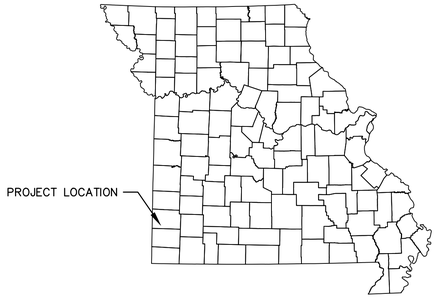
STORMWATER IMPROVEMENTS FOR 7TH STREET AND CANTERBURY LANE

SECTION 06, TOWNSHIP 27N, RANGE 32W

CITY OF JOPLIN

JASPER COUNTY, MISSOURI

PROJECT NO. K17-0642



LEGEND

SURVEY CONTROL POINT		TRAFFIC SIGNAL BOX	TS
SURVEY BENCHMARK		TRAFFIC SIGNAL MANHOLE	TS
SURVEY TEMPORARY BENCHMARK		TRAFFIC SIGNAL POLE W/ ARM	
GAS METER	GM	TRAFFIC SIGNAL POLE	
GAS RISER		TRAFFIC SIGNAL CONTROL BOX	TC
GAS MANHOLE	G	TRAFFIC SIGNAL PEDESTAL	TS
GAS REGULATOR		ELECTRIC MANHOLE	E
TELEVISION PEDESTAL	TVP	ELECTRIC METER	EM
FIBER BOX	F	ELECTRIC RISER	ER
FIBER PEDESTAL	F	ELECTRIC BOX	E
CABLE BOX	C	ELECTRIC CABINET	
CABLE VAULT	CV	ELECTRIC JUNCTION BOX	J
TELEPHONE PEDESTAL	TP	SPRINKLER HEAD	
STORM MANHOLE	S	SPRINKLER CONTROL VALVE	
STORM GRATE		WATER METER PIT	
SANITARY MANHOLE	S	FIRE HYDRANT	
YARD LIGHT		WATER METER	WM
LIGHT POLE		WATER VALVE	
POWER POLE		FLAG POLE	
POWER POLE W/ LIGHT		SIGN	
GUY WIRE		BOLLARD	
STUMP		WOOD POST	
BUSH		STEEL POST	
EVERGREEN TREE		COLUMN	
DECIDUOUS TREE		BORE HOLE	

LOT LINE		PAVEMENT REMOVAL	
PROPERTY LINE		FLUME REMOVAL	
CENTER LINE		RIPRAP	
ROW LINE		SANITARY SEWER ENCASEMENT	
CONSTRUCTION FENCE	CF	BUILDING	
LIMITS OF GRADING	LOG	CONCRETE LINED CHANNEL	
EXISTING EASEMENT		PAVEMENT REPAIR	
PROPOSED EASEMENT			
EXISTING MINOR CONTOUR	1371		
EXISTING MAJOR CONTOUR	1370		
FUTURE MINOR CONTOUR	1371		
FUTURE MAJOR CONTOUR	1370		
EXISTING TELEPHONE RISER	T		
EXISTING TELEPHONE LINE	TEL		
EXISTING FIBER OPTICS LINE	FO		
EXISTING SANITARY LINE	SS		
EXISTING STORM LINE	SD		
EXISTING GAS LINE	G		
EXISTING WATER LINE	W		
EXISTING BOARD FENCE			
EXISTING BARB WIRE FENCE			
EXISTING OVERHEAD ELECTRIC	P-OH		
EXISTING UNDERGROUND ELECTRIC	UGE		
LIMITS OF CONSTRUCTION	LOC		
REMOVE UPRIGHT CURB AND GUTTER			
CURB FACE			
BACK OF CURB			
PROPOSED STORM SEWER			



BENCHMARK

BM #8
CUT SQUARE IN CURB
N: 334227.22
E: 2796685.68
ELEV. = 1030.26

BM #12
CUT SQUARE IN INLET
N: 335380.60
E: 2797345.84
ELEV. = 1004.44

CONTROL POINTS

CP #23 CTL 60D
N: 334895.02
E: 2797501.23

CP #1366 CTL 60D
N: 335257.76
E: 2797370.53

CP #1652 CTL 60D
N: 334110.28
E: 2796706.38

MISSOURI ONE CALL SYSTEM
1-800-DIG-RITE OR 811
www.mo1call.com

THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1-800-DIG-RITE", AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!!

N

0' 50' 100' 200'
SCALE IN FEET

INDEX

1. COVER SHEET
2. GENERAL NOTES
3. DEMOLITION PLAN
4. EROSION CONTROL
5. EASEMENT PLAN
6. PLAN AND PROFILE – STORM LINE 100
7. PLAN AND PROFILE – STORM LINE 120 AND 200
8. PLAN AND PROFILE – NORTHPARK LANE CULVERT
9. ALIGNMENT TABLE
10. PLAN AND PROFILE – DRAINAGE DITCHES
11. PLAN AND PROFILE – RETAINING WALLS
12. CONCRETE DRAINAGE DITCH CROSS SECTIONS
13. DRAINAGE AREA AND CALCULATIONS SUMMARY

14.–16. DETAILS

17.–22. TRAFFIC CONTROL

UTILITY COMPANIES:

ELECTRIC
LIBERTY
3400 S. KODIAK RD, JOPLIN, MO 64804
BRYAN HARP
417-625-5100

WATER
MISSOURI AMERICAN WATER COMPANY
2323 DAVIS BLVD, JOPLIN, MO 64804
JOHNNY SHEPARD
417-627-3800

SANITARY SEWER
CITY OF JOPLIN
602 S MAIN ST, JOPLIN, MO 64801
CHRIS PARKER
417-624-0820 EXT 584

GAS
SPIRE MO WEST
520 E 5TH ST, JOPLIN, MO 64801
KEN STEGALL
417-626-4831

SOUTHERN STAR CENTRAL GAS
6300 S RANGELINE RD, JOPLIN, MO 64804
MIKE DEGRAEVE
913-422-6341

COMMUNICATIONS
ATT DISTRIBUTION
321 W 8TH ST, JOPLIN, MO 64801
JON FISK
417-529-0840

SPARKLIGHT
2600 DAVIS BLVD, JOPLIN, MO 64804
RANDY KENNEDY
417-206-5399

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
digitally signed by Aaron Boll
Date: 2022.06.24 10:13:00 -05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

COVER SHEET AND LOCATION MAP

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_TTL01_K170642
date: 06.24.2022

SHEET
1 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_TTL01_K170642.dwg
DATE: Jun 24, 2022 12:00pm
XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XTOP0_K170642
USER: aboll

GENERAL NOTES

1. ALL WORK PRESENTED, IMPLIED, AND/OR COMPLETED AS A PART OF THIS PLAN SET SHALL CONFORM TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS OF THE CITY OF JOPLIN UNLESS SPECIFICALLY STATED OTHERWISE. ALL ITEMS AND WORK REFERENCING MODOT OR MODOT STANDARD DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS (APPROVED BY CITY OF JOPLIN) AND ONE (1) COPY OF ALL APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS ON THE SITE AT ALL TIMES.
2. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1-800-DIG-RITE", 1(800)344-7483, AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!
3. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE CITY OF JOPLIN AND PROJECT ENGINEER. OLSSON IS THE PROJECT ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL PERMITS AND PAY ALL FEES AS REQUIRED BY THE CONSTRUCTION COVERED IN THESE PLANS.
5. ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE CITY OF JOPLIN OR THE CITY OF JOPLIN'S REPRESENTATIVE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING GENERAL SAFETY AT AND ADJACENT TO THE PROJECT AREA, INCLUDING THE PERSONAL SAFETY OF THE CONSTRUCTION CREW AND THE GENERAL PUBLIC AND THE SAFETY OF PUBLIC AND PRIVATE PROPERTY.
7. THE JOB SITE SHALL BE A DRUG FREE WORK PLACE, CONSUMPTION OF ALCOHOLIC BEVERAGES ON THE JOB SITE IS STRICTLY PROHIBITED.
8. ALL SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE 2011 PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY.
9. THE CONTRACTOR SHALL PROVIDE ADEQUATE TRAFFIC CONTROL IN ACCORDANCE WITH CURRENT MODOT STANDARDS AND SPECIFICATIONS.
10. ALL ELEVATIONS ARE TO NORTH AMERICAN VERTICAL DATUM (N.A.V.D. 1988).
11. PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER TO DO A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.
12. THE CONTRACTOR SHALL SUBMIT WRITTEN REQUEST TO THE PROJECT ENGINEER FOR APPROVAL OF ALL AREAS TO BE USED FOR STAGING, MOBILIZATION, EQUIPMENT AND MATERIAL STORAGE AND GENERAL PROJECT CONSTRUCTION MANAGEMENT. REQUEST SHALL BE SUBMITTED TO THE PROJECT ENGINEER WITHIN 5 DAYS OF THE NOTICE TO PROCEED.
13. NO EQUIPMENT OR MATERIAL SHALL BE DEPOSITED ON PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGES RESULTING FROM SUCH ACTS AND SHALL REMOVE THE MATERIAL AND RESTORE THE PROPERTY AT THE EXPENSE OF THE CONTRACTOR.
14. CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO THE HOURS OF 7:00 AM TO 7:00 PM UNLESS APPROVED OR DIRECTED BY THE PROJECT ENGINEER.
15. THE CITY OF JOPLIN SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL DEMOLITION AND REMOVAL ITEMS SUCH AS SIGNAGE, POLES, SIGNAL EQUIPMENT, ETC. THE CONTRACTOR SHALL COORDINATE WITH PUBLIC WORKS FOR A TIME AND LOCATION TO DELIVER THOSE ITEMS TO THE CITY. CONSTRUCTION DEBRIS SUCH AS BROKEN CONCRETE, EXCESS FILL, ETC. SHALL BECOME THE PROPERTY OF THE CONTRACTOR. MATERIAL SHALL BE COMPLETELY REMOVED FROM THE SITE PER CITY OF JOPLIN REQUIREMENTS PRIOR TO ACCEPTANCE OF THE PROJECT. ALL MATERIAL SHALL BE DISPOSED OF IN A MANNER THAT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
16. UNLESS SPECIFICALLY STATED OTHERWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL EXISTING METERS, VALVES, VALVE BOXES, BUILDING DRAINS, STORM AND SANITARY MANHOLES, ETC., TO MATCH FINISHED GRADE. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL SANITARY SERVICE LINES WHERE REQUIRED TO MAINTAIN CONTINUOUS SERVICE. THE CONTRACTOR SHALL CONTACT MISSOURI AMERICAN WATER TO COORDINATE THE ADJUSTMENT OF EXISTING WATER FACILITIES.
17. THE CONTRACTOR SHALL PROTECT EXISTING RIGHT-OF-WAY AND SURVEY MONUMENTS. ANY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI.
18. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER WITH A SCHEDULE OF OPERATIONS AT THE BEGINNING OF EACH WEEK.
19. THE CONTOUR LINES & SPOT ELEVATIONS SHOWN ARE TO FINISH GRADE FOR SURFACE OF PAVEMENT, TOP OF SIDEWALKS AND CURBS, TOP OF FLOOR SLABS, ETC. REFER TO TYPICAL SECTIONS AND DETAILS FOR SLAB AND AGGREGATE BASE THICKNESS TO DEDUCT FOR GRADING LINE ELEVATIONS.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PUBLIC STREETS IN THE VICINITY OF THE JOB SITE CLEAN AND FREE OF ROCKS, SOIL AND DEBRIS. CLEAN STREETS OF CONSTRUCTION DEBRIS DAILY.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE CITY OF JOPLIN ACCEPTS THE WORK AS COMPLETE. THE CONTRACTOR SHALL UTILIZE AND COMPLY WITH ALL REQUIREMENT OF THE CITY OF JOPLIN'S LAND DISTURBANCE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). ALL EROSION AND SEDIMENT CONTROL PLANS SHALL BE INCORPORATED IN THE SWPPP. CONTRACTOR SHALL MAINTAIN THE SWPPP THROUGHOUT THE PROJECT AND COMPLETE THE REQUIRED DOCUMENTATION UNTIL THE SITE IS STABILIZED AND ACCEPTED BY THE PROJECT ENGINEER.
22. CONSTRUCTION ACCESS TO THE SITE SHALL BE LIMITED TO THE APPROVED TEMPORARY CONSTRUCTION ENTRANCE(S) AT THE EXIT OF THE WORK SITE AS DETERMINED BY THE CONTRACTOR. TEMPORARY CONSTRUCTION ENTRANCE SHALL HAVE SHOT ROCK FOR ITS SURFACE. THE CONTRACTOR SHALL UPDATE SWPPP FOR EACH PHASE OF THE PROJECT TO SHOW THE LOCATION OF TEMPORARY CONSTRUCTION ENTRANCE AND CONCRETE CLEAN OUT.
23. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE ENTIRE CONSTRUCTION PERIOD BY THE CONTRACTOR.
24. CONTRACTOR TO PROTECT ANY STORM INLETS FROM SEDIMENT THAT TAKE STORM WATER FROM THE AREA OF CONSTRUCTION.
25. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLAN.
26. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING BERMS, SILT FENCES, OR OTHER MEANS TO PREVENT ERODED MATERIALS FROM REACHING ADJACENT PROPERTIES. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS, SILT, OR MUD AND RESTORE THE PROPERTIES TO ORIGINAL OR BETTER CONDITION.
27. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL PROCEDURES SHALL BE IN PLACE PRIOR TO BEGINNING GRADING ACTIVITIES.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SEDIMENT CONTROL BARRIERS DURING CONSTRUCTION OR UNTIL THEY ARE RELEASED FROM THIS RESPONSIBILITY BY THE PROJECT ENGINEER.
29. THE CONTRACTOR SHALL CLEAN OUT ALL EXISTING AND PROPOSED INLETS, PIPES AND MANHOLES OF DEBRIS AND SEDIMENTATION AT COMPLETION OF SITEWORK. THIS WORK SHALL BE DONE TO THE SATISFACTION OF THE CITY OF JOPLIN & PROJECT ENGINEER.
30. STRIPPINGS ARE TO BE STOCKPILED. FOLLOWING THE COMPLETION OF THE GRADING, THIS TOPSOIL SHALL BE USED AS FILL MATERIAL ON AREAS BETWEEN THE SIDEWALK AND BACK OF CURB. IF STOCKPILE IS INACTIVE FOR MORE THAN 14 DAYS, STABILIZE OR PROTECT THE PERIMETER AS PER CITY OF JOPLIN "EROSION AND SEDIMENT CONTROL GUIDELINES".
31. ALL HERBACEOUS VEGETATION SHALL BE REMOVED FROM WITHIN THE LIMITS OF THE GRADING AND REDISTRIBUTED WITH THE TOPSOIL.
32. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN IN THE PLANS, NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL EXCEPT WHERE NOTED ON THE PLANS.
33. ALL BACK FILL SHALL BE TAMPED. BACK FILL WITHIN THE RIGHT-OF-WAY SHALL BE COMPACTED TO 95% MAX. DENSITY AS PER ASTM-D698 (STANDARD PROCTOR COMPACTION).
34. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY DUE TO ACTUAL LOCATION OF EXISTING FACILITIES.
35. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN WITHIN THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIRS OF SUCH STRUCTURES WHEN BROKEN OR OTHERWISE DAMAGED BY CONSTRUCTION ACTIVITIES.
36. ALL TRENCHING SHALL BE IN ACCORDANCE WITH SECTION 1700 OF THE JOPLIN STANDARD SPECIFICATIONS. NO SEPARATE MEASUREMENTS AND PAYMENT WILL BE MADE FOR TRENCH EXCAVATION AND BACKFILL REQUIRED FOR STORM SEWER CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF MATERIAL FROM STORM SEWER TRENCHING.
37. CONTRACTOR SHALL PROTECT ALL EXISTING BUILDINGS DURING CONSTRUCTION. PRIOR TO BEGINNING THE CONTRACTOR SHALL COLLECT CONSTRUCTION PHOTOS/VIDEOS OF ALL EXISTING STRUCTURES TO DOCUMENT EXISTING STRUCTURE CONDITIONS.
38. CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE CONVEYANCE DURING CONSTRUCTION.
39. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL PRECAST CONCRETE STRUCTURES AND PIPE FOR REVIEW AND APPROVAL BY THE PROJECT ENGINEER. THE SHOP DRAWINGS MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MISSOURI. THE CONTRACTOR MUST RECEIVE APPROVAL OF THE SUBMITTED SHOP DRAWINGS PRIOR TO FABRICATION. FAILURE TO DO SO SHALL BE CAUSE FOR REJECTION.
40. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO ALL BUSINESSES AT ALL TIMES IN ACCORDANCE WITH THE CITY OF JOPLIN, ADA, PROWAG, AND MUTCD REQUIREMENTS, INCLUDING TEMPORARY ACCESS AND SAFETY REQUIREMENTS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. THIS ITEM IS SUBSIDIARY TO OTHER BID ITEMS.
41. NO EQUIPMENT, MATERIALS, AND/OR DEBRIS SHALL BE STORED WITHIN THE TREE DRIPLINE (IN ALL DIRECTIONS).
42. NO PRUNING SHALL BE PERFORMED EXCEPT BY OR IN THE PRESENCE OF AN APPROVED LICENSED ARBORIST.
43. ALL STORM SEWER PIPE LENGTHS ARE MEASURED FROM THE INSIDE FACE OF THE DOWNSTREAM STRUCTURE TO THE INSIDE FACE OF UPSTREAM STRUCTURE ALONG THE CENTERLINE, (FOR BIDDING AND PAYMENT PURPOSE ONLY)
44. THE LOCATION POINT FOR ALL STORM SEWER STRUCTURES SHALL BE CENTER OF STRUCTURE AND ALL DIMENSIONS AS ARE INSIDE OF STRUCTURE WIDTHS AS INDICATED ON PLAN SHEETS.
45. DOUBLE INLETS TO HAVE OPENING ALLOWING DRAINAGE BETWEEN THE TWO STRUCTURES, OPEN AREA TO BE GREATER THAN OR EQUAL TO DOWNSTREAM OPENING AREA.
46. COMPACTED FILL QUANTITY IS THE NET FILL VOLUME CALCULATED FROM THE EXISTING GRADE SURFACE TO THE FINISHED GRADE SURFACE AND DOES NOT INCLUDE SUBTRACTION FOR GRANULAR BACKFILL, WINGWALLS, STORM SEWER, CURB AND GUTTER, SEGMENTAL RETAINING WALL BLOCKS, ETC.
47. ALL CITY OF JOPLIN STANDARD DETAILS ARE TO BE USED UNLESS STATED OTHERWISE IN THE PLANS, SPECIFICATIONS, OR DIRECTED BY THE PROJECT ENGINEER. A COPY OF THE CITY OF JOPLIN STANDARD DETAILS ARE LOCATED IN THE SPECIFICATION APPENDIX.

BASE BID QUANTITIES

ITEM NO.	DESCRIPTION	NO. UNITS	UNIT TYPE
1	MOBILIZATION & BONDING	1	LS
2	EROSION CONTROL & SITE CLEANUP	1	LS
3	CLEARING, GRUBBING, & DEMOLITION	1	LS
4	UNCLASSIFIED EXCAVATION	250	CY
5	ON-SITE FILL	250	CY
6	IMPORTED FILL	230	CY
7	TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL	100	CY
8	CONCRETE PAVEMENT REPAIR	584	SY
9	SEGMENTAL BLOCK RETAINING WALL	633	SFF
10	15" RCP	214	LF
11	18" RCP	100	LF
12	24" RCP	308	LF
13	TWIN 7' X 5' RCB	97	LF
14	WINGWALLS AND APRON	2	EA
15	TYPE D CURB INLET (7' X 3')	7	EA
16	JUNCTION BOX (4' X 4')	1	EA
17	24" FLARED END SECTION WITH TOEWALL	1	EA
18	JOPLIN STANDARD 1/4 TON ROCK BLANKET	130	SY
19	CONCRETE LINED CHANNEL	97	SY
20	CONCRETE CURB & GUTTER	372	LF
21	SEEDING	1.14	AC
22	TRAFFIC CONTROL	1	LS
23	SANITARY SEWER ENCASEMENT	106	LF

olsson
www.olsson.com
TEL 417.890.8802
550 St. Louis St.
Springfield, MO 65806

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 15:31:09-05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

GENERAL NOTES

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE
JOPLIN, MISSOURI
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_GEN01_K170642
date: 06.24.2022

SHEET
2 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_GEN01_K170642.dwg USER: aboll
DATE: Jun 24, 2022 1:56pm XREFS: W_TBLK_K170642

N

0' 10' 20' 40'
SCALE IN FEET

REMOVE 9 SY OF PAVEMENT.

REMOVE 9 SY OF PAVEMENT.

REMOVE 60 LF OF UPRIGHT CURB AND GUTTER.

REMOVE 96 SY OF PAVEMENT.

REMOVE 30 LF OF UPRIGHT CURB AND GUTTER.

E 4th Street

REMOVE 34 LF OF UPRIGHT CURB AND GUTTER.

N

0' 15' 30' 60'
SCALE IN FEET

DEMOLITION WINGWALLS. RETAIN HEADWALL. IF HEADWALL IS DAMAGED DURING DEMOLITION OF WINGWALLS, CONTRACTOR SHALL REBUILD HEADWALL AT CONTRACTOR'S EXPENSE.

Northpark Lane

DEMO FLUME

REMOVE 10 LF OF UPRIGHT CURB AND GUTTER.

DEMO STORM SEWER

REMOVE 470 SY OF PAVEMENT.

REMOVE 51 LF OF UPRIGHT CURB AND GUTTER.

REMOVE 40 LF OF UPRIGHT CURB AND GUTTER.

DEMO FLUME

REMOVE 56 LF OF UPRIGHT CURB AND GUTTER.

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724

Digitally signed by Aaron Boll
Date: 2022.06.24 13:14:28-05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DEMOLITION PLAN

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

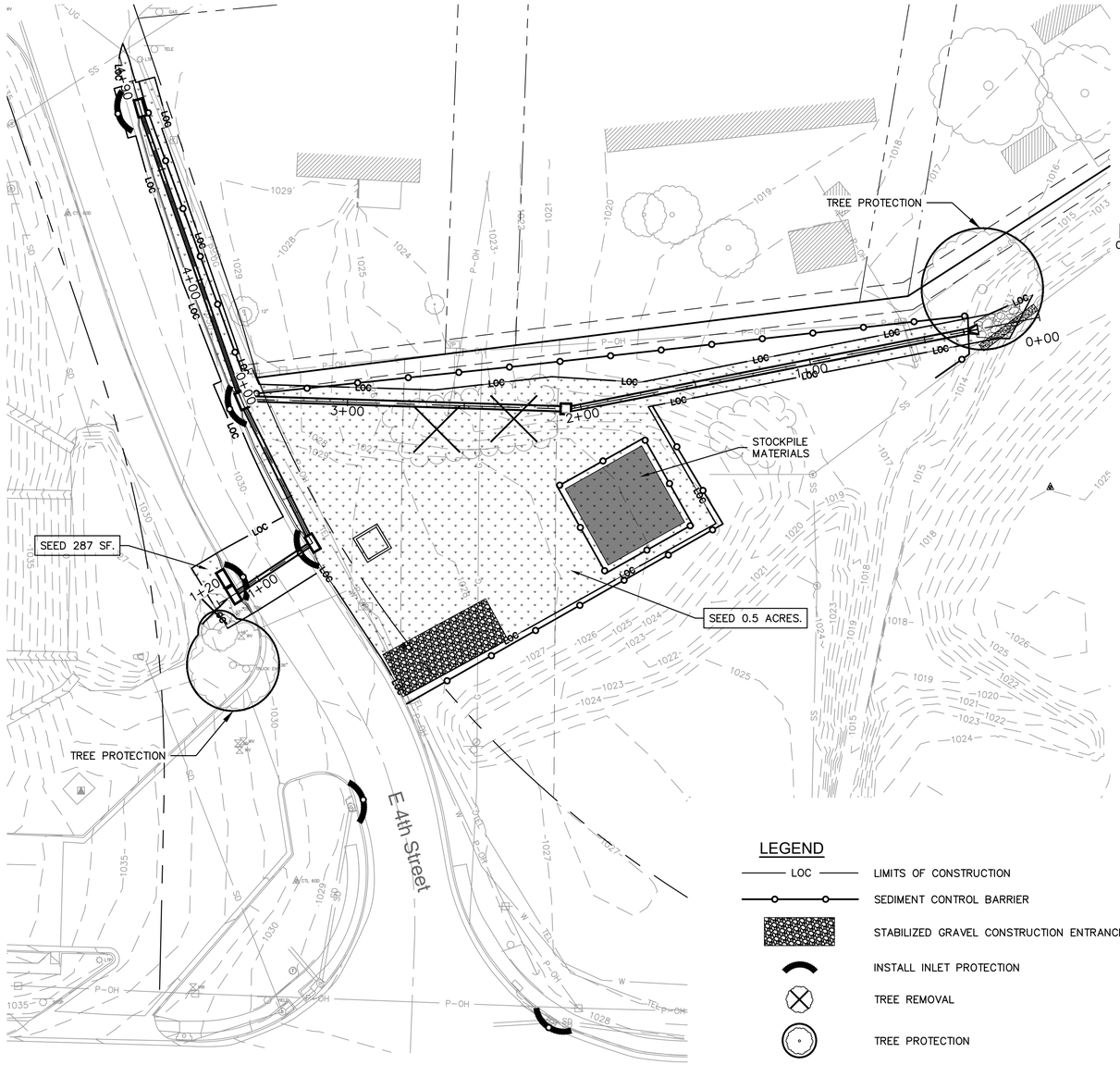
JOPLIN, MISSOURI

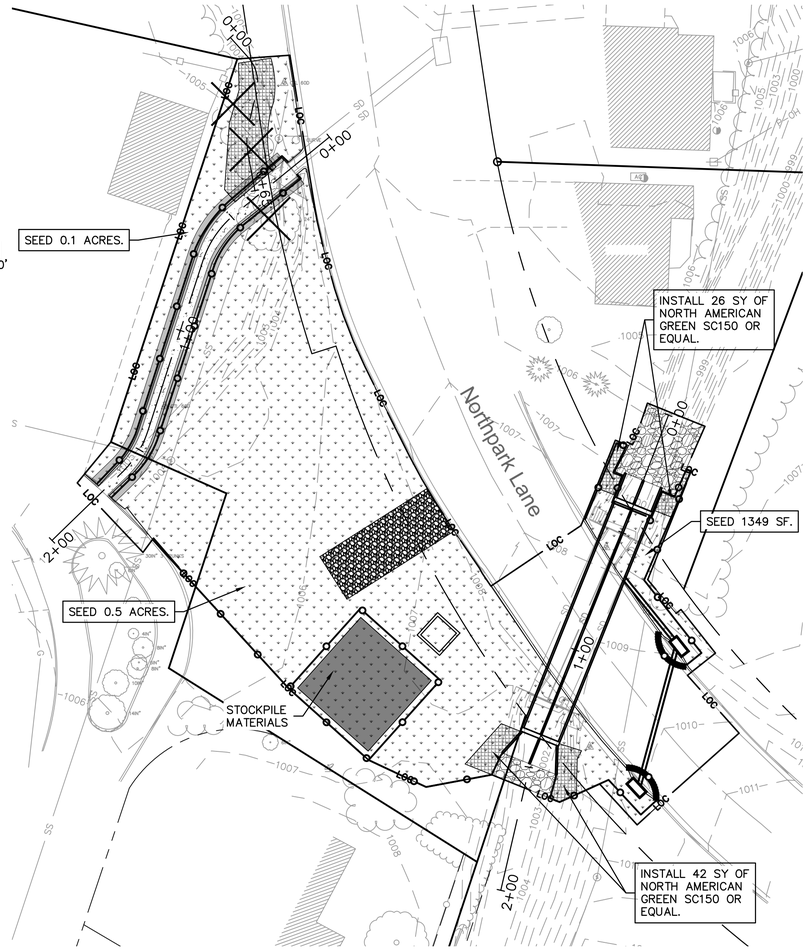
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_DEM01_K170642
date: 06.24.2022

SHEET
3 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_DEM01_K170642.dwg USER: aboll
DATE: Jun 24, 2022 12:00pm XREFS: W_TBLK_K170642 V_XBND7_K170642 V_XTOP0_K170642





N

0' 15' 30' 60'
SCALE IN FEET

LEGEND

- LOC — LIMITS OF CONSTRUCTION
- SEDIMENT CONTROL BARRIER
- STABILIZED GRAVEL CONSTRUCTION ENTRANCE/EXIT
- INSTALL INLET PROTECTION
- TREE REMOVAL
- TREE PROTECTION
- CONCRETE WASHOUT
- CONSTRUCTION STAGING AREA
- NORTH AMERICAN GREEN SC150 OR EQUAL
- SEEDING
- RIPRAP

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724

Digitally signed by Aaron Boll
Date: 2022.06.24 15:14:39 -05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

EROSION AND SEDIMENT CONTROL

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

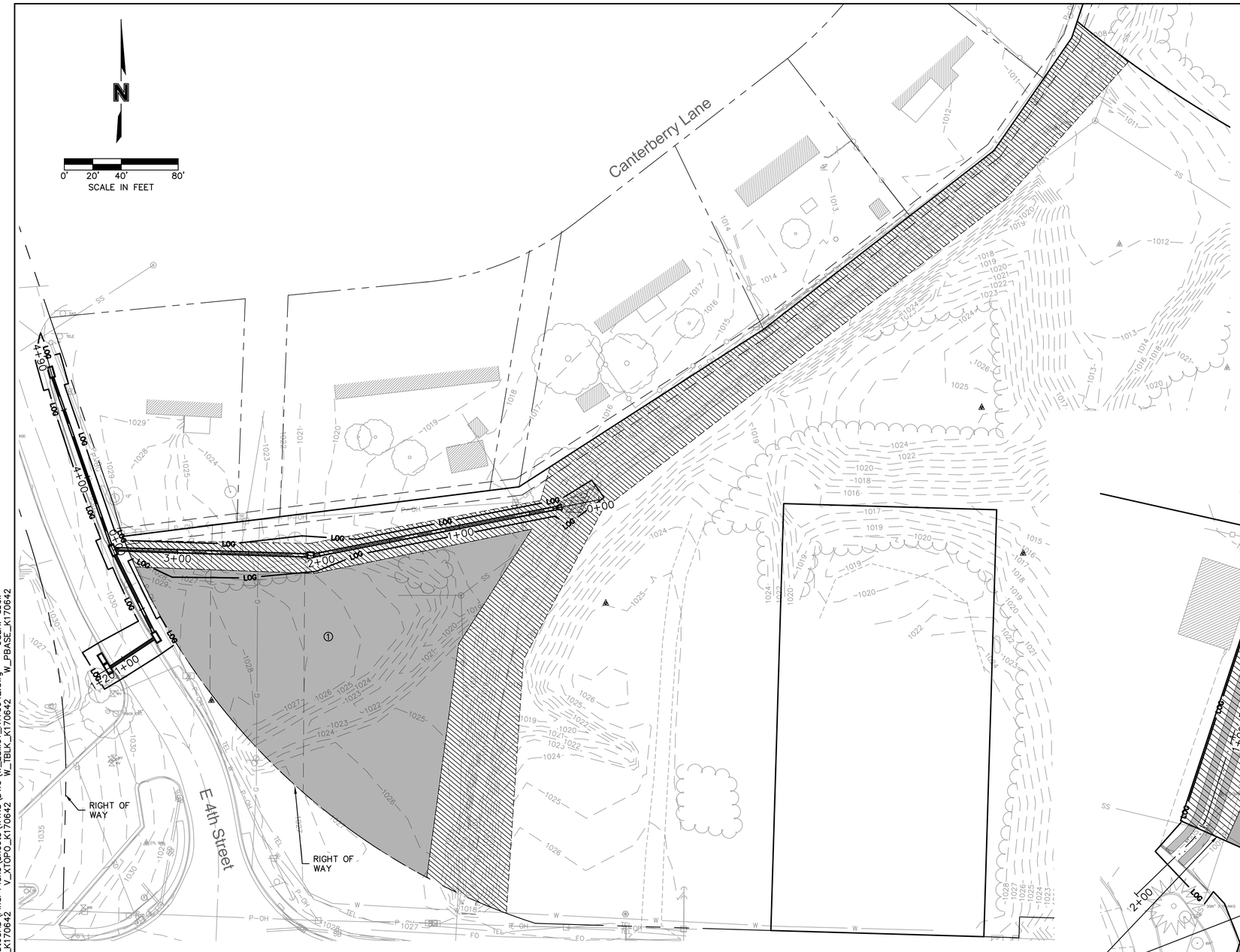
JOPLIN, MISSOURI

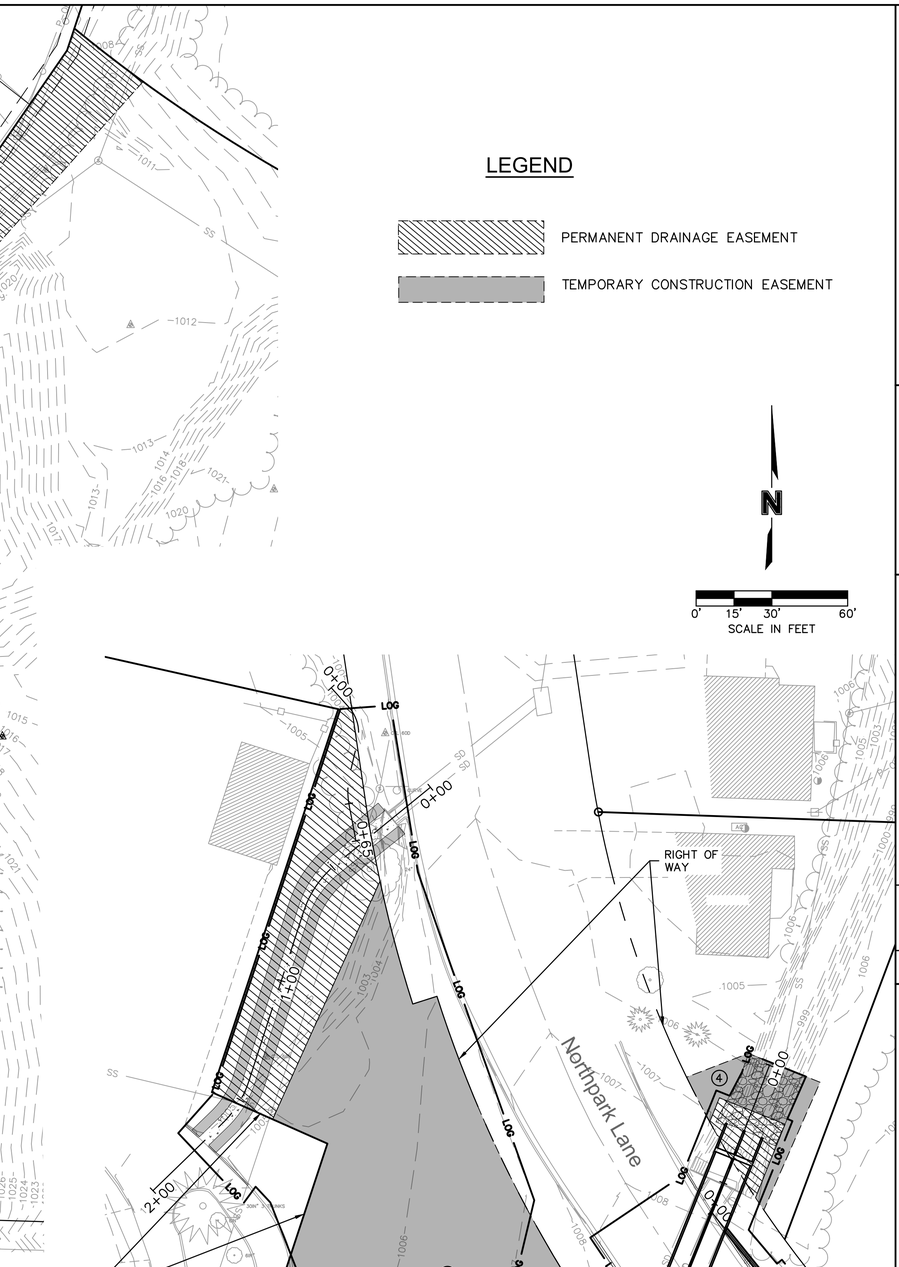
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_ERC01_K170642
date: 06.24.2022

SHEET
4 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG W_ERC01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:01pm XREFS: V_XBND1_K170642 V_XTOPO_K170642 W_TBLK_K170642 W_PBASE_K170642





LEGEND

PERMANENT DRAINAGE EASEMENT

TEMPORARY CONSTRUCTION EASEMENT

EASEMENT INFORMATION

PARCEL NUMBER	OWNER/ OWNER ADDRESS	PERMANENT DRAINAGE EASEMENT	TEMPORARY CONSTRUCTION EASEMENT
1	THE SPICER PO BOX 338 NEOSHO, MO 64850	37,179 SF	32,443 SF
2	THE SPICER PO BOX 338 NEOSHO, MO 64850	4,478 SF	16,277 SF
3	RUARK, DENNIS & MARY 3306 SILVER CREEK JOPLIN, MO 64804	755 SF	1,817 SF
4	GODFREY, JOHN & SHARON 27754 FIR RD CARL JUNCTION, MO 64834	591 SF	1,087 SF

olsson
550 St Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 15:54:50-05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

RIGHT OF WAY EASEMENT PLAN

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

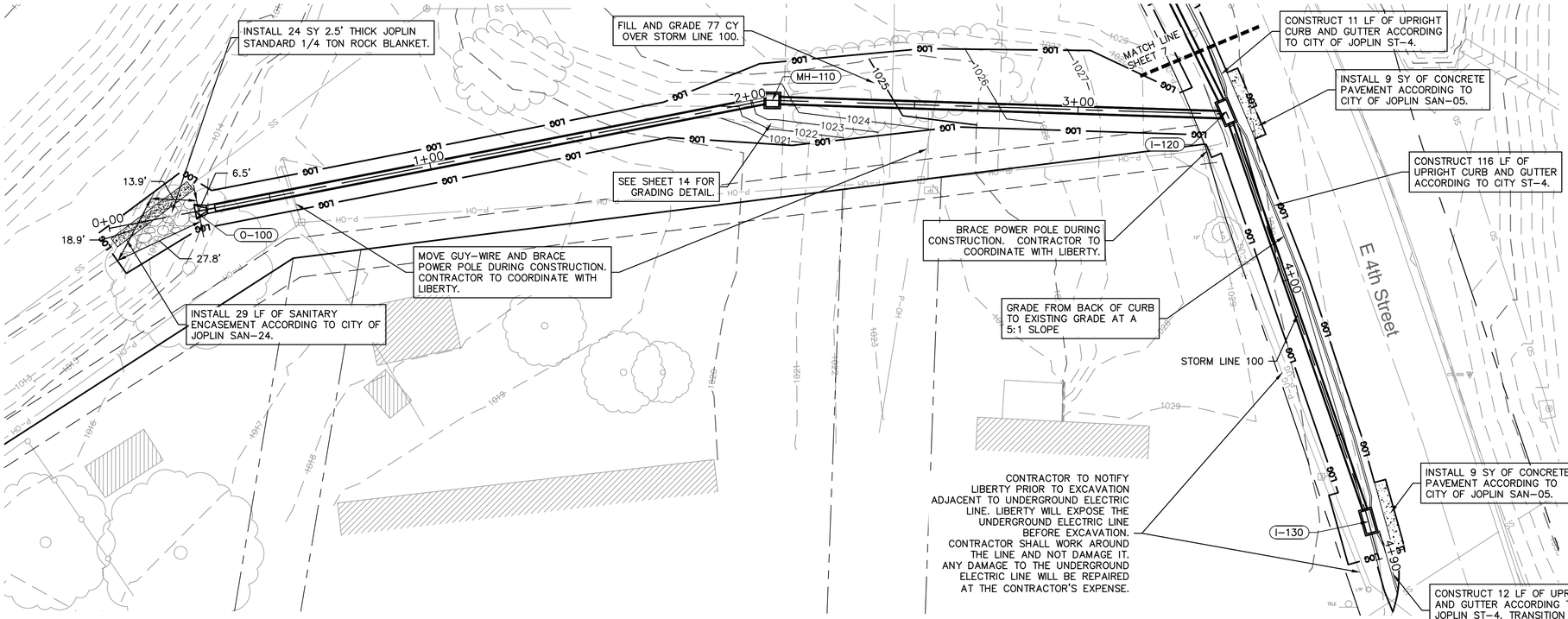
JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_ESM01_K170642
date: 06.24.2022

SHEET
5 *of* 22

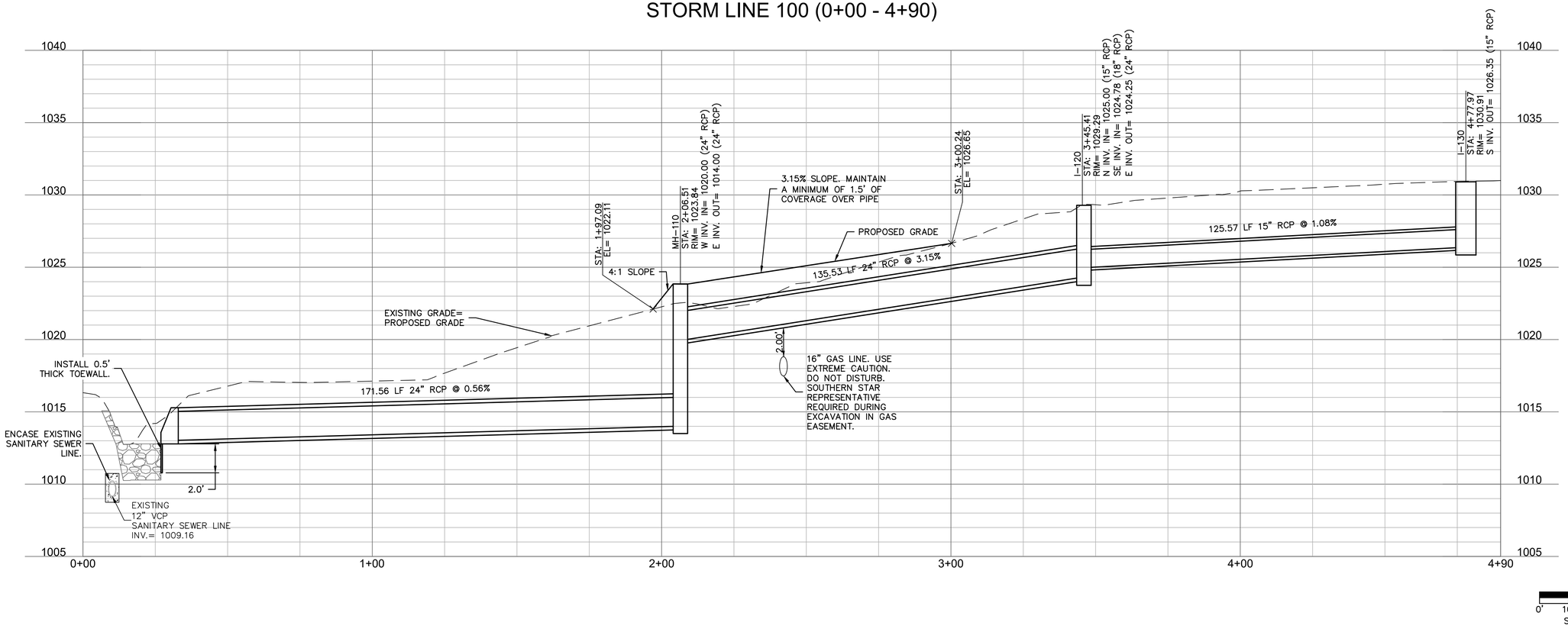
DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_ESM01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:01pm XREFS: V_XBND1_K170642 V_XTOPO_K170642 W_TBLK_K170642 W_PBASE_K170642



STRUCTURES	
ID	DESCRIPTION
I-120	7' X 3' TYPE D CURB INLET 3+45.41, 0.00' STORM LINE 100 N: 334315.802; E: 2796682.989
I-130	7' X 3' TYPE D CURB INLET 4+77.97, 0.00' STORM LINE 100 N: 334440.997; E: 2796639.484
MH-110	4' X 4' JUNCTION BOX 2+06.51, 0.00' STORM LINE 100 N: 334312.227; E: 2796821.707
O-100	24" FES WITH TOE WALL 0+26.81, 0.00' STORM LINE 100 N: 334346.261; E: 2796998.111

NOTE: STRUCTURE COORDINATES ARE TO THE CENTER OF STRUCTURE.

STORM LINE 100 (0+00 - 4+90)



olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
M/O# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 15:57:07 -05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

STORM SEWER PLAN AND PROFILE
STORM LINE 100

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

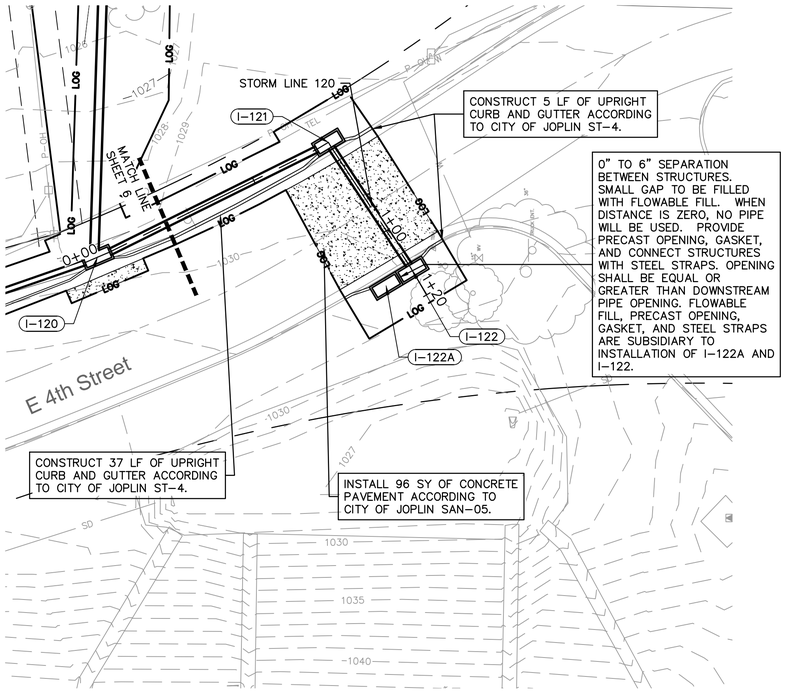
JOPLIN, MISSOURI

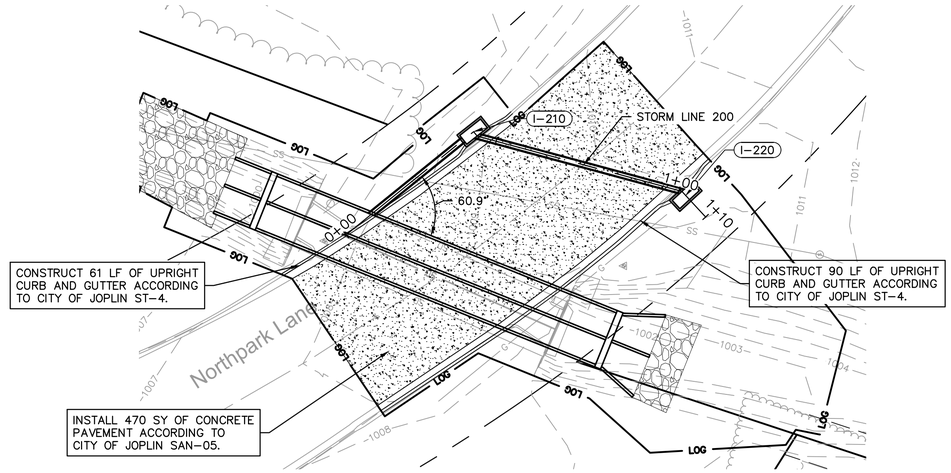
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_PP01_K170642
date: 06.24.2022

SHEET
6 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_PP01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:01pm XREFS: W_TBLK_K170642 V_XBND1_K170642 V_XTOPO_K170642 W_PBASE_K170642 W_PALGN_K170642





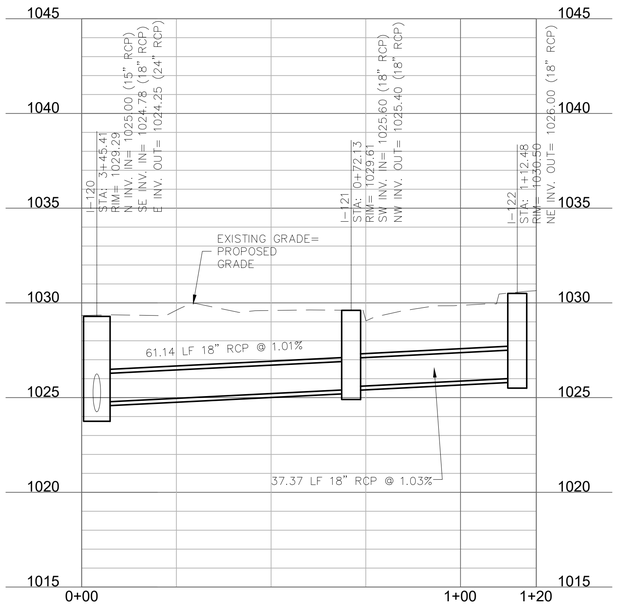
STRUCTURES	
ID	DESCRIPTION
I–121	7' X 3' TYPE D CURB INLET 0+72.13, 0.00' STORM LINE 120 N: 334254.817; E: 2796713.318
I–122	7' X 3' TYPE D CURB INLET 1+12.48, 0.00' STORM LINE 120 N: 334232.708; E: 2796679.559
I–122A	7' X 3' TYPE D CURB INLET 1+12.48, 8.00' STORM LINE 120 N: 334239.569; E: 2796675.442
I–210	7' X 3' TYPE D CURB INLET 0+43.31, 0.00' STORM LINE 200 N: 335034.590; E: 2797526.803
I–220	7' X 3' TYPE D CURB INLET 1+02.27, 0.00' STORM LINE 200 N: 334978.611; E: 2797509.947

NOTE: STRUCTURE COORDINATES ARE TO THE CENTER OF STRUCTURE.

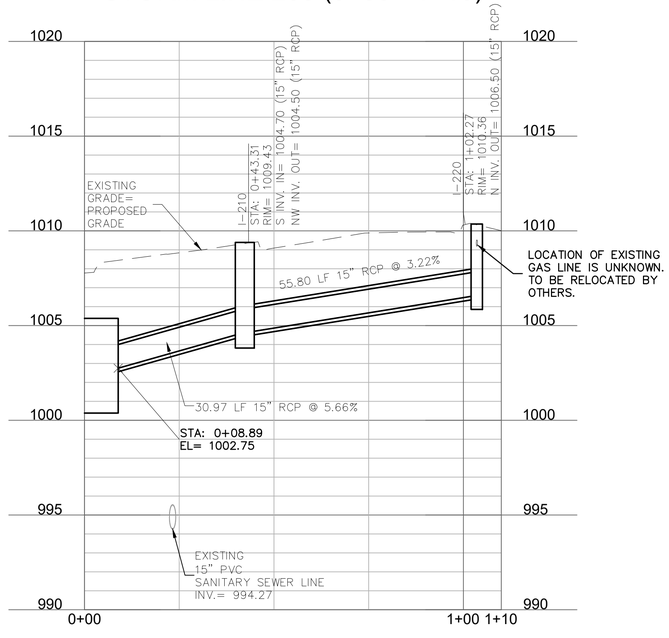
N

0' 10' 20' 40'
SCALE IN FEET

STORM LINE 120 (0+00 - 1+20)



STORM LINE 200 (0+00 - 1+10)



8' 4' 2' 0'
0' 10' 20' 40'
SCALE IN FEET

olsson
www.olsson.com
TEL 417.890.8802
550 St Louis St.
Springfield, MO 65806

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 10:39:04-05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN AND PROFILE
STORM LINE 120 & 200

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

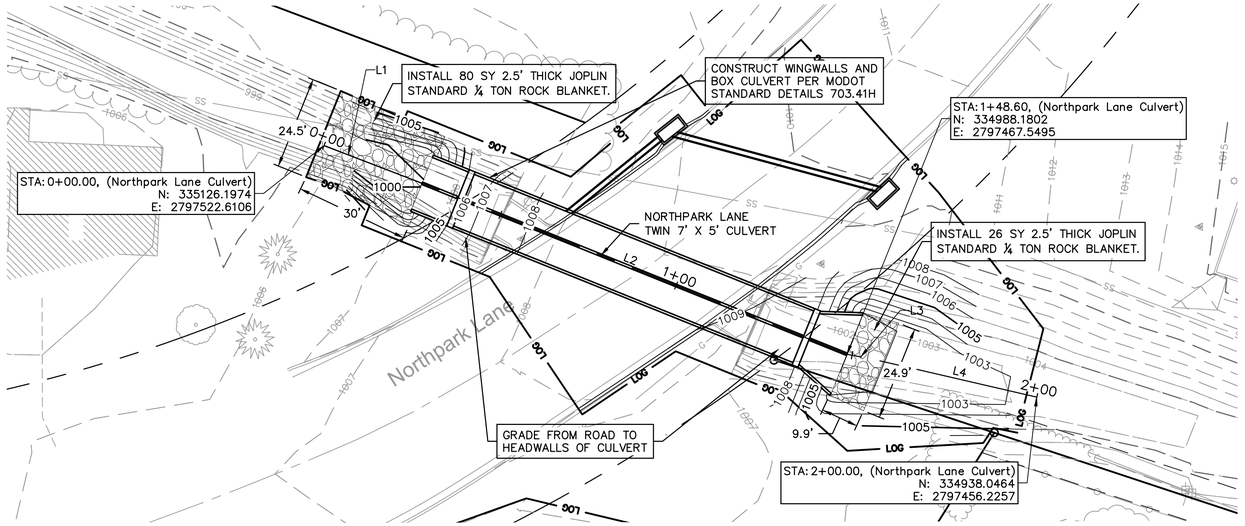
JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_PP02_K170642
date: 06.24.2022

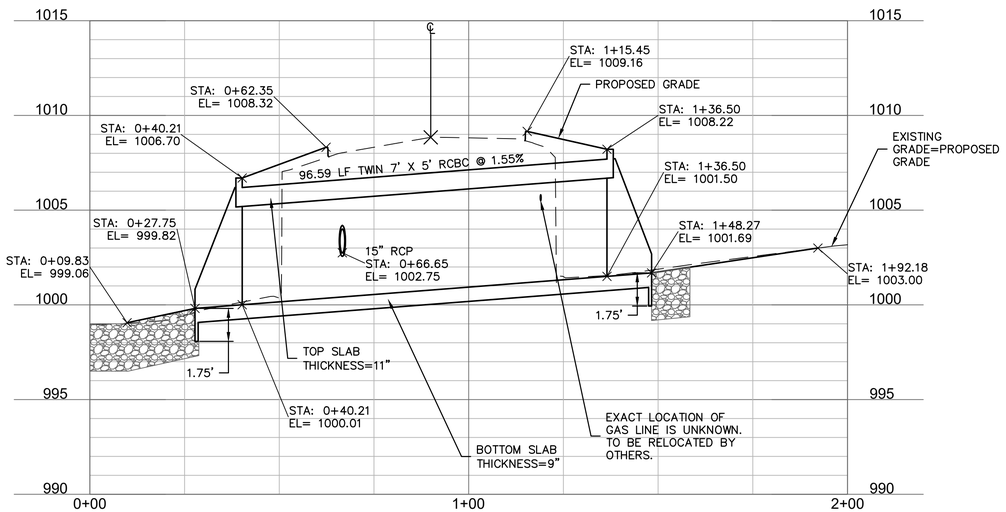
SHEET
7 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_PP02_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:02pm XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642
W_PBASE_K170642

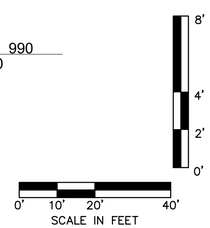




NORTHPARK LANE CULVERT (0+00 - 2+00)



NOTE: SIDE WALL THICKNESS=8".
DEPTH OF TOEWALL



NORTHPARK LANE CULVERT								
ID #	STATION RANGE	START COORD.	END COORD.	PI STATION	PI COORD.	LINE/CHORD LENGTH (FT)	LINE/CHORD BEARING	RADIUS (FT)
L1	0+00 0+27.72	N: 335126.20 E: 2797522.61	N: 335100.32 E: 2797512.68			27.72	S20°59'48"W	
L2	0+27.72 1+48.60	N: 335100.32 E: 2797512.68	N: 334988.18 E: 2797467.55			120.88	S21°55'18"W	
L3	1+48.60 1+54.95	N: 334988.18 E: 2797467.55	N: 334981.93 E: 2797466.39			6.35	S10°31'56"W	
L4	1+54.95 2+00	N: 334981.93 E: 2797466.39	N: 334938.05 E: 2797456.23			45.05	S13°02'15"W	

olsson
550 St Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 09:05:12-05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN AND PROFILE
NORTHPARK LANE CULVERT

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

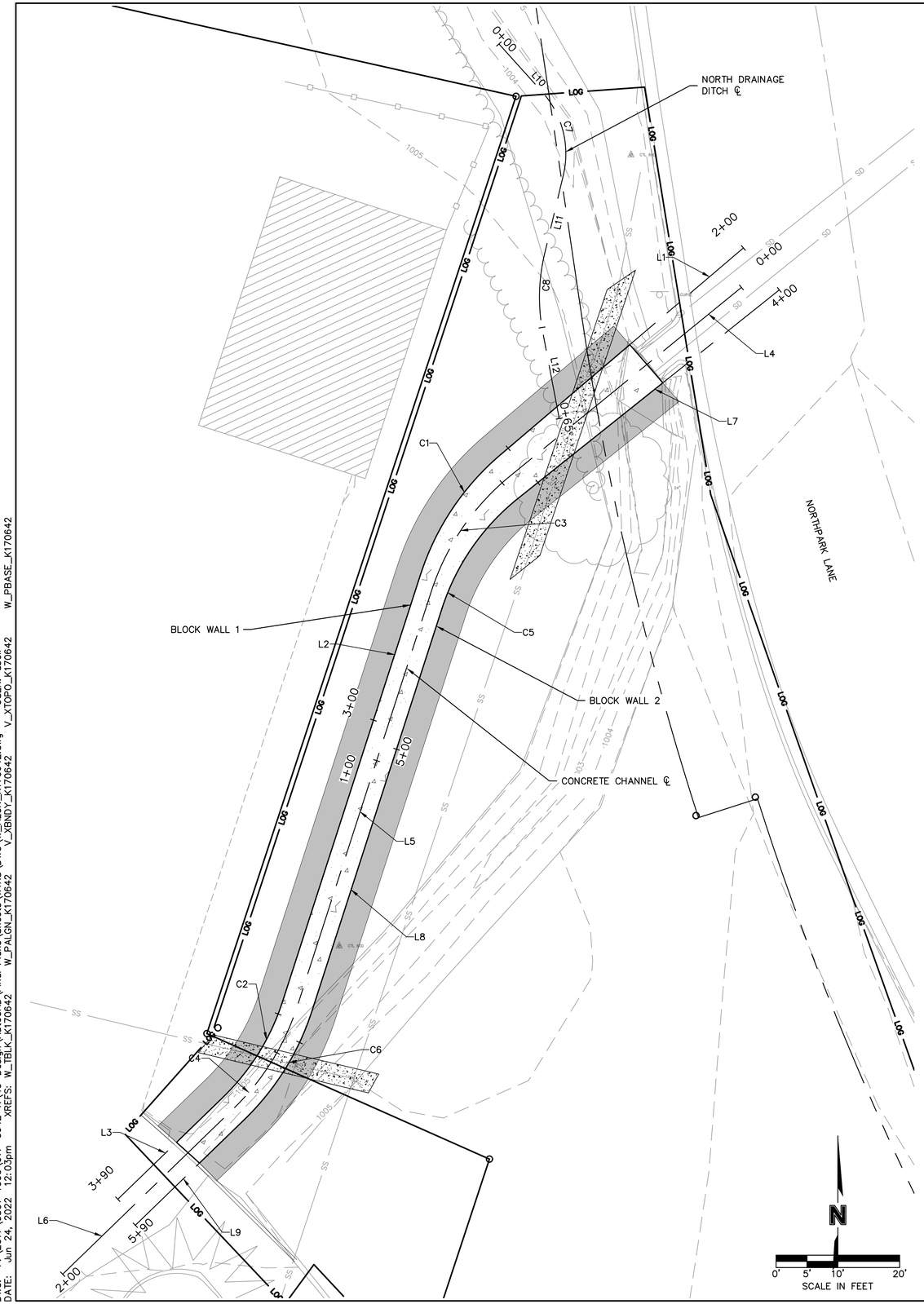
JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_STM01_K170642
date: 06.24.2022

SHEET
8 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_STM01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:02pm XREFS: W_TBLK_K170642 V_XTOPO_K170642 W_PBASE_K170642 V_XBNDY_K170642 W_PALGN_K170642



BLOCK WALL 1								
ID #	STATION RANGE	START COORD.	END COORD.	PI STATION	PI COORD.	LINE/CHORD LENGTH (FT)	LINE/CHORD BEARING	RADIUS (FT)
L1	2+00 2+51.67	N: 335242.67 E: 2797388.70	N: 335209.18 E: 2797349.36			51.67	S49°35'19"W	
C1	PC 2+51.67 PT 2+75.17	PC N: 335209.18 E: 2797349.36	PT N: 335189.89 E: 2797336.47	2+63.73	N: 335201.36 E: 2797340.18	23.20	S33°44'50"W	42.50
L2	2+75.17 3+47.92	N: 335189.89 E: 2797336.47	N: 335120.66 E: 2797314.11			72.75	S17°54'20"W	
C2	PC 3+47.92 PT 3+66.23	PC N: 335120.66 E: 2797314.11	PT N: 335105.27 E: 2797304.53	3+57.26	N: 335111.77 E: 2797311.24	18.14	S31°53'55"W	37.50
L3	3+66.23 3+90	N: 335105.27 E: 2797304.53	N: 335088.72 E: 2797287.46			23.77	S45°53'30"W	

ALIGN - CONCRETE CHANNEL								
ID #	STATION RANGE	START COORD.	END COORD.	PI STATION	PI COORD.	LINE/CHORD LENGTH (FT)	LINE/CHORD BEARING	RADIUS (FT)
L4	0+00 0+48.25	N: 335236.29 E: 2797388.39	N: 335205.80 E: 2797350.99			48.25	S50°48'47"W	
C3	PC 0+48.25 PT 0+71.22	PC N: 335205.80 E: 2797350.99	PT N: 335187.09 E: 2797338.20	0+60.06	N: 335198.34 E: 2797341.83	22.66	S34°21'34"W	40.00
L5	0+71.22 1+41.84	N: 335187.09 E: 2797338.20	N: 335119.89 E: 2797316.49			70.62	S17°54'20"W	
C4	PC 1+41.84 PT 1+61.38	PC N: 335119.89 E: 2797316.49	PT N: 335103.47 E: 2797306.27	1+51.81	N: 335110.41 E: 2797313.42	19.34	S31°53'55"W	40.00
L6	1+61.38 2+00	N: 335103.47 E: 2797306.27	N: 335076.59 E: 2797278.54			38.62	S45°53'30"W	

BLOCK WALL 2								
ID #	STATION RANGE	START COORD.	END COORD.	PI STATION	PI COORD.	LINE/CHORD LENGTH (FT)	LINE/CHORD BEARING	RADIUS (FT)
L7	4+00 4+54.11	N: 335235.89 E: 2797394.52	N: 335202.14 E: 2797352.23			54.11	S51°24'15"W	
C5	PC 4+54.11 PT 4+76.03	PC N: 335202.14 E: 2797352.23	PT N: 335184.36 E: 2797339.94	4+65.39	N: 335195.10 E: 2797343.41	21.61	S34°39'18"W	37.50
L8	4+76.03 5+44.59	N: 335184.36 E: 2797339.94	N: 335119.13 E: 2797318.87			68.55	S17°54'20"W	
C6	PC 5+44.59 PT 5+65.35	PC N: 335119.13 E: 2797318.87	PT N: 335101.68 E: 2797308.01	5+55.18	N: 335109.05 E: 2797315.61	20.55	S31°53'55"W	42.50
L9	5+65.35 5+90	N: 335101.68 E: 2797308.01	N: 335084.51 E: 2797290.30			24.66	S45°53'29"W	

NORTH DRAINAGE DITCH								
ID #	STATION RANGE	START COORD.	END COORD.	PI STATION	PI COORD.	LINE/CHORD LENGTH (FT)	LINE/CHORD BEARING	RADIUS (FT)
L10	0+00 0+10.41	N: 335275.69 E: 2797349.15	N: 335267.96 E: 2797356.11			10.41	S42°02'03"E	
C7	PC 0+10.41 PT 0+24.92	PC N: 335267.96 E: 2797356.11	PT N: 335254.44 E: 2797359.56	0+18.29	N: 335262.11 E: 2797361.39	13.95	S14°19'03"E	15.00
L11	0+24.92 0+38.06	N: 335254.44 E: 2797359.56	N: 335241.65 E: 2797356.52			13.14	S13°23'58"W	
C8	PC 0+38.06 PT 0+50.74	PC N: 335241.65 E: 2797356.52	PT N: 335229.08 E: 2797356.23	0+44.50	N: 335235.40 E: 2797355.03	12.58	S1°17'44"W	30.00
L12	0+50.74 0+65	N: 335229.08 E: 2797356.23	N: 335215.07 E: 2797358.91			14.26	S10°48'30"E	

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 11:55:35-05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

RETAINING WALL AND DRAINAGE CHANNEL
ALIGNMENT TABLES

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

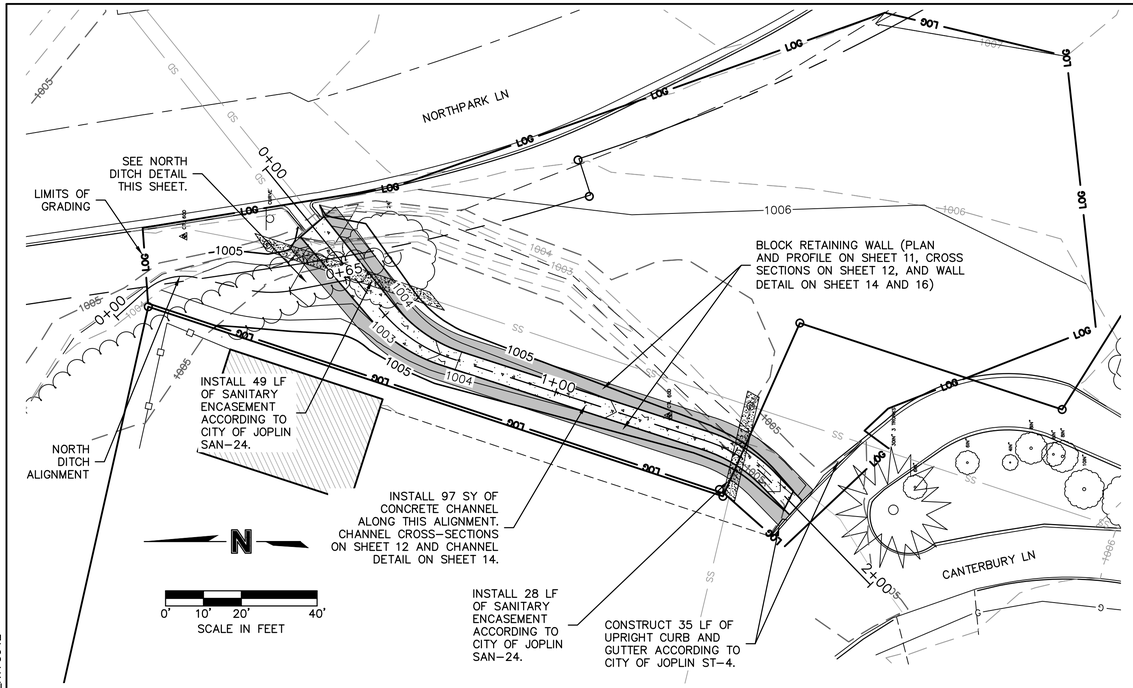
JOPLIN, MISSOURI

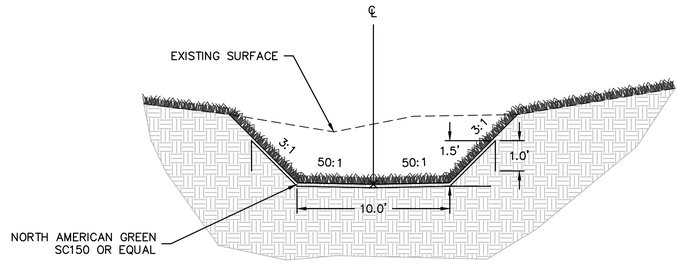
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_ALGN_K170642
date: 06.24.2022

SHEET
9 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_ALGN_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:03pm XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XBND1_K170642 V_XTOPO_K170642 W_PBASE_K170642

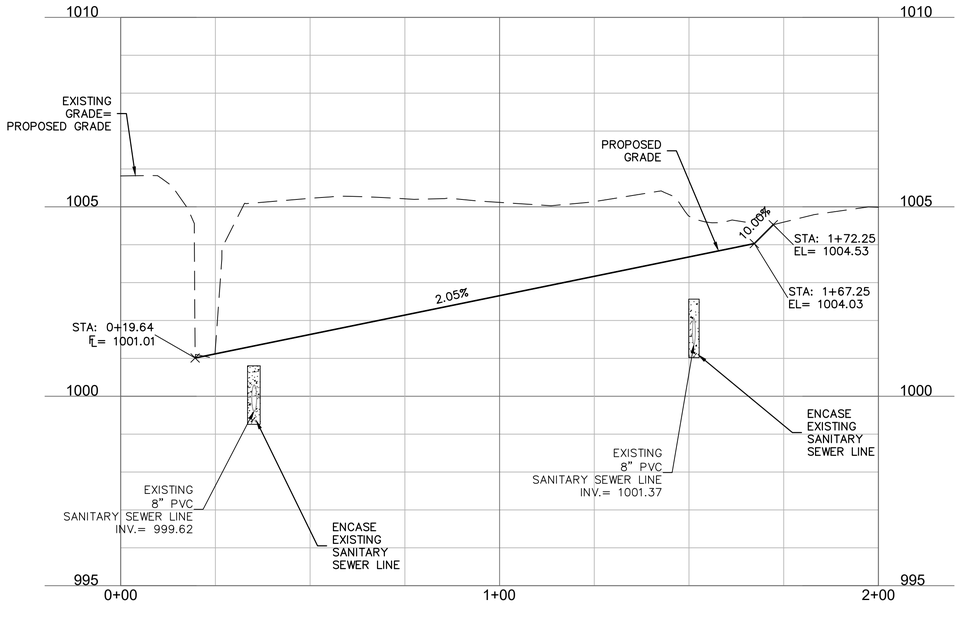




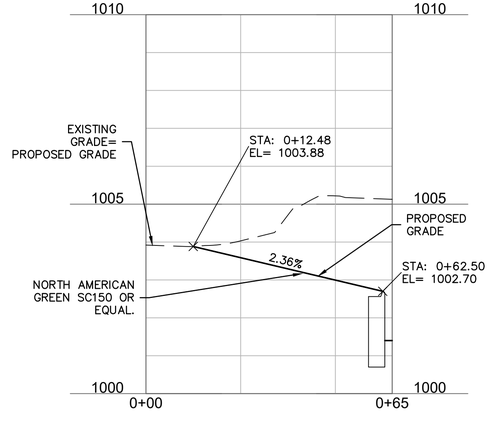
NORTH DRAINAGE DITCH DETAIL

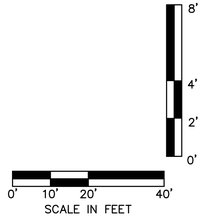
N.T.S.

CONCRETE CHANNEL (0+00 - 2+00)



NORTH DRAINAGE DITCH (0+00 - 0+65)





olsson
550 St Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
M○# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 09:55:43-05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

PLAN AND PROFILE
CONCRETE CHANNEL AND NORTH DRAINAGE DITCH

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

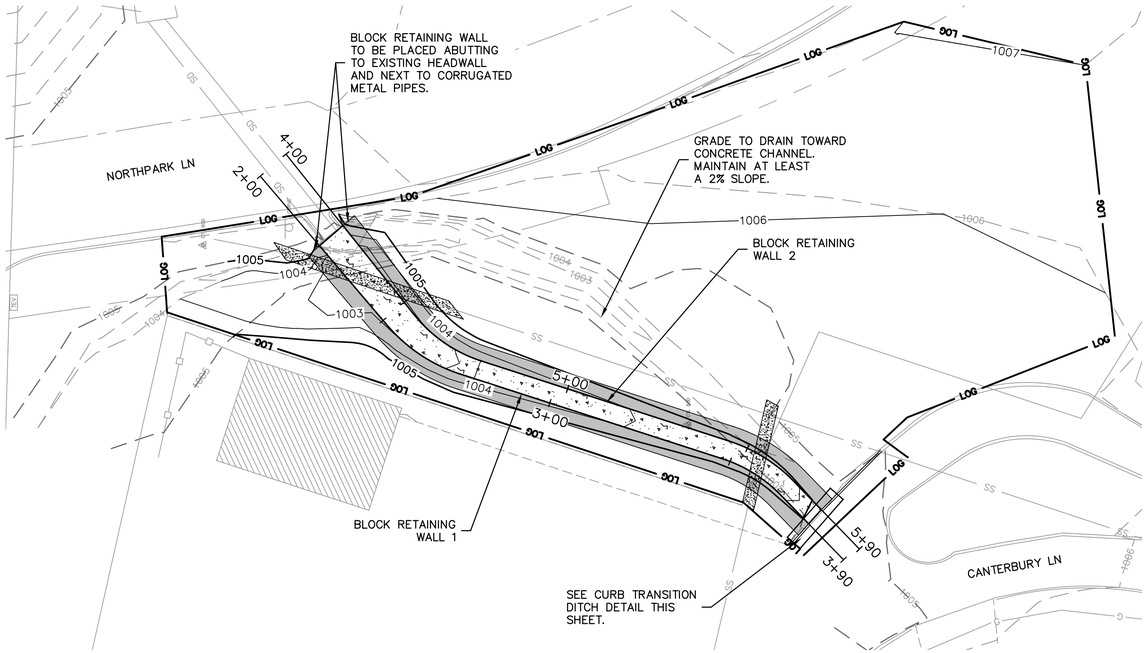
JOPLIN, MISSOURI

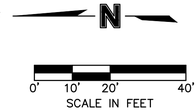
2022

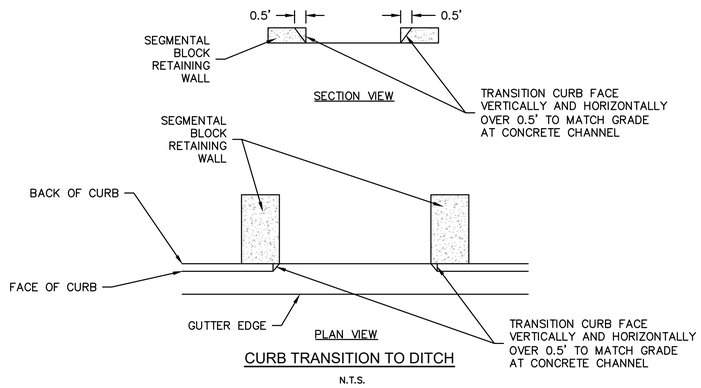
drawn by:	EMPS
designed by:	ADB
checked by:	EJS
project no.:	K17-0642
drawing no.:	W_PP04_K170642
date:	06.24.2022

SHEET
10 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_PP04_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:03pm XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642



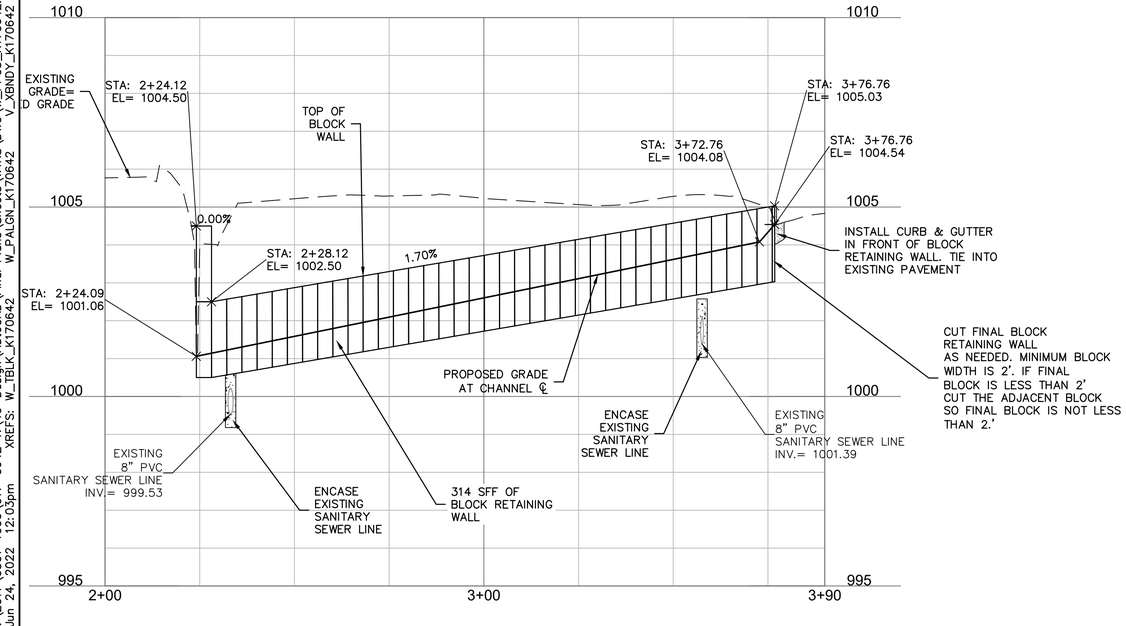




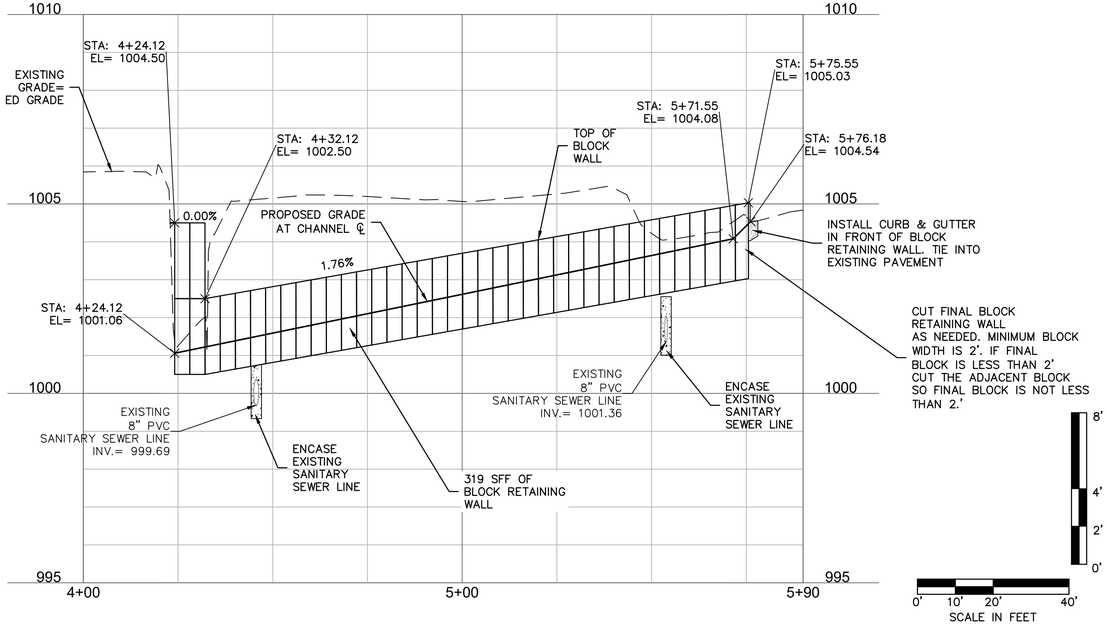
CURB TRANSITION TO DITCH

N.T.S.

BLOCK RETAINING WALL 1 (2+00 - 3+90)



BLOCK RETAINING WALL 2 (4+00 - 5+90)



olsson
www.olsson.com
TEL 417.890.8802
550 St Louis St.
Springfield, MO 65806

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 13:59:59 -05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN AND PROFILE
RETAINING WALLS

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

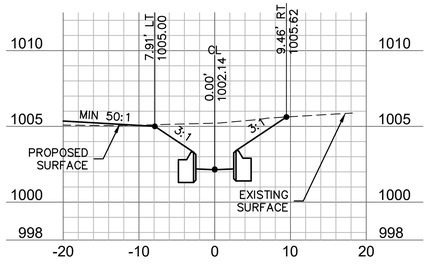
JOPLIN, MISSOURI

2022

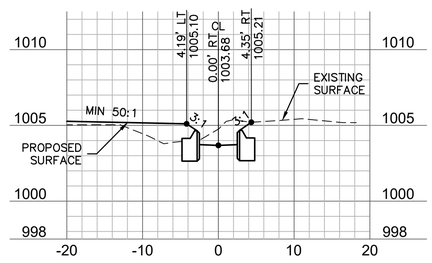
drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_PP05_K170642
date: 06.24.2022

SHEET
11 of 22

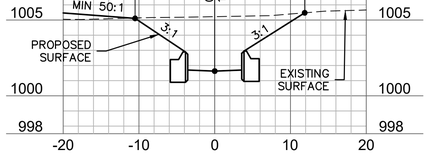
DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_PP05_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:03pm XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642



0+75



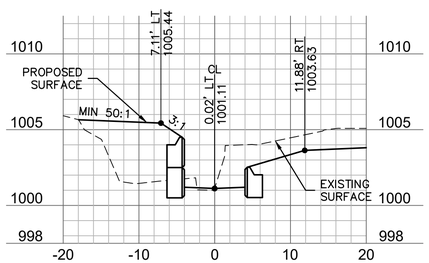
1+50



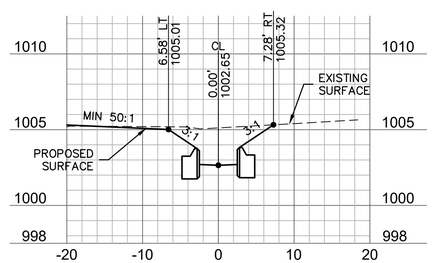
0+50



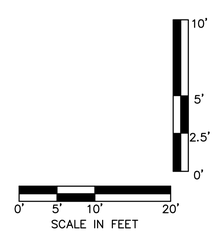
1+25



0+25



1+00



olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724

Digitally signed by Aaron Boll
Date: 2022.06.24 13:59:14-05'00'

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

CONCRETE CHANNEL CROSS SECTIONS

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

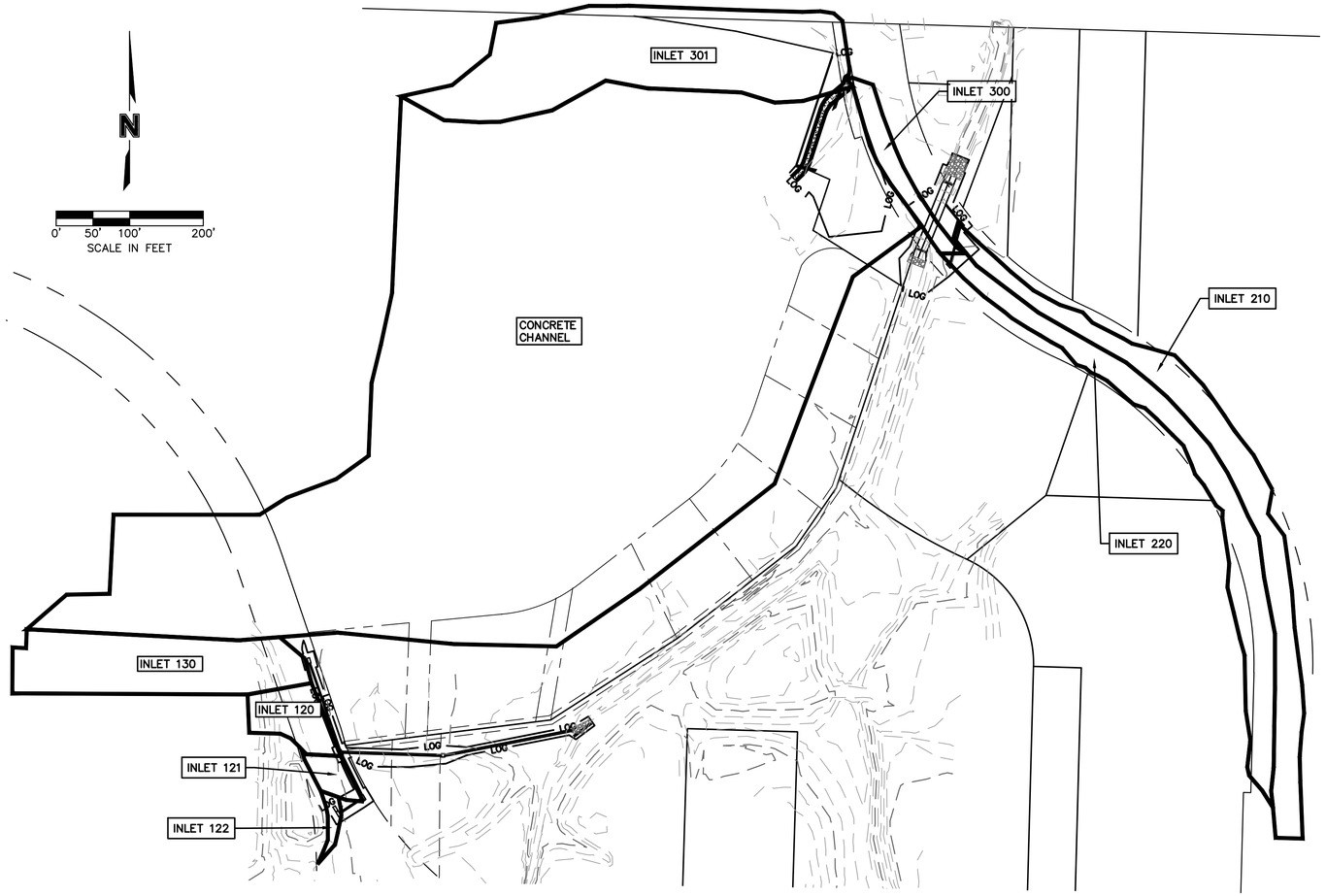
JOPLIN, MISSOURI

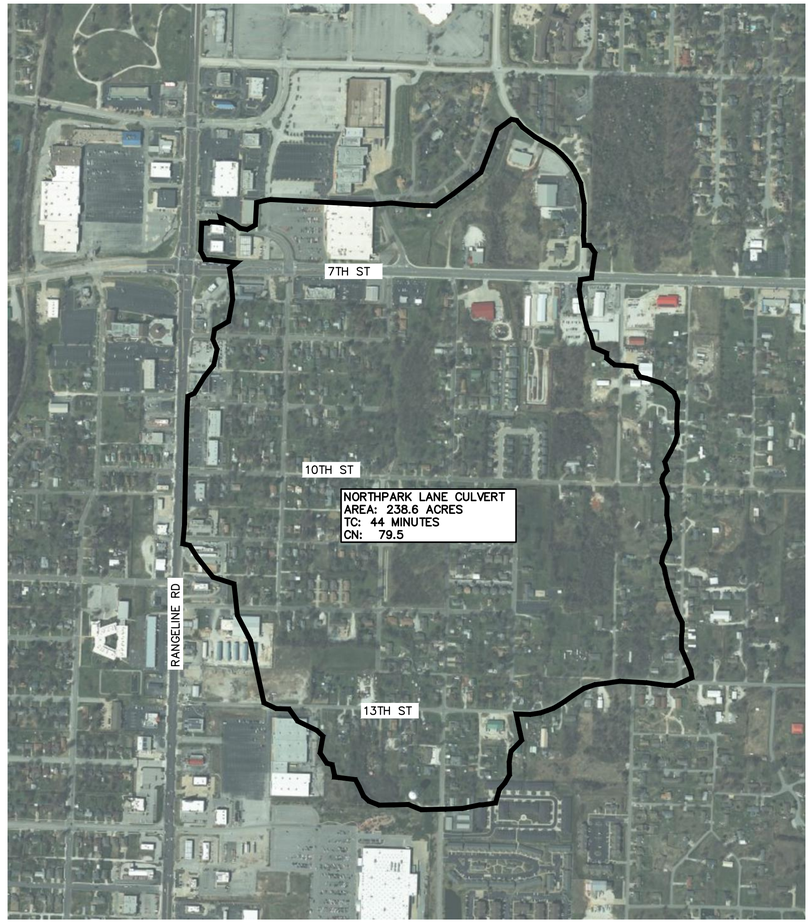
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_XSEC_K170642
date: 06.24.2022

SHEET
12 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_XSEC_K170642.dwg V_XTOPO_K170642 W_PBASE_K170642
DATE: Jun 24, 2022 12:04pm XREFS: W_TBLK_K170642 W_PALGN_K170642 V_XBND1_K170642 V_XTOPO_K170642 W_PBASE_K170642
USER: dboll





CONDUIT DESIGN INFORMATION (10-YEAR STORM)

**LABEL	DIAMETER	MANNING'S n	LENGTH (FT)	SLOPE (FT/FT)	FLOW (CFS)	CAPACITY (FULL FLOW) (CFS)	CAPACITY (EXCESS FULL FLOW) (CFS)	VELOCITY (FT/S)	INVERT (US) (FT)	ELEVATION GROUND (US) (FT)	HYDRAULIC GRADE LINE (US) (FT)	INVERT (DS) (FT)	ELEVATION GROUND (DS) (FT)	HYDRAULIC GRADE LINE (DS) (FT)	ENERGY GRADE LINE (IN) (FT)
P-110	24"	0.013	171.6	0.006	7.65	17.3	9.62	2.43	1014.00	1023.75	1019.65	1013.00	1015.50	1019.45	1019.74
P-120	24"	0.013	135.5	0.031	7.69	40.1	32.4	9.84	1024.25	1029.29	1025.24	1020.00	1023.75	1020.59	1025.62
P-121	18"	0.013	61.1	0.010	2.96	10.6	7.61	5.14	1025.40	1029.61	1026.05	1024.78	1029.29	1025.89	1026.30
P-122	18"	0.013	37.4	0.011	2.57	10.9	8.30	5.04	1026.00	1030.53	1026.61	1025.60	1029.61	1026.46	1026.84
P-130	15"	0.013	125.5	0.011	3.33	6.70	3.37	5.46	1026.35	1030.91	1027.09	1025.00	1029.29	1025.82	1027.39
P-210	15"	0.013	31.0	0.057	6.25	15.4	9.10	11.9	1004.50	1009.39	1005.51	1002.75	1008.00	1004.82	1006.05
P-220	15"	0.013	55.8	0.032	3.23	11.60	8.38	8.10	1006.50	1010.36	1007.22	1004.70	1009.39	1006.63	1007.52
P-301	24" X 14"	0.013	8.20	0.013	4.22	11.8	7.61	2.39	1002.91	1006.00	1004.24	1002.80	1006.00	1004.22	1004.33
P-310	5'X3'	0.013	27.2	0.005	29.8	117.9	88.2	6.35	1001.64	1005.00	1004.23	1001.50	1006.00	1004.23	1004.32

NOTE: **PIPE LABELS CORRESPOND TO NUMBERING OF UPSTREAM STRUCTURE.

INLET HYDRAULICS (10-YEAR STORM)

LABEL	INLET DRAINAGE AREA (ACRES)	INLET C	TOTAL INLET TC (MIN)	TOTAL FLOW TO INLET (CFS)	SPREAD (FT)	FLOW (CAPTURED) (CFS)	FLOW (BYPASSED) (CFS)
I-120	0.056	0.80	5	1.45	4.20	1.45	0.00
I-121	0.060	0.90	5	0.40	3.50	0.40	0.00
*I-122	0.030	0.55	5	2.57	11.40	2.57	0.00
I-130	0.700	0.87	5	4.46	19.60	3.33	1.13
I-210	0.794	0.80	5	4.65	7.90	3.05	1.60
I-220	0.734	0.80	5	4.30	9.00	3.23	1.07
I-300	0.160	0.90	5	1.05	3.40	1.05	0.00

NOTE: *INLET-122 IS A TWIN INLET STRUCTURE

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 15:16:31 -05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

DRAINAGE AREA AND CALCULATIONS SUMMARY

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

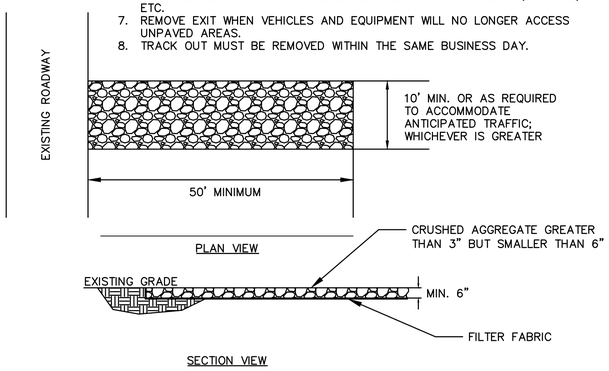
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_GRD01_K170642
date: 06.24.2022

SHEET
13 *of* 22

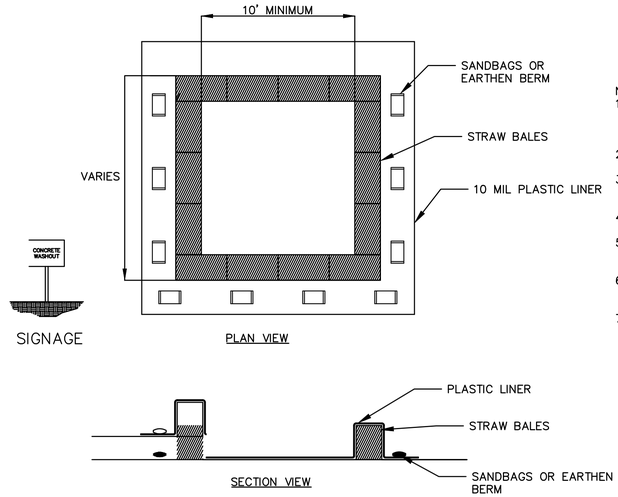
DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_GRD01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:04pm XREFS: W_TBLK_K170642 V_XBND1_K170642 V_XTOPO_K170642 W_PBASE_K170642

NOTES:
1. RUMBLE STRIPS ARE RECOMMENDED FOR LARGER SITES.
2. AVOID PLACING EXITS IN AN OUTFALL AREA OR OTHER LOW AREAS WHERE WATER PONDS OR FLOWS.
3. A CULVERT SHALL BE INSTALLED IF EXIT CROSSES A DITCH.
4. ROCK APRON INSTALLATION SHALL BE WIDE ENOUGH TO ACCOMODATE TURNING VEHICLES.
5. ADD NEW ROCK OR RAKE EXISTING ROCK WHEN VOIDS FILL WITH SEDIMENT.
6. ANY MUD, ROCK OR DEBRIS TRACKED ONTO PAVED SURFACES AND ACCUMULATED IN CURBS SHALL BE REMOVED USING A SWEEPER, SHOVEL, ETC.
7. REMOVE EXIT WHEN VEHICLES AND EQUIPMENT WILL NO LONGER ACCESS UNPAVED AREAS.
8. TRACK OUT MUST BE REMOVED WITHIN THE SAME BUSINESS DAY.



CONSTRUCTION EXIT

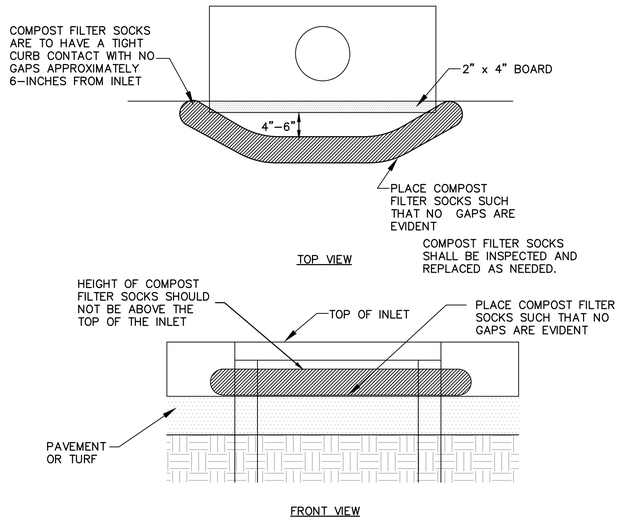
N.T.S.



NOTES:
1. WASHOUT CONTAINMENT SHALL BE INSTALLED FOR DURATION OF CONCRETE WORK AND RETAIN CONCRETE AND OTHER WASHOUT LIQUIDS UNTIL EVAPORATION OR REMOVAL BY PUMP.
2. CONTAINMENT SHALL BE SIZED FOR EXPECTED WASHOUT VOLUMES.
3. AVOID PLACING NEAR STORM DRAINS, STREAMS, SINKHOLES, OUTFALLS OR OTHER LOW AREAS WHERE WATER PONDS OR FLOWS.
4. OTHER APPROVED LEAK–PROOF CONTAINMENT IS ACCEPTABLE.
5. TRAPS SHALL BE ROUTINELY. MAINTAINED AT 75% CAPACITY AND REPLACED AS NECESSARY TO PERFORM.
6. THE WASHOUT PIT SHALL BE COVERED BEFORE PREDICTED RAIN EVENTS TO PREVENT OVERFLOW.
7. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30FT OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CONCRETE WASHOUT

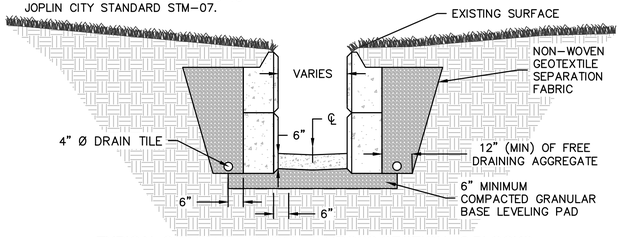
N.T.S.



COMPOST FILTER SOCKS AT CURB INLET DETAIL

N.T.S.

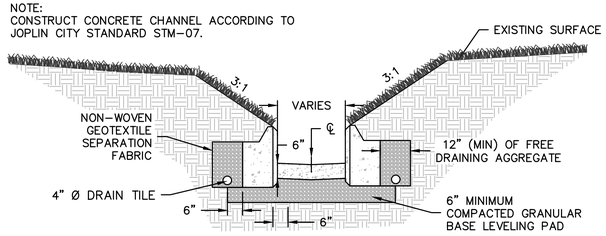
NOTE:
CONSTRUCT CHANNEL ACCORDING TO JOPLIN CITY STANDARD STM–07.



TYPICAL CONCRETE CHANNEL CROSS SECTION - 2 BLOCKS
STA 0+19.73 TO STA 0+23.73

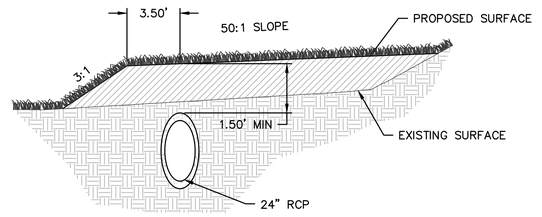
N.T.S

NOTE:
CONSTRUCT CONCRETE CHANNEL ACCORDING TO JOPLIN CITY STANDARD STM–07.



TYPICAL CONCRETE CHANNEL CROSS SECTION - 1 BLOCK
STA 0+23.73 TO STA 1+71.75

N.T.S



STORMLINE 100 SURFACE GRADING
STA 1+97 TO STA 3+03.25

N.T.S

NOTE: CHANNEL WIDTH VARIES FROM APPROXIMATELY 8' AT THE HEADWAL TO 5' AT STA 0+73. CHANNEL WIDTH IS 5' FROM STA 0+73 TO STA 1+71.75. BLOCK WALL 2 CONTINUES 2 BLOCKS UNTIL STA 0+27.73. CONTRACTOR TO USE WORLD BLOCK. OTHERWISE, CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF BLOCK WALL LAYOUT AND DESIGN SEALED BY A PROFESSIONAL ENGINEER.

olsson
www.olsson.com
TEL 417.890.8802
550 St Louis St.
Springfield, MO 65806

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE–2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE–2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 13:38:51 -05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

DETAILS

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_DTL01_K170642
date: 06.24.2022

SHEET
14 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_DTL01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:04pm XREFS: W_TBLK_K170642

SPECIFICATION FOR GRAVITY RETAINING WALL SYSTEM
PART 1: GENERAL

1.01 DESCRIPTION

A. WORK INCLUDES FURNISHING AND INSTALLING MODULAR BLOCK RETAINING WALL UNITS TO THE LINES AND GRADES DESIGNATED ON THE PROJECT'S FINAL CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE PROJECT ENGINEER. ALSO INCLUDED IS FURNISHING AND INSTALLING APPURTENANT MATERIALS REQUIRED FOR CONSTRUCTION OF THE RETAINING WALL AS SHOWN ON THE CONSTRUCTION DRAWINGS.

1.02 REFERENCE STANDARDS

A. SOILS

1. ASTM D 698 – MOISTURE DENSITY RELATIONSHIP FOR SOILS, STANDARD METHOD
2. ASTM D 422 – GRADATION OF SOILS

B. DRAINAGE PIPE

1. ASTM D 3034 – SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PLASTIC PIPE
2. ASTM D 1248 – SPECIFICATION FOR CORRUGATED PLASTIC PIPE

C. ENGINEERING DESIGN

1. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA); DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, 3RD EDITION.

D. WHERE SPECIFICATIONS AND REFERENCE DOCUMENTS CONFLICT, THE ENGINEER SHALL MAKE THE FINAL DETERMINATION OF APPLICABLE DOCUMENT.

1.03 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL PREVENT EXCESSIVE MUD, WET CONCRETE, EPOXIES, AND LIKE MATERIALS THAT MAY AFFIX THEMSELVES, FROM COMING IN CONTACT WITH MATERIALS.

B. CONTRACTOR SHALL STORE AND HANDLE MATERIALS WITH CARE SO AS TO NOT BREAK RETAINING BLOCKS.

C. CONTRACTOR SHALL PROTECT MATERIALS FROM DAMAGE. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE RETAINING WALL.

PART 2: MATERIALS

2.01 SEGMENTAL RETAINING WALL UNITS

A. RETAINING BLOCKS SHALL BE WORLDBLOCK LANDSTONE BLOCKS; 24 INCHES HIGH BY 48 INCHES LONG BY 48 INCHES DEEP.

B. RETAINING BLOCKS SHALL PROVIDE A MINIMUM UNIT WEIGHT OF 150 PCF.

C. RETAINING BLOCKS SHALL BE PLACED IN A RUNNING BOND PATTERN. THE WALL SHOULD STACK WITH A SETBACK ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

D. RETAINING BLOCKS SHALL BE CAPABLE OF BEING ERECTED WITH THE HORIZONTAL GAP BETWEEN ADJACENT UNITS NOT EXCEEDING 1/8 INCH.

E. RETAINING BLOCKS SHALL BE SOUND AND FREE OF CRACKS OR OTHER DEFECTS THAT WOULD INTERFERE WITH THE PROPER PLACING OF THE UNIT OR SIGNIFICANTLY IMPAIR THE STRENGTH OR PERMANENCE OF THE STRUCTURE. CRACKING OR EXCESSIVE CHIPPING MAY BE GROUNDS FOR REJECTION. UNITS SHOWING CRACKS LONGER THAN 1/2" SHALL NOT BE USED WITHIN THE WALL. UNITS SHOWING CHIPS VISIBLE AT A DISTANCE OF 10 FEET FROM THE WALL SHALL NOT BE USED WITHIN THE WALL.

2.03 LEVELING PAD

A. LEVELING PAD SHOULD CONSIST OF 6 INCHES OF AN UNREINFORCED LEAN CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSF OR 6 INCHES OF COMPACTED KDOT AB-3 BASEROCK.

2.04 DRAINAGE FILL BEHIND RETAINING WALL UNITS.

A. INSTALL CLEAN STONE MEETING THE FOLLOWING GRADATION BEHIND THE BLOCK WALL FACE AND BELOW THE FINISHED GRADE AS SHOWN ON TYPICAL SECTION.

SIEVE SIZE	PERCENT PASSING
1 INCH	100
3/4 INCH	75 TO 100
NO. 4	0 TO 60
NO. 40	0 TO 50
NO. 200	0 TO 5

2.05 DRAINAGE PIPE

A. THE DRAINAGE COLLECTION PIPE SHALL BE PERFORATED OR SLOTTED PVC, OR CORRUGATED HDPE PIPE. THE DRAINAGE PIPE SHALL BE WRAPPED WITH A GEOTEXTILE TO FUNCTION AS A FILTER.

B. DRAINAGE COLLECTION PIPES SHALL BE INSTALLED TO MAINTAIN GRAVITY FLOW OF WATER BEHIND THE BLOCKS. THE DRAINAGE COLLECTION PIPE SHALL DAYLIGHT AT AN ELEVATION LOWER THAN THE LOWEST POINT OF THE PIPE WITHIN THE AGGREGATE DRAIN. THE PIPE SHOULD GO THROUGH THE WALL AT 30 FOOT INTERVALS.

PART 3: DESIGN PARAMETERS

3.01 SOIL

THE SOIL PARAMETERS USED IN THE DESIGN OF THE WALL SYSTEMS WERE DETERMINED WITH INFORMATION OBTAINED FROM THE PROJECT GEOTECHCNIAL REPORT.

	MSE SOIL PARAMETERS EFFECTIVE STRESS (DRAINED)		
Material	ϕ, degrees	c, psf (Global)	Unit Weight, pcf
Foundation Soils (Native Fat Clay)	24	0	120
Retained Soils (Clean Stone)	36	0	110

PART 4: CONSTRUCTION

4.01 INSPECTION

A. THE WALL DESIGN ENGINEER (OLSSON) SHALL BE RETAINED BY THE OWNER TO VERIFY THAT THE CONTRACTOR MEETS ALL OF THE REQUIREMENTS OF THE SPECIFICATION. THIS INCLUDES ALL SUBMITTALS FOR MATERIALS AND DESIGN, QUALIFICATIONS, AND PROPER INSTALLATION OF THE WALL SYSTEM.

B. CONTRACTOR'S FIELD CONSTRUCTION SUPERVISOR SHALL HAVE DEMONSTRATED EXPERIENCE AND BE QUALIFIED TO DIRECT ALL WORK AT THE SITE.

4.02 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE PROJECT GRADING PLANS.

B. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING STRUCTURES AND UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL ENSURE ALL SURROUNDING STRUCTURES ARE PROTECTED FROM THE EFFECTS OF WALL EXCAVATION. EXCAVATION SUPPORT, IF REQUIRED, IS THE RESPONSIBILITY OF THE CONTRACTOR.

4.03 FOUNDATION PREPARATION

A. FOUNDATION MATERIALS SHOULD CONSIST OF NATIVE CLAY SOILS CAPABLE OF PROVIDING A BEARING CAPACITY OF 2,000 PSF. THE BASE OF THE WALL SHALL BE INSPECTED BY THE OWNER'S ENGINEER PRIOR TO PLACEMENT OF THE LEVELING PAD.

4.04 UNIT INSTALLATION

A. ALL UNITS SHALL BE INSTALLED AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE FINAL P.E. SEALED WALL PLANS AND DETAILS ON THE CONSTRUCTION PLANS OR AS DIRECTED BY THE WALL DESIGN ENGINEER.

B. FOR EASE OF INSTALLATION, GENERALLY THE BASE COURSE OF SRW UNITS SHALL BE PLACED ON THE SMOOTH LEVEL SURFACE. THE UNITS SHALL BE LEVELED SIDE-TO-SIDE, FRONT-TO-REAR AND WITH ADJACENT UNITS, AND ALIGNED TO ENSURE INTIMATE CONTACT WITH THE LEVELING PAD. THE BASE COURSE IS THE MOST IMPORTANT TO ENSURE ACCURATE AND ACCEPTABLE RESULTS. NO GAPS SHALL BE LEFT BETWEEN THE FRONT OF ADJACENT UNITS. ALIGNMENT MAY BE DONE BY MEANS OF A STRING LINE OR OFFSET FROM BASE LINE TO THE BACK OF THE UNITS.

C. ALL EXCESS DEBRIS SHALL BE CLEANED FROM TOP OF UNITS.

D. PRIOR TO PLACEMENT OF SUBGRADE COURSE OF BLOCKS, THE LEVEL AND ALIGNMENT OF THE UNITS SHALL BE CHECKED AND CORRECTED, WHERE NEEDED.

E. LAYOUT OF CURVES AND CORNERS SHALL BE INSTALLED IN ACCORDANCE WITH THE WALL PLAN DETAILS.

4.05 STRUCTURAL FILL PLACEMENT

A. BACKFILL PLACED BEHIND THE WALL SHALL BE PLACED IN MAXIMUM COMPACTED LIFT THICKNESS OF 8 INCHES.

B. ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE BACK OF THE WALL UNITS. COMPACTION WITHIN THE 3 FEET BEHIND THE WALL UNITS SHALL BE ACHIEVED BY AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, PLATE, OR ROLLER.

C. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LEVEL OF BACKFILL AWAY FROM THE WALL FACING AND REINFORCED BACKFILL TO DIRECT WATER RUNOFF AWAY FROM THE WALL FACE.

D. AT COMPLETION OF WALL CONSTRUCTION, BACKFILL SHALL BE PLACED LEVEL WITH FINAL TOP OF WALL ELEVATION. IF FINAL GRADING, PAVING, LANDSCAPING, AND/OR STORM DRAINAGE INSTALLATION ADJACENT TO THE WALL IS NOT PLACED IMMEDIATELY AFTER WALL COMPLETION, TEMPORARY GRADING AND DRAINAGE SHALL BE PROVIDED TO ENSURE WATER RUNOFF IS NOT DIRECTED AT THE WALL NOR ALLOWED TO COLLECT OR POND BEHIND THE WALL UNTIL FINAL CONSTRUCTION ADJACENT TO THE WALL IS COMPLETED.

4.06 CONSTRUCTION ADJACENT TO COMPLETED WALL

A. THE CITY OF JOPLIN OR THE CITY OF JOPLIN'S REPRESENTATIVE IS RESPONSIBLE FOR ENSURING THAT CONSTRUCTION BY OTHERS ADJACENT TO THE WALL DOES NOT DISTURB THE WALL OR PLACE TEMPORARY CONSTRUCTION LOADS ON THE WALL THAT EXCEED DESIGN LOADS, INCLUDING LOADS SUCH AS WATER PRESSURE, TEMPORARY GRADES, OR EQUIPMENT LOADING. HEAVY PAVING OR GRADING EQUIPMENT SHALL BE KEPT A MINIMUM OF 10 FEET BEHIND THE BACK OF THE WALL FACE WHERE POSSIBLE. EQUIPMENT WITH WHEEL LOADS IN EXCESS OF 150 PSF LIVE LOAD SHALL NOT BE OPERATED WITHIN 10 FEET OF THE FACE OF THE RETAINING WALL DURING CONSTRUCTION ADJACENT TO THE WALL. CARE SHOULD BE TAKEN BY THE GENERAL CONTRACTOR TO ENSURE WATER RUNOFF IS DIRECTED AWAY FROM THE WALL STRUCTURE UNTIL FINAL GRADING AND SURFACE DRAINAGE COLLECTION SYSTEMS ARE COMPLETED.

olsson
550 St Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER
AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 15:37:09 -05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

RETAINING WALL NOTES

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

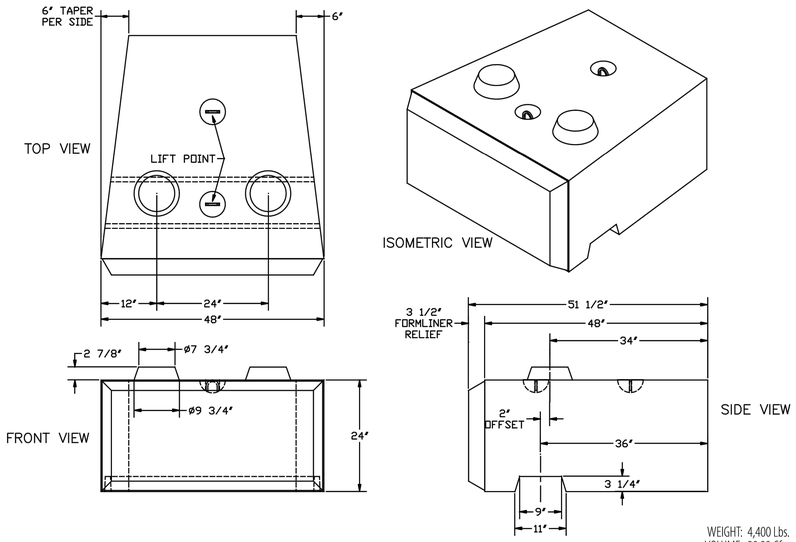
2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_DTL02_K170642
date: 06.24.2022

SHEET
15 *of* 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_DTL01_K170642.dwg USER: aboll
DATE: Jun 24, 2022 12:04pm XREFS: W_TBLK_K170642

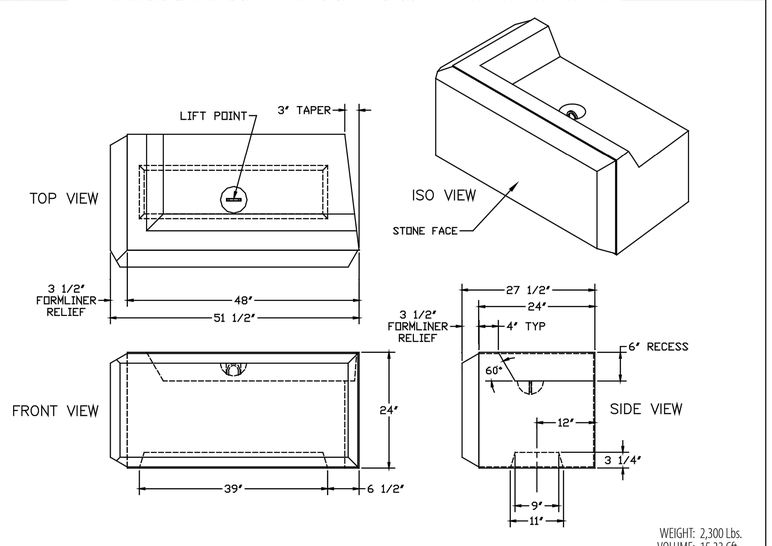
LANDSCAPE BASE BLOCK



WEIGHT: 4,400 Lbs.
VOLUME: 29.33 Cft

THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF WORLD BLOCK INCORPORATED, NOT TO BE USED BY OR DISCLOSED TO ANY OTHER INDIVIDUAL OR LEGAL ENTITY WITHOUT AUTHORIZATION OF A REPRESENTATIVE OF WORLD BLOCK INCORPORATED | STANDARD TOLERANCES & NOTES UNLESS OTHERWISE SPECIFIED | DIMENSIONS ARE IN INCHES | DRAWN BY BAJ | DATE 06/13 | WORLD BLOCK INCORPORATED

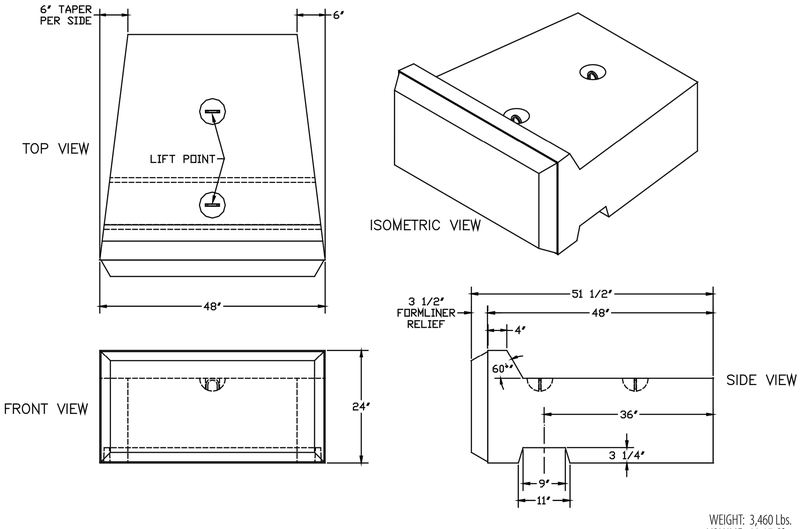
LANDSCAPE CORNER BLOCK RECESS - LEFT



WEIGHT: 2,300 Lbs.
VOLUME: 15.33 Cft

THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF WORLD BLOCK INCORPORATED, NOT TO BE USED BY OR DISCLOSED TO ANY OTHER INDIVIDUAL OR LEGAL ENTITY WITHOUT AUTHORIZATION OF A REPRESENTATIVE OF WORLD BLOCK INCORPORATED | STANDARD TOLERANCES & NOTES UNLESS OTHERWISE SPECIFIED | DIMENSIONS ARE IN INCHES | DRAWN BY BAJ | DATE 06/13 | WORLD BLOCK INCORPORATED

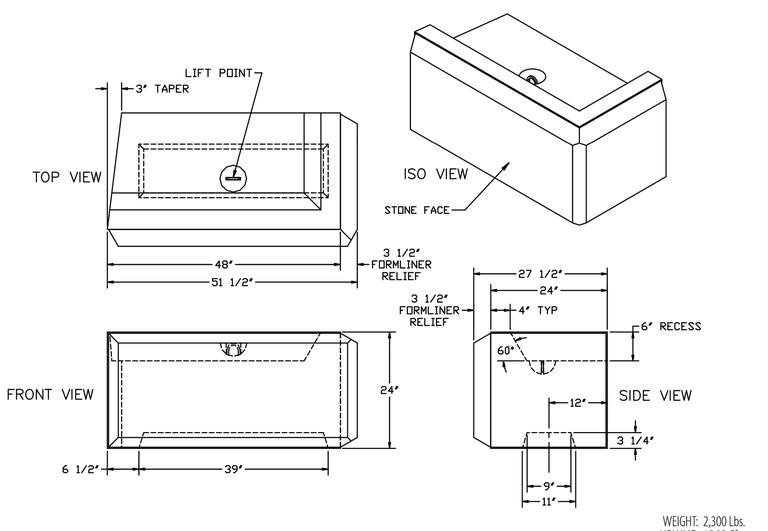
LANDSCAPE BASE BLOCK RECESS - TAPERED ENDS



WEIGHT: 3,460 Lbs.
VOLUME: 23.07 Cft

THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF WORLD BLOCK INCORPORATED, NOT TO BE USED BY OR DISCLOSED TO ANY OTHER INDIVIDUAL OR LEGAL ENTITY WITHOUT AUTHORIZATION OF A REPRESENTATIVE OF WORLD BLOCK INCORPORATED | STANDARD TOLERANCES & NOTES UNLESS OTHERWISE SPECIFIED | DIMENSIONS ARE IN INCHES | DRAWN BY BAJ | DATE 06/13 | WORLD BLOCK INCORPORATED

LANDSCAPE CORNER BLOCK RECESS - RIGHT



WEIGHT: 2,300 Lbs.
VOLUME: 15.33 Cft

THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF WORLD BLOCK INCORPORATED, NOT TO BE USED BY OR DISCLOSED TO ANY OTHER INDIVIDUAL OR LEGAL ENTITY WITHOUT AUTHORIZATION OF A REPRESENTATIVE OF WORLD BLOCK INCORPORATED | STANDARD TOLERANCES & NOTES UNLESS OTHERWISE SPECIFIED | DIMENSIONS ARE IN INCHES | DRAWN BY BAJ | DATE 06/13 | WORLD BLOCK INCORPORATED

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
AARON D. BOLL
NUMBER PE-2021008724
PROFESSIONAL ENGINEER

AARON D. BOLL
PROFESSIONAL ENGINEER
MO# PE-2021008724
Digitally signed by Aaron Boll
Date: 2022.06.24 18:37:31-05'00'

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

DETAILS

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

2022

drawn by: EMPS
designed by: ADB
checked by: EJS
project no.: K17-0642
drawing no.: W_DTL03_K170642
date: 06.24.2022

SHEET
16 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\WTRS\DWG\W_DTL01_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:04pm XREFS: W_TBLK_K170642

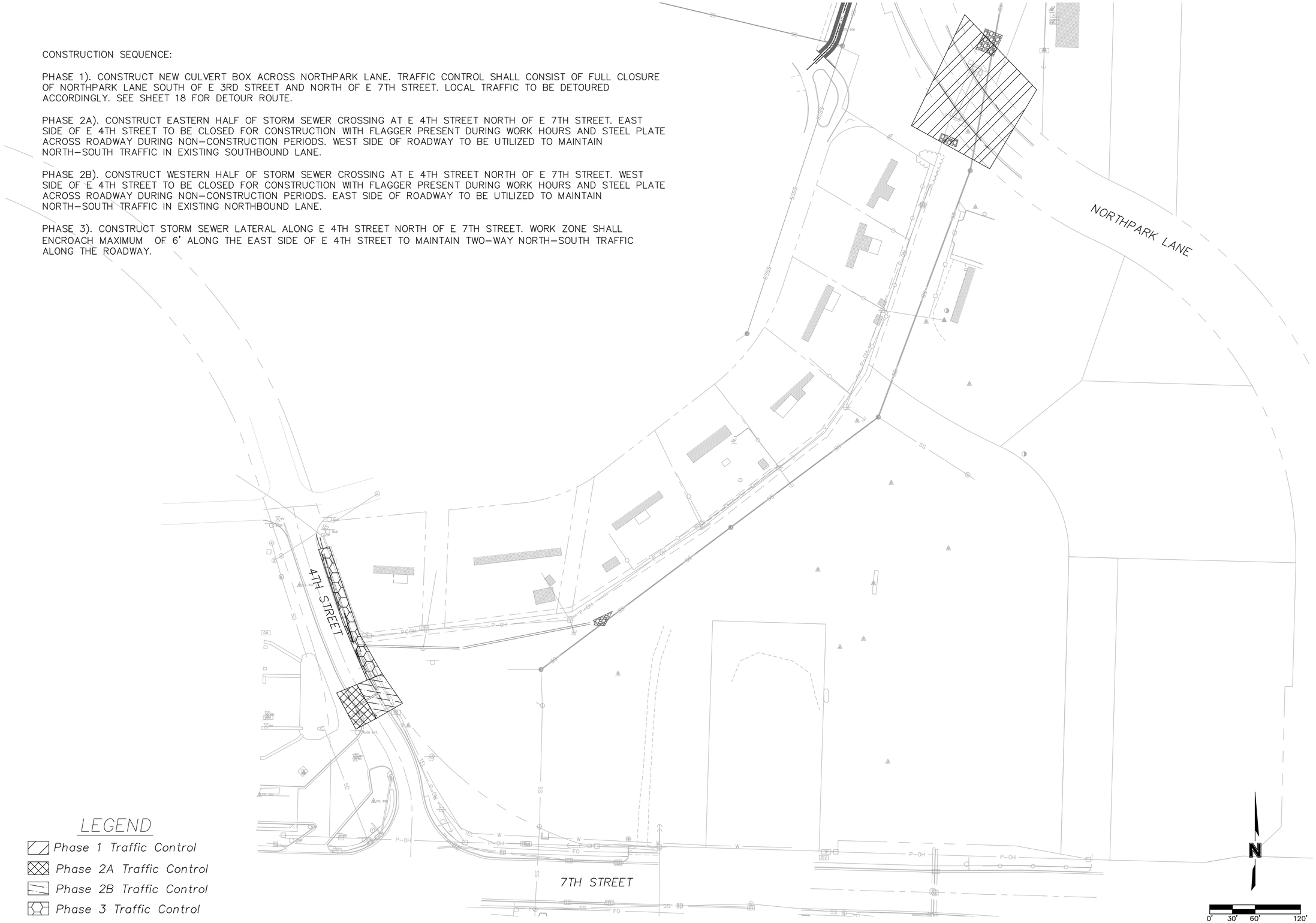
CONSTRUCTION SEQUENCE:

PHASE 1). CONSTRUCT NEW CULVERT BOX ACROSS NORTHPARK LANE. TRAFFIC CONTROL SHALL CONSIST OF FULL CLOSURE OF NORTHPARK LANE SOUTH OF E 3RD STREET AND NORTH OF E 7TH STREET. LOCAL TRAFFIC TO BE DETOURED ACCORDINGLY. SEE SHEET 18 FOR DETOUR ROUTE.

PHASE 2A). CONSTRUCT EASTERN HALF OF STORM SEWER CROSSING AT E 4TH STREET NORTH OF E 7TH STREET. EAST SIDE OF E 4TH STREET TO BE CLOSED FOR CONSTRUCTION WITH FLAGGER PRESENT DURING WORK HOURS AND STEEL PLATE ACROSS ROADWAY DURING NON-CONSTRUCTION PERIODS. WEST SIDE OF ROADWAY TO BE UTILIZED TO MAINTAIN NORTH-SOUTH TRAFFIC IN EXISTING SOUTHBOUND LANE.

PHASE 2B). CONSTRUCT WESTERN HALF OF STORM SEWER CROSSING AT E 4TH STREET NORTH OF E 7TH STREET. WEST SIDE OF E 4TH STREET TO BE CLOSED FOR CONSTRUCTION WITH FLAGGER PRESENT DURING WORK HOURS AND STEEL PLATE ACROSS ROADWAY DURING NON-CONSTRUCTION PERIODS. EAST SIDE OF ROADWAY TO BE UTILIZED TO MAINTAIN NORTH-SOUTH TRAFFIC IN EXISTING NORTHBOUND LANE.

PHASE 3). CONSTRUCT STORM SEWER LATERAL ALONG E 4TH STREET NORTH OF E 7TH STREET. WORK ZONE SHALL ENCROACH MAXIMUM OF 6' ALONG THE EAST SIDE OF E 4TH STREET TO MAINTAIN TWO-WAY NORTH-SOUTH TRAFFIC ALONG THE ROADWAY.



LEGEND

- Phase 1 Traffic Control
- Phase 2A Traffic Control
- Phase 2B Traffic Control
- Phase 3 Traffic Control

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
06-24-22

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

TRAFFIC CONTROL PLAN
TRAFFIC CONTROL SEQUENCE PLAN

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

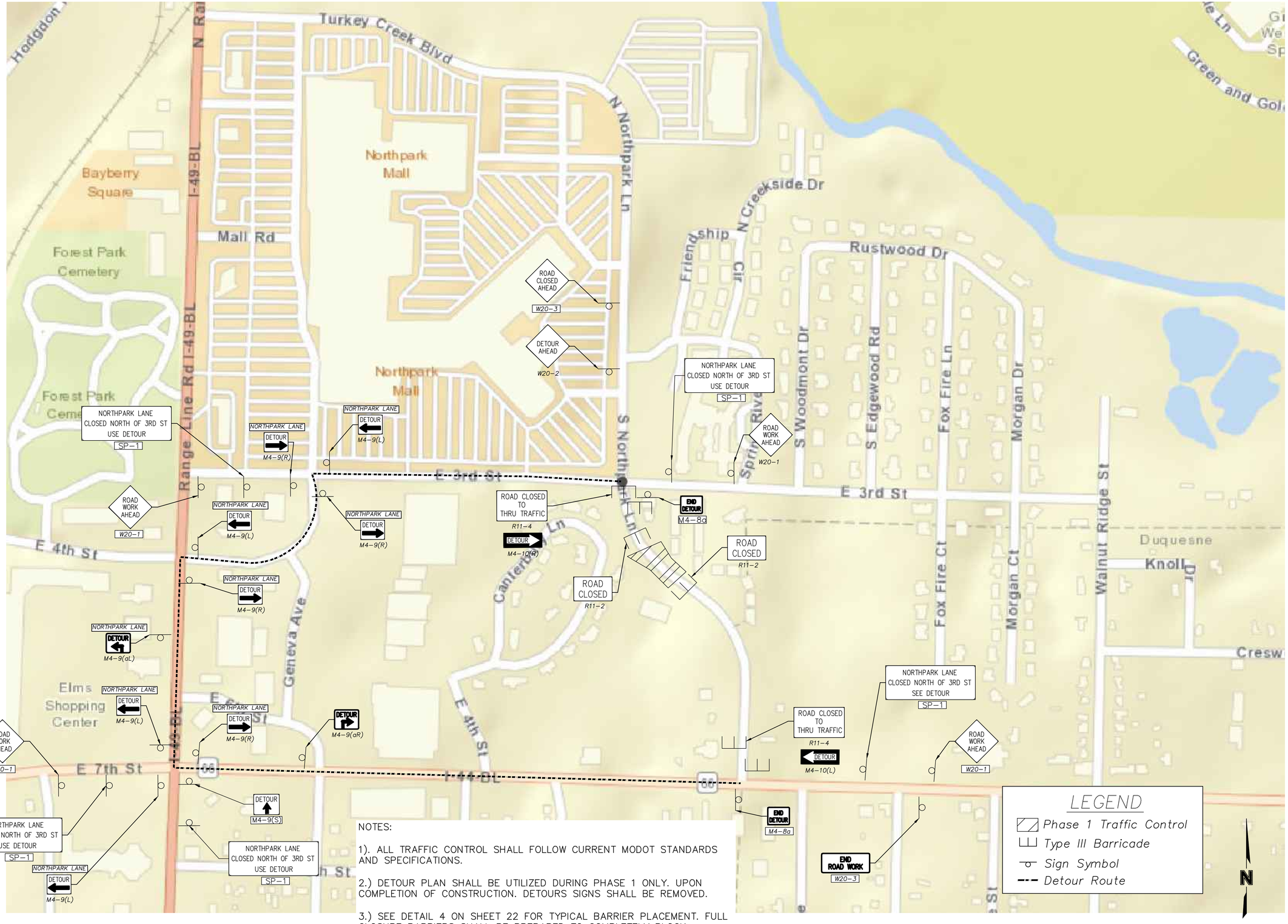
JOPLIN, MISSOURI

2022

drawn by:	TLH
designed by:	JMP
checked by:	JSS
project no.:	K17-0642
drawing no.:	F_TC_K170642
date:	06.24.2022

SHEET
17 of 22

DWG: C:\Temp\AcPublish_1200\F_TC_K170642.dwg USER: jpudlowski
DATE: Jun 24, 2022 12:46pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642 F_TBLK_K170642



NOTES:

1). ALL TRAFFIC CONTROL SHALL FOLLOW CURRENT MODOT STANDARDS AND SPECIFICATIONS.

2.) DETOUR PLAN SHALL BE UTILIZED DURING PHASE 1 ONLY. UPON COMPLETION OF CONSTRUCTION. DETOURS SIGNS SHALL BE REMOVED.

3.) SEE DETAIL 4 ON SHEET 22 FOR TYPICAL BARRIER PLACEMENT. FULL CLOSURE BARRIERS SHALL BE PREPARED TO COMPLETELY BLOCK ROADWAY FROM CURB TO CURB.

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
06-24-22

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

TRAFFIC CONTROL PLAN
DETOUR PLAN (PHASE 1)

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

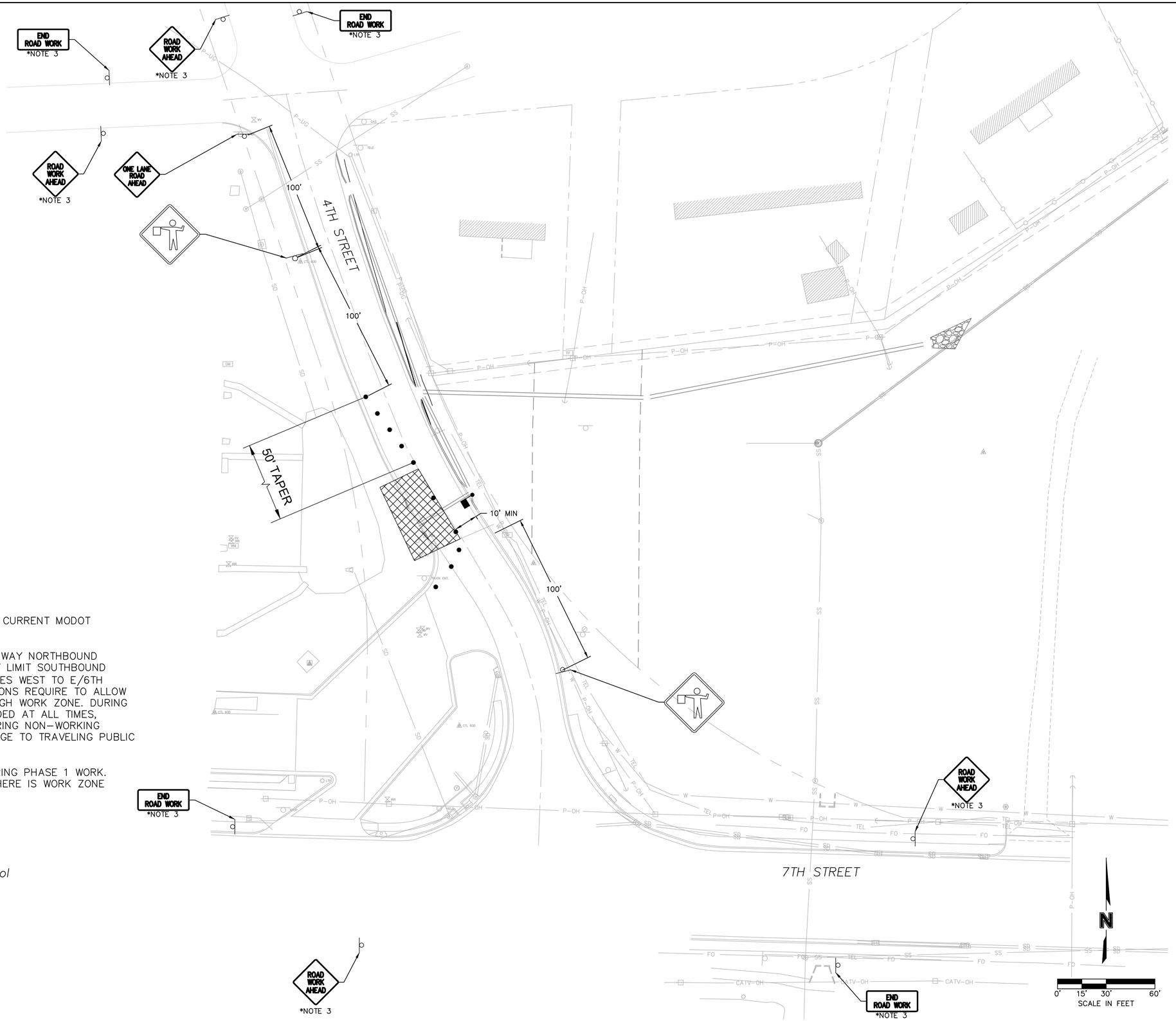
JOPLIN, MISSOURI

2022

drawn by:	TLH
designed by:	JMP
checked by:	JSS
project no.:	K17-0642
drawing no.:	F_TC_K170642
date:	06.24.2022

SHEET
18 of 22

DWG: C:\Temp\AcPublish_1200\F_TC_K170642.dwg USER: jpudlowski
DATE: Jun 24, 2022 12:46pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642 F_TBLK_K170642



NOTES:

1). ALL TRAFFIC CONTROL SHALL FOLLOW CURRENT MODOT STANDARDS AND SPECIFICATIONS.

2.) CONTRACTORS SHALL, MAINTAIN ONE–WAY NORTHBOUND TRAFFIC AT ALL TIMES. CONTRACTOR MAY LIMIT SOUTHBOUND TRAFFIC AND ROUTE SOUTHBOUND VEHICLES WEST TO E/6TH STREET DURING WORK HOURS AS CONDITIONS REQUIRE TO ALLOW FREE–FLOW NORTHBOUND TRAFFIC THROUGH WORK ZONE. DURING WORK HOURS ONE–LANE MUST BE PROVIDED AT ALL TIMES, CONTRACTOR SHALL PLATE ROADWAY DURING NON–WORKING HOURS AND PROVIDE APPROPRIATE SIGNAGE TO TRAVELING PUBLIC ADVISING OF STEEL PLATE IN ROADWAY.

3.) IF PHASE 2 ROAD WORK OCCURS DURING PHASE 1 WORK. CONTRACTOR MAY OMIT SIGNAL WHERE THERE IS WORK ZONE SIGNING OVERLAP.

LEGEND

- Phase 2A Traffic Control
- Type III Barricade
- Sign Symbol
- Channelizing Device
- Flagger

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
06-24-22

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

TRAFFIC CONTROL PLAN
PHASE 2A TRAFFIC CONTROL

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

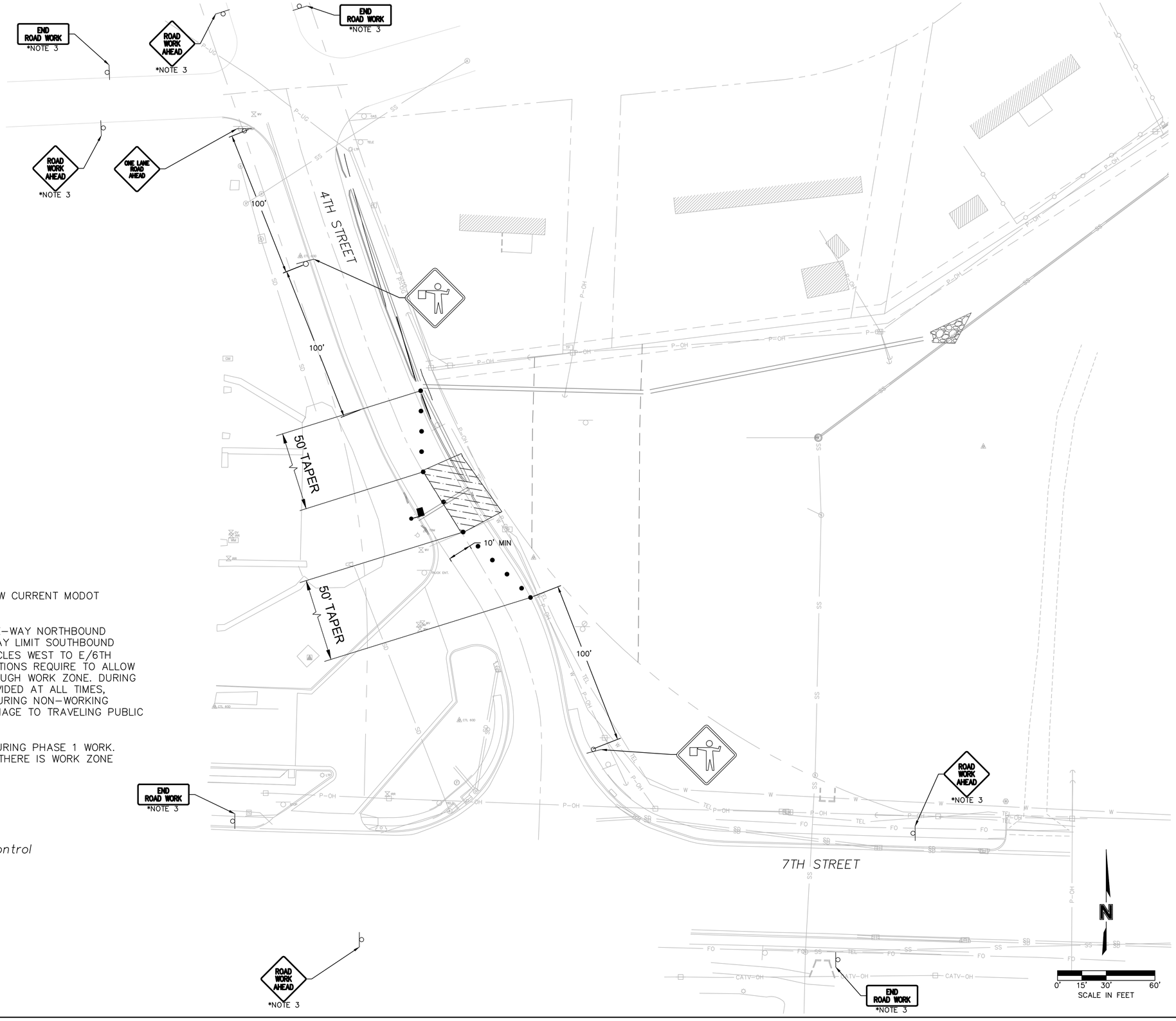
JOPLIN, MISSOURI

2022

drawn by:	TLH
designed by:	JMP
checked by:	JSS
project no.:	K17-0642
drawing no.:	F_TC_K170642
date:	06.24.2022

SHEET
19 *of* 22

DWG: C:\Temp\AcPublish_1200\F_TC_K170642.dwg USER: jpudlowski
DATE: Jun 24, 2022 12:46pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642 F_TBLK_K170642



NOTES:

1). ALL TRAFFIC CONTROL SHALL FOLLOW CURRENT MODOT STANDARDS AND SPECIFICATIONS.

2.) CONTRACTORS SHALL, MAINTAIN ONE-WAY NORTHBOUND TRAFFIC AT ALL TIMES. CONTRACTOR MAY LIMIT SOUTHBOUND TRAFFIC AND ROUTE SOUTHBOUND VEHICLES WEST TO E/6TH STREET DURING WORK HOURS AS CONDITIONS REQUIRE TO ALLOW FREE-FLOW NORTHBOUND TRAFFIC THROUGH WORK ZONE. DURING WORK HOURS ONE-LANE MUST BE PROVIDED AT ALL TIMES, CONTRACTOR SHALL PLATE ROADWAY DURING NON-WORKING HOURS AND PROVIDE APPROPRIATE SIGNAGE TO TRAVELING PUBLIC ADVISING OF STEEL PLATE IN ROADWAY.

3.) IF PHASE 2 ROAD WORK OCCURS DURING PHASE 1 WORK. CONTRACTOR MAY OMIT SIGNAL WHERE THERE IS WORK ZONE SIGNING OVERLAP.

LEGEND

- Phase 2B Traffic Control
- Type III Barricade
- Sign Symbol
- Channelizing Device
- Flagger

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
6-24-22

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

TRAFFIC CONTROL PLAN
PHASE 2B TRAFFIC CONTROL

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

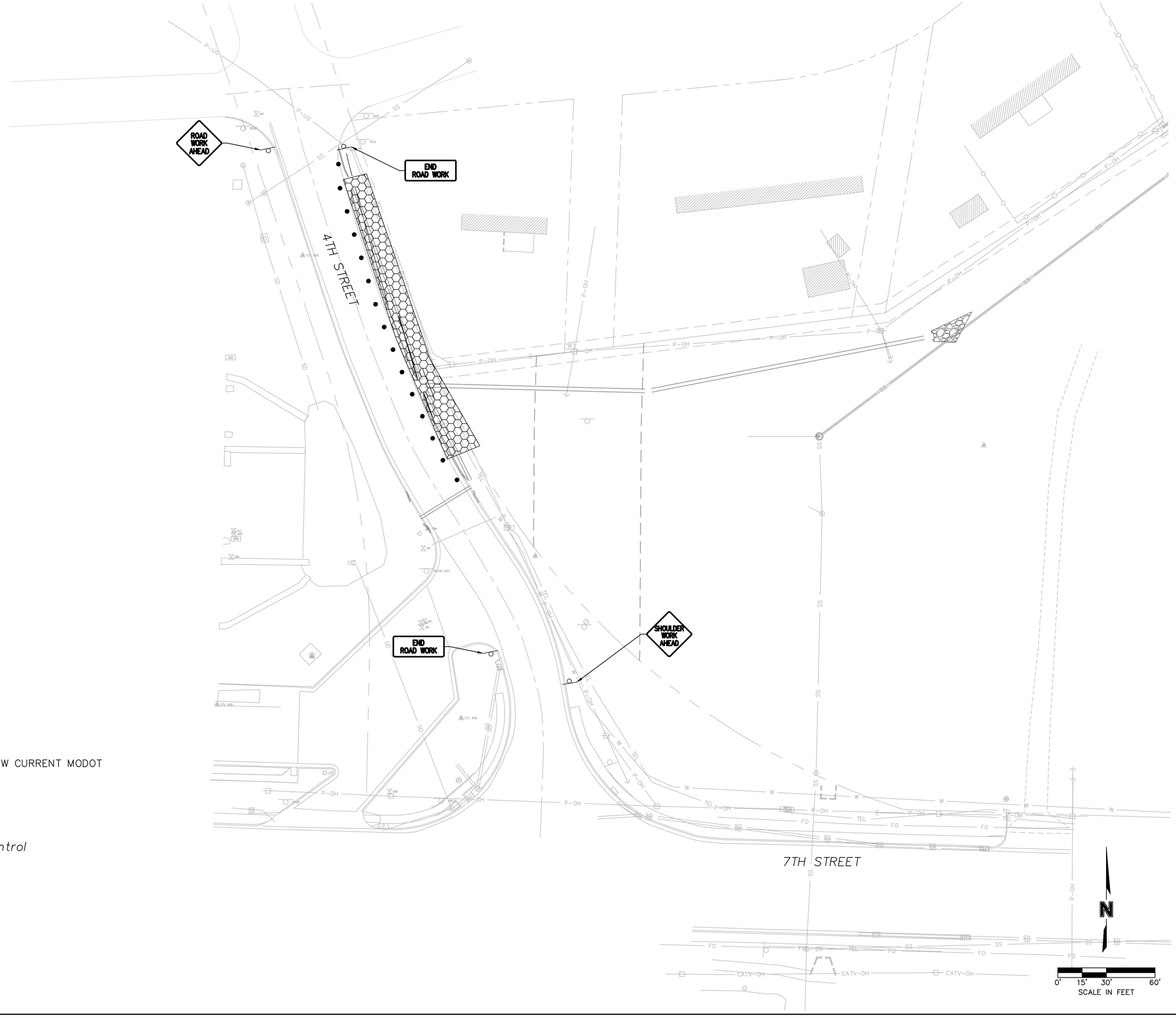
JOPLIN, MISSOURI

2022

drawn by:	TLH
designed by:	JMP
checked by:	JSS
project no.:	K17-0642
drawing no.:	F_TC_K170642
date:	06.24.2022

SHEET
20 *of* 22

DWG: C:\Temp\AcPublish_1200\F_TC_K170642.dwg USER: jpudlowski
DATE: Jun 24, 2022 12:46pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642 F_TBLK_K170642



NOTES:

1). ALL TRAFFIC CONTROL SHALL FOLLOW CURRENT MODOT STANDARDS AND SPECIFICATIONS.

LEGEND

- Phase 3 Traffic Control
- Type III Barricade
- Sign Symbol
- Channelizing Device

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
06-24-22

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

TRAFFIC CONTROL PLAN
PHASE 3 TRAFFIC CONTROL

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

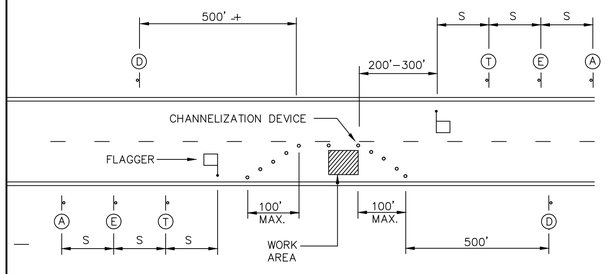
JOPLIN, MISSOURI

2022

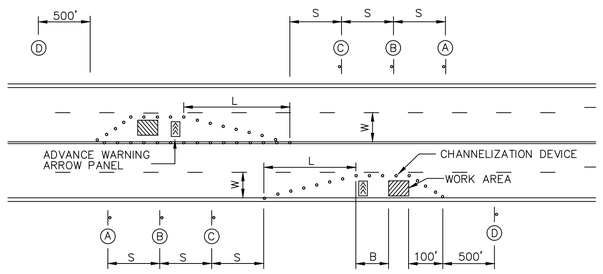
drawn by: TLH
designed by: JMP
checked by: JSS
project no.: K17-0642
drawing no.: F_TC_K170642
date: 06.24.2022

SHEET
21 of 22

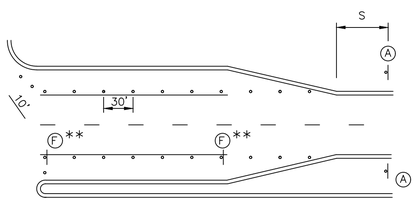
DWG: C:\Temp\AcPublish_1200\F_TC_K170642.dwg USER: jpudlowski
DATE: Jun 24, 2022 12:46pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642 F_TBLK_K170642



DETAIL 1: TYPICAL CLOSURE – TWO–LANE STREET

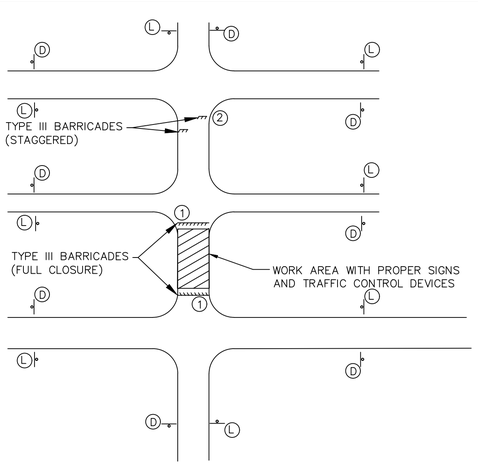


DETAIL 2: TYPICAL LANE CLOSURE – FOUR–LANE STREET



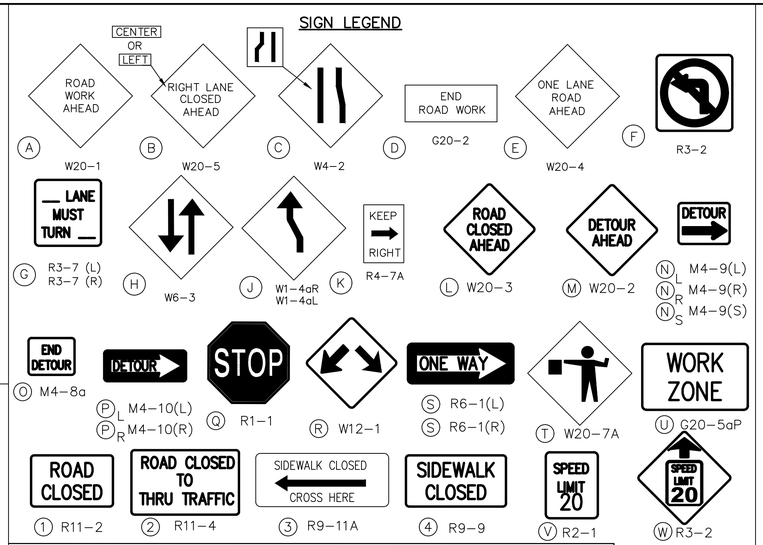
** USE ONLY AS APPROVED BY CITY TRAFFIC ENGINEER

DETAIL 3: TYPICAL RIGHT–TURN LANE AND LEFT–TURN LANE CLOSURES

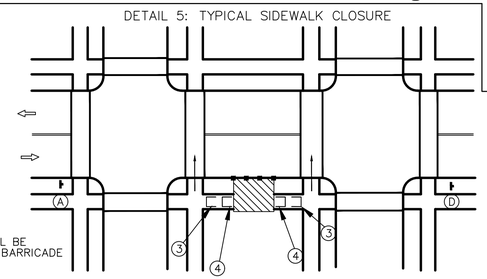


DETAIL 4: TYPICAL SIDE ROAD SIGNING FOR ROAD CLOSURE

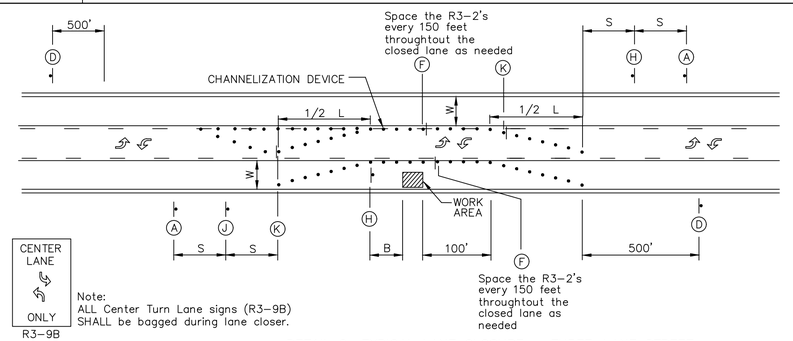
SIGN LEGEND



DETAIL 5: TYPICAL SIDEWALK CLOSURE



NOTE: SIGNS SHALL BE MOUNTED TO ADA BARRICADE



Note: ALL Center Turn Lane signs (R3–9B) SHALL be bagged during lane closer.

DETAIL 6: TYPICAL LANE CLOSURE – THREE–LANE STREET

Guidelines for length of longitudinal buffer space (B)	
Speed* (mph)	Length (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	300

*Posted speed

SIGN SPACING(S)	
Speed Limit M.P.H.	Spacing (Feet)
≤ 30	100
35 – 45	350
≥ 55	500

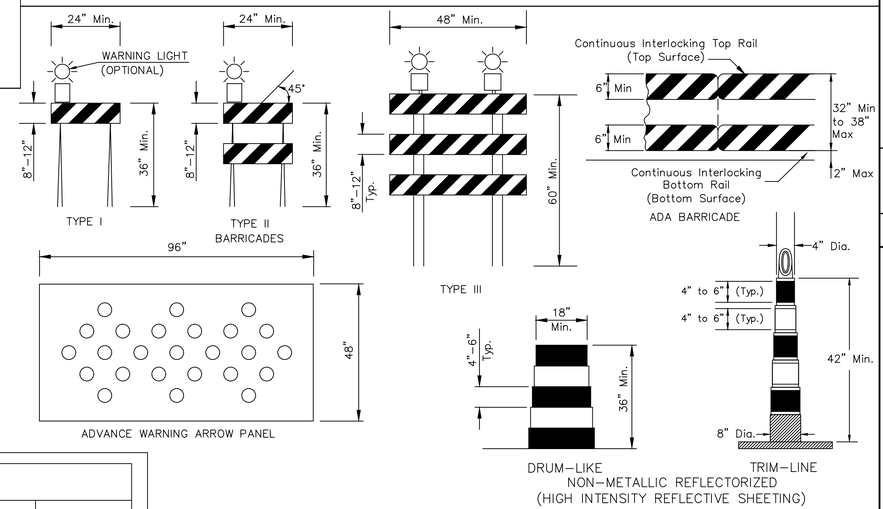
MAXIMUM CHANNELIZATION SPACING IN FEET *		
Speed Limit M.P.H.	Along Taper	After Taper
20	20	40
25	25	50
30	30	60
35	35	70
40	40	80
45	45	90
50	50	100
55	55	100

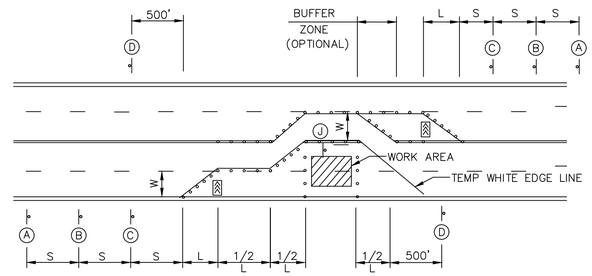
* The maximum distance in feet between devices in a taper should not exceed 1.0 times the speed limit in MPH.

TAPER DETAIL				
Speed Limit M.P.H.	Minimum Taper Length (L) Lane Width (W) 10	11	12	Minimum Number of Channelizing Devices for Taper
20	70	75	80	5
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
50	500	550	600	13
55	550	605	660	13

GENERAL NOTES:

1. All signs, barricades, drums, markings and other traffic control devices shall conform to the Manual on Uniform Traffic Control Devices (M.U.T.C.D.), most current edition.
2. All traffic control devices shall be standard in size, shape, color and message, in good condition, and reflectorized. All signs and barricades in place at night shall be reflectorized with high intensity sheeting. All signs shall be securely mounted with height and lateral location as described in the M.U.T.C.D.
3. Advance Warning Arrow Panels shall be used for all lane closures on multi–lane streets but should not be used in lieu of proper traffic control signs, barricades and channelization devices.
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 Engineer in charge of construction. Where flaggers are used, advance signing shall be erected as shown above or as specified in the M.U.T.C.D. Flaggers shall meet the requirements in the M.U.T.C.D. in regard to character, training, attire and behavior.
5. Channelization devices used in the street shall be either drums, cones or Trimline channelizers.
6. Traffic control devices not in use or not applicable shall be either covered or removed from the work area.
7. The Contractor shall place as many barricades as needed to effectively shield pedestrians and traffic from exposed objects, excavations and construction activities. ADA Pedestrian Barricades shall be installed around all excavations left open during non–construction times or as directed by the Engineer in charge of construction.
8. Access shall be maintained to all driveways and side streets unless noted otherwise on the plans.
9. 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 Engineer in charge of construction.
10. Dirt, mud and other construction debris on streets and sidewalks shall be removed immediately.
11. The Contractor shall not perform any work that will restrict traffic in any way between the hours of 7:00 a.m. and 8:30 a.m. or 4:30 p.m. and 6:00 p.m. unless prior approval has been given.
12. 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.
13. 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 motorist, pedestrians, and workers at all times. Any additional quantities of traffic control devices necessary to complete the contract or as ordered by the Engineer shall be considered subsidiary to the contract bid price.
14. Construction vehicles parked along streets and construction signs shall not restrict sight distance for vehicles exiting at streets or any drives.
15. 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 Engineer or representative, the City/Controlling Jurisdiction may take one or more of the following actions:
    A) Employ another agency to correct deficiencies in signing or warning devices and deduct the cost from the contractor's pay estimate
    B) Suspend all pay Estimates until deficiencies are corrected.
    C) Stop the work until deficiencies are corrected.
    D) Place the contractor in default.
16. The Contractor shall keep roadway closures due to construction activities to a minimum and provide advanced notice to affected users.
17. The Contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.
18. The Contractor may, if need arises or at the request of the Engineer, place reduced speed limit signing and work zone speed limit signing in advance of all active work zone areas. Work zone speed limit reduction shall not be greater than 10 mph throughout construction areas without advanced signing in place. Contractor shall cover or replace all speed limit signs in conflict with the work zone speed limit throughout the construction area.





DETAIL 7: TYPICAL LANE CLOSURE – FOUR–LANE STREET

olsson
550 St. Louis St.
Springfield, MO 65806
TEL 417.890.8802
www.olsson.com

STATE OF MISSOURI
JOSHUA PUDLOWSKI
NUMBER PE-2021009515
PROFESSIONAL ENGINEER
6-24-22

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

TRAFFIC CONTROL DETOUR PLAN
TRAFFIC CONTROL DETAIL

STORMWATER IMPROVEMENTS
7TH AND CANTERBURY LANE

JOPLIN, MISSOURI

2022

drawn by: TLH
designed by: JMP
checked by: JSS
project no.: K17-0642
drawing no.: F_TC_K170642
date: 06.24.2022

SHEET
22 of 22

DWG: F:\2017\0501-1000\017-0642-K\40-Design\AutoCAD\Final Plans\Sheets\TFTC\F_TC_K170642.dwg USER: dboll
DATE: Jun 24, 2022 12:05pm XREFS: W_PALGN_K170642 V_XBNDY_K170642 V_XTOPO_K170642 W_PBASE_K170642
F_TBLK_K170642