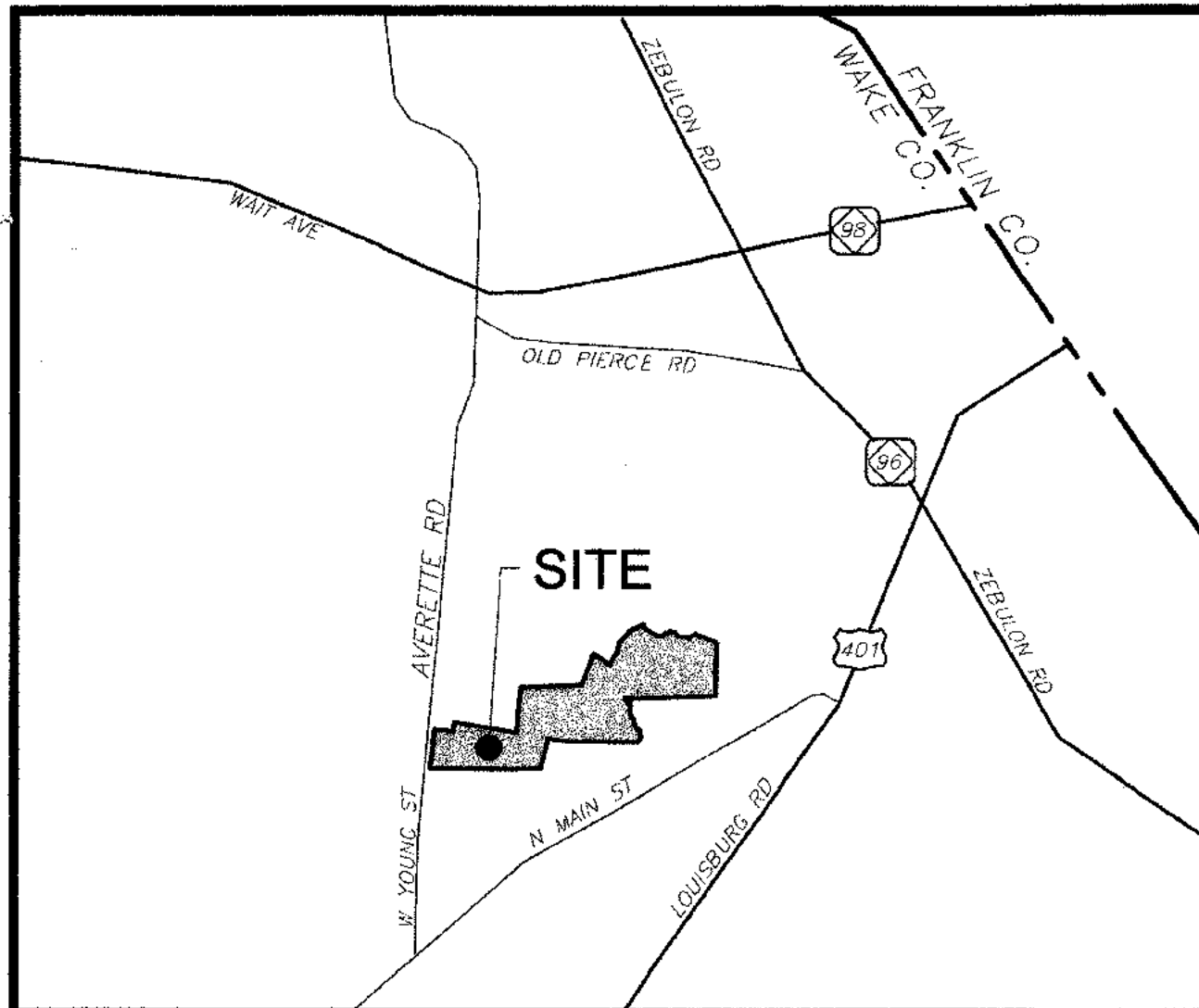


# CONSTRUCTION DRAWINGS

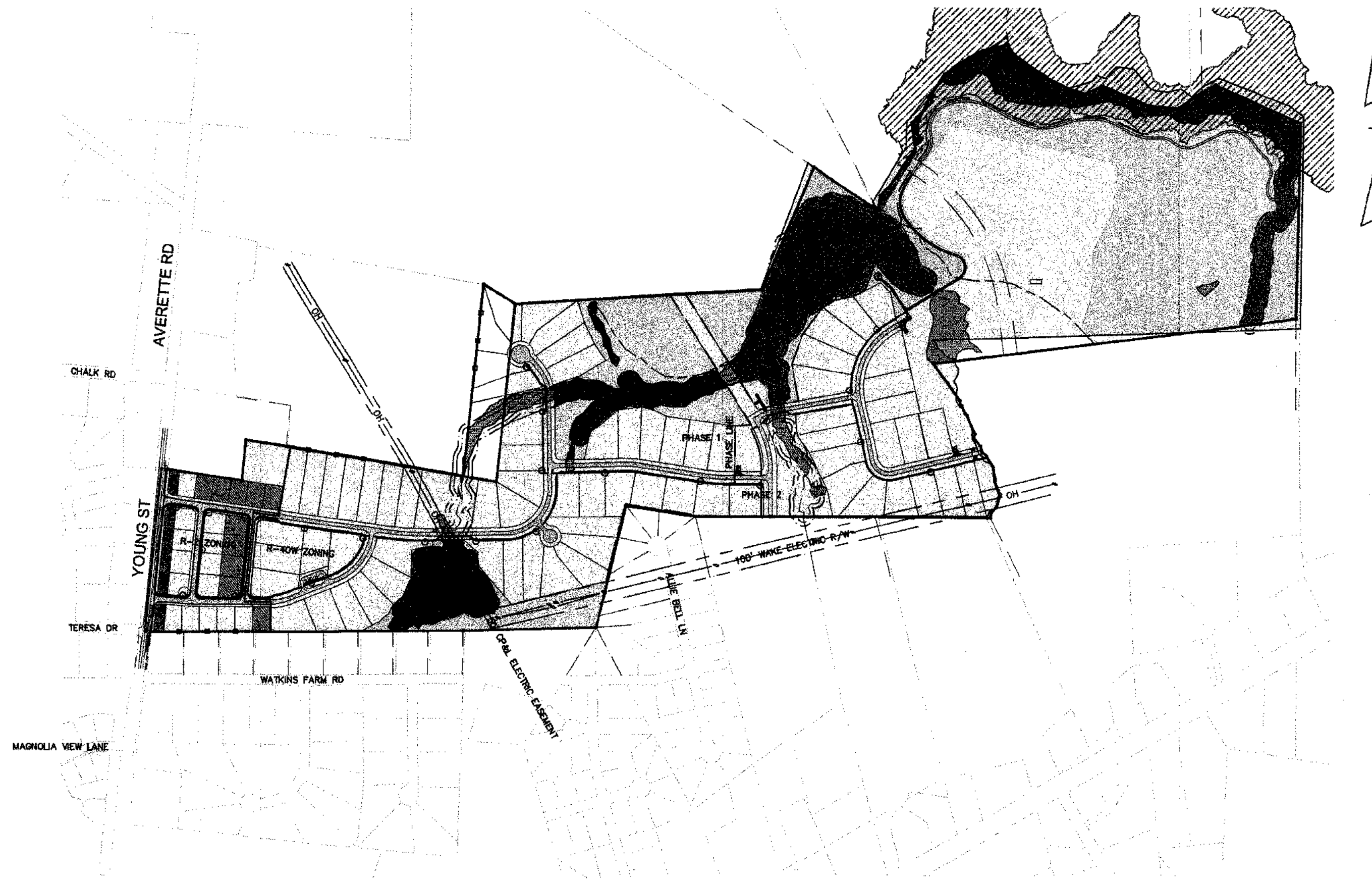
## CHANDLER'S RIDGE CONSERVATION SUBDIVISION

TOWN OF ROLESVILLE  
WAKE CO, NC  
SEPTEMBER 8, 2020

1st SUBMITTAL JUNE 19, 2020  
2nd SUBMITTAL AUGUST 14, 2020  
3rd SUBMITTAL SEPTEMBER 8, 2020



VICINITY MAP  
(NTS)



PROJECT PLAN

GRAPHIC SCALE  
1 inch = 500 ft.

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

**SITE PERMITTING APPROVAL**

**Water and Sewer Permits (if applicable)**

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # S-4739  
  
The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # W-3732  
  
The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
City of Raleigh Public Utilities Department Permit # N/A

**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

**DEVELOPER:**

WRIGHT-WHITLEY DEVELOPMENT COMPANY, LLC  
1225 N. WHITE ST.  
WAKE FOREST, NC  
(919) 349-5220

**OWNER:**

MELISSA CORBIN NONDORF, LINDA TRIPP-CORBIN  
10622 S 600 W  
WARREN, IN 46792

**ENGINEER:**

THOMAS S. SPEIGHT, JR., PE, PLS  
BATEMAN CIVIL SURVEY COMPANY  
2524 RELIANCE AVENUE  
APEX, NC 27539

PARCEL DATA	
PIN	1769362748
ADDRESS	410 W. YOUNG STREET
GROSS TRACT AREA	171.53 AC. (NET: 174.43)
EXISTING USE	AGRICULTURE
EXISTING ZONING	R-2 / R-40W
PROPOSED USE	CONSERVATION SUBDIVISION
UNITS PROPOSED	96 SINGLE FAMILY
PHASE 1	24 R-2, 50 R-40W
PHASE 2	22 R40-W

UTILITY IMPROVEMENTS	
8" PVC PUBLIC SEWER	9,090 LF
8" DIP PUBLIC SEWER	929 LF
CLASS III RCP STORM	1,387 LF
8" DIP PUBLIC WATER	5,250 LF
12" DIP PUBLIC WATER	3,415 LF
4" C900 PVC PUBLIC FORCEMAIN	4,944 LF

**EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT**

APPROVED

EROSION CONTROL  SEE 03/25-2020

STORMWATER MGMT.  SEE 03/25-2020

FLOOD STUDY  S- N/A

DATE 8-31-20

*[Signature]*  
ENVIRONMENTAL CONSULTANT SIGNATURE



**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

APPROVED FOR COMPLIANCE

Case # CD-20-001 Project: Chandler's Ridge

By: *[Signature]* Date: 9/9/2020

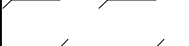




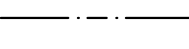
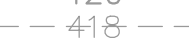
These plans have been approved for compliance with the Town Code of Ordinance, UDO, and Standard Specifications & Construction Details, subject to statements & conditions hereby incorporated by reference.



KNOW WHAT IS BELOW  
CALL BEFORE YOU DIG

SHEET INDEX	
C000	COVER SHEET
C100	EXISTING CONDITIONS
C101	SOILS MAP
C200	OVERALL SITE & OPEN SPACE
C201	PHASE 1 SITE PLAN
C202	PHASE 1 SITE PLAN
C203	PHASE 1 MAP
C204	PHASE 1/2 SITE PLAN
C205	PHASE 2 SITE PLAN
C206	PHASE 2 SITE PLAN
C210	LIGHTING PLAN
C220	LANDSCAPING DETAILS
C400	OVERALL EROSION CONTROL PLAN PH 1 STAGE 1
C401	EROSION CONTROL PLAN PH 1 STAGE 1
C402	EROSION CONTROL PLAN PH 1 STAGE 1
C403	EROSION CONTROL PLAN PH 1 STAGE 1
C404	EROSION CONTROL PLAN PH 1 STAGE 1
C410	OVERALL EROSION CONTROL PLAN PH 1 STAGE 2
C411	EROSION CONTROL PLAN PH 1 STAGE 2
C412	EROSION CONTROL PLAN PH 1 STAGE 2
C413	EROSION CONTROL PLAN PH 1 STAGE 2
C414	EROSION CONTROL PLAN PH 1 STAGE 2
C420	OVERALL EROSION CONTROL PLAN PH 2 STAGE 1
C422	EROSION CONTROL PLAN PH 2 STAGE 1
C423	EROSION CONTROL PLAN PH 2 STAGE 1
C424	EROSION CONTROL PLAN PH 2 STAGE 1
C430	OVERALL EROSION CONTROL PLAN PH 2 STAGE 2
C432	EROSION CONTROL PLAN PH 2 STAGE 2
C433	EROSION CONTROL PLAN PH 2 STAGE 2
C444	EROSION CONTROL PLAN PH 2 STAGE 2
C500	OVERALL GRADING PLAN
C501	PHASE 1 GRADING PLAN
C502	PHASE 1 GRADING PLAN
C503	PHASE 1 GRADING PLAN
C504	PHASE 1/2 GRADING PLAN
C505	PHASE 2 GRADING PLAN
C506	PHASE 2 GRADING PLAN
C510	STORM PIPE/STRUCTURE TABLES
C520	DRY POND #1 PLAN & DETAILS
C521	DRY POND #2 PLAN & DETAILS
C522	DRY POND #3 PLAN & DETAILS
C590	GREENWAY PLAN & PROFILE
C591	GREENWAY PLAN & PROFILE
C600	OVERALL UTILITY PLAN
C601	PHASE 1 UTILITY PLAN
C602	PHASE 1 UTILITY PLAN
C603	PHASE 1 UTILITY PLAN
C604	PHASE 1/2 UTILITY PLAN
C605	PHASE 2 UTILITY PLAN
C606	PHASE 2 UTILITY PLAN
C607	PUMP STATION PLAN & DETAILS
C608	PUMP STATION DETAILS
C609	PUMP STATION DETAILS
C610	ODOR CONTROL DETAILS
C700	LILY OAK DR. P&P STA. 0+00 - 10+50
C701	LILY OAK DR. P&P STA. 10+50 - 21+00
C702	LILY OAK DR. P&P STA. 21+00 - 29+08
C703	LONGSPUR LN. P&P STA. 0+00 - 10+00
C704	LONGSPUR LN. P&P STA. 10+00 - 13+20
C705	TIMBERDASH TR. P&P STA. 0+00 - 4+97
C706	PINE SPUR LN. P&P STA. 0+00 - 4+59
C707	OAK ROSE LN. P&P STA. 0+00 - 1+10
C708	SPARROW RIDGE DR. P&P STA. 0+00 - 11+00
C709	MELONBROOK WAY P&P STA. 0+00 - 7+08
C710	MAPLEHURST DR. P&P STA. 0+00 - 5+44
C711	SCENIC POND WAY P&P STA. 0+00 - 9+50
C712	SCENIC POND WAY P&P STA. 9+50 - 13+27
C713	LOT 58 / 59 SEWER STUB P&P
C714	LOT 61 / 62 SEWER STUB P&P
C715	LOT 48 / 49 SEWER STUB P&P
C716	LOT 80 / 81 SEWER STUB P&P
C717	LOT 84 / 85 SEWER STUB P&P
C718	PUMP STATION P&P
C719	FORCE MAIN W. YOUNG ST. P&P
C800	ROAD WIDENING PLAN W. YOUNG
C801	STRIPING PLAN W. YOUNG
C802	ROAD WIDENING CROSS SECTION
C900	SITE DETAILS
C901	NC DOT DETAILS
C902	NC DOT DETAILS
C903	PEDESTRIAN BOARDWALK BRIDGE DETAILS
C910	SEWER & FORCEMAIN DETAILS
C911	SEWER & FORCEMAIN DETAILS
C912	SEWER & FORCEMAIN DETAILS
C913	WATER DETAILS
C914	WATER DETAILS
C915	WATER DETAILS
C920	STORMWATER DETAILS
C921	STORMWATER DETAILS
C922	EROSION CONTROL DETAILS
C923	EROSION CONTROL DETAILS
C924	EROSION CONTROL DETAILS
C925	EROSION CONTROL DETAILS
C926	EROSION CONTROL DETAILS
C927	EROSION CONTROL DETAILS
C928	EROSION CONTROL DETAILS

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  420  
418 EXISTING MAJOR / MINOR CONTOUR



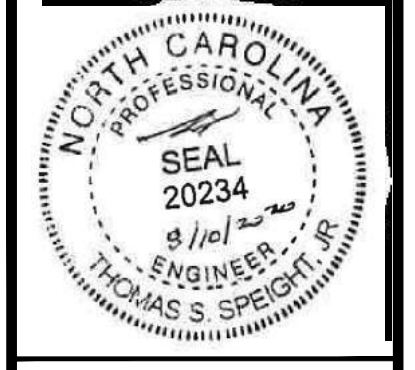
LINE	BEARING	DIST
L1	S81°13'04"E	34.80
L2	S81°12'56"E	173.97
L3	S81°12'49"E	210.95
L4	S80°12'39"E	174.94
L5	N07°49'06"E	80.26
L6	N44°41'40"E	78.77
L7	N34°07'44"E	223.37
L8	N07°17'09"W	135.94
L9	N43°25'56"E	93.24
L10	N22°09'47"E	65.45
L11	N32°21'39"E	143.40
L12	N56°30'21"E	156.81
L13	N61°58'55"E	77.86
L14	N76°21'53"E	135.03
L15	S29°48'13"E	58.53
L16	S52°51'27"E	178.27
L17	S63°45'31"E	164.54
L18	S72°26'53"E	83.22
L19	N64°46'54"E	97.09
L20	S66°47'32"E	266.88
L21	S85°28'59"E	143.23
L22	N55°32'08"E	148.84
L23	N62°34'27"E	79.00
L24	S36°29'19"E	126.12
L25	S35°23'49"E	106.85
L26	S07°59'11"E	18.28
L27	S59°12'50"E	9.62
L28	S21°13'06"E	44.58
L29	S47°34'32"E	13.67
L30	S20°28'22"E	39.79
L31	S24°41'28"E	64.65
L32	S15°44'48"W	20.71
L33	S38°52'21"E	57.30
L34	S11°42'28"E	28.87
L35	S45°40'36"E	35.21
L36	S31°30'25"E	62.67
L37	S05°44'30"E	71.50
L38	S21°01'37"E	52.07
L39	S14°11'37"E	33.36
L40	S16°41'36"W	59.55
L41	S49°18'04"W	33.85
L42	S11°19'37"W	32.19
L43	S89°52'40"W	30.04

**EXISTING TRACT DATA:**  
 TRACT DEVELOPER:  
 THOMAS RICHARD WRIGHT, JR.  
 1225 N. WHITE ST.  
 WAKE FOREST, NC 27588  
 CONTACT NO: (919) 349-5220  
 NC PIN: 1769-36-2748  
 DEED REFERENCE: DB 2559, PG 470 MAP #1769 01  
 REAL ESTATE ID: 0014930  
 ZONING: R-2 & R-40W  
 TOTAL TRACT AREA: 171.53 AC.  
 EXISTING USE: VACANT / UNDEVELOPED WOODS / CULTIVATED

- NOTES**
- EXISTING BOUNDARY AND WETLANDS SURVEYED BY BATEMAN CIVIL SURVEY OF APEX, NC.
  - TOPOGRAPHY IS A COMPOSITE OF FIELD SURVEY AND WAKE COUNTY GIS DATA.

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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

**EXISTING CONDITIONS**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 200'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C100**



NORTH Referenced to N.C. GRID (NAD 83)



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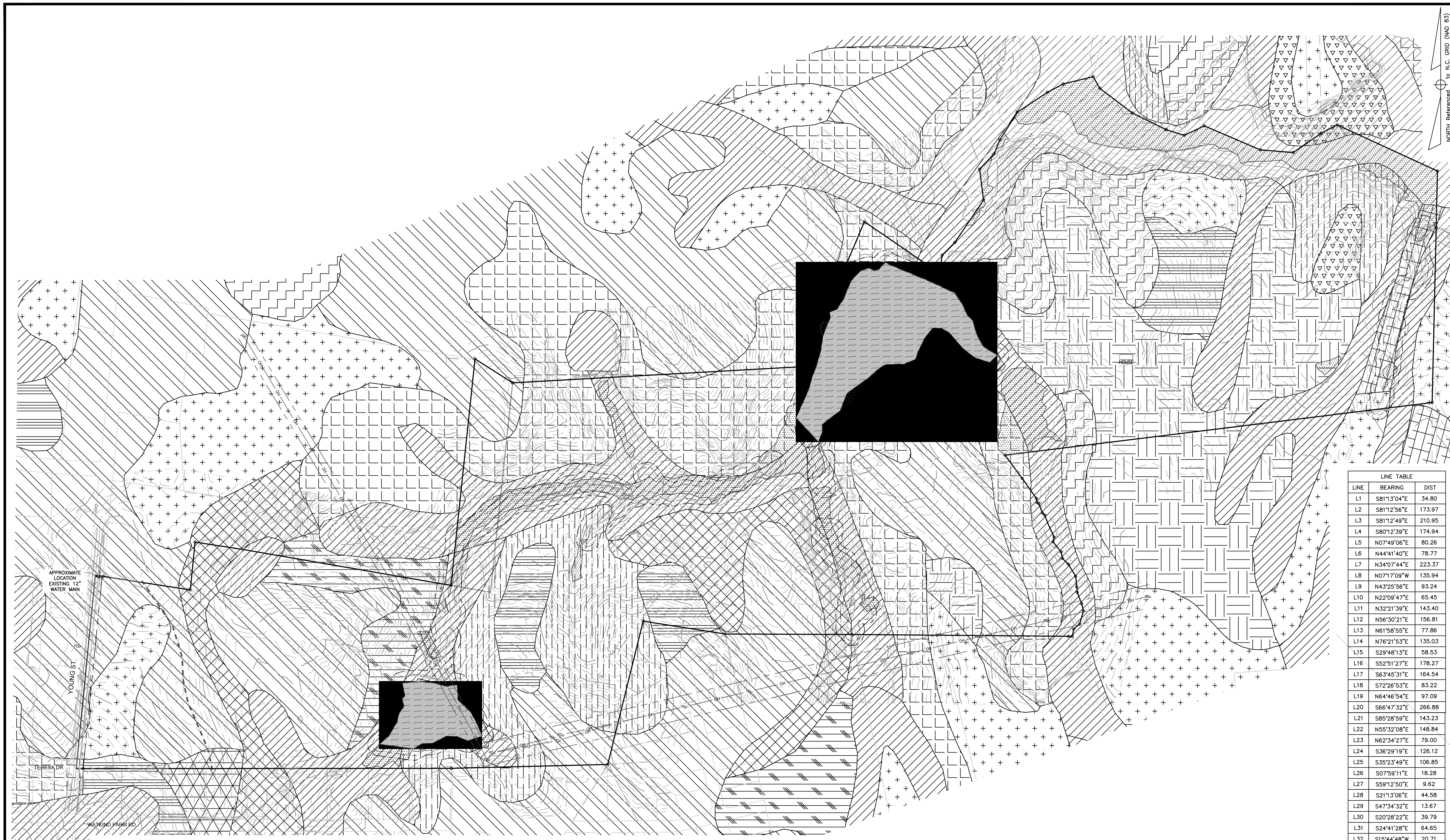


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**SOILS MAP**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 200'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C101**



LINE TABLE		
LINE	BEARING	DIST
L1	S81°13'04"E	34.80
L2	S81°12'56"E	173.97
L3	S81°12'49"E	210.95
L4	S80°12'39"E	174.94
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L6	N44°41'40"E	78.77
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L41	S49°18'04"W	33.85
L42	S11°19'37"W	32.19
L43	S89°52'40"W	30.04

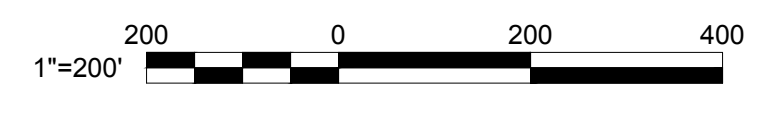
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 TRACT DEVELOPER:  
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 1225 N. WHITE ST.  
 WAKE FOREST, NC 27588  
 CONTACT NO: (919) 349-5220  
 NC PIN: 1769-36-2748  
 DEED REFERENCE: DB 2559, PG 470 MAP #1769 01  
 REAL ESTATE ID: 0014930  
 ZONING: R-1 & R-40W  
 TOTAL TRACT AREA: 171.53 ± AC.  
 EXISTING USE: VACANT / UNDEVELOPED WOODS / CULTIVATED

**NOTES**  
 1. EXISTING BOUNDARY AND WETLANDS SURVEYED BY BATEMAN CIVIL SURVEY OF APEX, NC.  
 2. TOPOGRAPHY IS WAKE COUNTY GIS FOR THE PRELIMINARY PLANS.

- VaC2 Vance sandy loam, 6 to 10 percent slopes, eroded
- VaB2 Vance sandy loam, 2 to 6 percent slopes, eroded
- LoC Louisburg loamy sand, 6 to 10 percent slopes
- ApC Appling sandy loam, 6 to 10 percent slopes
- LoB Louisburg loamy sand, 2 to 6 percent slopes
- ApB2 Appling sandy loam, 2 to 6 percent slopes, eroded
- WkC Wake soil, 2 to 10 percent slopes
- ApC2 Appling sandy loam, 6 to 10 percent slopes, eroded
- DuC Durham loamy sand, 6 to 10 percent slopes
- Flood-Prone Soils Wy, Au, Cu, Wo
- VaB Vance sandy loam, 2 to 6 percent slopes
- DuB Durham loamy sand, 2 to 6 percent slopes
- ApB Appling sandy loam, 2 to 6 percent slopes

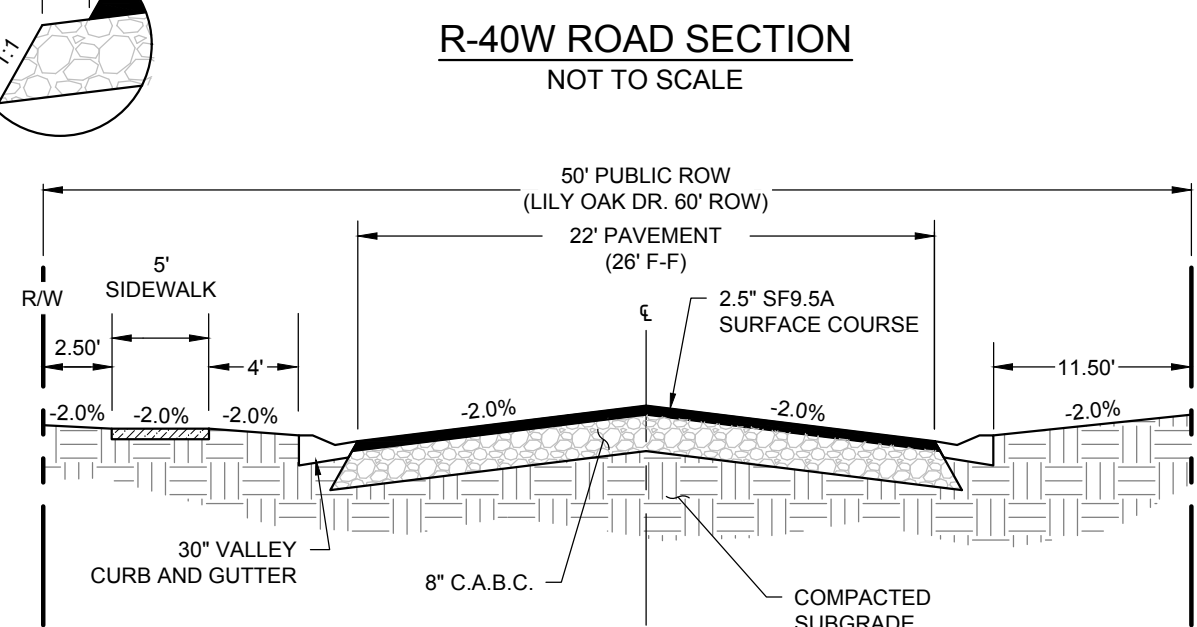
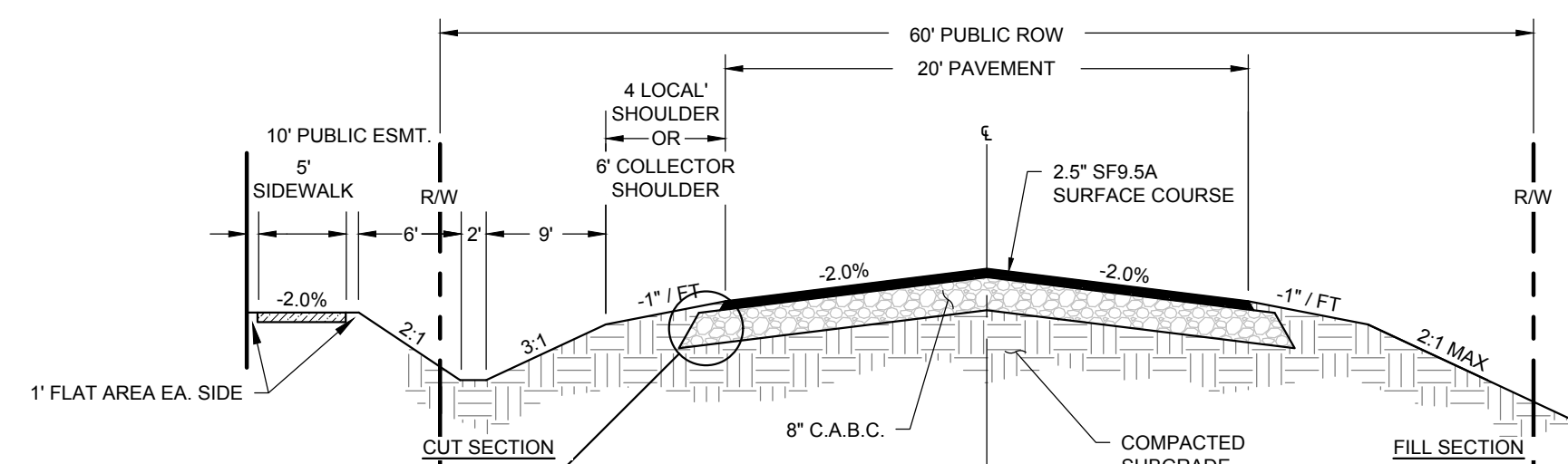
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	
	REVISIONS	



LEGEND:

- EXISTING POND
EXISTING WETLANDS
PROPOSED PHASING LINE
EXISTING TOWN OF ROLESVILLE ETJ
EXISTING STREAM
50' STREAM AND POND RIPARIAN BUFFER
DEDICATED PRIMARY PROTECTED OPEN SPACE
DEDICATED SECONDARY PROTECTED OPEN SPACE
PROPOSED ASPHALT PAVEMENT
PROPOSED RIGHT OF WAY
PROPOSED SETBACK
PROPOSED EASEMENT



SHEET 203

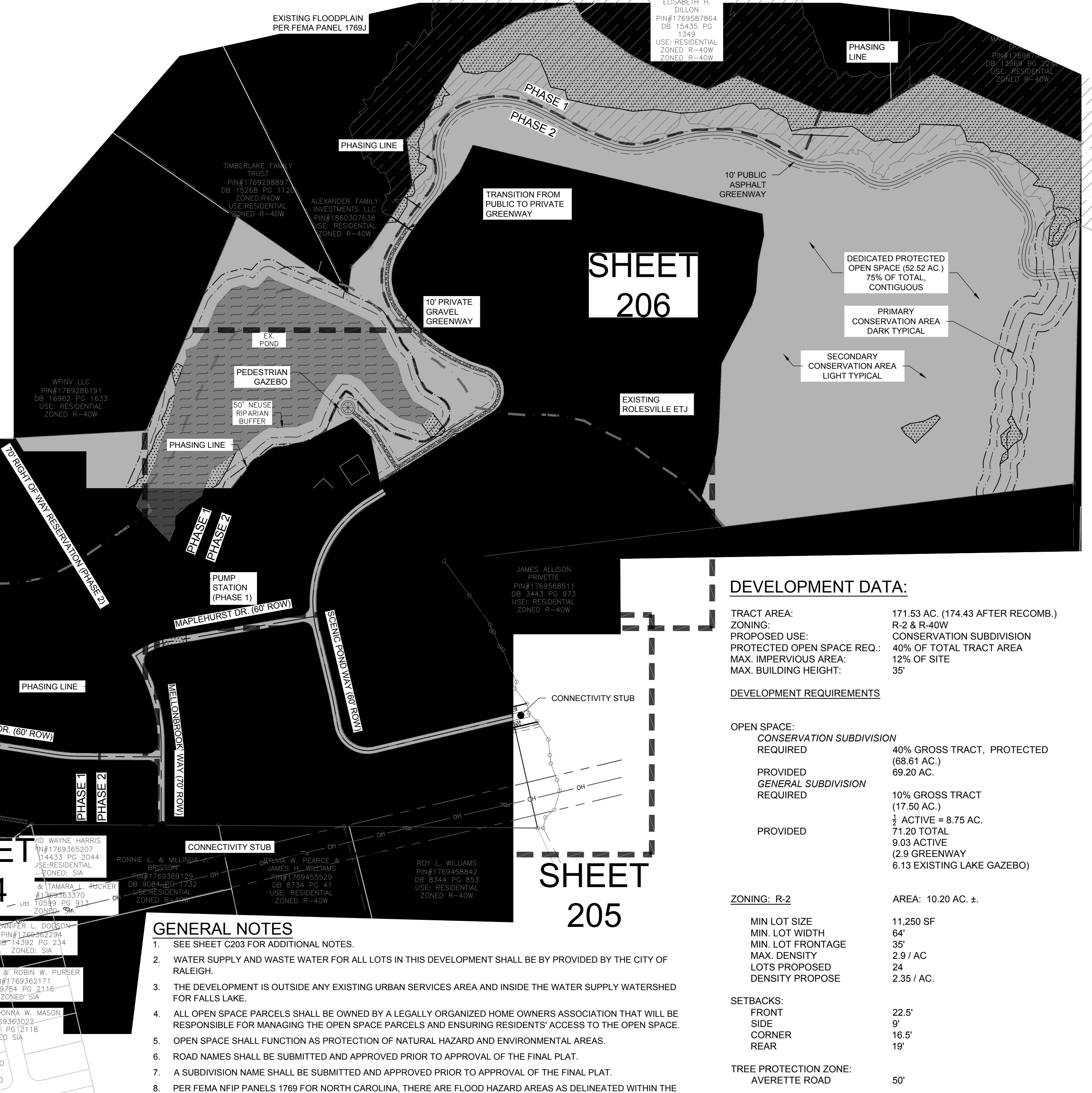
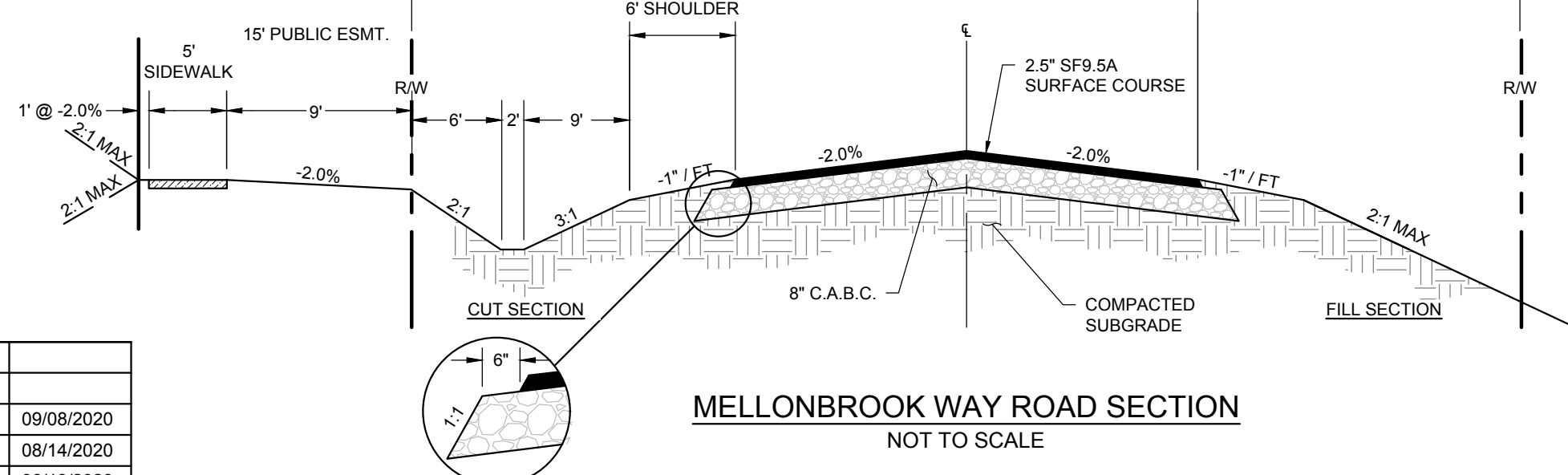
SHEET 206

SHEET 201

SHEET 204

SHEET 205

SHEET 202



DEVELOPMENT DATA:
TRACT AREA: 171.53 AC. (174.43 AFTER RECOMB.)
ZONING: R-2 & R-40W
PROPOSED USE: CONSERVATION SUBDIVISION
PROTECTED OPEN SPACE REQ.: 40% OF TOTAL TRACT AREA
MAX. IMPERVIOUS AREA: 12% OF SITE
MAX. BUILDING HEIGHT: 35'

DEVELOPMENT REQUIREMENTS
OPEN SPACE: CONSERVATION SUBDIVISION REQUIRED 40% GROSS TRACT, PROTECTED (68.61 AC.)
PROVIDED GENERAL SUBDIVISION REQUIRED 10% GROSS TRACT (17.50 AC.)
PROVIDED 1/2 ACTIVE = 8.75 AC. 71.20 TOTAL 9.03 ACTIVE (2.9 GREENWAY 6.13 EXISTING LAKE GAZEBO)

ZONING: R-2 AREA: 10.20 AC. +/-
MIN LOT SIZE 11,250 SF
MIN. LOT WIDTH 64'
MIN. LOT FRONTAGE 35'
MAX. DENSITY 2.9 / AC
LOTS PROPOSED 24
DENSITY PROPOSED 2.35 / AC.

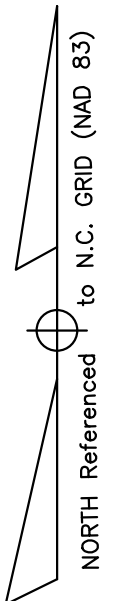
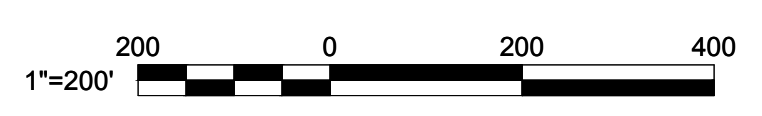
ZONING: R-40W AREA: 164.23 AC. +/-
MIN LOT SIZE 30,000 SF
MIN. LOT WIDTH 83'
MIN. LOT FRONTAGE 35'
MAX. DENSITY 1 / AC
LOTS PROPOSED 72
DENSITY PROPOSED 0.44 / AC.

- GENERAL NOTES
1. SEE SHEET C203 FOR ADDITIONAL NOTES.
2. WATER SUPPLY AND WASTE WATER FOR ALL LOTS IN THIS DEVELOPMENT SHALL BE PROVIDED BY THE CITY OF RALEIGH.
3. THE DEVELOPMENT IS OUTSIDE ANY EXISTING URBAN SERVICES AREA AND INSIDE THE WATER SUPPLY WATERSHED FOR FALLS LAKE.
4. ALL OPEN SPACE PARCELS SHALL BE OWNED BY A LEGALLY ORGANIZED HOME OWNERS ASSOCIATION THAT WILL BE RESPONSIBLE FOR MANAGING THE OPEN SPACE PARCELS AND ENSURING RESIDENTS' ACCESS TO THE OPEN SPACE.
5. OPEN SPACE SHALL FUNCTION AS PROTECTION OF NATURAL HAZARD AND ENVIRONMENTAL AREAS.
6. ROAD NAMES SHALL BE SUBMITTED AND APPROVED PRIOR TO APPROVAL OF THE FINAL PLAT.
7. A SUBDIVISION NAME SHALL BE SUBMITTED AND APPROVED PRIOR TO APPROVAL OF THE FINAL PLAT.
8. PER FEMA NFIP PANELS 1769 FOR NORTH CAROLINA, THERE ARE FLOOD HAZARD AREAS AS DELINEATED WITHIN THE DEVELOPMENT BOUNDARIES.
9. THERE SHALL BE NO FILLING OR ERECTION OF PERMANENT STRUCTURES IN THE AREAS OF WAKE COUNTY FLOOD HAZARD SOILS OR FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) 100 YEAR FLOOD ZONES UNTIL A FLOOD STUDY IS APPROVED BY WAKE COUNTY AND/OR FEMA.
10. LOTS 2 THROUGH 6, 15 THROUGH 18, AND 24 WILL NOT BE PLATTED UNTIL THE AREA CONTAINED FOR THE PROPOSED LOTS HAVE BEEN REGRADED TO DRAIN AWAY FROM THE LITTLE RIVER BASIN WATERSHED WITH NC STATE AGENCY DETERMINED THESE PROPOSED ARE NOT LOCATED IN THE WS-II DRINKING WATER SUPPLY WATERSHED AREA DUE TO REGRADED OF THE LOTS AND UDO MAP AMENDMENT GRANTED BY THE TOWN TO BE REZONED FROM R40W TO R-2 ZONING DISTRICT AFTER STATE AGENCY DETERMINATION

OVERALL IMPERVIOUS AREA SUMMARY

Table with columns: EXISTING, ASPHALT ROADWAY, MAIL KIOSK, RESIDENTIAL LOTS, CONCRETE SIDEWALK AND CURB GUTTER, PUMP STATION & DRIVEWAY, GREENWAY, GRAVEL TURN-AROUNDS, TOTAL IMPERVIOUS AREA PROVIDED (AC), IMPERVIOUS AREA RATIO.

PHASING SUMMARY
PHASE 1 AREA 91.40 ACRES
PHASE 1 OPEN SPACE 36.70 ACRES (40.15%)
PHASE 2 AREA 80.13 ACRES
PHASE 2 OPEN SPACE 32.50 ACRES (40.56%)



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NCBLES FIRM No. C-2378



CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION

OVERALL SITE
& OPEN SPACE PLAN

Project Engineer: TSS
Designed By: TEP
Drawn By: TEP
Checked By: TSS
Scale: 1" = 200'
Date: 09/08/2020
Project Number: P170347
SHEET C200

Revision table with columns: REV, DESCRIPTION, DATE. Includes entries for construction documents 3RD, 2ND, and 1ST SUBMITTAL.

- LEGEND:**
- EXISTING POND
  - EXISTING WETLANDS
  - PROPOSED PHASING LINE
  - EXISTING TOWN OF ROLESVILLE ETJ
  - EXISTING STREAM
  - 50' STREAM AND POND RIPARIAN BUFFER
  - DEDICATED PRIMARY PROTECTED OPEN SPACE
  - DEDICATED SECONDARY PROTECTED OPEN SPACE
  - PROPOSED ASPHALT PAVEMENT
  - PROPOSED RIGHT OF WAY
  - PROPOSED SETBACK
  - PROPOSED EASEMENT
  - PROPOSED APPROXIMATE LIGHTING



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

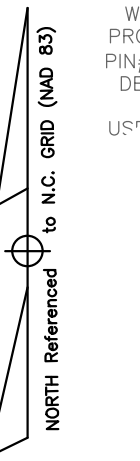
**PHASE 1**  
 SITE PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

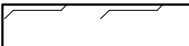
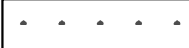



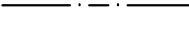







SHEET  
**C201**

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



**LEGEND:**

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-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
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-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  PROPOSED APPROXIMATE LIGHTING



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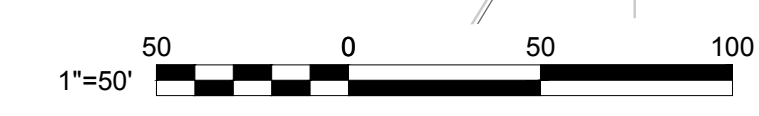
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02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	

V&W RENTAL  
PERTIES INC  
789159670  
529 PG  
NTAL  
DW

CLINTON L. &  
SONDRA F.  
BROWN  
PIN# 1769251650  
DB 10162 PG  
1199  
USE: RESIDENTIAL  
ZONED R-40W

MARTIN M.  
& MARY L.  
BURKE  
PIN# 1769253630  
DB 11316 PG 2235  
1199  
USE: RESIDENTIAL  
ZONED R-40W

RAT PROPERTIES LLC  
PIN# 1769243278  
DB 14688 PG 2600  
USE: RESIDENTIAL  
ZONED R-40W



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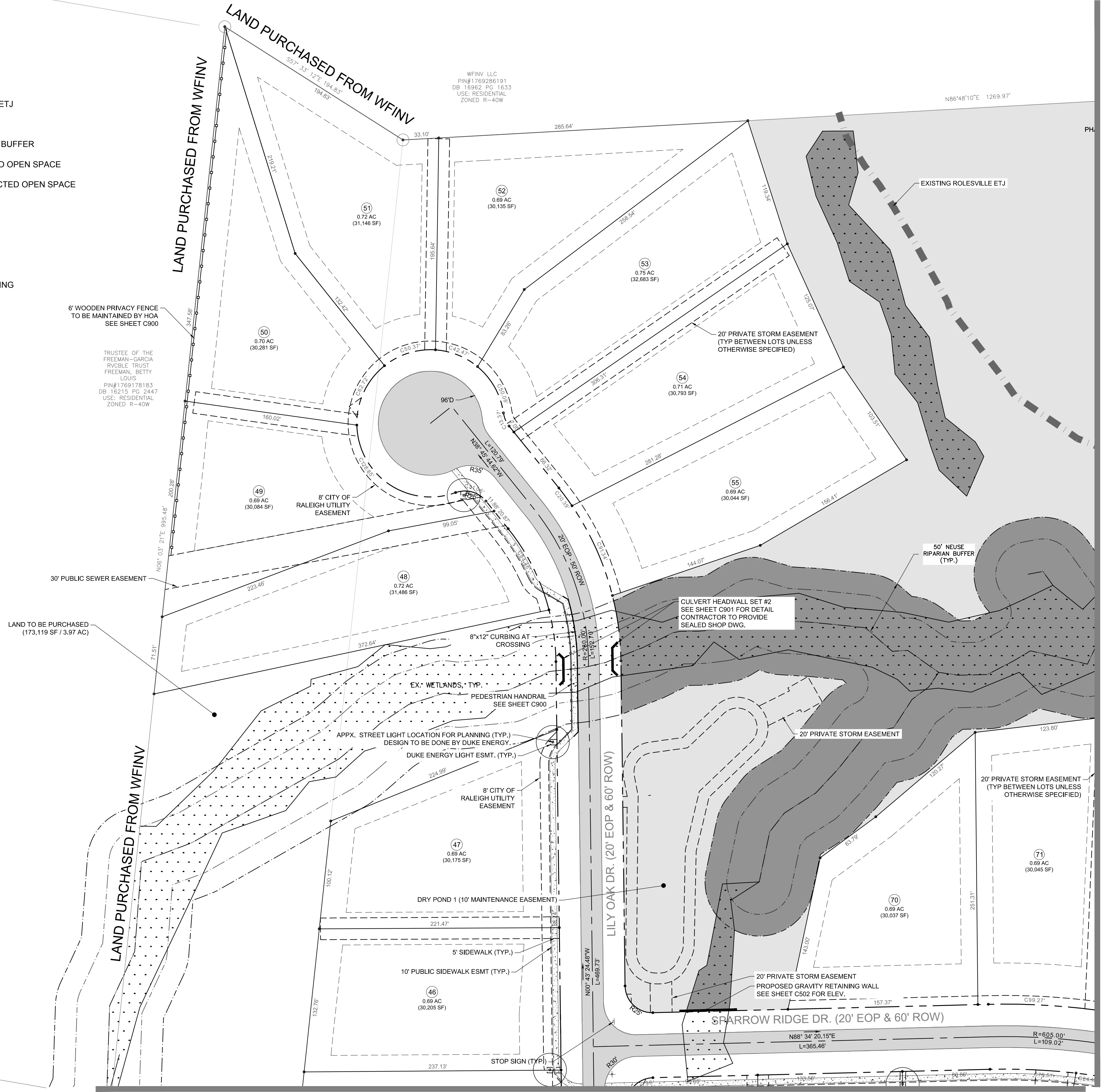
**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

**PHASE 1**  
SITE PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C202</b>	

**LEGEND:**

- EXISTING POND
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- PROPOSED PHASING LINE
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- PROPOSED APPROXIMATE LIGHTING



**SITE NOTES:**

1. THE CONTRACTOR SHALL REFERENCE THE DESIGN PLANS FOR DIMENSIONS, JOINT LOCATIONS, AND INLAY SPECIFICATIONS NEAR BUILDINGS AND IN COURTYARDS. CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS AND HARDSCAPE PER DETAILS OR AS INDICATED ON LANDSCAPE/HARDSCAPE PLAN SHEETS.
2. ALL CONSTRUCTION TRAFFIC SHALL ENTER SITE FROM WEST YOUNG ST. UNLESS OTHERWISE APPROVED IN WRITING FROM THE OWNER'S REPRESENTATIVE FOR AN ALTERNATE POINT OF ACCESS.
3. REFER TO ARCHITECTURAL PLANS FOR BUILDING INFORMATION.
4. ALL DIMENSIONS ARE IN DECIMAL FEET TO OUTSIDE FACE OF BUILDINGS, TO CENTERLINES, AND/OR FACE OF CURB UNLESS OTHERWISE NOTED.
5. THIS SITE IS PARTIALLY LOCATED IN THE LITTLE RIVER WATERSHED AND STREET DESIGNS MUST MEET NCDOT AND TOWN OF ROLESVILLE SPECIFICATION AND STANDARDS.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION.
7. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.
8. ALL UTILITIES WITH SURFACE ACCESS SHALL BE LOCATED WITHIN THE PAVING PATTERN AND SHALL BE COORDINATED WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. REFER TO LAYOUT DRAWINGS.
9. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
10. ALIGN ALL JOINTS, CORNERS, AND EDGES AS SHOWN
11. CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AT ALL TIMES PRIOR TO AND DURING CONSTRUCTION.
12. ALL CURB TAPERS ARE SIX (6) FEET LONG UNLESS OTHERWISE SHOWN ON PLAN.
13. WHERE NEW SIDEWALK ADJOINS EXISTING WALK, PROVIDE EXPANSION JOINT BY DRILLING INTO THE FACE OF THE EXISTING WALK FOR PLACEMENT OF DOWELS. THE NEW SIDEWALKS INTO NEAREST EXISTING PAVEMENT JOINT, MATCH WIDTH OF EXISTING WALKWAY.
14. WHERE SIDEWALK OR WALKWAYS ARE ADJACENT TO PARKING SPACES THE WALKWAY SHALL BE A MINIMUM 6.5' WIDE AS MEASURED FROM THE FACE OF CURB.
15. MAXIMUM RUNNING SLOPE FOR WALKING SURFACES CANNOT BE GREATER THAN 1:20 AND CROSS SLOPES CANNOT BE GREATER THAN 1:48. HANDICAP SPACES SURFACE SLOPES SHALL NOT EXCEED 1:48 IN ALL DIRECTIONS.
16. SIGHT TRIANGLES - NOTHING OVER 30' HIGH SHALL BE ALLOWED WITHIN THE SIGHT DISTANCE TRIANGLES.
17. THE SITE SHALL BE FULLY STABILIZED (90% COVERAGE) PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY OR PROJECT APPROVAL.
18. HANDICAP RAMPS SHALL BE INSTALLED PER LATEST EDITION OF THE NC BUILDING CODE AND ANSI 117.11 WITH DETECTABLE WARNING DOMES WITH A COLOR CONTRAST OF 3:1 MINIMUM. SEE DETAILS AND GRADING SPOT ELEVATIONS. IF THE EXISTING CONDITIONS PRECLUDE THE ABILITY TO PROVIDE A MAXIMUM SLOPE 1:12 FOR 6 FEET OR A MAXIMUM CROSS SLOPE OF 1:48 AND A 36" MINIMUM LANDING, THE CONTRACTOR SHALL NOTIFY ENGINEER OR OWNER REPRESENTATIVE PRIOR TO INSTALLATION.
19. THE TESTING AGENCY SHALL BE RESPONSIBLE FOR PROVIDING THE ASPHALT AND CONTRACTOR CERTIFICATION MEMO TO NCDOT FOR ALL ROADWAY IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.
20. THE MAINTENANCE OF ALL REQUIRED LANDSCAPING BY KEEPING LAWNS MOWED, ALL PLANTS MAINTAINED AS DISEASE FREE, AND ALL PLANTING BEDS GROOMED AND KEPT WEED FREE (EXCEPT IN AREAS OF PRESERVED EXISTING NATURAL VEGETATION (I.E. THICKETS), AND KEPT FREE FROM TRASH, DEBRIS AND OTHER OBJECTIONABLE MATERIALS, THE REPLACEMENT OF ANY REQUIRED PLANTING, WHICH IS REMOVED OR DIES AFTER THE DATE OF PLANTING, SUCH REPLACEMENT SHALL OCCUR DURING THE NEXT PLANTING SEASON; AND, THE REPLACEMENT OF ANY TREE IN A TREE SAVE AREA, WHICH IS REMOVED OR DIES AFTER THE DATE OF APPROVAL OF A PRESERVATION LANDSCAPE PLAN, SUCH REPLACEMENT SHALL OCCUR DURING THE NEXT PLANTING

**GENERAL NOTES:**

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE OFFICE OF STATE CONSTRUCTION, DEPARTMENT OF INSURANCE, NCDENR, AND ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES. ALL UTILITY CONSTRUCTION SHALL COMPLY WITH APPLICABLE LOCAL JURISDICTIONAL STANDARDS AND SPECIFICATIONS.
2. EXISTING SURVEY INFORMATION INCLUDING TOPOGRAPHIC INFORMATION PROVIDED BY BATEMAN CIVIL SURVEY, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL PROVIDE NOTICE OF EXCAVATION TO NOTIFICATION CENTER AND FACILITY OWNERS (PER NC STATUTE) NO LESS THAN 3 BUSINESS DAYS AND NO MORE THAN 12 WORKING DAYS PRIOR TO BEGINNING DEMOLITION, EXCAVATION OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS. NO EXCAVATION OR DEMOLITION SHALL BE STARTED WITHOUT ALL UTILITIES BEING LOCATED.
4. ALL SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
5. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATING PERMITS, INSPECTIONS, CERTIFICATIONS AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT.
7. THE CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS TO RECORD THE ACTUAL LOCATION OF ALL PIPING PRIOR TO CONCEALMENT, VALVE AND MANHOLE CHANGES, AND HARDSCAPE OR LANDSCAPE CHANGES. DRAWINGS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE AT REGULAR INTERVALS, OR AS REQUESTED THROUGHOUT THE PROJECT FOR RECORD KEEPING.
8. IF DEPARTURES FROM THE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THERE OF SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITY LINES REQUIRED TO COMPLETE ANY PORTION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COORDINATION AND COSTS OF THE RELOCATION AND ASSOCIATED WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS AND RUBBISH CAUSED BY THE CONTRACTOR. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS.
11. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
12. ROADWAYS (TEMPORARY OR PERMANENT) MUST BE CAPABLE OF SUPPORTING FIRE FIGHTING APPARATUS (65,000 LBS) DURING ALL PHASES OF CONSTRUCTION ONCE VERTICAL CONSTRUCTION HAS BEGUN.



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 NCBELS FIRM No. C-2378



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

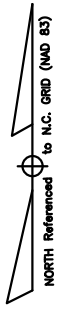
**PHASE 1**  
**SITE PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'

Date: 09/08/2020

Project Number: P170347


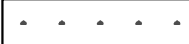



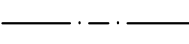

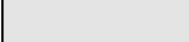

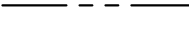

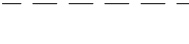

SHEET  
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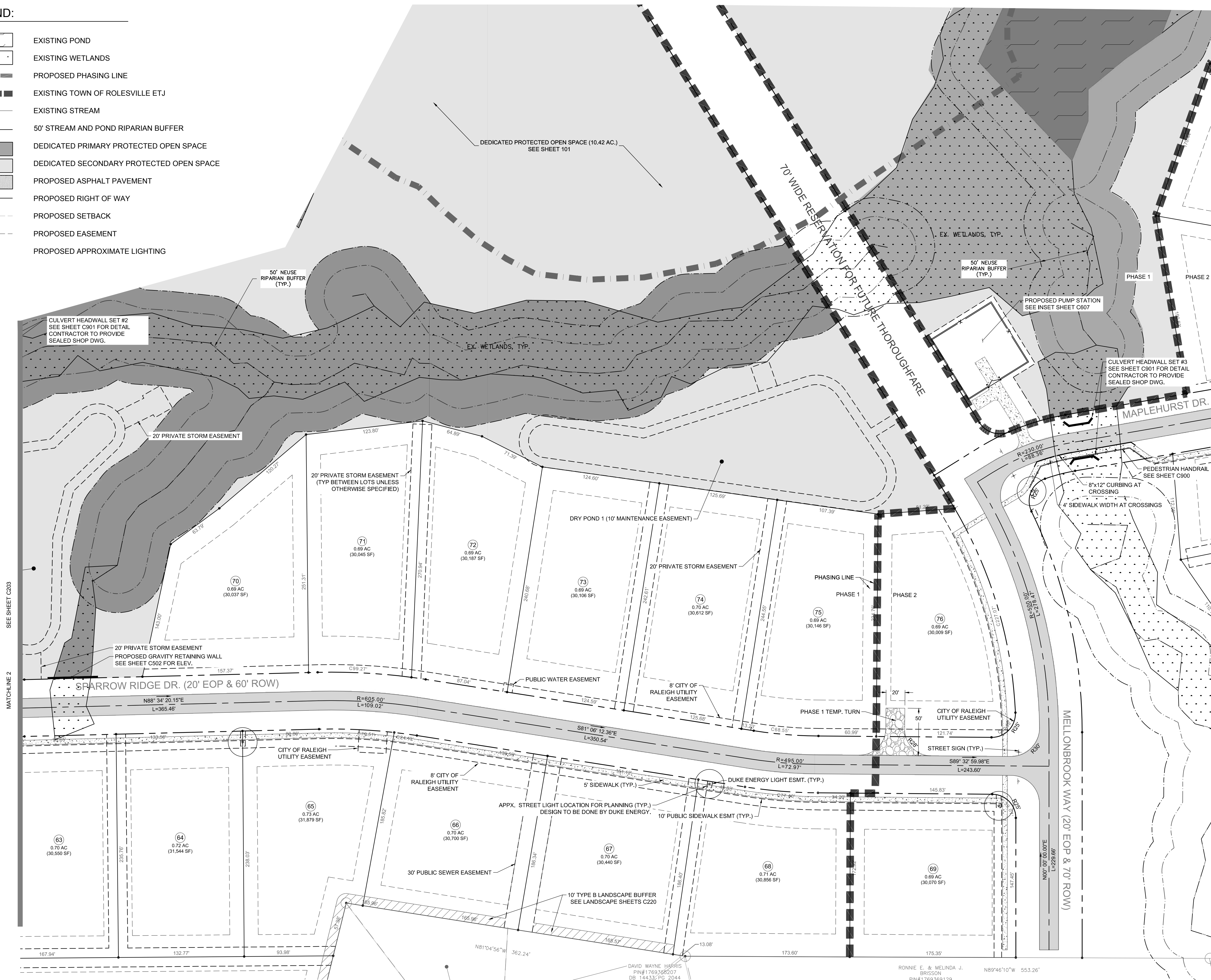


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02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

**LEGEND:**

-  EXISTING POND
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-  PROPOSED SETBACK
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-  PROPOSED APPROXIMATE LIGHTING



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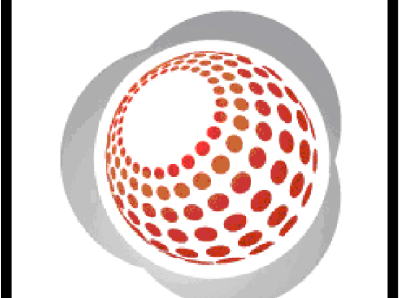
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	REVISIONS	



NORTH Reference to N.C. GRID (NAD 83)



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**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
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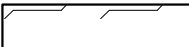
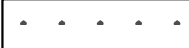



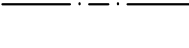







**PHASE 1 / 2**  
 SITE PLAN

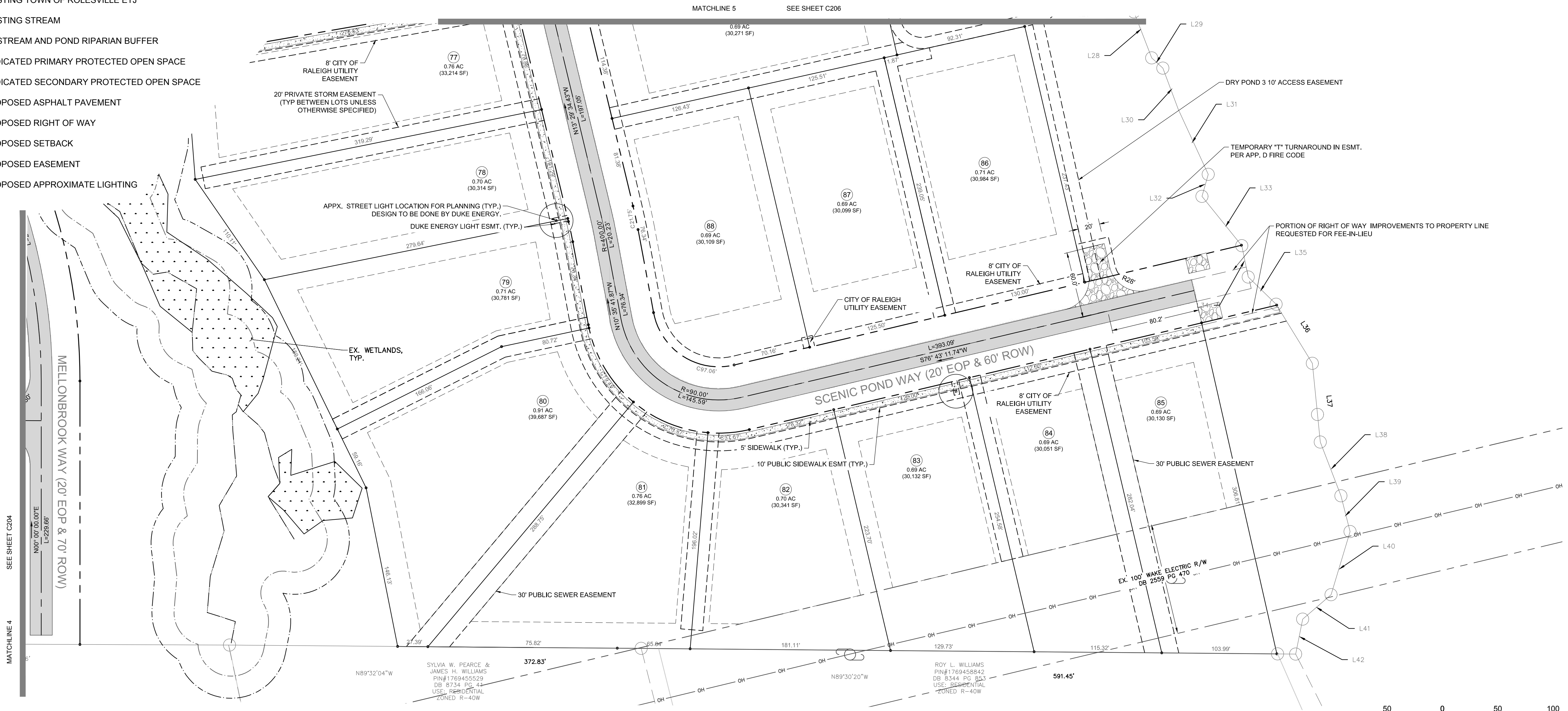
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 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'

Date: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C204**

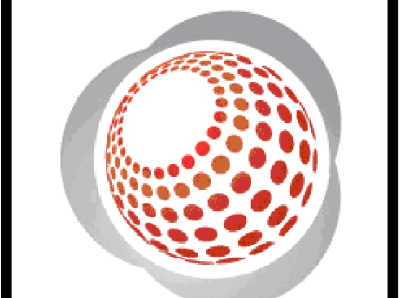


**LEGEND:**

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 NCBELS FIRM No. C-2378



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

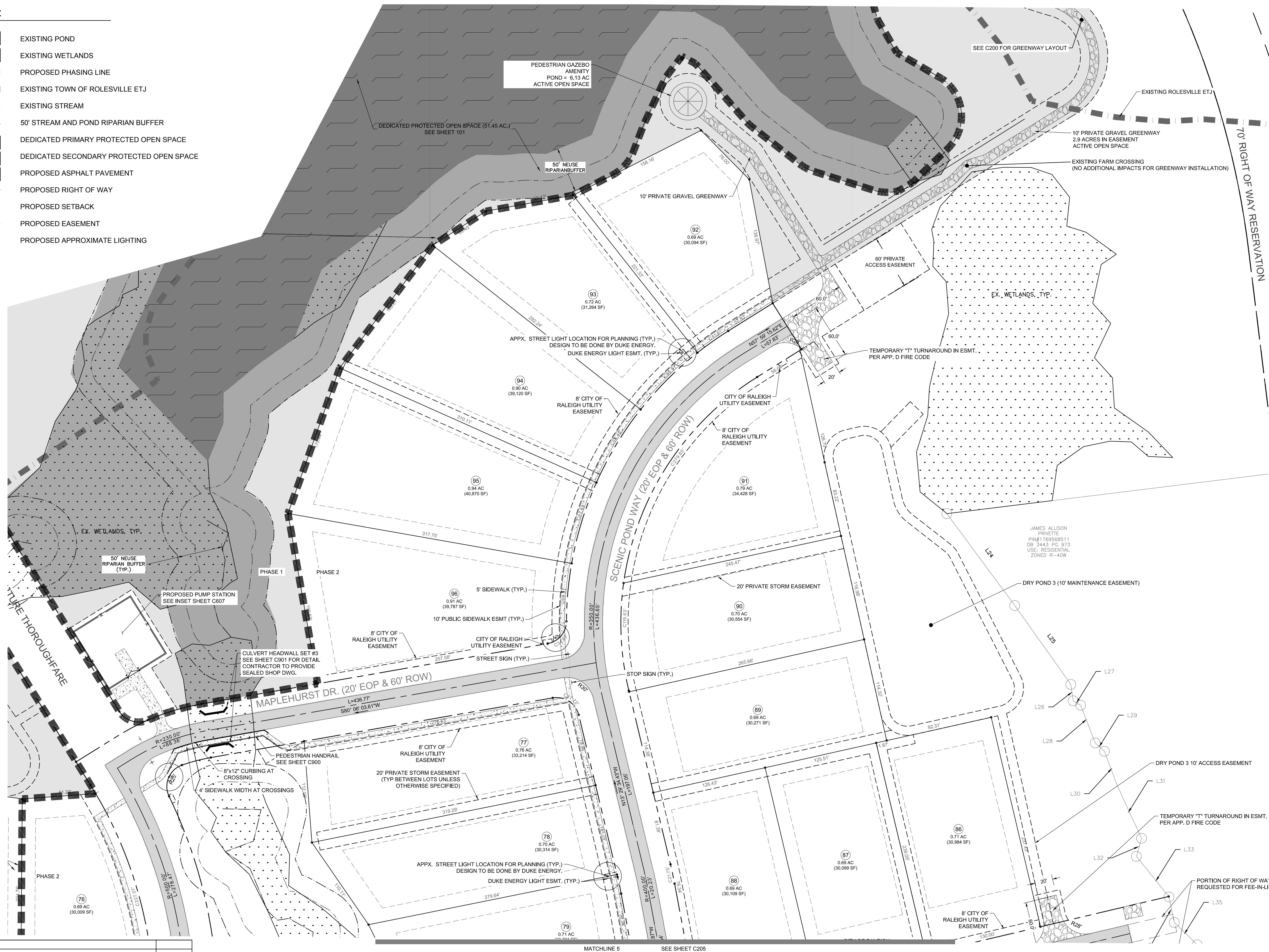
**PHASE 2**  
**SITE PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C205</b>	

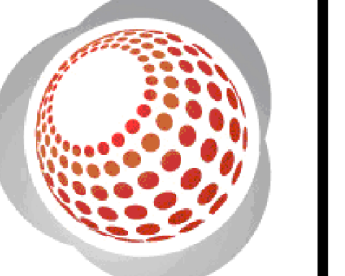
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	

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**CHANDLER'S RIDGE**  
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**PHASE 2**  
 SITE PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C206**

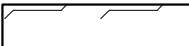
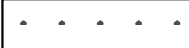



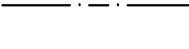







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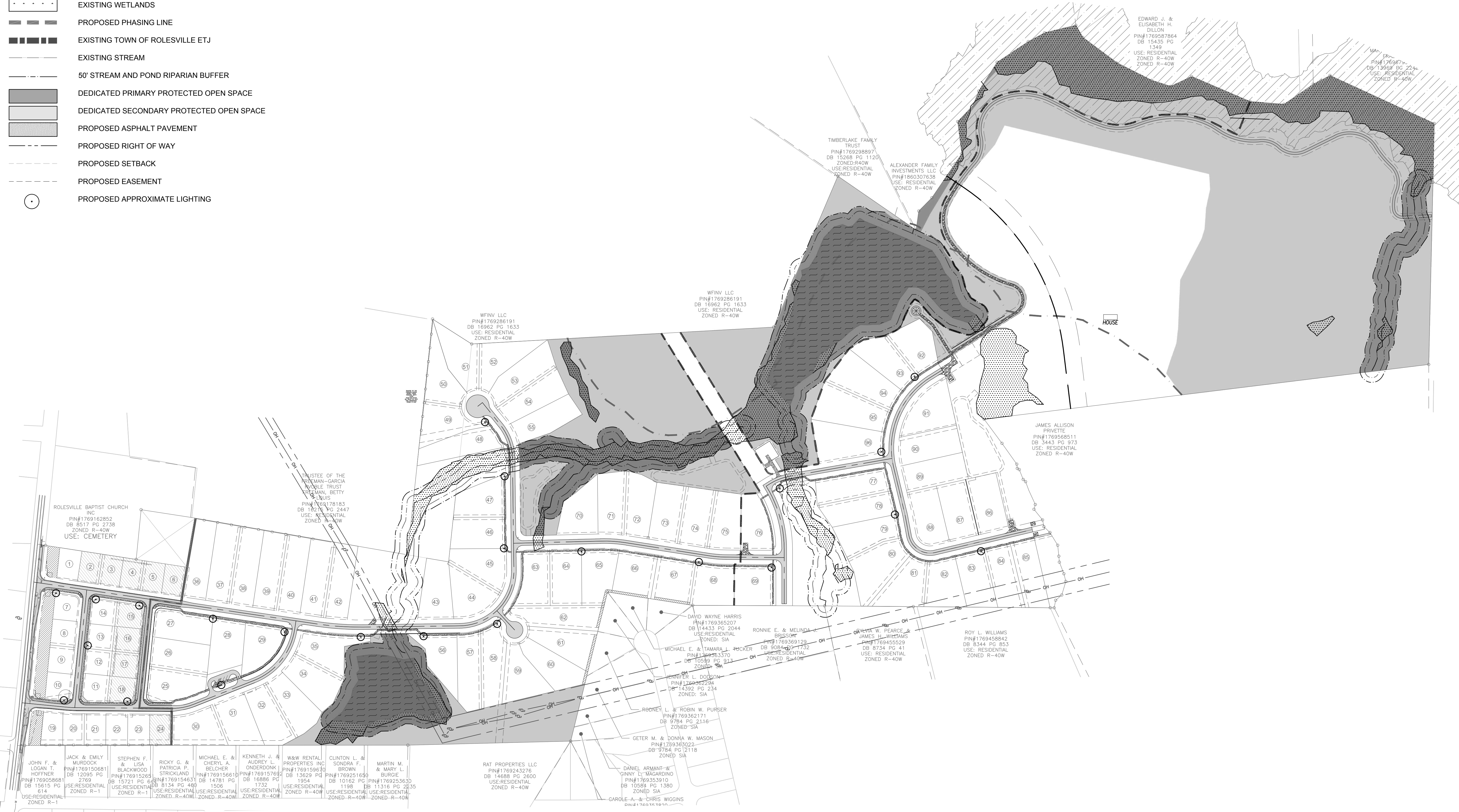
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



NORTH  
 Referenced to N.C. GRID (NAD 83)

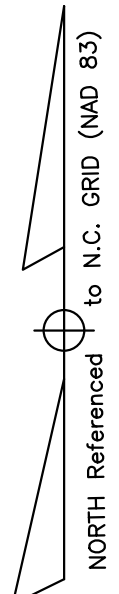
**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  PROPOSED APPROXIMATE LIGHTING



**NOTES**

1. LIGHTING LOCATIONS ARE APPROXIMATE FOR PLANNING. FULL DESIGN TO BE DONE BY DUKE ENERGY. DEVELOPER TO COORDINATE DESIGN WITH DUKE ENERGY AND TOWN OF ROLESVILLE. DEVELOPER TO PROVIDE TO THE TOWN A LUMENS PLAN AND MONTHLY CHARGE NECESSARY. FINAL DESIGN SHALL MEET ALL TOWN OF ROLESVILLE SPECIFICATIONS



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



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

410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**OVERALL LIGHTING PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 200'

Date: 09/08/2020

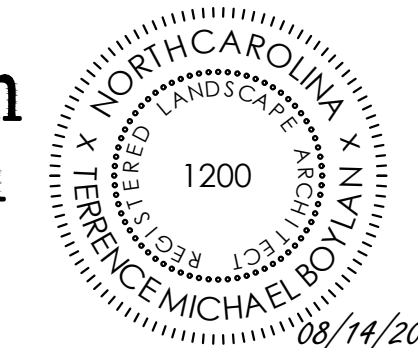
Project Number: P170347

SHEET

**C210**

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	
	REVISIONS	

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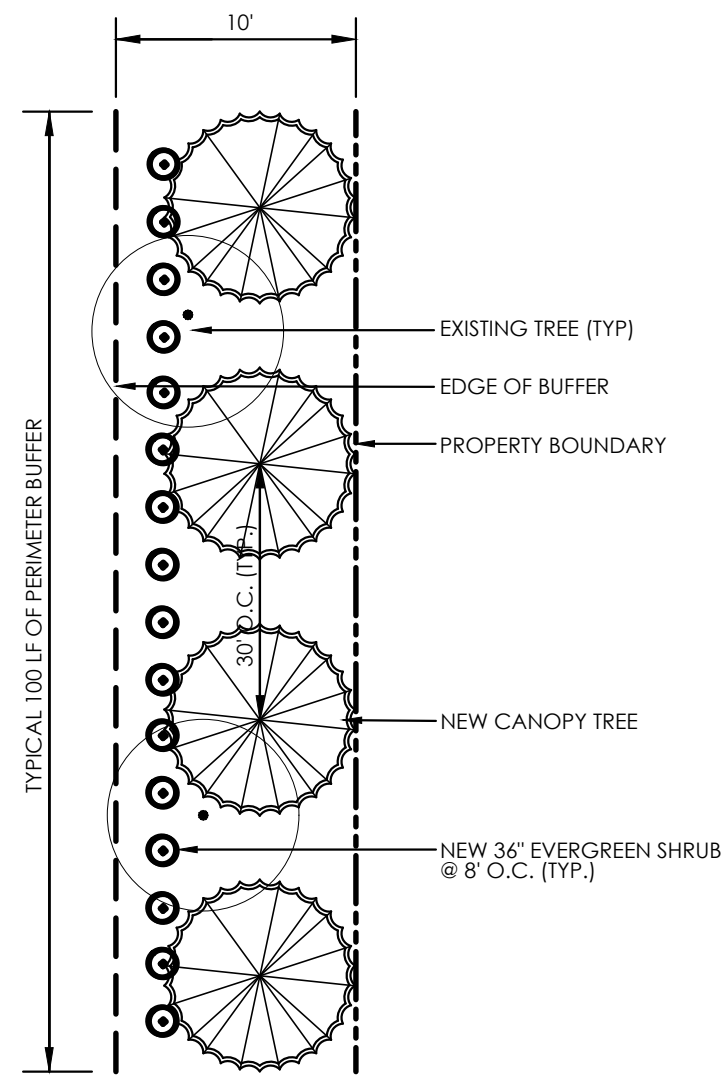


LANDSCAPE COMPLIANCE CHART  
ROLESVILLE, NC

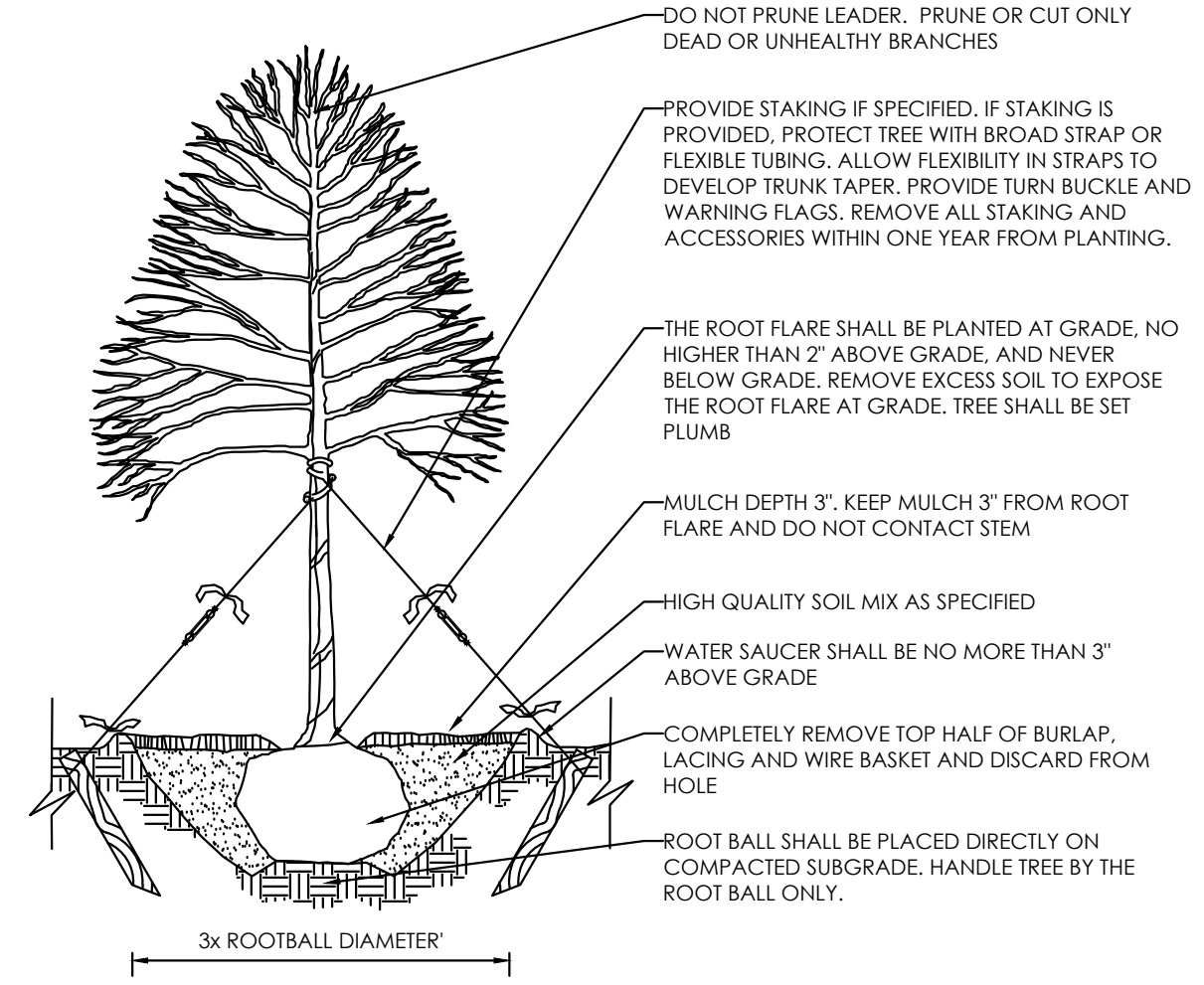
CODE SECTION	BUFFER REQUIREMENT	CALCULATIONS (REQUIRED/PROVIDED)
UDO 14.4.1 STREETSCAPE BUFFER	ONE - 2.5 CALIPER CANOPY TREE AT 40 FT O.C. ALONG LENGTH OF STREETSCAPE BUFFER	725 LF OF BUFFER REQUIRES 19 TREES. 19 TREES PROVIDED
UDO 14.6.7 SEMI-OPAQUE TYPE B PERIMETER BUFFER	THIS BUFFER SERVES AS A SEMI - OPAQUE SCREEN FROM THE GROUND UP TO A HEIGHT OF AT LEAST THREE FEET. CANOPY TREES SHALL REACH A HEIGHT OF AT LEAST 20 FEET AT MATURITY AND HAVE NO UNOBSTRUCTED OPENINGS GREATER THAN 20 FEET BETWEEN CANOPIES. THIS BUFFER MAY INCLUDE A WALL, AN EARTHEN BERM, AN OPAQUE OR SEMI- OPAQUE FENCE EXISTING OR PLANTED VEGETATION, OR ANY APPROPRIATE COMBINATION OF THESE ELEMENTS TO ACHIEVE THE DESIRED OPACITY. AT LEAST 50 PERCENT OF THE REQUIRED SHRUBS MUST BE OF THE EVERGREEN SPECIES. SHRUBBERY IS TO BE PLANTED SUFFICIENTLY CLOSE TOGETHER TO FORM AN OPAQUE SCREEN WITHIN THREE YEARS AFTER PLANTING.	706 LF OF BUFFER REQUIRES 24 TREES AND 118 SHRUBS. 24 TREES AT 30' O.C. AND 120 SHRUBS AT 6' O.C. PROVIDED

PLANTING NOTES

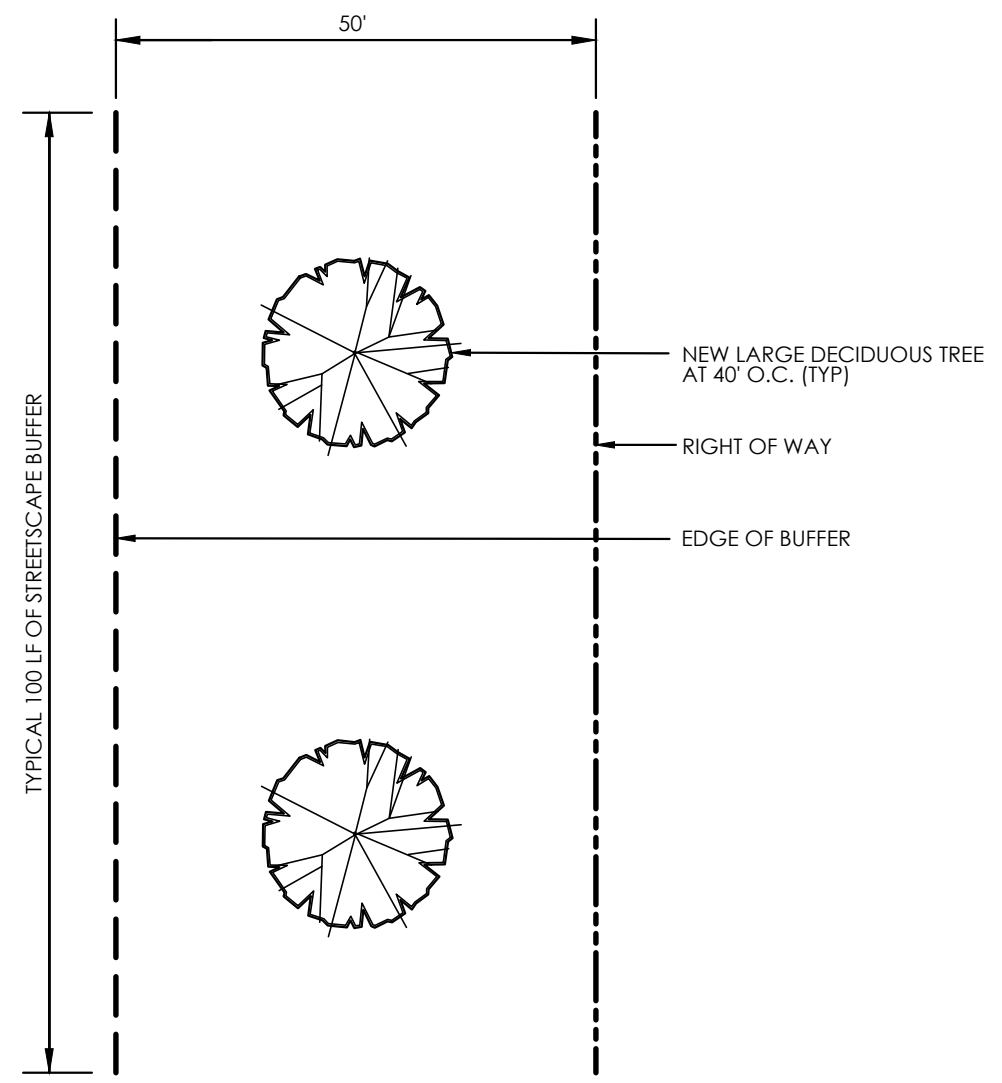
- ALL TECHNICAL SPECIFICATIONS AND GENERAL CONDITIONS APPLY. ALL GENERAL NOTES AND GENERAL CONSTRUCTION NOTES APPLY.
- ALL PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, AND FREE OF PESTS AND DISEASE.
- ALL PLANT MATERIAL SHALL BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED IN THE PLANT LIST.
- ALL TREES SHALL HAVE A STRAIGHT TRUNK AND FULL HEAD AND MEET ALL REQUIREMENTS SPECIFIED.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR 1) TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA 2) TO PROTECT OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD 3) TO REPAIR ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING PER SPECIFICATIONS TO MAINTAIN HEALTHY PLANT CONDITIONS.
- THE CONTRACTOR SHALL COMPLETELY GUARANTEE AND BE RESPONSIBLE FOR FULLY MAINTAINING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) ALL OF THE PLANT MATERIALS FOR A ONE YEAR GROWING PERIOD.
- ANY PLANT MATERIAL WHICH IS DISEASED, DISTRESSED, DEAD, OR REJECTED (PRIOR TO SUBSTANTIAL COMPLETION) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS.
- ALL PLANT MATERIALS SHALL MEET THE MINIMUM CONTAINER SIZE, CLASS AND OTHER REQUIREMENTS OUTLINED IN THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. PLANTS SHALL HAVE NORMAL WELL-DEVELOPED BRANCHES AND VIGOROUS ROOT SYSTEMS.
- WHERE SHOWN ON THE PLANS AND DETAILS, PLANTING BEDS ARE TO BE COMPLETELY COVERED WITH A MINIMUM 3" DEPTH OF TRIPLE SHRED HARDWOOD MULCH PRIOR TO THE END OF EACH WORKING DAY. THE CONTRACTOR SHALL PROPERLY BACKFILL ALL PLANT MATERIAL THAT HAS BEEN PLACED IN PREPARED HOLES; AND PROPERLY WATER AND MULCH ALL PREPARED GROUND COVER, PERENNIAL AND ANNUAL BEDS.
- ALL TREES AND SHRUBS SHALL BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
- ALL ROOT BALLS REMOVED FROM CONTAINERS SHALL BE SCARIFIED BY HAND PRIOR TO PLACEMENT AND BACK FILLING WITH PREPARED SOILS. HAND TOOLS ARE NOT TO BE USED TO SCARIFY ROOT BALLS.
- ALL ROPE AND WRAPPING TWINE SHALL BE CUT AND REMOVED FROM AROUND THE UPPER PARTS OF THE ROOT BALL. METAL BASKET WIRES AND BURLAP SHALL BE PULLED BACK AND TUCKED UNDER THE EDGES OF THE SAUCER RINGS ON ALL TREES AND LARGE SHRUBS. ALL SYNTHETIC BURLAP SHALL BE REMOVED FROM PLANT BALLS PRIOR TO BACKFILLING.
- ALL PLANTING AREAS SHALL BE EDGED WITH SMOOTH, CONTINUOUS CURVES. PINE STRAW MULCH, IF SPECIFIED, SHALL BE ROLLED AND TUCKED ALONG PLANT BED EDGE.
- ALL PLANT MATERIAL SHALL BE PLANTED AT HEIGHTS AS ILLUSTRATED IN THE PLANTING DETAILS & PLANT LIST.
- TREE STAKING AND GUYING, IF NECESSARY, SHALL BE PERFORMED WITHIN A WEEK OF PLANTING. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TREE STAKING MATERIAL AFTER THE FIRST FULL GROWING SEASON OR ONE YEAR, WHICHEVER COMES FIRST.
- THE SPACING AND PLACEMENT OF PLANTS SHALL BE ADEQUATE AND APPROPRIATE FOR THE TYPE, SIZE, SHAPE AND HABIT OF THE PLANT SPECIES AT MATURITY. MEASUREMENTS FOR SPACING REQUIREMENTS SHALL BE TAKEN FROM THE TRUNK, STEM OR SIMILAR CENTER OF THE PLANT MATERIAL.



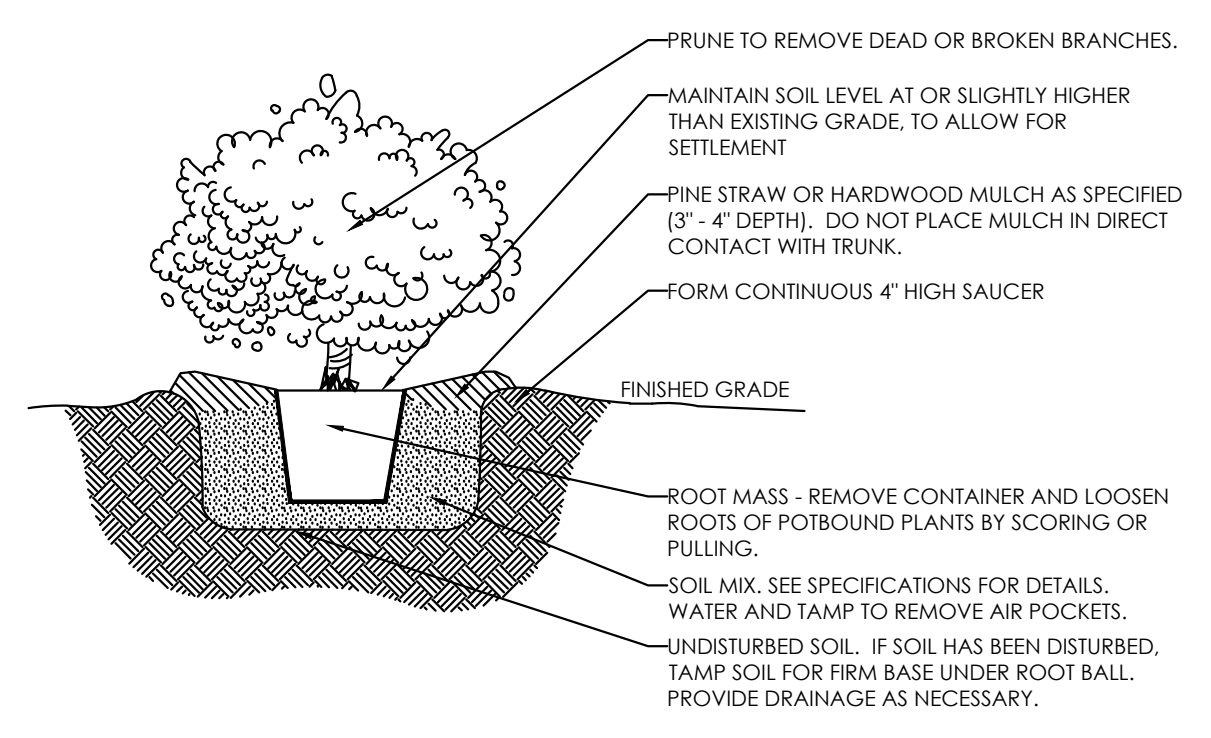
10'W TYPE B SEMI-OPAQUE PERIMETER BUFFER  
NTS (BUFFER TO BE LOCATED BEHIND LOTS 60 THRU 67)



DECIDUOUS TREE PLANTING  
NOT TO SCALE



TYPE C - 50'W STREETSCAPE BUFFER  
NTS (BUFFER LOCATED ALONG WEST YOUNG STREET)



SHRUB PLANTING  
NOT TO SCALE

- NOTES:
- ALL TECHNICAL SPECIFICATIONS AND GENERAL CONDITIONS APPLY.
  - REMOVE ALL TAGS, TWINE OR OTHER NON-BIODEGRADABLE MATERIALS ATTACHED TO PLANT OR ROOT MASS.

LANDSCAPE SCHEDULE							
KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	CONT.	SIZE	REMARKS
<b>CANOPY TREES</b>							
NSGG	12	<i>Nyssa sylvatica</i> 'Green Gable'	Black Gum	2.0" CAL	B+B	8-10' HT	PERIMETER BUFFER
QJLY	19	<i>Quercus lyrata</i> 'Highbeam'	'Highbeam' Overcup Oak	2.5" CAL	B+B	12-14' HT	STREETSCAPE BUFFER
TCGS	12	<i>Tilia cordata</i> 'Greenspire'	Littleleaf Linden	2.0" CAL	B+B	8-10' HT	PERIMETER BUFFER
<b>SUBTOTAL:</b>							
<b>SHRUBS</b>							
ILBN	40	<i>Ilex cornuta</i> 'Burfordi nana'	Dwarf Burford Holly	N/A	5-7 GAL	24" HT	PERIMETER BUFFER
LJJA	40	<i>Ligustrum japonicum</i> 'Texanum'	Waxleaf Ligustrum	N/A	5-7 GAL	24" HT	PERIMETER BUFFER
MYCE	40	<i>Myrica cerifera</i>	Wax Myrtle	N/A	5-7 GAL	24" HT	PERIMETER BUFFER
<b>SUBTOTAL:</b>							

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CHANDLER'S RIDGE  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

LANDSCAPING DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 200'
Date:	09/08/2020
Project Number:	P170347

SHEET  
C220

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

LEGEND:

- EXISTING CONTOUR
PROPOSED CONTOUR
TEMPORARY DIVERSION DITCH
SILT FENCE
TREE PROTECTION FENCE
TEMPORARY CONSTRUCTION ENTRANCE
SILT FENCE OUTLET
CHECK DAM
INLET PROTECTION
ROLLED EROSION CONTROL BLANKET

ADMIXTURES
AGRICULTURAL LIMESTONE: 2 TONS/ACRE
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 GALS/ACRE

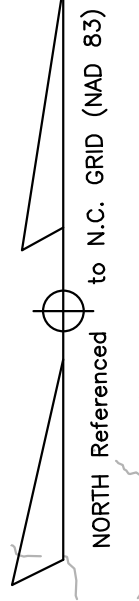
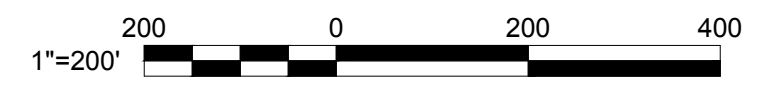
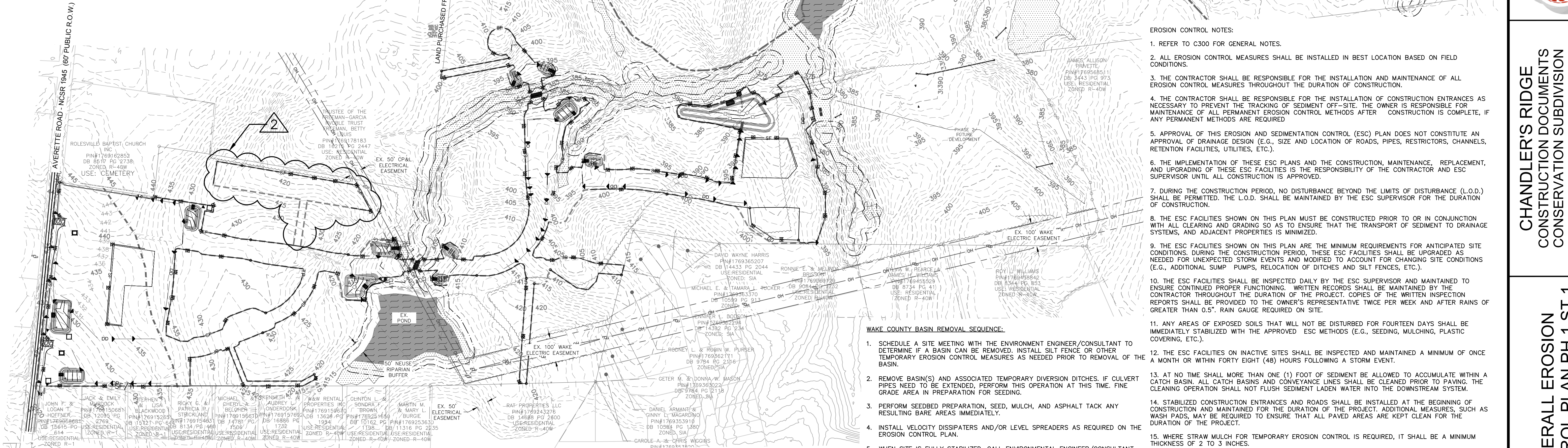


Table with 2 columns: PHASE and ADDITIONAL DISTURBED AREA. Rows for PHASE 1, PHASE 2, and TOTAL.



- EROSION CONTROL NOTES:
1. REFER TO C300 FOR GENERAL NOTES.
2. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN BEST LOCATION BASED ON FIELD CONDITIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
... (Notes 4-12) ...

- WAKE COUNTY BASIN REMOVAL SEQUENCE:
1. SCHEDULE A SITE MEETING WITH THE ENVIRONMENT ENGINEER/CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED.
2. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES.
... (Steps 3-7) ...

- STOCKPILE MAINTENANCE NOTES:
1. SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS.
2. IF A STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE...
3. THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGES SEEDING AND MULCHING ON A CONTINUAL BASIS...
4. ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

- TREE PROTECTION NOTES:
1. TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT.
2. TREE PROTECTION FENCING SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH...
3. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE...
4. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED TREE AREA.
5. TREE PROTECTION AREA: EQUALS ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER OF EXISTING TREES...

- SEEDBED PREPARATION:
1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONED, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
... (Steps 4-10) ...

- TEMPORARY SEEDBED PREPARATION:
1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO SIX INCHES DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
... (Steps 4-7) ...



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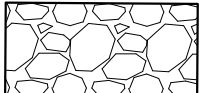
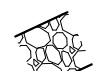





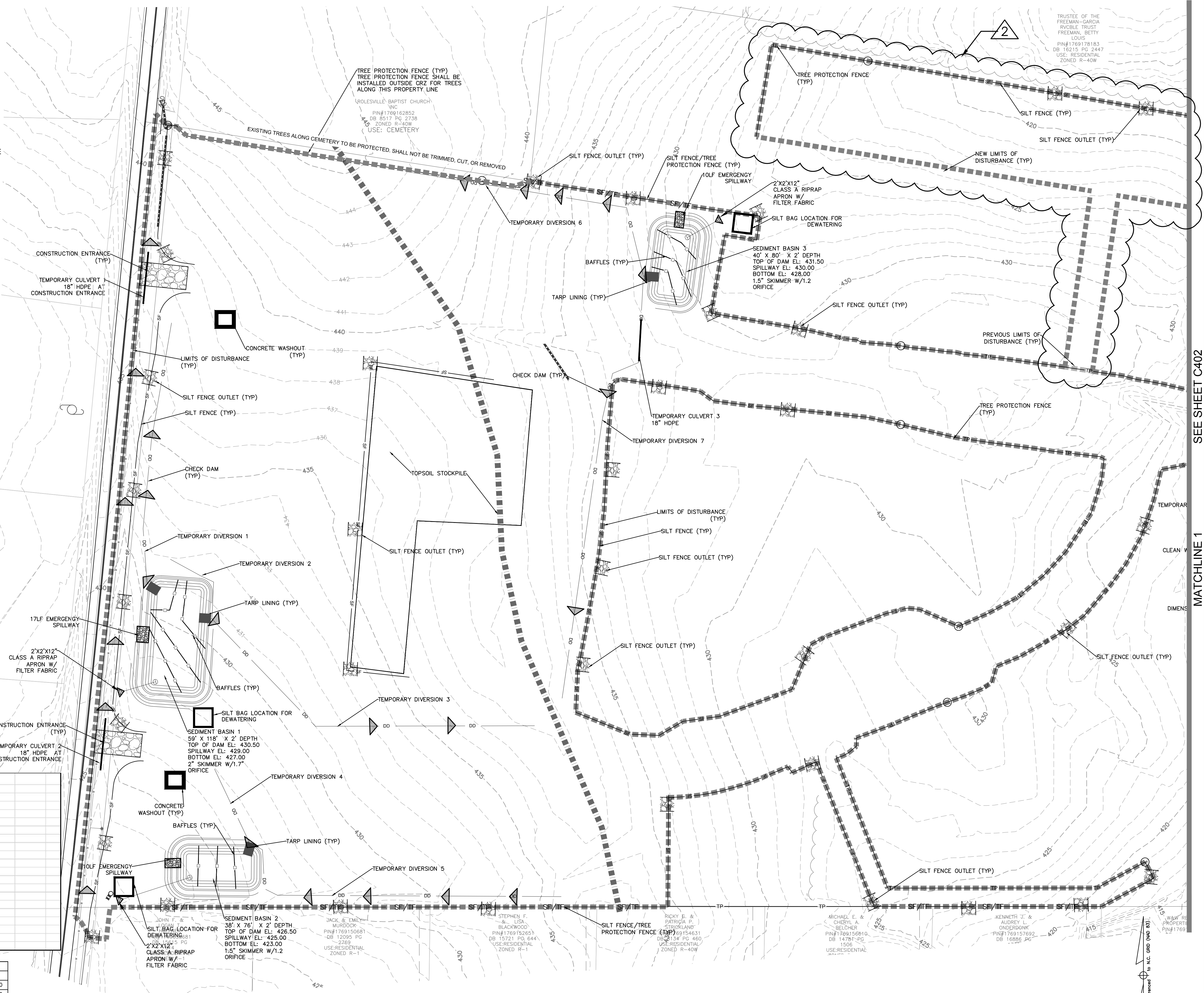
CHANDLER'S RIDGE
CONSTRUCTION DOCUMENTS
CONSERVATION SUBDIVISION
410 W. YOUNG ST.
ROLESVILLE, NC
WAKE COUNTY

OVERALL EROSION
CONTROL PLAN PH 1 ST 1

Table with project details: Project Engineer: TSS, Designed By: TEP, Drawn By: TEP, Checked By: TSS, Scale: 1" = 200', Date: 09/08/2020, Project Number: P170347, SHEET C400

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET

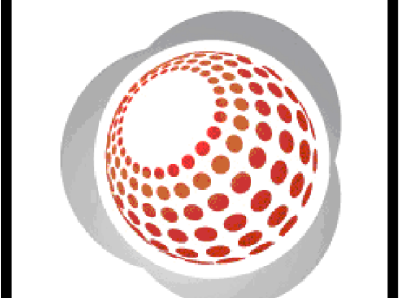


Outlet Protection	
Structure= Skimmer Basins	Q10/Qfull = 0.06
Size= 6 in	V/Vfull = 0.52
Q10 = 0.04 cfs	V = 1.5 fps
Qfull = 0.56 cfs	
Vfull = 2.85 fps	
From Fig. 8.06 b.1:	Zone = 1
From Fig. 8.06 b.2:	
D50	= 4 in
DMAX	= 6 in
Riprap Class	= A
Apron Thickness	= 12 in
Apron Length	= 2.0 ft
Apron Width = 3 x Dia	= 2.0 ft
Width at End = Width x Length	= 4.0 ft

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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	DESCRIPTION	
	REVISIONS	



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

**EROSION CONTROL**  
 PLAN PH 1 ST 1

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'  
 Date: 09/08/2020  
 Project Number: P170347

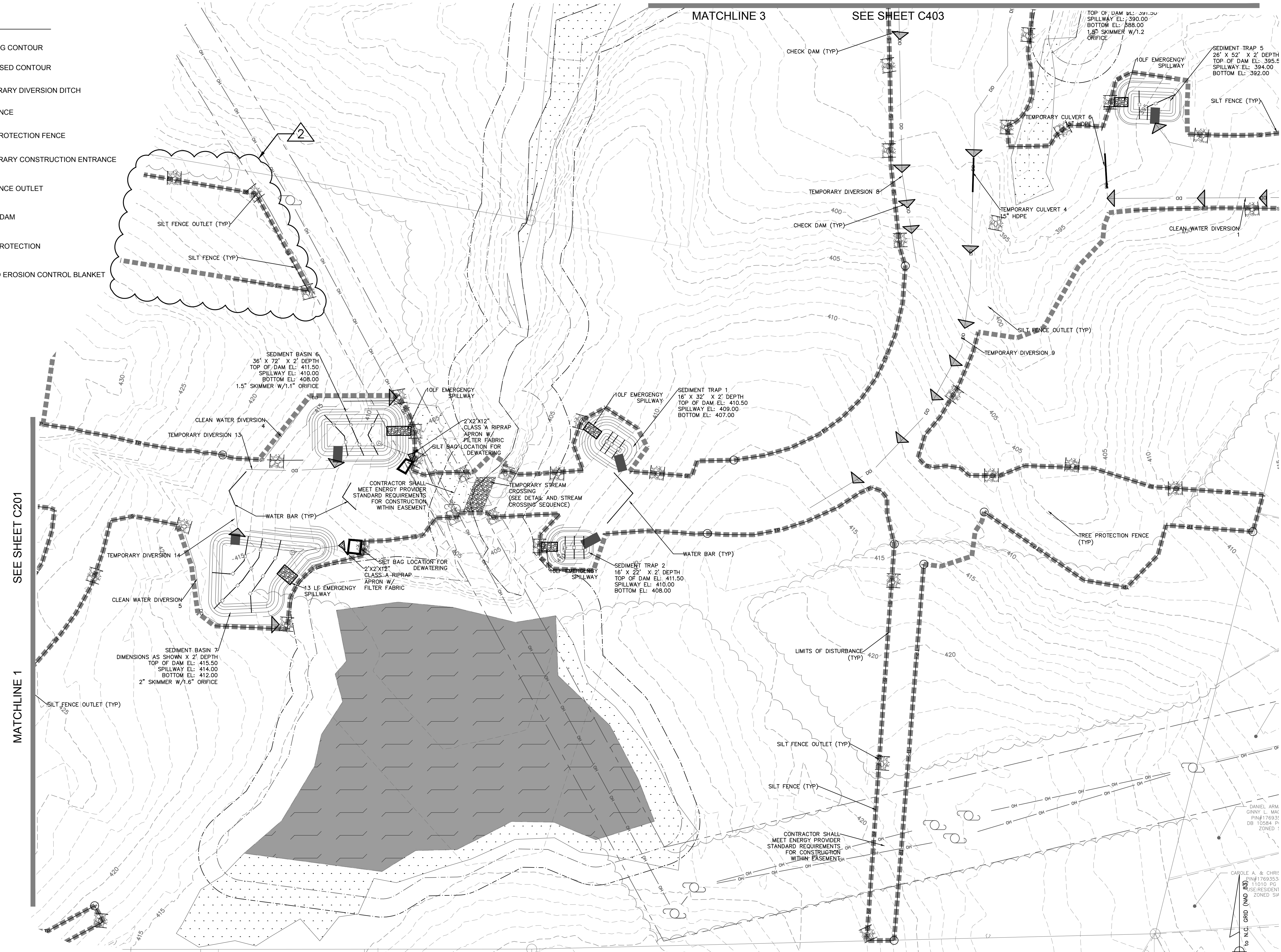
SHEET  
**C401**



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**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DD --- TEMPORARY DIVERSION DITCH
- SF --- SILT FENCE
- TF --- TREE PROTECTION FENCE
- [Symbol] TEMPORARY CONSTRUCTION ENTRANCE
- [Symbol] SILT FENCE OUTLET
- [Symbol] CHECK DAM
- [Symbol] INLET PROTECTION
- [Symbol] ROLLED EROSION CONTROL BLANKET



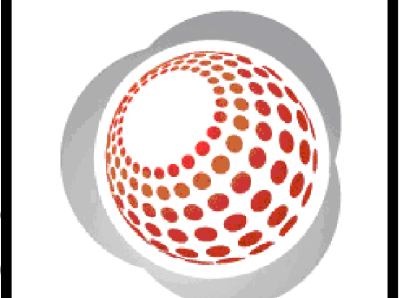
MATCHLINE 1 SEE SHEET C201

MATCHLINE 3 SEE SHEET C403

MATCHLINE 2 SEE SHEET C404



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**CHANDLER'S RIDGE**  
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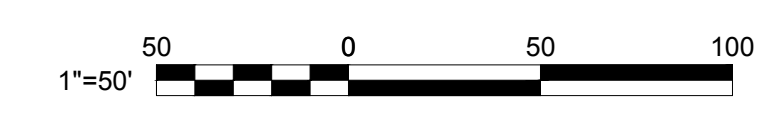
**EROSION CONTROL**  
 PLAN PH 1 ST 1

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C402**

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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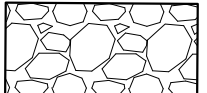
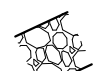





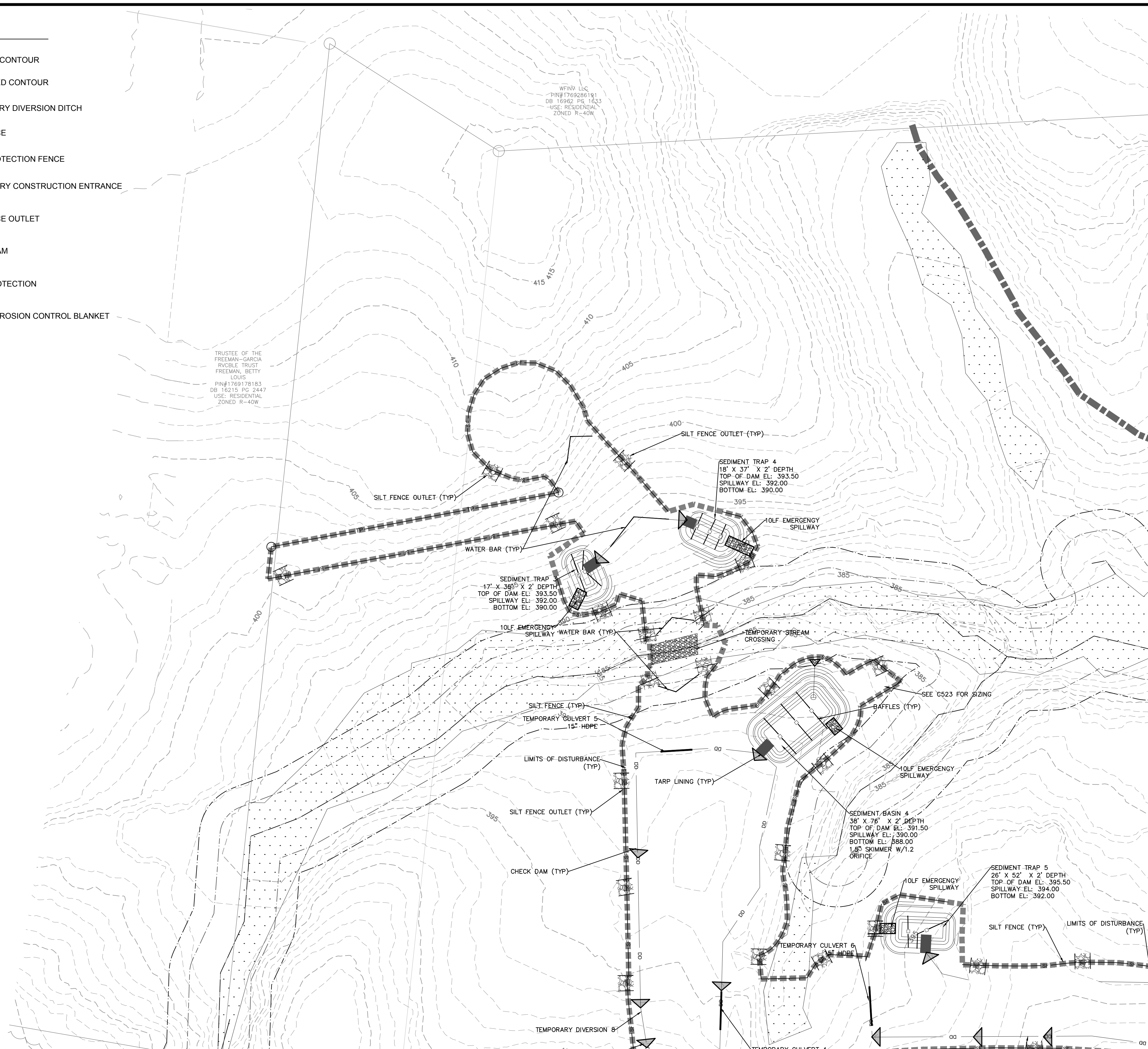
NORTH Referenced to N.C. GRID (NAD 83)

RAT PROPERTIES, LLC

DANIEL ARM  
 GINNY L. MAE  
 PIN# 1769353  
 DB 10384 PI  
 ZONED :

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
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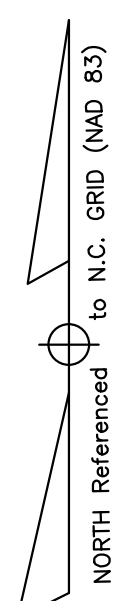
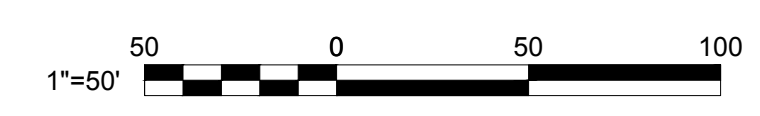


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MATCHLINE 2 SEE SHEET C404

MATCHLINE 3 SEE SHEET C402



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**CHANDLER'S RIDGE**  
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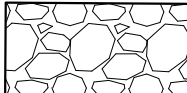
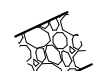



**EROSION CONTROL**  
 PLAN PH 1 ST 1

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C403**

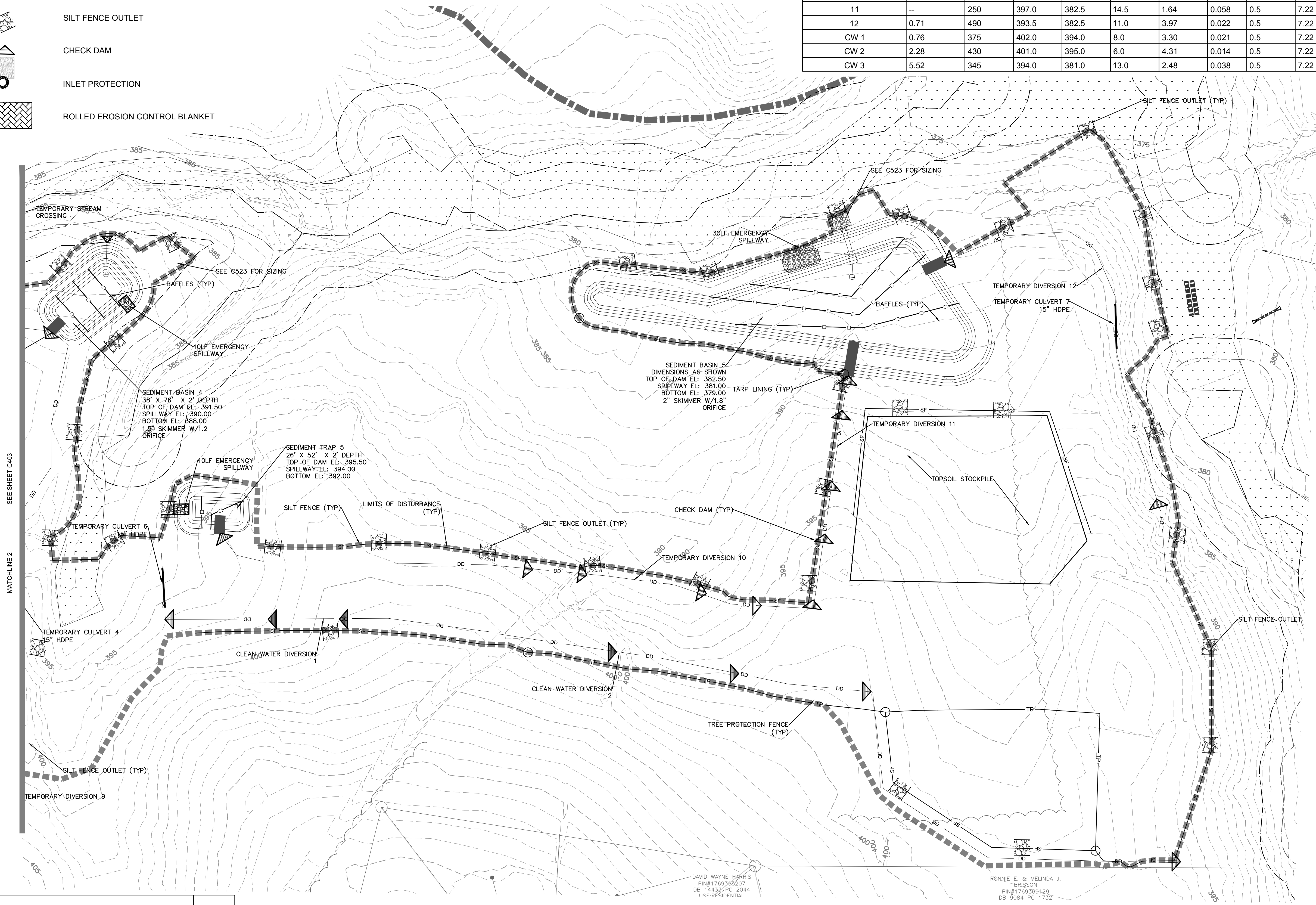


**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET

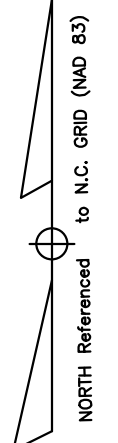
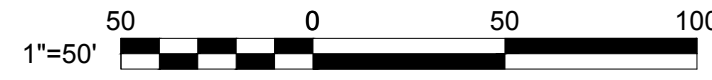
Temporary Culvert						
ID	Length (ft)	Slope (ft/ft)	Diameter (in)	Drainage Area (ac)	Intensity (in/hr)	Q2 (cfs)
1	56	0.010	15	0.79	5.64	2.23
2	56	0.010	18	1.74	5.64	4.90
3	45	0.010	18	1.28	5.64	3.61
4	40	0.010	15	1.05	5.64	2.96
5	40	0.010	15	0.45	5.64	1.27
6	40	0.010	15	0.76	5.64	2.14
7	45	0.010	15	0.71	5.64	2.00

DIVERSION DITCH LINER SUMMARY - Chandler's Ridge													
Temporary Diversion #	Total Area (ac)	Total Length	Begin Elevation	End Elevation	Δ Elevation	Tc	Slope	C	Intensity	Q	Depth	Shear	Liner
<b>Phase 1 Stage 1 Diversions</b>													
1	0.70	300	436.5	430.5	6.0	2.85	0.020	0.5	7.22	2.54	0.45	0.56	Straw w/ Net
2	0.53	100	431.0	430.5	0.5	2.08	0.005	0.5	7.22	1.91	0.53	0.17	Straw w/ Net
3	2.83	410	438.0	430.5	7.5	3.75	0.018	0.5	7.22	10.23	0.78	0.89	Straw w/ Net
4	0.53	100	427.0	426.5	0.5	2.08	0.005	0.5	7.22	1.92	0.53	0.17	Straw w/ Net
5	1.00	380	436.0	426.5	9.5	3.13	0.025	0.5	7.22	3.62	0.19	0.30	Straw w/ Net
6	0.52	332	444.0	431.5	12.5	2.41	0.038	0.5	7.22	1.89	0.36	0.85	Straw w/ Net
7	1.28	490	437.5	431.5	6.0	5.02	0.012	0.5	7.22	4.62	0.62	0.47	Straw w/ Net
8	0.45	470	403.0	391.5	11.5	3.72	0.024	0.5	7.22	1.64	0.37	0.56	Straw w/ Net
9	1.05	710	416.0	391.5	24.5	4.48	0.035	0.5	7.22	3.80	0.48	1.03	Straw w/ Net
10	0.75	404	399.0	397.0	2.0	6.13	0.005	0.5	7.22	2.70	0.60	0.19	Straw w/ Net
11	--	250	397.0	382.5	14.5	1.64	0.058	0.5	7.22	2.70	0.38	1.38	Straw w/ Net
12	0.71	490	393.5	382.5	11.0	3.97	0.022	0.5	7.22	2.70	0.46	0.64	Straw w/ Net
CW 1	0.76	375	402.0	394.0	8.0	3.30	0.021	0.5	7.22	2.76	0.46	0.61	Straw w/ Net
CW 2	2.28	430	401.0	395.0	6.0	4.31	0.014	0.5	7.22	8.22	0.75	0.65	Straw w/ Net
CW 3	5.52	345	394.0	381.0	13.0	2.48	0.038	0.5	7.22	19.93	0.87	2.05	SC250



DAVID WAYNE HARRIS  
 PIN# 1769369507  
 DB 14433/PG 2044  
 (1769369507)P1

RONNIE E. & MELINDA J.  
 "BRISSON"  
 PIN# 1769369429  
 DB 9084/PG 1732



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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



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








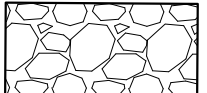




**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

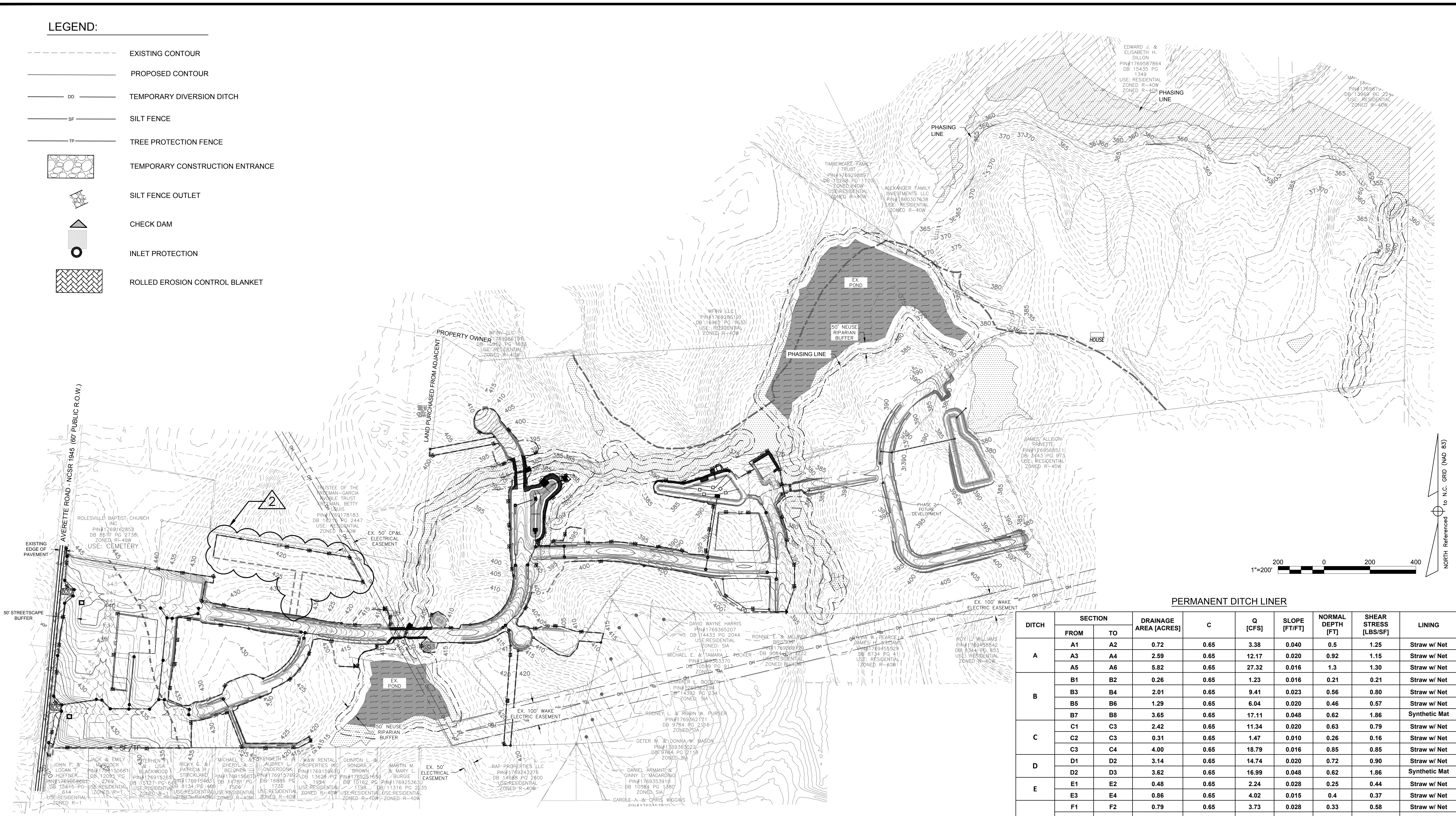
**EROSION CONTROL**  
 PLAN PH 1 ST 1

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C404**

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



PERMANENT DITCH LINER

DITCH	SECTION		DRAINAGE AREA (ACRES)	C	Q [CFS]	SLOPE [FT/FT]	NORMAL DEPTH [FT]	SHEAR STRESS [LBS/SF]	LINING
	FROM	TO							
A	A1	A2	0.72	0.65	3.38	0.040	0.5	1.25	Straw w/ Net
	A3	A4	2.59	0.65	12.17	0.020	0.92	1.15	Straw w/ Net
	A5	A6	5.82	0.65	27.32	0.016	1.3	1.30	Straw w/ Net
B	B1	B2	0.26	0.65	1.23	0.016	0.21	0.21	Straw w/ Net
	B3	B4	2.01	0.65	9.41	0.023	0.56	0.80	Straw w/ Net
	B5	B6	1.29	0.65	6.04	0.020	0.46	0.57	Straw w/ Net
C	B7	B8	3.65	0.65	17.11	0.048	0.62	1.86	Synthetic Mat
	C1	C3	2.42	0.65	11.34	0.020	0.63	0.79	Straw w/ Net
	C2	C3	0.31	0.65	1.47	0.010	0.26	0.16	Straw w/ Net
D	C3	C4	4.00	0.65	18.79	0.016	0.85	0.85	Straw w/ Net
	D1	D2	3.14	0.65	14.74	0.020	0.72	0.90	Straw w/ Net
	D2	D3	3.62	0.65	16.99	0.048	0.62	1.86	Synthetic Mat
E	E1	E2	0.48	0.65	2.24	0.028	0.25	0.44	Straw w/ Net
	E3	E4	0.86	0.65	4.02	0.015	0.4	0.37	Straw w/ Net
	F1	F2	0.79	0.65	3.73	0.028	0.33	0.58	Straw w/ Net
F	F4	F3	0.42	0.65	1.99	0.016	0.27	0.27	Straw w/ Net
	F5	F6	1.70	0.65	7.97	0.037	0.46	1.06	Straw w/ Net
	F7	F8	2.14	0.65	10.04	0.012	0.68	0.51	Straw w/ Net
	F9	F8	0.68	0.65	3.21	0.014	0.36	0.31	Straw w/ Net
	F9	F10	1.25	0.65	5.87	0.028	0.42	0.73	Straw w/ Net
	F11	F10	0.46	0.65	2.17	0.011	0.32	0.22	Straw w/ Net
	F11	F12	0.35	0.65	1.66	0.014	0.25	0.22	Straw w/ Net
G	F14	F13	0.44	0.65	2.06	0.021	0.26	0.34	Straw w/ Net
	F15	F16	1.21	0.65	5.69	0.022	0.44	0.60	Straw w/ Net
	F17	F18	1.63	0.65	7.66	0.010	0.62	0.39	Straw w/ Net
	G1	G2	0.23	0.65	1.07	0.014	0.2	0.17	Straw w/ Net
G	G1	G3	0.46	0.65	2.15	0.028	0.24	0.42	Straw w/ Net
	G4	G3	0.19	0.65	0.90	0.011	0.2	0.14	Straw w/ Net

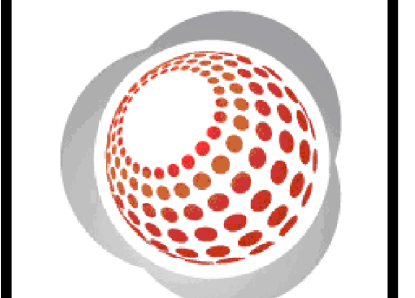
**STREAM CROSSING CONSTRUCTION SEQUENCE:**

1. KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTIONS TO A MINIMUM.
2. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM. LINE UNSTABLE STREAM BANKS WITH RIPRAP OR OTHERWISE APPROPRIATELY STABILIZE THEM.
3. CONSTRUCTION OF STREAM CULVERT SHALL BE COMPLETED IN 48 HOURS OF DRY WEATHER.
4. ENSURE BYPASS CHANNELS, IF USING TO DEWATER THE CROSSING SITE, ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT AND STABILIZE THE BYPASS CHANNEL APPROPRIATELY. PUMP AROUND MAY BE USED INSTEAD OF BYPASS CHANNEL AND MUST BE IN PLACE AS SHOWN IN DETAIL PRIOR TO DEWATERING THE CROSSING SITE.
5. PLACE FILL AND INSTALL PROTECTIVE COVER TO PROVIDE PERMANENT EROSION PROTECTION.
6. ENSURE THAT PERMANENT MEASURES NEEDED TO CONTROL EROSION FROM ROAD WATER RUNOFF MEET ALL CONSTRUCTION REQUIREMENTS FOR THOSE PRACTICES.
7. INSPECT STREAM CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIPRAP DISPLACEMENT, SLOPE FAILURE AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY.

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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REV	DESCRIPTION	DATE
	REVISIONS	



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








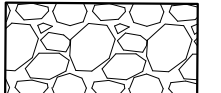
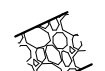



**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

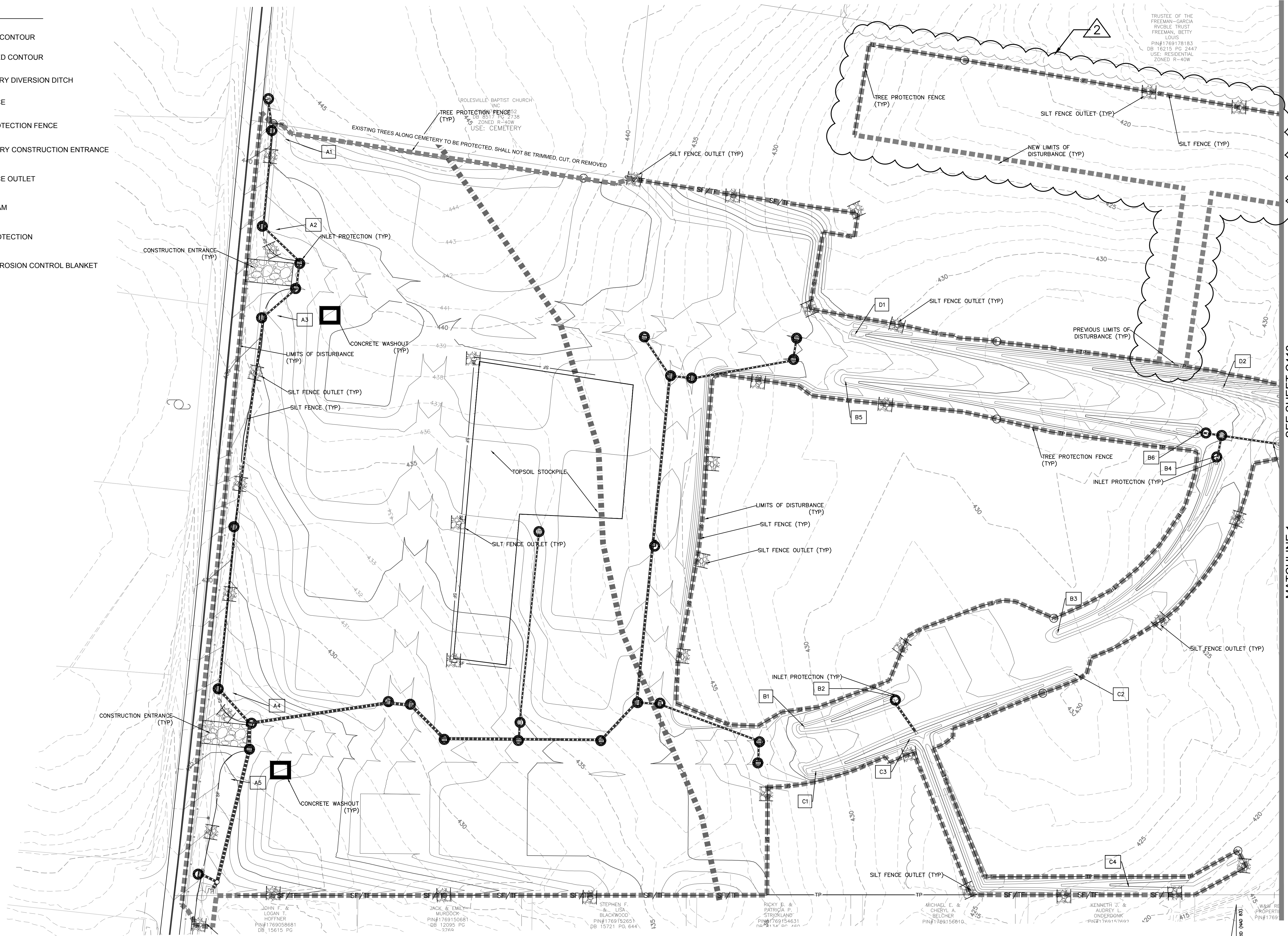
**OVERALL EROSION**  
 CONTROL PLAN PH 1 ST 2

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 200'  
 Date: 09/08/2020

Project Number: P170347  
 SHEET  
**C410**

**LEGEND:**

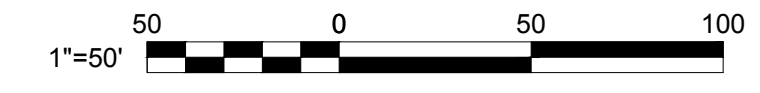
-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



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REV	DESCRIPTION	DATE
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

JOHN F. & LOGAN T. HOFFNER PIN#1769058681 DB 15615 PG 2  
 JACK & EMIL MURDOCK PIN#1769150681 DB 12095 PG 22/26  
 STEPHEN F. & LISA BLACKWOOD PIN#1769152651 DB 15721 PG 644  
 RICKY B. & PATRICIA P. STROCKLAND PIN#1769154631 DB 1114 PG 269  
 MICHAEL E. & CHERYL A. BELCHER PIN#1769150610  
 KENNETH J. & AUDREY L. ONDERDONK PIN#1769176607



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 2824 Reliance Avenue, Apex, North Carolina 27539  
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 NCBELS FIRM No. C-2378








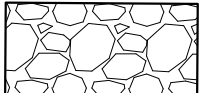
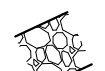



**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

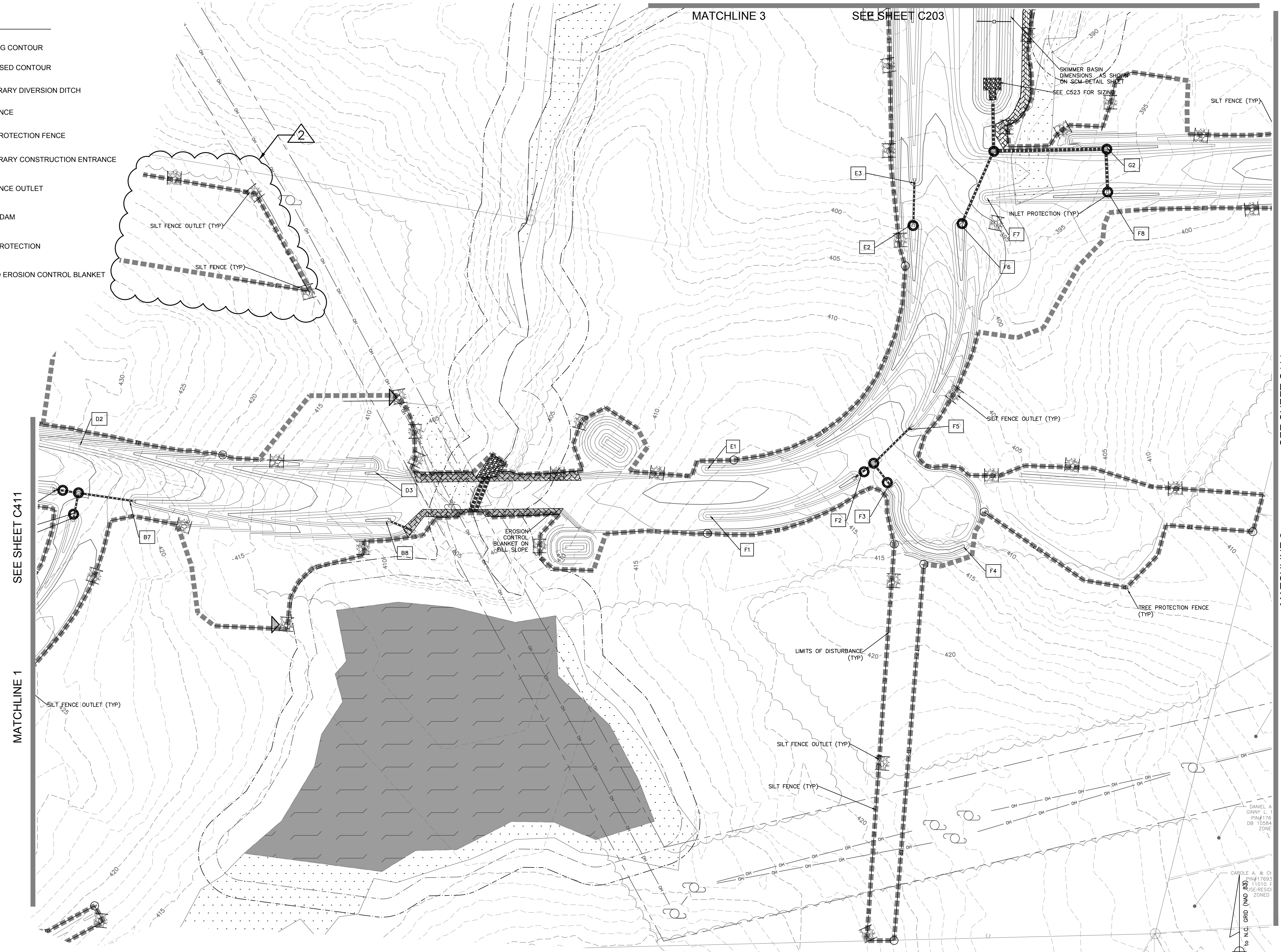
**EROSION CONTROL**  
 PLAN PH 1 ST 2

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C411</b>	

MATCHLINE 1 SEE SHEET C412

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



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	REVISIONS	



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 NCBELS FIRW No. C-2378



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

410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**EROSION CONTROL**  
 PLAN PH 1 ST 2

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C412**

MATCHLINE 1 SEE SHEET C411

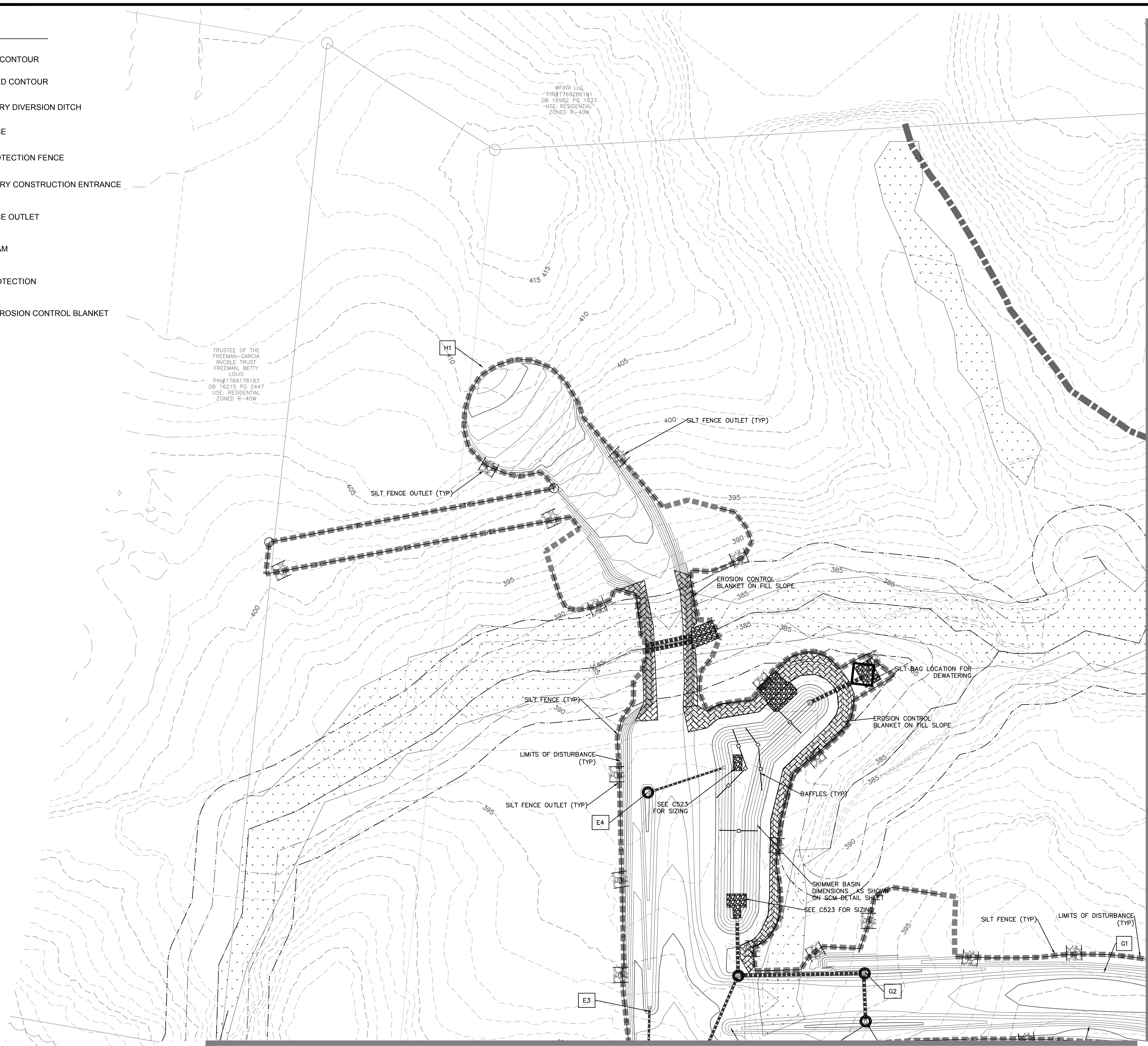
MATCHLINE 2 SEE SHEET C414

BAT PROPERTIES, LLC  
 1. PIN#1769243276  
 2. PIN#100192800

NORTH Referenced to N.C. GRID (NAD 83)

**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DD — TEMPORARY DIVERSION DITCH
- SF — SILT FENCE
- TP — TREE PROTECTION FENCE
- [Pattern] TEMPORARY CONSTRUCTION ENTRANCE
- [Symbol] SILT FENCE OUTLET
- [Symbol] CHECK DAM
- [Symbol] INLET PROTECTION
- [Pattern] ROLLED EROSION CONTROL BLANKET



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	REVISIONS	



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

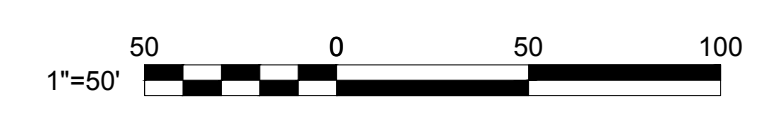
**EROSION CONTROL**  
 PLAN PH 1 ST 2

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C413**






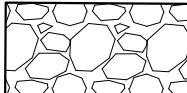
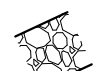



MATCHLINE 2 SEE SHEET C414

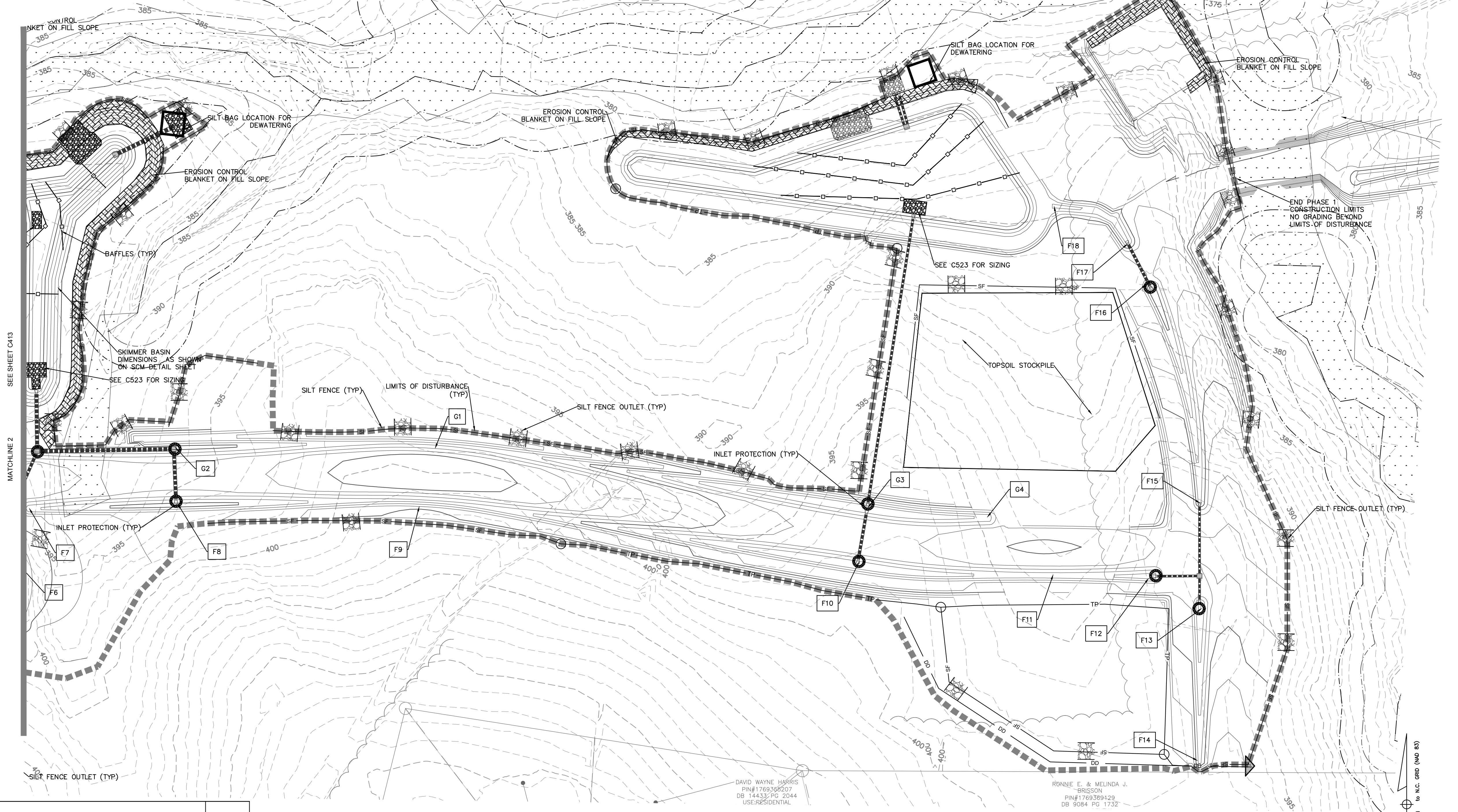
MATCHLINE 3 SEE SHEET C412



NORTH Referenced to N.C. GRID (NAD 83)

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



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REV	DESCRIPTION	DATE
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

DAVID WAYNE HARRIS  
PIN# 1769369507  
DB 14433/PG 2044  
USER:RESIDENTIAL

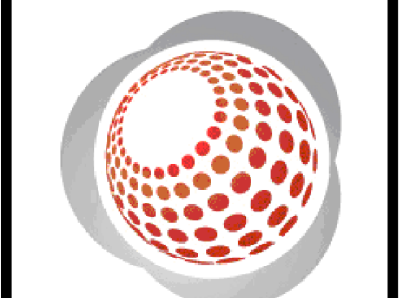
RONNIE E. & MELINDA J. "BRISSON"  
PIN# 1769369429  
DB 9084/PG 1732



NORTH Reference to A.C. GDS (NO. 83)



**Bateman Civil Survey Company**  
Engineers • Surveyors • Planners  
2824 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

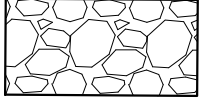



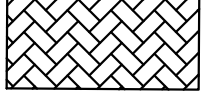
**EROSION CONTROL**  
PLAN PH 1 ST 2

Project Engineer: TSS  
Designed By: TEP  
Drawn By: TEP  
Checked By: TSS  
Scale: 1" = 50'

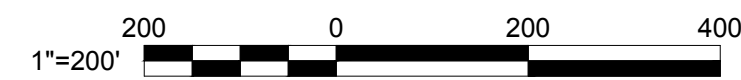
Date: 09/08/2020  
Project Number: P170347

SHEET  
**C414**

**LEGEND:**

- - - - - EXISTING CONTOUR
- PROPOSED CONTOUR
- DO ——— TEMPORARY DIVERSION DITCH
- SF ——— SILT FENCE
- TP ——— TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET

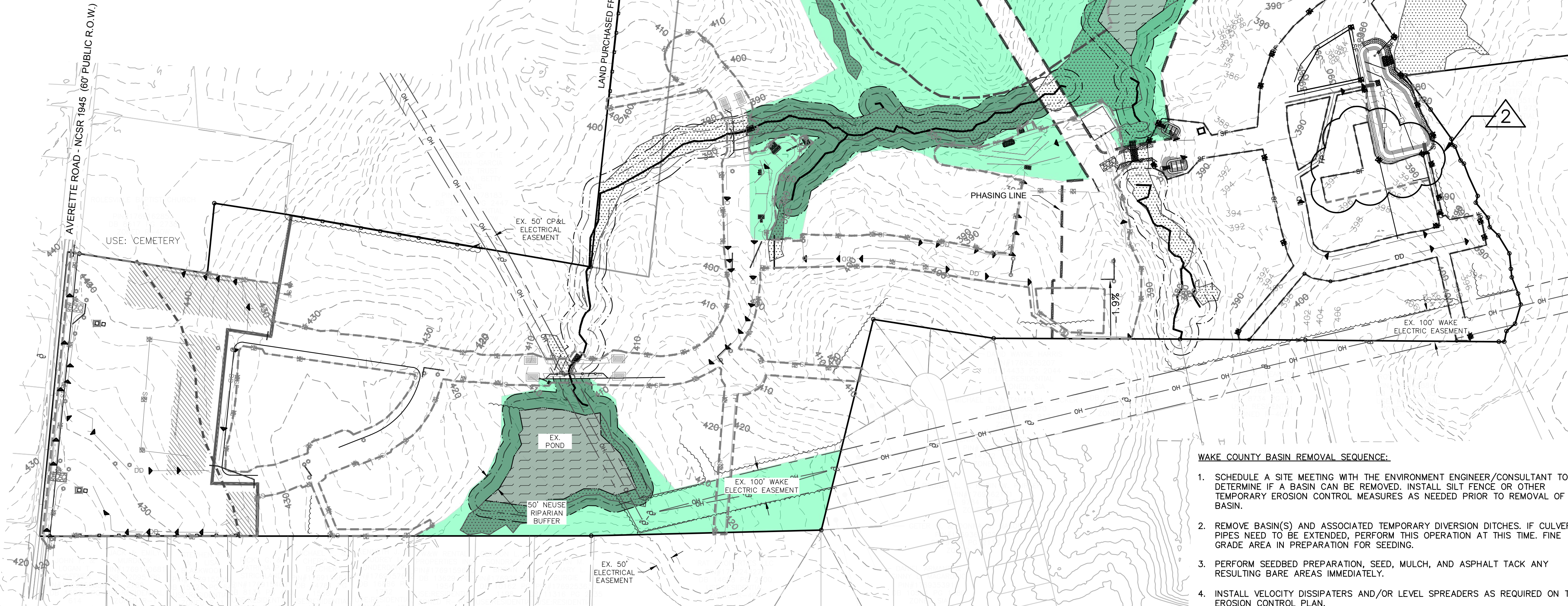
**ADMIXTURES**  
 AGRICULTURAL LIMESTONE: 2 TONS/ACRE  
 FERTILIZER: 1,000 LBS/ACRE – 10-10-10  
 SUPERPHOSPHATE: 500 LBS/ACRE – 20% ANALYSIS  
 MULCH: 2 TONS/ACRE – SMALL GRAIN STRAW  
 ANCHOR: ASPHALT EMULSION AT 300 GALS/ACRE



NORTH  
 to N.C. GRID (NAD 83)

**DISTURBED AREA SUMMARY**

		ADDITIONAL DISTURBED AREA
PHASE 1	1,108,465 SF / 25.45 AC.	71,252 SF / 1.64 AC.
PHASE 2	405,574 SF / 9.31 AC.	27,179 SF / 0.62 AC.
TOTAL	1,514,039 SF / 34.76 AC.	98,431 SF / 2.26 AC.



**STACKPILE MAINTENANCE NOTES:**

- SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEPT IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDERNEATH THE PLASTIC.
- IF A STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE (BUILDERS, ETC.), THE FINANCIALLY RESPONSIBLE PARTY MUST NOTIFY WAKE COUNTY OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
- THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGES SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE STOCKPILE IS IN USE.
- ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

**TREE PROTECTION NOTES:**

- TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT, OR OBTAIN A GRADING PERMIT THEN TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE.
- TREE PROTECTION FENCING SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ARBOLES."
- PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE ON THE TREE ROOTS OUTSIDE OF THE TREE SAVE AREA. THIS SHALL OCCUR AT THE SAME TIME THAT OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
- NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED TREE AREA.
- TREE PROTECTION AREA: EQUALS ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER OF EXISTING TREES, OR SIX FOOT RADIUS, WHICHEVER IS GREATER. NO DISTURBANCE ALLOWED WITHIN THIS AREA.

**SEEDBED PREPARATION:**

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONED, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY ALL AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, REASONABLY UNIFORM 4 TO 6 INCHES DEEP SEEDBED IS PREPARED.
- SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- SEE LANDSCAPING PLANS FOR PERMANENT SEEDING, MULCHING, AND FERTILIZING RATES. ALL AREAS NOT DESIGNATED TO RECEIVE PLANTS SHALL BE SEEDED PER THE LANDSCAPING PLANS.

**WAKE COUNTY BASIN REMOVAL SEQUENCE:**

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

**EROSION CONTROL NOTES:**

- REFER TO C300 FOR GENERAL NOTES.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN BEST LOCATION BASED ON FIELD CONDITIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONSTRUCTION ENTRANCES AS NECESSARY TO PREVENT THE TRACKING OF SEDIMENT OFF-SITE. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL PERMANENT EROSION CONTROL METHODS AFTER CONSTRUCTION IS COMPLETE, IF ANY PERMANENT METHODS ARE REQUIRED.
- APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
- THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
- DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE LIMITS OF DISTURBANCE (L.O.D.) SHALL BE PERMITTED. THE L.O.D. SHALL BE MAINTAINED BY THE ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
- THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
- THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
- THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. COPIES OF THE WRITTEN INSPECTION REPORTS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE TWICE PER WEEK AND AFTER RAINS OF GREATER THAN 0.5" RAIN GAUGE REQUIRED ON SITE.
- ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR FOURTEEN DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
- THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT (48) HOURS FOLLOWING A STORM EVENT.
- AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE A MINIMUM THICKNESS OF 2 TO 3 INCHES.
- INTERIM SLOPES MAY BE GRADED TO A MAXIMUM SLOPE OF 2:1 (HORIZONTAL: VERTICAL); CUT SLOPES SHALL BE LIMITED TO A MAXIMUM SLOPE OF 1.5:1.
- THE SURFACE OF AREAS SLOPES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL THAT ARE TO RECEIVE INTERIM FILL SHALL BE PLOWED, FURROWED, TILLED OR BROKEN UP PRIOR TO PLACING FILL SO THAT FILL MATERIAL WILL BOND WITH EXISTING SURFACE. INTERIM FILL SHALL BE PLACED AS SPECIFIED FOR PERMANENT FILLS AND IN LIFTS NOT GREATER THAN 6".
- PROVIDE DUST CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, WETTING DOWN TO CONTROL DUST ON SITE, IN ORDER TO PREVENT ANNOYANCE/AND OR DAMAGE TO ADJACENT SITES. CALCIUM CHLORIDE OR ANY OTHER CHEMICAL MATERIAL MAY NOT BE USED ON SUBGRADES OF AREAS TO BE SEEDDED OR PLANTED.
- SEDIMENT LADEN RUNOFF FROM EXCAVATIONS SHALL NOT BE PUMPED DIRECTLY TO STORM DRAINAGE.
- INSPECTOR REFERS TO LOCAL JURISDICTIONAL (NCDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
- CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
- NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCGS 48.0131 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION\\_NEW.HTM](http://www.dlr.enr.state.nc.us/PAGES/SEDIMENTATION_NEW.HTM)
- COMPLIANCE WITH THE STATE NCG01 SELF-INSPECTION PROGRAM IS REQUIRED FOR THIS SITE.



**Bateman Civil Survey Company**  
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 NCBELS FIRM No. C-2378






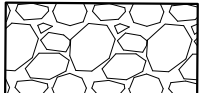






**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**OVERALL EROSION**  
 CONTROL PLAN PH 2 ST 1

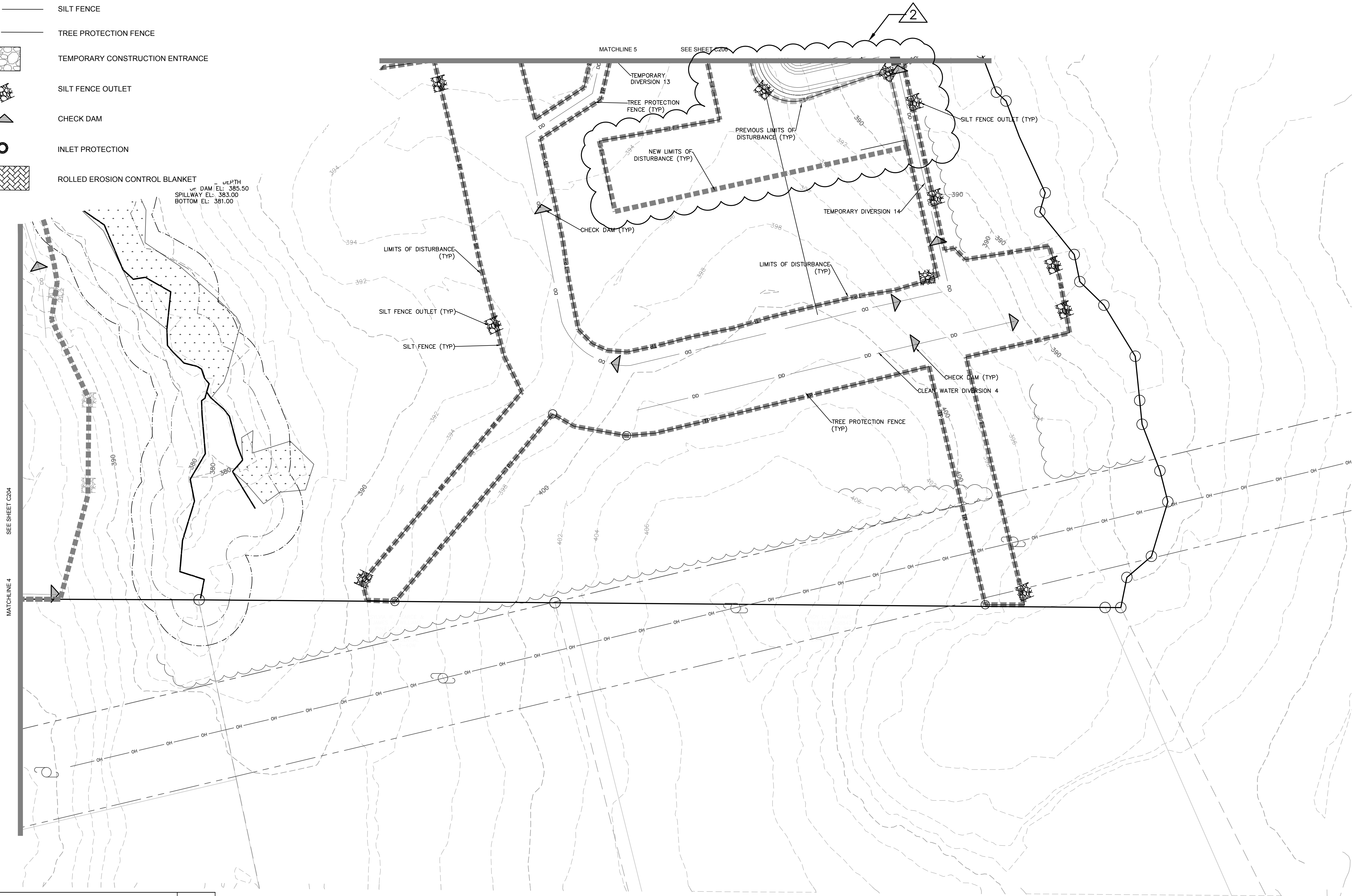
Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 200'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C420</b>	

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET

DEPTH OF DAM EL: 385.50  
 SPILLWAY EL: 383.00  
 BOTTOM EL: 381.00

DIVERSION DITCH LINER SUMMARY - Chandler's Ridge													
Temporary Diversion #	Total Area (ac)	Total Length	Begin Elevation	End Elevation	Δ Elevation	Tc	Slope	C	Intensity	Q	Depth	Shear	Liner
<b>Phase 2 Stage 1 Diversions</b>													
13	2.20	850	400.0	394.0	6.0	9.48	0.007	0.5	7.22	7.93	0.82	0.36	Straw w/ Net
14	0.98	440	400.0	394.0	6.0	4.43	0.014	0.5	7.22	3.54	0.55	0.47	Straw w/ Net
CW 5	1.02	405	402.0	391.0	11.0	3.19	0.027	0.5	7.22	3.70	0.49	0.83	Straw w/ Net



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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



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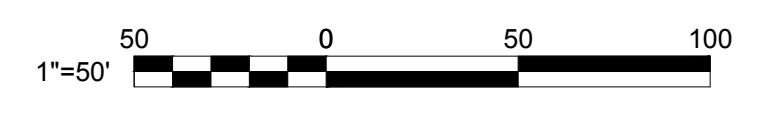


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**EROSION CONTROL**  
 PLAN PH 2 ST 1

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C422**

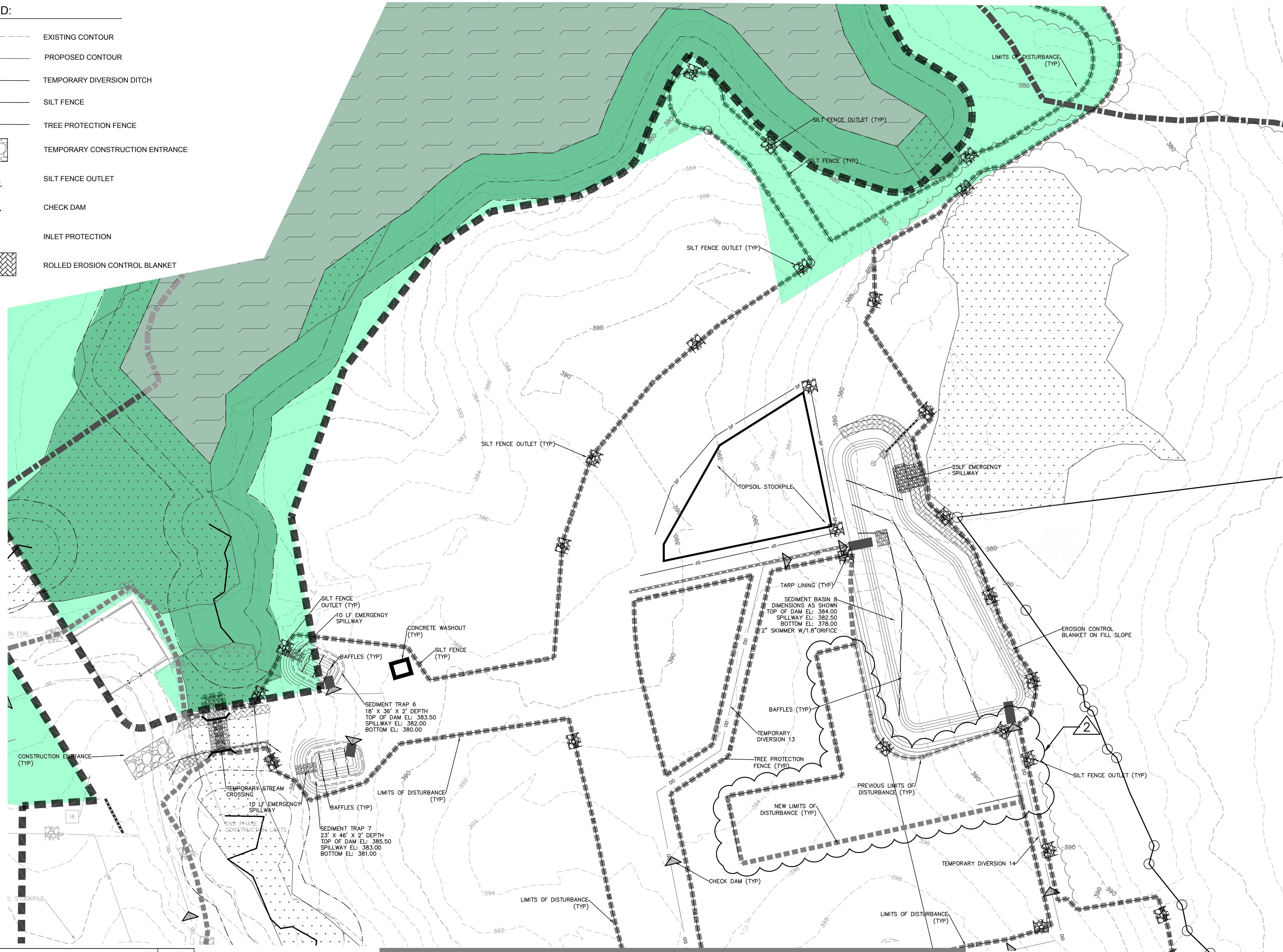


NORTH Referenced to N.C. GRID (NAD 83)



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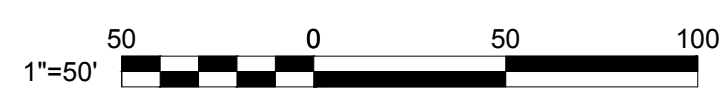
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DD — TEMPORARY DIVERSION DITCH
- SF — SILT FENCE
- TF — TREE PROTECTION FENCE
- [Pattern] TEMPORARY CONSTRUCTION ENTRANCE
- [Symbol] SILT FENCE OUTLET
- [Symbol] CHECK DAM
- [Symbol] INLET PROTECTION
- [Pattern] ROLLED EROSION CONTROL BLANKET



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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	
	REVISIONS	

MATCHLINE 5 SEE SHEET C205



NORTH Referenced to N.C. GRID (NAD 83)



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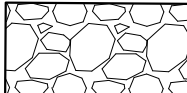




**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

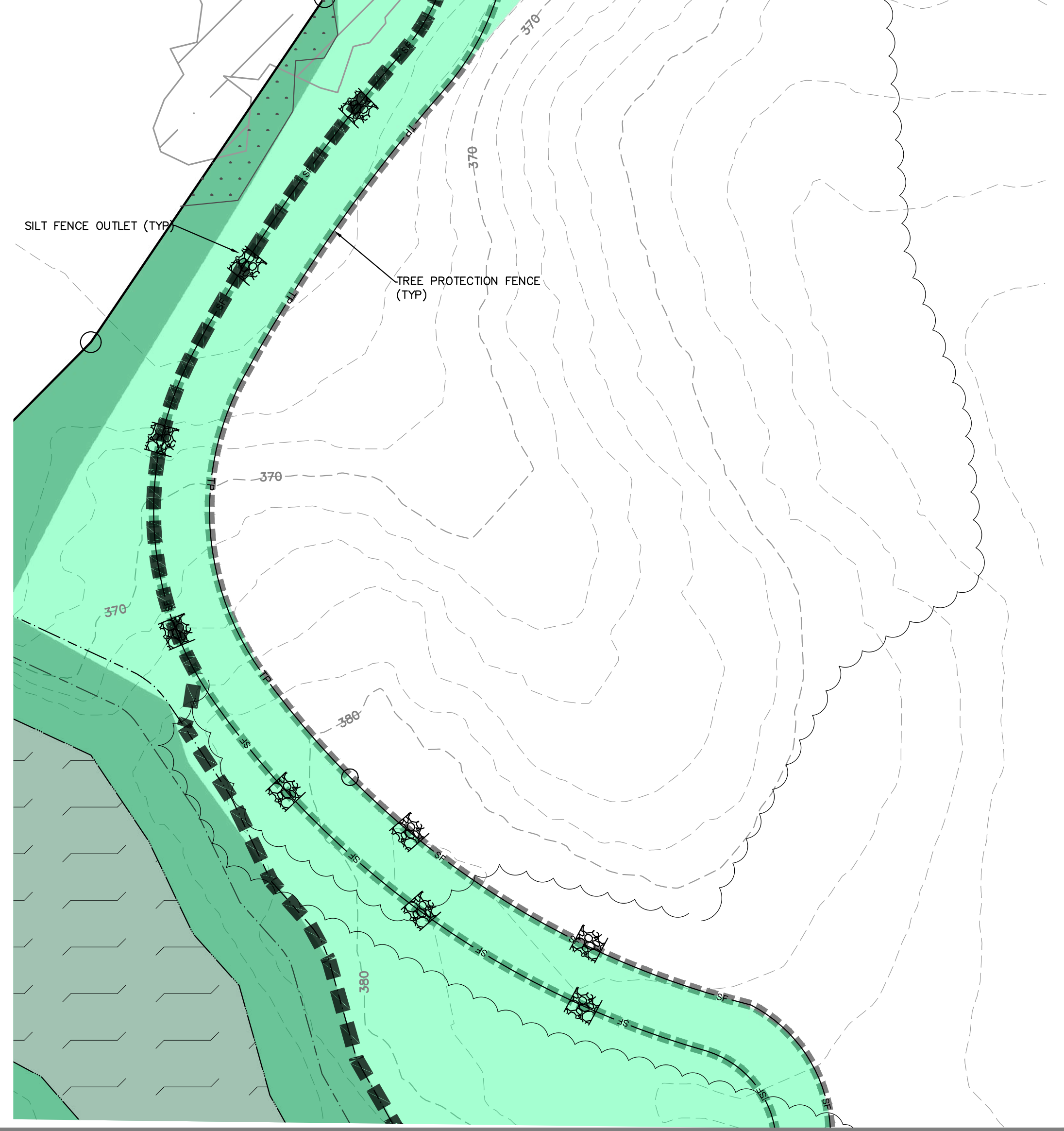
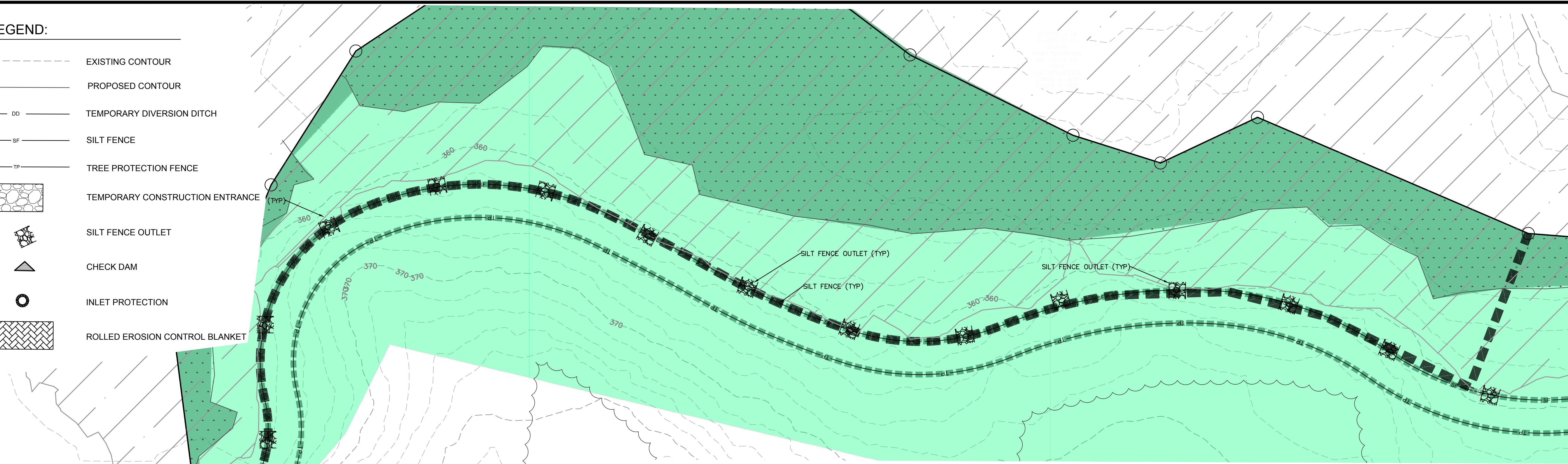
**EROSION CONTROL**  
 PLAN PH 2 ST 1

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C423**

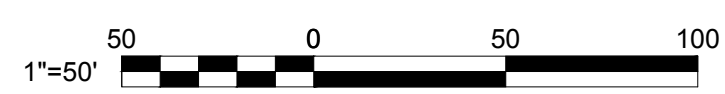
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-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



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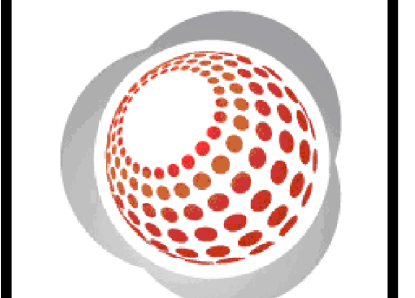
REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



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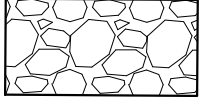



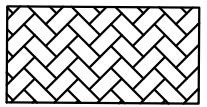
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
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 ROLESVILLE, NC  
 WAKE COUNTY

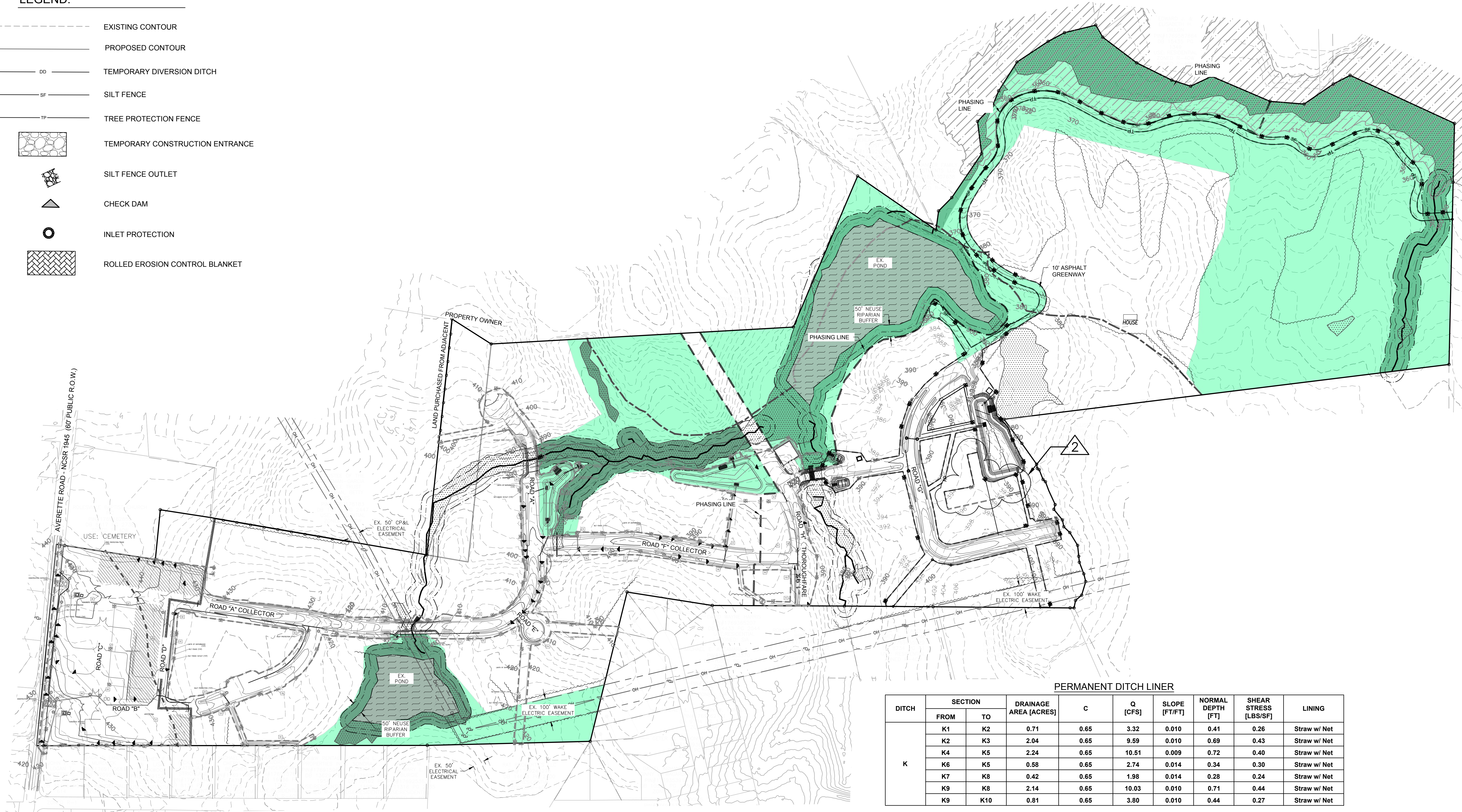
**EROSION CONTROL**  
 PLAN PH 2 ST 1

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C424**

**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DD — TEMPORARY DIVERSION DITCH
- SF — SILT FENCE
- TF — TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



PERMANENT DITCH LINER

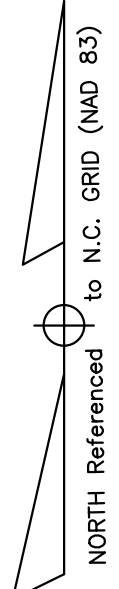
DITCH	SECTION		DRAINAGE AREA (ACRES)	C	Q [CFS]	SLOPE [FT/FT]	NORMAL DEPTH [FT]	SHEAR STRESS [LBS/SF]	LINING
	FROM	TO							
K	K1	K2	0.71	0.65	3.32	0.010	0.41	0.26	Straw w/ Net
	K2	K3	2.04	0.65	9.59	0.010	0.69	0.43	Straw w/ Net
	K4	K5	2.24	0.65	10.51	0.009	0.72	0.40	Straw w/ Net
	K6	K5	0.58	0.65	2.74	0.014	0.34	0.30	Straw w/ Net
	K7	K8	0.42	0.65	1.98	0.014	0.28	0.24	Straw w/ Net
	K9	K8	2.14	0.65	10.03	0.010	0.71	0.44	Straw w/ Net
	K9	K10	0.81	0.65	3.80	0.010	0.44	0.27	Straw w/ Net

**STREAM CROSSING CONSTRUCTION SEQUENCE:**

1. KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTIONS TO A MINIMUM.
2. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM. LINE UNSTABLE STREAM BANKS WITH RIPRAP OR OTHERWISE APPROPRIATELY STABILIZE THEM.
3. CONSTRUCTION OF STREAM CULVERT SHALL BE COMPLETED IN 48 HOURS OF DRY WEATHER.
4. ENSURE BYPASS CHANNELS, IF USING TO DEWATER THE CROSSING SITE, ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT AND STABILIZE THE BYPASS CHANNEL APPROPRIATELY. PUMP AROUND MAY BE USED INSTEAD OF BYPASS CHANNEL AND MUST BE IN PLACE AS SHOWN IN DETAIL PRIOR TO DEWATERING THE CROSSING SITE.
5. PLACE FILL AND INSTALL PROTECTIVE GROUND COVER TO PROVIDE PERMANENT EROSION PROTECTION.
6. ENSURE THAT PERMANENT MEASURES NEEDED TO CONTROL EROSION FROM ROAD WATER RUNOFF MEET ALL CONSTRUCTION REQUIREMENTS FOR THOSE PRACTICES.
7. INSPECT STREAM CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIPRAP DISPLACEMENT, SLOPE FAILURE AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY.

P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEET\TP\_170347\_C430\_EROSION\_CONTROL.dwg

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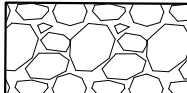






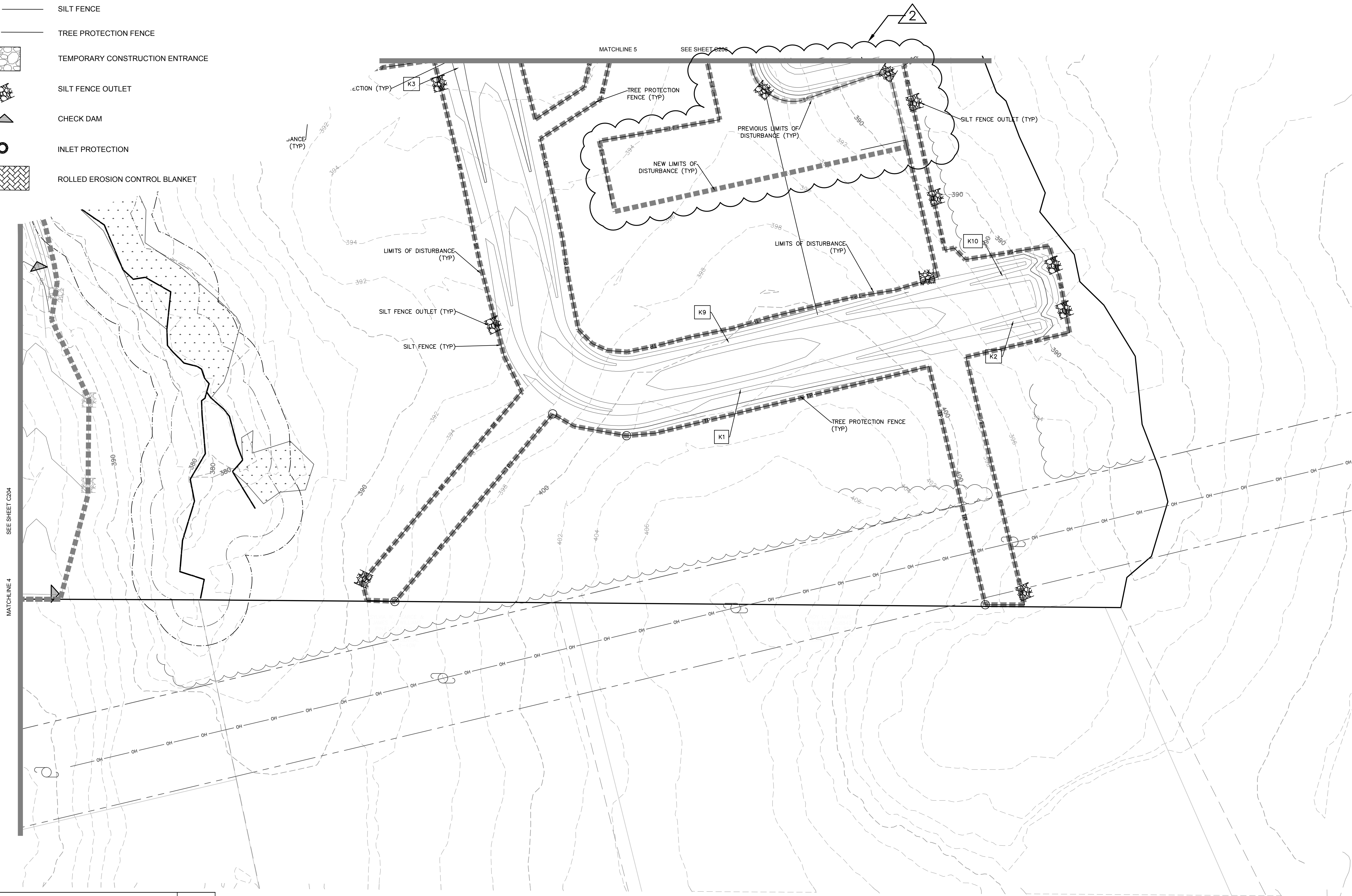
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**OVERALL EROSION**  
**CONTROL PLAN PH 2 ST 2**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 200'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C430</b>	

**LEGEND:**

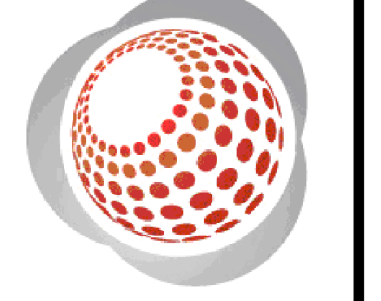
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-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



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








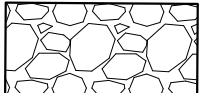




**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

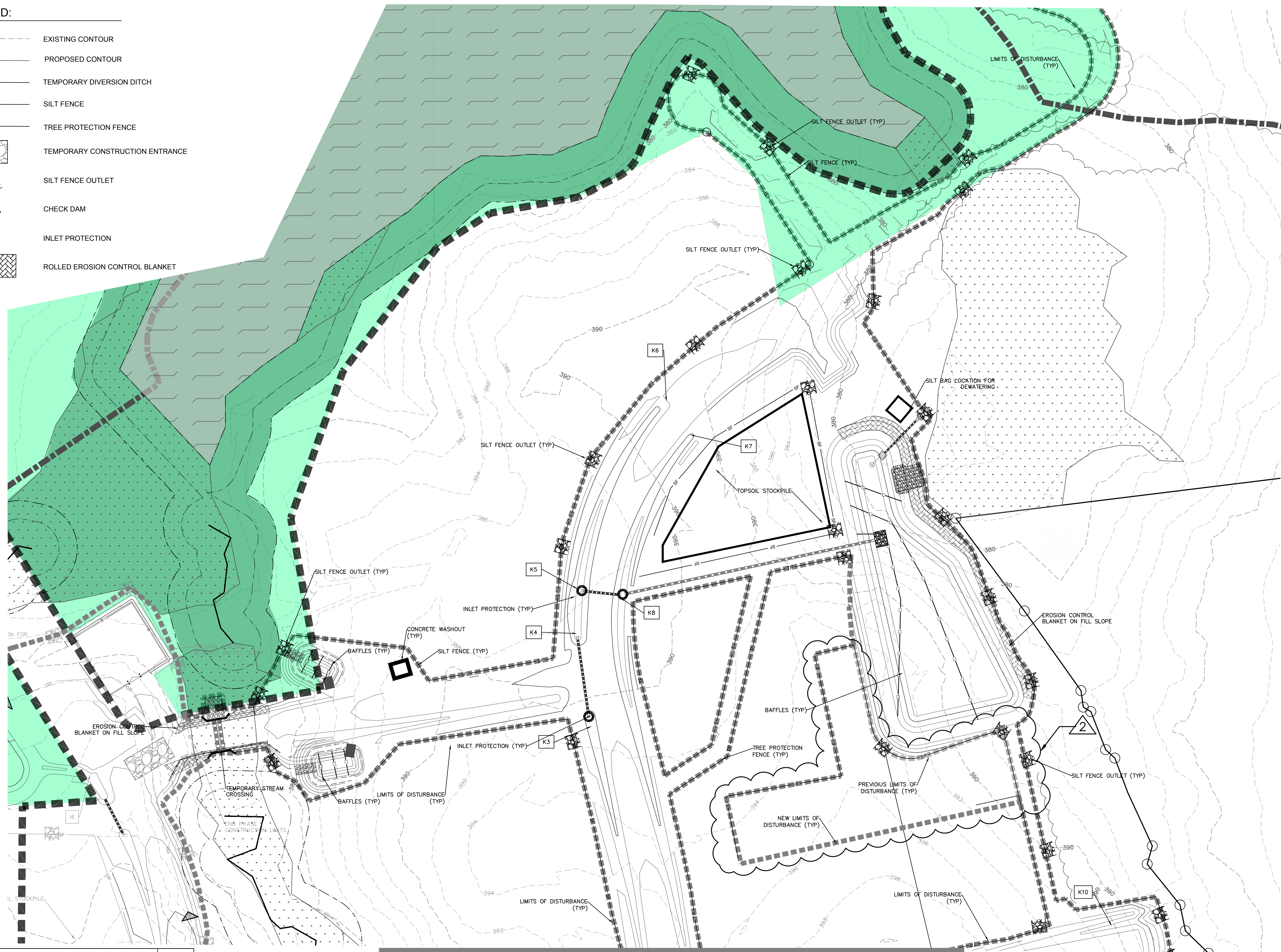
**EROSION CONTROL**  
 PLAN PH 2 ST 2

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

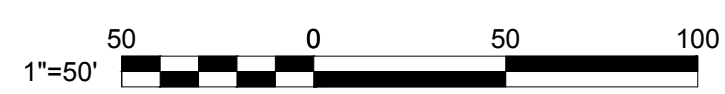
SHEET  
**C432**

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



MATCHLINE 5 SEE SHEET C205



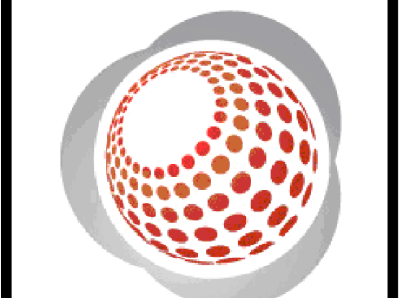
NORTH Referenced to N.C. GRID (NAD 83)

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



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






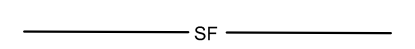
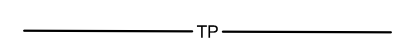
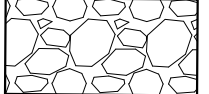

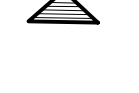


**CHANDLER'S RIDGE**  
**CONSTRUCTION DOCUMENTS**  
**CONSERVATION SUBDIVISION**  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

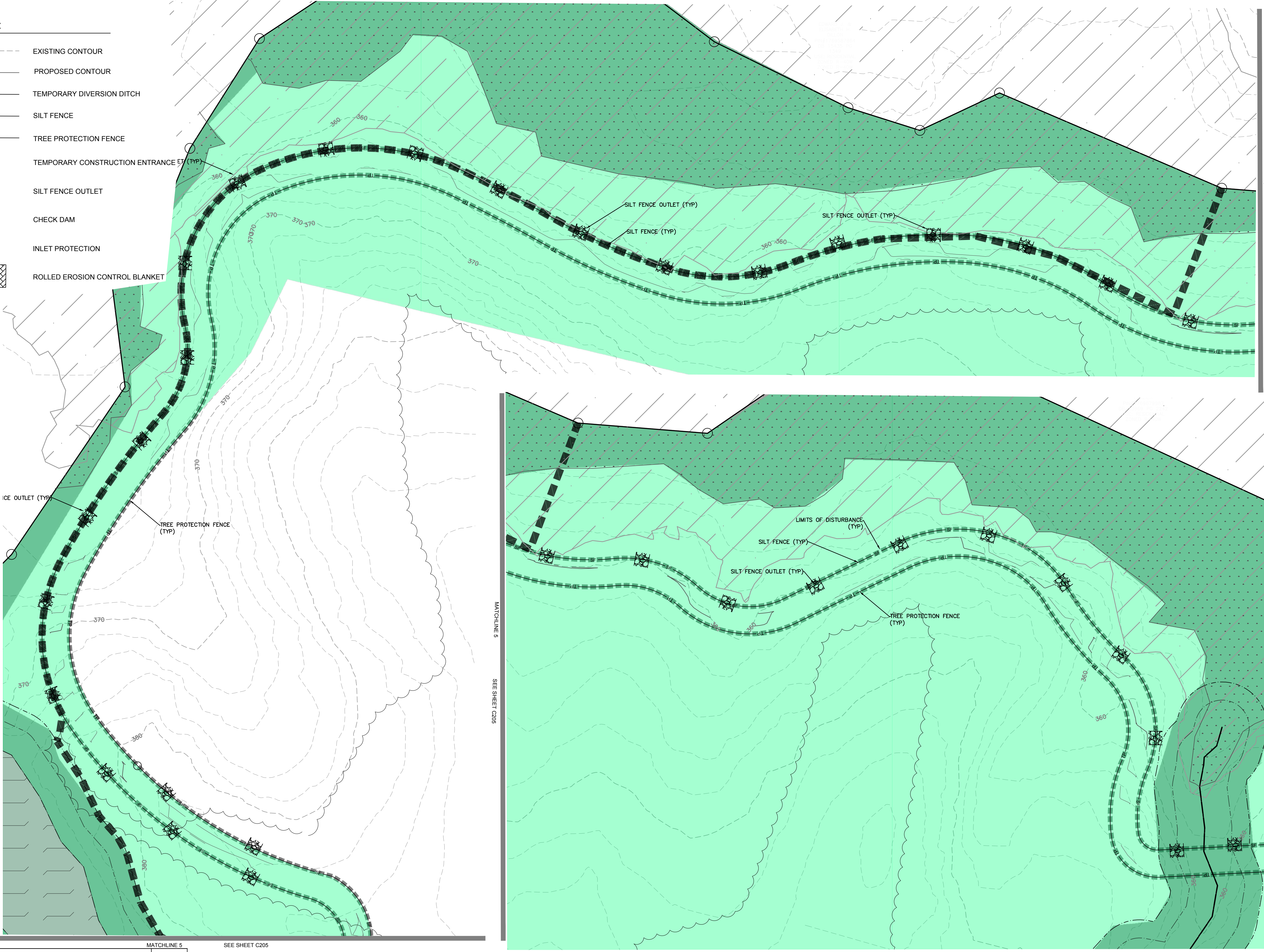
**EROSION CONTROL**  
**PLAN PH 2 ST 2**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C433**

**LEGEND:**

-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TEMPORARY DIVERSION DITCH
-  SILT FENCE
-  TREE PROTECTION FENCE
-  TEMPORARY CONSTRUCTION ENTRANCE ST (TYP)
-  SILT FENCE OUTLET
-  CHECK DAM
-  INLET PROTECTION
-  ROLLED EROSION CONTROL BLANKET



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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



NORTH Referenced to N.C. GRID (NAD 83)



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 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

**EROSION CONTROL**  
 PLAN PH 2 ST 2

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C434**



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 NCBELS FIRM No. C-2378



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

**OVERALL  
 GRADING PLAN**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 200'  
 Date: 09/08/2020  
 Project Number: P170347

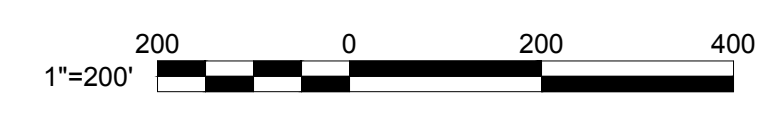
SHEET  
**C500**

**LEGEND:**

- EXISTING POND
- EXISTING WETLANDS
- PROPOSED PHASING LINE
- EXISTING TOWN OF ROLESVILLE ETJ
- EXISTING STREAM
- 50' STREAM AND POND RIPARIAN BUFFER
- DEDICATED PRIMARY PROTECTED OPEN SPACE
- DEDICATED SECONDARY PROTECTED OPEN SPACE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- 420 EXISTING MAJOR / MINOR CONTOUR
- 418 EXISTING MAJOR / MINOR CONTOUR
- 420 PROPOSED MAJOR / MINOR CONTOUR
- 418 PROPOSED MAJOR / MINOR CONTOUR



- GRADING & STORM DRAINAGE NOTES:**
1. REFER TO SHEET C200 FOR GENERAL NOTES.
  2. CONTRACTOR SHALL REPORT ANY GRADE DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
  3. THE MAXIMUM SLOPE ALONG ANY HANDICAP ACCESSIBLE PATHWAY SHALL NOT EXCEED 5.0% AND SHALL NOT EXCEED A 2.0% CROSS SLOPE. HANDICAP RAMPS INDICATED ON PLANS SHALL BE A MAXIMUM OF 1/12 SLOPES WITH A MAXIMUM RISE OF 30" BETWEEN LANDINGS. NON-CURB CUT RAMPS SHALL HAVE HANDRAILS AND GUARDS PER DETAILS WITH 5' LANDINGS AT THE BOTTOM AND TOP OF RAMP.
  4. ALL PROPOSED ELEVATIONS SHOWN ARE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
  5. ALL AREAS WHERE UNPAVED AREAS SLOPE ONTO PAVED AREAS, A 2' WIDE FLAT AREA WITH A SLOPE OF 2% TOWARDS THE PAVED AREA SHALL BE PROVIDED TO PREVENT ORGANICS WASHOUT.
  6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL NEWLY CONSTRUCTED STORM DRAINAGE IMPROVEMENTS AND RECEIVING STORM DRAINAGE SYSTEMS REMAIN CLEAN OF SEDIMENT AND DEBRIS. PRIOR TO OWNER ACCEPTANCE OF SYSTEM, THE CONTRACTOR SHALL COORDINATE AND PROVIDE A VISUAL OBSERVATION VIDEO OF ALL STORM DRAINAGE IMPROVEMENTS 12" AND LARGER. THE VISUAL OBSERVATION SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE TWO (2) DVD COPIES OF THE ENTIRE DRAINAGE VISUAL OBSERVATION.
  7. PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THE VIDEO INSPECTION OF THE STORM SEWER SYSTEM. (BOTH PUBLIC AND PRIVATE). THIS SUBMITTAL MAY NEED TO BE REVIEWED AND ACCEPTED BY THE LOCAL JURISDICTION PRIOR TO THE ISSUANCE OF THE BUILDING COO.
  8. REFER TO THE EROSION CONTROL DETAILS SHEET FOR THE SEQUENCE OF CONSTRUCTION.
  9. INTERIM GRADING SHALL BE PROVIDED THAT ENSURES THE PROTECTION OF STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, AND WASHOUT.
  10. INTERIM GRADING SHALL BE PROVIDED TO DIRECT WATER AWAY FROM BUILDINGS AND PREVENT PONDING.
  11. THE ROOF LEADERS WHERE POSSIBLE TO UNDERGROUND STORM SYSTEM. CONTRACTOR TO FIELD VERIFY LOCATE AND INSTALL WHERE POSSIBLE OR AS SHOWN ON PLANS. WHERE ROOF LEADERS DAYLIGHT AT GRADE A SPLASH BLOCK APPROVED BY THE OWNER'S REPRESENTATIVE SHALL BE INSTALLED.
  12. MAXIMUM SLOPE ACROSS ANY HANDICAPPED PARKING SPACE AND AISLE SHALL NOT EXCEED 2% IN ANY DIRECTION.
  13. PROPOSED CONTOURS ARE APPROXIMATE. SPOT ELEVATIONS AND ROADWAY PROFILES SHALL BE USED IN CASE OF DISCREPANCY.
  14. PLACE BACKFILL AND FILL MATERIALS IN LAYER NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL UP TO TWO FEET OF FINISHED GRADE. COMPACT SOIL TO NOT LESS THAN 98 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL FOR THE FINAL TWO FEET.
  15. SITE GRADING IMMEDIATELY ADJACENT TO FOUNDATION OF BUILDING SHALL SLOPE NOT LESS THAN 1/20 AWAY FOR MINIMUM DISTANCE OF 10 FEET. ALTERNATIVE METHOD SHALL BE PROVIDED TO DIVERT WATER AWAY FROM FOUNDATION VIA SWALES SLOPED AT A MINIMUM OF 2% OR IMPERVIOUS SURFACES SLOPED AWAY A MINIMUM OF 2% AWAY FROM BUILDING.
  16. CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, METERS, VALVES, ETC. AS REQUIRED TO MEET NEW FINISHED GRADES.
  17. CONTRACTOR SHALL SLOPE GRADES TO ASSURE POSITIVE STORMWATER FLOW TO KEEP WATER FROM POOLING ALONG CURBS AND WALLS.
  18. TOP OF WALL ELEVATIONS INDICATE THE ELEVATION AT THE TOP OF THE CAP, UNLESS OTHERWISE NOTED.
  19. BOTTOM OF WALL ELEVATIONS INDICATE THE ELEVATION OF THE FINISHED GRADE.
  20. WALLS GREATER THAN 4 FT. IN HEIGHT WILL REQUIRE ENGINEERING DESIGN APPROVAL.



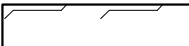
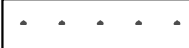



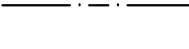





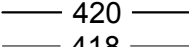

NORTH  
 Referenced to N.C. GRID (NAD 83)

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

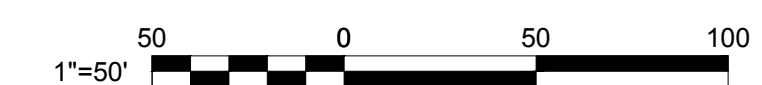
**NOTE: 2' INTERVAL CONTOURS**

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED EASEMENT
-  EXISTING MAJOR / MINOR CONTOUR
-  PROPOSED MAJOR / MINOR CONTOUR



**NOTE: 1' INTERVAL CONTOURS**



P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEET\TP\_170347\_C501 GRADING BLOWUPS.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



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 NCBELS FIRM No. C-2378



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

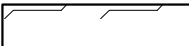
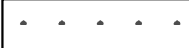



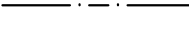





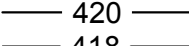

**PHASE 1**  
 GRADING PLAN

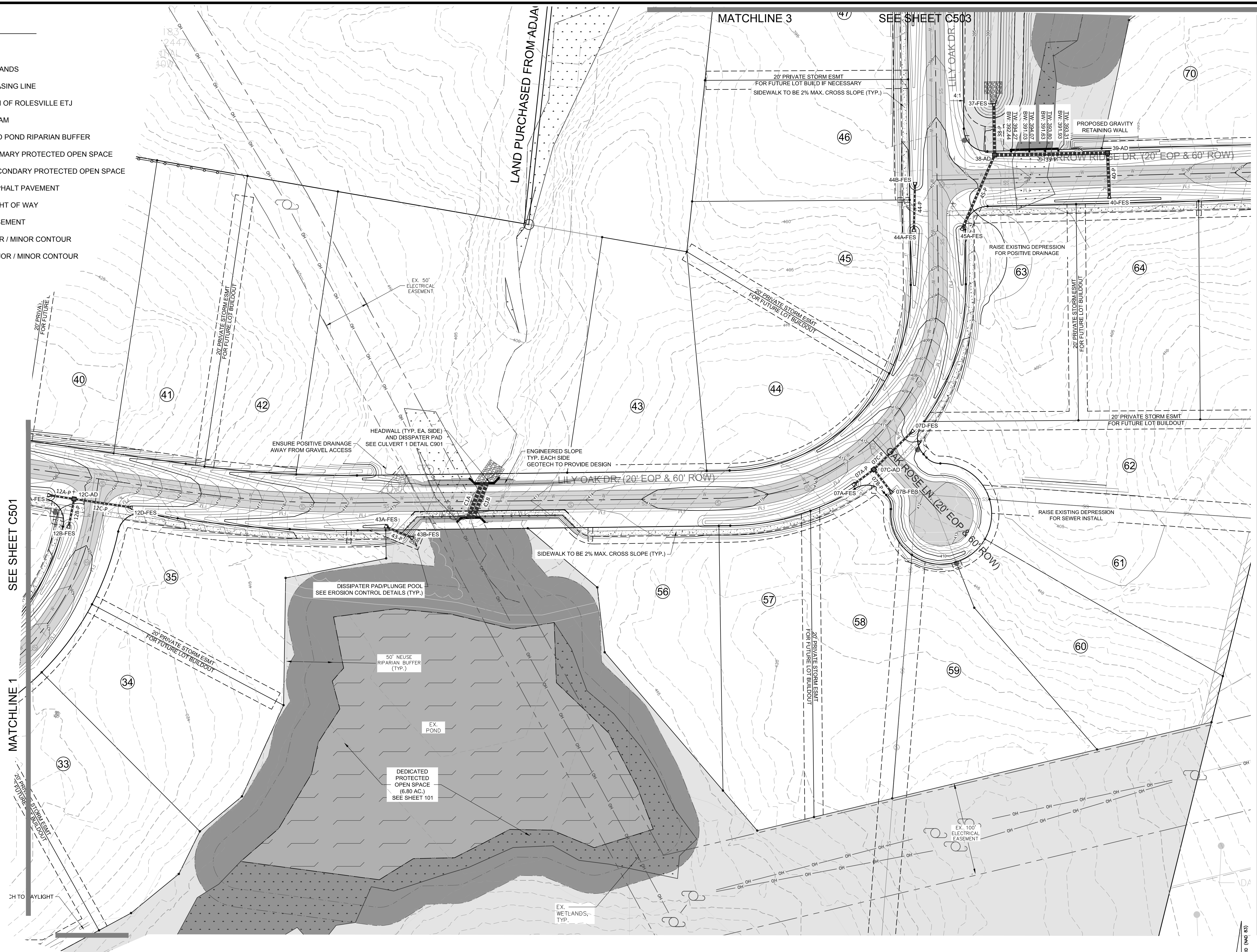
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Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	C501

MATCHLINE 1 SEE SHEET C502

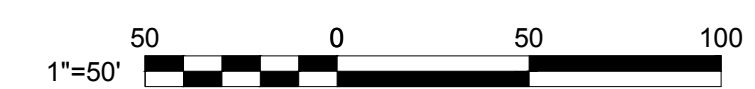


LEGEND:

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED EASEMENT
-  EXISTING MAJOR / MINOR CONTOUR
-  PROPOSED MAJOR / MINOR CONTOUR



NOTE: 1' INTERVAL CONTOURS



P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEET\TP\_170347\_C501 GRADING BLOWUPS.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



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 NCBELS FIRM No. C-2378




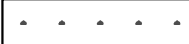



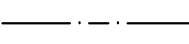

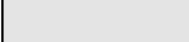

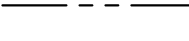
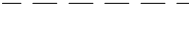

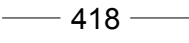
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

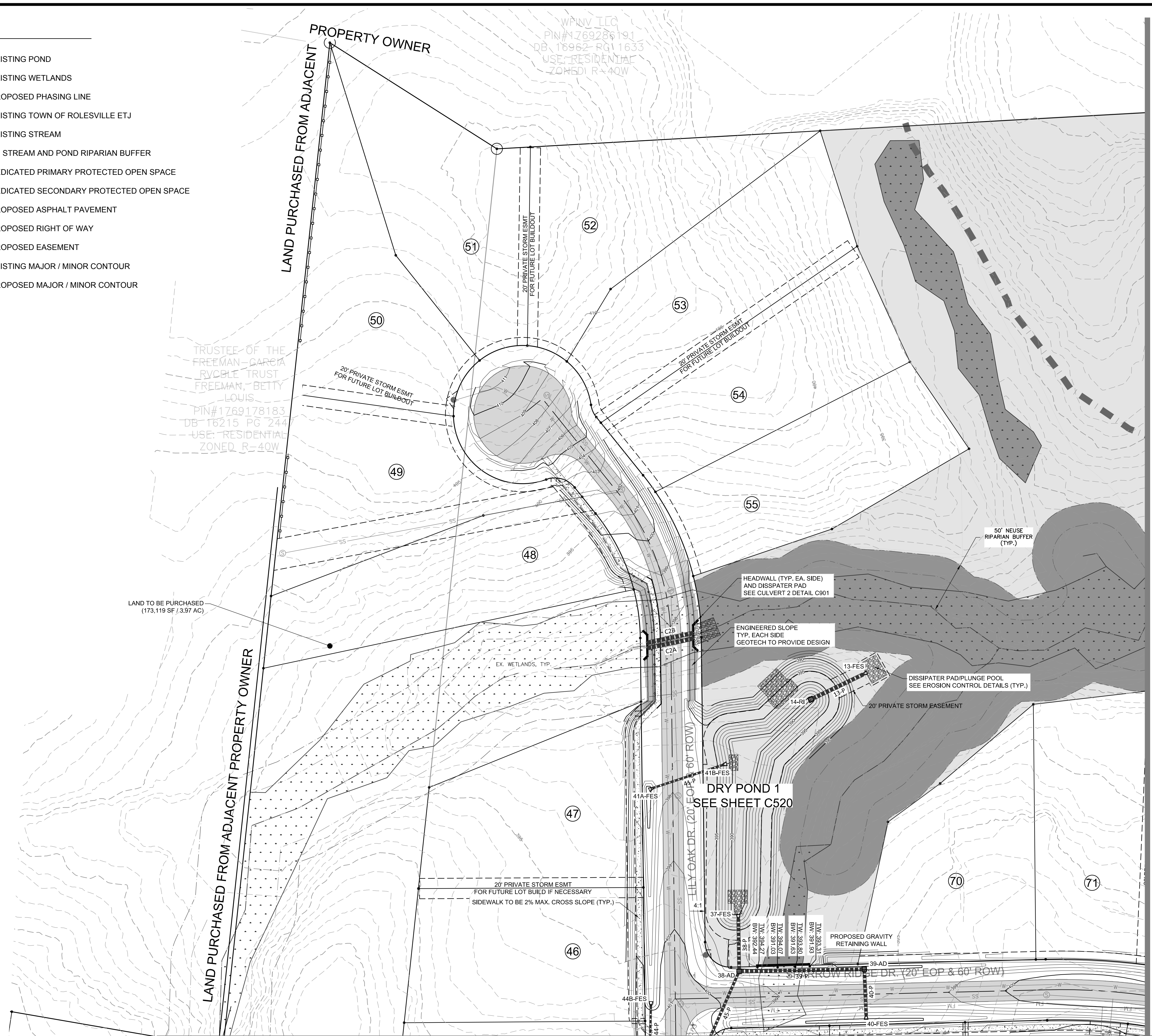
**PHASE 1**  
 GRADING PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C502</b>	

MATCHLINE 2 SEE SHEET C504

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED EASEMENT
-  420  
418 EXISTING MAJOR / MINOR CONTOUR
-  420  
418 PROPOSED MAJOR / MINOR CONTOUR



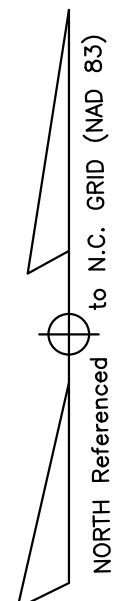
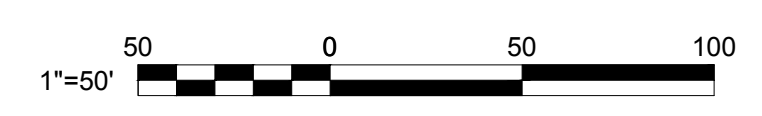
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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020

MATCHLINE 3 SEE SHEET C502

MATCHLINE 4 SEE SHEET C504

**NOTE: 1' INTERVAL CONTOURS**



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 NCBELS FIRM No. C-2378



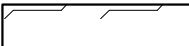
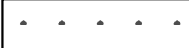



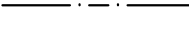





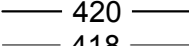

**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

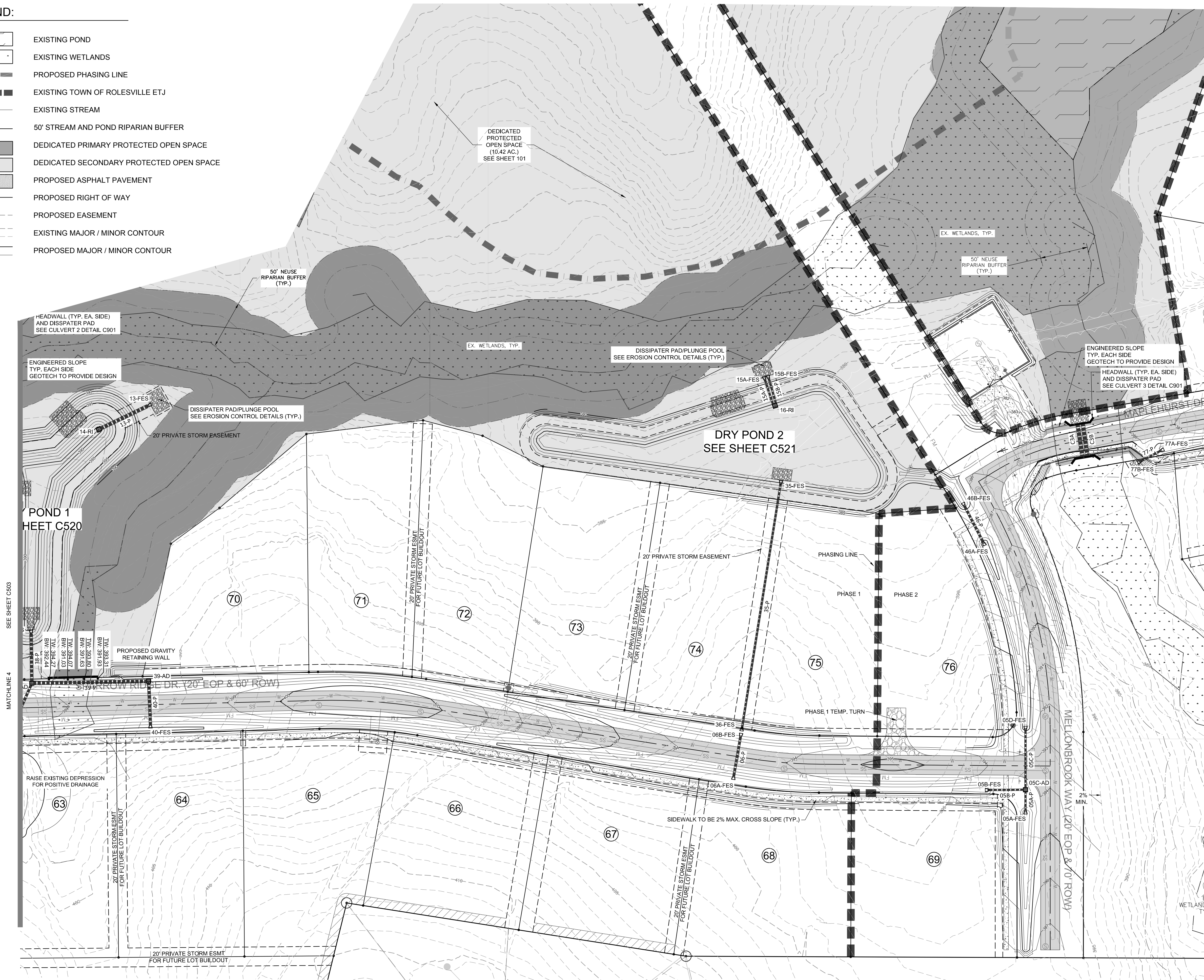
410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**PHASE 1**  
**GRADING PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	C503

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED EASEMENT
-  420  
418 EXISTING MAJOR / MINOR CONTOUR
-  420  
418 PROPOSED MAJOR / MINOR CONTOUR

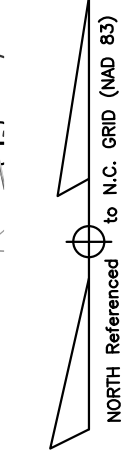
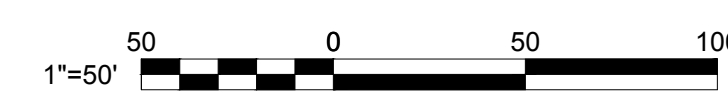


SEE SHEET C503

MATCHLINE 4

SEE SHEET C505

MATCHLINE 5

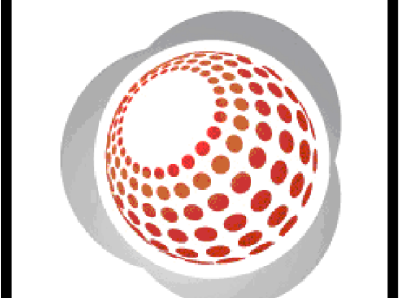


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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



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 NCBELS FIRM No. C-2378



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

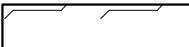
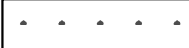



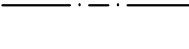






410 W. YOUNG ST.  
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 WAKE COUNTY

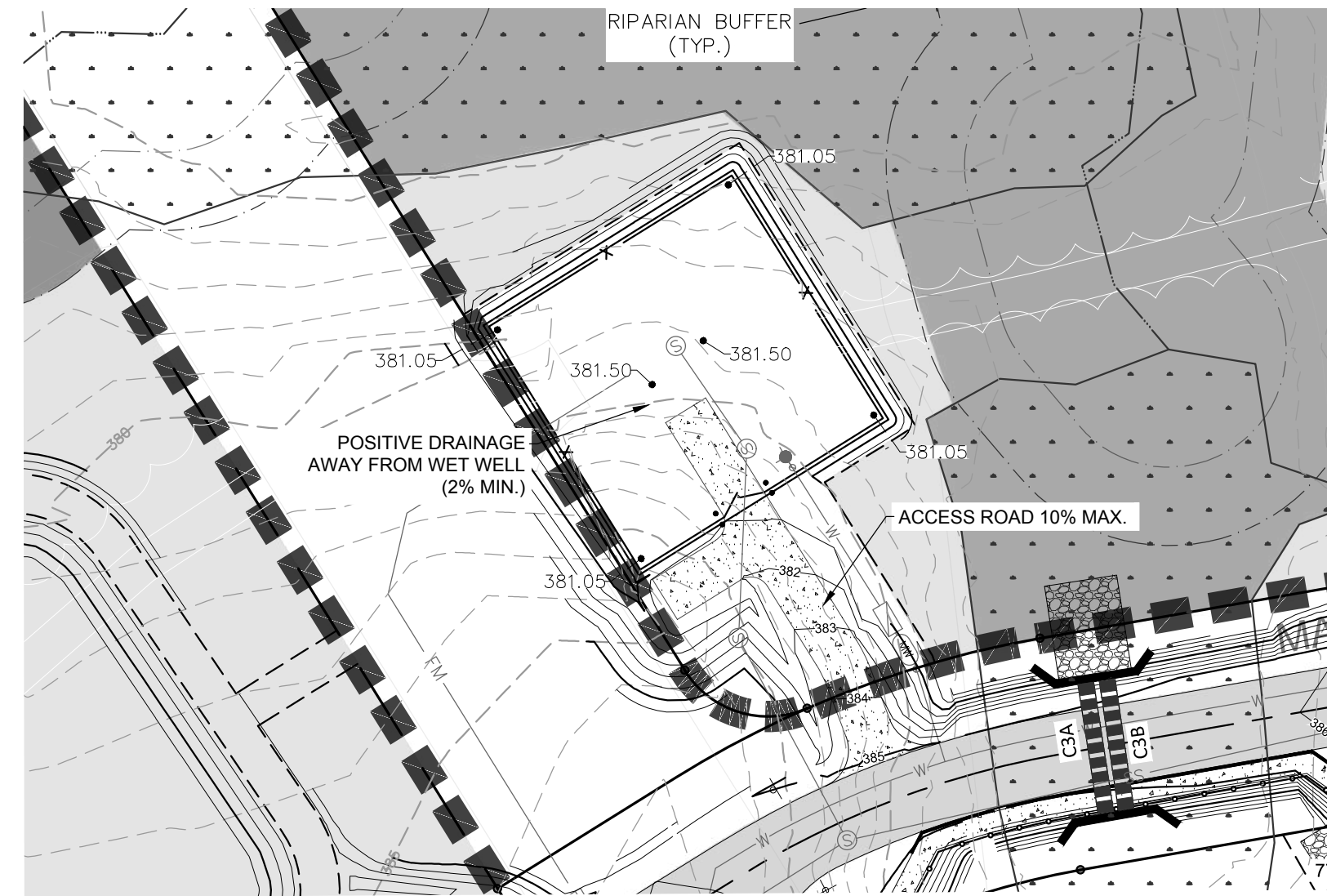
**PHASE 1 / 2**  
**GRADING PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

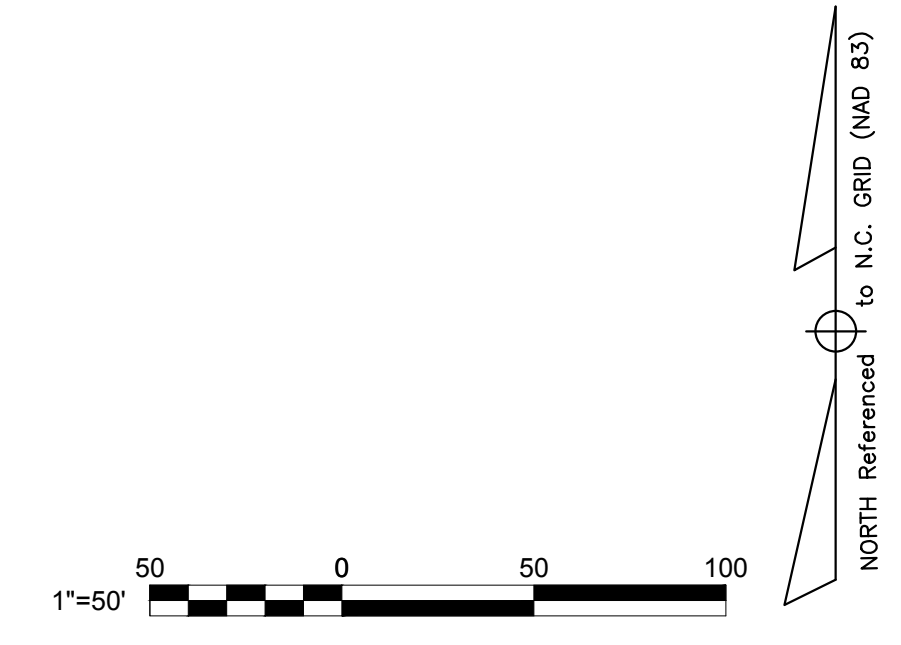
SHEET  
**C504**

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT



**NOTE: 1' INTERVAL CONTOURS**



P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEET\TP\_170347\_C501 GRADING BLOWUPS.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE
	REVISIONS	



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 NCBELS FIRM No. C-2378


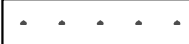



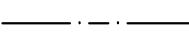

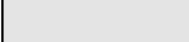

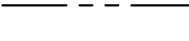

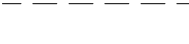


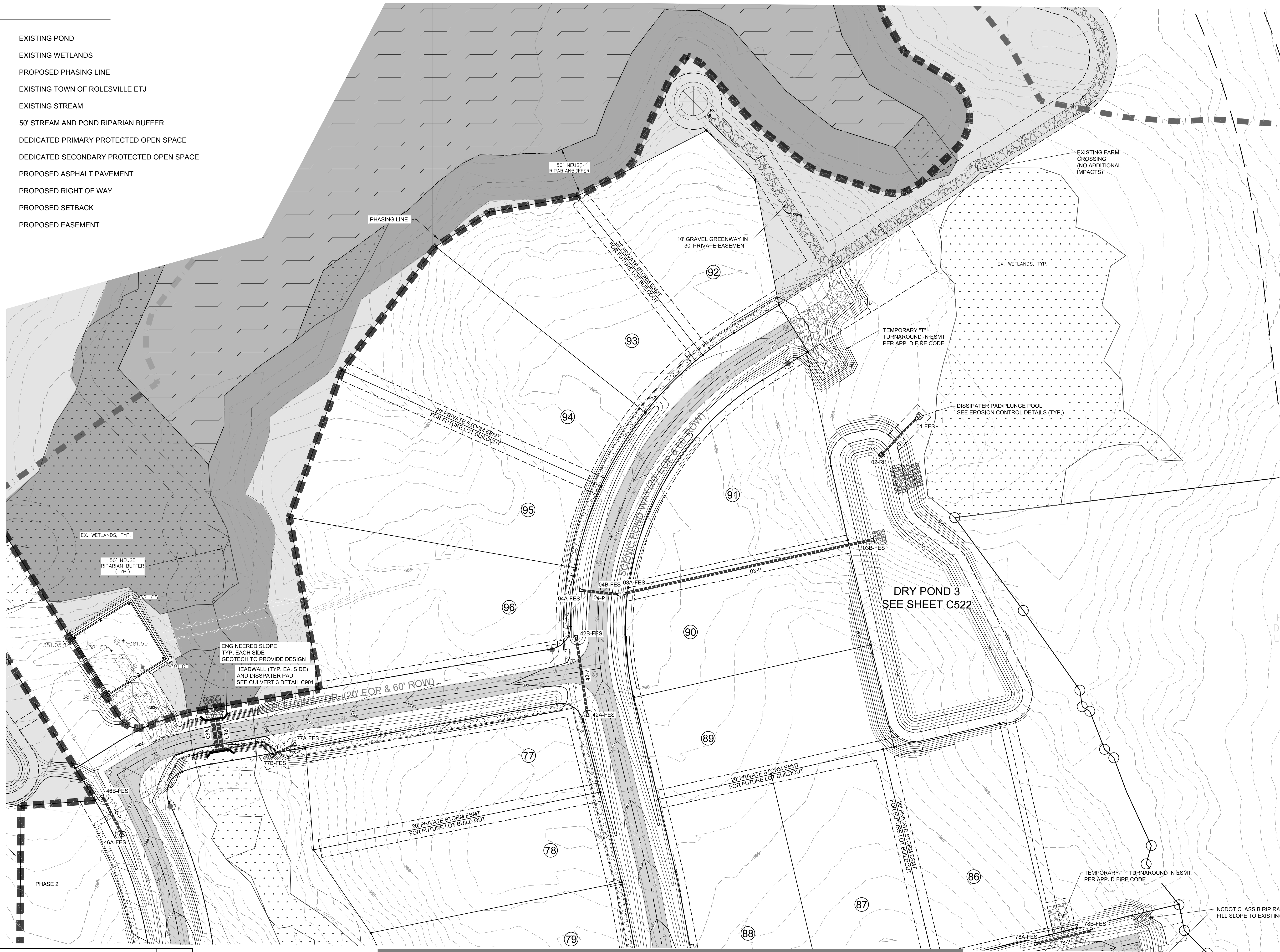
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**PHASE 2**  
 GRADING PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C505</b>	

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT



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 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

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 ROLESVILLE, NC  
 WAKE COUNTY

**EAST**  
**GRADING PLAN**

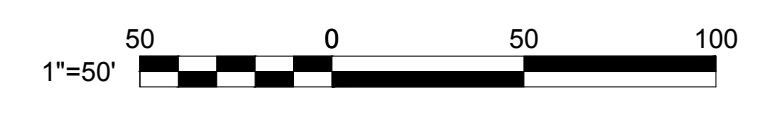
Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C506**

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

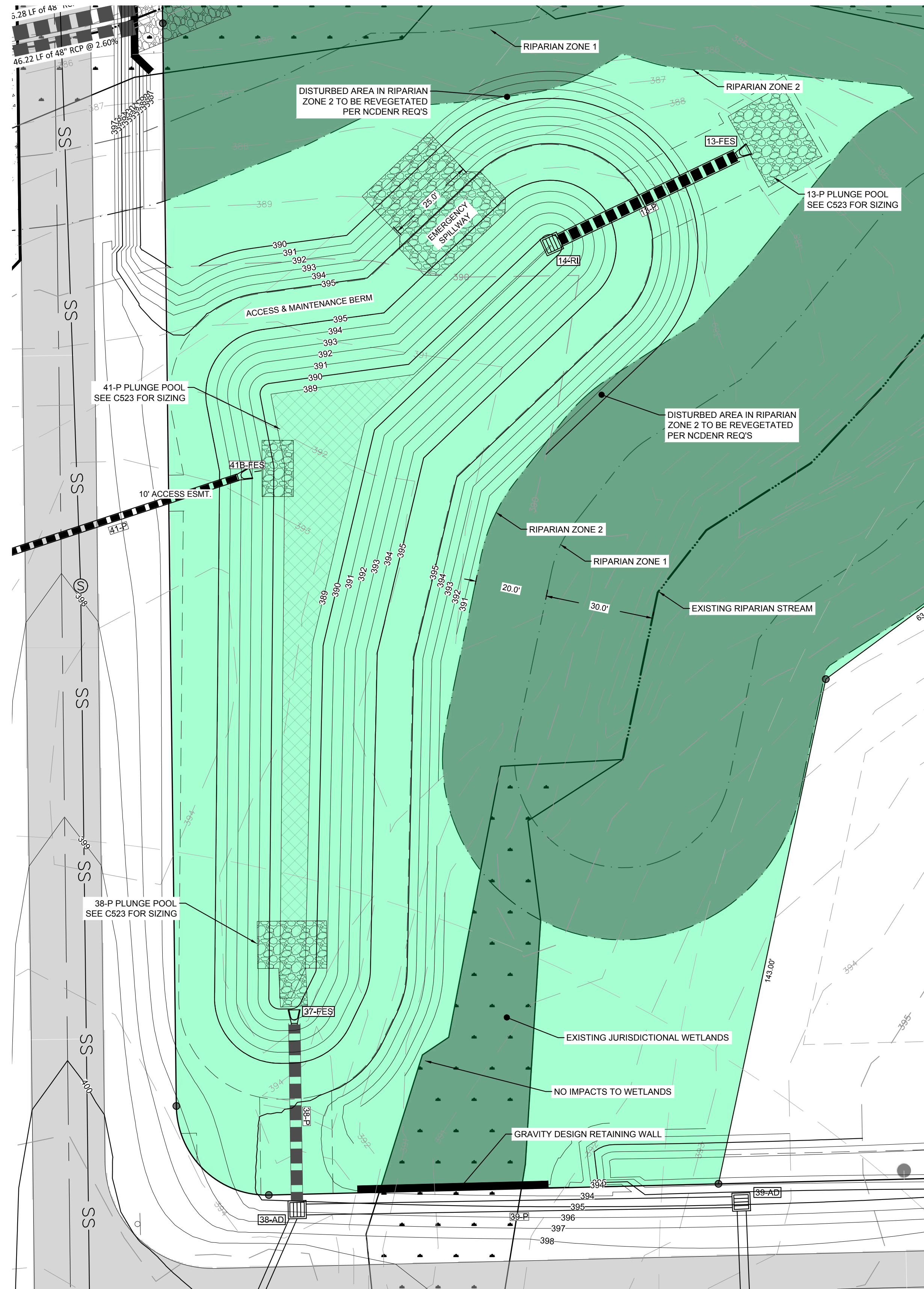
**NOTE: 1' INTERVAL CONTOURS**



NORTH Referenced to N.C. GRID (NAD 83)



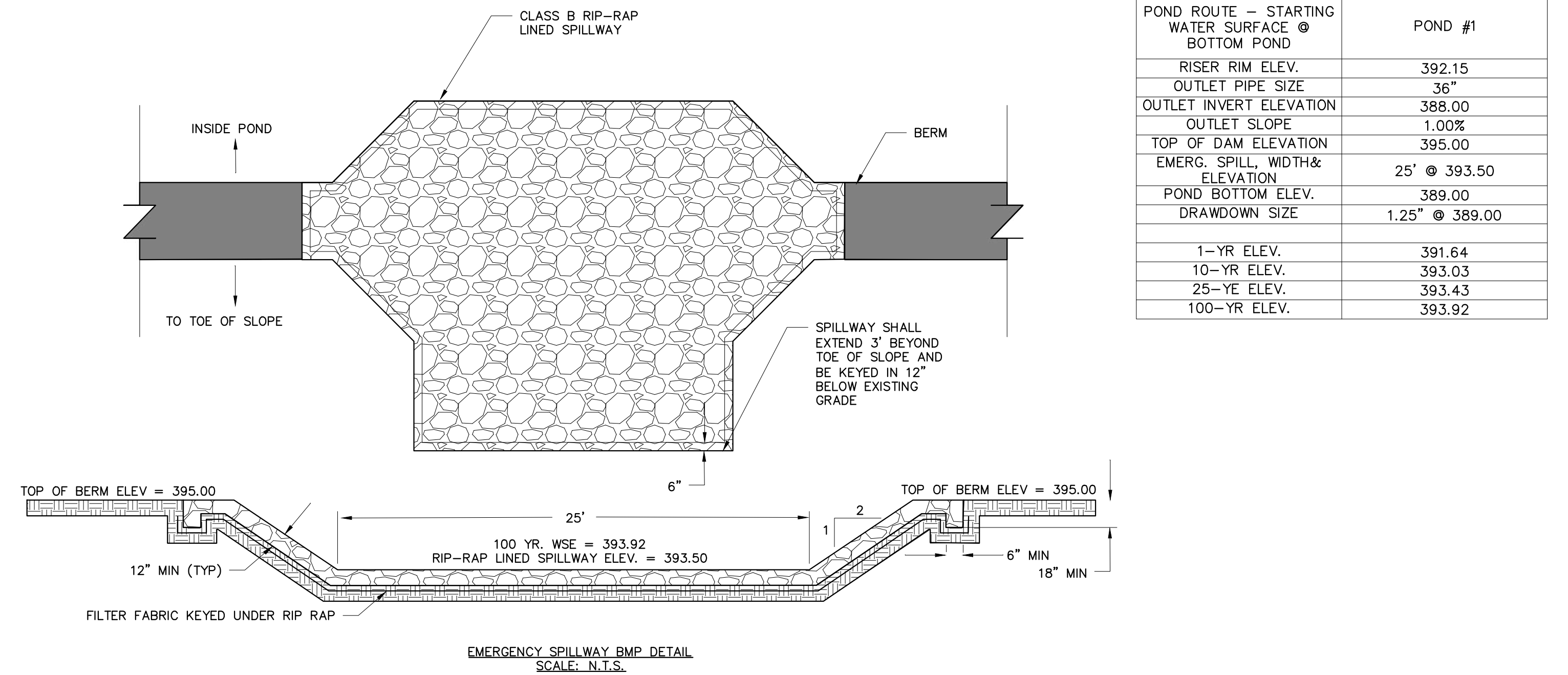
- LEGEND:
- EXISTING RIPARIAN STREAM
  - EXISTING RIPARIAN BUFFER
  - PROJECT PARCEL BOUNDARY
  - PRIVATE RIGHT OF WAY
  - EXISTING MINOR CONTOUR (1 FT.)
  - EXISTING MAJOR CONTOUR (6 FT.)
  - PROPOSED MINOR CONTOUR (1 FT.)
  - PROPOSED MAJOR CONTOUR (6 FT.)
  - PROPOSED PAVEMENT
  - PROPOSED GRAVEL
  - TREE AND VEGETATION PROTECTION AREA
  - PROPOSED EASEMENT
  - PROPOSED SETBACK



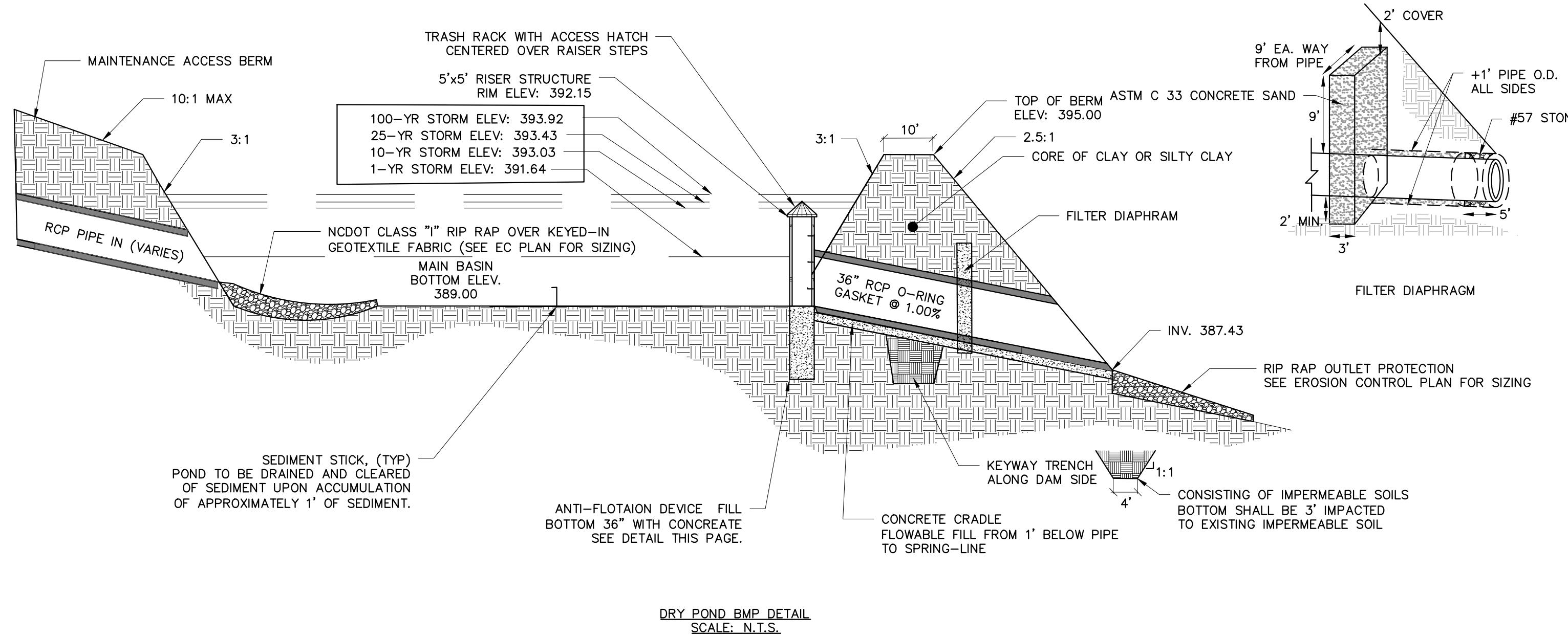
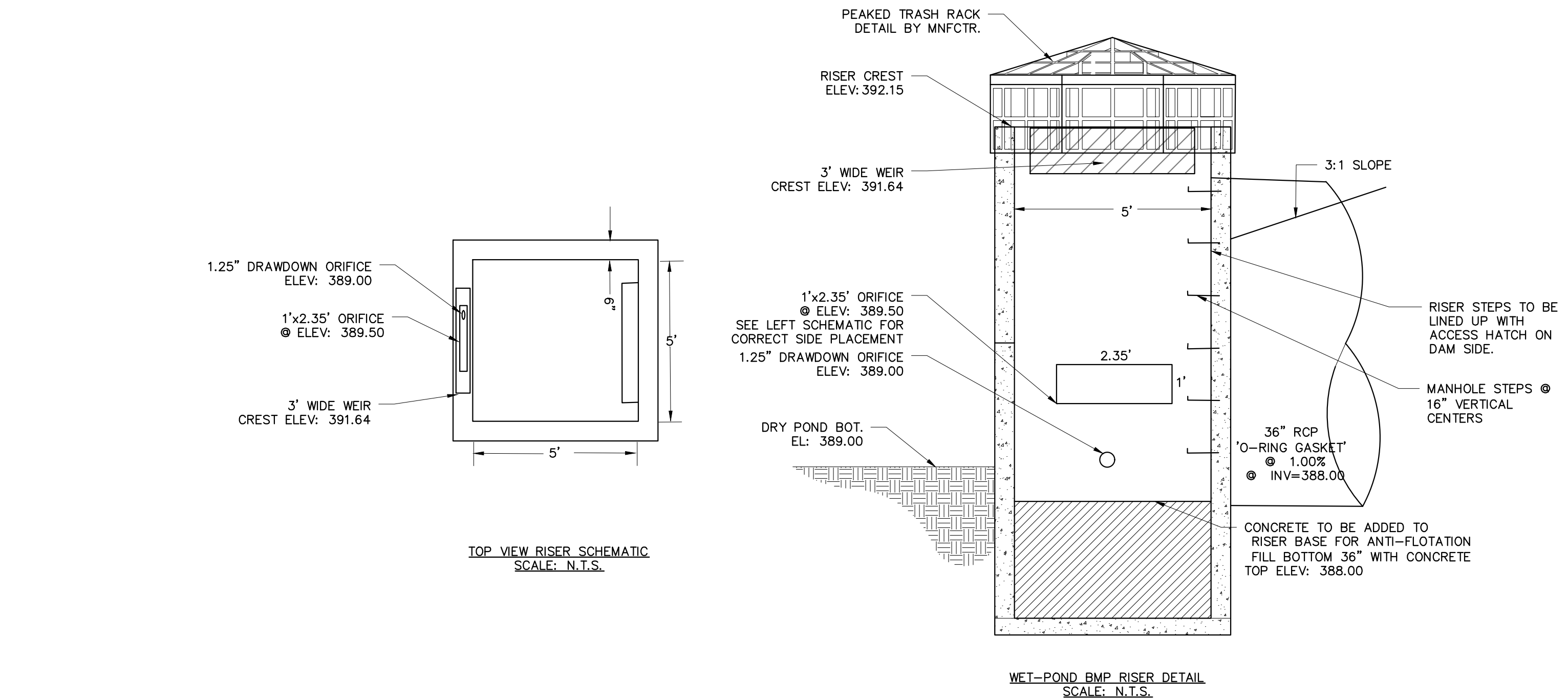
DRY POND #1 DETAIL  
SCALE: 1" = 20'



REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	DATE



POND ROUTE - STARTING WATER SURFACE @ BOTTOM POND	POND #1
RISER RIM ELEV.	392.15
OUTLET PIPE SIZE	36"
OUTLET INVERT ELEVATION	388.00
OUTLET SLOPE	1.00%
TOP OF DAM ELEVATION	395.00
EMERG. SPILL. WIDTH & ELEVATION	25' @ 393.50
POND BOTTOM ELEV.	389.00
DRAWDOWN SIZE	1.25" @ 389.00
1-YR ELEV.	391.64
10-YR ELEV.	393.03
25-YE ELEV.	393.43
100-YR ELEV.	393.92



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

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WAKE COUNTY

**DRY POND #1**  
PLAN & DETAILS

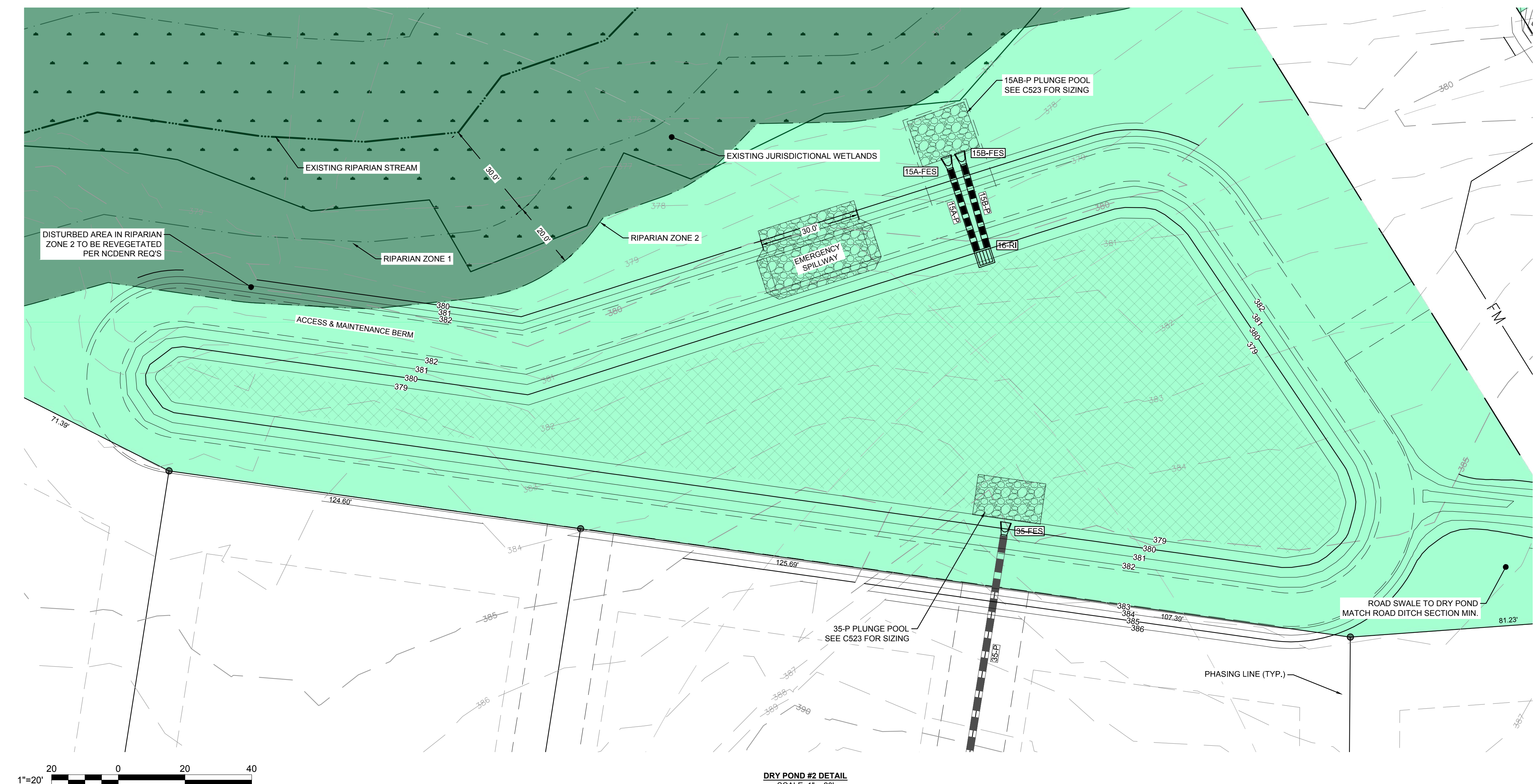
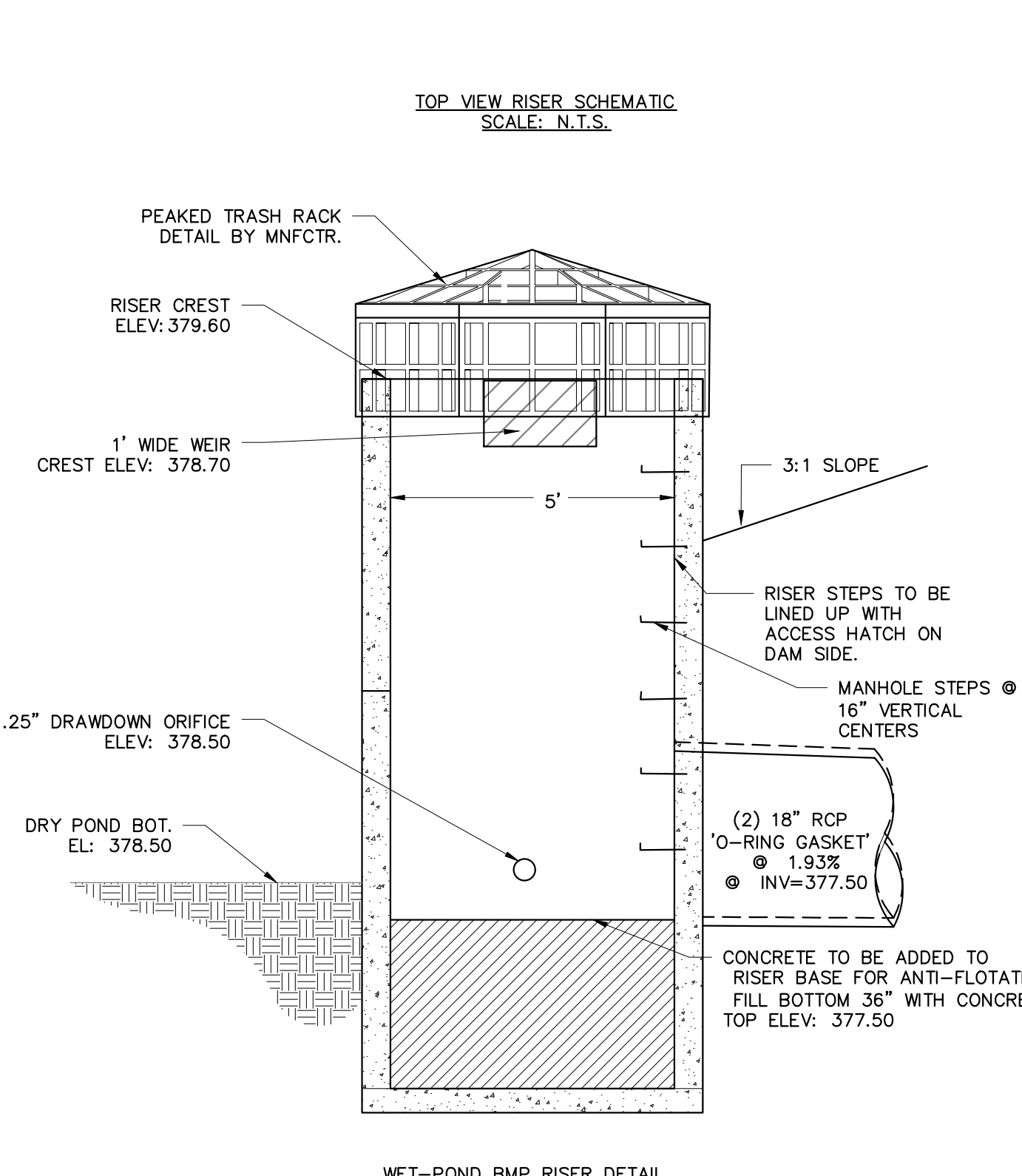
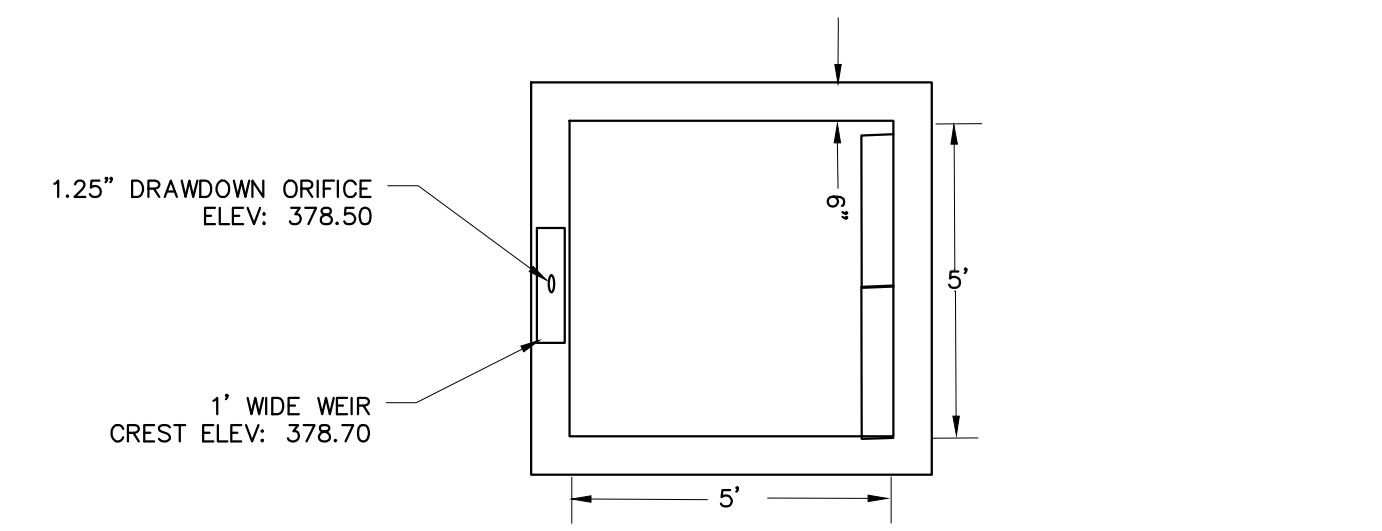
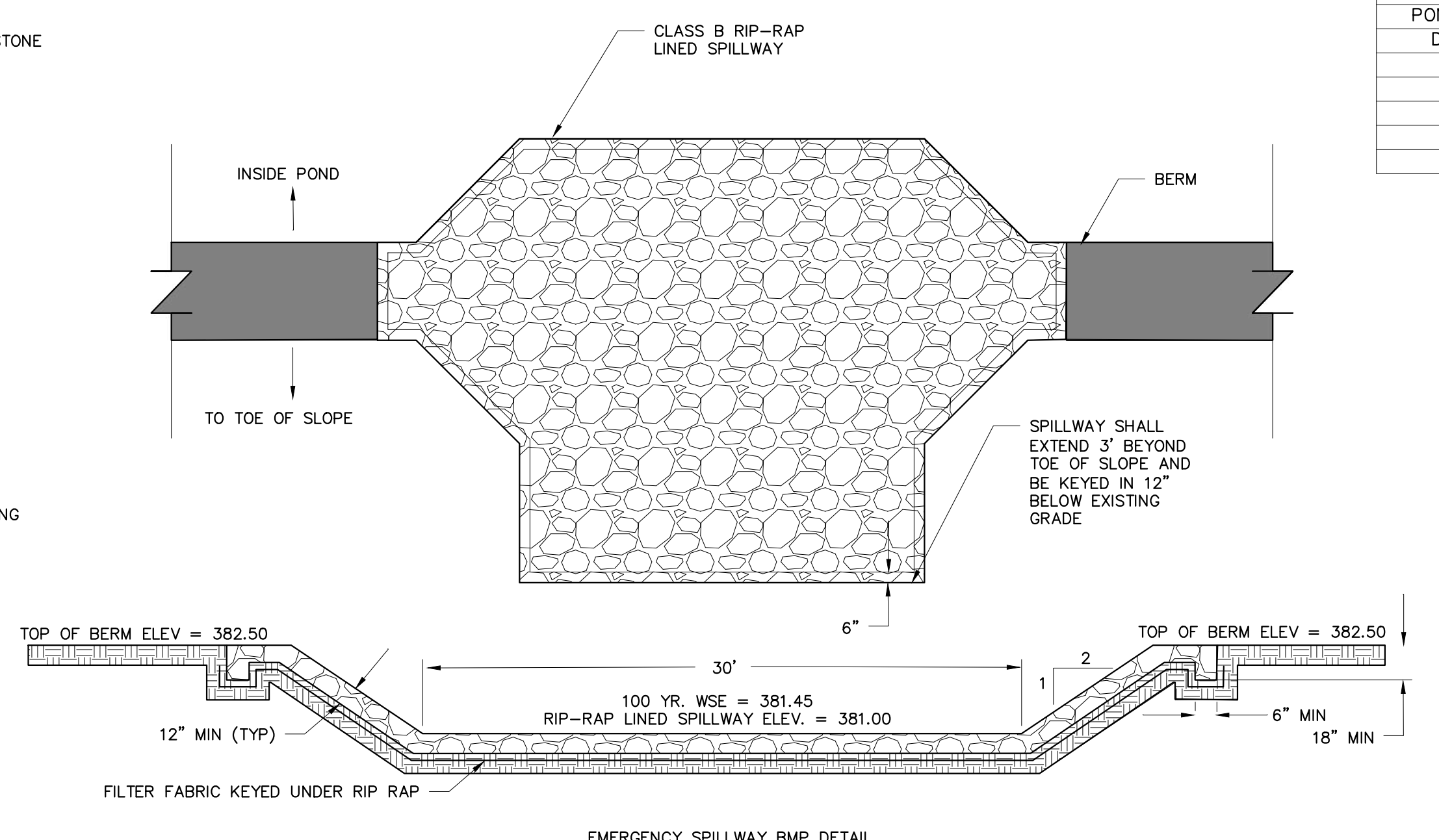
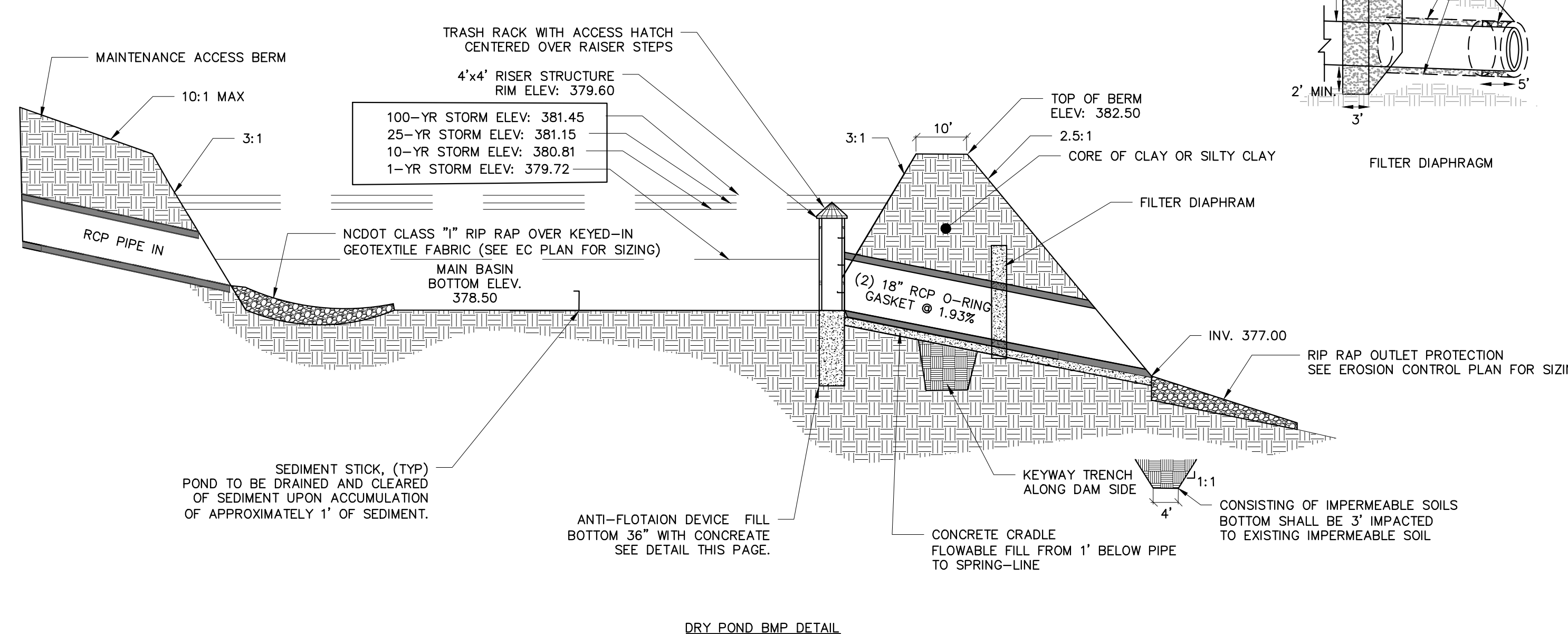
Project Engineer: TSS  
Designed By: TEP  
Drawn By: TEP  
Checked By: TSS

Date: 09/08/2020  
Project Number: P170347

SHEET  
C520

LEGEND:	
	EXISTING RIPARIAN STREAM
	EXISTING RIPARIAN BUFFER
	PROJECT PARCEL BOUNDARY
	PRIVATE RIGHT OF WAY
	EXISTING MINOR CONTOUR (1 FT.)
	EXISTING MAJOR CONTOUR (6 FT.)
	PROPOSED MINOR CONTOUR (1 FT.)
	PROPOSED MAJOR CONTOUR (6 FT.)
	PROPOSED PAVEMENT
	PROPOSED GRAVEL
	TREE AND VEGETATION PROTECTION AREA
	PROPOSED EASEMENT
	PROPOSED SETBACK

POND ROUTE - STARTING WATER SURFACE @ BOTTOM POND	POND #2
RISER RIM ELEV.	379.60
OUTLET PIPE SIZE	(2) 18"
OUTLET INVERT ELEVATION	377.50
OUTLET SLOPE	1.93%
TOP OF DAM ELEVATION	382.50
EMERG. SPILL. WIDTH & ELEVATION	30' @ 381.00
POND BOTTOM ELEV.	378.50
DRAWDOWN SIZE	1.25" @ 378.50
1-YR ELEV.	379.72
10-YR ELEV.	380.81
25-YR ELEV.	381.15
100-YR ELEV.	381.45



P:\2017\Projects\170347-Chandler Ridge\Eng\CADD\DWG\TP-SHEET\TP\_170347\_C520\_SCD1.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



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NCBELS FRM No. C-2378



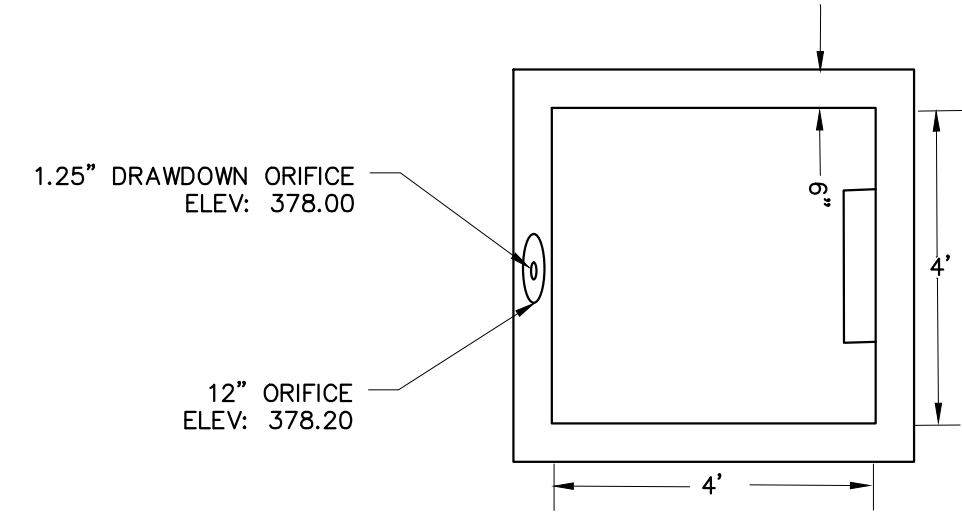
**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

**DRY POND #2**  
PLAN & DETAILS

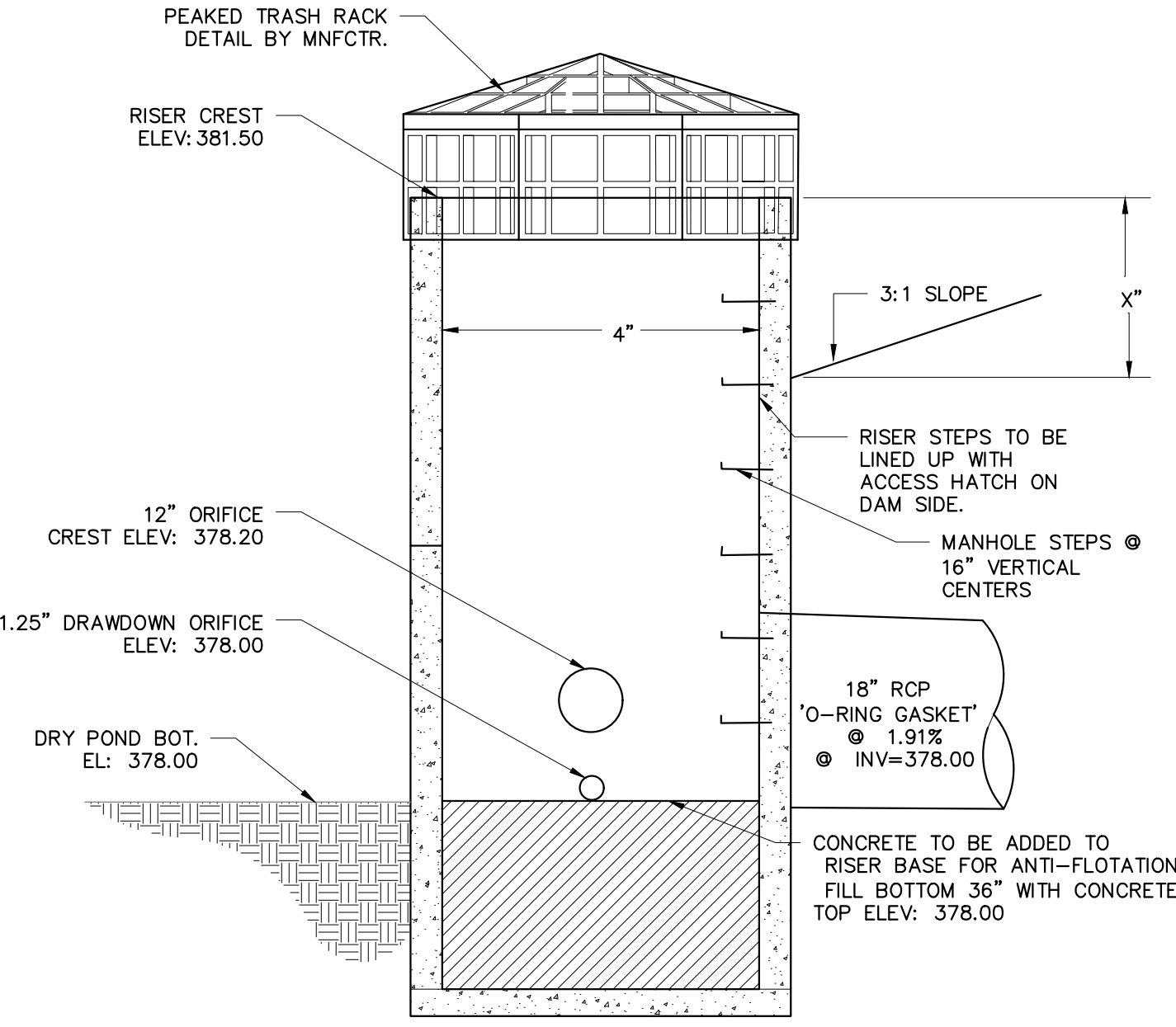
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Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C521</b>	



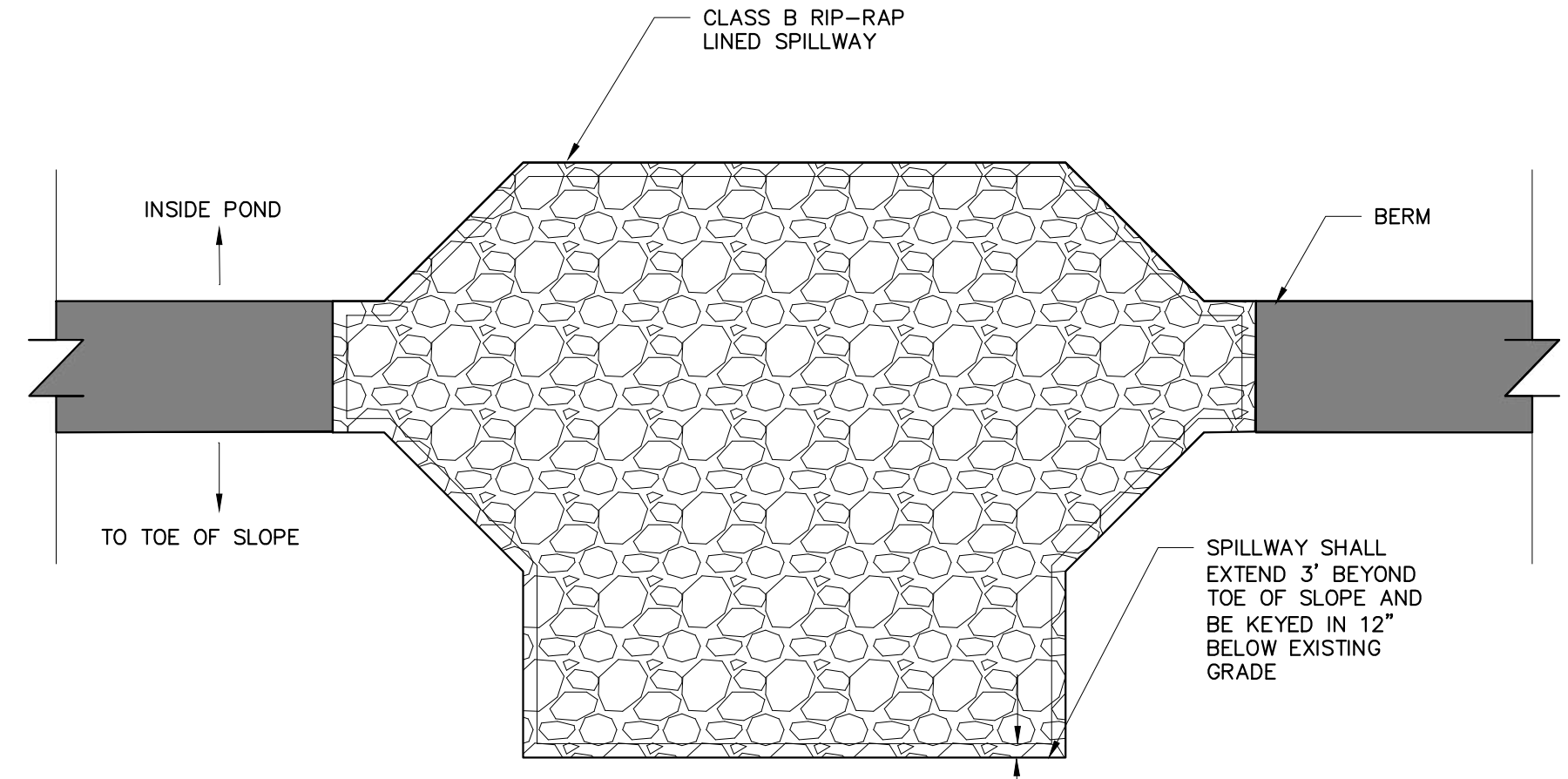
- LEGEND:**
- EXISTING RIPARIAN STREAM
  - EXISTING RIPARIAN BUFFER
  - PROJECT PARCEL BOUNDARY
  - PRIVATE RIGHT OF WAY
  - EXISTING MINOR CONTOUR (1 FT.)
  - EXISTING MAJOR CONTOUR (6 FT.)
  - PROPOSED MINOR CONTOUR (1 FT.)
  - PROPOSED MAJOR CONTOUR (6 FT.)
  - PROPOSED PAVEMENT
  - PROPOSED GRAVEL
  - TREE AND VEGETATION PROTECTION AREA
  - PROPOSED EASEMENT
  - PROPOSED SETBACK



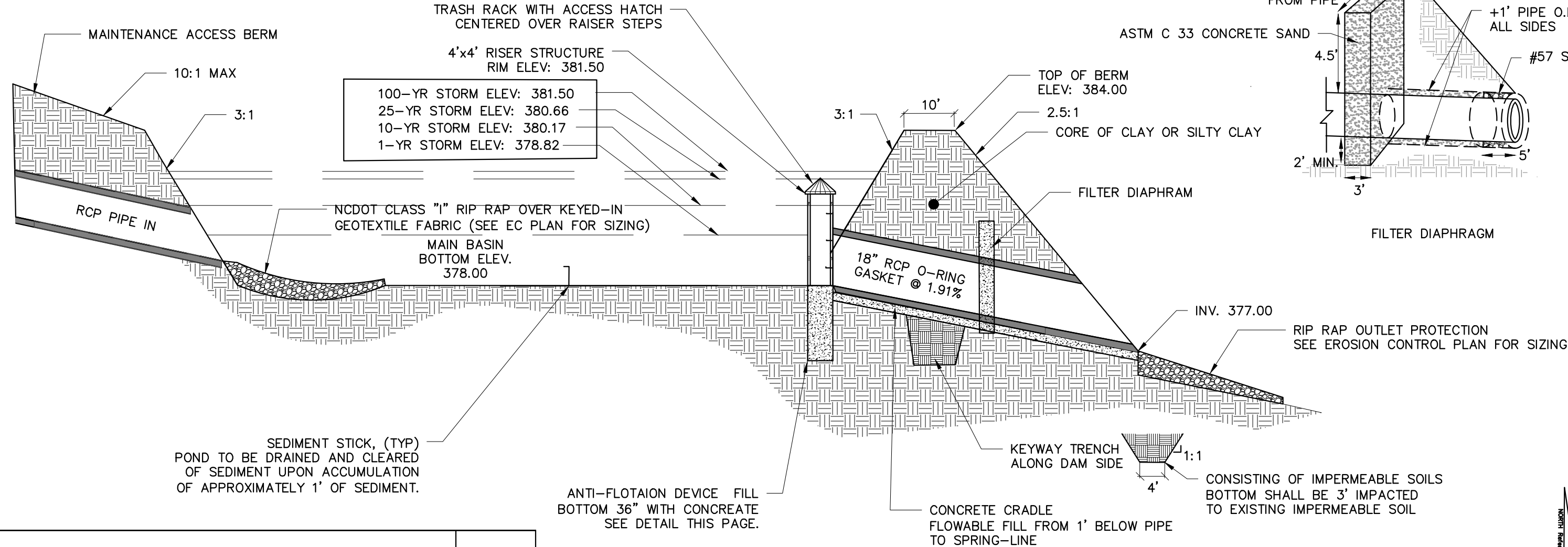
TOP VIEW RISER SCHEMATIC  
SCALE: N.T.S.



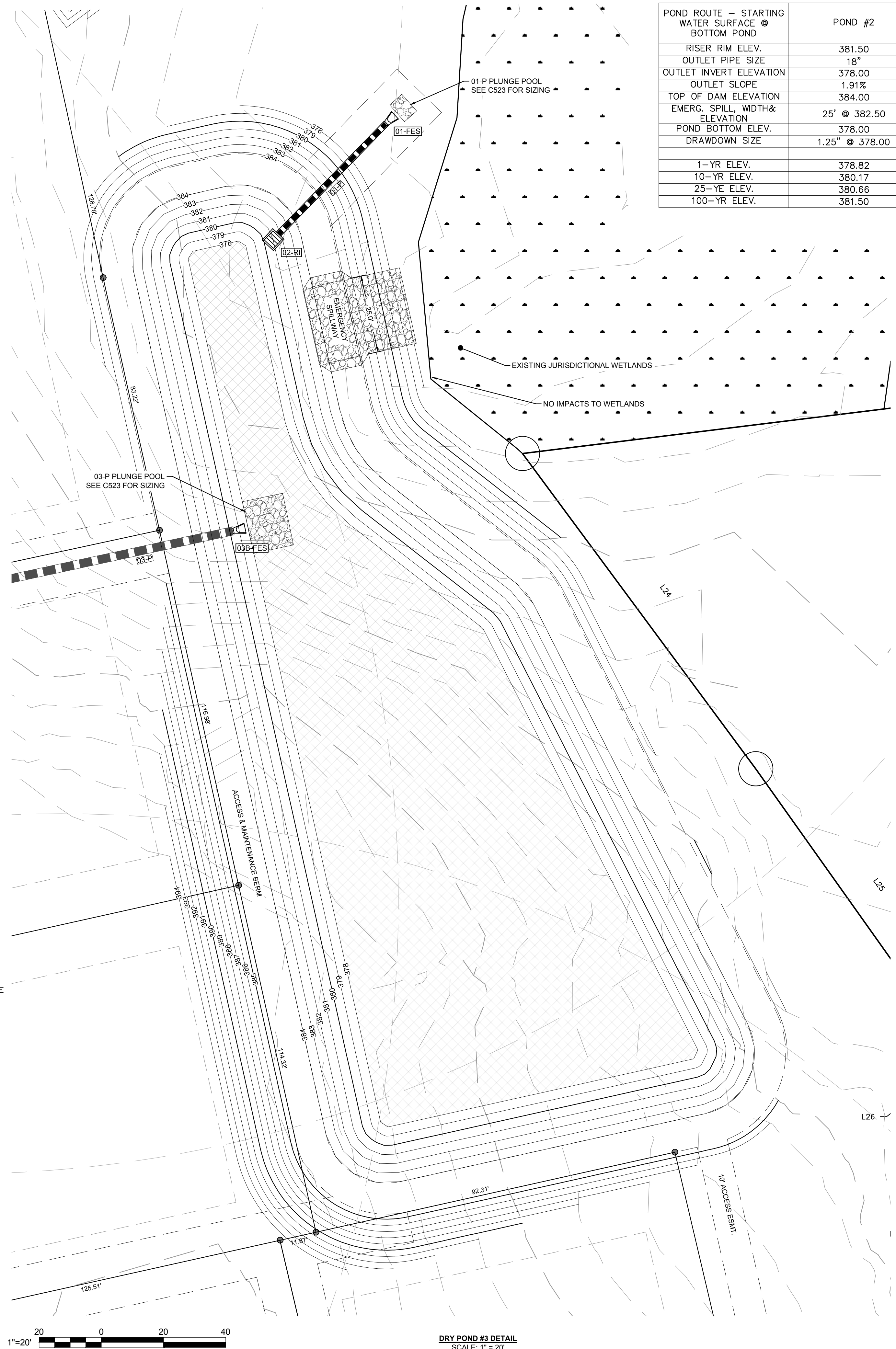
WET-POND BMP RISER DETAIL  
SCALE: N.T.S.



EMERGENCY SPILLWAY BMP DETAIL  
SCALE: N.T.S.



DRY POND BMP DETAIL  
SCALE: N.T.S.



DRY POND #3 DETAIL  
SCALE: 1" = 20'

POND ROUTE - STARTING WATER SURFACE @ BOTTOM POND		POND #2
RISER RIM ELEV.		381.50
OUTLET PIPE SIZE		18"
OUTLET INVERT ELEVATION		378.00
OUTLET SLOPE		1.91%
TOP OF DAM ELEVATION		384.00
EMERG. SPILL, WIDTH & ELEVATION		25' @ 382.50
POND BOTTOM ELEV.		378.00
DRAWDOWN SIZE		1.25' @ 378.00
1-YR ELEV.		378.82
10-YR ELEV.		380.17
25-YE ELEV.		380.66
100-YR ELEV.		381.50



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 NCBELS FRM No. C-2378



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

**DRY POND #3**  
 PLAN & DETAILS

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

Date: 09/08/2020

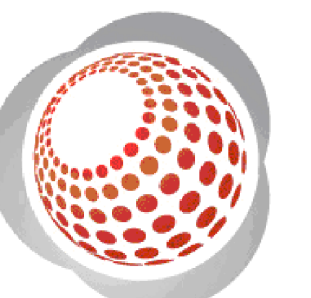
Project Number: P170347

SHEET  
**C522**

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020



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CHANDLER'S RIDGE  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

STORMWATER POND  
ADDITIONAL DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347

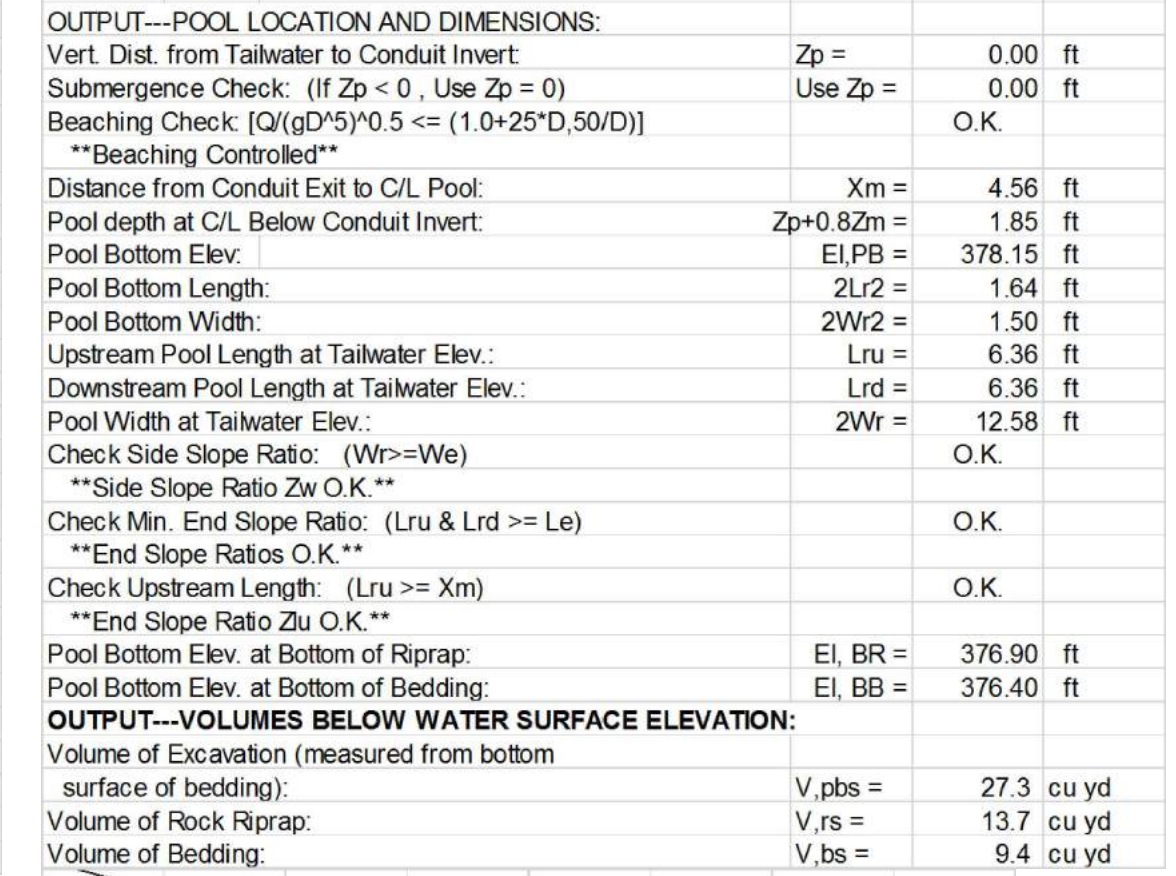
JOB:	CHANDLER'S RIDGE 35-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 2.00 ft  
 Conduit Discharge: Q = 26.79 cfs  
 Conduit Slope at Outlet: S = 0.04 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 390.00 ft  
 Tailwater Elevation: EI, TW = 390.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 378.50 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.50 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.25 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 4.56 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.85 ft  
 Pool Bottom Elev.: EI, PB = 378.15 ft  
 Pool Bottom Length: 2Lr2 = 1.64 ft  
 Pool Bottom Width: 2Wr2 = 1.50 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 6.36 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 6.36 ft  
 Pool Width at Tailwater Elev.: 2Wr = 12.58 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 376.90 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 376.40 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 27.3 cu yd  
 Volume of Rock Riprap: V.rs = 13.7 cu yd  
 Volume of Bedding: V.bs = 9.4 cu yd



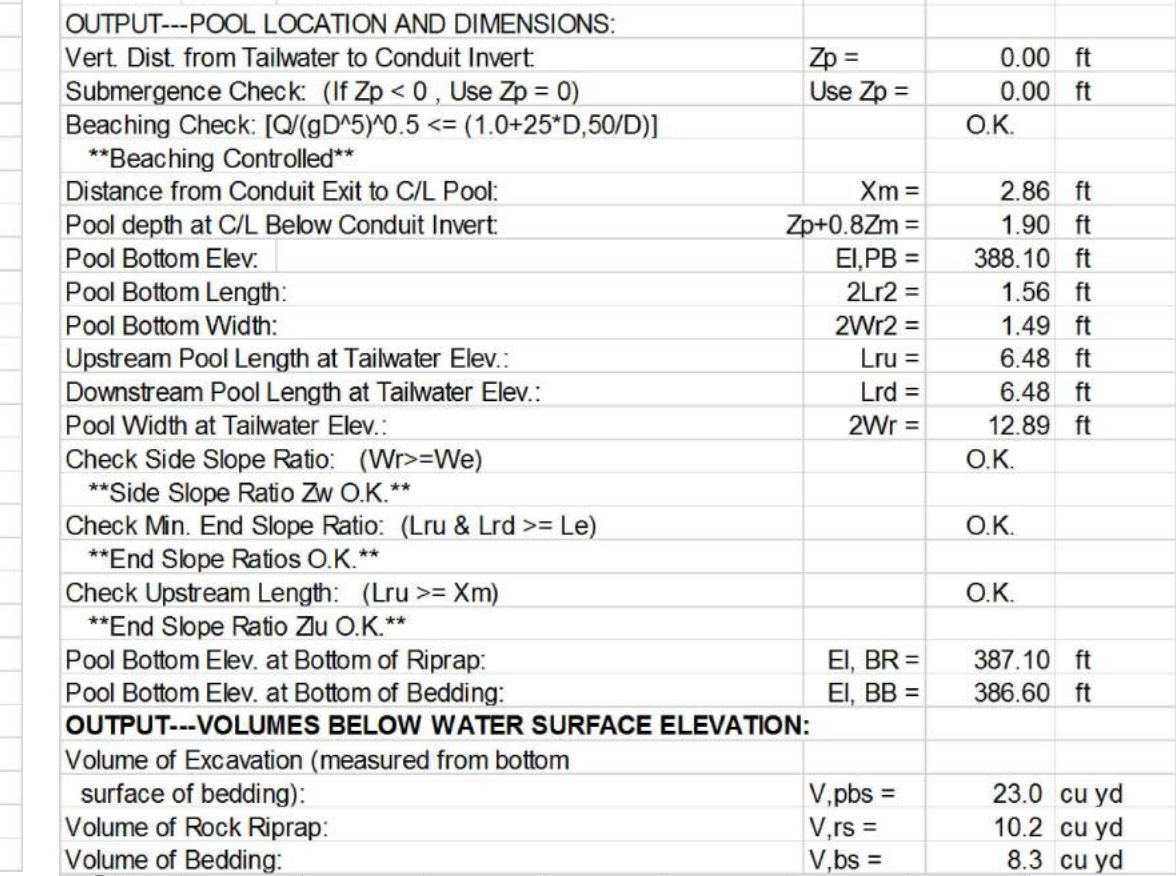
JOB:	CHANDLER'S RIDGE 38-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 2.50 ft  
 Conduit Discharge: Q = 24.13 cfs  
 Conduit Slope at Outlet: S = 0.02 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 390.00 ft  
 Tailwater Elevation: EI, TW = 390.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 389.00 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.40 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.00 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 2.86 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.90 ft  
 Pool Bottom Elev.: EI, PB = 388.10 ft  
 Pool Bottom Length: 2Lr2 = 1.56 ft  
 Pool Bottom Width: 2Wr2 = 1.49 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 6.48 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 6.48 ft  
 Pool Width at Tailwater Elev.: 2Wr = 12.89 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 387.10 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 386.60 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 23.0 cu yd  
 Volume of Rock Riprap: V.rs = 10.2 cu yd  
 Volume of Bedding: V.bs = 8.3 cu yd



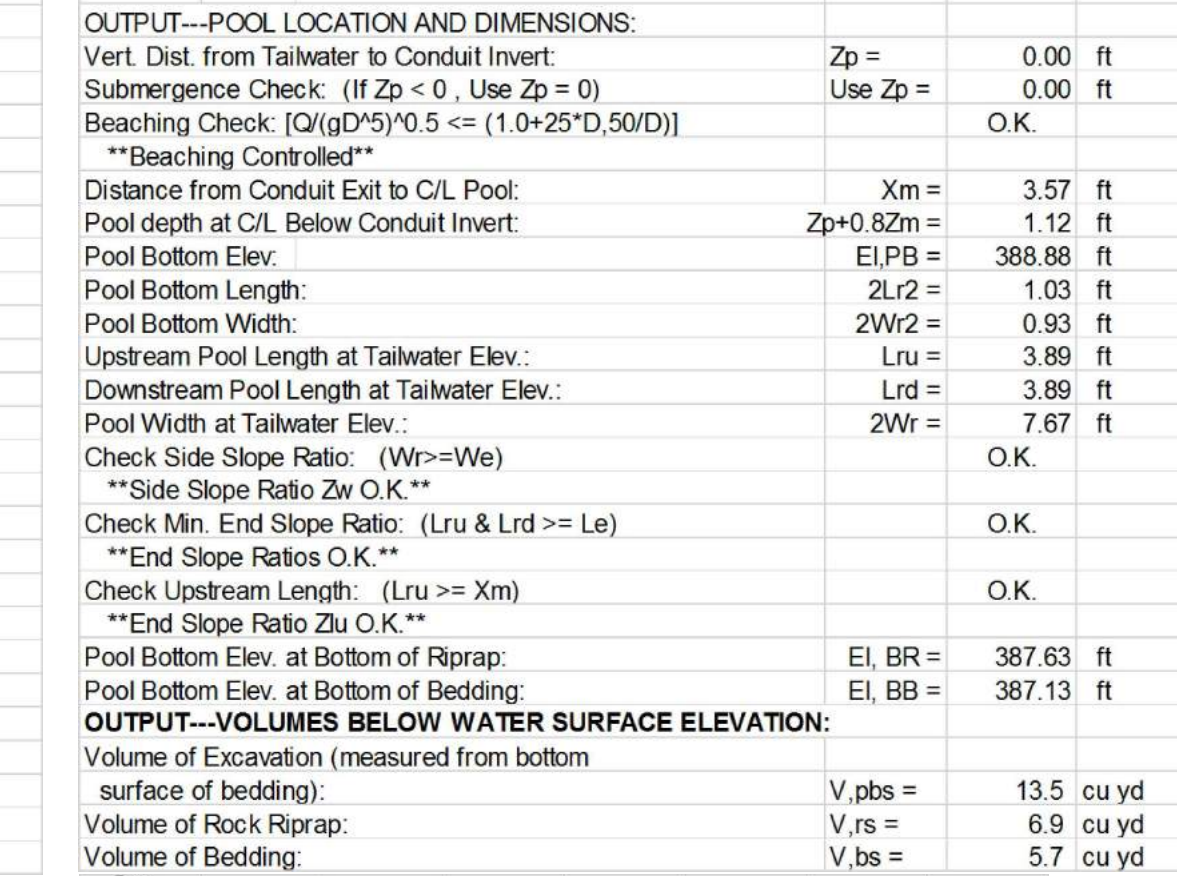
JOB:	CHANDLER'S RIDGE 41-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 1.50 ft  
 Conduit Discharge: Q = 16.02 cfs  
 Conduit Slope at Outlet: S = 0.06 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 390.00 ft  
 Tailwater Elevation: EI, TW = 390.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 389.00 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.50 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.25 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 3.57 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.12 ft  
 Pool Bottom Elev.: EI, PB = 388.88 ft  
 Pool Bottom Length: 2Lr2 = 1.03 ft  
 Pool Bottom Width: 2Wr2 = 0.93 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 3.89 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 3.89 ft  
 Pool Width at Tailwater Elev.: 2Wr = 7.67 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 387.63 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 387.13 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 13.5 cu yd  
 Volume of Rock Riprap: V.rs = 6.9 cu yd  
 Volume of Bedding: V.bs = 5.7 cu yd



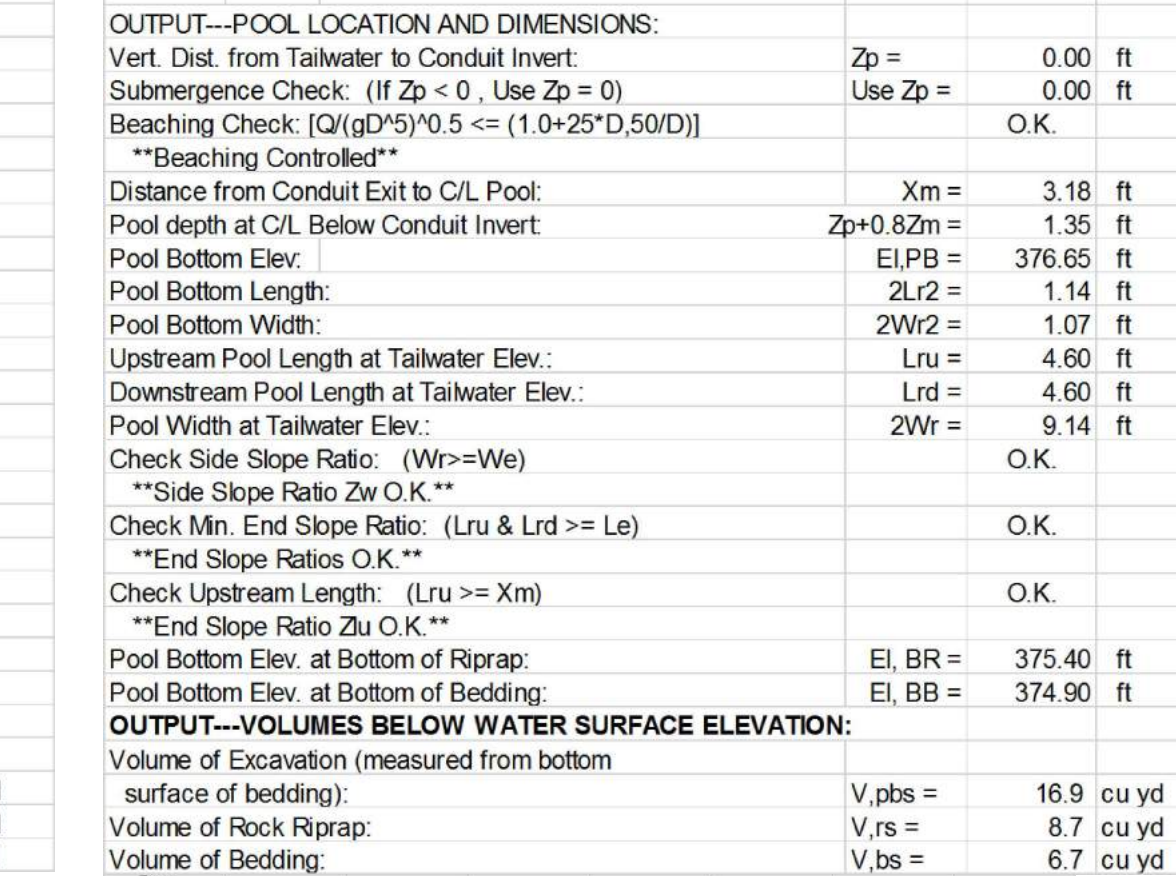
JOB:	CHANDLER'S RIDGE 03-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 2.50 ft  
 Conduit Discharge: Q = 31.93 cfs  
 Conduit Slope at Outlet: S = 0.01 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 378.00 ft  
 Tailwater Elevation: EI, TW = 378.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 378.00 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.50 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.25 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 3.18 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.35 ft  
 Pool Bottom Elev.: EI, PB = 376.65 ft  
 Pool Bottom Length: 2Lr2 = 1.14 ft  
 Pool Bottom Width: 2Wr2 = 1.07 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 4.80 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 4.80 ft  
 Pool Width at Tailwater Elev.: 2Wr = 9.14 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 375.40 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 374.90 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 16.9 cu yd  
 Volume of Rock Riprap: V.rs = 8.7 cu yd  
 Volume of Bedding: V.bs = 6.7 cu yd



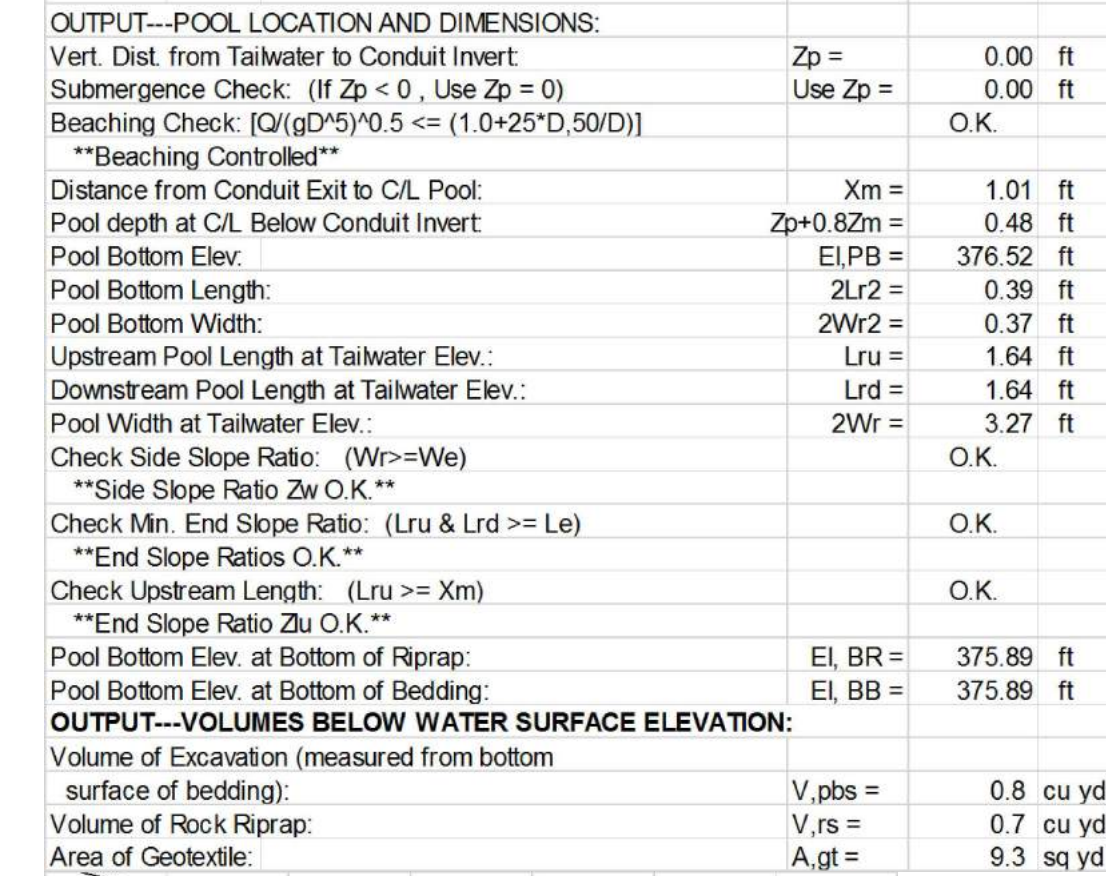
JOB:	CHANDLER'S RIDGE 01-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 1.50 ft  
 Conduit Discharge: Q = 5.44 cfs  
 Conduit Slope at Outlet: S = 0.02 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 377.00 ft  
 Tailwater Elevation: EI, TW = 377.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 377.00 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.25 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 0.63 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.00 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 1.01 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 0.48 ft  
 Pool Bottom Elev.: EI, PB = 376.52 ft  
 Pool Bottom Length: 2Lr2 = 0.39 ft  
 Pool Bottom Width: 2Wr2 = 0.37 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 1.64 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 1.64 ft  
 Pool Width at Tailwater Elev.: 2Wr = 3.27 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 375.89 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 375.89 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 0.8 cu yd  
 Volume of Rock Riprap: V.rs = 0.7 cu yd  
 Area of Geotextile: A.gt = 9.3 sq yd



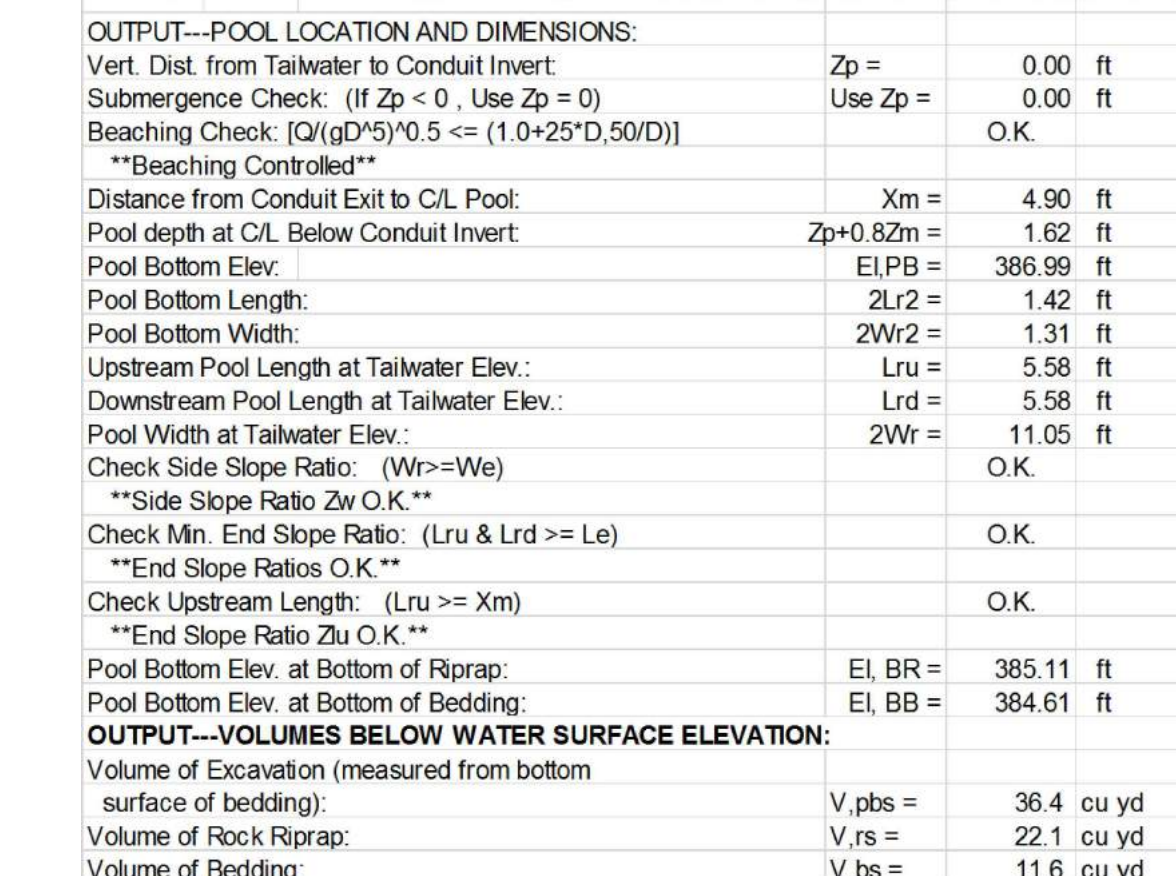
JOB:	CHANDLER'S RIDGE 13-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 3.00 ft  
 Conduit Discharge: Q = 66.22 cfs  
 Conduit Slope at Outlet: S = 0.01 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 388.61 ft  
 Tailwater Elevation: EI, TW = 388.61 ft  
 Outlet Channel Invert Elevation: EI, CH = 388.61 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.75 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.88 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 4.90 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.62 ft  
 Pool Bottom Elev.: EI, PB = 386.99 ft  
 Pool Bottom Length: 2Lr2 = 1.42 ft  
 Pool Bottom Width: 2Wr2 = 1.31 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 5.58 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 5.58 ft  
 Pool Width at Tailwater Elev.: 2Wr = 11.05 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 385.11 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 384.61 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 36.4 cu yd  
 Volume of Rock Riprap: V.rs = 22.1 cu yd  
 Volume of Bedding: V.bs = 11.6 cu yd



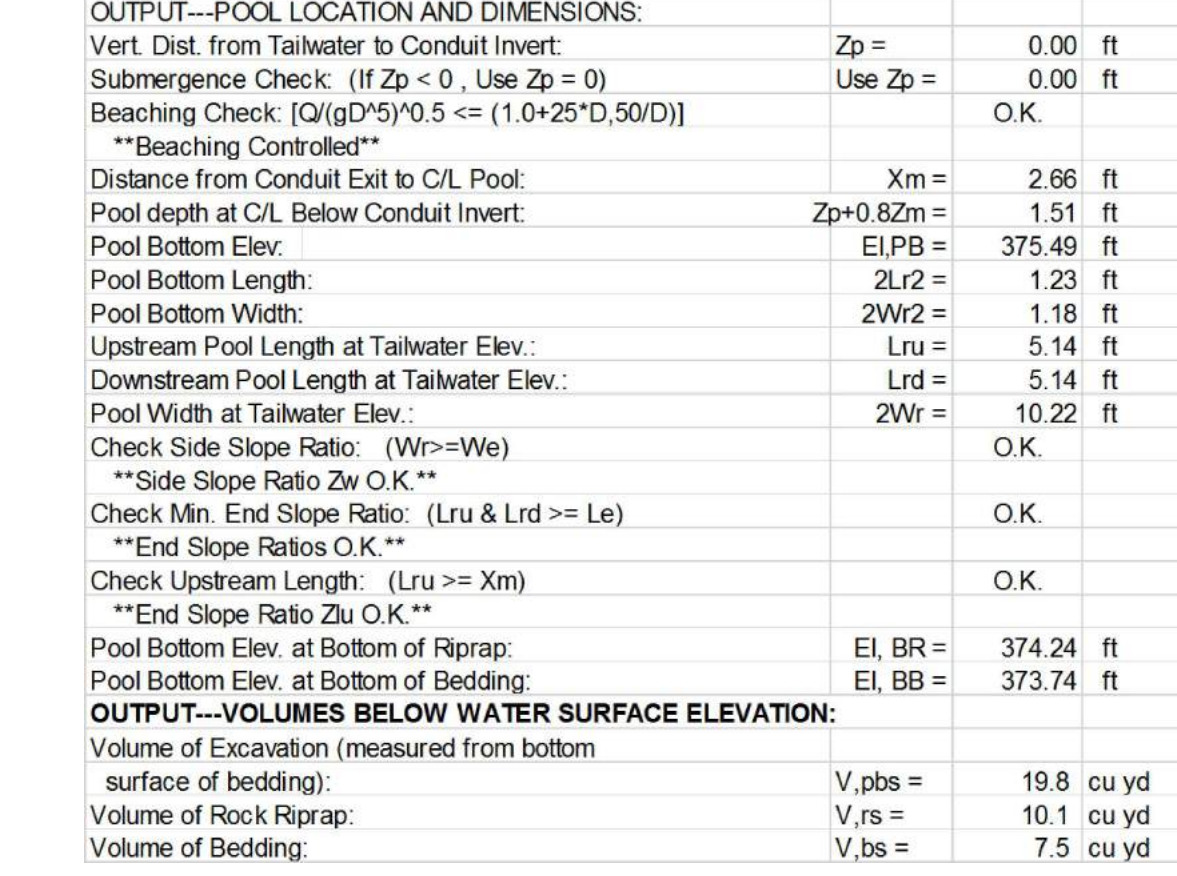
JOB:	CHANDLER'S RIDGE 15AB-P
DESIGNER:	TEP
CHECKER:	TSS
Date:	1/8/2020

INPUT DATA:  
 Conduit Diameter: D = 3.00 ft  
 Conduit Discharge: Q = 35.37 cfs  
 Conduit Slope at Outlet: S = 0.04 f/ft  
 Conduit Outlet Invert Elevation: EI, CO = 377.00 ft  
 Tailwater Elevation: EI, TW = 377.00 ft  
 Outlet Channel Invert Elevation: EI, CH = 377.00 ft

Water Density: RHO = 1.00  
 Bed/Riprap Particle Density: (Default 2.64) RHOS = 2.64  
 D, 50 Riprap Size: RS = 0.50 ft  
 Riprap Thickness: (2.5"D, 50 recommended) RT = 1.25 ft  
 Bedding Thickness: (6 inch min. rec.) (Enter 0 for geotextile) BT = 0.50 ft  
 Side Slope Ratio: Zw = 3.00 f/ft  
 Upstream End Slope Ratio: Zu = 3.00 f/ft  
 Downstream End Slope Ratio: Zd = 3.00 f/ft  
 Combined End Slope Ratio: Z1 = 3.00 f/ft

OUTPUT---POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: (If Zp < 0, Use Zp = 0) Use Zp = 0.00 ft  
 Beaching Check:  $[Q/(gD^5)^{0.5}] \leq (1.0+25^*D,50/D)]$  O.K.  
 \*\*Beaching Controlled\*\*  
 Distance from Conduit Exit to C/L Pool: Xm = 2.66 ft  
 Pool depth at C/L Below Conduit Invert: Zp+0.8Zm = 1.51 ft  
 Pool Bottom Elev.: EI, PB = 375.49 ft  
 Pool Bottom Length: 2Lr2 = 1.23 ft  
 Pool Bottom Width: 2Wr2 = 1.18 ft  
 Upstream Pool Length at Tailwater Elev.: Lru = 5.14 ft  
 Downstream Pool Length at Tailwater Elev.: Lrd = 5.14 ft  
 Pool Width at Tailwater Elev.: 2Wr = 10.22 ft  
 Check Side Slope Ratio: (Wr>=We) O.K.  
 \*\*Side Slope Ratio Zu O.K.\*\*  
 Check Min. End Slope Ratio: (Lru & Lrd >= Le) O.K.  
 \*\*End Slope Ratios O.K.\*\*  
 Check Upstream Length: (Lru >= Xm) O.K.  
 \*\*End Slope Ratio Zu O.K.\*\*  
 Pool Bottom Elev. at Bottom of Riprap: EI, BR = 374.24 ft  
 Pool Bottom Elev. at Bottom of Bedding: EI, BB = 373.74 ft

OUTPUT---VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): V.pbs = 19.8 cu yd  
 Volume of Rock Riprap: V.rs = 10.1 cu yd  
 Volume of Bedding: V.bs = 7.5 cu yd



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NO.	REVISIONS	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE



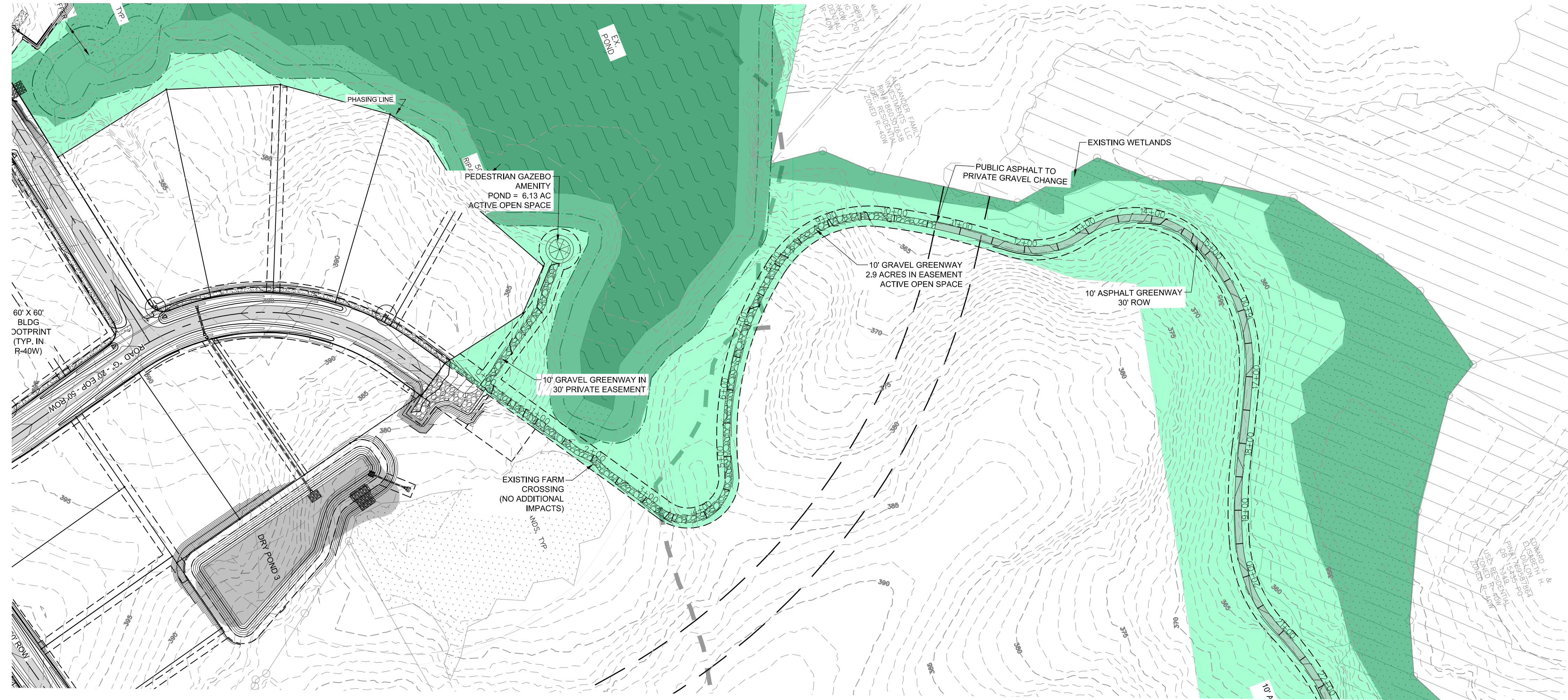
**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2824 Reliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FIRM No. C-2378



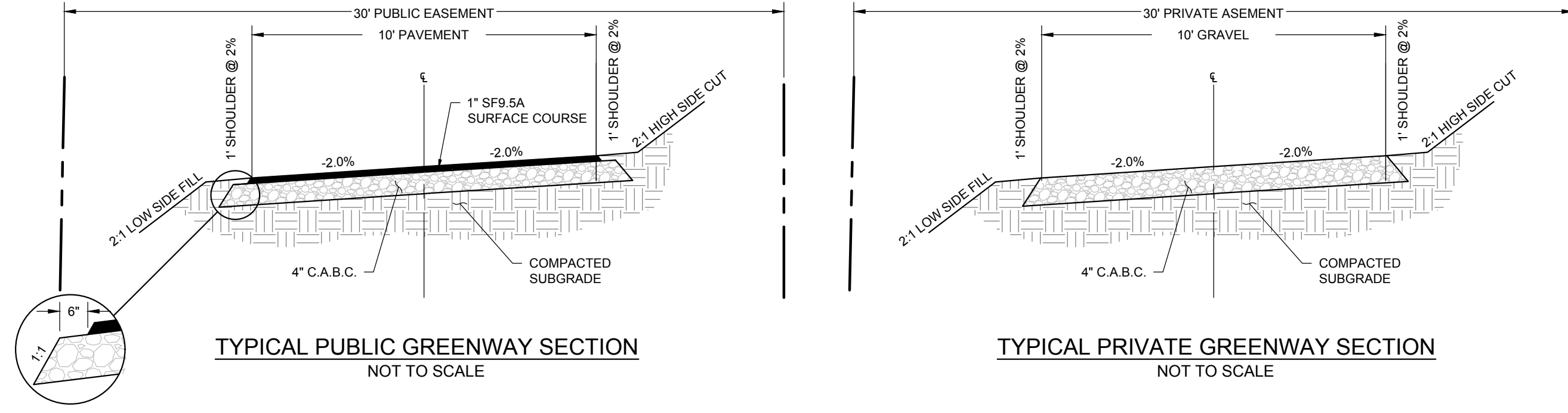
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**GREENWAY**  
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
C590	

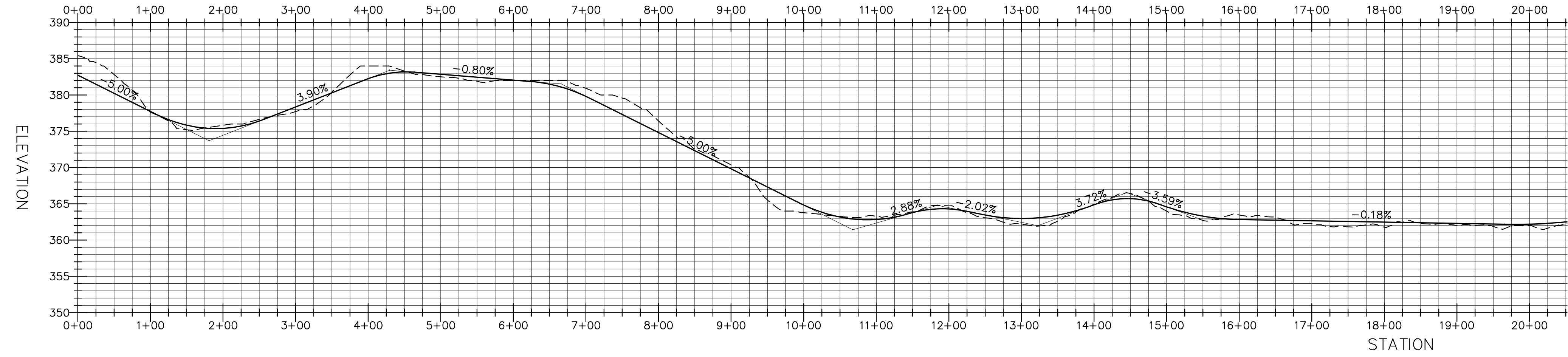


NORTH Referenced to N.C. GRID (MAD 83)



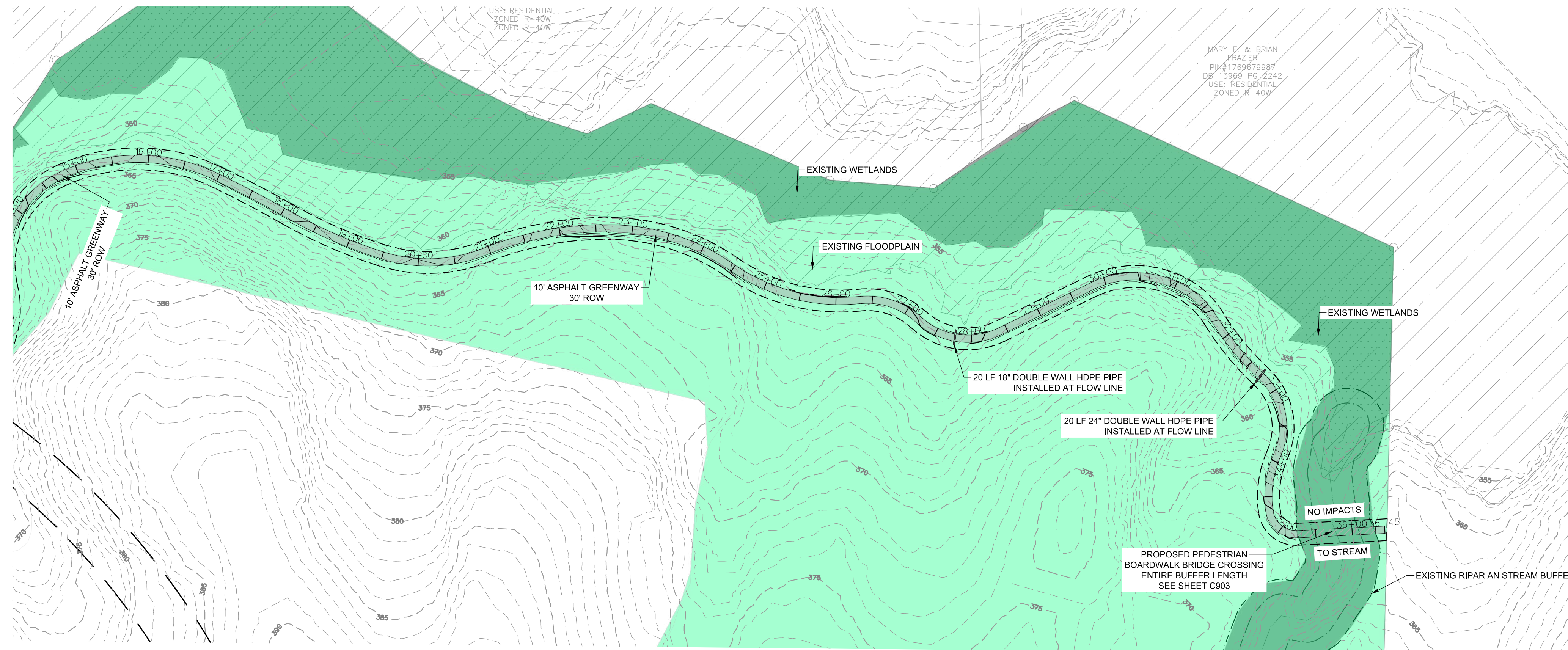
**GREENWAY - PLAN**  
 SCALE: 1"=100'  
 STA: 0+00 - 20+00

**NOTE: 1' INTERVAL CONTOURS**



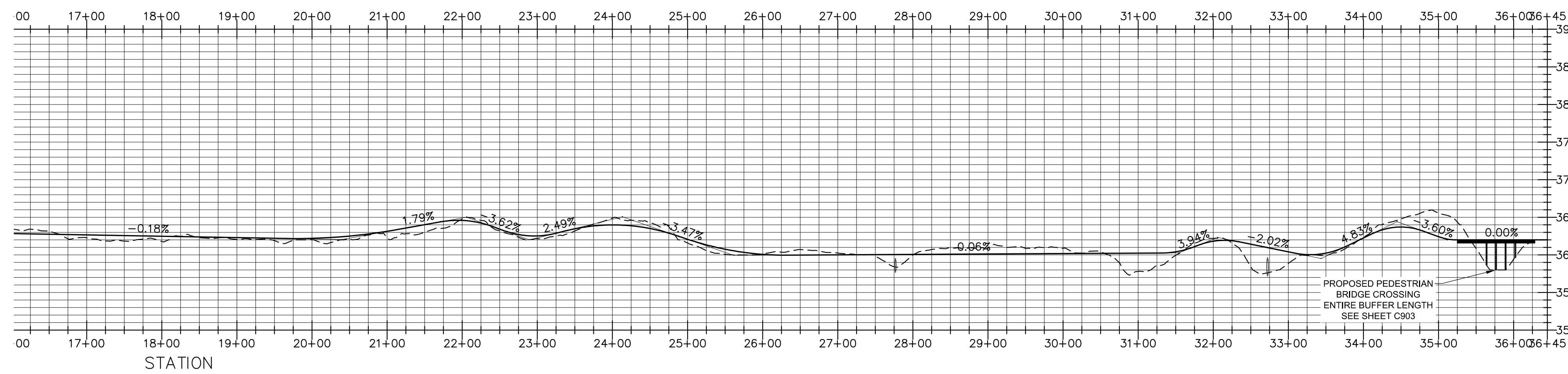
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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



**GREENWAY - PLAN**  
**SCALE: 1"=100'**  
**STA: 20+00 - 39+61**

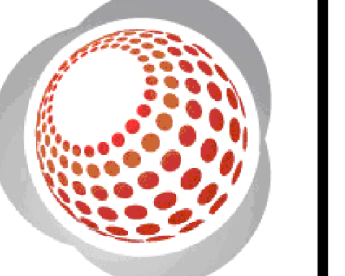
**NOTE: 1' INTERVAL CONTOURS**



**GREENWAY - PROFILE**  
**HOR. SCALE: 1"=100' VER. SCALE: 1"=5'**  
**STA: 20+00 - 39+61**



**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

**GREENWAY**  
**PLAN & PROFILE**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	AS NOTED
Date:	09/08/2020
Project Number:	P170347

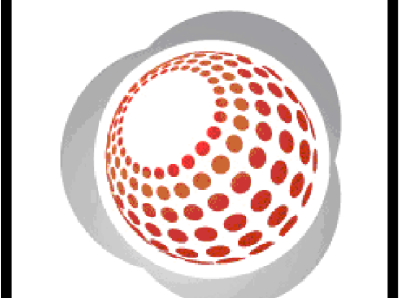
SHEET  
**C591**

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	



**Bateman Civil Survey Company**  
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 2824 Reliance Avenue, Apex, North Carolina 27539  
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 NCBELS FIRM No. C-2378



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

**OVERALL**  
 UTILITY PLAN

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 200'

Date: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C600**

**LEGEND:**

- EXISTING POND
- EXISTING WETLANDS
- PROPOSED PHASING LINE
- EXISTING TOWN OF ROLESVILLE ETJ
- EXISTING STREAM
- 50' STREAM AND POND RIPARIAN BUFFER
- DEDICATED PRIMARY PROTECTED OPEN SPACE
- DEDICATED SECONDARY PROTECTED OPEN SPACE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED FORCE MAIN

**PROPOSED UTILITY SEPARATION:**

1. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT HORIZONTAL SEPARATION IN WHICH CASE:
  - a. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR
  - b. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE OF A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP TO THE SEWER.
2. CROSSING A WATER MAIN OVER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER, WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.

**WATER NOTES:**

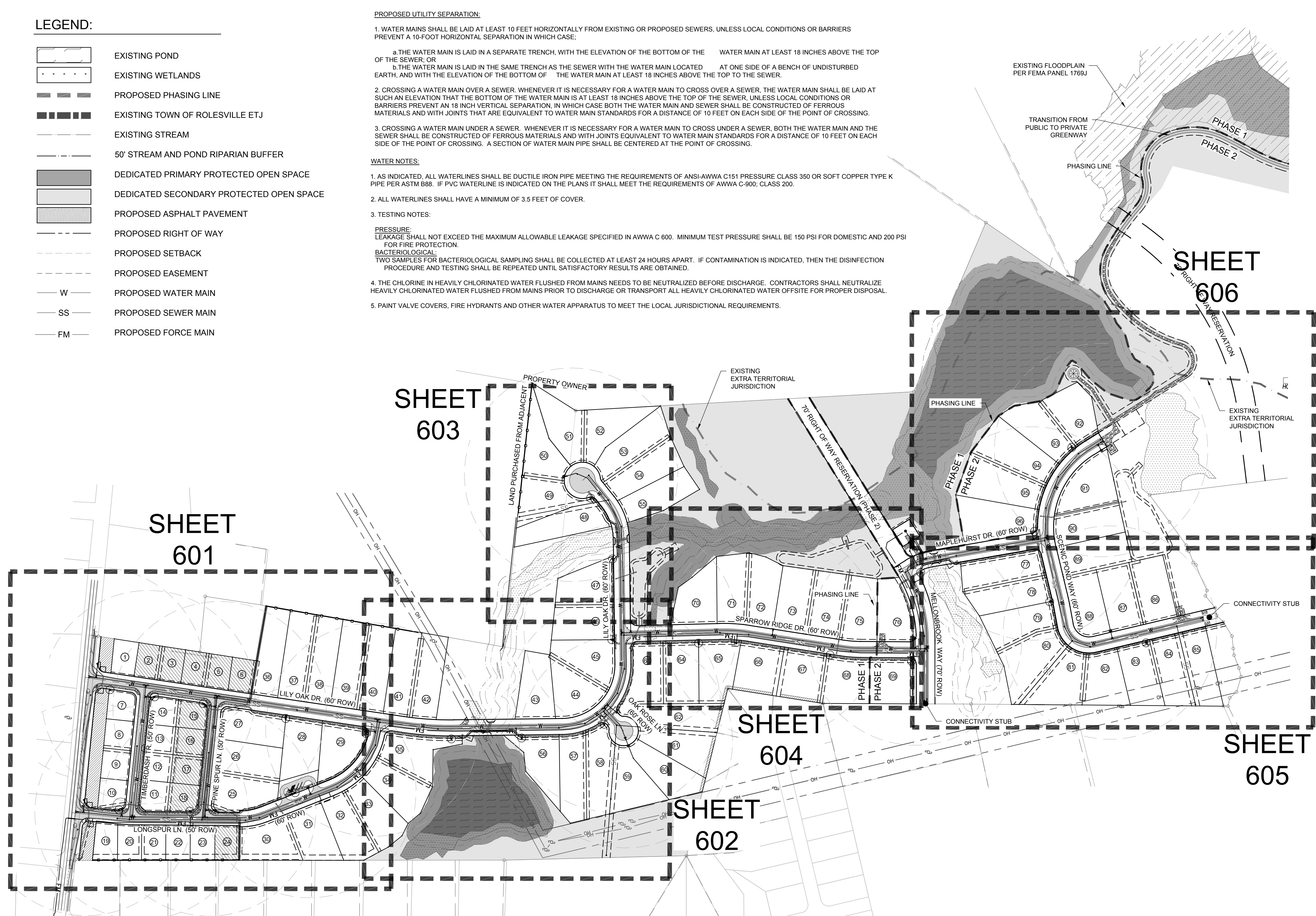
1. AS INDICATED, ALL WATERLINES SHALL BE DUCTILE IRON PIPE MEETING THE REQUIREMENTS OF ANSI-AWWA C151 PRESSURE CLASS 350 OR SOFT COPPER TYPE K PIPE PER ASTM B88. IF PVC WATERLINE IS INDICATED ON THE PLANS IT SHALL MEET THE REQUIREMENTS OF AWWA C-900, CLASS 200.
2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.5 FEET OF COVER.
3. TESTING NOTES:
  - LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR DOMESTIC AND 200 PSI FOR FIRE PROTECTION.
  - BACTERIOLOGICAL: TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
4. THE CHLORINE IN HEAVILY CHLORINATED WATER FLUSHED FROM MAINS NEEDS TO BE NEUTRALIZED BEFORE DISCHARGE. CONTRACTORS SHALL NEUTRALIZE HEAVILY CHLORINATED WATER FLUSHED FROM MAINS PRIOR TO DISCHARGE OR TRANSPORT ALL HEAVILY CHLORINATED WATER OFFSITE FOR PROPER DISPOSAL.
5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.

**PRESSURE:**

LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR DOMESTIC AND 200 PSI FOR FIRE PROTECTION.

**BACTERIOLOGICAL:**

TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.



- STANDARD UTILITY NOTES (AS APPLICABLE):
1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
  2. UTILITY SEPARATION REQUIREMENTS:
    - A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
    - B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
    - C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
    - D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
    - E) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS, MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS, WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
    - F) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
  3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
  4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
  5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
  6. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
  7. INSTALL 1/2" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
  8. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
  9. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
  10. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
  11. NCDOT /RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
  12. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. APPROVAL OF THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

**SEPARATION OF SANITARY SEWERS AND STORM SEWERS:**

1. A 24" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER LINES OR BOTH THE SANITARY AND THE STORM LINES SHALL BE CONSTRUCTED OF FERROUS MATERIALS.

**SEWER NOTES:**

1. ALL PVC SEWER PIPES ARE TO BE SDR-35 SPEC, UNLESS SPECIFIED OTHERWISE.
2. SANITARY SEWER CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE HEAVY DUTY TRAFFIC BEARING CASTINGS.
3. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER MANHOLES ARE 4' DIA.
4. MANHOLES LOCATED IN PAVEMENT, CONCRETE OR OTHER TRAFFIC AREAS SHALL BE SET AT GRADE. MANHOLES LOCATED IN OTHER AREAS (I.E. GRASS OR WOODED AREAS) SHALL HAVE THEIR RIMS RAISED SIX INCHES ABOVE THE SURROUNDING GRADE. MANHOLES SUBJECT TO POSSIBLE WATER INFILTRATION SHALL HAVE WATERTIGHT, BOLTED LIDS.
5. MINIMUM REQUIRED SLOPES FOR SEWER SERVICES:
  - 4" SEWER SERVICE - 2.00% SLOPE
  - 6" SEWER SERVICE - 1.00% SLOPE
  - 8" SEWER SERVICE - 0.50% SLOPE
6. UNLESS OTHERWISE NOTED, LOCATE SANITARY SERVICE CLEANOUTS AT ALL HORIZONTAL OR VERTICAL CHANGES IN DIRECTION. MAXIMUM SPACING BETWEEN CLEANOUTS SHALL BE 75 FEET.
7. SEWER LINES LESS THAN 3 FEET OF COVER SHALL BE CLASS 50 DUCTILE IRON PIPE. SEWER LINES WITH GREATER THAN 3 FEET OF COVER SHALL BE AS NOTED BELOW:
  - 4" SEWER SERVICE - SCH 80
  - 6" SEWER SERVICE - SCH 80
  - 8" SEWER SERVICE - SDR-35
8. SEWER LINES UNDER CONSTRUCTION SHALL BE PROTECTED FROM DIRT, DEBRIS OR OTHER CONTAMINANTS ENTERING THE NEW SYSTEM. A MECHANICAL PLUG SHALL BE UTILIZED BOTH IMMEDIATELY UPSTREAM OF THE NEW CONSTRUCTION AND AT THE FIRST MANHOLE DOWNSTREAM IN THE EXISTING SYSTEM. EXISTING STRUCTURES, PIPING AND APPURTENANCES SHALL BE PROTECTED FROM ANY INFLOW OF WATER, DIRT OR DEBRIS DUE TO NEW CONSTRUCTION CONNECTING TO OR IN THE VICINITY OF THE EXISTING SYSTEM. CONTRACTOR TO REMOVE DEBRIS AND PLUG PRIOR TO OCCUPANCY.
9. ALL MANHOLES COVERS SHALL BE PAINTED TO LOCAL JURISDICTIONAL REQUIREMENTS.

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

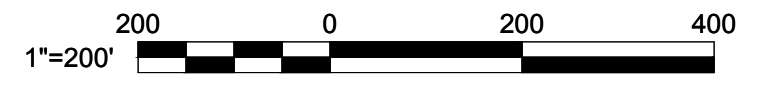
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with 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

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

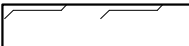
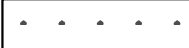



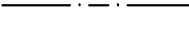






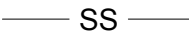

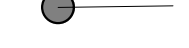


**PHASING SUMMARY**

PHASE 1 AREA	91.40 ACRES
PHASE 1 OPEN SPACE	36.57 ACRES (40.01%)
PHASE 2 AREA	80.13 ACRES
PHASE 2 OPEN SPACE	32.10 ACRES (40.06%)

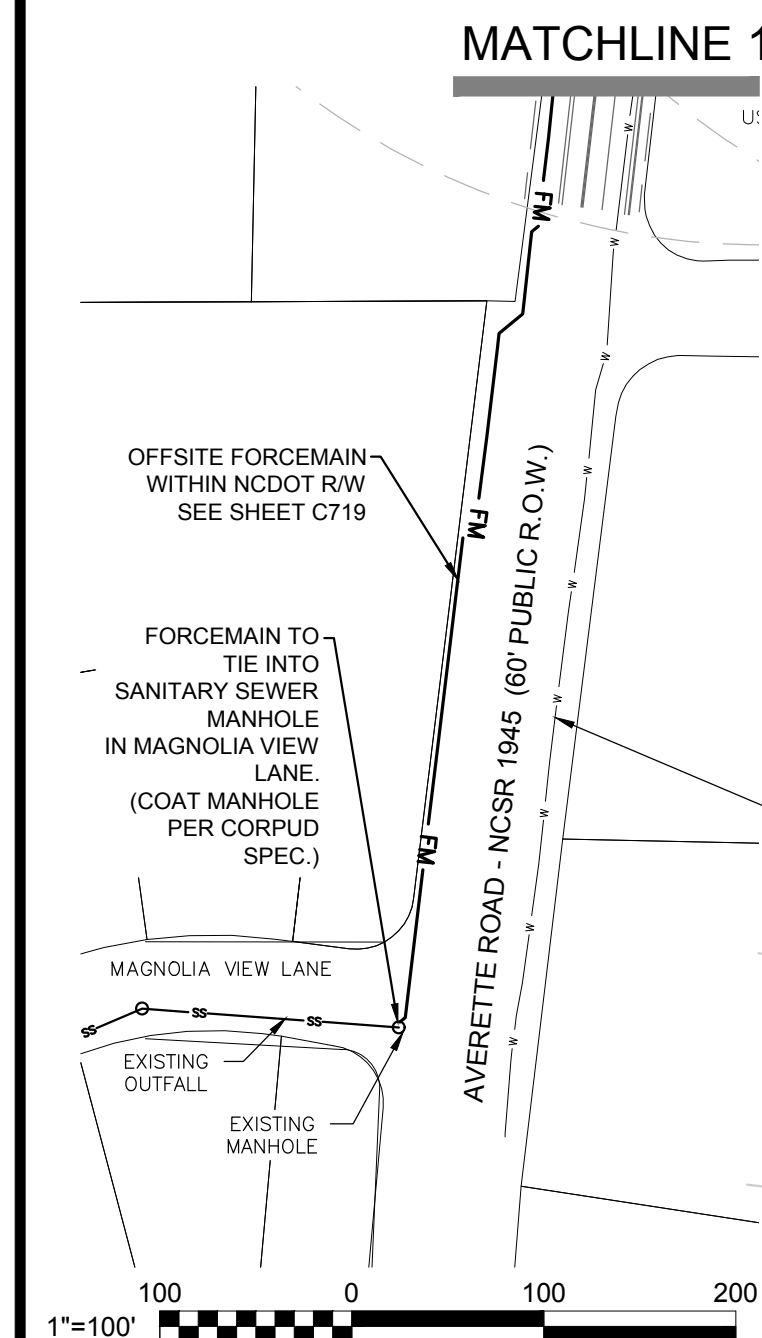


NORTH  
 Referenced to N.C. GRID (NAD 83)

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  PROPOSED WATER MAIN
-  PROPOSED SEWER MAIN
-  PROPOSED FORCE MAIN
-  PROPOSED 4" SEWER SERVICE
-  PROPOSED 3/4" WATER SERVICE

UB 8517 PG 2/38  
 ZONED R-40W  
 USE: CEMETERY



REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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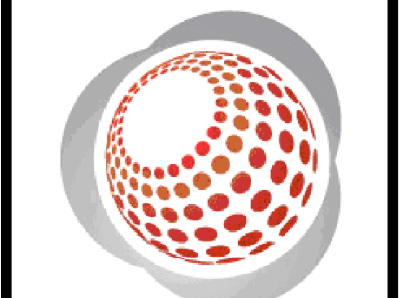
**SITE PERMITTING APPROVAL**  
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City of Raleigh Development Approval \_\_\_\_\_  
 Raleigh Water Review Officer \_\_\_\_\_



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

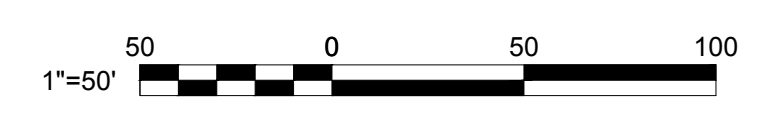


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

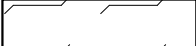




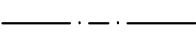
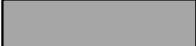
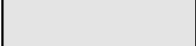



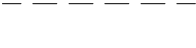
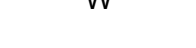


**WEST**  
 UTILITY PLAN

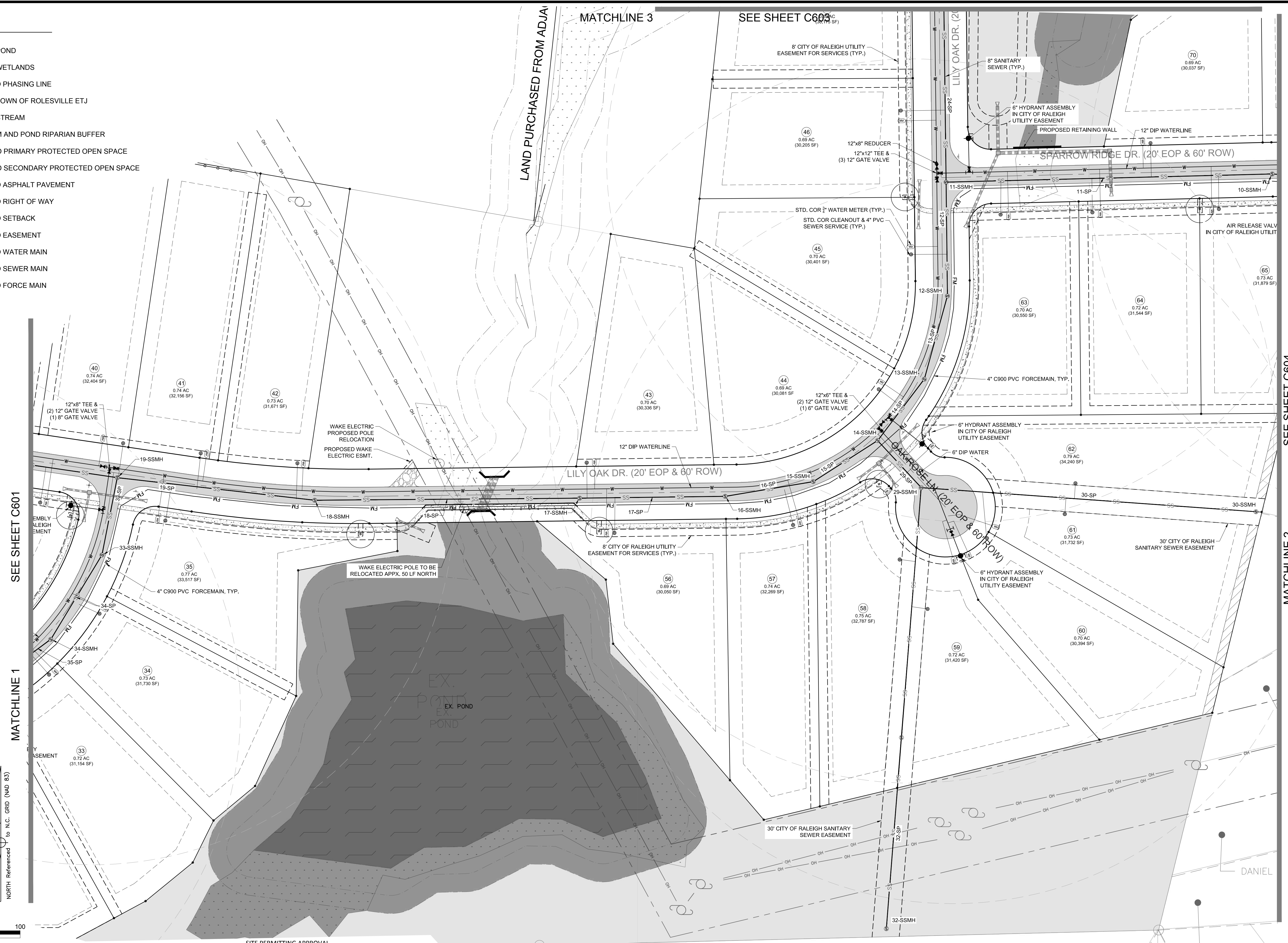
Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C601</b>	

MATCHLINE 2 SEE SHEET C602



**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  W PROPOSED WATER MAIN
-  SS PROPOSED SEWER MAIN
-  FM PROPOSED FORCE MAIN



SEE SHEET C601

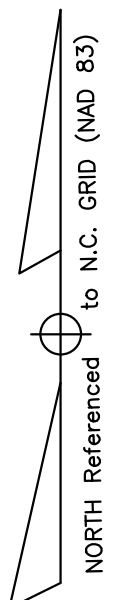
MATCHLINE 1

MATCHLINE 3

SEE SHEET C603

SEE SHEET C604

MATCHLINE 2



**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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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	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



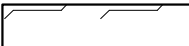
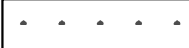



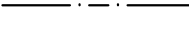






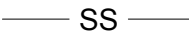


**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION  
410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

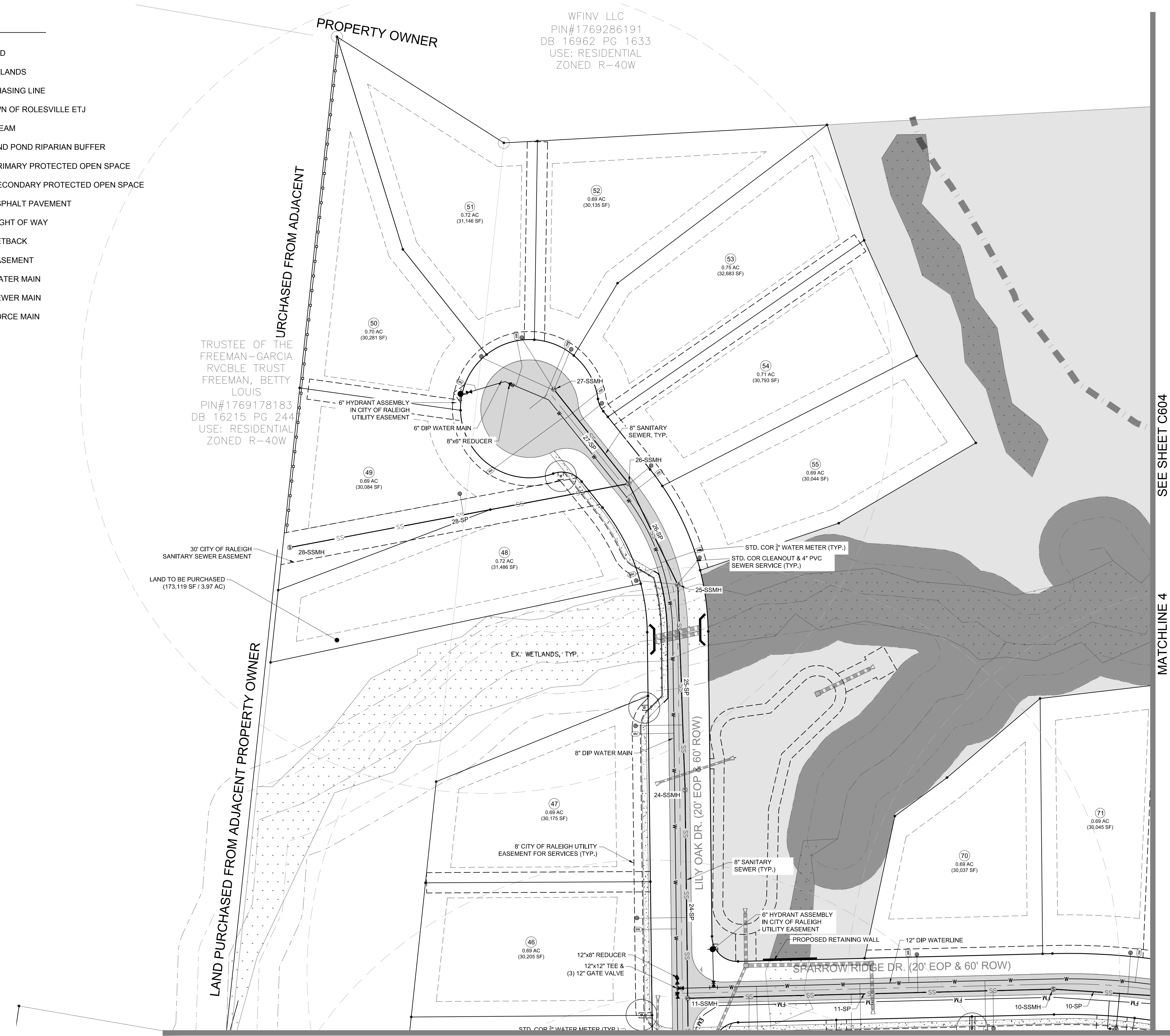
**WEST**  
UTILITY PLAN

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C602**

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  W PROPOSED WATER MAIN
-  SS PROPOSED SEWER MAIN
-  FM PROPOSED FORCE MAIN



WFINV LLC  
 PIN#1769286191  
 DB 16962 PG 1633  
 USE: RESIDENTIAL  
 ZONED R-40W

TRUSTEE OF THE  
 FREEMAN-GARCIA  
 RVCBLT TRUST  
 FREEMAN, BETTY  
 LOUIS  
 PIN#1769178183  
 DB 16215 PG 244  
 USE: RESIDENTIAL  
 ZONED R-40W

LAND TO BE PURCHASED  
 (173,119 SF / 3.97 AC)

LAND PURCHASED FROM ADJACENT PROPERTY OWNER

URCHASUED FROM ADJACENT

MATCHLINE 3

SEE SHEET C602

SEE SHEET C604

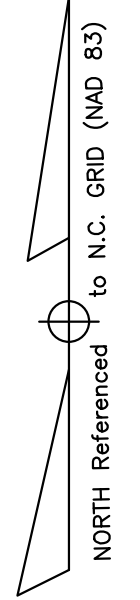
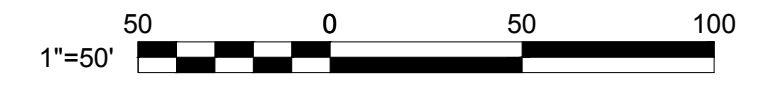
MATCHLINE 4

REV	DESCRIPTION	DATE
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

**SITE PERMITTING APPROVAL**  
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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 FIRM No. C-2378



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

410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**WEST**  
 UTILITY PLAN

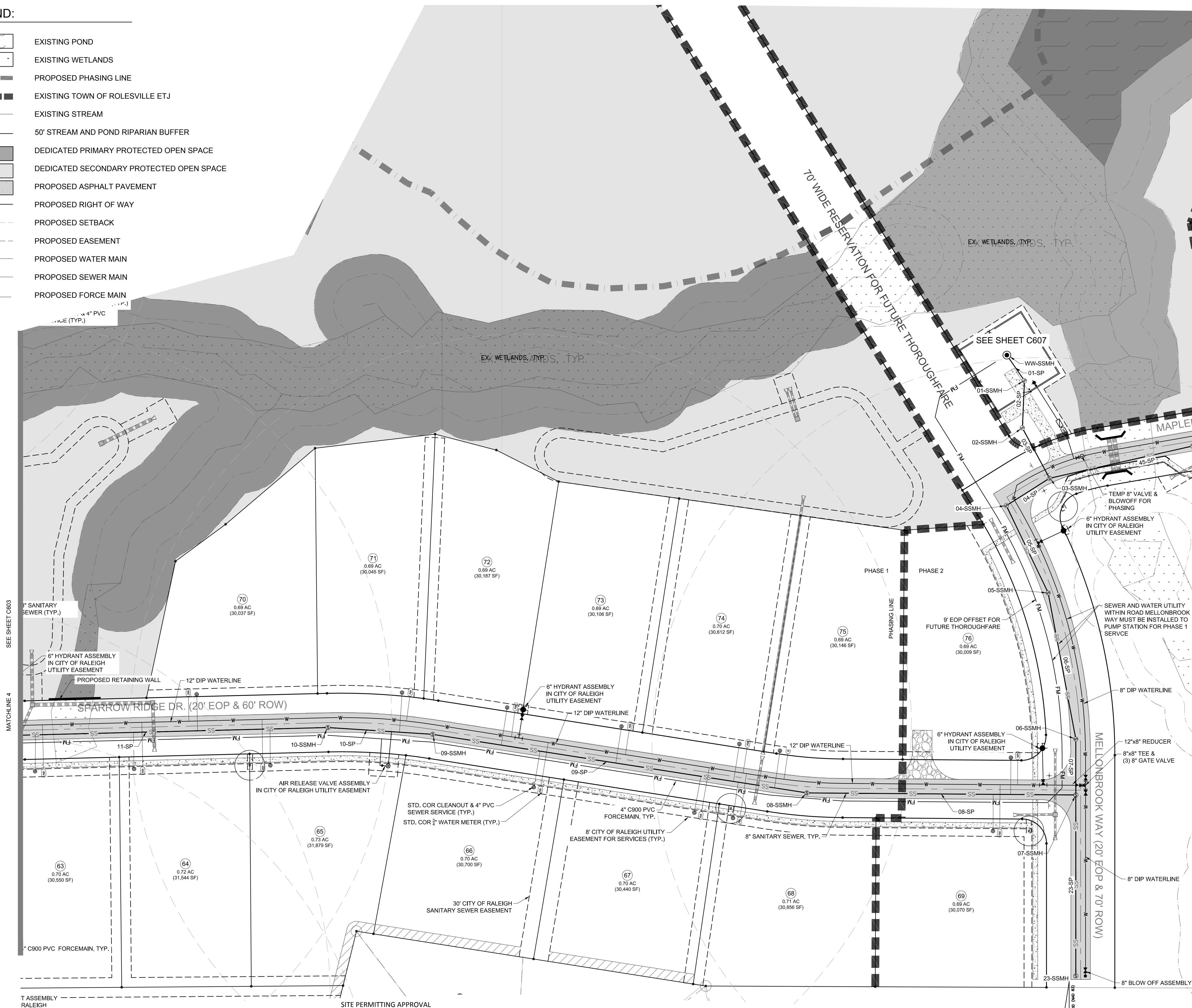
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Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347
SHEET	
<b>C603</b>	

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**LEGEND:**

- EXISTING POND
- EXISTING WETLANDS
- PROPOSED PHASING LINE
- EXISTING TOWN OF ROLESVILLE ETJ
- EXISTING STREAM
- 50' STREAM AND POND RIPARIAN BUFFER
- DEDICATED PRIMARY PROTECTED OPEN SPACE
- DEDICATED SECONDARY PROTECTED OPEN SPACE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED SETBACK
- PROPOSED EASEMENT
- W PROPOSED WATER MAIN
- SS PROPOSED SEWER MAIN
- FM PROPOSED FORCE MAIN



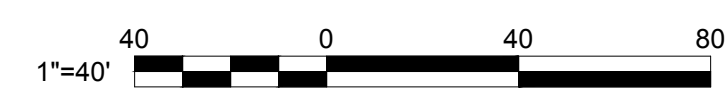
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**SITE PERMITTING APPROVAL**  
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City of Raleigh Development Approval  
 Raleigh Water Review Officer



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

410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**EAST**  
**UTILITY PLAN**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 50'

Date: 09/08/2020

Project Number: P170347

SHEET  
**C604**

**LEGEND:**

- EXISTING POND
- EXISTING WETLANDS
- PROPOSED PHASING LINE
- EXISTING TOWN OF ROLESVILLE ETJ
- EXISTING STREAM
- 50' STREAM AND POND RIPARIAN BUFFER
- DEDICATED PRIMARY PROTECTED OPEN SPACE
- DEDICATED SECONDARY PROTECTED OPEN SPACE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED RIGHT OF WAY
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED FORCE MAIN

JAMES ALLISON PRIVETTE  
 PIN#1769568511  
 DB 3443 PG 973  
 USE: RESIDENTIAL  
 ZONED R-40W



**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2824 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**

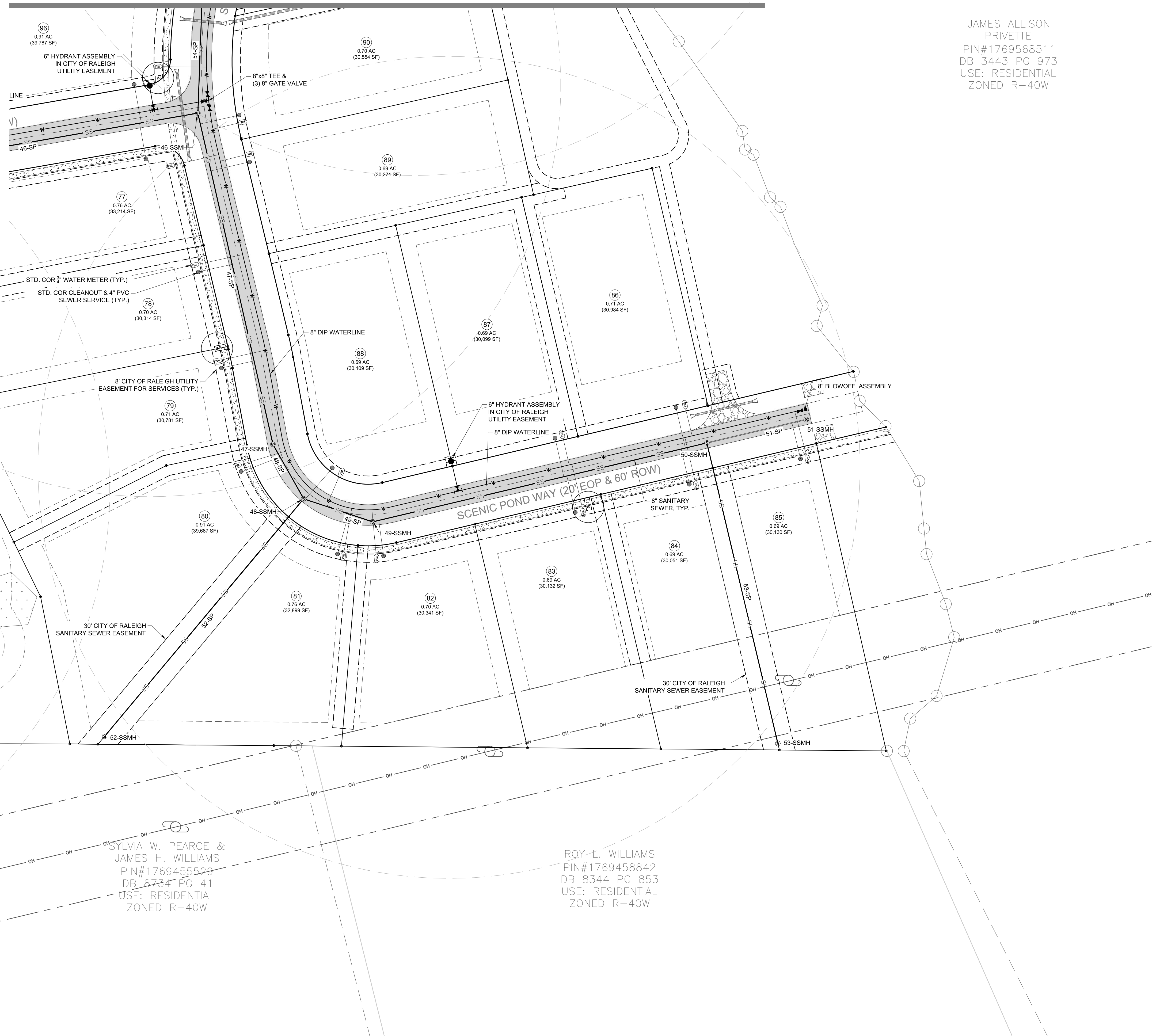
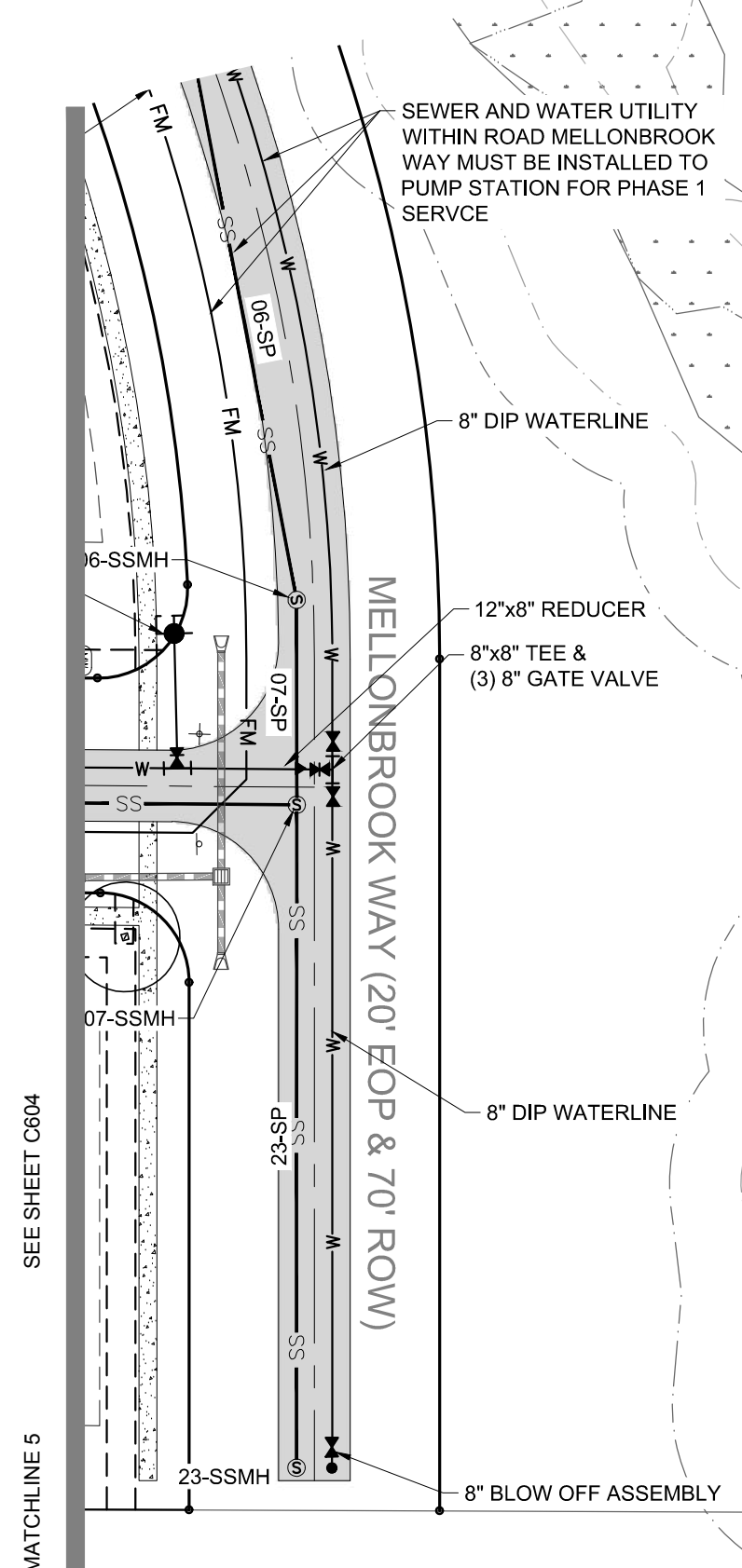
410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**EAST  
 UTILITY PLAN**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 50'
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C605**

P:\2017\Projects\170347\Chandler's Ridge\Eng\CADD\DWG\TP SHEET\TP\_170347\_C605\_UTILITIES.dwg



RONNIE E. & MELINDA J. BRISSON  
 PIN#1769369129  
 DB 9084 PG 1732  
 USE: RESIDENTIAL  
 ZONED R-40W

SYLVIA W. PEARCE & JAMES H. WILLIAMS  
 PIN#1769455529  
 DB 8734 PG 41  
 USE: RESIDENTIAL  
 ZONED R-40W

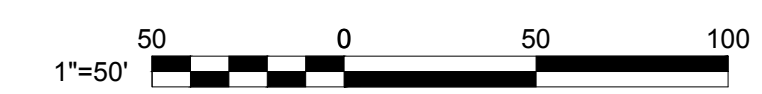
ROY L. WILLIAMS  
 PIN#1769458842  
 DB 8344 PG 853  
 USE: RESIDENTIAL  
 ZONED R-40W

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

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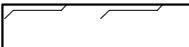
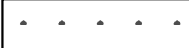



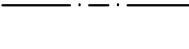






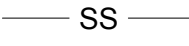


City of Raleigh Development Approval  
 Raleigh Water Review Officer

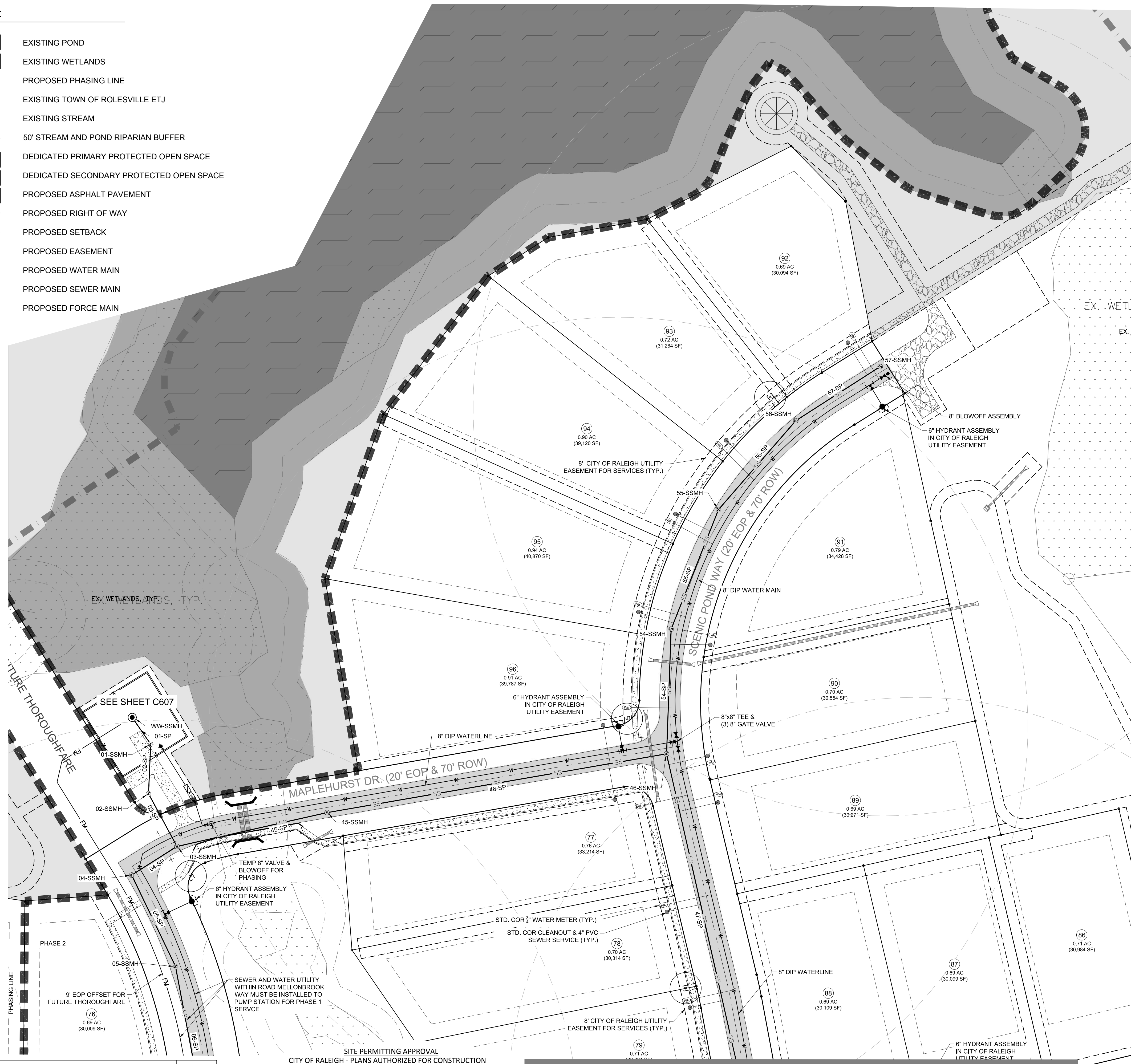
REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	



NORTH Referenced to N.C. GRID (NAD 83)

**LEGEND:**

-  EXISTING POND
-  EXISTING WETLANDS
-  PROPOSED PHASING LINE
-  EXISTING TOWN OF ROLESVILLE ETJ
-  EXISTING STREAM
-  50' STREAM AND POND RIPARIAN BUFFER
-  DEDICATED PRIMARY PROTECTED OPEN SPACE
-  DEDICATED SECONDARY PROTECTED OPEN SPACE
-  PROPOSED ASPHALT PAVEMENT
-  PROPOSED RIGHT OF WAY
-  PROPOSED SETBACK
-  PROPOSED EASEMENT
-  W PROPOSED WATER MAIN
-  SS PROPOSED SEWER MAIN
-  FM PROPOSED FORCE MAIN



P:\2017 Projects\170347 Chandlers Ridge\Eng\CADD\DWG\TP SHEET\170347\_C600 UTILITIES.dwg

REV	DESCRIPTION	DATE
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	REVISIONS	

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

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City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer

**SITE PERMITTING APPROVAL**

**Water and Sewer Permits (if applicable)**

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit # \_\_\_\_\_**

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit # \_\_\_\_\_**

The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

**City of Raleigh Public Utilities Department Permit # \_\_\_\_\_**

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City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer



NORTH Referenced to N.C. GRID (NAD 83)



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



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

**EAST**  
UTILITY PLAN

Project Engineer:	TSS
Designed By:	TEP
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Checked By:	TSS
Scale:	1" = 50'
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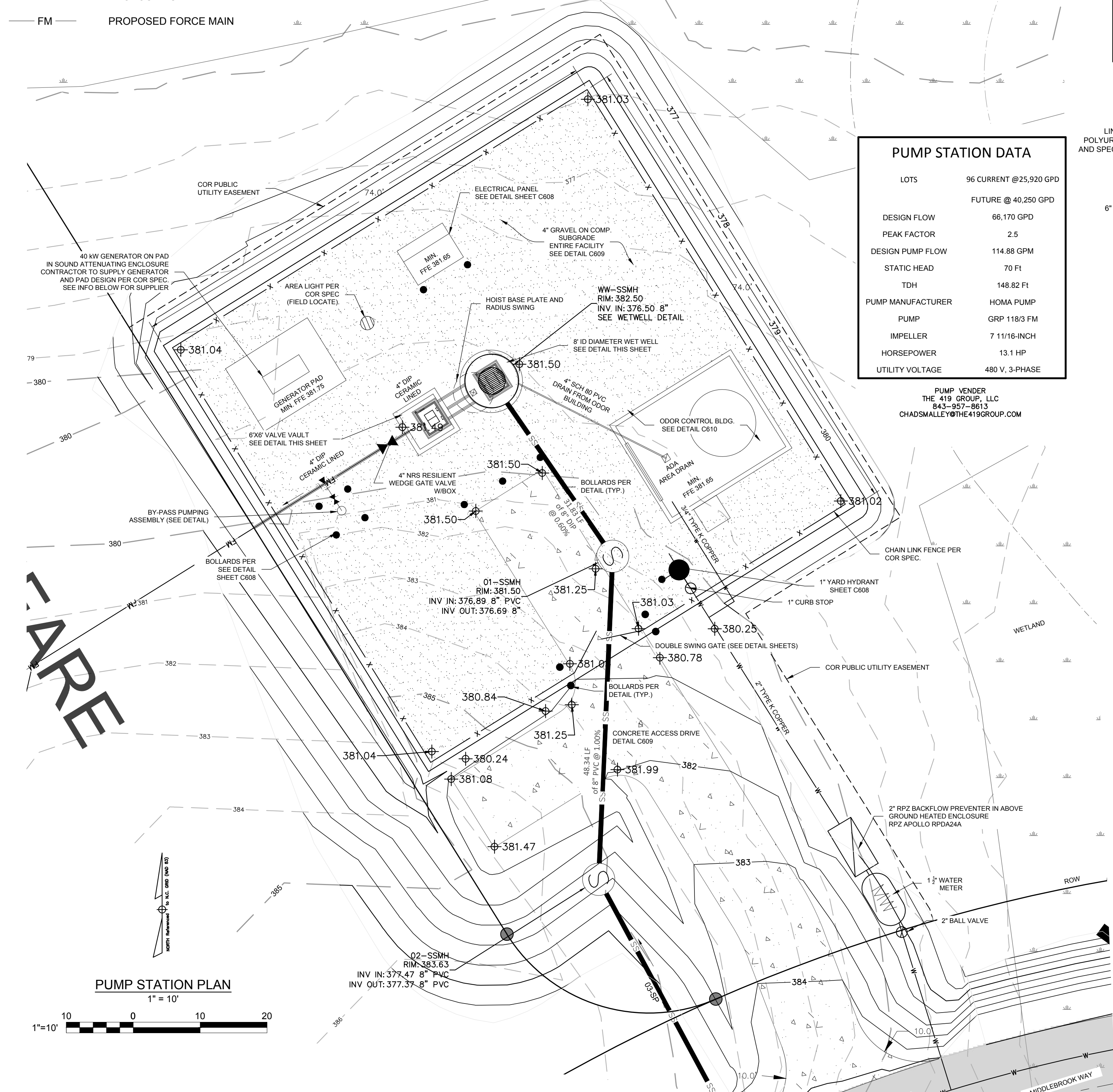
SHEET  
**C606**

**LEGEND:**

- EXISTING POND
- EXISTING WETLANDS
- PROPOSED PHASING LINE
- EXISTING TOWN OF ROLESVILLE ETJ
- EXISTING STREAM
- 50' STREAM AND POND RIPARIAN BUFFER
- PROPOSED RIGHT OF WAY
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED FORCE MAIN

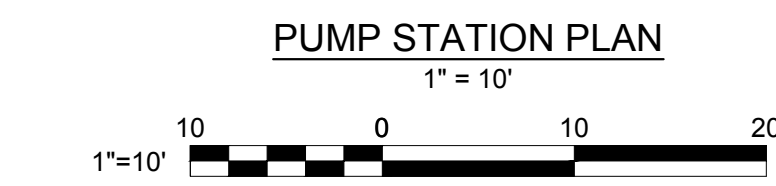
**LIFT STATION NOTES**

1. CONCRETE SHALL BE 4,000PSI COMPRESSION STRENGTH.
2. MANHOLE SHALL MEET REQUIREMENTS OF ASTM C-478.
3. ALL ELECTRICAL MATERIAL AND INSTALLATION SHALL BE BY A LICENSED ELECTRICIAN AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND RULES AND REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION. MATERIALS SHALL BE LISTED OR LABELED BY THE UNDERWRITERS LABORATORIES STANDARDS. ALL WIRE TO BE COMPLETED PER COR SPECIFICATIONS.
4. LIFT STATION MANHOLE CONCRETE SLAB AND HATCH SHALL BE MANUFACTURED TO WITHSTAND H-20 LOADING CONDITIONS.
5. MANUFACTURER SHALL BE REQUIRED TO SUBMIT DESIGN CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER WITH SHOP DRAWINGS AND REVIEW SUBMITTAL.
6. SHOP DRAWINGS AND WIRING DIAGRAMS SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT. ALL WIRING PER COR STANDARDS.
7. ENGINEER TO APPROVE FOUNDATION BED BEFORE SETTING MANHOLES. FOUNDATION SHALL BE 9" DIA. AND 12" DEPTH NO. 57 STONE BEDDING.
8. CONTRACTOR IS TO PROVIDE DE-WATERING EQUIPMENT AS REQUIRED FOR CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
9. HATCH DOORS AND CONTROL PANEL BOX SHALL BE LOCKABLE AND KEYPAD TO CORPUD MASTER LOCK SYSTEM. CONTRACTOR SHALL FURNISH 3 LOCKS AND KEYS.
10. CONTRACTOR SHALL INSTALL ALL OWNER FURNISHED EQUIPMENT AND PROVIDE START UP SERVICE (MINIMUM 2 DAYS).
11. CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO MAKE THE LIFT STATION FULLY OPERATIONAL AND IN ACCORDANCE WITH CORPUD STANDARDS.
12. RECESSED LIFTING HOOKS SHALL BE PLACED IN CONCRETE WET WELL COVER. CONTROL PANEL BOX SHALL BE ANCHORED IN 12"x24" DEEP CONCRETE FOOTING.
13. CONTRACTOR SHALL PROVIDE ALL NECESSARY LUBRICANTS FOR STARTUP AND SHALL ASSIST THE EQUIPMENT MANUFACTURER AND OWNER WITH INITIAL STARTUP (MINIMUM 2 DAYS).
14. PIPEWORK SHALL BE ASSEMBLED, INSTALLED, AND FULLY SUPPORTED SO AS NOT TO PUT A STRAIN ON THE PUMPING EQUIPMENT, PIPE FITTINGS AND ELBOWS.
15. ALL THRU-THE-WALL SLEEVES AND CARRIER PIPES INTO THE WET WELL SHALL BE INSTALLED ABSOLUTELY WATERTIGHT WITH NO SIGNS OF SEEPAGE OR INFILTRATION.
16. ENTIRE SITE SHALL BE FENCED FOR SECURITY. CONTRACTOR SHALL PROVIDE LOCKS FOR GATE OPENING.
17. ALL HANGERS, CLAMPS, FLANGE BOLTS, AND CONNECTIONS SHALL BE STAINLESS STEEL UNLESS OTHERWISE SPECIFIED. THESE ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
18. ALL DIMENSIONS SHALL BE VERIFIED BY CONTRACTOR AND SHALL BE ADJUSTED TO ACCOMMODATE DIMENSIONS OF MATERIALS SUPPLIED BY CONTRACTOR AND OWNER.
19. FLANGE FACES SHALL BE SERRATED.
20. ALL WET WELLS SHALL BE INTERNALLY FACTORY LINED WITH A POLYUREA/POLYURETHANE COATING. DURAMER 1030 SHALL BE APPLIED IN ONE COAT OF A 20% SOLIDS, DEEPLY PENETRATING, DUAL-COMPONENT POLYUREA PRIMER (5-10 MILS DRY FILM THICKNESS, 150 FT 2/GAL), ONE INTERMEDIATE COAT OF A DUAL COMPONENT POLYUREA (60-100 MILS DRY FILM THICKNESS, 50 FT 2/GAL) AND ONE TOP COAT OF A 65% SOLIDS, TWO-PART POLYUREA (7.5-10 MILS DRY FILM THICKNESS, 125 FT 2/GAL). ALL COATS SHALL BE APPLIED BY BRUSH, SPRAY, OR ROLLER. SHERFLEX ELASTOMERIC POLYURETHANE SHALL BE APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. POLYUREA/POLYURETHANE COATINGS SHALL BE DURAMER 1030 AS MANUFACTURED BY SEWERKOTE. SHERFLEX ELASTOMERIC POLYURETHANE AS MANUFACTURED BY SHERWIN-WILLIAMS, OR APPROVED EQUAL.
21. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS.
22. ALL DUCTILE IRON PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401) OR APPROVED EQUAL.
23. ALL BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINING GLAND JOINT RESTRAINT (IE. MEGA-LUGS).
24. ALL CONSTRUCTION TO CONFIRM WITH COR SPECIFICATIONS.



PUMP STATION DATA	
LOTS	96 CURRENT @25,920 GPD
	FUTURE @40,250 GPD
DESIGN FLOW	66,170 GPD
PEAK FACTOR	2.5
DESIGN PUMP FLOW	114,88 GPM
STATIC HEAD	70 FT
TDH	148.82 FT
PUMP MANUFACTURER	HOMA PUMP
PUMP	GRP 118/3 FM
IMPELLER	7 11/16-INCH
HORSEPOWER	13.1 HP
UTILITY VOLTAGE	480 V, 3-PHASE

PUMP VENDOR  
THE 419 GROUP, LLC  
843-957-8613  
CHADSMALLEY@THE419GROUP.COM

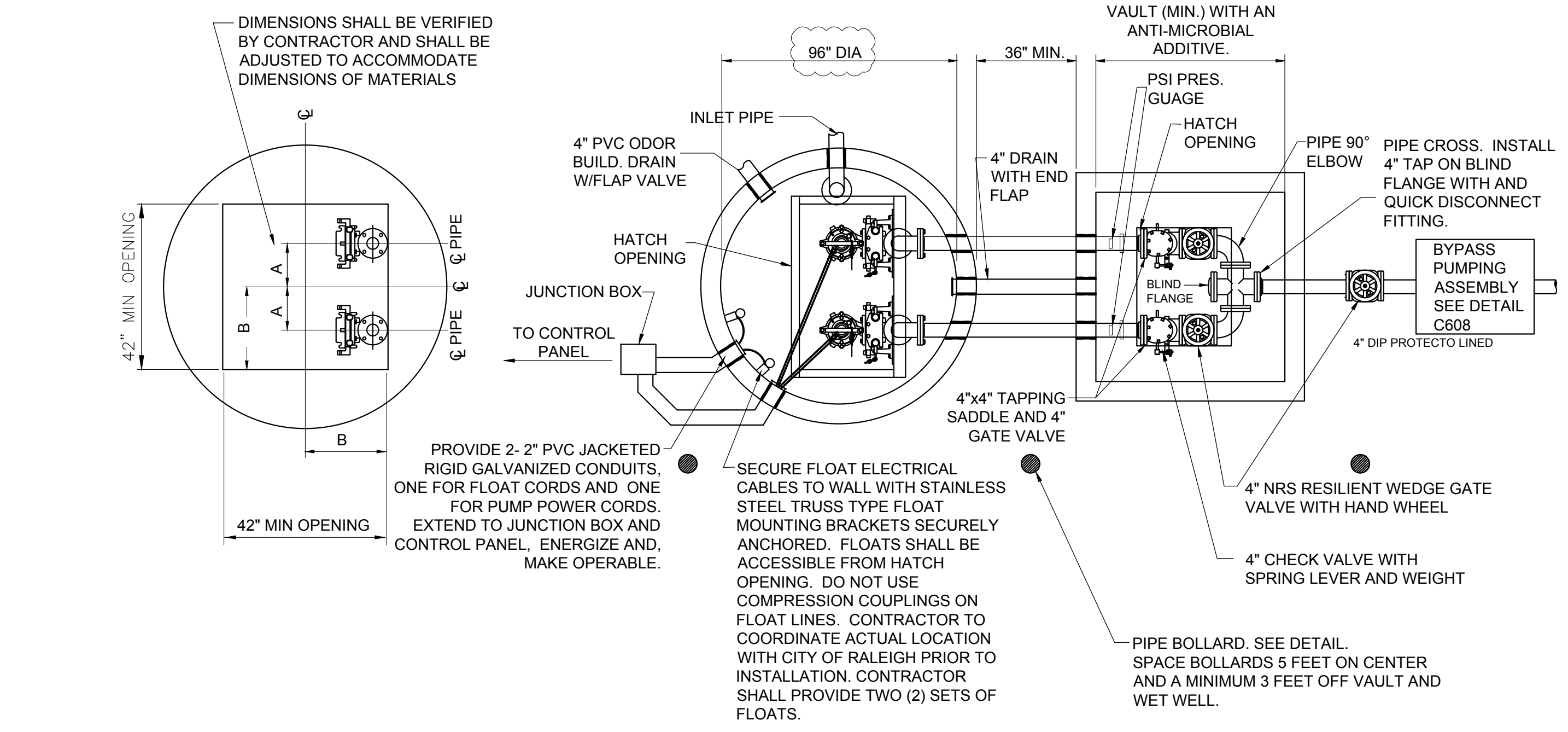
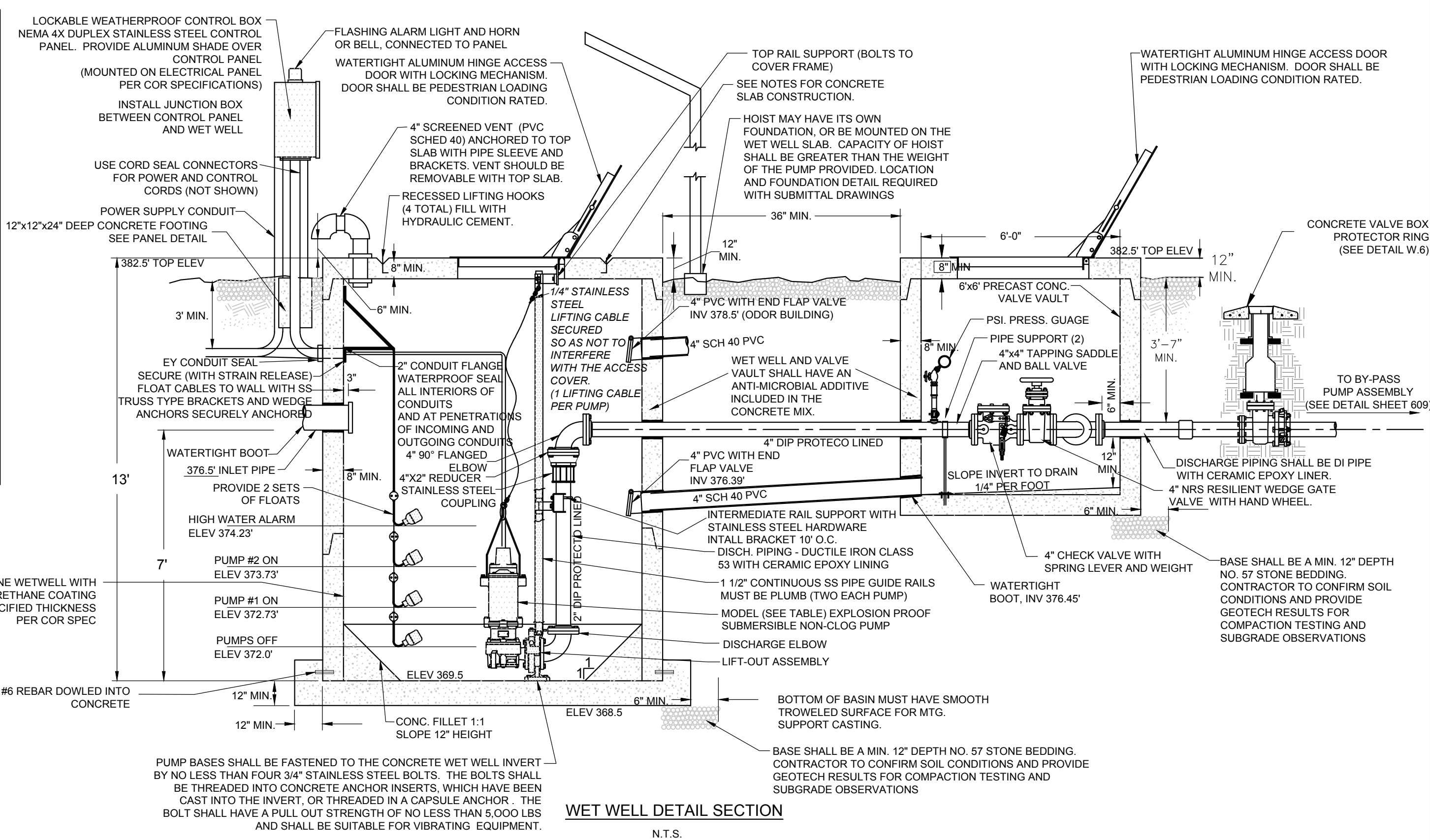


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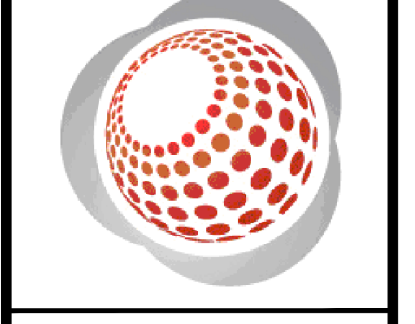
City of Raleigh Development Approval  
Raleigh Water Review Officer



CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL



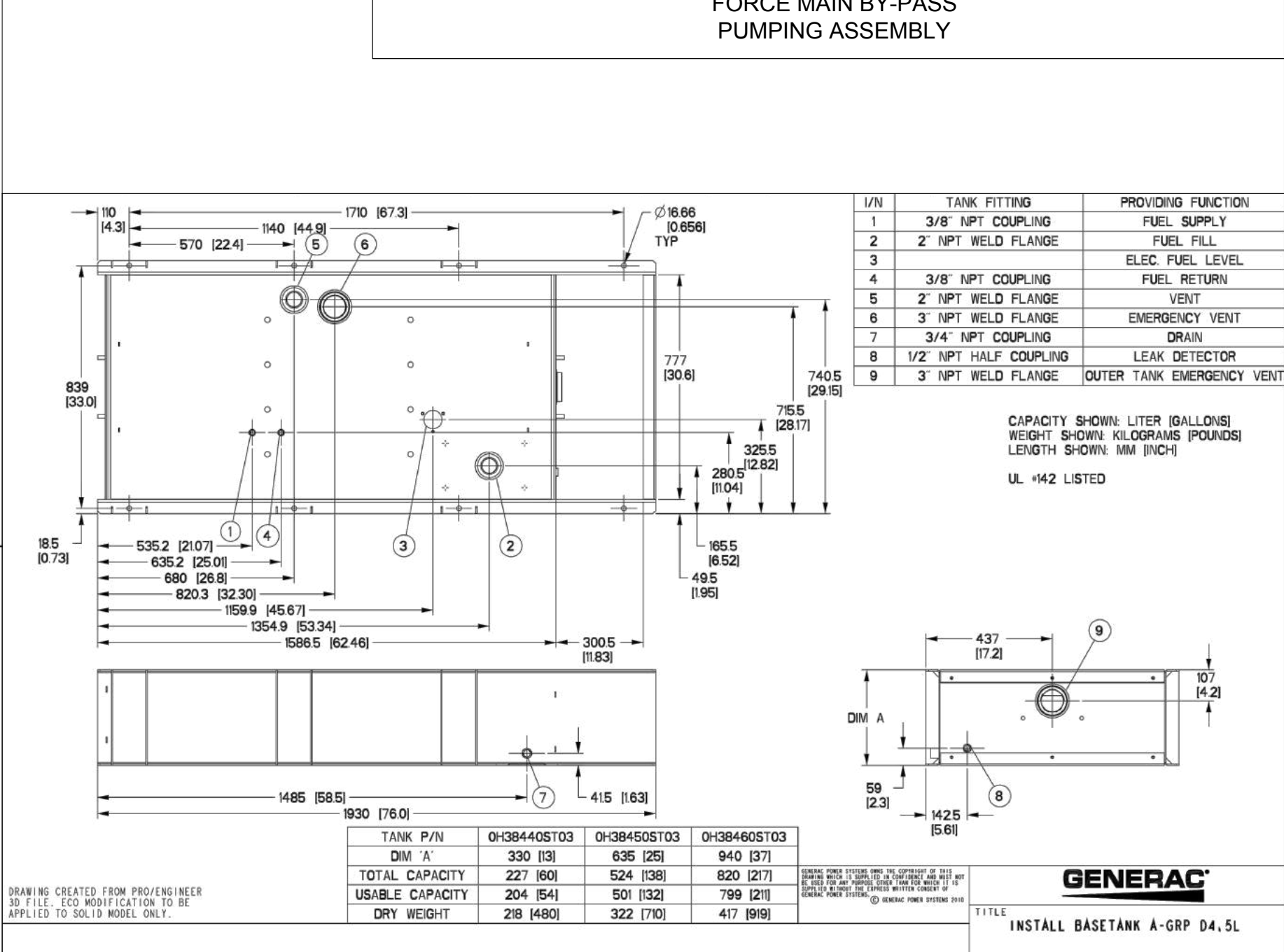
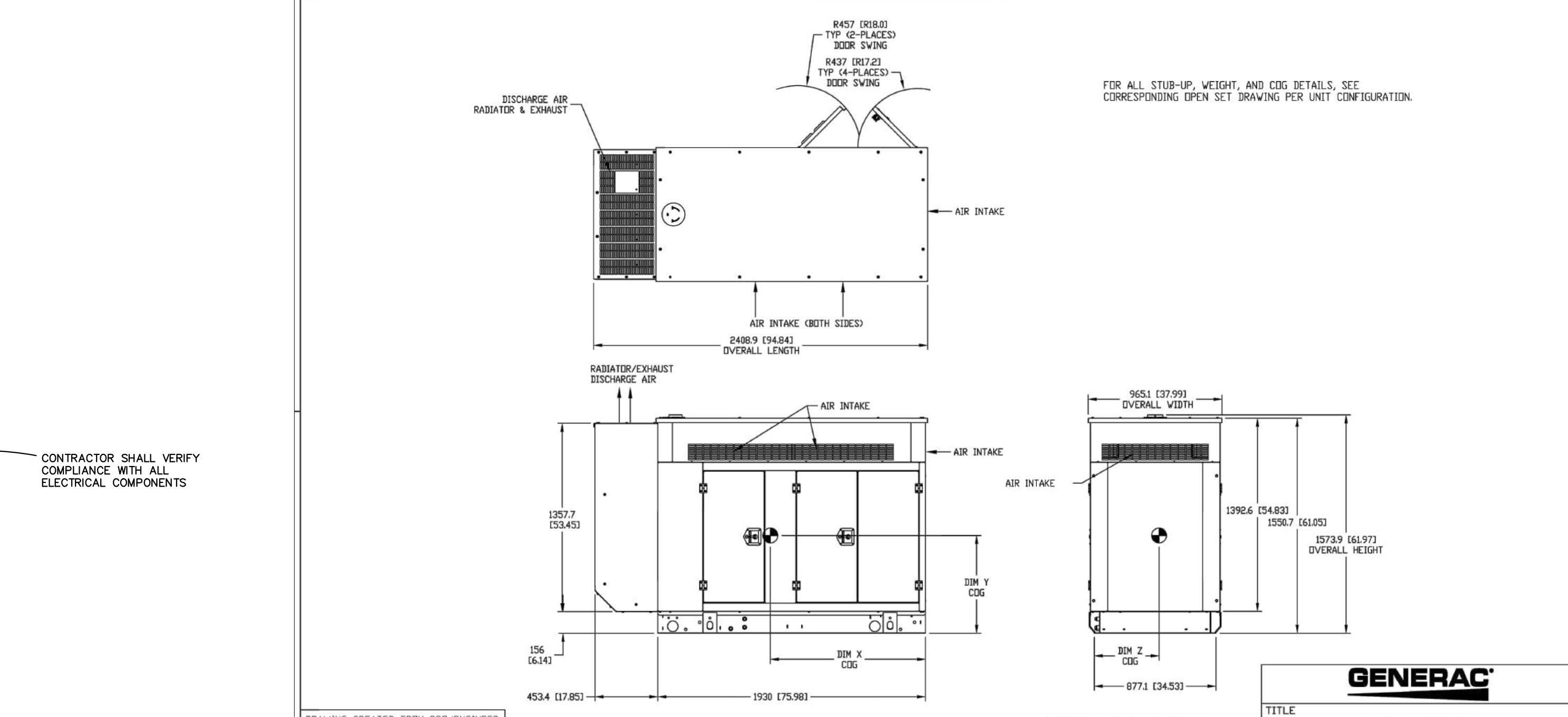
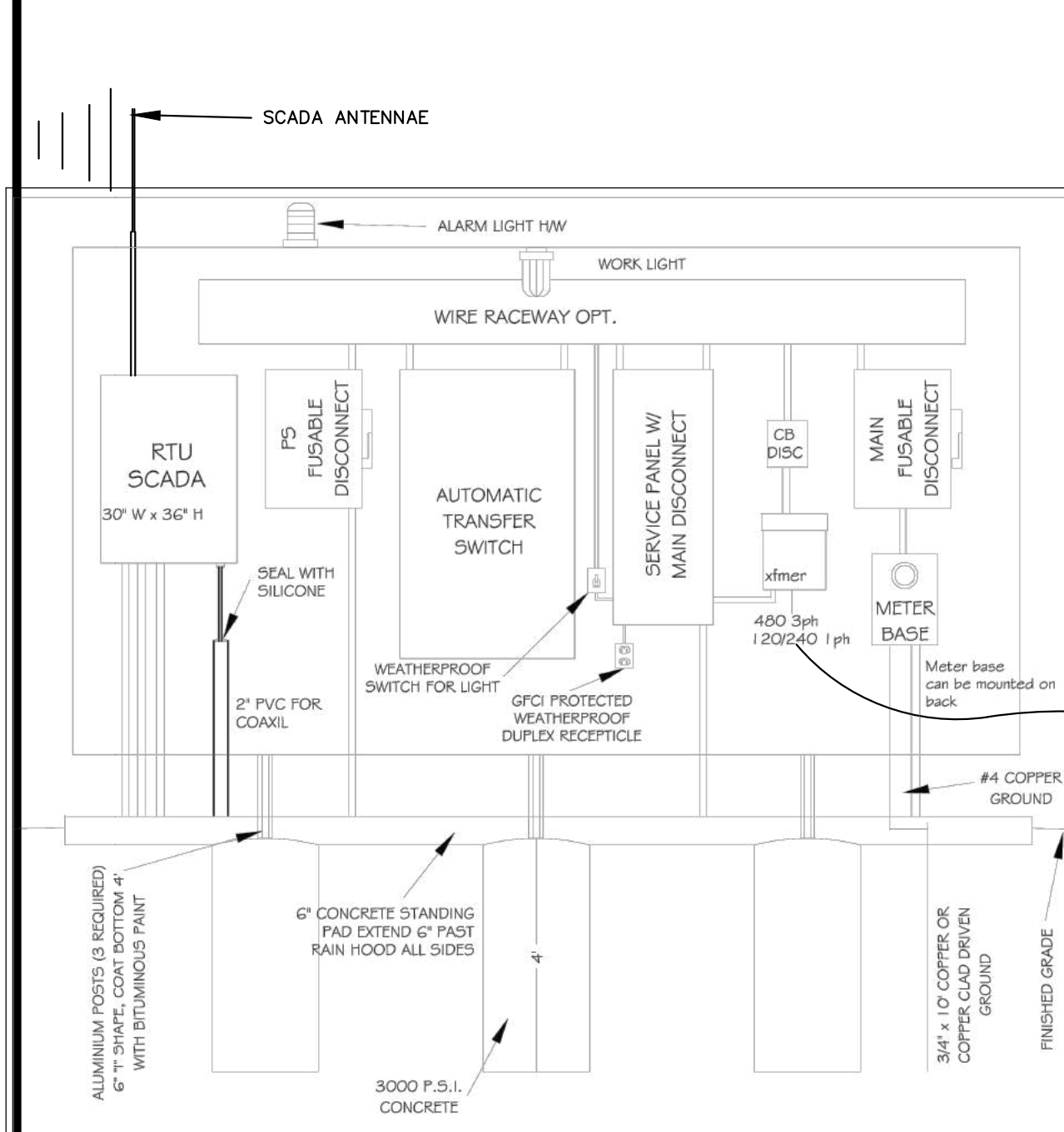
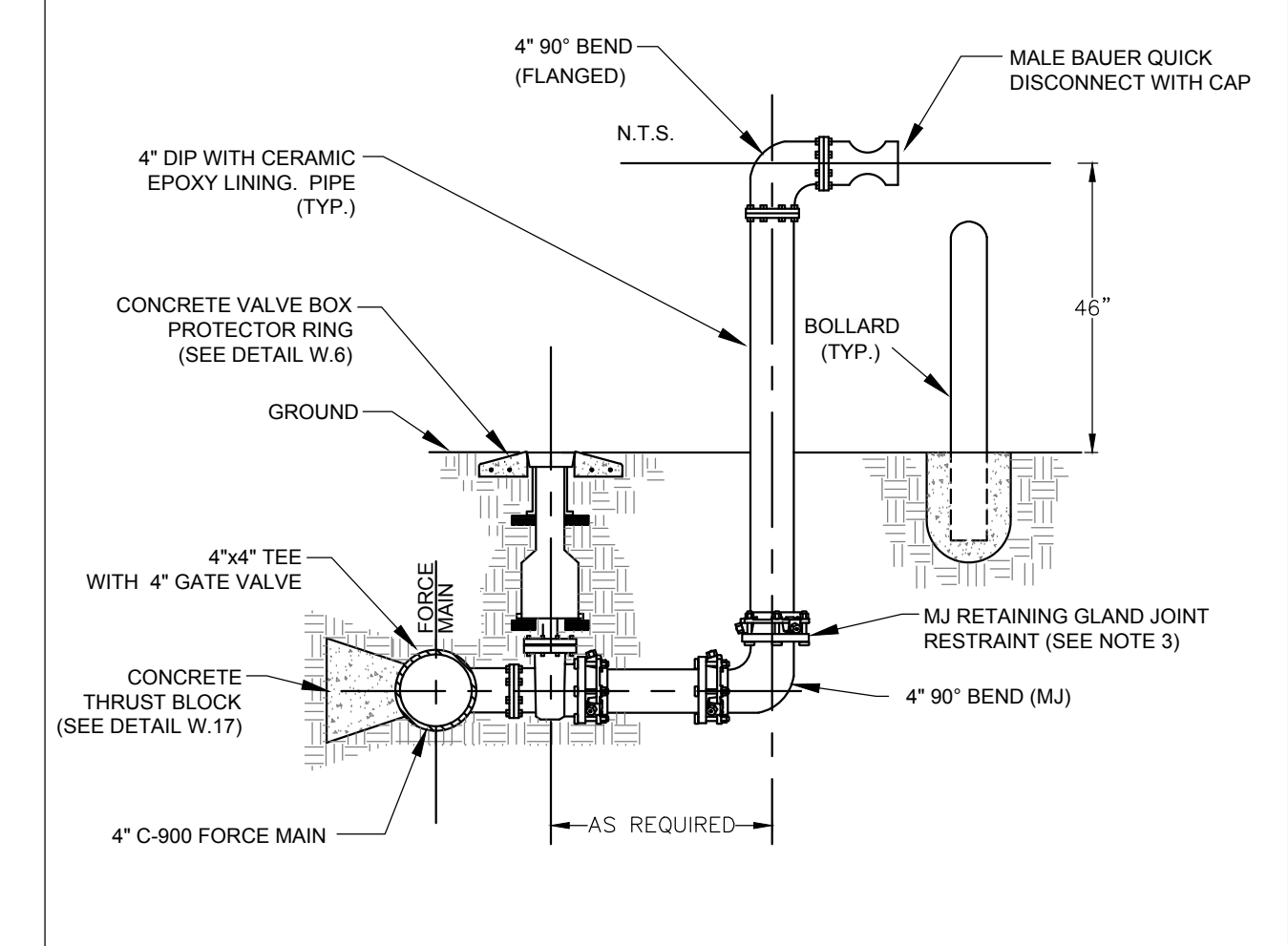
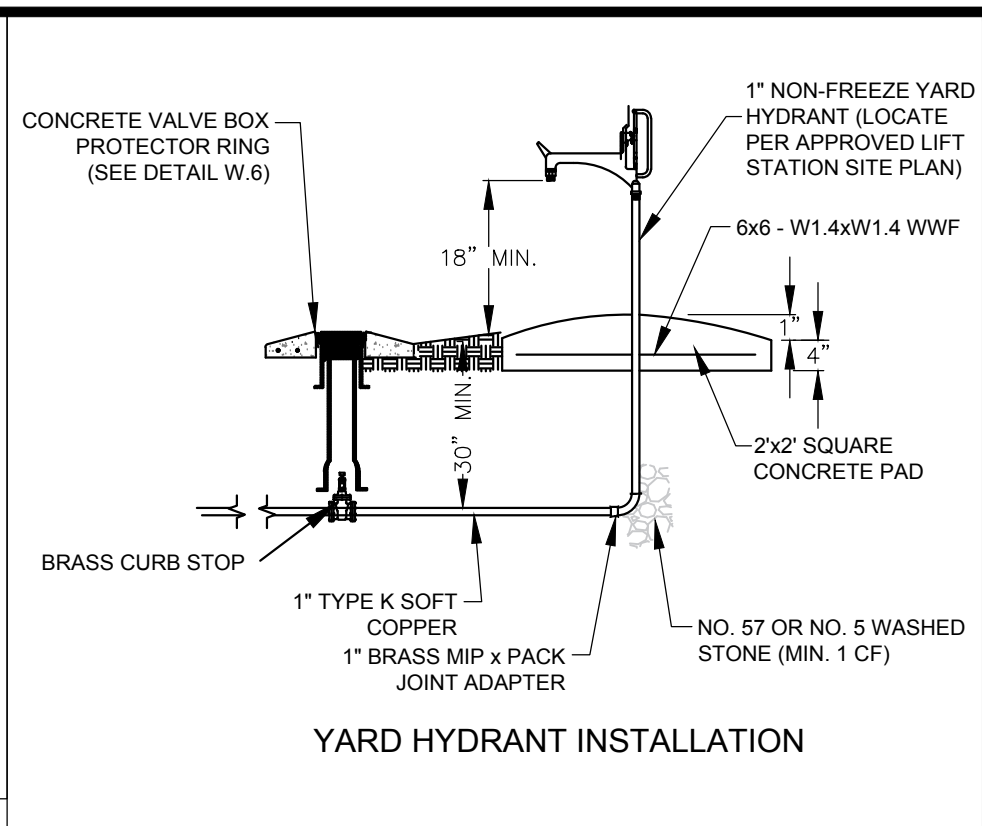
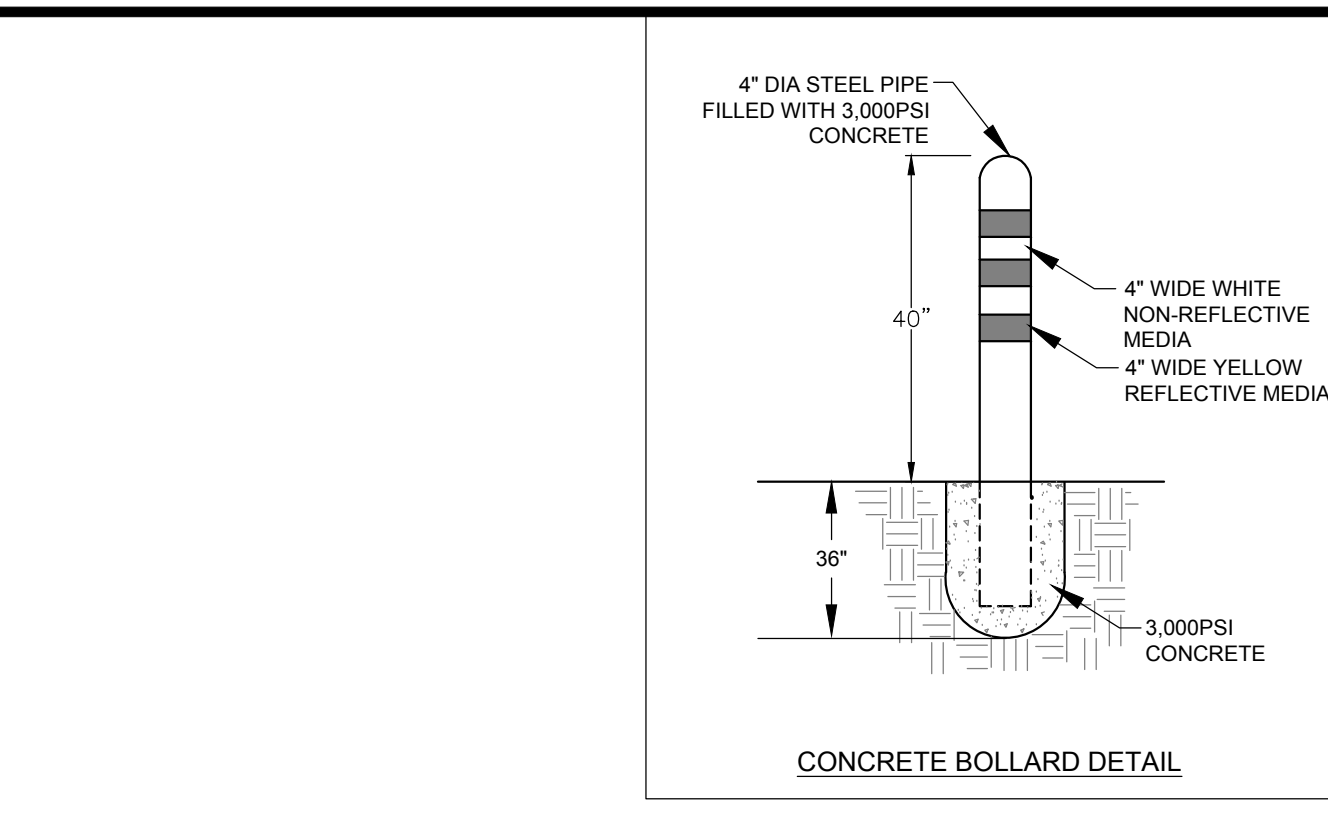
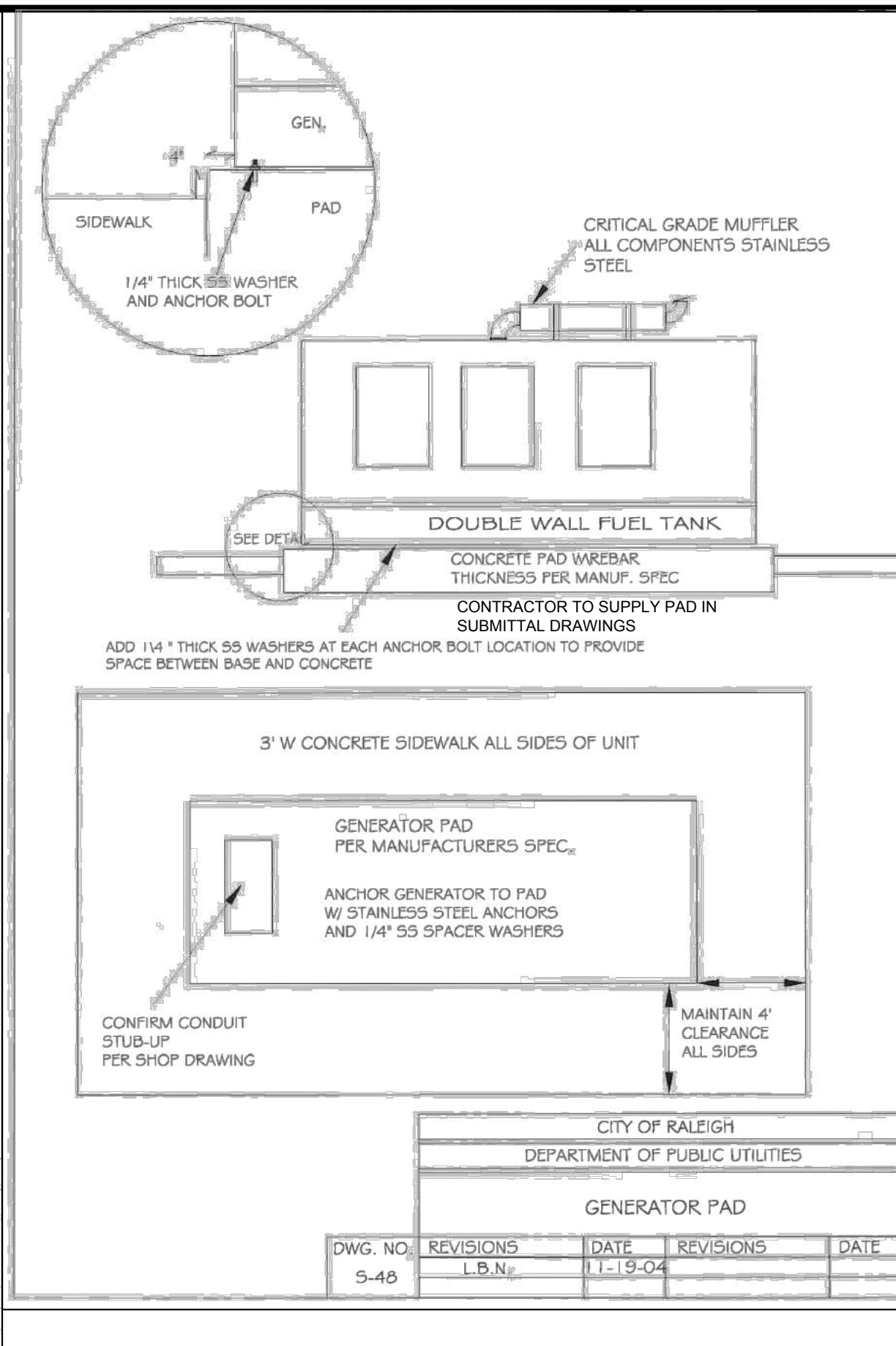
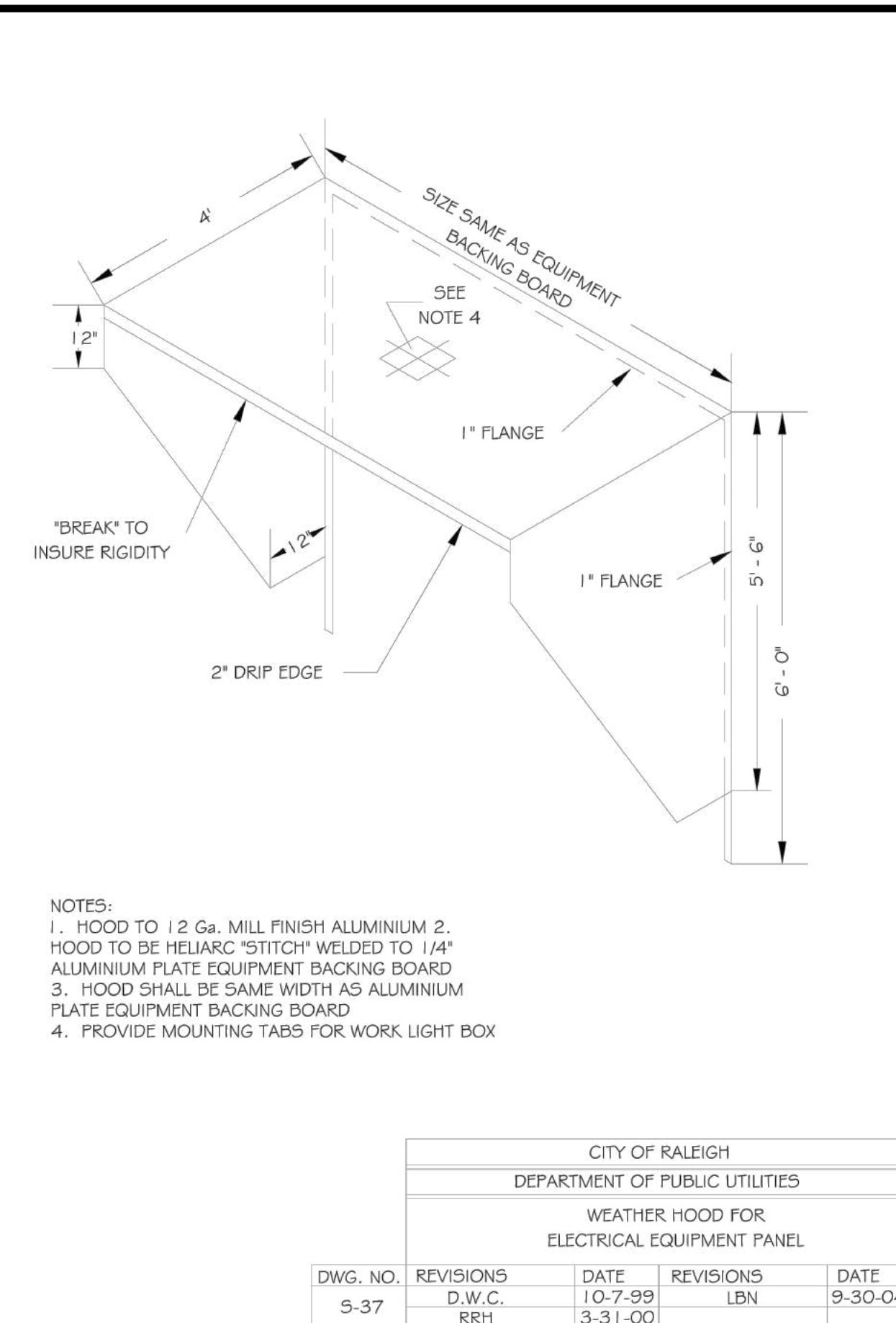
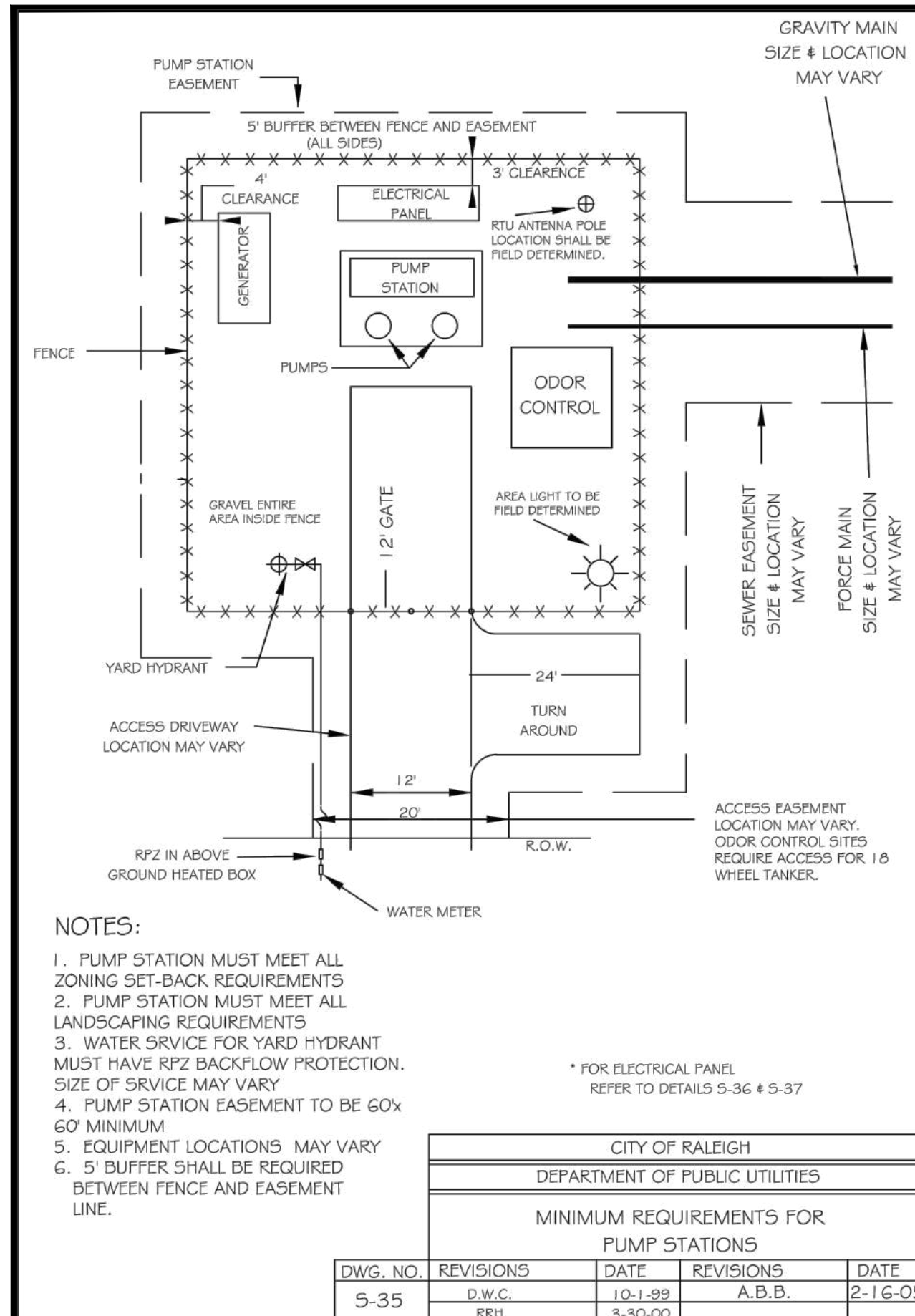
**Bateman Civil Survey Company**  
Engineers • Surveyors • Planners  
2824 Reliance Avenue, Apex, North Carolina 27539  
Phone: 919.577.1080 Fax: 919.577.1081  
NCBLS FIRM No. C-2378



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

**PUMP STATION**  
PLAN AND DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	
C607	



**\*NOTES\***

- BACKING PLATE TO BE 1/4" ALUMINUM. MOUNT TO 1" BEAM POSTS WITH STAINLESS STEEL NUT, BOLTS, AND WASHERS.
- ALL ELECTRICAL WORK SHALL CONFORM TO LATEST NATIONAL, STATE AND LOCAL CODES AND REQUIREMENTS.
- SHOW CONDUIT SIZE AND RUNS WITH WIRE SIZE AND NUMBER ON PUMP STATION PLANS.
- PANEL LAYOUT IS SCHEMATIC ONLY. ADJUST AS NEEDED TO ACCOMMODATE EQUIPMENT. MAINTAIN 4" MIN. CLEARANCE BETWEEN PANELS AND SIDE SHIELDS.
- ALL ENCLOSURES SHALL BE NEMA 4X RATED AND LOCKABLE.
- ENCLOSURES SHALL BE MOUNTED TO ALUMINUM BACKING PLATE WITH NYLON SPACERS & STAINLESS STEEL NUTS, BOLTS & WASHERS.
- CONDUIT SHALL BE RIGID ALUMINUM OR GALVANIZED. METERS HUBS SHALL BE USED AT ALL PANEL CONNECTIONS.
- NO EQUIPMENT SHALL BE MOUNTED LESS THAN 36" ABOVE FINISHED GRADE. MIN. CLEARANCE FROM WORK LIGHT TO STANDING PAD SHALL BE 6".

\* FOR WEATHER HOOD REFER TO DETAIL 5-37

**CITY OF RALEIGH**  
DEPARTMENT OF PUBLIC UTILITIES  
PUMP STATION ELECTRICAL PANEL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
5-36	D.W.C.	10-7-99	LBN	10-19-04
	RRH	3-30-00		

**CITY OF RALEIGH**  
DEPARTMENT OF PUBLIC UTILITIES  
WEATHER HOOD FOR ELECTRICAL EQUIPMENT PANEL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
5-37	D.W.C.	10-7-99	LBN	9-30-04
	RRH	3-31-00		

**INSTALLATION DRAWING**

**GENERAC**

TITLE: INSTALL BASE TANK A-GRP D4.5L

ISSUE DATE: 09/08/2020

SCALE: 0.036 WT-KG

0J4311C

ISSUE DATE: 09/08/2020

**CITY OF RALEIGH**  
DEPARTMENT OF PUBLIC UTILITIES  
PUMP STATION ELECTRICAL PANEL

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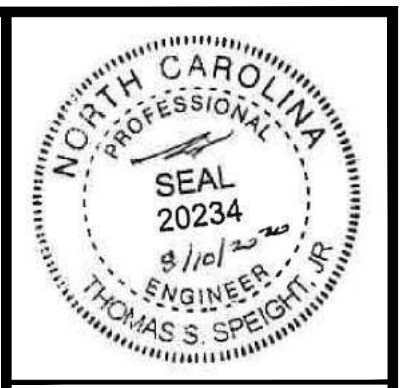
City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer \_\_\_\_\_

**SCADA**

CONTACT:  
Cesar Hernandez  
Project Manager  
CITL LLC  
600 Pinner Weald Way, Ste-102  
Cary, NC 27513  
M 704.779.8991  
P 704.969.2484 ext.1305  
cesar@citol-llc.com

**SCADA TOWER NOTES:**

- DESIGN ENGINEER SHALL COORDINATE WITH CORPUS TO CONDUCT A RADIO SURVEY OF THE PROPOSED LIFT STATION SITE.
- THE TOWER HEIGHT SHALL BE AS REQUIRED, BASED ON THE RADIO SURVEY.
- DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN FOR THE SCADA TOWER AND ITS FOUNDATION.
- DESIGN ENGINEER SHALL COORDINATE WITH THE APPLICABLE INSPECTION OFFICE REGARDING THE HEIGHT AND DESIGN OF THE SCADA TOWER.



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

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**PUMP STATION DETAILS**

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Designed By: TEP  
Drawn By: TEP  
Checked By: TSS  
Scale:  
Date: 09/08/2020  
Project Number: P170347  
SHEET  
C608

ACCESS HATCH  
(OR AS APPROVED BY ENGINEER)

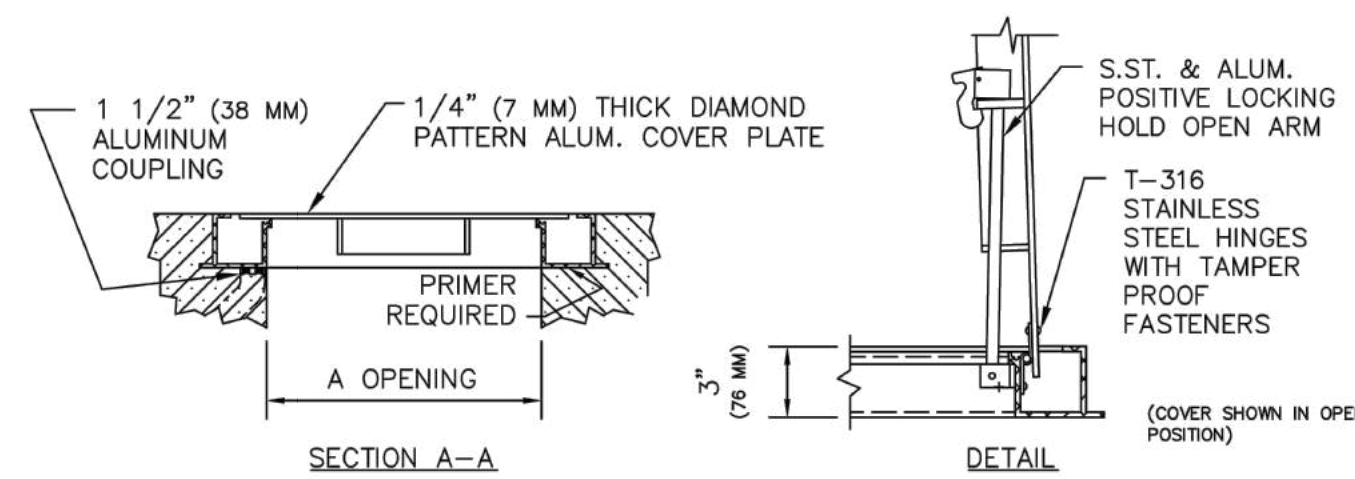
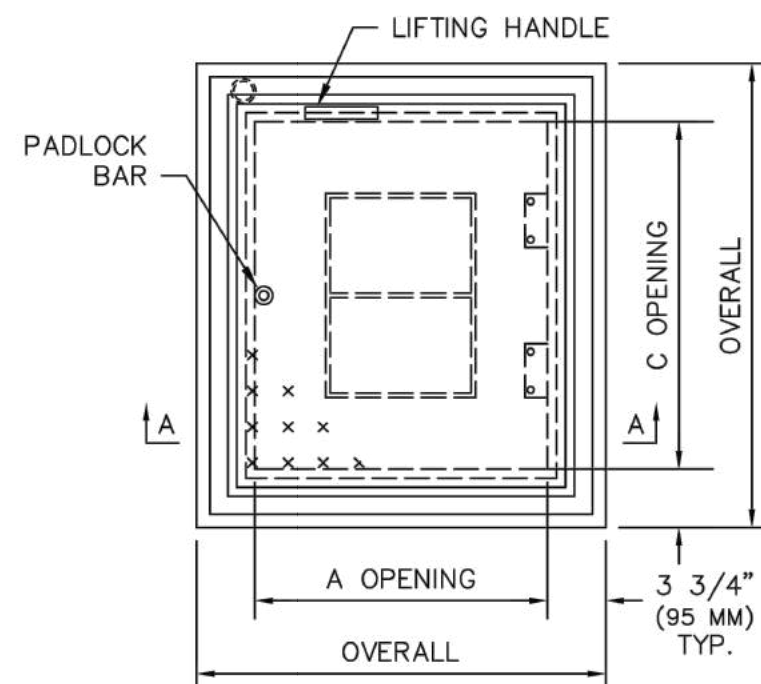
SERIES W1R ACCESS DOOR

STANDARD FEATURES:

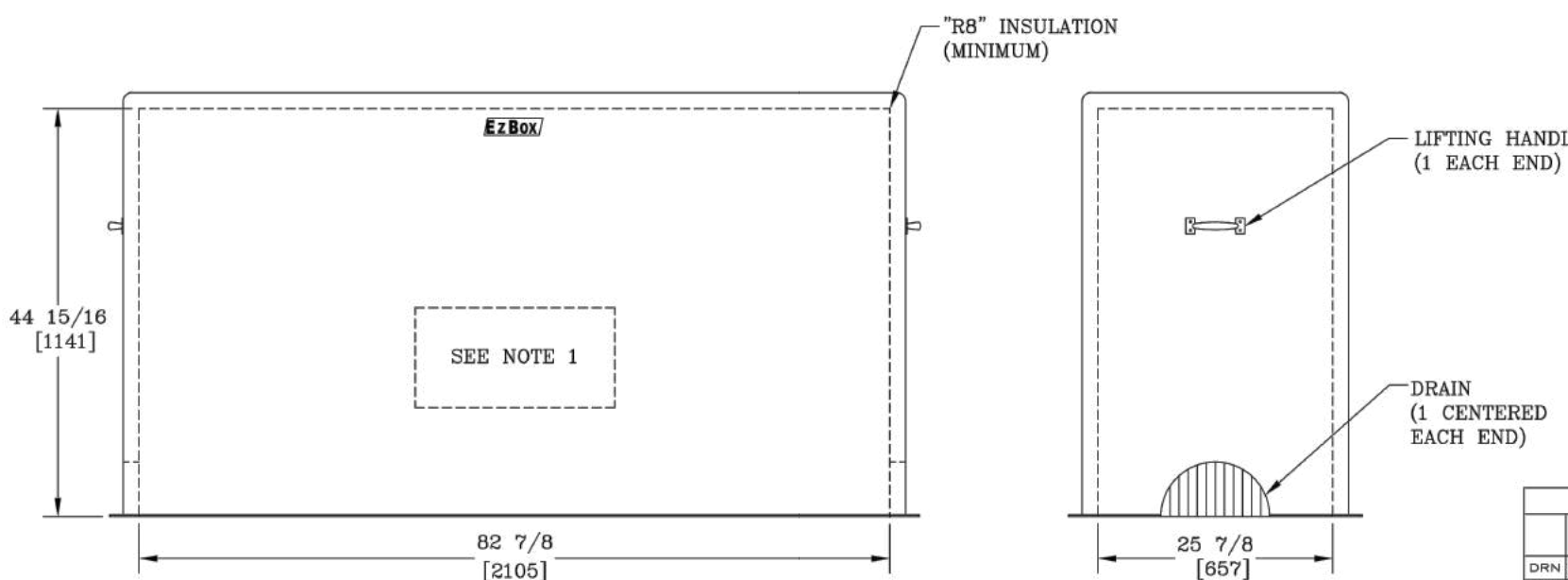
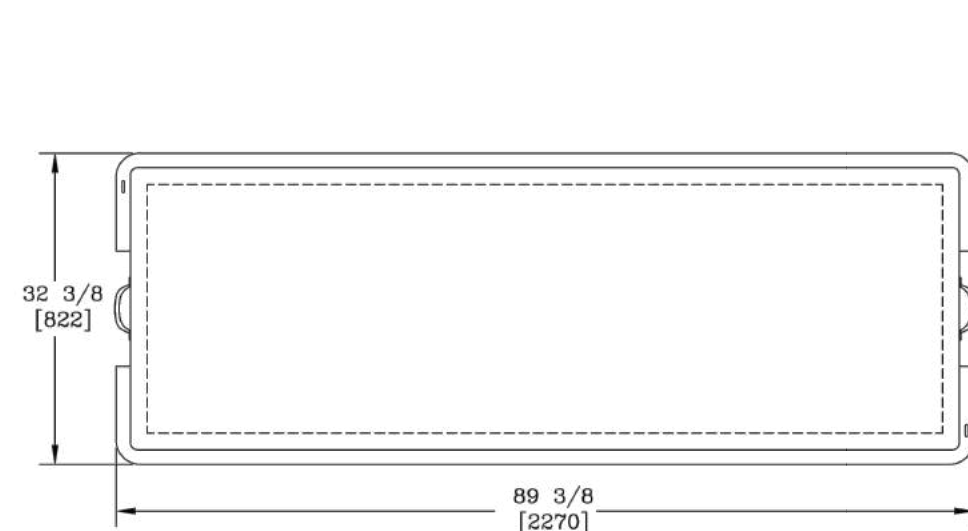
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- NON-CORROSIVE LOCKING BAR
- SINGLE LEAF CONSTRUCTION
- 300 LBS. PER SQ. FT. LOAD RATING (1464 KG. PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM CHANNEL FRAME
- RECESSED LIFTING HANDLE
- LIFETIME GUARANTEE



QTY.	MODEL NO.	A DIM. INCHES (MM)	C DIM. INCHES (MM)	UNIT WT. LBS. (KG.)
	WR2424	24 (610)	24 (610)	46 (20)
	WR2430	24 (610)	30 (762)	51 (23)
	WR2436	24 (610)	36 (914)	61 (28)
	WR2442	24 (610)	42 (1067)	77 (35)
	WR2448	24 (610)	48 (1219)	85 (39)
	WR3030	30 (762)	30 (762)	62 (28)
	WR3036	30 (762)	36 (914)	69 (31)
	WR3042	30 (762)	42 (1067)	77 (35)
	WR3048	30 (762)	48 (1219)	85 (39)
	WR3054	30 (762)	54 (1372)	99 (45)
	WR3060	30 (762)	60 (1524)	102 (46)
	WR3636	36 (914)	36 (914)	78 (35)
	WR3642	36 (914)	42 (1067)	89 (40)
	WR3648	36 (914)	48 (1219)	97 (44)
	WR3654	36 (914)	54 (1372)	107 (49)
	WR3660	36 (914)	60 (1524)	116 (53)
	WR3666	36 (914)	66 (1676)	126 (57)
	WR3672	36 (914)	72 (1828)	135 (61)
	WR4242	42 (1067)	42 (1067)	108 (49)



- HATCH DOOR NOTES:
1. HATCH SHALL BE SINGLE LEAF, PEDESTRIAN RATED, CHANNEL FRAME, ALUMINUM DIAMOND PATTERN PLATE DOOR.
  2. HATCH DOORS SHALL BE WATERTIGHT, EQUIPPED WITH NEOPRENE GASKET, HINGED WITH LOCKING MECHANISM (HASP), AND AUTOMATIC HOLD OPEN ARM.
  3. ENSURE HATCH DOOR RESTS EVENLY ON FRAME ALL AROUND.
  4. ALL HARDWARE SHALL BE ZINC PLATED STEEL-CHROMATE SEALED OR STAINLESS STEEL.



- NOTES:
1. HEAT IS PROVIDED BY A 1500WATT, 120V SINGLE PHASE HEATER. FOR UNHEATED VERSION REPLACE THE PREFIX "H" WITH AN "L".
  2. STANDARD COLOR IS BEIGE. (OPTIONS AVAILABLE)
  3. FOR RECOMMENDED SLAB SIZE ADD 9" [229] TO THE ENCLOSURE EXTERIOR.

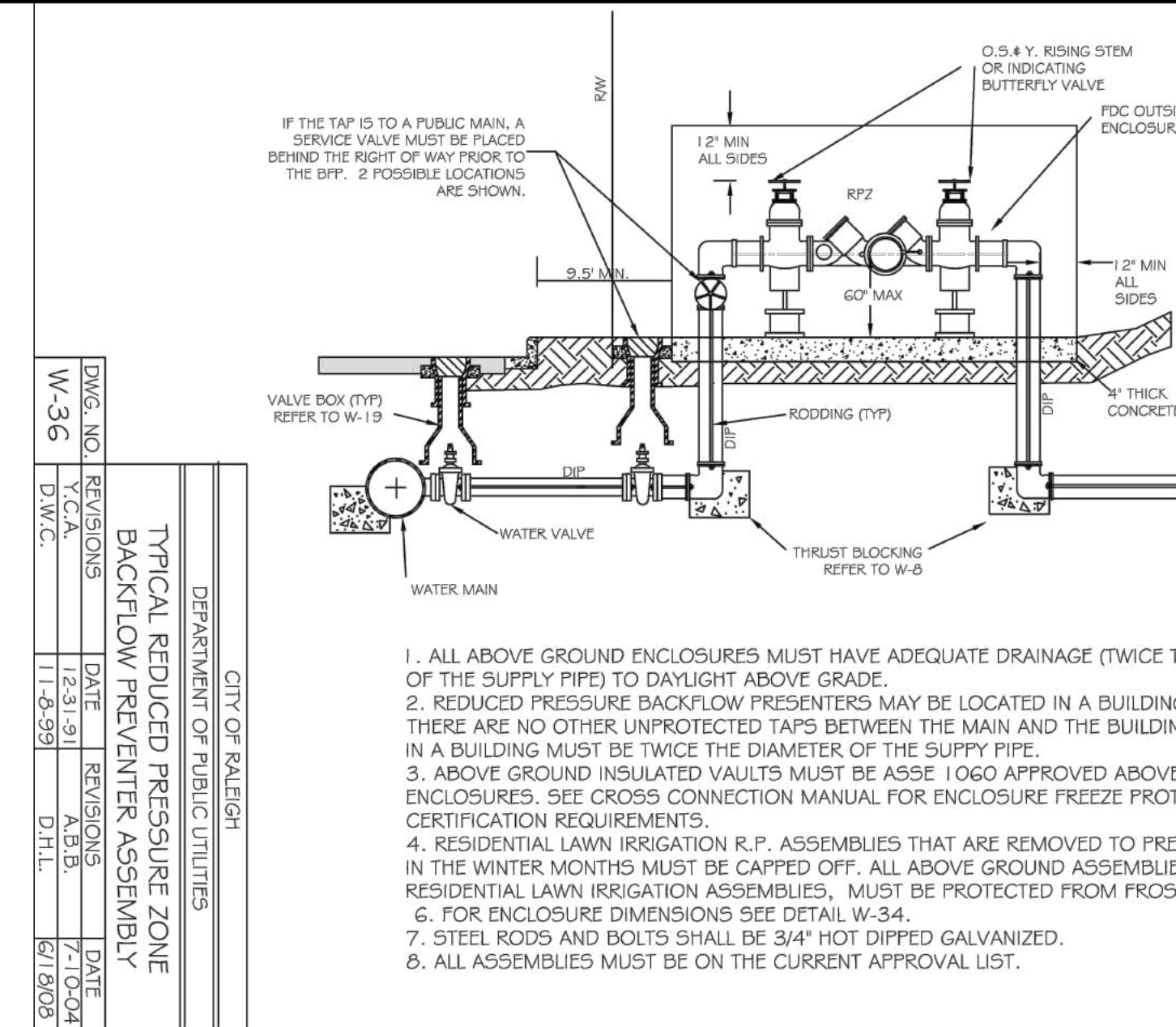
BY	DATE	TITLE	SCALE	PROJECT NUMBER
CHK	DATE	SCALE	PROJECT NUMBER	
APP	DATE	SCALE	PROJECT NUMBER	
APP	DATE	SCALE	PROJECT NUMBER	

SITE PERMITTING APPROVAL  
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

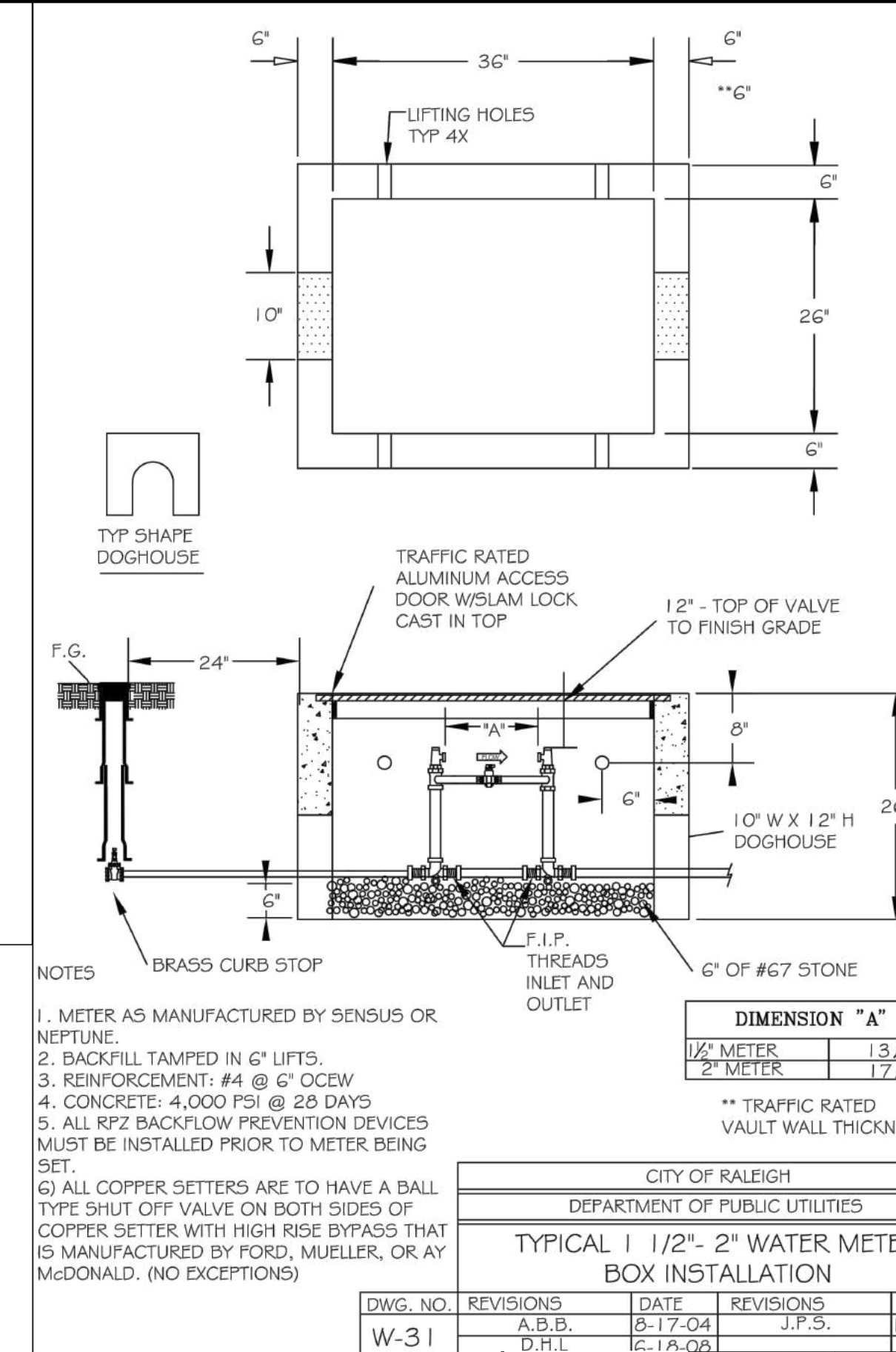
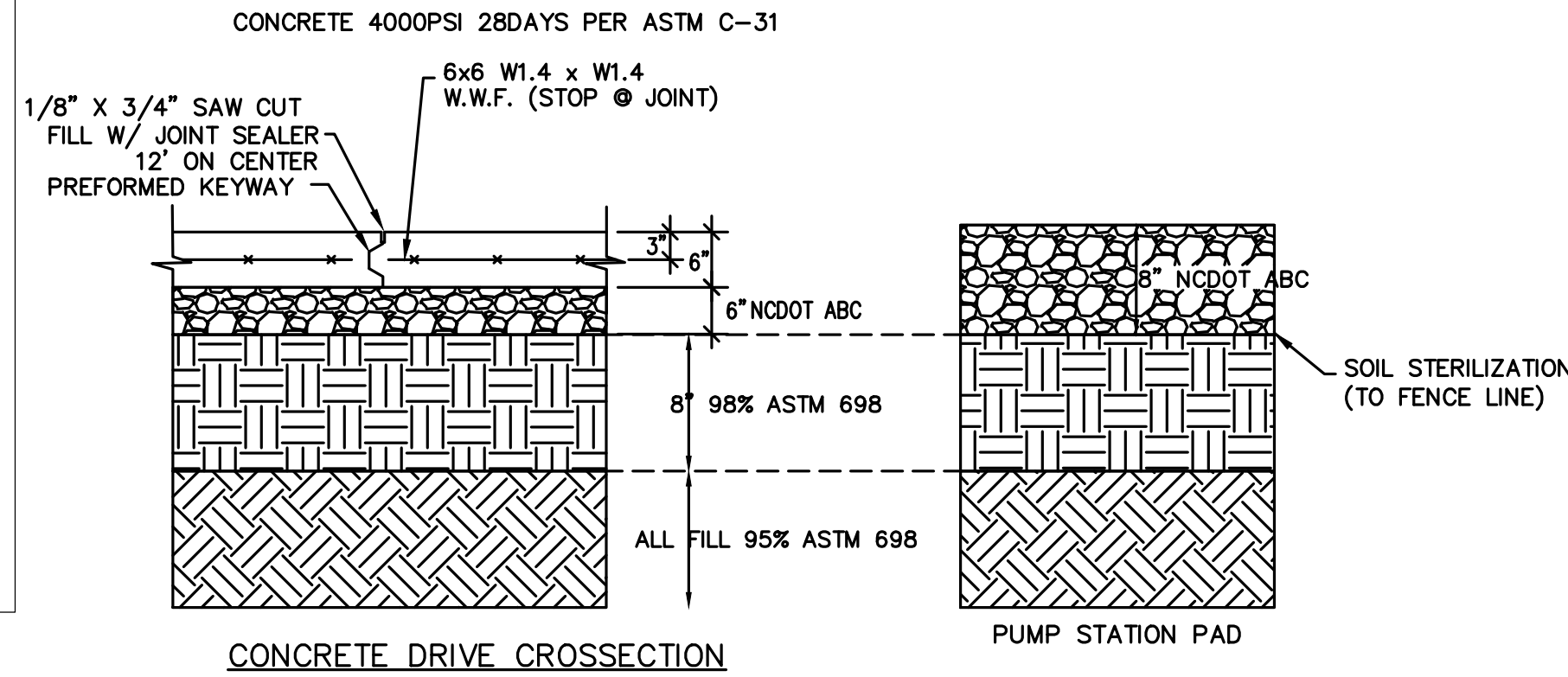
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with 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

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE

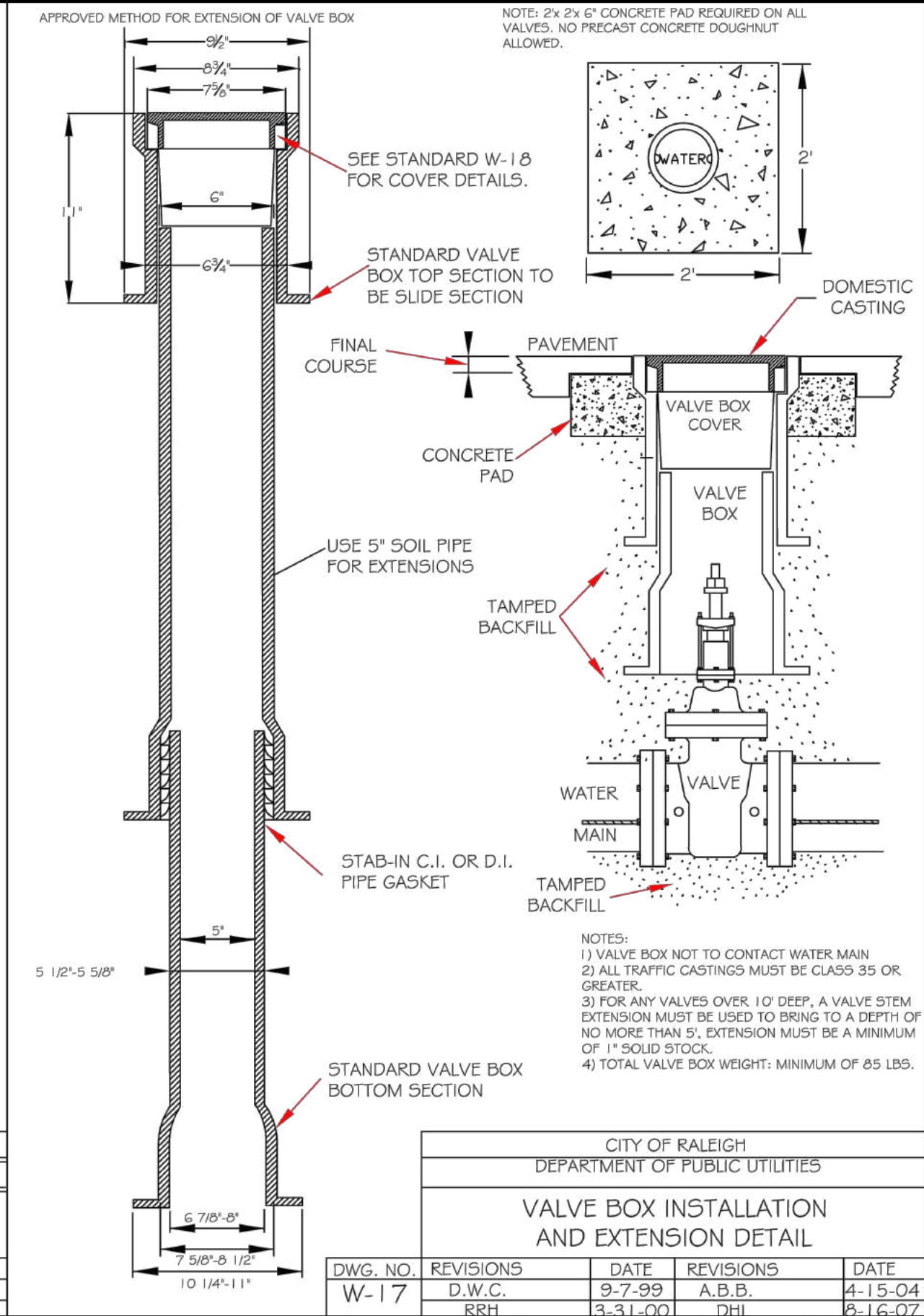


1. ALL ABOVE GROUND ENCLOSURES MUST HAVE ADEQUATE DRAINAGE (TWICE THE DIAMETER OF THE SUPPLY PIPE) TO DAYLIGHT ABOVE GRADE.
2. REDUCED PRESSURE BACKFLOW PREVENTERS MAY BE LOCATED IN A BUILDING PROVIDED THERE ARE NO OTHER UNPROTECTED TAPS BETWEEN THE MAIN AND THE BUILDING. DRAINAGE IN A BUILDING MUST BE TWICE THE DIAMETER OF THE SUPPLY PIPE.
3. ABOVE GROUND INSULATED VAULTS MUST BE ASSE 1060 APPROVED ABOVE GROUND ENCLOSURES. SEE CROSS CONNECTION MANUAL FOR ENCLOSURE FREEZE PROTECTION AND CERTIFICATION REQUIREMENTS.
4. RESIDENTIAL LAWN IRRIGATION R.P.P. ASSEMBLIES THAT ARE REMOVED TO PREVENT FREEZING IN THE WINTER MONTHS MUST BE CAPPED OFF. ALL ABOVE GROUND ASSEMBLIES, EXCEPT RESIDENTIAL LAWN IRRIGATION ASSEMBLIES, MUST BE PROTECTED FROM FROST.
5. ALL RPZ BACKFLOW PREVENTION DEVICES MUST BE INSTALLED PRIOR TO METER BEING SET.
6. FOR ENCLOSURE DIMENSIONS SEE DETAIL W-34.
7. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
8. ALL ASSEMBLIES MUST BE ON THE CURRENT APPROVAL LIST.

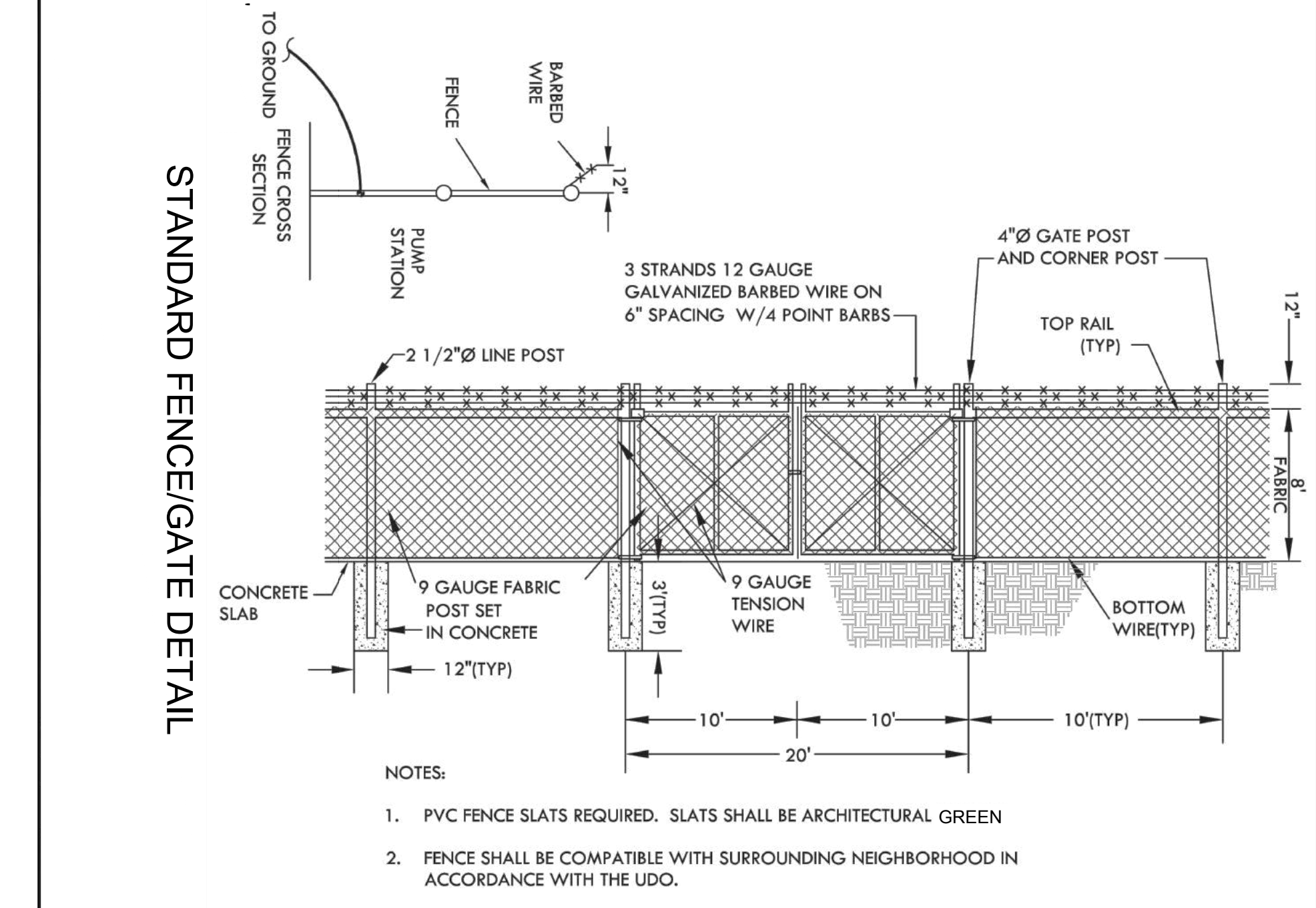


- NOTES:
1. METER AS MANUFACTURED BY SENSUS OR NEPTUNE.
  2. BACKFILL TAMPED IN 6" LIFTS.
  3. REINFORCEMENT: #4 @ 6" O.C.W.
  4. CONCRETE: 4,000 PSI @ 28 DAYS
  5. ALL RPZ BACKFLOW PREVENTION DEVICES MUST BE INSTALLED PRIOR TO METER BEING SET.
  6. ALL COPPER SETTERS ARE TO HAVE A BALL TYPE SHUT OFF VALVE ON BOTH SIDES OF COPPER SETTER WITH HIGH RISE BYPASS THAT IS MANUFACTURED BY FORD, MUELLER, OR AY McDONALD. (NO EXCEPTIONS)

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-31	A, B, S, D, H, L	8-17-04	J, F, S, C, I, A, Q, R	11-4-10



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



- NOTES:
1. PVC FENCE SLATS REQUIRED. SLATS SHALL BE ARCHITECTURAL GREEN
  2. FENCE SHALL BE COMPATIBLE WITH SURROUNDING NEIGHBORHOOD IN ACCORDANCE WITH THE UDO.



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

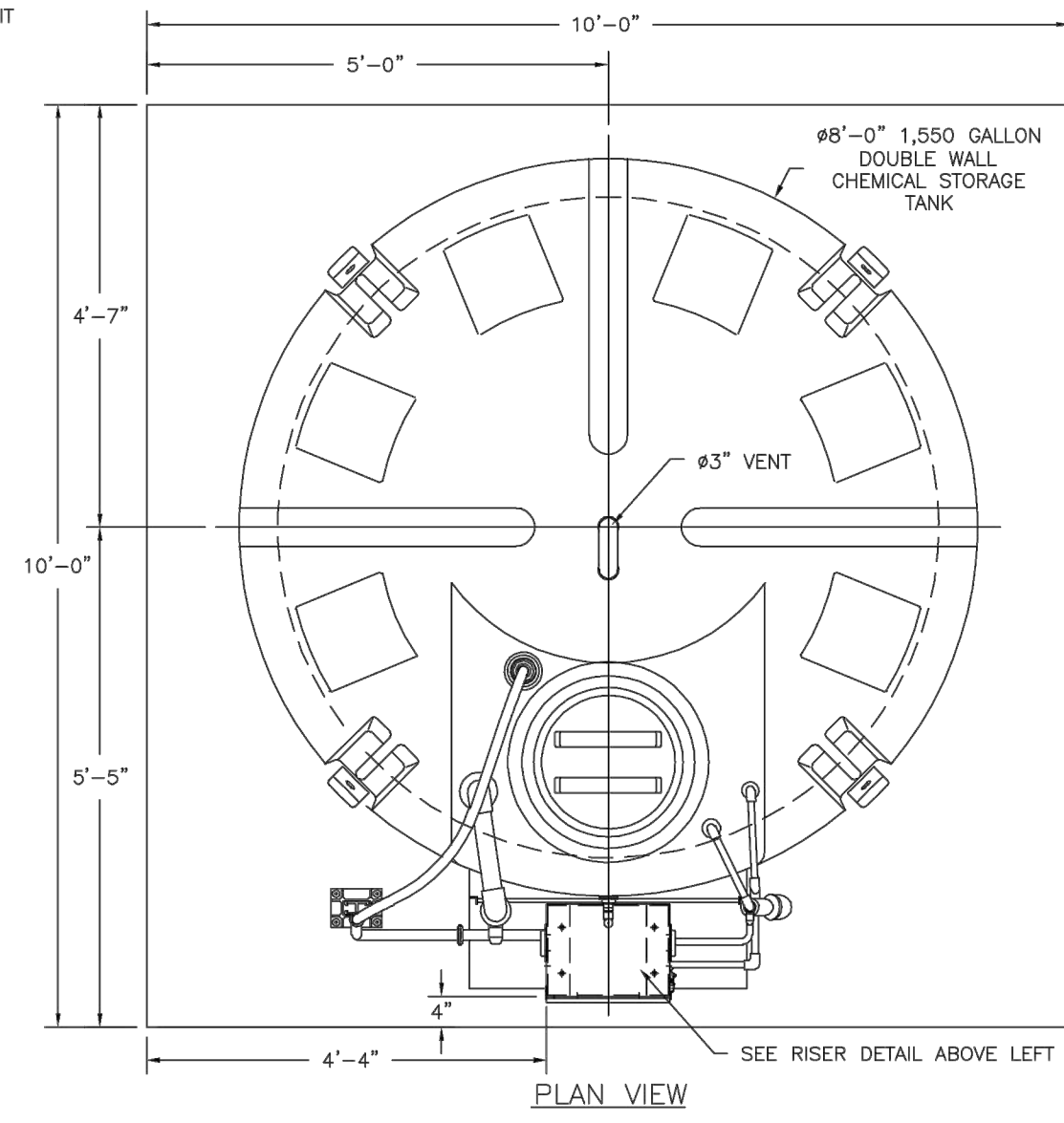
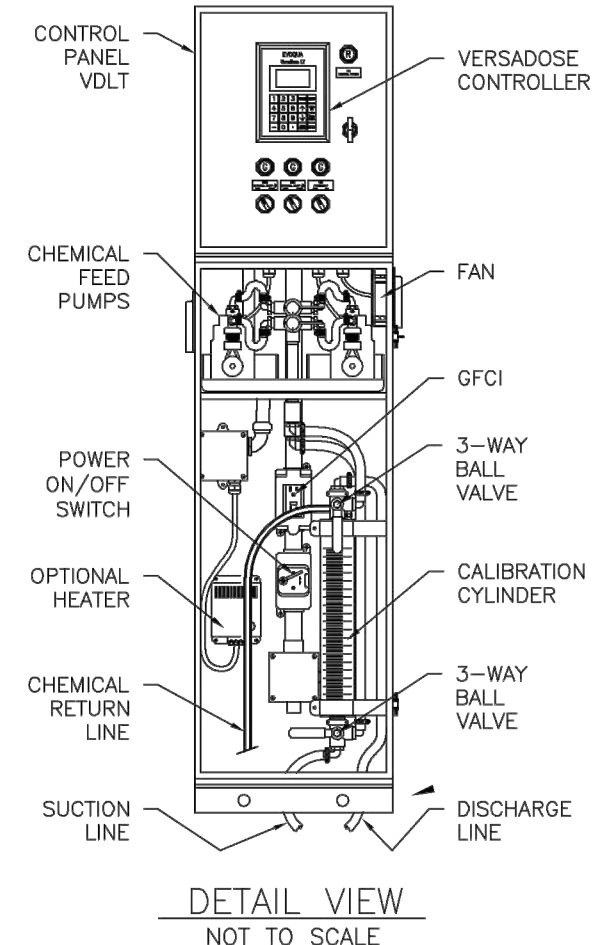
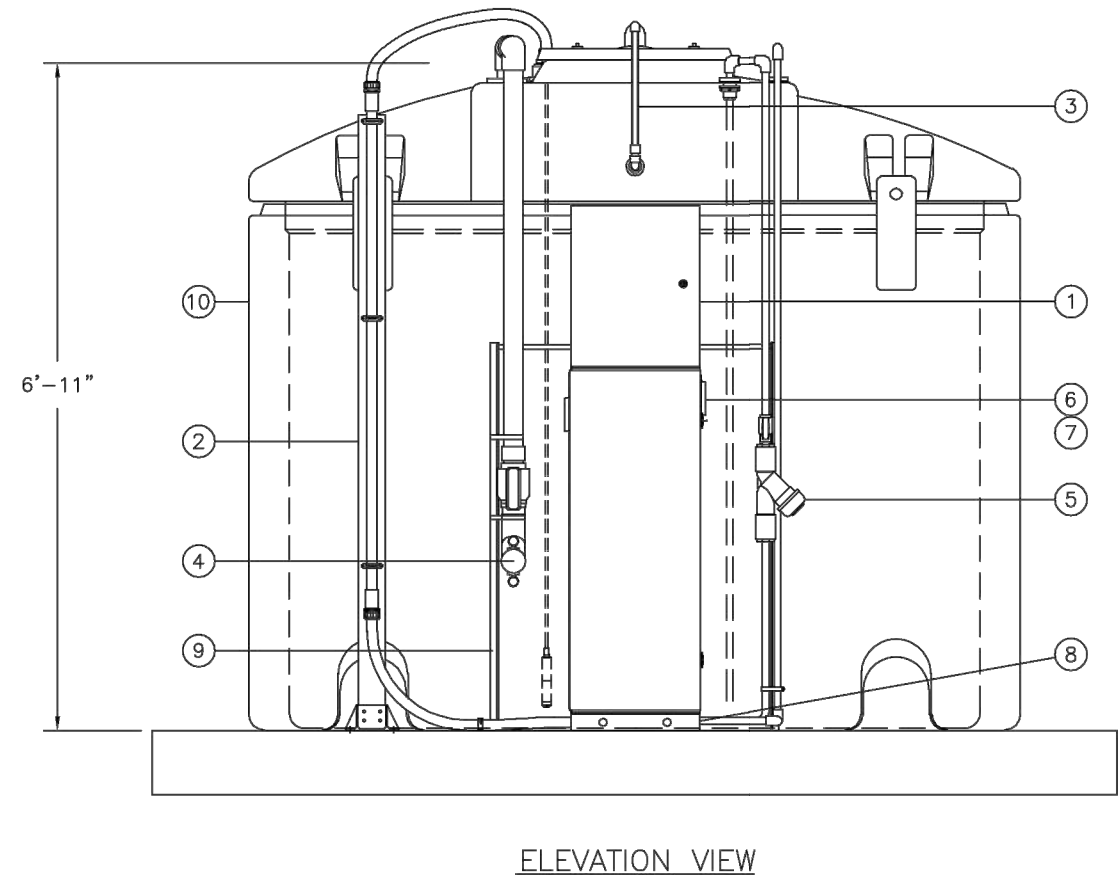
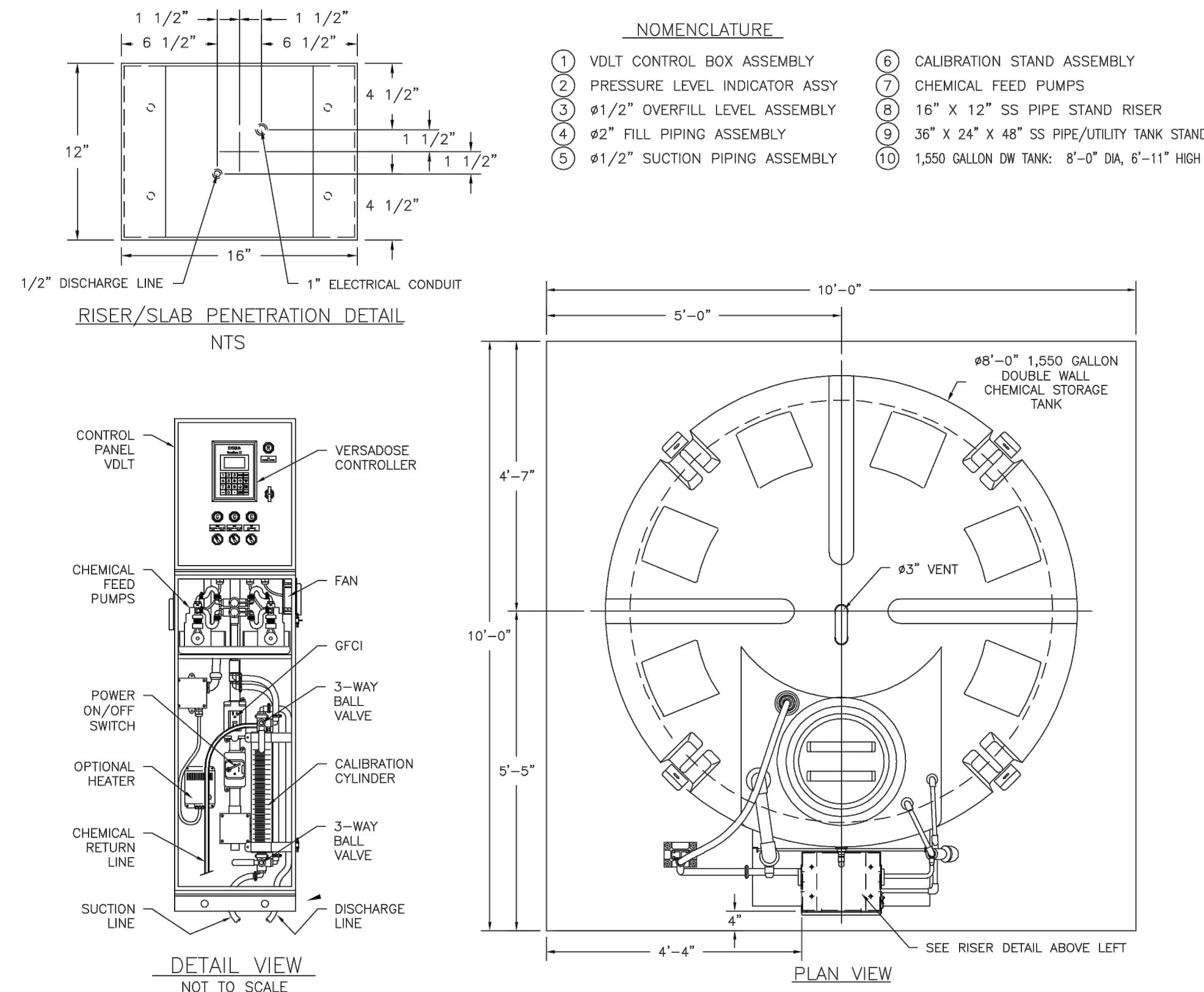


**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

**PUMP STATION**  
DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	
C609	

- NOTES:
- THIS IS A CONCEPTUAL GENERAL ARRANGEMENT DRAWING ONLY.
  - ACTUAL EQUIPMENT AND PIPING LOCATIONS MAY VARY. PAD & EQUIPMENT LAYOUT SHOWN ARE ONLY SUGGESTED.
  - CONTAINMENT CURBING IS NOT SHOWN OR INCLUDED.
  - CAUTION: DOOR ON CHEMFEED SYSTEM EXTENDS PAST PAD DIMENSIONS.
  - STUB-UP FOR ELECTRICAL CONDUIT AND DISCHARGE PIPING TO BE DETERMINED PER SITE PLACEMENT.
  - REFERENCE PROJECT SUBMITTALS FOR FURTHER SYSTEM INFORMATION.



CONTRACTOR SUPPLIER CONTACT:

**RICHARD SANCHEZ**  
TECHNICAL SALES REPRESENTATIVE-  
NORTH CAROLINA

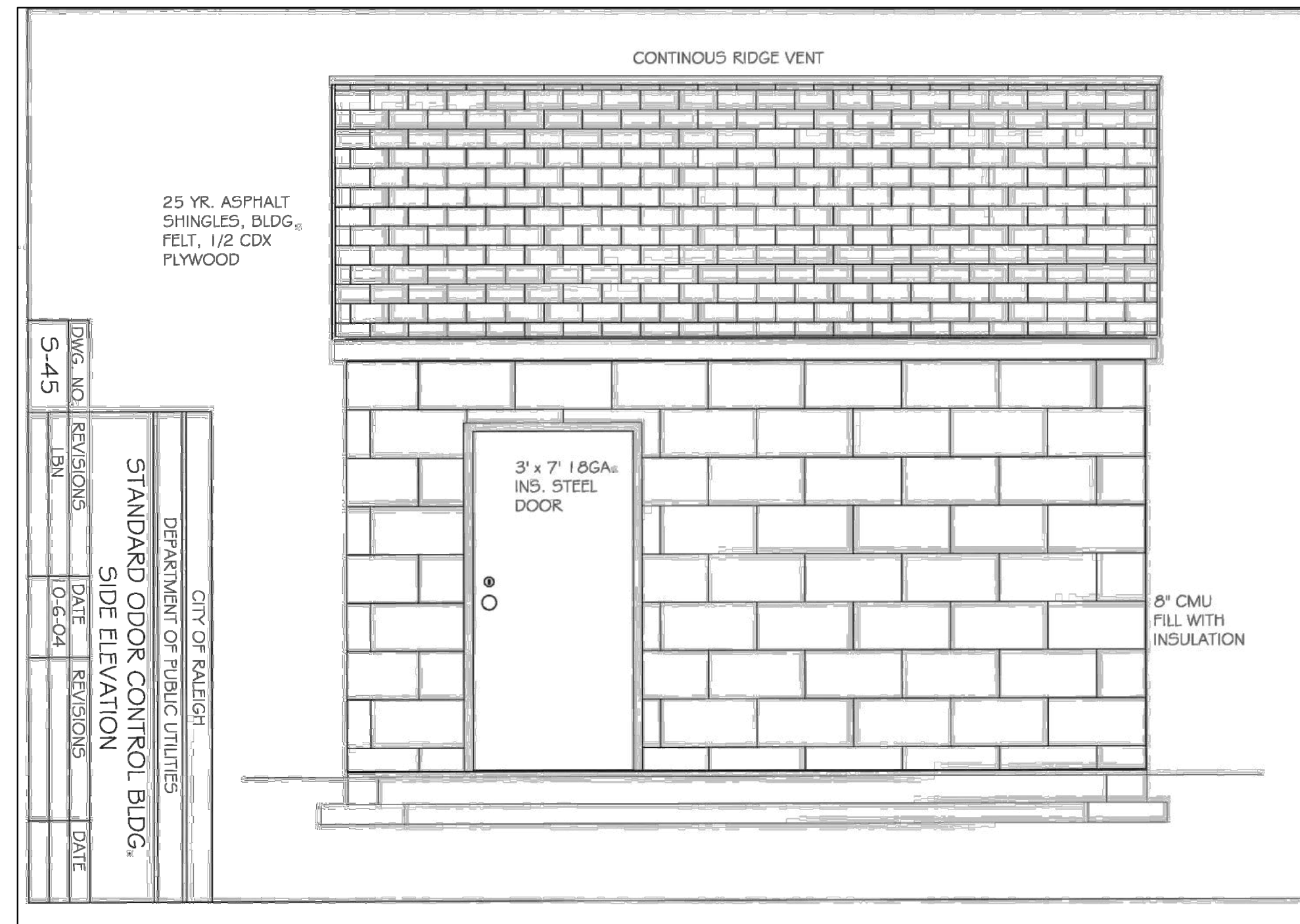
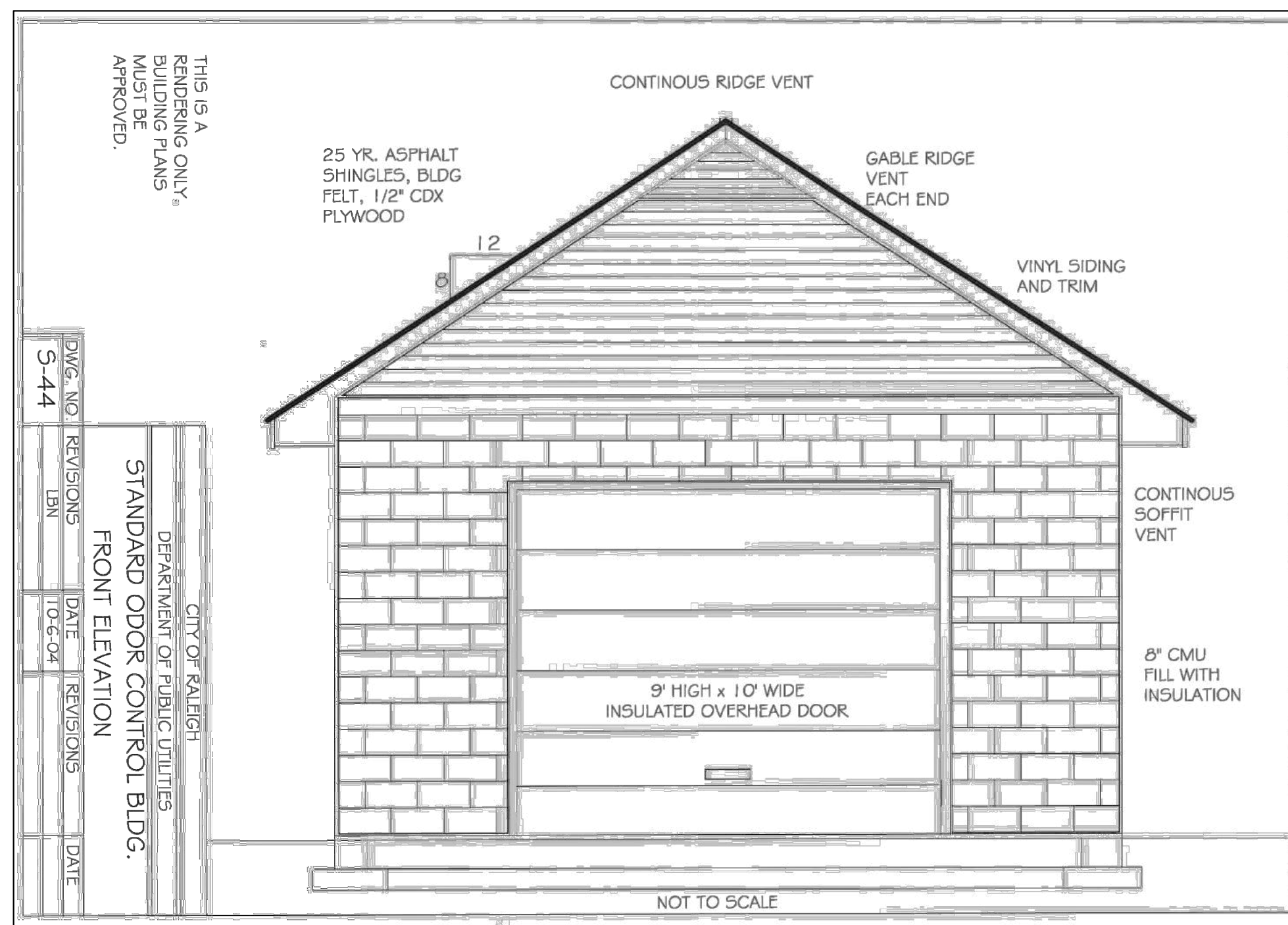
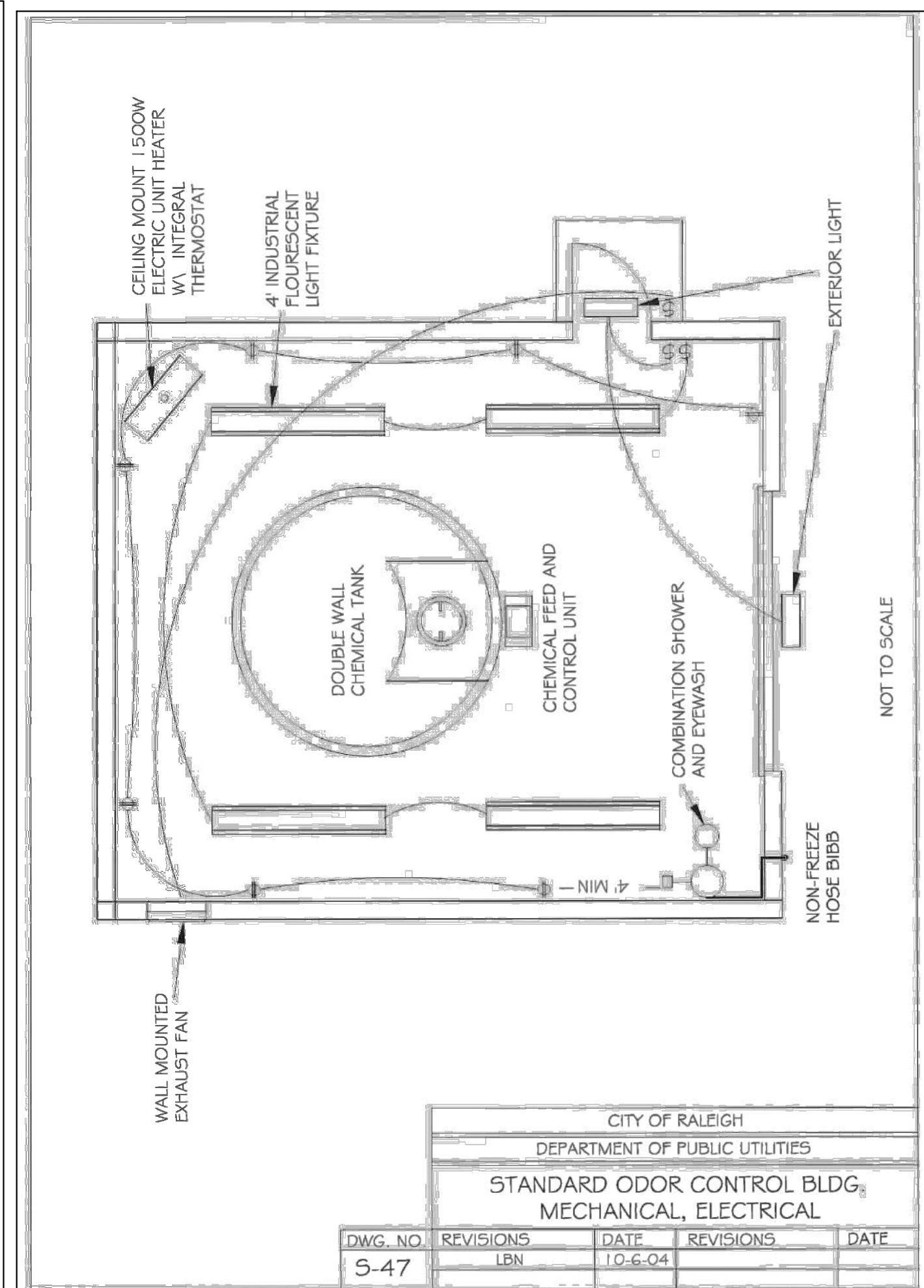
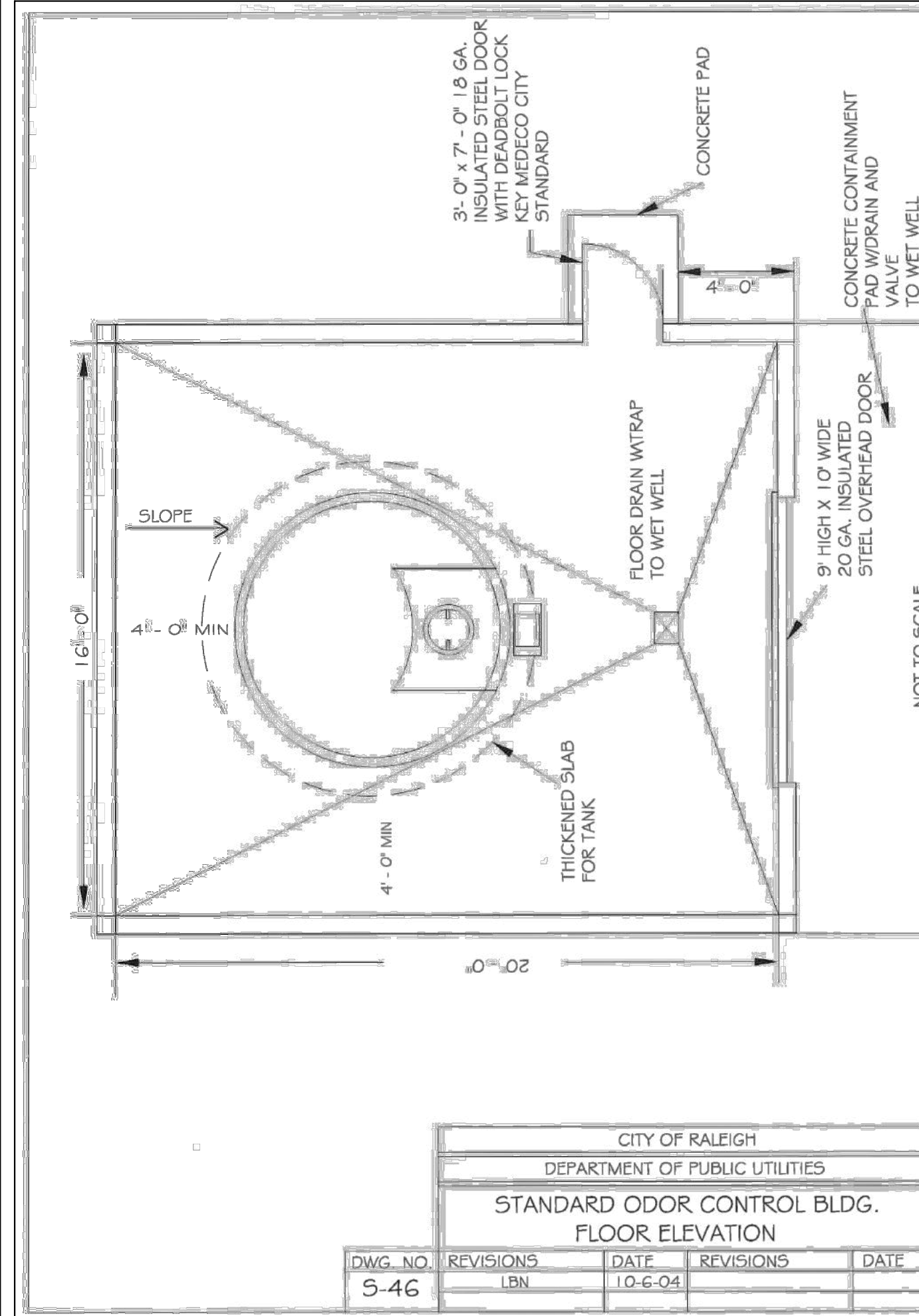
**EVOQUA WATER TECHNOLOGIES LLC**  
2650 TALLEVAST RD.  
SARASOTA, FLORIDA, 34243, USA

ASSY CHEM-FEED 1550-DW 8'-0"D X 6'-11"H  
PRESSURE LEVEL INDICATOR

REV	DESCRIPTION	DATE	BY	CHKD	APPD	EDN

COMPANY CONFIDENTIAL	DESIGNER DATE	TITLE
REINBOLT 03/09/18	REINBOLT 03/09/18	ASSY CHEM-FEED 1550-DW 8'-0"D X 6'-11"H
CHECKER DATE	CHECKER DATE	PRESSURE LEVEL INDICATOR
HEINER 03/09/18	HEINER 03/09/18	
ENGINEER DATE	ENGINEER DATE	
STEWART 03/09/18	STEWART 03/09/18	
MANAGER DATE	MANAGER DATE	
FILE:	PROJECT	SHEET
SALES	BOX-1550S-DW-VL-S-BL-PS-00	1 OF 1
SCALE: 25		

**TANK SUPPLIER**  
SEE SUPPLIER FOR INSTALL AND ORDER:  
RICHARD SANCHEZ  
EVOQUA WATER TECHNOLOGIES  
919-455-6368  
RICHARD.SANCHEZ@EVOQUA.COM



**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**  
Engineers • Surveyors • Planners  
2624 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

**ODOR CONTROL**  
DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C610**



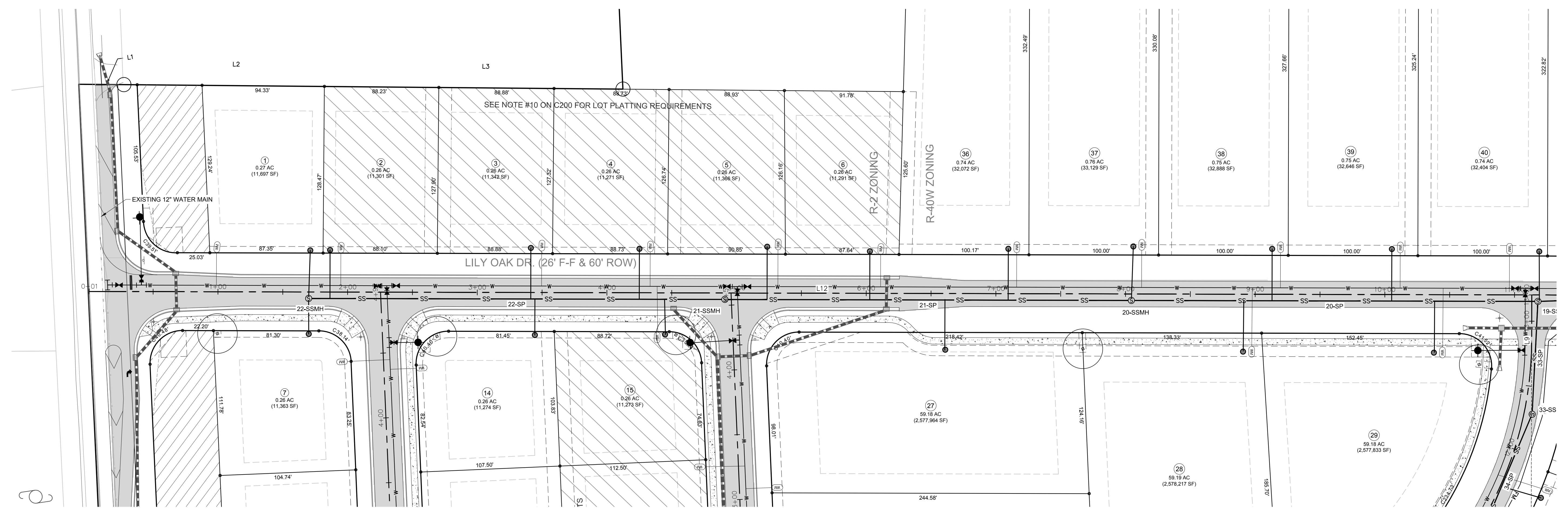
**Bateman Civil Survey Company**  
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 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FIRW No. C-2378



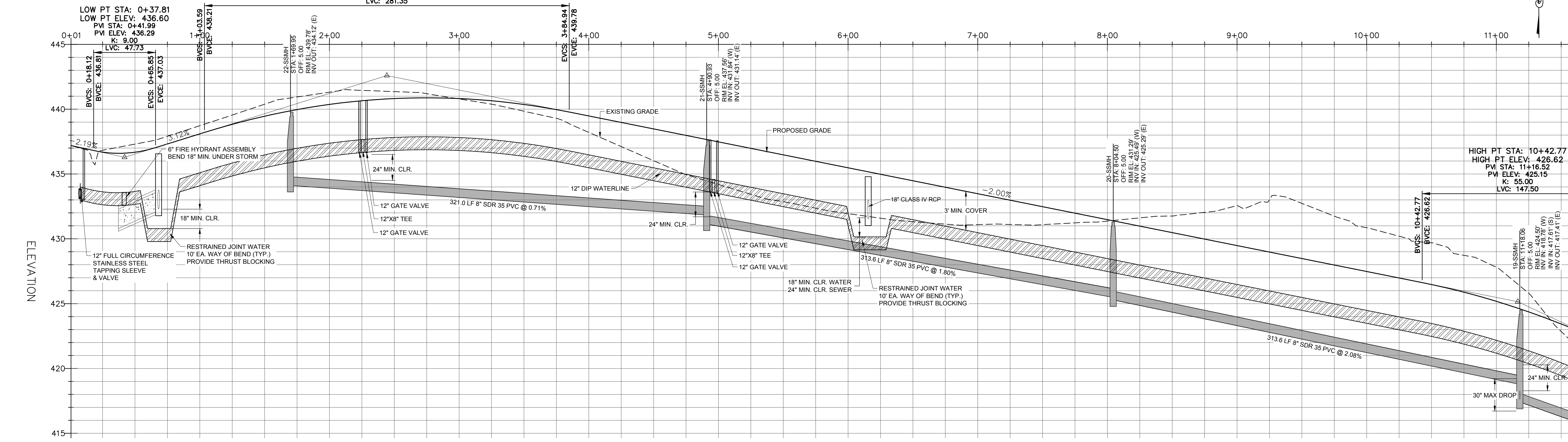
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**LILY OAK DR.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C700**



**LILY OAK DR. - PLAN**  
 SCALE: 1"=40'  
 STA: 0+00 - 10+50



Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L12	1204.03	S81° 35' 14.57"E	0+00.66	12+04.70
L13	406.20	N89° 16' 35.52"E	13+96.84	18+03.04
L14	469.73	N0° 43' 24.48"W	21+64.33	26+34.06
L15	120.79	N38° 45' 44.62"W	27+86.76	29+07.55

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C7	1205.00	192.14	S86° 09' 19.52"E	12+04.70	13+96.84
C8	230.00	361.28	N44° 16' 35.52"E	18+03.04	21+64.33
C9	230.00	152.70	N19° 44' 34.55"W	26+34.06	27+86.76

**LILY OAK DR. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 10+50

**SITE PERMITTING APPROVAL**  
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 Raleigh Water Review Officer

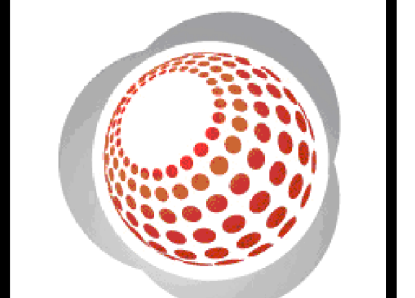
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REV	DESCRIPTION	DATE
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REV	DESCRIPTION	DATE
REVISIONS		





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

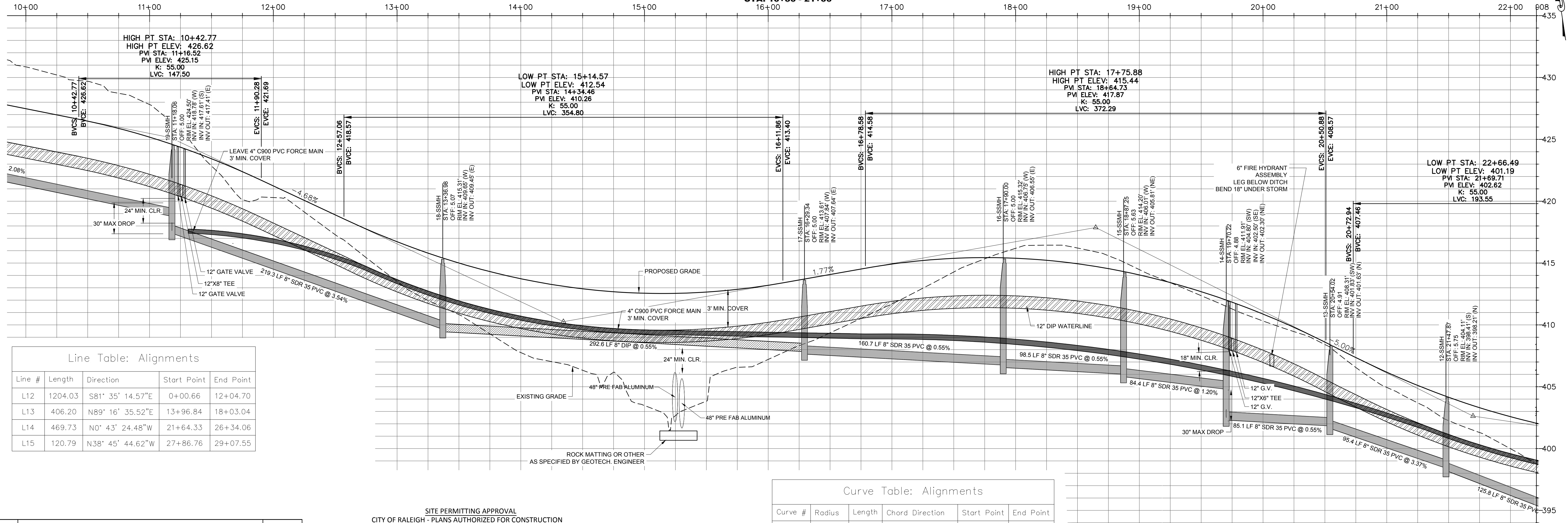
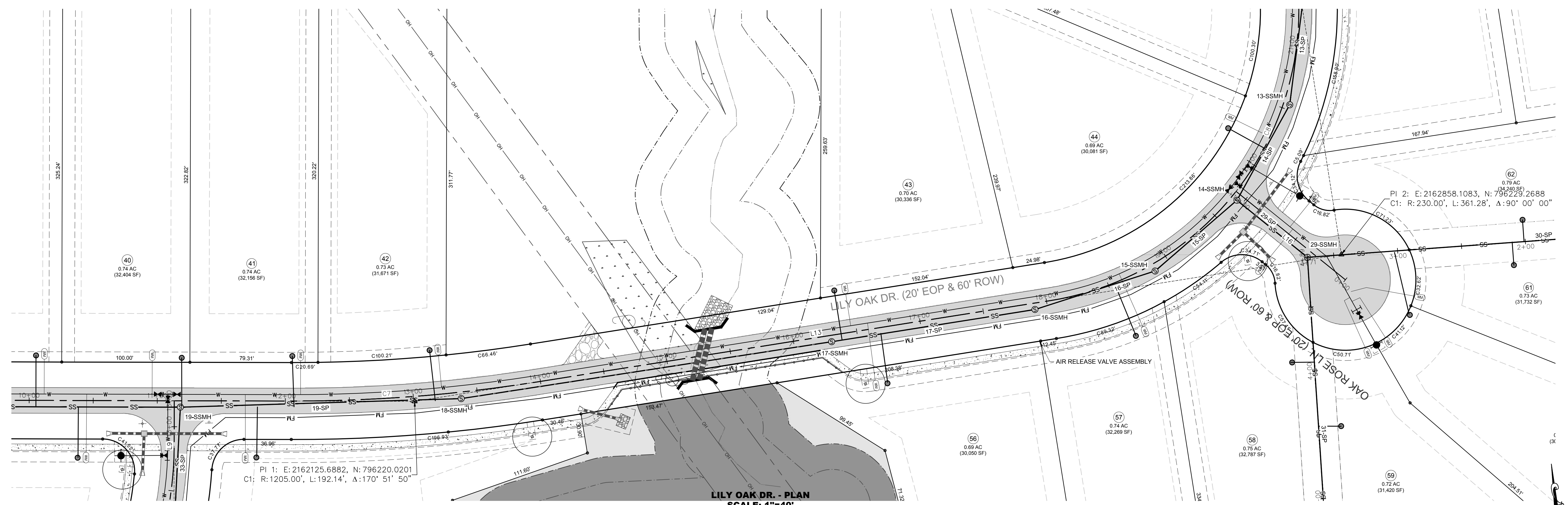


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**LILY OAK DR.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C701**



Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L12	1204.03	S81° 35' 14.57"E	0+00.66	12+04.70
L13	406.20	N89° 16' 35.52"E	13+96.84	18+03.04
L14	469.73	N0° 43' 24.48"W	21+64.33	26+34.06
L15	120.79	N38° 45' 44.62"W	27+86.76	29+07.55

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C7	1205.00	192.14	S86° 09' 19.52"E	12+04.70	13+96.84
C8	230.00	361.28	N44° 16' 35.52"E	18+03.04	21+64.33
C9	230.00	152.70	N19° 44' 34.55"W	26+34.06	27+86.76

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

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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REV	DESCRIPTION	DATE



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 NCBSLS FIRW No. C-2378

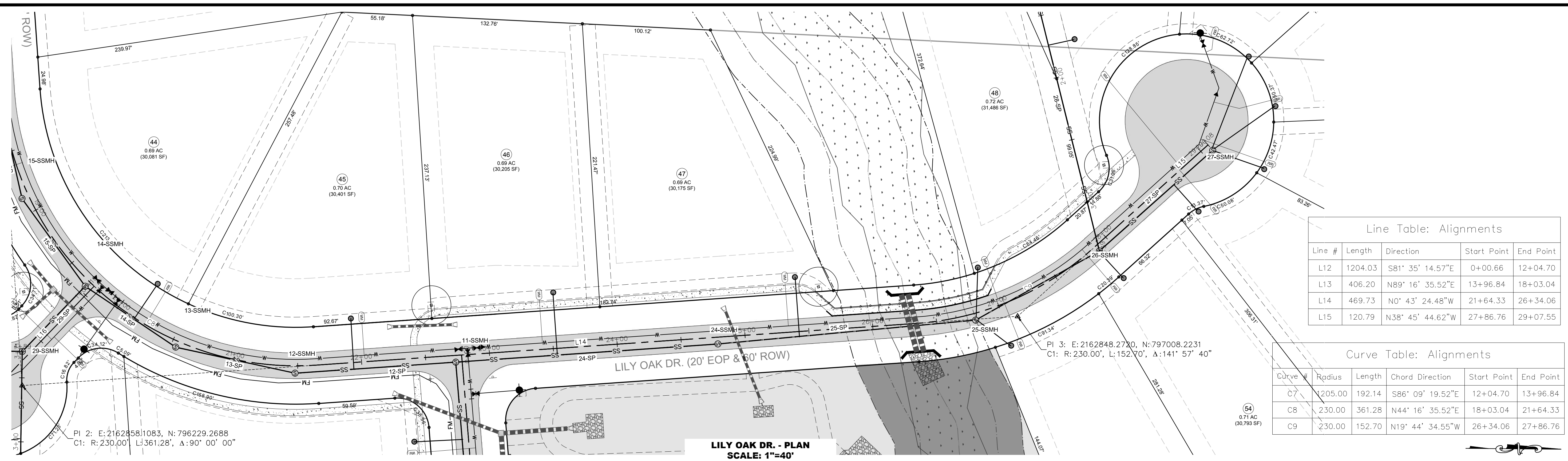


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**LILY OAK DR.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020

Project Number: P170347  
 SHEET  
**C702**



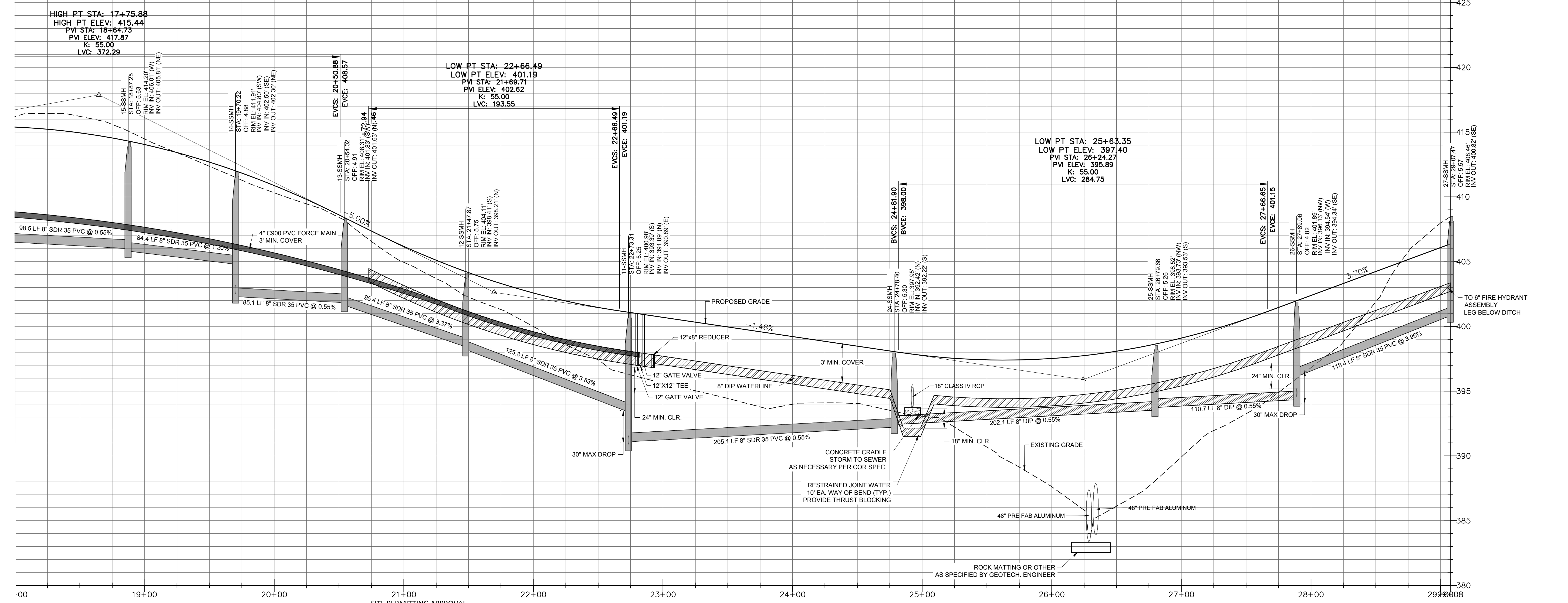
Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L12	1204.03	S81° 35' 14.52"E	0+00.66	12+04.70
L13	406.20	N89° 16' 35.52"E	13+96.84	18+03.04
L14	469.73	N0° 43' 24.48"W	21+64.33	26+34.06
L15	120.79	N38° 45' 44.62"W	27+86.76	29+07.55

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C7	1205.00	192.14	S86° 09' 19.52"E	12+04.70	13+96.84
C8	230.00	361.28	N44° 16' 35.52"E	18+03.04	21+64.33
C9	230.00	152.70	N19° 44' 34.55"W	26+34.06	27+86.76

**LILY OAK DR. - PLAN**  
 SCALE: 1"=40'  
 STA: 21+00 - 29+08



**LILY OAK DR. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 21+00 - 29+08

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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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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

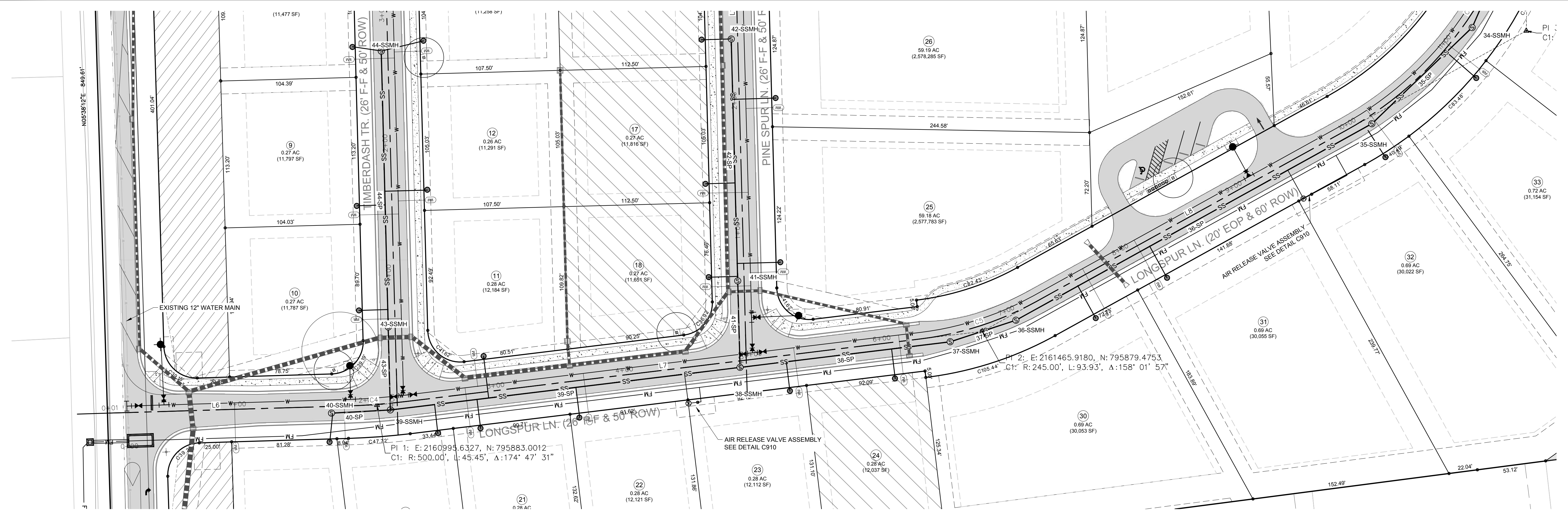


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

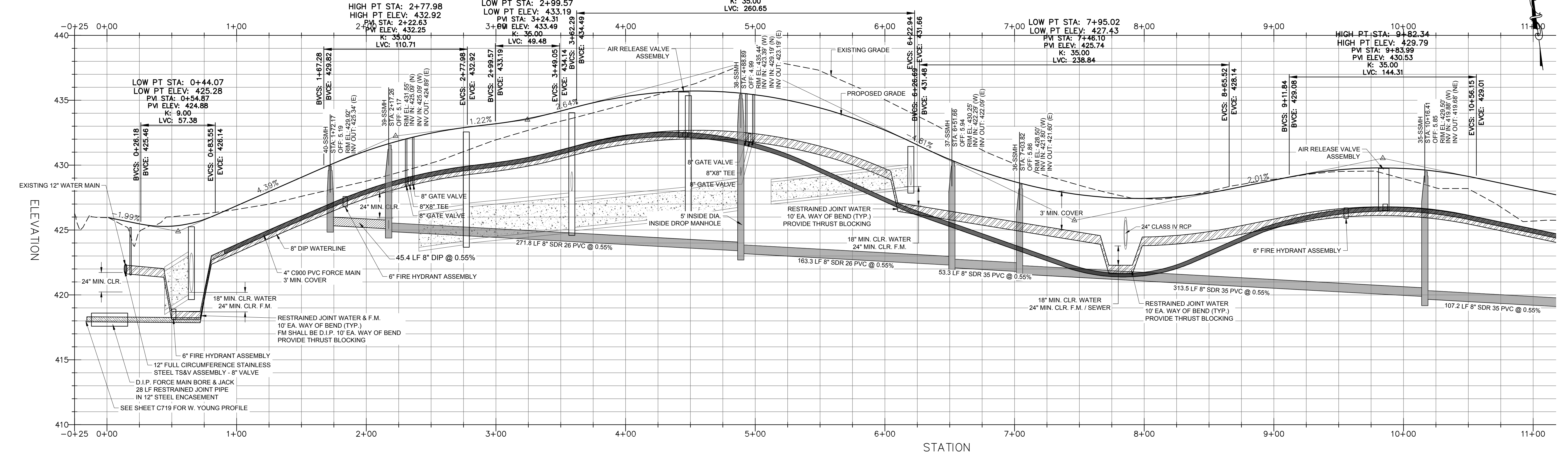
**LONGSPUR LN.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C703**



**LONGSPUR LN. - PLAN**  
 SCALE: 1"=40'  
 STA: 0+00 - 10+00



Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L6	183.49	S84° 21' 44.46"E	0+01.23	1+84.72
L7	400.01	S89° 34' 13.59"E	2+30.17	6+30.18
L8	272.70	N68° 27' 43.24"E	7+24.11	9+96.81
L9	35.25	N8° 24' 45.43"E	12+85.03	13+20.27

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C4	500.00	45.45	S86° 57' 59.02"E	1+84.72	2+30.17
C5	245.00	93.93	N79° 26' 44.83"E	6+30.18	7+24.11
C6	275.00	288.22	N38° 26' 14.33"E	9+96.81	12+85.03

**LONGSPUR LN. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 10+00

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

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 Raleigh Water Review Officer

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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020

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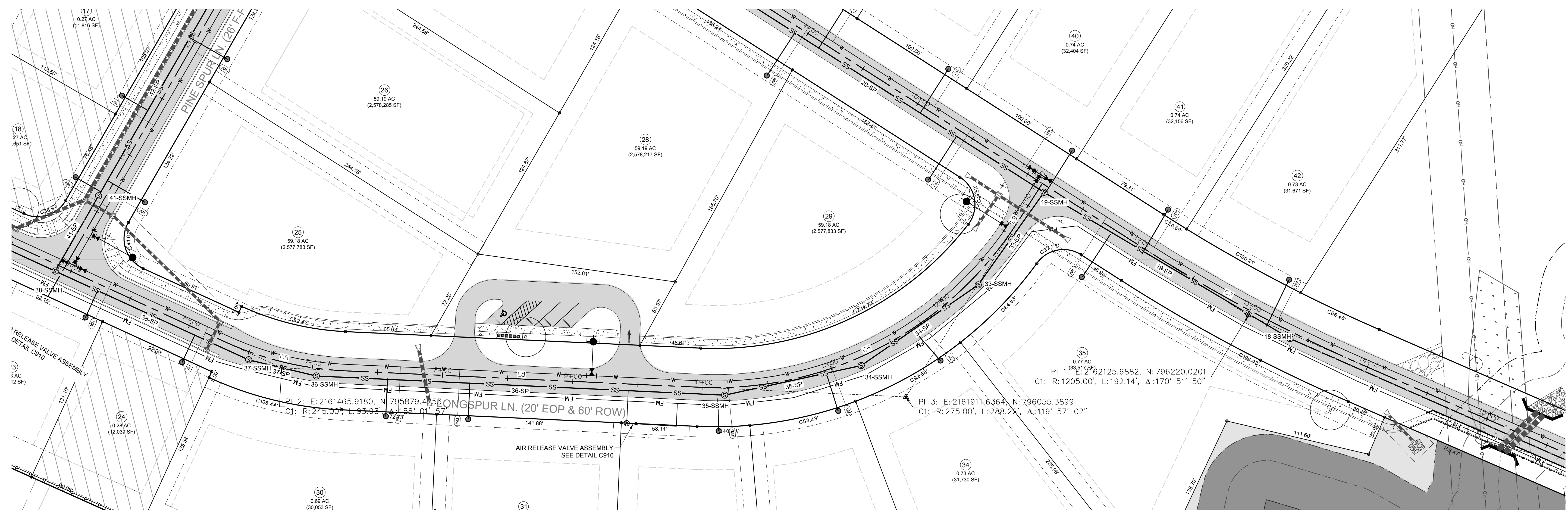
**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2524 Relliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FIRN No. C-2378



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

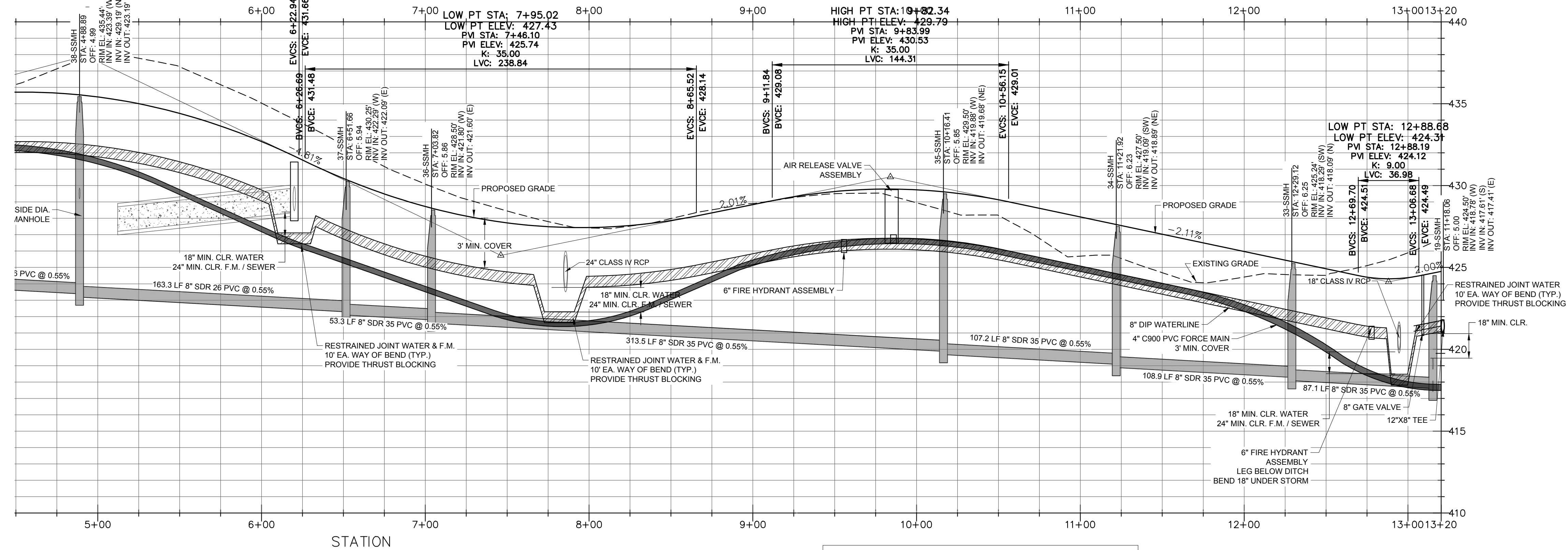
**LONGSPUR LN.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C704**



**LONGSPUR LN. - PLAN**  
 SCALE: 1"=40'  
 STA: 10+00 - 13+20

HIGH PT STA: 4+54.61  
 HIGH PT ELEV: 435.71  
 PVI STA: 4+92.62  
 PVI ELEV: 437.93  
 K: 35.00  
 LVC: 260.65



Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L6	183.49	S84° 21' 44.46"E	0+01.23	1+84.72
L7	400.01	S89° 34' 13.59"E	2+30.17	6+30.18
L8	272.70	N68° 27' 43.24"E	7+24.11	9+96.81
L9	35.25	N8° 24' 45.43"E	12+85.03	13+20.27

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C4	500.00	45.45	S86° 57' 59.02"E	1+84.72	2+30.17
C5	245.00	93.93	N79° 26' 44.83"E	6+30.18	7+24.11
C6	275.00	288.22	N38° 26' 14.33"E	9+96.81	12+85.03

**LONGSPUR LN. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 10+00 - 13+20

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

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City of Raleigh Development Approval  
 Raleigh Water Review Officer

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

P:\2017 Projects\170347 - Chandlers Ridge\Eng\CAD\DWG\TP - SHEETS\TP - SHEET\_C704.dwg



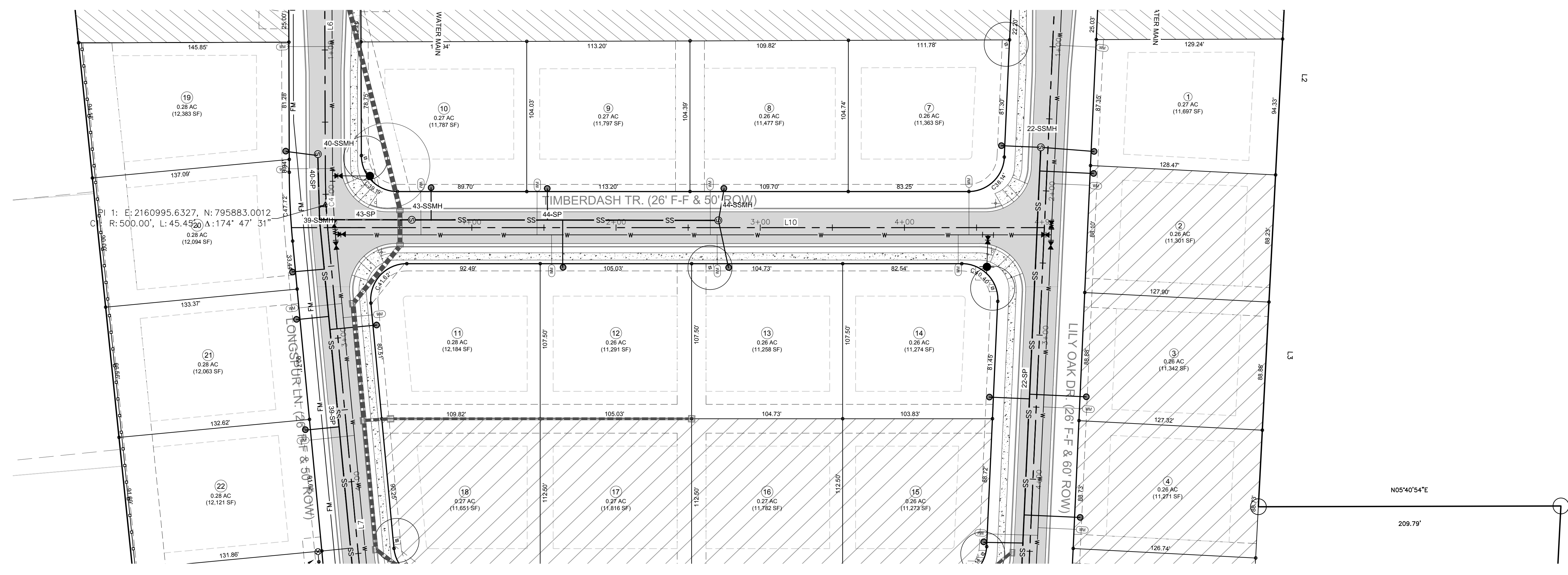
**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2524 Reliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FRW No. C-2378



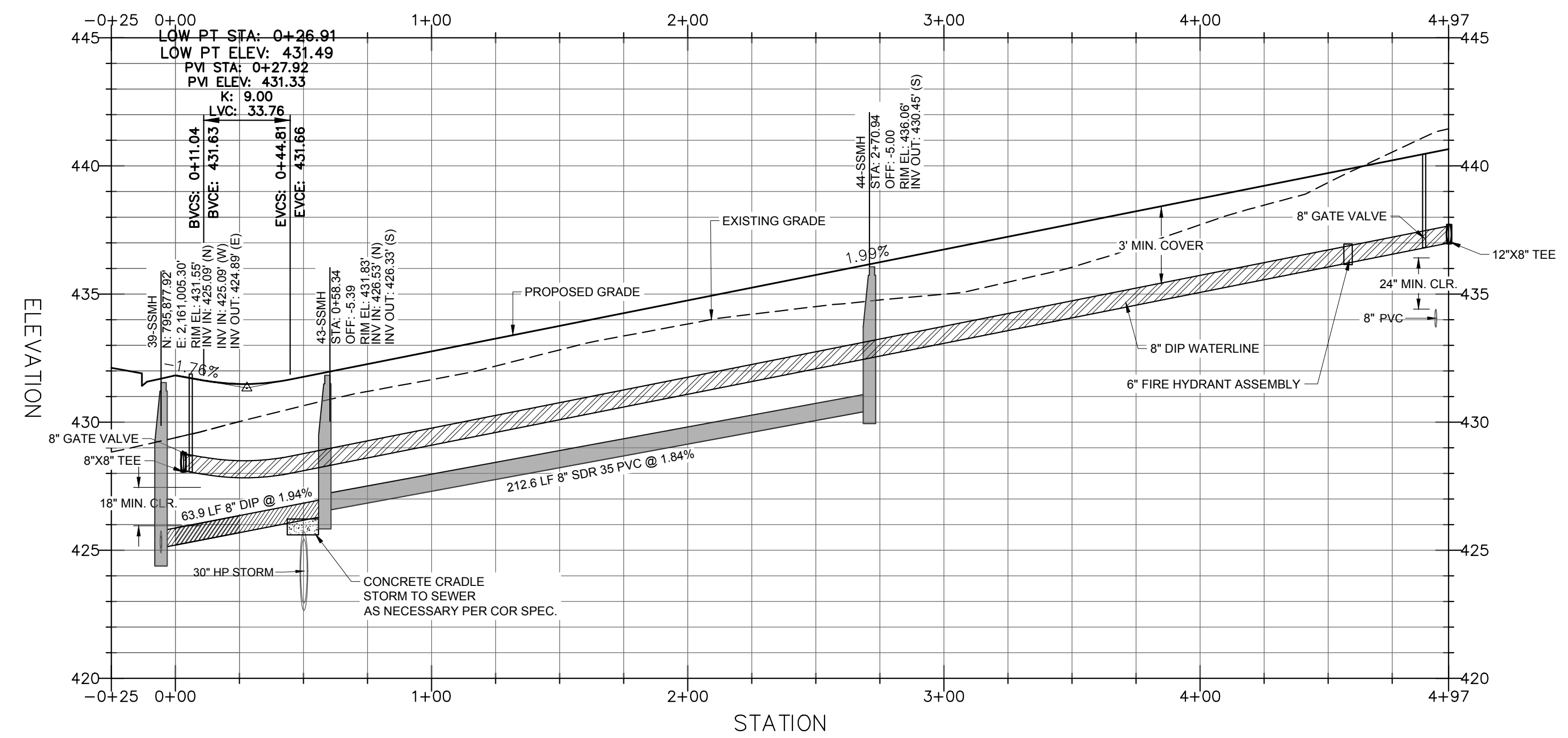
**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**TIMBERDASH TR.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C705**



**TIMBERDASH TR. - PLAN**  
 SCALE: 1"=40'  
 STA:00+00 - 4+97



**TIMBERDASH TR. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 4+97

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L10	497.00	N5° 49' 00.97"E	0+00.00	4+97.00

**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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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

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 NCBELS FIRW No. C-2378

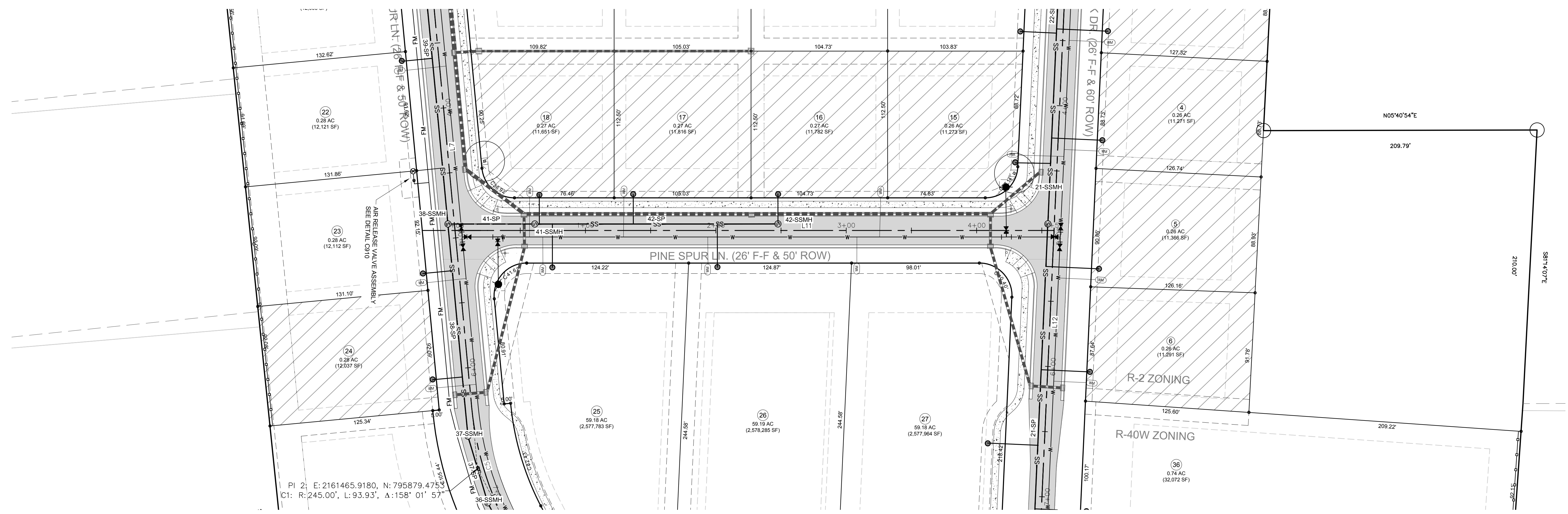


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

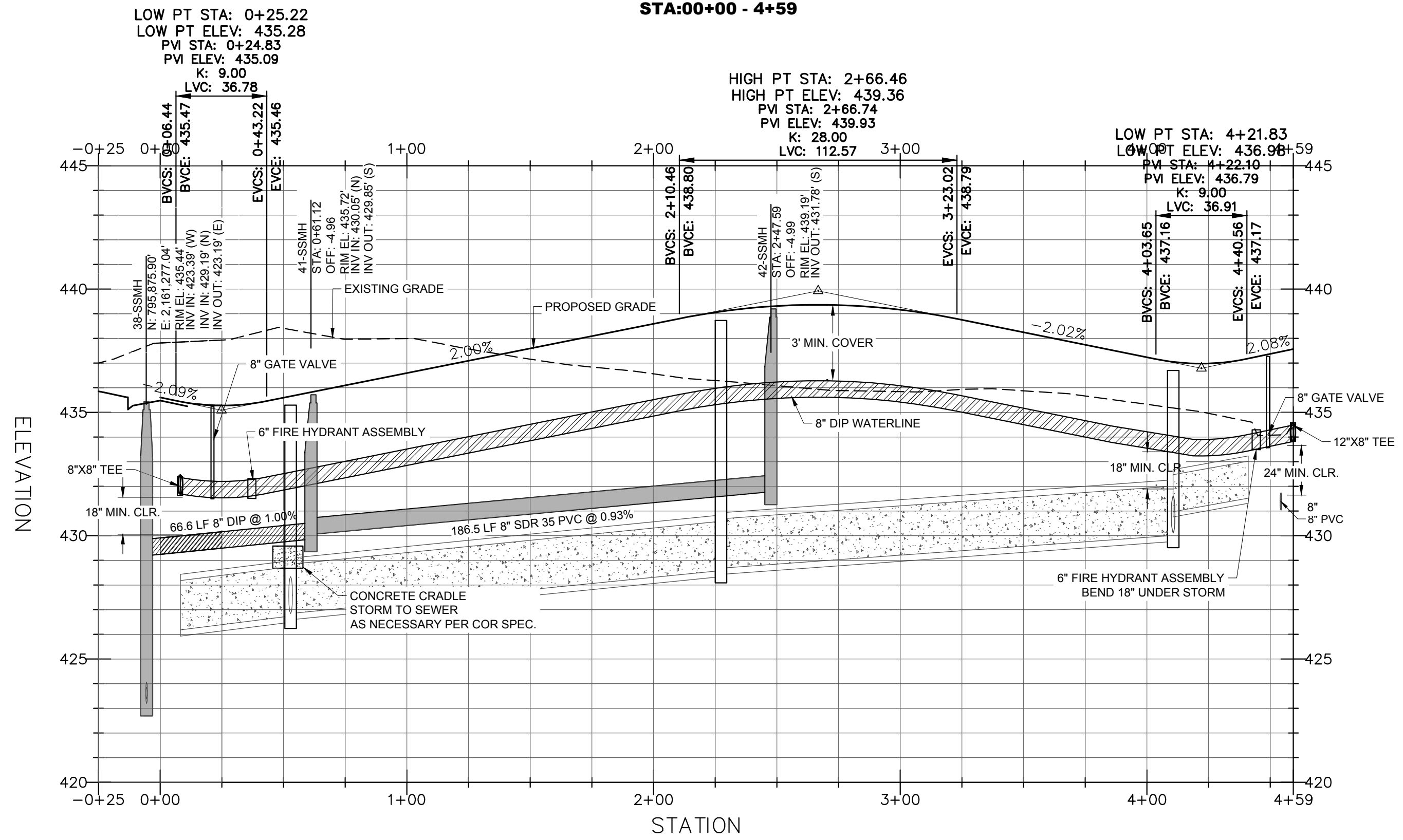
**PINE SPUR LN.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C706**



**PINE SPUR LN. - PLAN**  
 SCALE: 1"=40'  
 STA: 0+00 - 4+59



**PINE SPUR LN. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 4+59

Line #	Length	Direction	Start Point	End Point
L11	459.35	N5° 49' 00.97"E	0+00.00	4+59.35

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

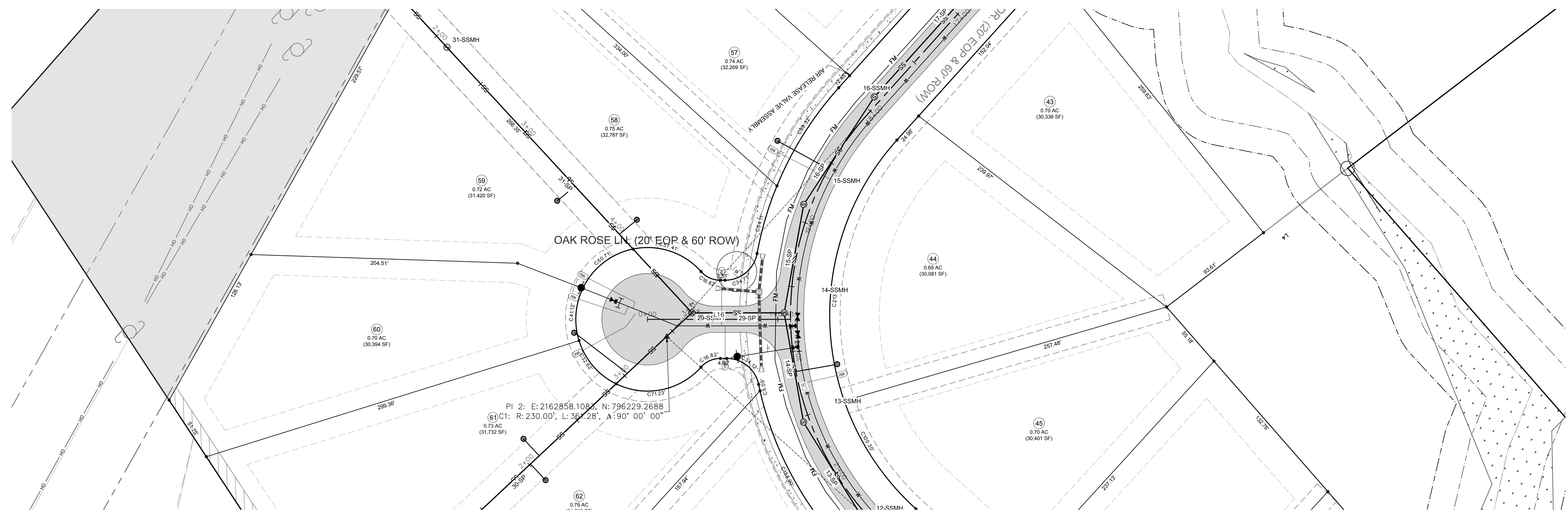


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

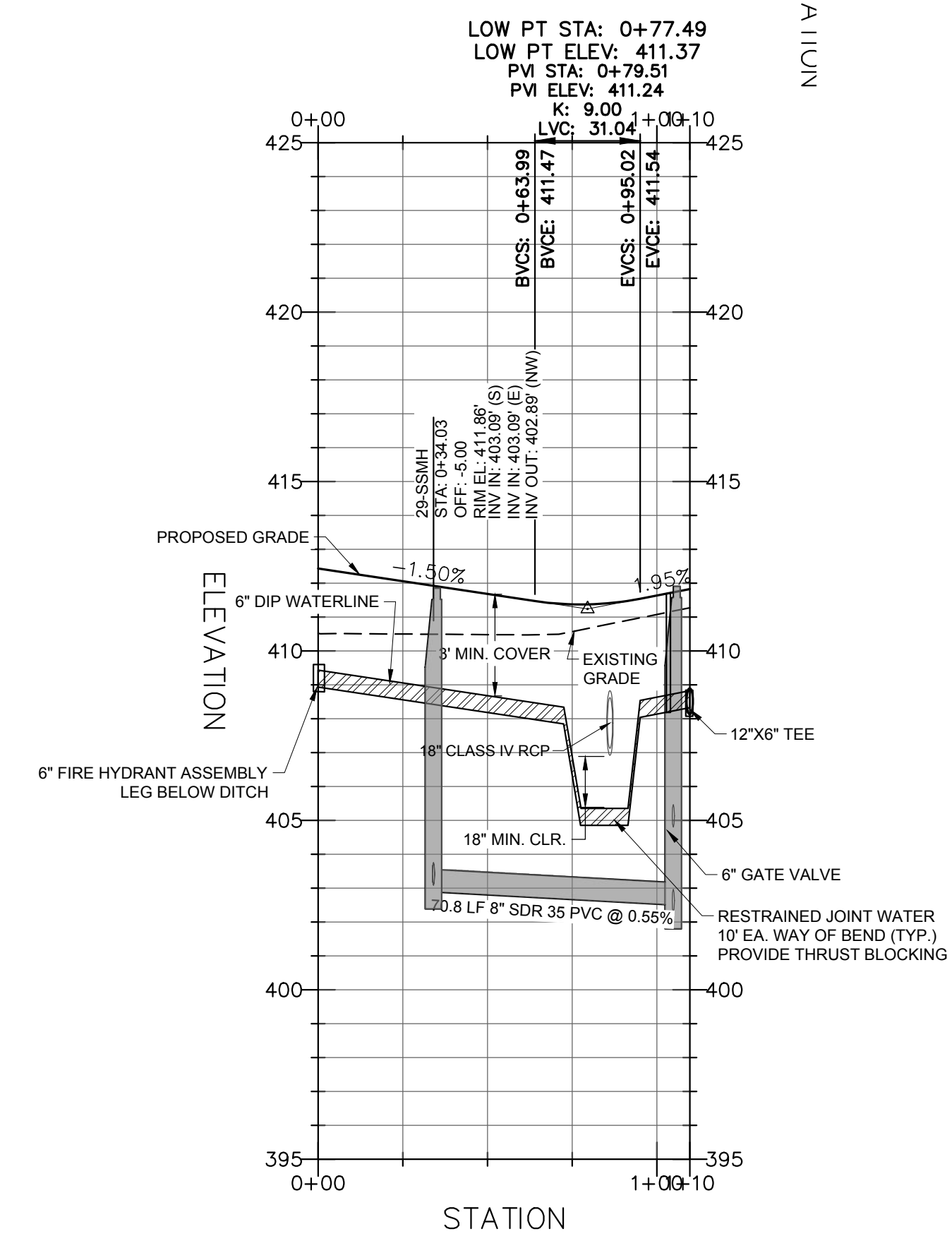
**OAK ROSE LN.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020

Project Number: P170347  
 SHEET  
**C707**



**OAK ROSE LN. - PLAN**  
 SCALE: 1"=40'  
 STA:00+00 - 1+10



**OAK ROSE LN. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 1+10

Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L16	109.71	N42° 46' 21.68"W	0+00.00	1+09.71

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REV	DESCRIPTION	DATE
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 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBSLS FRM No. C-2378

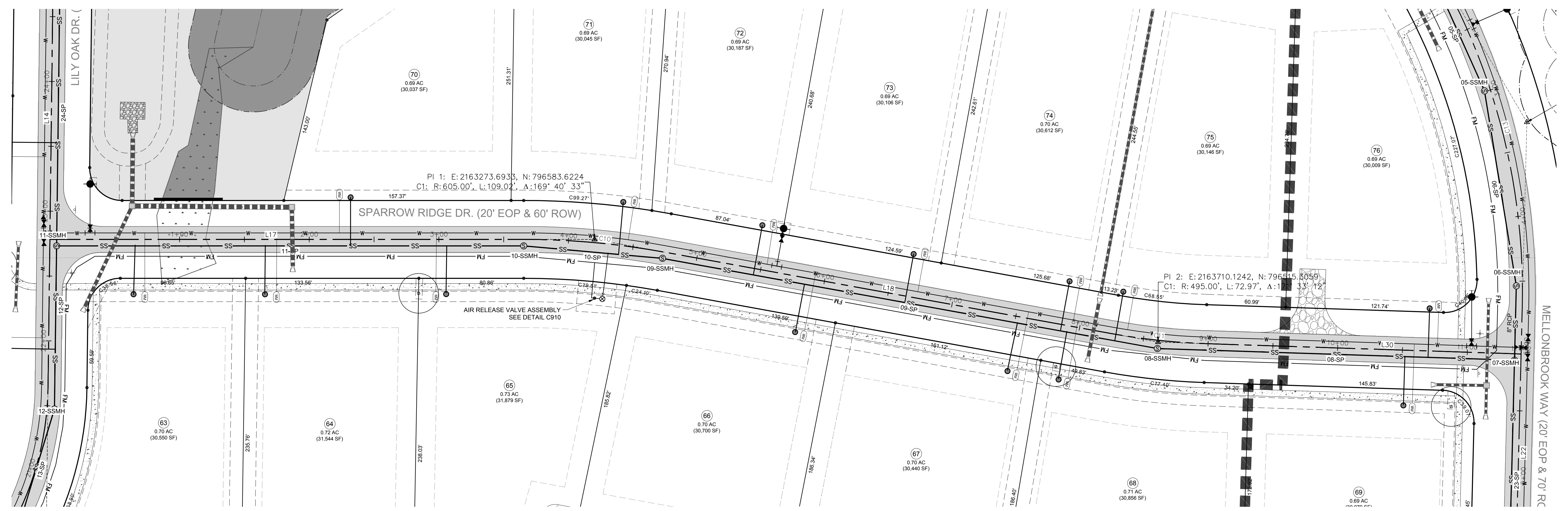


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

**SPARROW RIDGE DR.**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C708**



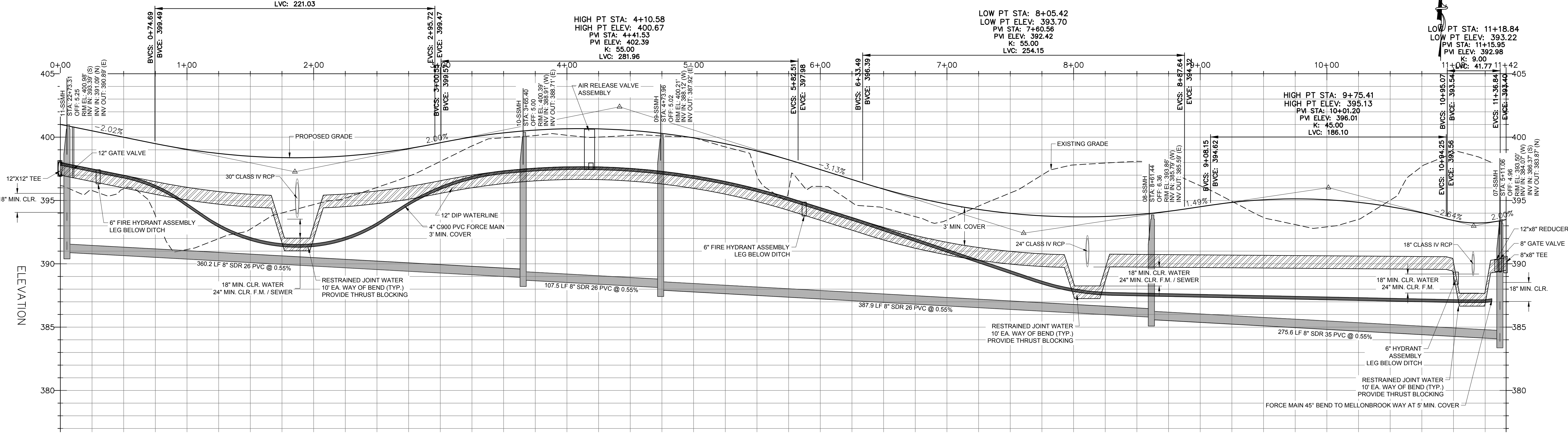
LOW PT STA: 1+85.69  
 LOW PT ELEV: 398.37  
 PVI STA: 1+85.20  
 PVI ELEV: 397.26  
 K: 55.00  
 LVC: 221.03

**SPARROW RIDGE DR. - PLAN**  
 SCALE: 1"=40'  
 STA:00+00 - 11+00

HIGH PT STA: 4+10.58  
 HIGH PT ELEV: 400.67  
 PVI STA: 4+41.53  
 PVI ELEV: 402.39  
 K: 55.00  
 LVC: 281.96

LOW PT STA: 8+05.42  
 LOW PT ELEV: 393.70  
 PVI STA: 7+60.56  
 PVI ELEV: 392.42  
 K: 55.00  
 LVC: 254.15

LOW PT STA: 11+18.84  
 LOW PT ELEV: 393.22  
 PVI STA: 11+18.95  
 PVI ELEV: 392.98  
 K: 9.00  
 LVC: 41.77



Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L17	365.40	N88° 34' 20.15"E	0+00.00	3+65.40
L18	350.54	S81° 06' 12.36"E	4+74.42	8+24.95
L30	243.60	S89° 32' 59.98"E	8+97.93	11+41.53

**SPARROW RIDGE DR. - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 0+00 - 11+00

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C10	605.00	109.02	S86° 15' 56.11"E	3+65.40	4+74.42
C11	495.00	72.97	S85° 19' 36.17"E	8+24.95	8+97.93

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

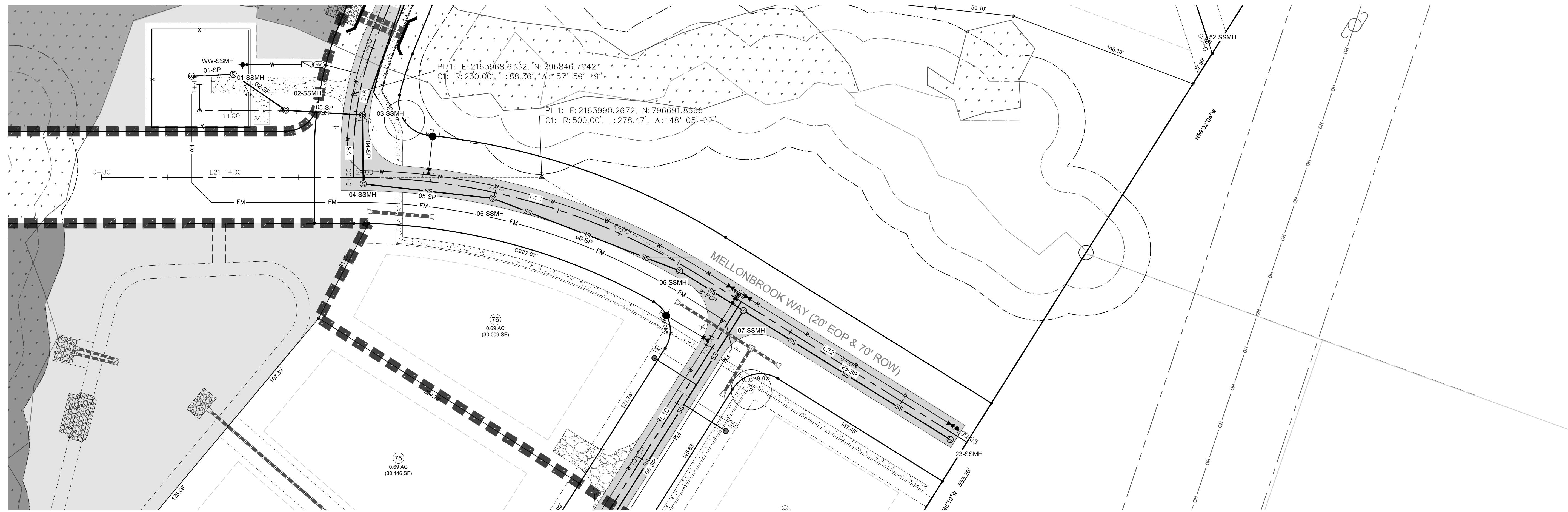
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City of Raleigh Development Approval  
 Raleigh Water Review Officer

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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

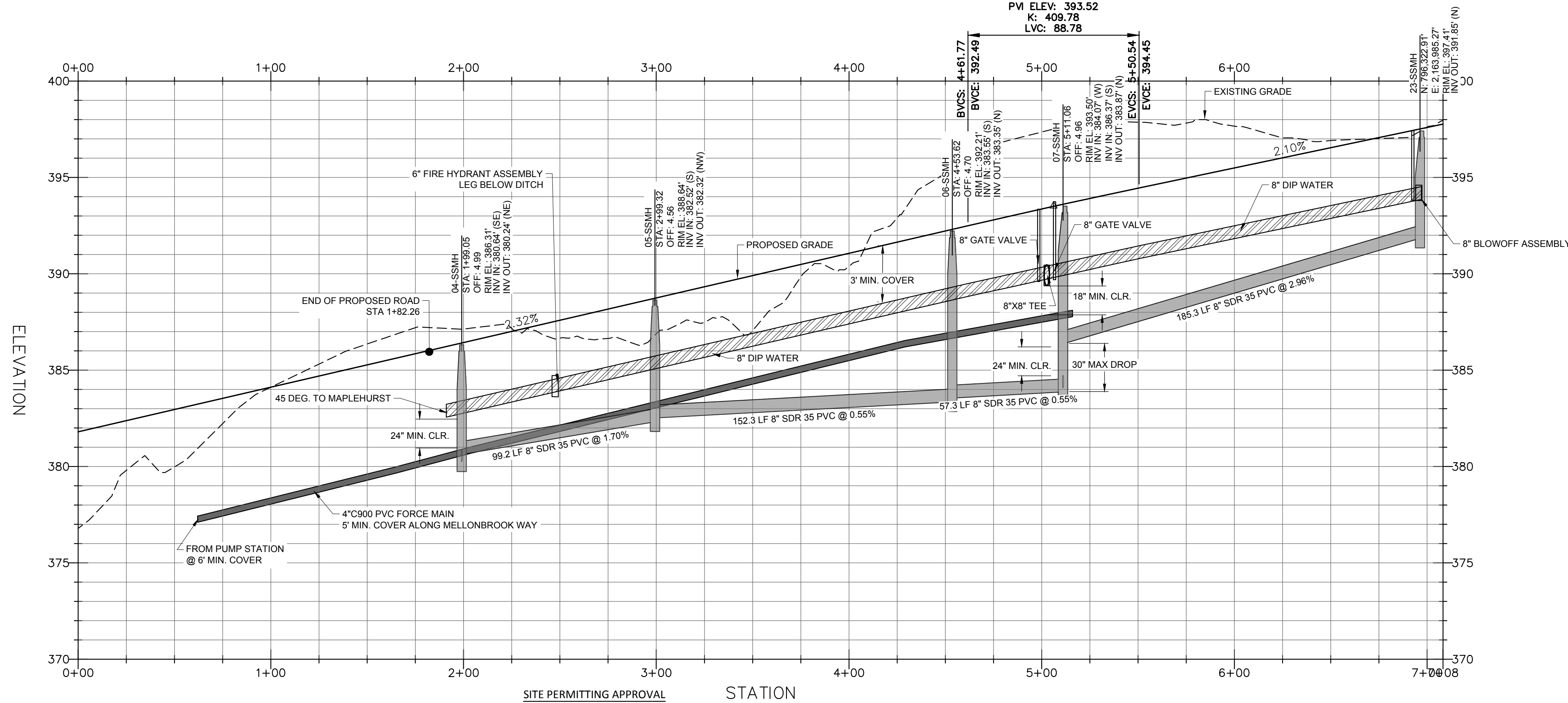
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**MELLONBROOK WAY - PLAN**  
SCALE: 1"=40'  
STA: 0+00 - 7+08

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



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

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REV	DESCRIPTION	DATE
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City of Raleigh Development Approval

Raleigh Water Review Officer

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



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



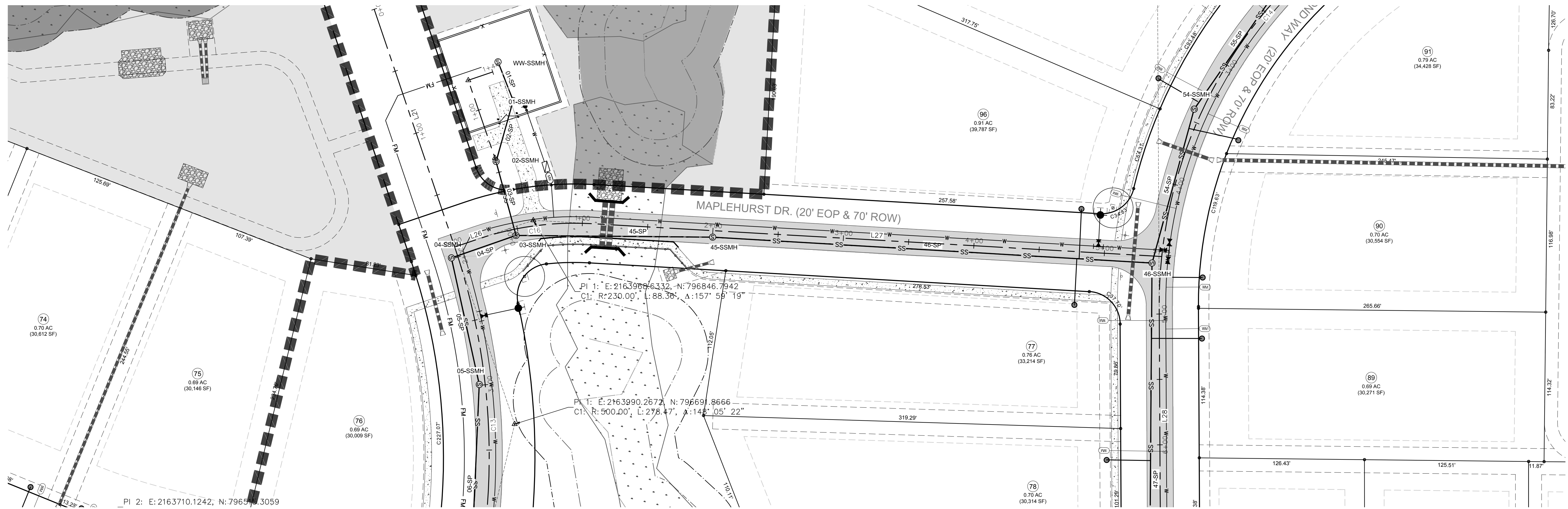
**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

**MELLONBROOK WAY**  
PLAN & PROFILE

Project Engineer: TSS  
Designed By: TEP  
Drawn By: TEP  
Checked By: TSS  
Scale: 1" = 40'  
Date: 09/08/2020  
Project Number: P170347

SHEET  
**C709**



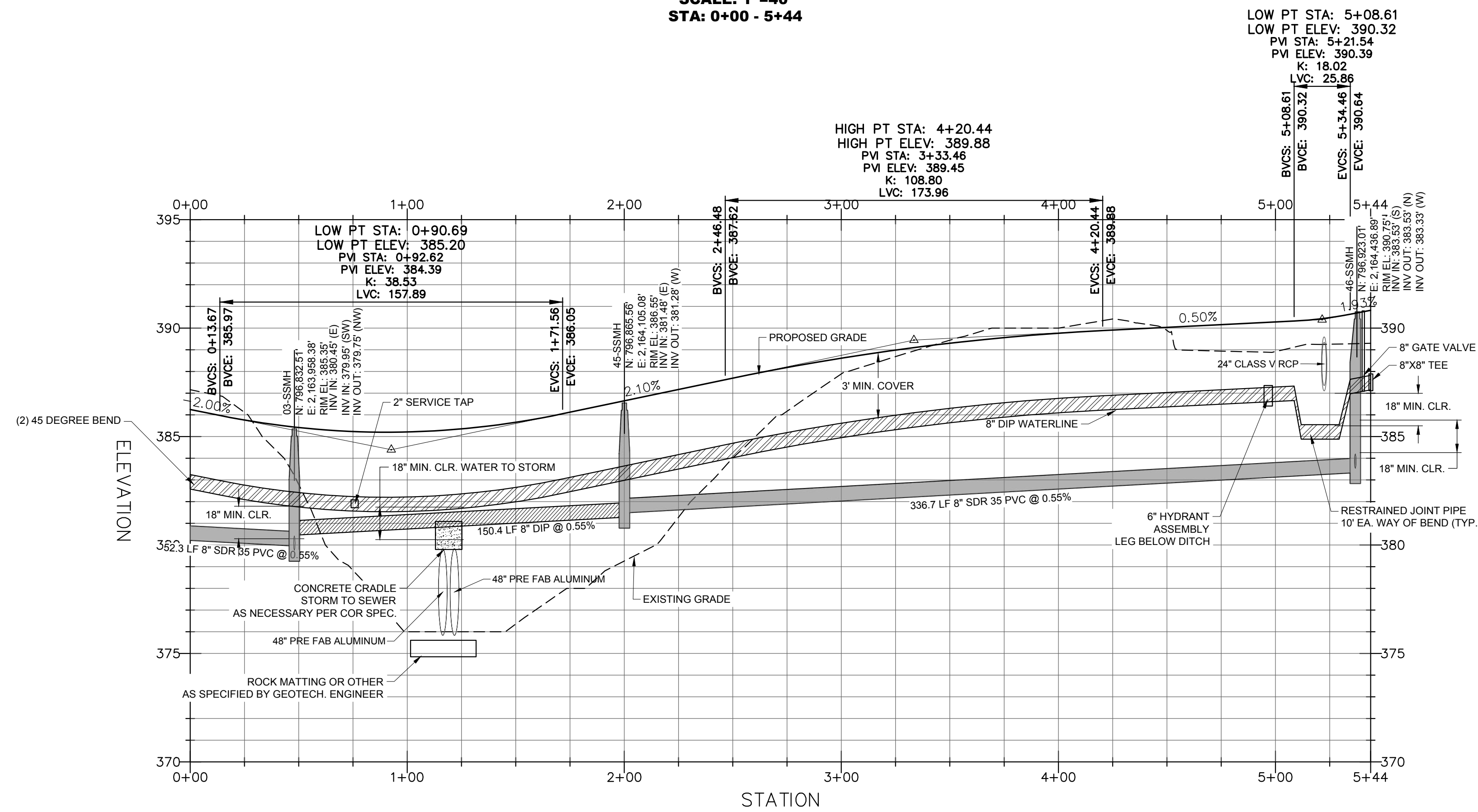
**MAPLEHURST DR. - PLAN**  
**SCALE: 1"=40'**  
**STA: 0+00 - 5+44**

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**

P:\2017\Projects\170347 - Chandlers Ridge\Eng\CAD\DWG\TP SHEETS\TP\_170347\_C710\_R000.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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**SITE PERMITTING APPROVAL**  
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 City of Raleigh Development Approval  
 Raleigh Water Review Officer



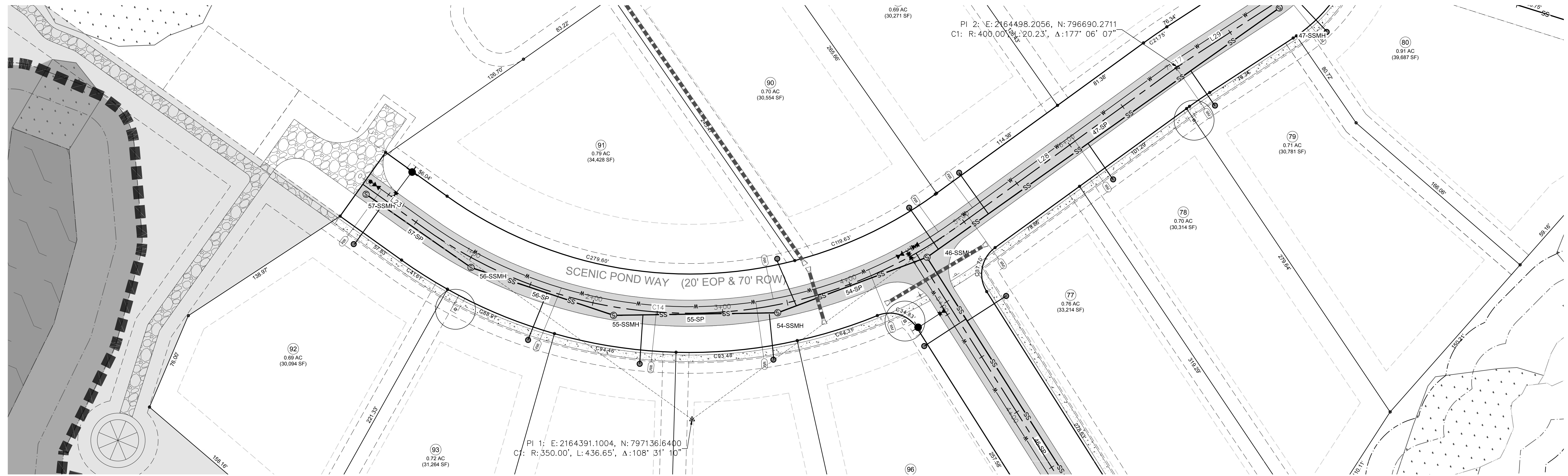
**Bateman Civil Survey Company**  
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 2524 Reliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBSLS FIR No. C-2378



**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:	09/08/2020
Project Number:	P170347
SHEET	
<b>C710</b>	



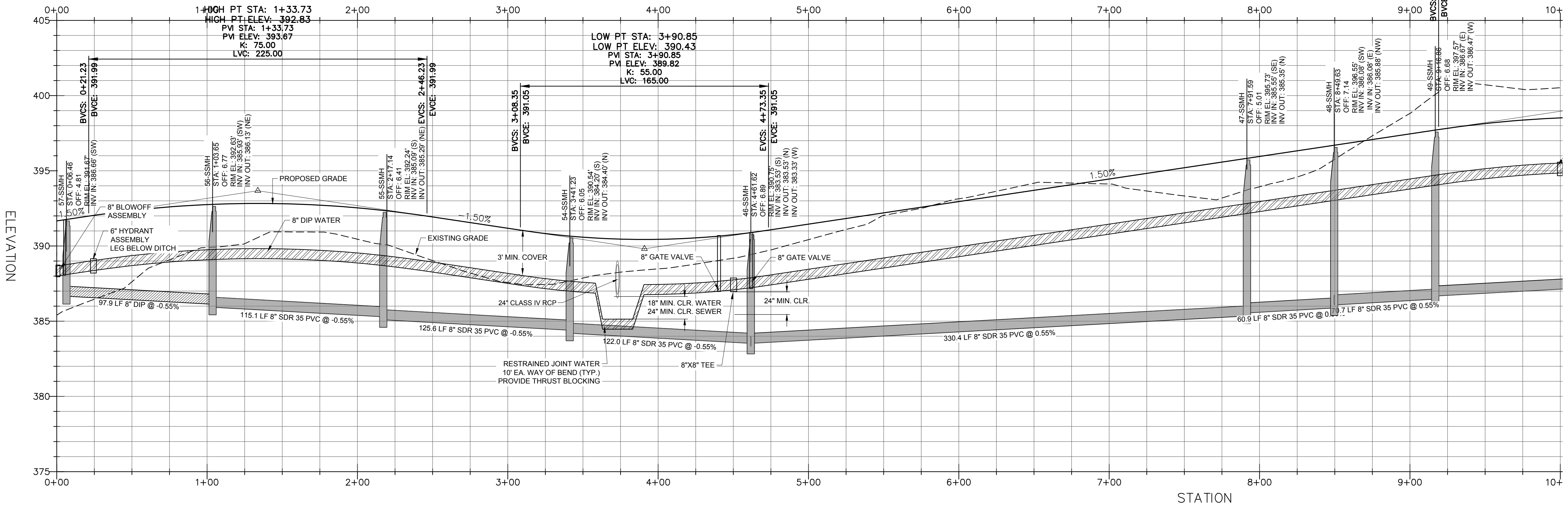
Line Table: Alignments

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  
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City of Raleigh Development Approval  
Raleigh Water Review Officer

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NCBELS FIRM No. C-2378



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

410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

**SCENIC POND WAY**  
PLAN & PROFILE

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

Date: 09/08/2020

Project Number: P170347

SHEET  
C711



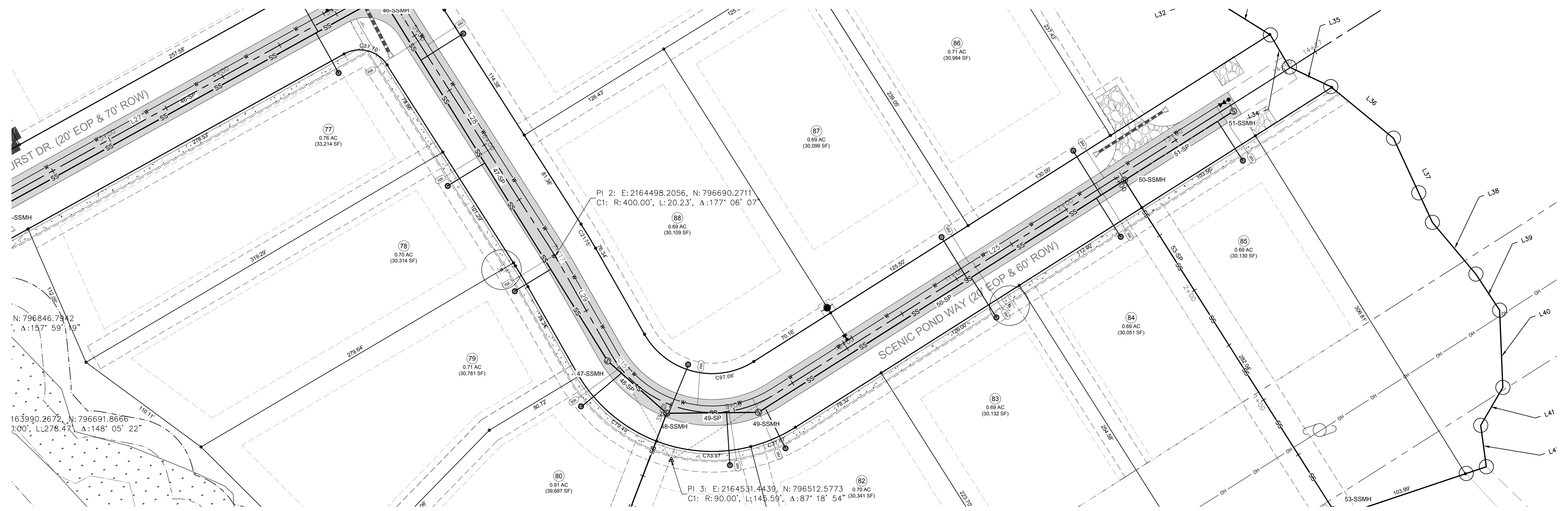
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 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FRM No. C-2378



**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: 09/08/2020  
 Project Number: P170347  
 SHEET  
**C712**



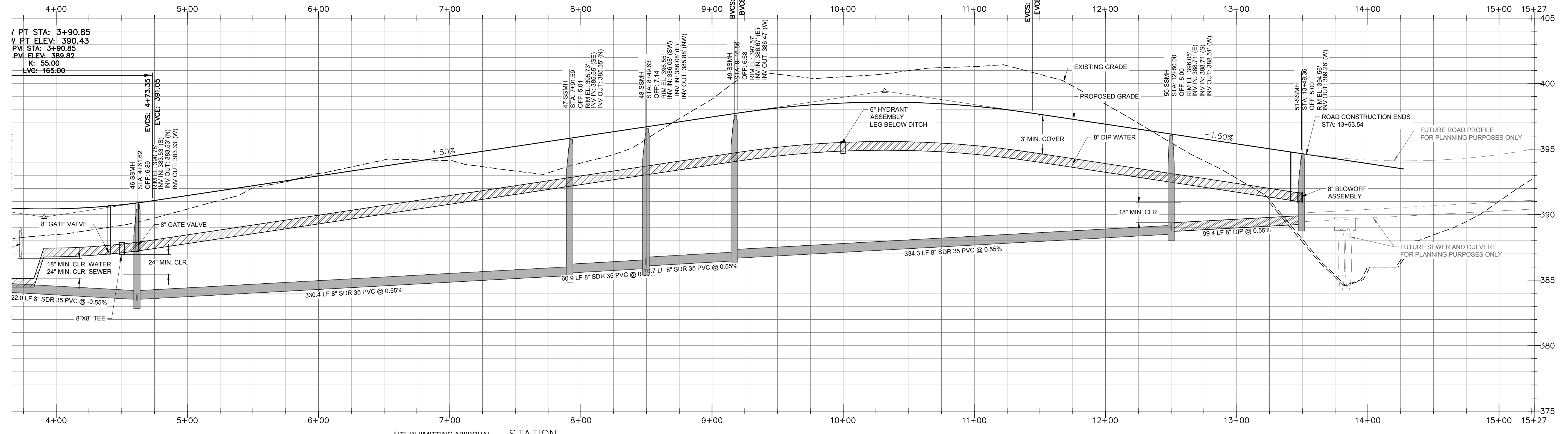
Curve Table: Alignments

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

**SCENIC POND WAY - PLAN**  
 SCALE: 1"=40'  
 STA: 9+50 - 13+27 HIGH PT STA: 10+31.57  
 HIGH PT ELEV: 398.58  
 PVI STA: 10+31.82  
 PVI ELEV: 399.43  
 K: 74.97  
 LVC: 225.00

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



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

**SCENIC POND WAY - PROFILE**  
 HOR. SCALE: 1"=40' VER. SCALE: 1"=4'  
 STA: 9+50 - 13+27

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 Raleigh Water Review Officer

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

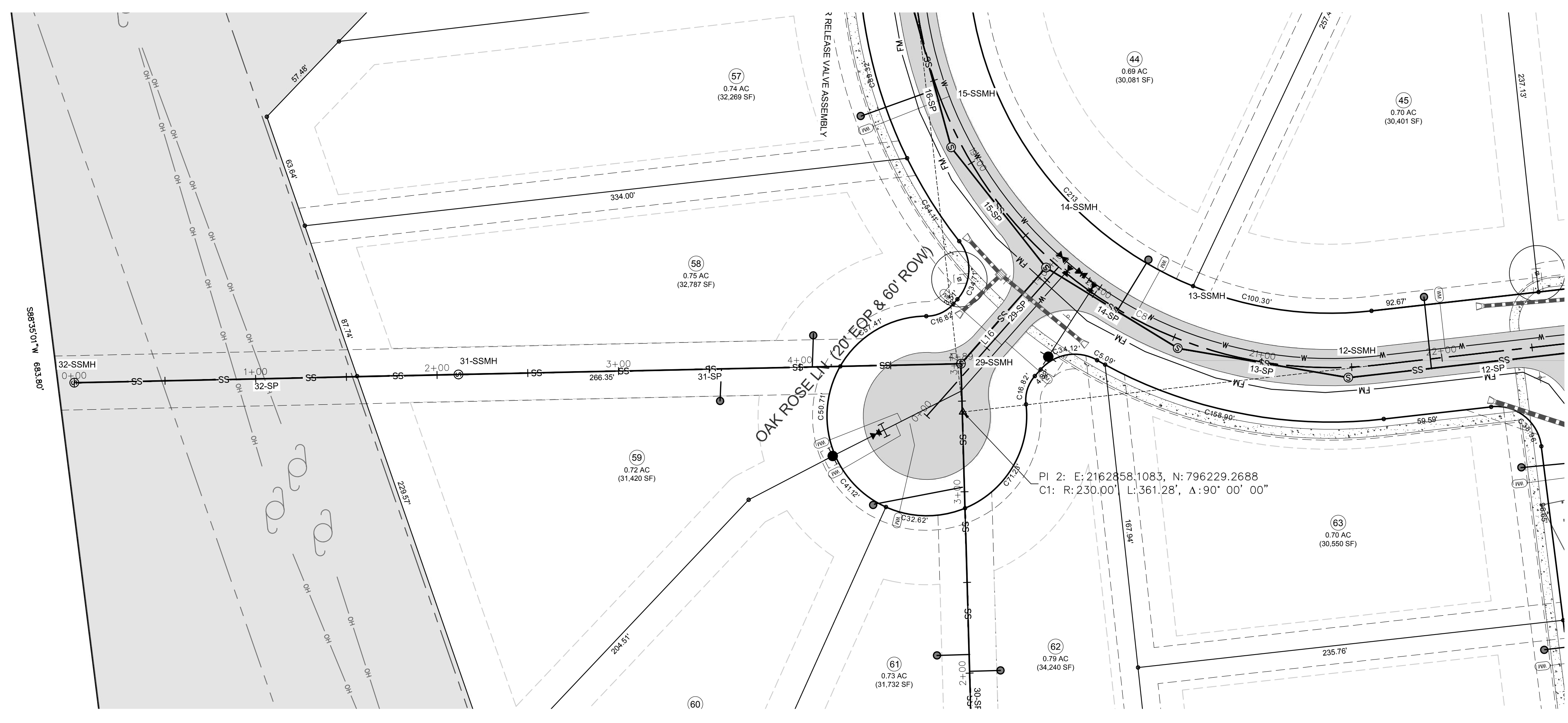


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

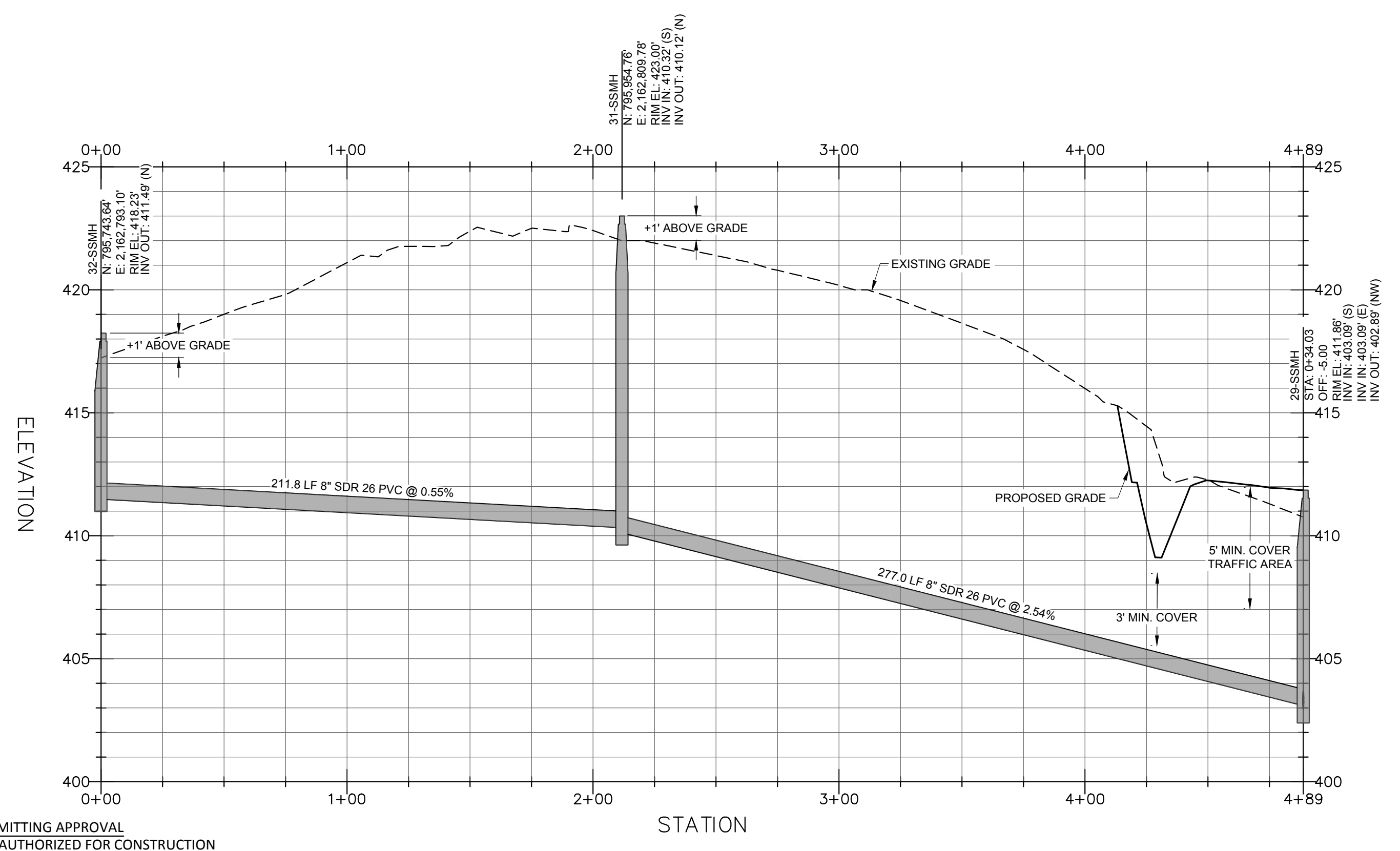
**LOT 58 / 59 SEWER STUB**  
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	09/08/2020
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

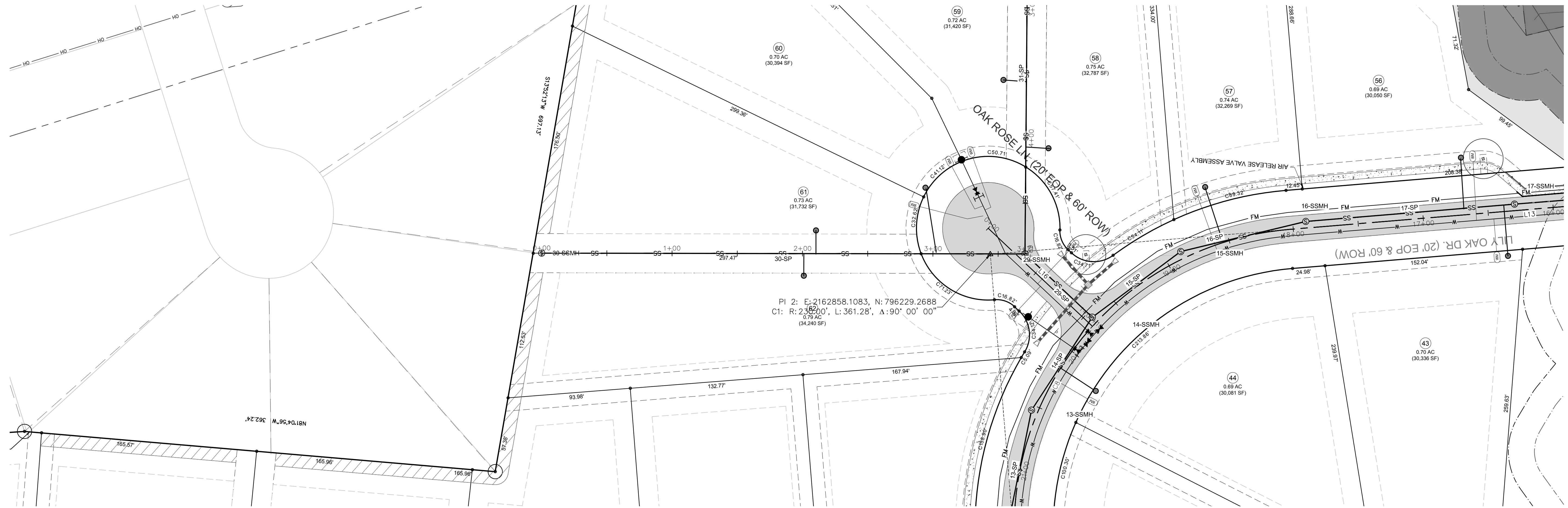
**SITE PERMITTING APPROVAL**  
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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.

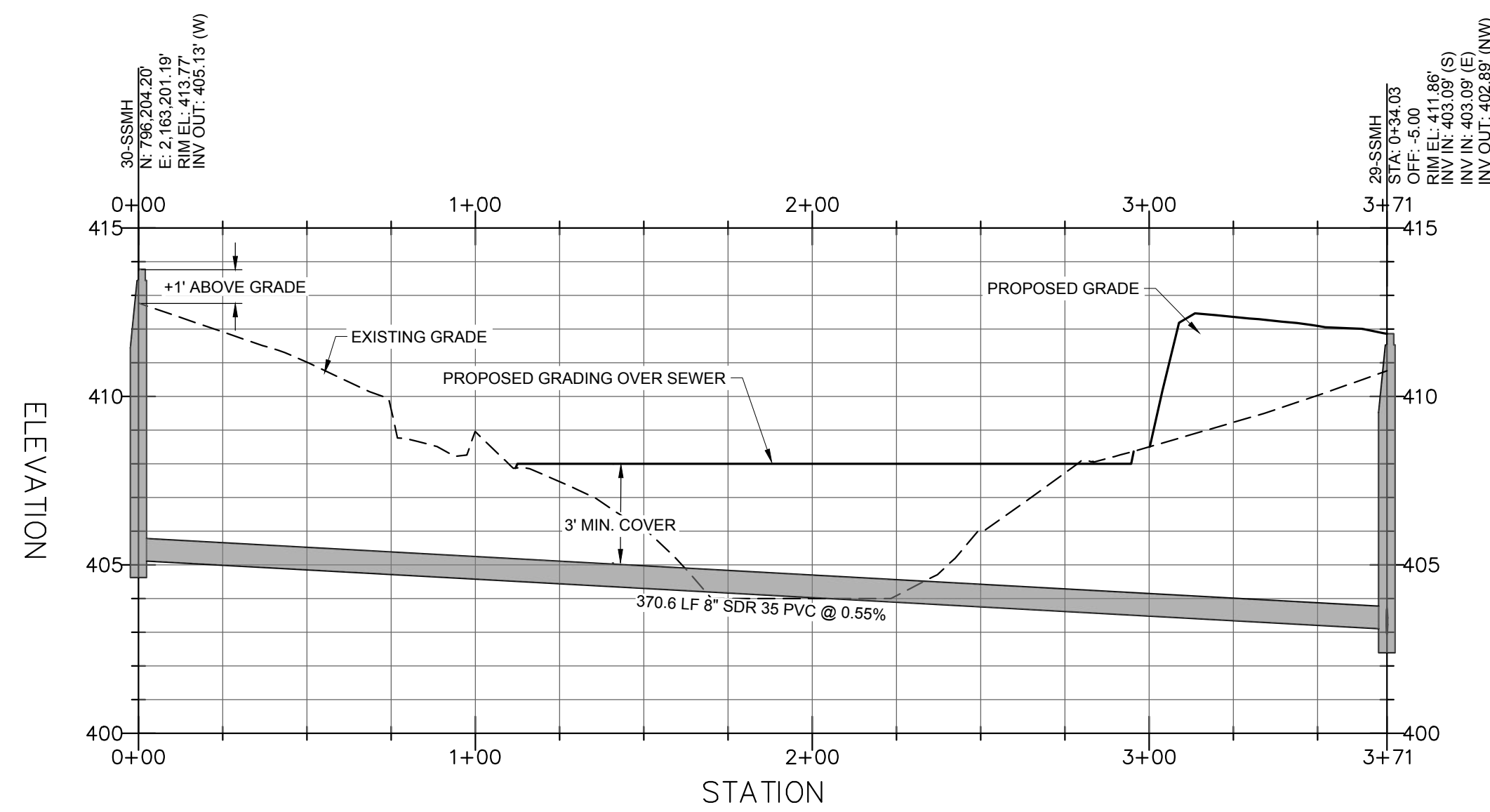
City of Raleigh Development Approval  
 Raleigh Water Review Officer

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	REVISIONS	

P:\2017 Projects\170347 - Chandlers Ridge\Eng\CADD\DWG\TP SHEETS\170347\_C710\_ROW.DWG



**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**

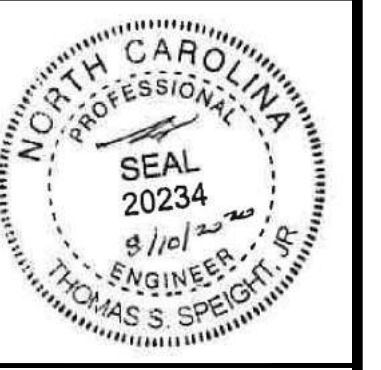
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REV	DESCRIPTION	DATE
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**SITE PERMITTING APPROVAL**  
**CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**

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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  
 NCBSLS FRM No. C-2378



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

410 W. YOUNG ST.  
 ROLLETSVILLE, 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:	09/08/2020
Project Number:	P170347
SHEET	
<b>C714</b>	



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

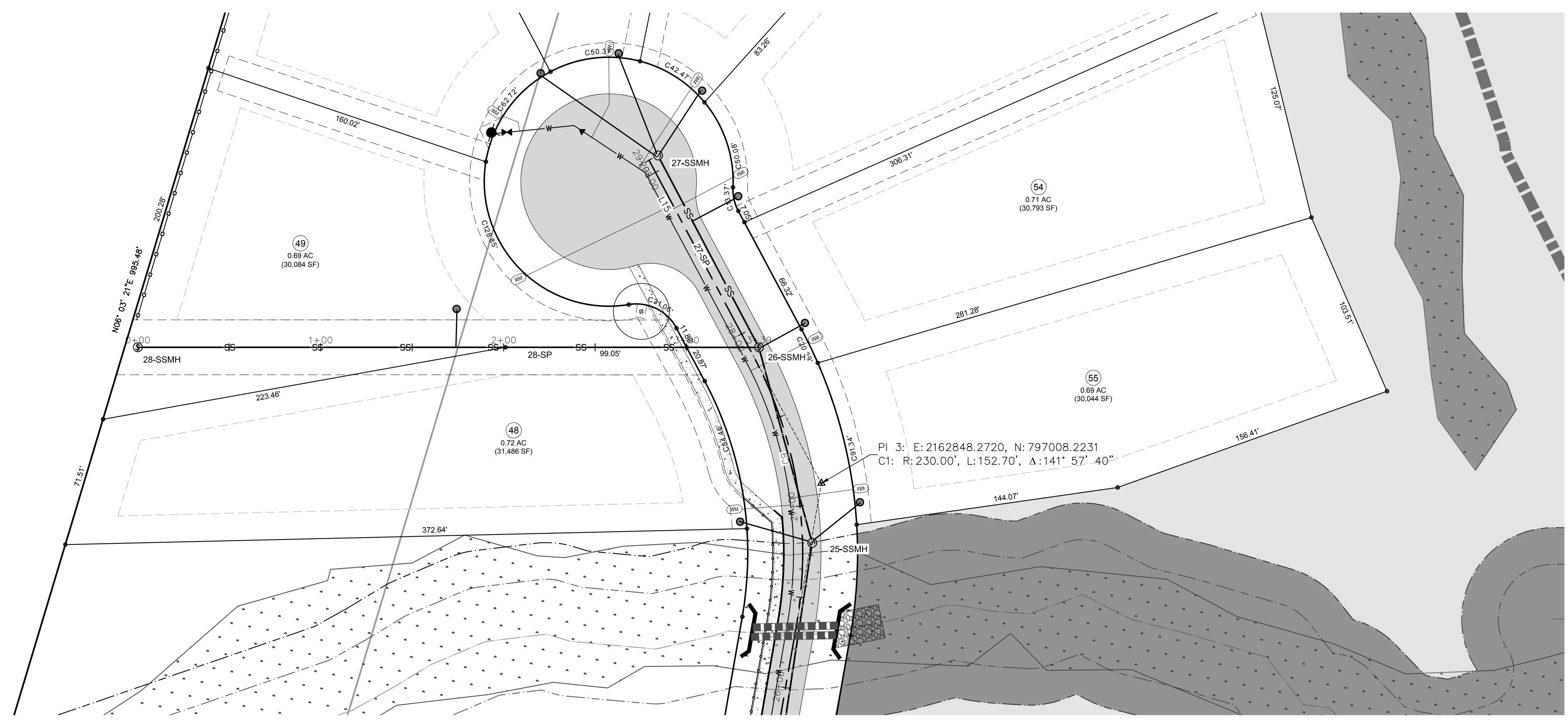


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

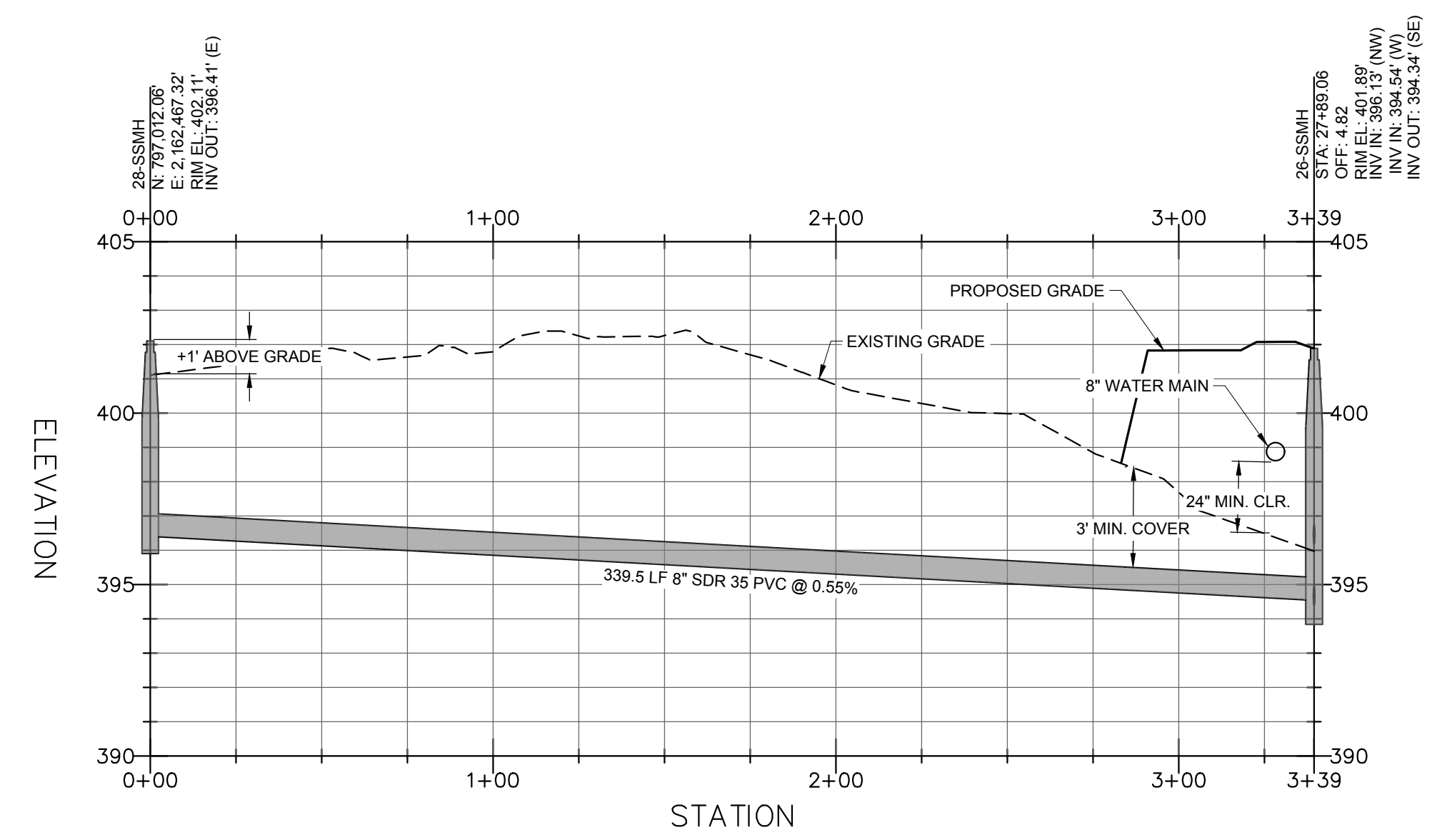
**LOT 48 / 49 SEWER STUB**  
 PLAN & PROFILE

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	09/08/2020
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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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



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

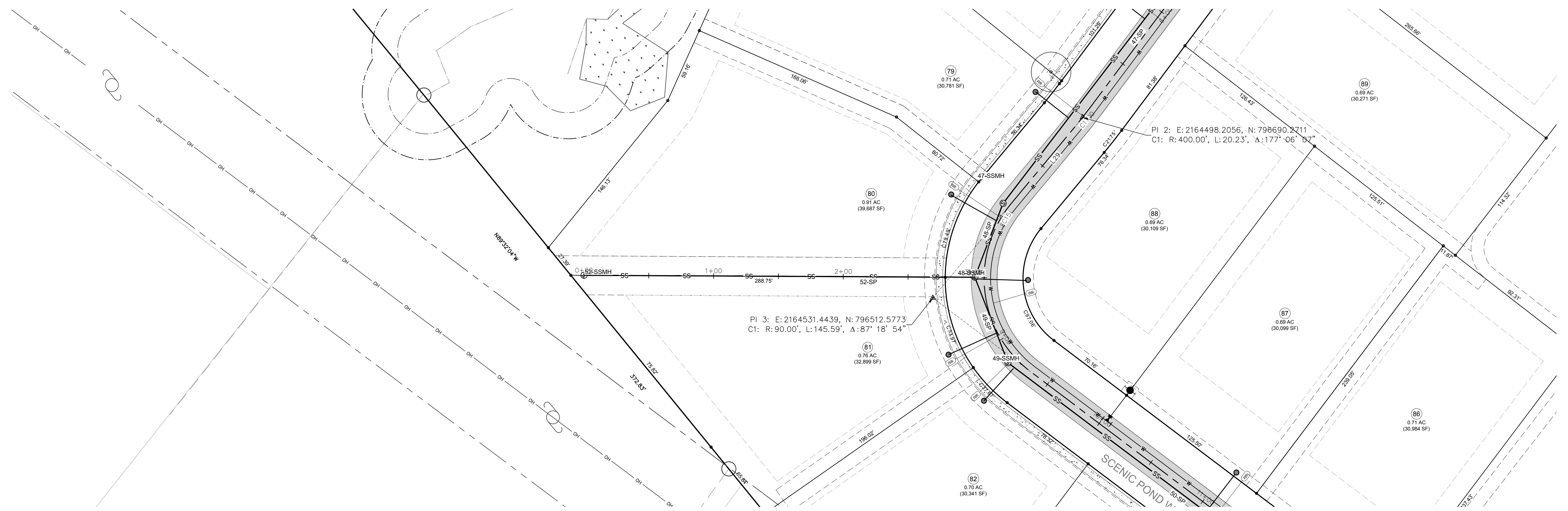


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

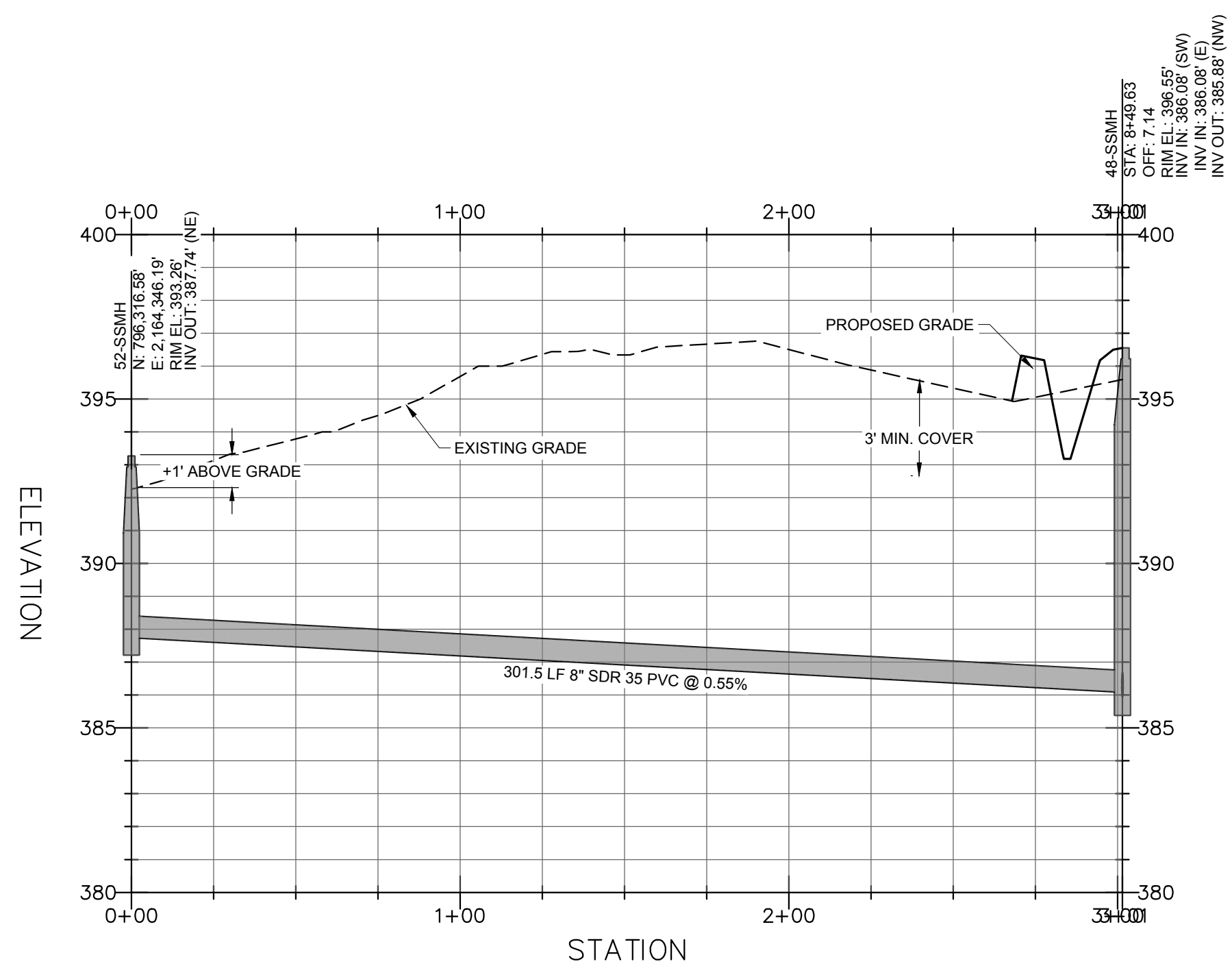
**LOT 80 / 81 SEWER STUB**  
 PLAN & PROFILE

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020

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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City of Raleigh Development Approval  
 Raleigh Water Review Officer

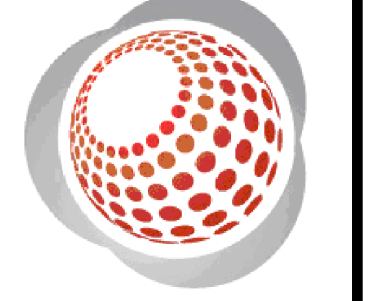
REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

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

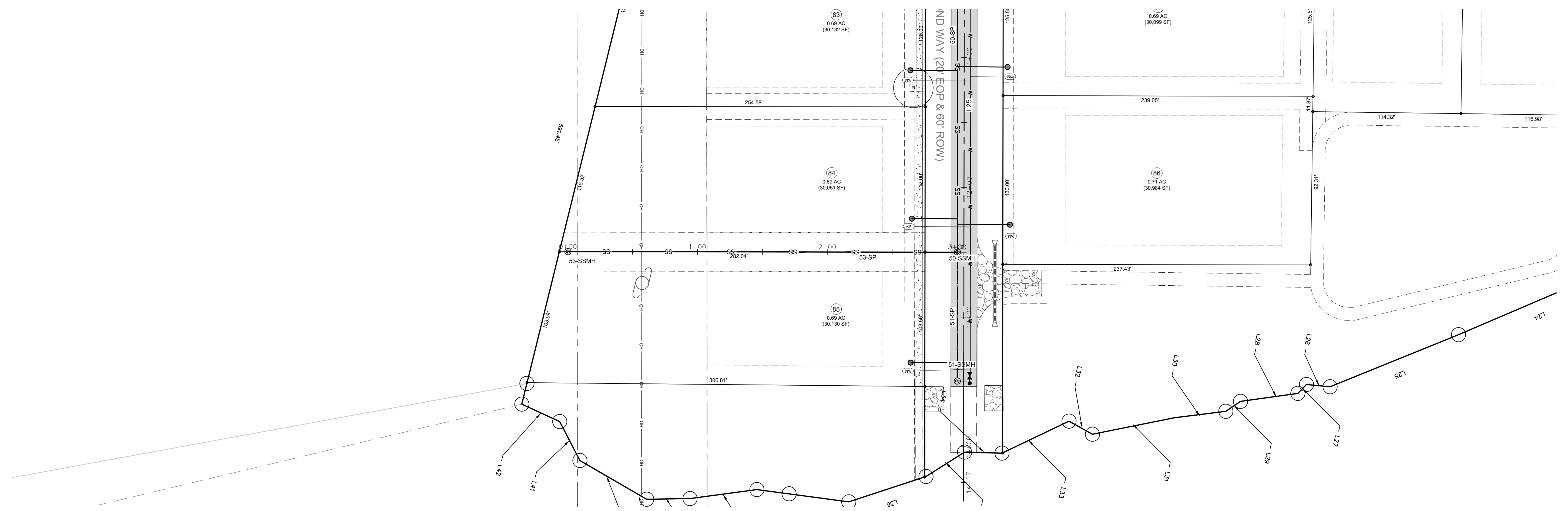


**CHANDLER'S RIDGE  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION**  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

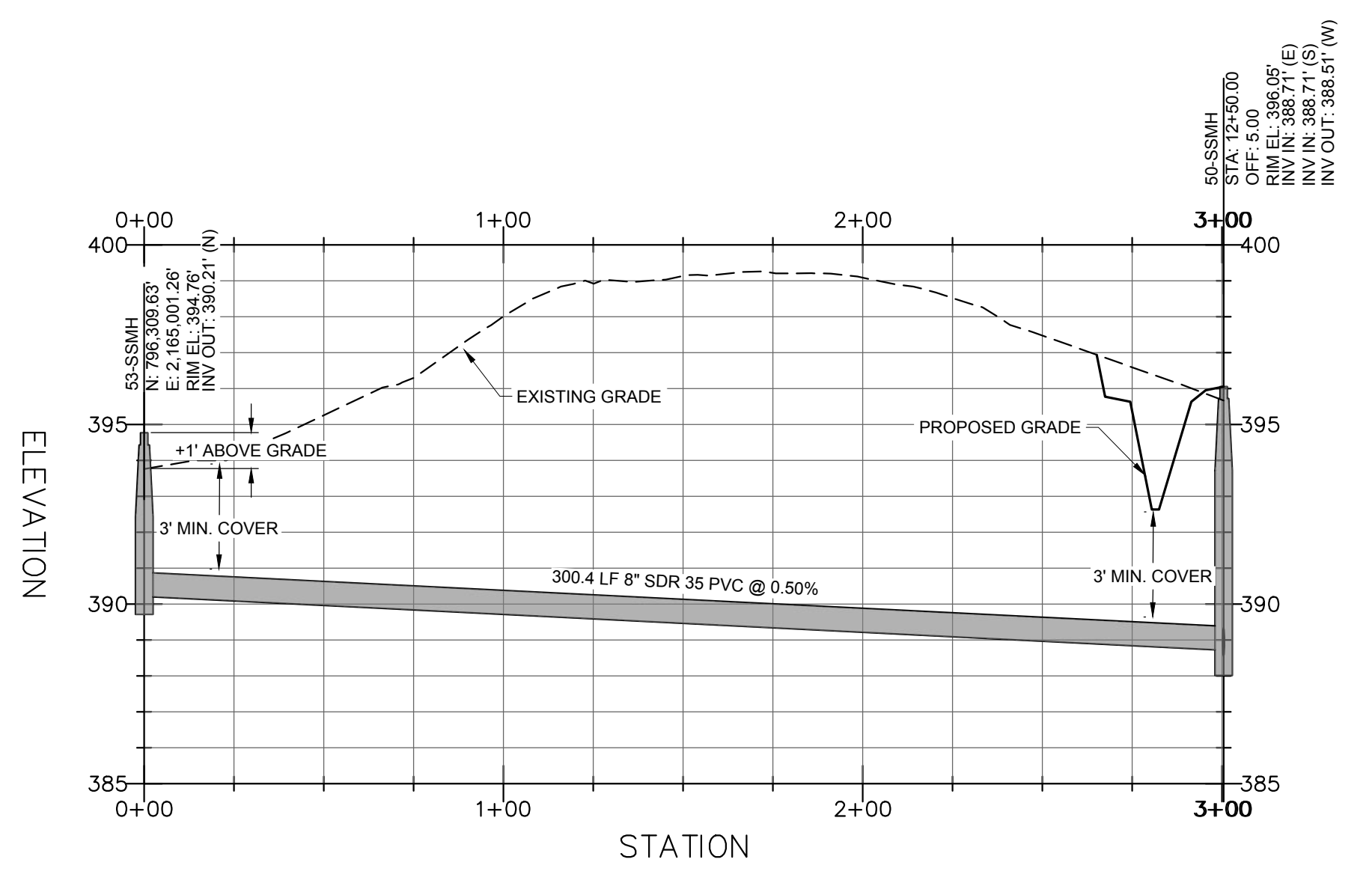
**LOT 84 / 85 SEWER STUB  
 PLAN & PROFILE**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	1" = 40'
Date:	09/08/2020
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

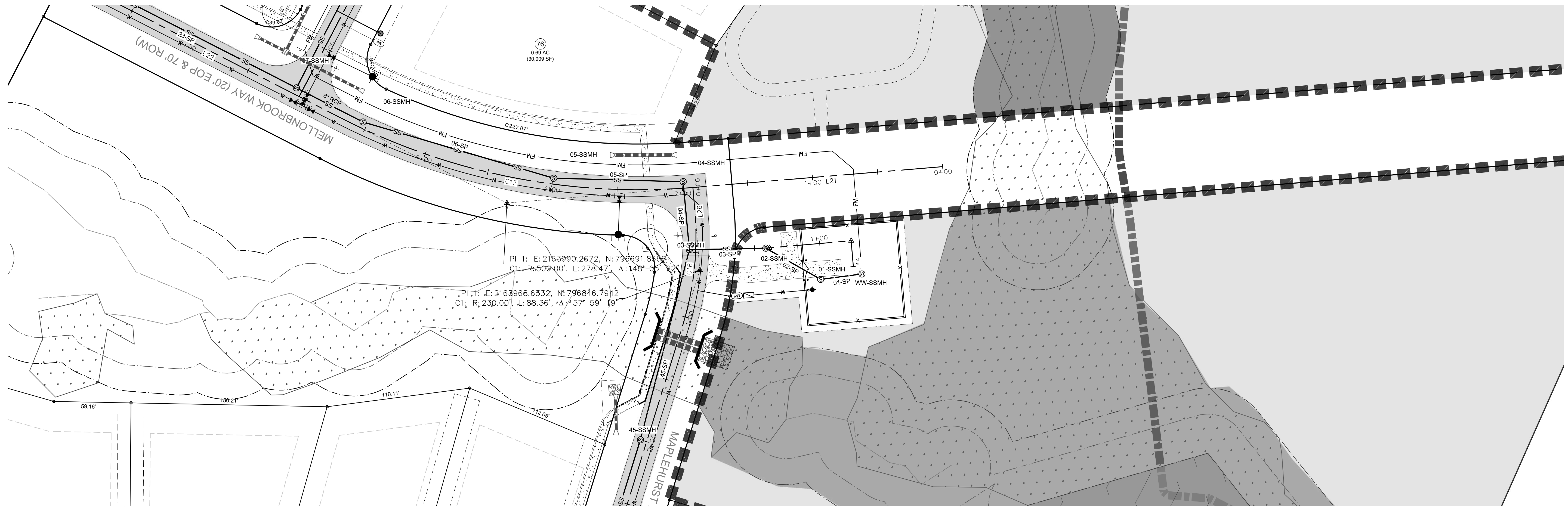
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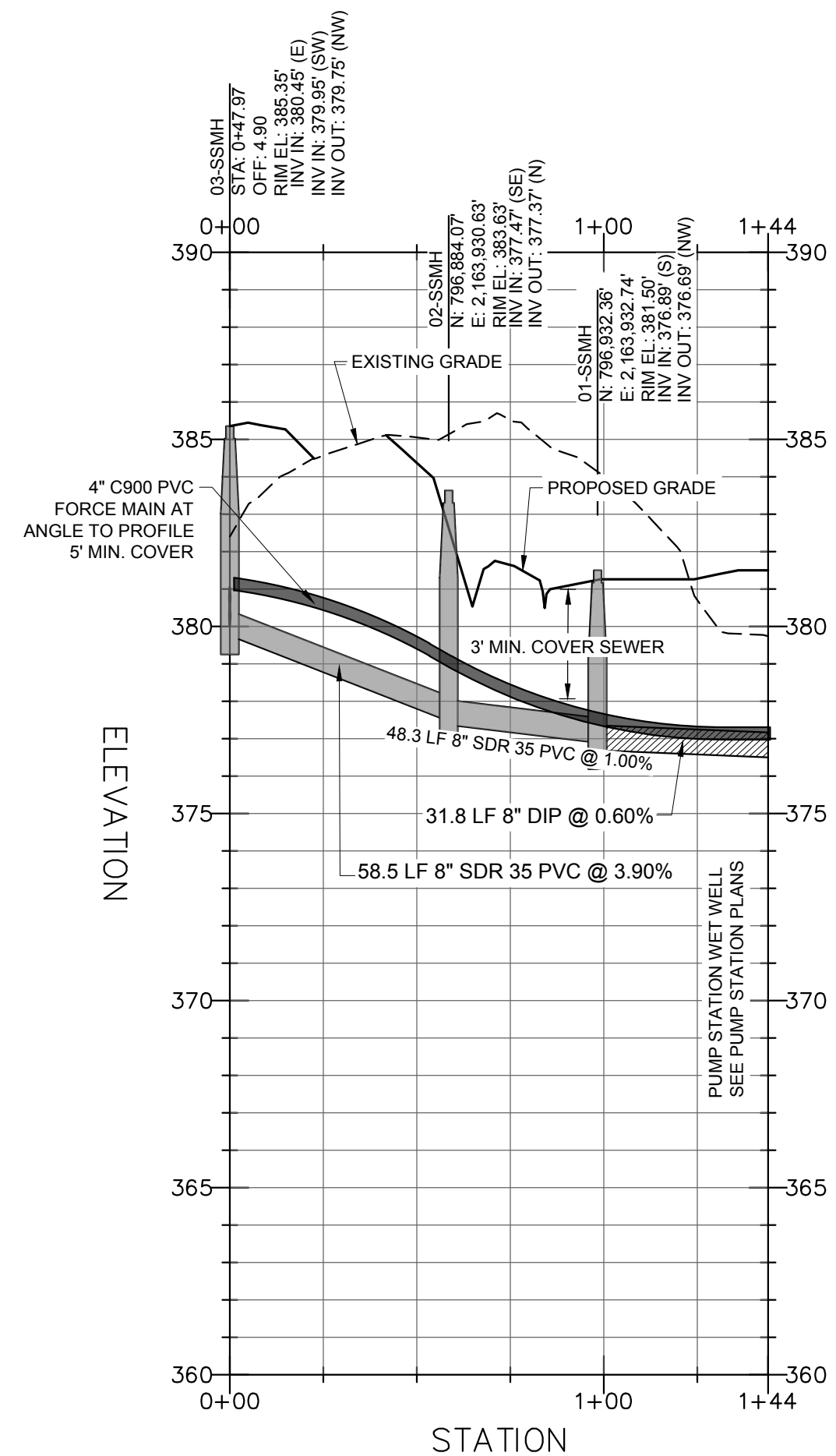
City of Raleigh Development Approval \_\_\_\_\_  
 Raleigh Water Review Officer

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

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**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**

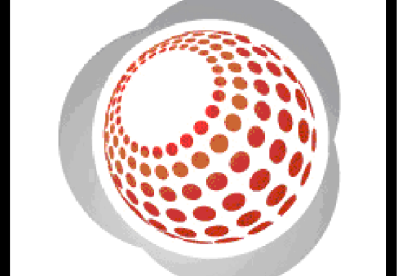
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with 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

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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	



**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2524 Relliance 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

**PUMP STATION**  
**PLAN & PROFILE**

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

Date: 09/08/2020

Project Number: P170347

SHEET  
**C715**



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



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

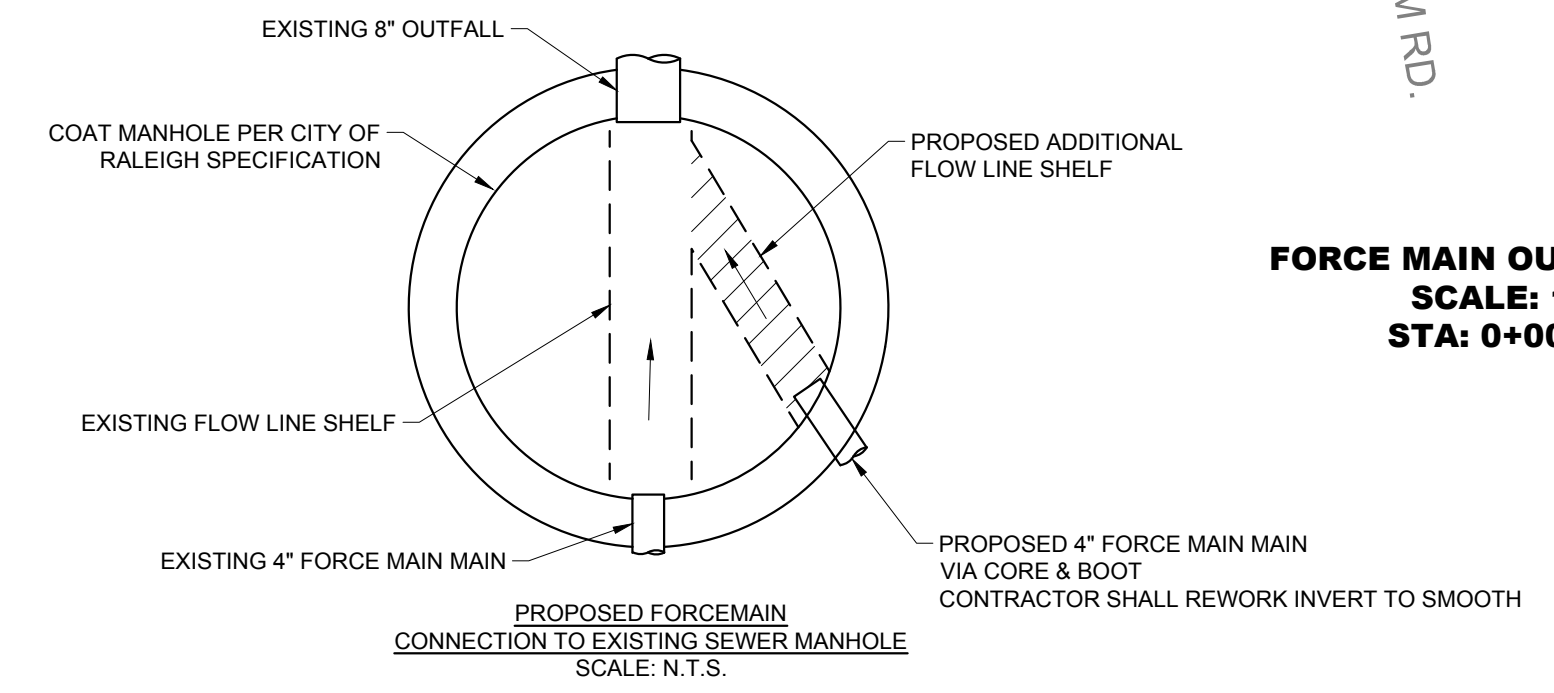
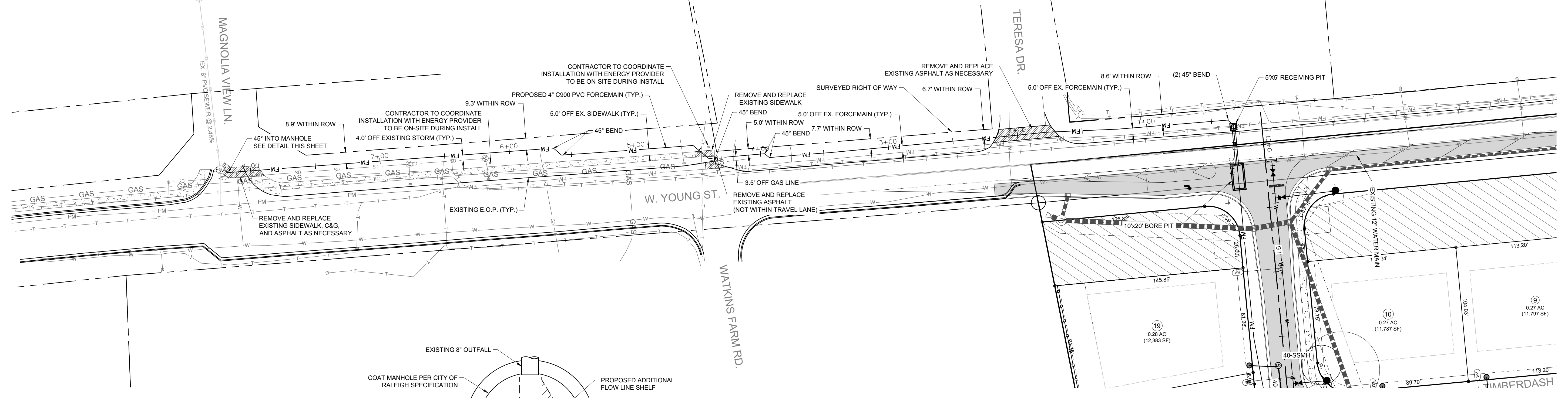
**FORCE MAIN OUTFALL  
 PLAN & PROFILE**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

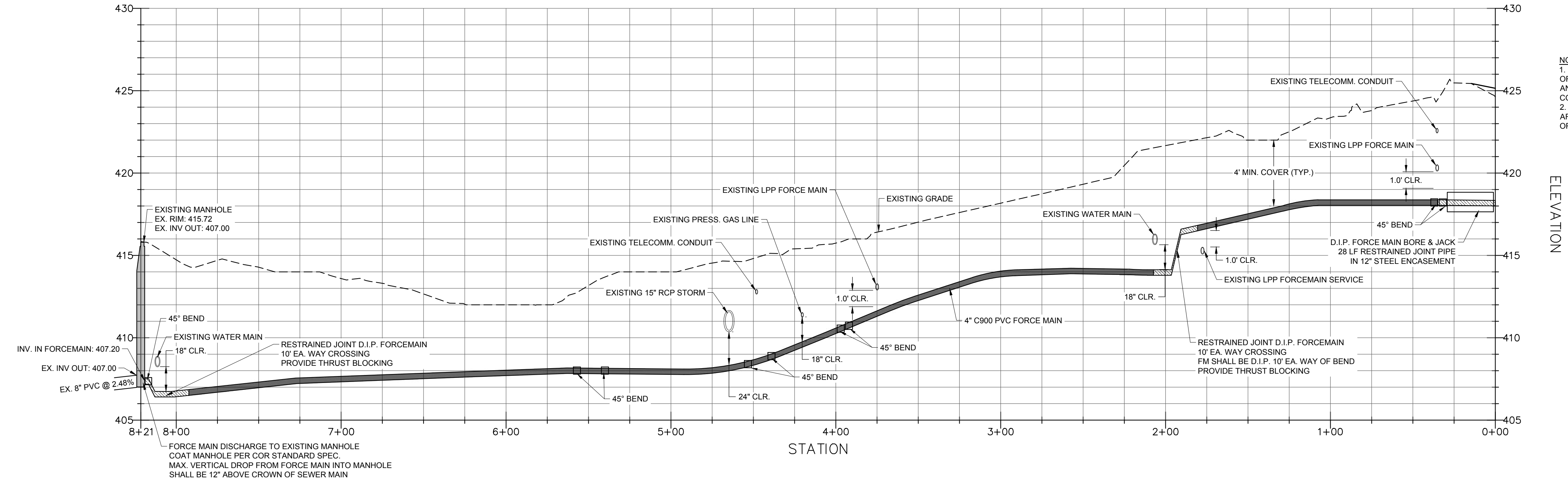
SHEET  
**C719**

NOTE: CONTRACTOR TO COORDINATE WITH NCDOT, TOWN OF ROLESVILLE, AND EXISTING SUBDIVISION H.O.A SHOULD OPEN CUT INSTALLATION INTERFERE WITH TRAFFIC CONDITIONS AT SUBDIVISION ENTRANCE

NOTE: CONTRACTOR TO COORDINATE WITH NCDOT, TOWN OF ROLESVILLE, AND EXISTING SUBDIVISION H.O.A SHOULD OPEN CUT INSTALLATION INTERFERE WITH TRAFFIC CONDITIONS AT SUBDIVISION ENTRANCE



**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.

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

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

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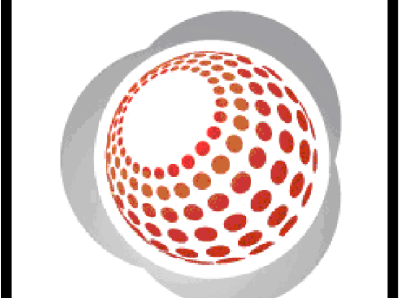
City of Raleigh Development Approval  
 Raleigh Water Review Officer

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REV	DESCRIPTION	DATE
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REV	DESCRIPTION	DATE
	REVISIONS	



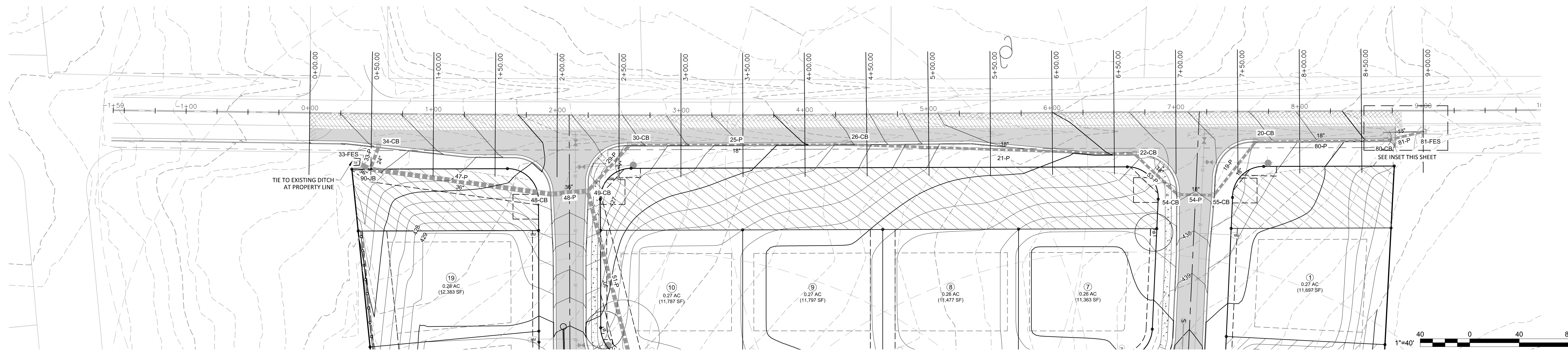
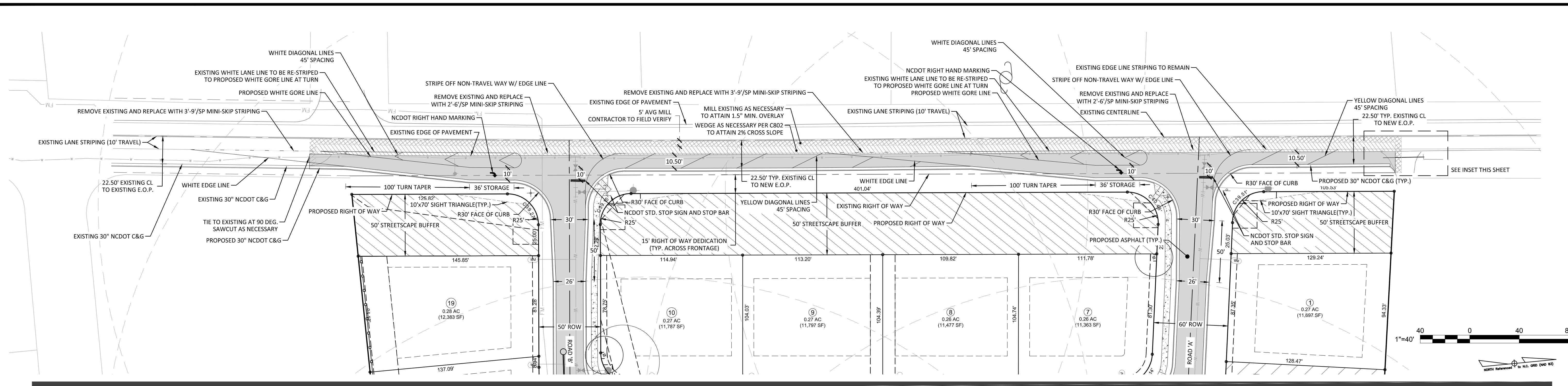
**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2524 Reliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FIRM No. C-2378



**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: 09/08/2020  
 Project Number: P170347  
**SHEET**  
**C800**

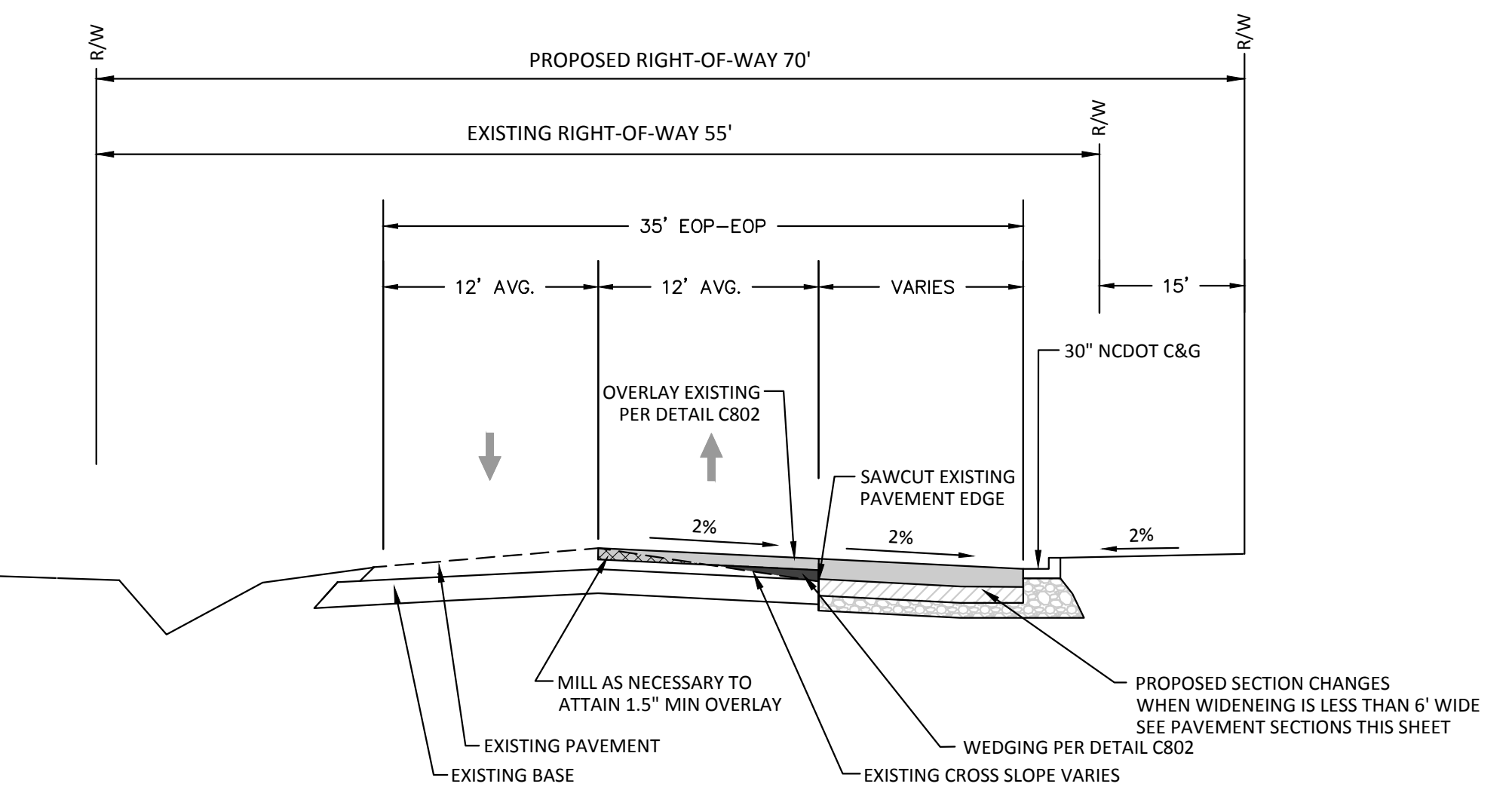
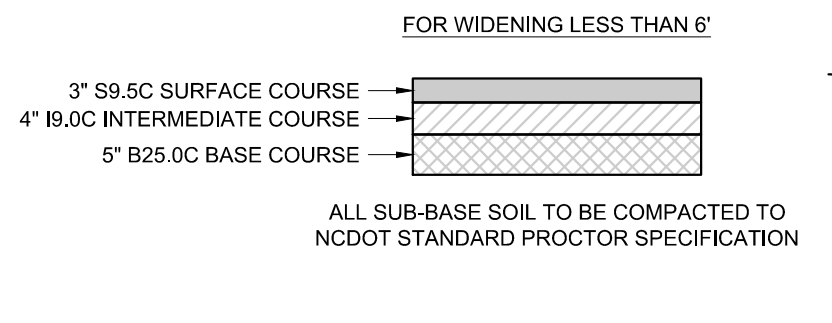
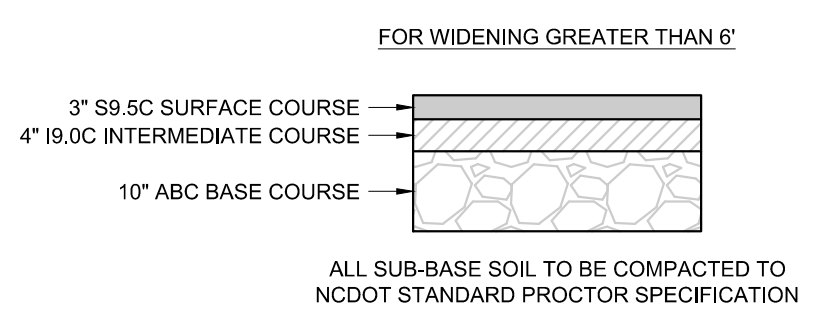


**SIGNAGE, STRIPING, AND MARKING NOTES:**

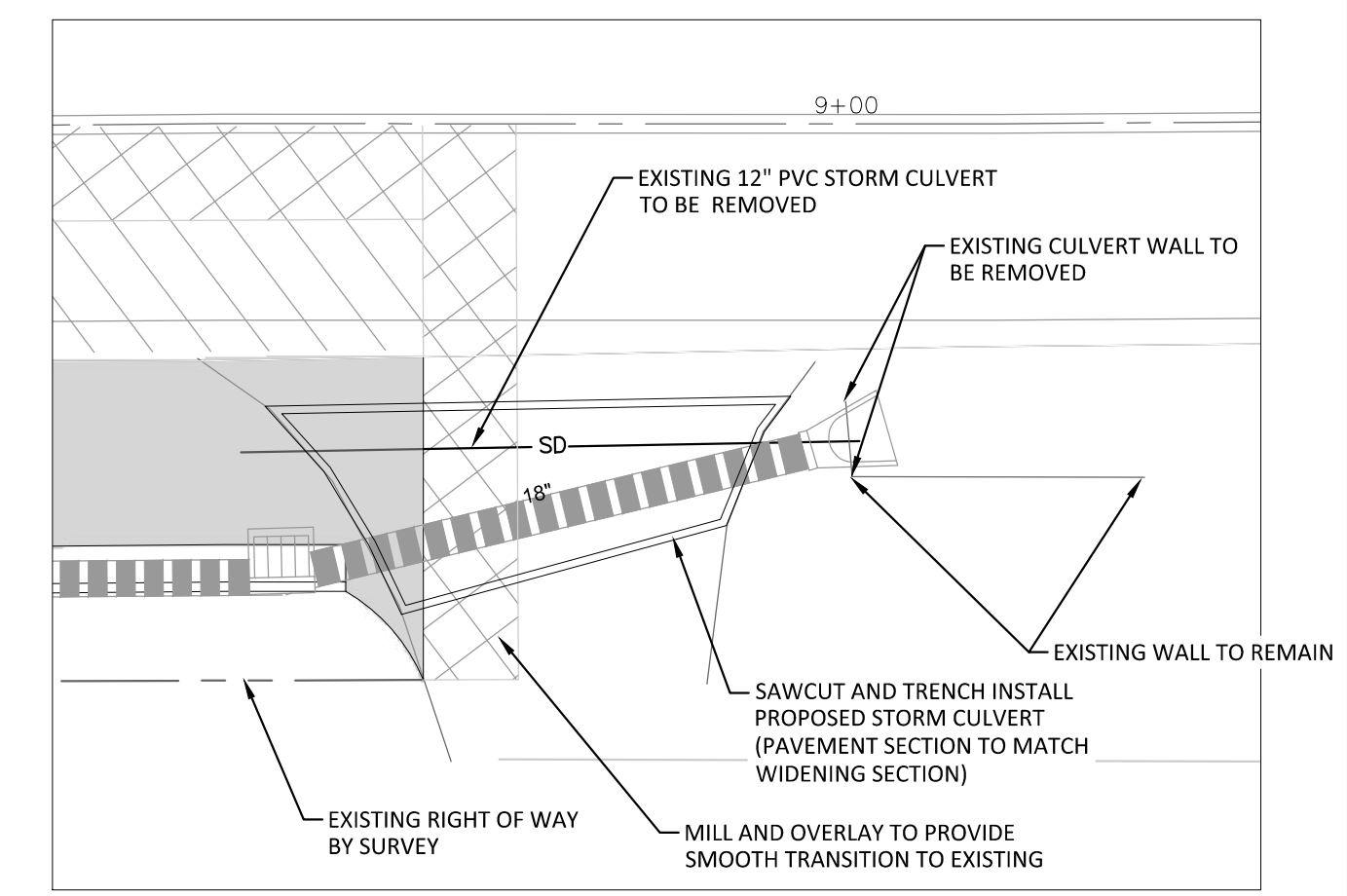
1. ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING ONTO PUBLIC THOROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS
2. ALL PAVEMENT STRIPING SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO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

**NOTES:**

1. ALL CONSTRUCTION IN THE RIGHT OF WAY SHALL BE IN ACCORDANCE WITH NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
2. 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.
3. NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DRIVEWAY PERMIT IS REQUIRED BEFORE STARTING CONSTRUCTION.
4. THE DEVELOPER IS RESPONSIBLE FOR THE FABRICATION AND INSTALLATION OF ALL REQUIRED SIGNS AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT OF WAY.
5. 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.
6. CONTRACTOR SHALL MAINTAIN ACCESS DURING ALL TIMES OF CONSTRUCTION.
7. CONTRACTOR SHALL CONTACT WAKE COUNTY SCHOOLS TO COORDINATE ROAD WORK SO IT WILL NOT ADVERSELY AFFECT THE SCHOOLS TRANSPORTATION SCHEDULE AND OR OPERATIONS.
8. 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.
9. CONTRACTOR SHALL RE-ESTABLISH 2% CROSS SLOPE ON PROJECT SIDE OF W. YOUNG STREET. CONTRACTOR SHALL OVERLAY TO A MIN. OF 1.5" DEEP AND MILL EXISTING WHERE NECESSARY TO ATTAIN 1.5" MIN. OVERLAY. PROVIDE WEDGING PER C802 AS NECESSARY. TYP. FOR ENTIRE LENGTH OF W. YOUNG ST. AT LIMITS OF IMPROVEMENTS.
10. CONTRACTOR SHALL ESTABLISH STRING LINE AND CONTACT PROJECT ENGINEER AND NCDOT FOR MEETING ON SITE BEFORE CONTINUING WORK.



**TYPICAL ROAD WIDENING SECTION**  
 W. YOUNG ST., WAKE COUNTY  
 NOT TO SCALE



**ROLESVILLE BAPTIST DRIVEWAY DETAIL**  
 SCALE: 1" = 10'

**NOTES:**

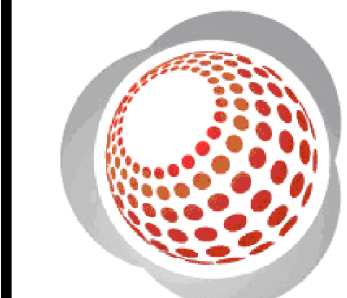
1. CONTRACTOR TO COORDINATE INSTALL WITH ROLESVILLE BAPTIST REPRESENTATIVE BEFORE BEGINNING WORK.
2. ROLESVILLE BAPTIST CEMETERY CURRENTLY HAS 3 AVAILABLE ENTRANCES ON W. YOUNG ST. 2 DRIVEWAYS WILL BE AVAILABLE FOR ACCESS DURING WORK AND FULL INTERNAL CIRCULATION WILL BE AVAILABLE.

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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

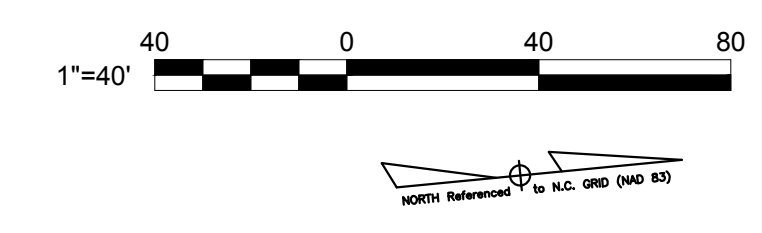
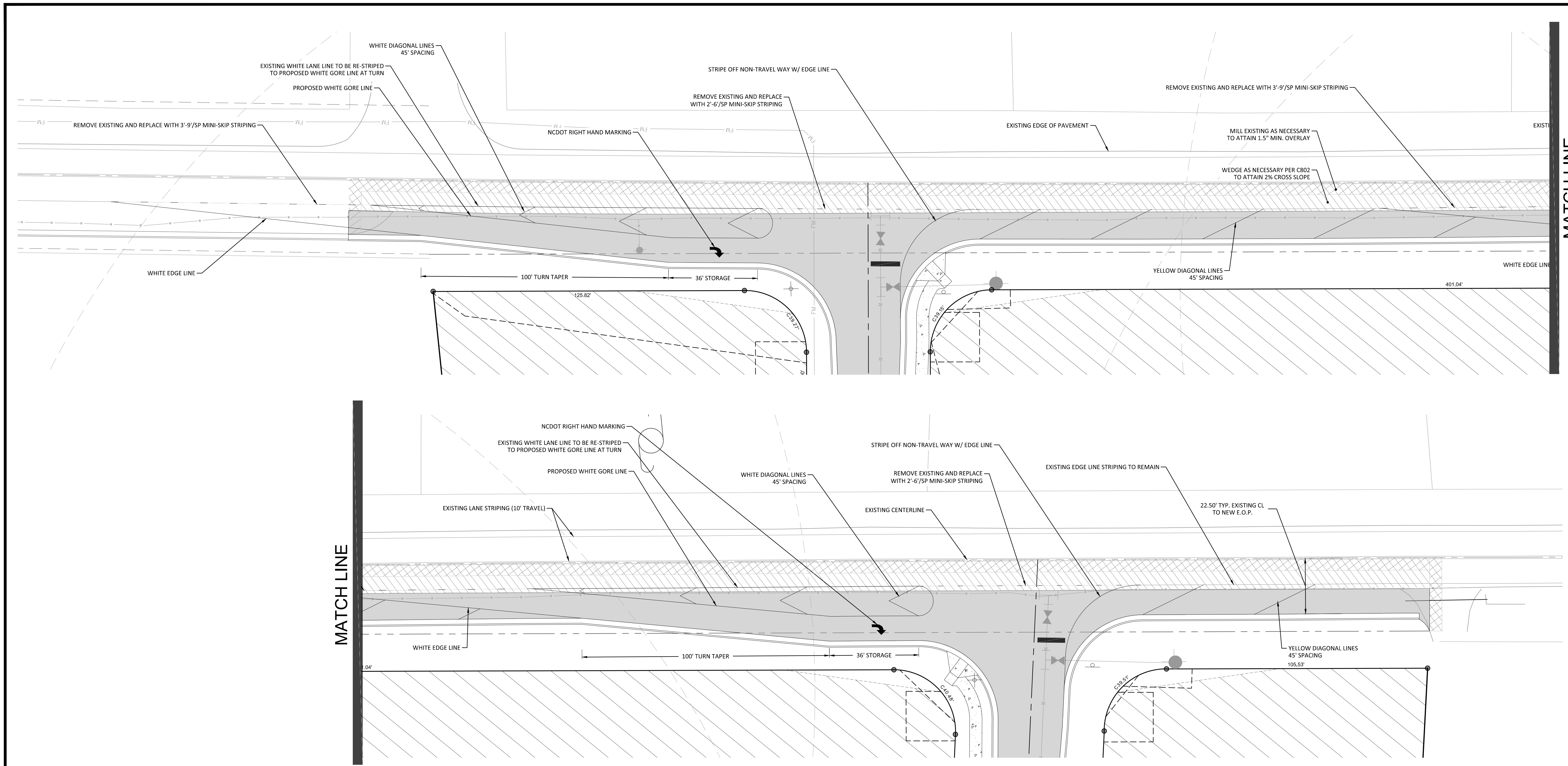


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

**STRIPING PLAN**  
**W. YOUNG ST.**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 40'  
 Date: 09/08/2020  
 Project Number: P170347

SHEET  
**C801**



**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
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01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	REVISIONS	

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

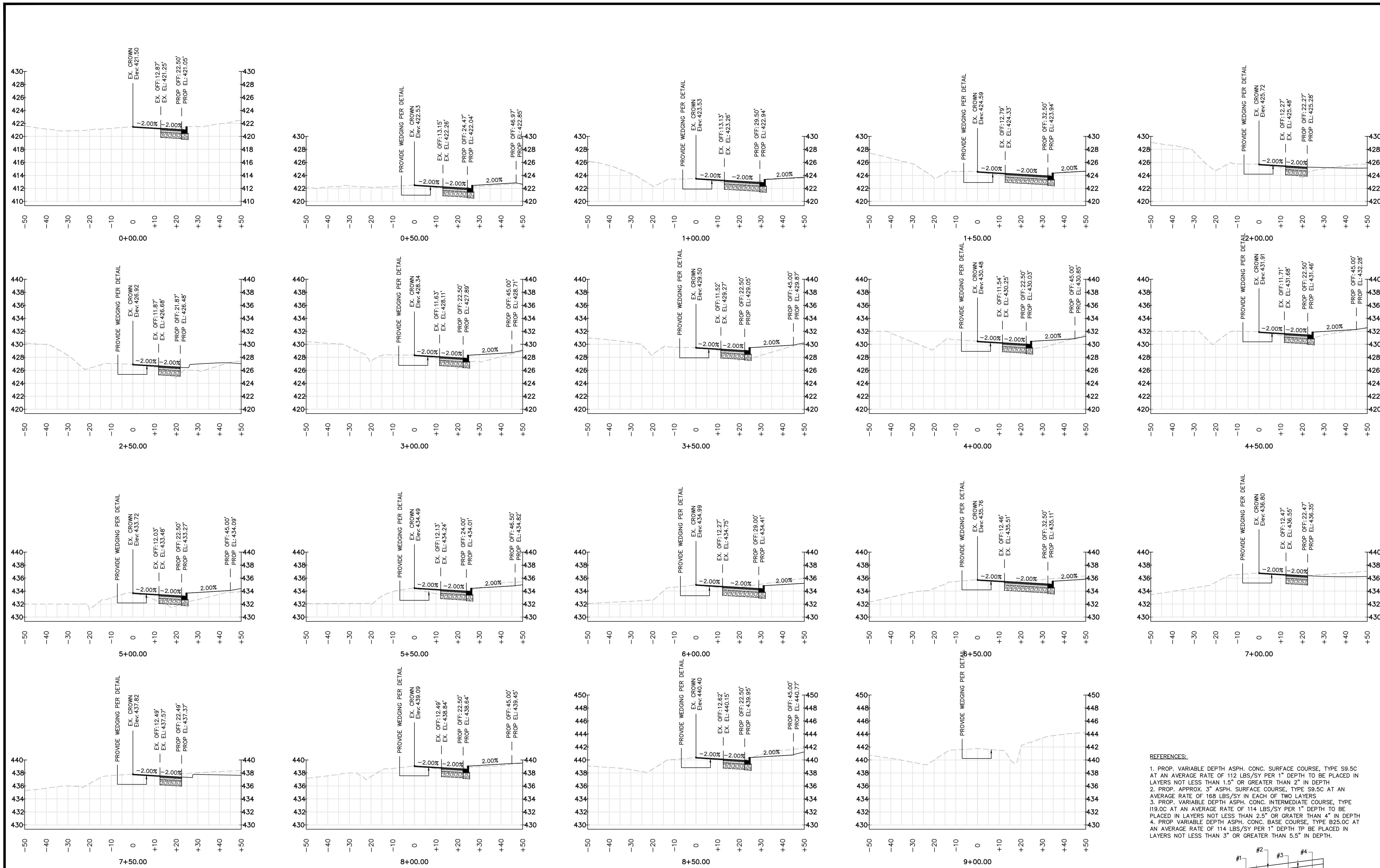


**CHANDLER'S RIDGE  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION**

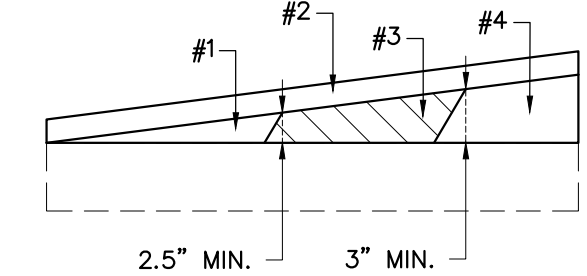
**ROAD WIDENING  
 CROSS SECTIONS**

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale: 1" = 20'  
 Date: 09/08/2020  
 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 I19.0C 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 B25.0C 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.

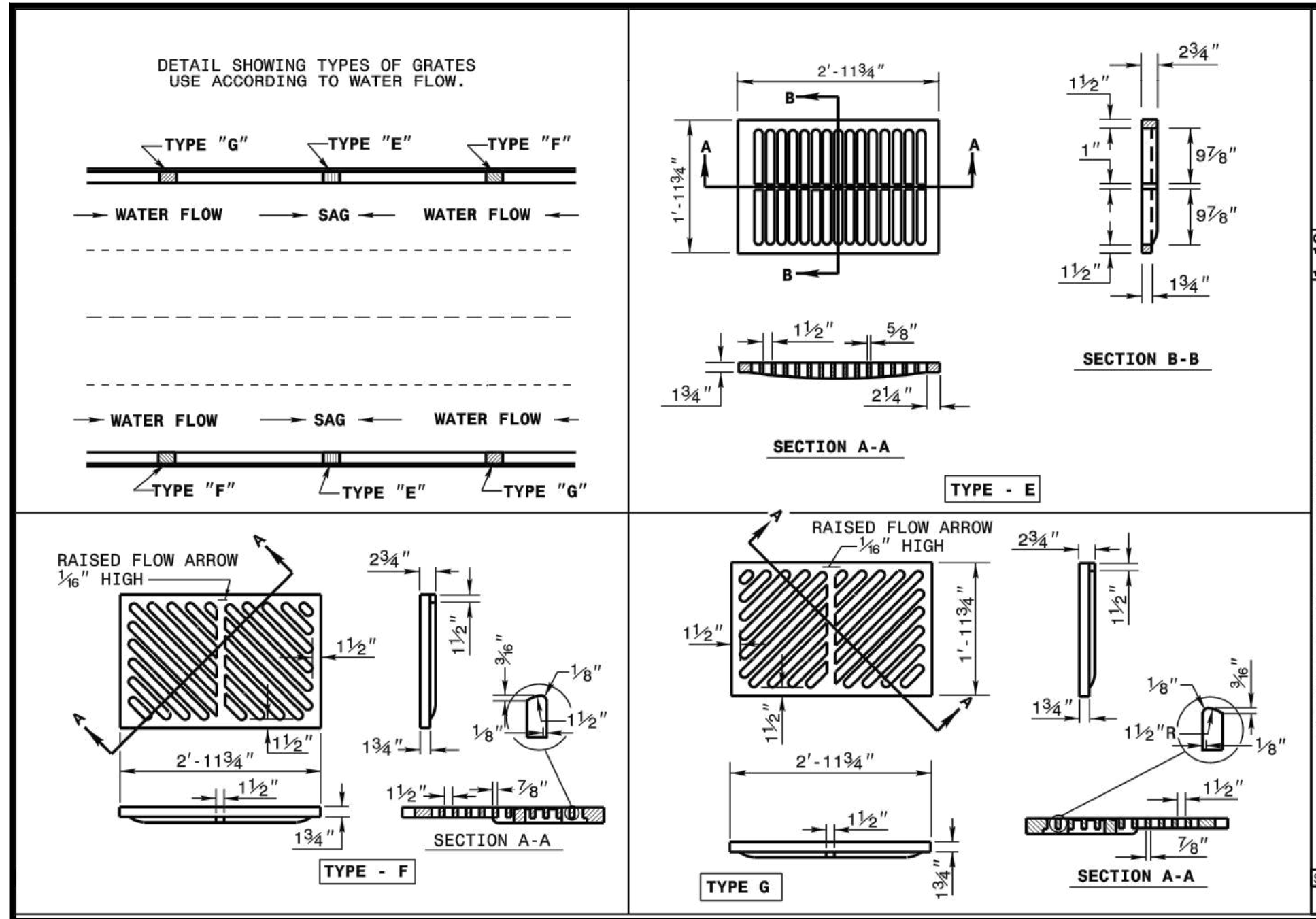


PROPOSED WEDGING DETAIL  
 SCALE - NTS

P:\2017 Projects\170347 Chandlers Ridge\CADD\DWG\TP SHEET\TP\_170347\_C802\_AVERETTE.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
	DESCRIPTION	
	REVISIONS	

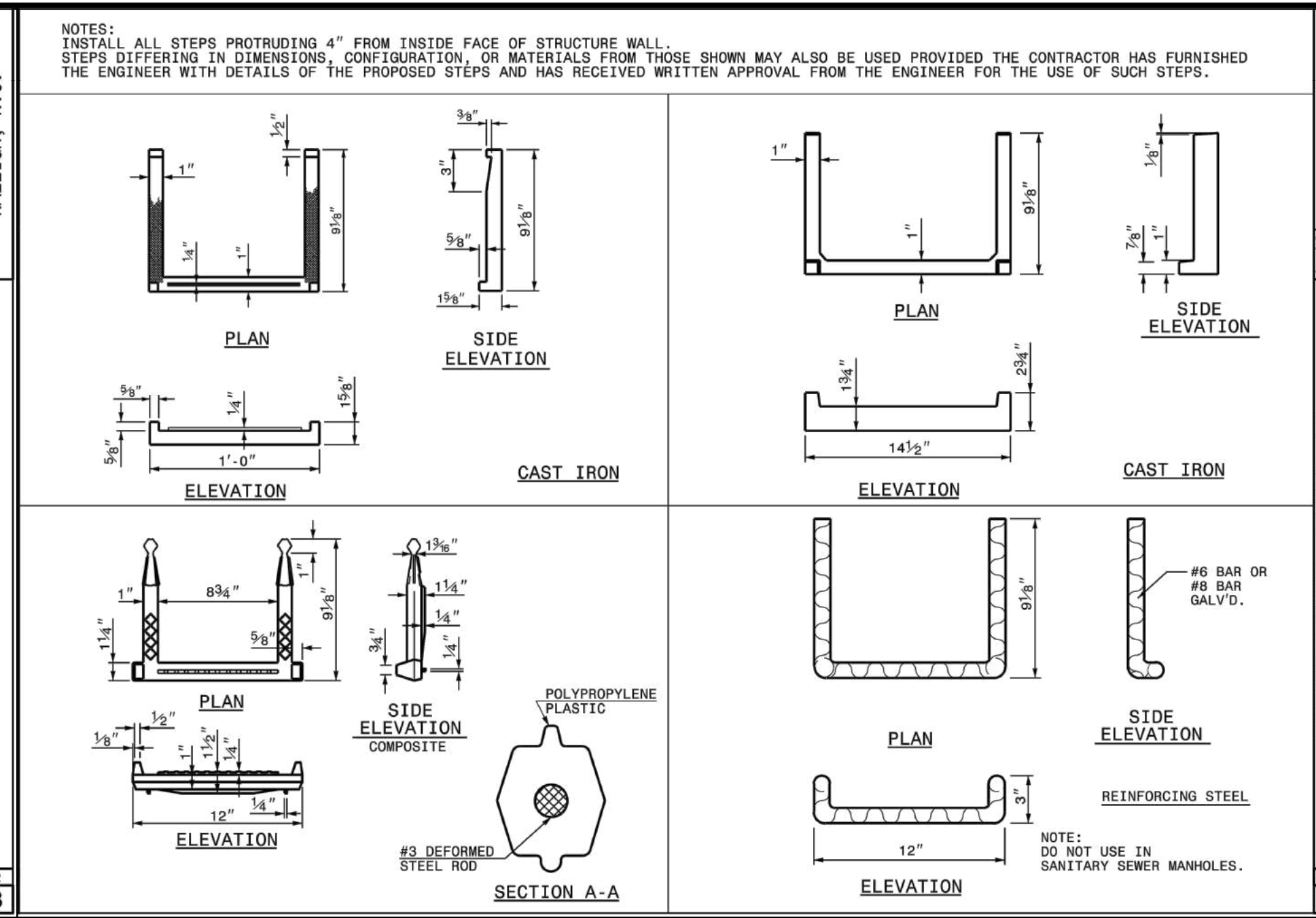




STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

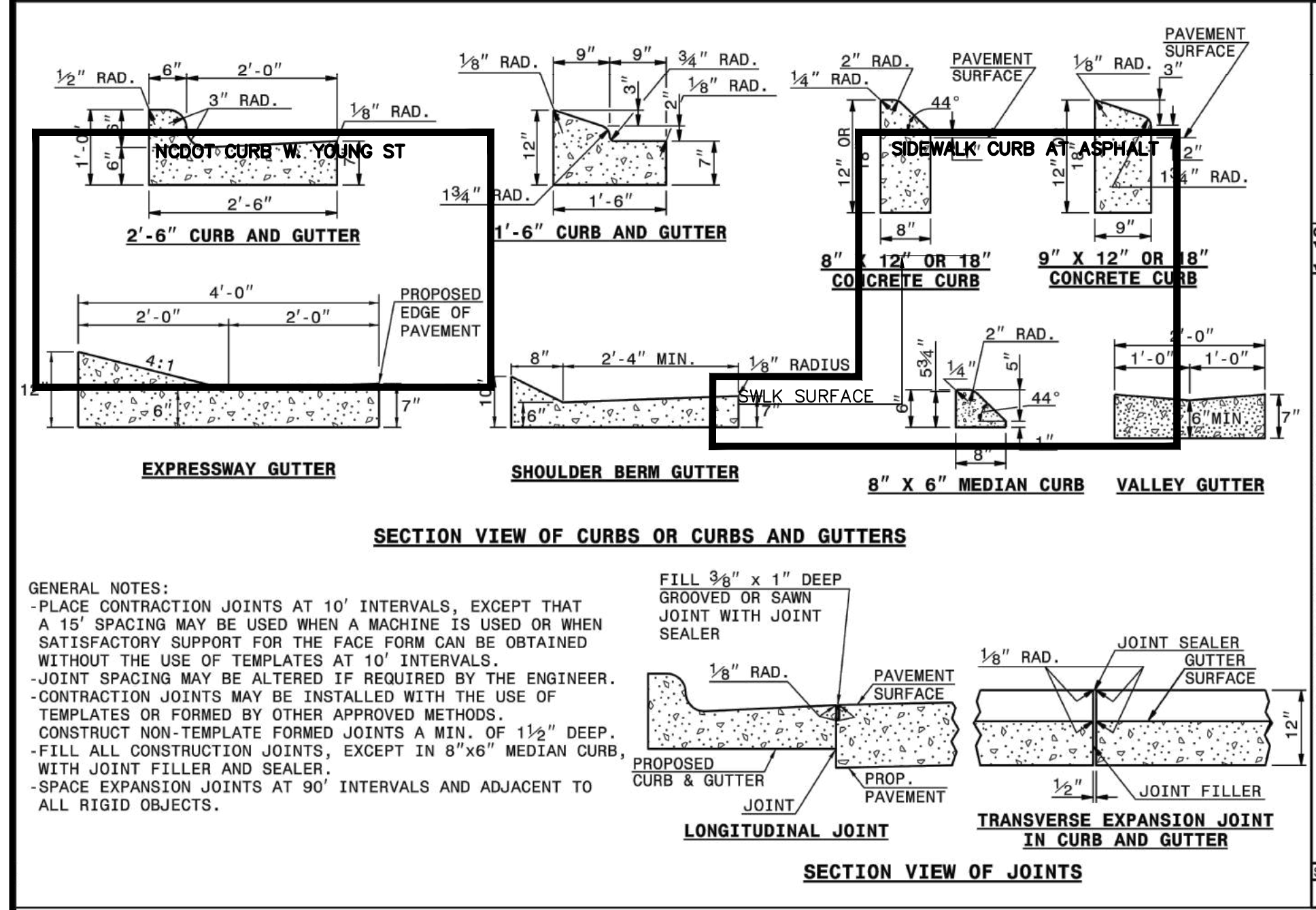
SHEET 2 OF 2  
**840.03**



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

ROADWAY STANDARD DRAWING FOR  
**DRAINAGE STRUCTURE STEPS**

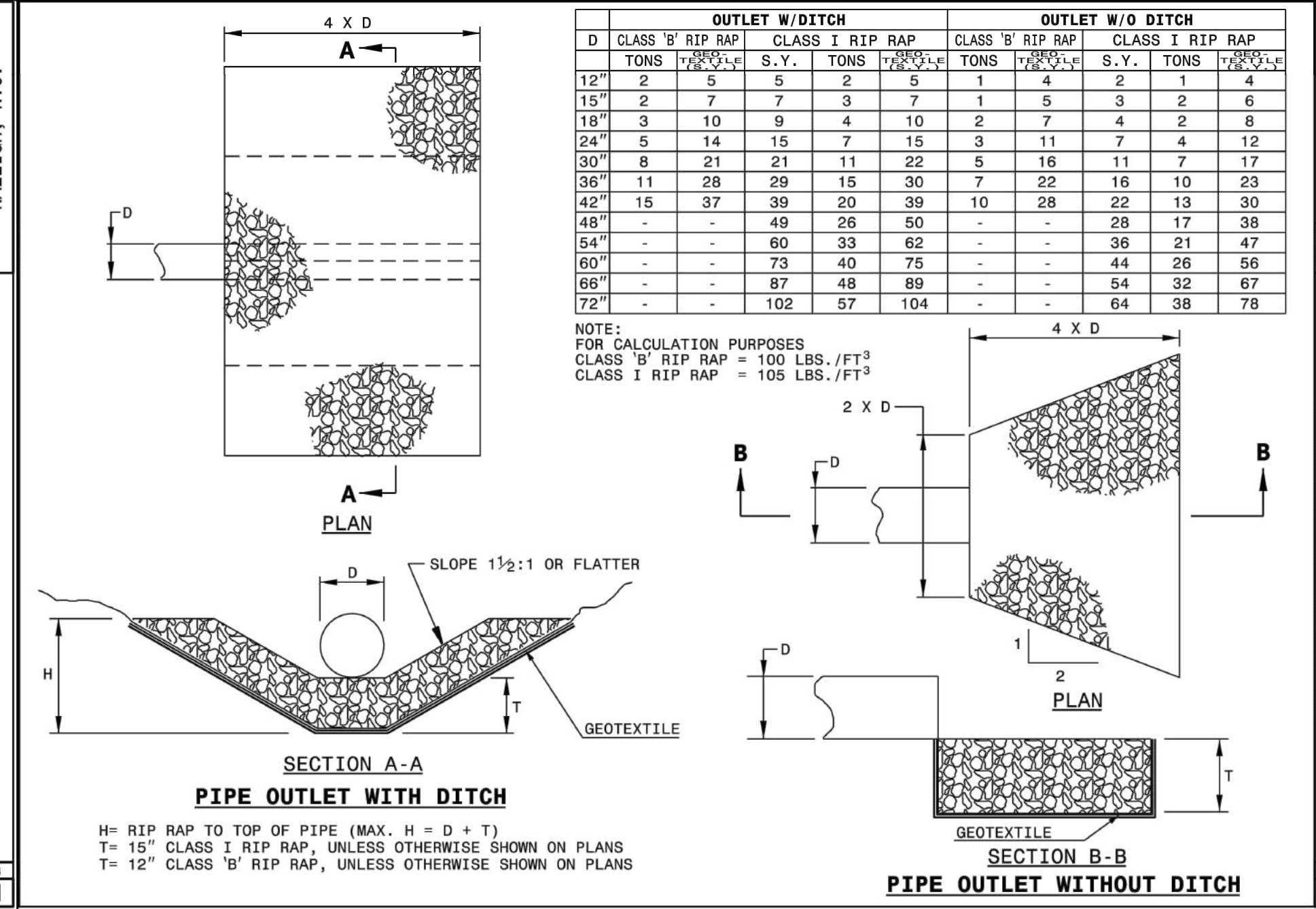
SHEET 1 OF 1  
**840.66**



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

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

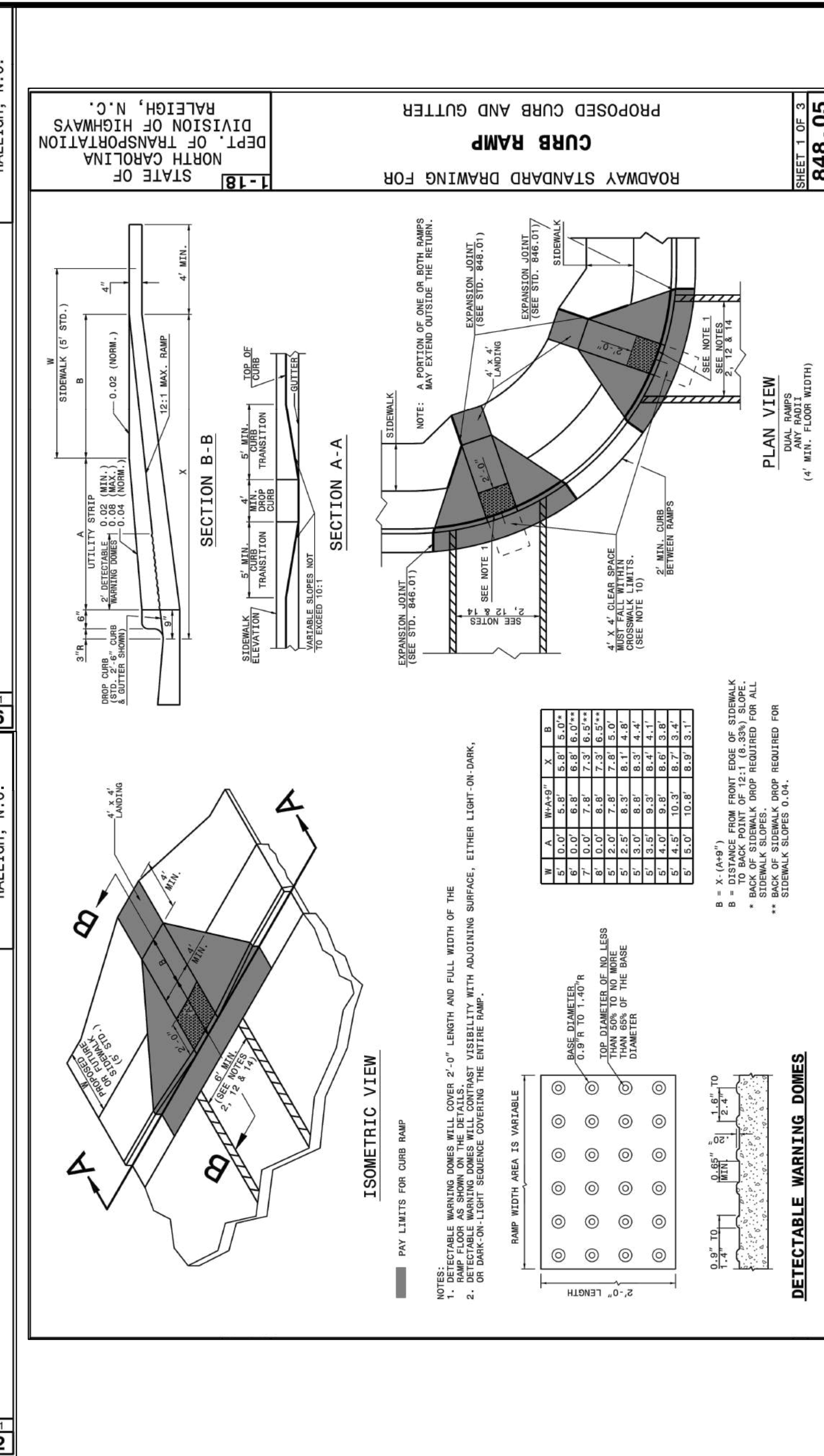
SHEET 1 OF 3  
**846.01**



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

ROADWAY STANDARD DRAWING FOR  
**GUIDE FOR RIP RAP AT PIPE OUTLETS**

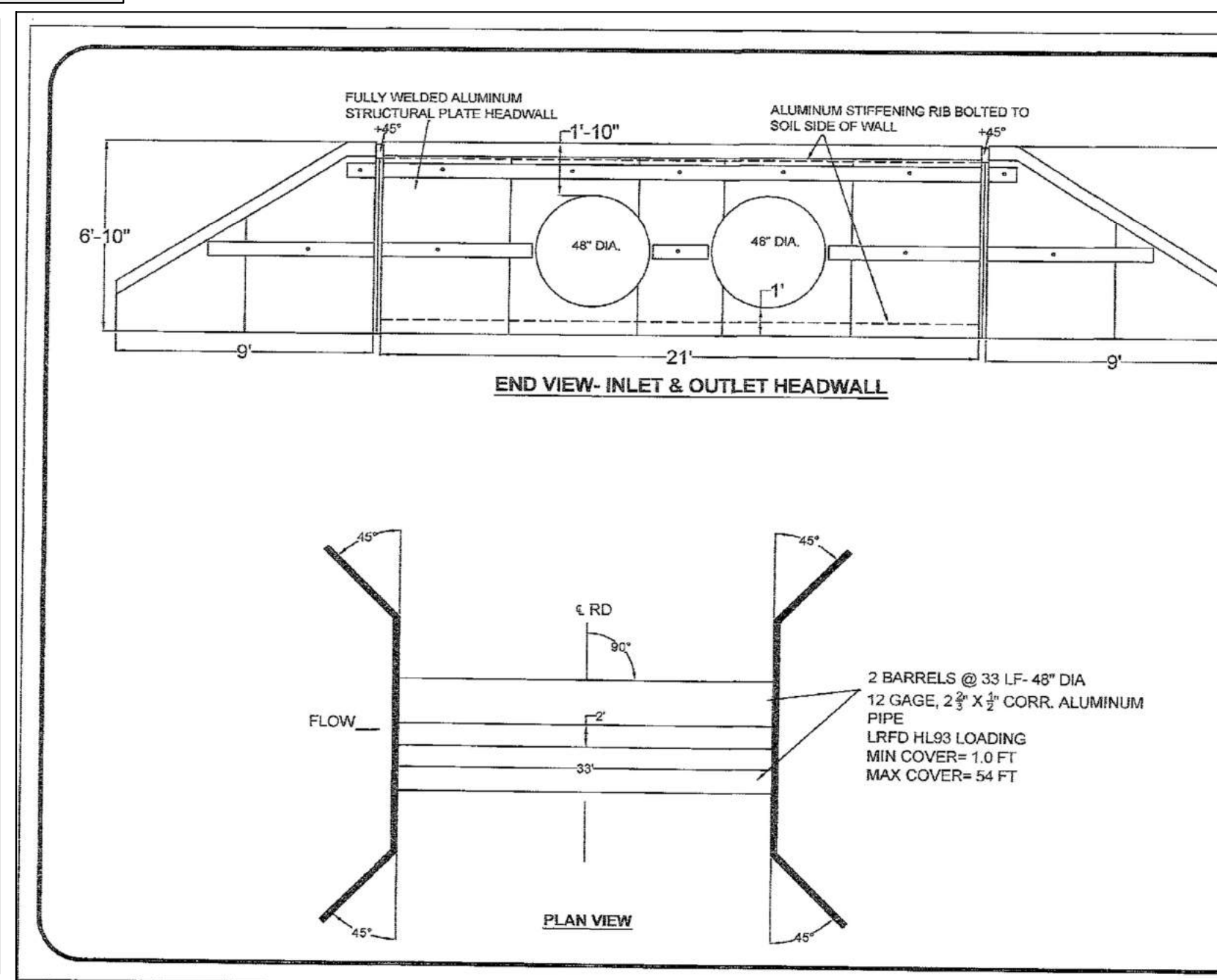
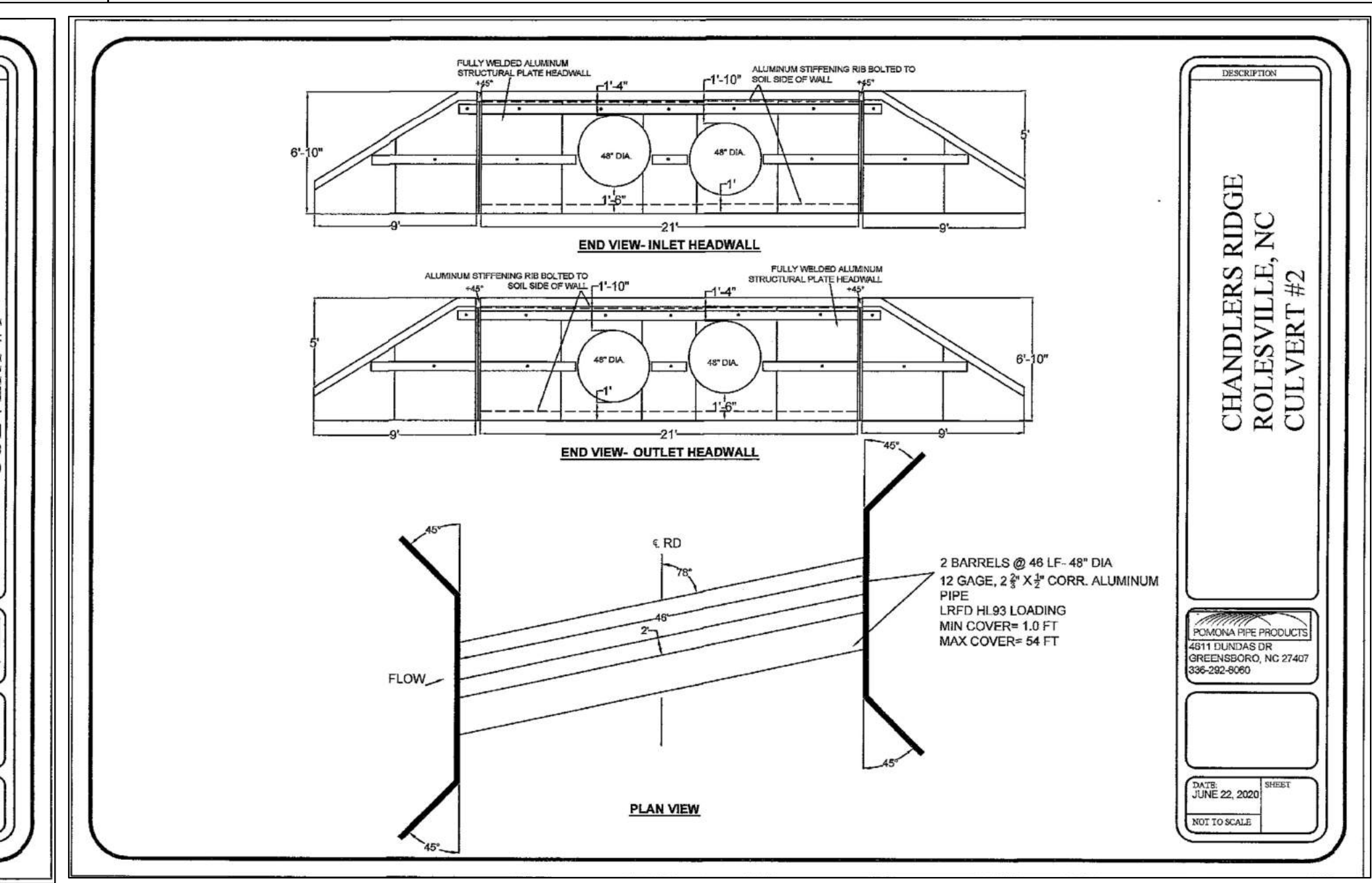
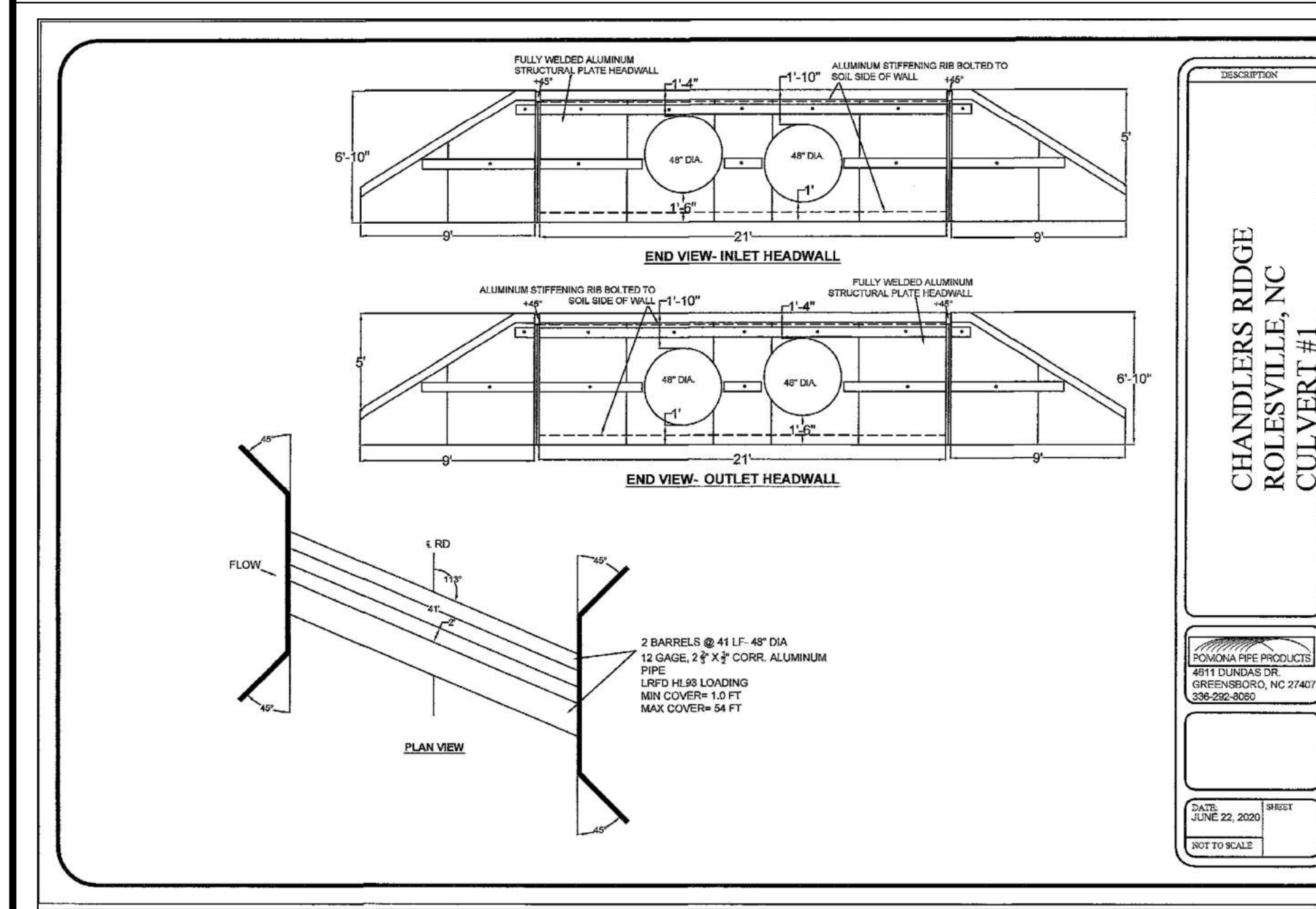
SHEET 1 OF 1  
**876.02**



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

ROADWAY STANDARD DRAWING FOR  
**CURB RAMP**

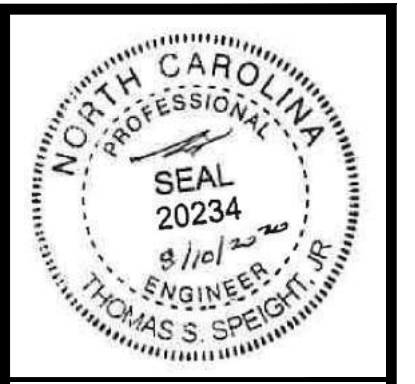
SHEET 1 OF 3  
**848.05**



CHANDLERS RIDGE  
ROLESVILLE, NC  
CULVERT #3

DATE: 01/11/2020  
BY: TSS  
NOT TO SCALE

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE



**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



**CHANDLERS RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

**CHANDLERS RIDGE**  
ROLESVILLE, NC  
CULVERT #3

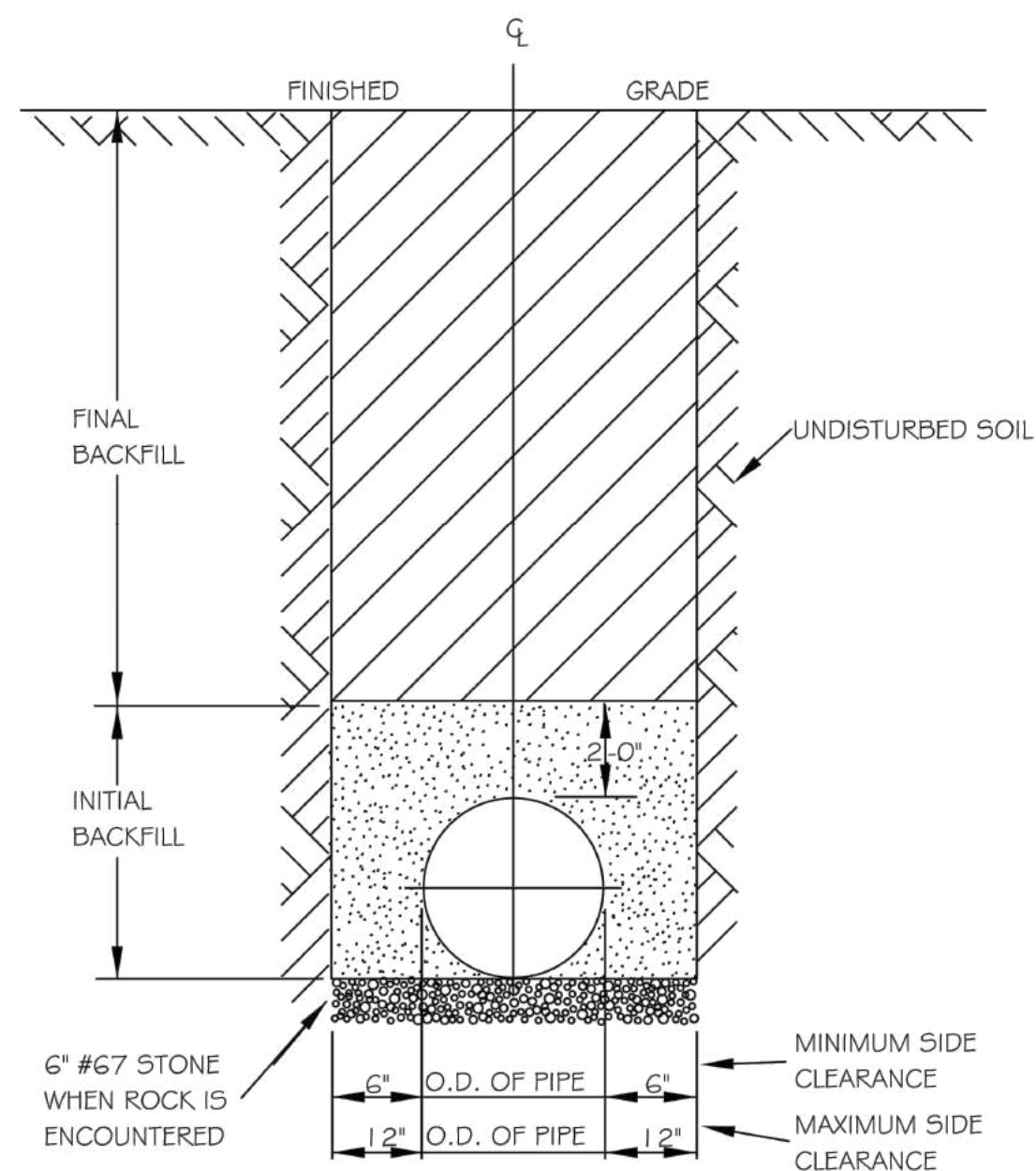
Project Engineer: TSS  
Designed By: TEP  
Drawn By: TEP  
Checked By: TSS  
Scale:  
Date: 09/08/2020  
Project Number: P170347

SHEET  
**C901**



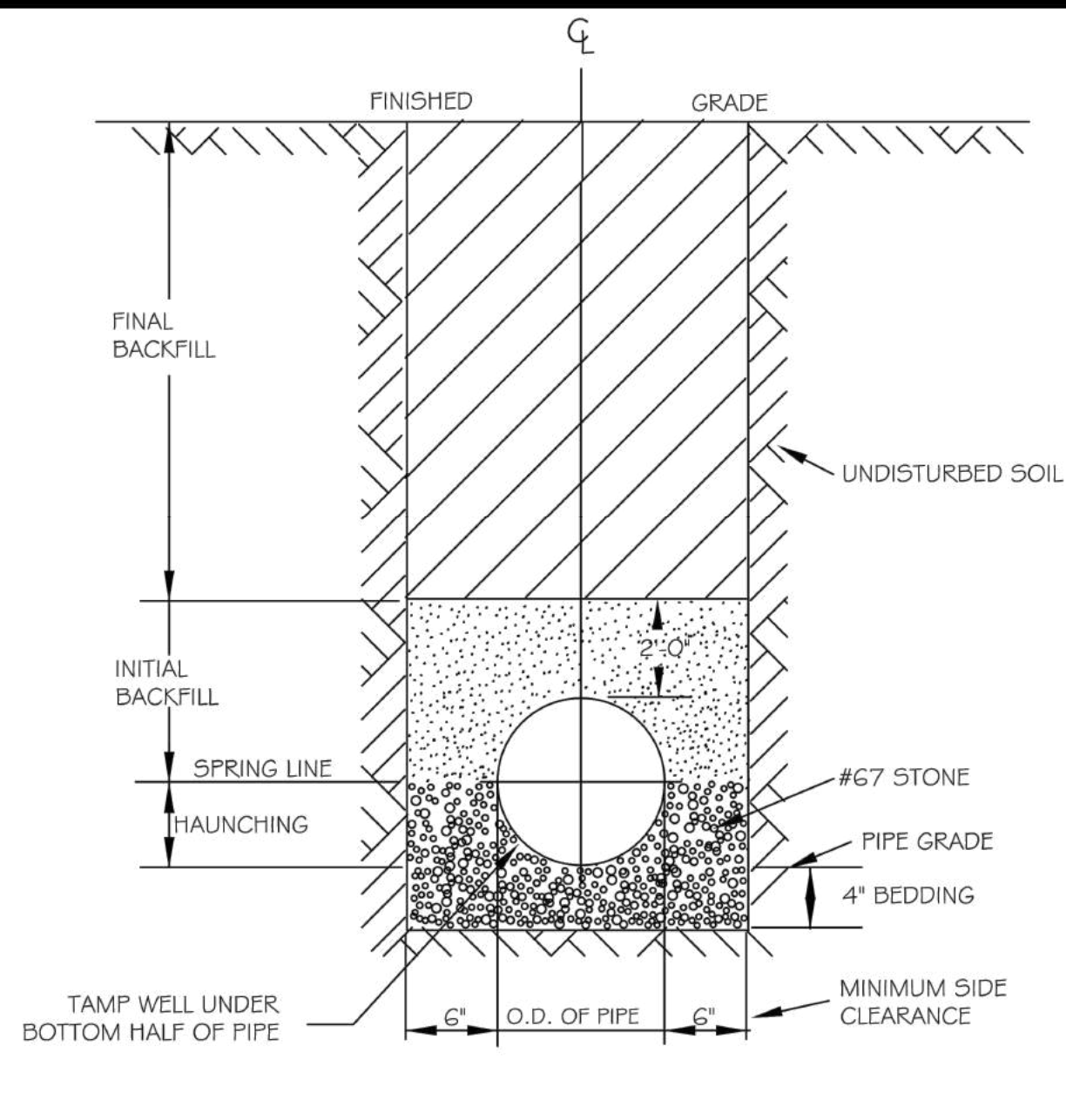






- NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
  2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
  3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
  4. BACKFILL SHALL BE TAMPED IN 6" LIFTS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

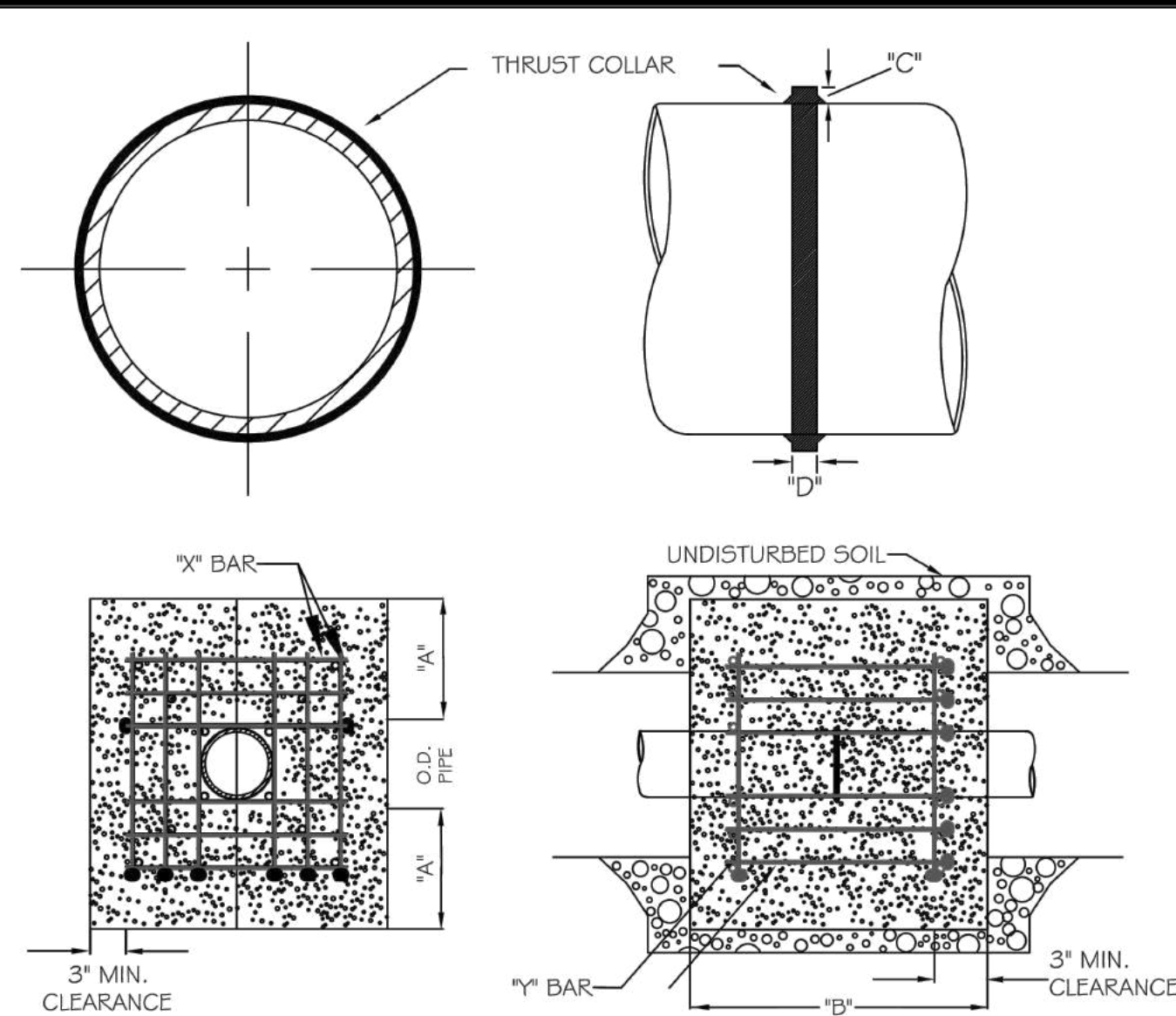
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-4	D.W.C.	9-3-99	RRH	3-30-00	



TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

- NOTES:
1. FOR 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 INITIAL BACKFILL.
  3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
  4. 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	



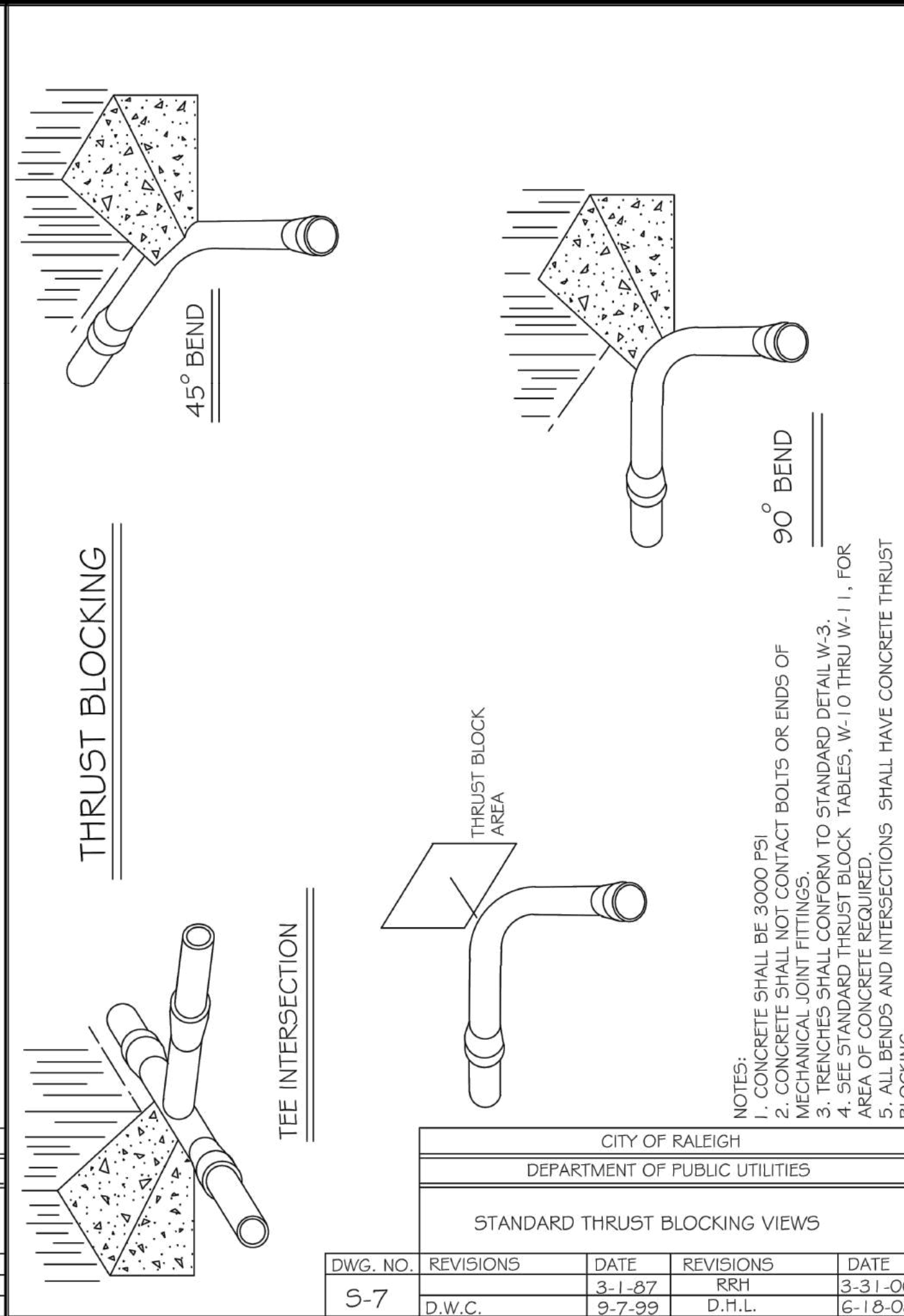
REINFORCING REQUIREMENTS					
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT
6" - 36"	#5	2'-2 1/4" O.D. PIPE	1.043 LBS/FT	1'-1 1/2"	1.1 LBS. EACH
40" & greater	#6	3'-0" O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH

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

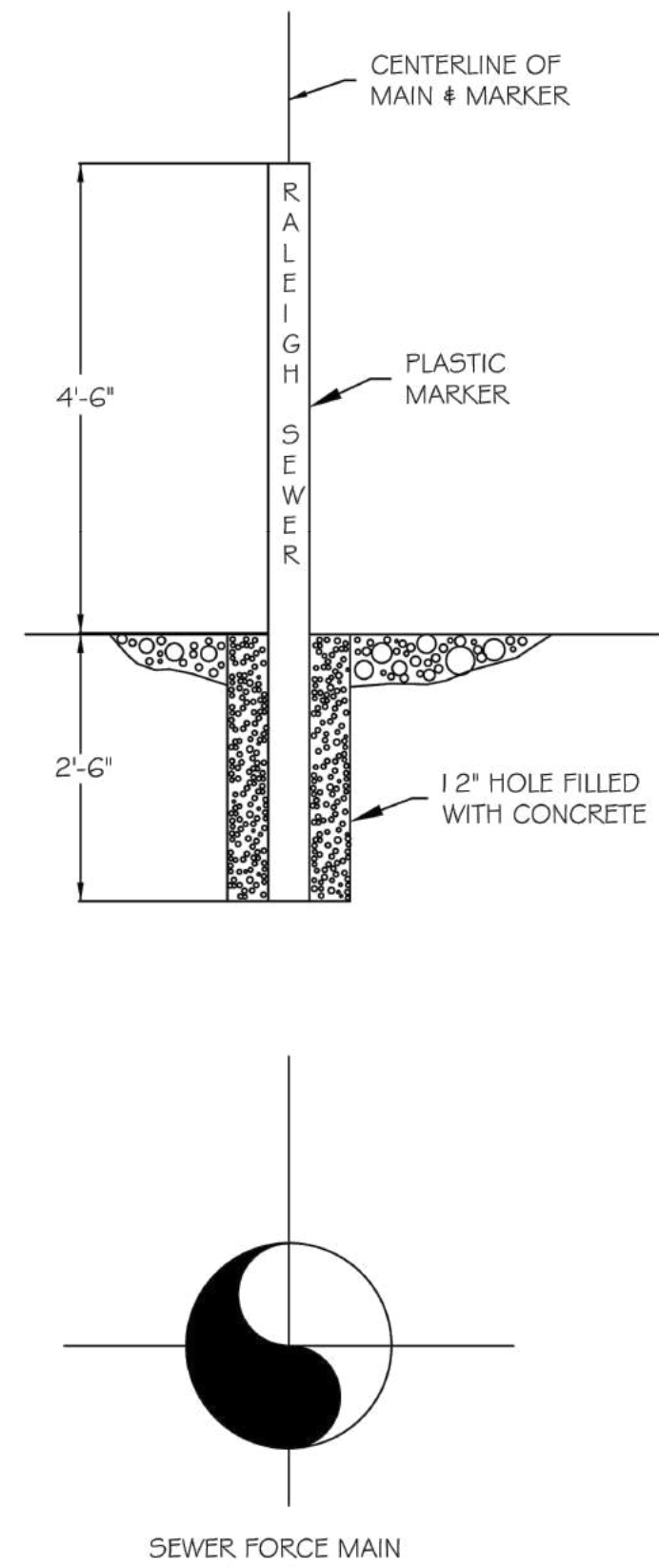
- NOTES:
1. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
  2. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
  3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
  4. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
  5. 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	



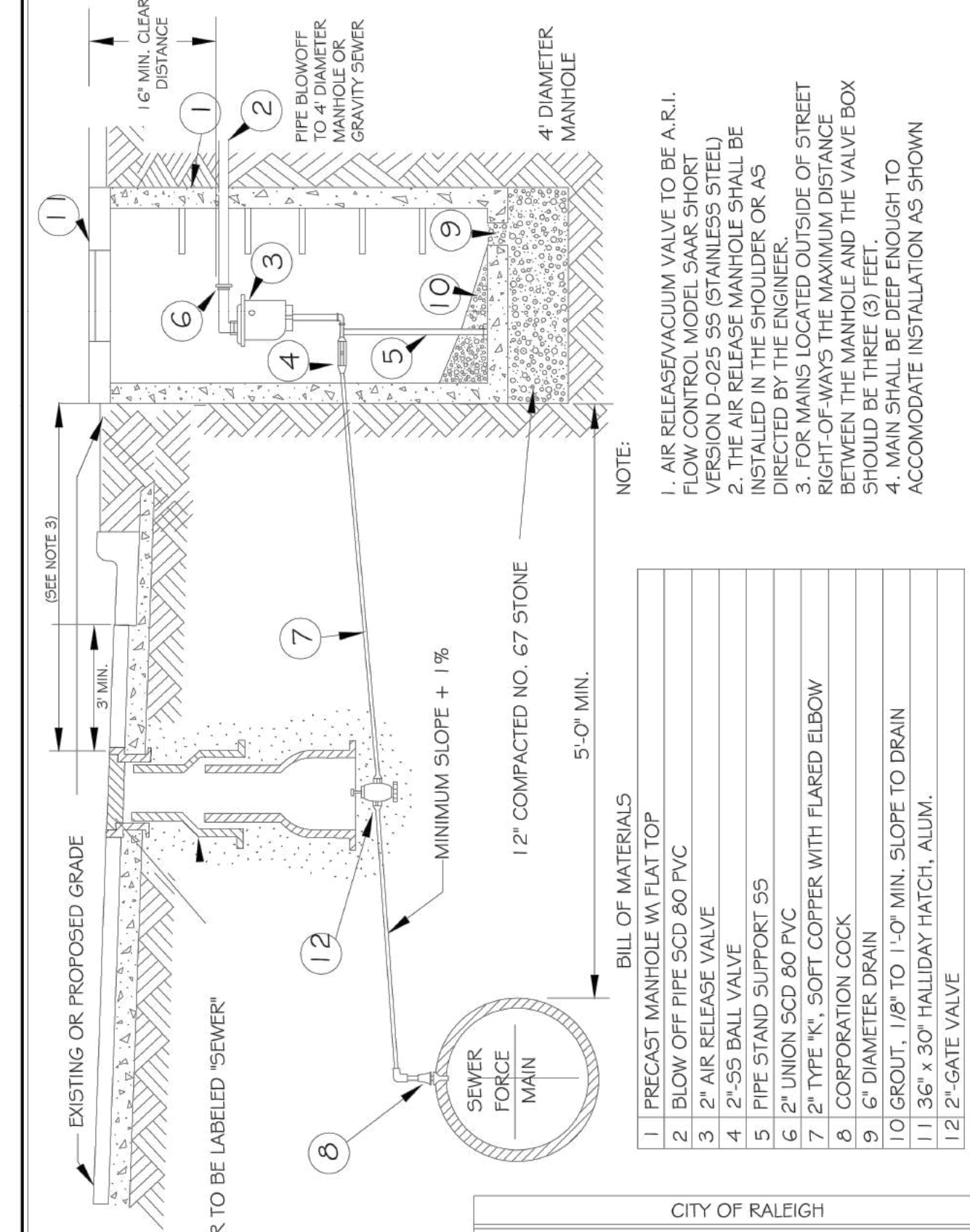
- NOTES:
1. CONCRETE SHALL BE 3000 PSI.
  2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
  3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
  4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
  5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE 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:
1. PLASTIC MARKER SHALL BE GREEN IN COLOR.
  2. MARKERS SHALL BE LABELED "RALEIGH SEWER".
  3. TO BE SPACED EVERY 300 FEET ON EACH SIDE OF ANY ROADWAY OR JUNCTION.
  4. MARKERS SHALL BE ROUND 4" IN DIAMETER.

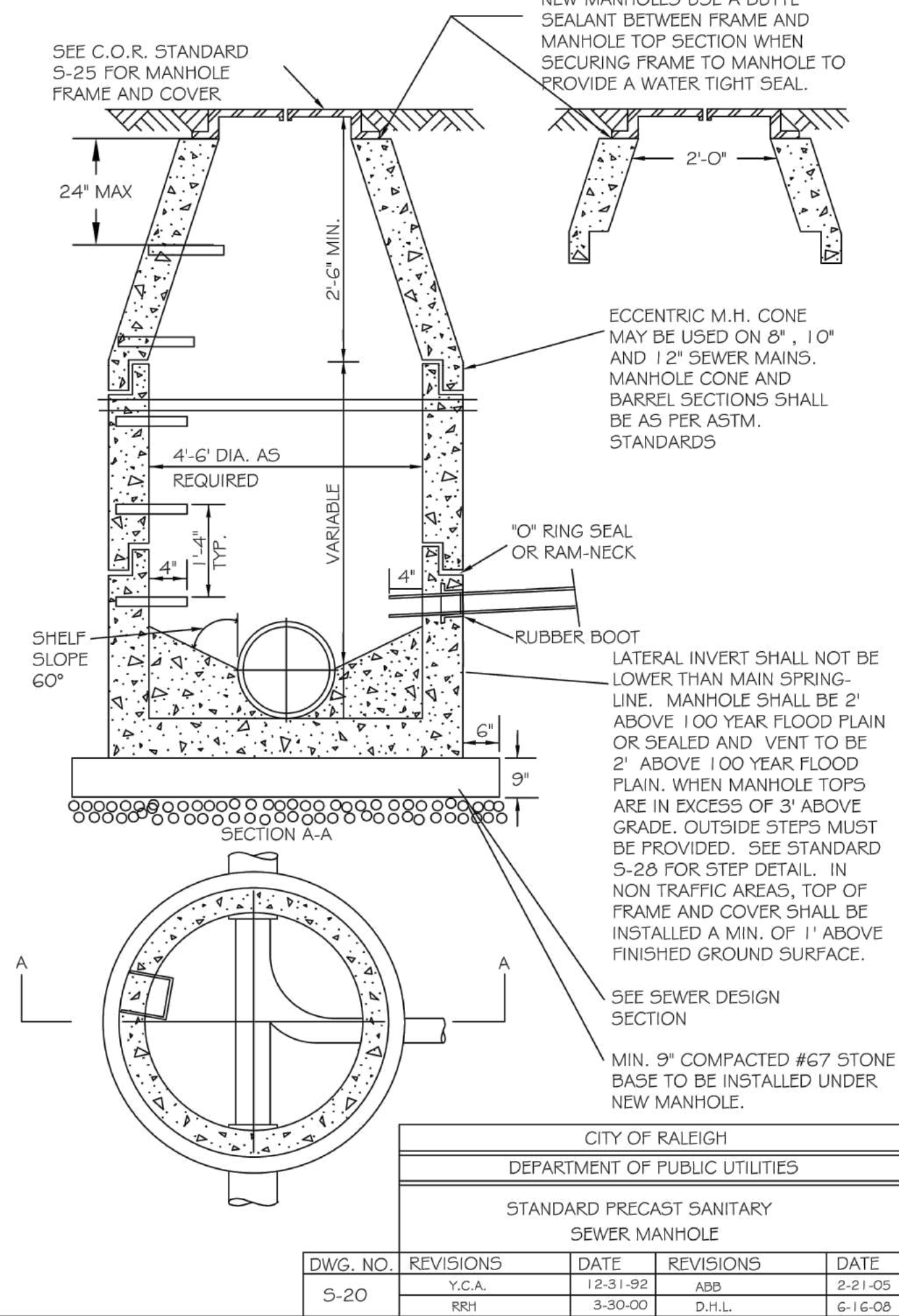
CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MAIN MARKER FOR SEWER FORCE MAINS IN EASEMENTS					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-8					



- NOTE:
1. AIR RELEASE VALVE TO BE A.R.I. VERSION D 025 (55 GAL/1000 STEEL).
  2. THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER.
  3. FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE SHOULD BE THREE (3) FEET.
  4. MAIN SHALL BE DEEP ENOUGH TO ACCOMMODATE INSTALLATION AS SHOWN.

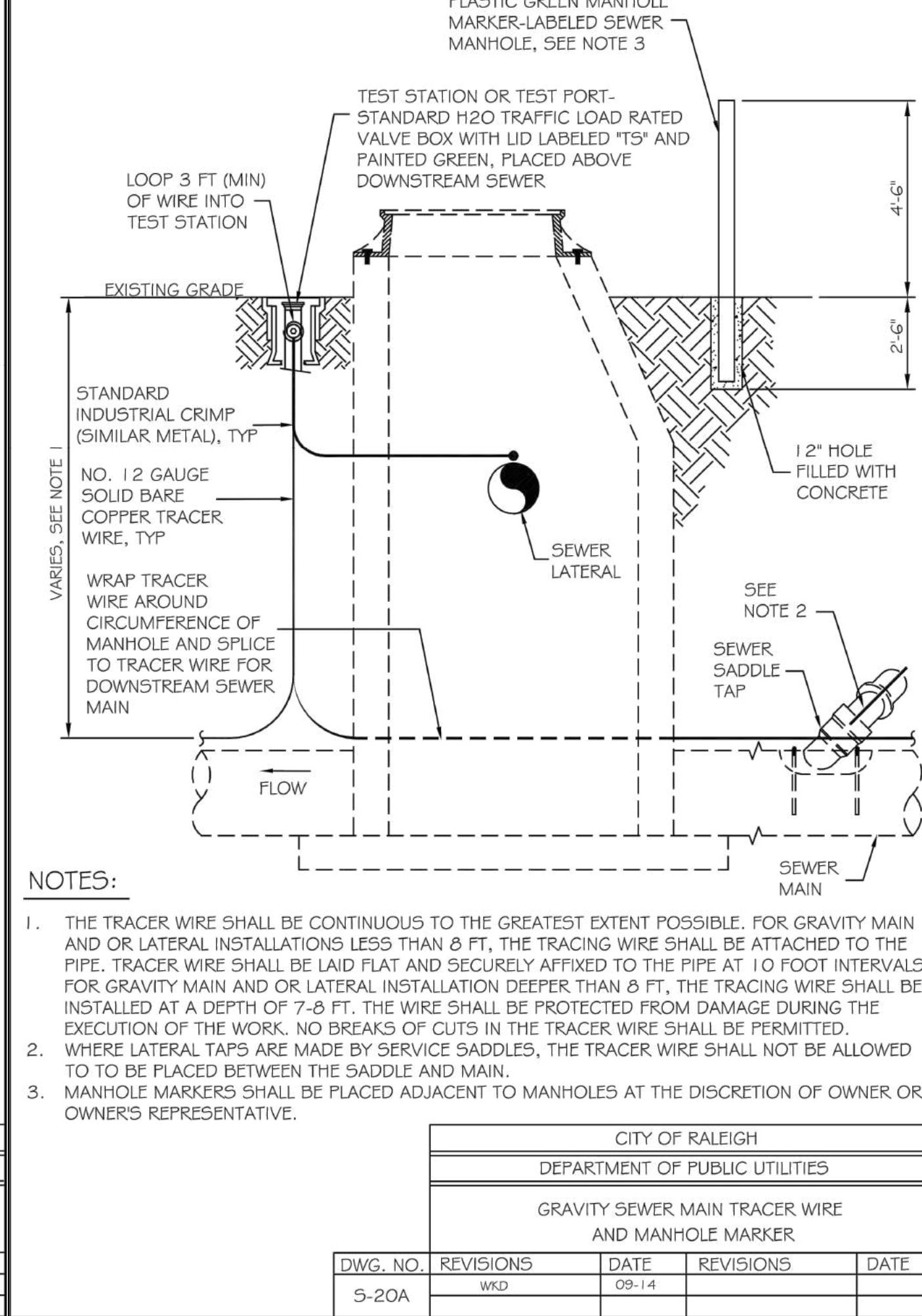
BILL OF MATERIALS					
1	PRECAST MANHOLE W/ FLAT TOP				
2	BLOW OFF PIPE SCD 80 PVC				
3	2\"/>				

CITY OF RALEIGH					
DEPARTMENT OF PUBLIC UTILITIES					
STANDARD SEWER FORCE MAIN AIR RELEASE VALVE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-9	LBN	7-14-82	RRH	2-31-91	
		9-30-04		3-30-00	



- NOTES:
1. 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.
  2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
  3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

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	ADD	2-21-05	
		3-30-00	D.H.L.	6-18-08	



- NOTES:
1. 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.
  2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
  3. 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	W.D.	09-14			



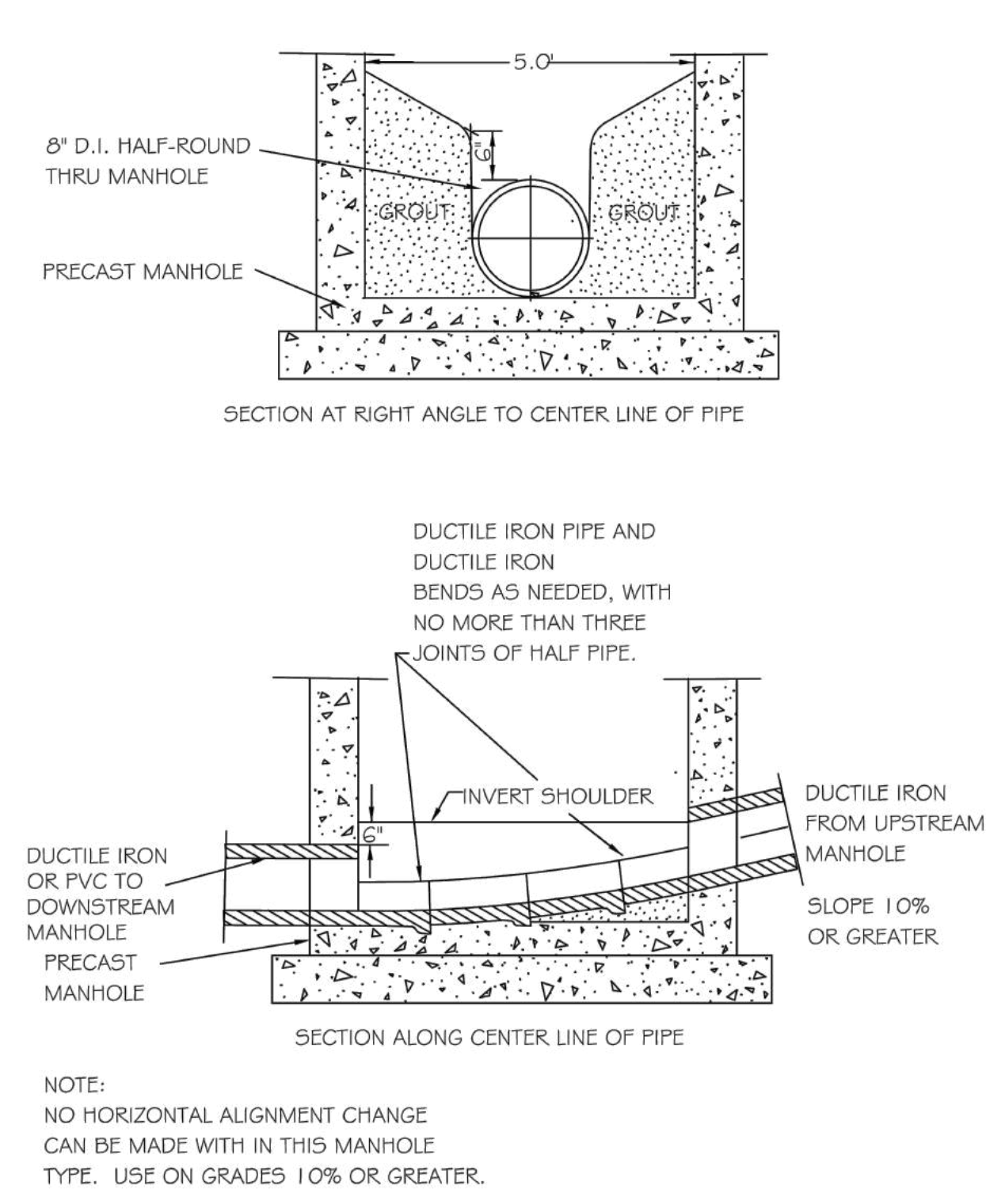
**Bateman Civil Survey Company**  
 Engineers • Surveyors • Planners  
 2524 Reliance Avenue, Apex, North Carolina 27539  
 Phone: 919.577.1080 Fax: 919.577.1081  
 NCBELS FRM No. C-2378



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

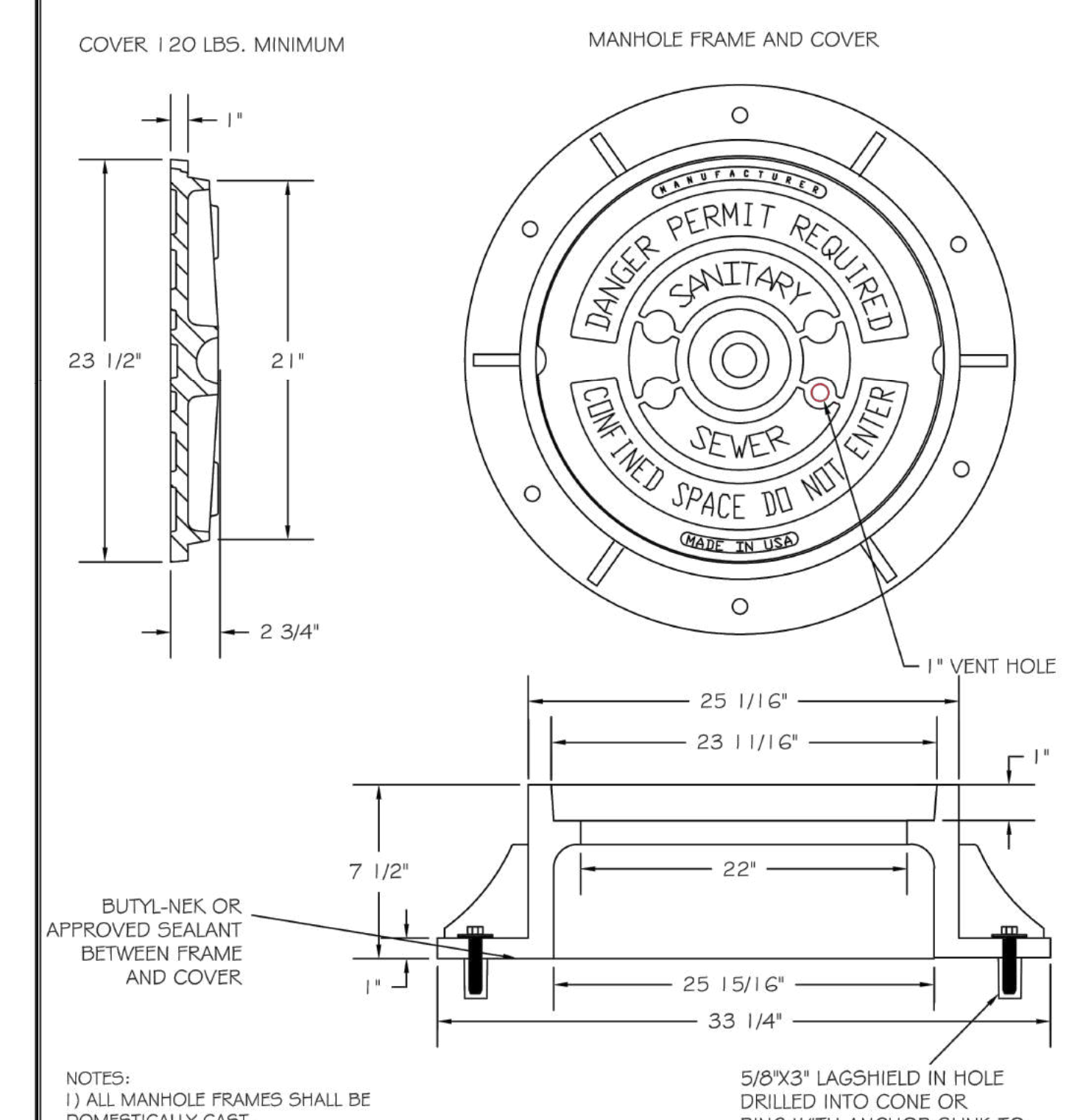
**CITY OF RALEIGH SEWER & FORCE MAIN DETAILS**

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347



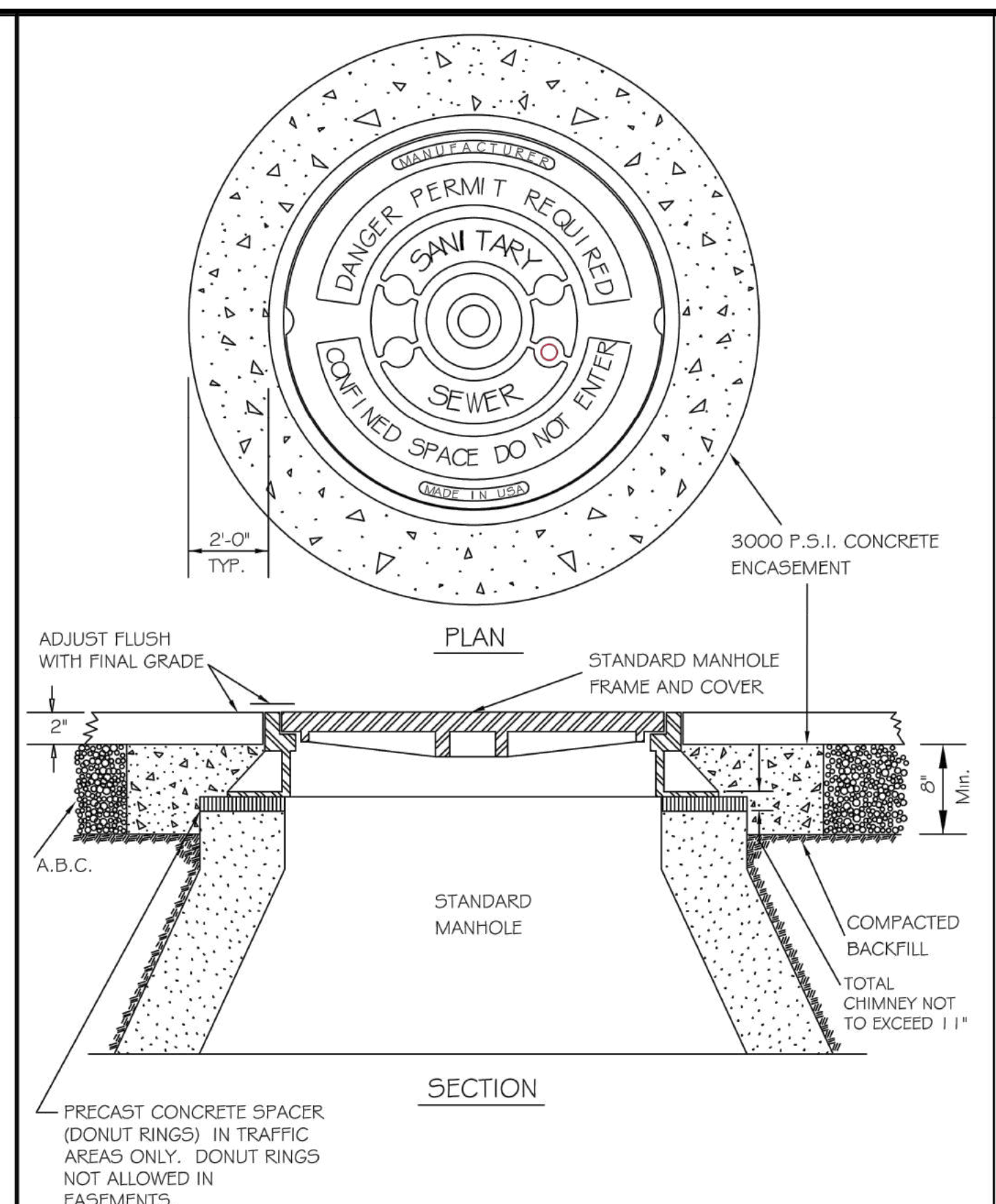
NOTE:  
NO HORIZONTAL ALIGNMENT CHANGE CAN BE MADE WITH THIS MANHOLE TYPE. USE ON GRADES 1.0% OR GREATER.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD HIGH VELOCITY MANHOLE INVERT					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-23					
	Y.C.A.	3-1-87	RRH	12-31-91	3-30-00

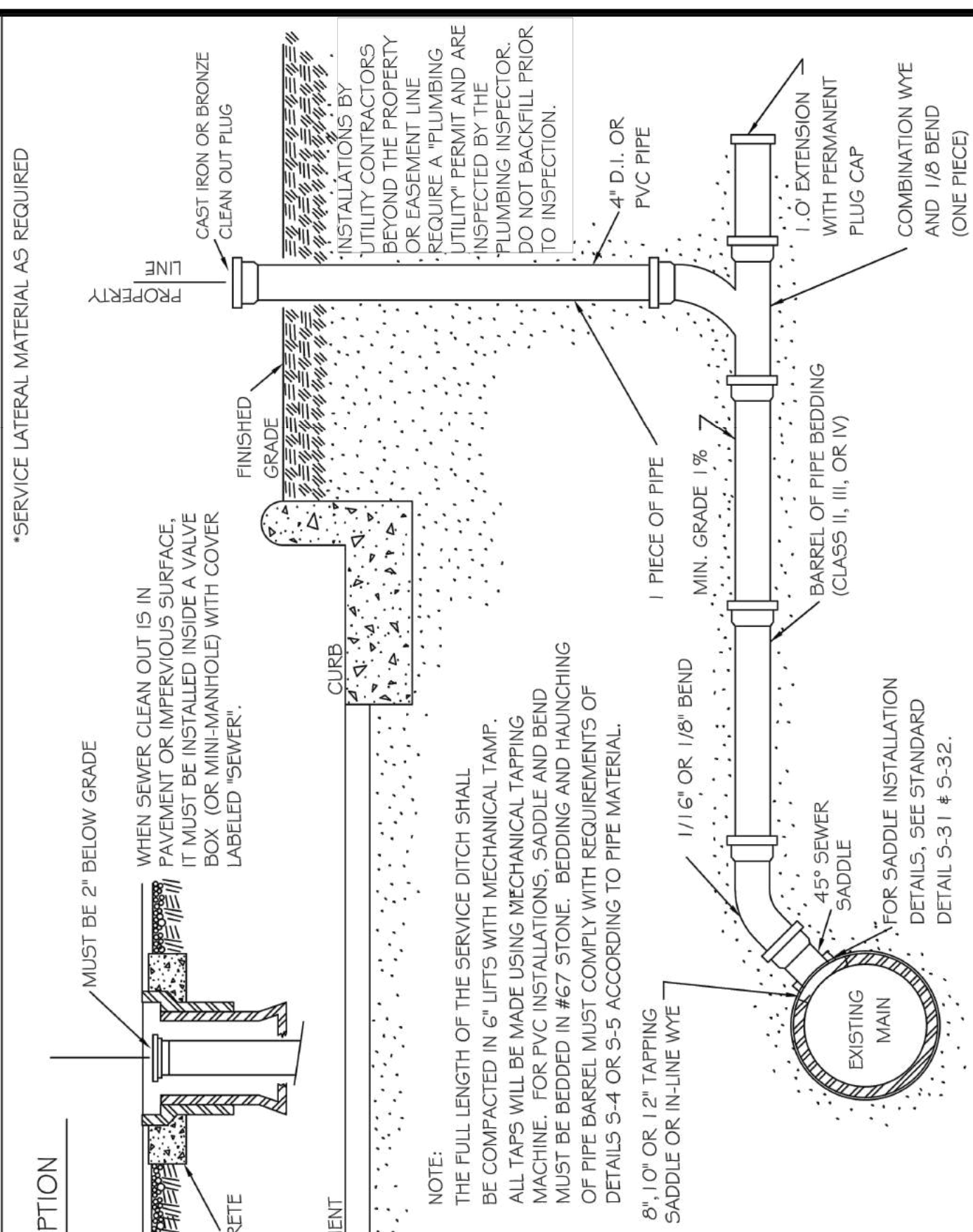


NOTES:  
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.  
2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.  
3) COVER SHALL WEIGH A MIN. OF 120 LBS.  
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM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

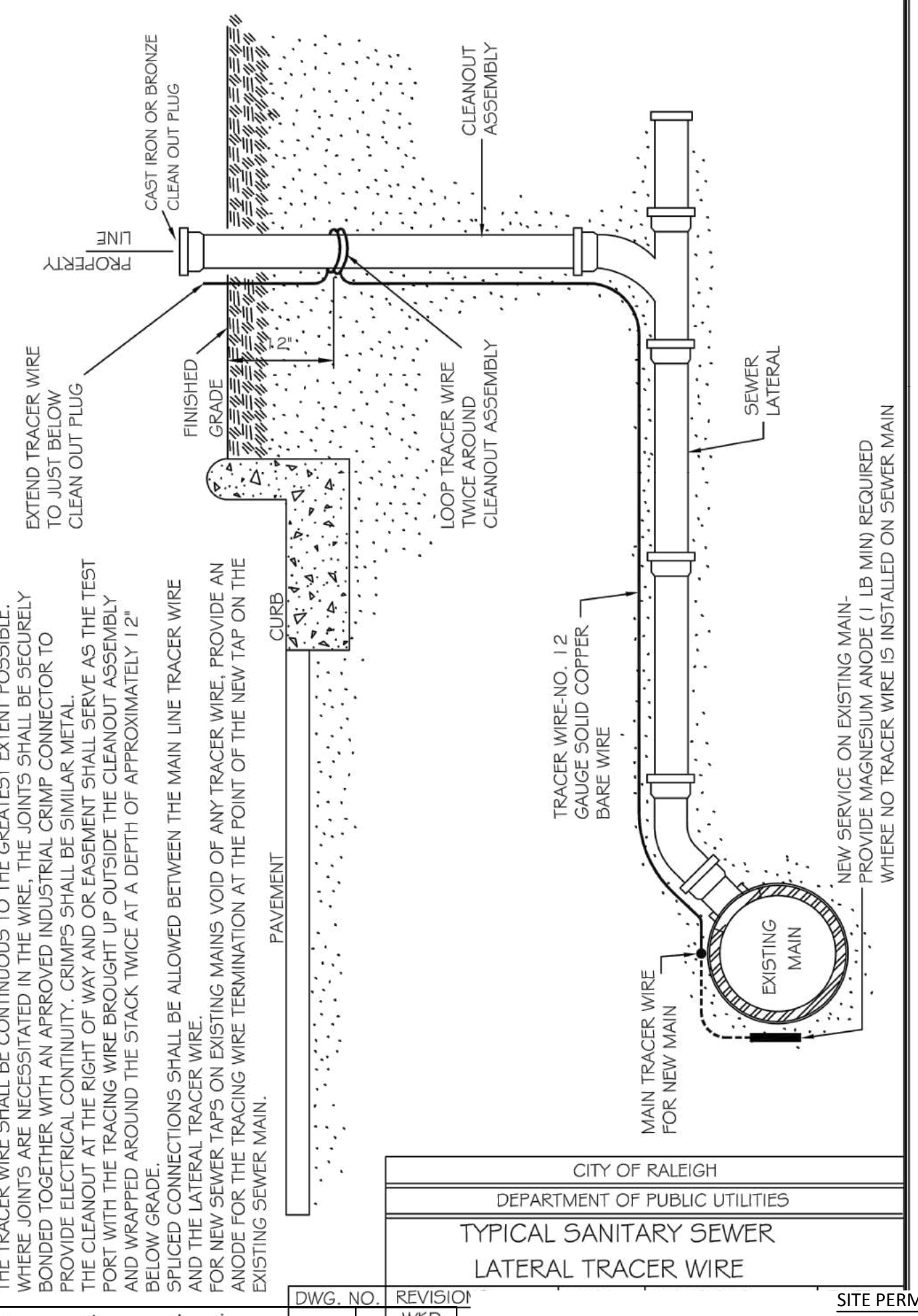
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE COVER					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-25					
	3-1-87	3-1-87	A.B.B.	2-9-05	
	RRH	3-30-00	D.H.L.	6-18-08	



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	

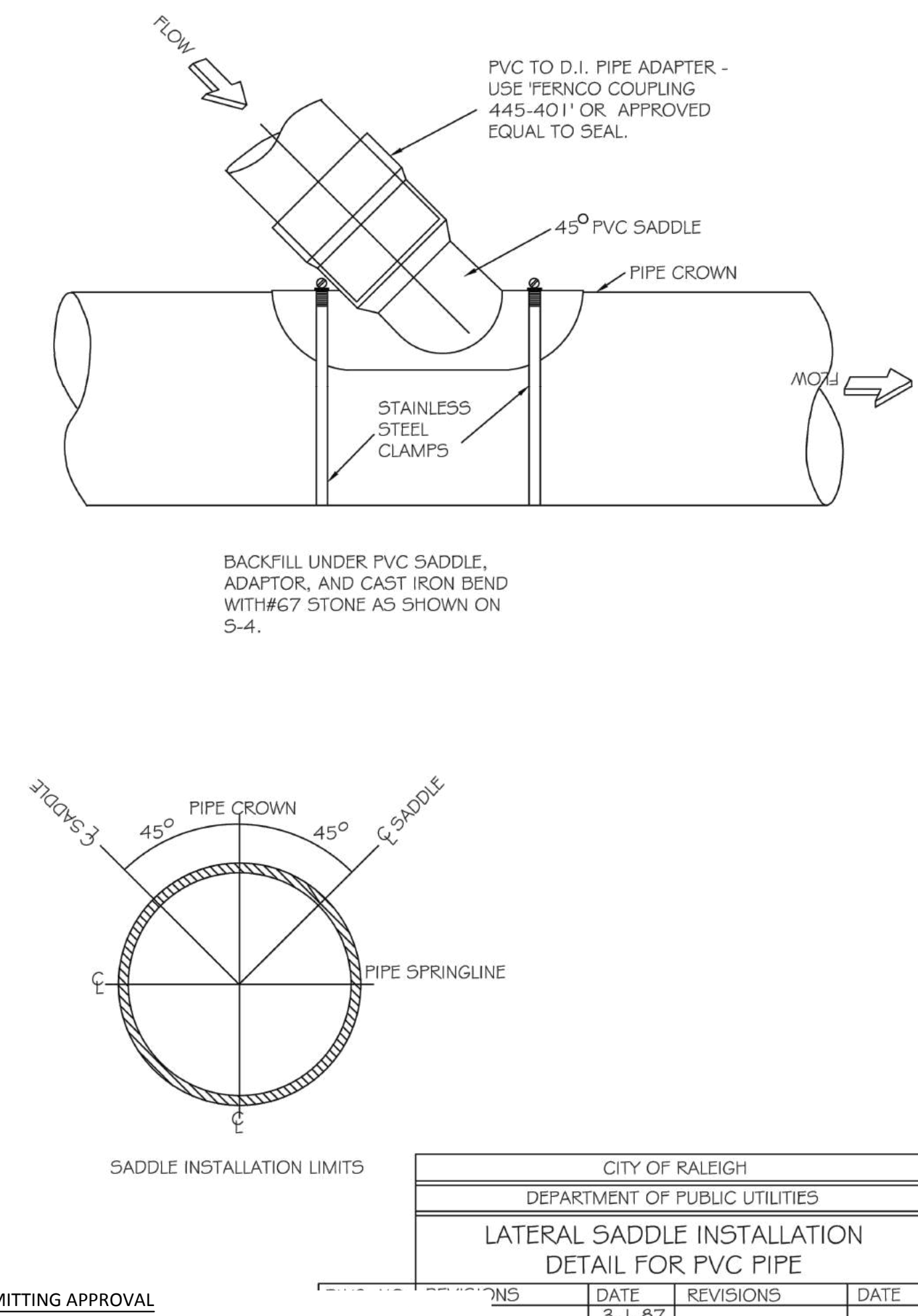


CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30					
	Y.C.A.	6-92	A.B.B.	4-8-04	
	RRH	3-30-00	D.H.L.	6-18-08	



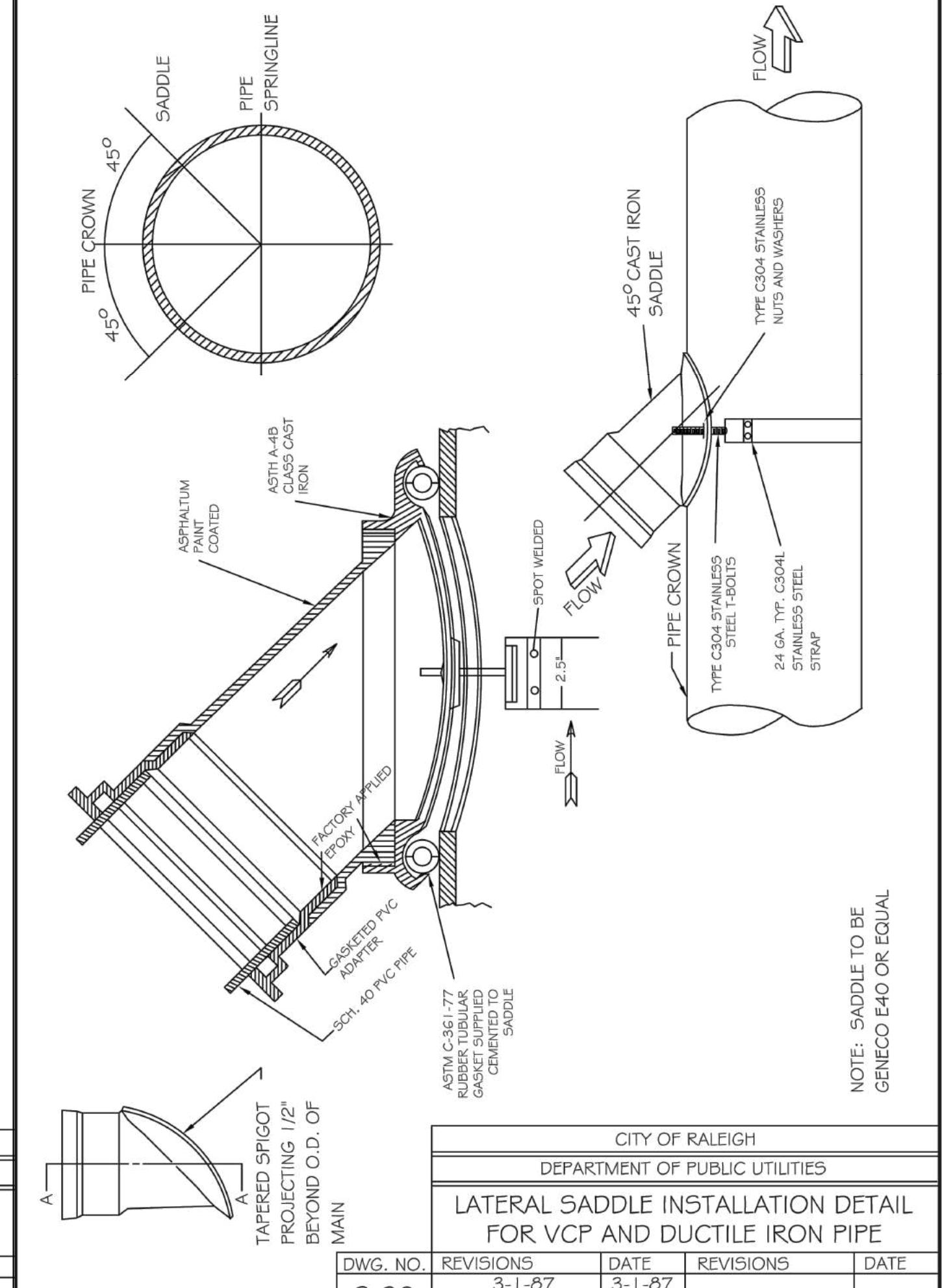
NOTES:  
1. TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE WHERE JOINTS ARE NECESSARY IN THE WIRE. JOINTS SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CRIMP CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CRIMPS SHALL BE SIMILAR METAL.  
2. THE CLEANOUT AT THE RIGHT OF WAY AND OR EASEMENT SHALL SERVE AS THE POINT WITH THE TRACING WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12\"/>

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL TRACER WIRE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30A					
	W.K.D.	08/14/2020			

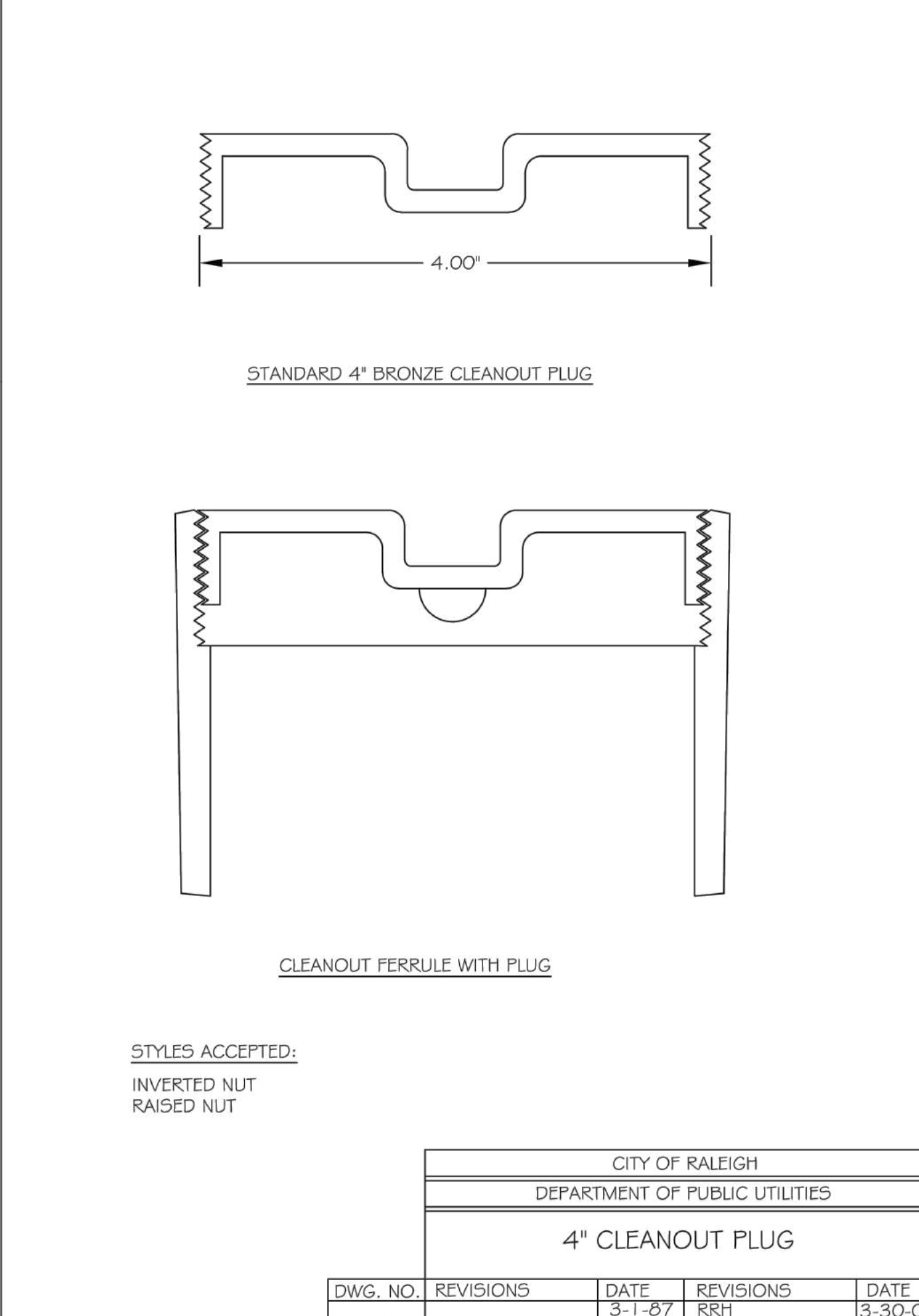


BACKFILL UNDER PVC SADDLE, ADAPTOR, AND CAST IRON BEND WITH #67 STONE AS SHOWN ON S-4.

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			



STYLES ACCEPTED:  
INVERTED NUT  
RAISED NUT

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES 4\"/>					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34					
	D.W.C.	3-1-87	RRH	3-30-00	
		3-27-98			



**Bateman Civil Survey Company**  
Engineers • Surveyors • Planners  
2524 Reliance Avenue, Apex, North Carolina 27539  
Phone: 919.577.1080 Fax: 919.577.1081  
NCBBS 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:	09/08/2020
Project Number:	P170347
SHEET	
<b>C911</b>	

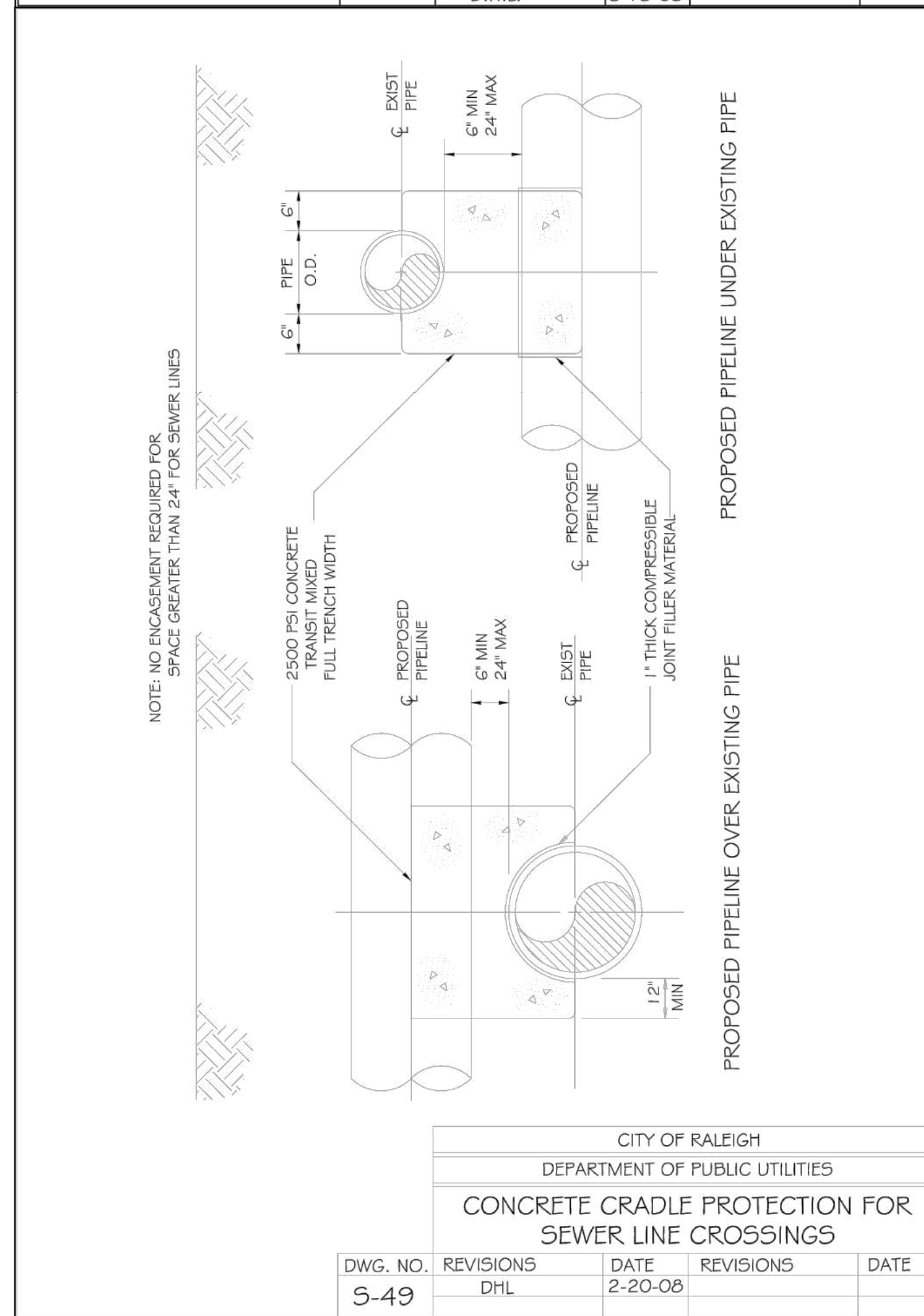
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION  
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must 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

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

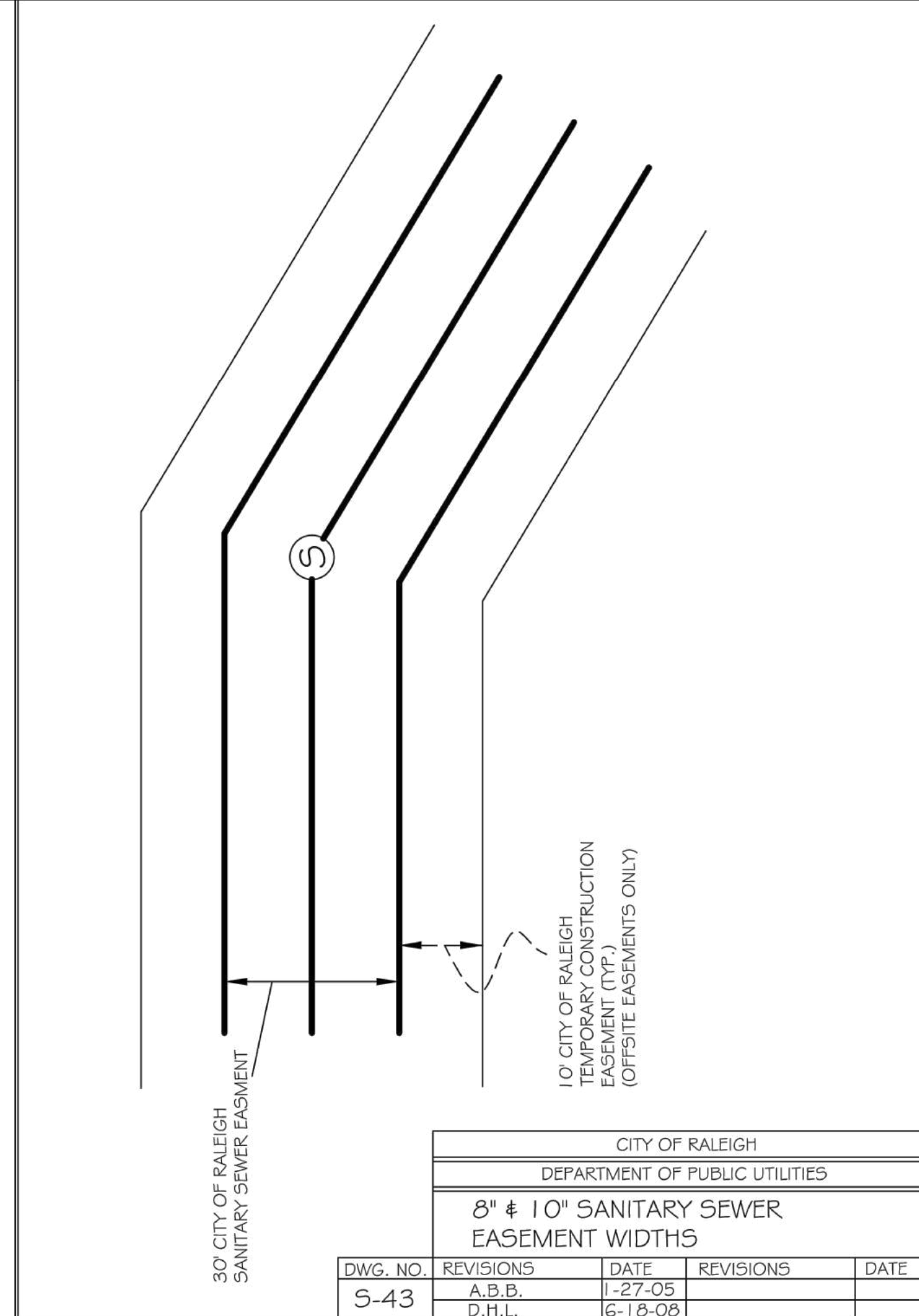
**SITE PERMITTING APPROVAL**  
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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.

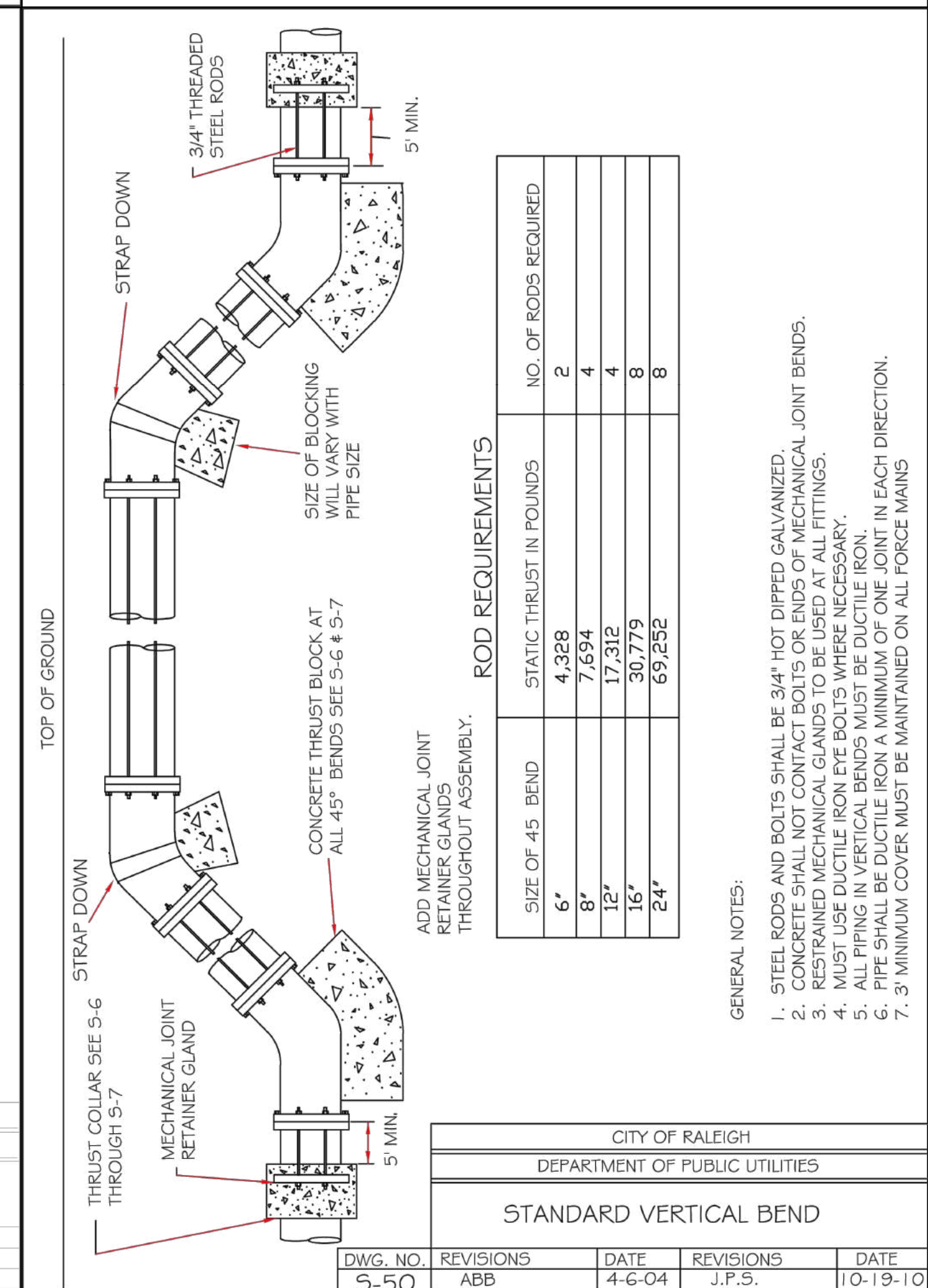
City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer \_\_\_\_\_



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" & 10" SANITARY SEWER EASEMENT WIDTHS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-43	A.B.B.	1-27-05		
	D.H.L.	6-16-08		



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

- 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. PIPING SHALL BE DUCTILE IRON A MINIMUM OF ONE JOINT IN EACH DIRECTION.
  6. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL FORCE MAINS.

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		

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C912**

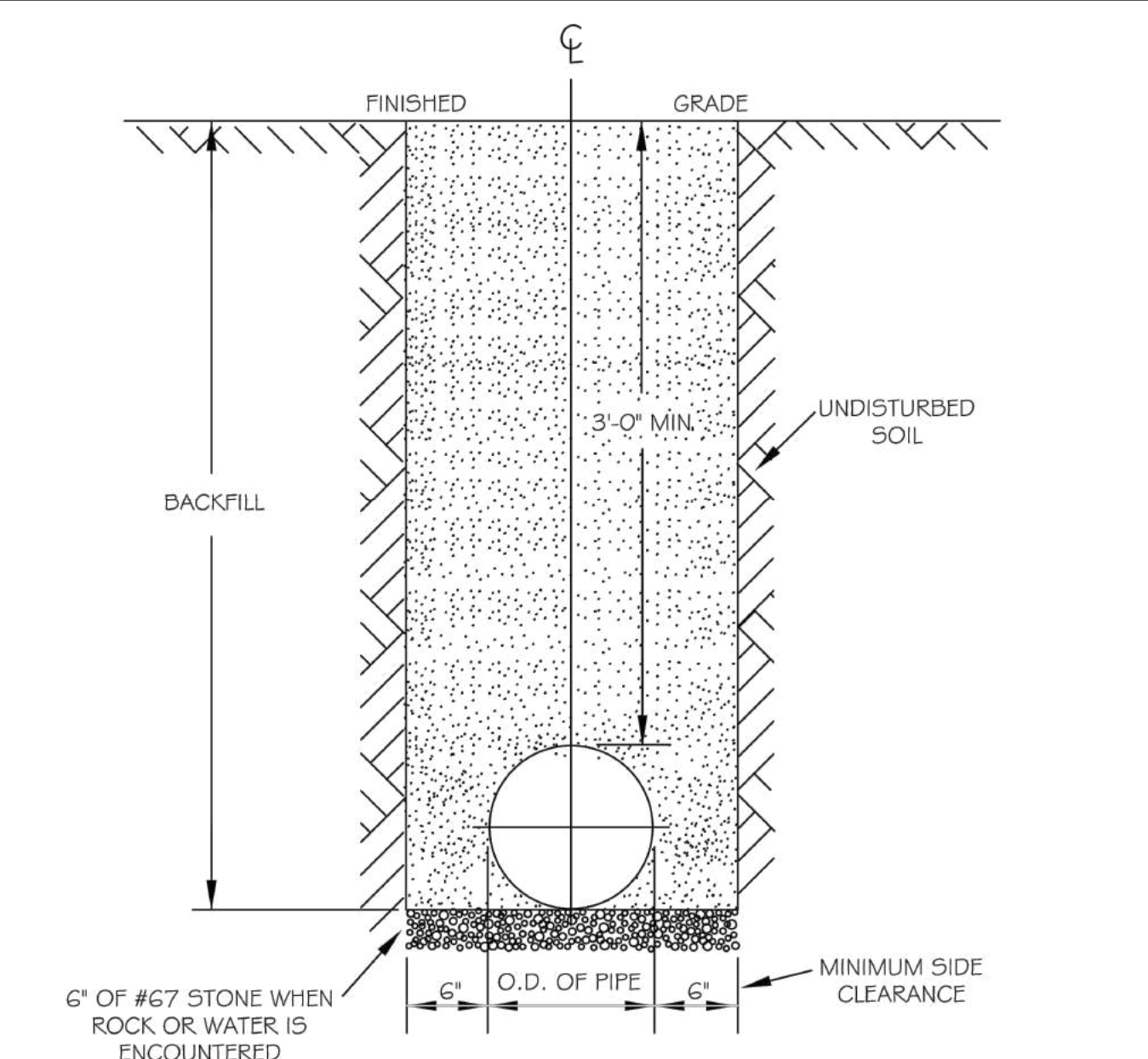
**CHANDLER'S RIDGE**  
CONSTRUCTION DOCUMENTS  
CONSERVATION SUBDIVISION

410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY



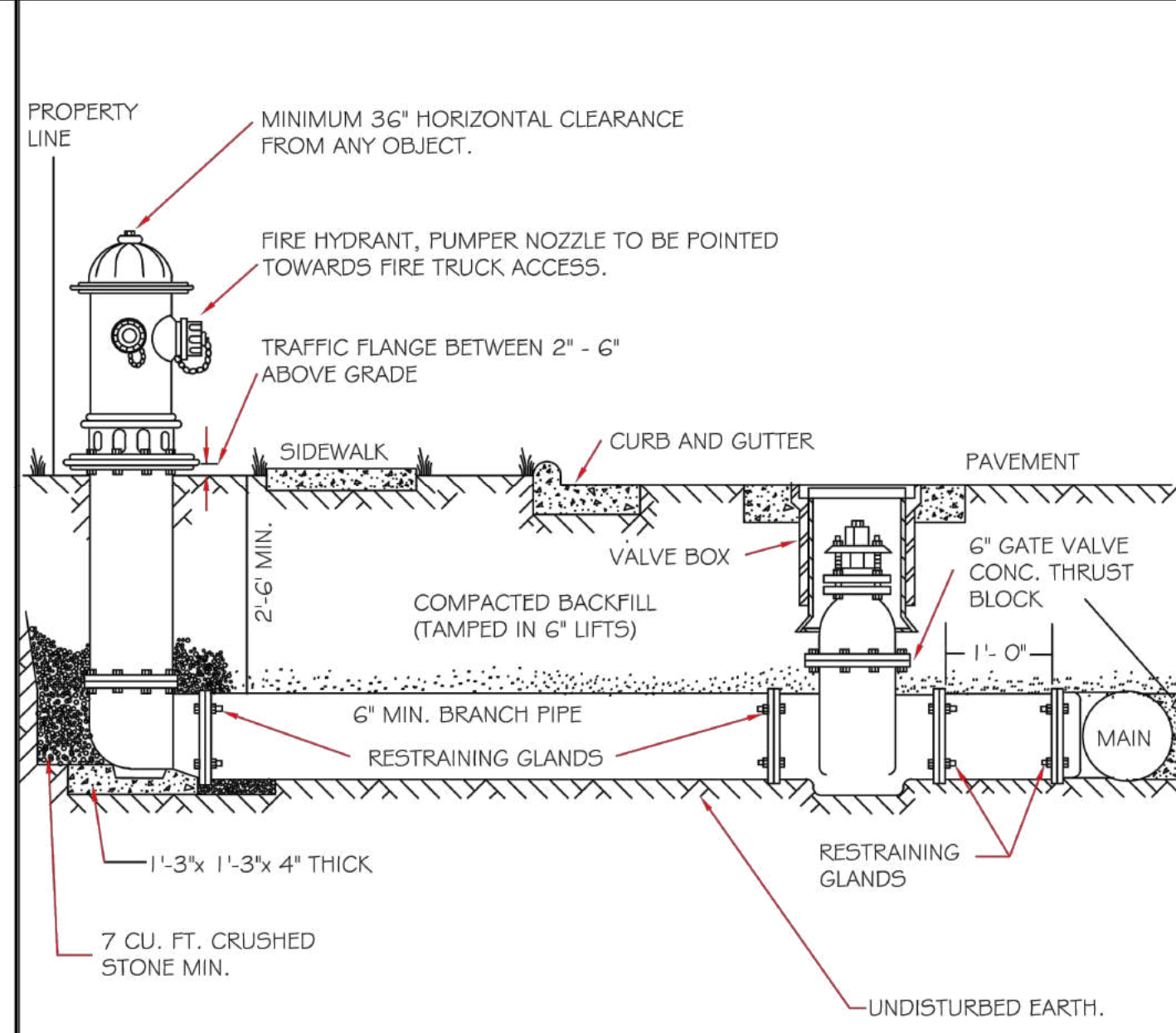
**Bateman Civil Survey Company**  
Engineers • Surveyors • Planners  
2524 Reliance Avenue, Apex, North Carolina 27539  
Phone: 919.577.1080 Fax: 919.577.1081  
NCBELS FRM No. C-2378





- 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 BACKFILL.
  - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
  - BACKFILL SHALL BE TAMPED IN 6" LIFTS.
  - ACHIEVE 95% COMPACTION IN BACKFILL.

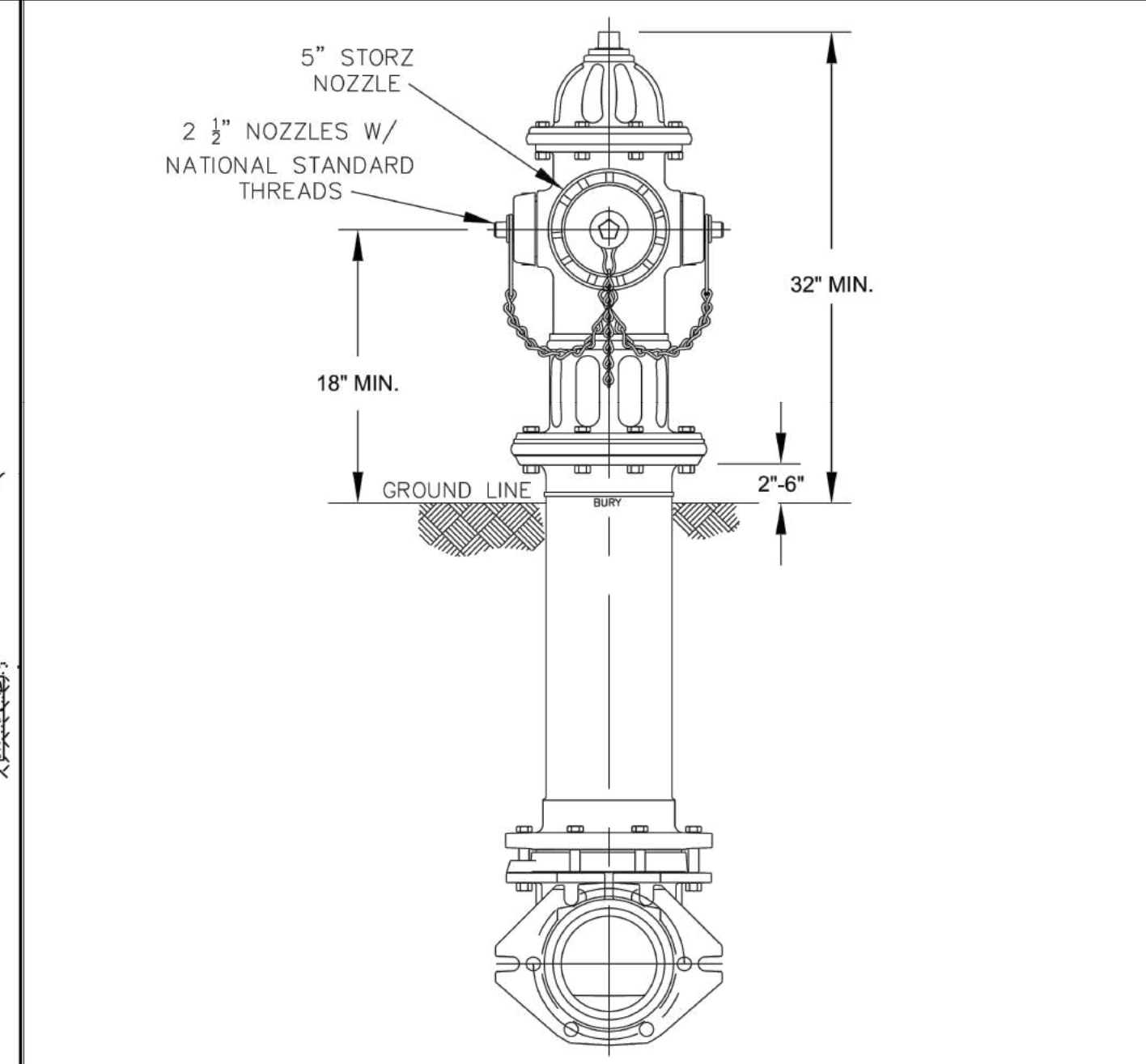
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3				
	D.W.C.	9-3-99	ABB	2-15-05
	RRH	3-31-00	J.P.S.	10-29-10



- NOTES:
- FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
  - BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
  - 6" GATE VALVE SHALL BE AWWA C500-96 OPEN LEFT
  - STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED
  - 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

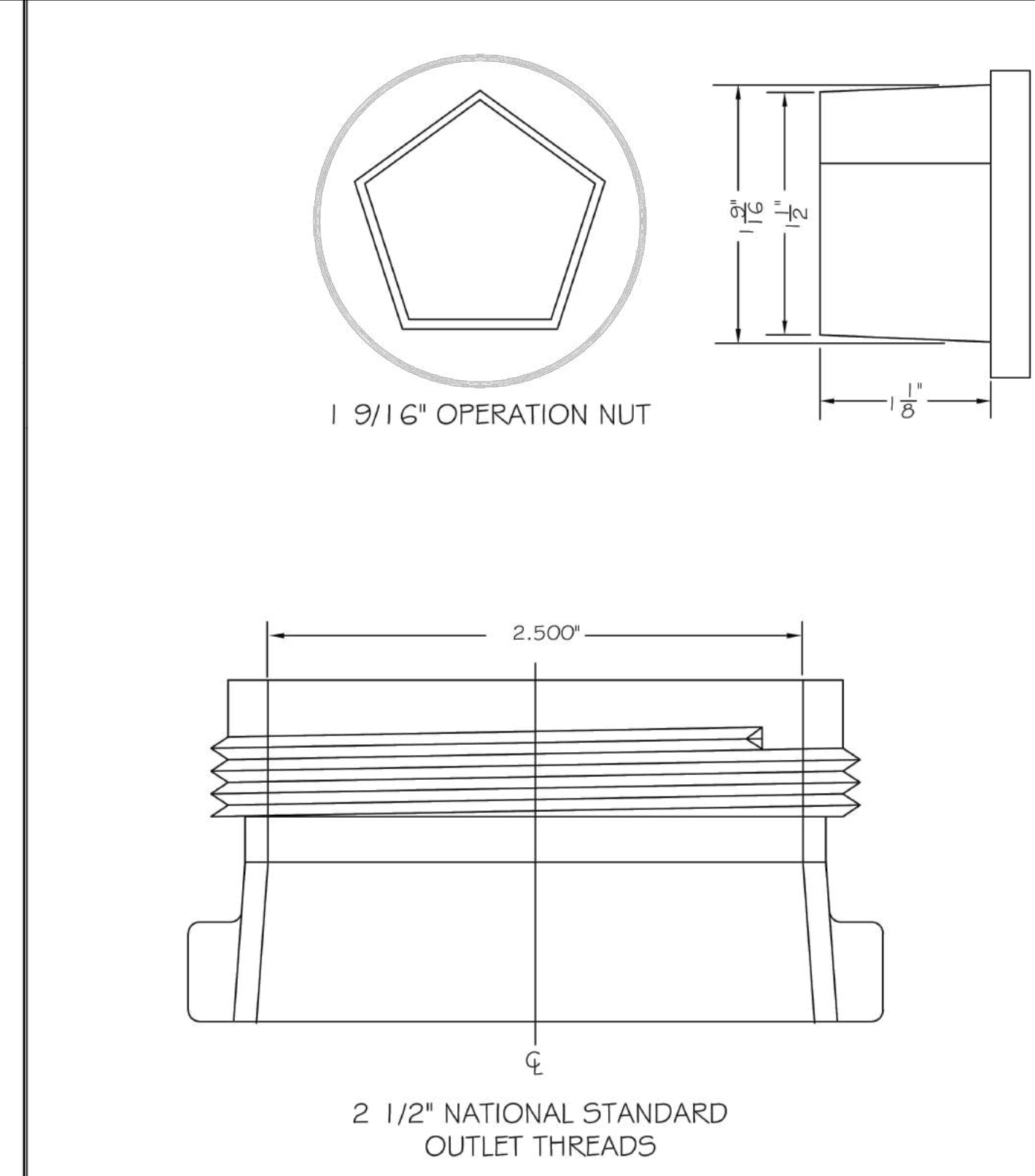
ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

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

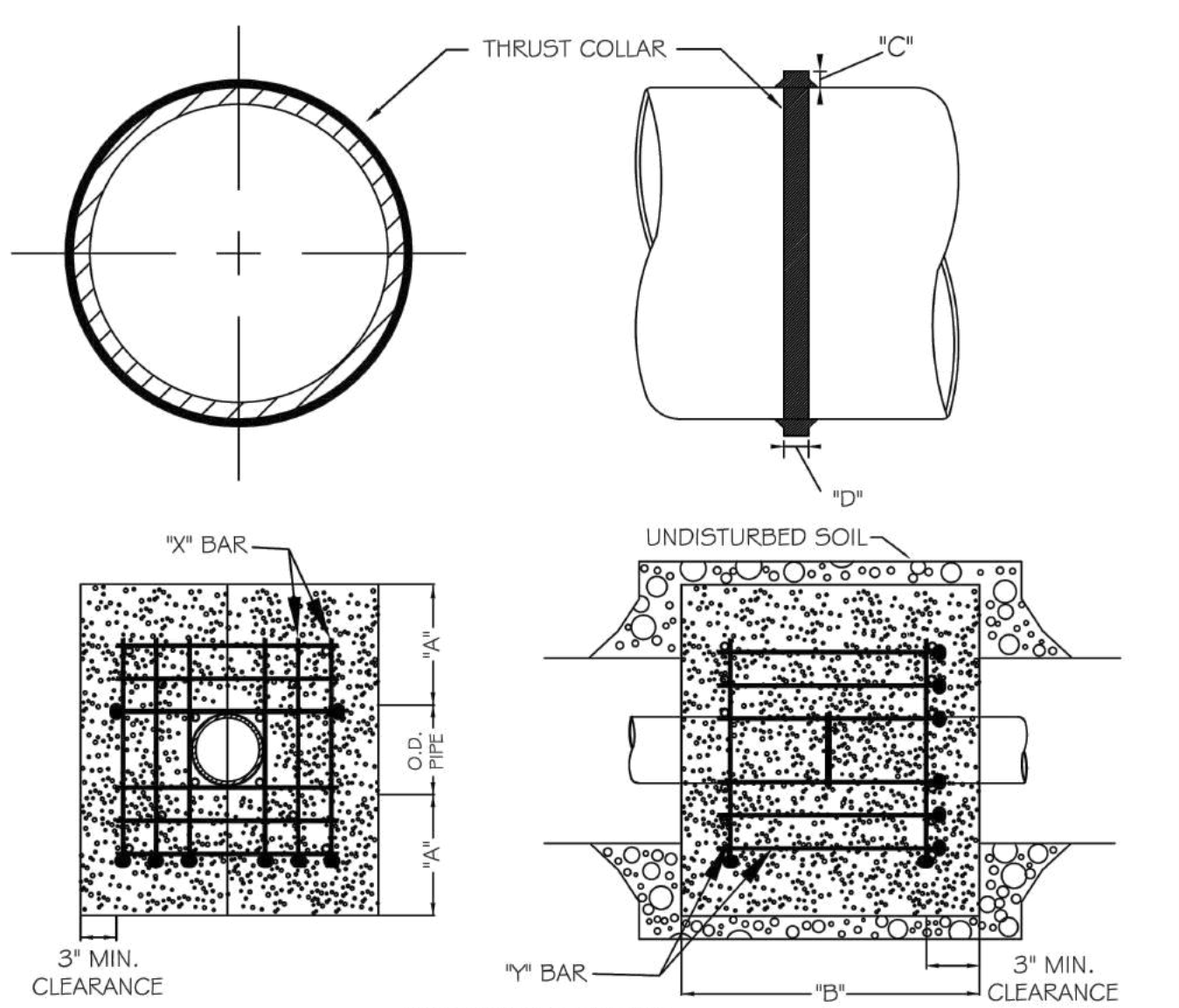


- NOTES:
- ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
  - ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

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		



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

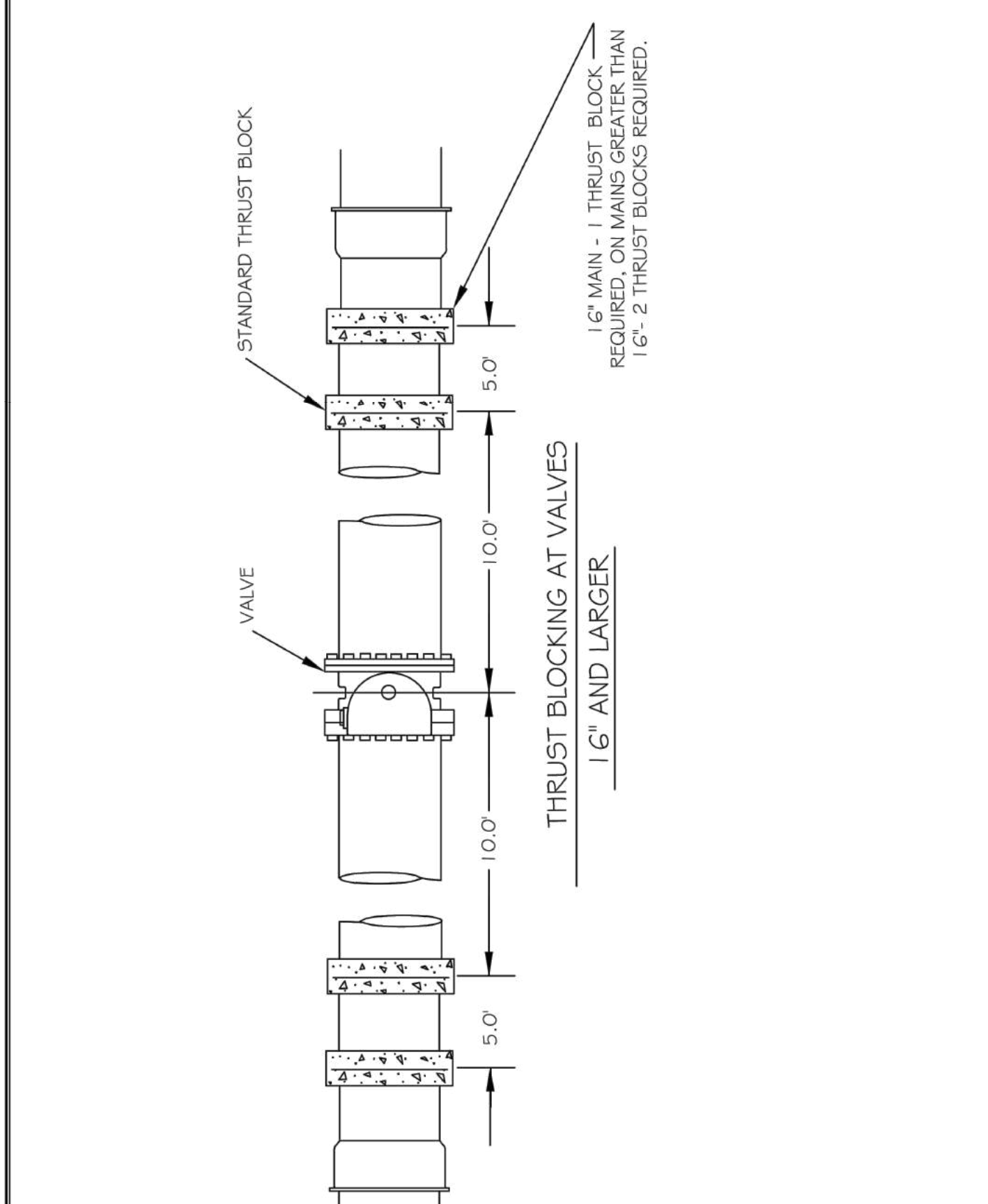


REINFORCING REQUIREMENTS					
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT
6" - 36"	#5	2'-2" O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH
48" & greater	#6	3'-0" O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH

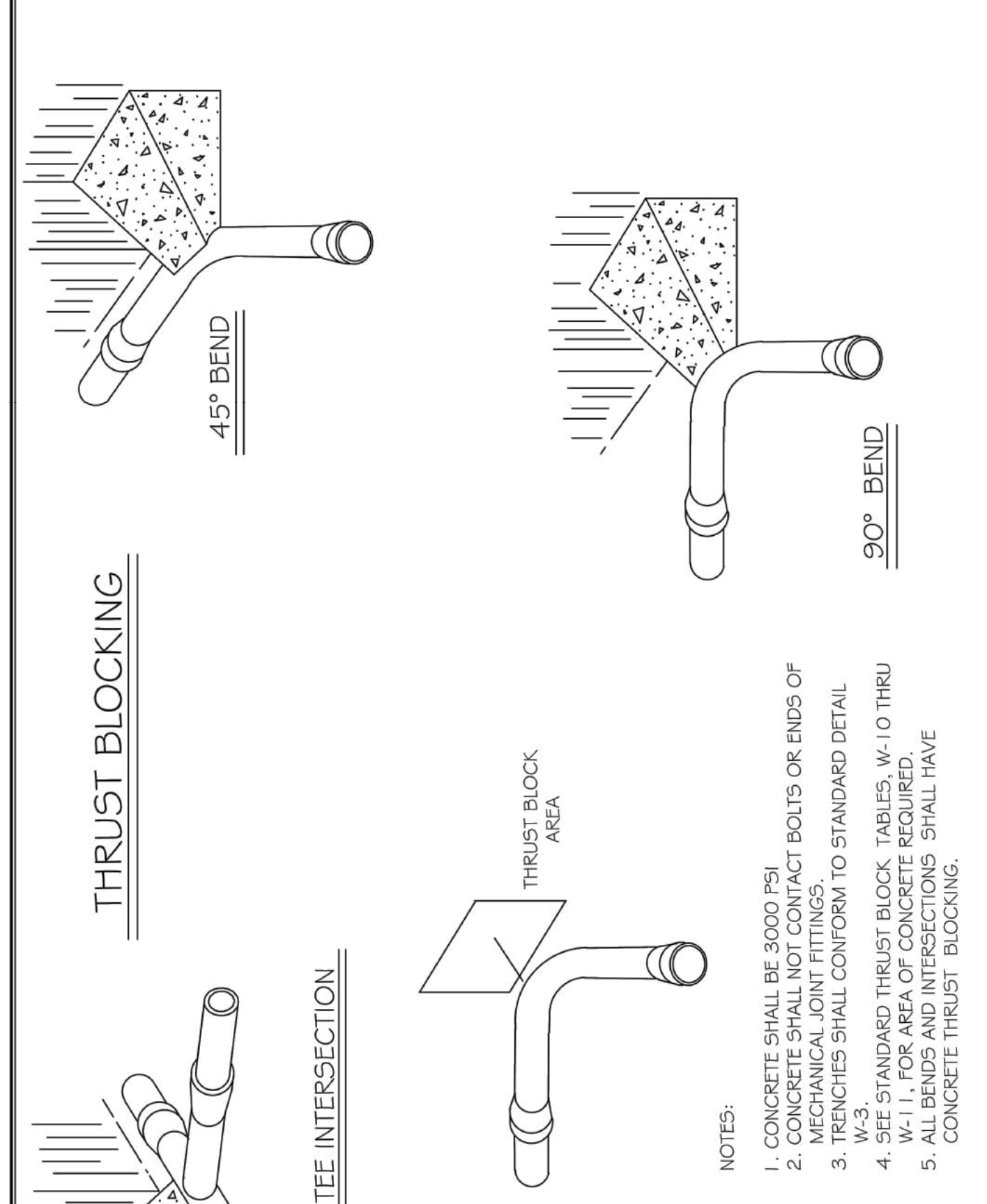
THRUST COLLAR, AND THRUST SCHEDULE					
I.D. PIPE	"A"	"B"	"C"	"D"	
6" - 16"	1'-4"	1'-7"	2"	3/8"	
20" - 24"	1'-4"	1'-7"	3"	1/2"	
30" - 36"	1'-4"	1'-7"	4"	5/8"	
48" & greater	1'-8"	1'-9"	6"	7/8"	

- NOTES:
- SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
  - 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.

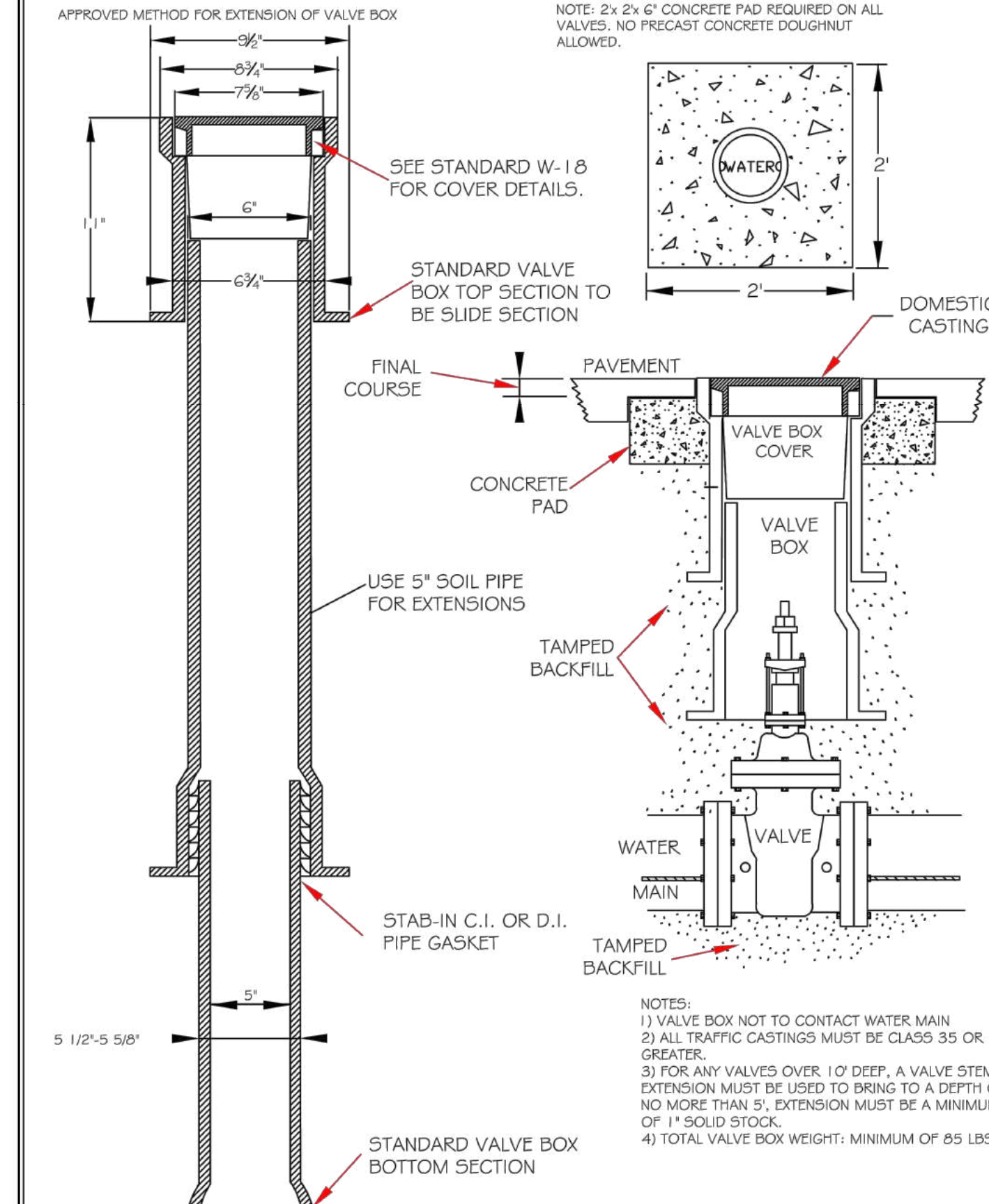
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
THRUST BLOCKING DESIGN DATA FOR WATER MAINS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7				
	RRH	9-7-99		
	D.H.L.	6-92		



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	6-92		



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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 NCBELS FRM 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:	09/08/2020
Project Number:	P170347

SHEET  
**C913**

P:\2017 Projects\170347 Chandler's Ridge\Eng\CAD\DWG\TP SHEET\W\_0910 UTILITY\_DETAILS.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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**  
 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 \_\_\_\_\_

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 400 LBS/FT <sup>2</sup>	SOFT CLAY 2000 LBS/FT <sup>2</sup>	1000 LBS/FT <sup>2</sup> COARSE SAND	800 LBS/FT <sup>2</sup> GRAVELLY SAND ALWAYS DRY	SAND, COMPACT FIRM 8000 LBS/FT <sup>2</sup>	SAND - CLEAN DRY 4000 LBS/FT <sup>2</sup>	SOIL 1000 LBS/FT <sup>2</sup> QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT <sup>2</sup>
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	

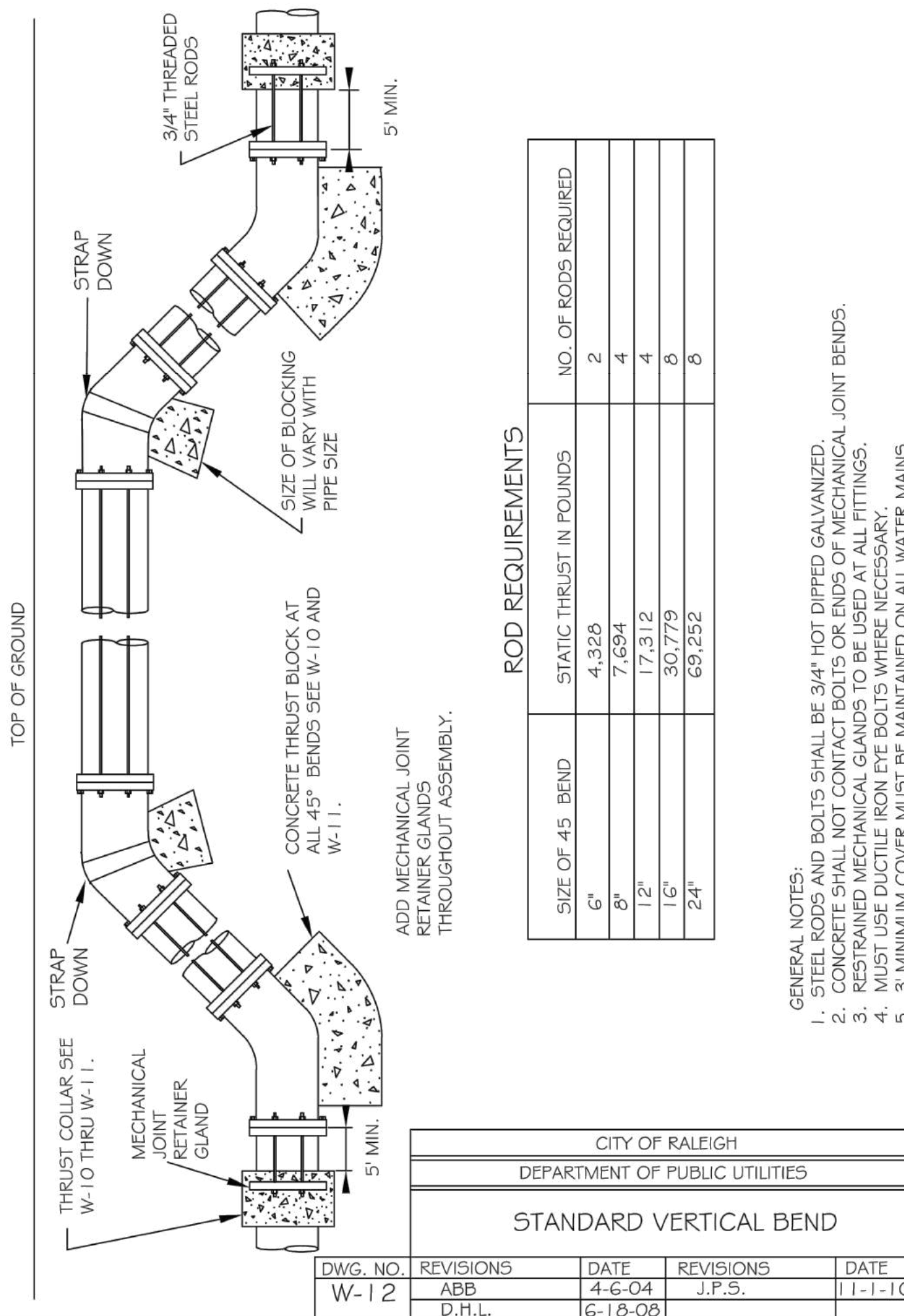
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
THRUST BLOCKING DESIGN QUANTITY TABLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

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

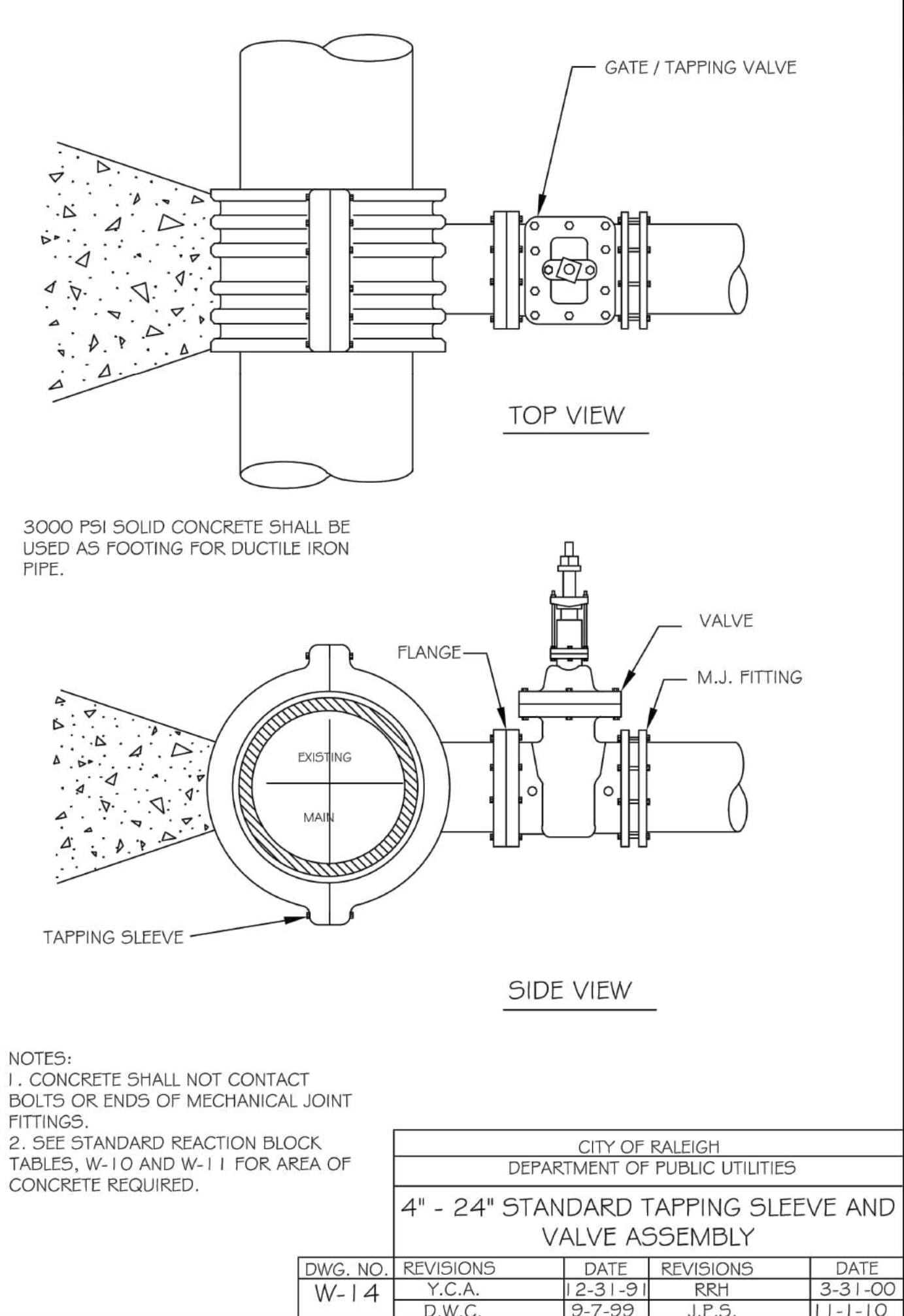
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 400 LBS/FT <sup>2</sup>	SOFT CLAY 2000 LBS/FT <sup>2</sup>	1000 LBS/FT <sup>2</sup> GRAVELLY SAND	800 LBS/FT <sup>2</sup> ALWAYS DRY	SAND, COMPACT FIRM 8000 LBS/FT <sup>2</sup>	SAND - CLEAN DRY 4000 LBS/FT <sup>2</sup>	SOIL 1000 LBS/FT <sup>2</sup> QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT <sup>2</sup>
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

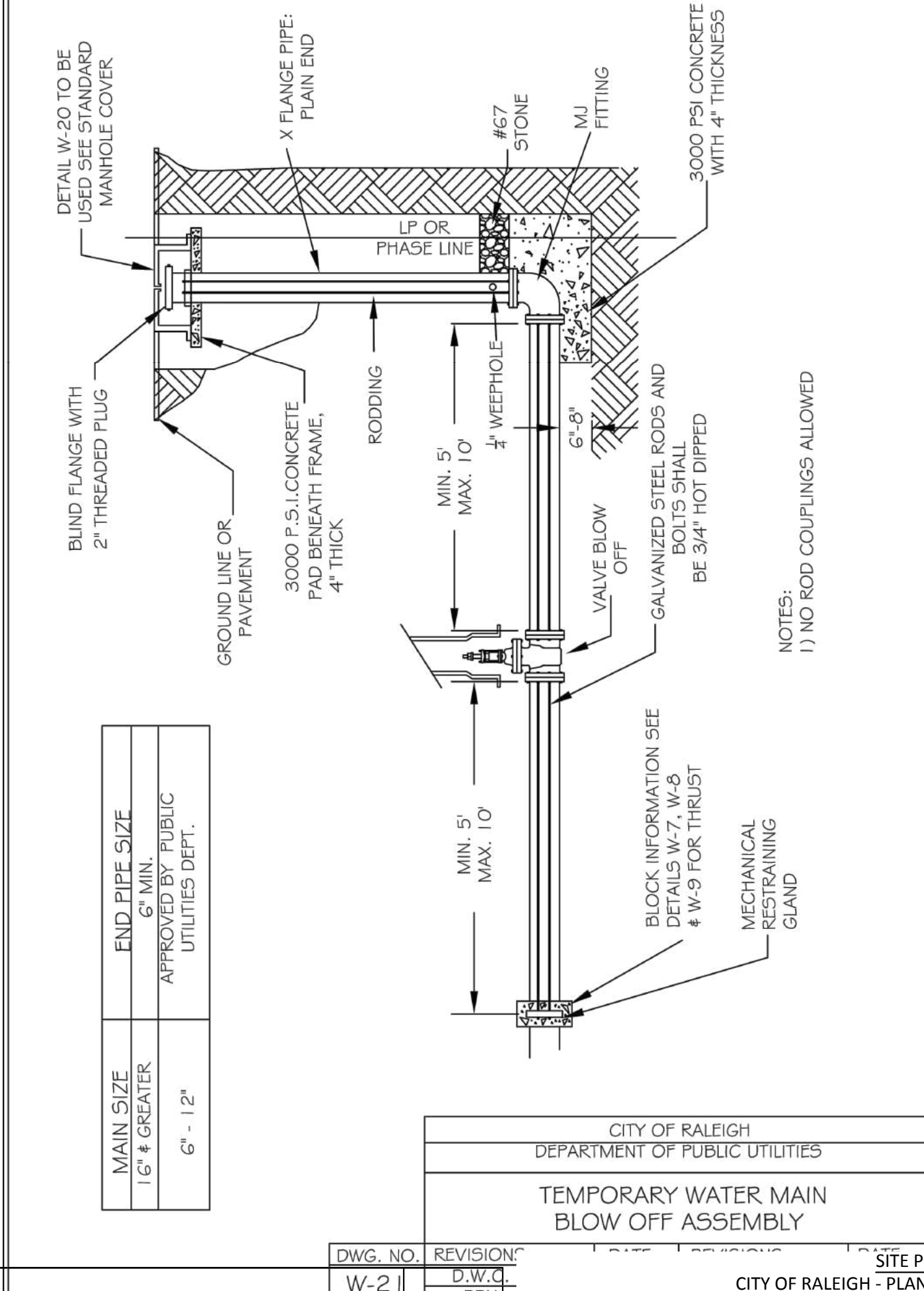
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
THRUST BLOCKING DESIGN QUANTITY TABLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-11	D.W.C.	6-23-99		



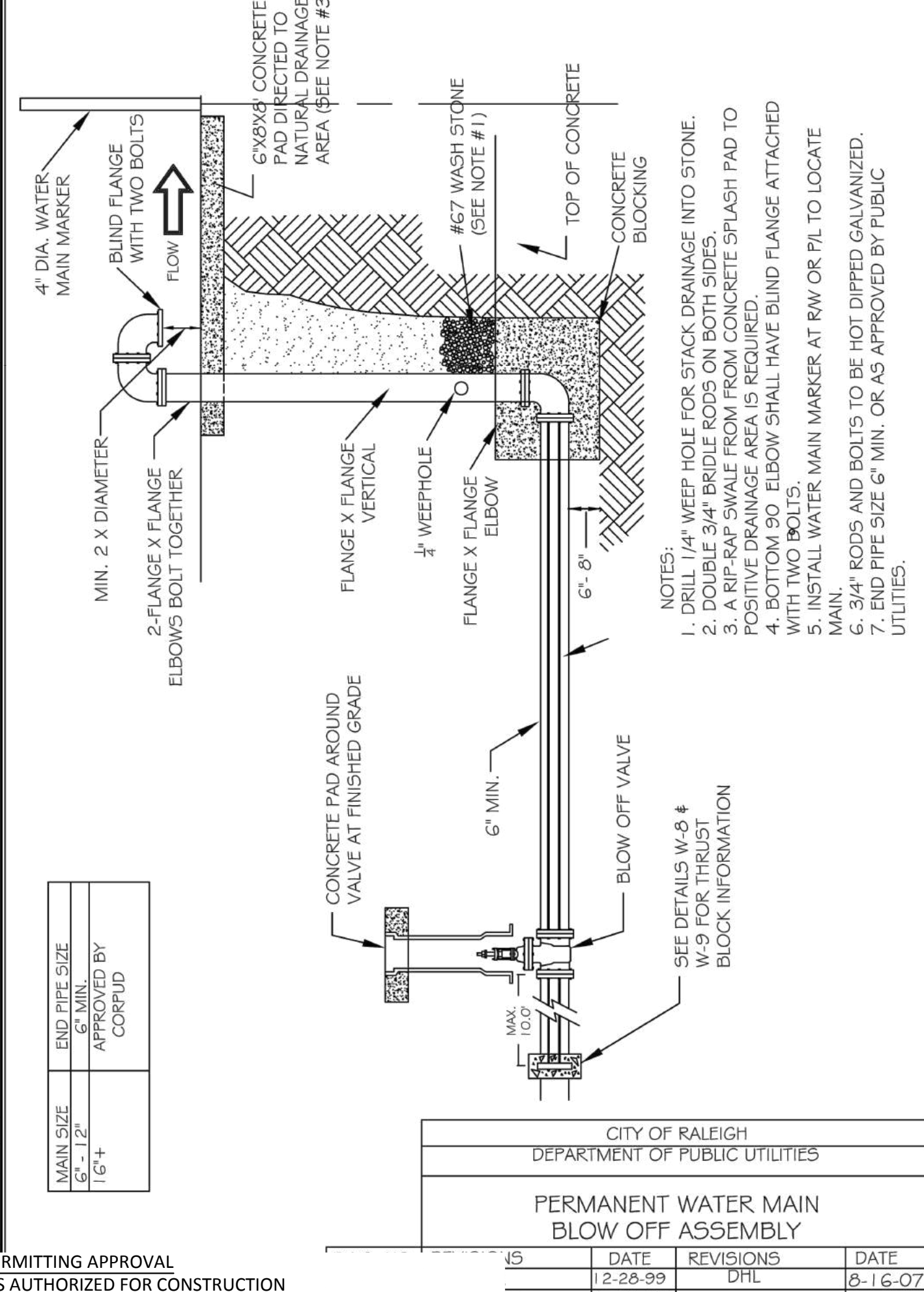
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
STANDARD VERTICAL BEND				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	ABB	4-6-04	J.P.S.	11-1-10
	D.H.L.	6-18-08		



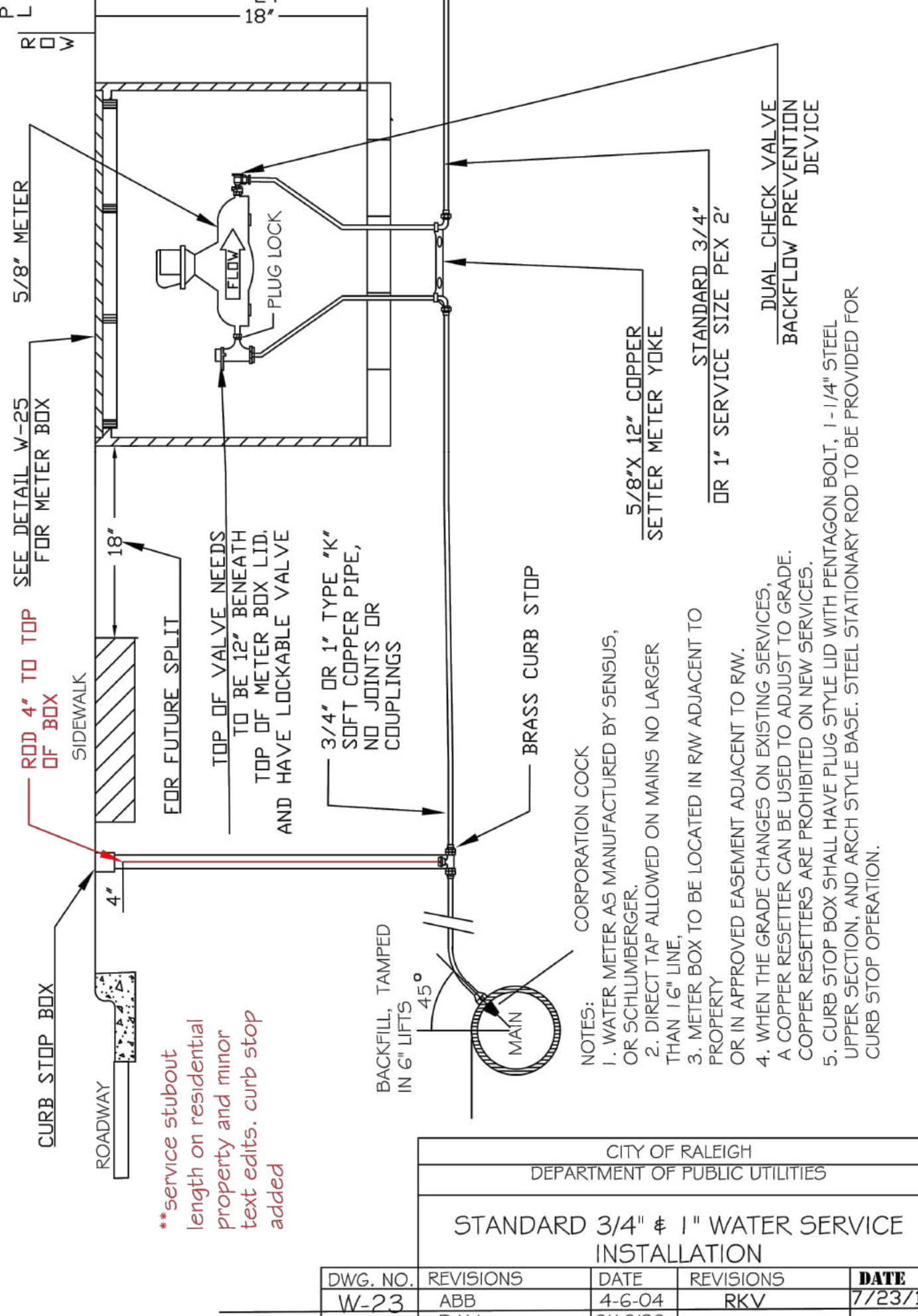
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
4\"/>				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	12-31-91	RRH	3-31-00
	D.W.C.	9-7-99	J.P.S.	11-1-10



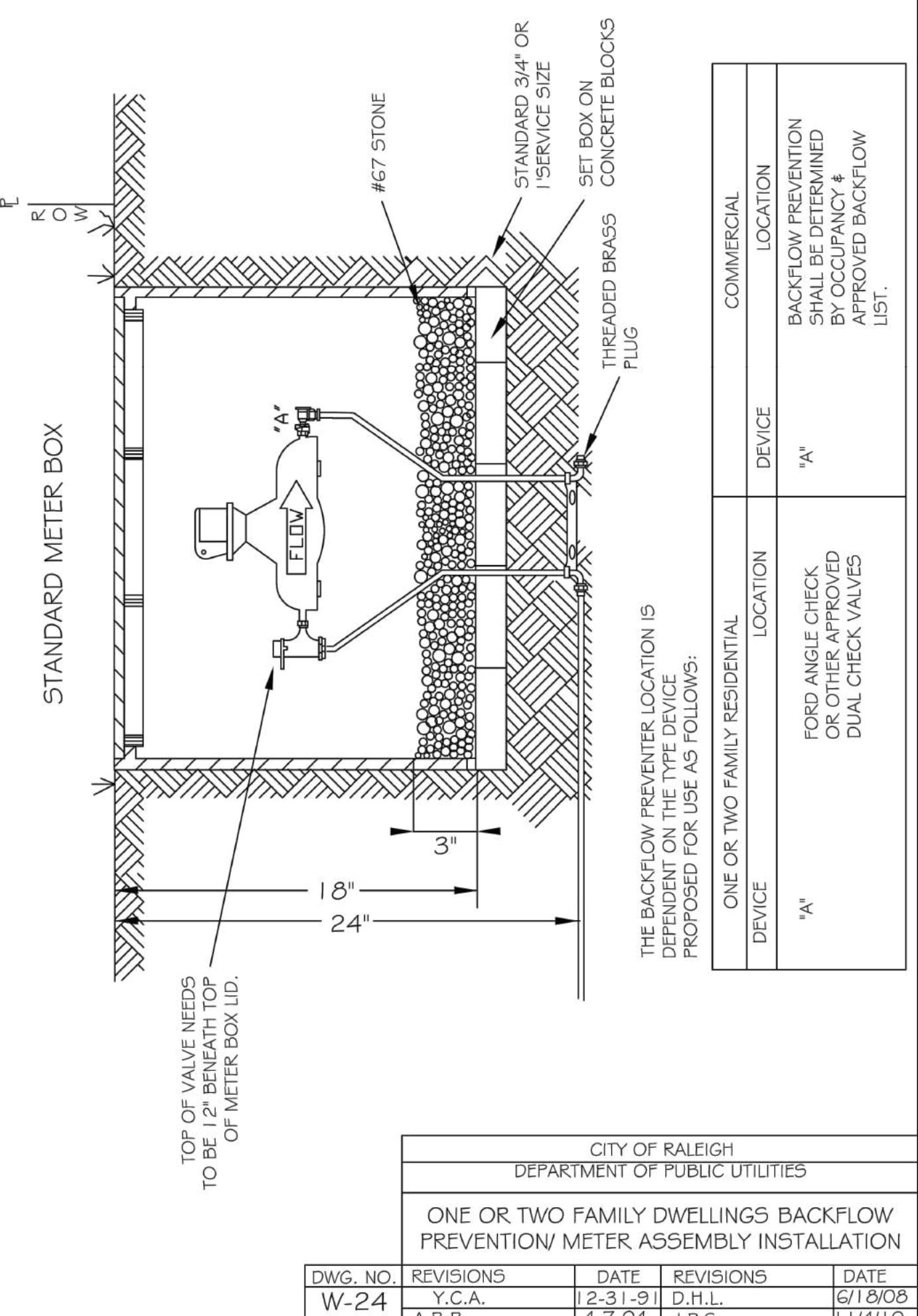
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	D.W.C.	6-23-99		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
PERMANENT WATER MAIN BLOW OFF ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-22	ABB	4-6-04	RKV	7/23/13
	D.H.L.	6/18/08		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
STANDARD 3/4\"/>				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-23	ABB	4-6-04	RKV	7/23/13
	D.H.L.	6/18/08		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES		
ONE OR TWO FAMILY DWELLINGS BACKFLOW PREVENTION/ METER ASSEMBLY INSTALLATION				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-24	Y.C.A.	12-31-91	D.H.L.	6/18/08
	A.B.B.	4-7-04	J.P.S.	11/4/10



**Bateman Civil Survey Company**  
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NCBBS 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:	09/08/2020
Project Number:	P170347
SHEET	
C914	

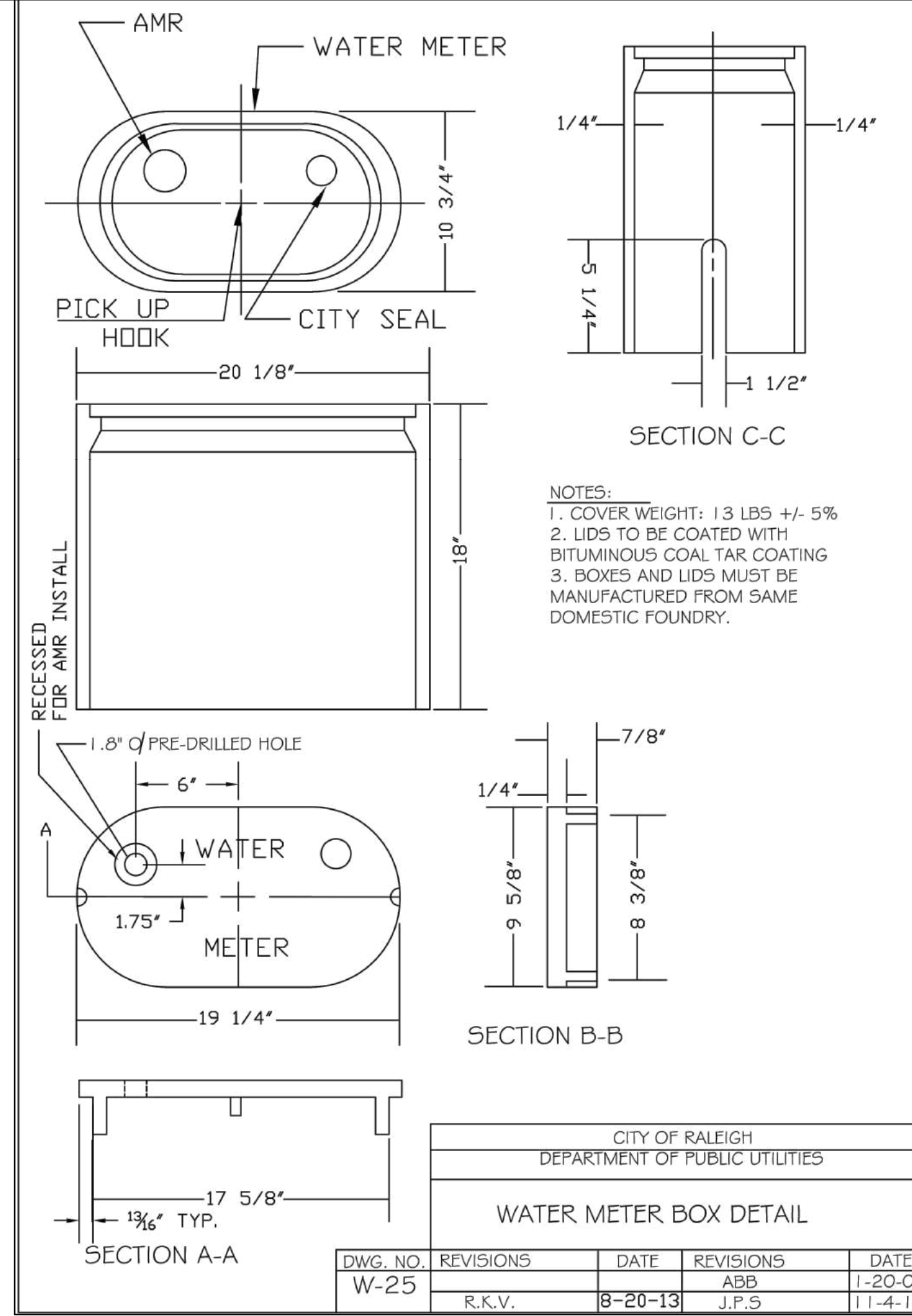
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REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	

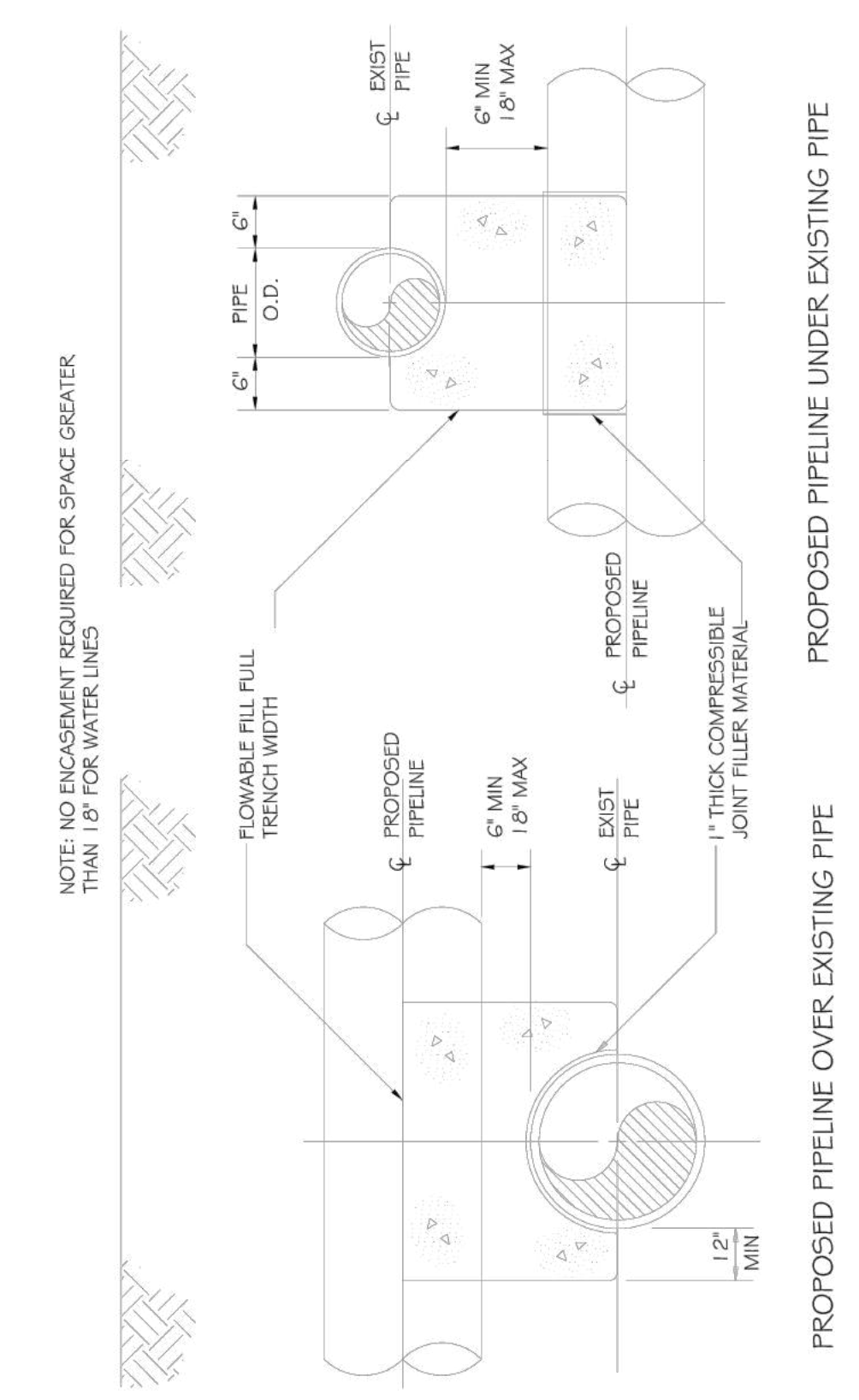
**SITE PERMITTING APPROVAL**  
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25				
	R.K.V.	8-20-13	J.P.S.	11-4-10



DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41				
	DHL	2-20-08		



**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

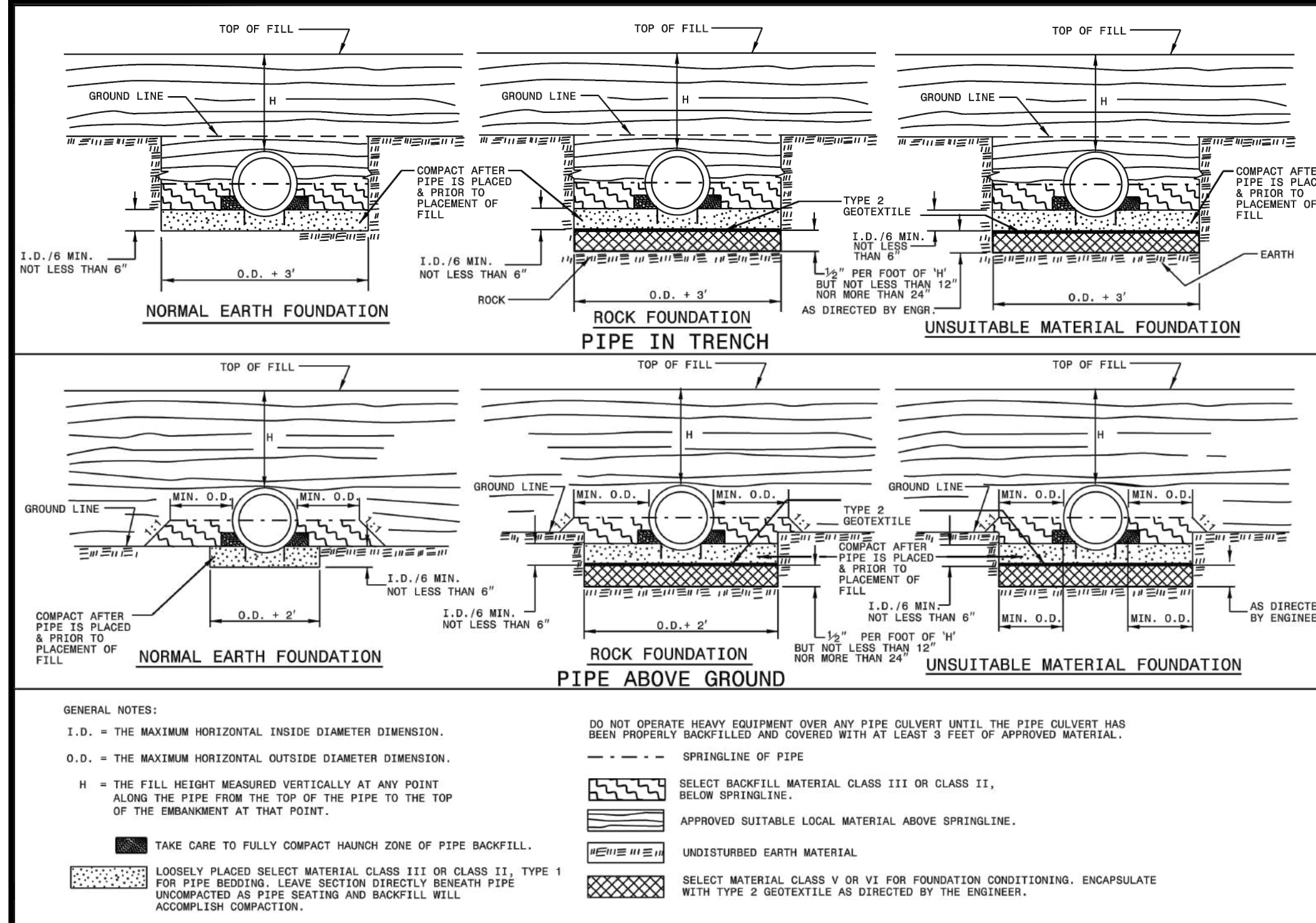
410 W. YOUNG ST.  
ROLESVILLE, NC  
WAKE COUNTY

**CITY OF RALEIGH**  
WATER DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C915**



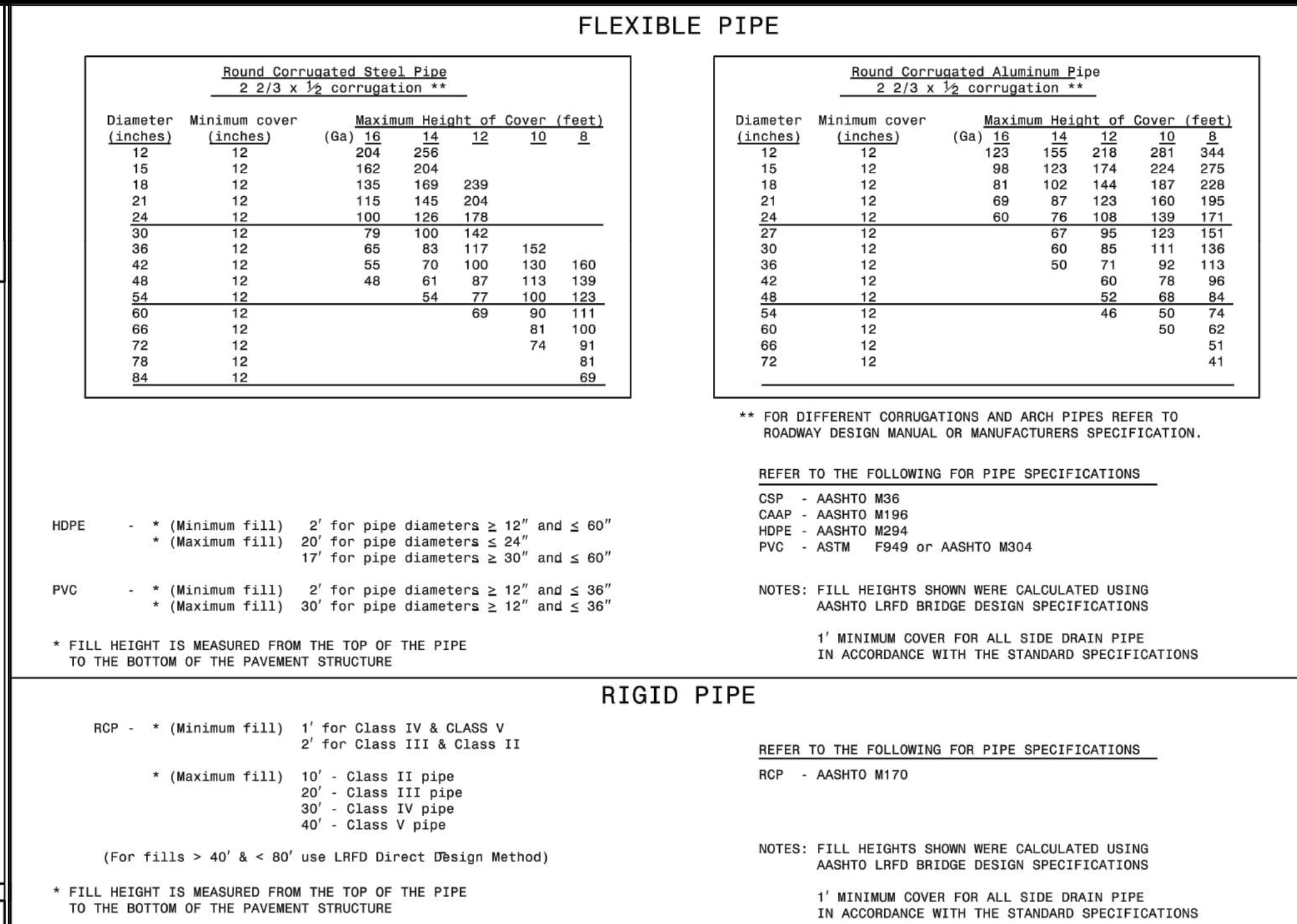


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**METHOD OF PIPE INSTALLATION**

RIGID PIPE

SHEET 2 OF 3  
**300.01**

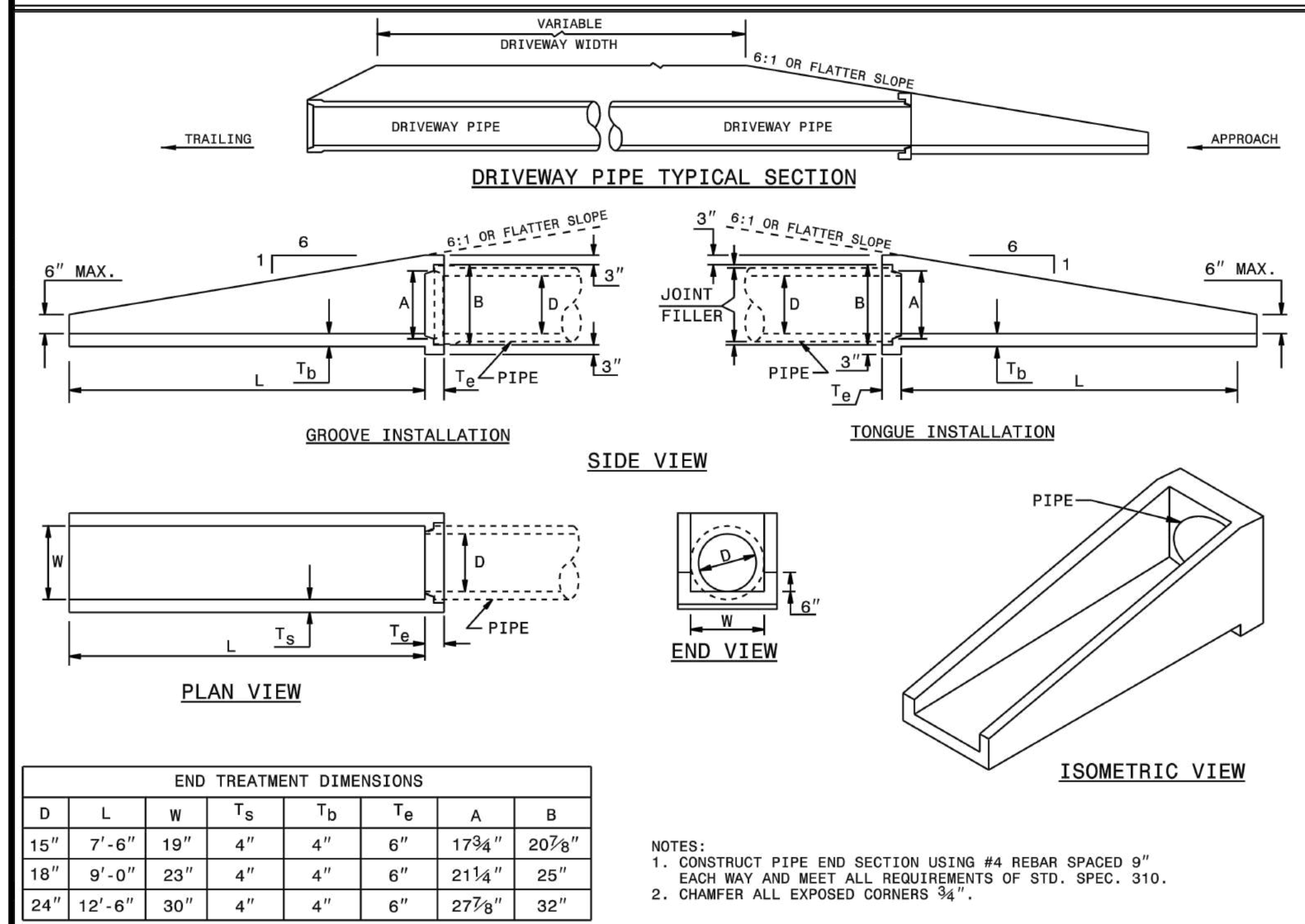


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**METHOD OF PIPE INSTALLATION**

FILL HEIGHT TABLES

SHEET 3 OF 3  
**300.01**

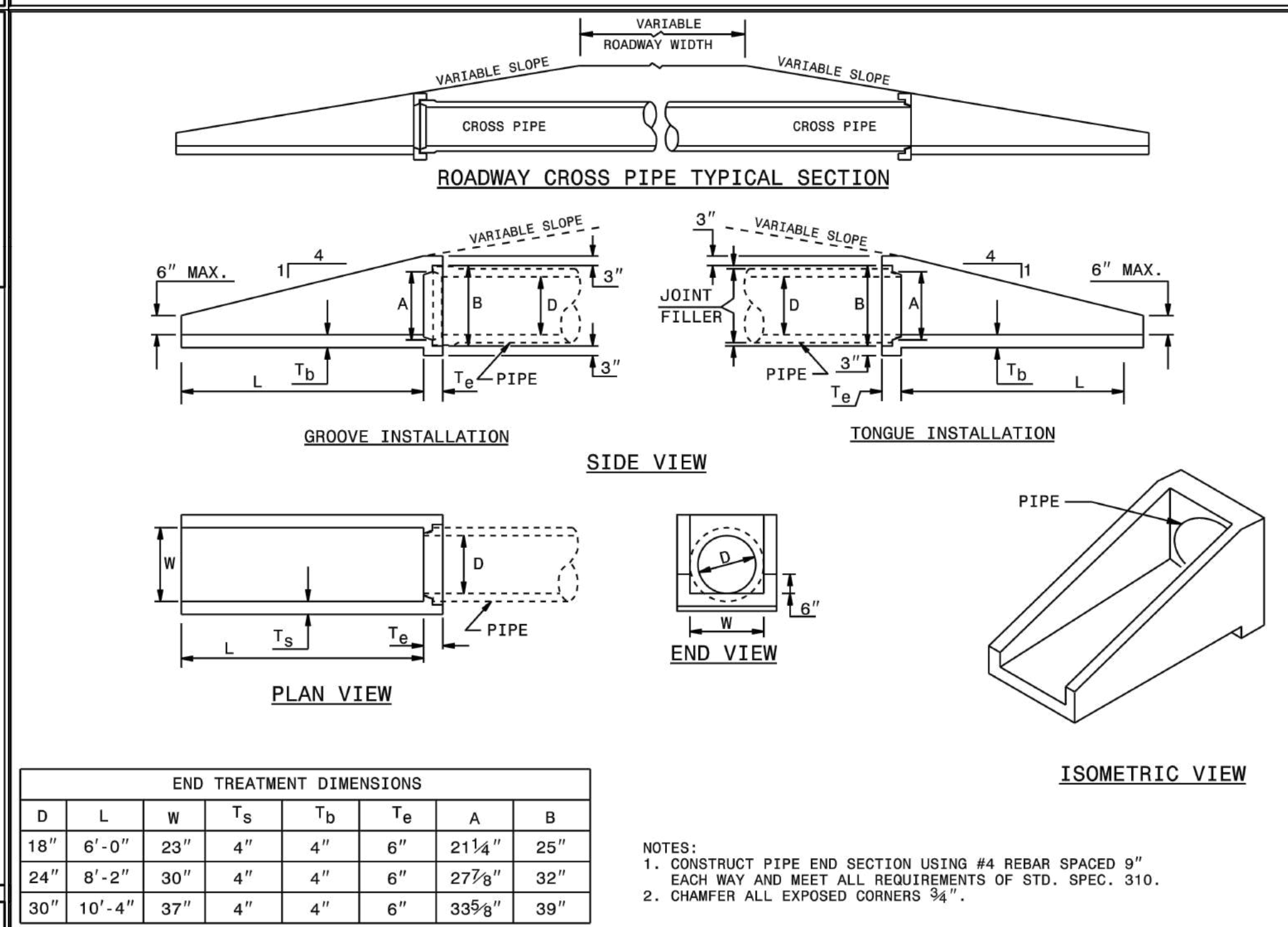


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**PARALLEL PIPE END SECTION**

PRECAST CONCRETE SECTION FOR 15" TO 24" PIPE

SHEET 1 OF 1  
**310.02**

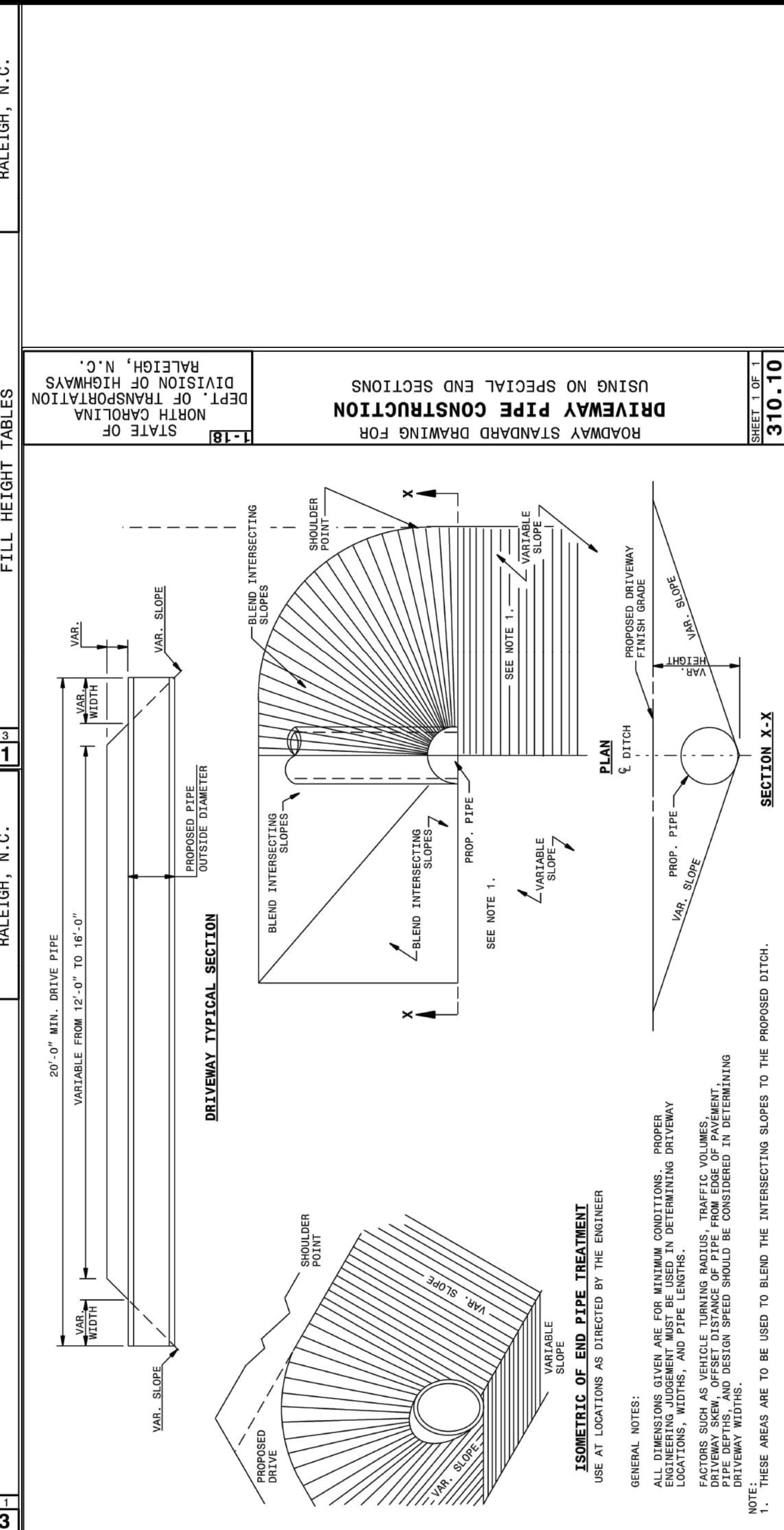


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**CROSS PIPE END SECTION**

PRECAST CONCRETE SECTION FOR 18" TO 30" PIPE

SHEET 1 OF 1  
**310.03**



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

ROADWAY STANDARD DRAWING FOR  
**DRIVEAWAY PIPE CONSTRUCTION**

USING NO SPECIAL END SECTIONS

SHEET 1 OF 1  
**310.10**

**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

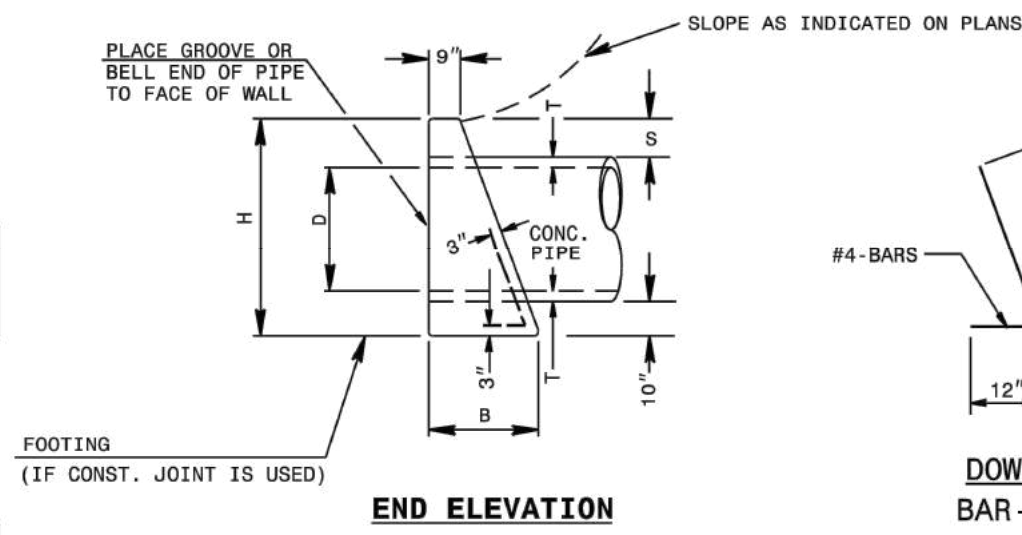
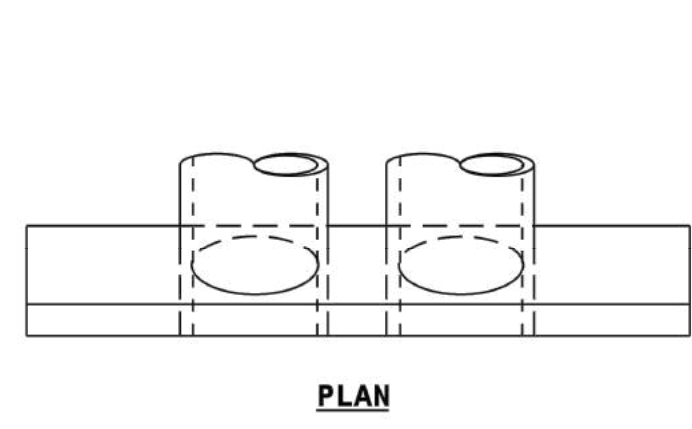
**CHANDLER'S RIDGE CONSTRUCTION DOCUMENTS CONSERVATION SUBDIVISION**

**STORMWATER DETAILS**

Project Engineer: TSS  
Designed By: TEP  
Drawn By: TEP  
Checked By: TSS  
Scale:  
Date: 09/08/2020  
Project Number: P170347

SHEET  
**C920**

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
	REVISIONS	



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	1	2	2
G QTY.	2	2	3	3	4	4	4	4	5
TOTAL LBS.	9	9	14	14	19	55	65	12	12

DIMENSIONS AND CONCRETE QUANTITIES											
USING CONCRETE PIPE											
D	H	COMMON DIMENSIONS			SINGLE PIPE			DOUBLE PIPE			YD <sup>3</sup>
		B	G	T	S	L	M	L	YD <sup>3</sup>		
15"	3'-3"	1'-8"	2'-9"	2'-14"	9 1/2"	5'-6"	0.7	2'-2"	7'-8"	1.0	
18"	3'-7"	1'-10"	3'-2"	2'-12"	10"	6'-4"	1.0	2'-7"	8'-11"	1.3	
24"	4'-2"	2'-1"	4'-0"	3'	10"	8'-0"	1.5	3'-5"	11'-5"	2.0	
30"	5'-0"	2'-6"	4'-7"	4'-4"	11 1/2"	9'-2"	2.3	4'-3"	13'-5"	3.1	
36"	5'-8"	2'-8"	5'-6"	4'-4"	11 1/2"	11'-0"	3.4	5'-0"	16'-0"	4.5	
42"	6'-2"	3'-1"	6'-4"	5'-4"	11 1/2"	12'-8"	4.5	5'-10"	18'-6"	6.0	
48"	6'-9"	3'-5"	7'-2"	5'-4"	11 1/2"	14'-4"	6.0	6'-6"	21'-0"	8.0	

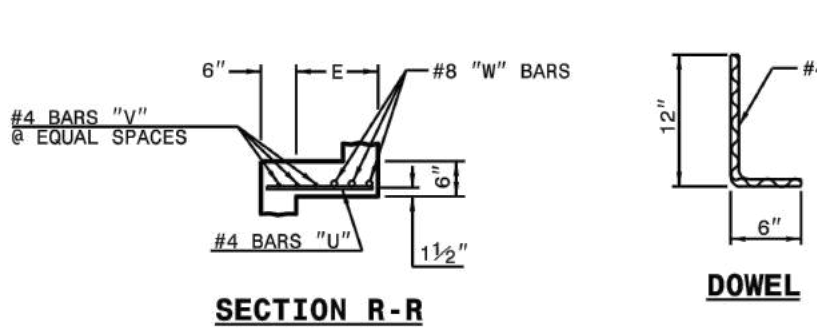
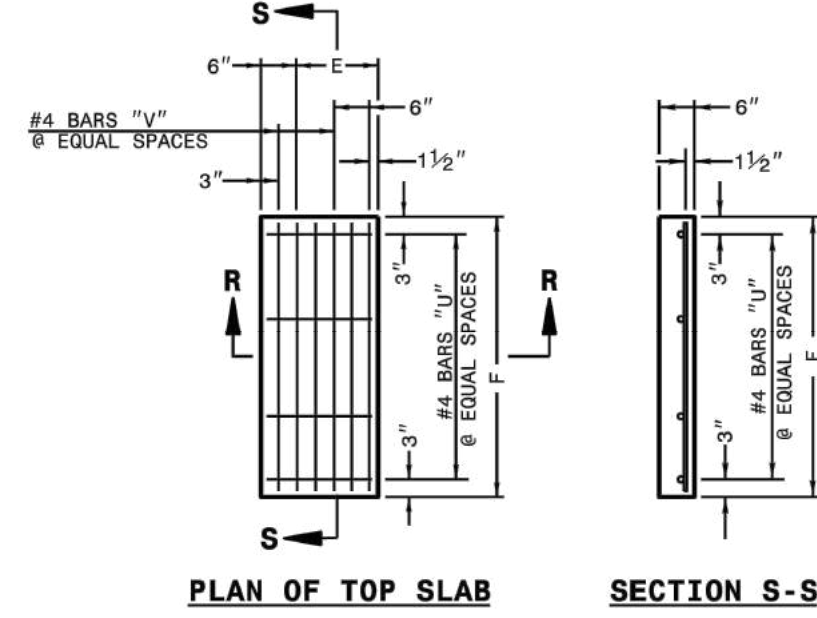
\*SEE SHEET 3

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 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) *																	
PIPE DIA.	SPAN	WIDTH	MIN. HEIGHT	COVER DIMENSION			BARS-U	BARS-V	BARS-W	TOTAL	DU. YDS. CONC. IN BOX	DEDUCTIONS ONE PIPE					
				E	F	G							NO.	LENGTH	NO.	LENGTH	NO.
12"	3'-0"	2'-2"	2'-0"	2'-0"	-	-	-	-	-	-	0.235	0.772	0.015	0.058			
15"	3'-0"	2'-2"	2'-0"	3'-0"	-	-	-	-	-	-	0.235	0.829	0.023	0.036			
18"	3'-0"	2'-2"	2'-0"	3'-3"	-	-	-	-	-	-	0.235	0.887	0.033	0.049			
24"	3'-0"	2'-2"	2'-0"	3'-9"	-	-	-	-	-	-	0.235	1.001	0.059	0.085			
30"	3'-0"	2'-2"	2'-0"	4'-3"	1'-2"	4'-0"	4	1'-8"	2	3'-9"	39	0.123	0.321	1.433	0.092	0.127	
36"	3'-0"	2'-2"	2'-0"	4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	0.181	0.358	1.714	0.132	0.178	
42"	3'-0"	2'-2"	2'-0"	4'-5"	5'-3"	1'-5"	3'-2"	4	1'-8"	2	2'-11"	3	0.112	0.318	1.738	0.160	0.243
48"	3'-0"	2'-2"	2'-0"	5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	0.140	0.382	2.092	0.235	0.317
54"	3'-0"	2'-2"	2'-0"	5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	0.180	0.386	2.387	0.297	0.401

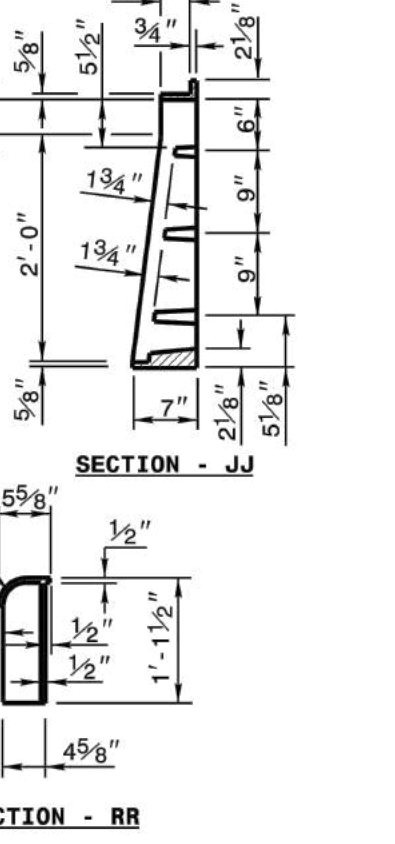
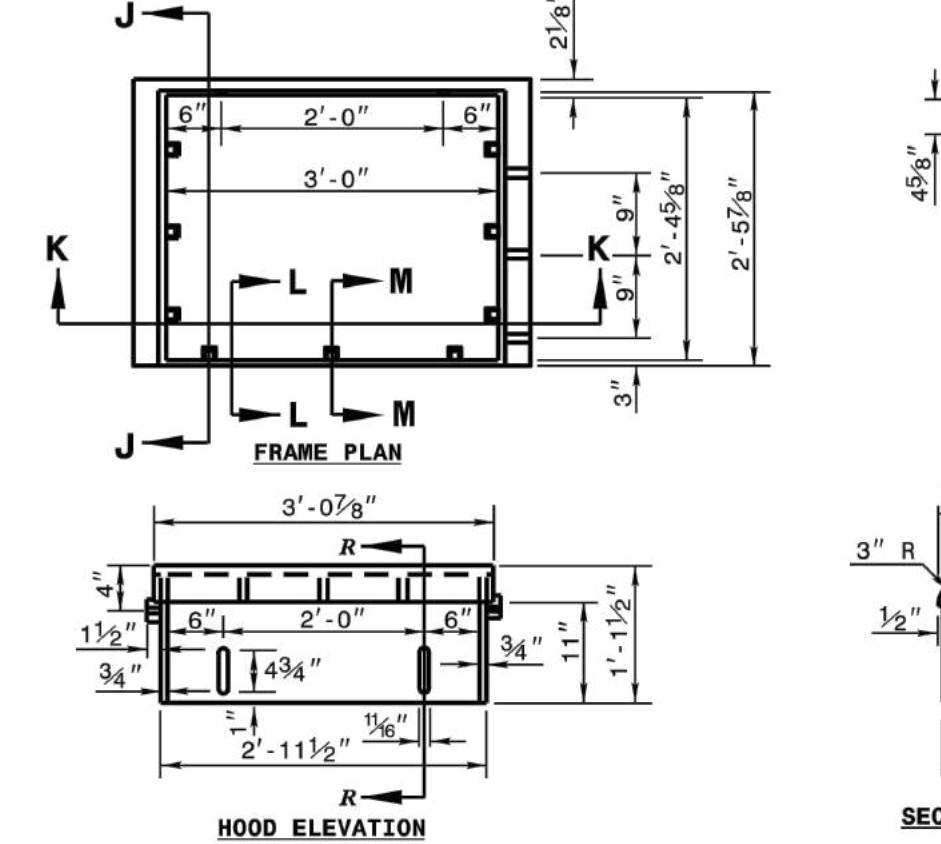
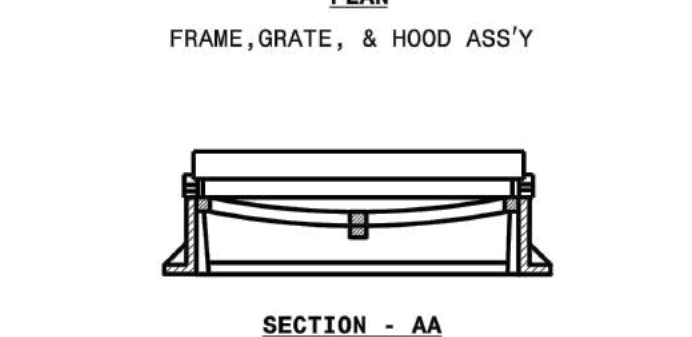
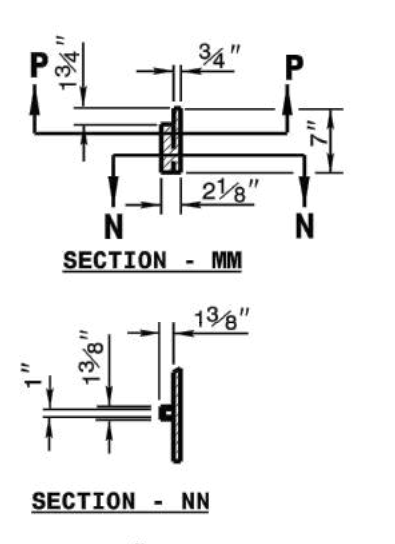
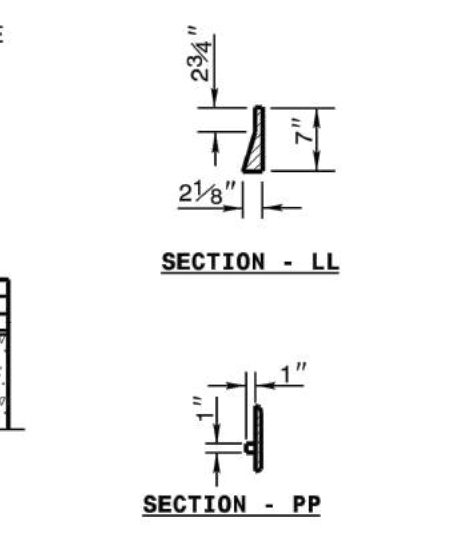
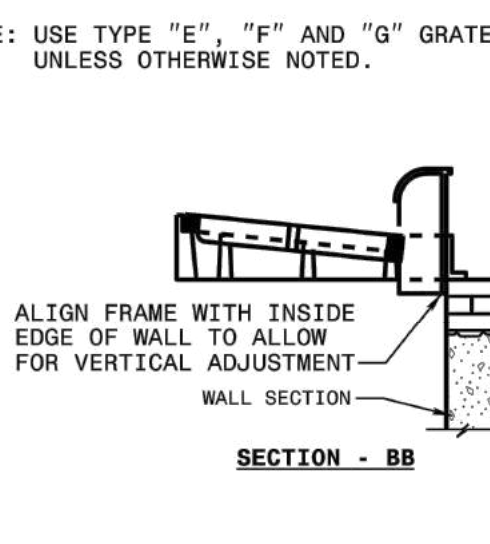
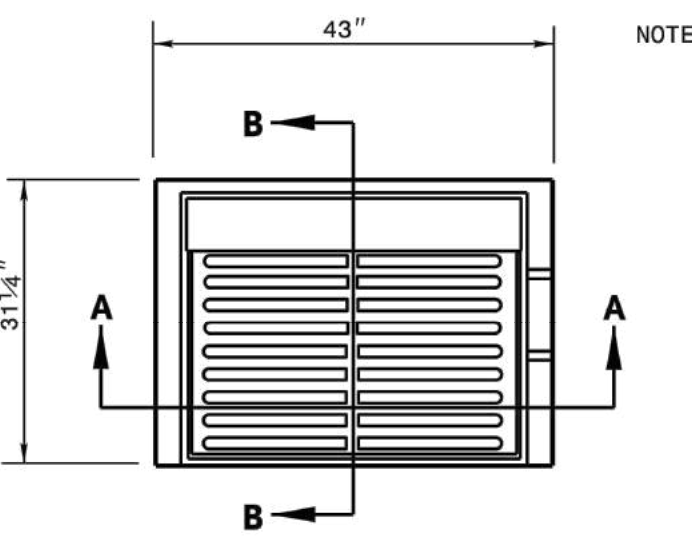
\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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

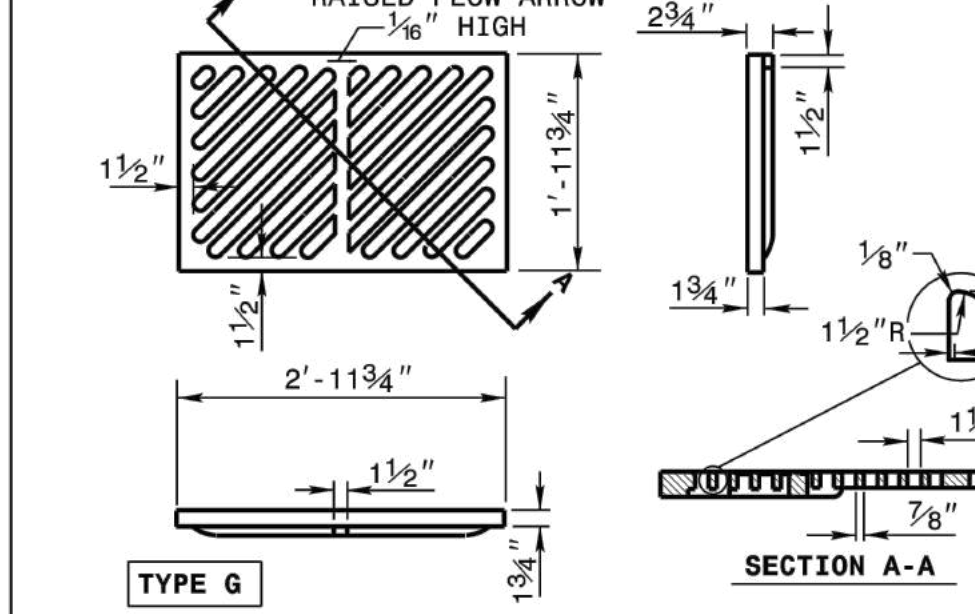
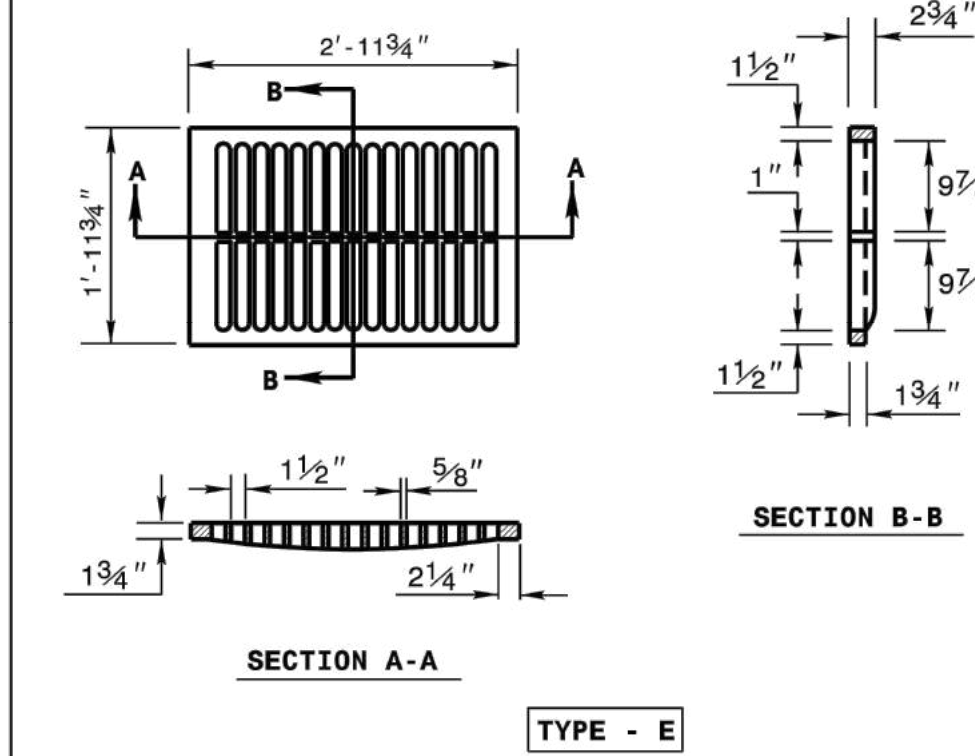
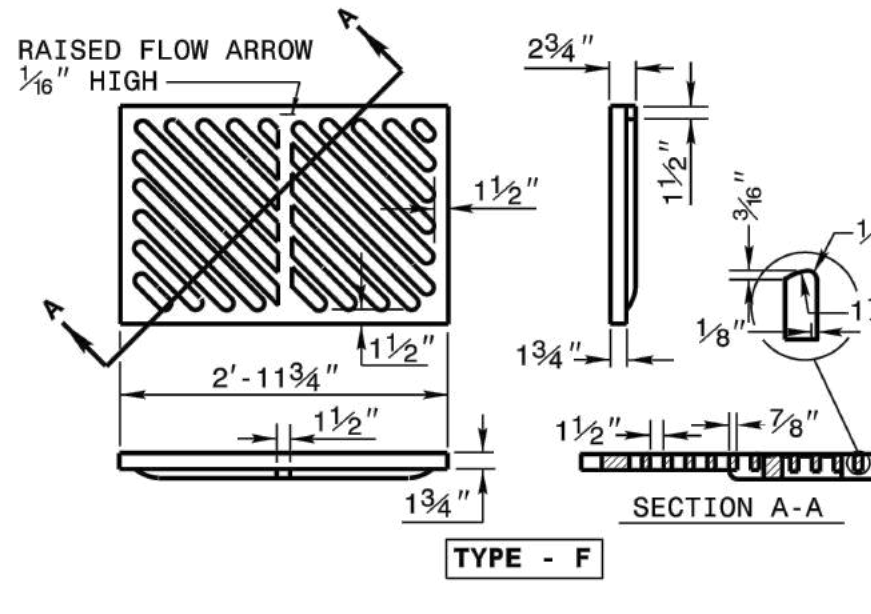
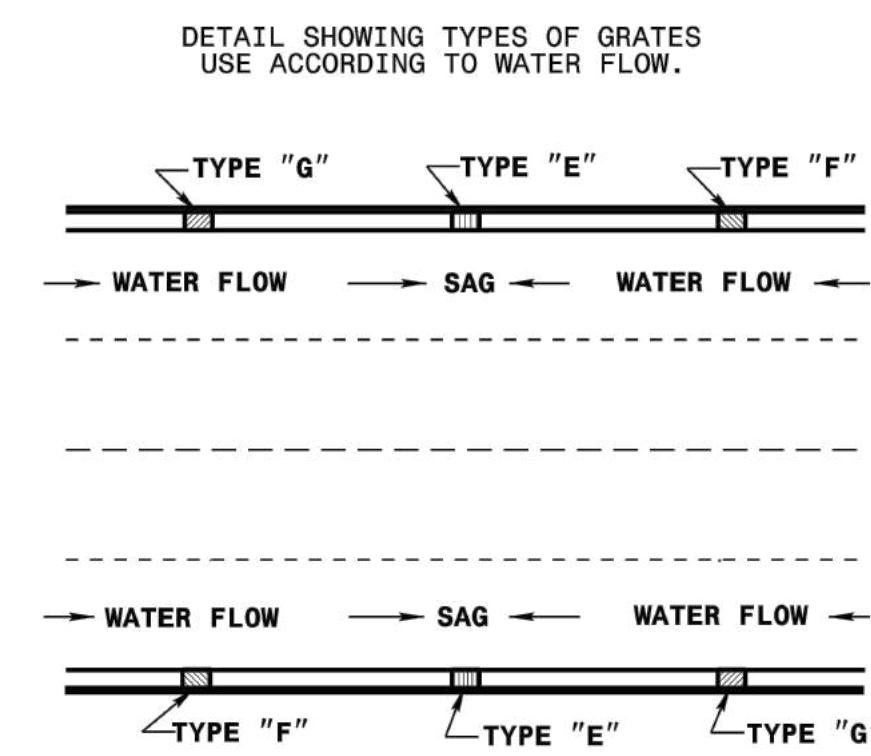


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

SHEET 1 OF 2

840.03



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

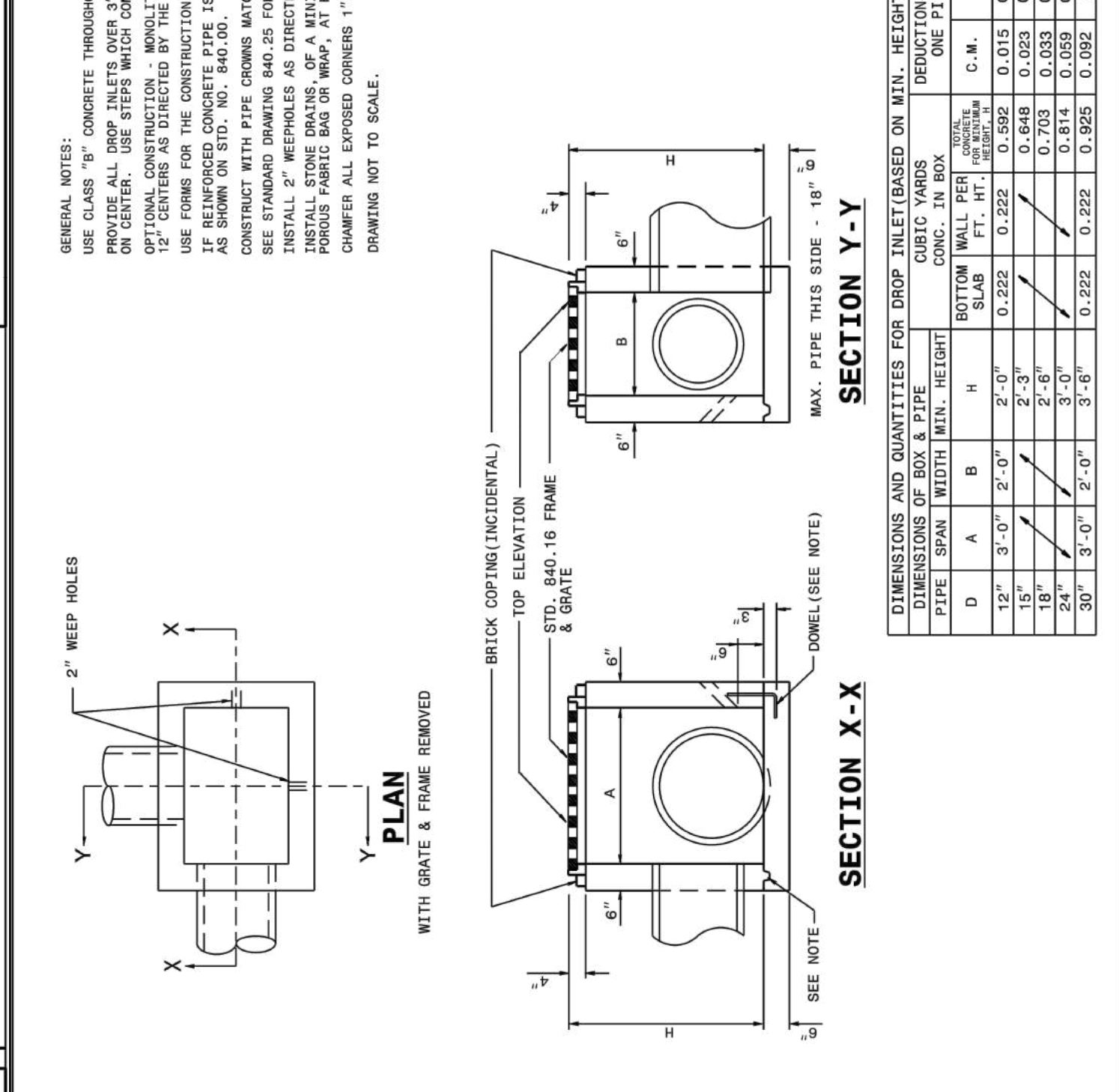
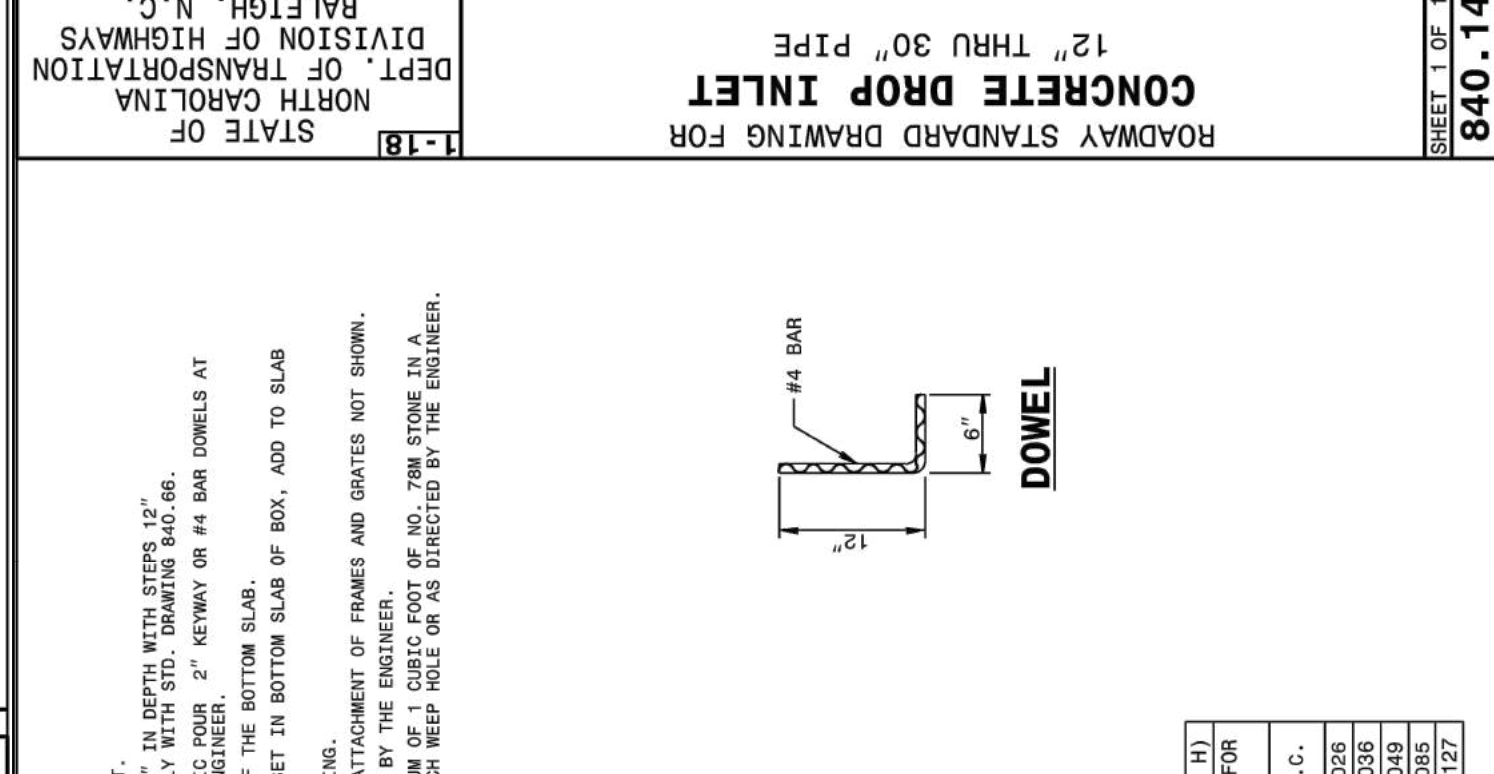
ROADWAY STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2

840.03

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020

REVISIONS	



DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)														
PIPE DIA.	SPAN	WIDTH	MIN. HEIGHT	CUBIC YARDS CONC. IN BOX			BARS-U	BARS-V	BARS-W	TOTAL	DU. YDS. CONC. IN BOX	DEDUCTIONS ONE PIPE		
				E	F	G							NO.	LENGTH
12"	3'-0"	2'-0"	2'-0"	0.222	0.592	0.015	0.026	-	-	-	0.222	0.648	0.023	0.036
15"	3'-0"	2'-0"	2'-0"	0.222	0.648	0.023	0.036	-	-	-	0.222	0.704	0.033	0.049
18"	3'-0"	2'-0"	2'-0"	0.222	0.704	0.033	0.049	-	-	-	0.222	0.760	0.043	0.065
24"	3'-0"	2'-0"	2'-0"	0.222	0.817	0.043	0.065	-	-	-	0.222	0.873	0.053	0.085
30"	3'-0"	2'-0"	2'-0"	0.222	0.930	0.053	0.085	-	-	-	0.222	0.987	0.063	0.107

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	C921



**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

**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:
  - 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 NCDNR 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 NCDNR 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.ncdnr.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 6 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 FINANCED, 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 HIGHLY SENSITIVE 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 FOR 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](http://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 GRADING 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.

**Seeded Preparation:**

- Chisel compacted areas and spread topsoil three inches deep over diverse 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 mixtures 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 line, 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

**PERMANENT SEEDING REQUIREMENTS FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1)**

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

**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. If no daily rain 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 determine if a site 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 Measure	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 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, 6. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence and date of corrective actions taken.
(3) Stormwater discharge outlets (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or off-site (where applicable)	At least once per 7 calendar days and within 24 hours of a rain event $\geq$ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item 2(b) of this permit.
(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, completion of all land disturbing activity, construction or redevelopment, permanent vegetation. 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	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.

**3. 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 III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION C: REPORTING**  
**1. Occurrences that Must be Reported**  
Permittees shall report the following occurrences:  
(a) Visible sediment deposition in a stream or wetland.  
(b) Oil spills if:  

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

**2. Reporting Timeframes and Other Requirements**  
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis.</li> <li>If the stream is named on the <a href="#">NC 303(a) list</a> as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired waters conditions.</li> <li>Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> </ul>
(b) Oil spills and release of hazardous substances per Part 110(b)(c) above	<ul style="list-style-type: none"> <li>A report at least ten days before the date of the bypass, if possible.</li> <li>Within 40 CFR 122.41(m)(3) effect of the bypass.</li> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that includes an evaluation of the spill's effect on the bypass.</li> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and its causes, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. (40 CFR 122.41(i)(6)).</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>
(c) Unanticipated bypasses (40 CFR 122.41(m)(3))	<ul style="list-style-type: none"> <li>A report at least ten days before the date of the bypass, if possible.</li> <li>Within 40 CFR 122.41(m)(3) effect of the bypass.</li> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that includes an evaluation of the spill's effect on the bypass.</li> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and its causes, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. (40 CFR 122.41(i)(6)).</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>

**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 not feasible. 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 sited, 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**

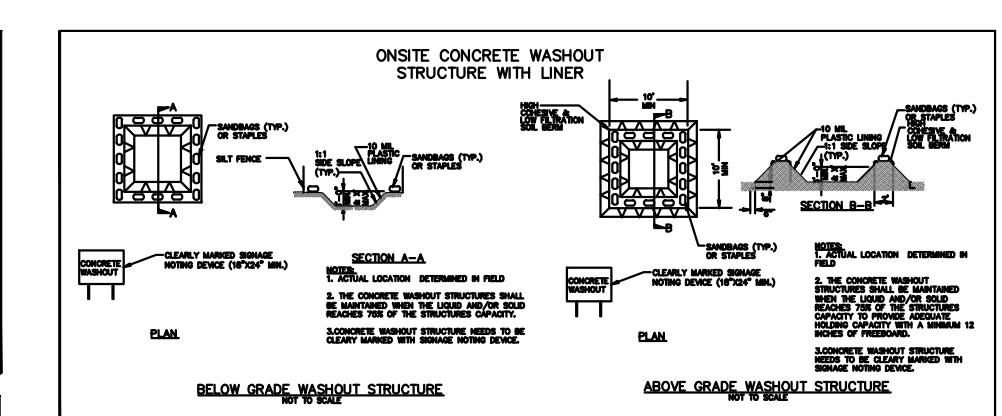
**GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT**  
Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling 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.

**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 fuels, 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.

**EARTHEN 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.
- Provide stable stone access point when feasible.
- 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.

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

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

- 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.

**NCG01 GROUND STABILIZATION AND MATERIALS HANDLING EFFECTIVE: 04/01/19**

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

FOR SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)

Date	Type	Planting Rate
Mar 1 - Jun 1	Sericea Lespedeza (scarified) and use the following combinations:	50 lbs/acre (Sericea Lespedeza), 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 Rye	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:**  
REFERTILIZE THE FOLLOWING APRIL WITH 50 LB/ACRE NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED 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 LINE, 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
Annual Lespedeza (Kobe in Piedmont and Coastal Plain)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

**Seeding dates:**  
Piedmont and Coastal Plain - January 1 - May 1

**Soil Amendments:**  
Follow recommendations of soil tests or apply 2 tons/acre ground agricultural limestone and 1,000 lbs/acre 10-10-10 fertilizer.

**Mulch:**  
Apply 4,000lb/acre straw. Anchor straw by asphalt tack, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulching anchoring tool.

**Maintenance:**  
Re-fertilize if growth is not fully adequate. Reseed, re-fertilize and mulch immediately following erosion and other damage.

**Temporary seeding recommendations for Summer**

**Seeding Mixture**

Species	Rate (Lb/acre)
German millet	40

**Seeding dates:**  
Piedmont - May 1 - Aug 15  
Coastal Plain - April 15 - Aug 31

**Soil Amendments:**  
Follow recommendations of soil tests or apply 2 tons/acre ground agricultural limestone and 1,000 lbs/acre 10-10-10 fertilizer.

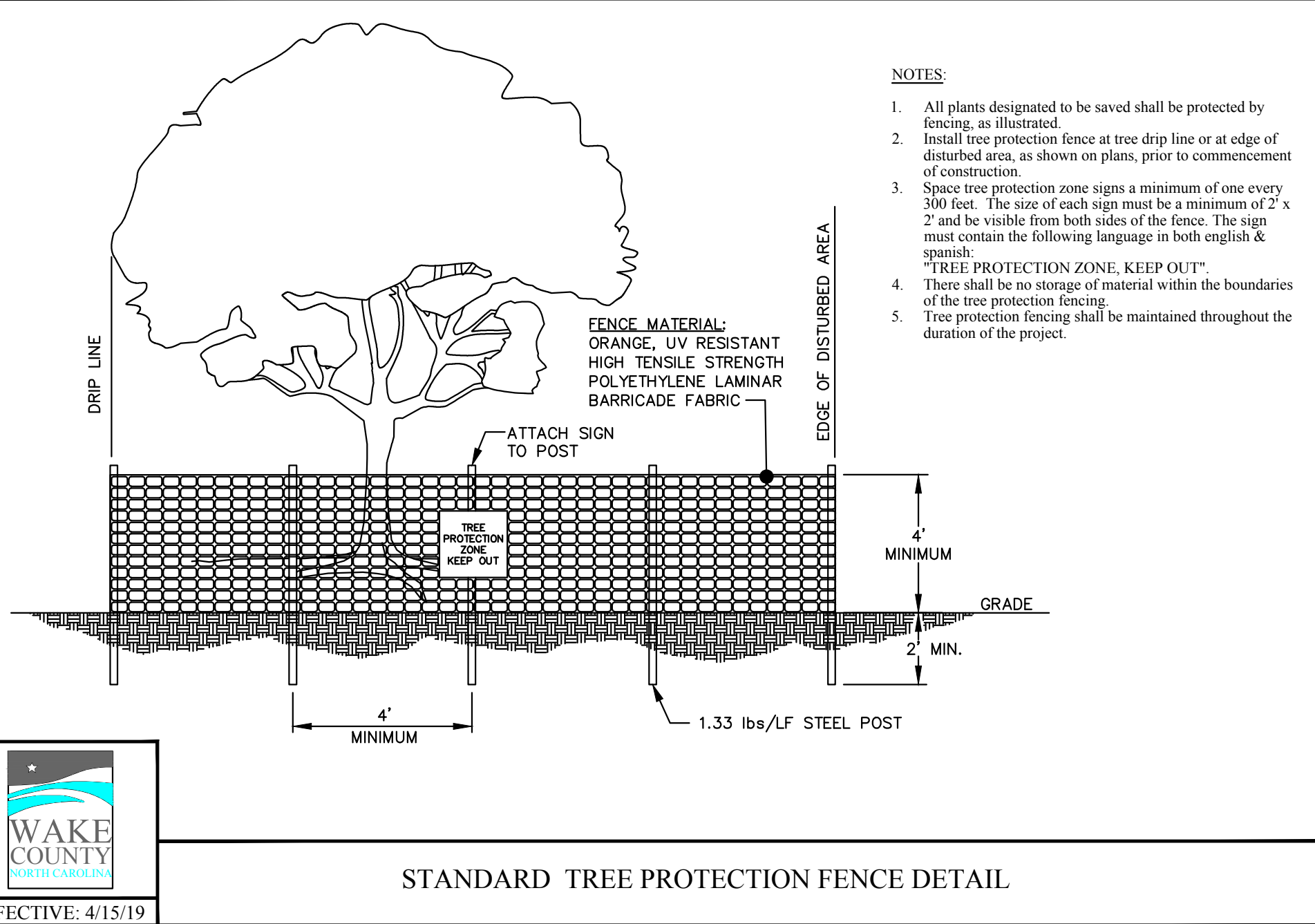
**Mulch:**  
Apply 4,000lb/acre straw. Anchor straw by asphalt tack, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulching anchoring tool.

**Maintenance:**  
Re-fertilize if growth is not fully adequate. Reseed, re-fertilize and mulch immediately following erosion and other damage.

**Temporary seeding recommendations for Fall**

**Seeding Mixture**

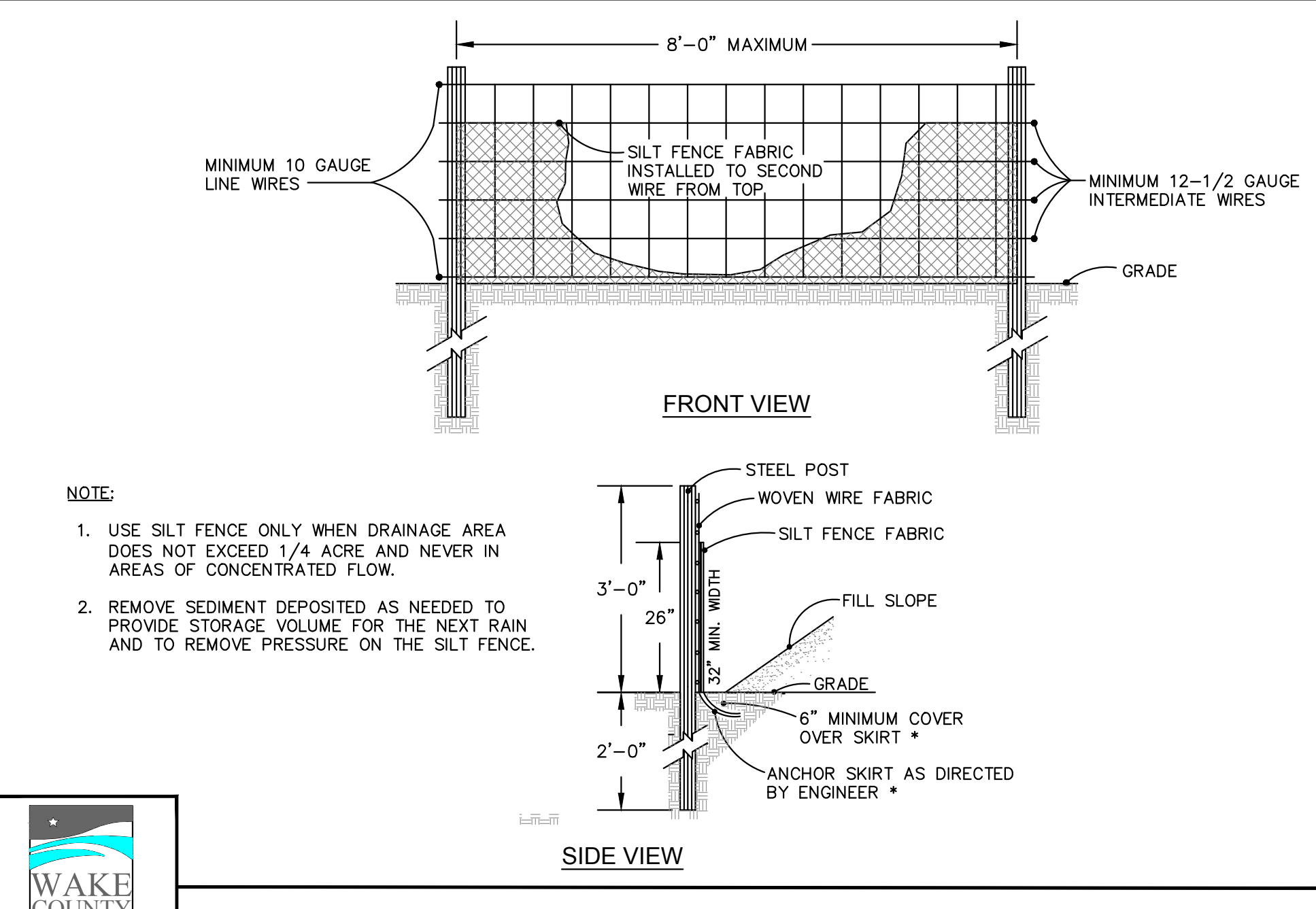
Species	Rate (Lb/acre)
Rye Grass	120



STANDARD TREE PROTECTION FENCE DETAIL



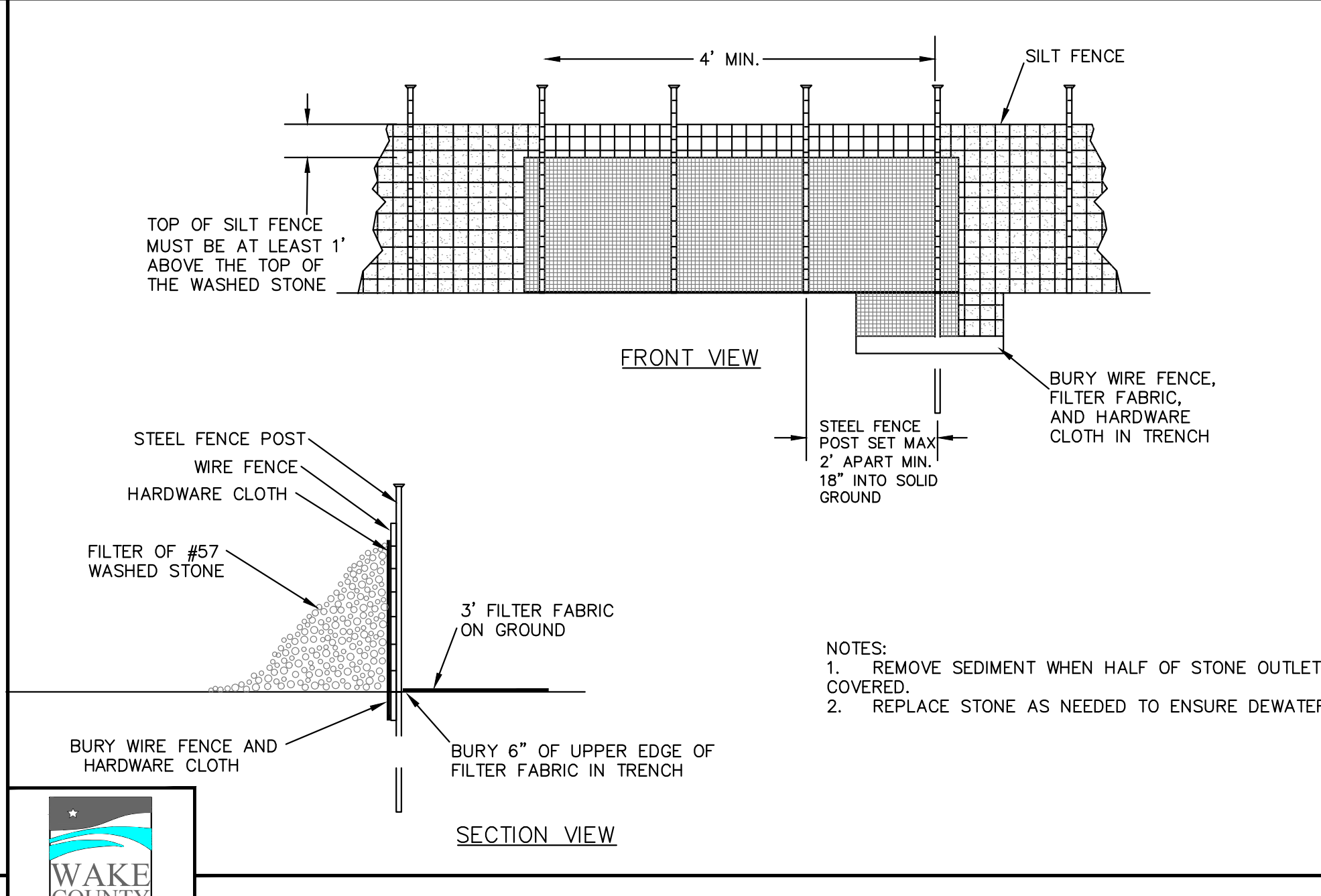
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STANDARD TEMPORARY SILT FENCE



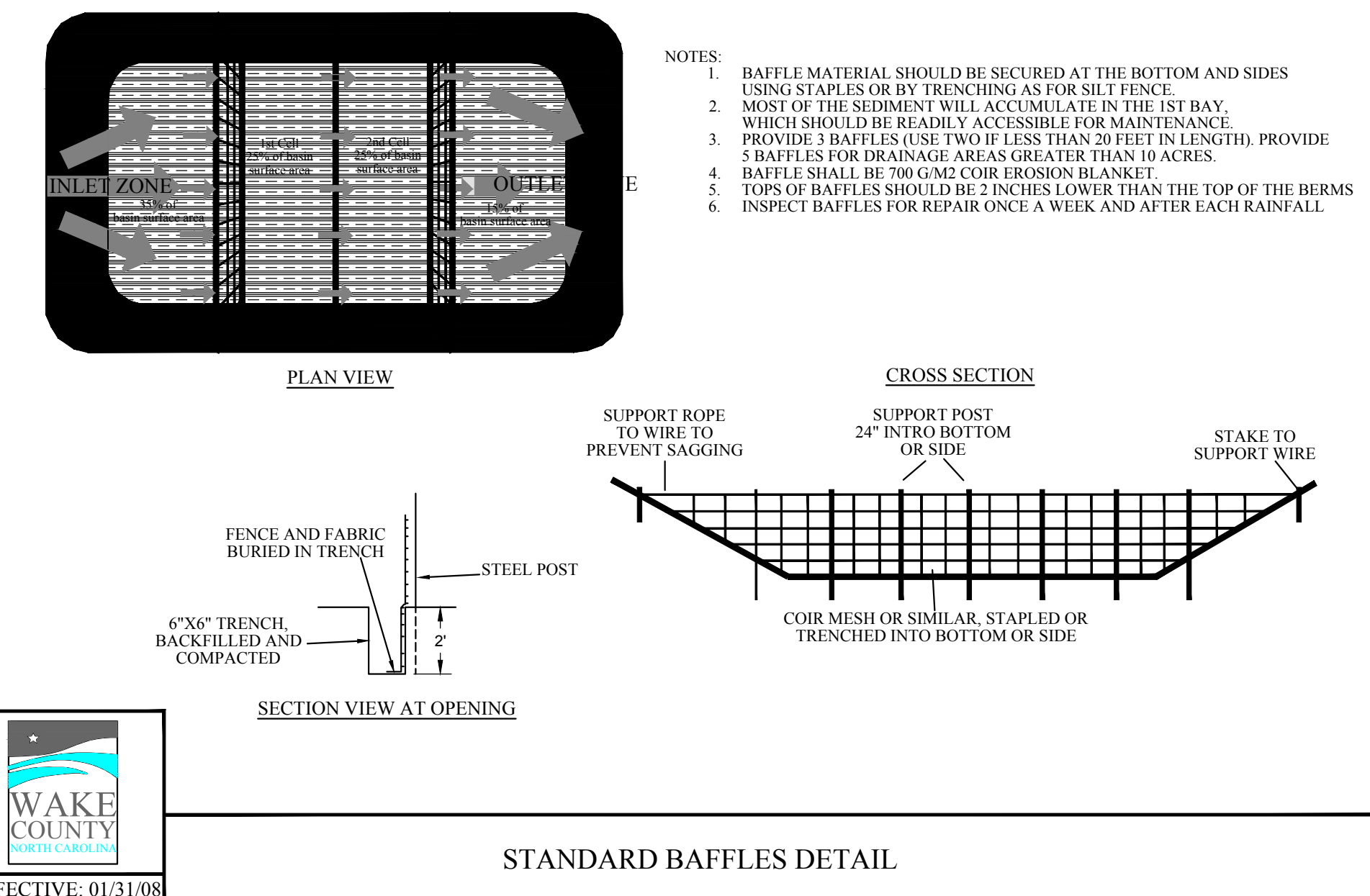
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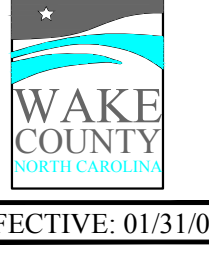
STANDARD SILT FENCE OUTLET



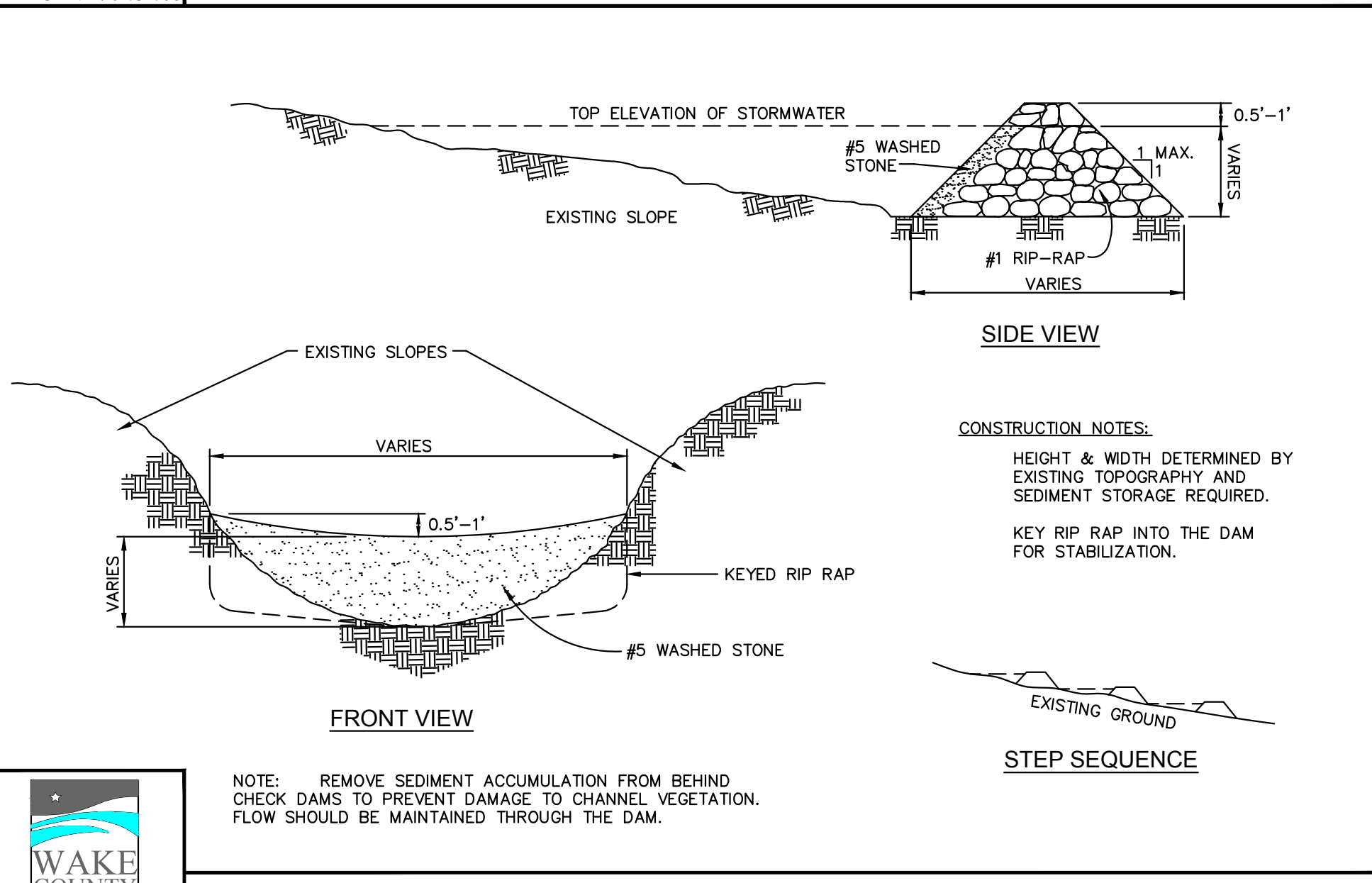
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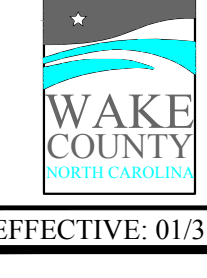
STANDARD BAFFLES DETAIL



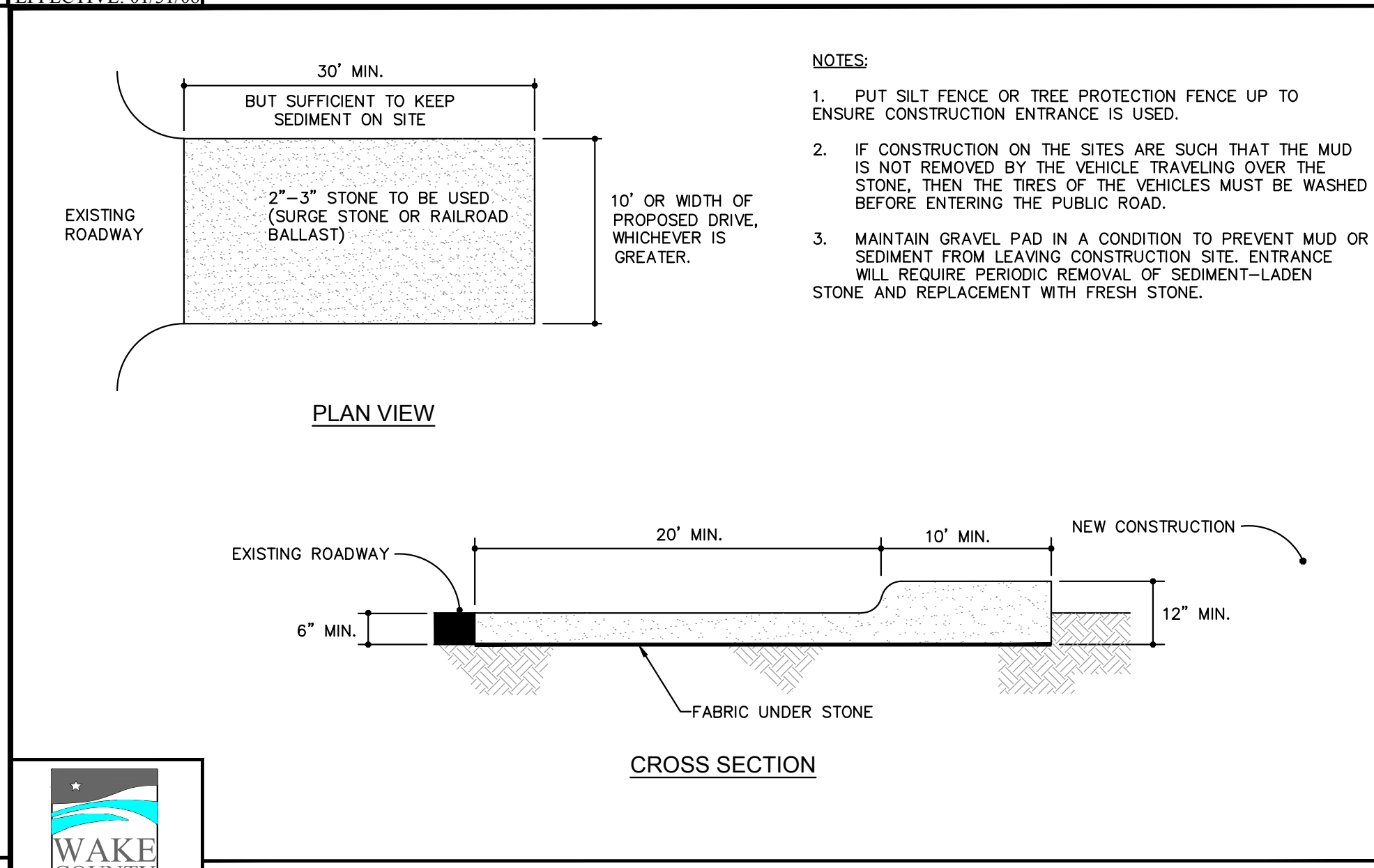
EFFECTIVE: 01/31/08



STANDARD CHECK DAM



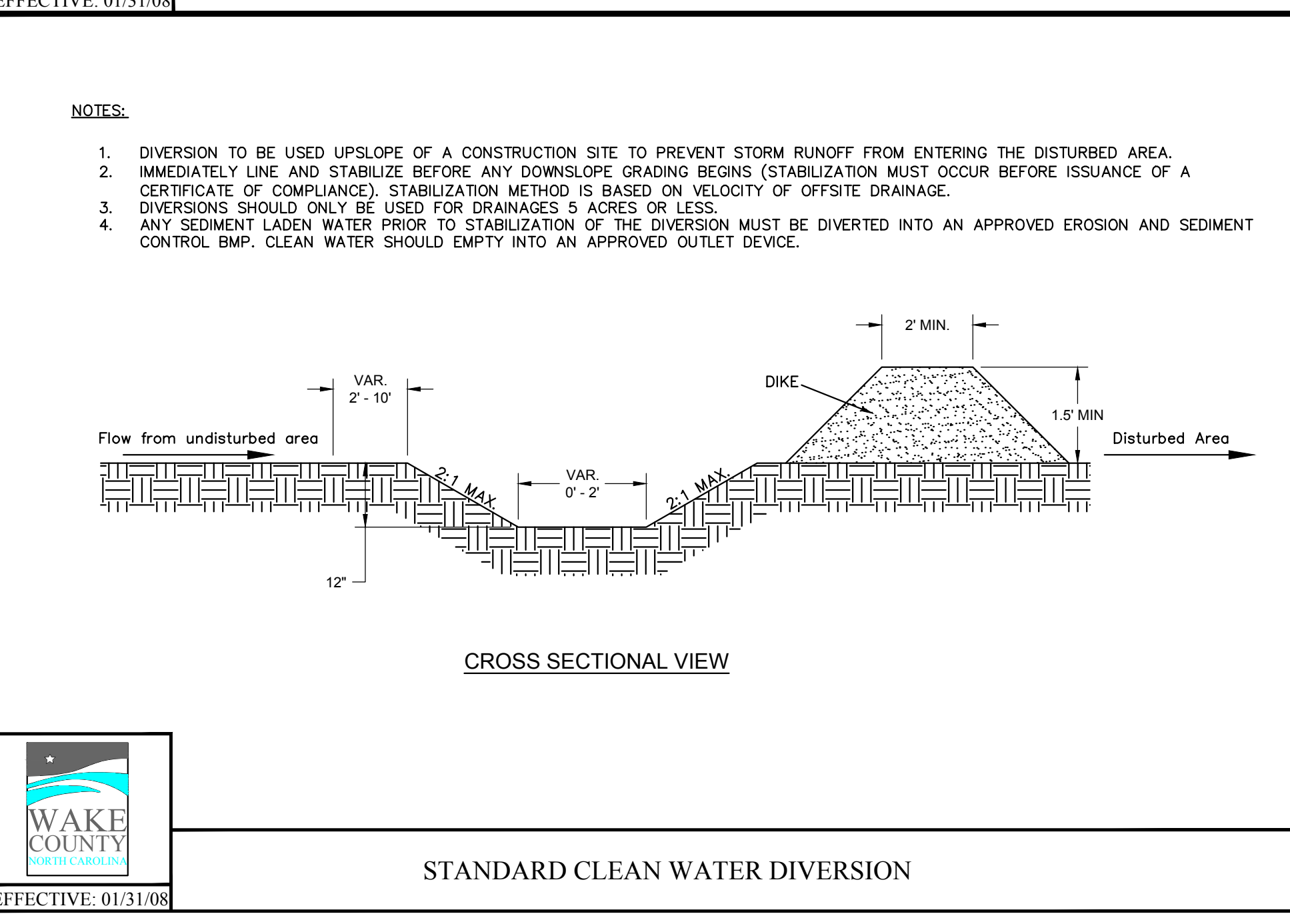
EFFECTIVE: 01/31/08



STANDARD CONSTRUCTION ENTRANCE



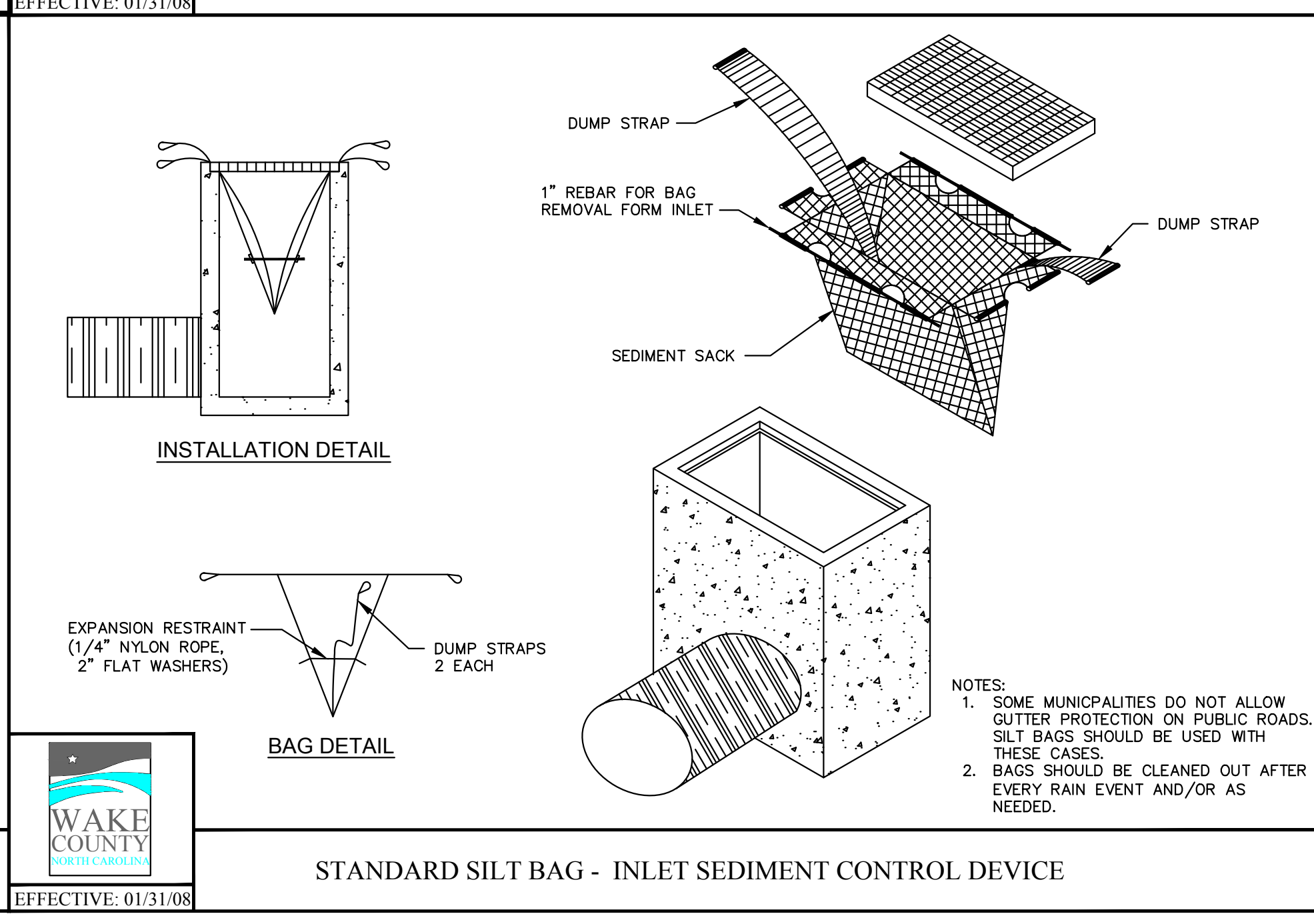
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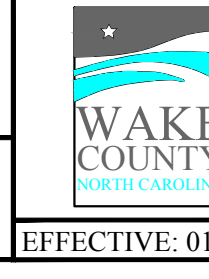
STANDARD CLEAN WATER DIVERSION



EFFECTIVE: 01/31/08



STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE

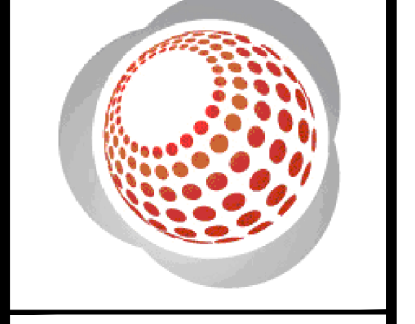


EFFECTIVE: 01/31/08

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
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  
 NCBSLS 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:	09/08/2020
Project Number:	P170347

SHEET  
**C923**

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**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

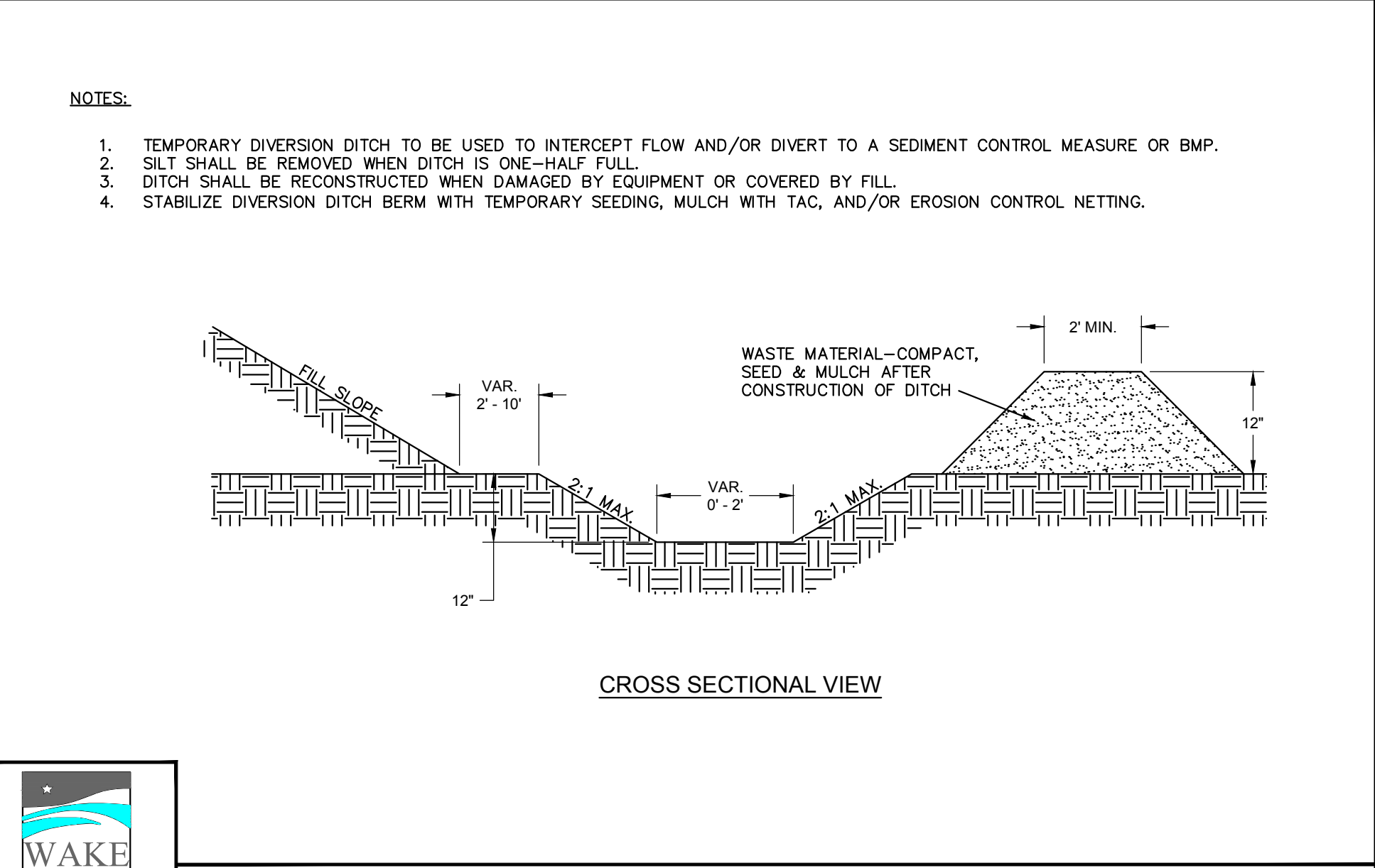


**CHANDLER'S RIDGE**  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION  
 410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

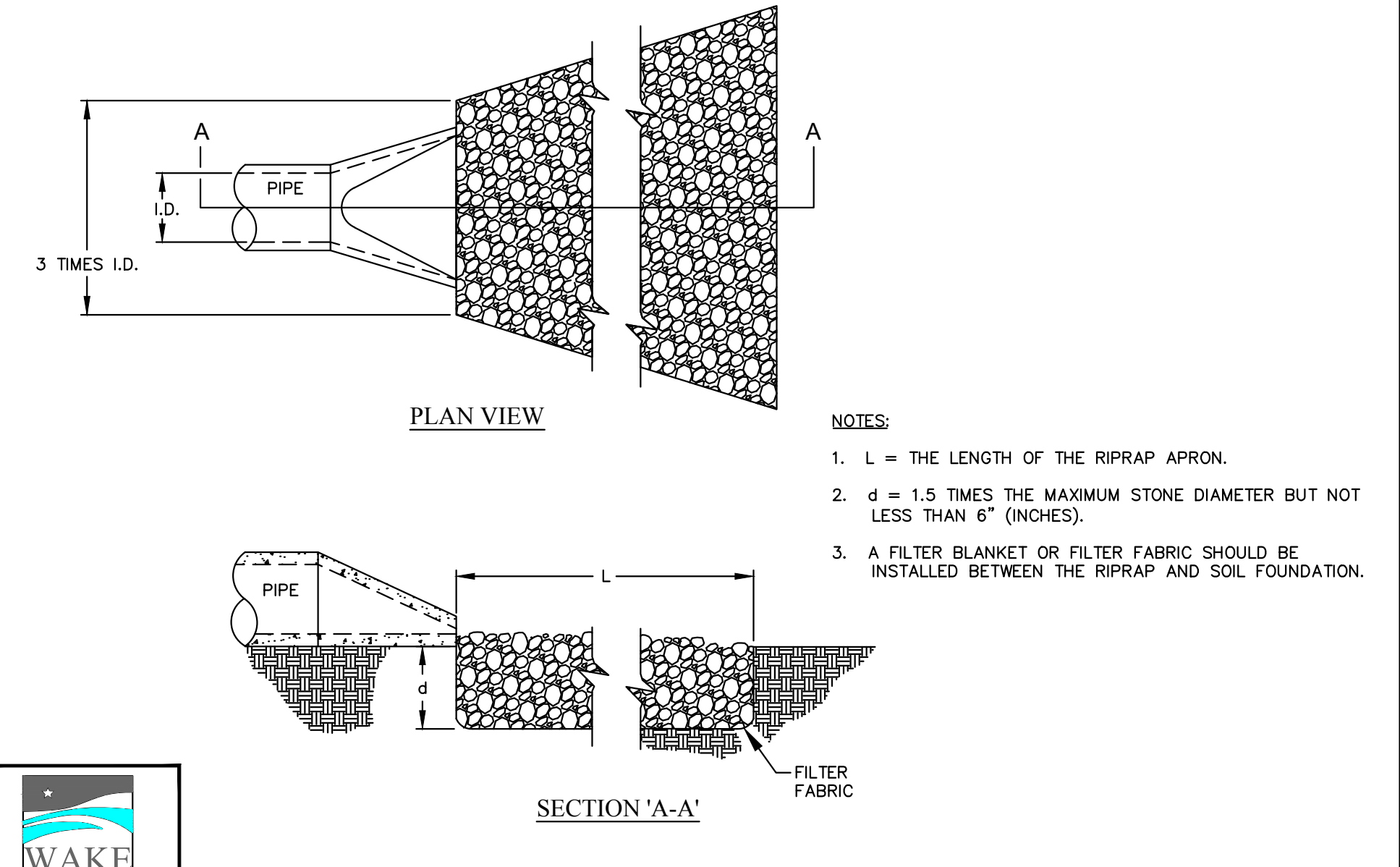
**EROSION CONTROL**  
 DETAILS

Project Engineer: TSS  
 Designed By: TEP  
 Drawn By: TEP  
 Checked By: TSS  
 Scale:  
 Date: 09/08/2020  
 Project Number: P170347

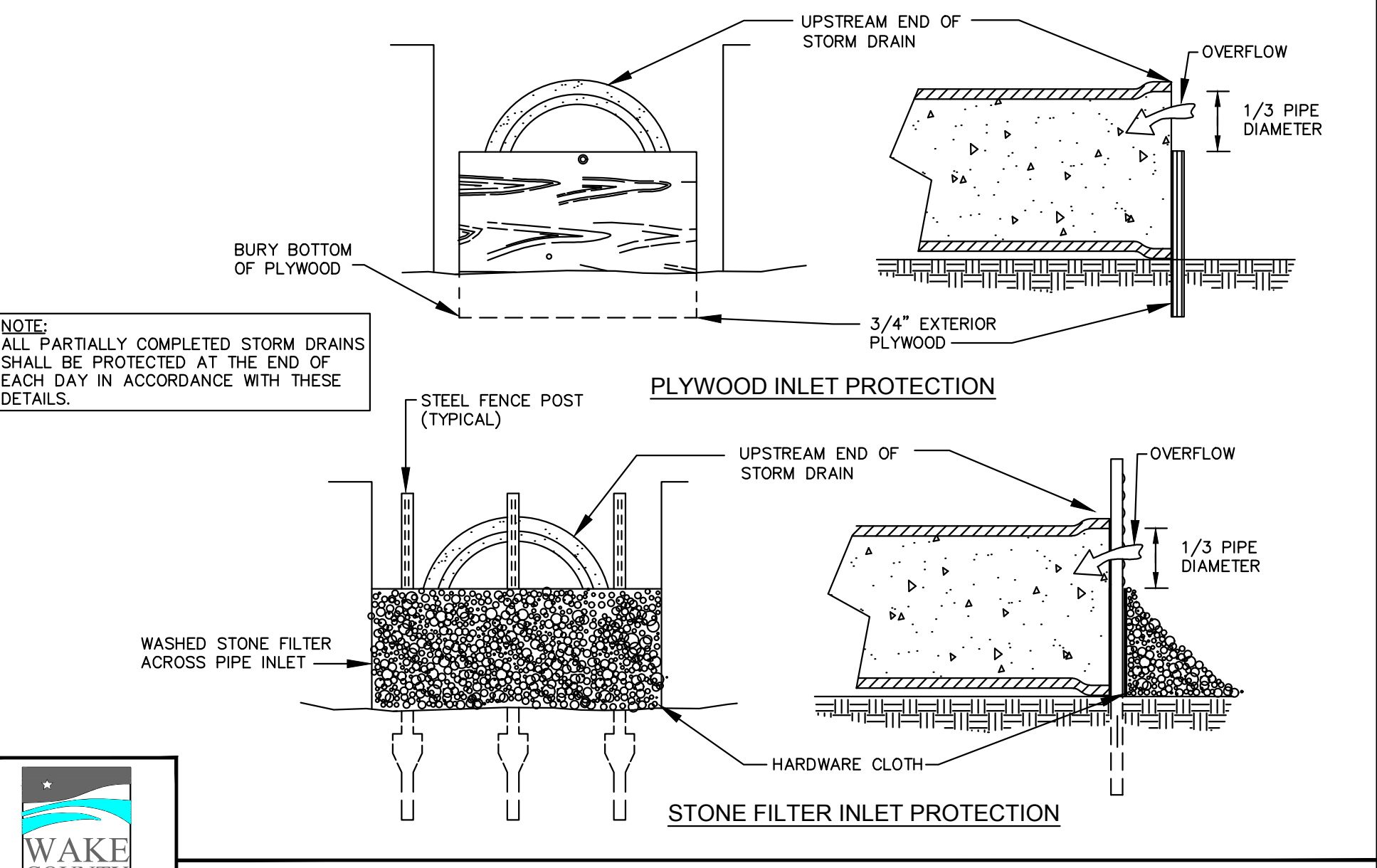
SHEET  
**C924**



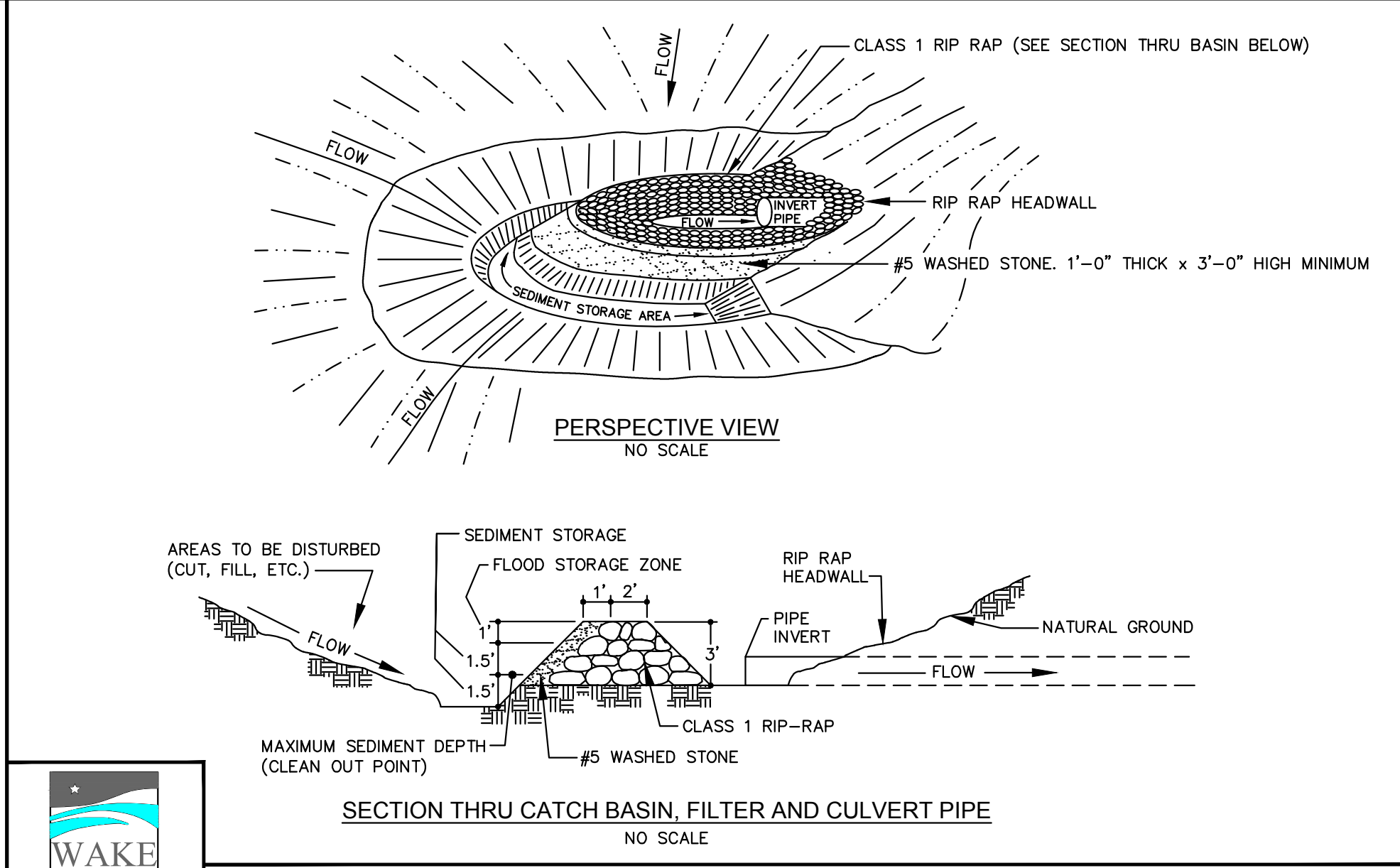
**STANDARD TEMPORARY DIVERSION DITCH**  
 EFFECTIVE: 01/31/08



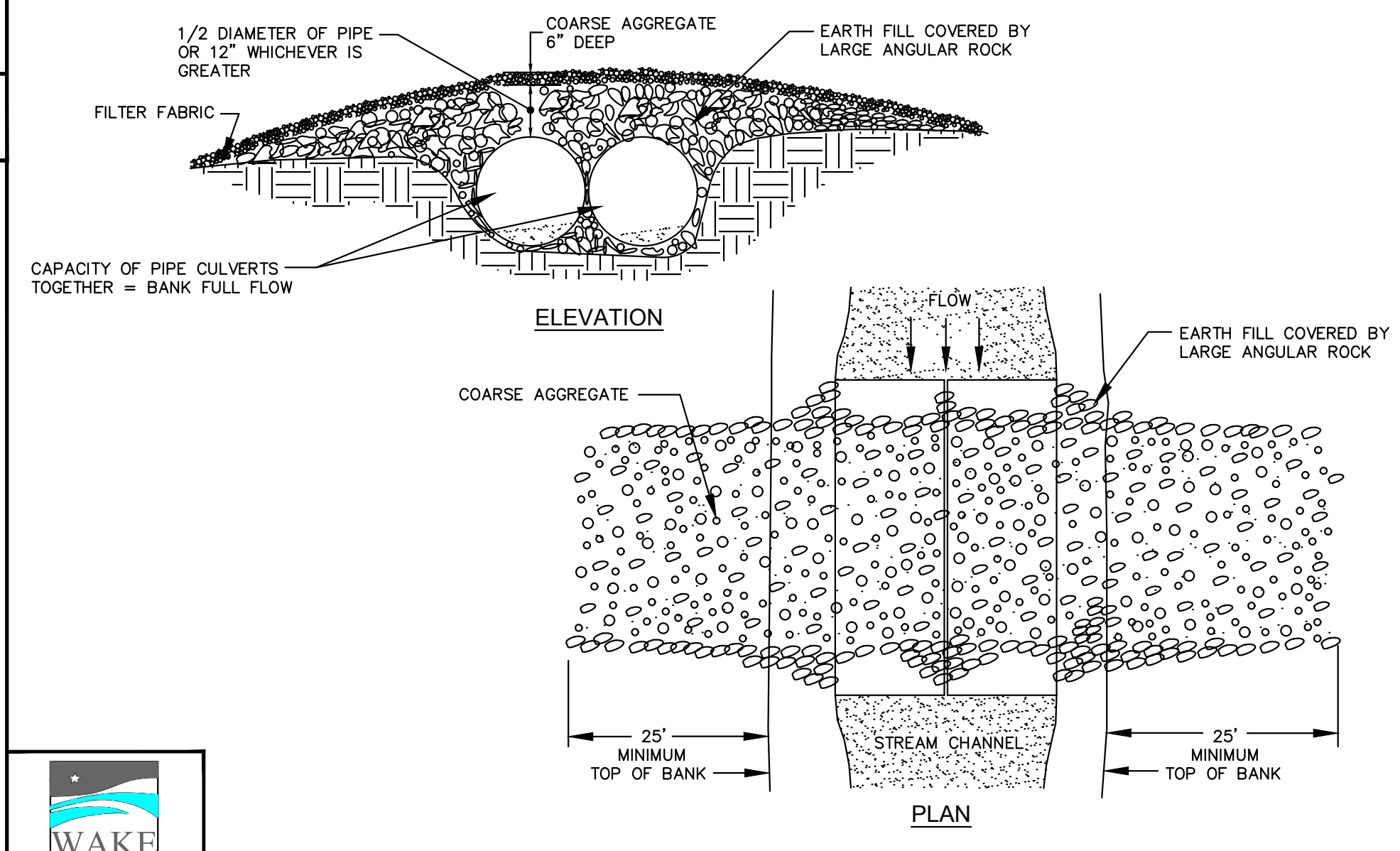
**STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL**  
 EFFECTIVE: 01/31/08



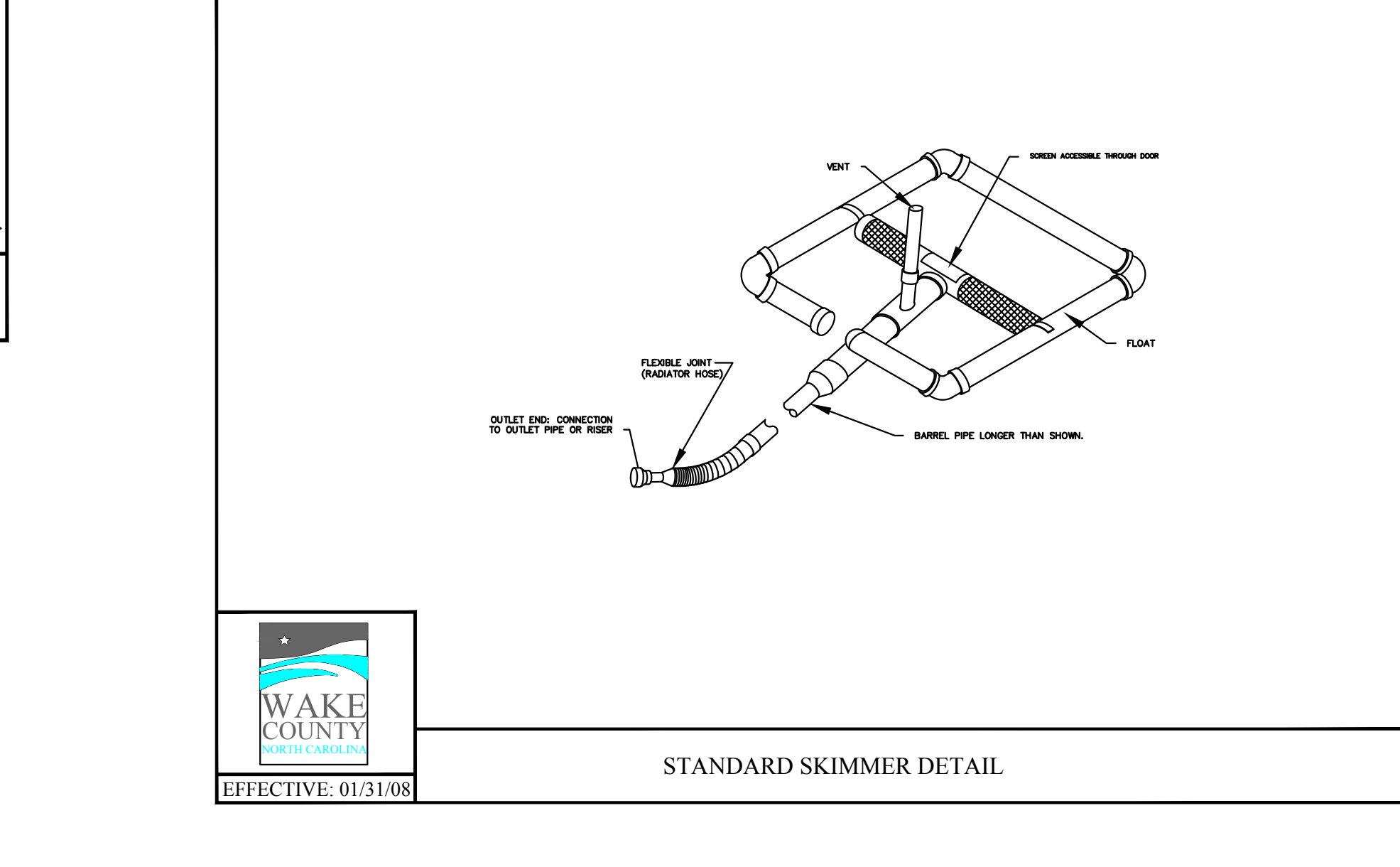
**STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)**  
 EFFECTIVE: 01/31/08



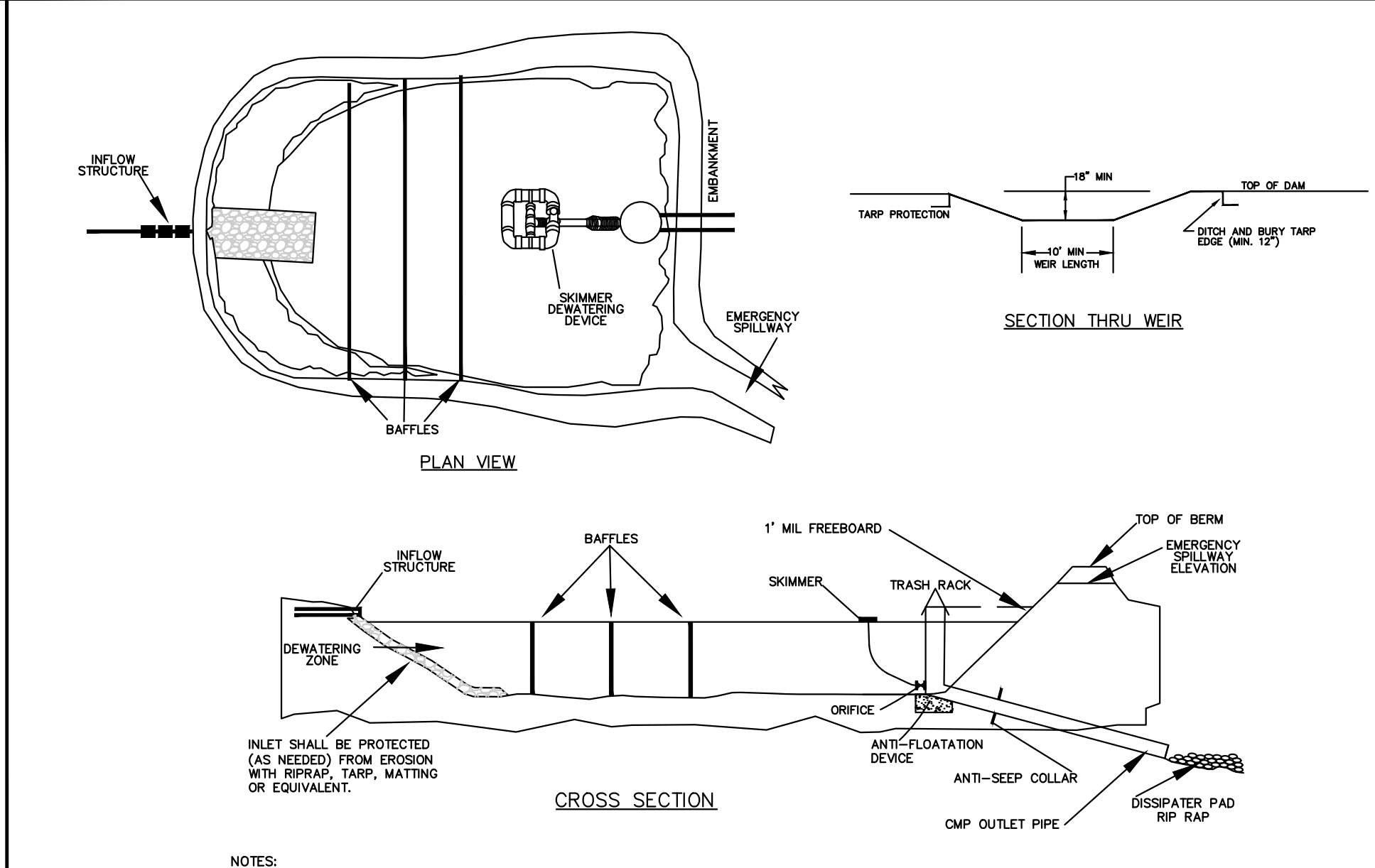
**STANDARD HORSESHOE INLET PROTECTION**  
 EFFECTIVE: 01/31/08



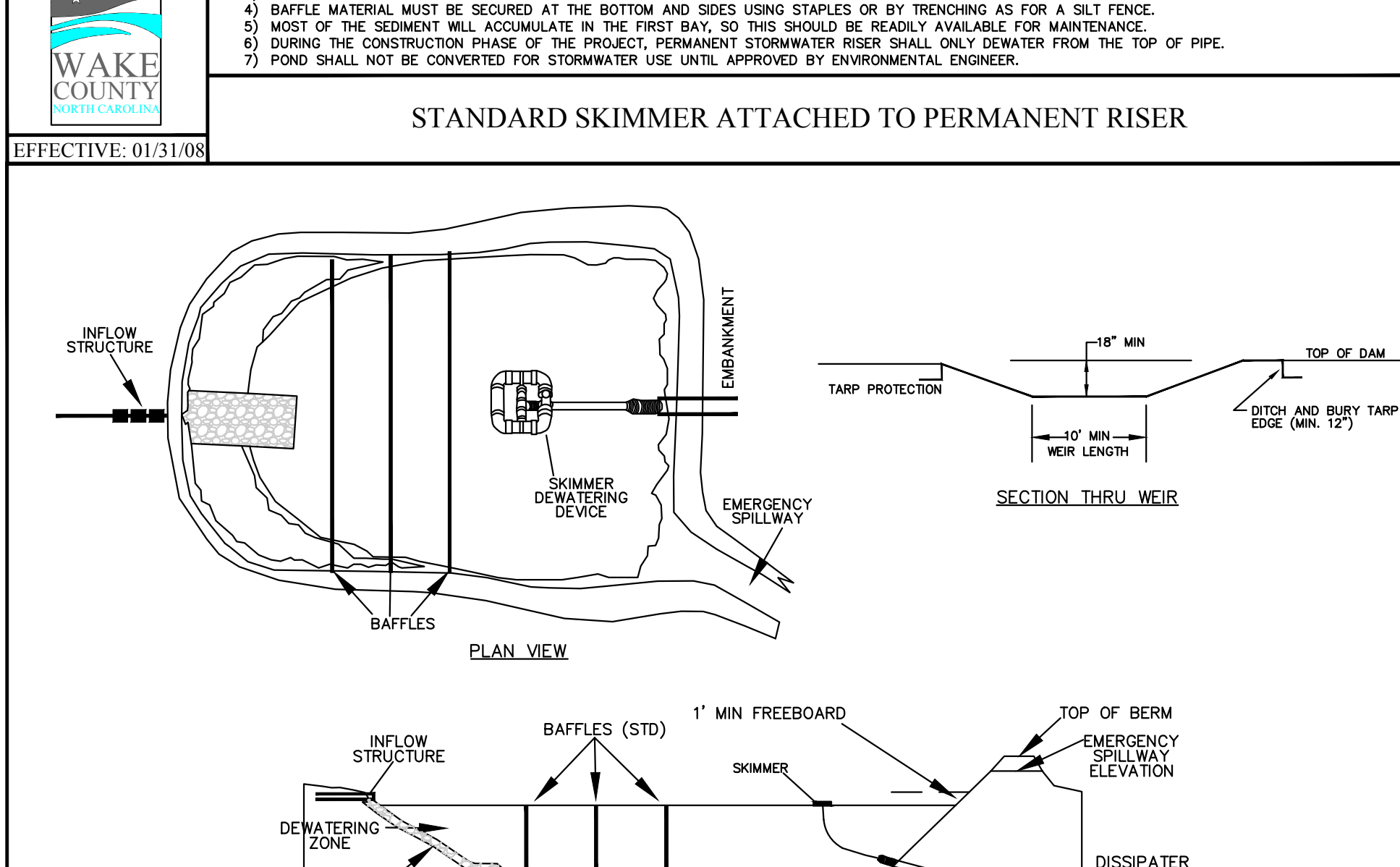
**STANDARD TEMPORARY STREAM CROSSING**  
 EFFECTIVE: 01/31/08



**STANDARD SKIMMER DETAIL**  
 EFFECTIVE: 01/31/08



**STANDARD SKIMMER ATTACHED TO PERMANENT RISER**  
 EFFECTIVE: 01/31/08



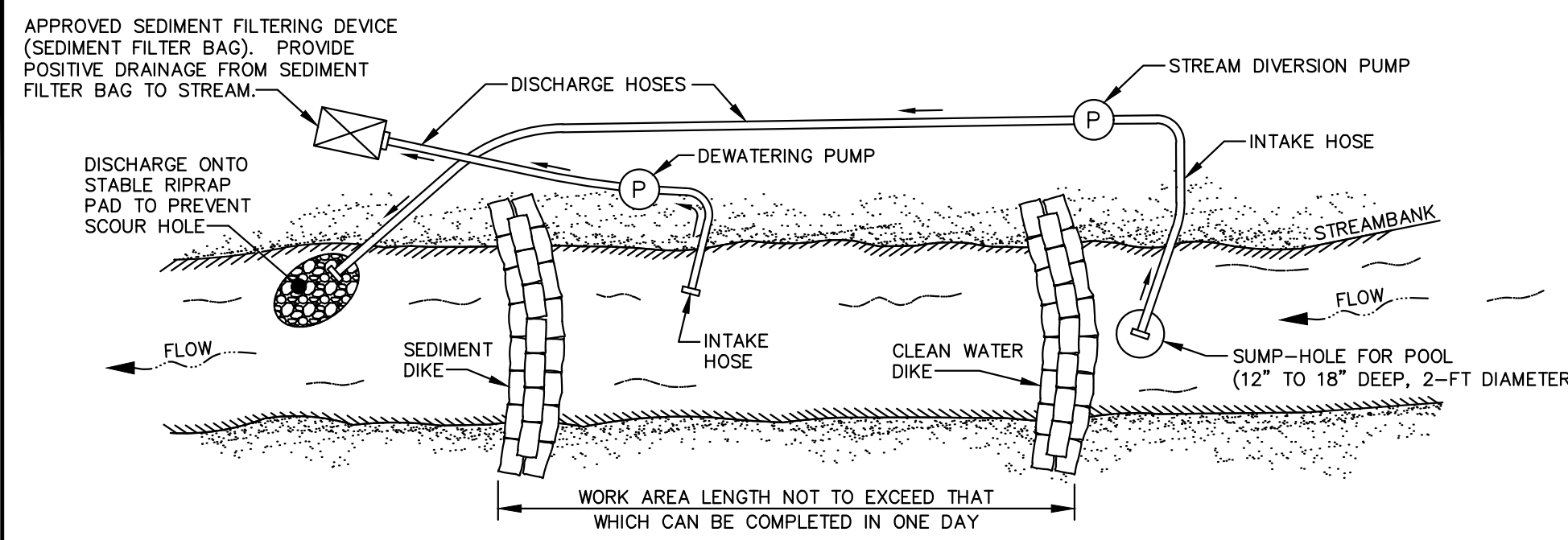
**STANDARD SKIMMER BASIN**  
 EFFECTIVE: 01/31/08

- NOTES:**
- 1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
  - 2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARP/AULINS OR EQUIVALENT FOR U.V. RESISTANCE.
  - 3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
  - 4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
  - 5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
  - 6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
  - 7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

- NOTES:**
- 1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
  - 2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARP/AULINS OR EQUIVALENT FOR U.V. RESISTANCE.
  - 3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
  - 4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
  - 5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
  - 6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
  - 7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

P:\0017 Projects\170347 Chandler's Ridge\Eng\CAD\DWG\TP SHEETS\170347\_C924\_EC\_DETAILS.dwg

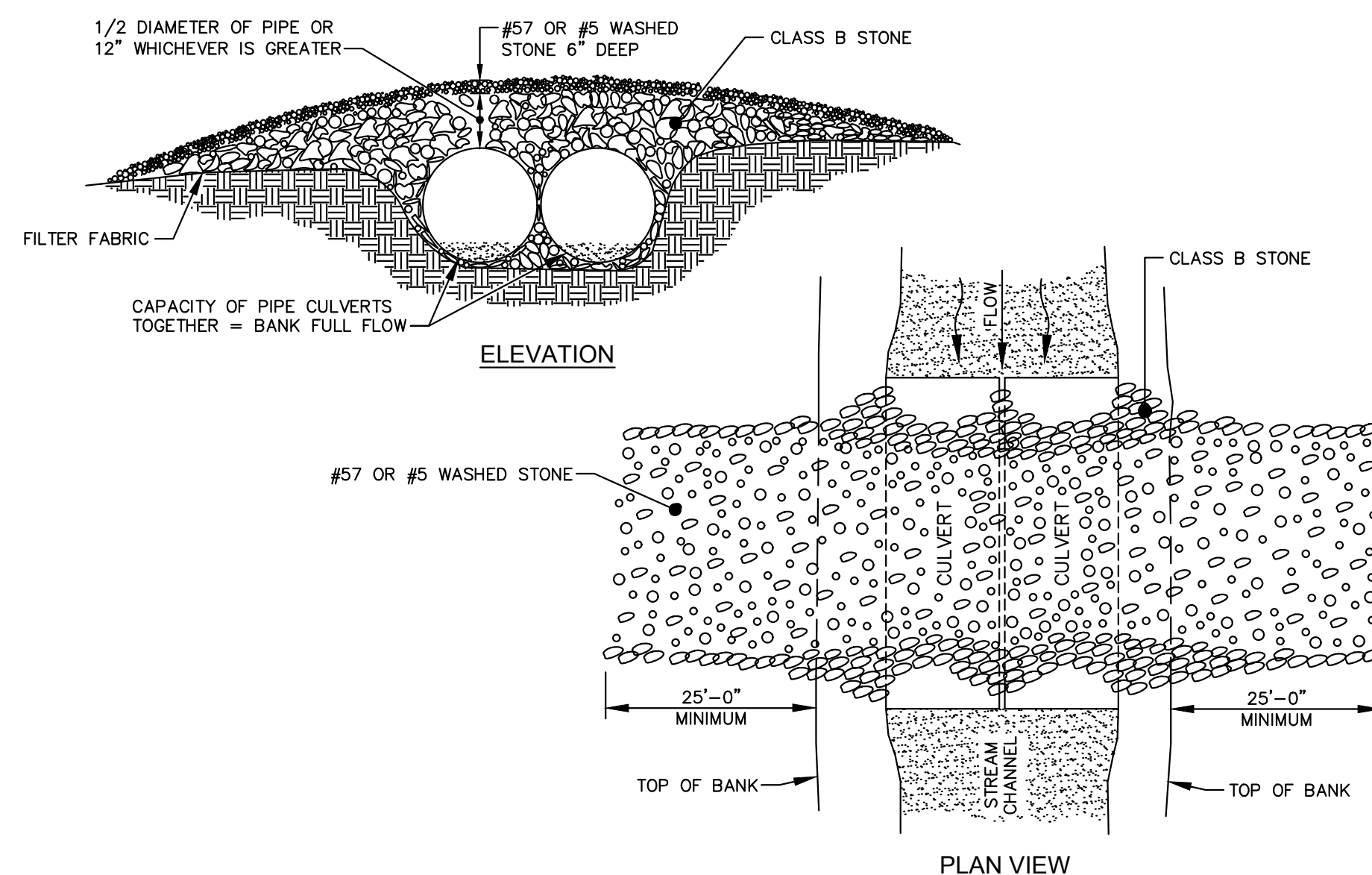
REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
REVISIONS		



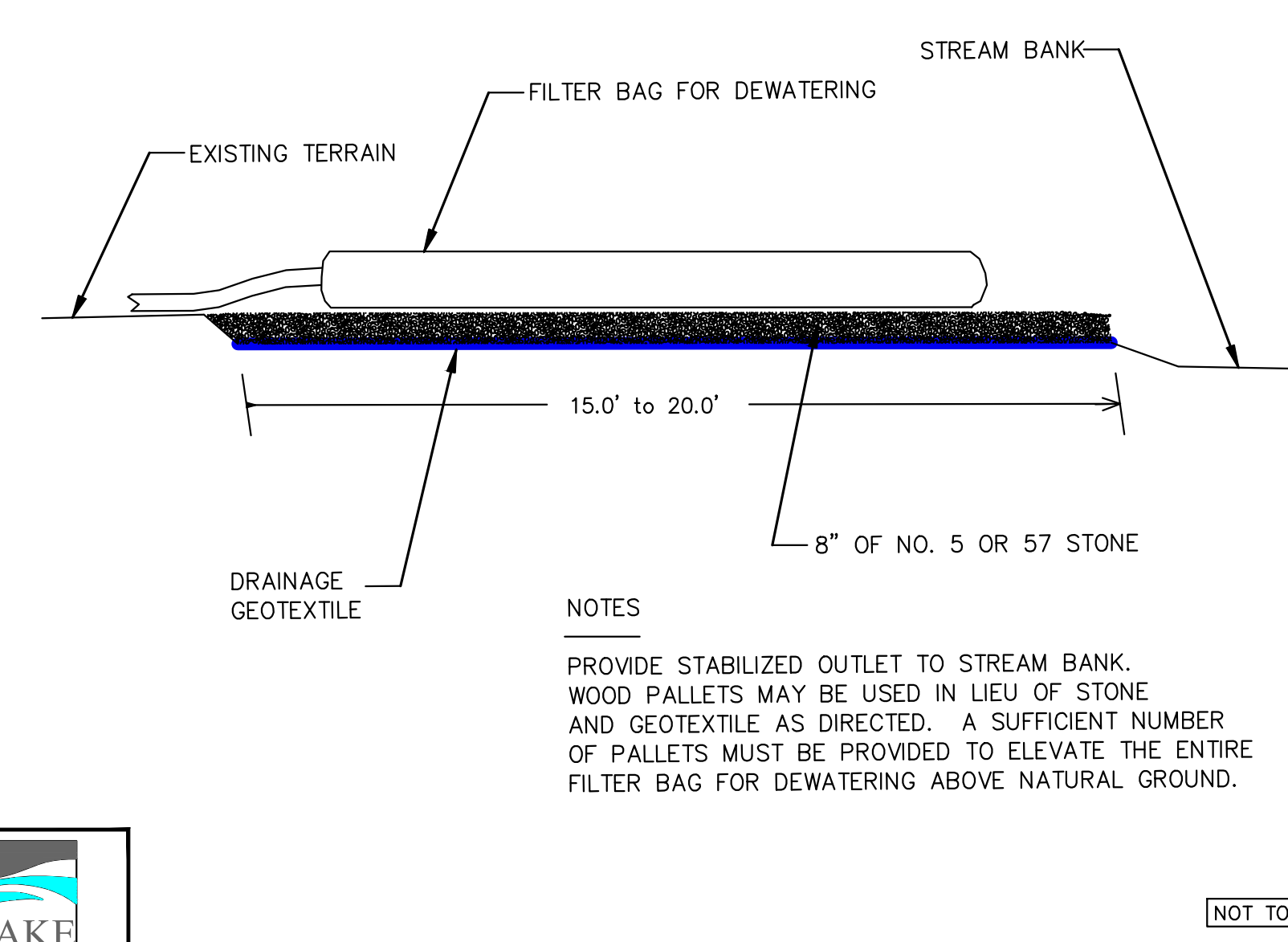
- TEMPORARY PUMP AROUND SEQUENCE**
1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
  2. INSTALL UP-STREAM SANDBAG DAM.
  3. INSTALL DOWN-STREAM SANDBAG DAM.
  4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
  5. STREAMBANKS MUST BE STABILIZED AT THE END OF EACH DAY.

- 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.

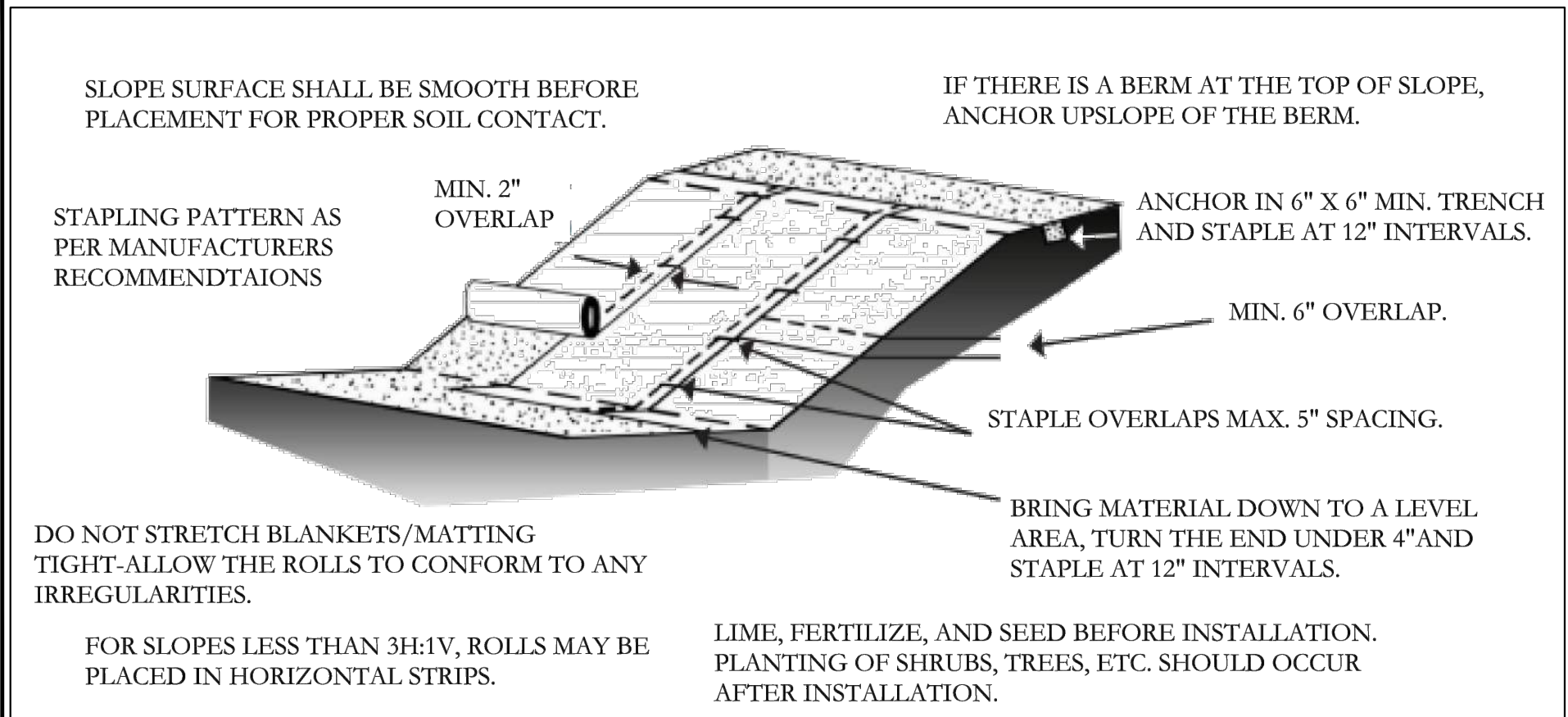
TEMPORARY PUMP AROUND



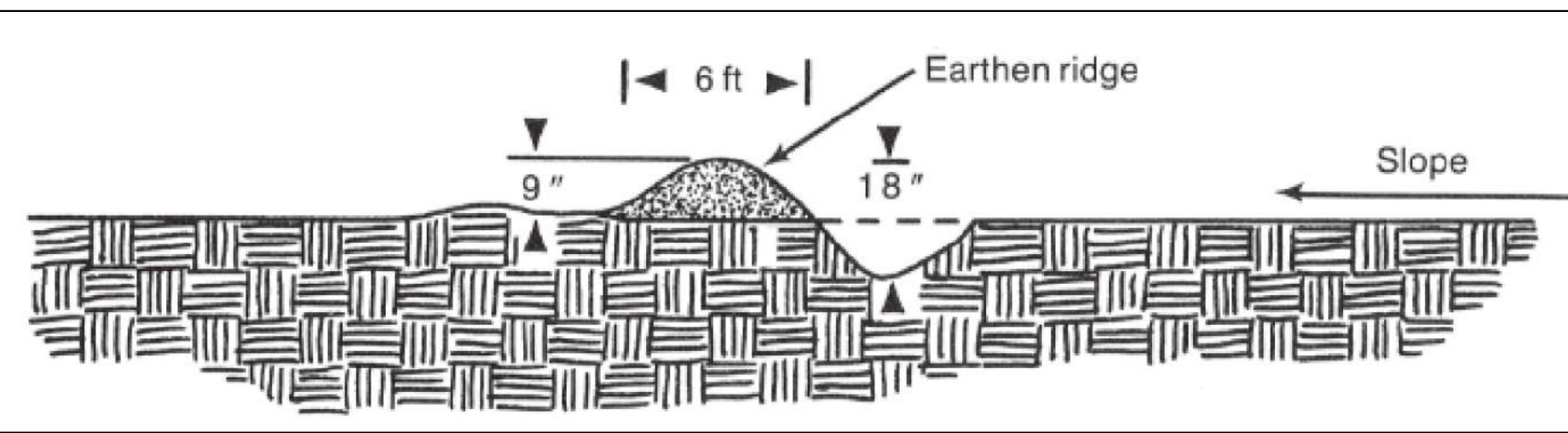
STANDARD TEMPORARY STREAM CROSSING



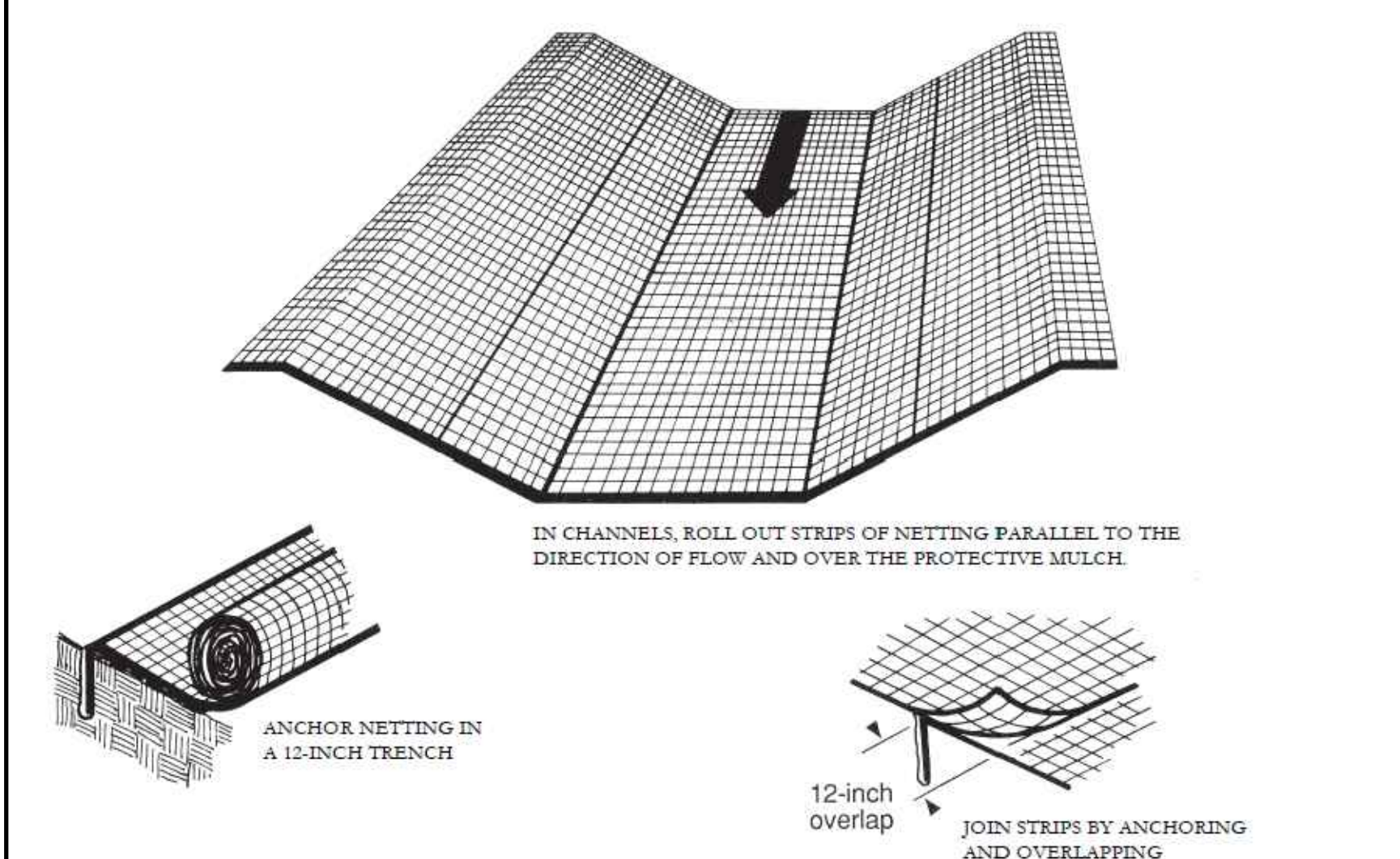
STANDARD FILTER BAG FOR DEWATERING ACTIVITIES



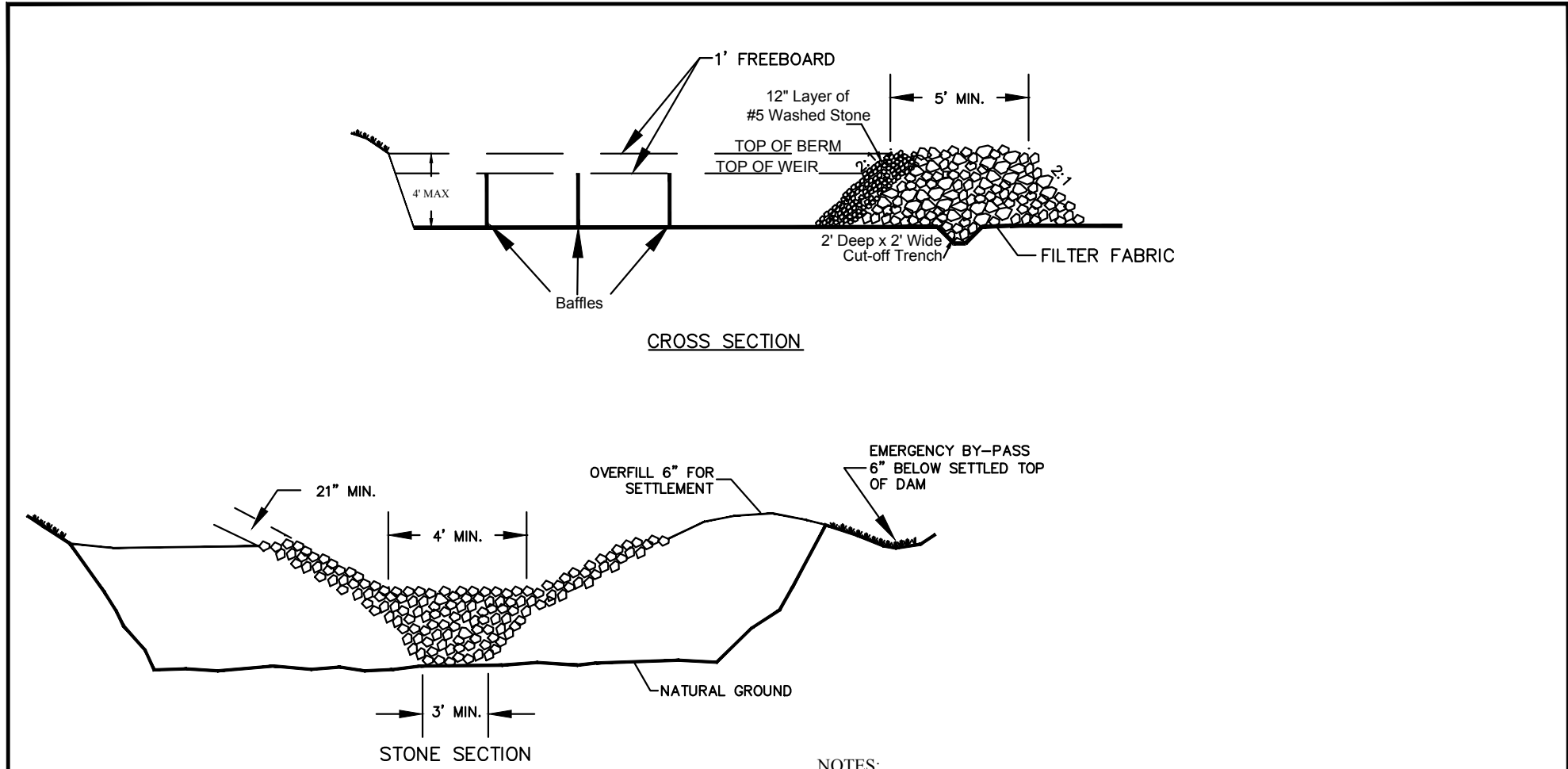
EROSION CONTROL MATTING ON SLOPES



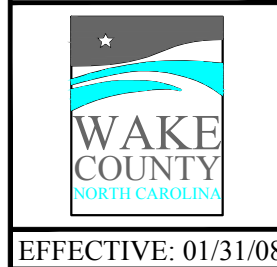
STANDARD WATER BAR



EROSION CONTROL MATTING IN CHANNEL



STANDARD ROCK DAM SEDIMENT BASIN (SEDIMENT TRAP)



**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

**EROSION CONTROL**  
 DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347

SHEET  
**C925**

P:\2017\Projects\170347\Chandler's Ridge\Eng\CAD\DWG\TP SHEETS\170347\_C925\_EC\_DETAILS.dwg

REV	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
REVISIONS		

**RIPRAP LINED PLUNGE POOL FOR CANTILEVER OUTLET (Version 8.0)**  
 Reference Design Note No. 6 (Second Edition), Jan. 23, 1986

DESIGNER: CHANDLER'S RIDGE 01-P  
 DATE: 8/14/2020

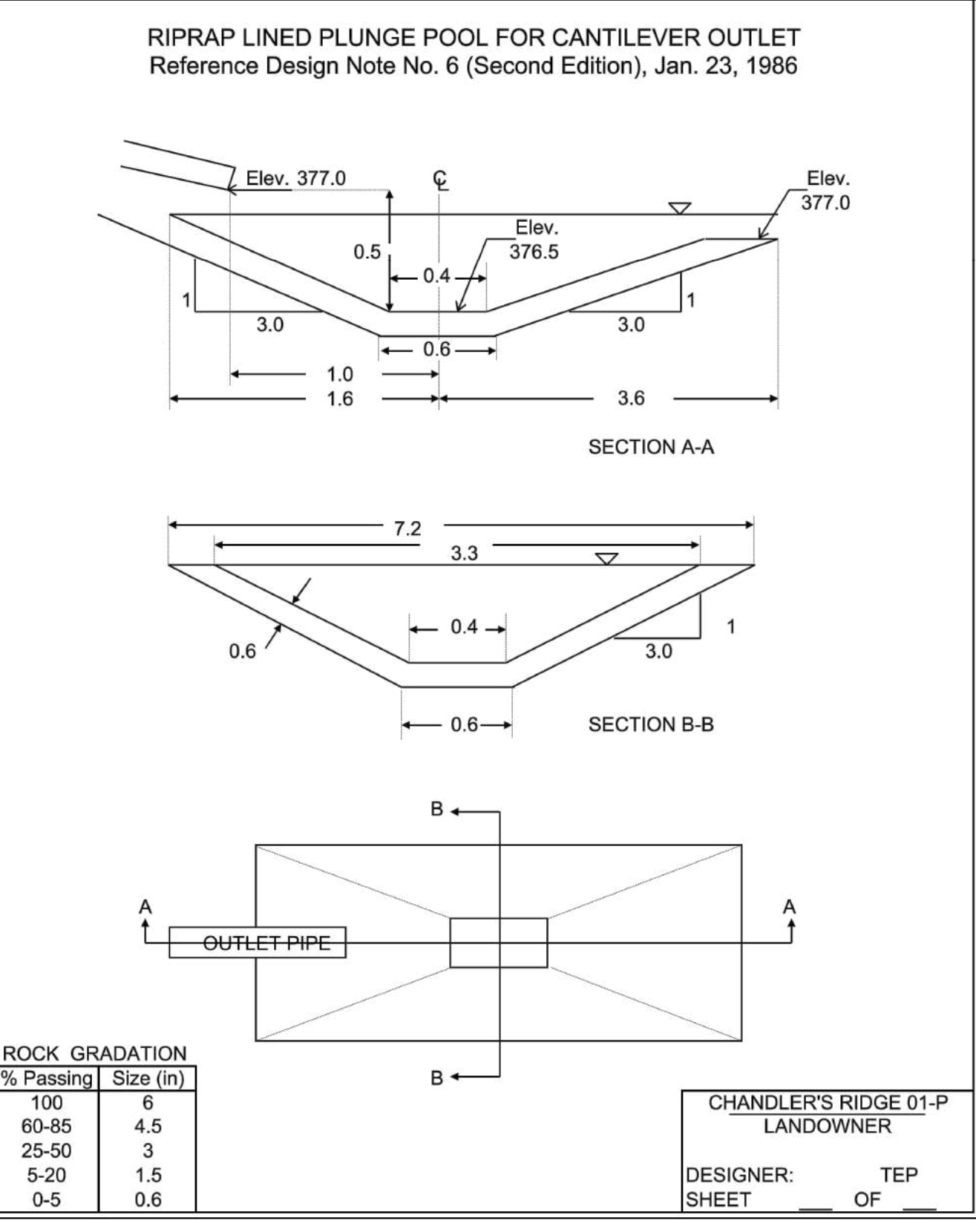
INPUT DATA:  
 Conduit Diameter: D = 1.00 ft  
 Conduit Discharge: Q = 6.00 cfs  
 Conduit Slope at Outlet: S = 0.01 ft/ft  
 Tailwater Elevation: EL TW = 377.00 ft  
 Outlet Channel Invert Elevation: EL CH = 377.00 ft

Water Density: RHO = 1.92  
 Riprap Particle Density (Default 2.64): RHO2 = 2.64  
 50 Riprap Size: R50 = 0.25 ft  
 Bedding Thickness: BT = 0.05 ft  
 Bedding Thickness (8 inch min. max.) (Elev & for castles): BT = 0.05 ft  
 Slope Ratio: Z = 3.00 ft/ft  
 Downstream End Slope Ratio: Z = 3.00 ft/ft  
 Combined End Slope Ratio: Z = 3.00 ft/ft

OUTPUT--POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: If Zp < 0, Use Zp = 0  
 Beaching Check: [Zp/50] < 0.1 (1.0/250) [OK]

OUTPUT--VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): Vbe = 0.00 cu yd  
 Volume of Rock Riprap: Vrs = 0.00 cu yd  
 Volume of Bedding: Vbd = 0.00 cu yd

Spreadsheet developed by D. Hurt, Midwest NTC, 190  
 Spreadsheet modified by B. Deanehouse, Eng. Clm, CTC, Ws, 3/98  
 Design Note No. 6 (Second Edition), Jan. 23, 1986  
 "Riprap Lined Plunge Pool for Cantilever Outlet"  
 Natural Resource Conservation Service  
 Engineering Division



**RIPRAP LINED PLUNGE POOL FOR CANTILEVER OUTLET (Version 8.0)**  
 Reference Design Note No. 6 (Second Edition), Jan. 23, 1986

DESIGNER: CHANDLER'S RIDGE 03-P  
 DATE: 8/14/2020

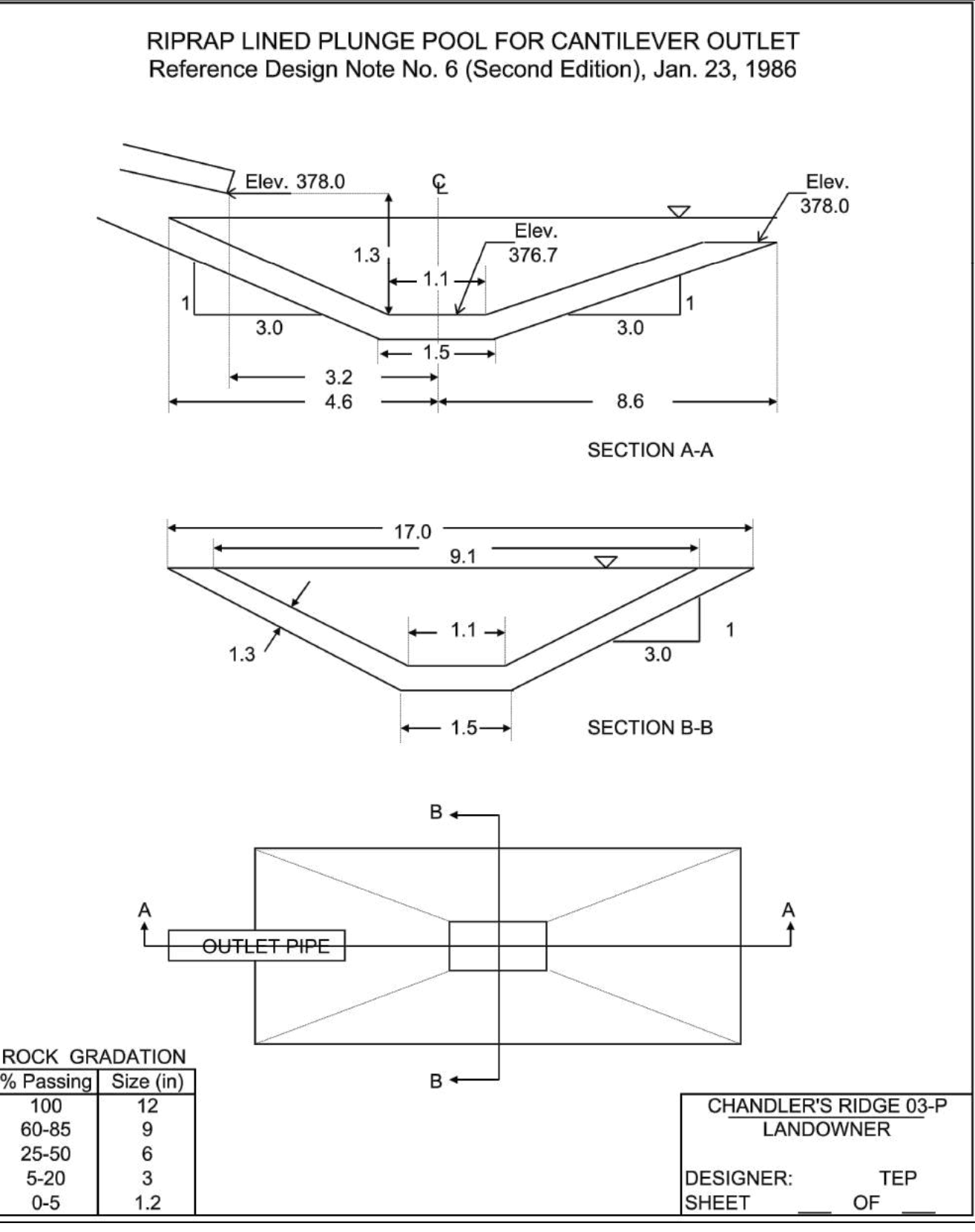
INPUT DATA:  
 Conduit Diameter: D = 1.00 ft  
 Conduit Discharge: Q = 6.00 cfs  
 Conduit Slope at Outlet: S = 0.01 ft/ft  
 Tailwater Elevation: EL TW = 377.00 ft  
 Outlet Channel Invert Elevation: EL CH = 377.00 ft

Water Density: RHO = 1.92  
 Riprap Particle Density (Default 2.64): RHO2 = 2.64  
 50 Riprap Size: R50 = 0.25 ft  
 Bedding Thickness: BT = 0.05 ft  
 Bedding Thickness (8 inch min. max.) (Elev & for castles): BT = 0.05 ft  
 Slope Ratio: Z = 3.00 ft/ft  
 Downstream End Slope Ratio: Z = 3.00 ft/ft  
 Combined End Slope Ratio: Z = 3.00 ft/ft

OUTPUT--POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: If Zp < 0, Use Zp = 0  
 Beaching Check: [Zp/50] < 0.1 (1.0/250) [OK]

OUTPUT--VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): Vbe = 16.90 cu yd  
 Volume of Rock Riprap: Vrs = 8.70 cu yd  
 Volume of Bedding: Vbd = 8.70 cu yd

Spreadsheet developed by D. Hurt, Midwest NTC, 190  
 Spreadsheet modified by B. Deanehouse, Eng. Clm, CTC, Ws, 3/98  
 Design Note No. 6 (Second Edition), Jan. 23, 1986  
 "Riprap Lined Plunge Pool for Cantilever Outlet"  
 Natural Resource Conservation Service  
 Engineering Division



**RIPRAP LINED PLUNGE POOL FOR CANTILEVER OUTLET (Version 8.0)**  
 Reference Design Note No. 6 (Second Edition), Jan. 23, 1986

DESIGNER: CHANDLER'S RIDGE 13-P  
 DATE: 8/14/2020

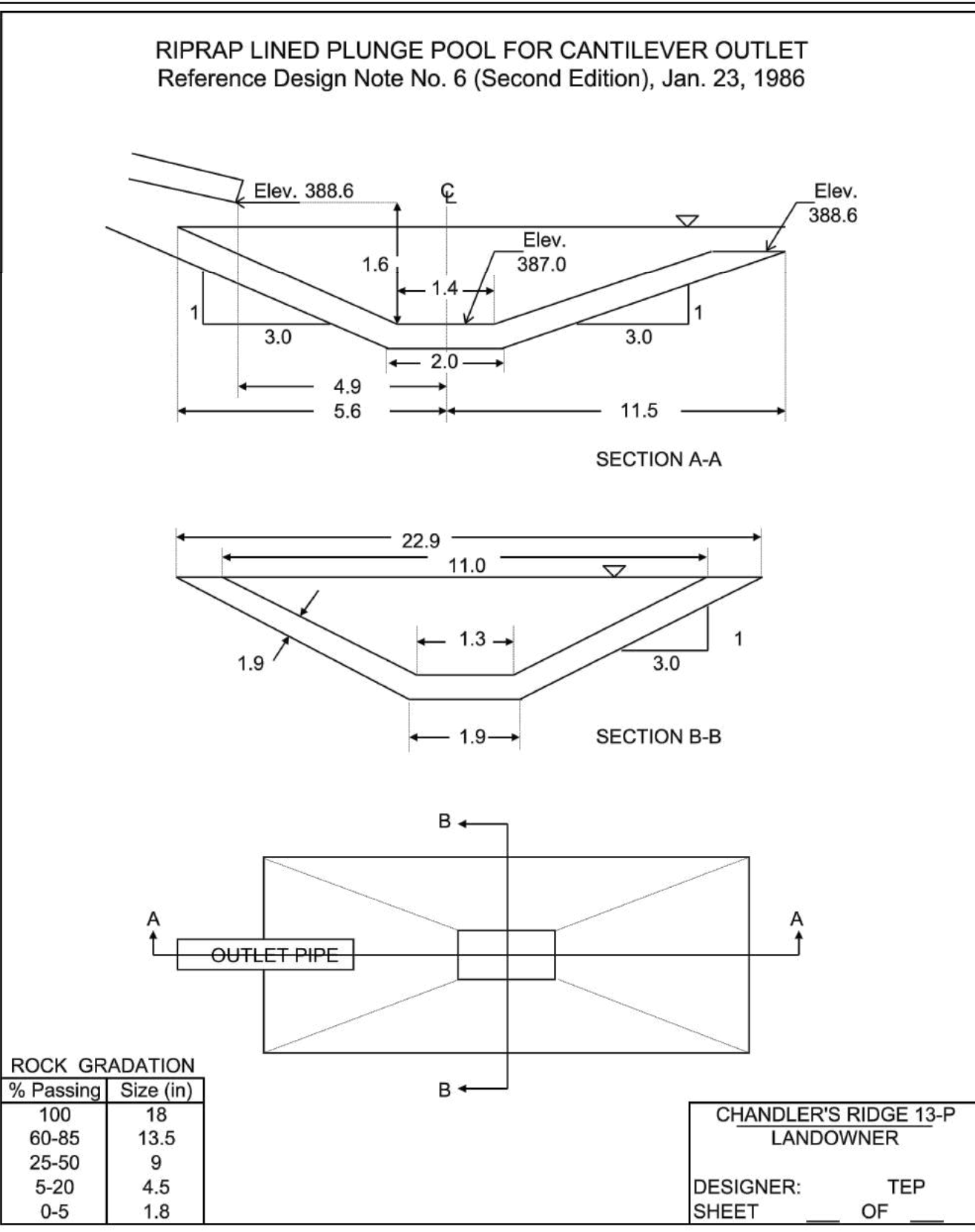
INPUT DATA:  
 Conduit Diameter: D = 1.00 ft  
 Conduit Discharge: Q = 6.00 cfs  
 Conduit Slope at Outlet: S = 0.01 ft/ft  
 Tailwater Elevation: EL TW = 377.00 ft  
 Outlet Channel Invert Elevation: EL CH = 377.00 ft

Water Density: RHO = 1.92  
 Riprap Particle Density (Default 2.64): RHO2 = 2.64  
 50 Riprap Size: R50 = 0.25 ft  
 Bedding Thickness: BT = 0.05 ft  
 Bedding Thickness (8 inch min. max.) (Elev & for castles): BT = 0.05 ft  
 Slope Ratio: Z = 3.00 ft/ft  
 Downstream End Slope Ratio: Z = 3.00 ft/ft  
 Combined End Slope Ratio: Z = 3.00 ft/ft

OUTPUT--POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: If Zp < 0, Use Zp = 0  
 Beaching Check: [Zp/50] < 0.1 (1.0/250) [OK]

OUTPUT--VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): Vbe = 36.40 cu yd  
 Volume of Rock Riprap: Vrs = 22.00 cu yd  
 Volume of Bedding: Vbd = 11.40 cu yd

Spreadsheet developed by D. Hurt, Midwest NTC, 190  
 Spreadsheet modified by B. Deanehouse, Eng. Clm, CTC, Ws, 3/98  
 Design Note No. 6 (Second Edition), Jan. 23, 1986  
 "Riprap Lined Plunge Pool for Cantilever Outlet"  
 Natural Resource Conservation Service  
 Engineering Division



**RIPRAP LINED PLUNGE POOL FOR CANTILEVER OUTLET (Version 8.0)**  
 Reference Design Note No. 6 (Second Edition), Jan. 23, 1986

DESIGNER: CHANDLER'S RIDGE 15AB-P  
 DATE: 8/14/2020

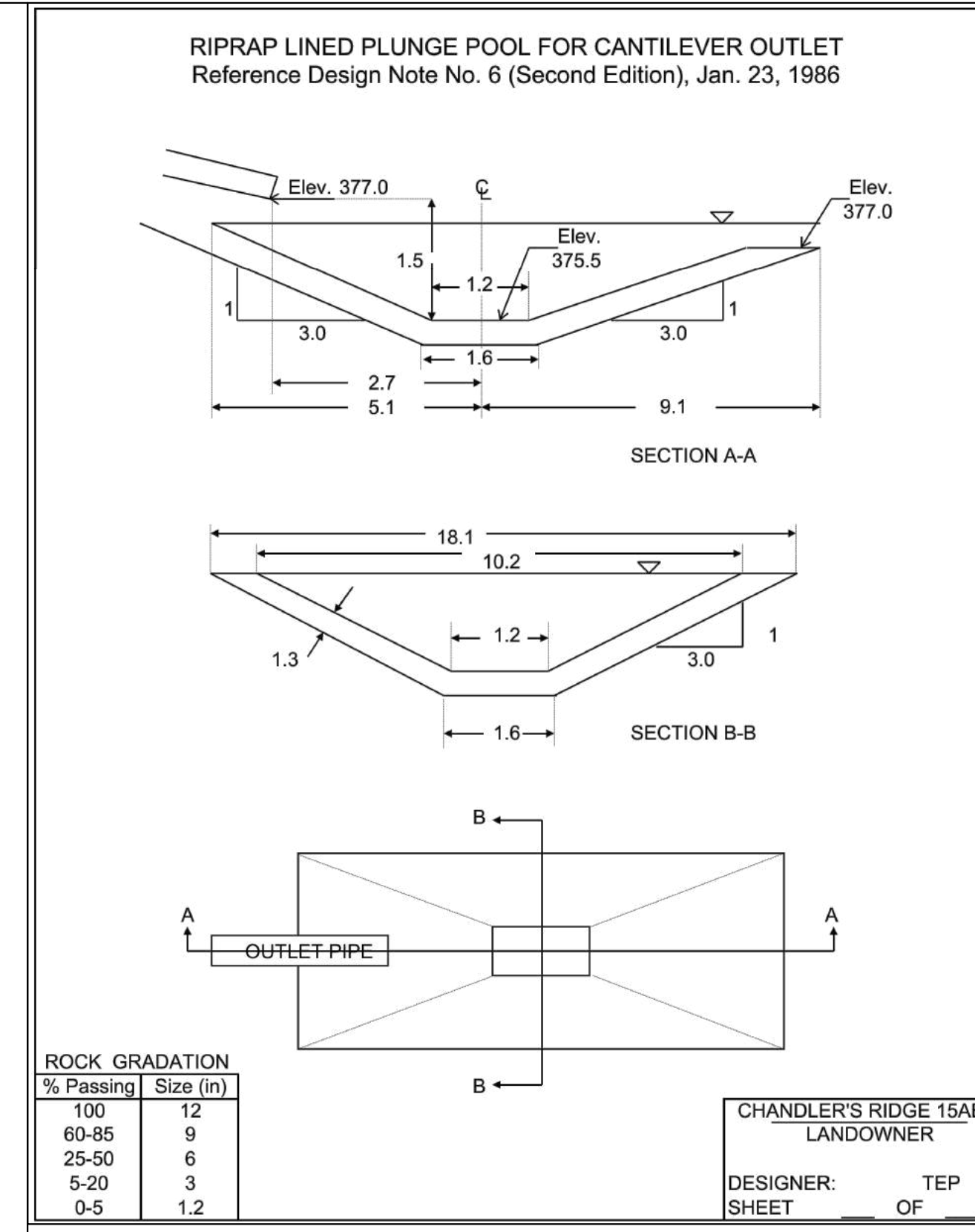
INPUT DATA:  
 Conduit Diameter: D = 1.00 ft  
 Conduit Discharge: Q = 6.00 cfs  
 Conduit Slope at Outlet: S = 0.01 ft/ft  
 Tailwater Elevation: EL TW = 377.00 ft  
 Outlet Channel Invert Elevation: EL CH = 377.00 ft

Water Density: RHO = 1.92  
 Riprap Particle Density (Default 2.64): RHO2 = 2.64  
 50 Riprap Size: R50 = 0.25 ft  
 Bedding Thickness: BT = 0.05 ft  
 Bedding Thickness (8 inch min. max.) (Elev & for castles): BT = 0.05 ft  
 Slope Ratio: Z = 3.00 ft/ft  
 Downstream End Slope Ratio: Z = 3.00 ft/ft  
 Combined End Slope Ratio: Z = 3.00 ft/ft

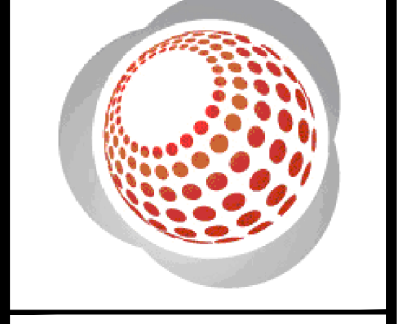
OUTPUT--POOL LOCATION AND DIMENSIONS:  
 Vert. Dist. from Tailwater to Conduit Invert: Zp = 0.00 ft  
 Submergence Check: If Zp < 0, Use Zp = 0  
 Beaching Check: [Zp/50] < 0.1 (1.0/250) [OK]

OUTPUT--VOLUMES BELOW WATER SURFACE ELEVATION:  
 Volume of Excavation (measured from bottom surface of bedding): Vbe = 19.80 cu yd  
 Volume of Rock Riprap: Vrs = 10.10 cu yd  
 Volume of Bedding: Vbd = 7.80 cu yd

Spreadsheet developed by D. Hurt, Midwest NTC, 190  
 Spreadsheet modified by B. Deanehouse, Eng. Clm, CTC, Ws, 3/98  
 Design Note No. 6 (Second Edition), Jan. 23, 1986  
 "Riprap Lined Plunge Pool for Cantilever Outlet"  
 Natural Resource Conservation Service  
 Engineering Division



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



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

**EROSION CONTROL**  
 DETAILS

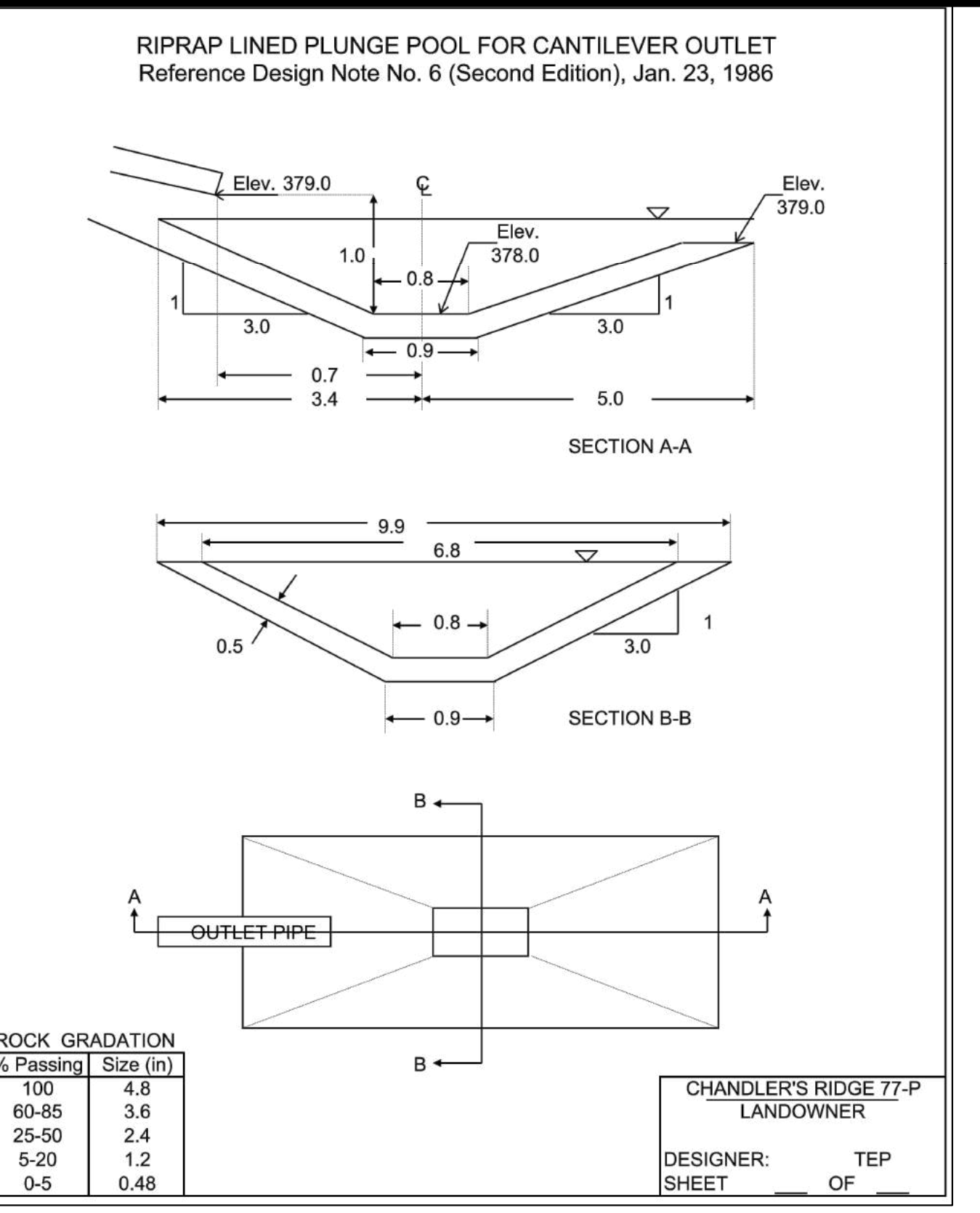
410 W. YOUNG ST.  
 ROLESVILLE, NC  
 WAKE COUNTY

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	
C926	





RIPRAP LINED PLUNGE POOL FOR CANTILEVER OUTLET (Version 8.06)		FORMULAS & COMPUTATIONS	
Reference Design Note No. 6 (Second Edition), Jan. 23, 1986			
DESIGNER: CHANDLER'S RIDGE 77-P	Date: 01/08/20	Z <sub>1</sub> = acceleration of gravity	32.20
CHECKED: TSS	Date:	Z <sub>2</sub> = maximum pool depth when Z <sub>1</sub> =1	6.50
INPUT DATA:		Z <sub>3</sub> = maximum pool depth when Z <sub>1</sub> =1	1.00
Conduit Diameter	D = 1.00 ft	V <sub>1</sub> = horizontal velocity component of jet impingement	1.70
Conduit Discharge	Q = 3.00 cfs	TAKA = jet impingement slope	4.08
Conduit Slope at Outlet	S = 0.10 ft/ft	V <sub>2</sub> = jet velocity at impingement	7.14
Conduit Invert Elevation	E <sub>1</sub> = 379.00 ft	X <sub>0</sub> = horizontal distance from conduit wall to center of jet at impingement	0.36
Tablet Elevation	E <sub>2</sub> = 379.00 ft	F <sub>0</sub> = Froude number	2.00
Outlet Channel Invert Elevation	E <sub>3</sub> = 379.00 ft	Z <sub>10</sub> = maximum pool depth when Z <sub>1</sub> =1	1.20
Water Density	RD = 1.90	Z <sub>20</sub> = maximum pool depth when Z <sub>1</sub> =1	1.50
Reynolds Number (Re)	RD = 2.20	Z <sub>30</sub> = maximum pool depth when Z <sub>1</sub> =1	4.33
Orifice Discharge Coefficient	CD = 0.50	Z <sub>40</sub> = maximum pool depth when Z <sub>1</sub> =1	0.74
Reynolds Number (Re)	RD = 2.20	Z <sub>50</sub> = maximum pool depth when Z <sub>1</sub> =1	1.36
Reynolds Number (Re)	RD = 2.20	Z <sub>60</sub> = maximum pool depth when Z <sub>1</sub> =1	1.92
Reynolds Number (Re)	RD = 2.20	Z <sub>70</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>80</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>90</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>100</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>110</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>120</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>130</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>140</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>150</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>160</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>170</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>180</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>190</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>200</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>210</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>220</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>230</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>240</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>250</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>260</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>270</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>280</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>290</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39
Reynolds Number (Re)	RD = 2.20	Z <sub>300</sub> = maximum pool depth when Z <sub>1</sub> =1	0.39



NO.	DESCRIPTION	DATE
03	CONSTRUCTION DOCUMENTS 3RD SUBMITTAL	09/08/2020
02	CONSTRUCTION DOCUMENTS 2ND SUBMITTAL	08/14/2020
01	CONSTRUCTION DOCUMENTS 1ST SUBMITTAL	06/19/2020
REV	DESCRIPTION	DATE
REVISIONS		

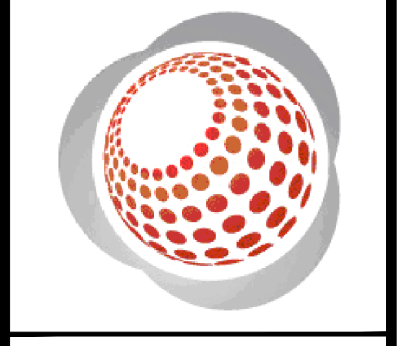
DESIGN OF RIPRAP OUTLET PROTECTION			
New York DOT Dissipator Method For Use in Defined Channels			
(Source: "Bank and channel lining procedures", New York Department of Transportation, Division of Design and Construction, 1971.)			
Guide to Color Key:	User Input Data	Calculated Value	Reference Data
Designed By:	TEP	Date:	01.08.20
Checked By:	TSS	Date:	
Company:	BCSC		
Project Name:	CHANDLER'S RIDGE		
Project No.:	170347		
Site Location (City/Town):	Roseville		
Culvert Id.:	C1		
<b>Estimation of Stone Size and Dimensions For Culvert Aprons</b>			
Step 1: Compute flow velocity V <sub>1</sub> at culvert or paved channel outlet.			
Step 2: For pipe culverts D <sub>c</sub> is diameter.			
For pipe arch, arch and box culverts, and paved channel outlets, D <sub>c</sub> = A, where A = cross-sectional area of flow at outlet.			
For multiple culverts, use D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Velocity (ft/s)	14.2		
Opening type	Pipe Culvert		
Single or multiple openings?	Multiple		
Culvert pipe diameter, D <sub>c</sub> (ft)	5		
NOTE 1: If opening type is anything other than "Pipe Culvert", D <sub>c</sub> = A, (Cross-sectional area of flow at outlet).			
NOTE 2: If multiple openings, D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Step 3: For apron grades of 10% or steeper, use recommendations for next highest zone. (Zones 1 through 6).			
Zone	5	Figure 8.06c	
Will apron have >=10% grade?	No		
NOTE: For apron slopes equal to or greater than 10%, use next higher Zone in Figure 8.06c to determine apron length.			
Apron length (ft)	25	Figure 8.06d	
<b>Determination of Stone Sizes For Dumped Stone Channel Linings and Revetments</b>			
Step 1: Use Figure 8.06 [a] to determine maximum stone size (e.g. for 12 Fps = 20" or 500 lbs).			
Max. stone size (in.)	30	Figure 8.06a	
Step 2: Use Figure 8.06 [b] to determine acceptable size range for stone (for 12 FPS in a 125-500 lbs. for 75% of stone, and the maximum and minimum range in weight should be 25-500 lbs.).			
NOTE: In determining channel velocities for stone linings and revetment, use the following coefficients of roughness.			
Diaper	Manning's n	Min. thickness of lining (inches)	
Light	0.031	9	12
Medium	0.044	12	18
Heavy	0.044	18	24
		30	36
		(Channel)	(Channel)
Min. & max range of stones (lbs)	75-2000	Figure 8.05f	
Weight range of 75% of stones (lbs)	600-2000	Figure 8.05g	

DESIGN OF RIPRAP OUTLET PROTECTION			
New York DOT Dissipator Method For Use in Defined Channels			
(Source: "Bank and channel lining procedures", New York Department of Transportation, Division of Design and Construction, 1971.)			
Guide to Color Key:	User Input Data	Calculated Value	Reference Data
Designed By:	TEP	Date:	01.08.20
Checked By:	TSS	Date:	
Company:	BCSC		
Project Name:	CHANDLER'S RIDGE		
Project No.:	170347		
Site Location (City/Town):	Roseville		
Culvert Id.:	C2		
<b>Estimation of Stone Size and Dimensions For Culvert Aprons</b>			
Step 1: Compute flow velocity V <sub>1</sub> at culvert or paved channel outlet.			
Step 2: For pipe culverts D <sub>c</sub> is diameter.			
For pipe arch, arch and box culverts, and paved channel outlets, D <sub>c</sub> = A, where A = cross-sectional area of flow at outlet.			
For multiple culverts, use D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Velocity (ft/s)	14.95		
Opening type	Pipe Culvert		
Single or multiple openings?	Multiple		
Culvert pipe diameter, D <sub>c</sub> (ft)	5		
NOTE 1: If opening type is anything other than "Pipe Culvert", D <sub>c</sub> = A, (Cross-sectional area of flow at outlet).			
NOTE 2: If multiple openings, D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Step 3: For apron grades of 10% or steeper, use recommendations for next highest zone. (Zones 1 through 6).			
Zone	5	Figure 8.06c	
Will apron have >=10% grade?	No		
NOTE: For apron slopes equal to or greater than 10%, use next higher Zone in Figure 8.06c to determine apron length.			
Apron length (ft)	25	Figure 8.06d	
<b>Determination of Stone Sizes For Dumped Stone Channel Linings and Revetments</b>			
Step 1: Use Figure 8.06 [a] to determine maximum stone size (e.g. for 12 Fps = 20" or 500 lbs).			
Max. stone size (in.)	30	Figure 8.06a	
Step 2: Use Figure 8.06 [b] to determine acceptable size range for stone (for 12 FPS in a 125-500 lbs. for 75% of stone, and the maximum and minimum range in weight should be 25-500 lbs.).			
NOTE: In determining channel velocities for stone linings and revetment, use the following coefficients of roughness.			
Diaper	Manning's n	Min. thickness of lining (inches)	
Light	0.031	9	12
Medium	0.044	12	18
Heavy	0.044	18	24
		30	36
		(Channel)	(Channel)
Min. & max range of stones (lbs)	75-2000	Figure 8.05f	
Weight range of 75% of stones (lbs)	600-2000	Figure 8.05g	

DESIGN OF RIPRAP OUTLET PROTECTION			
New York DOT Dissipator Method For Use in Defined Channels			
(Source: "Bank and channel lining procedures", New York Department of Transportation, Division of Design and Construction, 1971.)			
Guide to Color Key:	User Input Data	Calculated Value	Reference Data
Designed By:	TEP	Date:	01.08.20
Checked By:	TSS	Date:	
Company:	BCSC		
Project Name:	CHANDLER'S RIDGE		
Project No.:	170347		
Site Location (City/Town):	Roseville		
Culvert Id.:	C3		
<b>Estimation of Stone Size and Dimensions For Culvert Aprons</b>			
Step 1: Compute flow velocity V <sub>1</sub> at culvert or paved channel outlet.			
Step 2: For pipe culverts D <sub>c</sub> is diameter.			
For pipe arch, arch and box culverts, and paved channel outlets, D <sub>c</sub> = A, where A = cross-sectional area of flow at outlet.			
For multiple culverts, use D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Velocity (ft/s)	15.3		
Opening type	Pipe Culvert		
Single or multiple openings?	Multiple		
Outlet pipe diameter, D <sub>c</sub> (ft)	5		
NOTE 1: If opening type is anything other than "Pipe Culvert", D <sub>c</sub> = A, (Cross-sectional area of flow at outlet).			
NOTE 2: If multiple openings, D <sub>c</sub> = 1.25 x D <sub>c</sub> of single culvert.			
Step 3: For apron grades of 10% or steeper, use recommendations for next highest zone. (Zones 1 through 6).			
Zone	5	Figure 8.06c	
Will apron have >=10% grade?	No		
NOTE: For apron slopes equal to or greater than 10%, use next higher Zone in Figure 8.06c to determine apron length.			
Apron length (ft)	25	Figure 8.06d	
<b>Determination of Stone Sizes For Dumped Stone Channel Linings and Revetments</b>			
Step 1: Use Figure 8.06 [a] to determine maximum stone size (e.g. for 12 Fps = 20" or 500 lbs).			
Max. stone size (in.)	32	Figure 8.06a	
Step 2: Use Figure 8.06 [b] to determine acceptable size range for stone (for 12 FPS in a 125-500 lbs. for 75% of stone, and the maximum and minimum range in weight should be 25-500 lbs.).			
NOTE: In determining channel velocities for stone linings and revetment, use the following coefficients of roughness.			
Diaper	Manning's n	Min. thickness of lining (inches)	
Light	0.031	9	12
Medium	0.044	12	18
Heavy	0.044	18	24
		30	36
		(Channel)	(Channel)
Min. & max range of stones (lbs)	75-2000	Figure 8.05f	
Weight range of 75% of stones (lbs)	600-2000	Figure 8.05g	



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CHANDLER'S RIDGE  
 CONSTRUCTION DOCUMENTS  
 CONSERVATION SUBDIVISION

EROSION CONTROL  
 DETAILS

Project Engineer:	TSS
Designed By:	TEP
Drawn By:	TEP
Checked By:	TSS
Scale:	
Date:	09/08/2020
Project Number:	P170347
SHEET	
C928	