER FOR PAVEMENT MODIFICATIONS	04-08-22	MLW	

ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

CERTIFICATE OF AUTHORIZATION # 2288
ROGER DALE POLSTON, P.E. #33222
MARVIN LUTHER WOLFORD, P.E. #17959

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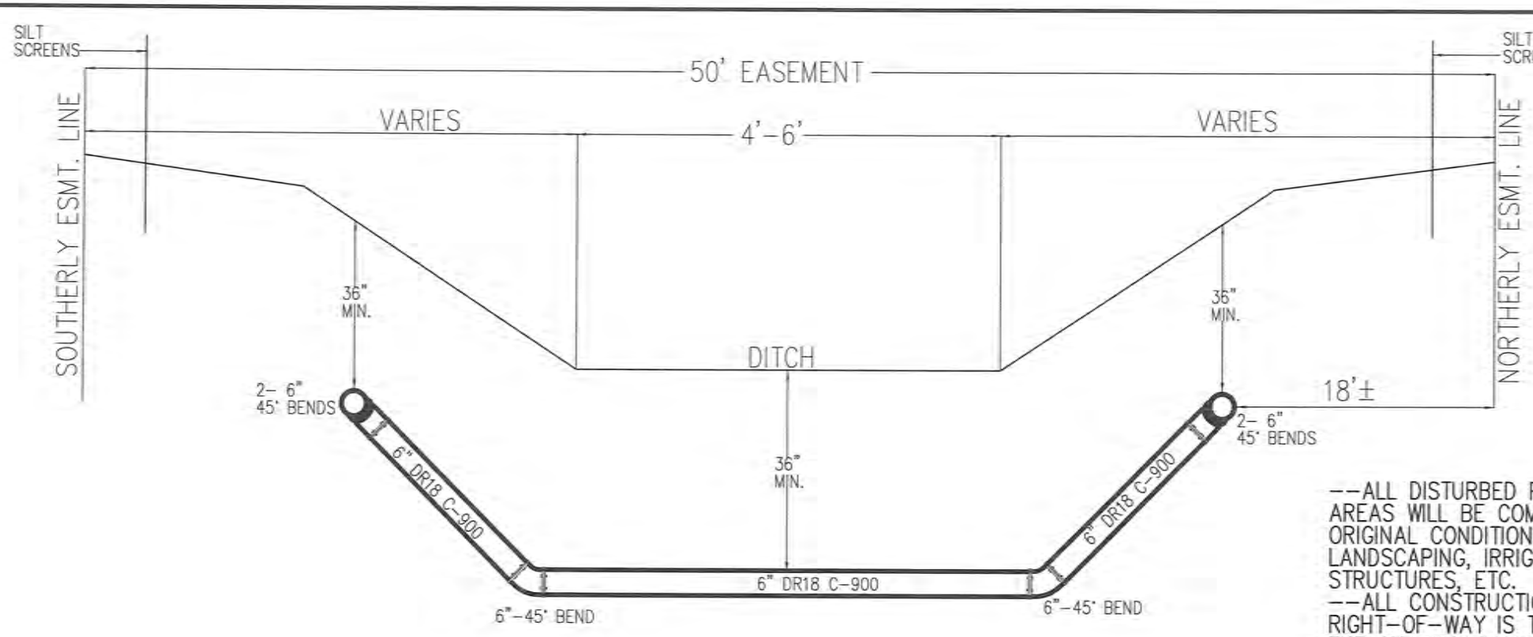
Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
3925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-5004 PHONE - 863-385-2462 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE
N.T.S.

SHEET
15 OF 19



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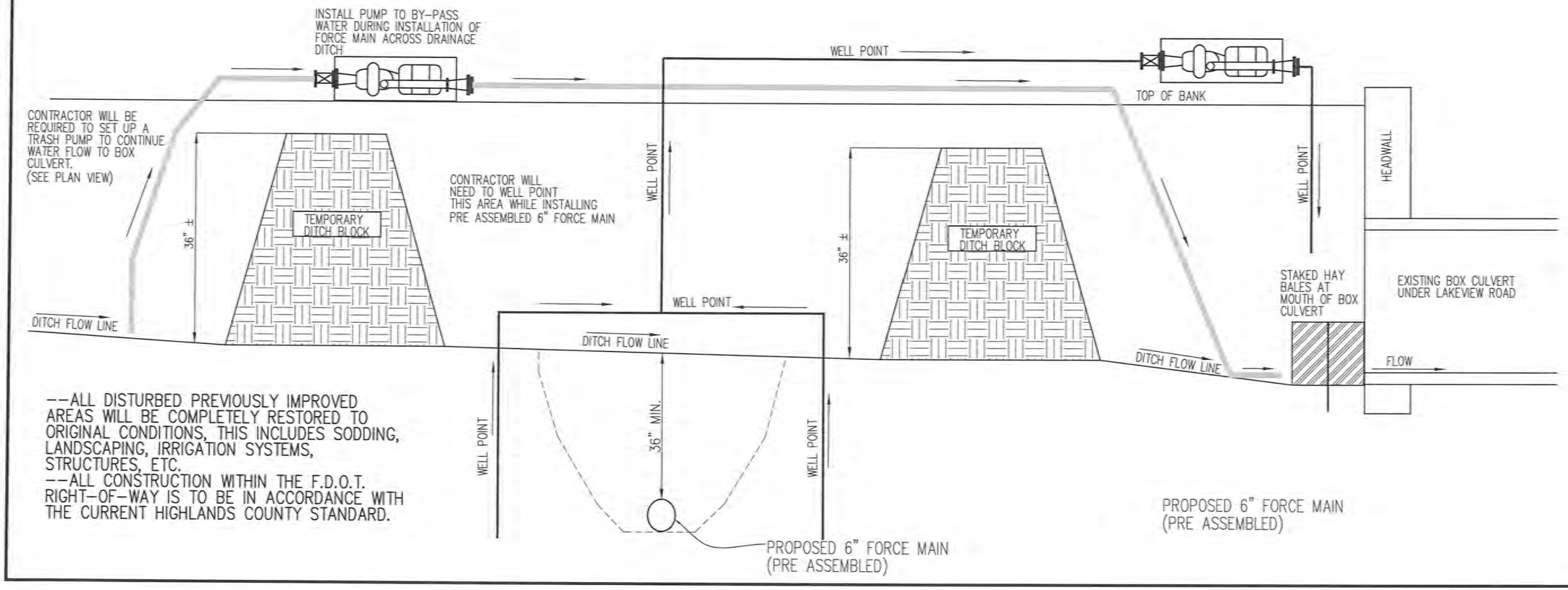
--ALL CONSTRUCTION WITHIN THE F.D.O.T. RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH THE CURRENT HIGHLANDS COUNTY STANDARD.



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ROGER DALE POLSTON LICENSE No. 33222 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE	REMARK	DR	CH
2-15-22	FDOT PRELIMINARY SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

CERTIFICATE OF AUTHORIZATION #1484
ROGER DALE POLSTON #33222
MARVIN LUTHER WOLFE #49803

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ENGINEER JOB # 21034

KFC FORCE MAIN
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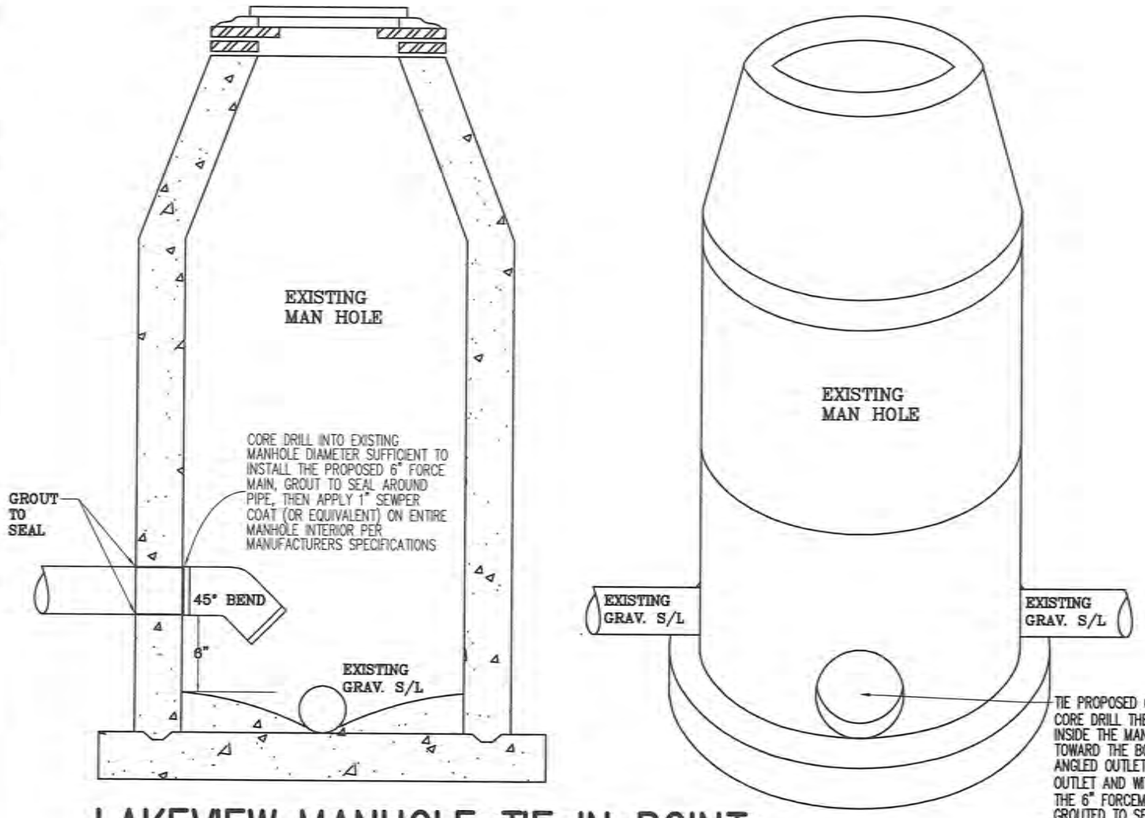
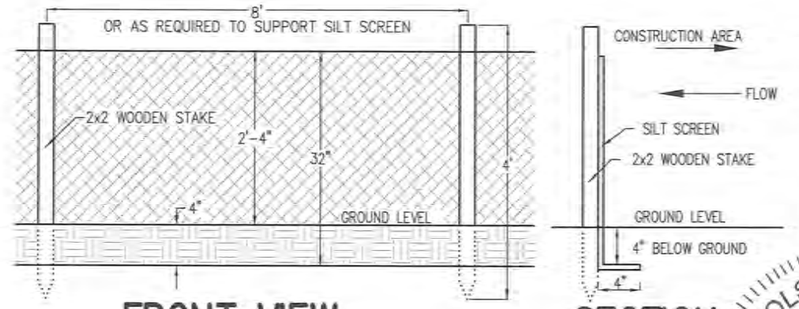
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE N.T.S.

SHEET 16 OF 19



LAKEVIEW MANHOLE TIE IN POINT



FRONT VIEW

SECTION

SILT FENCES

THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING TEMPORARY SILT FENCES IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, THESE SPECIFICATIONS, THE DETAILS AS SHOWN ON THE DRAWINGS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS.

SILT FENCES WILL BE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) TYPE III AS DESCRIBED IN FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS, INDEX 102, WITH FILTER FABRIC CONFORMING TO SECTION 985, FDOT STANDARD SPECIFICATIONS.

IN ALL CASES THE FILTER FABRIC WILL BE SECURELY ANCHORED TO THE GROUND OR BURIED IN THE GROUND SO THAT IT WILL NOT BE PUSHED UP BY THE EXPECTED RUNOFF. THE ATTACHMENT TO EXISTING TREES WILL NOT BE PERMITTED.

THE CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE ROUTINE MAINTENANCE OF PERMANENT AND TEMPORARY EROSION CONTROL FEATURES UNTIL THE PROJECT IS COMPLETED AND ACCEPTED. IF SUCH EROSION CONTROL FEATURES MUST BE RECONSTRUCTED DUE TO CONTRACTOR'S NEGLIGENCE OR CARELESSNESS OR, IN THE CASE OF TEMPORARY EROSION CONTROL FEATURES, FAILURE BY CONTRACTOR TO INSTALL PERMANENT EROSION CONTROL FEATURES AS SCHEDULED, SUCH REPLACEMENT SHALL BE AT CONTRACTOR'S EXPENSE.

SILT FENCES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION AND MUST BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

SILT/TURBIDITY SCREENS

DEWATERING NOTES:

PART 1: GENERAL

1.01 DESCRIPTION

A. SCOPE OF WORK: THE WORK TO BE PERFORMED UNDER THIS SECTION SHALL INCLUDE FURNISHING ALL EQUIPMENT AND LABOR NECESSARY TO REMOVE STORM OR SUBSURFACE WATERS FROM EXCAVATION AREAS IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH AND AS SHOWN ON THE DRAWINGS.

1.02 QUALITY ASSURANCE

A. THE DEWATERING OF ANY EXCAVATION AREAS AND THE DISPOSAL OF THE WATER SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REVISION OF ALL LOCAL AND STATE GOVERNMENT RULES AND REGULATIONS.

PART 2: PRODUCTS (NOT APPLICABLE)

PART 3: EXECUTION

3.01 DEWATERING

A. CONTRACTOR SHALL PROVIDE ADEQUATE EQUIPMENT FOR THE REMOVAL OF STORM OR SUBSURFACE WATERS WHICH MAY ACCUMULATE IN THE EXCAVATION.

B. IF SUBSURFACE WATER IS ENCOUNTERED, CONTRACTOR SHALL UTILIZE SUITABLE EQUIPMENT TO ADEQUATELY DEWATER THE EXCAVATION SO THAT IT WILL BE DRY FOR WORK AND PIPE LAYING. A WELLPOINT SYSTEM OR OTHER ENGINEER APPROVED DEWATERING METHOD SHALL BE UTILIZED IF NECESSARY TO MAINTAIN THE EXCAVATION IN A DRY CONDITION FOR PREPARATION OF THE TRENCH BOTTOM AND FOR PIE LAYING.

C. DEWATERING BY TRENCH PUMPING WILL NOT BE PERMITTED IF MIGRATION OF FINE GRAINED NATURAL MATERIAL FROM BOTTOM, SIDE WALLS OR BEDDING MATERIAL WILL OCCUR.

D. IN THE EVENT THAT SATISFACTORY DEWATERING CANNOT BE ACCOMPLISHED DUE TO SUBSURFACE CONDITIONS OR WHERE DEWATERING COULD DAMAGE EXISTING STRUCTURES, CONTRACTOR SHALL OBTAIN THE ENGINEER'S APPROVAL OF WET TRENCH CONSTRUCTION OR PROCEDURE BEFORE COMMENCING

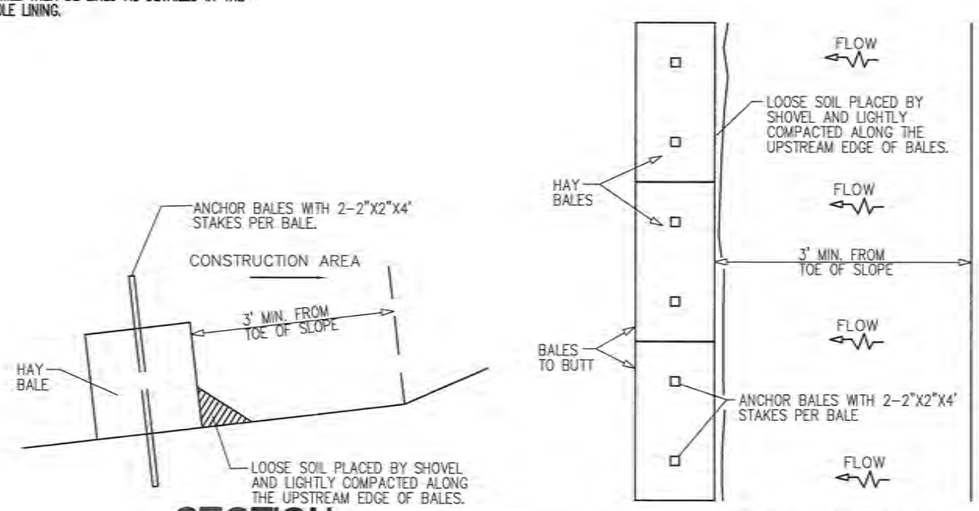
3.02 DISPOSAL

A. WATER PUMPED FROM THE TRENCH OR OTHER EXCAVATION SHALL BE DISPOSED OF IN STORM SEWERS HAVING ADEQUATE CAPACITY, CANALS OR SUITABLE DISPOSAL PITS.

B. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL PERMITS REQUIRED TO DISCHARGE THE WATER AND SHALL PROTECT WATERWAYS FROM TURBIDITY DURING THE OPERATION.

C. IN AREAS WHERE ADEQUATE DISPOSAL SITES AREA NOT AVAILABLE, PARTIALLY BACKFILLED TRENCHES MAY BE USED FOR WATER DISPOSAL ONLY WHEN THE CONTRACTOR'S PLAN FOR TRENCH DISPOSAL IS APPROVED IN WRITING BY THE ENGINEER. THE CONTRACTOR'S PLAN SHALL INCLUDE TEMPORARY CULVERTS, BARRICADES AND OTHER PROTECTIVE MEASURES TO PREVENT DAMAGE TO PROPERTY OR INJURY TO ANY PERSON OR PERSONS.

D. NO FLOODING OF STREETS, ROADWAYS, DRIVEWAYS OR PRIVATE PROPERTY WILL BE PERMITTED. ENGINES DRIVING DEWATERING PUMPS SHALL BE EQUIPPED WITH RESIDENTIAL TYPE MUFFLERS.



HAY BALES

DR	CH	REMARK	DATE
M.W.		FDOT SUBMITTAL	2-17-22
M.W.		OC-ARC-22 COVER FOR PAVEMENT MODIFICATIONS	6-6-22

CERTIFICATE OF AUTHORIZATION # 6864
ROGER DALE POLPOT LICENSE # 38222
MARVIN LUTHER WEBB LICENSE # 46800

ROGER DALE POLST LICENSE NO. 38222 STATE OF FLORIDA PROFESSIONAL ENGINEER

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DRAWING SCALE
N.T.S.

SHEET
17 OF 19

MANHOLE LINING:

1 GENERAL CHARACTERISTICS

COMPOSED ENTIRELY OF CALCIUM ALUMINATES, SEWPERCOAT®PG IS A PRE-PACKAGED READY TO USE, FIBER REINFORCED, HIGH STRENGTH WET SHOTCRETE MATERIAL.

SEWPERCOAT®PG IS A MORTAR THAT IS DESIGNED TO COAT BOTH NEW AND EXISTING MUNICIPAL WASTEWATER STRUCTURES INCLUDING MANHOLES, LIFT STATIONS, WET WELLS, ETC. IT IS DESIGNED SPECIFICALLY TO PROVIDE AN ABRASION AND CORROSION-RESISTANT, PROTECTIVE LINING THAT CAN WITHSTAND SEVERE BIOGENIC CORROSION CAUSED BY THE HYDROGEN SULFIDE (H_2S) FOUND IN WASTEWATER ENVIRONMENTS. THE UNIQUE PROPERTIES OF SEWPERCOAT®RESULT FROM THE CHEMICAL AND MINERAL PHASES FORMED DURING THE HYDRATION PROCESS.

SEWPERCOAT IS UNIQUE WHEN COMPARED TO OTHER MATERIALS SUCH AS ORDINARY PORTLAND CEMENT (OPC) CONCRETE, EPOXIES, POLY-VINYL CHLORIDE (PVC) OR POLYETHYLENE, BECAUSE OF ITS CAPACITY TO INHIBIT BACTERIAL ACTIVITY BY EFFECTIVELY NEUTRALIZING SULFURIC ACID PRODUCTION.

SEWPERCOAT®IS AN ADHESIVE MORTAR THAT POSSESSES THIN SECTION TOUGHNESS AS WELL AS HIGH COMPRESSIVE AND FLEXURAL STRENGTHS. ADDITIONAL FEATURES INCLUDE HIGH EARLY STRENGTH, FREEZE-THAW RESISTANCE AS WELL AS HIGH TEMPERATURE RESISTANCE (1,800°F/1,000°C). SEWPERCOAT®IS ALSO RESISTANT TO MANY OTHER TYPES OF CORROSION INCLUDING SULFATES, SEAWATER, OILS, GASES, AND DILUTE ACIDS (PH RANGE 3.5 -11).

SEWPERCOAT®ENHANCES THE STRUCTURAL INTEGRITY OF EXISTING SYSTEMS AND REDUCES INFILTRATION DUE TO ITS HIGH-DENSITY AND LOW-POROSITY CHARACTERISTICS.

SEWPERCOAT®PG DOES NOT RELEASE CALCIUM HYDROXIDE AS A HYDRATION PRODUCT. THIS IMPARTS GOOD CHEMICAL RESISTANCE AND ELIMINATES THE MAJOR CAUSE OF EFFLORESCENCE.

SEWPERCOAT®PG IS A VERY DARK GRAY COLOR.

SEWPERCOAT®PG DOES NOT CONTAIN CRYSTALLINE SILICA.

TYPICAL* MATERIAL PROPERTIES (PERFORMED BY AN INDEPENDENT TESTING LABORATORY)

	SEWPERCOAT®	24 HRS	7 DAYS	28 DAYS
ASTM C 109	COMPRESSIVE STRENGTH, PSI	>5,500	>7,000	>8,000
ASTM C 293	FLEXURAL STRENGTH, PSI	>1,300	>1,400	>1,600
ASTM C 596	SHRINKAGE AT 90% HUMIDITY, %	< 0.04	< 0.06	< 0.08
ASTM C 666	FREEZE-THAW AFTER 300 CYCLES		NO DAMAGE	
ASTM C 496	SPLITTING TENSILE STRENGTH		> 900 PSI	
ASTM C 882	BOND STRENGTH BY SLANT SHEAR	> 2,300 PSI AT 28 DAYS		
ASTM C 457	AIR VOID CONTENT (7 DAYS)		2-4%	
ASTM C 642	SPECIFIC GRAVITY/ABSORPTION TEST (7 DAYS)		3-5%	
	STATIC MODULUS OF ELASTICITY (24 HRS)		7.1 X 106 PSI	

*THE TEST RESULTS ABOVE WERE OBTAINED UNDER STANDARD LABORATORY CONDITIONS AND ARE PRESENTED AS TYPICAL MATERIAL PROPERTIES ONLY. THOSE PROPERTIES PRESENTED ABOVE ARE NOT WARRANTED OR GUARANTEED BY KERNEOS. PROPERTIES OBTAINED FROM FIELD CAST SPECIMENS MAY RESULT IN VALUES LOWER THAN THOSE LISTED ABOVE. THE WARRANTED MATERIAL PROPERTIES ARE PRESENTED IN SECTION TWO OF THIS PRODUCT DATA SHEET.

2 SPECIFICATIONS

SEWPERCOAT®PG SOLD AND DISTRIBUTED BY KERNEOS INC. ADHERES TO THE FOLLOWING SPECIFICATIONS:

SIEVE ANALYSIS	MIN (%)	MAX (%)
# 8 (2.36 mm)	0	0
# 16 (1.18 mm)	1.5	9.5
# 30 (600 mm)	22	32
# 50 (300 mm)	38	52
# 100 (150 mm)	48	62
# 200 (75 mm)	52	68
PAN	32	48

MORTAR PROPERTIES (USING 14.5% WATER)

VIBRATION FLOW
- 0 MIN. 120 – 160 %
- 30 MIN. 110 – 160 %

PENETROMETER FINAL SET
- 4 -10 HOURS

COMPRESSIVE STRENGTH @ 24 HOURS
- 5500 – 11000 PSI

FOR DETAILED TEST PROCEDURES, PLEASE CONTACT A KERNEOS TECHNICAL OR QUALITY MANAGER.

3 TECHNICAL PROPERTIES

BIOGENIC CORROSION RESISTANCE: SEWPERCOAT®WITHSTANDS CORROSIVE ENVIRONMENTS CONTAINING H2S GAS, WHICH SHOW STRONG THIOBACILLUS BACTERIAL ACTIVITY. DUE TO ITS HIGH NEUTRALIZATION CAPACITY, SEWPERCOAT®HAS BEEN SHOWN TO LOCALLY RAISE THE SURFACE PH FOUND ON THE SURFACE OF WASTEWATER STRUCTURES AND PREVENTS THE SUCCESSFUL COLONIZATION OF THE MOST AGGRESSIVE STRAINS OF BACTERIA.

ABRASION RESISTANCE: U.S. ARMY CORPS OF ENGINEERS TEST CRD-C-63-80, TEST METHOD FOR ABRASION-EROSION RESISTANCE OF CONCRETE, RESULTED IN 0.5% WEIGHT LOSS AFTER 12 HOURS OF TESTING AND 2.0% WEIGHT LOSS AFTER 72 HOURS OF TESTING. TYPICAL 5,000-PSI HIGH-PERFORMANCE OPC CONCRETE EXPERIENCED A 3.6% WEIGHT LOSS AFTER ONLY 12 HOURS OF TESTING. SEWPERCOAT®IS APPROXIMATELY SEVEN TIMES MORE RESISTANT TO THIS TYPE OF ABRASION THAN HIGH-PERFORMANCE OPC CONCRETE.

AGGREGATE SIZE: #14 MESH AND FINER (0 -1.4MM)

WORKING TIME AT 68°F: 2 HOURS

WET DENSITY AT 68°F: 148–155 LB./FT3 (2.4 -2.5 G/CC)

COEFFICIENT OF THERMAL EXPANSION: 5 X 10-6 IN/IN/°F (68°F TO 1832°F)

4 CHEMICAL COMPOSITION

SEWPERCOAT®CONTAINS NO CALCIUM SULFATE, CALCIUM CHLORIDE, TRICALCIUM ALUMINATE, LIME HYDRATES OR AGGRESSIVE AGENTS THAT ATTACK REINFORCING STEEL. THE HIGH-PERFORMANCE PROPERTIES OF SEWPERCOAT®ARE ACHIEVED THROUGH A BLEND OF MINERAL ELEMENTS.

CHEMICAL ANALYSIS MAIN CONSTITUENTS

Al2O3	CaO	FeO+Fe2O3	SiO2
41% – 46%	33% – 38%	8% – 13%	4% – 9%

5 INSTALLATION

CLEAN, POTABLE WATER SHOULD BE USED FOR MIXING. THE WATER REQUIREMENT IS PROVIDED ON EACH INDIVIDUAL BAG AND IS CRITICAL TO OBTAIN THE SPECIFIED PERFORMANCE PROPERTIES. ALWAYS STAY WITHIN THE RECOMMENDED SPECIFICATIONS FOR MIXING WATER.

SEWPERCOAT®PRODUCTS ARE NOT DESIGNED TO BE HANDAPPLIED. SEWPERCOAT®PG IS DESIGNED TO BE APPLIED WITH LOW-PRESSURE, WET-SPRAY EQUIPMENT.

PREPARATION OF THE SURFACE TO BE COATED SHOULD BE PERFORMED IN ACCORDANCE WITH APPLICABLE INDUSTRY STANDARDS AND SPECIFIC PROJECT SPECIFICATION REQUIREMENTS. SANDBLASTING AND/OR HYDRO-DEMOLITION WITH HIGH-PRESSURE WATER MAY BE USED TO REMOVE EXISTING DETERIORATION AND DEBRIS. THE IMMEDIATE BONDING SURFACE SHOULD BE ROUGH, DAMP AND FREE OF ANY EXISTING COATINGS, SEWER RESIDUE AND RUNNING WATER. THE STRUCTURE ITSELF SHOULD BE FULLY SATURATED PRIOR TO A SEWPERCOAT® INSTALLATION. PLEASE SEE OUR SUGGESTED SEWPERCOAT®SPECIFICATION LANGUAGE FOR DETAILED SURFACE PREPARATION RECOMMENDATIONS.

SEWPERCOAT®PRODUCTS ARE TO BE USED AS PACKAGED. UNDER NO CIRCUMSTANCES SHOULD ANY SUBSTANCE OTHER THAN WATER BE ADDED TO SEWPERCOAT®PRODUCTS.

SEWPERCOAT®SHOULD NOT BE USED AS A "BUILD-OUT"MIX OR UNDERLAYMENT FOR ANY OTHER PRODUCT. SEWPERCOAT®SHOULD NOT BE USED IN CONJUNCTION WITH OR ADJACENT TO ANY INERT OR ORGANIC COATINGS, INCLUDING BUT NOT LIMITED TO EPOXY, POLYURETHANE, POLYUREA, AND FIBERGLASS. CURING SHOULD BE IMPLEMENTED AS SOON AS THE SURFACE BEGINS TO HARDEN AND DRY (AS EARLY AS ONE HOUR AFTER APPLICATION). SEVERAL LAYERS OF ASTM C309 LIQUID MEMBRANE CURING COMPOUND OR A 100%-HUMID MOISTURE CURE MAY BE USED.

EQUIPMENT USED MUST ALWAYS BE CLEAN AND FREE OF PORTLAND CEMENT BUILD-UP TO AVOID ACCELERATED SET.

GENERALLY ACCEPTED CONCRETING PRACTICES (WATER RATIO PER BAG, COMPACTION, CURING, ETC.) SHOULD BE EMPLOYED TO OBTAIN THE BEST QUALITY INSTALLATION WITH RESPECT TO MECHANICAL STRENGTH AND CORROSION RESISTANCE.

6 AVAILABILITY

SEWPERCOAT®IS AVAILABLE IN NORTH AMERICA DIRECTLY THROUGH KERNEOS INC. MAIN OFFICE AND WAREHOUSES.

SEWPERCOAT®IS PACKAGED IN VARIOUS BAG SIZES DEPENDING UPON APPLICATION AND INSTALLATION METHODS. SEWPERCOAT®PG IS TYPICALLY SUPPLIED PALLETIZED IN 65-LB BAGS.

FOR MORE INFORMATION ABOUT SEWPERCOAT®, INCLUDING A LIST OF INSTALLERS, PLEASE CONTACT KERNEOS INC. AT 1-800- 524-8463.

7 TECHNICAL ASSISTANCE

A LICENSED PROFESSIONAL ENGINEER IS RESPONSIBLE FOR THE DETERMINATION OF SUITABILITY, OVERALL DESIGN, SPECIFICATIONS AND FOLLOW UP FOR EACH PROJECT.

KERNEOS INC. HAS A TECHNICAL ASSISTANCE DEPARTMENT WITH ON-SITE LABORATORY FACILITIES AVAILABLE TO PROVIDE CUSTOMER SUPPORT.

KERNEOS ASSISTANCE IN TECHNICAL PLANNING AND INSTALLATION OF A PROJECT DOES NOT WARRANT THE SUCCESS OF ANY APPLICATION AND IS NOT A SUBSTITUTE FOR PROFESSIONAL ENGINEERING JUDGMENT.

8 PACKAGING & SHELF LIFE

SEWPERCOAT®PG IS AVAILABLE PALLETIZED IN 65-LB BAGS. SEWPERCOAT®PG PACKAGING IS DESIGNED TO PROTECT IT FROM HUMIDITY. HOWEVER, AS WITH ALL PREPACKAGED CONCRETES, SEWPERCOAT®PG SHOULD NOT BE PLACED OUTDOORS OR IN DIRECT CONTACT WITH THE GROUND. WHEN CORRECTLY STORED IN DRY CONDITIONS, THE PROPERTIES OF SEWPERCOAT®PG SHOULD REMAIN WITHIN SPECIFICATION LIMIT FOR AT LEAST 6 MONTHS. IN MOST CASES, ITS PROPERTIES WILL BE RETAINED FOR OVER A YEAR.

SEWPERCOAT®10 YEAR LIMITED WARRANTY (OWNER)

THIS WARRANTY EXTENDS TO THE OWNER OF THE STRUCTURE TO WHICH SEWPERCOAT®IS APPLIED, EFFECTIVE AS OF THE OWNER'S ACCEPTANCE OF THE WORK: KERNEOS WARRANTS TO THE OWNER THAT SEWPERCOAT®PG, WHEN INSTALLED IN COMPLIANCE WITH THE RECOMMENDED INSTALLATION GUIDELINES PUBLISHED BY KERNEOS, WILL PROTECT SANITARY WASTEWATER STRUCTURES FROM BIOGENIC CORROSION CAUSED BY EXPOSURE TO SANITARY SEWERAGE ENVIRONMENT. TO BE HONORED, CLAIMS MUST BE FILED BY THE OWNER WITHIN 10 YEARS OF ACCEPTANCE OF THE WORK BY OWNER. KERNEOS'OBLIGATIONS HEREUNDER EXTEND ONLY TO PROVIDING LABOR AND MATERIAL TO REPLACE THE DEFECTIVE MATERIAL.

THIS WARRANTY EXCLUDES CONSEQUENTIAL AND INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGE TO EQUIPMENT AND PERIPHERAL FACILITIES, SERVICE INTERRUPTION, AND LOSS OF USE). THIS WARRANTY APPLIES TO SANITARY SEWAGE EXPOSURE ONLY. EXPOSURE TO EFFLUENT, CHEMICALS, OR CONTAMINANTS FROM INDUSTRIAL DISCHARGE WILL VOID THIS LIMITED WARRANTY.

SEWPERCOAT®LIMITED WARRANTY (BUYER)

KERNEOS WARRANTS TO THE BUYER OF THIS PRODUCT THAT, AT THE TIME OF SHIPMENT, THE PRODUCT CONFORMS TO THE SPECIFICATIONS SET FORTH IN SECTION 2 OF THE APPLICABLE PRODUCT DATA SHEET. TO BE HONORED, CLAIMS UNDER THIS WARRANTY MUST BE FILED BY THE BUYER WITHIN 30 DAYS OF USE OF THE PRODUCT OR 6 MONTHS OF DELIVERY TO ITS BUYER, WHICHEVER COMES FIRST. KERNEOS'SOLE OBLIGATION AND THE SOLE AND EXCLUSIVE REMEDY OF BUYER UNDER THIS WARRANTY SHALL BE THE REPLACEMENT OF ANY NONCONFORMING PRODUCT OR, AT KERNEOS'OPTION, THE REFUND OF THE PURCHASE PRICE PAID BY ITS BUYER.

DISCLAIMER OF OTHER WARRANTIES

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, TO OWNER OR BUYER EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. ALL OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. NO WARRANTY IS GIVEN FOR, OR MAY BE IMPLIED FROM, ANY TECHNICAL ADVICE OR RECOMMENDATIONS PROVIDED BY KERNEOS.

WARRANTY CLAIM PROCEDURE

KERNEOS RESERVES THE RIGHT TO INSPECT AND DETERMINE WHETHER ANY CLAIM IS THE RESULT OF A BREACH OF A WARRANTY SET FORTH HEREIN OR IS RELATED TO ANOTHER CAUSE (ALL OTHER CAUSES ARE EXPRESSLY EXCLUDED FROM COVERAGE BY THE WARRANTIES CONTAINED HEREIN).

ANY CLAIM UNDER THIS LIMITED WARRANTY REQUIRING AN INVESTIGATION BY KERNEOS MAY REQUIRE EXTENSIVE LABORATORY TESTING. IT IS THE RESPONSIBILITY OF ANY PARTY MAKING A CLAIM TO MAKE ANY PRODUCT OR STRUCTURE REQUIRING TESTING ACCESSIBLE AND AVAILABLE TO KERNEOS WITHIN A REASONABLE PERIOD OF TIME AFTER A CLAIM ARISES. INSPECTION, INCLUDING THICKNESS VERIFICATION AND THE GATHERING OF SPECIMENS FOR TESTING MAY REQUIRE THE REMOVAL OF A PORTION OF THE SEWPERCOAT®LINING IN QUESTION OR, IF A STRUCTURE REQUIRING INVESTIGATION CANNOT BE MADE READILY ACCESSIBLE, THE REMOVAL OF ANY FRAMES, COVERS, OR OBSTRUCTIONS. AT KERNEOS'OPTION, TECHNICAL INVESTIGATIONS AND TESTING MAY BE PERFORMED BY EITHER KERNEOS INTERNAL FACILITIES OR BY AN INDEPENDENT AGENCY.

IT IS THE RESPONSIBILITY OF THE CUSTOMER TO MAINTAIN AND DOCUMENT PRODUCT INSTALLATION AND JOB ACCEPTANCE REPORTS IN ACCORDANCE WITH ALL APPLICABLE INSTRUCTIONS INCLUDING, WITHOUT LIMITATION, THE LOCATION AND DATE, THE QUANTITIES INSTALLED, THE MIXING METHODS, SURFACE PREPARATION PROCEDURES USED, INSTALLATION PERSONNEL, AND EXISTING CONDITIONS OF THE STRUCTURE INCLUDING H2S CONCENTRATIONS AND INITIAL SURFACE PH. KERNEOS WILL PROVIDE INSTALLATION REPORT FORMS UPON REQUEST.

DATE	REMARK	DR	CH
3-15-22	FDOT SUBMITTAL	MLW	
04-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

ROGER DALE POLSTON
LICENSE No. 33292
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2925 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-5064 PHONE – 863-385-2462 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE
N.T.S.

PIPE SPECIFICATION:

SEWER FORCE MAIN

FORCE MAINS –	4", 6", 8", 10"AND 12" AWWA APPROVED C-900 PVC DR 18 ASTM D1784 (GREEN COLOR)
DIRECTIONAL BORE PIPE–	4 & 6" AWWA POLY-PIPE SDR 11, AWWA C-906 ASTM D 3350 GREEN STRIPED FOR SEWER
FITTINGS	4" AND LARGER- CLASS 250 (MINIMUM) DUCTILE IRON MEG-A-LUG ACCESSORIES
TAPPING SLEEVE	STAINLESS STEEL, JCM 432

1. ALL PIPE MATERIAL WILL BE AWWA OR ASTM STANDARD.
2. ALL FORCE MAIN 4" – 12" WILL BE AWWA C-900 DR 18.
3. ALL POLYETHYLENE PIPE FOR PIPE SIZES 1/2" TO 3" SHALL MEET THE REQUIREMENTS OF AWWA C-901
4. POLYETHYLENE PIPE SIZES 4" TO 63" SHALL MEET THE REQUIREMENTS OF AWWA C-906.
5. ALL MEGA-LUG RESTRAINTS WILL BE DOMESTIC EBAA ONLY.
6. ALL MATERIALS WILL BE FROM THE CITY OF SEBRING APPROVED MATERIALS LIST.
7. ALL FITTINGS WILL BE MEGA-LUG.

NOTE: EACH SUBCONTRACTOR WILL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL UTILITIES EFFECTED BY HIS WORK.

INSTALLATION INSTRUCTIONS:

--THE SUBCONTRACTOR WILL BE RESPONSIBLE FOR TAKING ALL STEPS NECESSARY INCLUDING SHORING TO INSURE THE INTEGRITY OF THE ALL EXISTING PAVEMENTS, UTILITIES AND STRUCTURES AND BE RESPONSIBLE FOR REPLACEMENT OR REPAIR OF ANY DAMAGE CAUSED BY OR RELATED TO CONSTRUCTION OF WATERLINE.

--THE PIPE SHALL BE BEDDED IN COMPACTED CLEAN SAND WITH ALL ORGANIC MATTER AND DEBRIS REMOVED.

--BACK FILL SHALL BE OF SIMILAR MATERIAL AND PLACED BY HAND AND COMPACTED BY TAMPING TO AT LEAST 12" OVER THE TOP OF THE PIPE.

--ALL FILL TO BE CLEAN SAND AND TO BE PLACED IN APPROXIMATE 12" LAYERS AND IS TO BE COMPACTED BY ROLLING OR TAMPING.

--PIPE IS TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS, USING THE MANUFACTURER SPECIFIED JOINT LUBRICANTS AND CEMENTS IF REQUIRED.

--ALL DISTURBED AREAS WITHIN THE CITY, COUNTY AND STATE R/W ARE TO BE RESTORED AND SODDED.

--THE CONNECTION TO THE CITY OF SEBRING UTILITIES SEWER COLLECTION SYSTEM WILL BE DONE TO THE CITY OF SEBRING UTILITIES SPECIFICATIONS UNDER THE UTILITY DEPARTMENT SUPERVISION REQUIREMENTS.

--THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES, ROADS AND STRUCTURES DAMAGED DURING THE DIRECTIONAL BORE OR JACK AND BORE CONSTRUCTION PHASE.

TESTING:

--ALL TESTS WILL REQUIRE THE PRESENCE OF THE ENGINEER, CONTRACTOR OR HIS DESIGNATED INSPECTOR.

--ALSO PRESENT WILL BE A DESIGNATED INSPECTOR FROM THE CITY OF SEBRING UTILITIES.

--THE SUBCONTRACTOR SHALL TAKE ALL PRECAUTIONS TO SECURE A WATERTIGHT SEWER LINE UNDER ALL CONDITIONS.

--ALL VISIBLE DAMAGE FLAWS SHALL BE REPAIRED OR REPLACED REGARDLESS OF THE OUT COME OF ANY TESTING PERFORMED.

--TEST SHALL BE PERFORMED PRIOR TO CONNECTION TO THE CITY OF SEBRING UTILITIES SEWER COLLECTION SYSTEM.

FORCE MAIN LINES:

--THE FORCE MAIN LINES SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF 150 PSI FOR AT LEAST 2 HOURS.

THE SUBCONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT TO PERFORM ALL TESTS.

HYDROSTATIC TESTS

1) ALL COMPONENTS OF THE FORCE MAIN SYSTEM, INCLUDING FITTINGS, SERVICES, CONNECTIONS, AND VALVES SHALL BE HYDROSTATIC TESTED. SPECIFIC DISTRIBUTION SYSTEM COMPONENTS INCLUDING FITTINGS AND VALVES, SHALL REMAIN UNCOVERED UNTIL TESTED AND APPROVED, PROVIDED, HOWEVER, THAT PIPE TRENCHES UNDER TRAVELED STREETS OR ROADS MAY BE BACKFILLED WITH THE PERMISSION OF THE PROJECT ENGINEER. NO TESTING SHALL BE DONE UNTIL ALL CONCRETE THRUST BLOCKING IS IN PLACE AND SET. IF HIGH EARLY STRENGTH CONCRETE IS USED, TESTING MAY BE CONDUCTED 48 HOURS AFTER THE CONCRETE IS PLACED; OTHERWISE, THRUST BLOCK CONCRETE MUST CURE 5 DAYS BEFORE PRESSURE TESTING COMMENCES. IN TESTING, THE PART OF THE SYSTEM UNDER TEST SHALL BE FILLED WITH POTABLE WATER AND SUBJECTED TO A SUSTAINED PRESSURE OF 150 PSI. THE PIPING SHALL BE TESTED IN SECTIONS, THEREBY TESTING EACH VALVE FOR SECURE CLOSURE. WHILE THE SYSTEM IS BEING FILLED, AIR SHALL BE CAREFULLY AND COMPLETELY EXHAUSTED. IF PERMANENT AIR VENTS ARE NOT LOCATED AT ALL HIGH POINTS, THE CONTRACTOR SHALL INSTALL CORPORATION STOPS OR FITTINGS AND VALVES AT SUCH POINTS SO THE AIR CAN BE EXPELLED AS THE PIPE SYSTEM IS SLOWLY FILLED WITH WATER.

2) TEST PRESSURE SHALL BE MAINTAINED BY PUMPING FOR AT LEAST TWO HOURS AND UNTIL ALL SECTIONS UNDER TEST HAVE BEEN CHECKED FOR EVIDENCE OF LEAKAGE. RATE OF LOSS SHALL NOT EXCEED THAT SPECIFIED BELOW, "ALLOWABLE LIMITS FOR LEAKAGE". VISIBLE LEAKS SHALL BE CORRECTED REGARDLESS OF TOTAL LEAKAGE SHOWN BY TEST.

3) THE SYSTEM AS A WHOLE, OR ANY PART, SHALL BE TESTED PRIOR TO CONSTRUCTION OF ANY SUBDIVISION ROADWAY OR PAVEMENT OVER THE WATER SYSTEM.

4) THE SYSTEM AS A WHOLE, OR ANY PART, SHALL BE RETESTED AFTER COMPLETION OF BACKFILLING WHEN IT IS BELIEVED NECESSARY, AS DIRECTED BY THE PROJECT ENGINEER. THE SYSTEM SHALL ALSO BE RETESTED UPON COMPLETION OF SUBDIVISION ROADWAY OR OTHER PAVEMENT CONSTRUCTION THAT IS CONSTRUCTED OVER THE WATER SYSTEM.

5) ALL PUMPS, GAUGES, AND MEASURING DEVICES SHALL BE FURNISHED, INSTALLED, AND OPERATED BY THE CONTRACTOR AND ALL SUCH EQUIPMENT AND DEVICES AND THEIR INSTALLATION SHALL BE APPROVED BY THE PROJECT ENGINEER. ALL PRESSURES AND LEAKAGE TESTING SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE OF THE ENGINEER.

6) WATER FOR TESTING SHALL BE POTABLE WATER PROVIDED BY THE CONTRACTOR FROM A SOURCE APPROVED BY THE PROJECT ENGINEER.

THE HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED AS SPECIFIED AND NO INSTALLATION, OR SECTION THEREOF, WILL BE ACCEPTABLE UNTIL THE LEAKAGE IS LESS THAN THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FORMULA:

$$L = \frac{N*D*\sqrt{P}}{7400}$$

IN WHICH,

L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR
N = APPROXIMATE NUMBER OF JOINTS IN THE SECTION OF MAIN BEING TESTED
D = PIPE DIAMETER; IN INCHES
P = THE AVERAGE TEST PRESSURE DURING THE TEST, IN GAUGE PSI

DIRECTIONAL BORE PIPE SPECIFICATIONS: 4" SDR 11 HDPE
ASTM D3350 AND ASTM F-714
GREEN STRIPE POLYETHYLENE PE3408
HDPE FORCE MAIN

NOTE: SDR 11 HDPE WILL BE USED FOR ALL DIRECTIONAL BORES.

DIRECTIONAL BORE NOTES FOR FORCE MAIN:

–BEFORE ANY CONSTRUCTION IS STARTED, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES AND VERIFYING EXACT LOCATION AND ELEVATION OF UTILITIES NOT LIMITED TO TELEPHONE, WATER, SEWER, GAS AND CABLE.

–DURING DIRECTIONAL BORE OPERATION, THE CONTRACTOR (AT HIS EXPENSE, IF REQUIRED) MUST HAVE A REPRESENTATIVE OF EACH UTILITIES ON SITE AS A PREVENTATIVE MEASURE IN THE EVENT OF RUPTURE OF ANY UTILITIES SERVICES. IN LIEU OF A REPRESENTATIVE FROM THE UTILITY A NOTARIZED DOCUMENT FROM THE UTILITY STATING A REPRESENTATIVE IS NOT NEEDED ON SITE WILL BE ACCEPTABLE.

–ANY ITEMS GOVERNING THE CONSTRUCTION NOT COVERED IN THE PLANS AND SPECIFICATIONS WILL BE GOVERNED BY THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, "UTILITY ACCOMMODATION MANUAL", LATEST EDITION, DOCUMENT NUMBER 710-020, THE MAINTENANCE ENGINEER, OR HIS REPRESENTATIVE.

–ALL PERMITS FOR CONSTRUCTION WILL BE POSTED ON SITE.

–THE ACTUAL CROSSING OPERATION SHALL BE ACCOMPLISHED DURING DAYLIGHT HOURS.

–ANY ALTERATION OR WAIVER MUST BE APPROVED BY THE HIGHLANDS COUNTY ENGINEER AND THE ENGINEER OF RECORD.

–****TWO (2) 12 GAUGE TRACER WIRES WILL BE TAPED ON THE H.D.P.E. DIRECTIONAL BORE AS PER DESIGN STANDARD 555-4.2. –ERECTION OR INSTALLATION OF APPROPRIATE SAFETY AND WARNING DEVICES IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION MANUAL ON M.V.T.C.D. PRIOR TO BEGINNING WORK.

–SDR 11 WILL BE FLUSHED WITH CLEAN WATER AND BOTH ENDS CAPPED.

*** NOTE: ALL CROSSINGS OF WATER LINES OVER SEWER LINE AND/OR STORM DRAINS WILL HAVE A 18" VERTICAL SEPARATION OR:

1.) WATER LINE WILL BE ENCASED WITH CONCRETE 10' BOTH SIDES OF CROSSING.
2.) SEWER LINE WILL BE ENCASED AIR TIGHT WITH PVC 10' BOTH SIDES OF CROSSING.

SDR-11 FORCE MAIN DIRECTIONAL PIPE:

–THE SDR-11 FORCE MAIN PIPE SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF 150 PSI FOR AT LEAST 2 HOURS PRIOR TO CONNECTING TO THE SEWER SYSTEM.

–THE FORCE MAIN SDR-11 PIPE SHALL BE FLUSHED WITH CLEAN WATER PRIOR TO CONNECTION TO THE SEWER SYSTEM.

TESTING H.D.P.E. DIRECTIONAL BORE AND OPEN TRENCHING HDPE PIPE:

–THE H.D.P.E. PIPING SHOULD BE PRESSURE TESTED BEFORE BEING PUT INTO SERVICE. AFTER ALL FREE AIR IS REMOVED FROM THE TEST SECTION, RAISE THE PRESSURE AT A STEADY RATE TO THE REQUIRED PRESSURE. THE PRESSURE IN THE SECTION SHALL BE MEASURED AS CLOSE AS POSSIBLE TO THE LOWEST POINT OF THE TEST SECTION.

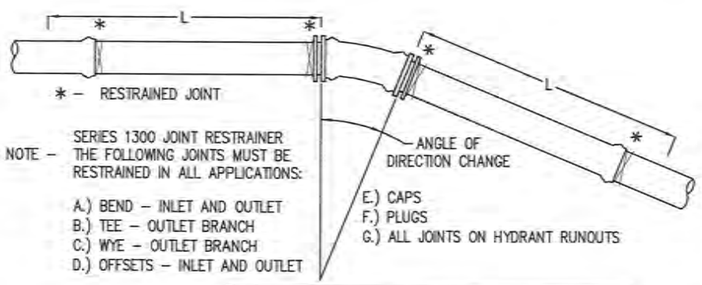
–TEST PRESSURE SHOULD NOT EXCEED 1.5 TIMES THE RATED OPERATING PRESSURE OF THE PIPE OR THE LOWEST RATED COMPONENT IN THE SYSTEM. INITIALLY, THE PIPE SHOULD BE RAISED TO TEST PRESSURE AND ALLOWED TO STAND WITHOUT MAKEUP PRESSURE FOR A SUFFICIENT TIME TO ALLOW FOR EXPANSION OF THE PIPE. THIS USUALLY OCCURS WITHIN 2-3 HOURS. AFTER EQUILIBRIUM IS ESTABLISHED, THE TEST SECTION IS PRESSURIZED TO 1.5 TIMES OPERATING PRESSURE, THE PUMP IS TURNED OFF, AND THE FINAL TEST PRESSURE IS HELD FOR 2 HOURS.

–POLYETHYLENE PIPE HOLDS PRESSURE BY DEVELOPING STRESS IN ITS WALLS. THIS PROCESS CONTINUES THROUGHOUT THE TEST PERIOD, AND THE PIPE INCREASES SLIGHTLY IN DIAMETER. PRESSURE DROP WILL OCCUR DUE TO CONTINUED EXPANSION OF THE PIPE DURING THE SECOND PHASE OF THE TEST. A DROP IN PRESSURE DURING THE TEST PHASE IS COMMON AND DOES NOT PROVE WITH ABSOLUTE CERTAINTY THAT A LEAK OR FAILURE IS PRESENT IN THE SYSTEM. POLYETHYLENE PIPE IS TESTED BY MEASURING THE "MAKE UP" WATER REQUIRED TO RETURN THE SECTION TO TEST PRESSURE. ALLOWABLE AMOUNTS OF MAKEUP WATER FOR EXPANSION DURING THE PRESSURE TEST ARE SHOWN IN THE TABLE BELOW. IF THE PRESSURE IS NOT RETURNED WITHIN THE ALLOWABLE VOLUME OF WATER, THE TEST FAILS. IF THERE ARE NO VISUAL LEAKS OR SIGNIFICANT PRESSURE DROPS DURING THE FINAL TEST PERIOD, THE PIPELINE PASSES THE TEST.

NOTE: UNDER NO CIRCUMSTANCES SHALL THE TOTAL TIME UNDER THE TEST EXCEED EIGHT (8) HOURS AT 1.5 TIMES THE PRESSURE RATING OF THE LOWEST RATED COMPONENT IN THE SYSTEM. IF THE TEST IS NOT COMPLETED DUE TO LEAKAGE, EQUIPMENT FAILURE, ETC., THE TEST SECTION SHALL BE ALLOWED TO "RELAX" FOR EIGHT (8) HOURS PRIOR TO THE NEXT TEST.

ALLOWANCE FOR EXPANSION (U.S. GALLONS/100 FEET OF PIPE)

NOMINAL PIPE SIZE (INCHES)	2 HOUR TEST
2 and 3	0.15
4	0.25
6	0.60
8	1.0
10	1.30
11	2.0
12	2.3
14	2.8
16	3.3



FITTING TYPE	PIPE SIZE 4" OR LESS	6"	8"	10"	12"
TEE BRANCH LEG	18'	40'	67'	90'	113'
90° BEND	24'	33'	45'	55'	64'
45° BEND	18'	18'	21'	24'	26'
ALL OTHER BENDS	18'	18'	20'	20'	20'
END OF DIRECTIONAL BORE	18'	18'	20'	20'	20'
VALVE	20'	25'	33'	39'	46'
DEAD ENDS	45'	62'	76'	90'	113'

THRUST RESTRAINING TABLE

ALL VALVES AND FITTINGS SHALL BE RESTRAINED AGAINST THRUST FROM 150 PSI TEST PRESSURE BY USING FLANGED OR "MEGALUG" TYPE CONNECTORS. ALL PIPE JOINTS LYING WITHIN THE LISTED MINIMUM DISTANCE OF ANY FITTING OR VALVE SHALL ALSO BE RESTRAINED. WHEN CASINGS (CARRY PIPE) FALL WITHIN THE MINIMUM DISTANCE FROM A FITTING, RESTRAIN ALL JOINTS INSIDE THE CASING (CARRY PIPE) IN ADDITION TO THE REQUIRED MINIMUM LENGTH OF BURIED PIPE.

WHEN A FITTING WITH A LESSER THRUST RESTRAINING LENGTH FALLS WITHIN A LONGER THRUST RESTRAINING REQUIREMENT, THEN BOTH RESTRAINED LENGTHS ARE REQUIRED TO BE MET. A FITTING PLACED WITHIN THE THRUST RESTRAINING LENGTH OF ANOTHER FITTING WILL NOT REDUCE THE LENGTH OF THE LONGER THRUST RESTRAINING LENGTH REQUIREMENT.

THE CHART ABOVE DESCRIBES THE MINIMUM LENGTH OF PIPE THAT SHALL BE CONTINUOUSLY RESTRAINED ON BOTH SIDES OF DIFFERENT TYPES AND SIZES OF FITTINGS. IF THE JOINT FALLS AT THE LENGTH DESIGNATED IN THE CHART THAT JOINT WILL BE RESTRAINED. THE THRUST RESTRAINING LENGTHS REQUIRED BY THE MANUFACTURE OF THE THRUST JOINT RESTRAINT USED WILL SUPERSEDE THESE LENGTHS IF LONGER.

DEAD END VALVES FOR FUTURE EXPANSION WILL BE RESTRAINED BACK TO THE FITTING

DATE	REMARK	DR.	CH.
2-15-22	FDOT SUBMITTAL	M.W.	
04-ABR-22	COVER FOR PAVEMENT, MODIFICATIONS	M.W.	

ROGER DALE POLSTON ★ LICENSE No. 33222 ★ STATE OF FLORIDA ★ ENGINEER

CERTIFICATE OF AUTHORIZATION # 30
ROGER DALE POLSTON P.E. # 33222
MARVIN HUTTER WOLFE P.E. # 46031

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Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
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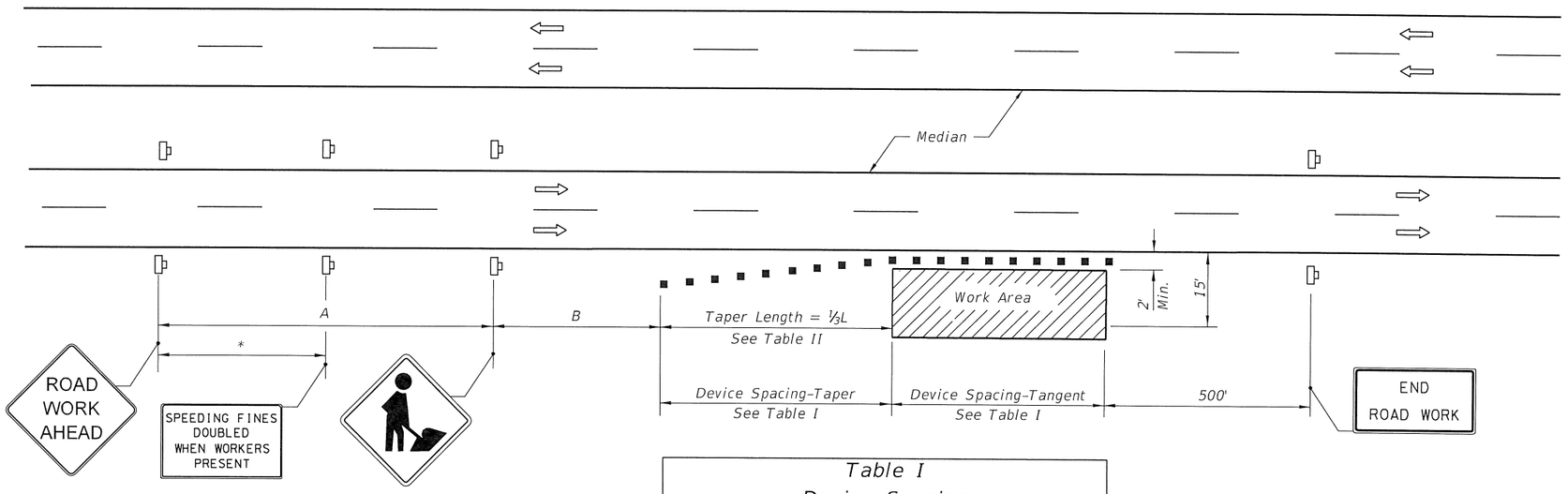
863-386-6644 PHONE – 863-386-2662 FAX

ENGINEER JOB # 21034

KFC FORCE MAIN
TO THE CITY OF SEBRING COLLECTION SYSTEM
6" FORCE MAIN EXTENSION
PLAN VIEW

DRAWING SCALE
N.T.S.

SHEET
19 OF 19



DISTANCE BETWEEN SIGNS		
Speed	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

*250' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Taper Length - Shoulder

Speed (mph)	1/3L (ft.)			Notes
	8' Shldr.	10' Shldr.	12' Shldr.	
25	28	35	42	$L=\frac{WS^2}{60}$
30	40	50	60	
35	55	68	82	
40	72	90	107	
45	120	150	180	L=WS
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width.

1/3L = Length of shoulder taper in feet

W = Width of total shoulder in feet (combined paved and unpaved width)

S = Posted speed limit (mph)

SYMBOLS

Work Area

Channelizing Device (See Index 102-600)

Work Zone Sign

Lane Identification + Direction of Traffic

GENERAL NOTES

1. When a high volume of work vehicles are entering and leaving the Work Area at speeds slower than 10 MPH below the posted speed, place an MOT-5-06 sign in the ROAD WORK AHEAD sign location and shift the ROAD WORK AHEAD sign upstream 500 ft.
2. This TCZ plan also applies to work performed in the median more than 2' but less than 15' from the edge of travelway.
3. When work is being performed on a multilane undivided roadway the signs normally mounted in the median (as shown) shall be omitted.
4. WORKERS signs to be removed or fully covered when no work is being performed.
5. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign.
6. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
7. For general TCZ requirements and additional information, refer to Index 102-600.

DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

2/26/2020 12:58:37 PM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2020-21 STANDARD PLANS	MULTILANE, WORK ON SHOULDER	INDEX	SHEET
11/01/17					102-612	1 of 1

BID SHEET

6" FORCE MAIN FROM KFC TO LAKEVIEW DRIVE MANHOLE WO# 21034

SEBRING, FLORIDA

THE CITY OF SEBRING UTILITIES DEPARTMENT

TASK	ITEM DESCRIPTION	ADDITIONAL INFORMATION	QUANTITY	UNIT	UNIT COST	ITEM COST
1	Mobilization			LS	$	$
2	Construction Surveying & Staking, including As-Built /AutoCad CD / Drawings			LS	$	$
3	Installation 6" DR18 C-900 Force Main- Added 100 LF of DR 18 C-900 for the tie into manhole on Lakeview Drive	Open Ditch Installation	±880	LF	$	$
4	Installation 6" SDR 11 HDPE Force Main	See Below for Dir. Bores	±2020	LF	------	------
5	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeve + 5 LF OF 6" DR18 C-900 +(1) End Cap.	1 DIR. BORE Driveway Sta. 3175+23 KFC	± 160 LF	LS	$	$
6	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR. BORE Driveway Bassett Audio Sta. 3172+76	± 80 LF	LS	$	$
7	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Driveway Campbell Motors Sta.3171+89	± 200 LF	LS	$	$
8	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Dollar General Driveway Sta. 3169+15	± 280 LF	LS	$	$
9	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Vicki Drive Sta. 3166+00	± 285 LF	LS	$	$
10	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Driveway IHOP Sta. 3163+69	± 295 LF	LS	$	$
11	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Driveway Alan Jay Toyota Sta. 3159+10	±120 LF	LF	$	$
12	6" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE Driveway Tire Kingdom Sta. 3153+96	±150 LF	LS	$	$
13	6"SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Siffeners & (2) 6" MJ Sleeves PVC to HDPE	1 DIR BORE FDOT EASEMENT	±450 LF	LS	$	$
14	2" Metal Locator Tape (FM)		±880	LF	$	$
15	12 Gauge Solid Copper Locating Wire	Double Wire For DIR. BORE	±4820	LF	$	$
16	6" - 45° Bends W/Mega Lug and bell restraints (see chart)		16	EA	$	$
17	6" Isolation Gate Valves W/ Cast Iron Box + Concrete Slab (see typical)	See Plan View for Locations	3	EA	$	$
18	De Watering / By Pass Pumping		1	LS	$	$
19	2" Air Release Valve Assemblies Including Fittings + above ground enclosures		6	EA	$	$
20	Pre Assembled Ditch Crossing Pipe + Fittings		1	LS	$	$
21	Temporary Earthen Ditch Blocks		2	EA	$	$
22	R/W RESTORATION AND SODDING		±5,260	SY	$	$
23	Slit Screens / Hay Bales	±2500 LF OF SILT SCREENS		LS	$	$
24	Man Hole Tie In as per Instructions on plan Including lining the interior of MH. Including pavement repair, patch and curb repair, etc.. See Plan View for all instructions.	Man Hole Tie In / Lakeview Drive		LS	$	$
25	M.O.T.	Signage / Traffic Control		LS	$	$
26	PRESSURE TESTING			LS	$	$
27	BONDS & INSURANCE			LS	$	$
	TOTAL				$	$

Note: All fittings to be mechanical Joint type with EBAA Mega Lug. All HDPE connections will require stainless steel stiffeners. **All HDPE joints will need to be fused by a currently certified fuser**. The Underground Contractor will verify all quantities and add any missing materials to his bid for a 100% complete project. All staking will be under the direct supervision of a Licensed Professional Land Surveyor. Force main will need to be staked in the County R/W and verified by Highlands County prior to installation. The Licensed Professional Land Surveyor will issue 5 signed and sealed As-Built Survey's along with an Auto-Cad format As-Built drawing on CD showing all utility improvements to the Engineer of Record after completion of the project.