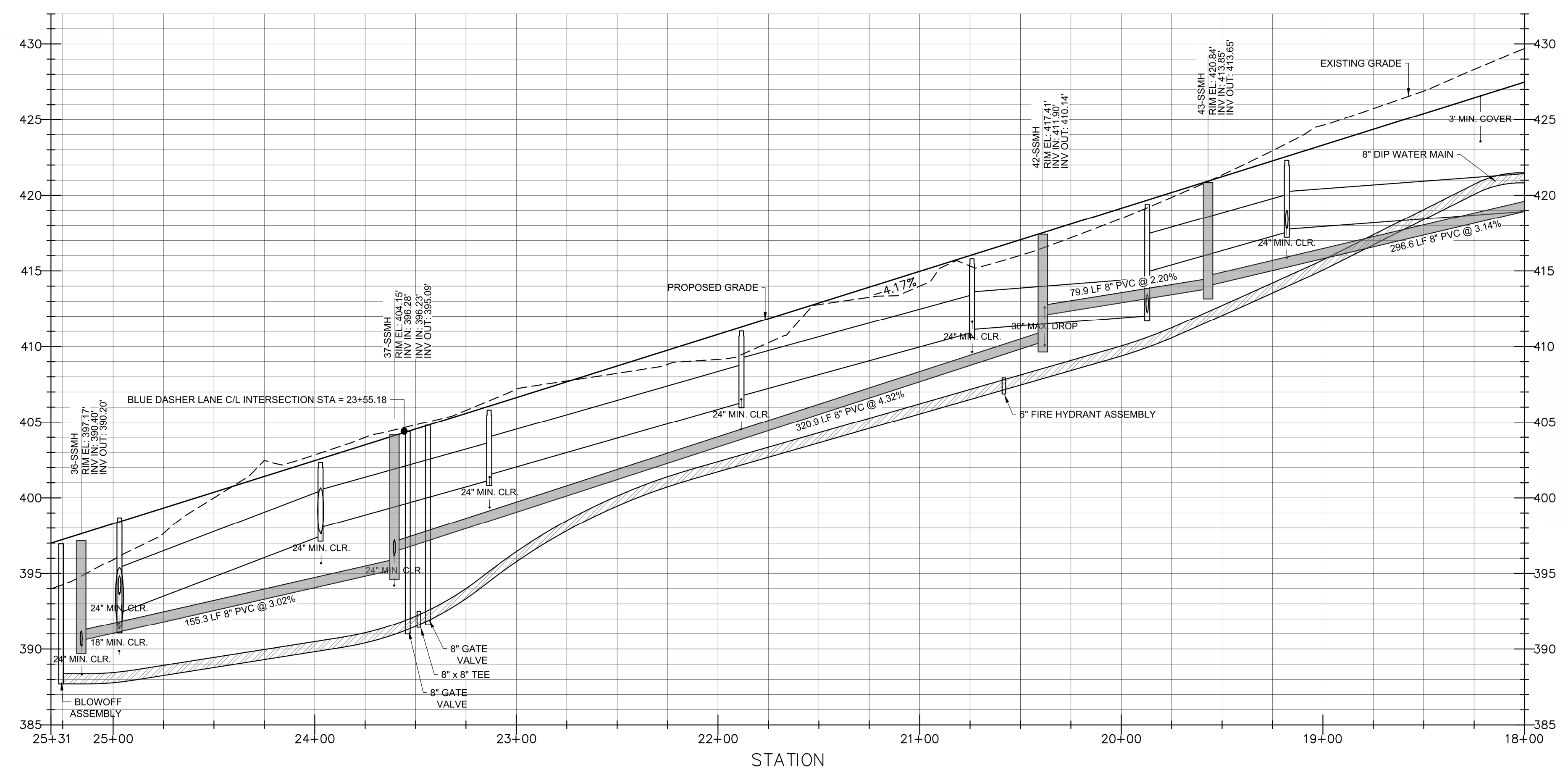
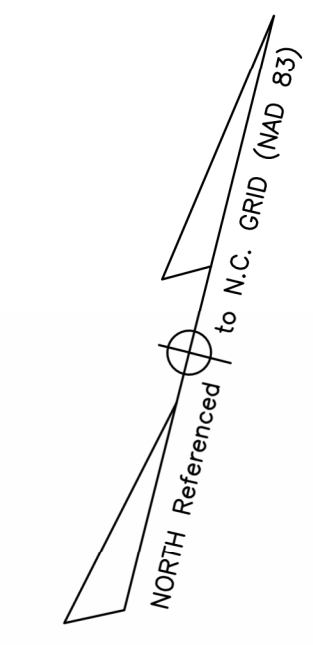


SINGLE OAK RD. - PLAN
SCALE: 1"=40'
STA: 18+00 - 25+31

SINGLE OAK ROAD					
Number	Radius	Length	Line/Chord Direction	Start Station	End Station
L39	90.62	90.62	S86° 10' 11.26"W	10+00.00	10+90.62
C50	200.00	7.01	S87° 10' 25.76"W	10+90.62	10+97.63
L40	821.31	821.31	S88° 10' 40.27"W	10+97.63	19+18.94
C49	250.00	152.21	S70° 44' 08.37"W	19+18.94	20+71.15
L41	459.68	459.68	S53° 17' 36.47"W	20+71.15	25+30.83

SEE SHEET C511



SINGLE OAK RD. - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=8'
STA: 18+00 - 25+31

ELEVATION

Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # W-3599
 Authorization to Construct PERMITTED IN TRACT A
 SEE TRACT A CONSTRUCTION DRAWINGS
 Date _____

Public
Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # S-4523
 Authorization to Construct PERMITTED IN TRACT A
 SEE TRACT A CONSTRUCTION DRAWINGS
 Date _____

ATTENTION CONTRACTORS
 The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Department at (919) 996-4540 at least twenty four hours prior to beginning any of their construction.
 Failure to notify both City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.
 Failure to call for Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

PLAN AND PROFILE
SHINGLE OAK RD.

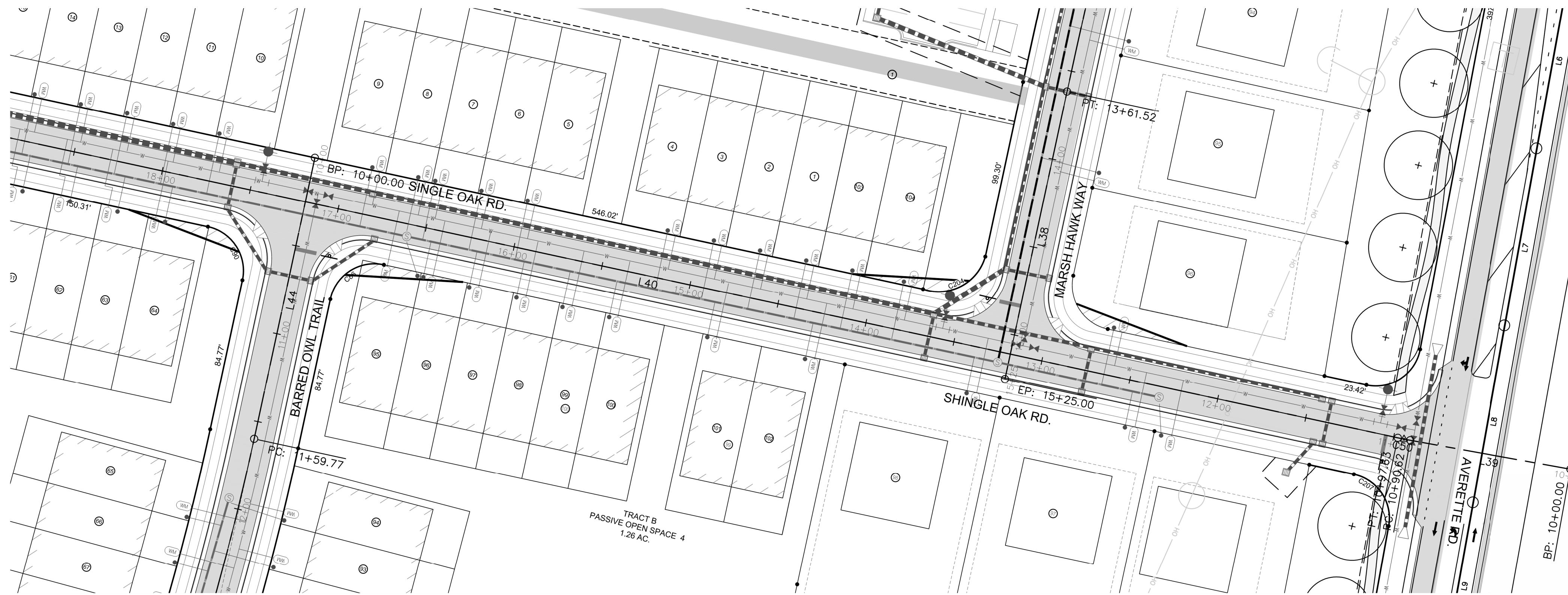
Project Engineer: TSS
 Designed By: MP
 Drawn By: MP
 Checked By: TSS
 Scale: AS SHOWN

Date: 07/31/2019
 Project Number: 170348

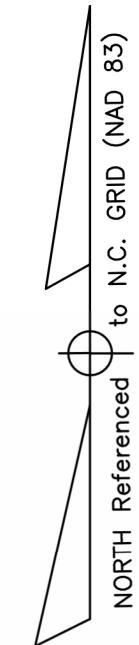
SHEET
C510

ELIZABETH HEIGHTS

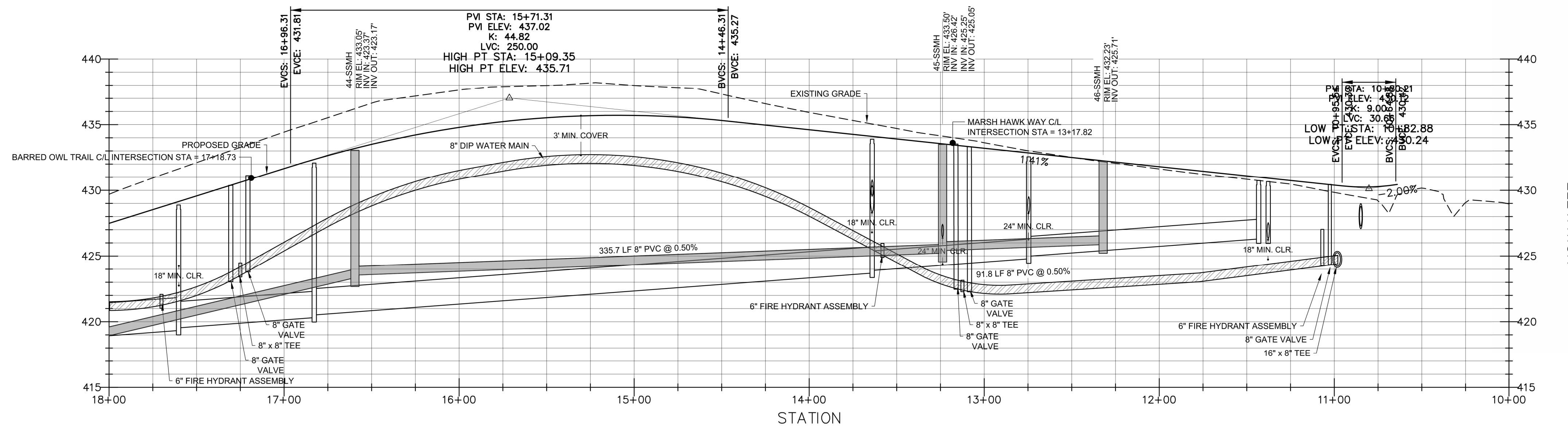
SEE SHEET C510



SINGLE OAK RD. - PLAN
SCALE: 1"=40'
STA: 10+00 - 18+00



SINGLE OAK ROAD					
Number	Radius	Length	Line/Chord Direction	Start Station	End Station
L39		90.62	S86° 10' 11.26"W	10+00.00	10+90.62
C50	200.00	7.01	S87° 10' 25.76"W	10+90.62	10+97.63
L40		821.31	S88° 10' 40.27"W	10+97.63	19+18.94
C49	250.00	152.21	S70° 44' 08.37"W	19+18.94	20+71.15
L41		459.68	S53° 17' 36.47"W	20+71.15	25+30.83



SINGLE OAK RD. - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=8'
STA: 10+00 - 18+00

Public
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Public
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 City of Raleigh
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 Authorization to Construct PERMITTED IN TRACT A
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 Date _____

ATTENTION CONTRACTORS
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 NCBELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27687
 WAKE COUNTY, NC

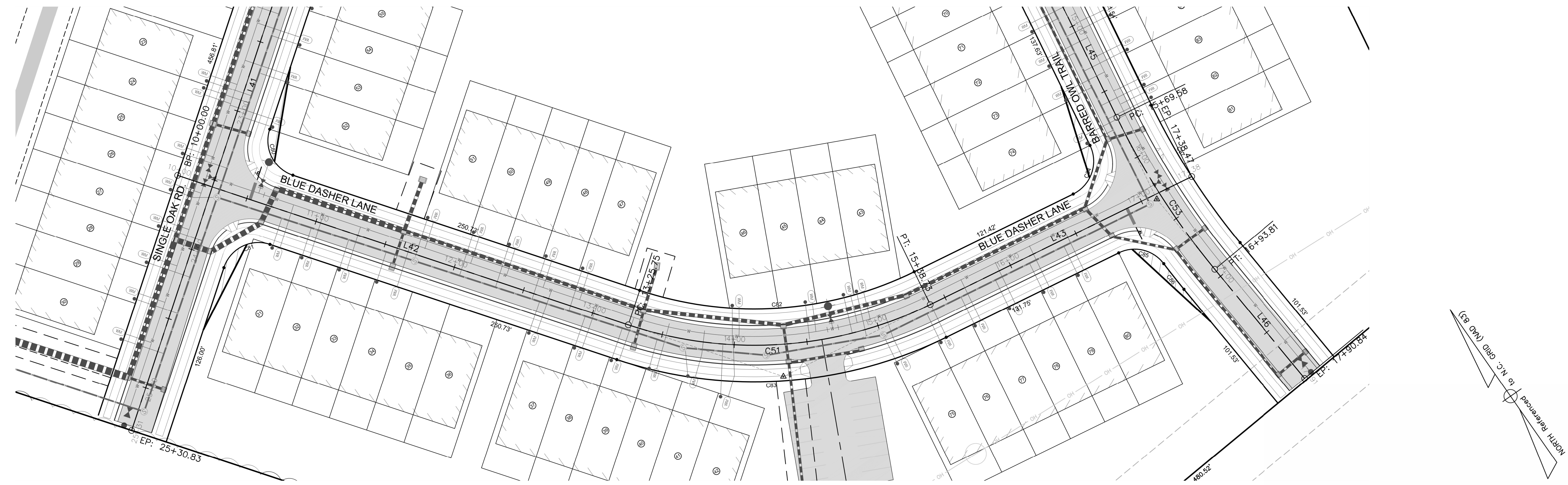
PLAN AND PROFILE
SHINGLE OAK RD.

Project Engineer: TSS
 Designed By: MP
 Drawn By: MP
 Checked By: TSS
 Scale: AS SHOWN

Date: 07/31/2019
 Project Number: 170348

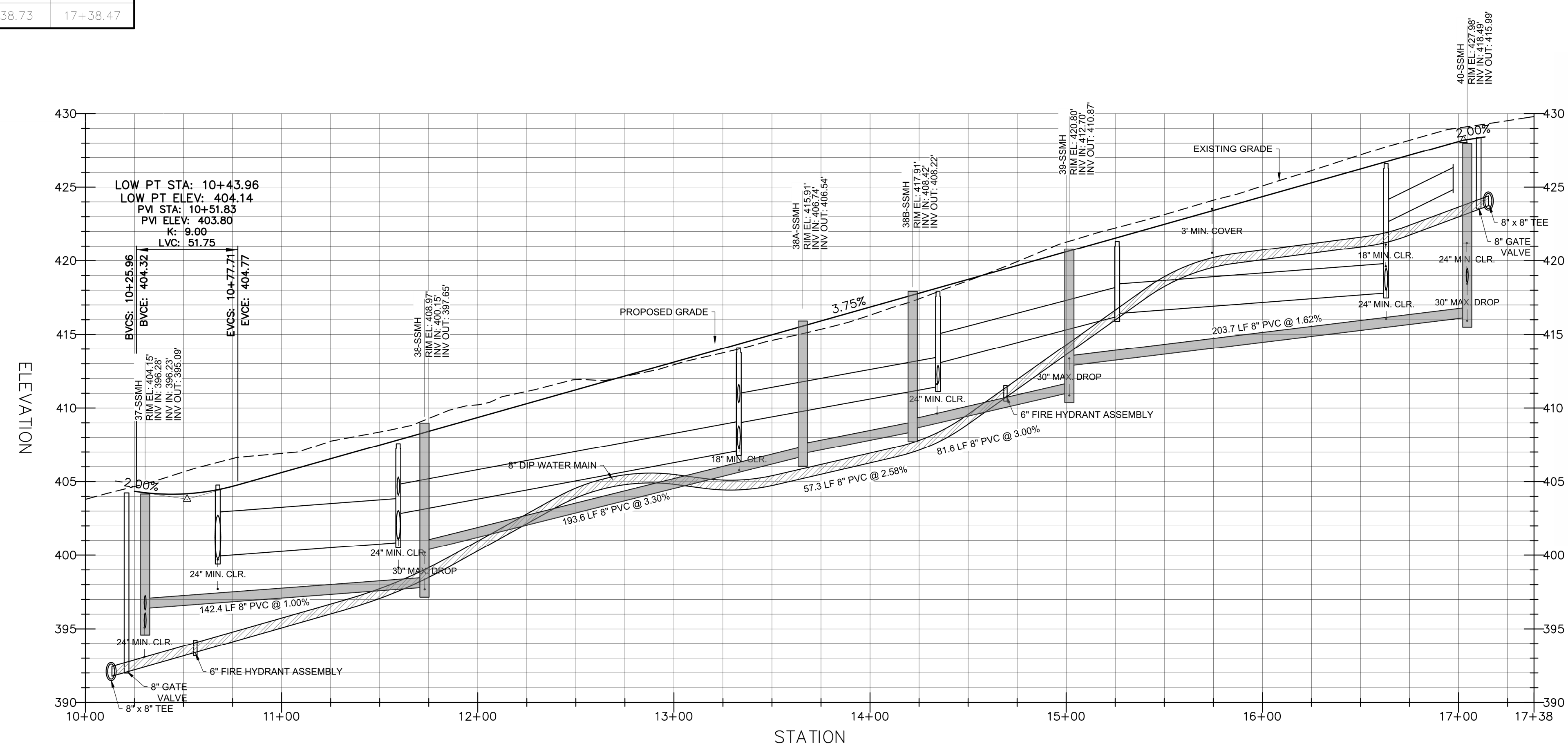
SHEET
C511

ELIZABETH HEIGHTS



BLUE DASHER LANE - PLAN
SCALE: 1"=40'
STA: 10+00 - 17+38

BLUE DASHER LANE					
Number	Radius	Length	Line/Chord Direction	Start Station	End Station
L42		325.75	S36° 42' 23.59"E	10+00.00	13+25.75
C51	275.00	212.98	S58° 53' 35.14"E	13+25.75	15+38.73
L43		199.74	S81° 04' 46.69"E	15+38.73	17+38.47



BLUE DASHER LANE - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=8'
STA: 10+00 - 17+38

Public
Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # W-3599
 Authorization to Construct PERMITTED IN TRACT A
 SEE TRACT A CONSTRUCTION DRAWINGS
 Date _____

Public
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 City of Raleigh
 Public Utilities Department Permit # S-4523
 Authorization to Construct PERMITTED IN TRACT A
 SEE TRACT A CONSTRUCTION DRAWINGS
 Date _____

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REV. NO.	DESCRIPTIONS	DATE
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 NCBELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

PLAN AND PROFILE
BLUE DASHER LANE

Project Engineer: TSS
 Designed By: MP
 Drawn By: MP
 Checked By: TSS
 Scale: AS SHOWN

Date: 07/31/2019
 Project Number: 170348

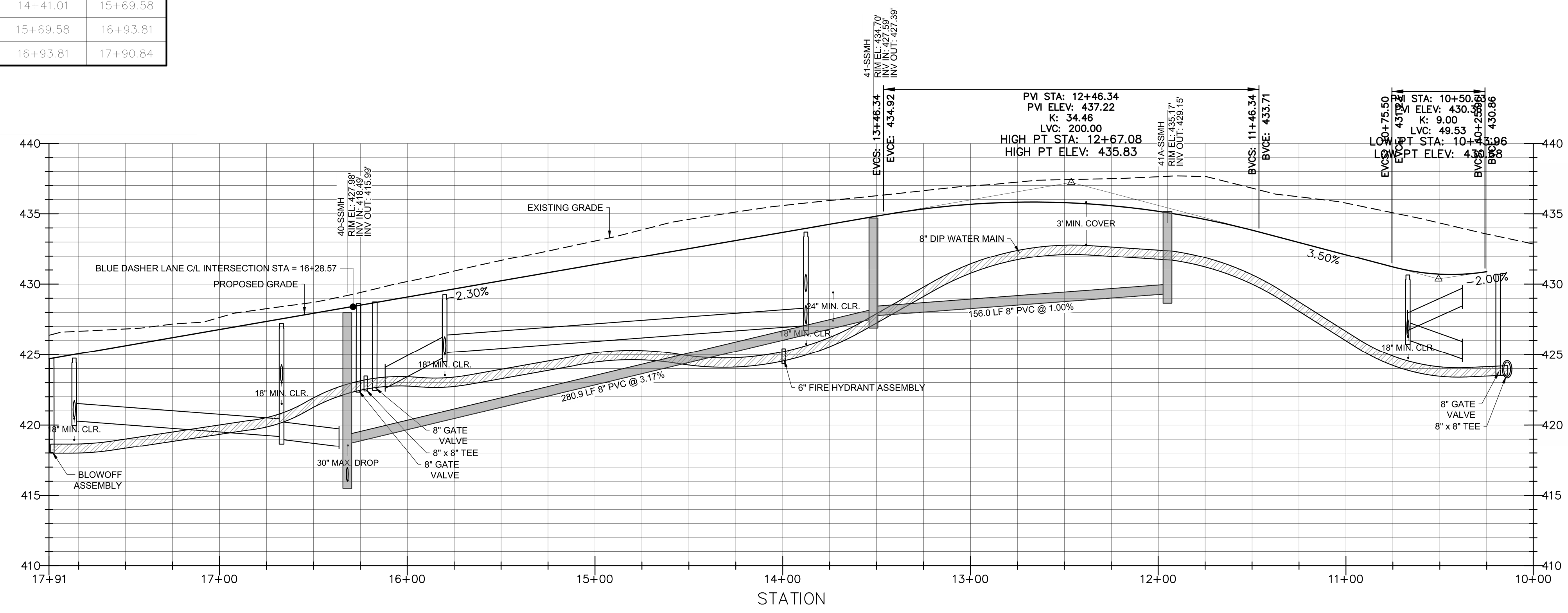
SHEET
C512

ELIZABETH HEIGHTS



BARRED OWL TRAIL - PLAN
SCALE: 1"=40'
STA: 10+00 - 17+91

BARRED OWL TRAIL					
Number	Radius	Length	Line/Chord Direction	Start Station	End Station
L44		159.77	S1° 49' 19.73"E	10+00.00	11+59.77
C52	1500.00	281.24	S3° 32' 56.79"W	11+59.77	14+41.01
L45		128.56	S8° 55' 13.31"W	14+41.01	15+69.58
C53	525.00	124.23	S2° 08' 28.47"W	15+69.58	16+93.81
L46		97.03	S4° 38' 16.37"E	16+93.81	17+90.84



BARRED OWL TRAIL - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=8'
STA: 10+00 - 17+91

ELEVATION

Public
Water Distribution / Extension System
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 City of Raleigh
 Public Utilities Department Permit # W-3599
 Authorization to Construct PERMITTED IN TRACT A
 SEE TRACT A CONSTRUCTION DRAWINGS
 Date _____

Public
Sewer Collection / Extension System
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 SEE TRACT A CONSTRUCTION DRAWINGS
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REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
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 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27687
 WAKE COUNTY, NC

PLAN AND PROFILE
BARRED OWL TRAIL

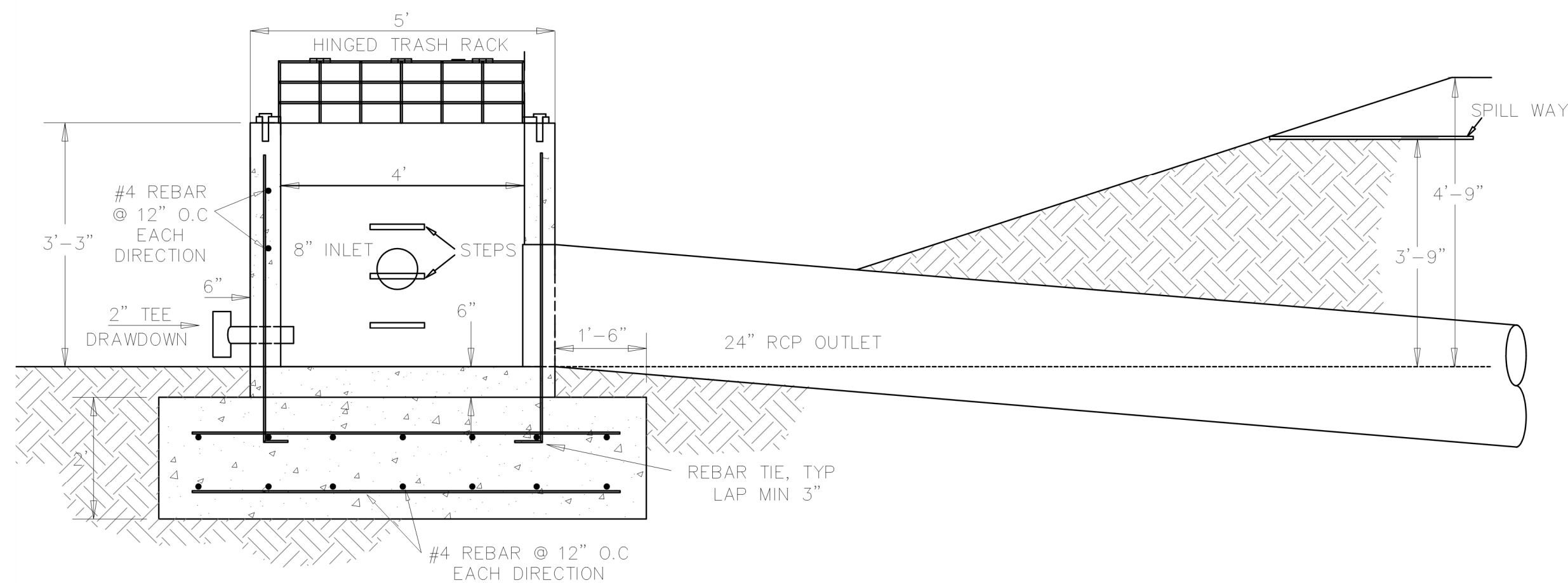
Project Engineer: TSS
 Designed By: MP
 Drawn By: MP
 Checked By: TSS
 Scale: AS SHOWN
 Date: 07/31/2019
 Project Number: 170348

SHEET
C513

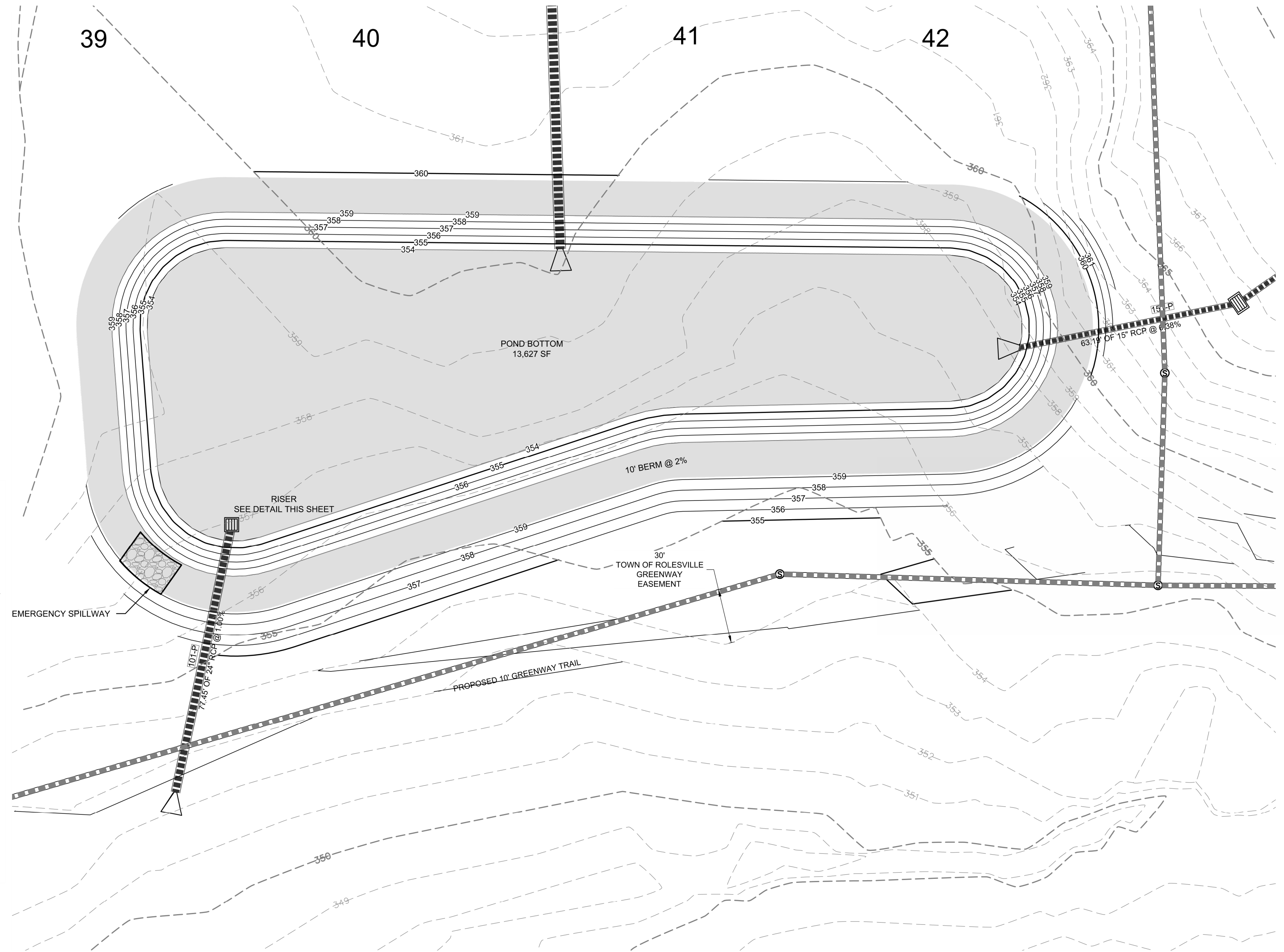
ELIZABETH HEIGHTS

LEGEND:

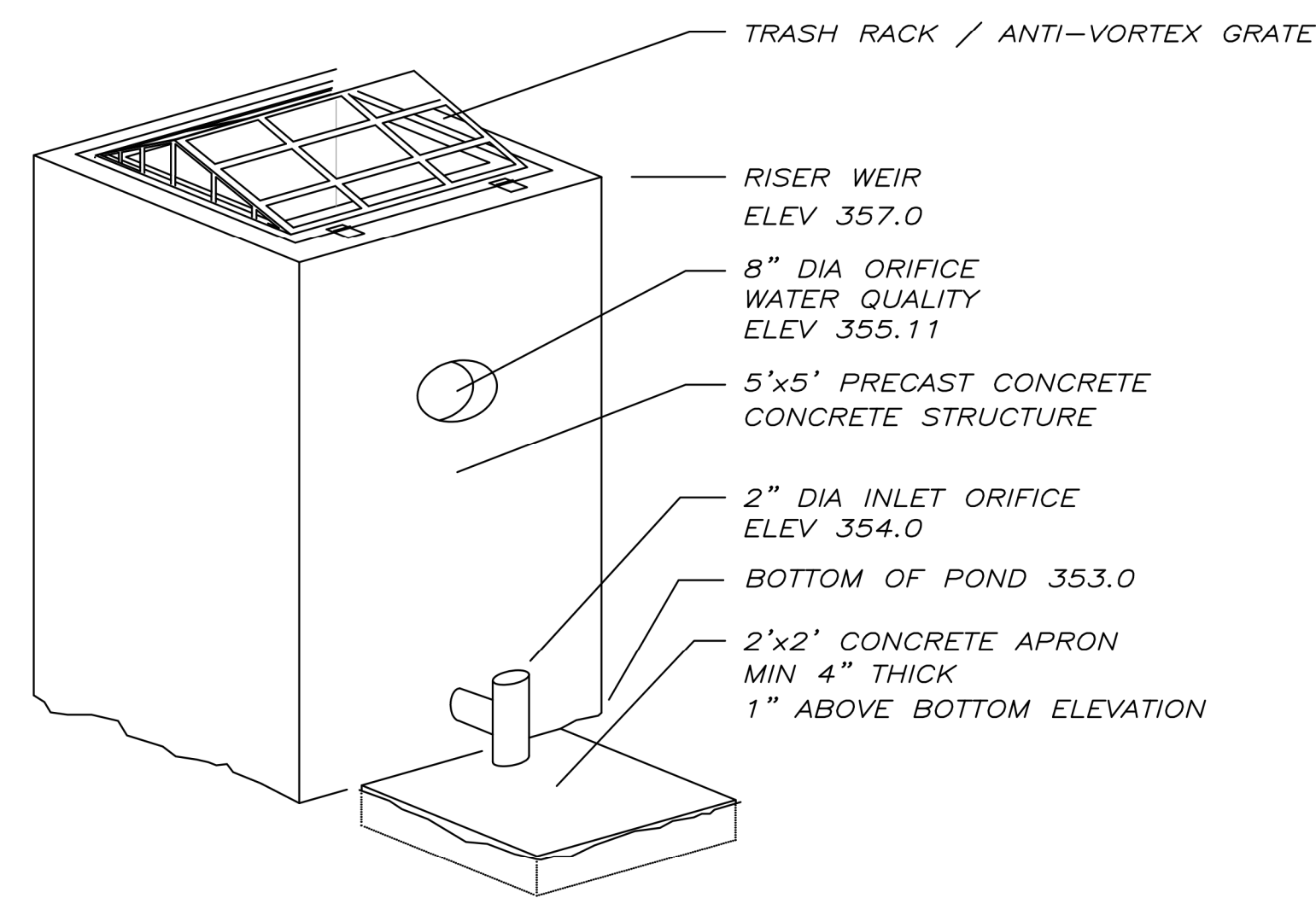
- LIMITS OF DISTURBANCE
- - - - - 326 EX CONTOUR LINE
- 326 PROPOSED CONTOUR LINE



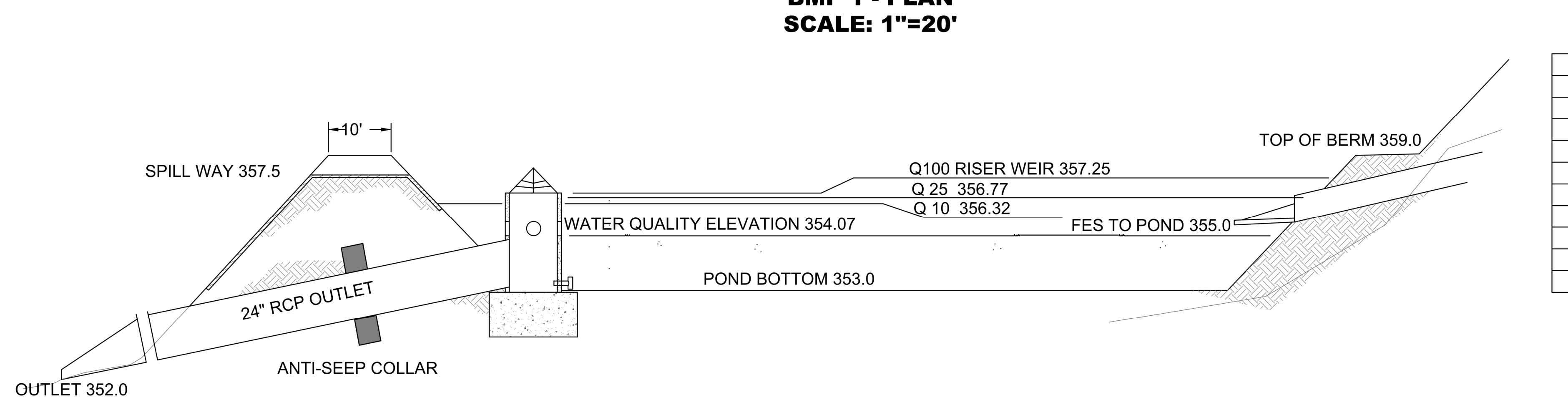
**RISER - SECTION
SCALE: 1"=2'**



**BMP 1 - PLAN
SCALE: 1"=20'**



**RISER STRUCTURE VIEW
NOT TO SCALE**



**TYPICAL POND SECTION
NOT TO SCALE**

ROLESVILLE NOTE:
TRACT B - TOWNHOMES IS A SEPARATE SUBMITTAL AS A QUASI-JUDICIAL DETAILED SITE PLAN AND SHOULD BE NOTED AS NOT INCLUDED WITH THESE SUBDIVISION CONSTRUCTION PLANS. THE DETAILED SITE PLAN IS A SEPARATE QUASI-JUDICIAL APPROVAL PROCESS PER THE ROLESVILLE UNIFIED DEVELOPMENT ORDINANCE. THE DETAILED SITE PLAN MUST BE APPROVED BY THE TOWN BOARD OF COMMISSIONERS AND CANNOT BE INCLUDED IN THE ADMINISTRATIVE APPROVAL OF THE CONSTRUCTION PLANS FOR TRACT A, SINGLE-FAMILY RESIDENTIAL LOTS. THE SUBMITTED SITE PLAN SHALL INCLUDE THE LISTED INFORMATION STATED IN SECTION 3.6.3 GENERAL CONDITIONS AND LIMITATIONS ASSOCIATED WITH A SPECIAL USE PERMIT. A COPY OF SAID SECTION IS BELOW. PLEASE SUBMIT A REVISED DETAILED SITE PLAN APPLICATION FOR PHASE 2, TOWNHOMES THAT WILL INCLUDE ALL IMPROVEMENTS AND DETAILS LISTED IN SECTION 3.6.3 FOR THE DEVELOPMENT. PLEASE SUBMIT A SEPARATE DETAILED SITE PLAN APPLICATION FOR TRACT B - TOWNHOMES THAT WILL INCLUDE ALL IMPROVEMENTS FOR THE DEVELOPMENT OF THIS TRACT.

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018
	REVISIONS	

- SYMBOL LEGEND**
- ▲▲▲ END OF STREET SIGNAGE
 - STOP SIGN AND STREET NAME SIGN LOCATION
 - ACCESSIBILITY RAMP
 - ⊕ LARGE STREET TREE, TYP 2 1/2" CALIPER MIN



KNOW WHAT IS BELOW
CALL BEFORE YOU DIG



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NCBELS FIRM No. C-2378



**ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS**
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

**BMP DETAILS
BMP 1**

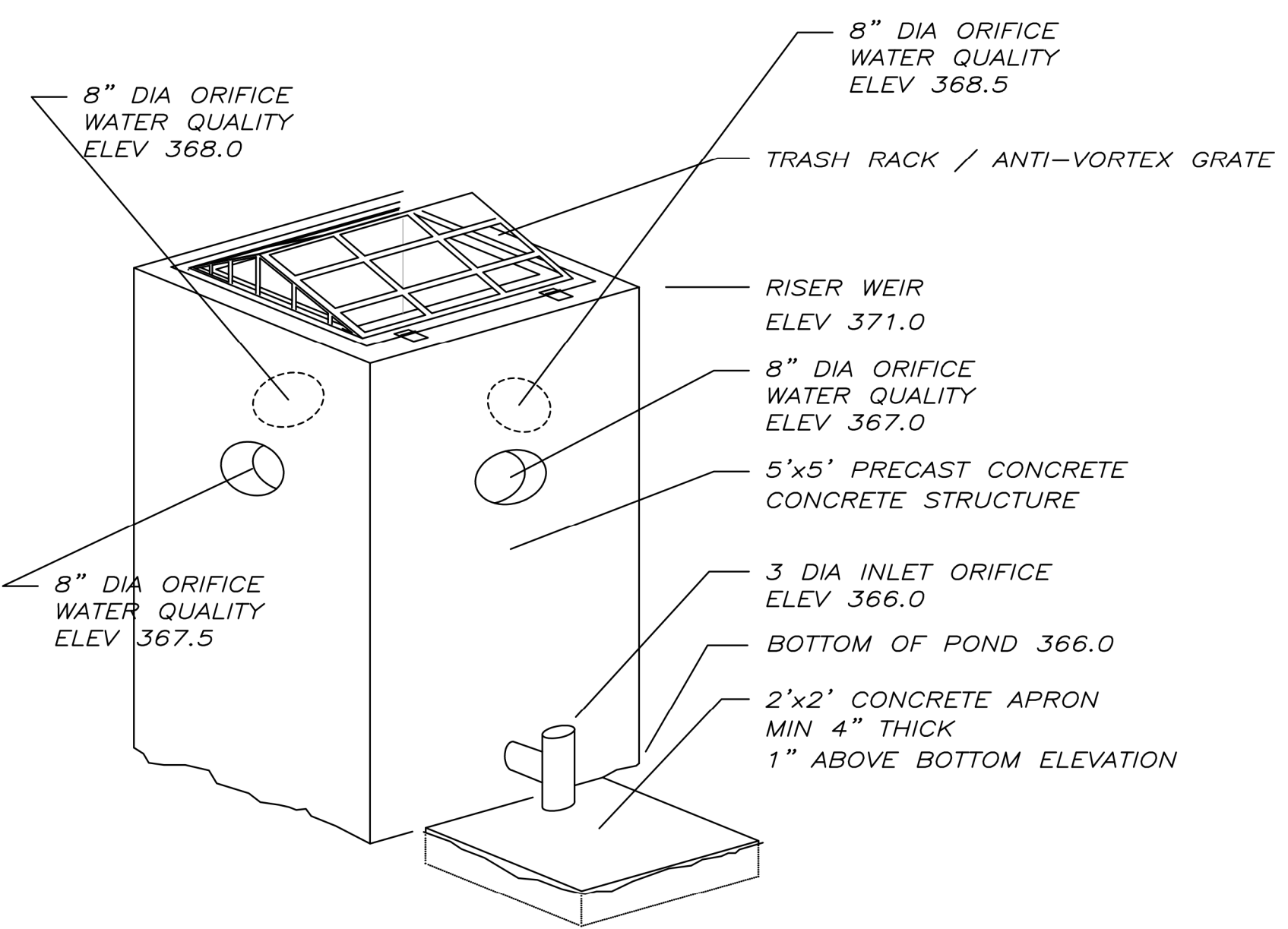
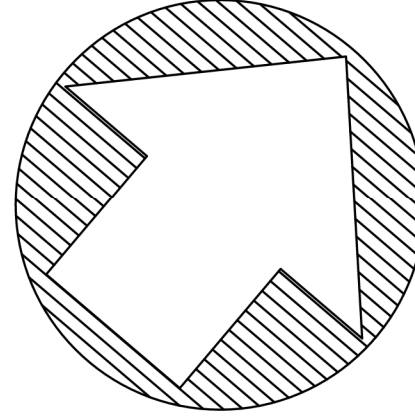
Project Engineer: TSS
Designed By: TSS
Drawn By: MP
Checked By: TSS
Scale: AS SHOWN

Date: 07/31/2019

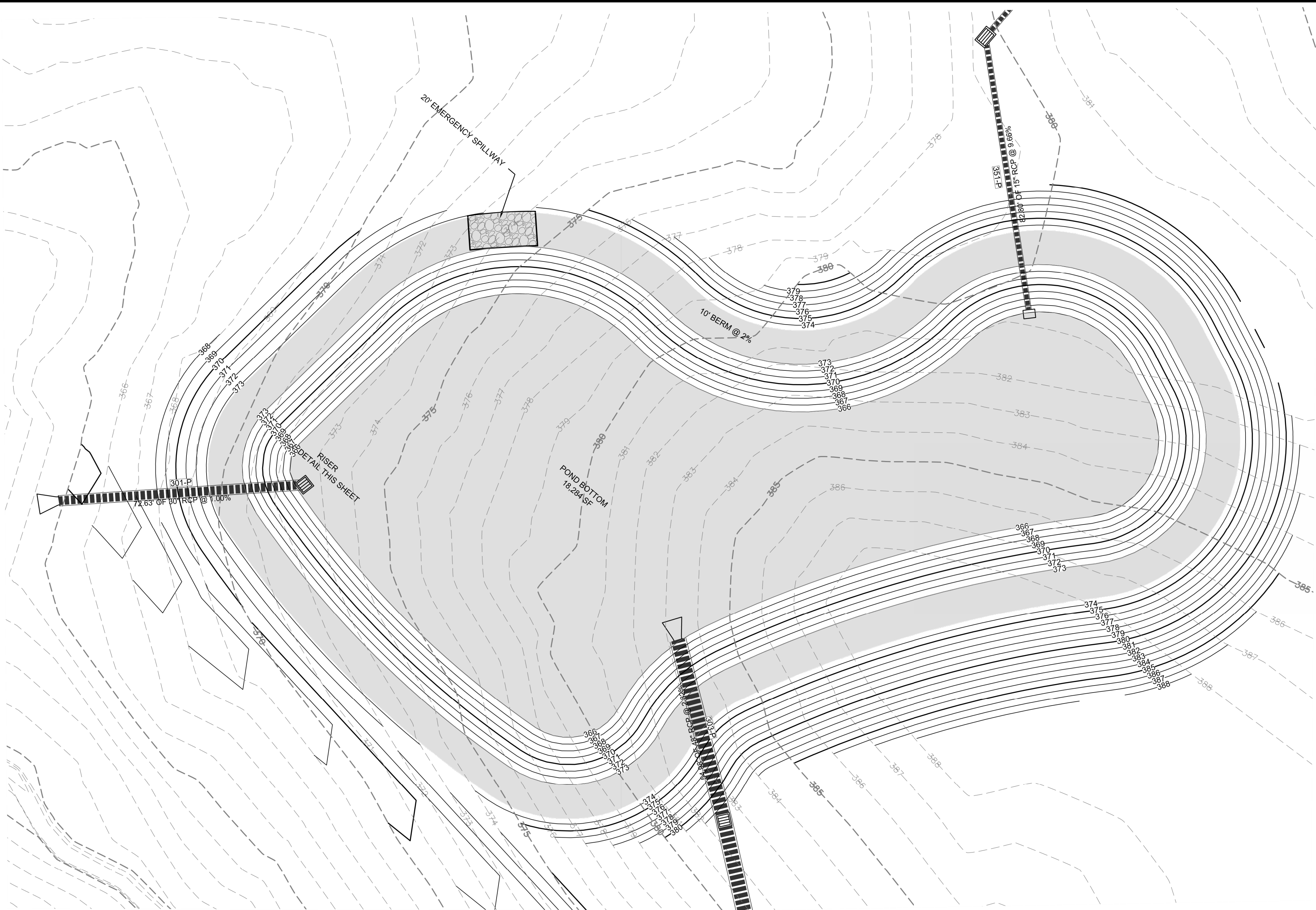
Project Number: 170348

SHEET
C522

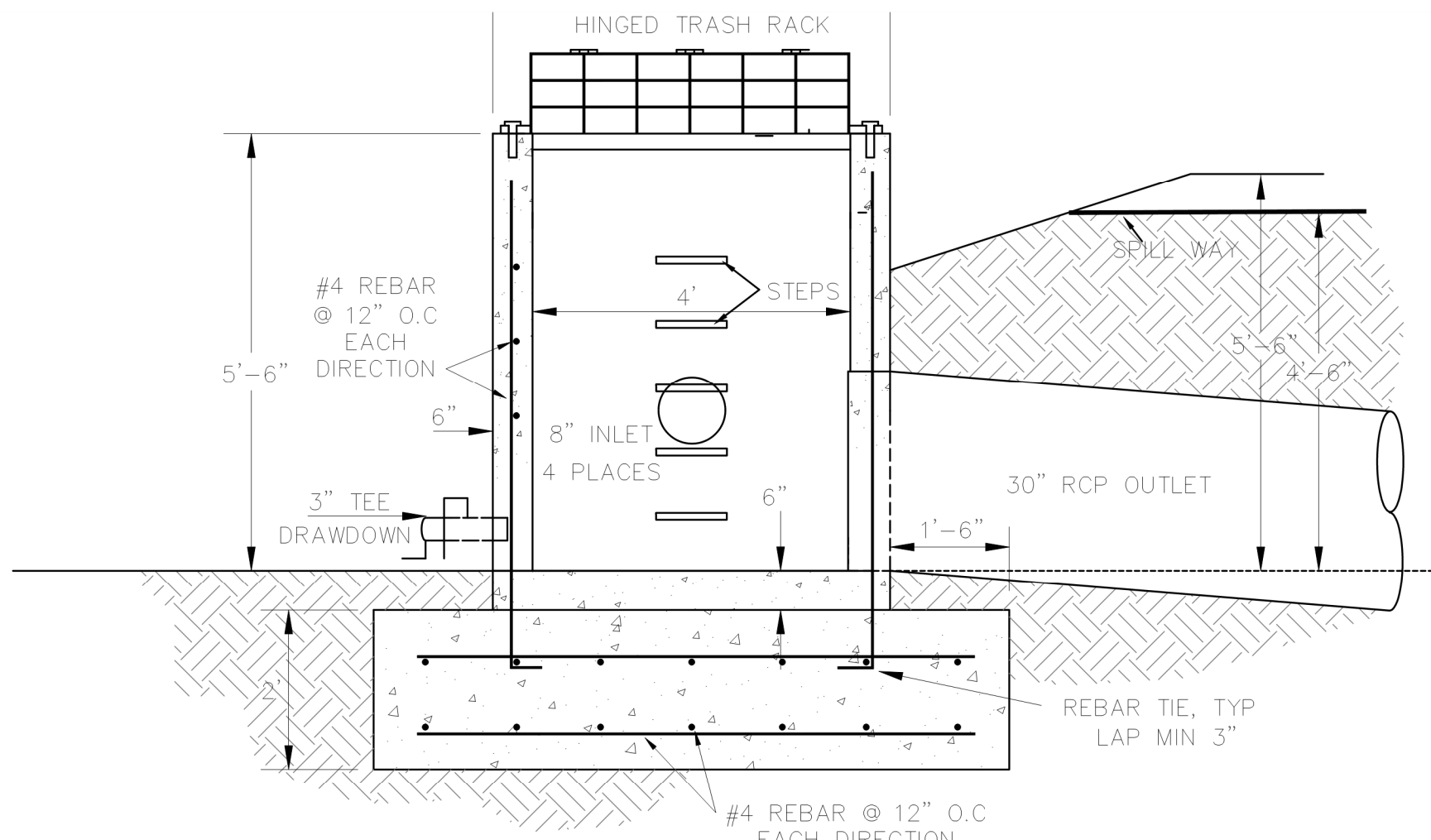
LEGEND:
 - - - - - LIMITS OF DISTURBANCE
 - - - - - 326 EX CONTOUR LINE
 - - - - - 326 PROPOSED CONTOUR LINE



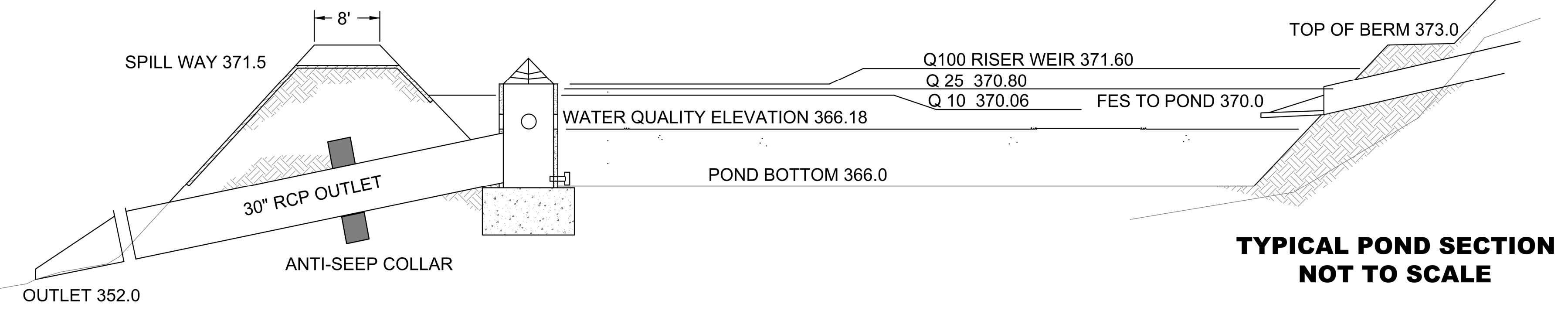
**RISER STRUCTURE VIEW
NOT TO SCALE**



**BMP 2 - PLAN
SCALE: 1"=20'**



**RISER - SECTION
SCALE: 1"=2'**



**TYPICAL POND SECTION
NOT TO SCALE**

ROLESVILLE NOTE:
 TRACT B - TOWNHOMES IS A SEPARATE SUBMITTAL AS A QUASI-JUDICIAL DETAILED SITE PLAN AND SHOULD BE NOTED AS NOT INCLUDED WITH THESE SUBDIVISION CONSTRUCTION PLANS. THE DETAILED SITE PLAN IS A SEPARATE QUASI-JUDICIAL APPROVAL PROCESS PER THE ROLESVILLE UNIFIED DEVELOPMENT ORDINANCE. THE DETAILED SITE PLAN MUST BE APPROVED BY THE TOWN BOARD OF COMMISSIONERS AND CANNOT BE INCLUDED IN THE ADMINISTRATIVE APPROVAL OF THE CONSTRUCTION PLANS FOR TRACT A, SINGLE-FAMILY RESIDENTIAL LOTS. THE SUBMITTED SITE PLAN SHALL INCLUDE THE LISTED INFORMATION STATED IN SECTION 3.6.3 GENERAL CONDITIONS AND LIMITATIONS ASSOCIATED WITH A SPECIAL USE PERMIT. A COPY OF SAID SECTION IS BELOW. PLEASE SUBMIT A REVISED DETAILED SITE PLAN APPLICATION FOR PHASE 2, TOWNHOMES THAT WILL INCLUDE ALL IMPROVEMENTS AND DETAILS LISTED IN SECTION 3.6.3 FOR THE DEVELOPMENT. PLEASE SUBMIT A SEPARATE DETAILED SITE PLAN APPLICATION FOR TRACT B - TOWNHOMES THAT WILL INCLUDE ALL IMPROVEMENTS FOR THE DEVELOPMENT OF THIS TRACT.

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
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	REVISIONS	



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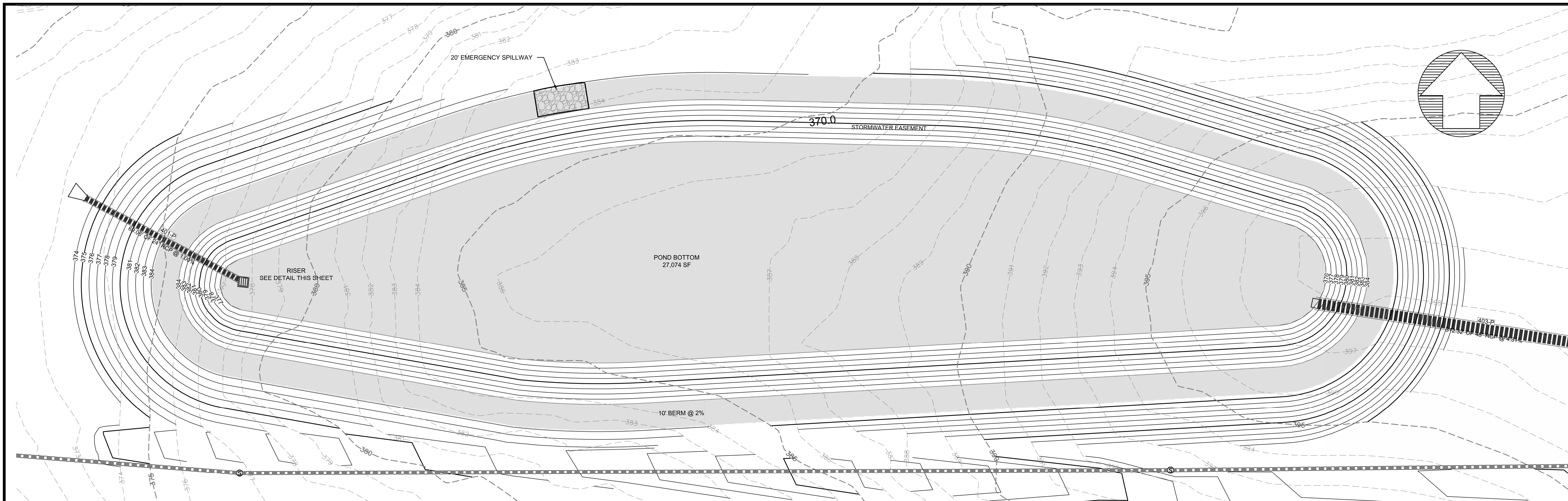


**ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS**
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

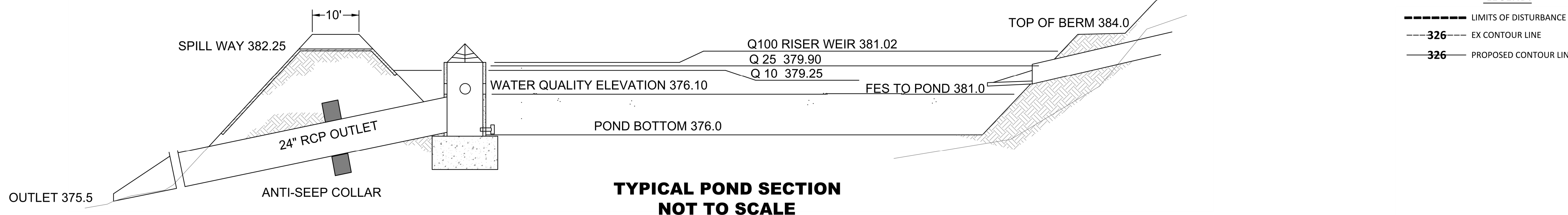
**BMP DETAILS
BMP2**

Project Engineer:	TSS
Designed By:	TSS
Drawn By:	MP
Checked By:	TSS
Scale:	AS SHOWN
Date:	07/31/2019
Project Number:	170348

**SHEET
C523**

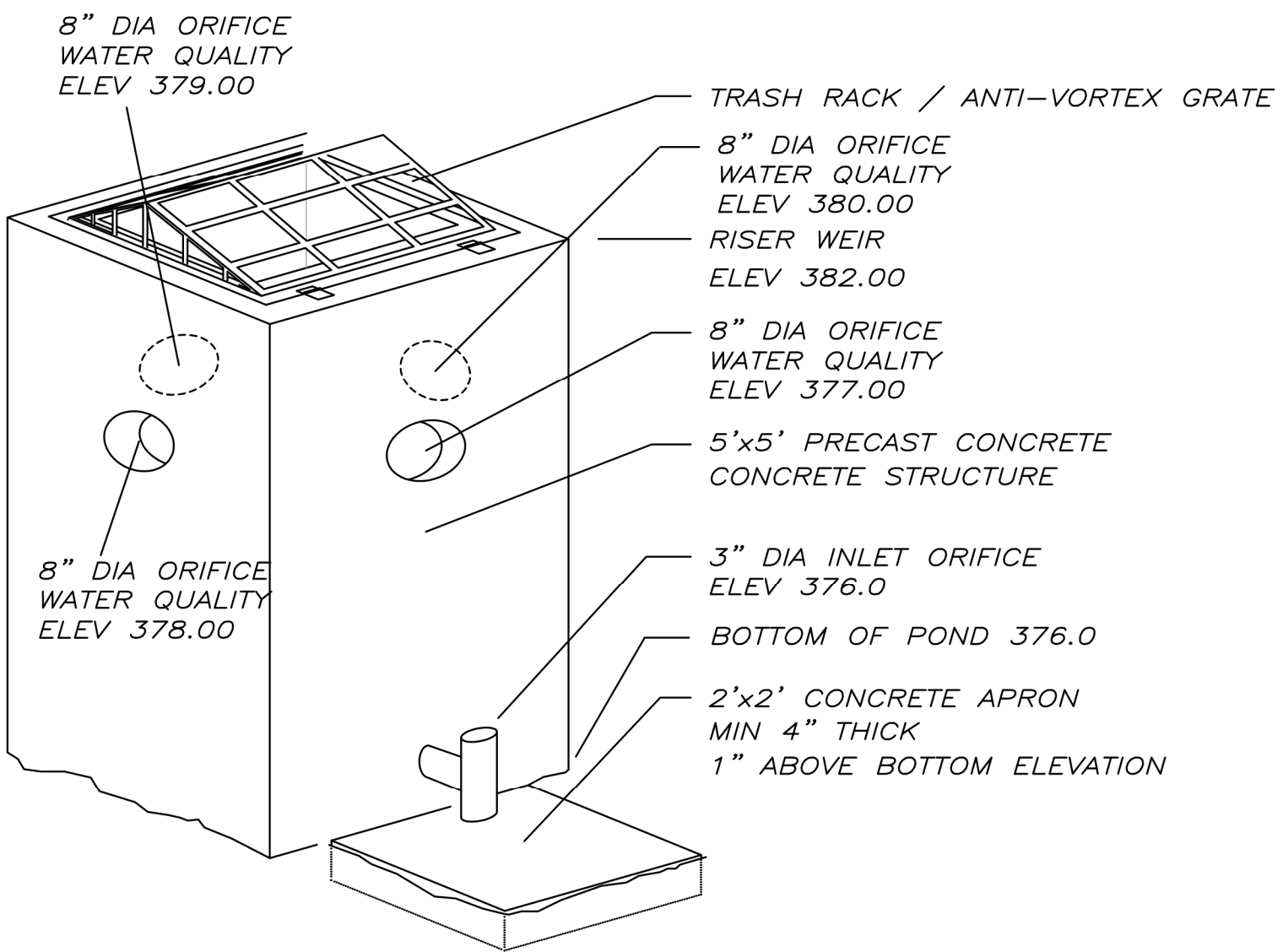


BMP 3 - PLAN
SCALE: 1"=20'

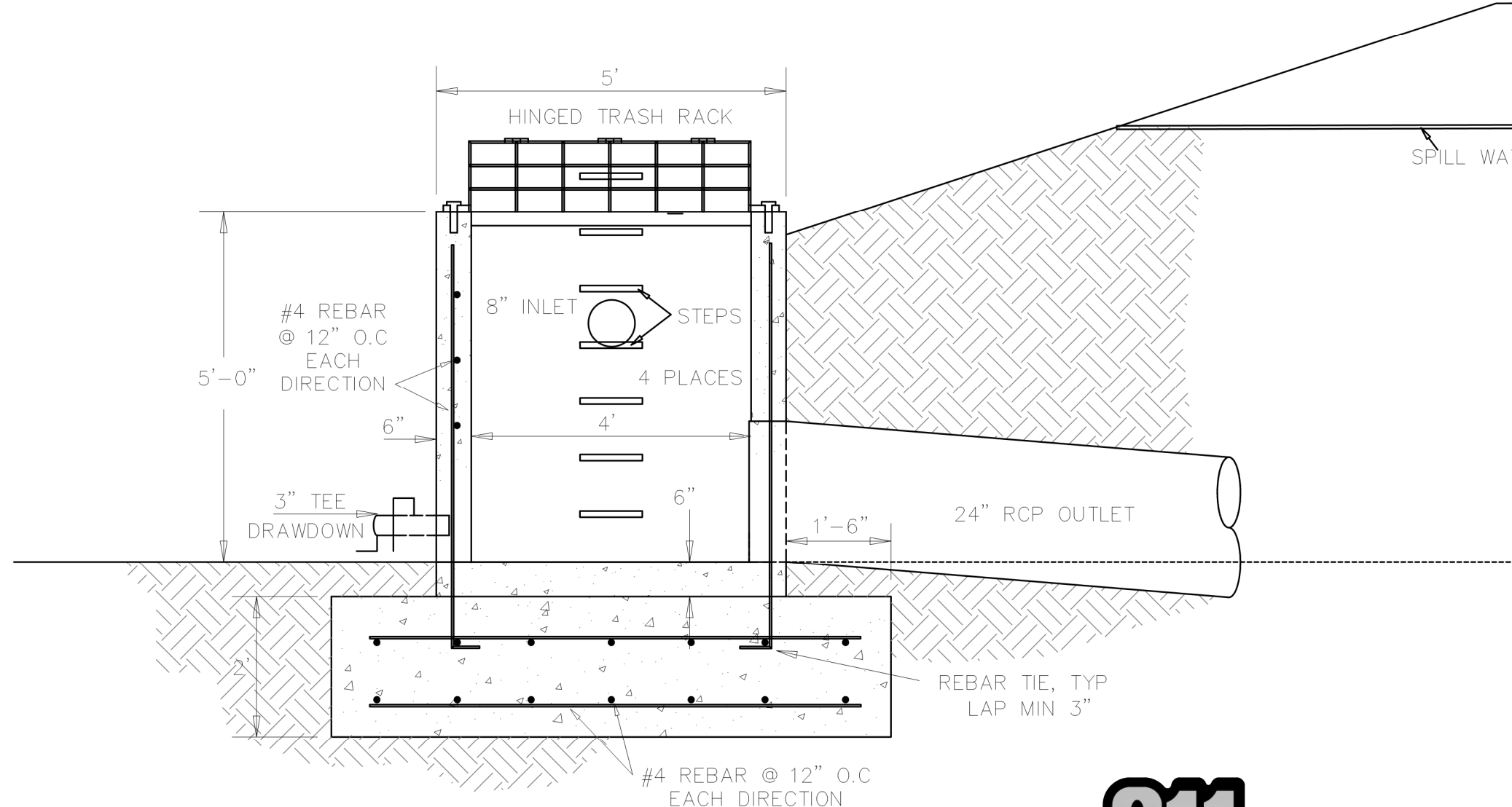


TYPICAL POND SECTION
NOT TO SCALE

LEGEND:
 - - - - - LIMITS OF DISTURBANCE
 --- EX CONTOUR LINE
 ——— PROPOSED CONTOUR LINE



RISER STRUCTURE VIEW
NOT TO SCALE



RISER - SECTION
SCALE: 1"=2'

ROLESVILLE NOTE:
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 NCBELS FIRM No. C-2378



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

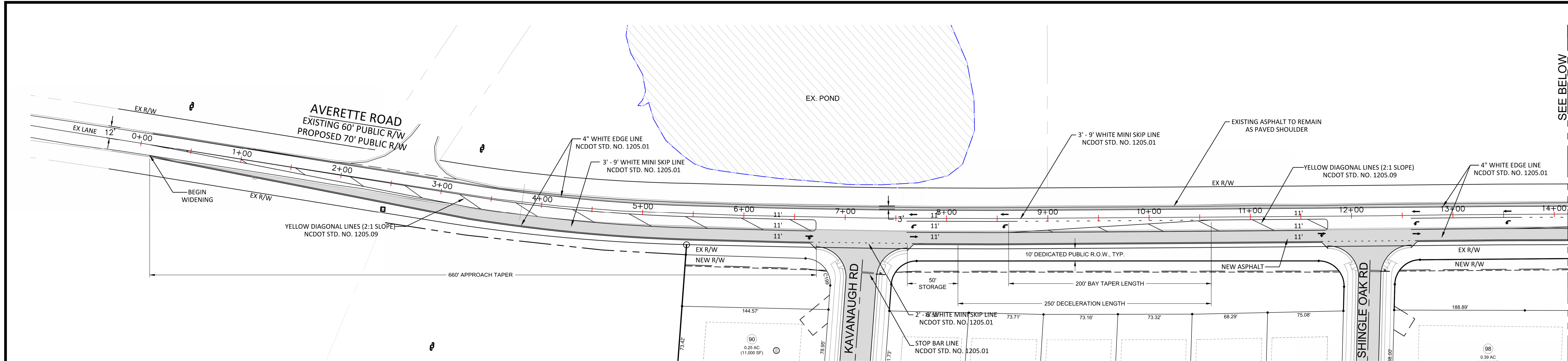
BMP DETAILS
BMP3

Project Engineer: TSS
 Designed By: TSS
 Drawn By: MP
 Checked By: TSS
 Scale: AS SHOWN
 Date: 07/31/2019

Project Number: 170348

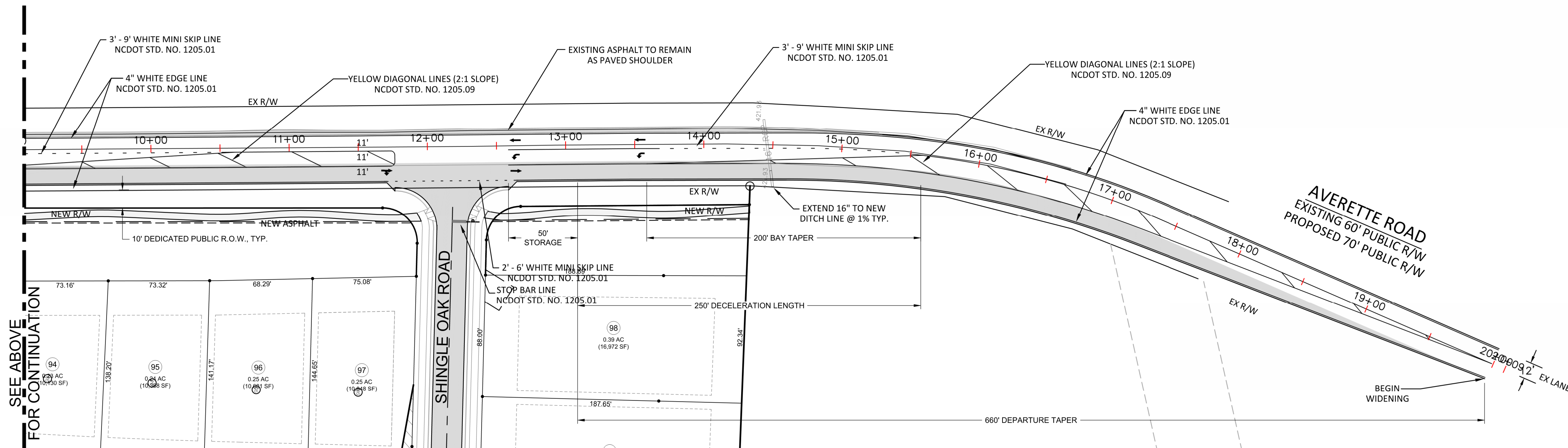
SHEET
C524

REV NO	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018
REV NO	DESCRIPTIONS	DATE
	REVISIONS	

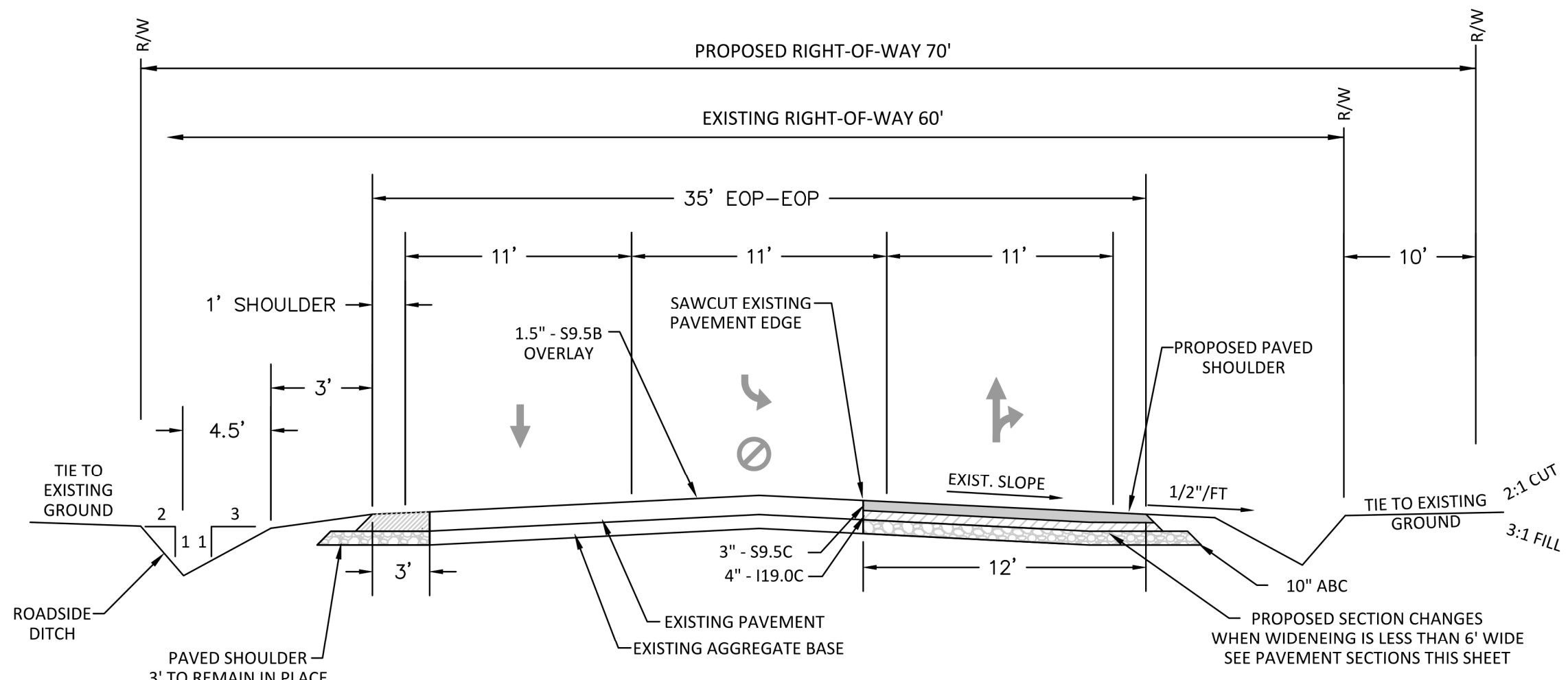
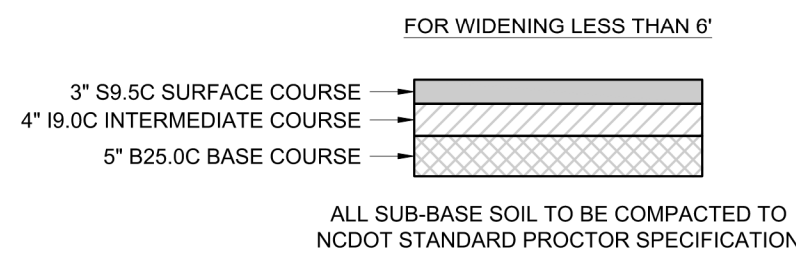
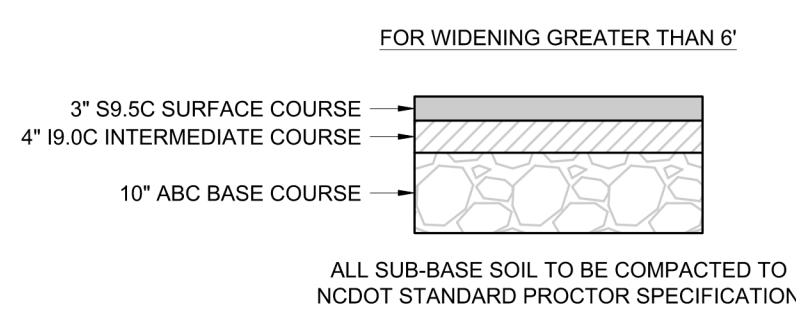


SEE BELOW FOR CONTINUATION

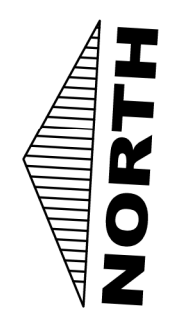
- NOTES:
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SEE ABOVE FOR CONTINUATION



TYPICAL ROAD WIDENING SECTION
AVERETTE ROAD, WAKE COUNTY
NOT TO SCALE



REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.677.1080 Fax: 919.677.1081
NCEELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27687
WAKE COUNTY, NC

AVERETTE ROAD
WIDENING PLAN

Project Engineer: TSS
Designed By: LEG
Drawn By: LEG
Checked By: TSS
Scale: 1"=50'
Date: 07/31/2019
Project Number: .170348

SHEET
C701
OF: ---

ELIZABETH HEIGHTS



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ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

AVERETTE ROAD
CROSS SECTIONS

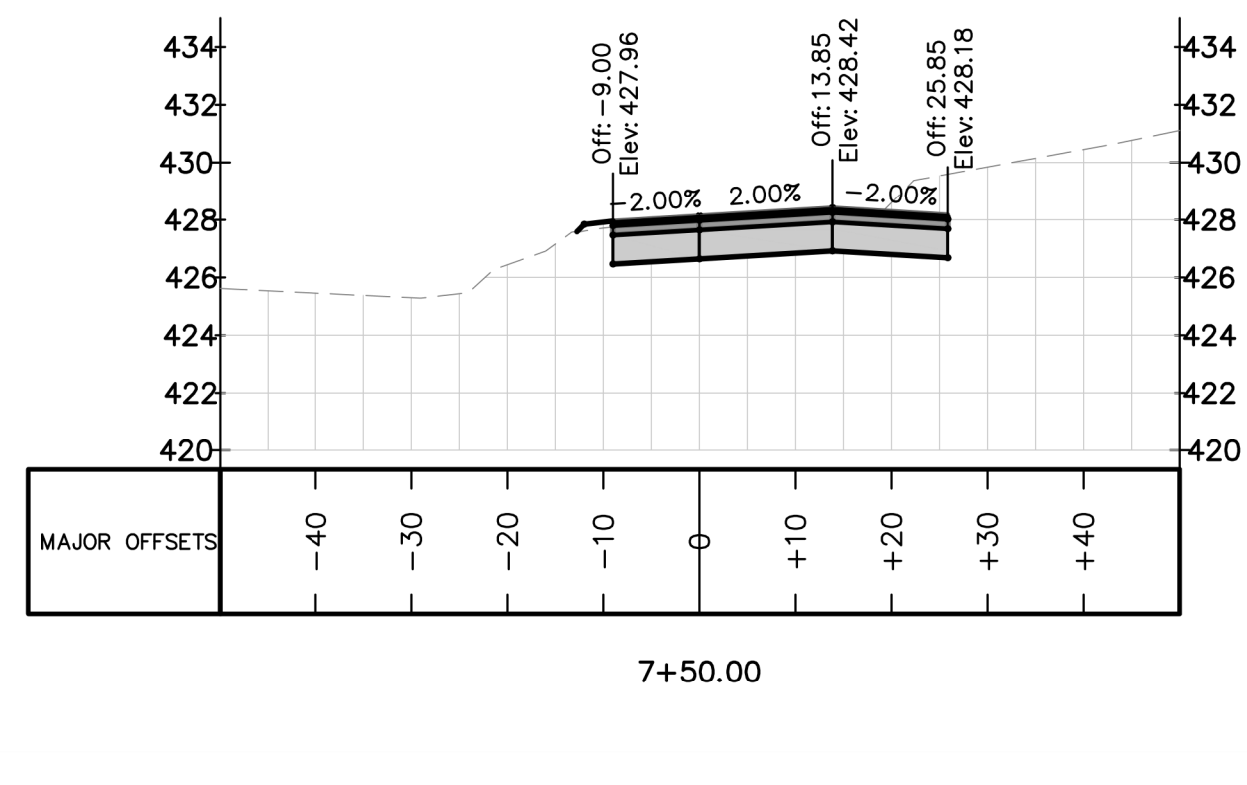
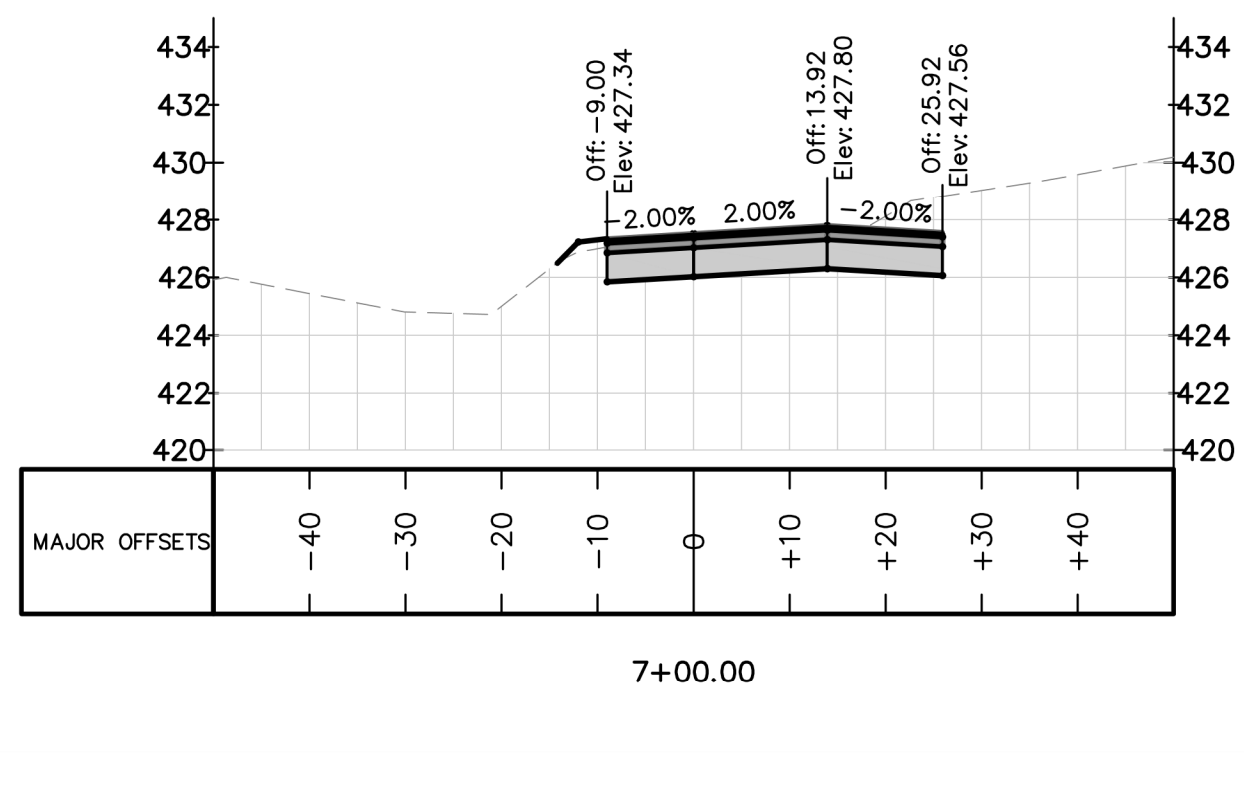
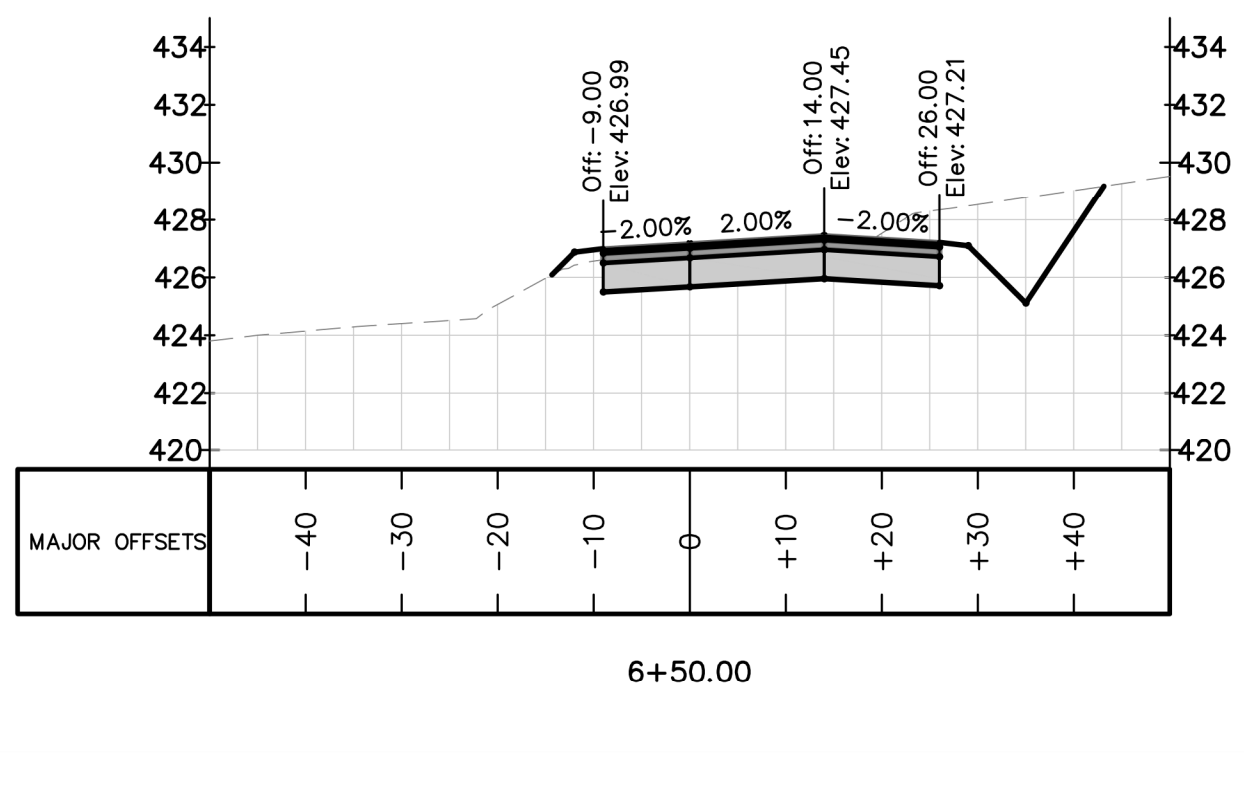
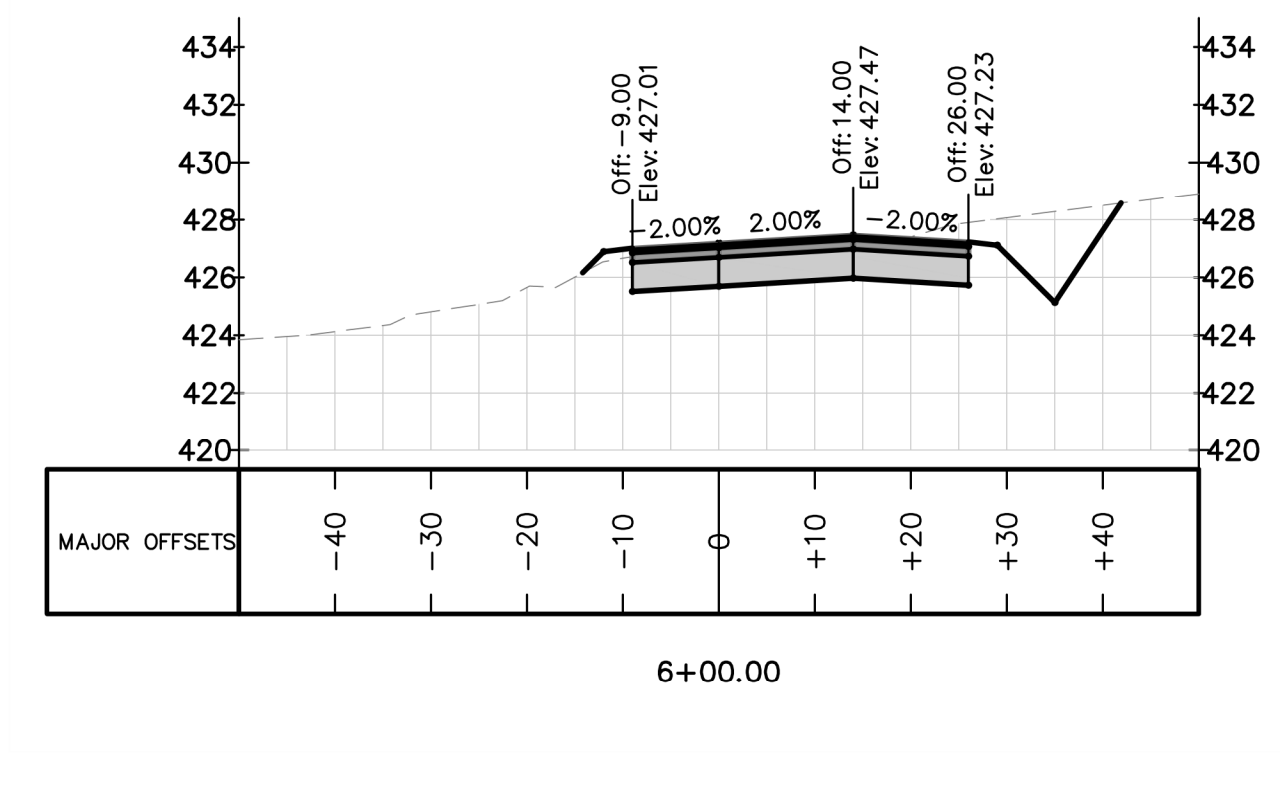
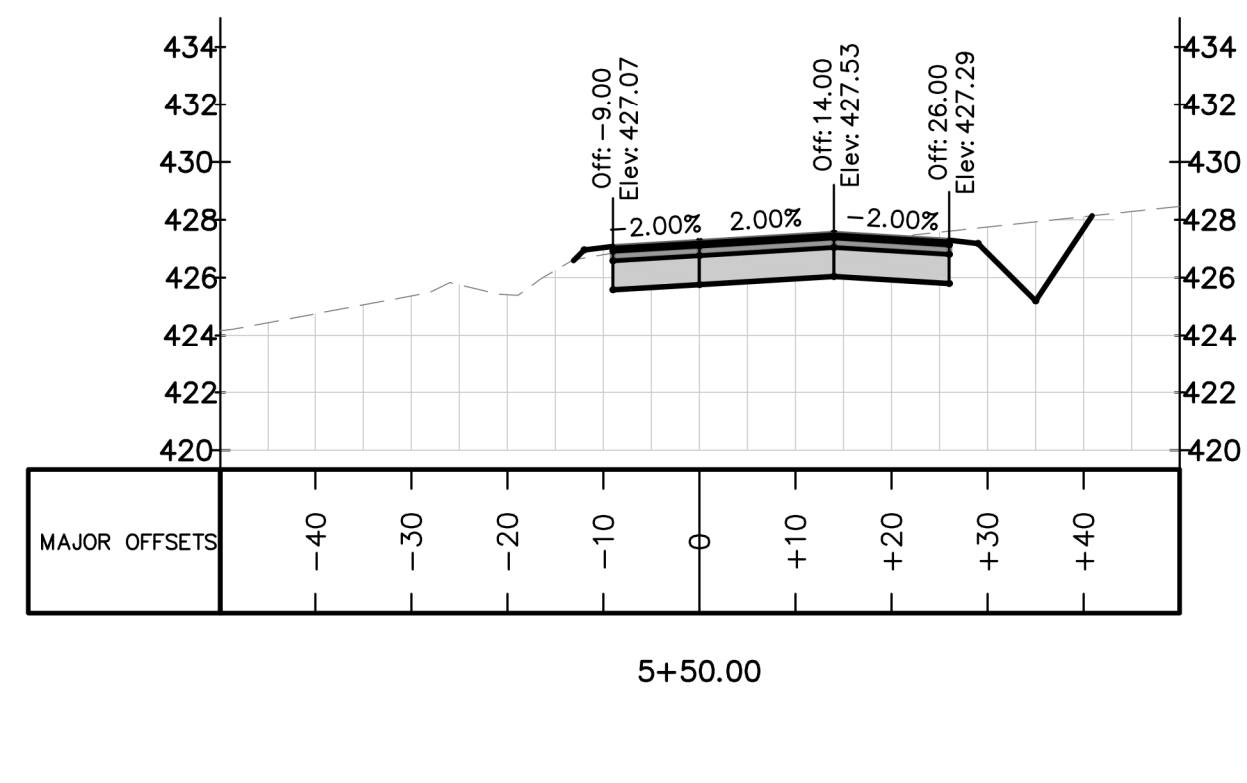
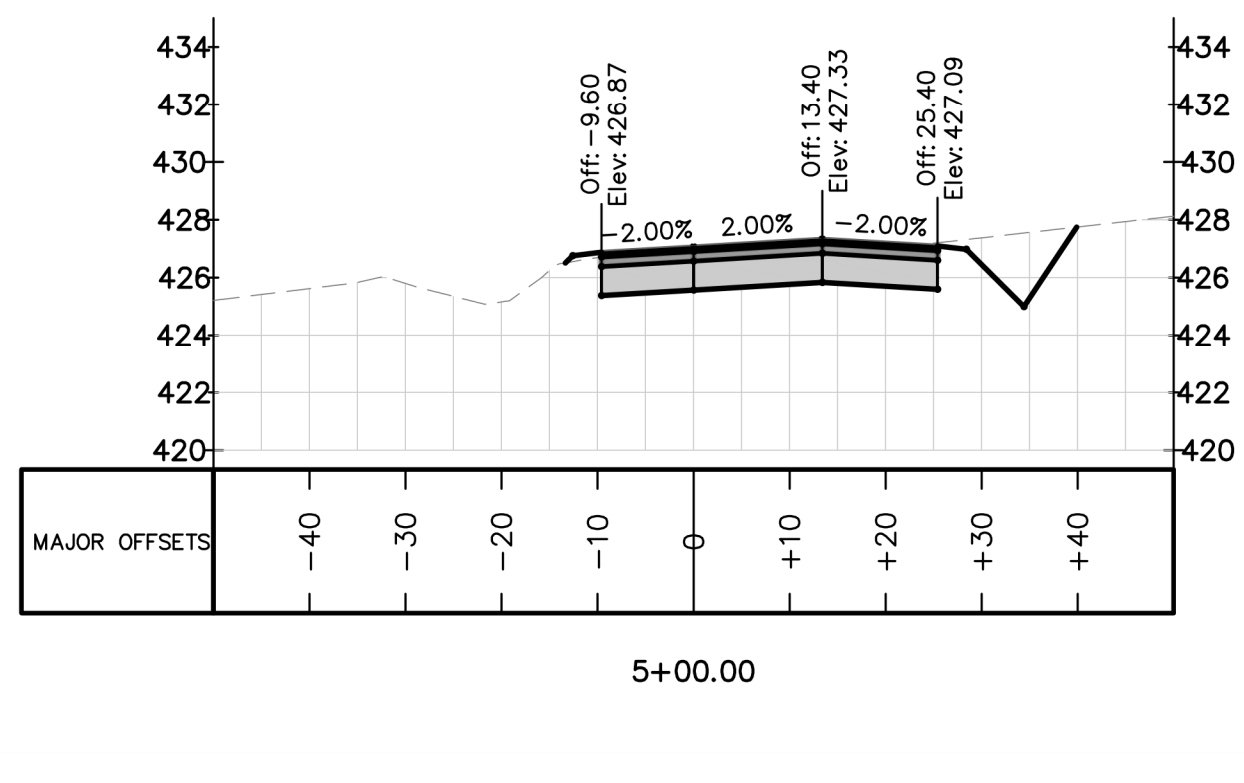
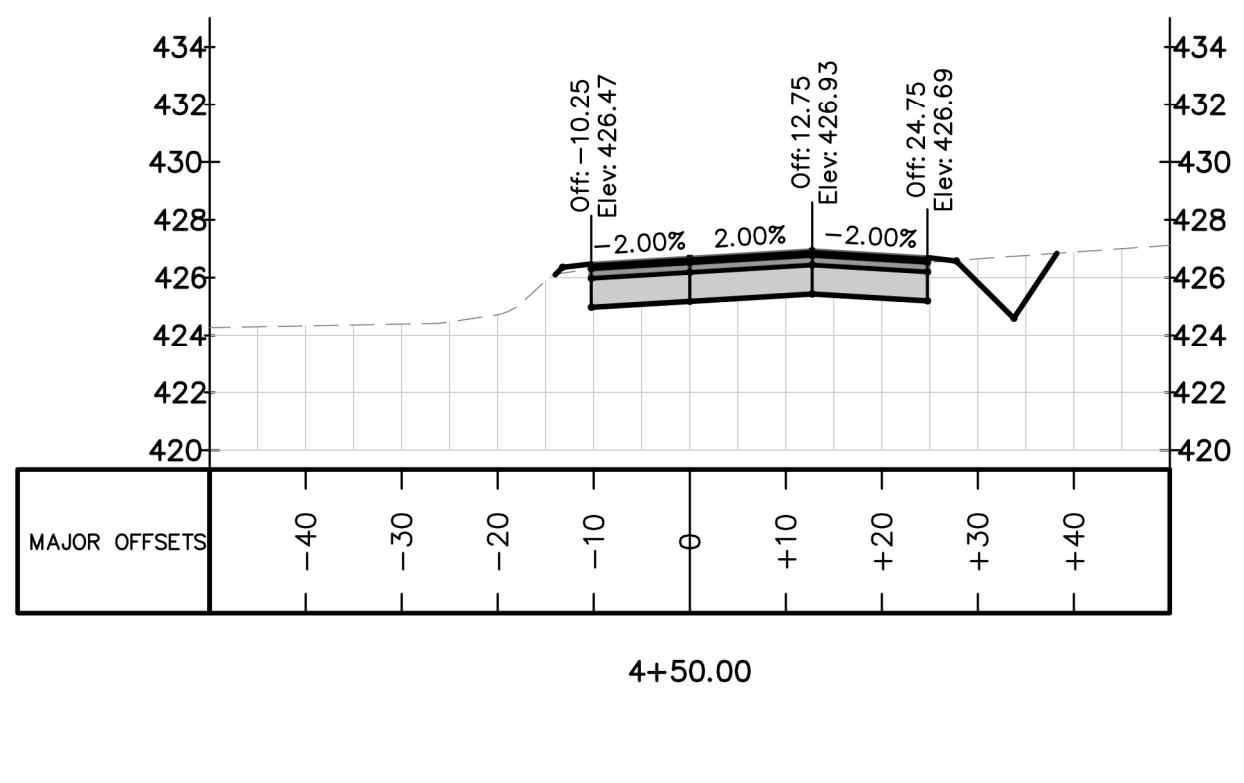
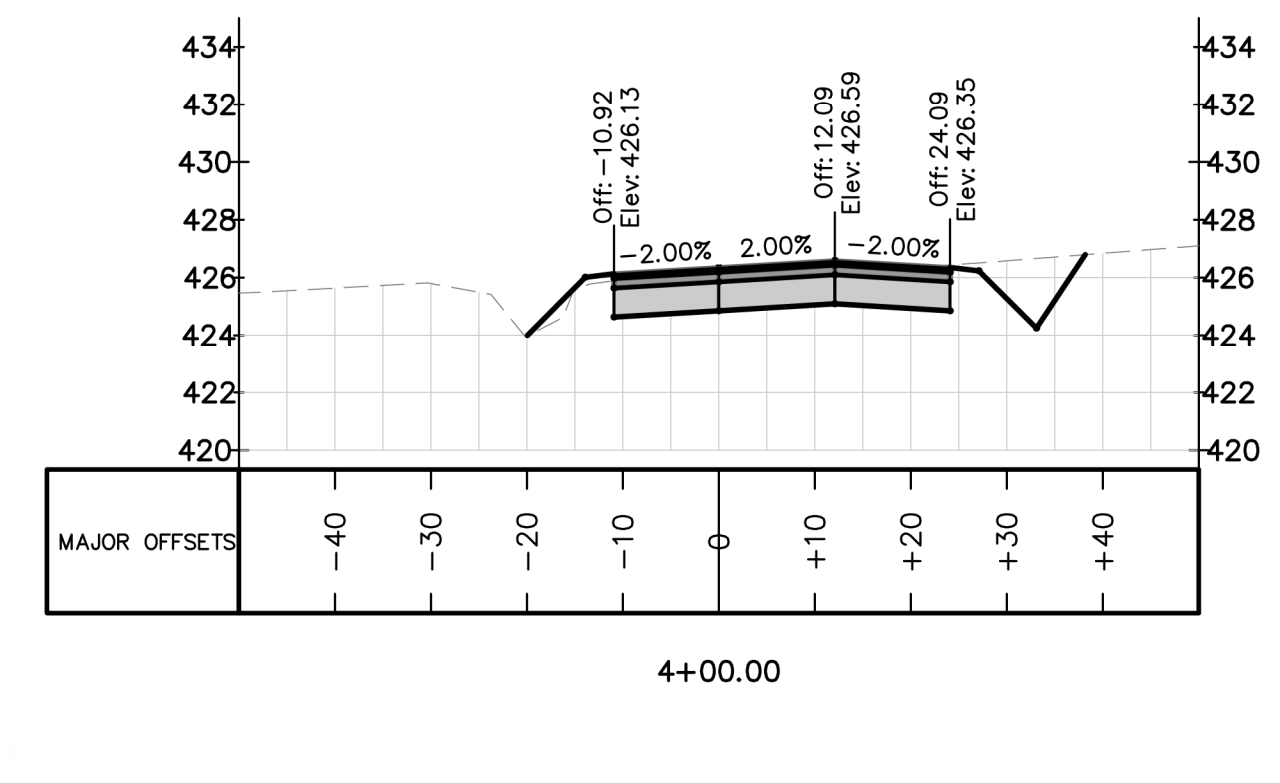
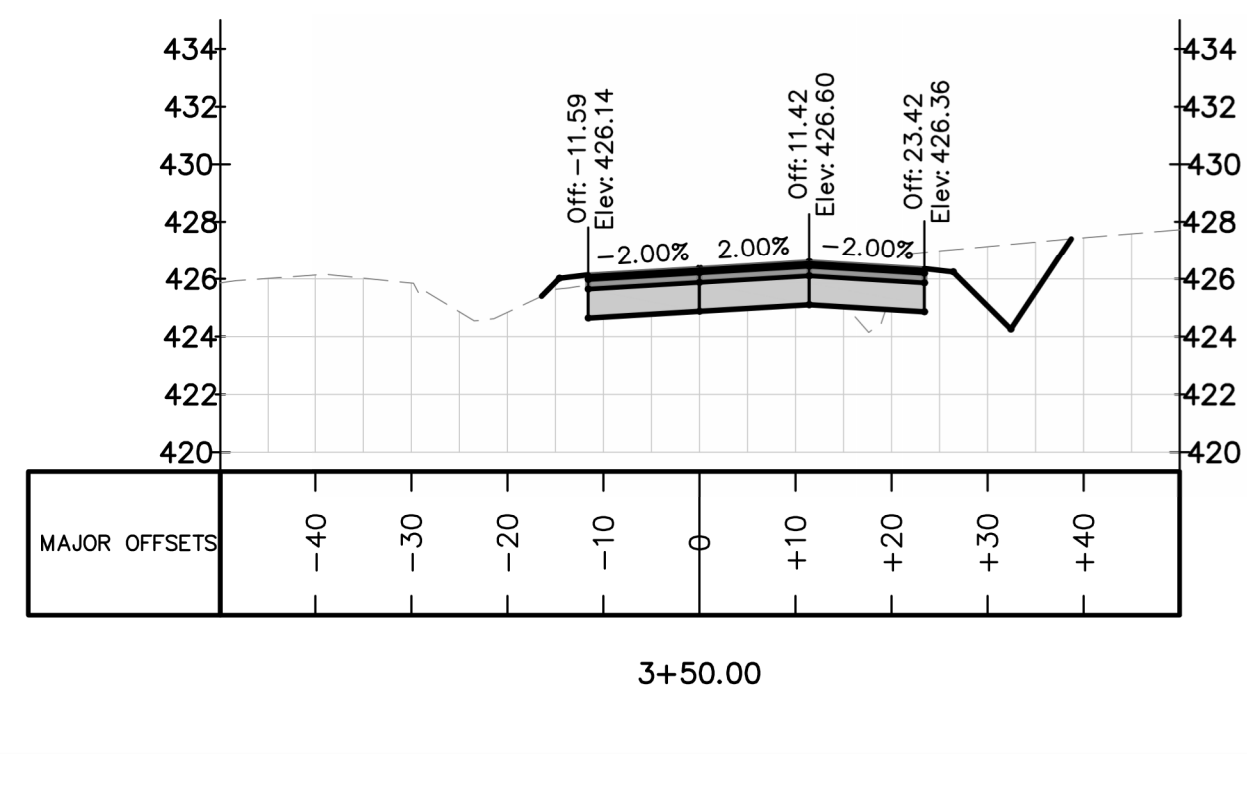
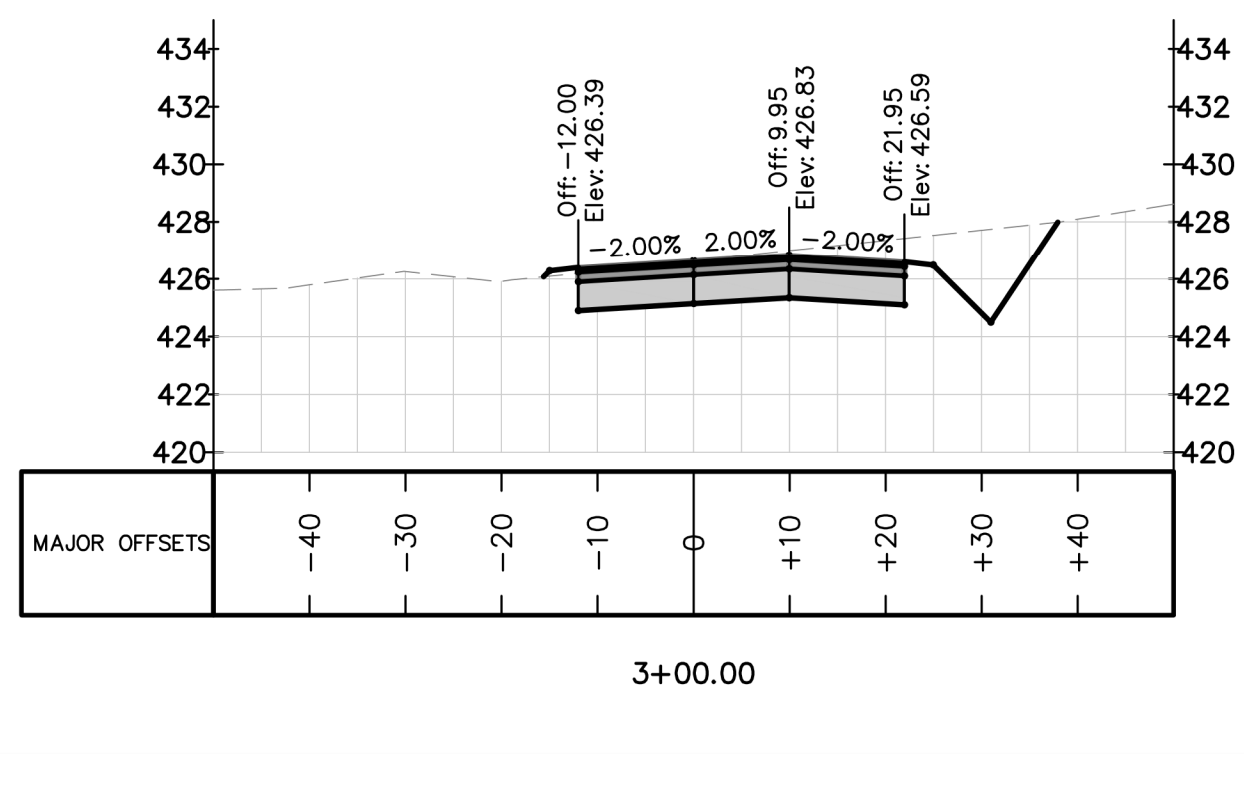
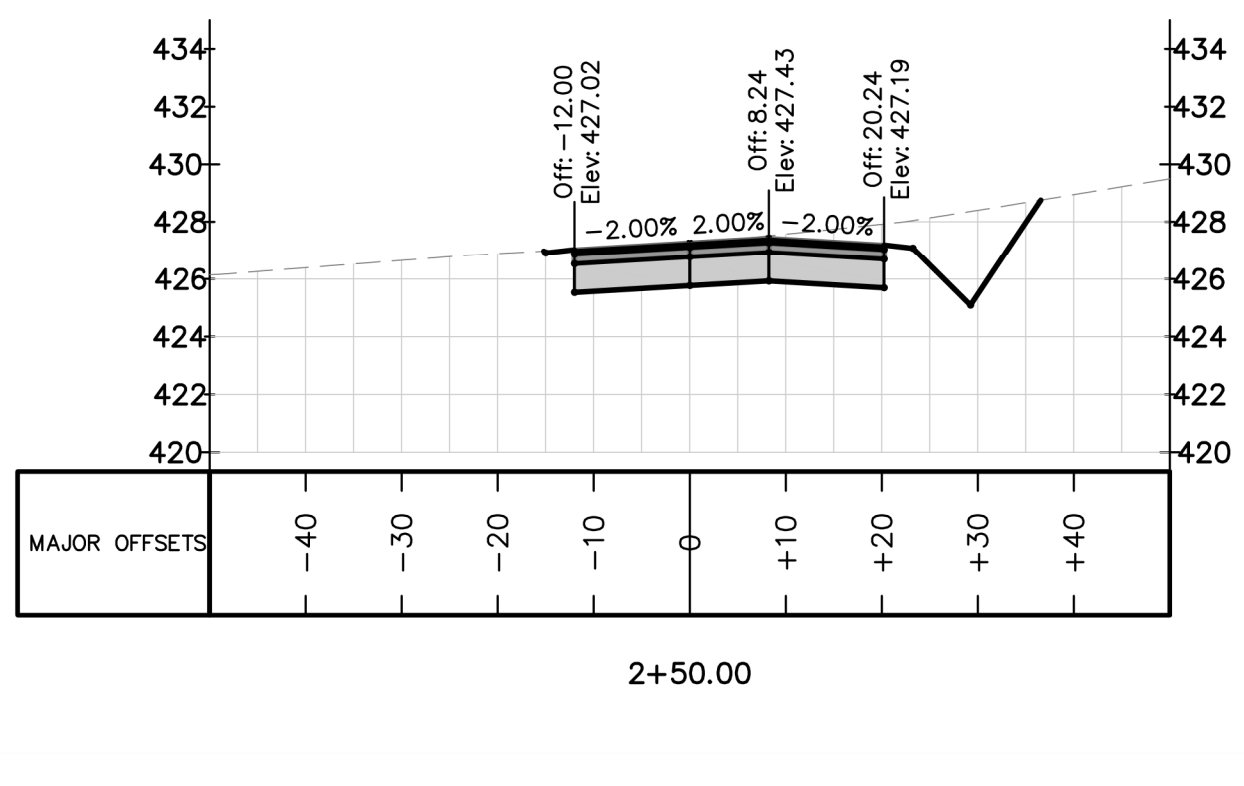
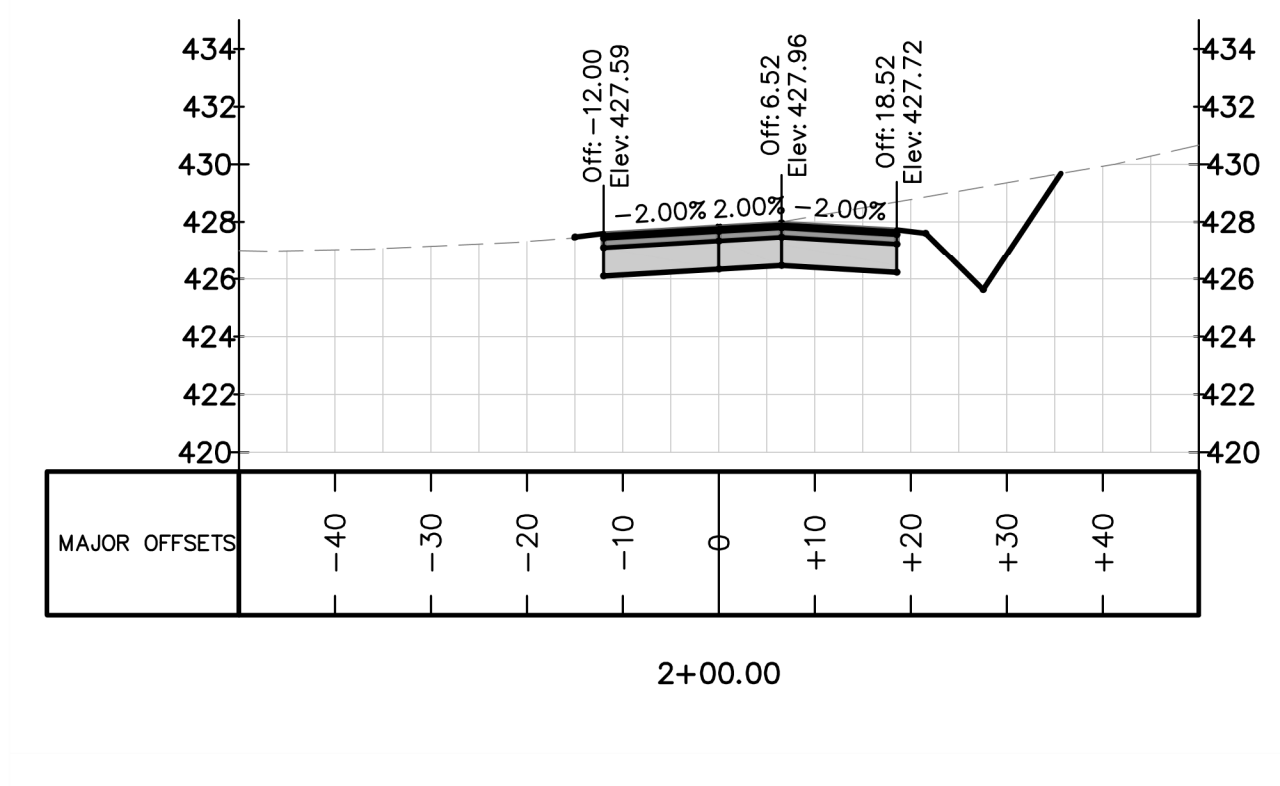
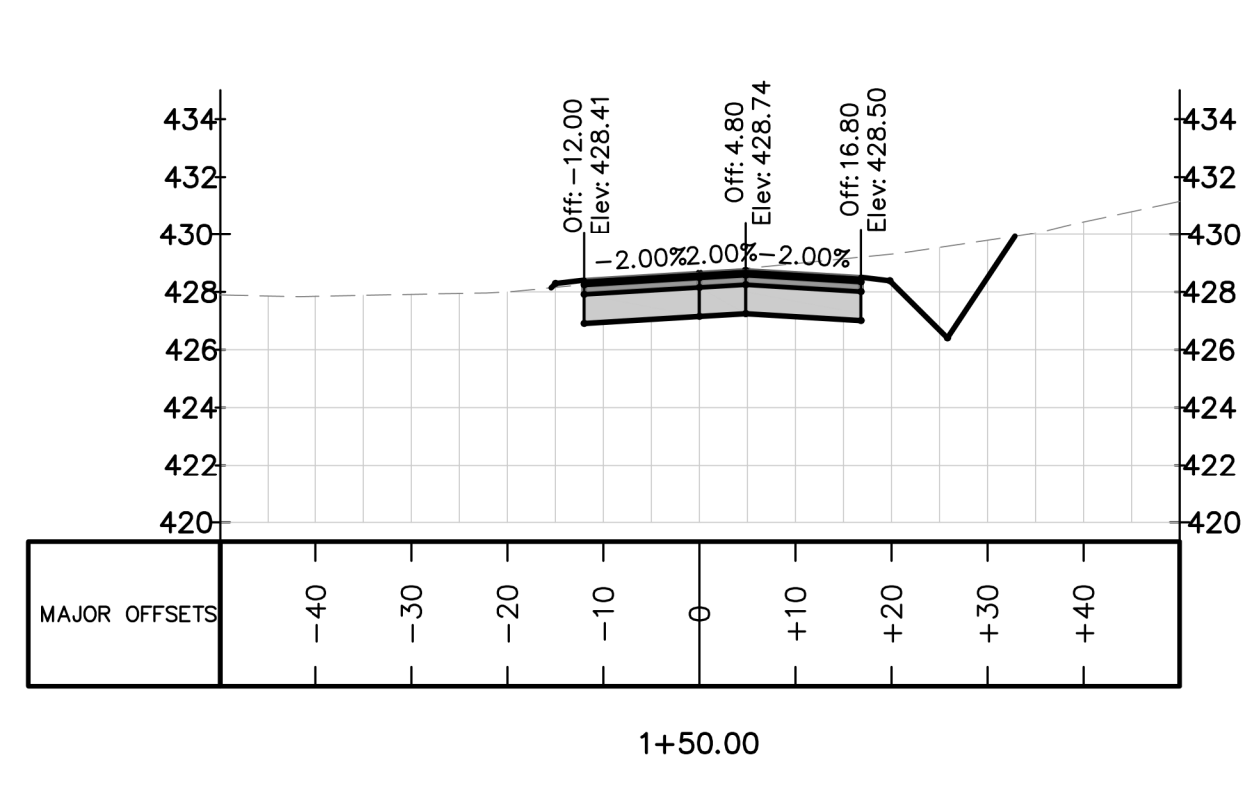
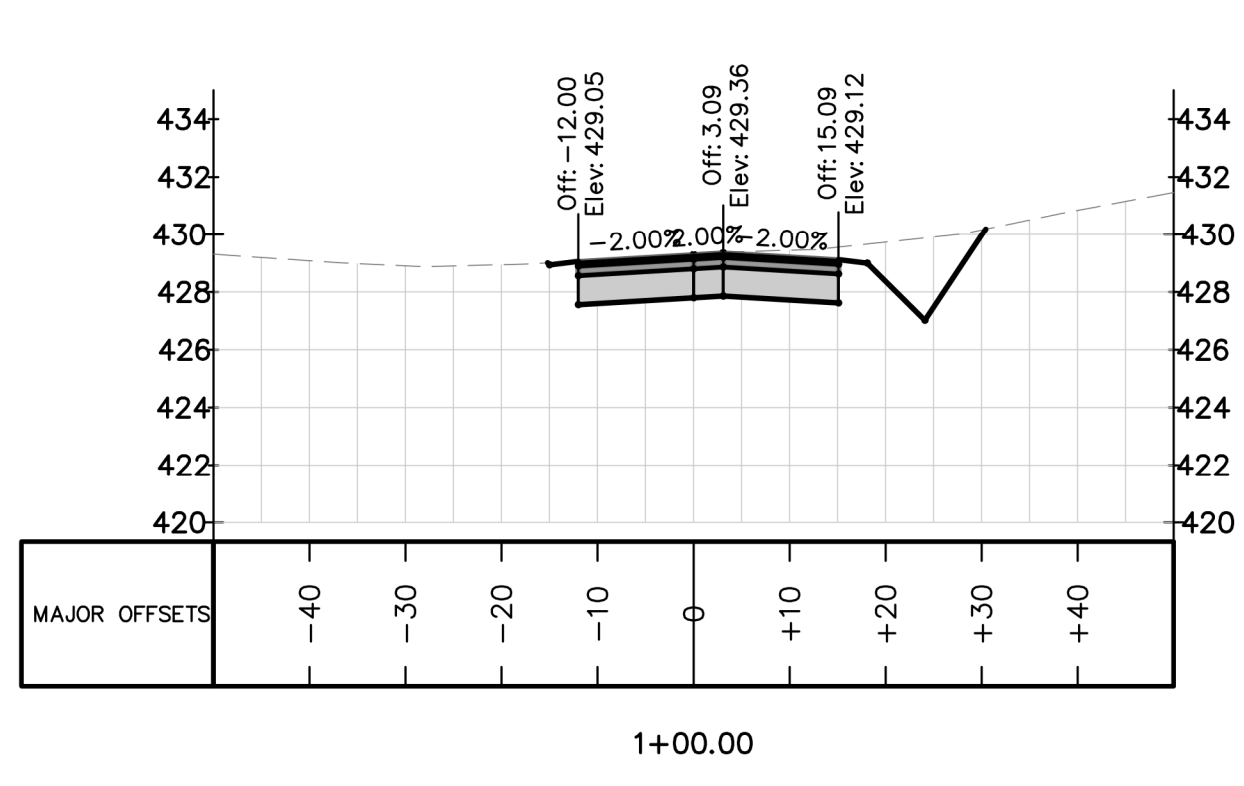
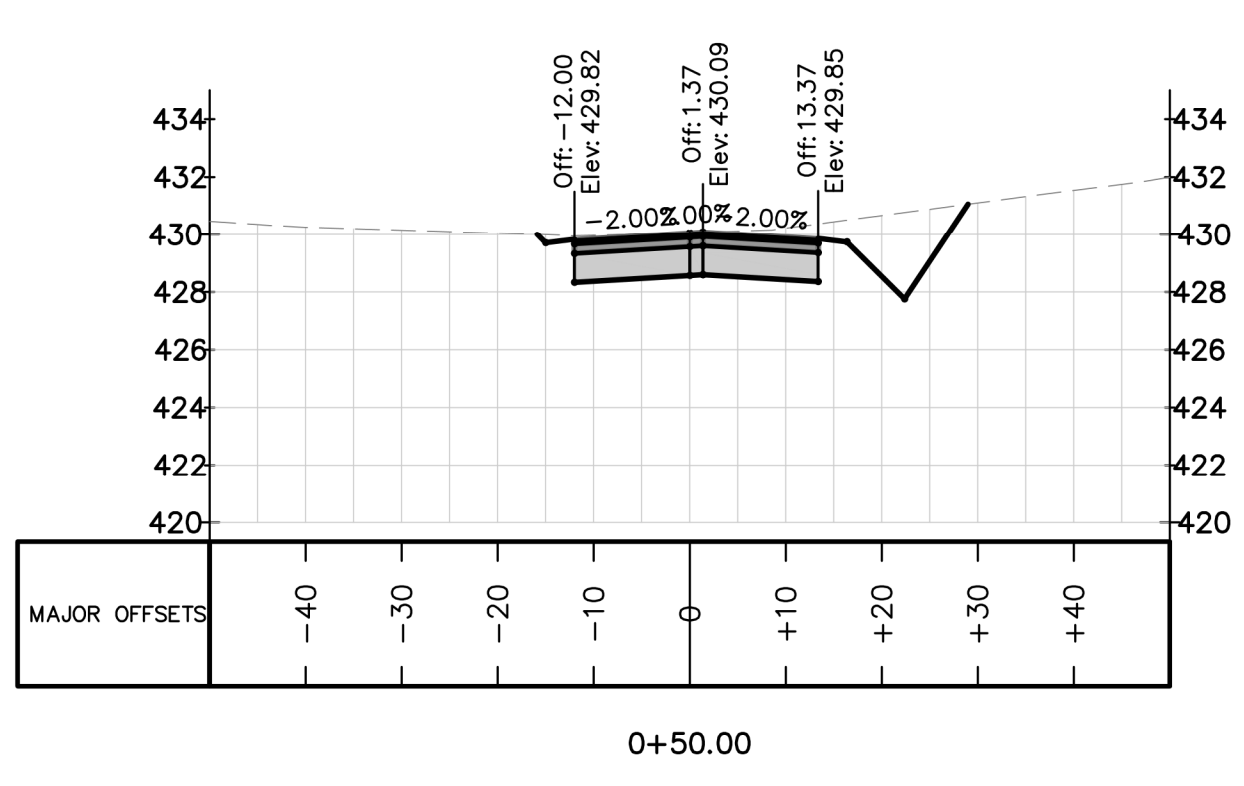
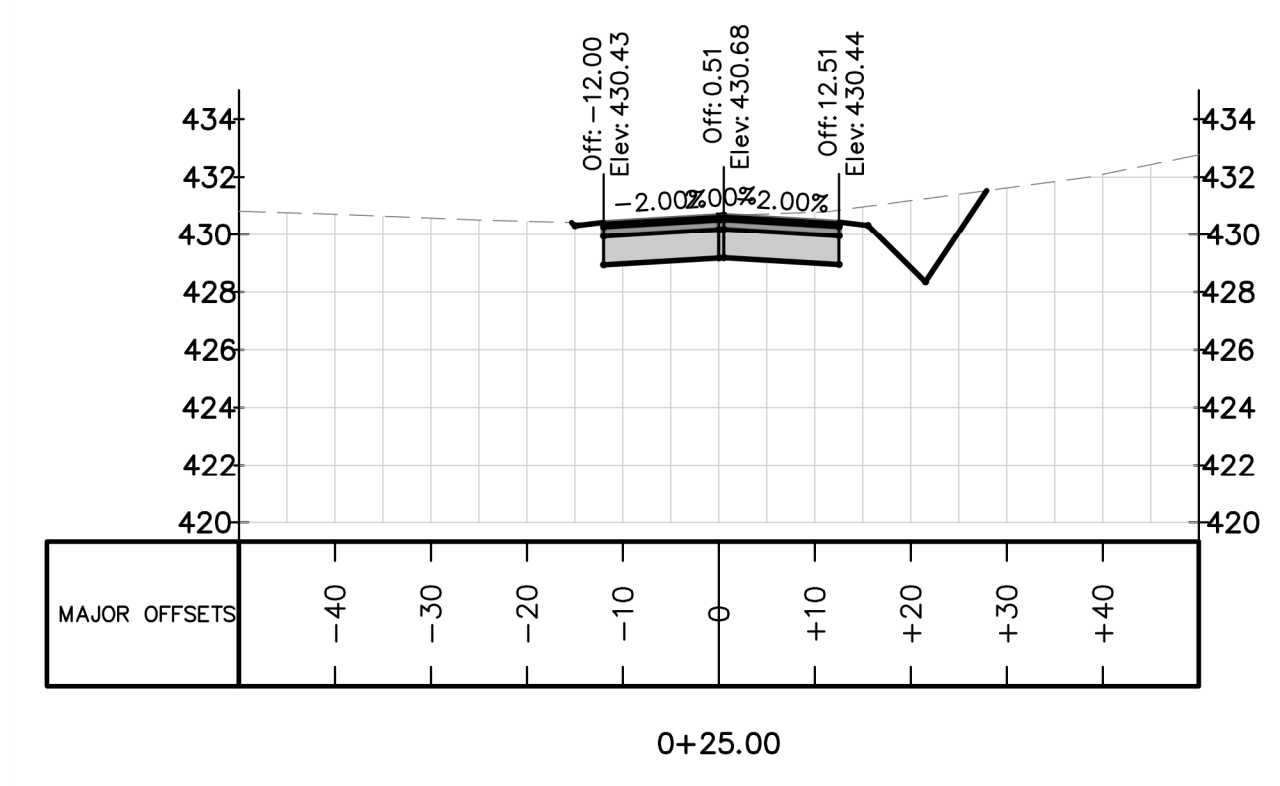
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 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS

Date: 07/31/2019

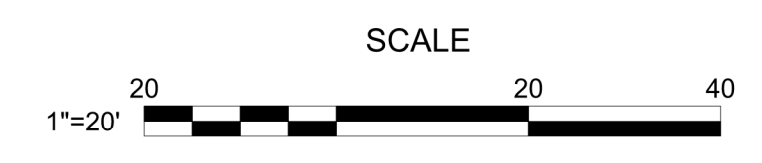
Project Number: 170348

SHEET
C702
 OF: ---

ELIZABETH HEIGHTS



REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
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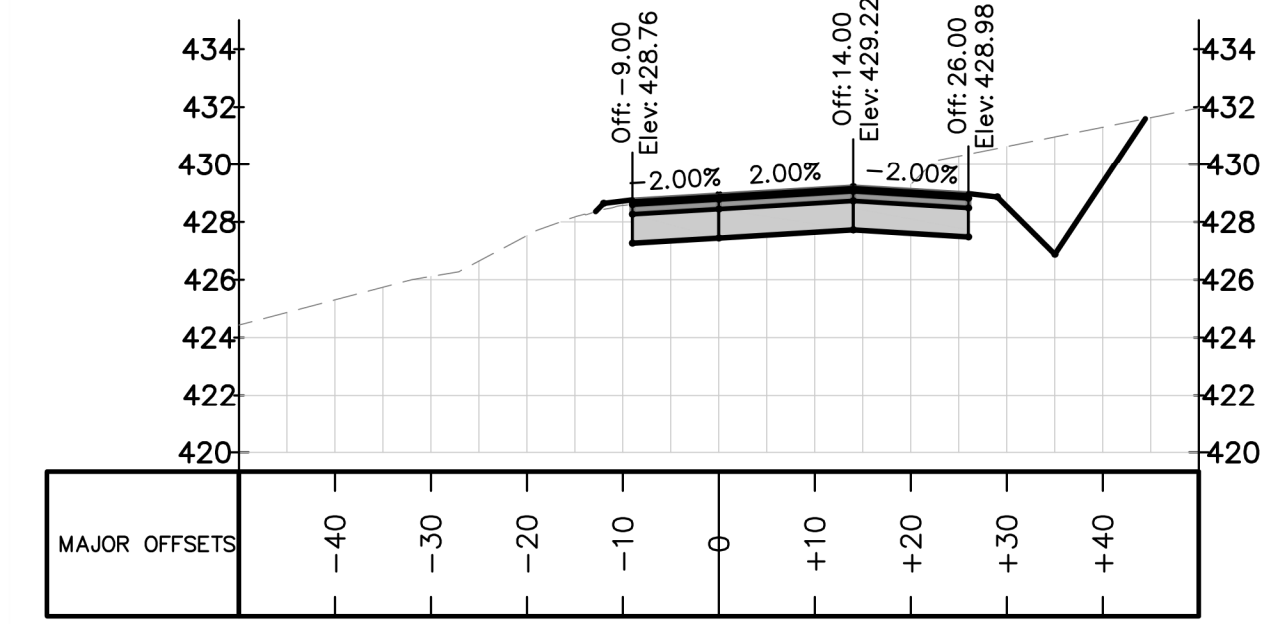
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

AVERETTE ROAD
CROSS SECTIONS

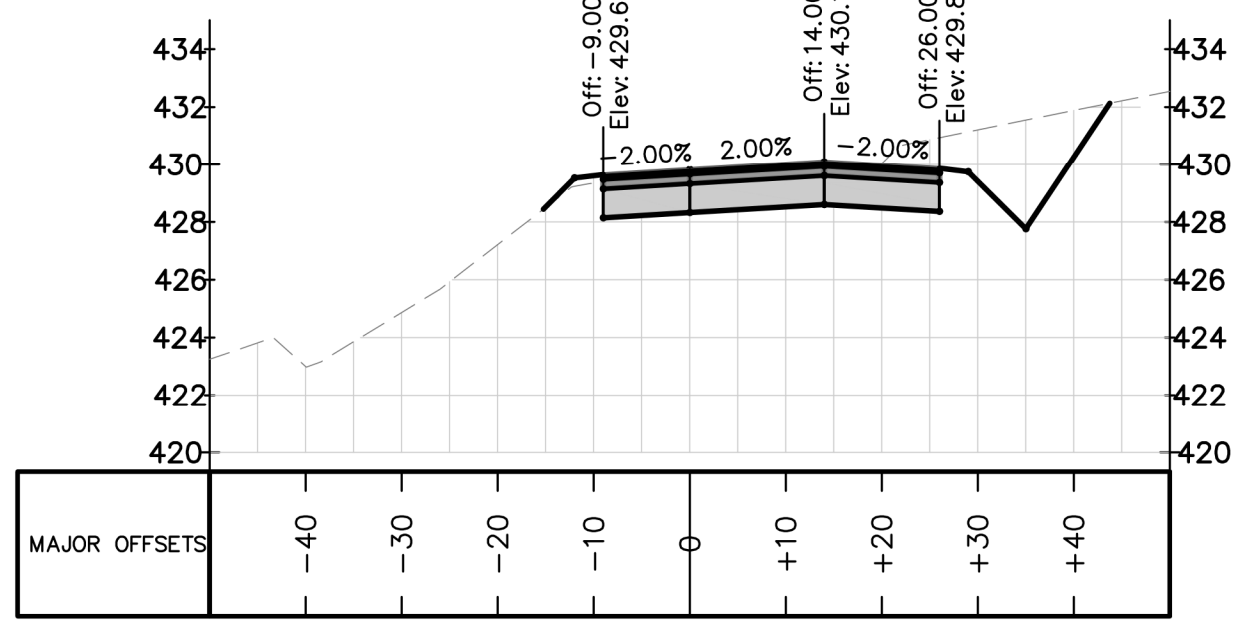
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 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS
 Date: 07/31/2019
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SHEET
C703
 OF: ---

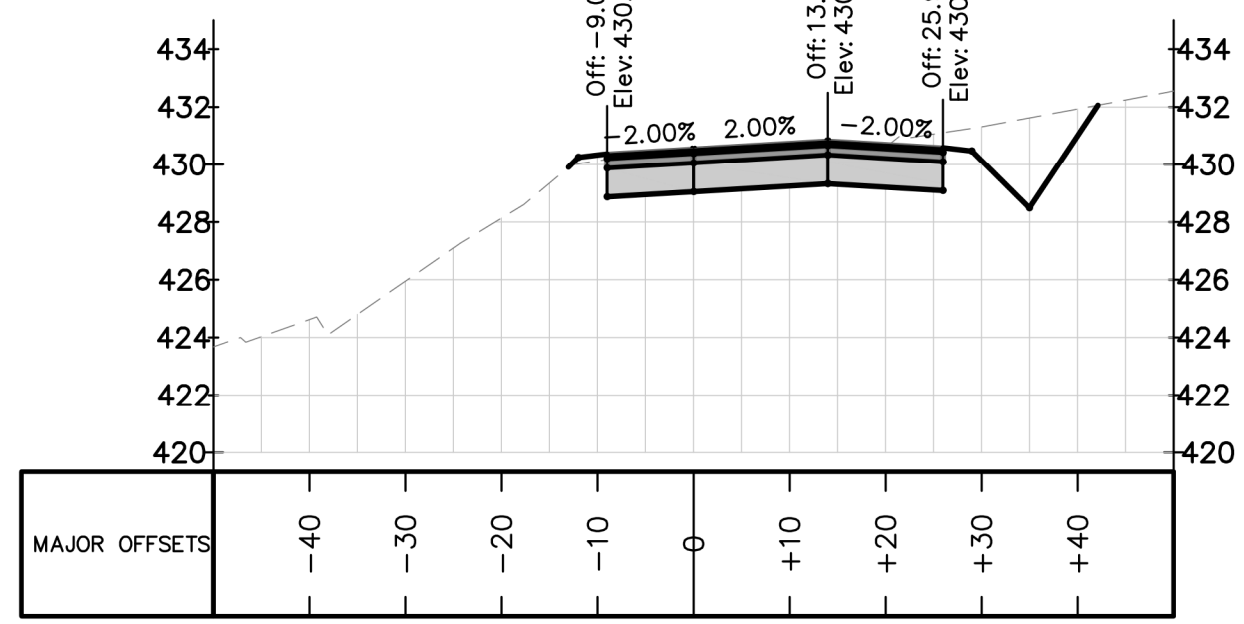
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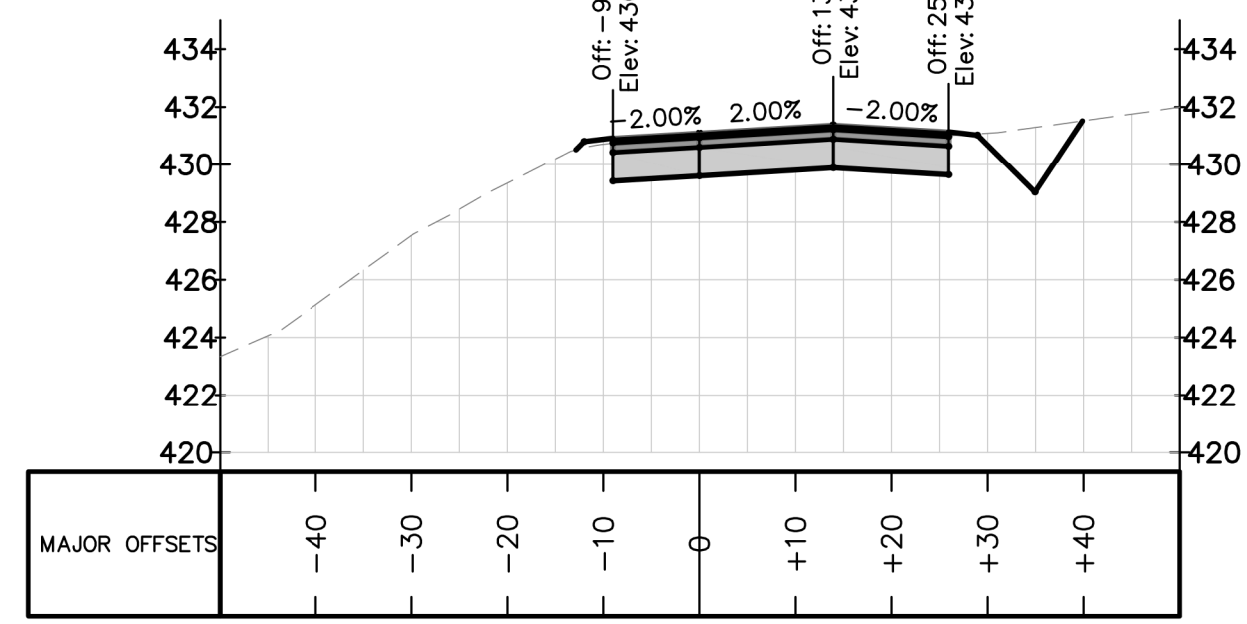
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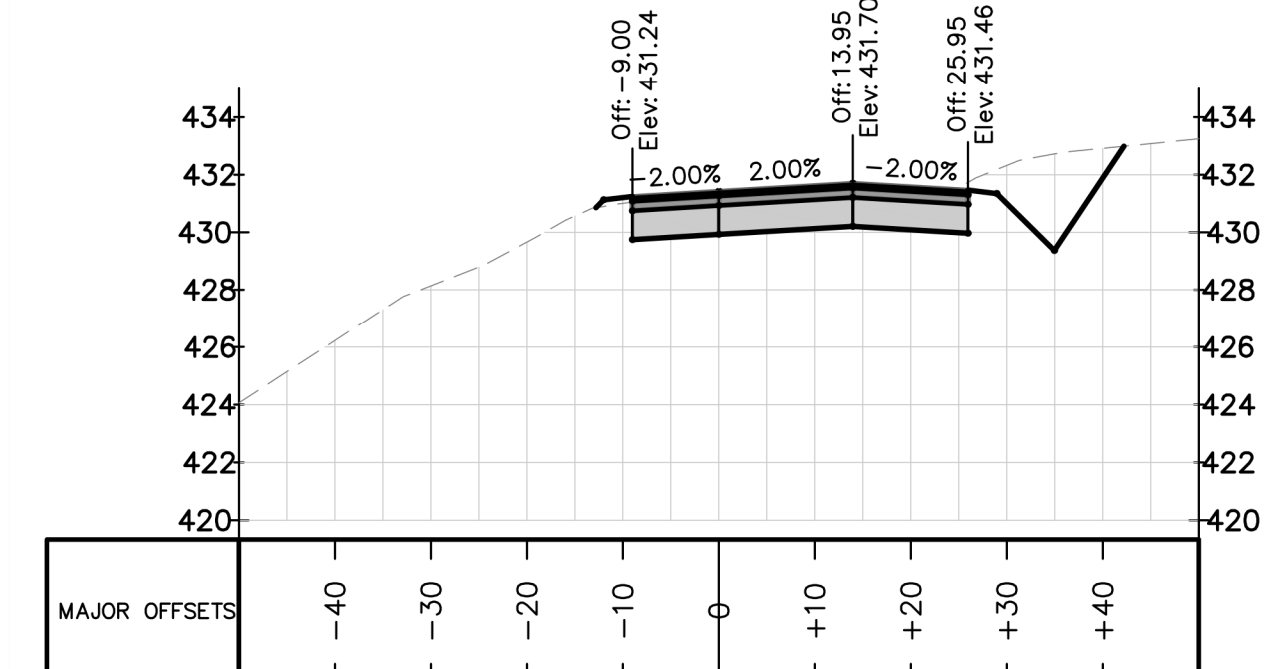
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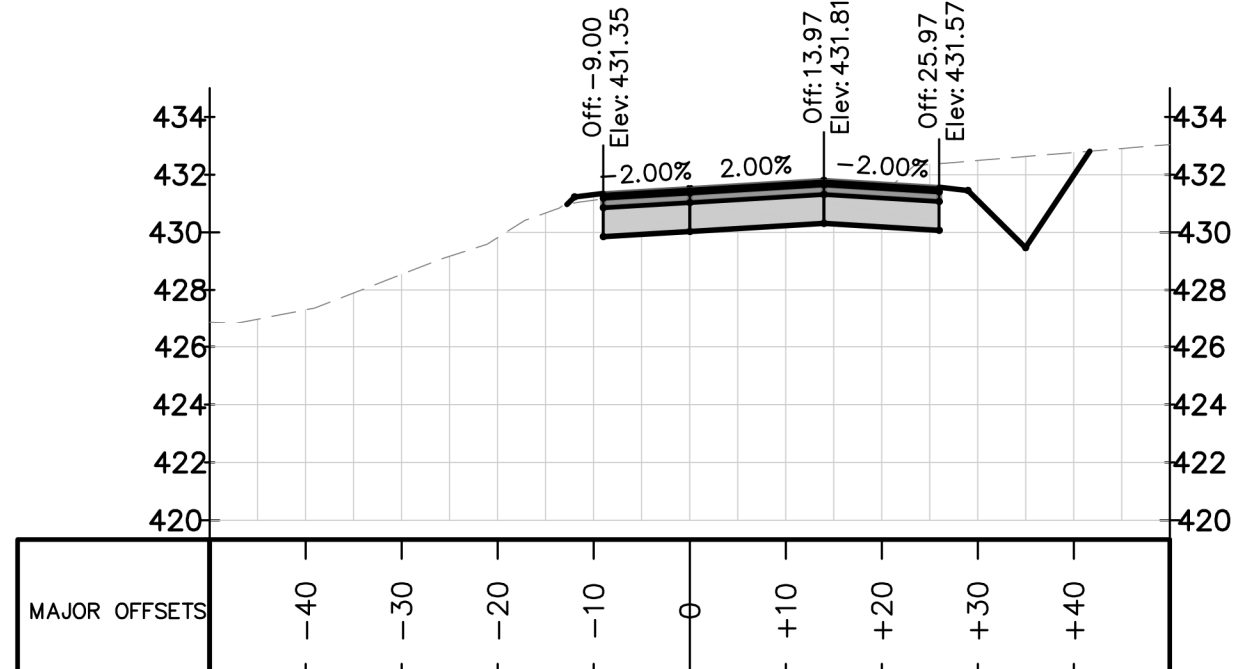
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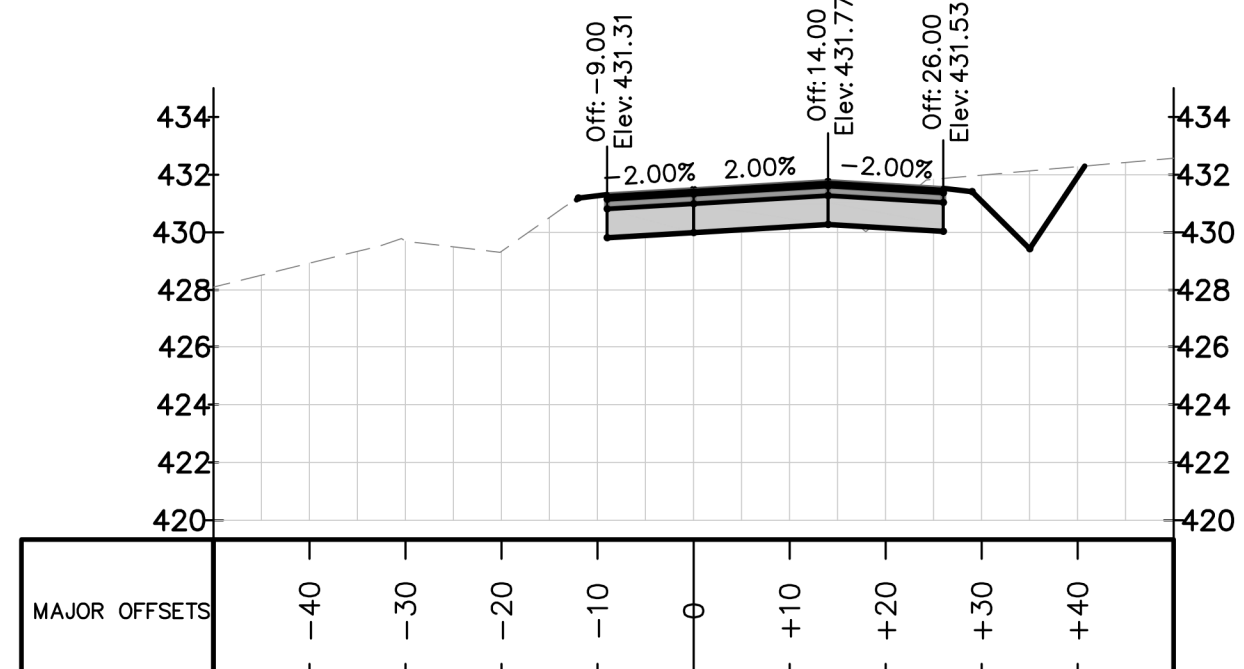
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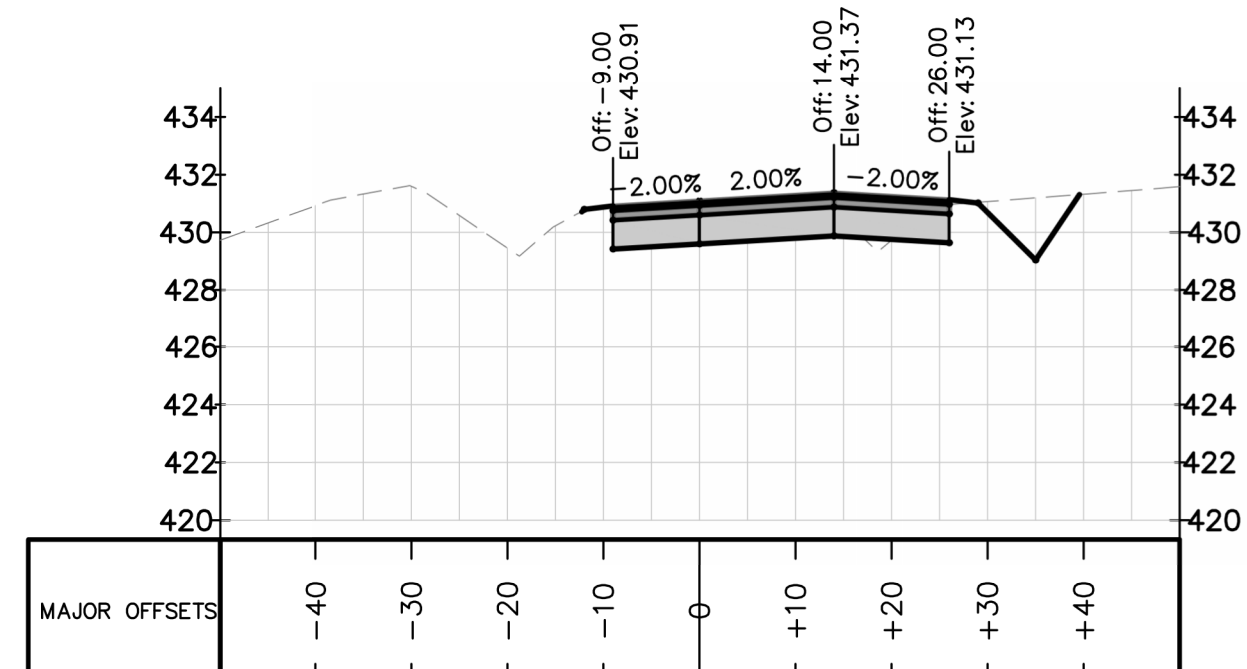
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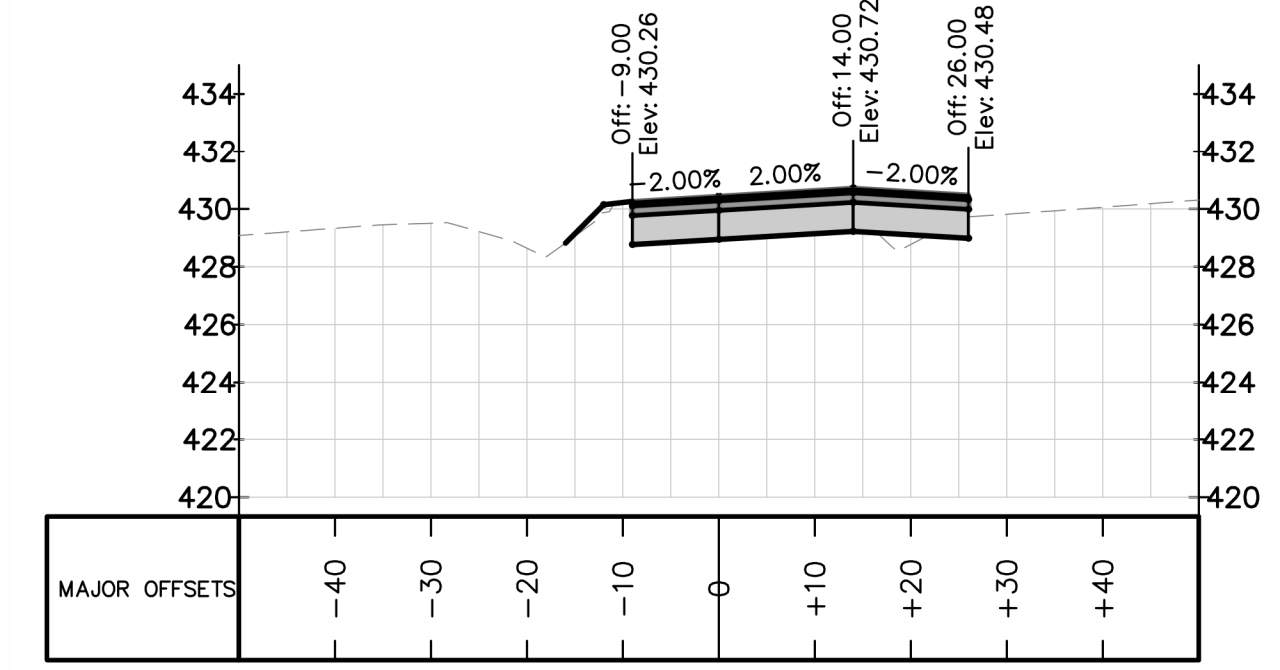
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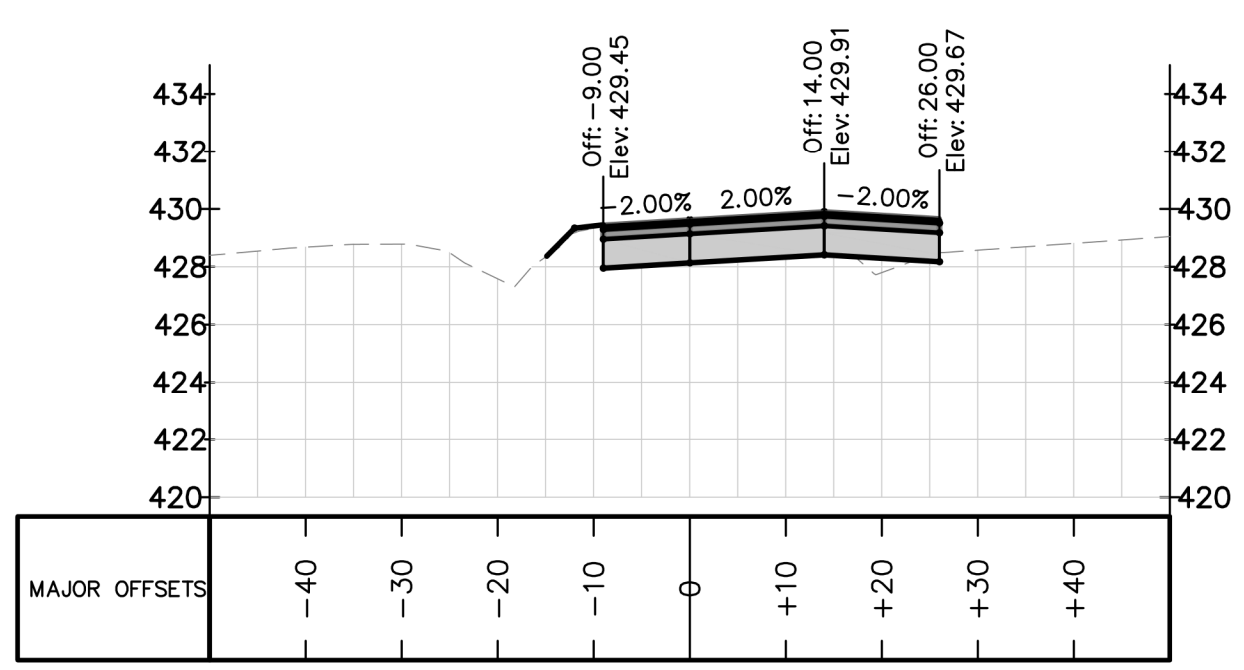
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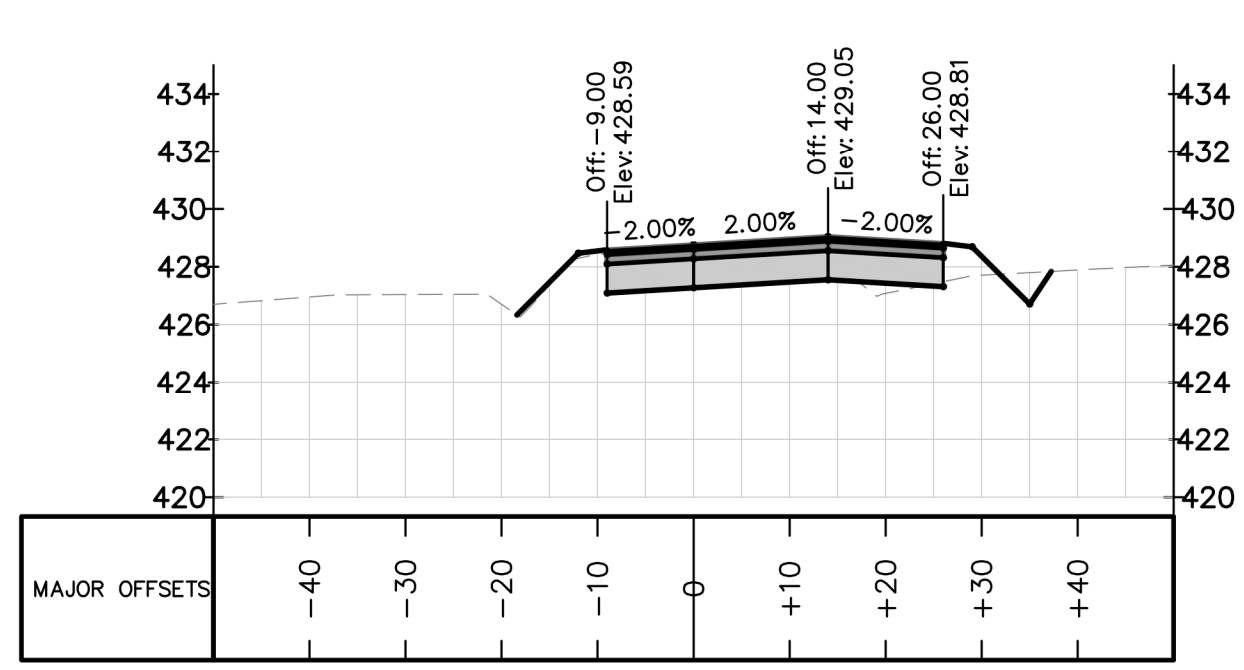
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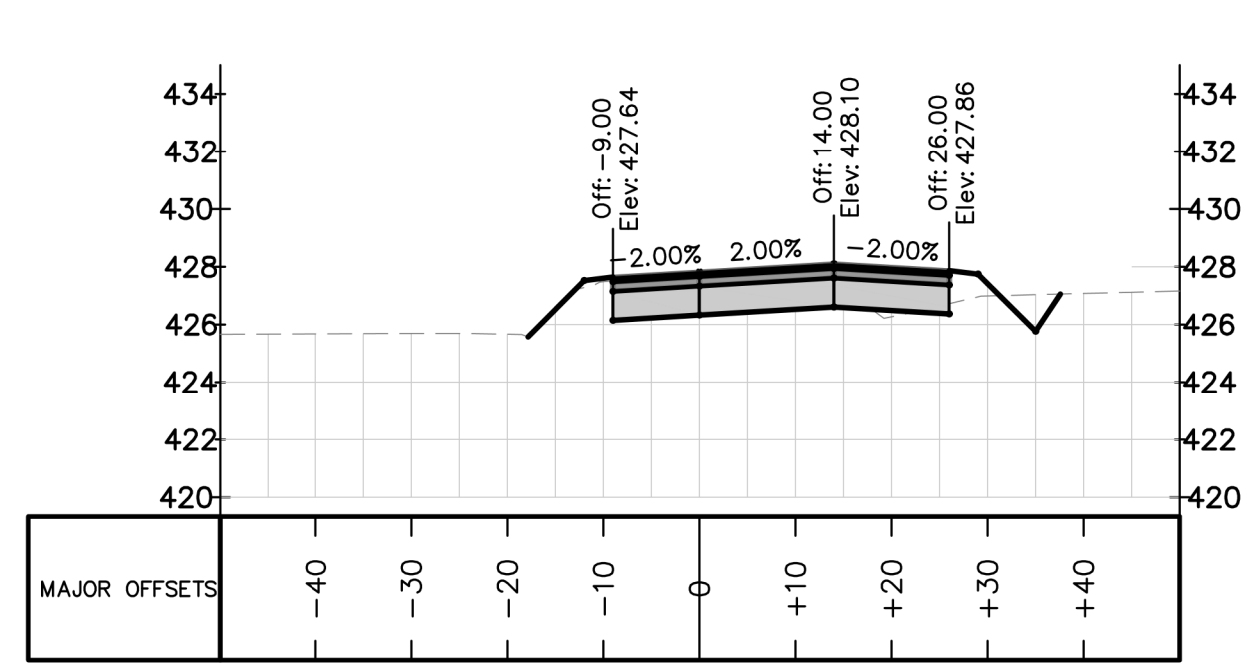
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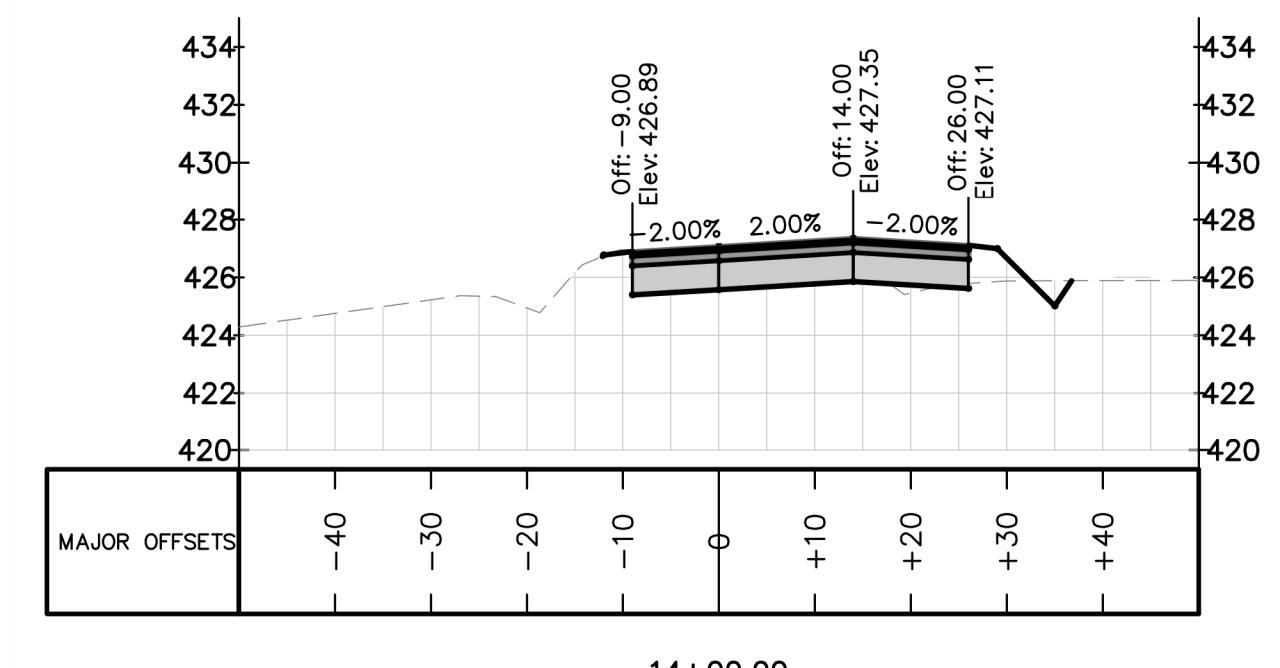
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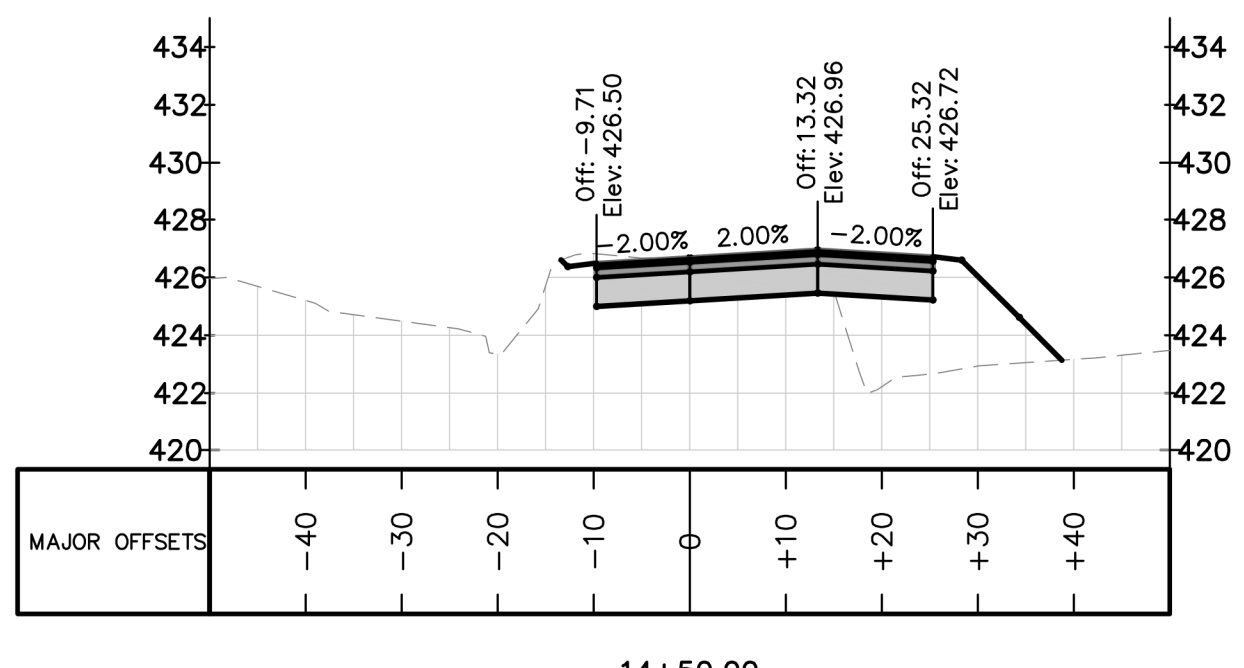
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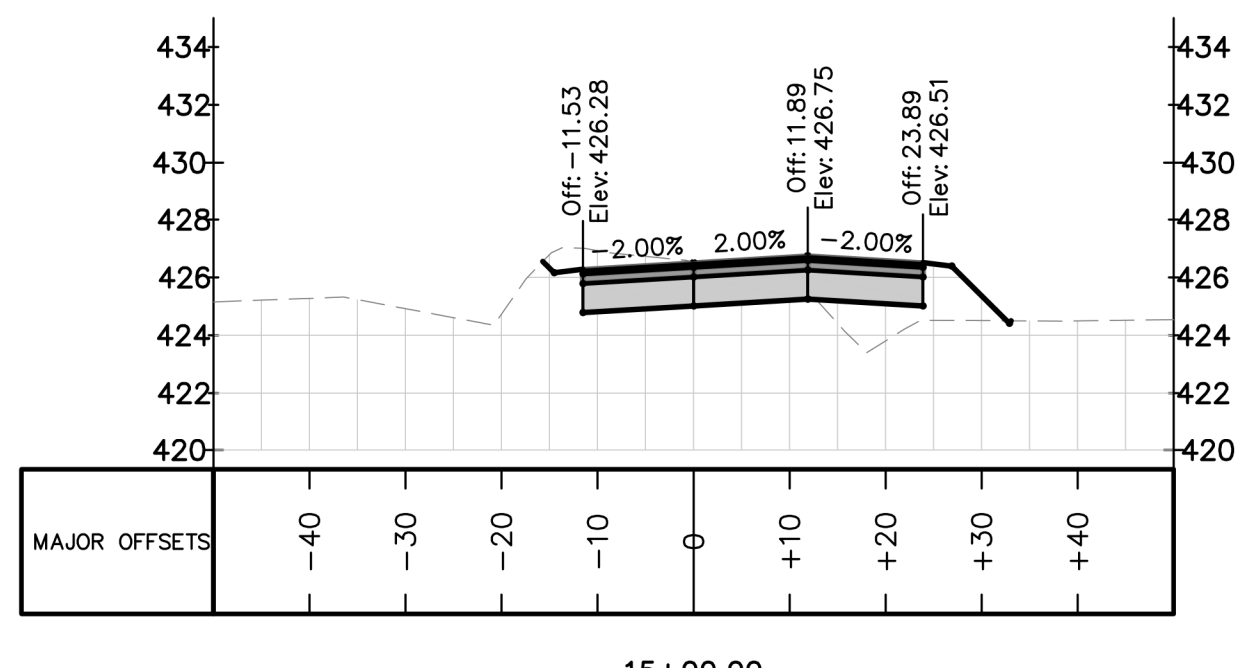
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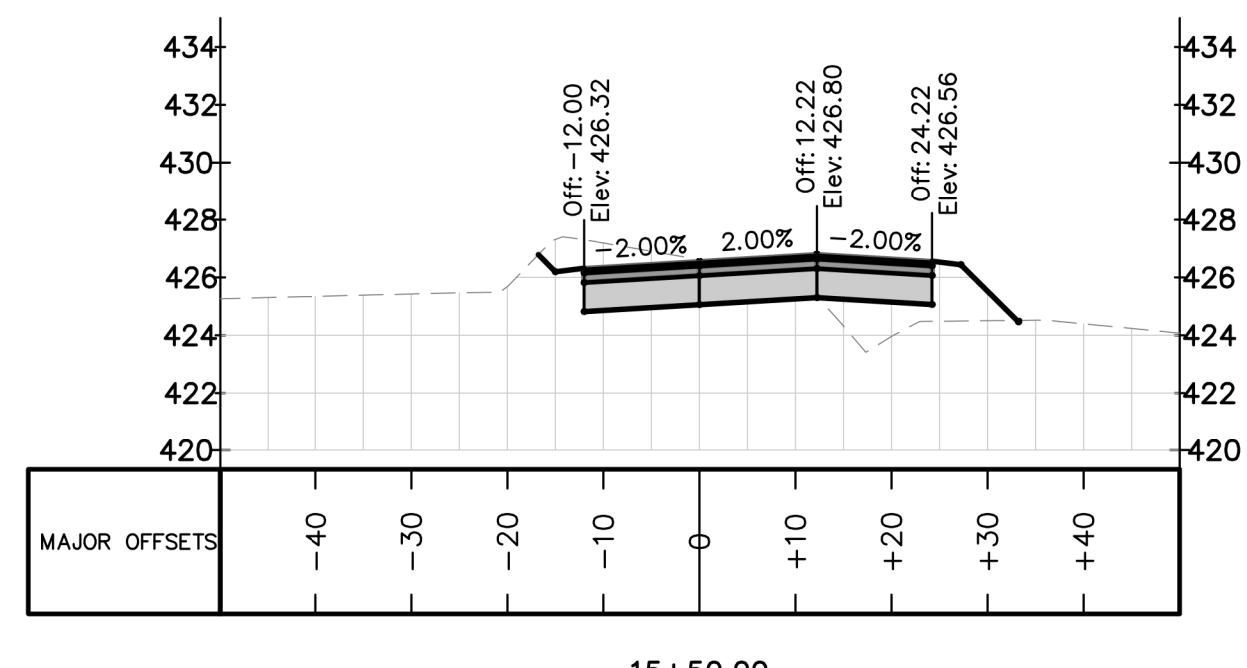
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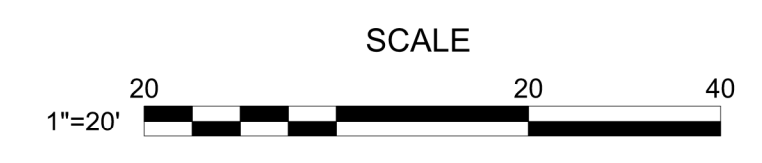
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15+00.00



15+50.00



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 NCELES FRM No. C-2376



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 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

AVERETTE ROAD
CROSS SECTIONS

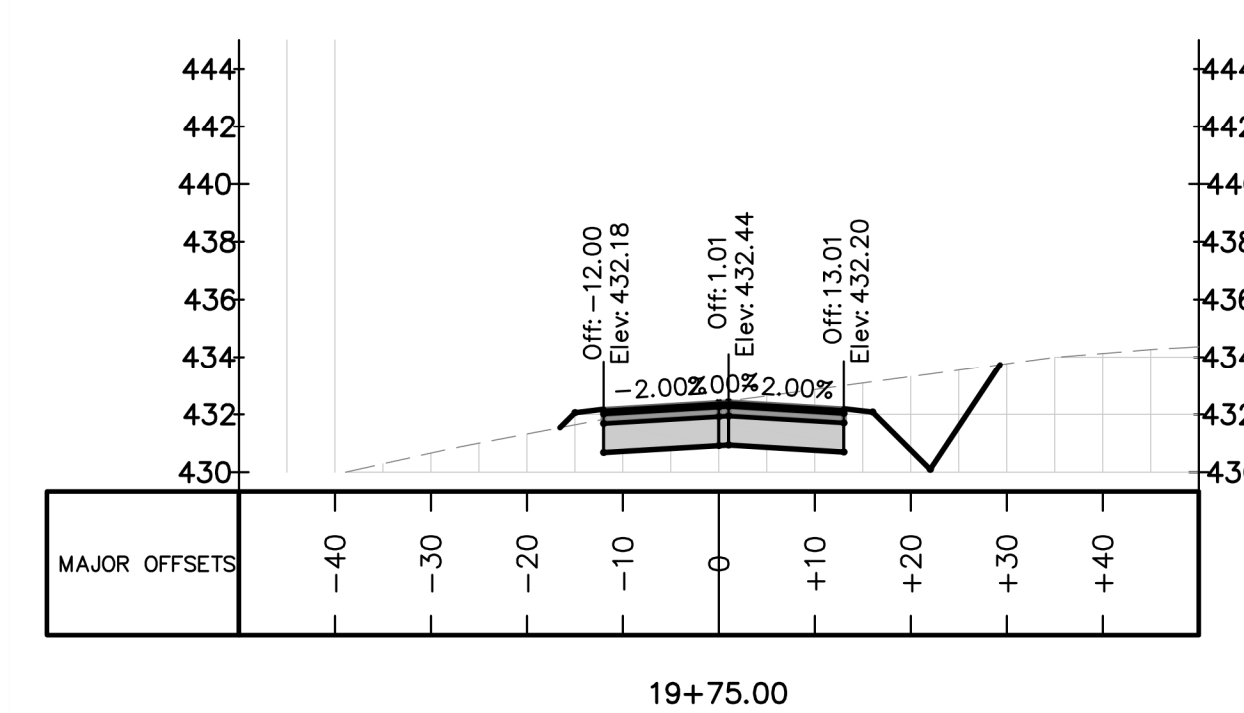
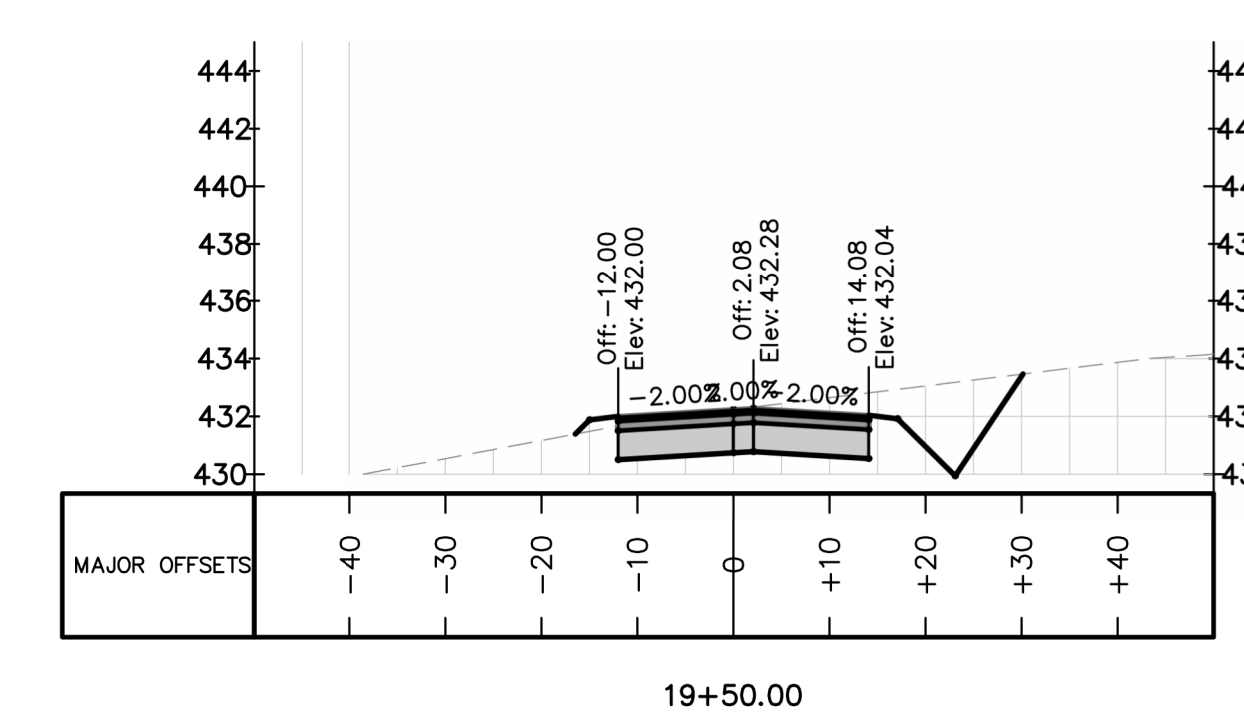
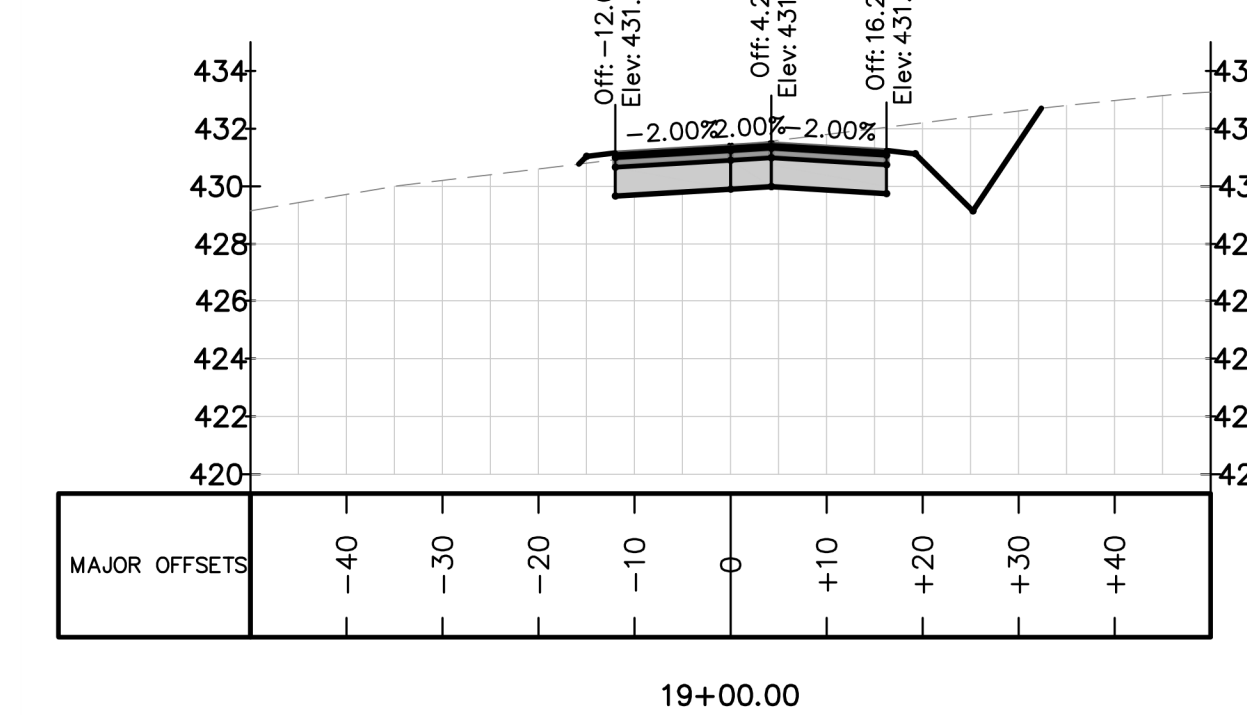
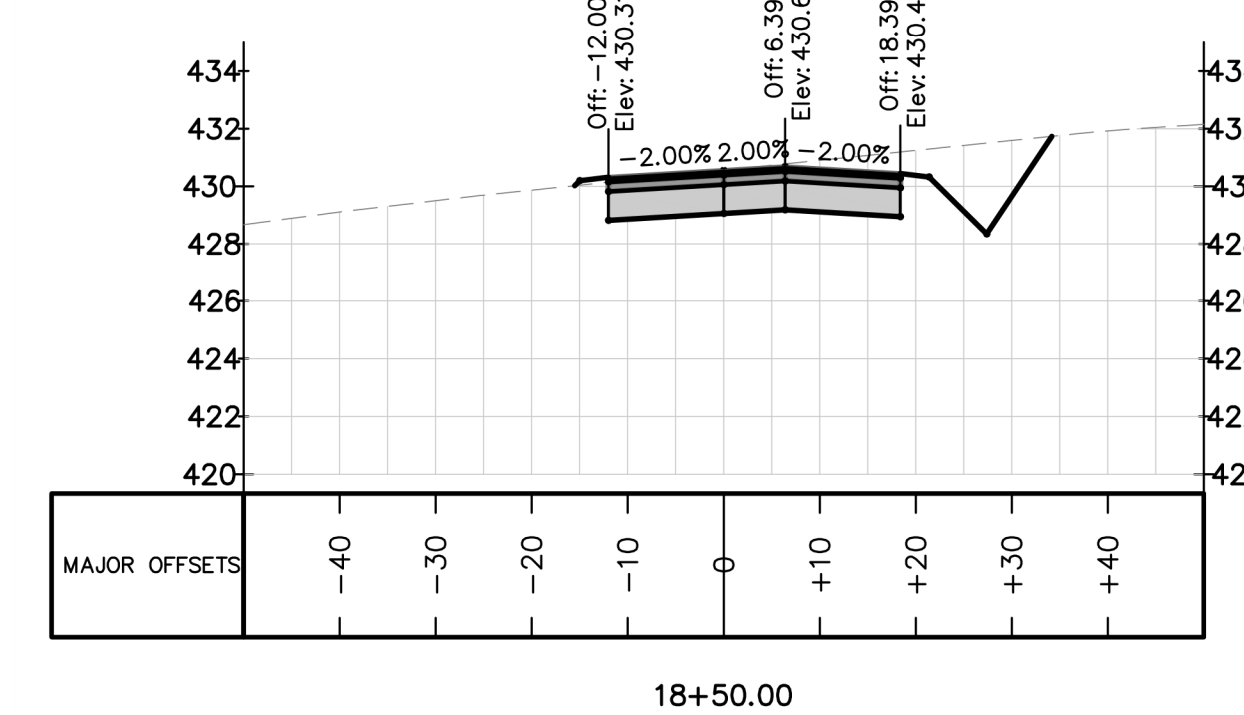
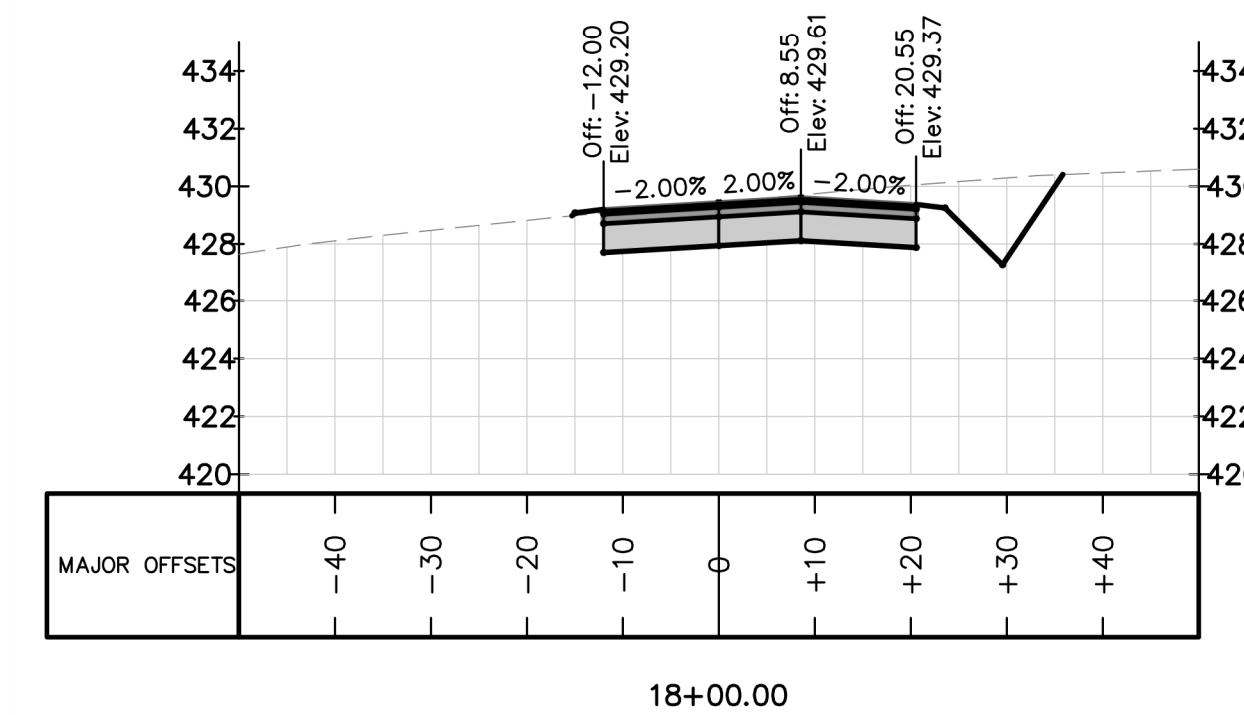
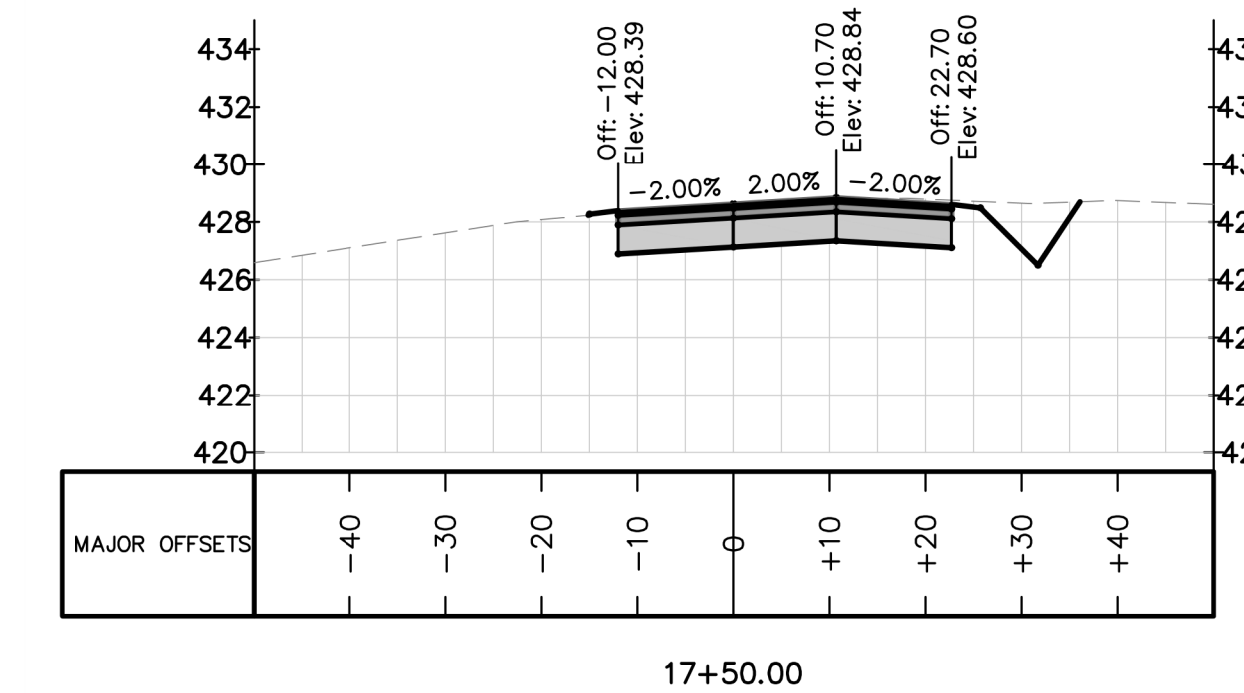
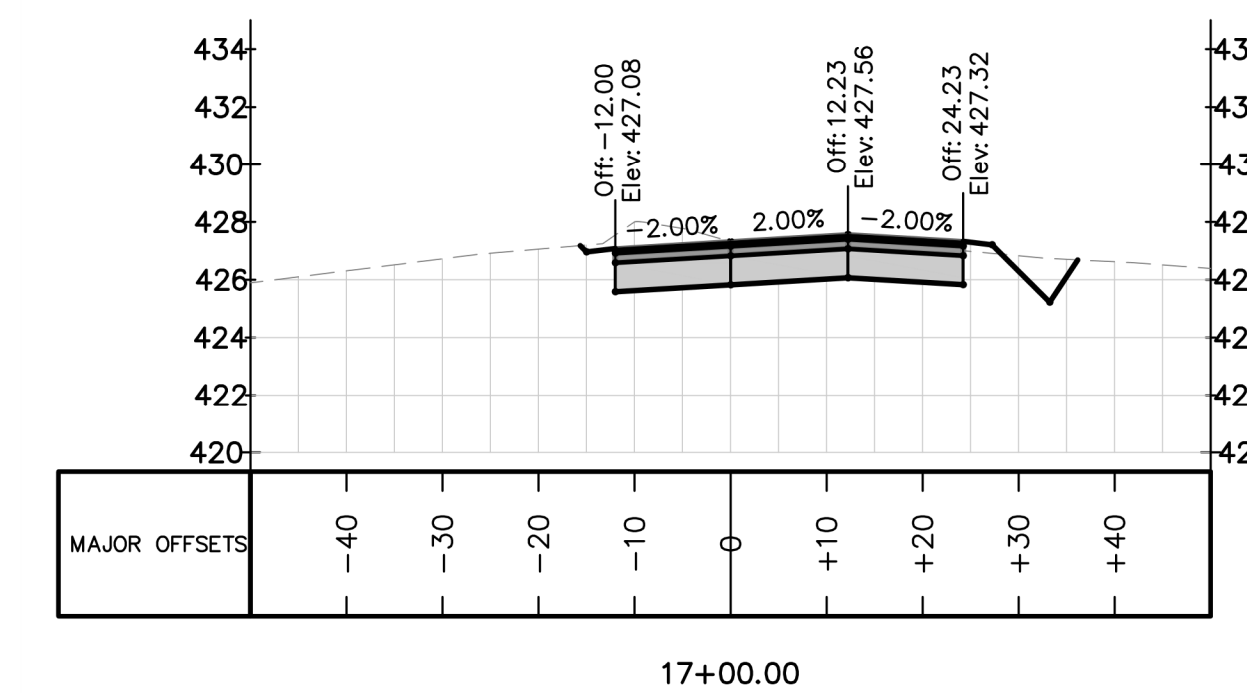
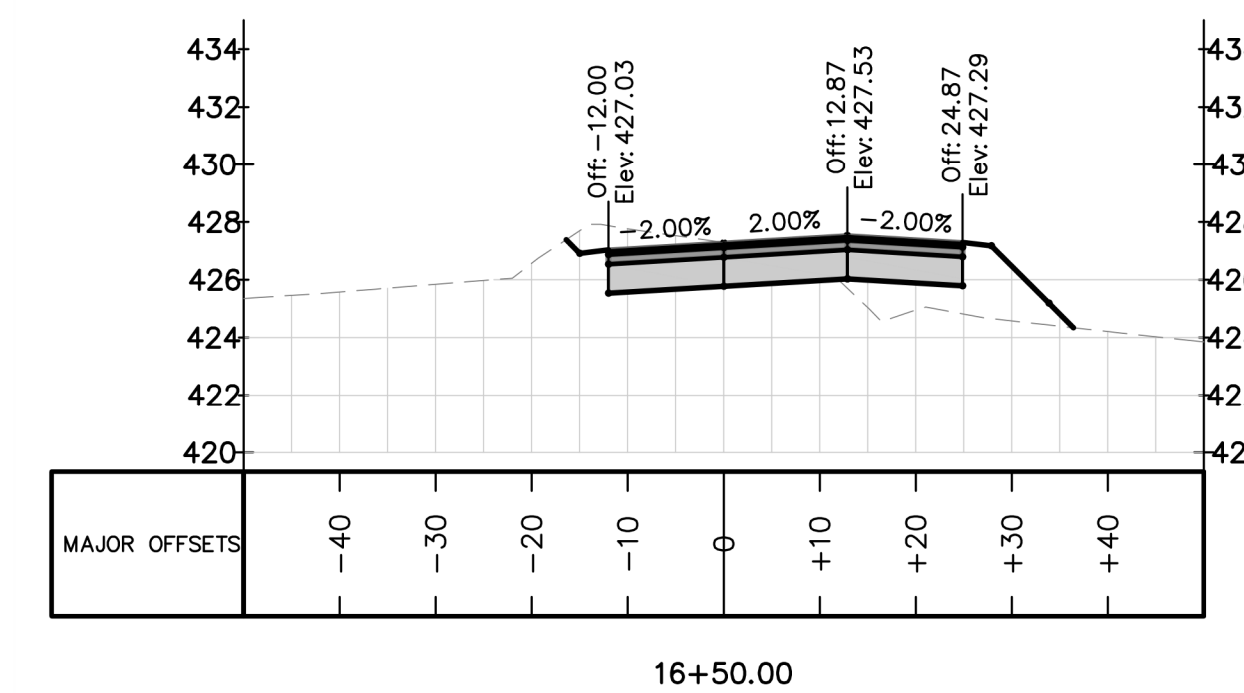
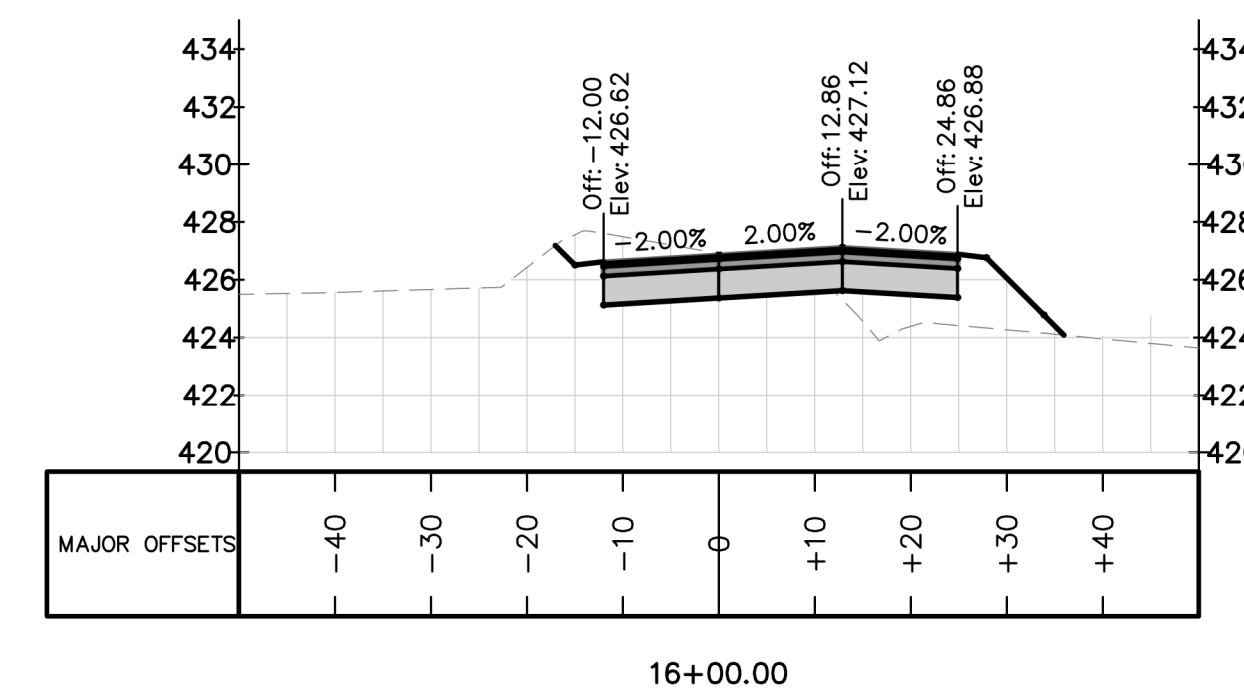
Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS

Date: 07/31/2019

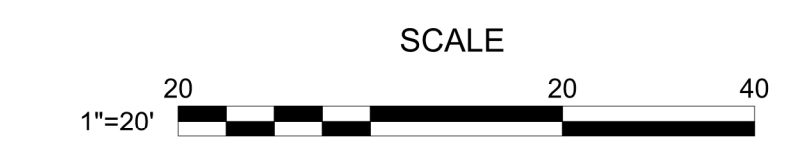
Project Number: .170348

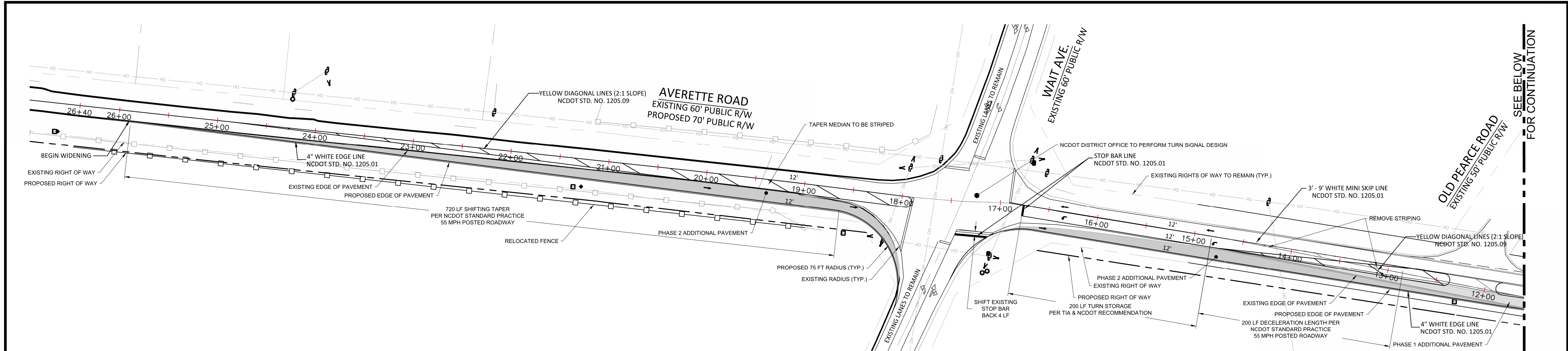
SHEET
C704
 OF: ---

ELIZABETH HEIGHTS----

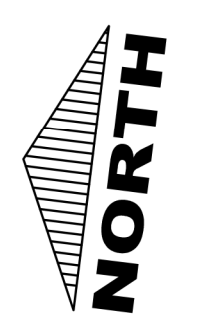
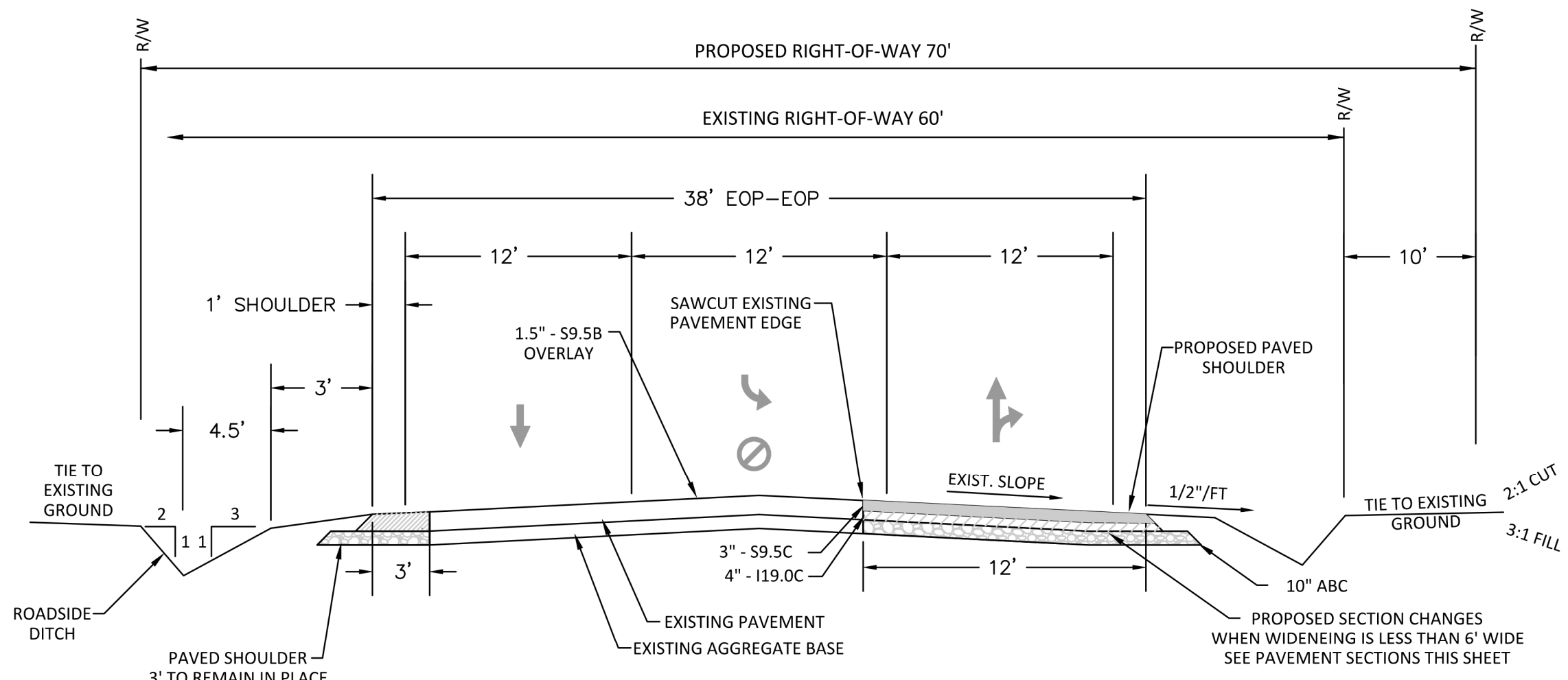
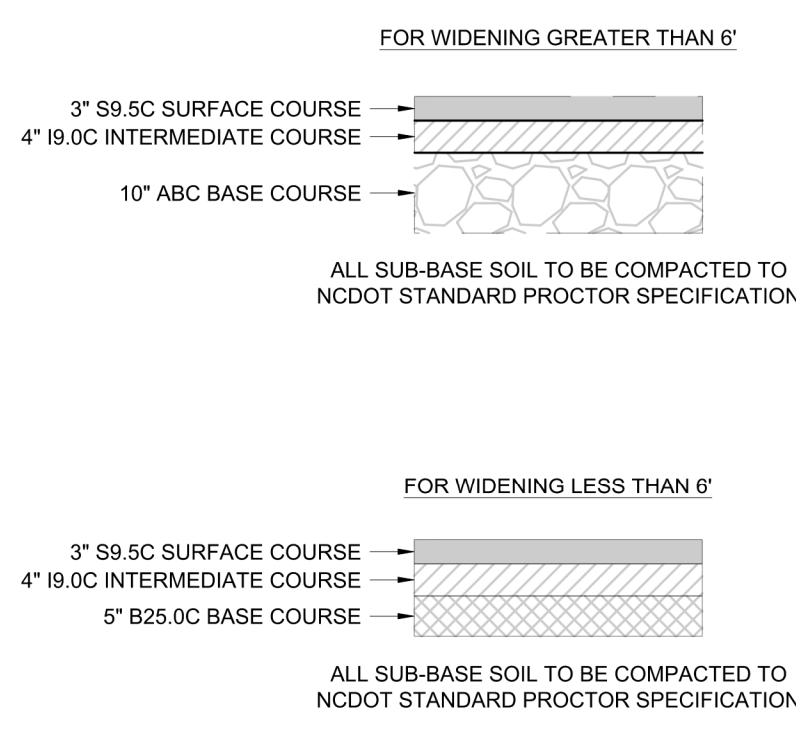
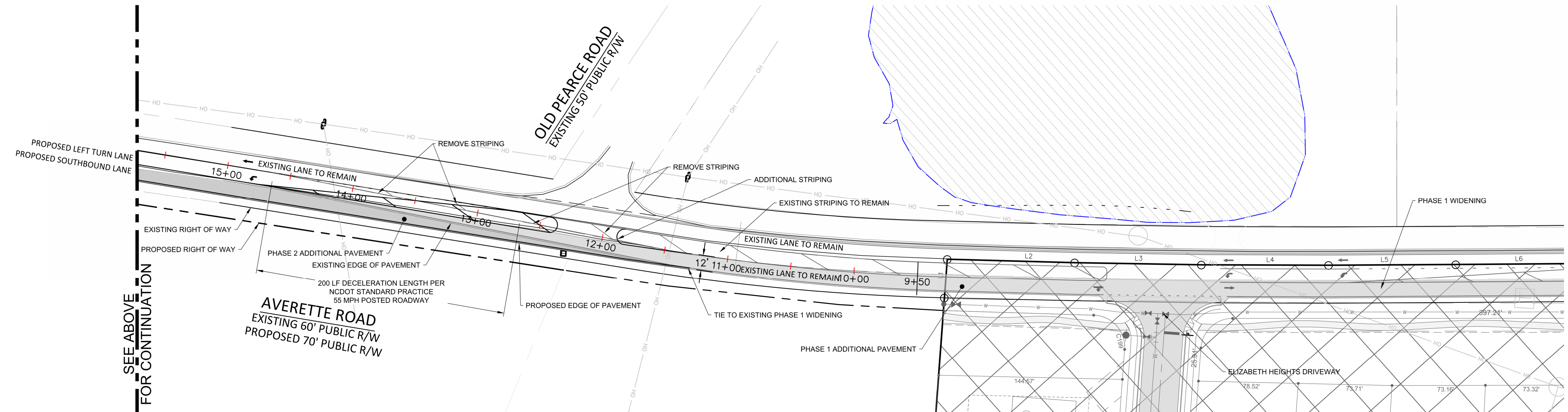


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REV. NO.	DESCRIPTIONS	DATE
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REVISIONS		



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Phone: 919.577.1080 Fax: 919.577.1081
NCEBELS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27687
WAKE COUNTY, NC

AVERETTE RD. / WAIT AVE.
INTERSECTION IMPROVEMENTS

Project Engineer: TSS
Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS
Date: 07/31/2019
Project Number: .170348
SHEET
C710
OF: ---

ELIZABETH HEIGHTS



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 1205 AVERETTE ROAD
 WAKE FOREST, NC 27687
 WAKE COUNTY, NC

AVERETTE ROAD
CROSS SECTIONS

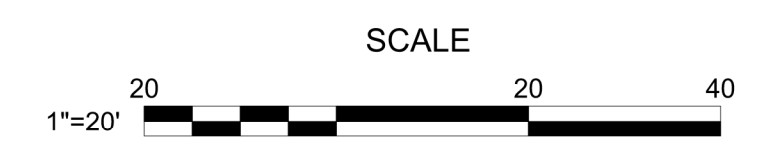
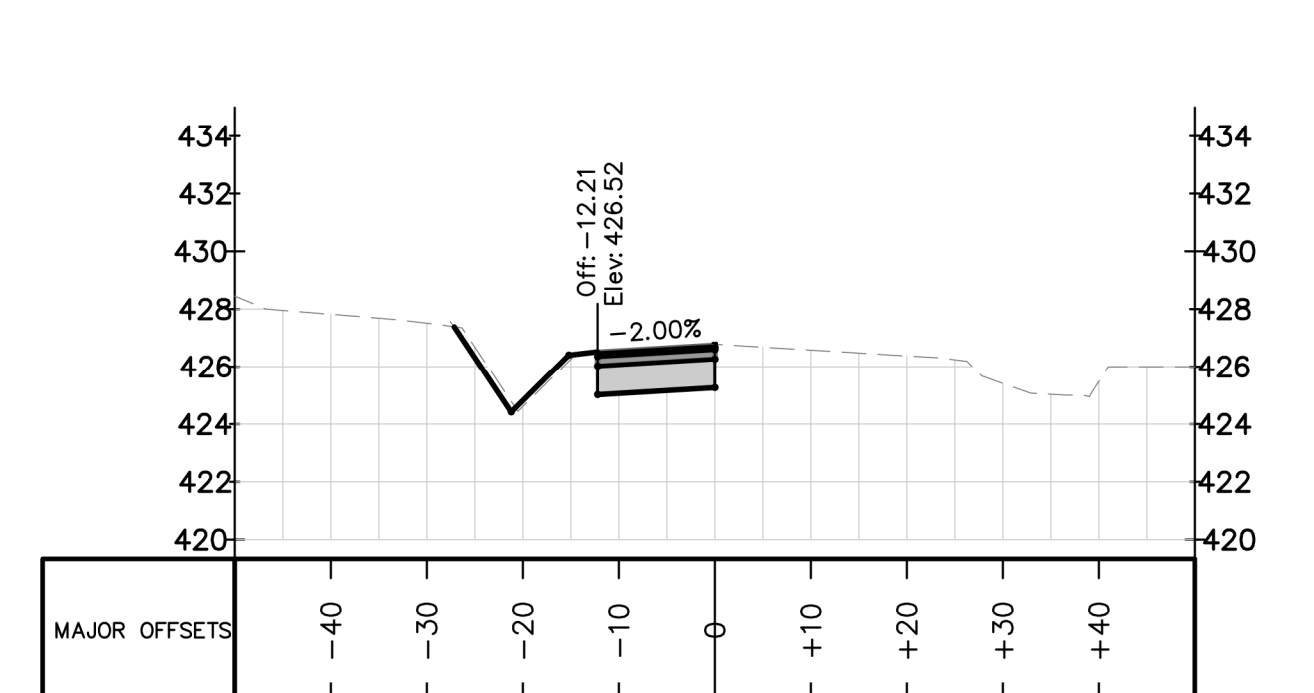
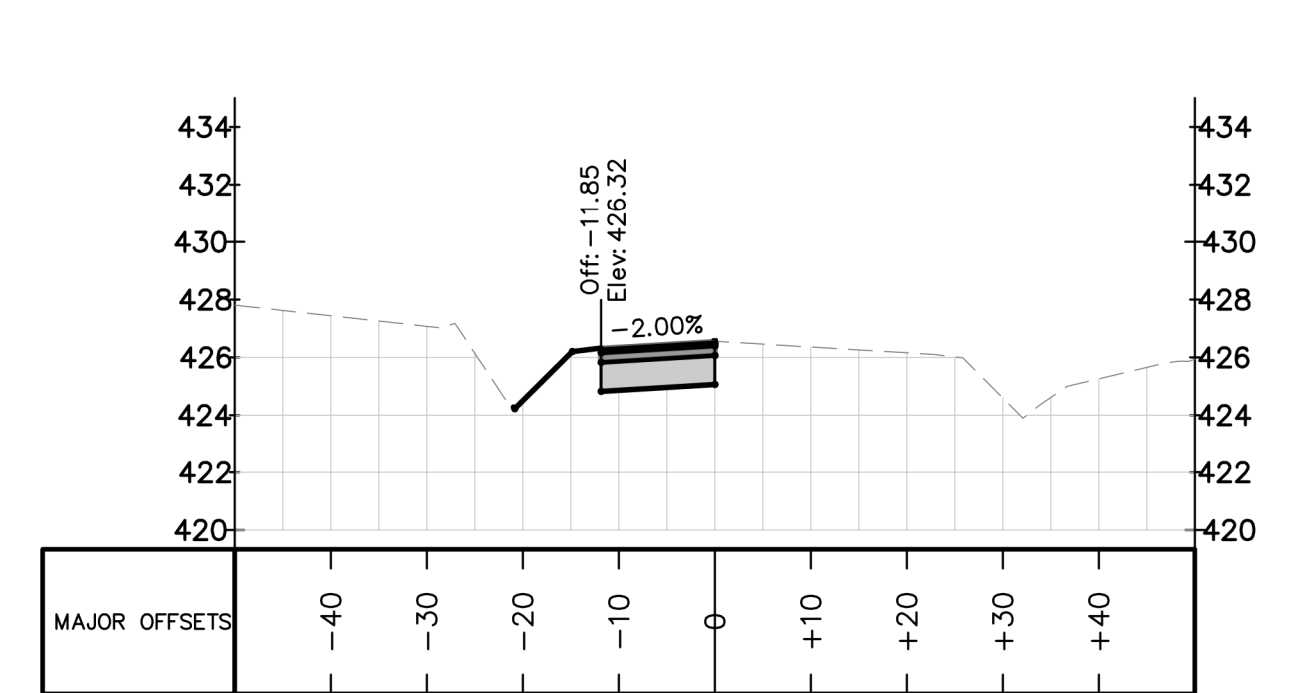
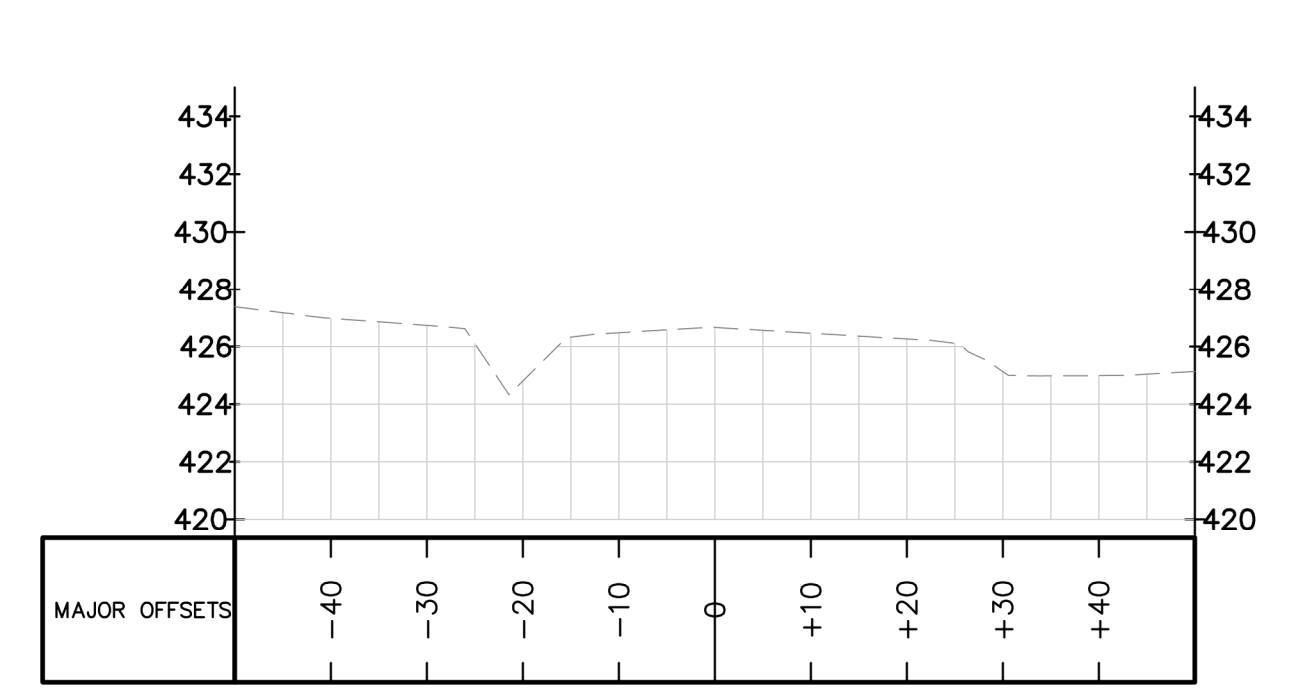
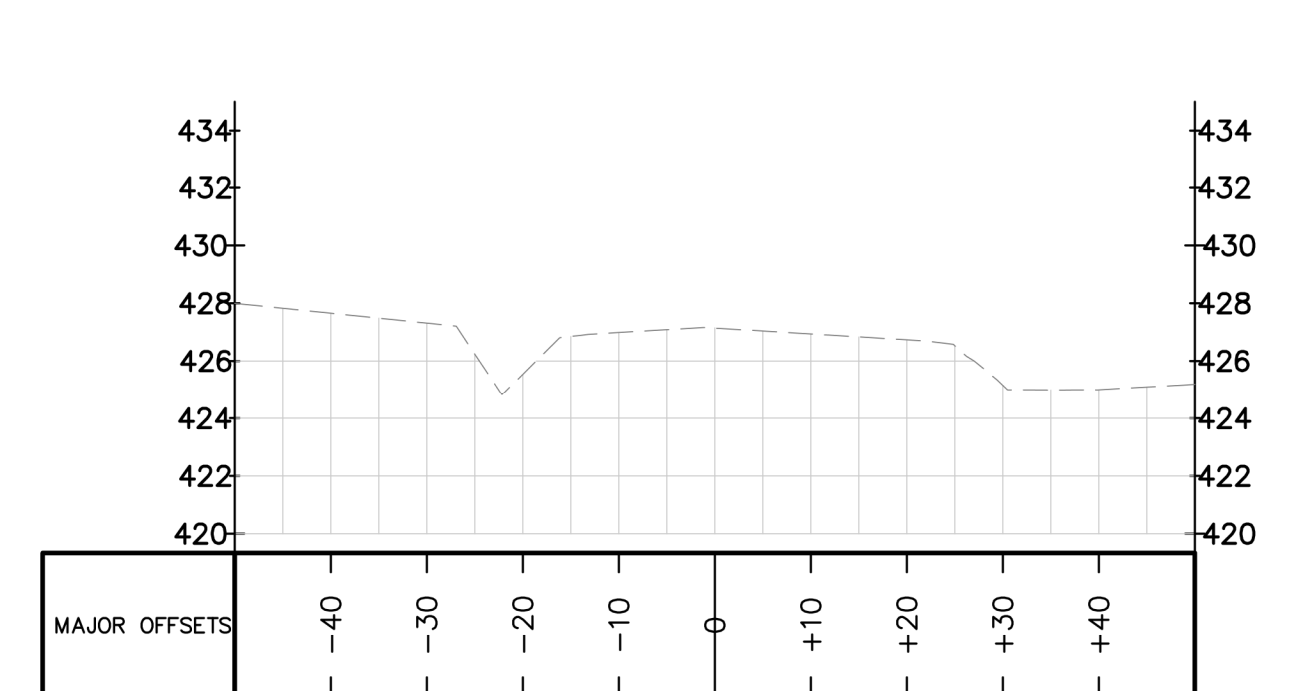
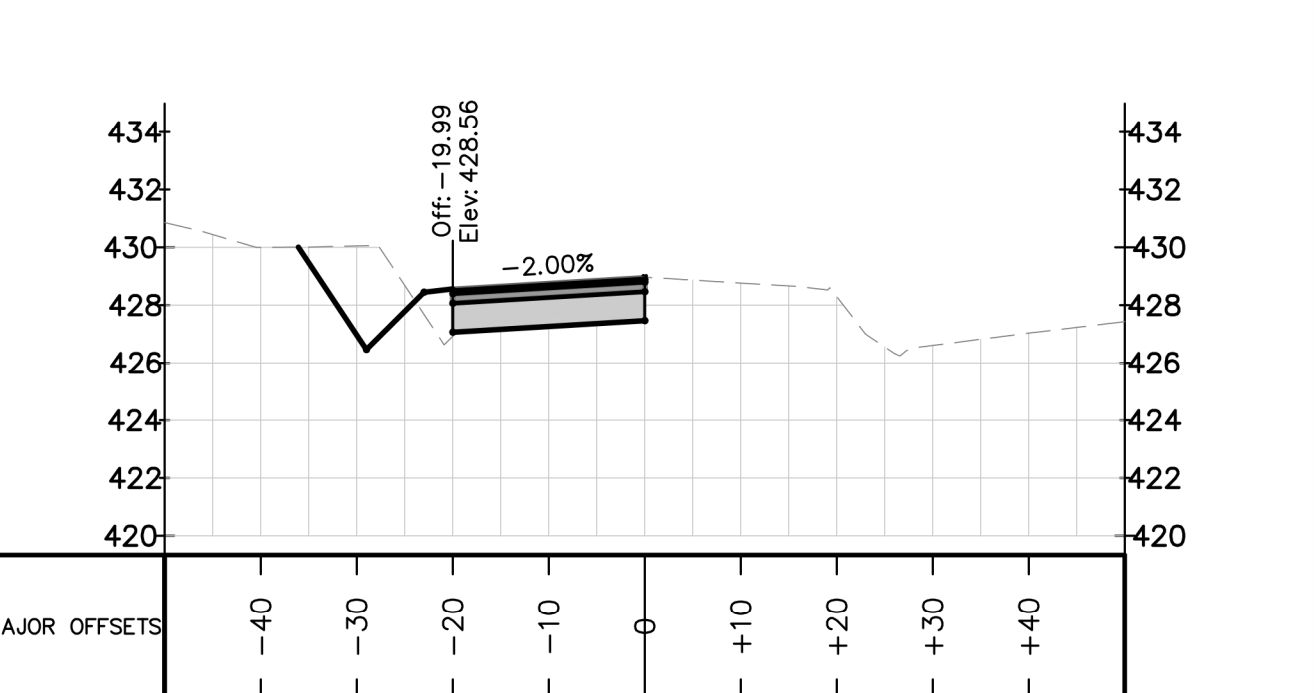
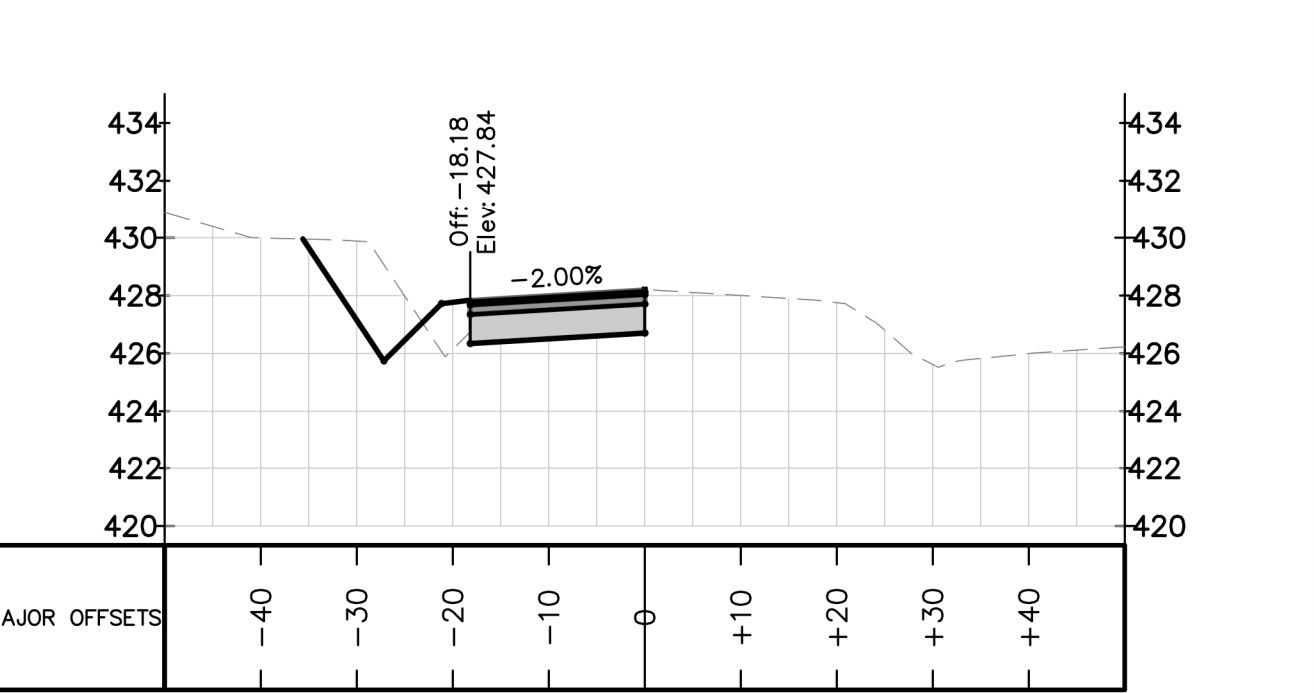
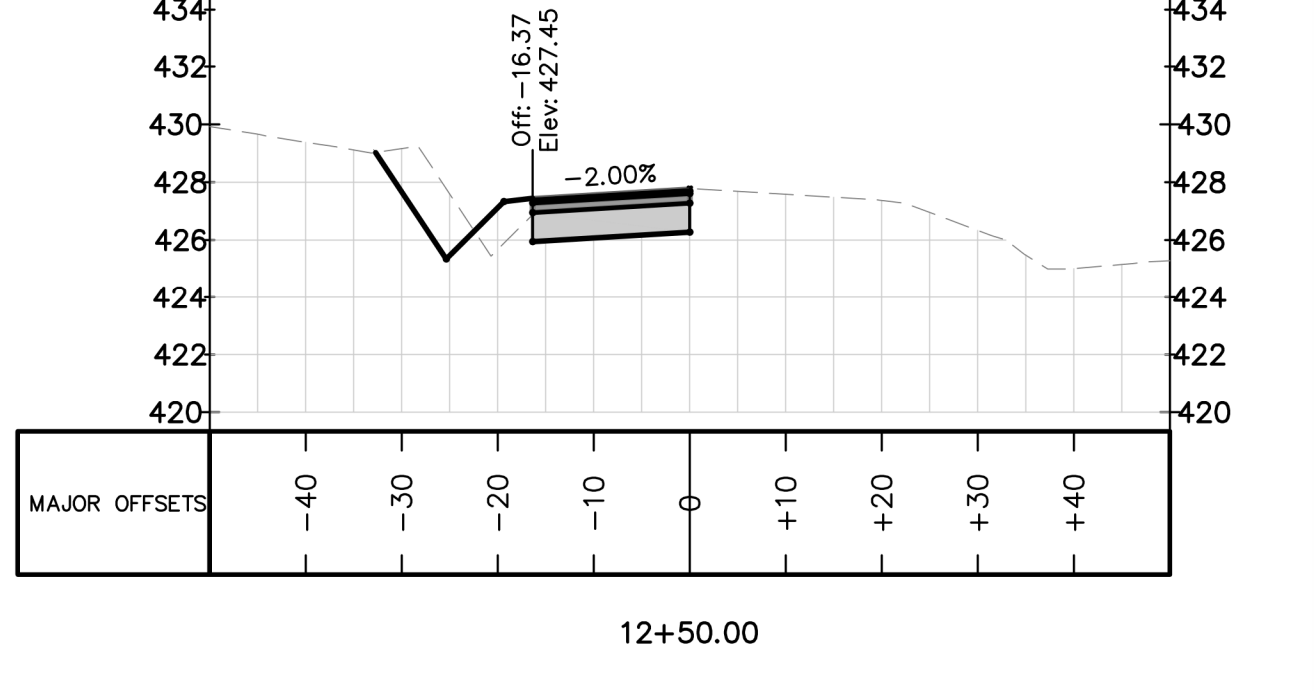
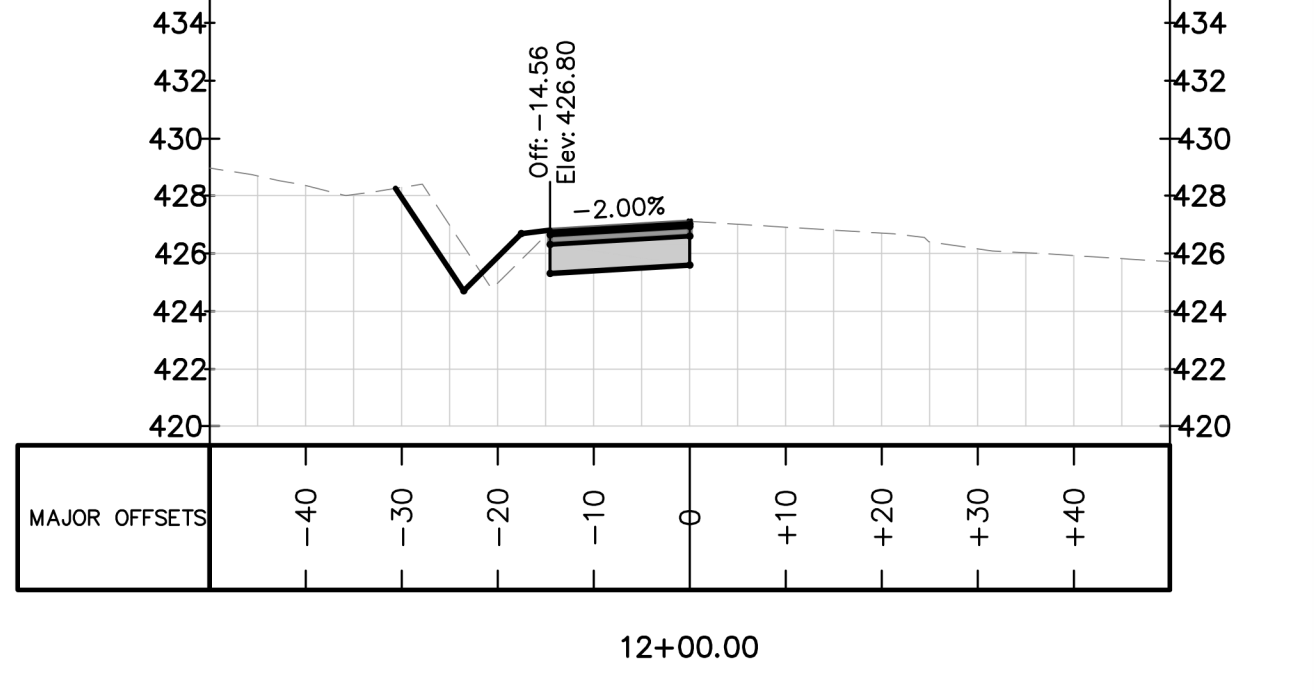
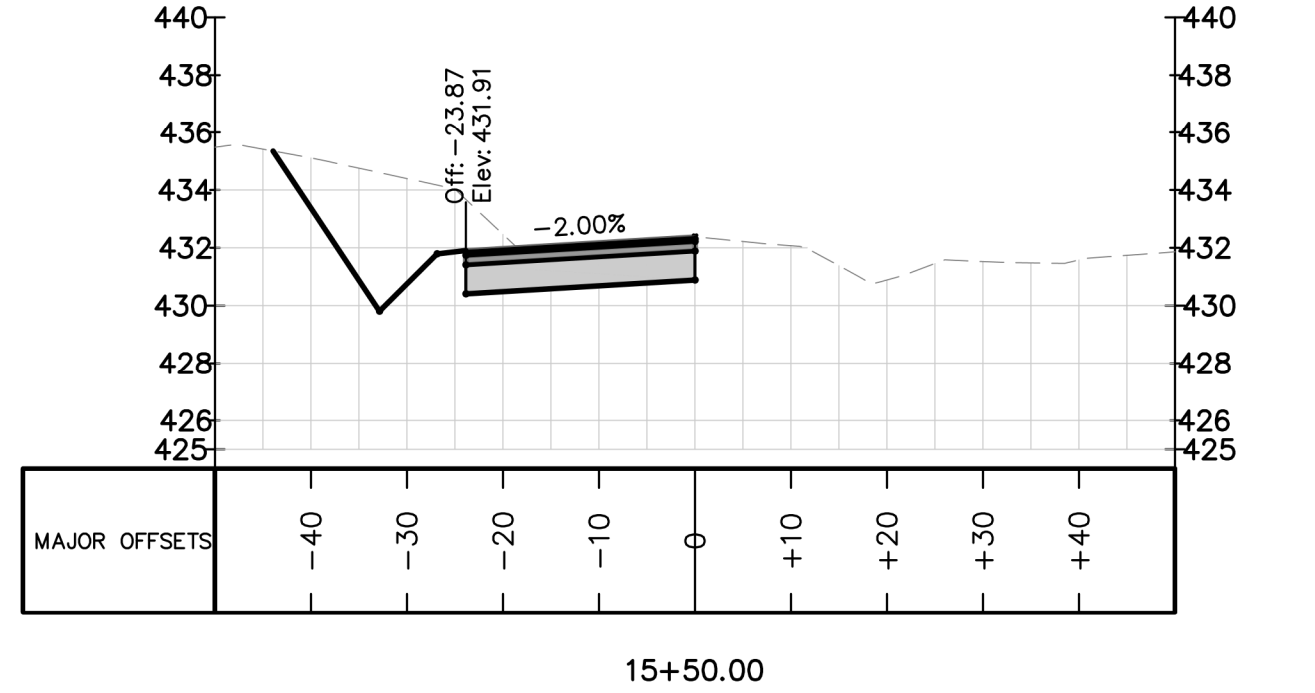
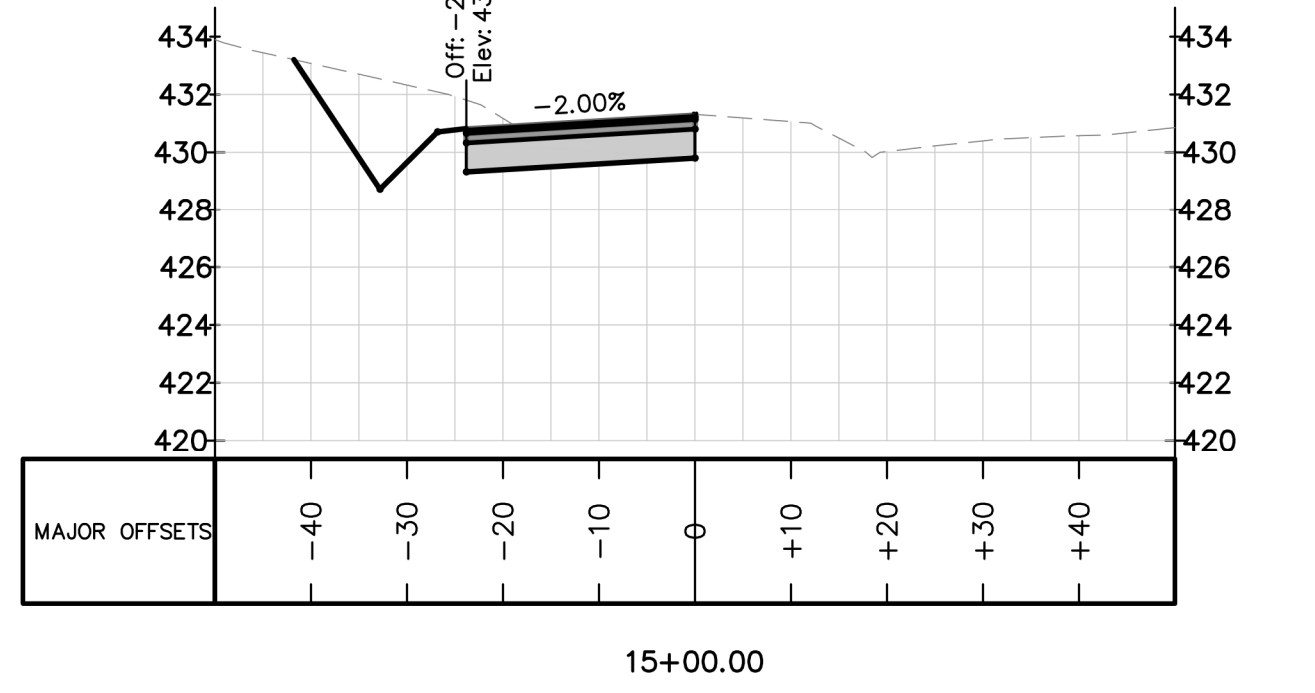
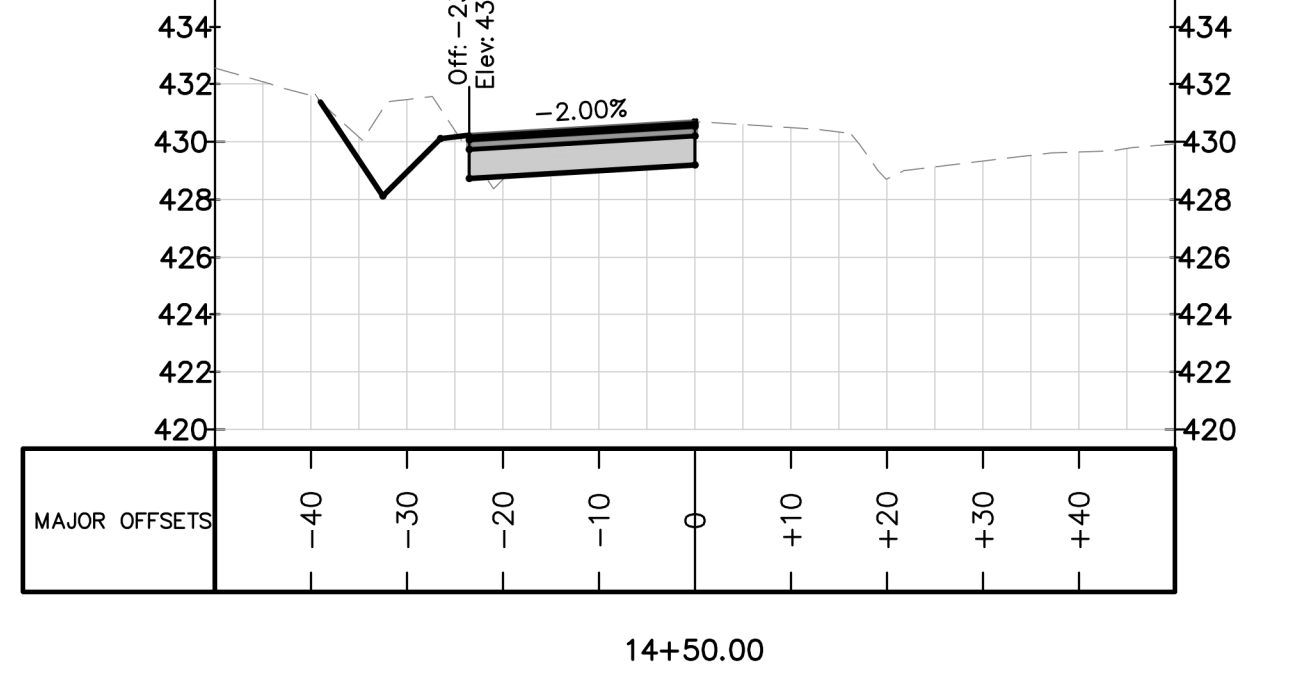
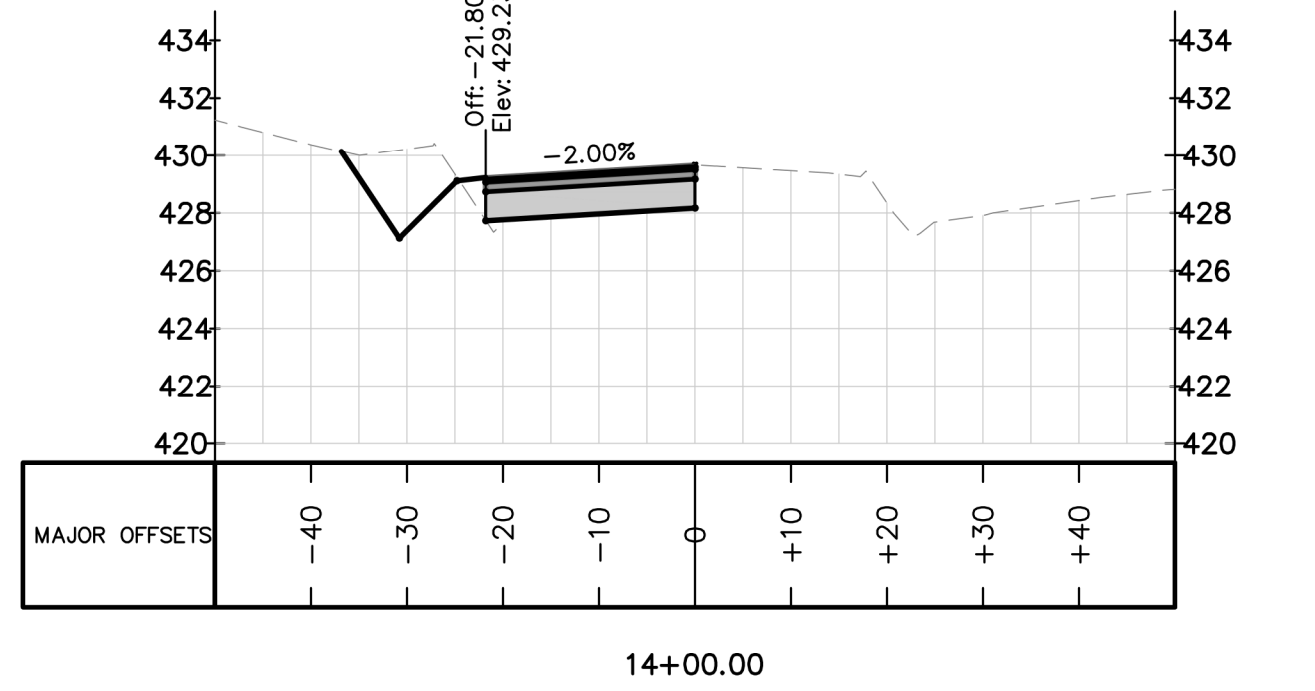
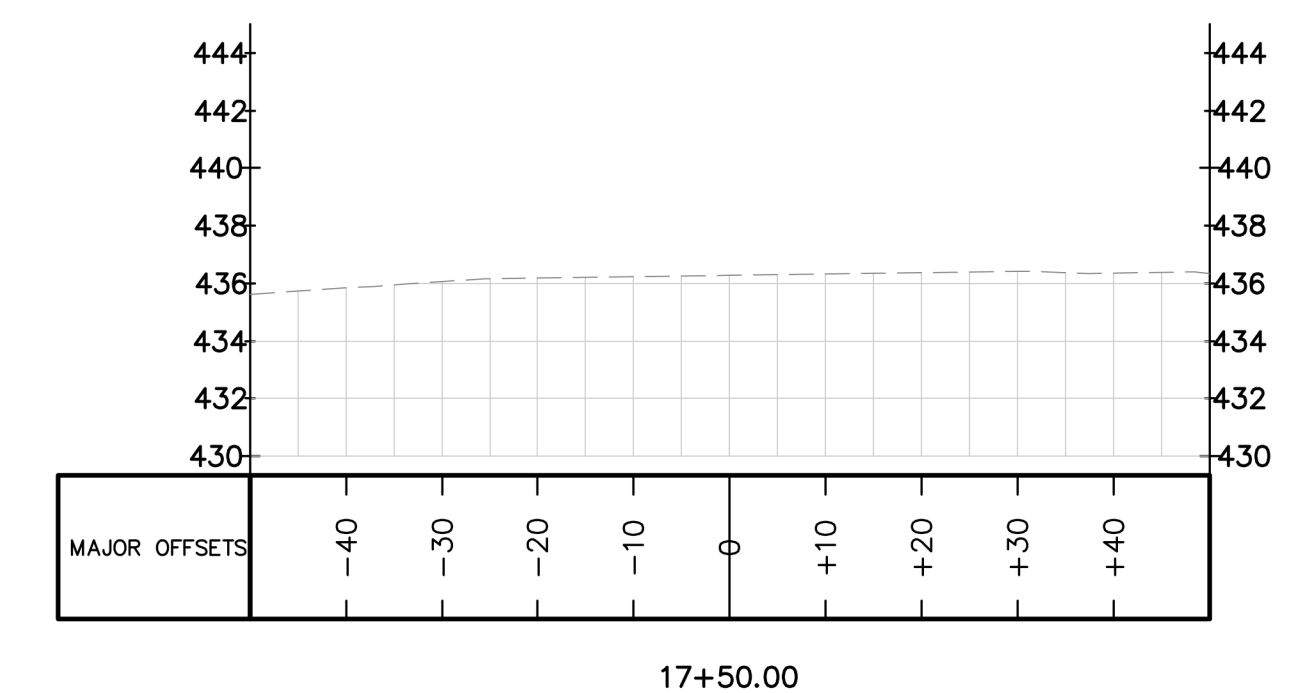
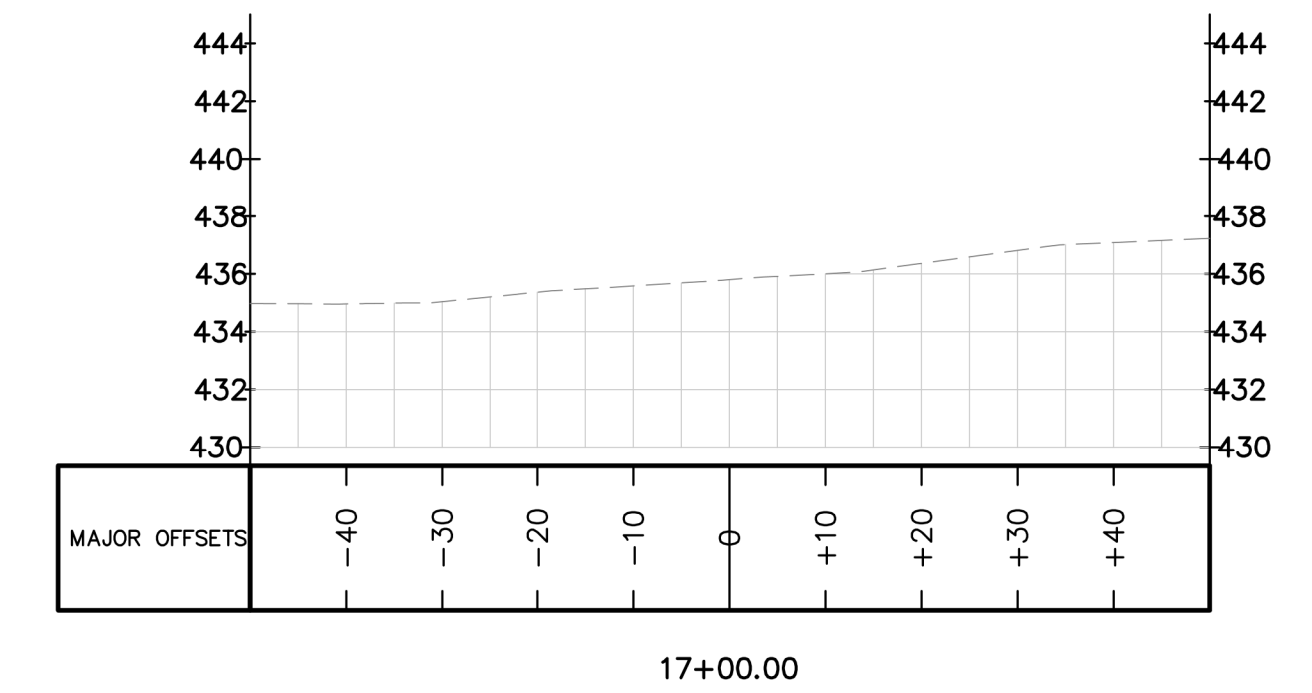
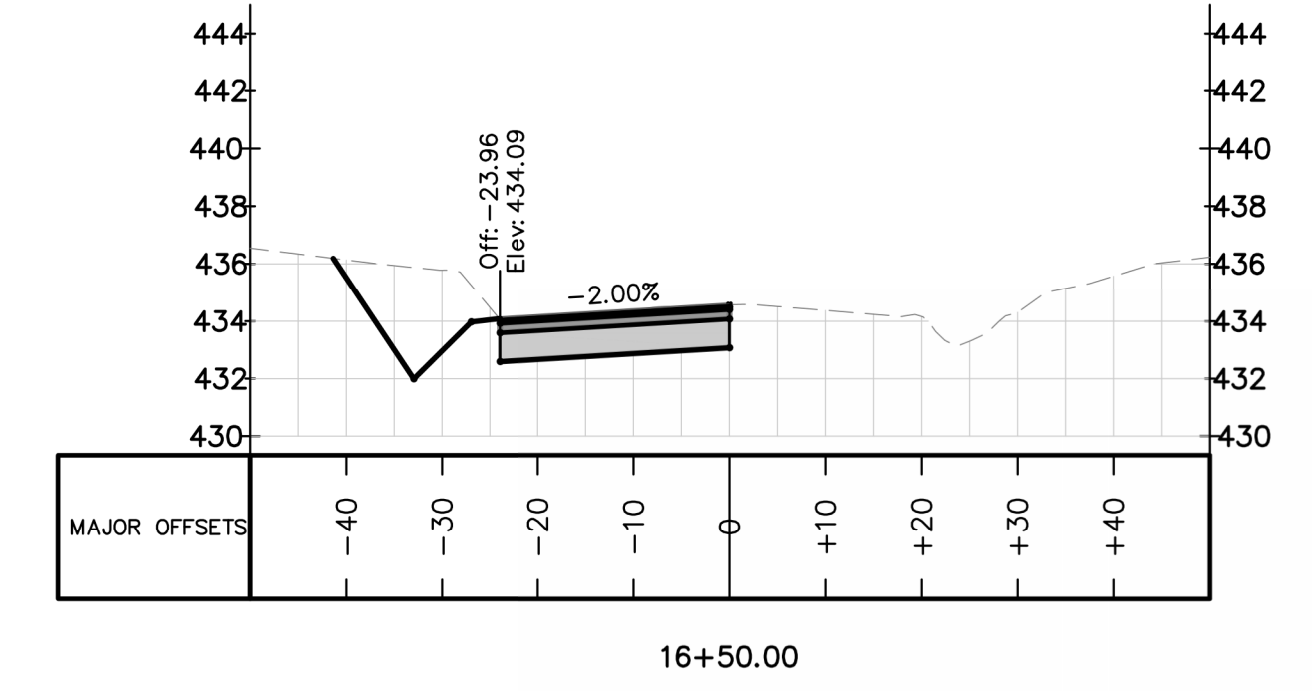
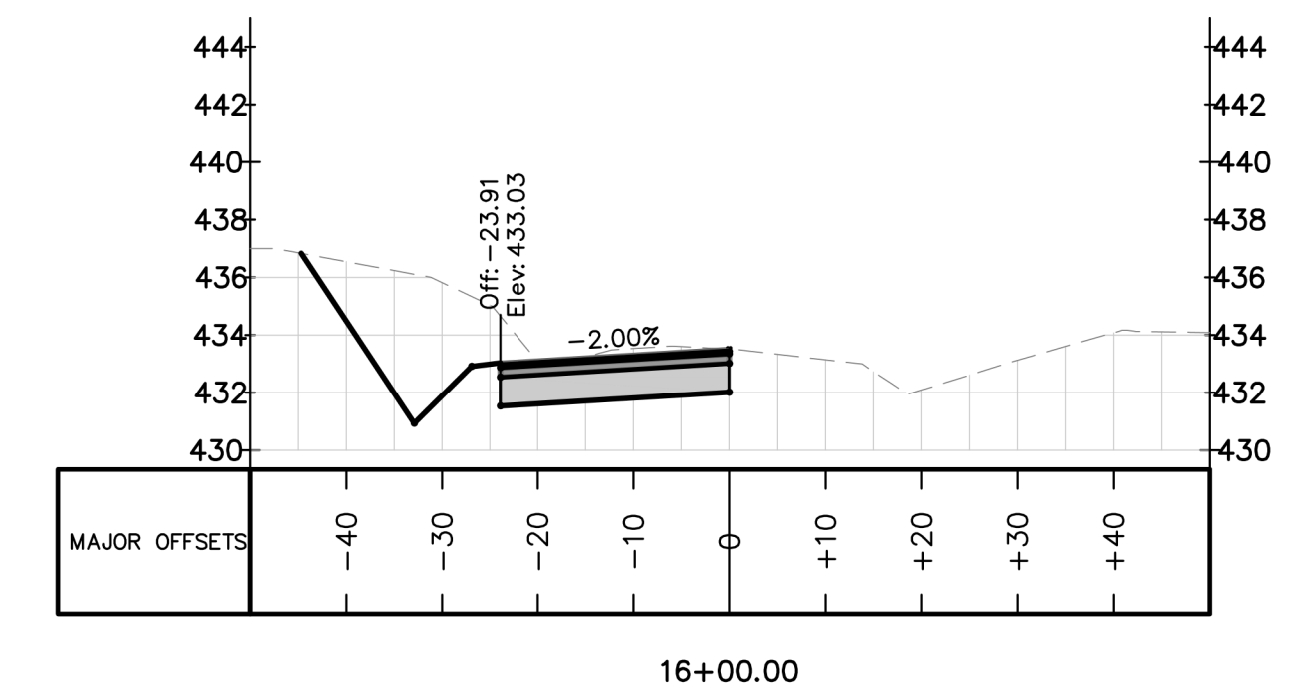
Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS

Date: 07/31/2019

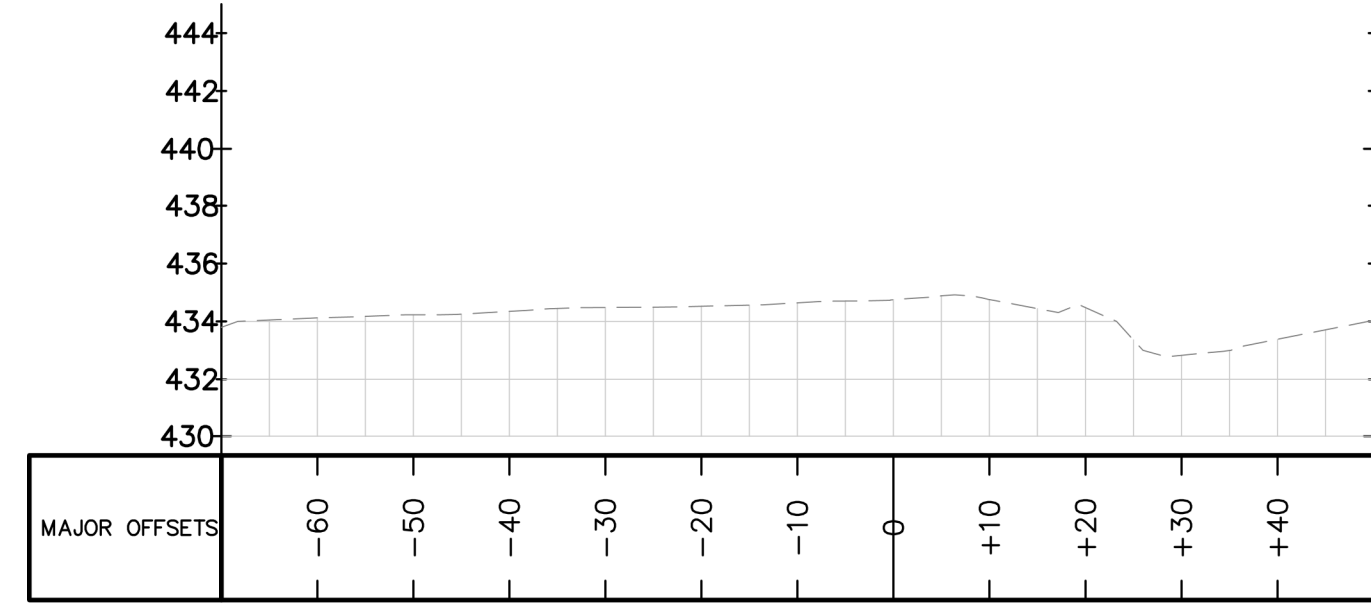
Project Number: 170348

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 OF: ---

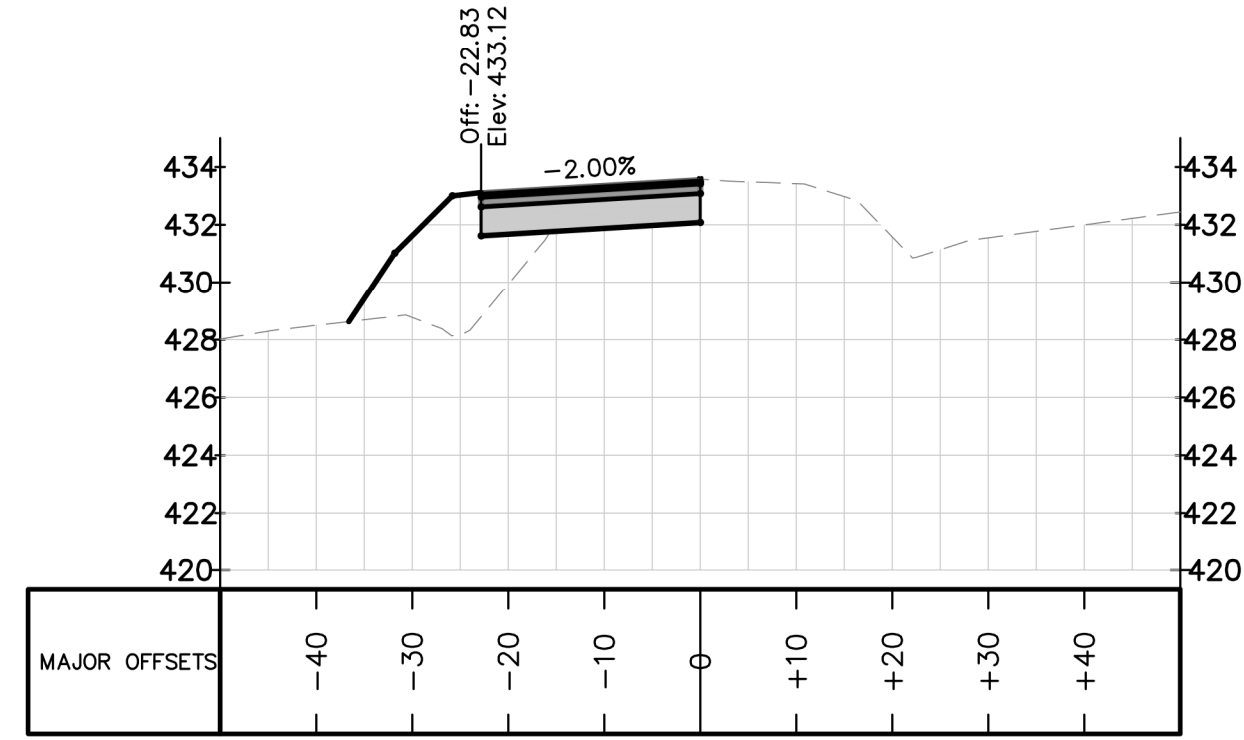
ELIZABETH HEIGHTS



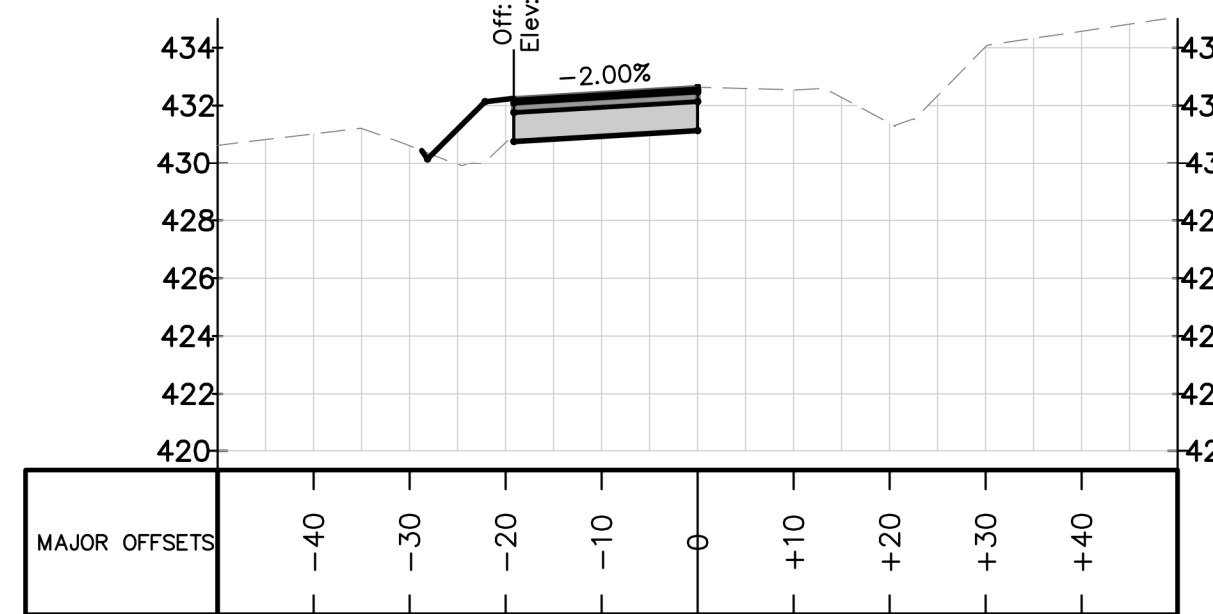
REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



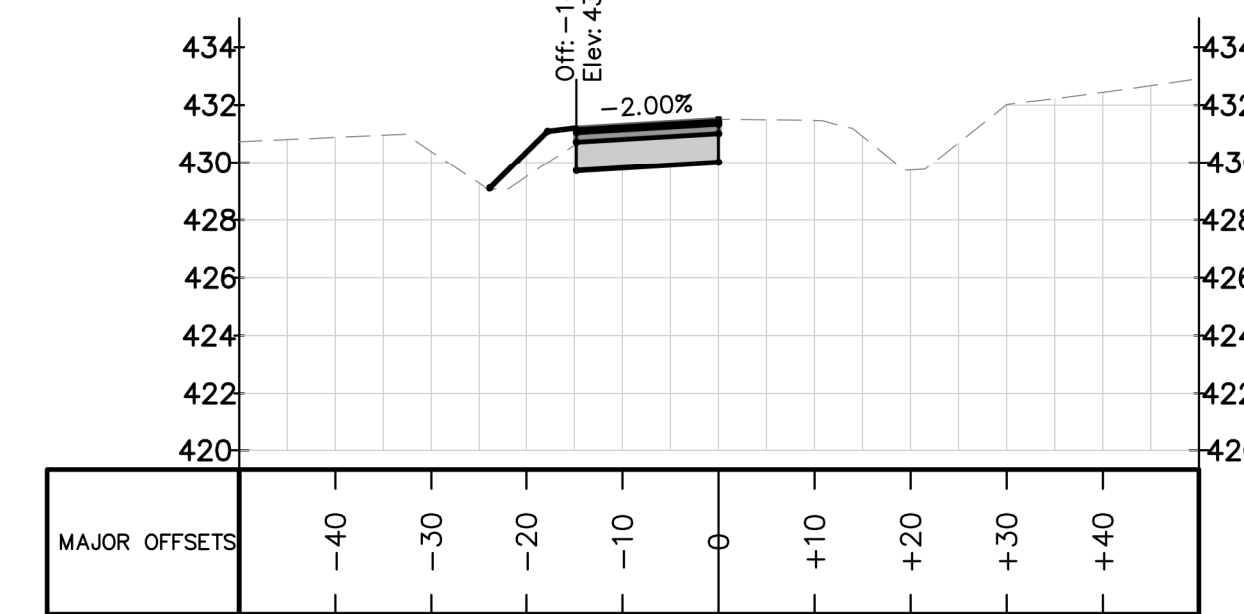
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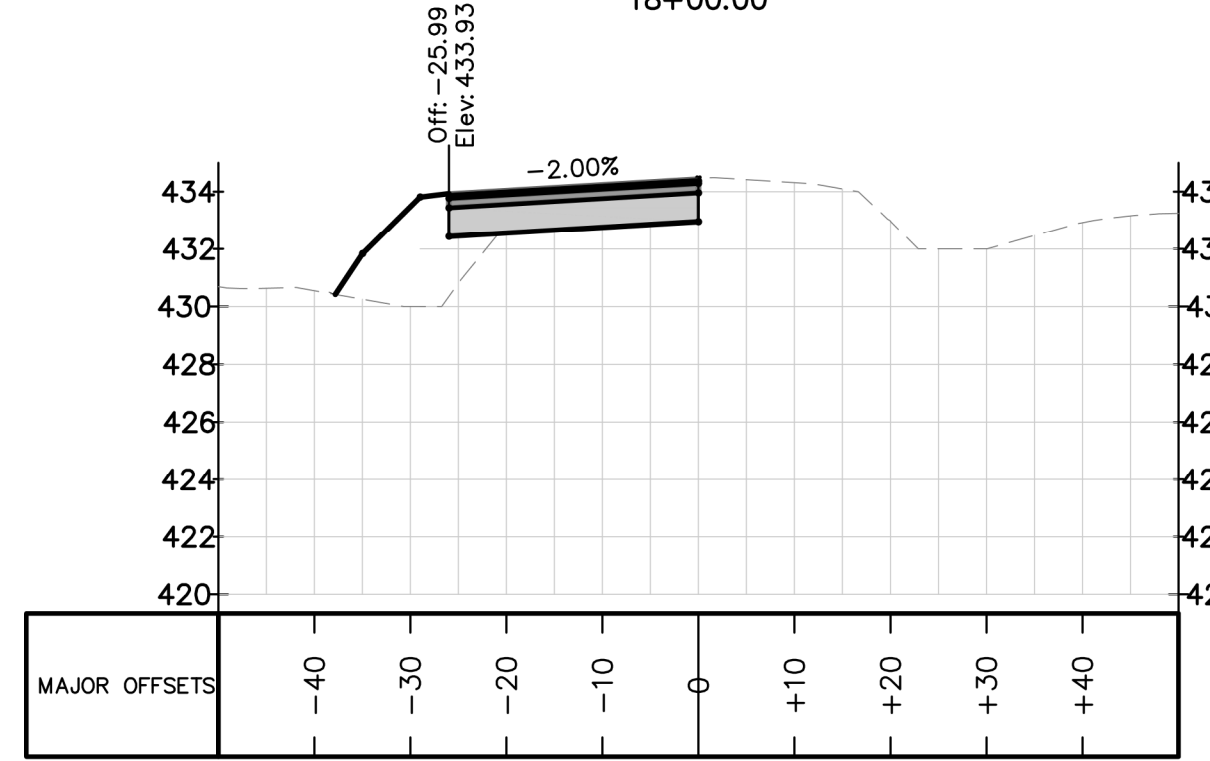
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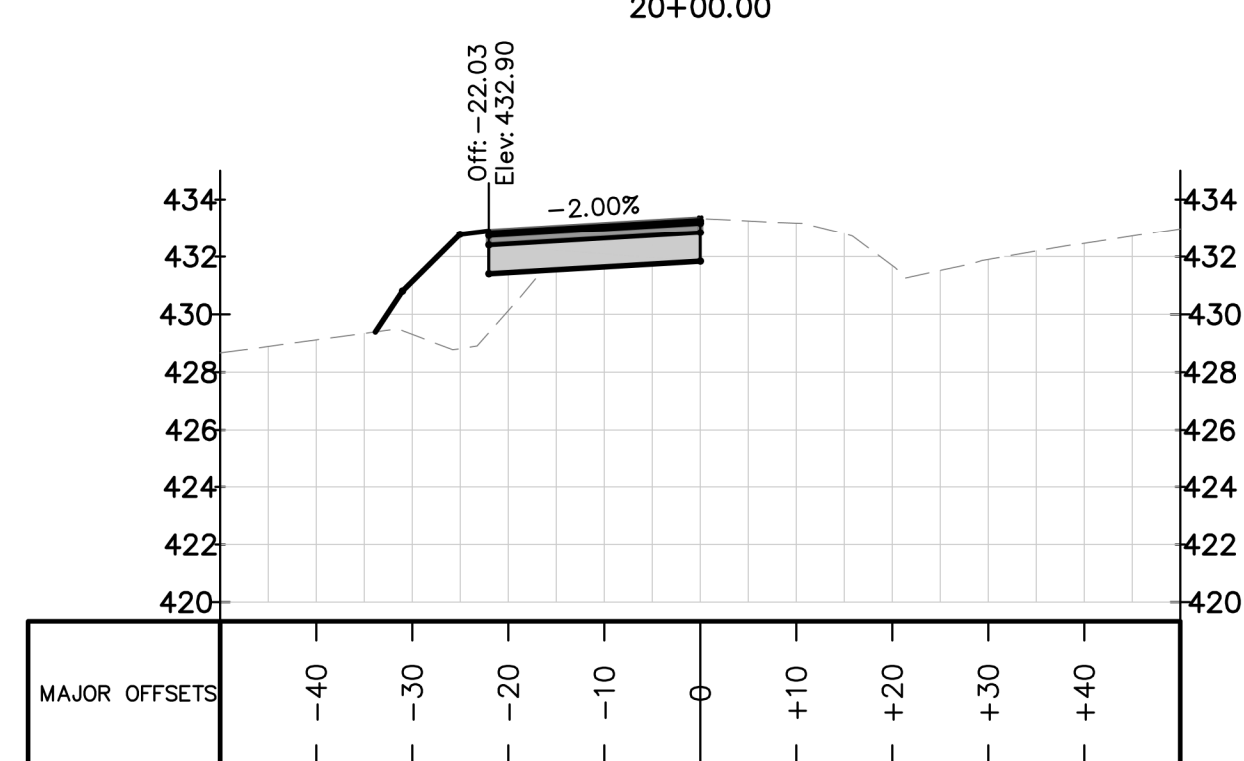
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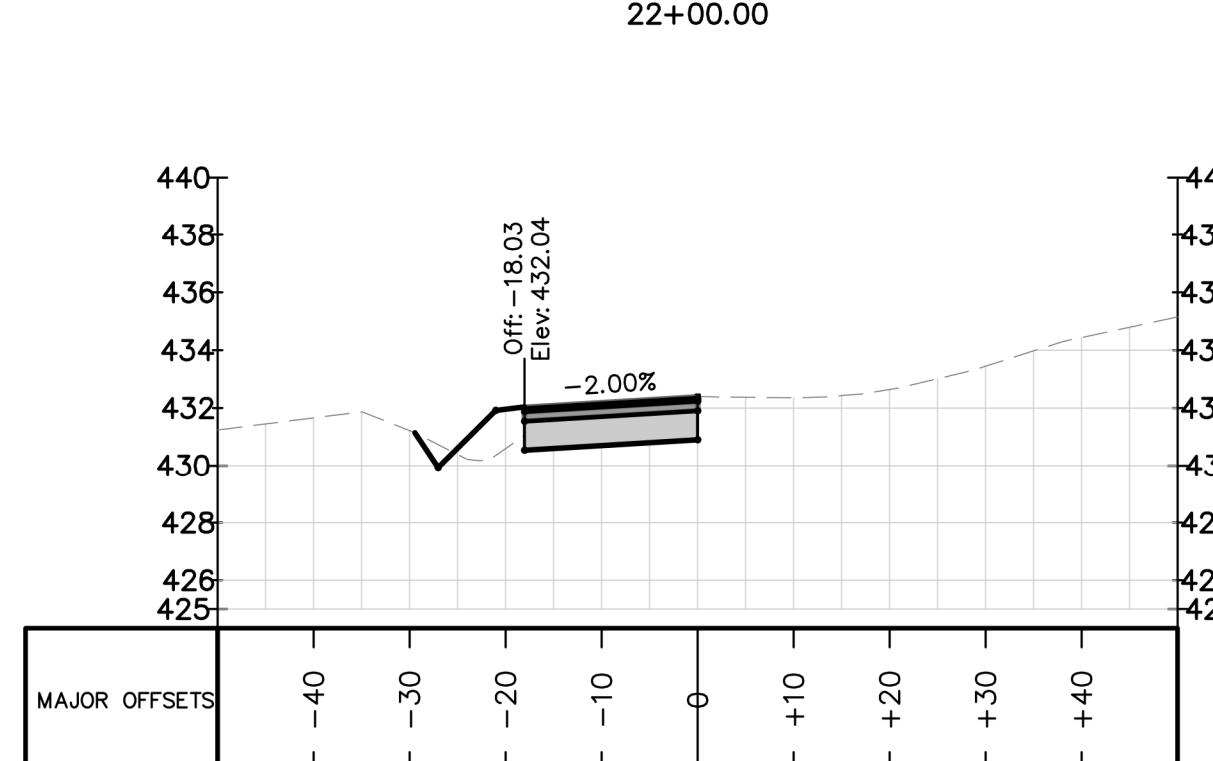
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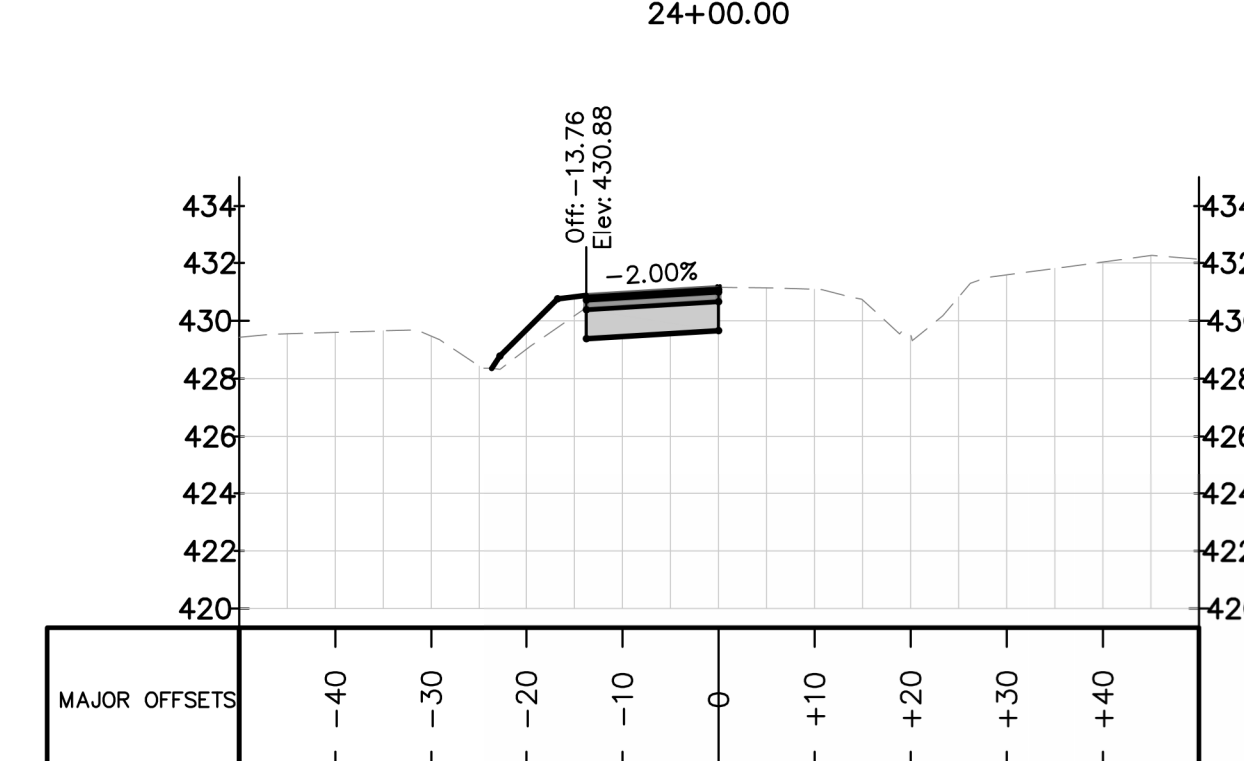
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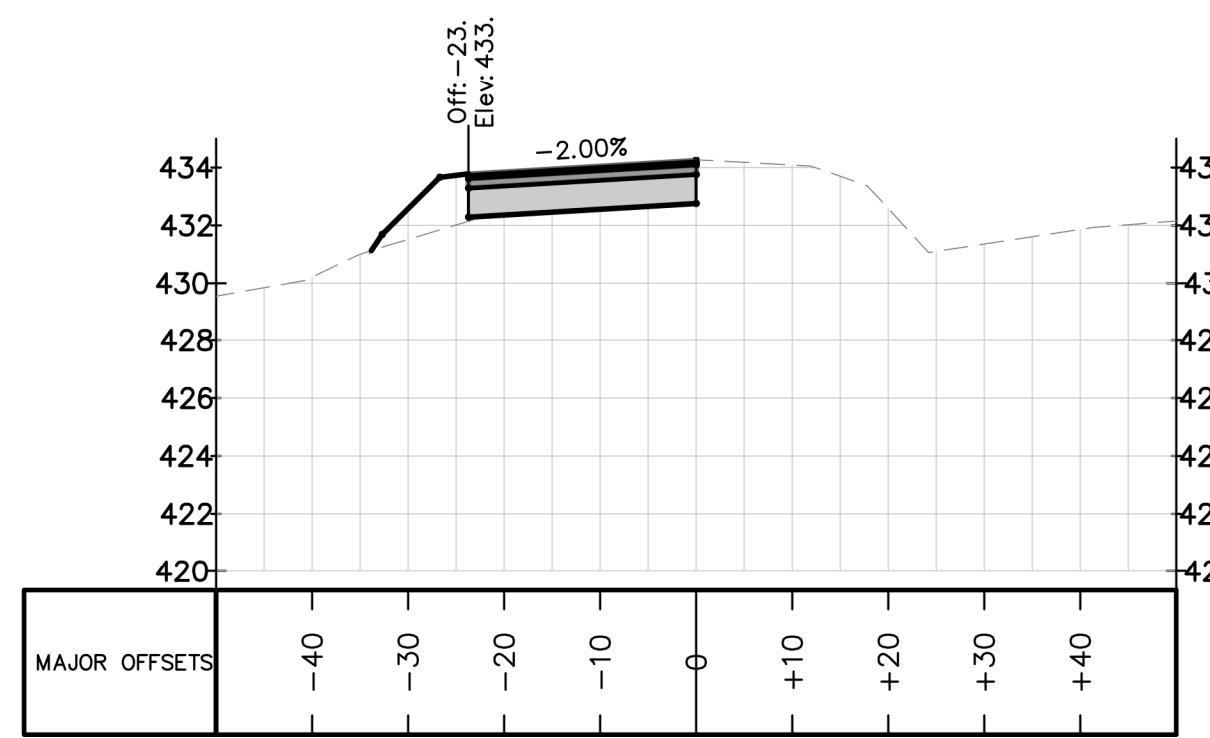
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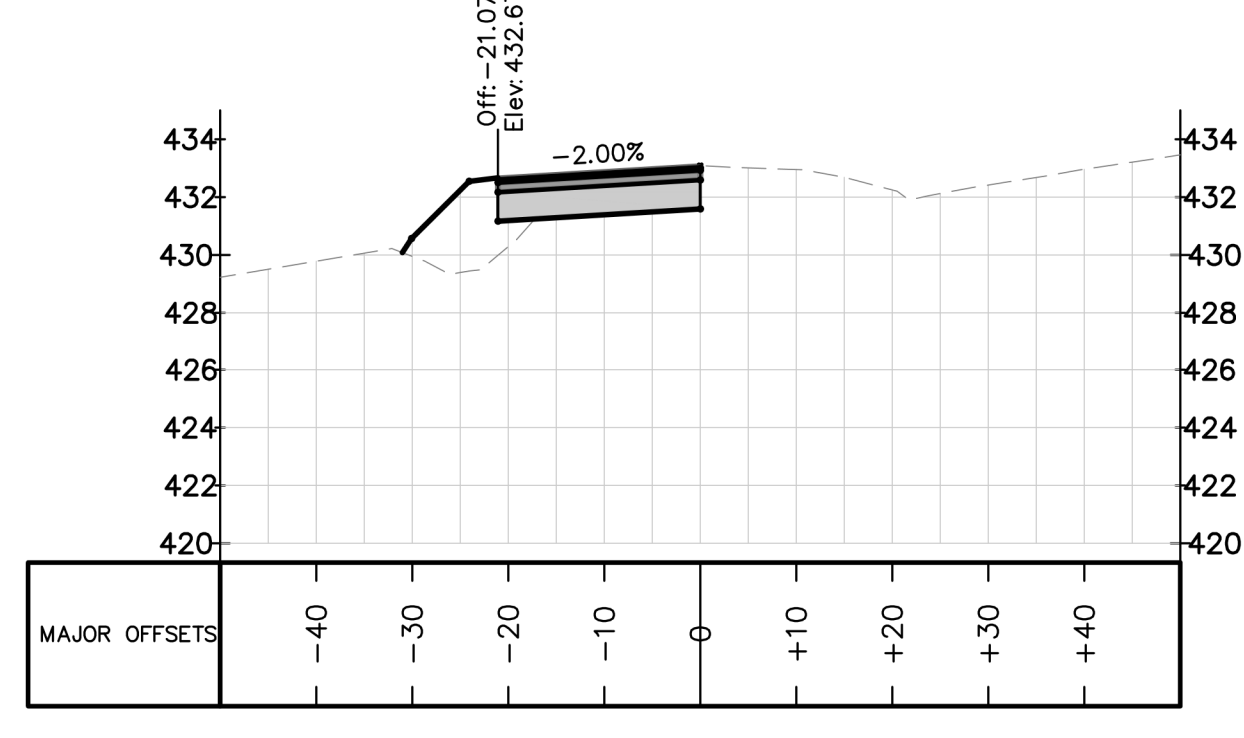
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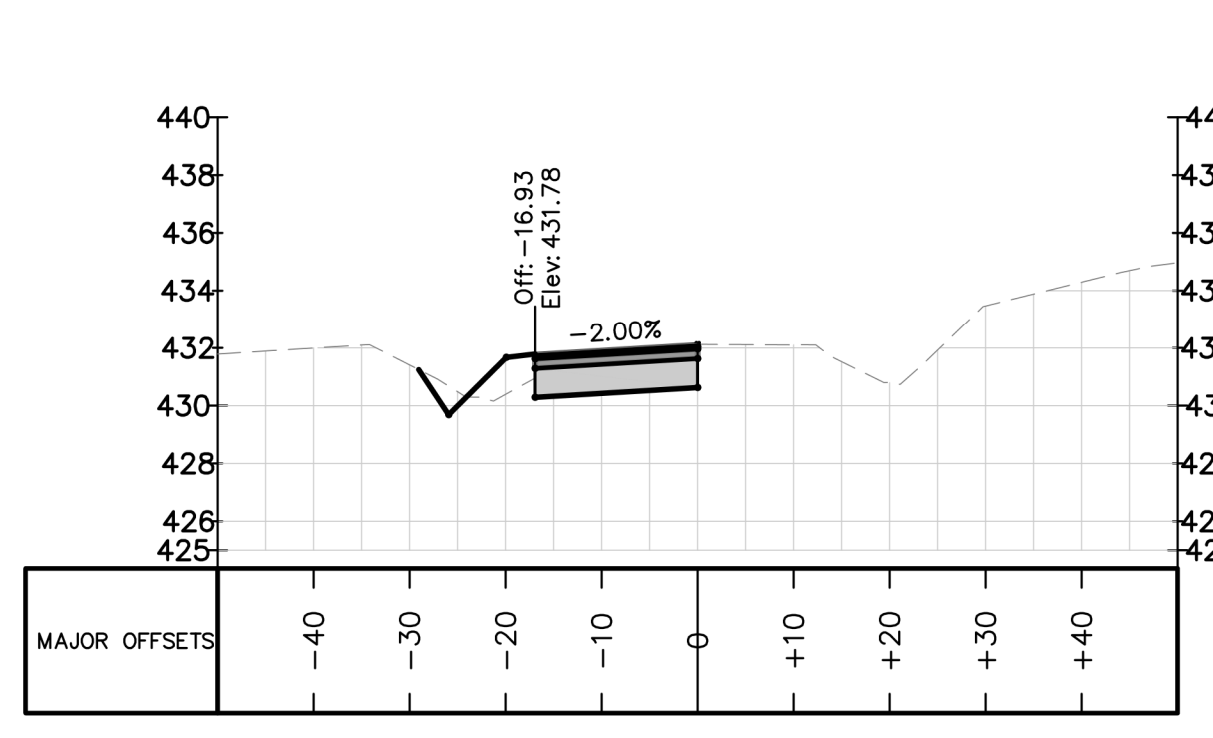
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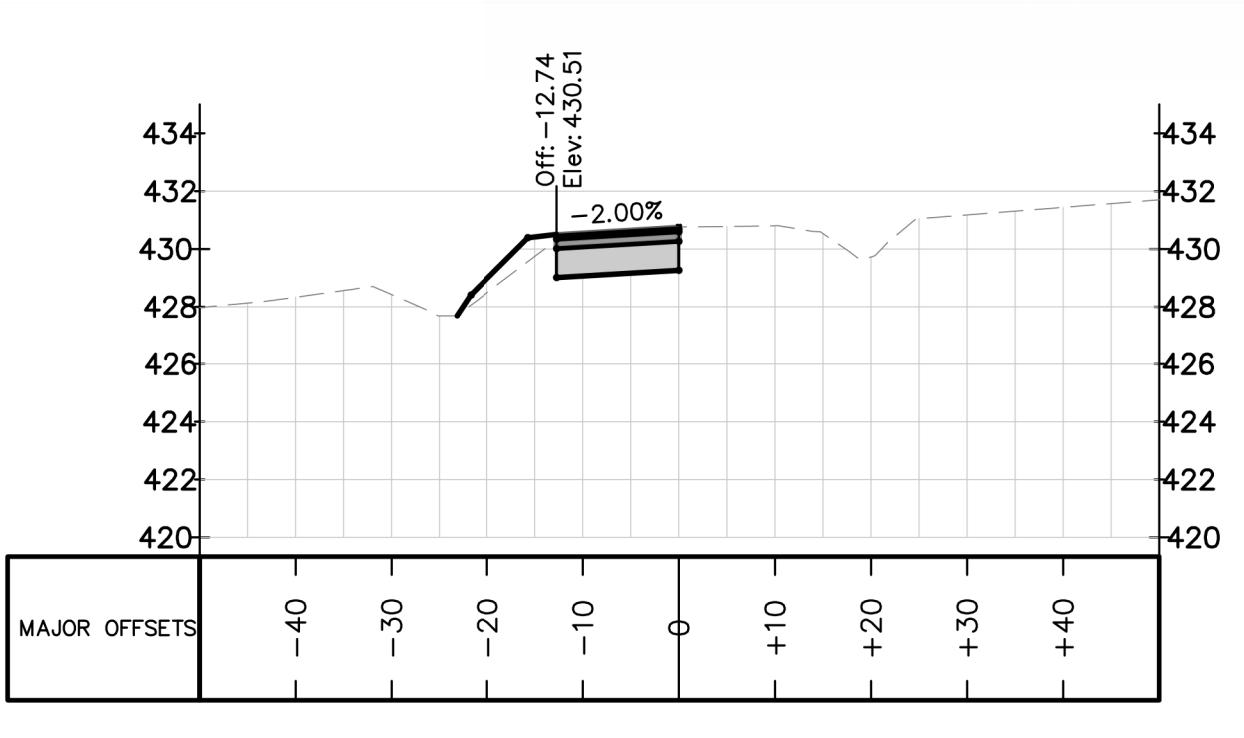
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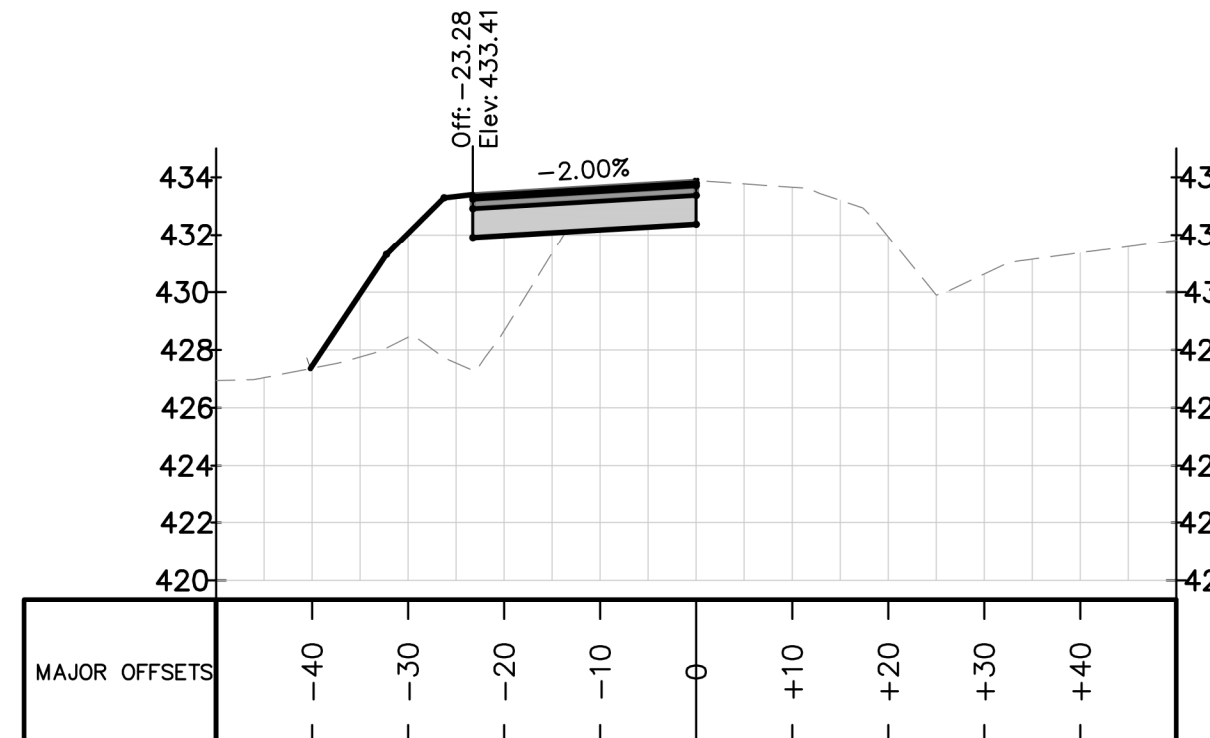
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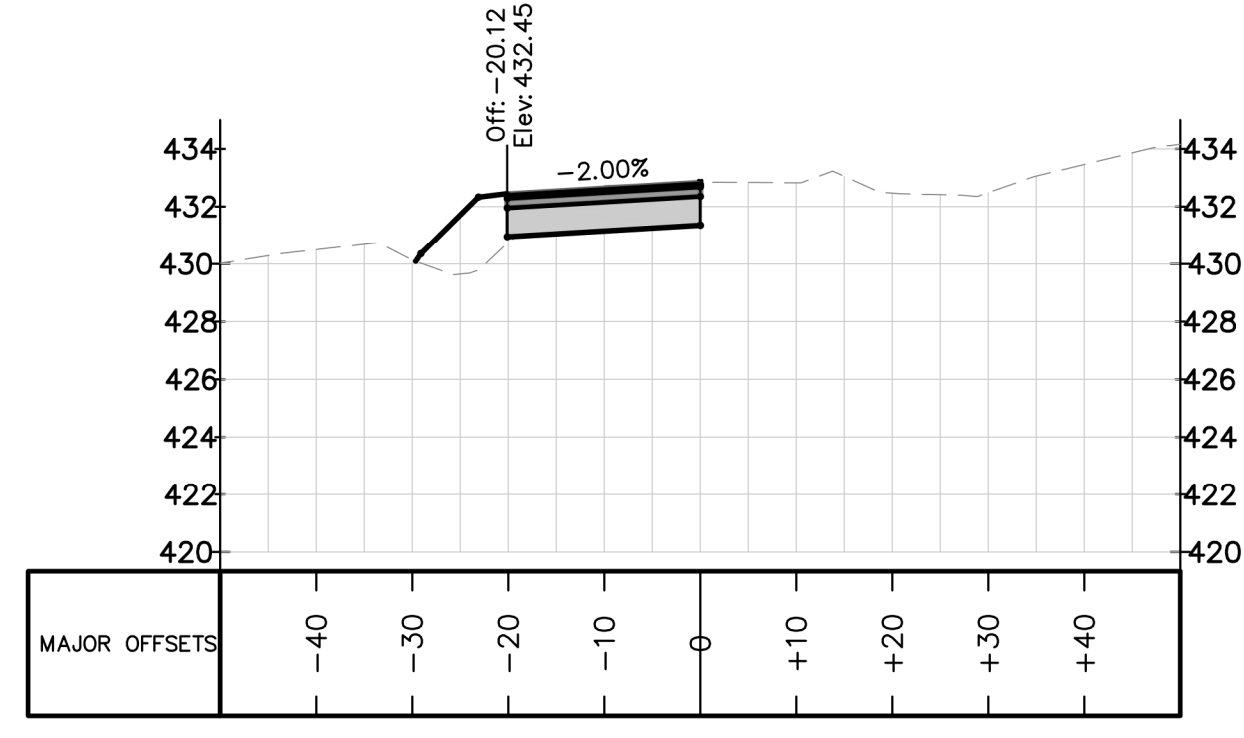
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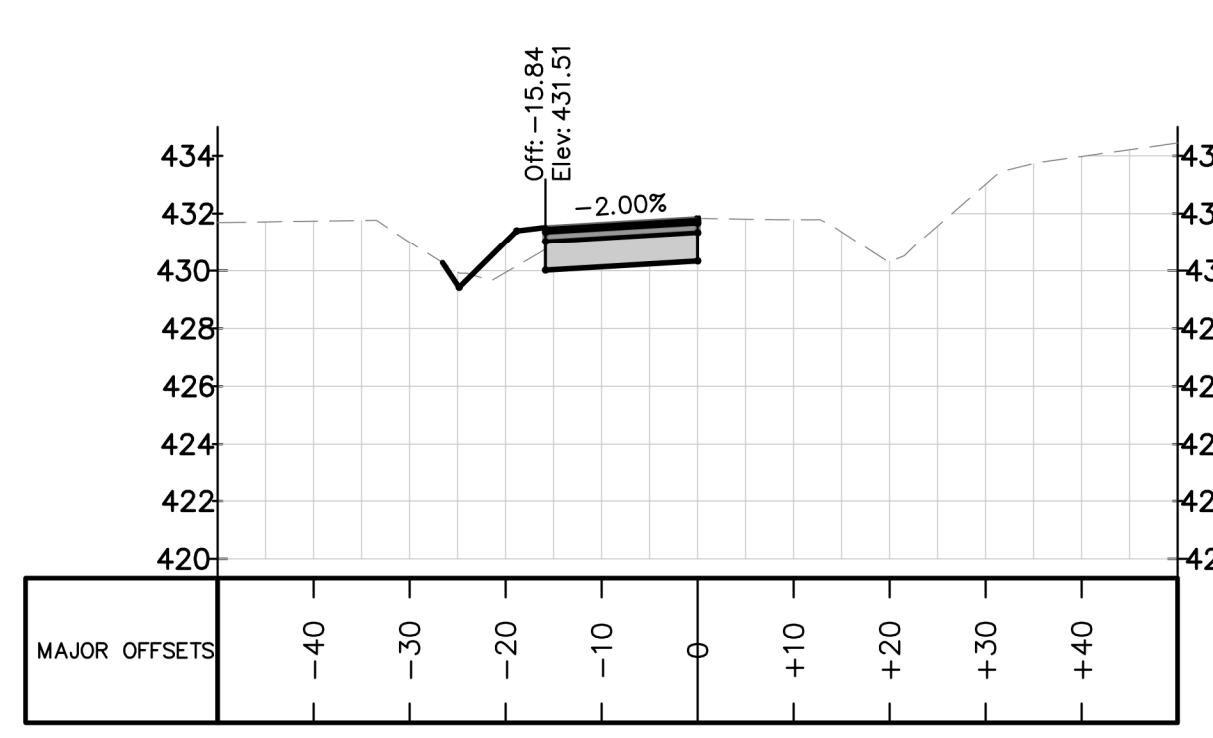
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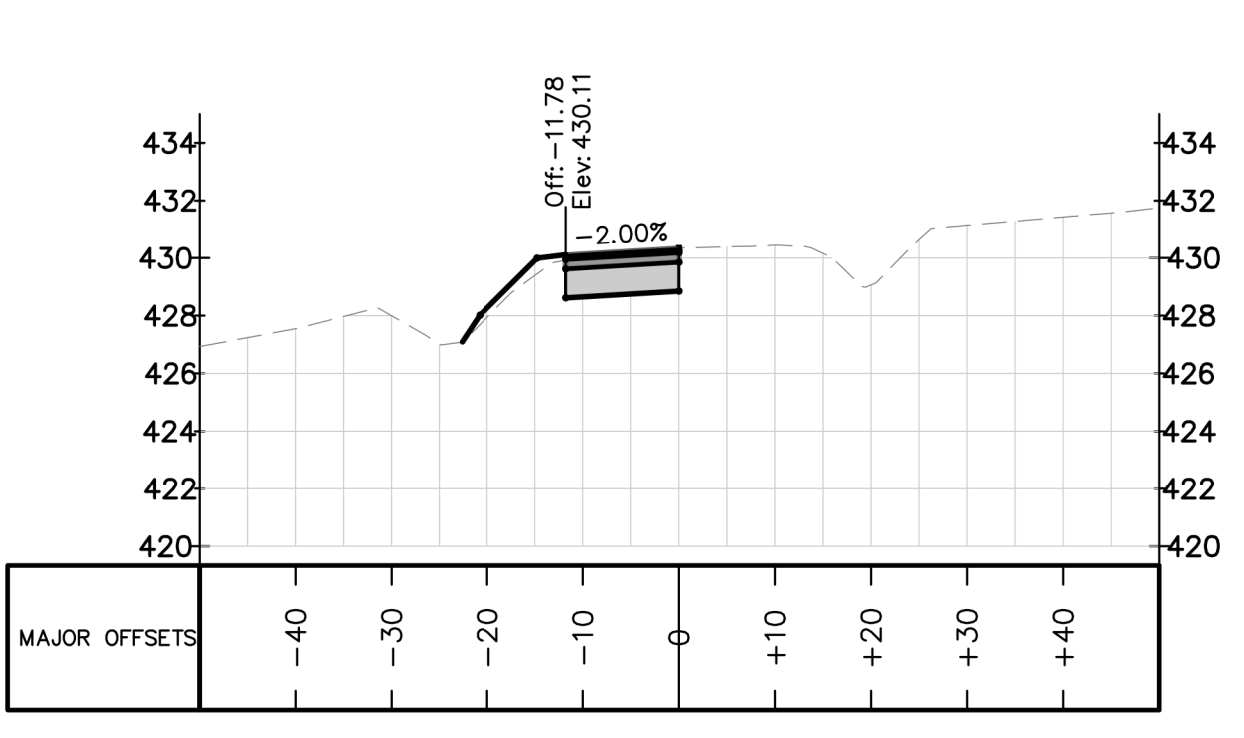
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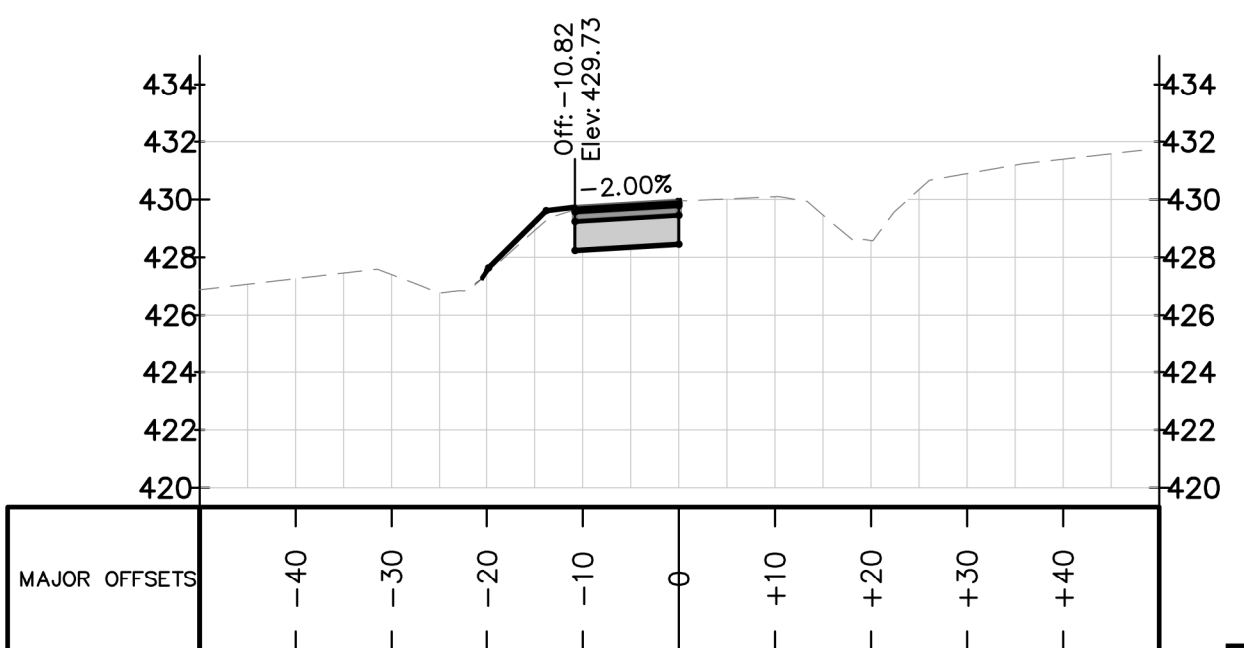
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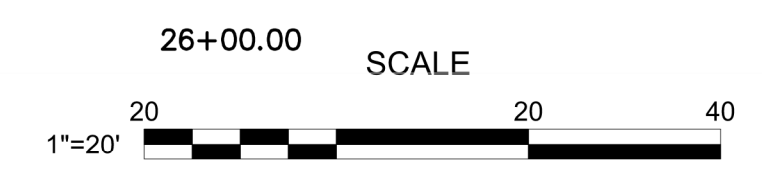
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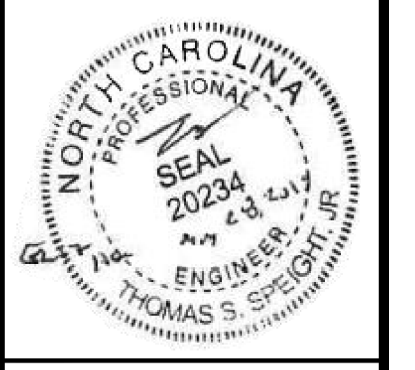
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26+00.00



REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



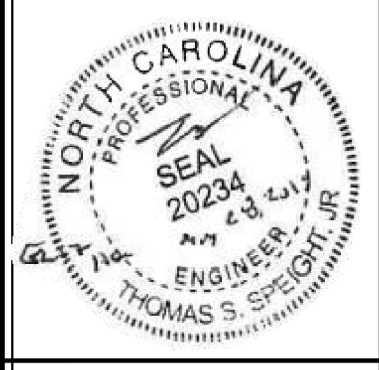
Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.677.1080 Fax: 919.677.1081
 NGBELS FRM No. C-2376

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

AVERETTE ROAD
CROSS SECTIONS

Project Engineer:	TSS
Designed By:	RAJ
Drawn By:	RAJ
Checked By:	TSS
Scale:	NTS
Date:	07/31/2019
Project Number:	.170348
SHEET	
C712	
OF:	---

ELIZABETH HEIGHTS



Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
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 NGBELS FRM No. C-2376



ELIZABETH HEIGHTS
 CONSTRUCTION DRAWINGS
 1205 AVERETTE ROAD
 WAKE FOREST, NC 27687
 WAKE COUNTY, NC

WATER DETAILS

Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS
 Date: 07/31/2019
 Project Number: 170348

SHEET
C801

TYPICAL TRENCH BOTTOM DIMENSIONS FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE.

NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BouldERS 4" OR LARGER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE 95% COMPACTION IN BACKFILL.

STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

NOTES:
 1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLLETSVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.

2 1/2" NATIONAL STANDARD OUTLET THREADS

NOTES:
 1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
 3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
 4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-8.
 6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AND AROUND CIRCUMFERENCE.

THRUST BLOCKING AT VALVES 16" AND LARGER

16" MAIN - 1 THRUST BLOCK REQUIRED, ON MAINS GREATER THAN 16" - 2 THRUST BLOCKS REQUIRED.

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	RRH	3-31-09	J.P.S.	10-29-10

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	R.W.C.	9-3-99		

BLOW OFF VALVE

NOTES:
 1. DRILL 1/4" WEEP HOLE FOR STACK DRAINAGE INTO STONE.
 2. DOUBLE 3/4" BRIDLE RODS ON BOTH SIDES.
 3. A RIP-RAP SWALE FROM CONCRETE SPLASH PAD TO POSITIVE DRAINAGE AREA IS REQUIRED.
 4. BOTTOM 90° ELBOW SHALL HAVE BLIND FLANGE ATTACHED WITH TWO BOLTS.
 5. INSTALL WATER MAIN MARKER AT R/W OR P/L TO LOCATE MAIN.
 6. 3/4" RODS AND BOLTS TO BE HOT DIPPED GALVANIZED.
 7. END PIPE SIZE 6" MIN. OR AS APPROVED BY PUBLIC UTILITIES.

STANDARD 3/4" x 1" WATER SERVICE METER BOX

NOTES:
 1. WATER METER AS MANUFACTURED BY SENSUS, OR SCHLUMBERGER.
 2. DIRECT TAP ALLOWED ON MAINS NO LARGER THAN 16" LINE.
 3. METER BOX TO BE LOCATED IN R/W ADJACENT TO PROPERTY OR IN APPROVED EASEMENT ADJACENT TO R/W.
 4. WHEN THE GRADE CHANGES ON EXISTING SERVICES, A COPPER RESETTER CAN BE USED TO ADJUST TO GRADE. COPPER RESETTERS ARE PROHIBITED ON NEW SERVICES.
 5. CURB STOP BOX SHALL HAVE PLUG STYLE LID WITH PENTAGON BOLT, 1-1/4" STEEL UPPER SECTION, AND ARCH STYLE BASE. STEEL STATIONARY ROD TO BE PROVIDED FOR CURB STOP OPERATION.

STANDARD METER BOX

THE BACKFLOW PREVENTER LOCATION IS DEPENDENT ON THE TYPE DEVICE PROPOSED FOR USE AS FOLLOWS:

DEVICE	LOCATION	DEVICE	LOCATION
"A"	FORD ANGLE CHECK OR OTHER APPROVED DUAL CHECK VALVES	"A"	BACKFLOW PREVENTION SHALL BE DETERMINED BY OCCUPANCY & APPROVED BACKFLOW LIST.

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	RRH	3-31-09	J.P.S.	10-29-10

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-23	RRH	3-31-09	J.P.S.	11-14-10

VALVE BOX INSTALLATION AND EXTENSION DETAIL

NOTES:
 1. VALVE BOX NOT TO CONTACT WATER MAIN.
 2. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
 3. FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5'. EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
 4. TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

WATER METER BOX DETAIL

NOTES:
 1. COVER WEIGHT: 13 LBS +/- 5%.
 2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING.
 3. HOLE SHALL BE FITTED WITH A METAL GROMMET.

STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

NOTES:
 1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. SEE STANDARD REACTION BLOCK TABLES W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

ROD REQUIREMENTS

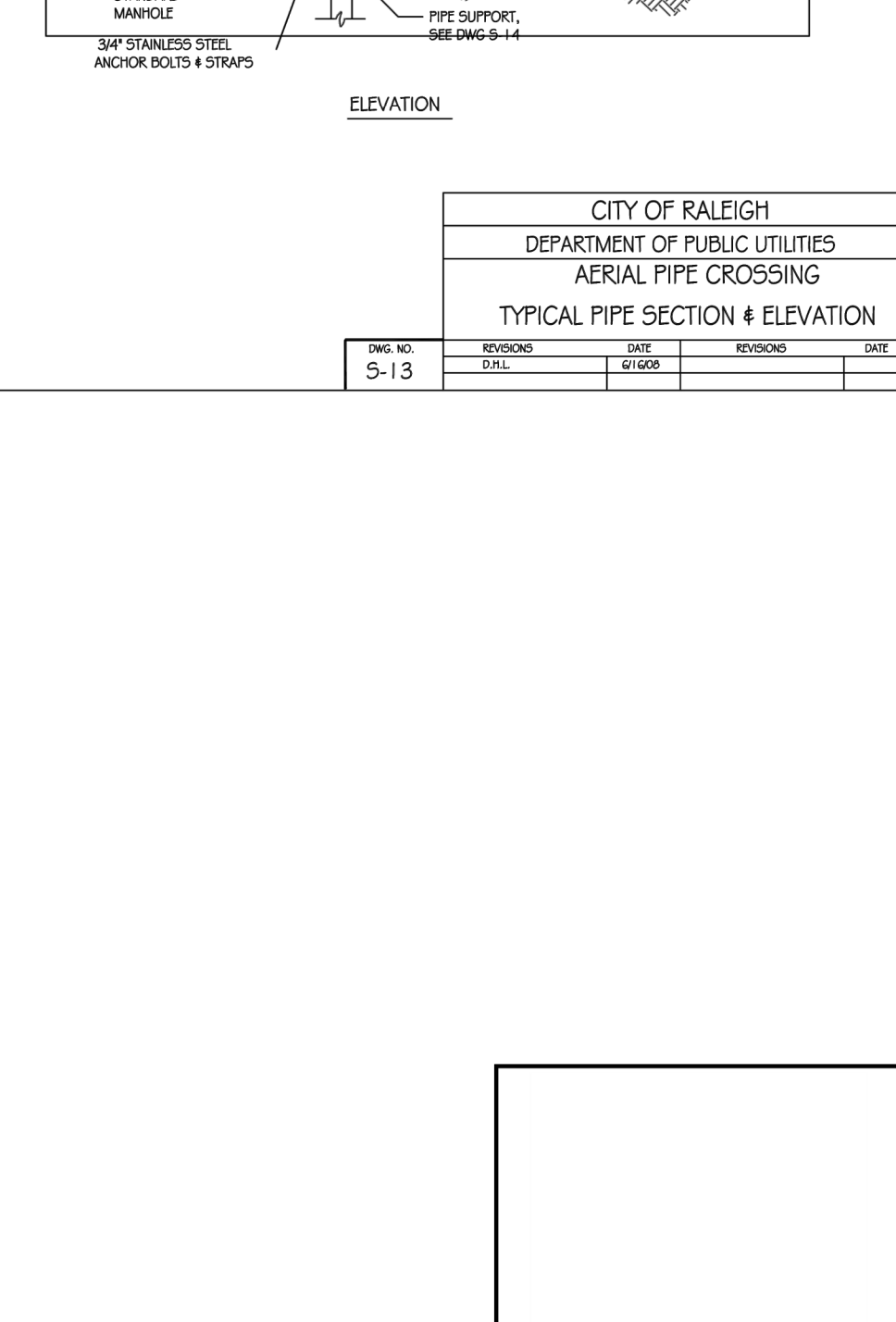
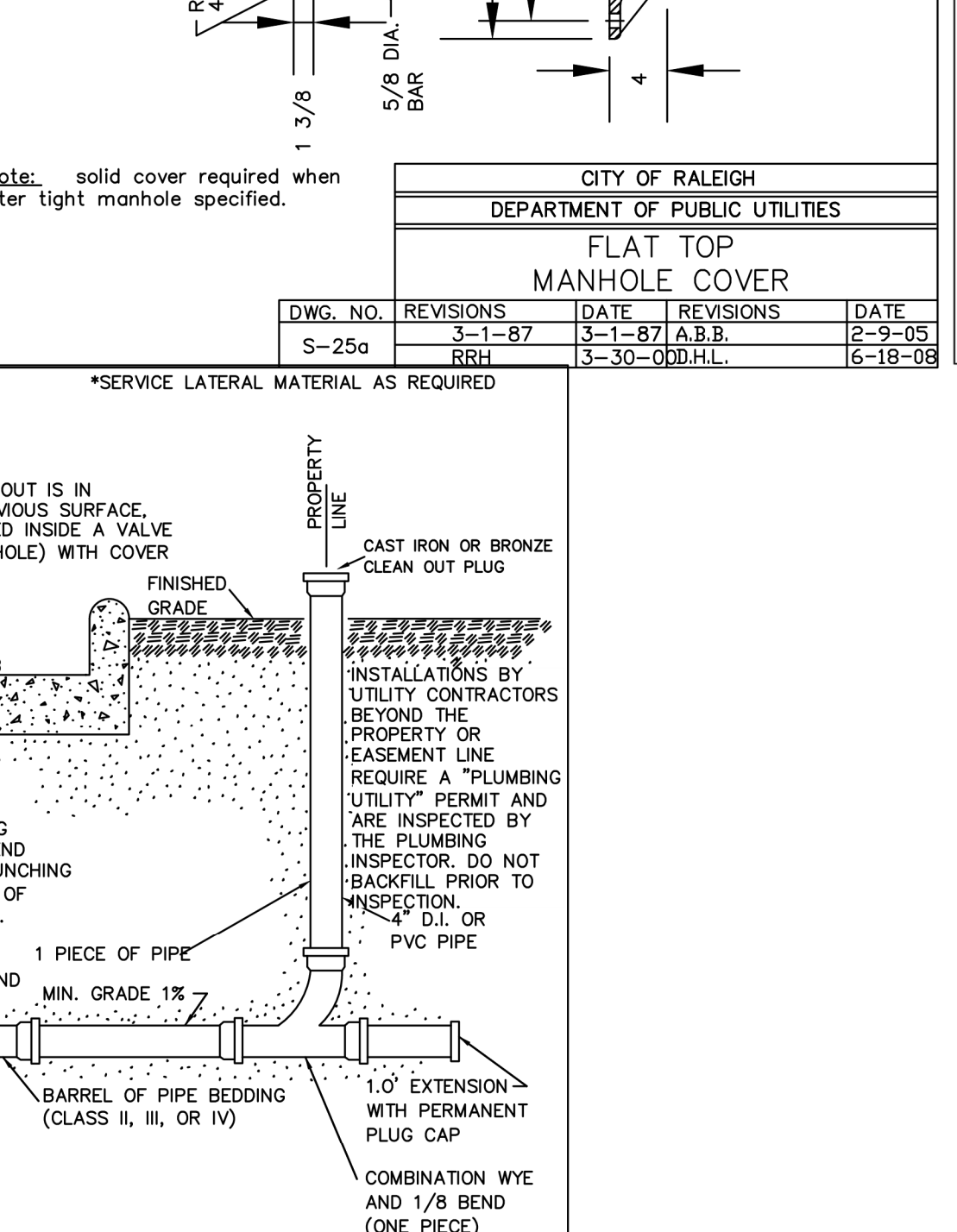
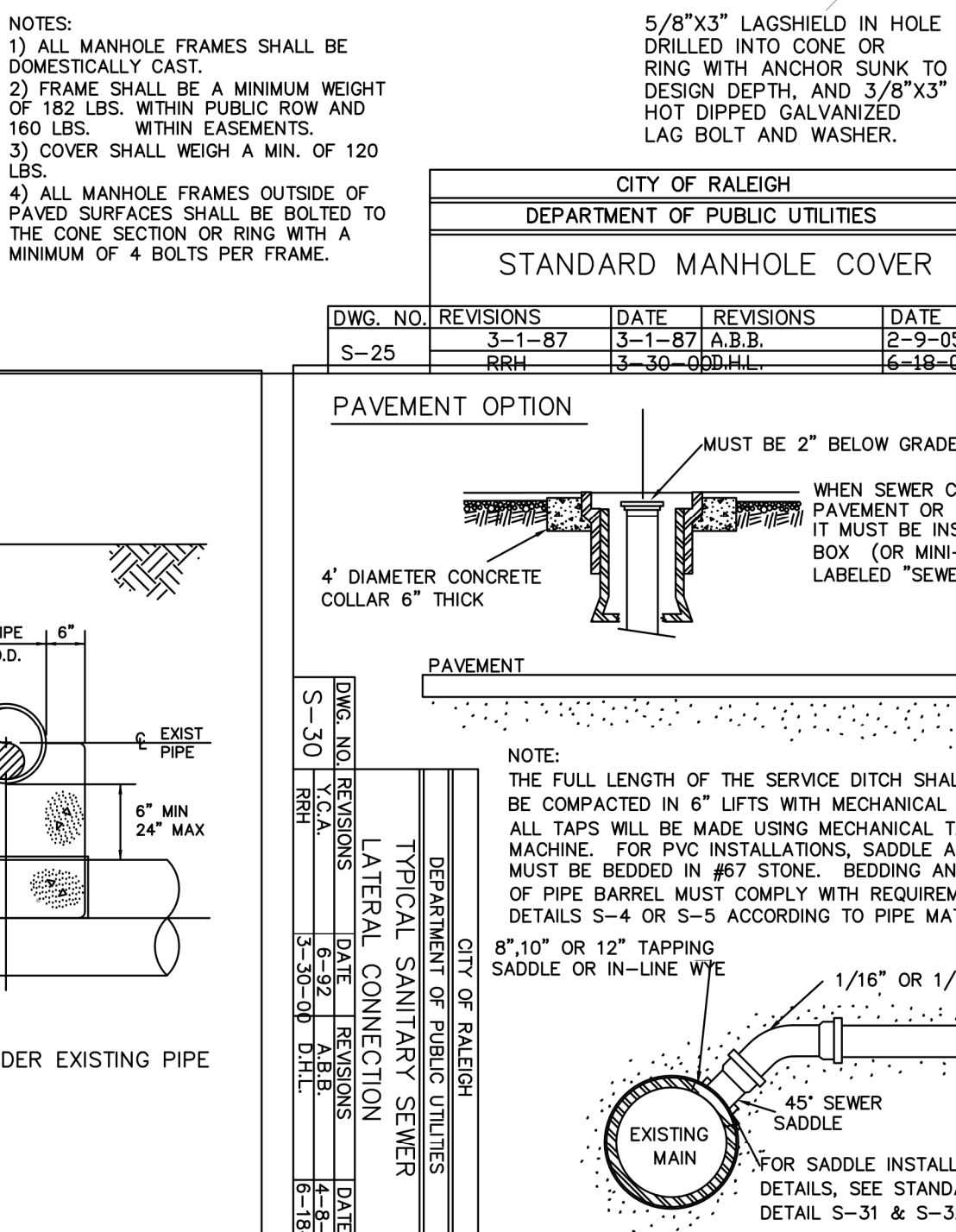
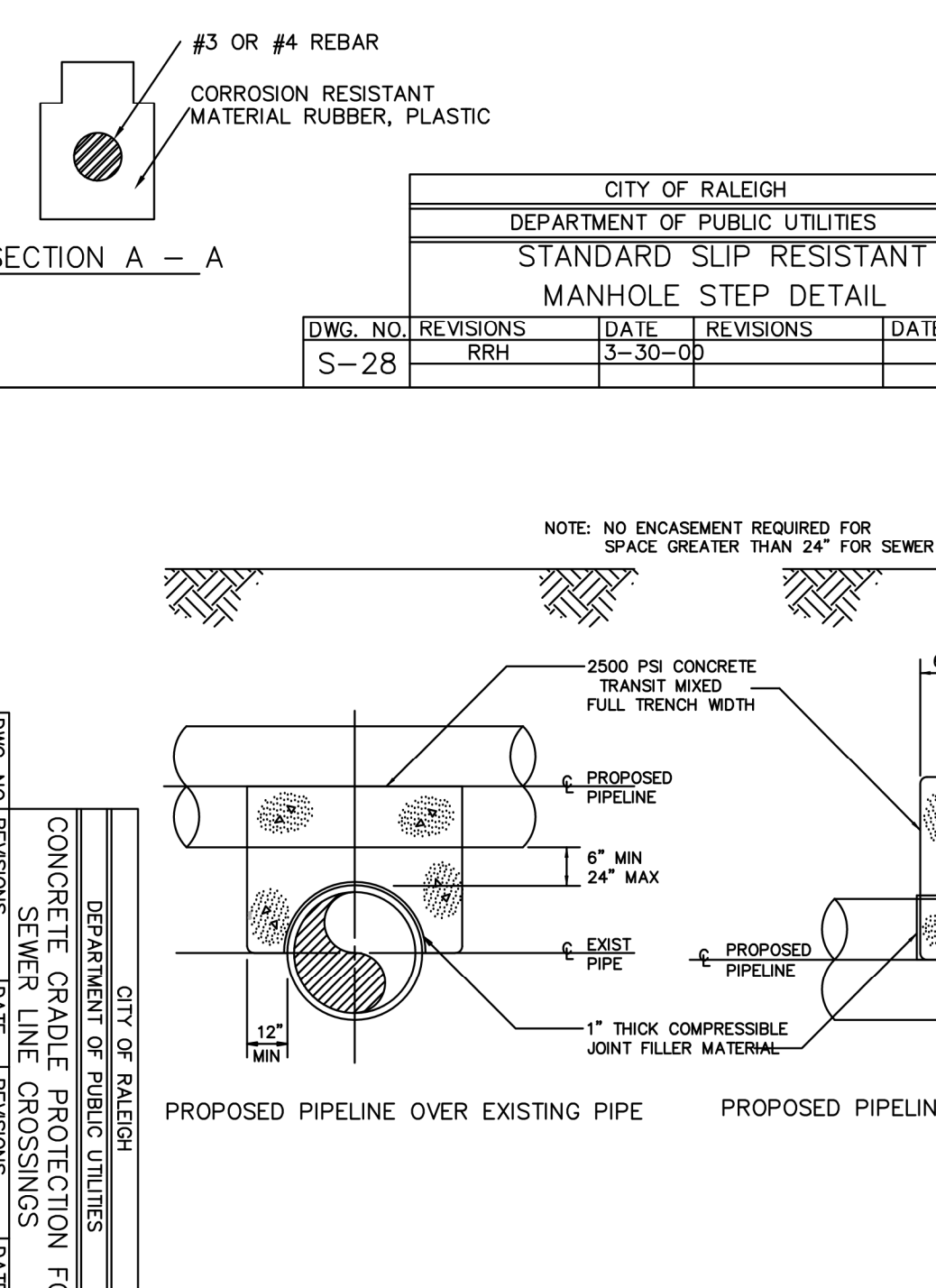
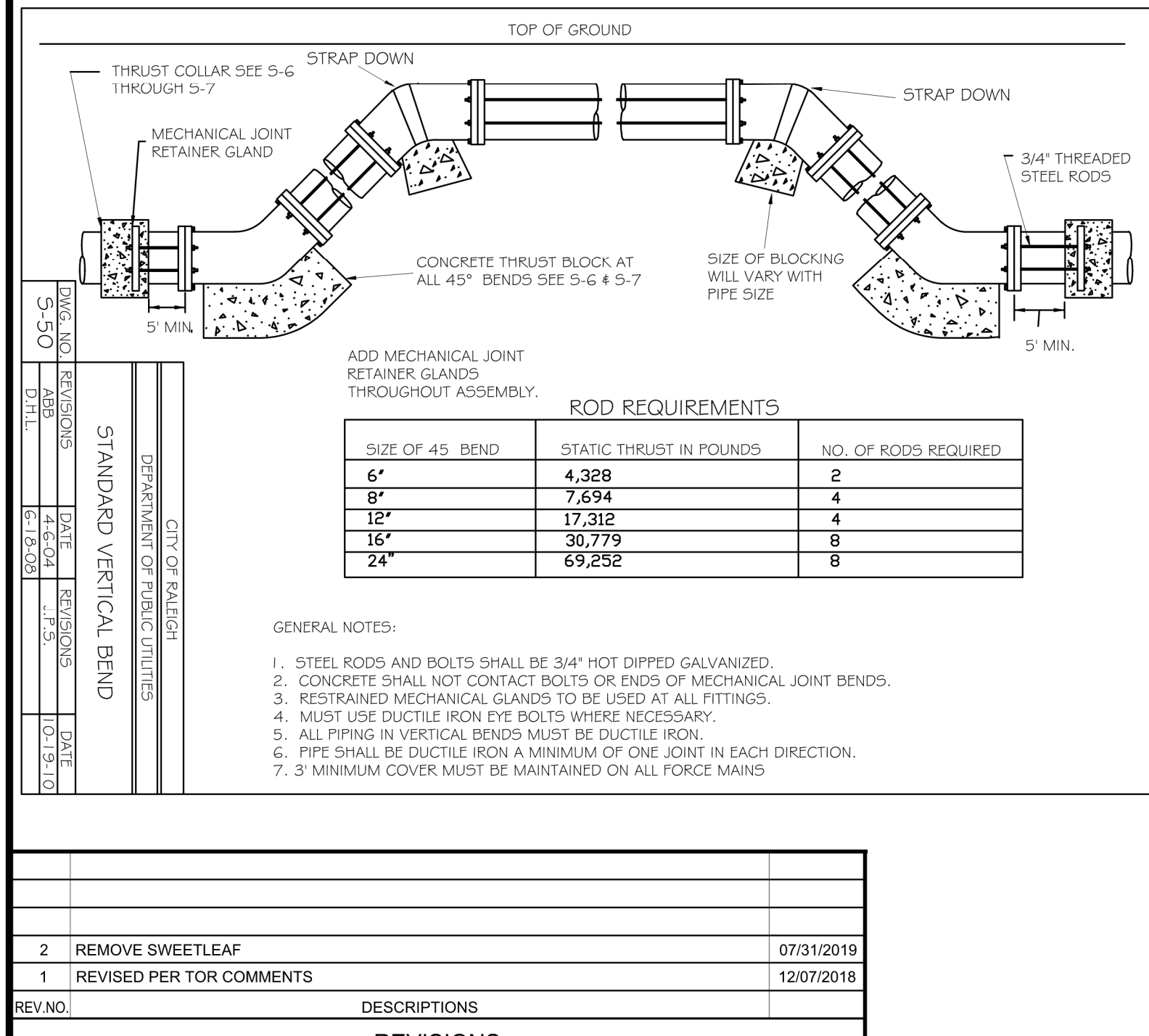
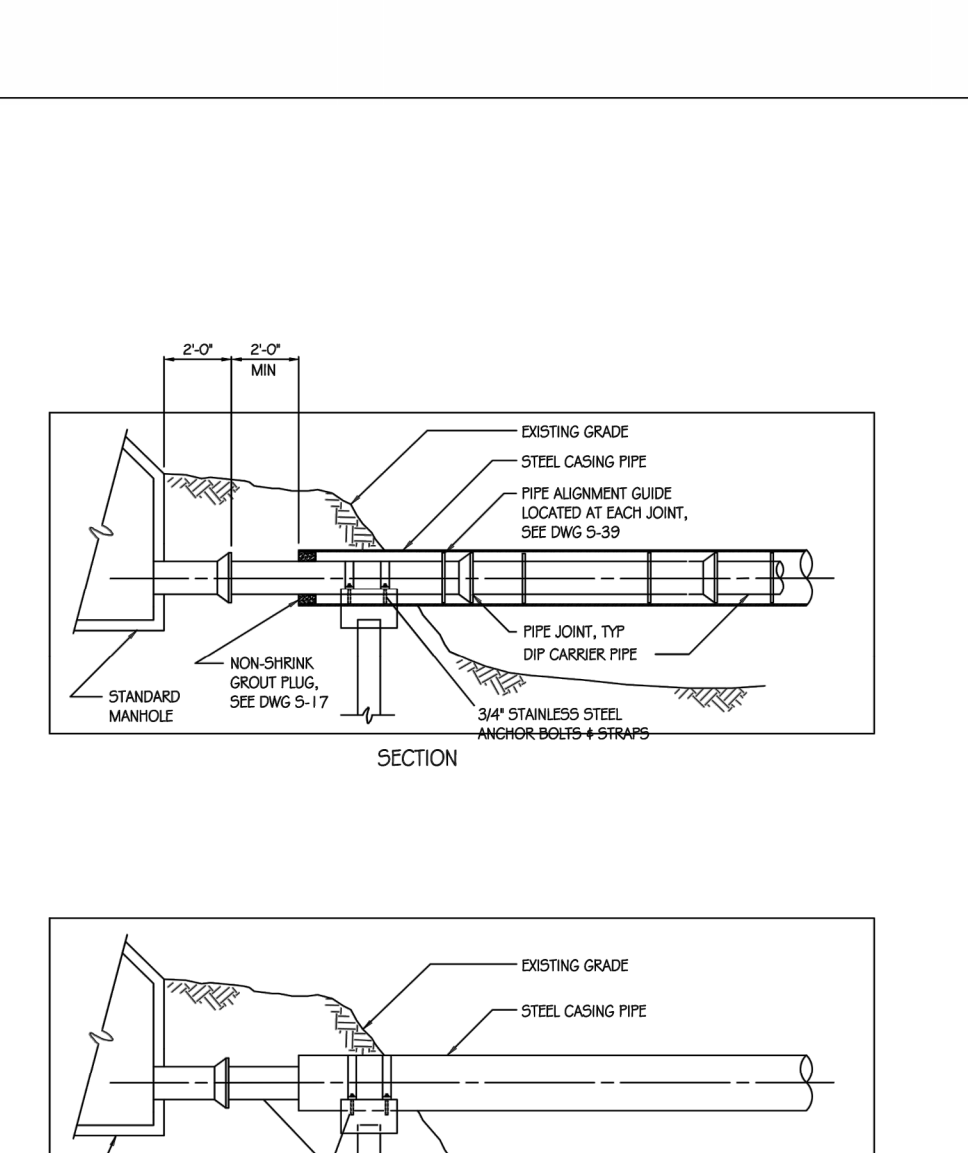
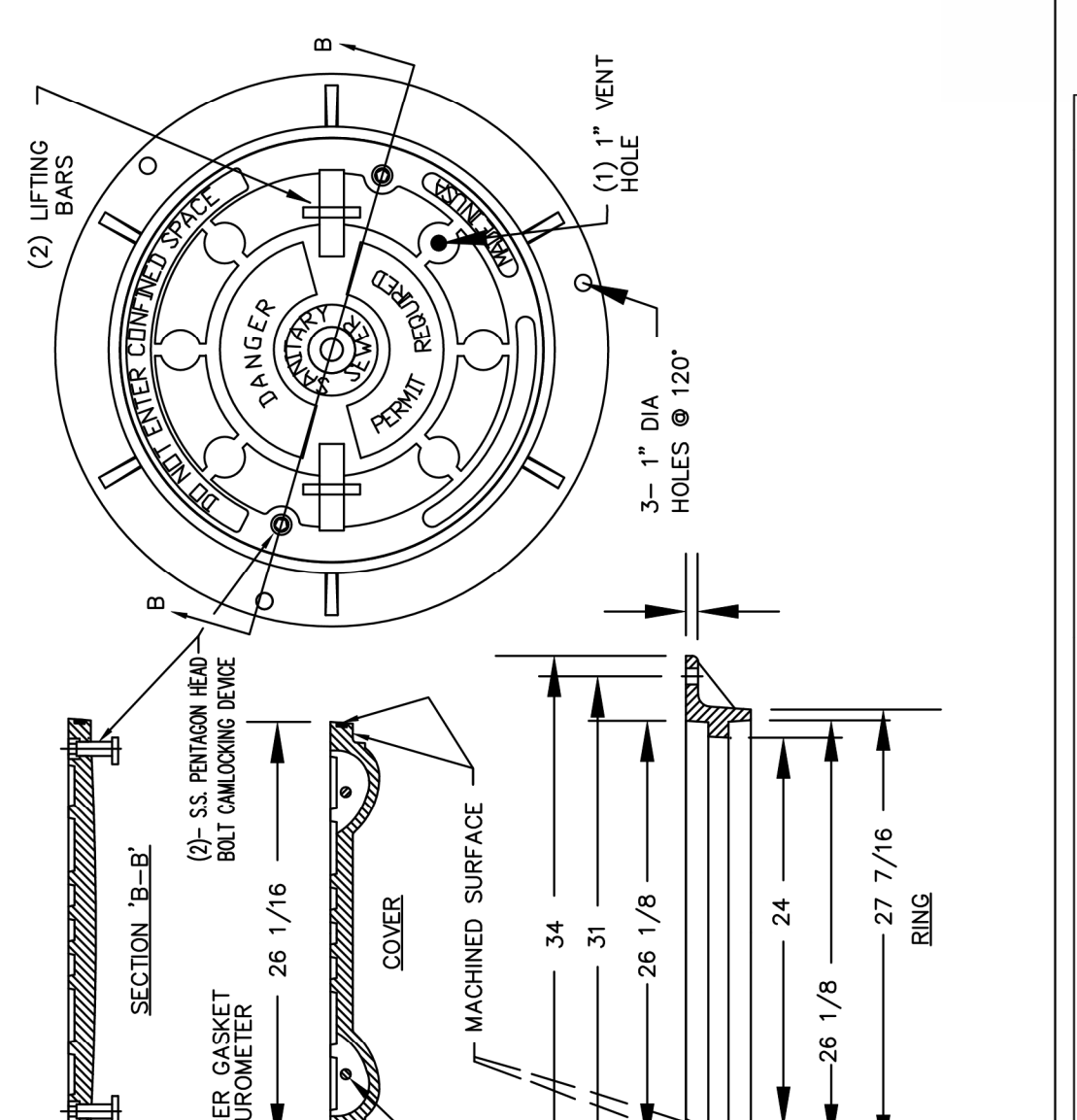
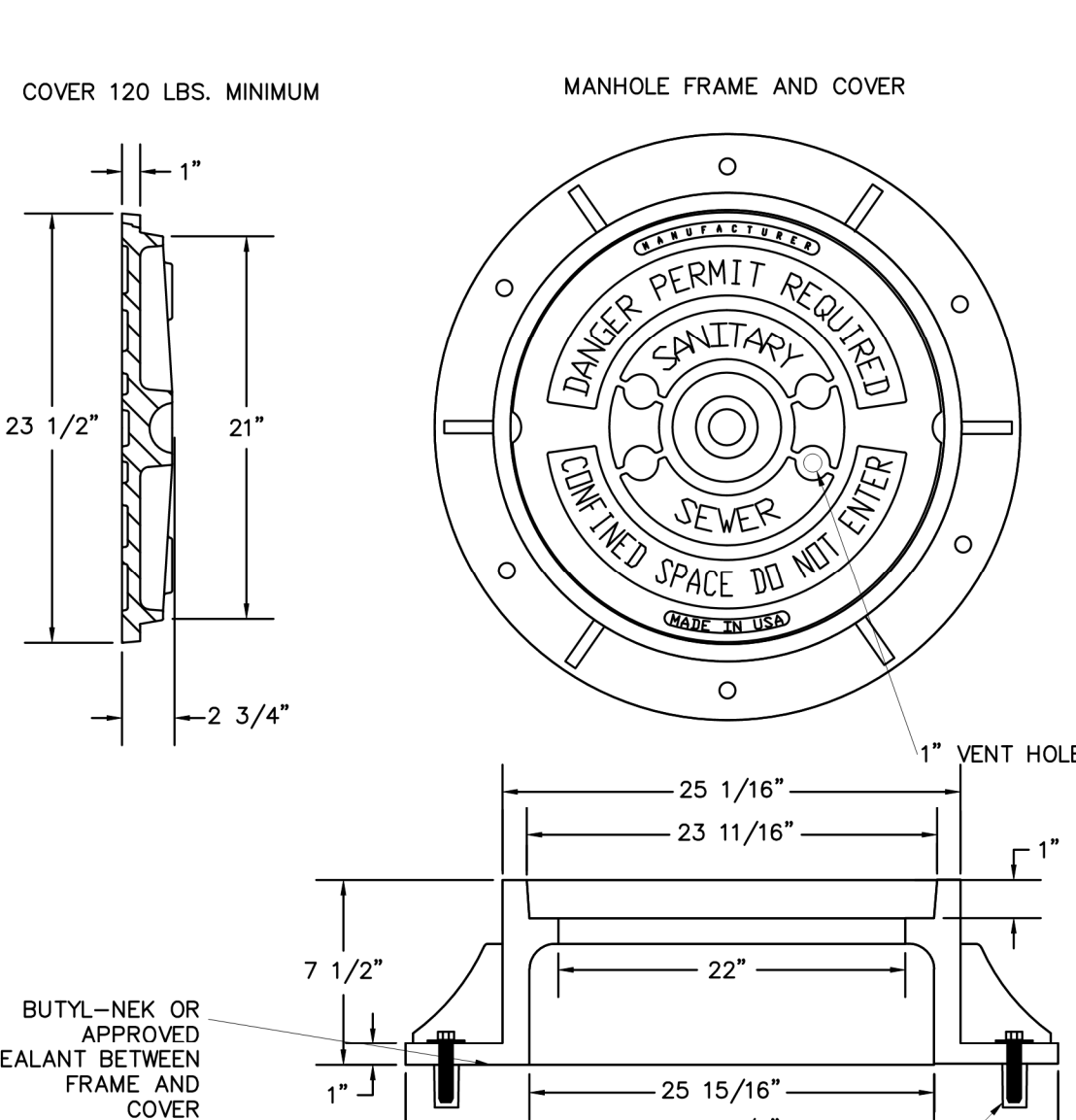
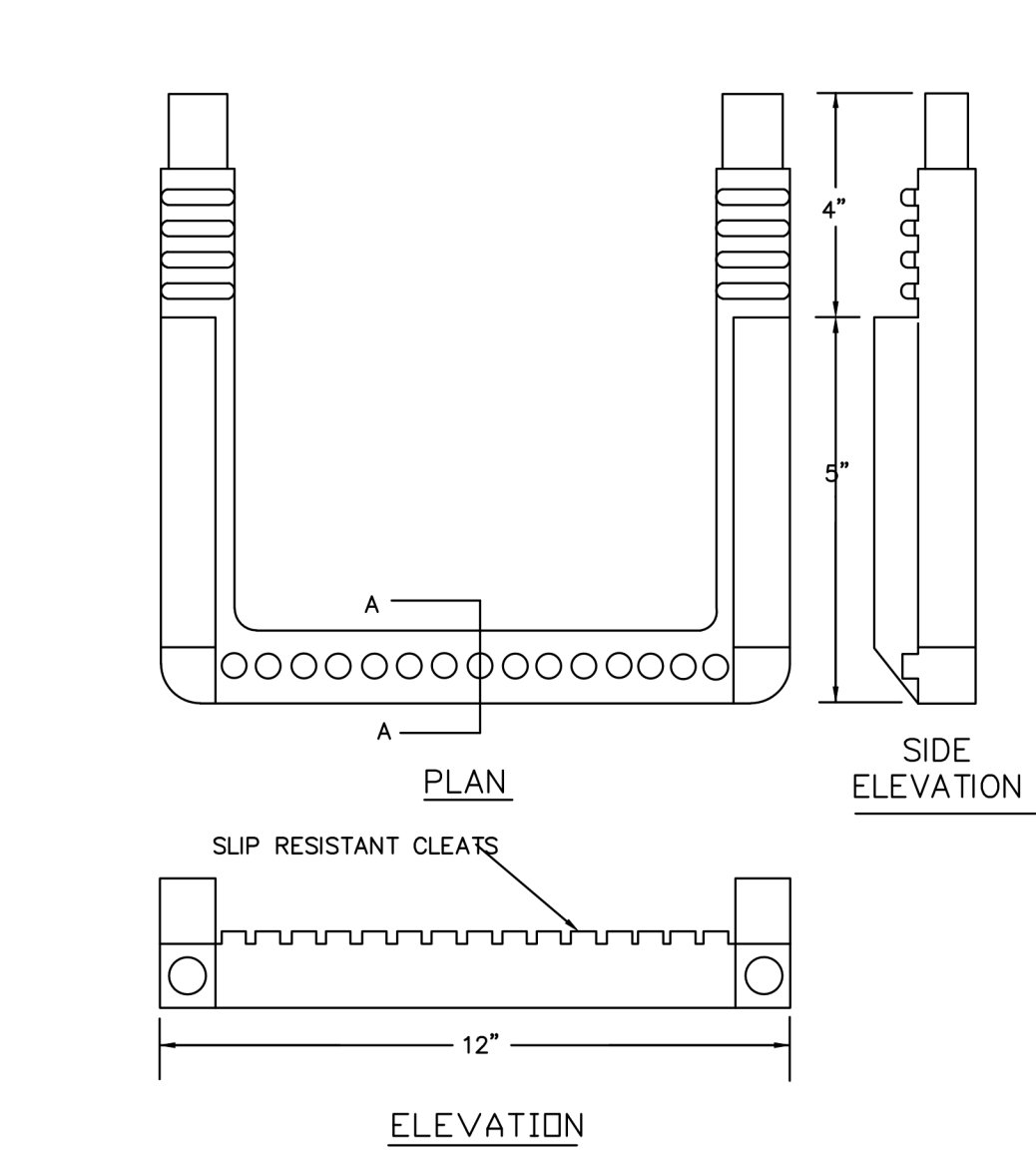
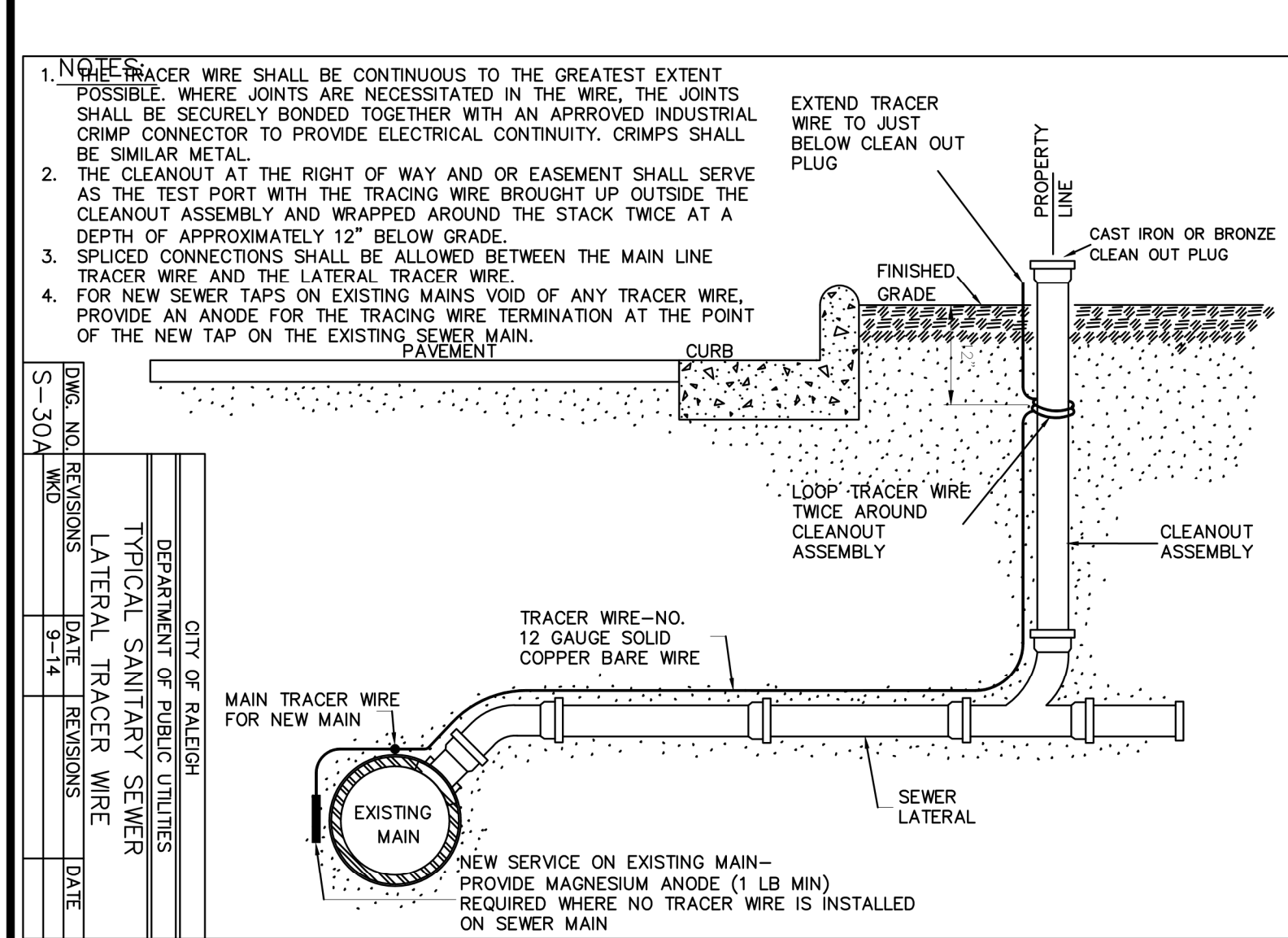
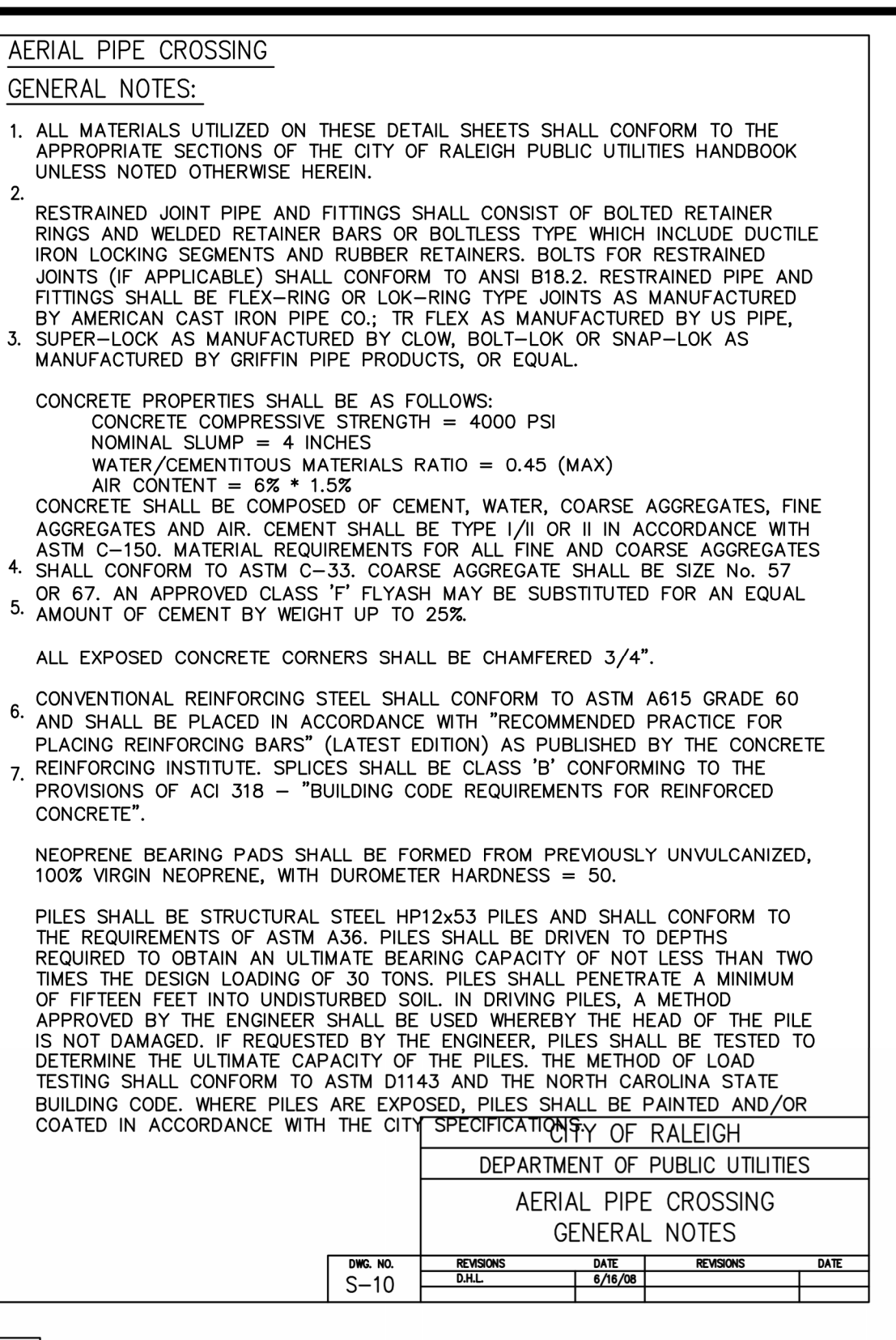
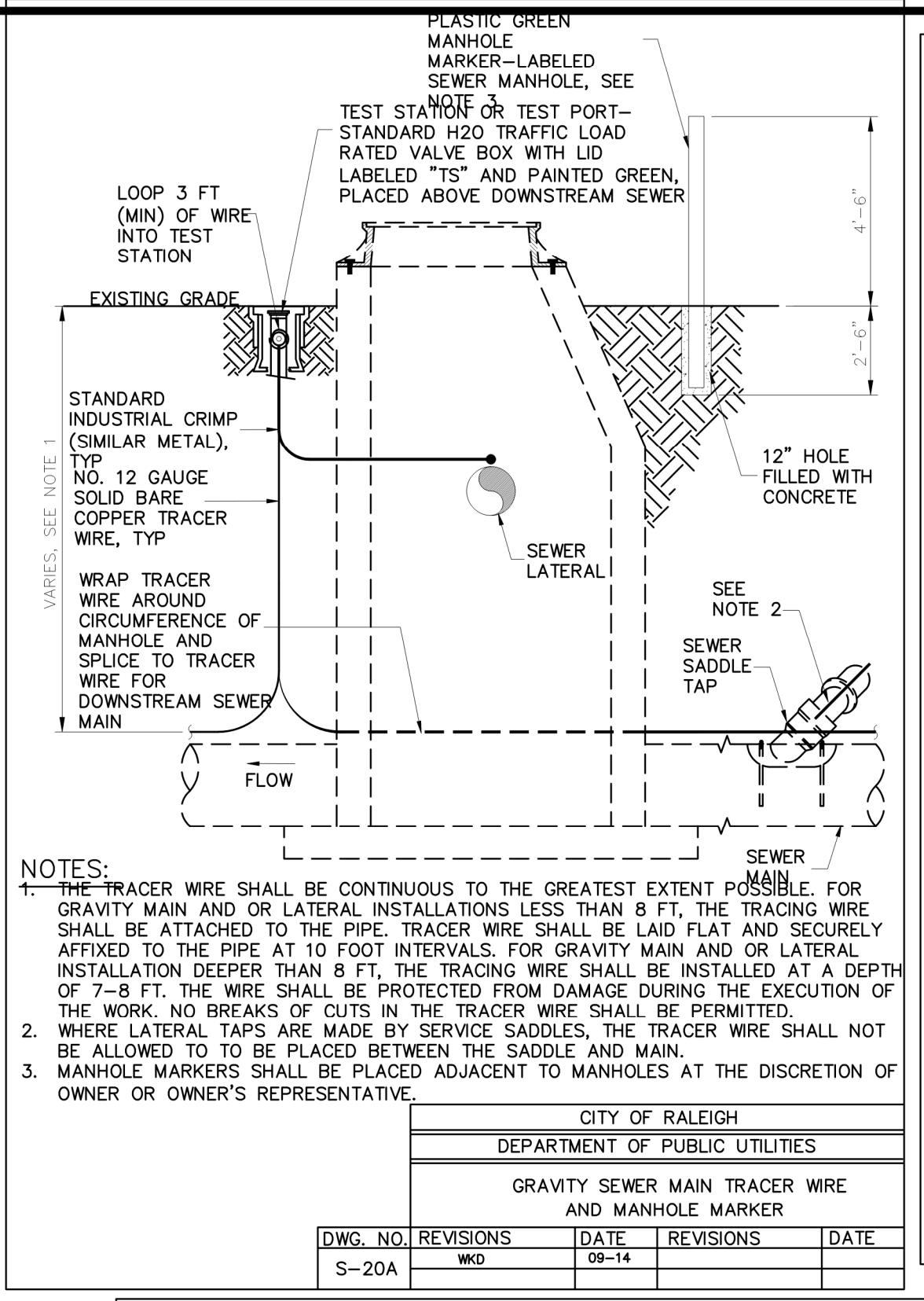
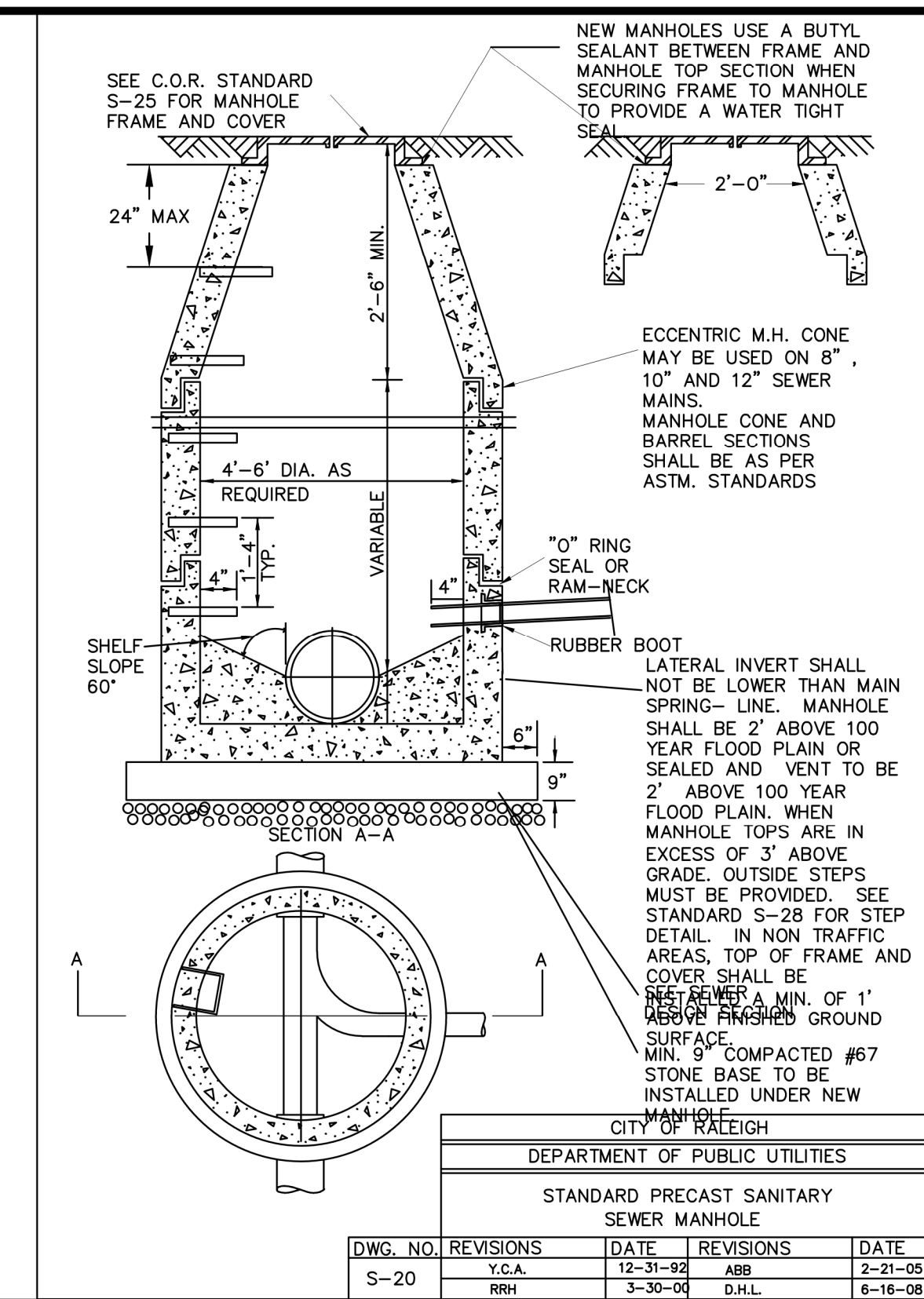
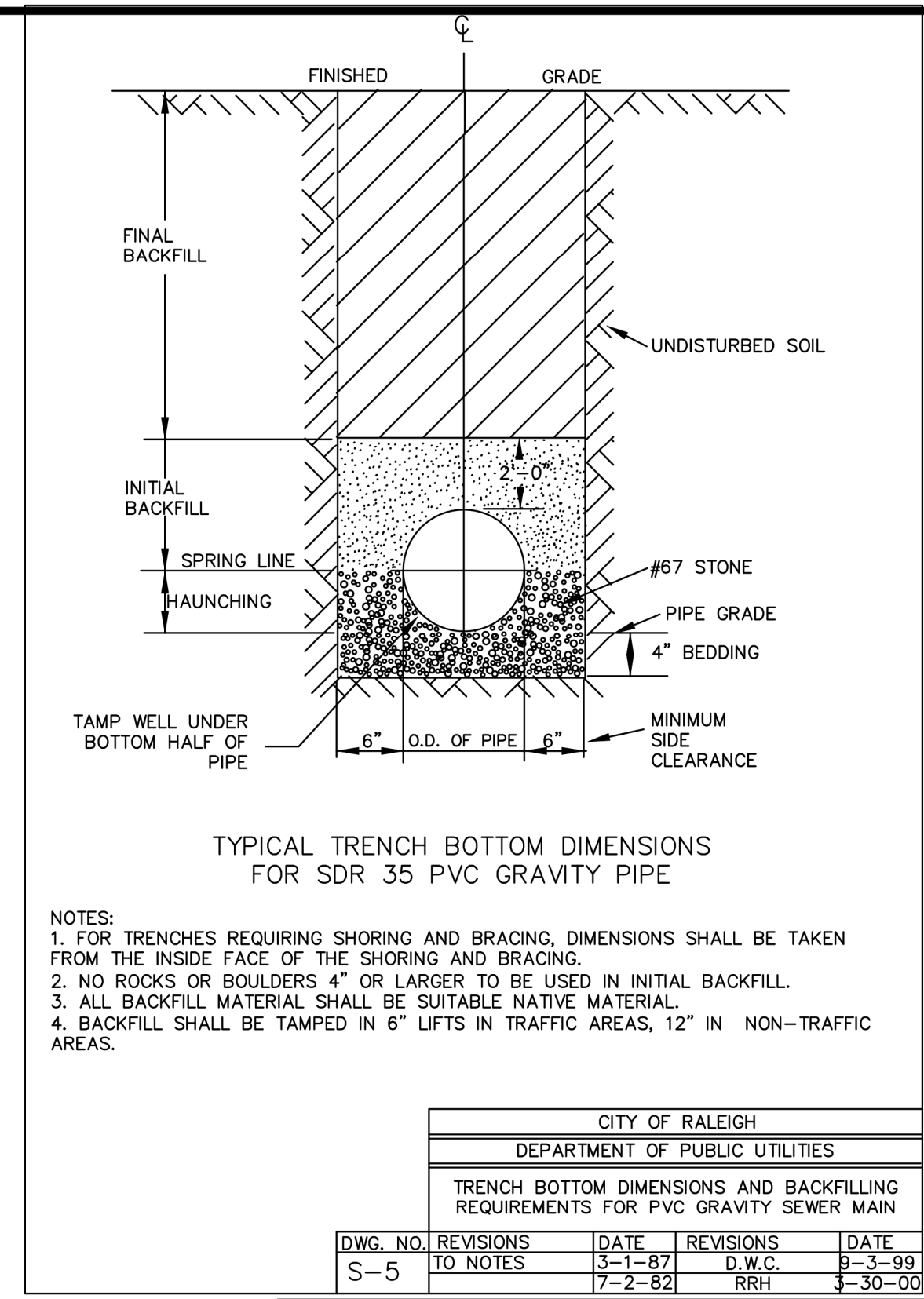
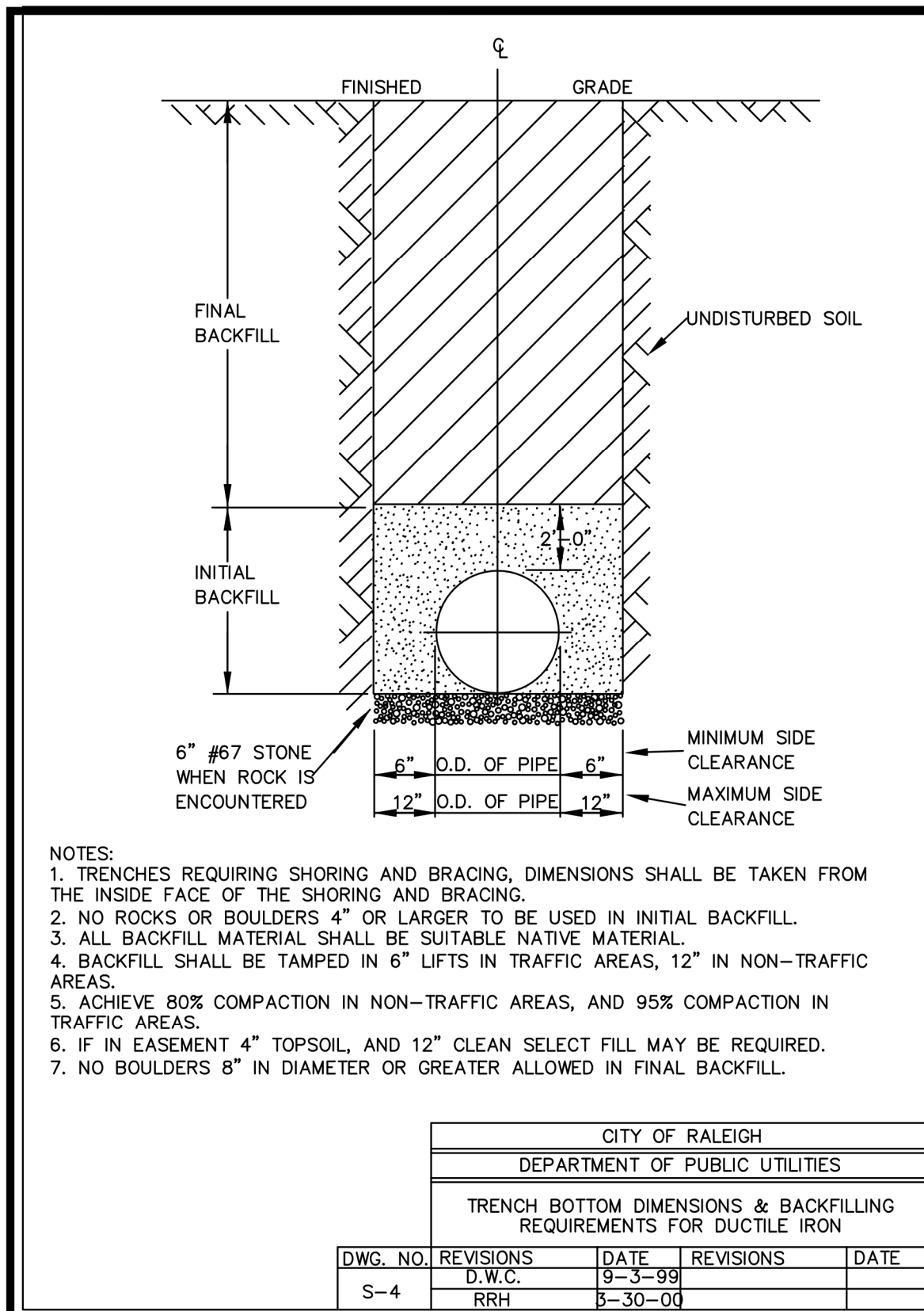
SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

GENERAL NOTES:
 1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
 3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
 5. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
	RRH	3-31-09	J.P.S.	10-29-10

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25	D.W.C.	11-3-99	RRH	1-20-00
	RRH	12-31-09	J.P.S.	11-4-10

REV. NO.	REVISIONS	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF		07/31/2019
1	REVISED PER TOR COMMENTS		12/07/2018



REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
CONCRETE GRADE PROTECTION FOR LATERAL CONNECTION			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-49	RRH	7-2-00	

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
PAVEMENT OPTION			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-20	RRH	3-30-00	

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
FLAT TOP MANHOLE COVER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-25a	RRH	3-1-87	A.B.B.
	RRH	3-30-00	D.H.L.
		6-18-08	

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
TYPICAL PIPE SECTION & ELEVATION			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-13	D.H.L.	07/08	

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 2524 Reliance Avenue, Apex, North Carolina 27539
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 NGBELS FRM No. C-2376

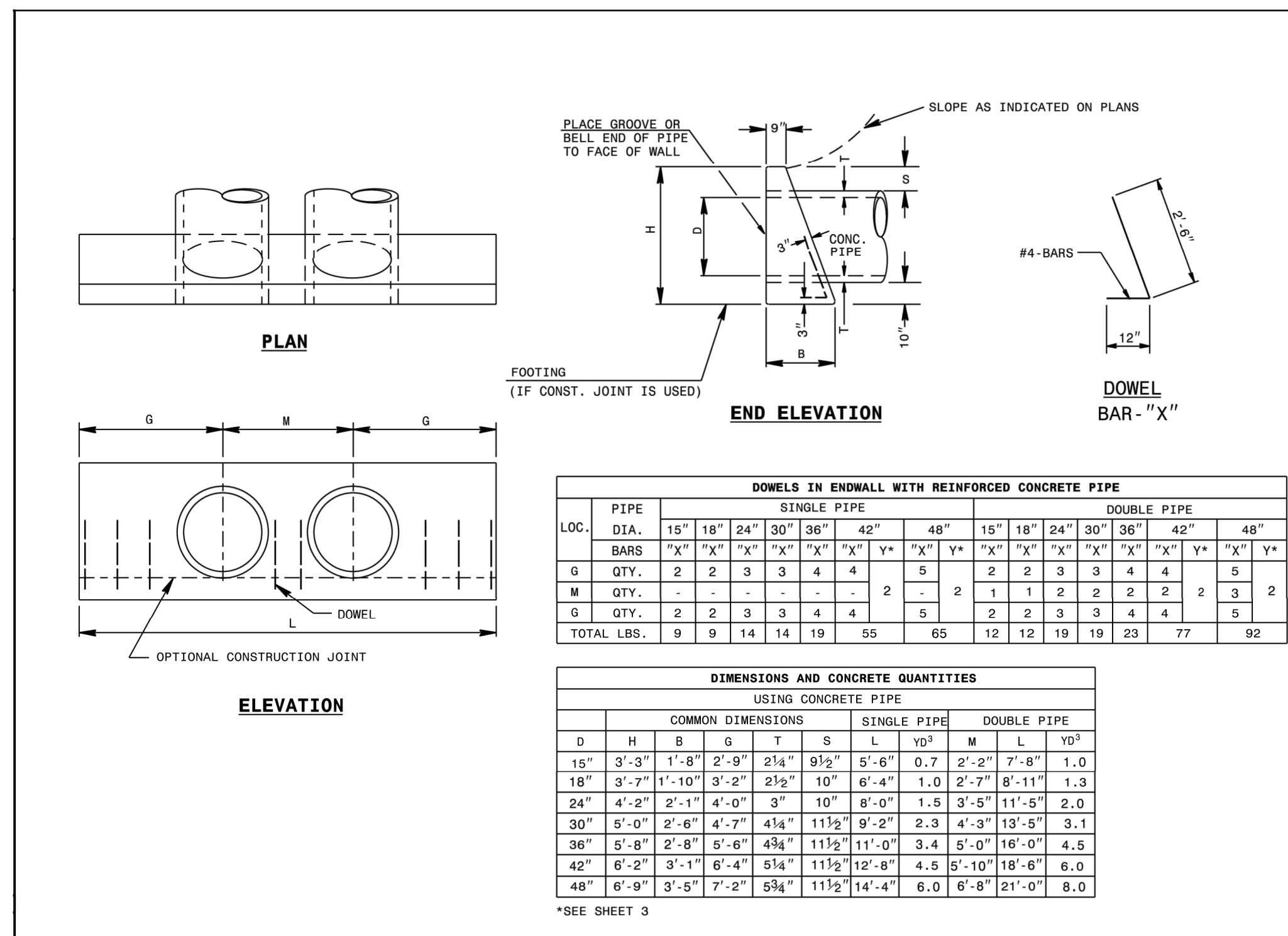
ELIZABETH HEIGHTS

CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
 WAKE FOREST, NC 27687
 WAKE COUNTY, NC

Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS
 Date: 07/31/2019
 Project Number: .170348

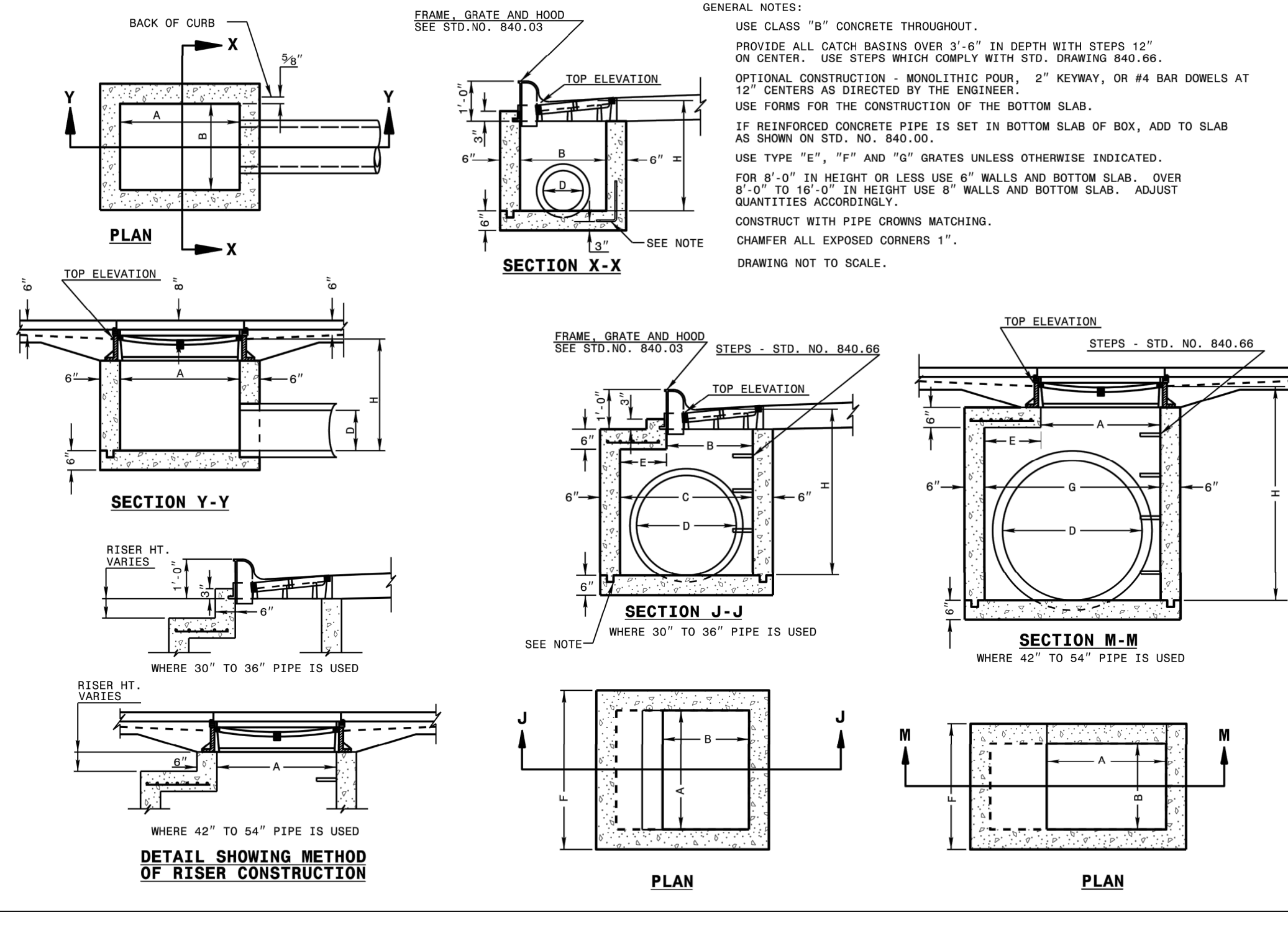
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
15" THRU 48" PIPE - 90° SKEW

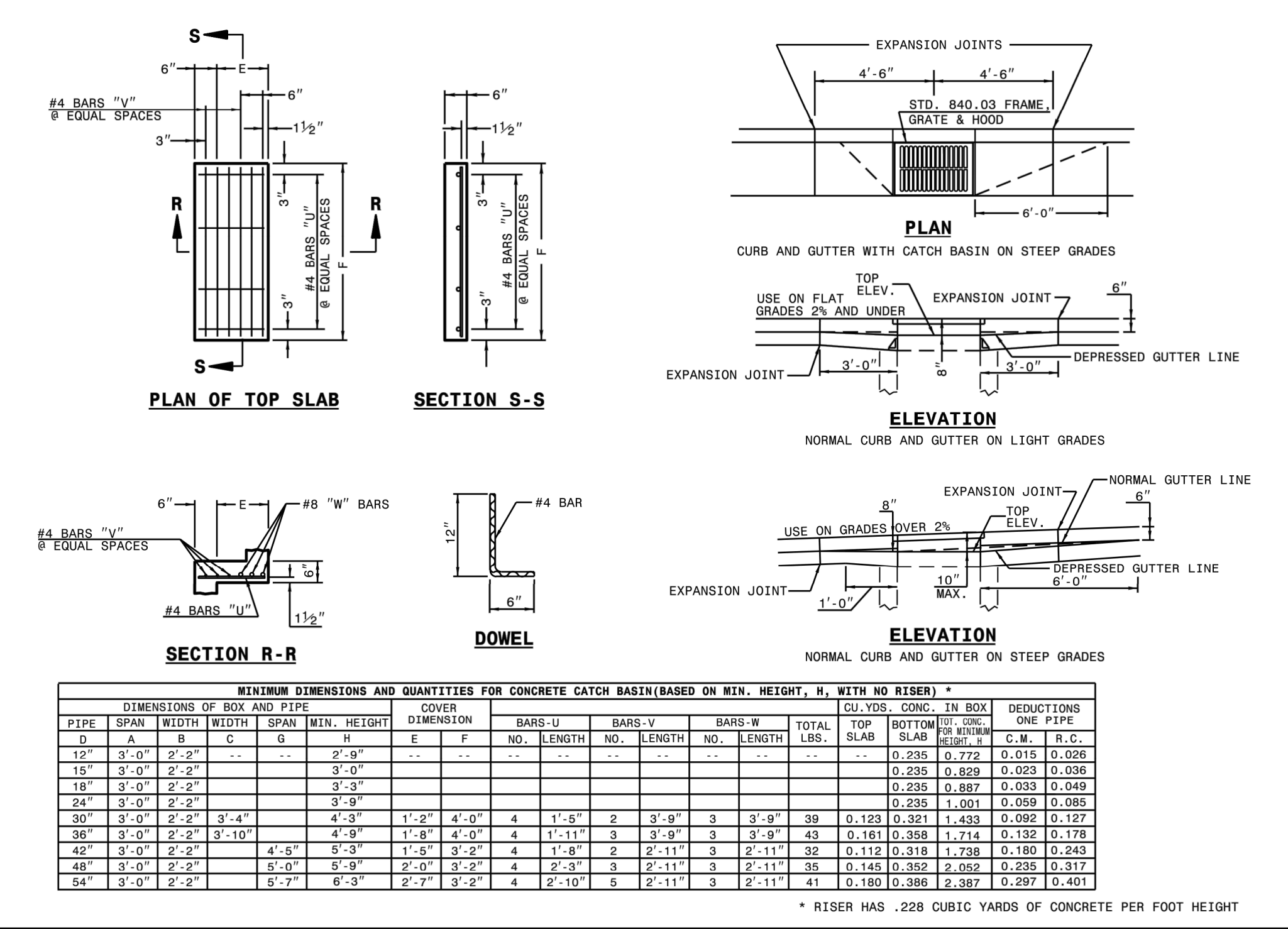
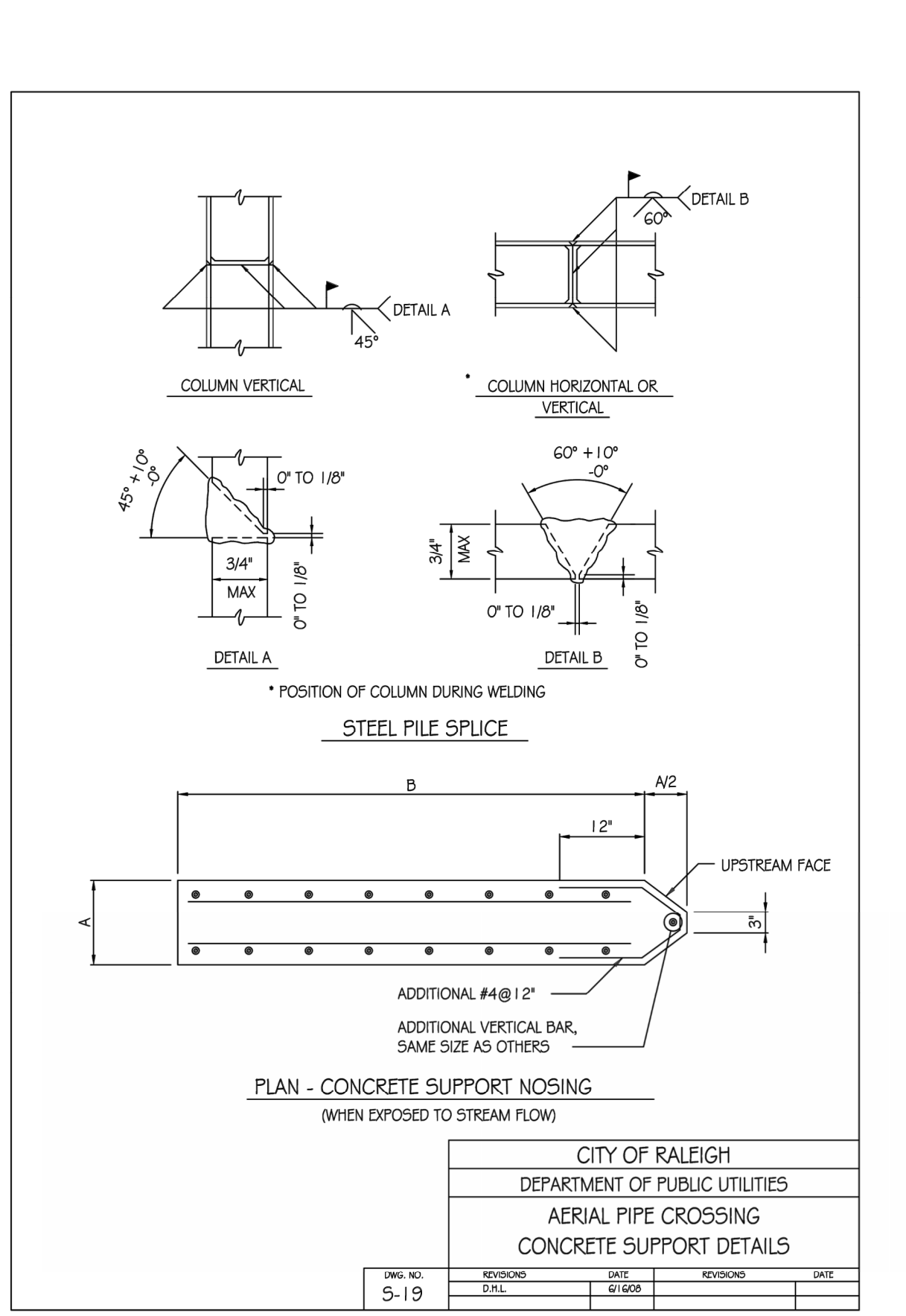
SHEET 1 OF 3
838.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

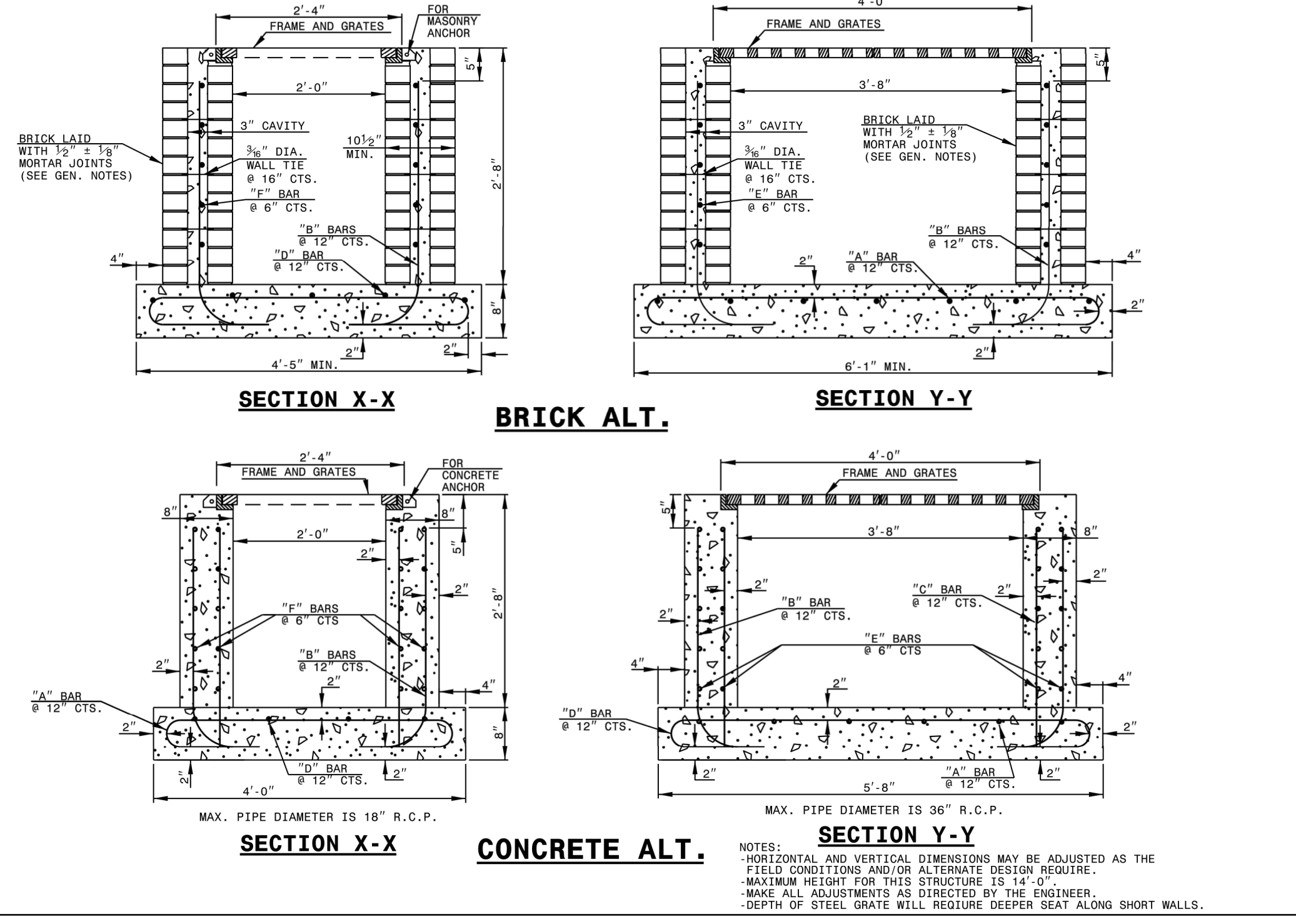
SHEET 1 OF 2
840.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

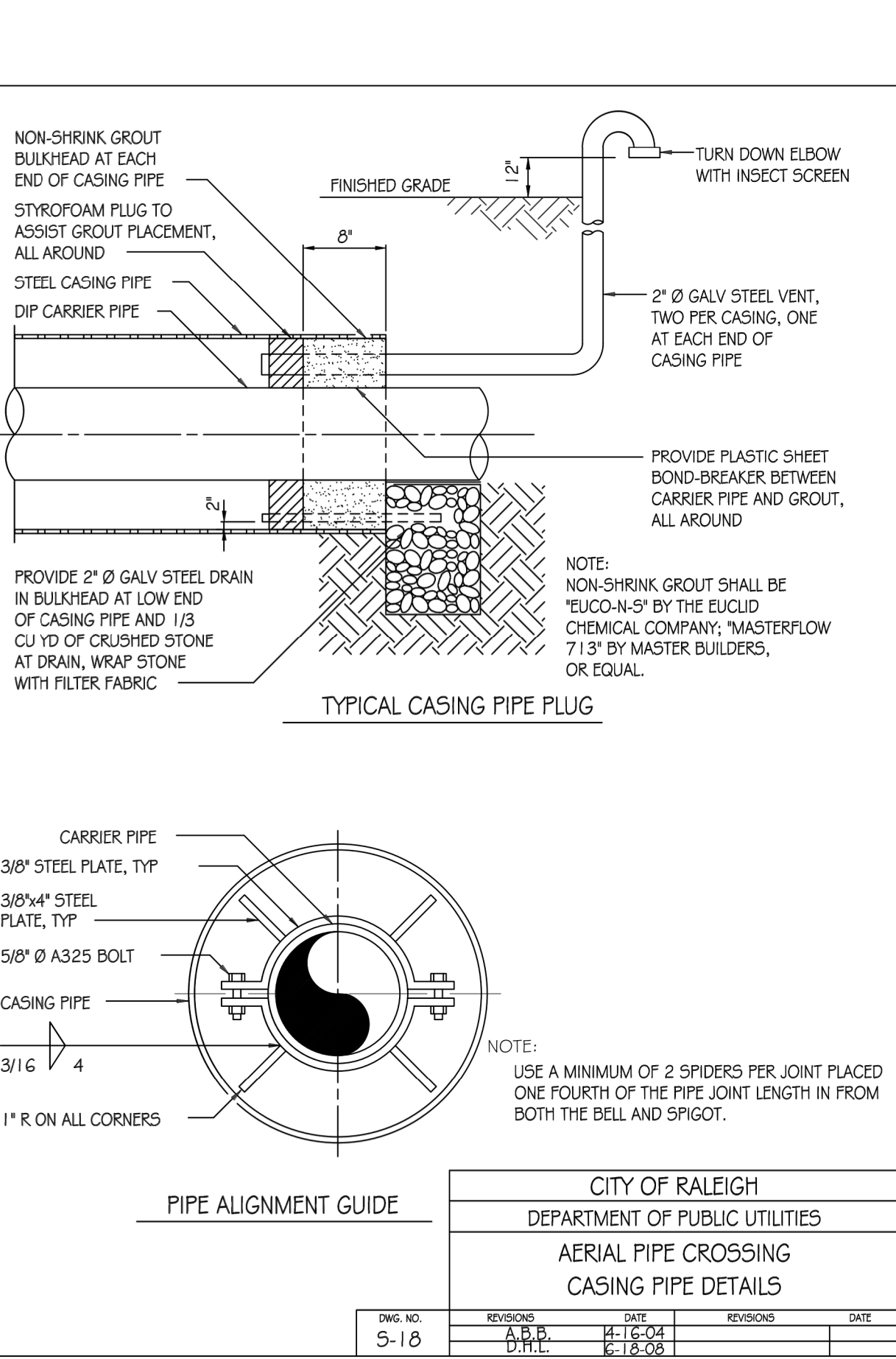
SHEET 2 OF 2
840.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ROADWAY STANDARD DRAWING FOR
TRAFFIC BEARING GRATED DROP INLET FOR CAST IRON DOUBLE FRAME AND GRATES

SHEET 1 OF 2
840.35



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NCEBS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

SEWER CONT. / STORM DETAILS

Project Engineer: TSS
Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS

Date: 07/31/2019
Project Number: .170348
SHEET
C803

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018

GENERAL NOTES:
 USE CLASS 'B' CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC FOUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.03.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 INSTALL STONE GRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 70M STONE IN A PAPER BAG OR W/MP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

DIMENSIONS OF BOX & PIPE		CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE			
D	A	B	H	FT.	WT.	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.648	0.026
15"	3'-0"	2'-3"	2'-3"	0.292	0.292	0.648	0.036
18"	3'-0"	2'-6"	2'-6"	0.362	0.362	0.648	0.046
24"	3'-0"	3'-0"	3'-0"	0.432	0.432	0.648	0.056
30"	3'-0"	3'-6"	3'-6"	0.502	0.502	0.648	0.066

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
 12" THRU 30" PIPE

SHEET 1 OF 1
840.14

D	OUTLET W/DITCH			OUTLET W/O DITCH		
	CLASS 'B' RIP RAP	CLASS I RIP RAP	CLASS I RIP RAP	CLASS 'B' RIP RAP	CLASS I RIP RAP	CLASS I RIP RAP
12"	2	5	2	1	4	2
15"	2	7	3	1	5	3
18"	3	10	4	1	7	4
24"	5	14	7	1	11	7
30"	8	21	11	2	16	11
36"	11	28	15	3	22	16
42"	15	37	20	4	28	22
48"	-	-	49	5	34	28
54"	-	-	60	6	40	34
60"	-	-	73	7	47	40
66"	-	-	87	8	54	47
72"	-	-	102	9	61	54

NOTE:
 FOR CALCULATION PURPOSES
 CLASS 'B' RIP RAP = 100 LBS./FT³
 CLASS I RIP RAP = 105 LBS./FT³

SHEET 1 OF 1
876.02

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
GUIDE FOR RIP RAP AT PIPE OUTLETS

SHEET 1 OF 1
876.02

FULL DEPTH CUT SHALL BE MADE PERPENDICULAR TO THE BACK OF CURB

PORTION TO BE REMOVED

GUTTER LINE

IF THE FINAL LIFT OF ASPHALT HAS BEEN INSTALLED AND IS DAMAGED DURING CURB REMOVAL, A ONE FOOT WIDE SECTION OF ASPHALT SHOULD BE SAWCUT AND REMOVED FOR FORMS TO BE USED TO KEEP A STRAIGHT EDGE ON THE DRIVEWAY APRON. REINSTALL HOT MIX SURFACE ASPHALT PATCH S9.5B.

IF THE FINAL LIFT OF ASPHALT HAS NOT BEEN INSTALLED, THE ASPHALT IN FRONT OF THE APRON CAN REMAIN IN PLACE.

NOTES:
 1. CURB AND GUTTER SECTION SHALL BE REMOVED IN ACCORDANCE WITH DRIVEWAY WIDTH APPROVED BY THE CITY.
 2. IF PERPENDICULAR CUT IS LESS THAN 5' FROM NEXT JOINT, THEN THE PARALLEL CUT SHALL BE MADE TO THAT JOINT.
 3. THIS METHOD IS NOT ALLOWED IN NEW ROADWAY CONSTRUCTION.

CITY OF RALEIGH
 STANDARD DETAIL

REVISIONS	DATE	NOT TO SCALE

STANDARD METHOD OF REMOVING EXISTING CURB (FOR A DRIVEWAY APRON INSTALLATION)

T-10.24

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CURB RAMP
 PROPOSED CURB AND GUTTER

SHEET 1 OF 3
848.05

ISOMETRIC VIEW

SECTION A-A

SECTION B-B

PLAN VIEW

NOTES:
 1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SURFACE COVERING THE ENTIRE RAMP.

RAMP WIDTH AREA IS VARIABLE

W	A	W+A-9"	X	B
5'	0.0'	5.0'	5.0'	5.0'
6'	0.0'	6.0'	6.0'	6.0'
7'	0.0'	7.0'	7.0'	6.5'
8'	0.0'	8.0'	7.3'	6.5'
9'	0.0'	9.0'	7.3'	6.5'
10'	0.0'	10.0'	7.3'	6.5'
11'	0.0'	11.0'	7.3'	6.5'
12'	0.0'	12.0'	7.3'	6.5'
13'	0.0'	13.0'	7.3'	6.5'
14'	0.0'	14.0'	7.3'	6.5'
15'	0.0'	15.0'	7.3'	6.5'
16'	0.0'	16.0'	7.3'	6.5'
17'	0.0'	17.0'	7.3'	6.5'
18'	0.0'	18.0'	7.3'	6.5'
19'	0.0'	19.0'	7.3'	6.5'
20'	0.0'	20.0'	7.3'	6.5'

EXPANSION JOINT (SEE STD. 846.01)

NOTE: A PORTION OF ONE OR BOTH RAMPS MAY EXTEND OUTSIDE THE RETURN.

4" x 4" CLEAR SPACE MUST BE MAINTAINED WITHIN CROSSWALK LIMITS. (SEE NOTE 10)

2" MIN. CURB BETWEEN RAMPS

DUAL RAMPS MAY BE SET 2', 12' & 14'

DETECTABLE WARNING DOMES

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CURB RAMP
 PROPOSED CURB AND GUTTER

SHEET 2 OF 3
T-30.01

PLAN VIEW

TRANSVERSE EXPANSION JOINT

NOTES:
 1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET.
 2. ALL CONCRETE TO BE 3000 PSI AND FINISHED WITH CURING COMPOUND.
 3. A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS ALONG THE LENGTH OF RADIUS CURB RETURNS, AND IN THE HANDICAP RAMPS.

CITY OF RALEIGH
 STANDARD DETAIL

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PERMATRK PEDESTRIAN BRIDGE

SHEET 1 OF 1
C804

TYPICAL TREAD SPACING DETAIL

Scale: Not To Scale

PERMATRK PEDESTRIAN BRIDGE

TYPICAL LONGITUDINAL SECTION

Scale: 1/4" = 1'-0"

PERMATRK PEDESTRIAN BRIDGE

DETAIL D (PT07)

DETAIL C (PT06)

11'-3"

1'-6"

1'-6"

4 1/4"

4 1/4"

10'-0"± Clear

1"

1"

12"Ø Timber Pile (Typ.)

12"Ø Timber Pile (Typ.)

PermaTrak Tread (Typ.)

PermaTrak Beam (Typ.)

PermaTrak Pedestal Cap (Typ.)

Timber Railing (Typ.) (Supplied By Others)

Approximate Ground Line

SECTION
 Scale: Not To Scale

1
 PT02
 PT03, PT04,
 PT05, PT06

PERMATRK PEDESTRIAN BRIDGE

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS	DATE	NOT TO SCALE

Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS

Date: 07/31/2019

Project Number: .170348

SHEET
C804

STATE OF NORTH CAROLINA
 PROFESSIONAL ENGINEERS
 SEAL
 2023
 ENGINEER
 THOMAS S. SPEIGHT

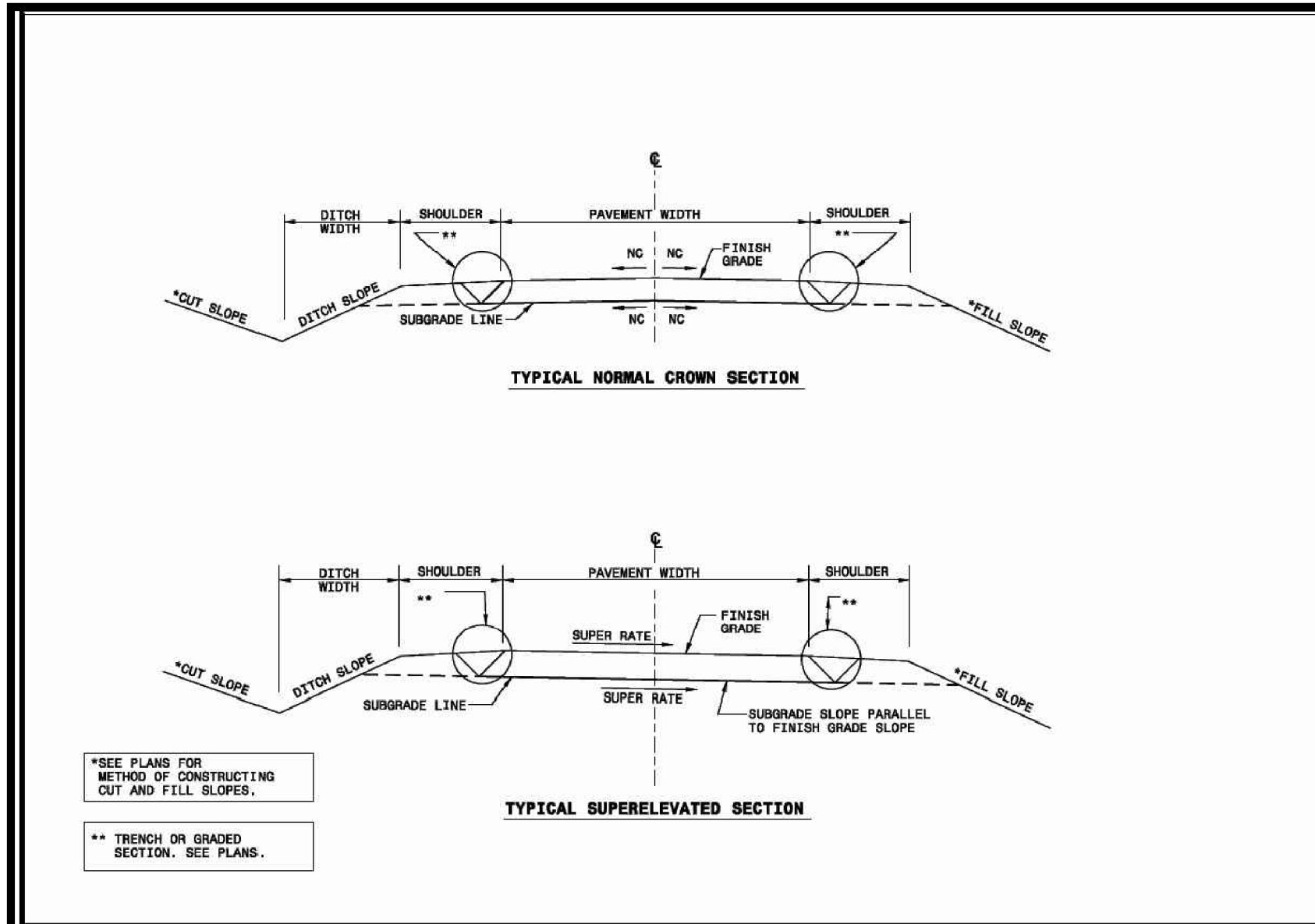
Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCEBELS FRM No. C-2376

ELIZABETH HEIGHTS
 CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
 WAKE FOREST, NC 27587
 WAKE COUNTY, NC

ELIZABETH HEIGHTS
 CONSTRUCTION DRAWINGS

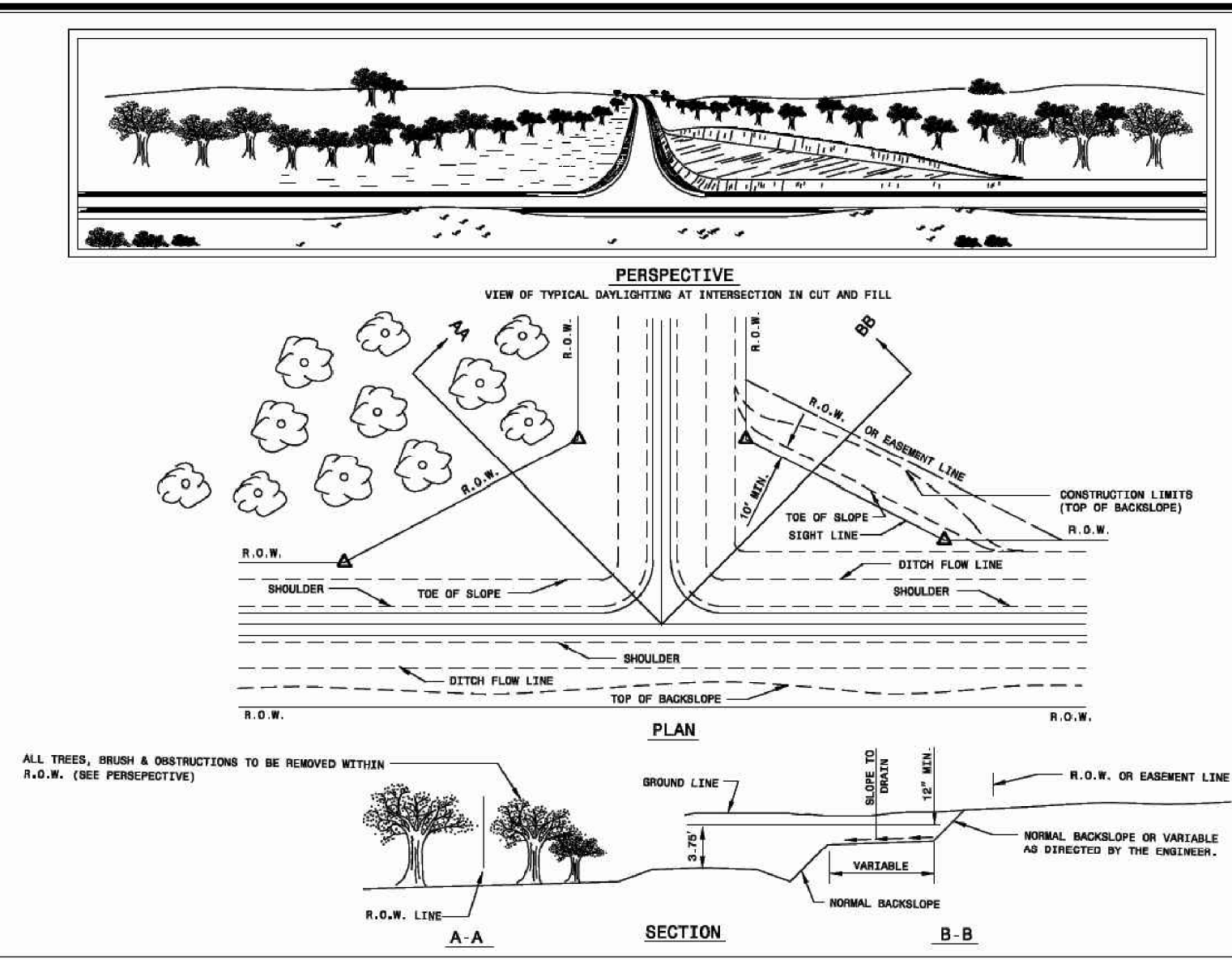
SITE DETAILS



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
GUIDE FOR GRADING
SECONDARY AND LOCAL

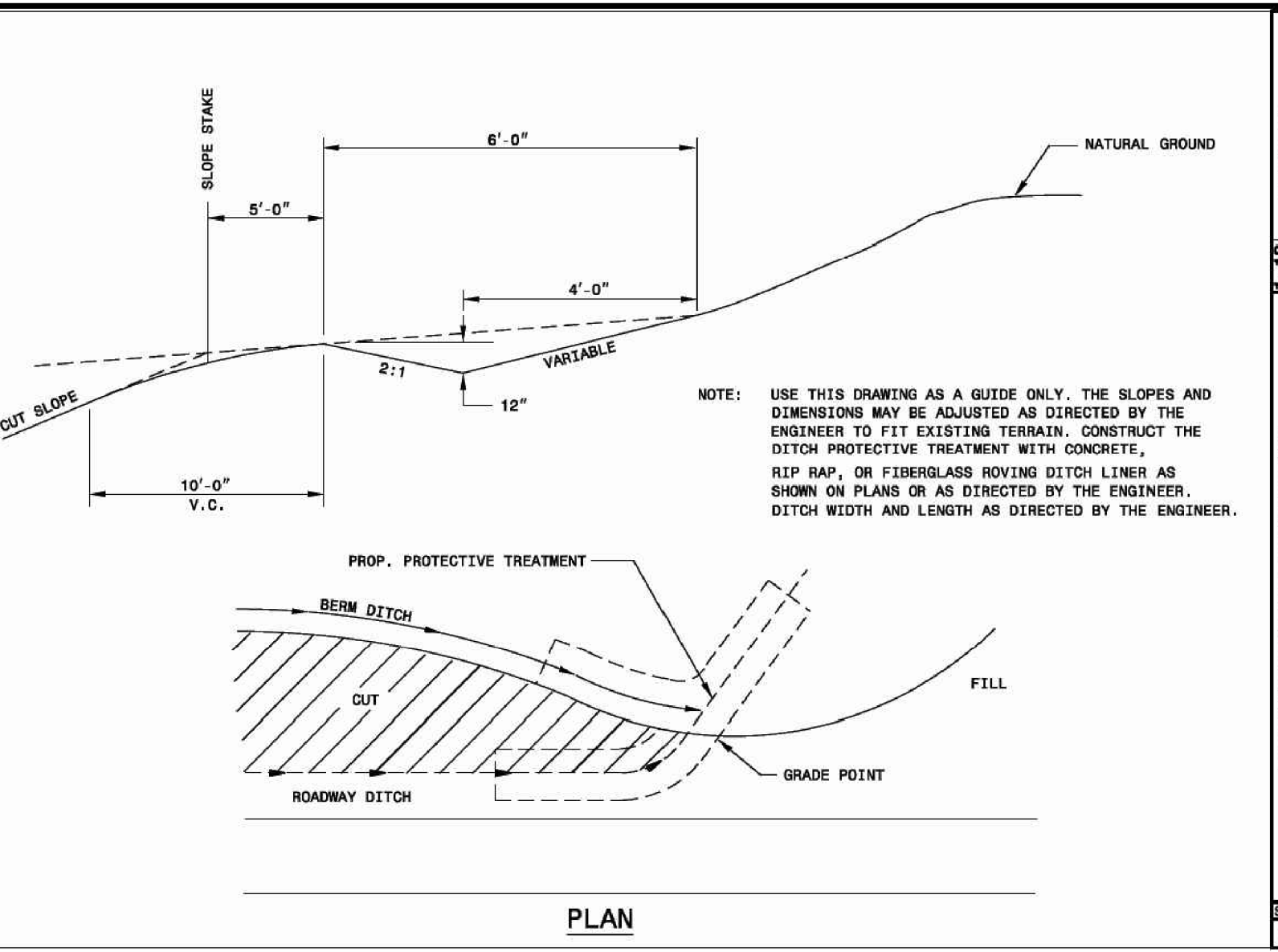
SHEET 1 OF 1
225.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
METHOD OF GRADING
DISTANCE AT INTERSECTIONS

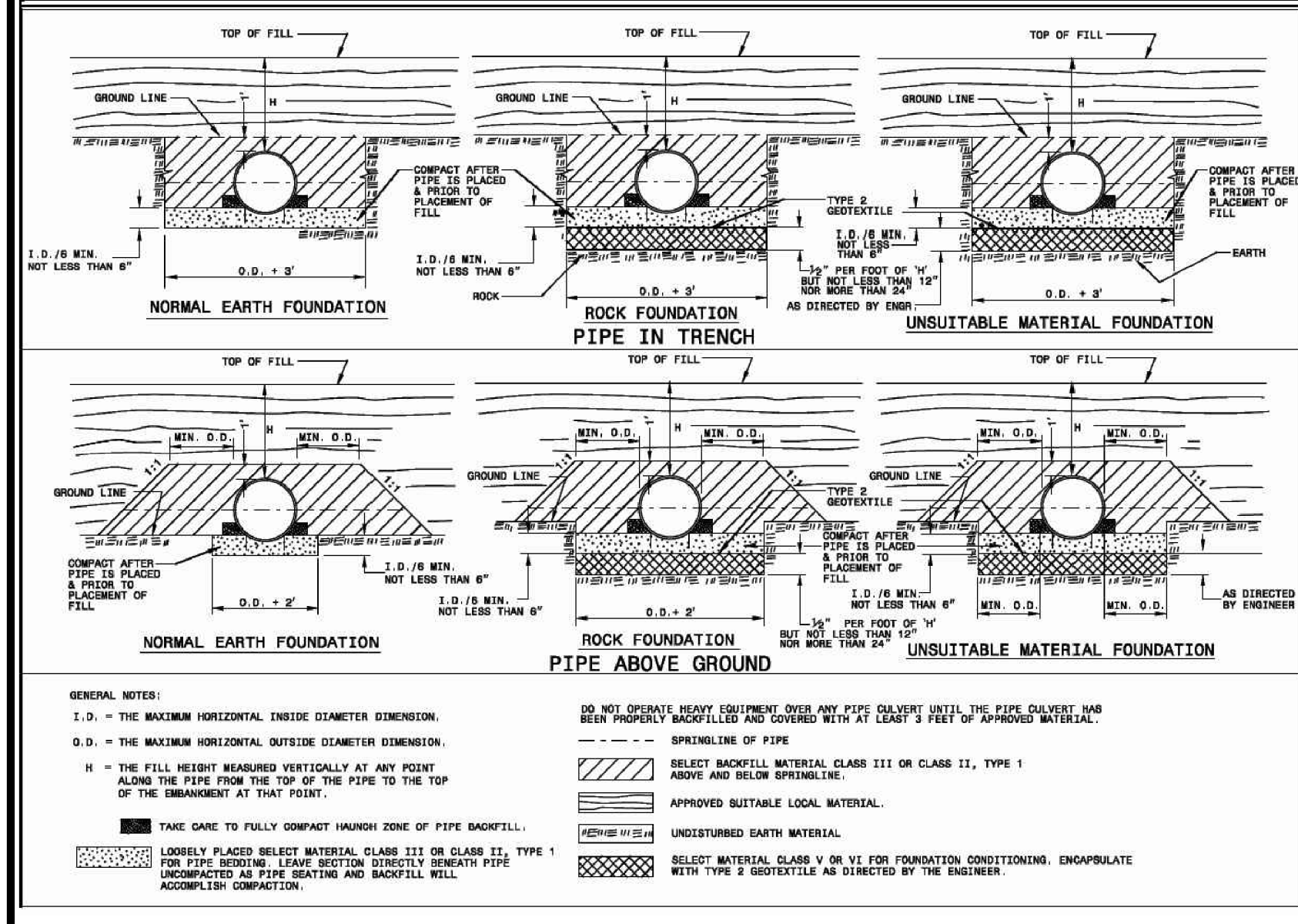
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225.06



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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
GUIDE FOR BERM DITCH CONSTRUCTION

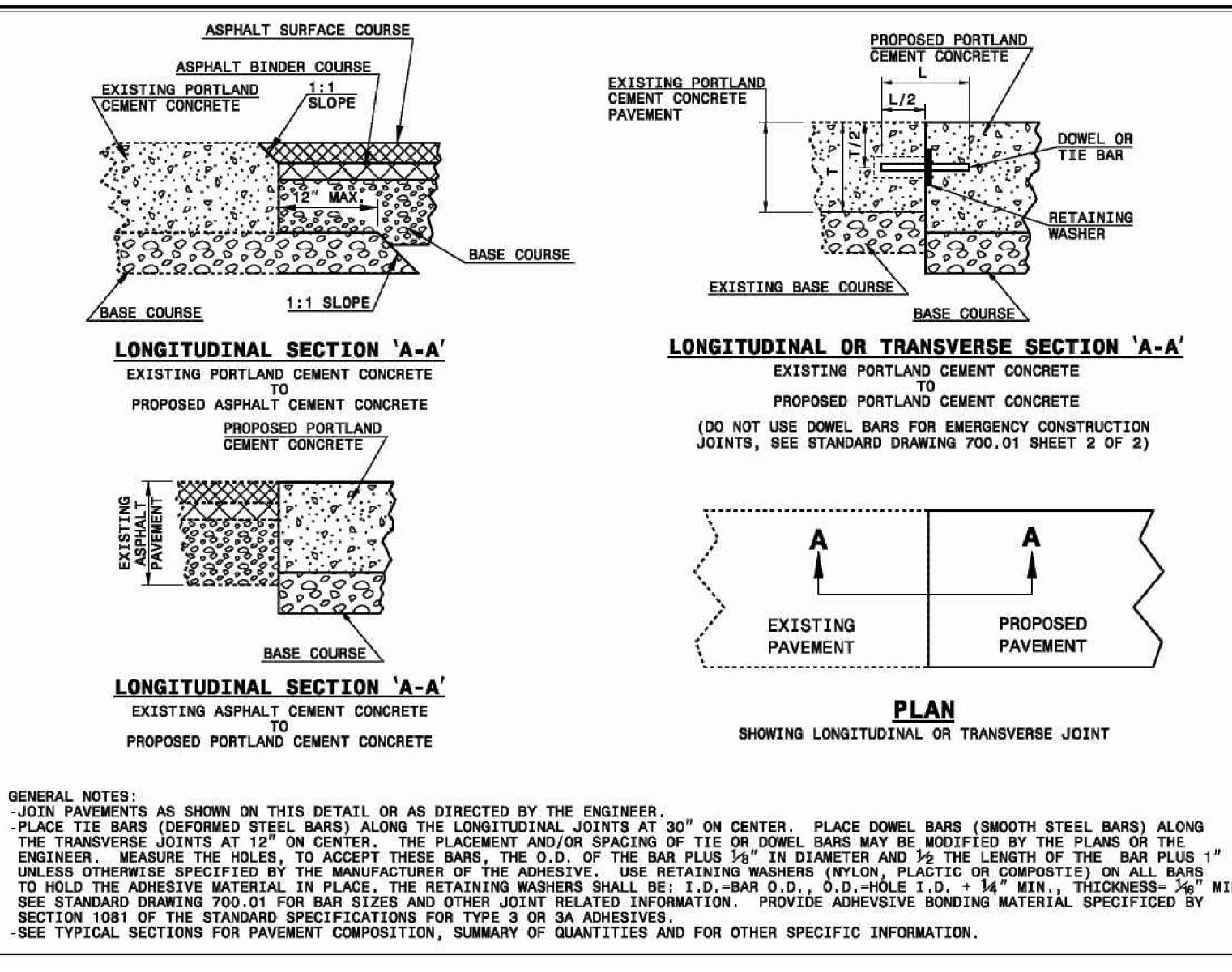
SHEET 1 OF 1
240.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

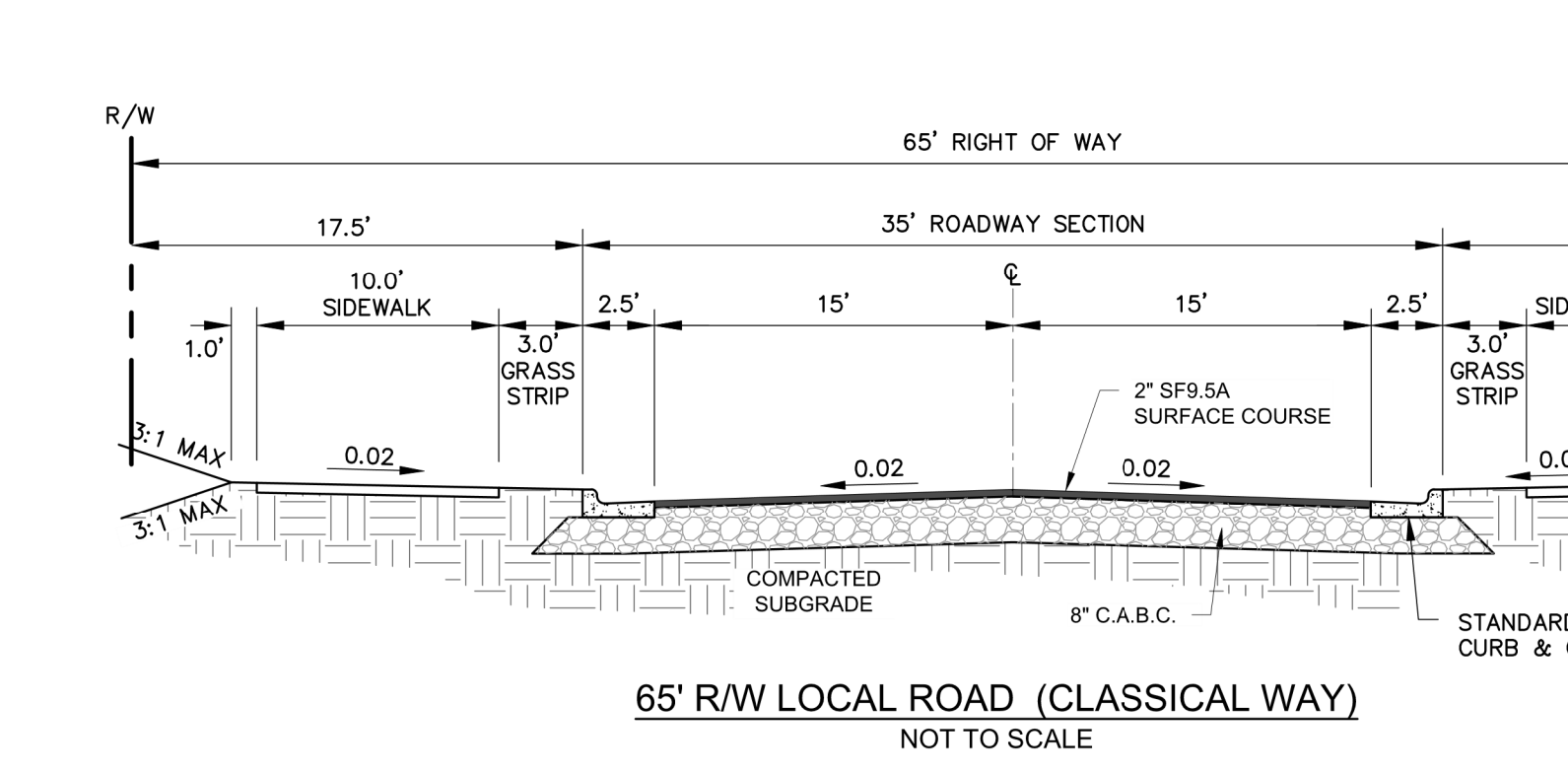
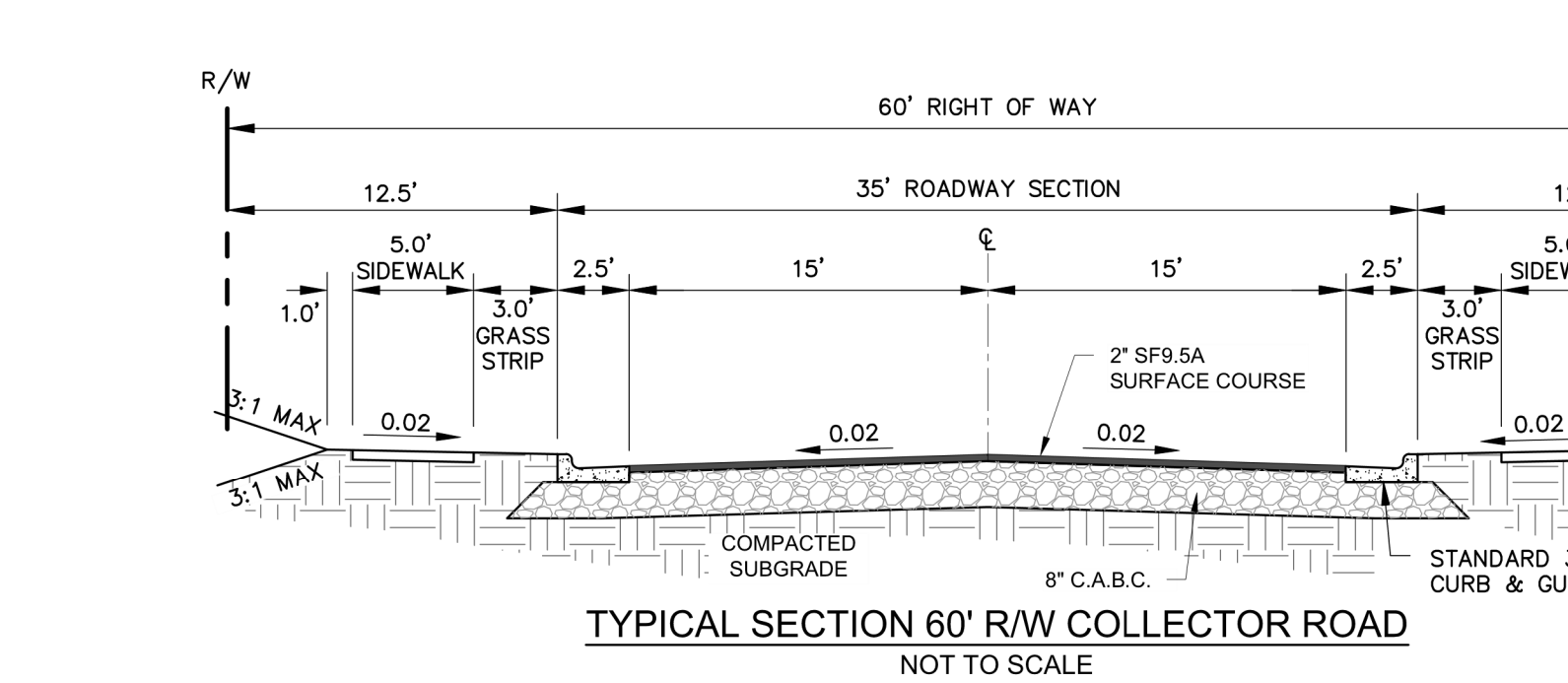
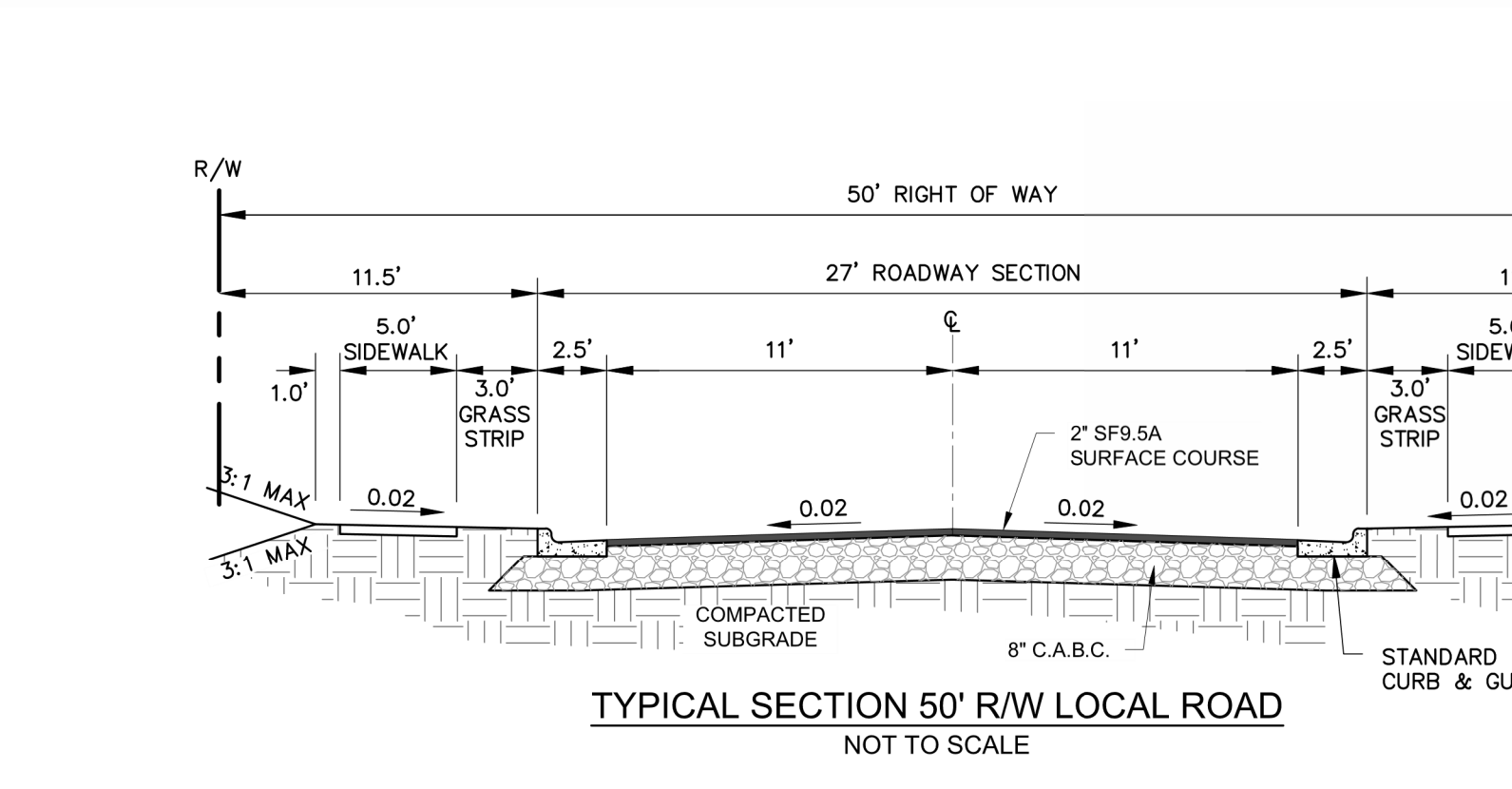
SHEET 1 OF 3
300.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
TYPING PROPOSED PAVEMENT
TO EXISTING PAVEMENT

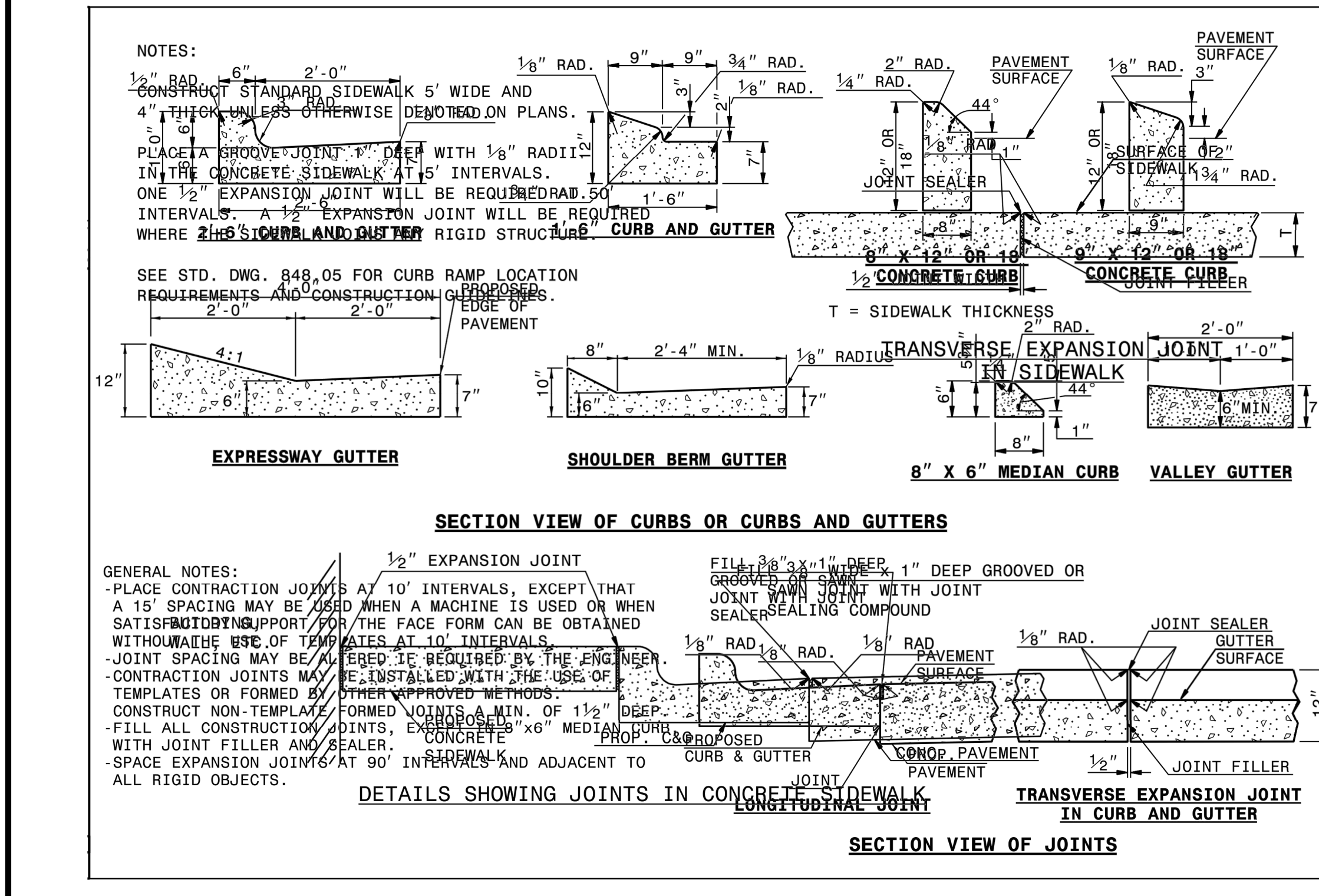
SHEET 1 OF 1
700.05



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
TYPING PROPOSED PAVEMENT
TO EXISTING PAVEMENT

SHEET 1 OF 1
700.05

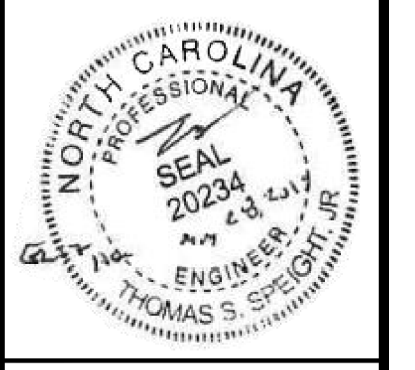


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CONCRETE CURB, MEDIAN
AND CURB & GUTTER

SHEET 1 OF 3
848.01

REV. NO.	DESCRIPTIONS	REVISIONS
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



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2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCEBS FRM No. C-2376



ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

NC DOT DETAILS

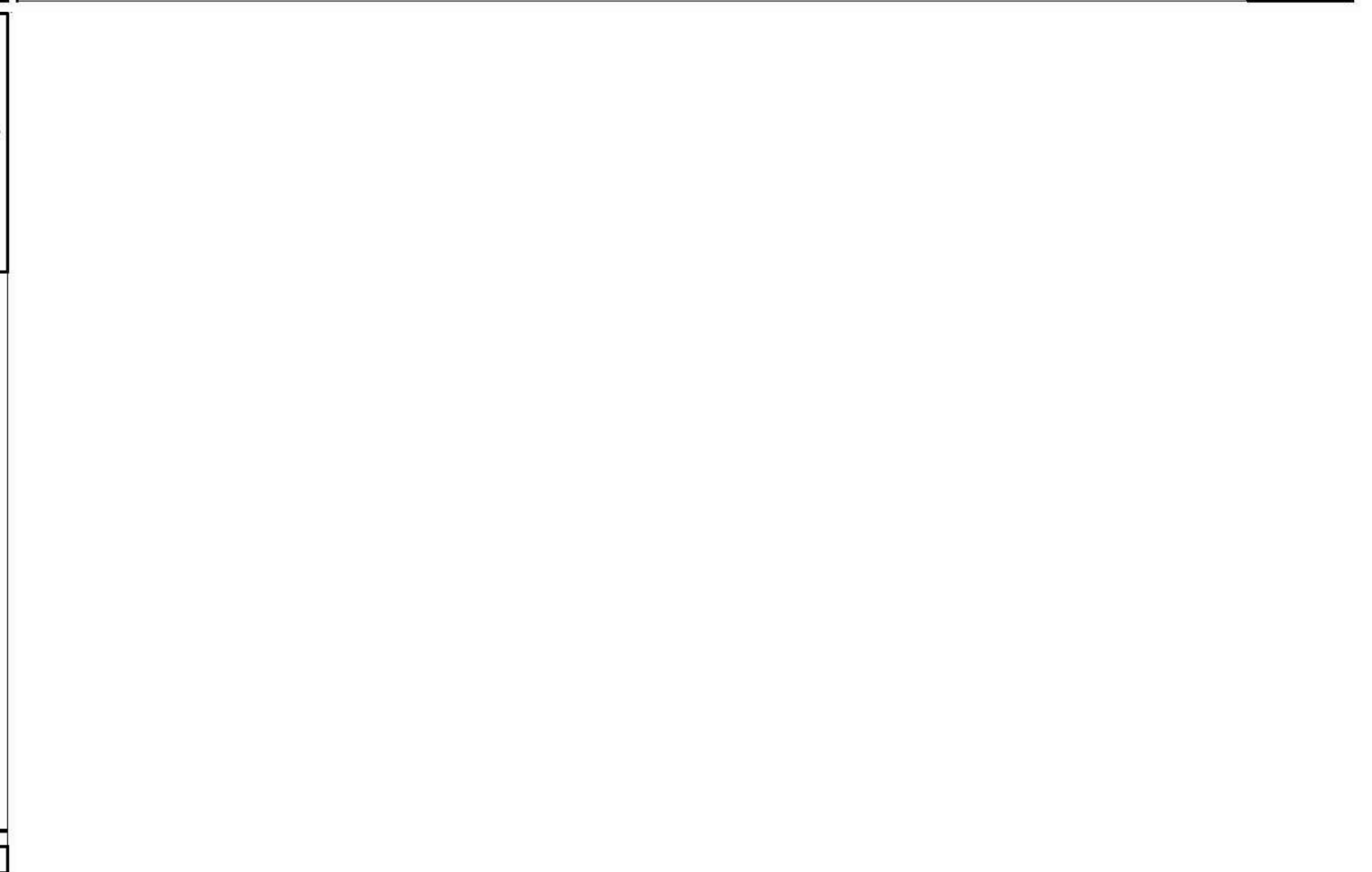
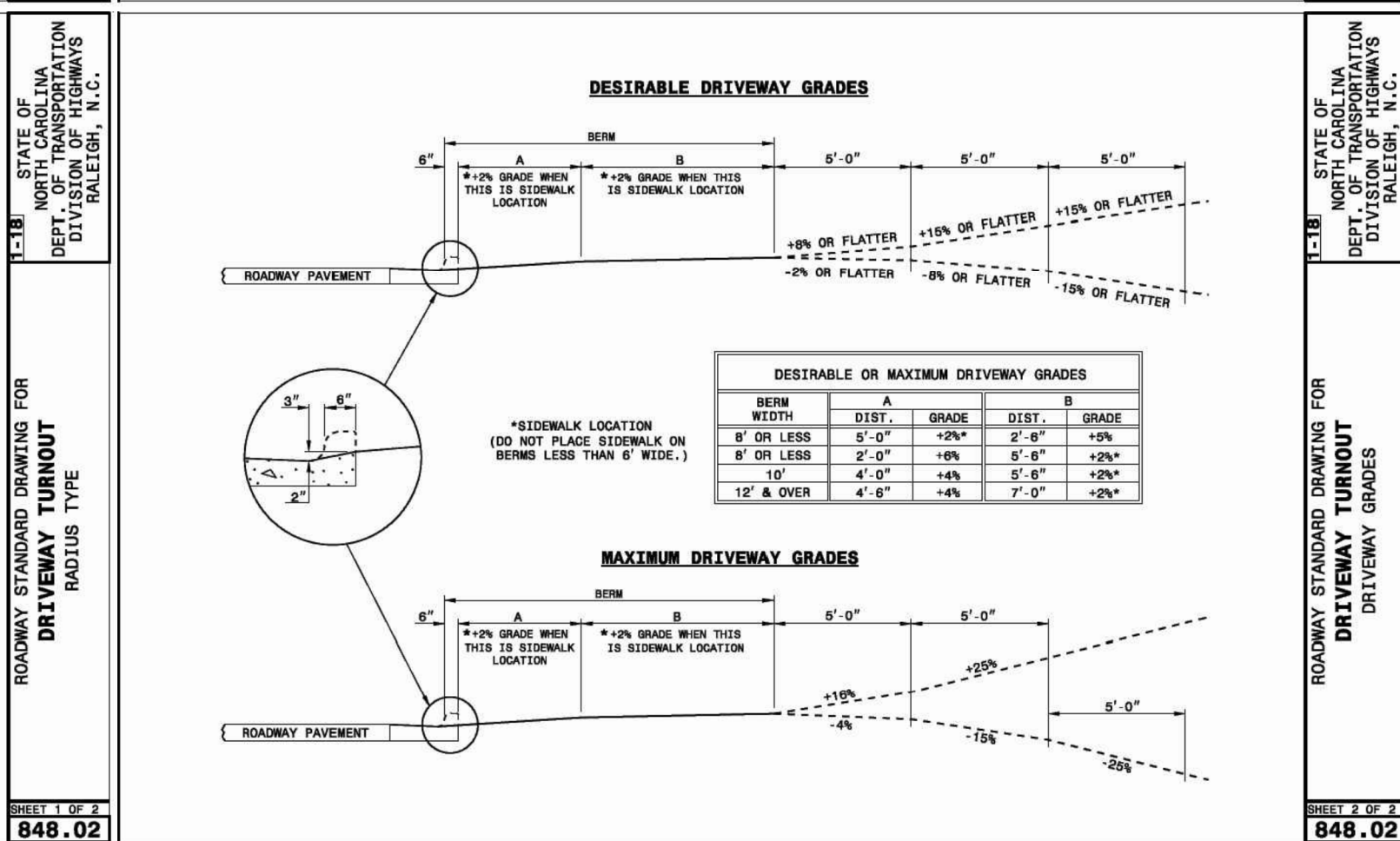
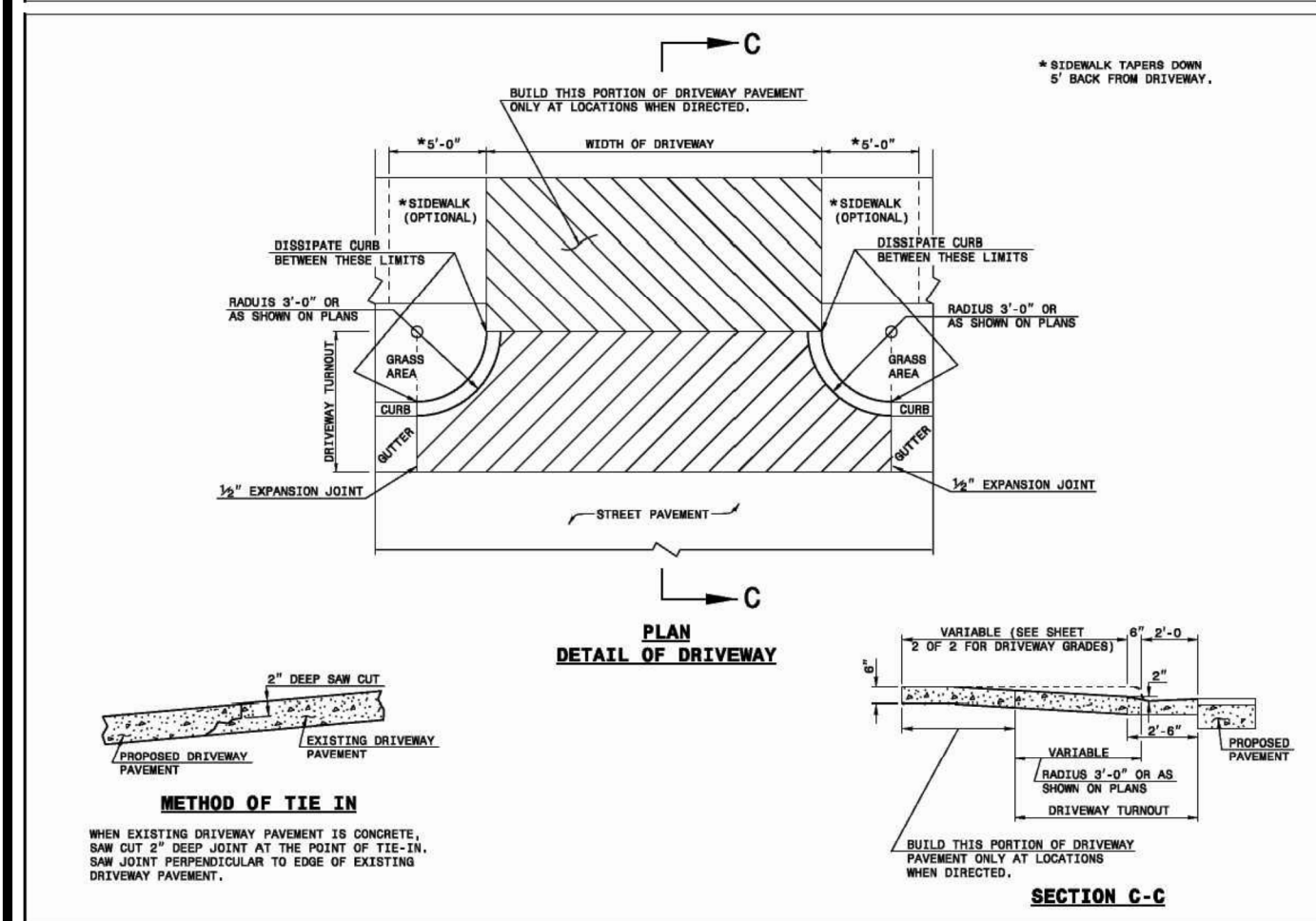
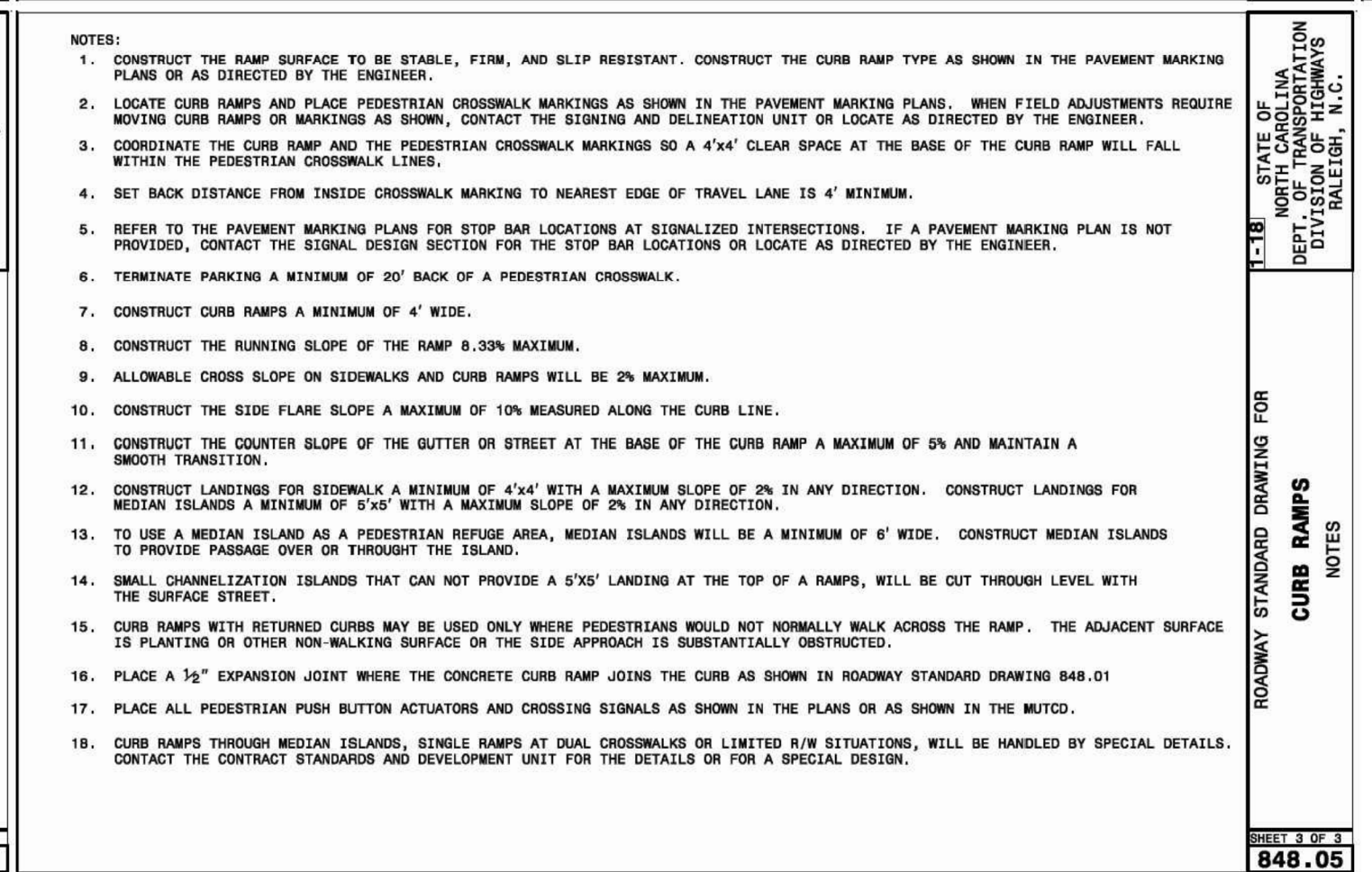
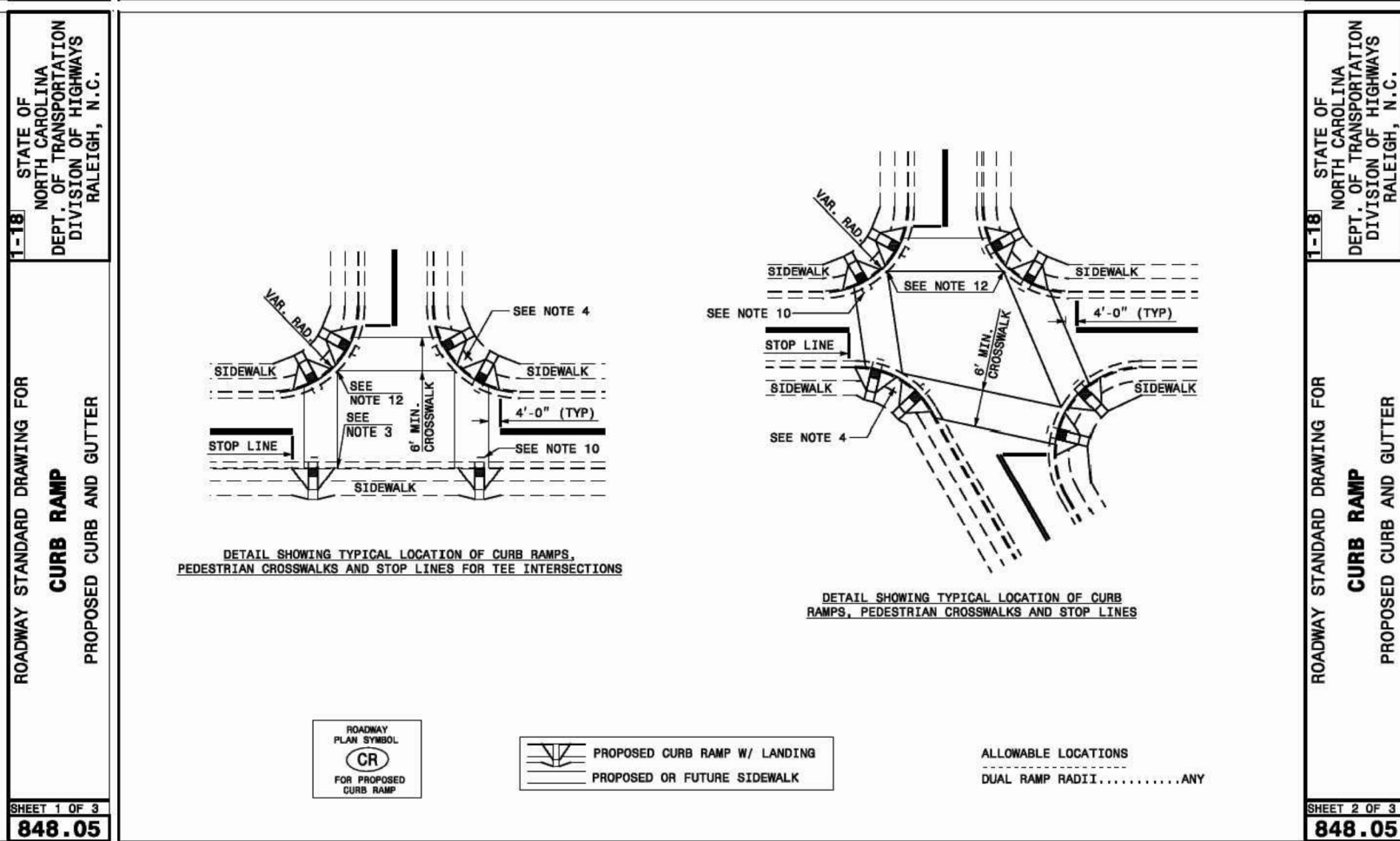
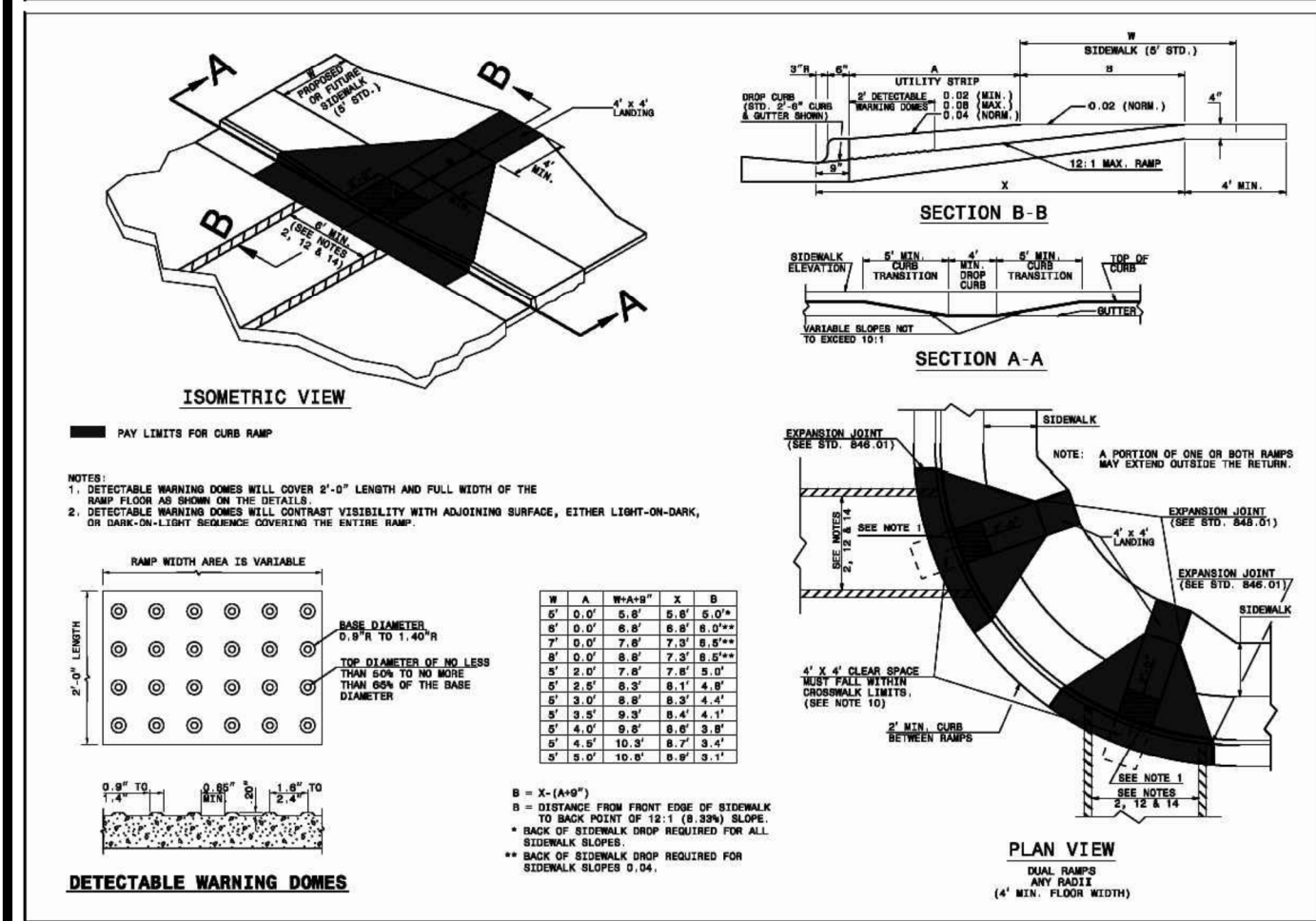
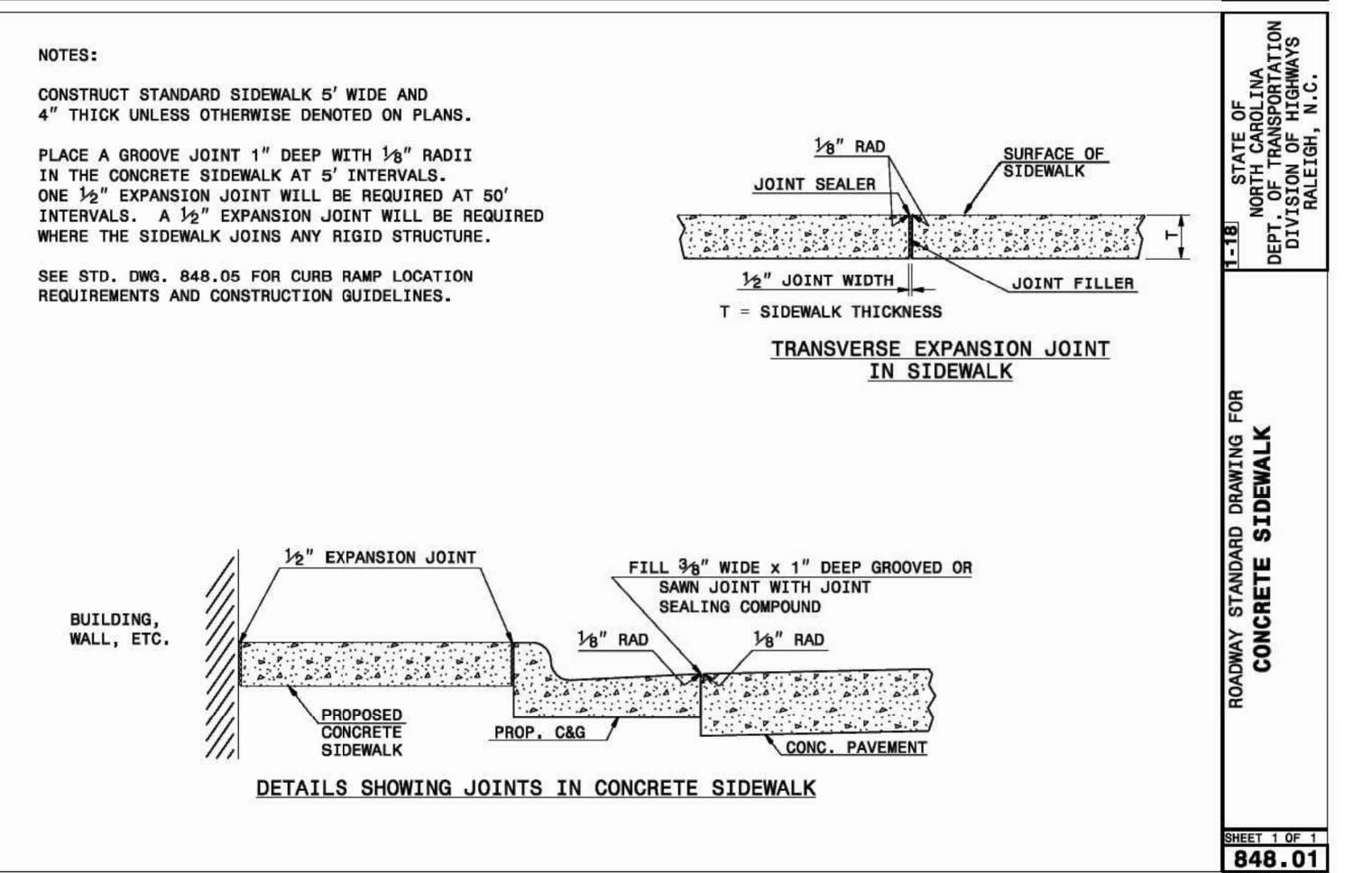
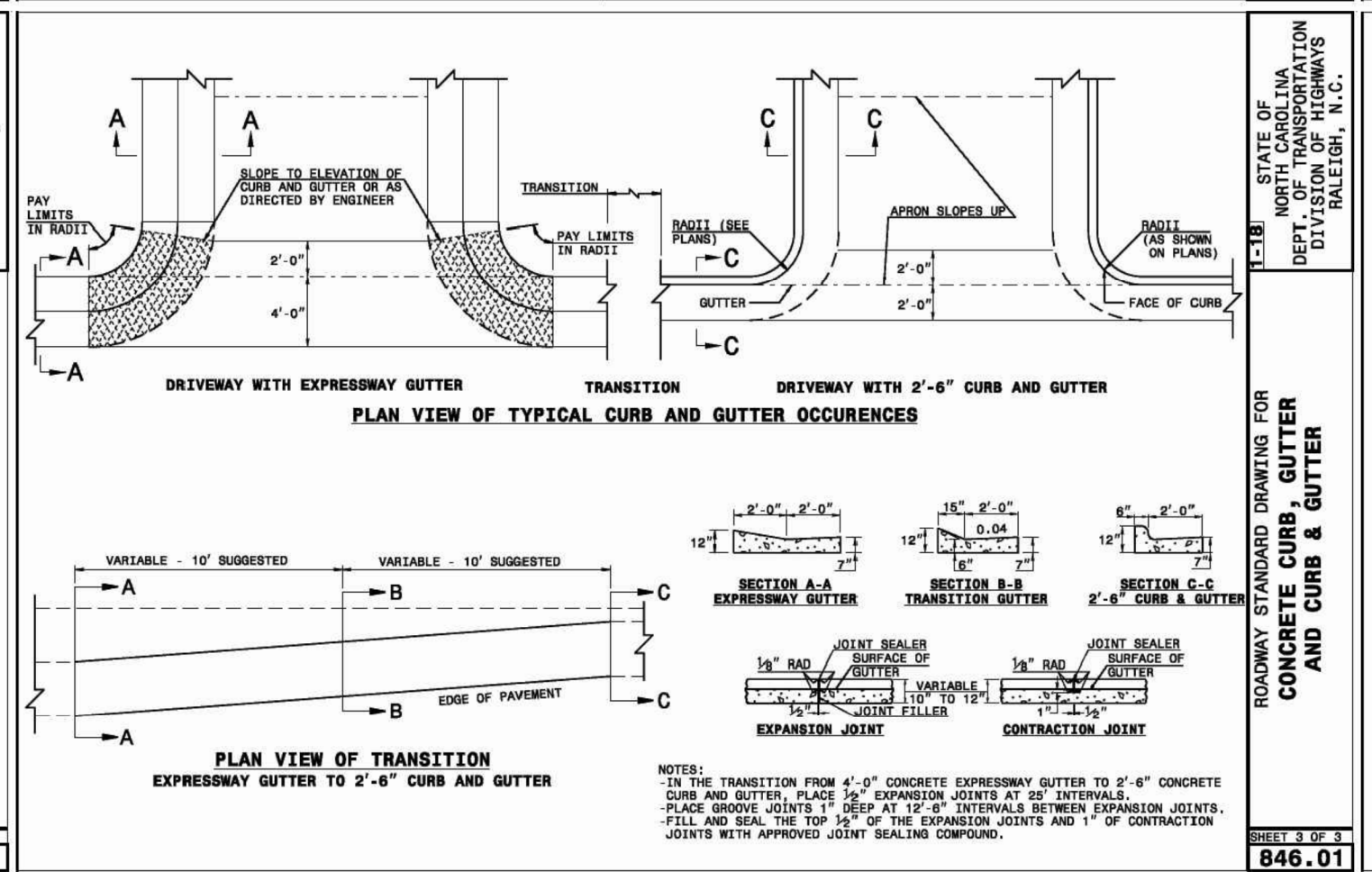
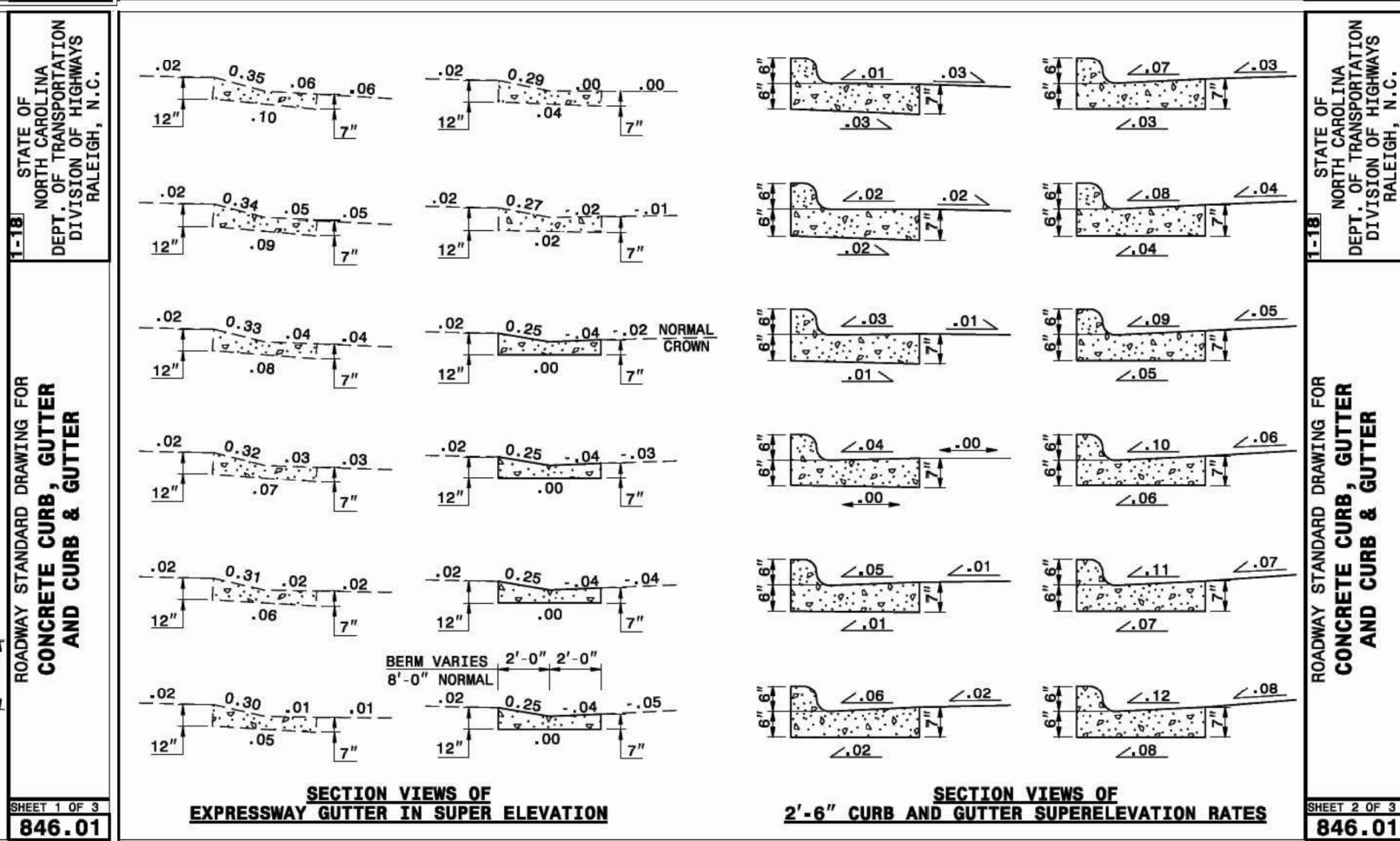
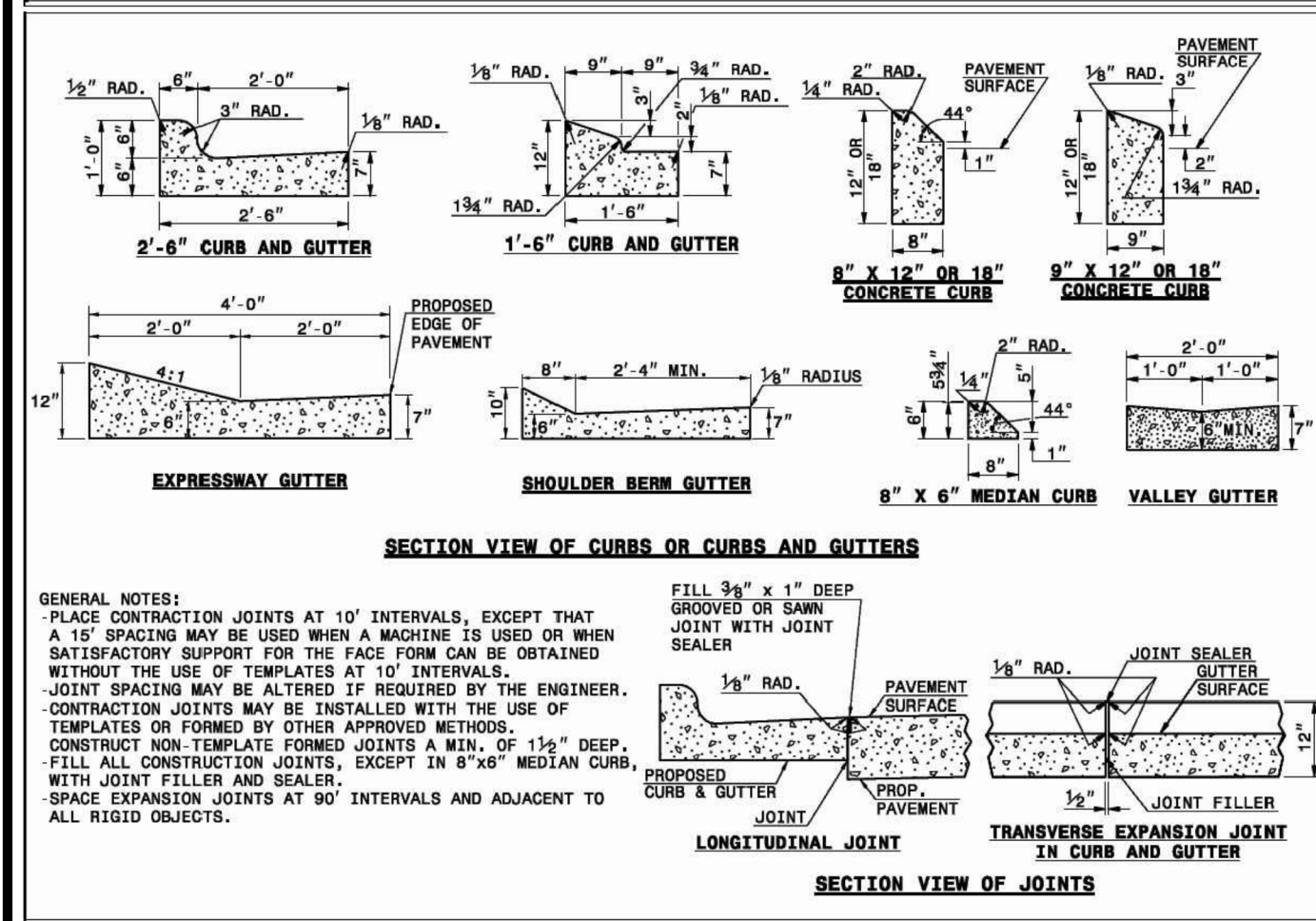
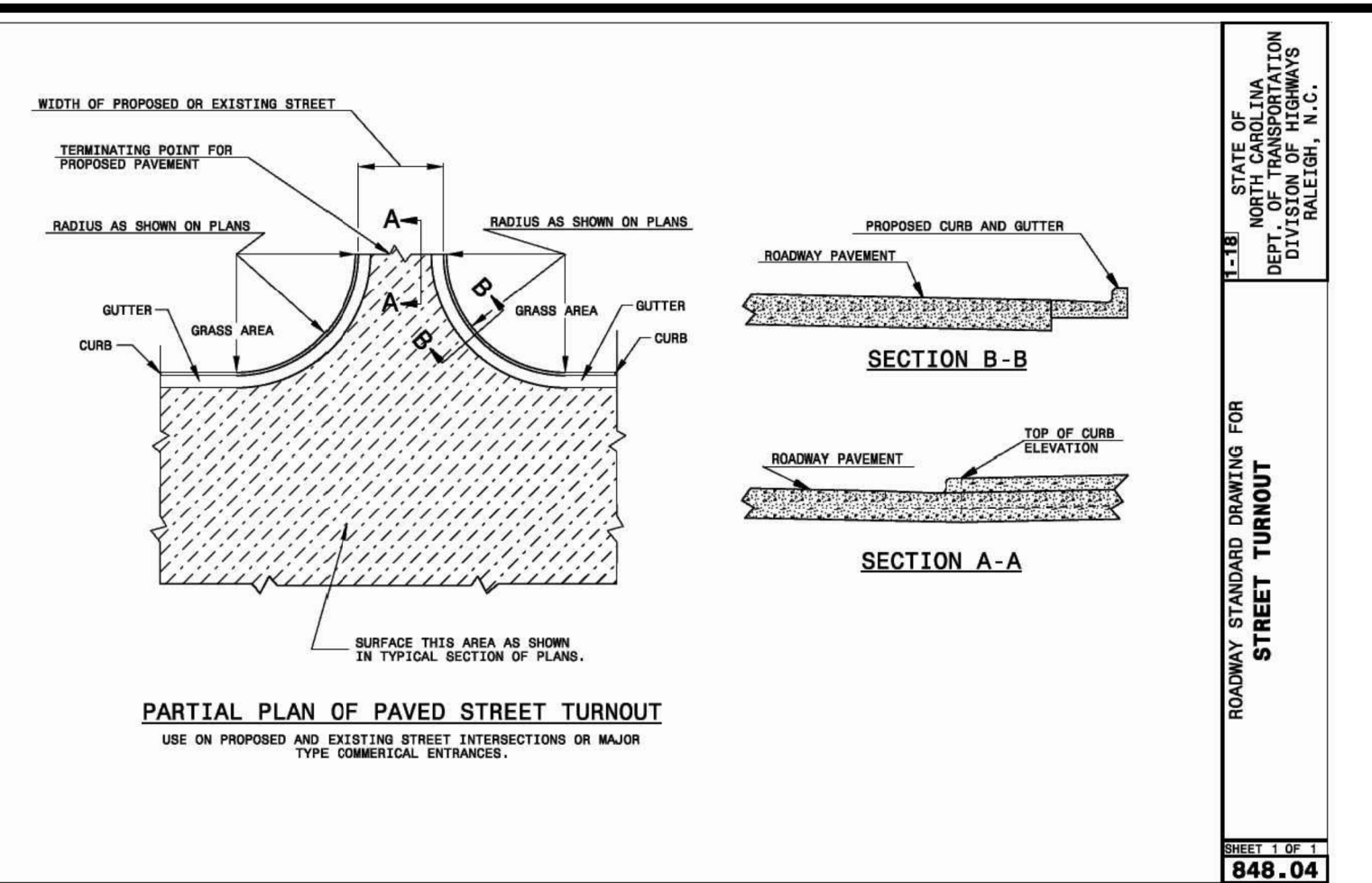
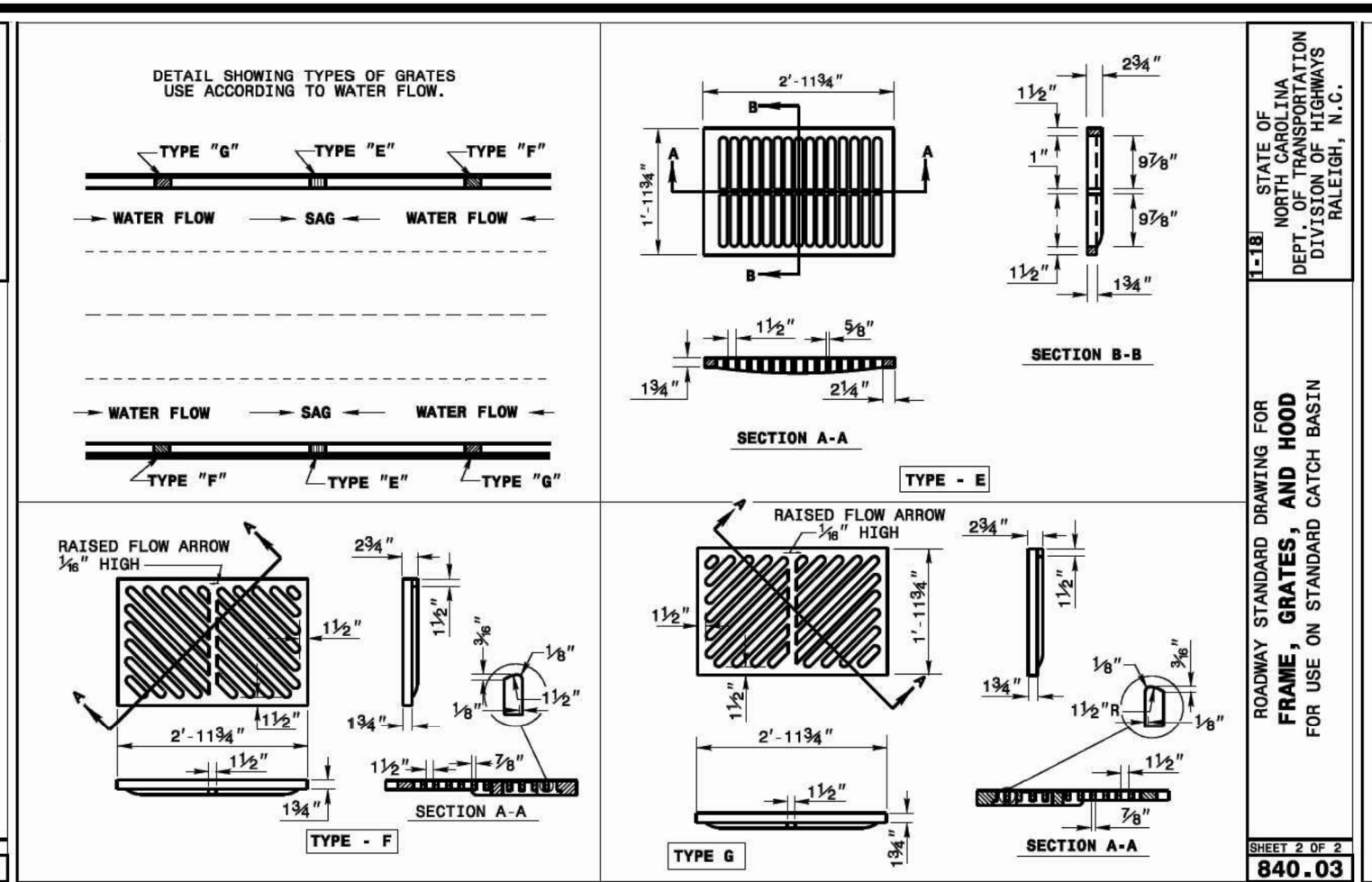
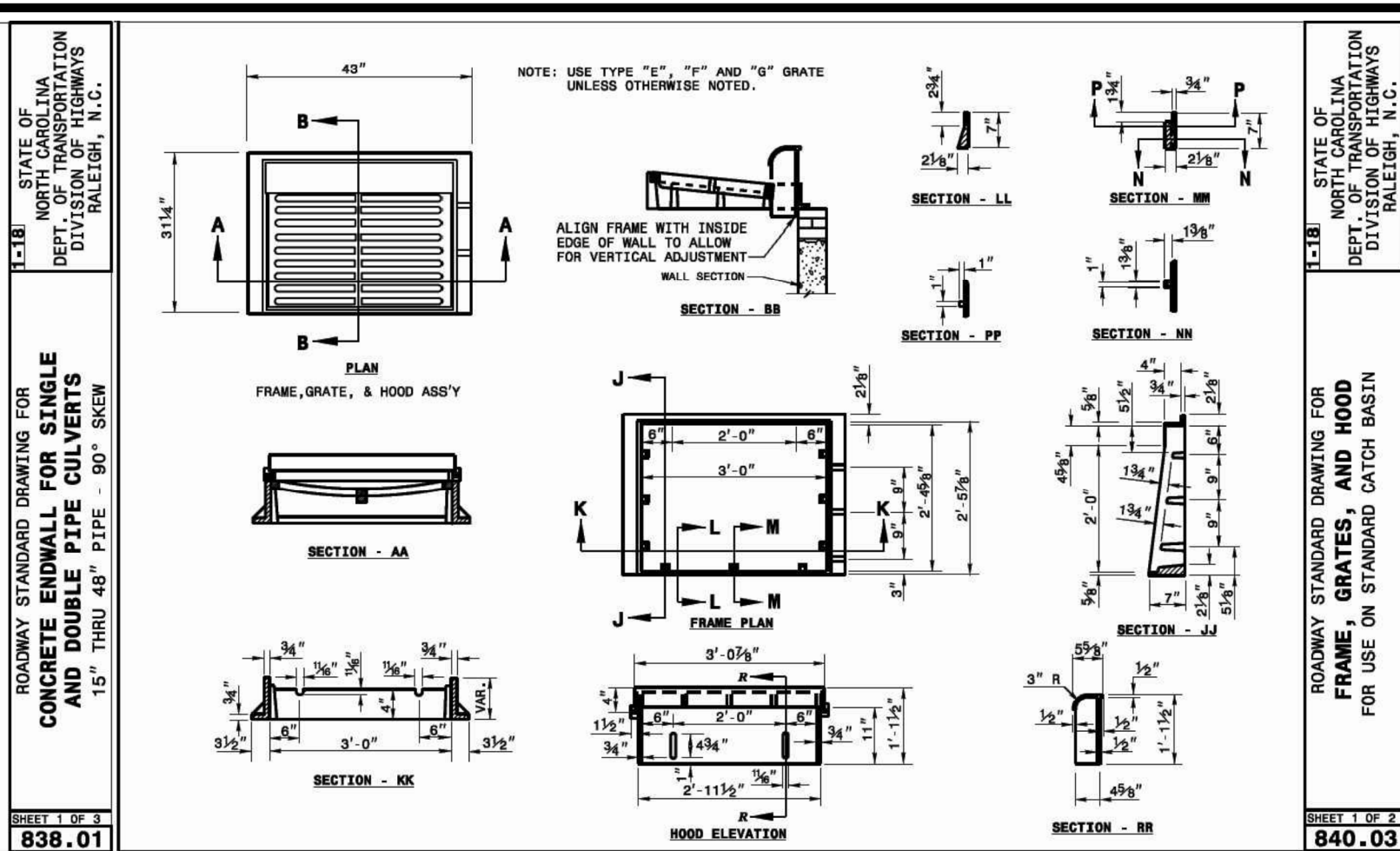
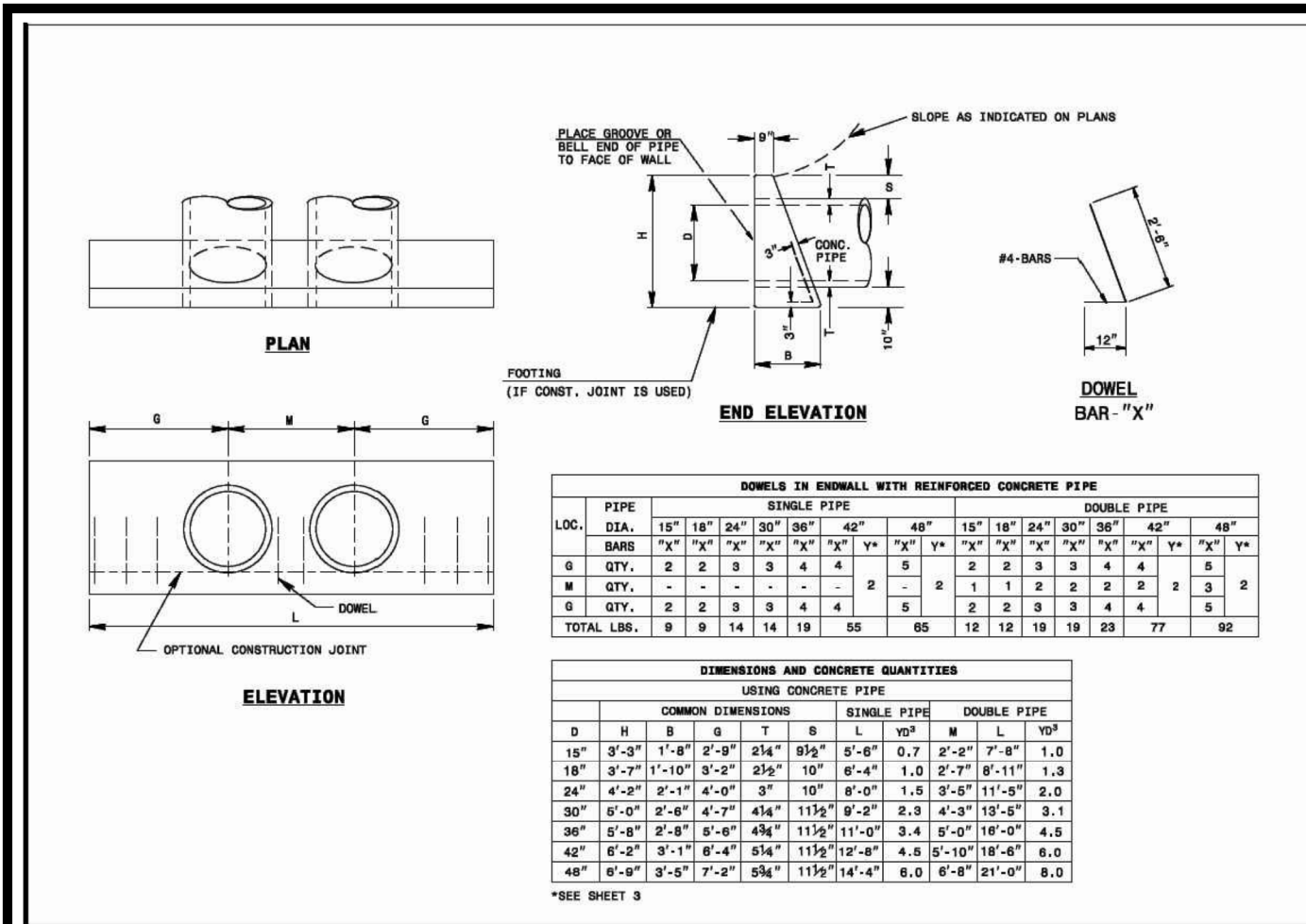
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Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS

Date: 07/31/2019

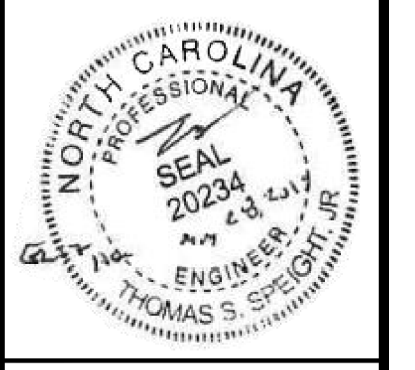
Project Number: .170348

SHEET
C805

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REV. NO.	DESCRIPTIONS	REVISIONS
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



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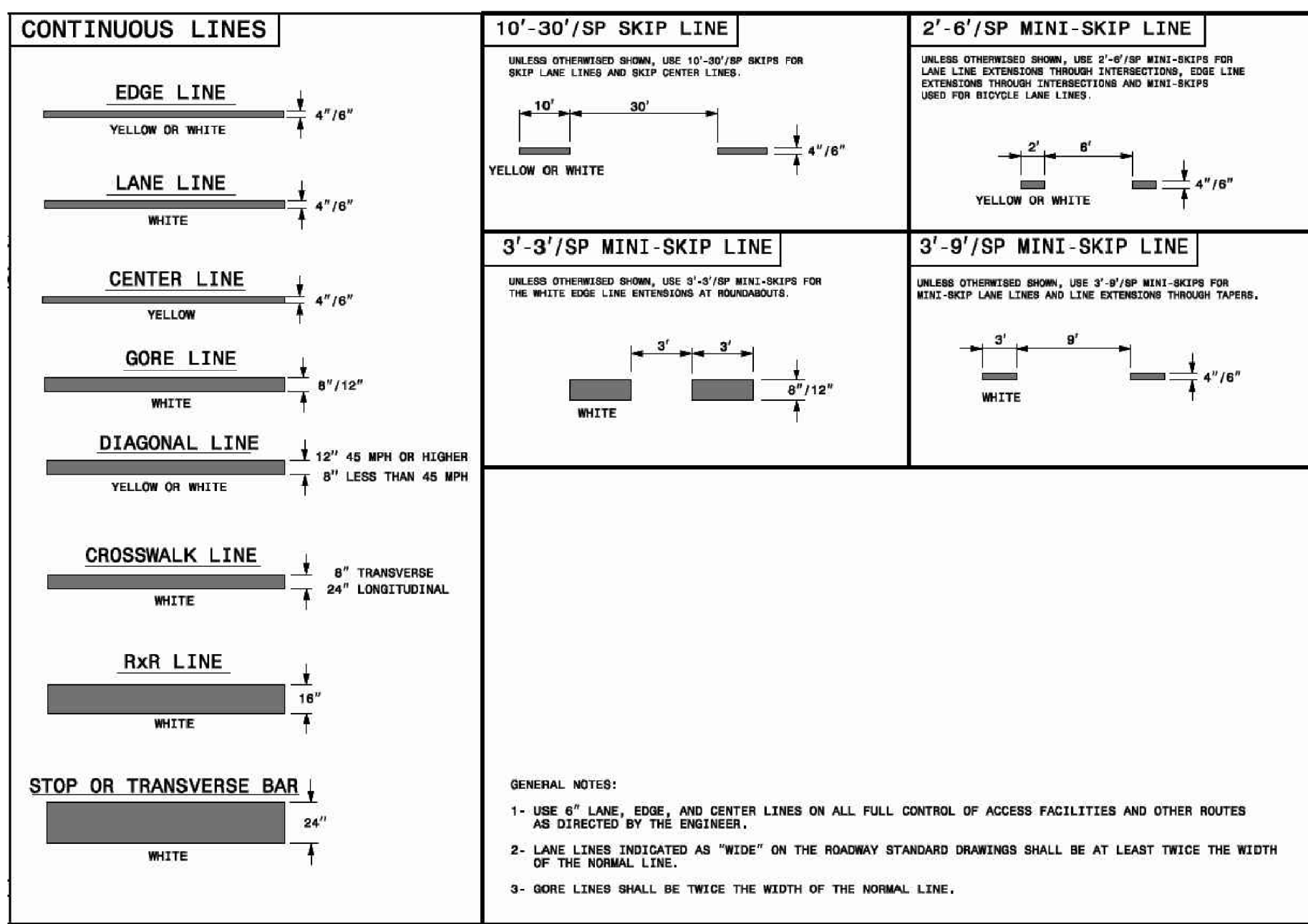
ELIZABETH HEIGHTS
 CONSTRUCTION DRAWINGS

NCDOT DETAILS

Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS

Date: 07/31/2019
 Project Number: 170348
 SHEET
C806

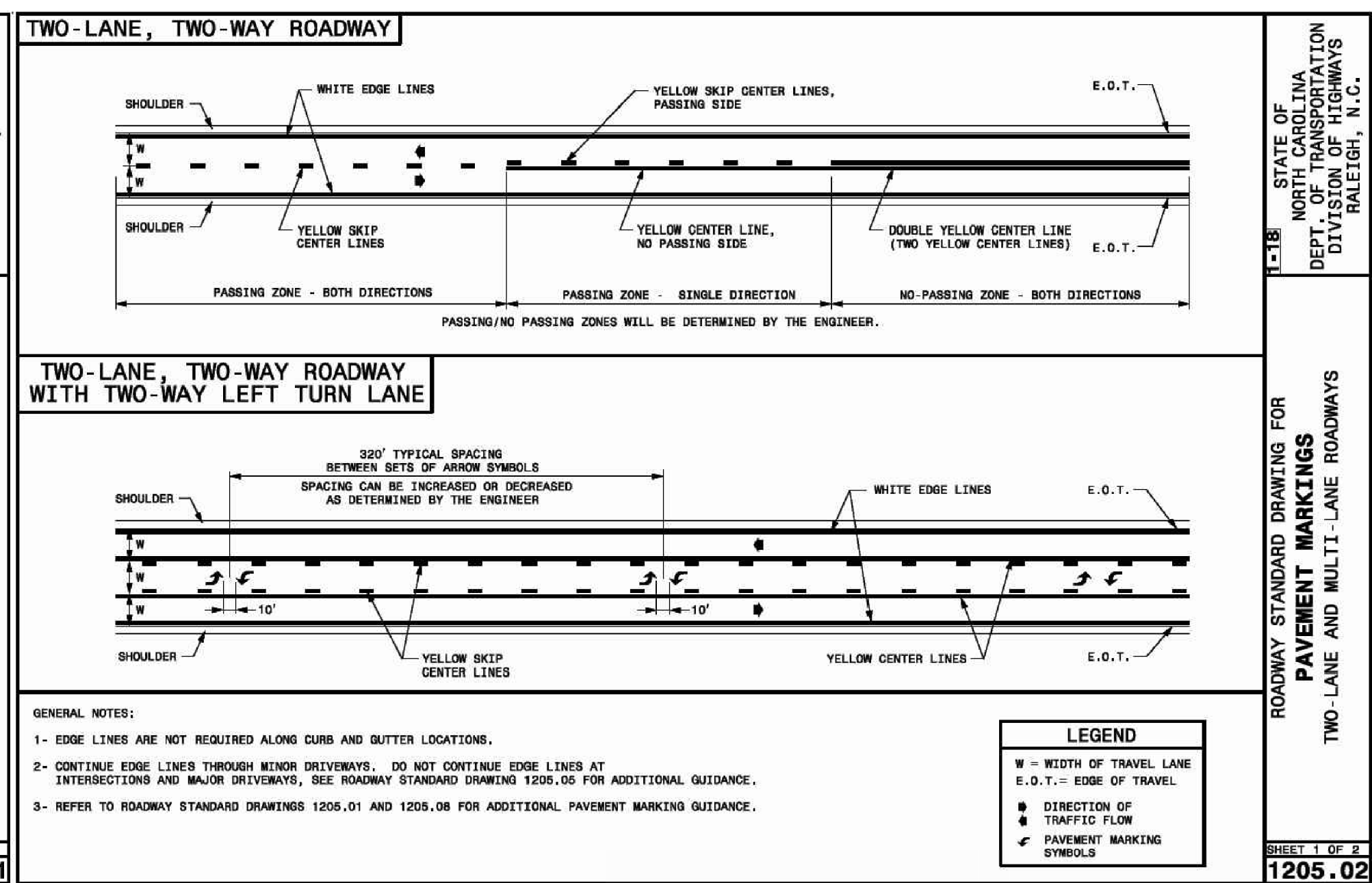
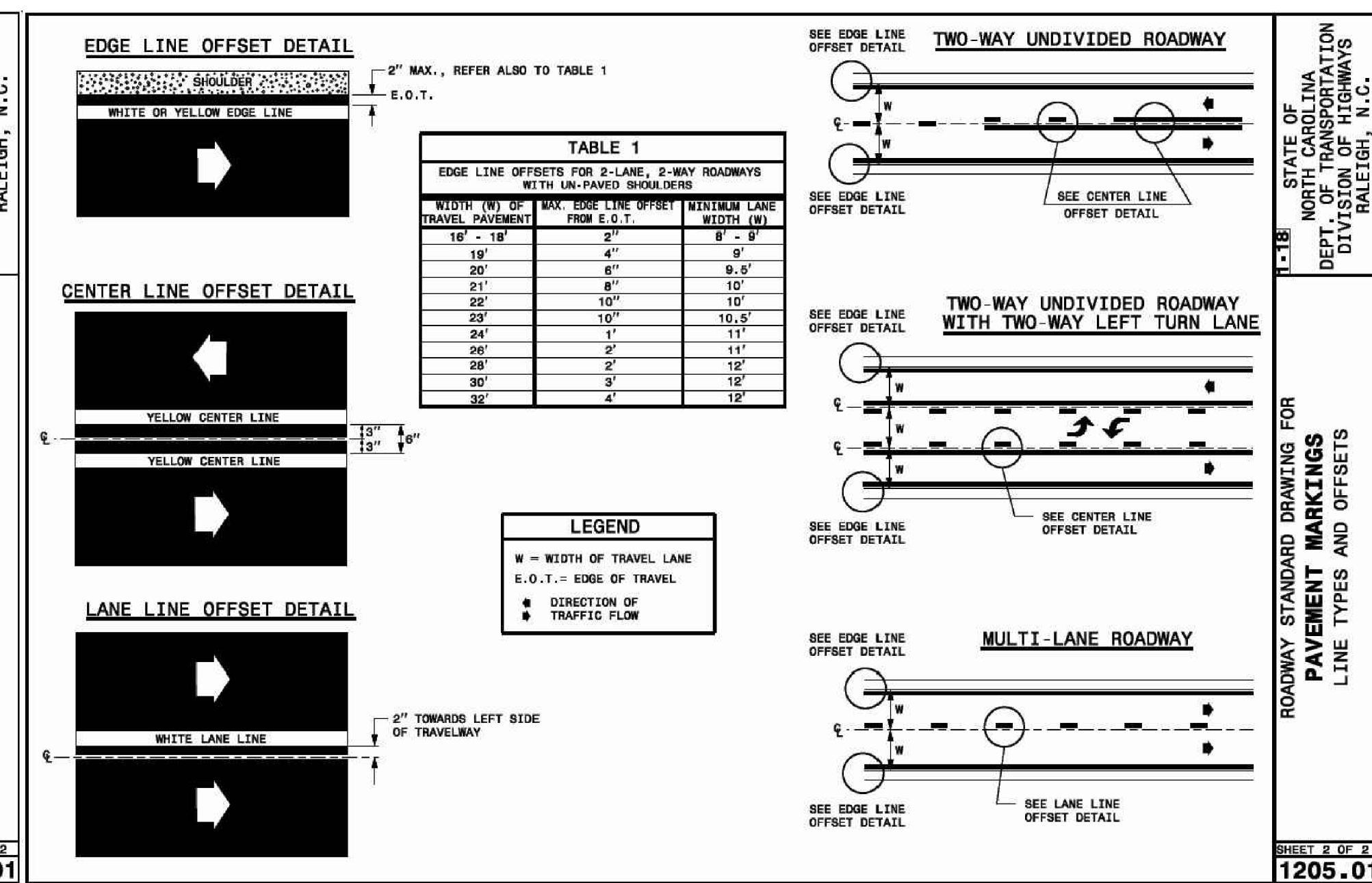
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
LINE TYPES AND OFFSETS

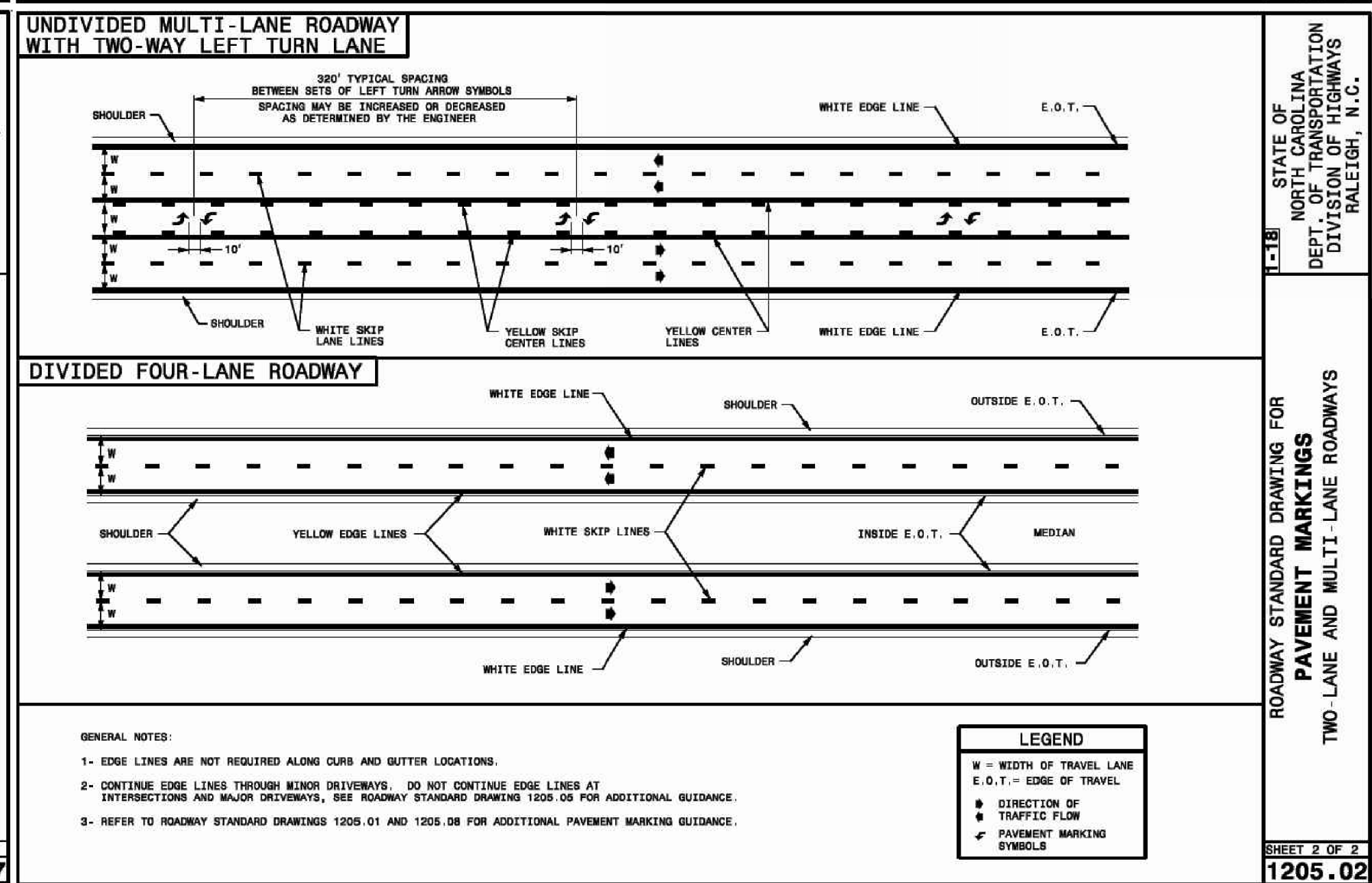
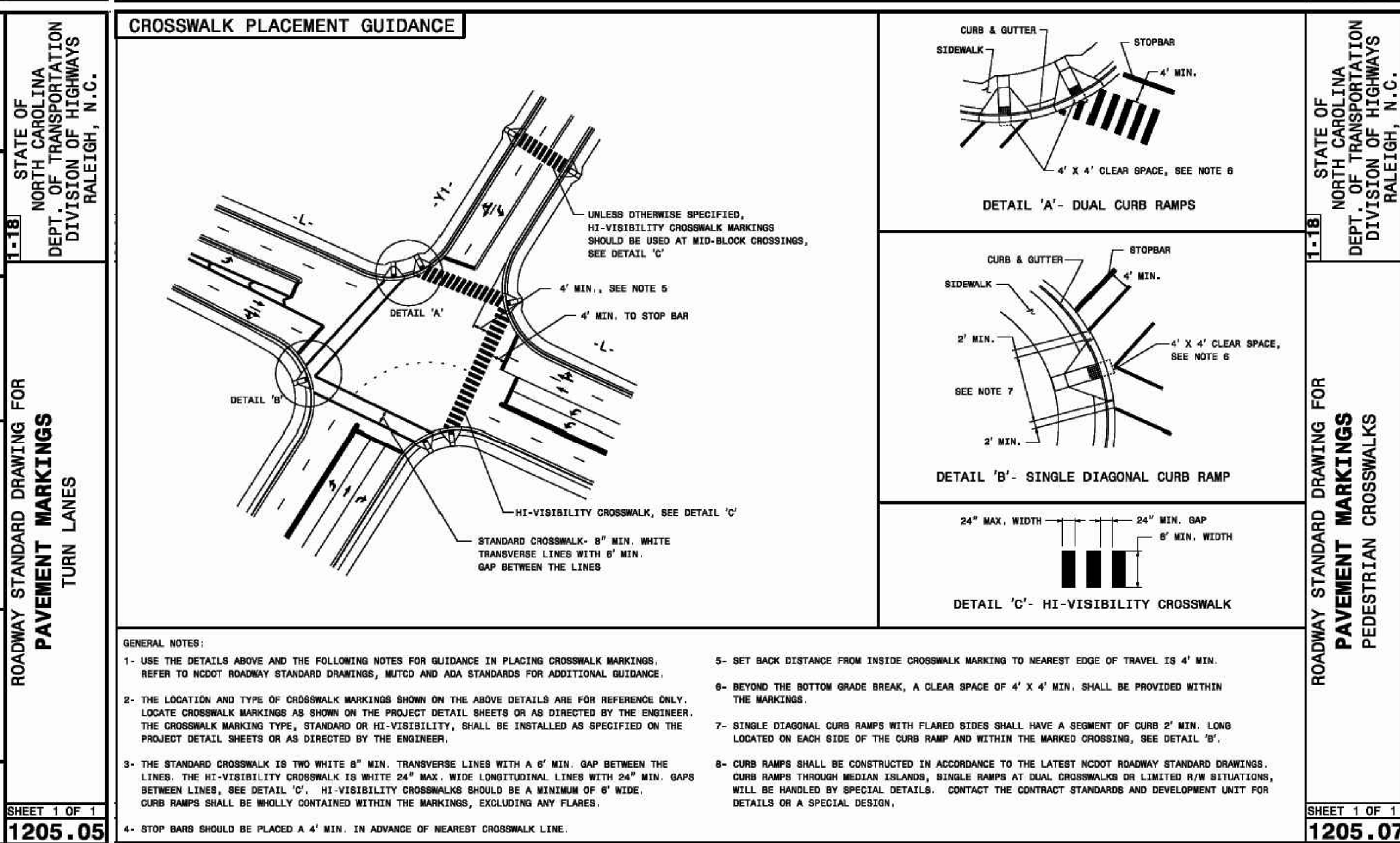
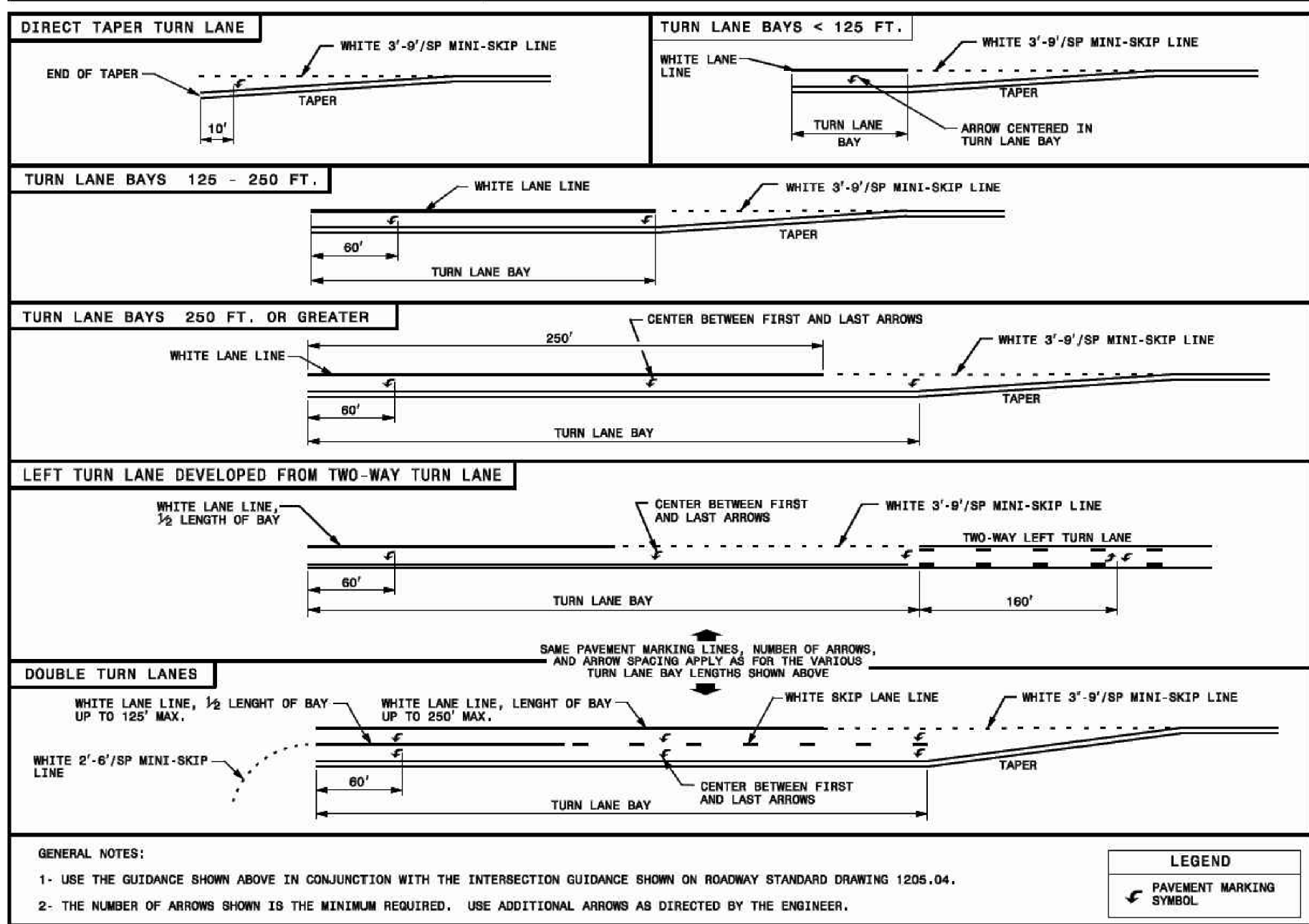
SHEET 1 OF 2
1205.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
TWO-LANE AND MULTI-LANE ROADWAYS

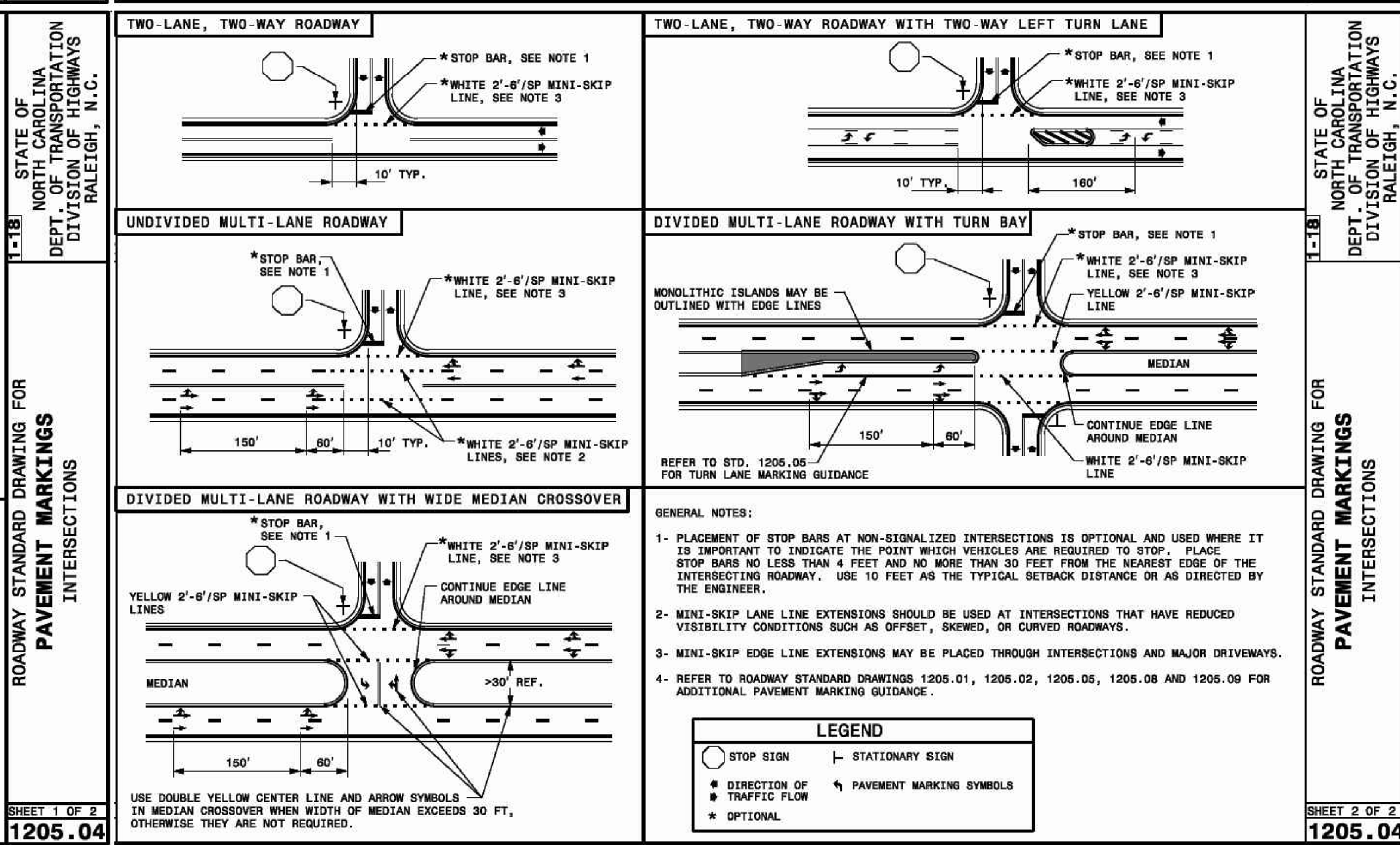
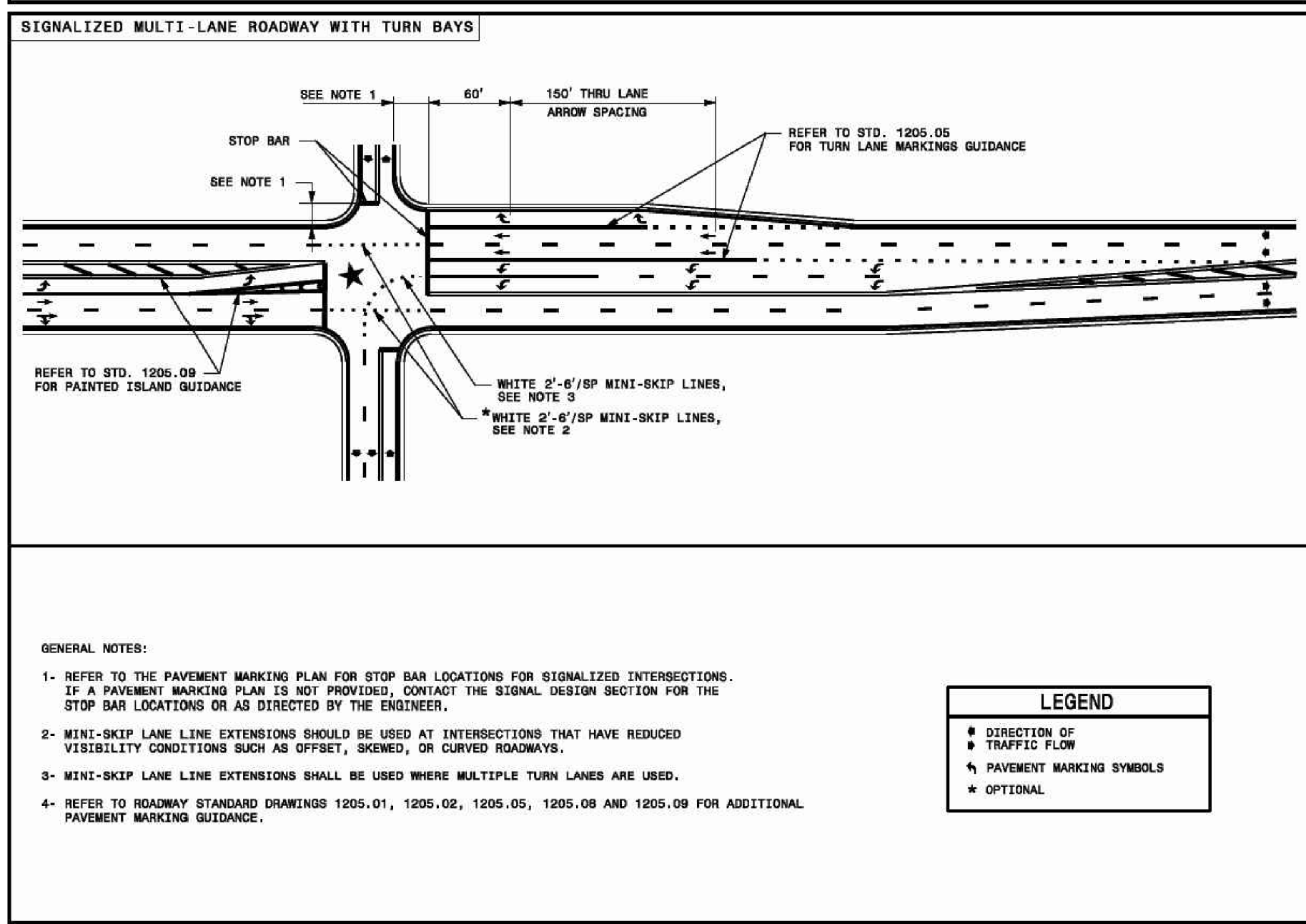
SHEET 1 OF 2
1205.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
TWO-LANE AND MULTI-LANE ROADWAYS

SHEET 2 OF 2
1205.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
INTERSECTIONS

SHEET 2 OF 2
1205.04

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



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CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

NCDOT DETAILS

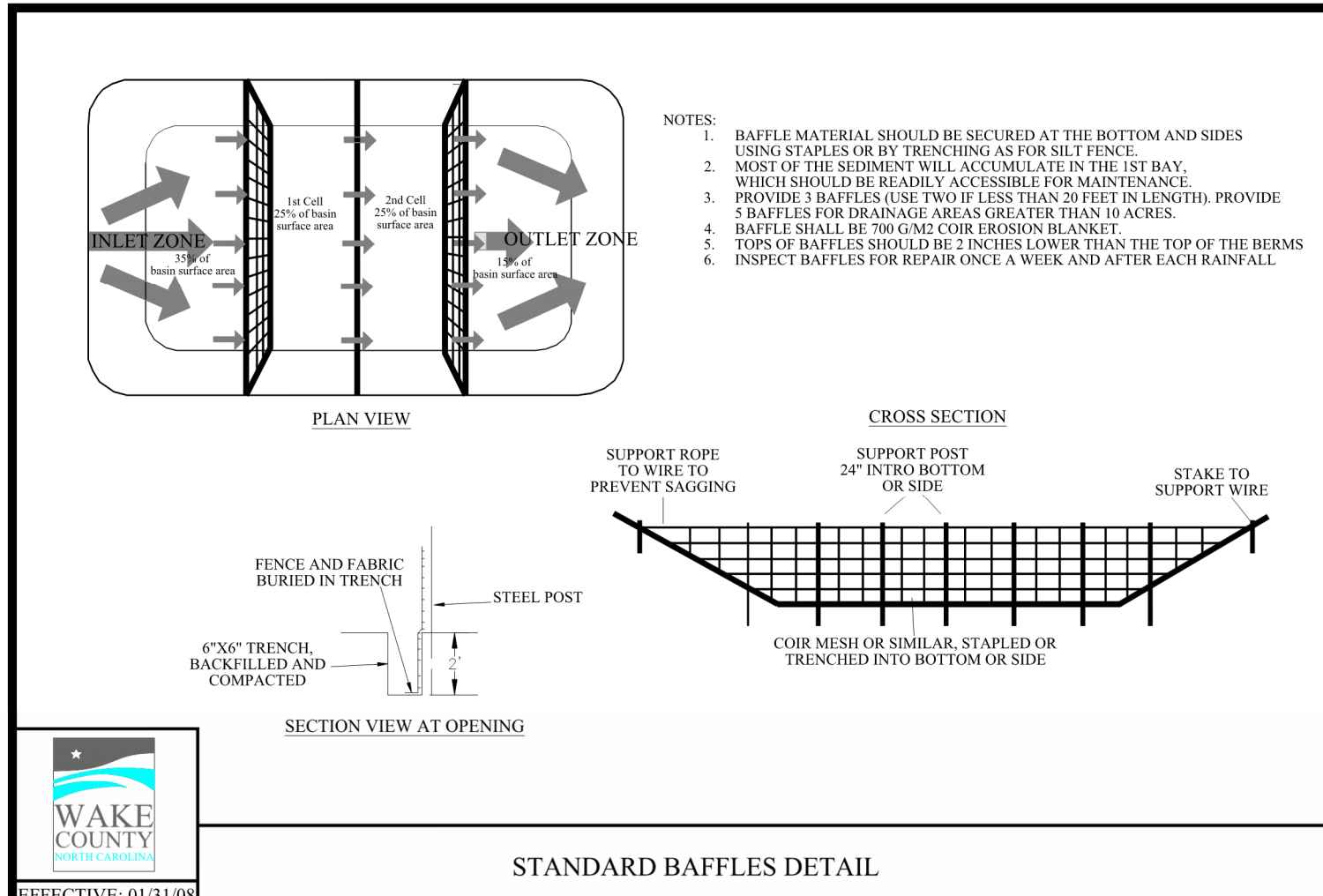
Project Engineer: TSS
Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS

Date: 07/31/2019

Project Number: 170348

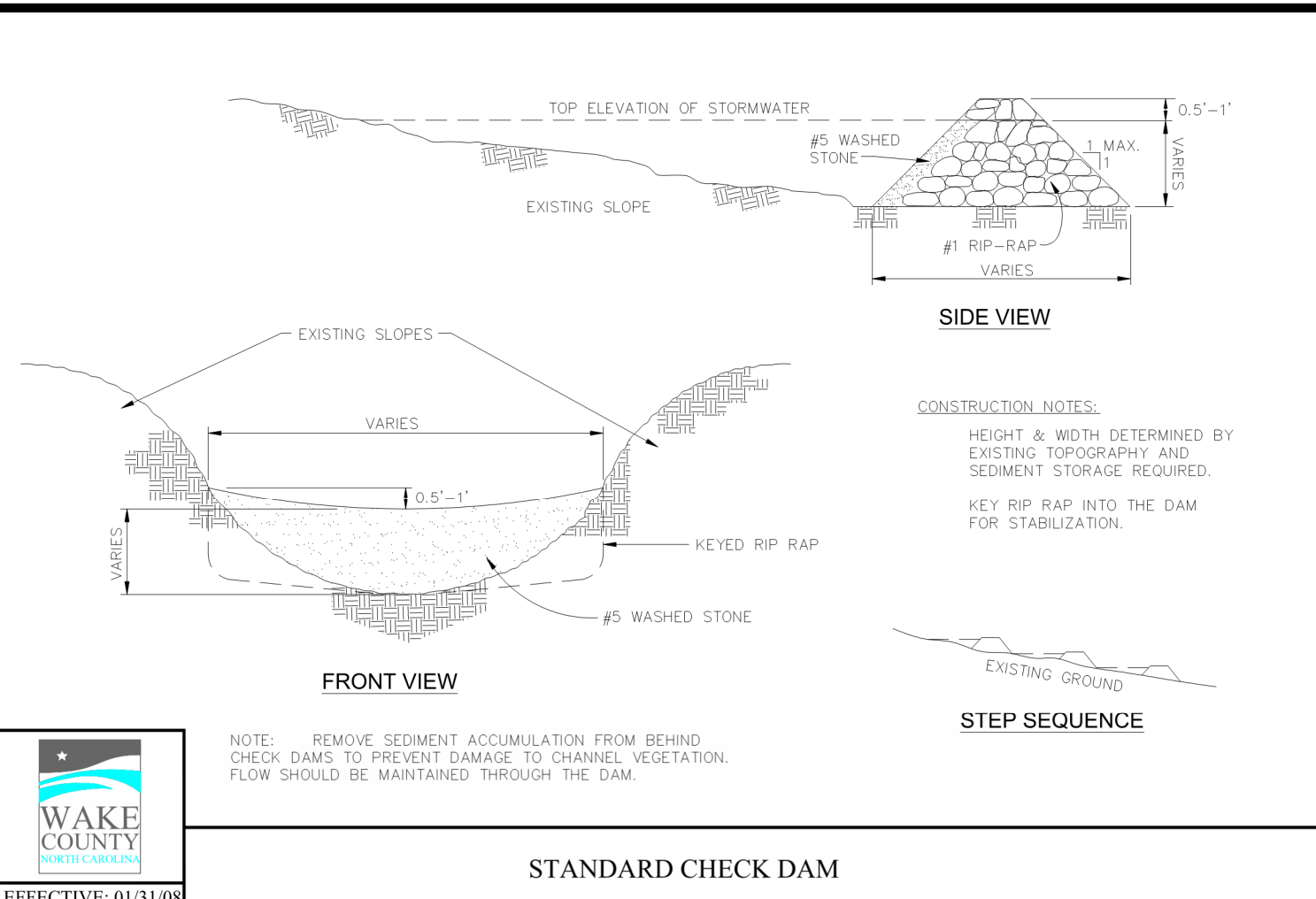
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C807

ELIZABETH HEIGHTS



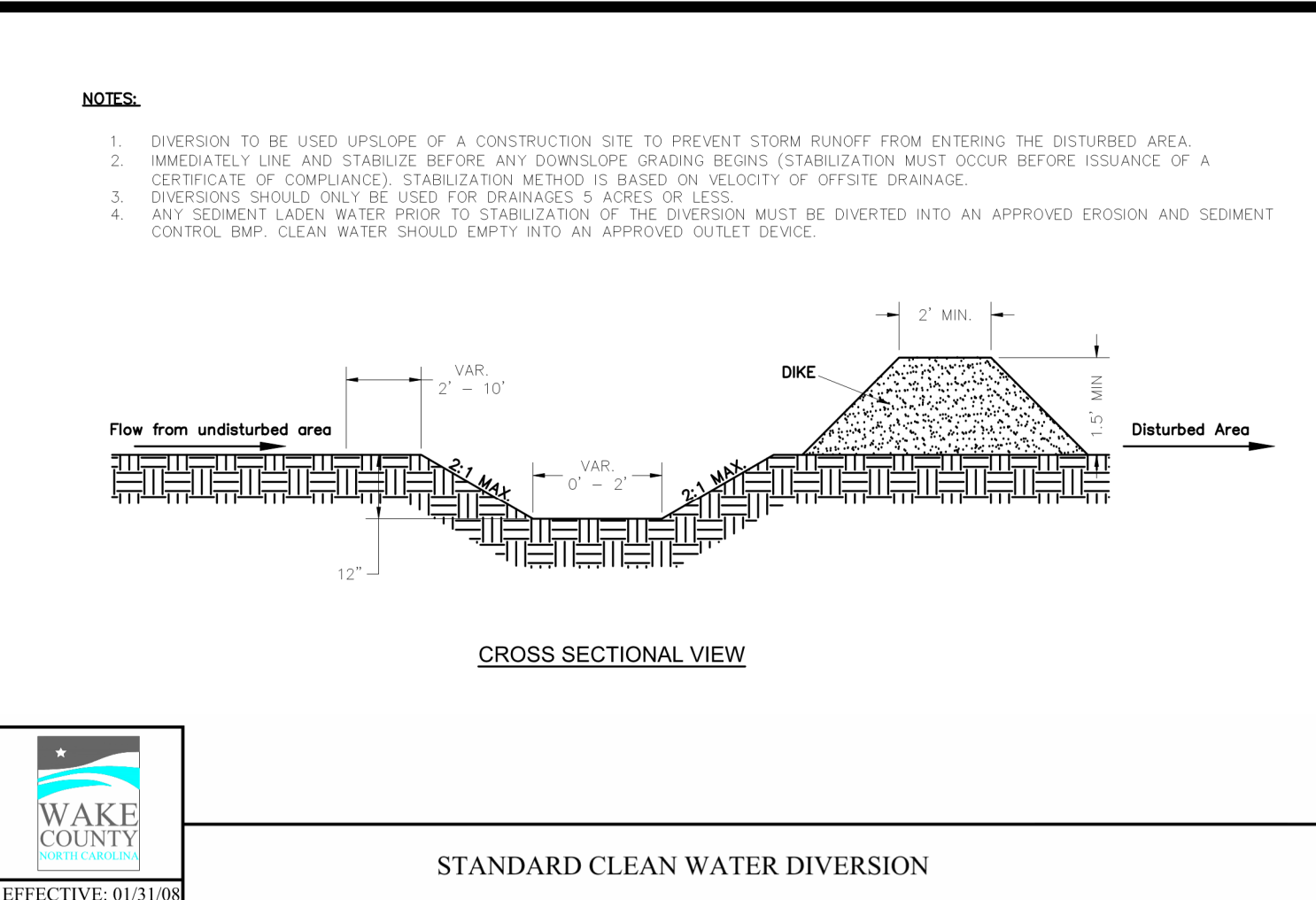
STANDARD BAFFLES DETAIL

EFFECTIVE: 01/31/08



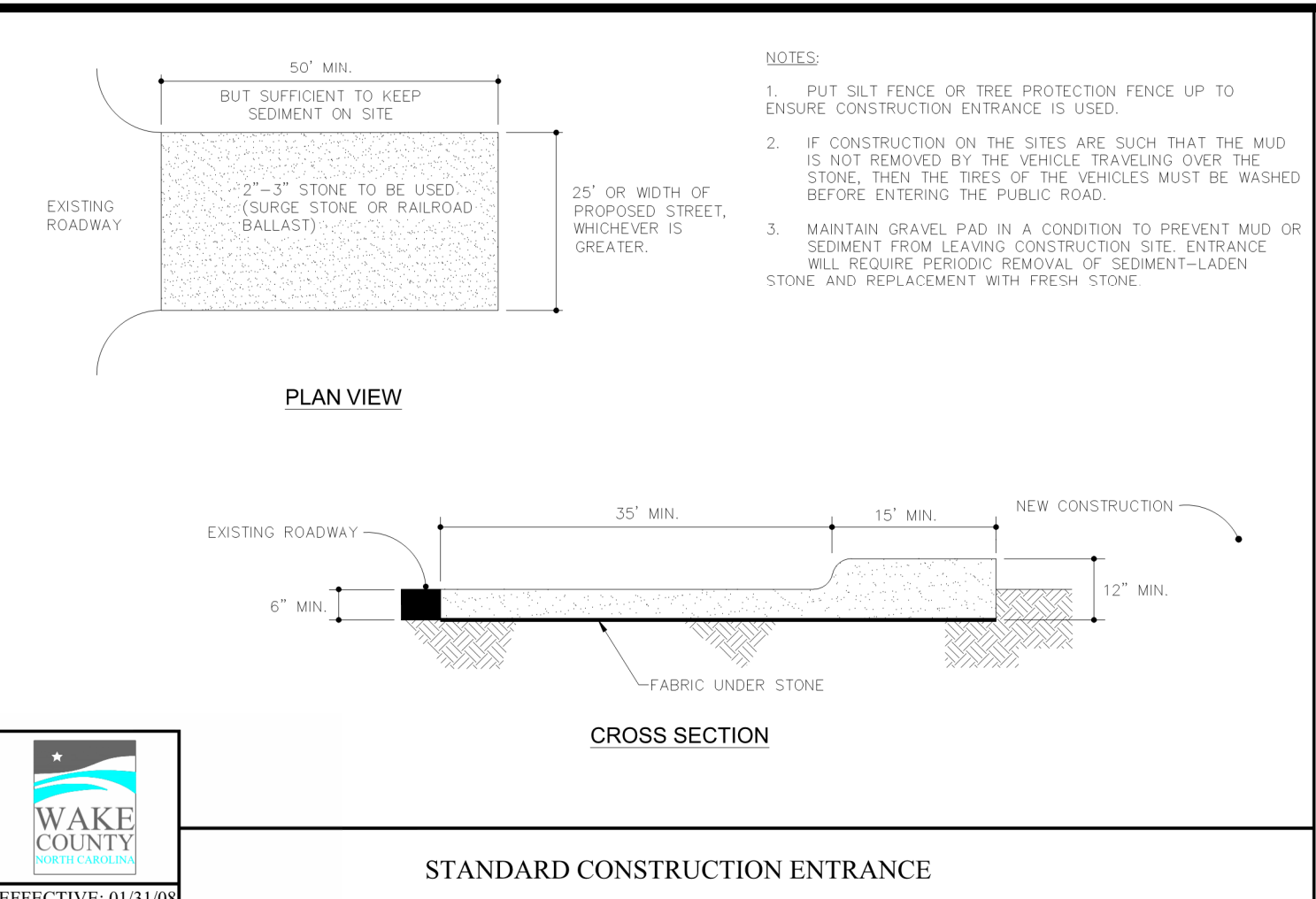
STANDARD CHECK DAM

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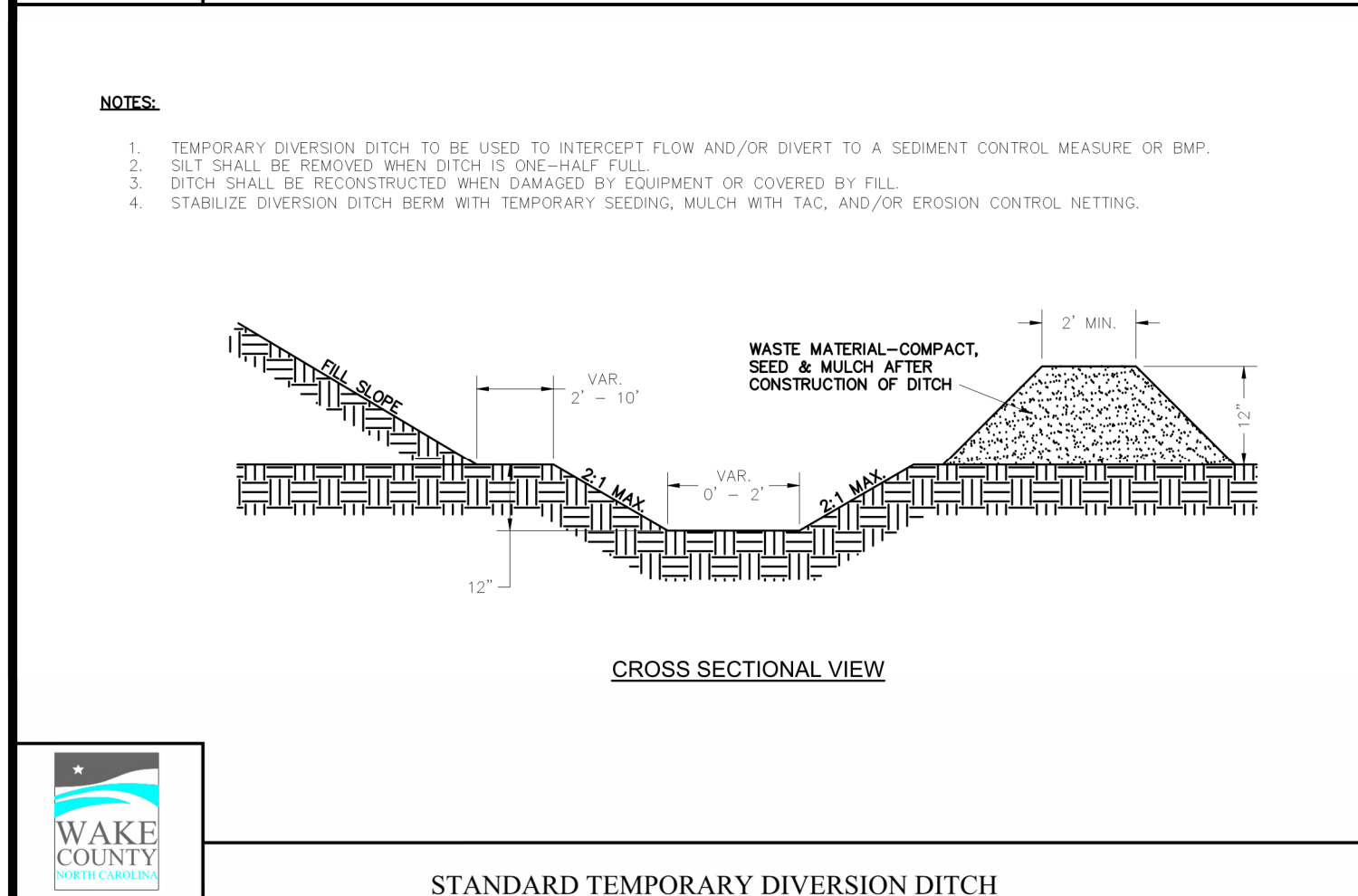
STANDARD CLEAN WATER DIVERSION

EFFECTIVE: 01/31/08



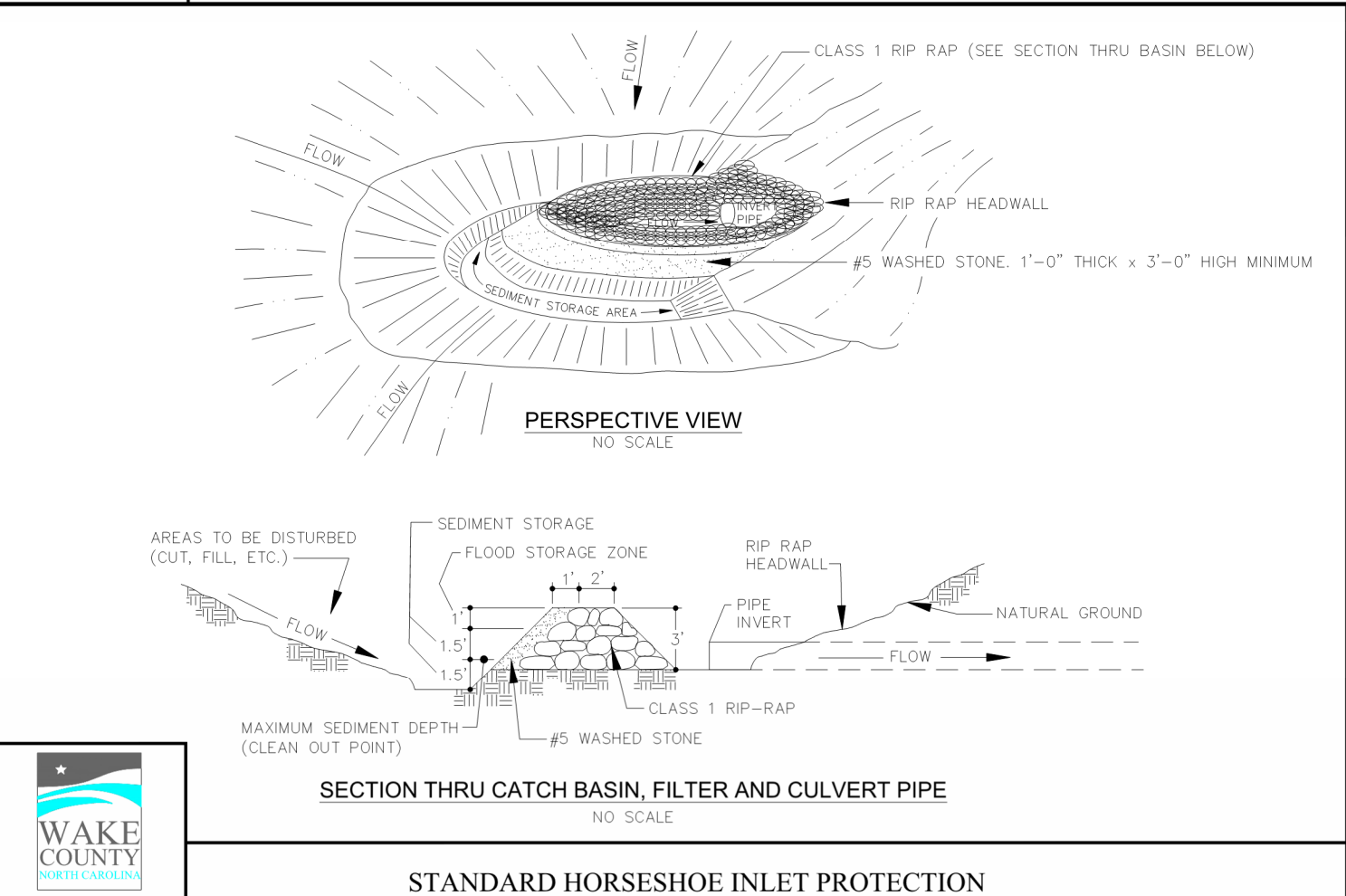
STANDARD CONSTRUCTION ENTRANCE

EFFECTIVE: 01/31/08



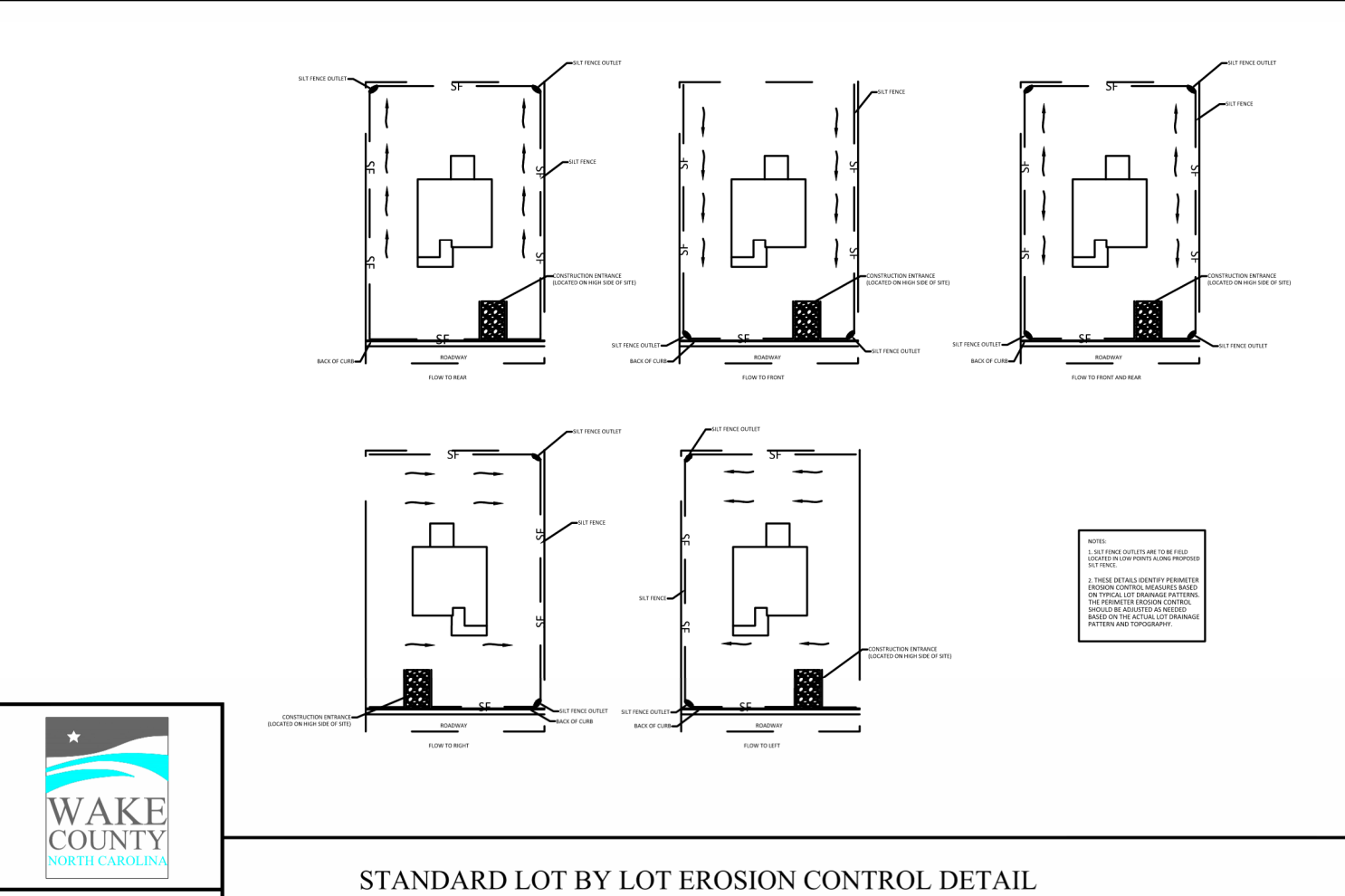
STANDARD TEMPORARY DIVERSION DITCH

EFFECTIVE: 01/31/08



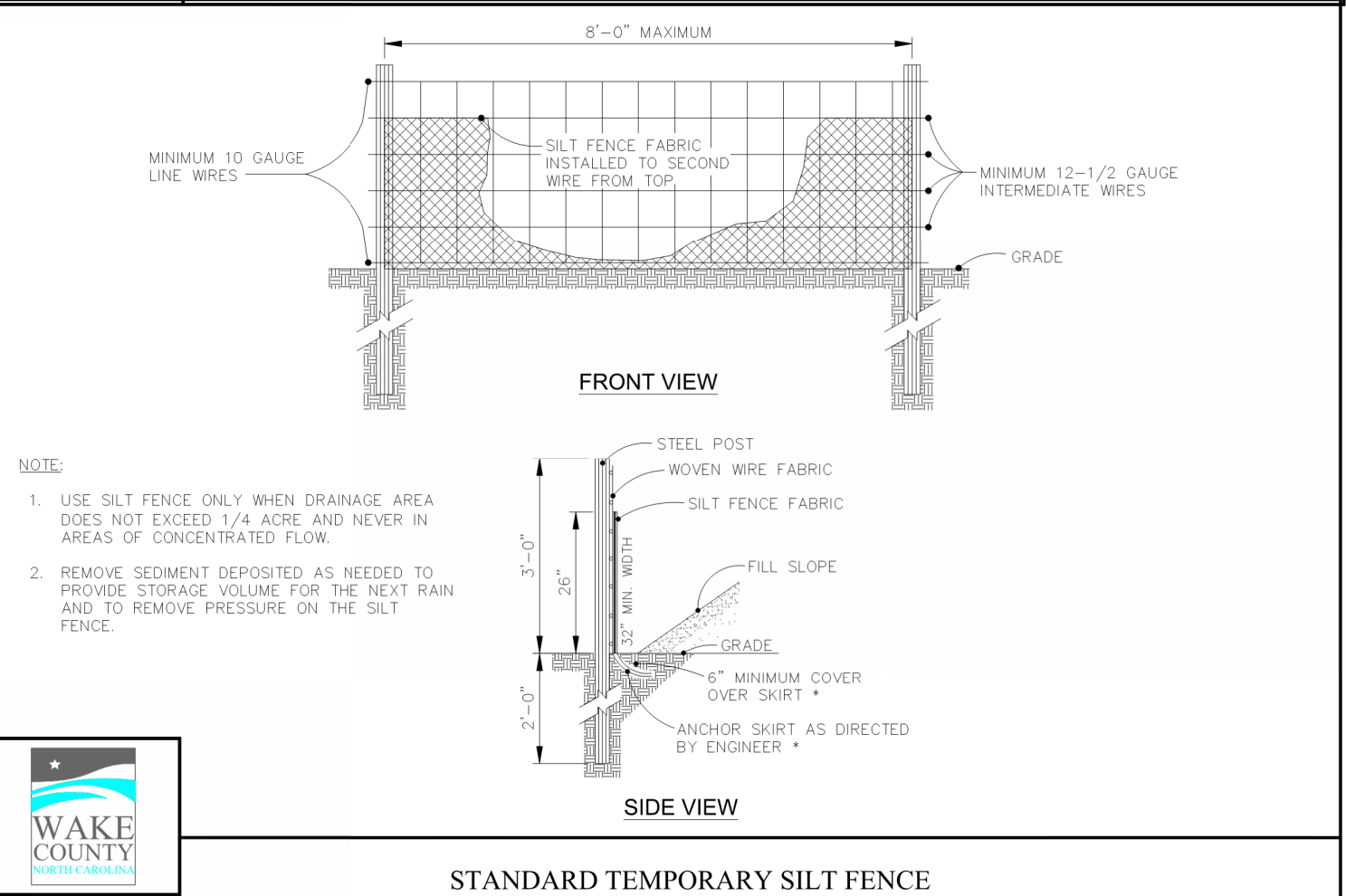
STANDARD HORSESHOE INLET PROTECTION

EFFECTIVE: 01/31/08



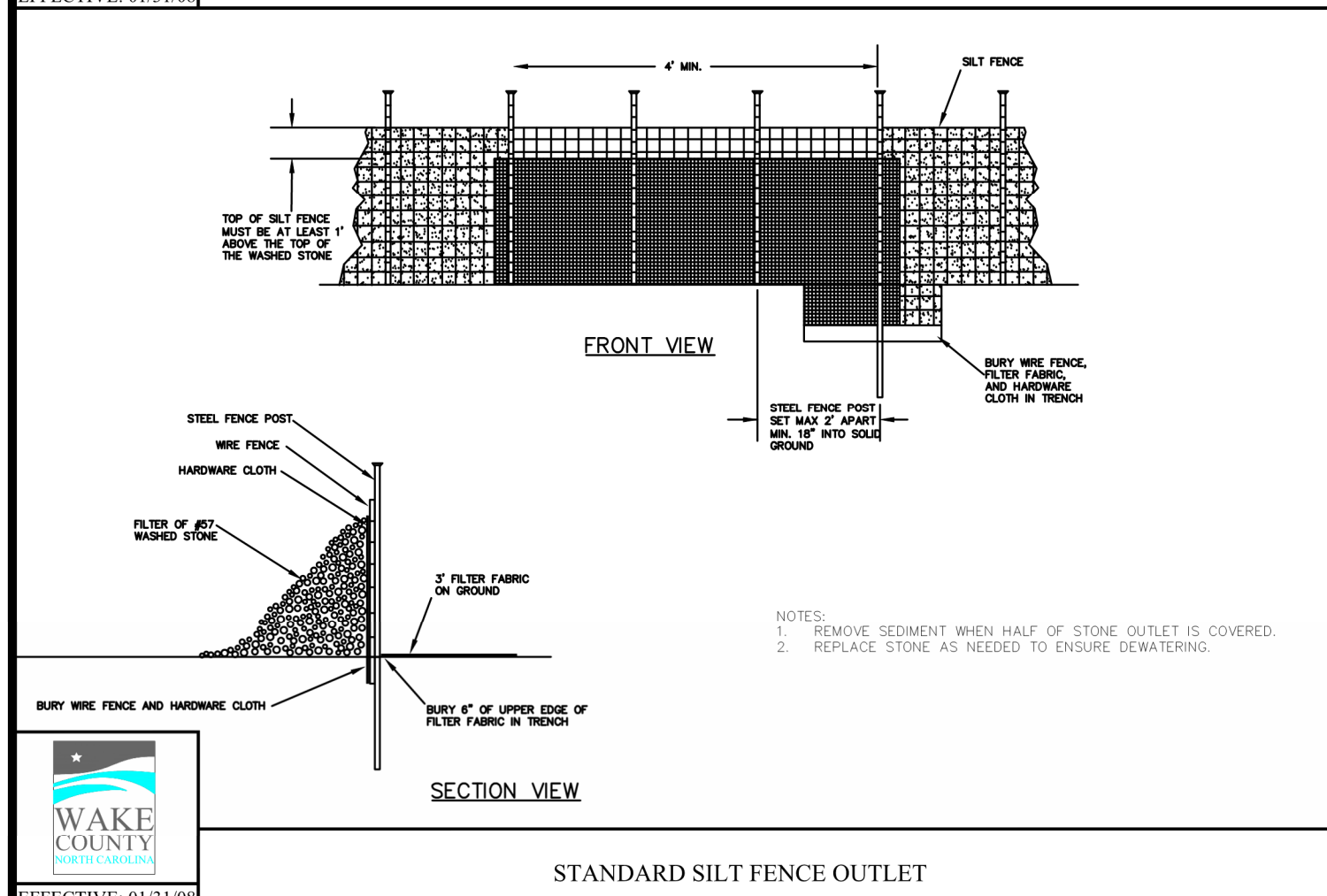
STANDARD LOT BY LOT EROSION CONTROL DETAIL

EFFECTIVE: 05/31/18



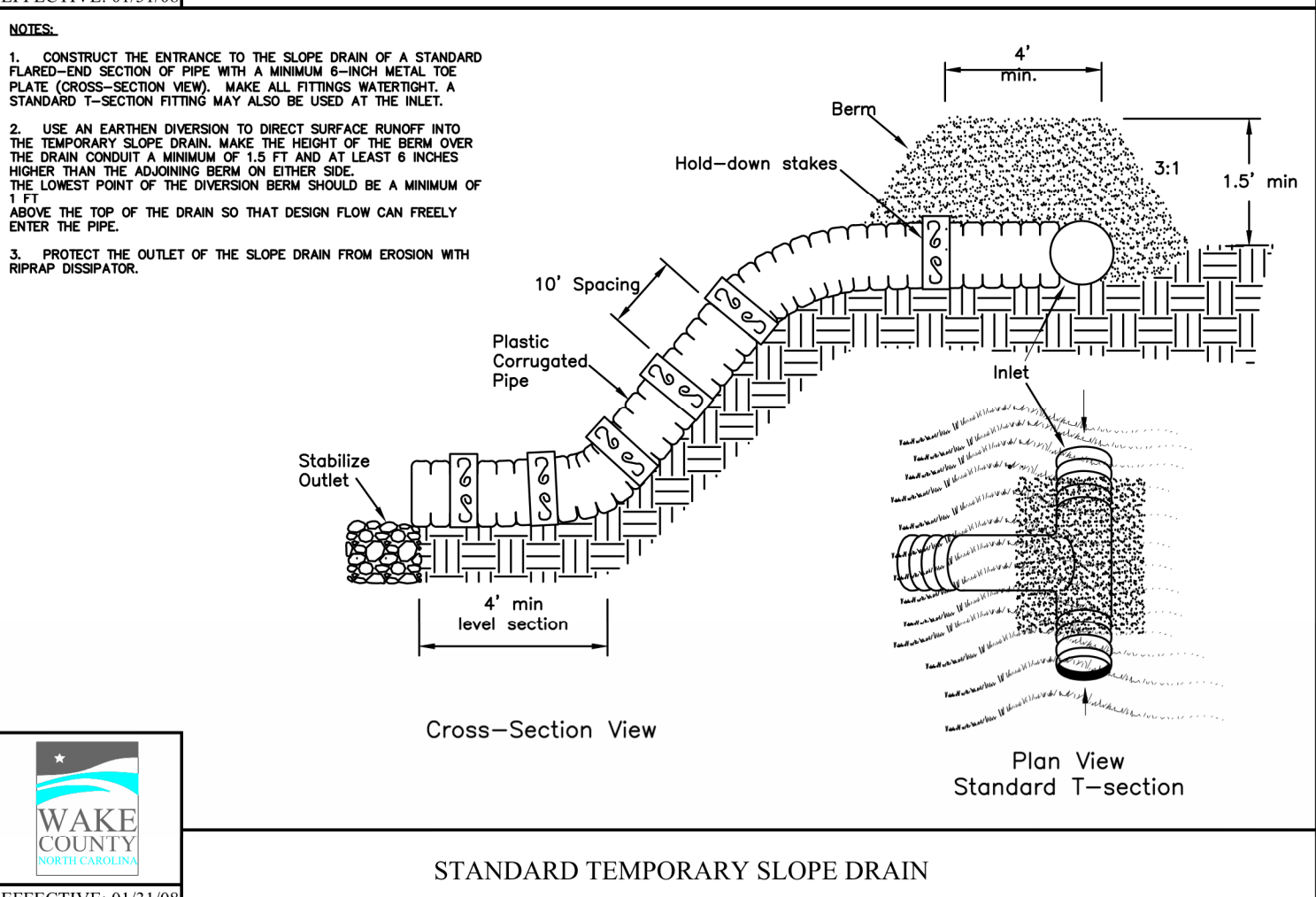
STANDARD TEMPORARY SILT FENCE

EFFECTIVE: 01/31/08



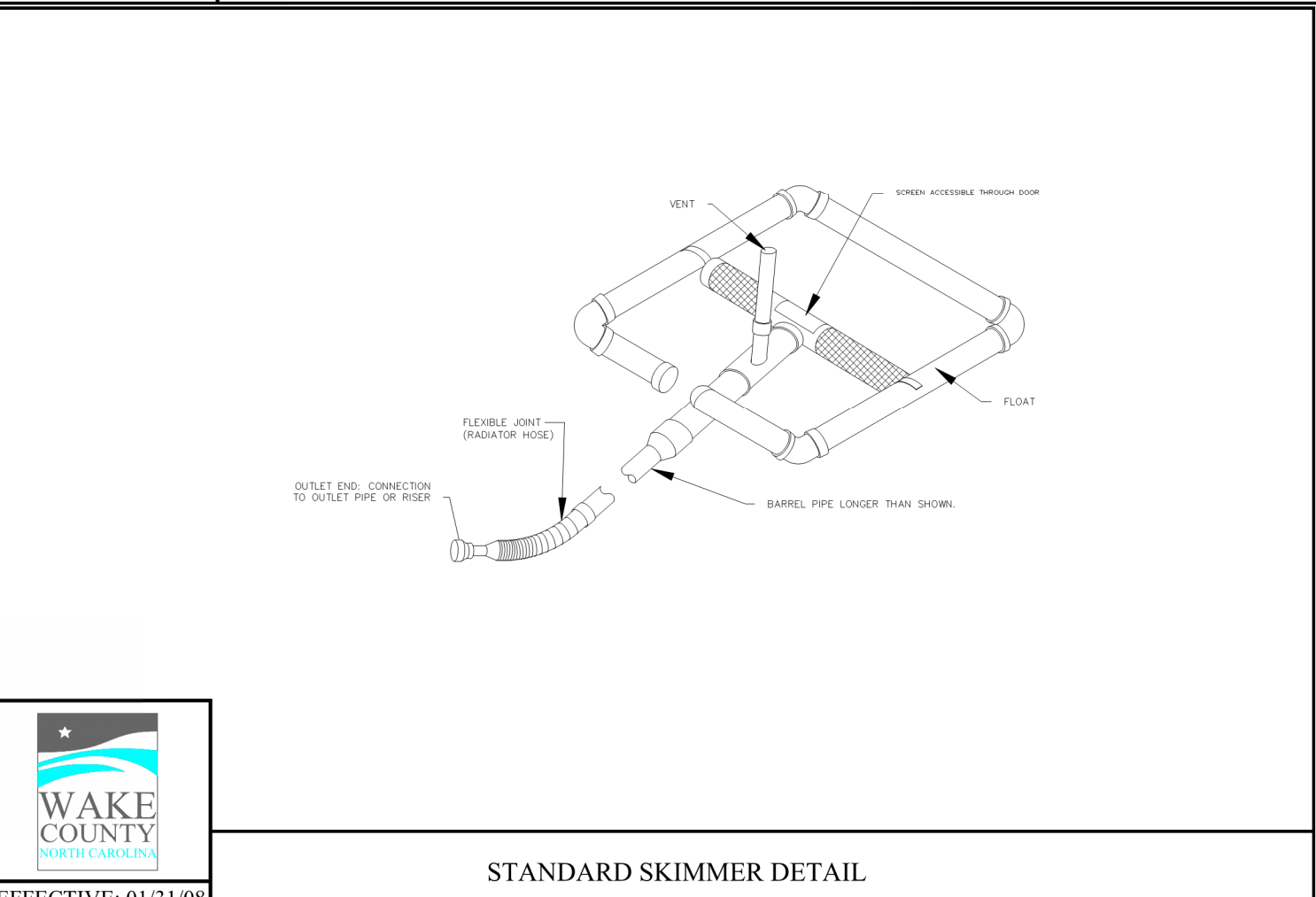
STANDARD SILT FENCE OUTLET

EFFECTIVE: 01/31/08



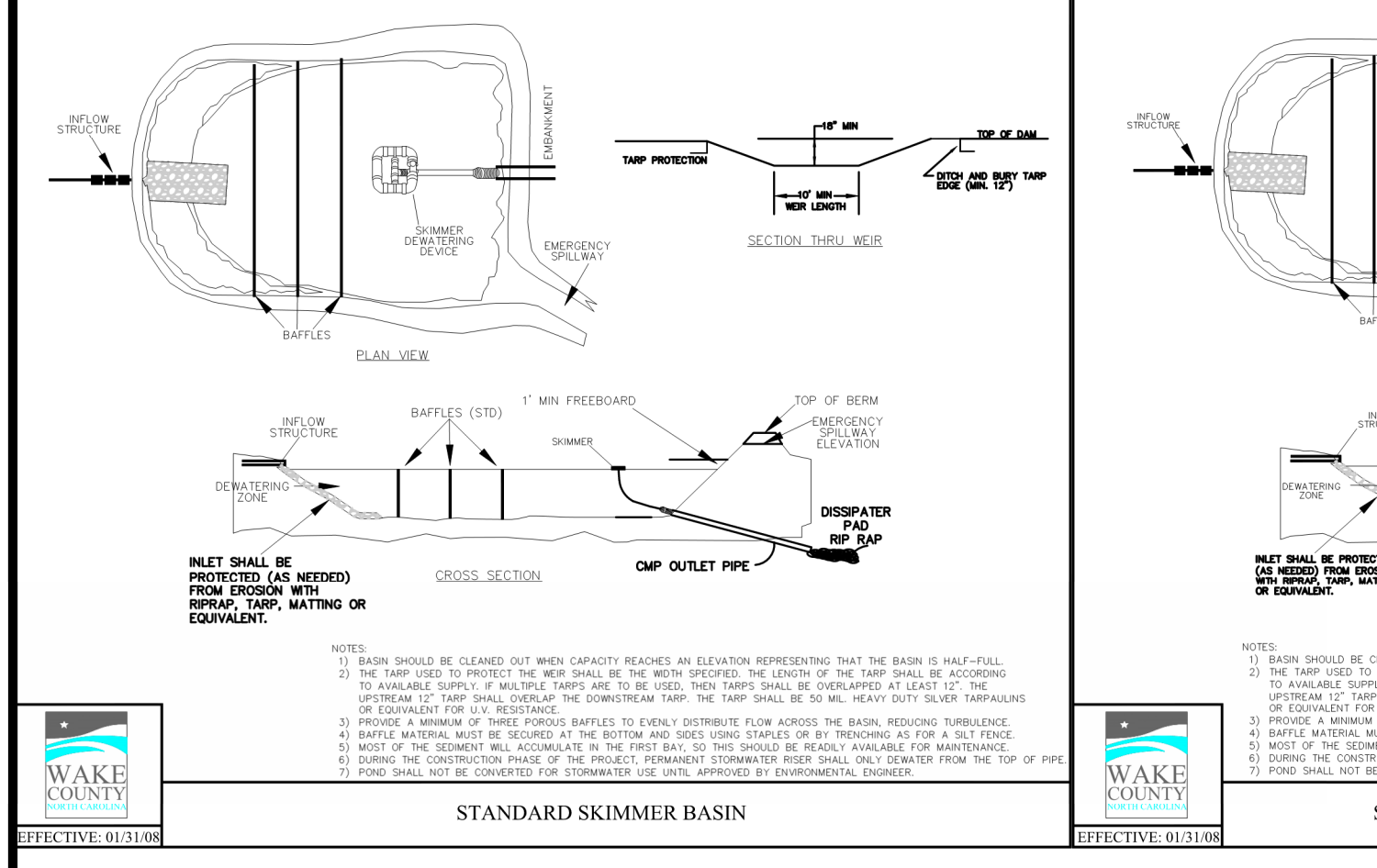
STANDARD TEMPORARY SLOPE DRAIN

EFFECTIVE: 01/31/08



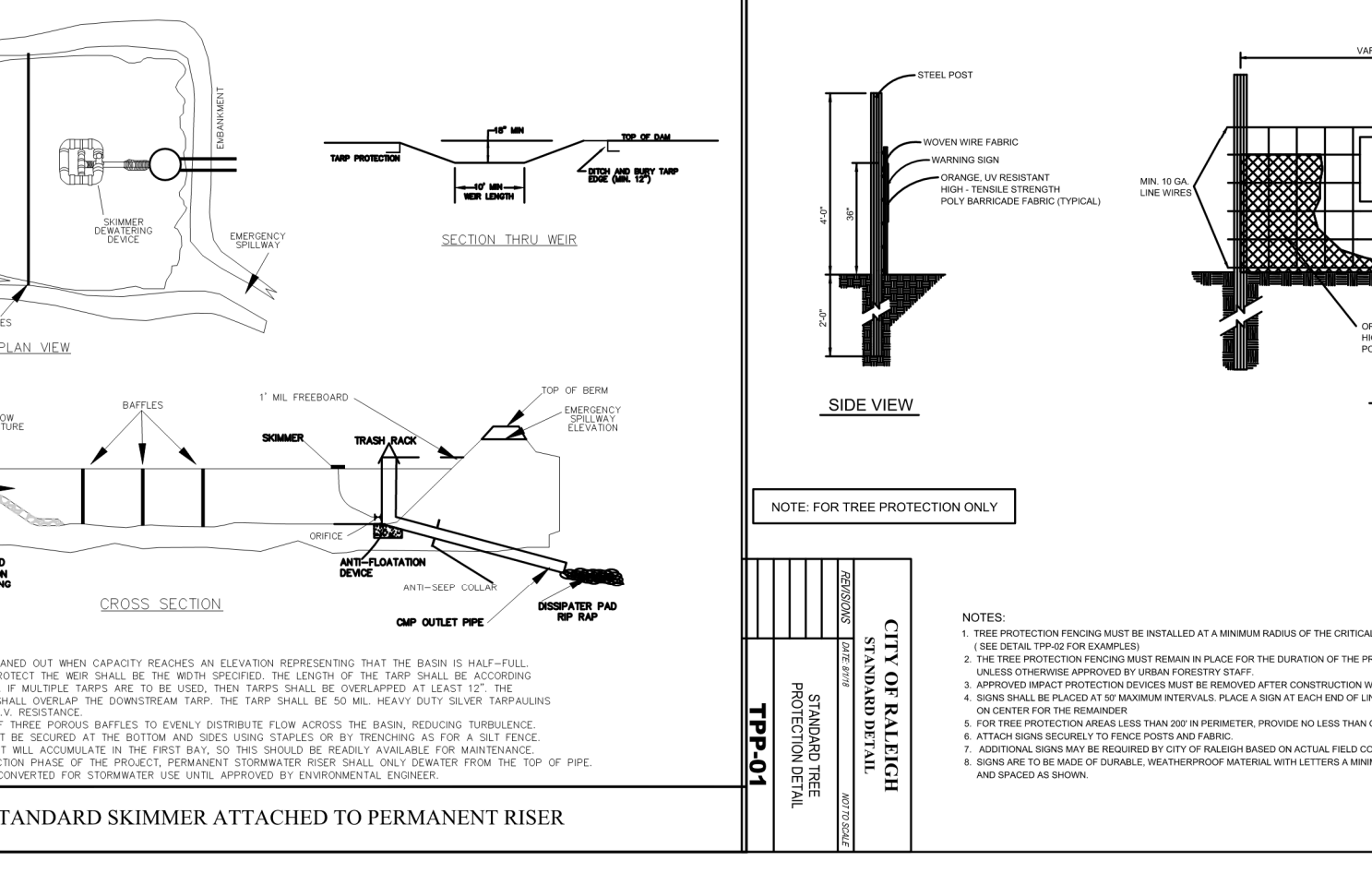
STANDARD SKIMMER DETAIL

EFFECTIVE: 01/31/08



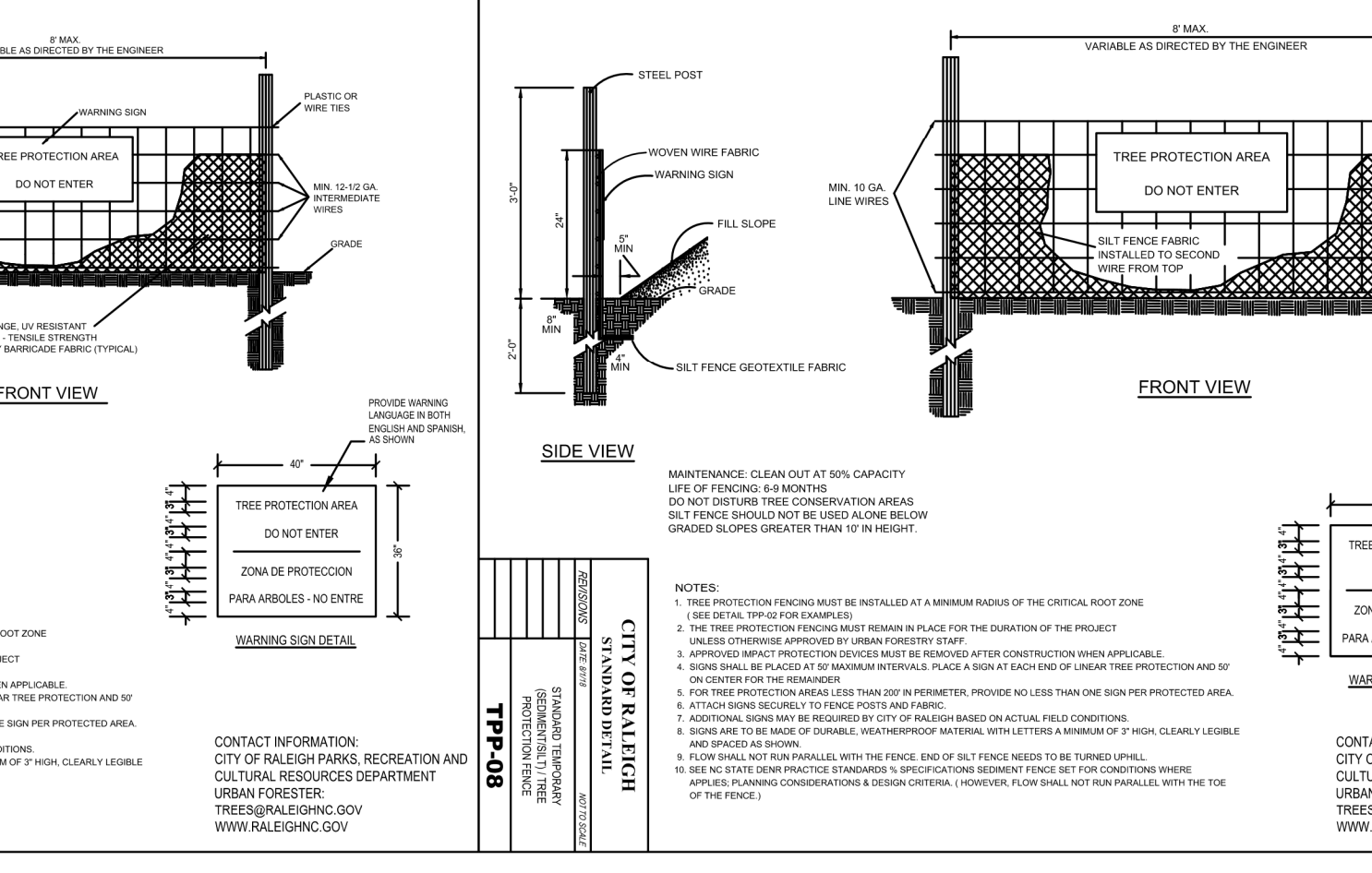
STANDARD SKIMMER BASIN

EFFECTIVE: 01/31/08



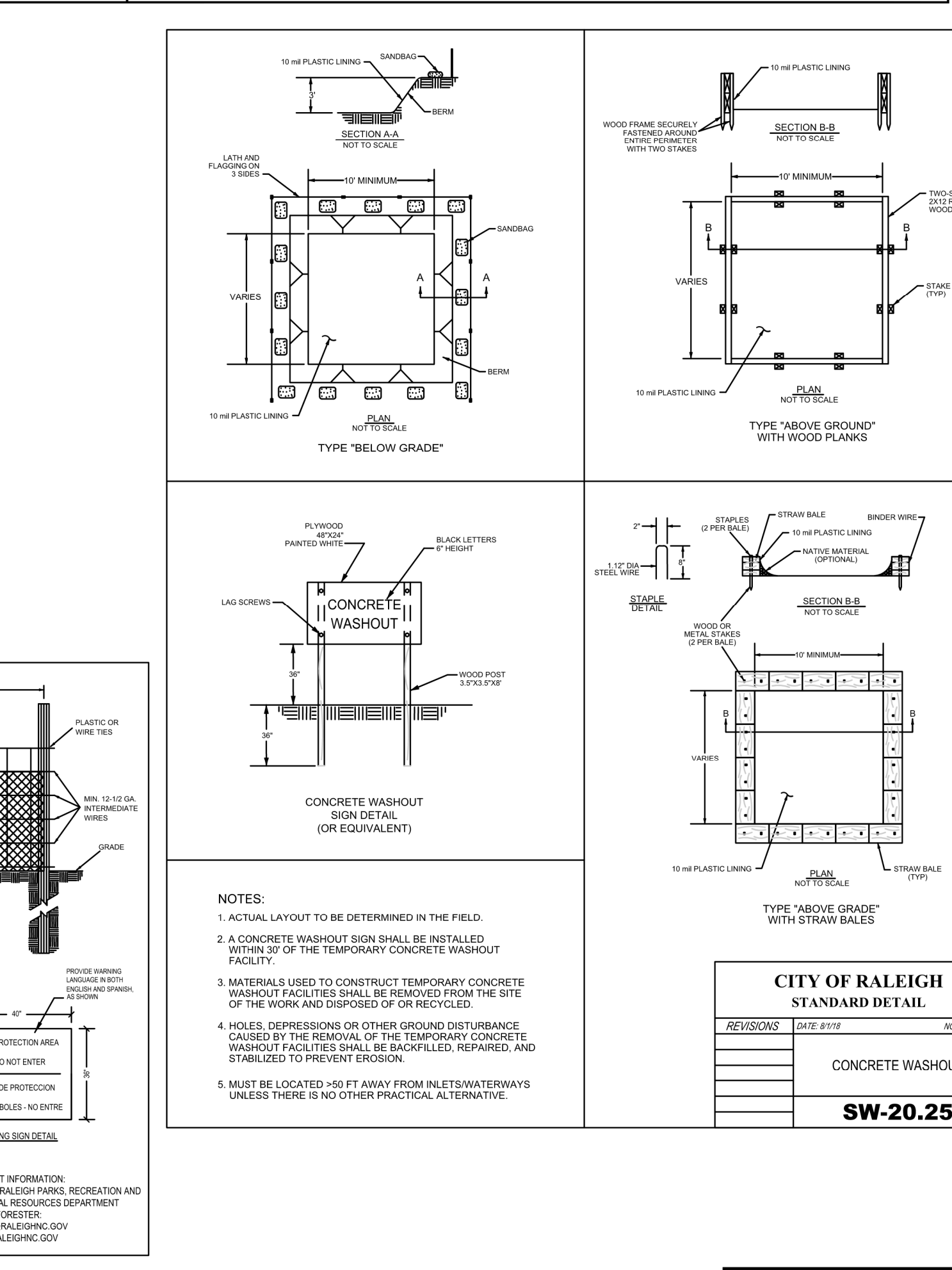
STANDARD SKIMMER ATTACHED TO PERMANENT RISER

EFFECTIVE: 01/31/08



STANDARD TREE PROTECTION

EFFECTIVE: 01/31/08



CONCRETE WASHOUT

EFFECTIVE: 01/31/08

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018



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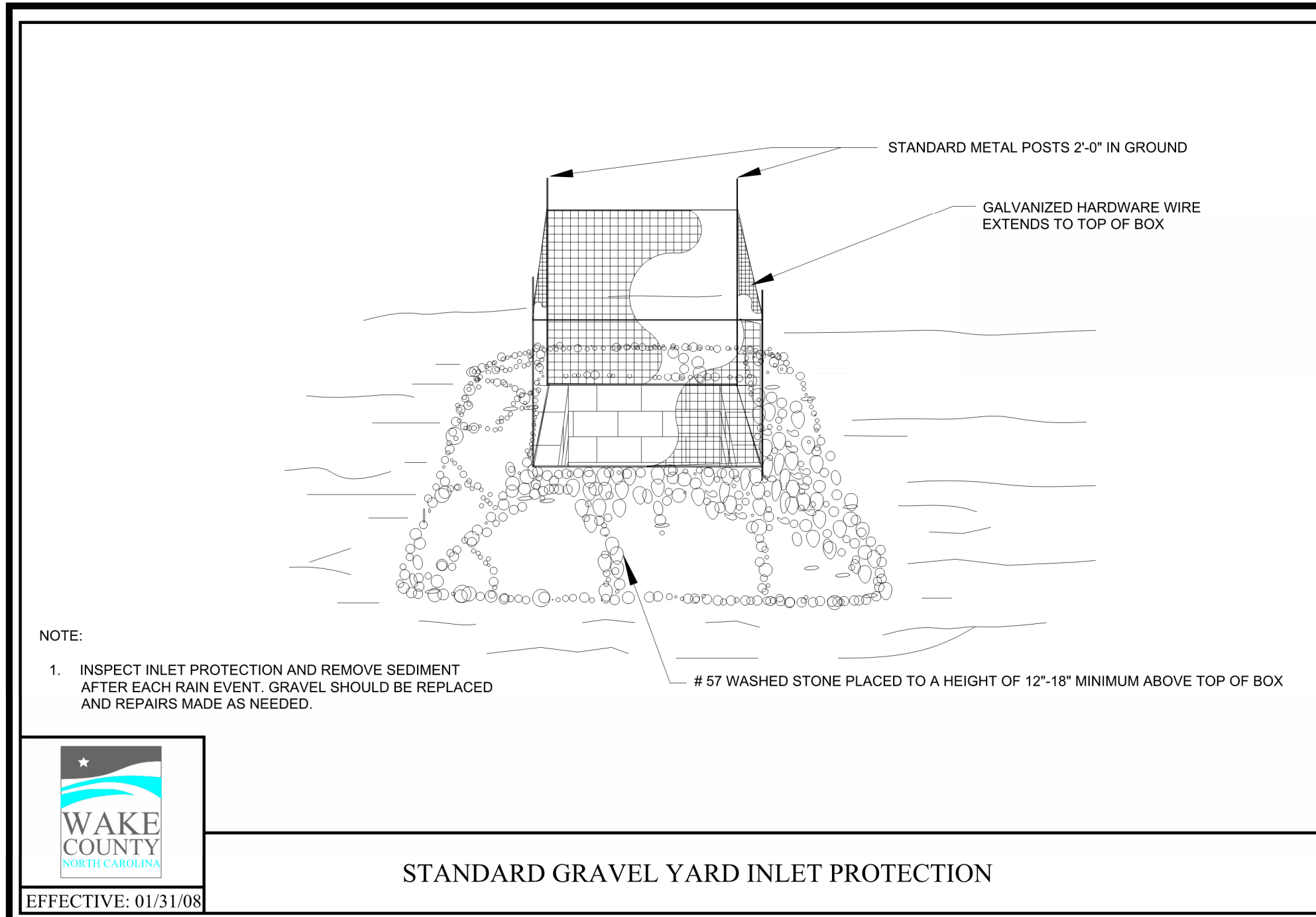
ELIZABETH HEIGHTS
 CONSTRUCTION DRAWINGS

WAKE COUNTY
 EROSION CONTROL DETAILS

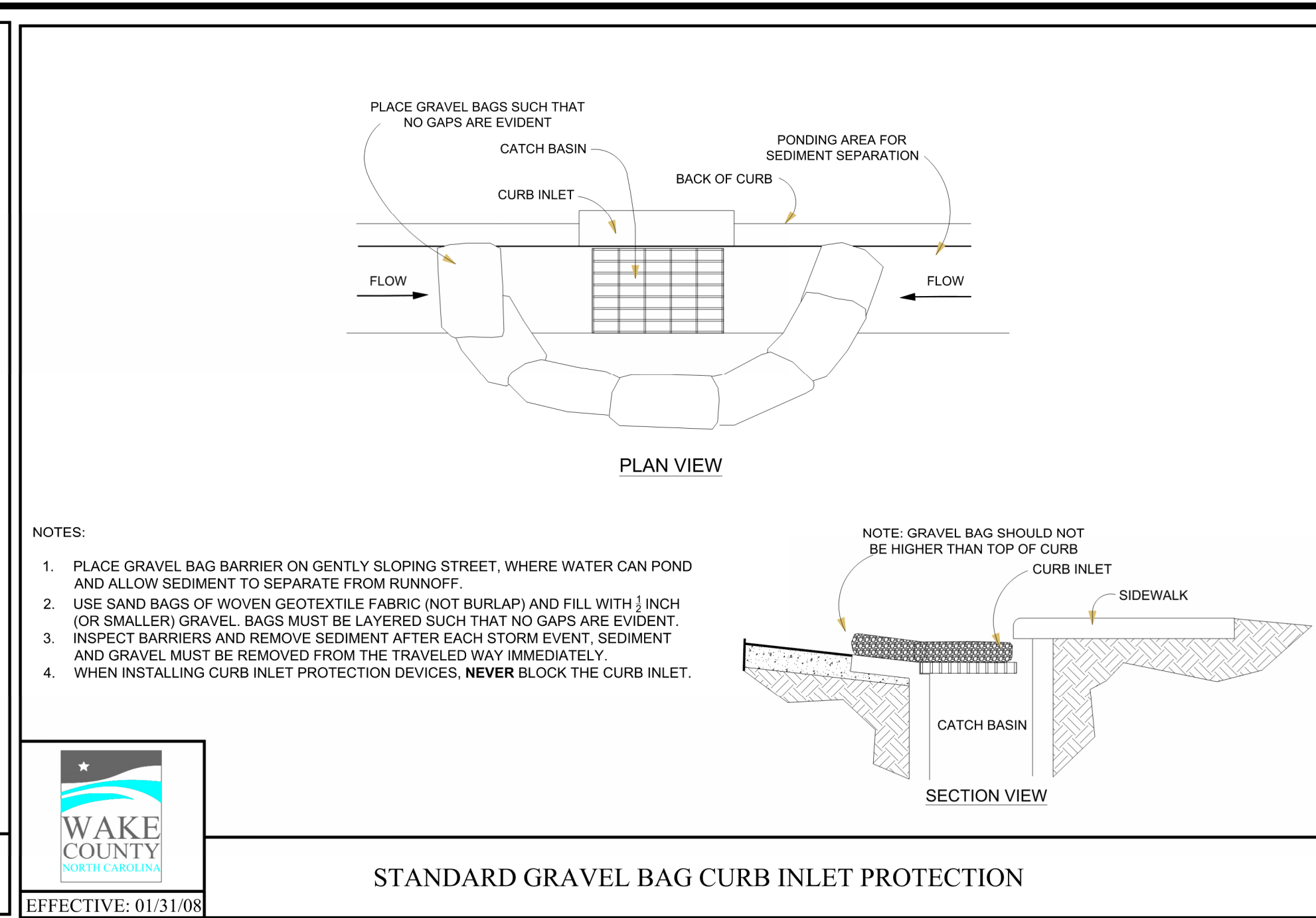
Project Engineer: TSS
 Designed By: RAJ
 Drawn By: RAJ
 Checked By: TSS
 Scale: NTS
 Date: 07/31/2019
 Project Number: .170348

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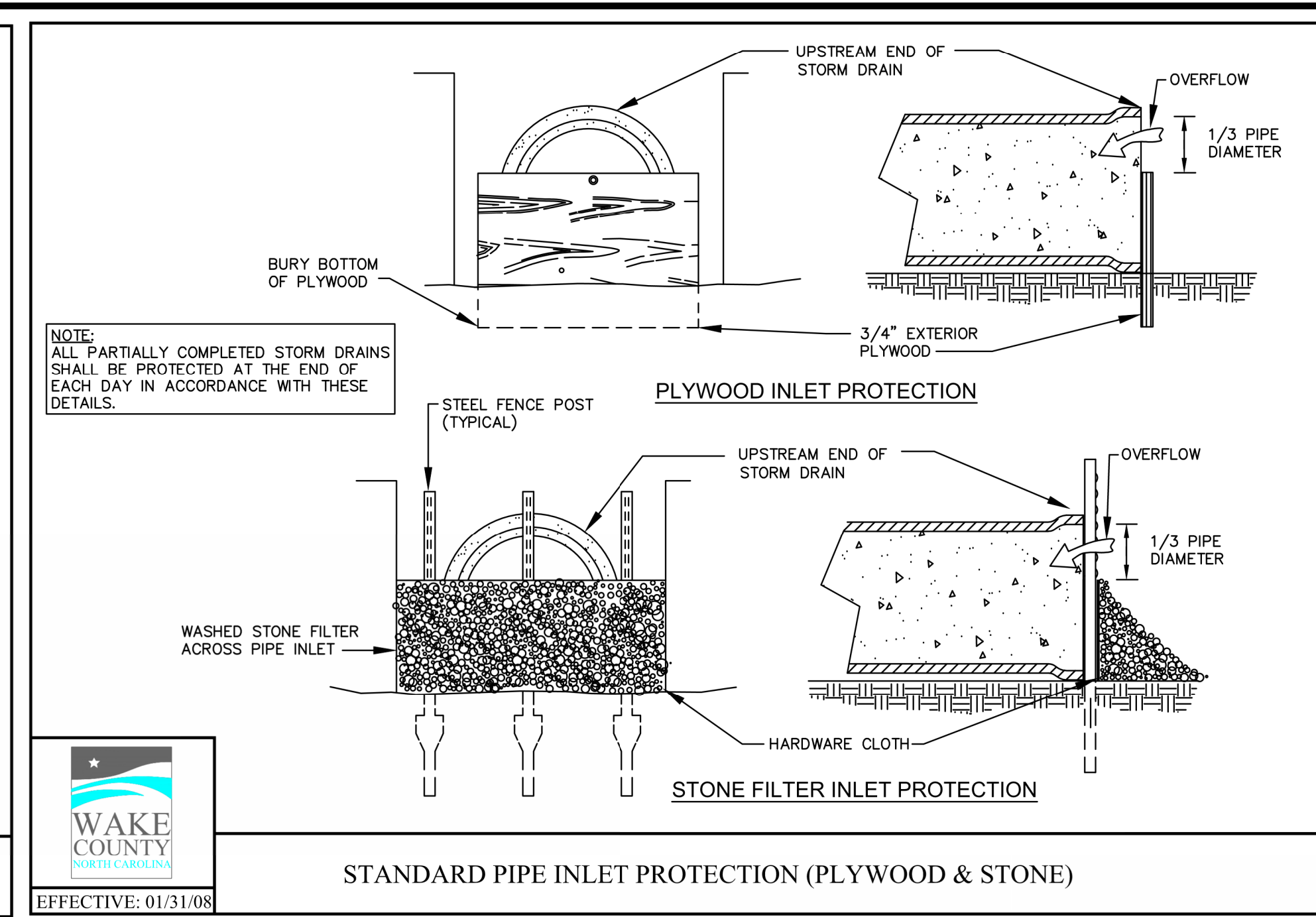
ELIZABETH HEIGHTS



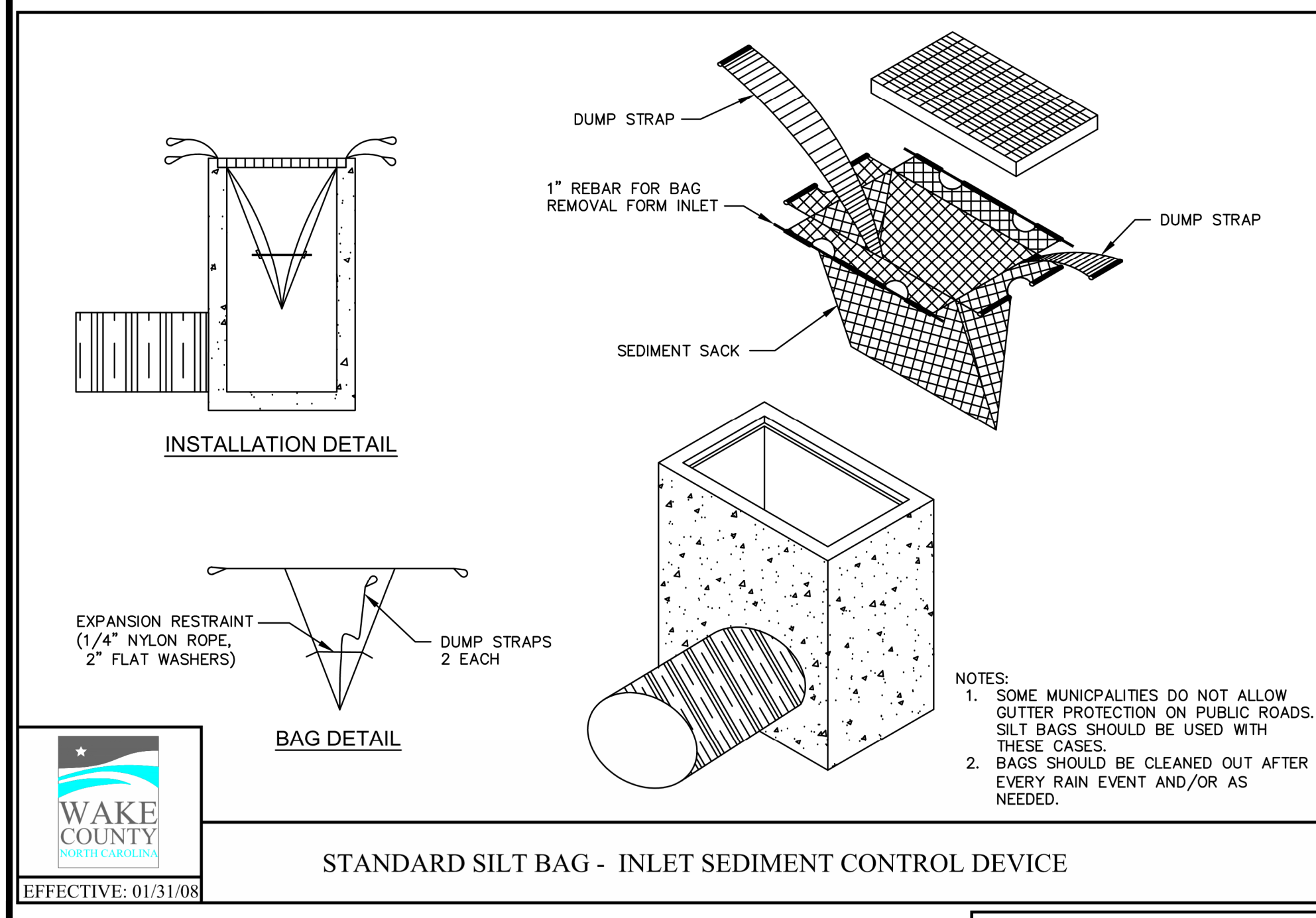
STANDARD GRAVEL YARD INLET PROTECTION



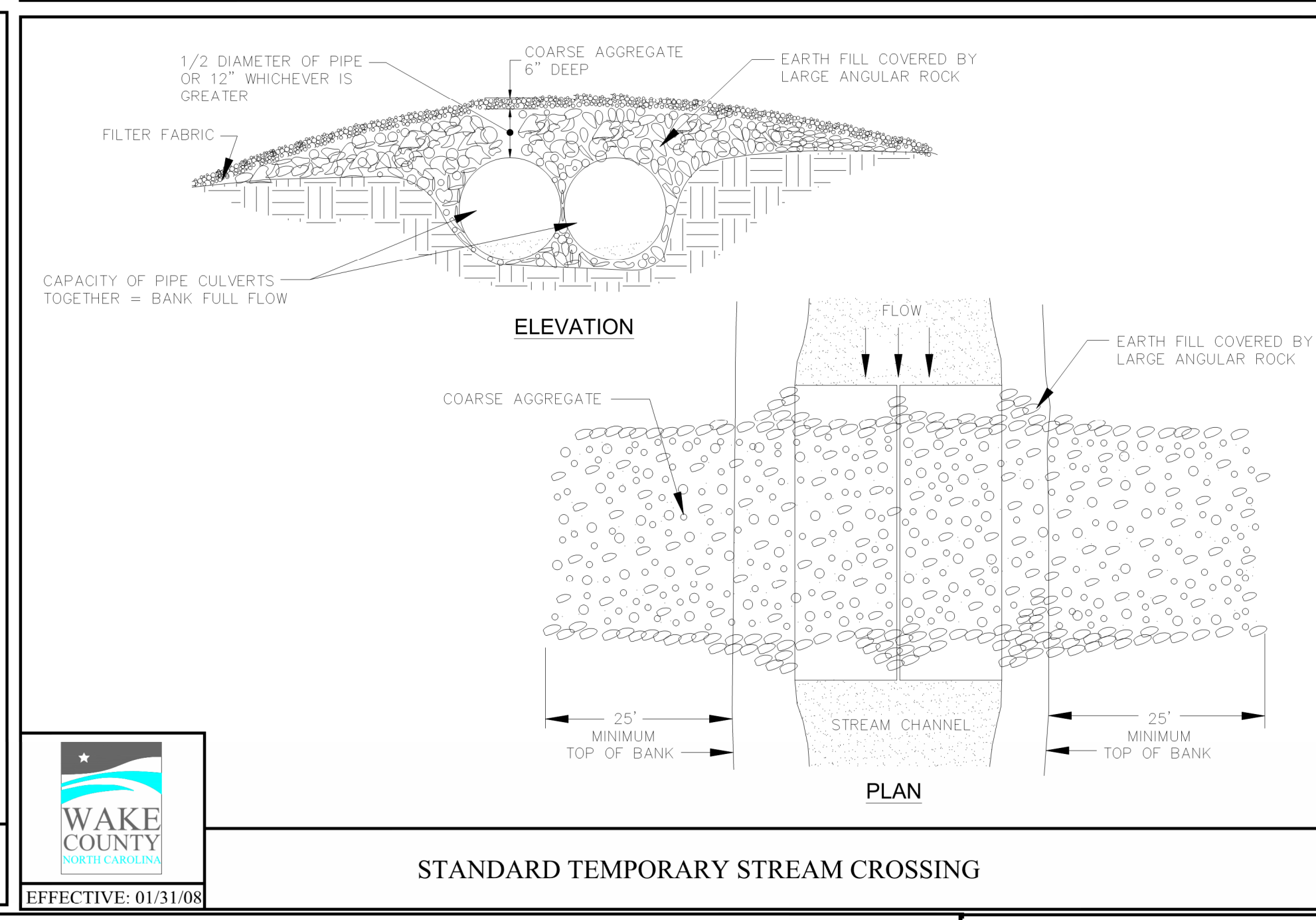
STANDARD GRAVEL BAG CURB INLET PROTECTION



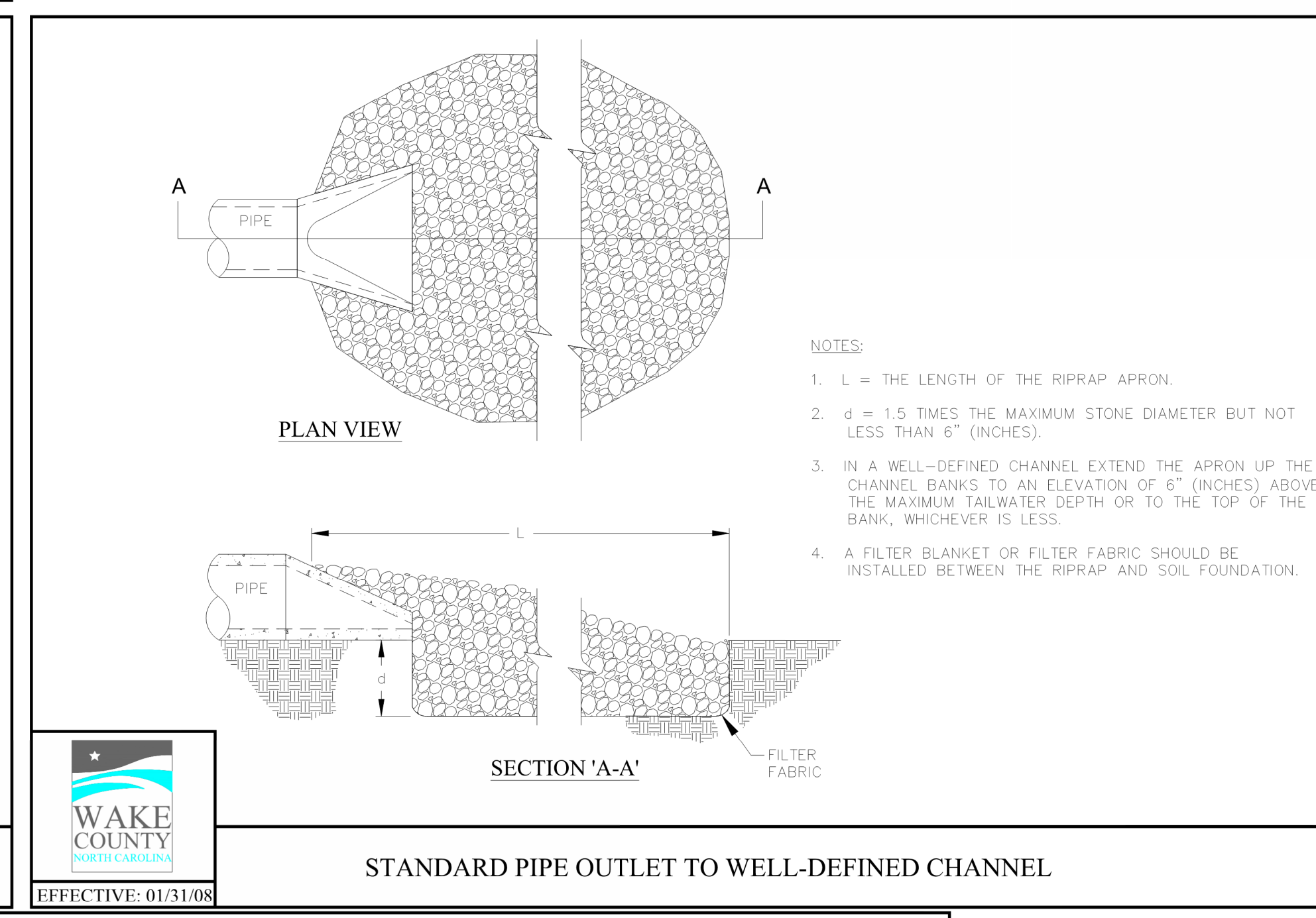
STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



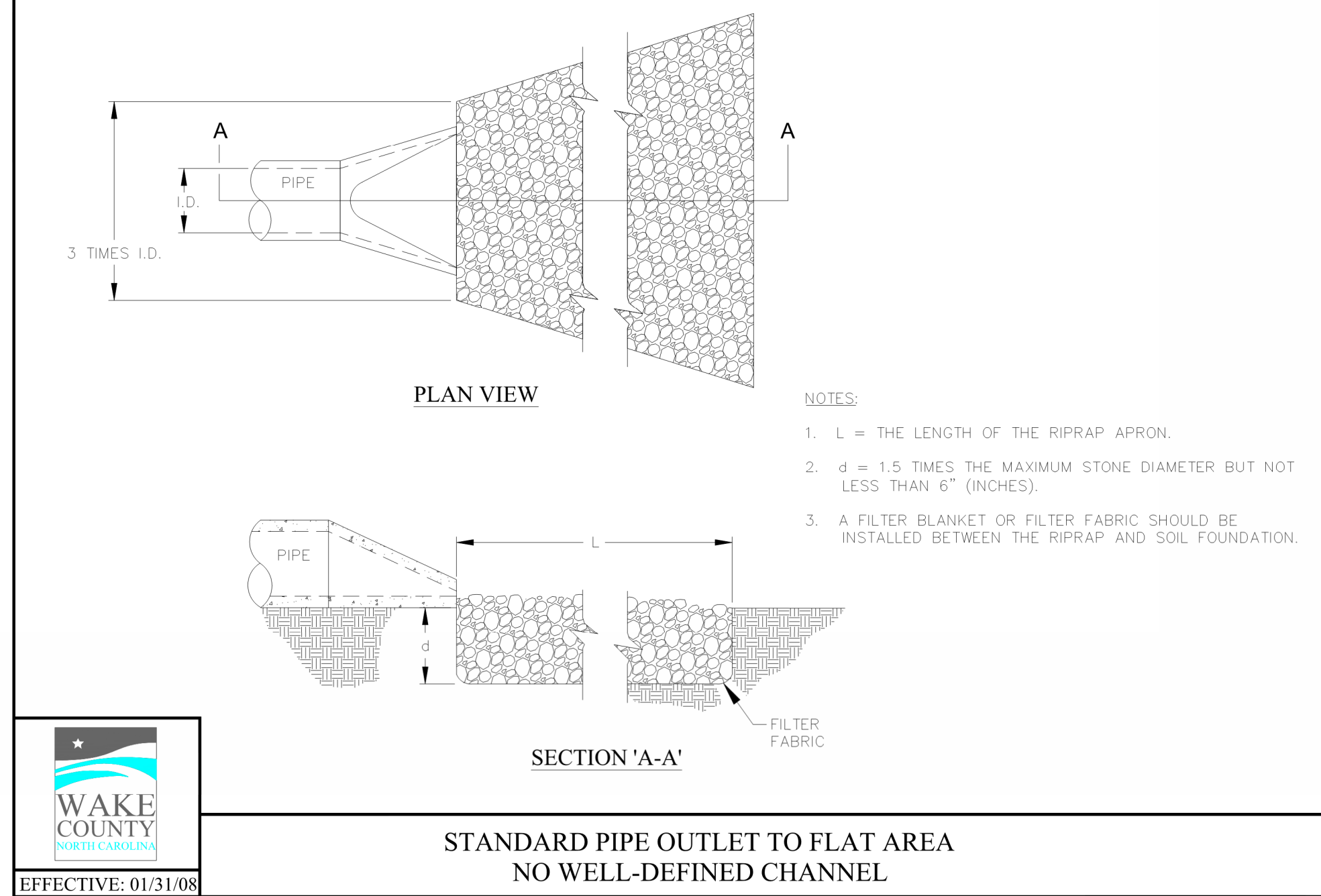
STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE



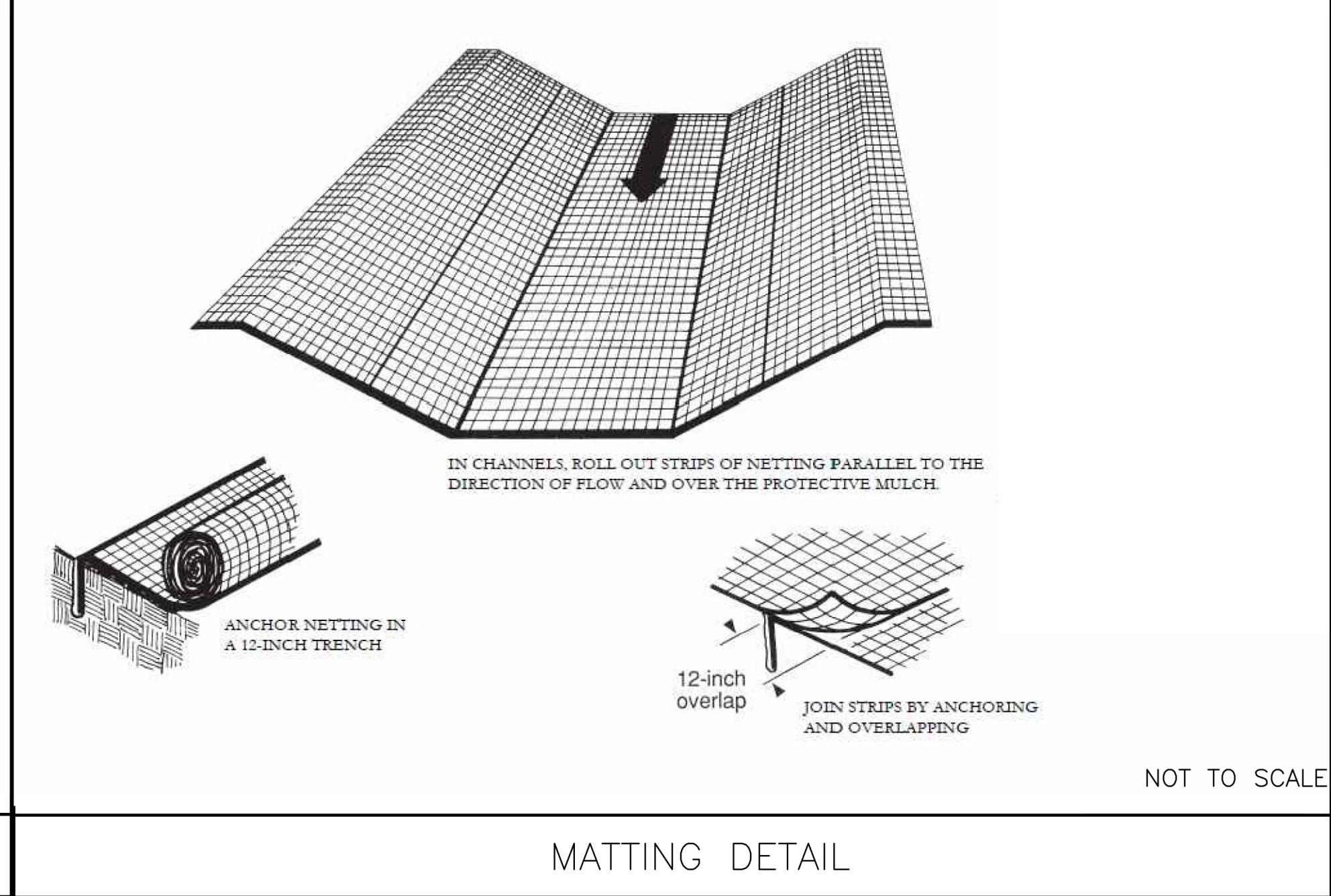
STANDARD TEMPORARY STREAM CROSSING



STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL



STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL



MATTING DETAIL

REV. NO.	DESCRIPTIONS	DATE
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ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
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WAKE COUNTY, NC

WAKE COUNTY
EROSION CONTROL DETAILS

Project Engineer: TSS
Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS

Date: 07/31/2019

Project Number: .170348

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WAKE COUNTY CONSTRUCTION SEQUENCE:

- SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE WATERSHED MANAGER SCOTT REAMS VIA 919-868-4986. OBTAIN A LAND-DISTURBING PERMIT.
- INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
- CALL SCOTT REAMS VIA 919-868-4986 FOR AN ONSITE INSPECTION TO OBTAIN A CERTIFICATE OF COMPLIANCE.
- BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
- INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDE AREAS PER GROUND STABILIZATION TIME FRAMES.
- WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL SCOTT REAMS VIA 919-868-4986 FOR AN INSPECTION.
- IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
- WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE WATERSHED MANAGER SCOTT REAMS VIA 919-868-4986. OBTAIN A CERTIFICATE OF COMPLETION.

EROSION CONTROL MEASURES SELF INSPECTION

- THE FINANCIALLY RESPONSIBLE PARTY, LANDOWNER, OR THEIR AGENT SHALL CONDUCT INSPECTIONS OF ALL EROSION CONTROL DEVICES AND PRACTICES IN ACCORDANCE WITH NCDENR DIVISION OF LAND RESOURCES REQUIREMENTS FOR SELF INSPECTION.
- A SELF INSPECTION SHALL BE PERFORMED AFTER EACH PHASE OF THE APPROVED SEDIMENT AND EROSION CONTROL PLAN IS COMPLETE. THIS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO THE FOLLOWING:
 - INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES.
 - CLEARING AND GRUBBING OF EXISTING GROUND COVER.
 - COMPLETION OF ANY PHASE OF GRADING OF SLOPES OR FILLS.
 - INSTALLATION OF STORM DRAINAGE FACILITIES.
 - COMPLETION OF CONSTRUCTION OR DEVELOPMENT
 - ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION.
- PERSON PERFORMING INSPECTION MAY USE THE STANDARD FORM PROVIDED BY NCDENR DIVISION OF LAND RESOURCES OR MAY MARK UP A SINGLE COPY OF THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. ANY DOCUMENTATION OF THE SELF INSPECTIONS SHALL BE MAINTAINED ON-SITE AND MADE AVAILABLE TO THE EROSION CONTROL INSPECTOR.
- THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. AS OF AUGUST 1, 2013 THE SELF-INSPECTION PROGRAM WAS COMBINED WITH THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCOS 113a-64.1 AND 15a NCAC 4B-0131. A COMBINED SELF-INSPECTION / SELF-MONITORING FORM IS AVAILABLE AT THE FOLLOWING WEB ADDRESS: <http://portal.ncdenr.org/web/1/erosion>. IF YOU HAVE ANY QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THE LAND QUALITY SECTION AT (910) 433-3300.

PERMANENT SEEDING OF GRASS LINED CHANNELS

(GRASS-LINED CHANNELS, COASTAL PLAIN AND LOWER PIEDMONT, NCDENR STD. SEEDING TABLE 6.11)

SEEDING DATES:
APRIL - JULY

SEEDING MIXTURE:

SPECIES	RATE
COMMON BERMUDAGRASS	40-80 LB/AC (1-2 LB/1000SF)

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS. OR APPLY 3000 LB/AC GROUND AGRICULTURAL LIMESTONE AND 500 LB/AC 10-10-10 FERTILIZER.

MULCH:
USE A ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF CHANNELS AND DITCHES. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4000 LB/AC GRAIN STRAW AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MAINTENANCE:
A MINIMUM OF 3 WEEKS IS REQUIRED FOR ESTABLISHMENT. INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE THE FOLLOWING APRIL ACCORDING TO SOIL TESTS OR APPLY 50 LB/AC NITROGEN.

TEMPORARY SEEDBED PREPARATION

- A GOOD SEEDBED IS WELL PULVERIZED, LOOSE, AND UNIFORM.
- LIMING - APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE pH (ACIDITY) OF THE SOIL IS NOT KNOWN, AN APPLICATION OF GROUND AGRICULTURAL LIMESTONE AT THE RATE OF 1 - 1.5 TONS/ACRE ON FINE TEXTURED SOILS AND 2-3 TONS/ACRE ON COARSE TEXTURED SOILS IS USUALLY SUFFICIENT. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF THE SOIL. SOILS WITH A pH OF 6 OR HIGHER NEED NOT BE LIMED.
- FERTILIZER - BASE APPLICATION RATES ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE APPLY A 10-10-10 GRADE FERTILIZER AT 700 - 1000 LB/ACRE. BOTH FERTILIZER AND LIME SHOULD BE INCORPORATED INTO THE TOP 4-6 INCHES OF SOIL. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE APPLICATION.
- SURFACE ROUGHENING - IF RECENT TILLAGE OPERATIONS HAVE RESULTED IN A LOOSE SURFACE, ADDITIONAL ROUGHENING MAY NOT BE REQUIRED, EXCEPT TO BREAK UP LARGE CLOUDS. IF RAINFALL CAUSES THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING, OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING. SEE OTHER REQUIREMENTS FOR SURFACE ROUGHENING ON THIS SHEET.

TEMPORARY SEEDING SCHEDULE

(TO TEMPORARILY STABILIZE DENUDE AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF 15 WORKING DAYS)

SEEDING DATES: DECEMBER 1 THRU APRIL 15

SEEDING MIXTURE:

SPECIES	RATE (LBS/AC)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBÉ)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SOIL AMENDMENTS:
FOLLOW SOIL TESTS OR APPLY:
2,000 LBS/AC LIMESTONE AND
750 LB/AC 10-10-10 FERTILIZER

MULCH: 4,000 LBS/AC - ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING DATES: APRIL 15 - AUGUST 15

SEEDING MIXTURE:

SPECIES	RATE (LBS/AC)
GERMAN MILLET	40

SOIL AMENDMENTS:
FOLLOW SOIL TESTS OR APPLY:
2,000 LBS/AC LIMESTONE AND
750 LB/AC 10-10-10 FERTILIZER

MULCH: 4,000 LBS/AC - ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OF A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SEEDING DATES: AUGUST 15 THRU DECEMBER 15

SEEDING MIXTURE:

SPECIES	RATE (LBS/AC)
RYE (GRAIN)	120

SOIL AMENDMENTS:
FOLLOW SOIL TESTS OR APPLY:
2,000 LBS/AC LIMESTONE AND
1,000 LB/AC 10-10-10 FERTILIZER

MULCH: 4,000 LBS/AC - ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OF A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/AC OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC KOBÉ IN LATE FEBRUARY OR EARLY MARCH

PERMANENT SEEDBED PREPARATION

- INSTALL NECESSARY MECHANICAL EROSION AND SEDIMENTATION CONTROL PRACTICES BEFORE SEEDING, AND COMPLETE GRADING ACCORDING TO THE APPROVED PLAN.
- LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTING IS PERFORMED FREE OF CHARGE BY THE NC DEPT. OF AGRICULTURE. SOIL TESTING LABORATORY. DIRECTIONS, SAMPLE CARTONS, AND INFORMATION ARE AVAILABLE THROUGH COUNTY AGRICULTURAL EXTENSION OFFICES OR FROM NCDA. BECAUSE THE NCDA SOIL TESTING LAB REQUIRES 1-3 WEEKS FOR SAMPLE TURN-AROUND, SAMPLING MUST BE PLANNED WELL IN ADVANCE OF FINAL GRADING. TESTING IS ALSO DONE BY COMMERCIAL LABORATORIES.
- WHEN SOIL TESTS ARE NOT AVAILABLE, FOLLOW RATES SUGGESTED IN THE PERMANENT SEEDING SCHEDULE ON THIS SHEET. APPLICATION RATES USUALLY FALL INTO THE FOLLOWING RANGES:

GROUND AGRICULTURAL LIMESTONE: LIGHT TEXTURED, SANDY SOILS: 1 - 1.5 TONS/ACRE
HEAVY TEXTURED, CLAYEY SOILS: 2 - 3 TONS/ACRE
FERTILIZER: GRASSES: 800 - 1200 LB/ACRE OF 10-10-10 (OR EQUIVALENT)
GRASS-LEGUME MIXTURES: 800 - 1200 LB/ACRE OF 5-10-10 (OR EQUIVALENT)
- APPLY LIME AND FERTILIZER EVENLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. OPERATE MACHINERY ON THE CONTOUR.
- ROUGHEN SURFACES IN ACCORDANCE WITH THE NOTES ON SURFACE ROUGHENING ON THIS SHEET.
- COMPLETE SEEDBED PREPARATION BY BREAKING UP LARGE CLOUDS AND RAKING INTO A SMOOTH, UNIFORM SURFACE (SLOPES LESS THAN 3:1). FILL IN OR LEVEL DEPRESSIONS THAT CAN COLLECT WATER. BROADCAST SEED INTO A FRESHLY LOOSENEED SEEDBED THAT HAS NOT BEEN SEALED BY RAINFALL.

WAKE COUNTY BASIN REMOVAL SEQUENCE:

- SCHEDULE A SITE MEETING WITH THE ENVIRONMENT ENGINEER/CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCE OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
- PERFORM SEEDBED PREPARATION, SEED, MULCH, AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
- INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
- WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL ENGINEER/CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION.

PERMANENT SEEDING SCHEDULE

Seeding Schedule

For Shoulders, Side Ditches, Slopes (Max 3:1):

Date	Type	Planting Rate
Aug 15-Nov 1	Tall Fescue	300 lbs/acre
Nov 1-Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1-Apr 15	Tall Fescue	300 lbs/acre
Apr 15-Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1-Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids**	125 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

For Shoulders, Side Ditches, Slopes (3:1 to 2:1):

Date	Type	Planting Rate
Mar 1-Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza);
Mar 1-Apr 15	Add Tall Fescue	120 lbs/acre
Mar 1-Jun 30	Or add Weeping Love grass	10 lbs/acre
Mar 1-Jun 30	Or add Hulled Common Bermudagrass	25 lbs/acre
Jun 1-Sept 1	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	120 lbs/acre (Tall Fescue); 35 lbs/acre (Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)
Sept 1-Mar 1	Sericea Lespedeza (unhulled - unscarified) AND Tall Fescue	70 lbs/acre (Sericea Lespedeza); 120 lbs/acre (Tall Fescue)

MULCH:
APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR BY TACKING WITH ASPHALT, ROVING, NETTING, OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE THE FOLLOWING APRIL WITH 50 LB/ACRE NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED AS OFTEN AS NEEDED.

NOTE: SEE NCDOT'S LATEST STANDARDS FOR STABILIZATION FOR MORE INFORMATION.

SURFACE ROUGHENING

CUT SLOPE ROUGHENING FOR AREAS NOT TO BE MOWED

- STAIR-STEP GRADE OR GROOVE CUT SLOPES WITH A GRADIENT STEEPER THAN 3:1.
- USE STAIR-STEP GRADING ON ANY ERODIBLE MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. SLOPES CONSISTING OF SOFT ROCK WITH SOME SUBSOIL ARE PARTICULARLY SUITED TO STAIR-STEP GRADING.
- MAKE THE VERTICAL CUT DISTANCE LESS THAN THE HORIZONTAL DISTANCE, & SLIGHTLY SLOPE THE HORIZONTAL POSITION OF THE "STEP" IN TOWARD THE VERTICAL WALL.
- DO NOT MAKE INDIVIDUAL VERTICAL CUTS MORE THAN 2 FEET IN SOFT MATERIALS OR MORE THAN 3 FEET IN ROCKY MATERIALS.
- GROOVING USES MACHINERY TO CREATE A SERIES OF RIDGES & DEPRESSIONS THAT RUN ACROSS THE SLOPE (ON THE CONTOUR).
- GROOVE USING ANY APPROPRIATE IMPLEMENT THAT CAN BE SAFELY OPERATED ON THE SLOPE, SUCH AS DISKS, TILLERS, SPRING HARROWS, OR THE TEETH ON A FRONT END LOADER BUCKET. DO NOT MAKE SUCH GROOVES LESS THAN 3 INCHES DEEP NOR MORE THAN 15 INCHES APART.

FILL SLOPE AREAS NOT TO BE MOWED

- PLACE FILL SLOPES WITH A GRADIENT STEEPER THAN 3:1 IN LIFTS NOT TO EXCEED 8 INCHES, & MAKE SURE EACH LIFT IS PROPERLY COMPACTED. ENSURE THAT THE FACE OF THE SLOPE CONSISTS OF LOOSE, UNCOMPACTED FILL 4-6 INCHES DEEP. USE GROOVING AS DESCRIBED ABOVE, TO ROUGHEN THE FACE OF THE SLOPES, IF NECESSARY.
- DO NOT BLADE OR SCRAPE THE FINAL SLOPE FACE.

CUTS FILLS & GRADED AREAS THAT WILL BE MOWED

- MAKE MOWED SLOPES NO STEEPER THAN 3:1
- ROUGHEN THESE AREAS TO SHALLOW GROOVES BY NORMAL TILLING, DISKING, HARROWING, OR USE OF CULTIPACK-SEEDER. MAKE THE FINAL PASS OF ANY SUCH TILLAGE IMPLEMENT ON THE CONTOUR.
- MAKE GROOVES, FORMED BY SUCH IMPLEMENTS, CLOSE TOGETHER (LESS THAN 10 INCHES) & NOT LESS THAN 1 INCH DEEP.
- EXCESSIVE ROUGHNESS IS UNDESIRABLE WHERE MOWING IS PLANNED.

ROUGHENING WITH TRACKED MACHINERY

- LIMIT ROUGHENING WITH TRACKED MACHINERY TO SANDY SOILS TO AVOID UNDUE COMPACTION OF THE SOIL SURFACE. TRACKING IS GENERALLY NOT AS EFFECTIVE AS THE OTHER ROUGHENING METHODS DESCRIBED.
- OPERATE TRACKED MACHINERY UP & DOWN THE SLOPE TO LEAVE HORIZONTAL DEPRESSIONS IN THE SOIL. DO NOT BACK-BLADE DURING THE FINAL GRADING OPERATION.

COMPLETE SEEDBED PREPARATION BY BREAKING UP LARGE CLOUDS & RAKING INTO A SMOOTH, UNIFORM SURFACE (SLOPES LESS THAN 3:1). FILL IN OR LEVEL DEPRESSIONS THAT CAN COLLECT WATER. BROADCAST SEED INTO A FRESHLY LOOSENEED SEEDBED THAT HAS NOT BEEN SEALED BY RAINFALL.



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ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

WAKE COUNTY
EROSION CONTROL DETAILS

Project Engineer: TSS
Designed By: RAJ
Drawn By: RAJ
Checked By: TSS
Scale: NTS

Date: 07/31/2019

Project Number: .170348

SHEET
C810

NPDES Stormwater Discharge Permit for Construction Activities (NCGO1) NCDENR/Division of Water Quality NEW STABILIZATION TIMEFRAMES (Effective Aug. 3, 2011)		
SITE AREA DESCRIPTION	STABILIZATION TIMEFRAME	EXCEPTIONS
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

REV. NO.	DESCRIPTIONS	DATE
2	REMOVE SWEETLEAF	07/31/2019
1	REVISED PER TOR COMMENTS	12/07/2018
REVISIONS		

ELIZABETH HEIGHTS



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Professional Engineer
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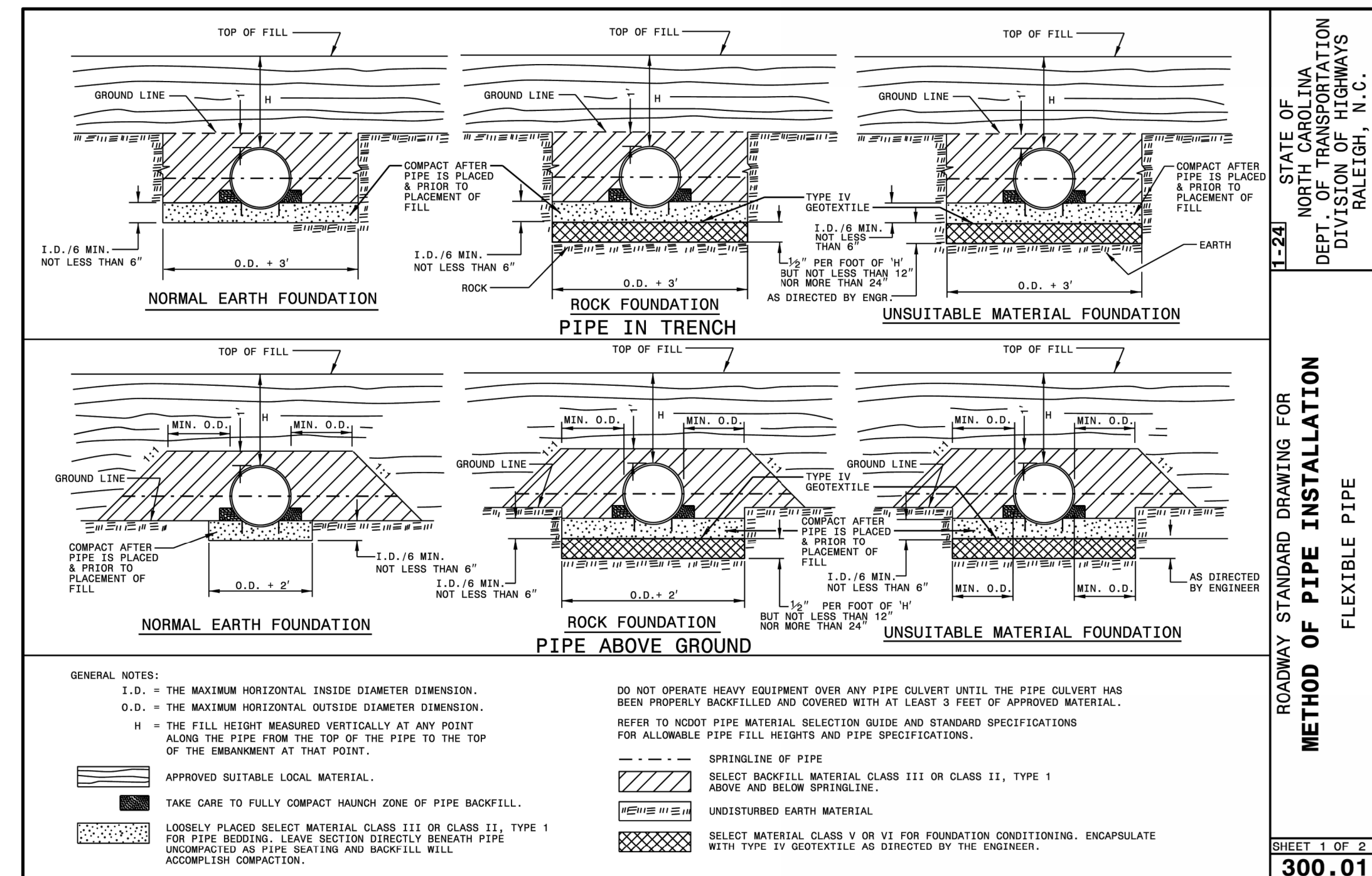
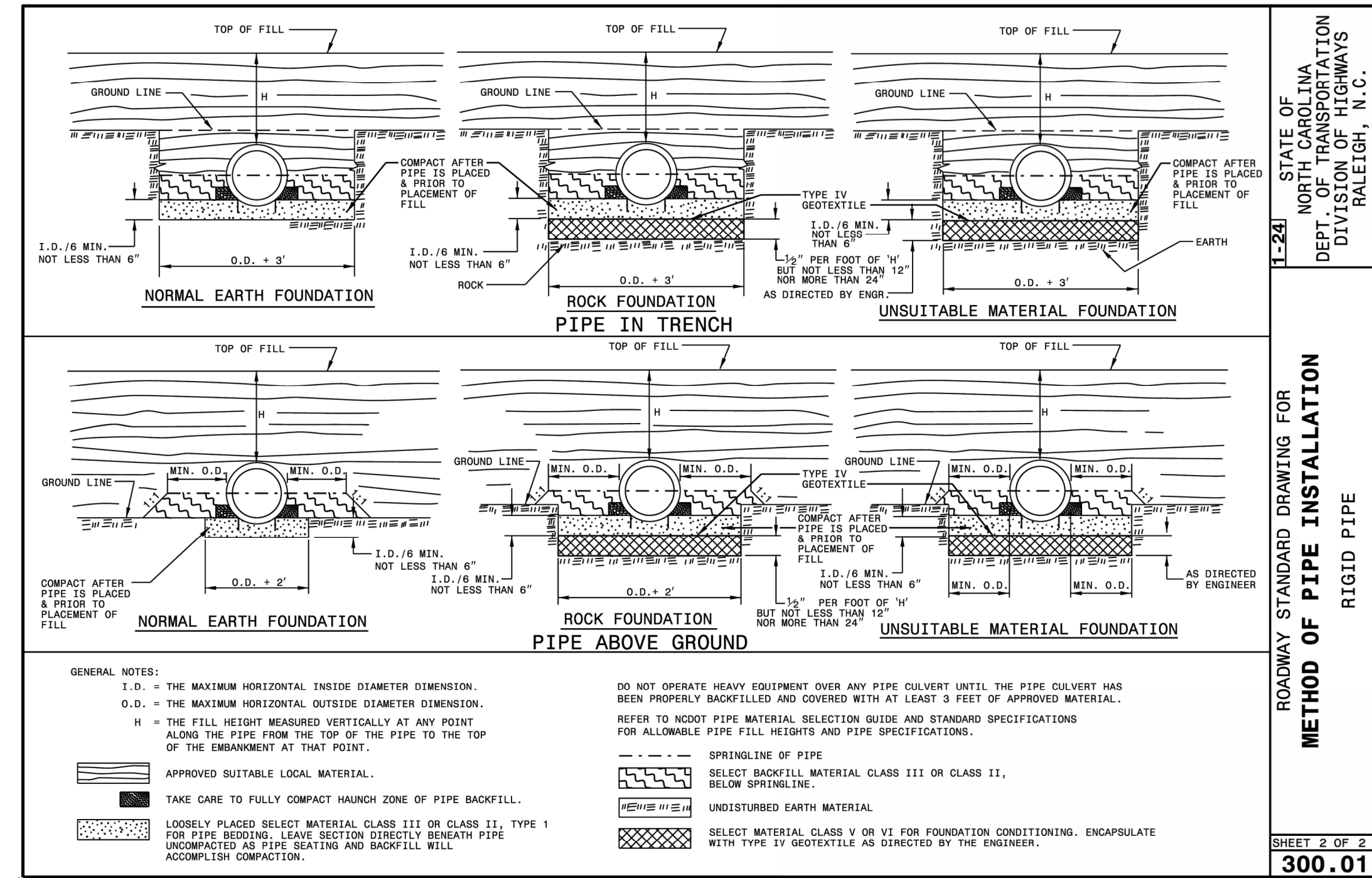
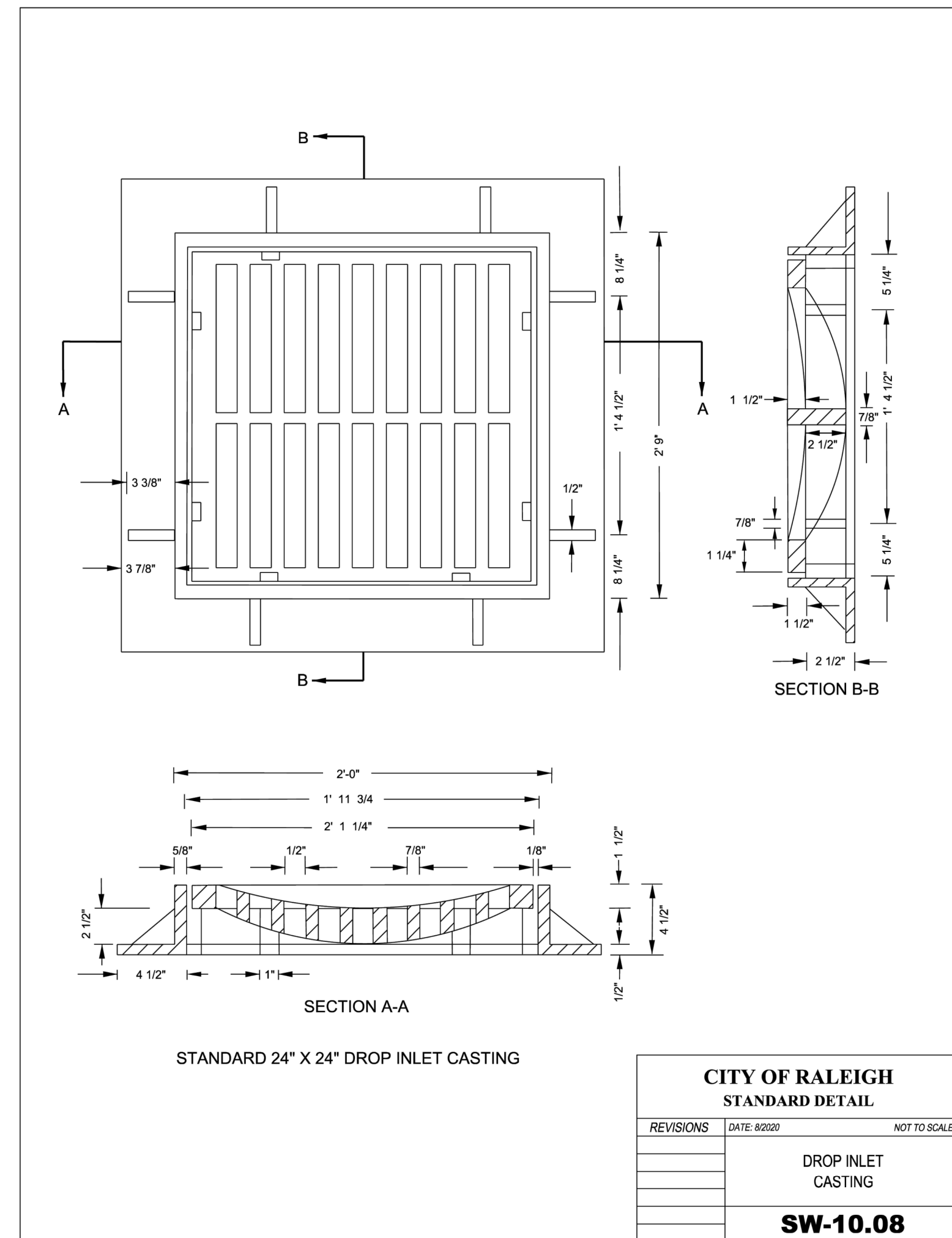
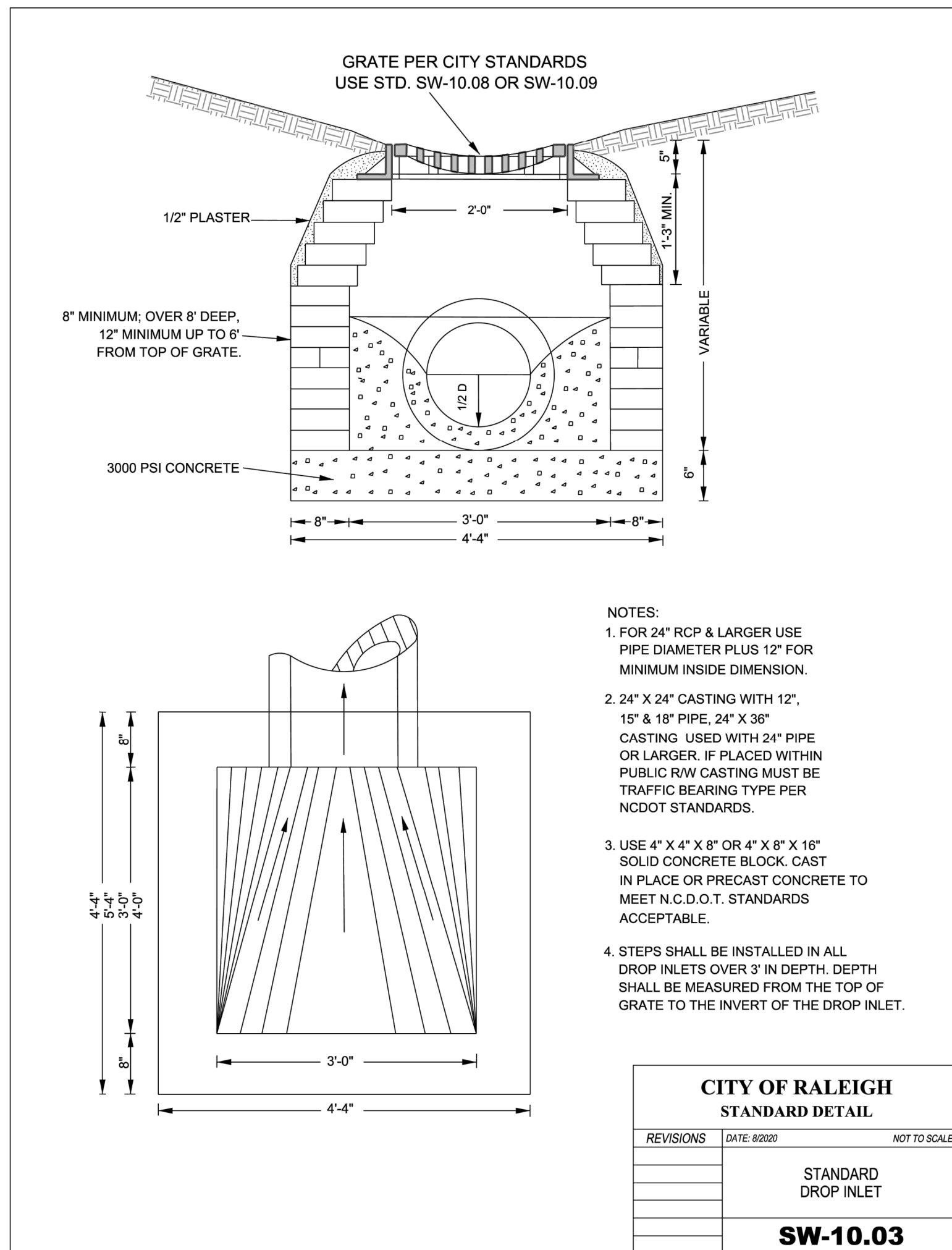
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PHASE 2 REVISIONS
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WAKE COUNTY

STORM DETAILS CONT.

Design By: BCSC
Date: 24.11.13
Project #: P170348

SHEET
C811

NOT A CERTIFIED DOCUMENT AS TO THE ORIGINAL DOCUMENT ONLY AS TO THE REVISIONS CLOUDED AND LABELED "1" & "2" IN SHEETS C103, C302, C312, C402, C513B AND C811 OF THIS PLAN SET. THIS DOCUMENT WAS ISSUED AND SEALED BY THOMAS S. SPEIGHT JR., NC PE 022234 ON 05.29.2019 AND APPROVED UNDER SP19-01 BY THE TOWN OF ROLESVILLE BOARD OF COMMISSIONERS. THIS DOCUMENT IS ONLY CERTIFIED AS TO THE REVISIONS CLOUDED AND LABELED "1" & "2" IN SHEETS C103, C302, C312, C402, C513B AND C811 OF THIS PLAN SET.



REV #	DATE	DESCRIPTION
1	12.16.2024	BUILDING FOOTPRINT REVISION TO SP-19-01
2	02.20.2025	REVISION TO SP-19-01 PER TOR COMMENTS