



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 10 specify 4" DR11 HDPE force main installed via Directional Bore. Can 4" 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 4" DR11 HDPE. No other substitutions will be accepted.

3) QUESTION:

Would it be acceptable to substitute 4" HDPE DR11 green stripe pipe for most of the project?

ANSWER:

The requirement is for 4" 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 FROM GRAND PRIX DRIVE SOUTHERLY TO NEW LIFE WAY

DIRECTIONAL BORE AND OPEN DITCH INSTALLATION OF A 4" FORCE MAIN FROM SOUTH OF GRAND PRIX DR. STA 0+85±, SAID STA. BEING THE STARTING POINT OF THIS PROJECT. THENCE SOUTHERLY ALONG THE WESTERLY R/W OF U.S. HWY. 27 APPROXIMATELY 1650 FEET TO SOUTH OF NEW LIFE WAY, TYING INTO AN EXISTING 4" FORCE AS SHOWN ON PLANS, SAID ENDING STATION BEING 17+35± WO# 22015, SEBRING, FLORIDA HIGHLANDS COUNTY, FLORIDA. SECTIONS 23 TOWNSHIP 34S RANGE 28E.

PROJECT LOCATED WITHIN SECS. 23 TWP. 34S RGE. 28E
HIGHLANDS COUNTY, FLORIDA
STATE PROJECT # 09030-3524
BETWEEN MILE POST 7.976 TO 8.298

PROPOSED ±1650 L.F. OF 4" SEWER FORCE MAIN

FORCE MAIN: 1650 LF TOTAL FORCE MAIN LENGTH
BEING : 810 LF OF 4" DR-18 C-900 GREEN PVC
840 LF OF 4" SDR 11 H.D.P.E. DIR. BORE PIPE

BORE #1 MURPHY GAS STATION STA. 2+39	100 LF
BORE #2 STRIP MALL STA. 4+09	120 LF
BORE #3 VACANT AUTO SALES STA. 7+50	80 LF
BORE #4 AMAZON SHEDS / McELROY'S PRODUCE STA. 10+11	100 LF
BORE #5 HAYS AUTO / MRI IMAGING STA. 13+22 AND STA. 14+21	190 LF
BORE #6 NEW LIFE WAY / TIE IN TO EXISTING 4" FM STA. 18+10	250 LF

PROJECT: CITY OF SEBRING 4" 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 1650 FEET TOTAL
4" SDR 11 HDPE 840 FEET
4" DR 18 PVC 810 FEET
4" GATE VALVES 1
AIR RELEASE VALVES 4

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 F.D.O.T. RIGHT-OF-WAY IS TO BE IN ACCORDANCE WITH THE CURRENT F.D.O.T. STANDARD.

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.

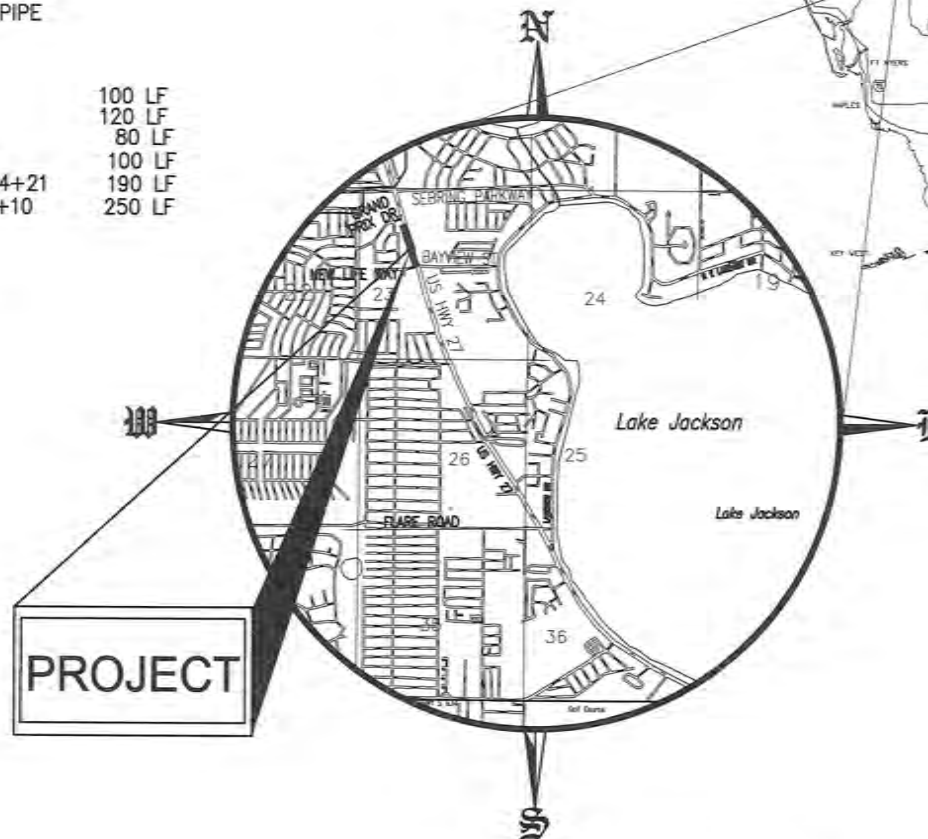
GOVERNING SPECIFICATIONS: STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, DATED 2016, SUPPLEMENTS AND SPECIAL PROVISIONS THERETO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

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.



INDEX OF IMPROVEMENT PLANS

SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	OVERALL LAYOUT SHEET
3-6	PLAN VIEW LAYOUT SHEETS
7-9	DIRECTIONAL BORES
10 - 12	GENERAL INFORMATION
FDOT 612	MAINTENANCE OF TRAFFIC PLAN

ALWAYS CALL 811 TWO FULL BUSINESS DAYS BEFORE YOU DIG

Sunshine811.com

DATE: 26 MAR 2016
SUBMITTAL: 01-101-22 COVER FOR PERMITS, MODIFICATIONS
REMARK: 01020326050 SCALE IN MILES

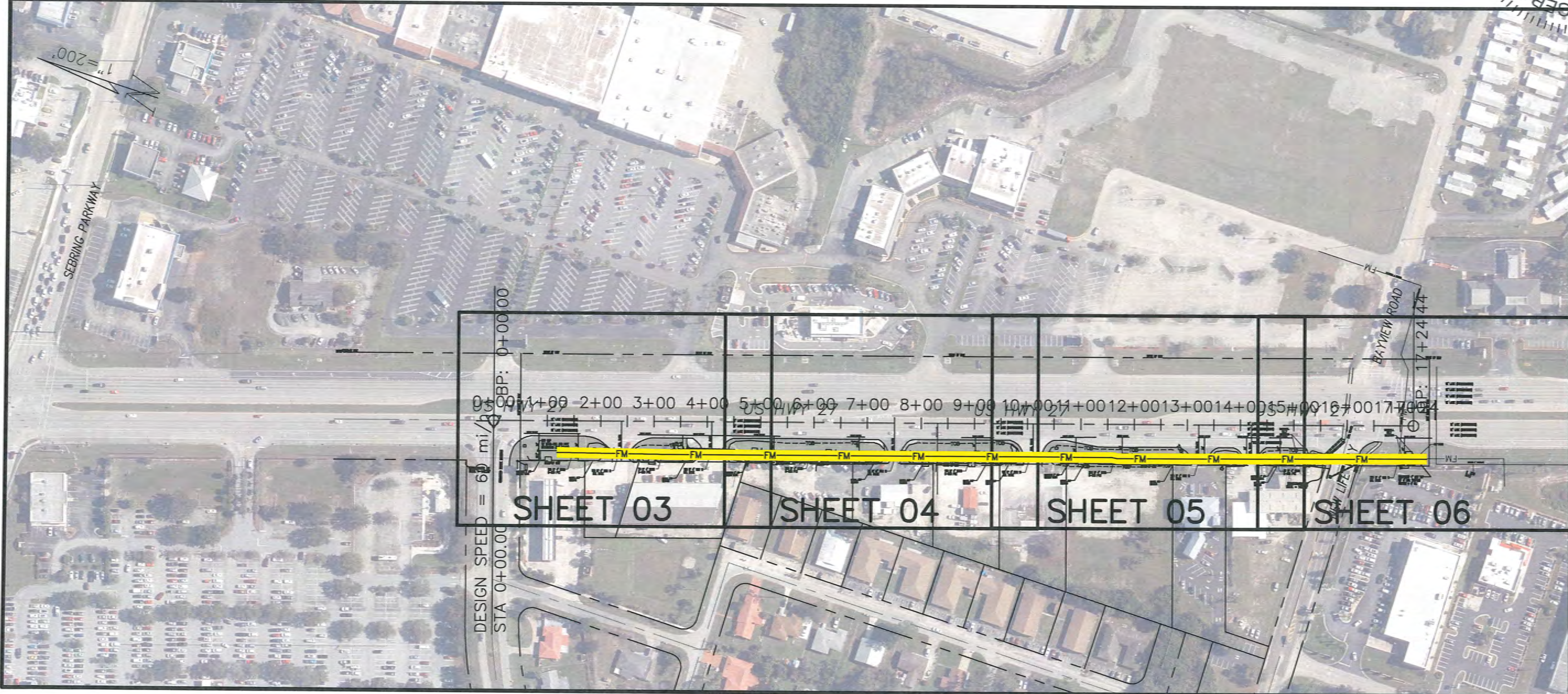
REGISTERED PROFESSIONAL ENGINEER
ROGER DALE POLSTON
P.E. LICENSE NO. 12345
FLORIDA STATE BOARD OF PROFESSIONAL ENGINEERS

PE Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2025 KENILWORTH BLVD., SEBRING, FLORIDA 33870
863-385-6864 PHONE - 863-385-2462 FAX

ENGINEER JOB # 22015

4" FORCE MAIN EXTENSION
THE CITY OF SEBRING UTILITIES DEPARTMENT
GRAND PRIX DRIVE TO NEW LIFE WAY
COVER SHEET

DRAWING SCALE
N.T.S.
SHEET
1 OF 12



DATE	REVISION	BY	CHK
25 MAR 22	DDOT SUBMITTAL	HW	HW
04 APR 22	COVER FOR PAVEMENT MODIFICATIONS	HW	HW

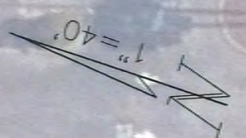
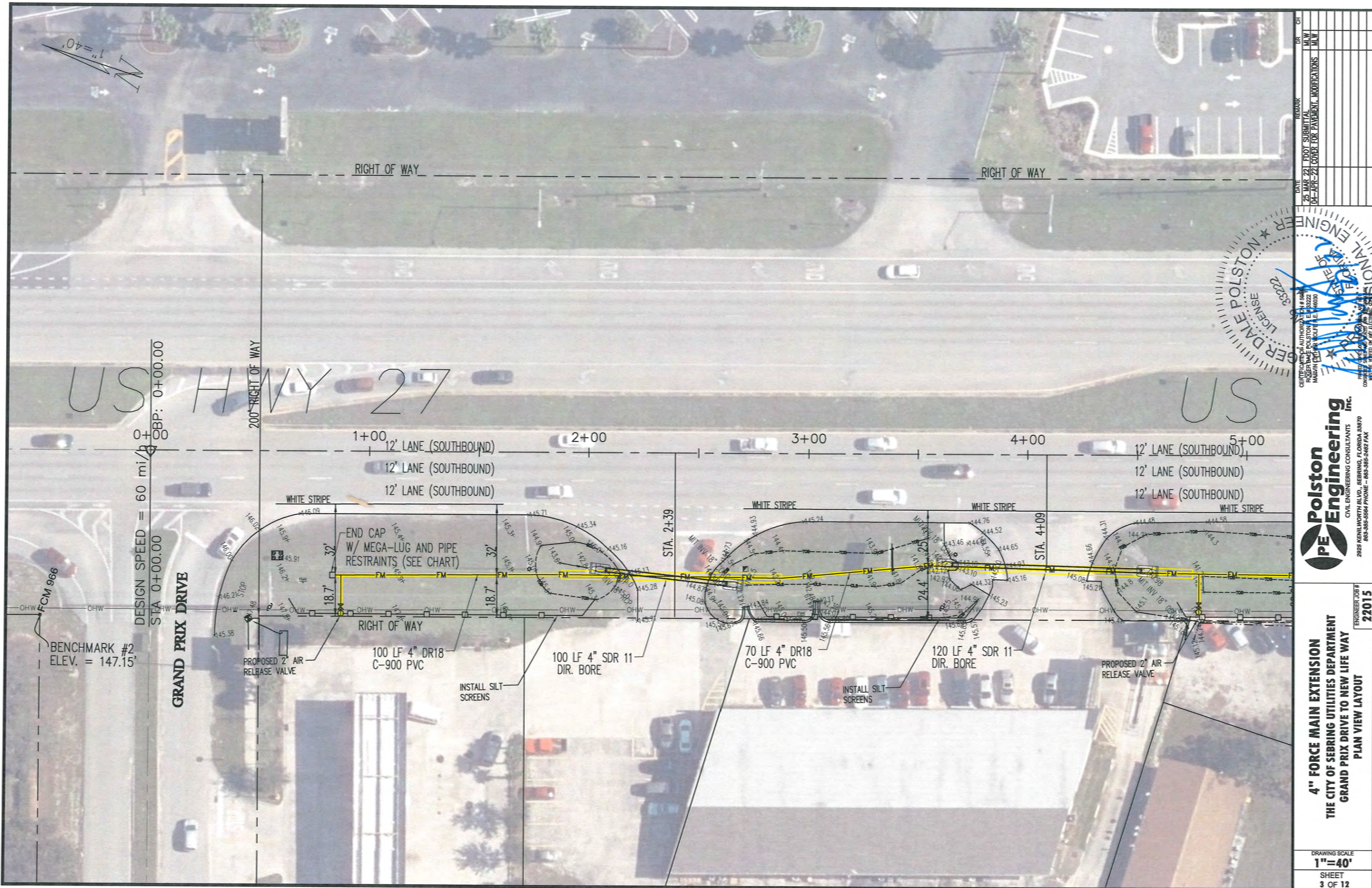
PE Polston Engineering Inc.
 CIVIL ENGINEERING CONSULTANTS
 2025 KENILWORTH BLVD., SEBRING, FLORIDA 33870
 889-386-6944 PHONE - 889-386-2482 FAX

**4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 OVER ALL PLAN VIEW**

DRAWING SCALE
1"=200'
 SHEET
2 OF 12

ENGINEER JOB #
22015

CERTIFICATE OF AUTHORITY NO. 1846
 DALE POLSTON
 HAWAIIAN LICENSE NO. 1846
 HAWAIIAN LICENSE NO. 1846
 PRINTED COPY OF THIS CERTIFICATE
 CONSIDERS SIGNED AND SEALED AND IS VALID ONLY
 MUST BE VERIFIED ON ANY ELECTRONIC COPY

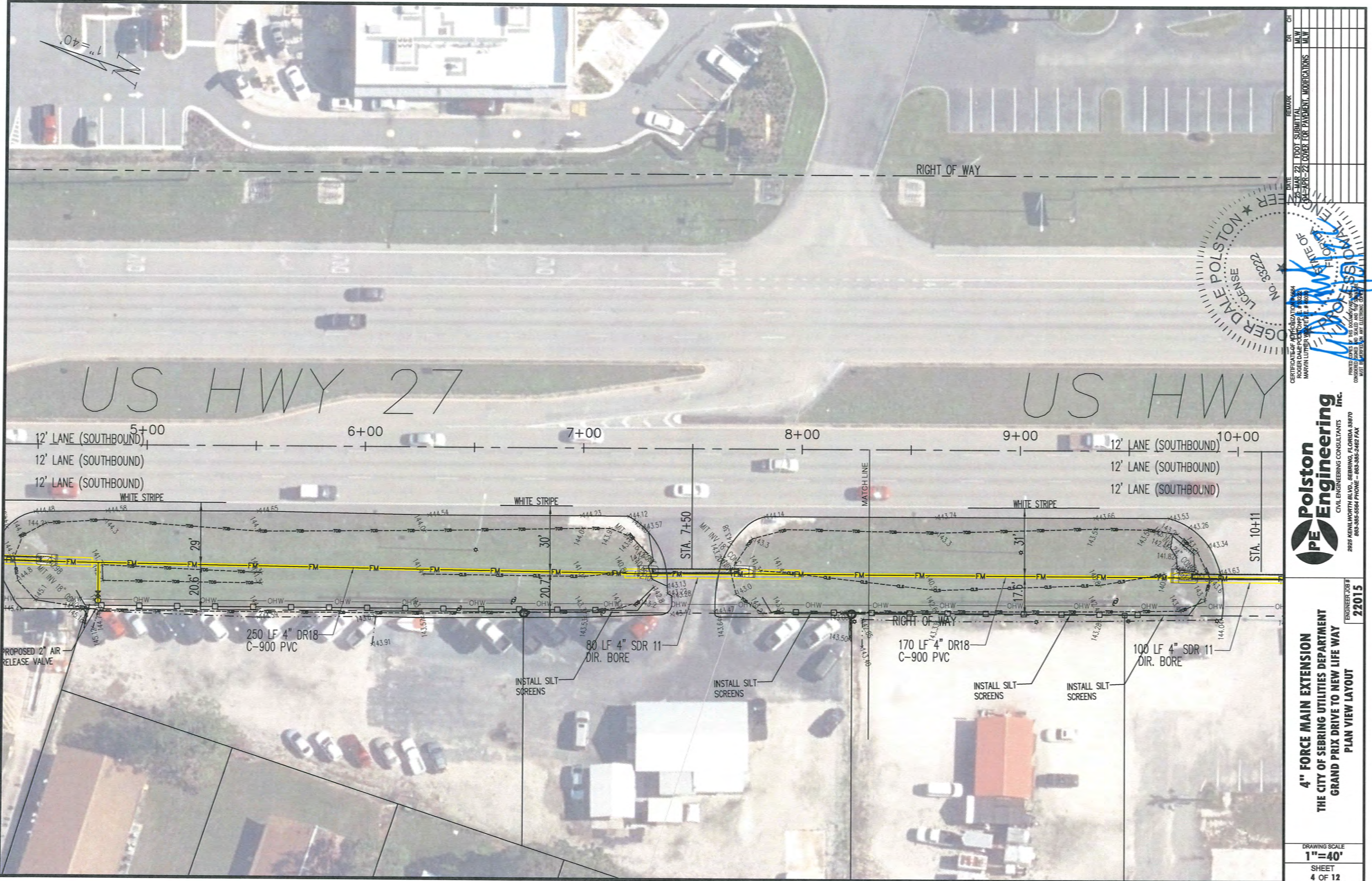


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4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 PLAN VIEW LAYOUT

DRAWING SCALE
1" = 40'
 SHEET
 3 OF 12

DATE	REVISION	BY	CHK
25 MAR 22	FOOT SUBMITTAL	MAW	
04 APR 22	COVER FOR PAVEMENT MODIFICATIONS	MAW	



US HWY 27

US HWY

RIGHT OF WAY



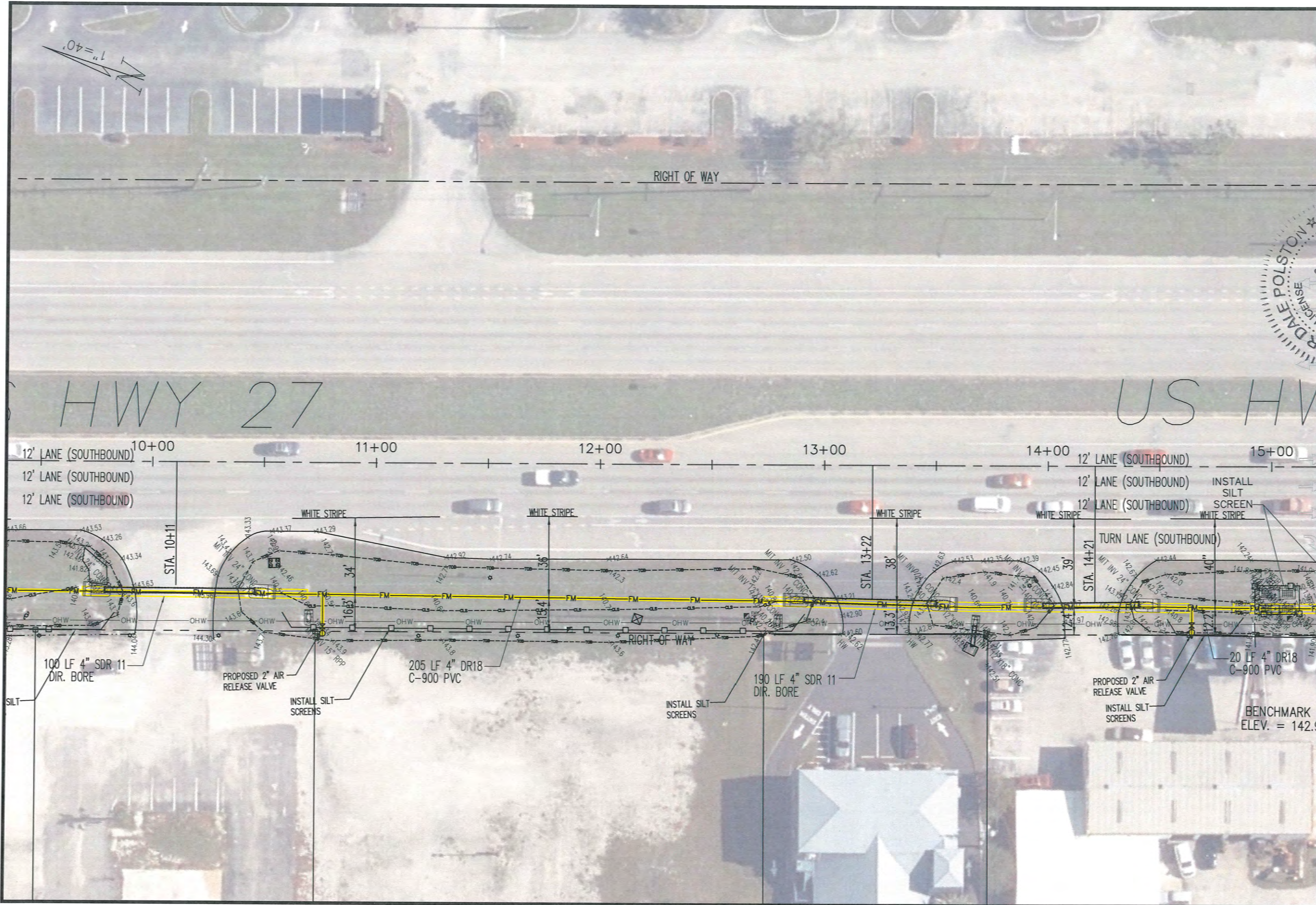
DATE	REMARK	DR	CH
22-MAR-22	FOOT SUBMITTAL	MLW	
06-APR-22	COVER FOR PAVEMENT MODIFICATIONS	MLW	

Polston Engineering Inc.
 CIVIL ENGINEERING CONSULTANTS
 2926 KENILWORTH BLVD., SEBRING, FLORIDA 38870
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4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 PLAN VIEW LAYOUT

ENGINEER JOB # **22015**

DRAWING SCALE
1" = 40'
 SHEET
4 OF 12



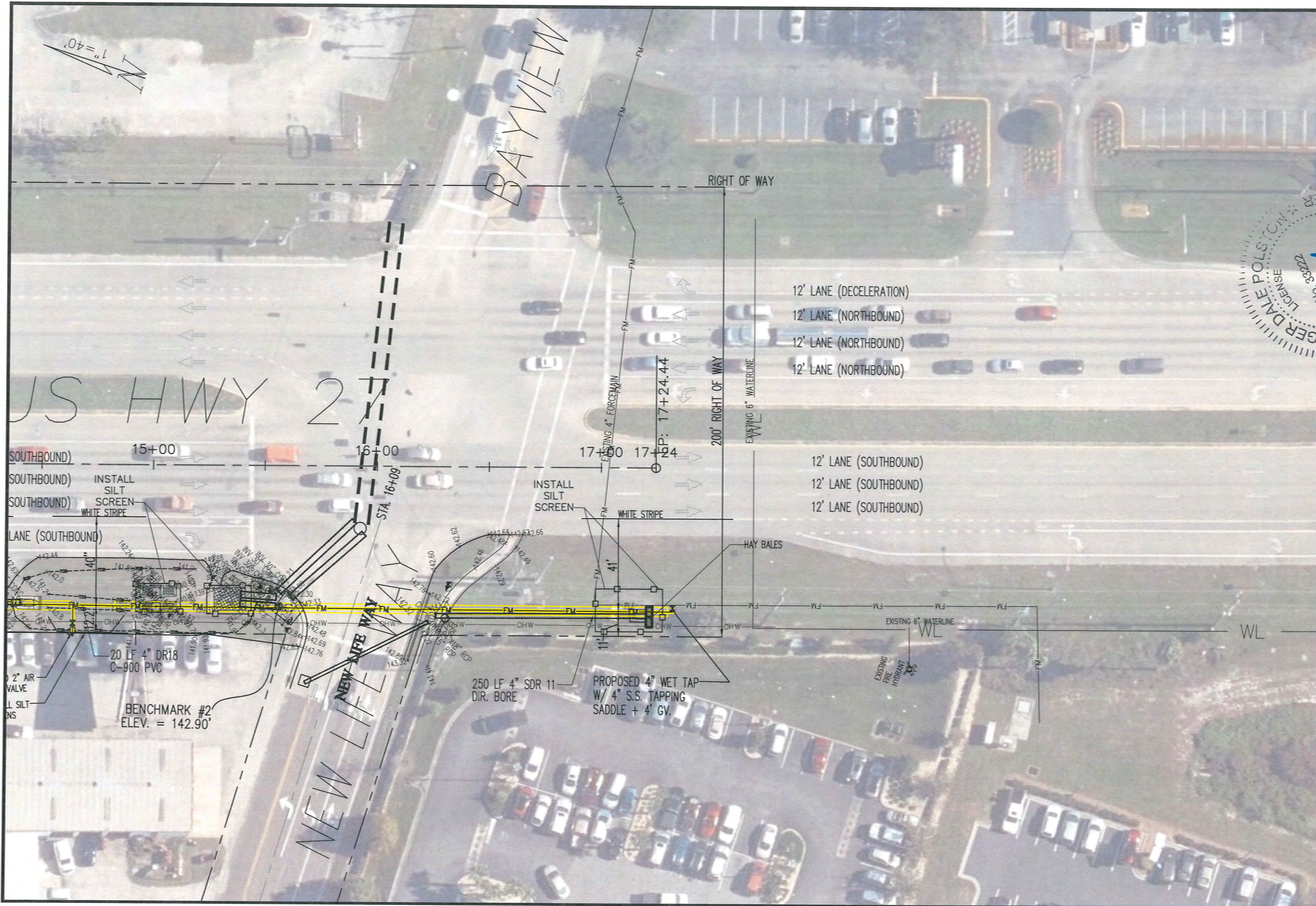
DATE	REVISION	BY	CHK
25 MAR 22	FOOT SUBMITTAL	M.W.	
10 APR 22	COVER FOR PAYMENT, MODIFICATIONS	M.W.	



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4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 PLAN VIEW LAYOUT
 ENGINEER JOB # **22015**

DRAWING SCALE
1" = 40'
 SHEET
5 OF 12

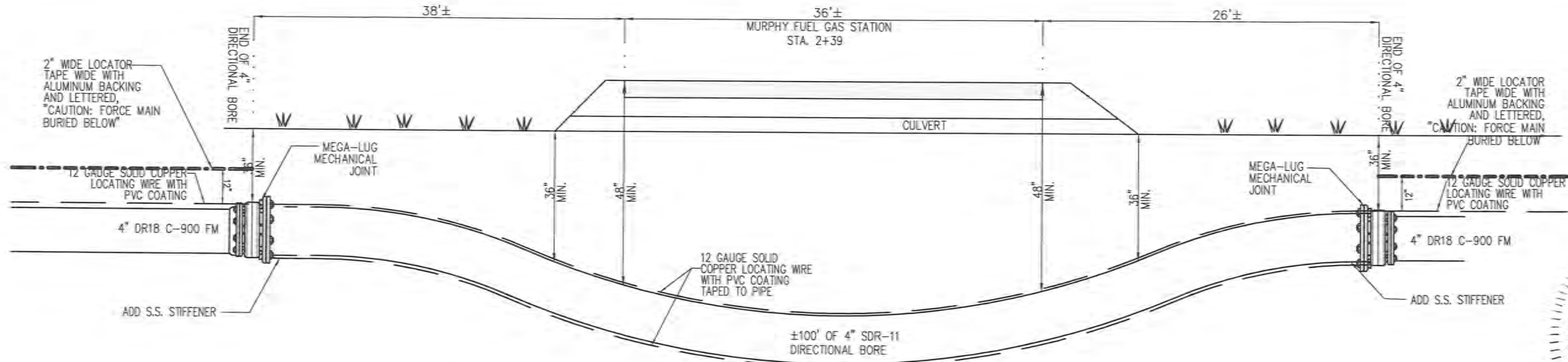


DATE	REVISION	BY	CHK
22-MAR-22	FOOT SUBMITTAL		
22-APR-22	COVER FOR PAVEMENT MODIFICATIONS		

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4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 PLAN VIEW LAYOUT
 ENGINEER JOB # **22015**

DRAWING SCALE
1" = 40'
 SHEET
6 OF 12

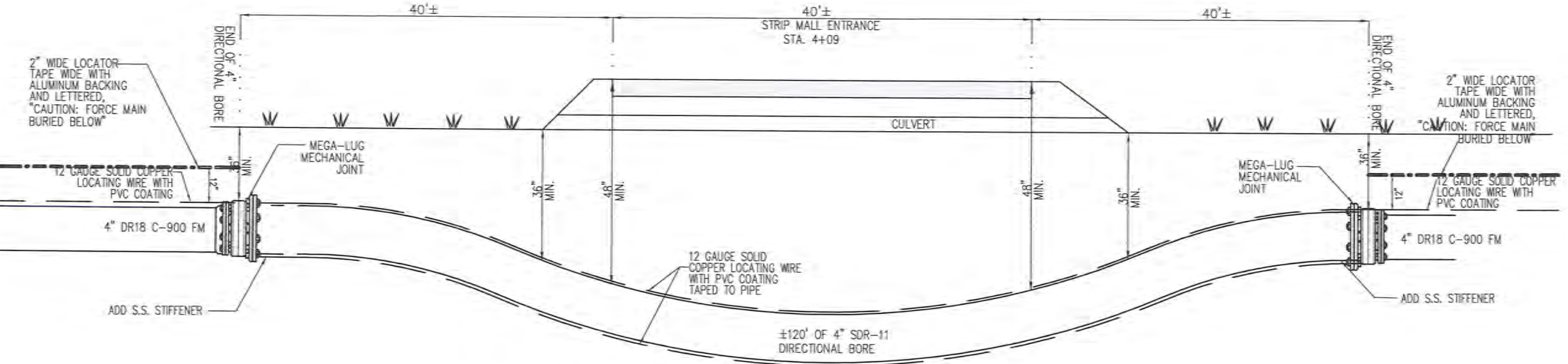


4" FORCE MAIN DIRECTIONAL BORE MURPHY GAS STATION
N.T.S.

DIRECTIONAL BORE - ±100 LF OF 4" 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 OR DRIVEWAY 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 #1 STA. 2+39
← NORTH

---ALL DISTURBED PREVIOUSLY IMPROVED AREAS WILL BE COMPLETELY RESTORED TO ORIGINAL CONDITIONS, THIS INCLUDES SODDING, LANDSCAPING, IRRIGATION SYSTEMS, STRUCTURES, ETC.



4" FORCE MAIN DIRECTIONAL BORE STRIP MALL
N.T.S.

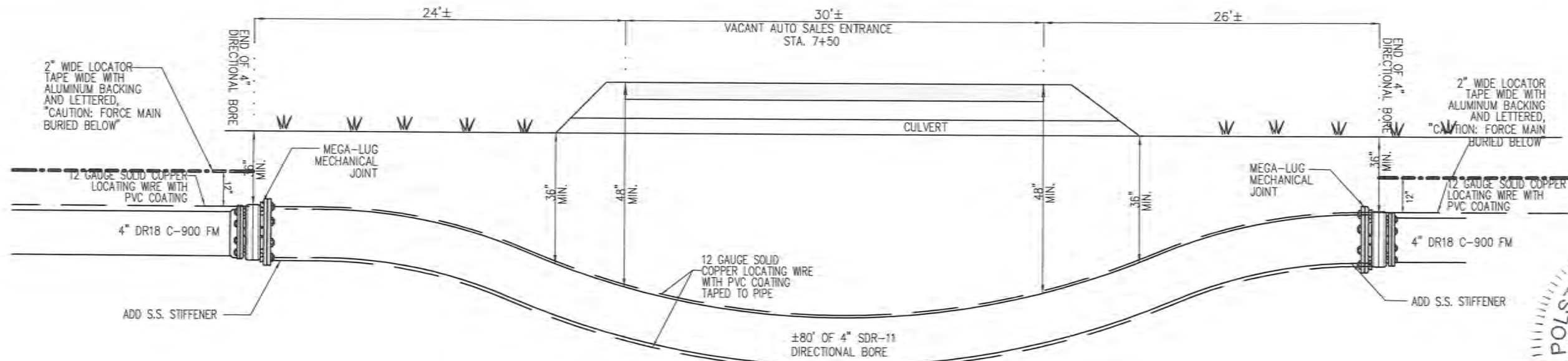
DIRECTIONAL BORE - ±120 LF OF 4" SDR 11 - FINAL LENGTH TO BE DETERMINED IN THE FIELD. EVERY EFFORT SHOULD BE MADE DURING THE DIRECTIONAL BORE TO CENTER A SINGLE 40' LENGTH OF PIPE UNDER THE ROAD OR DRIVEWAY SO THERE ARE NO JOINTS LOCATED UNDER THE PAVEMENT. LENGTH SHOWN IS AN APPROXIMATE STRAIGHT LINE ESTIMATE. THE ENDS OF THE SDR-11 TRANSITION TO PVC WILL REQUIRE MJ JOINTS.

BORE #2 STA. 4+09
← NORTH

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4" FORCE MAIN EXTENSION
THE CITY OF SEBRING UTILITIES DEPARTMENT
GRAND PRIX DRIVE TO NEW LIFE WAY
DIRECTIONAL BORE SECTIONS
ENGINEER JOHN
22015



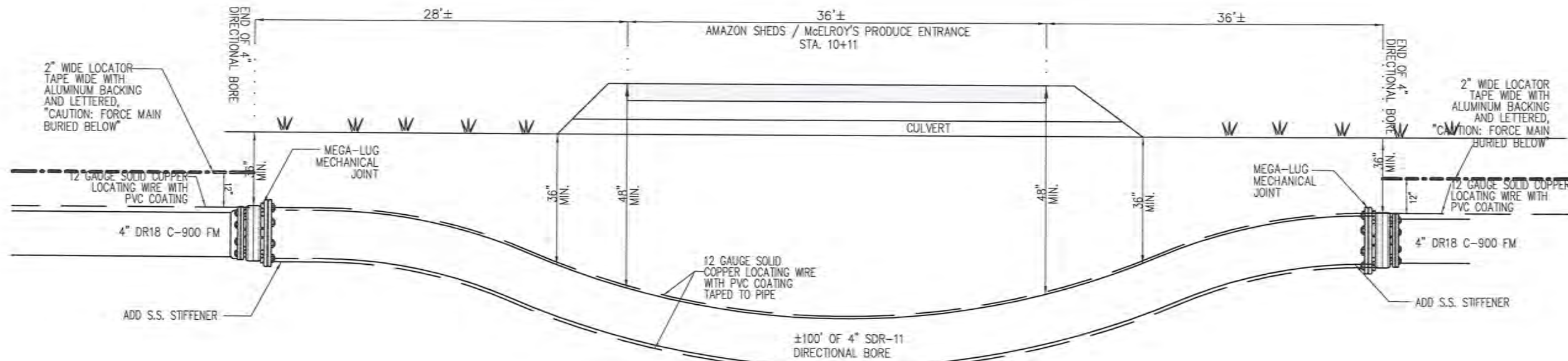
4" FORCE MAIN DIRECTIONAL BORE VACANT AUTO SALES

N.T.S.

DIRECTIONAL BORE - ±80 LF OF 4" 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 OR DRIVEWAY 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 #3 STA. 7+50
← NORTH

--ALL DISTURBED PREVIOUSLY IMPROVED AREAS WILL BE COMPLETELY RESTORED TO ORIGINAL CONDITIONS, THIS INCLUDES SODDING, LANDSCAPING, IRRIGATION SYSTEMS, STRUCTURES, ETC.



4" FORCE MAIN DIRECTIONAL BORE AMAZON SHEDS / McELROY'S PRODUCE

N.T.S.

DIRECTIONAL BORE - ±100 LF OF 4" 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 OR DRIVEWAY 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 #4 STA. 10+11
← NORTH

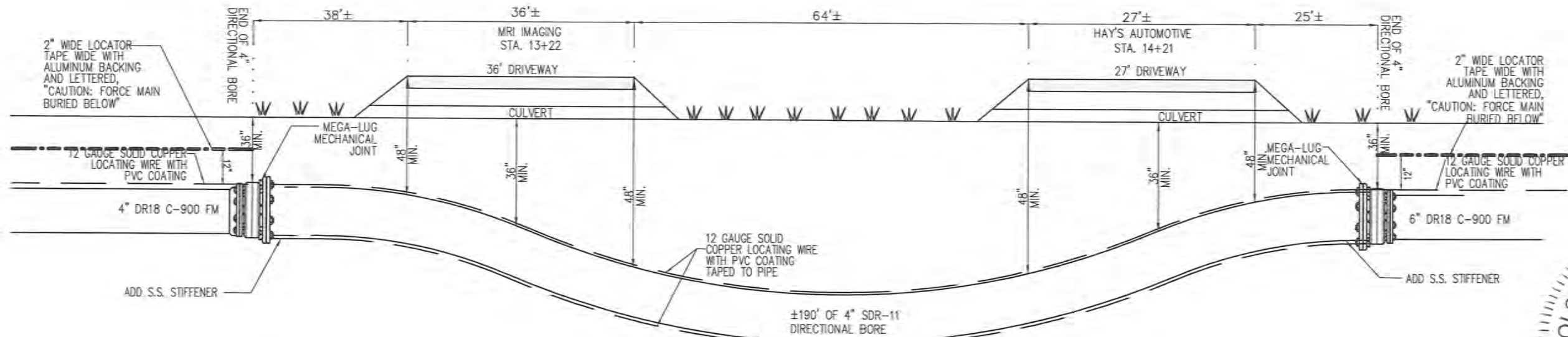
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4" FORCE MAIN EXTENSION
THE CITY OF SEBRING UTILITIES DEPARTMENT
GRAND PRIX DRIVE TO NEW LIFE WAY
DIRECTIONAL BORE SECTIONS
ENGINEER JOHN P. 22015

DRAWING SCALE
N.T.S.
SHEET
8 OF 12

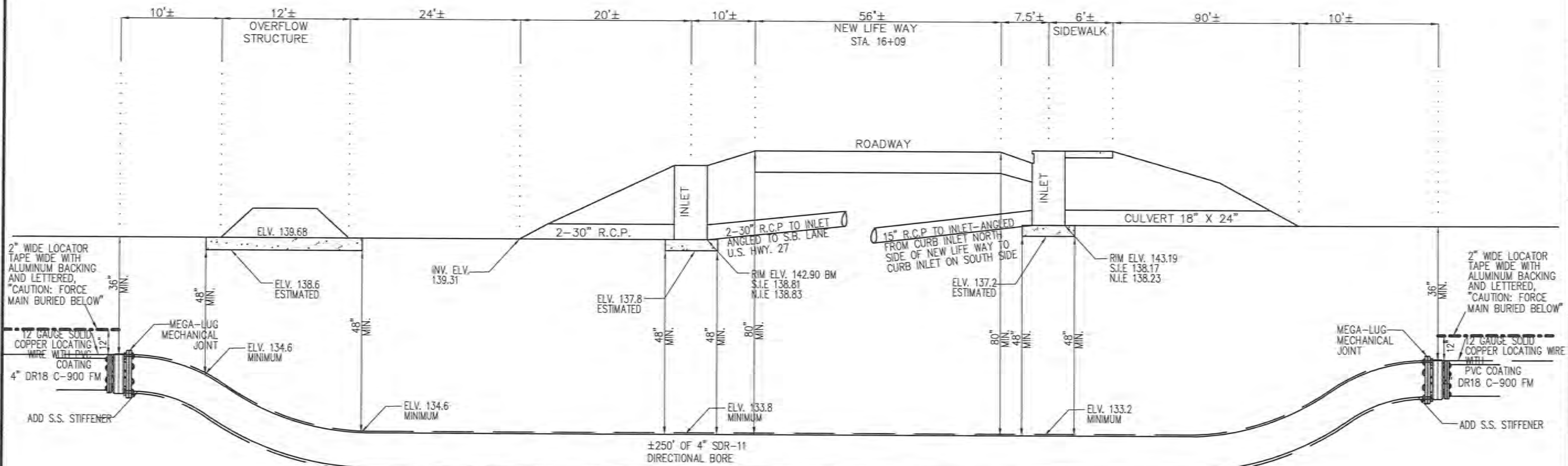


6" FORCE MAIN DIRECTIONAL BORE DRIVEWAYS HAYS AUTO / MRI IMAGING
N.T.S.

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DIRECTIONAL BORE - ±190 LF OF 4" 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 OR DRIVEWAY 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.

NORTH BORE #5 STA. 13+22 AND STA. 14+21



BORE #6 STA. 16+09

DIRECTIONAL BORE - ±190 LF OF 4" 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 OR DRIVEWAY 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.

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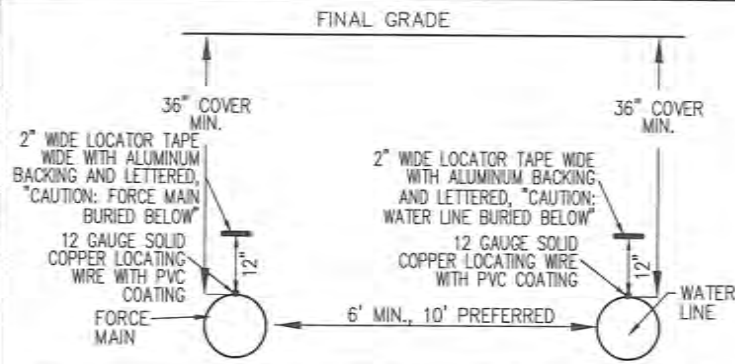
NORTH



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ENGINEER JOHN # 22015
4" FORCE MAIN EXTENSION
THE CITY OF SEBRING UTILITIES DEPARTMENT
GRAND PRIX DRIVE TO NEW LIFE WAY
DIRECTIONAL BORE SECTIONS

DRAWING SCALE
N.T.S.
SHEET
9 OF 12

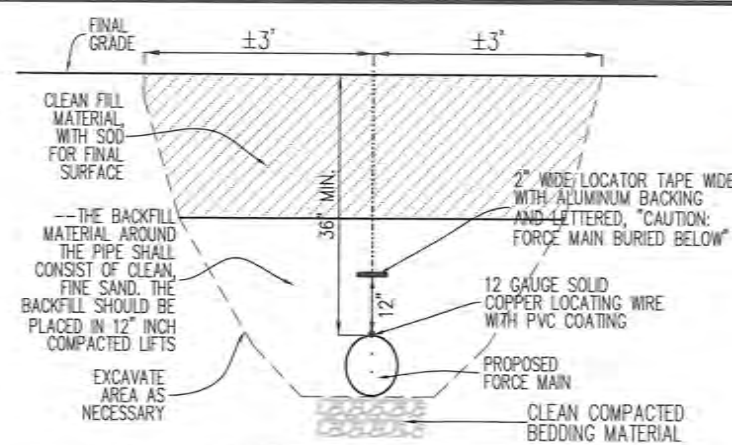


---ALL POLYVINYLCHLORIDE (PVC) WATER LINE PIPE SHALL BE LAID WITH METAL LOCATOR TAPE BURIED ONE FOOT ABOVE AND PARALLEL TO THE PIPE CENTERLINE. THE LOCATOR TAPE SHALL BE AT LEAST 2 INCHES WIDE WITH ALUMINUM BACKING AND SHALL BE LETTERED, "CAUTION: WATER LINE BURIED BELOW".

---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.

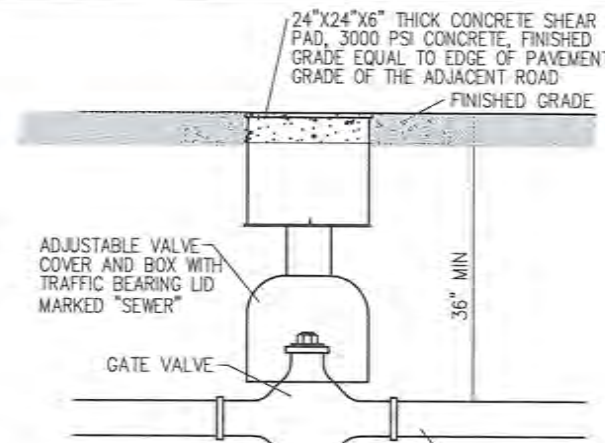
WATER LINE - FORCE MAIN SEPARATION



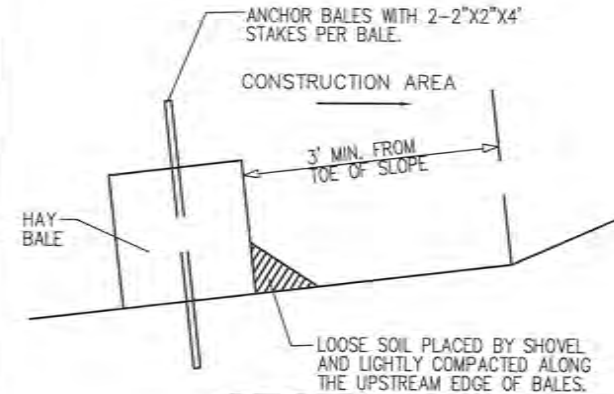
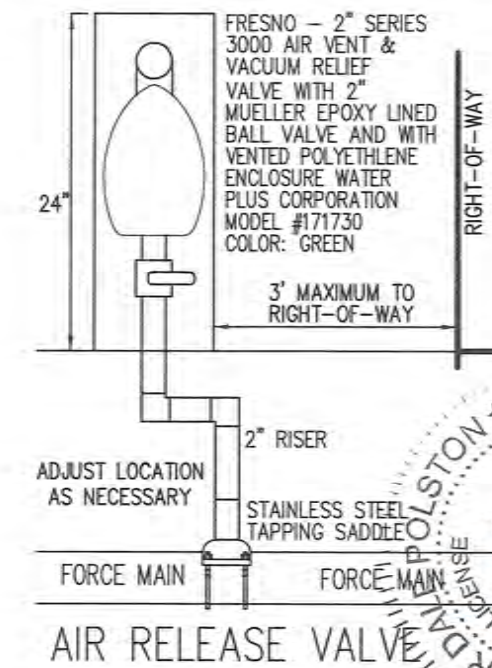
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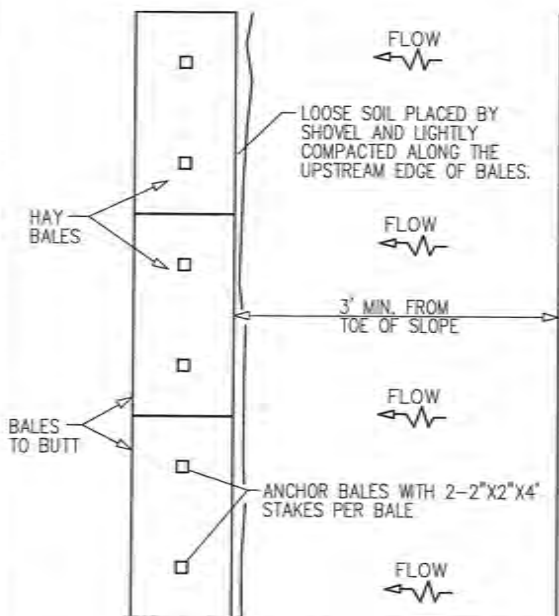
TYPICAL OPEN CUT FORCE MAIN IN OPEN TERRAIN DETAIL



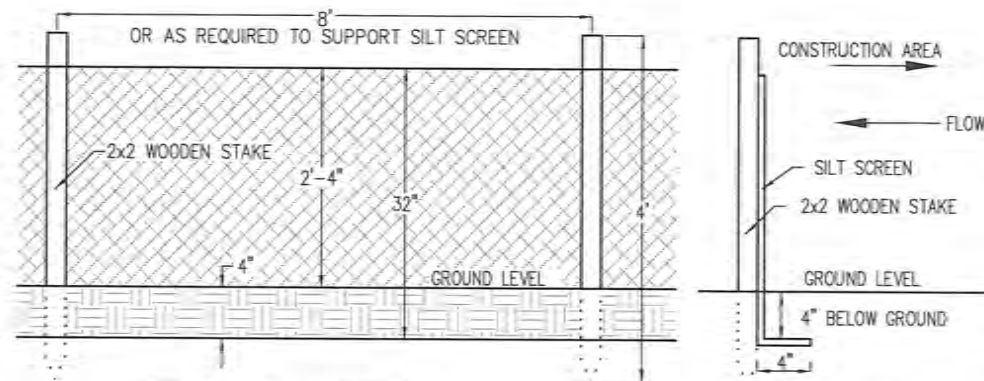
GATE VALVE DETAIL N.T.S.
(REFERRED TO AS "VALVE" OR "V&B" ON PLAN VIEW)
ALL GATE VALVES BY KENNEDY, MUELLER OR EQUIVALENT



SECTION



PLAN VIEW HAY BALES



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

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

ALWAYS CALL 811 TWO FULL BUSINESS DAYS BEFORE YOU DIG



	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	WATER MAIN ALTERNATE 3' MINIMUM OTHER
VACUUM SANITARY SEWER	WATER MAIN 10' PREFERRED 3' MINIMUM OTHER	WATER MAIN 12" IS PREFERRED 6" IS THE MINIMUM OTHER	WATER MAIN ALTERNATE 3' MINIMUM OTHER
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	WATER MAIN ALTERNATE 6' MINIMUM OTHER

(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.

Polston Engineering Inc.
CIVIL ENGINEERING CONSULTANTS
2655 KENILWORTH BLVD., SEBRING, FLORIDA 38870
888-586-5864 PHONE - 888-586-2485 FAX

ENGINEER JON P. 22015

GENERAL INFORMATION
THE CITY OF SEBRING UTILITIES DEPARTMENT
GRAND PRIX DRIVE TO NEW LIFE WAY

DRAWING SCALE
N.T.S.
SHEET
10 OF 12

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 SUBJECT 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:

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

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.

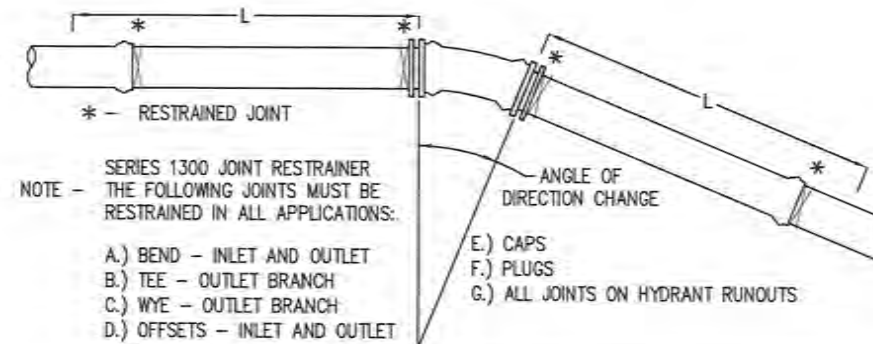
SDR-11 FORCE MAIN DIRECTIONAL PIPE:

- 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.



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

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



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4" FORCE MAIN EXTENSION
 THE CITY OF SEBRING UTILITIES DEPARTMENT
 GRAND PRIX DRIVE TO NEW LIFE WAY
 ENGINEER JOB # 22015
 GENERAL INFORMATION

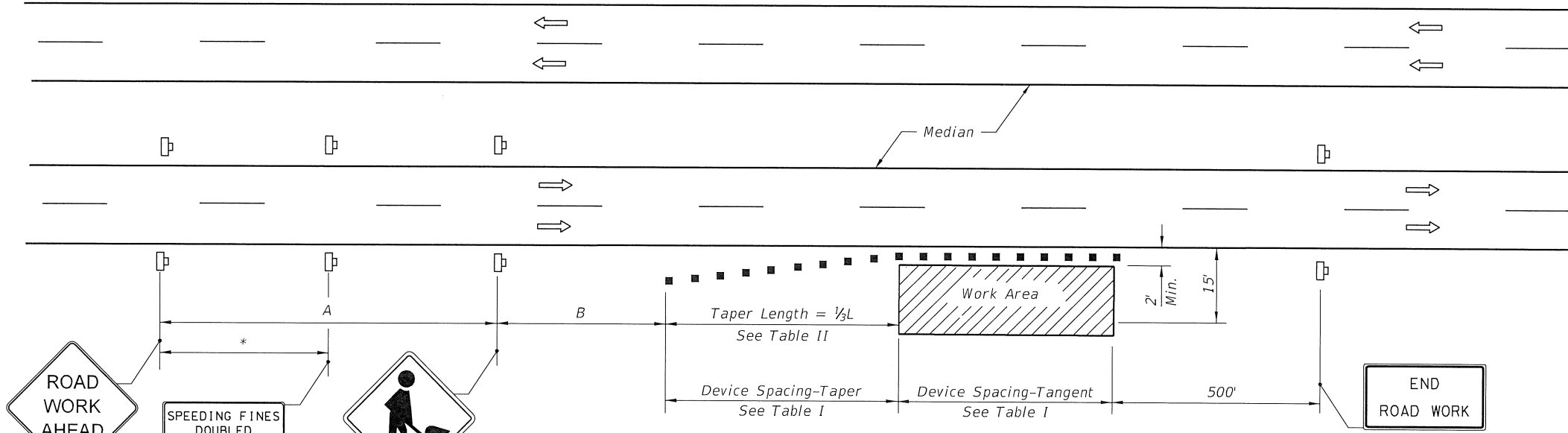
DRAWING SCALE
1"=40'
 SHEET
 11 OF 12

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



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.

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

Speed (mph)	1/3 L (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.
 1/3 L = 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

- 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.
- This TCZ plan also applies to work performed in the median more than 2' but less than 15' from the edge of travelway.
- When work is being performed on a multilane undivided roadway the signs normally mounted in the median (as shown) shall be omitted.
- WORKERS signs to be removed or fully covered when no work is being performed.
- SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
- For general TCZ requirements and additional information, refer to Index 102-600.

DURATION NOTES

- Signs and channelizing devices may be omitted if all of the following conditions are met:
 - Work operations are 60 minutes or less.
 - 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.

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BID SHEET
4" FORCE MAIN FROM GRAND PRIX DRIVE TO SOUTH NEW LIFE WAY WO# 22015
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 4" DR18 C-900 Force Main	Open Ditch Installation	±810	LF	\$	\$
4	Installation 4" SDR 11 HDPE Force Main	See Below for Dir. Bores	±840	LF	-----	-----
5	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeve + (1) End Cap.	1 DIR. BORE #1 Driveway Sta. 2+39 Murphy Gas Station	± 100 LF	LS	\$	\$
6	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeves PVC to HDPE	1 DIR. BORE #2 Driveway Sta. 4+09 Strip Mall	± 120 LF	LS	\$	\$
7	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeves PVC to HDPE	1 DIR BORE #3 Driveway Sta. 7+50 Vacant Auto Sales	± 80 LF	LS	\$	\$
8	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeves PVC to HDPE	1 DIR BORE #4 Driveway Sta. 10+11 Amazon Sheds / McElroy's Produce	± 100 LF	LS	\$	\$
9	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeves PVC to HDPE	1 DIR BORE #5 Driveway Sta. 13+22 and 14+21 Hays Auto / MRI Imaging	± 190 LF	LS	\$	\$
10	4" SDR 11 HDPE Force Main Directional Bore W/ (2) S.S. Stiffeners & (2) 4" MJ Sleeves PVC to HDPE	1 DIR BORE Driveway Sta. 18+10 New Life Way / Tie in to Existing 4" FM (See Tie In Below)	± 250 LF	LS	\$	\$
11	2" Metal Locator Tape (FM)		±850	LF	\$	\$
12	12 Gauge Solid Copper Locating Wire	Double Wire For DIR. BORE	±2500	LF	\$	\$
13	Wet Tap (4") Tie In to Existing 4" FM- 4" S.S. Tapping Saddle W/ 4" Gate Valve, Two (2) 45° Bends, one (1) in line Check Valve, all fittings having Mega Lug and pipe bell restraints will be required (See Chart)		1	LS	\$	\$
14	De Watering / By Pass Pumping		1	LS	\$	\$
15	2" Air Release Valve Assemblies Including Fittings + above ground enclosures		4	EA	\$	\$
16	R/W RESTORATION AND SODDING		±3,235	SY	\$	\$
17	Slit Screens / Hay Bales	±1280 LF OF SILT SCREENS		LS	\$	\$
18	M.O.T.	Signage / Traffic Control		LS	\$	\$
19	PRESSURE TESTING			LS	\$	\$
20	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.