2019 WATER SYSTEM IMPROVEMENTS

NORTH MERCER WATER DISTRICT CONTRACT 1

MAY 2021

PREPARED BY:

BOARD MEMBERS

GERALD SHEPERSON, CHAIRMAN

TONY BEST

PAUL CAMPBELL

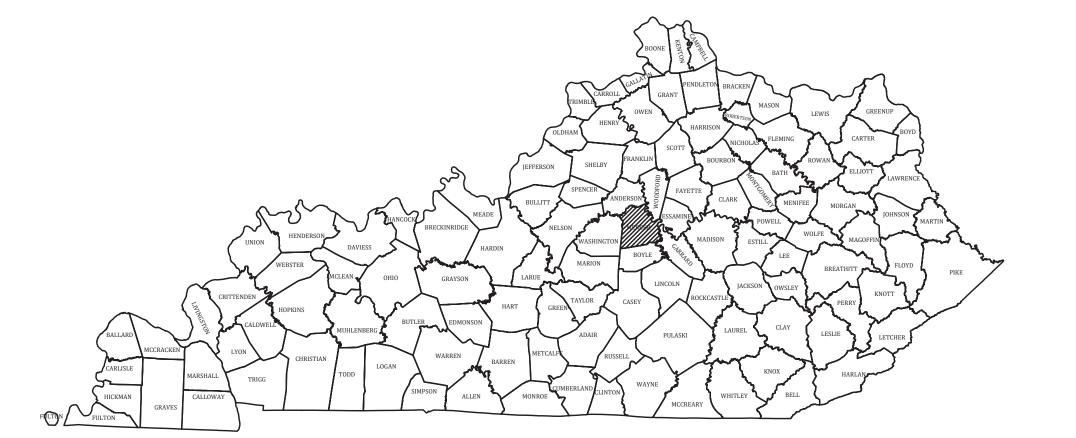
ANDREW DENNIS

ROY SHORT

MISCHELL LEE, MANAGER

NORRIE CURRENS, ATTORNEY





RECORD DRAWINGS

BELIEF THIS SET OF RECORD DRAWINGS SHOWS THE REPORTED LOCATION OF THE WORK AND SIGNIFICANT CHANGES MADE DURING THE CONSTRUCTION PROCESS THESE RECORD DOCUMENTS ARE BASED ON UNVERIFIED INFORMATION PROVIDED BY OTHER PARTIES WHICH WILL BE ASSUMED RELIABLE, THE DESIGN PROFESSIONAL

RV- BI HEGRASS ENGINEERING PLIC



PROJECT NO. 18029

GENERAL NOTES

- CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND THE ENGINEER TWO WORKING DAYS (MINIMUM) BEFORE BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF TRAFFIC IN ACCORDANCE WITH CITY, COUNTY AND STATE REQUIREMENTS.
- THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION PLANS ON THE JOB SITE DURING
- EXISTING UTILITIES, ESPECIALLY GAS LINES AND OIL LINES, MAY BE CATHODICALLY PROTECTED THEREFORE, DUCTILE IRON PIPE, FITTINGS, GATE VALVES, AND/OR BOXES LAID WITHIN 100' OF LINES WITH CATHODIC PROTECTION SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT. MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF AWWA'S LATEST REVISION.
- ALL CONSTRUCTION AND INSTALLATION OF MATERIALS BEING USED SHALL BE IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SUBSTITUTIONS AND DEVIATION SHALL BE PERMITTED ONLY WHEN WRITTEN APPROVAL HAS BEEN ISSUED BY THE ENGINEER.
- SHOP DRAWINGS OF ALL MATERIALS BEING USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
- EXISTING UTILITIES HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH A REPRESENTATIVE WHEN WORKING NEAR EXISTING UTILITIES.
- THE CONTRACTOR SHALL PROTECT ALL UTILITIES AND OTHER IMPROVEMENTS SHOWN ON THESE PLANS AND ALL OTHER UTILITIES AND OTHER IMPROVEMENTS NOT SHOWN. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR REPAIRS OF UTILITIES AND OTHER IMPROVEMENTS DAMAGED DURING CONSTRUCTION.
- UNLESS OTHERWISE NOTED, A SEPARATE BID ITEM HAS NOT BEEN ESTABLISHED FOR FITTINGS. THE FITTINGS INCLUDED BUT NOT LIMITED TO ARE: TEES, BENDS, PLUGS, REDUCERS, CROSSES, COUPLINGS, ETC. CONTRACTORS SHALL INCLUDE THE COST OF THESE ITEMS IN THE BID PRICE FOR THE PIPE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY REMOVAL/RELOCATION OF TRAILERS, BUILDINGS, FENCES, TREES, SHRUBS, ETC. AND REPLACEMENT OF SAID ITEMS AFTER CONSTRUCTION ACTIVITIES.
- CONTRACTOR IS TO COORDINATE WITH THE PROPERTY OWNERS AS TO WHETHER OR NOT TEMPORARY FENCING IS REQUIRED AND CONSTRUCT IF NECESSARY.
- ALL PIPING SHALL HAVE 30" MINIMUM COVER.
- WHERE UNSTABLE MATERIAL IS ENCOUNTERED OR WHERE THE DEPTH OF EXCAVATION IN EARTH EXCEEDS FIVE (5) FEET, THE SIDES OF THE TRENCH OR EXCAVATION SHALL BE SUPPORTED BY SUBSTANTIAL SHEETING, BRACING, SHORING OR THE TRENCH SIDES SLOPED. SLOPING THE SIDES OF THE DITCH WILL NOT NOT BE PERMITTED IN STREETS, ROADS, NARROW RIGHTS-OF-WAY OR OTHER CONSTRICTED AREAS UNLESS OTHER WISE SPECIFIED. THE STANDARDS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT AND THE KENTUCKY LABOR CABINET SHALL BE FOLLOWED.
- ALL EXCAVATION IS UNCLASSIFIED. COMPENSATION FOR ALL EXCAVATION SHALL BE INCLUDED IN LUMP SUM BID.
- REGRADE OF SITE SHALL BE SUCH THAT DRAINAGE IS AWAY FROM ALL STRUCTURES.
- BACKFILL AROUND ALL STRUCTURES SHALL BE SUFFICIENTLY COMPACTED TO PRECLUDE SETTLEMENT AND PONDING OF WATER AROUND STRUCTURES AND GRADED TO DIVERT RUNOFF AWAY FROM THE STRUCTURES.
- DIMENSIONS, DETAILS AND REINFORCEMENT MAY VARY WITH MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL OBTAIN AND MAINTAIN ON SITE, APPROVED SHOP DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
- ALL VALVES & HYDRANTS SHALL BE LOCATED AT THE BACKSIDE OF THE DITCHLINE.
- FINAL LOCATION OF SERVICES, VALVES, & HYDRANT ORIENTATION ARE TO BE FIELD LOCATED DURING CONSTRUCTION & APPROVED BY THE ENGINEER.
- AT THE CONTRACTORS OPTION, CLASS 350 DUCTILE IRON PIPE MAY BE SUSTITUTED FOR ANY PIPE PARTICULARLY SPECIFIED, BUT AT NO ADDITIONAL COST TO THE OWNER.
- NO PAY ITEM FOR EXTRA TRENCH DEPTH HAS BEEN SET UP. CONTRACTOR SHALL INCLUDE THE COST OF THE ADDITIONAL DEPTH IN HIS BID PRICE.
- ROCK SOUNDINGS WERE NOT PERFORMED BY THE ENGINEER, THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO DETERMINE SUBSURFACE CONDITIONS
- CONTRACTOR TO DIG/EXPOSE EXISTING WATER MAIN FAR ENOUGH AHEAD OF NEW WATER MAIN CONSTRUCTION TO AVOID DAMAGE TO EXISTING WATER MAIN AND/OR INTERRUPTION OF EXISTING CUSTOMER SERVICES.
- ALL NEW SERVICE LINE FROM THE NEW MAIN TO THE SETTERS SHALL BE 3/4" ENDOT ENDOPURE TUBING UNLESS SHOWN DIFFERENTLY ON THE PLANS
- THE MAXIMUM ALLOWABLE LENGTH OF SERVICE LINE FROM THE WATER MAIN TO THE CUSTOMER'S METER SERVICE SHALL BE AS FOLLOWS:

MAXIMUM LENGTH SERVICE LINE DIAMETER 125 FEET 3/4 INCH 150 FEET 1 INCH 200 FEET 1-1/2 INCH

- 250 FEET CONNECTIONS TO EXISTING DISTRIBUTION SYSTEM SHALL BE MADE AS FOLLOWS:
- CONNECT TO EXISTING (SIZE) W.M. (WET TAP) CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL FITTINGS, VALVES AND APPURTENANCES TO CONNECT THE PROPOSED WATER MAIN TO THE EXISTING WATER MAIN UNDER PRESSURE.
- CONNECT TO EXISTING (SIZE) W.M. CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL FITTINGS AND APPURTENANCES TO CONNECT THE PROPOSED WATER MAIN TO THE EXISTING WATER MAIN. VALVES ARE A SEPARATE PAY ITEM.
- NO BLASTING WILL BE PERMITTED ON THIS PROJECT
- GRIP RINGS SHALL BE INSTALLED ON ALL FITTINGS
- ALL PVC CASING SHALL BE MINIMUM OF 4" LARGER THAN CARRIER PIPE. STEEL CASING MINIMUM 6" LARGER.
- ALL EXISTING METERS SHALL BE RECONNECTED TO NEW WATER MAINS W/NEW 3/4" PE SERVICE LINE.
- NMR (NEW METER RECONNECT) MARKED ON PLANS WILL NOTE THOSE MATERIALS THAT WILL BE REPLACED WITH NEW METER ASSEMBLY'S (SETTER, BOX, LID, ETC) AND RECONNECTED TO EXISTING SERVICE AND NEW WATER MAIN.
- ANY MAILBOX THAT IS REMOVED FOR THE INSTALLATION OF THE WATER MAIN MUST BE RE-INSTALLED ONCE THE WATER MAIN HAS BEEN INSTALLED.
- ALL CONNECTIONS BETWEEN THE PVC AND HDPE MUST BE SEALED IN PLASTIC AND CONCRETED.
- BLUEGRASS CELLULAR REQUIRES NO MECHANICAL DIGGING WITHIN 18" OF EXISTING CABLE.
- PORTABLE TOILET REQUIRED.
- NEW METER BOXES SHALL BE 18" IN DIAMETER WITH FLAT METAL LID.

EXISTING EASEMENT IS 7.5' EACH SIDE OF EXISTING WATER MAIN

GENERAL NOTES

- NEW LINE AND EXISTING LINES MUST REMAIN IN SERVICE UNTIL ALL METERS ASSEMBLED HAVE BEEN REPLACED AND RECONNECTED TO THE NEW LINE
- NO METERS CAN BE RECONNECTED TO THE NEW WATER MAIN UNTIL TESTING, STERILIZATION AND SAMPLING HAS BEEN SUCCESSFULLY COMPLETED
- COPIES OF ALL BAC-T RESULTS MUST BE PROVIDED TO THE OWNER PRIOR TO RECONNECTS OF ANY
- A NO. 12 AWG INSULATED COPPER LOCATOR WIRE SHALL BE TAPED TO THE TOP OF THE WATER MAIN PIPE. THE INSULATION SHALL BE BLUE FOR WATER. THE WIRE SHALL BE LOOPED OUTSIDE ALL VALVE BOXES W/ ENOUGH SLACK TO ALLOW ACCESS TO THE LOOPS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PLUMBING PERMITS NECESSARY TO RELOCATE OR RECONNECT ANY CUSTOMERS METER SERVICE OR SERVICE LINE. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES AND EMPLOY THE NECESSARY LICENSED PLUMBER.

INAL CLEANUP AND RESTORATION

INLESS SPECIFICALLY APPROVED BY THE OWNER AND ENGINEER, CLEANUP OF DISTURBED AREAS SHALL BE KEPT CURRENT WITH CONSTRUCTION AND RESTORATION EFFORTS BY THE CONTRACTOR INITIATED NO ONGER THAN SEVEN (7) DAYS AFTER THE TRENCH EXCAVATION WORK HAS STARTED. ALL EXCAVATED MATERIAL NOT REQUIRED FOR BACKFILLING OF THE TRENCH AND ANY LARGE ROCKS, STONES OR DEBRIS SHALL BE REMOVED FROM THE SITE, AND SHALL NOT BE A BURDEN TO THE PROPERTY OWNER(S) AND/OR ADJACENT PROPERTIES. THE CONTRACTOR MAY WINDROW OR TRACK-IN THE EXCAVATED MATERIAL OVER THE TRENCH PRIOR TO FINAL CLEANUP TO ALLOW FOR AND TO ASSIST IN THE INITIAL SETTLEMENT OF THE FRENCH. ALL DISTURBED AREAS MUST BE SEEDED AT LEAST WITH A TEMPORARY SEED MIX IF FOR SOME REASON THE AREA CANNOT BE PERMANENTLY SEEDED WITHIN TWO (2) WEEKS.

CONSTRUCTION IN KTC RIGHT-OF-WAY

- ALL EFFECTED KYTC DITCHLINES SHALL REMAIN FREE OF EXCESS SILT OR EROSION AND CONSTRUCTED TO THE NORMAL TYPICAL SECTION OF THE ROADWAY WITH A MINIMUM DEPTH OF 18 INCHES FROM THE SHOULDER BREAK POINT.
- ALL NECESSARY STEPS SHALL BE TAKEN TO PREVENT EROSION OR SILTATION OF THE PUBLIC RIGHT-OF-WAY, ADJOINING PROPERTY AND WATERWAYS.
- ALL VALVES TO BE FLUSH W/ EXISTING GRADE.
- ALL WATER LINE LOCATED WITHIN STATE HIGHWAY R.O.W. SHALL BE CONSTRUCTED OUT AND AROUND THE END OF ALL EXISTING CULVERTS AND HEADWALLS.
- UNDERGROUND UTILITIES INSTALLED INSIDE STATE RIGHT-OF-WAY SHALL BE LOCATED WITHIN 3-5 FEET FROM THE EDGE OF THE RIGHT-OF-WAY UNLESS OTHERWISE SHOWN ON THE PLANS.
- UNDERGROUND UTILITIES SHOWN MORE THAN 5 FEET FROM THE EDGE OF THE RIGHT-OF-WAY SHALL BE INSTALLED WITH A MINIMUM DEPTH OF COVER OF 42 INCHES WITH PRIOR APPROVAL ON A CASE BY CASE BASIS.
- UNDERGROUND UTILITIES CROSSING ANY ENTRANCE OR CROSSROAD PAVED WITH CONCRETE OR ASPHALT SURFACE INSIDE STATE RIGHT-OF-WAY SHALL BE INSTALLED BY BORING UNLESS WRITTEN PERMISSION TO OPEN CUT IS OBTAINED FROM THE PROPERTY OWNER AND APPROVED BY THE KYTC DISTRICT PERMITS ENGINEER.
- UNDERGROUND UTILITIES SHALL NOT BE INSTALLED IN EMBANKMENT FILLS OR BETWEEN EDGE OF PAVEMENT AND DITCHLINE UNLESS SPECIFICALLY NOTED ON PERMITTED PLANS.
- FIRE HYDRANTS OR UTILITY SERVICE BOXES SHALL BE LOCATED WITHIN 2 FEET FROM THE EDGE OF RIGHT-OF-WAY LINE, OR OFF RIGHT-OF-WAY.

DRAWING INDEX

16 - 19

20 - 22

23 - 25

SHT. NO. DESCRIPTION: COVER 01 PROJECT MAP, EXISTING UTILITIES, LEGEND AND DRAWING INDEX 02 - 03 AERIAL PLAN - OLD LOUISVILLE ROAD AERIAL PLAN - MCCOUNS FERRY ROAD DID NOT CONSTRUCT 04 - 06 07 - 08 AERIAL PLAN - KIRKWOOD & BONDVILLE ROADS 09 - 10 AERIAL PLAN - GARRIOTT LANE 11 - 15 AERIAL PLAN - MCAFEE LANE

LEGEND

STANDARD DETAILS

NEW WATER MAIN —— w—— EXISTING WATER MAIN ---- SAN ---- EXISTING SANITARY SEWER EXISTING GAS MAIN —— FM —— EXISTING FORCE MAIN NEW STEEL CASING

- - EXISTING CULVERT NEW FLUSHING HYDRANT

EXISTING FLUSHING HYDRANT EXISTING WATER METER

NEW GATE VALVE & BOX EXISTING MANHOLE

EXISTING UTILITIES



NORTH MERCER WATER DISTRICT PO BOX 79 SALVISA, KY 40372 MISCHELL LEE, MANAGER (859) 865-2292 OFFICE

AERIAL PLAN - CUMMINS FERRY PART (OFF OF MCAFEE LANE) DID NOT CONSTRUCT

AERIAL PLAN - CUMMINS FERRY PART (OFF OF US 127) DID NOT CONSTRUCT

TELEPHONE & CABLE ELECTRIC FIBER OPTIC - BLUEGRASS NETWORK (270) 746-1600

RECORD DRAWINGS

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BY: BLUEGRASS ENGINEERING, PLLC

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PROJECT #: DATE: AUGUST 2020

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IN ACCORDANCE WITH

KENTUCKY STATE LAW,

RESULTS IN MOVEMENT.

PROBING OR DIGGING IN

PLACEMENT, BORING,

OR ON THE GROUND

SHALL CONTACT THE

LOCATIONS.

ONE CALL CENTER FOR

UNDERGROUND UTILITY

ANY ACTIVITY THAT

DATE: 01/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER FROM BLUEGRASS ENGINEERING, PLLC AND ACTING UN

5/2020 REVISIONS MADE PER KDOW COMMENT

9 WATER SYSTEM IMPROVEME CONTRACT 1

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ATER SYSTEM IMPROVEME CONTRACT 1

2019

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DATE: AUGUST 2020

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PROJECT #: DATE: AUGUST 2020 PROJECT MGR: LRS

DRAWN BY:



SETTER WHERE APPLICABLE

ELKHORN KY

351/427

PO BOX 1237

MARY ANNE BELCHER & LUCINDA B.

SYSTEM CONTRA(0 201

PROJECT #: DATE: AUGUST 2020 PROJECT MGR: LRS

DRAWN BY: CHECKED BY: PBR









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WATER SYSTEM IMPROVEME CONTRACT 1

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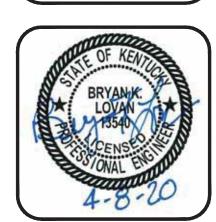


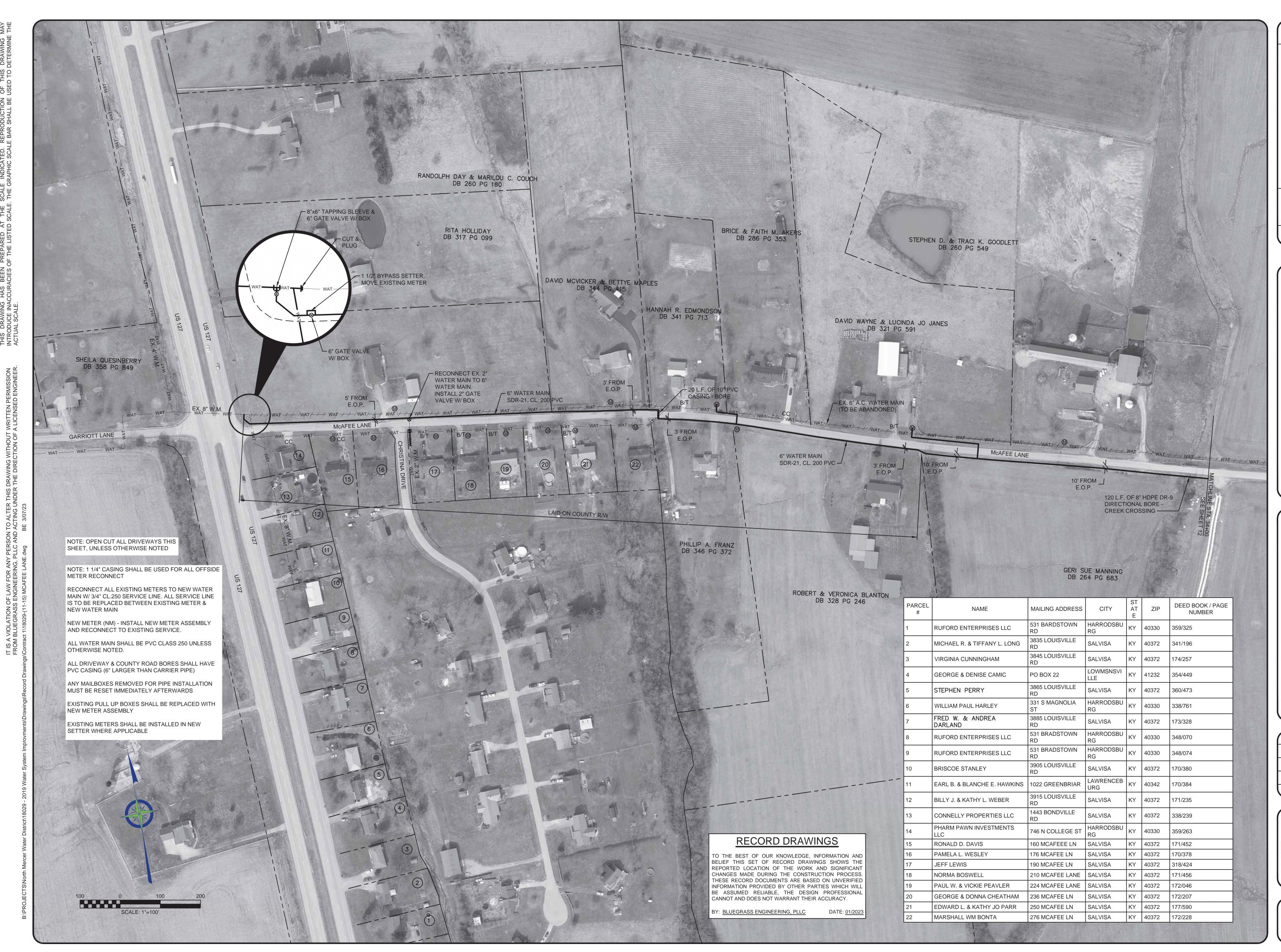
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ATER SYSTEM IMPROVEMENTS
CONTRACT 1

2019

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ATER SYSTEM IMPROVEME CONTRACT 1

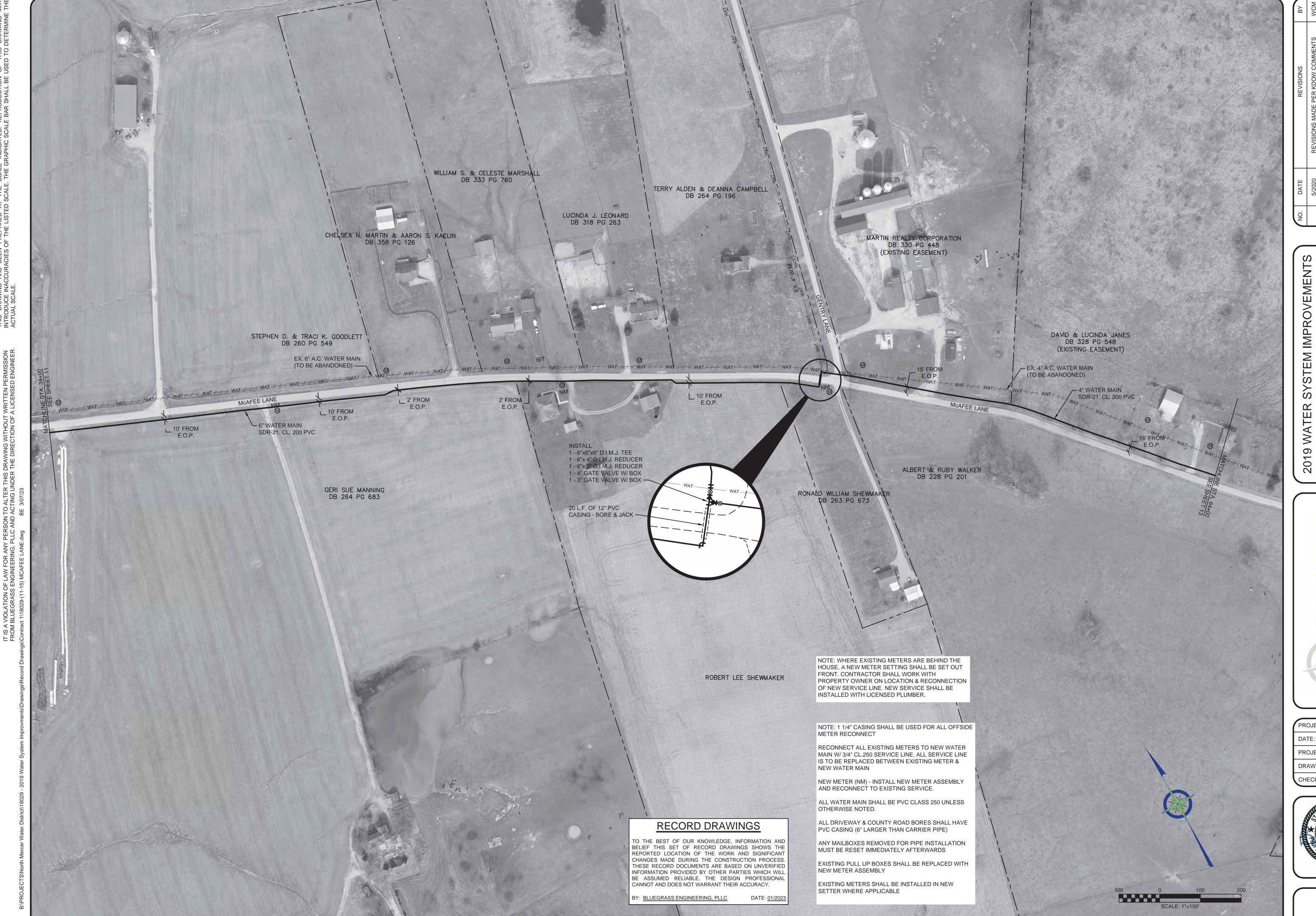
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CONTRACT 1

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PROJECT #: 18029

DATE: AUGUST 2020

PROJECT MGR: LRS

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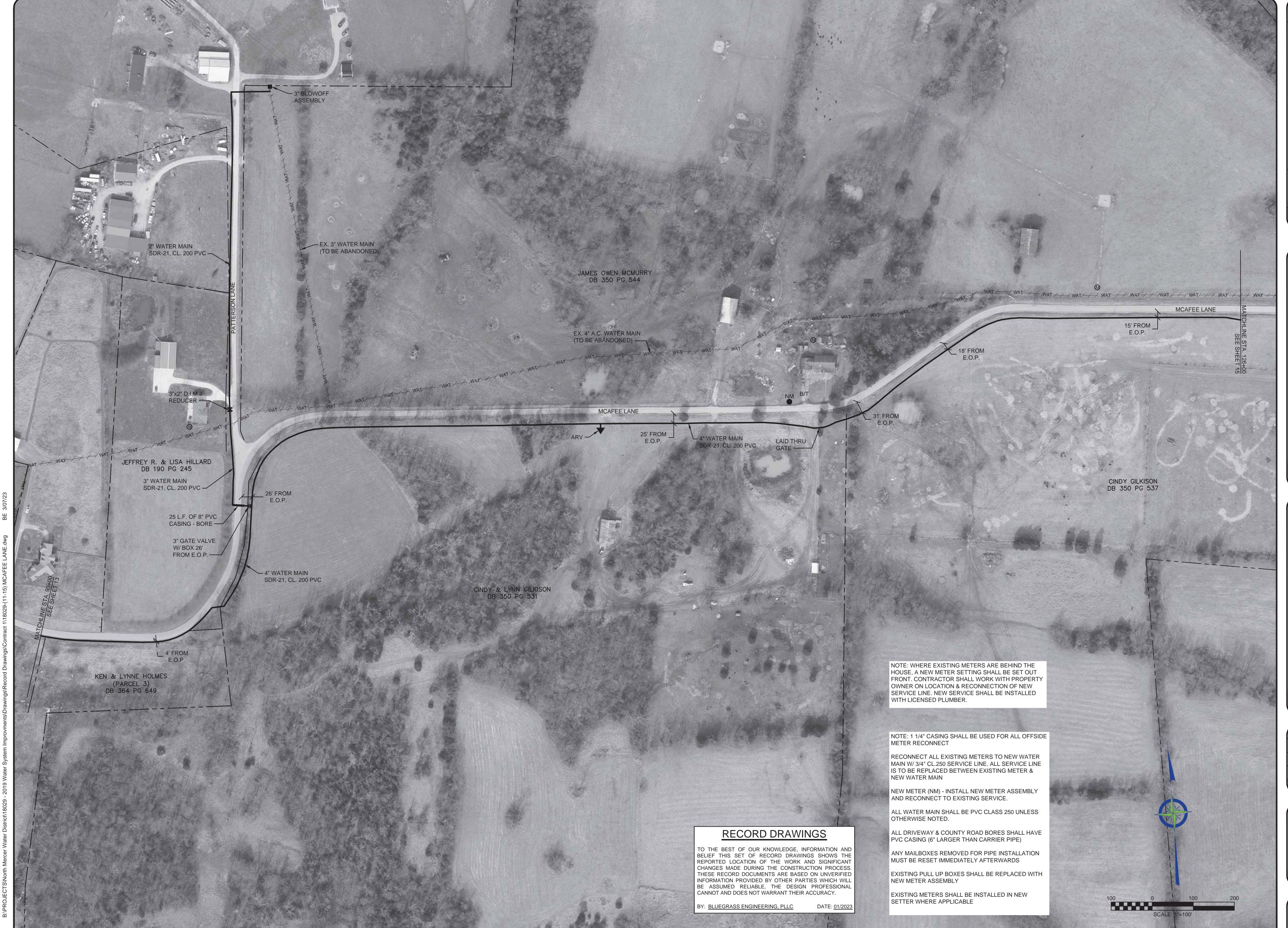
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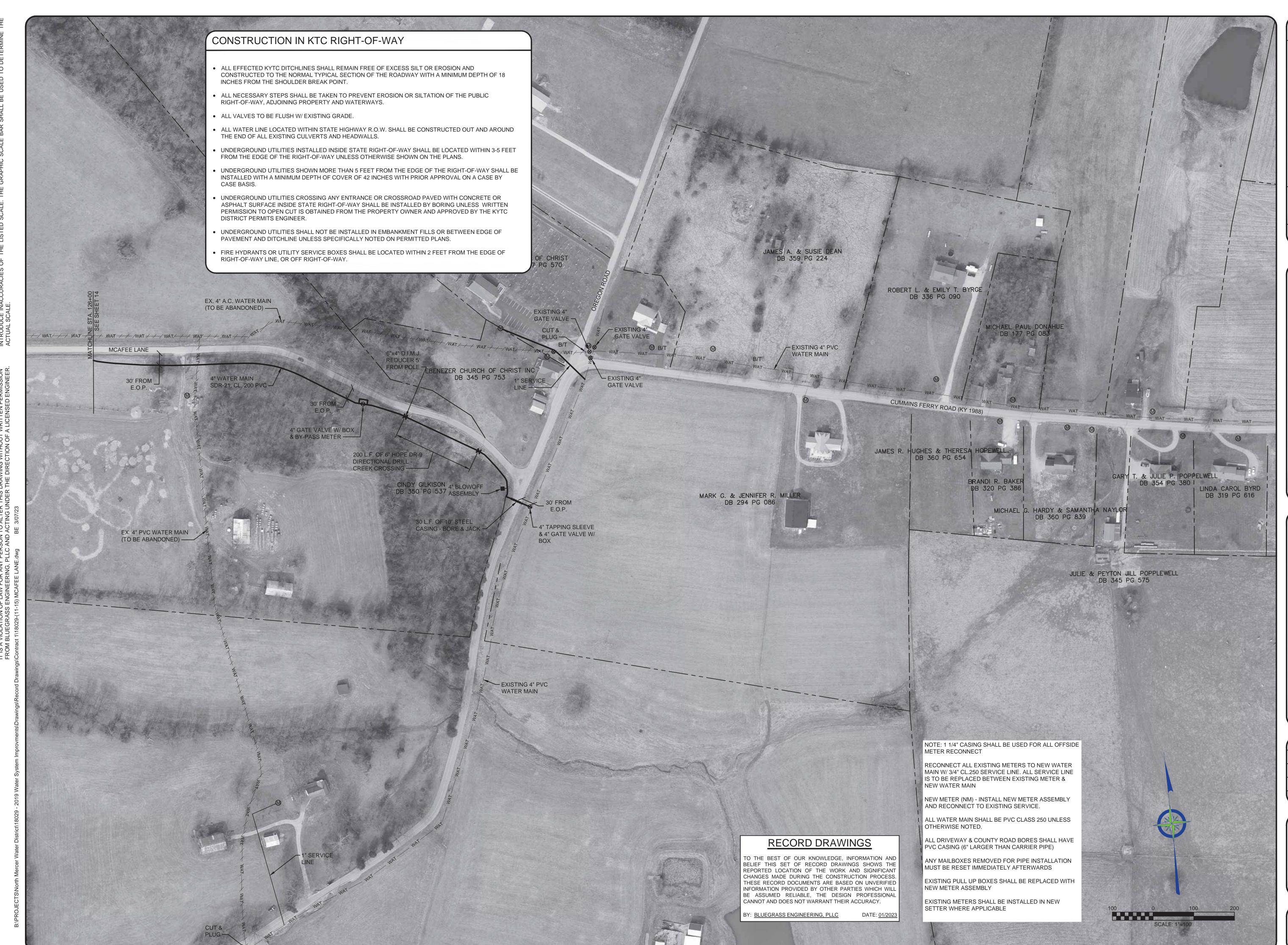
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BY: BLUEGRASS ENGINEERING, PLLC

DATE: <u>02/2024</u>

PROJECT #:

DRAWN BY:

DATE: AUGUST 2020

PROJECT MGR: LRS

NO. DATE REVISIONS MADE PER KDOW COMMENTS WC

ATER SYSTEM IMPROVEMEN
CONTRACT 1

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DATE: AUGUST 2020

DATE: AUGUST 2020
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DATE: <u>02/2024</u>

Y: BLUEGRASS ENGINEERING, PLLC

SCALE: 1"=100"

NO. DATE

8. 5/2020 REVISIONS MADE PER KDOW COMMENTS

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WATER SYSTEM IMPROVEMENT CONTRACT 1

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PROJECT #: 18029

DATE: AUGUST 2020

PROJECT MGR: LRS

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DATE: AUGUST 2020 PROJECT MGR: LRS DRAWN BY:



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SCALE: 1"=100'

5/2020 REVISIONS MADE PER KDOW COMMENTS WCM

VATER SYSTEM IMPROVEMENT
CONTRACT 1

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PROJECT #: 18029

DATE: AUGUST 2020

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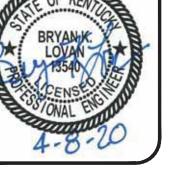


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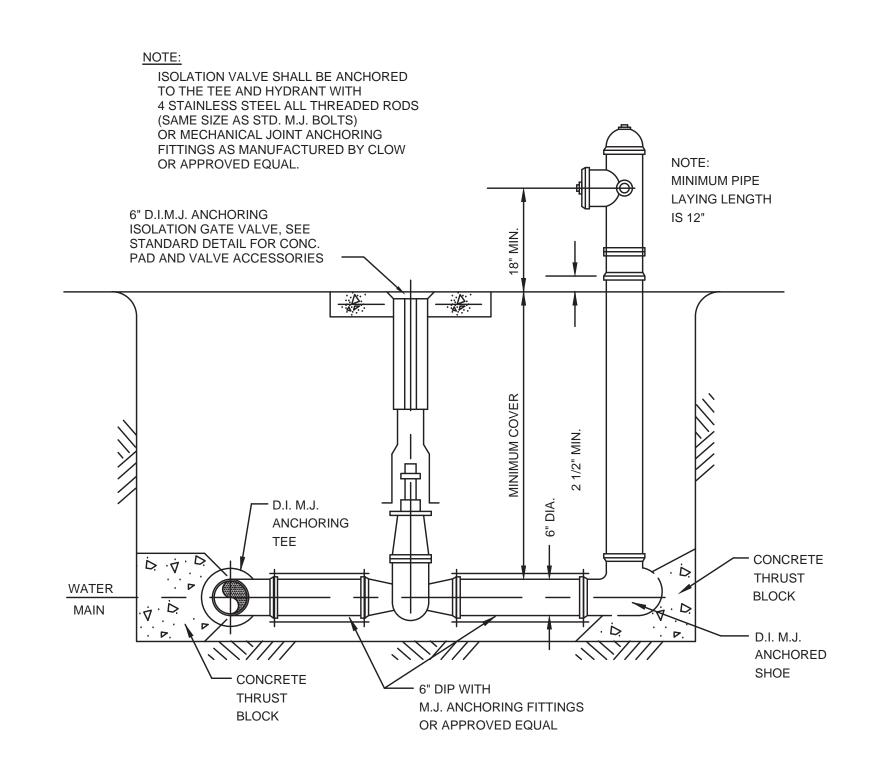




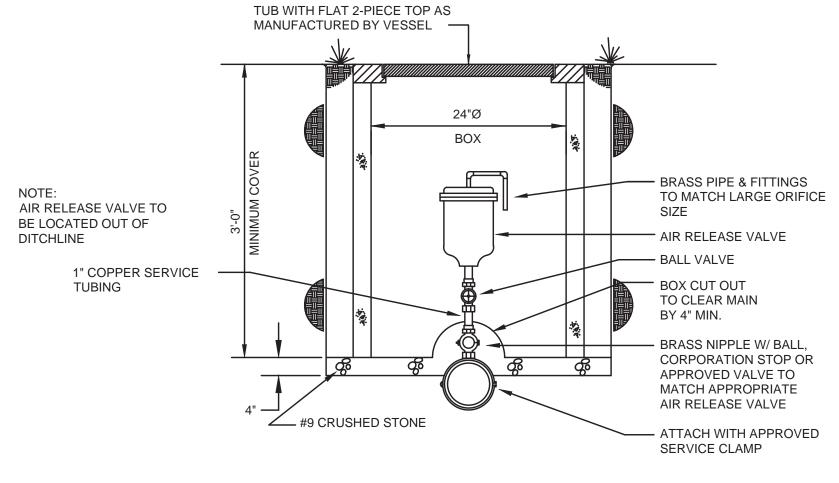
- CAST IRON COVER WITH MARKED "WATER" - TAR PAPER WRAP BETWEEN VALVE BOX AND CONCRETE COLLAR 18" DIA. CORRUGATED PLASTIC x 4" THICK CONCRETE FILLED IN TURF 2" CLOSED AREAS. BRASS NIPPLE -12 GAUGE INSULATED 2" SADDLE WIRE REQ'D MIN. COVER ADJUSTABLE TYPE VALVE BOX - PIG-TAIL TRACER WIRE WATER MAIN 2" PVC WATER MAIN - COUPLING ADAPTER (BRASS TO PVC) 2" THREADED GATE VALVE W/ 2" SQUARE OPERATING NUT L SPLIT-BOLT CONNECTION (DO NOT BREAK MAIN LINE UNDISTURBED EARTH -

CONNECTION FOR 2" WATER MAINS

NOT TO SCALE



FLUSHING HYDRANT ASSEMBLY NOT TO SCALE



NOTE: 6" PVC PIPING MAY BE SUBSTITUTED FOR METAL

SEE PLAN SHEETS FOR SIZING

E.O.L. 2", 3", or 4" UNDERGROUND BLOWOFF

ASSEMBLY

NOT TO SCALE

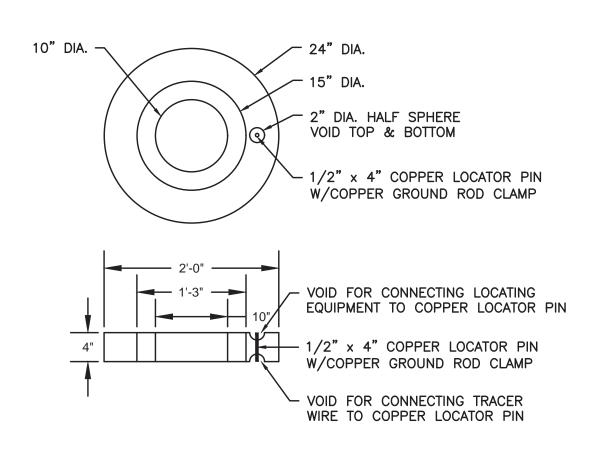
VALVE BOX.

WATER MAIN ·

AIR RELEASE VALVE NOT TO SCALE

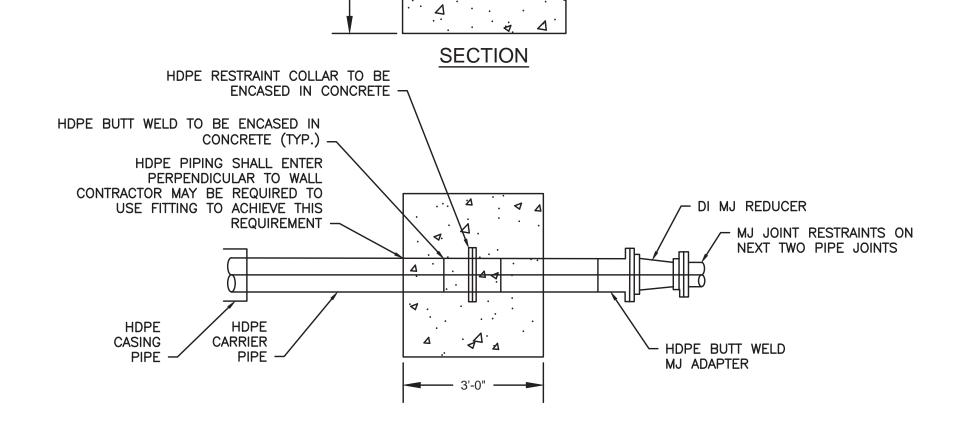
SPACERS TO BE PLACED 1'-0" MAX. FROM EACH SIDE OF JOINTS END SEAL 10' MAXIMUM BETWEEN SPACERS LCARRIER PIPE <u>PLAN</u> MEMBRANE, PER CASING SPACERS SPECIFICATIONS~ O/C PER MANF. RECOMMENDATIONS STEEL CASING PIPE RUNNER HEIGHTS VARY FROM SEE SPECIFICATIONS FOR ½" TO 2" AND SHALL BE DETERMINED DURING SHOP RISER — THICKNESS & SIZE. DRAWING REVIEW. 2. SPACERS SHALL BE USED IN RUNNER ~ PLACE WATERPROOFING CASING PIPES. AGENT BETWEEN CARRIER PIPE 3. CARRIER PIPES SHALL BE & MEMBRANE. -RESTRAINED JOINT (GRIP $2 - \frac{1}{2}$ " S.S. STRAPS SEE PLANS FOR PIPE SIZE, MATERIAL GASKETS, MECHANICAL, ETC.) EACH END— & CLASS. **CROSS SECTION** DETAIL - END SEAL

DETAIL - STEEL CASING NOT TO SCALE



24" DIAMETER CONCRETE VALVE BOX PROTECTOR RING W/COPPER LOCATOR PIN

NOT TO SCALE



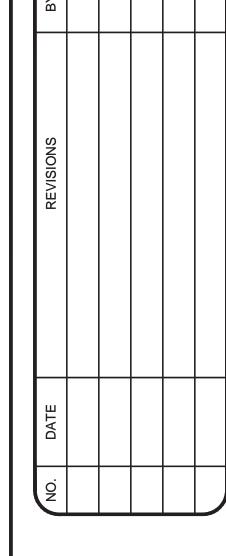
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BY: BLUEGRASS ENGINEERING, PLLC

DATE: XX/XX



PLASTIC CAP

THRUST BLOCK-ONE CUBIC YARD CLASS "B" CONC.
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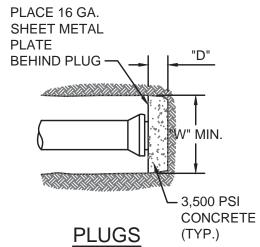
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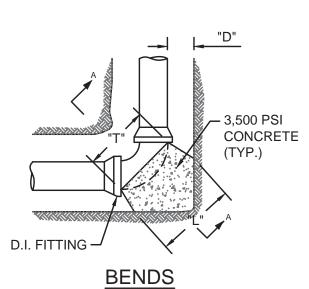
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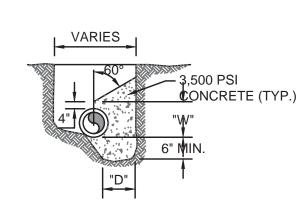




3,500 PSI CONCRETE (TYP.) — 4-#5 REBAR 18" LONG —

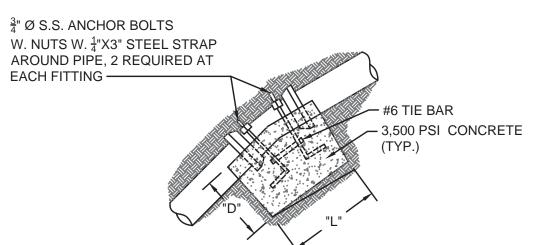






SECTION A-A

STRAIGHT PIPE

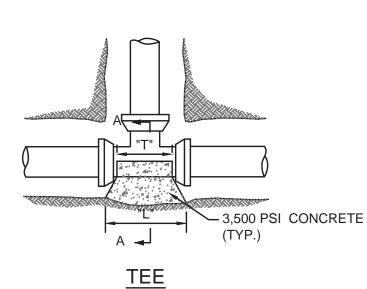


NOTE:

SEE PLAN SHEETS FOR SIZE, MATERIAL & LOCATION OF PIPE.

- SIDES OF ALL TRENCHES TO BE UNDISTURBED SOIL. SEE THIS SHEET FOR BACK FILL DETAILS.
- DEPTH "D: MAY NOT BE SMALLER THAN SPECIFIED.
- PIERS SHALL BE PLACED AGAINST UNDISTURBED SOIL.
- PLACE CONCRETE ANCHORS 25' C/C.

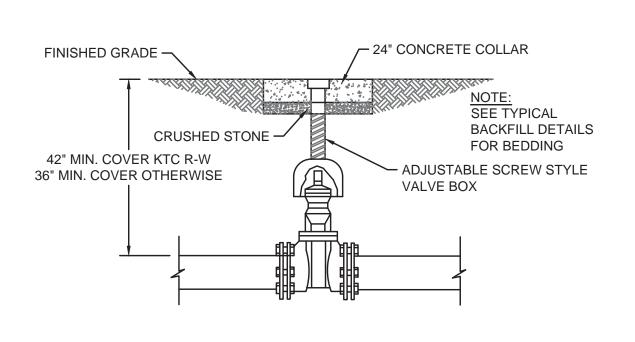
VERTICAL	BENDS



THRUST BLOCK SCHEDULE - CLASS 350 D.I.P.															SOIL TYPE - SAND & GRAVEL BEARING STRENGTH = 3000 PSF									
	PIPE	90°BEND					45°BEND					22 ½ °BEND					11 1/4 BEND					TEE & DEAD ENDS		
	SIZE	BEARING AREA	YDS OF CONCRETE	D	W	L	BEARING AREA	YDS OF CONCRETE	D	W	L	BEARING AREA	YDS OF CONCRETE	D	W	L	BEARING AREA	YDS OF CONCRETE	D	W	L	BEARING AREA	YDS OF CONCRETE	D
	4"	3.750	.21	18	30	18	1.750	.10	18	18	14	1.000	.06	18	12	12	.500	.02	12	12	6	2.250	.13	18
	6"	7.000	.39	18	42	24	3.750	.21	18	30	18	2.000	.11	18	24	12	1.000	.04	12	12	12	5.000	.28	18
	8"	12.250	.91	24	42	42	7.500	.56	24	36	30	4.000	.30	24	24	24	2.000	.11	18	24	12	9.000	.67	24
	10"	20.000	1.48	24	60	48	10.500	.78	24	42	36	6.000	.44	24	36	24	3.000	.17	18	24	18	14.000	1.04	24
	12"	30.000	2.78	30	72	60	15.750	1.46	30	54	42	7.500	.69	30	36	30	4.000	.30	24	24	24	20.000	1.85	30
	14"	39.000	4.33	36	78	72	20.000	2.22	36	60	48	10.500	1.17	36	42	36	6.000	.56	30	36	24	27.500	3.06	36
	16"	49.000	6.35	42	84	84	27.500	3.56	42	66	60	14.000	1.81	42	48	42	7.500	.83	36	36	30	37.750	4.63	42

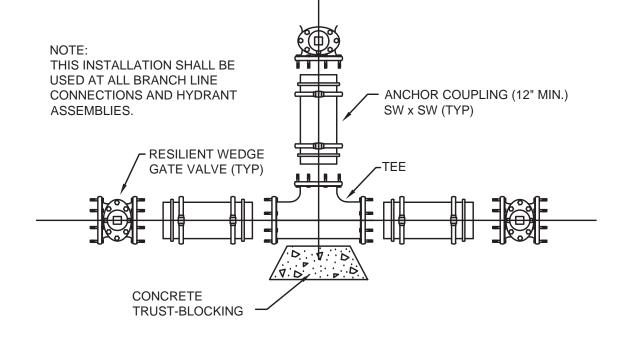
THRUST BLOCKING & CONCRETE ANCHORS - DETAIL

NOT TO SCALE

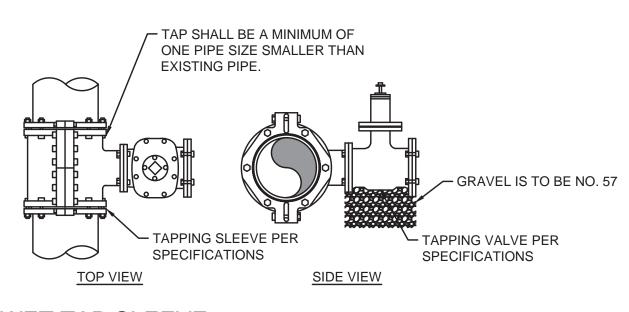


GATE VALVE ASSEMBLY - DETAIL

NOT TO SCALE

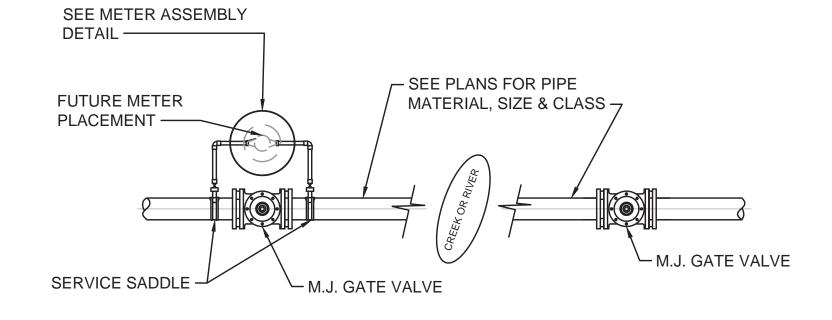


TEE INSTALLATION NOT TO SCALE



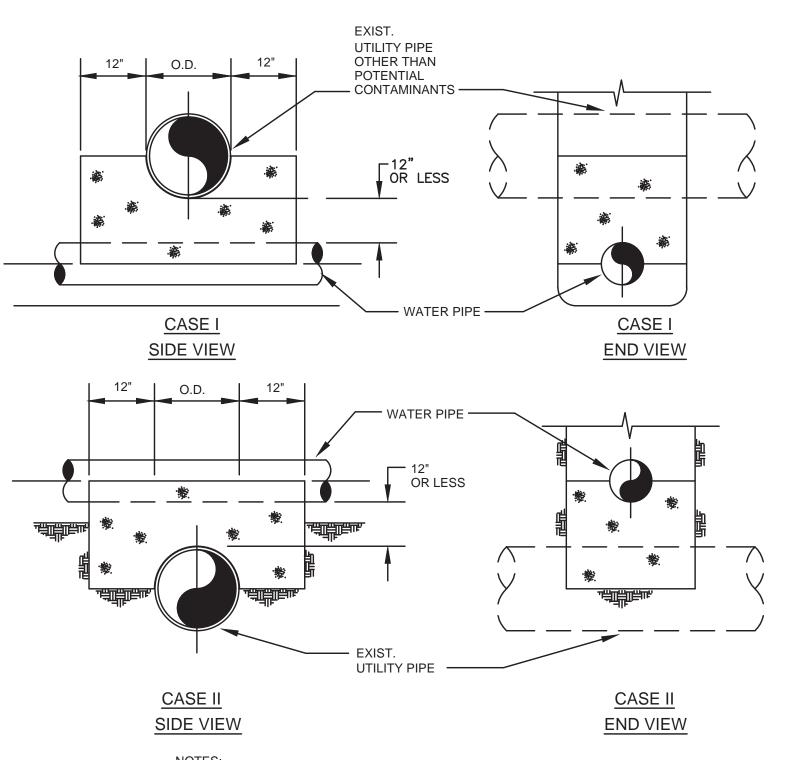
WET TAP SLEEVE & VALVE ASSEMBLY - DETAIL

NOT TO SCALE



LEAK DETECTION **ASSEMBLY - DETAIL**

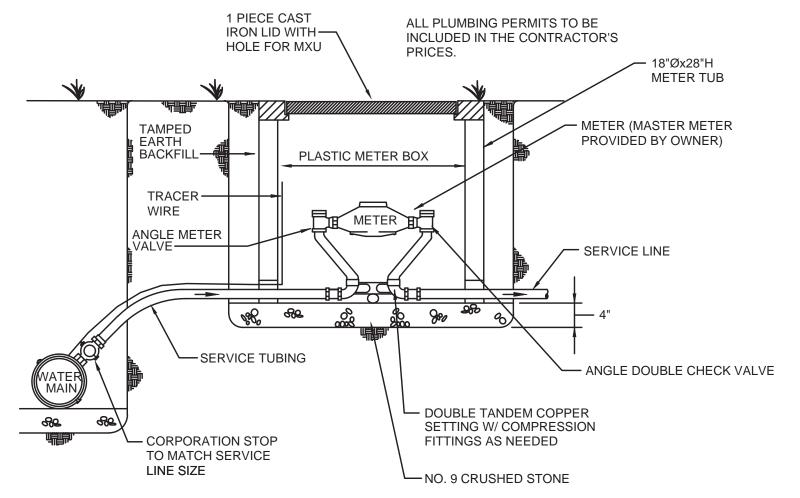
NOT TO SCALE



1. CONCRETE SEPARATOR SHALL BE USED WHEN CLEARANCE BETWEEN WATER LINE AND UTILITY PIPE IS 12" OR LESS.

2. "UTILITY PIPE" INCLUDES UNDERGROUND WATER, NATURAL GAS, TELEPHONE, ELECTRICAL CONDUITS, STORM SEWER OR TYPICALLY NON-CONTAMINATING FACILITIES, WHEN CROSSING SANITARY SEWER OR POTENTIAL CONTAMINANTS SEE DETAIL "WATER/SANITARY SEWER CROSSING".

UTILITY CROSSING CONCRETE SEPERATOR NOT TO SCALE



(16mm (5/8") x 19mm (3/4") OR 25mm (1") METERS)

ALL EXISTING PULL UP BOXES SHALL BE REPLACED WITH NEW METER ASSEMBLY

TYPICAL SERVICE CONNECTION NOT TO SCALE

RECORD DRAWINGS

TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF THIS SET OF RECORD DRAWINGS SHOWS THE REPORTED LOCATION OF THE WORK AND SIGNIFICANT CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE RECORD DOCUMENTS ARE BASED ON UNVERIFIED INFORMATION PROVIDED BY OTHER PARTIES WHICH WILL BE ASSUMED RELIABLE, THE DESIGN PROFESSIONAL CANNOT AND DOES NOT WARRANT THEIR ACCURACY.

BY: BLUEGRASS ENGINEERING, PLLC

DATE: XX/XX

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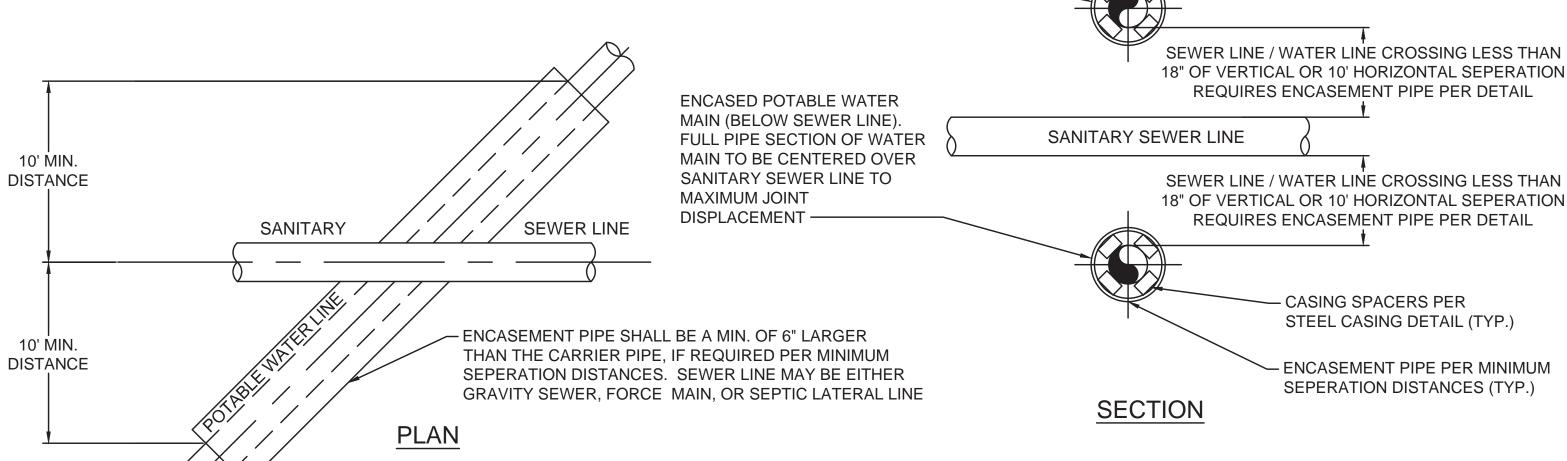
0 201 m



WATER MARKERS SHALL BE PLACED WHENEVER A ROAD CROSSING IS MADE AT EACH SIDE OF THE ROAD AND AT EACH VALVE OR SET OF VALVES. REFLECTIVE MARKER (FLEXSTAKE EZ DRIVE)

WATER MARKER DETAIL

NOT TO SCALE



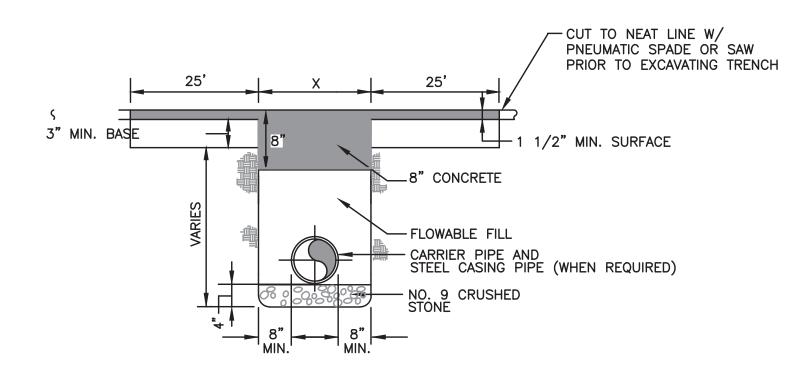
ENCASED POTABLE WATER MAIN (ABOVE SEWER LINE). FULL PIPE SECTION OF WATER MAIN TO BE

CENTERED OVER SANITARY SEWER LINE TO

MAXIMUM JOINT DISPLACEMENT -

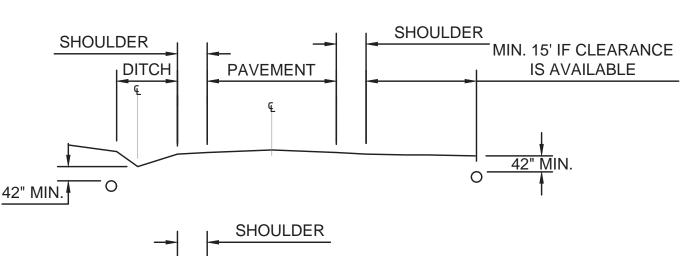
POTABLE WATER LINE & SEWER LINE CROSSING - DETAIL

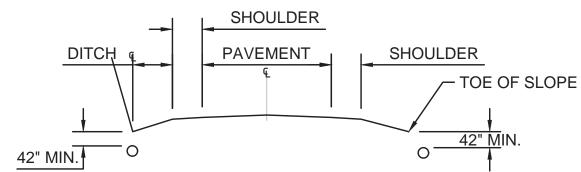
NOT TO SCALE



OPEN CUT DRIVEWAY BACKFILL REQUIREMENTS NOT TO SCALE

OPEN CUT





UTILTY PIPELINE WITHIN KTC ROW - DETAIL

PIT OPEN CUT

PAVEMENT STEEL CASING CARRIER PIPE — PIPE----

BORE LENGTH

OFFSET FROM EDGE OF PAVEMENT PIT PIT OPEN CUT **BORE LENGTH** OPEN CUT PAVEMENT STEEL CASING PIPE----FROM TOE OF SLOPE

> DETAIL - KTC CROSSING NOT TO SCALE

NOTE:

NOT TO SCALE

1. ALL JOINTS OF STEEL CASING SHALL BE SOLIDLY WELDED. END OF CASING SHALL BE SEALED AFTER LINE HAS BEEN INSTALLED AND TESTED.

2. MINIMUM DEPTHS MAY INCREASE IN AREAS WHICH REQUIRE MINIMUM SEPARATION WITH OTHER FACILITIES.

3. OPEN TRENCH NO CLOSER THAN THE DITCHLINE OR TOE OF FILL FROM THE EGDE OF THE PAVEMENT OR AS DIRECTED BY THE SPECIFICATIONS.

4. HIGHWAY CROSSINGS SHALL UTILIZE STEEL CASING PIPE. STEEL CASING PIPES WALL THICKNESS & DIAMETER PER SPECIFICATIONS. ALL BORED AND JACKED ENCASEMENT PIPE SHALL BE INSTALLED IN BORE HOLES NO LARGER THEN THE OUTSIDE DIA-METER OF THE ENCASEMENT PIPE.

SEE CASING SPACER DETAIL FOR PLACEMENT OF SPACER.

ZONE 4 42" MIN. STATE R-W 36" MIN. OTHERWISE 6" MIN. 12" MAX. 6" MIN. 12" MAX. PIPE LAID IN ROCK

OR EARTH TRENCH

SURFACING OVER 2"

1. COVER UP TO AND INCLUDING ZONE 4 SHALL BE ESTABLISHED BEFORE TRENCH EXCAVATION.

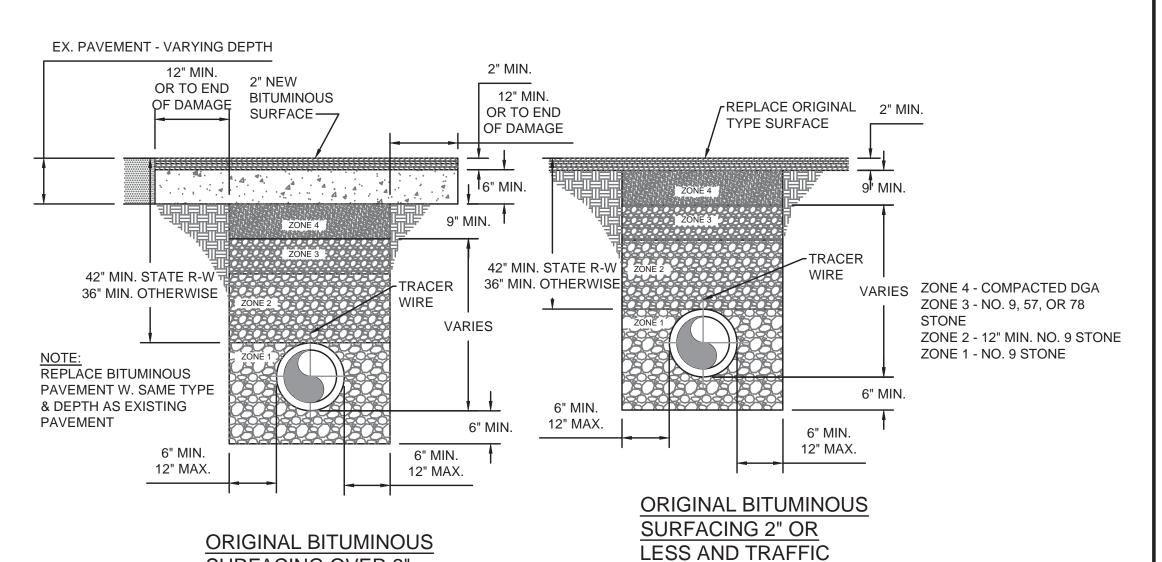
2. ZONE 4 - 6" MIN. CONSOLIDATION EARTH BACKFILL INCLUDING TOPSOIL, NO ROCK ALLOWED.

3. ZONE 3 - CONSOLIDATED SOIL, (NO ROCK GREATER THAN 6" DIAMETER) NO. 9, 57 OR 78 STONE

ZONE 2 - FROM THE SPRINGLINE OF THE PIPE TO A DISTANCE 12 INCHES ABOVE THE PIPE, THE CONTRACTOR SHALL USE THE SAME MATERIAL AS SPECIFIED FOR BEDDING. COMPACTION IS REQUIRED IN AREAS SUBJECT TO TRAFFIC.

ZONE 1 - BEDDING MATERIAL, IN EARTH EXCAVATION AREAS, SHALL BE CLEAN EARTH, FREE FROM ROCKS, DEBRIS OR OTHER FOREIGN MATERIAL. THE CONTRACTOR SHALL USE CRUSHED STONE, SAND OR GRAVEL AS BEDDING MATERIAL WHERE ROCK EXCAVATION IS ENCOUNTERED.

BOUND MACADAM



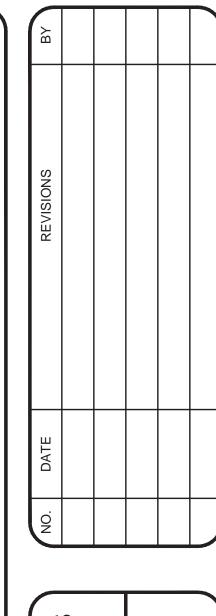
DETAIL - BACKFILL NOT TO SCALE

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BY: BLUEGRASS ENGINEERING, PLLC

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