

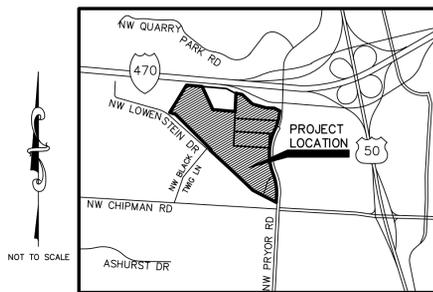
MASS GRADING & STORM SEWER IMPROVEMENTS

FOR

STREETS OF WEST PRYOR

LEE'S SUMMIT, MISSOURI

JULY 2019



LOCATION MAP
CITY OF LEE'S SUMMIT, MISSOURI

LEGEND

△ SECTION CORNER, ORIGIN UNKNOWN UNLESS OTHERWISE NOTED	○ SANITARY SEWER CLEANOUT
○ MONUMENT FOUND, ORIGIN UNCERTAIN UNLESS OTHERWISE NOTED	⊕ STORM SEWER MANHOLE
⊠ RIGHT-OF-WAY MARKER FOUND	⊕ TELEPHONE SIGN
(D) DESCRIBED	⊕ TELEPHONE MANHOLE
(M) MEASURED	⊕ TELEPHONE PEDESTAL
(C) CALCULATED	— T — UNDERGROUND TELEPHONE LINE
(P) PLATTED	□ SPLICE BOX
— STREET SIGN	FOC FIBER OPTIC CABLE SIGN
⊠ CANOPY SUPPORT	— FOC — UNDERGROUND FIBER OPTIC CABLE
⊠ UTILITY POLE	⊕ TRAFFIC CONTROL POLE
⊠ UTILITY POLE W/ LIGHT	⊕ PULL BOX
⊠ UTILITY POLE W/ TRANSFORMER	⊕ FLAG POLE
★ LIGHT POLE	⊕ MAILBOX
⊠ DEADMAN ANCHOR	⊕ HANDICAP SIGN
(S) — OU — OVERHEAD UTILITY — # LINES	⊕ HANDICAP PAINTED SYMBOL
⊠ AIR CONDITIONING UNIT	← LEFT TURN ARROW
⊠ ELECTRIC PEDESTAL	→ STRAIGHT ARROW
⊠ ELECTRIC METER	↘ RIGHT TURN ARROW
⊠ ELECTRIC TRANSFORMER	⊕ GATE POST
⊠ BREAKER BOX	⊕ FENCE POST
— E — UNDERGROUND ELECTRIC LINE	— WOOD FENCE
⊕ UTILITY MANHOLE	— CHAIN LINK FENCE
⊕ CABLE TV SIGN	— X — BARBED WIRE FENCE
⊕ CABLE TV PEDESTAL	18" ⊕ DECIDUOUS TREE W/SIZE & DRIP LINE
⊕ GAS SIGN	22" ⊕ EVERGREEN TREE W/SIZE & DRIP LINE
⊕ GAS METER	⊕ SAPLING TREE
— G — UNDERGROUND GAS LINE	⊕ SHRUB
⊕ GAS CATHODIC PROTECTION STATION	⊕ STUMP
— W — WATER LINE	⊕ TREE LINE
⊕ WATER LINE GATE VALVE	⊕ SHRUB LINE
⊕ WATER SPIGOT	⊕ PARKING STALL COUNT
⊕ WATER METER	— 970 — 1' CONTOUR INTERVAL
⊕ WELL	⊕ RESTRICTED ACCESS
⊕ FIRE HYDRANT	B/B BACK OF CURB TO BACK OF CURB
⊕ SPRINKLER VALVE	E/E EDGE TO EDGE
⊕ SANITARY SEWER MANHOLE	
— S — SANITARY SEWER LINE	

UTILITY STATEMENT:
THE UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD SURVEY INFORMATION OF ONE-CALL LOCATED UTILITIES, FIELD SURVEY INFORMATION OF ABOVE GROUND OBSERVABLE EVIDENCE, AND/OR THE SCALING AND PLOTTING OF EXISTING UTILITY MAPS AND DRAWINGS AVAILABLE TO THE SURVEYOR AT THE TIME OF SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES BY EXCAVATION UNLESS OTHERWISE NOTED ON THIS SURVEY.

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, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO 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 SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH 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 PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT 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 WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A TEMPORARY BASIS AT THE SITE.

CONSTRUCTION NOTES:
1. ALL CONSTRUCTION SHALL CONFORM TO LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. CONTRACTOR SHALL NOTIFY DEVELOPMENT ENGINEERING INSPECTION AT 816-969-1200 AT LEAST 48 HOURS PRIOR TO STARTING WORK.
3. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.

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rebeccadavis@google.com

CALL BEFORE YOU DIG — DRILL — BLAST
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(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

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CONTACT: MATT PENNINGTON
email: mat1@strokcc.com

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OVERLAND PARK, KS 66213
AGENT: DAVID N. OLSON
email: daveolson@strokccprojectllc.com

PREPARED BY:
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785-762-5040
CONTACT: LEON D OSBOURN
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INDEX TO SHEETS

C-1	TITLE SHEET
C-1A	SUMMARY OF QUANTITIES
C-2	GENERAL LAYOUT SHEET
C-3	EXISTING CONDITIONS & DEMOLITION PLAN
C-4	EXISTING CONDITIONS & DEMOLITION PLAN
C-5	EXISTING CONDITIONS & DEMOLITION PLAN
C-6	EXISTING CONDITIONS & DEMOLITION PLAN
C-7	EXISTING CONDITIONS & DEMOLITION PLAN
C-8	EXISTING CONDITIONS & DEMOLITION PLAN
C-9	EXISTING CONDITIONS & DEMOLITION PLAN
C-10	DRAINAGE AREA MAP — STORM SEWER LINES A, B, J & R
C-11	DRAINAGE AREA MAP — DESIGN TABLES STORM LINES A, B, J, & R
C-12	DRAINAGE AREA MAP — STORM SEWER LINE C
C-13	DRAINAGE AREA MAP — DESIGN TABLE STORM LINE C
C-14	OVERALL GRADING PLAN
C-15	GRADING PLAN
C-16	GRADING PLAN
C-17	GRADING PLAN
C-18	GRADING PLAN
C-19	GRADING PLAN
C-20	GRADING PLAN
C-21	GRADING PLAN
C-21A	EROSION CONTROL PLAN — PHASE 1
C-21B	EROSION CONTROL PLAN — PHASE 1
C-22	EROSION CONTROL PLAN — PHASE 2
C-23	EROSION CONTROL PLAN — PHASE 2
C-23A	EROSION CONTROL PLAN — PHASE 3
C-23B	EROSION CONTROL PLAN — PHASE 3
C-24	STORM SEWER LINE A — PLAN AND PROFILE
C-25	STORM SEWER LINE A — PLAN AND PROFILE
C-26	STORM SEWER LINE B — PLAN AND PROFILE
C-27	STORM SEWER LINE C — PLAN AND PROFILE
C-28	STORM SEWER LINE C — PLAN AND PROFILE
C-29	STORM SEWER LINE J & R — PLAN AND PROFILE
C-30	STORM SEWER LINE S & U — PLAN AND PROFILE
C-31	STORM SEWER LINE W — PLAN AND PROFILE
C-32	STORM SEWER LINE A-7, A-9, A-10, C-10, C-13, E, J-3, K, L, PROFILES
C-33	STORM SEWER LINES L-2, M, P, T-1, N, Q, & T PROFILES
C-34	SOUTH DETENTION BASIN PLAN
C-35	SOUTH DETENTION BASIN PROFILE
C-36	WEST DETENTION BASIN PLAN
C-37	WEST DETENTION BASIN PROFILE
C-38	WEST DETENTION BASIN PROFILE
C-39	RETAINING WALL PROFILES — B THRU G
C-40	RETAINING WALL PROFILES — H THRU L & N
C-41	RETAINING WALL PROFILES — P & Q
C-42	STORM SEWER DETAIL SHEET
C-43	STORM SEWER DETAIL & EROSION CONTROL DETAIL SHEET
C-44	EROSION CONTROL DETAIL SHEET
C-45	EROSION CONTROL DETAIL SHEET
C-46	EROSION CONTROL DETAIL SHEET

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

BENCHMARKS:
BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=985.09

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

PROJ. NO.	A14-7067-1	
DESIGNER	LDO	
DRAWN BY	51	
CFN	7067-1G-TS	
SHEET	C-1	
REV	4	
REV	DATE	DESCRIPTION
4	9-26-19	REVISED PER CITY COMMENTS
3	7-24-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE
		DSN
		DWN
		CHK



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KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE # 000842, EXPIRES 12/31/19

STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
TITLE SHEET

Summary of Quantities			
Earthwork			
Item No.	Item	Estimated Quantity	Unit
1	Mobilization	1	L.S.
2	Clearing and Grubbing	1	L.S.
3	Demolition and Removal	1	L.S.
4	Traffic Control (Temporary)	1	L.S.
5	Excavation	530,227	C.Y.
6	Embankment	500,998	C.Y.
7	Modular Block Retaining Wall	4,776	L.F.
Erosion Control			
Item No.	Item	Estimated Quantity	Unit
1	SC 250 Turf Reinforcing Mat	3,591	S.Y.
2	18" Riprap	5,512	Ton
3	Seeding	3,104,655	S.F.
4	Erosion Control Devices, Sedimentation Fence	21,743	L.F.
5	Erosion Control Devices, Curb Inlet Protection	41	Ea.
6	Erosion Control Devices, Area Inlet & Junction Box Protection	26	Ea.
7	Erosion Control Devices, Temporary Construction Entrance	1	Ea.
8	Erosion Control Devices, Outlet Protection	89	L.F.
9	Erosion Control Devices, Sediment Basin	2	Ea.
Storm Sewer (Public)			
Item No.	Item	Estimated Quantity	Unit
1	RCP (48" CLASS 3)	170	L.F.
2	RCP (54" CLASS 3)	260	L.F.
3	Double Grate Inlet (7'x4')	1	Ea.
4	Double Grate Inlet (7'x7')	2	Ea.
5	Setback Curb Inlet (6'x4')	1	Ea.
6	Setback Curb Inlet (7'x6')	1	Ea.
7	Curb Inlet (3'x5')	1	Ea.
8	End Section RCP (54")	1	Ea.
Storm Sewer (Private)			
Item No.	Item	Estimated Quantity	Unit
1	HDPE (15")	171	L.F.
2	HDPE (18")	1,275	L.F.
3	HDPE (24")	1,311	L.F.
4	HDPE (30")	1,772	L.F.
5	HDPE (36")	1,084	L.F.
6	HDPE (42")	713	L.F.
7	HDPE (48")	1,180	L.F.
8	HDPE (60")	305	L.F.
9	Junction Box (7'x7')	1	Ea.
10	Double Grate Inlet (4'x4')	6	Ea.
11	Double Grate Inlet (5'x4')	1	Ea.
12	Double Grate Inlet (5'x5')	11	Ea.
13	Double Grate Inlet (6'x6')	6	Ea.
14	Double Grate Inlet (7'x7')	2	Ea.
15	Double Grate Inlet (8'x8')	1	Ea.
16	Setback Curb Inlet (5'x3')	4	Ea.
17	Setback Curb Inlet (5'x4')	4	Ea.
18	Setback Curb Inlet (5'x5')	1	Ea.
19	Setback Curb Inlet (6'x5')	2	Ea.
20	Setback Curb Inlet (6'x6')	2	Ea.
21	Setback Curb Inlet (6'x7')	1	Ea.
22	Setback Curb Inlet (7'x7')	1	Ea.
23	Setback Curb Inlet (8'x3')	2	Ea.
24	Curb Inlet (5'x3')	6	Ea.
25	Curb Inlet (5'x4')	4	Ea.
26	Curb Inlet (5'x4.5')	1	Ea.
27	Curb Inlet (6'x4')	2	Ea.
28	Curb Inlet (6'x6')	1	Ea.
29	Curb Inlet (8'x4')	1	Ea.
30	Curb Inlet (8'x5')	1	Ea.
31	Special Inlet Riser (5'x5')	3	Ea.
32	Landscape Drain (18")(PVC)	1	Ea.
33	End Section HDPE (24")	1	Ea.
34	End Section HDPE (36")	3	Ea.
35	End Section HDPE (60")	1	Ea.

1

	LDO	CHK
	BKR	CHK
	LDO	CHK
	LDO	CHK

	REV	DATE	DESCRIPTION
1	0	7-24-19	REVISED PER CITY COMMENTS
	0	7-31-19	INITIAL ISSUE



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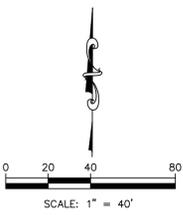
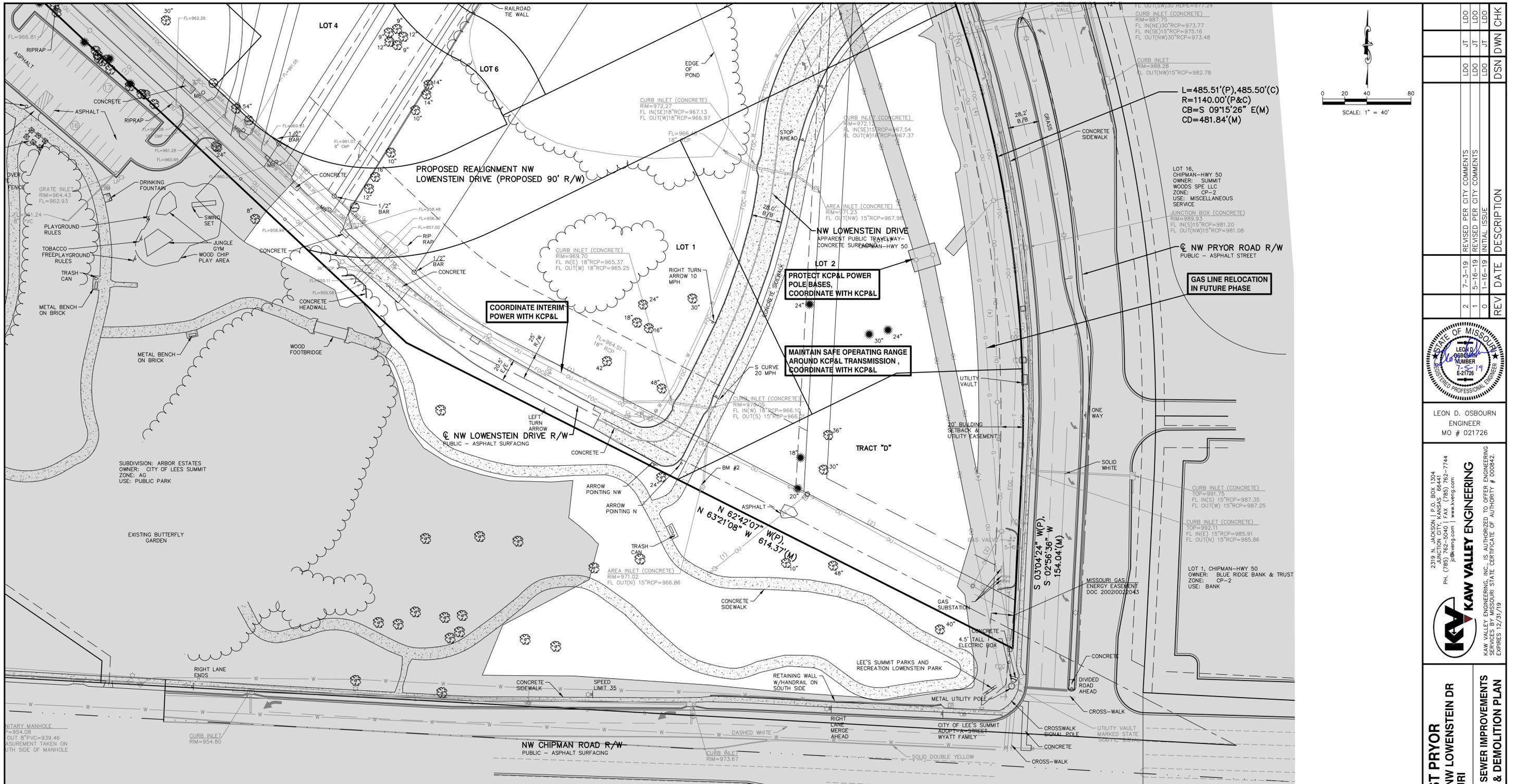
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI. CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19.

STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
SUMMARY OF QUANTITIES

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	CFN
SHEET	7067-1G_QTY
REV	1

C-1A



REV	DATE	DESCRIPTION	DSN	CHK
2	7-3-19	REVISED PER CITY COMMENTS	LDL	LDL
1	5-16-19	REVISED PER CITY COMMENTS	LDL	LDL
0	1-16-19	INITIAL ISSUE	LDL	LDL



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**STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI**

**MASS GRADING & STORM SEWER IMPROVEMENTS
EXISTING CONDITIONS & DEMOLITION PLAN**

PROJ. NO. **A14-7067-1**
DESIGNER **LDL** DRAWN BY **LDL**
CFN **7067-16-DEMO** SHEET **C-3** REV **2**

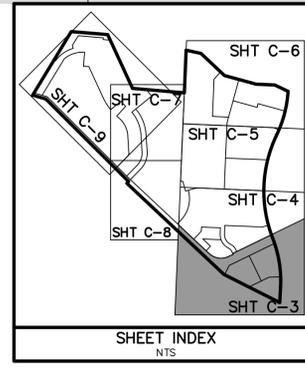
CAUTION - NOTICE TO CONTRACTOR
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS 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 SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THESE 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 PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE ALL BUILDINGS, UTILITIES, PAVEMENT, FOUNDATIONS, FENCES, CURBS AND ALL OTHER STRUCTURES FROM WITHIN PROPERTY LINES EXCEPT AS DESIGNATED "TO REMAIN" OR "TO BE REMOVED BY OTHERS", IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CITY OF LEE'S SUMMIT AND STATE REGULATIONS. SITE CONDITIONS SHOWN WERE AS OF MARCH 30, 2018.
- ALL UTILITY PIPE LINES TO BE ABANDONED SHALL BE PLUGGED PER CITY AND STATE REGULATIONS.
- DRIVES, PAVING AND OTHER STRUCTURES ON STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE REMOVED AS NECESSARY TO CONSTRUCT IMPROVEMENTS SHOWN ON THESE PLANS. REMOVAL AND DISPOSAL SHALL BE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
- ALL PAVING WITHIN PROPERTY TO BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
- ALL EXISTING UTILITIES ETC. LOCATED WITHIN THE BOUNDARIES OF THE PROPOSED BUILDING SHALL BE COMPLETELY REMOVED TO 10 FEET OUTSIDE OF BUILDING LINE.
- ALL HAZARDOUS ASBESTOS AND OTHER HAZARDOUS MATERIALS MUST BE IDENTIFIED AND REMOVED PRIOR TO ANY BUILDING DEMOLITION, IN STRICT CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

- CONTRACTOR SHALL VERIFY THAT ALL UTILITIES TO EXISTING STRUCTURES HAVE BEEN DISCONNECTED PRIOR TO COMMENCING DEMOLITION.
- EXISTING POWER LINES AND APPURTENANCES TO BE RELOCATED BY KANSAS POWER & LIGHT.
- TREE LINES AND INDIVIDUAL TREES SHOWN ARE BASED ON ORIGINAL SURVEY. INITIAL CLEARING AND GRUBBING HAS BEEN COMPLETED. CONTRACTOR SHALL REMOVE ANY ADDITIONAL TREES AND SHRUB IN AREAS INDICATED FOR GRADING AND DEMOLITION.
- COORDINATE WITH KAW VALLEY ENGINEERING PRIOR TO REMOVAL OF SECTION MONUMENTS AND PROPERTY PINS. KAW VALLEY ENGINEERING WILL RESET NECESSARY MONUMENTS WITHIN THE DISTURBED AREAS FOLLOWING DEMOLITION. CARE SHALL BE TAKEN TO PRESERVE PROPERTY PINS ALONG THE OUTSIDE PERIMETER OF THE SITE.
- CONTRACTOR SHALL OBTAIN DEMOLITION PERMITS FOR EACH INDIVIDUAL HOUSE WITHIN THE AREA SHOWN. ALL SERVICE LINE SHUT-OFFS, WELL PLUGGING, SEPTIC TANK REMOVALS AND OTHER UTILITY REMOVALS SHALL BE HANDLED IN ACCORDANCE WITH STATE AND CITY CODES.
- KCP&L TRANSMISSION MAIN SHALL REMAIN IN PLACE DURING DEMOLITION. FOLLOW ALL KCP&L REQUIREMENTS CONCERNING WORK IN THEIR EASEMENT AND IN PROXIMITY TO THEIR LINES, INCLUDING PROTECTION OF POLES AND SAFE WORKING DISTANCES FROM LINES.



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

BENCHMARKS:
BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. (ELEV=984.97)
BM #2: CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25'± EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE A 90° BEND IN ROAD. (ELEV=970.98)



REV	DATE	DESCRIPTION
2	7-3-19	REVISED PER CITY COMMENTS
1	5-18-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE

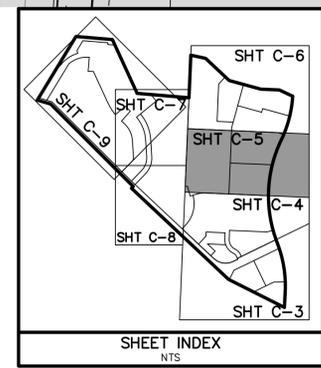


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KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI STATE CERTIFICATE OF AUTHORITY # 000862. EXPIRES 12/31/19

STREETS OF WEST PRYOR	
NW QW PRYOR RD & NW LOWENSTEIN DR	
LEE'S SUMMIT, MISSOURI	
MASS GRADING & STORM SEWER IMPROVEMENTS EXISTING CONDITIONS & DEMOLITION PLAN	
PROJ. NO.	A14 7067-1
DESIGNER	LDO
DRAWN BY	5
CFN	7067-1G DEMO
SHEET	C-5
REV	2

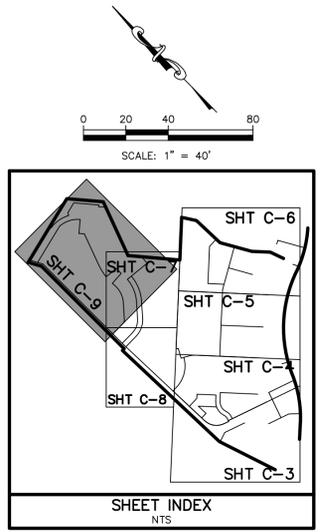
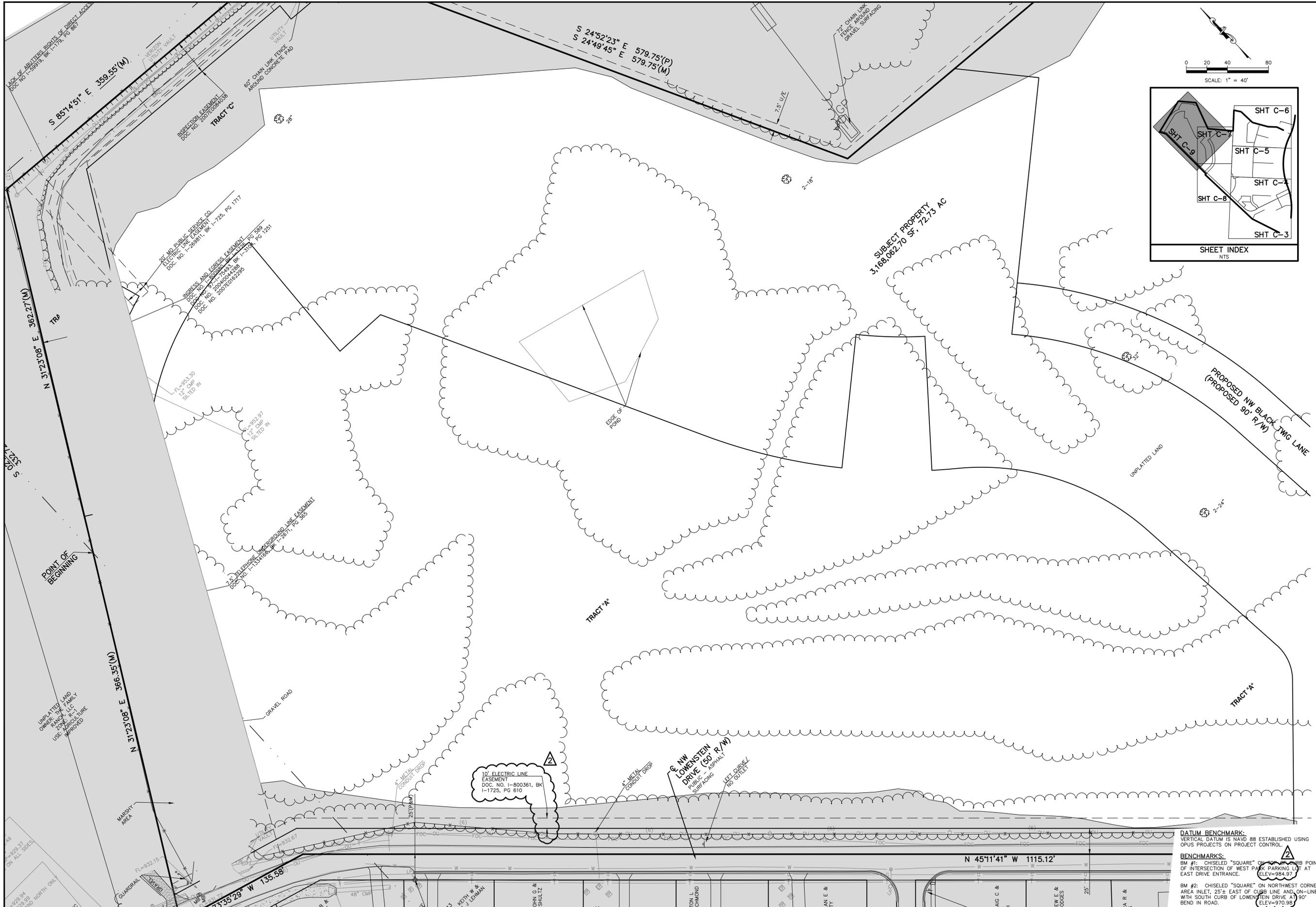


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VERTICAL DATUM IS NAVD 88 ESTABLISHED USING OPUS PROJECTS ON PROJECT CONTROL.

BENCHMARKS:

BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. (ELEV=984.97)

BM #2: CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25'± EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE A) 90° BEND IN ROAD. (ELEV=970.98)



REV	DATE	DESCRIPTION
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE



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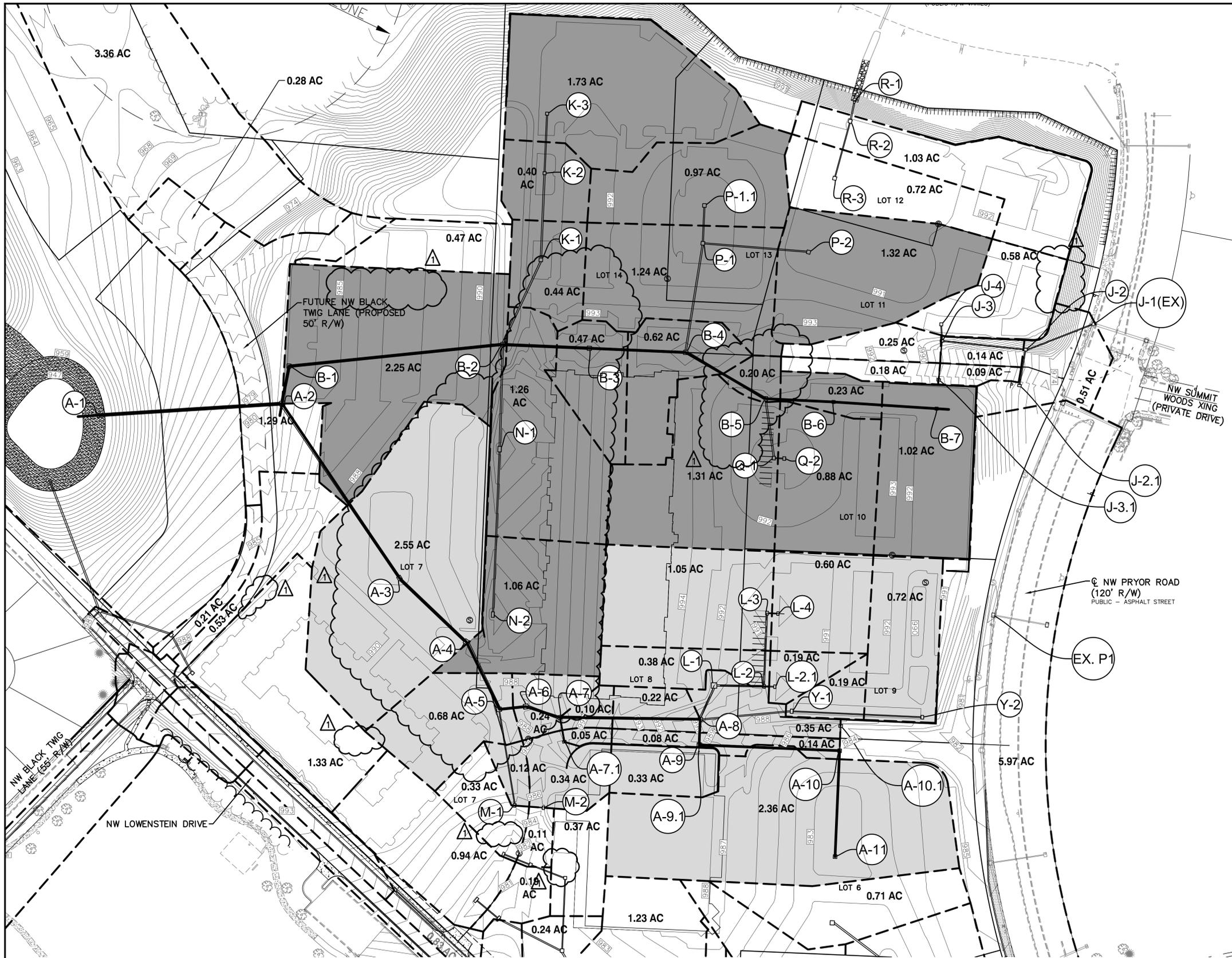
STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

**MASS GRADING & STORM SEWER IMPROVEMENTS
EXISTING CONDITIONS & DEMOLITION PLAN**

PROJ. NO.	A14-7067-1
DESIGNER	LDO
DRAWN BY	51
CFN	
SHEET	7067-16 DEMO
	C-9
REV	2

DATUM BENCHMARK:
VERTICAL DATUM IS NAVD 88 ESTABLISHED USING OPUS POINTS ON PROJECT CONTROL.

BENCHMARKS:
BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. (ELEV=984.97)
BM #2: CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25'± EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE A) 90° BEND IN ROAD. (ELEV=970.98)



LEGEND

- 955 FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT
- TRUNK LINE "A" DRAINAGE AREAS
- TRUNK LINE "B" DRAINAGE AREAS

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	5-18-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	1-16-19	INITIAL ISSUE	LDO	JT	LDO



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KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER THE SUPERVISION OF LEON D. OSBOURN, LICENSED PROFESSIONAL ENGINEER, LICENSE NO. E21726, EXPIRES 12/31/19.

STREETS OF WEST PRYOR
 NW Q NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
DRAINAGE AREA MAP - STORM SEWER LINES A, B, J, L & R

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	7067-1G_DAM_AB
SHEET	REV
C-10	1

△ PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS



Line ID	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	Total C x A	Inlet Time (min)	TimeConc (min)	Rnfal Int (in/hr)	Total Runoff (100-year) (cfs)	Line Length (ft)	PipeSize (in)	Grnd/Rim Up (ft)	Pipe Slope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	Capac Full (cfs)	Veloc (ft/s)	HGLDn (ft)	HGLUp (ft)
A1 TO A2	-	28.24	-	-	28.24	-	8.80	9.00	255.51	305.0	60	983.89	3.16	954.85	964.50	463.31	19.00	957.50	968.95
A2 TO A3	2.55	10.90	1.0	2.55	10.90	5.00	8.00	9.30	101.16	345.2	48	987.50	1.16	965.00	969.00	154.63	8.53	970.92	972.35
A3 TO A4	-	8.35	-	-	8.35	-	7.60	9.40	78.63	152.1	48	990.00	0.53	969.20	970.00	104.17	7.59	972.97	972.68
A4 TO A5	1.25	8.35	1.0	1.25	8.35	5.00	7.20	9.50	79.56	122.9	48	980.43	0.57	970.20	970.90	108.41	8.27	973.26	973.60
A5 TO A6	0.34	7.10	1.0	0.34	7.10	5.00	7.10	9.60	67.91	44.0	42	987.70	0.68	971.40	971.70	83.07	8.84	974.03	974.28
A6 TO A7	0.15	6.76	1.0	0.15	6.76	5.00	7.00	9.60	65.00	59.1	42	990.50	0.68	971.90	972.30	82.75	8.17	974.81	974.82
A7 TO A8	3.35	6.61	1.0	3.35	6.61	5.00	6.40	9.80	64.89	231.1	42	990.00	0.56	972.50	973.80	75.46	8.29	975.31	976.32
A8 TO A9	0.41	3.26	1.0	0.41	3.26	5.00	6.30	9.90	32.13	42.0	30	990.00	0.95	974.80	975.20	40.02	7.69	976.84	977.13
A9 TO A10	0.49	2.85	1.0	0.49	2.85	5.00	5.60	10.10	28.77	231.6	30	984.23	0.65	975.40	976.90	33.00	6.93	977.57	978.73
A10 TO A11	2.36	2.36	1.0	2.36	2.36	5.00	5.00	10.30	24.35	174.3	30	982.00	0.52	977.10	978.00	29.47	6.12	979.22	979.73
A2 TO B1	2.25	17.34	1.0	2.25	17.34	5.00	8.10	9.30	160.41	62.7	48	983.02	5.58	965.00	968.50	339.46	13.03	969.39	972.17
B1 TO B2	4.46	15.09	1.0	4.46	15.09	5.00	7.60	9.40	142.16	354.1	48	993.00	1.75	968.70	974.90	190.08	11.72	972.92	978.43
B2 TO B3	0.52	8.31	1.0	0.52	8.31	5.00	7.20	9.50	79.33	142.6	48	991.50	0.42	978.90	979.50	93.18	8.33	981.74	982.33
B3 TO B4	4.15	7.79	1.0	4.15	7.79	5.00	6.80	9.70	75.26	158.8	42	991.50	0.76	980.00	981.20	87.46	9.57	982.62	983.91
B4 TO B5	2.39	3.64	1.0	2.39	3.64	5.00	6.30	9.80	35.79	152.3	36	993.00	0.53	983.40	984.20	48.33	7.44	985.32	986.14
B5 TO B6	0.23	1.25	1.0	0.23	1.25	5.00	5.80	10.00	12.50	111.7	24	991.00	0.54	985.20	985.80	16.58	5.36	986.75	987.07
B6 TO B7	1.02	1.02	1.0	1.02	1.02	5.00	5.00	10.30	10.52	170.1	24	991.00	0.59	986.00	987.00	17.34	4.83	987.53	988.16
C1 TO C2	0.38	9.22	1.0	0.38	9.22	5.00	9.30	8.90	82.17	80.6	54	981.36	0.50	966.00	966.40	138.51	5.17	972.60	972.74
C2 TO C3	0.20	8.84	1.0	0.20	8.84	5.00	8.70	9.10	80.19	158.1	54	979.75	0.51	966.60	967.40	139.91	5.04	972.82	973.09
C3 TO C4	0.69	8.64	1.0	0.69	8.64	5.00	8.60	9.10	78.57	21.5	54	980.12	0.47	967.60	967.70	134.18	4.94	973.50	973.53
C4 TO C5	0.54	7.95	1.0	0.54	7.95	5.00	8.40	9.20	72.84	75.9	48	980.02	0.53	968.20	968.60	104.27	5.80	973.90	974.10
C5 TO C6	0.25	7.41	1.0	0.25	7.41	5.00	8.30	9.20	68.05	22.0	48	980.04	0.45	968.80	968.90	96.86	5.42	974.33	974.38
C6 TO C7	0.19	7.16	1.0	0.19	7.16	5.00	8.10	9.30	66.28	72.0	48	980.07	0.56	969.10	969.50	107.07	5.27	974.47	974.63
C7 TO C8	1.91	6.97	1.0	1.91	6.97	5.00	8.00	9.30	64.66	25.4	42	981.00	0.79	970.00	970.20	89.19	6.72	974.83	974.94
C8 TO C9	0.88	5.06	1.0	0.88	5.06	5.00	7.30	9.50	48.02	195.4	42	980.20	0.46	970.40	971.30	68.27	4.99	975.96	976.40
C9 TO C10	0.43	4.18	1.0	0.43	4.18	5.00	7.10	9.60	40.02	84.3	36	980.50	0.59	971.80	972.30	51.37	5.66	976.46	976.77
C10 TO C11	0.35	3.75	1.0	0.35	3.75	5.00	6.70	9.70	36.33	104.1	36	979.00	0.58	972.50	973.10	50.63	5.14	977.14	977.45
C11 TO C12	1.23	3.40	1.0	1.23	3.40	5.00	6.30	9.80	33.43	116.1	36	979.00	0.52	973.20	973.80	47.94	4.73	977.92	978.21
C12 TO C13	1.05	2.17	1.0	1.05	2.17	5.00	5.70	10.10	21.83	169.7	30	982.00	0.53	974.30	975.20	29.87	4.45	978.36	978.84
C13 TO C14	0.17	1.12	1.0	0.17	1.12	5.00	5.10	10.30	11.49	117.8	24	980.90	0.51	975.70	976.30	16.14	3.66	979.12	979.42
C14 TO C15	0.95	0.95	1.0	0.95	0.95	5.00	5.00	10.30	9.80	47.0	18	980.90	0.64	976.80	977.10	8.39	5.55	979.48	979.89
EX1 TO EX3	6.48	7.72	1.0	6.48	7.72	5.00	5.90	10.00	77.17	91.4	42	971.21	2.83	956.07	958.66	169.34	8.78	959.57	961.41
J1 TO J2	0.43	1.01	1.0	0.43	1.01	5.00	5.20	10.20	10.35	134.1	18	987.88	7.23	974.50	984.20	28.24	10.69	975.13	985.44
J1EX TO J2	0.23	1.24	1.0	0.23	1.24	5.00	5.60	10.10	12.53	124.0	18	978.60	2.74	963.70	967.10	17.39	9.13	964.64	968.43
J2 TO J3	0.58	0.58	1.0	0.58	0.58	5.00	5.00	10.30	5.98	36.7	18	990.00	0.82	984.40	984.70	9.49	4.26	985.85	985.64
B2 TO N1	1.26	2.32	1.0	1.26	2.32	5.00	6.30	9.80	22.81	170.0	30	985.30	0.53	976.40	977.30	29.84	4.65	980.37	980.90
N1 TO N2	1.06	1.06	1.0	1.06	1.06	5.00	5.00	10.30	10.94	275.0	24	985.30	0.55	977.80	979.30	16.70	3.48	981.10	981.74
R1 TO R2	1.03	1.75	1.0	1.03	1.75	5.00	5.40	10.20	17.80	33.7	24	990.00	0.89	981.70	982.00	21.35	7.15	983.14	983.52
R2 TO R3	0.72	0.72	1.0	0.72	0.72	5.00	5.00	10.30	7.43	97.0	18	990.00	0.72	982.50	983.20	8.92	4.90	984.00	984.25



LDO	JT	LDO	CHK
LDO	JT	LDO	CHK
DSN	DWN	DSN	CHK

REV	DATE	DESCRIPTION
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE



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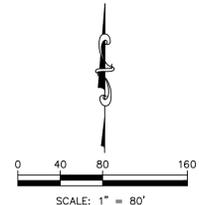
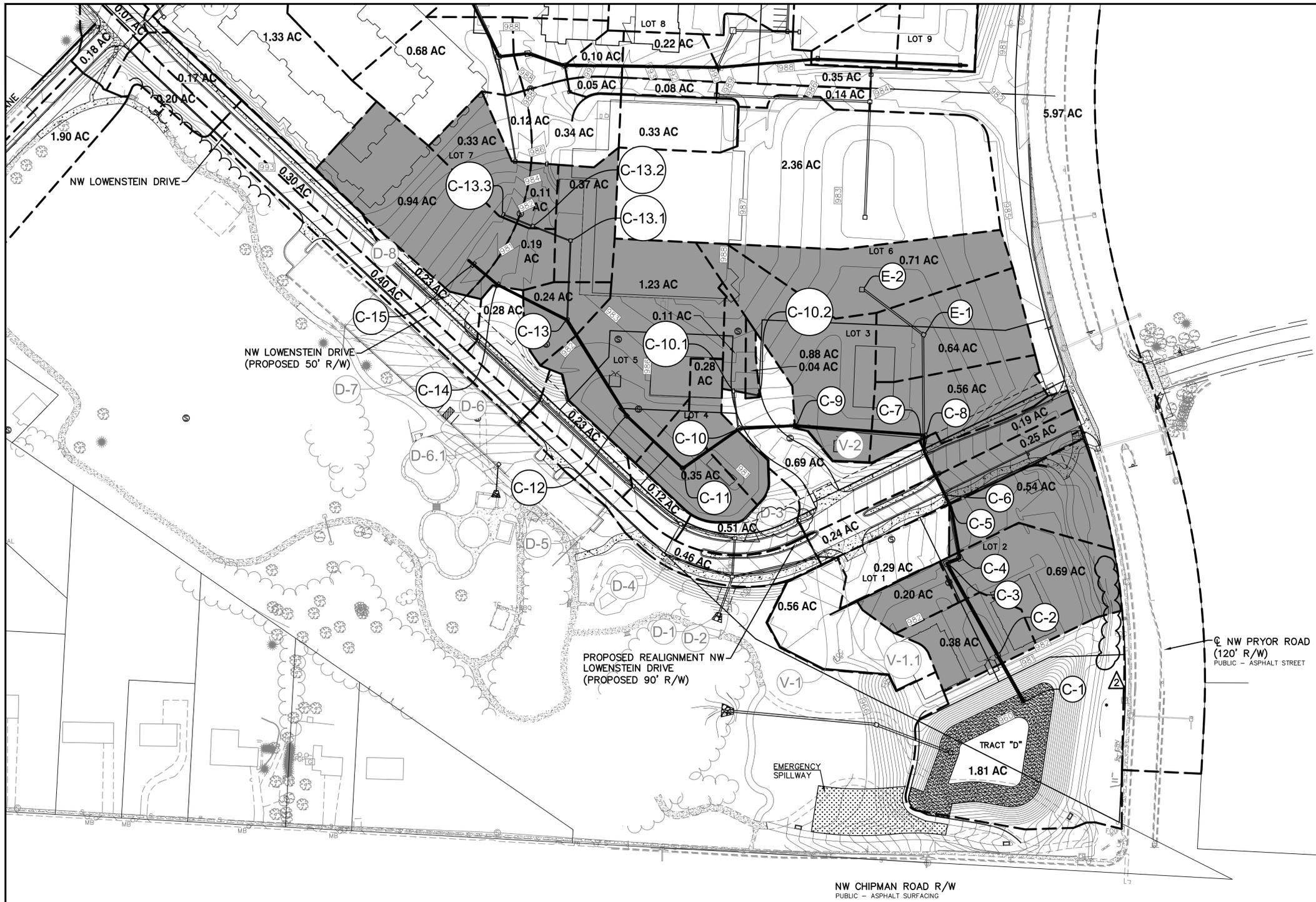
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING
DESIGN SERVICES IN THE STATE OF MISSOURI
EXPIRES 12/31/19

STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
DRAINAGE AREA MAP - DESIGN TABLES STORM LINES A, B, C, & R

PROJ. NO. **A14-7067-1**
DESIGNER **LDO** DRAWN BY **JT**
CFN **7067-16_DAM_CHART**
SHEET **C-11** REV **1**

PROJ. NO.	A14-7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	7067-16_DAM_CHART
SHEET	C-11
REV	1



LEGEND

955	FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT
	TRUNK LINE "C" DRAINAGE AREAS

REV	DATE	DESCRIPTION	CHK
2	7-3-19	REVISED PER CITY COMMENTS	LDO
1	5-16-19	REVISED PER CITY COMMENTS	LDO
0	1-16-19	INITIAL ISSUE	LDO
			DSN
			DWN
			CHK



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

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
DRAINAGE AREA MAP - STORM SEWER LINE C

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	
7067-1G_DAM_C	
SHEET	REV
C-12	2

PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS

CONTRACTOR TO COORDINATE WITH CONSTRUCTION OF STORM LINES, D, V, T, H - SEE SEPARATE NW LOWENSTEIN DRIVE STREET PLANS

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IF DISCREPANCIES EXIST BETWEEN THE GRADING NOTES BELOW AND THE RECOMMENDATIONS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT SHALL GOVERN.

GRADING NOTES:

1. THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE. EXCESS TOPSOIL MAY BE WASTED IN FILL SLOPES PROVIDED THAT NO TOPSOIL WILL BE WASTED WITHIN 10 FEET OF THE EDGE OF THE BUILDING OR PARKING AREA. BURNING OF TIMBER WILL NOT BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM GOVERNING OFFICIALS. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES.
2. AREAS TO RECEIVE FILL SHALL BE SCARIFIED AND THE TOP 8-INCH DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.
3. OFF-SITE FILL MATERIAL SHALL HAVE A PLASTICITY INDEX OF 25 OR LESS, A LIQUID LIMIT OF 45 OR LESS AND CONTAIN NO ROCK LARGER THAN FOUR INCHES. OFF-SITE FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER PRIOR TO BRINGING ON SITE.
4. EARTHWORK UNDER THE BUILDING SHALL COMPLY WITH THE PROJECT ARCHITECTURAL PLANS. OTHER FILL MATERIAL SHALL BE MADE IN LIFTS NOT TO EXCEED EIGHT INCHES DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. FILL MATERIAL MAY INCLUDE ROCK FROM ON-SITE EXCAVATION IF CAREFULLY PLACED SO THAT LARGE STONES ARE WELL DISTRIBUTED AND VOIDS ARE COMPLETELY FILLED WITH SMALLER STONES, EARTH, SAND OR GRAVEL TO FURNISH A SOLID EMBANKMENT. NO ROCK LARGER THAN THREE INCHES IN ANY DIMENSION NOR ANY SHALE SHALL BE PLACED IN THE TOP 12 INCHES OF EMBANKMENT.
5. AREAS THAT ARE TO BE CUT TO SUBGRADE LEVELS SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS.
6. IN ALL AREAS OF EXCAVATION, IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED, A QUALIFIED GEOTECHNICAL ENGINEER SHALL RECOMMEND TO THE ENGINEER THE METHODS OF UNDERCUTTING AND REPLACEMENT OF PROPERLY COMPACTED, APPROVED FILL MATERIAL. ALL PROOFROLLING AND UNDERCUTTING SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
8. ALL SLOPES ARE TO BE 3:1 OR FLATTER UNLESS OTHERWISE INDICATED.
9. ALL SLOPES EXCEEDING 3:1 SHALL BE PROTECTED BY RIP RAP, CONCRETE PAVING, OR OTHER METHODS INDICATED ON THESE PLANS, THAT WILL PREVENT EROSION AND PLACED SUCH THAT THE SURFACE IS FLUSH WITH SURROUNDING GROUND AND SHAPED TO CHANNEL WATER IN DIRECTIONS INDICATED.
10. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON-SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
11. CONTRACTOR SHALL USE SILT FENCE OTHER MEANS OF CONTROLLING EROSION ALONG THE EDGE OF THE PROPERTY OR OTHER BOTTOM OF SLOPE LOCATIONS.
12. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS.
13. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
14. IT IS NOT THE DUTY OF THE ENGINEER OR THE OWNER TO REVIEW THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE AT ANY TIME DURING CONSTRUCTION.
15. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.
16. CONTRACTOR TO PROVIDE WALL DETAILS AND PLANS SEALED BY A MISSOURI LICENSED ENGINEER. WALL DESIGNER TO VERIFY BEARING CAPACITY AND GLOBAL STABILITY FOR WALL CALCULATIONS.
17. HANDICAP STALLS SHALL MEET ADA REQUIREMENTS AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION AT THE BUILDING ENTRY AND ACCESSIBLE PARKING STALLS. SLOPES EXCEEDING 2.0% WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS

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

BENCHMARKS:
BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=984.97
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=970.98

PROJ. NO.	A14_7067-1	
DESIGNER	LDO	
DRAWN BY	5	
CEN	7067-1G_GP	
SHEET	C-14	
REV	4	
REV	DATE	DESCRIPTION
4	9-26-19	REVISED PER CLIENT COMMENTS
3	8-19-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE
DSN	DWN	CHK



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STREETS OF WEST PRYOR
NW & NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
OVERALL GRADING PLAN

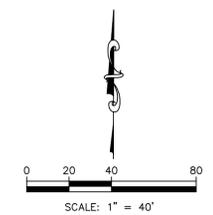


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PROJ. NO.	A14 7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	7067-1G-0P
SHEET	C-17
REV	4

REV	DATE	DESCRIPTION	DSN	DWN	CHK
4	9-26-19	REVISED PER CLIENT COMMENTS	LDO	BKR	LDO
3	8-19-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
2	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	5-16-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	11-16-19	INITIAL ISSUE	LDO	JT	LDO

LEON D. OSBOURN ENGINEER MO # 021726	
KAW VALLEY ENGINEERING 2319 N. JACKSON P.O. BOX 1304 JUNCTION CITY, KANSAS 66441 PH. (785) 762-5040 FAX (785) 762-7744 j.osbourn@kve.com www.kve.com	
STREETS OF WEST PRYOR NW QW PRYOR RD & NW LOWENSTEIN DR LEE'S SUMMIT, MISSOURI MASS GRADING & STORM SEWER IMPROVEMENTS GRADING PLAN	



LEGEND (PROPOSED)

TW=983.6 TOP OF RETAINING WALL
 GR=983.1 GROUND ELEVATION @ WALL

← FLOW DIRECTION

[955] FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT

NOTES:

24B MODULAR BLOCK RETAINING WALL (LINEAR FOOT NOTED)



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KAW VALLEY ENGINEERING

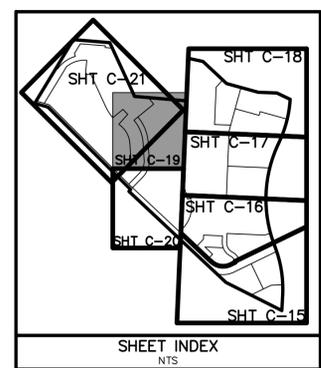
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842, EXPIRES 12/31/19

STREETS OF WEST PRYOR
 NW Q NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS GRADING PLAN

PROJ. NO. **A14 7067-1**
 DESIGNER **LDO** DRAWN BY **JT**

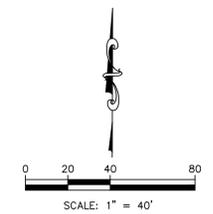
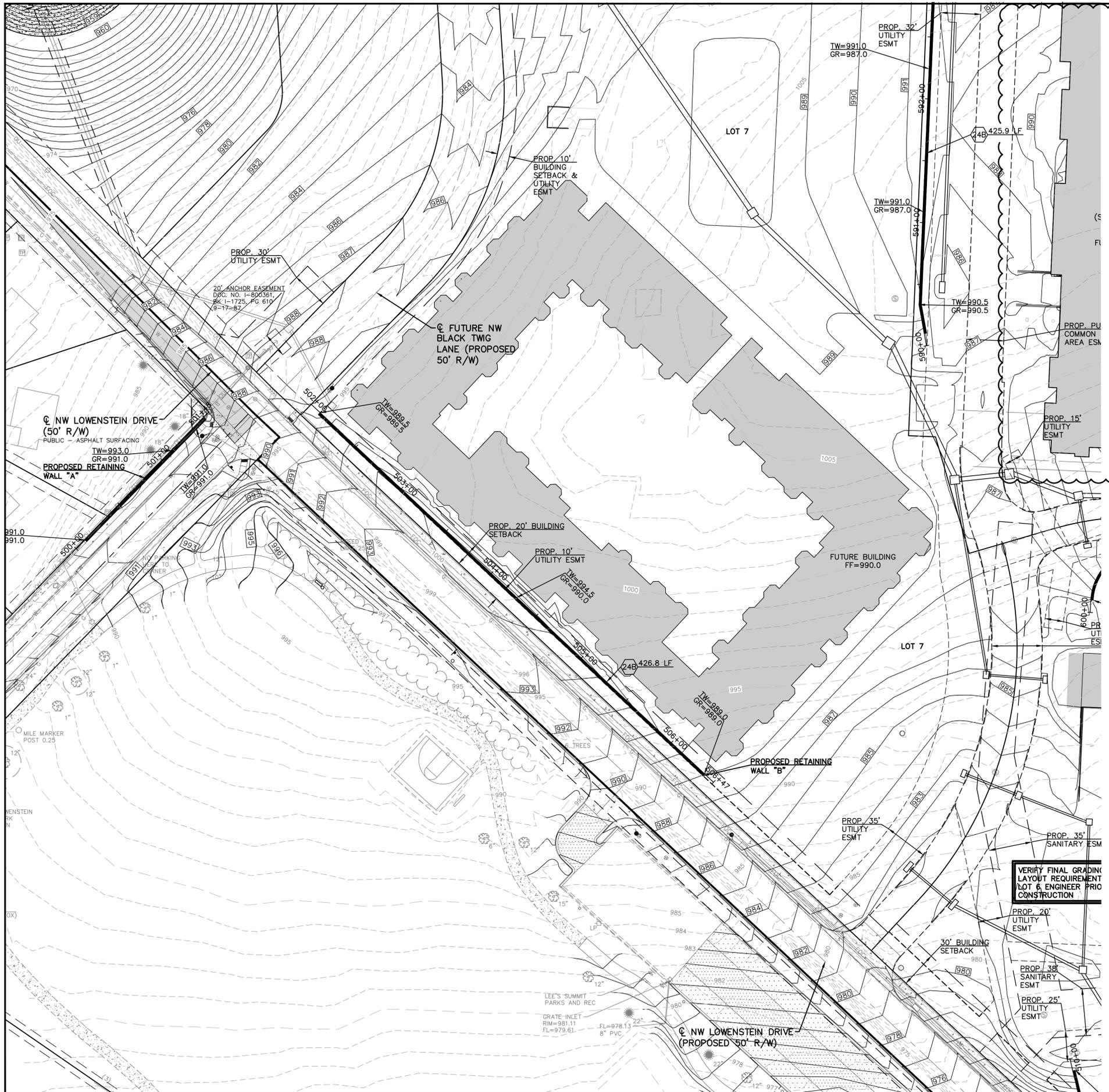
CFN **7067-1G-0P**
 SHEET **C-19** REV **3**



PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS

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

BENCHMARKS:
 BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=984.97
 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=970.98



LEGEND (PROPOSED)

— TW=983.6 TOP OF RETAINING WALL
 — GR=983.1 GROUND ELEVATION @ WALL

← FLOW DIRECTION

— 955 FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT

NOTES:

24B MODULAR BLOCK RETAINING WALL (LINEAR FOOT NOTED)

REV	DATE	DESCRIPTION
0	11-16-19	INITIAL ISSUE
1	5-16-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
3	8-19-19	REVISED PER CLIENT COMMENTS



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KAW VALLEY ENGINEERING

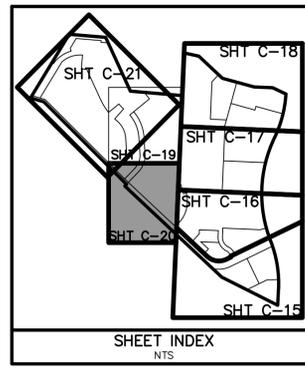
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE # 000842. EXPIRES 12/31/19

STREETS OF WEST PRYOR
 NW QW NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS GRADING PLAN

PROJ. NO. **A14 7067-1**
 DESIGNER **LDO** DRAWN BY **JT**

CFN **7067-1G_GP** SHEET **C-20** REV **3**



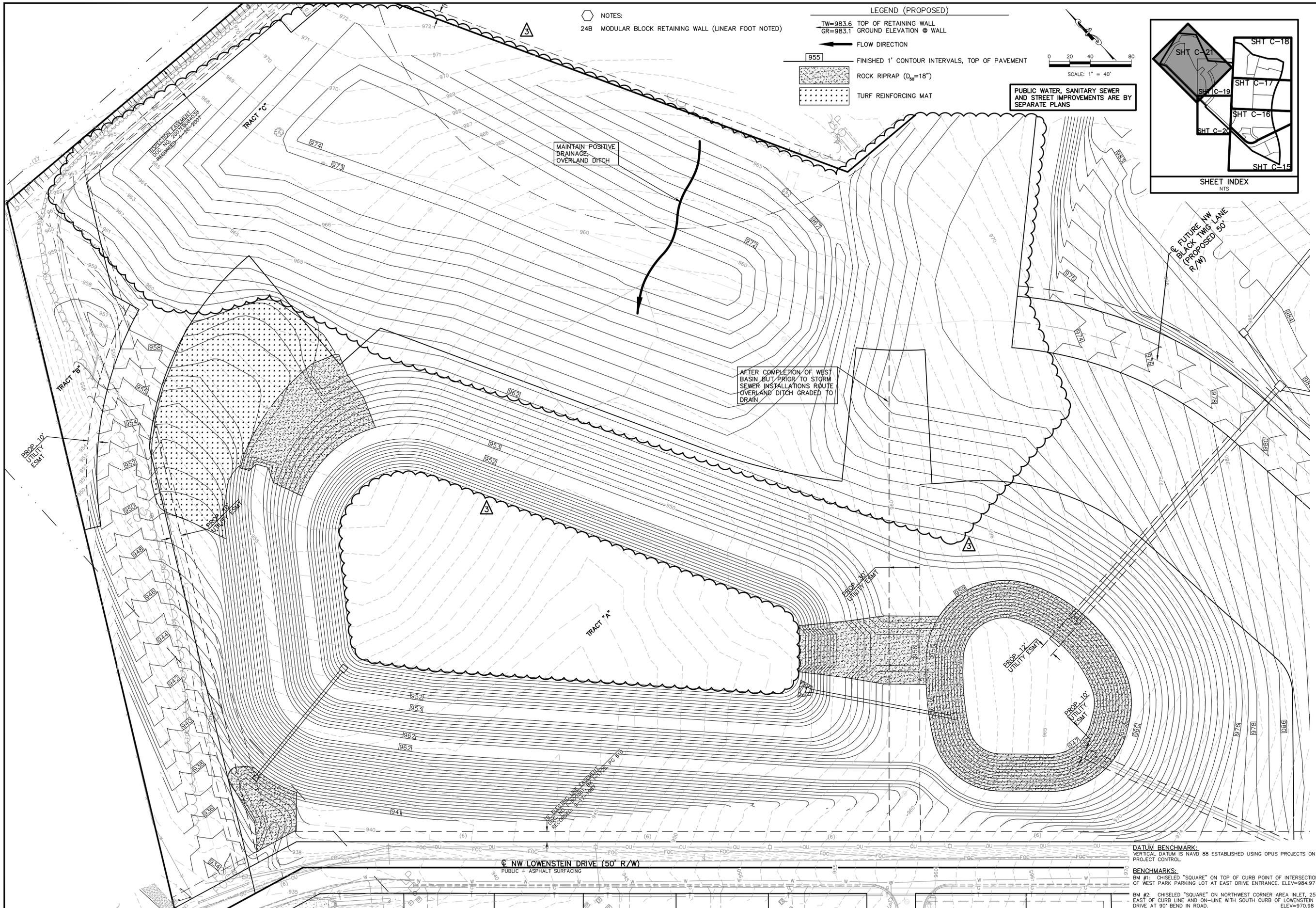
PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS

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

BENCHMARKS:
 BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=984.97
 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=970.98

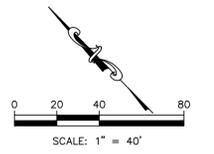
VERIFY FINAL GRADING LAYOUT REQUIREMENT LOT 6 ENGINEER PRIOR CONSTRUCTION

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.

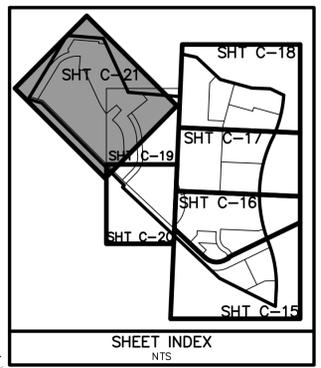


NOTES:
 24B MODULAR BLOCK RETAINING WALL (LINEAR FOOT NOTED)

LEGEND (PROPOSED)
 TW=983.6 TOP OF RETAINING WALL
 GR=983.1 GROUND ELEVATION @ WALL
 FLOW DIRECTION
 955 FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT
 ROCK RIPRAP (D₅₀=18")
 TURF REINFORCING MAT



PUBLIC WATER, SANITARY SEWER AND STREET IMPROVEMENTS ARE BY SEPARATE PLANS



MAINTAIN POSITIVE DRAINAGE OVERLAND DITCH

AFTER COMPLETION OF WEST BASIN BUT PRIOR TO STORM SEWER INSTALLATIONS ROUTE OVERLAND DITCH GRADED TO DRAIN

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	1-16-19	INITIAL ISSUE			
1	5-16-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
2	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
3	8-19-19	REVISED PER CLIENT COMMENTS	LDO	JT	LDO



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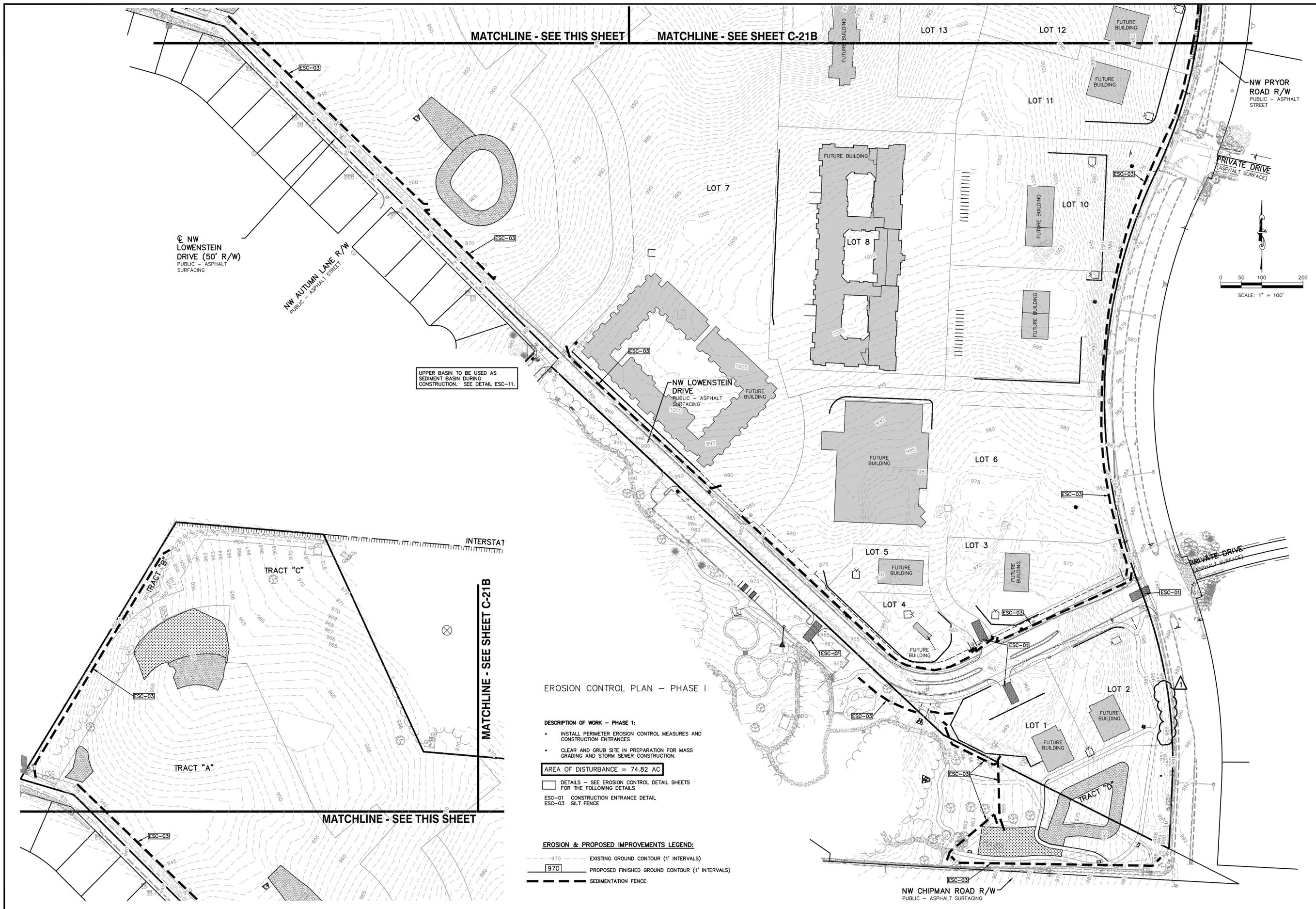
STREETS OF WEST PRYOR
 NWQ NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI
MASS GRADING & STORM SEWER IMPROVEMENTS GRADING PLAN

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

BENCHMARKS:
 BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. ELEV=964.97
 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=970.98

PROJ. NO.	A14 7067-1
DESIGNER	LDO
CFN	7067-1G-CP
SHEET	C-21
REV	3

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UPPER BASIN TO BE USED AS SEDIMENT BASIN DURING CONSTRUCTION. SEE DETAIL ESC-11.

EROSION CONTROL PLAN - PHASE I

- DESCRIPTION OF WORK - PHASE 1:**
- INSTALL PERIMETER EROSION CONTROL MEASURES AND CONSTRUCTION ENTRANCES
 - CLEAR AND GRUB SITE IN PREPARATION FOR MASS GRADING AND STORM SEWER CONSTRUCTION.

AREA OF DISTURBANCE = 74.82 AC

- DETAILS - SEE EROSION CONTROL DETAIL SHEETS FOR THE FOLLOWING DETAILS
- ESC-01 CONSTRUCTION ENTRANCE DETAIL
- ESC-03 SILT FENCE

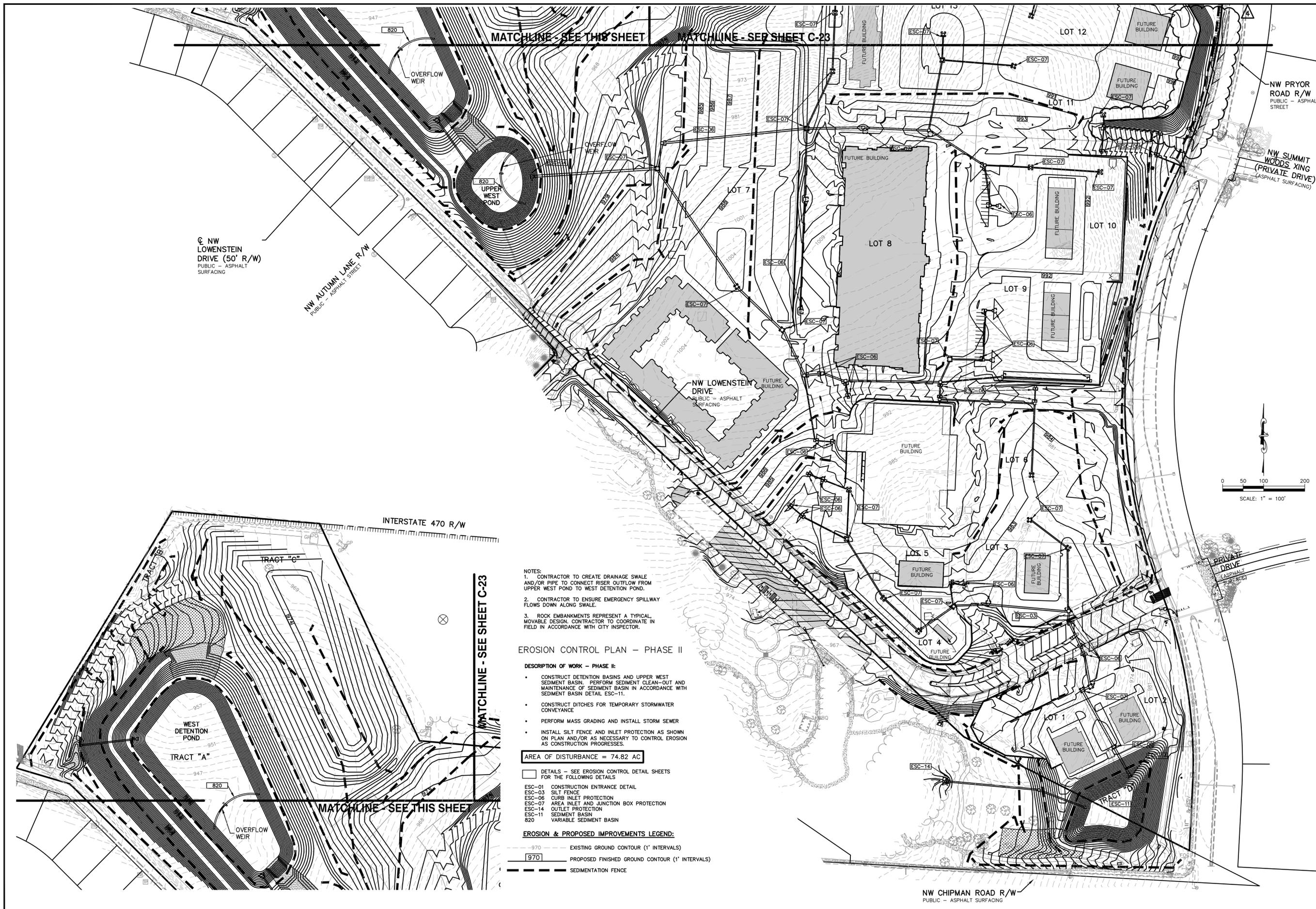
EROSION & PROPOSED IMPROVEMENTS LEGEND:

- 970 EXISTING GROUND CONTOUR (1' INTERVALS)
- 970 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- SEDIMENTATION FENCE

1	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-16-19	INITIAL ISSUE	LDO	JT	LDO
					DSN
					DWN
					CHK

<p>LEON D. OSBOURN ENGINEER MO # 021726</p>	
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<p>KAW VALLEY ENGINEERING KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19</p>	
<p>STREETS OF WEST PRYOR NW Q NW PRYOR RD & NW LOWENSTEIN DR LEE'S SUMMIT, MISSOURI</p>	
<p>MASS GRADING & STORM SEWER IMPROVEMENTS EROSION CONTROL PLAN - PHASE 1</p>	
PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	7067-1G ECP1
SHEET	1
	C-21A

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NOTES:

- CONTRACTOR TO CREATE DRAINAGE SWALE AND/OR PIPE TO CONNECT RISER OUTFLOW FROM UPPER WEST POND TO WEST DETENTION POND.
- CONTRACTOR TO ENSURE EMERGENCY SPILLWAY FLOWS DOWN ALONG SWALE.
- ROCK EMBANKMENTS REPRESENT A TYPICAL, MOVABLE DESIGN. CONTRACTOR TO COORDINATE IN FIELD IN ACCORDANCE WITH CITY INSPECTOR.

EROSION CONTROL PLAN - PHASE II

DESCRIPTION OF WORK - PHASE II:

- CONSTRUCT DETENTION BASINS AND UPPER WEST SEDIMENT BASIN. PERFORM SEDIMENT CLEAN-OUT AND MAINTENANCE OF SEDIMENT BASIN IN ACCORDANCE WITH SEDIMENT BASIN DETAIL ESC-11.
- CONSTRUCT DITCHES FOR TEMPORARY STORMWATER CONVEYANCE
- PERFORM MASS GRADING AND INSTALL STORM SEWER
- INSTALL SILT FENCE AND INLET PROTECTION AS SHOWN ON PLAN AND/OR AS NECESSARY TO CONTROL EROSION AS CONSTRUCTION PROGRESSES.

AREA OF DISTURBANCE = 74.82 AC

- 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
 - ESC-11 SEDIMENT BASIN
 - 820 VARIABLE SEDIMENT BASIN

EROSION & PROPOSED IMPROVEMENTS LEGEND:

- 970 EXISTING GROUND CONTOUR (1' INTERVALS)
- 970 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- SEDIMENTATION FENCE

PROJ. NO.	A14_7067-1	
DESIGNER	LDO	
DRAWN BY	JT	
CFN	7067-1G ECP2	
SHEET	4	
REV	DATE	DESCRIPTION
4	9-26-19	REVISED PER CLIENT COMMENTS
3	7-24-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE
DSN	DWN	CHK



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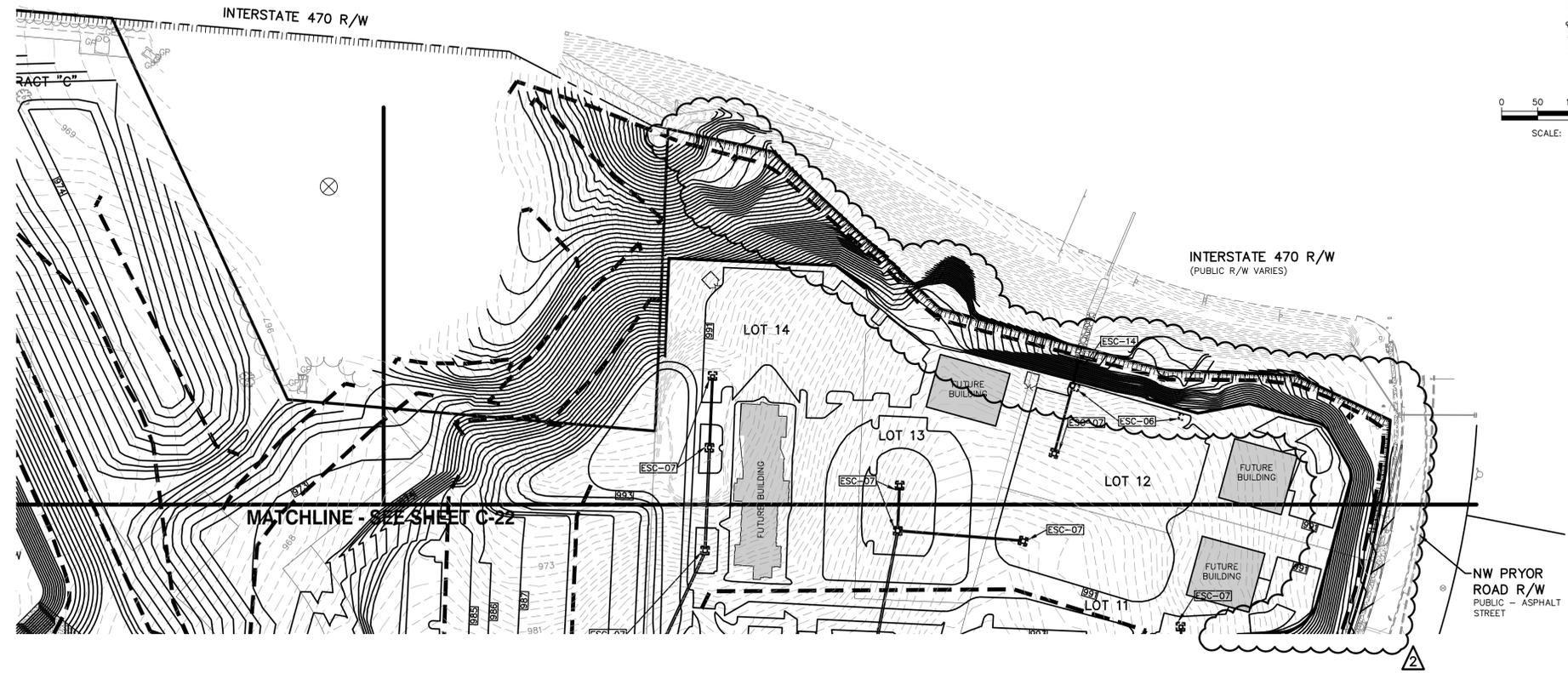


KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE # 000842. EXPIRES 12/31/19

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
EROSION CONTROL PLAN - PHASE 2

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.



GENERAL NOTES:

1. PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
2. THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
3. THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
4. ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
5. A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
6. ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
7. SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.
8. 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.
9. SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.
10. RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).
11. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.
12. 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.
13. TEMPORARY SEDIMENT FENCE TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
14. MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
15. 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.
16. INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.

17. 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.
18. TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
19. STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
20. 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.
21. 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.
22. GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.
23. 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.
24. RIGHT OF WAY TO BE STABILIZED AS REQUIRED BY APWA SECTION 2400.
25. EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.
26. 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.
27. 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.

EROSION CONTROL PLAN - PHASE II

DESCRIPTION OF WORK - PHASE II:

- CONSTRUCT DETENTION BASINS AND UPPER WEST SEDIMENT BASIN. PERFORM SEDIMENT CLEAN-OUT AND MAINTENANCE OF SEDIMENT BASIN IN ACCORDANCE WITH SEDIMENT BASIN DETAIL ESC-11.
- CONSTRUCT DITCHES FOR TEMPORARY STORMWATER CONVEYANCE
- PERFORM MASS GRADING AND INSTALL STORM SEWER
- INSTALL SILT FENCE AND INLET PROTECTION AS SHOWN ON PLAN AND/OR AS NECESSARY TO CONTROL EROSION AS CONSTRUCTION PROGRESSES.

AREA OF DISTURBANCE = 74.82 AC

□ 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
- ESC-11 SEDIMENT BASIN

EROSION & PROPOSED IMPROVEMENTS LEGEND:

- - - - -970 - - - - - EXISTING GROUND CONTOUR (1' INTERVALS)
- [970] PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- — — — — SEDIMENTATION FENCE

	LDO	CHK
	BKR	CHK
	LDO	CHK

REV	DATE	DESCRIPTION
2	9-26-19	REVISED PER CLIENT COMMENTS
1	5-18-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE



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MO # 021726

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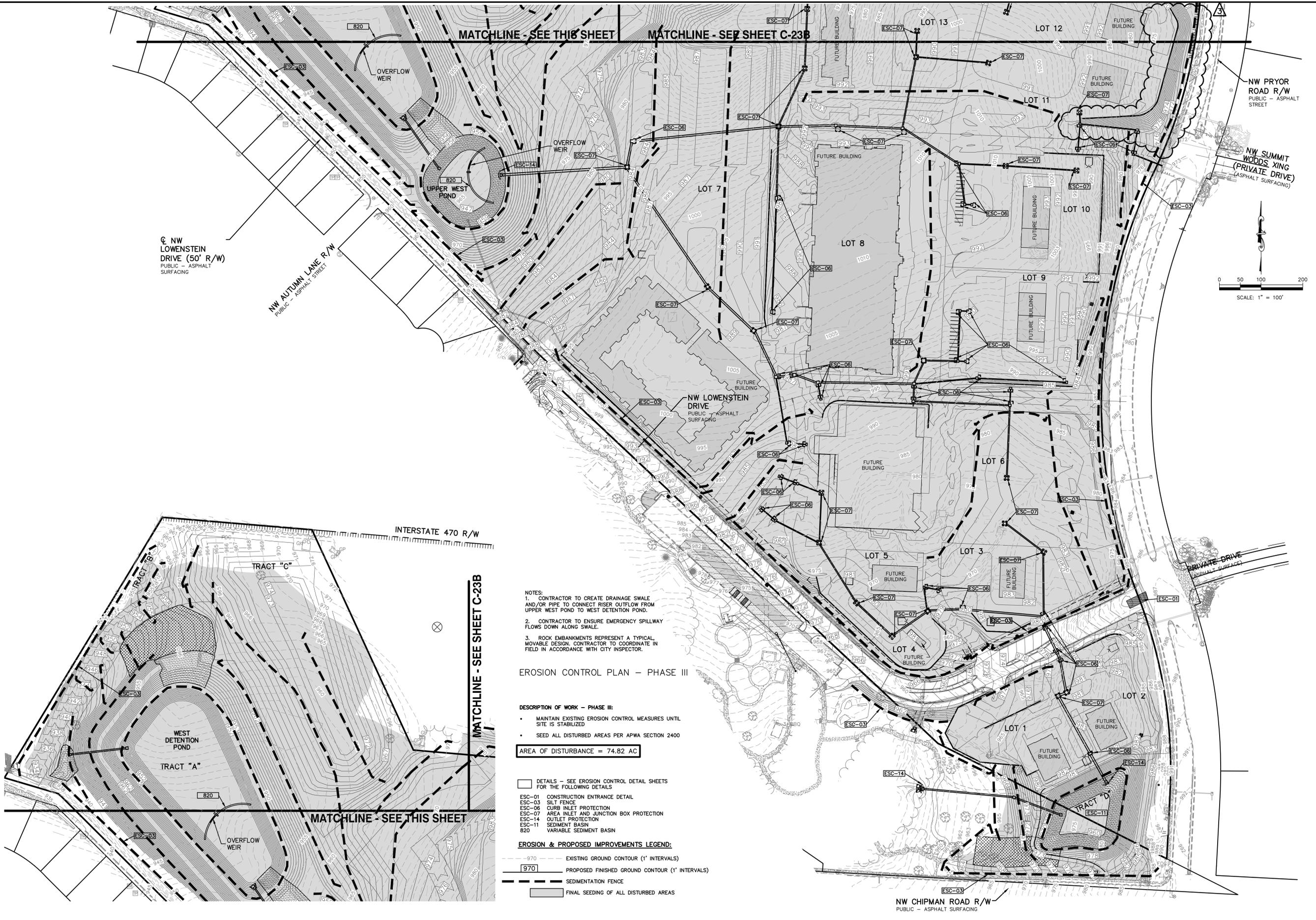
KAW VALLEY ENGINEERING

KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI. LICENSE # 000842. EXPIRES 12/31/19

STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
EROSION CONTROL PLAN - PHASE 2

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	7067-1G_ECP2
SHEET	C-23
REV	2



- NOTES:
- CONTRACTOR TO CREATE DRAINAGE SWALE AND/OR PIPE TO CONNECT RISER OUTFLOW FROM UPPER WEST POND TO WEST DETENTION POND.
 - CONTRACTOR TO ENSURE EMERGENCY SPILLWAY FLOWS DOWN ALONG SWALE.
 - ROCK EMBANKMENTS REPRESENT A TYPICAL MOVABLE DESIGN. CONTRACTOR TO COORDINATE IN FIELD IN ACCORDANCE WITH CITY INSPECTOR.

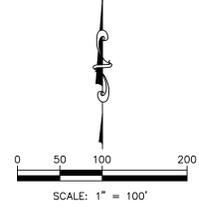
EROSION CONTROL PLAN - PHASE III

- DESCRIPTION OF WORK - PHASE III:
- MAINTAIN EXISTING EROSION CONTROL MEASURES UNTIL SITE IS STABILIZED
 - SEED ALL DISTURBED AREAS PER APWA SECTION 2400

AREA OF DISTURBANCE = 74.82 AC

- 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
 - ESC-11 SEDIMENT BASIN
 - 820 VARIABLE SEDIMENT BASIN

- EROSION & PROPOSED IMPROVEMENTS LEGEND:
- 970 EXISTING GROUND CONTOUR (1' INTERVALS)
 - 970 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
 - SEDIMENTATION FENCE
 - █ FINAL SEEDING OF ALL DISTURBED AREAS



REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	9-26-19	REVISED PER CLIENT COMMENTS	LDO	BKR	LDO
2	7-24-19	REVISED PER CITY COMMENT	LDO	JT	LDO
1	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-16-19	INITIAL ISSUE	LDO	JT	LDO



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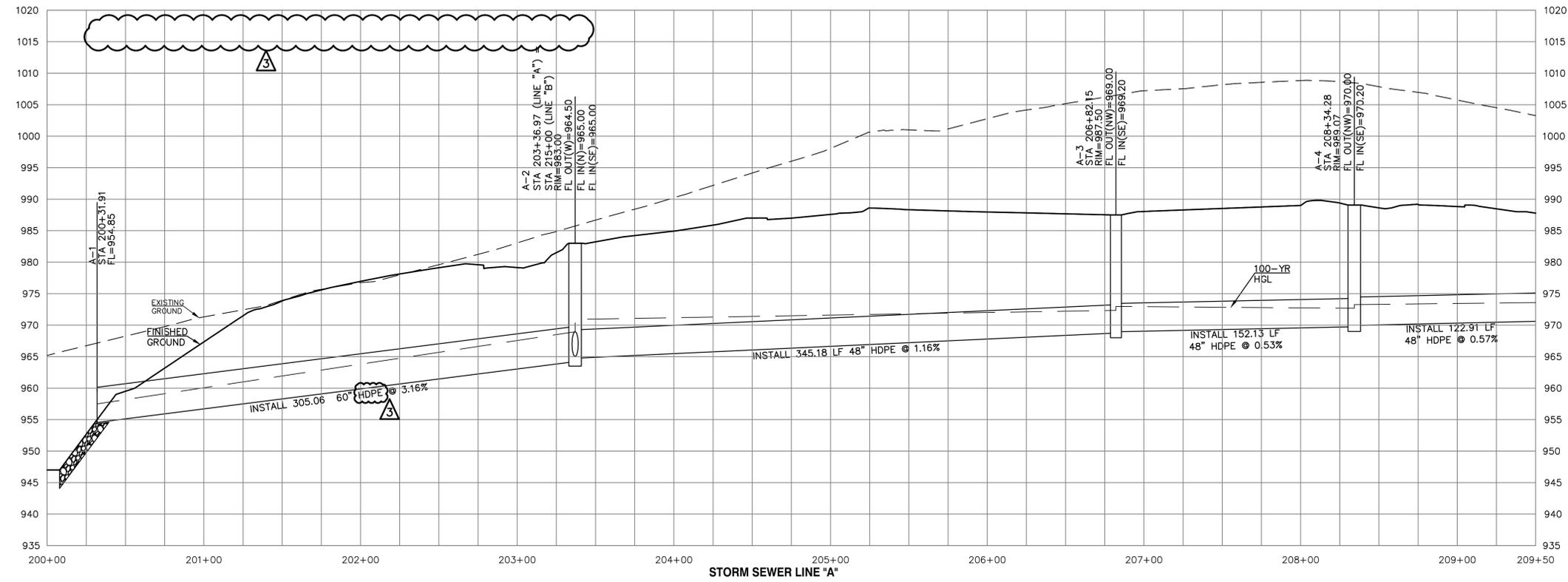
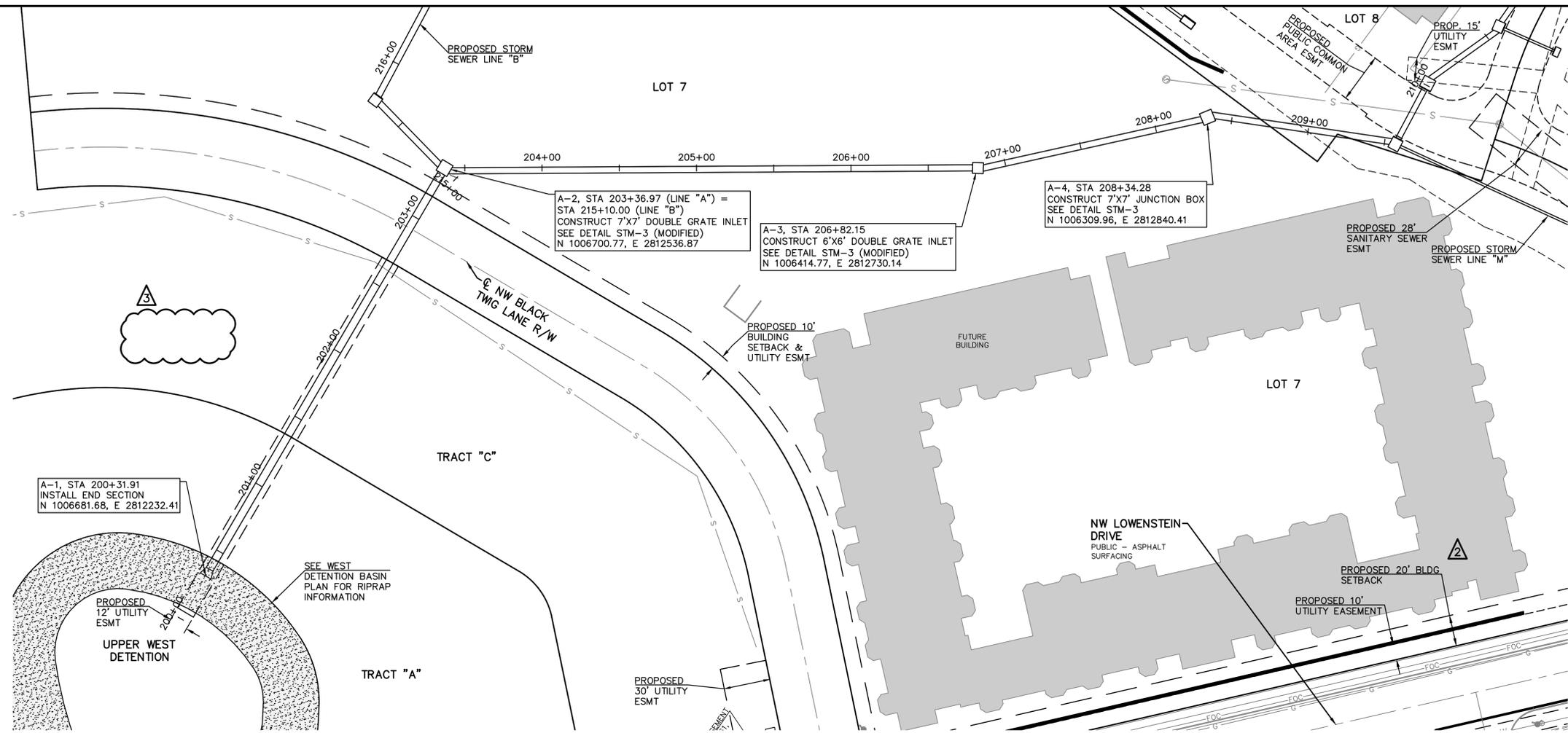
KAW VALLEY ENGINEERING

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

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
EROSION CONTROL PLAN - PHASE 3

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	51
CFN	7067-1G_ECP3
SHEET	REV
C-23A	3



ALL RCP SHALL BE CLASS 3 EXCEPT WHERE INDICATED OTHERWISE.

PUBLIC STREET, STORM AND WATER ARE BY SEPARATE PLANS

ALL PROPOSED STORM LINES ARE PRIVATE UNLESS NOTED OTHERWISE

REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	9-10-19	REVISED PIPE TYPE (A-1 TO A-2)	LDO	JT	LDO
2	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	5-18-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	1-16-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
ENGINEER
NO. 021726

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

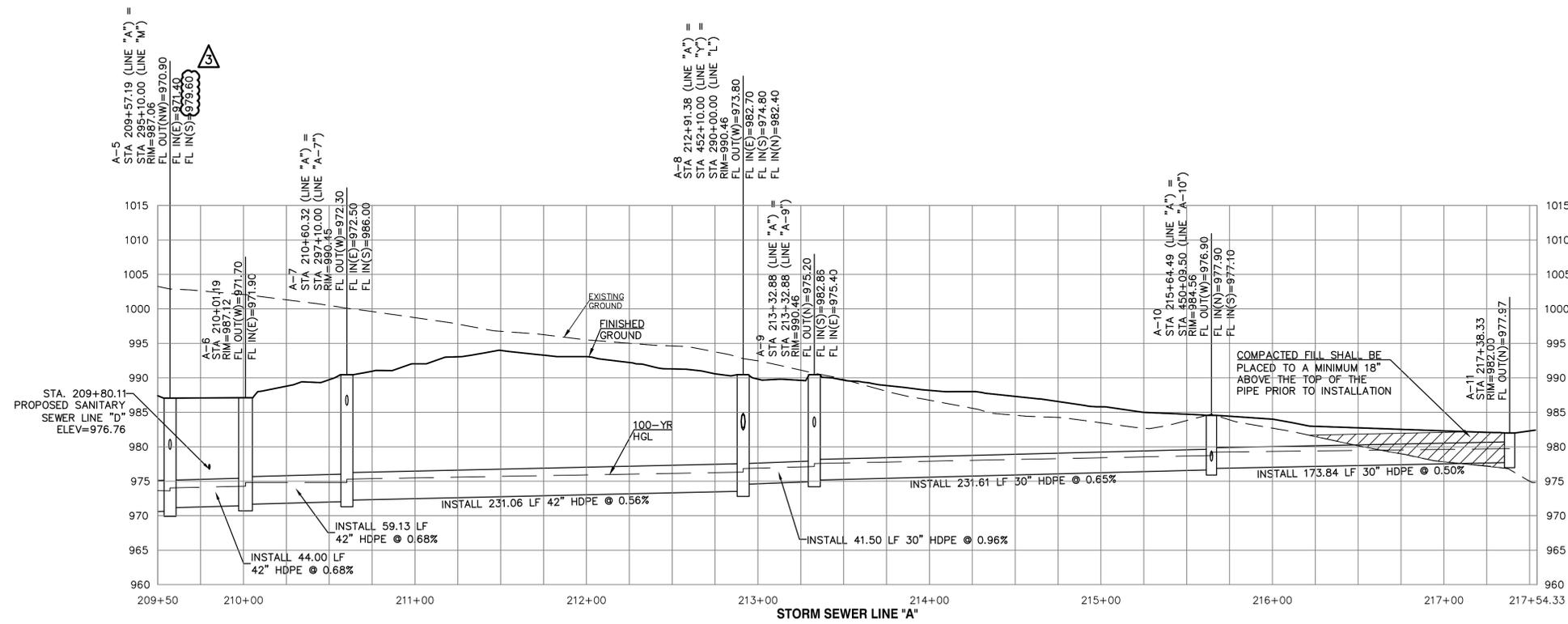
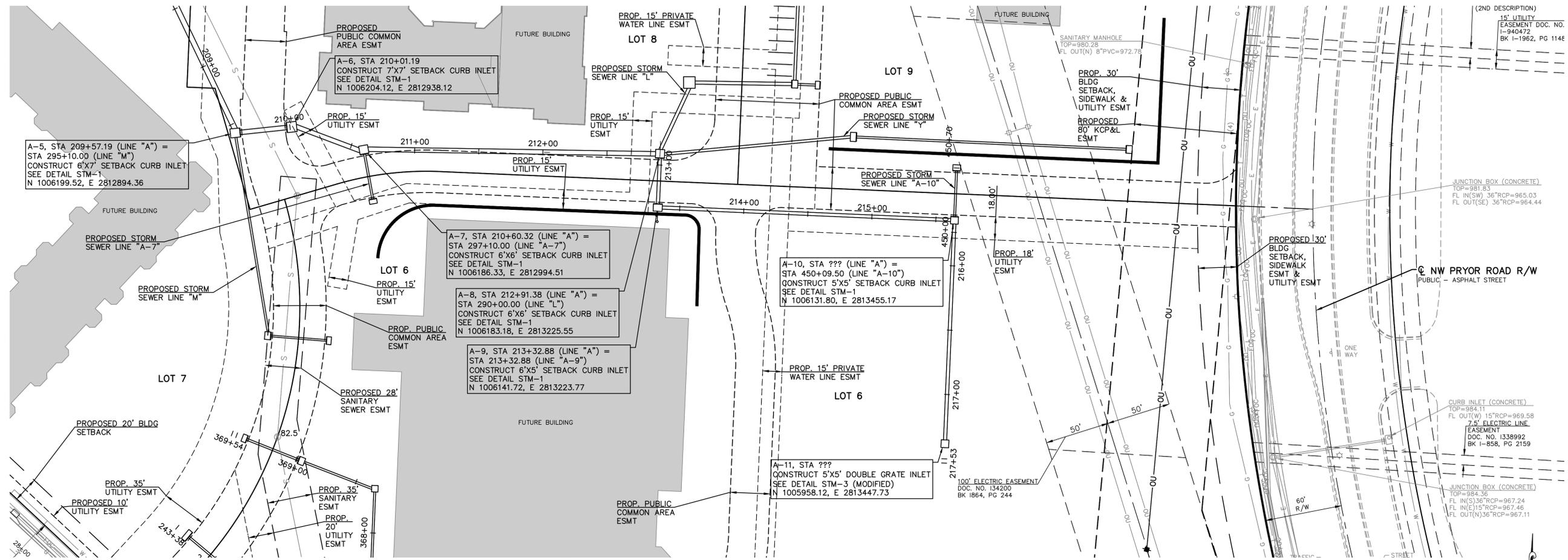
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE # 000842, EXPIRES 12/31/19

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
STORM SEWER LINE A - PLAN AND PROFILE

PROJ. NO. A14_7067-1
DESIGNER LDO
DRAWN BY JT
CFN
7067-1G_DPP
SHEET C-24
REV 3

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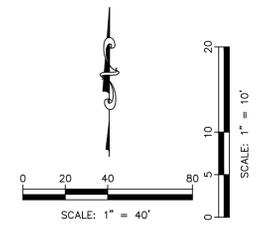


ALL HDPE PIPE SHALL BE DUAL-WALLED GASKETED JOINT PIPE MEETING ASHTO M-294 AND INSTALLED FOR MANUFACTURERS REQUIREMENTS AND ASTM D2321, CLASS 2 BEDDING W/96% COMPACTION.

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REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	7-24-19	REVISED PER CITY COMMENTS	LDO	BKR	LDO
2	7-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	5-16-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	1-16-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
REGISTERED PROFESSIONAL ENGINEER
NUMBER 21726

LEON D. OSBOURN
ENGINEER
MO # 021726

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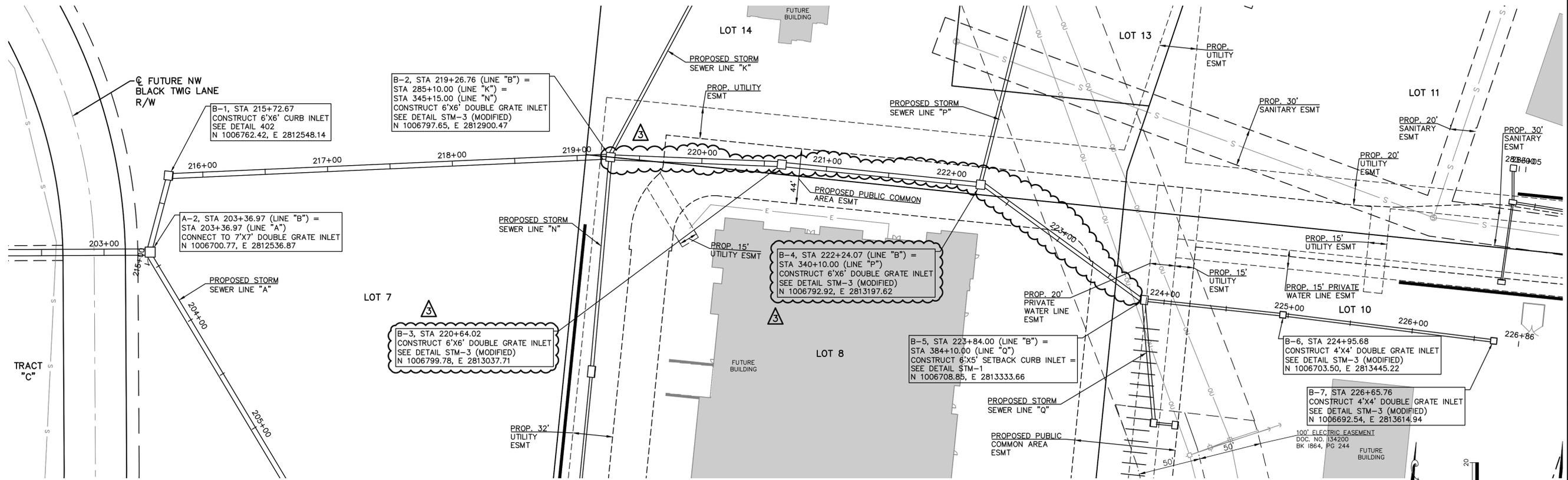
KAW VALLEY ENGINEERING
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STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

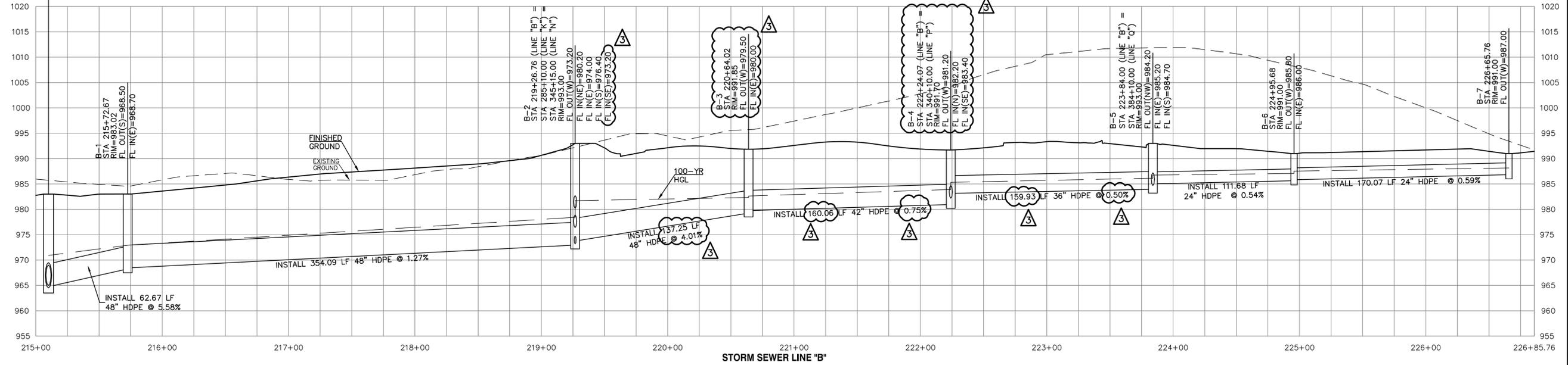
MASS GRADING & STORM SEWER IMPROVEMENTS
STORM SEWER LINE A - PLAN AND PROFILE

PROJ. NO. A14-7067-1
DESIGNER LDO DRAWN BY JT
CFN
7067-1G-DPP
SHEET C-25 REV 3

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A-2, STA 215+10.00 (LINE "B") =
 STA 203+36.97 (LINE "A")
 RIM=983.00
 FL OUT(W)=964.50
 FL IN(N)=965.00
 FL IN(E)=965.00



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PUBLIC STREET, STORM AND WATER ARE BY SEPARATE PLANS

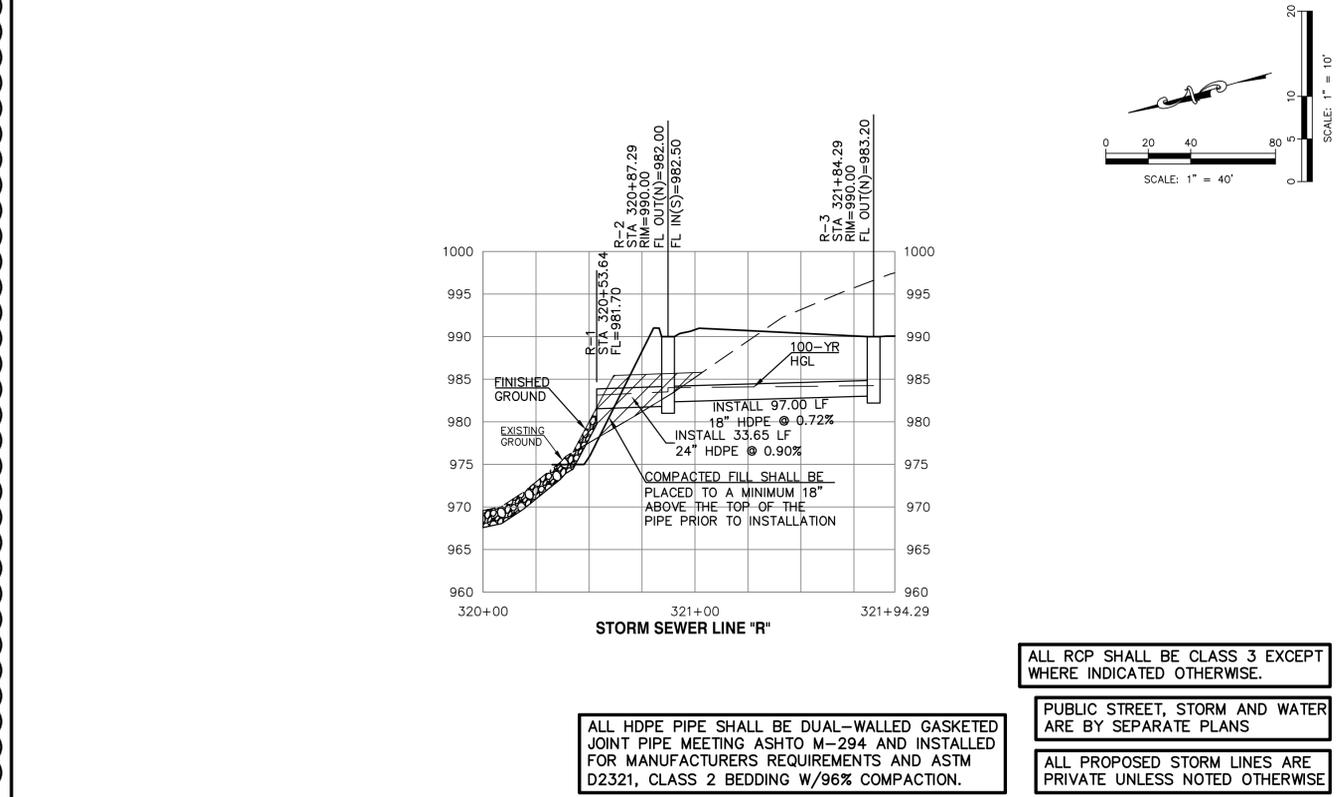
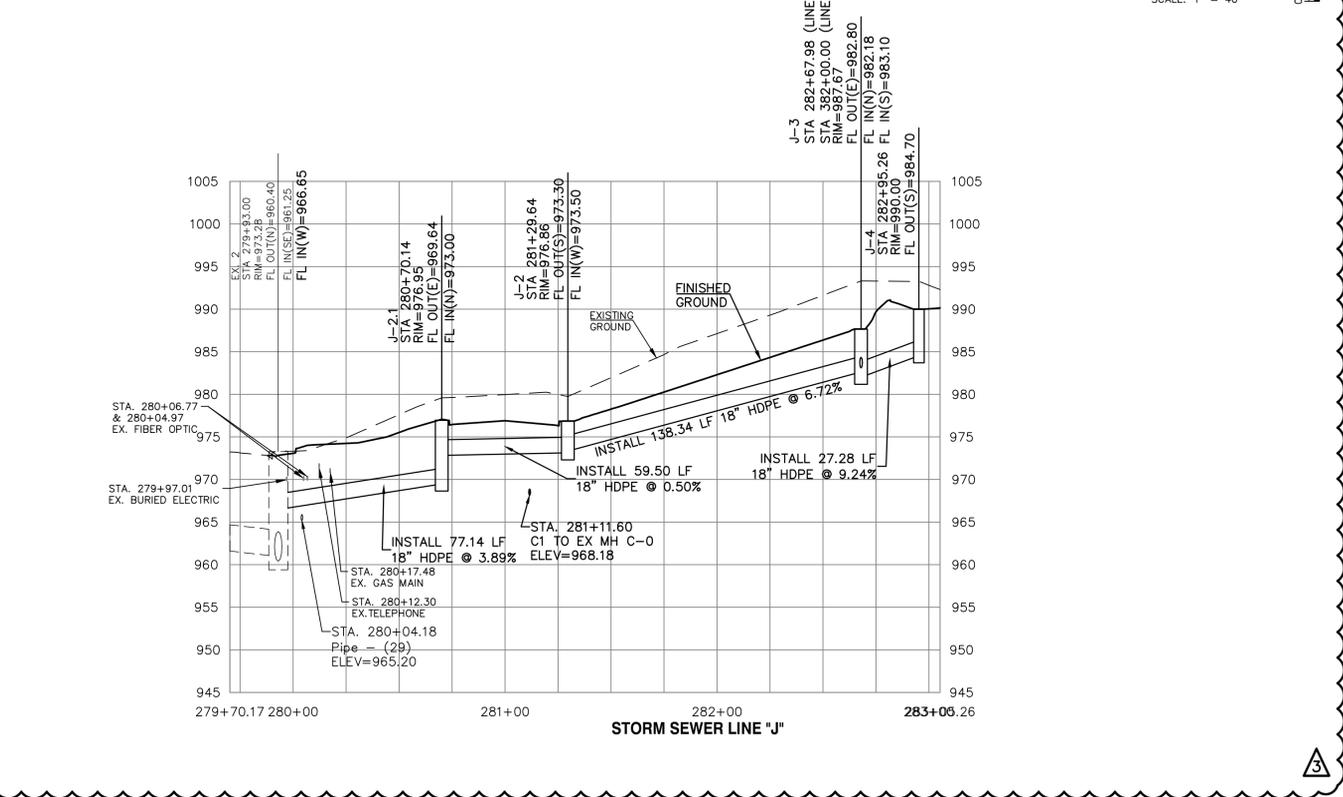
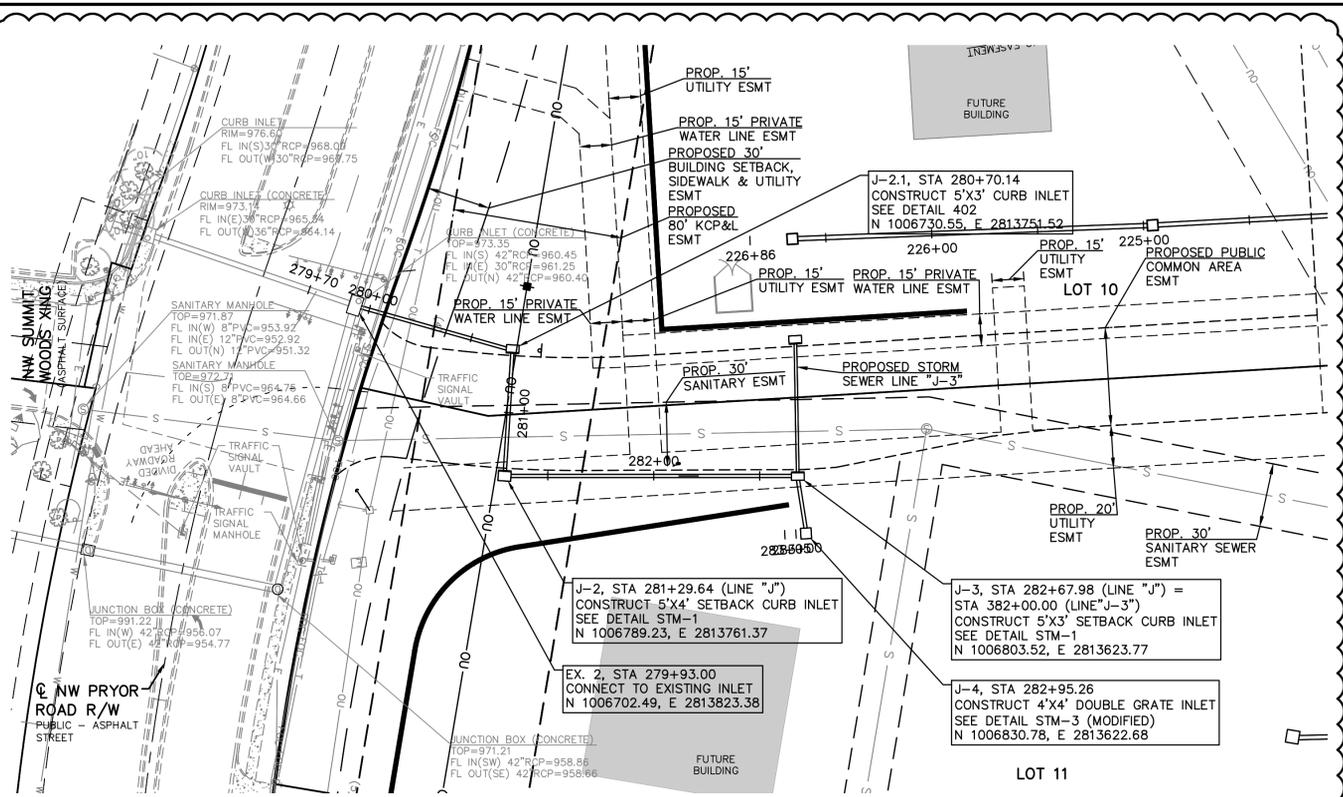
PROJ. NO.	A14 7067-1
DESIGNER	LDO
DRAWN BY	JT
CFN	
7067-1G_DPP	
SHEET	C-26
REV	3

REV	DATE	DESCRIPTION
3	8-19-19	REVISED PER CLIENT COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE

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 j@kveeng.com www.kveeng.com
KAW VALLEY ENGINEERING KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE NO. 000842 EXPIRES 12/31/19

STREETS OF WEST PRYOR NW QW PRYOR RD & NW LOWENSTEIN DR LEE'S SUMMIT, MISSOURI	MASS GRADING & STORM SEWER IMPROVEMENTS STORM SEWER LINE B - PLAN AND PROFILE
--	--

DDO	JT	DDO	CHK
LDO	JT	LDO	DDN
LDO	JT	LDO	DDO
LDO	JT	LDO	DDO
LDO	JT	LDO	DDO



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PROJ. NO.	A14 7067-1
DESIGNER	LD0
DRAWN BY	JT
CFN	7067-1G_DPP
SHEET	C-29
REV	3

REV	DATE	DESCRIPTION
0	11-16-19	INITIAL ISSUE
1	5-16-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
3	9-25-19	REVISED PER CITY COMMENTS

STATE OF MISSOURI
 LEON D. OSBOURN
 LICENSE NUMBER 521726
 REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
 ENGINEER
 MO # 021726

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STREETS OF WEST PRYOR
 NWQ NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

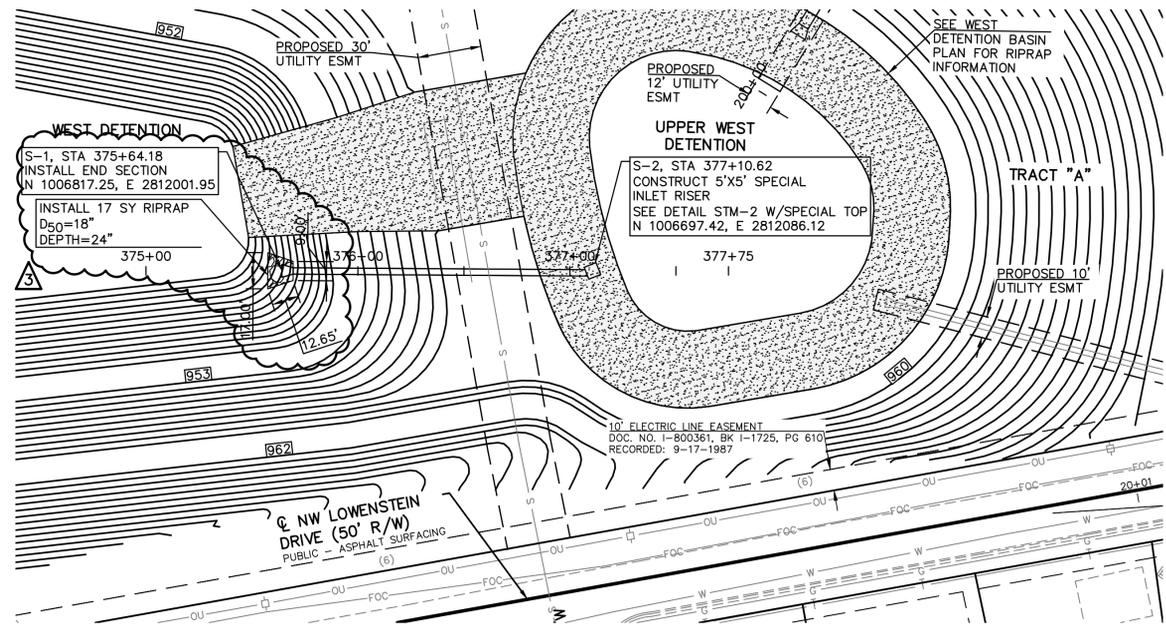
MASS GRADING & STORM SEWER IMPROVEMENTS
 STORM SEWER LINE J & R - PLAN AND PROFILE

ALL RCP SHALL BE CLASS 3 EXCEPT WHERE INDICATED OTHERWISE.

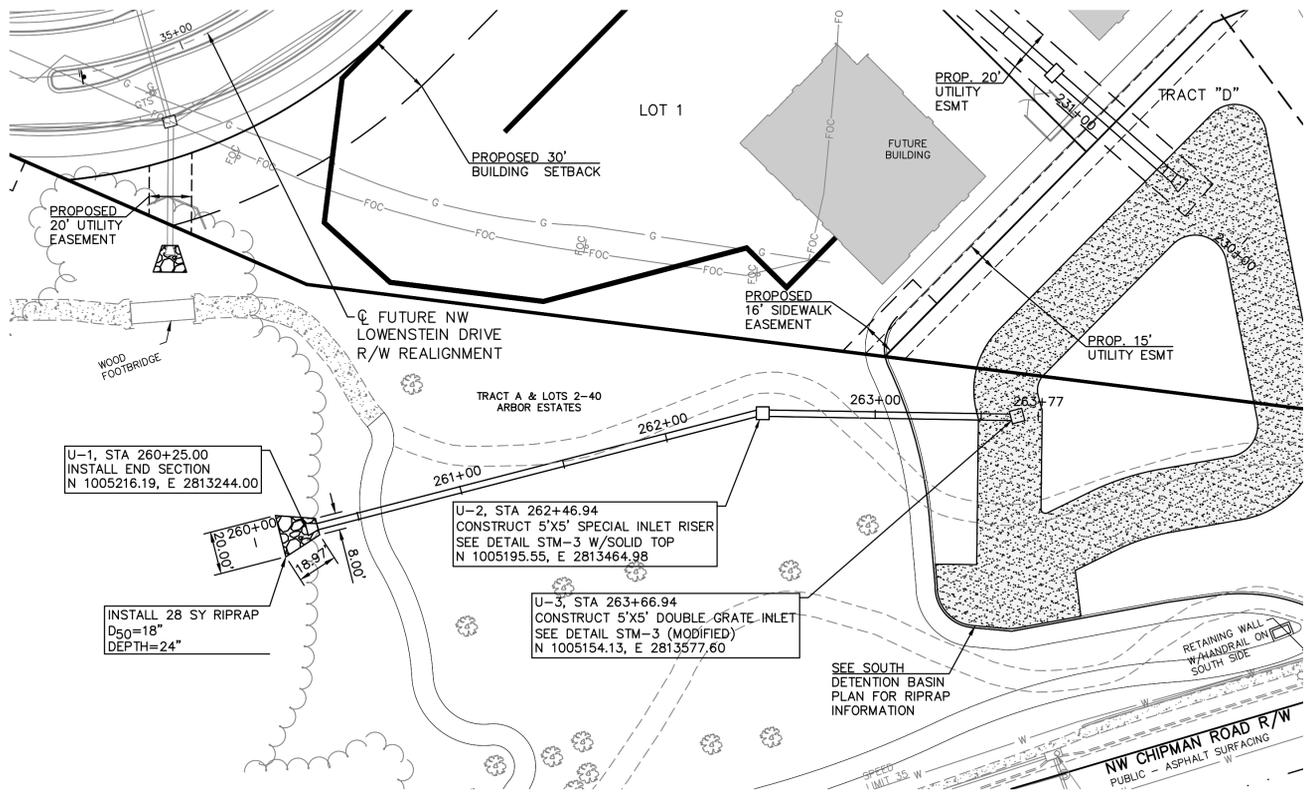
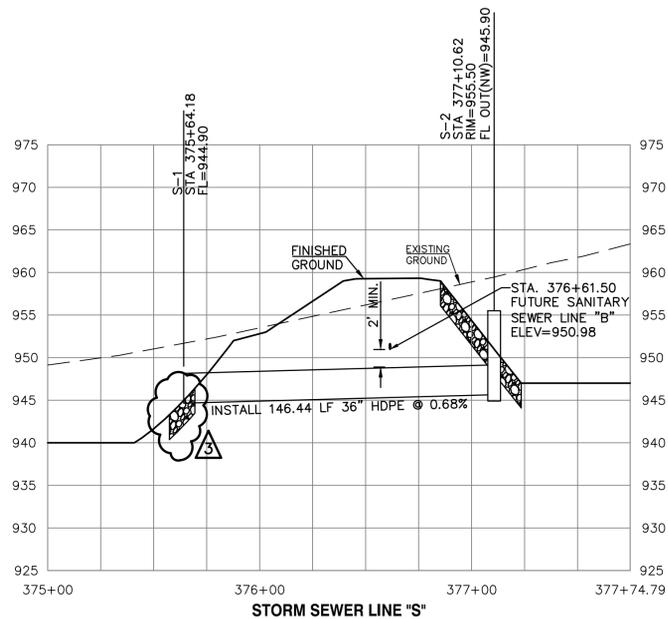
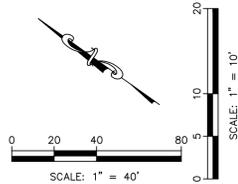
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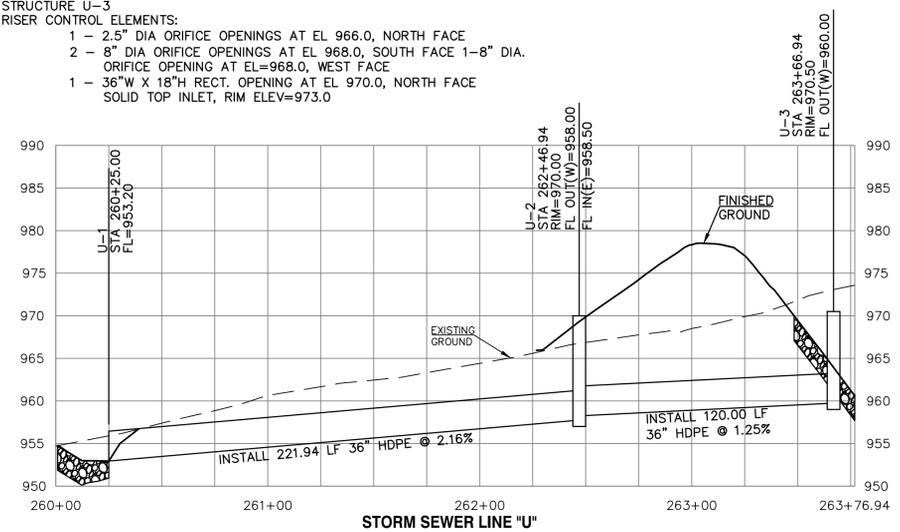
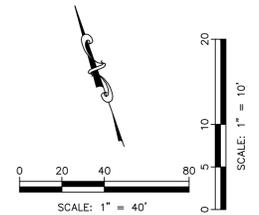
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STRUCTURE S-2
RISER CONTROL ELEMENTS:
TRASH RACK AND GRATE INLET, IN RISER TOP, 5'X5' OPENING,
WEIR EL 955.50, TRASH RACK EL=956.17



STRUCTURE U-3
RISER CONTROL ELEMENTS:
1 - 2.5" DIA ORIFICE OPENINGS AT EL 968.0, NORTH FACE
2 - 8" DIA ORIFICE OPENINGS AT EL 968.0, SOUTH FACE 1-8" DIA.
ORIFICE OPENING AT EL=968.0, WEST FACE
1 - 36" W X 18" H RECT. OPENING AT EL 970.0, NORTH FACE
SOLID TOP INLET, RIM ELEV=973.0



REV	DATE	DESCRIPTION
3	7-24-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE

CHK	DSN	DWN	LD0
LD0	LD0	LD0	LD0
LD0	LD0	LD0	LD0
LD0	LD0	LD0	LD0
LD0	LD0	LD0	LD0
LD0	LD0	LD0	LD0



LEON D. OSBOURN
ENGINEER
MO # 021726

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j@kve.com | www.kve.com

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

STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

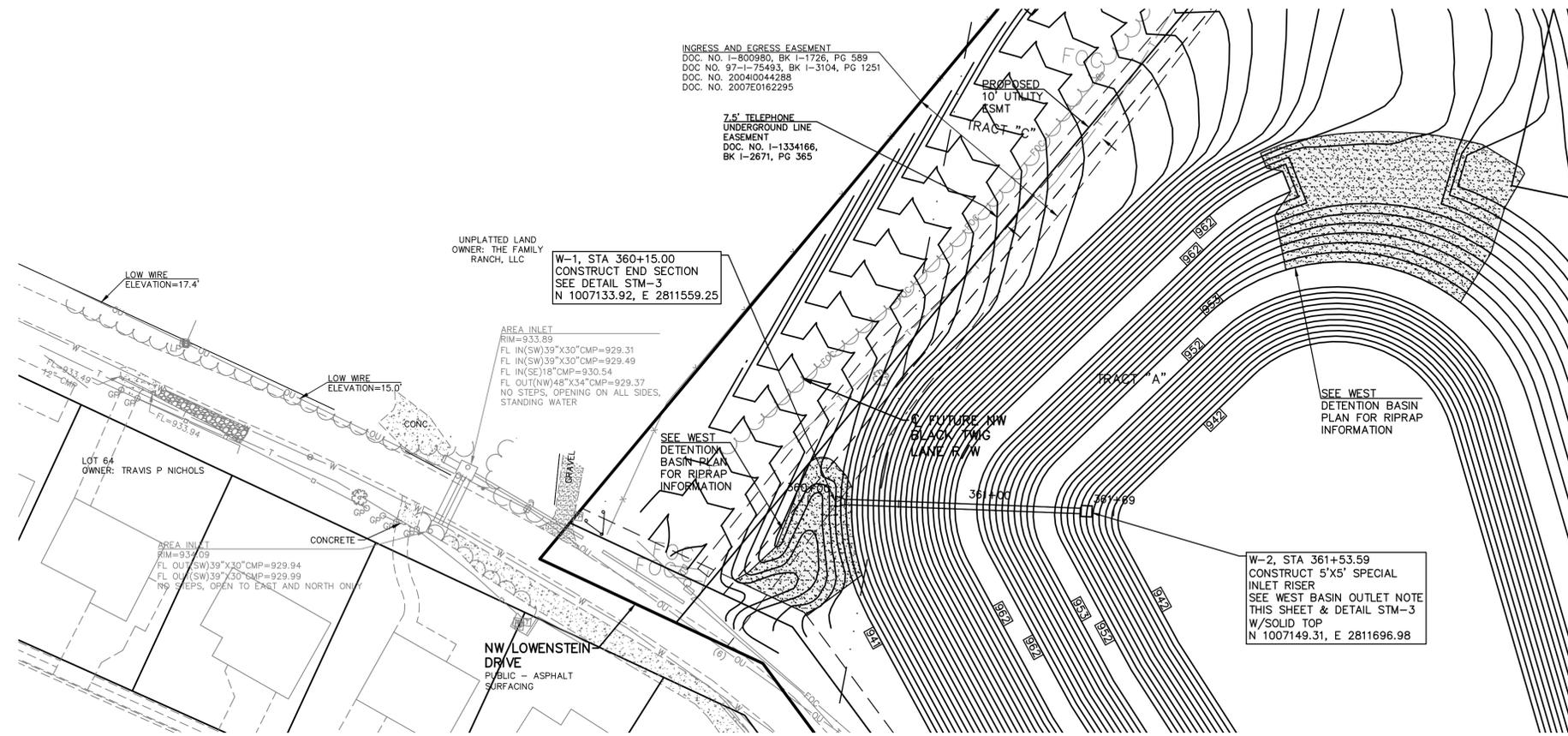
MASS GRADING & STORM SEWER IMPROVEMENTS
STORM SEWER LINE S & U - PLAN AND PROFILE

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PROJ. NO.	A14_7067-1
DESIGNER	LD0
DRAWN BY	LD0
CFN	7067-1G_DPP
SHEET	REV
C-30	3



INGRESS AND EGRESS EASEMENT
 DOC. NO. 1-900980, BK 1-1728, PG 589
 DOC. NO. 97-1-75493, BK 1-3104, PG 1251
 DOC. NO. 20040044288
 DOC. NO. 2007E0162295

7.5' TELEPHONE UNDERGROUND LINE EASEMENT
 DOC. NO. 1-1334166, BK 1-2671, PG 365

UNPLATTED LAND OWNER: THE FAMILY RANCH, LLC

W-1, STA 360+15.00
 CONSTRUCT END SECTION
 SEE DETAIL STM-3
 N 1007133.92, E 2811559.25

AREA INLET
 RIM=933.89
 FL IN(SW)39"x30"CMP=929.31
 FL IN(SW)39"x30"CMP=929.49
 FL IN(SE)18"x30"CMP=930.54
 FL OUT(NW)48"x34"CMP=929.37
 NO STEPS, OPENING ON ALL SIDES,
 STANDING WATER

SEE WEST DETENTION BASIN PLAN FOR RIPRAP INFORMATION

0' FUTURE NW BLACK TWP LANE R/W

SEE WEST DETENTION BASIN PLAN FOR RIPRAP INFORMATION

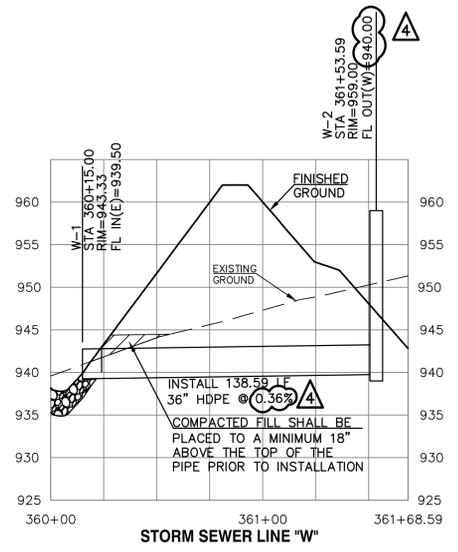
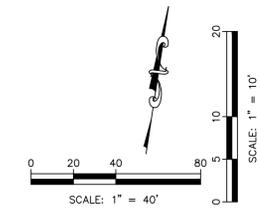
W-2, STA 361+53.59
 CONSTRUCT 5'X5' SPECIAL INLET RISER
 SEE WEST BASIN OUTLET NOTE
 THIS SHEET & DETAIL STM-3
 W/SOLID TOP
 N 1007149.31, E 2811696.98

LOT 64
 OWNER: TRAVIS P NICHOLS

AREA INLET
 RIM=937.99
 FL OUT(SW)39"x30"CMP=929.94
 FL OUT(SW)39"x30"CMP=929.99
 NO STEPS, OPEN TO EAST AND NORTH ONLY

NW LOWENSTEIN DRIVE
 PUBLIC ASPHALT SURFACING

WEST BASIN OUTLET NOTE:
 1 - 5" DIA ORIFICE OPENINGS AT EL 952.0, SOUTH FACE
 1 - 30"W X 12"H RECT. OPENING AT 954.0, NORTH FACE
 1 - 30"W X 18"H RECT. OPENING AT 957.0, SOUTH FACE
 SOLID TOP INLET, RIM ELEV=959.00



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PROJ. NO.	A14_7067-1	
DESIGNER	LDO	
DRAWN BY	JT	
CFN	7067-1G_DPP	
SHEET	4	
REV	REV	
DATE	DATE	
DESCRIPTION	DESCRIPTION	
REV	DATE	DESCRIPTION
4	9-10-19	REVISED PER CLIENT COMMENT
3	8-15-19	REVISED PER CLIENT COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE
DSN	DWN	CHK

STATE OF MISSOURI
 LEON D. OSBOURN
 LICENSE NUMBER 945-73
 REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
 ENGINEER
 MO # 021726

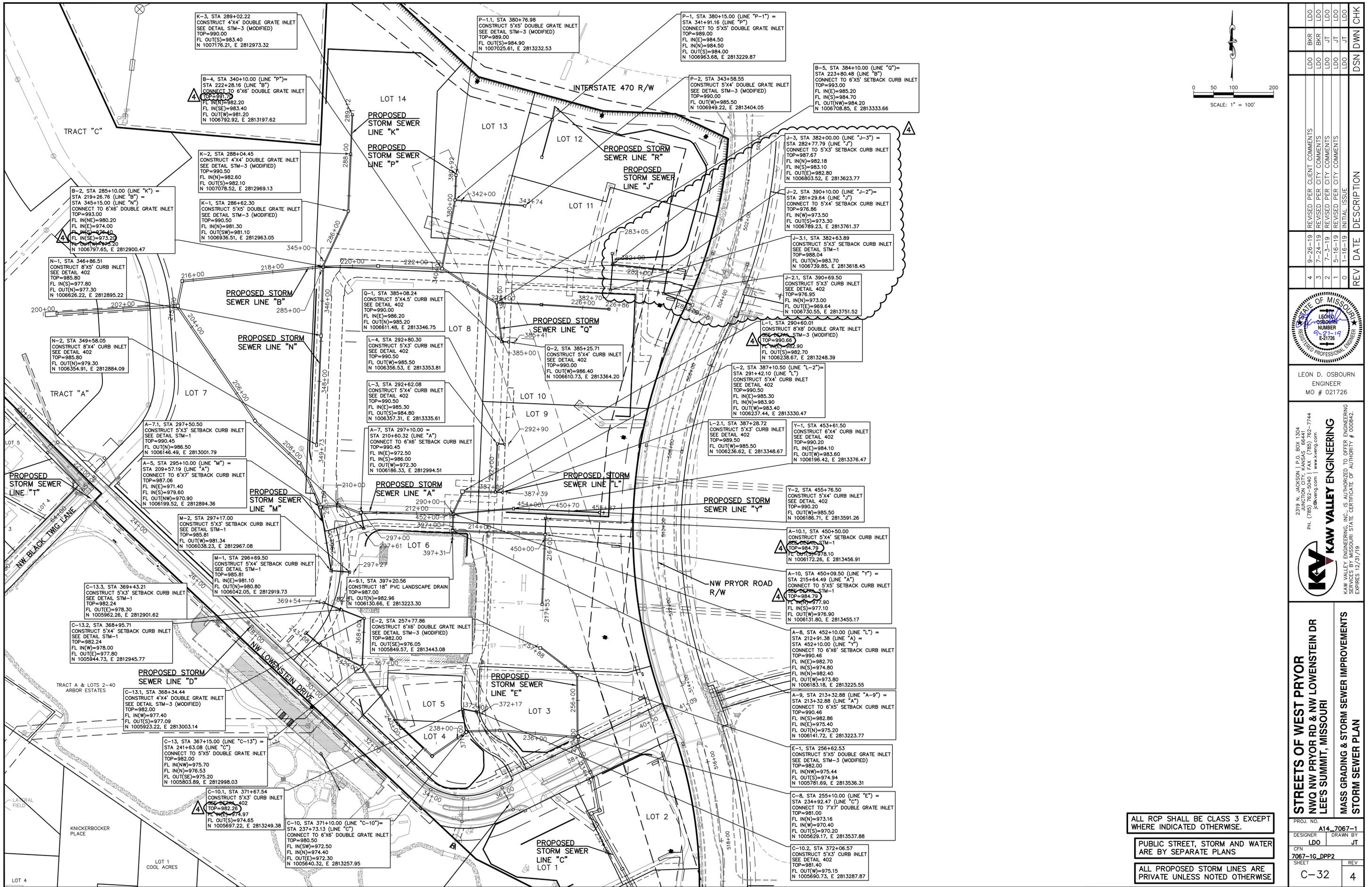
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 jdo@kveeng.com | www.kveeng.com

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

STREETS OF WEST PRYOR
 NW Q NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
 STORM SEWER LINE W - PLAN AND PROFILE

C-31



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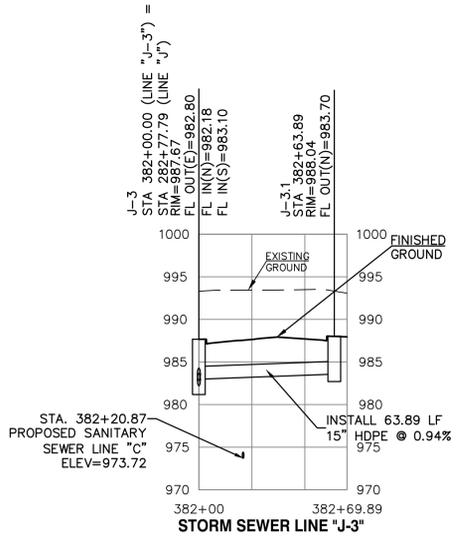
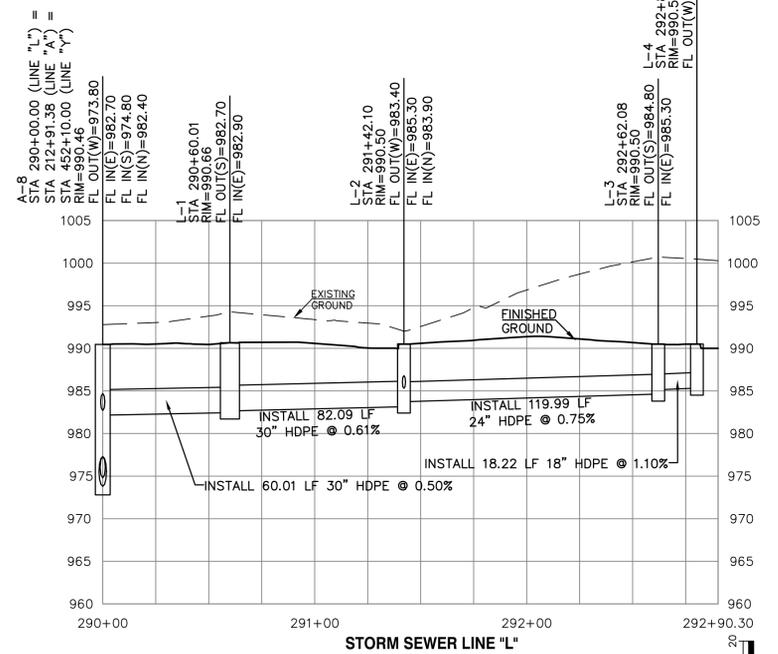
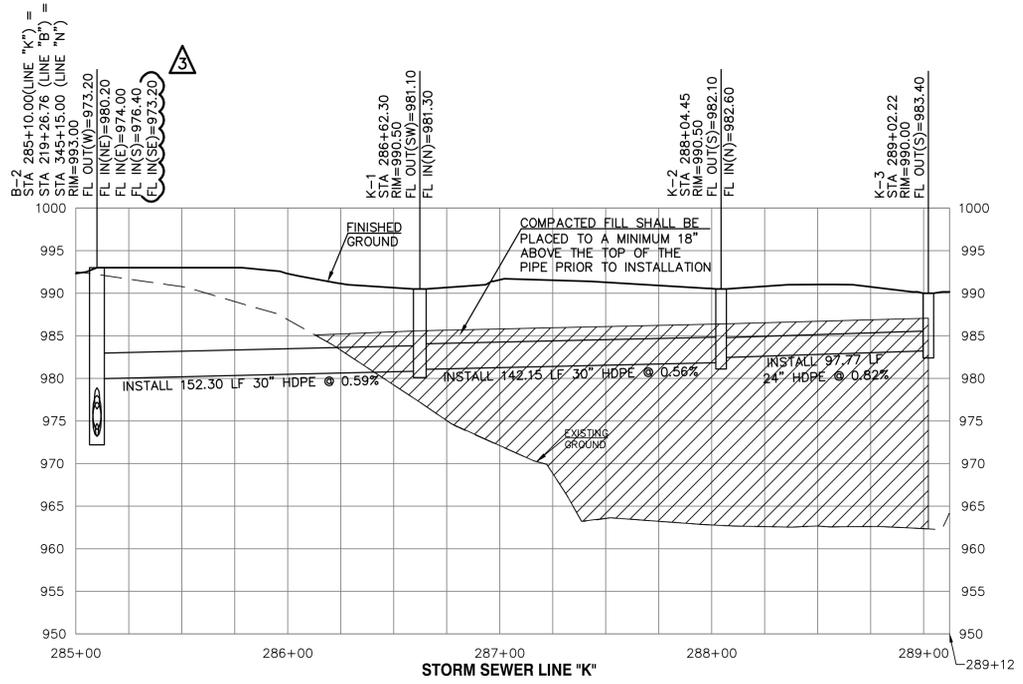
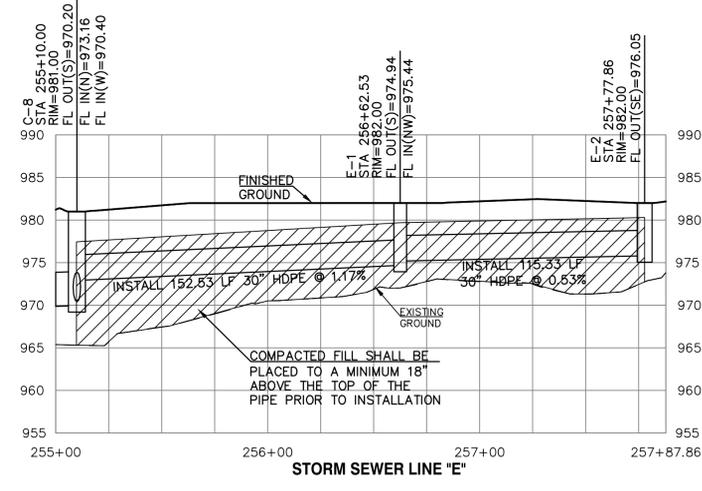
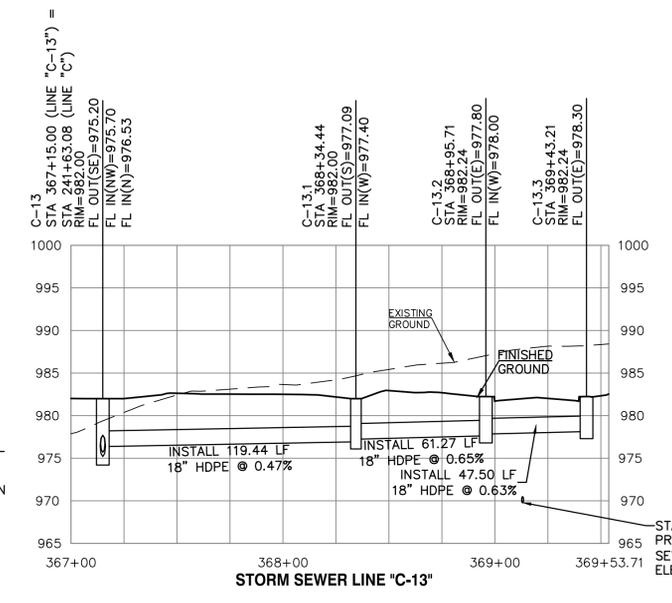
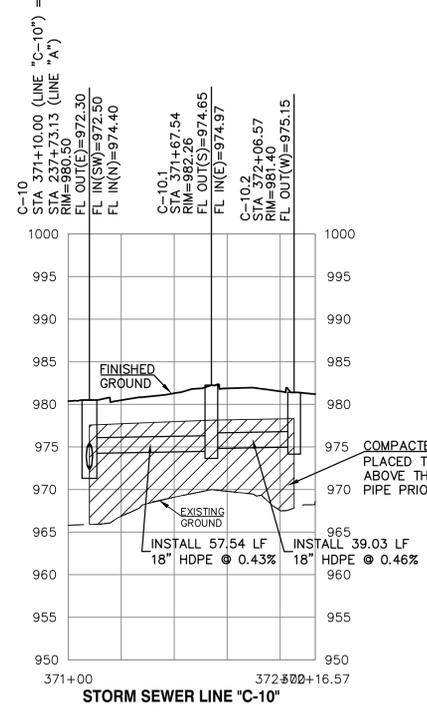
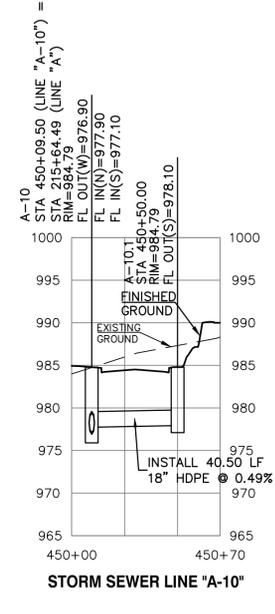
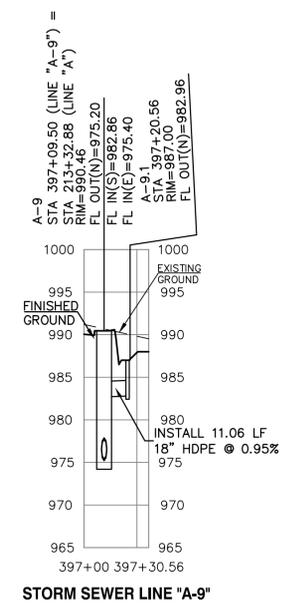
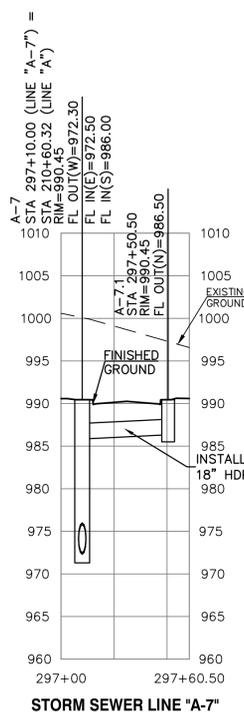
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REV	DATE	DESCRIPTION	DSN	CHK
0	11-16-19	INITIAL ISSUE		
1	5-16-19	REVISED PER CITY COMMENTS		
2	7-23-19	REVISED PER CITY COMMENTS		
3	7-23-19	REVISED PER CITY COMMENTS		
4	9-26-19	REVISED PER CLIENT COMMENTS		

	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 j@kve.com www.kve.com	KAW VALLEY ENGINEERING KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER LICENSE # 000642, EXPIRES 12/31/19

STREETS OF WEST PRYOR NW QW PRYOR RD & NW LOWENSTEIN DR LEE'S SUMMIT, MISSOURI MASS GRADING & STORM SEWER IMPROVEMENTS STORM SEWER PLAN	PROJ. NO. A14 7067-1 DESIGNER LDO DRAWN BY JT CFN 7067-1G-DPP2 SHEET C-32
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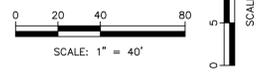


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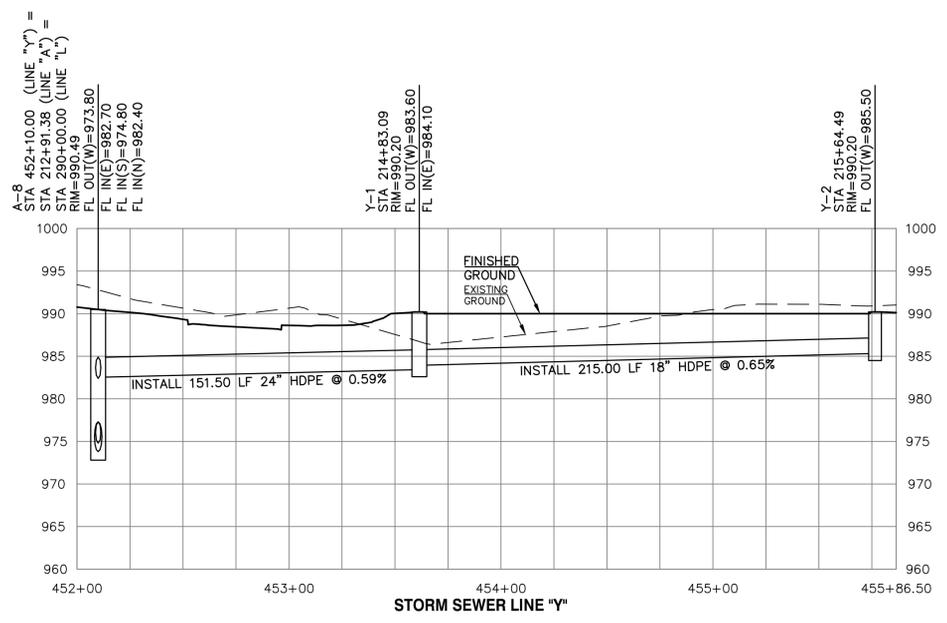
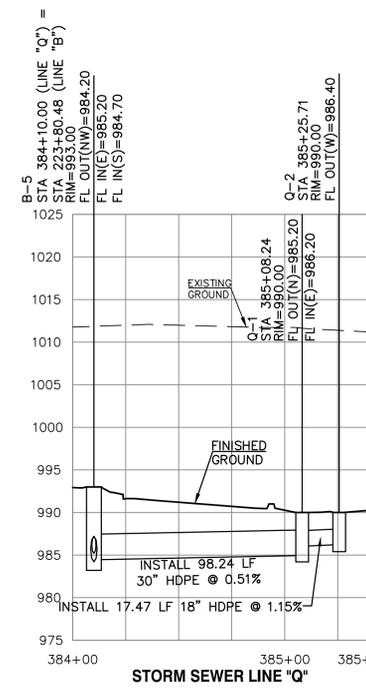
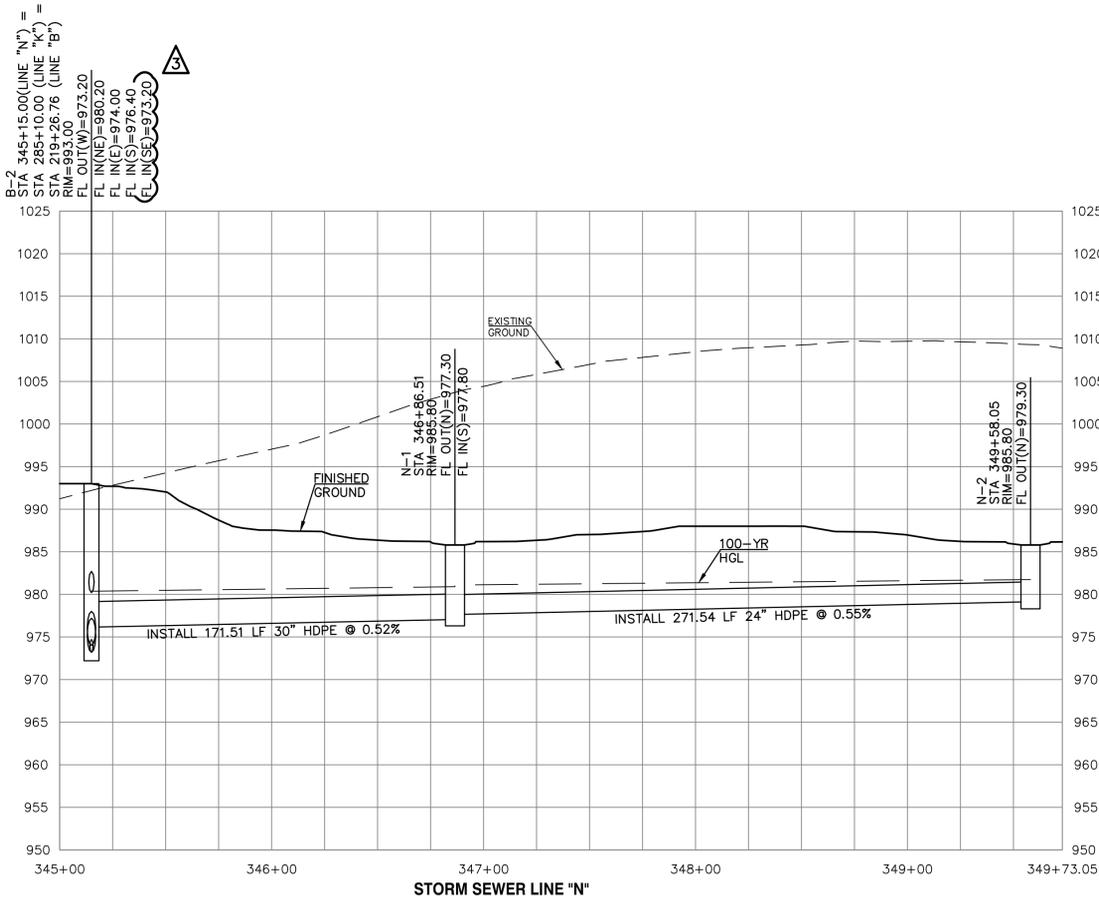
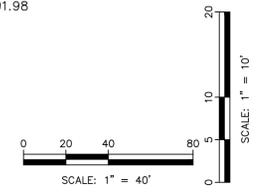
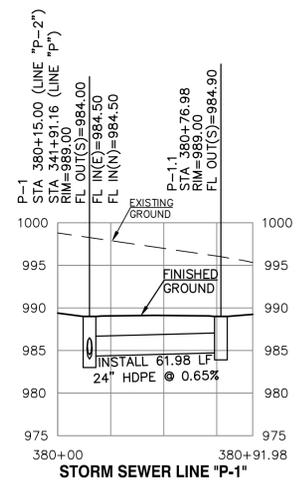
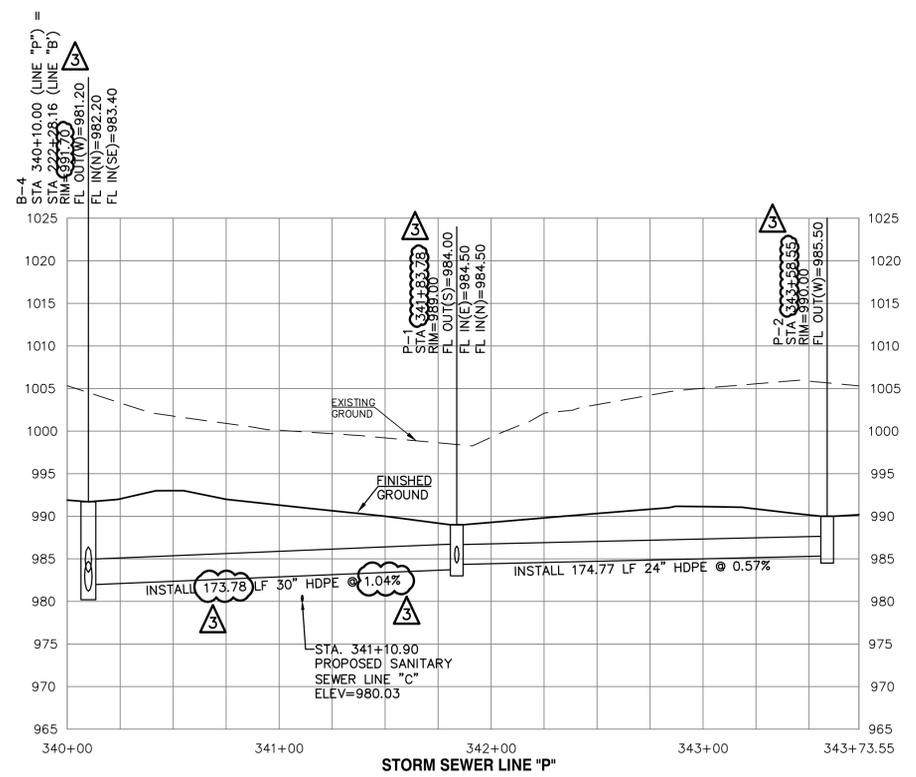
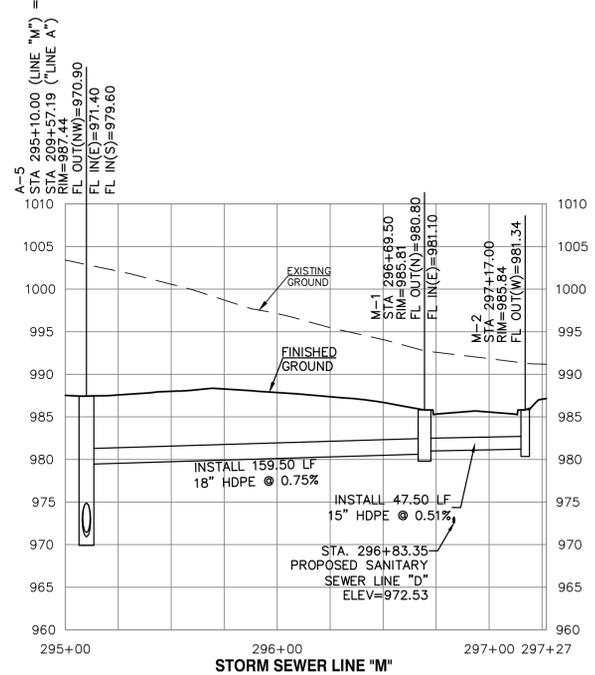
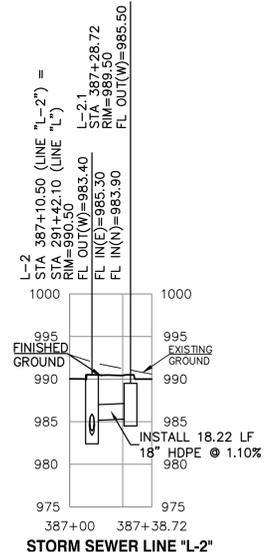
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2319 N. JACKSON P.O. BOX 1304 JUNCTION CITY, KANSAS 66441 PH. (785) 762-5040 FAX (785) 762-7744 jo@kveeng.com www.kveeng.com	
KAW VALLEY ENGINEERING KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN MISSOURI UNDER THE SUPERVISION OF LEON D. OSBOURN, LICENSED PROFESSIONAL ENGINEER, EXPIRES 12/31/19.	
STREETS OF WEST PRYOR NWQ NW PRYOR RD & NW LOWENSTEIN DR LEE'S SUMMIT, MISSOURI	MASS GRADING & STORM SEWER IMPROVEMENTS STORM SEWER LINES A-7, A-9, A-10, C-10, C-13, E-1, E-2, J-3, K-1, L-1, PROFILES
PROJ. NO. A14-7067-1 DESIGNER LDO CFN 7067-1G-DPP2 SHEET C-33	DRAWN BY JT REV. DATE DESCRIPTION 4 9-26-19 REVISED PER CLIENT COMMENTS 3 8-19-19 REVISED PER CLIENT COMMENTS 2 7-3-19 REVISED PER CITY COMMENTS 1 5-16-19 REVISED PER CITY COMMENTS 0 1-16-19 INITIAL ISSUE DSN DWN CHK



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.

ALL HDPE PIPE SHALL BE DUAL-WALLED GASKETED JOINT PIPE MEETING ASHTO M-294 AND INSTALLED FOR MANUFACTURERS REQUIREMENTS AND ASTM D2321, CLASS 2 BEDDING W/96% COMPACTION.

ALL RCP SHALL BE CLASS 3 EXCEPT WHERE INDICATED OTHERWISE.

PUBLIC STREET, STORM AND WATER ARE BY SEPARATE PLANS

ALL PROPOSED STORM LINES ARE PRIVATE UNLESS NOTED OTHERWISE

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
STORM SEWER LINES L-2, M, P, P-1, N, Q, & Y PROFILES

PROJ. NO. **A14-7067-1**

DESIGNER **LDO** DRAWN BY **JT**

CFN **7067-1G-PPP2**

SHEET **C-34** REV **3**

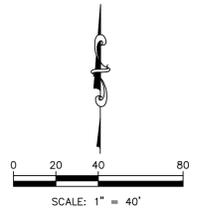
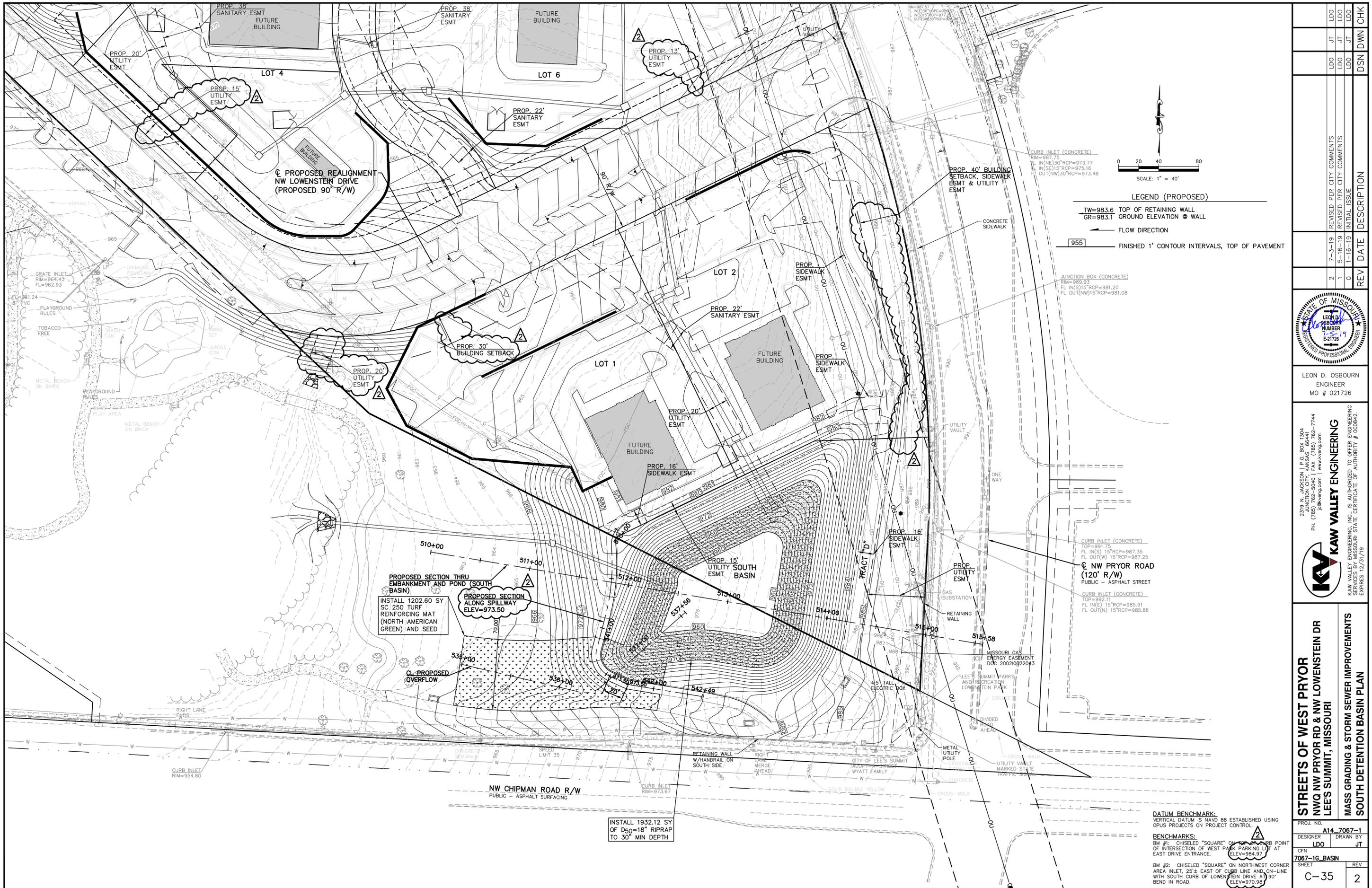
2319 N. JACKSON | P.O. BOX 1304
JUNCTION CITY, KANSAS 66441
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joe@kve.com | www.kve.com

KAW VALLEY ENGINEERING

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

LEON D. OSBOURN
ENGINEER
MO # 021726

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	11-16-19	INITIAL ISSUE			
1	5-16-19	REVISED PER CITY COMMENTS			
2	7-24-19	REVISED PER ESS COMMENTS			
3	8-19-19	REVISED PER CLIENT COMMENTS			



LEGEND (PROPOSED)

TW=983.6 TOP OF RETAINING WALL
GR=983.1 GROUND ELEVATION @ WALL

— FLOW DIRECTION

955 FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT



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

STREETS OF WEST PRYOR
NW Q NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
SOUTH DETENTION BASIN PLAN

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

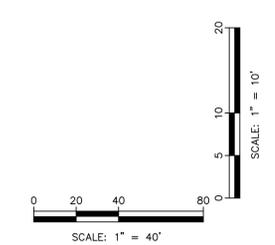
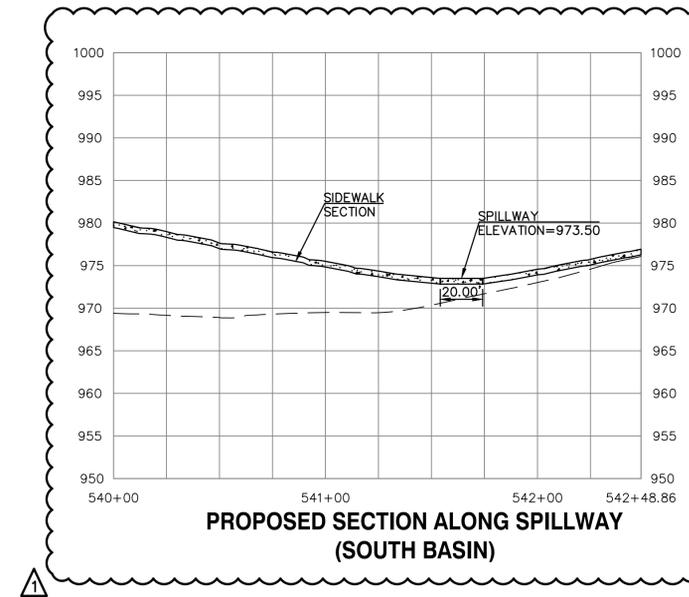
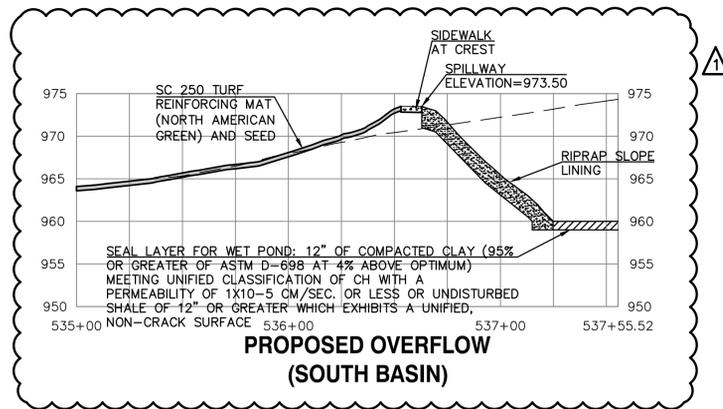
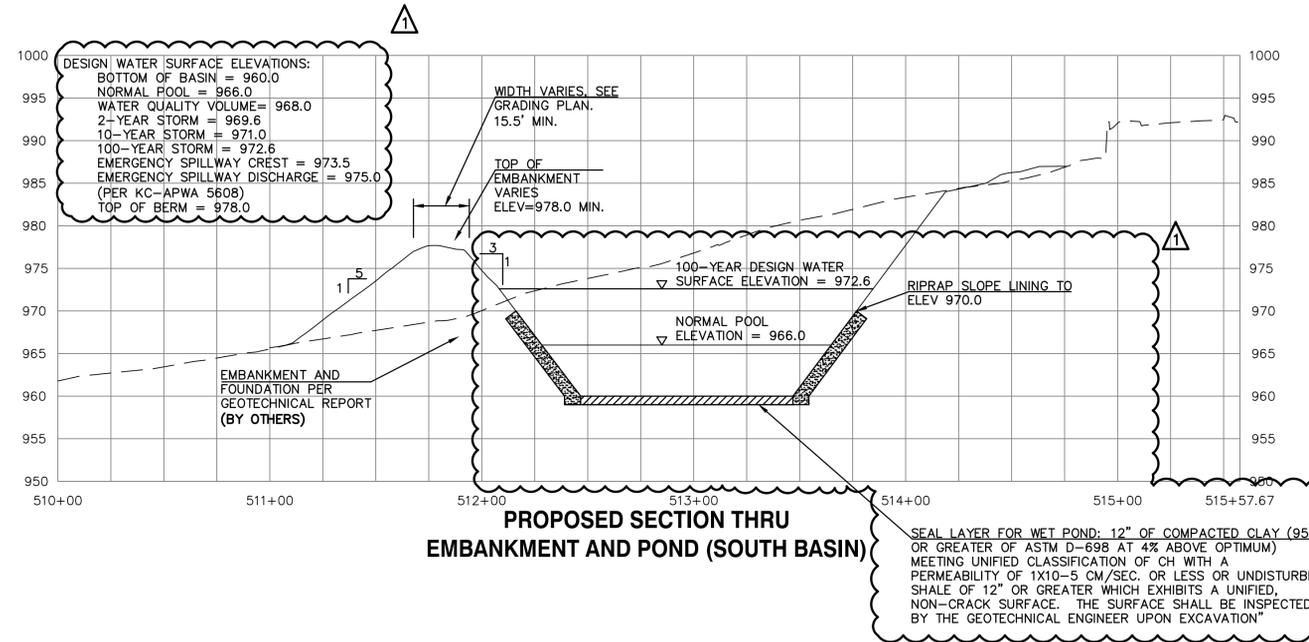
BENCHMARKS:

BM #1: CHISELED "SQUARE" ON TOP OF CURB POINT OF INTERSECTION OF WEST PARK PARKING LOT AT EAST DRIVE ENTRANCE. (ELEV=984.97)

BM #2: CHISELED "SQUARE" ON NORTHWEST CORNER AREA INLET, 25'± EAST OF CURB LINE AND ON-LINE WITH SOUTH CURB OF LOWENSTEIN DRIVE A 90° BEND IN ROAD. (ELEV=970.98)

PROJ. NO.	DESIGNER	DRAWN BY
A14 7067-1	LDO	JT

SHEET	REV
7067-1G BASIN	
C-35	2



REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	5-18-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	1-16-19	INITIAL ISSUE	LDO	JT	LDO



LEON D. OSBOURN
 ENGINEER
 MO # 021726

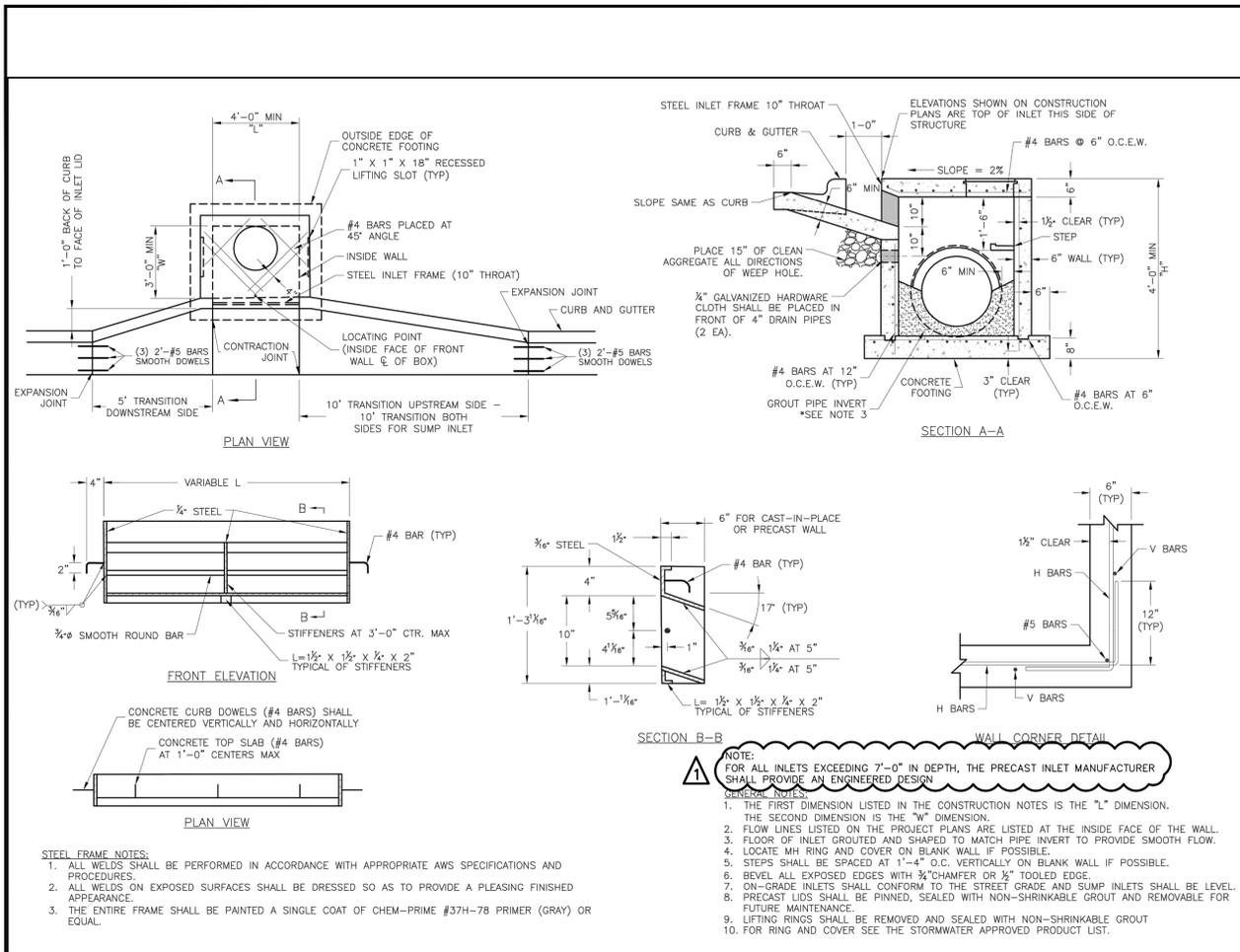
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KAW VALLEY ENGINEERING
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STREETS OF WEST PRYOR
 NW/4 NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
SOUTH DETENTION BASIN PROFILE

PROJ. NO. A14-7067-1
 DESIGNER LDO DRAWN BY JT
 SHEET 7067-1G-BASIN REV 1
 C-36 1

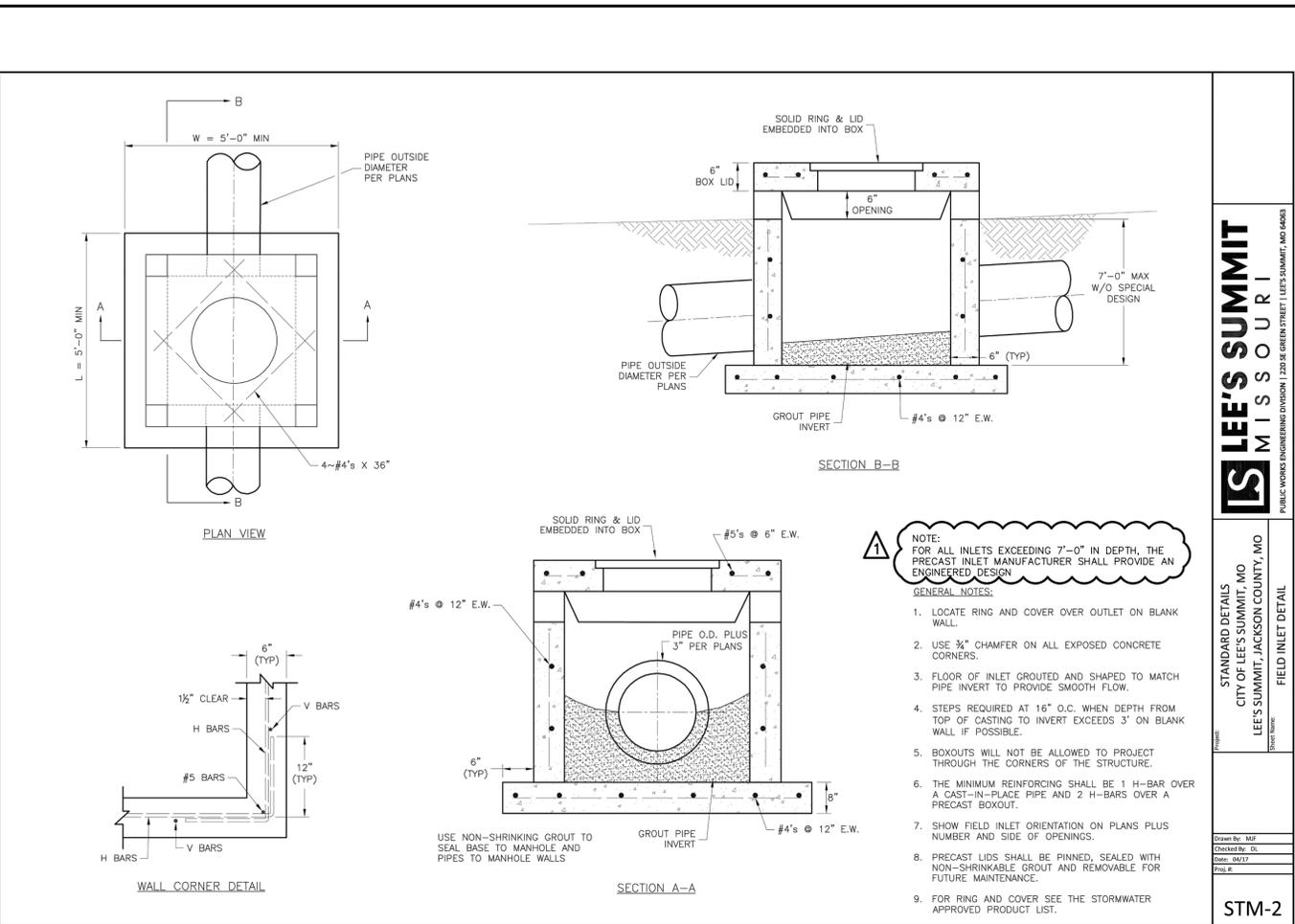


LEE'S SUMMIT MISSOURI
 PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
 CITY OF LEE'S SUMMIT, MO
 LEE'S SUMMIT, JACKSON COUNTY, MO
 CURB INLET DETAIL

Drawn By: MIF
 Checked By: DL
 Date: 06/17
 Proj. #:

STM-1

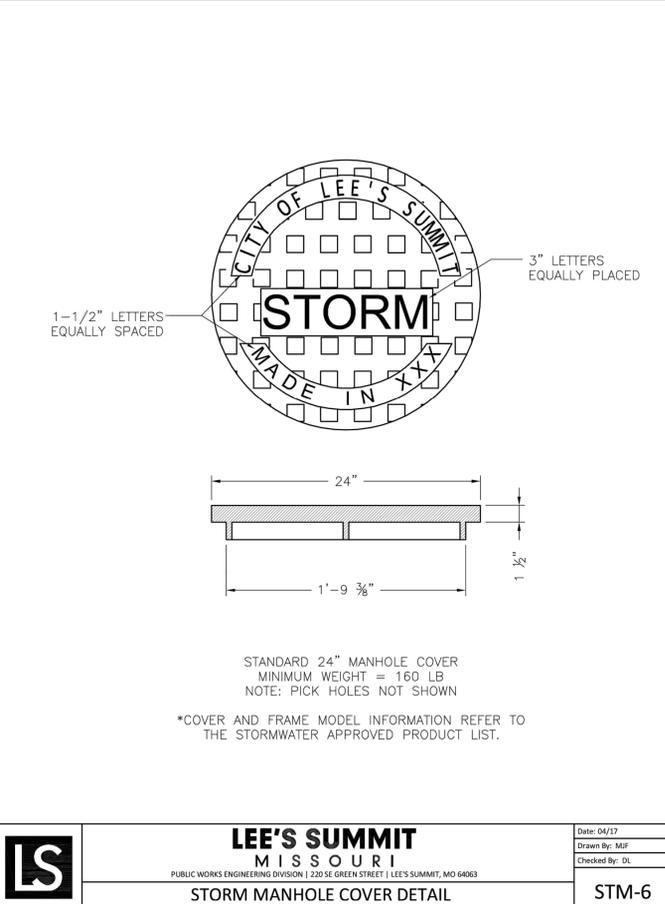
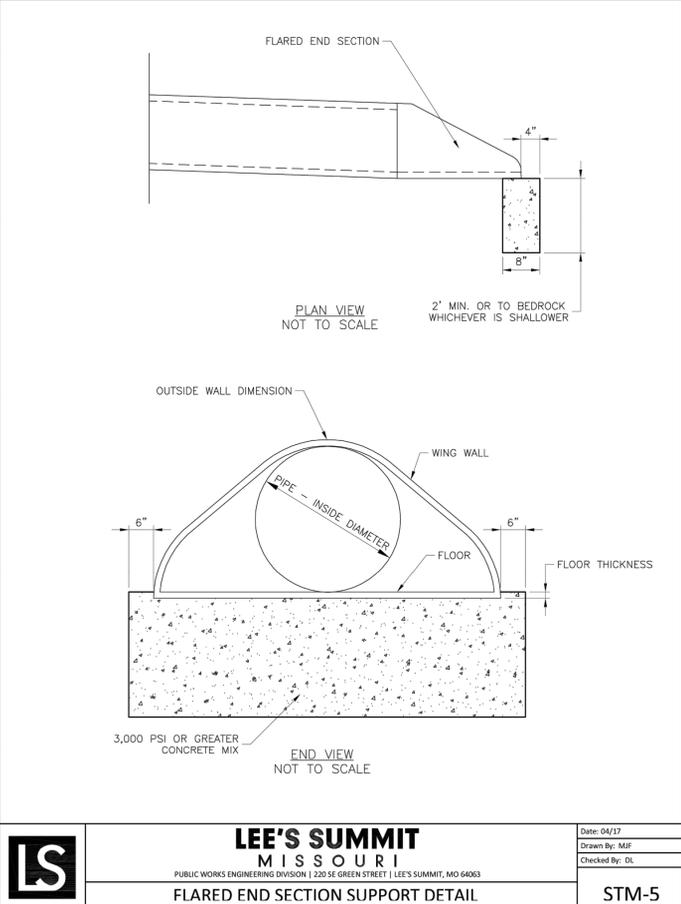


LEE'S SUMMIT MISSOURI
 PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
 CITY OF LEE'S SUMMIT, MO
 LEE'S SUMMIT, JACKSON COUNTY, MO
 JUNCTION BOX DETAIL

Drawn By: MIF
 Checked By: DL
 Date: 06/17
 Proj. #:

STM-3



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

STANDARD DETAILS
 CITY OF LEE'S SUMMIT, MO
 LEE'S SUMMIT, JACKSON COUNTY, MO
 FLARED END SECTION SUPPORT DETAIL

Drawn By: MIF
 Checked By: DL
 Date: 04/17
 Proj. #:

STM-5



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

STANDARD DETAILS
 CITY OF LEE'S SUMMIT, MO
 LEE'S SUMMIT, JACKSON COUNTY, MO
 STORM MANHOLE COVER DETAIL

Drawn By: MIF
 Checked By: DL
 Date: 04/17
 Proj. #:

STM-6

STATE OF MISSOURI
 LEON D. OSBOURN
 LICENSED PROFESSIONAL ENGINEER
 NUMBER 621726

KAW VALLEY ENGINEERING
 KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES IN THE STATE OF MISSOURI UNDER THE SUPERVISION OF LEON D. OSBOURN, LICENSED PROFESSIONAL ENGINEER, LICENSE NO. 621726. EXPIRES 12/31/19.

STREETS OF WEST PRYOR
 NW Q NW PRYOR RD & NW LOWENSTEIN DR
 LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
 STORM SEWER DETAIL SHEET

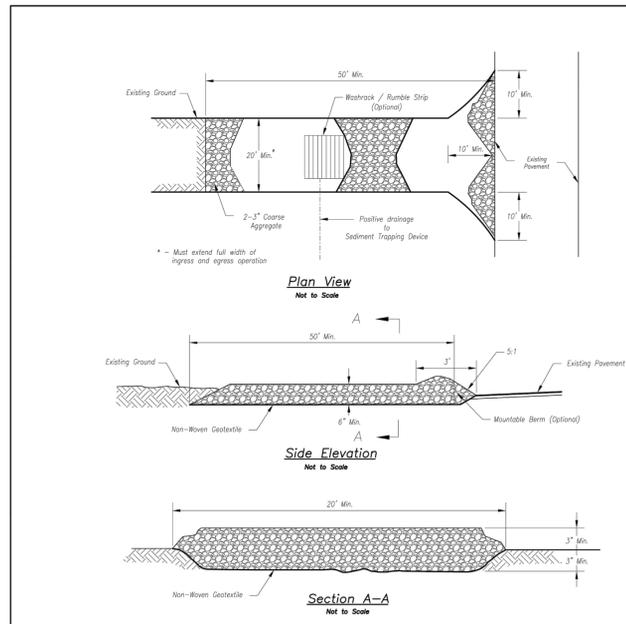
REV	DATE	DESCRIPTION
0	1-16-19	INITIAL ISSUE
1	5-18-19	REVISED PER CITY COMMENTS

PROJ. NO. **A14-7067-1**
 DESIGNER **LDO** DRAWN BY **JT**

CFN **7067-1G_DET** SHEET **C-42** REV **1**

Drawn By: MIF
 Checked By: DL
 Date: 04/17
 Proj. #:

STM-6



- Notes for Construction Entrance:**
- Avoid locating on steep slopes, at curves on public roads, or adjacent to disturbed area.
 - Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
 - If slope towards the public road exceeds 2%, construct a 6\"/>
- Maintenance for Construction Entrance:**
- Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

CONSTRUCTION ENTRANCE

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.

- Notes for Concrete Washout:**
- Concrete washout areas shall be installed prior to any concrete placement on site.
 - Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slope leading out of the subsurface pit shall be 3:1. The vehicle tracking pit shall be sloped towards the concrete washout area.
 - Vehicle tracking control is required at the access point to all concrete washout areas.
 - 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.
 - 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:**
- Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
 - Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
 - Concrete washout areas washed 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.
 - Concrete washout areas shall remain in place until all concrete for the project is placed.
 - When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topped, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

CONCRETE WASHOUT

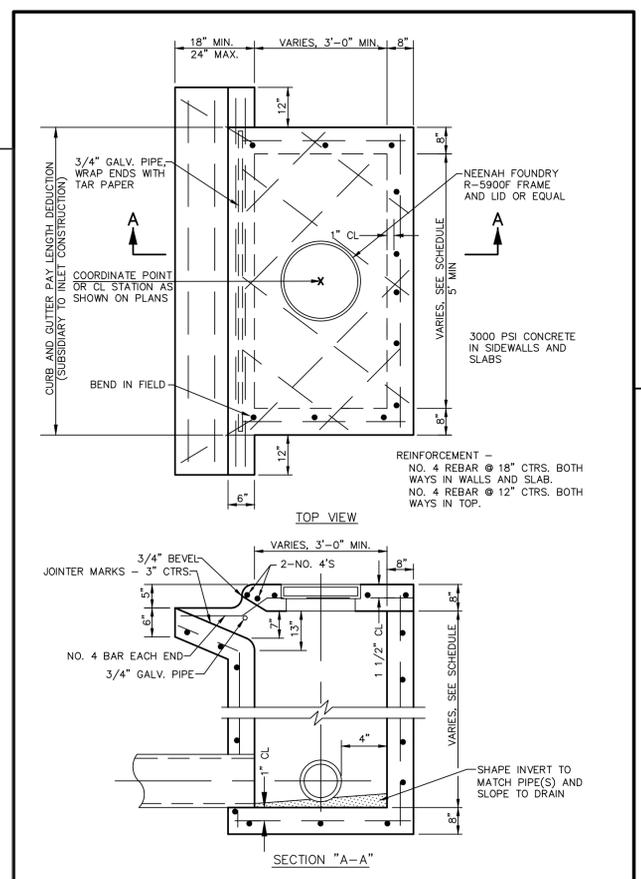
AMERICAN PUBLIC WORKS ASSOCIATION

KANSAS CITY METRO CHAPTER

CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT

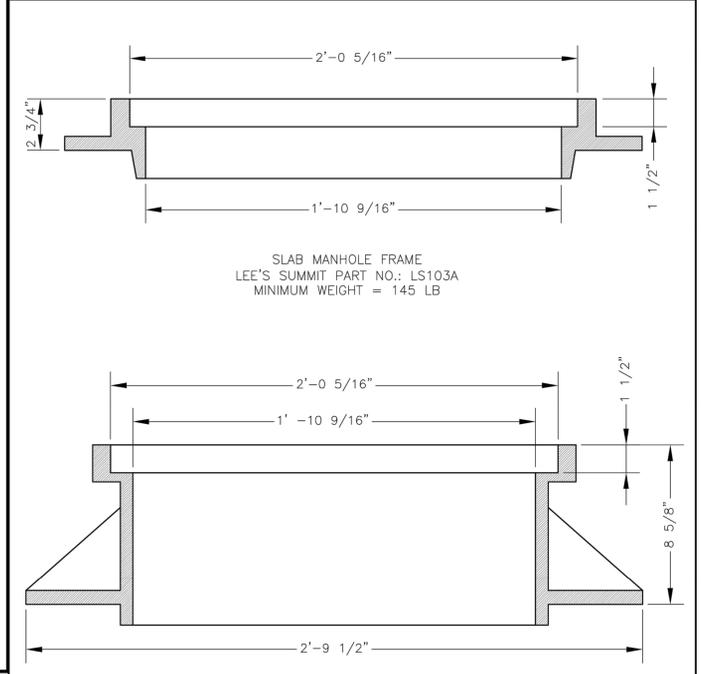
STANDARD DRAWING NUMBER ESC-01

ADOPTED: 10/24/2016



- NOTES:**
- USE 4000 P.S.I. CONCRETE IN SIDE WALL AND SLAB.
 - PROVIDE 3/4\"/>

CURB INLET 402



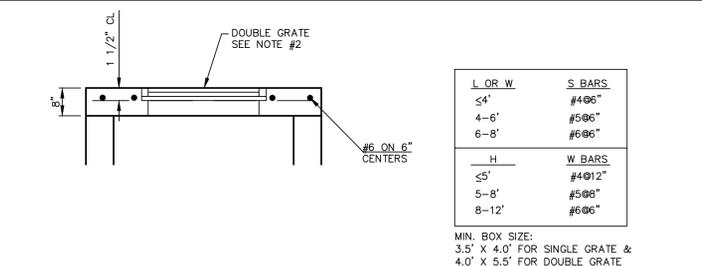
STANDARD 24\"/>

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LEE'S SUMMIT MISSOURI

STORM MANHOLE FRAME DETAIL

STM-7

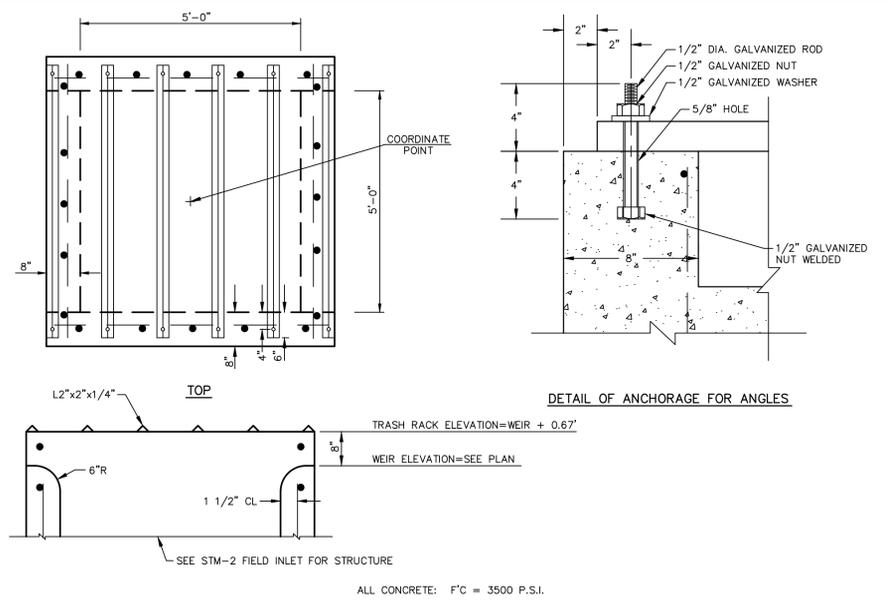


- ALL CONCRETE: F'C = 3500 P.S.I.
- NOTES:**
- L AND W BARS SHALL BE #6 @ 6" CENTER
 - GRATE - R-6673-J, USE R-6673-0 WHERE DOUBLE GRATE IS SPECIFIED UNLESS OTHERWISE NOTED ON SITE GRADING PLAN.

ALTERNATE TOP TO STM-3 FOR DOUBLE GRATE INLET

BASIN	EMBANKMENT WIDTH	SLOPES	SUMMARY TABLE												
			HEIGHT	DIAMETER	FOUNDATION	LENGTH	SLOPE	DIAMETER	CAPACITY	HEIGHT OF WALL	WEIR HEIGHT	WIDTH	RIPRAP	DISTANCE FROM INLET	RADIUS OF ARC
UPPER WEST POND	3'	2:1	4'	36"	0.5 CY CONCRETE	70'	1%	36"	1550 CY	6'	1.6' BELOW TOP	20'	1/4 TON 22" 2 FT DEEP	75'	70'
WEST DETENTION POND	3'	2:1	2.5'	30"	0.5 CY CONCRETE	15'	1%	30"	3600 CY	4.5'	1.6' BELOW TOP	20'	1/4 TON 22" 2 FT DEEP	180'	80'

VARIABLE SEDIMENT BASIN 820



SPECIAL TRASH RACK AND GRATE INLET DETAIL 400

STATE OF MISSOURI
LEON D. OSBOURN
REGISTERED PROFESSIONAL ENGINEER
NO. 021726

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KAW VALLEY ENGINEERING
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STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

MASS GRADING & STORM SEWER IMPROVEMENTS
STORM SEWER DETAIL & EROSION CONTROL DETAIL SHEET

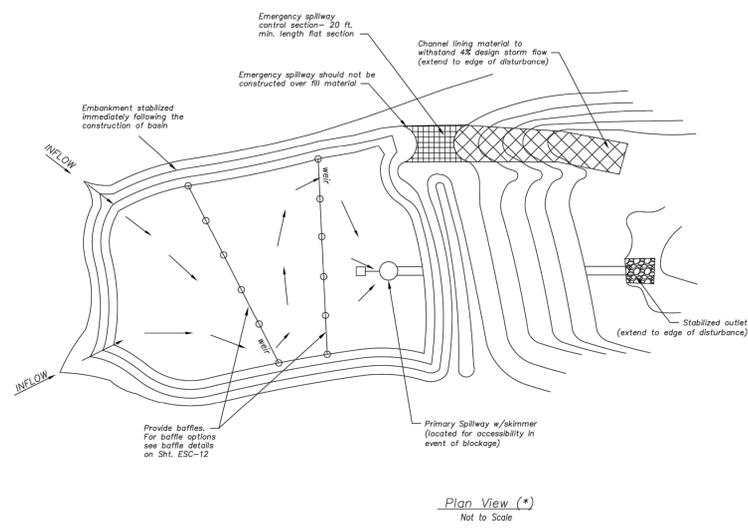
REV	DATE	DESCRIPTION
3	7-24-19	REVISED PER CITY COMMENTS
2	7-3-19	REVISED PER CITY COMMENTS
1	5-16-19	REVISED PER CITY COMMENTS
0	1-16-19	INITIAL ISSUE

PROJ. NO. **A14 7067-1**

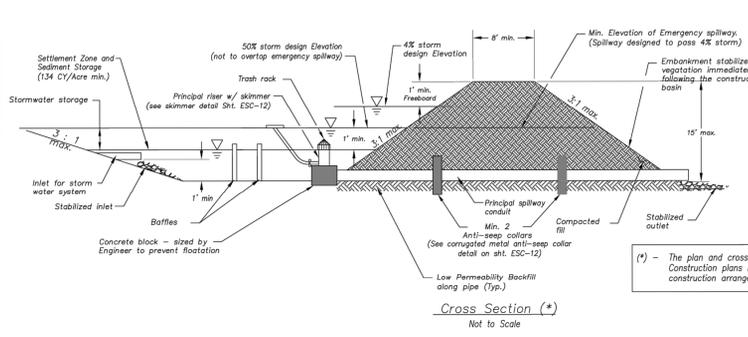
DESIGNER **LDO** DRAWN BY **51**

CFN **7067-1G_DET**

SHEET **C-43** REV **3**



Sediment Basin Design Summary (**)			
Design Item	Basin #1	Basin #2	Units
Site Data:			
Tributary Drainage Area to Pond	34.5		Acres
50% (2 yr) Design Flow	137.6		cfs
4% (25 yr) Design Flow	266.4		cfs
Pond Data:			
Minimum Sediment Storage Volume	4,623		cu yd
Provided Sediment Storage Volume	6,813		cu yd
Bottom Elevation	947		ft
Sediment Cleanout Elevation	948.3		ft
Top of Riser Elevation	955.5		ft
Emergency Spillway Elevation	956.5		ft
Top of Dam Elevation	959.0		ft
Basin Shape Data:			
A = Area of Normal Pool	22,884		SF
L = Length of Flow Path	152		ft
We = Effective Width = A/L	150		ft
Length to Width Ratio = L/We	1.01		
Principal Spillway Data:			
Riser Pipe dia	24"		in
Barrel Pipe dia	24"		in
Concrete Base size for Riser Pipe	N/A (concrete box)		CY
Skimmer Size	1.5' Faircloth 1.2' Diameter Office		
Emergency Spillway Data:			
Design Depth in Spillway	1.51		ft
Design Velocity in Spillway	3.67		ft/sec
Lining Material	16"-24" Rip/Rap		



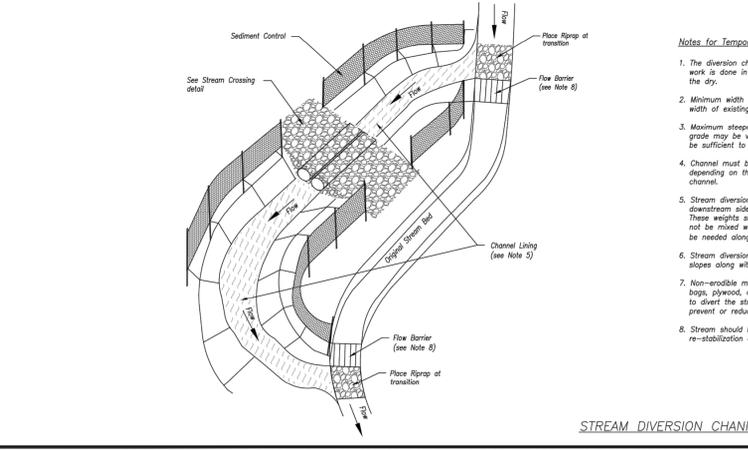
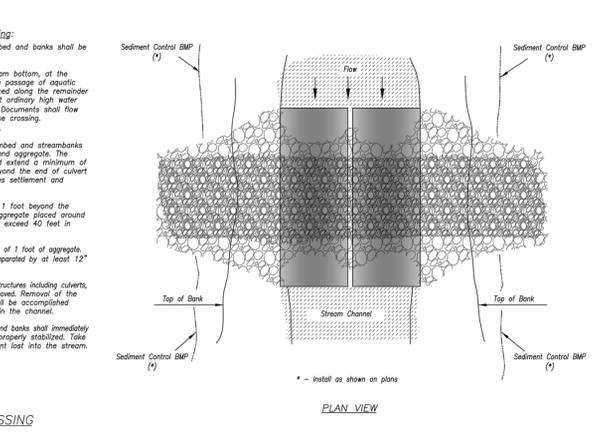
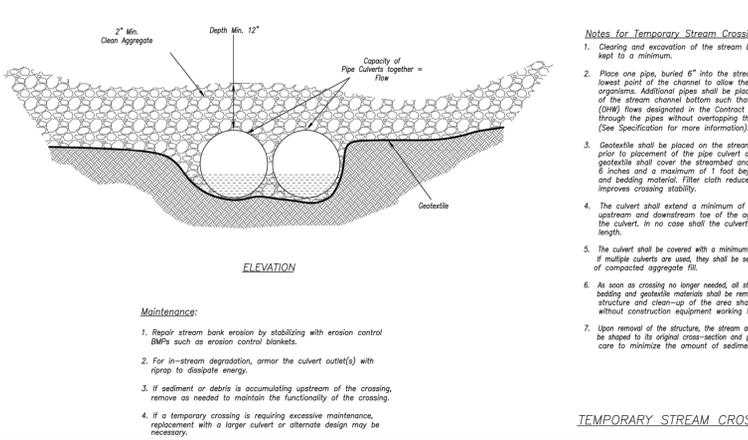
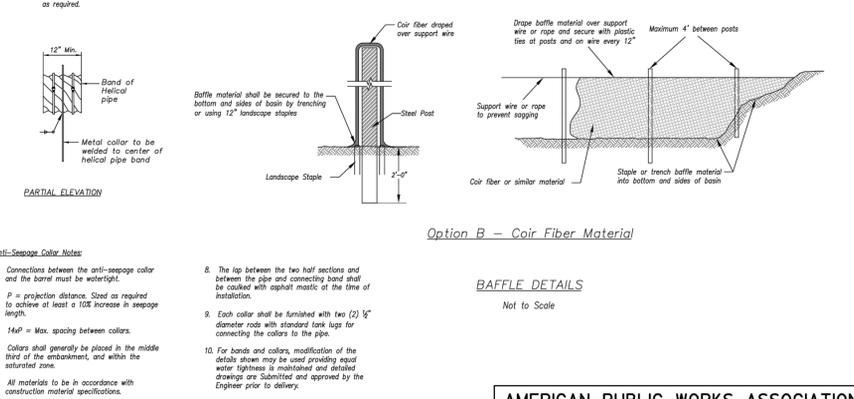
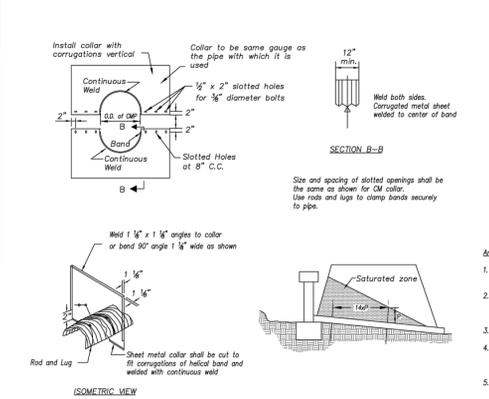
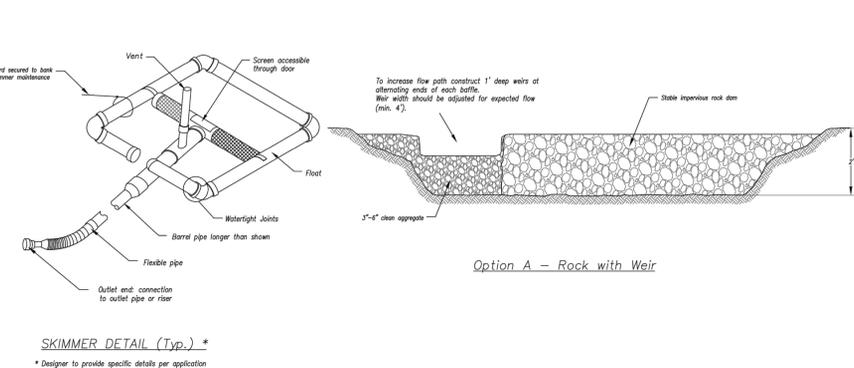
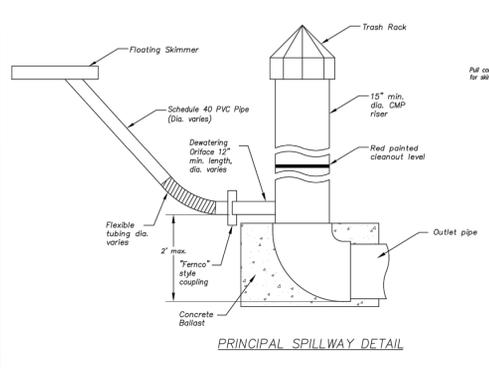
Sediment Basin Notes:

- Interior baffles shall be provided to reduce short-circuiting of the basin. See Sht. ESC-12 for approved baffle options.
- Emergency spillways to be located in a non-fill location when feasible and shall be lined with a non-erodible material such as riprap or turf reinforcement mat.
- When directed, sediment basins shall be fenced using construction fence or other material for safety reasons and include warning signs, reading: "DANGER - KEEP OUT".

Maintenance:

- Check temporary sediment basins after periods of significant runoff.
- Remove sediment and restore the basin to its original dimensions when sediment accumulates to 20% of the storage capacity.
- Immediately repair any erosion damage to the embankment and outlets.
- Repair and/or replace baffles as necessary to maintain function and integrity of installation.
- Keep outlet, skimmer and pool area free of all trash and other debris.

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KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-II ADOPTED 10/24/2016



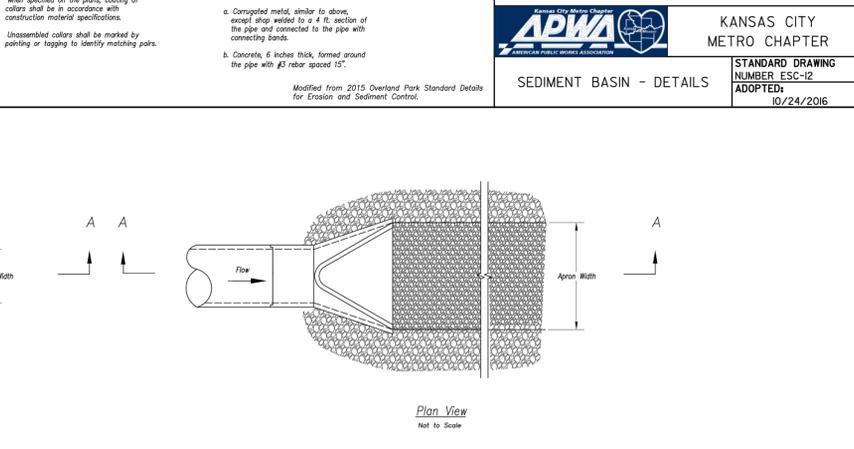
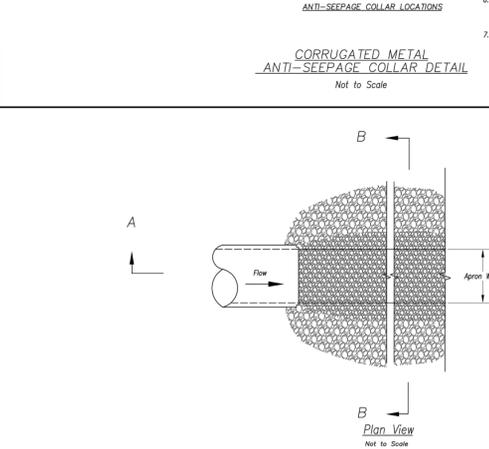
Notes for Temporary Stream Crossing:

- Clearing and excavation of the stream bed and banks shall be kept to a minimum.
- Place one pipe buried 8" into the stream bottom, at the lowest point of the channel to allow the passage of aquatic organisms. Additional pipes shall be placed along the remainder of the stream channel bottom such that adequate high water (HWH) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.
- Geotextile shall be placed on the streambed and streambanks prior to placement of the pipe culvert and aggregate. The geotextile shall cover the streambed and extend a minimum of 6 inches and a maximum of 1 foot beyond the end of culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.
- The culvert shall extend a minimum of 1 foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
- The culvert shall be covered with a minimum of 12" of aggregate. If multiple culverts are used, they shall be separated by at least 12" of compacted aggregate fill.
- As soon as crossing no longer needed, all structures including culverts, bedding and geotextile materials shall be removed. Removal of the structure and clean-up of the area shall be accomplished without construction equipment working in the channel.
- Upon removal of the structure, the stream and banks shall immediately be shaped to its original cross-section and properly stabilized. Take care to minimize the amount of sediment lost into the stream.

Notes for Temporary Diversion Channel:

- The diversion channel crossing must be operational before work is done in the stream. Construction will be performed in the dry.
- Minimum width of bottom shall be 6 feet or equal to bottom width of existing streambed, whichever is less.
- Maximum steepness of side slopes shall be 2H:1V. Depth and grade may be variable, dependent on site conditions, but shall be sufficient to ensure continuous flow of water in diversion.
- Channel must be lined with riprap or turf reinforcement mat depending on the expected velocity and shear stress in the channel.
- Stream diversion liners shall be secured at the upstream and downstream sides with non-erodible weights such as riprap. These weights shall allow normal flow of the stream. Soil shall not be mixed with stream diversion weights. Weights may also be needed along the diversion's length to secure liner.
- Stream diversion liners shall be entrenched at the top of slopes along with a sediment control BMP.
- Non-erodible materials such as riprap, Jersey barriers, sand bags, plywood, or sheet piling shall be used as flow barriers to divert the stream away from its original channel and prevent or reduce water backup into the construction area.
- Stream should be re-diverted only after backfilling and re-stabilization of original streambed and banks is completed.

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-I3 ADOPTED 10/24/2016



PROJ. NO. A14-7067-1
DESIGNER LDO
DRAWN BY JT
CFN 7067-1G_DET
SHEET C-46
REV 2

REV. DATE DESCRIPTION
2 7-3-19 REVISED PER CITY COMMENTS
1 5-16-19 REVISED PER CITY COMMENTS
0 11-16-19 INITIAL ISSUE

LEON D. OSBOURN
ENGINEER
MO # 021726

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
STANDARD DRAWING NUMBER ESC-14 ADOPTED 10/24/2016

STREETS OF WEST PRYOR
NW QW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI
MASS GRADING & STORM SEWER IMPROVEMENTS
EROSION CONTROL DETAIL SHEET

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EXPIRES 12/31/19