CONSTRUCTION PLANS
FOR
NW PRYOR ROAD SIGNAL IMPROVEMENTS
& LANE WIDENING
STREETS OF WEST PRYOR
LEE'S SUMMIT, MISSOURI

OCTOBER 2019

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CALL BEFORE YOU
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(TOLL FREE)

MISSOURI ONE CALL SYSTEM, INC.

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 WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

SUMMARY OF QUANTITIES

Paving

Item No.	Item	Estimated Quantity	Unit
1	2' Curb & Gutter (CG-1)	1080	L.F.
2	Asphaltic Cement Concrete Surface (2")	1240	S.Y.
3	Asphaltic Cement Concrete Surface (7.5")	1240	S.Y.
4	MoDOT Type 5 Base (Pavement)(12")	1570	S.Y.
5	Terragrid SX2020	1570	S.Y.
6	Concrete Entrance (Commercial)(8")	679	S.Y.
7	Aggregate Base (Commercial)(Driveway)(4")	679	S.Y.
8	Handicap Ramp	4	Ea.
9	Modular Block Retaining Wall	34	L.F.
10	Island Concrete (6")	54	S.F.
11	Concrete Sidewalk (4" KCCMB 4K Concrete)	484	S.Y.
12	Detectable Warning pad (pad only)	2'X3'	Size

5

Erosion Control

Item No.	Item	Estimated Quantity	Unit
1	Erosion Control Devices, Sedimentation Fence	1148	L.F.
2	Erosion Control Devices, Curb Inlet Protection	4	Ea.
3	Erosion Control Devices, Area Inlet & Junction Box Protection	4	Ea.
4	Seeding	1	S.F.

Pavment Marking & Signing

Item No.	Item	Estimated Quantity	Unit
1	Pavement Marking, High-build Paint (Solid White)(4")	574 5	L.F.
2	Pavement Marking, High-build Paint (Dashed White)(Extension)(6")	62	L.F.
3	Pavement Marking, High-build Paint (Solid White)(Cross-walk)(6")	220	L.F.
4	Pavement Marking, Thermoplastic (Solid White)(Stop Bar)(24")	62	L.F.
5	Pavement Marking, Thermoplastic (White)(Left/Right Arrow)	17	Ea.
6	Permanent Signs	32	S.F.
7	Sign Post (Square Steel Tube)	3	L.F.

Storm Sewer

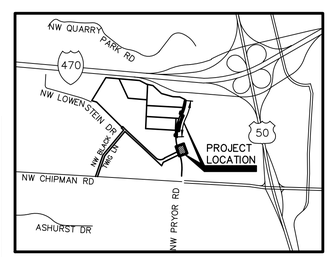
Item No.	Item	Estimated Quantity	Unit
1	Setback Curb Inlet (4'x3')	1	Ea.
2	RCP (24")(CLASS 3)	42	L.F.

Traffic Signal

Item No.	Item	Estimated Quantity	Unit
1	Traffic Signal System, NW Pryor & NW Summit Woods	1	L.S.
2	Traffic Signal System, NW Pryor & NW Lowenstein	1	L.S.
3	Interconnect Cable	2370	L.F.

Lighting

Item No.	Item	Estimated Quantity	Unit
1	Light Pole Base	2	Ea.



NOT TO SCALE

LOCATION MAP
CITY OF LEE'S SUMMIT, MISSOURI

APPROVED THIS _____ DAY OF _____, _____

_____
OWNER: MATT PENNINGTON

APPROVED THIS _____ DAY OF _____, _____

_____
CITY APPROVAL

OWNER:
STREETS OF WEST PRYOR, LLC
7200 WEST 132ND STREET
OVERLAND PARK, KS 66213
CONTACT: MATT PENNINGTON
email: matt@drakekc.com

DEVELOPER:
STREETS OF WEST PRYOR, LLC
7200 WEST 132ND STREET
OVERLAND PARK, KS 66213
AGENT: DAVID N. OLSON
email: daveolson@monarchprojectllc.com

PREPARED BY:
KAW VALLEY ENGINEERING, INC.
2319 N. JACKSON
JUNCTION CITY, KS 66441
785–762–5040
CONTACT: LEON D OSBOURN
EMAIL: ldo@kveng.com

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

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REV	DATE	DESCRIPTION	DSN	DWN	CHK
5	10–18–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
4	10–3–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
3	9–14–19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7–24–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7–2–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-18-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TITLE SHEET

PROJ. NO. A14_7067–1
DESIGNER LDO | DRAWN BY JT/BKR
CFN 7067–1SIG_TS
SHEET 1 | REV 5

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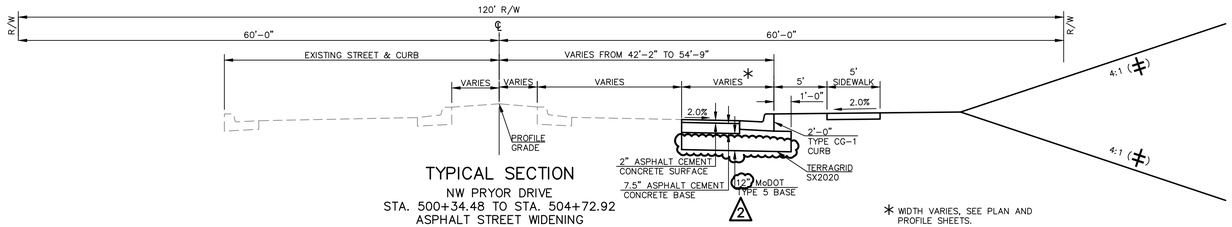
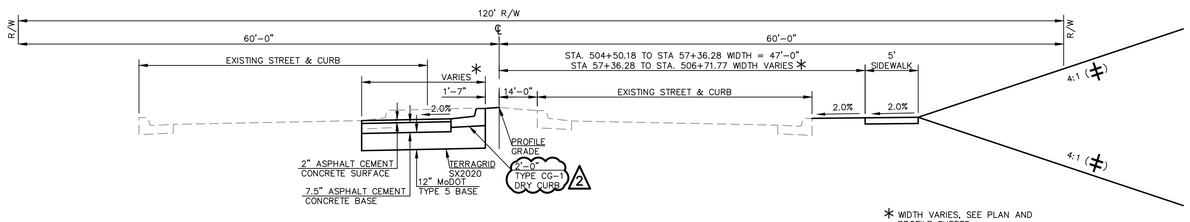


TYPICAL SECTION
NW PRYOR DRIVE
STA. 500+34.48 TO STA. 504+72.92
ASPHALT STREET WIDENING

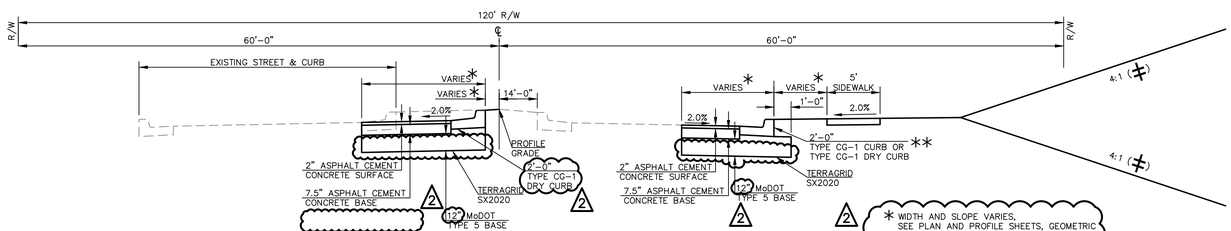
* WIDTH VARIES, SEE PLAN AND PROFILE SHEETS.

‡ SEE CROSS-SECTIONS FOR TRANSITIONS TO PROPOSED GRADES



* WIDTH VARIES, SEE PLAN AND PROFILE SHEETS.

TYPICAL SECTION
NW PRYOR DRIVE
STA. 504+50.18 TO STA. 506+71.77
ASPHALT STREET WIDENING



TYPICAL SECTION
NW PRYOR DRIVE
STA. 506+71.77 TO STA. 510+49.39
ASPHALT STREET WIDENING

* WIDTH AND SLOPE VARIES, SEE PLAN AND PROFILE SHEETS, GEOMETRIC LAYOUT SHEET AND CROSS-SECTIONS.

** CURB TYPE VARIES, SEE GEOMETRIC LAYOUT SHEETS AND CROSS-SECTIONS.

‡ SEE CROSS-SECTIONS FOR TRANSITIONS TO PROPOSED GRADES

LEGEND

- SECTION CORNER, ORIGIN UNKNOWN UNLESS OTHERWISE NOTED
- MONUMENT FOUND, ORIGIN UNCERTAIN UNLESS OTHERWISE NOTED
- (D) DESCRIBED
- (M) MEASURED
- (C) CALCULATED
- (P) PLATTED
- STREET SIGN
- UTILITY POLE
- LP — UTILITY POLE W/ LIGHT
- UTILITY POLE W/TRANSFORMER
- LIGHT POLE
- DEADMAN ANCHOR
- (5) OU — OVERHEAD UTILITY – # LINES
- AC — AIR CONDITIONING UNIT
- ELECTRIC PEDESTAL
- E — ELECTRIC METER
- E — UNDERGROUND ELECTRIC LINE
- UTILITY MANHOLE
- CTV — CABLE TV SIGN
- CABLE TV PEDESTAL
- GAS SIGN
- G — GAS METER
- G — UNDERGROUND GAS LINE
- GTS — GAS CATHODIC PROTECTION STATION
- W — WATER LINE
- WATER LINE GATE VALVE
- WS — WATER SPIGOT
- W — WATER METER
- W — WELL
- FIRE HYDRANT
- S — SANITARY SEWER MANHOLE
- S — SANITARY SEWER LINE
- STORM SEWER MANHOLE
- T — TELEPHONE SIGN
- T — TELEPHONE MANHOLE
- TP — TELEPHONE PEDESTAL
- T — UNDERGROUND TELEPHONE LINE
- SPLICE BOX
- FOC — FIBER OPTIC CABLE SIGN
- FOC — UNDERGROUND FIBER OPTIC CABLE
- TRAFFIC CONTROL POLE
- P — PULL BOX
- FP — FLAG POLE
- MB — MAILBOX
- ADA — HANDICAP SIGN
- HANDICAP PAINTED SYMBOL
- LEFT TURN ARROW
- STRAIGHT ARROW
- RIGHT TURN ARROW
- GP — GATE POST
- FENCE POST
- WOOD FENCE
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- 18" — DECIDUOUS TREE W/SIZE & DRIP LINE
- 22" — EVERGREEN TREE W/SIZE & DRIP LINE
- SAP — SAPPLING TREE
- SHRUB
- STUMP
- TREE LINE
- SHRUB LINE
- (10) — PARKING STALL COUNT
- 970 — 1' CONTOUR INTERVAL
- RESTRICTED ACCESS
- B/B — BACK OF CURB TO BACK OF CURB
- E/E — EDGE TO EDGE

CONSTRUCTION NOTES:

1. EXCESS EXCAVATION SHALL BE DEPOSITED IN AREAS AS DIRECTED BY THE OWNER.

2. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING SURFACING ON STREETS NEEDED TO BE TRAVELED UPON BY EQUIPMENT DURING CONSTRUCTION, AND IF DAMAGED, HE SHALL REPLACE THE SURFACING AND REPAIR THE STREET TO THE ORIGINAL CONDITION. NO TYPE OF EARTH MOVING EQUIPMENT WILL BE PERMITTED TO HAUL ON OR OVER ANY EXISTING STREET.

3. THE CONTRACTOR SHALL TAKE CARE IN PROTECTING EXISTING TREES AND SHRUBS OUTSIDE OF THE PROPOSED CONSTRUCTION. CARE SHALL BE TAKEN NOT TO DISTURB LAWNS OR EXISTING STRUCTURES OUTSIDE OF THE CONSTRUCTION LIMITS.

4. 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.

5. CONTRACTOR SHALL SEED ALL DISTURBED AREAS IN ACCORDANCE TO REQUIREMENTS OF TECHNICAL SPECIFICATIONS. BUILDING LOTS WILL NOT REQUIRE SEEDING BUT ALL SLOPES AND BACKFILL BEHIND CURBS SHALL BE SEEDED WITHIN RIGHT-OF-WAY LIMITS, AND ON SLOPES OF EMBANKMENTS. AREAS SHALL BE SEEDED WITHIN 28 DAYS OF FINISH GRADING OR AS DIRECTED BY OWNER.

6. JOINT SPACING FOR CONCRETE PAVEMENT SHALL BE MODIFIED TO MEET THE CONTRACTOR'S CONSTRUCTION EQUIPMENT AND METHODS OF POURING. CONTRACTOR TO DRILL AND INSERT EPOXY-COATED DOWEL BARS INTO CONSTRUCTION JOINTS AND HEADERS. CONTRACTOR TO SAW-CUT CLEAN VERTICAL EDGE AT JOINT LOCATION. SAWED CONTRACTION JOINTS SHALL BE REQUIRED ON MAXIMUM 12'-0" CENTERS.

7. CONTRACTOR SHALL SUBMIT A JOINTING PLAN AND RECEIVE APPROVAL FROM THE ENGINEER AND CITY PRIOR TO CONCRETE PAVING OPERATIONS.

8. ALL SANITARY SEWER, WATER MAINS AND STORM SEWER UNDER PAVEMENTS SHALL BE BACKFILLED WITH MODOT TYPE 5 AGGREGATE IN TRENCHES GREATER THAN 24" AND FLOWABLE IN TRENCHES LESS THAN 24".

9. CONTRACTOR SHALL INSTALL SILT FENCE TO PREVENT SEDIMENT FROM LEAVING CONSTRUCTION LIMITS. SILT FENCE IS REQUIRED AT BOTTOM OF SLOPE ON ALL EMBANKMENTS AND AT DISCHARGE POINTS OF STREETS, STORM SEWER INLETS AND PIPE END SECTIONS.

10. PIPE LENGTHS ARE CENTER TO CENTER OF STRUCTURE OR TO END OF END SECTIONS.

11. THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY 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.

12. CONTRACTOR SHALL COMPLETE ROUGH SITE AND STREET GRADING PRIOR TO INSTALLATION OF UTILITIES.

13. EROSION CONTROL SEDIMENT FENCE SHALL 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 SHALL HAVE EROSION CONTROL SEDIMENT FENCE INSTALLED.

14. CUT AND FILL SECTIONS ARE TYPICAL ONLY. NEITHER ALTERNATE PAVEMENT TYPE IS SPECIFIED FOR EXCLUSIVE USE WITH CUT OR FILL SECTIONS. REFER TO SPECIFICATIONS FOR INFORMATION ON FLY ASH TREATED SUBGRADE, CRUSHED AGGREGATE BASE COURSE, AND PAVEMENT UNDERDRAINS.

15. WHERE CURB AND GUTTER IS MONOLITHIC WITH THE STREET, THE CURVE SHALL BE POURED AT THE SAME DEPTH AS THE STREET.

16. UNLESS SPECIFIED OTHERWISE, KCMMB 4K IS REQUIRED FOR ALL CONCRETE.

20. THE STANDARD SPECIFICATIONS AND DESIGN CRITERIA OF THE CITY OF LEE'S SUMMIT SHALL GOVERN THE CONSTRUCTION OF ALL PUBLIC IMPROVEMENTS FOR THIS PROJECT.

2

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	10-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

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

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TYPICAL SECTIONS & GENERAL CONSTRUCTION NOTES

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_TYP
SHEET	2
REV	2

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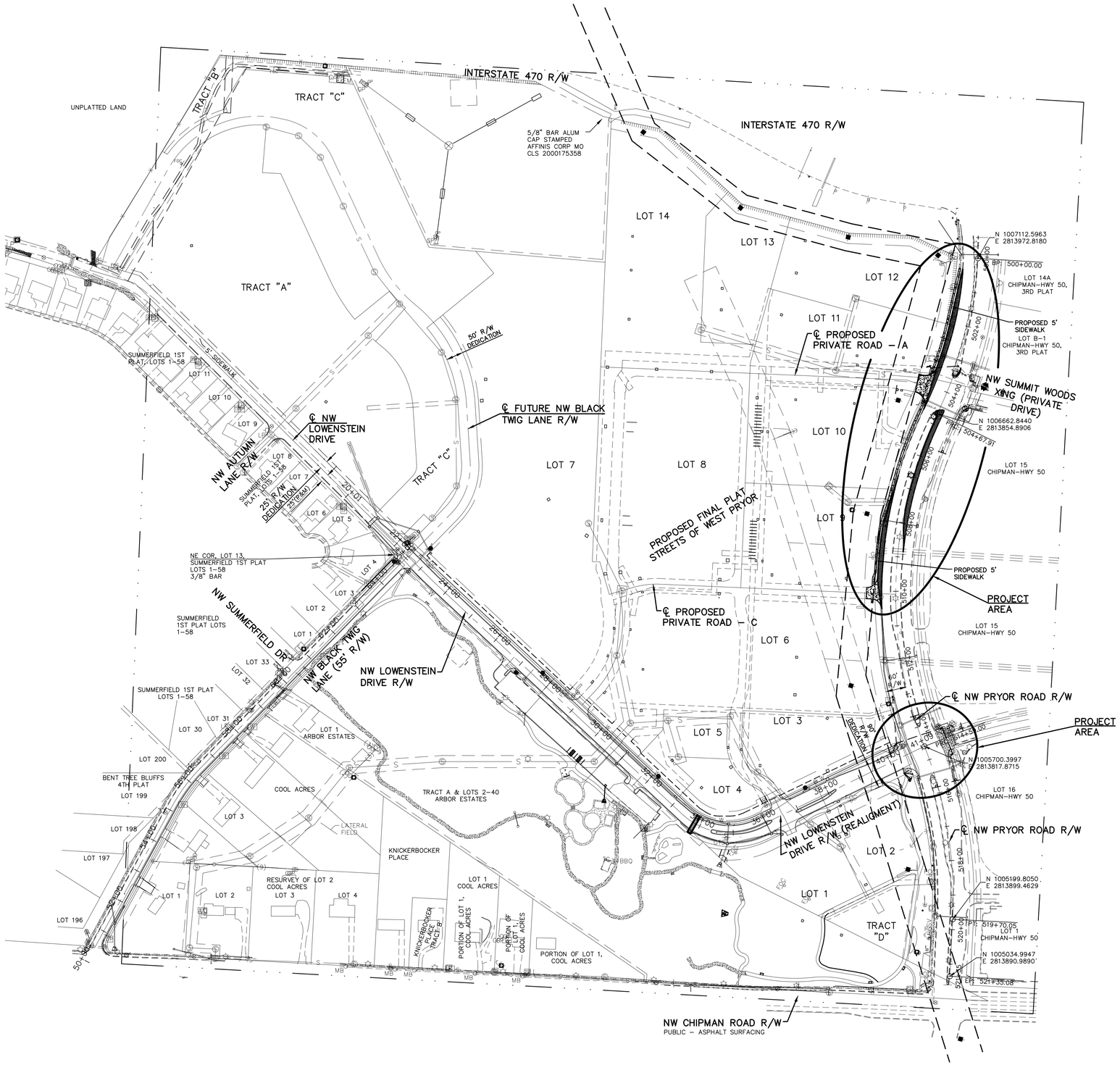

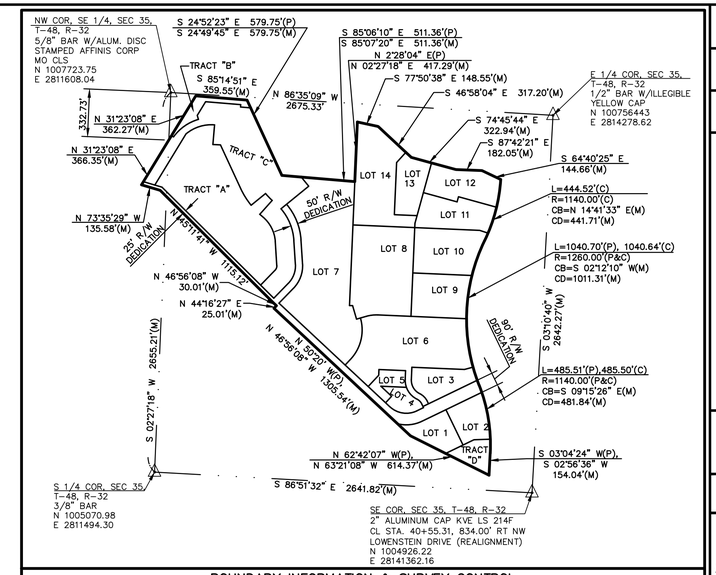

BOUNDARY INFORMATION & SURVEY CONTROL

SCALE: 1"=500'

(SEE FINAL PLAT OF STREETS OF WEST PRYOR LOTS 1 THRU 14, TRACTS "A", "B", "C", & "D" FOR ADDITIONAL INFORMATION)

0 50 100 200

SCALE: 1" = 100'

PUBLIC WATER, SANITARY SEWER, LOWENSTEIN IMPROVEMENTS AND PRIVATE ROADS ARE BY SEPARATE PLANS

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
GENERAL LAYOUT SHEET

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_GLS
SHEET	3
REV	0

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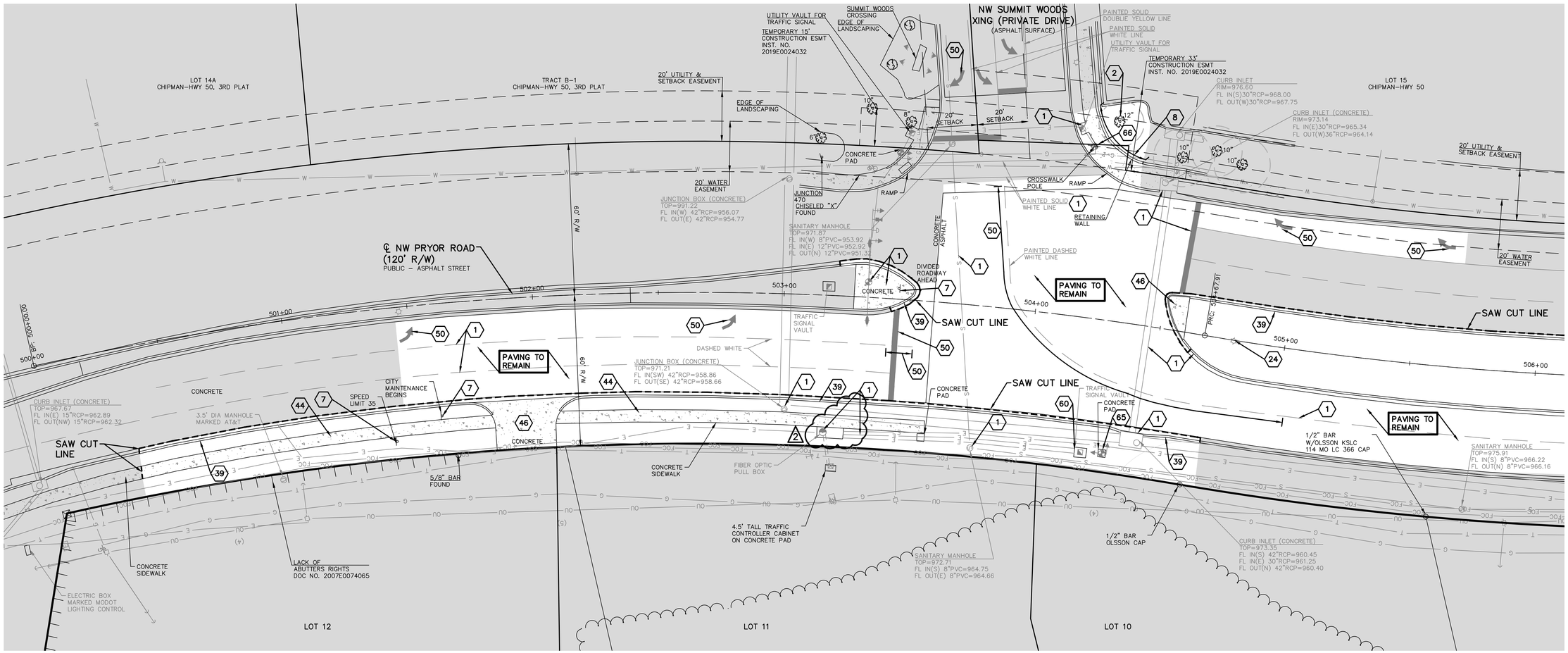

DEMOLITION NOTES:

1. TO REMAIN
2. REMOVE TREE (SEE PLANS)
3. TREES TO REMAIN
7. SIGN TO BE RELOCATED
8. PORTION OF RETAINING WALL TO BE REMOVED (SEE PLANS)
11. TO BE REMOVED BY ELECTRIC COMPANY
24. STREET LIGHT TO BE RELOCATED (SEE PLANS)
39. CONTRACTOR TO REMOVE (CURBS)
44. CONTRACTOR TO REMOVE (SIDEWALK)
46. CONTRACTOR TO REMOVE (PAVING)
50. CONTRACTOR TO SAND BLAST STRIPING (SEE PAVEMENT MARKING SHEETS)
65. TRAFFIC POLE TO BE RELOCATED. (SEE PLANS)
66. TRAFFIC POLE TO BE REMOVED AND RETURNED TO THE CITY OF LEE'S SUMMIT

LEGEND

NOT A PART OF DEMOLITION ACTIVITIES

SAW CUT LIMITS

0 10 20 40

SCALE: 1" = 20'

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.

GENERAL NOTES:

1. 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.

2. ALL UTILITY PIPE LINES TO BE ABANDONED SHALL BE PLUGGED PER CITY AND STATE REGULATIONS.

3. 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.

4. ALL PAVING WITHIN PROPERTY TO BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

5. 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.

6. CONTRACTOR SHALL VERIFY THAT ALL UTILITIES TO EXISTING STRUCTURES HAVE BEEN DISCONNECTED PRIOR TO COMMENCING DEMOLITION.

7. EXISTING POWER LINES AND APPURTENANCES TO BE RELOCATED BY KANSAS CITY POWER & LIGHT.

8. 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.

9. 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.

10. 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.

11. 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 AT 90° BEND IN ROAD. ELEV=970.98

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	8-14-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

LEON D. OSBOURN
ENGINEER
MO # 021726

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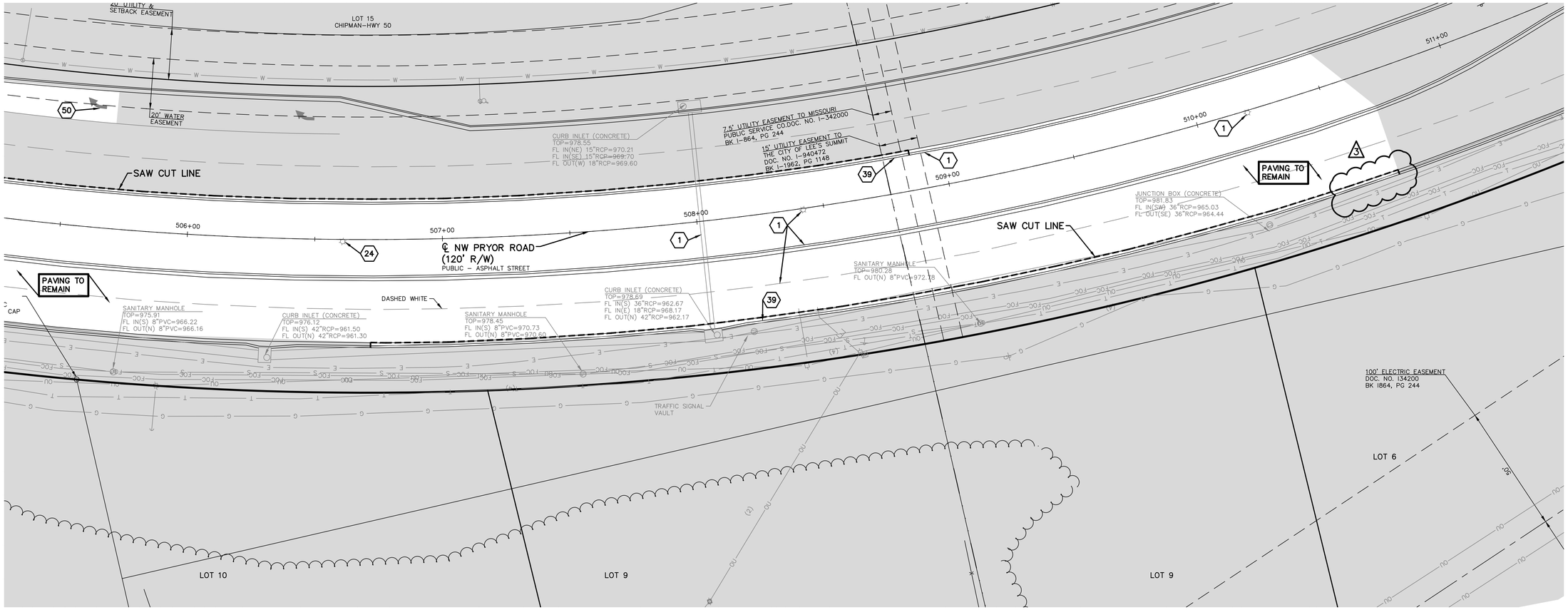
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19

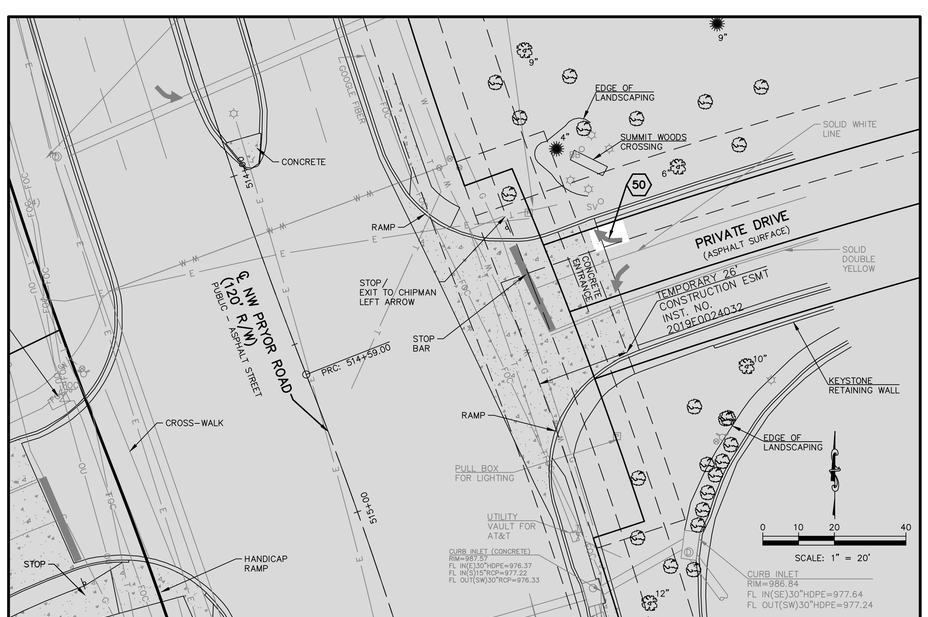
STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
DEMOLITION PLAN

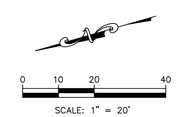
PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_DEMO
SHEET	4
REV	2

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.





PROPOSED REALIGNMENT NW LOWENSTEIN DR & NW PRYOR ROAD



DEMOLITION NOTES:

1. TO REMAIN
2. REMOVE TREE (SEE PLANS)
3. TREES TO REMAIN
7. SIGN TO BE RELOCATED
8. PORTION OF RETAINING WALL TO BE REMOVED (SEE PLANS)
11. TO BE REMOVED BY ELECTRIC COMPANY
24. STREET LIGHT TO BE RELOCATED (SEE PLANS)
39. CONTRACTOR TO REMOVE (CURBS)
44. CONTRACTOR TO REMOVE (SIDEWALK)
46. CONTRACTOR TO REMOVE (PAVING)
50. CONTRACTOR TO SAND BLAST STRIPING (SEE PAVEMENT MARKING SHEETS)
65. TRAFFIC POLE TO BE RELOCATED. (SEE PLANS)
66. TRAFFIC POLE TO BE REMOVED AND RETURNED TO THE CITY OF LEES SUMMIT

LEGEND

NOT A PART OF DEMOLITION ACTIVITIES

SAW CUT LIMITS

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

BENCHMARKS:
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REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	10–3–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
2	8–14–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7–2–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

LEON D. OSBOURN
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MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
DEMOLITION PLAN

PROJ. NO. A14_7067–1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067–1SIG_DEMO
SHEET 5
REV 3

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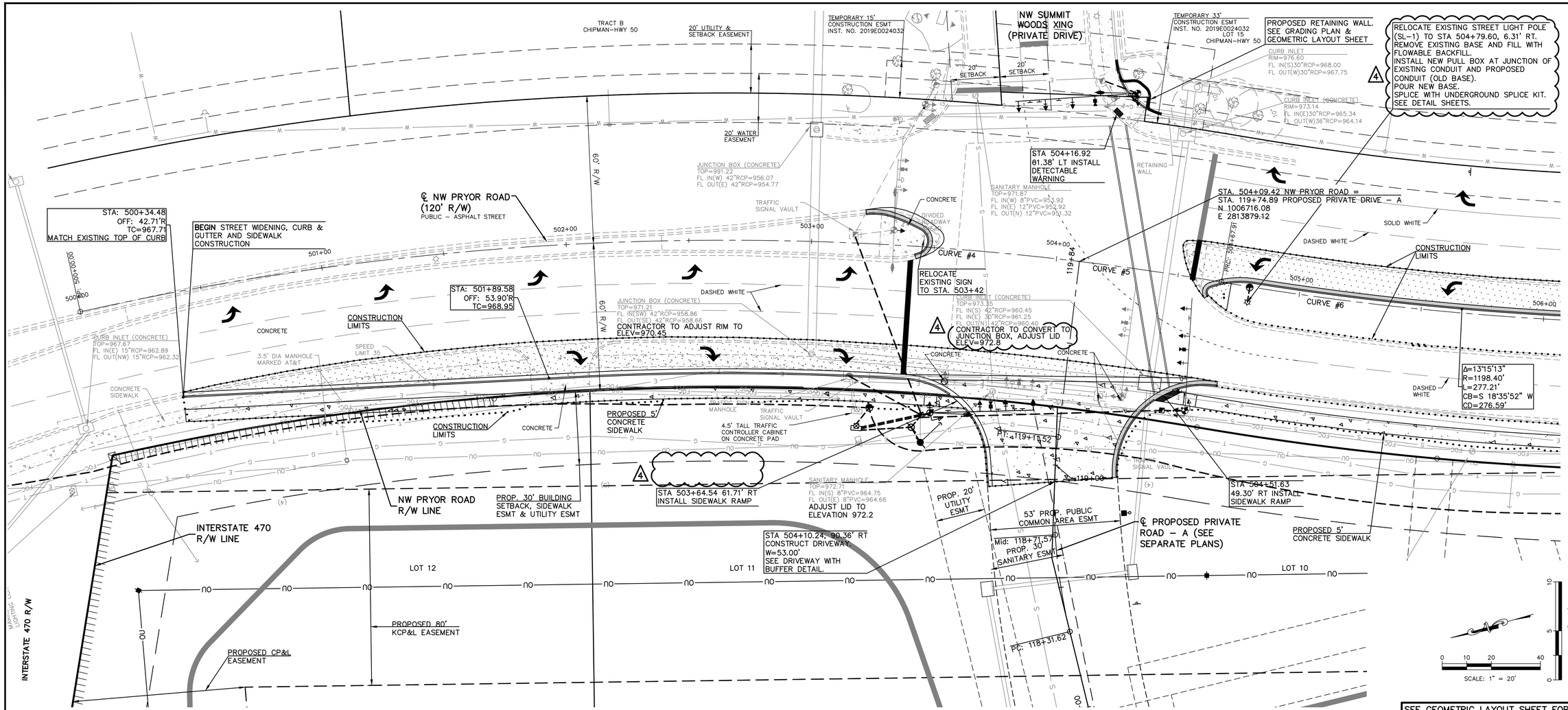
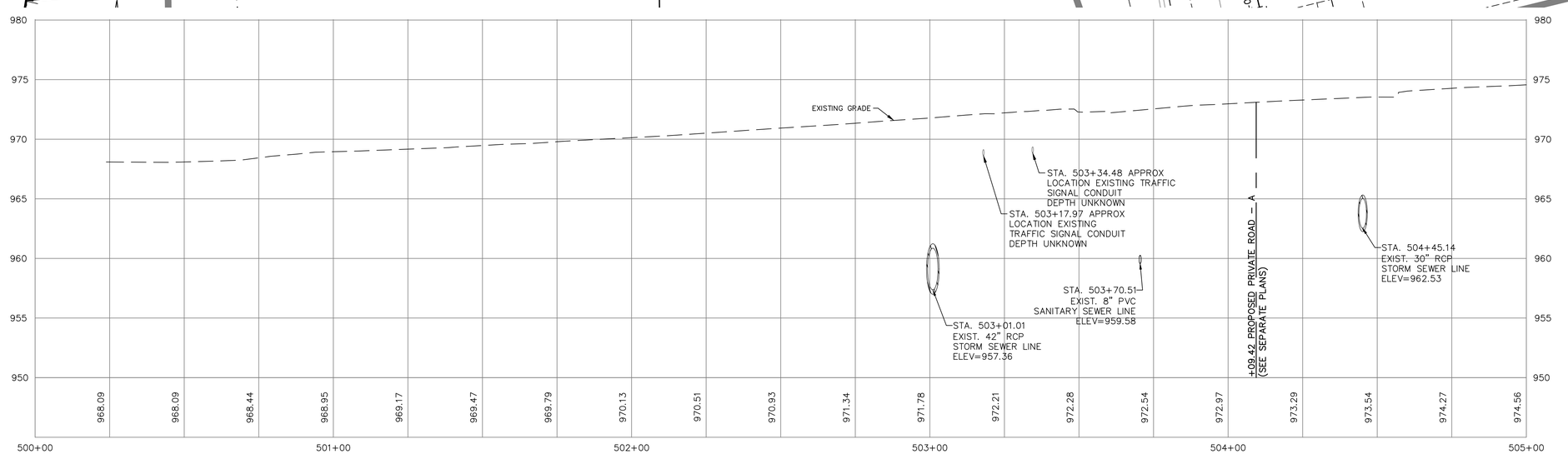


SEE GEOMETRIC LAYOUT SHEET FOR ADDITIONAL INFORMATION



℄ CURVE DATA

CURVE #4
PT STA. 500+00.00
N 1007112.60 E 2813972.82
POC STA. 504+09.42
N 1006716.08 E 2813879.12
Δ=19°32'54"
R=1200.00'
T=206.72'
L=409.42'
CB=S 13°17'46" W
CD=407.44'

CURVE #5
POC STA. 504+09.42
N 1006716.08 E 2813879.12
PRC STA. 504+67.91
N 1006662.84 E 2813854.89
Δ=02°47'35"
R=1200.00'
T=29.25'
L=58.50'
CB=S 24°28'00" W
CD=58.49'

CURVE #6
PRC STA. 504+67.91
N 1006662.84 E 2813854.89
POC STA. 510+08.63
N 1006140.33 E 2813734.70
Δ=25°49'03"
R=1200.00'
T=275.03'
L=540.72'
CB=S 12°57'16" W
CD=536.16'

REV	DATE	DESCRIPTION	DSN	DWN	CHK
4	10-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
3	8-14-19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR DRIVE WIDENING - PLAN & PROFILE

PROJ. NO.	
A14_7067-1	
DESIGNER	DRAWN BY
LDO	JT/BKR
CFN	
7067-1SIG_STPP	
SHEET	REV
6	4

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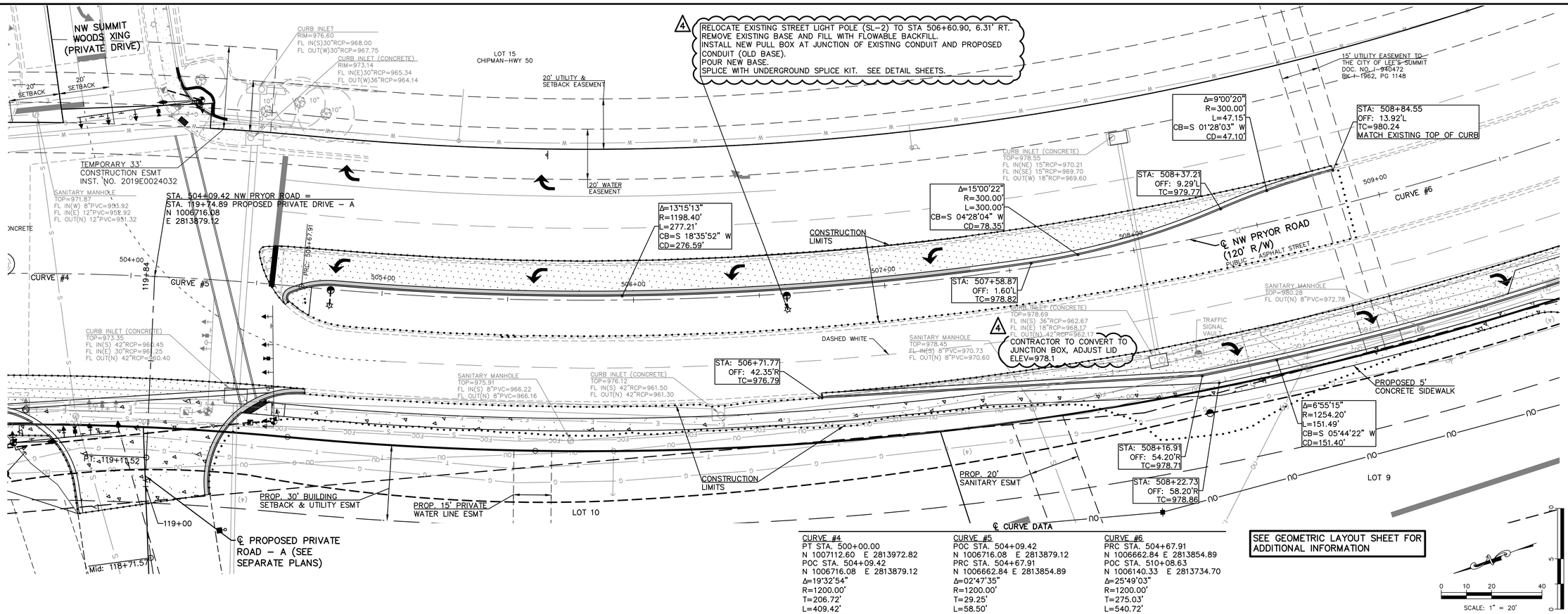


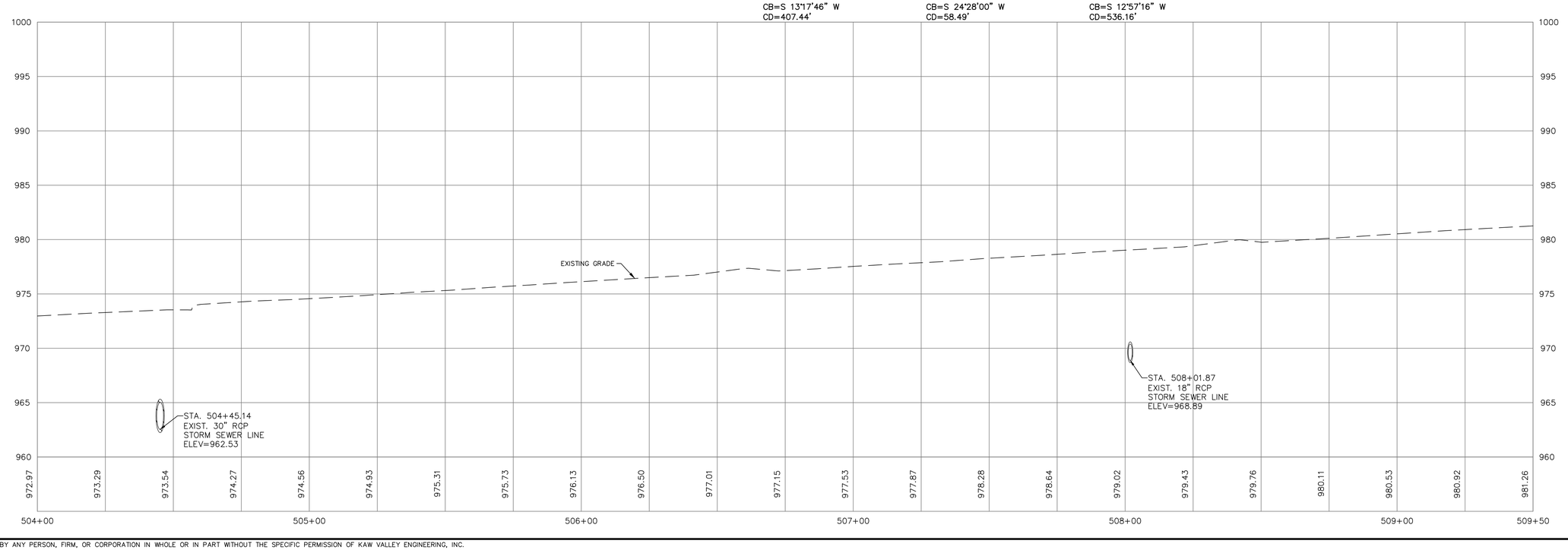
℄ CURVE DATA

CURVE #4	CURVE #5	CURVE #6
PT STA. 500+00.00	POC STA. 504+09.42	PRC STA. 504+67.91
N 1007112.60 E 2813972.82	N 1006716.08 E 2813879.12	N 1006662.84 E 2813854.89
POC STA. 504+09.42	PRC STA. 504+67.91	POC STA. 510+08.63
N 1006716.08 E 2813879.12	N 1006662.84 E 2813854.89	N 1006140.33 E 2813734.70
Δ=19°32'54"	Δ=02°47'35"	Δ=25°49'03"
R=1200.00'	R=1200.00'	R=1200.00'
T=206.72'	T=29.25'	T=275.03'
L=409.42'	L=58.50'	L=540.72'
CB=S 13°17'46" W	CB=S 24°28'00" W	CB=S 12°57'16" W
CD=407.44'	CD=58.49'	CD=536.16'

SEE GEOMETRIC LAYOUT SHEET FOR ADDITIONAL INFORMATION

SCALE: 1" = 20'

SCALE: 1" = 5'



REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	10-3-19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR DRIVE WIDENING - PLAN & PROFILE

PROJ. NO.	
A14_7067-1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067-1SIG_STPP	
SHEET: 7	REV: 3

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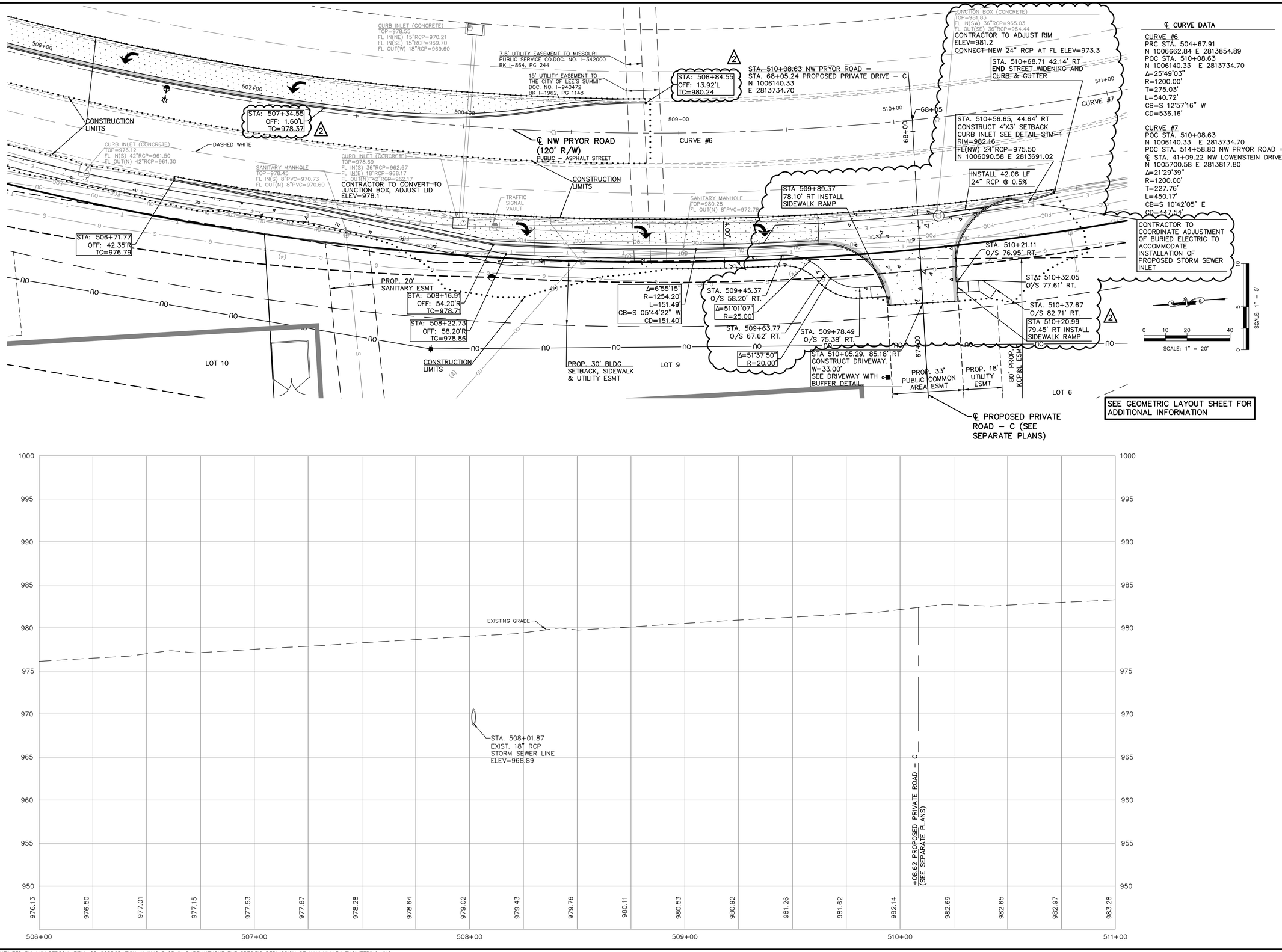

℄ CURVE DATA

CURVE #6
PRC STA. 504+67.91
N 1006662.84 E 2813854.89
POC STA. 510+08.63
N 1006140.33 E 2813734.70
Δ=25°49'03"
R=1200.00'
T=275.03'
L=540.72'
CB=S 12°57'16" W
CD=536.16'

CURVE #7
POC STA. 510+08.63
N 1006140.33 E 2813734.70
POC STA. 514+58.80 NW PRYOR ROAD = ℄ STA. 41+09.22 NW LOWENSTEIN DRIVE
N 1005700.58 E 2813817.80
Δ=21°29'39"
R=1200.00'
T=227.76'
L=450.17'
CB=S 10°42'05" E
CD=447.54'

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	10-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR DRIVE WIDENING - PLAN & PROFILE

PROJ. NO.	
A14_7067-1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067-1SIG_STPP	
SHEET: 8	REV: 2

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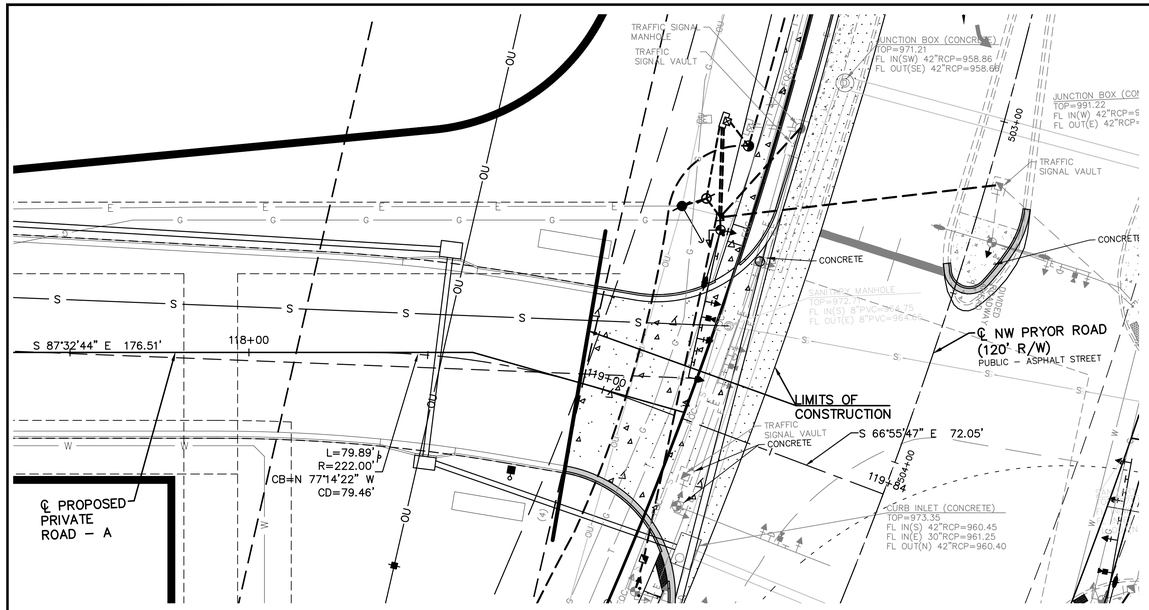

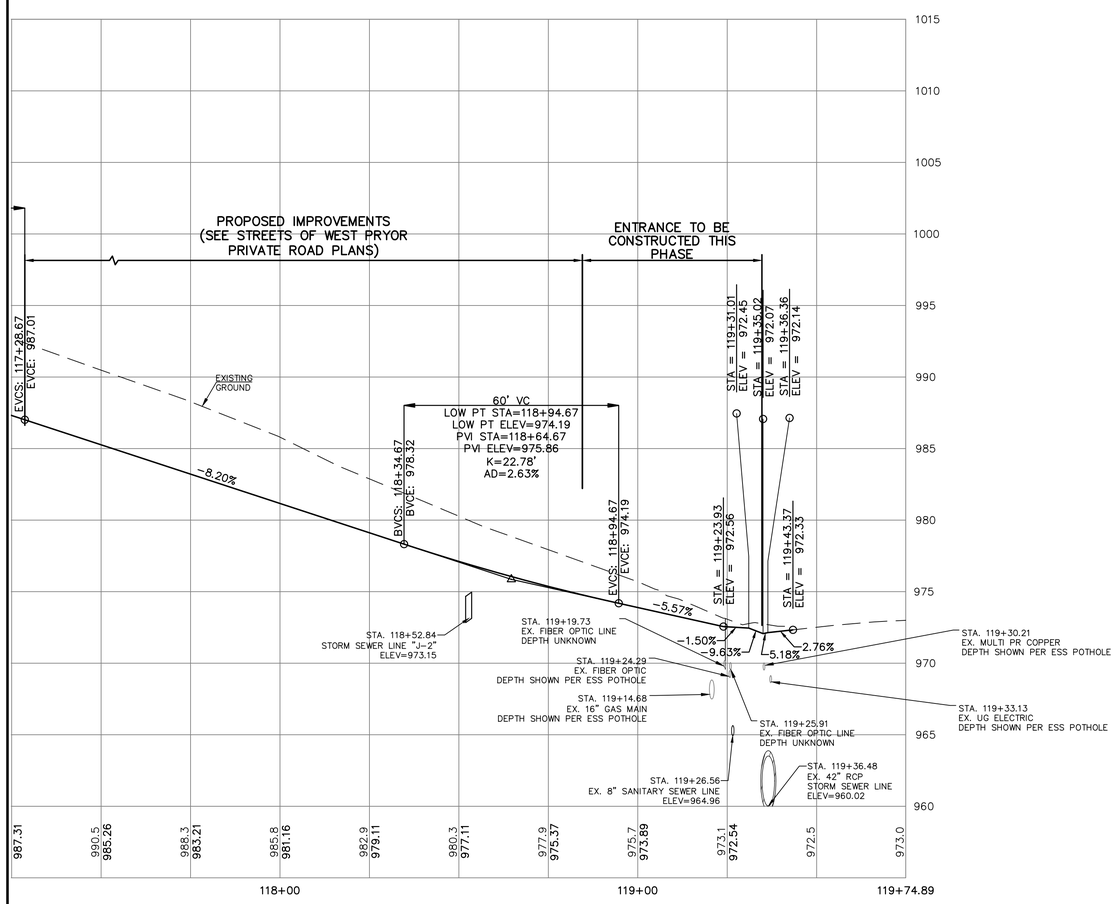

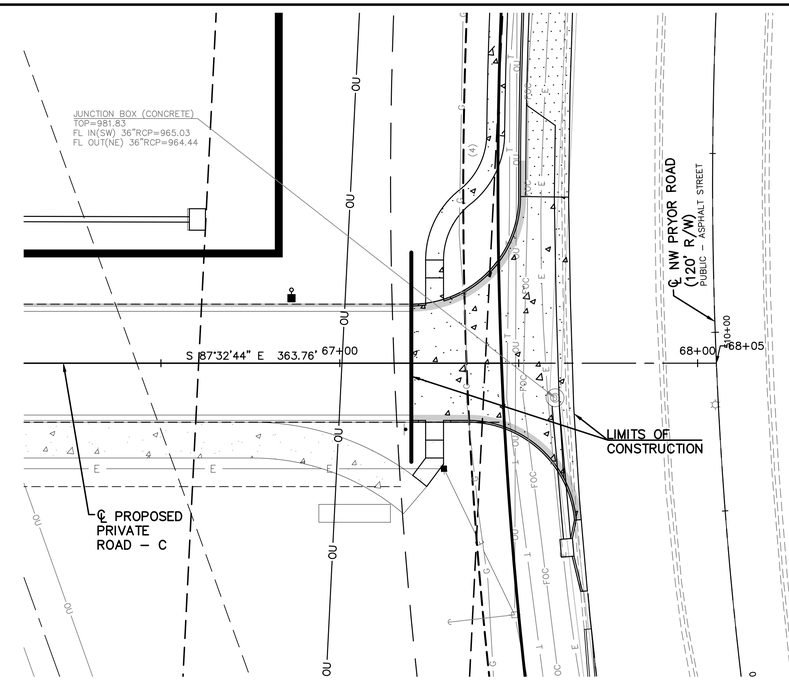

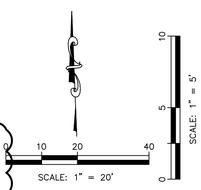

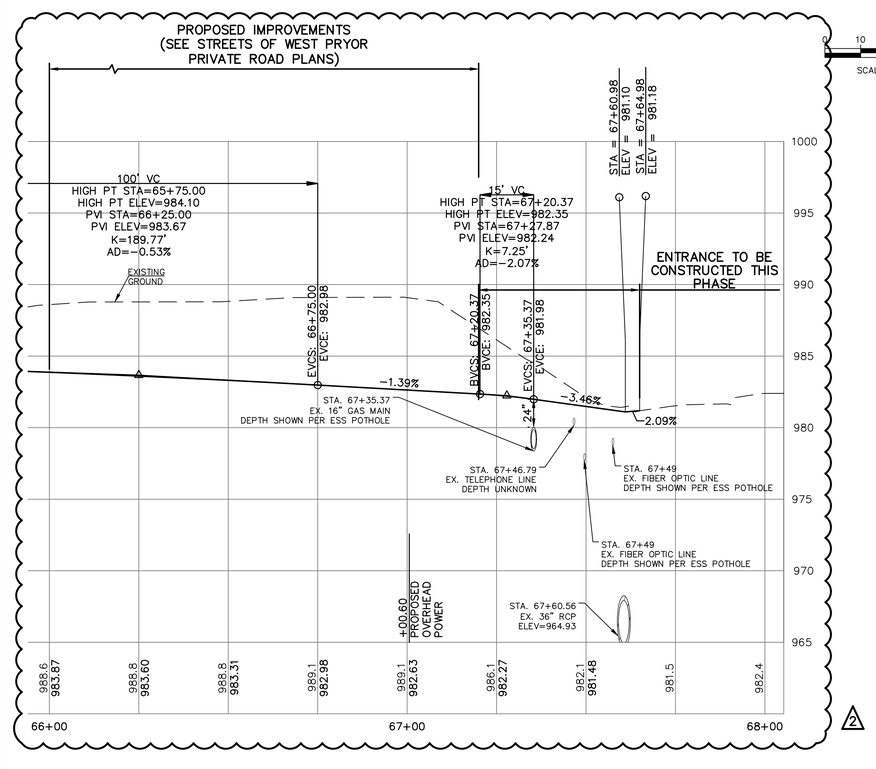

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	10-3-19	REVISED PER FIELD CONDITIONS	LDO	BKR	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

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EXPIRES 12/31/19

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
DRIVE AT PROPOSED PRIVATE ROAD - A & C: PLAN & PROFILE

2

PROJ. NO.	
A14_7067-1	
DESIGNER	DRAWN BY
LDO	JT/BKR
CFN	
7067-1SIG_DRIVEPP	
SHEET	REV
9	2

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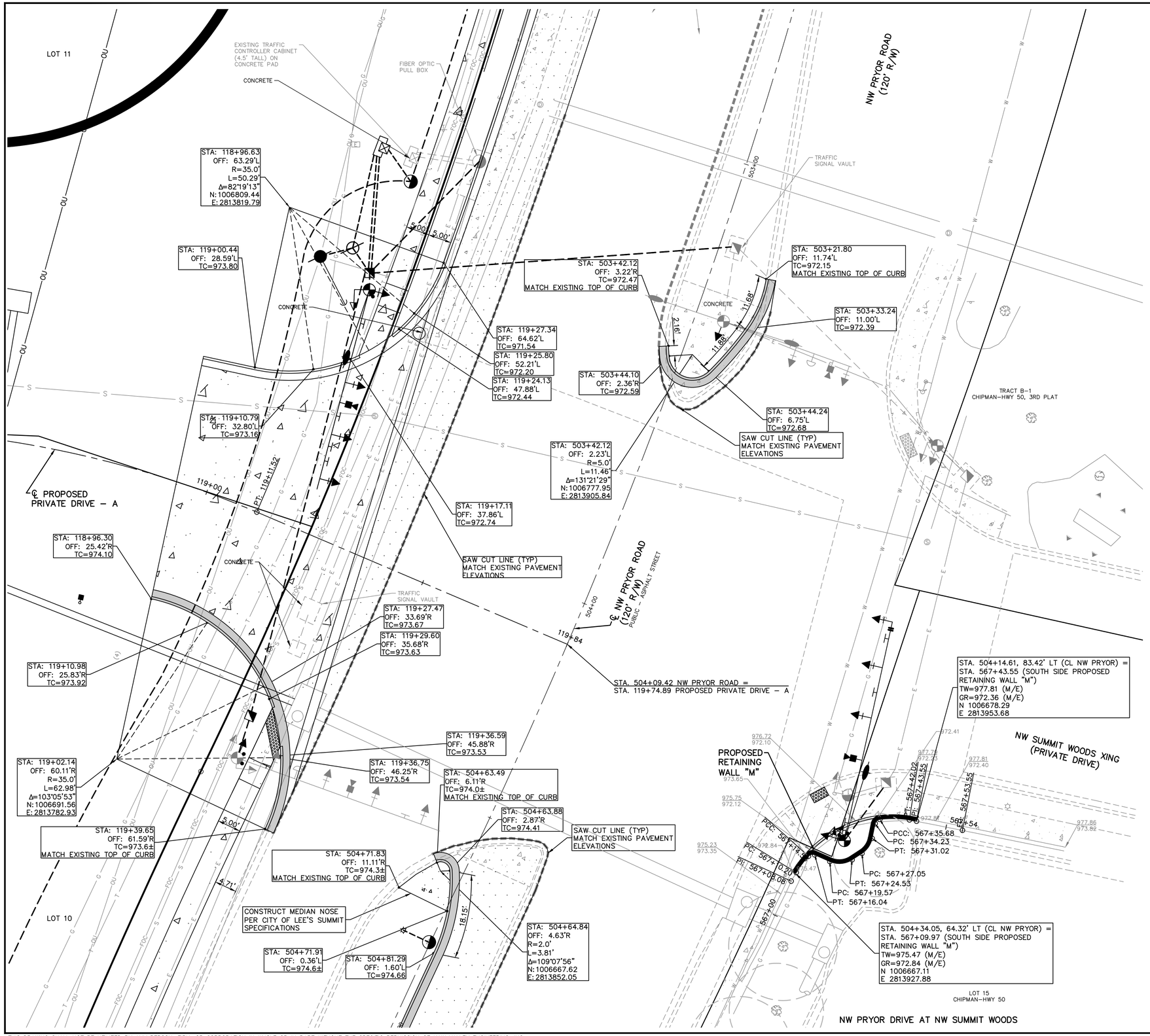
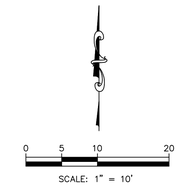
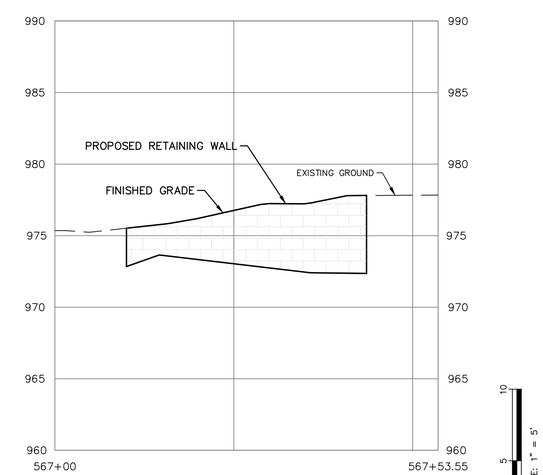




FOR CLARITY, UTILITY EASEMENTS ARE NOT SHOWN



PROPOSED RETAINING WALL "M"

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	7-24-19	REVISED PER CITY COMMENTS	LDO	LDO	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-18-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
GEOMETRIC LAYOUT - NW PRYOR ROAD AT NW SUMMIT WOODS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_GEOM
SHEET	10
REV	2

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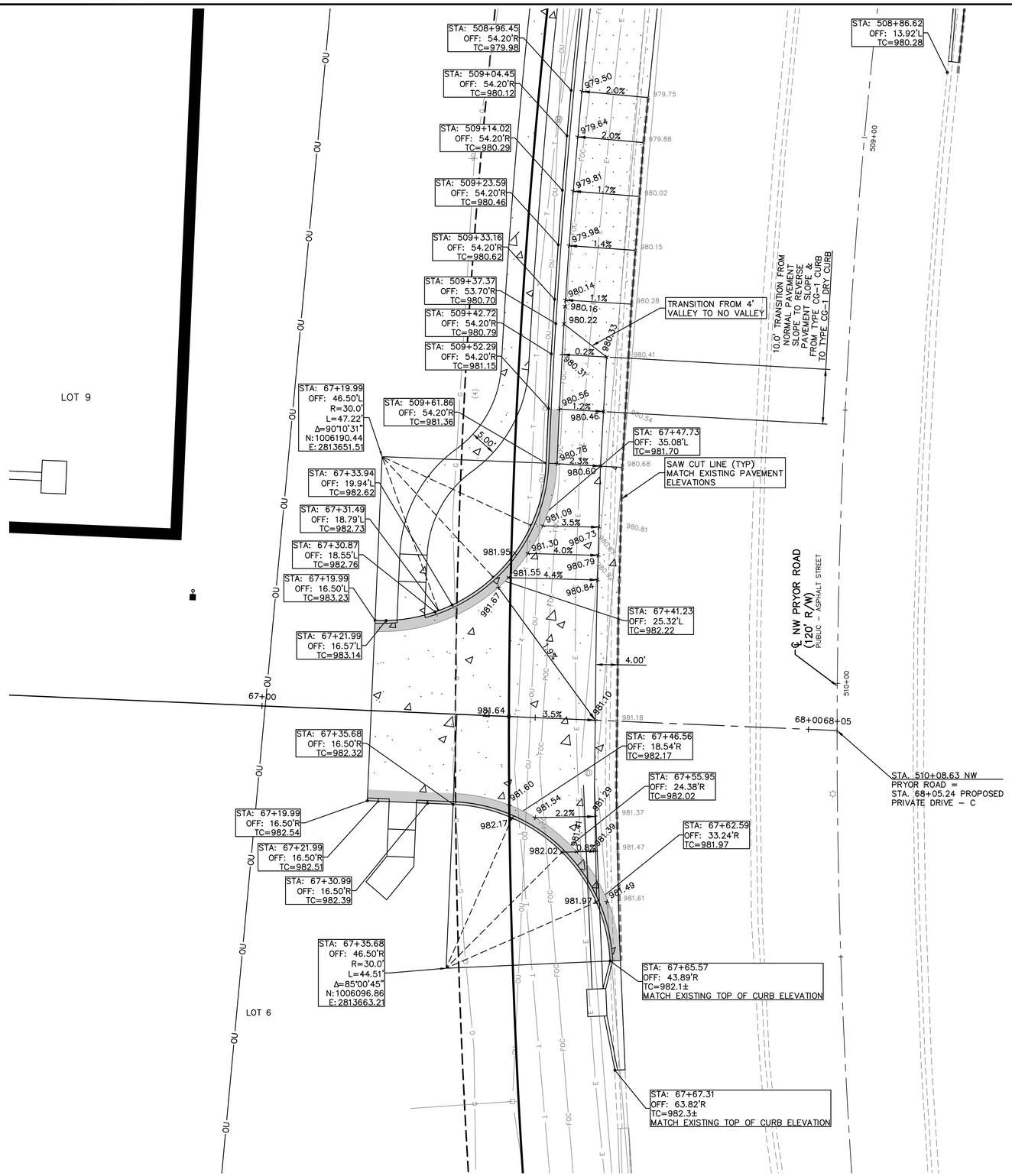

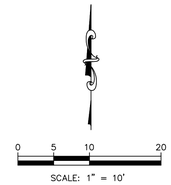

LEGEND

DRY CURB

TC TOP OF CURB ELEVATION

FOR CLARITY, UTILITY EASEMENTS ARE NOT SHOWN

2 EXTENSION REVISIONS

NW PRYOR ROAD AT PROPOSED PRIVATE ROAD – C

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	10-3-19	REVISED PER CITY COMMENTS	LDO	BKR	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
AUTHORITY, KANSAS 66441
PH. (785) 702-5041 FAX (785) 842-7744
jc@kaveng.com | www.kaveng.com

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EXPIRES 12/31/19

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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
GEOMETRIC LAYOUT - NW PRYOR ROAD AT PROPOSED PRIVATE ROAD - C

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_GEOM
SHEET	11
REV	2

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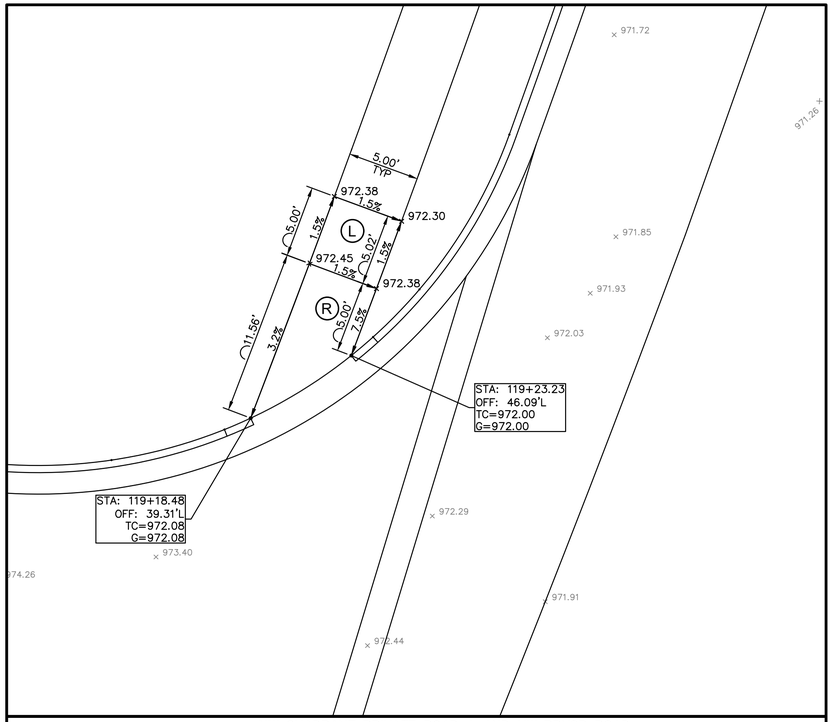
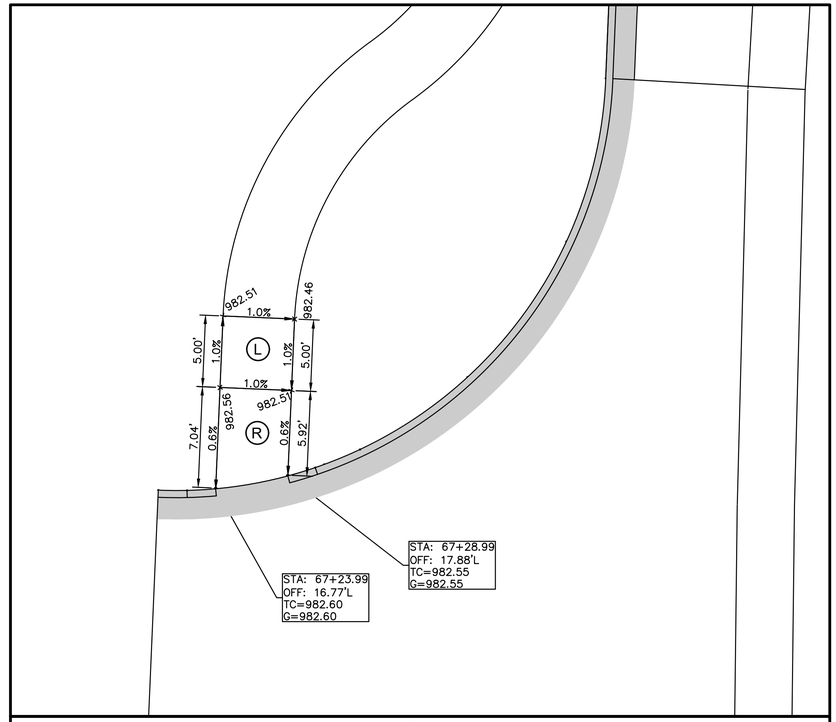
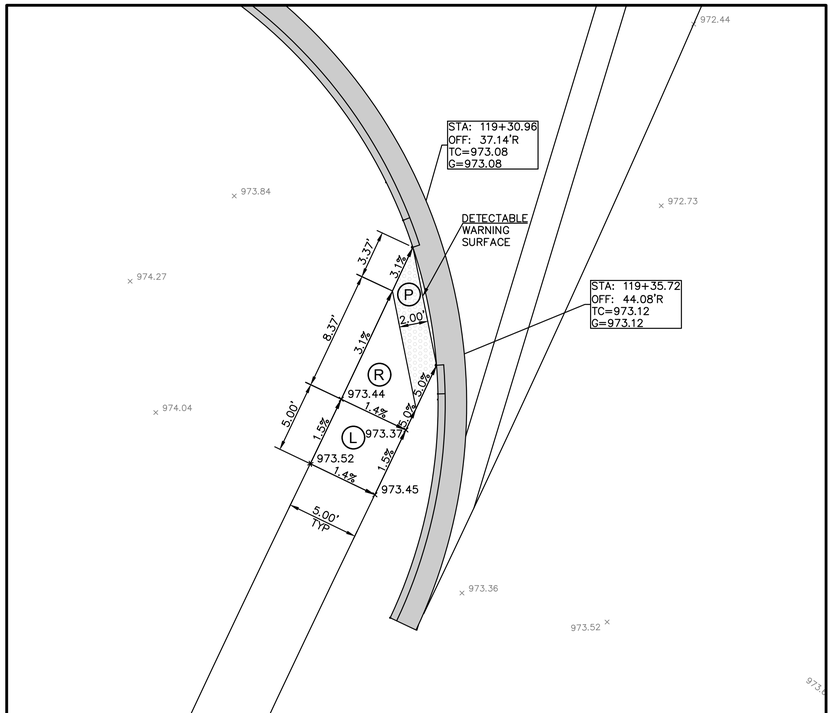


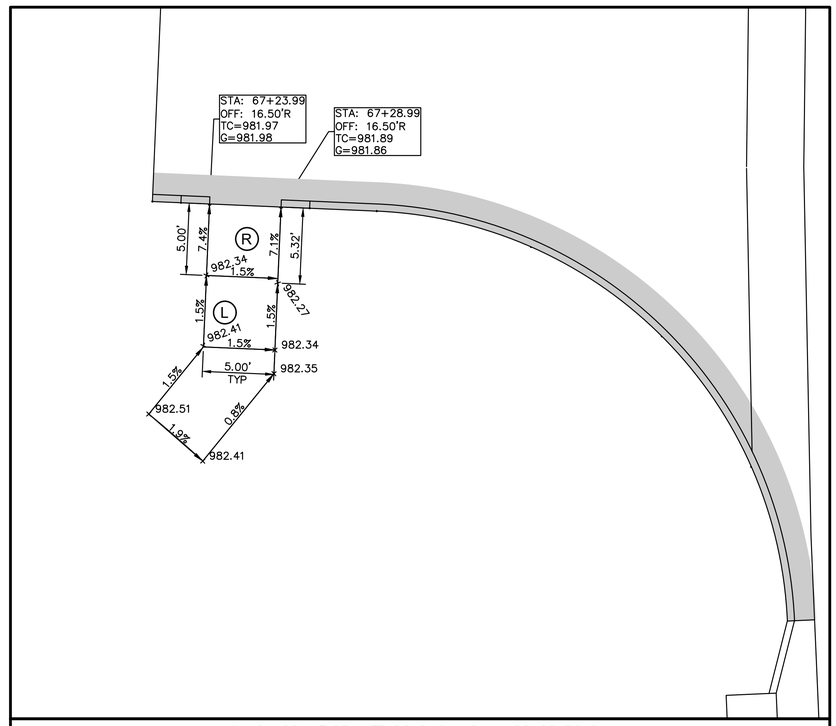
NW QUADRANT PRIVATE ROAD A AND NW PRYOR ROAD



NW QUADRANT PRIVATE ROAD C AND NW PRYOR ROAD



SW QUADRANT PRIVATE ROAD A AND NW PRYOR ROAD



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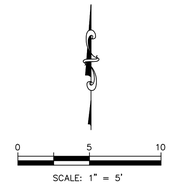

LEGEND

	DRY CURB
TC	TOP OF CURB ELEVATION
G	GUTTER ELEVATION
(R)	RAMP (7.5% RUNNING SLOPE, 1.5% MAXIMUM CROSS SLOPE)
(L)	LANDING (1.5% MAX IN ALL DIRECTIONS)
(P)	PAN

CONSTRUCTION NOTES:

1. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LEE'S SUMMIT STANDARD DETAIL GEN-3A. CONSTRUCTION SHALL COMPLY WITH GENERAL NOTES.

811 Know what's below. Call before you dig.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	10-3-19	REVISED PER CITY COMMENTS	LDO	BKR	LDO
0	6-28-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
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REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
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MO # 021726

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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
ADA RAMPS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_GEOM
SHEET	11A
REV	1

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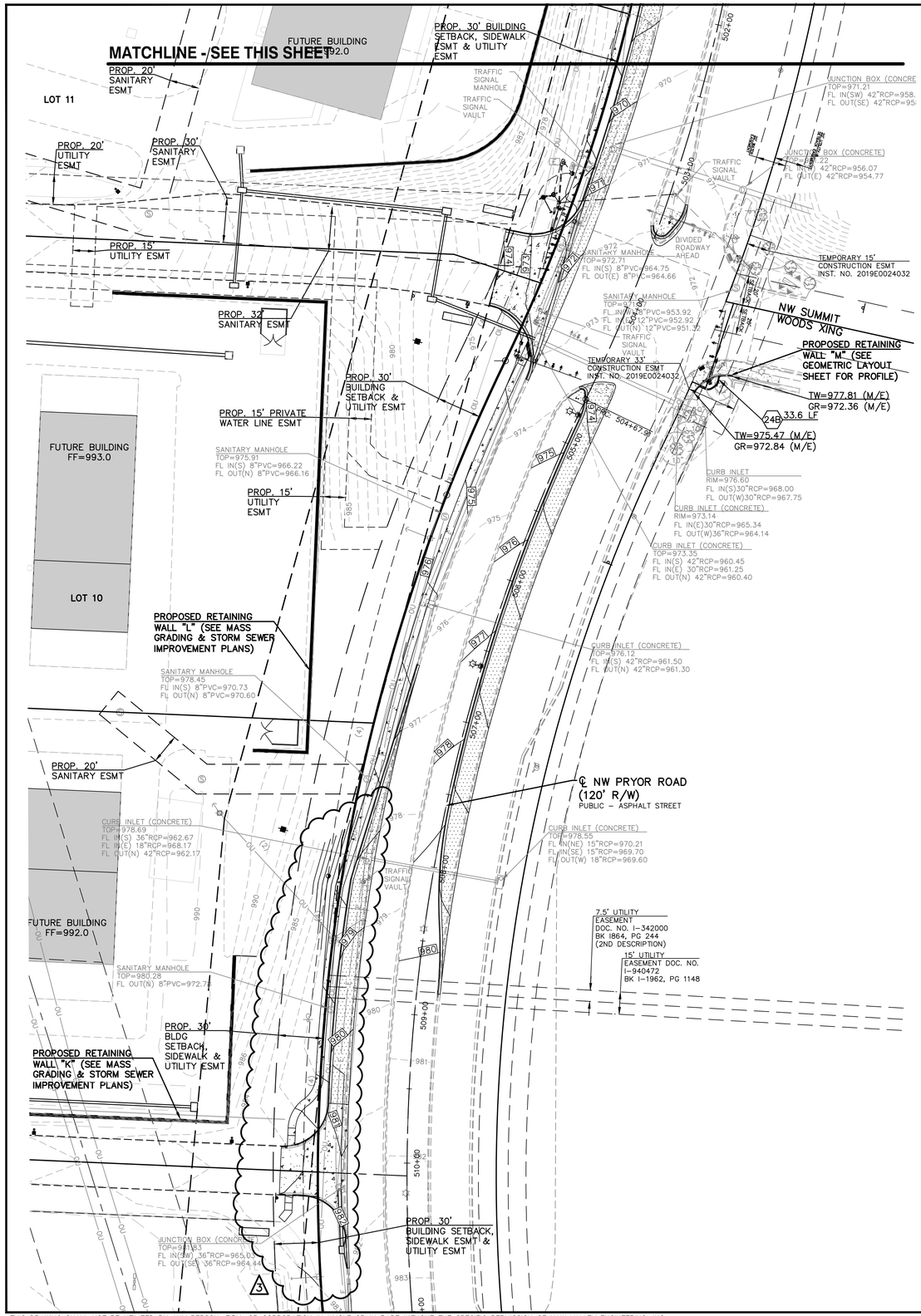

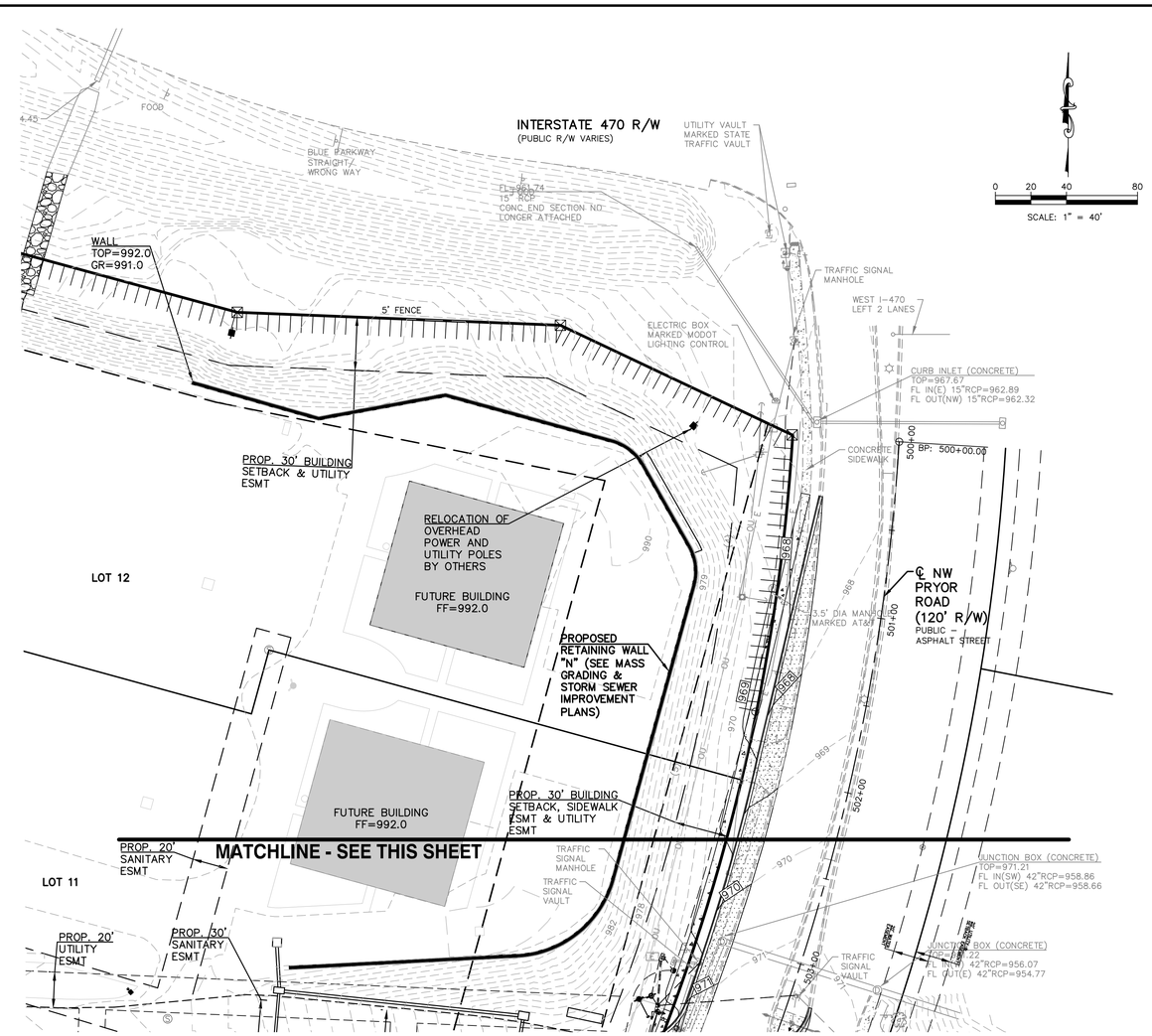

PUBLIC WATER, SANITARY SEWER, LOWENSTEIN IMPROVEMENTS AND PRIVATE ROADS ARE BY SEPARATE PLANS

LEGEND (PROPOSED)

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

(M/E) MATCH EXISTING ELEVATION

955 — FINISHED 1' CONTOUR INTERVALS, TOP OF PAVEMENT

NOTES:

24B — MODULAR BLOCK RETAINING WALL (LINEAR FOOT NOTED)

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

REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	10-3-19	REVISED PER FIELD CONDITIONS	LDO	LDO	LDO
2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI — LEON D. OSBOURN NUMBER E-21726 — REGISTERED PROFESSIONAL ENGINEER — 10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
GRADING PLAN

PROJ. NO.	
A14_7067-1	
DESIGNER	DRAWN BY
LDO	JT/BKR
CFN	
7067-1SIG_GP	
SHEET	REV
12	3

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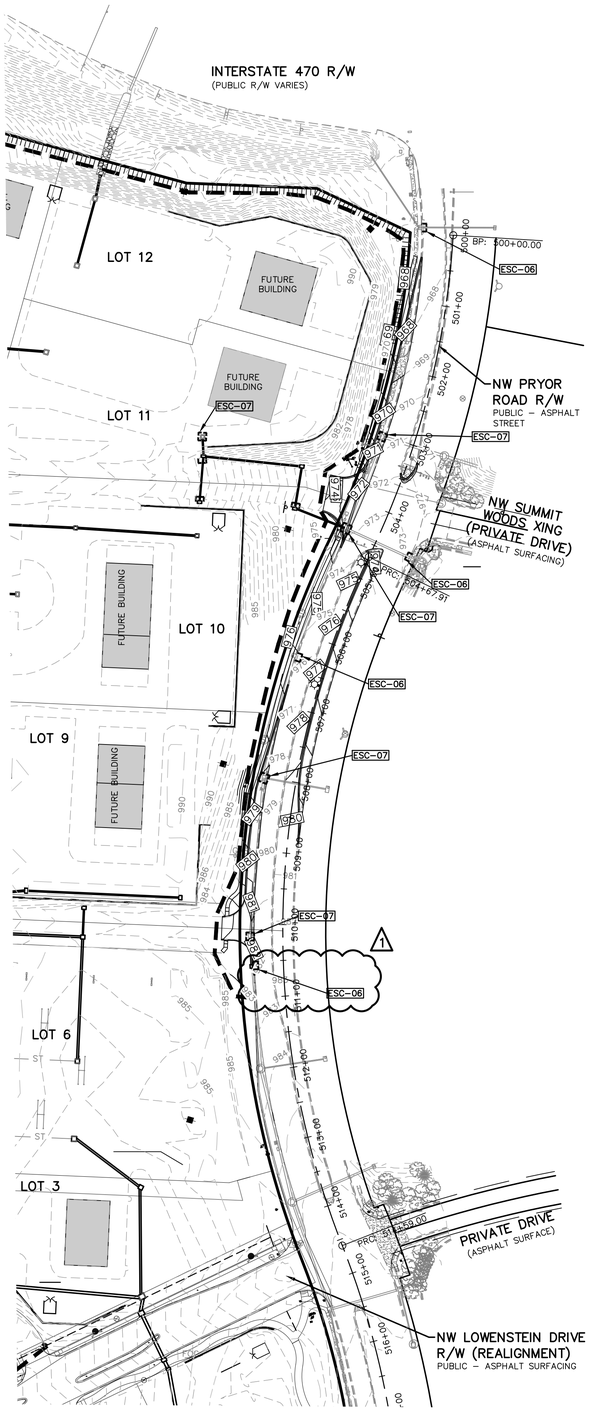

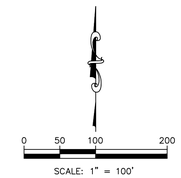

DETAILS – SEE EROSION CONTROL DETAIL SHEETS FOR THE FOLLOWING DETAILS

ESC-03 SILT FENCE
ESC-06 CURB INLET PROTECTION
ESC-07 AREA INLET AND JUNCTION BOX PROTECTION

EROSION & PROPOSED IMPROVEMENTS LEGEND:

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

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.

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0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
ENGINEER
MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
EROSION CONTROL PLAN

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

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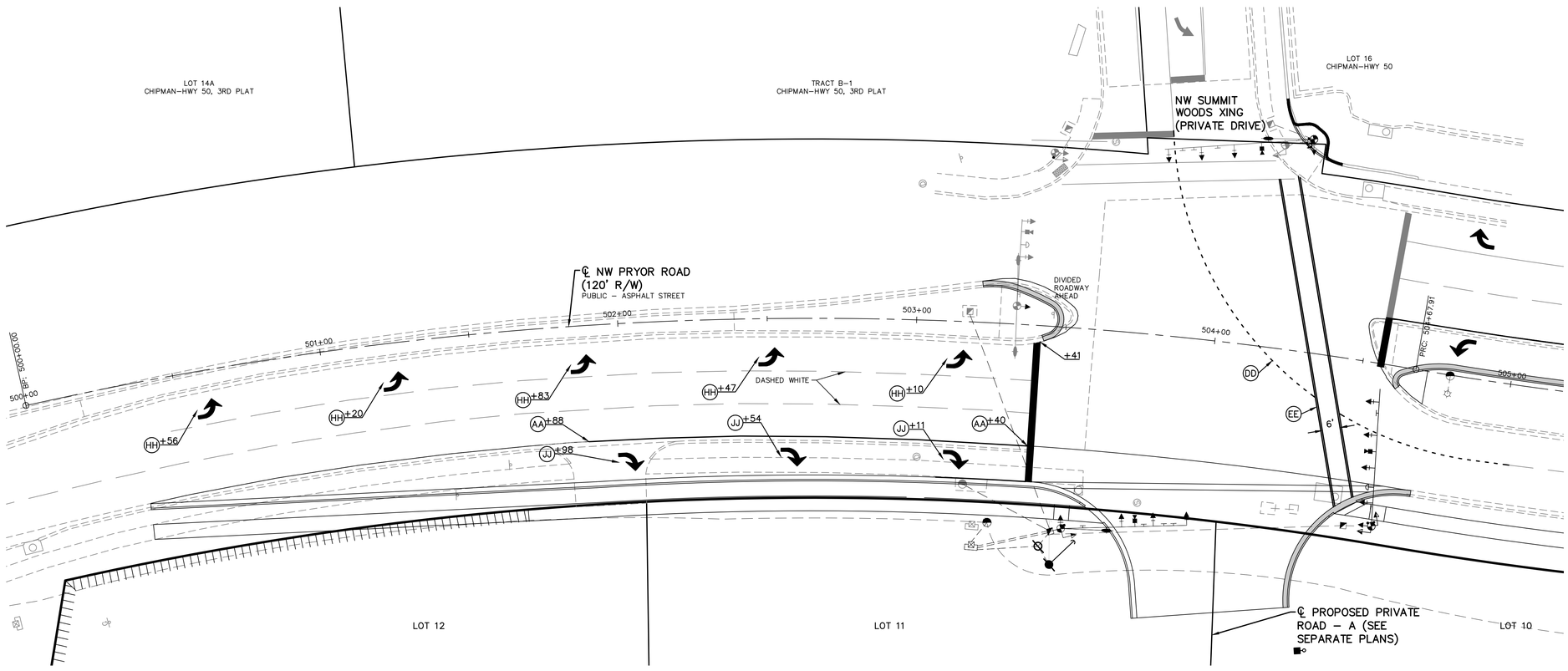

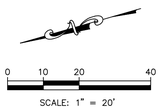

NOTE:
1. PAVEMENT MARKING SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE CURRENT CITY OF LEE'S SUMMIT PAVEMENT MARKING STANDARDS.

2. ALL DIMENSIONS REFERENCING DOUBLE YELLOW LINES REFERS TO THE CENTER OF THE SPACE BETWEEN THE TWO DOUBLE YELLOW LINES.

3. CONTRACTOR TO GRIND OFF CONFLICTING PAVEMENT MARKING.

LIST OF PAVEMENT MARKING	
MARK	ITEM
AA	4" SOLID WHITE LINE (HIGH BUILD PAINT)
DD	6" DASHED WHITE EXTENSION LINE (THERMOPLASTIC)
EE	6" SOLID WHITE CROSS–WALK LINE (THERMOPLASTIC)
GG	24" STOP BAR (THERMOPLASTIC)
HH	TURN ARROW WHITE (LEFT) (THERMOPLASTIC)
JJ	TURN ARROW WHITE (RIGHT) (THERMOPLASTIC)

REV	DATE	DESCRIPTION	DSN	DWN	CHK
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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR ROAD PAVEMENT MARKING PLAN

PROJ. NO. A14_7067–1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067–1SIG_PMP
SHEET 14
REV 2

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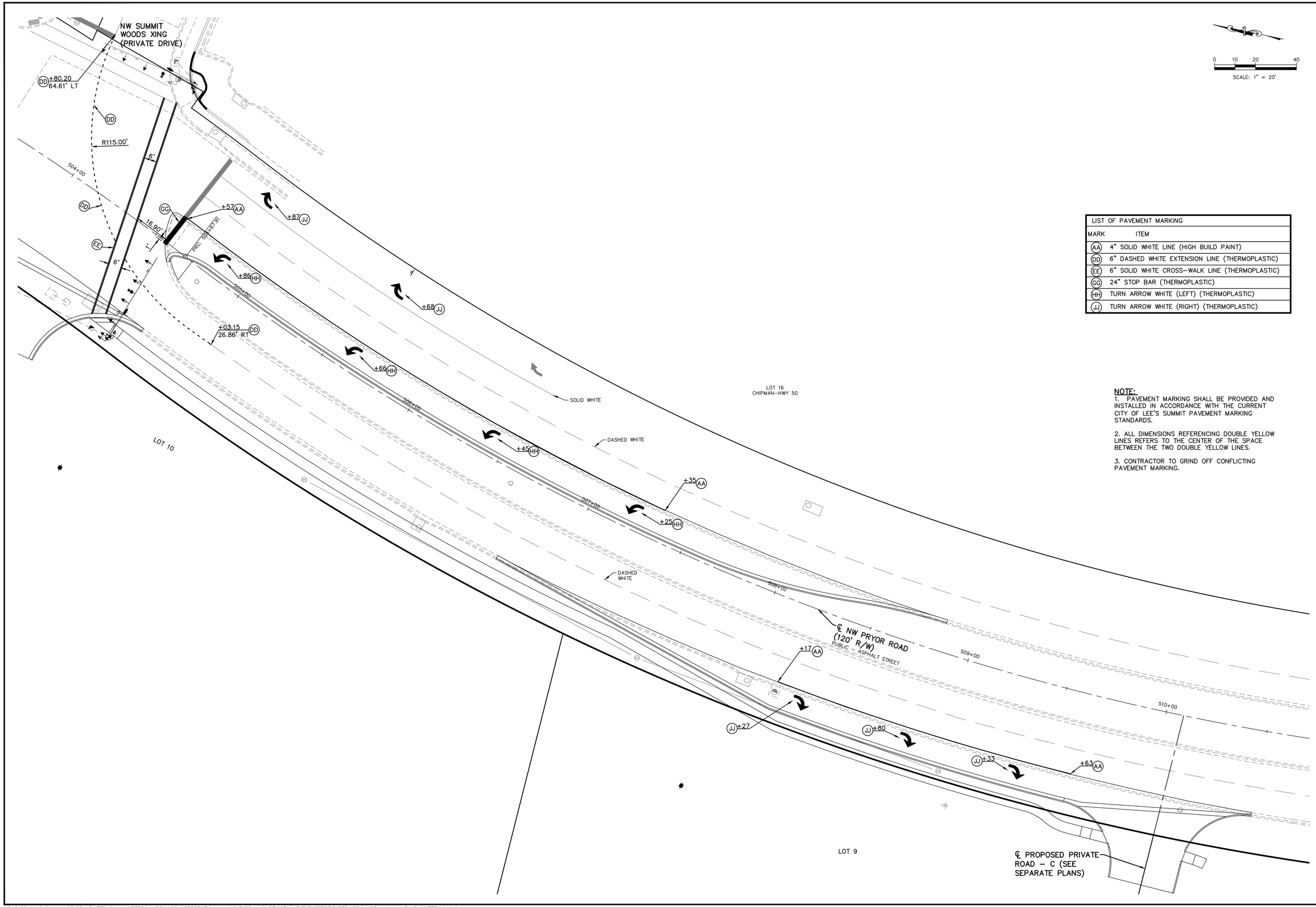

SCALE: 1" = 20'

LIST OF PAVEMENT MARKING	
MARK	ITEM
AA	4" SOLID WHITE LINE (HIGH BUILD PAINT)
DD	6" DASHED WHITE EXTENSION LINE (THERMOPLASTIC)
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NOTE:

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STATE OF MISSOURI
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NUMBER
E-21726
7-24-19
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ENGINEER
MO # 021726

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR ROAD PAVEMENT MARKING PLAN

PROJ. NO.	
A14_7067-1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067-1SIG_PMP	
SHEET: 15	REV: 2

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GENERAL NOTES:

1. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS (APPROVED BY THE CITY OF LEE'S SUMMIT) AND ONE (1) COPY OF THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES.

2. CONSTRUCTION OF THE IMPROVEMENTS SHOWN OR IMPLIED BY THIS SET OF DRAWINGS SHALL NOT BE INITIATED OR ANY PART THEREOF UNDERTAKEN UNTIL THE DIRECTOR OF PUBLIC WORKS OR HIS AGENT IS NOTIFIED OF SUCH INTENT, AND ALL REQUIRED AND PROPERLY EXECUTED BONDS AND CONTRACT AGREEMENTS ARE RECEIVED AND APPROVED BY THE CITY.

3. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO ALL APPLICABLE STANDARDS AND SPECIFICATIONS OF THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI, IN CURRENT USE. SPECIFICALLY, BUT NOT EXCLUSIVE TO: TRAFFIC SIGNAL SPECIFICATION: SECTION 2900.
TRAFFIC SIGNAL STANDARD DRAWINGS: TS-1 THROUGH TS-10.

4. ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.

5. RIGHT-OF-WAY LIMITS SHOULD BE CROSS CHECKED BY THE CONTRACTOR AND APPROVED BY THE FIELD INSPECTOR BEFORE UNDERTAKING ANY EXCAVATIONS AT THE SITE.

6. THE CONTRACTOR SHALL STAKE THE LOCATION OF ALL POLE BASES, PULL BOXES, AND CONTROLLER CABINET BASE, THEN PROVIDE THE CITY ONE WEEK NOTICE PRIOR TO THE START OF CONSTRUCTION, AND SUBSEQUENT CONSTRUCTION ACTIVITIES, FOR INSPECTION AND APPROVAL. THE CONTRACTOR SHALL PROVIDE A WORK SCHEDULE, CONTACT NAMES, AND PHONE NUMBERS.

7. ALL LOCATIONS INDICATED IN DRAWINGS, INCLUDING CONDUIT RUNS ARE SUBJECT TO ADJUSTMENT TO CLEAR OBSTRUCTIONS AND TO MEET SITE CONDITIONS, IF ANY BY THE CITY.

8. EXISTENCE AND LOCATION OF ANY UNDERGROUND OR OVERHEAD FACILITIES SHOWN ON THESE DRAWINGS OR REFERENCE TO ANY SOIL CONDITIONS, IF MADE, ARE APPROXIMATE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SITE CONDITIONS AND TO LOCATE ALL UTILITIES, INCLUDING DEPTH, BEFORE STARTING CONSTRUCTION SO THAT ANY ADJUSTMENTS TO DESIGN CAN BE MADE PRIOR TO POLE ORDERING OR FABRICATION. IN ADDITION, THE CONTRACTOR SHALL AVOID DISRUPTION OF SERVICES PROVIDED BY THE UTILITIES AND SHALL INSURE THAT PROPER CLEARANCES (OVERHEAD AND UNDERGROUND) ARE MAINTAINED FOR THE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES.

9. THE CONTRACTOR SHALL COORDINATE WITH THE CITY TRAFFIC ENGINEER FOR ANY NECESSARY CHANGES TO THE TRAFFIC SIGNALS RESULTING FROM EXISTING UTILITIES OR OTHER CONSTRUCTION ISSUES.

10. ANY EQUIPMENT DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

11. SIGNAL EQUIPMENT SHALL NOT FORM AN OBSTRUCTION TO THE MOVEMENT OF PEDESTRIAN AND WHEELCHAIR TRAFFIC AND SHALL BE ADA ACCESSIBLE. WHERE SIDEWALKS ARE PRESENT, A MINIMUM CLEAR WIDTH OF 48 INCHES SHALL BE AVAILABLE FOR PEDESTRIAN AND WHEELCHAIR MOVEMENT. PULL BOXES SHALL NOT BE INSTALLED ON WHEELCHAIR RAMPS.

12. CONDUITS TO BE PLACED OUTSIDE OF PAVED AREAS SHALL BE TRENCHED IN PLACE. IF THE PROJECT INCLUDES ROADWAY IMPROVEMENTS, THE CONDUIT SHALL BE TRENCHED AFTER THE ROADWAY ROUGH GRADE IS ESTABLISHED AND PRIOR TO ANY FINAL ROADWAY PAVING, CURB & GUTTER, MEDIAN OR SIDEWALK SECTIONS ARE PLACED. ALL COMPACTION AND BACKFILL SHALL MEET CITY OF LEE'S SUMMIT REQUIREMENTS. AT THE OPTION OF THE CONTRACTOR, CONDUITS MAY BE BORED OUTSIDE PAVED AREAS, BUT THERE WILL BE NO ADJUSTMENT TO THE UNIT PRICES FOR CONDUIT INSTALLATION AND ANY CHANGE IN COST WOULD BE THE CONTRACTOR'S RESPONSIBILITY. ANY CONDUIT BORE OUTSIDE THE PAVED AREAS SHALL BE DONE AFTER ROADWAY IMPROVEMENTS ARE COMPLETE. CONDUITS TO BE PLACED WITHIN THE LIMITS OF PAVEMENT SHALL BE BORED UNLESS OTHERWISE AUTHORIZED BY THE CITY TRAFFIC ENGINEER. IF THE PROJECT INCLUDES ROADWAY IMPROVEMENTS, THE CONDUIT SHALL BE BORED PRIOR TO ANY FINAL ROADWAY PAVING. POTHOLING FOR UTILITIES ON ROAD BORES AFTER FINAL PAVING WILL NOT BE ALLOWED.

13. THE TRAFFIC SIGNAL CONTROLLER, CABINET AND RELATED EQUIPMENT, AS SPECIFIED FOR THIS PROJECT, SHALL BE DELIVERED TO THE CITY FOR TESTING PRIOR TO INSTALLATION. ALL SIGNAL TIMINGS WILL BE PROVIDED BY THE CITY TRAFFIC ENGINEER. THE CONTRACTOR SHALL COORDINATE MATERIAL DELIVERY AND PICK-UP WITH THE PUBLIC WORKS OPERATIONS DEPARTMENT (969-1870) AT LEAST 48 HOURS PRIOR TO TRANSPORTATION. THE CONTRACTOR ASSUMES ALL DAMAGE LIABILITY AND SHOULD INSPECT ALL MATERIALS BEFORE AND AFTER TRANSPORTATION OF EQUIPMENT.

14. THE CONTRACTOR SHALL COORDINATE ALL ELECTRICAL POWER REQUIREMENTS AND CONNECTION ACTIVITIES WITH THE UTILITY COMPANY, INCLUDING LOCATION OF THE METER, CIRCUITRY AND CONNECTION REQUIREMENTS, AND POWER UP THE COMPLETE SYSTEM.

15. ALL DISTURBED SURFACES SHALL BE MADE GOOD TO MATCH EXISTING AT THE CONTRACTOR'S EXPENSE.

16. CONTRACTOR SHALL MAINTAIN AT ALL TIMES ACCESS FOR EMERGENCY VEHICLES AND RESIDENTS ALONG THE ENTIRE PROJECT.

17. SUBSTANTIAL COMPLETION OF THE TRAFFIC SIGNALS SHALL BE DEFINED AS ALL COMPONENTS OF THE TRAFFIC SIGNAL OPERATED FULLY AND SATISFACTORILY WITH RED, YELLOW, AND GREEN CYCLES. SUBSTANTIAL COMPLETION SHALL ALLOW FOR TESTING OF THE SIGNALS, INCLUDING A FLASH PERIOD, PRIOR TO SIGNALS OPERATING WITH CYCLES.

18. FINAL ACCEPTANCE OF TRAFFIC SIGNALS SHALL BE DEFINED AS FINAL WRITTEN APPROVAL AND ACCEPTANCE BY THE CITY, INCLUDING COMPLETION OR CORRECTIONS OF ALL PUNCH LIST ITEMS AND THE TRAFFIC SIGNALS FULLY OPERATIONAL FOR A TIME PERIOD OF FIFTEEN (15) DAYS, WITHOUT ANY PROBLEM, AS NOTED IN THE SPECIFICATIONS. AS-BUILT PLANS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE BY THE CITY.

19. THE CONTRACTOR SHALL VERIFY AND/OR COORDINATE WITH THE VARIOUS SERVICE PROVIDERS ON THE EXACT LOCATIONS OF METERS, CONNECTION POINTS AND OTHER SPECIFIC PROJECT REQUIREMENTS. THE PROPOSED SERVICE LINE LOCATIONS THAT ARE SHOWN ARE CONCEPTUAL AND ARE NOT WARRANTED.

PROJECT SPECIFIC NOTES:

1. THE CONTRACTOR SHALL SUPPLY THE TRAFFIC SIGNAL CONTROLLER, CABINET, SIGNAL POLES WITH MAST ARMS AND POWER SUPPLY ASSEMBLY, AND THE CONTRACTOR SHALL INSTALL THE EQUIPMENT. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPLYING THE SIGNAL PEDESTAL POLES. RE-USE EXISTING IN SYNC COMPONENTS. WILL REQUIRE NEW CAMERA AND CARD. (3)

2. THE VIDEO DETECTION SYSTEM SHALL BE AN IN SYNC ADAPTIVE TRAFFIC CONTROL SYSTEM SUPPLIED BY RHYTHM ENGINEERING, 12351 W 96TH TERRACE, SUITE 107, LENEXA, KANSAS 66215, PHONE (913)227-0603. MATERIALS SUPPLIED BY RHYTHM ENGINEERING SHALL CONSIST OF AN IN SYNC PROCESSOR, VIDEO CAMERAS, TRANSFORMER, RG CABLE, DETECTOR CARDS AND CABLES, SITE EQUIPMENT PANELS, MONITOR, KEYBOARD AND CAMERA MOUNTING HARDWARE.

3. CABLES FOR THE VIDEO DETECTION SYSTEM SHALL BE ONE CONTINUOUS 3c-#14 CABLE AND ONE CONTINUOUS CATEGORY 5E+ CABLE (SHIELDED OUTDOOR RATED) BETWEEN THE CONTROLLER AND EACH CAMERA. THE 3c-#14 CABLE SHALL MEET REQUIREMENTS OF IMSA 20-1. CABLES ARE INCLUDED IN THE LUMP SUM PRICE FOR THE VIDEO DETECTION SYSTEM. NO ADDITIONAL PAYMENTS WILL BE MADE.

CONSTRUCTION SEQUENCING:

1. CONTRACTOR TO OBTAIN AND FOLLOW TEMPORARY TRAFFIC CONTROL PERMIT (TTCP) CONDITION REQUIREMENTS.

2. CONTRACTOR TO SUBMIT FOR APPROVAL BY CITY OF LEE'S SUMMIT TRAFFIC ENGINEER A DETAILED TRAFFIC SEQUENCING PHASING PLAN.

3. CONTRACTOR TO MAINTAIN EXISTING SIGNAL OPERATIONS UNTIL NEW SYSTEM, HAS BEEN TESTED AND OPERATIONAL.

4. PER TTCP, CONTRACTOR TO INSTALL TRAFFIC CONTROL, CHANNELIZATION DEVICES AND TEMPORARY PAVEMENT MARKING AROUND WORK ZONE.

5. CONTRACTOR TO PROVIDE PEDESTRIAN DETOUR PLAN ALONG WITH TRAFFIC SEQUENCING PLAN.

6. CONTRACTOR TO INSTALL CONSTRUCTION FENCING AROUND AREAS WHERE PEDESTRIAN MOVEMENTS MAY CONFLICT WITH CONSTRUCTION ACTIVITIES.

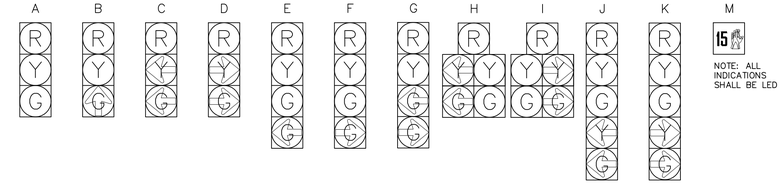
7. NO COLLECTOR OR ARTERIAL STREETS SHALL HAVE LANE(S) REDUCED OR CLOSED BEFORE 9 A.M. AND AFTER 4 P.M. MONDAY THRU FRIDAY. NO WORK ON SATURDAY, SUNDAYS OR HOLIDAYS OBSERVED BY THE CITY.

8. ALL TRAVEL LANES SHALL BE A MINIMUM OF 11.00 FEET WIDE EXCLUDING CURB AND GUTTER. ALL SIDEWALKS SHALL HAVE A MINIMUM CLEAR PATH OF 3.5 FEET. ALL MULTI-USE PATHS SHALL HAVE A MINIMUM CLEAR PATH OF 8.00 FEET.

9. CONTRACTOR SHOULD REVIEW TTCP AND MEET REQUIREMENTS PER CITY OF LEE'S SUMMIT REGULATIONS.

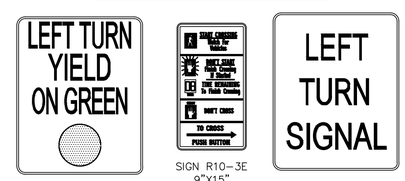
LEGEND

- OPTICALLY LIMITING TRAFFIC SIGNAL HEAD
- TRAFFIC SIGNAL HEAD
- TRAFFIC SIGNAL HEAD WITH BACKPLATE
- PEDESTRIAN SIGNAL HEAD
- STOP LINE
- LANE USE
- STREET LIGHT POLE
- MAST ARM POLE
- SIGNAL PEDESTAL
- TRAFFIC CONTROLLER CABINET
- STREET LIGHT CONTROLLER CABINET
- PULL BOX
- FIBER OPTIC PULL BOX
- POWER SUPPLY (DISCONNECT)
- 42 SUGGESTED VEHICLE DETECTION ZONE
- PUSH BUTTON DETECTOR
- OPTICOM DETECTOR
- SECONDARY SERVICE POINT
- CONDUIT
- 20 SIGNAL FACE NUMBER
- 2 POST NUMBER
- 61 DETECTOR NUMBER
- 61 PULL BOX NUMBER
- PB24 PUSH BUTTON NUMBER
- COBRA HEAD LUMINAIRE
- VIDEO DETECTION CAMERA
- SIGN



NOTE: ALL INDICATIONS SHALL BE LED

TYPICAL REGULATORY SIGN DETAIL

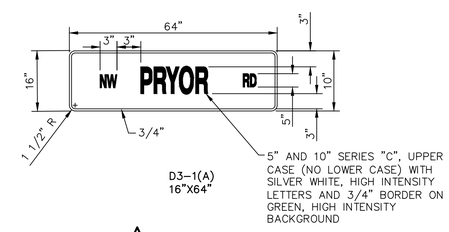


SIGN R10-12
12"X30"

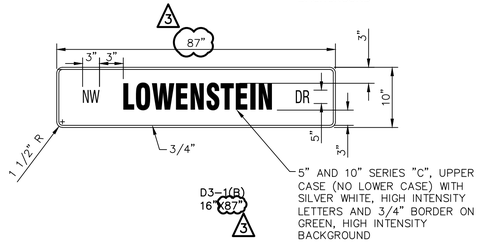
SIGN R10-3E
9"X15"

SIGN R10-10L
24"X30"

NOTE: SIGN R10-3E SHALL BE PROVIDED FOR EACH PUSH BUTTON



D3-1(A)
16"X64"



D3-1(B)
16"X87"
3

REV	DATE	DESCRIPTION	DSN	DWN	CHK
3	10-3-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
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1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
LEE'S SUMMIT, KANSAS 66141
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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
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL GENERAL NOTES, SIGNS & CONSTRUCTION SEQUENCING

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_GN
SHEET	16
REV	3

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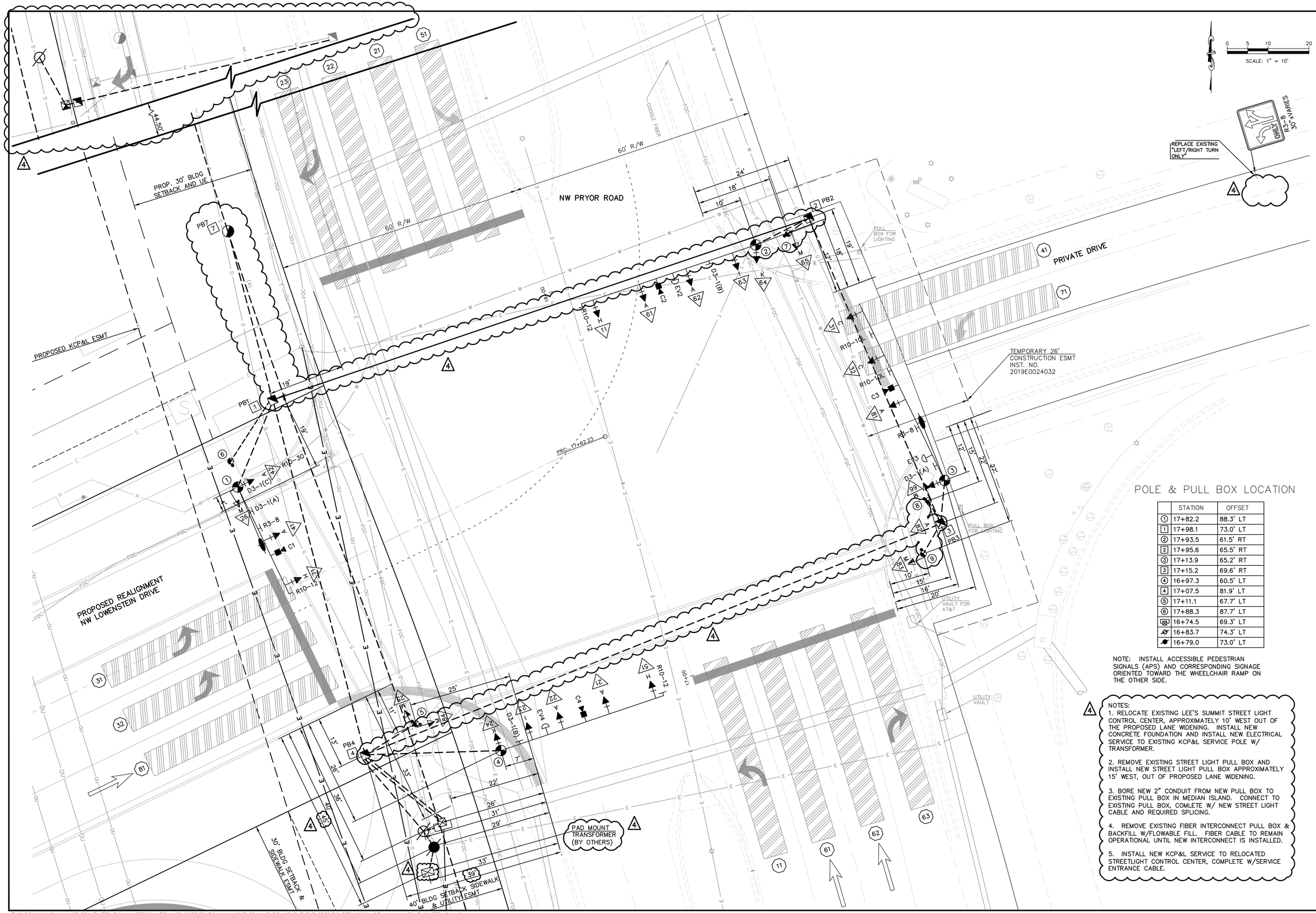

POLE & PULL BOX LOCATION

	STATION	OFFSET
1	17+82.2	88.3' LT
1	17+98.1	73.0' LT
2	17+93.5	61.5' RT
2	17+95.6	65.5' RT
3	17+13.9	65.2' RT
3	17+15.2	69.6' RT
4	16+97.3	60.5' LT
4	17+07.5	81.9' LT
5	17+11.1	67.7' LT
6	17+88.3	87.7' LT
	16+74.5	69.3' LT
	16+83.7	74.3' LT
	16+79.0	73.0' LT

NOTE: INSTALL ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND CORRESPONDING SIGNAGE ORIENTED TOWARD THE WHEELCHAIR RAMP ON THE OTHER SIDE.

NOTES:

1. RELOCATE EXISTING LEE'S SUMMIT STREET LIGHT CONTROL CENTER, APPROXIMATELY 10' WEST OUT OF THE PROPOSED LANE WIDENING. INSTALL NEW CONCRETE FOUNDATION AND INSTALL NEW ELECTRICAL SERVICE TO EXISTING KCP&L SERVICE POLE W/ TRANSFORMER.

2. REMOVE EXISTING STREET LIGHT PULL BOX AND INSTALL NEW STREET LIGHT PULL BOX APPROXIMATELY 15' WEST, OUT OF PROPOSED LANE WIDENING.

3. BORE NEW 2" CONDUIT FROM NEW PULL BOX TO EXISTING PULL BOX IN MEDIAN ISLAND. CONNECT TO EXISTING PULL BOX, COMLETE W/ NEW STREET LIGHT CABLE AND REQUIRED SPLICING.

4. REMOVE EXISTING FIBER INTERCONNECT PULL BOX & BACKFILL W/FLOWABLE FILL. FIBER CABLE TO REMAIN OPERATIONAL UNTIL NEW INTERCONNECT IS INSTALLED.

5. INSTALL NEW KCP&L SERVICE TO RELOCATED STREETLIGHT CONTROL CENTER, COMPLETE W/SERVICE ENTRANCE CABLE.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
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3	8-14-19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
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10-7-19

LEON D. OSBOURN
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MO # 021726

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STREETS OF WEST PRYOR

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL PLAN - NW PRYOR RD & NW LOWENSTEIN DR

PROJ. NO. A14_7067-1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067-1SIG_TSP
SHEET 18
REV 4

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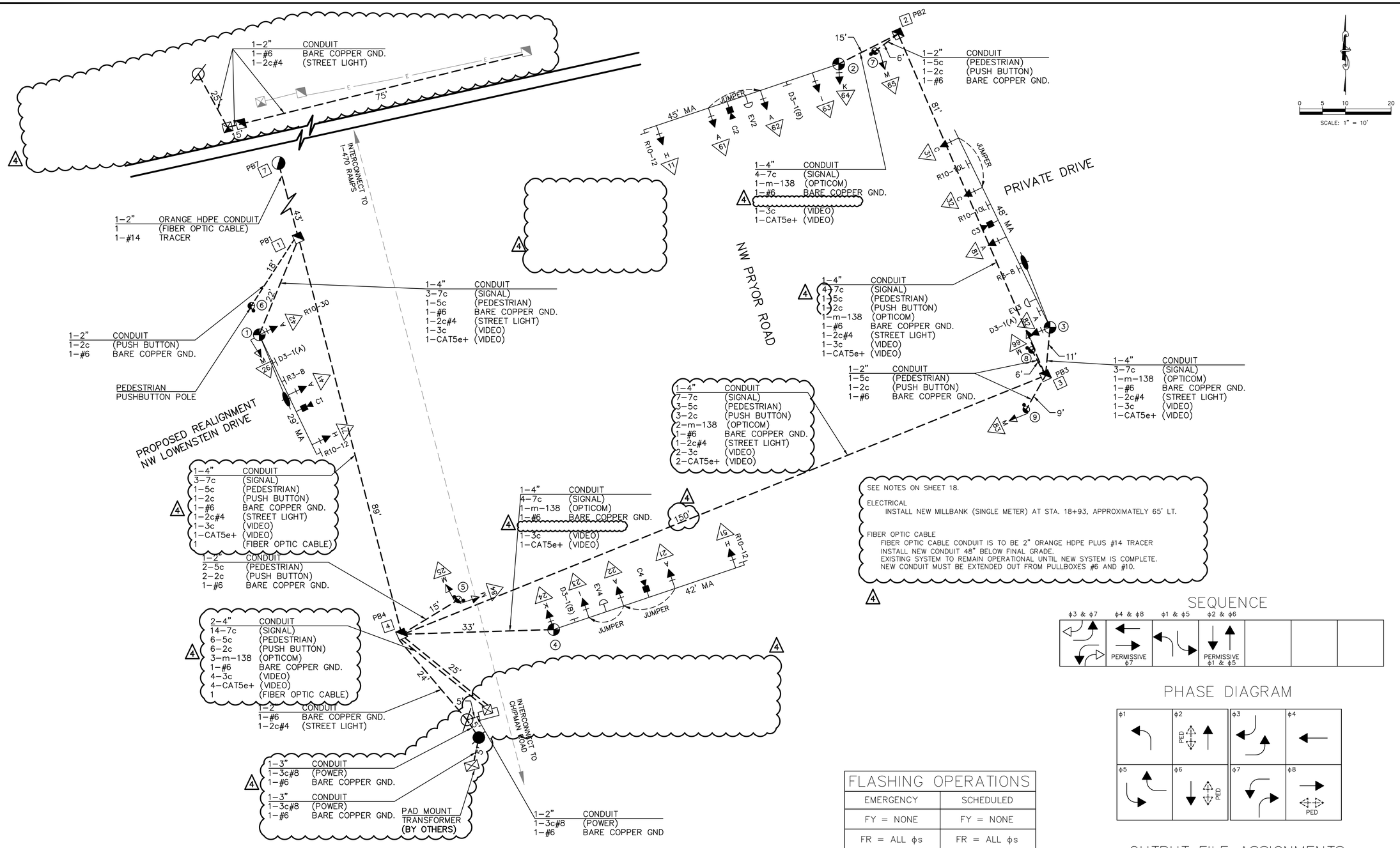

SEE NOTES ON SHEET 18.

ELECTRICAL
INSTALL NEW MILLBANK (SINGLE METER) AT STA. 18+93, APPROXIMATELY 65' LT.

FIBER OPTIC CABLE
FIBER OPTIC CABLE CONDUIT IS TO BE 2" ORANGE HDPE PLUS #14 TRACER
INSTALL NEW CONDUIT 48" BELOW FINAL GRADE.
EXISTING SYSTEM TO REMAIN OPERATIONAL UNTIL NEW SYSTEM IS COMPLETE.
NEW CONDUIT MUST BE EXTENDED OUT FROM PULLBOXES #6 AND #10.

SEQUENCE

PHASE DIAGRAM

FLASHING OPERATIONS

EMERGENCY	SCHEDULED
FY = NONE	FY = NONE
FR = ALL ϕs	FR = ALL ϕs

POWER SUPPLY

LOCATION	POWER SUPPLY TYPE	CIRCUIT BREAKER TRIP RATINGS		
		SERVICE DISCONNECT (2 POLE)	TRAFFIC SIGNAL (1-POLE)	LIGHTING (2-POLE)
SW CORNER	1 CIRCUIT	40 AMP	30 AMP	15 AMP

OUTPUT FILE ASSIGNMENTS

FR1	ϕ1	ϕ2	PED ϕ2	ϕ3	ϕ4	PED ϕ4	MONITOR
FR2							
FR1	ϕ5	ϕ6	PED ϕ6	ϕ7	ϕ8	PED ϕ8	
FR2							

WIRING AND PHASING GENERAL NOTES::

1. THE OUTBOARD SIGNAL HEAD (FURTHEST ON THE MAST ARM FROM THE POLE) FOR EACH PHASE SHALL EACH BE SERVED BY ONE 7c#14 CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. EACH OF THE REMAINING SAME PHASE VEHICLE SIGNAL HEADS LOCATED ON THE MAST ARE SHALL BE CONNECTED TO LIKE PHASE SIGNAL HEADS VIA A 7c#14 CABLE CONNECTED WITHIN THE SIGNAL HEAD TERMINAL BOX. A MAXIMUM OF THREE VEHICLE HEADS MAY BE JOINED TOGETHER, ANY ADDITIONAL SIGNAL HEADS WOULD REQUIRE A SEPARATE CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. ALL VEHICULAR SIGNAL HEADS LOCATED ON THE POLE SHALL EACH BE SERVED BY ONE 7c#14 CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. NO CABLE SPLICES ARE ALLOWED, INCLUDING AT THE BASE OF THE POLE AND INSIDE PULL BOXES, EXCEPT FOR STREET LIGHTING CABLES.

2. STREET LIGHTING CABLE, NOT SIGNAL CABLE, MAY BE SPLICED INSIDE OF PULL BOXES USING A SPLIT BOLT CONNECTOR AND RESIN FILLED SPLICE KIT AS DESCRIBED IN SECTION 2800 OF THE TECHNICAL SPECIFICATIONS.

3. A CONTINUOUS 1c #6 AWG BARE SOLID COPPER GROUND WIRE SHALL BE PROVIDED IN ADDITION TO GROUND RODS. ALL GROUNDING AND GROUND RODS SHALL BE TIED TOGETHER USING 1c #6 AWG BARE SOLID COPPER WIRE TO BOND THE SYSTEM.

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2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER E-21726
REGISTERED PROFESSIONAL ENGINEER
10-3-19

LEON D. OSBOURN
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NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL WIRE DIAGRAM - NW PRYOR RD & NW LOWENSTEIN DR

PROJ. NO. A14_7067-1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067-1SIG_WIRE
SHEET 19
REV 4

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POLES

POLE NO.	PEDESTAL POLE HEIGHT (FEET) 4	8	15	MAST ARM LENGTH (FEET) 29	35	46		SIGNAL HEAD SPACING A / E	B / F	C / G	D / H	LIGHTING MOUNTING HEIGHT	150 W L.E.D. LUMINAIRES	BRACKET ARM LENGTH LEFT	RIGHT	REMARKS
1							29	12'	15'			40	1	10		
2							45	6'	12'	12'	12'					
3							48	22'	12'	12'		40	1	10		
4							42	8'	8'	12'	12'					
5			1													
6		1														
7			1													
8			1													
9			1													
TOTALS		1	4													

* SIGNAL HEAD SPACING (FEET) MAY BE ADJUSTED TO SITE CONDITIONS AS APPROVED BY THE PROJECT INSPECTOR.

BASES AND PULL BOXES

NO. POLE	PULL BOX	BASES B10	B13	C	EV	POWER SUPPLY	CONC. (C.Y.)	PULL BOXES CLASS 1	CLASS 2	CLASS 3	FIBER OPTIC
1			1				3.0				
2			1				3.4				
3			1				3.4				
4			1				3.4				
5				1			0.44				
6				1			0.44				
	1										
	2										
	3										
	4										
	5										1
7				1			0.44				
8				1			0.44				
9				1			0.44				
CONTR.							1				
POWER											
TOTALS			4	5			15.08				2

CABLE

FROM	TO	GROUND #6	POWER/LIGHTING 3c-8	2c-4			CONTROL TYPE 20-1 2c-14	5c-14	7c-14	LEAD-IN CABLE 2c-14	EMERGENCY PRE-EMPTION CABLE* m-138	VIDEO CABLE* 3c#14	CAT5e+	REMARKS
☒	71	255							255					
☒	C1											255	255	
☒	41								235					
☒	42								225					
☒	26							225						
☒	11								367					
☒	61	352							352					
61	62							12						JUMPER
☒	C2											348	348	
☒	EV2										343			
☒	63								325					
☒	64								318					
☒	65	6					307	307						
☒	31	243							243					
31	32							12						JUMPER
☒	C3											250	250	
☒	81								245					
☒	EV3										228			
☒	82								220					
☒	83	19					218	218						
☒	66	16					214	214						
☒	51	161							161					
☒	21								147					
21	22							12						JUMPER
22	23							8						JUMPER
☒	C4											147	147	
☒	EV4										147			
☒	24								100					
☒	84						79	79						
☒	25						79	79						
⊘	①			209										
⊘	③			265										
⊘	☒		35											
●	⊘		35											
☒	●	20	17											
SYSTEM		1072												
SUBTOTAL (FEET)		1072	87	474			897	1166	3193		718	1000	1000	
BID TOTAL (FEET)		1230	100	550			1030	1340	3670		820	1150	1150	

* CABLE INCLUDED IN LUMP SUM PRICE FOR THE SYSTEM.

SIGNAL HEADS

NO. POLE	FACE	HEAD TYPE	OPT. LIMITED	LOUVERS	BACKPLATE	INDICATIONS 12" LEDS R	Y	G	Y←	G←	G↑	Y→	G→	WALK	FLASH DON'T WALK	W/DW	COUNTDOWN INDICATIONS	VISORS TYPE TUN.	CUTAWAY		SECTIONS MOUNTING 1 P	1 S	2 P	2 S	3 P	3 M	3 S	4 P	4 M	4 S	5 P	5 M	5 S
1	71	H			X	1	1	1	1	1								5								1							
	41	A			X	1	1	1										3								1							
	42	A			X	1	1	1				1	1					5							1								
	26	M															1								1								
2	11	H			X	1	1	1	1	1								5								1							
	61	A			X	1	1	1										3								1							
	62	A			X	1	1	1										3								1							
	63	I			X	1	1	1				1	1					5								1							
	64	K			X	1	1	1				1	1					5							1								
	65	M															1								1								
3	66	M															1								1								
	31	C			X	1			1	1																1							
	32	C			X	1			1	1																1							
	81	A			X	1	1	1																		1							
	82	A			X	1	1	1																	1								
	83	M															1								1								
4	51	H			X	1	1	1	1	1								5								1							
	21	A			X	1	1	1																		1							
	22	A			X	1	1	1																		1							
	23	I			X	1	1	1				1	1					5								1							
	24	K			X	1	1	1				1	1					5							1								
5	25	M															1								1								
	84	M															1								1								
TOTALS						17	15	15	5	5		5	5				6	49							10	13							

P – POLE MOUNTED SIGNAL HEAD

M – MAST ARM MOUNTED SIGNAL HEAD

S – SPAN WIRE MOUNTED SIGNAL HEAD

NOTE:
1. QUANTITES SHOWN HEREON ARE FOR REFERENCE ONLY.
2. ALIGN FACES OF PEDESTRIAN PUSHBUTTONS PARALLEL TO CROSS-WALK.
3. ALL PULL BOXES LOCATED IN TRAVEL WAY SHALL BE TRAFFIC RATED.
4. THE TRAFFIC SIGNAL SYSTEM SHALL BE COMPLETE AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE SATISFACTORY OPERATION OF ELECTRICAL APPARATUS AND FOR COMPLETE OPERATION OF THE TRAFFIC SIGNAL SYSTEM WHETHER SPECIFICALLY MENTIONED OR NOT.

CONTROLLER AND EQUIPMENT

	TOTALS
CABINET AND ACCESSORIES: NEMA TYPE P TS1 CABINET	1
CONTROLLER: TYPE 3608 M 52 EAGLE EPAC COMPLETE PER PLANS, INCLUDING SOFTWARE	1
EMERGENCY VEHICLE DETECTION SYSTEM (COMPLETE): 3M	2
VIDEO DETECTION SYSTEM (COMPLETE (4 CAMERAS): INSYNC ADAPTIVE TRAFFIC CONTROL SYSTEM	1
FIBER OPTIC DATA LINK SWITCH: KYLAND SICOM 3170	1
1-CIRCUIT POWER SUPPLY (MoDOT TYPE II POWER SUPPLY WITH LIGHTING CIRCUITS)	1
GROUND RODS	9
PUSHBUTTON DETECTORS	6

FIBER OPTIC INTERCONNECT CONDUIT & CABLE

FROM	TO	2" HDPE (ORANGE)	FIBER OPTIC CABLE	#14 STRANDED COPPER TRACER WIRE
1	2			
2	3			
3	4			
4	5			
5	6			
6	7	400'	400'	400'
7	8	600'	600'	600'
8	9	515'	515'	515'
9	10	375'	375'	375'
7	1	55'	55'	55'
1	4		89'	
4	☒		25'	
SUBTOTAL (FEET)		1945	2059	1945
BID TOTAL (FEET)		2240	2370	2240

SIGNAL CONDUIT

FROM	TO	3" PVC	2" HDPE (GREY)	4" HDPE
●	⊘	10		
⊘	☒		10	
☒	●		10	
⊘	4		30	
☒	4			75
1	①			30
1	4			100
1	⑥		30	
2	②			20
2	3			100
2	⑦		12	
3	③			18
3	⑧		12	
3	⑨		15	
4	④			40
4	⑤		20	
4	3			175
SUBTOTAL (FEET)		10	139	558
BID TOTAL (FEET)		20	160	640

SIGNS

SIGN	LEGEND	NO.	SF.	TOTAL S.F.
R10-10L	LEFT TURN SIGNAL	2	5.0	10.0
R10-10R				
R10-12	LT TURN YIELD ON GREEN	3	5.0	15.0
R10-3E				
R10-30	RIGHT TURN ON RED MUST YIELD TO U-TURN	1	7.5	7.5
R3-8	VARIES	2	10.0	20.0
D3-1(A)	NW PRYOR RD	2		
D3-1(B)	LOWENSTEIN DR.	2		
TOTAL				52.5

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1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

KAW VALLEY ENGINEERING
2319 N. JACKSON | P.O. BOX 1304
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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
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL QUANTITIES - NW PRYOR RD & NW LOWENSTEIN DR

PROJ. NO. A14_7067-1
DESIGNER LDO | DRAWN BY JT/BKR
CFN 7067-1SIG_QTY
SHEET 20 | REV 4

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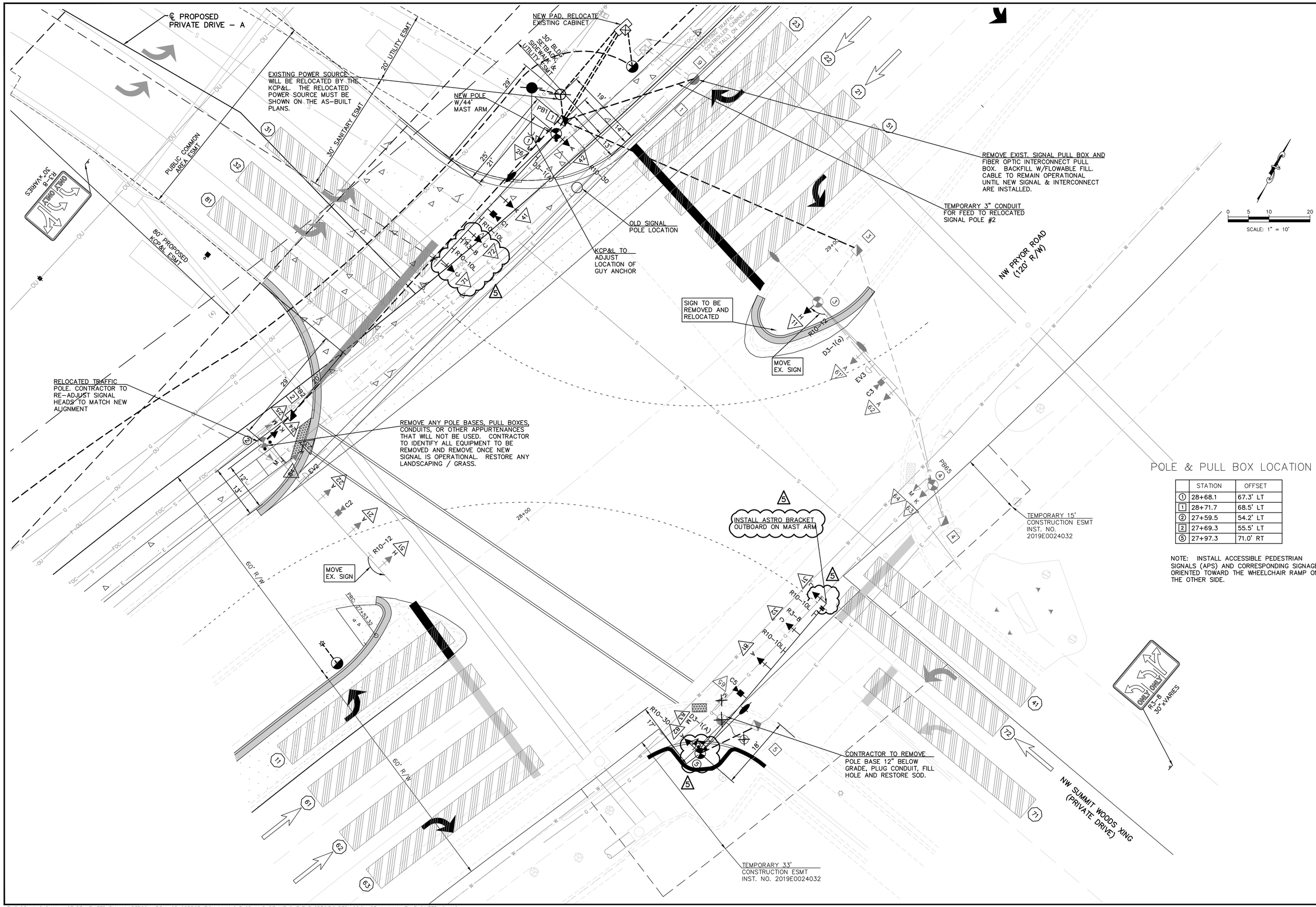

POLE & PULL BOX LOCATION

	STATION	OFFSET
1	28+68.1	67.3' LT
1	28+71.7	68.5' LT
2	27+59.5	54.2' LT
2	27+69.3	55.5' LT
5	27+97.3	71.0' RT

NOTE: INSTALL ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND CORRESPONDING SIGNAGE ORIENTED TOWARD THE WHEELCHAIR RAMP ON THE OTHER SIDE.

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3	8-14-19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7-24-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL PLAN - NW PRYOR RD & NW SUMMIT WOODS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_TSP
SHEET	21
REV	5

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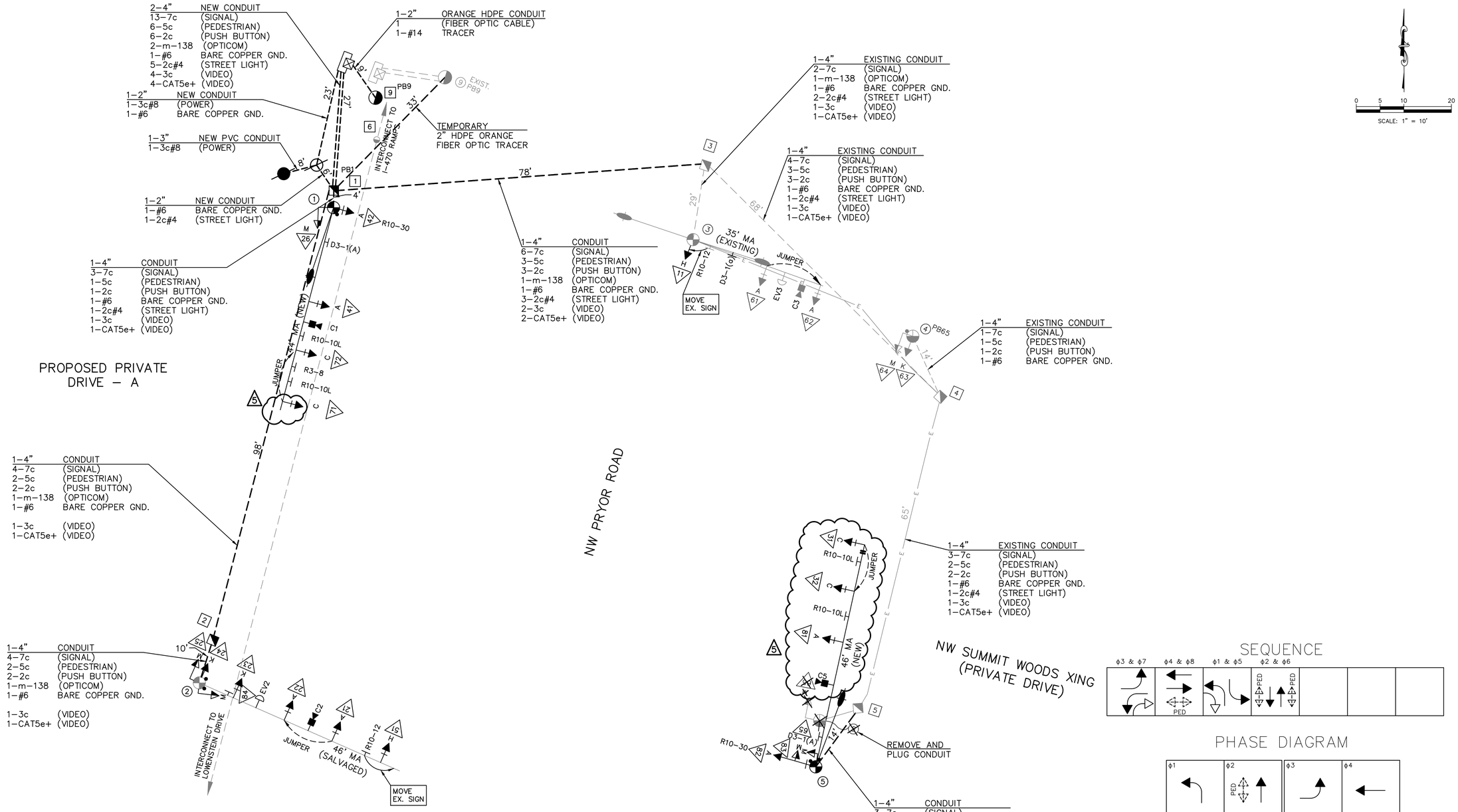


FLASHING OPERATIONS

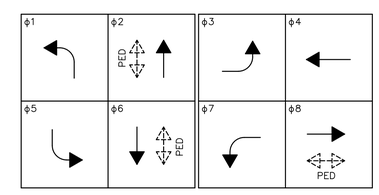
EMERGENCY	SCHEDULED
FY = NONE	FY = NONE
FR = ALL ϕs	FR = ALL ϕs

POWER SUPPLY

LOCATION	POWER SUPPLY TYPE	CIRCUIT BREAKER TRIP RATINGS		
		SERVICE DISCONNECT (2 POLE)	TRAFFIC SIGNAL (1–POLE)	LIGHTING (2–POLE)
NW CORNER	1 CIRCUIT	40 AMP	30 AMP	15 AMP

SEQUENCE

PHASE DIAGRAM



OUTPUT FILE ASSIGNMENTS

FR1	ϕ1	ϕ2	PED ϕ2	ϕ3	ϕ4	PED ϕ4	MONITOR
FR2							
FR1	ϕ5	ϕ6	PED ϕ6	ϕ7	ϕ8	PED ϕ8	
FR2							

WIRING AND PHASING GENERAL NOTES:

1. THE OUTBOARD SIGNAL HEAD (FURTHEST ON THE MAST ARM FROM THE POLE) FOR EACH PHASE SHALL EACH BE SERVED BY ONE 7c#14 CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. EACH OF THE REMAINING SAME PHASE VEHICLE SIGNAL HEADS LOCATED ON THE MAST ARE SHALL BE CONNECTED TO LIKE PHASE SIGNAL HEADS VIA A 7c#14 CABLE CONNECTED WITHIN THE SIGNAL HEAD TERMINAL BOX. A MAXIMUM OF THREE VEHICLE HEADS MAY BE JOINED TOGETHER, ANY ADDITIONAL SIGNAL HEADS WOULD REQUIRE A SEPARATE CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. ALL VEHICULAR SIGNAL HEADS LOCATED ON THE POLE SHALL EACH BE SERVED BY ONE 7c#14 CABLE EXTENDING FROM THE HEAD BACK TO THE CONTROLLER. NO CABLE SPLICES ARE ALLOWED, INCLUDING AT THE BASE OF THE POLE AND INSIDE PULL BOXES, EXCEPT FOR STREET LIGHTING CABLES.

2. STREET LIGHTING CABLE, NOT SIGNAL CABLE, MAY BE SPLICED INSIDE OF PULL BOXES USING A SPLIT BOLT CONNECTOR AND RESIN FILLED SPLICE KIT AS DESCRIBED IN SECTION 2800 OF THE TECHNICAL SPECIFICATIONS.

3. A CONTINUOUS 1c #6 AWG BARE SOLID COPPER GROUND WIRE SHALL BE PROVIDED IN ADDITION TO GROUND RODS. ALL GROUNDING AND GROUND RODS SHALL BE TIED TOGETHER USING 1c #6 AWG BARE SOLID COPPER WIRE TO BOND THE SYSTEM.

4. ALL SIGNAL HEADS FOR PHASES 3/8 ARE WIRED INDEPENDENTLY TO ALLOW FOR A SINGLE PROTECTED/PERMISSIVE LEFT TURN AND A THROUGH OR FOR DUAL LEFTS.

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1	7–2–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
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LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL WIRE DIAGRAM - NW PRYOR RD & NW SUMMIT WOODS

PROJ. NO. A14_7067–1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067–1SIG_WIRE
SHEET 22
REV 5

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POLES

POLE NO.	PEDESTAL POLE HEIGHT (FEET) 4	8	15	MAST ARM LENGTH (FEET) 29	35	44	46	SIGNAL HEAD SPACING A	B	C	D	LIGHTING MOUNTING HEIGHT	150 W L.E.D. LUMINAIRES	BRACKET ARM LENGTH LEFT	RIGHT	REMARKS
1						1			CENTER			40'		10'		NEW POLE
2							1		OVER	LANES		REUSE (2) 46' MAST ARM				EXISTING – RELOCATED
5							1					40'		10'		NEW POLE
TOTALS						1	2									

* SIGNAL HEAD SPACING (FEET) MAY BE ADJUSTED TO SITE CONDITIONS AS APPROVED BY THE PROJECT INSPECTOR.

BASES AND PULL BOXES

NO. POLE	PULL BOX	BASES B10	B13	C	EV	POWER SUPPLY	CONC. (C.Y.)	PULL BOXES CLASS 1	CLASS 2	CLASS 3	FIBER OPTIC
1			1				3.4				
2			1				3.4				
3		–EXISTING–									
4		–EXISTING–									
5			1				3.4				
	1									1	
	2								1		
	3	–EXISTING–									
	4	–EXISTING–									
	5									1	
	6										1
CONTR. POWER							1				
TOTALS			3				11.2		1	2	1

CABLE

FROM	TO	GROUND #6	POWER/LIGHTING 3c–8	2c–4			CONTROL TYPE 20–1 2c–14	5c–14	7c–14	LEAD–IN CABLE 2c–14	EMERGENCY PRE–EMPTION CABLE m–138	VIDEO CABLE 3c#14	CAT5e+	REMARKS
⊠	71								91					
71	72							11						JUMPER
⊠	C1											54	54	
⊠	41								71					
⊠	42								51					
⊠	26						51	51						
⊠	51								195					
⊠	21								181					
21	22							11						JUMPER
⊠	C2											175	175	
⊠	EV2										161			
⊠	23								157					
⊠	24								146					
⊠	84						146	146						
⊠	25						146	146						
⊠	C3											164	164	
⊠	EV3										159			
⊠	61								153					
61	62							13						JUMPER
⊠	11								135					
⊠	63								196					
⊠	64						196	196						
⊠	31								310					
31	32							12						JUMPER
⊠	C5											289	289	
⊠	81								284					
⊠	82								271					
⊠	83						271	271						
⊠	65						271	271						
⊘	①			25										
⊘	②			288										
⊘	③			270										
⊘	⑤			268										
⊘	⊠		19											
◉	⊘		41											
SYSTEM		475												
SUBTOTAL (FEET)		475	60	851			1081	1128	2241		320	682	682	
BID TOTAL (FEET)		490	70	960			1240	1290	2240		370	790	790	

SIGNAL HEADS

NO. POLE	FACE	HEAD TYPE	OPT. LIMITED	LOUVERS	BACKPLATE	INDICATIONS 12" LEDS R	Y	G	Y←	G←	G↑	Y→	G→	WALK	FLASH DON'T WALK	W/DW	COUNTDOWN INDICATIONS	VISORS TYPE TUN.	CUTAWAY		SECTIONS MOUNTING 1 P	S	2 P	S	3 P	M	S	4 P	M	S	5 P	M	S
1	71	C			X	1			1	1								3								X							
	72	C			X	1			1	1								3								X							
	41	A			X	1	1	1										3								X							
	42	A			X	1	1	1										3							X								
2	51	H			X	1	1	1	1	1								5									X						
	21	A			X	1	1	1										3									X						
	22	A			X	1	1	1										3									X						
	23	I			X	1	1	1				1	1					5									X						
	24	K			X	1	1	1				1	1					5								X							
	25	M															1									X							
1	26	M															1									X							
3	11	H			X	1	1	1	1	1								5								X							
5	31	C			X	1			1	1								3									X						
	32	C			X	1			1	1								3									X						
	81	A			X	1	1	1										3									X						
	82	A			X	1	1	1										3								X							
	83	M															1									X							
	84	M															1									X							
	65	M															1									X							
TOTALS					14	14	10	10	6	6		2	2				5	50							9	10							

P – POLE MOUNTED SIGNAL HEAD

M – MAST ARM MOUNTED SIGNAL HEAD

S – SPAN WIRE MOUNTED SIGNAL HEAD

NOTE:
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CONTROLLER AND EQUIPMENT

	TOTALS
CABINET AND ACCESSORIES: NEMA TYPE P TS1 CABINET	–EXISTING–
CONTROLLER: TYPE 3608 M 52 EAGLE EPAC COMPLETE PER PLANS, INCLUDING SOFTWARE	–EXISTING–
EMERGENCY VEHICLE DETECTION SYSTEM (COMPLETE): 3M REMOVE FROM PRIVATE DRIVE FOR LOWENSTEIN	–1
VIDEO DETECTION SYSTEM (COMPLETE): INSYNC ADAPTIVE TRAFFIC CONTROL SYSTEM	+1 INSYNC
FIBER DISTRIBUTION UNIT:	
1–CIRCUIT POWER SUPPLY (MODOT TYPE II POWER SUPPLY WITH LIGHTING CIRCUITS)	1
GROUND RODS: REUSE EXISTING	2
PUSHBUTTON DETECTORS	6
FIBER OPTIC DATA LINK SWITCH: KYLAND SICOM 3170	1
GROUND RODS	7
PUSHBUTTON DETECTORS	5

5

SIGNAL CONDUIT

FROM	TO	2" PVC	3" PVC	2" HDPE (GREY)	4" HDPE
◉	⊘		8		
⊘	⊠			23	
⊘	1			6	
⊠	1				54
1	①				4
1	2				98
2	②				10
1	3				78
3	③				29
3	4				68
4	④				14
4	5				65
5	⑤				14
SL–1	8A	10			
SL–2	8B	10			
SUBTOTAL (FEET)		50	8	29	434
BID TOTAL (FEET)		60	10	33	500

SIGNS

SIGN	LEGEND	NO.	SF.	TOTAL S.F.
R10–10L	LEFT TURN	4	5.0	20.0
R10–12	LTYOG	2	5.0	10.0
R10–3E	PED CROSSING	6	–	–
R10–30	RTORMYTUT	2	7.5	15.0
D3–1(A)	NW PRYOR RD	1	7.1	7.1
R3–8	LANE USAGE	2		
TOTAL				52.1

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NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL QUANTITIES - NW PRYOR RD & NW SUMMIT WOODS

PROJ. NO. A14_7067–1
DESIGNER LDO | DRAWN BY JT/BKR
CFN 7067–1SIG_QTY
SHEET 23 | REV 5

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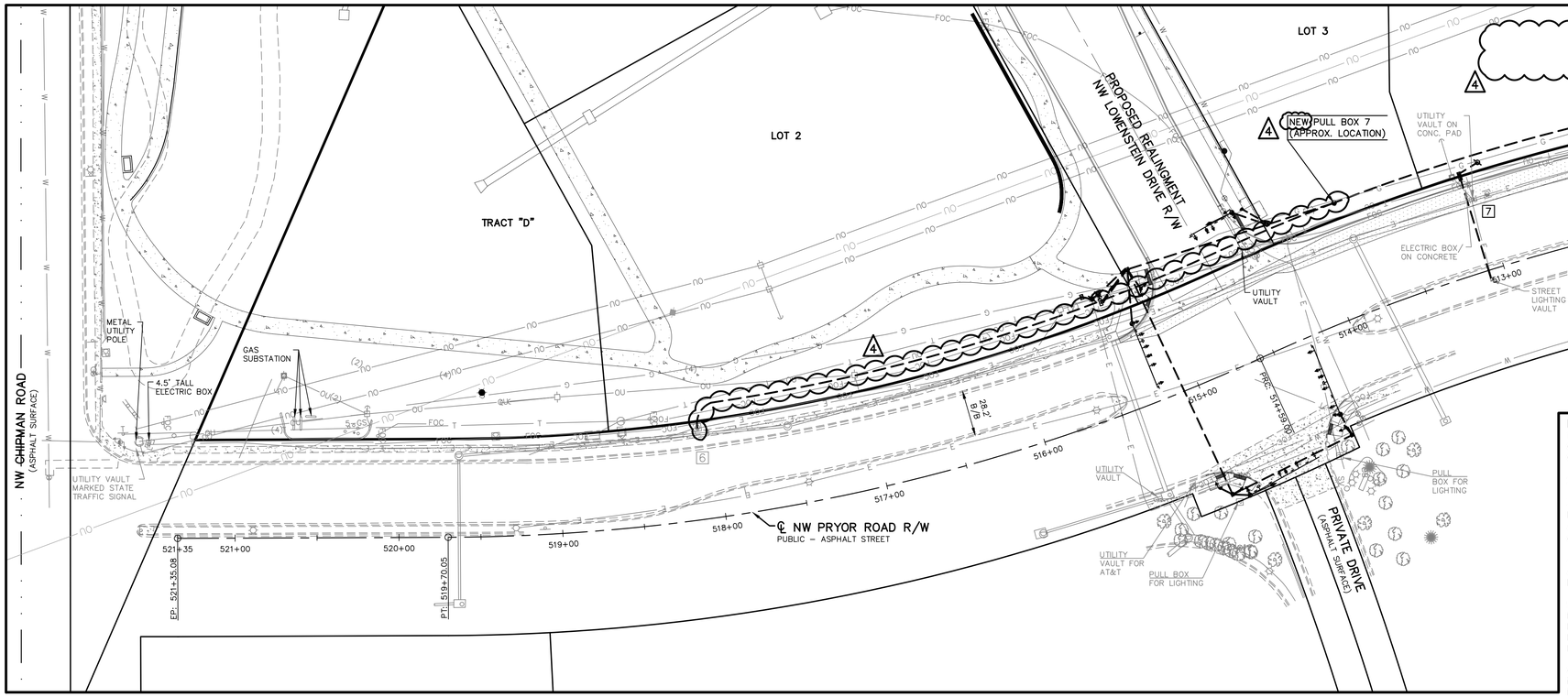

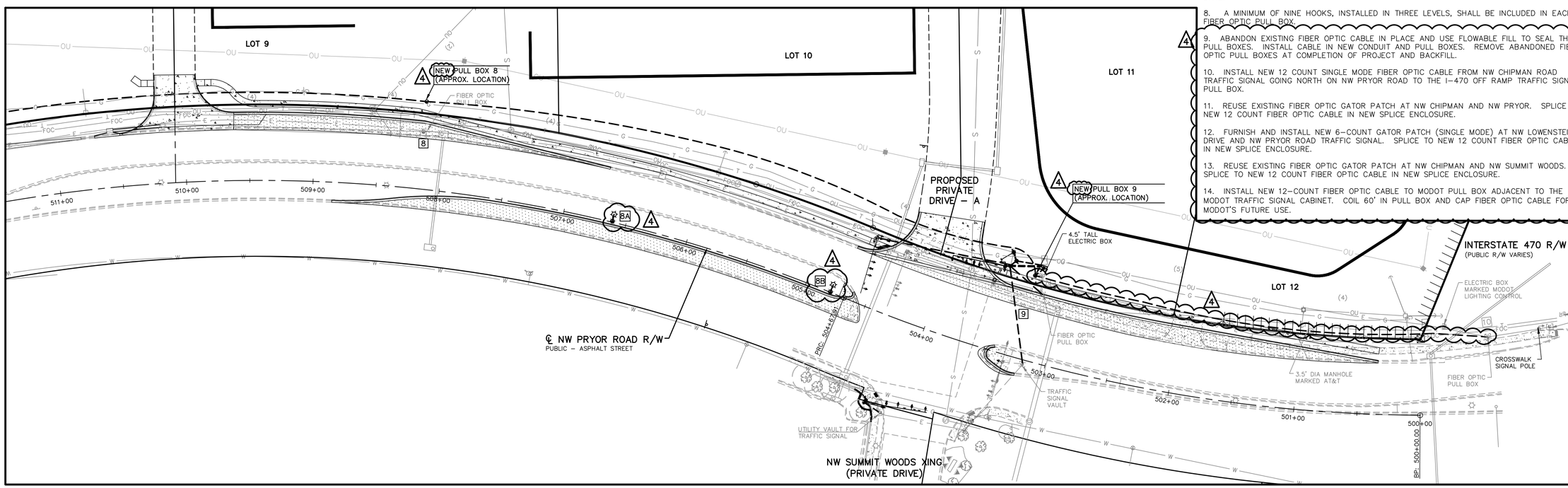

0 20 40 80

SCALE: 1" = 40'

INTERCONNECT GENERAL NOTES::

1. INTERCONNECT SHALL FACILITATE COMMUNICATION BETWEEN THE NEW TRAFFIC SIGNAL CONTROLLER AND THE EXISTING INSYNC ADAPTIVE TRAFFIC CONTROL SYSTEM THAT IS OPERATING AT THE NW CHIPMAN ROAD AND NW PRYOR ROAD INTERSECTION.

2. INTERCONNECT CONDUIT SHALL BE INSTALLED 36" TO 48" BELOW FINISHED GRADE.

3. EACH PULL BOX ADJACENT TO A SIGNAL CABINET SHALL CONTAIN A MINIMUM OF 60 FEET OF SLACK IN THE FIBER OPTIC CABLE. ALL MID–BLOCK PULL BOXES (NUMBERS 5, 6, 7, AND 9) SHALL CONTAIN A MINIMUM OF 10 FEET OF SLACK. THE SLACK SHALL BE NEATLY COILED AS PER THE MANUFACTURER'S MINIMUM BENDING RADIUS SPECIFICATIONS.

4. A #14 STRANDED COPPER TRACER WIRE SHALL BE INSTALLED IN EACH CONDUIT ALONGSIDE THE FIBER OPTIC CABLE. TRACER WIRE SHALL BE BONDED TO THE GROUND ROD IN EACH TRAFFIC SIGNAL CABINET.

5. FIBER OPTIC CABLE BETWEEN THE NEW SIGNAL CABINET AND THE EXISTING CABINET AT NW CHIPMAN ROAD AND NW PRYOR ROAD SHALL HAVE A PRE–TERMINATED, PRE–TESTED PATCH PANEL ON ONE END. THE PATCH PANEL SHALL HAVE 6 ST CONNECTORS. THE PATCH PANEL SHALL BE GATOR PATCH TM OR APPROVED EQUIVALENT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE PATCH PANEL.

6. THE FIBER OPTIC DATA LINK SWITCH SHALL BE SICOM3170 ETHERNET SWITCH MANUFACTURED BY KYLAND TECHNOLOGY CO., LTD. THE SWITCH SHALL INCLUDE ALL NECESSARY MODULES, CABLES, AND POWER SUPPLY FOR COMMUNICATIONS BETWEEN THE 6MM FIBER OPTIC CABLES, SIGNAL CONTROLLER, AND INSYNC PROCESSOR.

7. FIBER OPTIC CABLE WILL NOT BE INSTALLED INTO THE EXISTING SIGNAL CABINET AT THE I–470 RAMPS. THE SPECIFIED LENGTH OF CABLE WILL BE ROUTED FROM THE NEW SIGNAL CABINET TO THE EXISTING PULL BOX AT STA. 499+44. THE CABLE WILL BE NEATLY COILED AND END CAPPED. MODOT WILL INSTALL THE FIBER INTO THE SIGNAL CABINET AT A LATER DATE.

8. A MINIMUM OF NINE HOOKS, INSTALLED IN THREE LEVELS, SHALL BE INCLUDED IN EACH FIBER OPTIC PULL BOX.

9. ABANDON EXISTING FIBER OPTIC CABLE IN PLACE AND USE FLOWABLE FILL TO SEAL THE PULL BOXES. INSTALL CABLE IN NEW CONDUIT AND PULL BOXES. REMOVE ABANDONED FIBER OPTIC PULL BOXES AT COMPLETION OF PROJECT AND BACKFILL.

10. INSTALL NEW 12 COUNT SINGLE MODE FIBER OPTIC CABLE FROM NW CHIPMAN ROAD TRAFFIC SIGNAL GOING NORTH ON NW PRYOR ROAD TO THE I–470 OFF RAMP TRAFFIC SIGNAL PULL BOX.

11. REUSE EXISTING FIBER OPTIC GATOR PATCH AT NW CHIPMAN AND NW PRYOR. SPLICE TO NEW 12 COUNT FIBER OPTIC CABLE IN NEW SPLICE ENCLOSURE.

12. FURNISH AND INSTALL NEW 6–COUNT GATOR PATCH (SINGLE MODE) AT NW LOWENSTEIN DRIVE AND NW PRYOR ROAD TRAFFIC SIGNAL. SPLICE TO NEW 12 COUNT FIBER OPTIC CABLE IN NEW SPLICE ENCLOSURE.

13. REUSE EXISTING FIBER OPTIC GATOR PATCH AT NW CHIPMAN AND NW SUMMIT WOODS. SPLICE TO NEW 12 COUNT FIBER OPTIC CABLE IN NEW SPLICE ENCLOSURE.

14. INSTALL NEW 12–COUNT FIBER OPTIC CABLE TO MODOT PULL BOX ADJACENT TO THE MODOT TRAFFIC SIGNAL CABINET. COIL 60' IN PULL BOX AND CAP FIBER OPTIC CABLE FOR MODOT'S FUTURE USE.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
4	10–3–19	REVISED PER CITY COMMENTS	LDO	LDO	LDO
3	9–14–19	REVISED PER CITY COMMENT	LDO	JT	LDO
2	7–24–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7–2–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

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

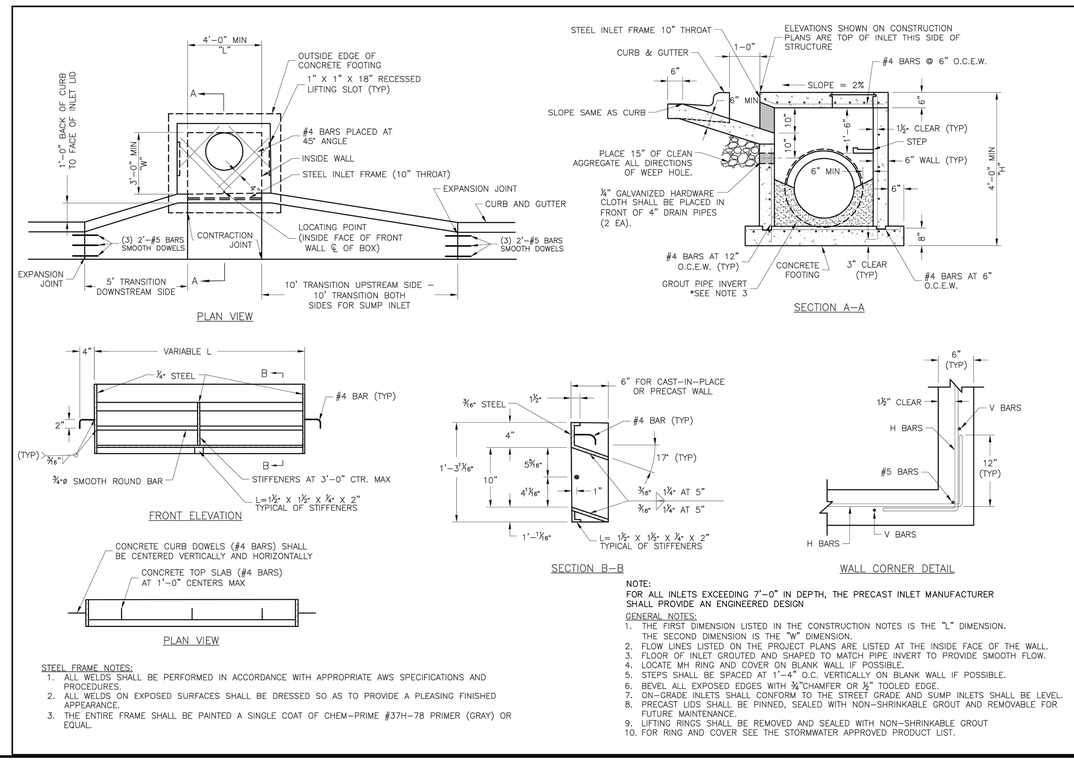
STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC INTERCONNECT PLAN, NOTES AND WIRING

PROJ. NO.	
A14_7067–1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067–1SIG_CONN	
SHEET: 24	REV: 4

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.

ADDED SHEET



STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

NOTE:
FOR ALL INLETS EXCEEDING 7'–0" IN DEPTH, THE PRECAST INLET MANUFACTURER SHALL PROVIDE AN ENGINEERED DESIGN

GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	10–3–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

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

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

Project:
Code/Notes:

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
STORM SEWER DETAIL SHEET

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

STM-1

PROJ. NO. A14_7067–1
DESIGNER LDO
DRAWN BY JT
CFN 7067–1SIG_DET
SHEET 25
REV 0

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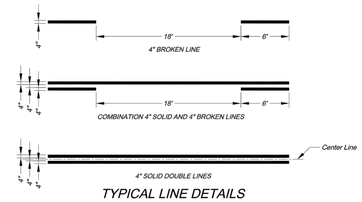
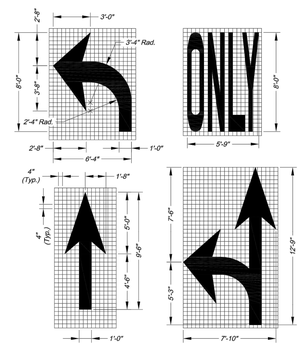


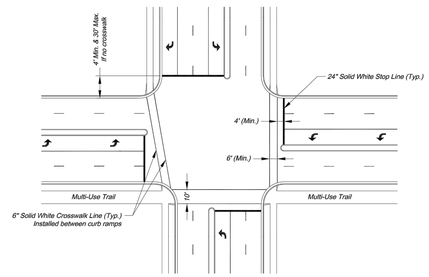
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.



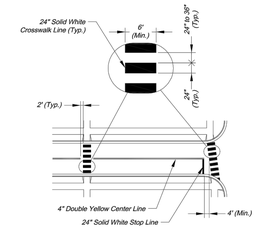
ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.

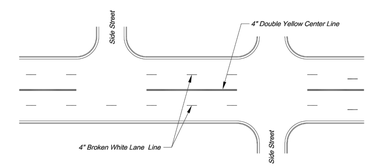


TYPICAL INTERSECTION MARKINGS

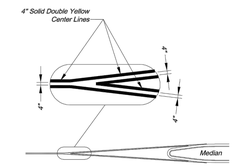
NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.



TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

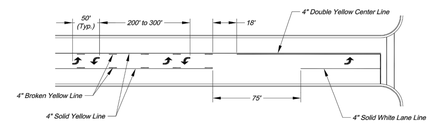


TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY

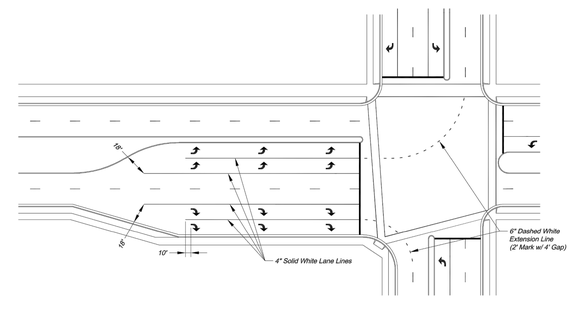


TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.
3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that mislead traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
7. Edge lines shall be marked on all non-curbed streets.

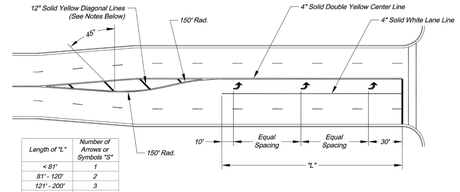


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



TYPICAL DUAL TURN LANE MARKINGS

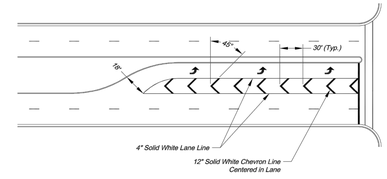
NOTE:
1. Dashed extension lines shall not extend through crosswalks.



Length of "L"	Number of Arrows or Symbols "S"
< 81'	1
81' - 120'	2
121' - 200'	3
201' - 280'	4
281' - 360'	5
361' - 440'	6

TYPICAL TURN LANE MARKINGS

NOTES:
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L - 40) / (S - 1).
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.



TYPICAL STRIPED OUT TURN LANE MARKINGS

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE DIXON STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
ROADWAY MARKING DETAILS
Sheet Name STANDARD DRAWING PM-1

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
REGISTERED PROFESSIONAL ENGINEER
7-2-19

LEON D. OSBOURN
ENGINEER
MO # 021726

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#
1 OF 2
1

2319 N. JACKSON | P.O. BOX 1304
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KAW VALLEY ENGINEERING
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CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE DIXON STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
INTERSECTION MARKING DETAILS
Sheet Name STANDARD DRAWING PM-2

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#
2 OF 2
2

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
PAVEMENT MARKING DETAIL SHEET

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_DET
SHEET	26
REV	0

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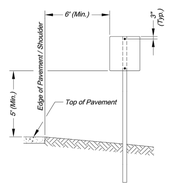
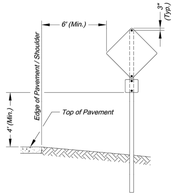
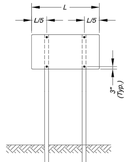


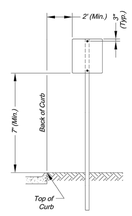
SIGN INSTALLATION FOR NON-CURBED STREET



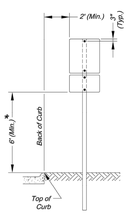
SIGN INSTALLATION WITH AUXILARY SIGN FOR NON-CURBED STREET



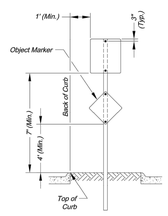
SIGN INSTALLATION WITH TWO SIGN POSTS



SIGN INSTALLATION FOR CURBED STREET



SIGN INSTALLATION WITH AUXILARY SIGN FOR CURBED STREET



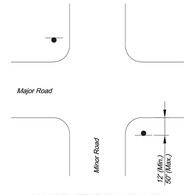
SIGN INSTALLATION FOR RAISED MEDIANS

SIGN MOUNTING DETAILS

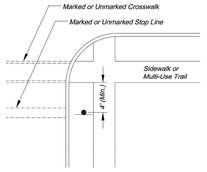
* *The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.*

NOTE:

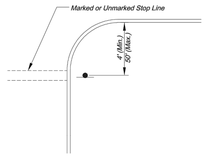
1. *Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.*



NON-CURBED INTERSECTION INSTALLATION

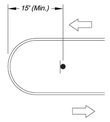


INTERSECTION WITH SIDEWALK / MULTI-USE TRAIL INSTALLATION



CURBED INTERSECTION INSTALLATION

CONTROL SIGN LOCATION



TYPICAL MEDIAN SIGN LOCATION

MEDIAN SIGN LOCATION

NOTES:

1. *A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.*
2. *For existing concrete medians, a 4" hole shall be cored into the concrete.*

CITY OF LE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Sheet Name: SIGN MOUNTING DETAILS
STANDARD DRAWING SN-1

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#
1 OF 1

1

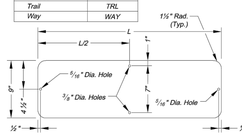
STANDARD ABBREVIATION LISTS

Named Streets	
Avenue	AVE
Boulevard	BLVD
Circle	CIR
Creek	CR
Court	CT
Crossing	XING
Drive	DR
Highway	HWY
Lane	LN
Parkway	PKWY
Place	PL
Road	RD
Street	ST
Terrace	TER
Trail	TRL
Way	WAY

Numbered Streets	
First	ST
Second	ND
Third	RD
Fourth to Tenth	TH

STREET NAME SIGN QUANTITIES

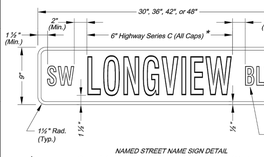
Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1)	9" x	Sq. Ft.	1	1
D3-1 (SP-2)	9" x			
D3-1 (SP-3)	9" x			
D3-1 (SP-4)	9" x			
D3-1 (SP-5)	9" x			
D3-1 (SP-6)	9" x			



STREET NAME SIGN BLANK DETAILS

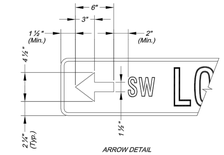
For Mounting on Square Steel Posts

PROJECT SIGN DETAILS

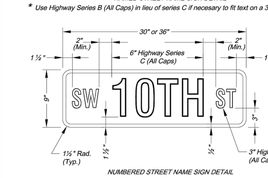


NAMED STREET NAME SIGN DETAIL

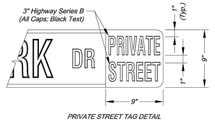
* *Use Highway Series B (All Caps) in lieu of series C if necessary to fit text on a 36" sign blank.*



ARROW DETAIL



NUMBERED STREET NAME SIGN DETAIL

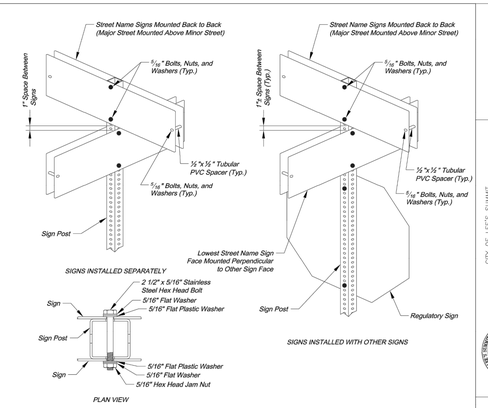


PRIVATE STREET TAG DETAIL

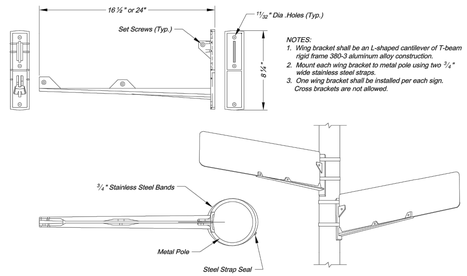
NOTES:

1. *For all street name signs, the legend shall be white and the background shall be green.*
2. *Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.*
3. *The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.*

STREET NAME SIGN FACE DETAILS



SQUARE STEEL POST MOUNTING DETAILS



NOTES:

1. *Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-J aluminum alloy construction.*
2. *Mount each wing bracket to metal pole using two ¾" wide stainless steel straps.*
3. *One wing bracket shall be installed per each sign. Cross brackets are not allowed.*

WING BRACKET MOUNTING DETAILS

CITY OF LE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

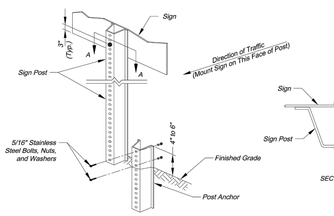
Sheet Name: STREET NAME SIGN DETAILS
STANDARD DRAWING SN-3

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#
3 OF 3

3

PERMANENT SIGNING GENERAL NOTES:

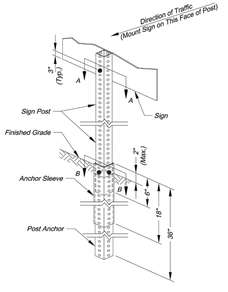
1. *All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).*
2. *The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.*
3. *All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.*
4. *The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation. Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.*
5. *Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See Traffic Signal Standard Drawings for the installation of signs on mast arms.*
6. *All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.*
7. *All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be reinstalled in good condition.*
8. *Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1971 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.*
9. *All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.*



U-STEEL POST DETAILS

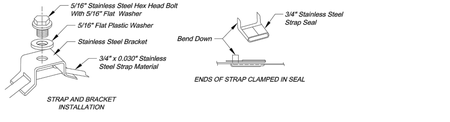
U-STEEL POST NOTES:

1. *Splice shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.*
2. *U-Steel post shall be 3 lb./ft., galvanized according to ASTM A123.*
3. *U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.*
4. *All posts shall be embedded a minimum of 3 feet.*



SQUARE STEEL POST INSTALLATION SEQUENCE:

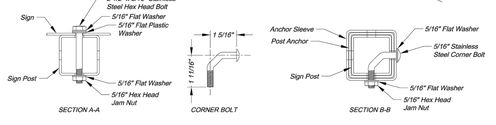
1. *Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.*
2. *Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.*
3. *Insert sign post into the post anchor and bolt in place.*



STRAP TYPE SIGN SUPPORT DETAILS

METAL POLE SIGN MOUNTING NOTES:

1. *Signs on metal poles shall be attached with two brackets and stainless steel bands.*
2. *Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.*
3. *Holes in sign shall be located such that the sign is level.*
4. *All strap, bracket, and seal materials should be Type 201 stainless steel.*



SQUARE STEEL POST DETAILS

SQUARE STEEL POST NOTES:

1. *Square steel sign posts and break-away anchor shall consist of the following materials:*
   Sign Post - 14 Ga. 2" x 2" Square Steel Post
   Post Anchor - 12 Ga. 2 ½" x 2 ½" x 36" Square Steel Post
   Anchor Sleeve - 12 Ga. 2 ½" x 2 ½" x 16" Square Steel Post
2. *14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.*
3. *In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.*
4. *The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.*

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220 SE GREEN STREET
LE'S SUMMIT, MISSOURI 64063
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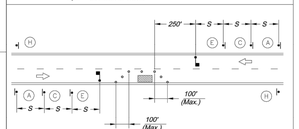
Sheet Name: SIGN POST DETAILS
STANDARD DRAWING SN-2

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#
2 OF 3

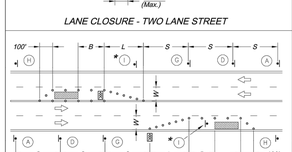
2

SYMBOL LEGEND

- Work Area
- Sign
- Barricade
- Direction of Travel
- Channelizer
- Arrow Panel
- Flagger

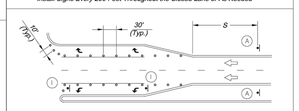


LANE CLOSURE - TWO LANE STREET



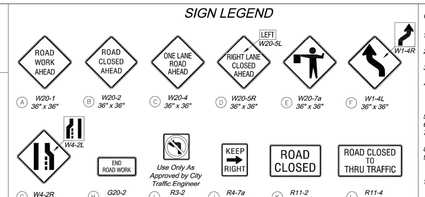
LANE CLOSURE - FOUR LANE STREET

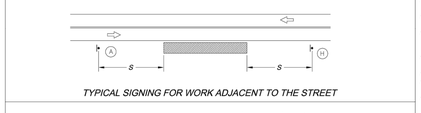
* *Install Signs Every 200 Feet Throughout the Closed Lane or As Needed*



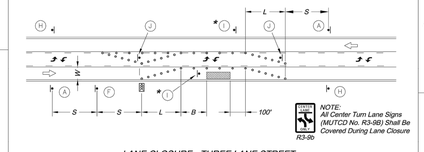
TURN LANE CLOSURE

SIGN LEGEND





TYPICAL SIGNING FOR WORK ADJACENT TO THE STREET



LANE CLOSURE - THREE LANE STREET

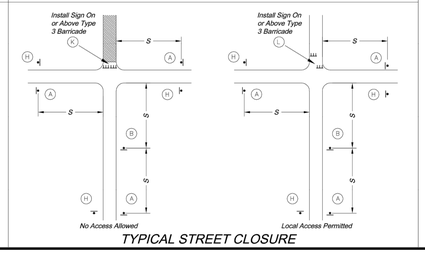
* *Install Signs Every 200 Feet Throughout the Closed Lane or As Needed*

Sign Spacing "S"	
Speed Limit (mph)	Spacing (Feet)
25	100
30 - 35	250
≥ 40	350

Taper Dimensions (Feet)				
Speed Limit (mph)	Minimum Taper Length "L", per Lane Width "W"			Minimum Number of Channelizers
	10	11	12	
25	105	115	125	6
30	150	165	180	7
35	205	225	245	8
40	270	295	320	9
45	450	495	540	13

Guidelines for Length of Longitudinal Buffer Space "B"	
Speed Limit (mph)	Length (Feet)
25	35
30	55
35	85
40	120
45	170

Maximum Channelizer Spacing		
Speed Limit (mph)	Within Taper (Feet)	Outside Taper (Feet)
25	25	50
30	30	60
35	35	70
40	40	80
45	45	90



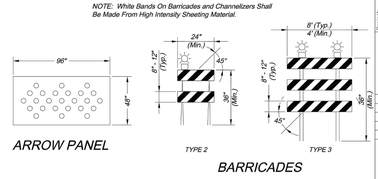
TYPICAL STREET CLOSURE

GENERAL NOTES:

1. *All signs, barricades, channelizers, markings and other traffic control devices shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).*
2. *All traffic control devices shall be standard in size, shape, color, and message, in good condition, and retro-reflectorized. All signs shall be securely mounted with height and lateral location as described in the MUTCD.*
3. *Warning lights shall be used on barricades in place at night and on warning signs which alert drivers about a change in alignment, traffic control, lane closure, or road closure.*
4. *Flaggers shall be used where indicated on the plans, where construction vehicles interact with normal traffic, or where construction activities impose a restriction on traffic, as directed by the City Traffic Engineer. Where flaggers are used, advance signing shall be erected as shown in the details or as specified in the MUTCD. Flaggers shall meet the requirements in the MUTCD in regard to character, training, attire, and behavior.*
5. *Trim-lines are the City's preferred channelizing device. Cones may not be used at nighttime.*
6. *Traffic control devices not in use or not applicable shall be either covered or removed from the work area.*
7. *The Contractor shall use barricades, street plates, or fencing as needed to effectively shield pedestrian and vehicular traffic from exposed objects, excavations, and construction activities.*
8. *Access shall be maintained to all driveways and side streets unless noted otherwise on the plans.*
9. *No street shall be closed without the approval of the City Traffic Engineer. The Contractor shall notify the City Traffic Engineer at least 7 days in advance of any street closure. If a detour route around the closure is to be provided, all detour signing shall be as shown on a plan approved by the City Traffic Engineer.*
10. *Construction vehicles parked along streets shall be located within the work area (traffic control) or where otherwise normally permitted. Construction materials, including traffic control and vehicles shall not restrict sight distance for vehicles exiting at streets or drives.*
11. *Construction materials shall be kept off of sidewalks, consolidated in one location within City right-of-way, and removed daily unless otherwise approved by the Inspector. Dirt, mud, and other construction debris on streets and sidewalks shall be removed immediately.*
12. *The Contractor shall not perform any work that will restrict vehicular traffic in any way between the hours of 7:00 a.m. and 9:00 a.m. or 4:00 p.m. and 6:00 p.m. Monday through Friday unless otherwise indicated in the specifications.*
13. *All travel lanes should be at least 11 feet wide unless otherwise authorized by the City Traffic Engineer. A "Narrow Lanes" sign shall be installed in advance of a lane width reduction to less than 11 feet.*
14. *All edge drop-offs of more than 2 inches and less than 4 inches should be protected by a wedge or barrier and all edge drop-offs greater than 4 inches shall have edge protection (see Traffic Control Specifications for edge treatment requirements).*
15. *The "Workers" symbolic sign (MUTCD No. W21-1a) may be used instead of the "Road Work Ahead" sign for work with a duration of 12 hours or less. The "End Road Work" sign is not required to be installed after the "Workers" sign.*
16. *No traffic signal shall be altered or modified in any way without a plan approved by the City Traffic Engineer.*
17. *The Contractor shall be responsible for maintaining all traffic control devices on an around-the-clock basis, whether or not work is actively being pursued and any deficiencies noted shall be corrected immediately.*
18. *The traffic control requirements shown on these plans are minimum requirements only and do not attempt to address in depth the variety of situations that may occur once construction has started. In no way do the requirements shown on these plans relieve the Contractor of his responsibility for selecting the proper traffic control devices and implementation procedures that will assure the safety of drivers, pedestrians, and workers at all times.*
19. *Should the contractor fail to enforce the traffic control plan or fail to clean, replace or otherwise maintain the traffic control devices when directed to do so by the City Traffic Engineer or representative, the City may take one or more of the following actions:*
    A) Employ another agency to correct deficiencies in traffic control devices and deduct the cost from the Contractor's pay estimate,
    B) Stop the work until deficiencies are corrected,
    C) Suspend all pay estimates until deficiencies are corrected, or
    D) Place the Contractor in default.

CHANNELIZERS

NOTE: White Bands On Barricades and Channelizers Shall Be Made From High Intensity Sheeting Material.



ARROW PANEL

BARRICADES

CITY OF LE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LE'S SUMMIT, MISSOURI 64063
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Sheet Name: TRAFFIC CONTROL DETAILS
STANDARD DRAWING TC-1

Drawn By: JJW
Checked By: MP
Date: 12-10-2008
Project No.: X
x OF x

X

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
JUNCTION CITY, KANSAS 66441-1304
PH. (785) 762-5646 FAX (785) 762-7744
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19

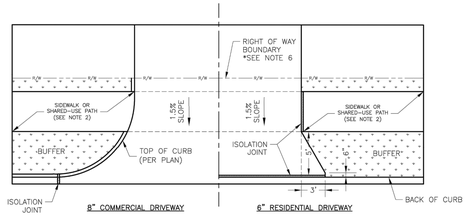
STREETS OF WEST PRYOR

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

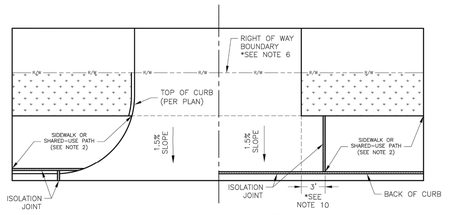
NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
SIGN AND TRAFFIC CONTROL DETAIL SHEET

PROJ. NO.	
A14_7067-1	
DESIGNER	DRAWN BY
LDO	JT/BKR
CFN	
7067-1SIG_DET	
SHEET	REV
27	0

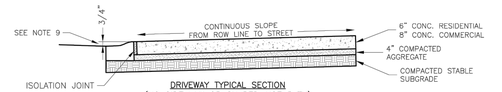
THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.



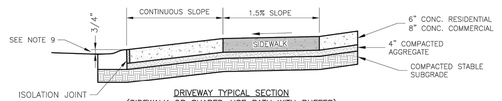
DRIVEWAY WITH BUFFER
NOT TO SCALE



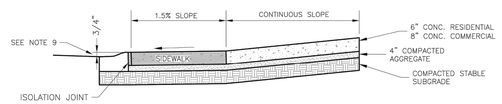
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

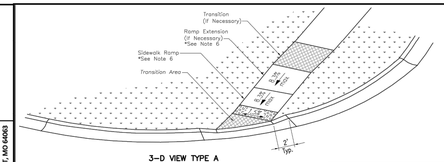
GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN–3B, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEEDS TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG–1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

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

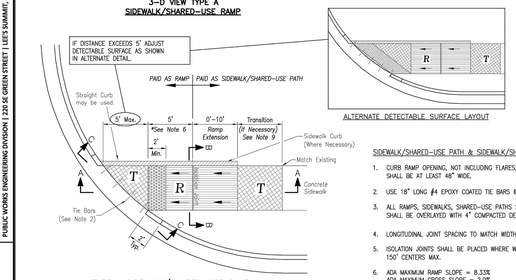
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: DRIVEWAY DETAIL

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

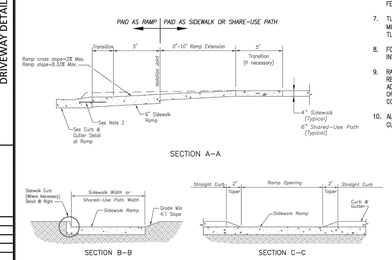
GEN-1



3–D VIEW TYPE A
SIDEWALK/SHARED–USE RAMP



TYPE A SIDEWALK/SHARED–USE RAMP
Not to Scale

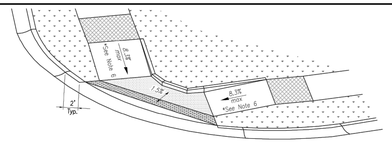


TYPE A & B SIDEWALK RAMP
Not to Scale

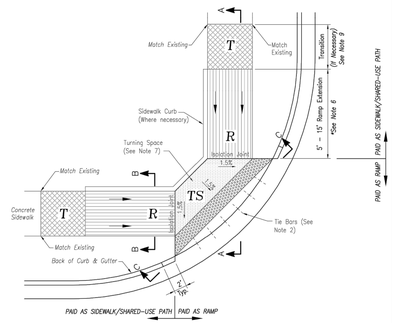
LEGEND

R	SIDEWALK RAMP
TS	TURNING SPACE
	DETECTABLE WARNING SURFACE
T	TRANSITION

SIDEWALK/SHARED–USE PATH & SHARED–USE RAMP NOTES:
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED–USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
ADA MAXIMUM CROSS SLOPE = 2.0%
*ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).



3–D VIEW TYPE B
SIDEWALK/SHARED–USE RAMP



TYPE B SIDEWALK/SHARED–USE RAMP
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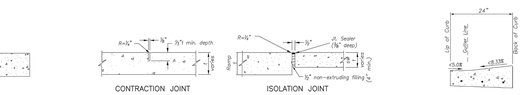


CONTRACTION JOINT
ISOLATION JOINT
JOINT DETAILS
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale

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
Project:
Sheet Name: ADA RAMP RETROFIT DETAIL

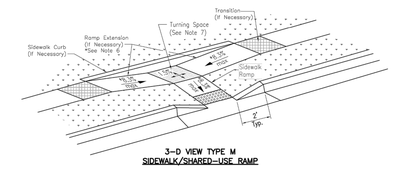
Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-3A

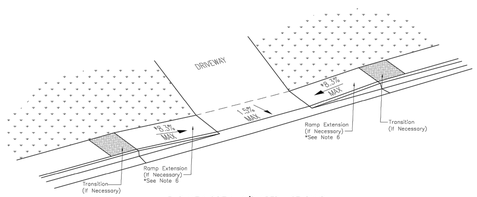
REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

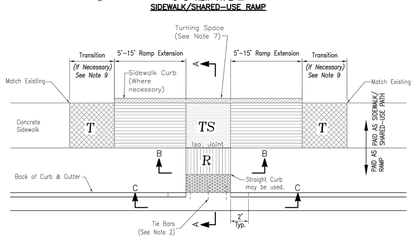
LEON D. OSBOURN
ENGINEER
MO # 021726



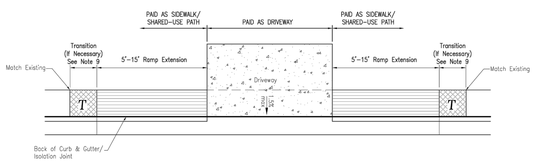
3–D VIEW TYPE M
SIDEWALK/SHARED–USE RAMP



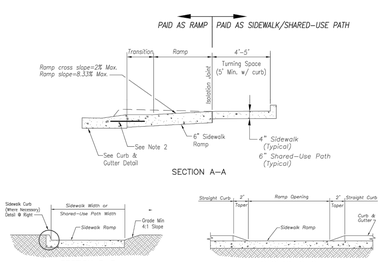
3–D VIEW SIDEWALK/SHARED–USE RAMP
AT DRIVEWAY



TYPE M SIDEWALK/SHARED–USE RAMP
Not to Scale

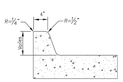


SIDEWALK/SHARED USE RAMP
AT DRIVEWAY WITH ADJOINING CURB



TYPE M SIDEWALK RAMP
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale



SIDEWALK CURB DETAIL
Not to Scale

LEGEND

R	SIDEWALK RAMP
TS	TURNING SPACE
	DETECTABLE WARNING SURFACE
T	TRANSITION

SIDEWALK/SHARED–USE PATH & SIDEWALK/SHARED–USE RAMP NOTES:
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED–USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
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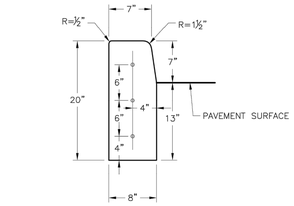
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

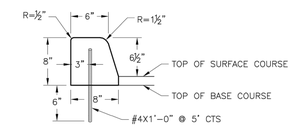
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: ADA RAMP RETROFIT DETAIL

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

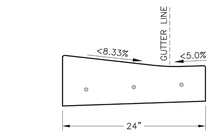
GEN-3B



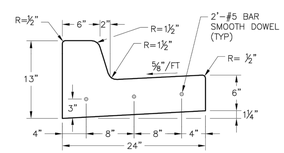
STRAIGHT CURB
(TYPE C–1)



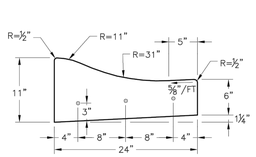
DOWELLED CURB
(TYPE DC)



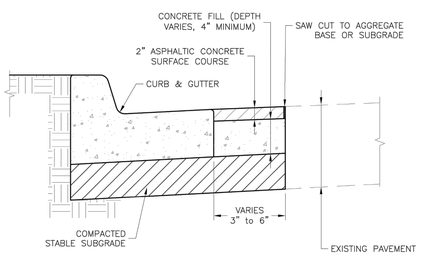
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



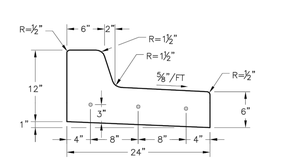
STRAIGHT BACK CURB &
GUTTER
(TYPE CG–1)



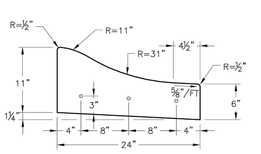
ROLL BACK CURB &
GUTTER
(TYPE CG–2)



CURB REPLACEMENT DETAIL



STRAIGHT BACK DRY CURB &
GUTTER
(TYPE CG–1 DRY)



ROLL BACK DRY CURB &
GUTTER
(TYPE CG–2 DRY)

GENERAL NOTES
1. ¾" ISOLATION JOINTS WITH 3 (2'–#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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
Project:
Sheet Name: CURB & GUTTER DETAIL

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

GEN-4

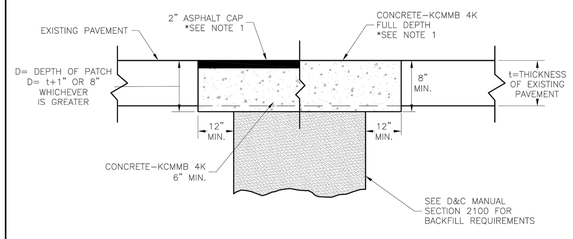
2319 N. JACKSON | P.O. BOX 1304
PH. (785) 272–5626 | KANSAS CITY | KANSAS 66117
PH. (913) 342–5641 | FAX (785) 272–7744
jc@kveng.com | www.kveng.com
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.
EXPIRES 12/31/19

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
STREET DETAIL SHEET

PROJ. NO.	A14_7067–1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067–1SIG_DET
SHEET	28
REV	0

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.



TRENCHING/PATCHING DETAIL
NOT TO SCALE

NOTE:

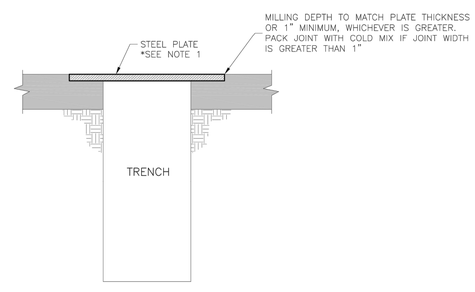
1. ASPHALT CAP OR FULL DEPTH CONCRETE SHALL BE DETERMINED BY CITY INSPECTOR.

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

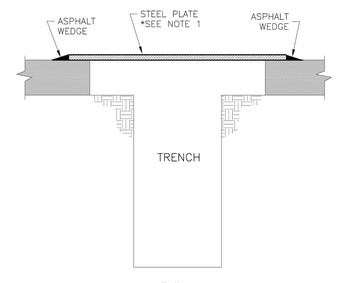
TRENCHING/PATCHING ROADWAYS DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-5



TYPE "A" PLATING
NOT TO SCALE
(CITY POSTED SPEEDS OF
35 MPH AND GREATER)



TYPE "B" PLATING
NOT TO SCALE
(CITY POSTED SPEEDS OF
30 MPH OR LESS)

GENERAL NOTES:

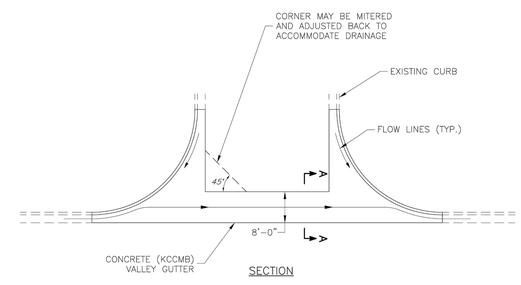
1. THE CONTRACTOR SHALL PROVIDE ADEQUATE OVERLAP OF PLATE ON ASPHALT TO ASSURE NO SLIPPAGE OF PLATE AND NO COLLAPSING OF TRENCH.
2. ALL PLATES SHALL BE ANCHORED SO PLATES DO NOT MOVE OR SHIFT UNDER TRAFFIC.

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

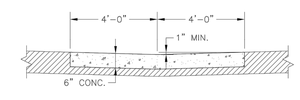
TRENCHING PLATE DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-6



SECTION



SECTION
Scale: 1" = 1'–0"

VALLEY GUTTER DETAIL
Intersection of Two Public Streets

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

VALLEY GUTTER DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-7

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
LONEJACK, MISSOURI 64141
PH. (785) 832-6011 FAX (785) 832-7744
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KAW VALLEY ENGINEERING

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
STREET DETAIL SHEET

PROJ. NO. A14_7067–1
DESIGNER LDO
DRAWN BY JT/BKR
CFN 7067–1SIG_DET
SHEET 29
REV 0

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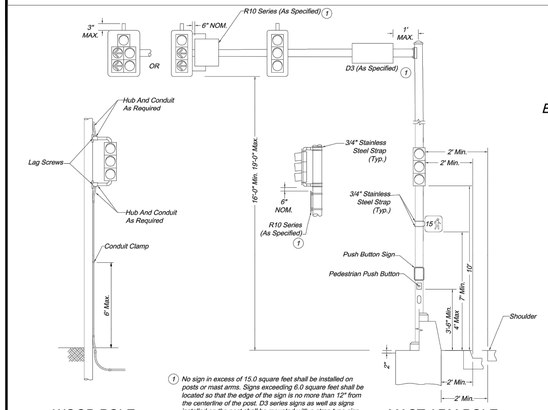
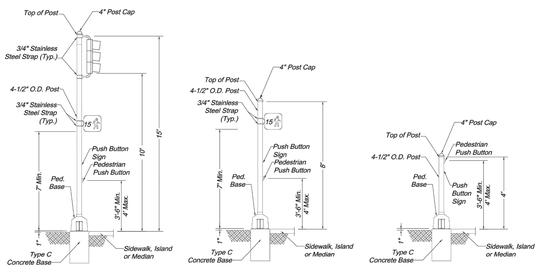


1 No sign in excess of 15.0 square feet shall be installed on posts or mast arms. Signs exceeding 6.0 square feet shall be located so that the edge of the sign is no more than 12" from the centerline of the post. D3 series signs as well as signs installed on the post shall be mounted with a strap type sign support. R10 series signs installed on the mast arm shall be mounted with an Astro-Bracket assembly.

WOOD POLE MOUNTING

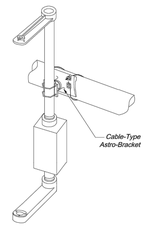
MAST ARM POLE MOUNTING



PEDESTAL POST MOUNTINGS

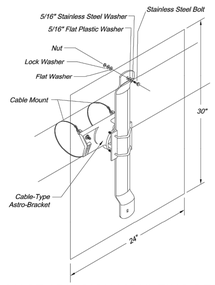
ENDS OF STRAP CLAMPED IN SEAL

STRAP TYPE SIGN SUPPORT



SIGNAL HEAD MAST ARM MOUNTING DETAIL

Astro-Brac Terminal Compartment Bracket Assembly
Note: Only cable type Astro-Brac will be allowed, no bands.



MAST ARM SIGN MOUNTING DETAIL

General Notes:

All post wire outlets shall be deburred and equipped with bushings.

Backplates not shown in mounting diagrams for clarity.

Posts shall be grounded with #6 AWG bare copper wire from grounding bushing on conduit to grounding lug in post base if steel conduit is used. If Non-metallic conduit is used, provide #6 AWG wire from grounding lug in post to power supply ground buss in controller cabinet.

Leads from pedestrian signal lamps are connected to the signal head terminal compartment.

All signals shall be mounted vertically unless otherwise noted on the traffic signal plans.

Span wire mounted signals shall have a disconnect hanger.

Signal heads on mast arms shall be tilted forward from the top 3 to 7 degrees from vertical.

If a sign exceeds 42" in length, two supports are required; and if a sign exceeds 96" in length, three supports are required.

Mast arm mounted signals shall have a terminal compartment.

Side-mounted optically limiting heads shall have a minimum post clearance of 5-1/2".

Symbol for pedestrian lenses shall have a minimum height of 11"

Push button signs shall be mounted directly above the actuator, except for locations on 4' pedestals the sign shall be located directly below the actuator.

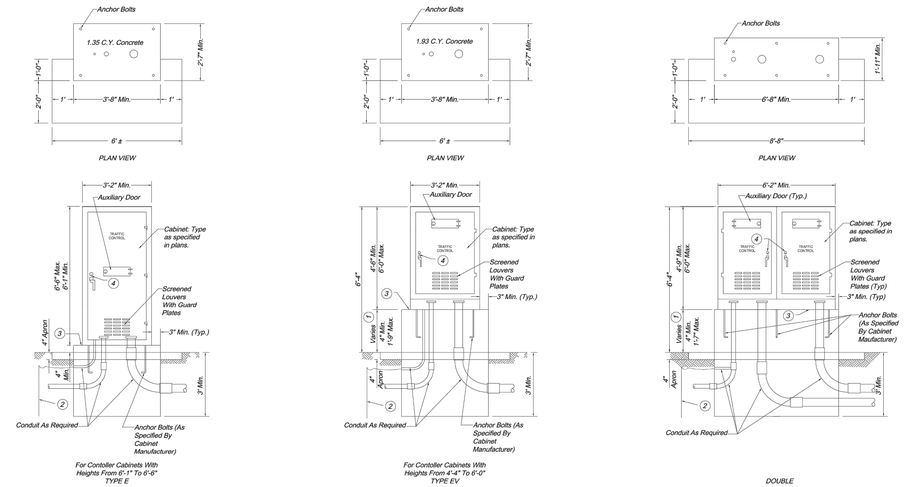
Signal appurtenances shall have a horizontal clearance no less than 2' from the face of a vertical curb or from the outside edge of a shoulder, except signals located in a median island.

See standard drawing TS-3 for base details.

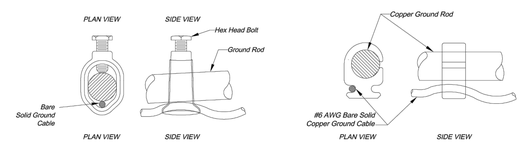
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

SIGNAL HEAD MOUNTING DETAILS
STANDARD DRAWING TS-1

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1



CONTROLLER CABINETS AND BASE TYPES



GROUND ROD CLAMP CONNECTION DETAIL

Ground rod clamp shall be subsidiary to ground rod.

General Notes:

Traffic signal controller cabinet shall be oriented with the back of the controller cabinet facing the intersection, such that when the door is open the signal head indications can be viewed while looking inside the cabinet.

1. Dimension varies according to cabinet height.
2. Ground rod, 3/4" dia. x 8' min. If subsurface conditions exist which prohibit the placement of the ground rod in a vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed.
3. Lifetime silicone caulk between cabinet and base.
4. #2 corbin lock.

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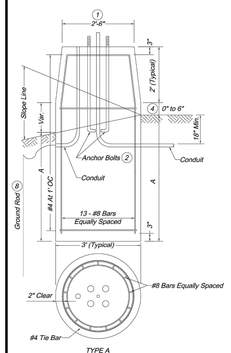
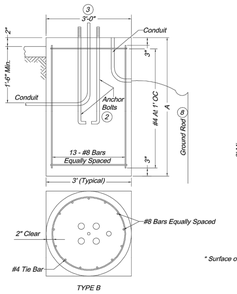
CONTROLLER CABINET & BASE DETAILS
STANDARD DRAWING TS-2

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1



TYPE A



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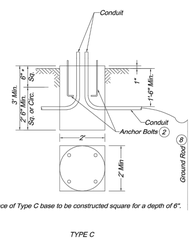


TYPE C

* Surface of Type C base to be constructed square for a depth of 6".

POST BASES

POST BASES		
Post Type	Arm Length (Ft.)	Base Type
B, BL, C & CL	8 - 14	A-8 or B-8
B, BL, C & CL	15 - 34	A-10 or B-10
B, BL, C & CL	35 - 54	A-13 or B-13

Arm length determined by length of longest arm for Type B & BL signal posts.

Base Type A or B determined by location of post base.

Special Design Requirements:

Signal structures which will exceed the dimension limits shown on Standard Drawing TS-5 shall have its Post Base designed by a professional engineer and approved by the City Engineer (or designee). A set of drawings including specifications and design computations shall be submitted for record and reference. The submitted drawings and calculations shall be signed and sealed by a professional engineer in accordance with the laws relating to architects and professional engineers (Chapter 327, RSMO) and shall include a title block or summary sheet which lists and certifies that the foundation will meet the design criteria.

STEEL & CONCRETE REQUIREMENTS FOR POST BASES				
Bases	#8 Steel Bar			Conc. C.Y.
Type	A (10)	Length	Weight Lbs (1)	
A-8	8'-0"	9'-6"	399	2.53
A-10	10'-0"	11'-6"	481	3.06
A-13	13'-0"	14'-6"	604	3.84
B-8	8'-0"	7'-6"	317	2.09
B-10	10'-0"	9'-6"	400	2.62
B-13	13'-0"	12'-6"	523	3.40
C*				0.44

(10) Soil depth, no rock
(1) Include #4 tie bar
* Surface of Type C base to be constructed square for a minimal depth of 6".

BASE EMBEDMENT IN SOLID ROCK			
Solid Rock Encounter Point	Required Embedment For Base Type		
	A-8 B-8	A-10 B-10	A-13 B-13
At Surface	4'-6"	4'-9"	5'-9"
At One-Fourth Normal Depth	3'-6"	4'-0"	5'-0"
At One-Half Normal Depth	3'-0"	3'-3"	3'-3"
At Three-Fourths Normal Depth	1'-3"	1'-3"	1'-0"

1. Required embedment depths can be interpolated between encounter points for other solid rock encounter depths.
2. Normal lengths for anchor bolts and reinforcing steel will be required.
3. Core drill holes for anchor bolts and reinforcing steel in solid rock shall be provided. Core drill holes shall be twice the diameter of the anchor bolt and reinforcing steel diameter and to within 3 inches of the normal base depth.
4. If soil, shale, gravel, fractured rock, or voids are encountered during core drilling, the rock shall be removed to the point of encounter.
5. Anchor bolts and reinforcing steel shall be grouted in the core drill holes with non-shrink grout having a minimum strength of 9,000 pounds in 24 hours.
6. Straight anchor bolts of the length shown in the anchor bolt table under the column "bolt length"are adequate for use in grouted core drilled holes. No heat induced alteration or bending of anchor bolts will be permitted.

1 If bolt circle is 22 inches or greater, use Type B base. If Type B base is used anywhere, all Type B, BL, C, and CL posts shall have Type B base. Base plate shall stay within the top of the post base diameter.

2 Anchor bolt dimensions are shown on the manufacturer's approved drawings.

3 Maximum bolt circle diameter is 26". Base plate shall stay within the top of the post base diameter.

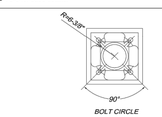
4 0" to 6" variation in base height is for obtaining 16'-0" clearance. 0.13" C.Y. concrete and 3 lbs. reinforcing steel per 6".

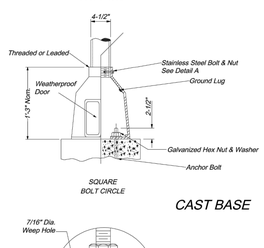
5 Posts shall be furnished with individual nut covers.

6 Expansive grout shall be used between the post base plate and concrete base.

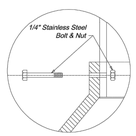
7 Plate and bolt sizes shall be shown on fabricators shop drawings and shall be subject to approval.

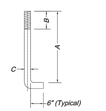
8 3/4" x 8' minimum ground rod. If subsurface conditions exist which prohibit the placement of the ground rod in vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed on standard drawing TS-2.





CAST BASE



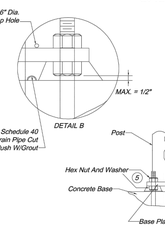


ANCHOR BOLT

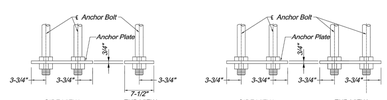
Bolt Length Inches	Vert Ht. A Inches	Thread Len. B Inches	Dia. C Inches
19	17	1.50	0.625
57	51	7.00	1.250
79	73	7.50	1.500
94	88	8.00	1.750
121	115	8.50	2.000
120	114	9.00	2.250
146	140	9.50	2.500

ANCHOR BOLT

Note:
All Anchor Bolts Shall Be Fully Galvanized.



STEEL PLATE AND ANCHOR BASE



OPTIONAL STEEL PLATE FOR ANCHOR BOLTS

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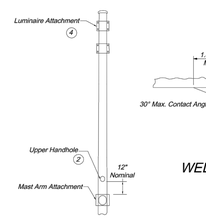
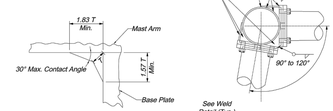
POST BASE DETAILS
STANDARD DRAWING TS-3

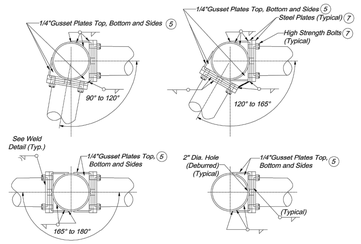
Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1



TYPE BL AND CL POSTS



WELD DETAIL



ARM ATTACHMENTS

ID Tag Note:

Tag shall be aluminum or stainless steel and attached to pole or mast arm using two rivets or stainless steel drive screws. ID tag holes shall be drilled prior to galvanizing.

1 Arm Lengths shall not exceed 54 feet. See traffic signal plans for dimensions.

2 Handholes shall be approximately 4" x 6-1/2". Handhole frame shall be reinforced so that the pole strength is not reduced.

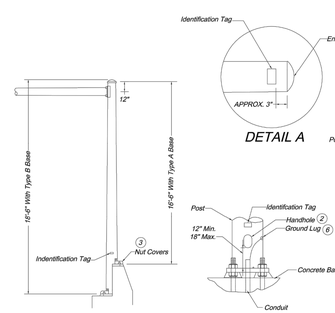
3 Posts shall be furnished with individual nut covers.

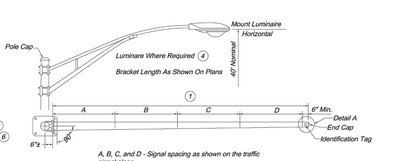
4 See street lighting standard details for typical bracket arm mounting for Type BL and Type CL posts.

5 Any openings between top and side gusset plates shall be sealed with lifetime caulk at time of installation.

6 Post shall be grounded from ground lug in post with #6 AWG bare copper wire to conduit system. Ground lug shall be 90° or 180° from the handhole.

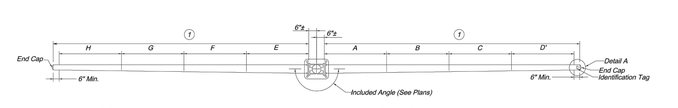
7 Plate and bolt sizes shall be shown on fabricators shop drawings and shall be subject to approval.





A, B, C, and D - Signal spacing as shown on the traffic signal plans.

TYPE C AND TYPE CL (WITH LUMINAIRE)



E, F, G, and H - Signal spacing as shown on the traffic signal plans.

A, B, C, and D - Signal spacing as shown on the traffic signal plans.

TYPE B AND TYPE BL (WITH LUMINAIRE)

General Notes:

Arms shall be raked up 0.25" per foot minimum. Arms shall be provided with a permanent marking indicating proper orientation for installation.

To determine left or right on Type B or C signal post, viewing position shall be from the center of the intersection being controlled and facing the signal involved.

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TUBULAR STEEL POST DETAILS
STANDARD DRAWING TS-4

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

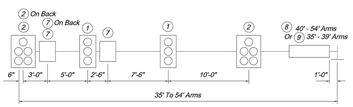
2319 N. JACKSON | P.O. BOX 1304
PH. (785) 272-5401 | KANSAS 66044
FAX (785) 842-7744
jc@kveng.com | www.kveng.com
KAW VALLEY ENGINEERING
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY: MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842. EXPIRES 12/31/19

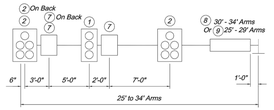
STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

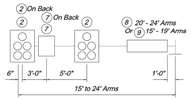
NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL STANDARD CITY DETAILS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_DET
SHEET	30
REV	0

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.

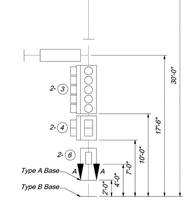




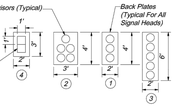


TYPICAL TOP VIEW

SECTION A-A

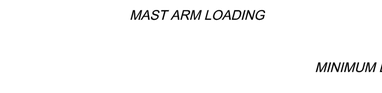


TYPICAL POST LOADING



Item No.	Description	Weight (Lbs.)*	Proj. Area (Sq. Ft.)	Surface Area (Sq. Ft.)
1	3-Section OL Head	60.0	8.0	32.5
2	5-Section OL Head	100.0	12.0	47.5
3	Vert. 5-Section OL Head	100.0	12.0	50.5
4	2-Section OL Head	40.0	6.0	23.0
5	150 Watt Luminaire	30.0	1.0	3.5
6	9" X 18" Sign	2.0	1.1	N/A
7	24" X 30" Sign	27.0	5.0	N/A
8	120" X 18" Sign	25.0	15.0	N/A
9	96" X 18" Sign	18.0	10.7	N/A
	96" X 18" Sign	20.0	12.0	N/A
	96" X 28" Sign	31.0	18.7	N/A

OL - Optically Limited
* Mounting Hardware Included



MAST ARM LOADING

Structural Design Requirements:

Structural supports shall be designed and fabricated to withstand their own loading and the attachment loading shown on this drawing or on the plans, whichever is greater. Structural members include posts, mast arms and luminaires bracket arms, as required.

Design of the structural supports shall be based on AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 1994 or latest revision with these exceptions.

Minimum Design Wind Speed of 90 MPH at 30 Feet Above Ground.
Group Loading:

Loads	Percent of Allowable Stress*
Group I - DL	100
Group II - DL + W	133
Group III - DL + Ice + 0.5(W**)	133

**No load reduction factors shall be applied in conjunction with these increased allowable stresses.*
*** W to be computed on the basis of the wind pressure formula. 25 PSF (1197 Pa) minimum for W for Group III.*

*Signal structures which will exceed the dimension limits shown shall be designed by a professional engineer*** based on AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2001, 4th Edition, including any interim with the criteria noted below:*

- *Minimum Basic Wind Speed 90 MPH at 30 Feet Above Ground*
- *Fatigue Category I*
- *50 Year Design Life.*
- *Shall not be specifically designed for truck induced wind gusts.*
- *Shall be specifically designed to resist periodic galloping forces.*

****A set of shop drawings including weld procedure specifications and design computations shall be submitted for record and reference. The submitted drawings and calculations shall be signed and sealed by a professional engineer in accordance with the laws relating to architects and professional engineers (Chapter 327, RSMO) and shall include a title block or summary sheet which lists and certifies that the product meets all of the specified design criteria.*

For Type B and BL posts. Ice and dead loading shall be based on the combined effect of design loading on each arm. Wind loading is applied as described in section 1.2.5(b) of the AASHTO Standard Specifications for Structural Supports,1994 or latest version.

General Notes:

Attachment locations are for structural design purposes only. Actual locations are shown on the plans.

MINIMUM DESIGN LOADING FOR POST AND MAST ARM ATTACHMENTS

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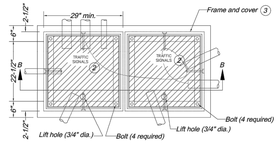
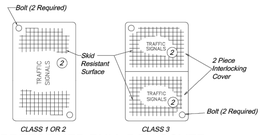
TUBULAR STEEL POST DESIGN LOADING REQUIREMENTS
STANDARD DRAWING TS-5

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

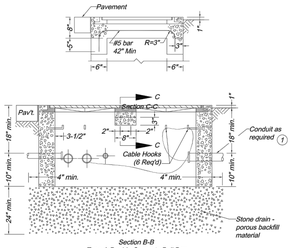


SINGLE CONCRETE PULL BOX

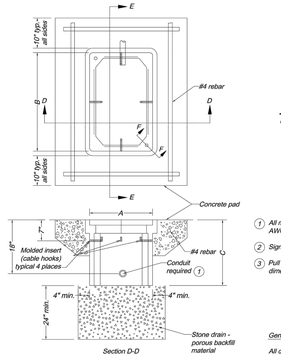


PREFORMED PULL BOX COVER

Number of Entering Conductors	Class	Preformed Pull Box Minimum Dimensions		
		A	B	C
< 23	1	17"	30"	20"
23 - 68	2	24"	36"	24"
> 68	3	30"	48"	24"



Section B-B
Type A Double Concrete Pull Box



SECTION F-F
TYPICAL BOLT CLEANOUT

(1) *All metal conduits shall be electrically bonded by a ground bushing and #6 AWG bare copper wire. For PVC , all ground wires shall be connected.*

(2) *Signal pull boxes shall be embossed "Traffic Signals."*

(3) *Pull box frames and covers shall be cast iron and the following minimum dimensions:*

Frame Size:	29" x 29"
Opening Size:	22 1/2" x 22 1/2"
Frame Height:	4-1/4"
Frame Weight:	120 lbs.
Cover Size:	22-5/8" x 22-5/8"
Cover Thickness:	3/4"
Cover Weight:	140 lbs.

General Notes:

All dimensions shown are nominal.

Bolt cleanout detail shall be approved by the City Traffic Engineer.

All concrete shall be 3,000 PSI minimum, and shall be subsidiary to the pull box.

Pavement and subgrade shall be as shown on plans.

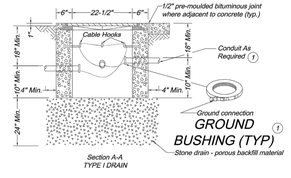
Stone drain material shall be 1/2" - 3/4" clean rock.

Lift opening required on all covers.

Preformed box walls may be either flared or vertical.

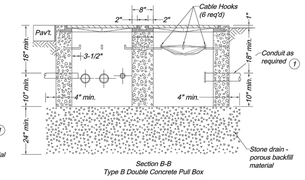
If an extension is used with a preformed box, the lip of the extension may be interior or exterior. The extension shall be compatible and from the same manufacturer.

If preformed pull boxes are specified, the contractor may use the standard concrete pull box in lieu of the Class 1 or 2 preformed pull box or the double concrete pull box, Type A, in lieu of the Class 3 preformed pull boxes.

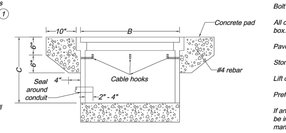


Section A-A
TYPE I DRAIN

GROUND BUSHING (TYP) (1)
Stone drain - porous backfill material



Section B-B
Type B Double Concrete Pull Box



Section E-E

SINGLE CONCRETE PULL BOX

DOUBLE CONCRETE PULL BOX

PREFORMED PULL BOX

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

PULL BOX DETAILS
STANDARD DRAWING TS-6

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

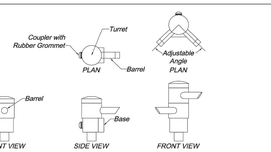
LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
JUNCTION CITY, KANSAS 66441-7744
PH. (785) 762-5462 FAX (785) 762-5462
e-mail: jd@kveng.com | www.kveng.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

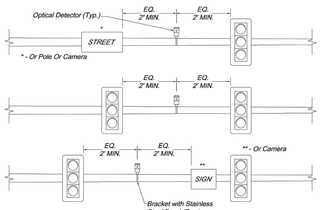
STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL STANDARD CITY DETAILS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_DET
SHEET	31
REV	0



SINGLE BARREL ONE CHANNEL
DOUBLE BARREL ONE OR TWO CHANNEL



WHEN MULTIPLE DETECTOR UNITS ARE MOUNTED ON THE SAME MAST ARM, THEY SHALL BE SPACED APPROXIMATELY 12 INCHES APART.

Emergency Vehicle Detection Notes:

1. The detector cable shall be continuous from the optical detector to the traffic signal controller. No splices shall be allowed.

2. The contractor shall label the optical detector cable in all pull boxes by channels as indicated on the plans. This shall be accomplished with aluminum tags attached to the cable with aluminum wire. No direct payment shall be made for this work.

3. Opticom shall be mounted inside the controller cabinet. Unless otherwise indicated on the plans, the placement of the optical detectors shall be centered between the signal heads and/or signal head and sign located on the mast arms. Further information on optical detector placement is shown in the details. The final placement of the optical detector may be adjusted for line of sight requirements.

4. The equipment manufacturer shall be responsible for providing onsite technical assistance to the contractor in final placement of the optical detectors, as well as in all the aspects of the system installation.

5. Preemption sequences and timings shall be developed by the equipment supplier. Timings shall be marked up on the timing sheets from the specific model of controller at each intersection and submitted for review by the City prior to implementation by the supplier. Pre-emption sequences shall use an all red interval or other methods to prevent the occurrence of "Yellow Traps" at intersections with protected/permitted left-turn phasing.

6. Preempts are to be assigned as follows unless otherwise indicated in the plans:

Direction	Preempt No.	Channel
Northbound	1	A
Southbound	2	B
Eastbound	3	C
Westbound	4	D

7. The Contractor shall install the equipment consistent with the equipment manufacturer's recommended installation procedures and interface diagrams in a neat and workmanlike manner. Emergency Vehicle Detection System shall be provided and installed by the contractor and shall consist of all detectors, processors, mounting brackets, etc for a fully operational system.

OPTICAL DETECTOR

Video Detection Notes:

1. The video detection system shall consist of video camera(s), video detection processor (VDP), cables, brackets, and all other materials necessary for a fully functional system.

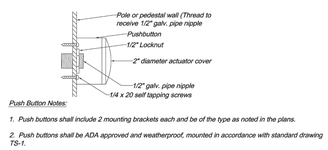
2. The video detection system shall include software that detects vehicles in multiple lanes of each direction using only one video camera. Detection Zones (DZ) shall be defined using only a video menu and a pointing device to define and place zones on a video image. Up to 24 DZ per camera shall be available.

3. The actual number and location of DZ shall be determined in the field by the City Traffic Engineer. The City reserves the right to have additional zones programmed or modify those shown based on the field programming period completed prior to turning on the signal.

4. Video cameras are to be mounted as shown on the traffic signal plans. If the camera is mounted on a Type BL or CL pole, the camera shall be mounted directly to the luminaire bracket arm. If the camera is mounted on a Type B or C pole, the camera shall be mounted on the mast arm using a 6-foot riser.

5. Video camera placement, adjustment, setup and initial programming shall be at the direction of the manufacturers representative. The manufacturers representative shall assist with identifying optical camera locations, system setup, programming, and turn-on.

VIDEO DETECTION

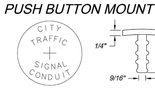


Push Button Notes:

1. Push buttons shall include 2 mounting brackets each and be of the type as noted in the plans.

2. Push buttons shall be ADA approved and weatherproof, mounted in accordance with standard drawing TS-1.

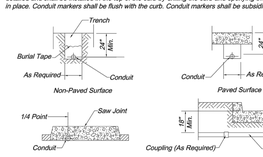
PUSH BUTTON MOUNT DETAIL



CONDUIT MARKER

Conduit Marker Notes:

1. Wherever a conduit passes beneath a curbed street, aluminum conduit markers shall be installed in the curb immediately over the conduit location. Conduit markers shall be furnished by the contractor as detailed and shall be installed in the top of the curb by drilling the curb and epoxying the conduit marker in place. Conduit markers shall be flush with the curb. Conduit markers shall be subsidiary to conduit.

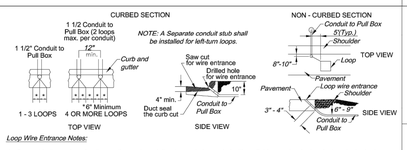


Conduit Location Notes:

1. Conduit shall be installed to drain, and if metallic all ends shall be threaded and capped.

2. The Contractor shall notify the City of Lee's Summit, Department of Public Works Traffic Division at (816) 969-1807 for inspection of the conduit installation. At least 24 hours notice shall be provided. The conduit shall not be covered unless inspected and approved by the Engineer or his authorized representative, so as to ensure proper depth, correct conduit material and proper conduit end treatment as described above.

CONDUIT LOCATIONS



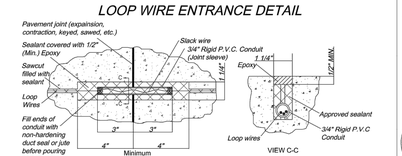
Loop Wire Entrance Notes:

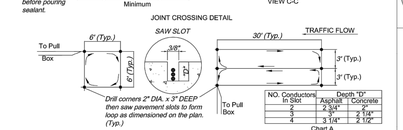
1. Saw cut in the curb and gutter section and conduit entrance to be sealed with a pliable, non-hardening duct sealant prior to application of loop sealant. No loop sealant shall be applied in the curb and gutter section or at conduit entrance.

2. Grout around conduit inserted into curb or pavement section.

3. Each loop shall have a separate lead-in-saw cut to the loop wire entrance in the curb or at the edge of pavement.

LOOP WIRE ENTRANCE DETAIL





NO. Conductors In Slot	Depth "D" Asphalt	Depth "D" Concrete
2	3 1/4"	2 1/4"
3	3 1/4"	2 1/4"
4	3 1/4"	2 1/2"

Chart A

Loop Detection Notes:

1. Quadrapole loop to be one continuous wire placed in two turns. All loops to be wound in same direction, with start and end clearly marked at pull box.

2. Transverse loop to be one continuous wire placed in three turns. All loops to be wound in same direction, with start and end clearly marked at pull box.

3. Slot in pavement for loops to be cut $\frac{1}{2}$" wide at minimum depth "D" as indicated in Chart A. Slot in pavement for lead shall be $\frac{1}{2}$" wide at minimum depth "D". Fill slots with an approved asphalt sealer (asphalt pavement) or an approved elastic epoxy sealant (concrete pavement) to within $\frac{1}{2}$" of pavement surface.

4. Other than soldered type splice or splice made with wire nuts at their junciton, feeder cable and loop wire shall be of continuous run with no splices. All connections to be watertight with approved splice kits. Watertight connections shall extend to and encompass each outer jacket of the detector feeder and loop wire cables.

5. All leads for individual loops to be kept separate and loop wire between the loop and the feeder cable connection shall be twisted three turns per foot.

6. All loops shall be wet cut with equipment approved by the City Traffic Engineer.

7. Where loops are to be installed on projects involving either asphalt pavement construction or milling and overlay of an existing asphalt pavement, loops shall be installed in the base course prior to placement of the asphalt surface course.

8. If existing loops are to be abandoned and new loop installed, abandoned loop wires shall be removed or cut completely through along all slots parallel to vehicle flow.

9. Loops shall be #14 AWG stranded wire in pvc duct made up of 2 non-twisted turns in single slot or as recommended by manufacturer of the detector amplifier. Loop shall be placed in sawed slots in a figure eight manner with device which will not damage the wire insulation. Lead-in cable shall be 2-1c #14 AWG twisted.

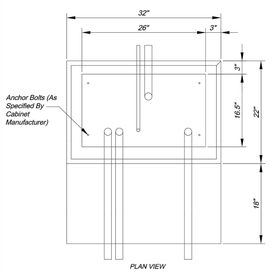
LOOP DETECTION

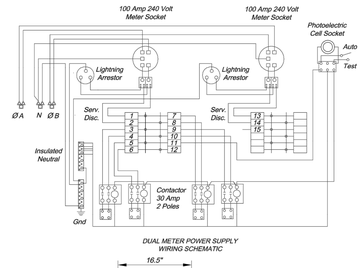
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

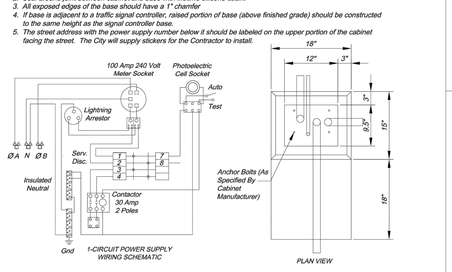
CONDUIT & DETECTION DETAILS
STANDARD DRAWING TS-7

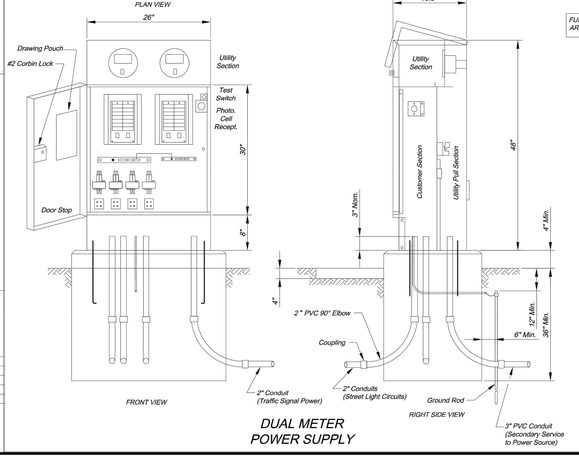
Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

NOTES:
1. *Photoelectric cell should be oriented to the north or east.*
2. *Seal around joint between cabinet and base with lifetime silicone caulk.*
3. *All exposed edges of the base should have a 1" chamfer*
4. *If base is adjacent to a traffic signal controller, raised portion of base (above finished grade) should be constructed to the same height as the signal controller base.*
5. *The street address with the power supply number below it should be labeled on the upper portion of the cabinet facing the street. The City will supply stickers for the Contractor to install.*

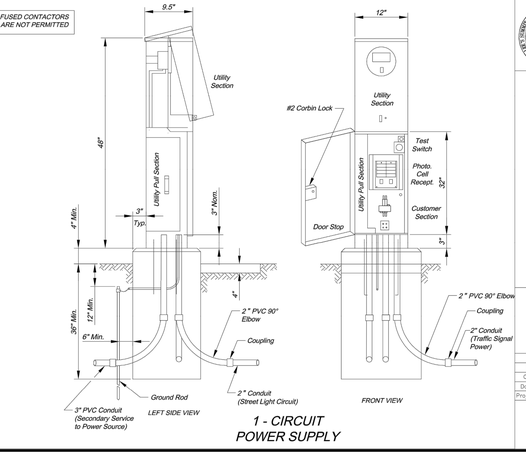








DUAL METER POWER SUPPLY



1 - CIRCUIT POWER SUPPLY

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

POWER SUPPLY ASSEMBLY 240/120 VOLT SERVICE
STANDARD DRAWING TS-8

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

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.

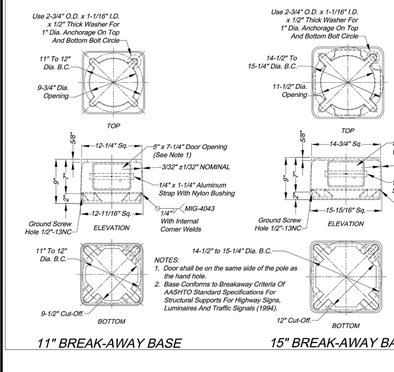
STREET LIGHT POLE, BRACKET ARM, AND BREAK-AWAY BASE

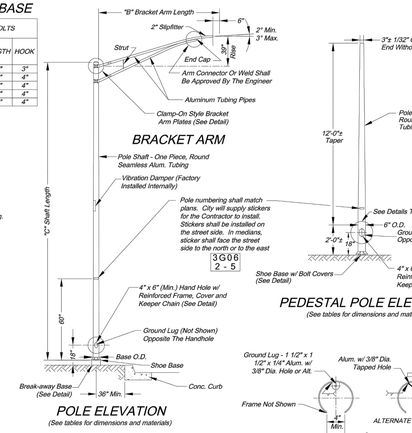
POLE TYPE	MOUNTING HEIGHT (A)	BRACKET ARMS LENGTH (B) ARM 1	BRACKET ARMS LENGTH (B) ARM 2	POLE SHAFT BASE O.D.	POLE SHAFT TOP O.D.	POLE SHAFT MIN. WALL THICKNESS	POLE SHAFT SHAFT LENGTH (C)	SHOE BASE BOLT CIRCLE (BC)	ANCHOR BOLTS DIAMETER	ANCHOR BOLTS LENGTH	ANCHOR BOLTS HOOK
P14	14'	---	---	8"	3"	0.156"	14'-0"	9.5"	0.75" 10NC	25"	3"
P30S	30'	6' or 10'	-	8"	6"	0.188"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"
P30D	30'	6' or 10'	6' or 10'	8"	6"	0.219"	26'-6" ±2"	11.0"	1.00" 8NC	36"	4"
P40S	40'	6', 10' or 15'	-	8"	6"	0.219"	36'-6" ±2"	11.5"	1.00" 8NC	36"	4"
P40D	40'	6', 10' or 15', 10' or 15'		10"	6"	0.219"	36'-6" ±2"	14.5"	1.00" 8NC	48"	4"

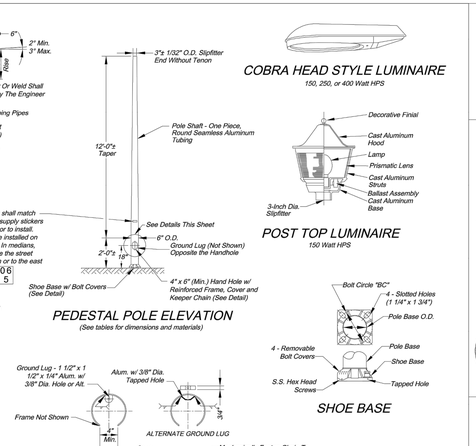
NOTES:
1. All poles, arms, and miscellaneous equipment shall conform to these details and as specified by the latest city standard specifications.
2. Pole shaft shall have a satin ground finish.
3. All hardware (bolts, nuts, washers but not including anchor bolts) not otherwise specifically designated in the specifications or details shall be 300-series stainless steel conforming to ASTM A193 or A194.
4. Anchor bolts shall be used with concrete bases. Anchor bolts shall be steel with 50,000 PSI minimum yield; top 10" min. galvanized; including 8 nuts and 8 flat washers galvanized to ASTM A153 standards. Galvanized hex head bolts (see pole foundation sheet) shall be used with screw-in anchor bases. 4 bolts, 4 nuts and 8 flat washers to provided with each anchor.
5. All welding is to be done with 4043 weld wire. All arms and shafts are to be heat-treated to T6 temper after welding.
6. Anchor bolts shall project above the concrete base as per manufacturer's recommended practices, 2 1/2" to 3".
7. The aluminum street light pole assembly, including anchorage and luminaire, shall comply with the latest city standard specifications and the American Association of State Highway and Transportation Officials (AASHTO) load wind loading.
8. All poles and arms shall be clearly identified by the manufacturer's name, abbreviation, or symbol engraved on the shaft, shoe base, hand hole, or other means such as to be readily visible after installation.

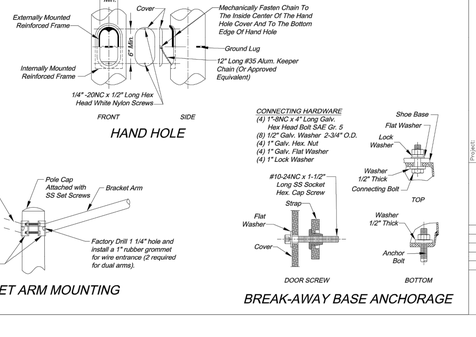
MATERIAL DATA

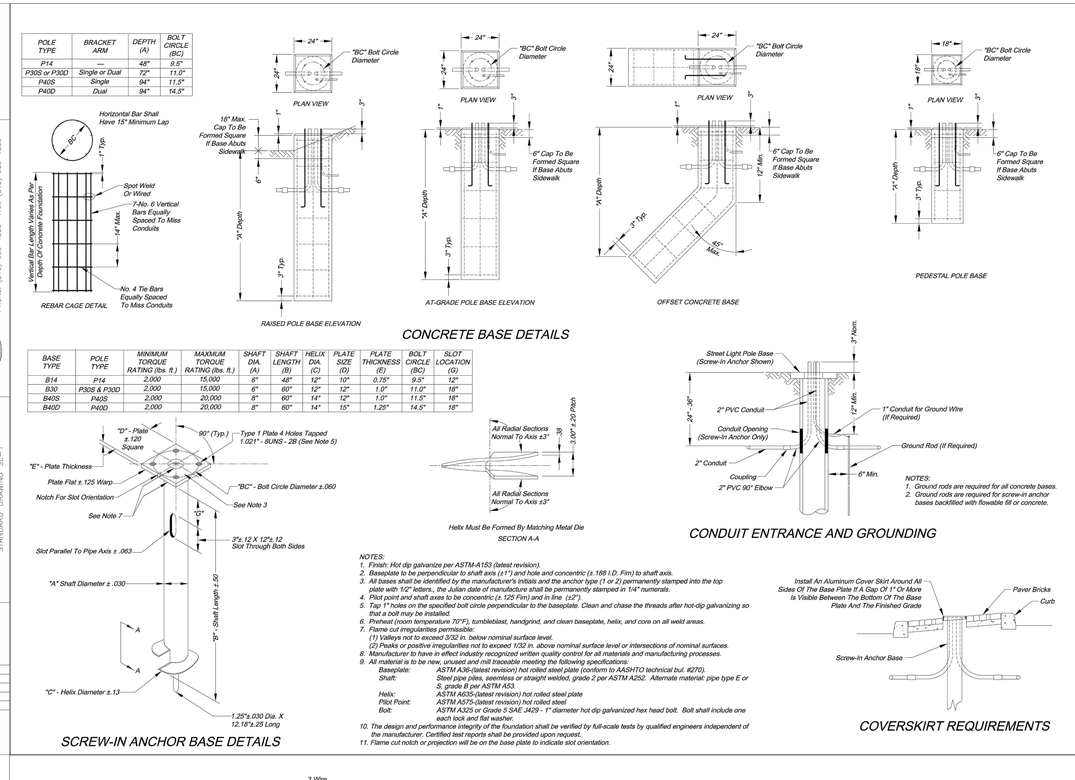
COMPONENT	ALUMINUM ALLOY DESIGNATION	SPECIFICATION
Shoe Base	356-T6, Cast	ASTM B26 or B108
Breakaway Base	356-T6, Cast	ASTM B108
Bolt Covers	356 or 360, Cast	ASTM B26 or B108
Pole Shaft	6063-T6, Extruded	ASTM B221 or B241
Ground Lug	6061-T5 or 6063-T6, Plate	ASTM B221
Reinforced Handhole Frame	356-T6 or 6061-T6	ASTM B26, B108 or B221
Handhole Cover	6063-T6	ASTM B209, B221 or B241
Bracket Arm & Tubing Pipes	6063-T6	ASTM B221, B241 or B249
Bracket Arm Mounting Plates	6061-T6 or 6063-T6 Extruded	ASTM B221
Bracket Arm Strut & Arm Connector	6061-T6 or 6063-T6 Extruded	ASTM B221, B241 or B249
Pole Cap	356, Cast	ASTM B26 or B108
Anchor Bolts	N/A	Galvanized per ASTM A153





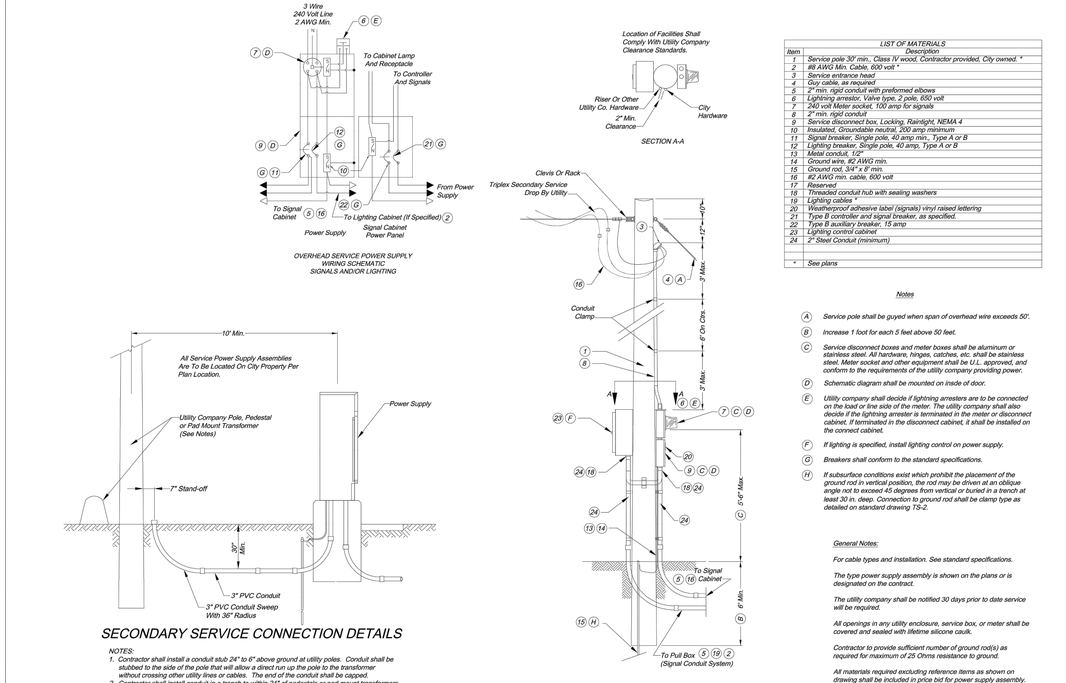






NOTES:
1. Finish: Hot dip galvanize per ASTM-A153 (latest revision).
2. Baseplate to be perpendicular to shaft axis (±1°) and hole and concentric (± 188 I.D. Fim) to shaft axis.
3. All bases shall be identified by the manufacturer's initials and the anchor type (1 or 2) permanently stamped into the top plate with 1/2" letters., the Julian date of manufacture shall be permanently stamped in 1/4" numerals.
4. Pilot point and shaft axes to be concentric (± 125 Fim) and in line (±2°).
5. Tap 1" holes on the specified bolt circle perpendicular to the baseplate. Clean and chase the threads after hot-dip galvanizing so that a bolt may be installed.
6. Preheat (room temperature 70°F), turnbleblast, handgrind, and clean baseplate, helix, and core on all weld areas.
7. Flame cut irregularities permissible:
   (1) Valleys not to exceed 3/32 in. below nominal surface level.
   (2) Peaks or positive irregularities not to exceed 1/32 in. above nominal surface level or intersections of nominal surfaces.
8. Manufacturer to have in effect industry recognized written quality control for all materials and manufacturing processes.
9. All material is to be new, unused and mill traceable meeting the following specifications:
   Baseplate: ASTM A36-(latest revision) hot rolled steel plate (conform to AASHTO technical bul. #270).
   Shaft: Steel pipe piles, seemless or straight welded, grade 2 per ASTM A252. Alternate material: pipe type E or S, grade B per ASTM A53.
   Helix: ASTM A635-(latest revision) hot rolled steel plate
   Pilot Point: ASTM A575-(latest revision) hot rolled steel
   Bolt: ASTM A325 or Grade 5 SAE J429 - 1" diameter hot dip galvanized hex head bolt. Bolt shall include one each lock and flat washer.
10. The design and performance integrity of the foundation shall be verified by full-scale tests by qualified engineers independent of the manufacturer. Certified test reports shall be provided upon request.
11. Flame cut notch or projection will be on the base plate to indicate slot orientation.

NOTES:
1. Ground rods are required for all concrete bases.
2. Ground rods are required for screw-in anchor bases backfilled with flowable fill or concrete.



LIST OF MATERIALS

Item	Description
1	Service pole 30' min., Class IV wood, Contractor provided, City owned. *
2	#8 AWG Min. Cable, 600 volt *
3	Service entrance head
4	Guy cable, as required
5	2" min. rigid conduit with preformed elbows
6	Lightning arrestor, Valve type, 2 pole, 650 volt
7	240 volt Meter socket, 100 amp for signals
8	2" min. rigid conduit
9	Service disconnect box, Locking, Raintight, NEMA 4
10	Insulated, Groundable neutral, 200 amp minimum
11	Signal breaker, Single pole, 40 amp min., Type A or B
12	Lighting breaker, Single pole, 40 amp, Type A or B
13	Metal conduit, 1/2"
14	Ground wire, #2 AWG min.
15	Ground rod, 3/4" x 8' min.
16	#2 AWG min. cable, 600 volt
17	Reserved
18	Threaded conduit hub with sealing washers
19	Lighting cables *
20	Weatherproof adhesive label (signals) vinyl raised lettering
21	Type B controller and signal breaker, as specified.
22	Type B auxiliary breaker, 15 amp
23	Lighting control cabinet
24	2" Steel Conduit (minimum)
*	See plans

Notes

(A) Service pole shall be guyed when span of overhead wire exceeds 50'.

(B) Increase 1 foot for each 5 feet above 50 feet.

(C) Service disconnect boxes and meter boxes shall be aluminum or stainless steel. All hardware, hinges, catches, etc. shall be stainless steel. Meter socket and other equipment shall be U.L. approved, and conform to the requirements of the utility company providing power.

(D) Schematic diagram shall be mounted on inside of door.

(E) Utility company shall decide if lightning arresters are to be connected on the load or line side of the meter. The utility company shall also decide if the lightning arrester is terminated in the meter or disconnect cabinet. If terminated in the disconnect cabinet, it shall be installed on the connect cabinet.

(F) If lighting is specified, install lighting control on power supply.

(G) Breakers shall conform to the standard specifications.

(H) If subsurface conditions exist which prohibit the placement of the ground rod in vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed on standard drawing TS-2.

General Notes:

For cable types and installation. See standard specifications.

The type power supply assembly is shown on the plans or is designated on the contract.

The utility company shall be notified 30 days prior to date service will be required.

All openings in any utility enclosure, service box, or meter shall be covered and sealed with lifetime silicone caulk.

Contractor to provide sufficient number of ground rod(s) as required for maximum of 25 Ohms resistance to ground.

All materials required excluding reference items as shown on drawing shall be included in price bid for power supply assembly.

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REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	8-14-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

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

LEON D. OSBOURN
ENGINEER
MO # 021726

POLE BASE DETAILS
STANDARD DRAWING SL-2

Drawn By: JH
Checked By: JW
Date: 08/21/2009
2 OF 5
2

POLE AND LUMINAIRE DETAILS
STANDARD DRAWING SL-1

Drawn By: JH
Checked By: JW
Date: 08/21/2009
1 OF 5
1

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jc@kveng.com | www.kveng.com
KAW VALLEY ENGINEERING, INC., IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY: MISSOURI STATE CERTIFICATE OF AUTHORITY # 000842.
EXPIRES 12/31/19

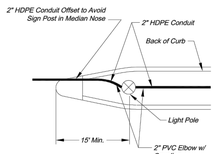
STREETS OF WEST PRYOR
NWQ NW PRYOR RD & NW LOWENSTEIN DR
LEE'S SUMMIT, MISSOURI

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
TRAFFIC SIGNAL & STREET LIGHT STANDARD CITY DETAILS

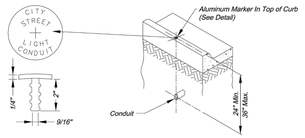
POWER SUPPLY ASSEMBLY 240/120 VOLT SERVICE
STANDARD DRAWING TS-9

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#
1 OF 1
1

PROJ. NO.	
A14_7067-1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067-1SIG_DET	
SHEET: 32	REV: 2

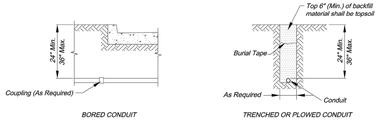


STREET LIGHT POLE IN MEDIAN



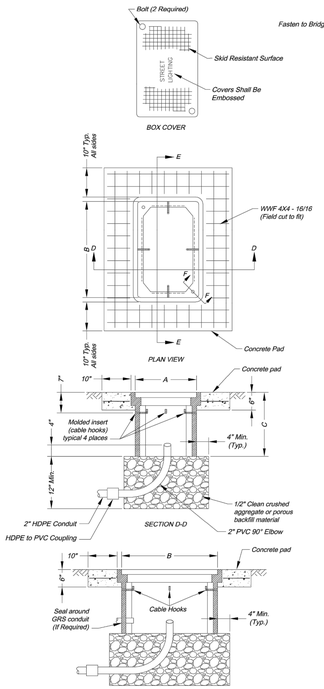
CONDUIT MARKING DETAIL

NOTES:
1. An aluminum marker shall be placed in the top of the curb directly over the conduit.
2. Markers shall be installed by drilling the curb and expoxying the marker in place. If installed in a sidewalk or curb ramp, the top of the marker shall be flush with the concrete surface.
3. No direct payment shall be made for conduit markers; they are subsidiary to the installation of conduit.

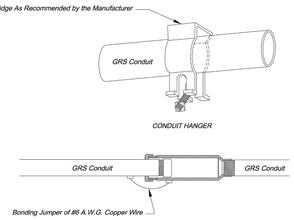


CONDUIT LOCATIONS

NOTES:
1. Backfill under paved surfaces shall be flowable fill.
2. The conduit shall not be covered unless inspected and approved by the City Engineer, so as to ensure proper depth, correct conduit material, and proper conduit end treatment.



PULL OR JUNCTION BOX DETAILS



GRS CONDUIT DETAILS

NOTES:
1. All conduits installed above ground shall be GRS.
2. Conduit attached to bridges shall have expansion fittings installed at each end of the bridge and at each expansion joint on the bridge.
3. All GRS conduits shall be electrically bonded by a grounding bushing and ground wire as detailed.
4. Install the conduit and connector assembly to permit a 1/2" minimum longitudinal travel in either direction.

Number of Entering/Exiting Conduits	Box Type	Minimum Box Dimensions		
		A	B	C
1 - 2	Type 1 Junction Box	12"	12"	12"
3 - 4	Type 2 Junction Box	12"	18"	12"
> 4	Class 1 Pull Box	17"	30"	22"

All dimensions shown are nominal

NOTES:
1. Lift opening required on all covers.
2. Preformed box walls may be either flared or vertical. The bottom of boxes shall be open to below.
3. If an extension is used with a preformed box, the lip of the extension may be interior or exterior. The extension shall be compatible and from the same manufacturer.
4. Cable hooks are to be included with Class 1 Pull Boxes only.
5. A Class 1 Pull Box shall be installed adjacent to each 4-Circuit Power Supply.

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
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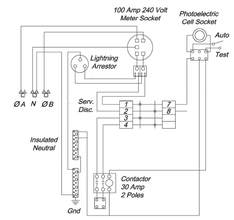
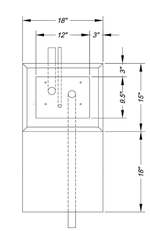
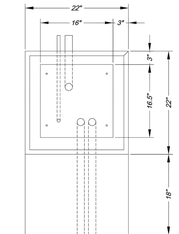
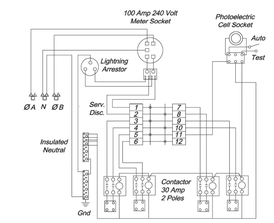
Project:
BOX AND CONDUIT DETAILS
STANDARD DRAWING SL-3
Sheet Name:
Drawn By: JH
Checked By: JW
Date: 08/21/2009
3 OF 5
3

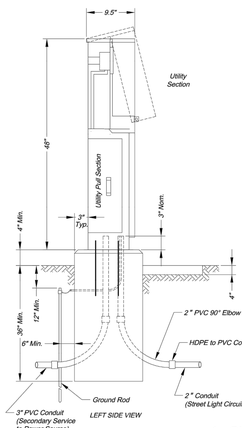


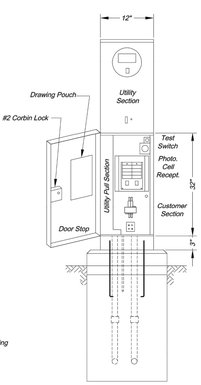


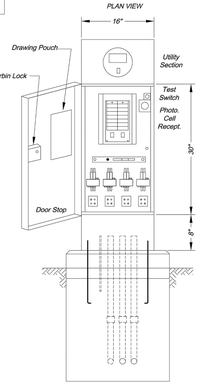
FUSED CONTACTORS ARE NOT PERMITTED

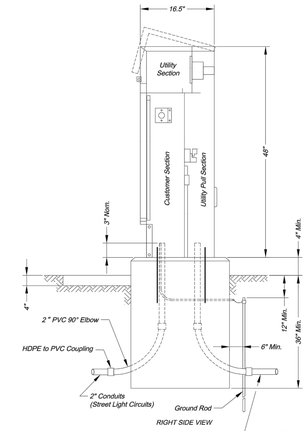












1 - CIRCUIT POWER SUPPLY

4 - CIRCUIT POWER SUPPLY

NOTES:
1. Photoelectric cell should be oriented to the north or east.
2. Seal around joint between cabinet and base with lifetime silicone caulk.
3. All exposed edges of the base should have a 1" chamfer
4. If base is adjacent to a traffic signal controller, raised portion of base (above finished grade) should be constructed to the same height as the signal controller base.
5. The street address with the power supply number below it should be labeled on the upper portion of the cabinet facing the street. The City will supply stickers for the Contractor to install.

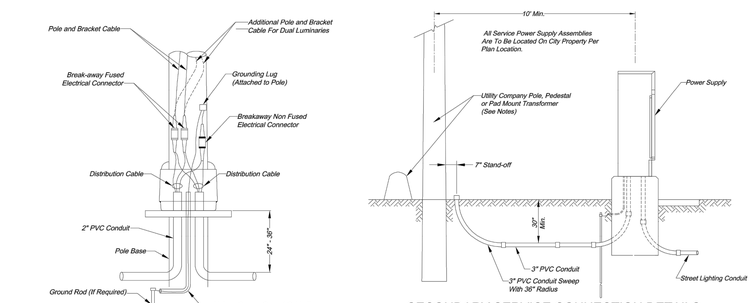
CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
POWER SUPPLY DETAILS
STANDARD DRAWING SL-4
Sheet Name:
Drawn By: JH
Checked By: JW
Date: 08/21/2009
4 OF 5
4

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	8-14-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

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

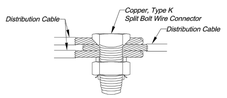
LEON D. OSBOURN
ENGINEER
MO # 021726



POLE WIRING DETAILS

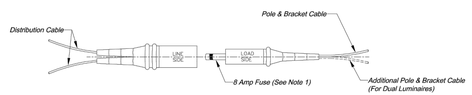
SECONDARY SERVICE CONNECTION DETAILS

NOTES:
1. Contractor shall install a conduit stub 24" to 6" above ground at utility poles. Conduit shall be stubbed to the side of the pole that will allow a direct run up the pole to the transformer without crossing other utility lines or cables. The end of the conduit shall be capped.
2. Contractor shall install conduit in a trench to within 24" of pedestals or pad mount transformers and leave a 36" x 36" x 36" access hole in the ground. Contractor shall keep open trench covered and promptly backfill access hole when service is completed.

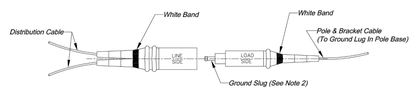


SPLICE KIT DETAILS

NOTES:
1. To be used only in junction or pull boxes where circuits branch or "tee".
2. All splices shall be protected with a resin splice kit (not shown) installed in accordance with the manufacturer's recommendations.

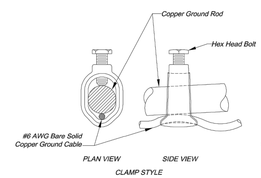


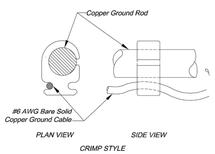
BREAK-AWAY FUSED ELECTRICAL CONNECTORS



BREAK-AWAY NON FUSED ELECTRICAL CONNECTOR

NOTES:
1. Fuse remains in "Load Side" after break-away.
2. Ground "Slug" remains in "Load Side" after break-way.
3. Connectors shall have set screw type terminals to attach cables.





GROUND ROD CONNECTION DETAILS

EXTENSIVE REVISIONS 1

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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

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
ELECTRICAL DETAILS
STANDARD DRAWING SL-5
Sheet Name:
Drawn By: JH
Checked By: JW
Date: 08/21/2009
5 OF 5
5

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
STREET LIGHT STANDARD CITY DETAILS

PROJ. NO.	
A14_7067-1	
DESIGNER: LDO	DRAWN BY: JT/BKR
CFN: 7067-1SIG_DET	
SHEET: 33	REV: 1

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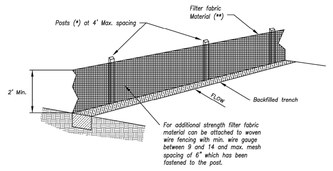
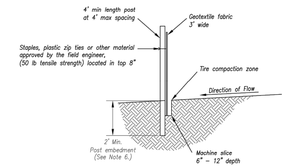


(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 9/16" x 1 9/16"
- NO.2 SOUTHERN PINE 2 9/16" x 2 9/16"
- STEEL 1.33 LB/FT

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



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.

SILT FENCE DETAILS
Not to Scale

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.

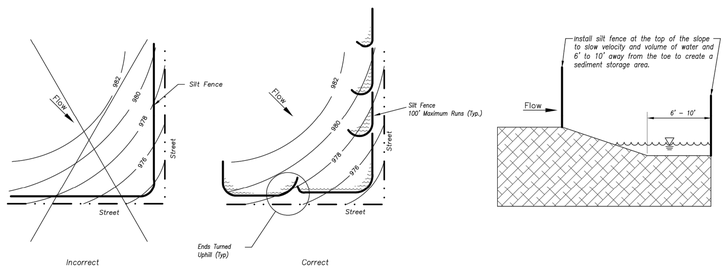
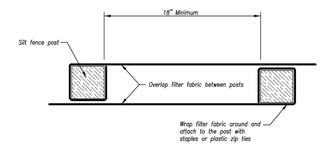


Figure A

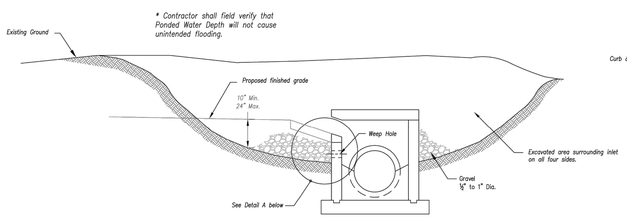
SILT FENCE LAYOUT
Not to Scale

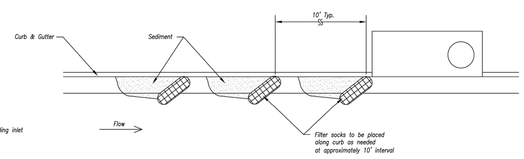


JOINING FENCE SECTIONS
Not to Scale

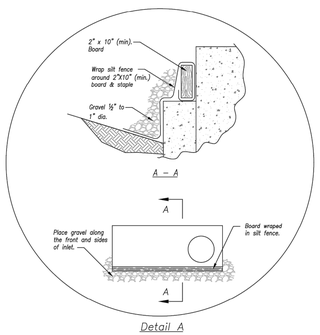
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SILT FENCE
STANDARD DRAWING NUMBER ESC-03
ADOPTED: 10/24/2016



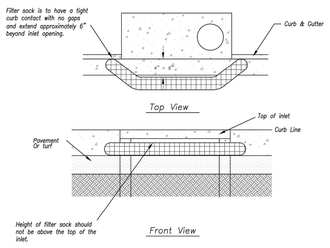


On Grade Curb Inlet Protection



Detail A

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



Sump Inlet Sediment Filter

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.

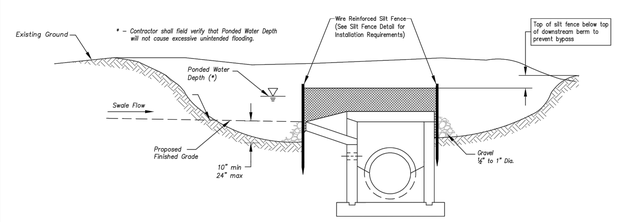
Maintenance:

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.

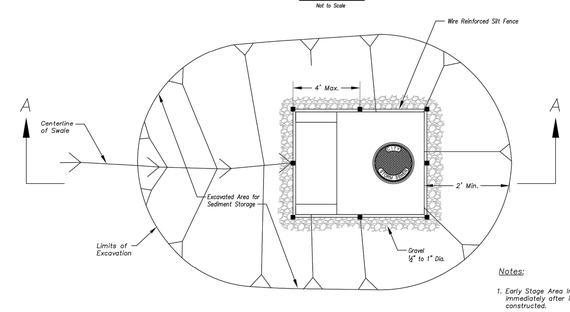
LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

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

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION
STANDARD DRAWING NUMBER ESC-06
ADOPTED: 10/24/2016



Section A–A
Not to Scale

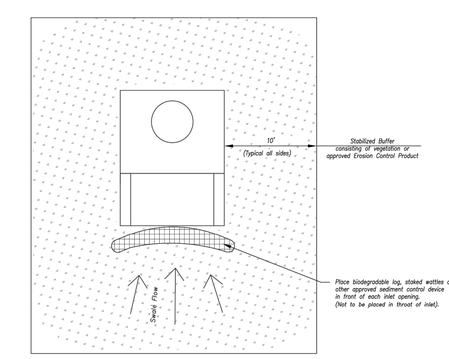


Plan
Not to Scale

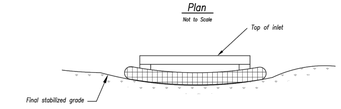
EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)

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.

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

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION
STANDARD DRAWING NUMBER ESC-07
ADOPTED: 10/24/2016

EXTENSIVE REVISIONS 1

REV	DATE	DESCRIPTION	DSN	DWN	CHK
1	8–14–19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5–23–19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER E-21726
REGISTERED PROFESSIONAL ENGINEER
8/14/19

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
JUNCTION CITY, KANSAS 66441
PH. (785) 762-5644 FAX (785) 762-7744
jc@kvweng.com | www.kvweng.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

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
EROSION CONTROL DETAIL SHEET

PROJ. NO.	A14_7067–1	
DESIGNER	LDO	DRAWN BY JT/BKR
CFN	7067–1SIG_DET	
SHEET	34	REV 1

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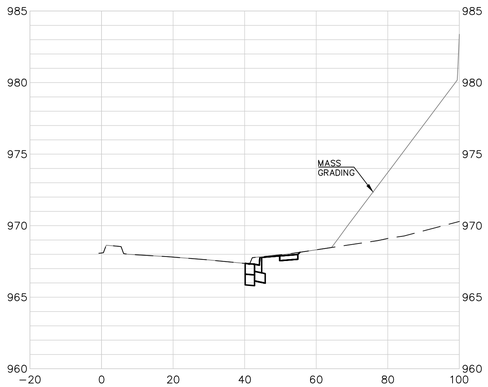
500+50.00



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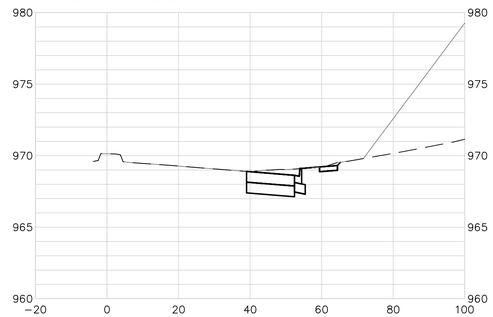

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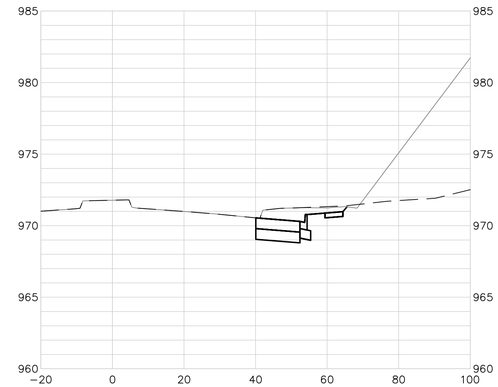

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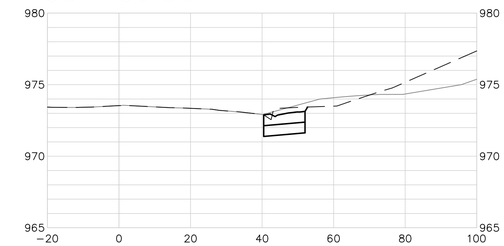

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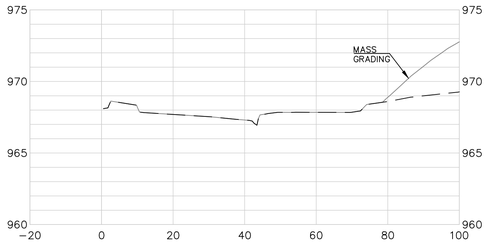

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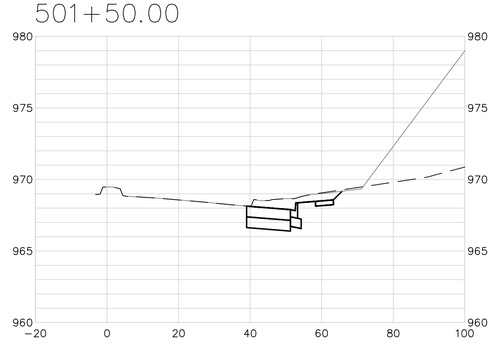

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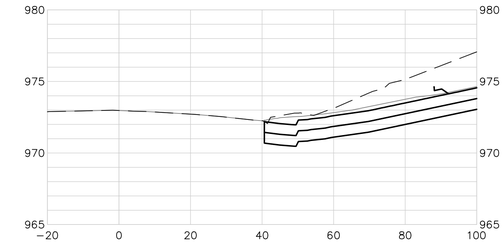

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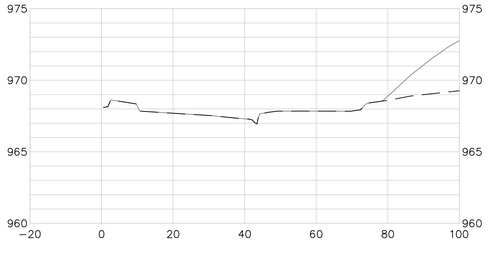

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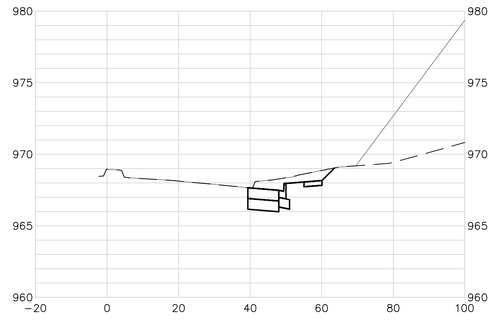

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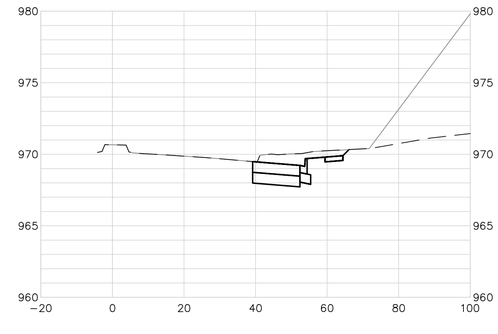

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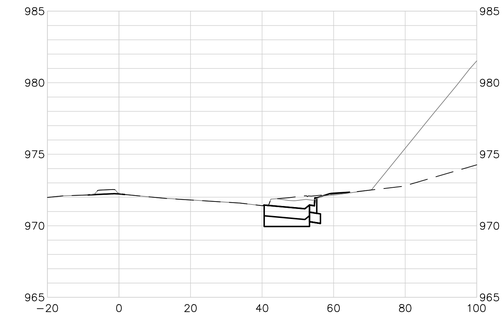

SCALE:
1"=20' HORIZ.
1"=5' VERT.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
7-2-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
ENGINEER
MO # 021726

2319 N. JACKSON | P.O. BOX 1304
KANSAS CITY, KANSAS 66117
PH. (785) 762-5041 | FAX (785) 762-7744
jc@kveng.com | www.kveng.com

KAW VALLEY ENGINEERING

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EXPIRES 12/31/19

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

NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR ROAD - CROSS-SECTIONS

PROJ. NO.	A14_7067-1
DESIGNER	LDO
DRAWN BY	JT/BKR
CFN	7067-1SIG_STPP
SHEET	36
REV	0

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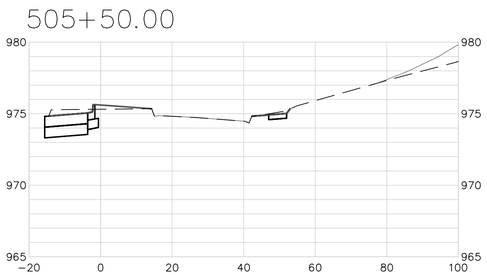

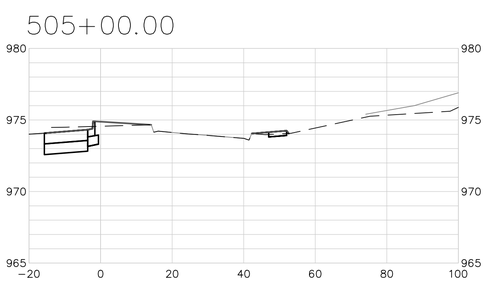

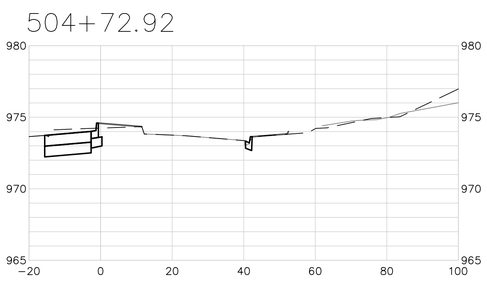

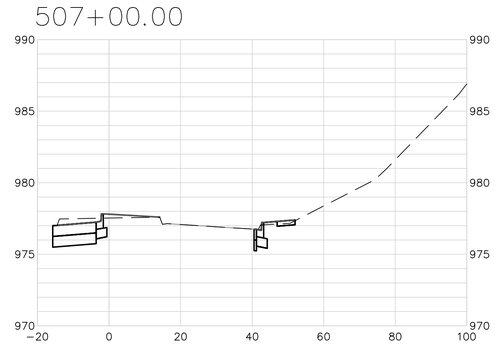

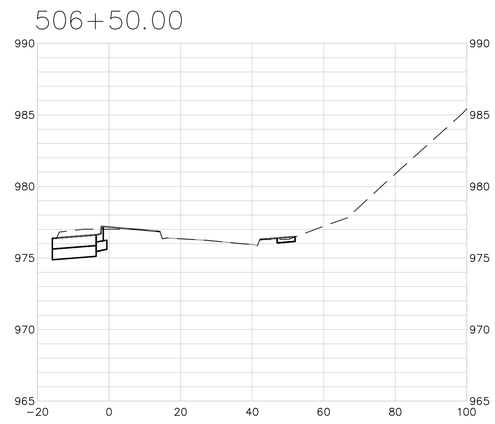

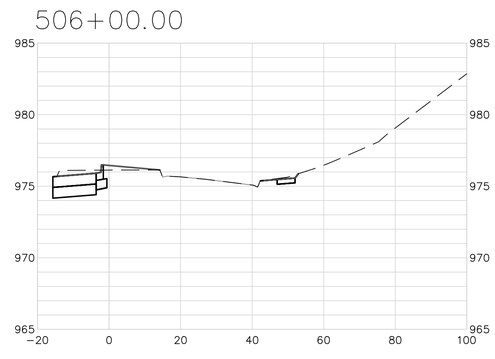

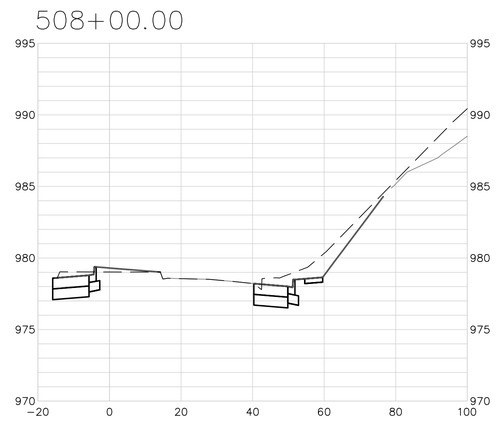

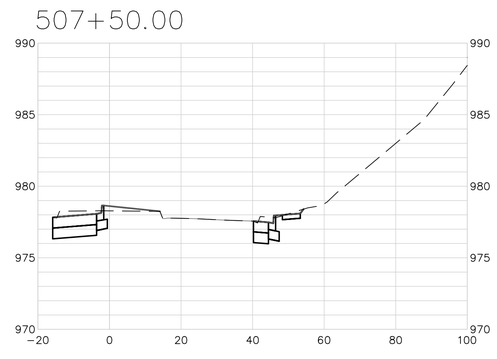

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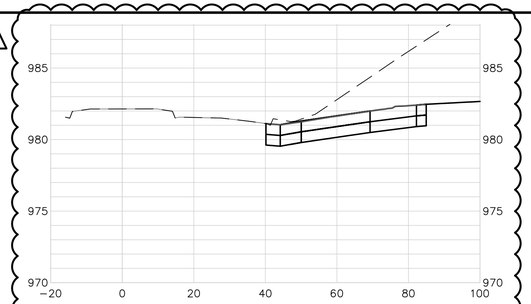

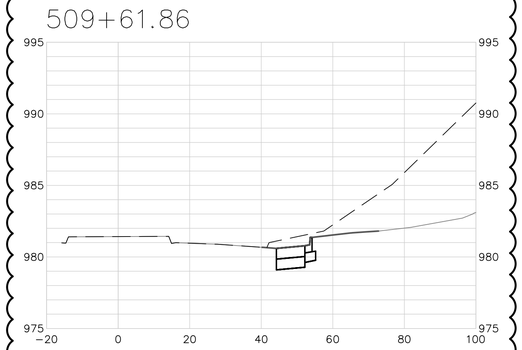

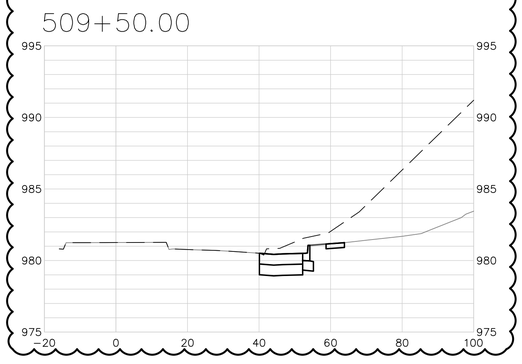

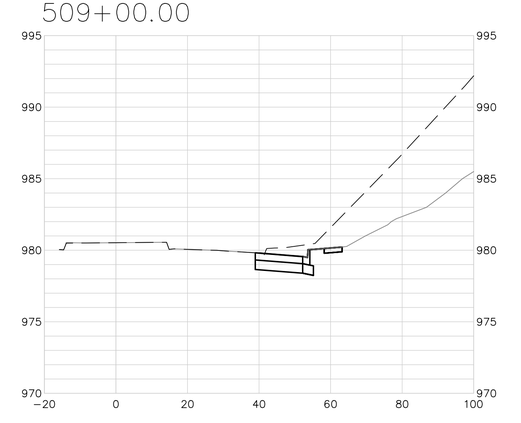

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1"=5' VERT.

REV	DATE	DESCRIPTION	DSN	DWN	CHK
2	10-3-19	REVISED PER CITY COMMENTS	LDO	BKR	LDO
1	7-2-19	REVISED PER CITY COMMENTS	LDO	JT	LDO
0	5-23-19	INITIAL ISSUE	LDO	JT	LDO

STATE OF MISSOURI
LEON D. OSBOURN
NUMBER
E-21726
10-3-19
REGISTERED PROFESSIONAL ENGINEER

LEON D. OSBOURN
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NW PRYOR RD SIGNAL IMPROVEMENTS AND LANE WIDENING
NW PRYOR ROAD - CROSS-SECTIONS

PROJ. NO.	
A14_7067-1	
DESIGNER	DRAWN BY
LDO	JT/BKR
CFN	
7067-1SIG_STPP	
SHEET	REV
37	2

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