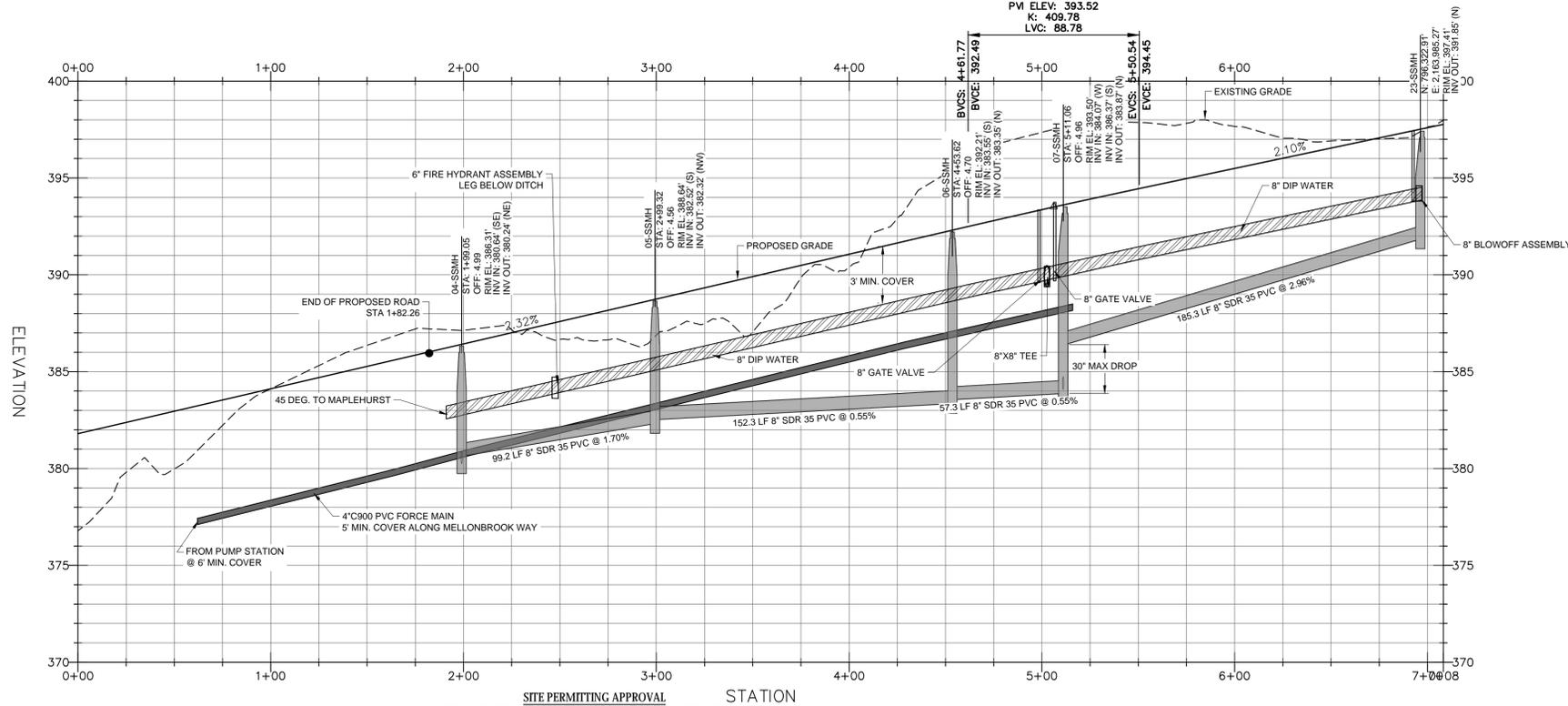


MELLONBROOK WAY - PLAN
SCALE: 1"=40'
STA: 0+00 - 7+08

HIGH PT STA: 5+50.54
HIGH PT ELEV: 394.45
PVI STA: 5+06.16
PVI ELEV: 393.52
K: 409.78
LVC: 88.78



MELLONBROOK WAY - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
STA: 0+00 - 7+08

Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L22	237.94	S0° 00' 00.00"E	4+70.34	7+08.28
L21	191.87	S31° 54' 37.54"E	0+00.00	1+91.87

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C13	500.00	278.47	S15° 57' 18.77"E	1+91.87	4+70.34

P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\GTP SHEETS\170347_C709_P000.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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City of Raleigh Development Approval
Raleigh Water Review Officer



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRW No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION
410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

MELLONBROOK WAY
PLAN & PROFILE

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale: 1" = 40'
Date: 08/14/2020
Project Number: P170347
SHEET
C709



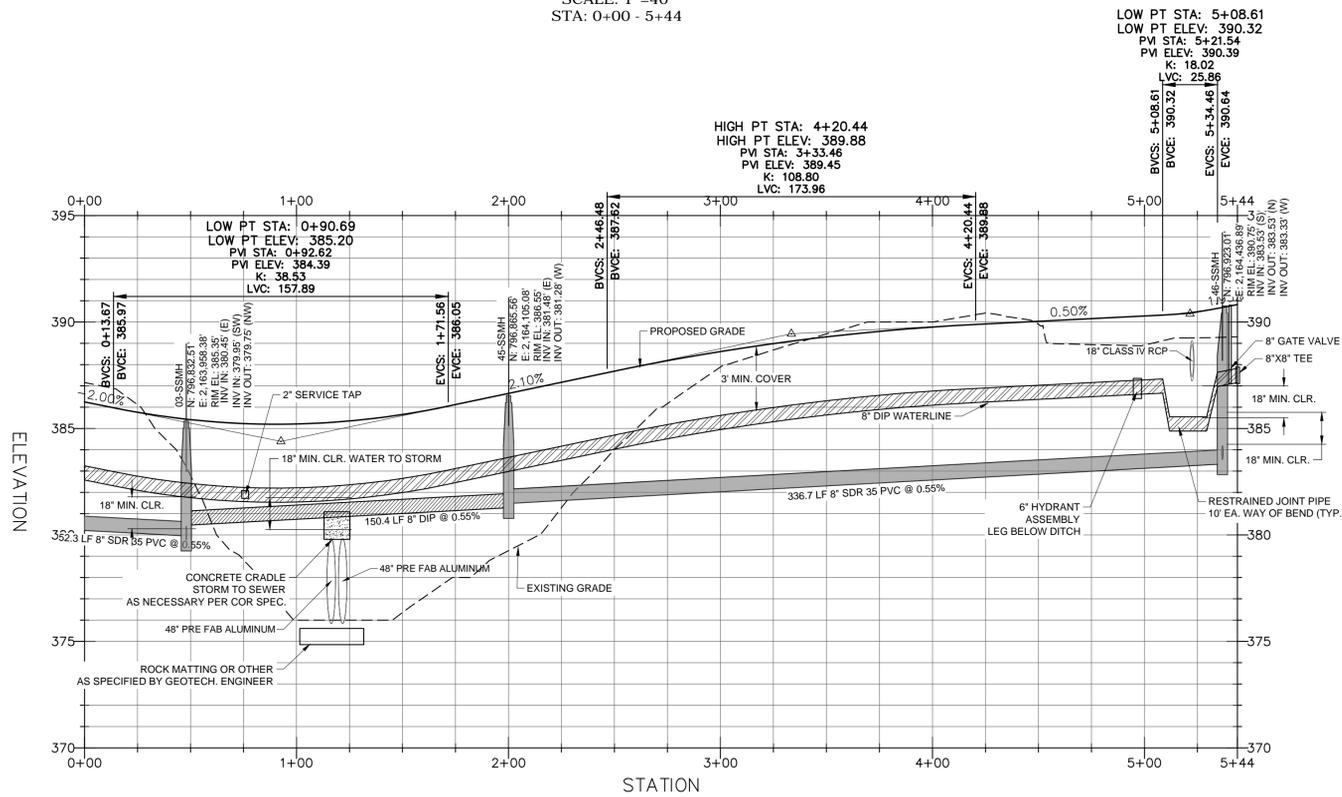
MAPLEHURST DR. - PLAN
SCALE: 1"=40'
STA: 0+00 - 5+44

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C16	230.00	88.36	N69° 05' 43.04"E	0+18.80	1+07.16

Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L26	18.80	N58° 05' 22.46"E	0+00.00	0+18.80
L27	436.77	N80° 06' 03.61"E	1+07.16	5+43.92



MAPLEHURST DR. - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
STA: 0+00 - 5+44

SITE PERMITTING APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval
Raleigh Water Review Officer

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	REVISIONS	



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Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRW No. C-2378

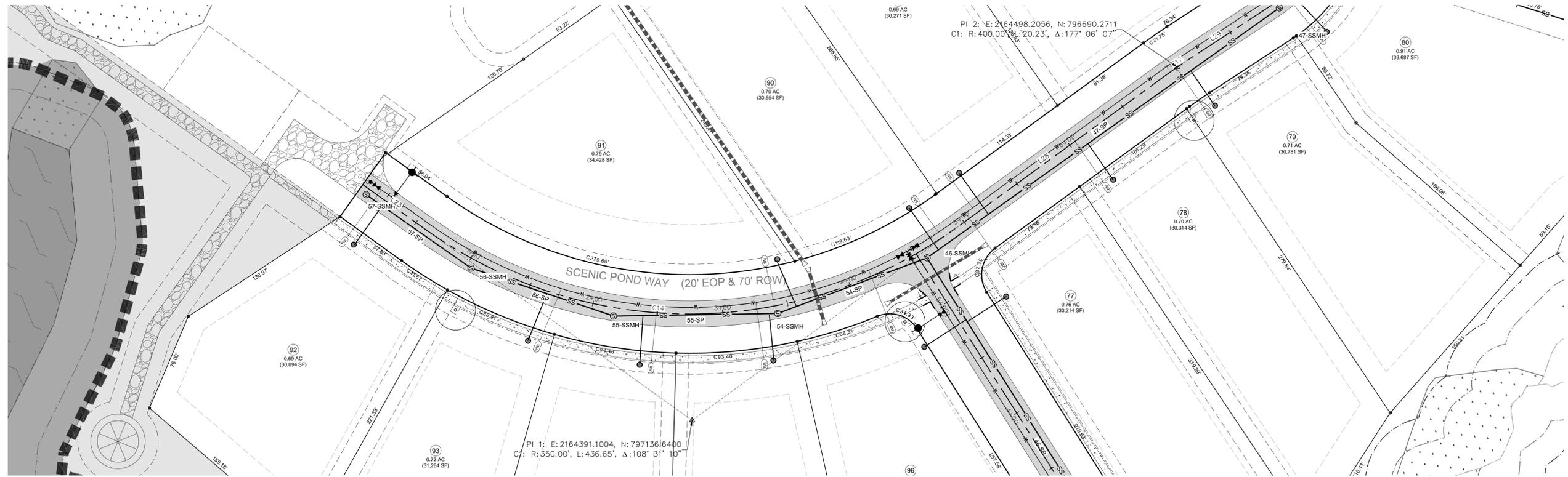


CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION
410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

MAPLEHURST DR.
PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	08/14/2020
Project Number:	P170347
SHEET	
C710	

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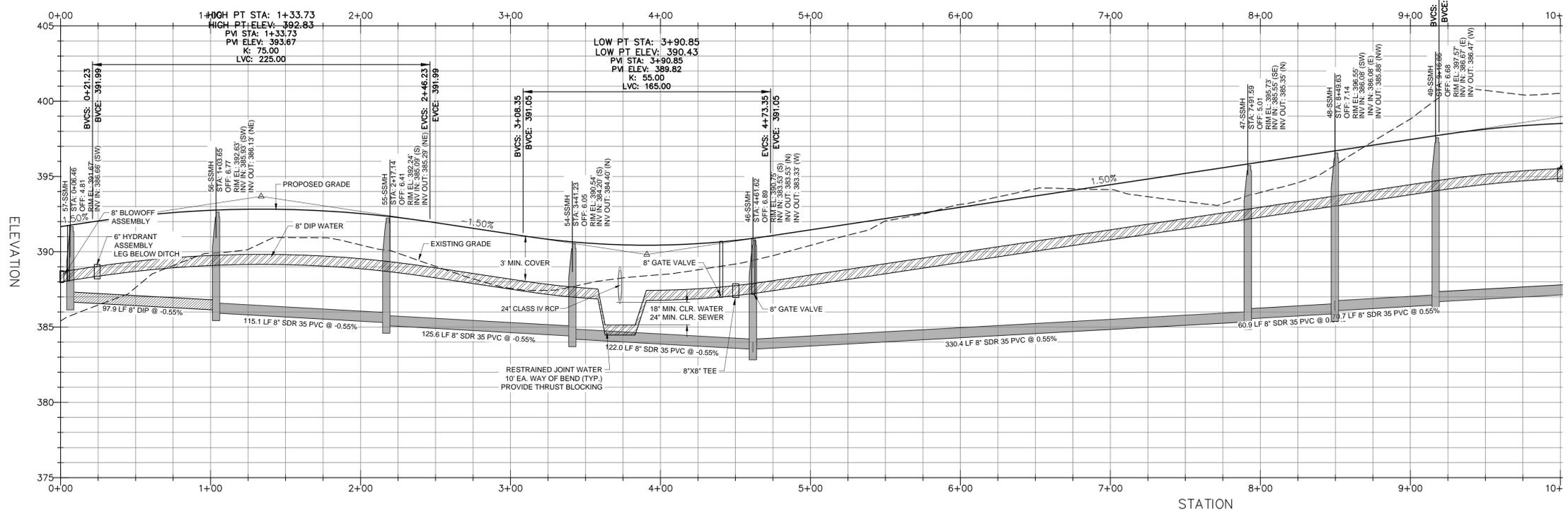
Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L25	493.81	N76° 43' 11.74"E	9+33.68	14+27.50
L29	76.34	S10° 35' 41.87"E	7+11.76	7+88.09
L28	197.05	S13° 29' 34.43"E	4+94.48	6+91.52
L23	57.83	S57° 59' 15.62"W	0+00.00	0+57.83

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C14	350.00	436.65	S22° 14' 50.59"W	0+57.83	4+94.48
C17	400.00	20.23	S12° 02' 38.15"E	6+91.52	7+11.76
C15	90.00	145.59	S56° 56' 15.07"E	7+88.09	9+33.68

SCENIC POND WAY - PLAN
SCALE: 1"=40'
STA: 0+00 - 9+50



SCENIC POND WAY - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
STA: 0+00 - 9+50

SITE PERMITTING APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval
Raleigh Water Review Officer

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Bateman Civil Survey Company
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2524 Reliance Avenue, Apex, North Carolina 27539
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NCBELS FRM No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

SCENIC POND WAY
PLAN & PROFILE

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale: 1" = 40'

Date: 08/14/2020

Project Number: P170347

SHEET
C711



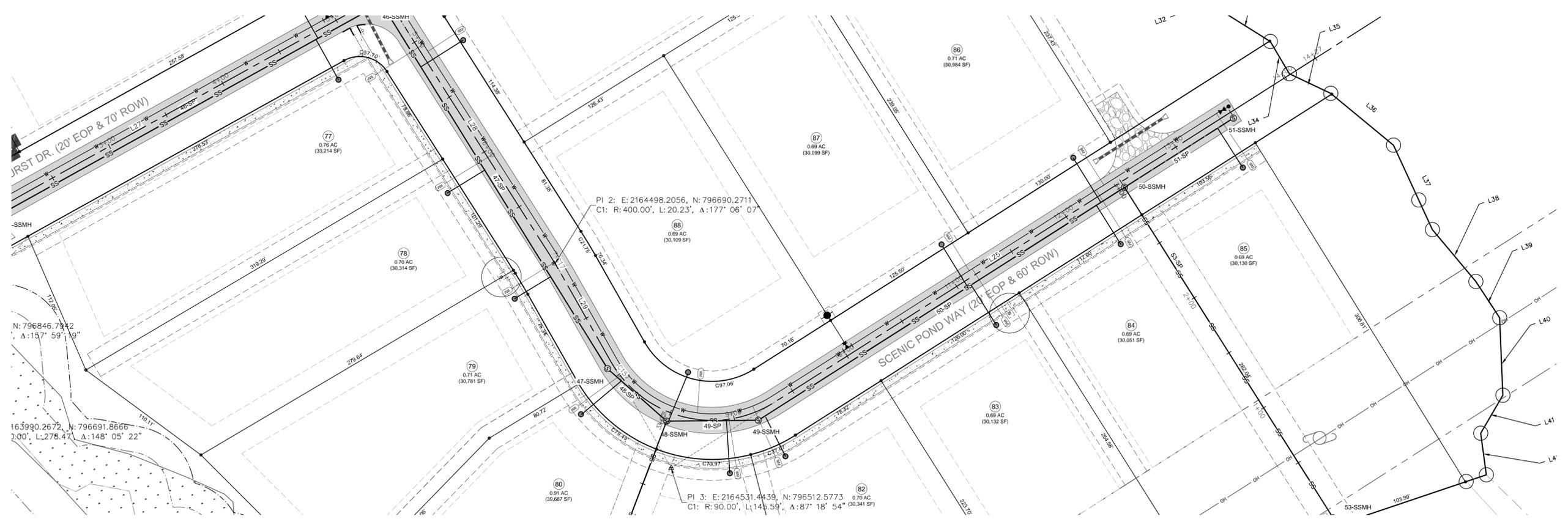
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 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
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 NCBELS FRW No. C-2378



CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION

SCENIC POND WAY
 PLAN & PROFILE

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale: 1" = 40'
 Date: 08/14/2020
 Project Number: P170347
 SHEET
C712

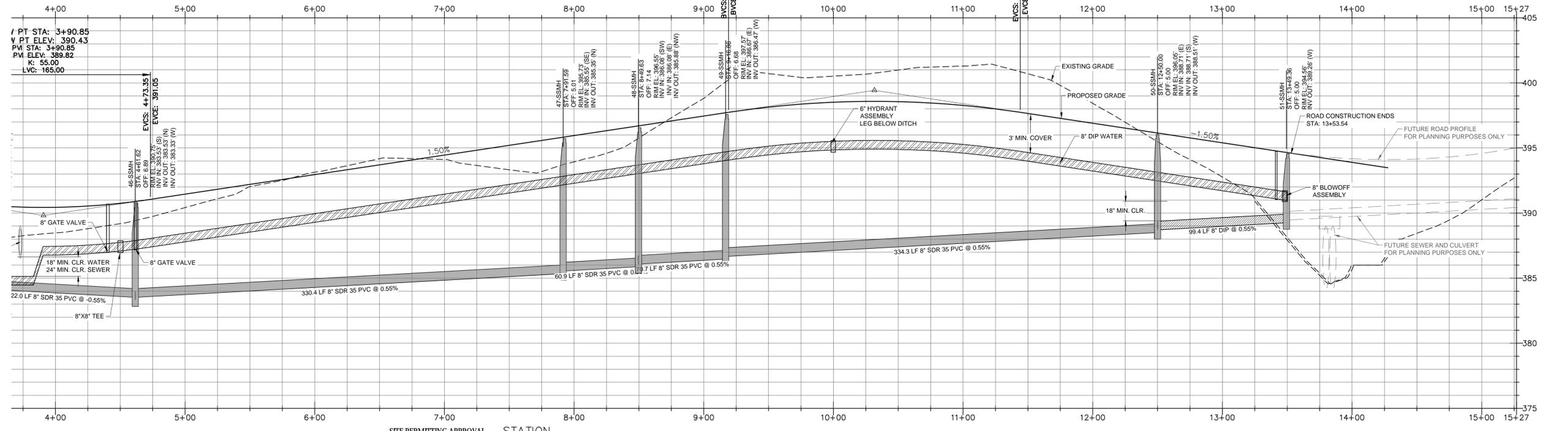


Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C14	350.00	436.65	S22° 14' 50.59"W	0+57.83	4+94.48
C17	400.00	20.23	S12° 02' 38.15"E	6+91.52	7+11.76
C15	90.00	145.59	S56° 56' 15.07"E	7+88.09	9+33.68

Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L25	493.81	N76° 43' 11.74"E	9+33.68	14+27.50
L29	76.34	S10° 35' 41.87"E	7+11.76	7+88.09
L28	197.05	S13° 29' 34.43"E	4+94.48	6+91.52
L23	57.83	S57° 59' 15.62"W	0+00.00	0+57.83



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 City of Raleigh Development Approval
 Raleigh Water Review Officer

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 Engineers • Surveyors • Planners
 2324 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRW No. C-2378

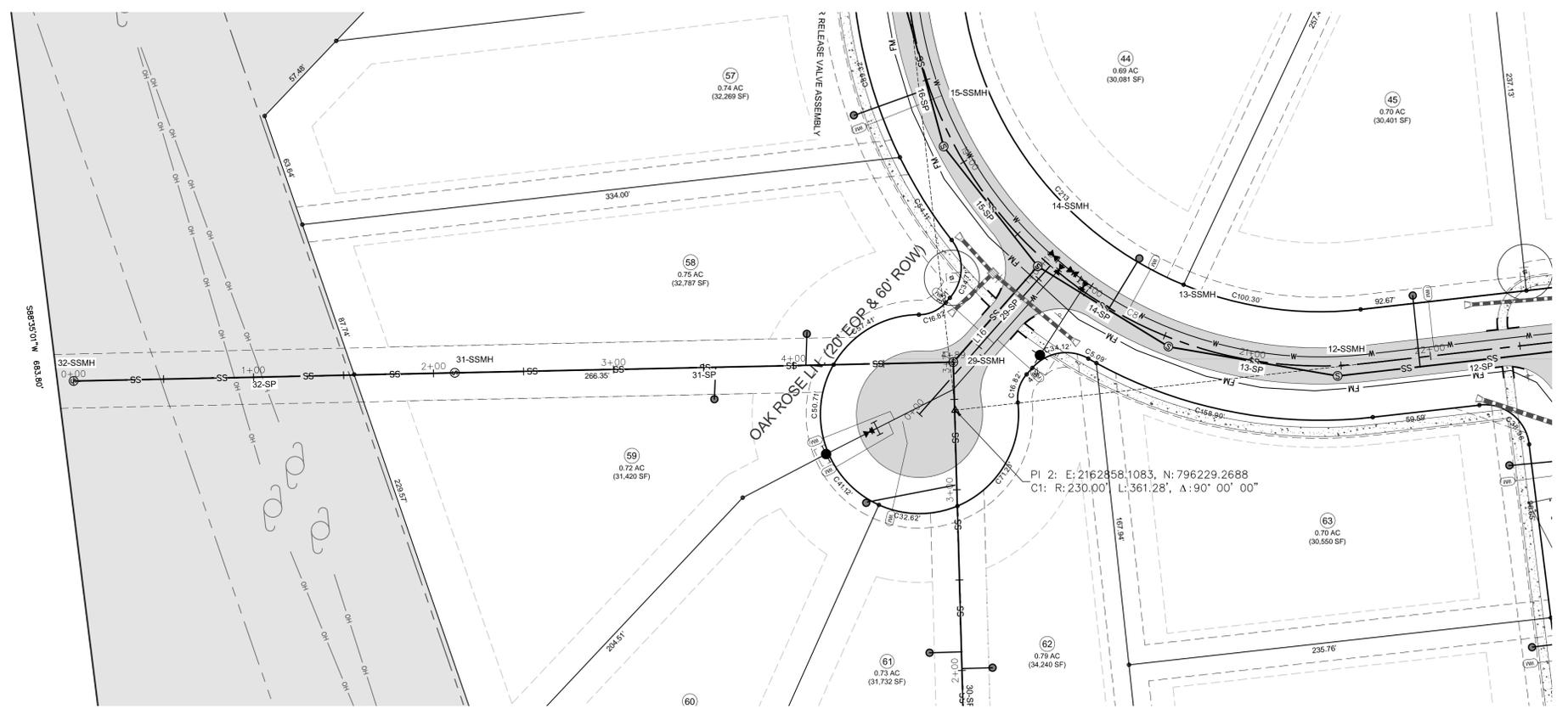


CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

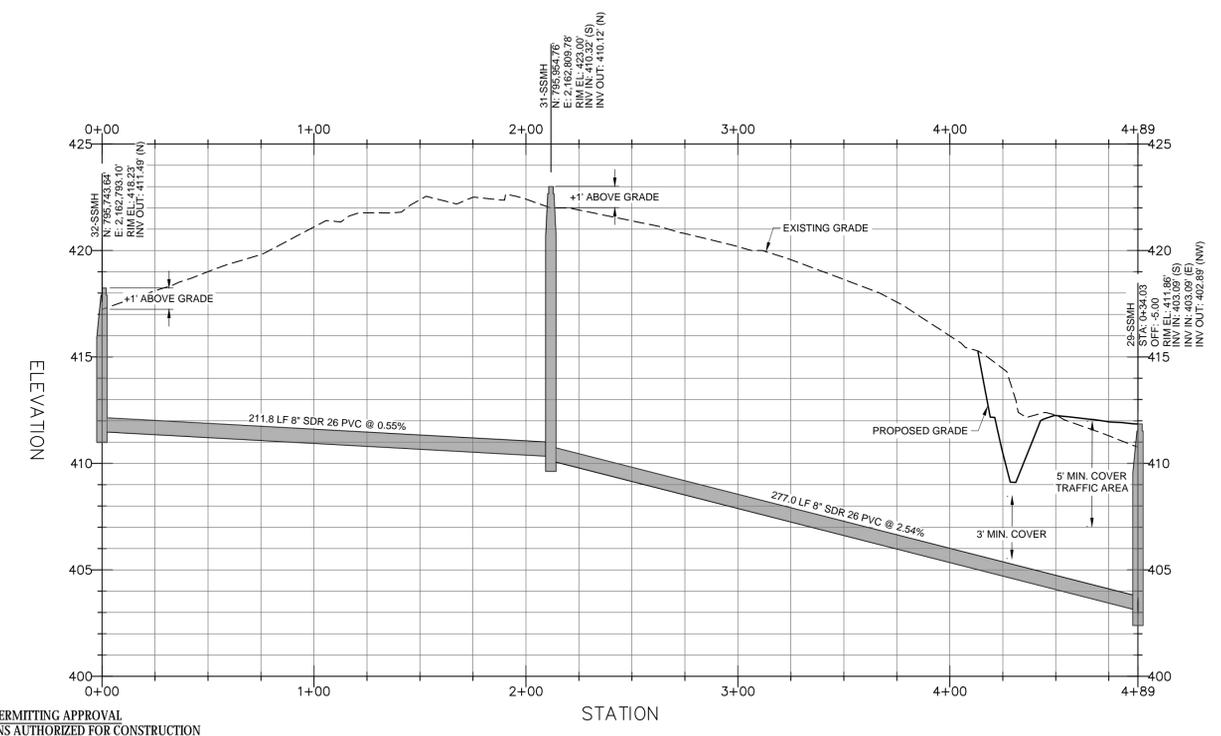
LOT 58 / 59 SEWER STUB
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	08/14/2020

Project Number: P170347
 SHEET
C713



LOT 58 / 59 - PLAN
 SCALE: 1"=40'
 STA: 0+00 - 4+89



LOT 58 / 59 - PROFILE
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
 STA: 0+00 - 4+89

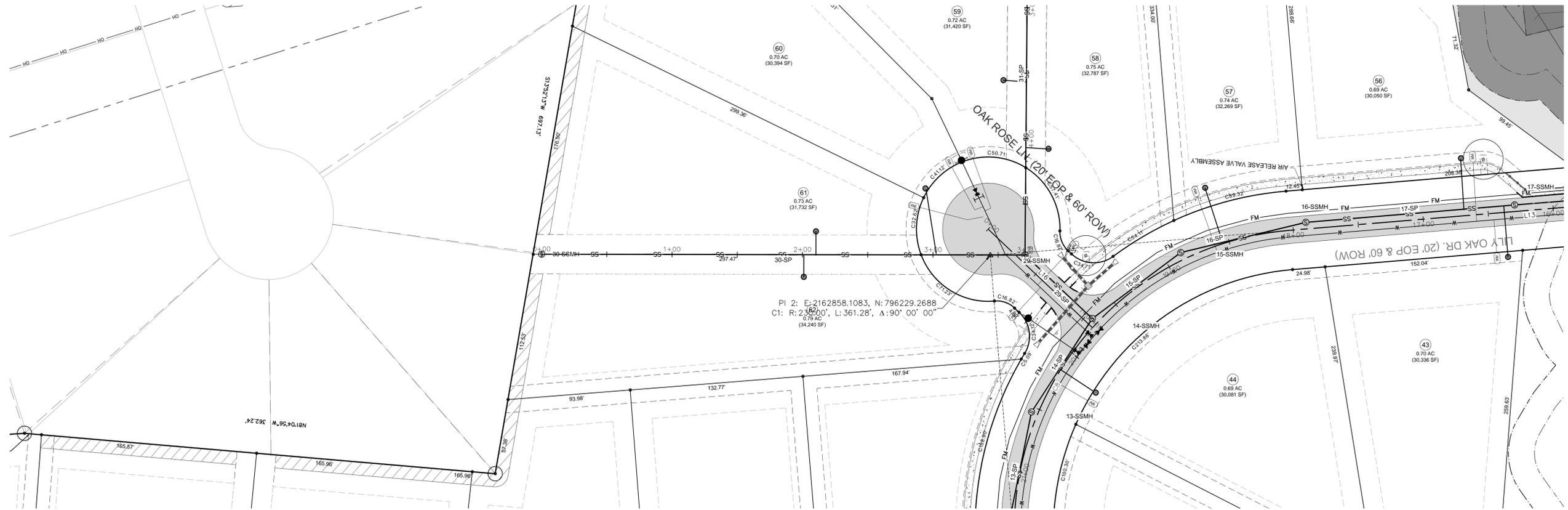
SITE PERMITTING APPROVAL
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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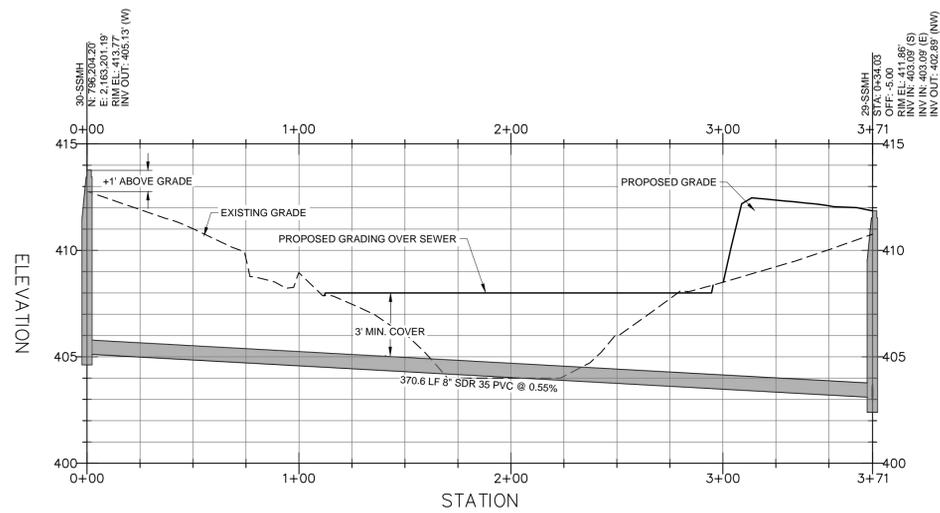
City of Raleigh Development Approval
 Raleigh Water Review Officer

P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\GTP SHEETS\170347_C710_R000.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
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REV	DESCRIPTION	DATE
REVISIONS		



LOT 61 / 62 - PLAN
SCALE: 1"=40'
STA: 0+00 - 3+71



LOT 61 / 62 - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
STA: 0+00 - 3+71

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02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
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City of Raleigh Development Approval
Raleigh Water Review Officer



Bateman Civil Survey Company
Engineers • Surveyors • Planners
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Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FRM No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

LOT 61 / 62 SEWER STUB
PLAN & PROFILE

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale: 1" = 40'

Date: 08/14/2020

Project Number: P170347

SHEET
C714



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 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FRW No. C-2378

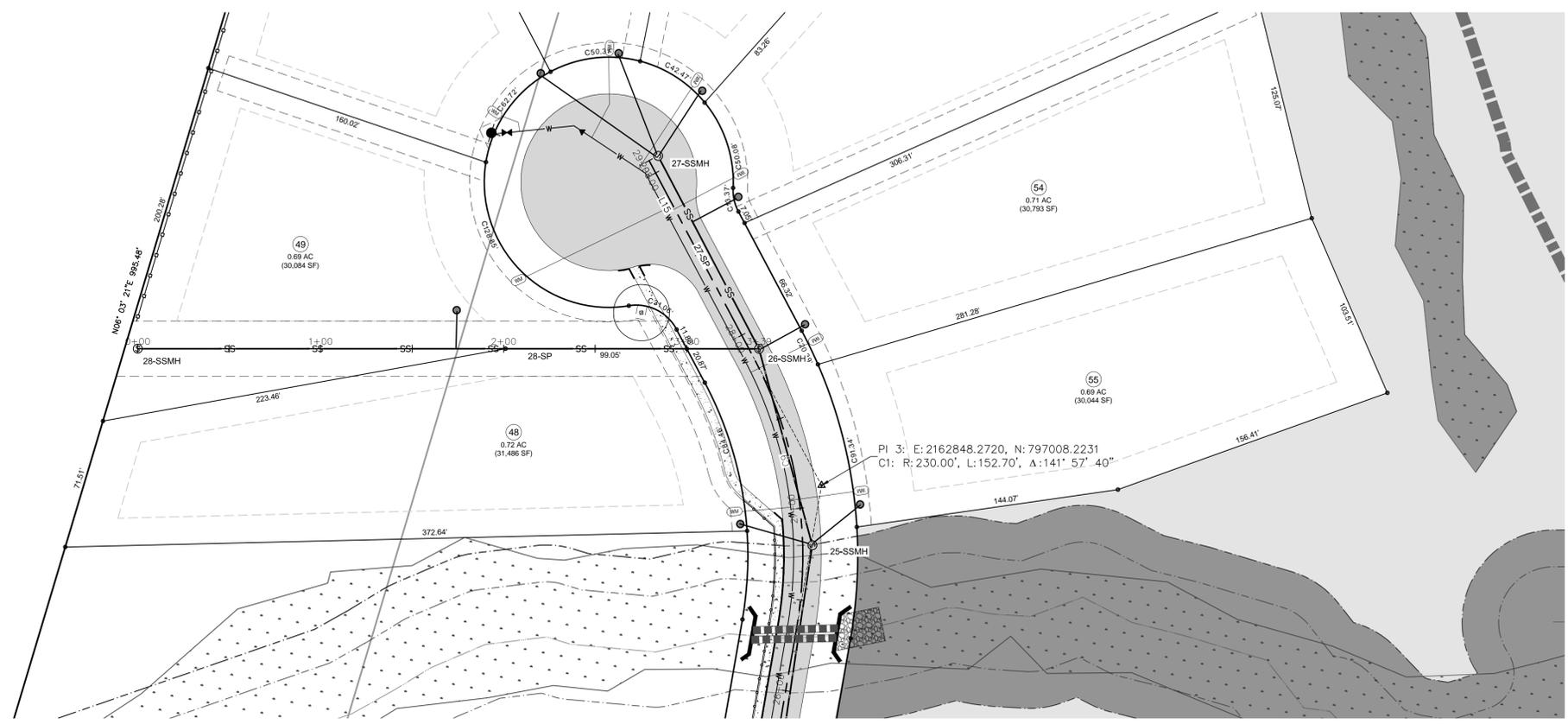


**CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION**
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

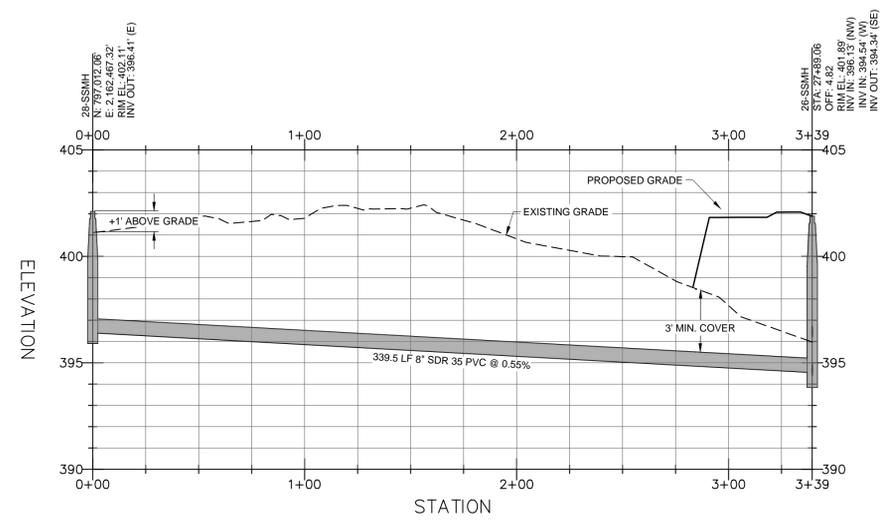
**LOT 48 / 49 SEWER STUB
 PLAN & PROFILE**

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale: 1" = 40'
 Date: 08/14/2020

Project Number: P170347
 SHEET
C715



LOT 48 / 49 - PLAN
 SCALE: 1"=40'
 STA: 0+00 - 3+39



LOT 48 / 49 - PROFILE
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
 STA: 0+00 - 3+39

**SITE PERMITTING APPROVAL
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**

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City of Raleigh Development Approval
 Raleigh Water Review Officer

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	REVISIONS	



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 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRW No. C-2378

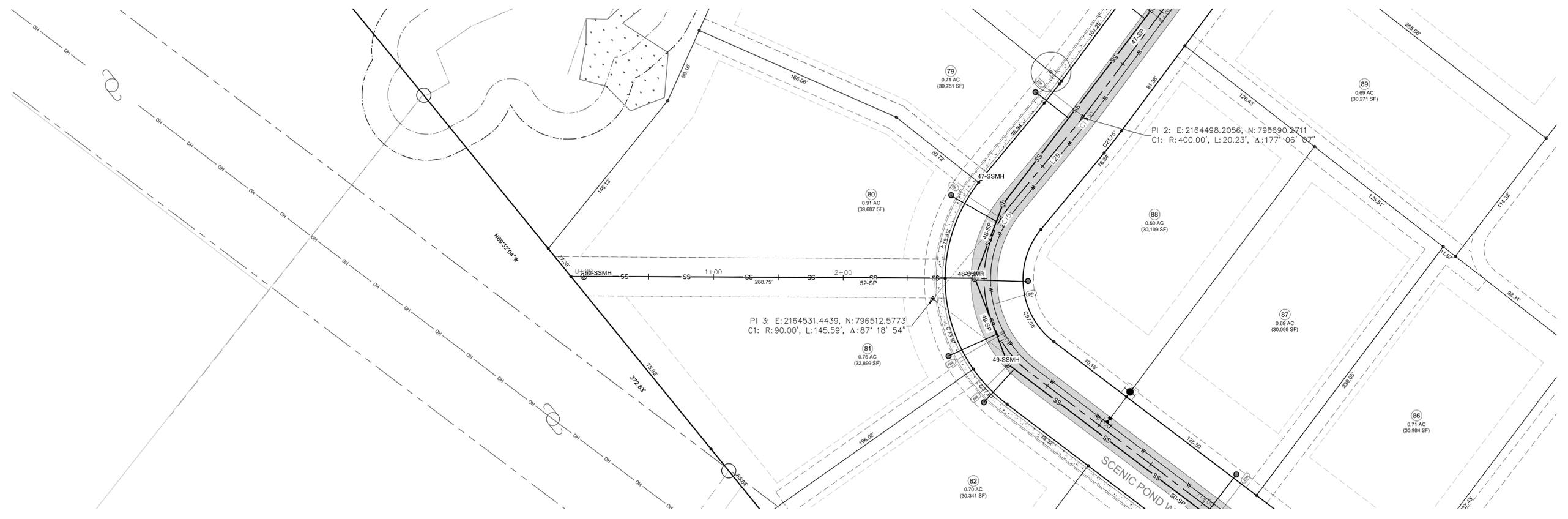


CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

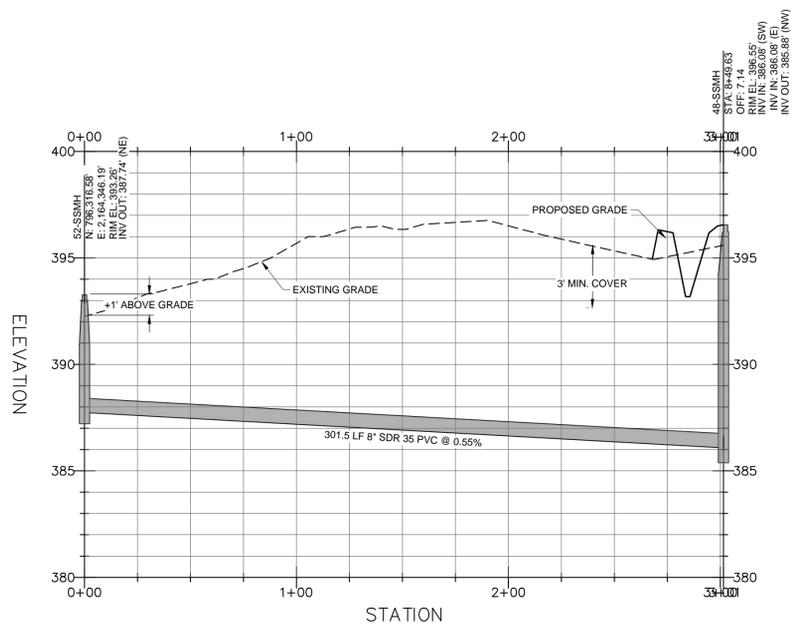
LOT 80 / 81 SEWER STUB
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	08/14/2020
Project Number:	P170347

SHEET
C716



LOT 80 / 81 - PLAN
 SCALE: 1"=40'
 STA: 0+00 - 3+01



LOT 80 / 81 - PROFILE
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
 STA: 0+00 - 3+01

SITE PERMITTING APPROVAL
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 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRW No. C-2378

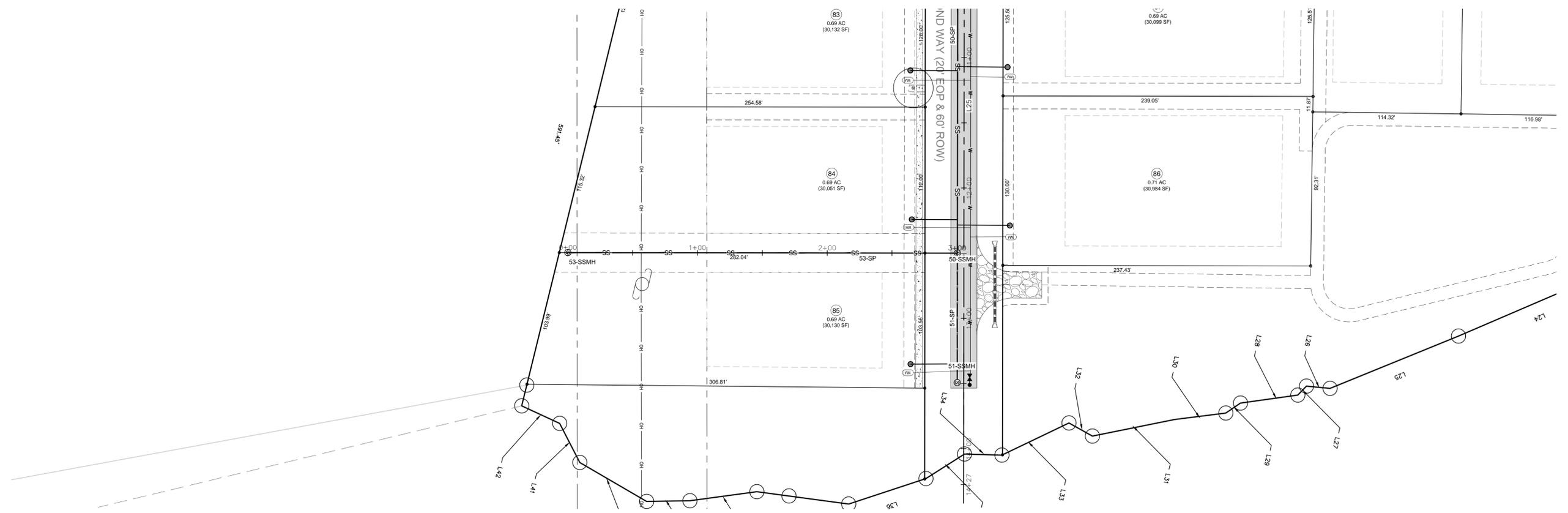


CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

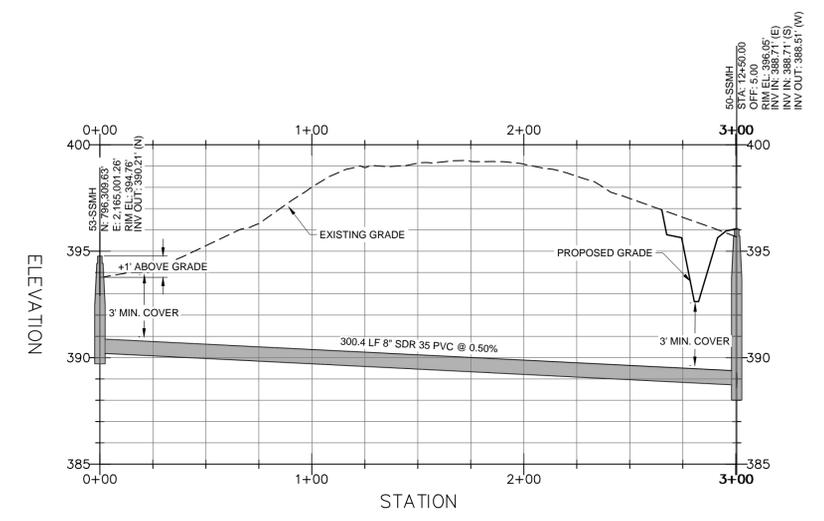
LOT 84 / 85 SEWER STUB
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	08/14/2020
Project Number:	P170347

SHEET
C717



LOT 84 / 85 - PLAN
 SCALE: 1"=40'
 STA: 0+00 - 3+00



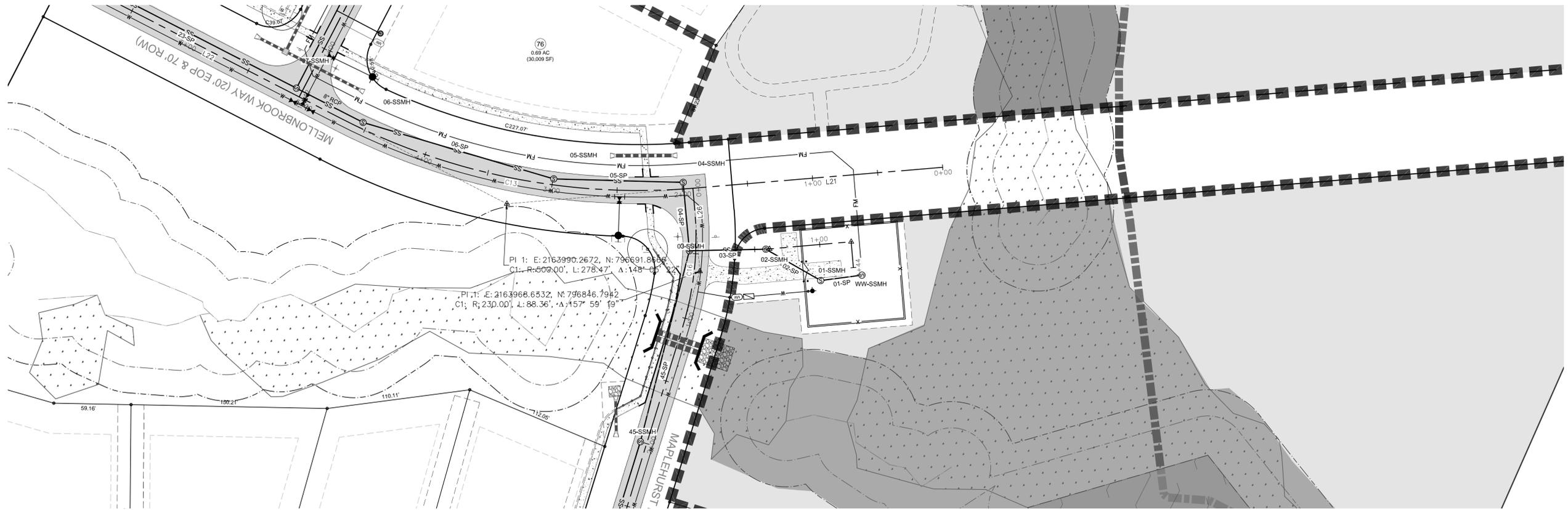
LOT 84 / 85 - PROFILE
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
 STA: 0+00 - 3+00

SITE PERMITTING APPROVAL
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

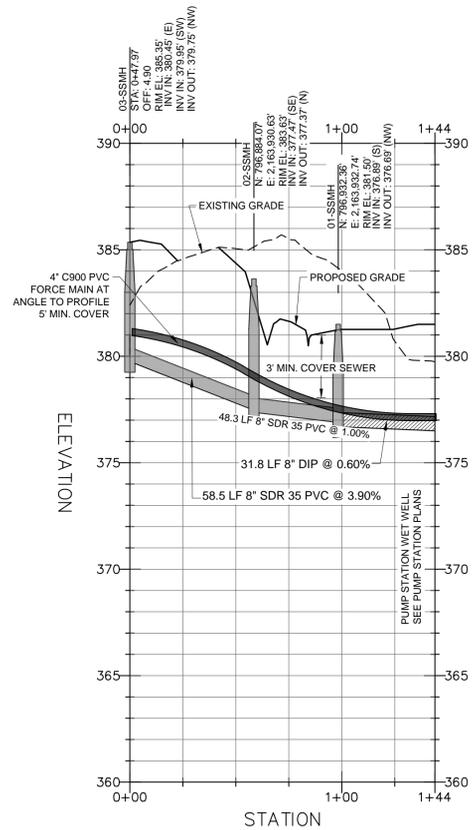
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	REVISIONS	



PUMP STATION PLAN
SCALE: 1"=40'
STA: 0+00 - 1+44



PUMP STATION - PROFILE
HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
STA: 0+00 - 1+44

SITE PERMITTING APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval
Raleigh Water Review Officer

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Engineers • Surveyors • Planners
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Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRW No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

PUMP STATION
PLAN & PROFILE

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale: 1" = 40'

Date: 08/14/2020

Project Number: P170347

SHEET
C715



Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2324 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FRM No. C-2378

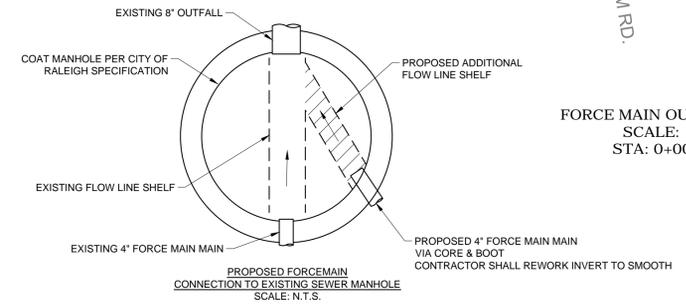
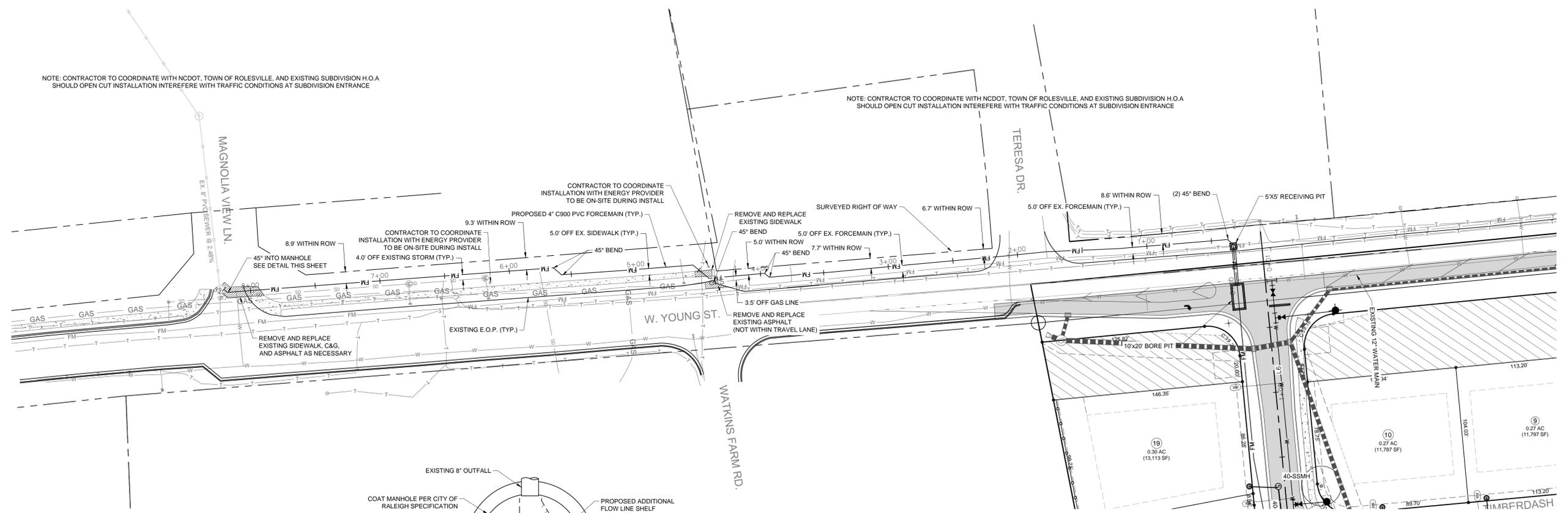


**CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION**

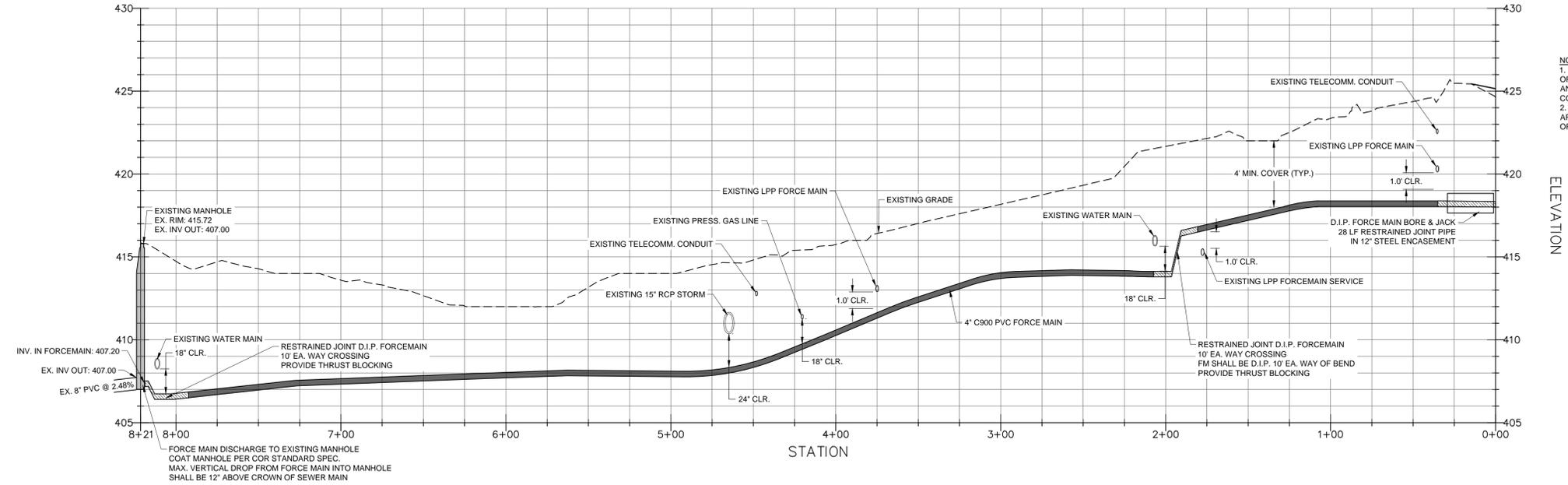
**FORCE MAIN OUTFALL
 PLAN & PROFILE**

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale: 1" = 40'
 Date: 08/14/2020
 Project Number: P170347

SHEET
C719



FORCE MAIN OUTFALL - PLAN
 SCALE: 1"=40'
 STA: 0+00 - 8+10



NOTES:
 1. PROVIDE POWER POLE SUPPORT WHEN OPEN TRENCH IS WITHIN 3' OF POLE OR GUY WIRES AND WHEN OWNER DEEMS NECESSARY AND/OR CONDITIONS WARRANT. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH POWER UTILITY.
 2. WHERE APPLICABLE, CONTRACTOR TO REMOVE AND REPLACE AFFECTED EXISTING STORM DRAINAGE AND/OR STRUCTURES TO ORIGINAL INVERT ELEVATIONS AND WITH LIKE MATERIALS.

SITE PERMITTING APPROVAL
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City of Raleigh Development Approval
 Raleigh Water Review Officer

FORCE MAIN OUTFALL - PROFILE
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'
 STA: 0+00 - 8+21

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REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	



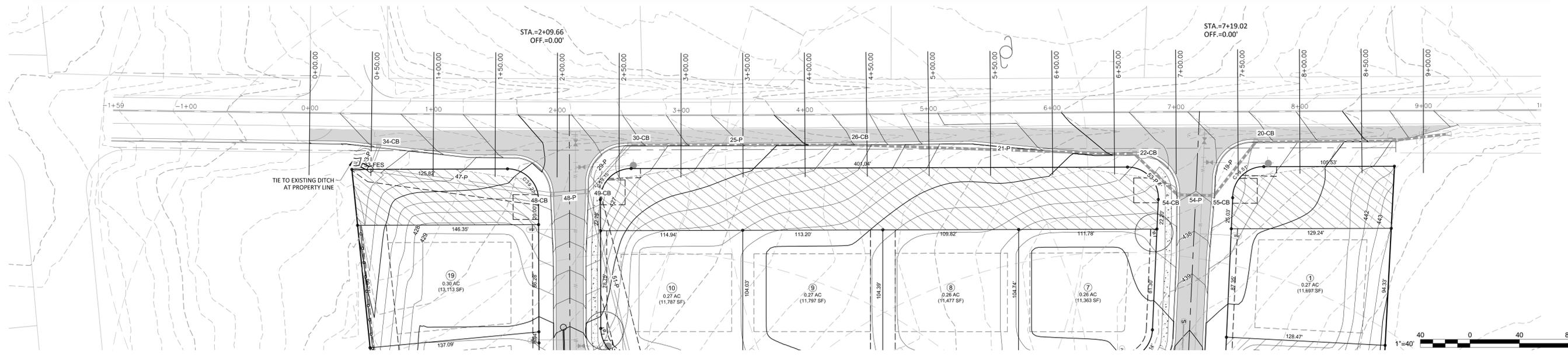
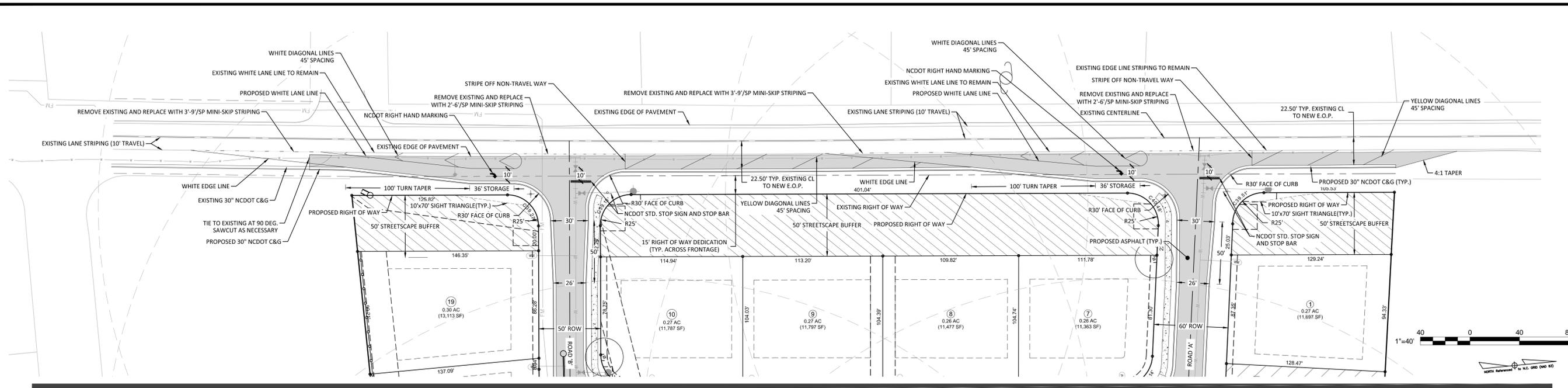
Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRM No. C-2378



CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION

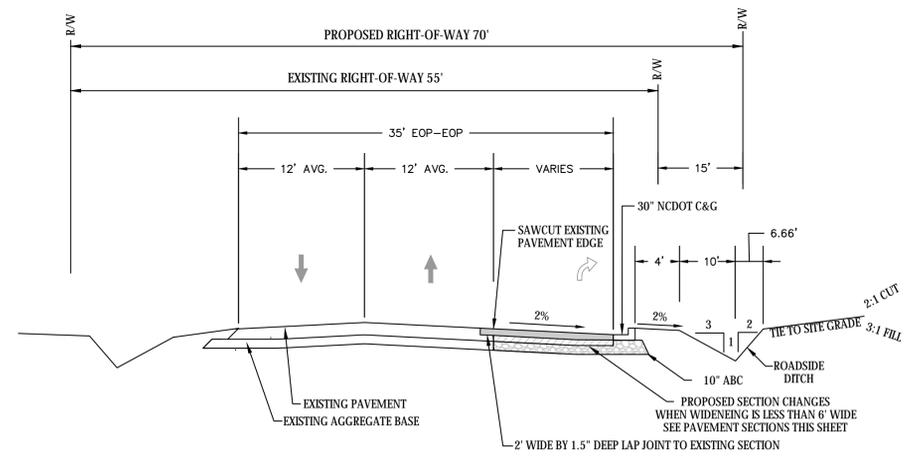
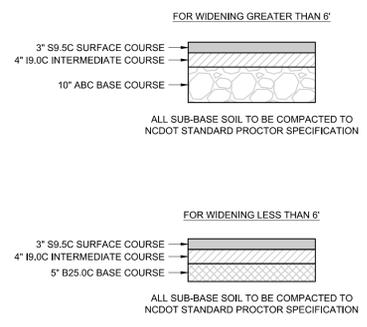
ROAD WIDENING
W. YOUNG ST.

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	08/14/2020
Project Number:	P170347
SHEET	
C800	



SIGNAGE, STRIPING, AND MARKING NOTES:

- ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING ONTO PUBLIC THOROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS.
- ALL PAVEMENT STRIPING SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS.



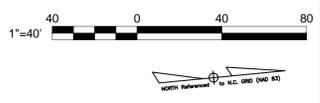
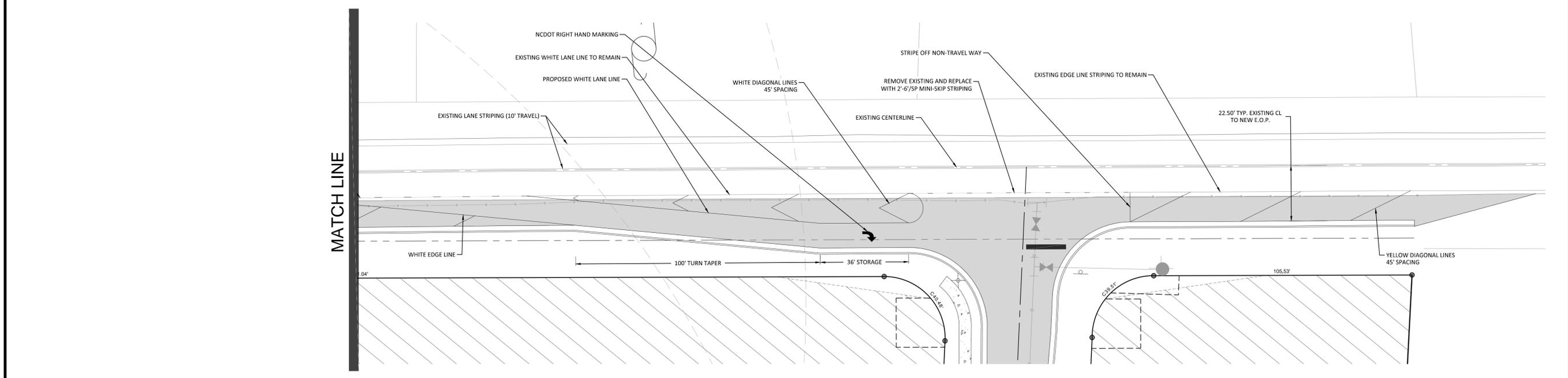
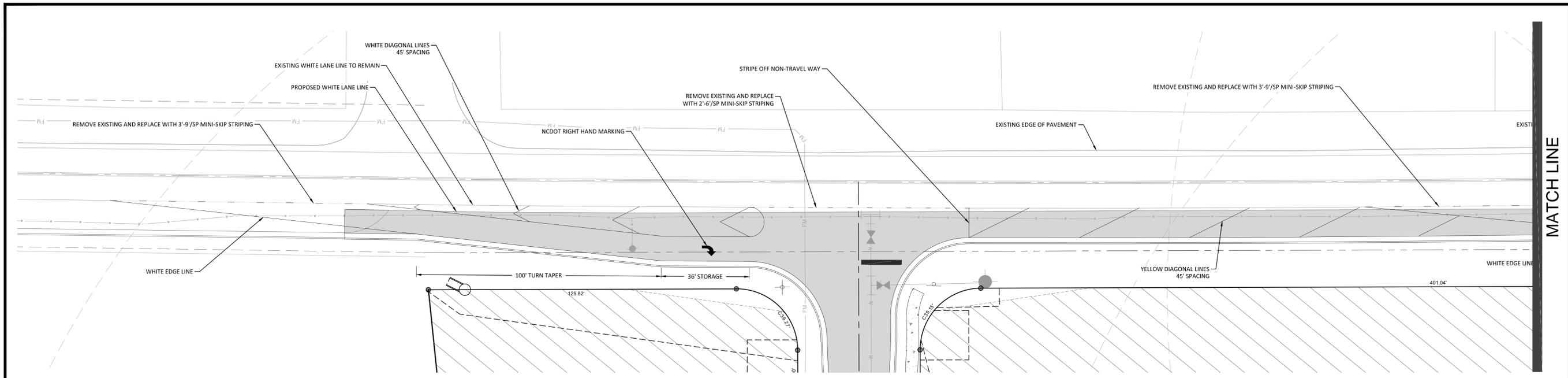
TYPICAL ROAD WIDENING SECTION
 AVERETTE ROAD, WAKE COUNTY
 NOT TO SCALE

NOTES:

- ALL CONSTRUCTION IN THE RIGHT OF WAY SHALL BE IN ACCORDANCE TO NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THEIR ACTIVITIES. CONTRACTOR SHALL CALL UTILITY LOCATOR SERVICE 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. NC ONE CALL 1-800-632-4949 PER NCGS 87-102.
- NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DRIVEWAY PERMIT IS REQUIRED BEFORE STARTING CONSTRUCTION.
- THE DEVELOPER IS RESPONSIBLE FOR THE FABRICATION AND INSTALLATION OF ALL REQUIRED SIGNS AND PAVEMENT MARKINGS WITH IN THE PUBLIC RIGHT OF WAY.
- CONTRACTOR IS RESPONSIBLE FOR PREPARING AND SUBMITTING A TRAFFIC MAINTENANCE PLAN FOR REVIEW AND APPROVAL BY DOT PRIOR TO BEGINNING WORK WITHIN THE RIGHT OF WAY.
- CONTRACTOR SHALL MAINTAIN ACCESS DURING ALL TIMES OF CONSTRUCTION.
- CONTRACTOR SHALL CONTACT WAKE COUNTY SCHOOLS TO COORDINATE ROAD WORK SO IT WILL NOT ADVERSELY AFFECT THE SCHOOLS TRANSPORTATION SCHEDULE AND OR OPERATIONS.
- THERMOPLASTIC PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS SHALL BE INSTALLED WITHIN THE TURN LANE CONSTRUCTION LIMITS IN ACCORDANCE WITH THE STANDARD NCDOT STANDARDS AND SPECIFICATIONS.
- A 2' LAP JOINT TO EXISTING PAVEMENT SHALL BE PROVIDED ALONG THE ENTIRE LENGTH OF ROAD IMPROVEMENTS.

P:\2017\Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEETP_170347_C800_AVERETTE.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



SIGNAGE, STRIPING, AND MARKING NOTES:

1. ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING ONTO PUBLIC THOROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS
2. ALL PAVEMENT STRIPING SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS.

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



Bateman Civil Survey Company
 Engineers • Surveyors • Planners
 2824 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRW No. C-2378



CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

STRIPING PLAN
W. YOUNG ST.

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale: 1" = 40'
 Date: 08/14/2020
 Project Number: P170347

SHEET
C801

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 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRM No. C-2378

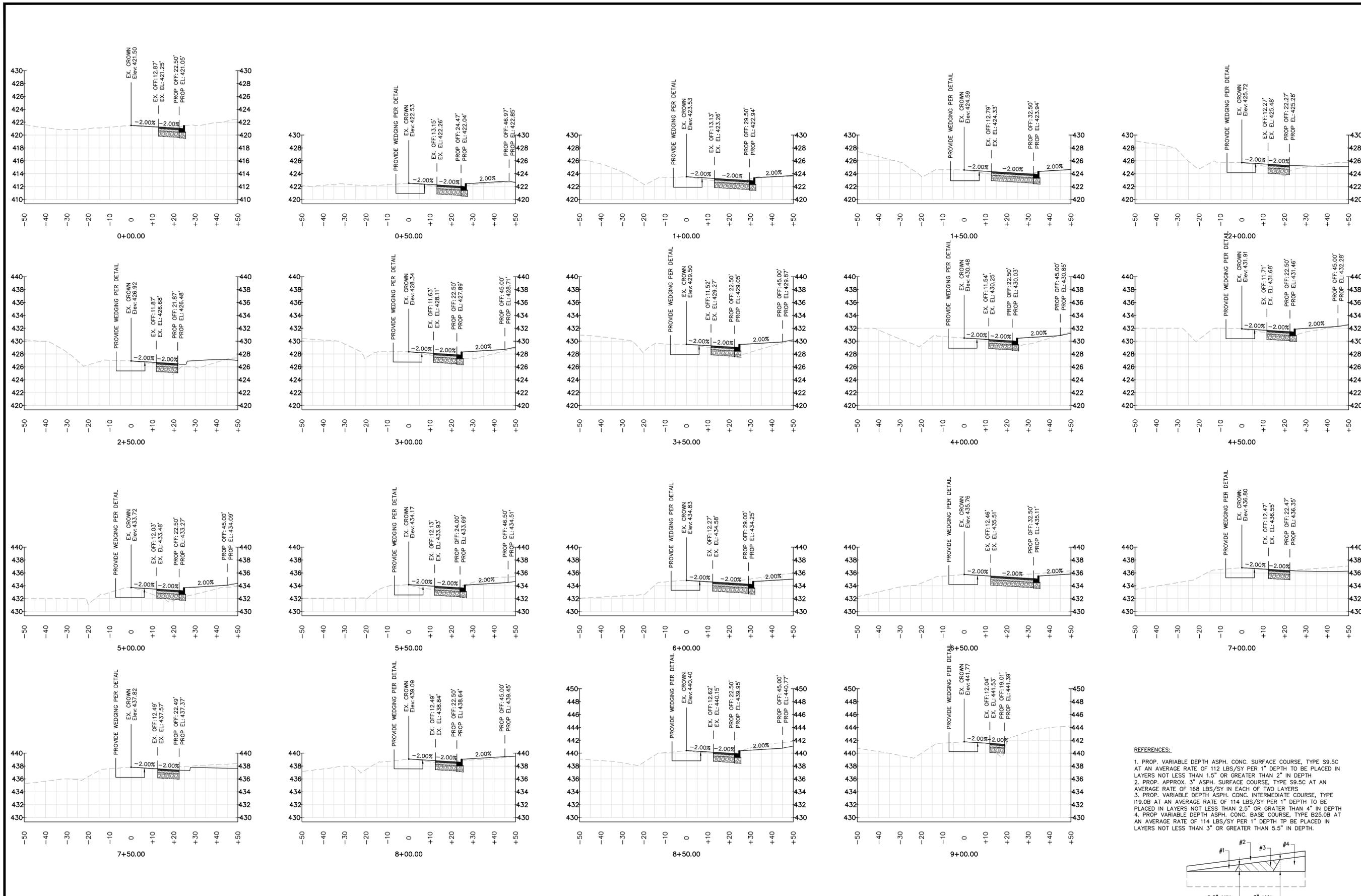


CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION

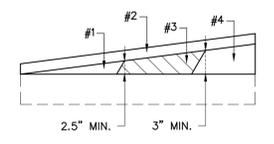
ROAD WIDENING
 CROSS SECTIONS

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale: 1" = 20'
 Date: 08/14/2020
 Project Number: P170347

SHEET
C802

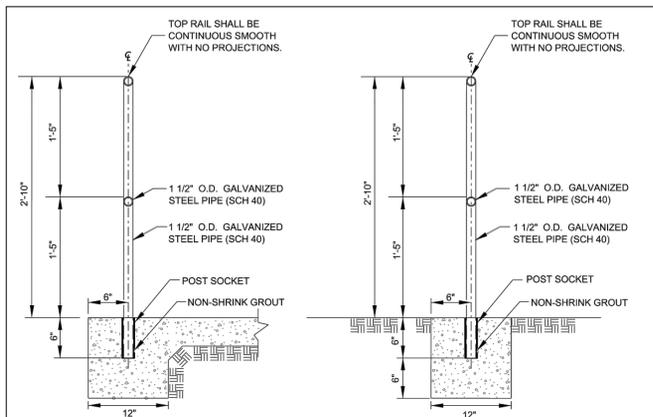


- REFERENCES:**
1. PROP. VARIABLE DEPTH ASPH. CONC. SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS/SY PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2" IN DEPTH
 2. PROP. APPROX. 3" ASPH. SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS
 3. PROP. VARIABLE DEPTH ASPH. CONC. INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 114 LBS/SY PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH
 4. PROP. VARIABLE DEPTH ASPH. CONC. BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 114 LBS/SY PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.



P:\2017 Projects\170347 Chandler's Ridge\CADD\WGTP SHEETP_170347_C802_AVERETTE.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



SHELTER PAD INSTALLATION

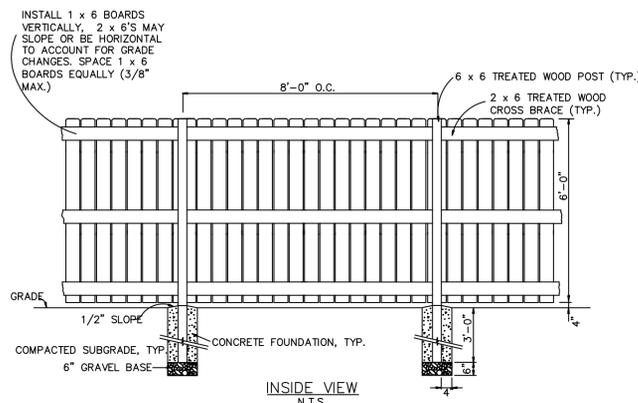
GRADE INSTALLATION

OR EQUIVALENT

CONTRACTOR TO PROVIDE SHOP DWGS

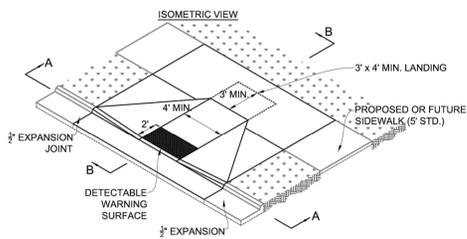
NOTES:
CONTRACTOR TO PROVIDE FULL SHOP DRAWINGS FOR HANDRAIL PRIOR TO INSTALLING.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE	NOT TO SCALE
	8/1/18	
HANDRAIL INSTALLATION		
TT-07		

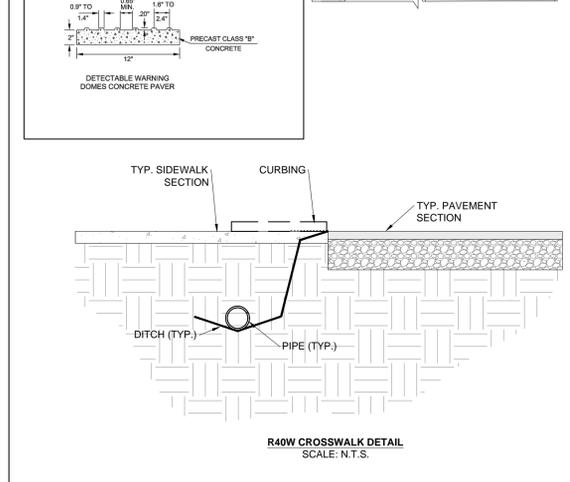
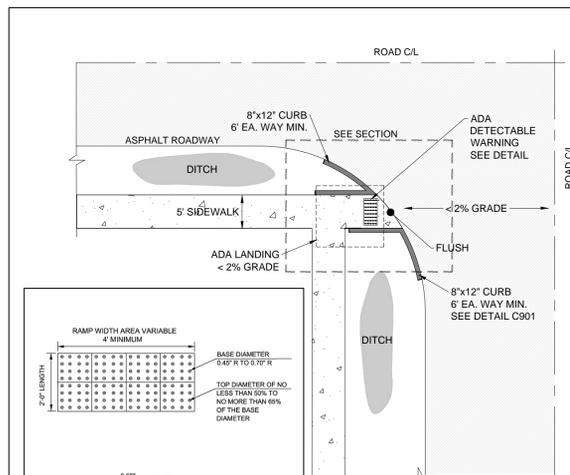


WOODEN FENCE DETAIL
OR EQUIVALENT

CONTRACTOR TO PROVIDE SHOP DWGS



ADA RAMP DETAIL
FOR R-2 LOTS
SCALE: N.T.S.



Outdoor Lighting
Traditional LED

LED light-emitting diode (LED) with 50-watt LED

Mounting height: 12'

Color: Black

Material: Cast aluminum, Veneer concrete, Weathering concrete

Applications: Hardscapes, Parks, Shopping centers, Streets

OR EQUIVALENT

DUKE ENERGY TO PROVIDE FINAL DESIGN

Outdoor Lighting
Traditional LED

Light source: LED (integrated)

Wattage: 50

Lumens: 3,100

Light pattern: ESM Type III (wide)

IESNA color classification: Semi-cutoff

Color temperature: 4,000K

Warmup and visible time: Instant on (no warm-up or visible flicker)

Light distribution pattern

Pole available: None

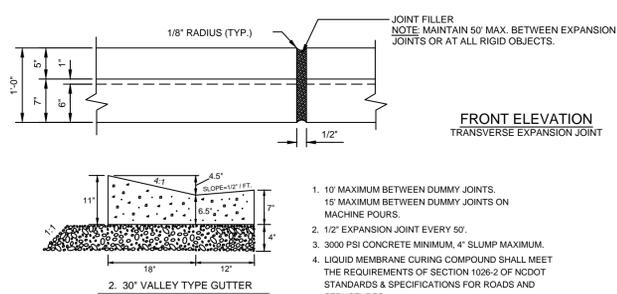
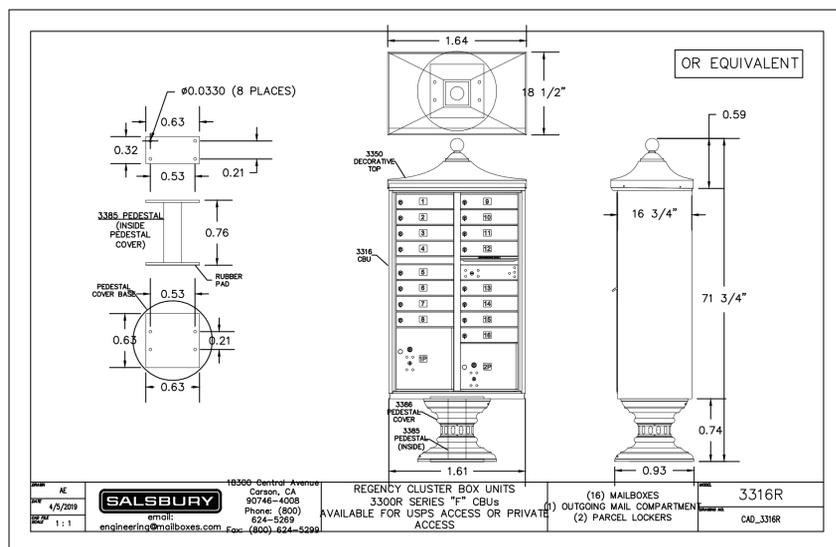
Material: Cast aluminum, Veneer concrete, Weathering concrete

Mounting height: 12'

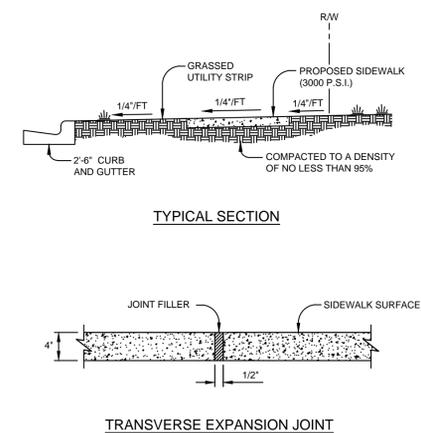
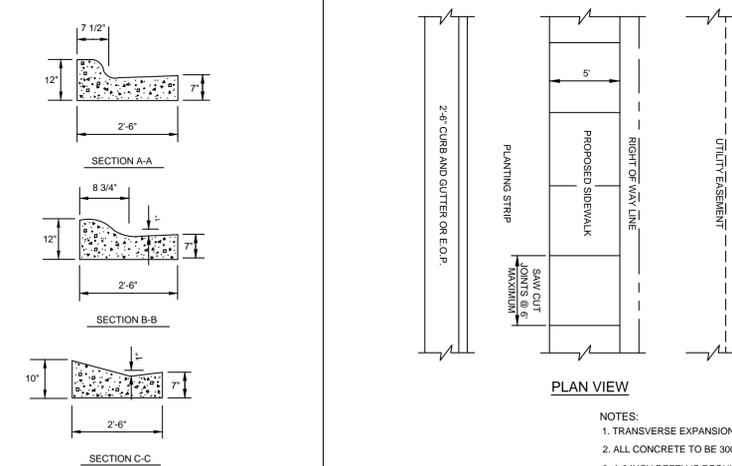
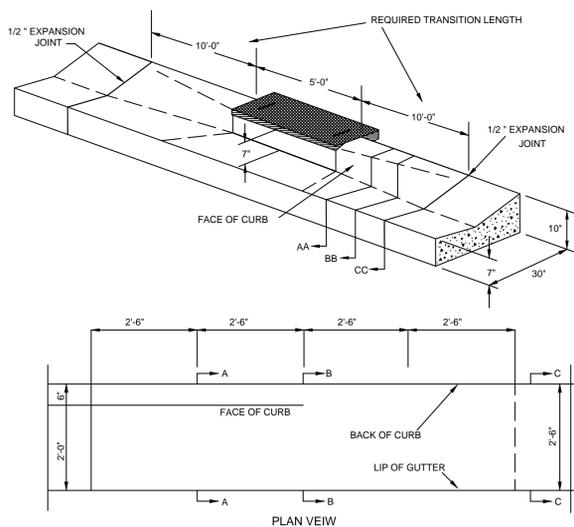
Color: Black, Gray-green, Black, Gray

Features: Little or no installation cost, Design services by lighting professionals included, Maintenance included, Electricity included, Warranty included, One low monthly cost per electric bill, Turnkey operation, Backed by over 40 years of experience

Benefits: Free up capital for other projects, Meets industry standards and lighting ordinances, Eliminates high and unneeded repair bills, Less expensive than related service, No worry-free, Convenience and savings for you, Proven, hassle-free installation and service, A name you can trust today... and tomorrow



CURB AND GUTTER
T-10.26.1
TOWN OF ROLESVILLE STREETS CURB



CONCRETE SIDEWALK
T-30.01

P:\0017\Projects\170347_C990_Site_Details.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
REVISIONS		



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBLS FRM No. C-2378



**CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION**

410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

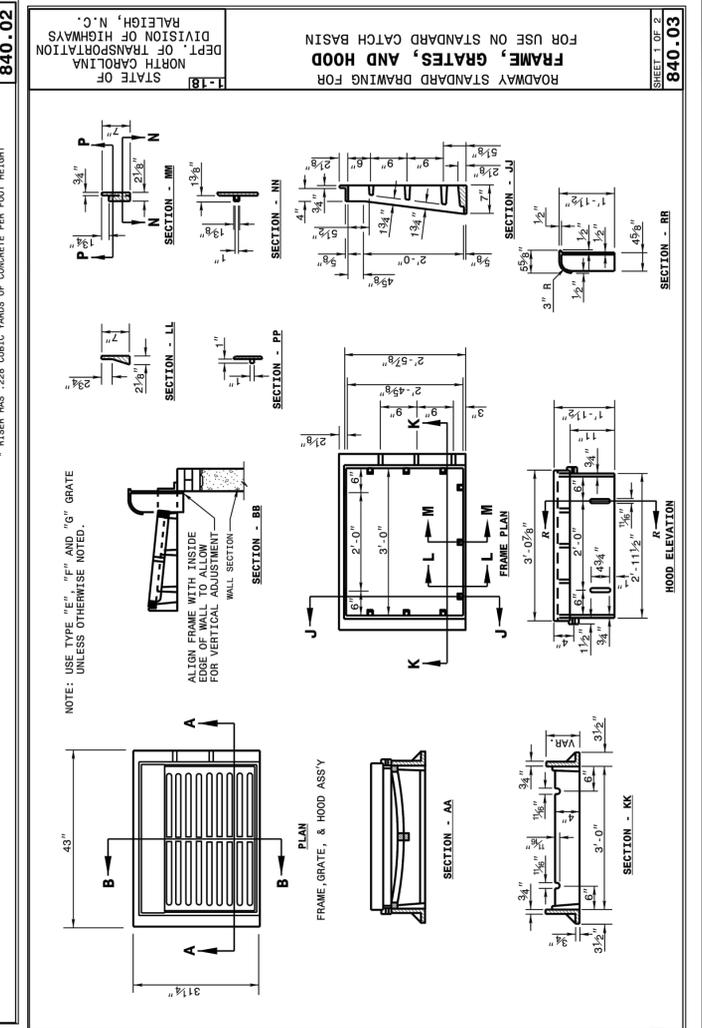
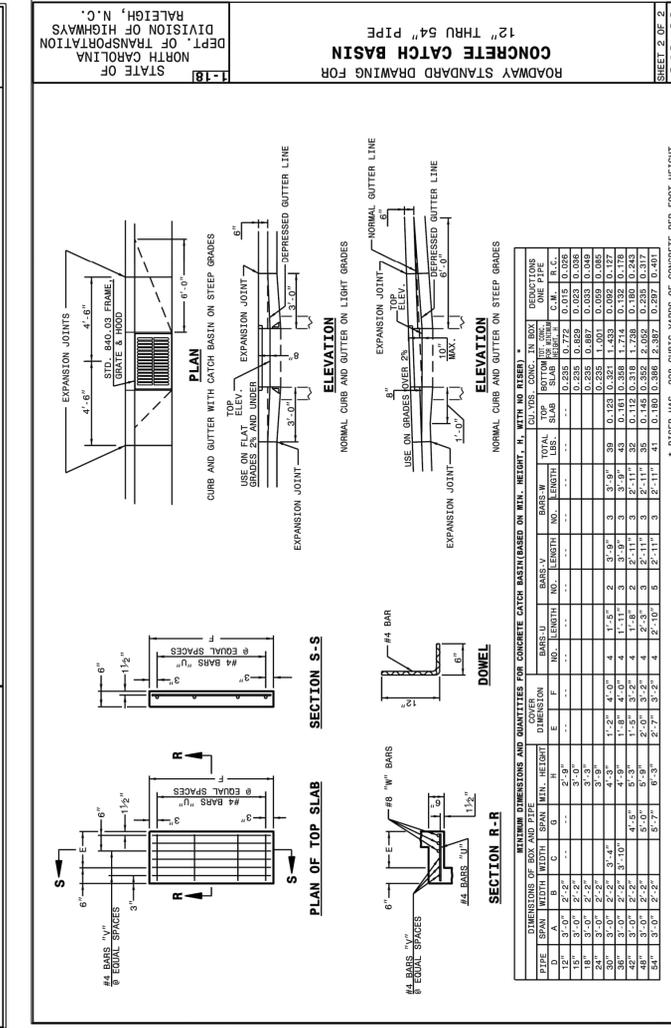
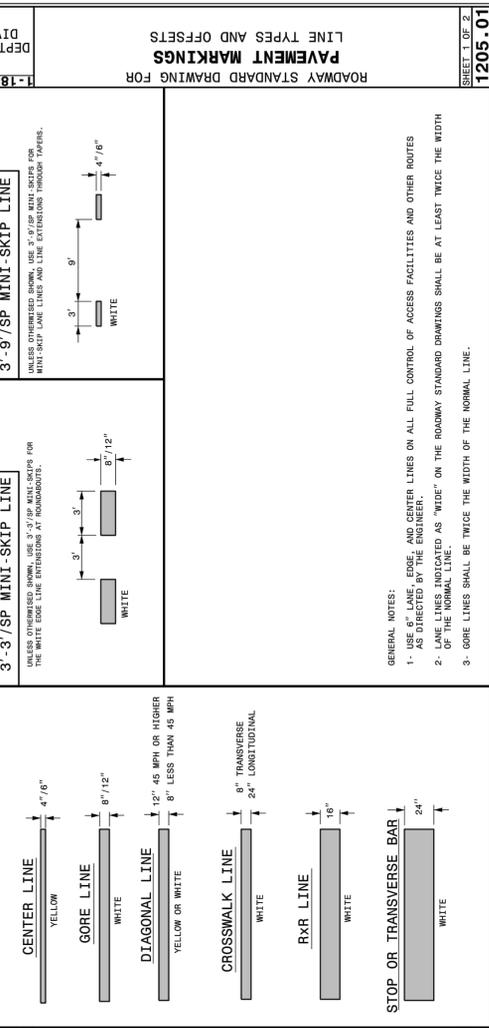
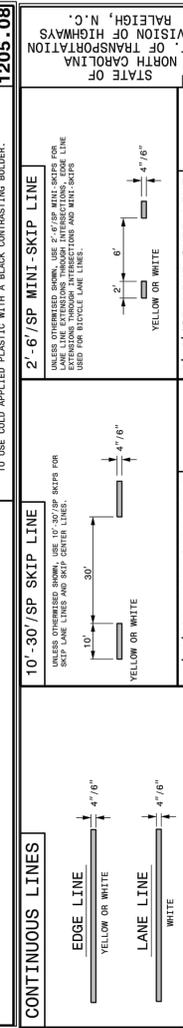
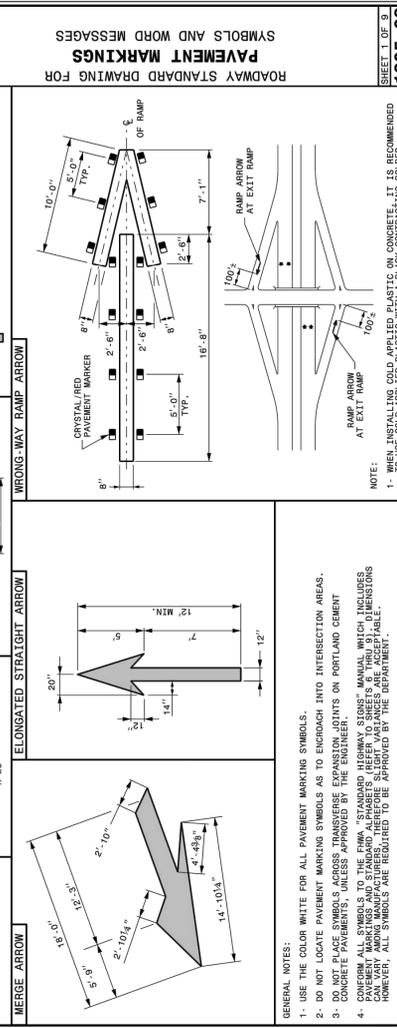
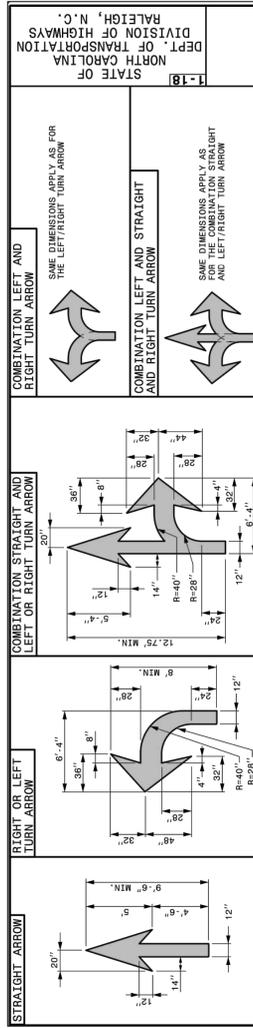
**SITE / NCDOT
DETAILS**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	

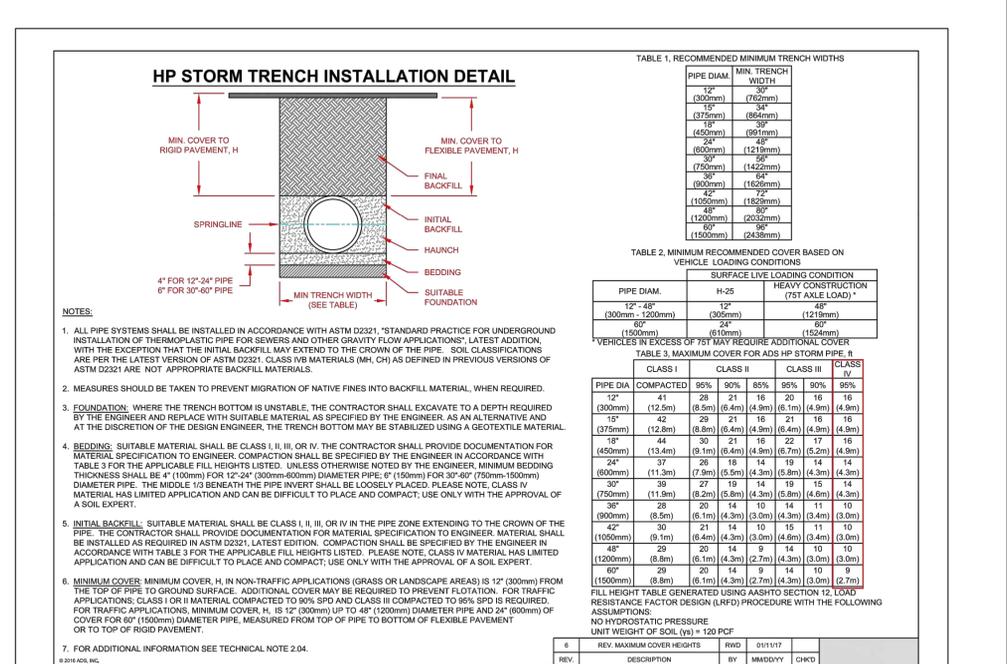
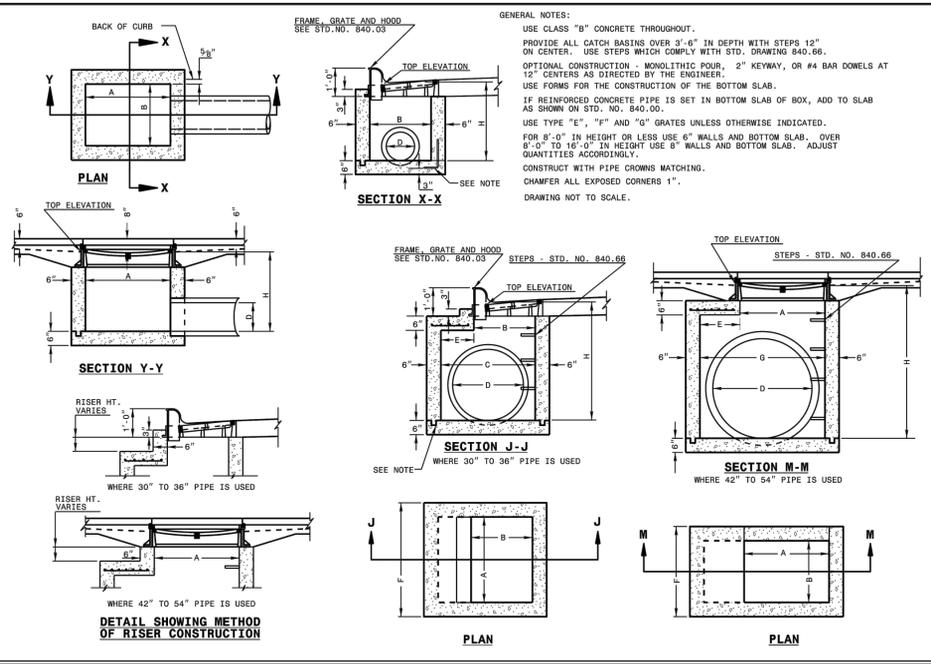
Date: 08/14/2020

Project Number: P170347

SHEET
C900



NO.	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	



HP STORM TRENCH INSTALLATION DETAIL

MIN. COVER TO RIGID PAVEMENT, H
MIN. COVER TO FLEXIBLE PAVEMENT, H
FINAL BACKFILL
INITIAL BACKFILL
HAUNCH
BEDDING
SUITABLE FOUNDATION
MIN TRENCH WIDTH (SEE TABLE)

4" FOR 12"-24" PIPE
6" FOR 30"-60" PIPE

NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS," LATEST EDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS IV MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS III, IIII, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12" (300mm) DIAMETER PIPE; 4" (100mm) FOR 30" (750mm) DIAMETER PIPE; THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 96% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OR TO TOP OF RIGID PAVEMENT.
7. FOR ADDITIONAL INFORMATION SEE TECHNICAL NOTE 2.4.

TABLE 1. RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	36" (914mm)
18" (450mm)	42" (1067mm)
24" (600mm)	54" (1372mm)
30" (750mm)	66" (1676mm)
36" (900mm)	78" (1981mm)
42" (1050mm)	90" (2286mm)
48" (1200mm)	102" (2591mm)
54" (1350mm)	114" (2896mm)

TABLE 2. MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION			
	H-20	HEAVY CONSTRUCTION (75T AXLE LOAD)*	48"	30"
12" (300mm)	12"	12"	12"	12"
15" (375mm)	15"	15"	15"	15"
18" (450mm)	18"	18"	18"	18"
24" (600mm)	24"	24"	24"	24"
30" (750mm)	30"	30"	30"	30"
36" (900mm)	36"	36"	36"	36"
42" (1050mm)	42"	42"	42"	42"
48" (1200mm)	48"	48"	48"	48"
54" (1350mm)	54"	54"	54"	54"

TABLE 3. MAXIMUM COVER FOR ADS HP STORM PIPE, H

PIPE DIA.	CLASS I				CLASS II				CLASS III				CLASS IV			
	95%	90%	85%	80%	95%	90%	85%	80%	95%	90%	85%	80%	95%	90%	85%	80%
12"	44	23	21	16	20	16	16	16	16	16	16	16	16	16	16	16
15"	42	29	21	16	21	16	16	16	16	16	16	16	16	16	16	16
18"	44	30	21	16	22	17	16	16	16	16	16	16	16	16	16	16
24"	37	23	18	14	19	14	14	14	14	14	14	14	14	14	14	14
30"	38	27	19	14	19	14	14	14	14	14	14	14	14	14	14	14
36"	37	23	18	14	19	14	14	14	14	14	14	14	14	14	14	14
42"	30	21	14	10	15	11	10	10	10	10	10	10	10	10	10	10
48"	29	20	14	9	14	10	10	10	10	10	10	10	10	10	10	10
54"	29	20	14	9	14	10	10	10	10	10	10	10	10	10	10	10

FILL HEIGHT TABLE GENERATED USING ASPHOTO SECTION 12. COVER RESISTANCE FACTOR DESIGN (RFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE
UNIT WEIGHT OF SOIL (γs) = 120 PCF

TABLE 4. REV. MAXIMUM COVER HEIGHTS

REV.	DESCRIPTION	BY	DATE
6	REV. MAXIMUM COVER HEIGHTS	RWD	01/11/17
5		MMDDVY	01/02/17

TRENCH INSTALLATION DETAIL (HP STORM)
DRAWING NUMBER: STD-101D

ADVANCED GEOTECHNICAL SYSTEMS, INC.
4610 WILHELM BLVD
HILLSBORO, NC 27548
919-286-9999
www.agsi.com

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale:
Date: 08/14/2020
Project Number: P170347
SHEET
C902

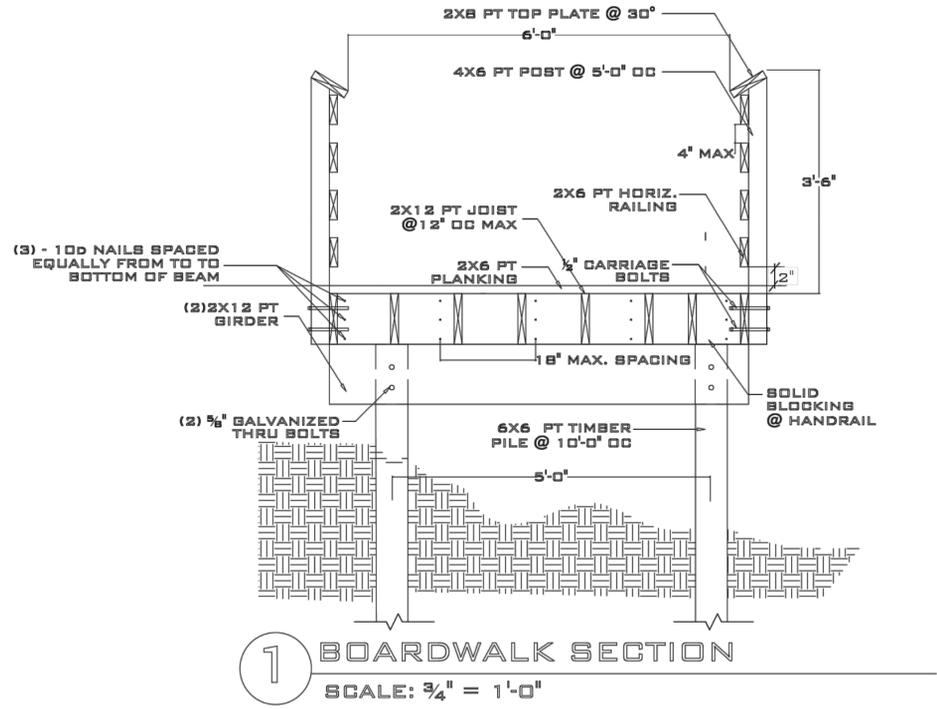


Bateman Civil Survey Company
Engineers • Surveyors • Planners
2224 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBES FRM No. C-2378



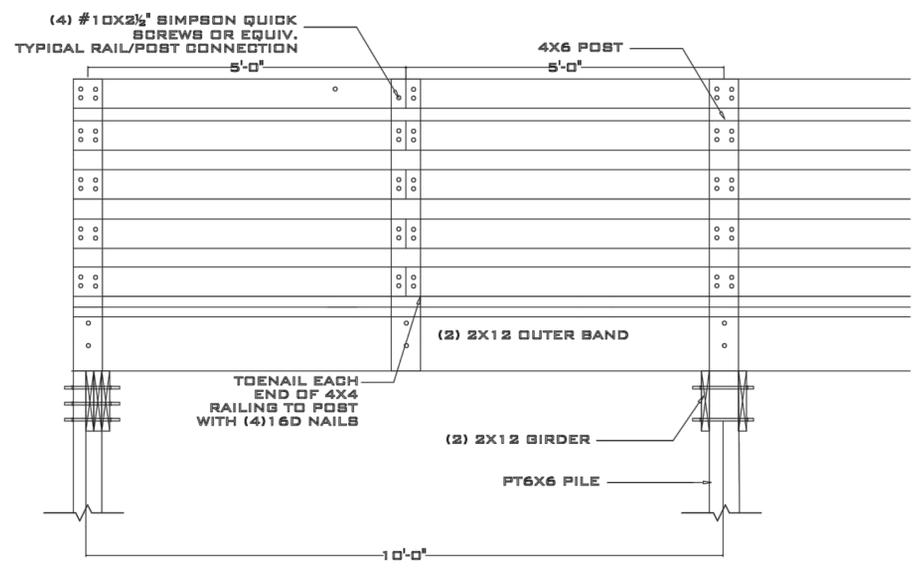
CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY



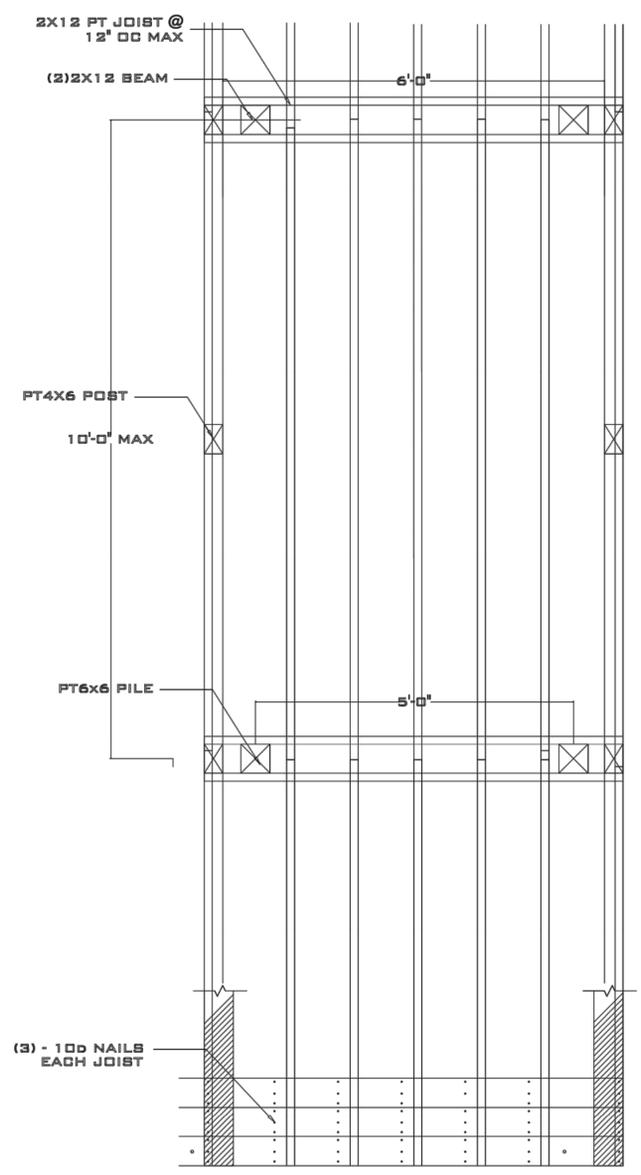
1 BOARDWALK SECTION
SCALE: 3/4" = 1'-0"

NOTE: PILES SHALL BE INSTALLED SUCH THAT THERE IS NO JURISDICTIONAL IMPACT TO THE EXISTING RIPARIAN STREAM AND ITS' BUFFERS.

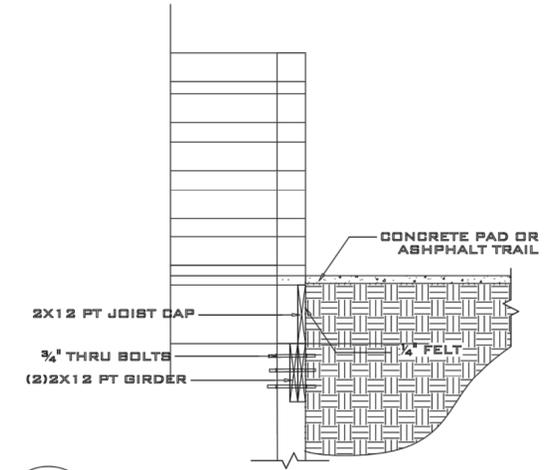


2 TYPICAL SECTION
SCALE: 3/4" = 1'-0"

NOTE: PILES SHALL BE INSTALLED SUCH THAT THERE IS NO JURISDICTIONAL IMPACT TO THE EXISTING RIPARIAN STREAM AND ITS' BUFFERS.



B PLAN VIEW
SCALE: 1/2" = 1'-0"



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

GENERAL NOTES:

GENERAL: ALL NOTES ARE FOR SUPPLEMENTING THE PLANS AND SPECIFICATIONS AND ARE IN NO WAY TO BE CONSIDERED AS EXCLUDING ANY ITEM IN THEM.

1. WOOD TO BE PRESSURE TREATED SOUTHERN YELLOW PINE (SYP)
- BEAMS: NO.1 OR HIGHER
2. PRESERVATIVE PRESSURE TREATMENT TO BE IN ACCORDANCE WITH AWPA STANDARD M4-06 & U1-07 AND MEET THE FOLLOWING REQUIREMENTS:
DECKING, HANDRAILS AND JOISTS: UC3B
POST & PILES: UC4A
3. ALL FASTENERS AND HANGERS TO BE HOT DIPPED GALVANIZED (AT A MINIMUM)
4. FASTEN JOIST HANGERS PER MANUFACTURER'S SPECIFICATIONS:
(4) 10d COMMON NAILS TO JOIST
(4) 10d COMMON NAILS TO BEAM
5. DESIGN CRITERIA PER AASHTO:
LIVE LOAD: 85 PSF
DEAD LOAD: 20 PSF
SNOW LOAD: 15 PSF
WIND SPEED: 100 MPH
HORIZONTAL WIND: 35 PSF
VEHICLE LOAD: 5000 LBS
6. PROVIDE SOLID BLOCKING BETWEEN JOISTS AT POST LOCATIONS
7. ECONOMIC SUBSTITUTES MUST BE APPROVED BY ENGINEER OF RECORD
8. MINIMUM PILE PENETRATION SHALL BE 10'. SIZE AND PENETRATION ARE SUBJECT TO MODIFICATION BASED ON RECOMMENDATION OF GEOTECHNICAL REPORT PER 1803.5.5.
9. SITE SOIL PROPERTIES ARE ASSUMED TO SUPPORT FOUNDATION LOADS. CONTRACTOR SHALL PROVIDE GEOTECHNICAL REPORT BY PROFESSIONAL ENGINEER INDICATING SOIL PROPERTIES ARE SUFFICIENT TO SUPPORT ALL LOADS.



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2224 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRW No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION
410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

PEDESTRIAN BOARDWALK
BRIDGE DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347

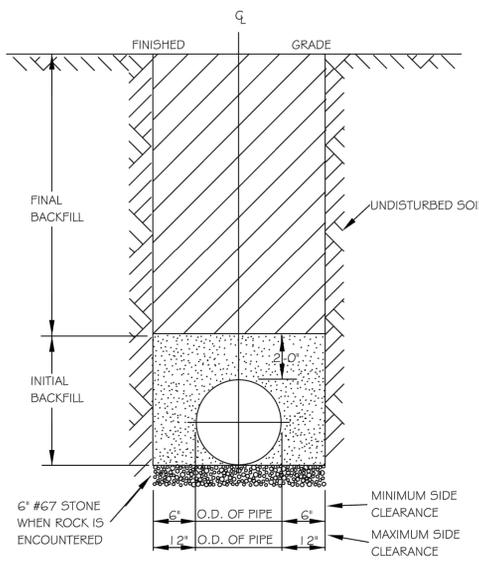
SHEET
C903

OR EQUIVALENT

CONTRACTOR TO PROVIDE SHOP DWGS

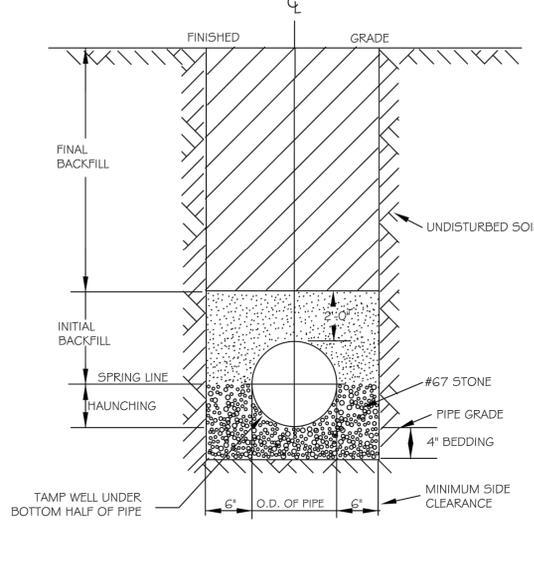
P:\2017 Projects\170347 Chandler's Ridge\Eng\CD\DWG\TP SHEET_P_170347_C903_SITE_DETAILS.dwg

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



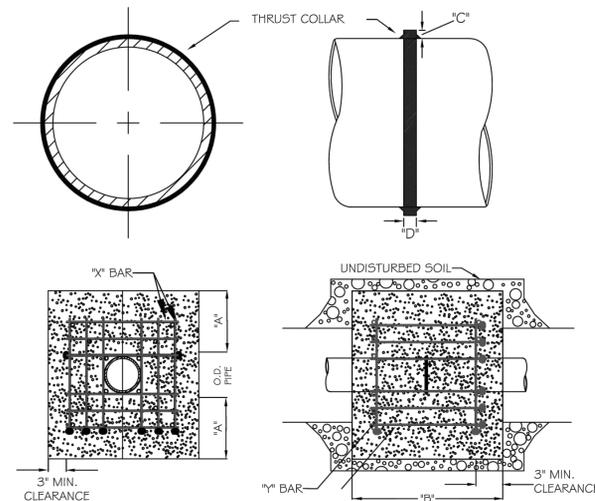
- NOTES:
- TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 - ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
 - IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
 - NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-4	D.W.C.	9-3-99	RRH	3-30-00	



- NOTES:
- FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99	
		7-2-82	RRH	3-30-00	

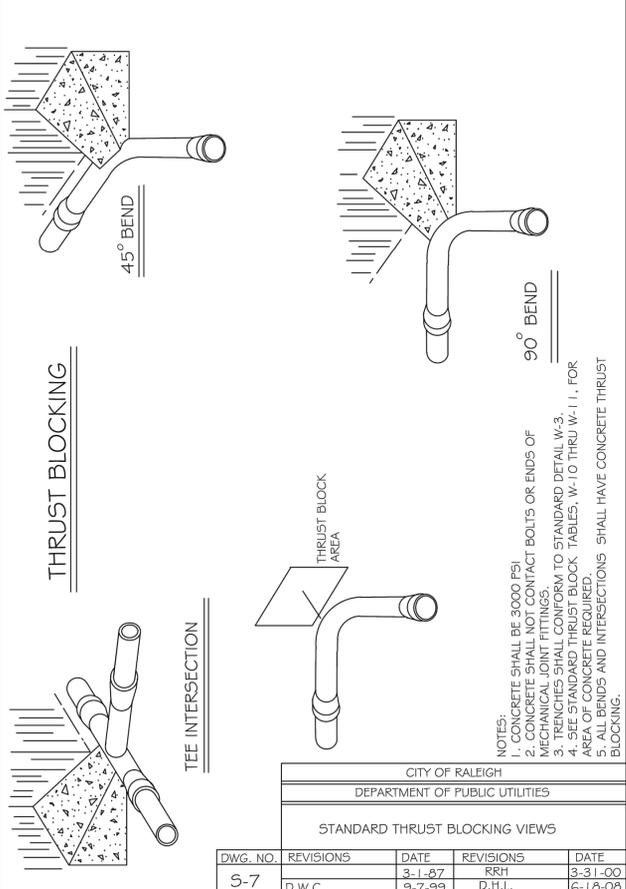


REINFORCING REQUIREMENTS					
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"Y" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT
6" - 36"	#5	2'-2" O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH
40" & greater	#6	3'-0" O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH

THRUST COLLAR AND THRUST SCHEDULE					
I.D. PIPE	"X"	"Y"	"Z"	"W"	"V"
6" - 16"	1'-4"	1'-7"	2"	3/8"	
20" - 24"	1'-4"	1'-7"	3"	1/2"	
30" - 36"	1'-4"	1'-7"	4"	5/8"	
40" & greater	1'-8"	1'-9"	6"	7/8"	

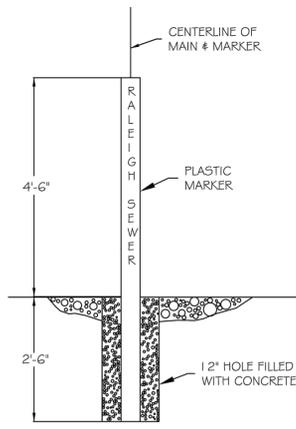
- NOTES:
- CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
 - REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
 - TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 - BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
 - THRUST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

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
RESTRAINING COLLAR DESIGN DATA FOR SEWER FORCE MAIN					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-6	RRH	1-21-00	D.H.L.	6-18-08	



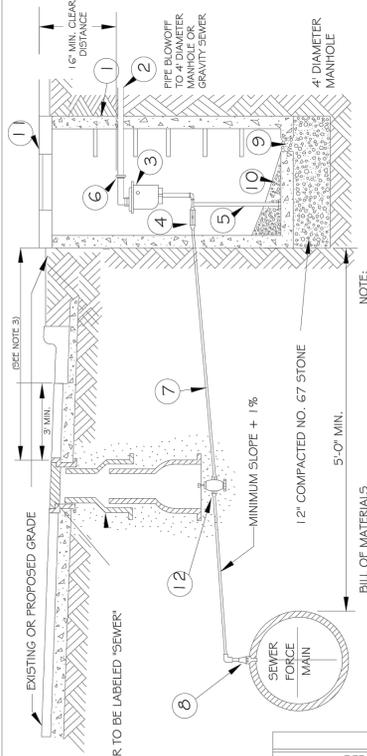
- NOTES:
- CONCRETE SHALL BE 3000 PSI
 - CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 - TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
 - AREA OF CONCRETE REQUIRED.
 - ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD THRUST BLOCKING VIEWS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-7	D.W.C.	3-1-87	RRH	3-31-00	
		9-7-99	D.H.L.	6-18-08	



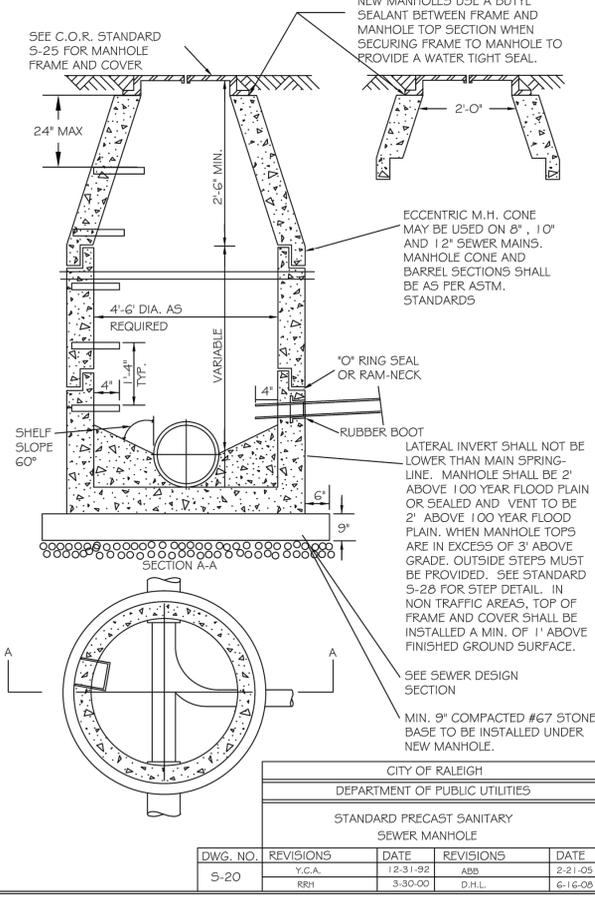
- NOTES:
- PLASTIC MARKER SHALL BE GREEN IN COLOR.
 - MARKERS SHALL BE LABELED "RALEIGH SEWER"
 - TO BE SPACED EVERY 300 FEET ON EACH SIDE OF ANY ROADWAY OR JUNCTION.
 - MARKERS SHALL BE ROUND 4" IN DIAMETER.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MAIN MARKER FOR SEWER FORCE MAINS IN EASEMENTS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-8	RRH	7-14-82	RRH	12-31-91	
		9-30-04	RRH	3-30-00	



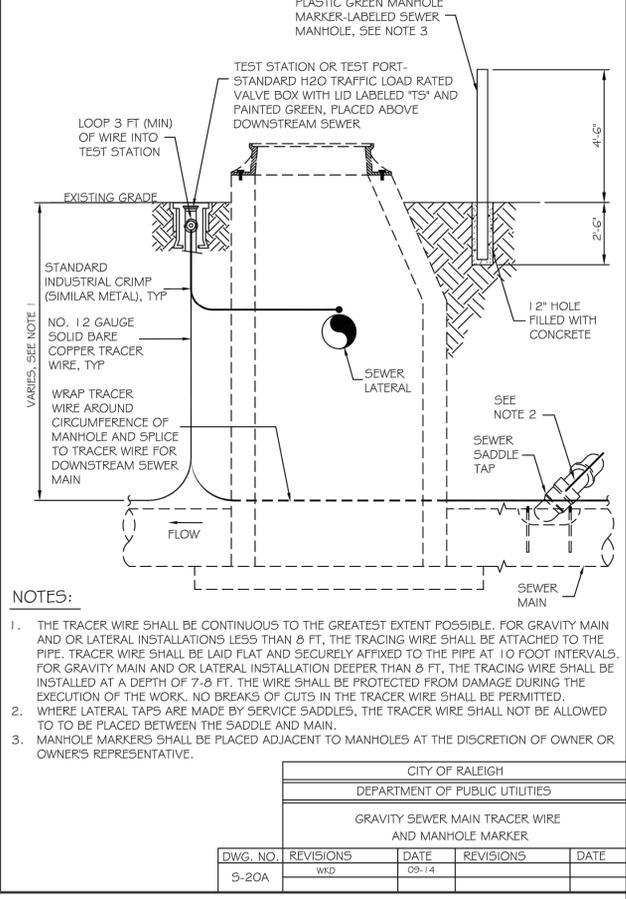
- NOTE:
- AIR RELEASE VALVE TO BE A.R.I.
 - BLOW OFF PIPE SCD 80 PVC
 - 2" AIR RELEASE VALVE
 - 2" x 55 BALL VALVE
 - PIPE STAND SUPPORT S5
 - 2" UNION SCD 80 PVC
 - 2" TYPE "K" SOFT COPPER WITH FLARED ELBOW
 - CORPORATION COCK
 - 6" DIAMETER DRAIN
 - 10" GROUT - 1" TO 1.5" MIN. SLOPE TO DRAIN
 - 1" 36" x 30" HALLIDAY HATCH, ALUM.
 - 2" GATE VALVE

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD PRECAST SANITARY SEWER MANHOLE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-9	LBN	7-14-82	RRH	12-31-91	
		9-30-04	RRH	3-30-00	



- NEW MANHOLES USE A BUTYL SEALANT BETWEEN FRAME AND MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO PROVIDE A WATER TIGHT SEAL.
- ECCENTRIC M.H. CONE MAY BE USED ON 8", 10" AND 12" SEWER MAINS. MANHOLE CONE AND BARREL SECTIONS SHALL BE AS PER ASTM STANDARDS
- LATERAL INVERT SHALL NOT BE LOWER THAN MAIN SPRINGLINE. MANHOLE SHALL BE 2' ABOVE 100 YEAR FLOOD PLAIN OR SEALED AND VENT TO BE 2' ABOVE 100 YEAR FLOOD PLAIN. WHEN MANHOLE TOPS ARE IN EXCESS OF 3' ABOVE GRADE, OUTSIDE STEPS MUST BE PROVIDED. SEE STANDARD S-28 FOR STEP DETAIL. IN NON TRAFFIC AREAS, TOP OF FRAME AND COVER SHALL BE INSTALLED A MIN. OF 1' ABOVE FINISHED GROUND SURFACE.
- MIN. 9" COMPACTED #67 STONE BASE TO BE INSTALLED UNDER NEW MANHOLE.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD PRECAST SANITARY SEWER MANHOLE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20	Y.C.A.	12-31-92	ABB	2-21-05	
	RRH	3-30-00	D.H.L.	6-18-08	



- NOTES:
- THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
 - WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
 - MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-20A	WKD	09-14			



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 Phone: 919.577.1080 Fax: 919.577.1081
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CHANDLER'S RIDGE
 CONSERVATION DOCUMENTS
 CONSERVATION SUBDIVISION

CITY OF RALEIGH SEWER & FORCE MAIN DETAILS

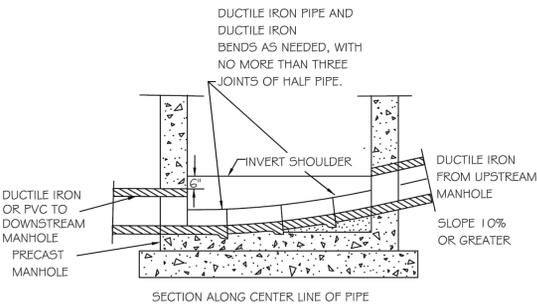
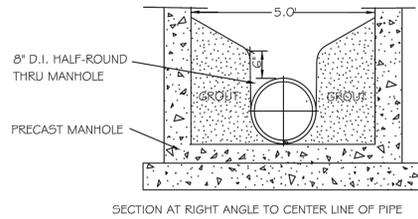
Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale:
 Date: 08/14/2020
 Project Number: P170347

NO.	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE

SITE PERMITTING APPROVAL
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

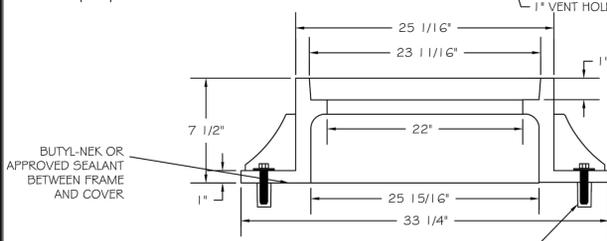
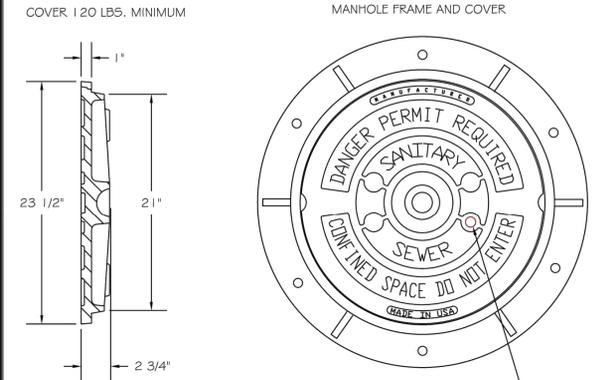
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval
 Raleigh Water Review Officer



NOTE:
NO HORIZONTAL ALIGNMENT CHANGE CAN BE MADE WITH THIS MANHOLE TYPE. USE ON GRADES 1.0% OR GREATER.

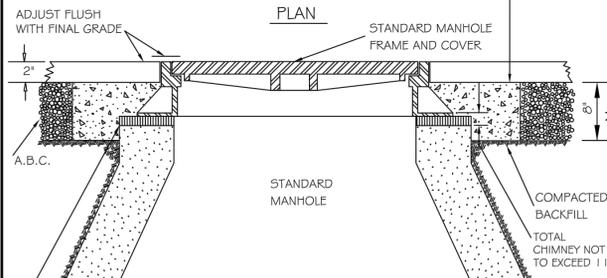
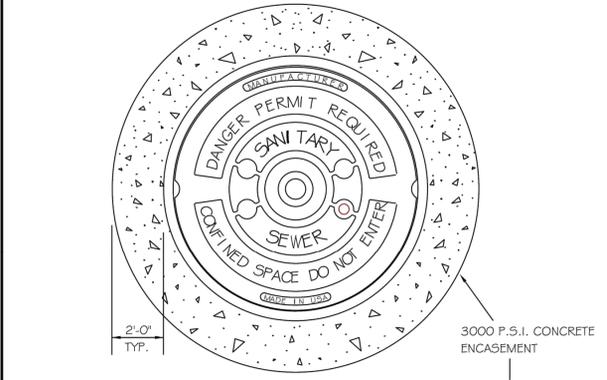
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD HIGH VELOCITY MANHOLE INVERT					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-23					
	Y.C.A.	12-31-91	RRH	3-30-00	



NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

5/8"x3" LAGS/SHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 3/8"x3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

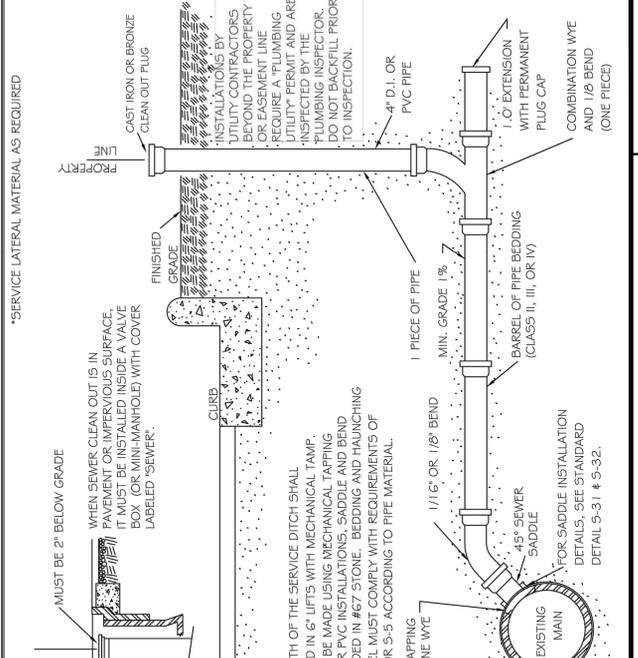
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-25					
	3-1-87	3-1-87	A.B.B.	2-9-05	
	RRH	3-30-00	D.H.L.	6-18-08	



ADJUST FLUSH WITH FINAL GRADE

PRECAST CONCRETE SPACER (DONUT RINGS) IN TRAFFIC AREAS ONLY. DONUT RINGS NOT ALLOWED IN EASEMENTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-29					
	Y.C.A.	12-31-91	ABB	9-20-04	
	RRH	3-30-00	DHL	1-29-07	

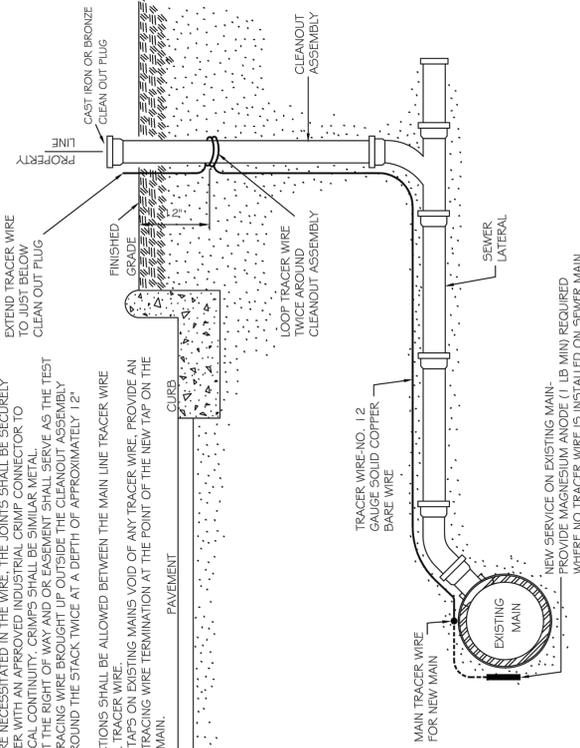


NOTE:
THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL CORNERS WILL BE MADE USING MECHANICAL TAMPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BRIDGING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAILS S-4 OR S-5 ACCORDING TO PIPE MATERIAL.

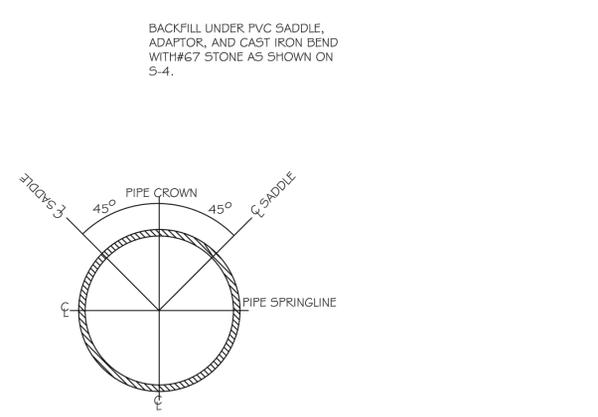
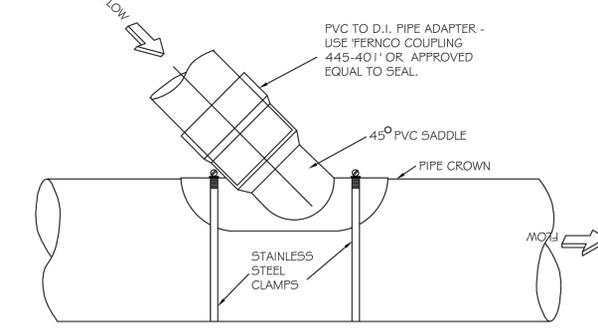
8" 1.0' OR 12" TAPPING SADDLE OR IN-LINE WYE

FOR SADDLE INSTALLATION DETAILS, SEE STANDARD DETAIL S-31 & S-32.

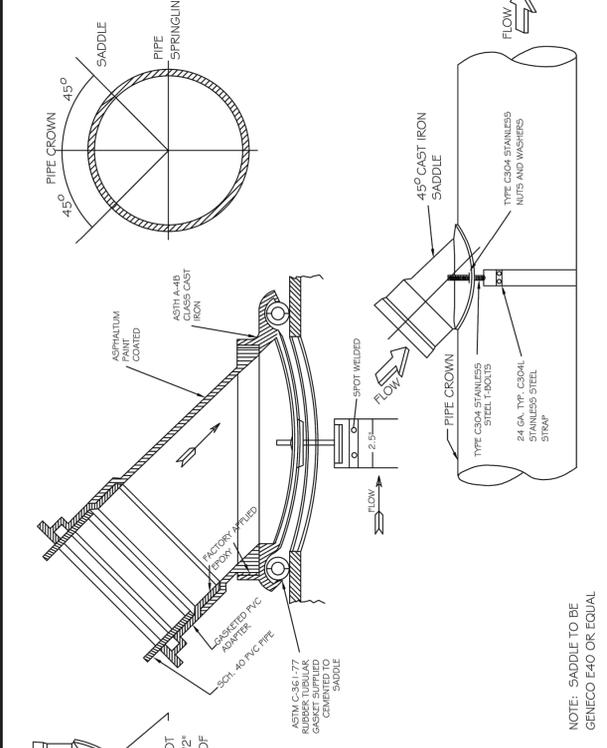
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30					
	Y.C.A.	6-92	A.B.B.	4-8-04	
	RRH	3-30-00	D.H.L.	6-18-08	



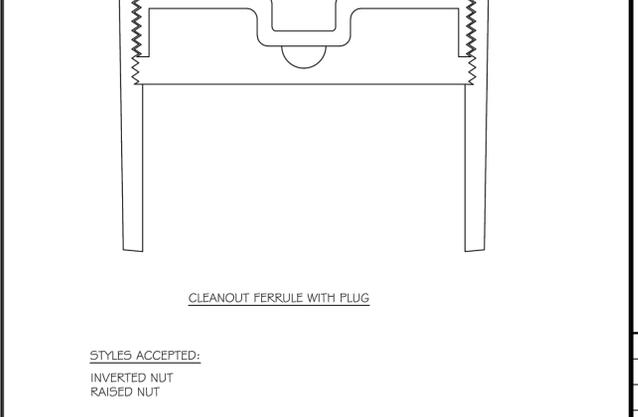
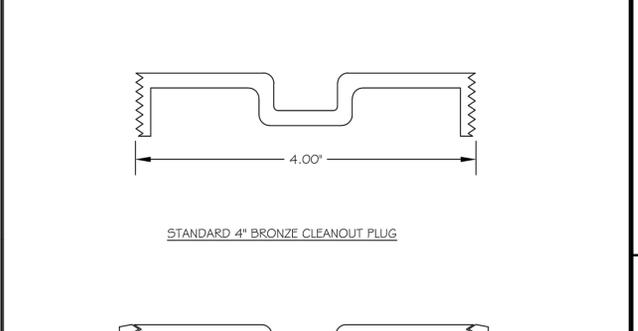
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL TRACER WIRE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30A					
	W.K.D.				



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-32					
	3-1-87	3-1-87			
	RRH	3-30-00			



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES LATERAL SADDLE INSTALLATION DETAIL FOR VCP AND DUCTILE IRON PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-32					
	3-1-87	3-1-87			
	RRH	3-30-00			



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES 4" CLEANOUT PLUG					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34					
	D.W.C.	3-27-98	RRH	3-30-00	

NOTES:
1. TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE WHERE JOINTS ARE NECESSARY IN THE WIRE. THE JOINTS SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CRIMP CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CRIMPS SHALL BE SIMILAR TO THE PORT WITH THE TRACING WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12" BELOW GRADE.
2. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE FOR NEW SEWER TAPS ON EXISTING MAINS. VOID OF ANY TRACER WIRE. PROVIDE AN ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN.
3. TRACER WIRE NO. 12 BARE WIRE.
4. NEW SERVICE ON EXISTING MAINS - PROVIDE MAGNESIUM ANODE (1 LB MIN) REQUIRED WHERE NO TRACER WIRE IS INSTALLED ON SEWER MAIN.

SITE PERMITTING APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval
Raleigh Water Review Officer



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2224 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FRM No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

**CITY OF RALEIGH
& FORCEMAIN DETAILS**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347

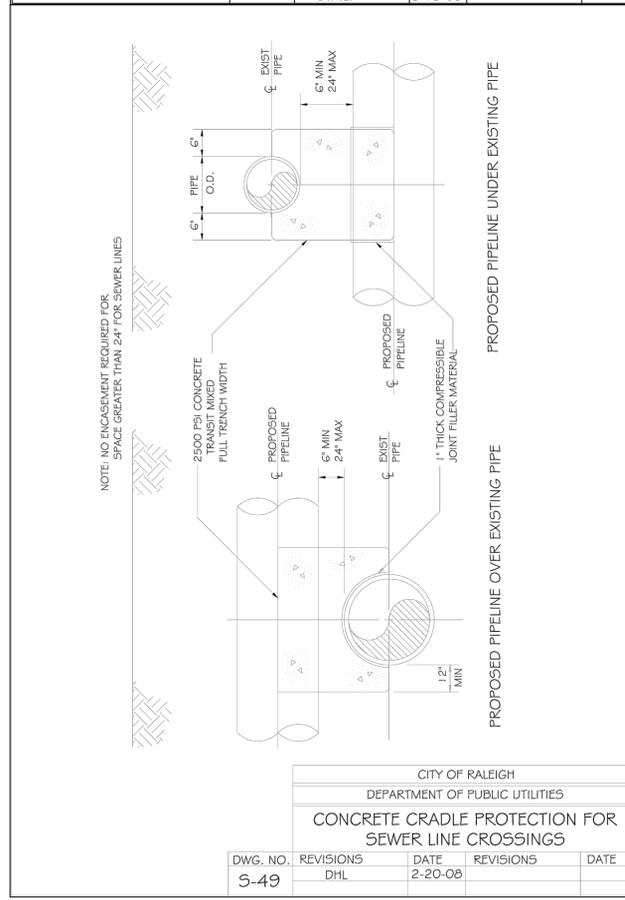
SHEET
C911

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

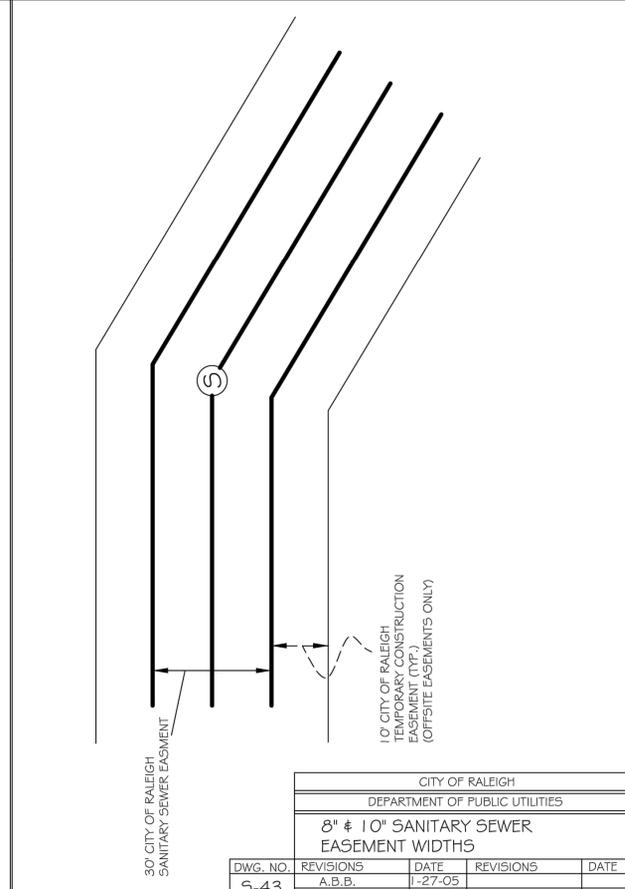
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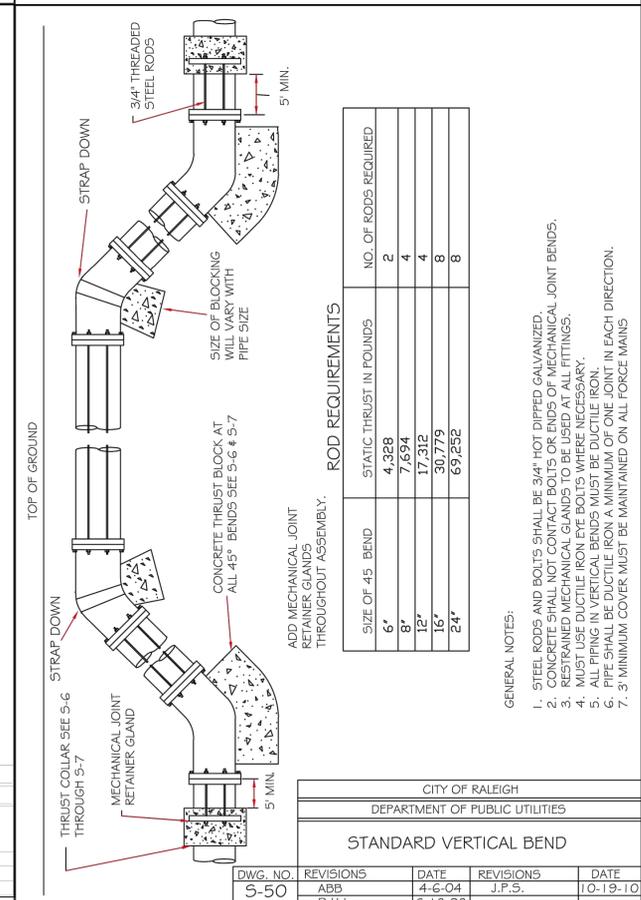
City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	D.H.L.	2-20-08		



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
8\"/>				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-43	A.B.B.	1-27-05		
	D.H.L.	6-18-08		

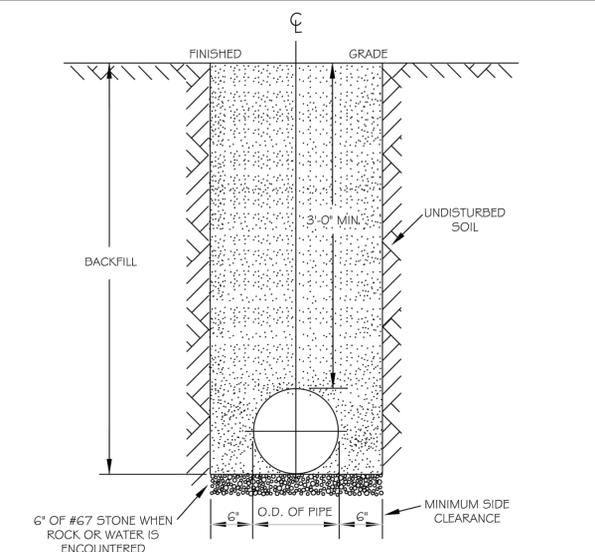


ROD REQUIREMENTS		
SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD VERTICAL BEND				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-50	ABB	4-6-04	J.P.S.	10-19-10
	D.H.L.	6-18-08		

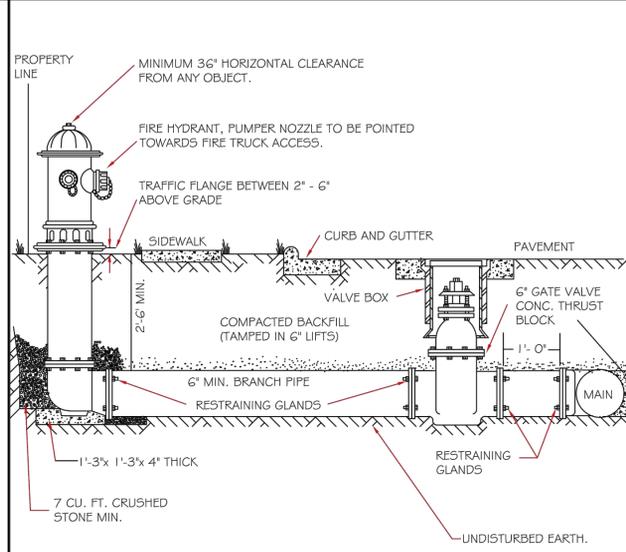
- GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
 3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 4. ALL PIPING IN VERTICAL BENDS MUST BE DUCTILE IRON.
 5. ALL PIPING IN VERTICAL BENDS MUST BE DUCTILE IRON.
 6. PIPE SHALL BE DUCTILE IRON A MINIMUM OF ONE JOINT IN EACH DIRECTION.
 7. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL FORCE MAINS.

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-2378
CHANDLER'S RIDGE CONSTRUCTION DOCUMENTS CONSERVATION SUBDIVISION 410 W. YOUNG ST. ROLESVILLE, NC WAKE COUNTY
CITY OF RALEIGH SEWER & FORCEMAIN DETAILS
Project Engineer: TSS Designed By: TEP Drawn By: TEP Checked By: TSS Scale: Date: 08/14/2020 Project Number: P170347
SHEET C912



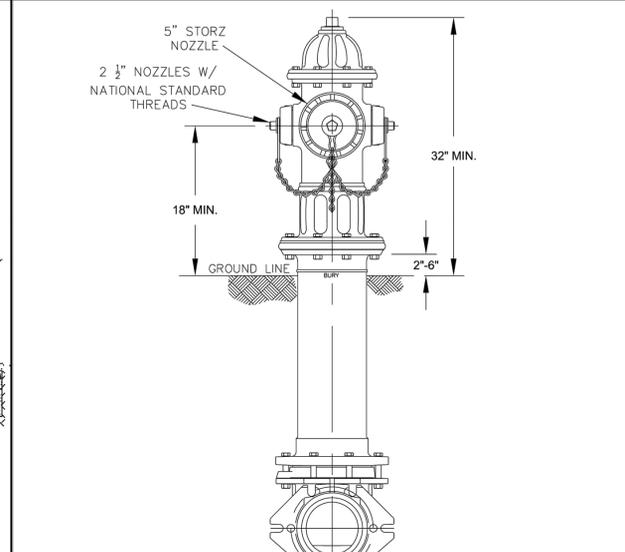
NOTES:
 1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 5. ACHIEVE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

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-3					
	RRH	3-31-00	J.P.S.	10-29-10	



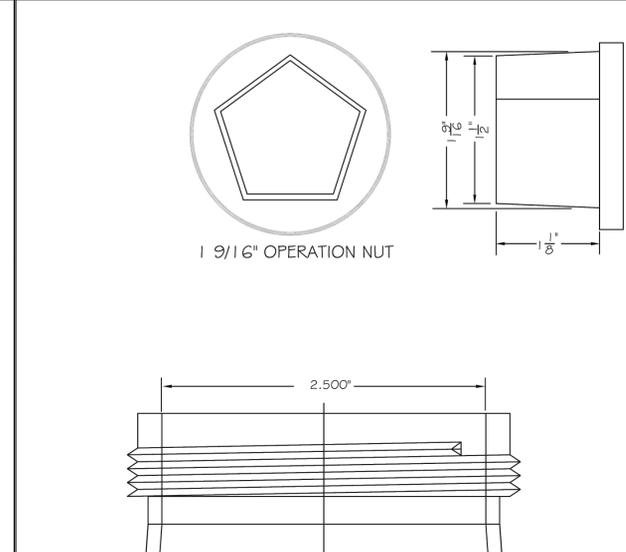
NOTES:
 1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
 3. 6" GATE VALVE SHALL BE AWWA C500-96 OPEN LEFT
 4. STEEL RODS AND BOLTS SHALL BE 3/8" HOT DIPPED GALVANIZED
 5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
 RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
 FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
STANDARD FIRE HYDRANT INSTALLATION DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-4					
	ABB	4-6-04	F.A.P.	2/17/09	
	DHL	2/14/08			



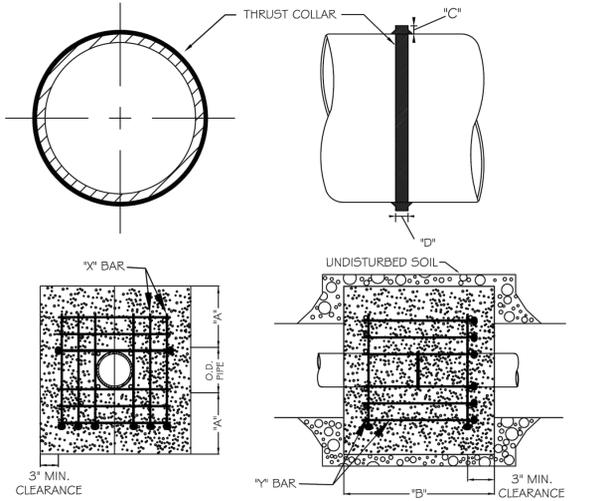
NOTES:
 1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
 2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-5					
	MAB	6-30-16			
	KAT	9-15-17			



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

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-6					
	RRH	3-31-00	DHL	2-18-08	
	A.B.B.	4-13-04	J.P.S.	11-1-10	

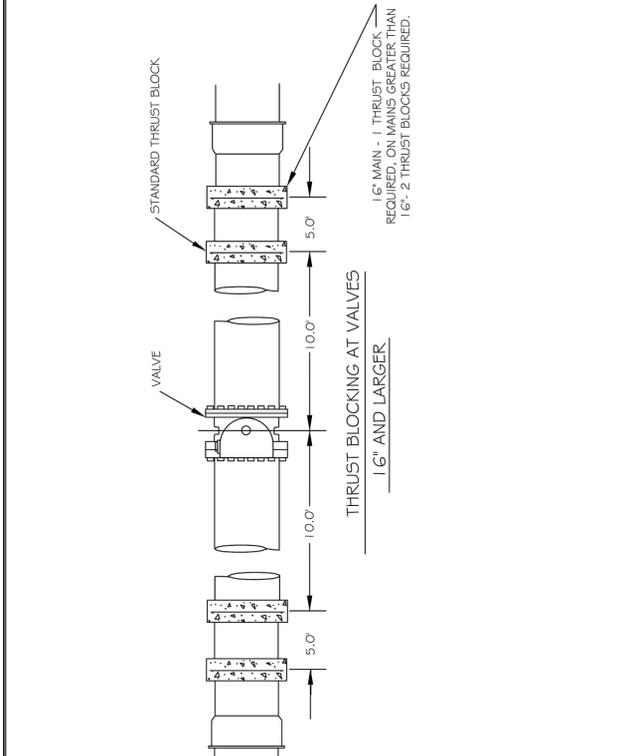


REINFORCING REQUIREMENTS						
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2" O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0" O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

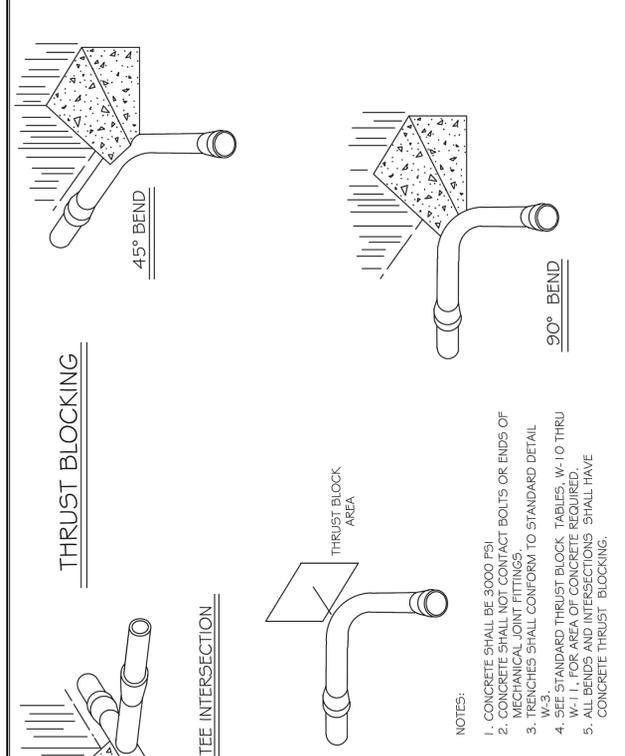
THRUST COLLAR, AND THRUST SCHEDULE				
I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

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-3.
 6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

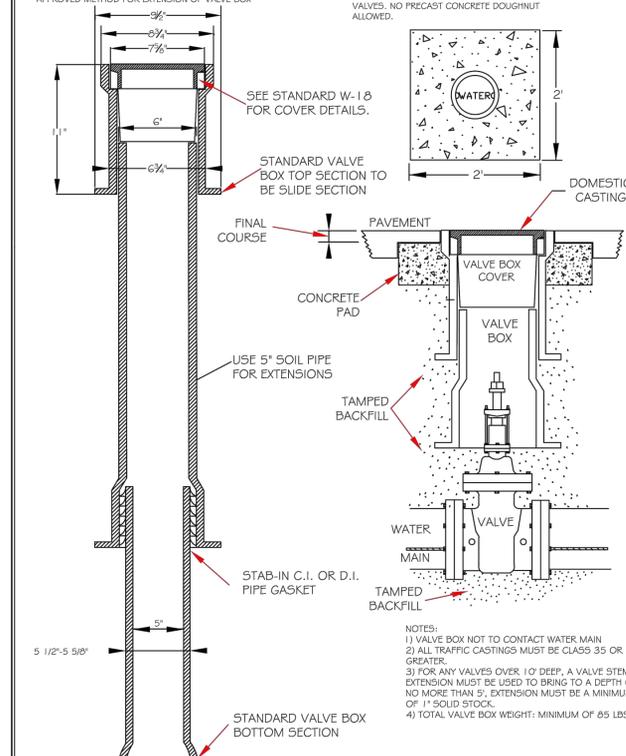
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
THRUST BLOCKING DESIGN DATA FOR WATER MAINS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-7					
	RRH	4-12-90	D.W.C.	9-7-99	
	D.H.L.	6-92	RRH	3-31-00	



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
STANDARD THRUST BLOCK INSTALLATION FOR 16" AND LARGER VALVES AND DEAD END MAINS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-8					
	D.W.C.	4-12-90	RRH	9-7-99	
	RRH	6-92	D.H.L.	3-31-00	



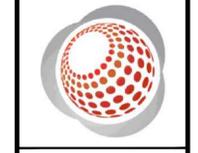
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
STANDARD THRUST BLOCKING VIEWS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-9					
	D.W.C.	3-1-87	RRH	3-31-00	
	RRH	9-7-99	D.H.L.	6-18-08	



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
VALVE BOX INSTALLATION AND EXTENSION DETAIL					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
W-17					
	D.W.C.	9-7-99	A.B.B.	4-15-04	
	RRH	3-31-00	DHL	8-16-07	



Bateman Civil Survey Company
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 2024 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
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CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION
 410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

CITY OF RALEIGH
 WATER DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347

SHEET
C913

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REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020

SITE PERMITTING APPROVAL
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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 City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.

ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LB/SF ²	SOFT CLAY 2000 LB/SF ²	1/2" COARSE SAND 8000 LB/SF ² GRAVEL 11000 LB/SF ²	2" COARSE SAND ALWAYS DRY 8000 LB/SF ²	SAND, COMPACT FIRM 8000 LB/SF ²	SAND - CLEAN DRY 4000 LB/SF ²	SOIL 1000 LB/SF ² QUICKSAND - VERY POOR 10,000 LB/SF ²	ROCK - POOR 10,000 LB/SF ²
6"									
11 1/4°	1,108	1	1	1	1	1	2	1	
22 1/2°	2,207	1	2	2	1	1	3	1	
45°	4,326	2	3	3	1	1	5	1	
90°	7,996	2	4	5	1	1	8	1	
PLUG	5,655	2	3	4	1	1	6	1	
8"									
11 1/4°	1,970	1	1	2	1	1	2	1	
22 1/2°	3,922	1	2	3	1	1	4	1	
45°	7,694	2	4	5	1	1	8	1	
90°	14,215	4	8	9	2	2	15	2	
PLUG	10,053	3	5	6	2	2	10	1	
12"									
11 1/4°	4,433	2	3	3	1	1	5	1	
22 1/2°	8,826	3	5	6	2	2	9	1	
45°	17,312	5	9	11	3	3	18	2	
90°	31,983	8	16	19	4	4	32	4	
PLUG	22,619	6	12	14	3	3	23	3	
16"									
11 1/4°	7,881	2	4	5	1	1	8	1	
22 1/2°	15,691	4	8	10	2	2	16	2	
45°	30,779	8	16	19	4	4	31	4	
90°	56,861	15	29	35	8	8	57	6	
PLUG	40,213	10	21	25	5	5	41	5	

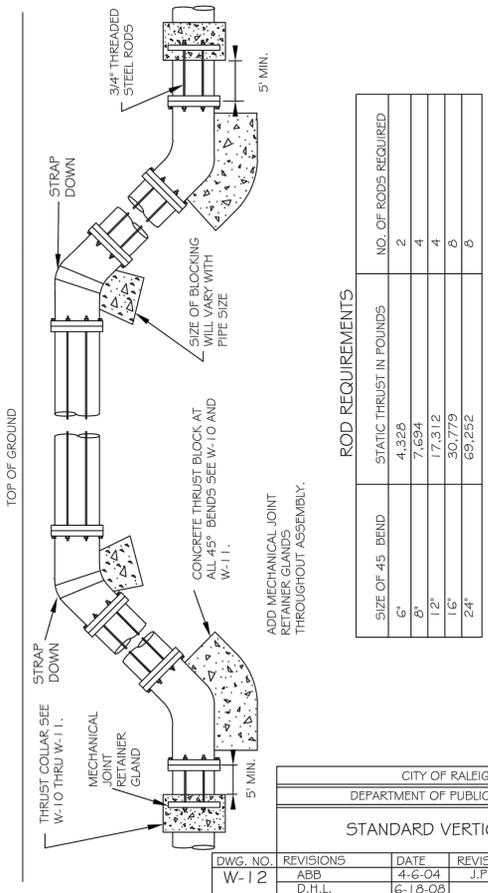
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
THRUST BLOCKING DESIGN QUANTITY TABLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.

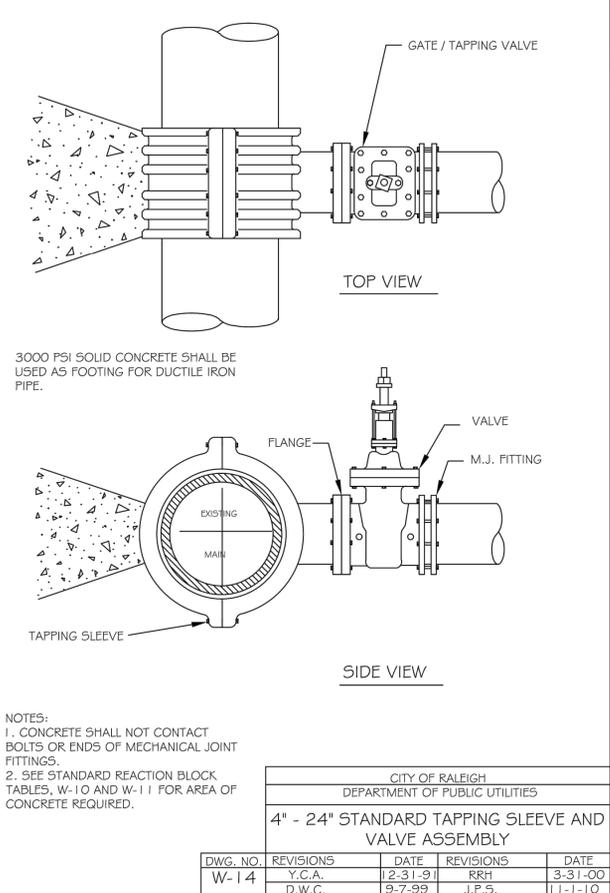
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LB/SF ²	SOFT CLAY 2000 LB/SF ²	1/2" COARSE SAND 8000 LB/SF ² GRAVEL 11000 LB/SF ²	2" COARSE SAND ALWAYS DRY 8000 LB/SF ²	SAND, COMPACT FIRM 8000 LB/SF ²	SAND - CLEAN DRY 4000 LB/SF ²	SOIL 1000 LB/SF ² QUICKSAND - VERY POOR 10,000 LB/SF ²	ROCK - POOR 10,000 LB/SF ²
24"									
11 1/4°	17,734	5	9	11	3	3	5	18	2
22 1/2°	35,305	9	18	22	5	5	9	36	4
45°	69,252	18	35	42	9	9	18	70	7
90°	127,936	32	64	77	16	16	32	128	13
PLUG	90,478	23	46	55	12	12	23	91	10
30"									
11 1/4°	27,709	7	14	17	4	4	7	2	3
22 1/2°	55,163	14	28	34	7	7	14	56	6
45°	108,206	28	55	65	14	14	28	109	11
90°	199,900	50	100	120	25	25	50	200	20
PLUG	141,372	36	71	85	18	18	36	142	15
36"									
11 1/4°	39,901	10	20	24	5	5	10	40	4
22 1/2°	79,439	20	40	48	10	10	20	80	8
45°	155,816	39	78	94	20	20	39	156	16
90°	287,655	72	144	172	36	36	72	288	29
PLUG	203,575	51	102	122	26	26	51	204	21
48"									
11 1/4°	70,935	18	36	43	9	9	18	71	8
22 1/2°	141,218	36	71	85	18	18	36	142	15
45°	277,007	70	139	166	35	35	70	277	28
90°	511,742	128	256	320	64	64	128	512	52
PLUG	361,911	91	181	217	46	46	91	362	37

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
THRUST BLOCKING DESIGN QUANTITY TABLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-11	D.W.C.	6-23-99		

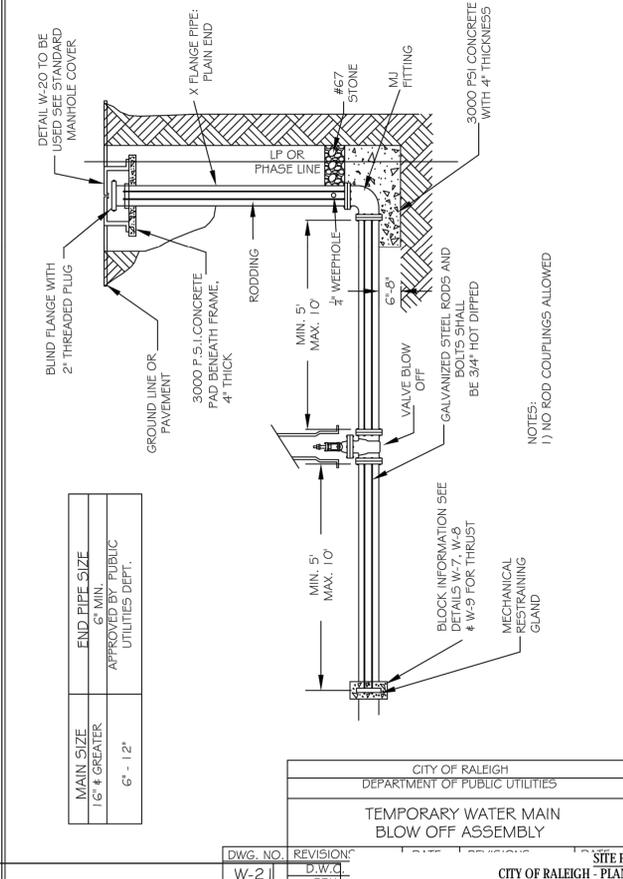


- GENERAL NOTES:
- STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 - CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 - CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 - MUST USE DUCTILE IRON FOR BOLTS WHERE NECESSARY.
 - 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.

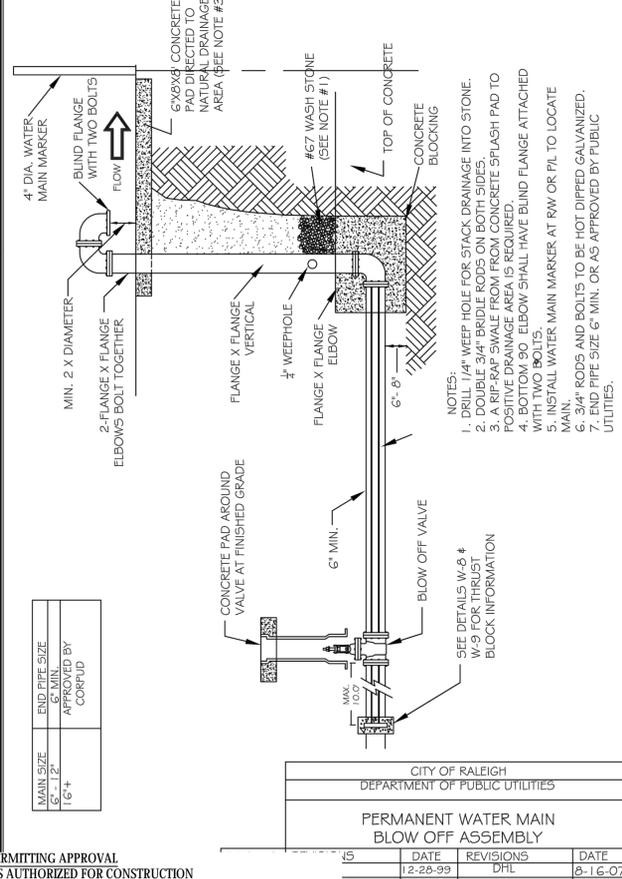


- NOTES:
- CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 - SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

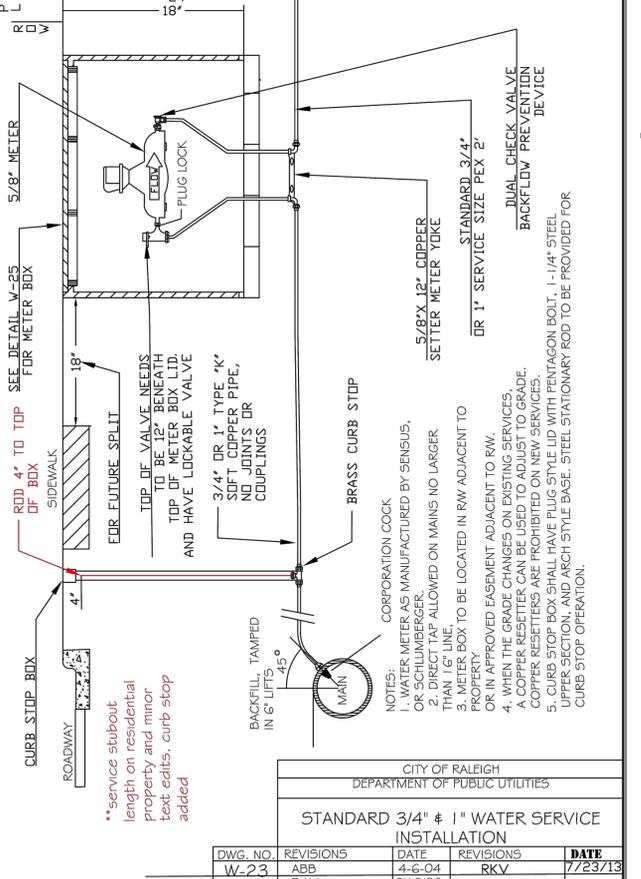
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	12-31-91	RRH	3-31-00
	D.W.C.	9-7-99	J.P.S.	11-1-10



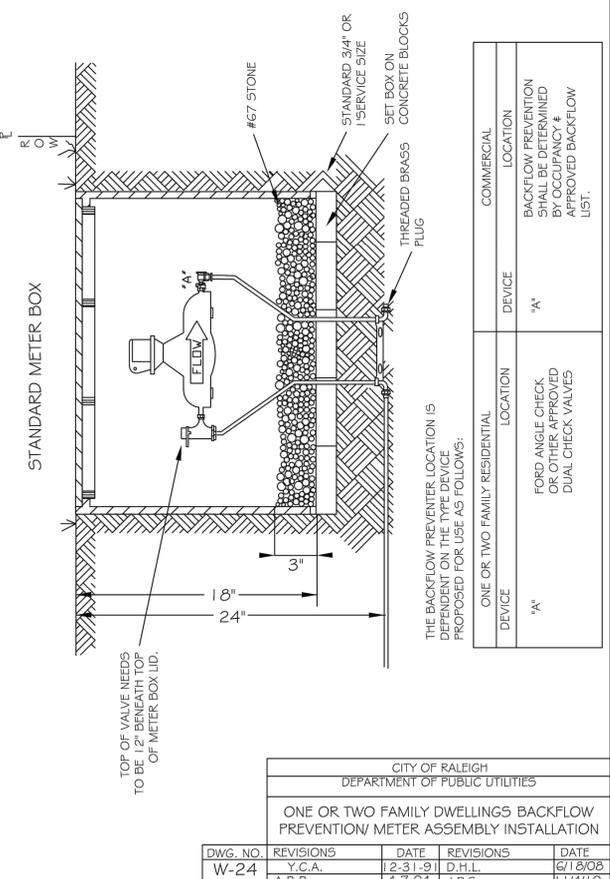
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES	
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY	
DWG. NO.	REVISIONS
W-21	D.W.C.
	RRH



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES	
PERMANENT WATER MAIN BLOW OFF ASSEMBLY	
DWG. NO.	REVISIONS
W-22	D.H.L.
	DHL
	RRH



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES	
STANDARD 3/4\"/>	
DWG. NO.	REVISIONS
W-23	ABB
	D.H.L.
	RKV



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES	
ONE OR TWO FAMILY DWELLINGS BACKFLOW PREVENTION/ METER ASSEMBLY INSTALLATION	
DWG. NO.	REVISIONS
W-24	Y.C.A.
	A.B.B.
	J.P.S.

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NO.	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE

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City of Raleigh Development Approval
Raleigh Water Review Officer



Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBLS FRM No. C-2378



**CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION**

**CITY OF RALEIGH
WATER DETAILS**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347

SHEET
C914

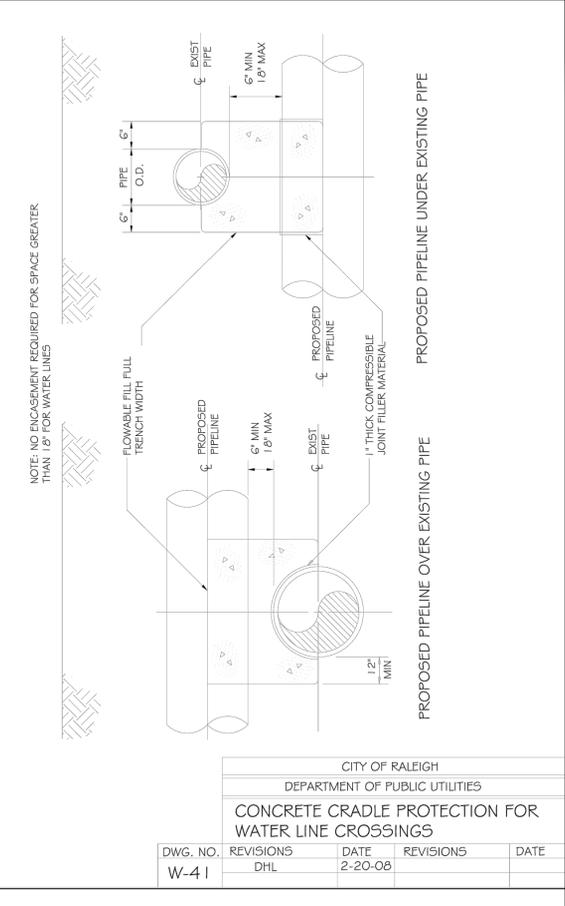
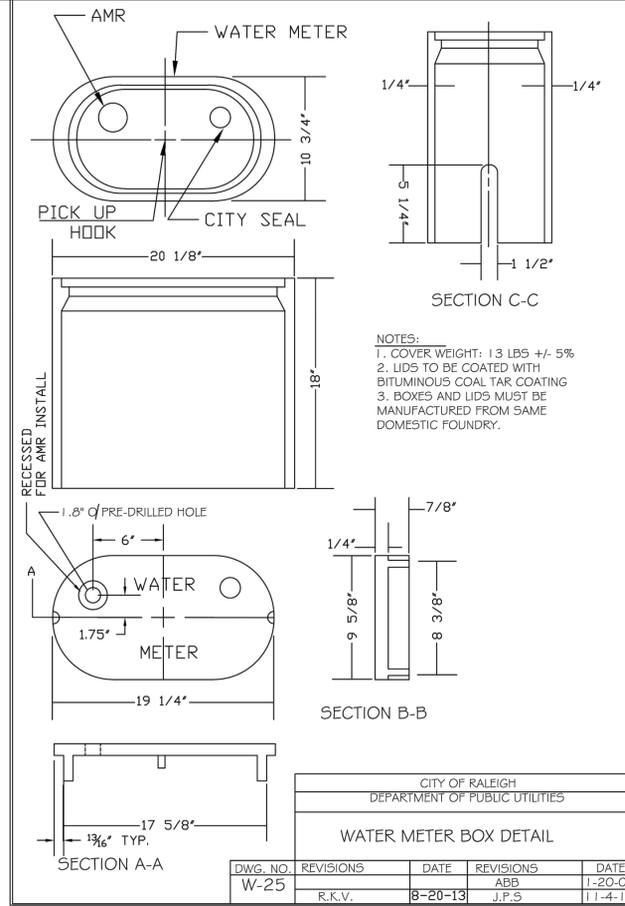
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REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
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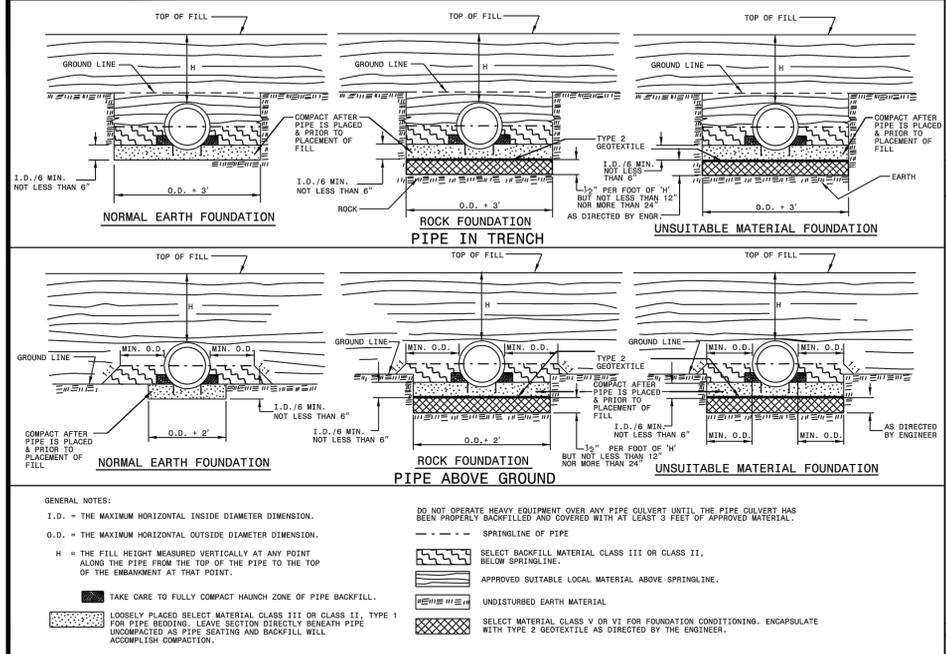
Bateman Civil Survey Company
Engineers • Surveyors • Planners
 2524 Reliance Avenue, Apex, North Carolina 27539
 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FIRM No. C-2378

CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

CITY OF RALEIGH
WATER DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347
SHEET	
C915	



FLEXIBLE PIPE

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

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 3 OF 3
300.01

Round Corrugated Steel Pipe
2 2/3 x 1/2 corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	128	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12	42	54	77	100	123
60	12	36	45	69	90	111
66	12	31	40	61	81	100
72	12	27	36	54	74	91
78	12	24	33	49	67	81
84	12	21	30	44	61	69

Round Corrugated Aluminum Pipe
2 2/3 x 1/2 corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet)				
		16	14	12	10	8
12	12	123	155	216	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12	53	67	95	123	151
30	12	47	60	85	111	136
36	12	40	50	71	92	113
42	12	35	44	60	78	96
48	12	31	39	52	68	84
54	12	27	34	46	50	74
60	12	24	31	40	46	62
66	12	21	28	36	41	51
72	12	19	25	33	38	46
78	12	17	23	30	35	41
84	12	15	21	28	32	38

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M198
HOPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

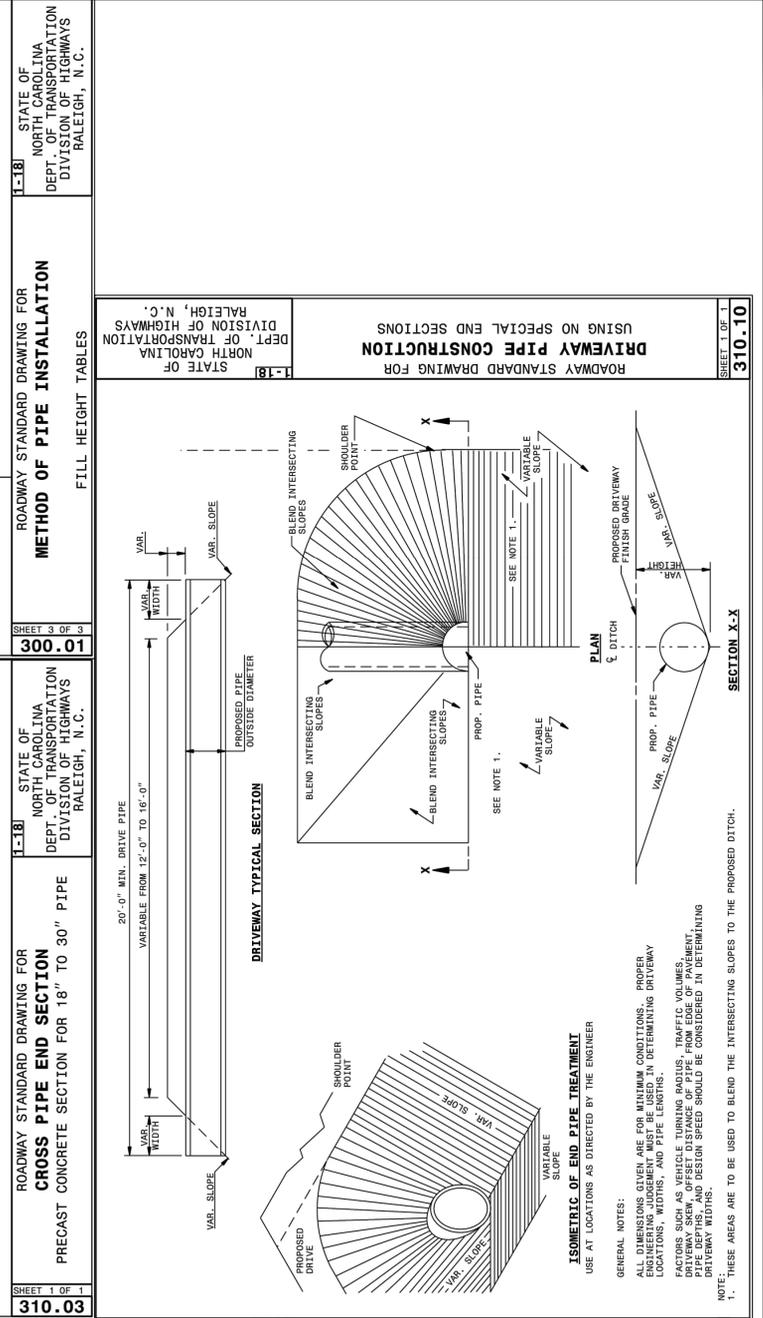
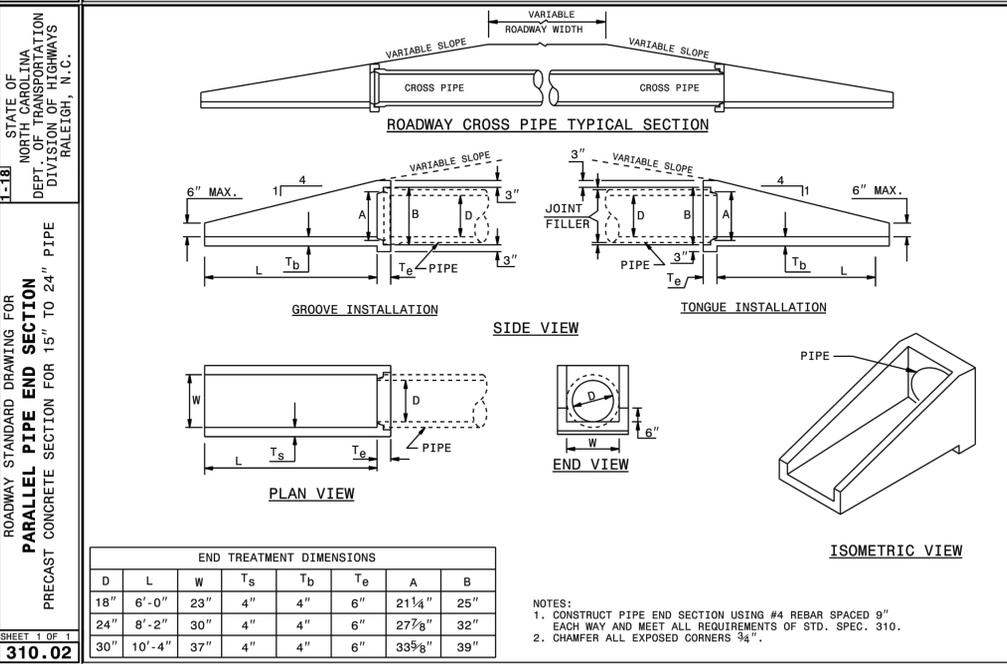
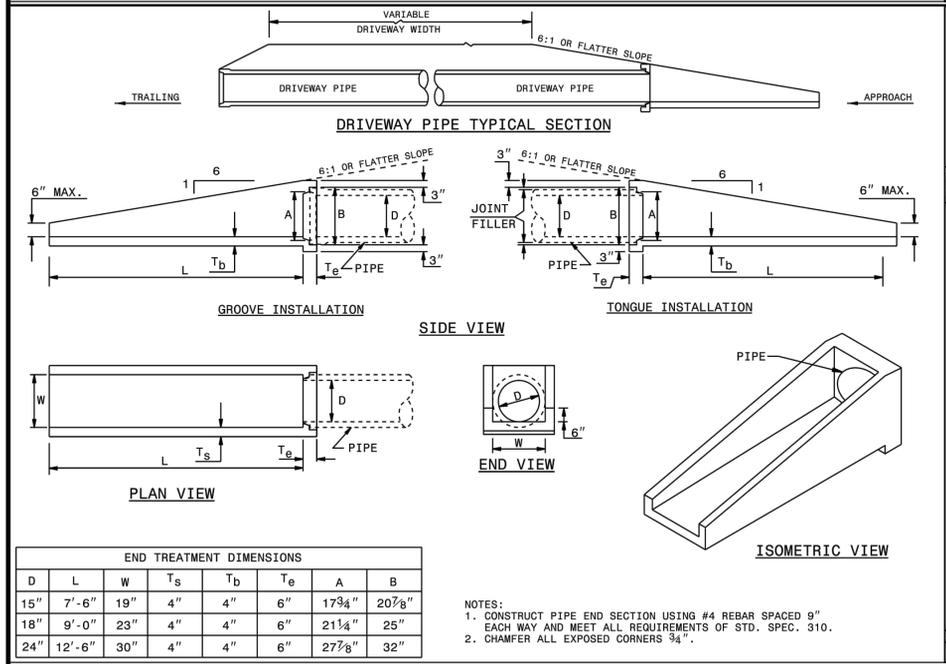
RIGID PIPE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS



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-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

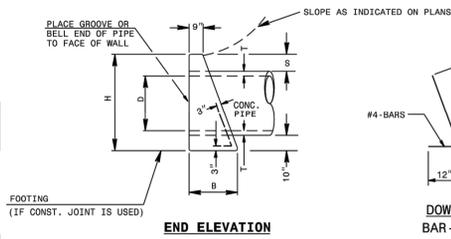
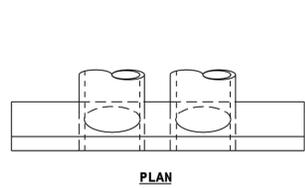
STORMWATER
DETAILS

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale:
Date: 08/14/2020
Project Number: P170347

SHEET
C920

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

P:\2017 Projects\170347 Chandler's Ridge\Eng\CADD\DWG\TP SHEET_P_170347_C920_EC_DETAILS.dwg



LOC.	PIPE DIA.	SINGLE PIPE				DOUBLE PIPE			
		15"	18"	24"	30"	15"	18"	24"	30"
BARS	"X"	"X"	"X"	"X"	"X"	"X"	"X"	"X"	"X"
QTY.	2	2	3	3	4	4	4	4	5
M	QTY.	2	2	3	3	4	4	4	5
G	QTY.	2	2	3	3	4	4	4	5
TOTAL LBS.		9	14	14	19	55	65	12	12

DIMENSIONS AND CONCRETE QUANTITIES									
USING CONCRETE PIPE									
COMMON DIMENSIONS					SINGLE PIPE		DOUBLE PIPE		
D	H	B	G	T	S	L	YD ³	M	YD ³
15"	3'-3"	1'-8"	2'-9"	2'-14"	9'-5"	5'-6"	0.7	2'-2"	7'-8"
18"	3'-7"	1'-10"	3'-2"	2'-5"	10"	6'-4"	1.0	2'-7"	8'-11"
24"	4'-2"	2'-1"	4'-0"	3'	10"	8'-0"	1.5	3'-5"	11'-5"
30"	5'-0"	2'-6"	4'-7"	4'-4"	11'-2"	9'-2"	2.3	4'-3"	13'-5"
36"	5'-8"	2'-8"	5'-6"	4'-4"	11'-2"	11'-0"	3.4	5'-0"	16'-0"
42"	6'-2"	3'-1"	6'-4"	5'-4"	11'-2"	12'-8"	4.5	5'-10"	18'-6"
48"	6'-9"	3'-5"	7'-2"	5'-4"	11'-2"	14'-4"	6.0	6'-8"	21'-0"

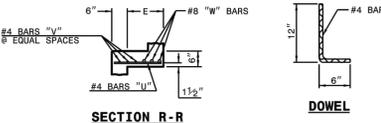
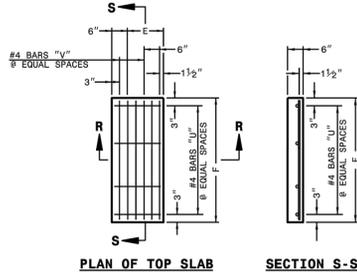
*SEE SHEET 3

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 AND DOUBLE PIPE - 90° SKEW 15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3

838.01



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *														
DIMENSIONS OF BOX AND PIPE					COVER DIMENSION					QU. YDS. CONC. IN BOX & DEDUCTIONS FOR ONE PIPE				
PIPE DIA.	SPAN	WIDTH	DEPTH	MIN. HEIGHT	E	F	BARS-U	BARS-V	BARS-W	TOTAL NO.	TOP SLAB	BOTTOM SLAB	CONC. IN BOX	DEDUCTIONS
12"	3'-0"	2'-2"	2'-2"	2'-8"	2'-8"	2'-8"	3	3	3	9	0.235	0.272	0.015	0.028
15"	3'-0"	2'-2"	2'-2"	3'-0"	3'-0"	3'-0"	3	3	3	9	0.235	0.289	0.023	0.036
18"	3'-0"	2'-2"	2'-2"	3'-3"	3'-3"	3'-3"	3	3	3	9	0.235	0.337	0.033	0.049
24"	3'-0"	2'-2"	2'-2"	3'-9"	3'-9"	3'-9"	3	3	3	9	0.235	0.401	0.059	0.085
30"	3'-0"	2'-2"	2'-2"	4'-3"	4'-3"	4'-3"	4	4	4	12	0.193	0.321	0.033	0.052
36"	3'-0"	2'-2"	2'-2"	4'-9"	4'-9"	4'-9"	4	4	4	12	0.181	0.358	0.033	0.052
42"	3'-0"	2'-2"	2'-2"	5'-3"	5'-3"	5'-3"	4	4	4	12	0.162	0.348	0.033	0.052
48"	3'-0"	2'-2"	2'-2"	5'-9"	5'-9"	5'-9"	4	4	4	12	0.143	0.332	0.033	0.052
54"	3'-0"	2'-2"	2'-2"	6'-3"	6'-3"	6'-3"	4	4	4	12	0.125	0.316	0.033	0.052

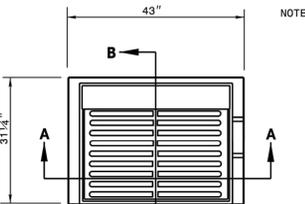
* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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

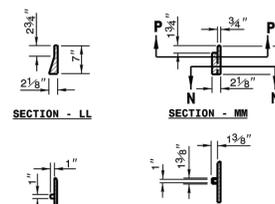
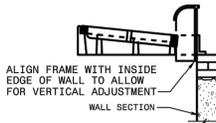
ROADWAY STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

SHEET 2 OF 2

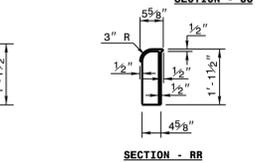
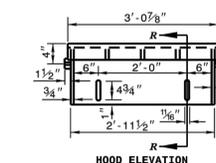
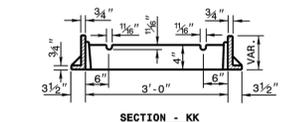
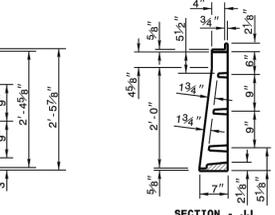
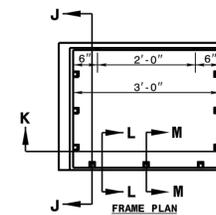
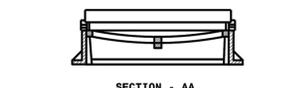
840.02



NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.



FRAME, GRATE, & HOOD ASS'Y



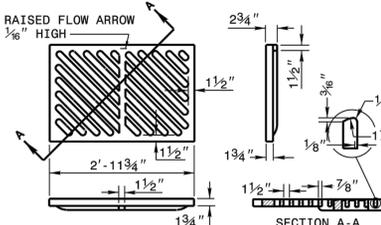
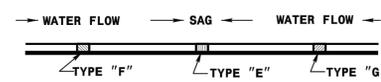
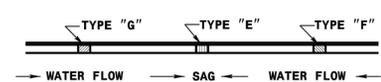
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

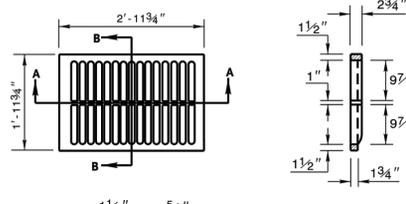
SHEET 1 OF 2

840.03

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.



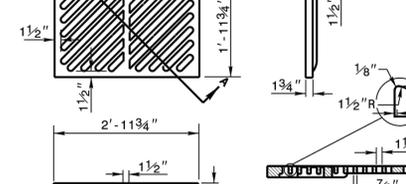
TYPE - F



SECTION B-B



SECTION A-A



SECTION A-A

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

ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2

840.03

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

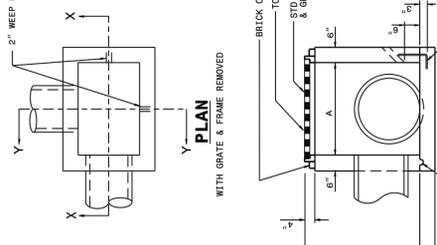
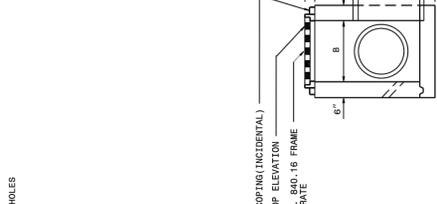
ROADWAY STANDARD DRAWING FOR CONCRETE DROP INLET 12" THRU 30" PIPE

SHEET 1 OF 1

840.14

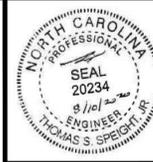


GENERAL NOTES:
 1. CONCRETE REINFORCEMENT SHALL BE PLACED IN THE BOTTOM SLAB OF THE BOX.
 2. DROP INLETS SHALL BE 2" IN DEPTH WITH STEPS 12" ON CENTER.
 3. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.06.
 4. ALL REINFORCEMENT SHALL BE PLACED WITHIN THE BOX.
 5. USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 6. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB.
 7. SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 8. INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 9. PROVIDE 2" WEEPHOLES AT EACH CORNER OF THE BOX.
 10. PROVIDE 2" WEEPHOLES AT EACH END OF THE BOX.
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SECTION X-X

DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)									
DIMENSIONS OF BOX & PIPE					DEDUCTIONS FOR ONE PIPE				
PIPE DIA.	SPAN	WIDTH	MIN. HEIGHT	H	CUBIC YARDS CONC. IN BOX	CONC. IN SLAB	CONC. IN HOOD	CONC. IN CURB	R.C.
12"	3'-0"	2'-0"	2'-0"	2'-0"	0.222	0.222	0.015	0.028	0.028
15"	3'-0"	2'-0"	2'-0"	2'-0"	0.222	0.222	0.015	0.028	0.028
18"	3'-0"	2'-0"	2'-0"	2'-0"	0.222	0.222	0.015	0.028	0.028
24"	3'-0"	2'-0"	2'-0"	2'-0"	0.222	0.222	0.015	0.028	0.028
30"	3'-0"	2'-0"	2'-0"	2'-0"	0.222	0.222	0.015	0.028	0.028



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 Engineers • Surveyors • Planners
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 Phone: 919.577.1080 Fax: 919.577.1081
 NCBELS FRM No. C-2378



CHANDLER'S RIDGE
 CONSTRUCTION DOCUMENTS
 CONSERVATION SUBDIVISION

410 W. YOUNG ST.
 ROLESVILLE, NC
 WAKE COUNTY

STORMWATER
 DETAILS

Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale:

Date: 08/14/2020

Project Number: P170347

SHEET
 C921

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

EROSION CONTROL CONSTRUCTION SEQUENCE AND NOTES

- CONTACT KARYN PAGEAU WITH WAKE COUNTY ENVIRONMENTAL SERVICES AT (919) 796-8769 BEFORE ANY LAND DISTURBING ACTIVITIES BEGIN.
- INSPECT THE EROSION CONTROL MEASURES INSTALLED DURING CLEARING OPERATIONS FOR COMPLIANCE WITH THE APPROVED EROSION CONTROL PLAN. REPAIR ANY DEFICIENCIES IN THE MEASURES PRIOR TO BEGINNING GRADING OPERATIONS.
- INSTALL NEW CONSTRUCTION ENTRANCE AT LOCATIONS DEPICTED FOR EACH LOT IN THE PLANS AND CLOSE THE FIRST CONSTRUCTION ENTRANCE.
- INSTALL ALL OTHER ADDITIONAL PERIMETER EROSION CONTROL DEVICES INDICATED ON THE PLANS. INSTALL SILT FENCE AROUND WORK AREA PRIOR TO BEGINNING WIDENING WORK.
- ERECT STRUCTURES AND OTHER SURFACE FEATURES SUCH AS DRIVEWAYS AND SIDEWALKS, WHERE APPLICABLE. ESTABLISH FINAL GRADES, ONCE REACHED, AND FINISHED SLOPES ARE DRESSED, SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE FOLLOWING PROVISIONS FOR GROUND COVER, AND IN ACCORDANCE WITH THE SEEDING SPECIFICATIONS ON THIS SHEET.
- PURSUANT TO G.S. 113A-57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.
- PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION ON A SITE WHERE LAND DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
 - ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
- OTHER SLOPE STABILIZATION REQUIREMENTS/EXEMPTIONS:
 - EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
 - ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY THE GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE IS FLATTER THAN 4:1. SLOPES LESS THAN 50' SHALL APPLY GROUND COVER WITHIN 14 DAYS EXCEPT WHEN SLOPES ARE STEEPER THAN 3:1, WHEN THE 7-DAY REQUIREMENT APPLIES.
 - ANY SLOPED AREA FLATTER THAN 4:1 SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT.
 - SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT EXCEPT WHEN THE SLOPE IS STEEPER THAN 2:1.
 - ALL APPLICABLE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL STABLE PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- ONCE DENSE GROUND COVER HAS BEEN ESTABLISHED, TEMPORARY EROSION CONTROL DEVICES MAY BE REMOVED. BARE AREAS REMAINING IN DITCHES AFTER REMOVAL OF TEMPORARY MEASURES SHALL BE IMMEDIATELY SEEDED AND PROTECTED WITH APPROPRIATE ROLLED EROSION CONTROL PRODUCT. ALL OTHER REMAINING DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED IN ACCORDANCE WITH THE SEEDING SPECIFICATION. ONCE LAYDOWN AREAS ARE NO LONGER OF USE, THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO PRE-CONSTRUCTION CONDITION AND SEED AND MULCH IN ACCORDANCE WITH THE SEEDING SPECIFICATIONS.
- AS LOTS ARE STABILIZED, SILT FENCE SHALL BE INSTALLED BETWEEN LOTS TO PREVENT SEDIMENT LOSS FROM ACTIVELY DISTURBED LOTS TO THE LOWER PROPERTIES.

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 MAKE 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 NCGS 113A-54.1 AND 15A NCA 4B.0131. A COMBINED SELF-INSPECTION / SELF-MONITORING FORM IS AVAILABLE AT THE FOLLOWING WEB ADDRESS: <http://portal.ncdenr.org/web/erosion>. IF YOU HAVE ANY QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THE LAND QUALITY SECTION AT (919) 433-3300.

STANDARD SEDIMENT AND EROSION CONTROL PLAN FOR SINGLE FAMILY LOTS APPLICABLE CONDITIONS

- THIS STANDARD PLAN IS FOR LOTS WITH A DISTURBED AREA OF LESS THAN 1 ACRE AND A TOTAL SITE DISTURBANCE LESS THAN 5 ACRES. IF THE DISTURBED AREA IS GREATER THAN 1 ACRE (ON A SINGLE LOT OR MULTIPLE LOTS THAT ARE MASS GRADED) A CUSTOM EROSION CONTROL PLAN MUST BE PREPARED AND SUBMITTED ONLINE FOR THE 30-DAY REVIEW CYCLE AND PAY THE EROSION CONTROL PLAN REVIEW AND GRADING PERMIT FEES.
- THIS STANDARD PLAN IS FOR LOTS THAT ARE FINISHED, PAD READY, OR AT FINAL GRADE. MASS GRADING WITH FULL STABILIZATION HAS ALREADY OCCURRED OR MASS GRADING WILL NOT OCCUR.
- THE STANDARD PLAN IS NOT FOR SITES LOCATED IN A HIGH WATERSIDE WATER (HOW) ZONE AND PROPERTIES THAT CONTAIN JURISDICTIONAL WETLANDS OR STREAMS WITHIN 100 FEET OF THE LOTS.
- THIS PLAN SHALL NOT BE USED WITH LOTS THAT HAVE OFF-SITE SEPTIC EASEMENTS OR IF ANY PART OF THE SEPTIC SYSTEM OR PAIR AREA IS LOCATED WITHIN 10 FT. OF A PROPERTY LINE.
- ADDITIONALLY, THIS PLAN SHALL NOT BE USED FOR LOTS WITH:
 - BASEMENTS
 - GREATER THAN 5 FT. OF ELEVATION BETWEEN THE TOE OF SLOPE FOR EACH LOT AND/OR LOTS WITH GREATER THAN 10 FT. ELEVATION DIFFERENCE OF THE DISTURBED AREA FROM FRONT TO BACK
 - CONCENTRATED FLOWS/WALES BETWEEN THEM
 - STORMWATER CONTROL MEASURES FROM THE INDIVIDUAL LOT
 - RECEIVING OFFSITE CONCENTRATED STORMWATER.

TYPICAL CONSTRUCTION SEQUENCE FOR SINGLE FAMILY LOTS SEDIMENT AND EROSION CONTROL

- WAKE COUNTY RESERVES THE RIGHT TO REQUIRE A SITE SPECIFIC EROSION CONTROL PLAN TO BE PREPARED AND SUBMITTED FOR THE 30-DAY REVIEW CYCLE.
- AS OF APRIL 1, 2019 APPLICANTS MUST APPLY ONLINE FOR NCG-01 PERMIT COVERAGE FROM NCDEQ. THIS REQUIREMENT IS IN ADDITION TO THE WAKE COUNTY LAND DISTURBANCE PERMIT.
- OBTAIN ALL NECESSARY PERMITS AND CERTIFICATES. DOWNLOAD STANDARD SEDIMENT AND EROSION CONTROL PLAN FOR SINGLE FAMILY LOTS FROM WWW.WAKEGOV.COM.
- INSTALL TREE PROTECTION FENCE IF REQUIRED. INSTALL GRAVEL CONSTRUCTION ENTRANCE, SILT FENCE, SILT FENCE OUTLETS AND ADDITIONAL MEASURES AS NEEDED. CLEAR ONLY AS NECESSARY TO INSTALL DEVICES. PROVIDE GROUND COVER FOR ALL DISTURBED AREAS.
- CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
- BEGIN CONSTRUCTION, BUILDING, CLEARING AND GRUBBING, MAINTAIN EROSION CONTROL DEVICES AS NEEDED.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. PROVIDE GROUND COVER FOR DENIED AREAS PER APPLICABLE GROUND STABILIZATION TIMEFRAMES.
- WHEN CONSTRUCTION IS COMPLETE, AND ALL AREAS ARE PERMANENTLY STABILIZED AND EROSION CONTROL MEASURES ARE REMOVED, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
- OBTAIN A CERTIFICATE OF COMPLETION.

Seedbed Preparation:

- Chisel compacted areas and spread topsoil three inches deep over adverse soil conditions, if available.
- Rip the entire area to six inches deep.
- Remove all loose rock, roots and other obstructions, leaving surface reasonably smooth and uniform.
- Apply agricultural lime, fertilizer and superphosphate uniformly and mix with soil (see mix below).
- Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared four to six inches deep.
- Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
- Mulch immediately after seeding and anchor mulch.
- Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand loss is more than 60% damaged, re-establish following the original lime, fertilizer and seeding rates.

Mixture:

Agricultural Limestone - 2 tons/acre (3 tons/acre in clay soils)
 Fertilizer - 1,000 lbs/acre - 10-10-10
 Superphosphate - 500 lbs/acre - 20% analysis
 Mulch - 2 tons/acre - small grain straw
 Anchor - Asphalt emulsion at 300 gallons/acre

Date	Type	Planting Rate
Aug 15 - Nov 1	Tall Fescue	300 lbs/acre
Nov 1 - Mar 1	Tall Fescue & Abruzzi Ryegrass	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)

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gage maintained in good working order	Daily	Daily rainfall amounts; Date and time of inspection; Date observations are made during weekend or holiday periods, and no individual-day rainfall information is available; Record the cumulative rain measurement for those unattended days and this will decrease if a size inspection is needed; Days on which no rainfall occurred shall be recorded as "zero". The permittee may use another rain-measuring device approved by the Division.
(2) E&S Measures	All sites once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. Identification of the measures inspected; 2. Date and time of the inspection; 3. Name of the person performing the inspection; 4. Indication of whether the measures were operating properly; 5. Description of maintenance needs for the measure; 6. Date and time of the inspection; 7. Elevation of the discharge outfalls inspected; 8. Name of the person performing the inspection; 9. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration taken; 10. Indication of visible sediment leaving the site; 11. Date, description, evidence, and date of corrective actions taken, if visible sedimentation is found outside site limits, then a record of the following shall be made: a. An explanation as to the actions taken to control future releases; b. A description, evidence, and date of corrective actions taken; and c. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.
(3) Stormwater discharge outlets (S&O)	All sites once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. The phase of grading/ installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, construction of all land disturbing activity, construction or redevelopment, permanent ground stabilization; 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.
(4) Perimeter of site	All sites once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. The phase of grading/ installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, construction of all land disturbing activity, construction or redevelopment, permanent ground stabilization; 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.
(5) Streams or wetlands onsite or offsite	All sites once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. The phase of grading/ installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, construction of all land disturbing activity, construction or redevelopment, permanent ground stabilization; 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading/ installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, construction of all land disturbing activity, construction or redevelopment, permanent ground stabilization; 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&S Plan Documentation
 The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&S measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S plan.	Initial and date each E&S measure on a copy of the approved E&S plan or complete, date and sign an inspection report that lists each E&S measure shown on the approved E&S plan. This documentation is required upon the initial installation of the E&S measures or if the E&S measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&S plan.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&S measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S measures.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site
 In addition to the E&S plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This General Permit as well as the Certificate of Coverage, after it is received.
- Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- Documentation to be Retained for Three Years
 All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART II SECTION G, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- The E&S plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&S plan authority has approved these items.
- The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item 2)(c) and (d) of this permit.
- Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sized, designed and maintained dewatering tanks, weir tanks, and filtration systems.
- Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above.
- Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- Sediment removed from the dewatering treatment devices described in item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING EFFECTIVE: 04/01/19

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT
 Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed -7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(d) Slopes 3:1 to 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION
 Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabric such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fluids, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

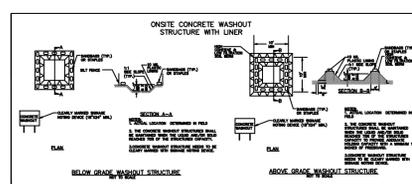
- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EMERGENCY STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition, locate the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet (c) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label directions.
- Store herbicides, pesticides and rodenticides in their original containers with the label which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wet, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

PERMANENT SEEDING SCHEDULE

FOR SHOULDERS, SIDE DITCHES, SLOPES (3:1 MAX)

Date	Type	Planting Rate
Aug 15 - Nov 1	Tall Fescue	300 lbs/acre
Nov 1 - Mar 1	Tall Fescue & Abruzzi Ryegrass	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), 120 lbs/acre
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)
Nov 1 - Mar 1	AND Abruzzi Ryegrass	25 lbs/acre

*** TEMPORARY Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow more than 12" in height before mowing; otherwise, fescue may be shaded out.

MIXTURE:

Agricultural Limestone	2 tons/acre (3 tons/acre in clay soils)
Fertilizer	1,000 lbs/acre - 10-10-10
Superphosphate	500 lbs/acre - 20% analysis
Mulch	2 tons/acre - small grain straw
Anchor	Asphalt emulsion at 400 gals/acre

MAINTENANCE:

REFER LITERATURE THE FOLLOWING APRIL WITH 50 LB/ACRE NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED AS OFTEN AS NEEDED.

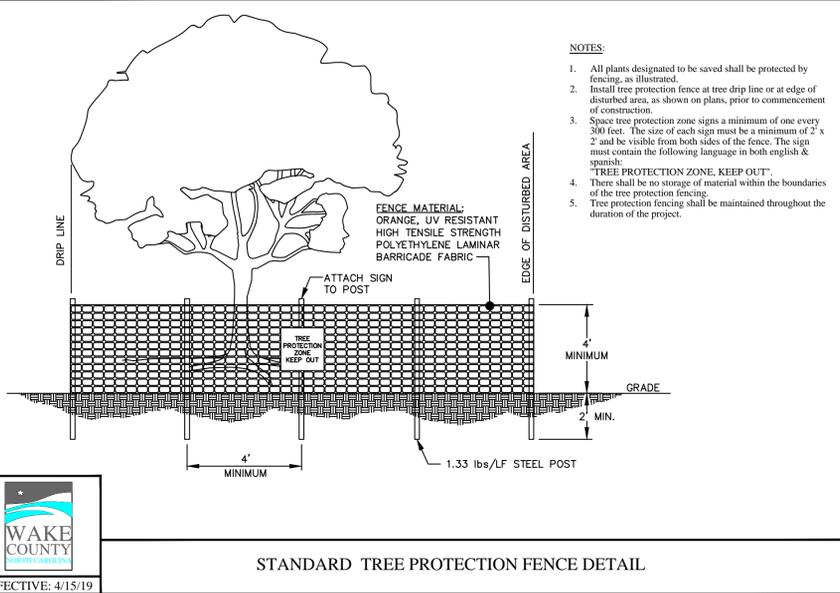
NOTE: SEE NCDOT'S LATEST STANDARDS FOR STABILIZATION FOR MORE INFORMATION.

PERMANENT SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO SIX INCHES DEEP.
- REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE MIXTURE BELOW).
- CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED FOUR TO SIX INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT S&E ENVIRONMENTAL ENGINEERS ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

Temporary seeding recommendations for late Winter/Early Spring

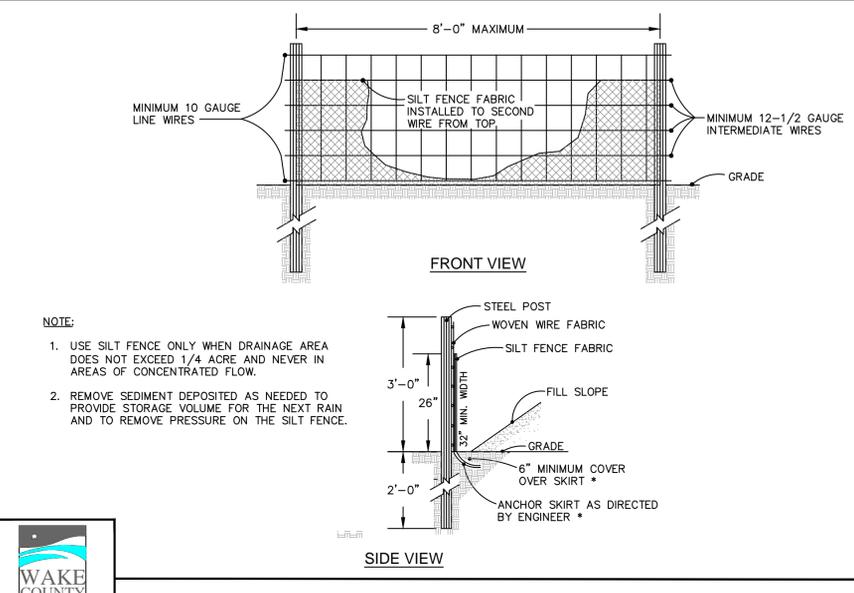
Seeding Mixture	Species	Rate (Lb/acre)
	Rye Grass (green)	120



STANDARD TREE PROTECTION FENCE DETAIL



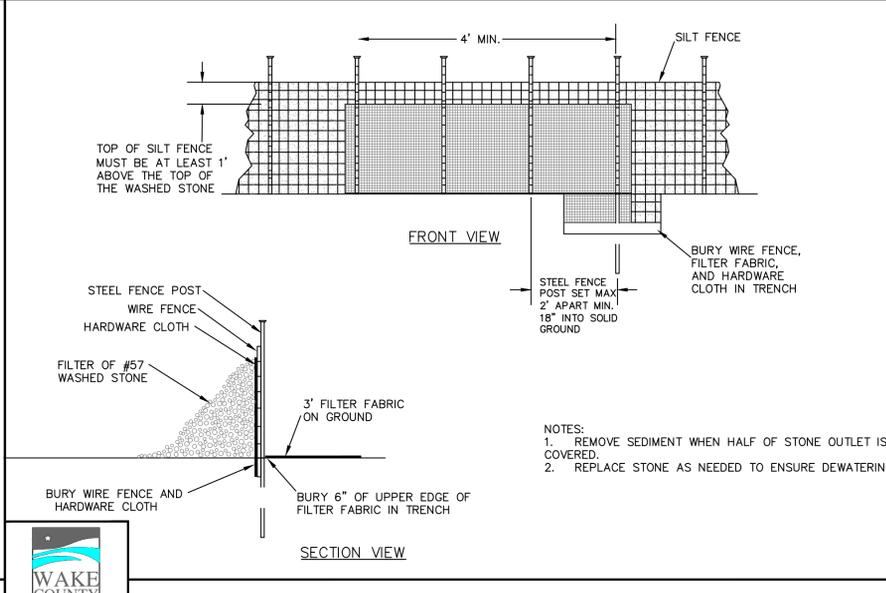
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STANDARD TEMPORARY SILT FENCE



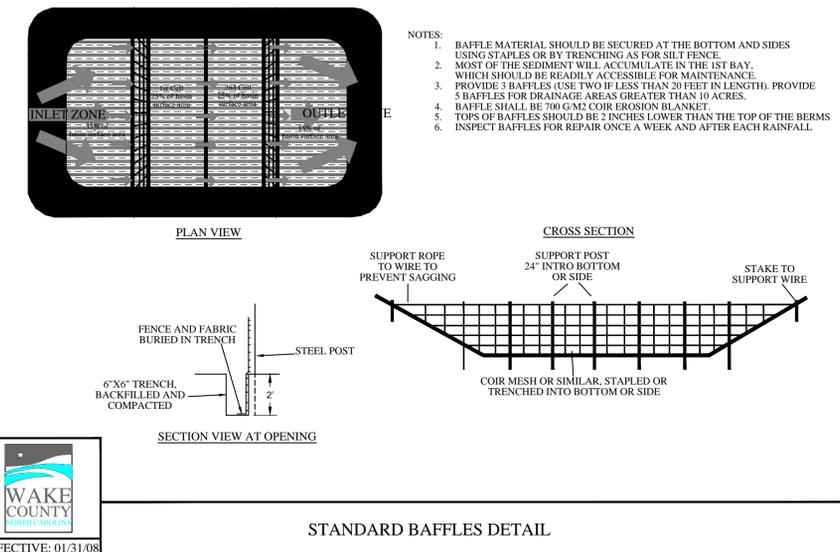
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STANDARD SILT FENCE OUTLET



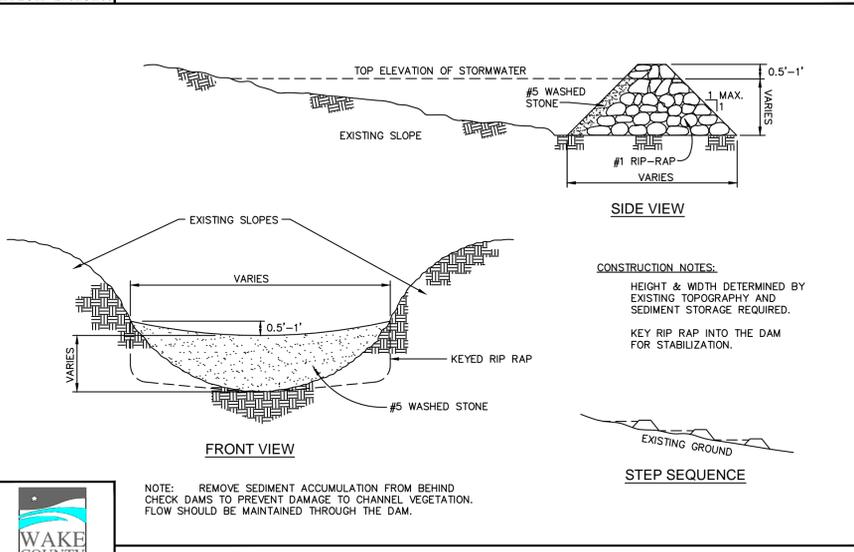
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STANDARD BAFFLES DETAIL



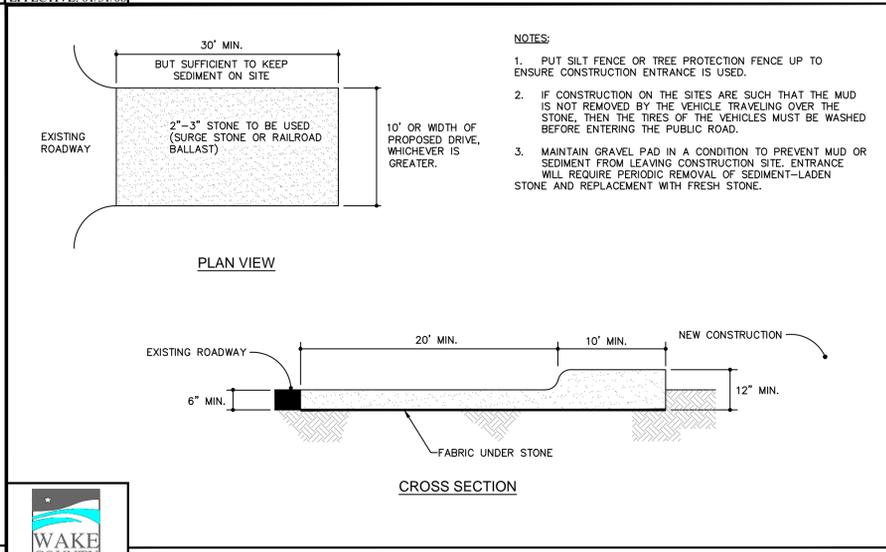
EFFECTIVE: 01/31/08



STANDARD CHECK DAM



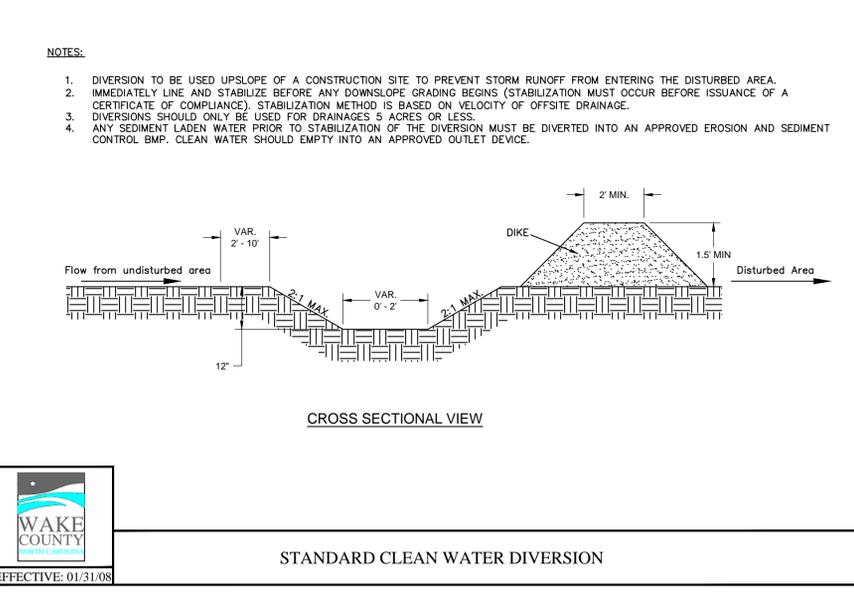
EFFECTIVE: 01/31/08



STANDARD CONSTRUCTION ENTRANCE



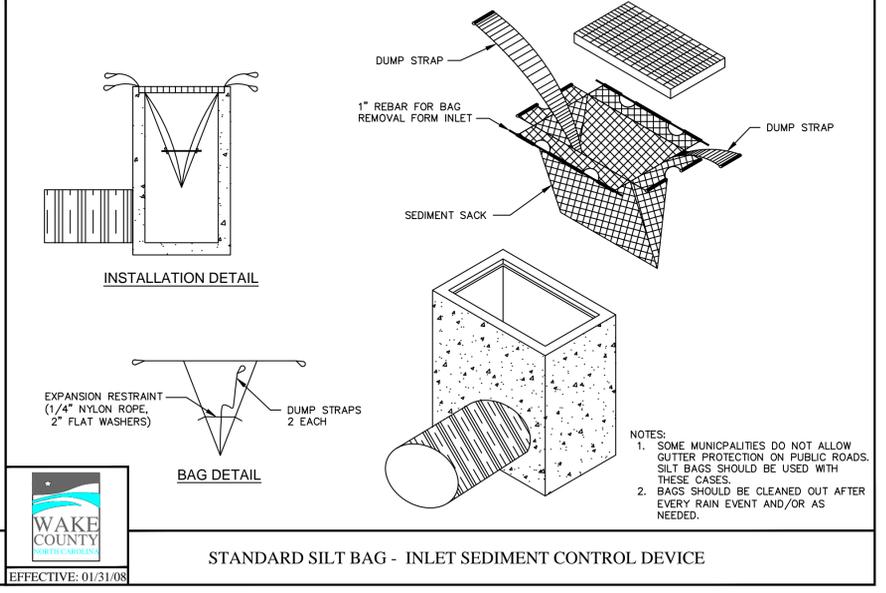
EFFECTIVE: 01/31/08



STANDARD CLEAN WATER DIVERSION



EFFECTIVE: 01/31/08



STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE



EFFECTIVE: 01/31/08

REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



Bateman Civil Survey Company
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2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FRM No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION
410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

EROSION CONTROL
DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	08/14/2020
Project Number:	P170347
SHEET	
C923	

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 NCBELS FIRW No. C-2378

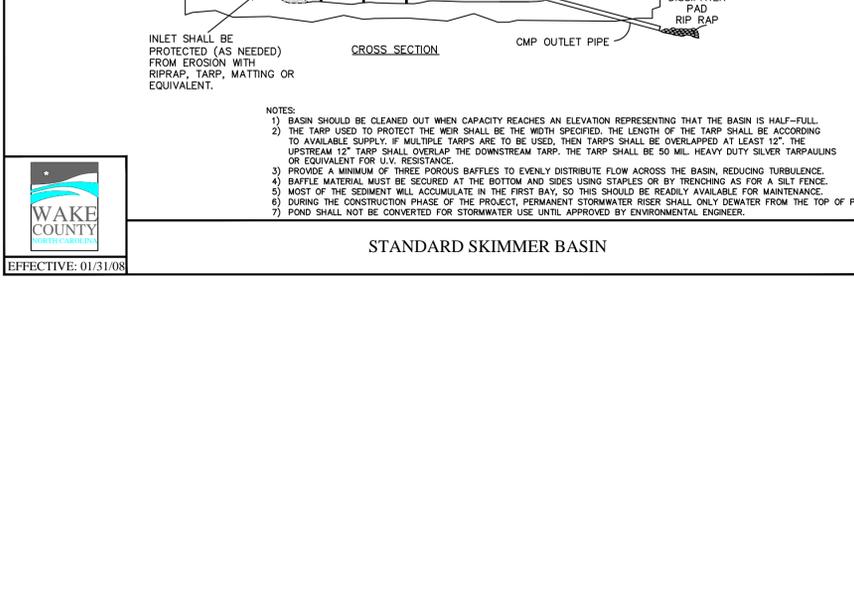
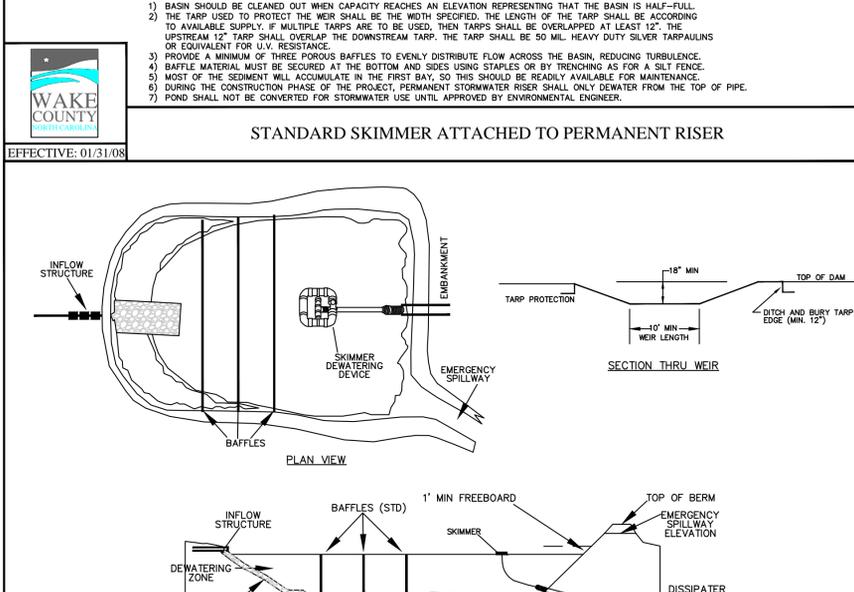
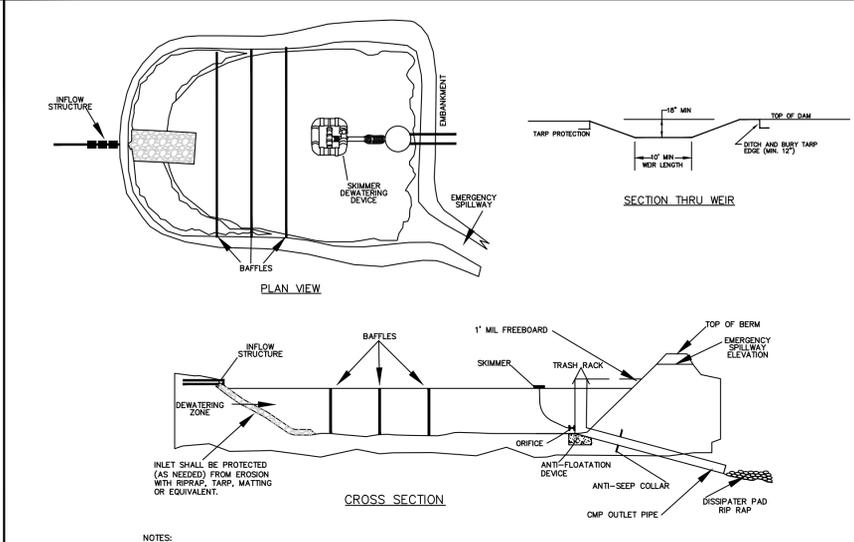
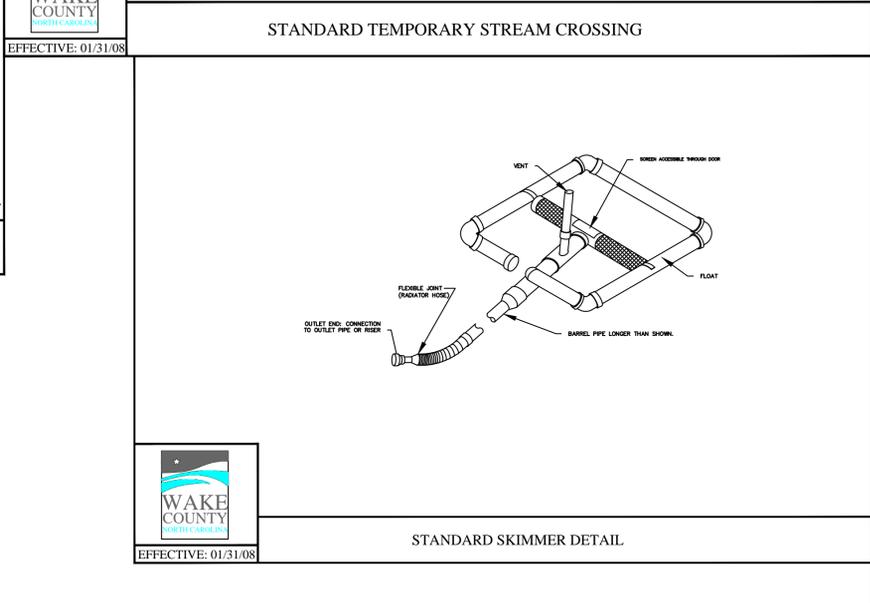
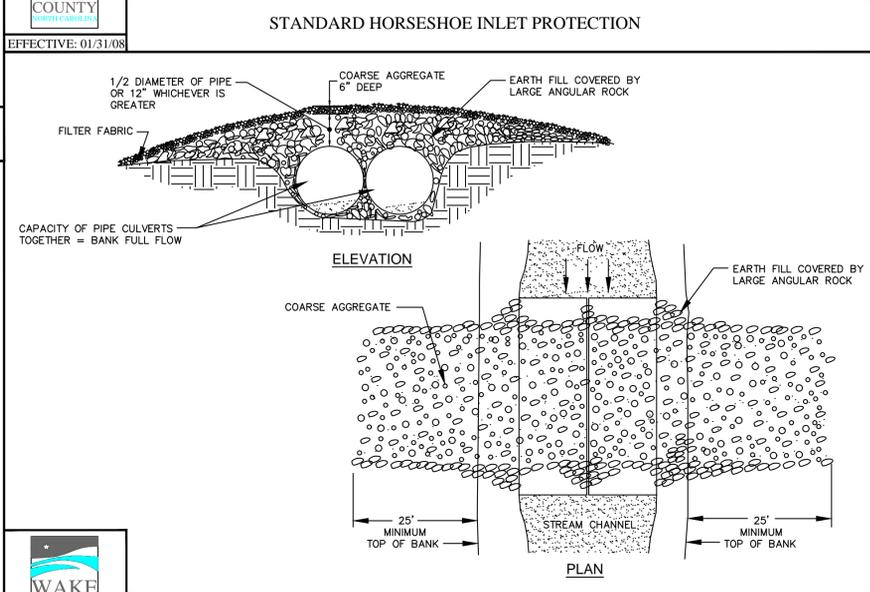
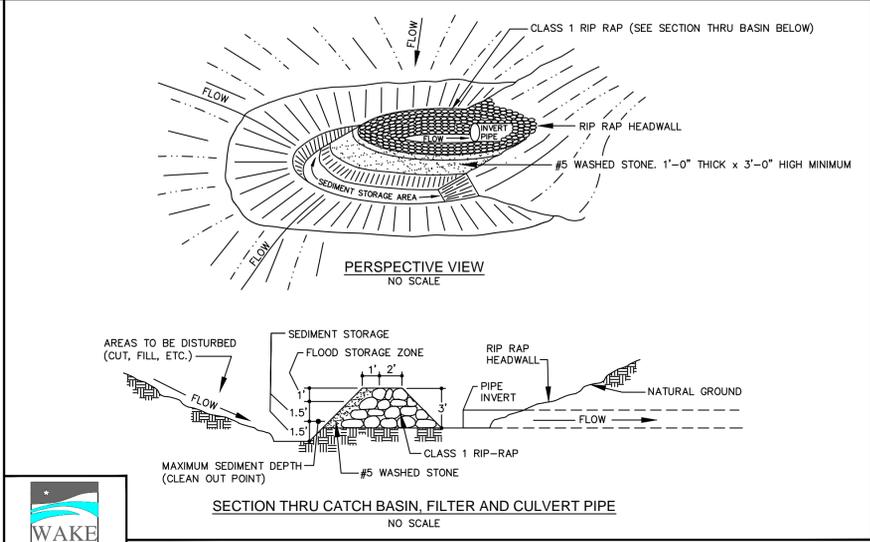
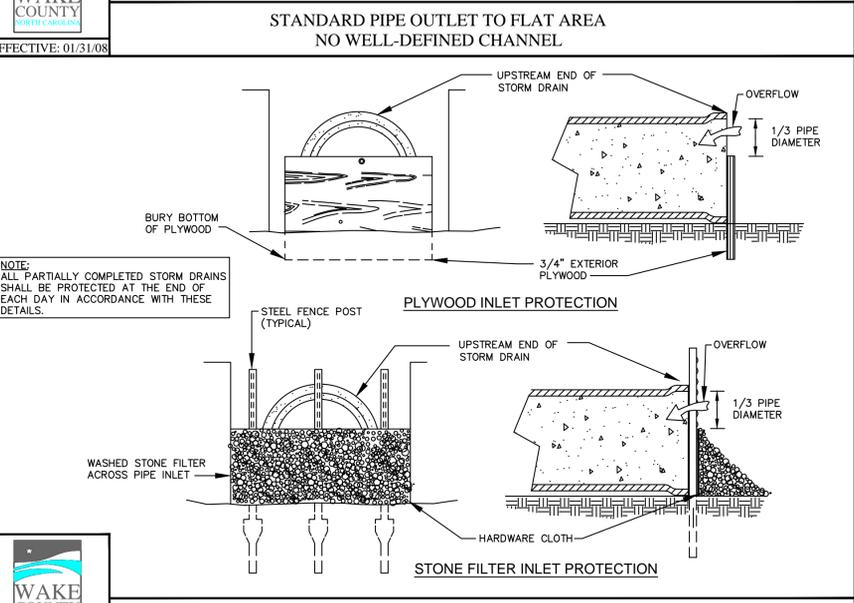
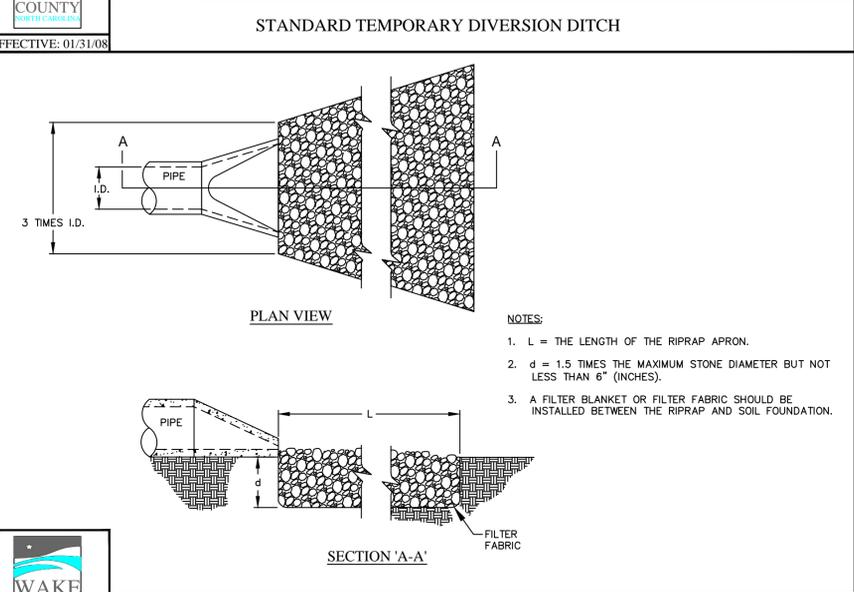
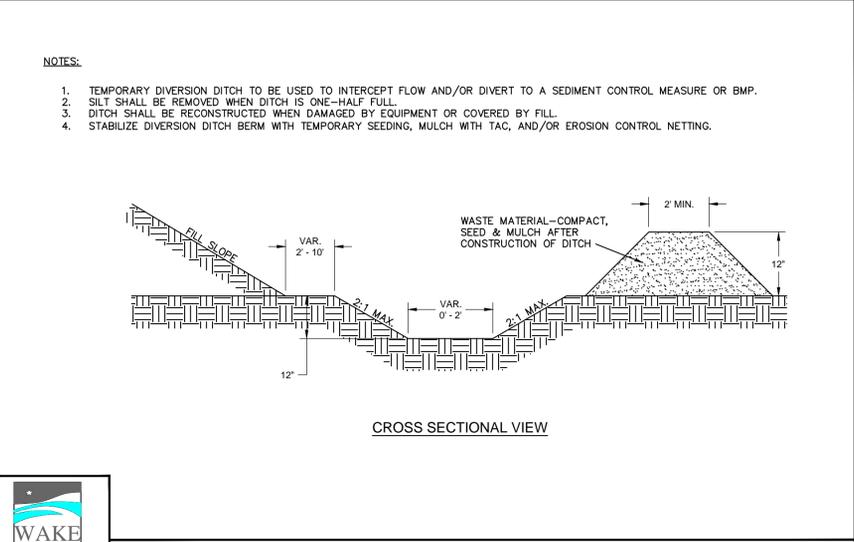


CHANDLER'S RIDGE
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 ROLESVILLE, NC
 WAKE COUNTY

EROSION CONTROL
 DETAILS

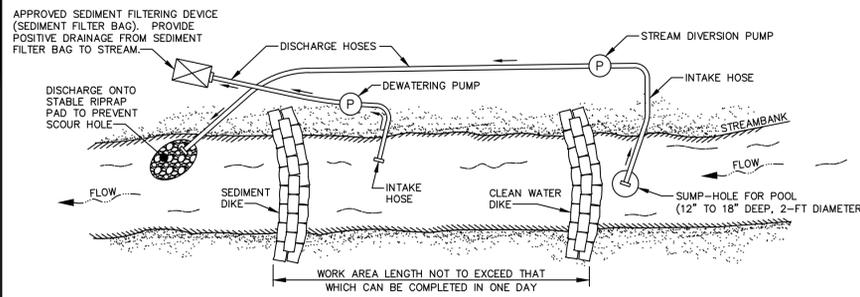
Project Engineer: TSS
 Designed By: TEP
 Drawn By: TEP
 Checked By: TSS
 Scale:
 Date: 08/14/2020

Project Number: P170347
 SHEET
 C924



REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

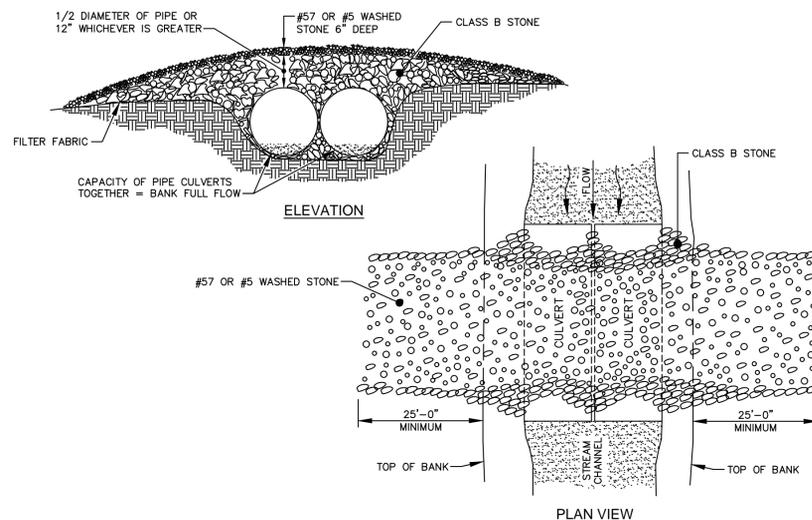
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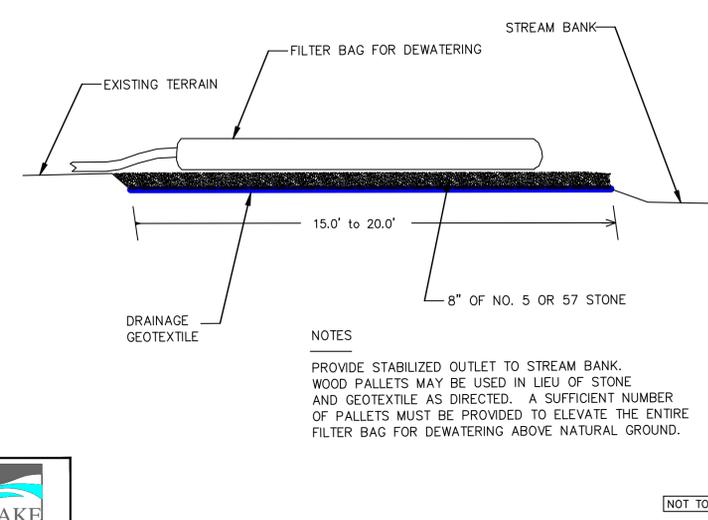
- TEMPORARY PUMP AROUND SEQUENCE**
1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
 2. INSTALL UP-STREAM SANDBAG DAM.
 3. INSTALL DOWN-STREAM SANDBAG DAM.
 4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
 5. STREAMBANKS MUST BE STABILIZED AT THE END OF EACH DAY.

- NOTES:**
1. SANDBAG DIKES SHALL BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE INTO A STABLE VELOCITY DISSIPATER CONSTRUCTED OF RIPRAP OR SANDBAGS.
 2. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A SEDIMENT BAG OR OTHER APPROVED DEVICE. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE WITHOUT CAUSING FURTHER EROSION BETWEEN THE SEDIMENT FILTER BAG AND THE STREAMBANK.

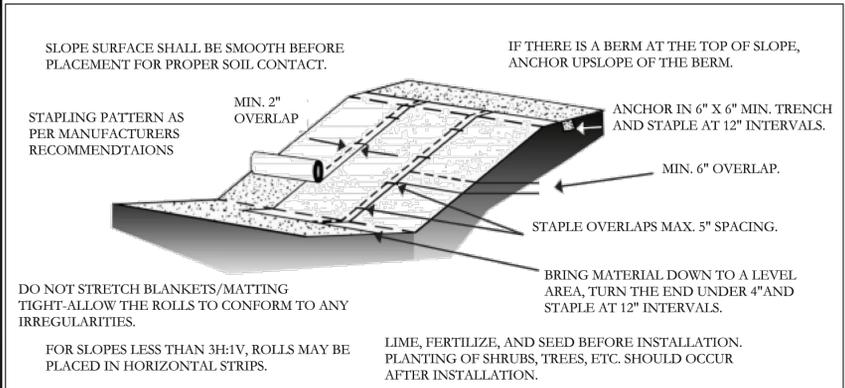
TEMPORARY PUMP AROUND



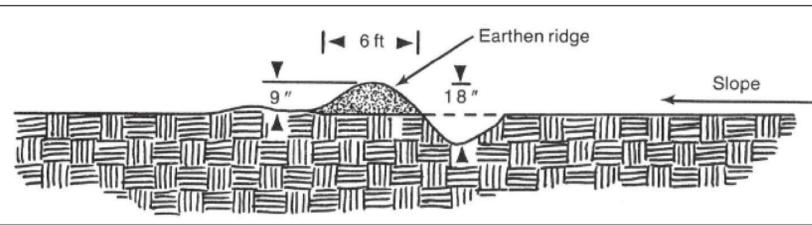
STANDARD TEMPORARY STREAM CROSSING



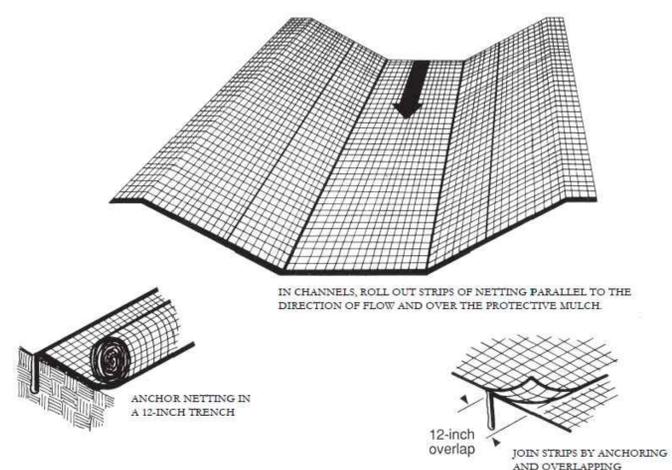
STANDARD FILTER BAG FOR DEWATERING ACTIVITIES



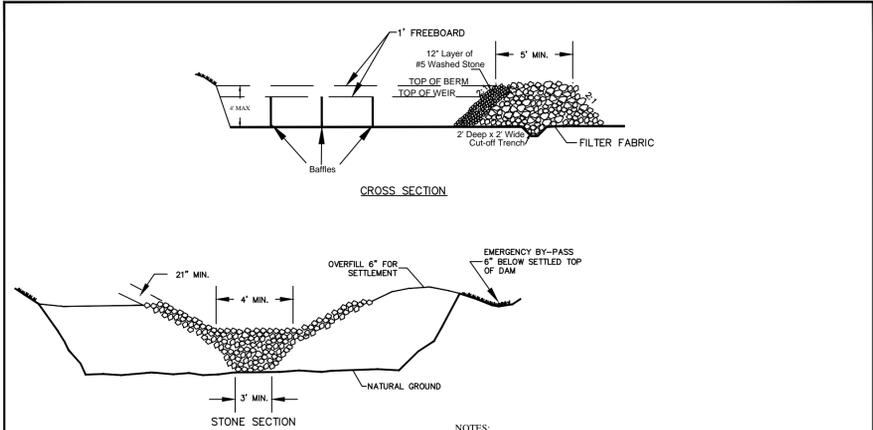
EROSION CONTROL MATTING ON SLOPES



STANDARD WATER BAR

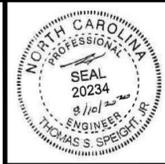


EROSION CONTROL MATTING IN CHANNEL



- NOTES:**
1. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH).
 2. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
 3. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
 4. BAFFLES SHALL BE 700 G/M2 COIR EROSION BLANKET.
 5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERM.
 6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.
 7. BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.

STANDARD ROCK DAM SEDIMENT BASIN (SEDIMENT TRAP)



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Checked By:	TSS
Scale:	
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SHEET
C925

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REV	DESCRIPTION	DATE
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
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