

# LAUREL COUNTY WATER DISTRICT NO. 2

## SOUTH LAUREL WATER SYSTEM IMPROVEMENTS

### CONTRACT NO. 1

## LAUREL COUNTY, KENTUCKY

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PROJECT FUNDED BY:  
USDA RURAL DEVELOPMENT

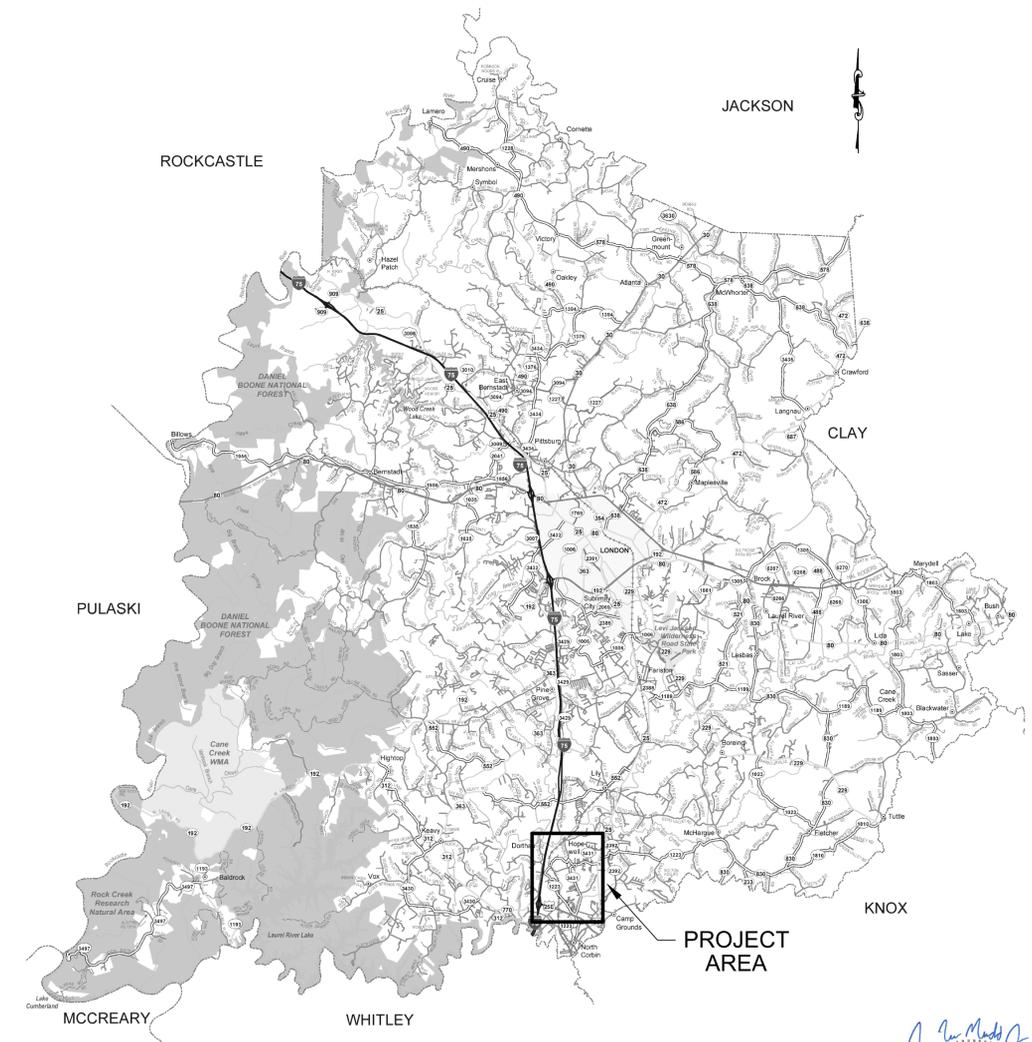
### BOARD OF COMMISSIONERS

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KENNETH FISHER

OCTOBER 2019

### LOCATION MAP



M

Monarch Engineering, Inc.

556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342



**LOCATION AND SCOPE OF PROJECT**

THE PROJECT SITE IS GENERALLY DEFINED AS LAUREL COUNTY, KENTUCKY. THE WORK TO BE DONE UNDER THIS CONTRACT INCLUDES FURNISHING ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO CONSTRUCT THE SOUTH LAUREL WATER SYSTEM IMPROVEMENTS - CONTRACT NO. 1 IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS.

**GENERAL NOTES**

- IT IS THE INTENTION OF THESE PLANS TO CONSTRUCT ALL WORK IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF LAUREL COUNTY, THE KENTUCKY TRANSPORTATION CABINET, THE KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION, AND THE U.S. ARMY CORPS OF ENGINEERS. WHERE THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS, PLANS, AND SPECIFICATIONS AND THE PERMIT REQUIREMENTS OF THE AGENCY CONTROLLING THE UTILITY OR RESPECTIVE RIGHTS-OF-WAY, THE MORE RESTRICTIVE SHALL GOVERN.
- THE CONTRACTOR AND ANY APPLICABLE SUBCONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING AT A TIME AND PLACE ARRANGED BY THE ENGINEER, IN WHICH THE AFFECTED PARTIES WILL BE PRESENT. ALSO, A PRE-EXCAVATION WALK THROUGH WILL NEED TO BE ATTENDED BY THE CONTRACTOR.
- FOLLOWING THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR INSPECTION COORDINATION. NO WORK CAN COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED AND THE CONTRACTOR HAS BEEN GIVEN THE AUTHORITY TO PROCEED.
- THE CONTRACTOR SHALL NOTIFY KENTUCKY 811 AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION, FOR LOCATION AND MARKING OF ALL EXISTING UTILITIES.
- LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING AND VERIFYING THE LOCATION, DEPTH, AND ELEVATION OF THE EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY CONFLICTS ARE APPARENT OR IF LOCATIONS AND DEPTHS DIFFER SIGNIFICANTLY FROM THE PLANS.
- ALL ELEVATIONS REFER TO THE CURRENT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88).
- THE ENGINEER HAS NOT PERFORMED PROPERTY OR RIGHT-OF-WAY SURVEYS FOR ANY OF THE AREAS INCLUDED IN THIS PROJECT RIGHT-OF-WAY OR PROPERTY LINES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL ORIENTATION ONLY. PROPERTY CORNERS OR OTHER SURVEY MARKERS HAVE NOT BEEN LOCATED, UNLESS SPECIFICALLY CALLED OUT ON THE PLANS.
- ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION OF THE PROPERTY OR FACILITY BY THE CONTRACTOR AT THEIR OWN EXPENSE.
- IF, IN THE OPINION OF THE ENGINEER, WORK HAS NOT PROGRESSED IN A REASONABLE AND TIMELY MANNER, THE ENGINEER SHALL HAVE THE RIGHT, WITH THE APPROVAL OF THE OWNER, TO DIRECT THE CONTRACTOR TO PROCEED WITH THE WORK OR ANY PORTION THEREOF IMMEDIATELY. IN THE EVENT THAT THE CONTRACTOR DOES NOT PROCEED WITH THE WORK IMMEDIATELY, AS DIRECTED BY THE ENGINEER, THE ENGINEER, UNDER THE DIRECTION OF THE OWNER, MAY ORDER ANY OR ALL OTHER OPERATIONS OF THE CONTRACTOR, UNDER THIS CONTRACT, TO CEASE UNTIL THE CLEANUP AND RESTORATION WORK IS PROCEEDING IN AN ACCEPTABLE MANNER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THESE PROVISIONS, THE OWNER MAY, WITH OR WITHOUT NOTICE, CAUSE THE REQUIRED RESTORATION AND CLEANUP TO BE DONE BY THE OWNER OR OTHERS AND WILL DEDUCT THE COST OF SAID WORK FROM ANY FUNDS DUE OR TO BECOME DUE TO THE CONTRACTOR UNDER THIS CONTRACT. THE PERFORMANCE OF SUCH WORK BY THE OWNER OR OTHERS SHALL SERVE IN NO WAY TO RELEASE THE CONTRACTOR FROM HIS GENERAL OF PARTICULAR LIABILITY FOR THE SAFETY OF THE PUBLIC OR COMPLETION OF THE WORK.
- ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. SOIL TRACKED ONTO THE ROADWAY SHALL BE REMOVED DAILY.
- ALL WORK SHALL BE INCORPORATED IN TO THOSE UNIT PRICES LISTED IN THE CONTRACT DOCUMENTS. ANY ITEMS NOT SPECIFICALLY LISTED IN THE UNIT PRICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT BE ELIGIBLE FOR SEPARATE PAYMENT OR COMPENSATION.

**EROSION AND SEDIMENTATION CONTROL NOTES**

- THE CONTRACTOR SHALL COMPLY WITH ALL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS OF THE BOTH THE STATE OF KENTUCKY AND THE U.S. ARMY CORPS OF ENGINEERS FOR ALL DISTURBED AREAS INCLUDED IN THE PROJECT.
- THE CONTRACTOR SHALL CONDUCT CONSTRUCTION OPERATIONS IN A MANNER THAT WILL REDUCE ACCELERATED EROSION TO THE PRACTICAL MINIMUM AND PREVENT DAMAGING SILTATION TO EXISTING SEWERS AND WATER COURSES LEADING FROM THE PROJECT AREA.
- THE CONTRACTOR SHALL CONDUCT WORK IN SUCH A MANNER AS TO PREVENT THE ENTRY OF FUELS, OILS, BITUMINOUS MATERIALS, CHEMICALS, SEWERAGE, OR OTHER HARMFUL MATERIALS INTO NEARBY LAKES AND STREAMS.
- WASTE DISPOSAL AREAS SHALL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION OF EROSION AND SEDIMENT CONTROL, SELECTION OF DISPOSAL SITE(S), AND CONTROL OF OPERATIONS, AND THE RESTORATION OF SAID AREAS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- EXCAVATIONS FROM THE PROJECT AREA INCLUDING CHANNELS AND WATERCOURSES SHALL NOT BE DEPOSITED IN OR NEAR RIVERS, STREAMS, OR PONDS WHERE IT MAY ENTER THE WATERWAY.
- AT THE COMPLETION OF EACH DAYS CONSTRUCTION, CARE SHOULD BE TAKEN TO ENSURE THAT MINIMAL EROSION WILL OCCUR IN TRENCHES AND TO STOCKPILED MATERIALS UNTIL RESUMPTION OF WORK.
- THE CONTRACTOR SHALL CONFINE CONSTRUCTION OPERATIONS TO THE MINIMUM AMOUNT OF WORKING SPACE PRACTICAL TO AID IN THE MINIMIZATION OF SOIL EROSION.
- THE PROJECT WILL BE CONTINUALLY OBSERVED BY VARIOUS STATE & LOCAL REGULATORY AGENCIES FOR EROSION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTICE OF SUCH DEFICIENCIES. FAILURE TO CORRECT THE DEFICIENCIES MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND THERE WILL BE NO CONTRACT TIME EXTENSION GRANTED FOR THIS TYPE OF STOPPAGE.
- TEMPORARY SOIL EROSION CONTROL MEASURES CONSISTING OF SILT FENCE, MULCHING, AND TARPING SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT, AND SHALL BE REMOVED BY THE CONTRACTOR AFTER THE PERMANENT SOIL EROSION MEASURES HAVE BEEN ESTABLISHED.
- PERMANENT SOIL EROSION MEASURES CONSISTING OF AN APPROVED SEED MIXTURE AND MULCH BLANKET SHALL BE COMPLETED WITHIN FIVE (5) CALENDAR DAYS OF FINAL GRADING. IN THE EVENT IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE AREA DUE TO SITE CONDITIONS OR SEASONAL LIMITATIONS, THE TEMPORARY MEASURES SHALL REMAIN IN FORCE AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME IT IS PRACTICAL TO COMPLETE THE PERMANENT SOIL EROSION CONTROL MEASURES.
- THE ENGINEER SHALL HAVE FULL AUTHORITY TO TEMPORARILY SUSPEND WORK IN THE EVENT THAT ANY OF THE ABOVE REQUIREMENTS ARE NOT BEING MET BY THE CONTRACTOR, OR IF CONDITIONS INDICATE THAT ADDITIONAL TEMPORARY MEASURES ARE WARRANTED, IN THE OPINION OF THE ENGINEER OR REGULATORY AGENCIES.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL INSTALL INLET FILTERS AT ALL INLETS IN THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ANY REQUIRED ACCESS ROAD SURFACES AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT.
- ALL NON-PAVED DISTURBED AREAS SHALL BE RESTORED AS INDICATED ON THE PLANS. IF NOT SPECIFICALLY STATED ON THE PLANS, RESTORATION SHALL CONSIST OF 4-INCHES OF TOPSOIL, FERTILIZER, SEED AND MULCH. UNLESS OTHERWISE STATED, ALL DISTURBED AREAS SHALL BE SEED WITH A SEED MIX APPROVED BY THE ENGINEER.

**WORK LIMITS**

IF INDICATED ON THE PLANS, THE CONTRACTOR SHALL KEEP ALL OPERATIONS WITHIN THE WORK LIMITS SHOWN. OTHERWISE, THE CONTRACTOR SHALL ESTABLISH CONSTRUCTION LIMITS WITHIN THE EXISTING AND/OR PROPOSED RIGHTS-OF-WAY AND EASEMENTS AS DIRECTED BY THE ENGINEER. THIS REQUIREMENT SHALL INCLUDE MATERIAL STOCKPILING AND EQUIPMENT STORAGE. THE CONTRACTOR MAY NOT EXIT THE ESTABLISHED PROJECT WORK LIMITS WITHOUT EXPLICIT PERMISSION FROM THE OWNER AND THE ENGINEER.

**UTILITIES**

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH KENTUCKY LAW, THE CONTRACTOR SHALL SHALL DIAL KENTUCKY 811 A MINIMUM OF THREE (3) FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING WORK IN EACH EXCAVATION AREA WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE 'KY 811' ALERT SYSTEM. UTILITY LOCATIONS SHOWN ON THE PLANS ARE ONLY APPROXIMATE AND SHOULD BE LOCATED IN THE FIELD PRIOR TO ANY EXCAVATION.

**WORK WITHIN PUBLIC ROAD RIGHT-OF-WAYS**

WHEN PERFORMING WORK ALONG OR ACROSS ANY PUBLIC ROADWAY, THE CONTRACTOR SHALL POST WARNING SIGNS PAINTED ORANGE AND THEY SHALL BE FOUR FEET BY FOUR FEET MOUNTED ON POSTS IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE SIGNS SHALL BE AS FOLLOWS:

- CAUTION PIPELINE CONSTRUCTION 1500 FEET
- CAUTION PIPELINE CONSTRUCTION 1000 FEET
- CAUTION PIPELINE CONSTRUCTION 500 FEET

ALL SIGNS, BARRICADES, LIGHTS, AND TRAFFIC CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL MAINTAIN TWO FLAG MEN AT ALL TIMES WHERE MACHINERY IS IN OPERATION WHERE THE FLOW OF TRAFFIC WILL BE DISTURBED, THERE IS NO EXCEPTION TO THIS REQUIREMENT. THE USE OF RADIOS WILL BE REQUIRED WHEN VISUAL CONTACT BETWEEN THE FLAGMEN DOES NOT EXIST.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ENTIRE ROADWAY FREE AND CLEAR AT THE END OF EACH WORKING DAY. NO EQUIPMENT SHALL BE LEFT ON OR PARKED ALONG THE ROAD RIGHT OF WAY. AT THE COMPLETION OF EACH WORK DAY, THE CONTRACTOR SHALL BACKFILL ALL OPEN TRENCHES AND INSTALL ALL TRAFFIC CONTROL SIGNS, BARRICADES, AND LIGHTS IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**DISRUPTION OF SERVICE**

THE CONTRACTOR SHALL COORDINATE ALL DISRUPTIONS OF SERVICE WITH THE OWNER AND ENGINEER. PRIOR TO ANY DISRUPTION, THE CONTRACTOR SHALL INFORM BOTH PARTIES OF HIS INTENTIONS, METHODS AND PROJECTED DURATION OF DISTURBANCE AND RECEIVE THEIR APPROVAL PRIOR TO INITIATING THE SPECIFIC WORK.

**WORK WITHIN STREAMS, CREEKS & WATERWAYS**

ANY AND ALL WORK TO BE COMPLETED WITHIN STREAMS, CREEKS & WATERWAYS SHALL BE COMPLETED ONLY DURING TIMES OF LOW FLOW AS DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL STRICTLY LIMIT THE USE OF HEAVY EQUIPMENT WITHIN THE WATERCOURSE AT ALL TIMES. STREAM FLOW SHALL NOT BE RESTRICTED OR IMPEDED AT ANY TIME DURING THE COURSE OF CONSTRUCTION.

**WORK WITHIN RAILROAD RIGHT-OF-WAYS**

IF APPLICABLE, THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS INCLUDED IN THE FACILITY ENCROACHMENT PERMIT ISSUED BY CSX TRANSPORTATION, INC (CSXT). IF APPLICABLE, A COPY OF THIS PERMIT HAS BEEN INCLUDED IN THE CONTRACT DOCUMENTS FOR THE CONTRACTOR'S REFERENCE.

ALL OPERATIONS SHALL BE CONDUCTED SO AS NOT TO INTERFERE WITH, INTERRUPT, OR ENDANGER THE OPERATION OF TRAINS NOR DAMAGE, DESTROY, OR ENDANGER THE INTEGRITY OF RAILROAD FACILITIES. ALL WORK ON OR NEAR CSXT PROPERTY SHALL BE CONDUCTED IN ACCORDANCE WITH CSXT SAFETY RULES AND REGULATIONS. SPECIFICALLY ALL CONTRACTOR EMPLOYEES AND AGENTS, WHILE ON CSXT PROPERTY, SHALL BE REQUIRED TO WEAR AN ORANGE HARD HAT, SAFETY GLASSES WITH SIDE SHIELDS, 6" LACE UP BOOTS WITH A DISTINCT HEEL, SHIRTS WITH SLEEVES, AND LONG PANTS. THE CONTRACTOR AND ITS EMPLOYEES SHALL COMPLY WITH THE CSXT SAFETY RULES AT ALL TIMES WHILE OCCUPYING CSXT'S PROPERTY. OPERATIONS WILL BE SUBJECT TO CSXT INSPECTION AT ANY AND ALL TIMES.

ALL CRANES, LIFTS, OR OTHER EQUIPMENT THAT WILL BE OPERATED IN THE VICINITY OF THE RAILROAD'S ELECTRIFICATION AND POWER TRANSMISSION FACILITIES SHALL BE ELECTRICALLY GROUNDED AS DIRECTED BY CSXT.

WHENEVER EQUIPMENT OR PERSONNEL ARE WORKING CLOSER THAN 25 FEET FROM THE CENTERLINE OF AN ADJACENT TRACK, THAT TRACK SHALL BE CONSIDERED AS BEING OBSTRUCTED. INsofar AS POSSIBLE, ALL OPERATIONS SHALL BE CONDUCTED NO LESS THAN THIS DISTANCE. ALL OPERATIONS SHALL BE CONDUCTED ONLY WITH THE PERMISSION OF, AND AS DIRECTED BY, A DULY QUALIFIED RAILROAD EMPLOYEE PRESENT AT THE SITE OF THE WORK. ALL COSTS RELATED TO RAILROAD PROTECTION WILL BE PASSED ON TO THE APPLICANT.

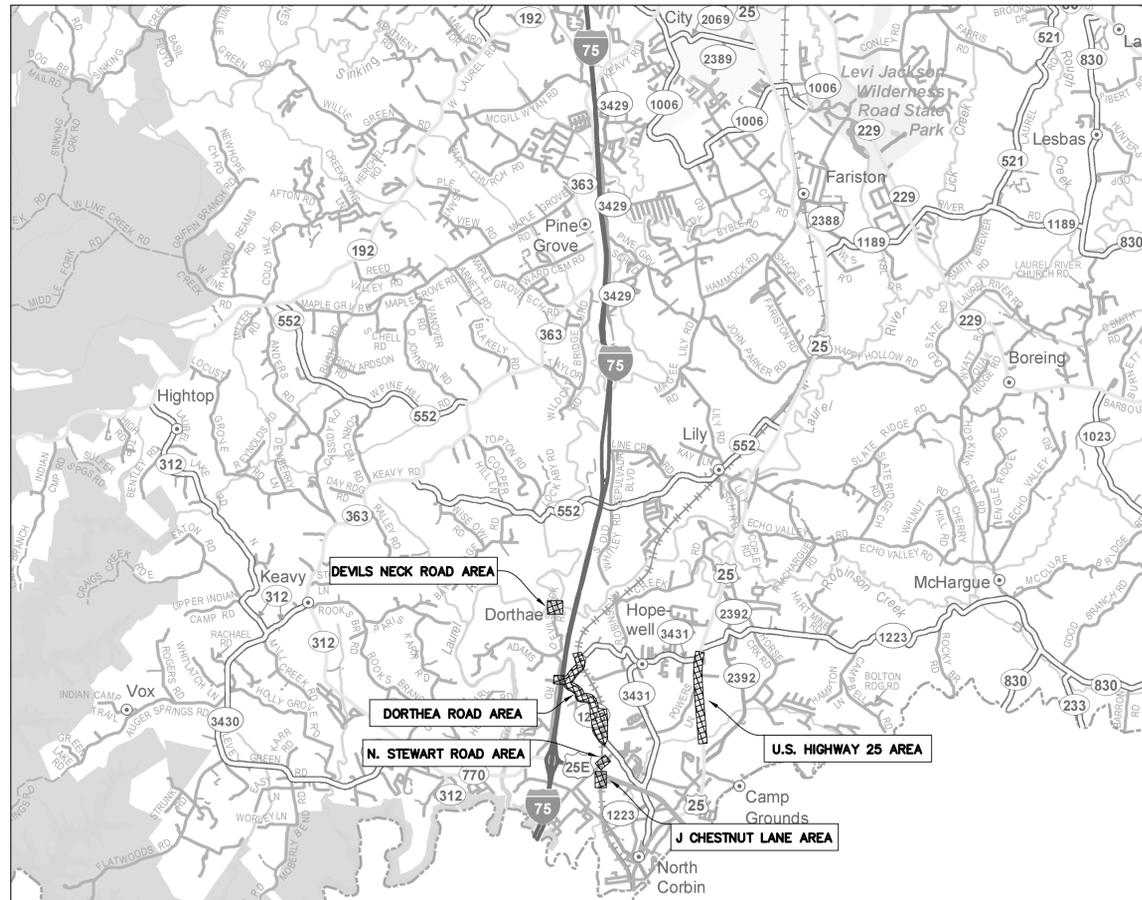
CROSSING OF TRACKS AT GRADE BY EQUIPMENT AND PERSONNEL IS PROHIBITED EXCEPT AT EXISTING PUBLIC ROADWAY CROSSINGS OR BY PRIOR ARRANGEMENT WITH AND AS DIRECTED BY, CSXT.

**WATER & SEWER MAIN SEPARATION**

WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. FOR GRAVITY SEWERS WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10 FOOT SEPARATION, THE KENTUCKY DIVISION OF WATER MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS. SUCH DEVIATION MAY ALLOW INSTALLATION OF A WATER MAIN CLOSER TO A GRAVITY SEWER, PROVIDED THAT THE WATER MAIN IS IN A SEPARATE TRENCH OR IS INSTALLED ON AN UNDISTURBED EARTHEN SHELF LOCATED ON ONE SIDE OF THE GRAVITY SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE WATER MAIN JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER PIPE JOINTS. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.

**PROJECT LOCATION MAP**



**M**  
Monarch Engineering, Inc.  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DESCRIPTION: <b>GENERAL NOTES</b> <b>SOUTH LAUREL WATER SYSTEM IMPROVEMENTS</b> <b>CONTRACT NO. 1</b>	CUSTOMER: <b>LAUREL COUNTY WATER DISTRICT NO. 2</b> <b>LAUREL COUNTY, KENTUCKY</b>
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PROJECT NO. 1813
DATE: OCT 2019
DRAWN BY: JLM
CHECKED BY: DSB
CHECKED BY: DMB
SCALE: AS NOTED

SHEET:  
**GN-1**





WATER SYSTEM IMPROVEMENTS  
 LAUREL COUNTY WATER DISTRICT #2  
 LAUREL COUNTY, KENTUCKY

U.S. HIGHWAY 25



**Monarch Engineering, Inc.**  
 556 CARLTON DRIVE  
 LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED	SHEET
CHECKED BY: JLM	SCALE: 1"=50'		1
CHECKED BY: DSB	PROJECT: 1813		

MATCHLINE  
 SHEET 2

8+70



**WATER SYSTEM IMPROVEMENTS**  
**LAUREL COUNTY WATER DISTRICT #2**  
**LAUREL COUNTY, KENTUCKY**  
**U.S. HIGHWAY 25**

	<b>Monarch Engineering, Inc.</b> 556 CARLTON DRIVE LAWRENCEBURG, KY 40342			
	DRAWN BY: JRC	DATE: OCT 2019	REVISED	SHEET
	CHECKED BY: JLM	SCALE: 1"=50'		2
CHECKED BY: DSB	PROJECT: 1813			



**WATER SYSTEM IMPROVEMENTS  
LAUREL COUNTY WATER DISTRICT #2  
LAUREL COUNTY, KENTUCKY**

U.S. HIGHWAY 25



**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED
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CHECKED BY: DSB	PROJECT: 1813	



**WATER SYSTEM IMPROVEMENTS**  
**LAUREL COUNTY WATER DISTRICT #2**  
**LAUREL COUNTY, KENTUCKY**  
**U.S. HIGHWAY 25**

	<b>Monarch Engineering, Inc.</b> 556 CARLTON DRIVE LAWRENCEBURG, KY 40342	
	DRAWN BY: JRC	DATE: OCT 2019
	CHECKED BY: JLM	SCALE: 1"=50'
CHECKED BY: DSB	PROJECT: 1813	REVISED SHEET <b>4</b>



EXISTING 8-INCH WATER LINE

SHANE & AMY BROCK

EXISTING METER SETTING (TO BE REMOVED)

EXISTING 14-INCH WATER LINE (TO BE ABANDONED)

SERVICE LINE RECONNECTION SHALL BE MADE WITH 1-INCH PE SERVICE TUBING. CONFIRM SERVICE LINE ROUTE WITH LANDOWNER PRIOR TO BEGINNING WORK.

EXISTING 6-INCH WATER LINE (TO BE ABANDONED)

INSTALL 8-INCH x 6-INCH REDUCER AND 6-INCH GATE VALVE

INSTALL METER SETTING AND SERVICE LINE RECONNECTION

STA. 0+00 TO STA. 3+00  
INSTALL 6-INCH PVC SDR-17 WATER LINE ON STATE HIGHWAY RIGHT-OF-WAY APPROX 5' FROM EDGE OF PAVEMENT

STA. 3+00 TO STA. 7+80  
INSTALL 6-INCH PVC SDR-17 WATER LINE ON STATE HIGHWAY RIGHT-OF-WAY ALONG BACK OF ROADWAY DITCH LINE.

PRIOR TO MAKING DIRECT CONNECTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY MEASURES AS REQUIRED TO FACILITATE PRESSURE TESTING, DISINFECTION, AND FLUSHING OF THE NEW LINE AS DIRECTED BY THE OWNER AND THE ENGINEER.

STA. 0+00  
BEGIN NEW WATER LINE  
CONNECT NEW 8-INCH WATER LINE TO EXISTING 8-INCH WATER LINE VIA DIRECT CONNECTION.

RECONNECT EXISTING METER TO NEW 6-INCH WATER LINE WITH 1-INCH PE SERVICE TUBING

BILL & JEAN BROCK TRUST LTD.

STA. 7+80 TO STA. 9+30  
INSTALL 6-INCH PVC SDR-17 WATER LINE ON STATE HIGHWAY RIGHT-OF-WAY ON ROADWAY SHOULDER APPROX. 3' FROM EDGE OF PAVEMENT

BILL & JEAN BROCK TRUST LTD.

STA. 9+30 TO STA. 16+00  
INSTALL 6-INCH PVC SDR-17 WATER LINE ON STATE HIGHWAY RIGHT-OF-WAY ALONG BACK OF ROADWAY DITCH LINE.

DEVILS NECK ROAD DISCONNECTION DETAIL

MATCHLINE SHEET 6

EXISTING 4-INCH WATER LINE

EXISTING 16-INCH RAW WATER LINE

EXISTING 6-INCH WATER LINE (TO BE ABANDONED)

EXISTING METER SETTING (TO BE REMOVED)

REMOVE 4-INCH x 4-INCH TEE AND 4-INCH GATE VALVE. CONNECT EXISTING 4-INCH WATER LINE TOGETHER WITH NEW 4-INCH PVC SDR-17 WATER LINE

INSTALL METER SETTING AND SERVICE LINE RECONNECTION

WATER SYSTEM IMPROVEMENTS  
LAUREL COUNTY WATER DISTRICT #2  
LAUREL COUNTY, KENTUCKY

DORTHAЕ ROAD



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556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED	SHEET
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STA. 6+00  
 END NEW 6-INCH WATER LINE  
 CONNECT NEW 6-INCH WATER MAIN TO EXISTING 4-INCH MAIN VIA  
 DIRECT CONNECTION. INSTALL 4-INCH x 4-INCH TEE, THREE (3)  
 NEW 4-INCH GATE VALVES AND 6-INCH x 4-INCH REDUCER.  
 CONNECT REDUCER DIRECTLY TO VALVE USING FOSTER ADAPTOR

INSTALL 3-WAY  
 FLUSH HYDRANT  
 ASSEMBLY

INSTALL 370 LF OF 6-INCH PVC SDR-17  
 INTEGRAL BELL RESTRAINED JOINT WATER LINE  
 THROUGH ENCASEMENT PIPE

INSTALL 340 LF OF BORE & CASE  
 FOR 6-INCH WATER LINE.  
 ENCASEMENT PIPE SHALL BE 12-INCH Ø STEEL.

STA. 0+00 TO STA. 2+00  
 INSTALL NEW 6-INCH PVC SDR-17 WATER LINE  
 ON PRIVATE EASEMENT APPROX. 15'  
 FROM PROPERTY FENCE

INSTALL 25 LF OF BORE & CASE  
 FOR 6-INCH WATER LINE.  
 ENCASEMENT PIPE SHALL BE 12-INCH Ø STEEL.

STA. 9+30 TO STA. 16+00  
 INSTALL 6-INCH PVC SDR-17 WATER LINE  
 ON STATE HIGHWAY RIGHT-OF-WAY  
 ALONG BACK OF ROADWAY DITCH LINE.

INSTALL 6-INCH x 6-INCH TEE  
 AND 6-INCH GATE VALVES

INSTALL 6-INCH x 4-INCH REDUCER AND 4-INCH  
 GATE VALVE. CONNECT REDUCER DIRECTLY  
 TO VALVE & TEE USING FOSTER ADAPTORS

STA. 16+00 TO STA. 18+00  
 INSTALL 4-INCH PVC SDR-17 WATER LINE  
 ON STATE HIGHWAY RIGHT-OF-WAY  
 ALONG BACK OF ROADWAY DITCH LINE.

STA. 18+00  
 END NEW 4-INCH WATER LINE  
 REMOVE EXISTING BLOWOFF AND CONNECT  
 NEW 4-INCH WATER LINE TO EXISTING 4-INCH  
 WATER LINE VIA DIRECT CONNECTION.

BILL & JEAN BROCK  
 TRUST LTD.

EXISTING 4-INCH  
 WATER LINE

WATER SYSTEM IMPROVEMENTS  
 LAUREL COUNTY WATER DISTRICT #2  
 LAUREL COUNTY, KENTUCKY

DORTHAЕ ROAD

**Monarch Engineering, Inc.**  
 556 CARLTON DRIVE  
 LAWRENCEBURG, KY 40342

REVISIONS

DATE	REVISED
OCT 2019	

DRAWN BY: JRC	DATE: OCT 2019	REVISIONS	SHEET
CHECKED BY: JLM	SCALE: 1"=50'		6
CHECKED BY: DSB	PROJECT: 1813		



WATER SYSTEM IMPROVEMENTS  
LAUREL COUNTY WATER DISTRICT #2  
LAUREL COUNTY, KENTUCKY

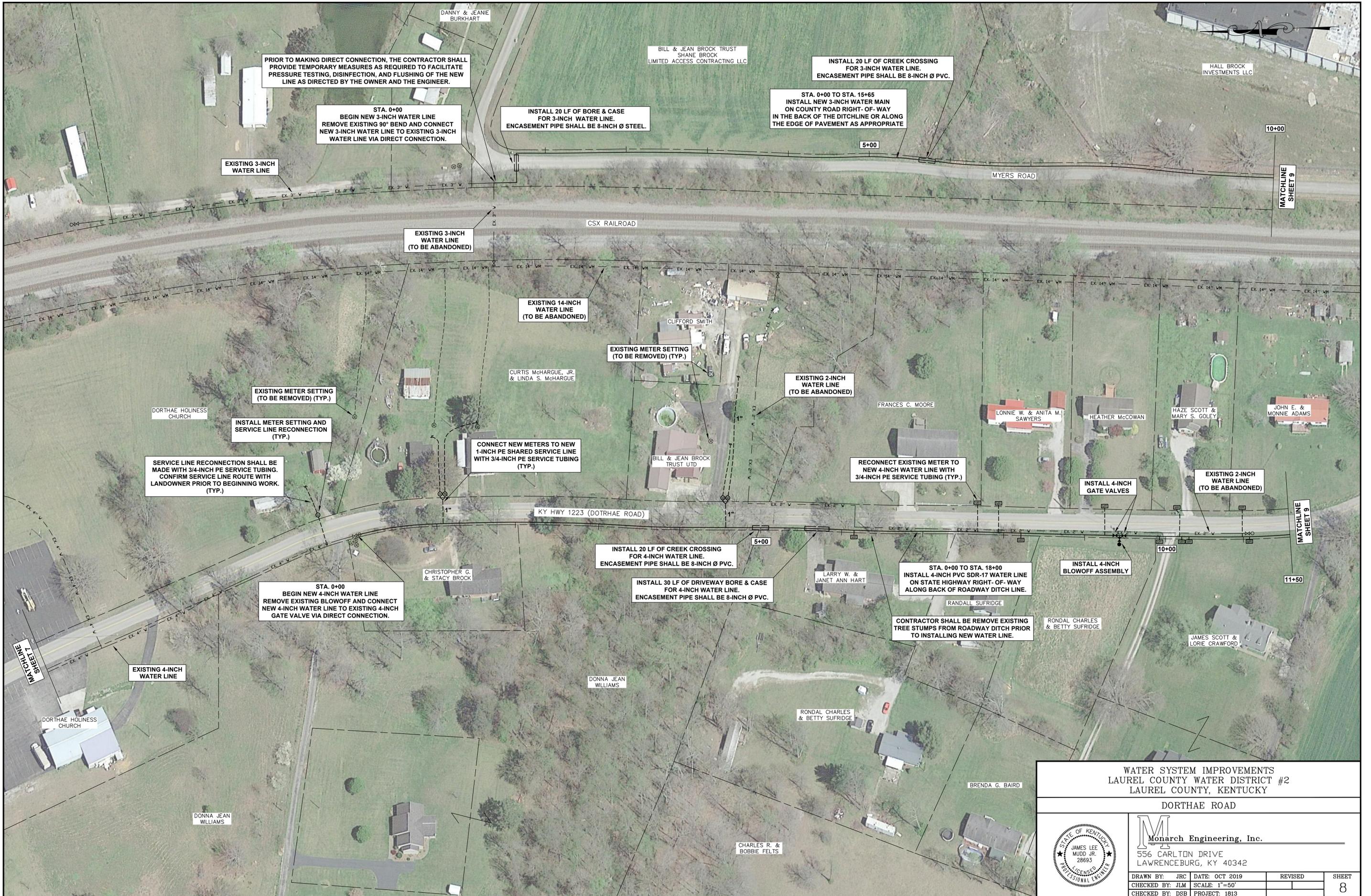
DORTHAE ROAD

**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

REVISIONS

DATE	REVISED
OCT 2019	

DRAWN BY: JRC	DATE: OCT 2019	REVISED	SHEET
CHECKED BY: JLM	SCALE: 1"=50'		7
CHECKED BY: DSB	PROJECT: 1813		



PRIOR TO MAKING DIRECT CONNECTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY MEASURES AS REQUIRED TO FACILITATE PRESSURE TESTING, DISINFECTION, AND FLUSHING OF THE NEW LINE AS DIRECTED BY THE OWNER AND THE ENGINEER.

STA. 0+00  
BEGIN NEW 3-INCH WATER LINE  
REMOVE EXISTING 90° BEND AND CONNECT  
NEW 3-INCH WATER LINE TO EXISTING 3-INCH  
WATER LINE VIA DIRECT CONNECTION.

INSTALL 20 LF OF BORE & CASE  
FOR 3-INCH WATER LINE.  
ENCASEMENT PIPE SHALL BE 8-INCH Ø STEEL.

STA. 0+00 TO STA. 15+65  
INSTALL NEW 3-INCH WATER MAIN  
ON COUNTY ROAD RIGHT-OF-WAY  
IN THE BACK OF THE DITCHLINE OR ALONG  
THE EDGE OF PAVEMENT AS APPROPRIATE

INSTALL 20 LF OF CREEK CROSSING  
FOR 3-INCH WATER LINE.  
ENCASEMENT PIPE SHALL BE 8-INCH Ø PVC.

EXISTING 3-INCH  
WATER LINE

EXISTING 3-INCH  
WATER LINE  
(TO BE ABANDONED)

EXISTING 14-INCH  
WATER LINE  
(TO BE ABANDONED)

EXISTING METER SETTING  
(TO BE REMOVED) (TYP.)

EXISTING 2-INCH  
WATER LINE  
(TO BE ABANDONED)

EXISTING METER SETTING  
(TO BE REMOVED) (TYP.)

INSTALL METER SETTING AND  
SERVICE LINE RECONNECTION  
(TYP.)

SERVICE LINE RECONNECTION SHALL BE  
MADE WITH 3/4-INCH PE SERVICE TUBING.  
CONFIRM SERVICE LINE ROUTE WITH  
LANDOWNER PRIOR TO BEGINNING WORK.  
(TYP.)

CONNECT NEW METERS TO NEW  
1-INCH PE SHARED SERVICE LINE  
WITH 3/4-INCH PE SERVICE TUBING  
(TYP.)

RECONNECT EXISTING METER TO  
NEW 4-INCH WATER LINE WITH  
3/4-INCH PE SERVICE TUBING (TYP.)

INSTALL 4-INCH  
GATE VALVES

EXISTING 2-INCH  
WATER LINE  
(TO BE ABANDONED)

INSTALL 20 LF OF CREEK CROSSING  
FOR 4-INCH WATER LINE.  
ENCASEMENT PIPE SHALL BE 8-INCH Ø PVC.

INSTALL 30 LF OF DRIVEWAY BORE & CASE  
FOR 4-INCH WATER LINE.  
ENCASEMENT PIPE SHALL BE 8-INCH Ø PVC.

STA. 0+00 TO STA. 18+00  
INSTALL 4-INCH PVC SDR-17 WATER LINE  
ON STATE HIGHWAY RIGHT-OF-WAY  
ALONG BACK OF ROADWAY DITCH LINE.

INSTALL 4-INCH  
BLOWOFF ASSEMBLY

STA. 0+00  
BEGIN NEW 4-INCH WATER LINE  
REMOVE EXISTING BLOWOFF AND CONNECT  
NEW 4-INCH WATER LINE TO EXISTING 4-INCH  
GATE VALVE VIA DIRECT CONNECTION.

CONTRACTOR SHALL REMOVE EXISTING  
TREE STUMPS FROM ROADWAY DITCH PRIOR  
TO INSTALLING NEW WATER LINE.

EXISTING 4-INCH  
WATER LINE

WATER SYSTEM IMPROVEMENTS  
LAUREL COUNTY WATER DISTRICT #2  
LAUREL COUNTY, KENTUCKY

DORTHAE ROAD

STATE OF KENTUCKY  
JAMES LEE MUDD JR.  
28693  
LICENSED PROFESSIONAL ENGINEER

**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED
CHECKED BY: JLM	SCALE: 1"=50'	
CHECKED BY: DSB	PROJECT: 1813	

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**WATER SYSTEM IMPROVEMENTS**  
**LAUREL COUNTY WATER DISTRICT #2**  
**LAUREL COUNTY, KENTUCKY**  
**DORTHAE ROAD**

---

	<b>Monarch Engineering, Inc.</b> 556 CARLTON DRIVE LAWRENCEBURG, KY 40342	
	DRAWN BY: JRC	DATE: OCT 2019
	CHECKED BY: JLM	SCALE: 1"=50'
CHECKED BY: DSB	PROJECT: 1813	SHEET <b>9</b>



MATCHLINE  
SHEET 9

KY HWY 1223 (OOTHAE ROAD)

PINEY HILLS ROAD

NORTH STEWART ROAD  
5+00

MATCHLINE  
SHEET 11

WATER SYSTEM IMPROVEMENTS  
LAUREL COUNTY WATER DISTRICT #2  
LAUREL COUNTY, KENTUCKY

NORTH STEWART ROAD



**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED	SHEET
CHECKED BY: JLM	SCALE: 1"=50'		10
CHECKED BY: DSB	PROJECT: 1813		

EXISTING 14-INCH  
WATER LINE  
(TO BE ABANDONED)

INSTALL NEW 6-INCH PVC SDR-17 WATER MAIN  
IN ROADWAY PAVEMENT OR ALONG ALONG  
DITCHLINE AS DIRECTED BY THE ENGINEER.  
PARTIAL PAVEMENT REPLACEMENT REQUIRED.

INSTALL 6-INCH x 4-INCH TEE  
AND 4-INCH GATE VALVE

CONNECT NEW 6-INCH WATER LINE  
TO EXISTING 6-INCH WATER LINE  
VIA DIRECT CONNECTION.

STA. 0+40 TO STA. 3+60  
INSTALL NEW 6-INCH PVC SDR-17 WATER  
MAIN ON COUNTY ROAD RIGHT-OF-WAY  
IN THE BACK OF THE DITCHLINE OR ALONG  
THE EDGE OF PAVEMENT AS APPROPRIATE

RECONNECT EXISTING METER TO  
NEW 4-INCH WATER LINE WITH  
3/4-INCH PE SERVICE TUBING (TYP.)

STA. 5+80  
END NEW 6-INCH WATER LINE  
REMOVE EXISTING BLOWOFF AND CONNECT NEW 6-INCH  
WATER LINE TO EXISTING 4-INCH GATE VALVE WITH  
6-INCH x 4-INCH REDUCER VIA DIRECT CONNECTION.

PRIOR TO MAKING DIRECT CONNECTION, THE CONTRACTOR SHALL  
PROVIDE TEMPORARY MEASURES AS REQUIRED TO FACILITATE  
PRESSURE TESTING, DISINFECTION, AND FLUSHING OF THE NEW  
LINE AS DIRECTED BY THE OWNER AND THE ENGINEER.

STA. 3+60 TO STA. 5+80  
INSTALL NEW 6-INCH WATER MAIN IN ROADWAY,  
APPROX 2' FROM EXISTING EDGE OF PAVEMENT.  
PARTIAL PAVEMENT REPLACEMENT REQUIRED.

STA. 0+00  
BEGIN NEW 6-INCH WATER LINE  
CONNECT NEW 6-INCH WATER LINE  
TO EXISTING 8-INCH WATER LINE  
VIA TYPE II CONNECTION

CONNECT NEW 6-INCH WATER LINE  
TO EXISTING 8-INCH WATER LINE  
VIA TYPE II CONNECTION

CONNECT NEW 4-INCH GATE VALVE  
TO EXISTING 4-INCH WATER LINE  
VIA 90° DIRECT CONNECTION.

EXISTING 4-INCH  
WATER LINE

EXISTING 8-INCH  
WATER LINE

EXISTING 14-INCH  
WATER LINE  
(TO BE ABANDONED)

BAPTIST HOSPITAL  
SYSTEMS, INC.

DENNIS  
MYERS

PAUL & PENNY  
BRAGDON

CSX RAILROAD

ORVILLE & MARY JO  
ALFORD

MICHAEL R. &  
PHYLLIS SUE WALSH

GARY CARROLL

LINDA LAWSON

R E M,  
LLC

JIMMY & STEVEN  
JARVIS

BRIAN & CHASITY  
SETTLES

HELEN BLANTON

CHAUDETTE GARLIC

RICHARD L. NEVELS

WOODLEE-FREEMAN  
PROPERTIES, INC.

FRANK & DIANE  
JACKSON

EARL E. &  
FREDA C. FOX

DALE A. &  
BETTY S. JONES

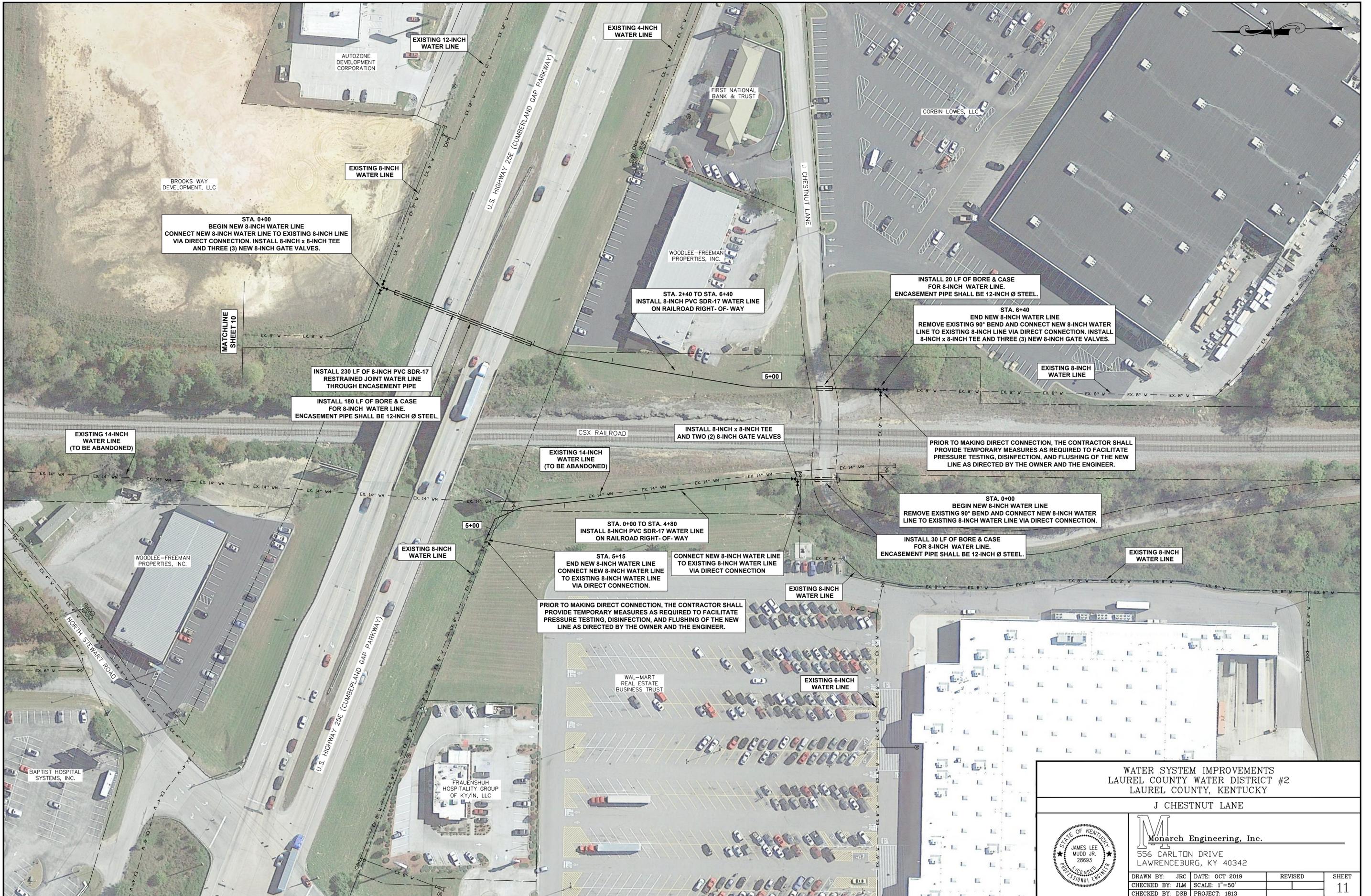
GOLVIN &  
BETTY  
CHADWELL

ROBERT CARL  
& SANDRA  
LYNN DUECKER

THOMAS  
BENBERT

ANTHONY  
BROCK

BROOKS WAY  
DEVELOPMENT, LLC



STA. 0+00  
 BEGIN NEW 8-INCH WATER LINE  
 CONNECT NEW 8-INCH WATER LINE TO EXISTING 8-INCH LINE  
 VIA DIRECT CONNECTION. INSTALL 8-INCH x 8-INCH TEE  
 AND THREE (3) NEW 8-INCH GATE VALVES.

INSTALL 230 LF OF 8-INCH PVC SDR-17  
 RESTRAINED JOINT WATER LINE  
 THROUGH ENCASUREMENT PIPE

INSTALL 180 LF OF BORE & CASE  
 FOR 8-INCH WATER LINE.  
 ENCASUREMENT PIPE SHALL BE 12-INCH Ø STEEL.

STA. 2+40 TO STA. 6+40  
 INSTALL 8-INCH PVC SDR-17 WATER LINE  
 ON RAILROAD RIGHT-OF-WAY

INSTALL 20 LF OF BORE & CASE  
 FOR 8-INCH WATER LINE.  
 ENCASUREMENT PIPE SHALL BE 12-INCH Ø STEEL.

STA. 6+40  
 END NEW 8-INCH WATER LINE  
 REMOVE EXISTING 90° BEND AND CONNECT NEW 8-INCH WATER  
 LINE TO EXISTING 8-INCH LINE VIA DIRECT CONNECTION. INSTALL  
 8-INCH x 8-INCH TEE AND THREE (3) NEW 8-INCH GATE VALVES.

INSTALL 8-INCH x 8-INCH TEE  
 AND TWO (2) 8-INCH GATE VALVES

PRIOR TO MAKING DIRECT CONNECTION, THE CONTRACTOR SHALL  
 PROVIDE TEMPORARY MEASURES AS REQUIRED TO FACILITATE  
 PRESSURE TESTING, DISINFECTION, AND FLUSHING OF THE NEW  
 LINE AS DIRECTED BY THE OWNER AND THE ENGINEER.

STA. 0+00  
 BEGIN NEW 8-INCH WATER LINE  
 REMOVE EXISTING 90° BEND AND CONNECT NEW 8-INCH WATER  
 LINE TO EXISTING 8-INCH WATER LINE VIA DIRECT CONNECTION.

INSTALL 30 LF OF BORE & CASE  
 FOR 8-INCH WATER LINE.  
 ENCASUREMENT PIPE SHALL BE 12-INCH Ø STEEL.

STA. 0+00 TO STA. 4+80  
 INSTALL 8-INCH PVC SDR-17 WATER LINE  
 ON RAILROAD RIGHT-OF-WAY

STA. 5+15  
 END NEW 8-INCH WATER LINE  
 CONNECT NEW 8-INCH WATER LINE  
 TO EXISTING 8-INCH WATER LINE  
 VIA DIRECT CONNECTION.

CONNECT NEW 8-INCH WATER LINE  
 TO EXISTING 8-INCH WATER LINE  
 VIA DIRECT CONNECTION

PRIOR TO MAKING DIRECT CONNECTION, THE CONTRACTOR SHALL  
 PROVIDE TEMPORARY MEASURES AS REQUIRED TO FACILITATE  
 PRESSURE TESTING, DISINFECTION, AND FLUSHING OF THE NEW  
 LINE AS DIRECTED BY THE OWNER AND THE ENGINEER.

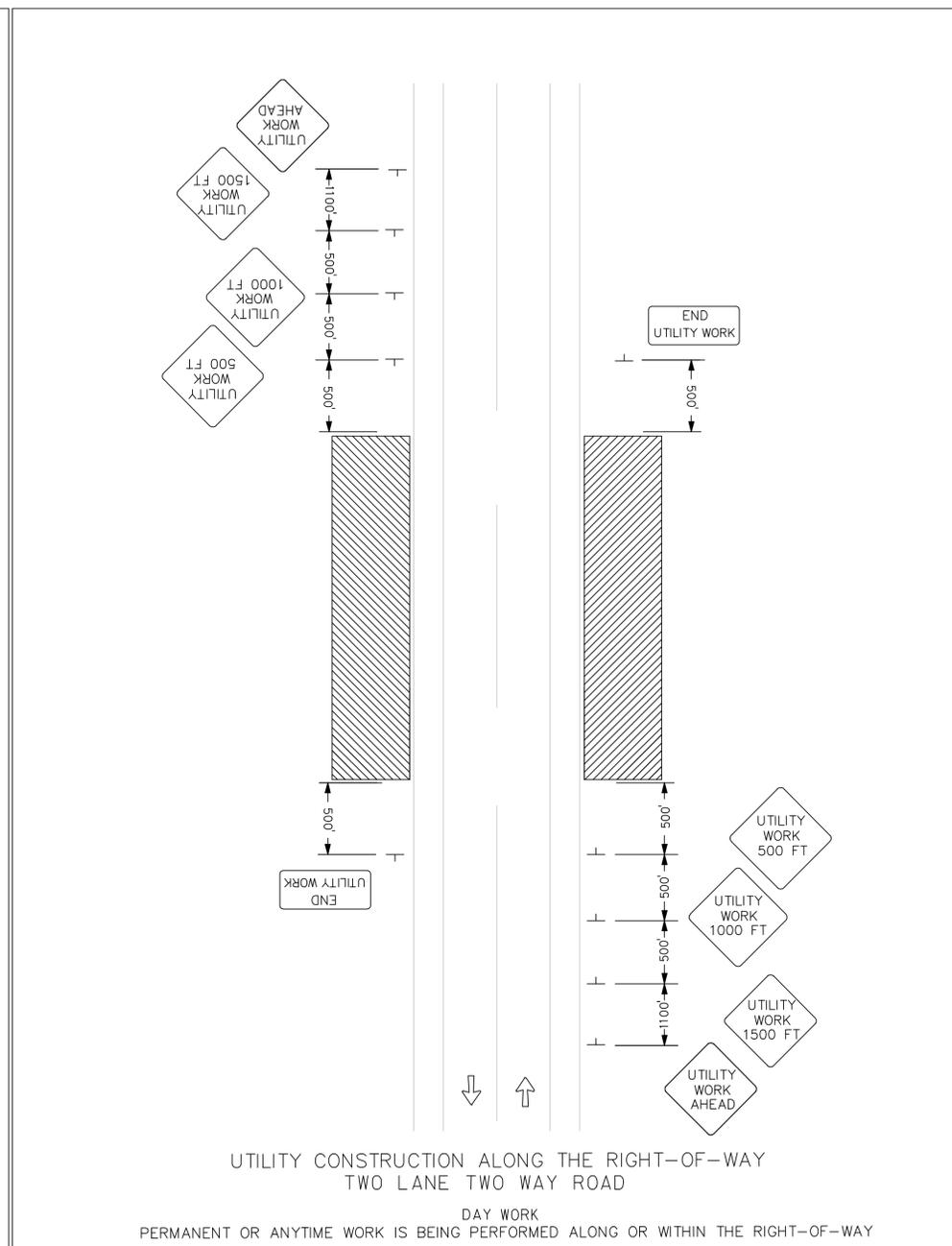
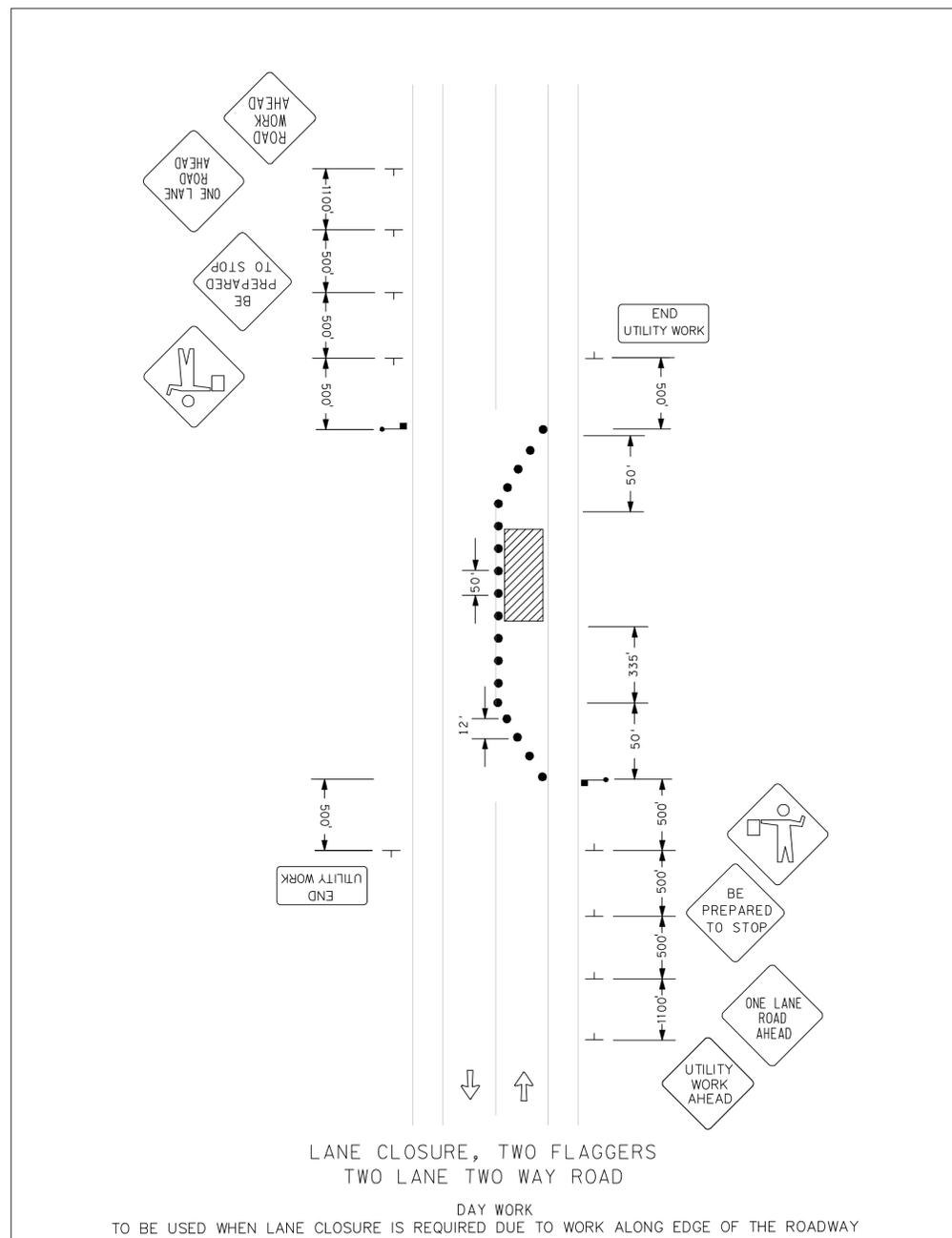
WATER SYSTEM IMPROVEMENTS  
 LAUREL COUNTY WATER DISTRICT #2  
 LAUREL COUNTY, KENTUCKY

J CHESTNUT LANE

**Monarch Engineering, Inc.**  
 556 CARLTON DRIVE  
 LAWRENCEBURG, KY 40342

DRAWN BY: JRC	DATE: OCT 2019	REVISED
CHECKED BY: JLM	SCALE: 1"=50'	
CHECKED BY: DSB	PROJECT: 1813	

SHEET  
11



**NOTES & GUIDELINES**

**GENERAL INFORMATION:**

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH KYDOT STANDARDS

**SIGNING:**

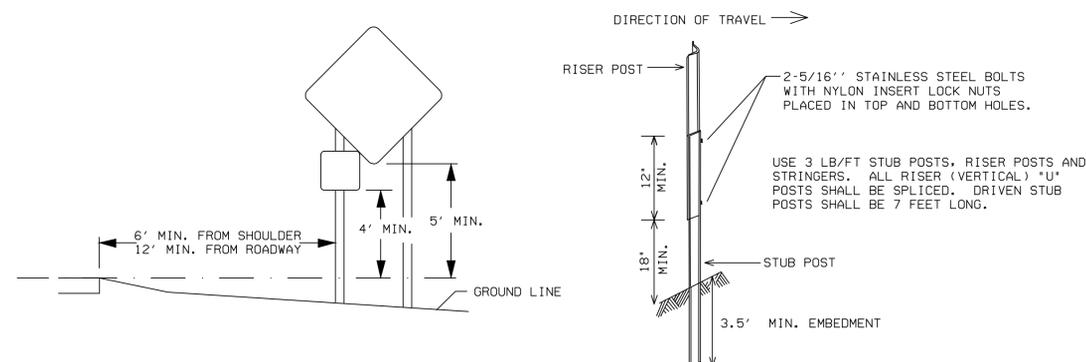
1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTANT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED BY THE ENGINEER. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE KYDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".
5. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS INSTALLED.

**TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND**

SYMBOL	DESCRIPTION
	AREA CLOSED TO TRAFFIC / WORK AREA
	TRAFFIC CONTROL SIGN
	DRUM-LIKE CHANNELIZER =
	FLAGGER LOCATION

SIGN	COLOR	SIZE
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 36"
	BLACK ON ORANGE	36" x 18"

**SIGN CONSTRUCTION DETAILS**



DESCRIPTION:

MAINTENANCE OF TRAFFIC PLAN

CUSTOMER:

LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY

PROJECT NO. 1813

DATE: OCT 2019

DRAWN BY: JLM

CHECKED BY: DSB

CHECKED BY: DMB

SCALE: N.T.S.

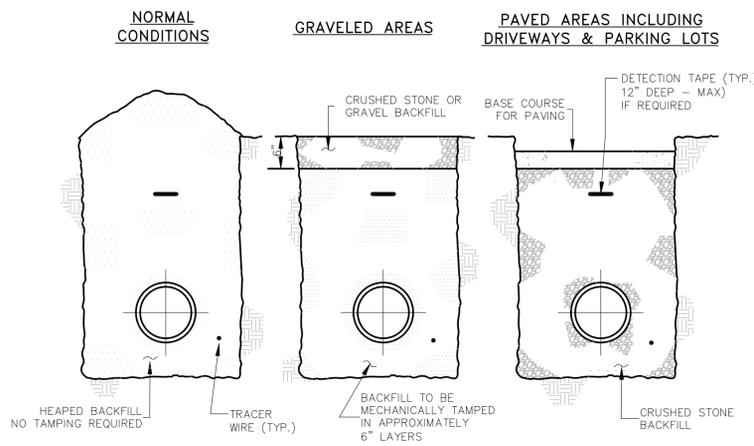
SHEET:

MOT-1

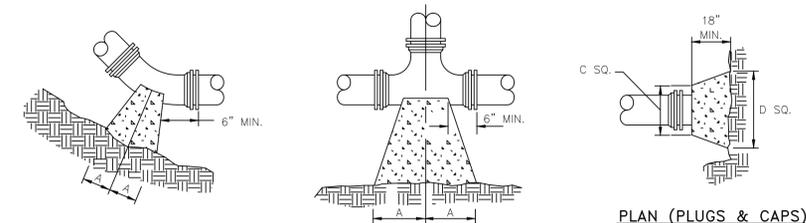


**Monarch Engineering, Inc.**

556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342



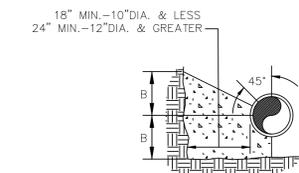
**BACKFILLING**



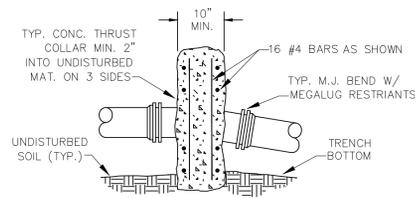
PLAN (HORIZONTAL BENDS)

PLAN (TEES)

PLAN (PLUGS & CAPS)



SECTION (HORIZONTAL BENDS & TEES)



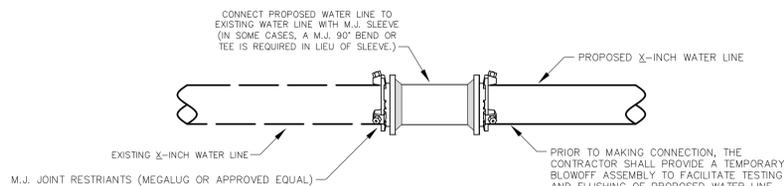
SECTION (VERTICAL BENDS)

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

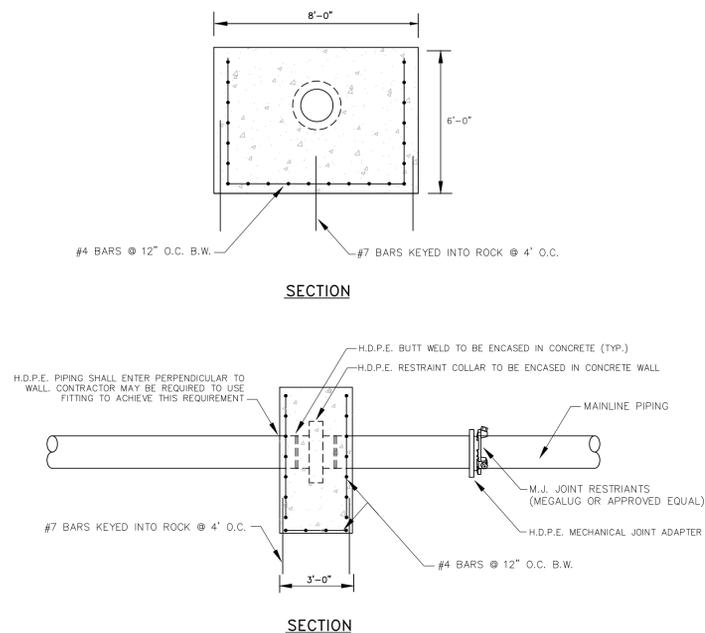
**NOTES:**

- FOR VERT. BEND DOWN IN EXCESS OF 11 1/4° BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
- FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
- GLANDS & BOLTS SHALL REMAIN ACCESSIBLE AND MUST BE PROTECTED FROM CONCRETE BY PLASTIC SHEETING OR OTHERWISE.
- ALL THRUST BLOCK & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX
- THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.
- DESIGN CRITERIA:  
LINE PRESSURE = 200 psi  
SOIL BEARING CAPACITY = 2000 psf  
FACTOR OF SAFETY = 1.5

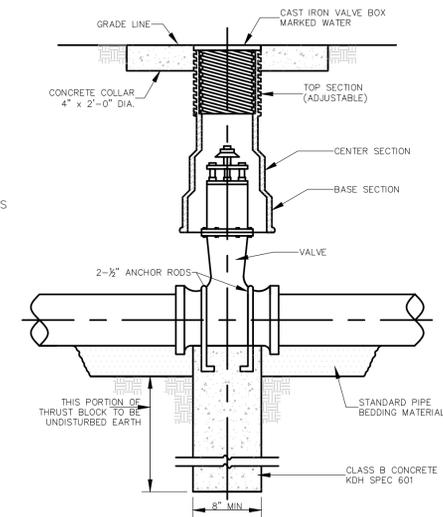
**THRUST BLOCK DETAILS**



**DIRECT CONNECTION**

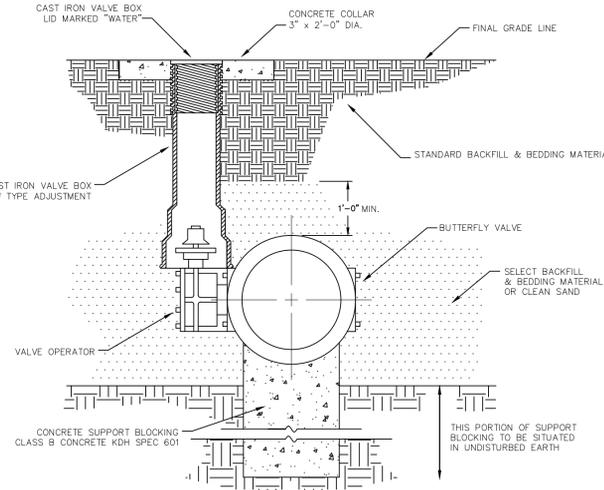


**HDPE RESTRAINT WALL**



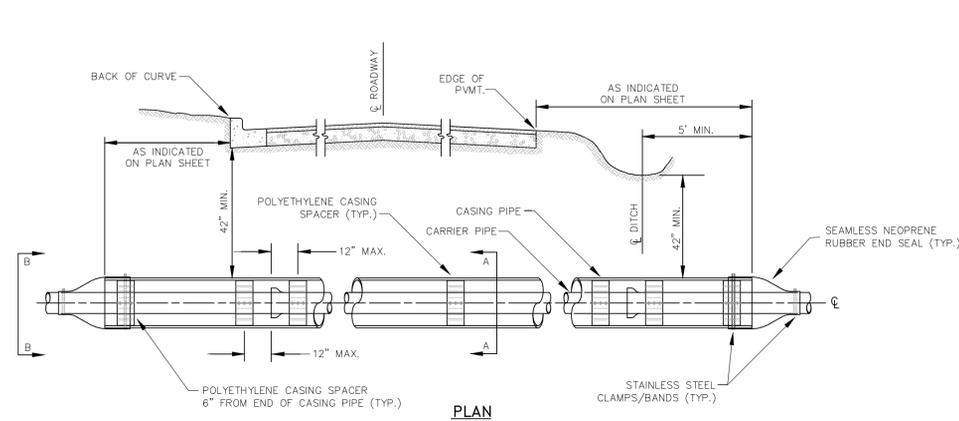
**GATE VALVE**

NOTE: SEE SPECIFICATION FOR MATERIALS AND CONNECTION REQUIREMENTS



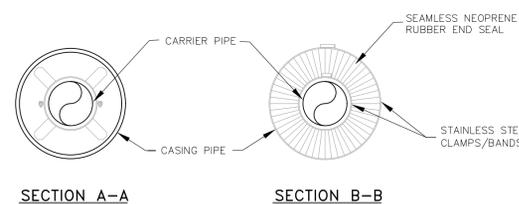
**BUTTERFLY VALVE**

NOTE: SEE SPECIFICATION FOR MATERIALS AND CONNECTION REQUIREMENTS



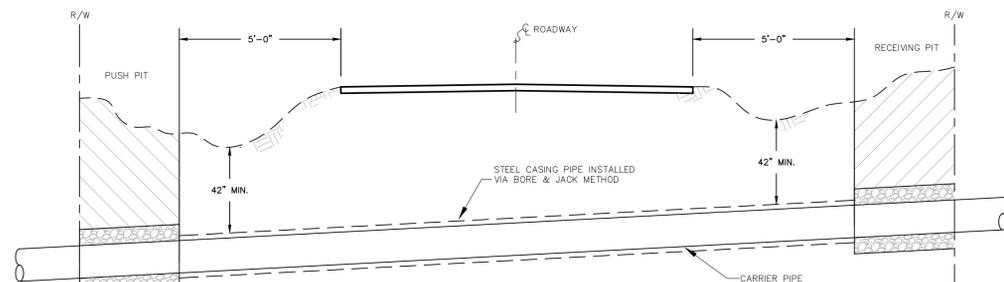
**ENCASEMENT PIPE DETAILS**

**NOTES:**  
A MINIMUM OF THREE CASING SPACERS ARE REQUIRED PER JOINT; ONE EACH AT THE SPIGOT, MIDDLE & BELL.  
ALL D.I. PIPE JOINTS WITHIN THE CASING PIPE SHALL BE EQUIPPED WITH A MECHANICAL JOINT RESTRAINT DEVICE.  
CASING SPACERS SHALL BE AS MANUFACTURED BY COI PIPELINE SYSTEMS, MODEL CSP, OR APPROVED EQUAL.  
END SEALS SHALL BE AS MANUFACTURED BY COI PIPELINE SYSTEMS, MODEL ESC, OR APPROVED EQUAL.



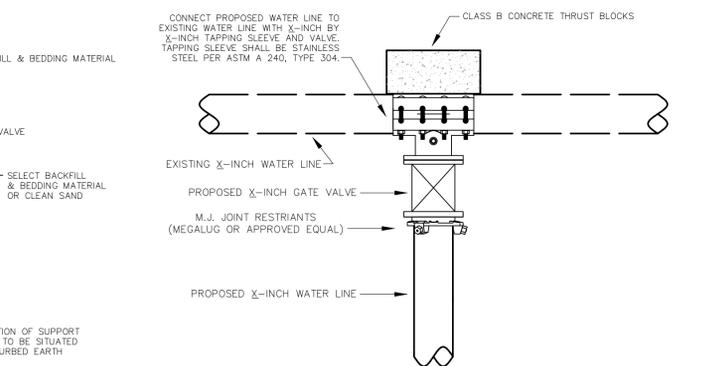
SECTION A-A

SECTION B-B

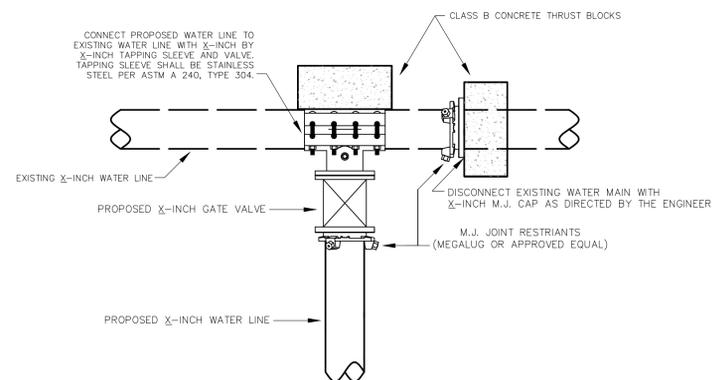


**STATE HIGHWAY ENCASED BORE CROSSING**

**NOTES:**  
PUSH & RECEIVING PITS TO BE BACKFILLED AND THOROUGHLY COMPACTED IMMEDIATELY FOLLOWING INSTALLATION.  
ALL HIGHWAY DITCHLINES TO REMAIN FREE AND CLEAR FOLLOWING INSTALLATION.  
GROUND COVER SHALL BE RESTORED IN ALL DISTURBED AREAS VIA SEED AND STRAW AS SOON AS POSSIBLE.



**TYPE II CONNECTION**



**TYPE I CONNECTION**

**Monarch Engineering, Inc.**

556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

**STANDARD DETAIL DRAWINGS**

**LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY**

DESCRIPTION:

CUSTOMER:

PROJECT NO. 1813

DATE: OCT 2019

DRAWN BY: JLM

CHECKED BY: DSB

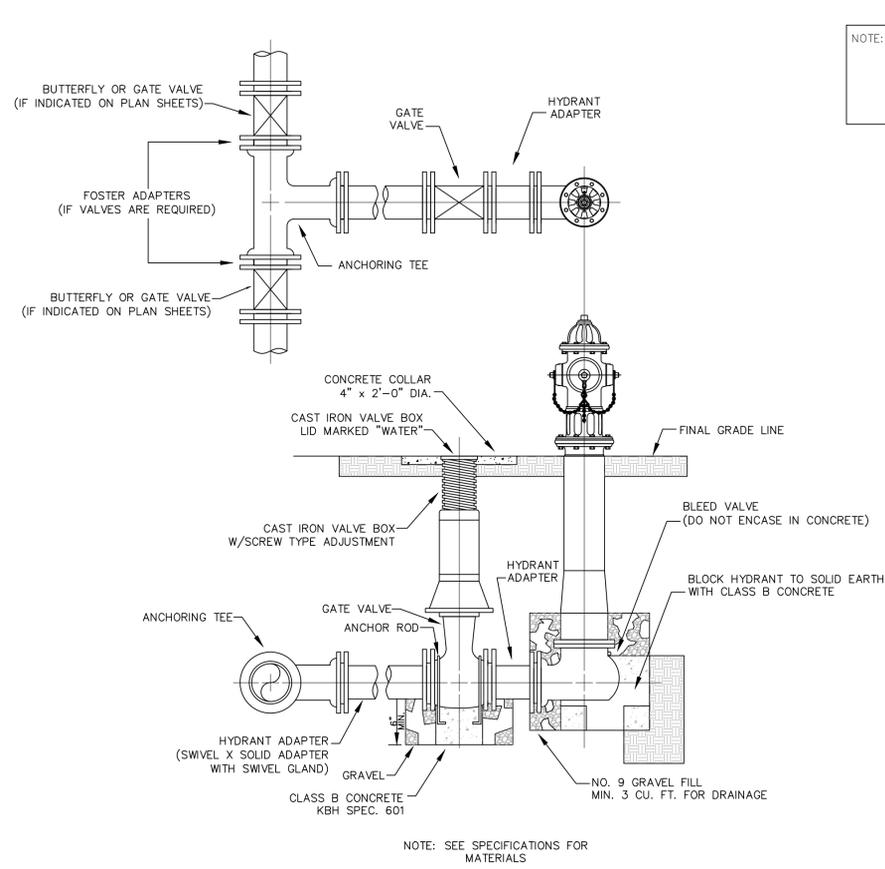
CHECKED BY: DMB

SCALE: N.T.S.

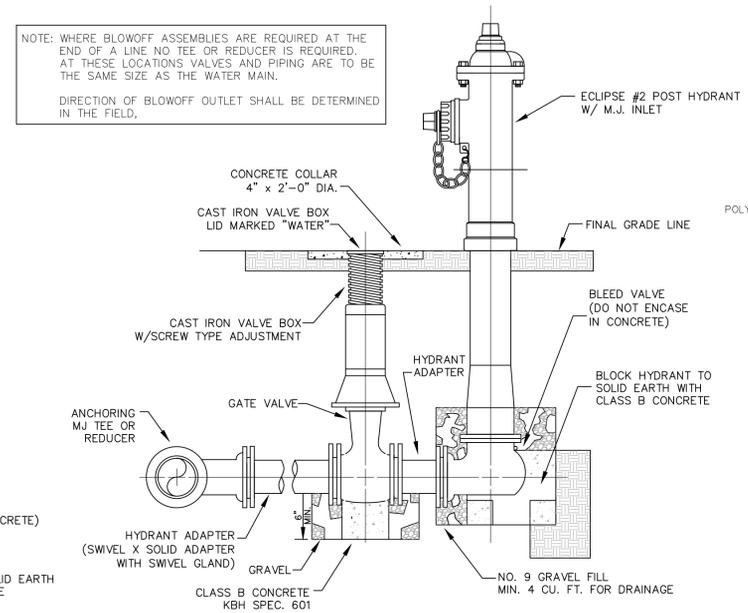
SHEET:

**SD-1**

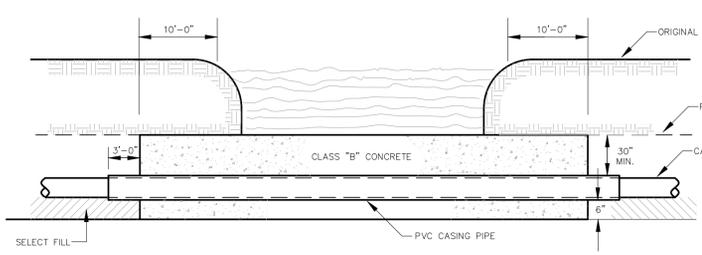




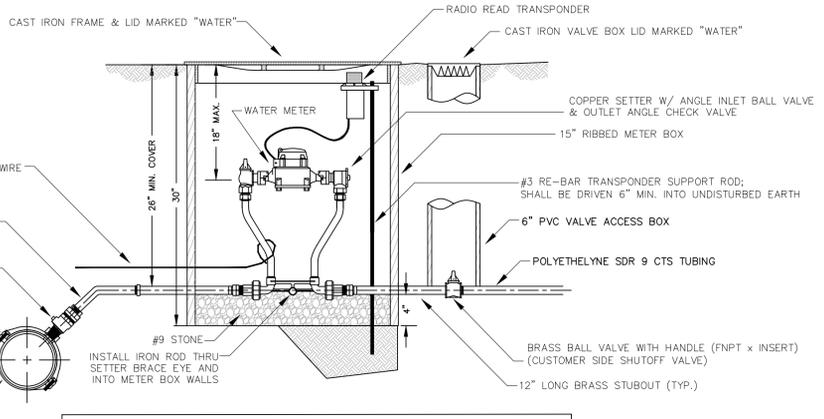
**FLUSH HYDRANT ASSEMBLY**



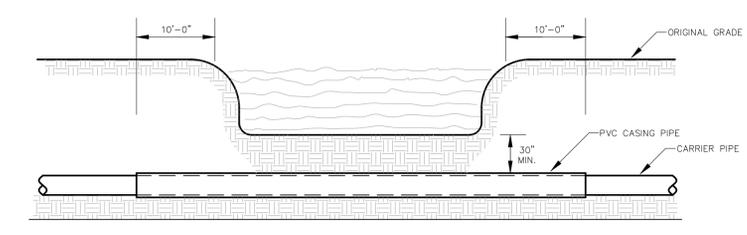
**BLOWOFF ASSEMBLY**



**CREEK CROSSING IN ROCK**

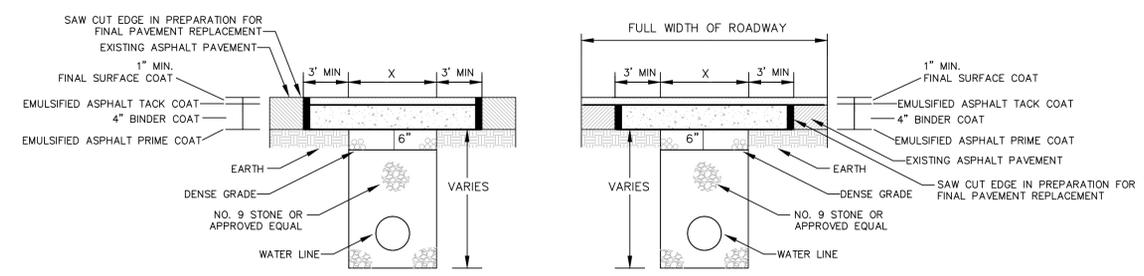


**METER SETTING**

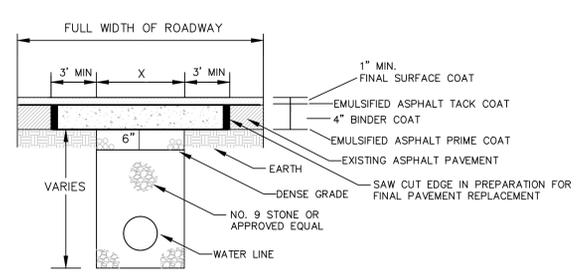


**CREEK CROSSING IN SOIL**

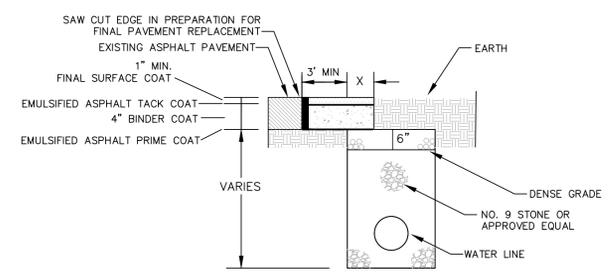
**CREEK CROSSING**



**PAVEMENT REPLACEMENT**



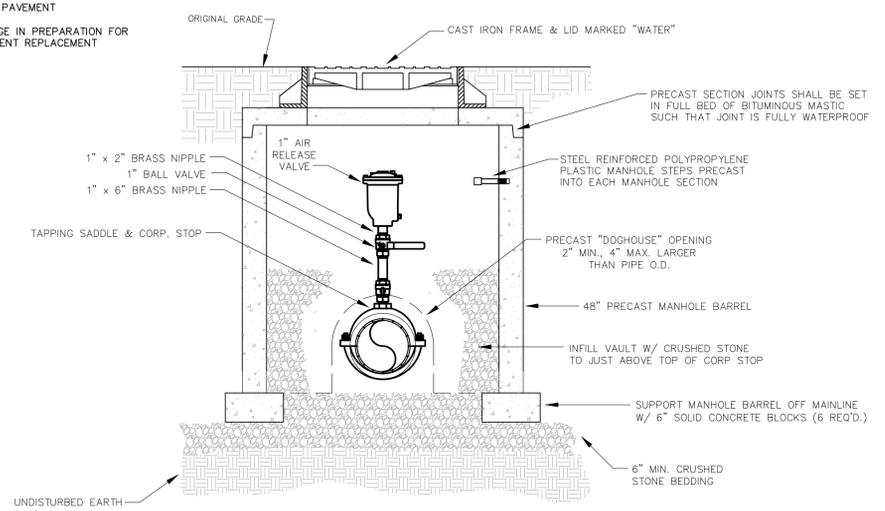
**FULL WIDTH PAVEMENT REPLACEMENT**



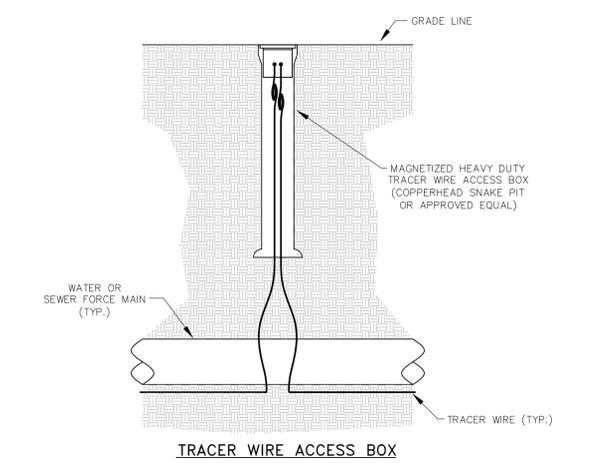
**PARTIAL PAVEMENT REPLACEMENT**

NOTES:  
ANY TRENCH THAT DISTURBS PAVEMENT SHALL BE BACKFILLED WITH STONE  
REPLACE BITUMINOUS PAVEMENT WITH SAME TYPE AND DEPTH AS EXISTING PAVEMENT  
ANY PUBLICLY TRAVELED AREA (I.E. COUNTY ROADS, BUSINESS ENTRANCES, BUSINESS AND PUBLIC PARKING LOTS, ETC.) SHALL BE TEMPORARILY RESTORED AT THE END OF EACH WORK DAY USING AN APPROVED COLD PATCH ASPHALT PAVEMENT

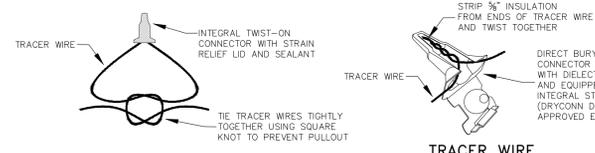
**BITUMINOUS PAVEMENT REPLACEMENT**



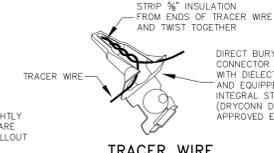
**AIR RELEASE VALVE**



**TRACER WIRE ACCESS BOX**



**TRACER WIRE CONNECTION**



**TRACER WIRE CONNECTOR DETAIL**

NOTES:  
FOR OPEN CUT INSTALLATION, TRACER WIRE IS TO BE #12 AWG SOLID COPPER WITH 30 MIL BLUE HMWPE INSULATION. FOR TRENCHLESS INSTALLATION, TRACER WIRE IS TO BE #12 AWG SOLID COPPER CLAD STEEL CORE WITH 45 MIL BLUE HDPE INSULATION.  
TRACER WIRE SHALL BE INSTALLED WITH THE PIPE AT THE TRENCH BOTTOM. ACCESS BOXES SHALL BE INSTALLED AT EACH VALVE, HYDRANT AND AIR RELEASE VALVE. TRACER WIRE ACCESS BOXES SHALL BE SPACED NO FURTHER THAN 1000' APART. A MINIMUM OF 3 FEET OF TRACER WIRE SHOULD BE COILED UP INSIDE OF EACH ACCESS BOX.

**TRACER WIRE DETAILS**

**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

**STANDARD DETAIL DRAWINGS**

**LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY**

DESCRIPTION:

CUSTOMER:

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB

CHECKED BY: DMB  
SCALE: N.T.S.

SHEET:  
**SD-2**

