TWIN EQUALIZATION BASIN IMPROVEMENTS JOPLIN, MISSOURI 2018

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TAYLOR BROWN
DOUG LAWSON
JIM WEST
ANTHONY MONTELEONE
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ZONE III – PHIL STINNETT
ZONE IV – DIANE REID ADAMS

CITY MANAGER
SAM ANSELM

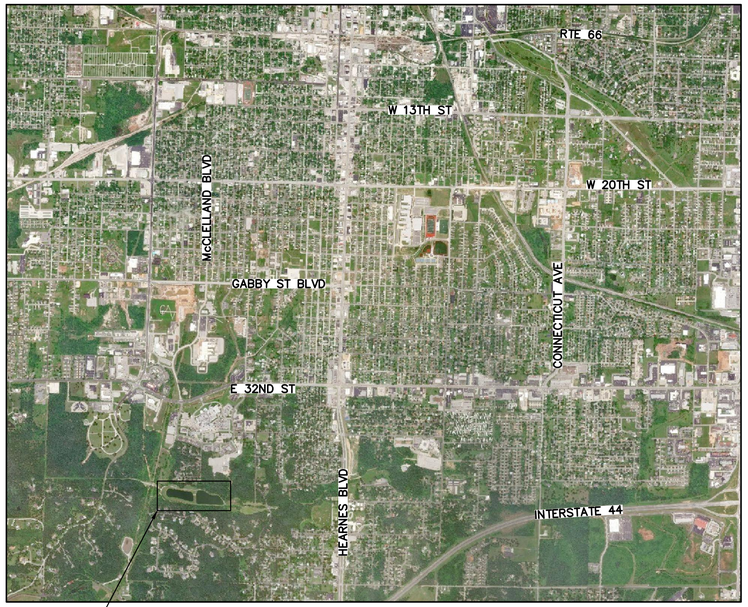
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TALOR CUNNINGHAM

PUBLIC WORKS DIRECTOR
DAVID HERTZBERG

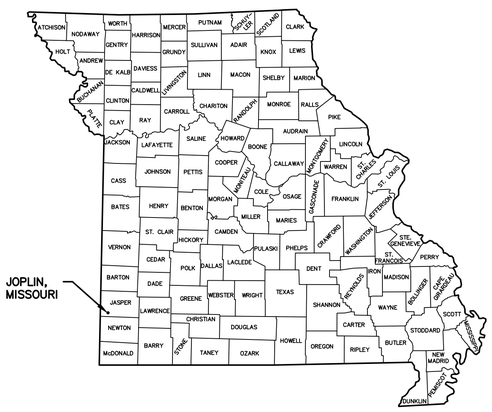
PLANT SUPERINTENDENT
LYNDELL J. EDWARDS

PREPARED FOR
CITY OF JOPLIN
602 S MAIN STREET
JOPLIN, MO 64801

PREPARED BY
OLSSON ASSOCIATES
702 S MAIN STREET
JOPLIN, MO. 64801



LOCATION MAP
NOT TO SCALE



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!!

SHEET LIST TABLE

SHEET NO.	SHEET TITLE
GENERAL	
G1	TITLE SHEET
G2	GENERAL LAYOUT
G3	PROCESS SCHEMATIC
G4	HYDRAULIC PROFILE
CIVIL	
C1	NORTHWEST DIVERSION STRUCTURE DEMOLITION PLAN
C2	NORTHWEST DIVERSION STRUCTURE IMPROVEMENT PLAN
C3	SOUTHEAST DIVERSION STRUCTURE DEMOLITION & IMPROVEMENT PLAN
ELECTRICAL	
E1	ELECTRICAL GENERAL LAYOUT
E2	ENLARGED PLANS, ONE–LINE AND SCHEDULES

GENERAL NOTES

1. BACKGROUND INFORMATION IS BASED ON SURVEY, 1983 SHOAL CREEK EQUALIZATION BASIN RECORD DRAWINGS, AND 1987 GLENDALE RELIEF RECORD DRAWINGS.
2. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

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NUMBER PE–2013019078
PROFESSIONAL ENGINEER
8/23/2019
SHAUN W. MCCONNAUGHEY
PROFESSIONAL ENGINEER
MO# PE–2013019078

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

TITLE SHEET

JOPLIN TWIN EQUALIZATION BASIN IMPROVEMENTS - PHASE 1

2018

JOPLIN, MISSOURI

drawn by: BEG
checked by: MGK
approved by: SWM
QA/QC by:
project no.: 018-1419
drawing no.:
date: 8/15/2019

G1

DWG: F:\2018\1001-1500\018-1419\40-Design\AutoCAD\Preliminary Plans\Sheets\WTWW\P_COVER_81419.dwg USER: mking
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REVISIONS

GENERAL LAYOUT

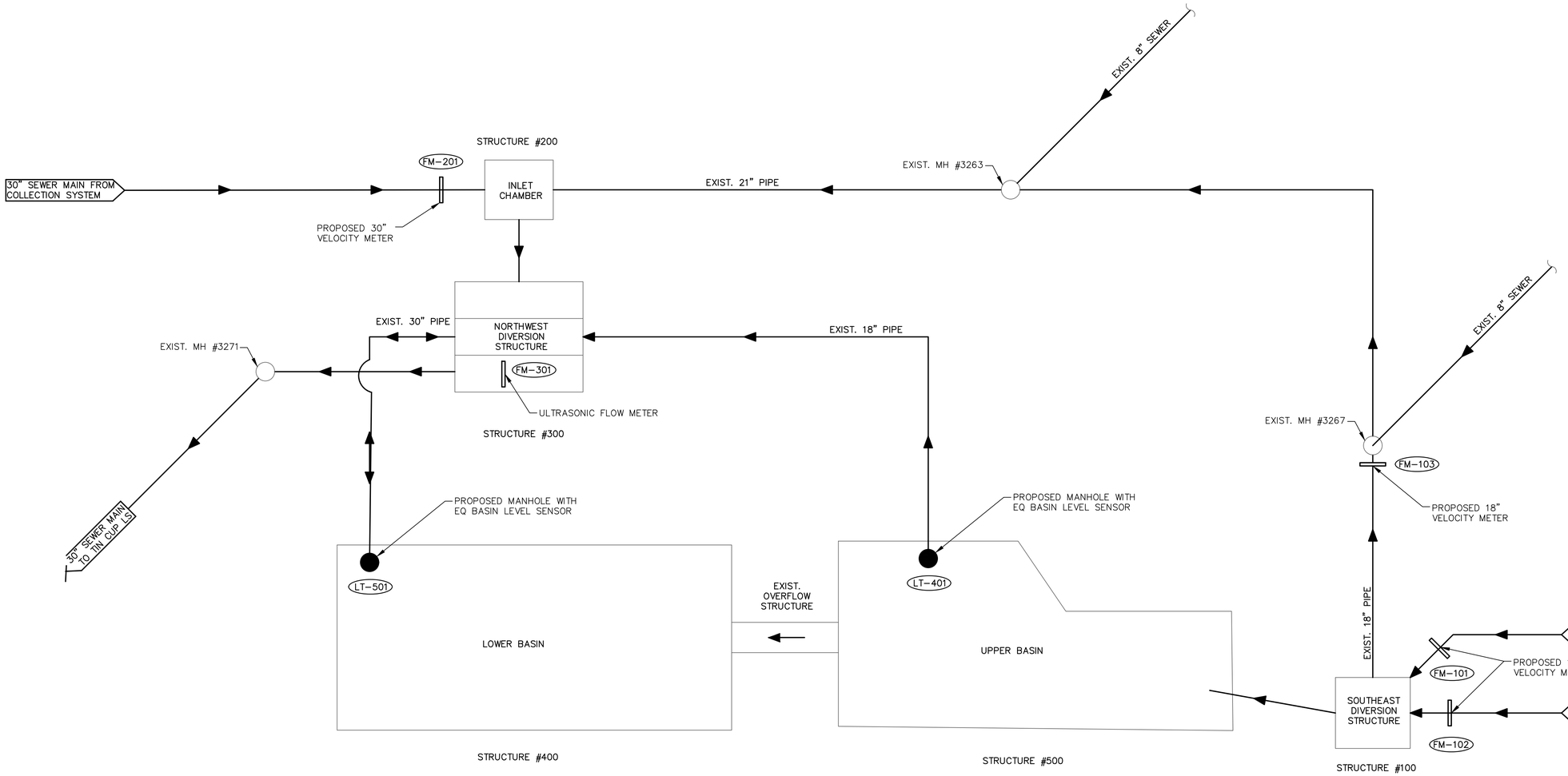
JOPLIN TWIN EQUALIZATION BASIN
IMPROVEMENTS - PHASE 1

JOPLIN, MISSOURI

2018

drawn by:	BEG
checked by:	MGK
approved by:	SWM
QA/QC by:	
project no.:	018-1419
drawing no.:	
date:	8/15/2019

G2



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PROCESS SCHEMATIC

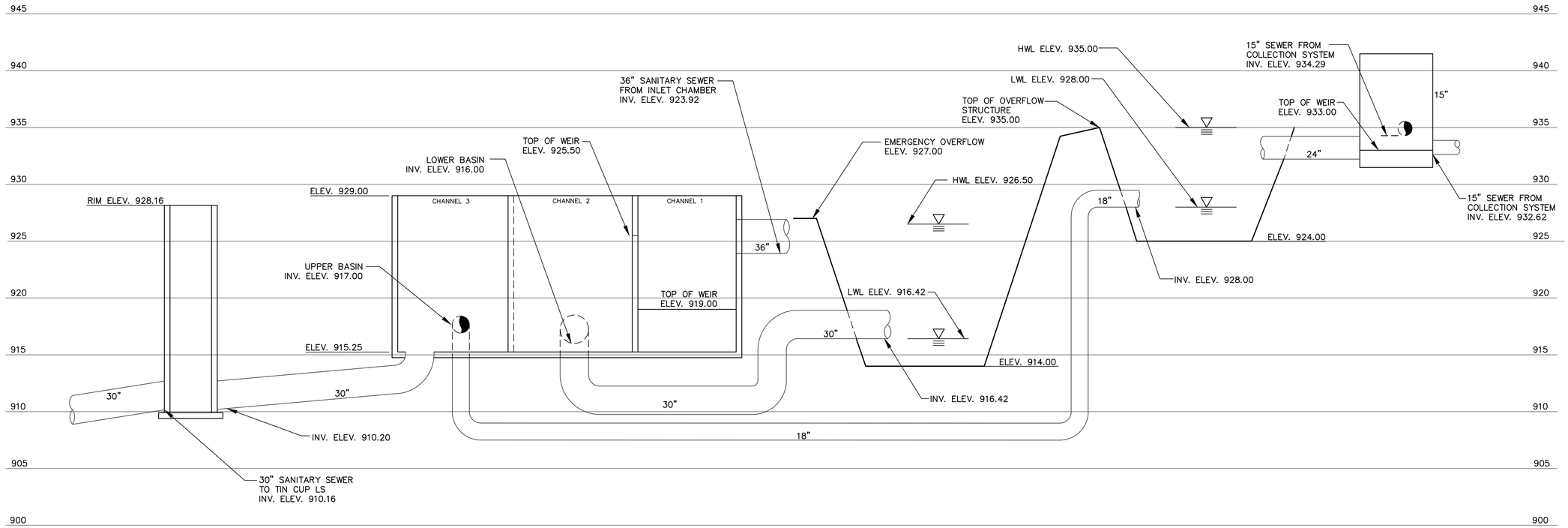
JOPLIN TWIN EQUALIZATION BASIN IMPROVEMENTS - PHASE 1

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date: 8/15/2019

G3



EXIST. MH #3271 | NORTHWEST DIVERSION STRUCTURE | LOWER BASIN | UPPER BASIN | SOUTHEAST DIVERSION STRUCTURE

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REVISIONS

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HYDRAULIC PROFILE

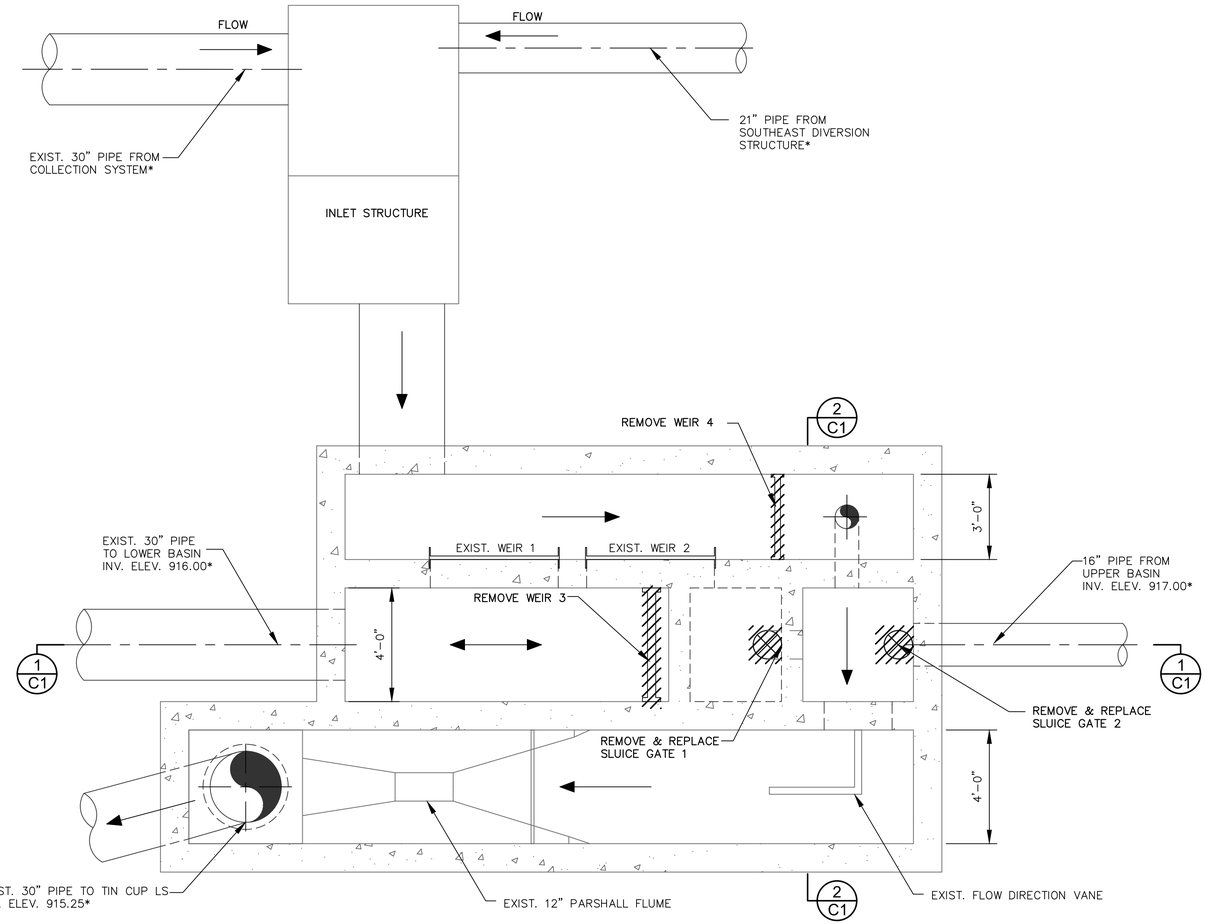
JOPLIN TWIN EQUALIZATION BASIN
IMPROVEMENTS - PHASE 1

JOPLIN, MISSOURI

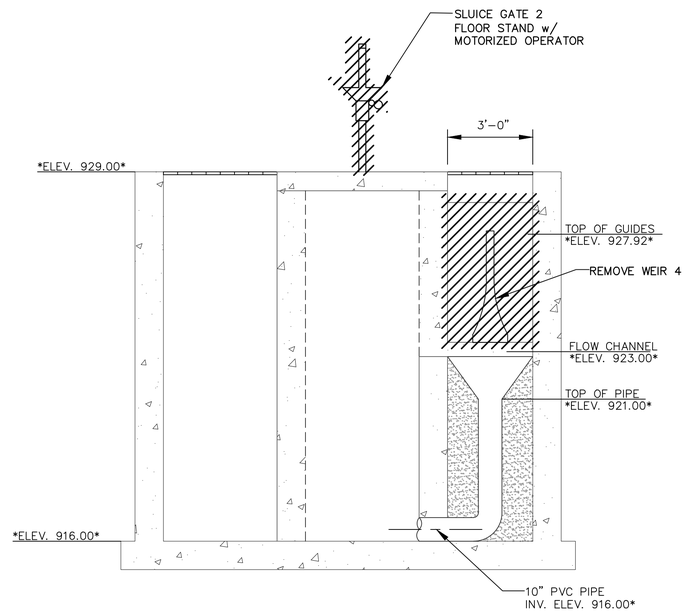
2018

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project no.: 018-1419
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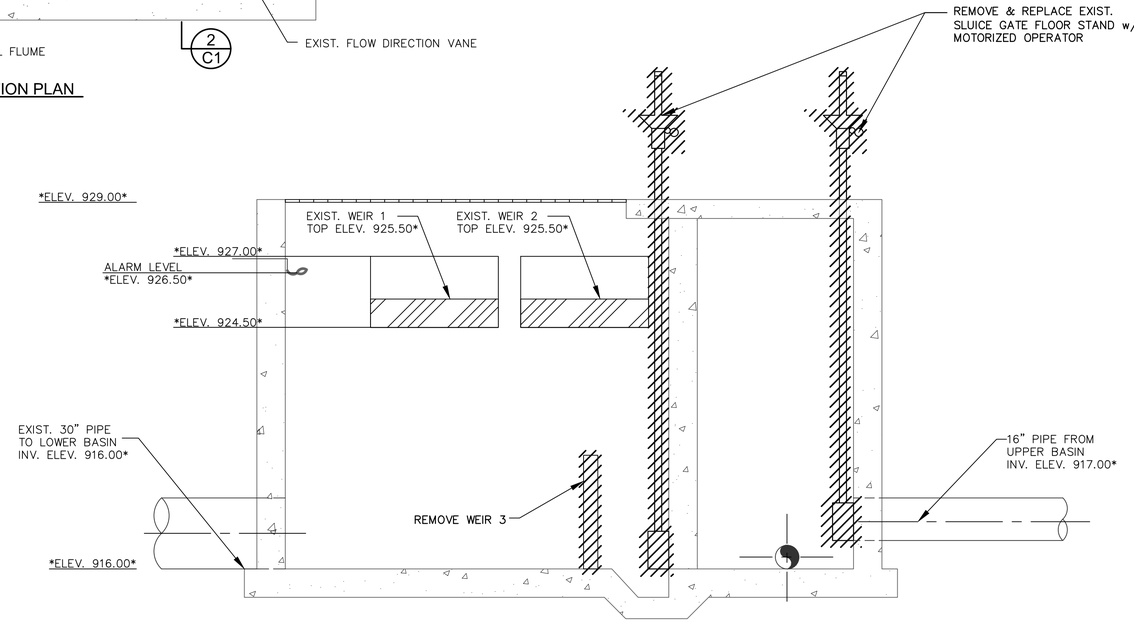
G4



NORTHWEST DIVERSION STRUCTURE DEMOLITION PLAN
SCALE: 3/8" = 1'-0"



SECTION 2
SCALE: 3/8" = 1'-0"



SECTION 1
SCALE: 3/8" = 1'-0"

* INFORMATION FROM 1983 SHOAL CREEK EQUALIZATION BASIN RECORD DRAWINGS.

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NORTHWEST DIVERSION STRUCTURE
DEMOLITION PLAN

JOPLIN TWIN EQUALIZATION BASIN
IMPROVEMENTS - PHASE 1

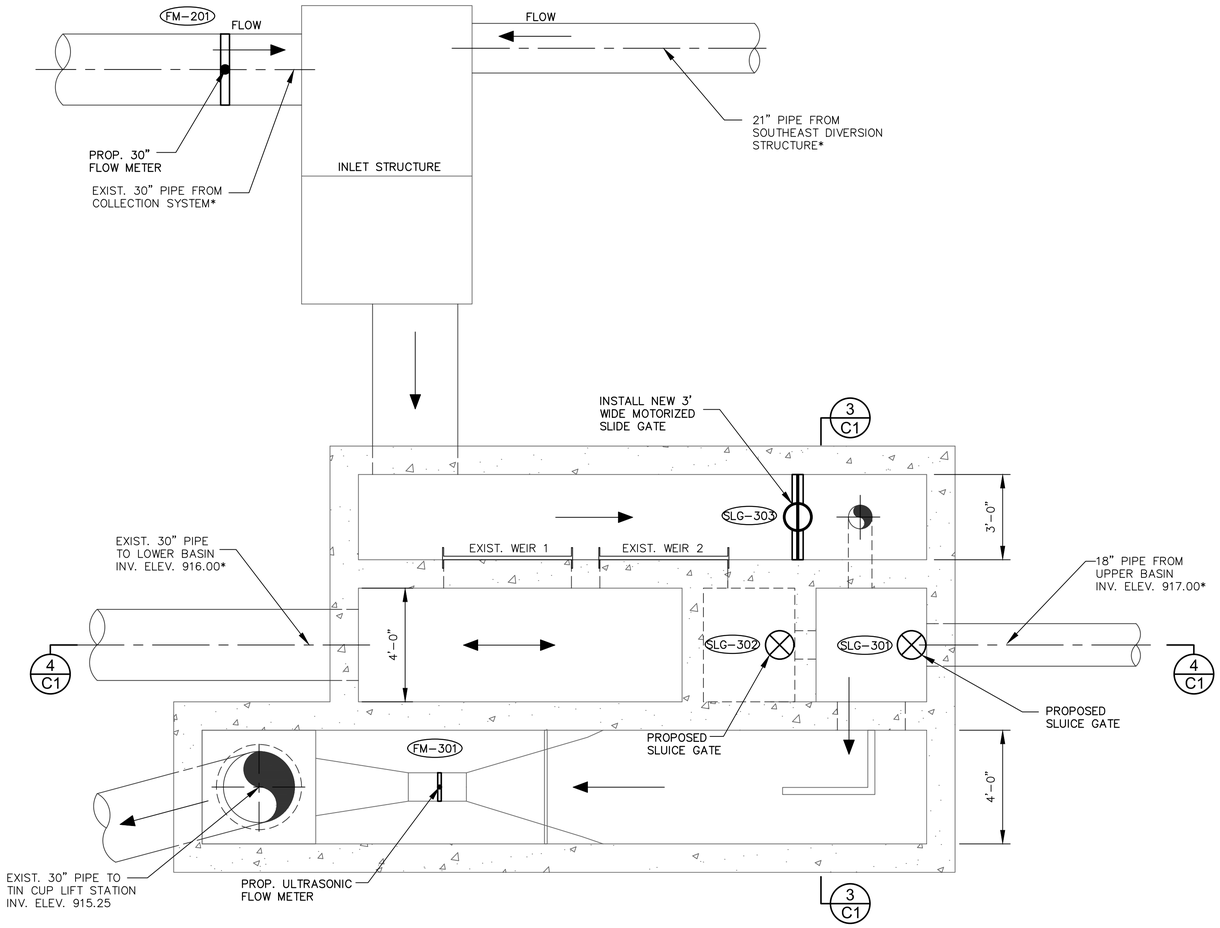
JOPLIN, MISSOURI

2018

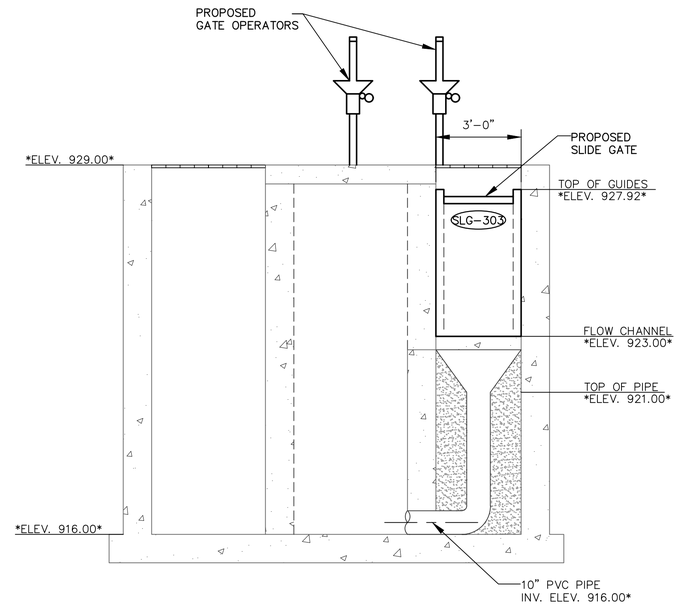
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approved by: SWM
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project no.: 018-1419
drawing no.:
date: 8/15/2019

C1

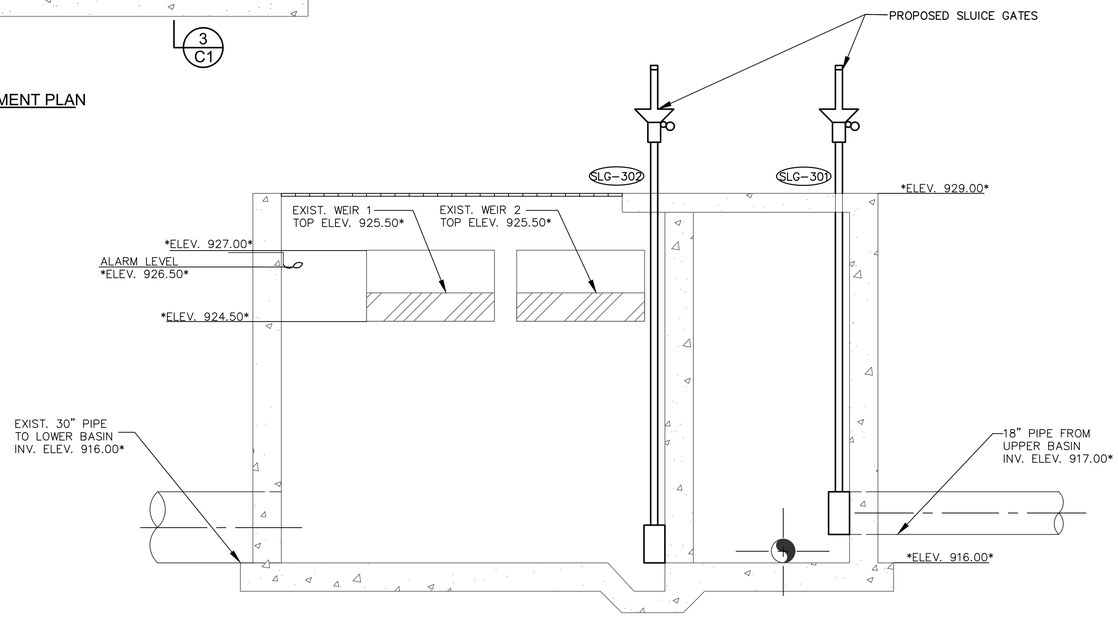
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NORTHWEST DIVERSION STRUCTURE IMPROVEMENT PLAN
SCALE: 3/8" = 1'-0"



SECTION 3
SCALE: 3/8" = 1'-0"



SECTION 4
SCALE: 3/8" = 1'-0"

* INFORMATION FROM 1983 SHOAL CREEK EQUALIZATION BASIN RECORD DRAWINGS.

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NORTHWEST DIVERSION STRUCTURE IMPROVEMENT PLAN

JOPLIN TWIN EQUALIZATION BASIN IMPROVEMENTS - PHASE 1

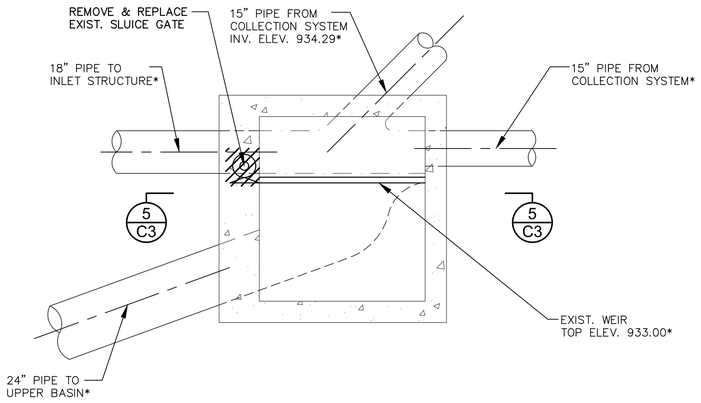
2018

JOPLIN, MISSOURI

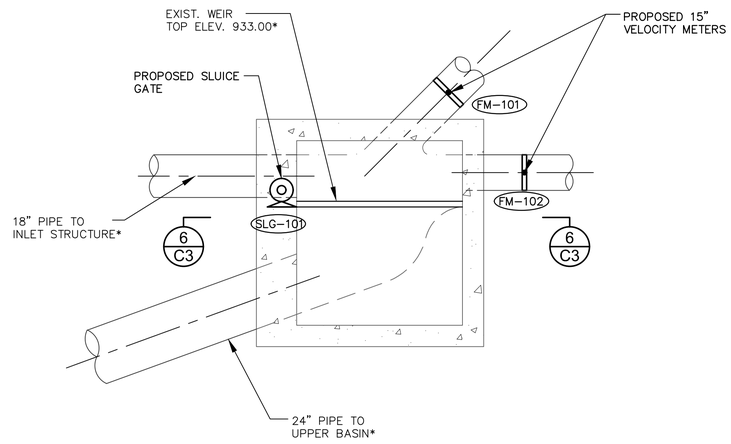
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project no.: 018-1419
drawing no.:
date: 8/15/2019

C2

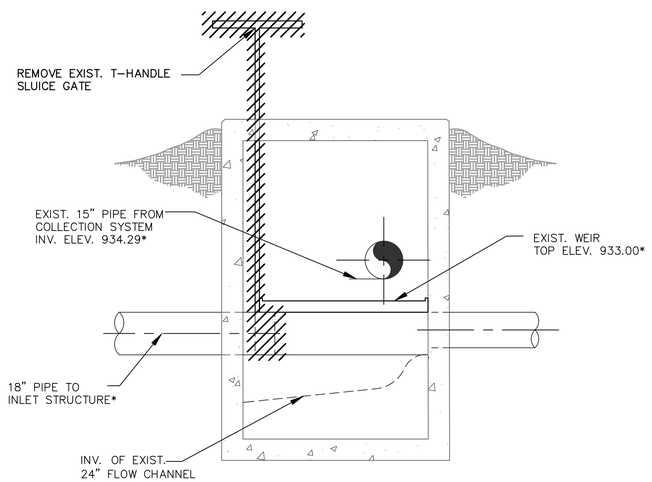
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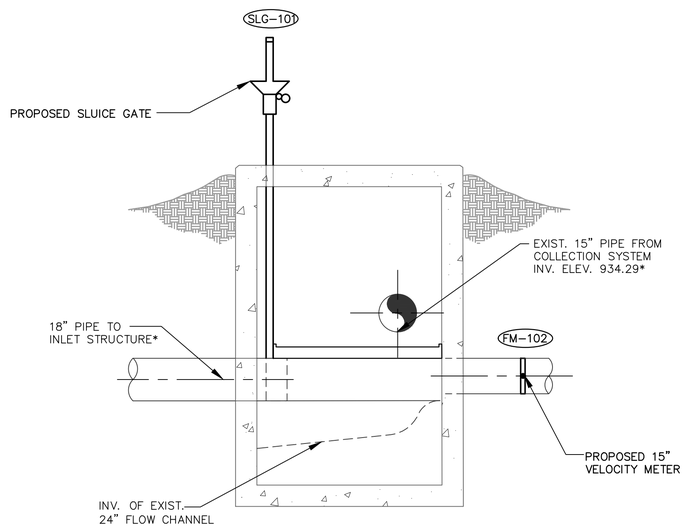
SOUTHEAST DIVERSION STRUCTURE DEMOLITION PLAN
SCALE: NOT TO SCALE



SOUTHEAST DIVERSION STRUCTURE IMPROVEMENT PLAN
SCALE: NOT TO SCALE



SECTION 5
SCALE: NOT TO SCALE



SECTION 6
SCALE: NOT TO SCALE

* INFORMATION FROM 1987 GLENDALE PUBLIC RELIEF RECORD DRAWINGS.

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SOUTHEAST DIVERSION STRUCTURE
DEMOLITION & IMPROVEMENT PLAN

JOPLIN TWIN EQUALIZATION BASIN
IMPROVEMENTS - PHASE 1

JOPLIN, MISSOURI

2018

drawn by: BEG
checked by: MGK
approved by: SWM
QA/QC by:
project no.: 018-1419
drawing no.:
date: 8/15/2019

C3

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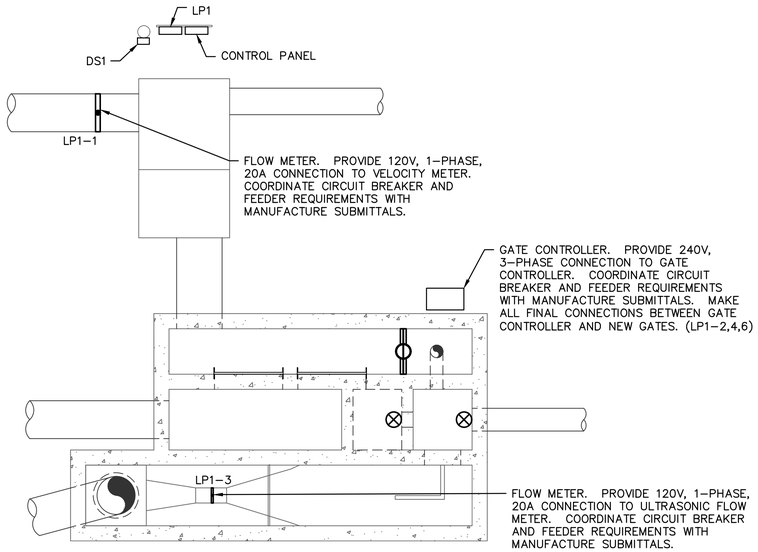
ELECTRICAL GENERAL LAYOUT

JOPLIN TWIN EQUALIZATION BASIN IMPROVEMENTS - PHASE 1

JOPLIN, MISSOURI 2018

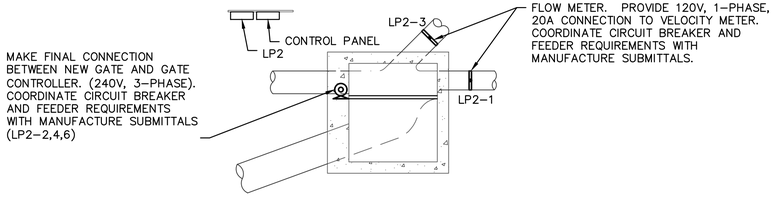
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QA/QC by:
project no.: 018-1419
drawing no.:
date: 8/15/2019

E1



2 NORTHWEST DIVERSION STRUCTURE IMPROVEMENT PLAN

SCALE: NTS



3 SOUTHEAST DIVERSION STRUCTURE IMPROVEMENT PLAN

SCALE: NTS

PANEL SCHEDULE

PANEL DESIGNATION:	SERVICE:	PANEL SIZE:	PANEL OPTIONS: COPPER BUS, GND BUS	MOUNTING: SURFACE	MIN AIC: 22000
LP1	120/208V-3PH-4W FED FROM: UTILITY	MAIN BUS: 100 AMPS MLO		LOCATION: NORTHWEST	NEMA TYPE: 3R

REV NO.	NOTE NO.	CIRC NO.	LOAD DESCRIPTION	CIRC BRKR	POLES	LOAD (VA)	PHASE LOADS (VA) A	B	C	LOAD (VA)	POLES	CIRC BRKR	LOAD DESCRIPTION	CIRC NO.	NOTE NO.	REV NO.
		1	FLOW METER	20	1	500	1500			1000	3	20	GATE CONTROLLER	2	1	
		3	FLOW METER	20	1	500		1500		1000		-	-	4		
		5	CONVENIENCE RECEPT	20	1	360			1360	1000		-	-	6		
		7	CONTROL PANEL	20	1	500	500							8		
		9	SPARE	20	1	0		0						10		
		11	SPARE	20	1	0			0					12		
		13					0							14		
		15						0						16		
		17							0					18		
		19					0							20		
		21						0						22		
		23							0					24		
		25					0							26		
		27						0						28		
		29							0					30		
		31					0							32		
		33						0						34		
		35							0					36		
		37					2000			2000	3	30	PANEL LP2 - SUB FEED	38		
		39						2000		2000		-		40		
		41							1360	1360		-		42		
							0									
								0								
									0							

	A	B	C	
TOTAL CONNECTED PER PHASE (VA):	4000	3500	2720	Diversity Factor calculated based on NEC, section 220.
PHASE AMPERAGE (A):	33	29	23	NOTES:
PANEL CONNECTED LOAD (VA):	10220.00			1. COORDINATE BREAKER SIZE WITH GATE VALVE MANUFACTURER AND ADJUST ACCORDINGLY.
DIVERSIFIED CONNECTED LOAD:	10220.00			
SPARE CAPACITY:	25%			
MINIMUM PANEL/FEEDER SIZE(AMPS):	31			

PANEL SCHEDULE

PANEL DESIGNATION:	SERVICE:	PANEL SIZE:	PANEL OPTIONS: COPPER BUS, GND BUS	MOUNTING: SURFACE	MIN AIC: 10000
LP2	120/208V-3PH-4W FED FROM: LP1	MAIN BUS: 100 AMPS MLO		LOCATION: SOUTHEAST	NEMA TYPE: 3R

REV NO.	NOTE NO.	CIRC NO.	LOAD DESCRIPTION	CIRC BRKR	POLES	LOAD (VA)	PHASE LOADS (VA) A	B	C	LOAD (VA)	POLES	CIRC BRKR	LOAD DESCRIPTION	CIRC NO.	NOTE NO.	REV NO.
		1	FLOW METER	20	1	500	1500			1000	3	20	GATE VALVE	2	1	
		3	FLOW METER	20	1	500		1500		1000		-	-	4		
		5	CONVENIENCE RECEPT	20	1	360			1360	1000		-	-	6		
		7	FLOW METER	20	1	500	500			0	1	20	SPARE	8		
		9	CONTROL PANEL	20	1	500		500		0	1	20	SPARE	10		
		11							0					12		
		13					0							14		
		15						0						16		
		17							0					18		
		19					0							20		
		21						0						22		
		23							0					24		
							0									
								0								
									0							

	A	B	C	
TOTAL CONNECTED PER PHASE (VA):	2000	2000	1360	Diversity Factor calculated based on NEC, section 220.
PHASE AMPERAGE (A):	17	17	11	NOTES:
PANEL CONNECTED LOAD (VA):	5360.00			1. COORDINATE BREAKER SIZE WITH GATE VALVE MANUFACTURER AND ADJUST ACCORDINGLY.
DIVERSIFIED CONNECTED LOAD:	5360.00			
SPARE CAPACITY:	25%			
MINIMUM PANEL/FEEDER SIZE(AMPS):	16			

CONDUIT APPLICATION SCHEDULE

APPLICATION	MATERIAL	FITTING TYPE (IF APPLICABLE)	NOTES
SERVICE ENTRANCE CONDUIT ABOVE GRADE ONLY	RIGID STEEL	-	-
FEEDERS ABOVE GRADE	STAINLESS STEEL	COMPRESSION	-
ALL BRANCH CIRCUITS FOR LIGHTING AND POWER	STAINLESS STEEL	COMPRESSION	-
ALL CONNECTIONS TO GATES, MOTORS	FLEXIBLE, LIQUID-TIGHT NON-METALLIC	COMPRESSION	-
SERVICE ENTRANCE CONDUIT BELOW GRADE WHERE NOT BELOW PAVED AREA	PVC	-	1,2,3
BRANCH CIRCUITS BELOW GRADE	PVC	-	1,3
SCADA WIRING - ABOVE GRADE OR EXPOSED	STAINLESS STEEL	COMPRESSION	-
SCADA WIRING - BELOW GRADE	PVC	COMPRESSION	-

NOTES:
1. TRANSITION TO METAL CONDUIT SHALL BE MADE PRIOR TO COMING UP FROM BELOW GRADE WITH STAINLESS STEEL ELBOW
2. OBTAIN UTILITY COMPANY REQUIREMENTS FOR PRIMARY SERVICE
3. SCHEDULE 40 HDPE CONDUIT MAY BE USED AT CONTRACTOR'S OPTION.

DISCONNECT SWITCH SCHEDULE

EQUIPMENT INFORMATION			SWITCH				FUSE			ENCLOSURE NEMA TYPE	NOTES
TAG	EQUIPMENT SERVED	VOLTS	DUTY	AMP	POLE	TYPE	AMP	POLE	TYPE		
"DS1"	UTILITY SERVICE DISCONNECT	240	HD	100	3	F	100	3	LPN-RK_SP	NEMA 3R	HD,SS,L,GB,SE

ABBREVIATIONS:
HD- HEAVY DUTY
GD-GENERAY DUTY
GB-GROUND BAR
SN-SOLID NEUTRAL
L-LOCKABLE
SS-STAINLESS STEEL

SWITCH TYPES:
NF-NON FUSED
F-FUSED
TOG-TOGGLE SWITCH 1HP RATED WITH THERMAL OVERLOAD PROTECTION
SE-SERVICE ENTRANCE RATED

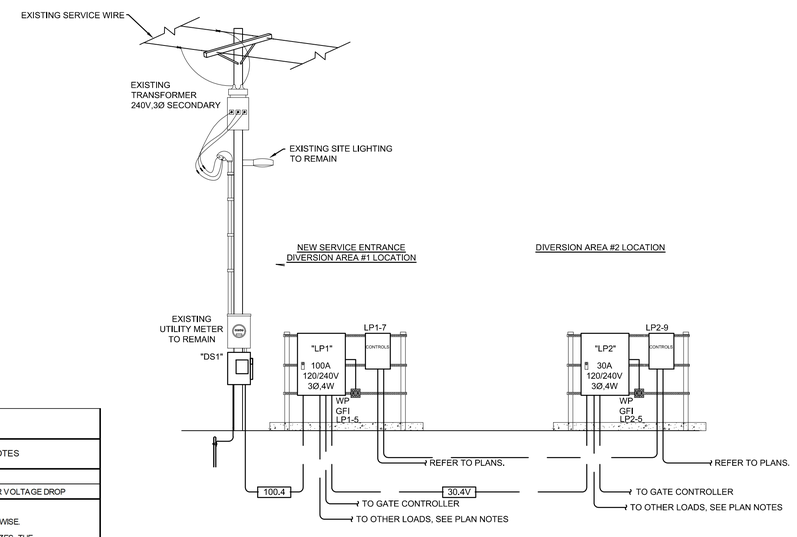
NOTES
ALL EQUIPMENT SHALL BE LABELED PER SPECS

*PROVIDE SERVICE DISCONNECT SWITCH BY SQUARE D, CUTLER HAMMER, OR SIEMENS

CONDUCTOR SCHEDULE

TAG ID	OCPD	# OF SETS	PHASE CONDUCTOR SIZE	NEUTRAL CONDUCTOR SIZE	GROUND CONDUCTOR SIZE	CONDUIT SIZE	NOTES
100.4	100A	1	(3) #1 AWG-CU	(1) #1 AWG-CU	(1) #8 AWG-CU	1.25"	
30.4V	30A	1	(3) #1/0 AWG-CU	(1) #1/0 AWG-CU	(1) #1/0 AWG-CU	2"	ADJUSTED FOR VOLTAGE DROP

GENERAL NOTES:
1) ALL CONDUCTORS HAVE BEEN SIZED PER ADOPTED ELECTRICAL CODE AND ARE BASED ON COPPER CONDUCTORS UNLESS NOTED OTHERWISE.
3) MIN. CONDUIT SIZES HAVE BEEN PROVIDED. WHERE CONDUIT DUCT BANK DETAILS OR OTHER PLANS HAVE INDICATED LARGER CONDUIT SIZES, THE LARGER OF THE CONDUIT SIZES SHALL BE UTILIZED.
4) CONDUCTOR SIZING FOR 100A AND BELOW IS SIZED PER 60°C TEMPERATURE RATING. 75°C TEMPERATURE RATED CONDUCTORS SHALL BE USED FOR ALL WIRING 100A AND BELOW.
5) CONDUCTOR SIZING FOR ABOVE 100A IS SIZED PER 75°C TEMPERATURE RATING. 90°C TEMPERATURE RATED CONDUCTORS SHALL BE USED FOR ALL WIRING ABOVE 100A.
6) REFERENCE CONDUIT APPLICATION SCHEDULE FOR APPLICATION OF CONDUIT MATERIALS AT DIFFERENT LOCATIONS THROUGHOUT THE PROJECT.



1 ELECTRICAL RISER DIAGRAM

SCALE: NTS

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PROFESSIONAL ENGINEER
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REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

ENLARGED PLANS, ONE-LINE AND SCHEDULES

JOPLIN TWIN EQUALIZATION BASIN IMPROVEMENTS - PHASE 1

2018

JOPLIN, MISSOURI

drawn by: BEG
checked by: MGK
approved by: SWM
QA/QC by:
project no.: 018-1419
drawing no.:
date: 8/15/2019

E2

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