

# ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF ROLESVILLE STANDARDS AND SPECIFICATIONS

## SYMBOLS AND ABBREVIATIONS

ABC	AGGREGATE BASE COURSE	—	EXISTING CURB INLET
ALUM	ALUMINUM	□	EXISTING GRATE INLET/YARD INLET
AST2	ALUMINIZED STEEL - TYPE 2	—	EXISTING FLARED END SECTION
B-B	BACK TO BACK	⊕	EXISTING FIRE HYDRANT
BOA	BLOW-OFF ASSEMBLY	—	EXISTING BLOW-OFF ASSEMBLY
C&G	CURB AND GUTTER	—	EXISTING GATE VALVE
CFS	CUBIC FEET PER SECOND	—	EXISTING REDUCER
CI	CURB INLET	□	EXISTING WATER METER
CL	CENTER LINE	—	EXISTING SAN SEWER MANHOLE
CMP	CORRUGATED METAL PIPE	—	EXISTING CLEAN OUT
CO	CLEAN OUT	⊕	EXISTING POWER POLE
COM	COMMUNICATION	—	EXISTING TELEPHONE PEDESTAL
CONC	CONCRETE	—	EXISTING AREA LIGHT
DCV	DOUBLE CHECK VALVE	—	EXISTING SIGN
DDCV	DOUBLE DETECTOR CHECK VALVE	—	NEW CURB INLET
DI	DROP INLET	—	NEW GRATE INLET/YARD INLET
DIP	DUCTILE IRON PIPE	—	NEW FLARED END SECTION
EASE	EASEMENT	—	NEW FIRE HYDRANT
ELEC	ELECTRIC	—	NEW BLOW-OFF ASSEMBLY
EX	EXISTING	—	NEW GATE VALVE
FES	FLARED END SECTION	—	NEW REDUCER
FH	FIRE HYDRANT	⊕	NEW WATER METER
FM	FORCE MAIN	—	NEW TEE
FT	FEET	—	NEW FLUG
FT/SEC	FEET PER SEC	—	NEW MANHOLE
GALV	GALVANIZED	—	NEW CLEAN OUT
GV	GATE VALVE	—	NEW SIGN
HDPE	HIGH DENSITY POLYETHYLENE	—	IRON PIPE
L	LENGTH	—	BENCHMARK
LF	LINEAR FEET	—	—
MH	MANHOLE	—	—
PAVE	PAVEMENT	—	—
PE	FINISHED PAD ELEVATION	—	—
PP	POWER POLE	—	—
PVC	POLYVINYL CHLORIDE	—	—
R	RADIUS	—	—
R/W	RIGHT-OF-WAY	—	—
RED	REDUCER	—	—
RCP	REINFORCED CONCRETE PIPE	—	—
RPZ	REDUCED PRESSURE ZONE	—	—
SS	SANITARY SEWER	—	—
STA	STATION	—	—
TDD	TEMPORARY DIVERSION DITCH	—	—
TELE	TELEPHONE	—	—
TSB	TEMPORARY SEDIMENT BASIN	—	—
UG	UNDERGROUND	—	—
WCR	WHEELCHAIR RAMP	—	—
W/L	WATER LINE	—	—
WM	WATER METER	—	—
YI	YARD INLET	—	—

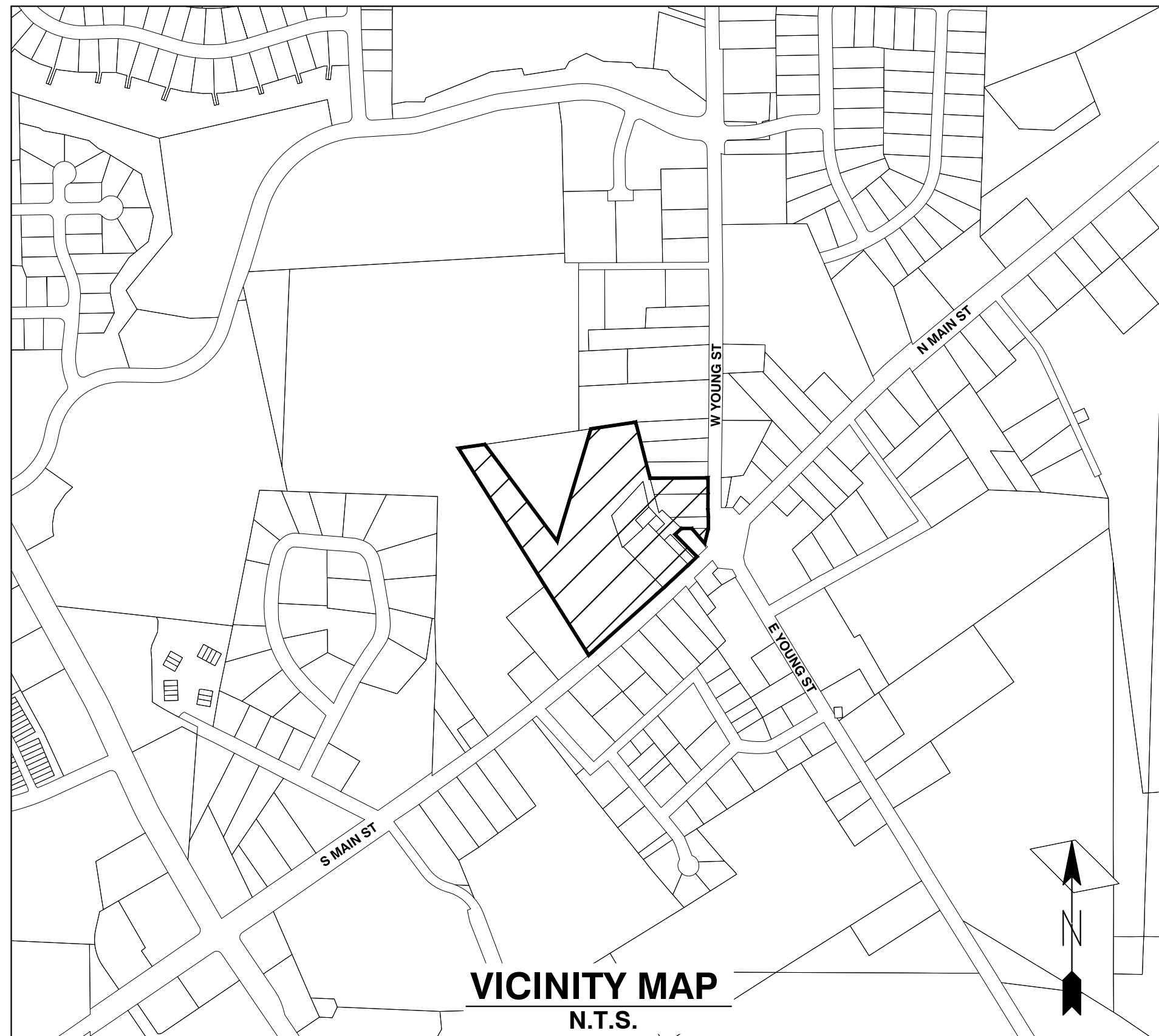
NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

# COBBLESTONE VILLAGE MIXED USE DEVELOPMENT

## TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

# CONSTRUCTION DRAWINGS

## TOWN OF ROLESVILLE PROJECT NO. SITE PLAN APPLICATION NO. CUP-SB-21-01



**Public**  
**Water Distribution / Extension System**  
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
City of Raleigh  
Public Utilities Department Permit # W-3879  
Authorization to Construct See digital signature

**Private**  
**Sewer Collection / Extension System**  
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 # S-4962 (P)  
Authorization to Construct See digital signature

### 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 # W-3879

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 # S-2892 (P)

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 #

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 relied upon issued. Any modification to this approval once issued will invalidate this approval.  
City of Raleigh Development Approval \_\_\_\_\_  
Raleigh Water Review Officer

**OWNER:**  
**TOWN OF ROLESVILLE**  
**P.O. BOX 250**  
**ROLESVILLE, NC 27571-0250**

**DEVELOPER:**  
**KDM DEVELOPMENT CORPORATION**  
**1080 PITTSFORD VICTOR RD, STE 202**  
**PITTSFORD NY 14534-3805**

**CONTACT: KENYON BURHNAM**  
**PHONE: 585-465-0099**  
**EMAIL: KBURNHA2@U.ROCHESTER.EDU**

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## CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE MUNICIPALITY STANDARDS, SPECIFICATIONS, AND DETAILS. WORK IN THIS PROJECT SHALL ALSO CONFORM TO THESE PLANS, THE LATEST EDITIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) ROAD AND BRIDGE SPECIFICATIONS, THE ROAD AND BRIDGE STANDARDS, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS, THE FINAL GEOTECHNICAL REPORT, AND GENERAL DESIGN STANDARDS. IN THE EVENT OF CONFLICT BETWEEN ANY OF THESE STANDARDS, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT SHALL GOVERN.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TRENCH SAFETY DURING ALL PHASES OF CONSTRUCTION.
- THE LOCATION AND SIZE OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR HORIZONTALLY AND VERTICALLY LOCATING AND PROTECTING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. AT LEAST 48 HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE NORTH CAROLINA ONE-CALL UTILITIES LOCATION SERVICE (1-800-632-4949) FOR PROPER IDENTIFICATION OF EXISTING UTILITIES WITHIN THE SITE.
- THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES. THE CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- TRAFFIC CONTROL ON PUBLIC STREETS SHALL BE IN CONFORMANCE WITH THE TRAFFIC CONTROL PLAN, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND AS FURTHER DIRECTED BY CITY AND STATE INSPECTORS.
- ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE BY THE CONTRACTOR AFTER HIS DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
- A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE THE MEETING WITH THE CITY ENGINEERING DIVISION.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL REQUIRED PERMITS AND APPROVALS PRIOR TO COMMENCING CONSTRUCTION.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE, AND AS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE SILT FENCES (OR OTHER METHODS APPROVED BY THE ENGINEER AND APPLICABLE MUNICIPALITY) AS REQUIRED TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM FLOWING ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL EROSION, CONSERVATION, AND SILTATION ORDINANCES. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF PERMANENT DRAINAGE FACILITIES AND THE ESTABLISHMENT OF A STAND OF GRASS OR OTHER GROWTH TO PREVENT EROSION.
- THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
- MATERIALS USED TO CONSTRUCT EMBANKMENTS FOR ANY PURPOSE, BACKFILL AROUND DRAINAGE STRUCTURES, OR IN UTILITY TRENCHES FOR ANY OTHER DEPRESSION REQUIRING FILL OR BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET OUT IN ASTM STANDARD D998. STONE BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST AS SET OUT IN ASTM STANDARD D1557. THE CONTRACTOR SHALL, PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IS REPRESENTATIVE OF THE MATERIALS TO BE USED ON THE PROJECT. TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATIONS MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY.
- PROPOSED CONTOURS AND GUTTER GRADIENTS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND ROADWAY PROFILES/SUPERELEVATIONS ARE TO BE USED IN CASE OF DISCREPANCY.
- THE CONTRACTOR SHALL REVIEW, VERIFY AND COORDINATE ALL DIMENSIONS SHOWN ON PLANS, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER PRIOR TO STARTING PROJECT.
- ALL CURB JOINTS SHALL EXTEND THROUGH THE CURB. MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS IS 1.5 FEET. ALL JOINTS SHALL BE SEALED WITH JOINT SEALANT.
- ALL HANDICAP RAMPING, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA REQUIREMENTS AND THE 'NORTH CAROLINA STATE BUILDING CODE, VOL. 1-C ACCESSIBILITY CODE.
- OWNER SHALL PROVIDE FENCING AND OTHER SAFETY MEASURES NECESSARY IN AND AROUND ANY PROPOSED STORMWATER MANAGEMENT MEASURES (PONDS, WETLANDS, ETC.) OBTAINING PROPER PERMITS SHALL BE THE RESPONSIBILITY OF THE OWNER.
- RETAINING WALLS EXCEEDING 30 INCHES IN HEIGHT SHALL INCLUDE FALL PROTECTION IN THE FORM OF A HANDRAIL OR FENCING ON THE HIGH SIDE OF THE RETAINING WALL.
- PROPER COMPACTION OF ALL FILL SOILS PLACED ON SITE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COMPACTION SHALL BE ADEQUATE TO SUPPORT THE PROPOSED USE OF AREAS IN WHICH FILL SOILS ARE PLACED. THE CONTRACTOR SHALL HIRE A GEOTECHNICAL ENGINEER TO TEST AND VERIFY THAT COMPACTION IS ADEQUATE FOR THE PROPOSED USE OF THE AREA OF FILL PLACEMENT.
- ALL ASPECTS OF THIS PROJECT SHALL BE IN FULL COMPLIANCE WITH CURRENT ADA STANDARDS. IF THE CONTRACTOR NOTES ANY ASPECTS OF THE PROJECT WHICH ARE NOT IN COMPLIANCE, THE ENGINEER SHALL BE NOTIFIED PRIOR TO ANY FURTHER WORK BEING PERFORMED. ANY WORK PERFORMED AFTER THE CONTRACTOR NOTES SUCH A NON COMPLIANCE IS SUBJECT TO REMOVAL AND REPAIR AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR OR OWNER SHALL EMPLOY A GEOTECHNICAL ENGINEER TO TEST ALL EMBANKMENTS AND FILL PLACEMENT FOR PROPER COMPACTION. PROPER COMPACTION SHALL BE PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS OR THESE PLANS, WHICHEVER IS MORE STRINGENT. EMBANKMENTS FOR PONDS SHALL BE PLACED IN 6 INCH LOOSE LAYERS AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF 4% OR TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D998. THE CONTRACTOR SHALL TAKE PHOTOGRAPHS OF THE OUTLET STRUCTURE AT ALL AT ALL PHASES OF INSTALLATION AND SHALL RETAIN WITH GEOTECHNICAL TESTING DATA. THE CONTRACTOR SHALL ALSO RETAIN ALL SHIPPING RECORDS AND SPECIFICATIONS FOR THE OUTLET STRUCTURE MATERIALS AND STRUCTURES. ALL OF THE ABOVE DATA MAY BE REQUIRED AS PART OF THE MUNICIPALITY AS-BUILT PROCESS AND SHALL BE MADE AVAILABLE TO THE ENGINEER UPON REQUEST. THE CONTRACTOR AND OWNER SHALL HAVE DOCUMENTATION OF THESE TESTS AVAILABLE UPON REQUEST.
- RETAINING WALLS SHOWN HEREIN SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER WITH EXPERIENCE DESIGNING RETAINING WALLS. AT LEAST 14 DAYS PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALLS, THE CONTRACTOR SHALL CONTACT THE OWNER'S GEOTECHNICAL ENGINEER TO SCHEDULE AND COORDINATE ALL APPROPRIATE INSPECTIONS, TESTING, AND VERIFICATION NECESSARY DURING RETAINING WALL CONSTRUCTION. THE GEOTECHNICAL ENGINEER SHALL PROVIDE CONTINUOUS INSPECTION, TESTING AND VERIFICATION FOR THE DURATION OF RETAINING WALL CONSTRUCTION. PROPER SCHEDULING, EXECUTION, AND RECORD KEEPING FOR ALL REQUIRED INSPECTIONS, TESTING, AND VERIFICATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH RECORDS SHALL BE RETAINED AND SHALL BE PROVIDED TO THE OWNER AND BASS, NIXON & KENNEDY, INC. ALL MONITORING, TESTING, AND VERIFICATION SHALL CONFORM TO THE MOST RECENT VERSION OF THE NC BUILDING CODE CHAPTER 18, SECTION 1806 OR THE WALL DESIGN ENGINEER'S SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.



## QUANTITY SUMMARY

PHASE NUMBER(S)	1
NUMBER OF LOT(S)	1
LOT NUMBER(S) BY PHASE	N/A
NUMBER OF UNITS	180
LIVABLE BUILDINGS	6
OPEN SPACE (AC)	2.32
NUMBER OF OPEN SPACE LOTS	N/A
PUBLIC WATER (LF)	875
PRIVATE SEWER (LF)	550
PUBLIC STREET (LF)	0
PUBLIC SIDEWALK (LF)	0

ENGINEER:



**BASS, NIXON & KENNEDY, INC.**  
**CONSULTING ENGINEERS**

**6310 CHAPEL HILL ROAD, SUITE 250**  
**RALEIGH, NORTH CAROLINA 27607**  
**TELEPHONE: (919) 851-4422**  
**FAX: (919) 851-8968**

**CERTIFICATION NUMBERS: NCBELS (C-0110)**  
**NCBOLA (C-0267)**

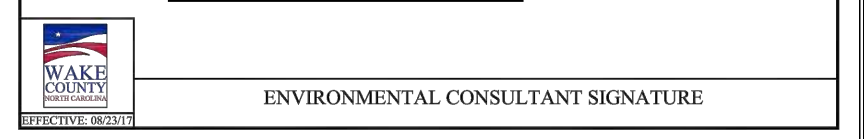
**CONTACT: MARTY D. BIZZELL, PE, CPESC**  
**EMAIL: Marty.Bizzell@BNKinc.com**



3/10/22

## EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT

APPROVED  
EROSION CONTROL  S-\_\_\_\_\_  
STORMWATER MGMT.  S-\_\_\_\_\_  
FLOOD STUDY  S-\_\_\_\_\_  
DATE \_\_\_\_\_

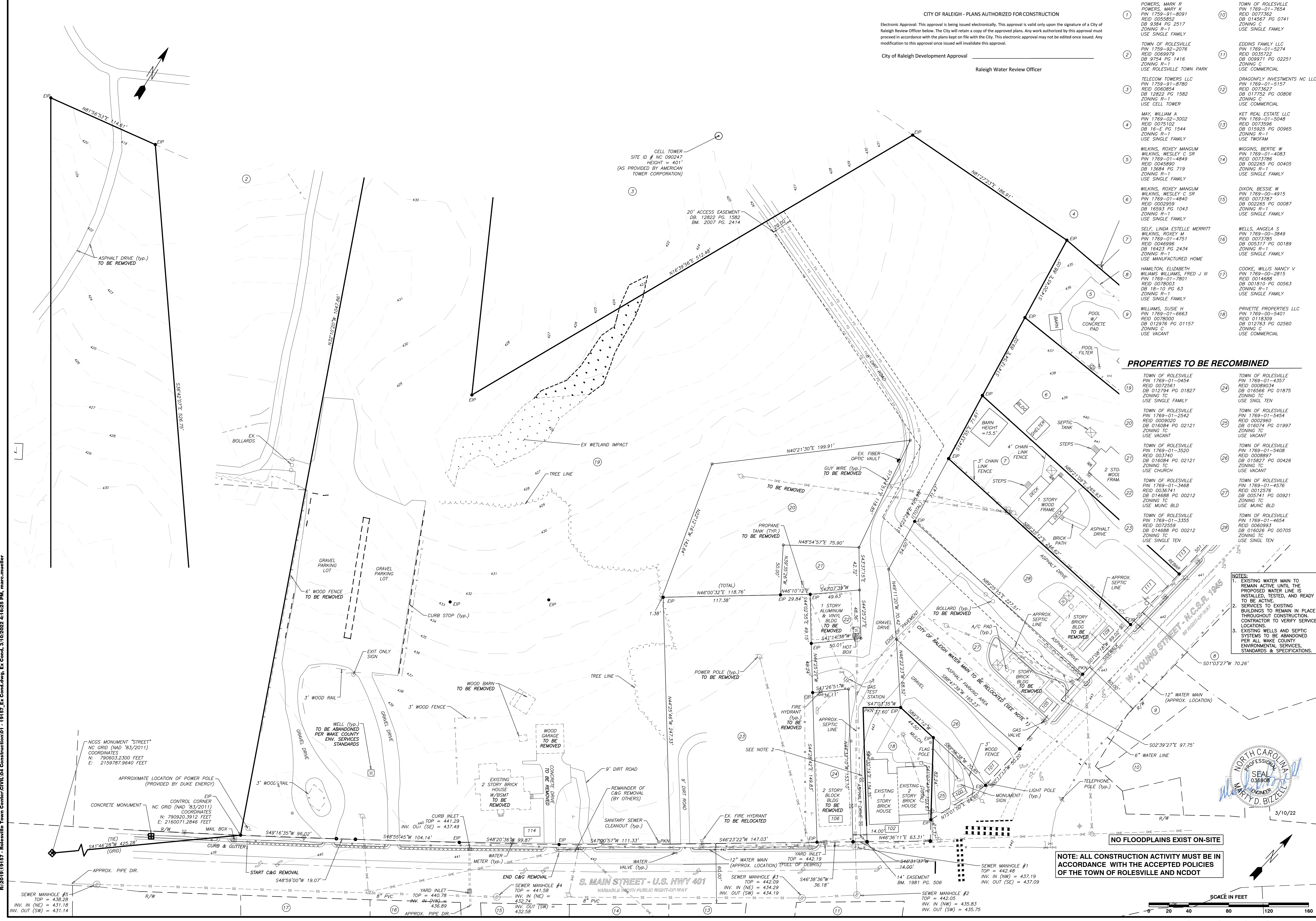


ENVIRONMENTAL CONSULTANT SIGNATURE

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

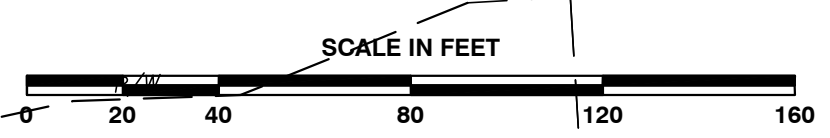


PROPERTIES TO BE RECOMBINED

- |    |   |    |   |
|----|---|----|---|
| 19 | TOWN OF ROLESVILLE<br>PIN 1769-01-0454<br>REID 00089020<br>DB 016084 PG 02121<br>ZONING TC<br>USE SINGLE FAMILY | 24 | TOWN OF ROLESVILLE<br>PIN 1769-01-4357<br>REID 00089034<br>DB 016566 PG 01875<br>ZONING TC<br>USE SINGL TEN |
| 20 | TOWN OF ROLESVILLE<br>PIN 1769-01-2542<br>REID 0009020<br>DB 016084 PG 02121<br>ZONING TC<br>USE VACANT         | 25 | TOWN OF ROLESVILLE<br>PIN 1769-01-5454<br>REID 0009260<br>DB 016074 PG 01997<br>ZONING TC<br>USE VACANT     |
| 21 | TOWN OF ROLESVILLE<br>PIN 1769-01-3520<br>REID 003740<br>DB 016084 PG 02121<br>ZONING TC<br>USE CHURCH          | 26 | TOWN OF ROLESVILLE<br>PIN 1769-01-5408<br>REID 0008897<br>DB 015827 PG 00426<br>ZONING TC<br>USE VACANT     |
| 22 | TOWN OF ROLESVILLE<br>PIN 1769-01-3468<br>REID 0036741<br>DB 014688 PG 00212<br>ZONING TC<br>USE MUNC BLD       | 27 | TOWN OF ROLESVILLE<br>PIN 1769-01-4576<br>REID 0012576<br>DB 005741 PG 00921<br>ZONING TC<br>USE MUNC BLD   |
| 23 | TOWN OF ROLESVILLE<br>PIN 1769-01-3468<br>REID 0036741<br>DB 014688 PG 00212<br>ZONING TC<br>USE SINGLE TEN     | 28 | TOWN OF ROLESVILLE<br>PIN 1769-01-4654<br>REID 0008993<br>DB 016026 PG 00705<br>ZONING TC<br>USE SINGL TEN  |

- NOTES:
- EXISTING WATER MAIN TO REMAIN ACTIVE UNTIL THE PROPOSED WATER LINE IS INSTALLED, TESTED, AND READY TO BE ACTIVE.
  - SERVICES TO EXISTING BUILDINGS TO REMAIN IN PLACE THROUGHOUT CONSTRUCTION. CONTRACTOR TO VERIFY SERVICE LOCATIONS.
  - EXISTING WELLS AND SEPTIC SYSTEMS TO BE ABANDONED PER ALL WAKE COUNTY ENVIRONMENTAL SERVICES, STANDARDS & SPECIFICATIONS.

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**BASS, NIXON & KENNEDY, INC.**  
 CONSULTING ENGINEERS  
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
 TELEPHONE: (919) 881-4422 FAX: (919) 881-6886  
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

PROGRESS DRAWN BY: MRM  
 DATE: 03-19-22  
 JOB NO.: 19137-EX-CON-DEM-PLN  
 EXISTING CONDITIONS & DEMOLITION PLAN  
 SCALE: 1" = 40'  
 CHK BY: MDB

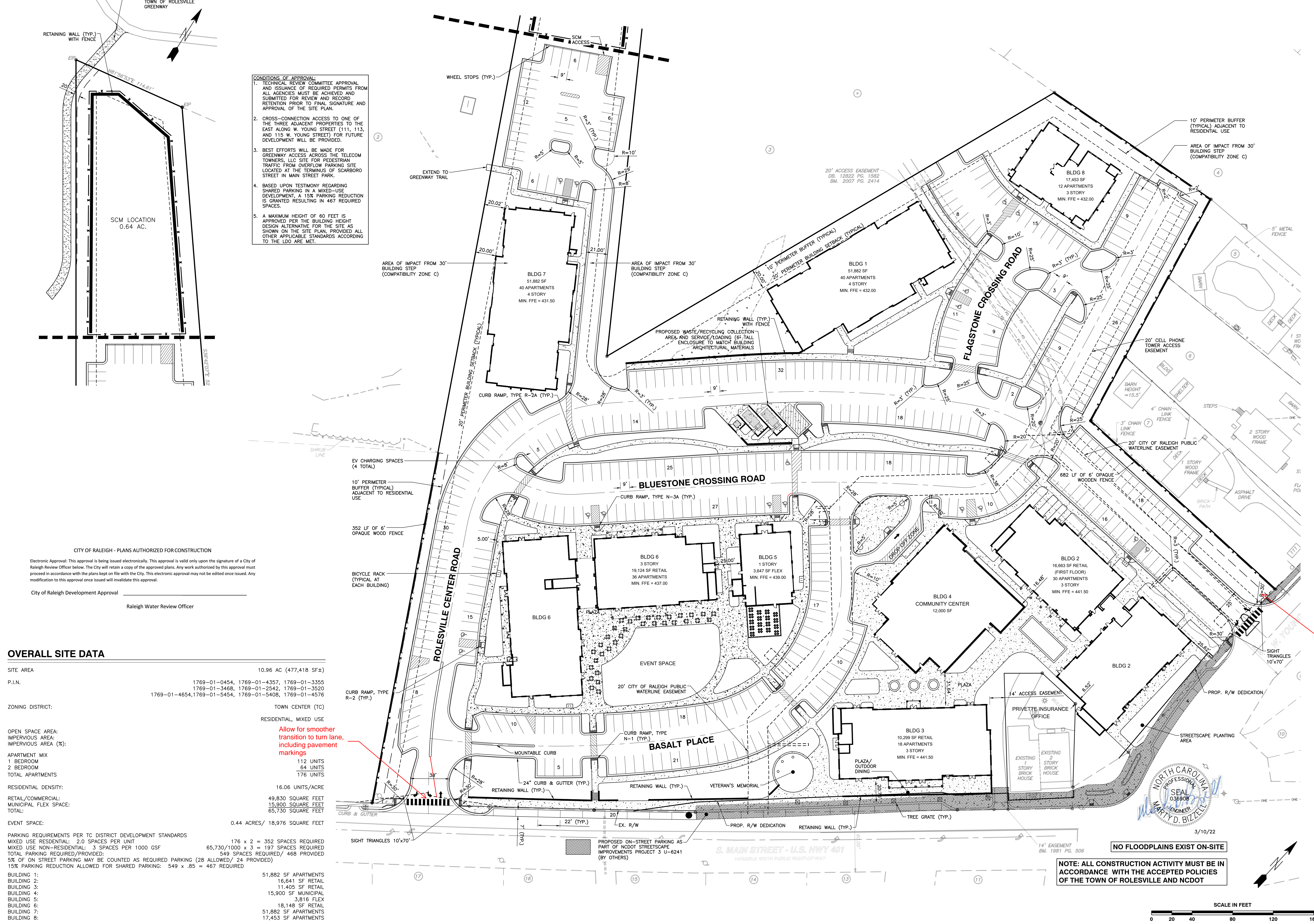
**COBBLESTONE VILLAGE MIXED USE DEVELOPMENT**  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET **C0.1**

TOWN OF ROLESVILLE PROJECT NO. \_\_\_\_\_

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

- CONDITIONS OF APPROVAL:**
1. TECHNICAL REVIEW COMMITTEE APPROVAL AND ISSUANCE OF REQUIRED PERMITS FROM ALL AGENCIES MUST BE ACHIEVED AND SUBMITTED FOR REVIEW AND RECORD RETENTION PRIOR TO FINAL SIGNATURE AND APPROVAL OF THE SITE PLAN.
  2. CROSS-CONNECTION ACCESS TO ONE OF THE THREE ADJACENT PROPERTIES TO THE EAST ALONG W. YOUNG STREET (111, 113, AND 115 W. YOUNG STREET) FOR FUTURE DEVELOPMENT WILL BE PROVIDED.
  3. BEST EFFORTS WILL BE MADE FOR GREENWAY ACCESS ACROSS THE TELECOM TOWERS, LLC SITE FOR PEDESTRIAN TRAFFIC FROM OVERFLOW PARKING SITE LOCATED AT THE TERMINUS OF SCARBORO STREET IN MAIN STREET PARK.
  4. BASED UPON TESTIMONY REGARDING SHARED PARKING IN A MIXED-USE DEVELOPMENT, A 15% PARKING REDUCTION IS GRANTED RESULTING IN 467 REQUIRED SPACES.
  5. A MAXIMUM HEIGHT OF 60 FEET IS APPROVED PER THE BUILDING HEIGHT DESIGN ALTERNATIVE FOR THE SITE AS SHOWN ON THE SITE PLAN, PROVIDED ALL OTHER APPLICABLE STANDARDS ACCORDING TO THE LDO ARE MET.



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 Raleigh Water Review Officer \_\_\_\_\_

**OVERALL SITE DATA**

SITE AREA	10.96 AC (477,418 SF±)
P.I.N.	1769-01-0454, 1769-01-4357, 1769-01-3355 1769-01-3468, 1769-01-2542, 1769-01-3520 1769-01-4654, 1769-01-5454, 1769-01-5408, 1769-01-4576
ZONING DISTRICT:	TOWN CENTER (TC) RESIDENTIAL, MIXED USE
OPEN SPACE AREA:	16.06 UNITS/ACRE
IMPERVIOUS AREA:	49,830 SQUARE FEET
IMPERVIOUS AREA (%):	15,900 SQUARE FEET 65,730 SQUARE FEET
APARTMENT MIX	112 UNITS 64 UNITS 176 UNITS
TOTAL APARTMENTS	352 UNITS
RESIDENTIAL DENSITY:	16.06 UNITS/ACRE
RETAIL/COMMERCIAL:	49,830 SQUARE FEET
MUNICIPAL FLEX SPACE:	15,900 SQUARE FEET
TOTAL:	65,730 SQUARE FEET
EVENT SPACE:	0.44 ACRES/ 18,976 SQUARE FEET
PARKING REQUIREMENTS PER TC DISTRICT DEVELOPMENT STANDARDS	
MIXED USE RESIDENTIAL: 2.0 SPACES PER UNIT	176 x 2 = 352 SPACES REQUIRED
MIXED USE NON-RESIDENTIAL: 3 SPACES PER 1000 GSF	65,730/1000 x 3 = 197 SPACES REQUIRED
TOTAL PARKING REQUIRED/PROVIDED:	549 SPACES REQUIRED/ 468 PROVIDED
5% OF ON STREET PARKING MAY BE COUNTED AS REQUIRED PARKING (28 ALLOWED/ 24 PROVIDED)	
15% PARKING REDUCTION ALLOWED FOR SHARED PARKING: 549 x .85 = 467 REQUIRED	
BUILDING 1:	51,882 SF APARTMENTS
BUILDING 2:	16,641 SF RETAIL
BUILDING 3:	11,405 SF RETAIL
BUILDING 4:	15,900 SF MUNICIPAL
BUILDING 5:	3,816 FLEX
BUILDING 6:	18,148 SF RETAIL
BUILDING 7:	51,882 SF APARTMENTS
BUILDING 8:	17,453 SF APARTMENTS

Allow for smoother transition to turn lane, including pavement markings

NO.	DATE	DESCRIPTION	BY

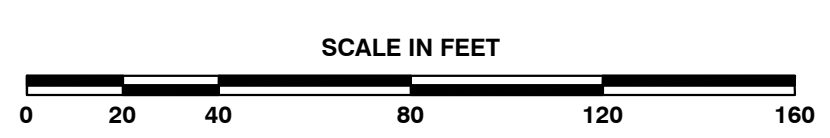
southbound right turn lane was identified as a required NCDOT roadway improvement

**COBBLESTONE VILLAGE**  
**MIXED USE DEVELOPMENT**  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET **C1.1**



NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

**Public**  
 Water Distribution / Extension System

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

City of Raleigh  
 Public Utilities Department Permit # W-3879  
 Authorization to Construct See digital signature

**Private**  
 Sewer Collection / Extension System

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 # S-4962 (P)  
 Authorization to Construct See digital signature

**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.

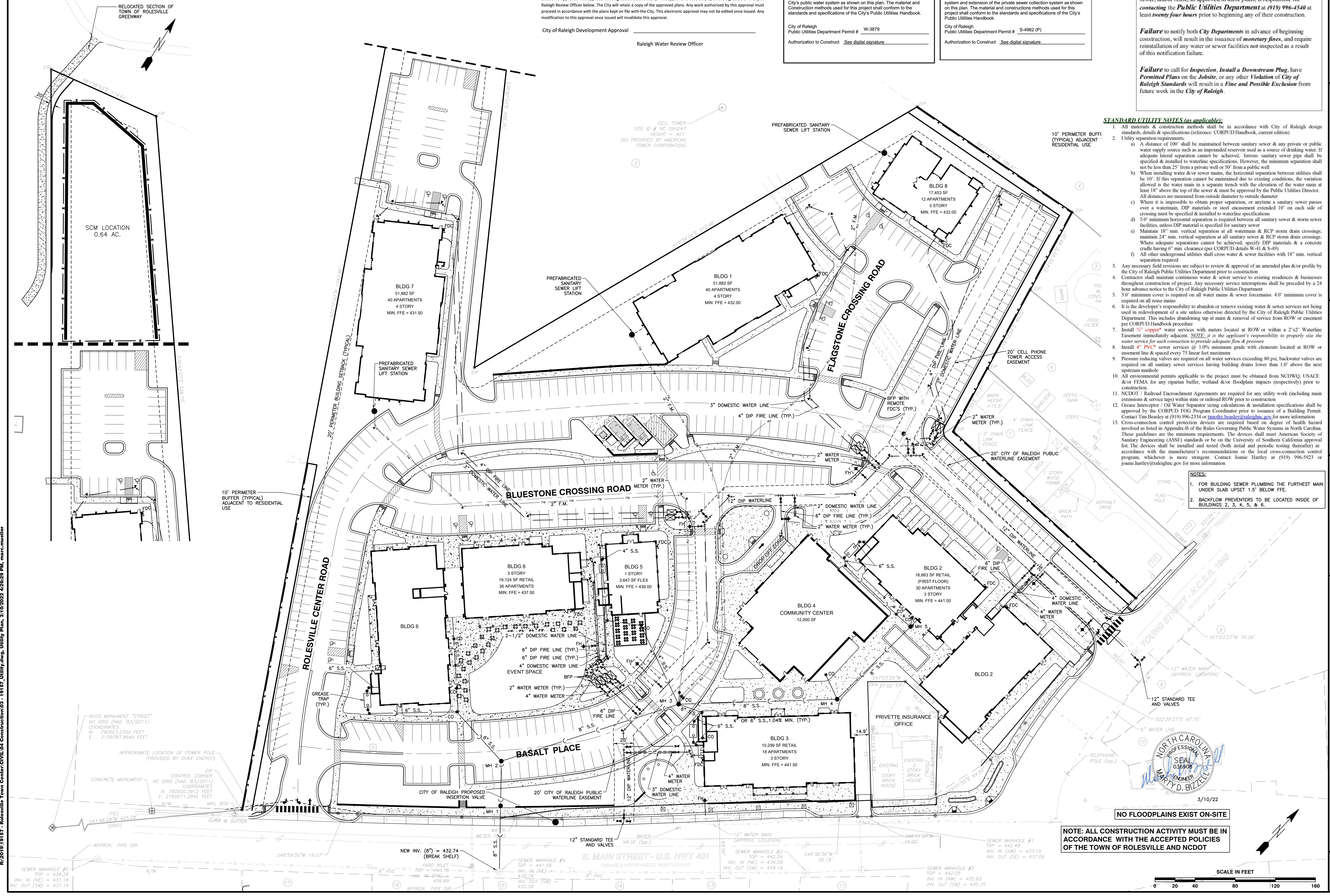
Failure to call for Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards will result in a Fine and Possible Exclusion from future work in the City of Raleigh.

**STANDARD UTILITY NOTES (as applicable):**

- All materials & construction methods shall be in accordance with City of Raleigh design standards & specifications (reference: CORPUD Handbook, current edition)
- Utility separation requirements:
  - 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 watertight specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well
  - 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 18" above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
  - 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 watertight specifications
  - 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer
  - 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)
  - All other underground utilities shall cross water & sewer facilities with 18" min. vertical separation required
- 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
- 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
- 3.0' minimum cover is required on all water mains & sewer force mains. 4.0' minimum cover is required on all reuse mains
- 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
- Install 3/4" copper\* water services with meters located at ROW or within a 2'x2' Watertight Easement immediately adjacent. *NOTE: It is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure*
- Install 4" PVC\* sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
- 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
- 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.
- NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
- Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the CORPUD FOG Program Coordinator prior to issuance of a Building Permit. Contact Tim Besley at (919) 996-2334 or [timothy.besley@raleighnc.gov](mailto:timothy.besley@raleighnc.gov) for more information
- 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. 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](mailto:joanie.hartley@raleighnc.gov) for more information

**NOTES:**

- FOR BUILDING SEWER PLUMBING THE FURTHEST MAIN UNDER SLAB UPSET 1.5' BELOW FFE.
- BACKFLOW PREVENTERS TO BE LOCATED INSIDE OF BUILDINGS 2, 3, 4, 5, & 6.

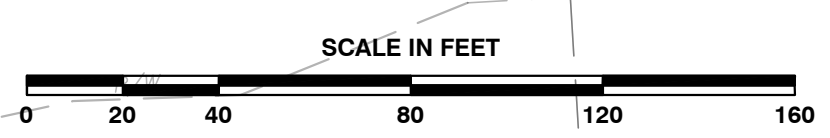


R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\03 - 19187\_Utilities.dwg, Utility Plan, 3/10/2022, 4:26:49 PM, mncrc.mweller



NO FLOODPLAINS EXIST ON-SITE

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**BASS, NIXON & KENNEDY, INC.**  
 CONSULTING ENGINEERS  
 6310 CHAPEL HILL ROAD, SUITE 950, RALEIGH, NC 27607  
 TELEPHONE: (919) 981-1122 FAX: (919) 981-8686  
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

UTILITY PLAN  
 SCALE: 1" = 40'  
 CHK BY: MDB

**COBBLESTONE VILLAGE**  
 MIXED USE DEVELOPMENT  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET C2.1

TOWN OF ROLESVILLE PROJECT NO.

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

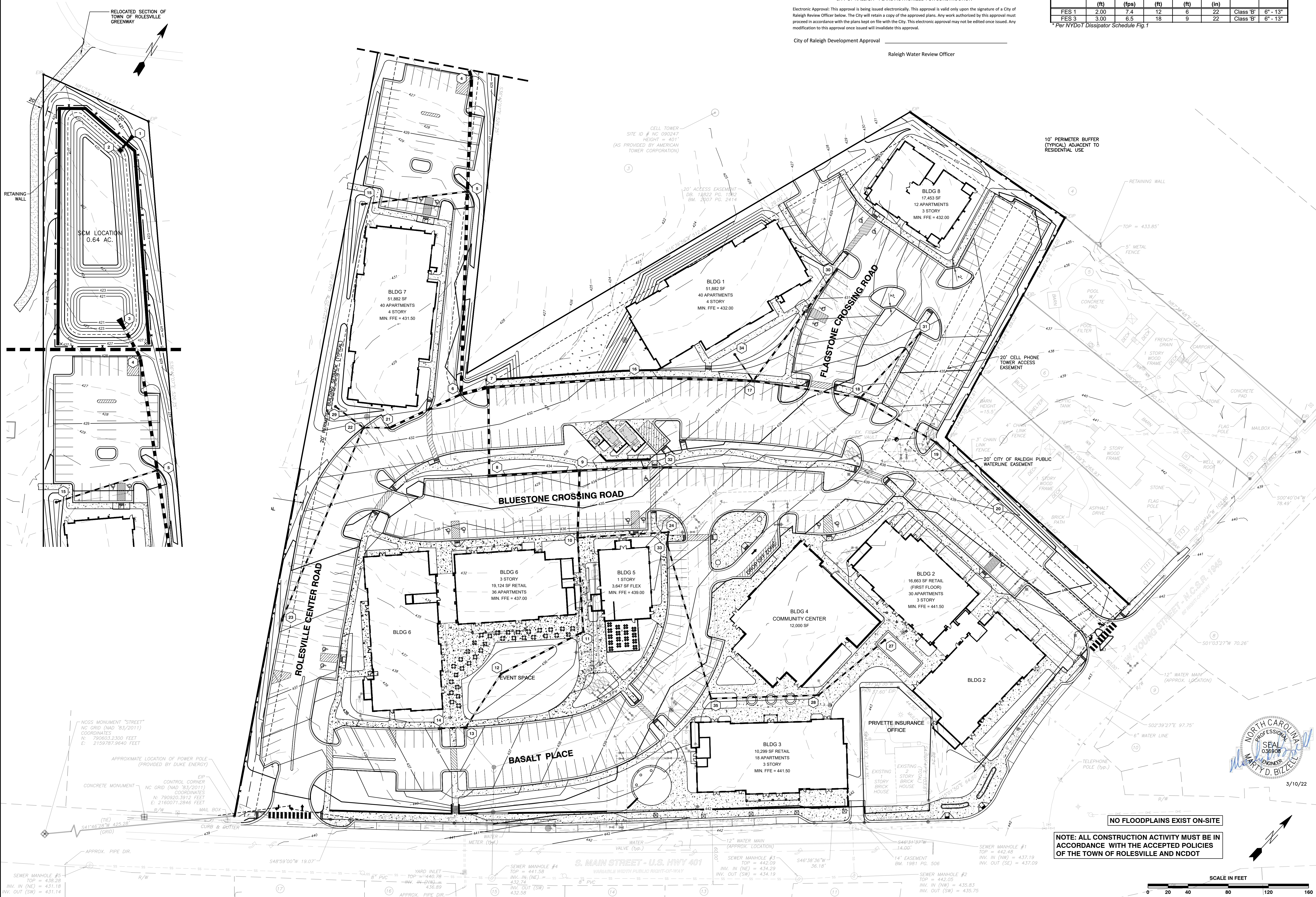
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City of Raleigh Development Approval \_\_\_\_\_  
 Raleigh Water Review Officer

Structure	d <sub>o</sub> (ft)	Velocity (fps)	Length (ft)	Width (ft)	Depth (in)	Type	d <sub>50</sub>
FES 1	2.00	7.4	12	6	22	Class 'B'	6" - 13"
FES 3	3.00	6.5	18	9	22	Class 'B'	6" - 13"

\* Per NYDOT Dissipator Schedule Fig.1



R:\2019\19157 - Roleville Town Center CIVIL\04 Construction\04 - 19157\_Grading\dwg, Grading Plan, 3/10/2022 4:29:31 PM, marc.mueller

NCGS MONUMENT "STREET"  
 NC GRID (NAD '83/2011)  
 COORDINATES  
 N: 790603.2300 FEET  
 E: 2159787.9640 FEET

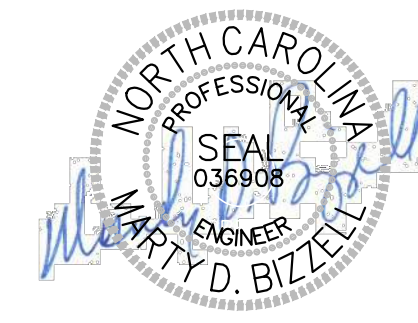
APPROXIMATE LOCATION OF POWER POLE  
 (PROVIDED BY DUKE ENERGY)

EIP CONTROL CORNER  
 NC GRID (NAD '83/2011)  
 COORDINATES  
 N: 790920.3912 FEET  
 E: 2160071.2846 FEET

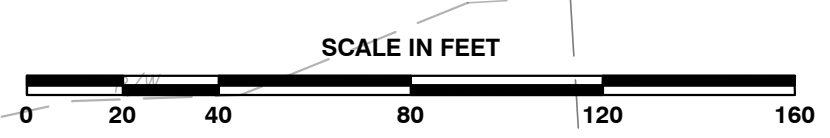
SEWER MANHOLE #5  
 TOP = 438.28  
 INV. IN (NE) = 431.18  
 INV. OUT (SW) = 431.14

SEWER MANHOLE #4  
 TOP = 441.58  
 INV. IN (NE) = 432.74  
 INV. OUT (SW) = 432.58

SEWER MANHOLE #2  
 TOP = 442.05  
 INV. IN (NW) = 435.83  
 INV. OUT (SW) = 435.75



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PROGRESS MRN  
 DATE DRAWN BY  
**GRADING PLAN**  
 SCALE: 1" = 40'  
 CHK BY: MDB

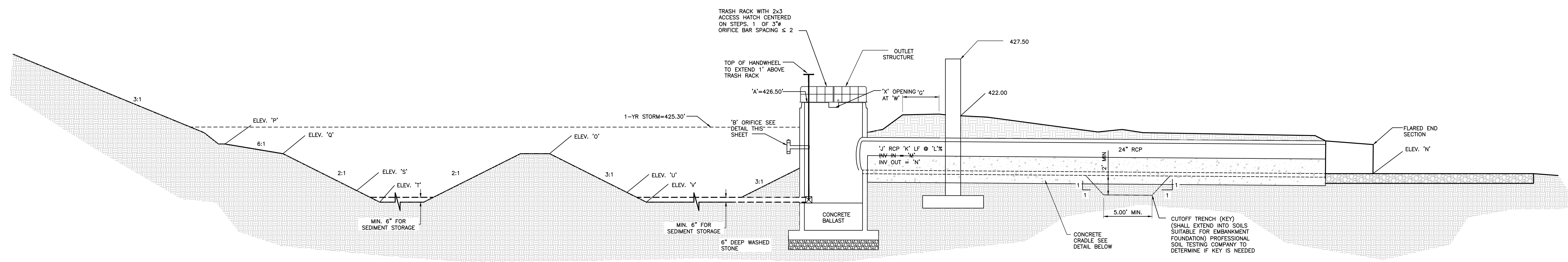
**COBBLESTONE VILLAGE**  
 MIXED USE DEVELOPMENT  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET  
**C3.1**

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

NO.	DATE	DESCRIPTION	BY





**CROSS-SECTION OF WET POND A-A**

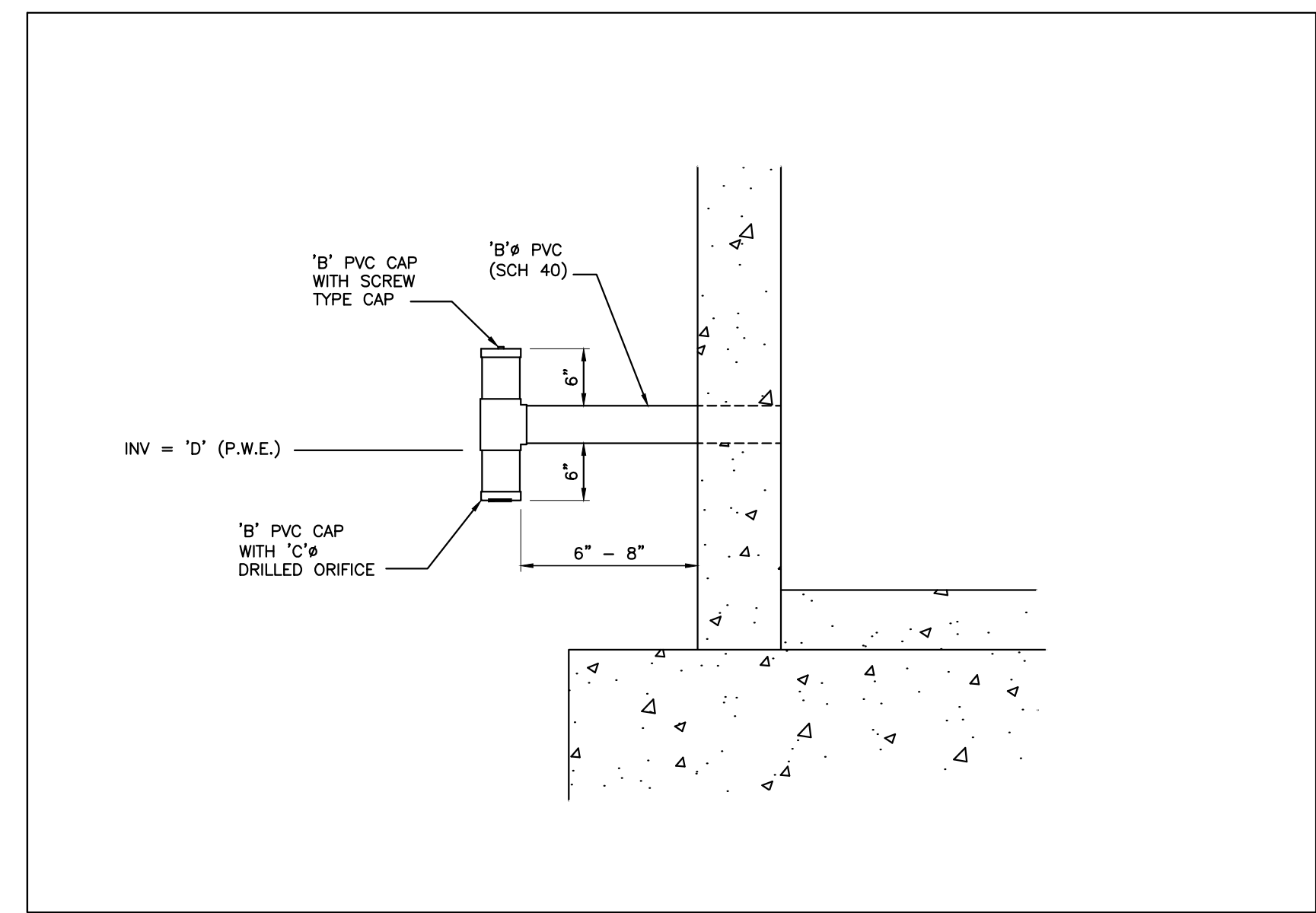
NTS

**BOUAYNCY CALCULATIONS FOR RISER/BARREL**  
**COBBLESTONE VILLAGE**  
**WET POND - SCM**

Square Riser Inside Length (ft):	4.0
Riser Wall Thickness (in):	6
Pond Bottom Elevation (ft):	420.00
Riser Crest Elevation (ft):	426.50
Density of Riser Mat (lb/cf):	150.00
Pipe Inside Diameter (in):	24
Pipe Wall Thickness (in):	3
Length of Pipe Exposed (ft):	1.00
Density H2O (lb/cf):	62.40
Volume H2O Displaced by Riser (cf):	131.63
Weight H2O Displaced by Riser (lb):	8213.40
Volume H2O Displaced by Pipe (cf):	4.91
Weight H2O Displaced by Pipe (lb):	306.31
Total Uplift Force (lb):	8519.71
Weight of Riser (lb):	4,144
Weight of Pipe (lb):	285.07
Pipe/Riser Downward Force (lb):	4408.82

<b>Ballast Concrete:</b>	
Minimum Factor of Safety:	1.2
Required ballast thickness (in):	37.02
Provided Ballast Thickness (in):	40
Total Downward Force (lb):	10,692
Provided Factor of Safety:	1.25



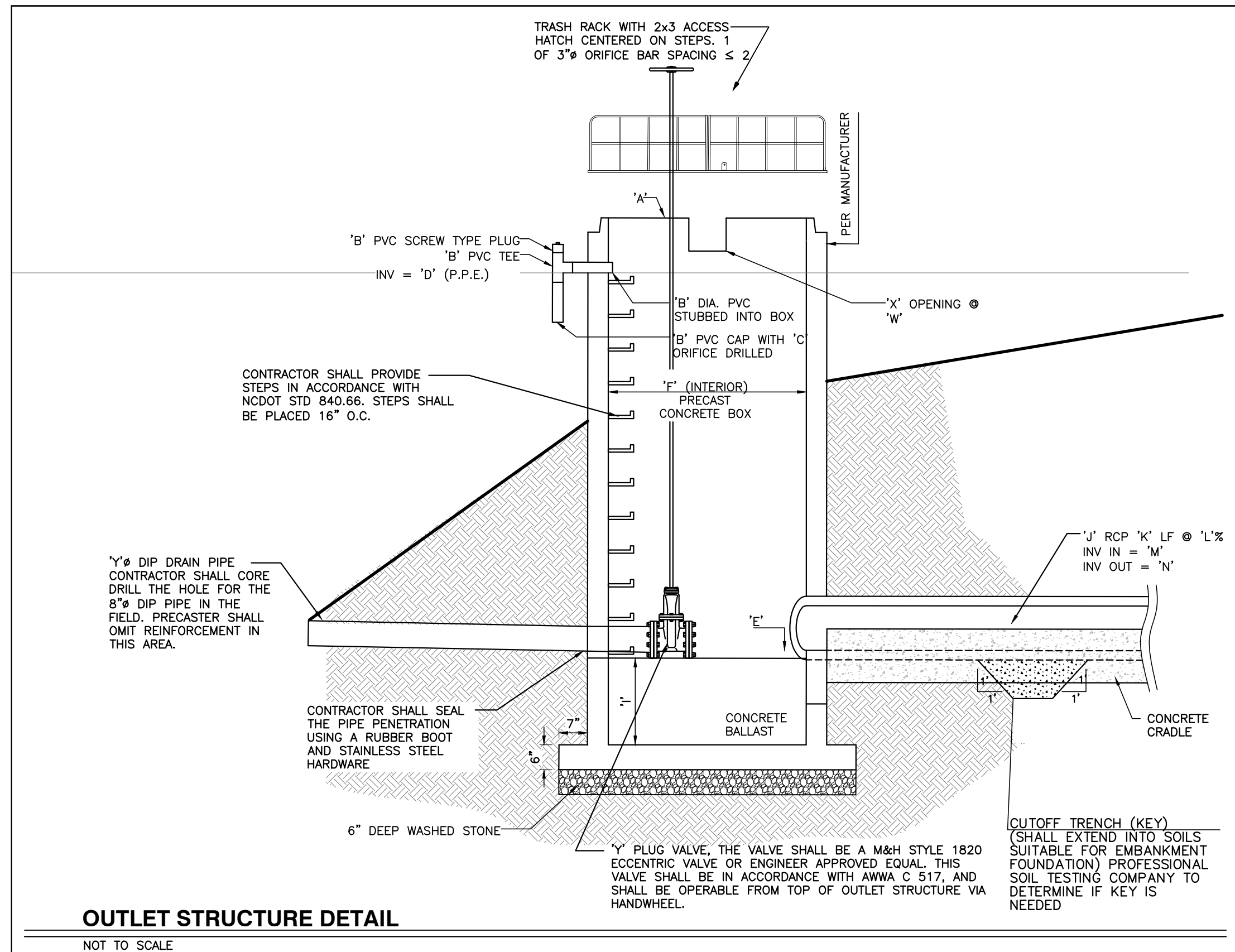
**INVERTED INTAKE DETAIL (RISER)**

NTS

**POND LEGEND - SCM**

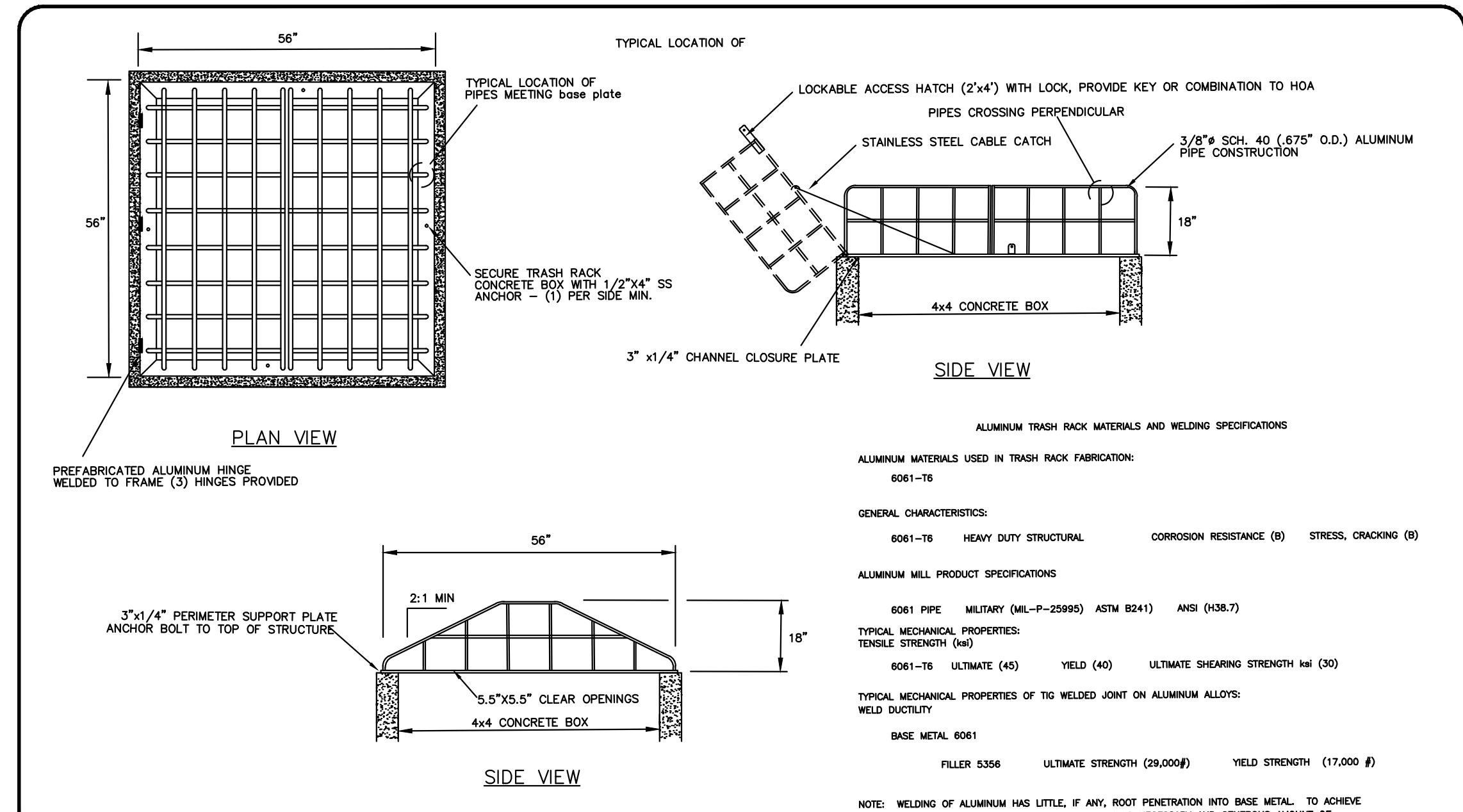
Description	Design	As-Built
A Top of Riser	426.50 ft	
B Diameter of PVC Drawdown Pipe	4 in	
C Drawdown Orifice Opening	2.5 in	
D Drawdown Pipe Elevation / Permanent Pool	424.50 ft	
E Inside Bottom Riser Elevation	420.00 ft	
F Outlet Structure Size	4ft x 4ft	
G Top of Berm Width	10 ft	
H Top of Dam	428.00 ft	
I Ballast Thickness	40 in	
J Size of Outlet Pipe	24 in	
K Length of Outlet Pipe	18 ft	
L Slope of Outlet Pipe	2.78 %	
M Invert in Outlet Pipe	420.00 ft	
N Invert Out Outlet Pipe	419.80 ft	
O Top Elevation Forebay Berm	424.00 ft	
P Elevation Top of Litoral Shelf	425.00 ft	
Q Elevation Bottom of Litoral Shelf	424.00 ft	
R Slope of Litoral Shelf	6:1	
S Sediment Cleanout Elevation Forbay	422.00 ft	
T Bottom Elevation Forebay	421.00 ft	
U Sediment Cleanout Elevation Permanent Pool	421.00 ft	
V Bottom Elevation Permanent Pool	420.00 ft	
W Elevation Secondary Weir	426.20 ft	
X Width Secondary Weir	12 in	

**Special Instructions**  
 Place Drawdown pipe opposite of outlet pipe and ensure a minimum of 12" clearance between drawdown pipe opening and ground elevation to allow for proper drainage. Place secondary weir above drawdown pipe on same side of outlet structure.



**OUTLET STRUCTURE DETAIL**

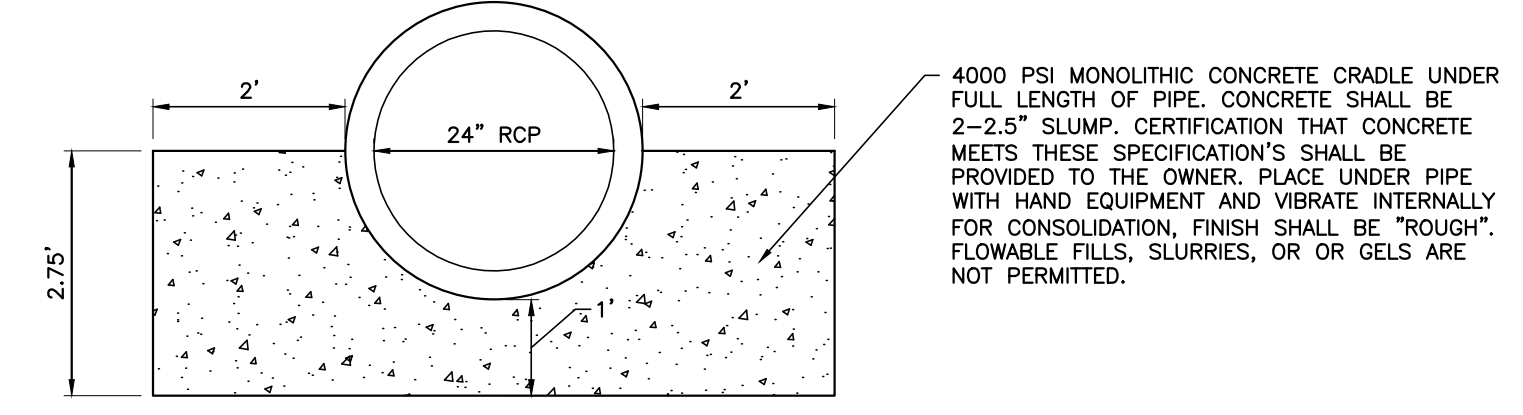
NOT TO SCALE



**TRASH RACK SUBMITTAL - Aluminum Trashrack for 4x4 Box**

**TRASH RACK DETAIL**

NTS



**CONCRETE CRADLE DETAIL**

NOT TO SCALE

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3/10/22

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NO.	DATE	DESCRIPTION	BY

**CONSTRUCTION SEQUENCE - STAGE 1**

- ONCE THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL AND NCG01 CERTIFICATE OF COVERAGE ARE OBTAINED, SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL CONSULTANT, OBTAIN A LAND-DISTURBING PERMIT.
- INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SKIMMER SEDIMENT BASINS AND OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
- CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
- BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDEED AREAS PER GROUND STABILIZATION TIME FRAMES.
- STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, ALLEY PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDEED AREAS PER GROUND STABILIZATION TIME FRAMES.
- CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT PRIOR TO THE REMOVAL OF SKIMMER SEDIMENT BASIN #1.
- CONTINUE TO SOIL EROSION PLAN STAGE 2 ONCE SKIMMER BASIN #1 HAS BEEN REMOVED.

NOTE: WAKE COUNTY MUST GRANT PERMISSION TO CONVERT THE SEDIMENT BASIN OVER TO THE STORMWATER USE PRIOR TO COMPLETING ANY RELATED WORK.  
TOTAL DISTURBED AREA = 11.0 AC

**DENUDED AREA = 10.96 AC**

**REQUIRED WAKE COUNTY BASIN REMOVAL AND/OR CONVERSION SEQUENCE**

- SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED OR CONVERTED TO A PERMANENT STORMWATER POND, INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SEDIMENT BASIN SURFACE FOR DRAW DOWN OF WATER IN BASIN FOR MAINTENANCE OR CLOSE OUT UNLESS INFEASIBLE. SEE REQUIREMENTS OF NCG01 PERMIT PART I, SECTION C, ITEM (4) ENTITLED "DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT" AND REFER TO WAKE COUNTY "FILTER BAG FOR Dewatering Activities" CONSTRUCTION DETAIL.
- 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 CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVISE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

**SEDIMENT BASIN SUMMARY CHART**

Sediment Basin Number	1	2	3
Drainage Area (Acres)	3.42	4.61	0.6
Orifice (ft)	(0.5)(7.22)(3.42)=12.35	(0.5)(7.22)(4.61)=16.64	(0.5)(7.22)(0.60)=2.17
Weir Size (ft)	10 x 1.5	10 x 1.5	10 x 1.5
Surface Area Required (SF)	(435)(12.35)=5,372	(435)(16.64)=7,238	(435)(2.17)=944
Volume Required (CF)	(1800)(3.42)=6,156	(1800)(4.61)=8,298	(1800)(0.60)=1,080
Dimensions (ft)	see plans	see plans	see plans
Surface Area Provided (SF)	5,400	10,640	1,584
Volume Provided (CF)	13,572	27,636	2,563
Skimmer Size	4"	4"	3"
Orifice Radius	0.5"	0.5"	0.25
Orifice Diameter	1.0"	1.25"	0.5
Drawdown Time (days)	4.62	3.98	3.74
Number of Baffles	3	3	3

**DITCH/CHANNEL CALCULATIONS**

DIVERSION DITCH ID	LENGTH (LF)	DA (Ac)	G10 (CFS)	SLOPE (%)	V10 (FPS)	LINER*	PERMISSIBLE SHEAR STRESS (PSF)	CALCULATED SHEAR STRESS (PSF)
DV-1	296	1.02	2.34	2.00	2.01	SC150	2.00	0.78
DV-2	495	1.00	2.30	2.60	2.29	SC150	2.00	0.84
DV-3	442	0.52	1.19	1.80	0.92	SC150	1.80	0.29
DV-4	167	0.08	0.13	2.90	0.96	SC150	1.80	0.38

\*NAG = NORTH AMERICAN GREEN OR EQUIVALENT

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Raleigh Water Review Officer \_\_\_\_\_

**Skimmer Basin #1**

Okay

3.42 Drainage Area (Acres)  
12.35 Peak Flow from 10-year Storm (cfs)

6156 Required Volume (ft³)  
6372 Required Surface Area (ft²)  
51.8 Suggested Width (ft)  
1032 Suggested Length (ft)

54 Trial Top Width at Spillway Invert (ft)  
100 Trial Top Length at Spillway Invert (ft)  
2 Trial Side Slope Ratio Z:1  
3 Trial Depth (ft) (2 to 3.5 feet above grade)  
48 Bottom Width (ft)  
58 Bottom Length (ft)  
3606 Bottom Area (ft²)  
1572 Actual Volume (ft³)  
5400 Actual Surface Area (ft²)

10 Trial Weir Length (ft)  
0.75 Suggested Trial Depth of Flow (ft)  
30.0 Spillway Capacity (cfs)

Skimmer Size (Inches)  
4.033 Head on Skimmer (feet)  
1.25 Orifice Size (1/4 inch increments)  
4.62 Dewatering Time (days)  
Required 3 to 5 days for Wake County

**Skimmer Basin #2**

Okay

4.61 Drainage Area (Acres)  
16.64 Peak Flow from 10-year Storm (cfs)

8298 Required Volume (ft³)  
7238 Required Surface Area (ft²)  
60.2 Suggested Width (ft)  
120.3 Suggested Length (ft)

56 Trial Top Width at Spillway Invert (ft)  
190 Trial Top Length at Spillway Invert (ft)  
2 Trial Side Slope Ratio Z:1  
3 Trial Depth (ft) (2 to 3.5 feet above grade)  
44 Bottom Width (ft)  
54 Bottom Length (ft)  
3606 Bottom Area (ft²)  
2763 Actual Volume (ft³)  
10640 Actual Surface Area (ft²)

20 Trial Weir Length (ft)  
0.75 Suggested Trial Depth of Flow (ft)  
39.0 Spillway Capacity (cfs)

Skimmer Size (Inches)  
4 Skimmer Size (Inches)  
0.333 Head on Skimmer (feet)  
1.25 Orifice Size (1/4 inch increments)  
3.98 Dewatering Time (days)  
Required 3 to 5 days for Wake County

**Skimmer Basin #3**

Okay

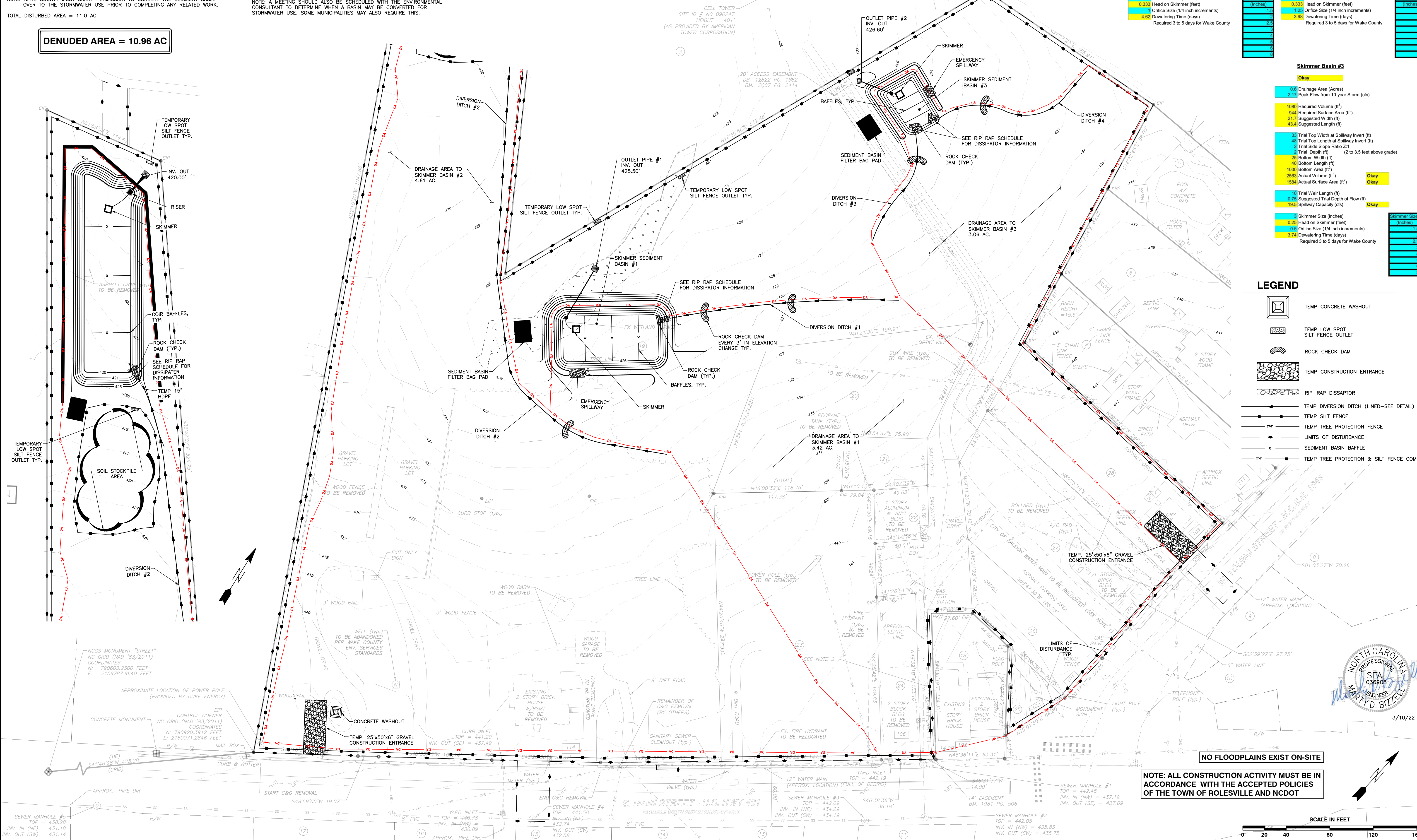
0.6 Drainage Area (Acres)  
2.17 Peak Flow from 10-year Storm (cfs)

1080 Required Volume (ft³)  
944 Required Surface Area (ft²)  
21.7 Suggested Width (ft)  
43.4 Suggested Length (ft)

33 Trial Top Width at Spillway Invert (ft)  
48 Trial Top Length at Spillway Invert (ft)  
2 Trial Side Slope Ratio Z:1  
2 Trial Depth (ft) (2 to 3.5 feet above grade)  
28 Bottom Width (ft)  
40 Bottom Length (ft)  
1000 Bottom Area (ft²)  
2563 Actual Volume (ft³)  
1584 Actual Surface Area (ft²)

10 Trial Weir Length (ft)  
0.75 Suggested Trial Depth of Flow (ft)  
19.5 Spillway Capacity (cfs)

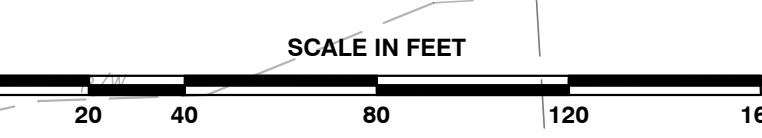
Skimmer Size (Inches)  
0.25 Head on Skimmer (feet)  
0.8 Orifice Size (1/4 inch increments)  
3.74 Dewatering Time (days)  
Required 3 to 5 days for Wake County



**LEGEND**

- TEMP CONCRETE WASHOUT
- TEMP LOW SPOT SILT FENCE OUTLET
- ROCK CHECK DAM
- TEMP CONSTRUCTION ENTRANCE
- RIP-RAP DISSIPATOR
- TEMP DIVERSION DITCH (LINED-SEE DETAIL)
- TEMP SILT FENCE
- TEMP TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- SEDIMENT BASIN BAFFLE
- TEMP TREE PROTECTION & SILT FENCE COMBO

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**COBBLESTONE VILLAGE MIXED USE DEVELOPMENT**  
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

**EROSION CONTROL PLAN - STAGE 1**

DATE: 03-19-17  
JOB NO.:  
PROGRESS: MRN  
DRAWN BY:  
CHK BY: MDB

NO. DATE DESCRIPTION REVISIONS

SCALE: 1" = 40'

3/10/22

**TOWN OF ROLESVILLE PROJECT NO.**

R:\2019\19187 - Rolesville Town Center CIVIL\04 Construction\06 - 19187\_Erosion Control Phase 1.dwg, Erosion Control Phase 1, 3/10/2022, 4:50:48 PM, marc.mueller

### CONSTRUCTION SEQUENCE - STAGE 2

- BEGIN CONSTRUCTION OF ALL BUILDINGS.
- STABILIZE SITE AS NEW DISTURBED AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
- WHEN CONSTRUCTION OF PARKING LOTS ARE COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
- IF THE SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
- WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT, OBTAIN A CERTIFICATE OF COMPLETION.

NOTE: WAKE COUNTY MUST GRANT PERMISSION TO CONVERT THE SEDIMENT BASIN OVER TO THE STORMWATER USE PRIOR TO COMPLETING ANY RELATED WORK.  
TOTAL DISTURBED AREA = 10.96 AC  
ENVIRONMENTAL CONSULTANT: JEEVAN NEUPANE (919-819-8907)

### REQUIRED WAKE COUNTY BASIN REMOVAL AND/OR CONVERSION SEQUENCE

- SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED OR CONVERTED TO A PERMANENT STORMWATER POND. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SEDIMENT BASIN SURFACE FOR DRAW DOWN OF WATER IN BASIN FOR MAINTENANCE OR CLOSE OUT UNLESS INFEASIBLE. SEE REQUIREMENTS OF NC001 PERMIT PART II, SECTION C, ITEM (4) ENTITLED "DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT" AND REFER TO WAKE COUNTY "FILTER BAG FOR DEWATERING ACTIVITIES" CONSTRUCTION DETAIL.
- 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 CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVISE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

### Skimmer Basin #2

Item	Value	Status
6.99 Drainage Area (Acres)	6.99	Okay
25.23 Peak Flow from 10-year Storm (cfs)	25.23	Okay
12582 Required Volume (ft <sup>3</sup> )	12582	Okay
10975 Required Surface Area (ft <sup>2</sup> )	10975	Okay
74.1 Suggested Width (ft)	74.1	Okay
148.2 Suggested Length (ft)	148.2	Okay
58 Trial Top Width at Spillway Invert (ft)	58	Okay
190 Trial Top Length at Spillway Invert (ft)	190	Okay
2 Trial Side Slope Ratio 2:1	2:1	Okay
3 Trial Depth (ft) (2 to 3.5 feet above grade)	3	Okay
46 Bottom Width (ft)	46	Okay
178 Bottom Length (ft)	178	Okay
6188 Bottom Area (ft <sup>2</sup> )	6188	Okay
28740 Actual Surface Area (ft <sup>2</sup> )	28740	Okay
11020 Trial Weir Length (ft)	11020	Okay
0.75 Suggested Trial Depth of Flow (ft)	0.75	Okay
39.9 Spillway Capacity (cfs)	39.9	Okay
4 Skimmer Size (inches)	4	Okay
0.333 Head on Skimmer (feet)	0.333	Okay
156 Orifice Size (1/4 inch increments)	156	Okay
4.20 Dewatering Time (days)	4.20	Okay

Skimmer Size (inches)	Head on Skimmer (feet)
4	0.333
6	0.167
8	0.111
10	0.074
12	0.056
14	0.043
16	0.033
18	0.026
20	0.021
22	0.017
24	0.014
26	0.011
28	0.009
30	0.007
32	0.006
34	0.005
36	0.004
38	0.003
40	0.003

### SEDIMENT BASIN SUMMARY CHART

Sediment Basin Number	1	2
Drainage Area (acres)	1.74	6.99
Q10(cfs)	(0.5)(7.22)(1.74)=6.28	(0.5)(7.22)(6.99)=25.23
Weir Size (ft)	10 x 1.5	10 x 1.5
Surface Area Required (SF)	(435)(6.28)=2,732	(435)(25.23)=10,975
Volume Required (CF)	(1800)(1.74)=3,132	(1800)(6.99)=12,582
Dimensions (ft)	see plans	see plans
Surface Area Provided (SF)	2,800	11,000
Volume Provided (CF)	5,646	27,900
Skimmer Size	4"	4"
Orifice Radius	0.4"	0.75"
Orifice Diameter	0.75"	1.5"
Drawdown Time (Days)	4.18	4.2
Number of Baffles	3	3

### DITCH/CHANNEL CALCULATIONS

DIVERSION DITCH ID	LENGTH (LF)	DA (Ac)	Q10 (CFS)	SLOPE (%)	V10 (FPS)	LINER *	PERMISSIBLE SHEAR STRESS (PSF)	CALCULATED SHEAR STRESS (PSF)
DV-1	296	1.02	2.34	2.00	2.01	SC150	2.00	0.78
DV-2	495	1.00	2.30	2.60	2.29	SC150	2.00	0.94
DV-3	442	0.52	1.19	1.80	0.92	SC150	1.80	0.29
DV-4	167	0.06	0.13	2.90	0.96	SC150	1.80	0.38

\* NAG = NORTH AMERICAN GREEN OR EQUIVALENT

### LEGEND

- TEMP CONSTRUCTION ENTRANCE
- TEMP LOW SPOT SILT FENCE OUTLET
- TEMP INLET PROTECTION
- RIP-RAP DISSIPATOR
- TEMP SILT FENCE
- TEMP TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- SEDIMENT BASIN BAFFLE
- TEMP TREE PROTECTION & SILT FENCE COMBO

### CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval

Raleigh Water Review Officer



**BASS, NIXON & KENNEDY, INC.**  
CONSULTING ENGINEERS  
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
TELEPHONE: (919)881-4422 FAX: (919)881-8686  
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT  
TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA  
NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

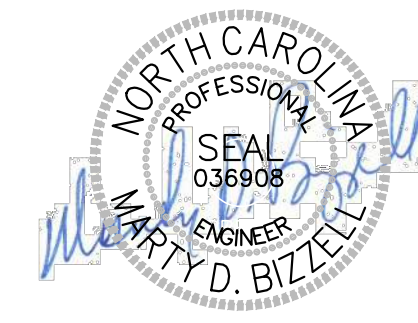
PROGRESS MRM DATE DRAWN BY  
JOB NO. DATE DRAWN BY

EROSION CONTROL PLAN - STAGE 2

SCALE: 1" = 40'

CHK BY: MDB

SHEET C3.4

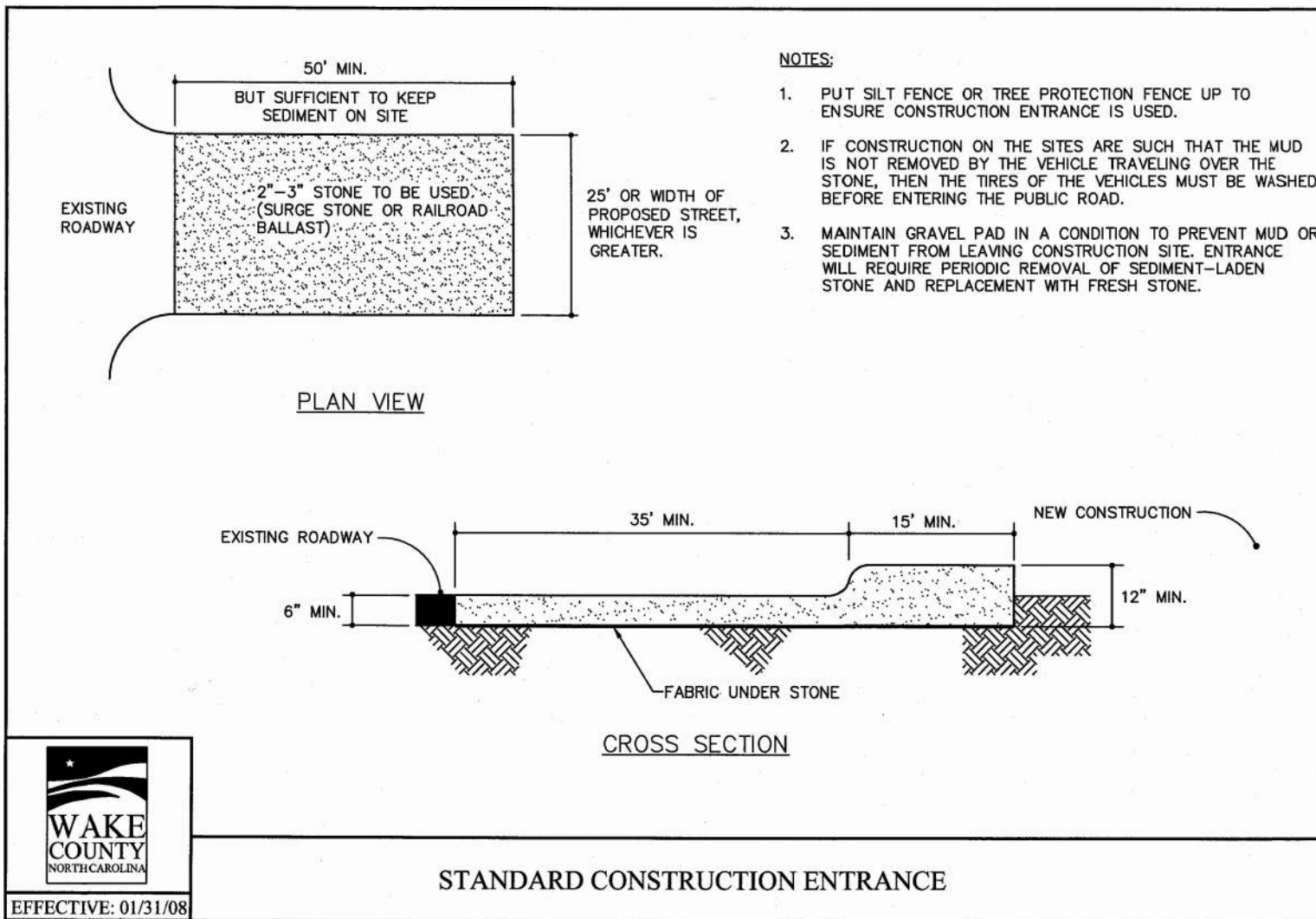


3/10/22

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

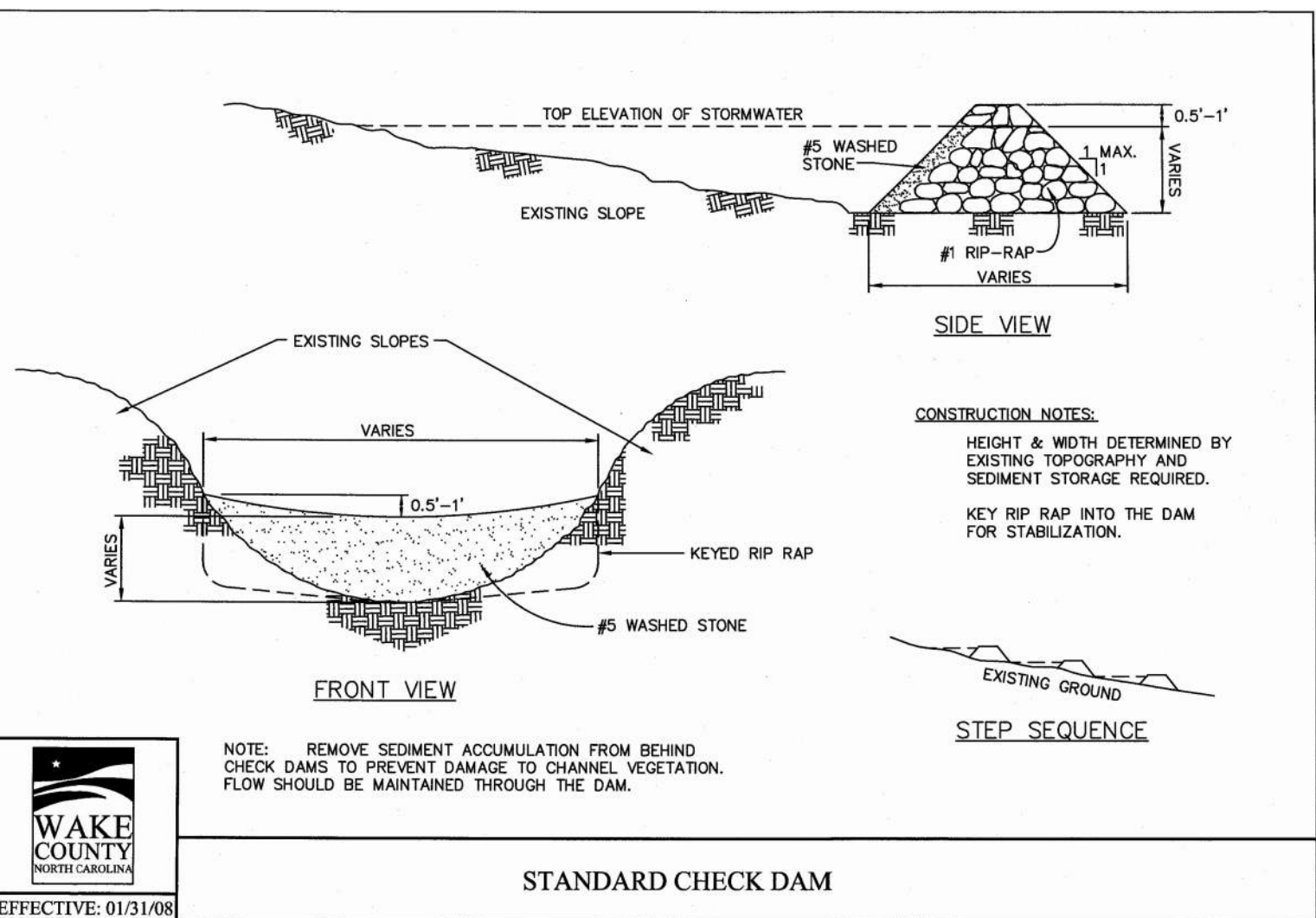






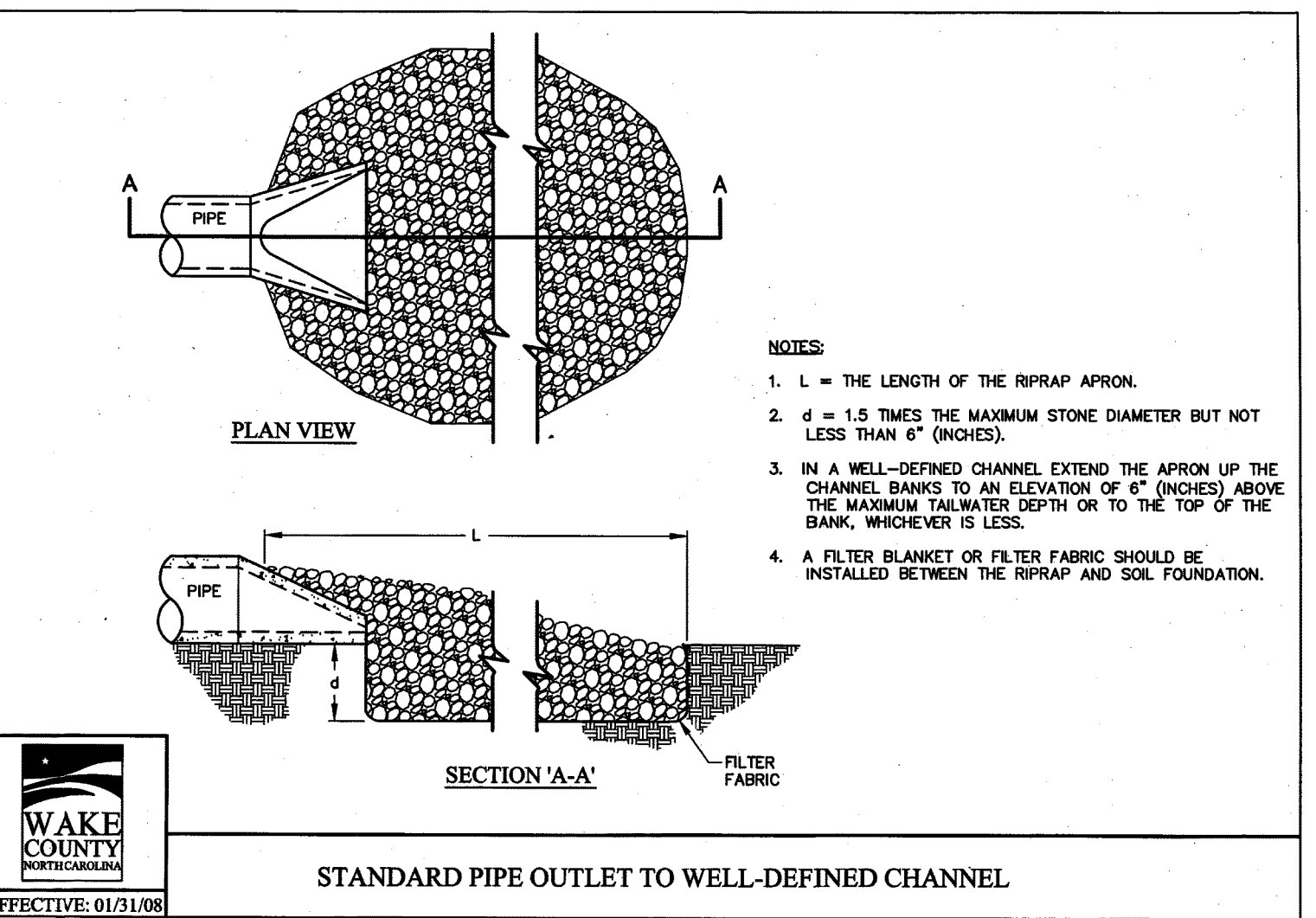
STANDARD CONSTRUCTION ENTRANCE

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



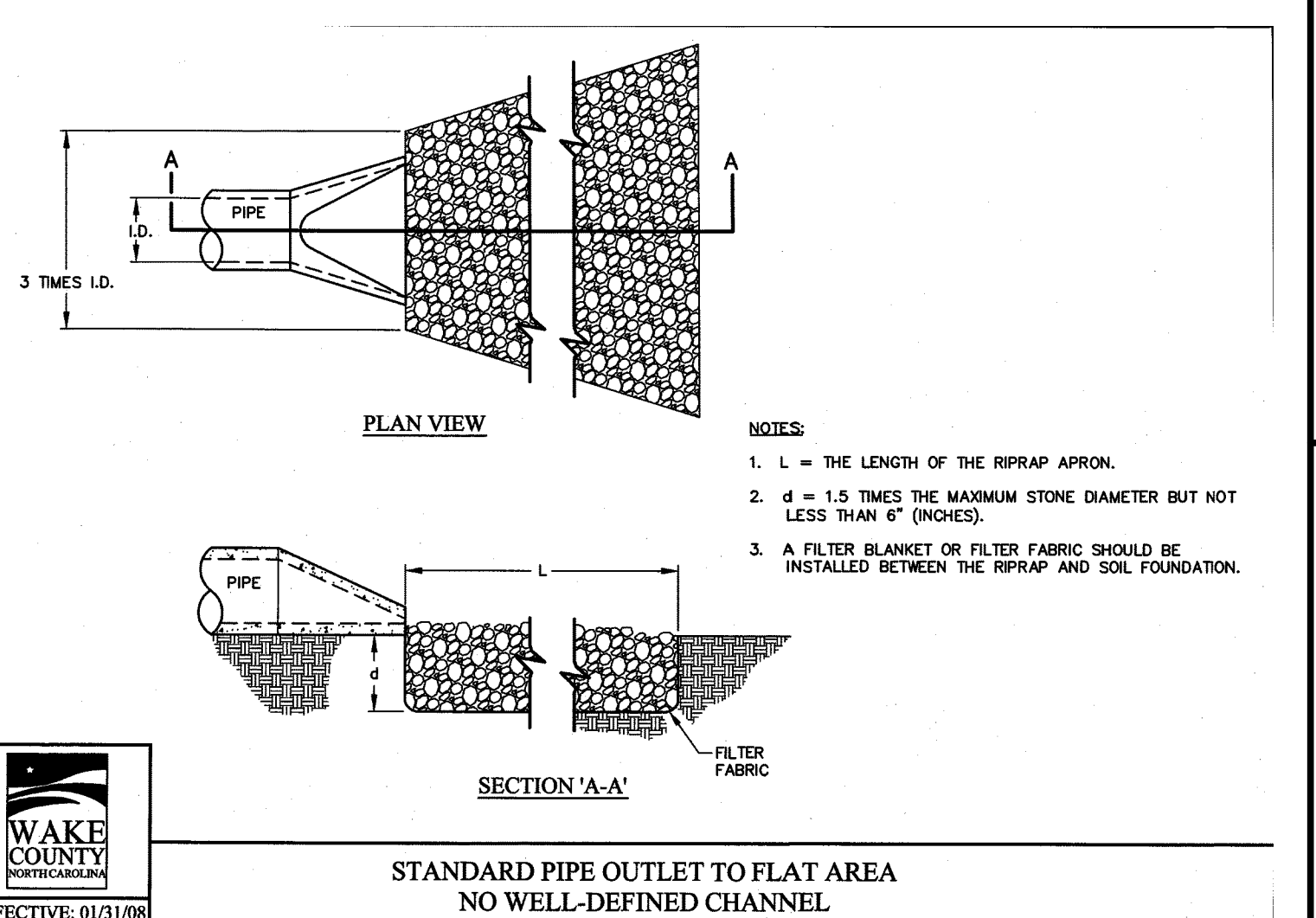
STANDARD CHECK DAM

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



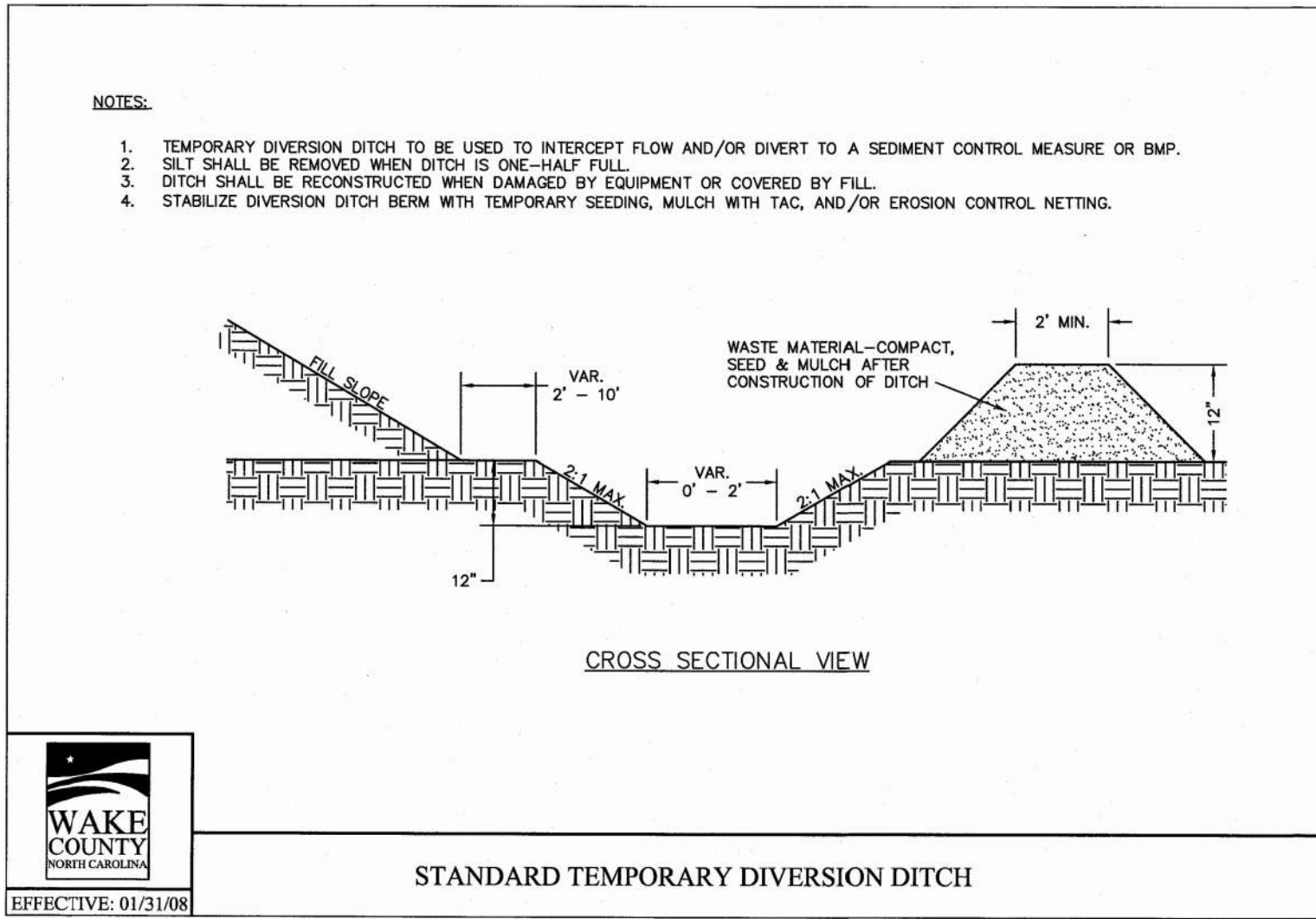
STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



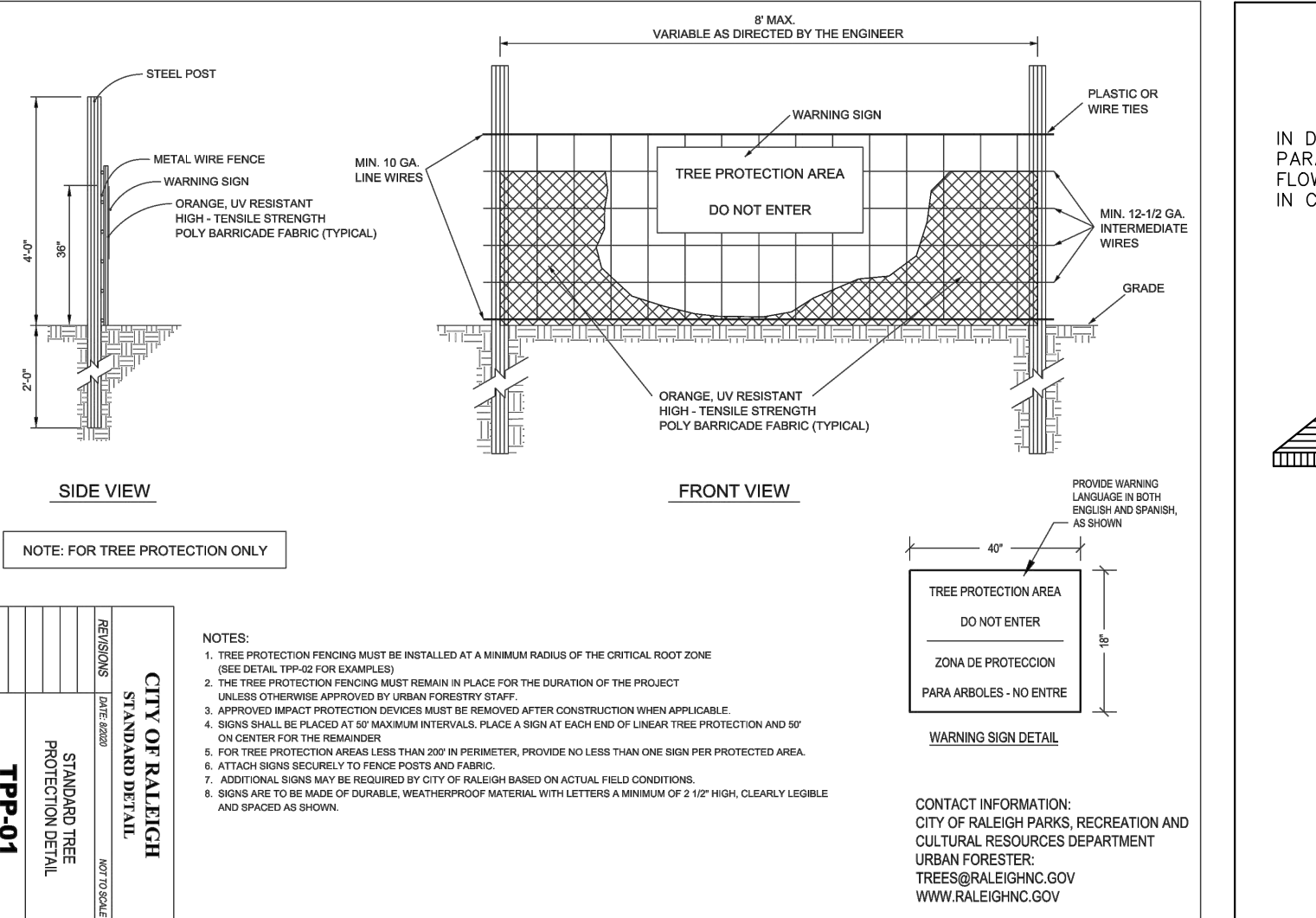
STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



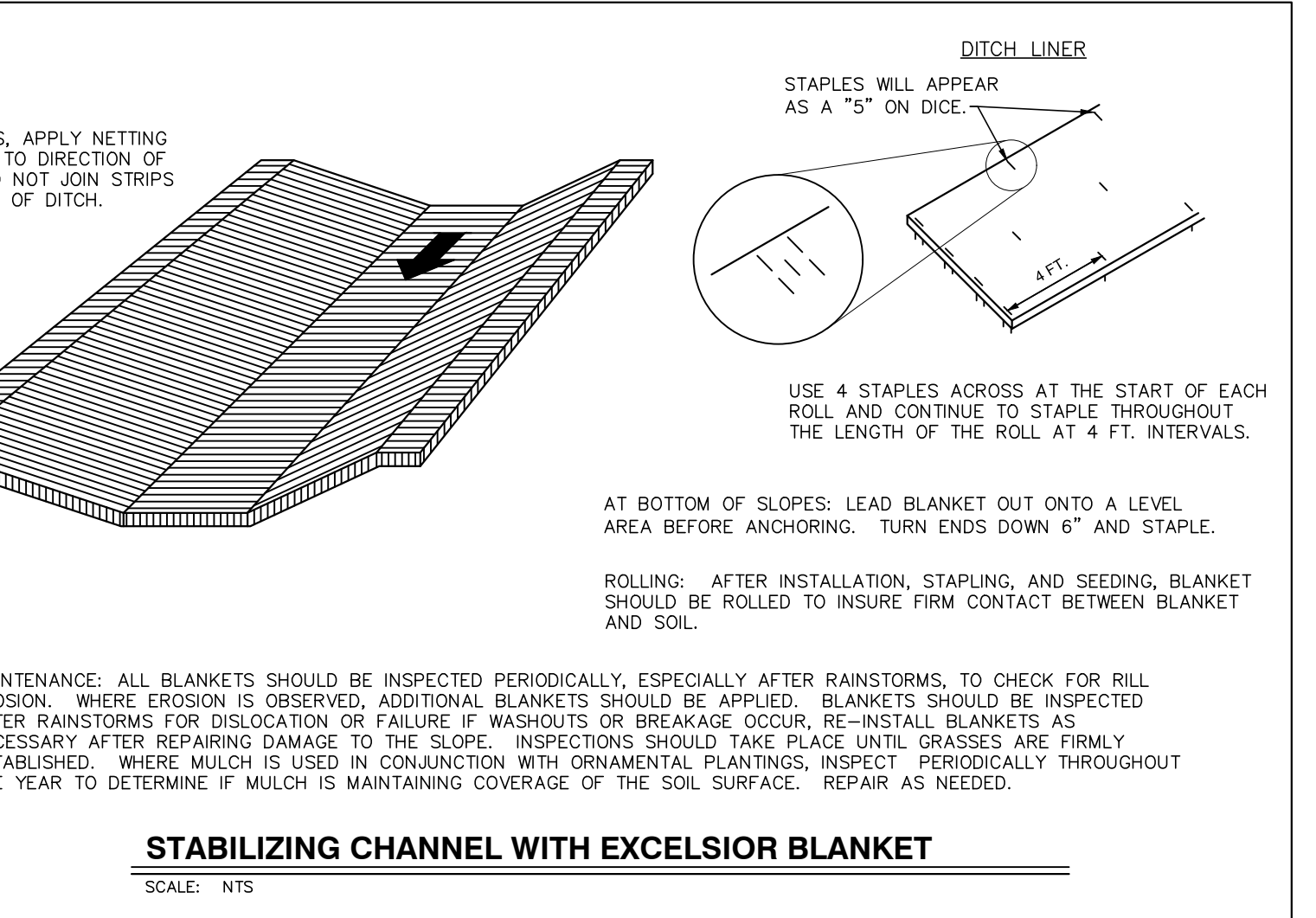
STANDARD TEMPORARY DIVERSION DITCH

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



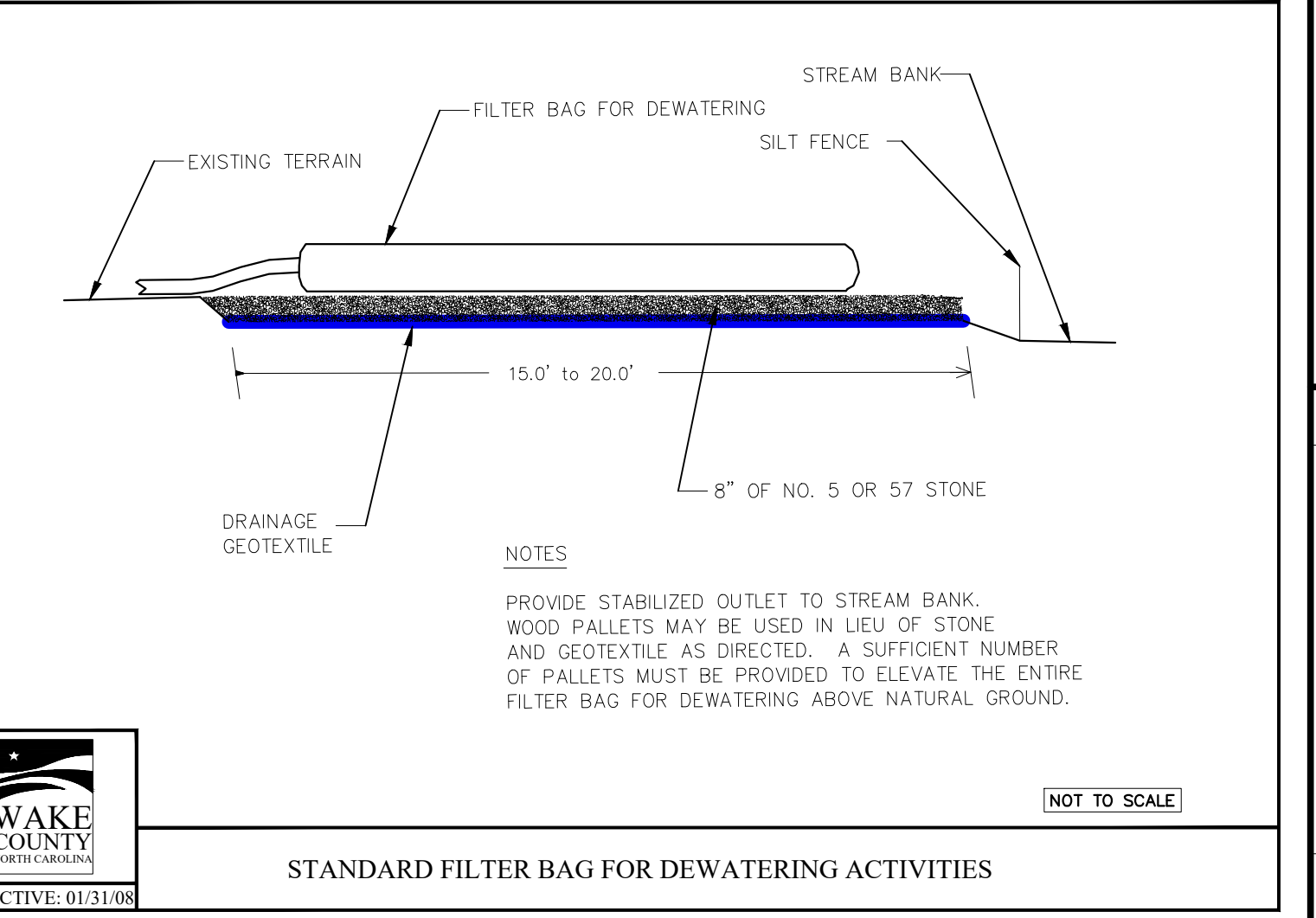
STANDARD TREE PROTECTION

CITY OF RALEIGH STANDARD TREE PROTECTION DETAIL TTP-01



STABILIZING CHANNEL WITH EXCELSIOR BLANKET

SCALE: NTS



STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



STANDARD CUSTOM BASIN

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08



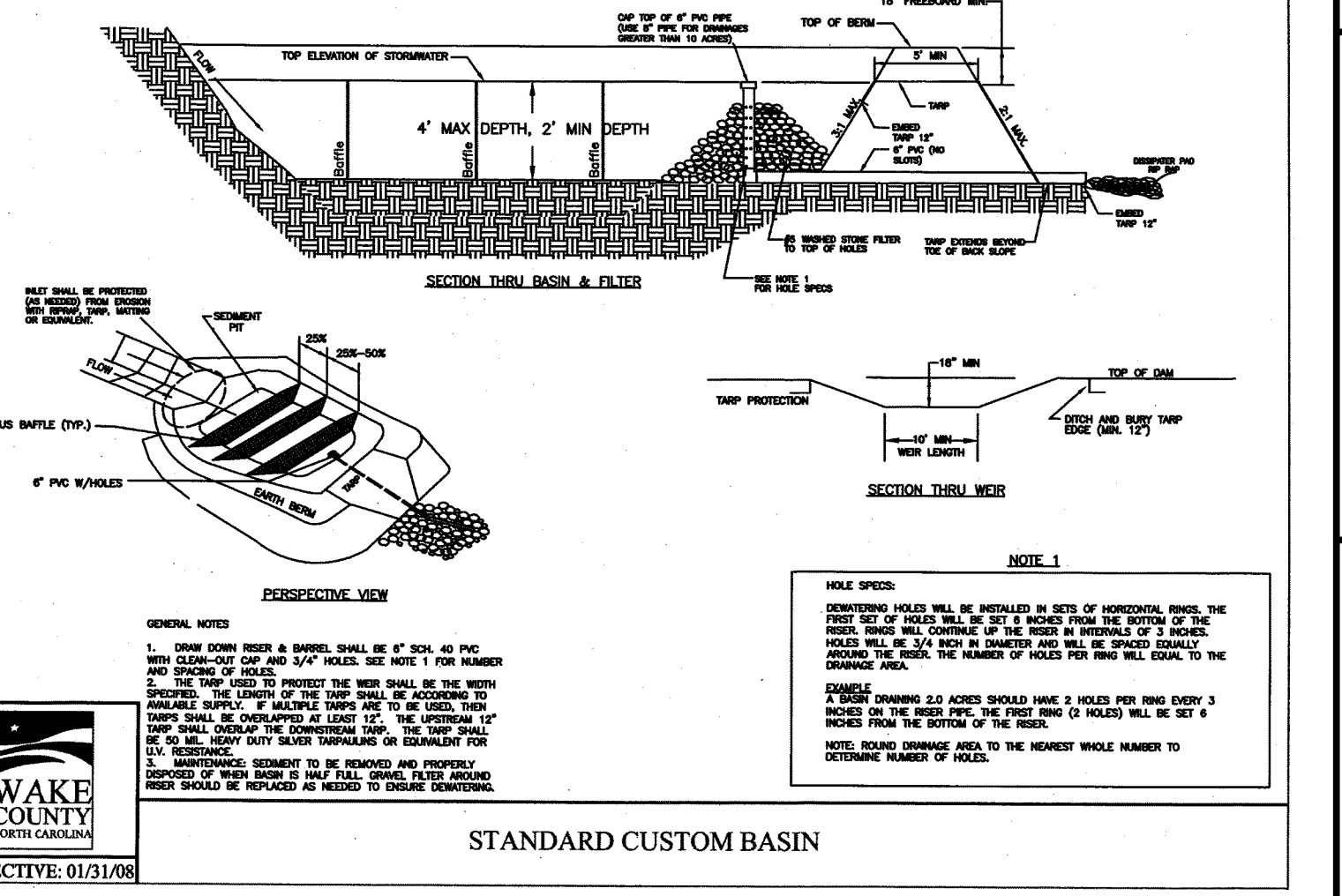
STANDARD TREE PROTECTION DETAIL

CITY OF RALEIGH STANDARD TREE PROTECTION DETAIL TTP-01



STANDARD CUSTOM BASIN

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08

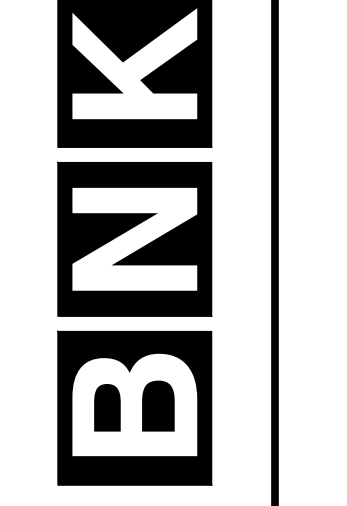


STANDARD CUSTOM BASIN

WAKE COUNTY NORTH CAROLINA EFFECTIVE: 01/31/08

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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION Electronic Approval: This approval is being issued electronically... Raleigh Water Review Officer



BASS, NIXON & KENNEDY, INC. CONSULTING ENGINEERS 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607

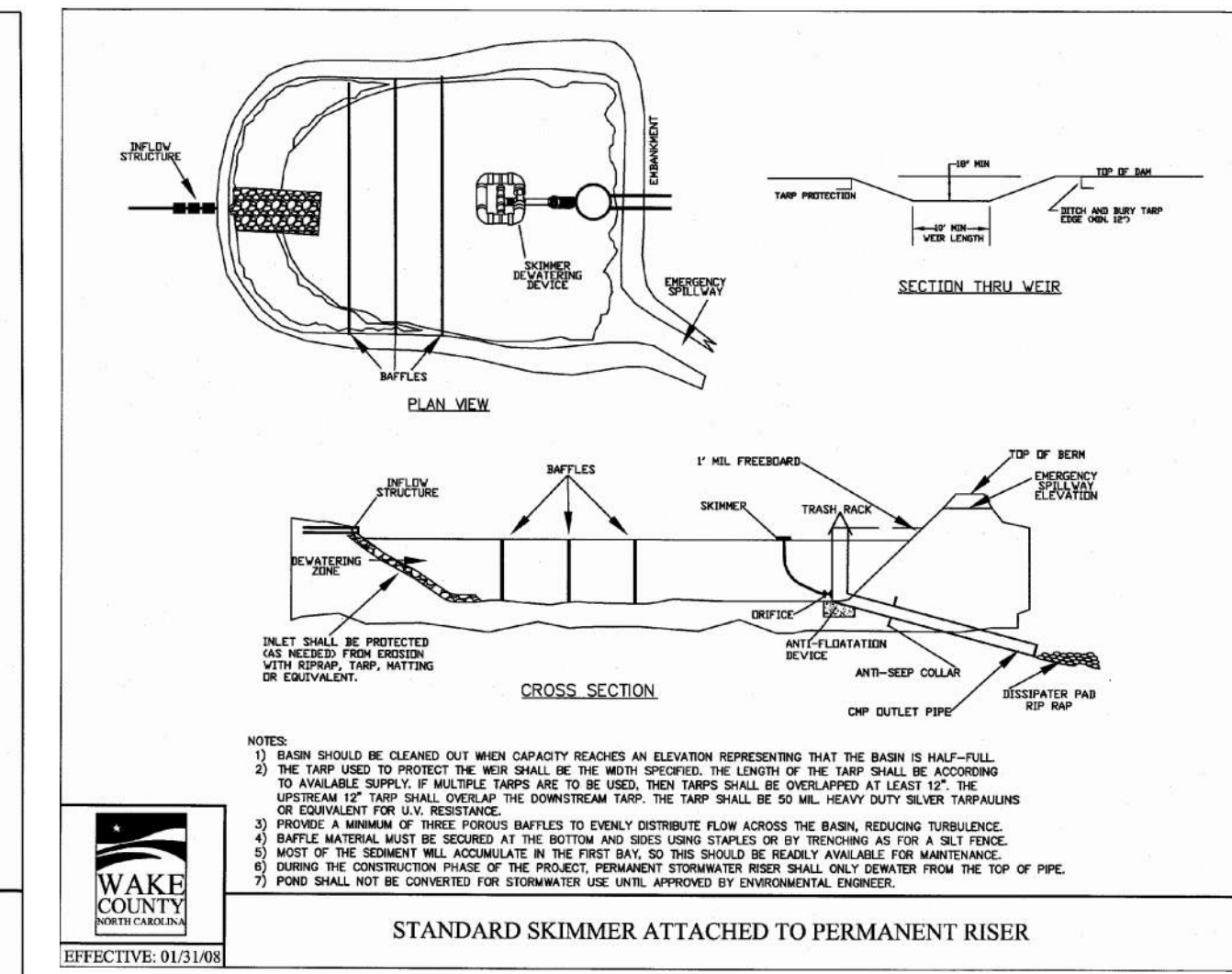
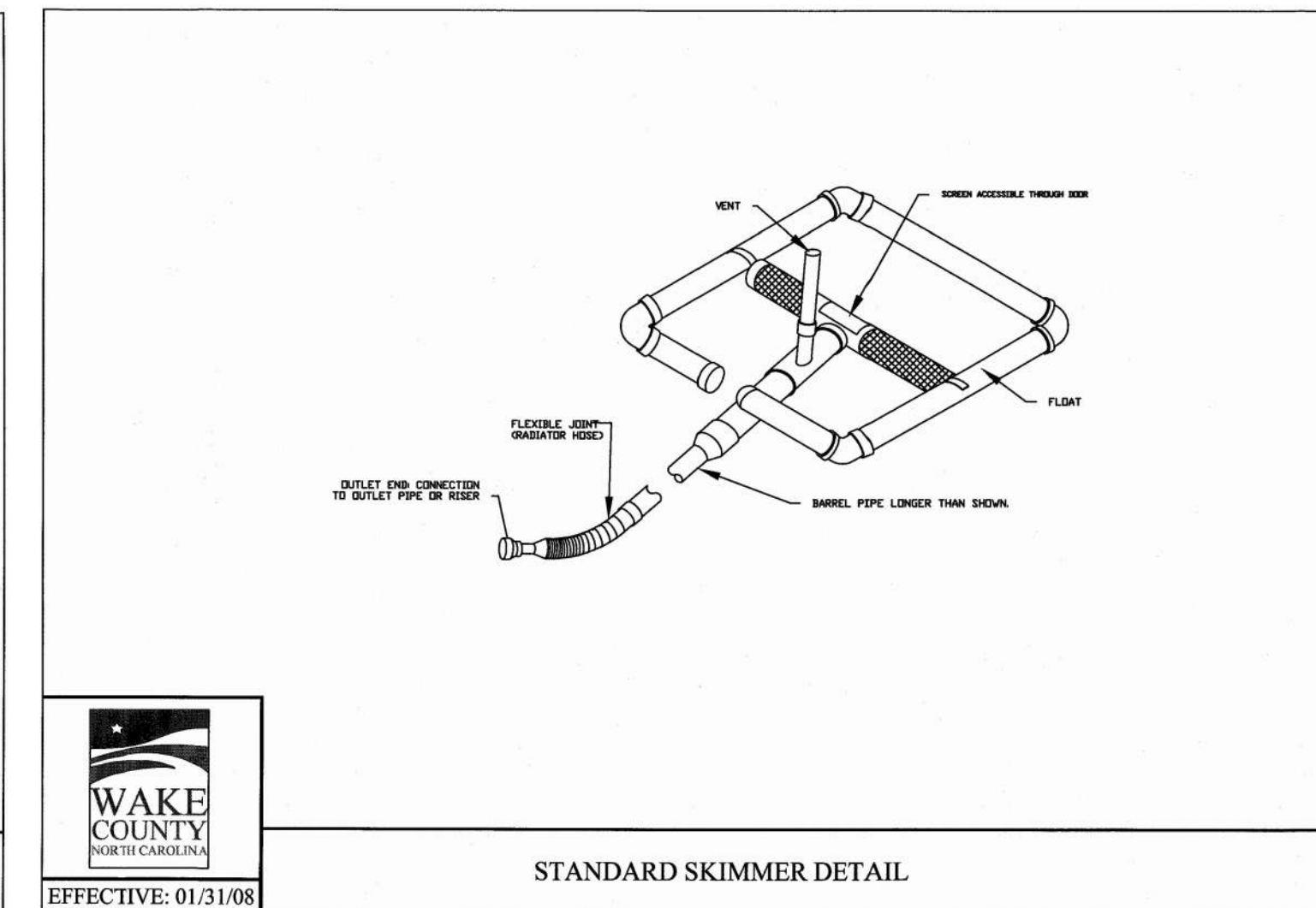
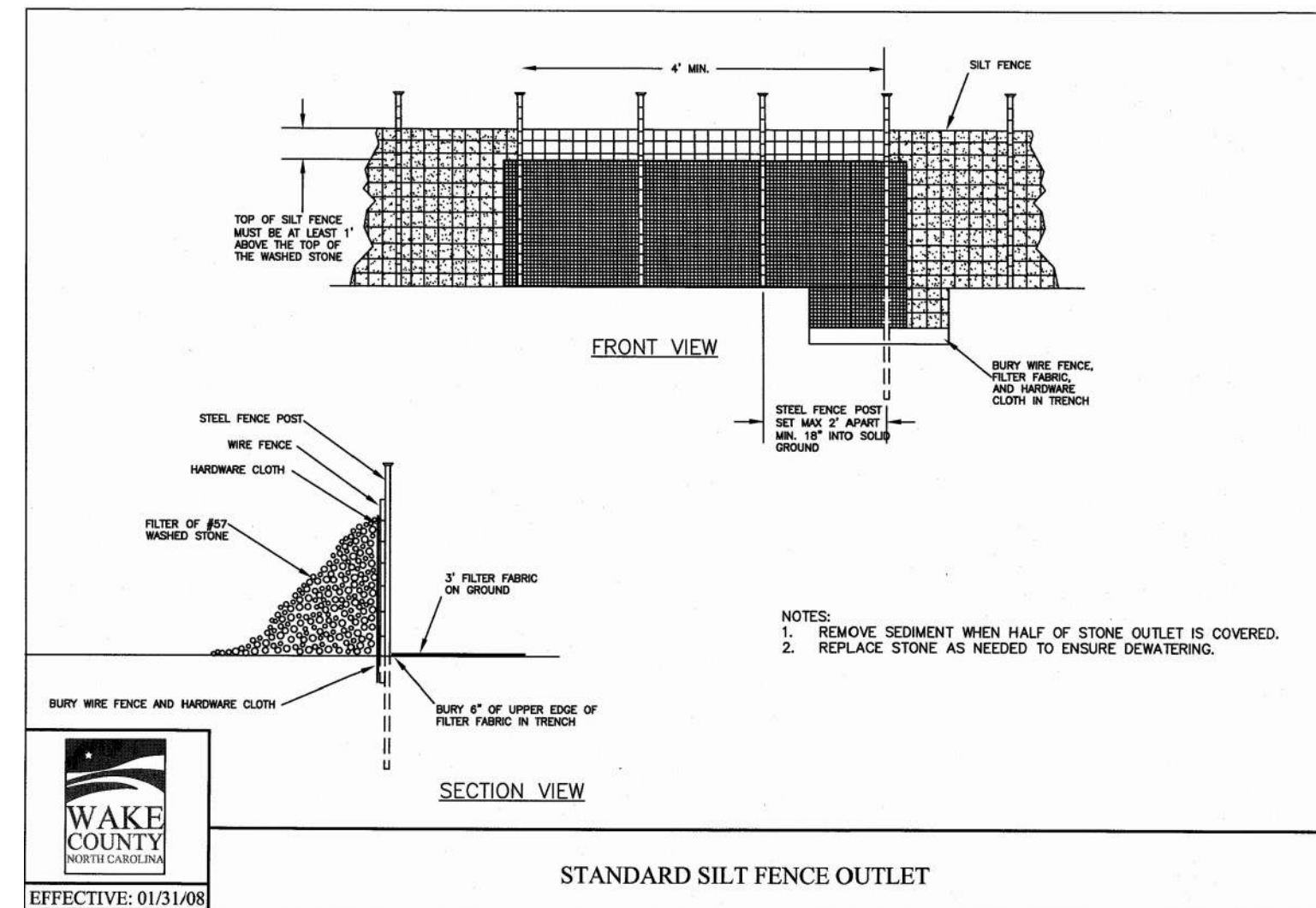
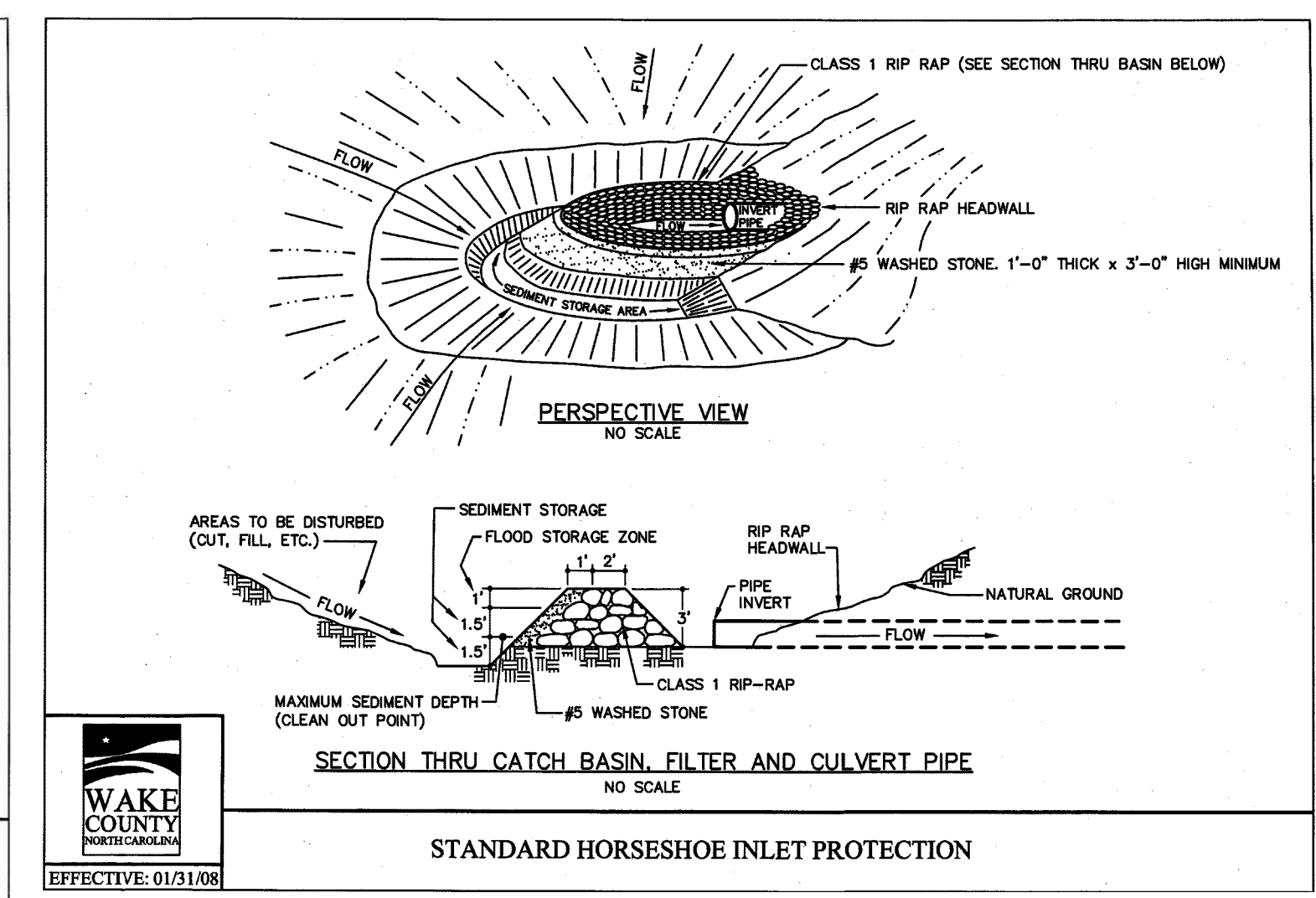
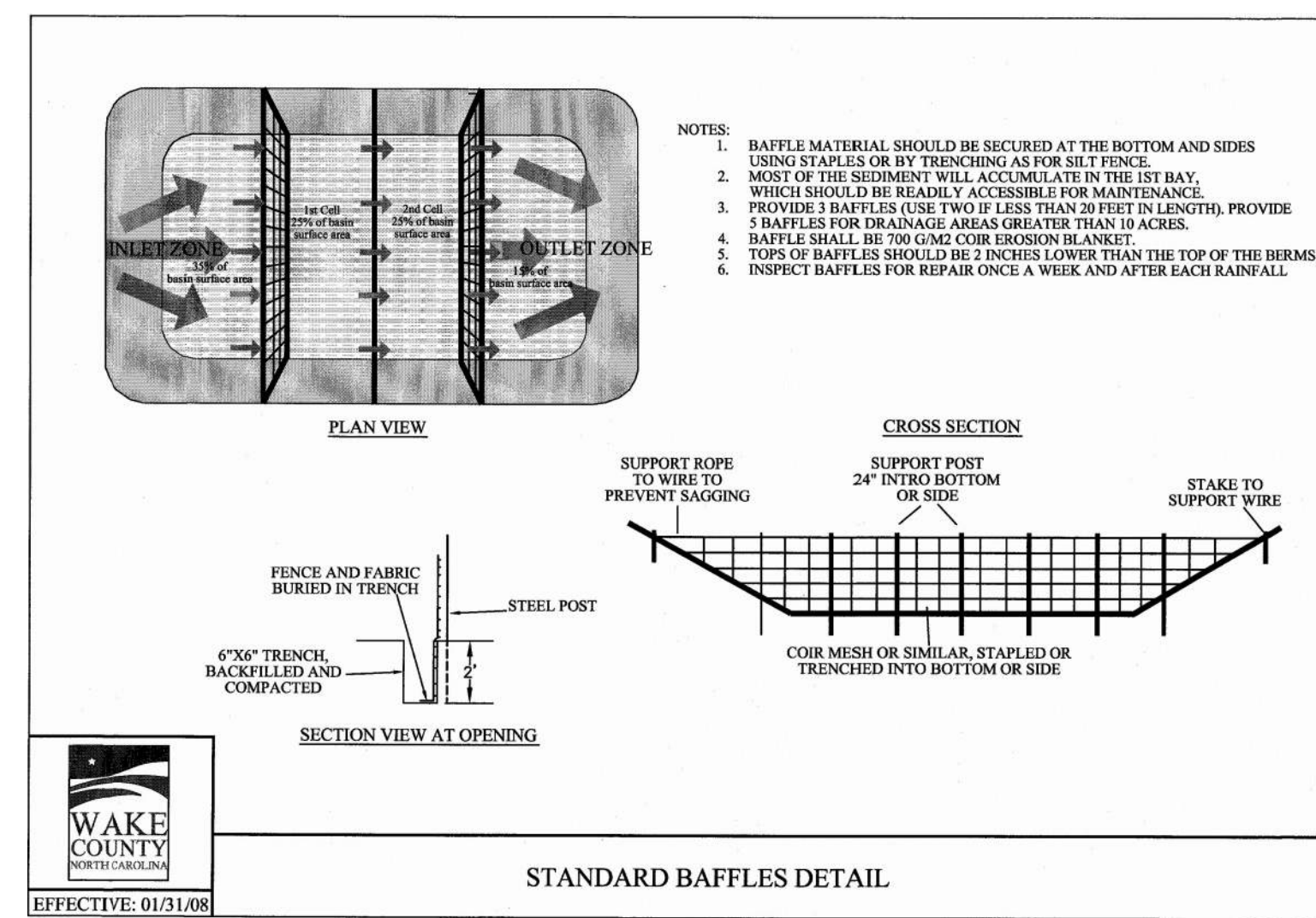
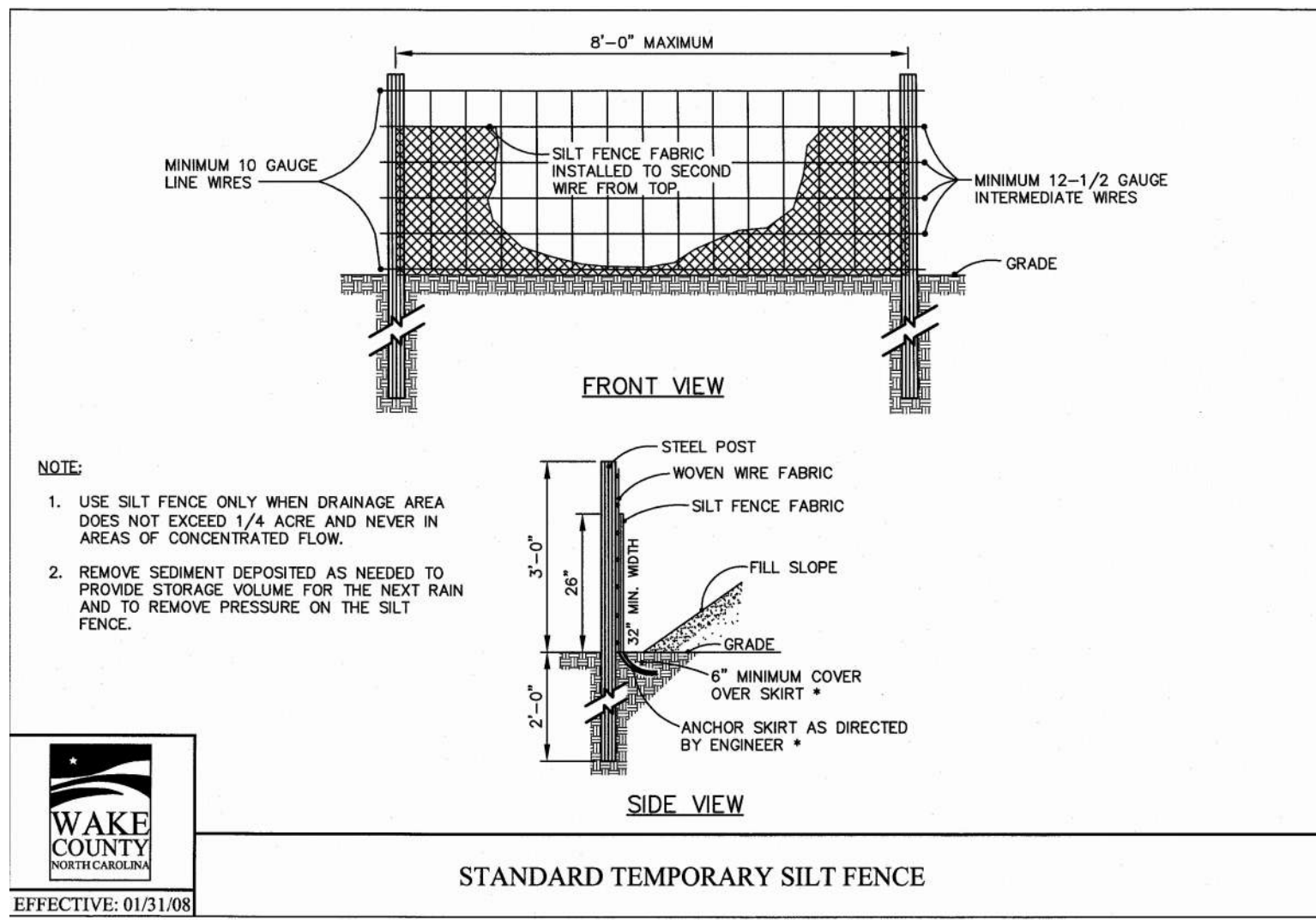
Table with columns: NO., DATE, DESCRIPTION, REVISIONS

PROGRESS MRM DRAWN BY DATE JOB NO. EROSION CONTROL DETAILS

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA SHEET C3.5

3/10/22

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



**SEEDING INFORMATION:**

**SEEDBED PREPARATION**

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, 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 AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- CONTINUE TILLAGE UNTIL A WELL PULVERIZED FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER 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 OVER 50% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
- CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
- APPLY AGRICULTURAL LIMESTONE - 2 TONS/ACRE FERTILIZER - 10-10-10 ANALYSIS AT 800-1,000 LBS./ACRE SUPER PHOSPHATE - 500 LBS. OF 20% ANALYSIS SUPER PHOSPHATE. MULCH - 2 TONS (APPROX. 80 BALES) SMALL GRAIN STRAW/ACRE ANCHOR - TACK WITH LIQUID ASPHALT AT 400 GAL./ACRE OR EMULSIFIED ASPHALT AT 300 GALLONS/ACRE

**SEEDING SCHEDULE**

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

DATE	TYPE	PLANTING RATE
AUG. 15 - NOV. 1	TALL FESCUE	200 LBS./ACRE
NOV. 1 - MAR. 1	TALL FESCUE AND ABRUZZI RYE (NURSE CROP)	200 LBS./ACRE
MAR. 1 - APR. 15	TALL FESCUE	200 LBS./ACRE
APR. 15 - JUN. 30	HULLED COMMON BERMUDAGRASS	15 LBS./ACRE

**PERMANENT SEEDING - SLOPES (3:1 TO 2:1)**

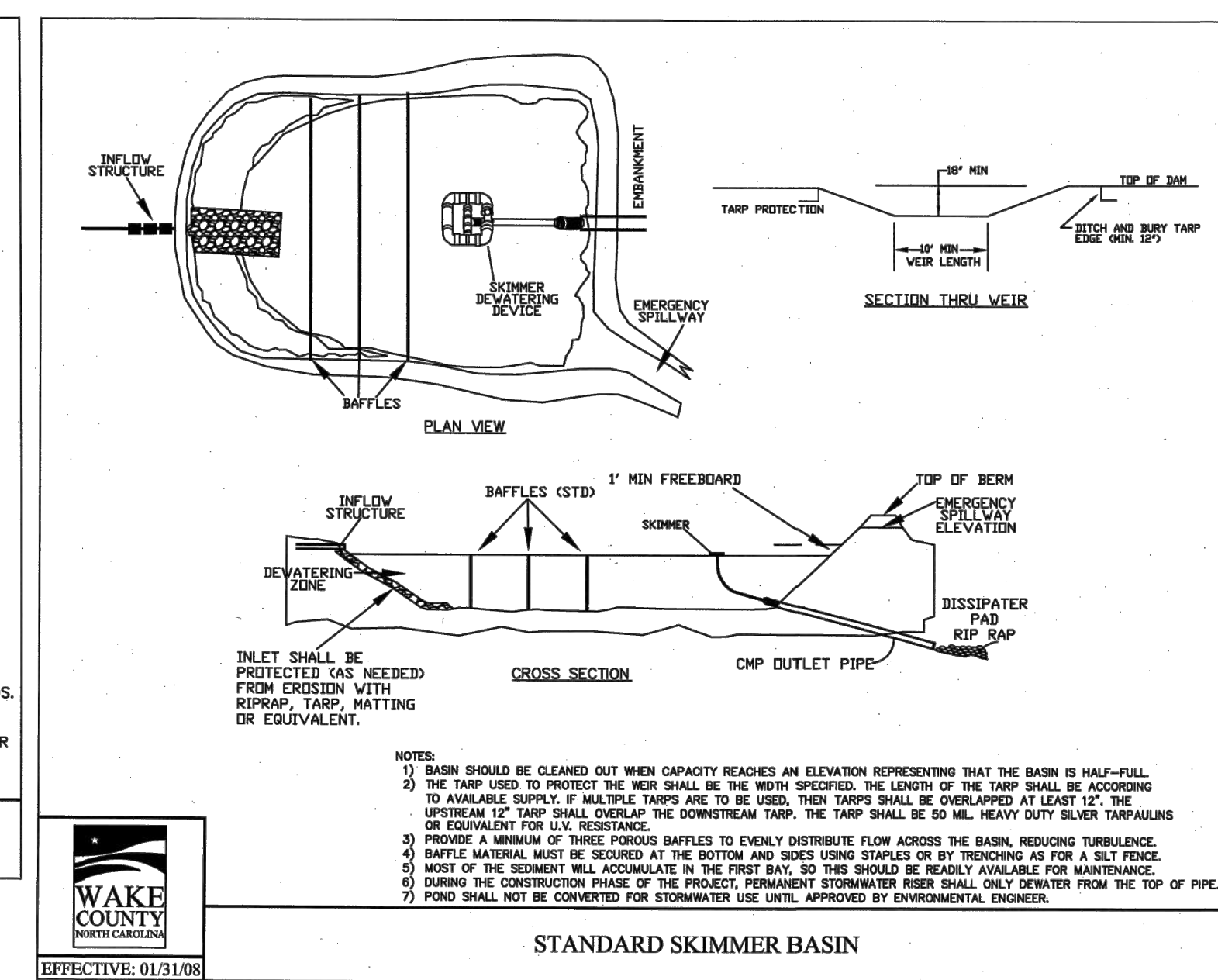
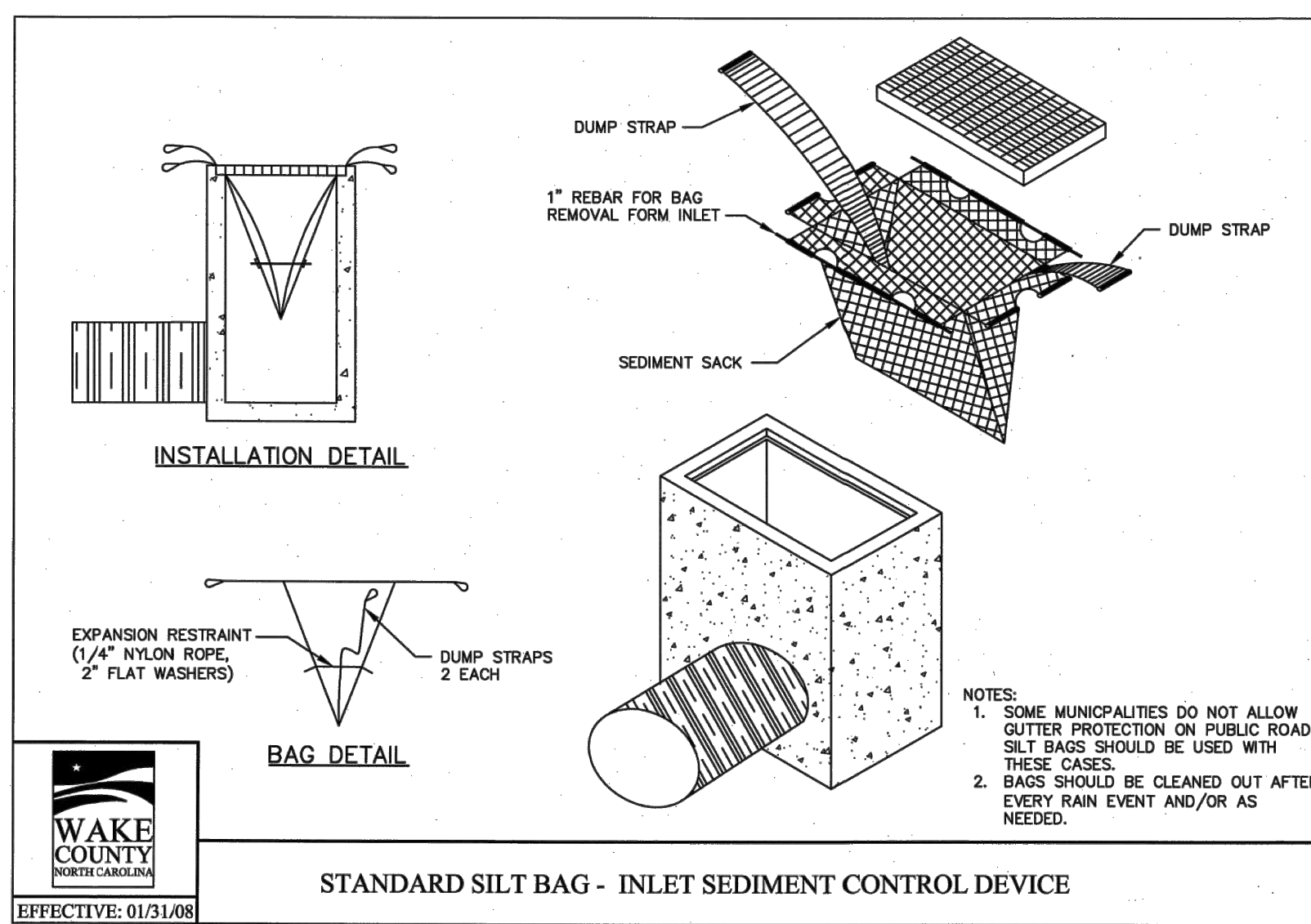
DATE	TYPE	PLANTING RATE
AUG. 15 - NOV. 1	TALL FESCUE AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED)	60 TO 70 LBS./ACRE
NOV. 1 - MAR. 1	TALL FESCUE AND SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED) AND ABRUZZI RYE	60 TO 70 LBS./ACRE
MAR. 1 - JUN. 1	TALL FESCUE AND SERICEA LESPEDEZA (SCARIFIED)	25 LBS./ACRE
MAR. 15 - JUN. 30	WEEDING LOVEGRASS	10 LBS./ACRE
MAR. 15 - JUN. 30	HULLED COMMON BERMUDAGRASS AND SERICEA LESPEDEZA (SCARIFIED)	40 TO 50 LBS./ACRE

**TEMPORARY SEEDING**

DATE	TYPE	PLANTING RATE
JUNE 1 - SEPT. 1	TALL FESCUE AND BROWNTOP MILLET (NURSE CROP) OR SORGHUM-SUDAN HYBRIDS (NURSE CROP)	200 LBS./ACRE
		35 LBS./ACRE
		30 LBS./ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENIED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

\*NURSE CROP/TEMPORARY-RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.



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City of Raleigh Development Approval \_\_\_\_\_

Raleigh Water Review Officer



3/10/22



**BASS, NIXON & KENNEDY, INC.**  
**CONSULTING ENGINEERS**  
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
 TELEPHONE: (919)881-4422 FAX: (919)881-6868  
 CERTIFICATION NUMBERS: NCBELS (C-010); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

COBBLESTONE VILLAGE MIXED USE DEVELOPMENT  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA  
 SCALE: N.T.S.  
 CHK BY: MDB  
 EROSION CONTROL DETAILS  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 JOB NO.: \_\_\_\_\_  
 PROGRESS: \_\_\_\_\_  
 MRM: \_\_\_\_\_  
 SHEET C3.6



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 Raleigh Water Review Officer

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
2	1	420.00	419.80	18.80	24	HDPE	1.06%
4	3	421.26	421.00	43.91	36	HDPE	0.60%
5	4	422.04	421.36	113.45	36	HDPE	0.60%
6	5	423.35	422.14	201.82	36	HDPE	0.60%
7	6	423.62	423.45	28.04	36	HDPE	0.60%
8	7	425.82	424.94	88.24	24	HDPE	1.00%
9	8	426.82	425.92	90.21	24	HDPE	1.00%
10	9	427.59	426.92	87.14	24	HDPE	1.00%
11	10	428.63	427.69	93.66	18	HDPE	1.00%
12	11	429.65	428.73	91.93	18	HDPE	1.00%
13	12	430.39	429.75	63.96	15	HDPE	1.00%

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
14	13	430.75	430.49	25.95	15	HDPE	1.00%
15	5	424.10	423.05	105.41	15	HDPE	1.00%
16	7	424.61	423.72	147.77	24	HDPE	0.60%
17	16	425.41	424.71	116.44	24	HDPE	0.60%
18	17	428.85	427.77	107.92	15	HDPE	1.00%
19	18	431.57	430.69	88.39	15	HDPE	1.00%
20	19	432.50	431.67	83.01	15	HDPE	1.00%
21	6	424.24	423.45	78.65	24	HDPE	1.00%
22	21	424.60	424.34	26.08	15	HDPE	1.00%
23	22	426.78	424.70	207.76	15	HDPE	1.00%
24	10	432.22	430.86	90.55	15	HDPE	1.50%

STORMDRAINAGE PIPE TABLE							
U.S. STRUCTURE	D.S. STRUCTURE	U.S. INVERT	D.S. INVERT	LENGTH	DIAMETER	MATERIAL	SLOPE
27	28	436.27	435.41	85.76	15	HDPE	1.00%
28	35	435.31	434.24	106.92	15	HDPE	1.00%
29	22	425.05	424.70	34.83	15	HDPE	1.00%
30	17	426.34	425.51	137.91	18	HDPE	0.60%
31	18	429.82	428.95	87.08	15	HDPE	1.00%
32	9	429.50	428.60	90.23	15	HDPE	1.00%
33	24	432.43	432.32	11.23	15	HDPE	1.00%
34	17	428.09	427.77	32.09	12	HDPE	1.00%
35	33	434.14	432.53	160.60	15	HDPE	1.00%

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
1	422.45 INV. IN= 419.80 (2)	24" FES
2	425.18 INV. OUT= 420.00 (1)	RISER
3	424.83 INV. IN= 421.00 (4)	36" FES
4	428.06 INV. IN= 421.36 (5) INV. OUT= 421.26 (3)	NCDOT CURB INLET
5	429.08 INV. IN= 422.14 (6) INV. IN= 423.05 (15) INV. OUT= 422.04 (4)	NCDOT CURB INLET
6	430.99 INV. IN= 423.45 (7) INV. IN= 423.45 (21) INV. OUT= 423.35 (5)	NCDOT CURB INLET
7	431.15 INV. IN= 424.94 (8) INV. IN= 423.72 (16) INV. OUT= 423.62 (6)	NCDOT CURB INLET
8	433.95 INV. IN= 425.82 (9) INV. OUT= 425.82 (7)	NCDOT CURB INLET
9	433.95 INV. IN= 426.92 (10) INV. IN= 428.60 (32) INV. OUT= 426.82 (8)	NCDOT CURB INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
10	436.44 INV. IN= 427.69 (11) INV. IN= 430.86 (24) INV. OUT= 427.59 (9)	HDPE YARD INLET
11	437.44 INV. IN= 428.73 (12) INV. OUT= 428.63 (10)	HDPE YARD INLET
12	435.50 INV. IN= 429.75 (13) INV. OUT= 429.65 (11)	HDPE YARD INLET
13	436.00 INV. IN= 430.49 (14) INV. OUT= 430.39 (12)	NCDOT CURB INLET
14	436.00 INV. OUT= 430.75 (13)	NCDOT CURB INLET
15	428.50 INV. OUT= 424.10 (5)	HDPE YARD INLET
16	429.68 INV. IN= 424.71 (17) INV. OUT= 424.61 (7)	NCDOT CURB INLET
17	434.01 INV. IN= 427.77 (18) INV. IN= 425.51 (30) INV. IN= 427.77 (34) INV. OUT= 425.41 (16)	NCDOT CURB INLET
18	436.04 INV. IN= 430.69 (19) INV. IN= 428.95 (31) INV. OUT= 428.85 (17)	NCDOT CURB INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
19	437.52 INV. IN= 431.67 (20) INV. OUT= 431.57 (18)	NCDOT CURB INLET
20	438.65 INV. OUT= 432.50 (19)	NCDOT CURB INLET
21	431.60 INV. IN= 424.34 (22) INV. OUT= 424.24 (6)	HDPE YARD INLET
22	432.00 INV. IN= 424.70 (23) INV. IN= 424.70 (29) INV. OUT= 424.60 (21)	NCDOT CURB INLET
23	435.99 INV. OUT= 426.78 (22)	NCDOT CURB INLET
24	437.18 INV. IN= 432.32 (33) INV. OUT= 432.22 (10)	HDPE YARD INLET
27	441.00 INV. OUT= 436.27 (28)	HDPE YARD INLET
28	441.00 INV. IN= 435.41 (27) INV. OUT= 435.31 (35)	HDPE YARD INLET
29	428.50 INV. OUT= 425.05 (22)	HDPE YARD INLET

STORMDRAINAGE STRUCTURE TABLE		
STRUCTURE NAME	INSERTION RIM ELEVATION (FLOWLINE)	STRUCTURE TYPE
30	430.12 INV. OUT= 426.34 (17)	NCDOT CURB INLET
31	434.05 INV. OUT= 429.82 (18)	NCDOT CURB INLET
32	435.72 INV. OUT= 429.50 (9)	NCDOT CURB INLET
33	437.54 INV. IN= 432.53 (35) INV. OUT= 432.43 (24)	NCDOT CURB INLET
34	430.03 INV. OUT= 428.09 (17)	HDPE YARD INLET
35	441.08 INV. IN= 434.24 (28) INV. OUT= 434.14 (33)	HDPE YARD INLET

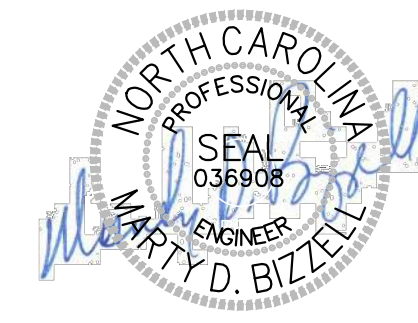
R:\2019\19187 - Rolesville Town Center\CIVIL\04 Construction\04 - 19187\_Grading\dwg, Drainage Tables, 3/10/2022, 4:40:41 PM, marc.mueller



**BASS, NIXON & KENNEDY, INC.**  
**CONSULTING ENGINEERS**  
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
 TELEPHONE: (919) 851-1422 FAX: (919) 851-8686  
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

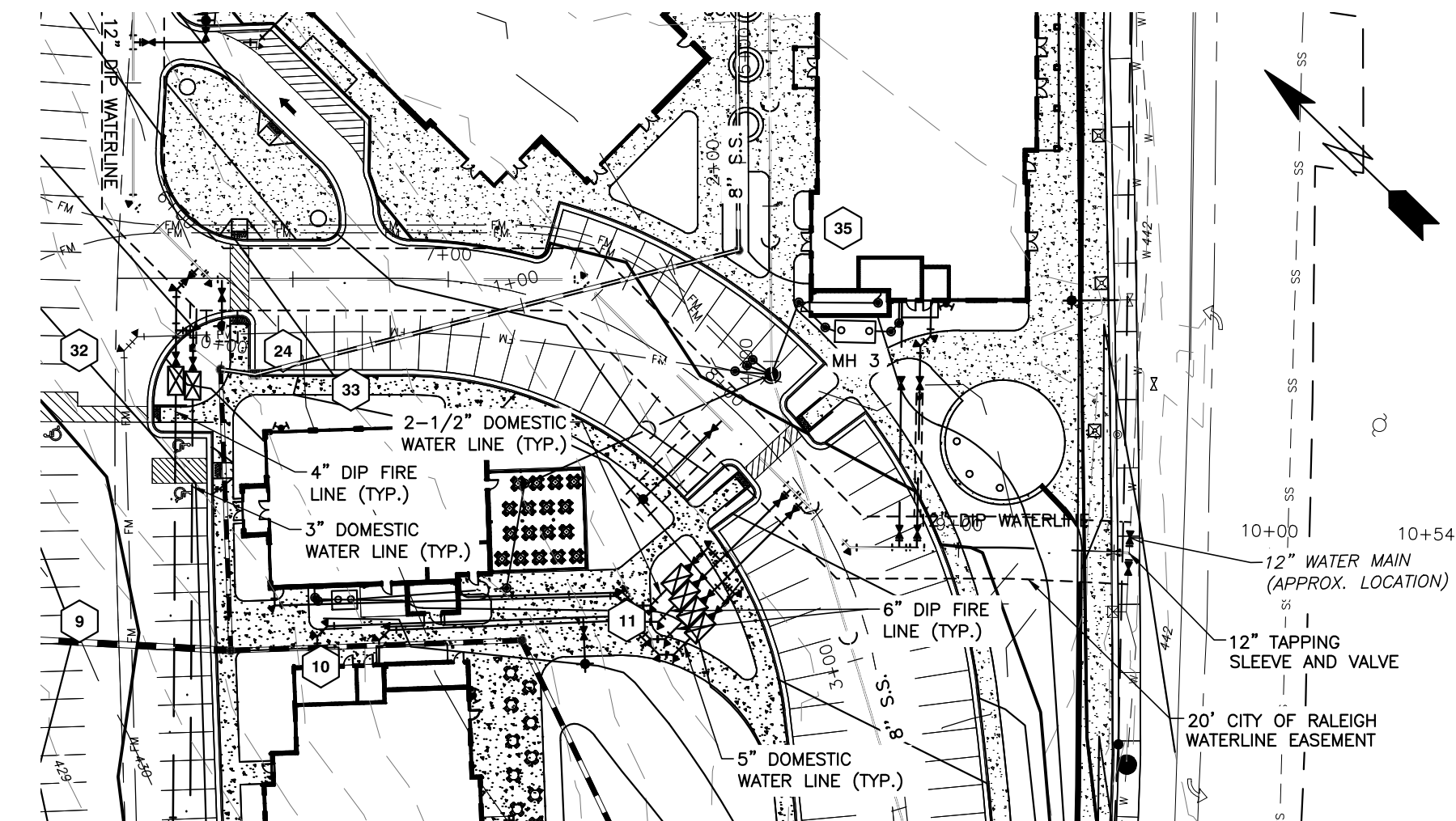
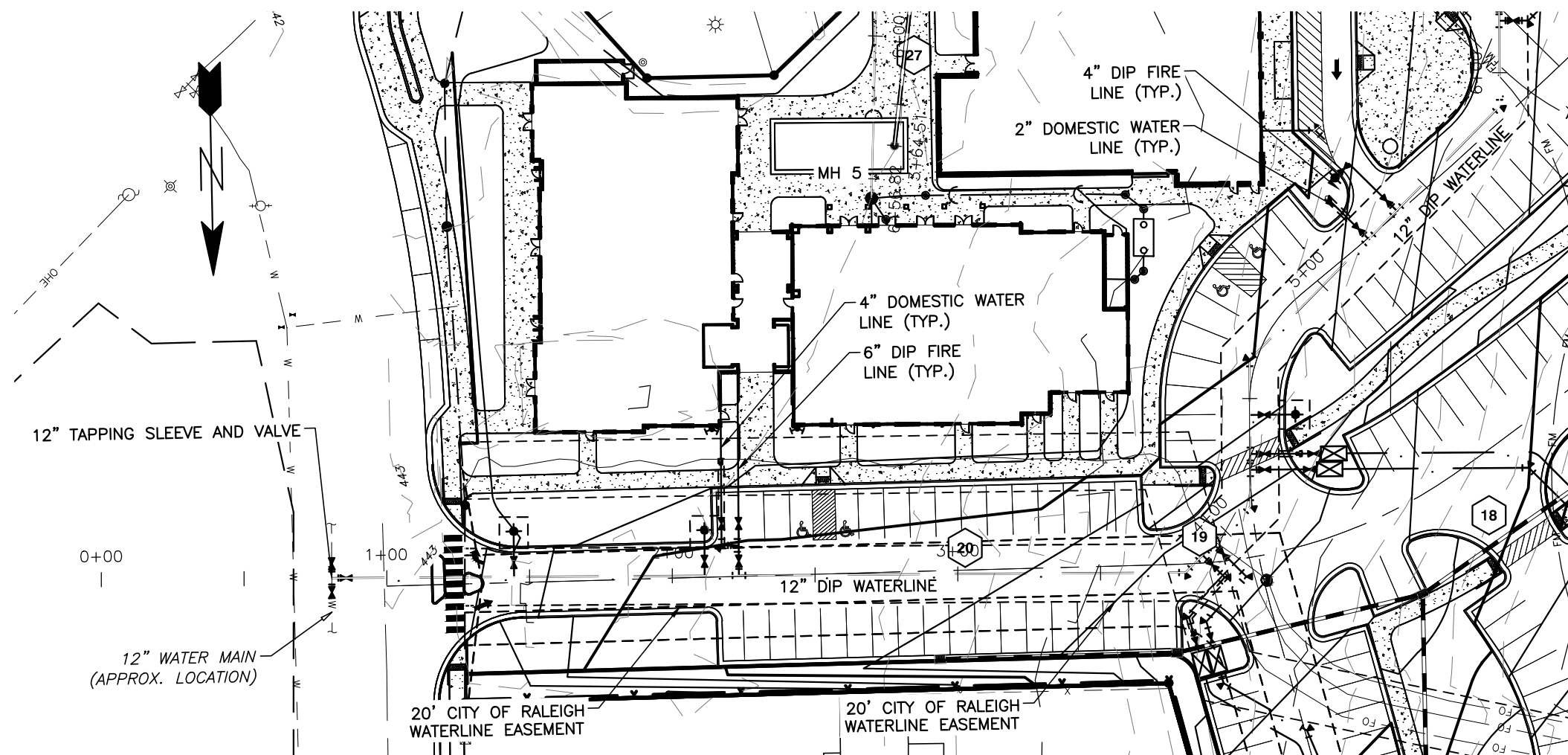
NO.	DATE	DESCRIPTION	BY

03-19187 - PROGRESS - MRM  
 DATE DRAWN BY  
**STORM DRAINAGE PIPE & STRUCTURE TABLE**  
 SCALE: \_\_\_\_\_ CHK BY: MDB  
**COBBLESTONE VILLAGE MIXED USE DEVELOPMENT**  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA



3/10/22

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



**Public**  
**Water Distribution / Extension System**  
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
 City of Raleigh  
 Public Utilities Department Permit # W-3879  
 Authorization to Construct See digital signature

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 \_\_\_\_\_



**BASS, NIXON & KENNEDY, INC.**  
**CONSULTING ENGINEERS**  
 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
 TELEPHONE: (919)881-1122 FAX: (919)881-8686  
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

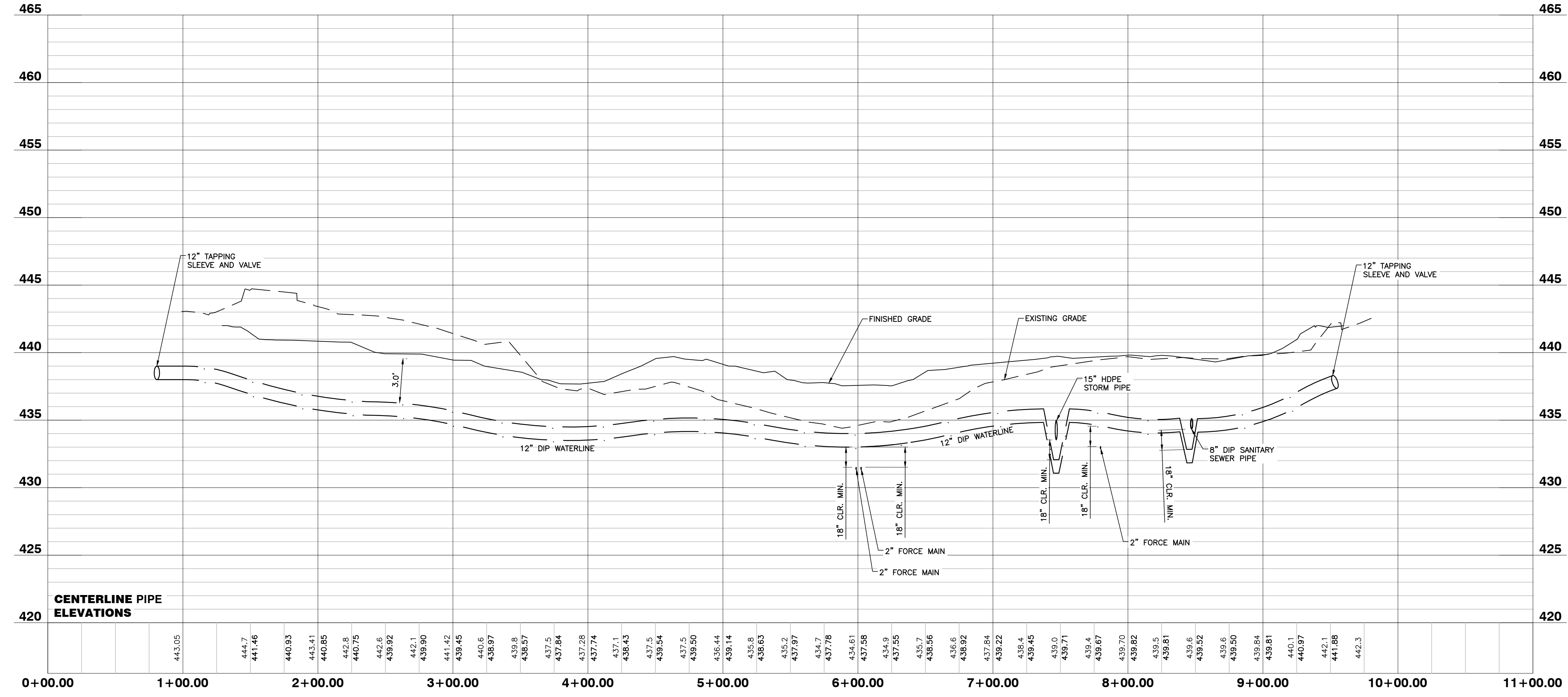
NO.	DATE	DESCRIPTION	BY

03-19157	PROGRESS	MRM
JOB NO.	DATE	DRAWN BY
<b>PUBLIC WATERLINE PROFILE</b>		
SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB		

**COBBLESTONE VILLAGE**  
**MIXED USE DEVELOPMENT**  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

SHEET  
**C4.1**

**PUBLIC WATERLINE PROFILE**



3/10/22

NO FLOODPLAINS EXIST ON-SITE

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

**Private Sewer Collection / Extension System**  
 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 # S-4962 (P)  
 Authorization to Construct See digital signature

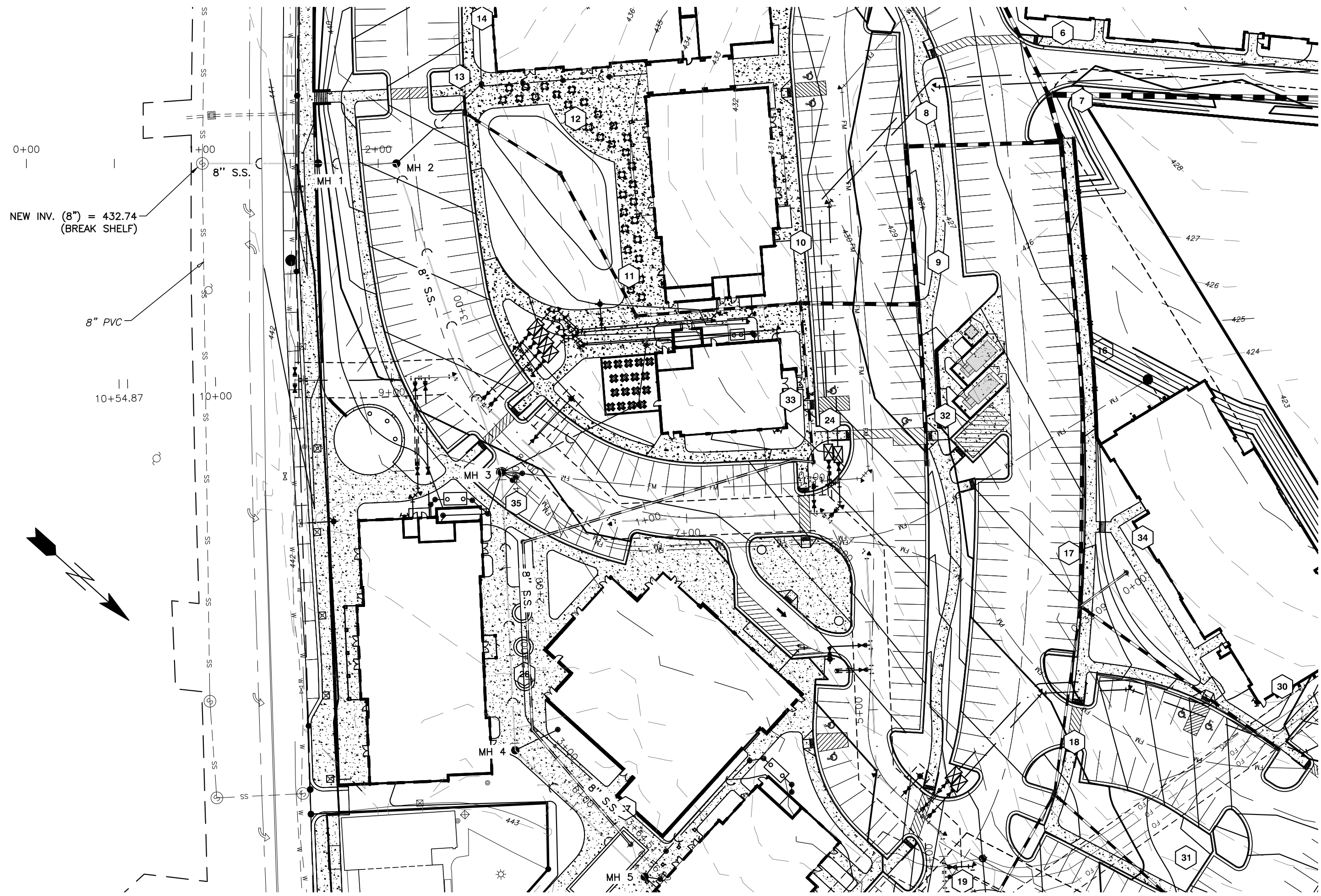


**BASS, NIXON & KENNEDY, INC.**  
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 6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607  
 TELEPHONE: (919)881-1422 FAX: (919)881-8686  
 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

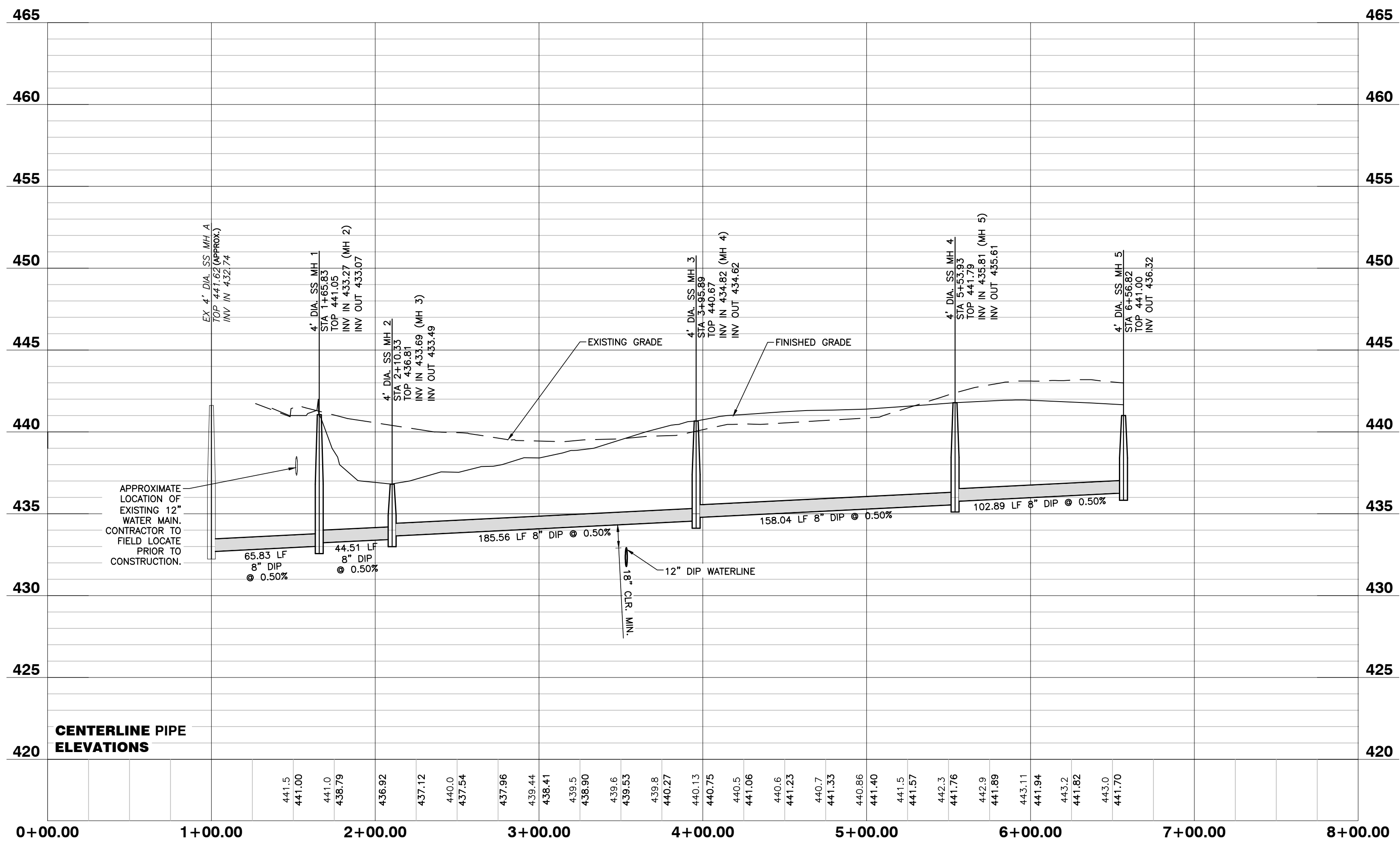
**CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**

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 \_\_\_\_\_



**SANITARY SEWER PROFILE**



3/10/22

NO FLOODPLAINS EXIST ON-SITE

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

NO.	DATE	DESCRIPTION	BY

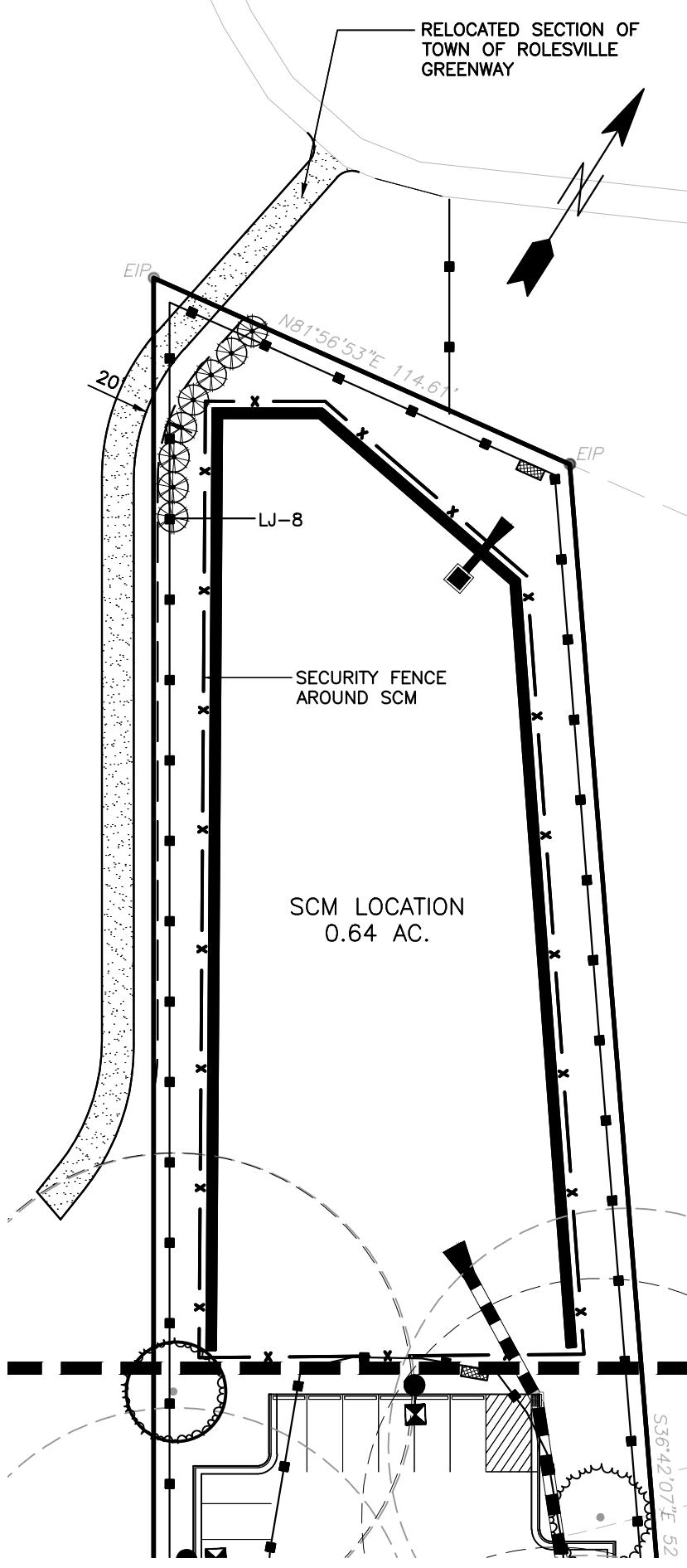
03-19157 PROGRESS MRN  
 JOB NO. DATE DRAWN BY  
**SANITARY SEWER PROFILE**  
 SCALE: 1" = 50' H; 1" = 5' V CHK BY: MDB

SHEET  
**C4.2**

**COBBLESTONE VILLAGE**  
**MIXED USE DEVELOPMENT**  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

**GENERAL NOTES**

1. A/C UNITS, TRANSFORMERS AND OTHER MECHANICAL OR UTILITY EQUIPMENT, NOT SHOWN ON THE PLAN, SHALL BE SCREENED FROM VIEW EITHER BY ADJUSTING PLANTINGS SHOWN IN CLOSE PROXIMITY TO EQUIPMENT OR BY THE ADDITION OF WAX MYRTLES @ 24" HT., 5' OC (SEE GENERAL NOTES FOR EQUIPMENT ACCESSIBILITY AND PLANTING PROXIMITY, ETC.). DUMPSTER IS SCREENED FROM OFF-SITE VIEWS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLANTING.
3. MULCH SHALL BE 3" DEEP MULCH UNLESS OTHERWISE NOTED.
4. VERIFICATION OF TOTAL QUANTITIES AS SHOWN IN THE PLANT LIST AND ON THE PLAN SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES BETWEEN PLANT LIST AND PLANTING PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION.
5. ALL TREES, SHRUBS, GROUNDCOVER, ETC. SHALL CONFORM TO ACCEPTED STANDARDS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERMEN.
6. ALL ROOTBALLS REMOVED FROM CONTAINERS SHALL BE SCARIFIED PRIOR TO PLANTING.
7. B&B AS LISTED UNDER "ROOT" IN THE PLANT LIST INDICATES BALLED & BURLAPPED.
8. ALL PLANTS/PLANTINGS SHALL BE MULCHED IMMEDIATELY AFTER PLANTING AND WATERED.
9. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THEY BORE TO PREVIOUS EXISTING GRADE (UNLESS OTHERWISE NOTED).
10. ALL TREES AND SHRUBS SHALL REQUIRE MULCH RINGS AT THEIR BASE IF LEFT WITHIN LAWN AREAS.
11. MULCH EDGES AND PROPOSED PLANTINGS SHALL NOT DISTURB ANY EXISTING GROUPS OF TREES TO REMAIN. EDGES ARE SHOWN FOR APPROXIMATION ONLY, BUT ARE TO INDICATE SMOOTH, CLEAN CURVES.
12. CULVERTS, RIP-RAP STRUCTURES, AND OTHER STORMWATER DEVICES SHALL BE SCREENED WITH EVERGREEN SHRUBS. IF STRUCTURES ARE NOT SHOWN ON THE PLAN, INSTALL WAX MYRTLES @ 24" HT., 5' OC.
13. A 2' BUMPER OVERHANG, FROM THE BACK OF CURB, SHALL BE ALLOTTED FOR MATURE SHRUBS.
14. TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY (C.O.). THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A (C.O.).
15. UNLESS OTHERWISE NOTED ON THE PLAN, ALL DISTURBED AREAS ARE TO BE SEED WITH WARM SEASON GRASS, INCLUDING PARKING LOT PERIMETERS AND PARKING LOT ISLANDS.
16. PERIMETER BUFFER AREAS ARE TO BE MULCHED TO A DEPTH OF THREE INCHES.



**LANDSCAPE CALCULATIONS**

**PERIMETER BUFFERS (10' TYPICAL):**  
 WEST (1) - 352 LF = 4 TREES / 100 LF = 14 TREES REQUIRED/PROVIDED  
 = 40 SHRUBS / 100 LF = 141 SHRUBS REQUIRED/PROVIDED  
 = 352 LF MIN. 6' TALL FENCE REQUIRED

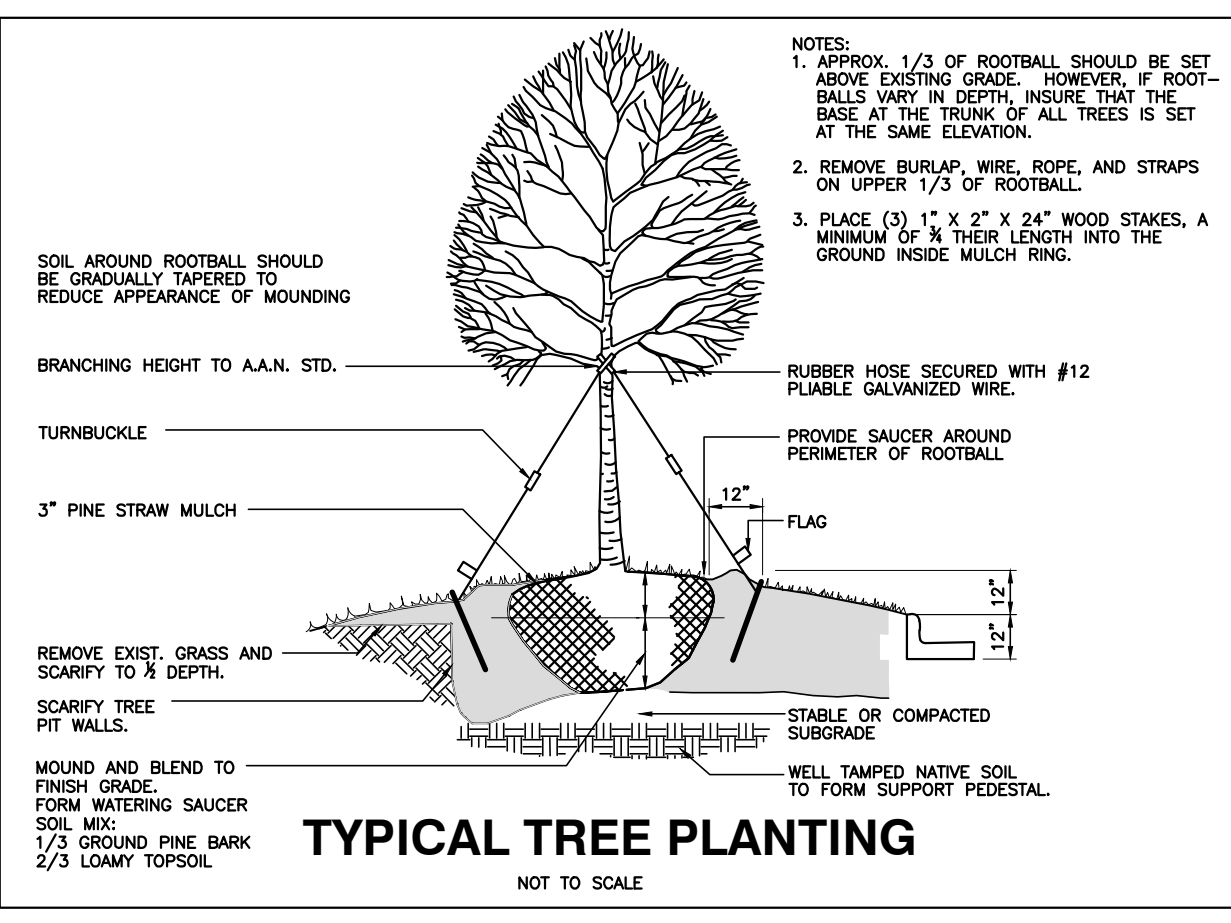
**NORTH (2) - 187 LF = 4 TREES / 100 LF = 8 TREES REQUIRED/PROVIDED**  
 = 40 SHRUBS / 100 LF = 75 SHRUBS REQUIRED/PROVIDED  
 = 187 LF MIN. 6' TALL FENCE REQUIRED

**NORTHEAST (3) - 240 LF = 4 TREES / 100 LF = 10 TREES REQUIRED/PROVIDED**  
 = 40 SHRUBS / 100 LF = 96 SHRUBS REQUIRED/PROVIDED  
 = 240 LF MIN. 6' TALL FENCE REQUIRED

**EAST (4) - 247 LF = 4 TREES / 100 LF = 10 TREES REQUIRED/PROVIDED**  
 = 40 SHRUBS / 100 LF = 100 SHRUBS REQUIRED/PROVIDED  
 = 247 LF MIN. 6' TALL FENCE REQUIRED

**STREET YARDS:**  
 MAIN ST - 595 LF = 1 TREE / 50 LF = 12 TREES REQUIRED/PROVIDED  
 WEST YOUNG ST - 242 LF = 1 TREE / 50 LF = 5 TREES REQUIRED/PROVIDED

**VEHICULAR USE AREA COVERAGE: 1 TREE WITHIN 60' OF EACH PARKING SPACE**



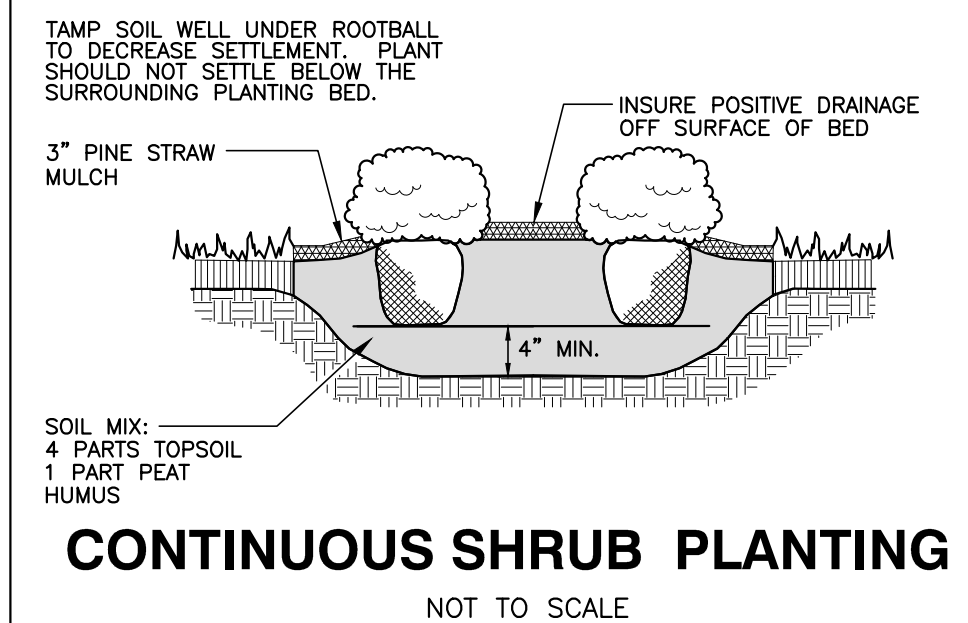
**PLANTING NOTES:**

LOCATE PLANTS AND PLANTING BEDS BY USING SCALED DIMENSIONS FROM STREET, PROPERTY LINES, BACK OF CURB, BUILDINGS, WALLS, ETC. ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET BY THE U.S.D.A. FOR NURSERY STOCK. SPONSORED BY THE AMERICAN ASSOCIATION OF NURSERMEN, WASHINGTON, D.C. NO SUBSTITUTIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE OWNER AND/OR THE LANDSCAPE ARCHITECT. SYMBOLS: B&B = BALLED & BURLAPPED; B.R. = BARE ROOT; CONT. = CONTAINER, O.C. = ON-CENTER

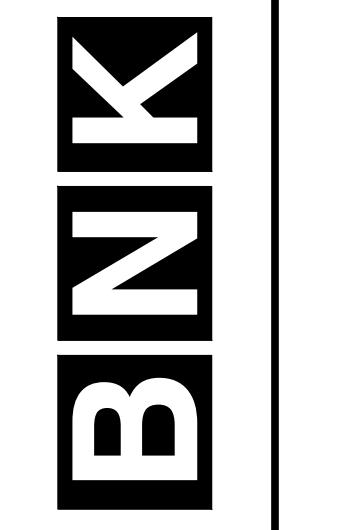
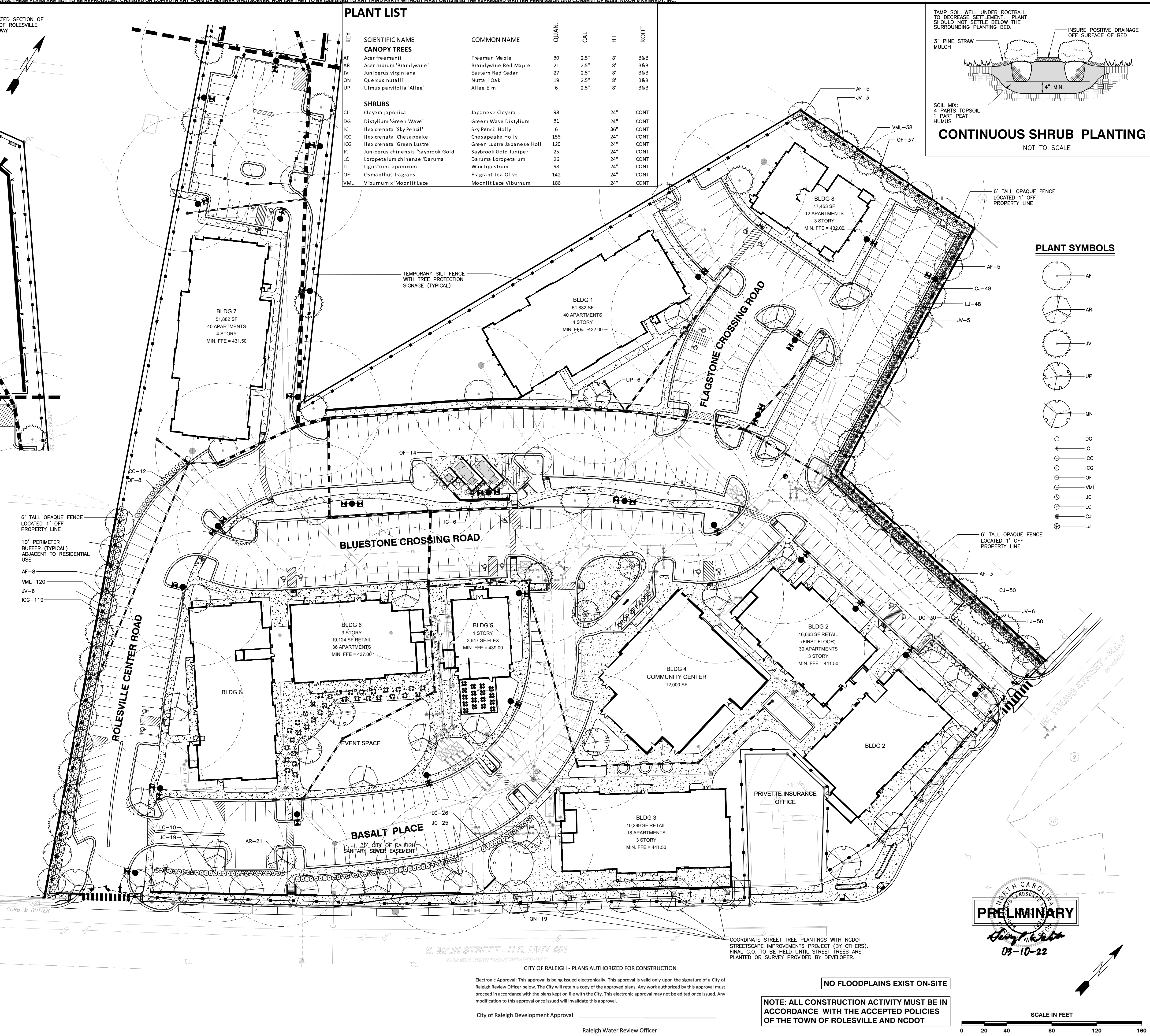
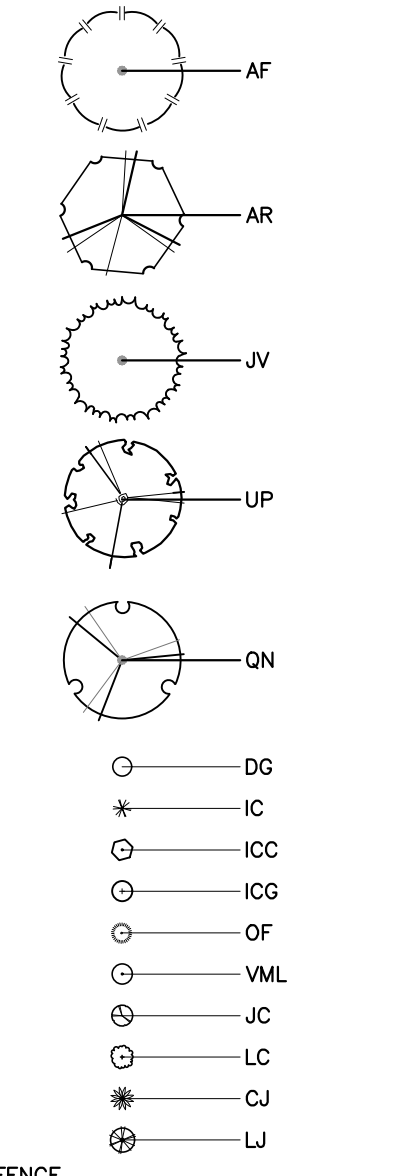
STREET TREE PLANTINGS TO BE COORDINATED IN CONCURRENCE WITH NCDOT STREETSCAPE IMPROVEMENT PROJECT ALONG S. MAIN AND YOUNG STREET(S).

**PLANT LIST**

KEY	SCIENTIFIC NAME	COMMON NAME	QUAN.	CAL	HT	ROOT
<b>CANOPY TREES</b>						
AF	Acer freemanii	Freeman Maple	30	2.5"	8'	B&B
AR	Acer rubrum 'Brandywine'	Brandywine Red Maple	21	2.5"	8'	B&B
JV	Juniperus virginiana	Eastern Red Cedar	27	2.5"	8'	B&B
QN	Quercus nuttallii	Nuttall Oak	19	2.5"	8'	B&B
UP	Ulmus parvifolia 'Allee'	Allee Elm	6	2.5"	8'	B&B
<b>SHRUBS</b>						
CJ	Cleyera japonica	Japanese Cleyera	98		24"	CONT.
DG	Distylium 'Green Wave'	Green Wave Distylium	31		24"	CONT.
IC	Ilex crenata 'Sky Pencil'	Sky Pencil Holly	6		36"	CONT.
ICC	Ilex crenata 'Chesapeake'	Chesapeake Holly	153		24"	CONT.
ICG	Ilex crenata 'Green Lustre'	Green Lustre Japanese Holl	120		24"	CONT.
JC	Juniperus chinensis 'Seybrook Gold'	Seybrook Gold Juniper	25		24"	CONT.
LC	Loropetalum chinense 'Daruma'	Daruma Loropetalum	26		24"	CONT.
LJ	Ligustrum japonicum	Wax Ligustrum	98		24"	CONT.
OF	Osmanthus fragrans	Fragrant Tea Olive	142		24"	CONT.
VML	Viburnum x 'Moonlit Lace'	Moonlit Lace Viburnum	186		24"	CONT.



**PLANT SYMBOLS**



**BASS, NIXON & KENNEDY, INC.**  
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 CERTIFICATION NUMBERS: NCBELS (C-010); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	BY

LANDSCAPE PLAN  
 SCALE: 1" = 40'  
 CHK BY: GPW

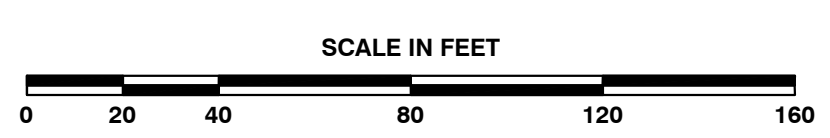
**COBBLESTONE VILLAGE**  
 MIXED USE DEVELOPMENT  
 TOWN OF ROLESVILLE, WAKE COUNTY, NORTH CAROLINA

PRELIMINARY  
 03-10-22

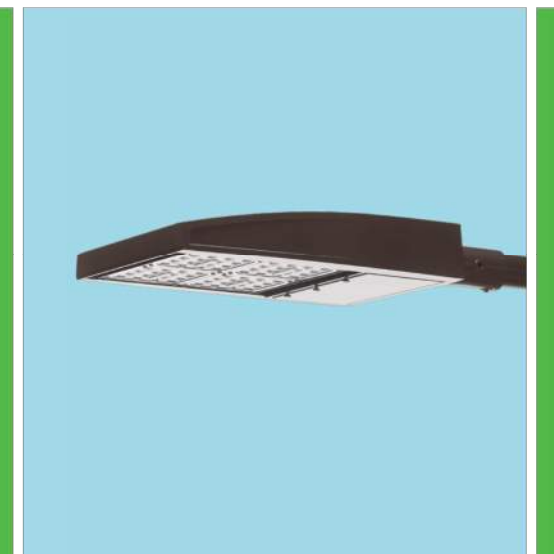
NO FLOODPLAINS EXIST ON-SITE

NOTE: ALL CONSTRUCTION ACTIVITY MUST BE IN ACCORDANCE WITH THE ACCEPTED POLICIES OF THE TOWN OF ROLESVILLE AND NCDOT

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



Outdoor Lighting  
Shoebox LED



The energy-efficient Shoebox LED combines a decorative, contemporary style with versatility and ample lighting effect that is perfect for streets, parking lots, commercial buildings and residential communities. The Shoebox LED provides excellent color rendition along with a controlled light pattern that reduces glare and keeps the light directed only where you want it. Available in black, dark bronze, gray or white with one to four fixtures per pole.

- LED (Light Emitting Diode) 150, 220, 420, 530 watts
  - Mounting heights 25', 30', 35'
  - Colors Black, Bronze, Gray, White
  - Poles Fiberglass (1 or 2 fixtures per pole), Decorative tapered metal, Decorative square metal
- Note: 35' pole available in black or bronze only.

For additional information, visit us at [duke-energy.com/OutdoorLighting](http://duke-energy.com/OutdoorLighting) or call us toll free at 866.769.6417.



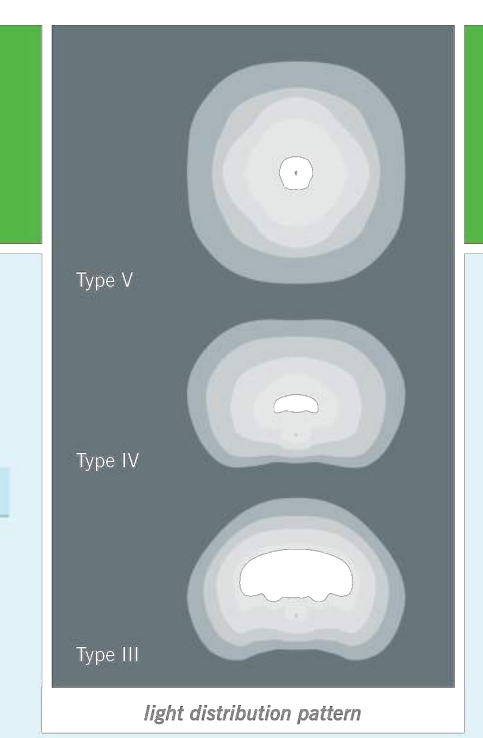
Outdoor Lighting  
Shoebox LED

Light source: LED (white)  
Replacement for\* LED Wattage 150 – 250-watt HPS and metal halide; LED Wattage 205 – up to 400-watt metal halide; LED Wattage 530 – 1,000-watt metal halide

Warm-up and restrike time: Instant on (no warm-up or restrike time)

Wattage	BUG Rating	Light Pattern	Lumens	Color Temp
LED 150	B5-U0-G3	IESNA Type V (circular)	19580	4,000K
LED 150	B3-U0-G4	IESNA Type IV (forward throw)	18459	
LED 150	B2-U0-G3	IESNA Type III (oval)	19006	
LED 220	B5-U0-G3	IESNA Type V (circular)	25870	
LED 220	B3-U0-G4	IESNA Type IV (forward throw)	24390	
LED 220	B2-U0-G4	IESNA Type III (oval)	25114	
LED 420	B5-U0-G5	IESNA Type V (circular)	48514	
LED 420	B3-U0-G5	IESNA Type IV (forward throw)	43765	
LED 530	B5-U0-G5	IESNA Type V (circular)	60296	
LED 530	B3-U0-G5	IESNA Type IV (forward throw)	54395	

\* These are approximate replacement suggestions; actual conditions could be different.

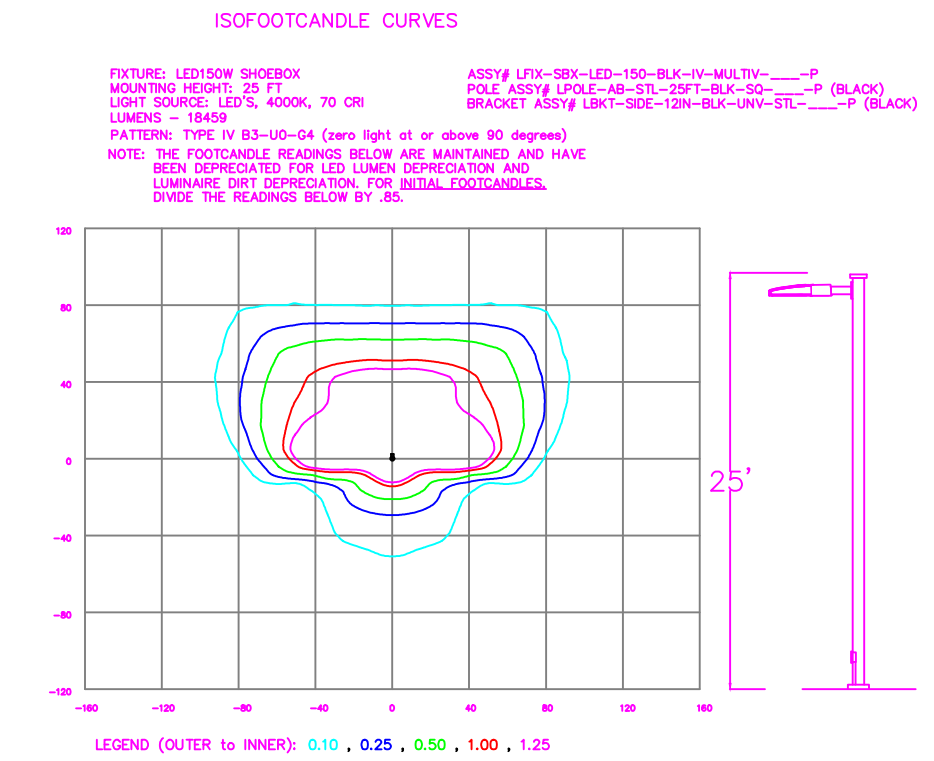
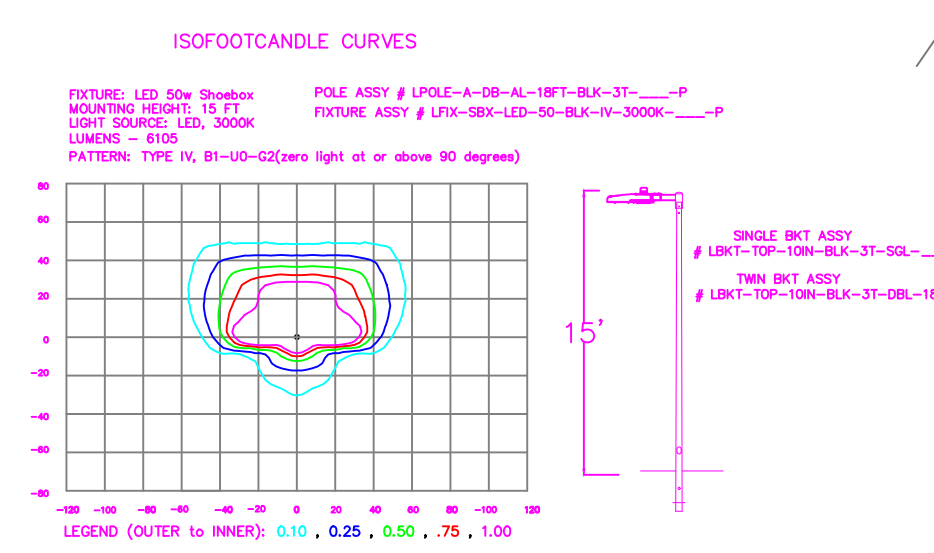
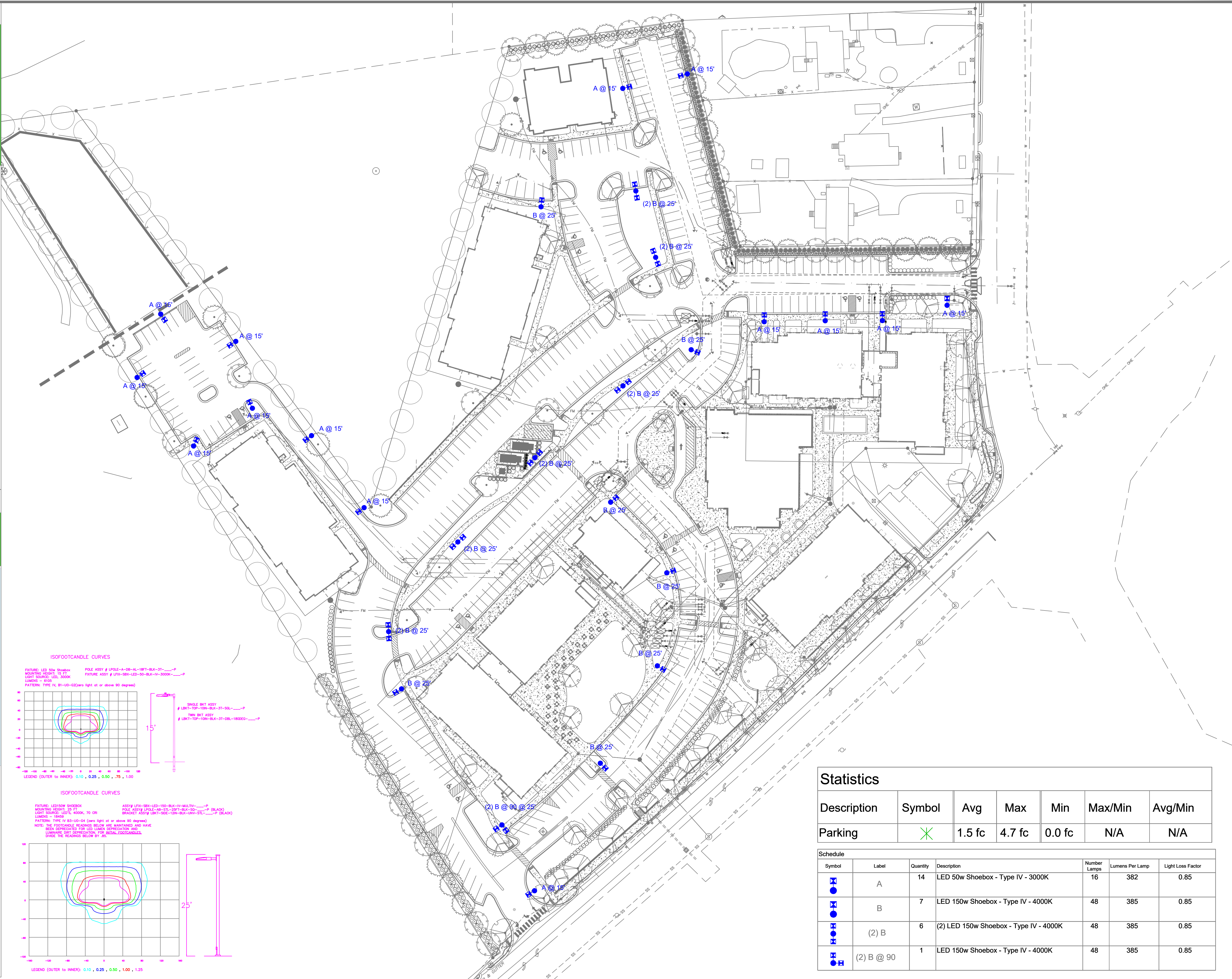


Poles available:

Name	Mounting height	Color
Round tapered decorative metal*	35'	Black, Bronze
Decorative square metal*	25' and 30'	Black, Bronze, Gray, White
Fiberglass	30'	Black (1 or 2 fixtures per pole), Gray (1 or 2 fixtures per pole)

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

\*2" raised foundation available when required on metal poles only.



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking	X	1.5 fc	4.7 fc	0.0 fc	N/A	N/A

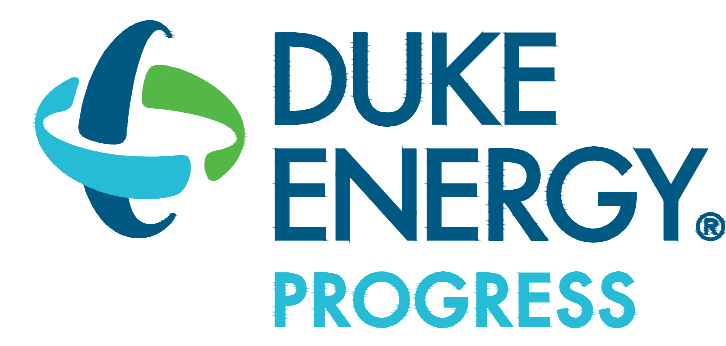
  

Schedule						
Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
A	A	14	LED 50w Shoebox - Type IV - 3000K	16	382	0.85
B	B	7	LED 150w Shoebox - Type IV - 4000K	48	385	0.85
(2) B	(2) B	6	(2) LED 150w Shoebox - Type IV - 4000K	48	385	0.85
(2) B @ 90	(2) B @ 90	1	LED 150w Shoebox - Type IV - 4000K	48	385	0.85

Customer approval \_\_\_\_\_  
Date \_\_\_\_\_

DISTANCE CALIBRATION (INCHES)  
0 0.5 1.0 2.0 3.0 4.0

**LIGHTING DESIGN TOLERANCE**  
The calculated footcandle light levels on this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (follage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.



**PROPRIETARY & CONFIDENTIAL**  
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COBBLESTONE VILLAGE	
Rosesville, NC	
SITE LIGHTING PLAN	
Designed by	DEP LIGHTING SOLUTIONS
Reviewed by	T. Ferguson Scale 1" = 50'
Date	02/14/2022 Size "Arch D"
Description	LED Shoebox
Drawing No.	22-0047A Sht. 1 OF 1

REV#	DATE	REVISION	BY
Rev A	02/14/22	LED Shoebox	NJ