TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

February 7, 2014

CALL NO. 100
CONTRACT ID NO. 141206
ADDENDUM # 1

Subject: Jefferson County, STPM 5125(014)
Letting February 21, 2014

(1)Added - Plan Sheets - U1, U2, U3, & U4
(2)Revised - Completion Date - Page 4 of 132
(3)Revised - Bid Items - Pages 130-132(a) of 132
(4)Added - Supplementary Specifications - Pages 1-19 of 19

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

Plan revisions are available at http://www.lynnimaging.com/kytransportation/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Diana Castle Radcliffe
Director
Division of Construction Procurement

DR:ks
Enclosures

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-0446.00	U1

NOTE: Underground utilities shown represent a S.U.E. Quality Level B locates as done by others for the Contractor's information. It is the Contractors's responsibility to coodinate the location of existing underground utilities with all affected utility owners prior to construction.

AT MIN. 42" FROM FINISH GRADE
INSTALL 80'± OF 32" STEEL
CASING PIPE

1,900'± TO NEXT FIRE HYDRANT
ATTACHMENT #615075

INSTALL 100 L.F. OF 16" DPW
RESTRAINED JOINT WATER MAIN
IN CASING PIPE

INSTALL
6" F.H. TYPE D.P.
ATT.#617588

CUT AND PLUG EX. 16"
DIW WATER MAIN

INSTALL (1) 16" 11 1/4° BEND

RELOCATE EXISTING SERVICE
14706...3/4" ATTCH #289995
METER #43343571

INSTALL (1) 16" 11 1/4° BEND,
(1) 16" GATE VALVE AND TIE
INTO EX. 16" DIW WATER MAIN
CUT & PLUG EX. 16" DIW
WATER MAIN

END PROJECT
STA. 712+31.15

INSTALL (1) 16" 45° BEND

INSTALL 100 L.F. OF 16" DPW
RESTRAINED JOINT WATER MAIN
IN CASING PIPE

INSTALL (1) 16" 22 1/2° BEND

INSTALL 660 L.F. OF 16" DPW WATER MAIN

AT MIN. 42" FROM FINISH GRADE
INSTALL 100'± OF 32" STEEL
CASING PIPE

CUT, PLUG & REMOVE
EX. FIRE HYDRANT
ATT.#603737

ABANDON (3) EXISTING GATE VALVE

INSTALL 16"x16" TEE, (1) 16"
GATE VALVE, (1) 11 1/4°
BEND AND TIE INTO EX. 16"
DIW WATER MAIN.

CONTRACTOR SHALL CONTACT L.G.&E. TO
COORDINATE/BRACE THE ELECTRIC POLE
DURING CONSTRUCTION.

* EXISTING MAIN SHALL REMAIN IN SERVICE WHILE THE NEW MAIN IS UNDER CONSTRUCTION. DO NOT DISTURB THE EXISTING WATER MAIN.

CONTRACTOR SHALL
SUPPLY ALL MATERIAL

MATCHLINE PROPOSED STATION 932+00

MATCHLINE PROPOSED STATION 938+00

STA 934+34.02 KY 55-155 =
STA 705+63.08 KY 148

PROPOSED KY-155

EXISTING KY-148

EXISTING KY-155

PROPOSED TEMP ESMT

PROPOSED R/W

DISTURBED LIMITS

EXIST R/W

EXIST RR R/W

NORFOLK SOUTHERN RAILROAD
(DO NOT ENCROACH)
(DO NOT DISTURB)

FREDERICK D. HATMAKER
14519 TAYLORSVILLE RD
DB 7727 PG 419

DB 8853 PG 139

PC 706+41.87

PRC 709+61.15

PT 702+88.36
EQUAL AHD
a 702+88.36 = a 702+30.70

C.P. 103

C.P. 5

148 712+31.15 = a 712+31.15

a 719+00

a 705+00

a 710+00

THIS DRAWING WAS PREPARED BY LWC AT KYTC REQUEST. KYTC AND KYTC CONTRACTOR ARE CAUTIONED THAT KYTC REMAINS SOLELY RESPONSIBLE FOR ALL NECESSARY REVIEWS AND APPROVALS, AS WELL AS COMPLIANCE WITH ALL APPLICABLE STATUTES, ORDINANCES, LAWS AND REGULATIONS, INCLUDING ANY NECESSARY GENERAL OR INDIVIDUAL SITE DISTURBANCE PERMITS AND ALL OTHER PERMITS PRIOR TO BEGINNING CONSTRUCTION ON THIS PROJECT. BY PREPARING THIS DRAWING AT KYTC REQUEST, LWC ASSUMES NO RESPONSIBILITY FOR THE DRAWING'S USE OR FOR REVIEWS, APPROVALS OR COMPLIANCE WITH APPLICABLE STATUTES, ORDINANCES, LAWS, PERMITS AND REGULATIONS.

UTILITIES LOCATIONS ARE SHOWN FROM AVAILABLE INFORMATION AND ARE APPROXIMATE. CONTRACTORS ARE URGED TO MAKE THEIR OWN DETERMINATION OF EXACT LOCATIONS.

WATER FACILITY RELOCATION PLANS ARE PREPARED ON PLANS PROVIDED BY OTHERS. NO PRESENTATION IS MADE AS TO THE ACCURACY OF THE PLANS PROVIDED FOR LOUISVILLE WATER COMPANY USE.

For Buried Line/Cable Locations
** Contact Two Business Days Before **
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Know what's below. Call before you dig.
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0 40 80 160

WATER LINE ONLY

STATE OF KENTUCKY
DANIEL TEGENE
20985
LICENSED PROFESSIONAL ENGINEER

SIGNATURE
2/3/14
DATE

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
JAMES H. BRAMMELL, PE, PLS - PRESIDENT
SPENCER W. BRUCE, P.E. - VICE PRESIDENT / CHIEF ENGINEER

KY 155 @ KY 148
WATER MAIN RELOCATION
STA. 932+00 TO STA. 938+00

DATE JAN. 2014	SCALE GRAPHIC SCALE	MAP NO. 1287-252,254	
DRAWN BY N.SMITH	CHECKED BY D.TEGENE	ENGR. J.LONG	
PROJECT NUMBER 14005	SHEET 1 OF 2		
TASK NUMBER 04			

FILE NAME: N:\PWORK\TIME.SHOWN\D0798807\5-0446 (R06) ALT3 INTERSEC_C2A PLAN2 2D.DGN
USER: TimE.Shown
DATE PLOTTED: July 12, 2013
E-SHEET NAME:
MicroStation v8.11.7.443

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-0446.00	U2

FILE NAME=\PWWORK\TIMESHEET NAME=\ USER:TimEShown DATE PLOTTED:July 12,2013 MicroStation v8i 17.443

FREDERICK D. HATMAKER
14519 TAYLORSVILLE RD
DB 7727 PG 419

WILLIAM C. MAHAFFEY
14515 TAYLORSVILLE RD
DB 7854 PG 26

FRED HATMAKER
14513 TAYLORSVILLE RD
DB 7080 PG 553

CONTRACTOR SHALL SUPPLY ALL MATERIAL

INSTALL (4) 16" 45° BENDS TO MAINTAIN 18" VERTICAL SEPARATION

INSTALL 6" F.H. TYPE D.P. ATT.#617590

RELOCATE EXISTING SERVICE 14515...1" ATTCH #312446 METER #48547471

INSTALL (4) 16" 45° BENDS TO MAINTAIN 18" VERTICAL SEPARATION

INSTALL (1) 16" 11 1/4° BEND

INSTALL (4) 16" 45° BENDS TO MAINTAIN 18" VERTICAL SEPARATION

CUT & PLUG EXISTING 16" DI WATER MAIN

INSTALL 2" AUTOMATIC AIR VALVE

INSTALL 20 L.F. OF 32" STEEL CASING PIPE & GO UNDER STORM, MAINTAIN A MINIMUM 18" SEPARATION. FULL JOINT OF PIPE SHALL BE INSERTED IN CASING PIPE

CUT, PLUG & REMOVE EX. FIRE HYDRANT ATT.#603736

INSTALL 20 L.F. OF 32" STEEL CASING PIPE & GO UNDER STORM, MAINTAIN A MINIMUM 18" SEPARATION. FULL JOINT OF PIPE SHALL BE INSERTED IN CASING PIPE

INSTALL 20 L.F. OF 32" STEEL CASING PIPE & GO UNDER STORM, MAINTAIN A MINIMUM 18" SEPARATION. FULL JOINT OF PIPE SHALL BE INSERTED IN CASING PIPE

INSTALL (1) 16" GATE VALVE (2) 16" 45° BENDS AND TIE INTO EX. 16" DI WATER MAIN

INSTALL 855 L.F. OF 16" DPW WATER MAIN
KY-155 (TAYLORSVILLE LAKE ROAD) – THIS SHEET

Existing ! KY155 / KY148
PI STA = 696+39.50
Delta = 26°26'00" RT
T = 672.81' L = 1321.67'
D = 2°00'00" R = 2864.79'
E = 77.95'

* EXISTING MAIN SHALL REMAIN IN SERVICE WHILE THE NEW MAIN IS UNDER CONSTRUCTION. DO NOT DISTURB THE EXISTING WATER MAIN.

0 40 80 160

UTILITIES LOCATIONS ARE SHOWN FROM AVAILABLE INFORMATION AND ARE APPROXIMATE. CONTRACTORS ARE URGED TO MAKE THEIR OWN DETERMINATION OF EXACT LOCATIONS.	WATER FACILITY RELOCATION PLANS ARE PREPARED ON PLANS PROVIDED BY OTHERS. NO PRESENTATION IS MADE AS TO THE ACCURACY OF THE PLANS PROVIDED FOR LOUISVILLE WATER COMPANY USE.

THIS DRAWING WAS PREPARED BY LWC AT KYTC REQUEST. KYTC AND KYTC CONTRACTOR ARE CAUTIONED THAT KYTC REMAINS SOLELY RESPONSIBLE FOR ALL NECESSARY REVIEWS AND APPROVALS, AS WELL AS COMPLIANCE WITH ALL APPLICABLE STATUTES, ORDINANCES, LAWS AND REGULATIONS, INCLUDING ANY NECESSARY GENERAL OR INDIVIDUAL SITE DISTURBANCE PERMITS AND ALL OTHER PERMITS PRIOR TO BEGINNING CONSTRUCTION ON THIS PROJECT. BY PREPARING THIS DRAWING AT KYTC REQUEST, LWC ASSUMES NO RESPONSIBILITY FOR THE DRAWING'S USE OR FOR REVIEWS, APPROVALS OR COMPLIANCE WITH APPLICABLE STATUTES, ORDINANCES, LAWS, PERMITS AND REGULATIONS.

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WATER LINE ONLY

STATE OF KENTUCKY
DANIEL TEGENE
20985
LICENSED PROFESSIONAL ENGINEER

Daniel Tegene
SIGNATURE
2/3/14
DATE

LOUISVILLE WATER COMPANY
550 S. 3RD STREET LOUISVILLE, KENTUCKY 40202 (502) 569-3600
JAMES H. BRAMMELL, PE, PLS – PRESIDENT

KY 155 @ KY 148
WATER MAIN RELOCATION
STA. 938+00 TO STA. 946+60

DATE JAN. 2014	SCALE	GRAPHIC SCALE	MAP NO. 1287-254
DRAWN BY N.SMITH	CHECKED BY D.TEGENE		ENGR. J.LONG
PROJECT NUMBER 14005	SHEET	2 OF 2	
TASK NUMBER 04			

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-0446.00	U3

CODE NO. / ITEM CODE	CODE DESCRIPTION	UNIT	PROJECT TOTAL	REMARKS
UNIT TO BID ON "SUPPLY & INSTALL" QUANTITIES				
01103	DUCTILE IRON PIPE RESTRAINED JOINT – 16"	LF	200'	
01103	DUCTILE IRON PIPE – 16"	LF	1,515'	
03536	GATE VALVE – 16 INCH	EACH	3	RESILIENT SEAL
24668EC	STEEL ENCASEMENT PIPE – 32 INCH	LF	240'	
21113ND	TIE–IN 16 INCH	EACH	3	
03434	REMOVE FIRE HYDRANT	EACH	2	
20329EC	INSTALL FIRE HYDRANT	EACH	2	
21455ND	ABANDON VALVE	EACH	3	
03558	BEND 45 DEG 16 INCH	EACH	15	
03552	BEND 22.50 DEG 16 INCH	EACH	1	
03543	BEND 11.25 DEG 16 INCH	EACH	4	
20707ND	CUT AND PLUG – 16"	EACH	3	
23089ND	RELOCATE 1" SERVICE	EACH	1	
23089ND	RELOCATE 3/4" SERVICE	EACH	1	
24047EC	HYDROSTATIC TEST 16" MAIN	EACH	1	PER LWC SPECIFICATIONS
23201EC	TEE 16" x 16"	EACH	1	
22082NN	2–INCH AIR RELEASE VALVE ASSEMBLY	EACH	1	

UTILITIES LOCATIONS ARE SHOWN FROM AVAILABLE INFORMATION AND ARE APPROXIMATE. CONTRACTORS ARE URGED TO MAKE THEIR OWN DETERMINATION OF EXACT LOCATIONS.

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THIS SHEET IS FOR WATER MAIN CONSTRUCTION ONLY

WATER LINE ONLY

SIGNATURE

DATE

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
JAMES H. BRAMMELL, PE, PLS - PRESIDENT
SPENCER W. BRUCE, P.E. - VICE PRESIDENT / CHIEF ENGINEER

KY 155 @ KY 148
SUMMARY SHEET

DATE	JAN. 2014	SCALE	GRAPHIC SCALE	MAP NO.	N/A
DRAWN BY	N.SMITH	CHECKED BY	D.TEGENE	ENGR.	J.LONG
PROJECT NUMBER	14005				
TASK NUMBER	04				

MicroStation v8.11.7.443 E-SHEET NAME: USER:TimE.Shown DATE PLOTTED:July 12, 2013 FILE NAME:\PWWORK\TIME.SHOWN\D0796807\5-0446 (R04) ALT3 INTERSEC_C2A PLAN1 2D.DGN

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-0446.00	U4

90° BEND

SIZE	A	B
4",6",8", & 12"	5'	3'
16"	6'-3"	3'-9"
20"	7'-6"	4'
24"	9'	5'

HORIZONTAL OFFSET

SIZE	A	B
4",6",8", & 12"	2'	2'
16"	2'-6"	2'-6"
20"	3'	3'
24"	3'-6"	3'-6"

45° BEND

SIZE	A	B
4",6",8", & 12"	4'-6"	2'
16"	5'-9"	2'-6"
20"	6'-6"	3'
24"	7'	4'

VERTICAL OFFSET

SIZE	A	B	C
4",6",8", & 12"	2'	4'	4'
16"	3'	6'	4'
20"	3'-6"	7'	4'-6"
24"	4'	8'	5'

22-1/2° BEND

SIZE	A	B
4",6",8", & 12"	3'	1'-6"
16"	3'-9"	2'
20"	4'-6"	2'-9"
24"	5'	4'

PLUG

16 GAUGE SHEET METAL

SIZE	A	B	C	D	E
4",6",8", & 12"	4'	9"	3"	2"	2"
16"	5'	1'-3"	4"	2'-6"	2'-6"
20"	6'-6"	2'	4"	3'	3'
24"	8'	3'	5'	4'	4'

11-1/4° BEND

SIZE	A	B
4",6",8", & 12"	2'-6"	1"
16"	3'	1'-6"
20"	4'	2'-3"
24"	4'-6"	3'-6"

PLUG W/BLOWOFF

16 GAUGE SHEET METAL

SIZE	A	B	C
4",6",8", & 12"	4'	3'	1'-6"
16"	5'	4'	2'
20"	6'	5'	2'-6"
24"	7'	6'	3'

TYPICAL CONCRETE ANCHOR BLOCK UNDER ALL FITTINGS USED WITH P.V.C. PIPE

PLAN

X-SECTION

TYPICAL THRUST ANCHORS

NOTE:

(1) ALL DUCTILE AND GRAY IRON PIPE AND APPURTENANCES SHALL BE DOUBLE POLYWRAPPED.

(2) CARE SHALL BE TAKEN TO AVOID DAMAGING POLYWRAP.

(3) CONCRETE THRUST ANCHORS MUST BE ALLOWED TO CURE, OR PROTECTED AS APPROVED BY THE PROJECT MANAGER, BEFORE BACKFILLING.

(4) ALL CONCRETE SHALL BE 3,500psi FROM A COMMERCIAL PLANT, OR SHALL BE AN ON-SITE MIXTURE PREVIOUSLY APPROVED AT THE PRECONSTRUCTION CONFERENCE.

45° VERTICAL BEND

SIZE	A	B	C
4",6",8", & 12"	3'	3'	5'
16"	3'-9"	3'-9"	6'
20"	5'	4'	7'
24"	6'	5'	8'

45° VERTICAL BEND

2-3/4" DIA. RODS

SIZE	A	B	C
4",6",8", & 12"	4'	4'	4'
16"	5'	5'	5'
20"	6'	6'	6'
24"	7'	7'	7'

GATE VALVE (IF PVC, THEN ANCHOR ALL SIZES.) (IF DI PIPE, THEN ANCHOR 12" AND LARGER)

2-TIE BANDS

BEDDING SUPPORT

2-5/8" DIA. RODS

SIZE	A	B	C
4",6",8", & 12"	1'-6"	3'	2'
16"	2'	3'-9"	2'-6"
20"	2'-6"	4'	3'
24"	3'	4'-6"	3'-6"

TEE OR TAPPING SLEEVE

SIZE	A	B
4",6",8", & 12"	4'	3'
16"	5'	3'-9"
20"	6'	4'-6"
24"	7'	5'-3"

TEE PLUGGED

16 GAUGE SHEET METAL

SIZE	A	B	C
4",6",8", & 12"	4'	3'	4'-6"
16"	5'	3'-9"	5'-6"
20"	6'	4'-6"	6'
24"	7'	5'	6'-6"

CROSS PLUGGED

16 GAUGE SHEET METAL

16 GAUGE SHEET METAL

SIZE	A	B	C	D
4",6",8", & 12"	4'-6"	3'	4'-6"	1'-6"
16"	5'	3'-6"	5'	2'
20"	6'	4'	6'	3'
24"	7'	4'-6"	7'	4'

GATE VALVE

HORIZONTAL THRUST (FOR PIG REMOVAL)

10'

DIR. OF FLOW

2-3/4" DIA. RODS TIED TO GATE VALVE

SIZE	A	B	C
4",6"	1'	2'	2'
8"	1'	2'	2'
12"	2'	3'	2'
16"	2'	4'	3'
20"	3'	4'	3'
24"	3'	4'	3'

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE SIX(6) FEET OR MORE, IF LESS THAN A HIGHER PAVEMENT TO JOINT OR BREAK AND REPLACE CENTRE SLAB. CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12 INCHES ON EACH SIDE OF TRENCH.

SAWED JOINT (SECOND SAWCUT)

FIRST SAWCUT

3x WIDTH OF EXCAVATION

(WATER EXISTING DEPTH) 2" MINIMUM

P.C. CONCRETE

CRUSHED STONE BACKFILL (WATER EXISTING DEPTH)

MECHANICALLY TAMPED PIT RUN SAND, D.G.A., MANUFACTURED SAND, #57 STONE OR FLOWABLE FILL

MECHANICALLY TAMPED PIT RUN SAND, D.G.A., OR MANUFACTURED SAND

PIPE ENCASED IN PIPE OF LARGER DIAMETER, 6" SPACED ON JOB DRAWING.

6"BEDDING

CONCRETE PAVEMENT

BITUMINOUS SURFACE 2"+ 2" MIN TRAFFIC BOUND MACADAM (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

CONCRETE SLAB

42" MIN.

BITUMINOUS SURFACE LESS THAN 2" AND TRAFFIC BOUND MACADAM (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

CRUSHED STONE BACKFILL PIT RUN SAND, D.G.A., MANUFACTURED SAND, #57 STONE OR FLOWABLE FILL

MECHANICALLY TAMPED PIT RUN SAND, D.G.A., OR MANUFACTURED SAND

PIPE ENCASED IN PIPE OF LARGER DIAMETER, 6" SPACED ON JOB DRAWING.

NOTE: REPLACE CONCRETE PAVEMENT WITH NEW PAVEMENT SAME THICKNESS OF EXISTING PAVEMENT + 12". REPLACE BITUMINOUS PAVEMENT WITH SAME TYPE AND DEPTH AS EXISTING PAVEMENT.

STATE OF KENTUCKY SPECIFICATIONS

1. WATER BACKFILL SHALL BE PIT RUN SAND, DENSE-GRADED AGGREGATE, OR MANUFACTURED SAND MECHANICALLY COMPACTED PER SECTION 7; BACKFILLING PROCEDURES AND TAMPING.
2. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE CUT IS MADE, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH.
4. DILUTE SSIH (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.

1 FOOT BEARING AREA (MINIMUM)

SAW CUT PERIMETER FOR PLATE RECESS

1" PLATE THICKNESS (MINIMUM)

FOOT (MINIMUM)

EXCAVATION

SECTION "A-A"

TYPICAL RECESSED PLATE NO SCALE

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE FOUR (4) FEET OR MORE, IF LESS THAN A HIGHER PAVEMENT TO JOINT OR BREAK AND REPLACE CENTRE SLAB. CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12" ON EACH SIDE OF TRENCH.

EXISTING CONCRETE PAVEMENT

SECOND SAWCUT

FIRST SAWCUT

12"

1 1/2" MINIMUM ASPHALT SURFACE

SELECT GRANULAR BACKFILL MECHANICALLY TAMPED SAND, #57 STONE OR FLOWABLE FILL

CRITICAL BACKFILL ZONE: MECHANICALLY TAMPED PIT RUN SAND, D.G.A. OR MANUFACTURED SAND.

WATER MAIN

BACKFILL MECHANICALLY COMPACTED PER SECTION 7 OR FLOWABLE FILL PER SECTION 7.2.3.

CONCRETE PAVEMENT (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

SEE CDC DETAILS FOR SPECIAL PROVISIONS SECTION 7A PAGES 1-13 FOR PAVEMENT REPAIRS.

ASPHALT SURFACE

CONCRETE SUBBASE

BITUMINOUS SURFACE NEW ASPHALT SHALL BE A MINIMUM OF 1 1/2" THICK (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

NOTE: THE CONCRETE BASE SHALL BE FLOAT FINISHED OR BROOMED OR LIGHTLY RAKED AFTER FLOATING TO A UNIFORM GRADE.

COMPACTED ASPHALT SURFACE THICKNESS VARIES ACCORDING TO DEPTH OF TOP OF CONCRETE BASE (SEE NOTES BELOW)

TACK COAT

1 1/2" MINIMUM ASPHALT SURFACE

FIRST SAWCUT

SEAL PREFORMED JOINT (BOTH SIDES)

6"

WIDTH

42" MIN.

12" MIN.

WATER MAIN

SECOND SAWCUT

BASE OTHER THAN CONCRETE HAVING AN ASPHALT SURFACE (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

NOTE: THE CONCRETE BASE SHALL BE FLOAT FINISHED OR BROOMED OR LIGHTLY RAKED AFTER FLOATING TO A UNIFORM GRADE.

1. CRITICAL BACKFILL ZONE SHALL CONSIST OF MECHANICALLY TAMPED PIT RUN SAND, DENSE-GRADED AGGREGATE, OR MANUFACTURED SAND.
2. SELECT GRANULAR BACKFILL SHALL CONSIST OF NO. 57 STONE OR SAND. THE NO. 57 STONE SHALL BE PLACED IN 6" LOOSE LIFTS AND MECHANICALLY COMPACTED. THE SAND BACKFILL MAY BE FLOODED AND JETTED OR MECHANICALLY COMPACTED BY VIBRATORY METHODS TO 90% DENSITY, AS ROADWAY EMBANKMENT SPECIFICATIONS WHEN SAND BACKFILL IS UTILIZED. COMPACTED EARTH SHALL BE PLACED IN THIS ZONE WITHIN 5 FEET (HORIZONTAL DISTANCE) OF THE EMBANKMENT SLOPE.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH, UNLESS FLOWABLE FILL IS USED.
4. PLATES MUST BE SECURED AND/OR RECESSED AT ALL TIMES.
5. CONCRETE CAP MUST BE PLACED UNTIL CONCRETE REACHES STRENGTH REQUIREMENTS (MINIMUM 3000 PSI)
6. DILUTE SSIH (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.
7. PAVEMENT JOINTS SHALL BE SEALED WITH AN APPROVED JOINT SEALER AFTER PLACEMENT OF THE BITUMINOUS CONCRETE SURFACE. SEE SECTION 11.2 AND 11.3.
8. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE DATE OF THE FINAL CONTRACT PAYMENT, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.

1 FOOT BEARING AREA (MINIMUM)

SAW CUT PERIMETER FOR PLATE RECESS

1" PLATE THICKNESS (MINIMUM)

FOOT (MINIMUM)

EXCAVATION

SECTION "A-A"

TYPICAL RECESSED PLATE NO SCALE

LOUISVILLE-JEFFERSON COUNTY METRO BACKFILL & PAVING RESTORATION

1. BACKFILL SHALL BE DENSE-GRADED AGGREGATE OR SAND. DENSE-GRADE OR SAND SHALL BE PLACED IN MAXIMUM 6" LOOSE LIFTS OR AS SPECIFIED AND MECHANICALLY COMPACTED.
2. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE CUT IS MADE, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.
3. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH.
4. DILUTE SSIH (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.

UTILITY CONSTRUCTION 500'

45°

45°

ALSO FOR 1,000 AND 1,500 FEET

CAUTION

REQUIRED AT 500', 1000', AND 1500' EACH WAY FROM WORK AREA.

WARNING SIGNS

1. TREES ON STATE RIGHT-OF-WAY ARE NOT TO BE DAMAGED BY THIS INSTALLATION. NO TREE TRIMMING OR REMOVAL IS AUTHORIZED BY THIS PERMIT.
2. ALL DISTURBED PORTIONS OF THE STATE RIGHT-OF-WAY TO BE RESTORED TO ORIGINAL CONDITION BY SEEDING AND MULCHING IN ACCORDANCE WITH KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS.
3. ALL SIGNS AND CONTROL OF TRAFFIC TO BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

1500'

1000'

500'

CONSTRUCTION ZONE INDEFINITE LENGTH

UTILITY CONSTRUCTION 1500'

UTILITY CONSTRUCTION 1000'

UTILITY CONSTRUCTION 500'

CLASS "A" BARRICADE

CLASS "A" BARRICADE

NOTE: TRAFFIC CONTROLS, HAZARD WARNINGS, SPEED RESTRICTIONS TO BE ESTABLISHED AS NEEDED.

LOCATION OF TRAFFIC CONTROL DEVICES

FIRE HYDRANT BURY DEPTHS: (DISTANCE FROM BURY LINE TO BOTTOM OF HYDRANT ELBOW)

4'-6"	
5'-0"	
5'-6"	
6'-0"	

3'-0" MINIMUM (5'-0" MAXIMUM FROM FACE OF CURB (0'-0" MINIMUM FROM EDGE OF PAVEMENT WITH NO CURB)

FIRE HYDRANT

BREAK-AWAY FLANGE

2" TO 5"

FINISHED GRADE

ROUND TOP & LID

CURB

(FIRE HYDRANT BLANKET) FILTER FABRIC COVER OVER ENTIRE ROCK BED

KEYWAY 7" NONMETALLIC PIPE

TRACER WIRE (FOR PVC MAIN)

BURY DEPTH

3'-0"

1'-6"

DRAIN HOLES

NOTE: THE THRUST RESTRAINT SHOWN IS TYPICAL FOR SHORT LEADS. FOR LONG LEADS USE MECHANICAL JOINT FITTINGS TO SECURE HYDRANT TO VALVE

VALVE

WATER MAIN (MINIMUM 8")

12" OR GREATER

4'-0"

PRECAST CONCRETE BLOCKS AGAINST UNDISTURBED SOIL

CONCRETE BLOCK (50LBS)

CONCRETE PAD 3'x6"x8" DEPTH

SEE POLYETHYLENE SPECIFICATIONS

SPECIAL HYDRANT VALVE BRANCHING TEE OR TAPPING SLEEVE AND GATE VALVE SEE SPECIFICATIONS (FOUR THRUST ANCHOR)

CONCRETE-CAST AGAINST UNDISTURBED SOIL

#3 ROCK (2'x3'x4'DEPTH)

NOTE: ALL FIRE HYDRANT LEADS ARE TO BE DUCTILE IRON PIPE

NOTE: LWC SUPPLIES HYDRANTS OF VARIOUS BURY DEPTHS. EXTENSION KITS ARE PROHIBITED FOR NEW INSTALLATIONS. SEE SECTION 9.

WHEN TURNING FIRE HYDRANT OFF, ALLOW TIME FOR FIRE HYDRANT TO DRAIN BEFORE REPLACING NOZZLE CAPS.

TYPICAL FIRE HYDRANT CONNECTION

PLACE FIRE HYDRANT ATTACHMENT STICKER ON SMOOTH SURFACE, CENTERED BETWEEN NOZZLES ON BARREL.

TEMPORARY FLUSHING ASSEMBLY FURNISHED BY LWC METER SHOP.

1. 2"x6" BRASS NIPPLE THD*
2. 2" GATE VALVE*
3. 2" 90° ELL BRASS THD*
4. 2"x6" BRASS NIPPLE THD*
5. 2"x1" TEE WITH 1"x3/4" BUSHING*
6. 3/4" BRASS SPIGOT WITH 1/2" OUTLET*
7. 2"x12" BRASS NIPPLE THD*
8. 2" DUAL CHECK VALVE*
9. 2"x3" BRASS NIPPLE THD*
10. 2"x1-1/2" BRASS REDUCER*
11. 1-1/2" MIP X FLG*
12. 1-1/2" TURBINE METER*
13. 2"x6" BRASS NIPPLE THD*

CAUTION: DO NOT CONNECT PRESSURE TEST EQUIPMENT TO TEMPORARY FLUSHING ASSEMBLY!

NOTE:

1-1/2" TURBINE METER AND 2" DUAL CHECK VALVE ARE TO BE INSTALLED AFTER FLOOING OPERATIONS. A 2" HOSE IS TO BE USED DURING ALL FLUSHING OPERATIONS.

NOTE:

8" AND LARGER WATER MAINS MAY REQUIRE LARGER THAN A 2" FLUSHING OUTLET TO MEET THE KDOW 2.5 F.P.S. FLUSHING REGULATION.

C.I. METER FRAME AND COVER (USE HEAVY DUTY FOR AREAS OF VEHICULAR TRAFFIC)

36" MAXIMUM 12" MINIMUM

GROUND LEVEL

20" DIA. PLASTIC OR CONCRETE VAULT (USE HEAVY DUTY FOR AREAS OF VEHICULAR TRAFFIC

18"

42" OR GREATER

36" MIN.

2" MALE BRASS PLUG

2" FLANGE ELL X 2" F.I.P. OUTLET

2"x(VARIES) BRASS NIPPLE

2" BRASS COUPLING

2" x 18" BRASS NIPPLE THD.

2" BRASS ELL THD.

2"x12" BRASS NIPPLE THD.

THRUST ANCHOR (SEE THRUST ANCHOR DETAIL)

TRACER WIRE (FOR PVC MAIN) EXTEND TRACER WIRE ABOVE BALL VALVE)

2" ANGLE BALL VALVE

SEE POLYETHYLENE SPECIFICATIONS)

WATER MAIN (PVC WATER MAIN DOES NOT REQUIRE POLYWRAP)

CAP OR PLUG

16 GAUGE METAL (FOR PLUG ONLY)

TYPICAL FLUSHING CONNECTION

LARGE C.I. METER VAULT COVER AND LID 36" MANHOLE

12" MIN. ABOVE EX. GRADE

3/4" STREET ELL

3/4"SCREENED STREET ELL

FINAL GRADE (SUITABLE FOR MOWING IN GRASS AREAS)

EXISTING GRADE

3/4" x C.I. BRASS NIPPLE

OPTIONAL 2" VENT STACK FOR FLUSHING OR DRAINING MAIN

2" CLOSE NIPPLE

2" BALL VALVE

2" CLOSE NIPPLE

2"x2"x2" TEE

2" CLOSE NIPPLE

2" BALL VALVE

2" CLOSE NIPPLE

2" BRASS PLUG

2" BALL VALVE

2" CLOSE NIPPLE

2"-90° ELL

2"x6" BRASS NIPPLE

2"x 20" BELL REDUCER

2" CORP STOP WITH TAPPING SADDLE

42" MIN.

POLYWRAP (FOR IRON & D.I. MAINS)

CONCRETE, DUCTILE IRON, OR CAST IRON (LARGE DIAMETER MAIN)

#57 CRUSHED STONE

AIR VALVES SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FLOODING.

PREFAB VAULT DIMENSIONS VARY WITH MAIN SIZE

SEE SECTIONS: 8.7 AIR RELIEF VALVES 8.7.1 AUTOMATIC AIR RELIEF VALVES

DETAIL OF 2" AUTOMATIC AIR VALVE

*THE TOP 12" TO BE #3 STONE OR OTHER SELECT MATERIAL APPROVED BY THE KENTUCKY DIVISION OF WATER.

TYPICAL SECTION

STREAM BED

#3 STONE

CLASS "A" CONCRETE CAP

#3 STONE

#57 STONE BACKFILL

12"

42" MINIMUM

12"

6"

12"

PIPE O.D.

15" PIPE 15" O.D.

PAY LIMITS

5'-0" MINIMUM

TOP OF BANK

5'-0" MINIMUM

FLOWLINE

#3 STONE

CLASS "A" CONCRETE CAP

#3 STONE

#57 STONE BACKFILL

PIPE

#57 STONE BACKFILL

12"

42" MINIMUM

TYPICAL PROFILE

STREAM CROSSING CONDITIONS

1. COMPLY WITH SECTION 1.3.5, SOIL EROSION AND SEDIMENT CONTROL.
2. THIS DETAIL APPLIES ONLY TO BLUE-LINE STREAMS, AS SHOWN ON THE PERTINENT USGS QUADRANGLE MAP.
3. MANAGEMENT CONSTRUCTION PRACTICES MUST BE USED AT ALL TIMES DURING CONSTRUCTION. ADEQUATE SILT CONTROL MUST BE PLACED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. REVEGETATE ALL DISTURBED GRASSY AREAS ON THE STREAM SLOPES. SOD STAKES MAY BE REQUIRED TO SECURE SOD ON THE STREAM BANKS.
5. MAINTAIN AT LEAST 3.5' OF BACKFILL AT THE STREAM CROSSING FROM THE TOP OF PIPE TO THE ORIGINAL STREAM BED ELEVATION.
6. OBTAIN APPROVAL FROM THE METROPOLITAN SEWER DISTRICT PRIOR TO THE START OF THE STREAM CROSSING WHEN CONSTRUCTION IS UNDER THEIR JURISDICTION.
7. TO BE PAID PER LINEAL FOOT OF CONCRETE CAP.
8. THRUST BLOCKING SHALL BE CONSTRUCTED AT ALL BENDS.

CREEK CROSSING DETAIL

WATER LINE ONLY

SIGNATURE

DATE

LOUISVILLE WATER COMPANY

550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600

JAMES H. BRAMMELL, PE, PLS - PRESIDENT

SPENCER W. BRUCE, P.E. - VICE PRESIDENT / CHIEF ENGINEER

KY 155 @ KY 148

DETAIL SHEET

DATE JAN. 2014	SCALE GRAPHIC SCALE	MAP NO. N/A	
DRAWN BY N.SMITH	CHECKED BY D.TEGENE	ENGR. J.LONG	
PROJECT NUMBER 14005			
TASK NUMBER 04			

ADMINISTRATIVE DISTRICT - 05

CONTRACT ID - 141206

STPM 5125 (014)

COUNTY - JEFFERSON

PCN - DE05601551406
STPM 5125 (014)

TAYLORSVILLE LAKE & FISHERVILLE ROAD (KY 155 & KY 148) (MP 3.947) RECONSTRUCT INTERSECTION OF KY-155 AND KY-148. (MP 4.703), A DISTANCE OF 0.76 MILES.ASPHALT SURFACE WITH GRADE & DRAIN SYP NO. 05-00446.00.

GEOGRAPHIC COORDINATES LATITUDE 38:11:29.00 LONGITUDE 85:28:33.00

COMPLETION DATE(S):

COMPLETED BY 12/15/2014 APPLIES TO ENTIRE CONTRACT

141206

PROPOSAL BID ITEMS

Report Date 2/7/14

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	9,035.00	TON		$	
0020	00069		CRUSHED AGGREGATE SIZE NO 3 (WORKING PLATFORM)	2,640.00	TON		$	
0030	00071		CRUSHED AGGREGATE SIZE NO 57 (TO BE USED FOR SUBGRADE DRAINAGE @ SPECIFIED INTERVALS)	13.00	TON		$	
0040	00100		ASPHALT SEAL AGGREGATE	53.00	TON		$	
0050	00103		ASPHALT SEAL COAT	7.00	TON		$	
0060	00194		LEVELING & WEDGING PG76-22	109.00	TON		$	
0070	00214		CL3 ASPH BASE 1.00D PG64-22	6,572.00	TON		$	
0080	00216		CL3 ASPH BASE 1.00D PG76-22	3,075.00	TON		$	
0090	00336		CL3 ASPH SURF 0.38A PG76-22	1,121.00	TON		$	
0100	02677		ASPHALT PAVE MILLING & TEXTURING	410.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0110	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	23.00	EACH		$	
0120	02014		BARRICADE-TYPE III	6.00	EACH		$	
0130	02091		REMOVE PAVEMENT	1,595.00	SQYD		$	
0140	02159		TEMP DITCH	3,000.00	LF		$	
0150	02223		GRANULAR EMBANKMENT (SINK HOLE TREATMENT)	108.00	CUYD		$	
0160	02230		EMBANKMENT IN PLACE	40,116.00	CUYD		$	
0170	02242		WATER	831.00	MGAL		$	
0180	02351		GUARDRAIL-STEEL W BEAM-S FACE	875.00	LF		$	
0190	02367		GUARDRAIL END TREATMENT TYPE 1	2.00	EACH		$	
0200	02381		REMOVE GUARDRAIL	1,761.00	LF		$	
0210	02429		RIGHT-OF-WAY MONUMENT TYPE 1	7.00	EACH		$	
0220	02432		WITNESS POST	7.00	EACH		$	
0230	02469		CLEAN SINKHOLE	1.00	EACH		$	
0240	02545		CLEARING AND GRUBBING (APPROXIMATELY 14.10 ACRES)	1.00	LS		$	
0250	02562		TEMPORARY SIGNS (CONSTRUCTION APPROACH SIGNING)	327.00	SQFT		$	
0260	02585		EDGE KEY	108.00	LF		$	
0270	02599		FABRIC-GEOTEXTILE TYPE IV (ADDED 325 SY FOR SINK HOLE TREATMENT ADDED 114 SY FOR ROCK DRAINS)	25,156.00	SQYD		$	
0280	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	284.00	SQYD	$2.00	$	$568.00
0290	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0300	02671		PORTABLE CHANGEABLE MESSAGE SIGN	3.00	EACH		$	
0310	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0320	02701		TEMP SILT FENCE	3,000.00	LF		$	
0330	02703		SILT TRAP TYPE A	14.00	EACH		$	
0340	02704		SILT TRAP TYPE B	14.00	EACH		$	
0350	02705		SILT TRAP TYPE C	14.00	EACH		$	
0360	02706		CLEAN SILT TRAP TYPE A	42.00	EACH		$	

141206

PROPOSAL BID ITEMS

Report Date 2/7/14

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0370	02707		CLEAN SILT TRAP TYPE B	42.00	EACH		$	
0380	02708		CLEAN SILT TRAP TYPE C	42.00	EACH		$	
0390	02709		CLEAN TEMP SILT FENCE	9,000.00	LF		$	
0400	02726		STAKING	1.00	LS		$	
0410	03262		CLEAN PIPE STRUCTURE	5.00	EACH		$	
0420	05950		EROSION CONTROL BLANKET	8,478.00	SQYD		$	
0430	05952		TEMP MULCH	68,244.00	SQYD		$	
0440	05953		TEMP SEEDING AND PROTECTION	6,825.00	SQYD		$	
0450	05963		INITIAL FERTILIZER	1.60	TON		$	
0460	05964		20-10-10 FERTILIZER	2.70	TON		$	
0470	05985		SEEDING AND PROTECTION	51,950.00	SQYD		$	
0480	05989		SPECIAL SEEDING CROWN VETCH	4,630.00	SQYD		$	
0490	05992		AGRICULTURAL LIMESTONE	32.00	TON		$	
0500	06510		PAVE STRIPING-TEMP PAINT-4 IN	24,000.00	LF		$	
0510	06514		PAVE STRIPING-PERM PAINT-4 IN	16,728.00	LF		$	
0520	06546		PAVE STRIPING-THERMO-12 IN W	180.00	LF		$	
0530	06547		PAVE STRIPING-THERMO-12 IN Y	396.00	LF		$	
0540	06568		PAVE MARKING-THERMO STOP BAR-24IN	100.00	LF		$	
0550	06574		PAVE MARKING-THERMO CURV ARROW	18.00	EACH		$	
0560	08019		CYCLOPEAN STONE RIP RAP	20.00	TON		$	
0570	10020NS		FUEL ADJUSTMENT	32,547.00	DOLL	$1.00	$	$32,547.00
0580	10030NS		ASPHALT ADJUSTMENT	42,525.00	DOLL	$1.00	$	$42,525.00
0590	20550ND		SAWCUT PAVEMENT	2,691.00	LF		$	
0600	21289ED		LONGITUDINAL EDGE KEY	2,691.00	LF		$	
0610	22664EN		WATER BLASTING EXISTING STRIPE	6,000.00	LF		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0620	00440		ENTRANCE PIPE-15 IN	30.00	LF		$	
0630	00462		CULVERT PIPE-18 IN (REINFORCED CONCRETE PIPE TO BE USED)	26.00	LF		$	
0640	00464		CULVERT PIPE-24 IN (REINFORCED CONCRETE PIPE TO BE USED)	180.00	LF		$	
0650	00470		CULVERT PIPE-48 IN (REINFORCED CONCRETE PIPE TO BE USED)	80.00	LF		$	
0660	01216		PIPE CULVERT HEADWALL-48 IN	1.00	EACH		$	
0670	01432		SLOPED BOX OUTLET TYPE 1-15 IN	2.00	EACH		$	
0680	01433		SLOPED BOX OUTLET TYPE 1-18 IN	2.00	EACH		$	
0690	01434		SLOPED BOX OUTLET TYPE 1-24 IN	4.00	EACH		$	

Section: 0004 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0700	06407		SBM ALUM SHEET SIGNS .125 IN	233.00	SQFT		$	
0710	06410		STEEL POST TYPE 1	504.00	LF		$	
0720	21373ND		REMOVE SIGN	36.00	EACH		$	
0730	24631EC		BARCODE SIGN INVENTORY	36.00	EACH		$	

141206

PROPOSAL BID ITEMS

Report Date 2/7/14

Section: 0005 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0740	04792		CONDUIT-1 IN	100.00	LF		$	
0750	04793		CONDUIT-1 1/4 IN	875.00	LF		$	
0760	04795		CONDUIT-2 IN	500.00	LF		$	
0770	04811		ELECTRICAL JUNCTION BOX TYPE B	9.00	EACH		$	
0780	04820		TRENCHING AND BACKFILLING	1,200.00	LF		$	
0790	04830		LOOP WIRE	1,775.00	LF		$	
0800	04836		WIRE-NO. 2	1,425.00	LF		$	
0810	04844		CABLE-NO. 14/5C	1,475.00	LF		$	
0820	04850		CABLE-NO. 14/1 PAIR	3,465.00	LF		$	
0830	04873		POLE 45 FT WOODEN	1.00	EACH		$	
0840	04884		ANCHOR	2.00	EACH		$	
0850	04885		MESSENGER-10800 LB	700.00	LF		$	
0860	04895		LOOP SAW SLOT AND FILL	685.00	LF		$	
0870	04931		INSTALL CONTROLLER TYPE 170	1.00	EACH		$	
0880	04932		INSTALL STEEL STRAIN POLE	4.00	EACH		$	
0890	04950		REMOVE SIGNAL EQUIPMENT	1.00	EACH		$	
0900	20188NS835		INSTALL LED SIGNAL-3 SECTION	7.00	EACH		$	
0910	20266ES835		INSTALL LED SIGNAL- 4 SECTION	1.00	EACH		$	
0920	20456NS835		INSTALL TEMP VIDEO CAMERA	1.00	EACH		$	
0930	21543EN		BORE AND JACK CONDUIT	150.00	LF		$	
0940	23157EN		TRAFFIC SIGNAL POLE BASE	22.50	CUYD		$	
0950	23982EC		INSTALL ANTENNA	1.00	EACH		$	

Section: 0006 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0960	01103		DUCTILE IRON PIPE-16 INRESTRAINED JOINT ADDED 2-7-14	200.00	LF		$	
0970	01103		DUCTILE IRON PIPE-16 IN ADDED 2-7-14	1,515.00	LF		$	
0980	03434		REMOVE FIRE HYDRANT ADDED 2-7-14	2.00	EACH		$	
0990	03536		GATE VALVE-16 IN ADDED 2-7-14	3.00	EACH		$	
1000	03543		BEND 11.25 DEG 16 IN ADDED 2-7-14	4.00	EACH		$	
1010	03552		BEND 22.50 DEG 16 IN ADDED 2-7-14	1.00	EACH		$	
1020	03558		BEND 45 DEG 16 IN ADDED 2-7-14	15.00	EACH		$	
1030	20329EC		INSTALL FIRE HYDRANT ADDED 2-7-14	2.00	EACH		$	
1040	20707ND		CUT AND PLUG 16 IN ADDED 2-7-14	3.00	EACH		$	
1050	21113ND		TIE-IN 16 IN ADDED 2-7-14	3.00	EACH		$	
1060	21455ND		ABANDON VALVE ADDED 2-7-14	3.00	EACH		$	
1070	22082NN		AIR RELEASE VALVE ASSEMBLY2 INCH ADDED 2-7-14	1.00	EACH		$	
1080	23089ND		RELOCATE SHORT SERVICE3/4 INCH SERVICE ADDED 2-7-14	1.00	EACH		$	
1090	23089ND		RELOCATE SHORT SERVICE1 INCH SERVICE ADDED 2-7-14	1.00	EACH		$	
1100	23201EC		TEE-16 IN X 16 IN ADDED 2-7-14	1.00	EACH		$	
1110	24047EC		HYDROSTATIC TEST-16 IN MAIN ADDED 2-7-14	1.00	EACH		$	

PROPOSAL BID ITEMS

141206

Report Date 2/7/14

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1120	**24668EC**		**STEEL ENCASEMENT PIPE32 INCH ADDED 2-7-14**	**240.00**	**LF**		**$**	

Section: 0007 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1130	**02568**		**MOBILIZATION**	**1.00**	**LS**		**$**	
1140	**02569**		**DEMOBILIZATION**	**1.00**	**LS**		**$**	

SUPPLEMENTARY SPECIFICATIONS

KY 155 @ KY 148
- WATER MAIN RELOCATION PROJECT
LWC PROJECT 14005

PROJECT LIMITS

Limits of the referenced project include **KY 155 at KY 148.**

PROJECT SUMMARY

The referenced project consists of the supply and installation of 1,515 +/- linear feet of 16-inch Pressure Class 350 ductile iron water main, 200' +/- linear feet of 16-inch restrained joint ductile iron water main, 240 +/- linear feet of 32-inch steel casing pipe including valves, fittings and tie-ins to existing water mains.
This project is "Supply and Install" and all pipe, casing pipe and fittings shall be supplied by the contractor. All materials supplied by the contractor shall comply with the Buy America requirments. (Fire Hydrants and copper tubing will be supplied by the Louisville Water Company)

SCOPE OF WORK

If there are any conflicts between the water main specification and other utilities specifications regarding design or construction, then the Louisville Water Company current Technical Specifications take precedence.

MATERIALS FURNISHED BY CONTRACTOR

Materials furnished & installed by the CONTRACTOR include but not limited to the following:

A. 16-inch Pressure Class 350 ductile iron non-restrained joint water main
B. 16-inch Pressure Class 350 ductile iron restrained joint water main
C. 16" Gate Valves (Right-hand open)
D. 32-inch Steel Casing Pipe (0.5 inches thick)
E. 16" Plugs
F. 16" – 45 degree Bends
G. 16" – 22 ½ degree Bends
H. 16" – 11 ¼ degree Bends
I. 16" x 16" Tees
J. 16" x 6" anchor tees, 6" Gate Valves
K. Polywrap for all Ductile Iron Pipe
L. 2" Automatic Air Valve Assembly
M. Liquid Chlorine (12.5% Sodium Hypochlorite)

N. Concrete, Asphalt, steel reinforcement & anchors , and joint sealer/filler
O. All EPSC measures
P. Seed and Straw
Q. Bedding and backfill material

GENERAL INFORMATION

All water main work shall be installed by a Louisville Water Company Prequalified Contractor in the category of 4-inch to 16-inch ductile iron water main. For more information on pre-qualification requirements, contact Procurement Services of the Louisville Water Company at 569-3600.

The Contractor is to supply and install the 16-inch Pressure Class 350 ductile iron water main and all other water main appurtenances. The pipe and fittings shall be inspected by the LWC Inspector prior to installation and any defective pipe shall immediately be removed from the job site.

Rock shall be removed using mechanical methods (backhoe, hoe ram, or rock trenching machine). Blasting shall not be permitted unless approved by the Kentucky Transportation Cabinet.

GATE VALVES

In accordance with Section 1.1 of the Technical Specifications, existing valves shall be located and inspected by the contractor prior to the start of the project, and appropriate action taken to correct the problem(s) prior to start of the construction work. Except in cases of emergency, the Contractor shall not operate any valve without direct supervision of the LWC Project Manager or Inspector.

TRAFFIC CONTROL

Traffic control shall be provided by the Contractor in accordance with the Kentucky Transportation Cabinet specifications.

WORK SCHEDULE

Work hours shall be per the Kentucky Transportation Cabinet roadway contract documents. The existing 16-inch water main is one of the critical mains in the system and shutting down the water main must be pre-approved by the LWC Project Manager.

The Contractor shall anticipate the need to work on weekends and nights to complete tie-ins and service transfers involving shut-offs. All such work will be considered incidental to the project and no additional compensation will be provided. As with holidays and any work planned for weekends, this shall be pre-approved by the LWC Project Manager and coordinated with the KYTC Resident Engineer.

In the case of an emergency, the Contractor shall immediately notify the LWC Construction Inspector, Radio Room, and Customer Service along with the KYTC Resident Engineer and/or the KYTC Inspector. Prior to the actual shut-off, the contractor shall contact each customer (door-to-door) to alert customers of the emergency situation and the need to shut-off the main.

PIPELINE CONSTRUCTION

Unless otherwise indicated on the project drawings or modified by these supplementary specifications, all applicable provisions of the “Louisville Water Company Technical Specifications and Standard Drawings for Pipeline Construction" (2008 Edition) shall govern work on this project.

Prior to the start of any water main work at the site, the Contractor and the LWC Construction Inspector along with the KYTC Resident Engineer and the KYTC Inspector shall review the proposed pipeline alignment with respect to the locations marked by BUD and other existing site improvements.

Field modifications to the proposed pipeline alignment may be necessary to avoid or minimize the effects of potential conflicts. To avoid potential conflicts with existing utilities located perpendicular and/or parallel to the proposed main, the Contractor shall anticipate the need to use offsets, bends and fittings when installing the new main, and for large service connections. All such alignment change requires LWC Project Manager and KYTC Resident Engineer prior approval.

Standard burial depth for new water mains is 42 inches, as measured from the top of the finished ground to the top of the newly installed pipe. Situations requiring a depth of burial outside the standard will require prior approval from the Louisville Water Company and the KYTC Resident Engineer.

The Contractor is cautioned that OSHA trench safety standards apply to all excavations.

Prior to completing tie-ins, the type, size and condition of the existing pipe shall be verified. When the existing pipe is other than indicated on the Project Plans, the Construction Inspector or LWC Project Manager shall be contacted immediately to assess the need for revising the tie-in location. All revisions are to be coordinated with the KYTC Resident Engineer and/or the KYTC Inspector. The Contractor shall be compensated in accordance with the supplementary unit prices for any additional pipeline installed to revise the tie-in location.

INSPECTIONS

The Contractor shall notify the LWC Project Manager along with the KYTC Resident Engineer and/or the KYTC Inspector at least 48 hours prior to beginning water line work.

TRENCH CONSTRUCTION

Pipeline bedding and initial backfill shall consist of DGA, manufactured sand or pit-run sand; selected, placed, and compacted in accordance with Section 7 of the Technical Specifications.

When under *pavement (streets, driveways, and entrances)*, the final backfill material shall consist of DGA or pit-run sand placed to within 9-1/2 inches of the final grade elevation, followed by the placement of an 8-inch concrete cap and a 1-1/2 inch asphalt surface.

When under *sidewalks,* the final backfill may consist of on-site excavated material, provided the material is free of objectionable constituents such as large rock, asphalt, concrete, organic material and demolition debris. This backfill material shall be placed and compacted to the subgrade elevation, followed by the placement of a 6-inch layer of DGA and the concrete sidewalk. The surface of the DGA shall be level and free from surface depressions or potholes, and may serve as a temporary sidewalk until the concrete sidewalk is completed.

When under *grassed areas*, the final backfill may consist of on-site excavated material, provided the material is free of objectionable constituents such as large rock, asphalt, concrete, organic material, and demolition debris.

ACCEPTANCE TESTING

A chlorine injection system will be used to fill the new main. The LWC Construction Inspector will provide the equipment and materials (tablet or liquid) needed to inject the chlorine-based solution into the main. The Contractor shall assist the Inspector with the connection of hoses and the operation of valves.

EROSION PREVENTION SEDIMENT CONTROL MEASURES

An erosion control plan is required by MSD and/or Louisville Metro. An erosion control plan shall be prepared by the contractor and submitted to MSD for review and approval. The contractor is responsible for maintaining all erosion control measures within the project limits in accordance with the latest MSD, Louisville Metro and LWC specifications. The contractor is responsible for making all erosion control modifications within the project limits required by MSD, Louisville Metro and/or LWC at no additional cost to LWC. The contractor is responsible to rectify any disputes that may arise due to inadequate erosion control measures as determined by MSD and/or Louisville Metro.

As a minimum, erosion control features shall be provided at catch basins, headwalls and in small ditches where associated construction procedures may cause the transport of sediment into the storm drainage system. Silt Fence must be installed along the trench per MSD's standards. When soil is disturbed within grassy areas, erosion control protection shall also be provided at yard drains. Care will be required to minimize stockpiling or placing backfill or excavated materials on roadways.

SERVICE WORK

Contractor is responsible for obtaining all plumbing permits required for any service work. Prior to beginning service work, including the installation of in-line tees for large services, the work crew (Contractor) shall make a thorough evaluation of each meter vault within the limits of the project. Discrepancies between the field conditions and the Project Plans shall be discussed with the Construction Inspector along with the KYTC Resident Engineer and/or the KYTC Inspector.

The use of copper couplings under paved areas shall be avoided. In situations where the new main is located on the opposite side of the roadway from the existing main or where the existing main is located in the roadway, “long” service transfers shall be completed by advancing a new service line from the new main to the meter vault.

CUSTOMER SERVICES

Prior to beginning any work that requires a shut-down of the main or individual services, the work crew shall make a thorough evaluation of each service connection and meter vault within the limits of the shut-down. Discrepancies between the field conditions and the Project Plans shall be discussed with the Construction Inspector along with the KYTC Resident Engineer and/or the KYTC Inspector.

The contractor shall be responsible for making all connections to the distribution system and the individual customer services.

The type, size and condition of the existing customer service at the property line shall be verified before completing the service reconnection. Where lead is encountered at the property line and an existing property connection is not found, the service crew shall extend the service excavation up to three (3) feet behind the property line to remove additional lead and to search for an existing property connection. The service reconnection shall then be completed at the three-foot distance, or less, if an existing property connection is encountered.

The Contractor shall note that there may be critical customer services located within the limits of this project. Planned water outages affecting these services may require coordination with the effected customers. The Contractor shall provide to the Construction Inspector along with the KYTC Resident Engineer and/or the KYTC Inspector, a minimum two-week prior notice of planned water outages that effect large services (2-inch or larger) or critical customer services connected to medical facilities, schools, or day cares. The Contractor shall anticipate the need to schedule service work and tie-ins requiring planned water outages around the needs of these facilities.

New heavy frame and covers shall be used for meter vaults located in or relocated to paved areas or to areas subject to vehicular traffic.

POST CONSTRUCTION

All in-line and service valves installed and/or operated during the completion of this project shall be inspected after construction to verify that all valves used by the Contractor are left in the proper operating position. Unless otherwise noted, or directed, all gates shall be left (counter-clockwise) open.

WARRANTIES

All pipeline work shall be warranted for two (2) years from the date of Final completion unless specified otherwise.

POLYETHYLENE ENCASEMENT SPECIFICATIONS

Polyethylene encasement shall consist of the following:

A. 8 mil thick (linear low density polyethylene tube type)

B. Conforming to the current AWWA Standard C105-05 shall be used with Ductile Iron Pipe only.

C. Marking requirements for polywrap are as outlined in AWWA C105-05. Polywrap without correct markings will be rejected.

D. Polyethylene adhesive tape must be compatible with polyethylene wrap and must be not be less than 5 mil thick.

E. **Polyethylene encasement shall be the COLOR BLUE**. Other colors will be rejected.

F. Contractor shall provide certificate of compliance for Polywrap.

DUCTILE IRON PIPE AND FITTINGS SPECIFICATIONS

SUBMITTALS

Shop drawings and manufacturer's literature for all CONTRACTOR supplied materials shall be promptly submitted to the LWC PROJECT MANAGER for approval.

The following items shall be submitted before delivery of ductile iron pipe or fittings:

1. Certification by the manufacturer or supplier that the pipe furnished for this project meets all pertinent AWWA Standards.

2. Catalog cuts and installation instructions for boltless restrained joint pipe and mechanical joint retainer glands.

3. Certification that all bolts to be furnished conform to referenced standards.

PIPE SUPPLIER

Ductile iron pipe and fittings shall be as manufactured by an LWC pre-qualified vendor. Approved LWC DIP vendors include US Pipe and Foundry, American Cast Iron Pipe Company, Griffin Pipe Co., and Clow Water Systems Company.

PIPE MATERIAL

Ductile iron pipe shall conform to the latest specifications as adopted by American National Standards Institute, Inc., (ANSI) and American Water Works Association (AWWA). Specifically, ductile iron pipe shall conform to ANSI/AWWA C151/A21.51.

The pipe shall be coated outside with a bituminous coating in accordance with ANSI/AWWA C151/A21.51. The pipe interior shall be lined with two layers of cement mortar and seal coated in compliance with the latest revision of ANSI/AWWA C104/A21.4.

The class of pipe to be furnished shall be pressure class 350.

Testing

Each length of pipe shall be subjected to a hydrostatic proof test as required by ANSI/AWWA C151/A21.51.

Joints

1. Mechanical and Push-On

   Mechanical and push-on joints including accessories shall conform to ANSI/AWWA C111/A21.11.

2. Restrained

   When restrained joints are required, they shall be boltless push-on type. Boltless restrained joints shall be either U.S. Pipe and Foundry "TR Flex", American Ductile Iron Pipe "Flex-Ring", or equal. Restrained joint pipe shall be furnished with a factory welded retaining ring. The use of friction type restrained joints such as "Meg-A-Lug" shall be limited to mechanical joint valves, bends, tees, closure pieces and emergency repairs. **The use of field installed retaining rings such as "Gripper Rings" and "Field Lock Gaskets" will be permitted for 12" and smaller ductile iron water main only.**

FITTINGS

All Ductile Iron Fittings are Furnished LWC

MARKING PIPE

Each pipe, fitting or special section shall have plainly marked thereon:

1. Pipe Class
2. Date of Manufacture
3. Manufacturer's name or trademark
4. On bends, the angle turned thereby
5. Manufacturer's identification number

INSTALLATION

A. Push-On Joints

   The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the gasket and the spigot end. With the spigot end centered in the bell, the spigot end is pushed home.

B. Mechanical Joints

   All components shall be cleaned and lubricated with soapy water prior to assembly. Slip the follower gland and gasket over the pipe plain end making sure the small side of the gasket and lip of the gland face the bell socket.

Insert the plain end into socket. Push gasket into position with fingers, gasket should be evenly seated.

Slide gland into position, insert bolts and tighten by hand. Bolts are then tightened alternately (across from one another) to the following normal torques:

Bolt Size	Torque Range (Foot-Pounds)
0.50"	40 - 60
0.75"	60 - 90
1"	70 - 100
1.25"	90 – 120

C. Restrained Joints

1. Push-On

Assemble and install the push-on joint according to the manufacturer's recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener.

During "pushing home" of any style piping, timber shall be placed between the jacking device (backhoe bucket, pipe jack, etc.) and the pipe being driven home.

VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all gate valves and appurtenances as shown on the Project Drawings and as specified herein. Supplier shall design, manufacture, shop test, and deliver all valves and accessories, including actuators in strict accordance with American Water Works Association (AWWA) Standard C515-09, AWWA Standard For Resilient Seated Gate Valves

B. The equipment shall include but is not limited to the following:

1. Gate Valves
2. Air Release/Vacuum Valves

1.02 RELATED WORK

A. Piping is included in Division 2.

1.03 DESCRIPTION OF SYSTEMS

A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of wastewater, sludges, water, air, or chemicals, depending on the applications.

1.04 QUALIFICATIONS

A. The gate valves shall be Iron body, Resilient Seat Gate Valve as manufactured by United States Pipe and Foundry Company, of Birmingham, Alabama; or American Flow Control Series 2500, or an approved equal. For proposed equals, the CONTRACTOR shall submit manufacturer's information and specifications to the LWC Project Manager, no later than 5 working days before the scheduled bid opening, for PRE-APPROVAL as an equal. All valves and appurtenances shall be of the size shown on the Project Drawings and as far as possible all equipment of the same type shall be from one manufacturer. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.

1.05 SUBMITTALS

A. Complete Shop Drawings of all valves and appurtenances shall be submitted to the LWC Project Manager for approval in accordance with the requirements of Section 01300.

1.06 OPERATING INSTRUCTIONS

A. Manufacturer's operating and maintenance instructions in ten (10) sets shall be furnished to the LWC Project Manager for equipment furnished under this Section and shall be in accordance with Section 01300.

B. The valve manufacturer shall supply and integrally mount all valve operators at the factory. The valve and operators shall be shipped as a unit.

C. All valves shall open clockwise (to the right).

D. Valve operator shall be provided with enclosed bevel gearing to reduce the torque required to operate the valve. The maximum required input torque to the actuator shall not exceed 125 foot-pounds, and shall meet AWWA Class 150B maximum operating torque for the respective valve. The actuators shall be full gasket, suitably seal, grease-packed for life, and designed to withstand submersion in water to 10 psi.

E. The actuator shall be fitted with a 2-inch AWWA valve-operating nut, cast iron.

F. The number of turns shall not be less 3 times the valve diameter (inches) or more than 4 times the valve diameter to open or close the valve.

1.07 TOOLS

A. Special tools, if required for normal operation and maintenance shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.
2. All valves and appurtenances shall have the name of the manufacturer, flow direction arrows, and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.

3. Except as otherwise shown on the Drawings or specified herein, all valves with operators located 6 feet or more above the operating floor shall be provided with chain wheel operators complete with chain guides and galvanized steel chain.

4. All valves shall open Right (clockwise).

2.02 PRODUCTS

A. Gate Valves

1. General Requirements.

a. Unless otherwise specified below, these requirements shall apply to all gate valves.

b. Gate valves shall meet the requirements of AWWA C500 and AWWA C515-09 as applicable to the type of valve specified.

c. Buried and submerged valves shall be furnished with mechanical joints and stainless steel hardware; non-rising stem design.

d. Exposed valves shall be furnished with Class 250 flanged ends; provide valves with outside screw and yoke. Exposed valves 16-inch and larger shall be furnished with a valve bypass.

e. The valve body, bonnet and gate castings shall be constructed of ductile iron, and shall have full shell thickness according to AWWA C515-09, table 2, section 4.4.

f. Rising stem valves shall be sealed with adjustable and replaceable packing; valve design must permit packing replacement under operating system pressures with only moderate leakage.

g. Non-rising stem valves shall use a double O-ring stem seal, except that packing shall be used where geared operators are required.

h. Except as otherwise specified, valves shall be rated for the following working water pressures:

Valve Size	Pressure (psig)
3-inch to 48-inch	250

All valve bodies shall be hydrostatically tested to at least twice the rated working water pressure. In addition, valves shall be seat-tested, bi-

directional at the rated working pressure, with a bubble tight seal. Provide certificates of testing.

i. Flanged valves to have face-to-face dimensions per ANSI C115.

j. All bonnet and packing gland bolts shall be zinc or cadmium electroplated steel; packing gland bolts shall have bronze nuts.

k. All valves shall be marked per AWWA Standards, including name of manufacturer, valve size and working pressure and year of manufacture.

l. Resilient-seated gate valves shall conform in all respects to ANSI/AWWA C515-09 with non-rising stems, fully bronze mounted with O-ring seals. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of AWWA Specification C-500. Valves shall have a rated working pressure of 250 psi, and test pressure of 500 psi and shall be opened by turning clockwise only.

m. Shall be designed for buried service where groundwater may completely submerge the valve and actuator. Gate valves shall be furnished with mechanical joint end connections with stainless steel hardware T-316, unless otherwise shown on the plans or specified herein. The end connections shall be suitable to receive ductile iron pipe. All gate valves shall be mechanically restrained to pipe utilizing a positive mechanical restraint such as American's Coupling Gland Ends, or equal, employing stainless steel 316 bolts and nuts. No friction type restraint such as Megalugs will be acceptable.

n. Shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve. The valve body shall be ductile iron

o. Shall be installed in a horizontal stem position, with actuator located in a manhole vault. (At the time of shop drawing review, the LWC Project Manager will advise which side of the valve the actuator will be located.)

p. Subjected to a non-shock shutoff pressure of as much as 150 psi in the event of an emergency closure.

q. Shall be used for potable water service with a temperature range of 34 degrees F to 85 degrees F and a pH range of 8.0 to 8.5

2. Valve Applications

a. Valves for Potable Water Service.

b. Gate Valves shall be resilient seated Metroseal manufactured by U.S. Pipe, or equal.

3. Valve Requirements

a. Resilient Seated
- Conform to AWWA C515-09.
- Internal and external epoxy of valve body, including bonnet, per AWWA C550.
- Gate shall be encapsulated with synthetic rubber. It shall be bonded and vulcanized in accordance with ASTM B429 Method B.
- No recesses in valve body.
- Valves shall be installed in the vertical position.

4. Buried Valves

a. Conform to the requirements above, except mechanical joint bell ends per AWWA C111. All exposed valve hardware (nuts, bolts, washers, etc.) including bonnet, bonnet cover, stuffing box, gear adaptor and joints shall be Type 316 stainless steel.
b. Non-rising stem design, double O-ring seals for non-geared valves and shall incorporate packing for geared valves.
c. Provide valve box, 2-inch operating nut and extension stem and stem cover, and tee handled valve wrenches.

B. Air Release and Vacuum Valves

1. The contractor shall supply and install a 2-inch Combination A.R.I. Flow Control Accessories LTD.; Model D-040-C Air Valve or equivalent that has the features of both an air release valve and an air & vacuum valve. The air release component shall be designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under working pressure. The air & vacuum component shall be designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. The valve shall open to relieve negative pressures whenever water column separation occurs. The valve shall have the capability to be installed on either a blind flange on a 36” x 24” tee or directly on the pipe. The shell of the valve shall be cast iron epoxy coated and meet ASTM A48 CL.35B. The Valves shall be tight against leakage and shall have a minimum working pressure of 250 psi and a minimum testing pressure of 360 psi.

2. The air release vacuum valve shall be comprised of a small orifice assembly and large orifice assembly housed in a single body. The large orifice assembly shall exhaust air from a pipeline during the initial filling of

the pipeline. The large orifice assembly shall not blow shut while exhausting air, even while venting air at sonic velocity. When all air has been exhausted from the pipeline, the large orifice float ball shall be buoyed up to seat tightly against a resilient seat ring. The large orifice float ball shall remain tightly closed while the pipeline is under positive pressure. Should the pipeline pressure fall below atmospheric pressure, the large orifice float ball shall fall away from the seat ring and permit air to enter the pipeline.

The small orifice assembly shall automatically release air accumulations from the pipeline while under positive pressure. When the valve body fills with air, the small orifice float ball falls to open the small orifice and exhaust the air to atmosphere. When the air has been exhausted, the small orifice float shall be buoyed up and tightly close the small orifice. There shall be no baffles, deflectors, or stems.

In addition, each valve shall be furnished with a flanged gate valve for isolation purposes.

3. The valve body and covers shall be of ASTM A126, Class B cast iron construction. Large and small orifice float balls shall be 302 stainless steel, ASTM A240. The float arm, leverage arm and link shall be 304 stainless steel. The pivot pin shall be 18-8 stainless steel.

PART 3: EXECUTION

3.01 INSTALLATION

A All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the LWC Project Manager before they are installed.

B After installation, all valves and appurtenances shall be tested at the same duration and pressure as the piping system they are in. If any joint proves to be defective, it shall be repaired to the satisfaction of the LWC Project Manager.

C Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the Drawings that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the Contractor shall check all plans and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.

D All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment which do not operate easily, or are otherwise defective, shall be repaired or replaced at not additional cost.

E Unless otherwise specified or approved by the LWC Project Manager, all newly installed gate valves shall maintain a minimum 12” of cover as measured from the top of ground elevation to the top nut elevation.

F All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to these items shall be repaired to the satisfaction of the LWC Project Manager before they are installed.

G After installation, all valves and appurtenances shall be tested at least one (1) hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the LWC Project Manager.

H All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning; and all nuts and bolts checked for tightness. Valves and other equipment that do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.

3.02 SHOP PAINTING

A Interior surfaces of all valves except the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.

B. The exterior surface of various parts of valves, operators, floorstands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter one shop coat of an approved rust-inhibitive primer such as Inertol Primer No. 621 shall be applied in accordance with the instructions of the paint manufacturer. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.

C General - The finish coating materials shall be suitable for potable water service, and shall conform to the applicable requirements of the latest revision to AWWA C550, Protective Interior Coatings for Valves and Hydrants. All internal and external surfaces, except finished or bearing surfaces, shall be shop-cleaned and coat-applied in accordance with this Specification and with the applicable Steel

Structure Painting Council (SSPC) Specifications. A light color shall be used to enhance inspection and maintenance.

D Surface Preparation - Surface irregularities, such as weld spatter, burrs, and sharp or rough edges, shall be eliminated prior to surface preparation. Surfaces shall be prepared in accordance with Steel Structures Painting Council Specifications SP-6, Commercial Blast Cleaning, with 1.5-3.0 mils profile depth. If grease or spills are present, solvent cleaning to SSPC SP-1 quality must precede SP-6.

E Paint System and Application - Coatings shall be applied in accordance with the recommendations found in SSPC PA-1, Shop, Field, and Maintenance Painting. The paint system shall be a two-coated catalyzed epoxy system for ferrous and non-ferrous metals subject to chemical corrosion or physical abrasion. The first coat shall be a high-build catalyzed epoxy with a minimum 50 percent solids applied by volume, applied at 6 - 8 mils (dry). The second coat shall be the same as the first coat. The system's total thickness shall be 12 mils (dry) minimum, and shall be holiday-free when tested in accordance with AWWA C550, using a holiday detector such as Tinker and Raser MI/AC.

3.03 INSPECTION AND TESTING

A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field-tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the LWC Project Manager.

B. Valve and Actuator - The test program outlined in AWWA Specification C515-09 shall be followed for Performance, Leakage, and Hydraulic tests, except, that the provision to substitute a hydrostatic test (Section 5.2.2.2) shall be disallowed, and valves are to be tested in both directions. A copy of a previous proof-of-design test shall be acceptable. The Supplier shall submit an affidavit of compliance with testing and other provisions of AWWA C515-09, as modified herein, with the submittal required by Part 1.03 above. The Supplier shall send a certification of compliance of capabilities of the actuators furnish as a component of each unit.

C. Coating - The Supplier shall submit an affidavit of compliance, signifying that the coating and application complies with the requirements of AWWA C550 Protective Interior Coatings for Valves and Hydrants and Steel Structure Painting Council's Steel Structures Painting Manual, Volumes 1 and 2. Test data related to the requirements of Section 2 and the toxicological compatibility of the coating materials with potable water application shall be submitted along with the affidavit.

3.04 Flange Isolation Kits

Flange Isolation Kit Specification

Materials for flange isolation kits on pipes containing natural gas, oil and aqueous fluids (up to 280ºF, 138ºC) shall consist of the following components:

Isolating and Sealing Gasket

One full faced isolating and sealing gasket, LineBacker Type “E”, 1/8” thick, G-10 retainer containing a precision tapered groove to accommodate the controlled compression of a Teflon (or Viton) quad-ring sealing element. Sealing element placement shall accommodate either flat, raised face or RTJ flanges. The quad-ring seal shall be pressure energized. The G-10 retainer shall have a 550 volts/mil dielectric strength and a minimum 50,000 psi compressive strength. The full faced flange isolating gasket shall be 1/8” less in I.D. than the I.D. of the flange in which it is installed.

Full Length Bolt Isolating Sleeves

One full length G-10 sleeve (extending half way into both steel washers) for each flange bolt. The G-10 shall be a 1/32 inch thick tube with a 400 volts/mil dielectric strength and water absorption of 0.10% or less.

Washers

Two, 1/8 inch thick, G-10 isolating washers for each bolt. Their compressive strength shall be 50,000 psi, dielectric strength 550 volts/mil and water absorption of 0.10% or less. Two, 1/8 inch thick zinc plated, hot rolled steel washers for each bolt. The I.D. of all washers shall fit over the isolating sleeve and both the steel and isolating washers shall have a same I.D. and O.D.