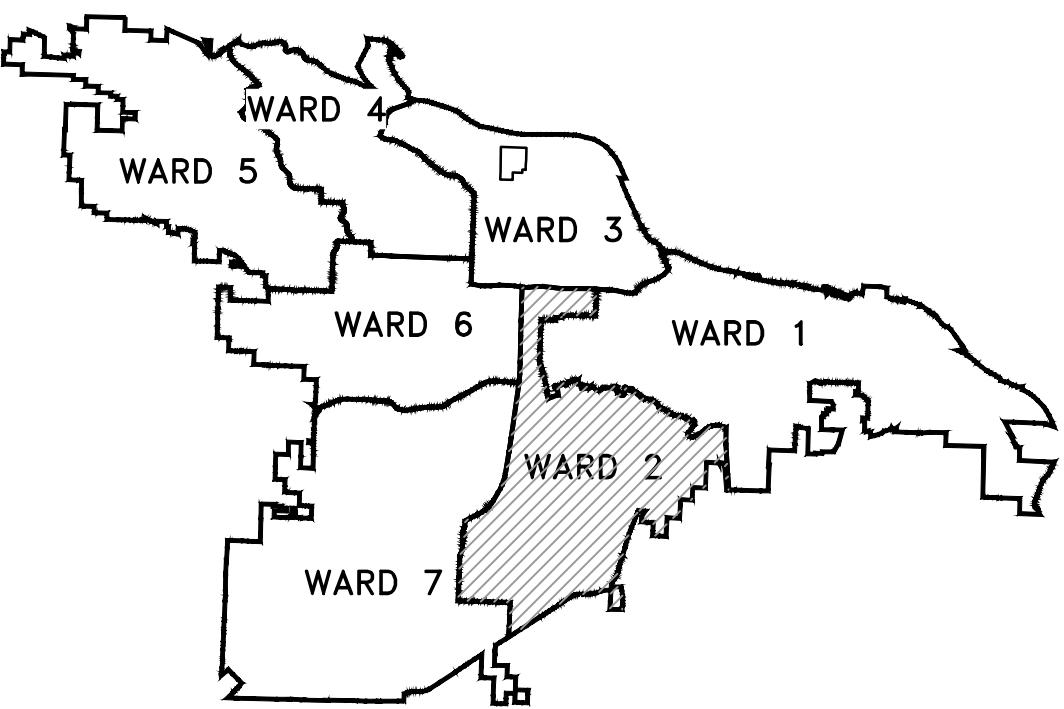
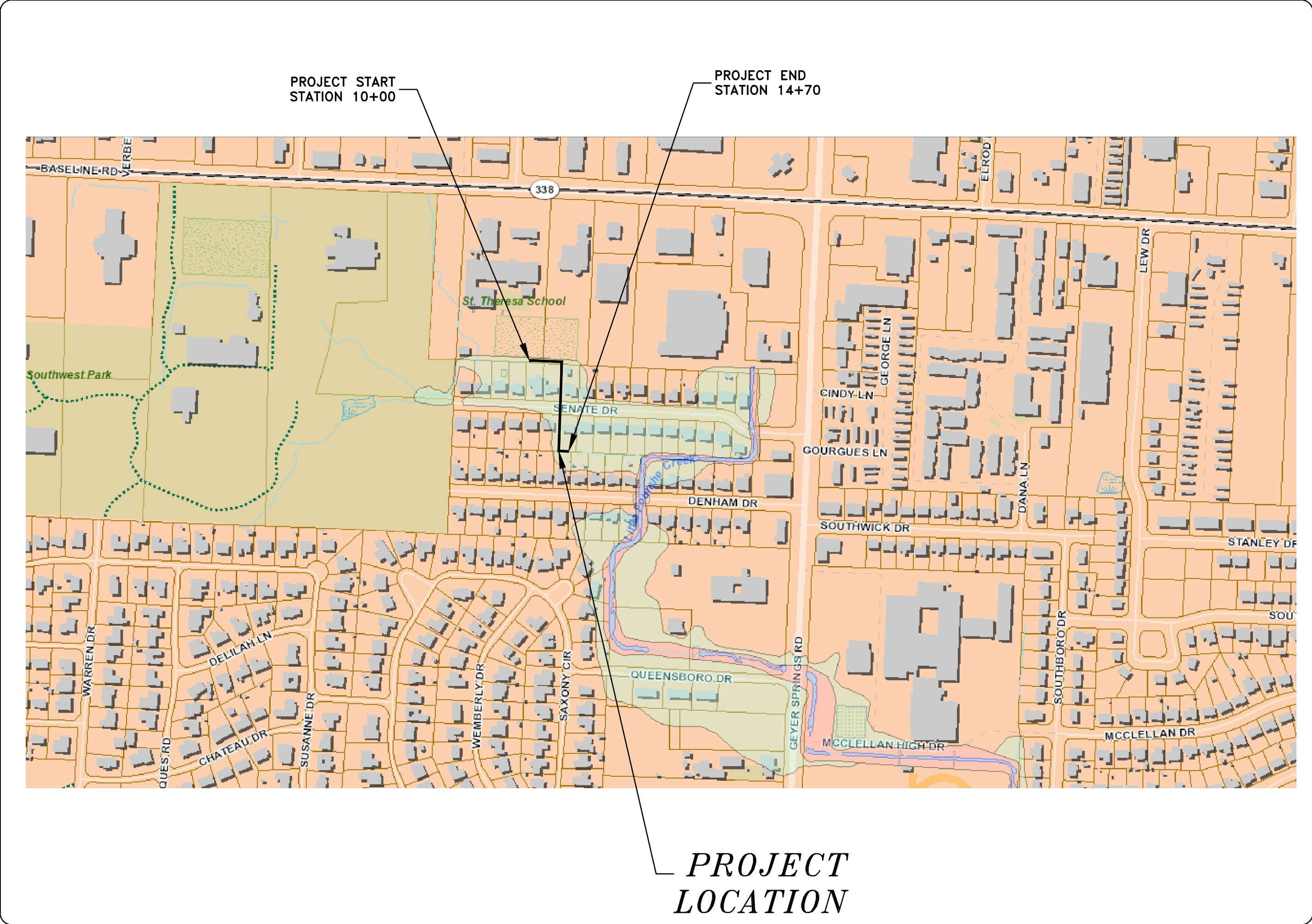


Project 02-17-DR-65

SENATE DRIVE DRAINAGE IMPROVEMENTS



PROJECT LOCATION – WARD 2

SHEET NO.	TITLE
C1	COVER SHEET
C2	LEGEND & QUANTITIES
C3	PLAN & PROFILE
C4	TYPICAL SECTION & SPECIAL DETAILS
C5	CULVERT DETAILS
C6	PROPERTY OWNERSHIP AND FIELD TIES / LAYOUT SHEET
C7	EROSION CONTROL PHASE 1
C8	EROSION CONTROL PHASE 2
C9	EROSION CONTROL PHASE 3
C10	MAINTENANCE OF TRAFFIC PLAN

90%
SUBMITTAL



2019-2021
BOND PROGRAM

DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 WEST MARKHAM STREET
LITTLE ROCK, ARKANSAS 72201

FTN ASSOCIATES LTD.
LITTLE ROCK, AR

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
SENATE DRIVE DRAINAGE IMPROVEMENTS

COVER SHEET

DEPARTMENT OF PUBLIC WORKS

CIVIL ENGINEERING

701 W. MARKHAM

LITTLE ROCK, ARKANSAS 72201



SEAL

DRAWN BY JWM
DESIGNED KLF
CHECKED KLF
DATE 10/29/19
SCALE N.T.S.
PROJECT NO. CLR 02-17-DR-65
SHEET NO. C1

	Senate Drive Drainage Improvements		
	Conceptual Design (90%)		
	December 4, 2019		
ITEM #	ITEM DESCRIPTION	UNIT	QUANTITY
Senate Drive Drainage Improvements			
2.01	Site Preparation, Including Mobilization	LS	1
3.01	Unclassified Excavation	CY	400
3.06	Borrow Material	CY	36
4.01	Aggregate Base Course (Class 7)	TON	140
5.01	Tack Coat	GAL	8
6.01	ACHM Surface Course	TON	24
8.03	Concrete Curb and Gutter (Class 4)	LF	84
9.03	Concrete Flume	SF	60
11.01	Reinforced Concrete Pre-Cast Box Culvert (6'x4')	LF	102
11.06	Reinforced Concrete Headwall, Wingwalls, Flowable Fill between Boxes	CY	10
11.10	Reinforced Concrete Channel	CY	108
14.02	Soil Sodding (Special, Includes 4" Topsoil)	SY	455
16.01	Maintenance of Traffic	LS	1
18.01	Remove and Replace Fence	LF	454
18.45	Grouted Riprap	CY	77
19.01	Final Cleanup	LS	1
24.05	Rock Dam	CY	12
25.04	Fence Chain Link (4')	LF	212
26.10	Trench and Excavation Safety	LS	1
28.00	Guard Rail	LF	80
28.01	Guard Rail Anchor Posts	EA	8
816.00	Filter Fabric	SY	800

EXISTING	PROPOSED
IRON ROD	PROPOSED CONTOUR
PK NAIL	PROPOSED SPOT ELEVATION
R.R. SPIKE	PROPOSED SPOT CURB ELEVATION
CONC. MONUMENT	STORM SEWER – PIPE
WATER VALVE	STORM SEWER – MITERED END SECTION
WATER METER	STORM SEWER – GRATE INLET
FIRE HYDRANT	STORM SEWER – JUNCTION BOX
GAS METER	STORM SEWER – FLARED END SECTION
GAS VALVE	STORM SEWER – HEADWALL
CLEAN-OUT	STORM SEWER – SINGLE WING
GUARD POST (BOLLARD)	STORM SEWER – DOUBLE WING
SIGN POST	STORM SEWER – AREA INLET
BENCHMARK	GRADE BREAK LINE
STORM SEWER MANHOLE	HIGH POINT
SANITARY SEWER MANHOLE	LOW POINT
TELEPHONE MANHOLE	CUT LINE
ELECTRIC MANHOLE	FILL LINE
TELEPHONE BOX	SANITARY SEWER PIPE
ELECTRIC BOX	SANITARY SEWER MANHOLE
CABLE BOX	PROPOSED CURB
UTILITY POLE	PROPOSED CONCRETE
GUY WIRE	CONSTRUCTION – ENTRANCE/EXIT
LIGHT POLE	CHECK DAM
POST OR POLE (TYPE AS NOTED)	DIVERSION BERM
MAILBOX	DOWNDRAIN STRUCTURE – TEMPORARY
DECIDUOUS TREE	ROCK DAM
EVERGREEN/CONIFEROUS TREE	SEDIMENT BARRIER – SILT FENCE
BUSH	SEDIMENT BARRIER – GRAVEL RING
PROPERTY LINE	SEDIMENT BARRIER – BLOCK & GRAVEL
SETBACK LINE	SEDIMENT BARRIER – BLOCK
EASEMENT LINE	TEMPORARY SEDIMENT BASIN
CURB	SILT FENCE – TYPE A
FENCE	SILT FENCE – TYPE B
OVERHEAD ELECTRIC	SILT FENCE – TYPE C
OVERHEAD TELEPHONE	STORM DRAIN OUTLET PROTECTION
OVERHEAD CABLE	SURFACE ROUGHENING
UNDERGROUND TELEPHONE	DISTURBED AREA STABILIZATION –TEMPORARY STABILIZATION
UNDERGROUND ELECTRIC	DISTURBED AREA STABILIZATION –TEMPORARY GRASSING
UNDERGROUND CABLE	DISTURBED AREA STABILIZATION –PERMANENT GRASSING
WATER LINE	MATTING/BLANKETS
SEWER LINE	
GAS LINE	
STORM SEWER/CULVERT	
EDGE OF WOODS	
CONTOUR LINE	

90%
SUBMITTAL

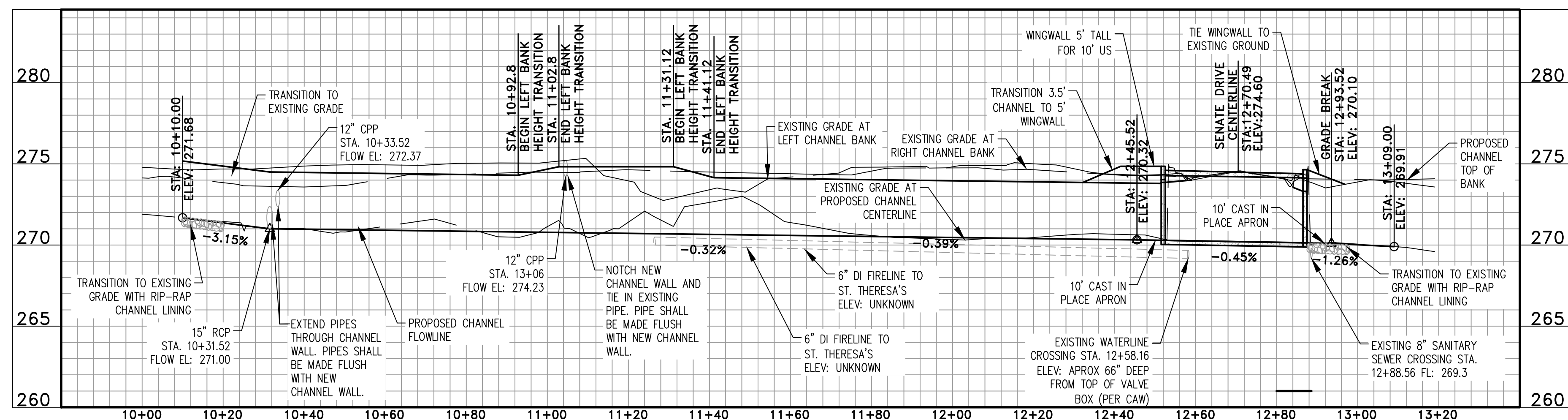
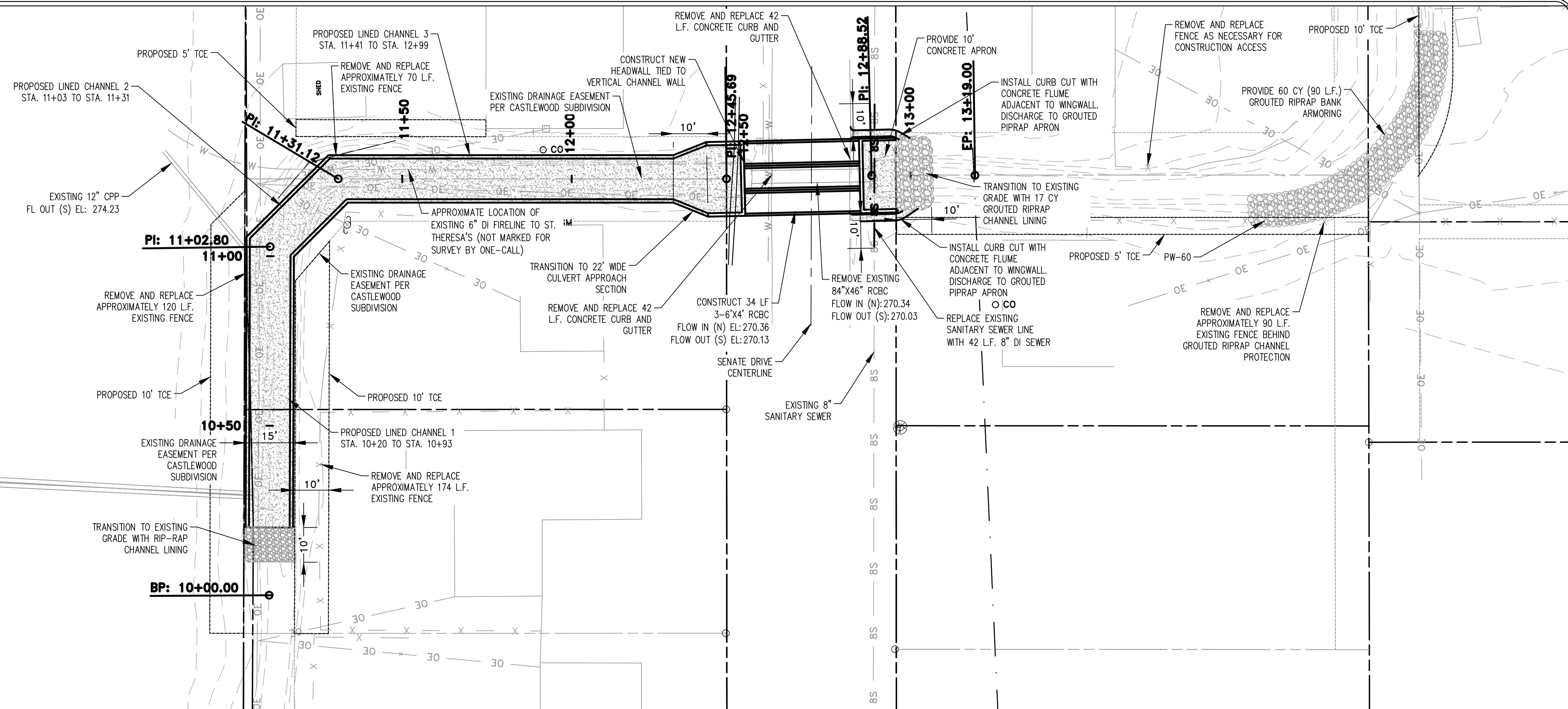
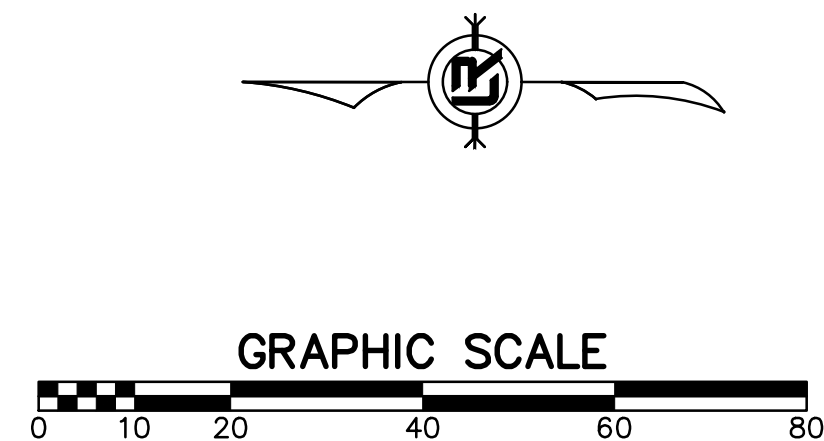
REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS	LEGEND & QUANTITIES
SENATE DRIVE DRAINAGE IMPROVEMENTS	

DEPARTMENT OF PUBLIC WORKS	CIVIL ENGINEERING	701 W. MARKHAM	LITTLE ROCK, ARKANSAS 72201
			

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DRAWN BY	JWM
DESIGNED	KLF
CHECKED	KLF
DATE	10/29/19
SCALE	N.T.S.
PROJECT NO.	CLR #02-17-DR-65
SHEET NO.	C2



90%
SUBMITTAL

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS

SENATE DRIVE DRAINAGE IMPROVEMENTS

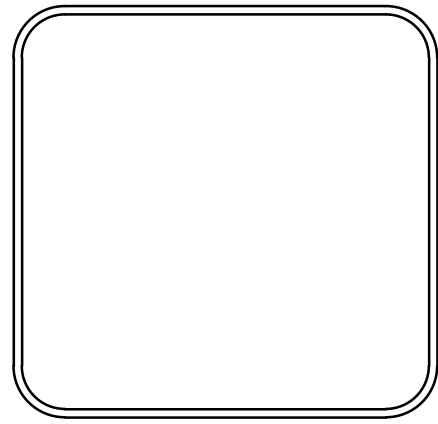
PROPOSED CHANNEL
PLAN - PROFILE
STA. 10+00 TO 13+19

DEPARTMENT OF PUBLIC WORKS

CIVIL ENGINEERING

701 W. MARKHAM

LITTLE ROCK, ARKANSAS 72201



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JWM

DESIGNED
KLF

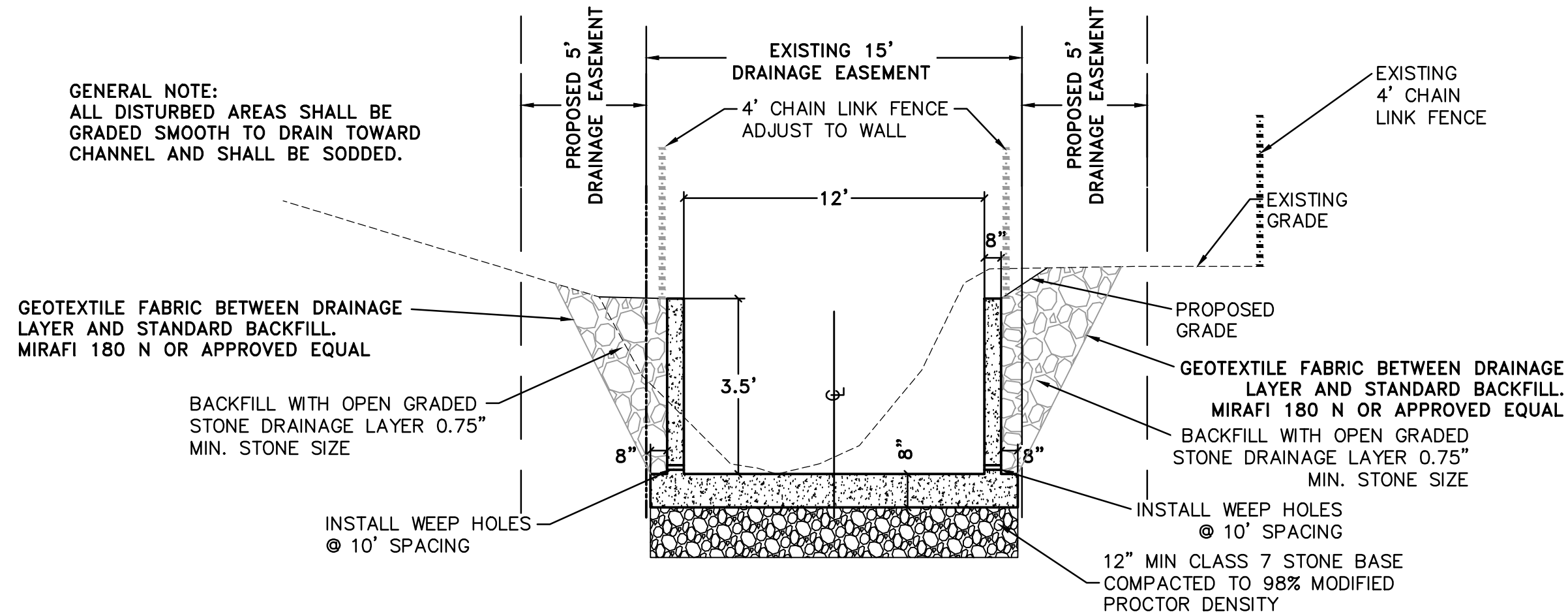
CHECKED
KLF

DATE
10/29/19

SCALE
1"=20'

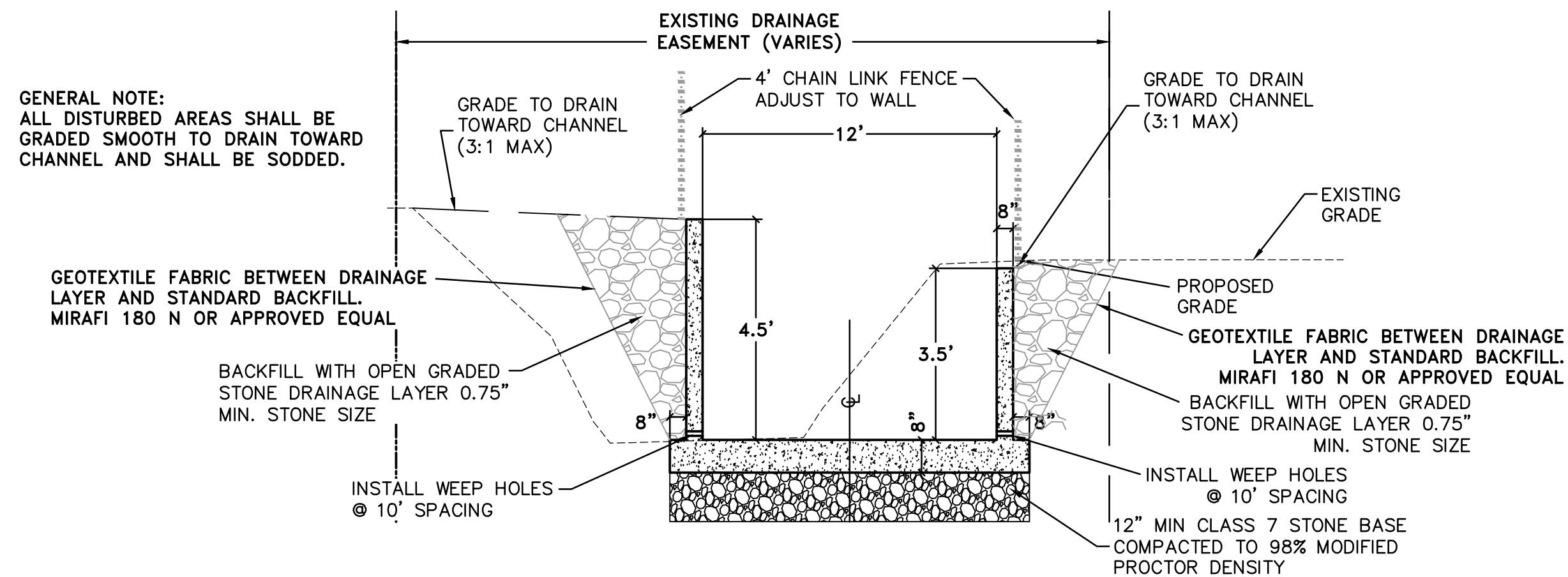
PROJECT NO.
CLR #02-17-DR-65

SHEET NO.
C3



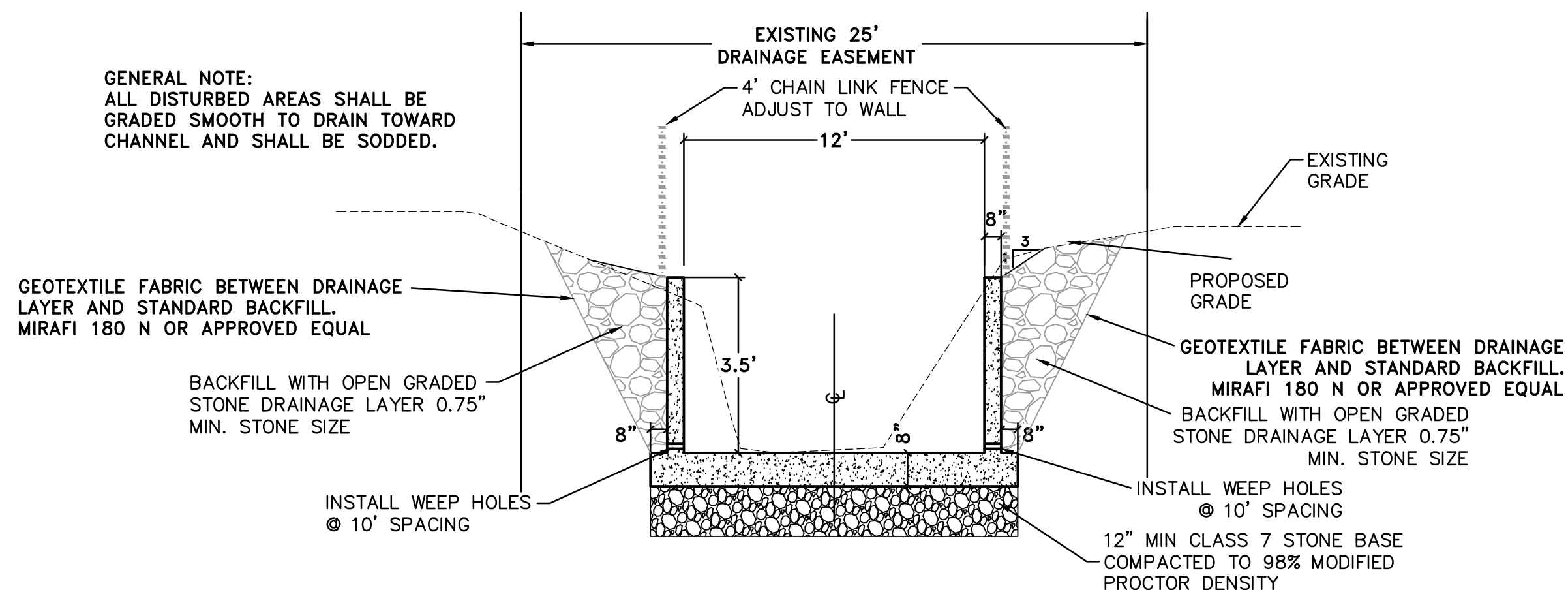
TYPICAL SECTION – PROPOSED LINED CHANNEL 1

Sta 10+20 to 10+93



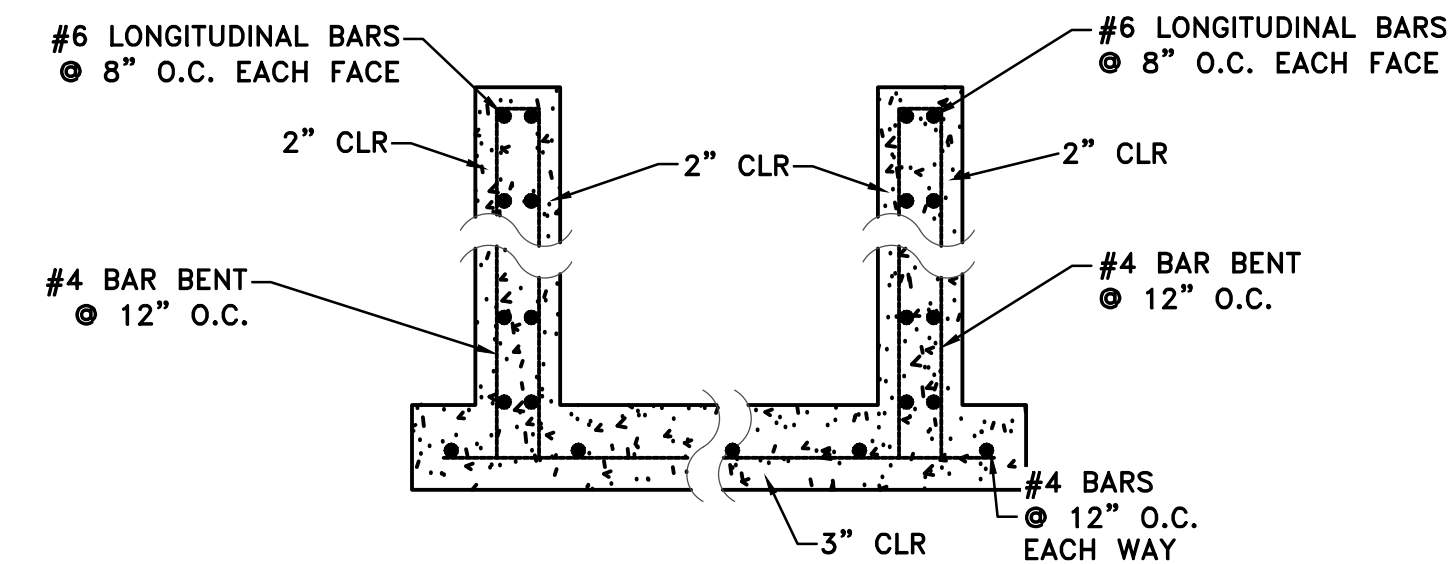
TYPICAL SECTION – PROPOSED LINED CHANNEL 2

Sta 11+03 to 11+31



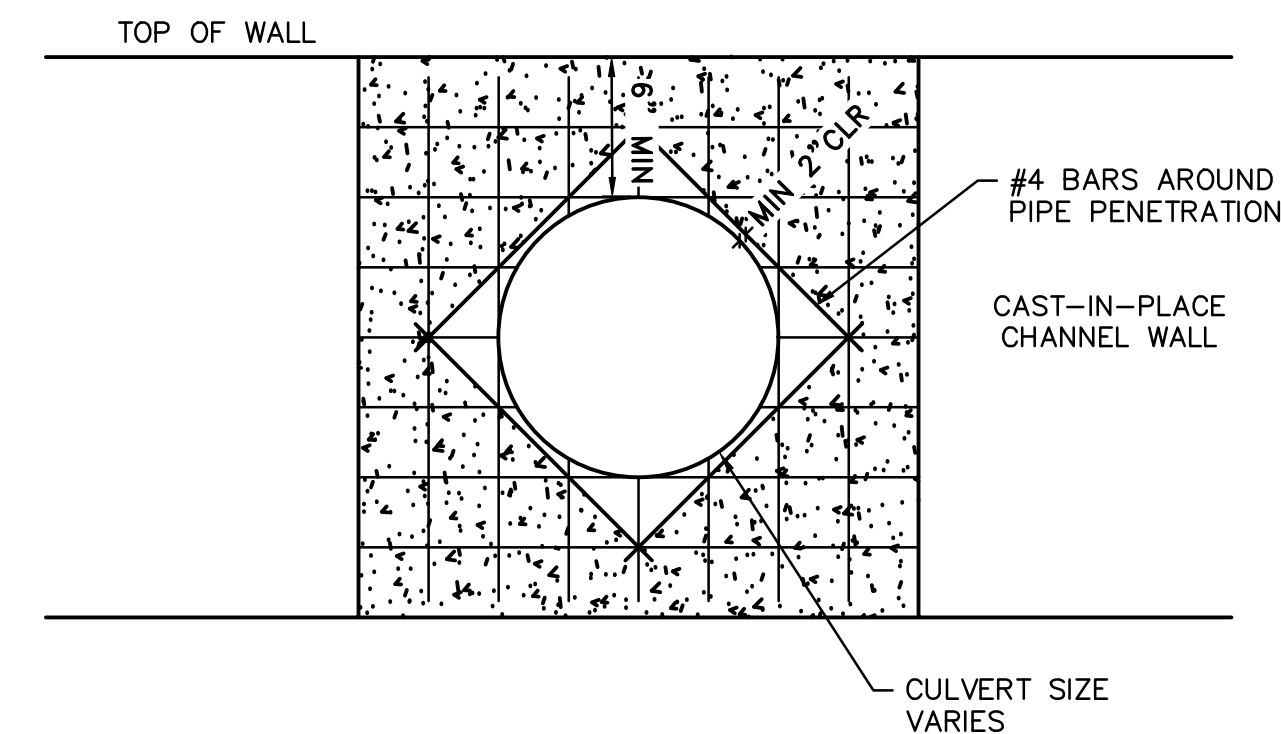
TYPICAL SECTION – PROPOSED LINED CHANNEL 3

Sta 11+41 to 12+99



TYPICAL REINFORCEMENT – CONCRETE CHANNEL

GENERAL NOTE:
ALL DISTURBED AREAS SHALL BE
GRADED SMOOTH TO DRAIN TOWARD
CHANNEL AND SHALL BE SODDED.



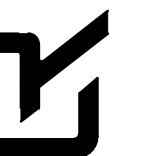
TYPICAL REINFORCEMENT – PIPE PENETRATIONS

90%
SUBMITTAL

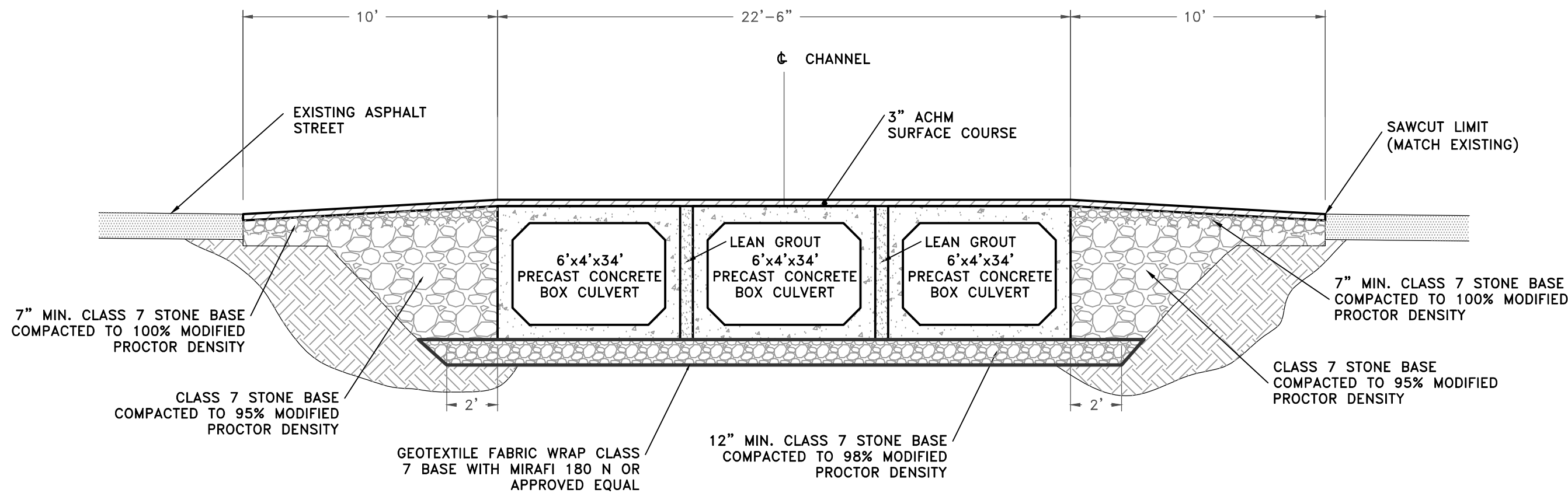
REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
SENATE DRIVE DRAINAGE IMPROVEMENTS
TYPICAL SECTIONS & SPECIAL DETAILS

DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 W. MARKHAM
LITTLE ROCK, ARKANSAS 72201



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CHECKED
KLF
DATE
10/29/19
SCALE
AS SHOWN
PROJECT NO.
CLR #02-17-DR-65
SHEET NO.
C4

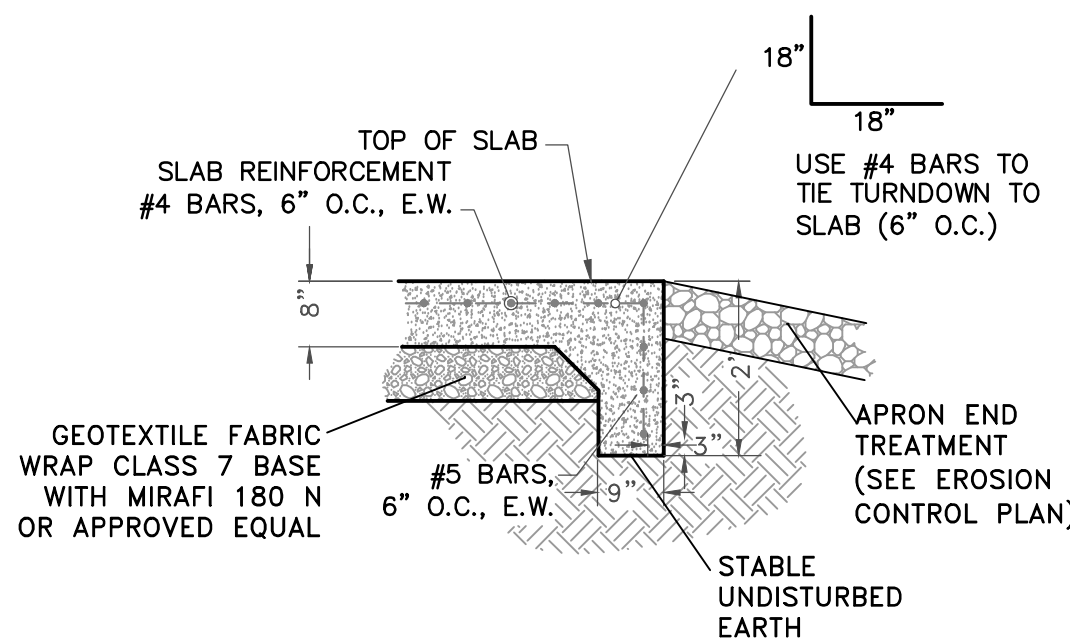


LEAN GROUT REQUIREMENTS:

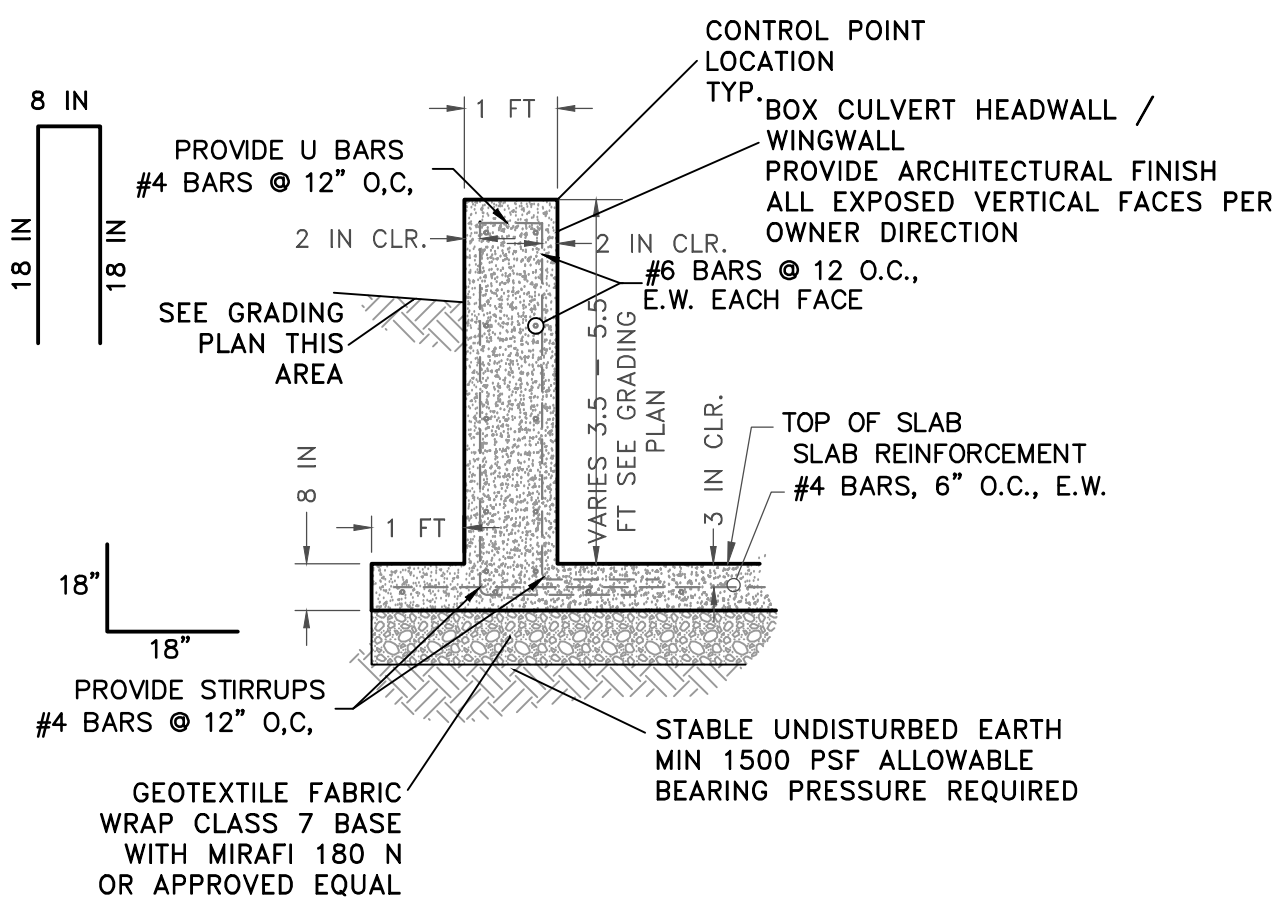
1. PORTLAND CEMENT SHALL BE TYPE 1 AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
2. SAND SHALL MEET THE REQUIREMENTS OF ASTM C 33 FINE AGGREGATE.
3. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
4. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENT.
5. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL VOIDS.

NOTE:

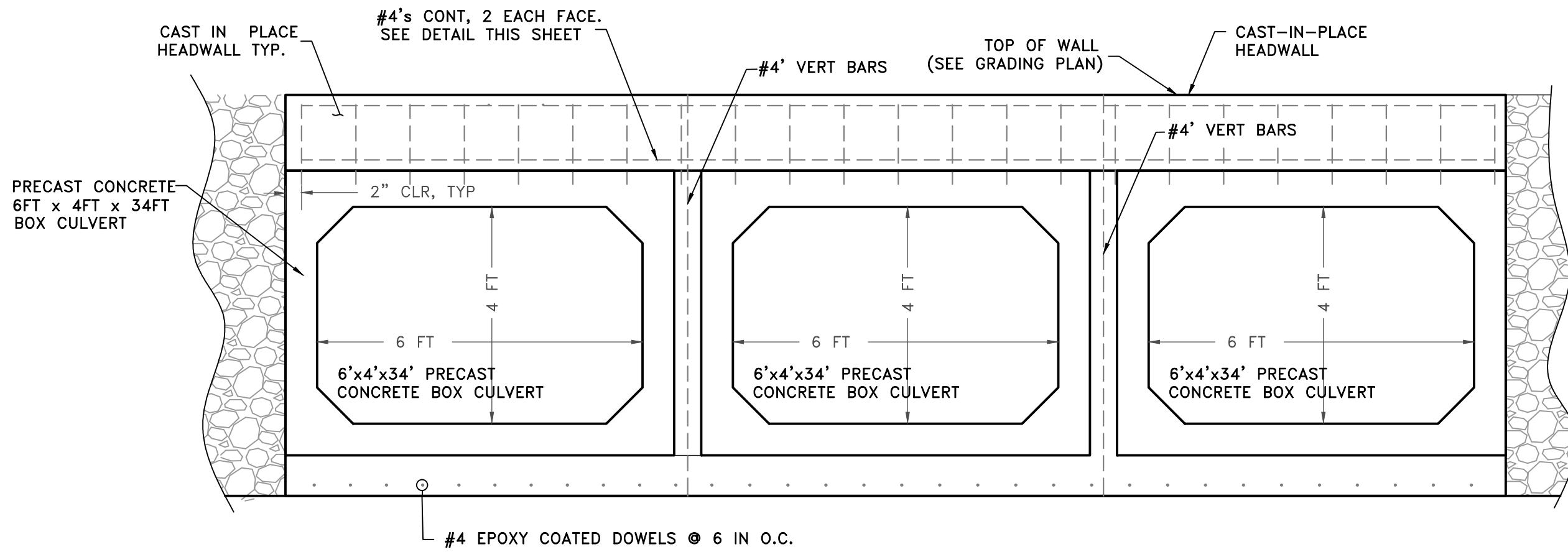
1. PRECAST REINFORCED CONCRETE BOX CULVERTS JOINTS SHALL BE INSTALL WITH PREFORMED FLEXIABLE PLASTIC JOINT MATERIAL (RAM-NEK OR APPROCED EQUAL). INSTALL PREFORMED FLEXIBLE JOINT SEALANTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PLACE THE JOINT SEALER SO THAT NO DIRT OR OTHER DELETERIOUS MATERIALS COME IN CONTACT WITH THE JOINT SEALING MATERIAL. PULL OR PUSH HOME THE CULVERT WITH ENOUGH FORCE TO PROPERLY SEAL THE JOINT. REMOVE ANY JOINT MATERIAL PUSHED OUT INTO THE INTERIOR OF THE PIPE THAT WOULD TEND TO OBSTRUCT THE FLOW. WHEN THE ATMOSPHERIC TEMPERATURE IS BELOW 60°F, STORE PREFORMED FLEXIBLE JOINT SEALANTS IN AN AREA WARMED TO ABOVE 70°F OR ARTIFICIALLY WARM TO THIS TEMPERATURE IN AN APPROVED MANNER. APPLY FLEXIBLE JOINT SEALANTS TO PIPE JOINTS IMMEDIATELY BEFORE PLACING PIPE IN TRENCH, AND THEN CONNECT PIPE TO PREVIOUSLY LAID PIPE. BACKFILL AFTER THE JOINT HAS BEEN INSPECTED AND APPROVED.



APRON KEY

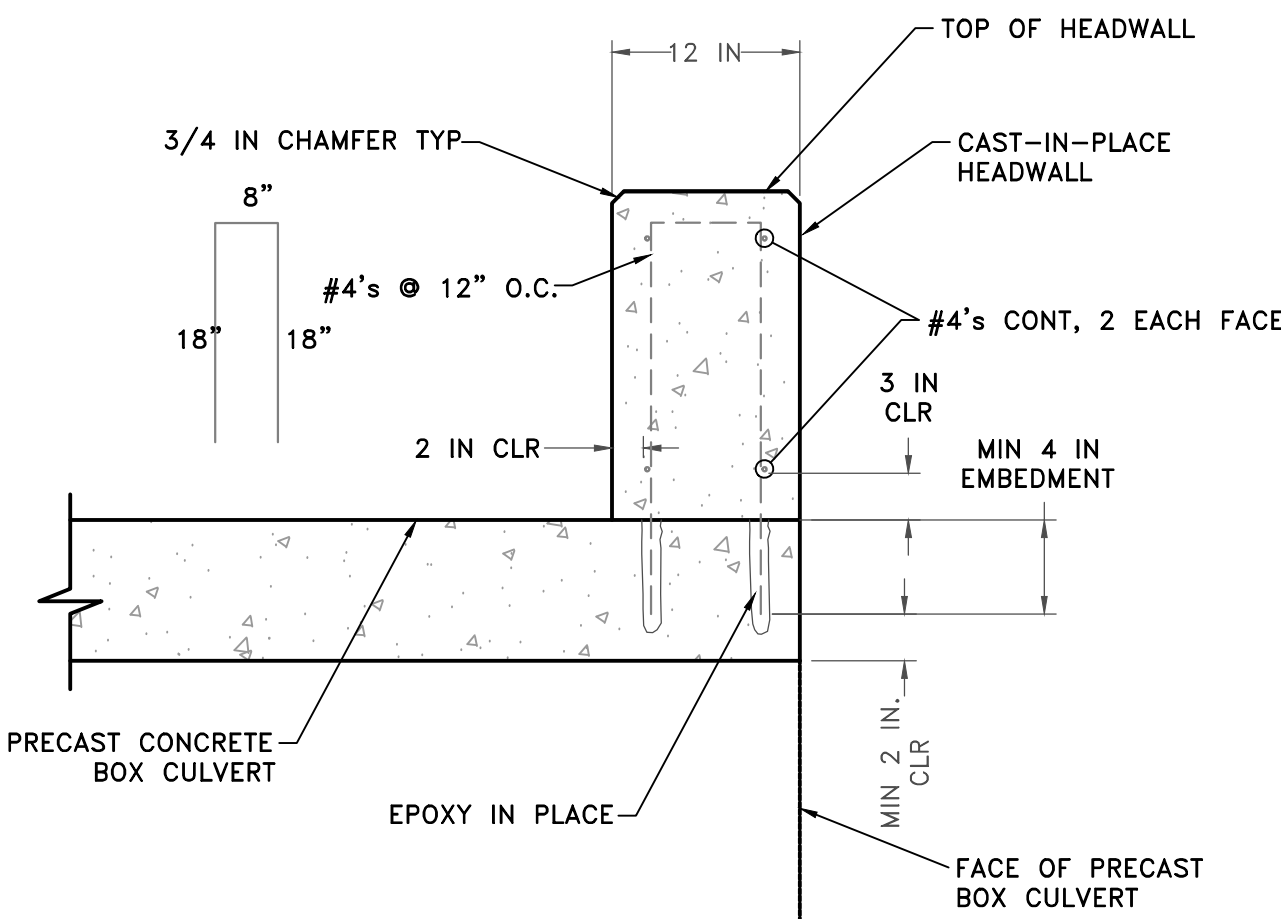


WINGWALL

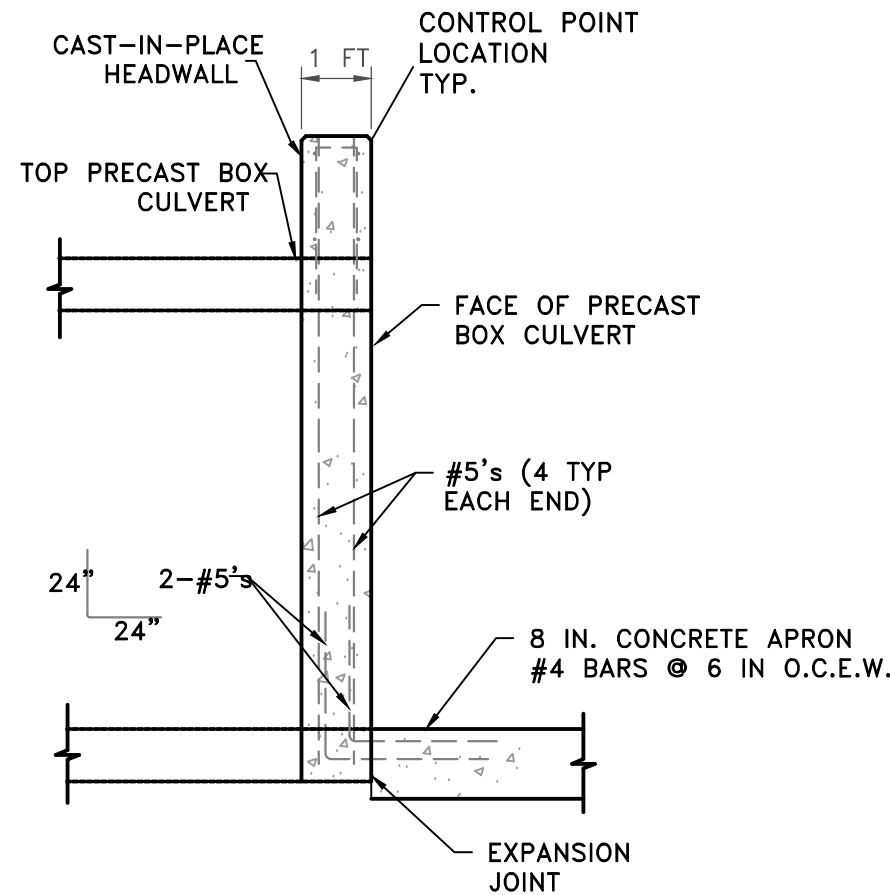


GENERAL NOTES:

1. WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY #4 BARS CAST INTO PRECAST BOX CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING.
2. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFERS.
3. SEE GENERAL NOTES AND TECHNICAL SPECIFICATIONS FOR CONCRETE AND REINFORCING REQUIREMENTS.
4. PROVIDE ARCHITECTURAL FINISH ALL EXPOSED VERTICAL FACES OF HEADWALLS AND WINGWALLS PER OWNER DIRECTION.



HEADWALL ANCHORING



HEADWALL

PRECAST CONCRETE BOX AND HEADWALL DETAILS

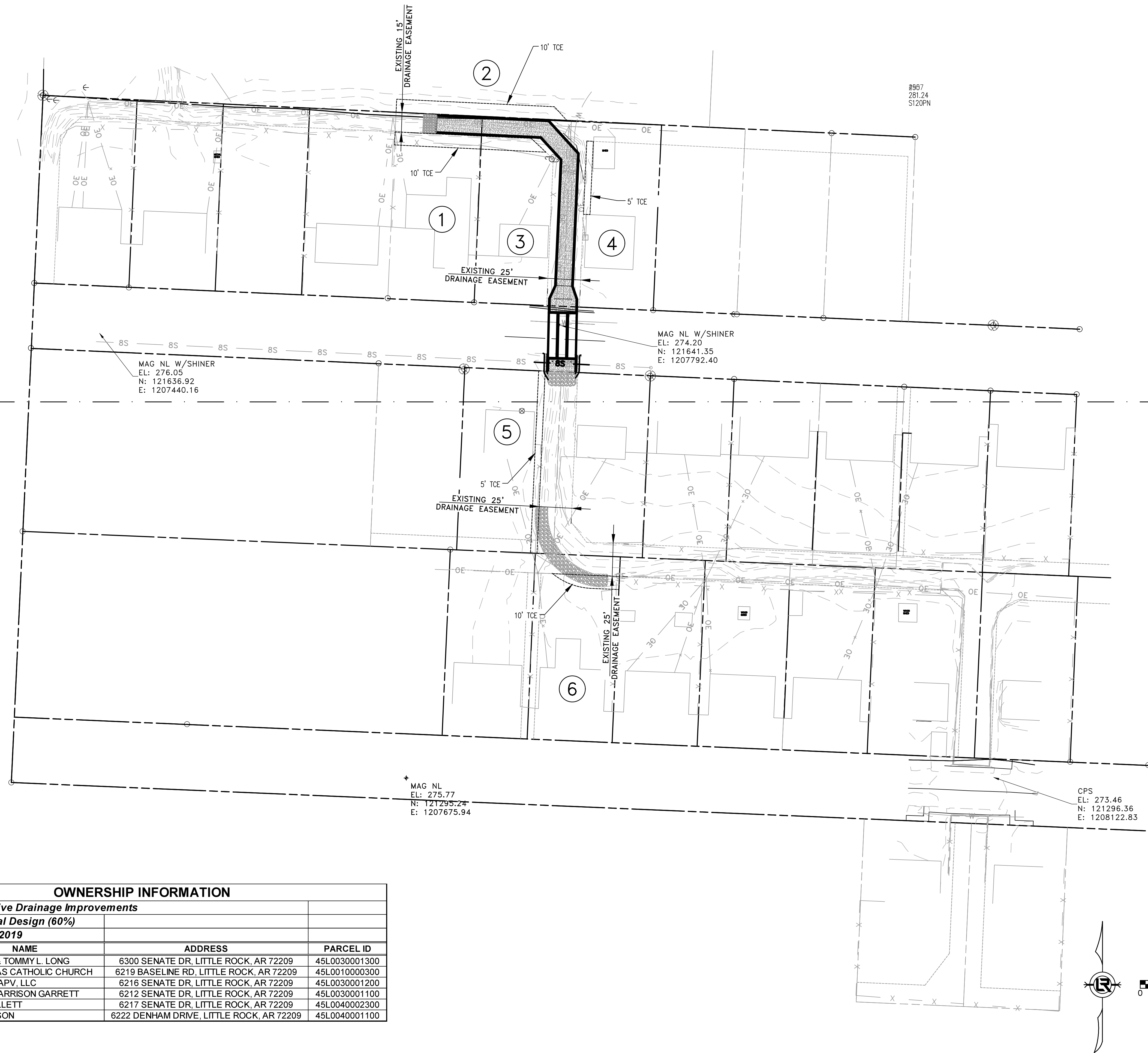
REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
SENATE DRIVE DRAINAGE IMPROVEMENTS
TYPICAL SECTIONS & SPECIAL DETAILS

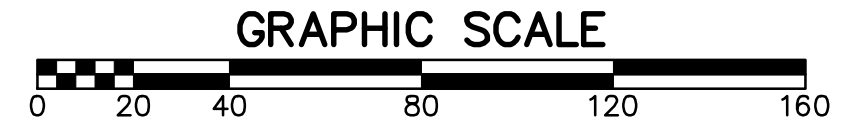
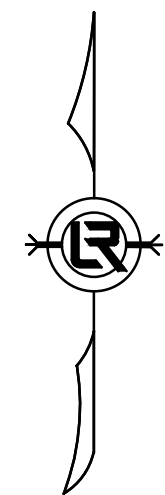
DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 W. MARKHAM
LITTLE ROCK, ARKANSAS 72201



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JWM
DESIGNED
KLF
CHECKED
KLF
DATE
10/29/19
SCALE
AS SHOWN
PROJECT NO.
CLR #02-17-DR-65
SHEET NO.
C5



OWNERSHIP INFORMATION			
Senate Drive Drainage Improvements			
Conceptual Design (60%)			
August 9, 2019			
PARCEL #	NAME	ADDRESS	PARCEL ID
1	BRENDA J. & TOMMY L. LONG	6300 SENATE DR, LITTLE ROCK, AR 72209	45L0030001300
2	ST THERESAS CATHOLIC CHURCH	6219 BASELINE RD, LITTLE ROCK, AR 72209	45L0010000300
3	DAYSWORKAPV, LLC	6216 SENATE DR, LITTLE ROCK, AR 72209	45L0030001200
4	STERLING HARRISON GARRETT	6212 SENATE DR, LITTLE ROCK, AR 72209	45L0030001100
5	SHAKIA MALLET	6217 SENATE DR, LITTLE ROCK, AR 72209	45L0040002300
6	TAMMIE MASON	6222 DENHAM DRIVE, LITTLE ROCK, AR 72209	45L0040001100



90%
SUBMITTAL

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS

SENATE DRIVE DRAINAGE IMPROVEMENTS

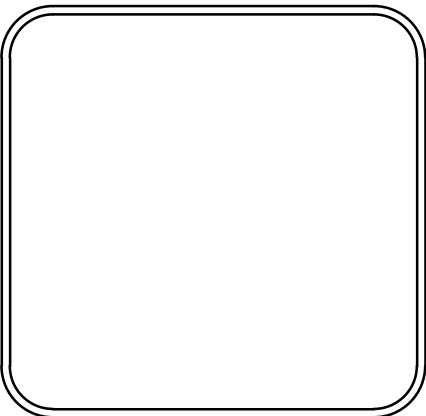
PROPERTY OWNERSHIP AND
FIELD TIES / LAYOUT SHEET

DEPARTMENT OF PUBLIC WORKS

CIVIL ENGINEERING

701 W. MARKHAM

LITTLE ROCK, ARKANSAS 72201



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DESIGNED
KLF

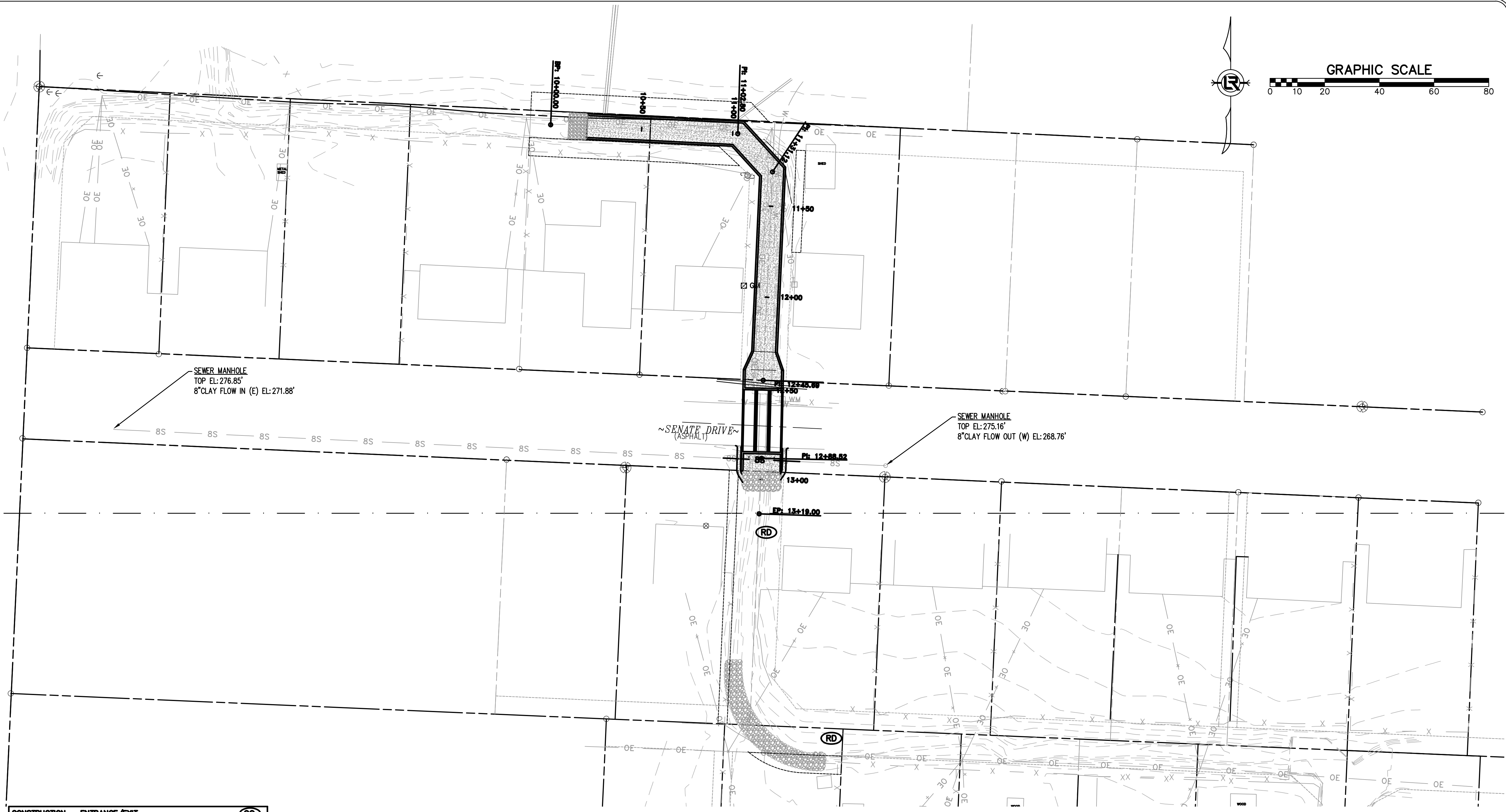
CHECKED
KLF

DATE
10/29/2019

SCALE
1"=40'

PROJECT NO.
CLR 02-17-DR-65

SHEET NO.
C6



CONSTRUCTION - ENTRANCE/EXIT	(CO)
CHECK DAM	(CD)
DIVERSION BERM	(DI)
DOWNDRAIN STRUCTURE - TEMPORARY	(DN)
ROCK DAM	(RD)
SEDIMENT BARRIER - SILT FENCE	(SD1)
SEDIMENT BARRIER - GRAVEL RING	(SD2)
SEDIMENT BARRIER - BLOCK & GRAVEL	(SD3)
SEDIMENT BARRIER - BLOCK	(SD4)
TEMPORARY SEDIMENT BASIN	(SB1)
SILT FENCE - TYPE A	(SFA)
SILT FENCE - TYPE B	(SFB)
SILT FENCE - TYPE C	(SFC)
STORM DRAIN OUTLET PROTECTION	(ST)
SURFACE ROUGHENING	(SU)
DISTURBED AREA STABILIZATION -TEMPORARY STABILIZATION	(TS1)
DISTURBED AREA STABILIZATION -TEMPORARY GRASSING	(TS2)
DISTURBED AREA STABILIZATION -PERMANENT GRASSING	(TS3)
MATTING/BLANKETS	(Mb)

CONSTRUCTION EROSION CONTROL
BEST MANAGEMENT PRACTICES

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILERS, PARKING, LAY DOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. IN ADDITION, NOTE ANY OFF-SITE AREA WHERE FILL IS IMPORTED FROM OR SOIL IS EXPORTED TO ON THE SITE MAPS.

PHASE 1

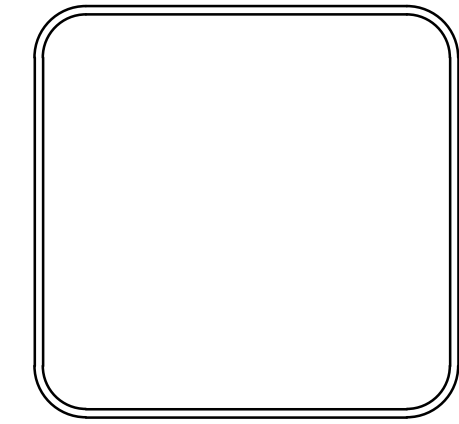
1. INSTALL SWPPP INFORMATION SIGN.
2. INSTALL SILT FENCE(S) ON THE SITE. CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL SILT FENCE.
3. PREPARE TEMPORARY PARKING AND STORAGE AREA.
4. HALT ALL ACTIVITIES AND CONTACT THE CITY OF LITTLE ROCK TO PERFORM INSPECTION AND ACCEPTANCE OF BMP'S.
5. CONSTRUCT AND STABILIZE SEDIMENT BASIN(S) AND SEDIMENT TRAP(S) WITH APPROPRIATE OUTFALL STRUCTURES. CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL BASINS AND TRAPS.
6. INSTALL AND STABILIZE HYDRAULIC CONTROL STRUCTURES (DIKES, SWALES, CHECK DAMS, ETC.). CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL HYDRAULIC CONTROL DEVICES.

90%
SUBMITTAL

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS
SENATE DRIVE DRAINAGE IMPROVEMENTS
EROSION CONTROL PHASE 1

DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 W. MARKHAM
LITTLE ROCK, ARKANSAS 72201



DRAWN BY JWM
DESIGNED KLF
CHECKED KLF
DATE 10/29/19
SCALE 1"=20'
PROJECT NO. CLR #02-17-DR-65
SHEET NO. C7

REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS

SENATE DRIVE DRAINAGE IMPROVEMENTS

EROSION CONTROL PHASE 3

DEPARTMENT OF PUBLIC WORKS

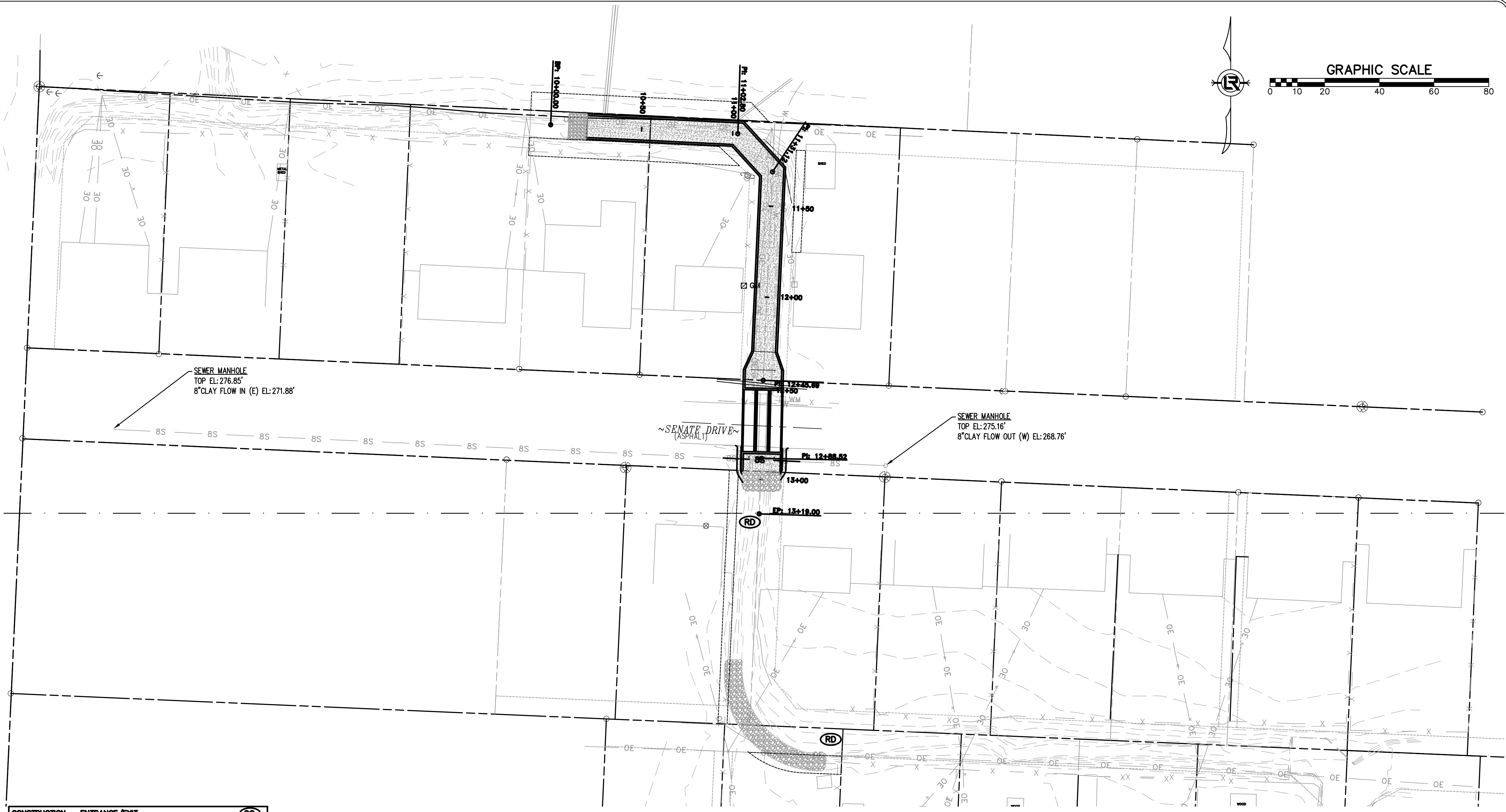
CIVIL ENGINEERING

701 W. MARKHAM

LITTLE ROCK, ARKANSAS 72201



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DESIGNED	KLF
CHECKED	KLF
DATE	10/29/19
SCALE	1"=20'
PROJECT NO.	CLR #02-17-DR-65
SHEET NO.	C8



CONSTRUCTION - ENTRANCE/EXIT	CO
CHECK DAM	CD
DIVERSION BERM	DI
DOWNDRAIN STRUCTURE - TEMPORARY	DN
ROCK DAM	RD
SEDIMENT BARRIER - SILT FENCE	SD1
SEDIMENT BARRIER - GRAVEL RING	SD2
SEDIMENT BARRIER - BLOCK & GRAVEL	SD3
SEDIMENT BARRIER - BLOCK	SD4
TEMPORARY SEDIMENT BASIN	SB1
SILT FENCE - TYPE A	SFA
SILT FENCE - TYPE B	SFB
SILT FENCE - TYPE C	SFC
STORM DRAIN OUTLET PROTECTION	ST
SURFACE ROUGHENING	SU
DISTURBED AREA STABILIZATION -TEMPORARY STABILIZATION	TS1
DISTURBED AREA STABILIZATION -TEMPORARY GRASSING	TS2
DISTURBED AREA STABILIZATION -PERMANENT GRASSING	TS3
MATTING/BLANKETS	Mb

CONSTRUCTION EROSION CONTROL BEST MANAGEMENT PRACTICES

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILERS, PARKING, LAY DOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. IN ADDITION, NOTE ANY OFF-SITE AREA WHERE FILL IS IMPORTED FROM OR SOIL IS EXPORTED TO ON THE SITE MAPS.

PHASE 2

- BEGIN SITE DEMOLITION, CLEARING AND GRUBBING.
- CONTINUE GRADING THE SITE.
- INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS & INLETS.
- PREPARE SUBGRADE, ROAD BASE AND CURBS AND GUTTERS.
- CONSTRUCT DRIVEWAY TRANSITIONS.
- INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES.

90%
SUBMITTAL

REVISIONS	DATE

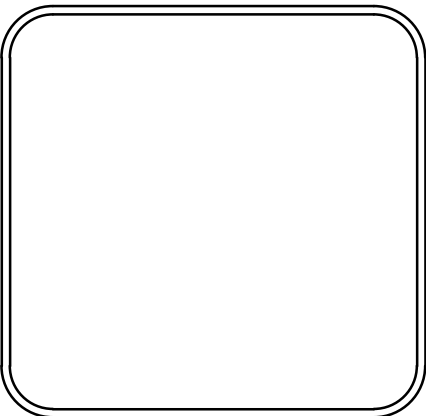
CITY OF LITTLE ROCK, ARKANSAS

SENATE DRIVE DRAINAGE IMPROVEMENTS

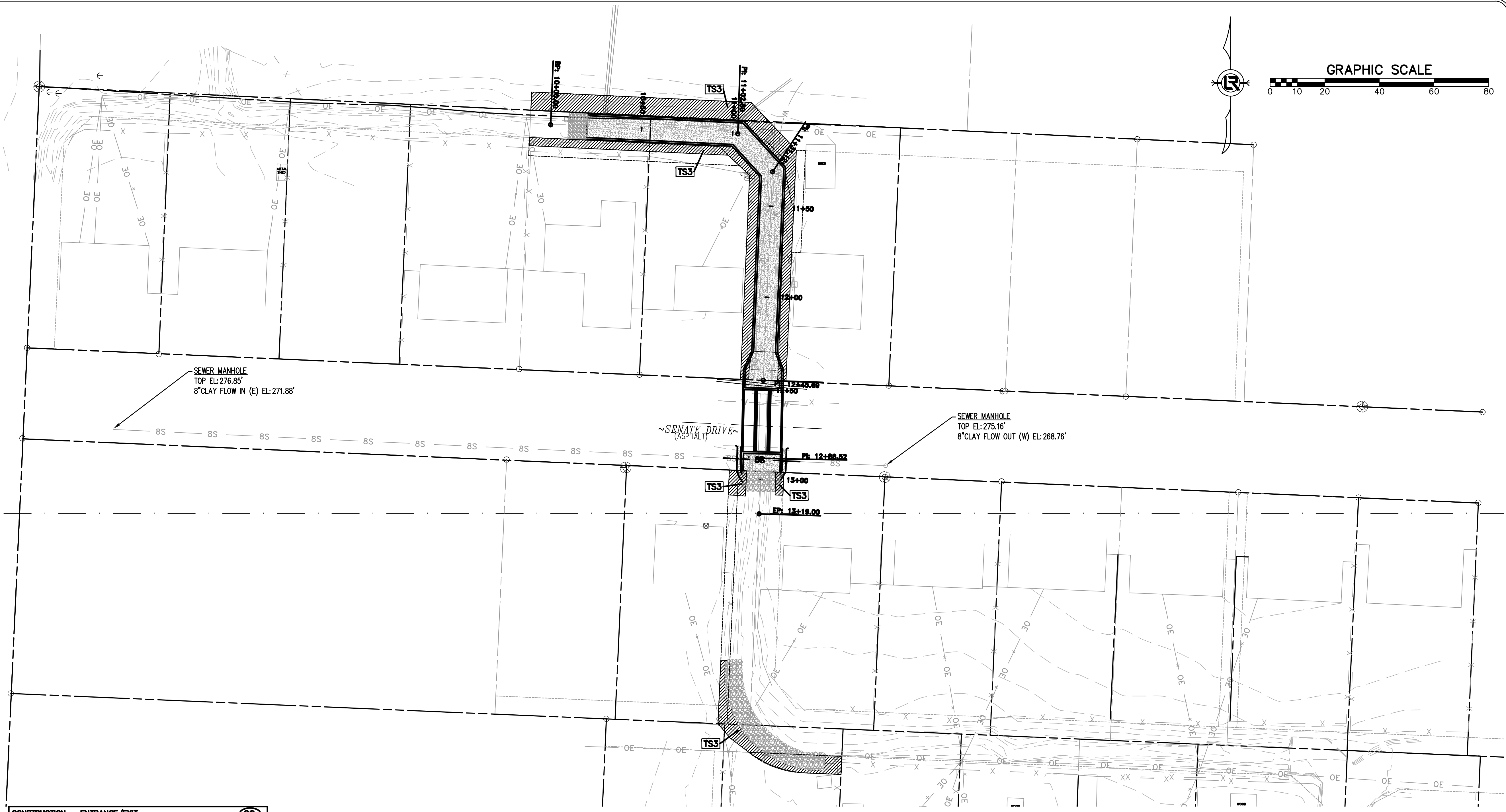
EROSION CONTROL PHASE 3

DEPARTMENT OF PUBLIC WORKS
CIVIL ENGINEERING
701 W. MARKHAM
LITTLE ROCK, ARKANSAS 72201





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DESIGNED KLF
CHECKED KLF
DATE 10/29/19
SCALE 1"=20'
PROJECT NO. CLR #02-17-DR-65
SHEET NO. C9



CONSTRUCTION - ENTRANCE/EXIT	(CO)
CHECK DAM	(CD)
DIVERSION BERM	(DI)
DOWNDRAIN STRUCTURE - TEMPORARY	(DN)
ROCK DAM	(RD)
SEDIMENT BARRIER - SILT FENCE	(SD1)
SEDIMENT BARRIER - GRAVEL RING	(SD2)
SEDIMENT BARRIER - BLOCK & GRAVEL	(SD3)
SEDIMENT BARRIER - BLOCK	(SD4)
TEMPORARY SEDIMENT BASIN	(SBI)
SILT FENCE - TYPE A	(SFA)
SILT FENCE - TYPE B	(SFB)
SILT FENCE - TYPE C	(SFC)
STORM DRAIN OUTLET PROTECTION	(ST)
SURFACE ROUGHENING	(SU)
DISTURBED AREA STABILIZATION -TEMPORARY STABILIZATION	(TS1)
DISTURBED AREA STABILIZATION -TEMPORARY GRASSING	(TS2)
DISTURBED AREA STABILIZATION -PERMANENT GRASSING	(TS3)
MATTING/BLANKETS	(Mb)

CONSTRUCTION EROSION CONTROL BEST MANAGEMENT PRACTICES

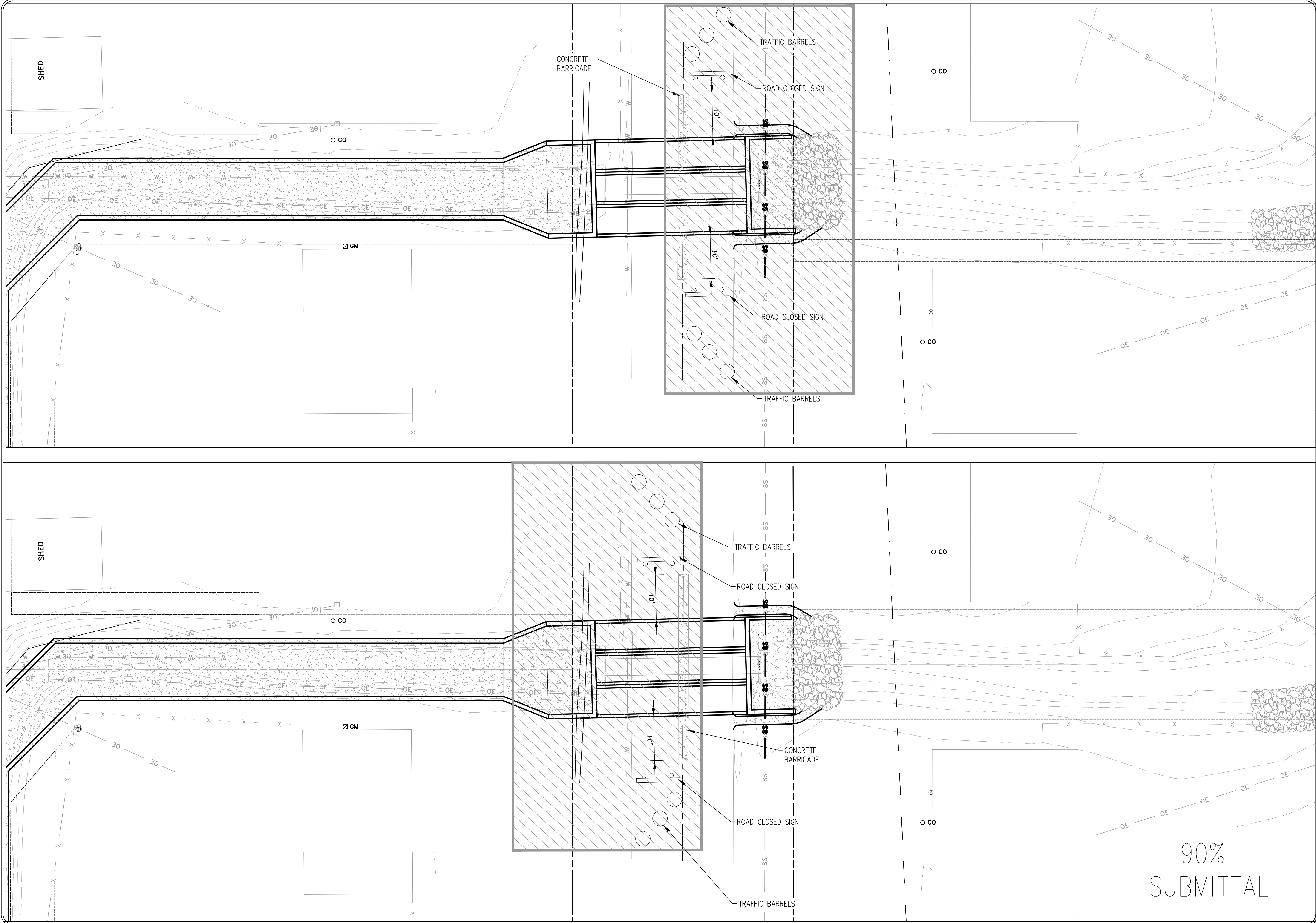
UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILERS, PARKING, LAY DOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. IN ADDITION, NOTE ANY OFF-SITE AREA WHERE FILL IS IMPORTED FROM OR SOIL IS EXPORTED TO ON THE SITE MAPS.

PHASE 3

1. FINISH GRADE SIDE SLOPES & PREPARE SUBGRADES FOR SIDEWALKS, ETC.
2. PREPARE SITE FOR PAVING.
3. PAVE WHERE INDICATED ON PLANS. CONSTRUCT SIDEWALKS.
4. INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES.
5. COMPLETE GRADING AND INSTALLATION OF PERMANENT STABILIZATION OVER ALL NON-PAVED AREAS.

90%

SUBMITTAL



REVISIONS	DATE

CITY OF LITTLE ROCK, ARKANSAS

SENATE DRIVE DRAINAGE IMPROVEMENTS

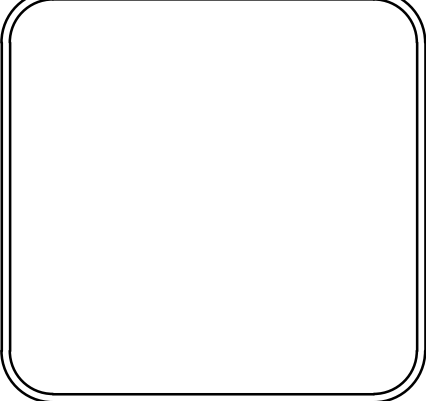
MAINTAINANCE OF TRAFFIC PLAN

DEPARTMENT OF PUBLIC WORKS

CIVIL ENGINEERING

701 W. MARKHAM

LITTLE ROCK, ARKANSAS 72201



DRAWN BY	JWM
DESIGNED	KLF
CHECKED	KLF
DATE	10/29/19
SCALE	1"=10'
PROJECT NO.	CLR #02-17-DR-65
SHEET NO.	C10