

## JANUARY 2019

A map showing the project location. The map includes the following roads and landmarks:

- Roads:** NW Quarry Park Rd, NW Lowenstein Dr, NW Blackhawk Ln, NW Chipman Rd, Ashurst Dr, and NW Pryor Rd.
- Highways:** Highway 470 (NW Lowenstein Dr) and Highway 50 (NW Pryor Rd).
- Project Location:** A black rectangular area labeled "PROJECT LOCATION" is situated between NW Blackhawk Ln and NW Pryor Rd, and between NW Chipman Rd and Ashurst Dr.
- North Arrow:** A north arrow is located in the top left corner of the map.
- Scale:** A scale bar is located in the bottom left corner of the map, with the text "NOT TO SCALE" below it.

## INDEX TO SHEETS

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<b><u>Summary of Quantities</u></b>			
<b><u>Water Main</u></b>			
<b>Item No.</b>	<b>Item</b>	<b>Estimated Quantity</b>	<b>Unit</b>
1	Connect to Existing Water Main	4	Ea.
2	6" Fire Line Main	208	L.F.
3	6" Water Main	41	L.F.
4	8" Water Main	445	L.F.
5	12" Water Main	1808	L.F.
6	1" Copper Water Service Line	164	L.F.
7	Fire Hydrant with 6" Valve	4	Ea.
8	Temporary Fire Hydrant	1	Ea.
9	Temporary Fire Hydrant with 8" Valve	3	Ea.
10	6" Gate Valve	1	Ea.
11	8" Gate Valve	6	Ea.
12	12" Butterfly Valve	6	Ea.
13	12"x8"x8" Tee	2	Ea.
14	12"x12"x8" Tee	2	Ea.
15	12"x12"x6" Tee	2	Ea.
16	Air Release Valve	1	Ea.
<b><u>Erosion Control</u></b>			
<b>Item No.</b>	<b>Item</b>	<b>Estimated Quantity</b>	<b>Unit</b>
1	Erosion Control Devices, Sedimentation Fence	2140	L.F.
2	Erosion Control Devices, Curb Inlet Protection	234	L.F.
3	Seed	0.66	AC

**CAUTION – NOTICE TO CONTRACTOR**

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND FIELD SURVEYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. **THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.**

**SAFETY NOTICE TO CONTRACTOR**

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONNEL AND THE PROTECTION OF EXISTING UTILITIES AND ADJACENT WORK. THE CONTRACTOR WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

**WARRANTY / DISCLAIMER**

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE EVENT OF A SPECIFIC CASE-LY ENGINEERING DESIGN ERROR. THE CONTRACTOR SHALL MAINTAIN AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.

<b>OWNER:</b> STREETS OF WEST PRYOR, LLC 7200 WEST 132ND STREET OVERLAND PARK, KS 66213 CONTACT: MATT PENNINGTON email: matt@doakc.com	<b>DEVELOPER:</b> STREETS OF WEST PRYOR, LLC 7200 WEST 132ND STREET OVERLAND PARK, KS 66213 AGENT: DAVID N. OLSON email: daveolson@monarchprojectllc.com
<b>PREPARED BY:</b> KAW VALLEY ENGINEERING, INC. 2319 N. JACKSON JUNCTION CITY, KS 66441 785-762-5040 CONTACT: LEON D OSBOURNE EMAIL: ldo@kvenj.com	

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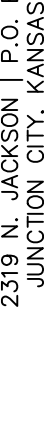
MISSOURI ONE CALL SYSTEM, INC.

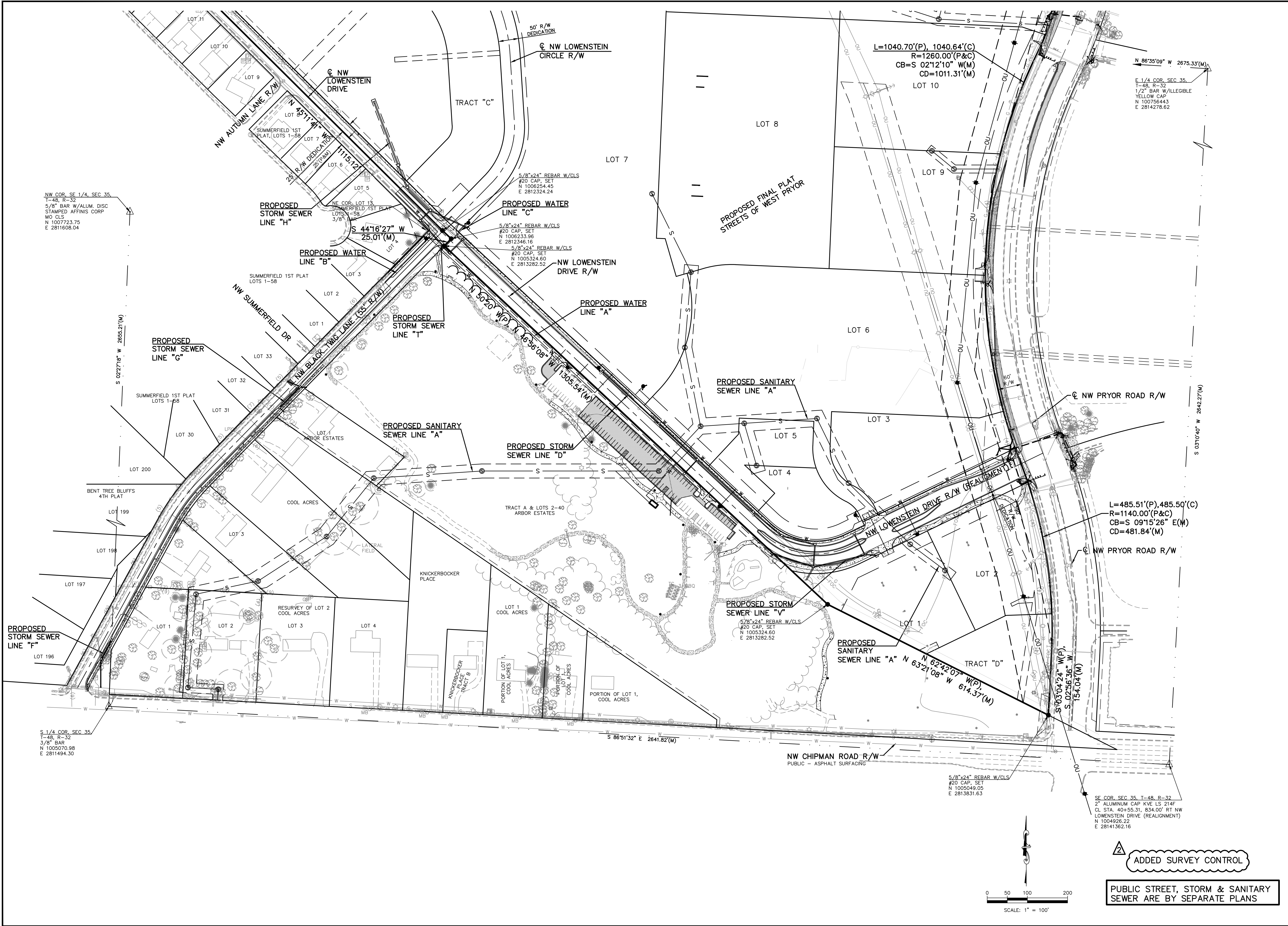
**DATUM BENCHMARK:**  
VERTICAL DATUM IS NAVD 88 ESTABLISHED USING OPUS PROJECTS ON PROJECT CONTROL POINT.

**BENCHMARKS:**

BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=985.05

BM #2: CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25'± EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE AT 90° BEND IN ROAD. ELEV=971.06

<b>STREETS OF WEST PRYOR</b> <b>NWQ NW PRYOR ROAD &amp; NW LOWENSTEIN DRIVE</b> <b>LEE'S SUMMIT, MISSOURI</b>				2319 N. JACKSON   P.O. BOX 1304 JACKSON, MISSOURI 64402 PH. (785) 762-5040   FAX (785) 762-7744 jce@kveeng.com   www.kveeng.com		LEON D. OSBOURN ENGINEER MO # 021726					
		<b>WATER LINE PLANS</b> <b>TITLE SHEET</b>		KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19							
PROD. NO.		<b>A14-7067-1</b>									
DESIGNER		<b>LDO</b>		DRAWN BY		<b>JT/BKR</b>					
CFN		<b>7067-1W_TS</b>									
SHEET		<b>C-1</b>		REV		<b>1</b>					



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STREETS OF WEST PRYOR NWQ NW PRYOR ROAD & NW LOWENSTEIN DRIVE LEE'S SUMMIT, MISSOURI		WATER LINE PLANS GENERAL LAYOUT SHEET	
PROJ. NO.	A14-7067-1	DESIGNER	LDO
DRAWN BY	JT/BKR	CFN	7067-1W_GLS
SHEET	1	REV	1
C-2	1	REV	1

LEON D. OSBOURN  
ENGINEER  
MO # 021726

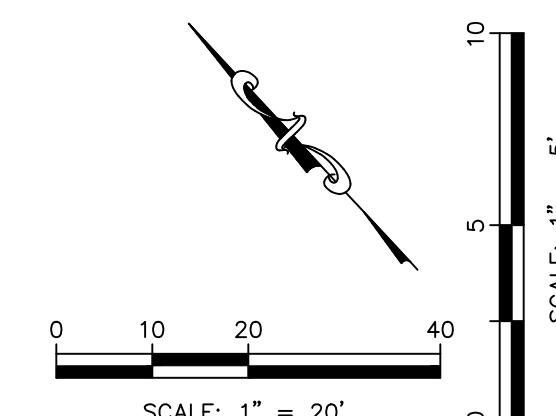
2319 N. JACKSON | P.O. BOX 1304  
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PH. (785) 762-5040 | FAX (785) 762-7744  
www.kawvalley.com | www.kawvalley.com

**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.  
EXPIRES 12/31/19

STATE OF MISSOURI  
LEON D. OSBOURN  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER 021726  
EXPIRES 12/31/19

REVISIONS

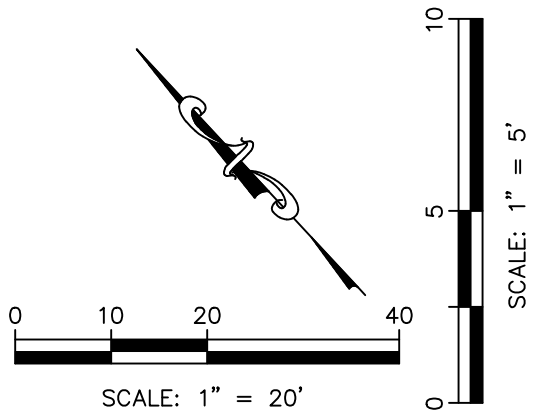
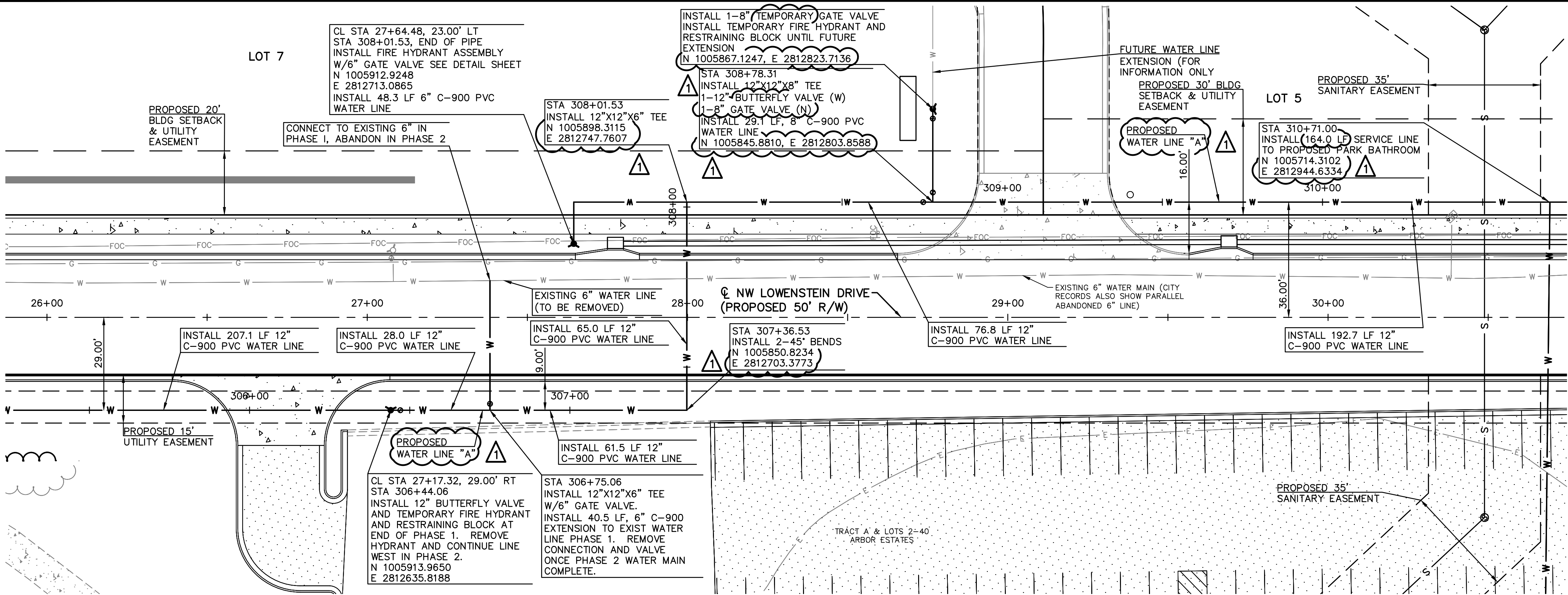
REV	DATE	DESCRIPTION
0	1-4-19	INITIAL ISSUE
1	2-26-19	REVISED PER CITY COMMENTS



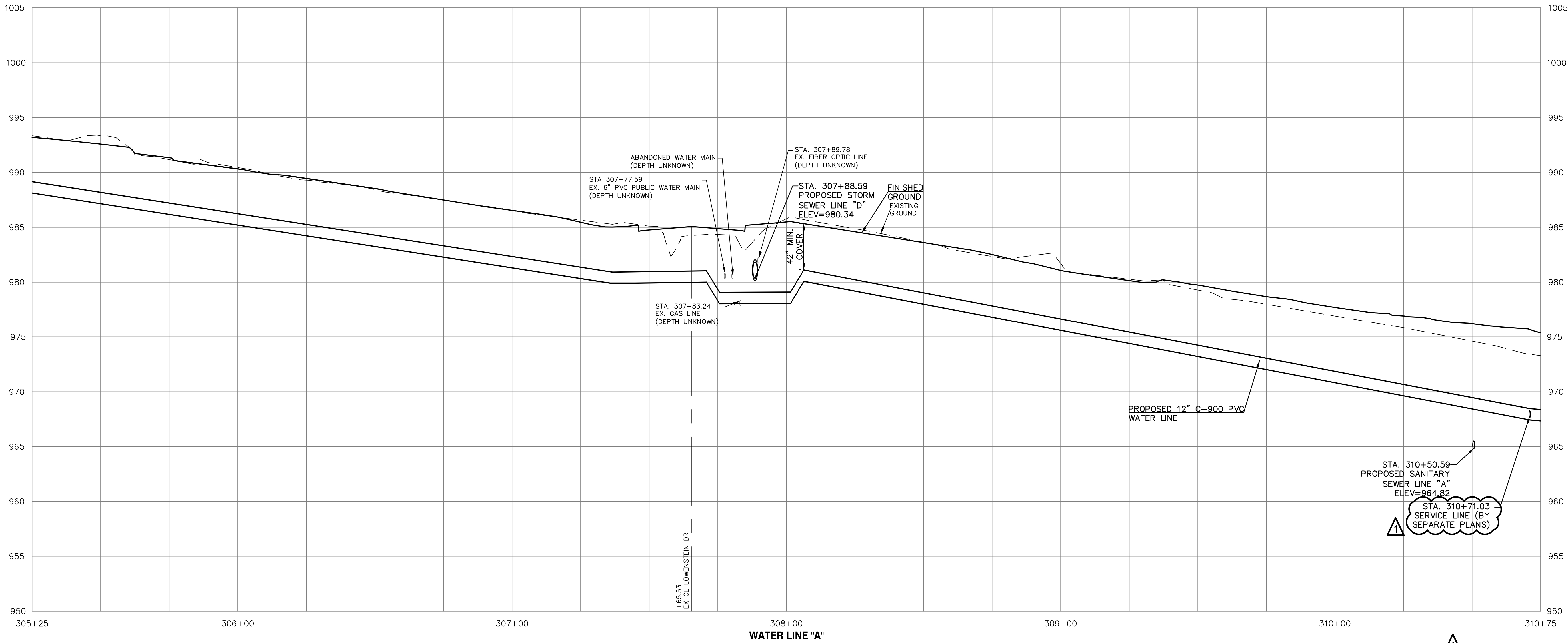
NOTE:  
AT ALL SANITARY SEWER AND STORMWATER CROSSINGS, THE WATER LINE SHALL BE INSTALLED WITH A MINIMUM VERTICAL CLEAR DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. A FULL LENGTH OF WATER PIPE (MINIMUM 20 FT) SHALL BE LOCATED WITH THE CENTER OF PIPE AT THE CROSSINGS SO THAT BOTH JOINTS ARE AS FAR FROM THE SEWER AS POSSIBLE.



<b>STREETS OF WEST PRYOR</b> <b>NWQ NW PRYOR ROAD &amp; NW LOWENSTEIN DRIVE</b> <b>LEE'S SUMMIT, MISSOURI</b>		<b>WATER LINE PLANS</b> <b>WATER LINE A - PLAN &amp; PROFILE</b>	
PROJ. NO. <b>A14_7067-1</b>		DESIGNER <b>LD0</b> DRAWN BY <b>JT/BKR</b>	
CFN <b>7067-1W_WPP</b>		REV	
SHEET <b>C-3</b>		1	

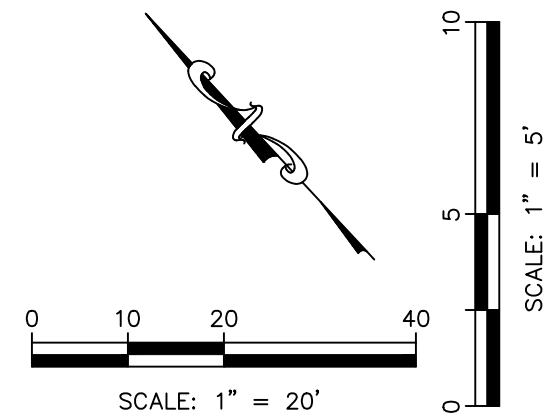
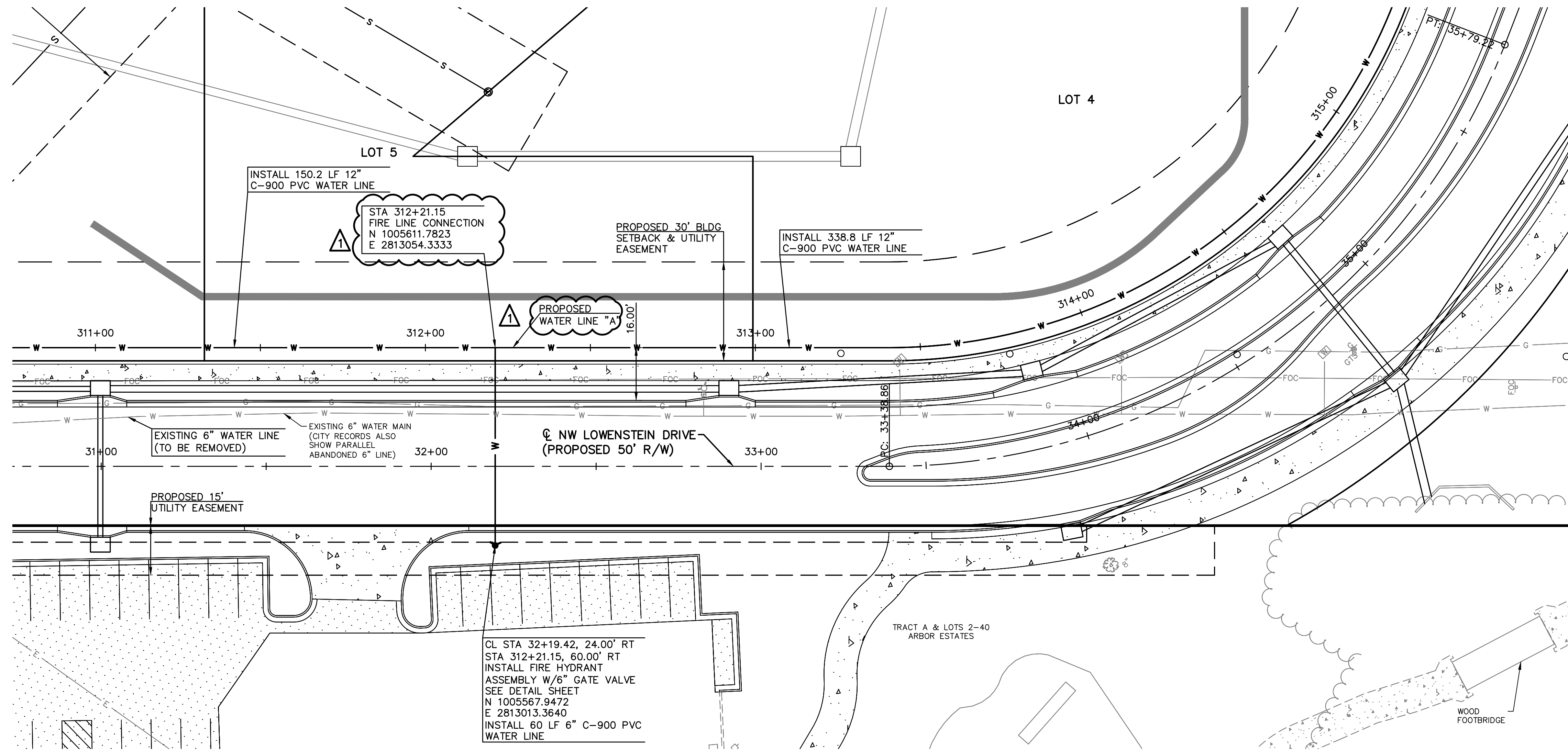


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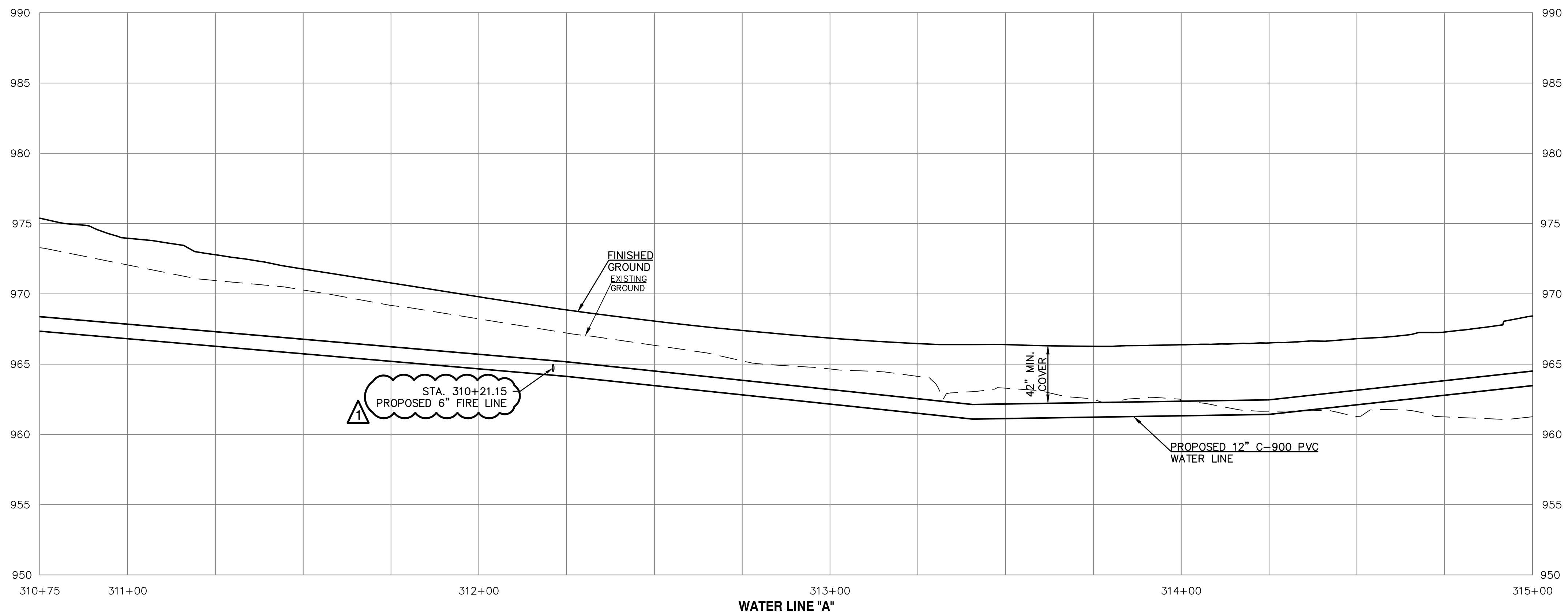


PUBLIC STREET, STORM & SANITARY  
SEWER ARE BY SEPARATE PLANS

PROJ. NO. A14-7067-1		DESIGNER LDO	DRAWN BY JT/BKR
CFN 7067-1W_WPP		REV C-4	1
SHEET		REV	1
STREETS OF WEST PRYOR NW/4 NW PRYOR ROAD & NW LOWENSTEIN DRIVE LEE'S SUMMIT, MISSOURI		WATER LINE PLANS WATER LINE A - PLAN & PROFILE	
KAW VALLEY ENGINEERING 2319 N. JACKSON   P.O. BOX 1304 JUNCTION CITY, KANSAS 66441 PH. (785) 762-5040   FAX (785) 762-7744 jke@kaveng.com   www.kaveng.com		LEON D. OSBOURN ENGINEER MO # 021726	
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19		STATE OF MISSOURI JUNCTION CITY NUMBER 21726 EXPIRATION DATE 12-31-19 REGISTERED PROFESSIONAL ENGINEER	
REV		DATE	DESCRIPTION
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		LDO	DN
		JT/BKR	CHK
		LDO	



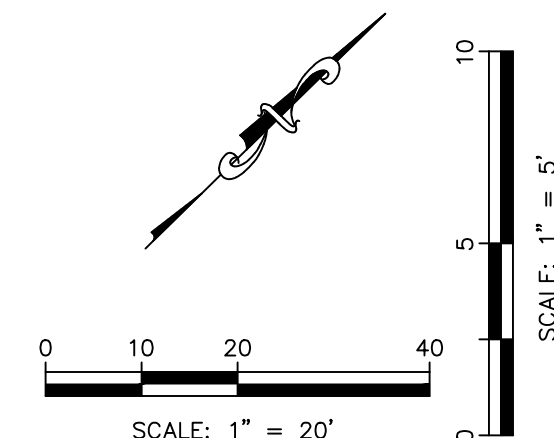
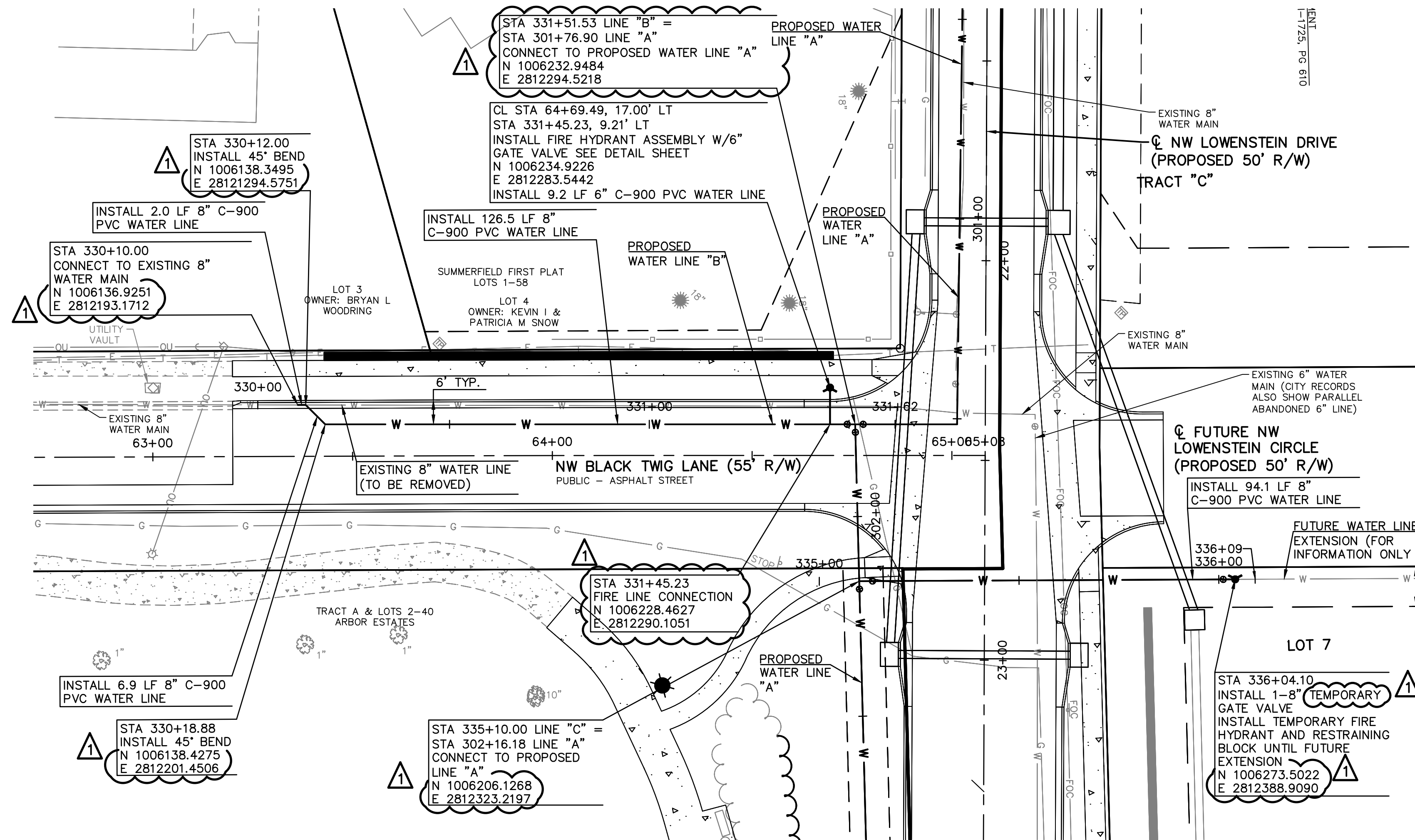
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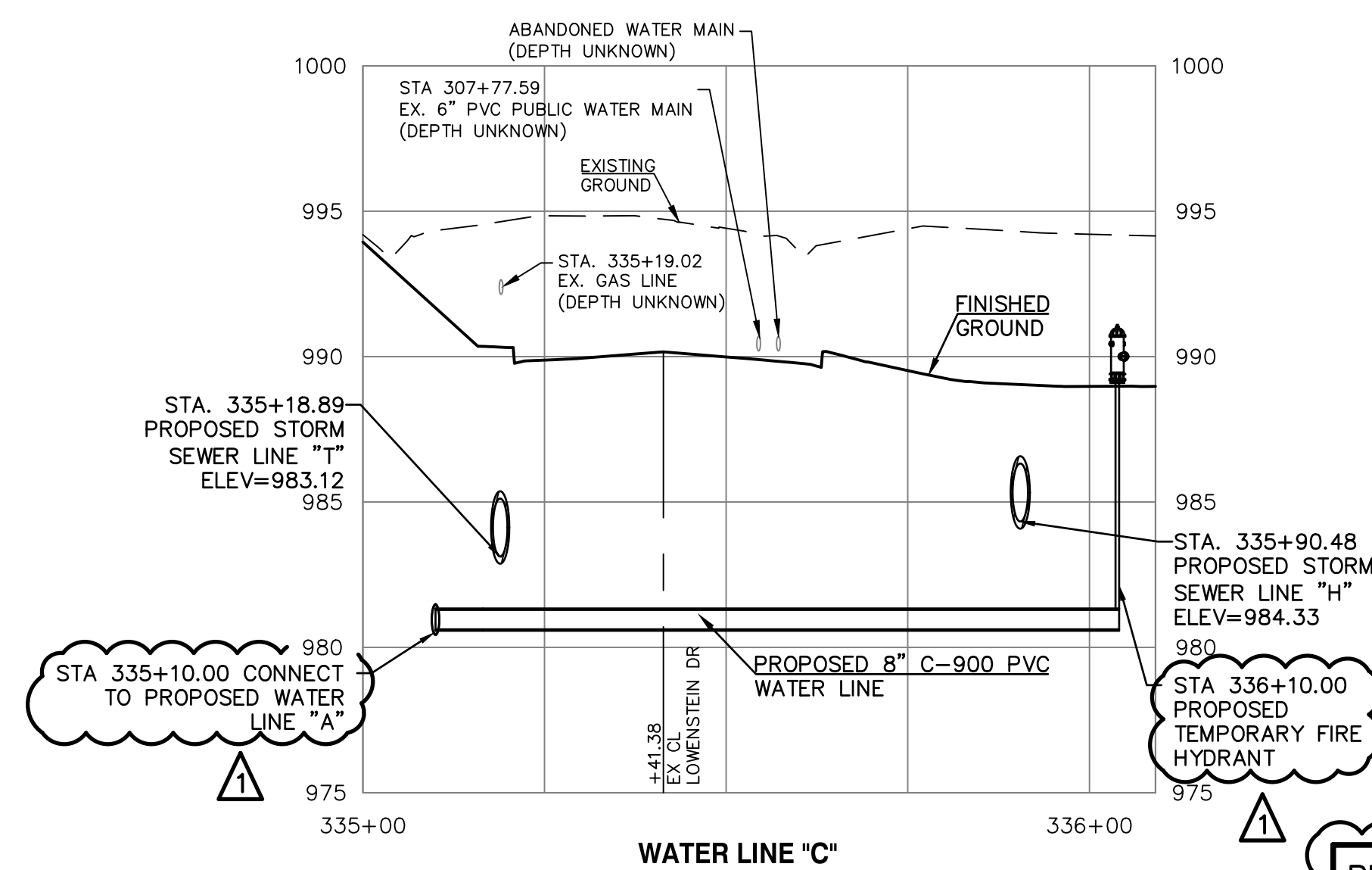
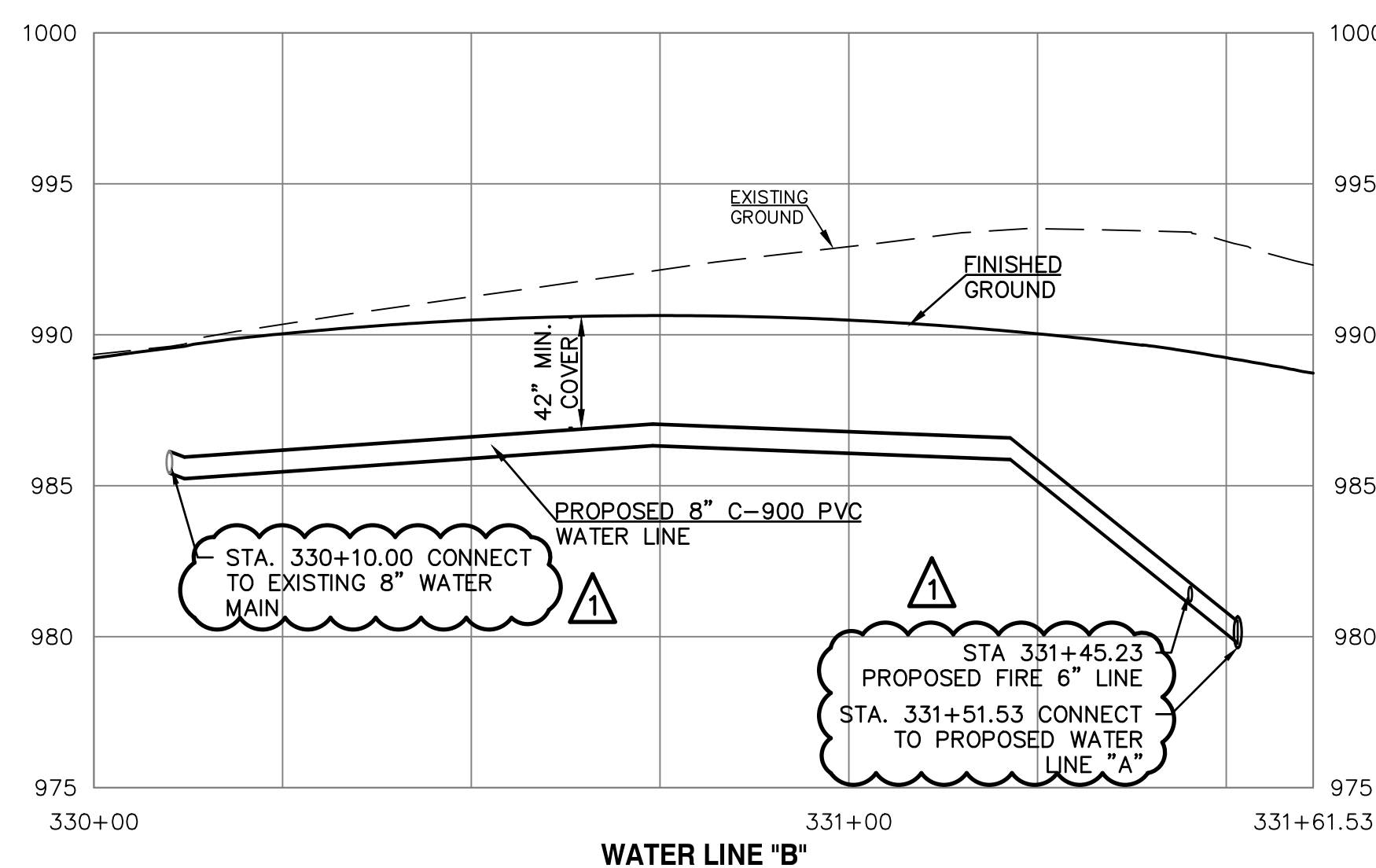
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PUBLIC STREET, STORM & SANITARY  
SEWER ARE BY SEPARATE PLANS

		LEON D. OSBOURN ENGINEER MO # 021726
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<b>STREETS OF WEST PRYOR</b> NW/4 NW PRYOR ROAD & NW LOWENSTEIN DRIVE LEE'S SUMMIT, MISSOURI		
<b>WATER LINE PLANS</b> WATER LINE A - PLAN & PROFILE		
PROJ. NO. <b>A14-7067-1</b>	DESIGNER <b>LDO</b>	DRAWN BY <b>JT/BKR</b>
CFN <b>7067-1W_WPP</b>	SHEET <b>C-5</b>	REV <b>1</b>
REV DATE DESCRIPTION		DSN DWN CHK
0 1-4-19 INITIAL ISSUE	1 2-26-19 REVISED PER CITY COMMENTS	LDO JT/BKR LDO LDO





NOTE:  
AT ALL SANITARY SEWER AND STORMWATER CROSSINGS, THE WATER LINE  
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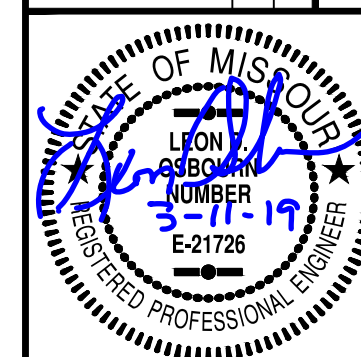


PUBLIC STREET, STORM & SANITARY  
SEWER ARE BY SEPARATE PLANS

STREETS OF WEST PRYOR  
NWQ NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI

WATER LINE PLANS  
WATER LINE B & C - PLAN & PROFILE

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1W_WPP
SHEET	1
REV	
C-7	

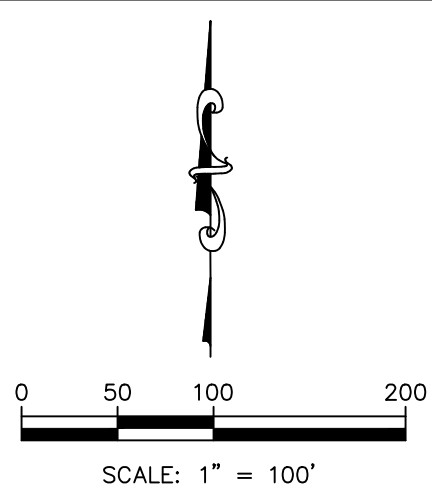
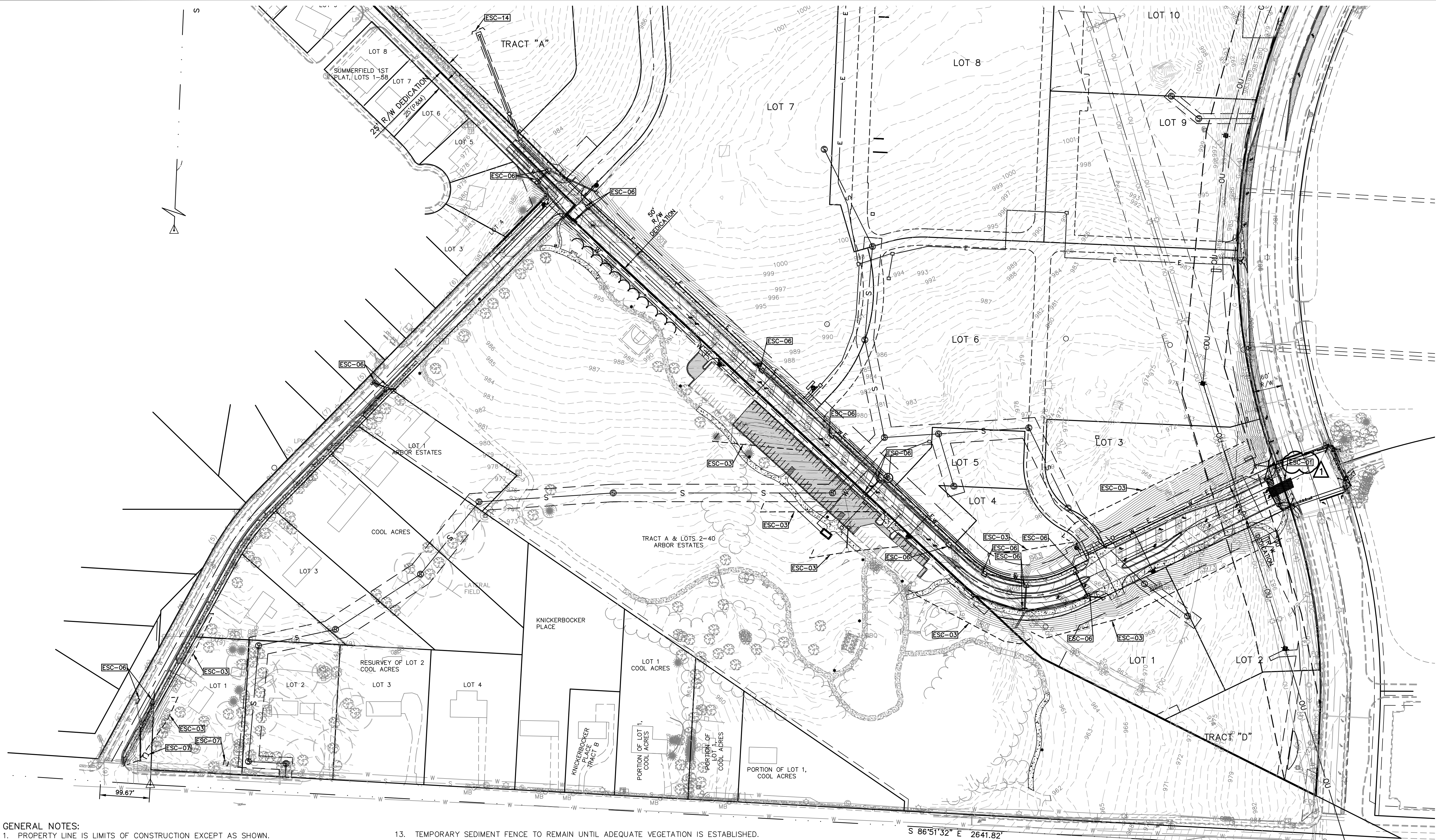


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**KAW VALLEY ENGINEERING**

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING  
SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.  
EXPIRES 12/31/19



- GENERAL NOTES:**
- PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
  - THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
  - THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
  - ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
  - A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
  - ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
  - SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.
  - CURB INLET SEDIMENTATION BARRIERS ARE TO BE INSTALLED AROUND INLETS AND WEIRS WHERE SEDIMENTATION IS A CONCERN. INLET BARRIERS SHALL BE EITHER BLOCK AND GRAVEL, OR SECURED STRAW BALES, OR SILT FENCE.
  - SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.
  - RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).
  - CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.
  - THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR AS NECESSARY TO INSTALL AND MAINTAIN ADEQUATE EROSION AND SILTATION CONTROLS REQUIRED TO PREVENT SOIL EROSION FROM LEAVING THE PROJECT SITE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT METHODS UTILIZED ARE ADEQUATE AND COMPLY WITH REQUIREMENTS OF THE SPECIFICATIONS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.

- TEMPORARY SEDIMENT FENCE TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
- MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
- INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ON GOING THROUGHOUT THE LIFE OF BUILDING CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR GOVERNING INSPECTION AGENCIES.
- INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.
- AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDED, SODDED, OR LANDSCAPED AS SHOWN ON THE LANDSCAPE PLAN WITHIN 14 DAYS.
- TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
- STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
- ROCK LINING (RIPRAP) SHALL BE DURABLE STONE CONTAINING A COMBINED TOTAL OF NOT MORE THAN 10 PERCENT OF EARTH, SAND, SHALE AND NON-DURABLE ROCK. AT LEAST 60 PERCENT OF THE MASS SHALL BE OF PIECES HAVING A MINIMUM WEIGHT OF 150 POUNDS OR MORE PER CUBIC FOOT.
- THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR RESOLVING COMPLAINTS IN THE EVENT THAT COMPLAINTS OR DAMAGE CLAIMS ARE FILED DUE TO DAMAGES OCCURRING ADJACENT TO OR DOWNSTREAM FROM PROPERTY BY SEDIMENT RESULTING FROM EROSION ON THE PROJECT SITE.
- GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.

**CONTRACTOR TO COORDINATE EROSION CONTROL WITH MASS GRADING CONSTRUCTION AND LOWENSTEIN DRIVE IMPROVEMENTS IN PHASES**

- ALL FUELING FACILITIES PRESENT ON SITE SHALL ADHERE TO APPLICABLE FEDERAL AND STATE REQUIREMENTS CONCERNING UNDERGROUND STORAGE, ABOVE GROUND STORAGE AND DISPENSERS, INCLUDING SPILL PREVENTION, CONTROL AND COUNTER MEASURES.
- RIGHT OF WAY TO BE STABILIZED AS REQUIRED BY APWA SECTION 2400.
- EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.
- MINIMAL WASHING OF CONCRETE EQUIPMENT ALLOWED, CHUTE ETC. CONCRETE WASHOUT OF THE DRUM IS NOT ALLOWED. ANY PIT/WASHOUT AREA NEEDS TO BE MAINTAINED IN A NON-DISCHARGING MANNER AND ANY WASTE RESIDUE WILL NEED TO BE CLEANED OUT AND REMOVED AT THE END OF PROJECT.
- EROSION CONTROL SEDIMENT FENCE TO BE INSTALLED 1'-0" BEHIND CURB & GUTTER UPON COMPLETION OF BACKFILL OF CURB IN ALL AREAS WHERE SLOPES FROM LOT DRAIN TOWARDS CURB. UPON COMPLETION OF FINAL GRADING THE TOES OF ALL EMBANKMENTS IN EXCESS OF TWO FEET IN HEIGHT WILL HAVE EROSION CONTROL SEDIMENT FENCE INSTALLED.

- DETAILS - SEE EROSION CONTROL DETAIL SHEETS FOR THE FOLLOWING DETAILS
- ESC-01 CONSTRUCTION ENTRANCE DETAIL
  - ESC-03 SILT FENCE
  - ESC-06 CURB INLET PROTECTION
  - ESC-07 AREA INLET AND JUNCTION BOX PROTECTION
  - ESC-14 OUTLET PROTECTION

**EROSION & PROPOSED IMPROVEMENTS LEGEND:**

- 970--- EXISTING GROUND CONTOUR (1' INTERVALS)
- 970 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- SILT FENCE
- INLET PROTECTION

		LDO	JT	LDO	CHK
		LDO	JT/BKR	LDO	
		REVISED PER CITY COMMENTS			
		0	1-4-19	INITIAL ISSUE	
		1	2-26-19	DATE	
		0	1-4-19	REV	

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EXPIRES 12/31/19

**STREETS OF WEST PRYOR**  
NW/4 NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI

**WATER LINE PLANS**  
EROSION CONTROL PLAN

PROJ. NO. A14-7067-1	
DESIGNER LDO	DRAWN BY JT/BKR
CFN 7067-1W_ECP	
SHEET C-8	REV 1

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

NOM. DIA. (INCHES)	180	90	45	22.5	11.25
	TEE, PLUG	BEND	BEND	BEND	BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	287.1	154.6	78.8	39.6
14	275.7	395.3	210.4	107.3	53.9
16	359.8	514.4	271.4	140.1	70.4
18	454.4	645.4	338.4	177.3	89.1
20	559.8	788.4	411.4	219.3	110.0
24	724.4	1044.4	538.4	278.3	139.4

NOTES:

1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.  
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.  
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.  
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

#4 EPOXY COATED GR. 60 REBAR WITH 6" HOOK & 12" MIN. CONCRETE EMBEDMENT DEPTH

UNDISTURBED EARTH

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

VERTICAL THRUST BLOCKS

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-2

Rev: 1/14

Rev:

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180	90	45	22.5	11.25
	TEE, PLUG	BEND	BEND	BEND	BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.6	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	59.1	32.5	16.5	8.3
20	52.4	72.4	40.1	20.4	10.3
24	69.4	97.4	53.4	27.4	14.8

NOTES:

1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.  
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.  
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.  
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

POURED CONCRETE BLOCKS (TYP.)

UNDISTURBED EARTH

BEARING AREA (TYP.)

BOND BREAKER (TYP. ALL BLOCKS)

PLAN

1/4" BOND BREAKER

SECTION A

1/2" DIAMETER

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HORIZONTAL THRUST BLOCKS

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-1

Rev: 1/14

Rev:

LENGTH AS SHOWN ON PLANS

3" CLEAR

6"

6"

6"

6"

CONCRETE ENCASEMENT

NOTES:

1. INTERMEDIATE BELLS SHALL BE ENCASED.  
2. REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12".  
3. THIS DETAIL IS FOR PIPES 12" AND SMALLER.

LEE'S SUMMIT  
MISSOURI

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WATER PIPE ENCASEMENT

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-4

Rev: 1/14

Rev:

VALVE COVER

FINAL GRADE

3" MAXIMUM

VARIES AS REQUIRED

CUT A NOTCH IN TOP OF VALVE BOX AND PLACE 2' OF TRACER WIRE COILED INSIDE VALVE COVER BOX

STANDARD 2" SQUARE VALVE OPERATING NUT

WELD (TYP. 8 PLACES)

ALIGNMENT WASHER 1/8" MIN. STEEL 4-1/2"

1" COLD ROLLED STEEL

MIN. 5" FERROUS METAL VALVE BOX

SOCKET FROM 1/4" STEEL INSIDE DIMENSIONS 2-3/16" X 3" DEEP DO NOT TIGHTEN SET SCREW TO 2" OPERATING NUT

INSTALL TRACER WIRE ALONG OUTSIDE SURFACE OF VALVE BOX

LEE'S SUMMIT  
MISSOURI

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VALVE STEM EXTENSION AND VALVE BOX

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-9

Rev: 1/14

Rev:

2" FROM BACK OF CURB

BACK OF CURB

GROUND SURFACE

MECHANICAL JOINT (TYP.)

VALVE LID & COVER

THRUST BLOCK (SEE NOTE 1)

KEEP WEEPHOLE FREE OF CONCRETE AND FOREIGN MATERIAL

VARIES

20" MIN. 42" MAX.

VALVE BOX & BASE

6" GATE VALVE

24"x24"x4" SOLID CONCRETE PAD

UNDISTURBED EARTH

PROVIDE MIN. 1/2 CU. YD. OF 3/4" GRANULAR FILL PER AWWA C600 SEC. 4.2.7.2.4

MJ RESTRAINT FITTINGS (SEE NOTES 1 & 2)

THRUST BLOCK

UNDISTURBED EARTH

NOTES:

1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.  
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.  
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.  
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.  
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.  
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HYDRANT INSTALLATION – STRAIGHT SET

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-7

Rev: 1/14

Rev:

2" FROM BACK OF CURB

BACK OF CURB

GROUND SURFACE

THRUST BLOCK (SEE NOTE 1)

KEEP WEEPHOLE FREE OF CONCRETE AND FOREIGN MATERIAL

20" MIN. 42" MAX.

VALVE BOX & BASE

6" GATE VALVE

24"x24"x4" SOLID CONCRETE PAD

UNDISTURBED EARTH

PROVIDE MIN. 1/2 CU. YD. OF 3/4" GRANULAR FILL PER AWWA C600 SECTION 4.2.7.2.4

MJ RESTRAINT FITTINGS (SEE NOTES 1 & 2)

THRUST BLOCKS

UNDISTURBED EARTH

NOTES:

1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.  
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.  
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.  
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.  
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.  
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HYDRANT WITH 90 DEGREE BEND

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-8

Rev: 1/14

Rev:

FINISHED GRADE

REGULAR BACKFILL

TRENCH AS REQUIRED BY OSHA

FLOWABLE FILL

12"

12" MIN.

NOT TO SCALE

NOTES:

1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.  
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.  
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.  
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

TRENCH CHECK

Date: 02/13

Drawn By: JN

Checked By: DL

FILE: WAT-6

Rev: 1/14

Rev:

MANHOLE FRAME AND LID REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES

FINISH GRADE

12" MIN. 16" MAX.

36" METER WELL ASSEMBLY

1" AIR RELEASE ASSEMBLY REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES

1" FULL PORT BALL VALVE W/ EXTENDED HANDLE 600 PSI BRASS (TYP)

1" SCH 40 RED BRASS THREADED PIPE ASTM B43

1" BALL CORPORATION STOP AWWA/CO TAPER THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

BRASS SERVICE SADDLE (2 STRAPS REQUIRED FOR DUCTILE IRON PIPE)

WATER MAIN

CONCRETE BLOCK

GRANULAR BEDDING

GRANULAR BEDDING TO SPRING LINE

12" MIN.

AIR RELEASE ASSEMBLY NOT TO SCALE

LEE'S SUMMIT  
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

AIR RELEASE ASSEMBLY

Date: 04/17

Drawn By: MJF

Checked By: DL

FILE: WAT-10

Rev:

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PROJ. NO.

A14-7067-1

DESIGNER

LDO

DRAWN BY

JT/BKR

CFN

7067-1W\_DET

SHEET

9

REV

1

STREETS OF WEST PRYOR  
NWQ NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI

WATER LINE PLANS  
DETAIL SHEET

LEON D. OSBOURN  
ENGINEER  
MO # 021726

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KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.  
EXPIRES 12/31/19

REV

DATE

DESCRIPTION

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2-26-19

REVISED PER CITY COMMENTS

1

1-4-19

INITIAL ISSUE

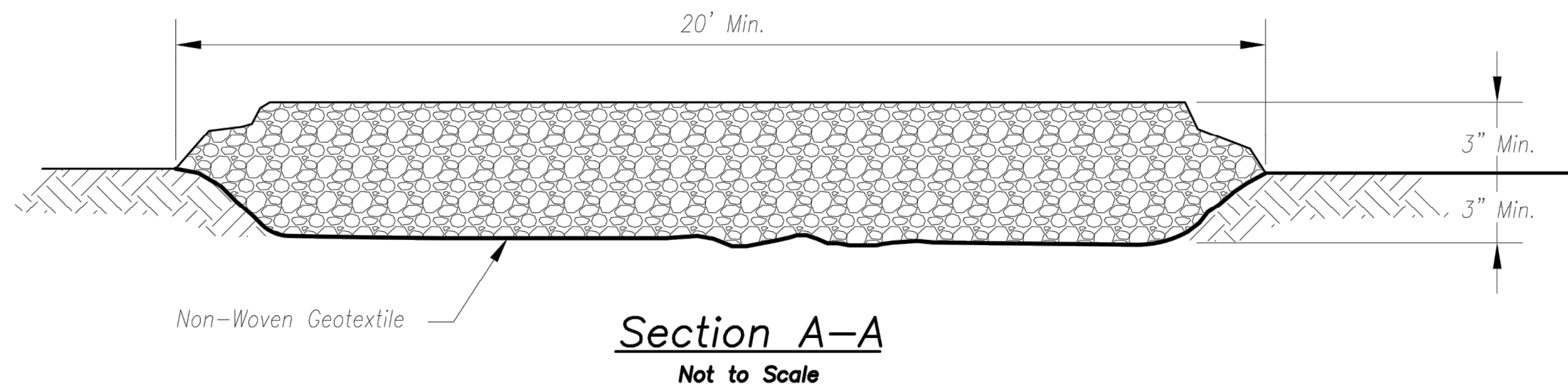
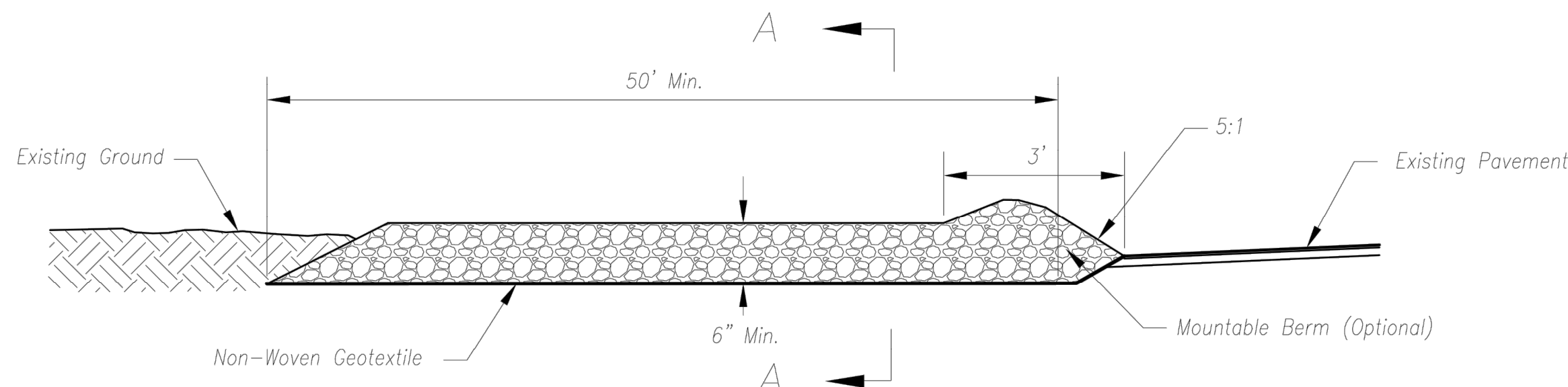
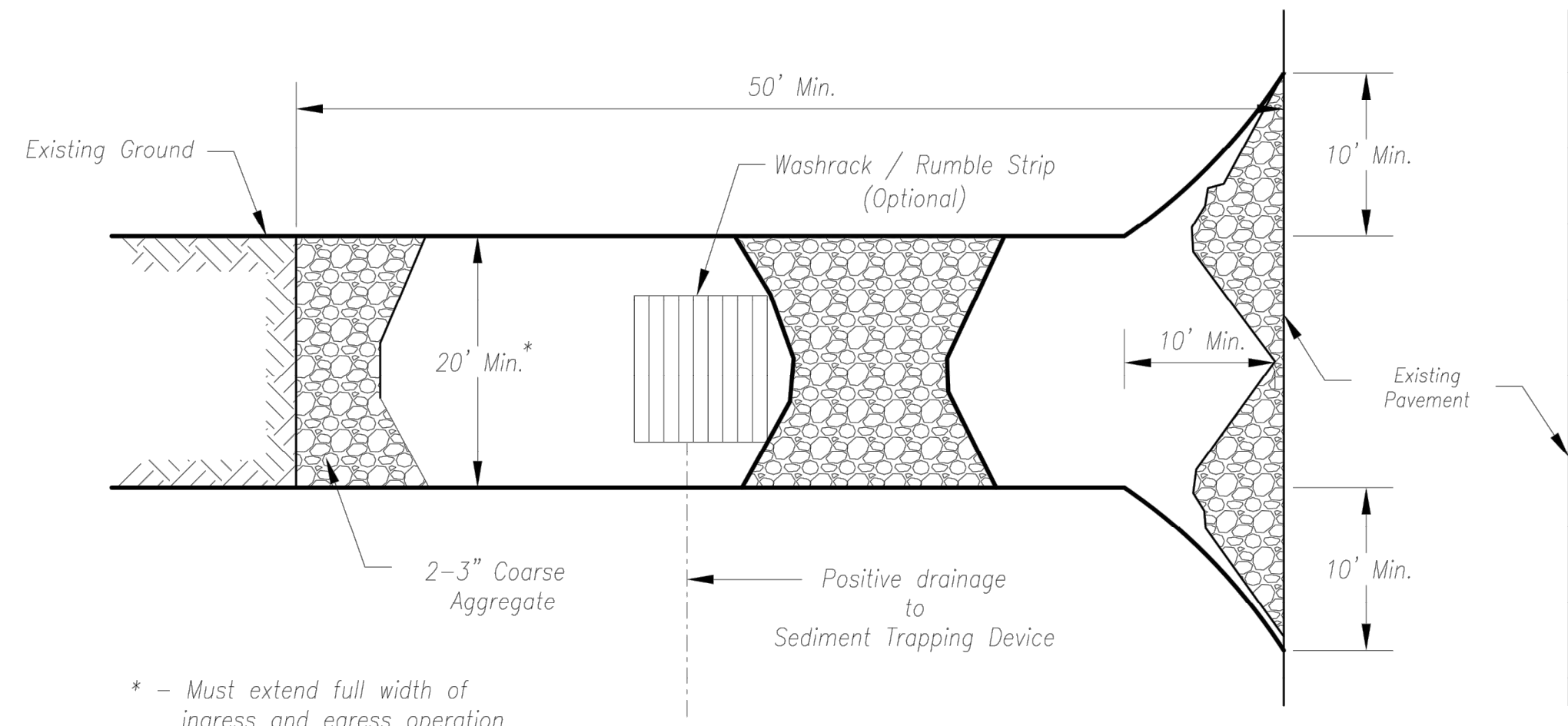
LDO

JT/BKR

LSN

DWN

CHK



Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of Installation. Top dress with clean aggregate as needed.

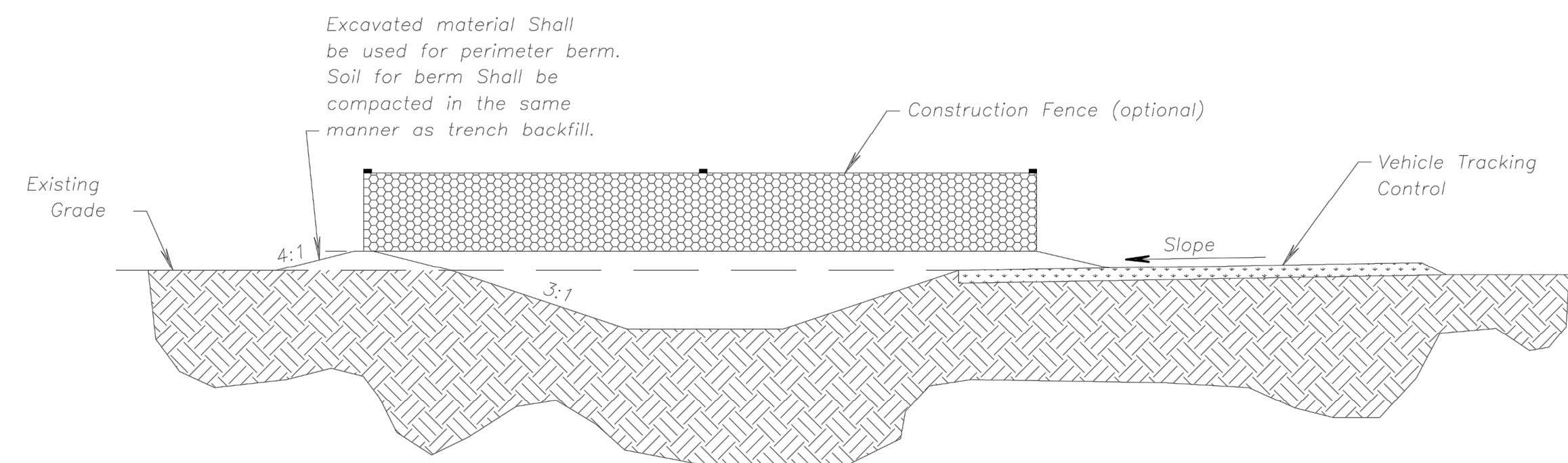
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

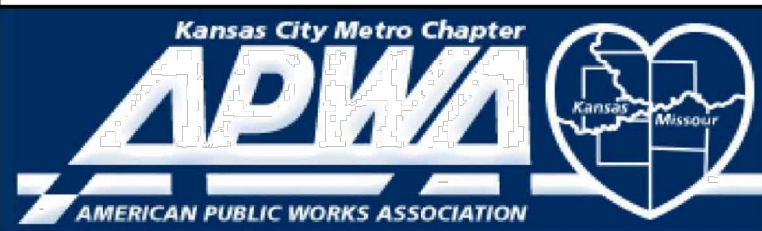
1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

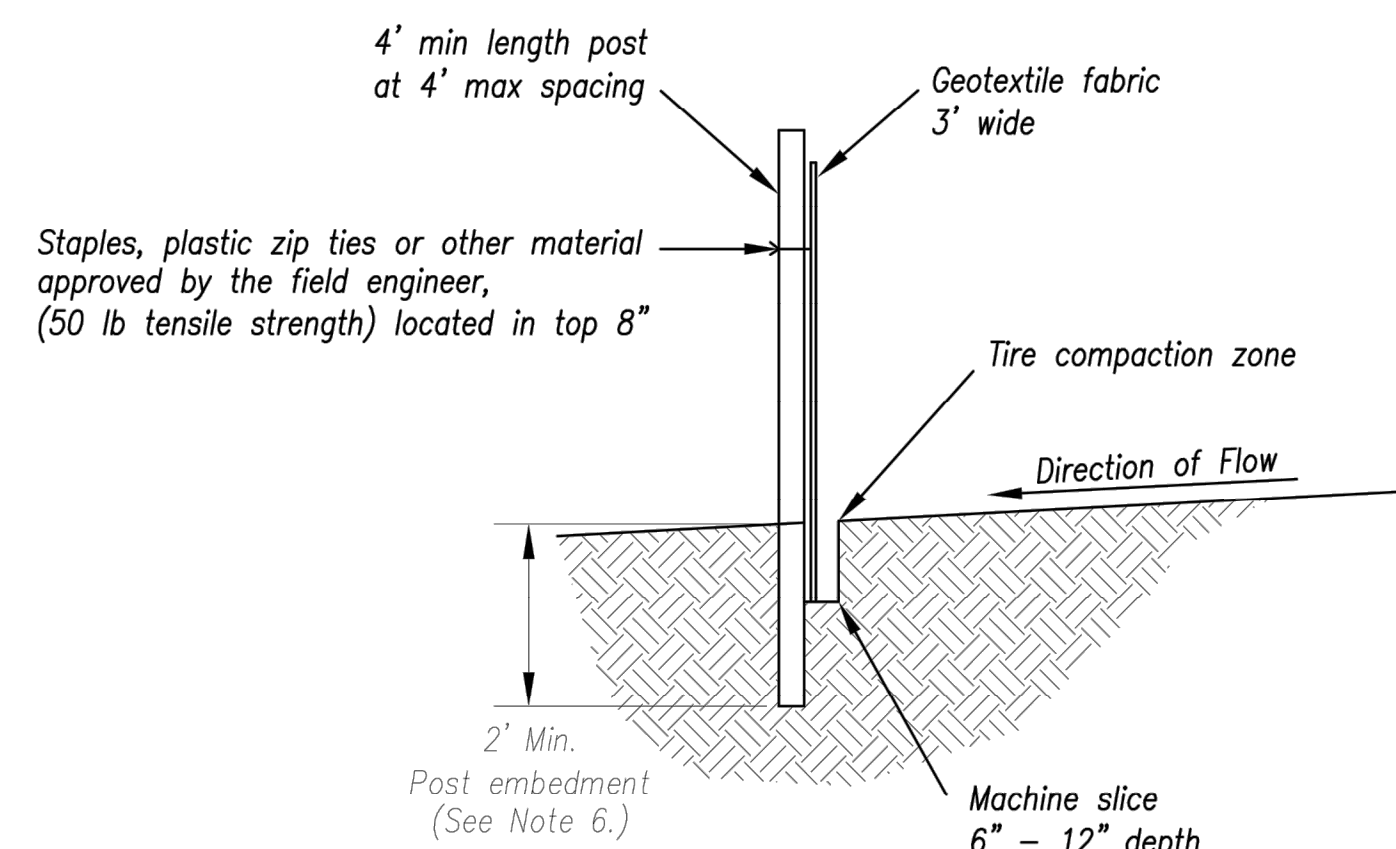


CONCRETE WASHOUT

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT	STANDARD DRAWING NUMBER ESC-01 ADOPTED: 10/24/2016

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

2319 N. JACKSON   P.O. BOX 1304 JUNCTION CITY, KANSAS 66441 PH. (785) 762-5040   FAX (785) 762-7744 jke@kvw.com   www.kvw.com	LEON D. OSBOURN ENGINEER MO # 021726	2-26-19 1-4-19	REV	DATE	DESCRIPTION	CHK	DWN	LDO	JT	LDO	CHK
KAW VALLEY ENGINEERING KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19		1		0	1-4-19	INITIAL ISSUE	DSN	DWN	JT	LDO	CHK
STREETS OF WEST PRYOR NW/Q NW PRYOR ROAD & NW LOWENSTEIN DRIVE LEE'S SUMMIT, MISSOURI		C-10		1							



- (\*) POSTS
- MIN. LENGTH 4'
  - HARDWOOD 1  $\frac{3}{16}$ " x 1  $\frac{3}{16}$ "
  - NO.2 SOUTHERN PINE 2  $\frac{5}{8}$ " x 2  $\frac{5}{8}$ "
  - STEEL 1.33 LB/FT

(\*\*) - Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS

*Not to Scale*

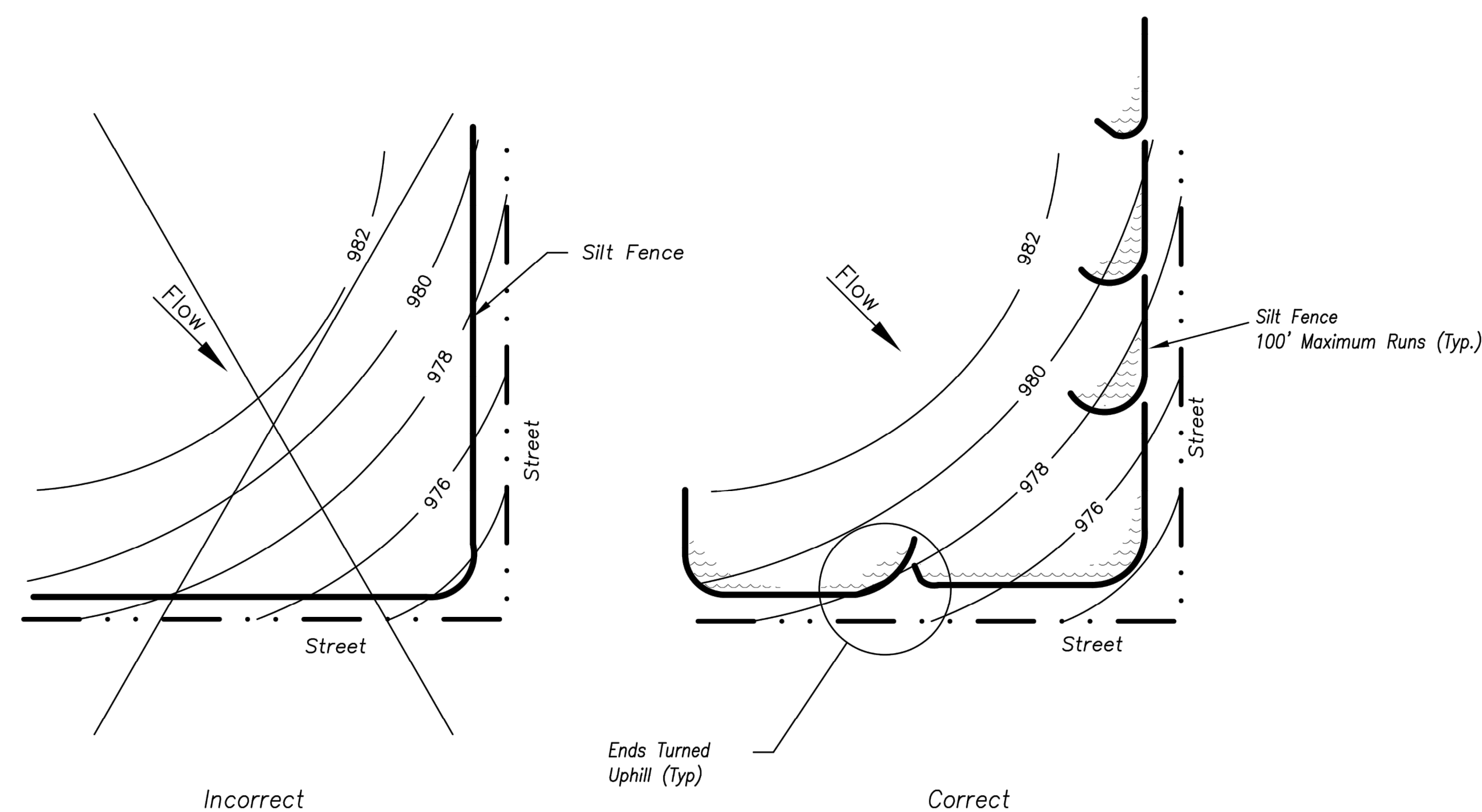
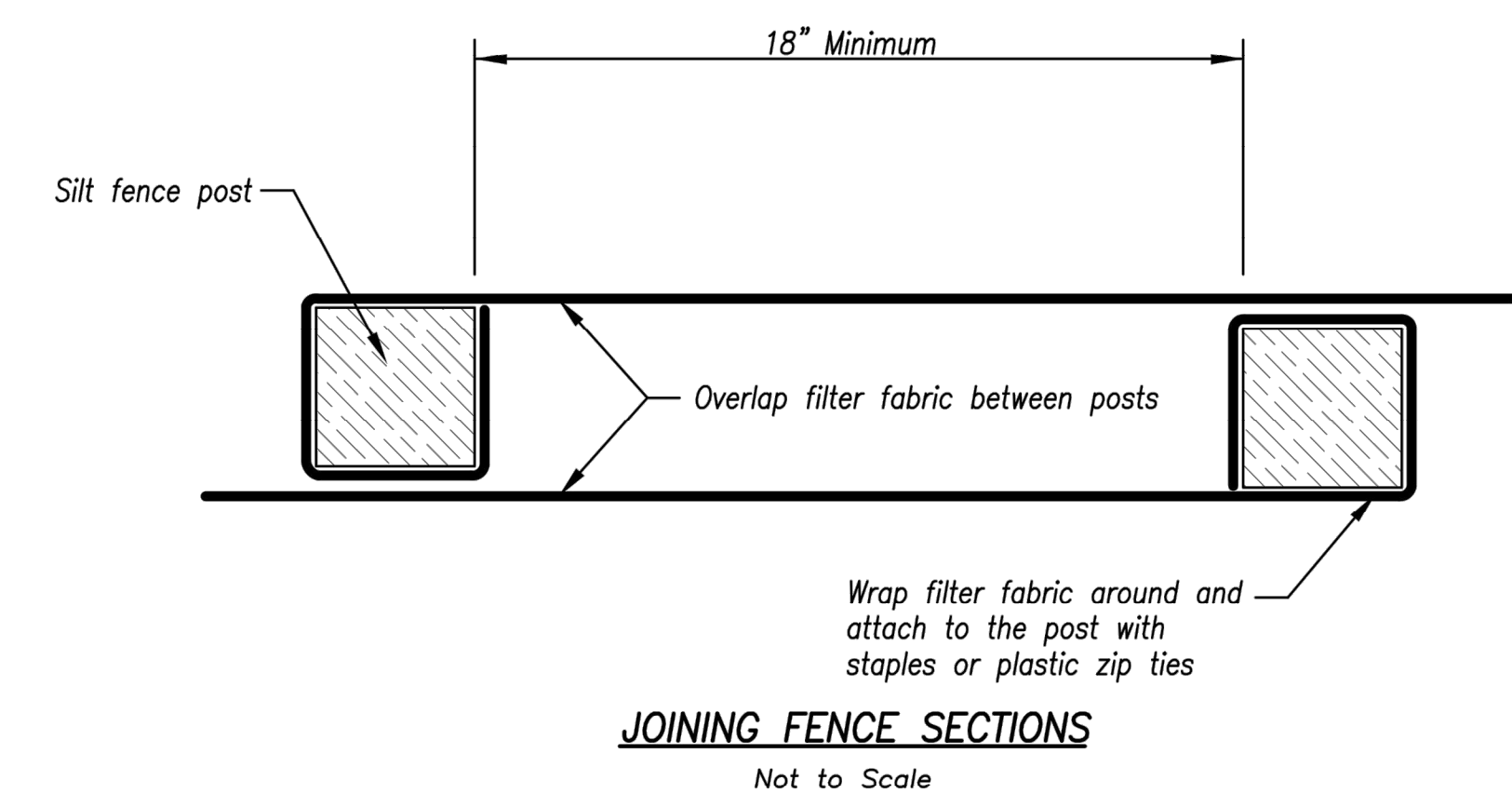
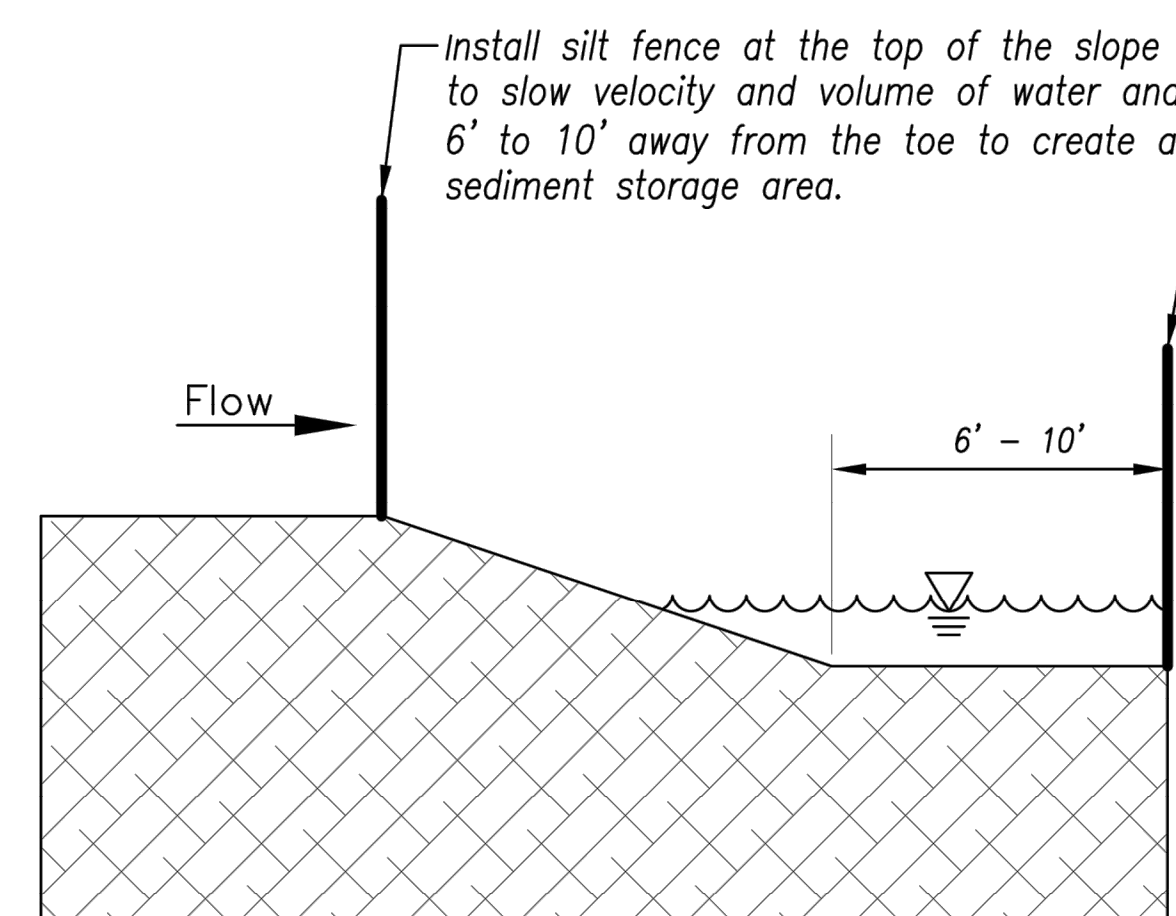


Figure A

SILT FENCE LAYOUT

Not to Scale



### JOINING FENCE SECTIONS

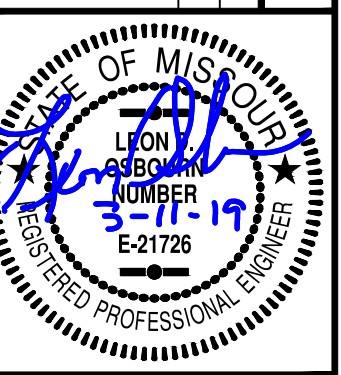
Not to Scale

- Notes:

1. *In order to contain water, the ends of the silt fence must be turned uphill (Figure A).*
2. *Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).*
3. *Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.*
4. *Attach fabric to upstream side of post.*
5. *Install posts a minimum of 2' into the ground.*
6. *Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.*

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches  $\frac{1}{3}$  the height of silt fence.
2. Repair as necessary to maintain function and structure.



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ICV KAW  
KAW VALLEY ENGINEERING  
SERVICES BY MISSOURI  
EXPIRES 12/31/19

**STREETS OF WEST PRYOR**  
**NNW/Q NW PRYOR ROAD & NW LOWENSTEIN DRIVE**  
**LEE'S SUMMIT, MISSOURI**

---

**WATER LINE PLANS**  
**DETAIL SHEET**

PROJ. NO.		A14_7067-1	
DESIGNER	LDO	DRAWN BY	JT/BKR
CFN			
067-1W_DET			
SHEET		REV	
C-11		1	

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Modified from 2015 Overland Park Standard Details  
for Erosion and Sediment Control.

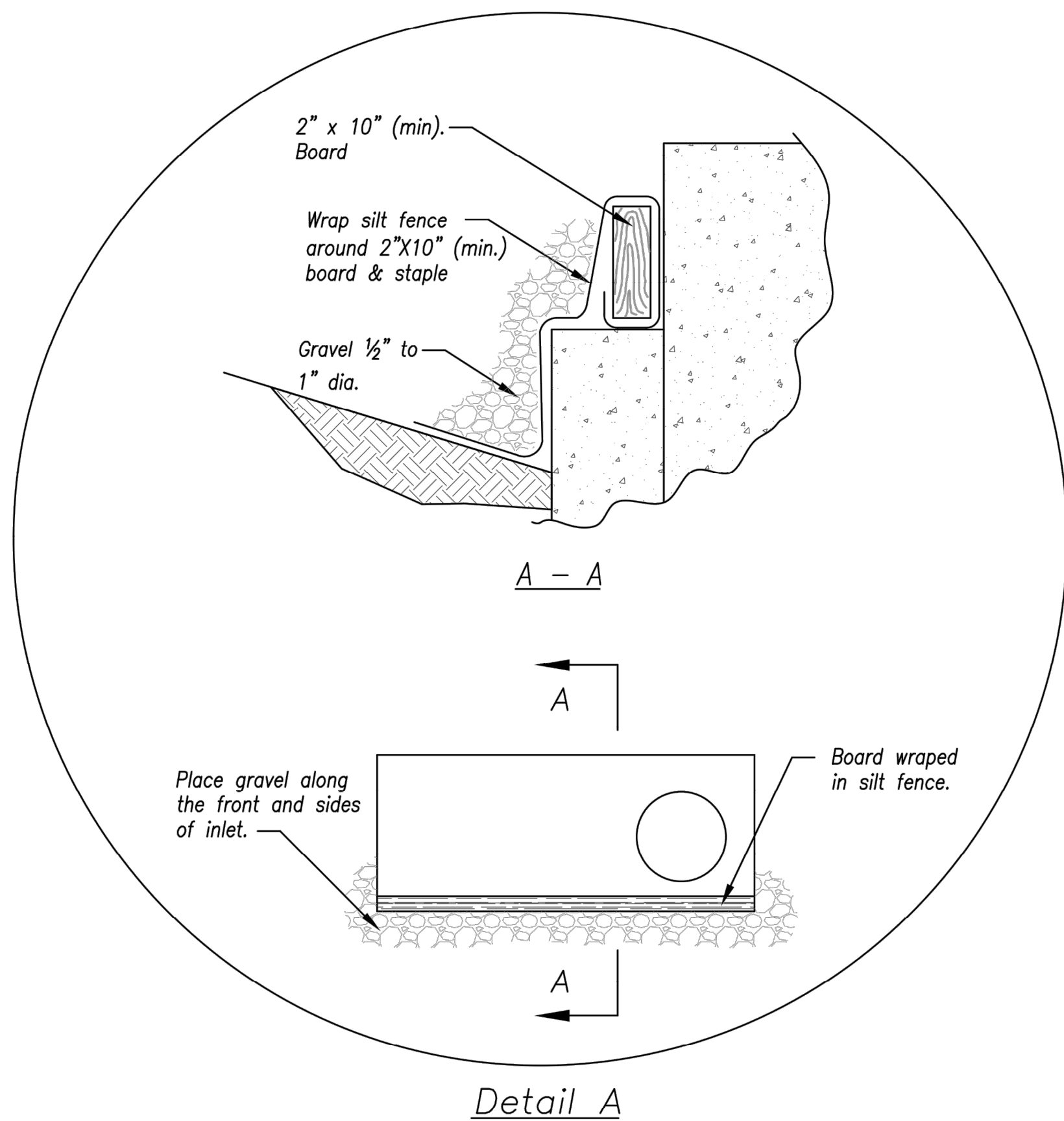
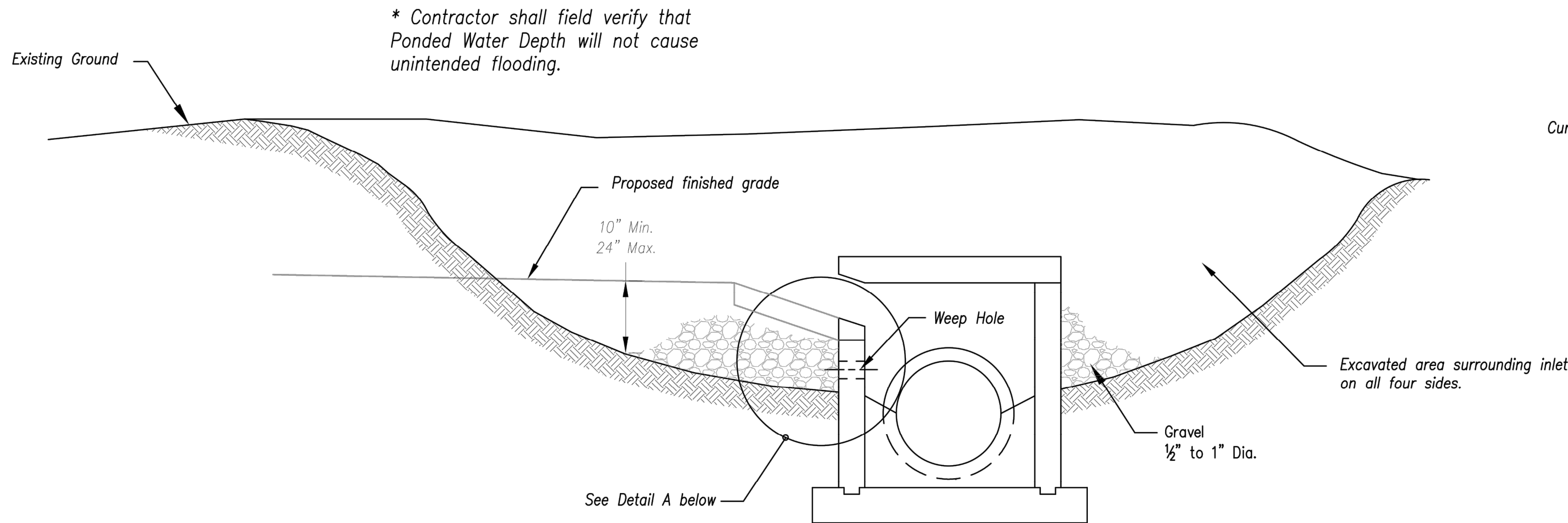
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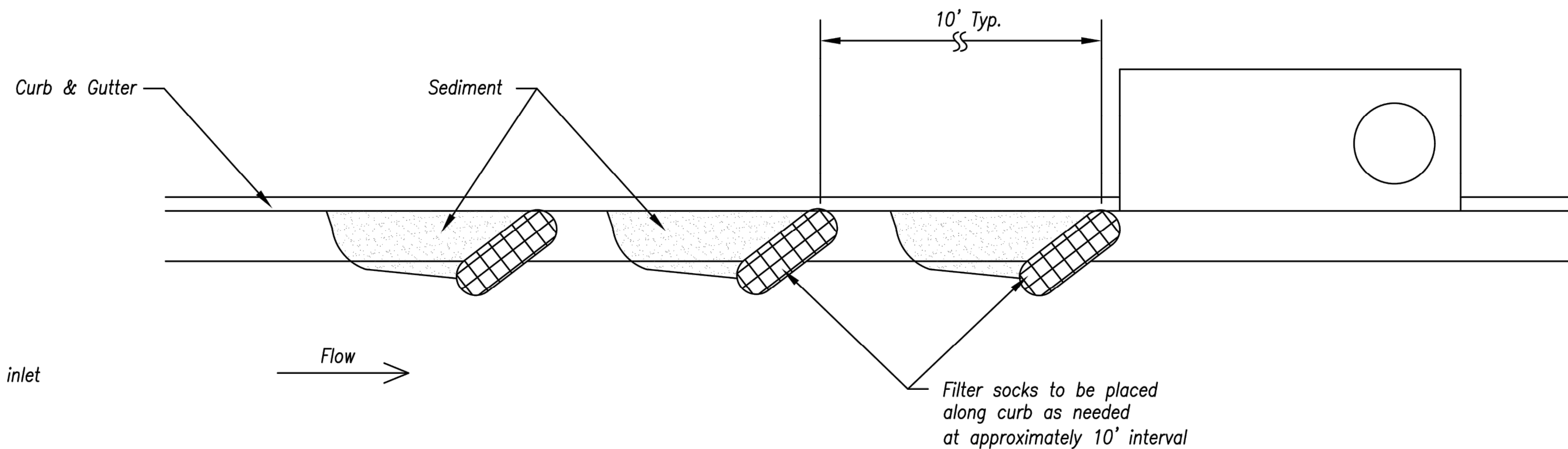
KANSAS CITY  
METRO CHAPTER

SILT FENCE

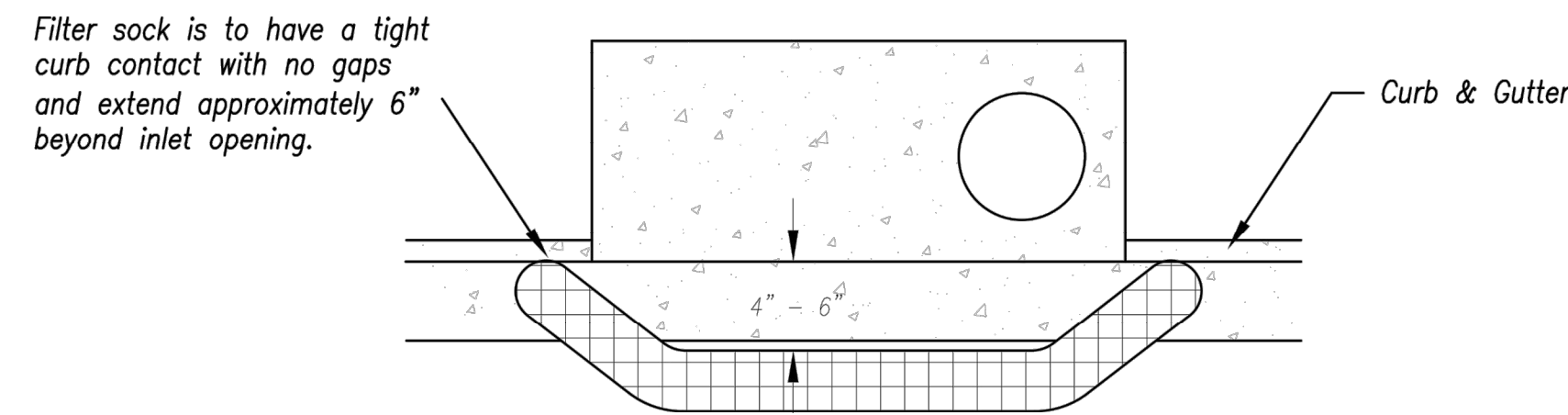
STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016



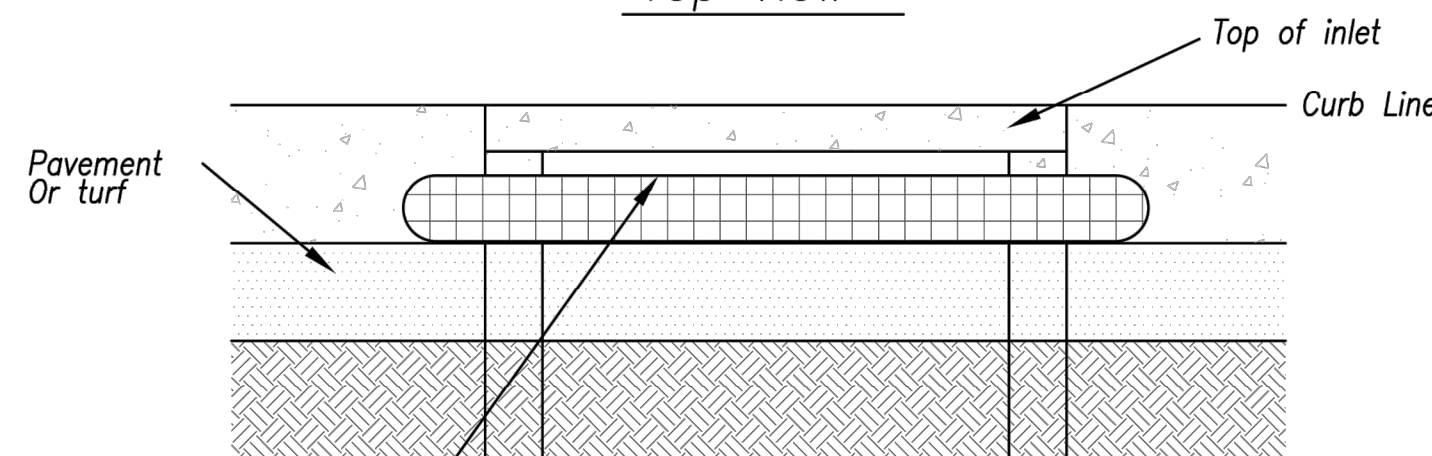
EARLY STAGE CURB INLET  
(Open Box and Prior to Pouring Curb and Inlet Throat)



On Grade Curb Inlet Protection



Top View



Front View

Sump Inlet Sediment Filter

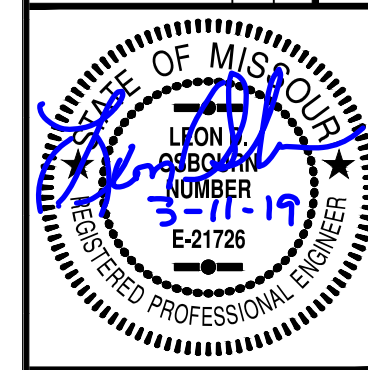
LATE STAGE CURB INLET  
(After Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



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**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.  
EXPIRES 12/31/19

**STREETS OF WEST PRYOR**  
NW/4 NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI  
**WATER LINE PLANS**  
**DETAIL SHEET**

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY  
METRO CHAPTER

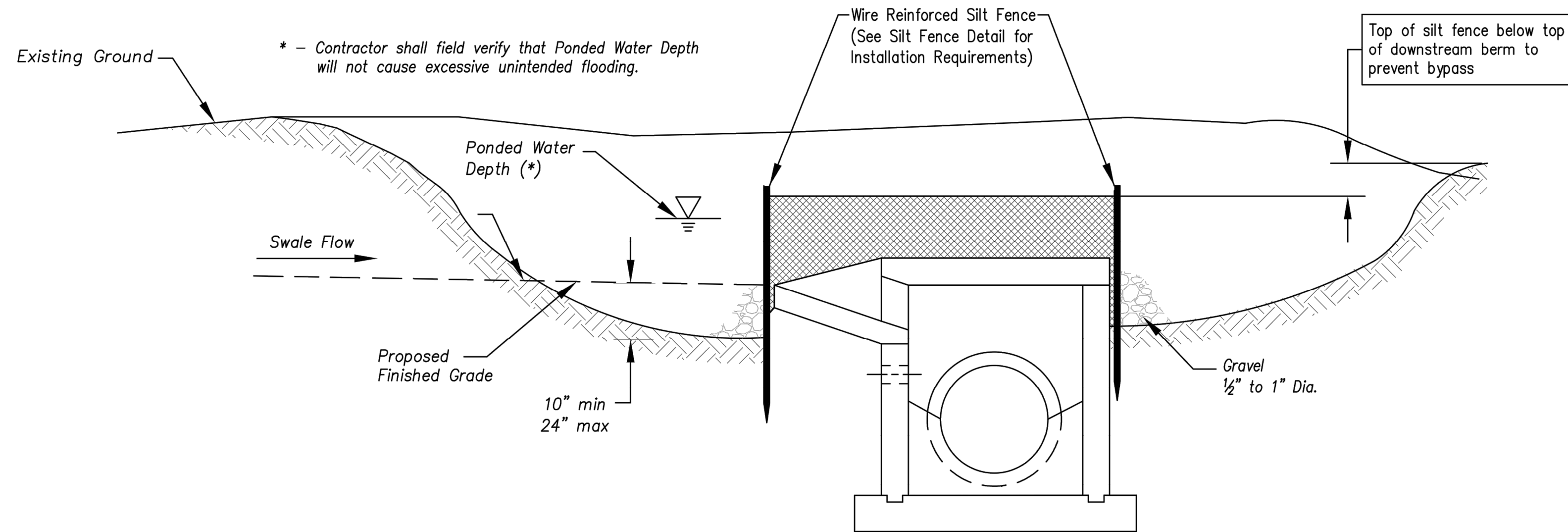
CURB INLET PROTECTION

STANDARD DRAWING  
NUMBER ESC-06  
ADOPTED:  
10/24/2016

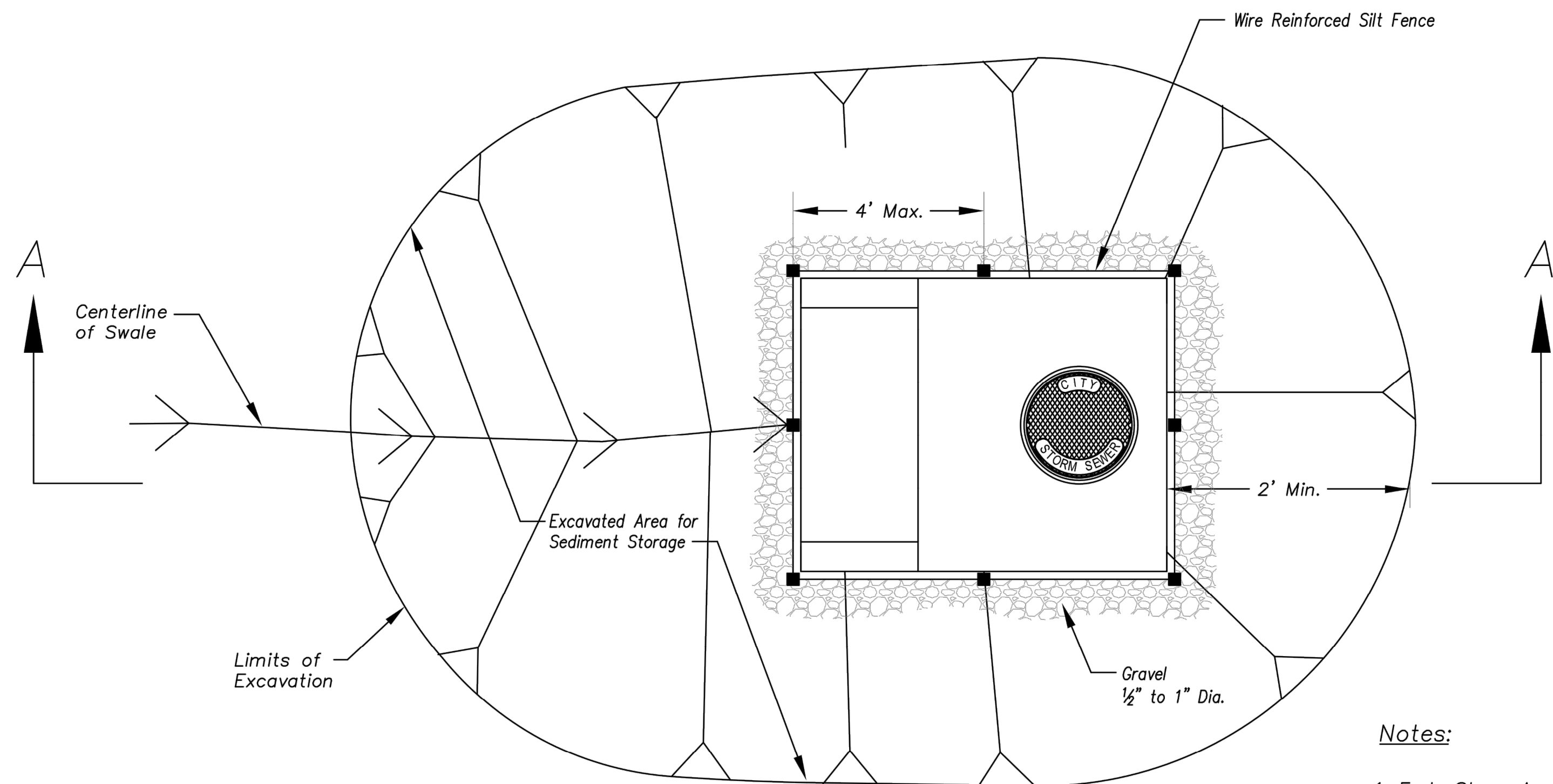
Modified from 2015 Overland Park Standard Details  
for Erosion and Sediment Control.

PROJ. NO. A14-7067-1  
DESIGNER LDO DRAWN BY JT/BKR  
CFN 7067-1W\_DET  
SHEET

REV C-12 1



Section A-A  
Not to Scale

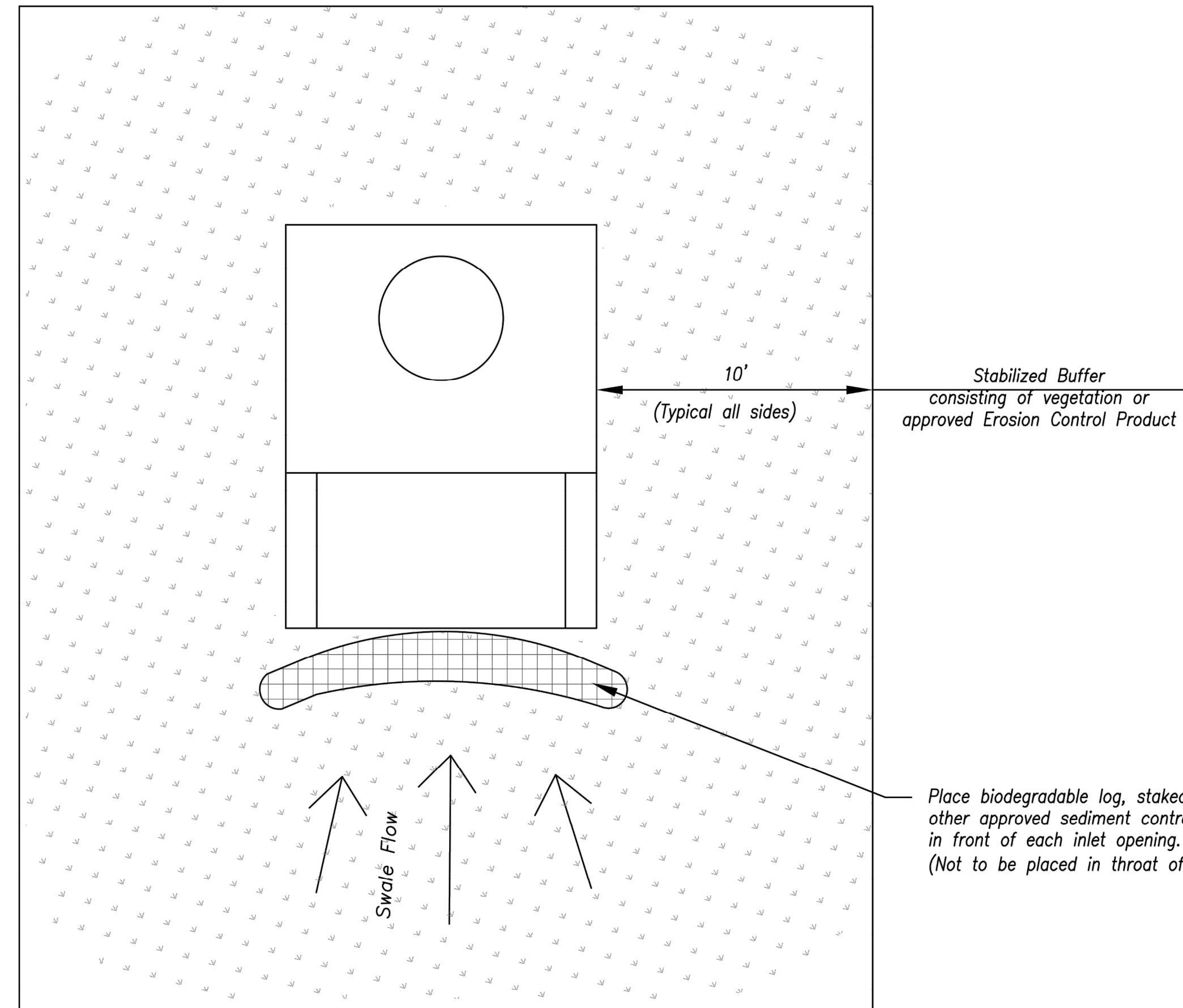


Plan  
Not to Scale

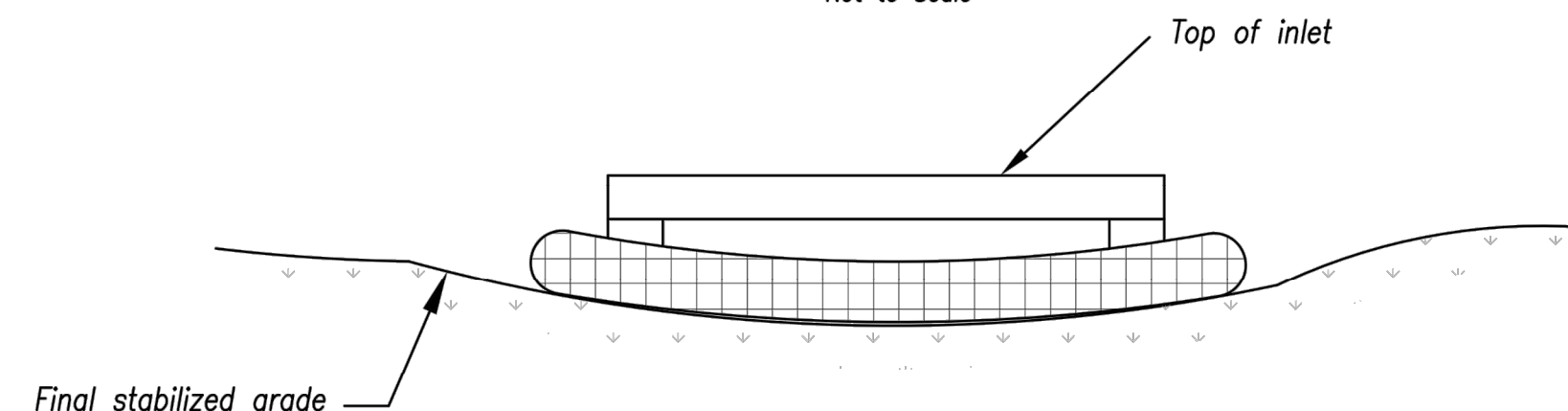
**EARLY STAGE AREA INLET**  
(All open boxes and inlets not at final grade)

**Notes:**

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.



Plan  
Not to Scale



Front View

**LATE STAGE AREA INLET**  
(Area inlets at final grade and existing inlets)

**Maintenance:**

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

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KANSAS CITY  
METRO CHAPTER

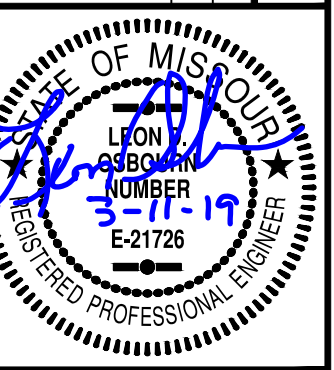
AREA INLET AND  
JUNCTION BOX PROTECTION

STANDARD DRAWING  
NUMBER ESC-07  
ADOPTED:  
10/24/2016

STREETS OF WEST PRYOR  
NW/Q NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI

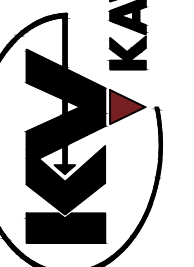
WATER LINE PLANS  
DETAIL SHEET

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1W_DET
SHEET	C-13
REV	1



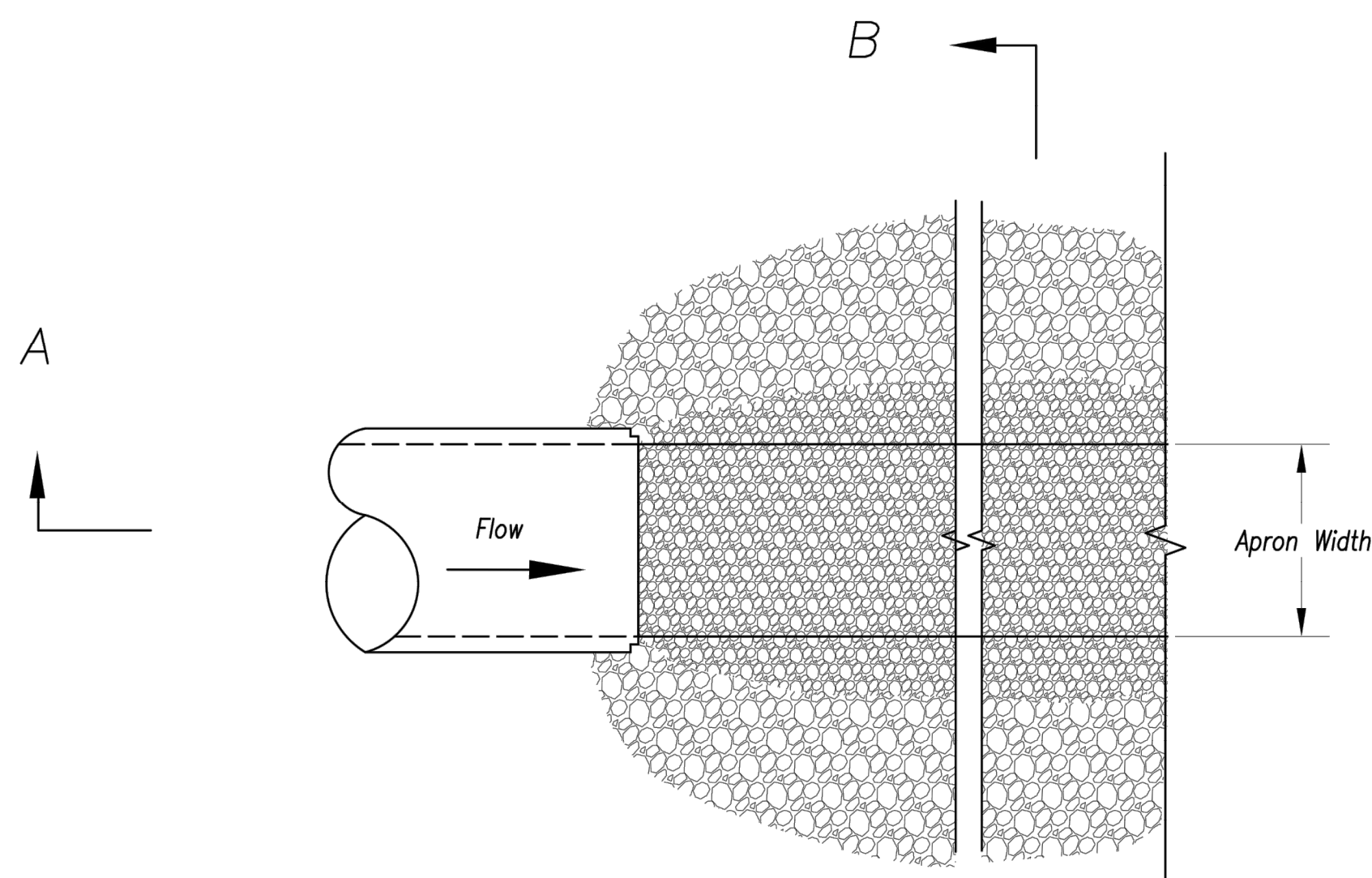
LEON D. OSBOURN  
ENGINEER  
MO # 021726

2319 N. JACKSON | P.O. BOX 1304  
JUNCTION CITY, KANSAS 66441  
PH. (785) 762-5040 | FAX (785) 762-7744  
jke@kve.com | www.kve.com

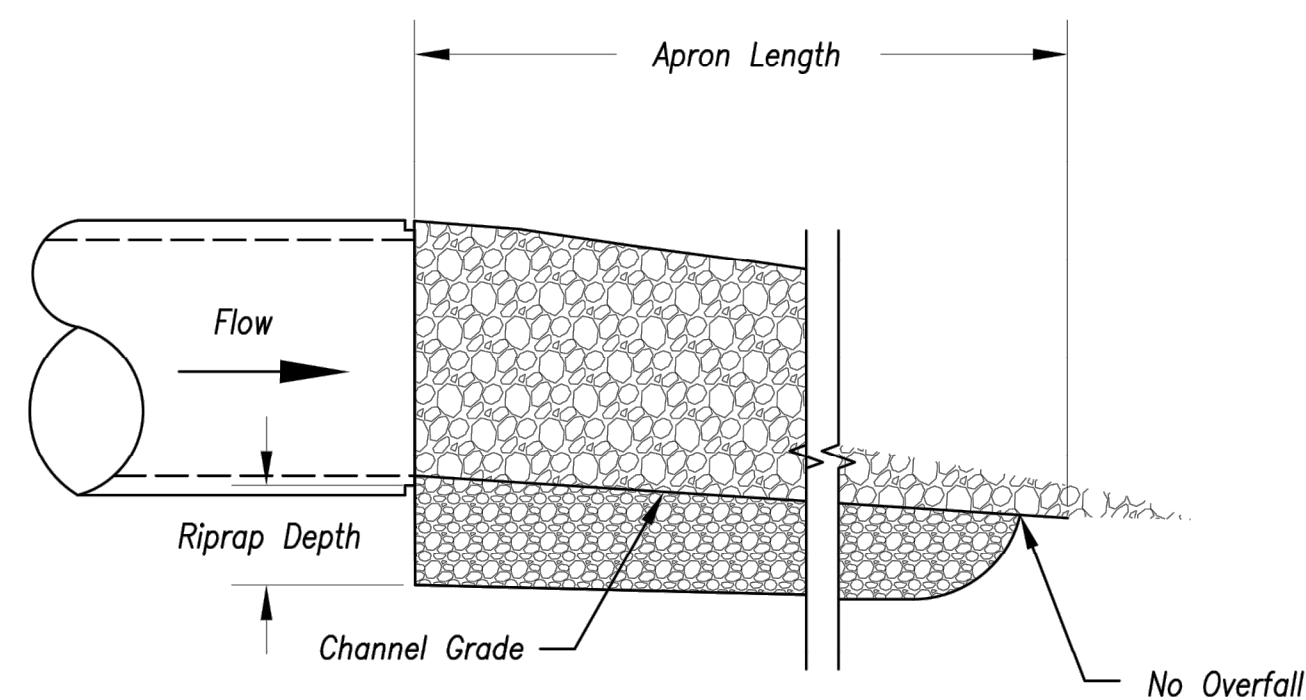


**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19

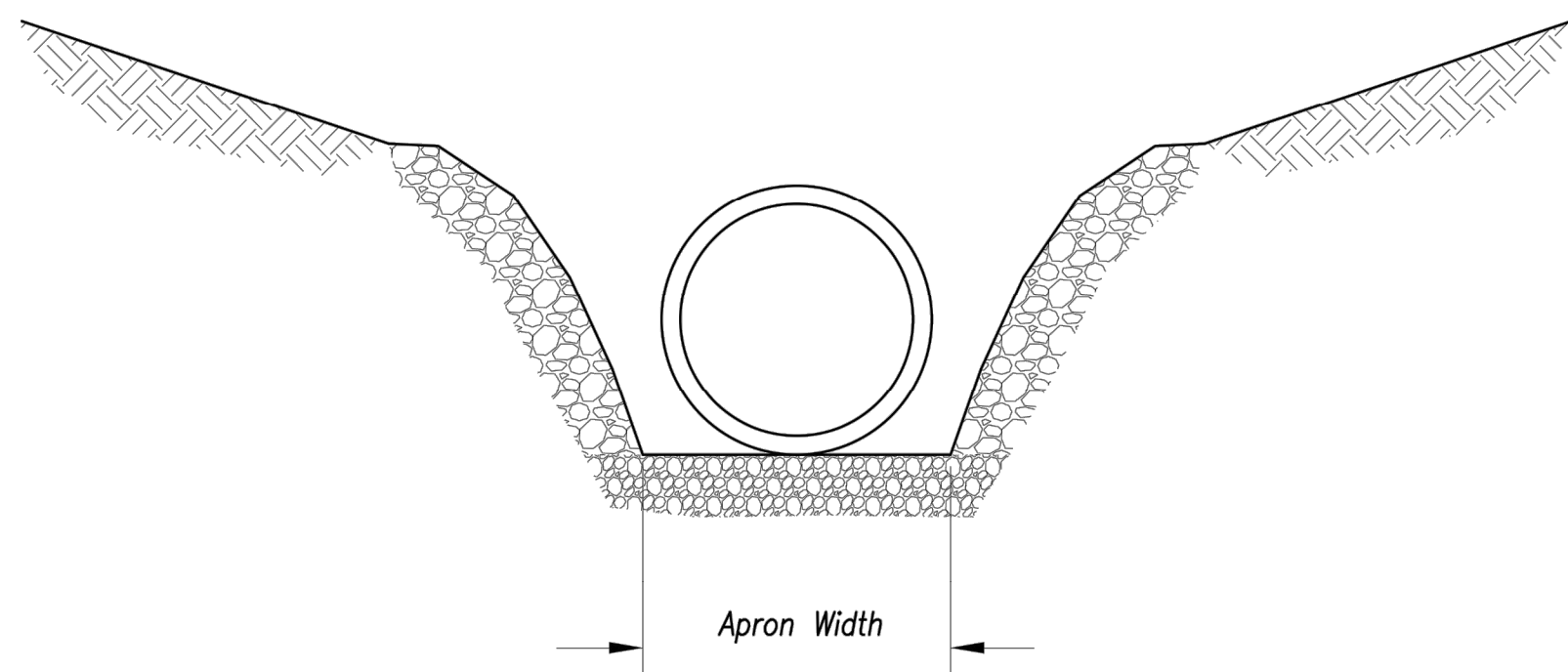
REV	DATE	DESCRIPTION
1	2-26-19	REVISED PER CITY COMMENTS
0	1-4-19	INITIAL ISSUE
DSN	DWN	CHK



Plan View  
Not to Scale

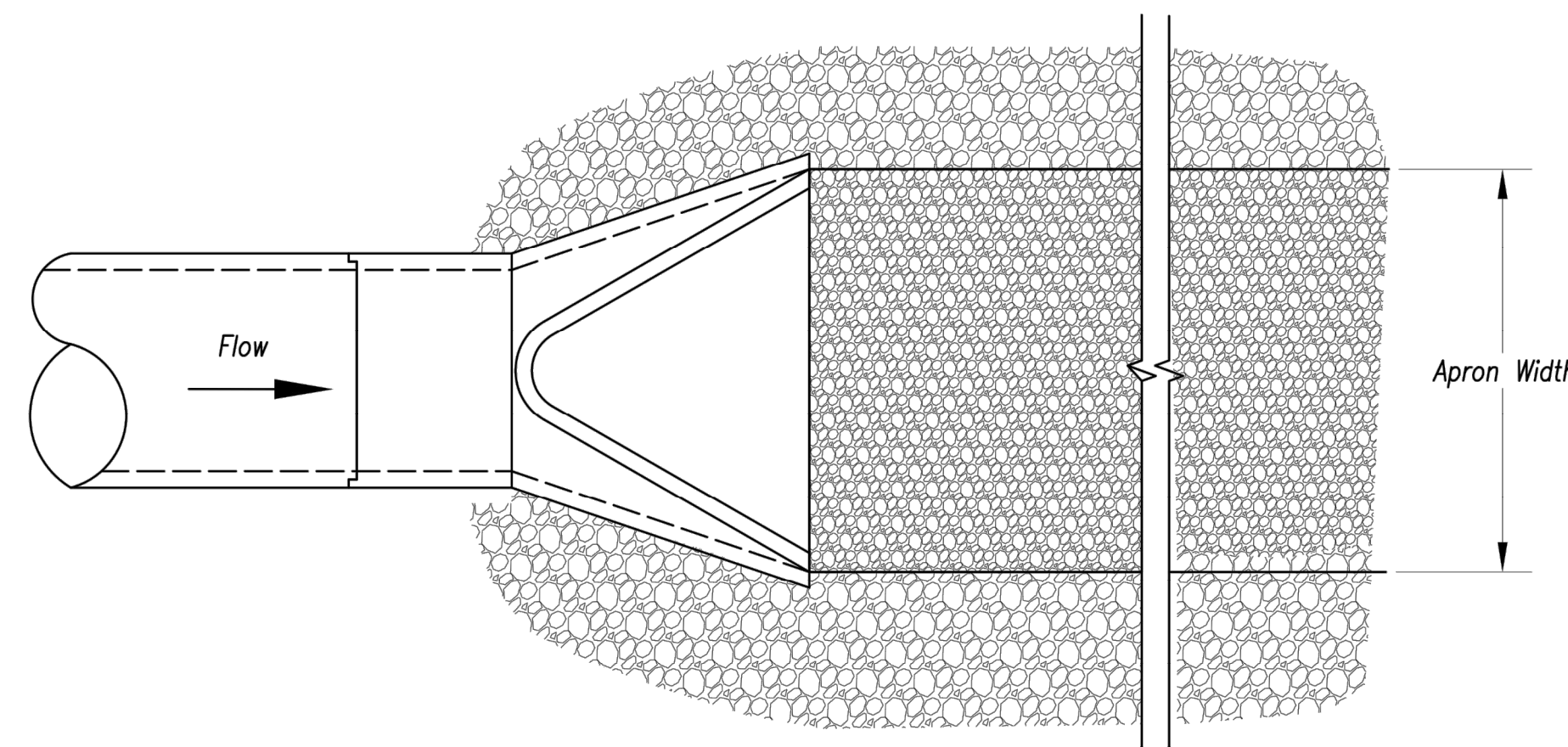
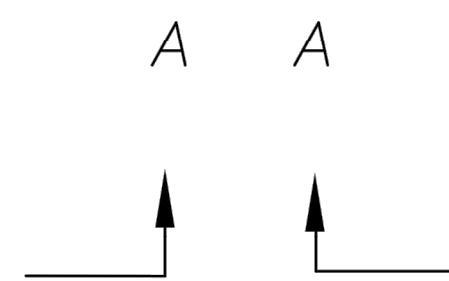


Section A-A  
Not to Scale

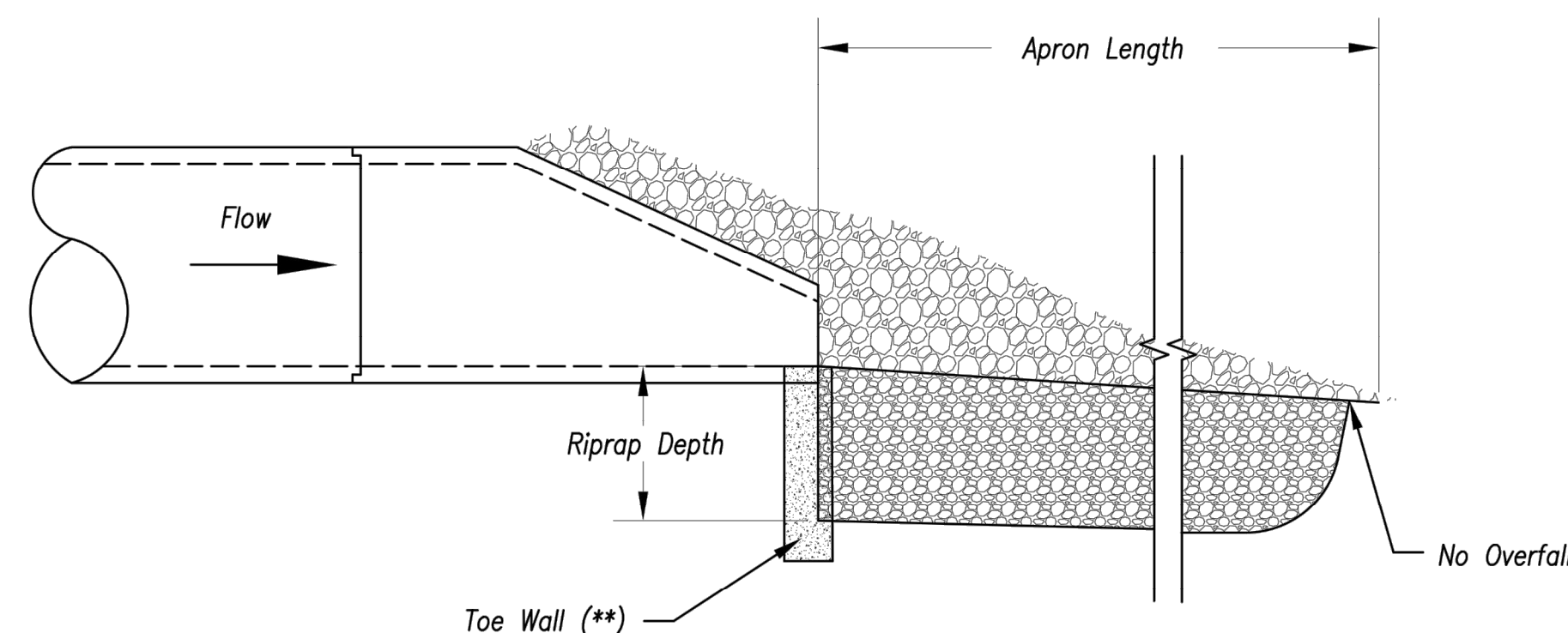


Section B-B  
Not to Scale

OUTLET PROTECTION W/O END SECTION



Plan View  
Not to Scale



Section A-A  
Not to Scale

OUTLET PROTECTION WITH END SECTION

Notes:

1. Rock all sides steeper than 3:1.
2. Stabilize all disturbed areas downstream of outlet to the limits of disturbance.
3. Alternative outlet protection and slope stabilization measures may be used with approval by the Engineer.
4. Install riprap apron so that it is no higher than flowline of pipe.
5. Reference APWA Specification 2650 for rock type, size, and placement.

Modified from 2015 Overland Park Standard Details  
for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY  
METRO CHAPTER

OUTLET PROTECTION

STANDARD DRAWING  
NUMBER ESC-I4

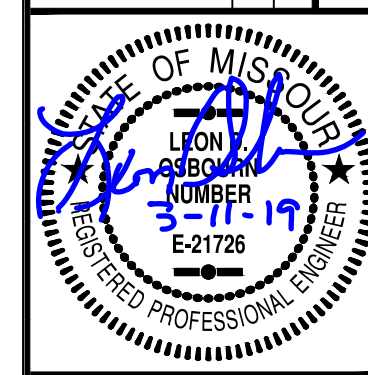
ADOPTED:  
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NW/Q NW PRYOR ROAD & NW LOWENSTEIN DRIVE  
LEE'S SUMMIT, MISSOURI

WATER LINE PLANS  
DETAIL SHEET

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DESIGNER LDO DRAWN BY JT/BKR  
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SHEET

C-14  
REV 1



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