

Comments on #SDP-26-0005 - Planning & Zoning: Site Development Plan

Application Number: #SDP-26-0005
Application Type: Site Development Plan
Date: August 28, 2026
Address: 4502 VINEYARD PINE LN, ROLESVILLE, NC 27571
Parcel: 1758453022



THIS DOCUMENT IS NOT AN APPROVAL.

The Town of Rolesville Technical Review Committee has reviewed your Site Development Plan Application and provided a set of comments requiring your attention. These comments must be addressed in full before approval is issued.

Reviewing this document on the GovWell, our online portal, will allow you to view interactive markups on the document. If you are viewing this as a PDF or offline, a list of all comments will be provided below in this cover sheet. These comments must be addressed before approval is granted.

After you have addressed all comments, please upload corrected versions of the plans by clicking [here](#) or by visiting <https://app.govwell.com/record/ea071922-ee79-4b0f-82b5-d503a097ff64>.

Contacts

Austin Bain
City of Raleigh Engineer

(919) 996-3468
austin.bain@raleighnc.gov

Repeat Comment(s)

Eddie Henderson
Parks & Recreation

ehenderson@rolesvillenc.gov

Approved

Elizabeth Powell
Wake County Watershed Mgmt

elizabeth.powell@wake.gov

No Comment

Jacqueline Thompson
On-Call Civil Engineer

jacqueline.thompson@bolton-menk.com

Repeat Comment(s)

Michael Elabarger
Assistant Planning Director

melabarger@rolesvillenc.gov

Updates Requested

Michele Raby
Planner II

mraby@rolesvillenc.gov

Updates Requested

Scott Miles
Town Engineer PE

smiles@rolesvillenc.gov

Approved

Stephen Wensman
Planning Director

swensman@rolesvillenc.gov

Updates Requested

Stephen Wolf
Wake County Deputy Fire Marshal

stephen.wolf@wake.gov

Updates Requested

Tanner Hayslette
Planner I

thayslette@rolesvillenc.gov

Approved

Comments on Plan

Reviewer feedback tied to specific locations on the plan. The number on each comment corresponds to a matching number marked on the plan page. Each comment must be resolved in GovWell.

1



Michael Elabarger
Assistant Planning Director

The Legal Description field was filled out with 'Commercial Retail Development', which describes the proposed use rather than the legal description of the property. Please update this field to provide the actual legal description (e.g., Book of Maps/Page or Register of Deeds Book/Page), such as 'BM 2008, PG 702'.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 1 · August 28, 2026, 2:22pm

2



Michael Elabarger
Assistant Planning Director

The proposed impervious surface area listed on the Cover Sheet (Sheet C0) is 47,652 SF (1.09 acres). However, the uploaded Wake County Watershed Management Approval (SEC-175078-2026) permits a maximum impervious surface of only 45,302 SF (1.04 acres). Please revise the plans to ensure the proposed impervious surface does not exceed the permitted amount, or provide an updated Wake County approval that matches the proposed design.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 1 · August 28, 2026, 2:22pm

3



Elizabeth Powell
Wake County Watershed Mgmt

Erosion Control and Stormwater submittal currently being reviewed by Wake County (CID). No comments for the site plan.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 1 · August 6, 2026, 8:53am

4



Michele Raby
Planner II

Please bubble or note confirmation of MG's previous comments: Add labels to the site plan to designate pedestrian amenities, per LDO Section 6.8.4.B.2.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 3 · August 27, 2026, 12:52pm

5



Stephen Wensman
Planning Director

curbstops not needed where sidewalk is 6' wide or greater.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 3 · August 3, 2026, 4:10pm

6



Jacqueline Thompson
On-Call Civil Engineer

REPEAT: Please add a ramp detail for this specific style of ramp in the details sheets.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 3 · August 20, 2026, 9:54am

7



Jacqueline Thompson
On-Call Civil Engineer

REPEAT: This FES outlets directly at the retaining wall; this could cause erosion of the wall over time or cause water to pool. Additional grading may need completed to outlet the drainage into the buffer. The FES invert is lower than the bottom of wall at the corner, which would cause water to collect and potentially back up into the pipe depending on the grading.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 4 · August 20, 2026, 9:57am

8



Austin Bain
City of Raleigh Engineer

This utility sheet is not complete. Missing water and sewer labels. See Energov for complete COR comments.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 5 · August 27, 2026, 10:14am

9



Stephen Wolf
Wake County Deputy Fire Marshal

** Previous comments from 2023 not completely addressed.

503.1.1 - "Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. The maximum for a sprinklered building is 200 feet to all areas of the building.

503.2.1 – Fire apparatus access roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches.

503.2.2 – The fire code official shall have the authority to require or permit modifications to the required access widths where they are inadequate for fire or rescue operations or where necessary to meet the public safety objectives of the jurisdiction.

503.2.3 – Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

503.2.4 – The required turning radius of a fire apparatus access road shall be determined by the fire code official. (28R minimum)

503.2.5 – Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus. Please provide truck turning diagram for fire apparatus (50 feet long).

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 6 · August 26, 2026, 10:51am

10



Michele Raby
Planner II

Pls bubble or note confirmation of MG's previous request to remove the fence per TA-26-0005, which included amendments to perimeter buffers. Plant materials only may be used.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 7 · August 27, 2026, 12:49pm

11



Jacqueline Thompson
On-Call Civil Engineer

Please include fencing details to match Town standards per LDO Section 6.5 - Fences, Walls, and Berms

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 8 · August 20, 2026, 10:04am

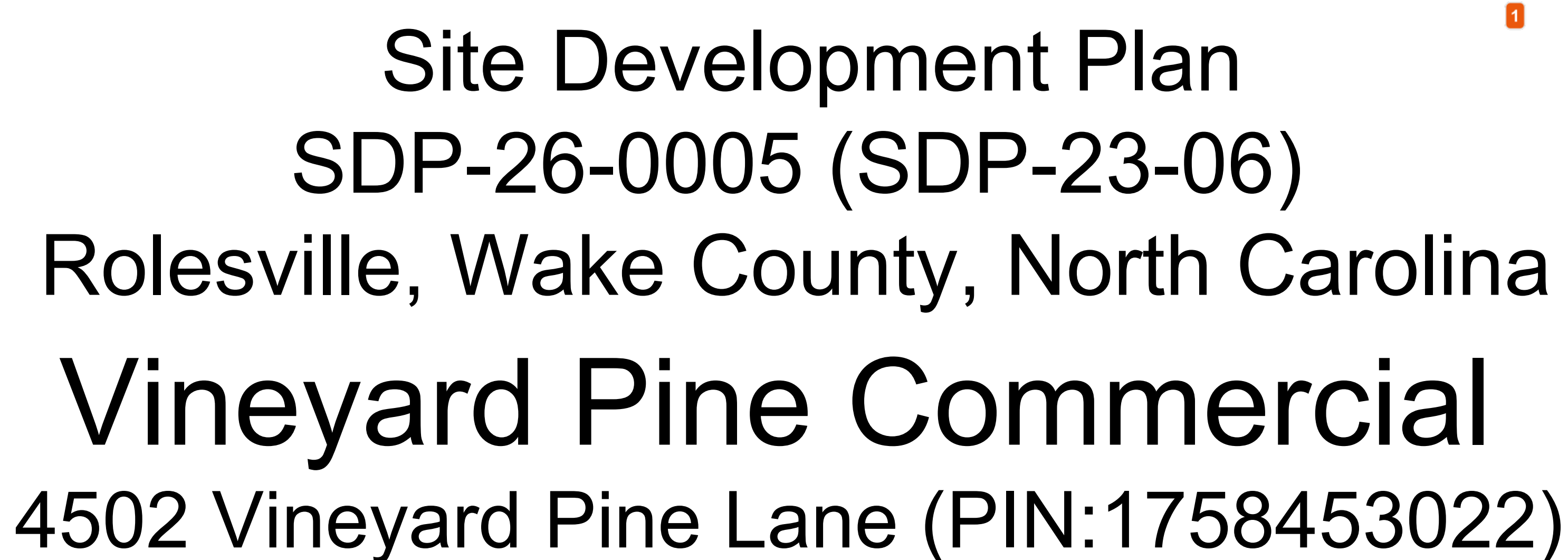
12



Michele Raby
Planner II

Pls bubble or note confirmation of MG's previous comment: thank you for noting compliance with transparency requirements. Please add similar notes for Facades, etc.

Vineyard Pine Commercial Rev 3 SDP-26-005 072826.pdf · Page 26 · August 27, 2026, 12:51pm



PEDESTRIAN AMENITIES - 4 REQUIRED

SETBACK REDUCTIONS (TA-23-04)

*10' WIDE TRAIL TO BE ADDED ALONG JONESVILLE ROAD AS SHOWN ON PLANS

*ADDITIONAL LANDSCAPING PROVIDED AS SHOWN ON THE LANDSCAPE PLAN

*NOT USED

6. ART INSTALLATIONS VISIBLE FROM THE PUBLIC RIGHT-OF-WAY.

*ART INSTALLATION TO BE PROVIDED ON SITE TO BE VISIBLE FROM THE ROW.

<u>SHEET</u>	<u>DESCRIPTION</u>
C0	Cover Sheet
C1	Existing Conditions and Demolition Plan
C2	Site Plan
C3	Grading and Stormwater Plan
C4	Utility Plan
C5	Landscaping Plan
C6	Truck Turn & Fire Access Plan
D1	Site Details
D2	Water and Sewer Details
D3	Storm Drainage Details
D4	Detention System Details
D5	Detention System Details
D6	Storm Filter Details
EC1	Erosion Control Plan Phase 1
EC2	Erosion Control Plan Phase 2
EC3	Erosion Control Plan Phase 3
EC4	Erosion Control Plan Phase 4
EC5	Erosion Control Details
EC6	Erosion Control Details
EC7	NCG01 Requirements
SL1	Site Lighting Plan
SL2	Site Lighting Fixtures
SL3	Site Lighting Fixtures
A1.1	Architectural Floor Plan
A6.0	Building Elevations

PHASE NUMBER(S)	PHASE 1
NUMBER OF LOT (S)	1
LOT NUMBERS BY PHASE	1
NUMBER OF UNITS	1
RESIDENTIAL UNITS	0
OPEN SPACE (YES/NO)	YES
PUBLIC WATER (LF)	0
PUBLIC 8" PVC SEWER	0
WATER SERVICE STUBS	1
WATER SERVICE ABANDONED	0
SEWER SERVICE STUBS (NEW)	1
SEWER SERVICE REMOVED	1

CONDITIONS OF APPROVAL
 REZ-23-04
 4502 Vineyard Pine Lane
 Date: 04-11-2023

Proposed Rezoning Conditions:

1. Exhibit A shall govern the Permitted by-right, Permitted by Special Use Permit, and Prohibited principal zoning uses that may be established at the subject

Per Exhibit A attached, the following list of 19 otherwise Permitted Principal Zoning Uses in the General Commercial zoning district per LDO Table 5.1, shall be prohibited (not permitted).

- College/University
- Bank
- Cemetery
- Funeral Home
- Gas Station
- Golf Course
- Lodging
- Recreation, Outdoor
- Tattoo Establishment
- Vape and Tobacco Store
- Vehicle, Rental and Sales
- Vehicle, Minor Service
- Vehicle, Major Service
- Hospital
- Fulfillment Center
- Major Utility
- Major Transportation Installation
- Telecommunication Tower
- Water Storage Tower

[illegible]

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Plans for the proposed use have been reviewed for general compliance with applicable codes. This limited review, and authorization for construction is not to be considered to represent total compliance with all legal requirements for development and construction. The property owner, design consultants, and contractors are each responsible for compliance with all applicable City, State and Federal laws. This specific authorization below is not a permit, nor shall it be construed to permit any violation of City, State or Federal Law. All construction must be in accordance with all Local, State, and Federal Rules and Regulations.

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Revenue 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.

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City of Raleigh Development Approval _____
City of Raleigh Review Officer _____

1	Initial Submittal	KPG
2	8-28-2023	
3	5-22-2026	Town / Wake County Comment
4	07-28-2026	WAKE COUNTY AND TOWN REVIEW
5	DATE	BY
6	DATE	BY
7	DATE	BY
8	DATE	BY
9	DATE	BY
10	DATE	BY
11	DATE	BY
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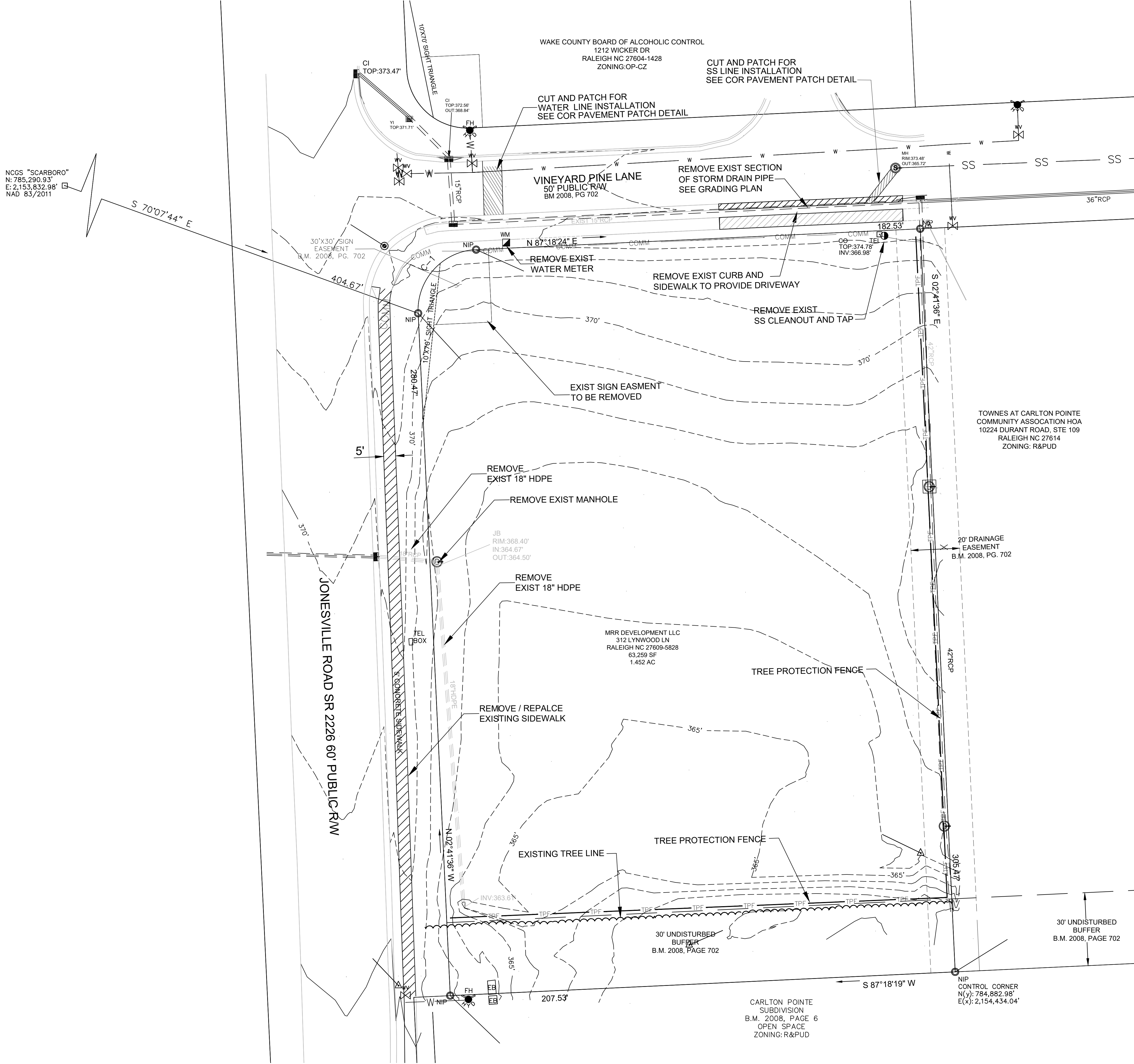
Cover Sheet

Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.23005

Dwg No.

C0



Legend

To Be Removed

- SITE NOTES
1.

PROPERTY BOUNDARY AND EXISTING CONDITIONS INFORMATION TAKEN FROM A FIELD SURVEY BY CAWTHORNE, MOSS AND PANCIERA, ENTITLED "LOT 6, BARRETT VENTURES, 4502 VINEYARD PINE LANE .
2.

NO FLOOD HAZARD AREAS WITHIN PROJECT BOUNDARY PER FEMA MAP 3720174700J.
3.

ALL EXISTING ELEVATIONS, FEATURES, AND UTILITIES TO BE FIELD VERIFIED.

Gettle Engineering and Design, PLLC

3616 Waxwing Court,

Wake Forest, North Carolina 27587

(919) 210-3934

Firm License P-2538

NO.	DATE	REVISION DESCRIPTION	BY
1	8-25-2023	Initial Submittal	KPS
2	07-28-2023	Wake County Community Comment	KPS
3	07-28-2023	Wake County and Town Review	KPS
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
8	DATE	Comment	By



Exist. Conditions & Demo Plan

Vineyard Pine Commercial (SDP-26-0005)

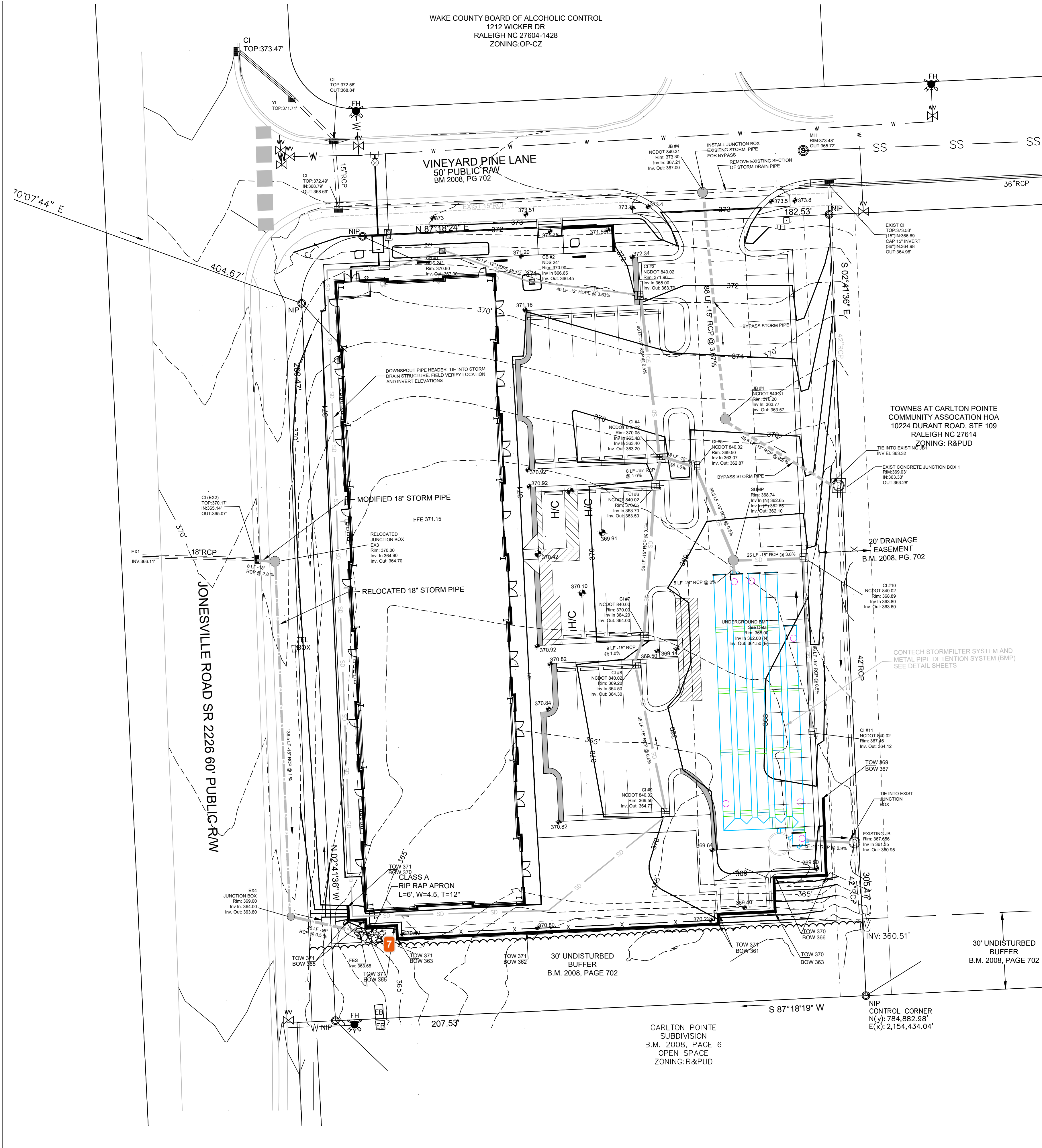
MRR Development, LLC

Rolesville, Wake County, North Carolina

Project No.23005

Dwg No.

C1



GENERAL GRADING AND STORM DRAINAGE SPECIFICATIONS

EXISTING CONDITIONS

- INFORMATION ABOUT EXISTING UNDERGROUND FACILITIES AND SUBSURFACE CONDITIONS INDICATED ON THESE DRAWINGS IS NOT BASED ON AN EXHAUSTIVE INVESTIGATION OF SUCH FACILITIES OR CONDITIONS, AND THE ENGINEER MAKES NO WARRANTY TO ANY PARTY REGARDING THEM. EXISTING UTILITY LINE LOCATIONS SHOWN SHOULD BE CONSIDERED APPROXIMATE, AND ACTUAL UTILITIES AND CONDITIONS MAY DIFFER FROM THOSE INDICATED. IF DIFFERING UTILITIES OR CONDITIONS EXIST, THEY MAY BE ENCOUNTERED DURING THE COURSE OF THE PROJECT WORK, AND MAY IMPACT THE PROJECT SCOPE AND TIME REQUIREMENTS.

PROTECTION AND SAFETY

- PRIOR TO BEGINNING WORK, AND AS NEEDED DURING THE COURSE OF PROJECT WORK, CONTRACTOR SHALL NOTIFY ALL APPLICABLE UTILITY LOCATION SERVICES AND UTILITY PROVIDERS TO REASONABLY VERIFY THE LOCATION OF ALL KNOWN OR SUSPECTED UTILITIES, IN ACCORDANCE WITH STATE REGULATIONS. CONTRACTOR IS ADVISED THAT SOME UTILITY PROVIDERS DO NOT SUBSCRIBE TO ONE-CALL SERVICES, AND MUST BE CONTACTED SEPARATELY.
- CONTRACTOR SHALL PROVIDE ADEQUATE MEANS AND METHODS FOR PROTECTION OF ALL EXISTING UTILITIES AND SITE FEATURES WHICH ARE INTENDED TO REMAIN IN SERVICE OR IN PLACE.
- CONTRACTOR SHALL PROVIDE ADEQUATE TRAFFIC CONTROL MEASURES DURING THE COURSE OF PROJECT WORK IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, THE N.C. SUPPLEMENT TO THE MUTCD, ANY REGULATORY AGENCY REQUIREMENTS, AND PROJECT-SPECIFIC SAFETY CONSIDERATIONS.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY PROGRAMS AND MEASURES ON THE PROJECT SITE OR OTHERWISE RELATING TO THE PROJECT WORK, AND SHALL COMPLY WITH ALL SAFETY CODES AND REGULATIONS APPLICABLE THERETO, FOR THE PROTECTION OF WORKERS, VISITORS, AND THE GENERAL PUBLIC.

COMPLIANCE

- ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARDS AND REQUIREMENTS OF THE CITY OF RALEIGH, TOWN OF ROLESVILLE, WAKE COUNTY SEDIMENTATION AND EROSION CONTROL OFFICE, AND THE N.C. STATE BUILDING CODES.

GRADING

- STRUCTURAL FILL IS DEFINED AS SOIL CLASSIFIED AS SM, SC, ML, AND CL. FREE OF VEGETATIVE MATTER, DEBRIS OR OTHER UNSUITABLE MATTER, FREE OF ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION, CAPABLE OF BEING COMPACTED TO THE REQUIRED DENSITY, AND WHICH HAS BEEN APPROVED FOR USE BY THE GEOTECHNICAL ENGINEER.
- OTHER SOIL NOT MEETING THE DEFINITION FOR STRUCTURAL FILL MAY BE APPROVED BY THE GEOTECHNICAL ENGINEER FOR USE UNDER LIMITED CONDITIONS OR IN LIMITED AREAS.
- STRUCTURAL FILL SHALL GENERALLY BE PLACED AND COMPACTED WHEN THE SOIL'S MOISTURE CONTENT IS WITHIN 4 PERCENTAGE POINTS OF THE SOIL'S OPTIMUM MOISTURE CONTENT, IN LIFTS NOT TO EXCEED 8 INCHES LOOSE THICKNESS. THE IN-PLACE COMPACTED DENSITY SHALL BE AT LEAST 90 PCF. TIGHTER SPECIFICATIONS MAY BE REQUIRED FOR CERTAIN AREAS, SOIL TYPES, OR COMPACTION METHODS.
- STRUCTURAL ZONES SHALL INCLUDE ALL AREAS SUBJECT TO DIRECT BEARING PRESSURE PLUS 10 FEET HORIZONTAL PLUS A 1:1 DOWNWARD SLOPE IN ANY AREAS OF FILL.
- ALL SOIL UNDER PAVEMENTS, BUILDINGS, AND WALKWAYS, OR IN STRUCTURAL ZONES ASSOCIATED WITH THESE AREAS SHALL BE APPROVED IN-SITU SOIL OR STRUCTURAL FILL, COMPACTED TO AT LEAST 95% OF THE SOIL'S MAXIMUM DRY DENSITY (MDD) PER ASTM D-698. TIGHTER REQUIREMENTS MAY APPLY FOR CERTAIN AREAS.
- IN THE BUILDING AREA, THE REQUIRED DENSITY OF FILL SHALL BE 100% MDD, EXCEPT THE TOP 12 INCHES OF FILL SHALL BE AT LEAST 98% MDD. WHERE THE BUILDING WILL BE PLACED ON IN-SITU SOIL, THE SOIL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER AND COMPACTED TO AT LEAST 98% MDD.
- ALL EXCESS OR UNSUITABLE SOIL SHALL BE LEGALLY DISPOSED IN AN OFFSITE OR APPROVED ONSITE LOCATION.
- WHERE LANDSCAPED OR YARD AREAS ABUT EXTERIOR BUILDING WALLS, FINISHED GROUND ELEVATIONS ADJACENT TO THE WALL SHALL BE AT LEAST 3 INCHES BELOW THE FINISHED FLOOR ELEVATION, AND SHALL SLOPE AWAY FROM THE BUILDING WITH POSITIVE DRAINAGE.

TRENCHING AND BACKFILLING

- WHERE ROCK OR OTHER HARD MATERIAL OCCURS AT THE DESIGNED TRENCH BOTTOM, OVEREXCAVATE TRENCH DEPTH 6 INCHES AND REPLACE OVEREXCAVATION MATERIAL WITH #67 STONE BEDDING.
- WHERE THE DESIGNED TRENCH BOTTOM CONSISTS OF UNSTABLE BEARING SOIL, UNDERCUT TRENCH BOTTOM AND REPLACE UNDERCUT MATERIAL IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
- BACKFILL SOIL SHALL BE STRUCTURAL FILL, PLACED AND COMPACTED IN ACCORDANCE WITH REQUIREMENTS FOR THE SPECIFIC AREA OF WORK, WITHOUT DAMAGING OR DISPLACING PIPE OR STRUCTURES

Stormwater Summary (051526)

	Square Feet	Acres
Overall Site	63,259.00	1.45
Impervious Summary		
Pre		
Parking Lot	0.00	0.00
Managed Pervious	63,162.00	1.45
Total		1.45
Post		
Parking Lot	22,806.00	0.52
Roof	15,247.00	0.35
Sidewalk	7,429.00	0.17
Open Landscape	3,332.00	0.08
Managed Pervious	14,312.00	0.33
Total		1.45

NOTIFICATIONS

- NOTIFY THE ENGINEER AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING ANY STORM DRAINAGE OR STORMWATER IMPOUNDMENT BASIN WORK.
- NOTIFY THE APPLICABLE LOCAL GOVERNMENT AUTHORITIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO BEGINNING ANY WORK.
- NOTIFY THE GEOTECHNICAL ENGINEER AND TESTING SERVICE AT LEAST TWO BUSINESS DAYS PRIOR TO BEGINNING OR RESUMING ANY GRADING OR STORMWATER IMPOUNDMENT BASIN WORK.

QUALITY CONTROL

- ALL EARTHWORK OPERATIONS, INCLUDING TOPSOIL STRIPPING, STOCKPILING, EXCAVATION, FILLING, COMPACTING, TRENCHING, BACKFILLING, RETAINING WALLS, AND FINE-GRADING, SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER, WHO SHALL VERIFY THE SUITABILITY OF SOIL MATERIALS, MONITOR EARTHWORK ACTIVITIES, DIRECT AND OBSERVE PROOFROLLING, AND PROVIDE COMPACTION AND STABILITY TESTING DURING THE PROGRESS OF THE WORK.
- NO SOIL SHALL BE PLACED IN A PERMANENT LOCATION UNLESS IT HAS BEEN APPROVED BY THE GEOTECHNICAL ENGINEER FOR THE INTENDED USE AND LOCATION.
- PRIOR TO PLACEMENT OF ANY FILL, THE SUBGRADE OR PREVIOUS LIFT OF FILL SHALL BE SUCCESSFULLY TESTED OR OTHERWISE APPROVED, AND DETERMINED TO BE READY FOR SUBSEQUENT WORK.
- PRIOR TO PLACEMENT OF ANY AGGREGATE, PAVING, SLABS, STRUCTURES, FOOTINGS, PIPING, OR OTHER WORK, SUBGRADES AND OTHER BEARING SURFACES SHALL BE SUCCESSFULLY TESTED OR OTHERWISE APPROVED, AND DETERMINED TO BE READY FOR SUBSEQUENT WORK.
- CONTRACTOR SHALL ALLOW AND PARTICIPATE IN SOIL TESTING ACTIVITIES, INCLUDING ACTIVE COORDINATION WITH THE GEOTECHNICAL ENGINEER AND FURNISHING PROOFROLLING EQUIPMENT, MATERIALS, AND MANPOWER AS NEEDED.

CLEARING & GRUBBING

- ALL VEGETATIVE MATERIAL DISLOCATED BY CLEARING AND GRUBBING ACTIVITIES SHALL BE COMPLETELY REMOVED FROM THE PROJECT SITE AND LEGALLY DISPOSED. NO ONSITE BURNING OF CLEARING WASTE SHALL OCCUR.
- ALL PAVEMENT, CURB, PIPE, STRUCTURES AND OTHER PHYSICAL SITE FEATURES THAT ARE INDICATED OR REQUIRED TO BE REMOVED SHALL BE LEGALLY DISPOSED IN AN OFFSITE LOCATION.

STORM DRAINAGE SYSTEM

- STORM DRAINAGE STRUCTURES SHALL CONFORM TO ROLESVILLE AND NCDOT STANDARDS, AND MAY BE CONSTRUCTED OF EITHER SOLID MASONRY OR PRE-CAST CONCRETE. "KNOCK-OUT" TYPE PRE-CAST STRUCTURES SHALL NOT BE USED WHERE THE DESIGNED PIPE CONFIGURATION WOULD REQUIRE REMOVAL OF STRUCTURAL CORNERS OR ALTERATION OF DESIGNED PIPE ENTRY ANGLES.
- STORM DRAINAGE PIPE LENGTHS SHOWN ARE APPROXIMATE, AS MEASURED FROM THE CENTER OF DRAINAGE STRUCTURES, AND TO THE END OF ANY FLARED END SECTION (FES), AS APPLICABLE.
- CONTRACTOR SHALL VERIFY AND COORDINATE EXACT POSITIONING OF STORM DRAINAGE PIPING AND STRUCTURES, AND SHALL MAKE ADJUSTMENTS AS NEEDED TO PROVIDE PROPER CONNECTIONS, STRUCTURE LOCATIONS, ORIENTATIONS, DIMENSIONS, ELEVATIONS, FRAME PLACEMENT, AND SURFACE DRAINAGE. REFER TO STORM DRAINAGE STRUCTURE DETAILS FOR DIMENSIONS, OFFSETS, CLEARANCES, SETBACKS FROM CURB, AND OTHER REQUIREMENTS. MODIFY STRUCTURES AS NEEDED TO ACCOMMODATE LARGE-DIAMETER PIPING, MULTIPLE PIPE PENETRATIONS, AND PIPE CONNECTION ANGLES.
- STORM DRAINAGE PIPING SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS III, CONFORMING TO ASTM C76, UNLESS OTHERWISE SPECIFIED. ALL JOINTS SHALL BE FULLY SEALED USING PREFORMED FLEXIBLE BUTYL RUBBER SEALING COMPOUND.

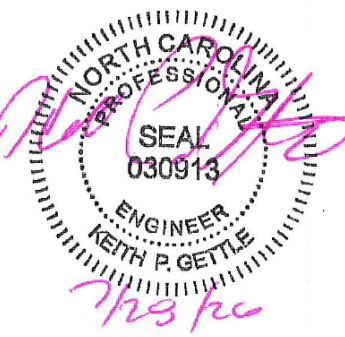
SURFACE DRAINAGE

- ALL SPOT ELEVATIONS SHOWN ARE FINISHED SURFACE ELEVATIONS. SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER ELEVATION CONTOURS. ALL ELEVATIONS SHOWN ON CURB AND GUTTER REFER TO TOP OF CURB, UNLESS OTHERWISE INDICATED.
- ALL FINISHED PAVEMENT AND YARD SURFACES SHALL BE FINE-GRADED AND FINISHED TO HAVE POSITIVE SURFACE DRAINAGE TO A FREE-FLOWING DRAINAGE OUTLET, WITH NO IRREGULARITIES OR DEPRESSIONS THAT WOULD CAUSE UNINTENDED WATER PONDING.
- USE REVERSE-PITCH CURB AND GUTTER WHERE ADJACENT PAVEMENT SLOPES AWAY FROM CURB, AND STANDARD-PITCH CURB AND GUTTER ELSEWHERE, UNLESS OTHERWISE NOTED. PROVIDE POSITIVE DRAINAGE ALONG AND FROM ALL GUTTERS.
- TIE-INS TO EXISTING PAVEMENT, CURBS, WALKS, ETC. SHALL BE MADE WITH NEAT EDGES AND SMOOTH, GRADUAL TRANSITIONS THAT ARE SAFE, FUNCTIONAL, DURABLE, AND VISUALLY ACCEPTABLE TO THE OWNER AND REVIEW AUTHORITIES.

Gettle Engineering and Design, PLLC

3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

Initial Submittal	Revised	Comments	By
1	8-28-2023	Town / Wake County Comment	KFG
2	5-22-2025	WAKE COUNTY AND TOWN REVIEW	KFG
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7	DATE	REVISION DESCRIPTION	BY



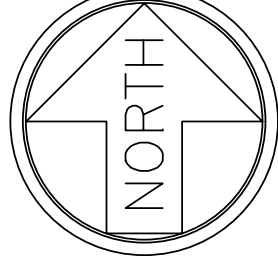
Grading and Stormwater Plan

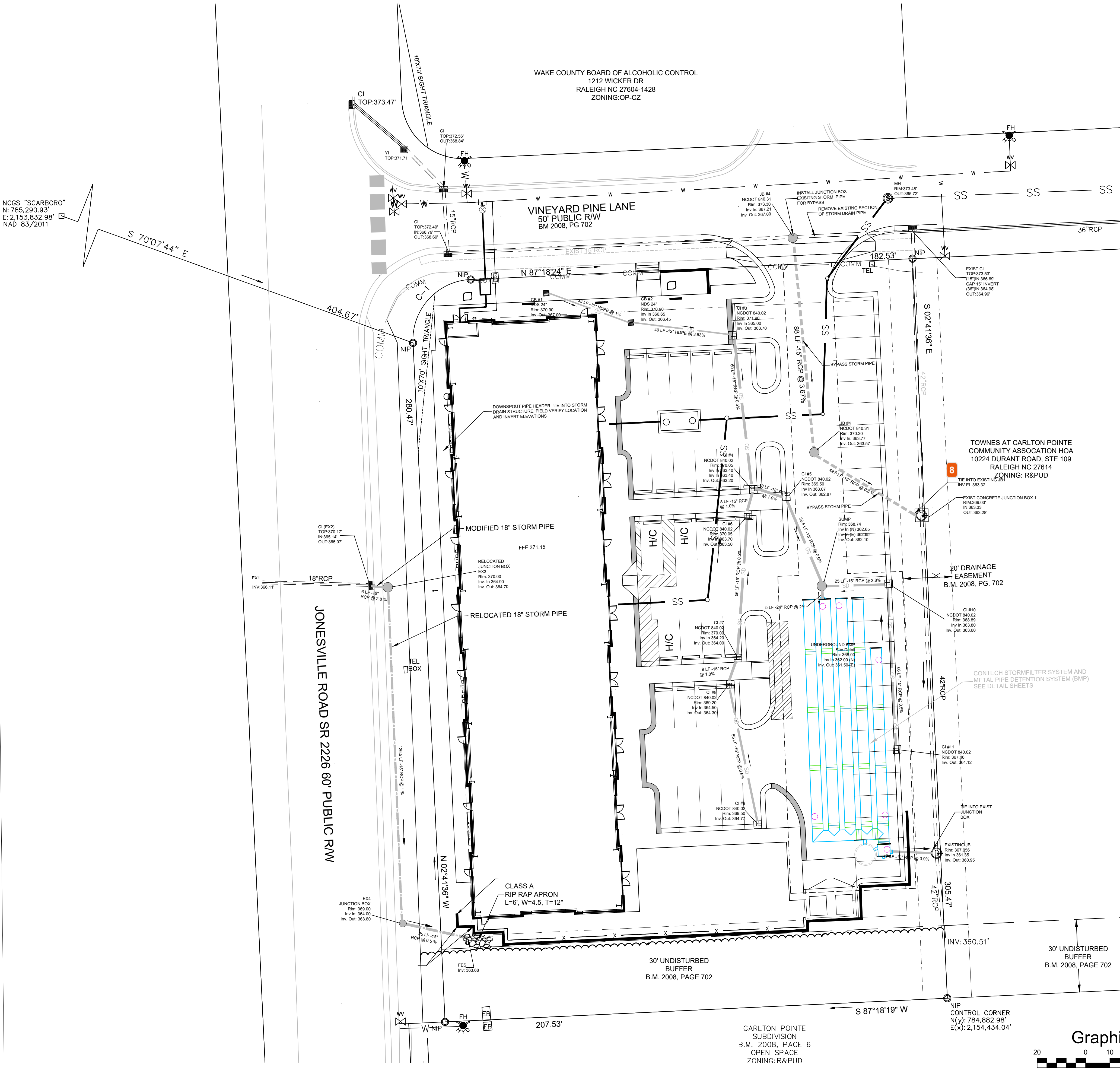
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.
Dwg No.

C3

Graphic Scale 1"=20'





- CITY OF RALEIGH UTILITY NOTES:**
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: COR PUD 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 WATERLINE 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 WATERLINE 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. ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-4.1 & S-4.9).
 - 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.
 - ONTRACTOR SHALL MAINTAIN CONTINUOUS WATER 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. 4' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
 - IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER AND 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 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 AND PRESSURE).
 - INSTALL 4" PVC SEWER SERVICES AT 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE AND 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.
 - CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS AND SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
 - GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS AND INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD PUD PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT TIM BEASLEY AT (919)996-2334 OR TIMOTHY.BEASLEY@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) 212-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

- SEPARATION NOTES:**
- MINIMUM SEPARATION BETWEEN STORM DRAINAGE AND SANITARY SEWER IS 24 INCHES.
 - MINIMUM SEPARATION BETWEEN WATER AND STORM DRAINAGE IS 18 INCHES.
 - MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER IS 18 INCHES.
- HYDRANT, METER, AND CLEAN-OUT NOTES:**
- ALL HYDRANTS, METERS, AND SEWER SERVICES ARE SHOWN AT APPROXIMATE LOCATIONS. HYDRANTS, AND METERS, ARE TO BE PLACED WITHIN THE RIGHT-OF-WAY AS INDICATED ON CITY OF RALEIGH DETAIL. SEWER SERVICE SHALL BE PLACED INSIDE LOT AS SHOWN ON CITY OF RALEIGH DETAIL. CONTRACTOR SHALL VERIFY AND CONFIRM PROPER LOCATION ACCORDING TO MUNICIPALITY REQUIREMENTS PRIOR TO INSTALLATION. CONTRACTOR SHALL VERIFY PROPER LOCATION WITH MUNICIPALITY INSPECTOR PRIOR TO INSTALLATION.

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 Works Department** at (919) 996-2409, and 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**.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Plans for the proposed use have been reviewed for general compliance with applicable codes. This limited review, and authorization for construction is not to be considered to represent total compliance with all legal requirements for development and construction. The property owner, design consultants, and contractors are each responsible for compliance with all applicable City, State and Federal laws. This specific authorization below is not a permit, nor shall it be construed to permit any violation of City, State or Federal Law. All Construction must be in accordance with all Local, State, and Federal Rules and Regulations.

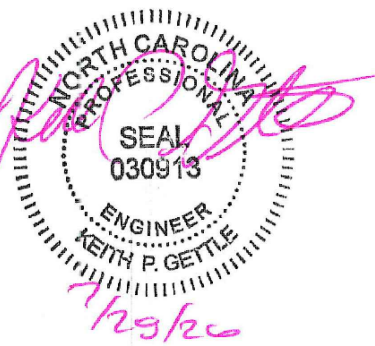
Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with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

City of Raleigh Review Officer _____

Gettle Engineering and Design, PLLC
3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

NO.	DATE	REVISION DESCRIPTION	BY
1	8-29-2023	Initial Submittal	KFG
2	5-22-2028	Town / Wake County Comment	KFG
3	10-28-2028	WAKE COUNTY AND TOWN REVIEW	BY
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
7	DATE	COMMENT	BY
8	DATE	COMMENT	BY

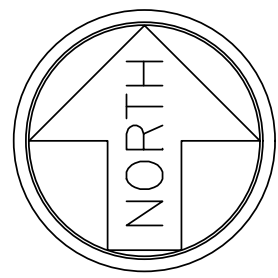
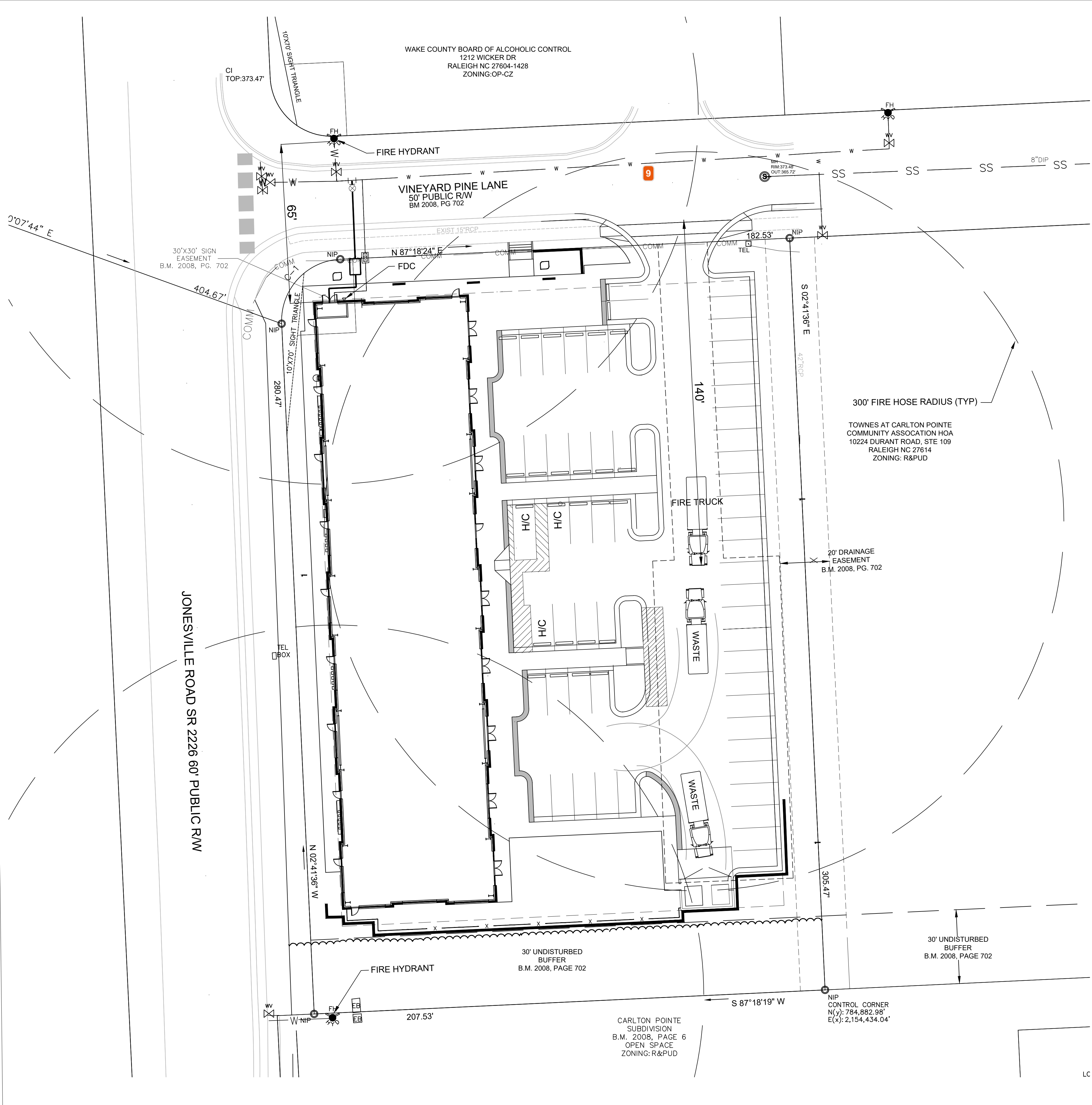


Utility Plan
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

C4



Truck Turn & Fire Access Plan
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

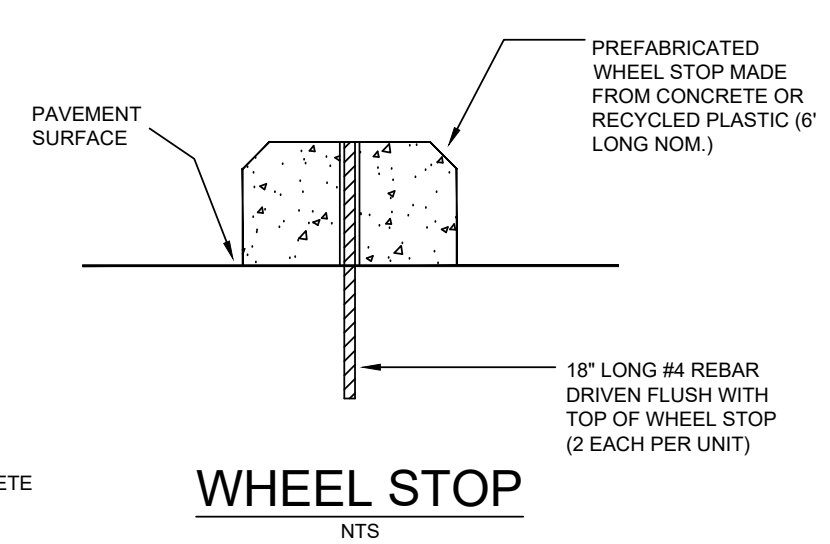
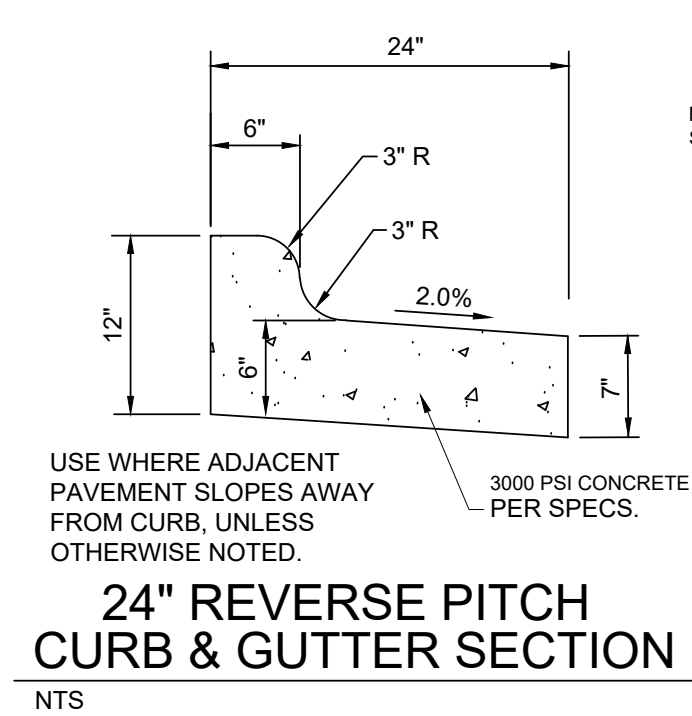
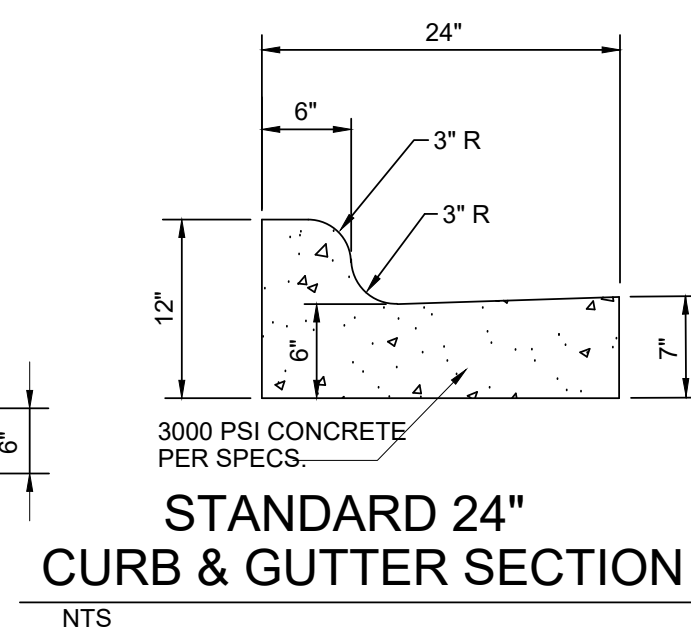
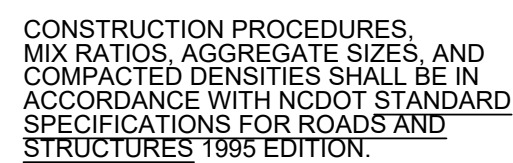
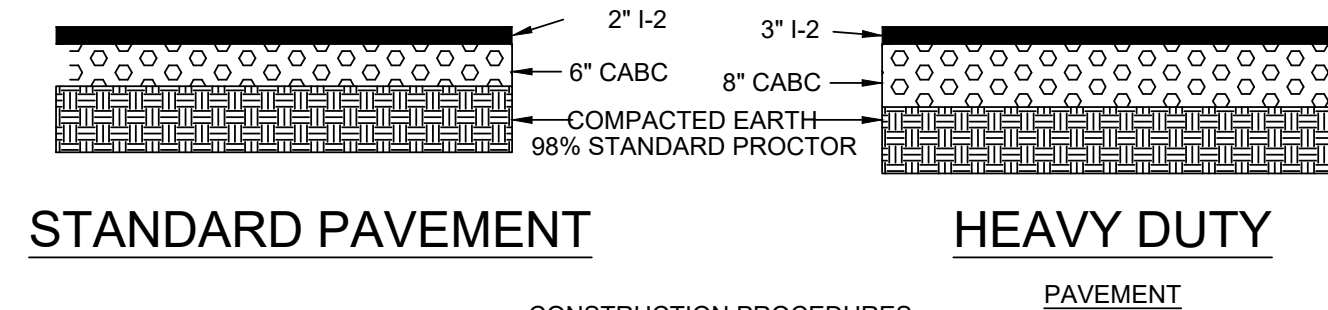
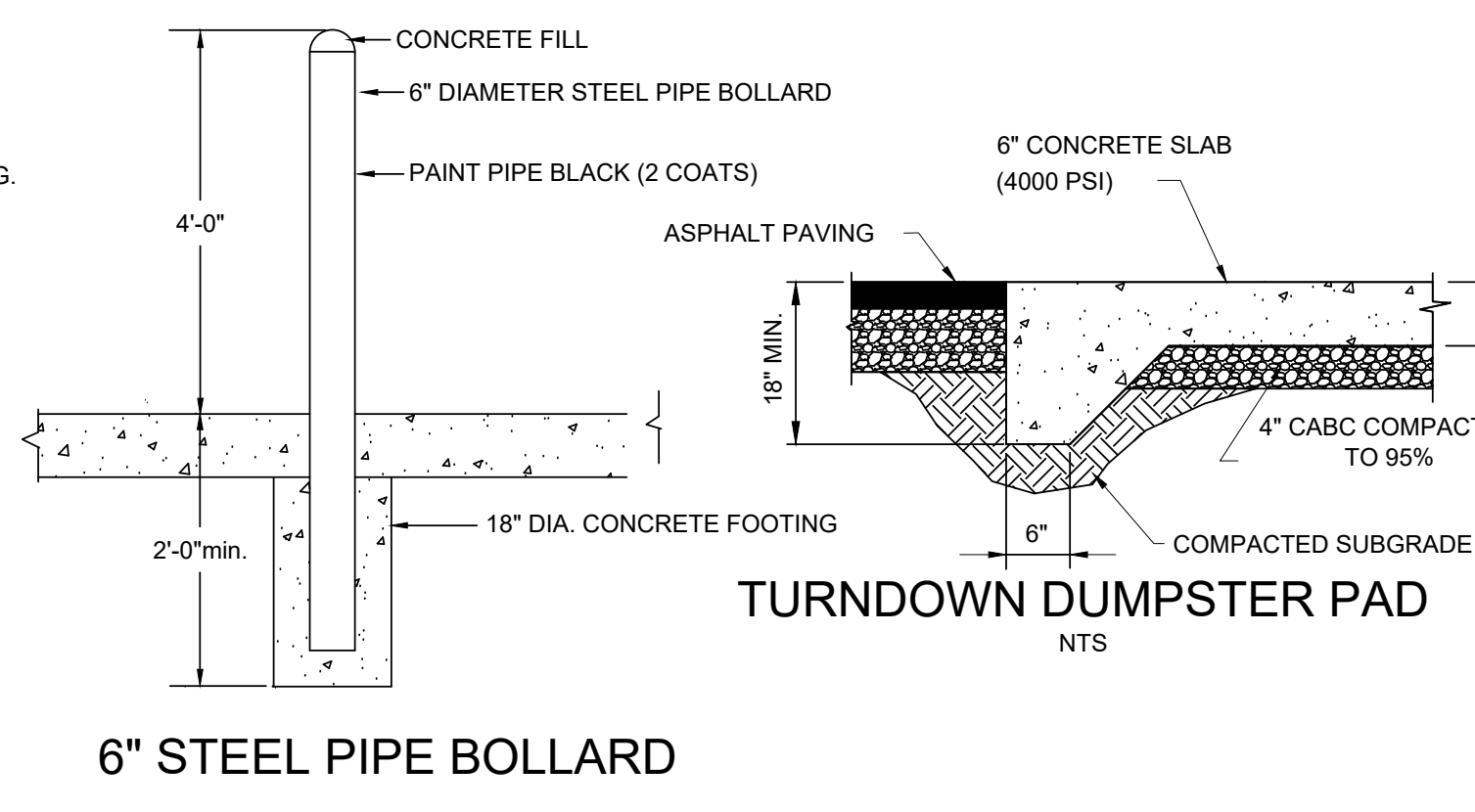
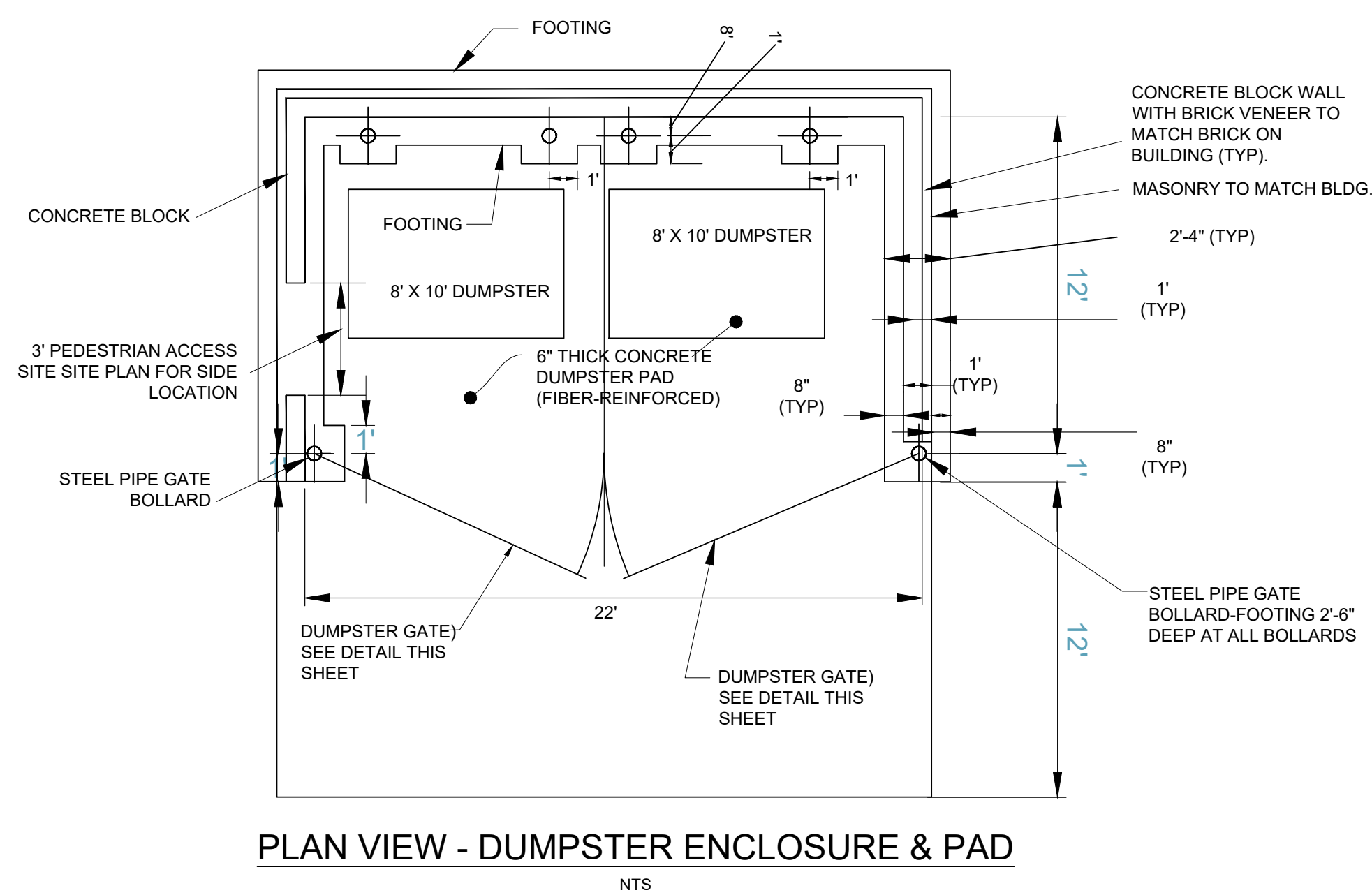
Project No.
Dwg No.

C6

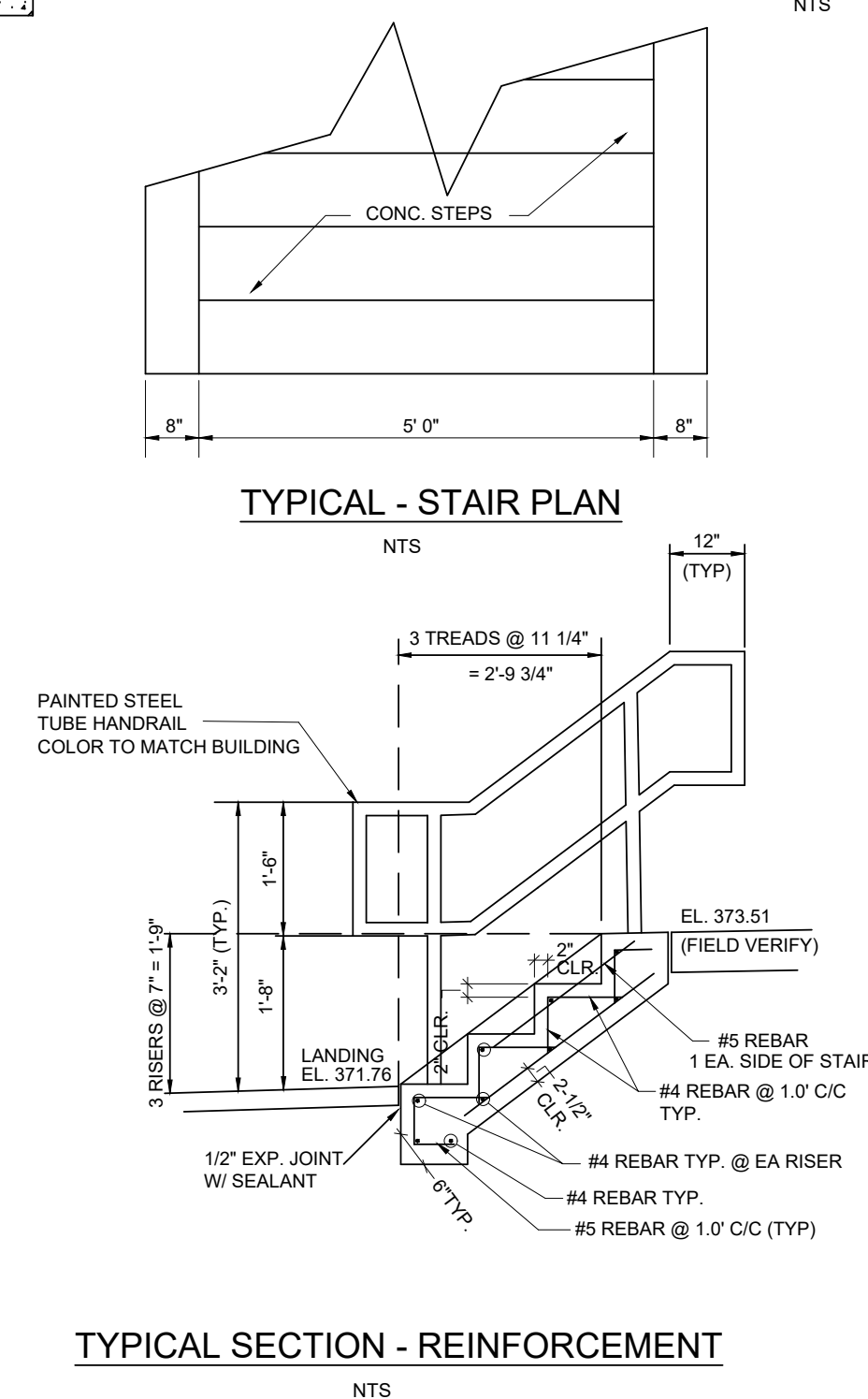
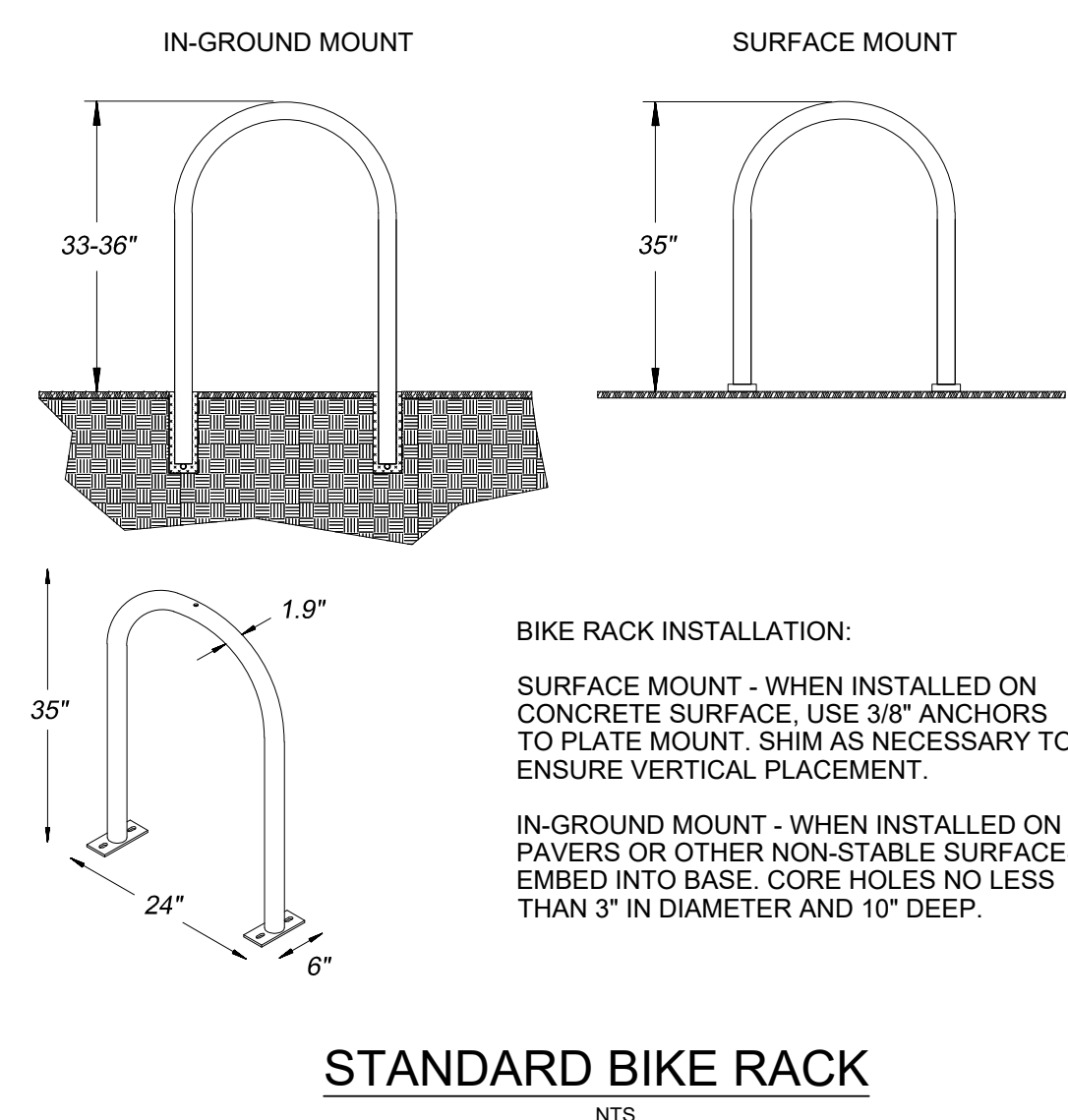
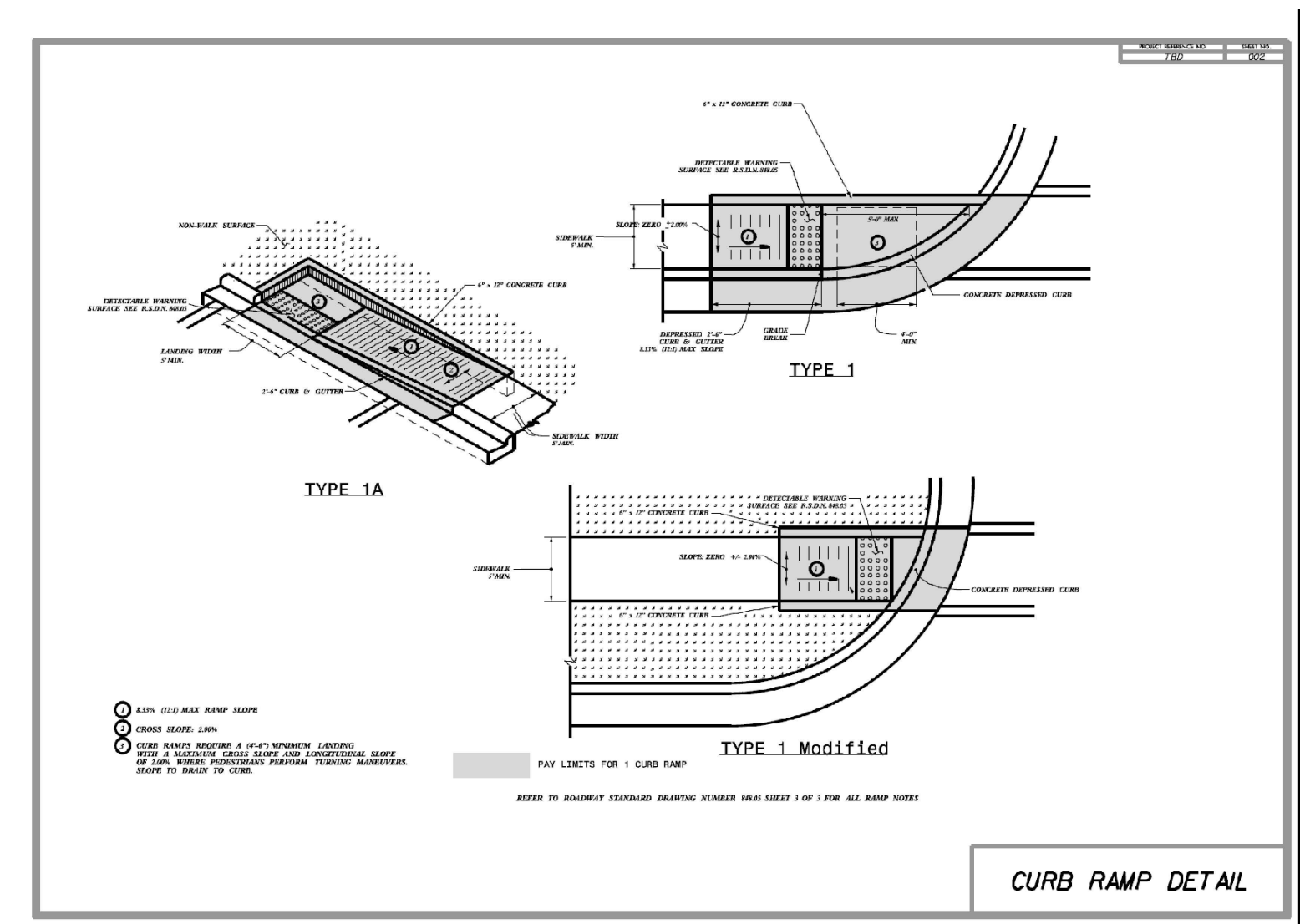
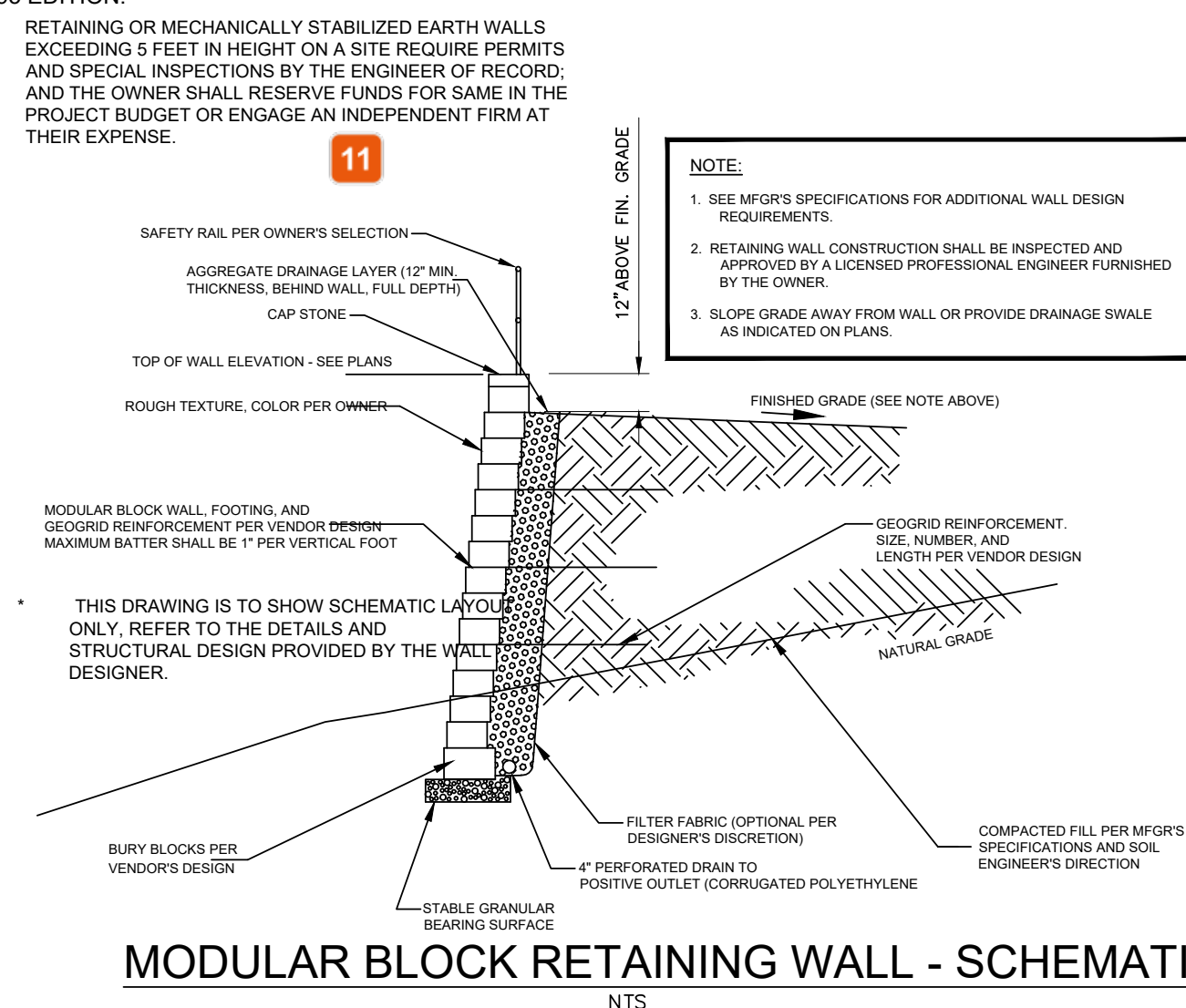
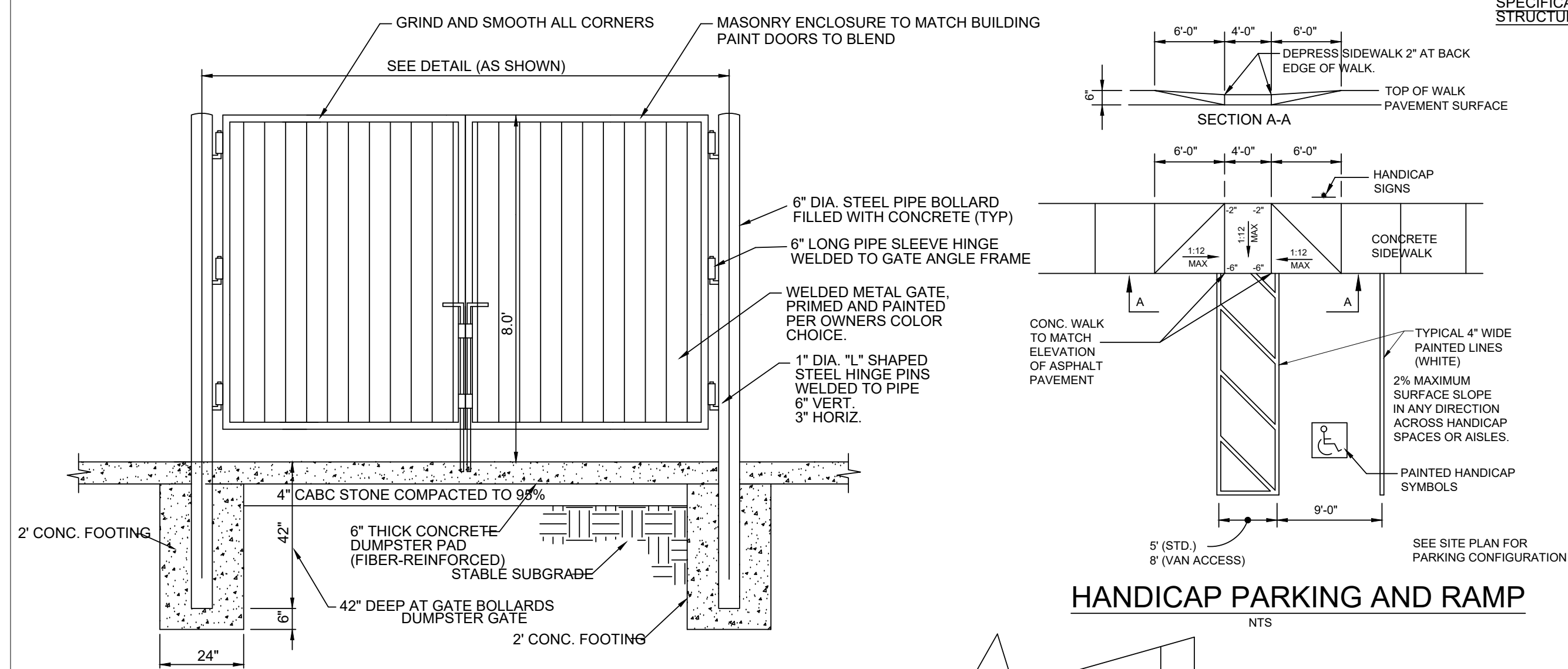


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6	DATE	COMMENT	BY
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8	DATE	COMMENT	BY



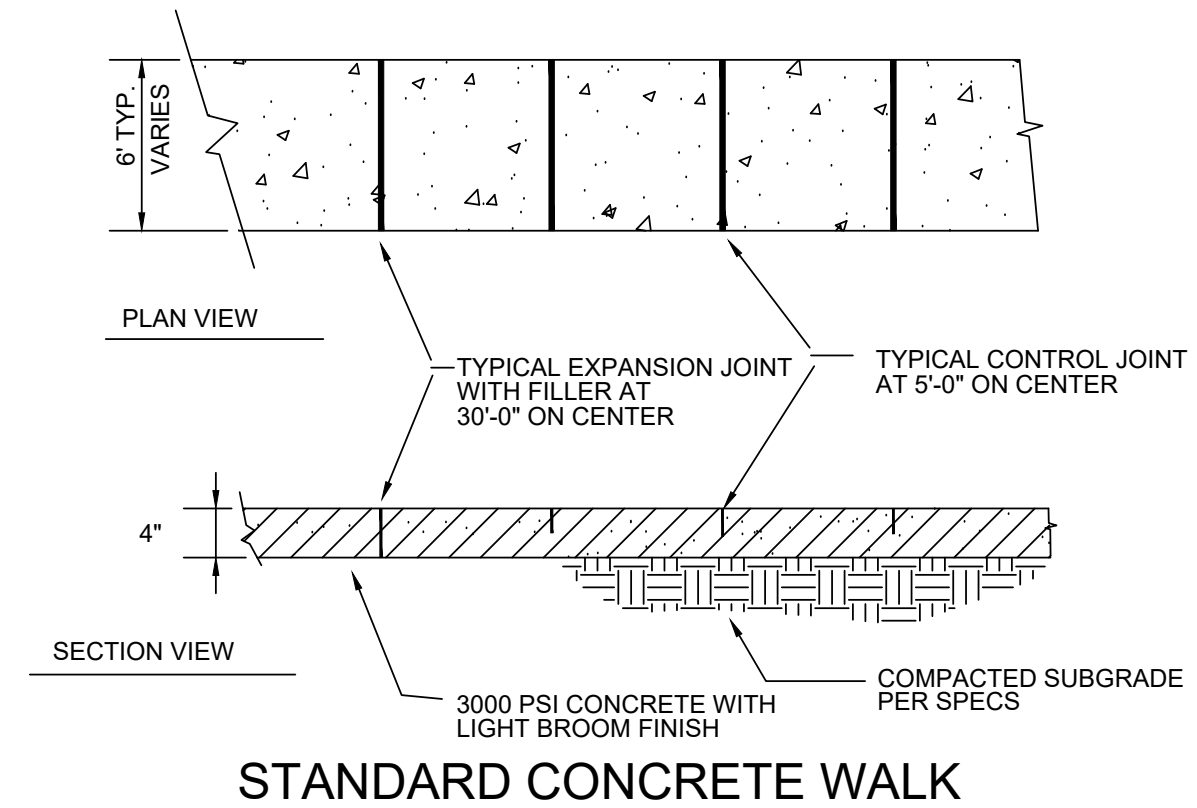
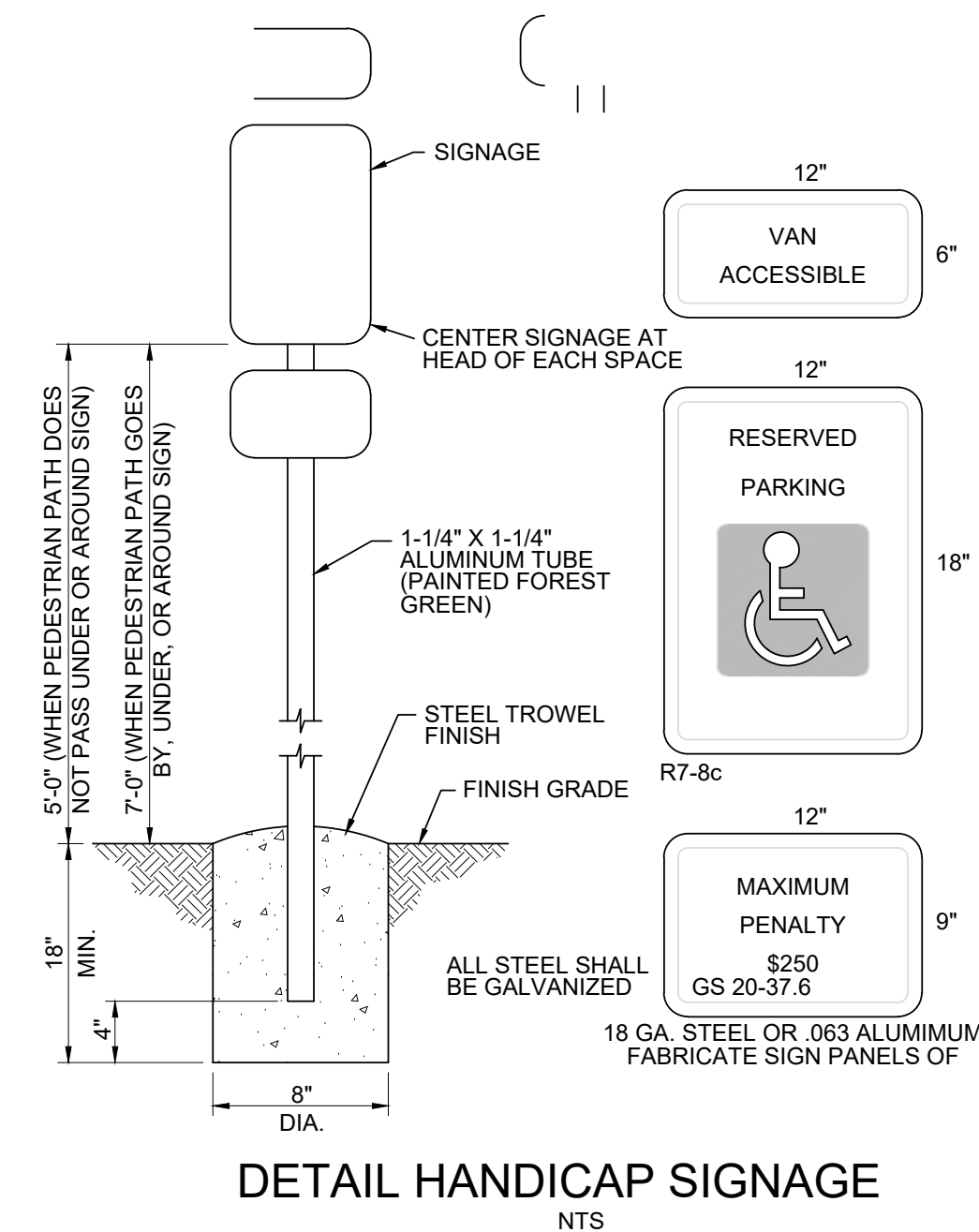
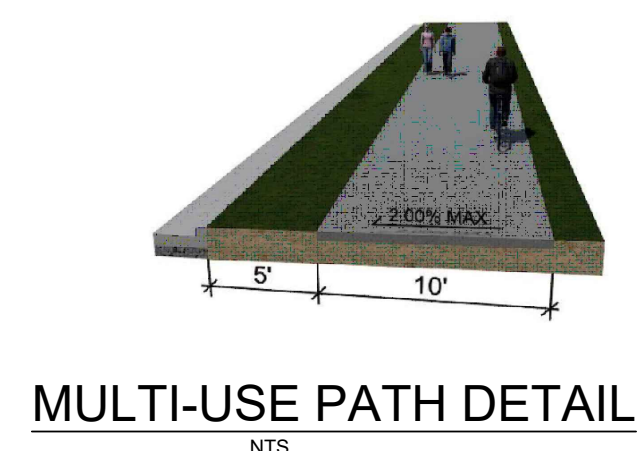
- CURB AND GUTTER NOTES:**
1. 10' MAXIMUM BETWEEN CONSTRUCTION JOINTS.
 - 15' MAXIMUM BETWEEN CONSTRUCTION JOINTS ON MACHINE POURS.
 2. 12" EXPANSION JOINT EVERY 90'.
 3. 3000 PSI CONCRETE MINIMUM, 4" SLUMP MAXIMUM.
 4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1026-2 OF NCOTD STANDARDS & SPECIFICATIONS FOR ROADS AND STRUCTURES.
 5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH JOINT FILLER AND SEALER IN ACCORDANCE WITH HIGHWAY STANDARD DETAIL 546.01. THE JOINT MATERIAL SHALL CONFORM TO SECTION 1026-2 OF NCOTD'S STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
 6. ABC STONE REQUIRED UNDER ALL CURB & GUTTER.



Sidepaths shall be constructed as defined by the Rolesville Community Transportation Plan and the Town of Rolesville Greenway Plan.

Sidepaths shall be located at a minimum of 5 feet off the back of curb to provide a utility strip.

Sidepaths shall consist of 2-inch asphalt and 6-inch aggregate base course (ABC). Geotextile stabilization fabric shall be placed under the compacted ABC for the entire length and width of the sidepaths. Concrete may be required instead of asphalt to accommodate site conditions as determined by the Town of Rolesville; when concrete is used, a minimum of 6-inch concrete shall be required. The minimum width for sidepaths shall be 10 feet and sidepaths shall be constructed with a uniform slope toward the street of no more than 2%.



1	8-28-2023	Initial Summary	KFG
2	5-22-2026	Town / Wake County Comment	KFG
3	07-28-2026	WAKE COUNTY AND TOWN REVIEW	KFG
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
8	8/8	Comment	BY
NO.	DATE	REVISION DESCRIPTION	BY

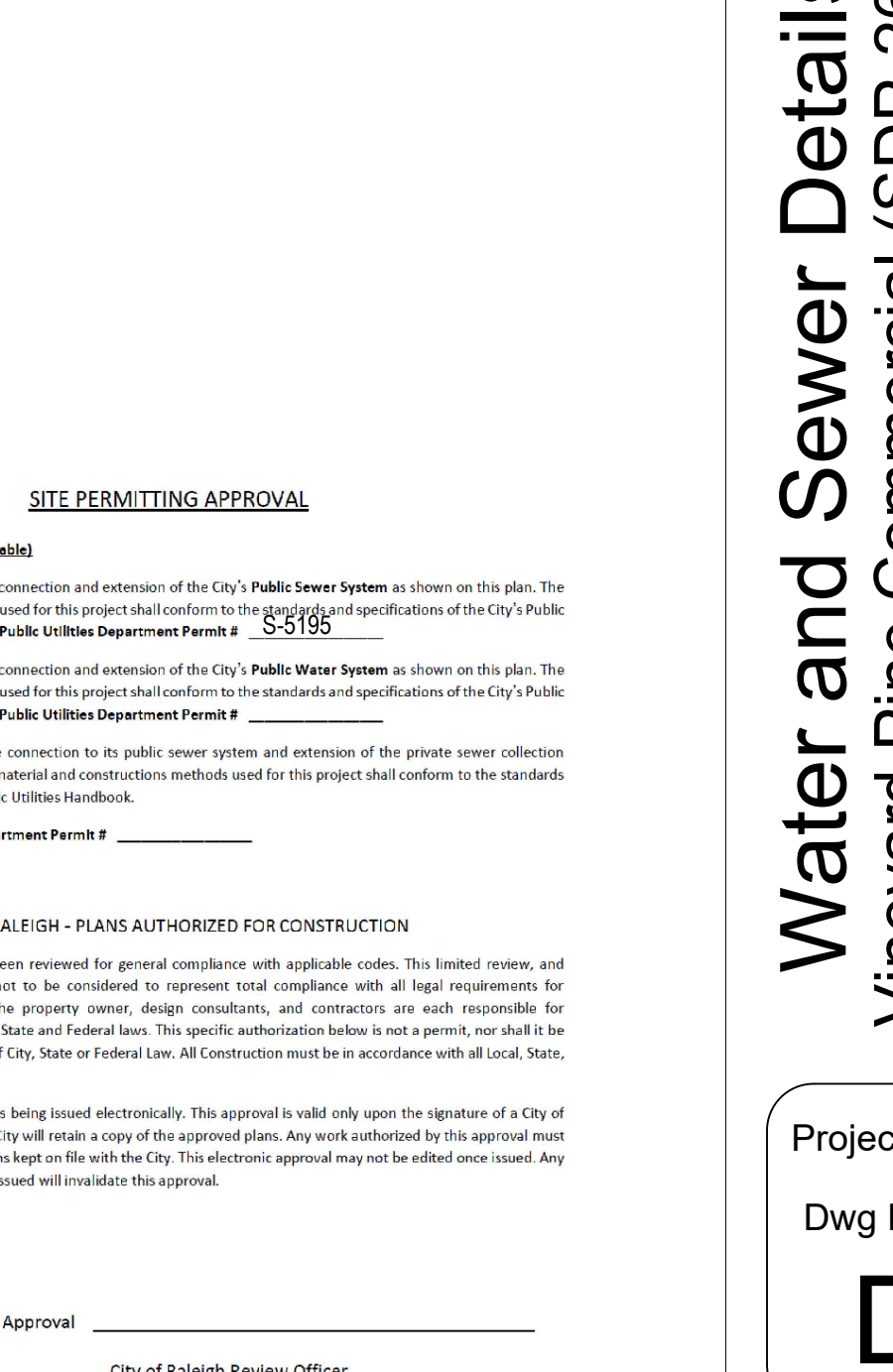
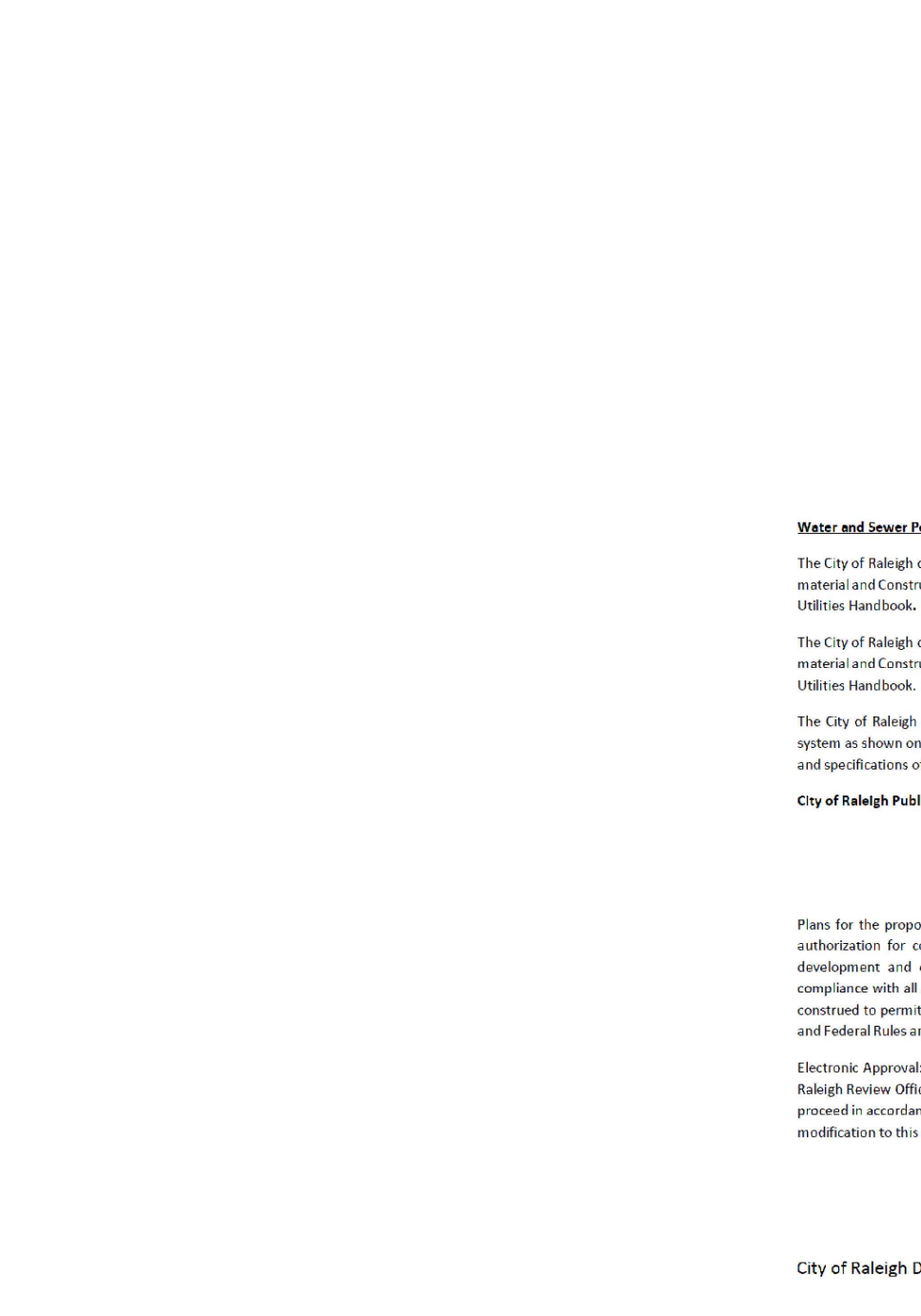
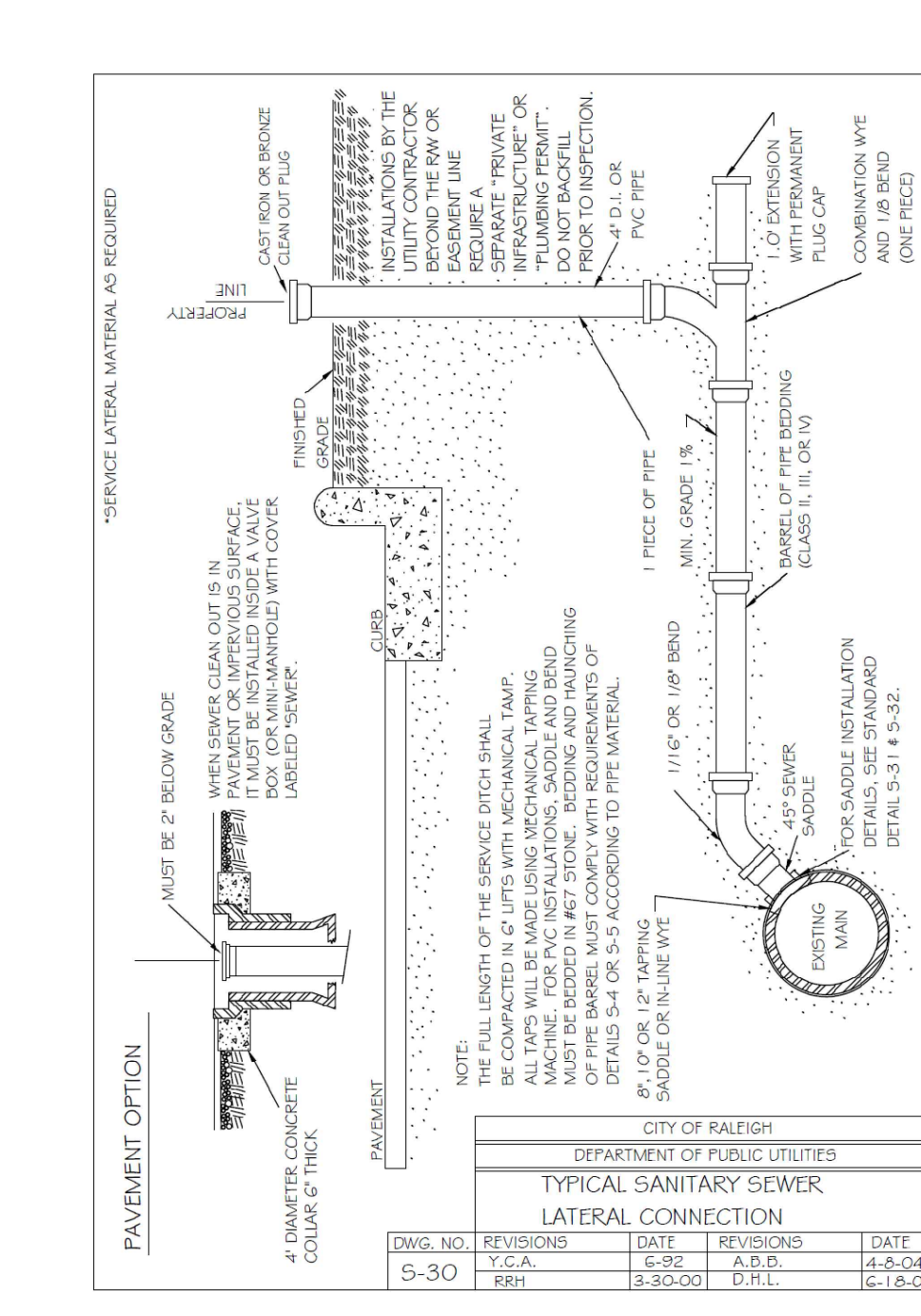
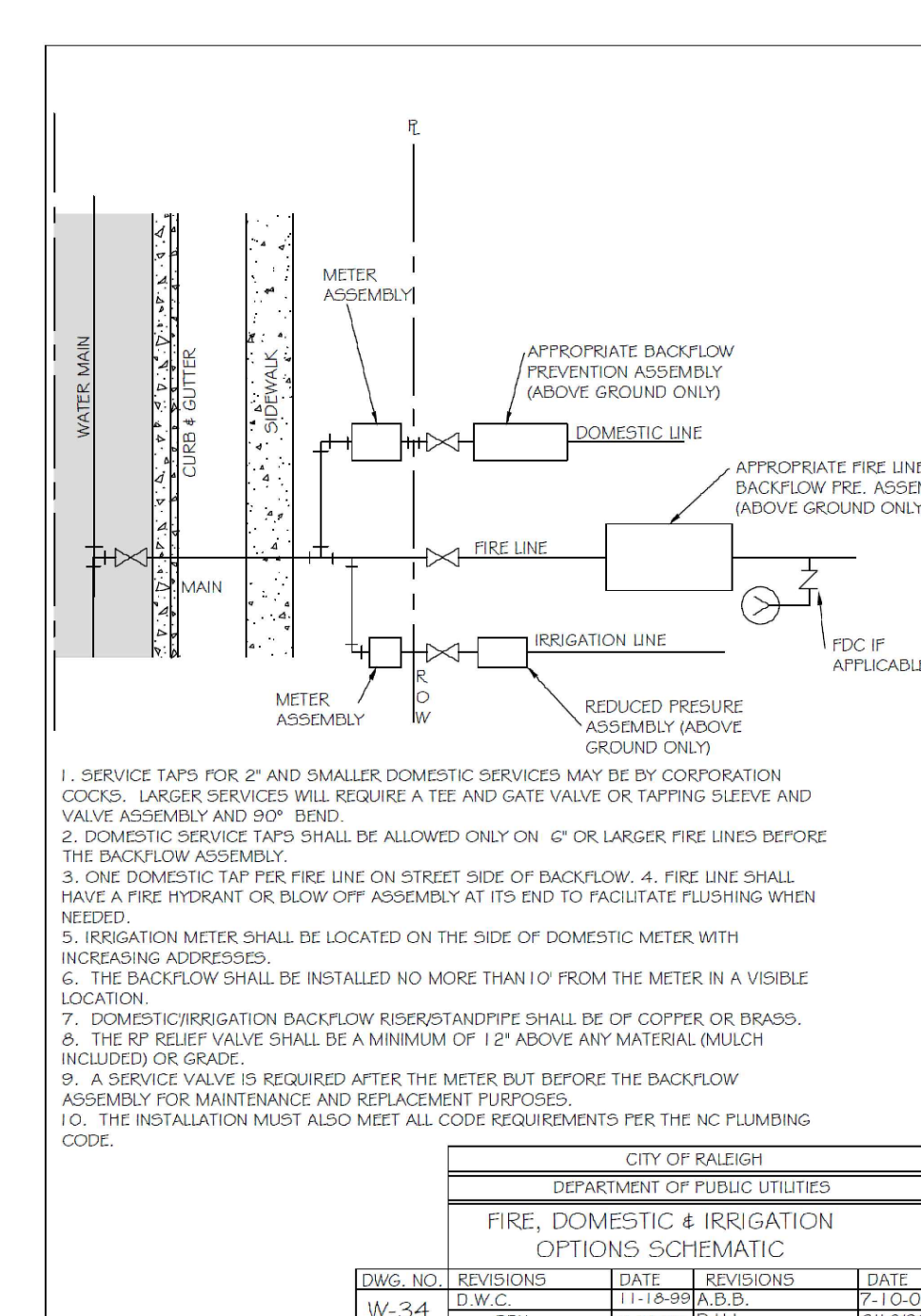
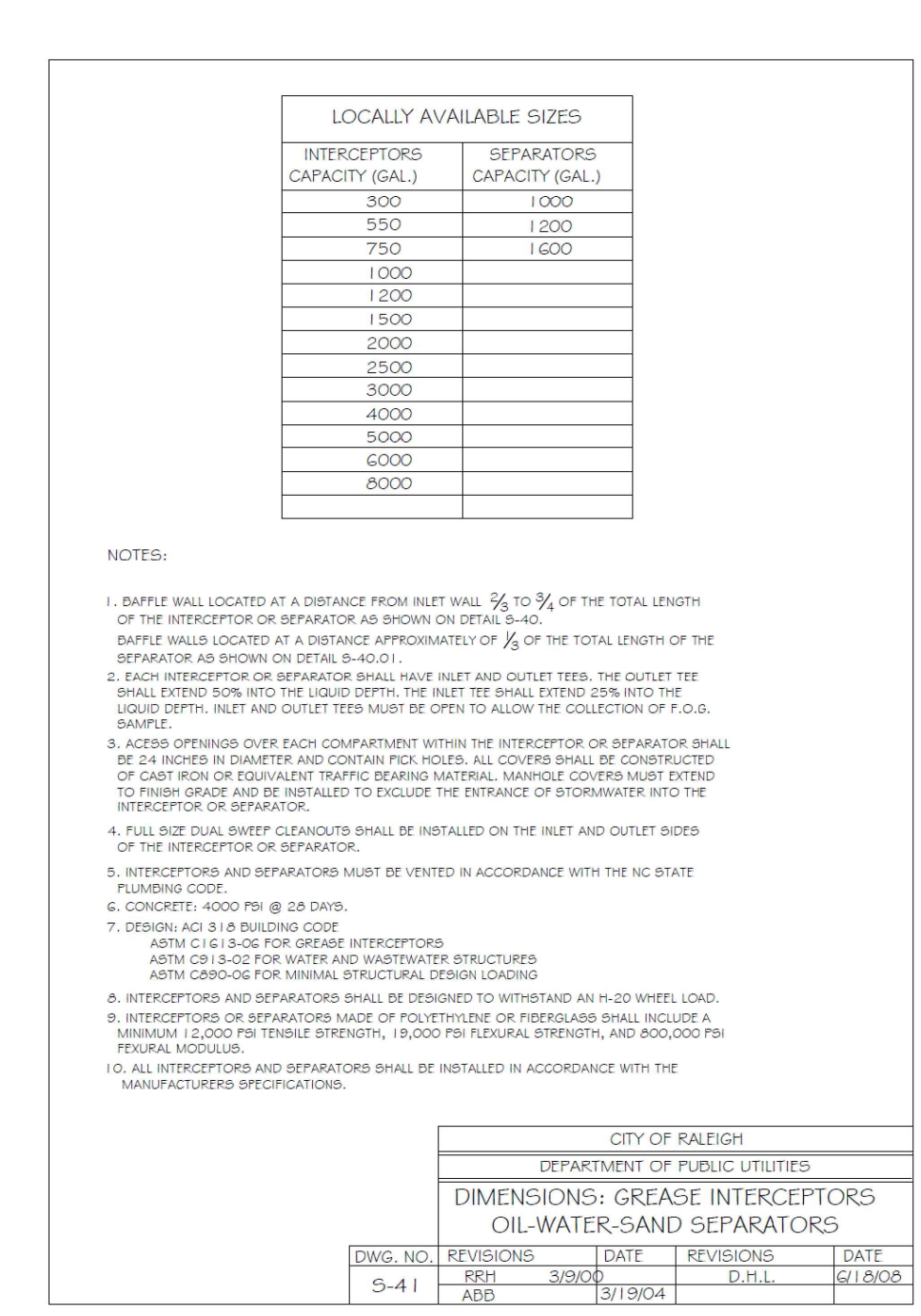
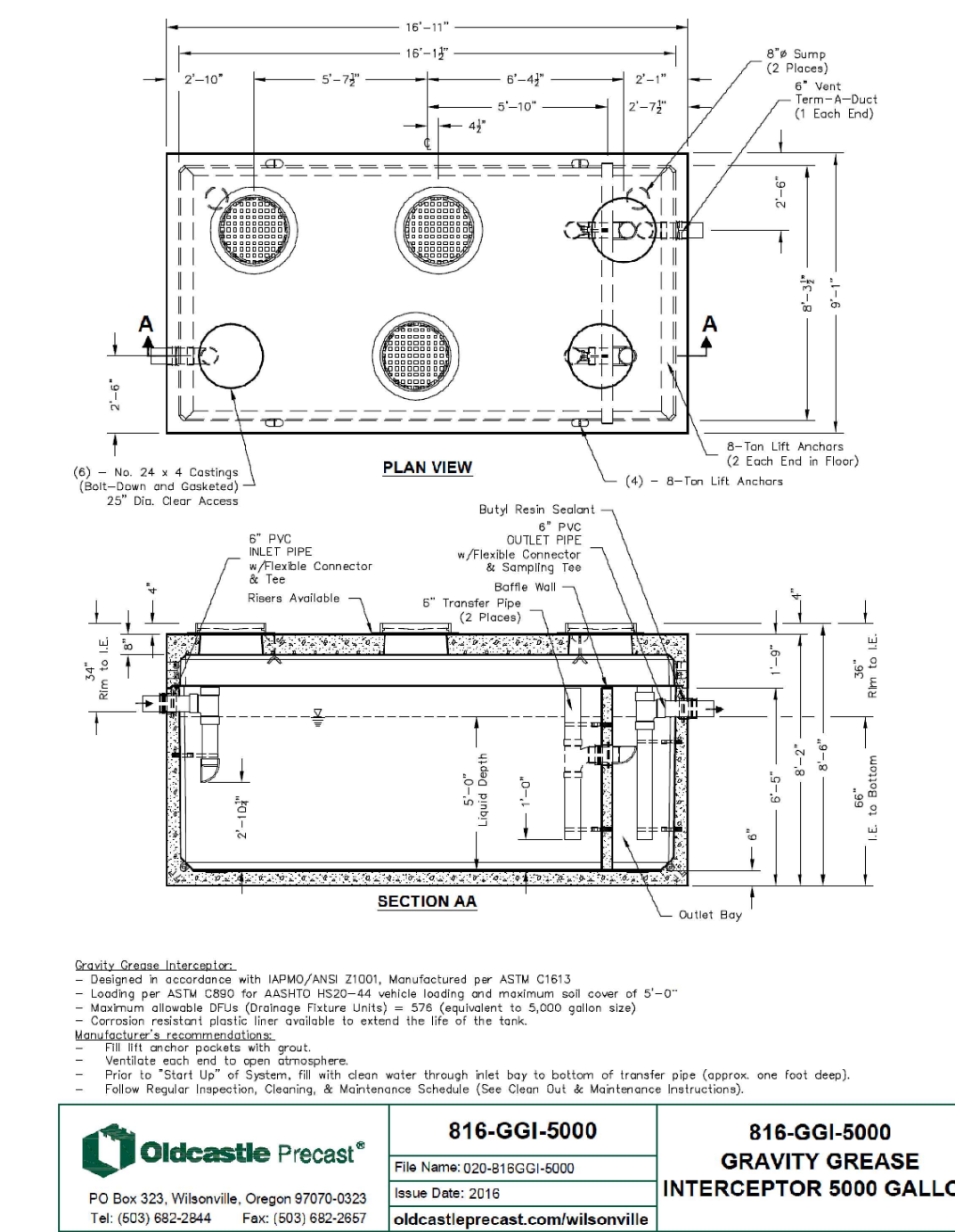
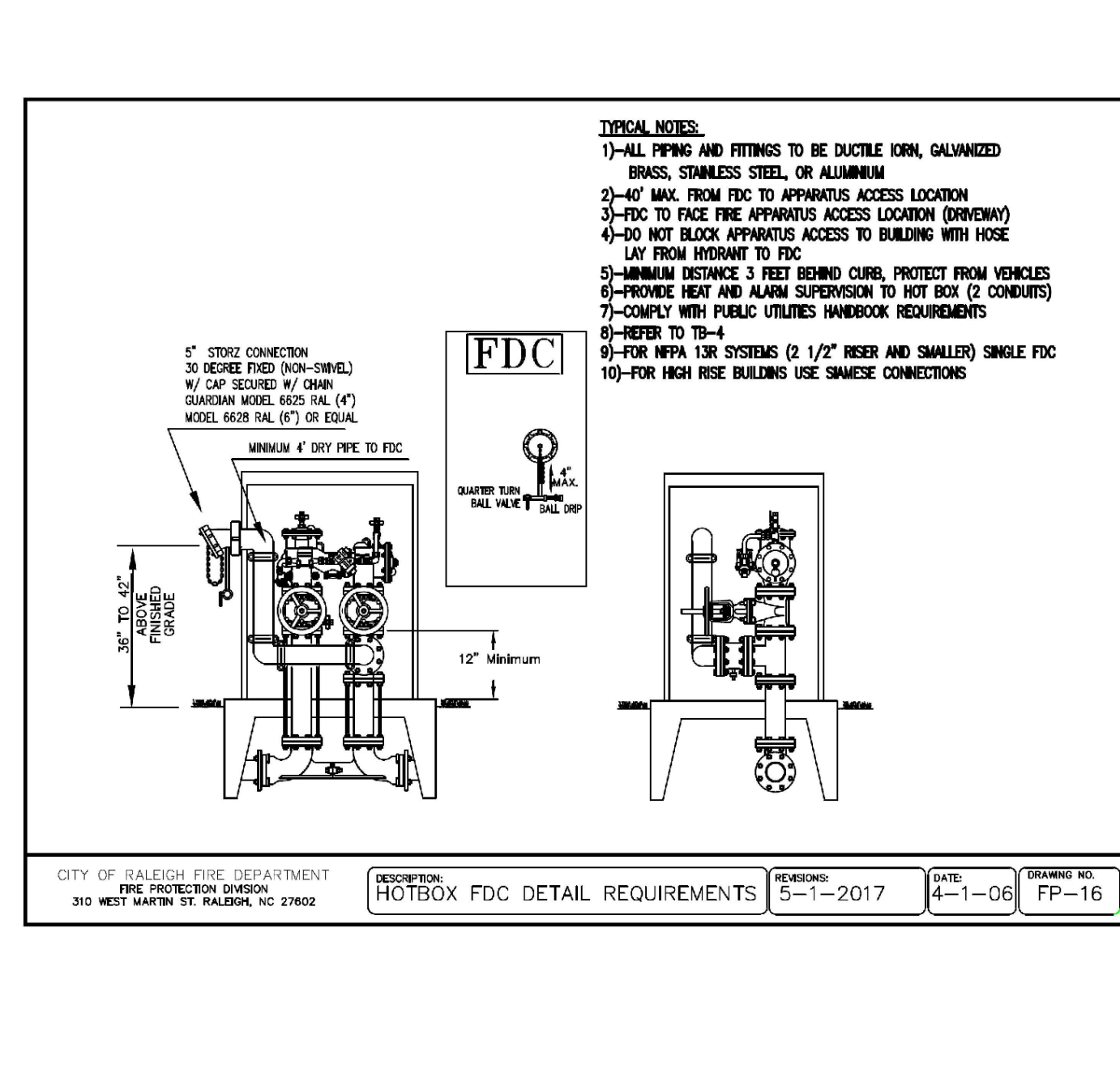
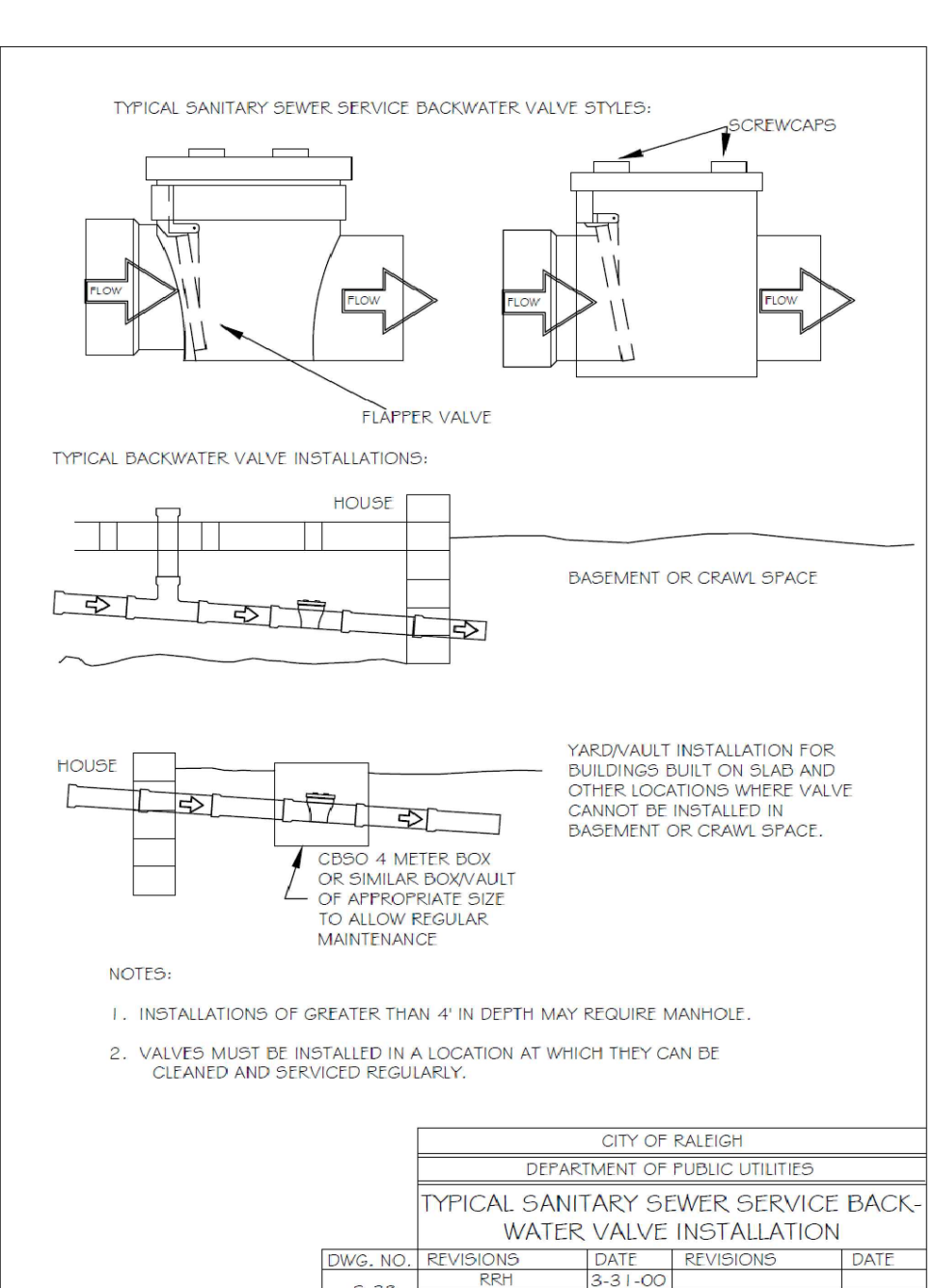
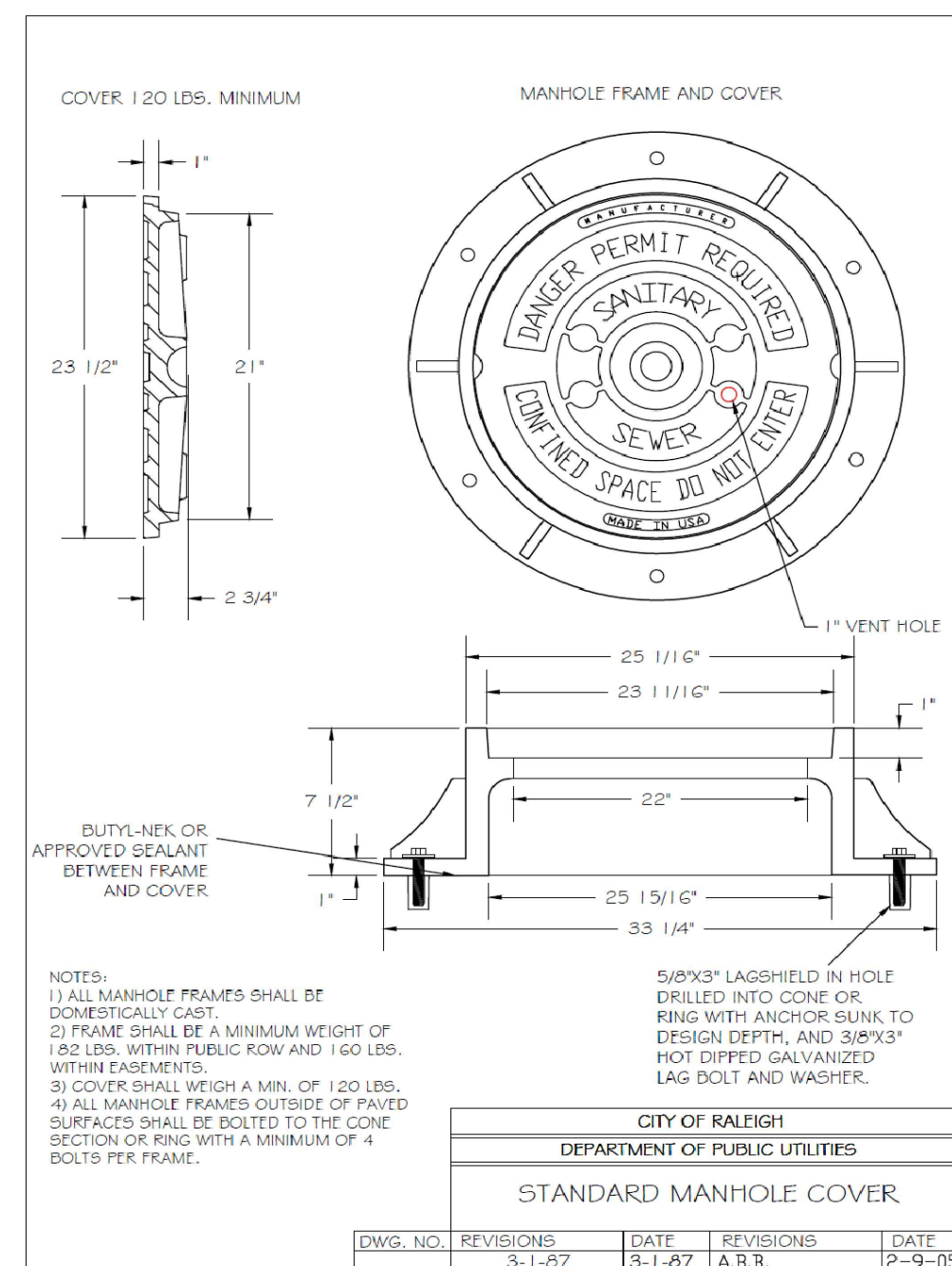
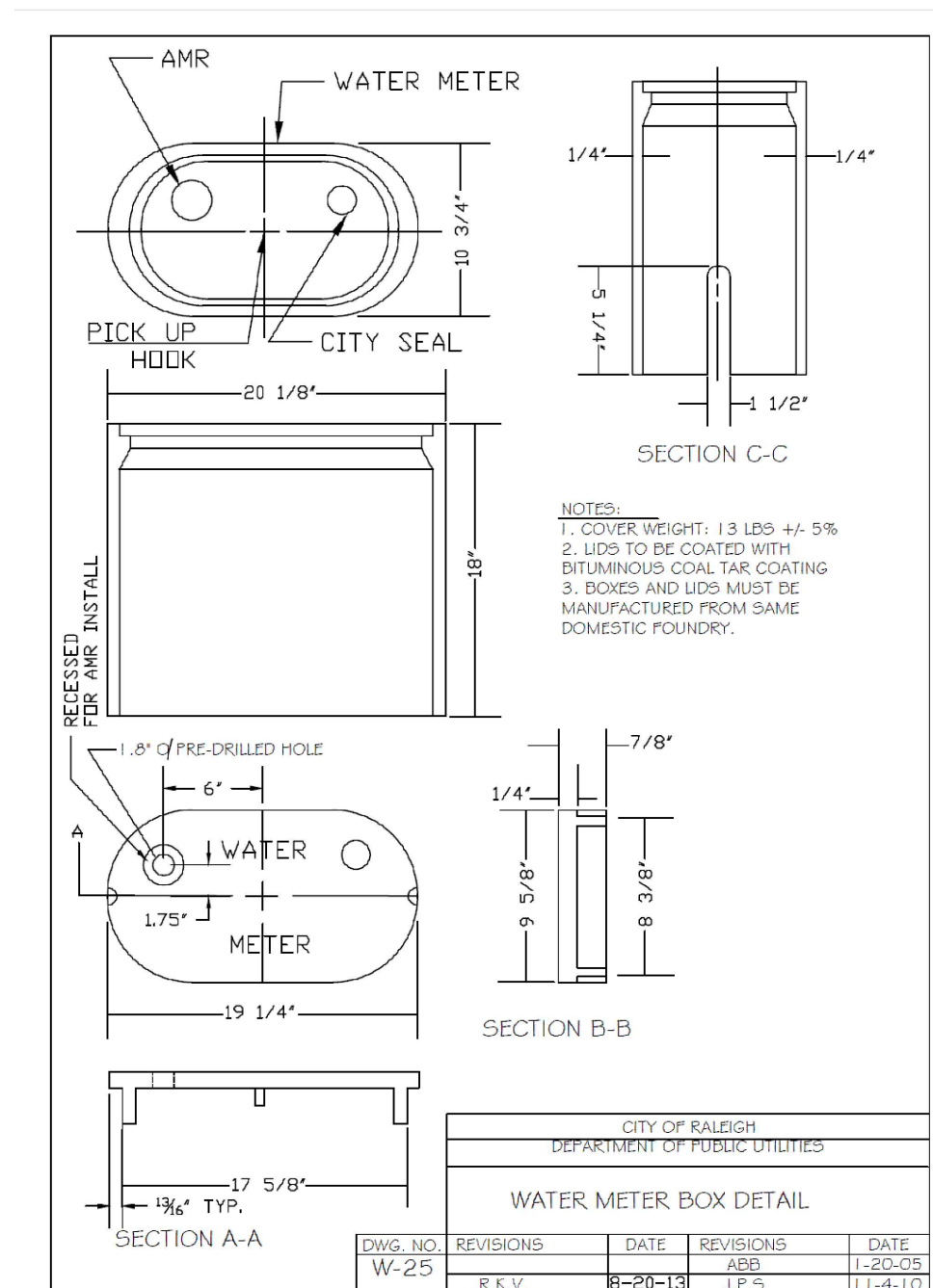
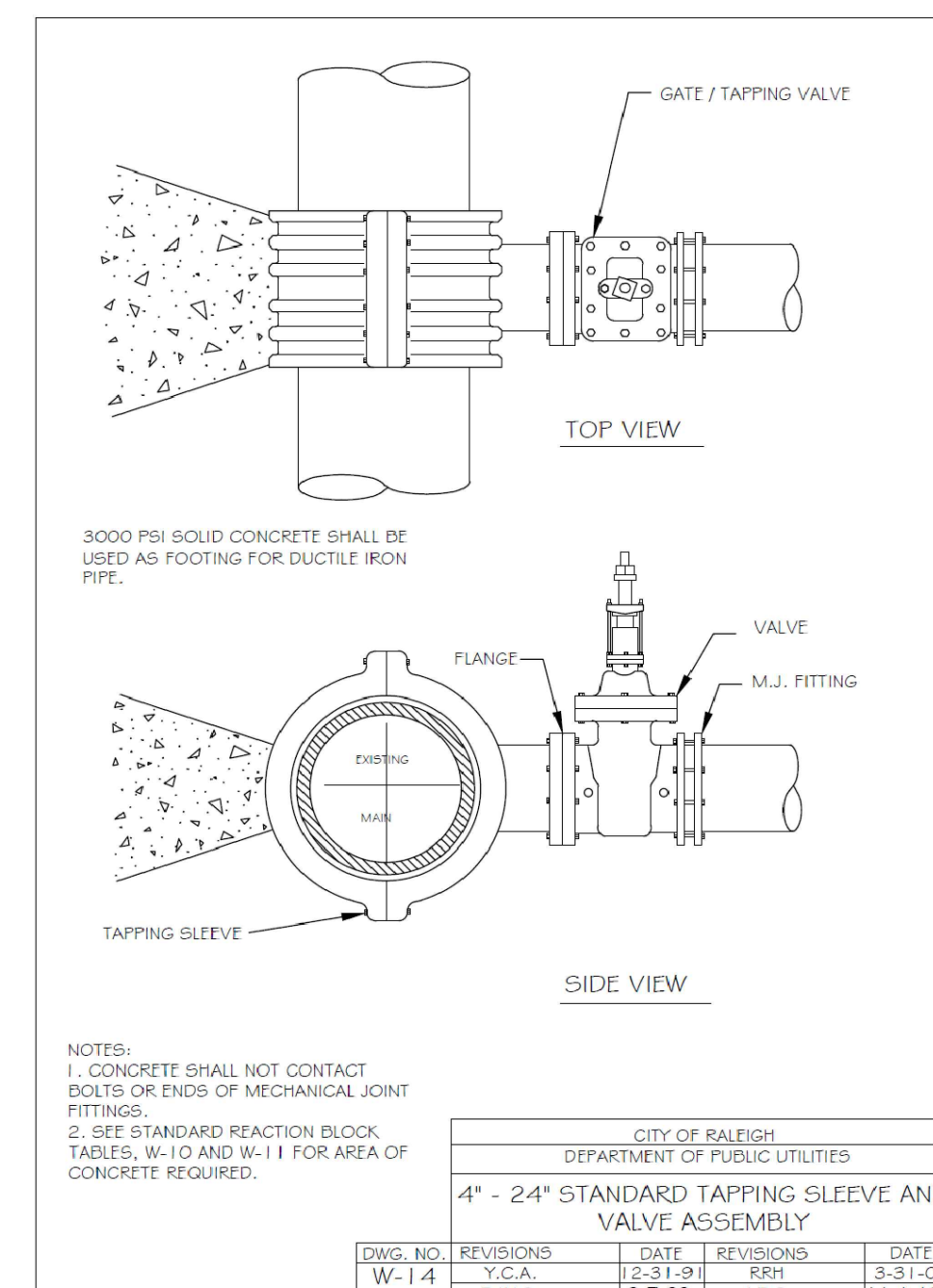
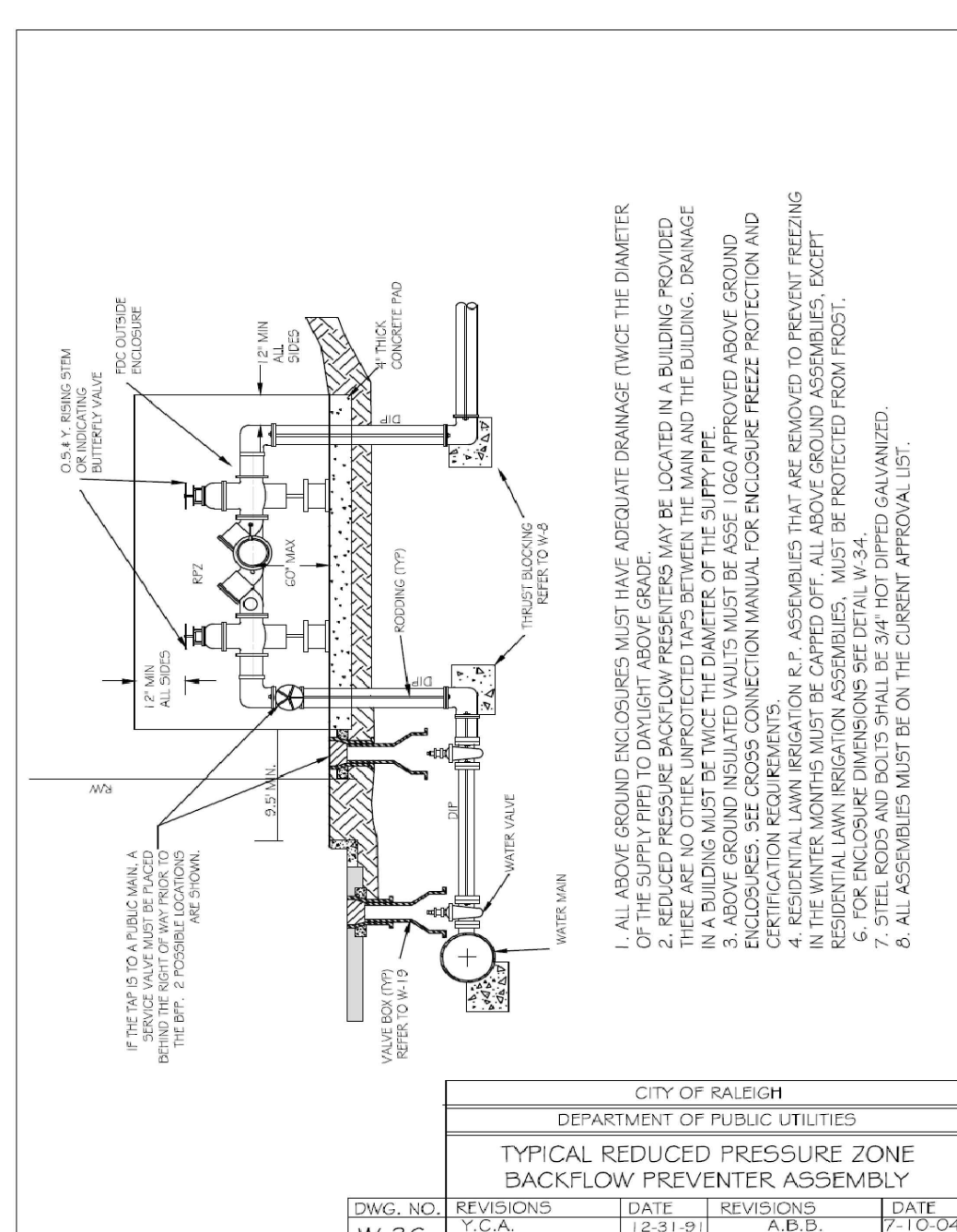
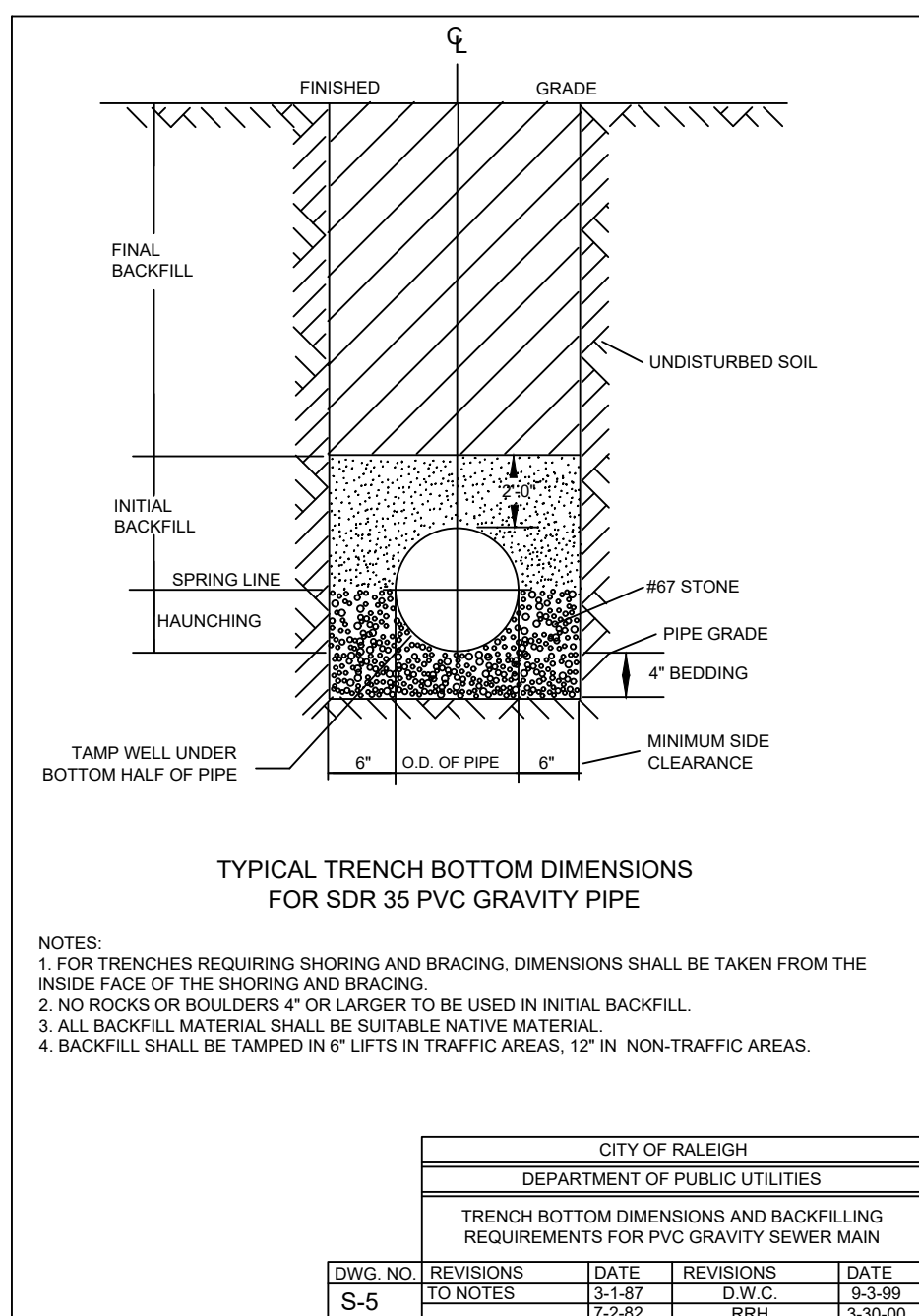
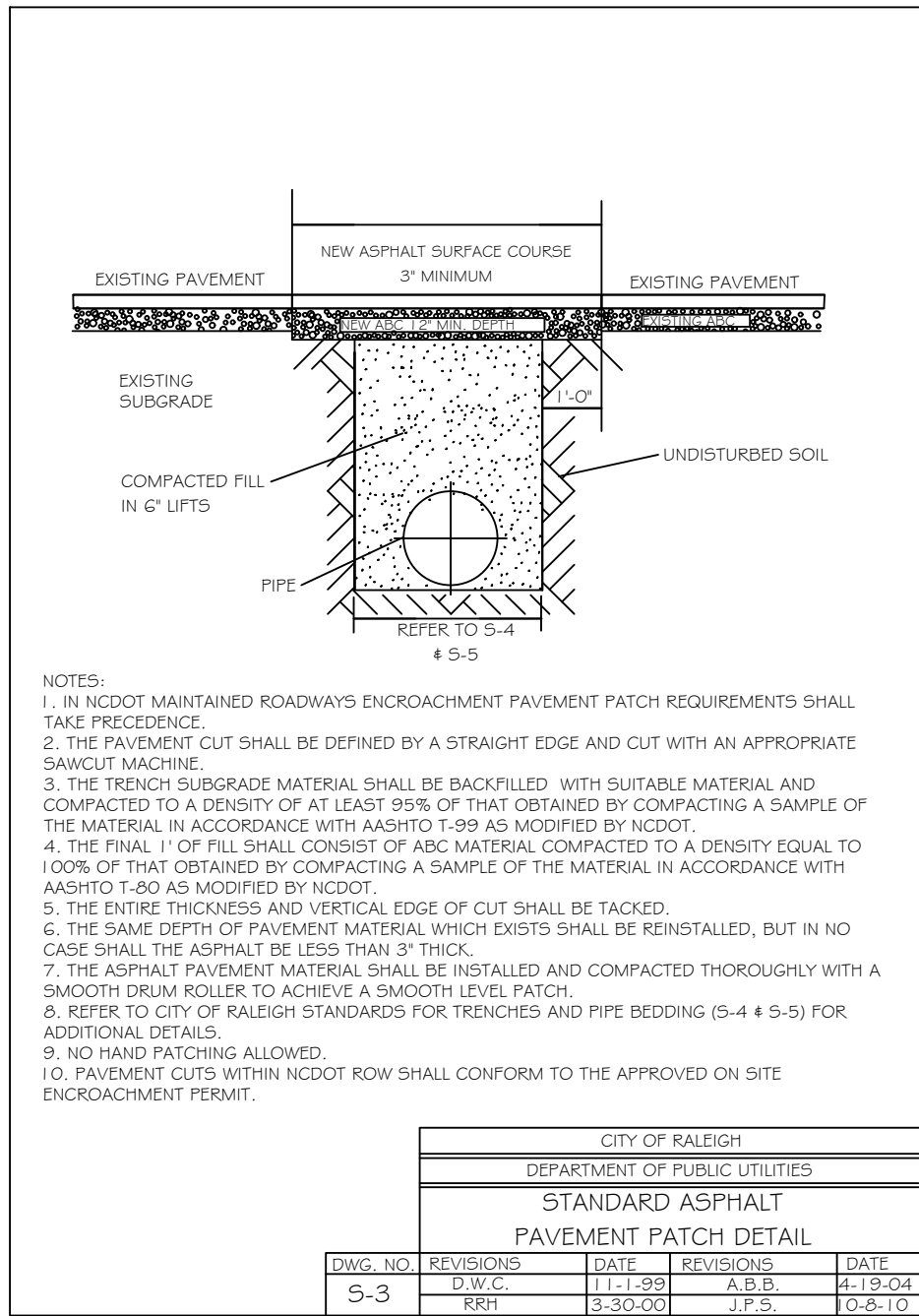


Site Details

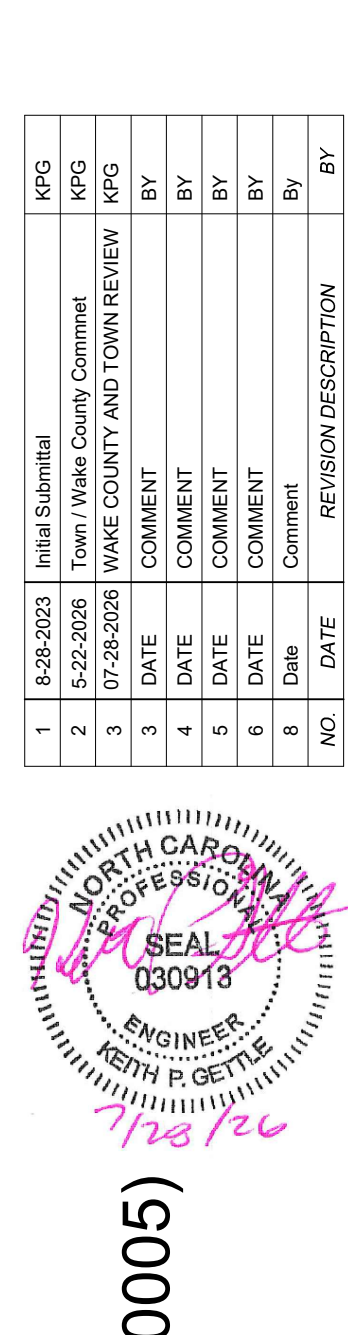
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.
Dwg No.

D1



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Water and Sewer Details
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.
Dwg No.
D2

PROJECT SUMMARY

CALCULATION DETAILS

- LOADING = HS20/HS25
- APPROX. LINEAR FOOTAGE = 489 LF

STORAGE SUMMARY

- STORAGE VOLUME REQUIRED = 7634 CF
- PIPE STORAGE VOLUME = 7,777 CF
- BACKFILL STORAGE VOLUME = 0 CF
- TOTAL STORAGE PROVIDED = 7,777 CF

PIPE DETAILS

- DIAMETER = 54"
- CORRUGATION = 5x1
- GAGE = 14
- COATING = ALT2
- WALL TYPE = SOLID
- BARREL SPACING = 27"

BACKFILL DETAILS

- WIDTH AT ENDS = 12"
- ABOVE PIPE = 0"
- WIDTH AT SIDES = 12"
- BELOW PIPE = 0"

NOTES

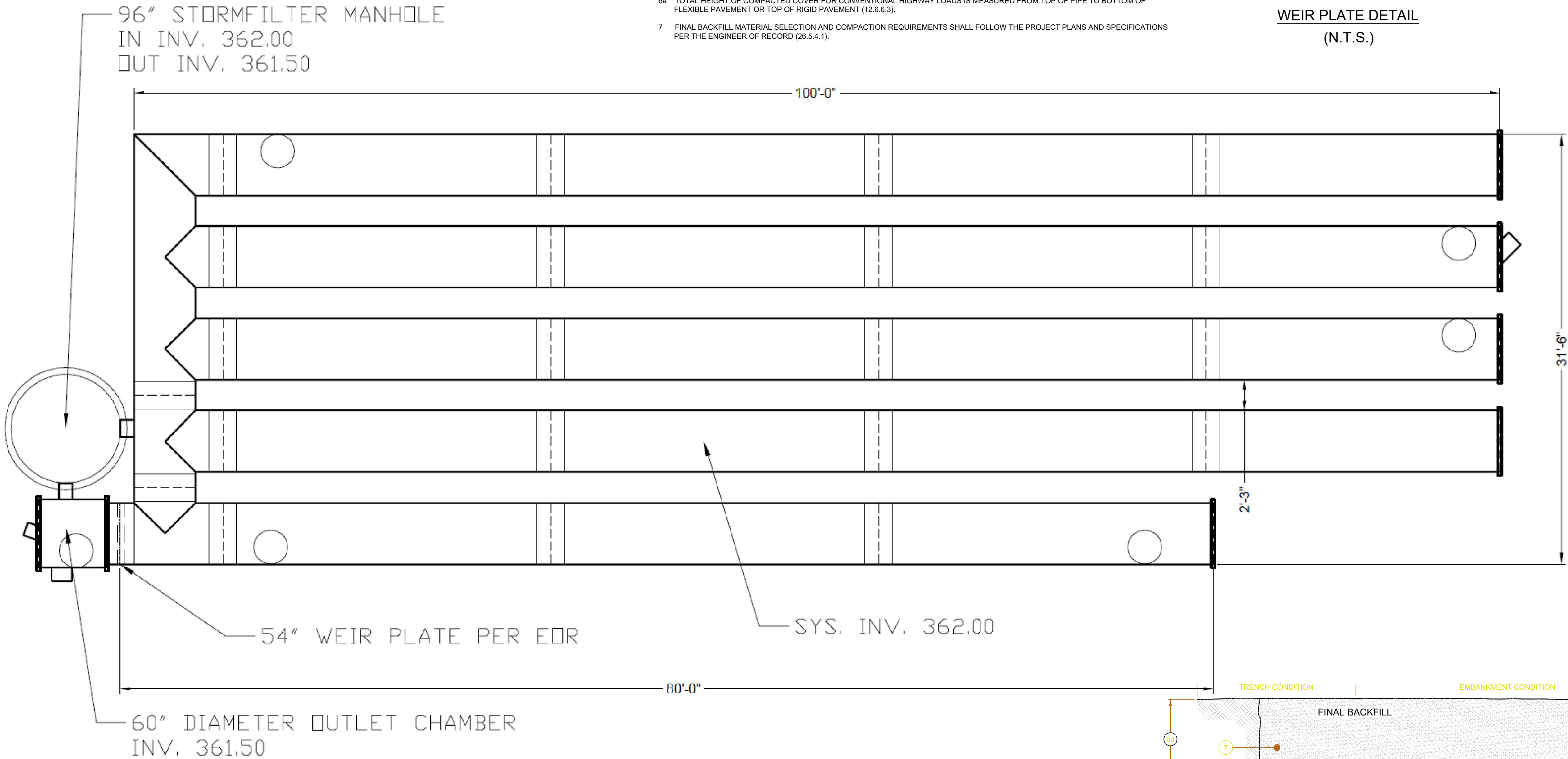
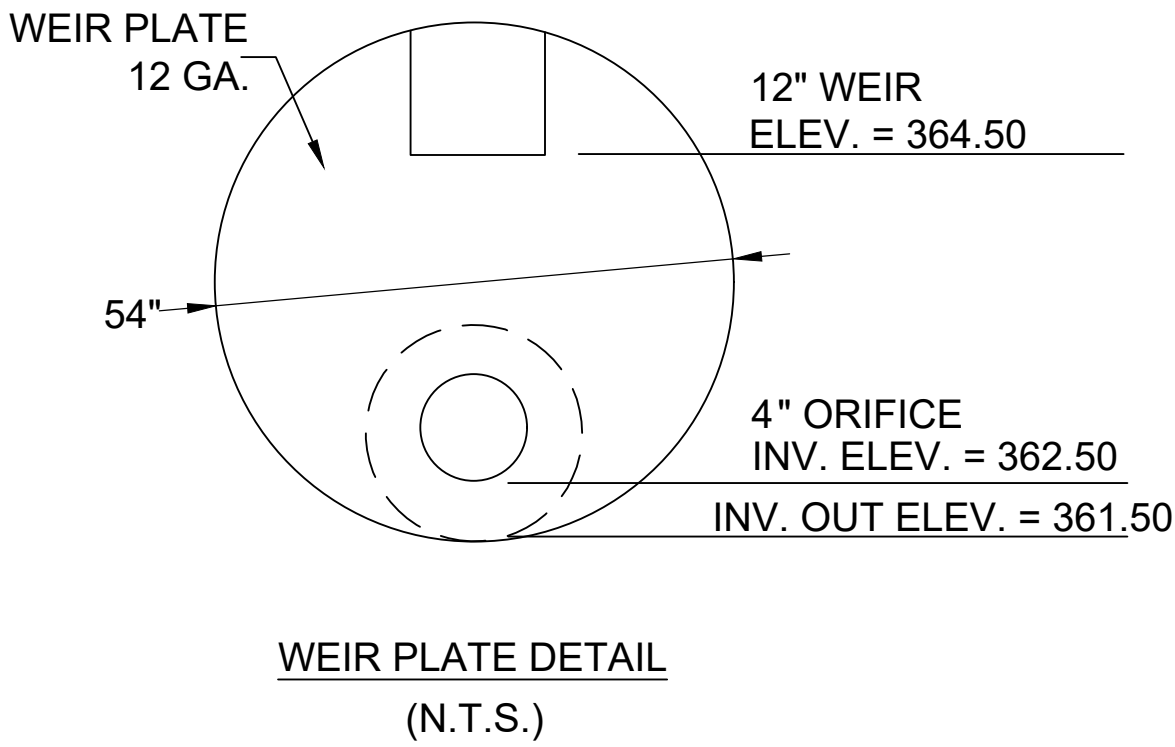
- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 3/8" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN. QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

Pre and Post Summary Table

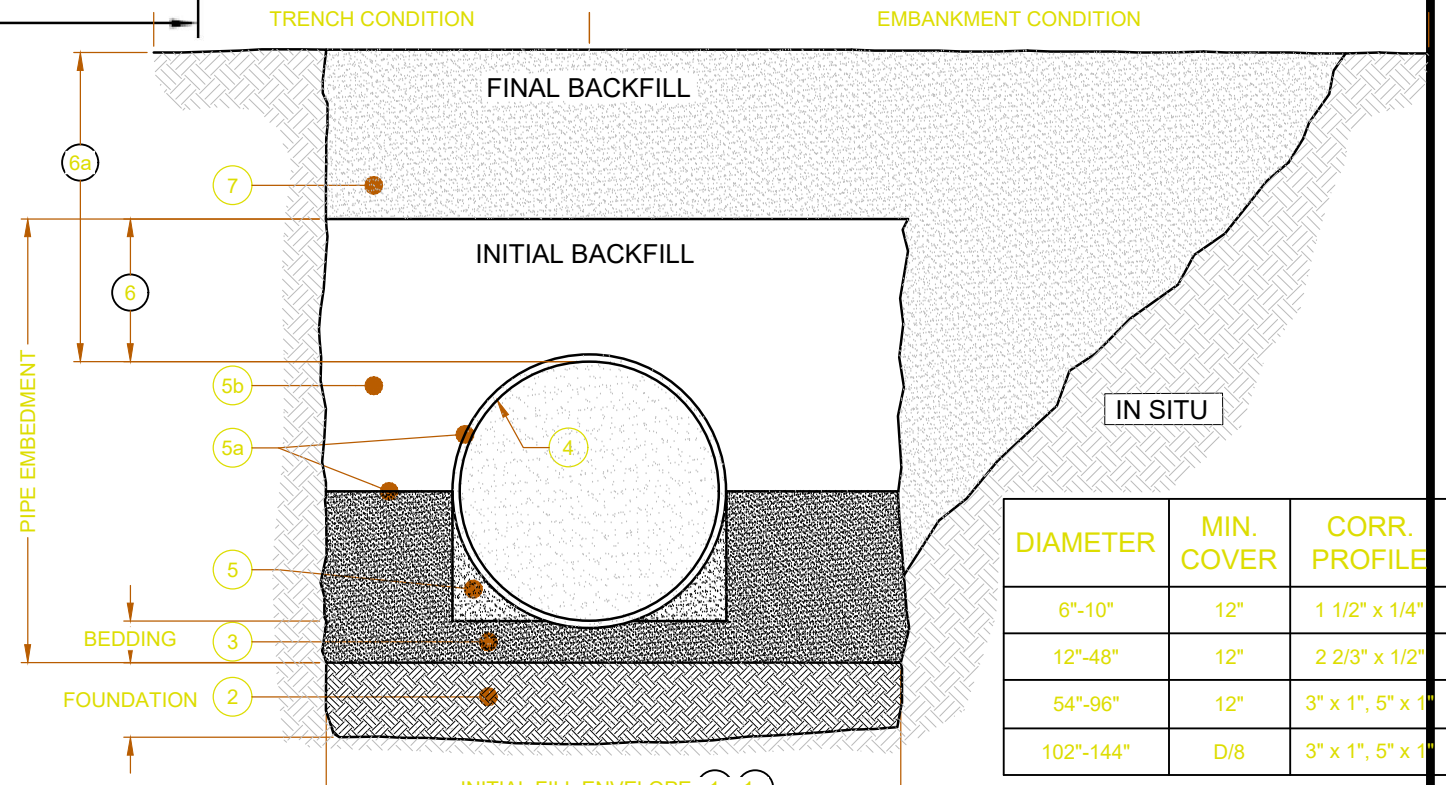
	Pre	Post
Q1	1.35	0.07
Q10	4.74	3.87

BACKFILL REQUIREMENTS FOLLOW THE GUIDELINES OF AASHTO LRFD BRIDGE DESIGN (SEC 12) AND CONSTRUCTION (SEC 26)

- 1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE.
THE MINIMUM TRENCH WIDTH (12.6.6.1):
PIPE ≤ 12": D + 16"
PIPE > 12": 1.5D + 12"
- 1a MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE (12.6.6.2):
PIPE < 24": 3.0D
PIPE 24" - 144": D + 40"
PIPE > 144": D + 100"
- 2 THE FOUNDATION UNDER THE PIPE AND SIDE BACKFILL SHALL BE ADEQUATE TO SUPPORT THE LOADS ACTING UPON IT (26.5.2).
- 3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE FROM SPRINGLINE OF PIPE TO 4'-6" BELOW BOTTOM OF PIPE.
- 4 CORRUGATED STEEL PIPE (CSP / HEL-COR).
- 5 HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION (26.5.4).
- 5a GEOTEXTILE SHALL BE USED IF REQUIRED BY ENGINEER TO PREVENT SOIL MIGRATION INTO VARYING SOIL TYPES.
- 5b BACKFILL PLACED ABOVE SPRINGLINE TO MEET AASHTO 145, A-1, A-2 OR A-3 CLASSIFICATION, OR APPROVED EQUAL, COMPACTED TO 90% STANDARD PROCTOR (T 99). MAXIMUM PARTICLE SIZE NOT TO EXCEED 3" (12.4.1.2). ALL LIFTS PLACED IN A CONTROLLED MANNER. IT IS RECOMMENDED THAT LIFTS NOT EXCEED AN 8" UNCOMPACTED LIFT HEIGHT TO PREVENT UNEVEN LOADING, AND THE LESSER OF 1/3 THE DIAMETER OR 24" AS THE MAXIMUM DIFFERENTIAL SIDE-TO-SIDE (26.5.4).
- 6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL (AND RIGID PAVEMENT IF APPLICABLE). SEE TABLE ABOVE.
- 6a TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT (12.6.6.3).
- 7 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD (26.5.4.1).



ASSEMBLY
SCALE: 1" = 10'



CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH
CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

Jonesville Road Rolesville Commercial Site
CMP System
Rolesville, NC
DETENTION SYSTEM

PROJECT No.: 24294	SEQ. No.: 35777	DATE: 8/2/2023
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.:		1

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NO.	DATE	REVISION DESCRIPTION	BY
1	8/2/2023	Initial Submittal	KPG
2	8/2/2023	Owner (Wake County) Comment	KPG
3	07/28/2023	WAKE COUNTY AND TOWN REVIEW	KPG
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
8	DATE	Comment	By

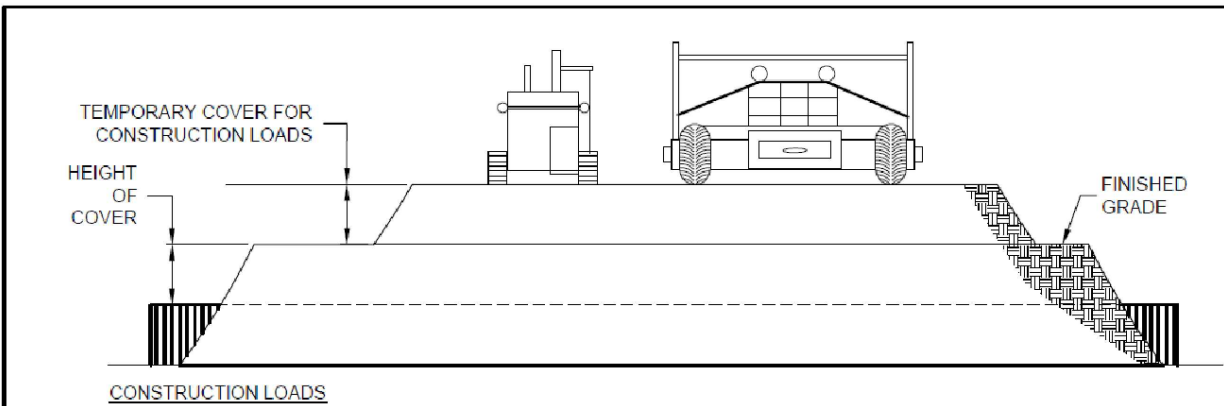


Detention System Details
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

D4



FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE. OTHER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
120-144	3.5	4.0	4.5	4.5

MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM

SCOPE: THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIALS: THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-274 OR ASTM A-42.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-218 OR ASTM A-529.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-249 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS: CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE: THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

CONTECH
ENGINEERED SOLUTIONS LLC

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

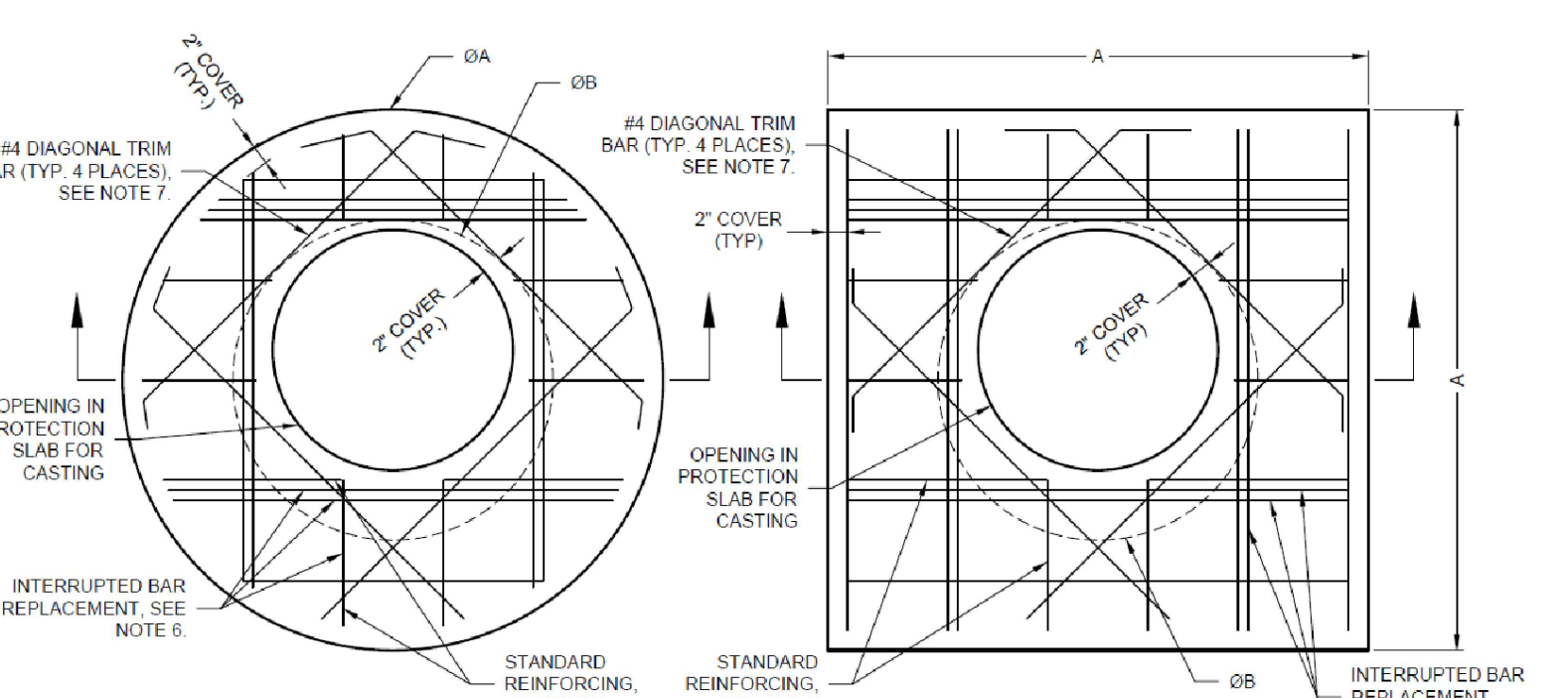
CONTECH
CMP DETENTION SYSTEMS

DETENTION SYSTEM DETAILS

PROJECT NO.	DES. NO.	DATE
DESIGNED:	DRAWN:	
RECHECKED:	APPROVED:	
SHEET NO.		1

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4" 4'x4'	26"	#5 @ 12" OC EW	2,410
30"	Ø 4" 4'x4'	32"	#5 @ 12" OC EW	1,780
36"	Ø 5" 5'x5'	38"	#5 @ 10" OC EW	2,120
42"	Ø 5" 5'x5'	44"	#5 @ 10" OC EW	1,890
48"	Ø 6" 6'x6'	50"	#5 @ 10" OC EW	1,350
			#5 @ 12" OC EW	1,220
			#5 @ 8" OC EW	1,210
			#5 @ 8" OC EW	1,600
			#5 @ 8" OC EW	1,100

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.

2. DESIGN LOAD HS25.

3. EARTH COVER = 1' MAX.

4. CONCRETE STRENGTH = 3,500 PSI.

5. REINFORCING STEEL = ASTM A615, GRADE 60.

6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.

SQUARE OPTION PLAN VIEW

NOTES:

7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING. BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.

8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.

9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

INTERRUPTED BAR REPLACEMENT, SEE NOTE 6.

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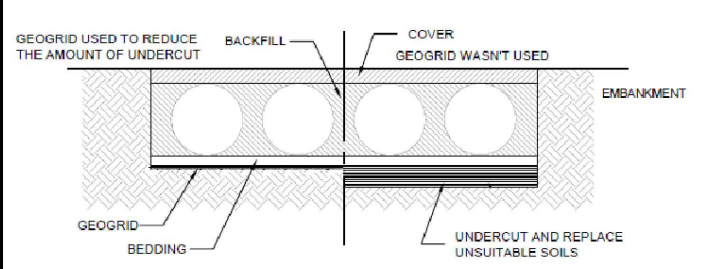
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL RIGID PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PIPE CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPACTED BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOTGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

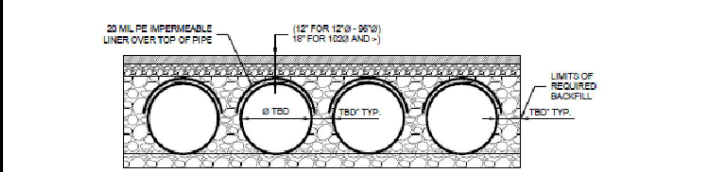


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS, THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME. IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED. SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING: PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

THE PROJECTS ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



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IN-SITU TRENCH WALL

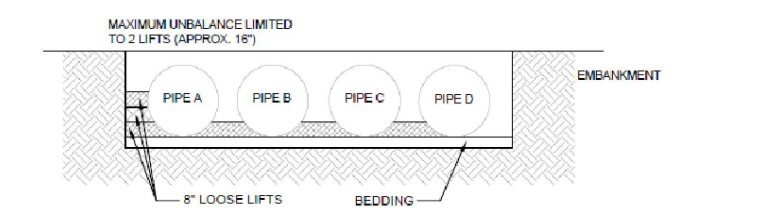
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED WEIGHT OF THE PIPE AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPACTED BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOTGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

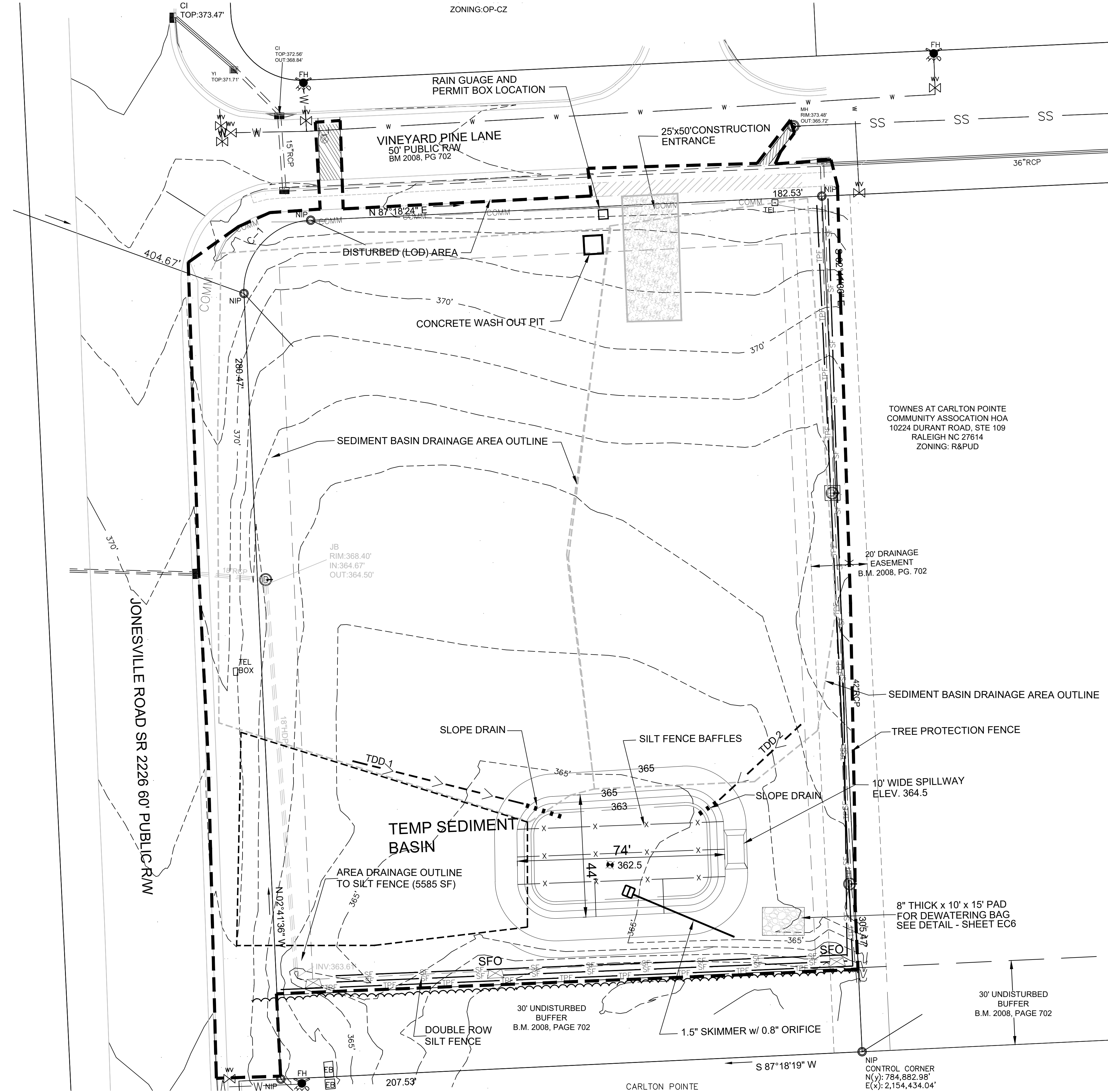
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL, SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.



GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS, THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME. IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENT

Channel Design Calculations													
Channel	Drain Area, ac	Channel Length, ft	Channel Drop, ft	C	Q10 I, in/hr	Flow cfs	Channel Slope, ft/ft	n	Side Slope:1	Bottom Width, ft	Depth of Flow, ft	Velocity fps	Liner
TDD1	0.48	72	3	0.55	5.48	1.4	0.0417	0.024	3.00	2.0	0.17	3.39	NAG C350 Blanket
TDD2	0.39	43	3	0.55	5.48	1.2	0.0698	0.020	3.00	2.0	0.12	4.25	NAG C350 Blanket



BASIN NUMBER	DRAIN AREA(ACRES)	BASIN SIZE	Q10 FLOW(CFS)	BASIN SURFACE AREA(SF)	REQUIRED SURFACE AREA(SF)	BASIN VOLUME (CF)	REQUIRED BASIN VOLUME (CF)	SPILLWAY LENGTH (FT)	SKIMMER / ORIFICE DIAMETER (IN.)	TOP OF BERM ELEV.	EMERGENCY SPILLWAY ELEV.	BOTTOM OF BASIN
1	0.87	34' x 64'	5.48	3256	2387	5399	1566	10'	1.5 / 0.8	365	364.5	362.5

EROSION CONTROL GENERAL NOTES

- PER NPDES REQUIREMENTS, A RAIN GUAGE, SELF INSPECTION RECORDS, PERMIT, CERTIFICATE OF COVERAGE, AND S&E PLANS ARE REQUIRED TO BE MAINTAINED ON SITE AND ACCESSIBLE DURING INSPECTION. IT IS RECOMMENDED THESE ITEMS ARE TO BE PLACED IN A PERMIT BOX AT THE ENTRANCE OF THE PROJECT. (NCG01 PART III SECTIONS A AND B, 15A NCAC 04B .0131)
- THE CONTRACTOR SHALL CONDUCT SELF-INSPECTIONS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES AND COMPETE THE FOLLOWING COMBINED SELF-INSPECTION FORM FOUND ON THE DEMLR WEBSITE <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>. TWELVE MONTHS OF COMPLETED INSPECTION FORMS SHALL BE KEPT ON-SITE AND AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS RECOMMENDED A COPY BE KEPT IN A PERMIT BOX. (GS 113A-54.1 (E), 15A NCAC 04B.0131, NCG01 PART III SECTIONS A AND B) .
- STOCKPILES, LAYDOWN OR WASTE AREAS, CONCRETE WASHOUTS, PORTABLE TOILETS, AND FUELS MUST BE LOCATED AT LEAST 50 FEET AWAY FROM ANY OPEN WATER CONVEYANCES, SUCH AS BASINS, DITCHES, STORM DRAIN INLETS, ETC. THE LOCATION OF THESE ACTIVITIES MAY BE FIELD ADJUSTED IF THE DISTANCE REQUIREMENTS ARE MET." (GS113A-57(3), 15A NCAC 04B .0105, 15A NCAC 04B .0106(5), GS113A-57(4), NCG01 SECTION I(F) .
- PERIMETER MEASURES MUST BE LEFT IN PLACE UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. AFTER SITE IS PERMANENTLY STABILIZED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND PROVIDE PERMANENT SEEDING WHERE TEMPORARY MEASURES HAVE BEEN REMOVED AND GROUND COVER IS NOT ADEQUATE. SEDIMENT BASINS MAY NOT BE REMOVED OR CONVERTED TO PERMANENT SCMS UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED.
- WAKE COUNTY SHOULD BE NOTIFIED 10-DAYS PRIOR TO REMOVAL OF A BASIN." (GS 113A-57(3), 15A NCAC 04B .0113). GROUND STABILIZATION WILL BE APPLIED WITHIN 14 CALENDAR DAYS FROM LAST LAND DISTURBING ACTIVITY. FOR STEEP SLOPES, THAT AREA MUST BE STABILIZED WITHIN 7 CALENDAR DAYS." (15A NCAC 04B .0106, NCG01 PART II SECTION E (1).
- SILT BAG(S) WILL BE CONTINUOUSLY MONITORED DURING OPERATION. (GS 113A-57(3), 15A NCAC 04B .0113).
- SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL ESC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING." (GS 113A-54.1 (E), 15A NCAC 04B.0131, NCG01 PART III SECTIONS A AND B) .
- INSTALL POLYACRYLAMIDE IMPREGNATED STRAW WATTLES (IE. TERRA TUBES) DIRECTLY BELOW STORM WATER OUTFALL. PLACE EROSION CONTROL LINER UNDERNEATH A SERIES OF WATTLES (SEE DETAIL)
- SURROUND THE SKIMMER WITH A BAFFLE AND "KEY" BOTH ENDS INTO THE SIDE OF THE BASIN. INSTALL A TARP UNDERNEATH THE SKIMMER, COVERING THE ENTIRE AREA AROUND THE SKIMMER. PROVIDE A 6'-8" BLOCK TO PLACED UNDER THE SKIMMER ALLOWING THE DEVICE TO REST ON AFTER DEWATERING.
- INSTALL STANDARD GRAVEL YARD INLET PROTECTION UNTIL CURB IS INSTALLED. INSTALL STANDARD GRAVEL BAG CURB INLET PROTECTION AT ALL CURB INLETS.

LINE AND SYMBOL LEGEND

- SFO SLOPE DRAIN
SF DENUDE AREA OUTLINE
SF SILT FENCE
TEMPORARY DIVERSION DITCH
X BAFFLES
TPF TREE PROTECTION FENCE
CHECK DAM
INLET PROTECTION
SLOPE DRAIN

Temporary Sediment Basin

0.87 Disturbed Area (Acres)	Imported from t
5.48 Peak Flow from 10-year Storm (cfs)	
1566 Required Volume ft ³	Minimum sedin
2387 Required Surface Area ft ²	Required surfac
34.5 Suggested Width ft	
69.1 Suggested Length ft	
44 Trial Top Width at Emergency Spillway Invert ft	
74 Trial Top Length at Emergency Spillway Invert ft	
2.5 Trial Side Slope Ratio Z:1 (2.5:1 or flatter)	
2 Trial Depth ft (2 to 13.5 feet above grade)	
34 Bottom Width ft	
64 Bottom Length ft	
2176 Bottom Area ft ²	
5399 Actual Volume ft ³	Okay
3256 Actual Surface Area ft ²	Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillw

1.5 Skimmer Size (inches)	Skimmer Size
0.125 Head on Skimmer (feet)	(Inches)
0.8 Orifice Size (1/4 inch increments)	1.5
3.00 Dewatering Time (days)	2
Suggest about 3 days	2.5
	3

EROSION CONTROL CONSTRUCTION SEQUENCE - PHASE 1

- SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL WATERSHED MANAGER. OBTAIN A LAND DISTURBING PERMIT.
- INSTALL TREE PRETECTION FENCE AND PERIMETER SILT FENCE AS SHOWN ON THE PLANS.
- INSTALL EROSION CONTROL MEASURES INCLUDING GRAVEL CONSTRUCTION ENTRANCE /EXIT, PERMIT BOX, SEDIMENT TRAPPING MEASURES, STABILIZATION AT PIPE OUTLETS, 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.
- CONTACT THE WAKE COUNTY ENVIRONMENTAL CONSULTANT, (919) 856-7436, FOR AN ONSITE INSPECTION TO OBTAIN A CERTIFICATE OF COMPLIANCE.
- EXCAVATE AREAS FOR TEMPORARY SEDIMENT BASIN 1, AND SKIMMER BASIN NO 2. INSTALL EMBANKMENTS, SPILLWAYS AS SHOWN ON THE APPROVED PLANS. EMERGENCY SPILLWAYS ARE TO BE LOCATED IN CUT OR UNDISTURBED GRADE. PROVIDE STONE PADS AND ROPE FOR THE SKIMMER TO REST AND MAINTENANCE ACCESS. SEE SHEET D5 FOR THE RISER INSTALLATION USED IN TEMPORARY BASIN 1. SURROUND THE SKIMMER WITH A BAFFLE AND "KEY" BOTH ENDS INTO THE SIDE OF THE BASIN. INSTALL A TARP UNDERNEATH THE SKIMMER, COVERING THE ENTIRE AREA AROUND THE SKIMMER. PROVIDE A 6'-8" BLOCK TO PLACED UNDER THE SKIMMER ALLOWING THE DEVICE TO REST ON AFTER DEWATERING.
- INSPECT TEMPORARY SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.
- BEGIN CLEARING AND GRUBBING AND PERFORM ROUGH GRADING AS SHOWN ON SHEET C3, INSTALLING AND MAINTAINING TEMPORARY DIVERSIONS AS NECESSARY. SEED AND MULCH PERIMETER SLOPES AS SOON AS POSSIBLE.
- STABILIZE DISTURBED AREAS WITHIN 14 WORKING DAYS AFTER COMPLETION OF ANY PHASE OF GRADING. STABILIZATION CONSISTS OF EITHER TEMPORARY MULCHING OR PERMANENT VEGETATION ON AREAS THAT ARE NOT PAVED.
- REGULARLY INSPECT AND MAINTAIN THE EROSION CONTROL DEVICES SO THEY CONTINUE TO FUNCTION PROPERLY.
- KEEP MUD AND DEBRIS OFF THE PUBLIC STREETS AT ALL TIMES. IF MUD OR DEBRIS IS TRACKED FROM THE SITE, USE A SHOVEL AND BROOM TO REMOVE IT IMMEDIATELY. IF MUD AND DEBRIS ARE NOT KEPT OFF THE STREET, ENFORCEMENT ACTION (REVOKING THE GRADING PERMIT AND/OR STOP WORK ORDER) MAY BE TAKEN.
- IF IT IS DETERMINED DURING THE COURSE OF CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE DESPITE PROPER IMPLEMENTATION AND MAINTENANCE OF THE APPROVED EROSION CONTROL PLAN, THE PERSON RESPONSIBLE FOR THE LAND-DISTURBING ACTIVITY IS OBLIGATED TO TAKE ADDITIONAL PROTECTIVE ACTION.
- CONTINUE TO PHASE 2 EROSION CONTROL ACTIVITIES.

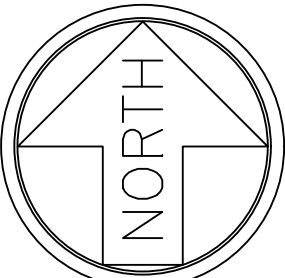
STOCKPILE DESIGN CRITERIA

- STOCKPILING MATERIALS ADJACENT TO A DITCH, DRAINAGEWAY, WATERCOURSE, WETLAND, STREAM BUFFER, OR OTHER BODY OF WATER SHALL BE AVOIDED UNLESS AN ALTERNATIVE LOCATION IS DEMONSTRATED TO BE UNAVAILABLE.
- A 25-FOOT TEMPORARY MAINTENANCE AND ACCESS EASEMENT SHALL BE SHOWN AROUND ALL PROPOSED STOCKPILES (EROSION CONTROL MEASURES SURROUNDING THE STOCKPILE SHALL BE SHOWN AT THE OUTER LIMIT OF THIS EASEMENT).
- STOCKPILE FOOTPRINTS SHALL BE SETBACK A MINIMUM OF 25' FROM ADJACENT PROPERTY LINES.
- STOCKPILE HEIGHT SHALL NOT EXCEED 35 FEET.
- STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.
- STOCKPILING MATERIALS ADJACENT TO A DITCH, DRAINAGEWAY, WATERCOURSE, WETLAND, STREAM BUFFER, OR OTHER BODY OF WATER SHALL BE AVOIDED UNLESS AN ALTERNATIVE LOCATION IS DEMONSTRATED TO BE UNAVAILABLE.
- ANY CONCENTRATED FLOW LIKELY TO AFFECT THE STOCKPILE SHALL BE DIVERTED TO AN APPROVED BMP.
- OFF-SITE SPOIL OR BORROW AREAS MUST BE IN COMPLIANCE WITH WAKE COUNTY UDO AND STATE REGULATIONS. ALL SPOIL AREAS OVER AN ACRE ARE REQUIRED TO HAVE AN APPROVED SEDIMENT CONTROL PLAN. DEVELOPER/CONTRACTOR SHALL NOTIFY WAKE COUNTY OF ANY OFFSITE DISPOSAL OF SOIL. PRIOR TO DISPOSAL, FILL OF FEMA FLOODWAYS AND ON-ENCROACHMENT AREAS ARE PROHIBITED EXCEPT AS OTHERWISE PROVIDED BY SUBSECTION 14-19-2 OF THE WAKE COUNTY UNIFIED DEVELOPMENT ORDINANCE (CERTIFICATIONS AND PERMITS REQUIRED).
- SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEYED 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 FINANCIAL RESPONSIBLE PARTY MUST NOTIFY WAKE COUNTY OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
- THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE THE STOCKPILE IS IN USE.
- ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

DRAINAGE AREA TO SEDIMENT BASIN = 37,897 SF (.87 AC)

TOTAL DENUDE AREA 66,036 SF (1.52 AC)

Graphic Scale 1"=20'



Gettle Engineering and Design, PLLC

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Wake Forest, North Carolina 27587
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Erosion Control Phase 1

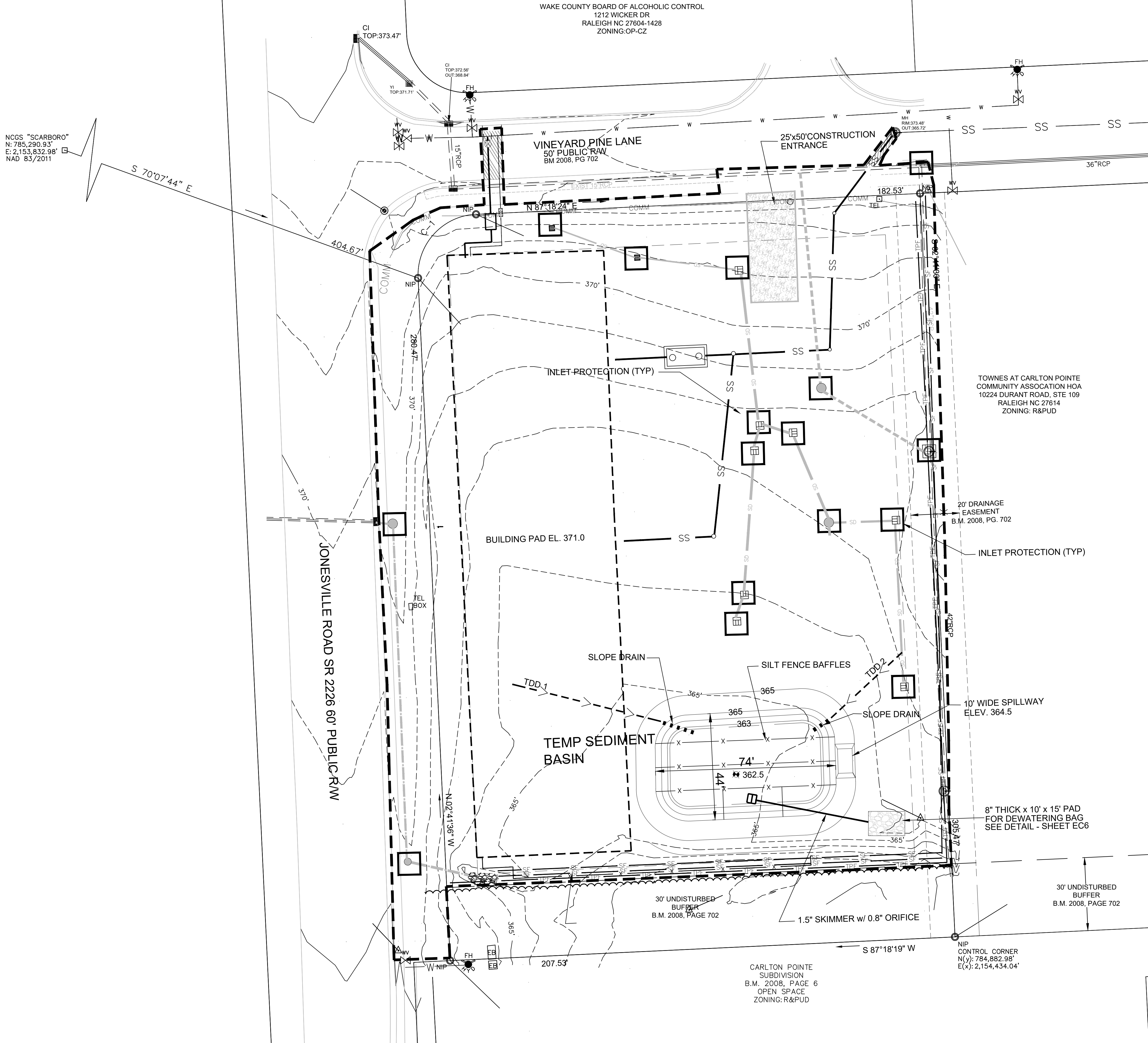
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EC1

NCGS "SCARBORO"
N: 785,290.93'
E: 2,153,832.98'
NAD 83/2011



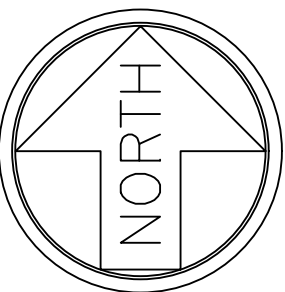
EROSION CONTROL CONSTRUCTION SEQUENCE - PHASE 2

1. INSTALL THE STORM DRAINAGE SYSTEM AND INLET PROTECTION, PROTECTING PIPE OPENINGS AND UNCOVERED STRUCTURES AS SHOWN.
2. INSTALL SANITARY SEWER SYSTEM AND WATER LINE PIPING PER UTILITY PLAN. ENSURE EXISTING UTILITIES ARE PROTECTED DURING CONSTRUCTION ACTIVITIES.
3. STABILIZE DISTURBED AREAS WITHIN 14 WORKING DAYS AFTER COMPLETION OF ANY PHASE OF GRADING. STABILIZATION CONSISTS OF EITHER TEMPORARY MULCHING OR PERMANENT VEGETATION ON AREAS THAT ARE NOT PAVED.
4. REGULARLY INSPECT AND MAINTAIN THE EROSION CONTROL DEVICES SO THEY CONTINUE TO FUNCTION PROPERLY. INSPECT TEMPORARY SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA
5. KEEP MUD AND DEBRIS OFF THE PUBLIC STREETS AT ALL TIMES. IF MUD OR DEBRIS IS TRACKED FROM THE SITE, USE A SHOVEL AND BROOM TO REMOVE IT IMMEDIATELY. IF MUD AND DEBRIS ARE NOT KEPT OFF THE STREET, ENFORCEMENT ACTION (REVOKING THE GRADING PERMIT AND/OR STOP WORK ORDER) MAY BE TAKEN.
6. IF IT IS DETERMINED DURING THE COURSE OF CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE DESPITE PROPER IMPLEMENTATION AND MAINTENANCE OF THE APPROVED EROSION CONTROL PLAN, THE PERSON RESPONSIBLE FOR THE LAND DISTURBING ACTIVITY IS OBLIGATED TO TAKE ADDITIONAL PROTECTIVE ACTION.
7. CONTINUE TO PHASE 3 ACTIVITIES.

LINE AND SYMBOL LEGEND

- SFO SILT FENCE OUTLET
- DENUDE AREA OUTLINE
- SF SILT FENCE
- >->- TEMPORARY DIVERSION DITCH
- X Baffles
- TPF TREE PROTECTION FENCE
- CHECK DAM
- INLET PROTECTION
- SLOPE DRAIN

Graphic Scale



Gettle Engineering and Design, PLLC

3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

1	2	3	4	5	6	7	8	9	10
Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal	Initial Submittal
8-29-2023	5-22-2026	07-28-2026	DATE	DATE	DATE	DATE	DATE	DATE	DATE
Town / Wake County Comment	Wake County and Town Review	Wake County and Town Review	COMMENT	COMMENT	COMMENT	COMMENT	COMMENT	COMMENT	COMMENT
BY	BY	BY	BY	BY	BY	BY	BY	BY	BY
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION	REVISION DESCRIPTION

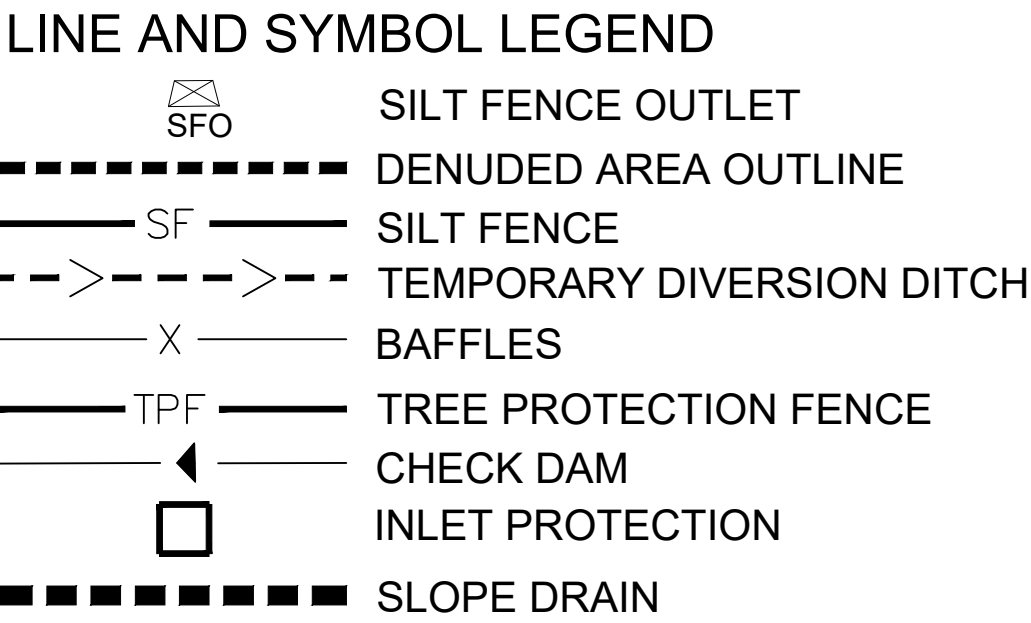


Erosion Control Phase 2
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EC2



- SEDIMENT FILTER BAG
- SEDIMENT FILTER BAGS ARE SPECIFICALLY DESIGNED TO CONTROL PUMPED WATER AND CONNECT DIRECTLY TO THE PUMP DISCHARGE LINE.
- BAGS SHOULD BE PLACED ON A LEVEL, STABLE SURFACE THAT IS PREPARED WITH MULCH, STRAW, SMALL AGGREGATE, OR OTHER MATERIAL AS RECOMMENDED BY THE MANUFACTURER. THE BAG SHOULD BE MADE OF A NON-WOVEN, NEEDLE-PUNCHED, GEOTEXTILE THAT MEETS THE FOLLOWING MINIMUM CRITERIA: 205 LBS MINIMUM TENSILE STRENGTH USING ASTM D4355 STANDARD TEST METHOD FOR GRAB BREAKING LOAD AND ELONGATION OF GEOTEXTILES.
- 130 LBS MINIMUM PUNCTURE STRENGTH USING ASTM D4833 TEST METHOD FOR INDEX PUNCTURE RESISTANCE OF GEOTEXTILES, GEOMEMBRANES, AND RELATED PRODUCTS.
- 400 LBS MINIMUM TENSILE BURST STRENGTH USING ASTM D5786 STANDARD TEST METHOD FOR HYDRAULIC BURSTING STRENGTH OF TEXTILE FABRICS-DIAPHRAGM BURSTING STRENGTH TESTER METHOD.
- MINIMUM 70 PERCENT AT 500 HOURS ULTRAVIOLET RESISTANCE USING ASTM D4355 STANDARD TEST METHOD FOR DETERIORATION OF GEOTEXTILES BY EXPOSURE TO LIGHT, MOISTURE, AND HEAT IN A XENON ARC TYPE TESTER.
- 85 TO 110 GPM/FIT2 WATER FLOW RATE USING ASTM D4491 STANDARD TEST METHODS FOR WATER PERMEABILITY OF GEOTEXTILES BY PERMITTIVITY.

* THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

1. CONSTRUCT CONCRETE CURB IN ROADWAYS AND PARKING LOT. PLACE AND COMPACT STONE IN THE ROADWAYS AND PARKING LOT. REMOVE THE GRAVEL ENTRANCE.
2. COMPLETE FINE GRADING AND STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE.
3. ONCE THE SITE IS STABILIZED AND APPROVAL FROM STORMWATER INSPECTIONS TO SCHEDULE THE REMOVAL OF THE SEDIMENT BASIN (SEE NOTES BELOW), DEWATER SEDIMENT BASIN USING A SILT BAG AND MUCK OUT REMAINING SEDIMENT.

2. BEGIN INSTALLATION OF THE BMP AND ASSOCIATED STRUCTURES. CONTACT PROJECT ENGINEER TO INSPECT DURING INSTALLATION PROCESS. SURVEY INVERT ELEVATIONS FOR AS-BUILT INFORMATION REQUIRED BY THE TOWN OF ROLESVILLE AND WAKE COUNTY.

3. GRADE ANY REMAINING AREAS TO FINAL GRADE. UPON COMPLETION THE GROUND COVER SHALL BE PROVIDED AS FOLLOWS:

- A. ESTABLISH BASINS WITH GROUND COVER IMMEDIATELY AFTER INSTALLATION.
- B. STABILIZE DIVERSION DITCHES INTENDED TO BE IN SERVICE FOR 30 DAYS OR MORE WITH TEMPORARY SEEDING AND EROSION CONTROL NETTING.
- C. STABILIZE STEEP SLOPES AND/OR STEEP SLOPES. PROVIDE TEMPORARY GROUND COVER IF THE SLOPE HAS NOT BEEN DISTURBED FOR A PERIOD OF FOURTEEN (14) DAYS.
- D. PROVIDE GROUND COVER SUFFICIENT TO RESTRAIN EROSION ON ANY PORTION OF THE SITE TO WHICH FURTHER DISTURBANCE IS ANTICIPATED TO BE REQUIRED WITHIN FOURTEEN (14) CALENDAR DAYS OF TEMPORARILY OR PERMANENTLY SUSPENDING LAND DISTURBING ACTIVITY.
- E. ESTABLISH PERMANENT GROUND COVER SUFFICIENT TO RESTORE EROSION WITHIN FOURTEEN (14) CALENDAR DAYS FOR ANY PORTION OF THE SITE TO WHICH CONSTRUCTION AND/OR PLOT TO FINAL INSPECTION.

4. ONCE THE BMP INSTALLATION IS COMPLETE, TEMPORARY MEASURES ARE REMOVED, THE SITE IS STABILIZED, CONTACT THE WAKE COUNTY ENVIRONMENTAL CONSULTANT, (919) 856-7436, TO SCHEDULE A STORMWATER INSPECTION.

1. SCHEDULE A SITE MEETING WITH THE WAKE COUNTY ENVIRONMENTAL, (919) 856-7436, TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN

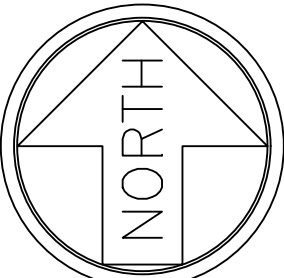
2. CONTACT NCDQCE – RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDQCE-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE: E&S JURISDICTION: WAKE COUNTY; PROJECT NAME, NUMBER, AND LOCATION (CITY/TOWN); ENVIRONMENTAL CONSULTANT NAME; AND ADDRESS THE FOLLOWING: A) REASON FOR CONVERSION, B) BASIN #, C) DEWATERING METHOD, AND D) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01 (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION)

3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.

4. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY.

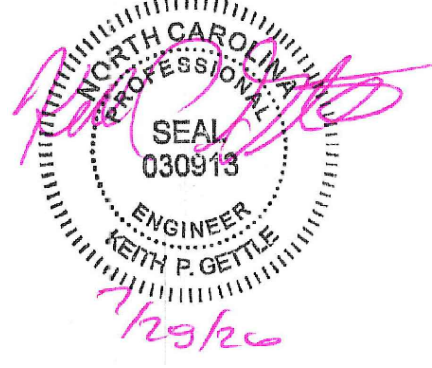
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.

6. WHEN SITE IS FULLY STABILIZED, CALL WAKE COUNTY ENVIRONMENTAL CONSULTANT, (919) 856-7436, FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE 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.



3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

	Initial Submittal	KPG
1	8-28-2023	KPG
2	5-22-2026	Town / Wake County Comment
3	07-28-2026	WAKE COUNTY AND TOWN REVIEW
3	DATE	COMMENT
4	DATE	COMMENT
5	DATE	COMMENT
6	DATE	COMMENT
8	DATE	Comment
NO	DATE	REVISION DESCRIPTION
		BY



Erosion Control Phase 3
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EC3

NCGS "SCARBORO"
N: 785,290.93'
E: 2,153,832.98'
NAD 83/2011

S 70°07'44" E

30'X30' SIGN
EASEMENT
B.M. 2008, PG. 702

JONESVILLE ROAD SR 2226 60' PUBLIC/RW

WAKE COUNTY BOARD OF ALCOHOLIC CONTROL
1212 WICKER DR
RALEIGH NC 27604-1428
ZONING:OP-CZ

VINEYARD PINE LANE
50' PUBLIC RAW
BM 2008, PG 702

TOWNES AT CARLTON POINTE
COMMUNITY ASSOCIATION HOA
10224 DURANT ROAD, STE 109
RALEIGH NC 27614
ZONING: R&PUD

20' DRAINAGE
EASEMENT
B.M. 2008, PG. 702

CONTECH STORMFILTER SYSTEM AND
METAL PIPE DETENTION SYSTEM (BMP)
SEE DETAIL SHEETS

30' UNDISTURBED
BUFFER
B.M. 2008, PAGE 702

CARLTON POINTE
SUBDIVISION
B.M. 2008, PAGE 6
OPEN SPACE
ZONING:R&PUD

NIP
CONTROL CORNER
N(y): 784,882.98'
E(x): 2,154,434.04'

LINE AND SYMBOL LEGEND

- SILT FENCE OUTLET
- DENUDED AREA OUTLINE
- SILT FENCE
- TEMPORARY DIVERSION DITCH
- BAFFLES
- TREE PROTECTION FENCE
- CHECK DAM
- INLET PROTECTION
- SLOPE DRAIN

CONSTRUCTION SEQUENCE - PHASE 4

1. ENSURE THE SITE IS COMPLIANT WITH THE NCG01 SELF INSPECTION AND GROUND STABILIZATION AND MATERIAL HANDLING.
2. FOR ALL AREAS OF MODERATE AND / OR STEEP SLOPES, PROVIDE TEMPORARY GROUND COVER IF THE SLOPE HAS NOT BEEN DISTURBED FOR A PERIOD OF FOURTEEN (14) DAYS.
3. PROVIDE GROUND COVER SUFFICIENT TO RESTRAIN EROSION ON ANY PORTION OF THE SITE UPON WHICH FURTHER LAND-DISTURBING ACTIVITY IS NOT BEING UNDERTAKEN WITHIN FOURTEEN (14) CALENDAR DAYS OF TEMPORARILY OR PERMANENTLY SUSPENDING LAND DISTURBING ACTIVITY.
4. REMOVE SILT FENCE AND TREE PROTECTION FENCING WHEN GRADING ACTIVITIES ARE COMPLETE AND THE PROJECT SITE IS STABILIZED.
5. ONCE THE BMP INSTALLATION IS COMPLETE, TEMPORARY MEASURES ARE REMOVED, THE SITE IS STABILIZED, CONTACT THE WAKE COUNTY ENVIRONMENTAL CONSULTANT, (919) 856-7436, TO SCHEDULE A STORMWATER FINAL INSPECTION. BMP CERTIFICATIONS AND AS-BUILT PLANS MUST BE PROVIDED TO WAKE COUNTY / TOWN OF ROLESVILLE PRIOR TO FINAL PLATTING.
6. ONCE THE STORMWATER FINAL INSPECTION IS APPROVED, CLOSE THE GRADING PERMIT AND OBTAIN A CERTIFICATE OF COMPLETION.

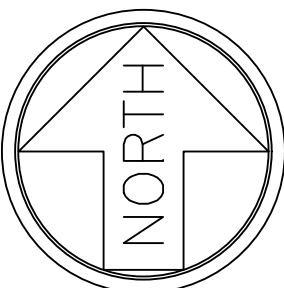
NPDES NOTES

1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
2. THIS PAGE CAN BE APPROVED BY THE CITY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
3. THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE EXCLUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
4. THE CITY / COUNTY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT IS NOT A PART OF THE APPROVED PLANS FOR PURPOSES OF ENFORCEMENT ACTION UNDER THE CITY / COUNTY CODE.
5. DOCUMENTATION REQUIRED UNDER THE SITE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY SHALL BE SUBMITTED TO WAKE COUNTY.

NPDES GROUND STABILIZATION SCHEDULE

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS	APPLICABLE AREA ON THIS SITE
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED	NONE
SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH	AS SHOWN
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)	REMAINDER OF SITE

Graphic Scale



Gettle Engineering and Design, PLLC

3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

NO.	DATE	REVISION DESCRIPTION	BY
1	9-25-2023	Initial Submittal	KPG
2	10-25-2023	Wake County Comment	KPG
3	10-25-2023	WAKE COUNTY AND TOWN REVIEW	KPG
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
7	DATE	COMMENT	BY
8	DATE	COMMENT	BY

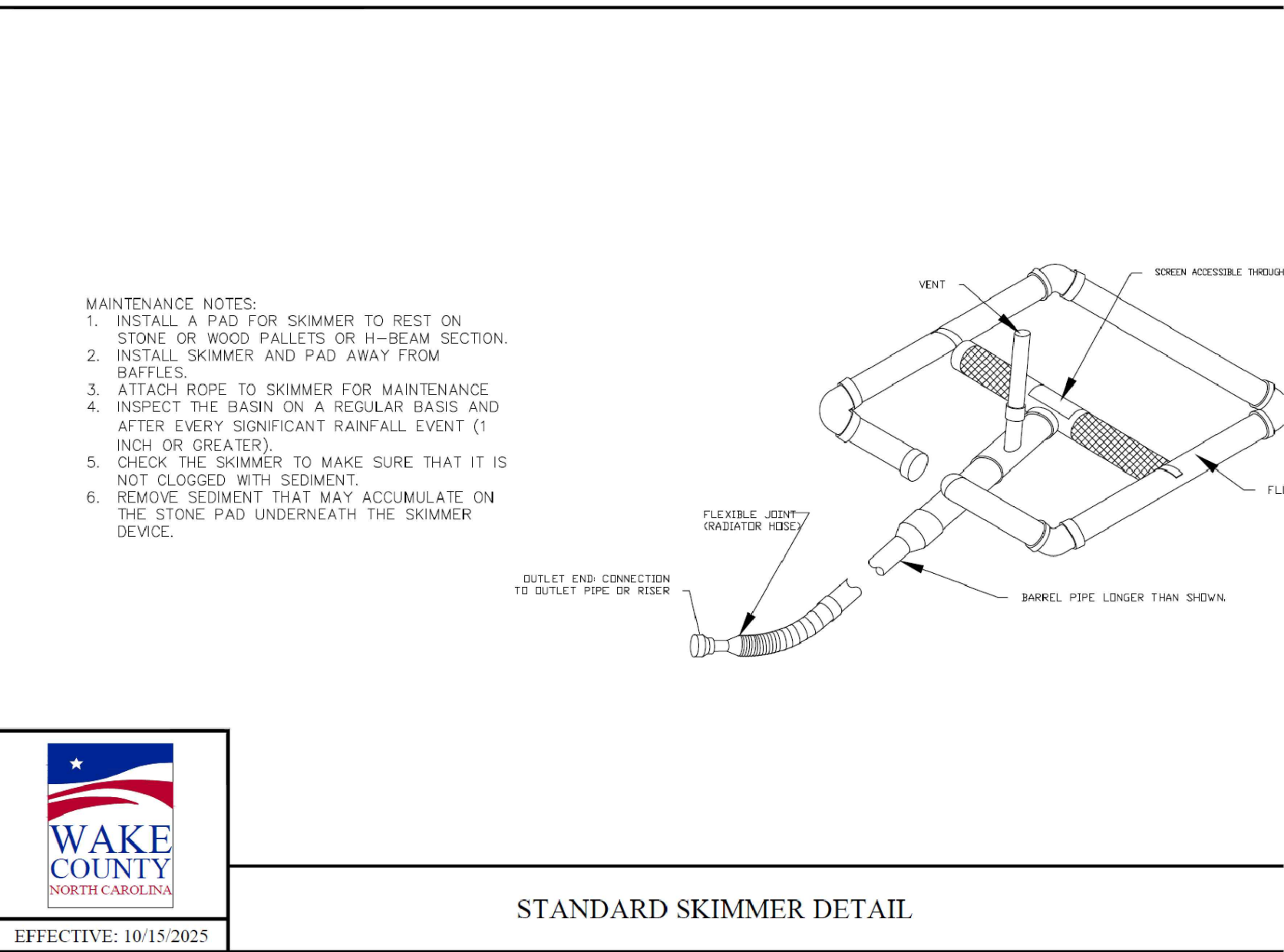
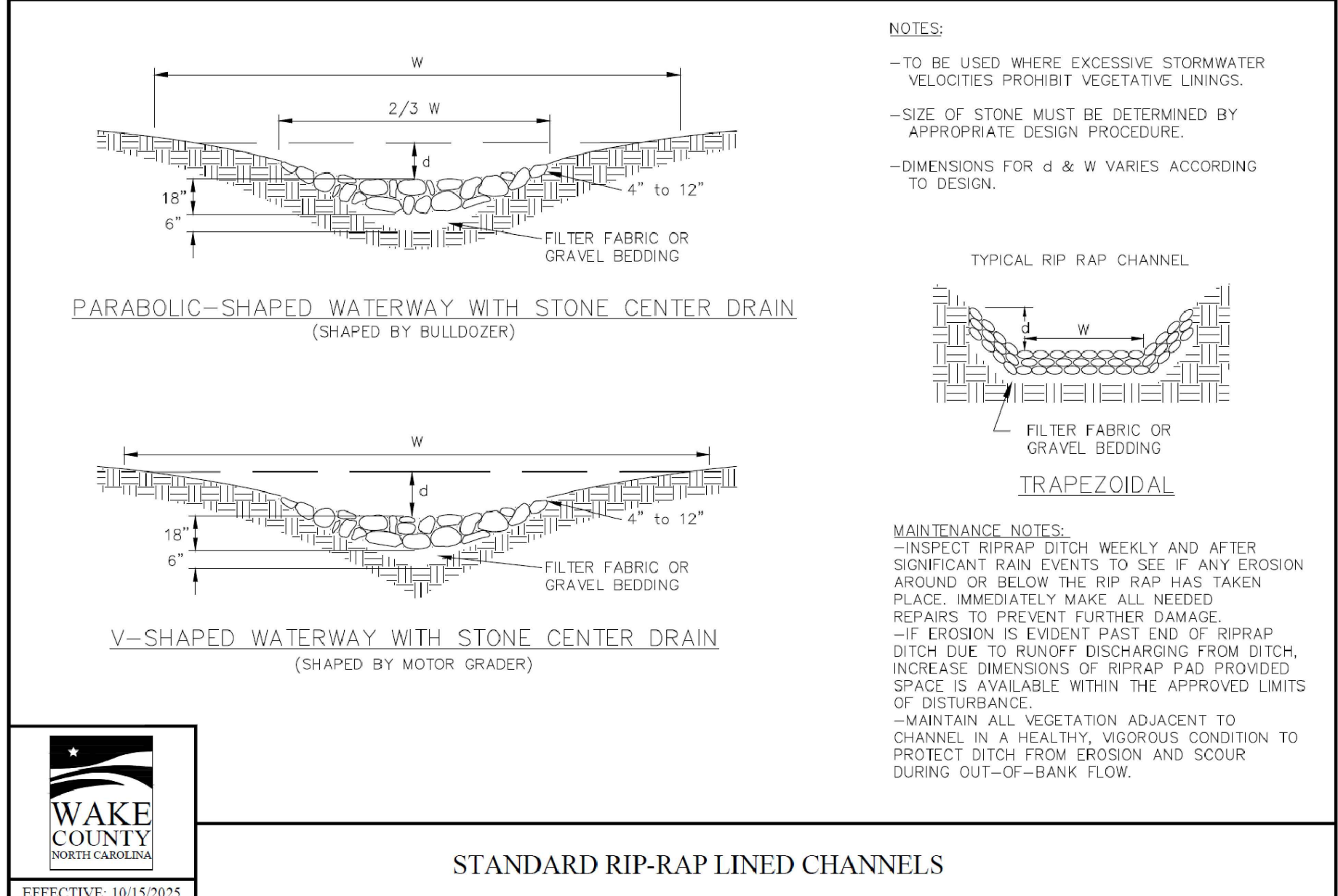
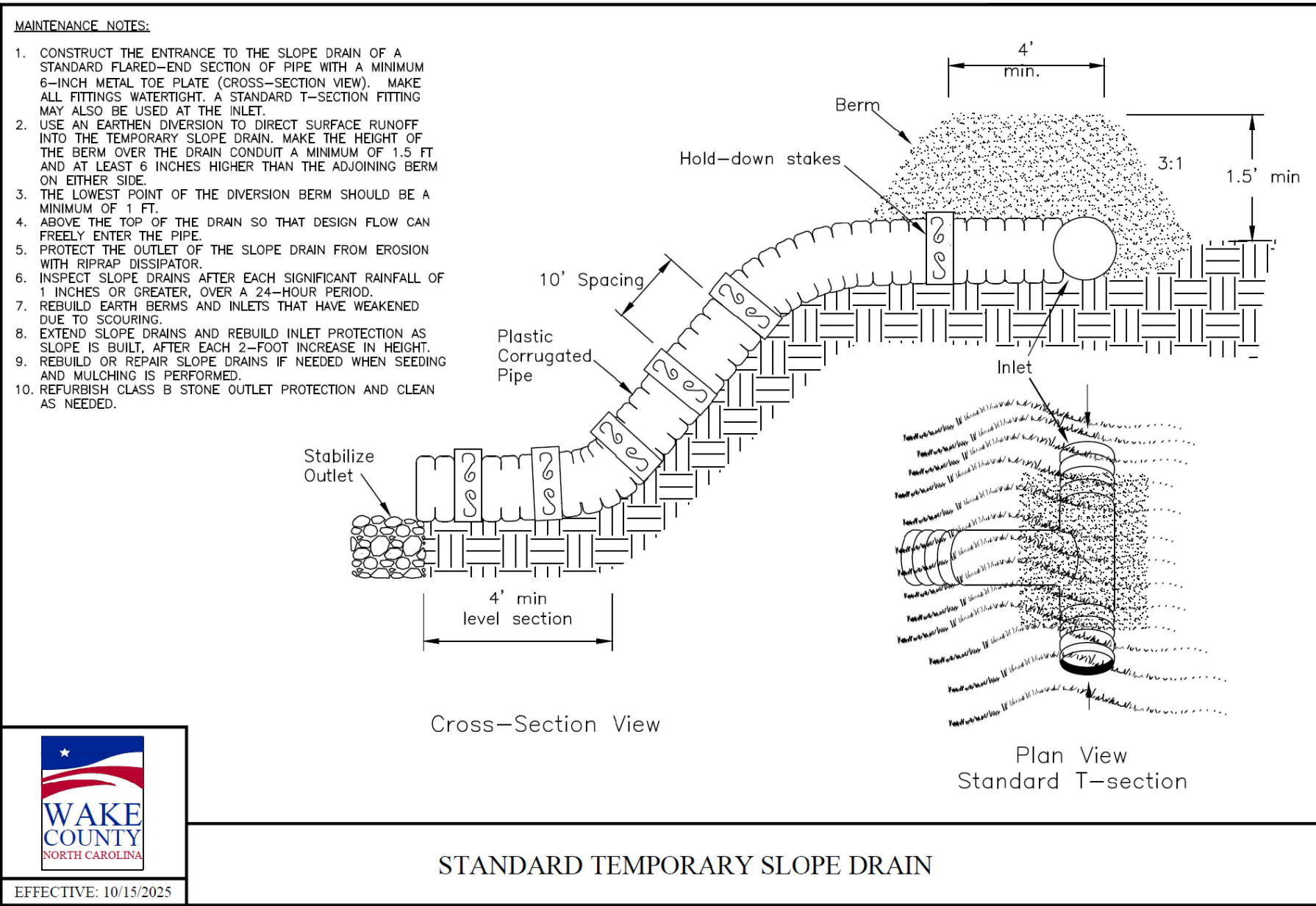
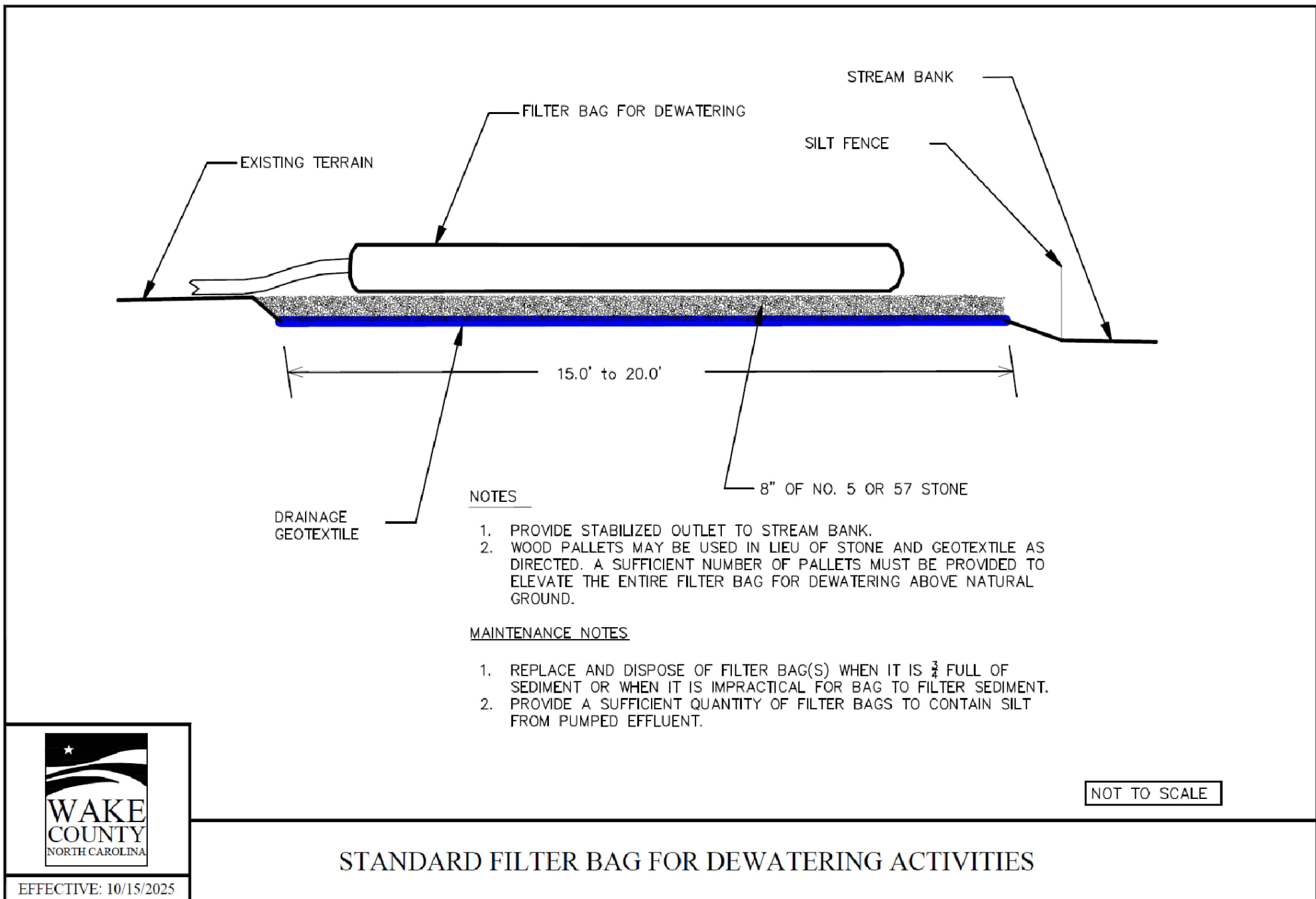
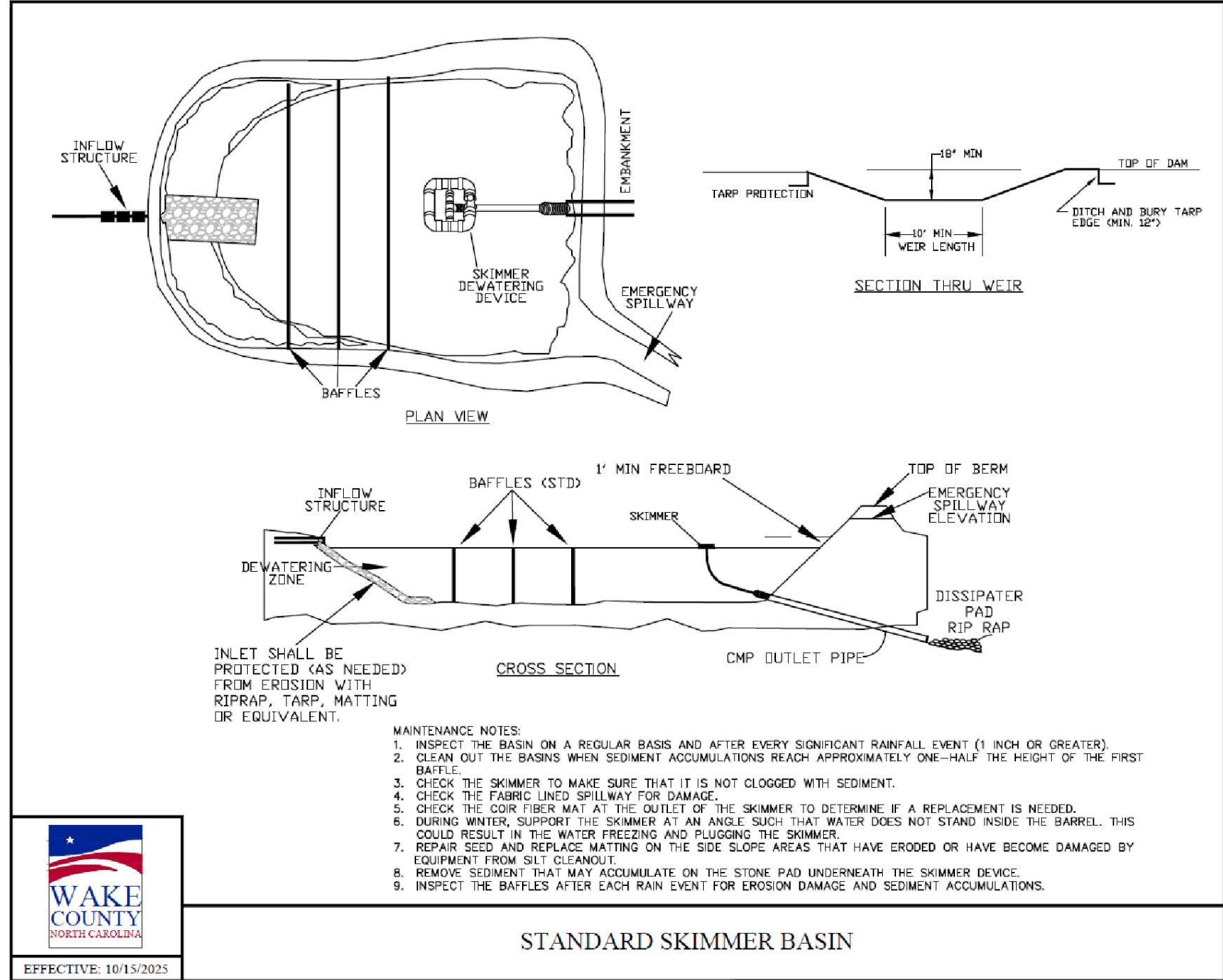


Erosion Control Phase 4
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EC4



BASIN CONSTRUCTION SPECIFICATIONS

1. SITE PREPARATIONS- CLEAR, GRUB, AND STRIP TOPSOIL FROM AREAS UNDER THE EMBANKMENT TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. DELAY CLEARING THE POOL AREA UNTIL THE DAM IS COMPLETE AND THEN REMOVE BRUSH, TREES, AND OTHER OBJECTIONABLE MATERIALS TO FACILITATE SEDIMENT CLEANOUT. STOCKPILE ALL TOPSOIL OR SOIL CONTAINING ORGANIC MATTER FOR USE ON THE OUTER SHELL OF THE EMBANKMENT TO FACILITATE VEGETATIVE ESTABLISHMENT. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW THE BASIN AS NEEDED.

2. CUT-OFF TRENCH- EXCAVATE A CUT-OFF TRENCH ALONG THE CENTER LINE OF THE EARTH FILL EMBANKMENT. CUT THE TRENCH TO STABLE SOIL MATERIAL, BUT IN NO CASE MAKE IT LESS THAN 2 FEET DEEP. THE CUT-OFF TRENCH MUST EXTEND INTO BOTH ABUTMENTS TO AT LEAST THE ELEVATION OF THE RISER CREST. MAKE THE MINIMUM BOTTOM WIDTH WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT, BUT IN NO CASE LESS THAN 2 FEET. MAKE SIDE SLOPES OF THE TRENCH NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. KEEP THE TRENCH DRY DURING BACKFILLING AND COMPACTION OPERATIONS.

3. EMBANKMENT- TAKE FILL MATERIAL FROM THE APPROVED AREAS SHOWN ON THE PLANS. IT SHOULD BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOODY VEGETATION, ROCKS, AND OTHER OBJECTIONABLE MATERIAL. SCARIFY AREAS ON WHICH FILL IS TO BE PLACED BEFORE PLACING FILL. THE FILL MATERIAL MUST CONTAIN SUFFICIENT MOISTURE SO IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN 6 TO 8 INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL AREA AND COMPACT IT. COMPACTION MAY BE OBTAINED BY ROUTING THE CONSTRUCTION HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF HEAVY EQUIPMENT, OR A COMPACTOR MAY BE USED. CONSTRUCT THE EMBANKMENT TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLING.

4. CONDUIT SPILLWAYS- SECURELY ATTACH THE RISER TO THE BARREL OR BARREL STUB TO MAKE A WATERTIGHT STRUCTURAL CONNECTION. SECURE ALL CONNECTIONS BETWEEN BARREL SECTIONS BY APPROVED WATERTIGHT ASSEMBLIES. PLACE THE BARREL AND RISER ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS, AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE. HAUNCHES, PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. ANCHOR THE RISER IN PLACE BY CONCRETE OR OTHER SATISFACTORY MEANS TO PREVENT FLOTATION. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

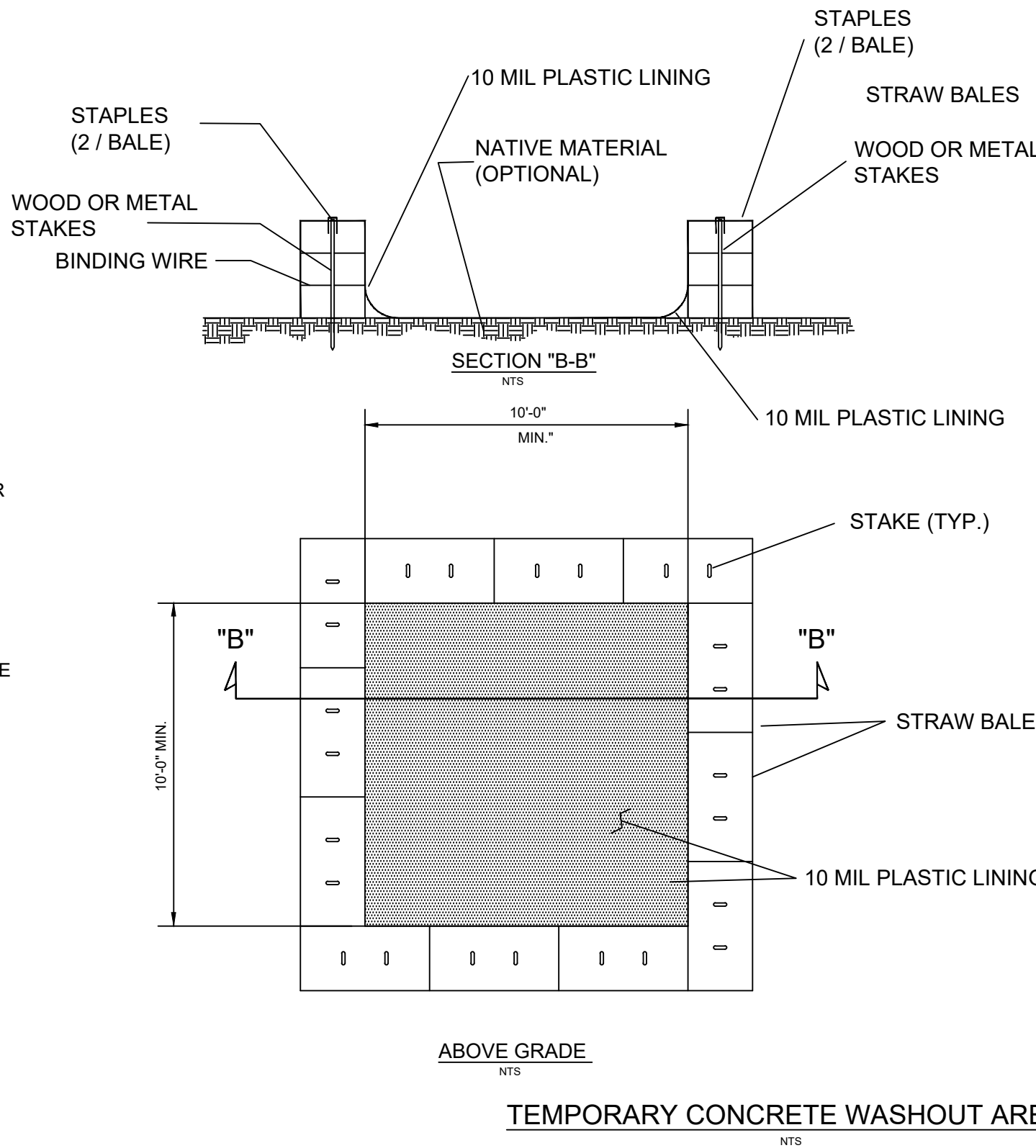
5. EMERGENCY SPILLWAY- INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.

6. INLETS- DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).

7. EROSION CONTROL- CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).

8. INSTALL POROUS BAFFLES .

9. SAFETY- SEDIMENT BASINS MAY ATTRACT CHILDREN AND CAN BE DANGEROUS. AVOID STEEP SIDE SLOPES, AND FENCE AND MARK BASINS WITH WARNING SIGNS IF TRESPASSING IS LIKELY. FOLLOW ALL STATE AND LOCAL REQUIREMENTS.



GROUND STABILIZATION PER NCG01 NPDES STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES

REQUIRED GROUND STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION: PERIMETER DIKES, SWALES, DITCHES AND PERIMETER SLOPES STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 7

SITE AREA DESCRIPTION: HIGH QUALITY WATER (HOW) ZONES STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 7

SITE AREA DESCRIPTION: SLOPES STEEPER THAN 3:1 STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 7

SITE AREA DESCRIPTION: SLOPES 3:1 TO 4:1 STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 14

SITE AREA DESCRIPTION: SLOPES GREATER THAN 50 FT IN LENGTH AND ARE NOT STEEPER THAN 4:1, 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND HOW ZONE, 10 DAYS FOR FALLS LAKE WATERSHED

SITE AREA DESCRIPTION: SLOPES FLATTER THAN 4:1 STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 14

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Gettle Engineering and Design, PLLC

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Firm License P-2538

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Erosion Control Details

Vineyard Pine Commercial (SDP-26-0005)

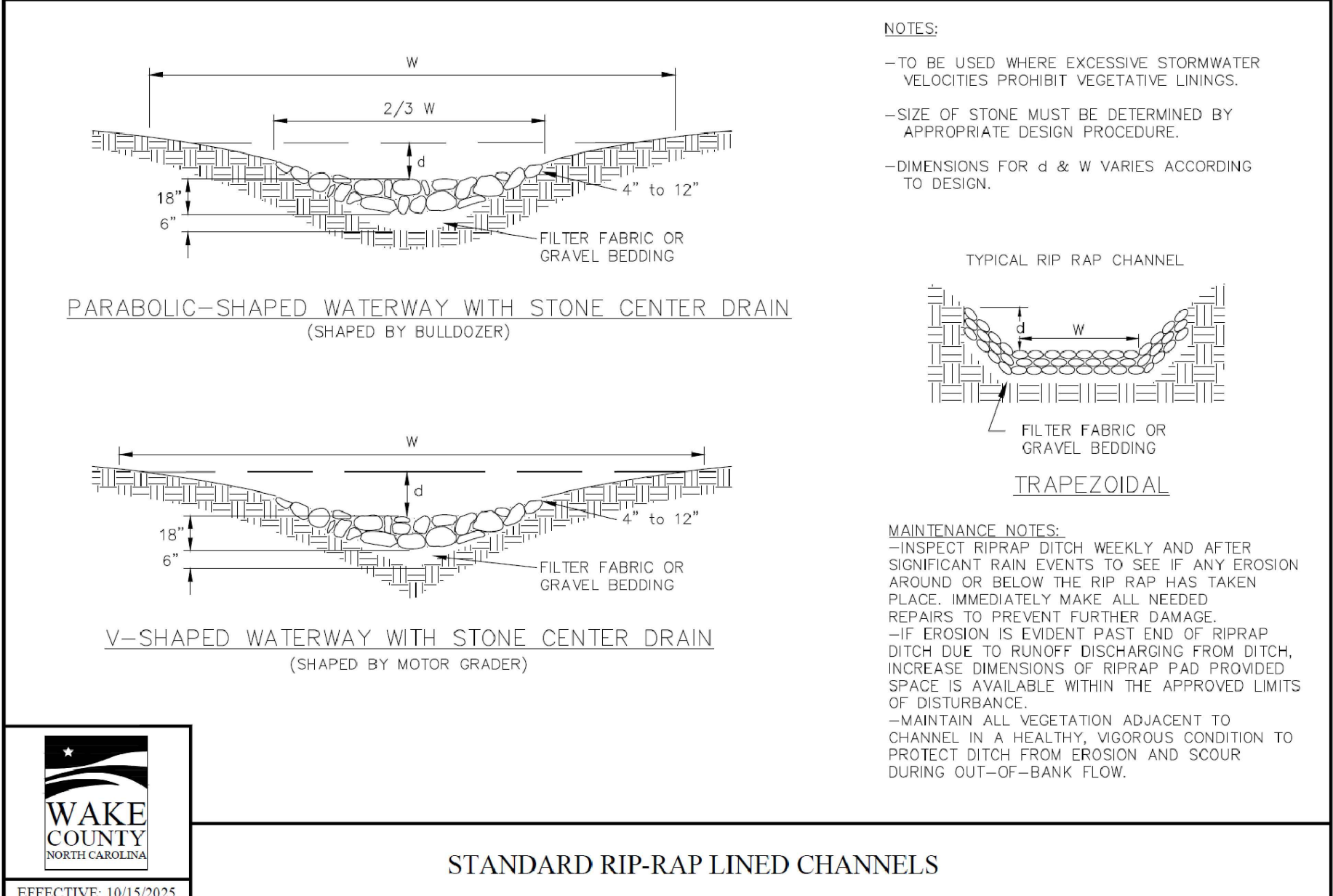
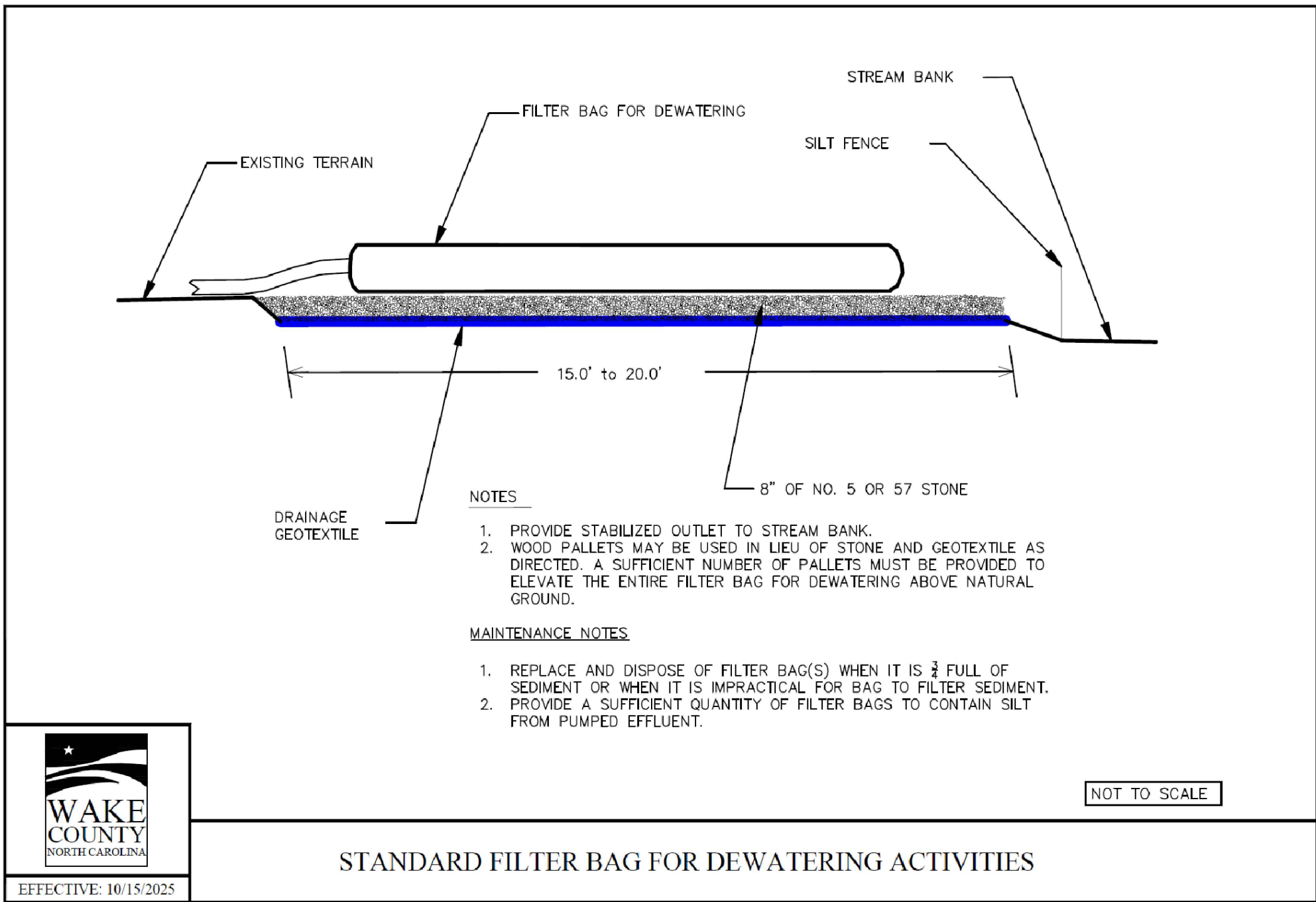
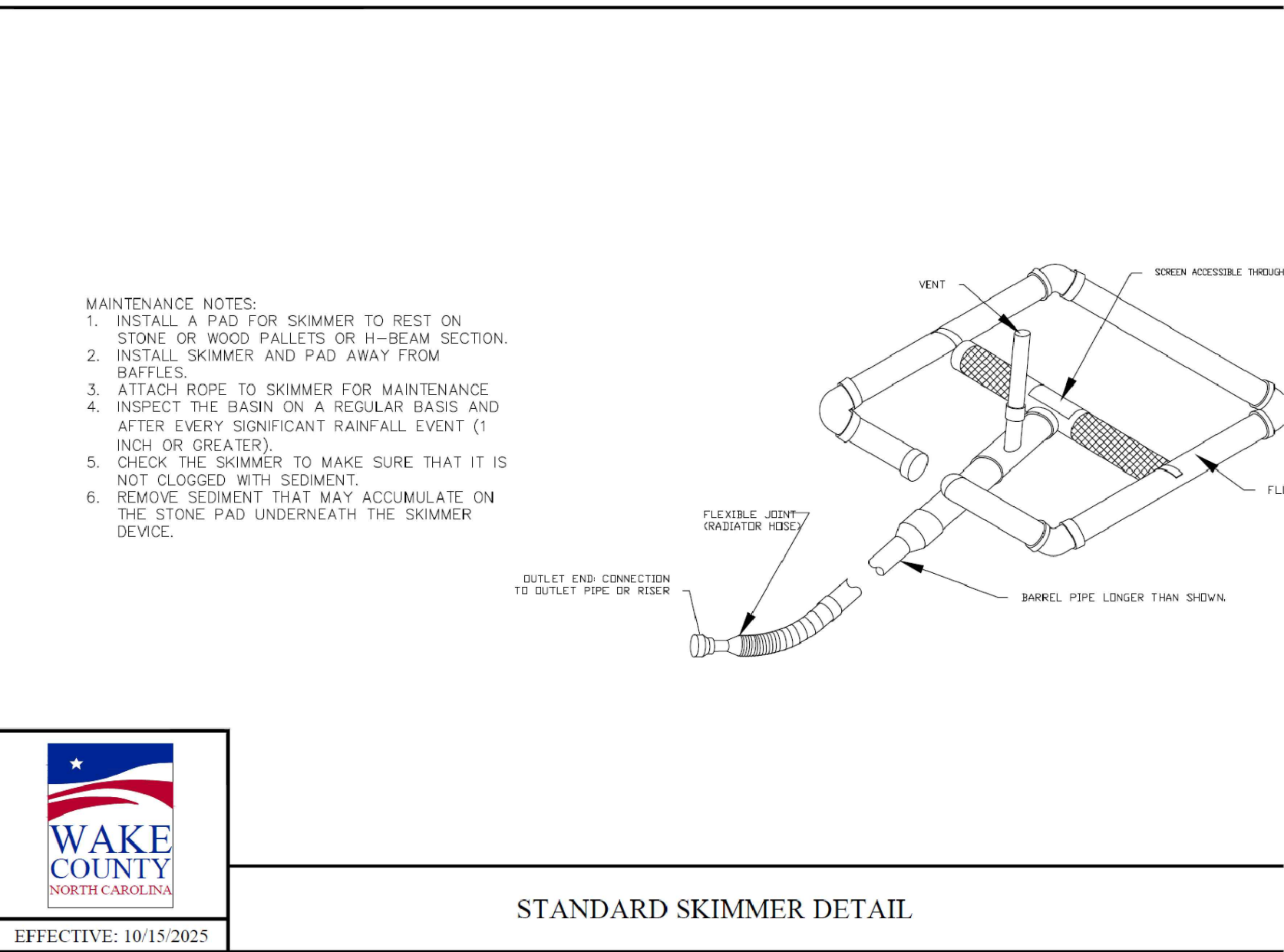
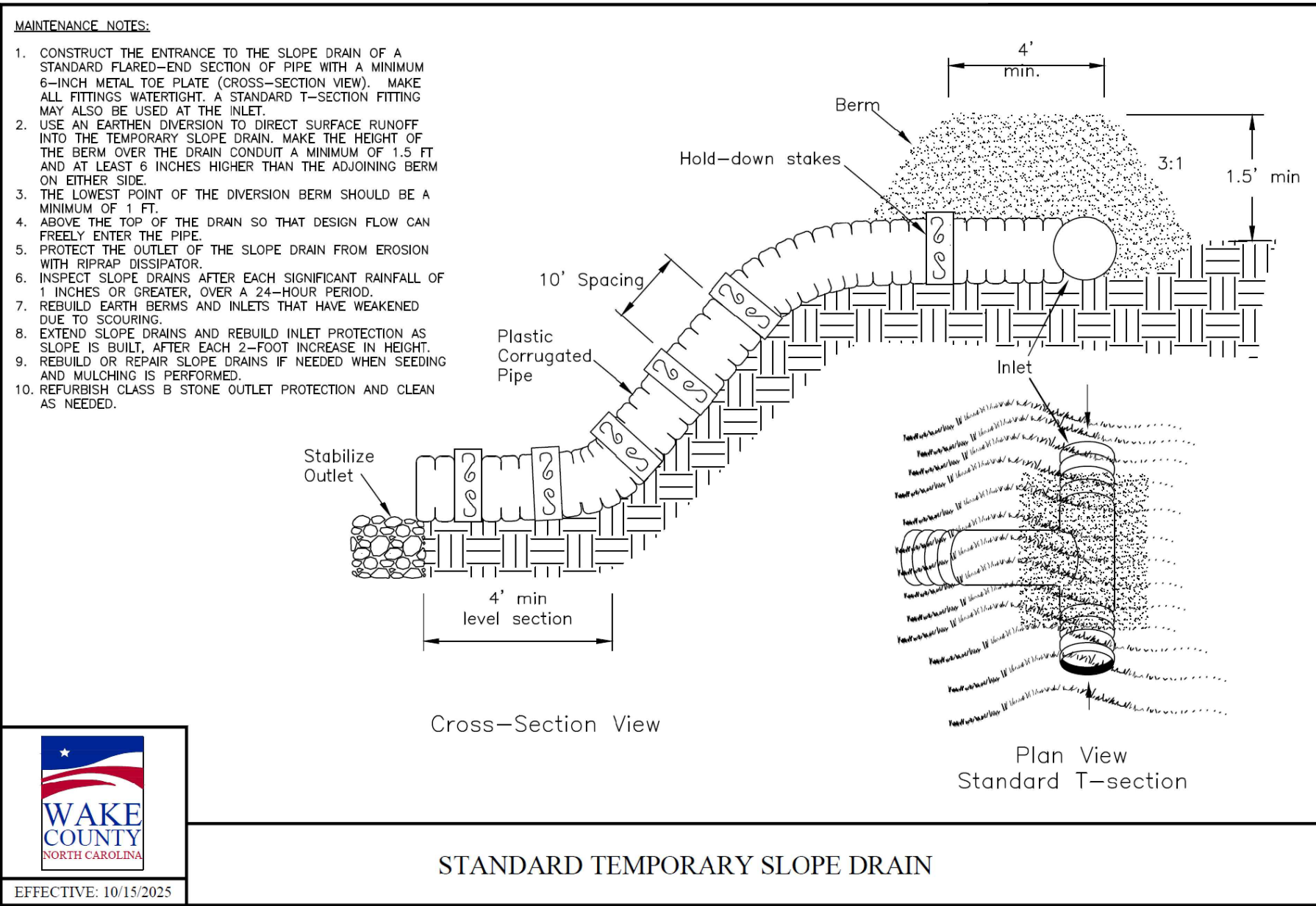
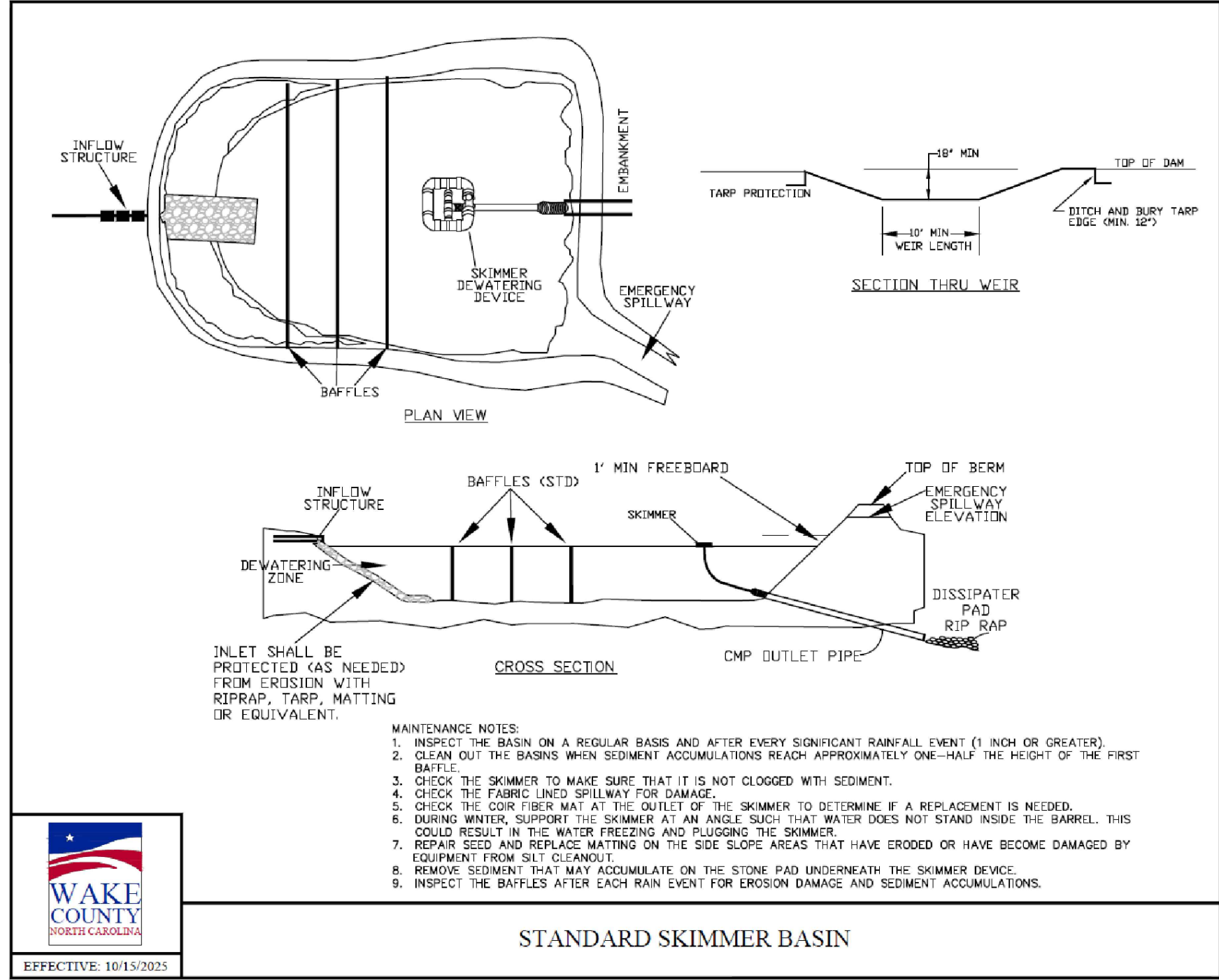
MRR Development, LLC

Rolesville, Wake County, North Carolina

Project No.

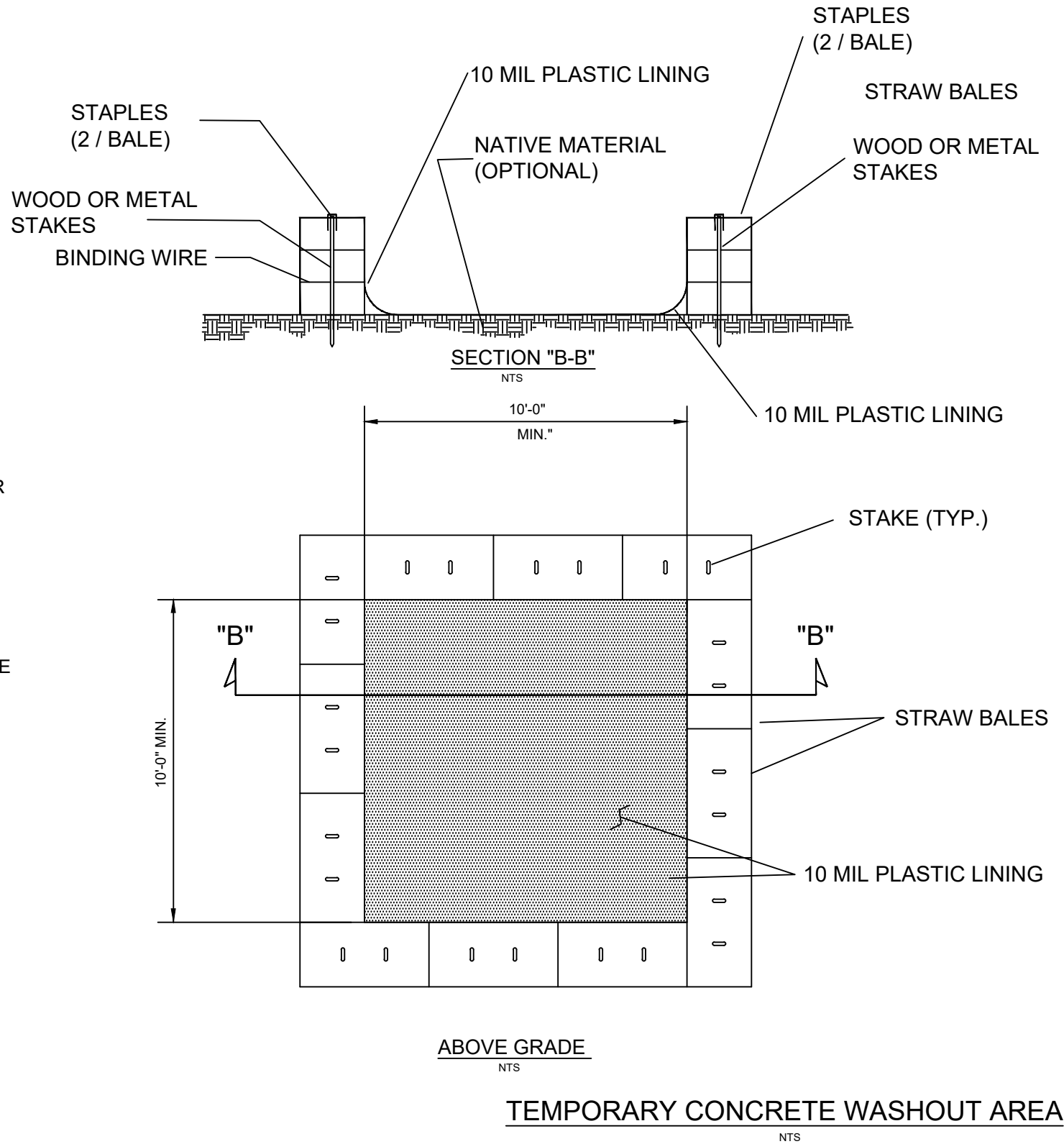
Dwg No.

EC6



CONCRETE WASH OUT AREA NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD - SEE EC1 PLAN FOR LOCATION.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE FACILITY.
3. LOCATE THE WASHOUT AREA AT LEAST 50-FEET FROM SENSITIVE AREAS SUCH AS STORM DRAINS, OPEN DITCHES OR WATER BODIES, INCLUDING WETLANDS.
4. THE PLASTIC LINING MATERIAL SHOULD BE A MIN OF 10 MIL. POLYETHYLENE MATERIAL AND FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT MAY COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
5. WHEN THE FACILITY IS NO LONGER REQUIRED THE HARDENED CONCRETE, SLURRIES AND LIQUIDS SHALL BE PROPERLY DISPOSED OF OFF-SITE. MATERIAL USED TO CONSTRUCT THE FACILITY SHALL BE PROPERLY DISPOSED OF OFF-SITE. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY FACILITY SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.



BASIN CONSTRUCTION SPECIFICATIONS

1. SITE PREPARATIONS- CLEAR, GRUB, AND STRIP TOPSOIL FROM AREAS UNDER THE EMBANKMENT TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. DELAY CLEARING THE POOL AREA UNTIL THE DAM IS COMPLETE AND THEN REMOVE BRUSH, TREES, AND OTHER OBJECTIONABLE MATERIALS TO FACILITATE SEDIMENT CLEANOUT. STOCKPILE ALL TOPSOIL OR SOIL CONTAINING ORGANIC MATTER FOR USE ON THE OUTER SHELL OF THE EMBANKMENT TO FACILITATE VEGETATIVE ESTABLISHMENT. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW THE BASIN AS NEEDED.

2. CUT-OFF TRENCH- EXCAVATE A CUT-OFF TRENCH ALONG THE CENTER LINE OF THE EARTH FILL EMBANKMENT. CUT THE TRENCH TO STABLE SOIL MATERIAL, BUT IN NO CASE MAKE IT LESS THAN 2 FEET DEEP. THE CUT-OFF TRENCH MUST EXTEND INTO BOTH ABUTMENTS TO AT LEAST THE ELEVATION OF THE RISER CREST. MAKE THE MINIMUM BOTTOM WIDTH WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT, BUT IN NO CASE LESS THAN 2 FEET. MAKE SIDE SLOPES OF THE TRENCH NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. KEEP THE TRENCH DRY DURING BACKFILLING AND COMPACTION OPERATIONS.

3. EMBANKMENT- TAKE FILL MATERIAL FROM THE APPROVED AREAS SHOWN ON THE PLANS. IT SHOULD BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOODY VEGETATION, ROCKS, AND OTHER OBJECTIONABLE MATERIAL. SCARIFY AREAS ON WHICH FILL IS TO BE PLACED BEFORE PLACING FILL. THE FILL MATERIAL MUST CONTAIN SUFFICIENT MOISTURE SO IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN 6 TO 8 INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL AREA AND COMPACT IT. COMPACTION MAY BE OBTAINED BY ROUTING THE CONSTRUCTION HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF HEAVY EQUIPMENT, OR A COMPACTOR MAY BE USED. CONSTRUCT THE EMBANKMENT TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLING.

4. CONDUIT SPILLWAYS- SECURELY ATTACH THE RISER TO THE BARREL OR BARREL STUB TO MAKE A WATERTIGHT STRUCTURAL CONNECTION. SECURE ALL CONNECTIONS BETWEEN BARREL SECTIONS BY APPROVED WATERTIGHT ASSEMBLIES. PLACE THE BARREL AND RISER ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS, AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE. HAUNCHES. PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. ANCHOR THE RISER IN PLACE BY CONCRETE OR OTHER SATISFACTORY MEANS TO PREVENT FLOTATION. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. EMERGENCY SPILLWAY- INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.

6. INLETS- DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).

7. EROSION CONTROL- CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).

8. INSTALL POROUS BAFFLES .

9. SAFETY- SEDIMENT BASINS MAY ATTRACT CHILDREN AND CAN BE DANGEROUS. AVOID STEEP SIDE SLOPES, AND FENCE AND MARK BASINS WITH WARNING SIGNS IF TRESPASSING IS LIKELY. FOLLOW ALL STATE AND LOCAL REQUIREMENTS.

GROUND STABILIZATION PER NCG01 NPDES STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES

REQUIRED GROUND STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION: PERIMETER DIKES, SWALES, DITCHES AND PERIMETER SLOPES STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 7

TIMEFRAME VARIATIONS: NONE

SITE AREA DESCRIPTION: HIGH QUALITY WATER (HOW) ZONES STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 7

TIMEFRAME VARIATIONS: NONE

SITE AREA DESCRIPTION: SLOPES 3:1 TO 4:1 STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 14

TIMEFRAME VARIATIONS: 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND HOW ZONES, 10 DAYS FOR FALLS LAKE WATERSHED

SITE AREA DESCRIPTION: SLOPES FLATTER THAN 4:1 STABILIZE WITHIN THIS MANY CALENDAR DAYS AFTER CEASING LAND DISTURBANCE: 14

TIMEFRAME VARIATIONS: 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND HOW 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 MUST BE CONVERTED TO PERMANENT STABILIZATION AS SOON AS PRACTICABLE, BUT NO LATER THAN 90 CALENDAR DAYS AFTER THE LAST LAND-DISTURBING ACTIVITY. TEMPORARY STABILIZATION MUST BE MAINTAINED TO PREVENT EROSION UNTIL PERMANENT STABILIZATION IS ACHIEVED.

GROUND STABILIZATION SPECIFICATION TEMPORARY STABILIZATION. TEMPORARY GRASS SEED COVERED WITH STRAW OR OTHER MULCHES AND TACKIFIERS.

HYDROSEEDING, ROLLED EROSION CONTROL PRODUCTS WITH OR WITHOUT TEMPORARY GRASS SEED APPROPRIATELY APPLIED STRAW OR OTHER MULCH/PLASTIC SHEETING PERMANENT STABILIZATION

PERMANENT GRASS SEED COVERED WITH STRAW OR OTHER MULCHES AND TACKIFIERS GEOTEXTILE FABRICS SUCH AS PERMANENT SOIL REINFORCEMENT MATTING/HYDROSEEDING SHRUBS OR OTHER PERMANENT PLANTINGS COVERED WITH MULCH UNIFORM, EVENLY DISTRIBUTED GROUND COVER SUFFICIENT TO RESTRAIN EROSION STRUCTURAL METHODS SUCH AS CONCRETE, ASPHALT OR RETAINING WALLS ROLLED EROSION CONTROL PRODUCTS WITH GRASS SEEDS/SEEDING 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 THE SURFACE REASONABLY SMOOTH AND UNIFORM. APPLY AGRICULTURAL LIME, FERTILIZER AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH THE 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 CULPACK AFTER SEEDING. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDING WITHIN THE PLANTING SEASON. IF POSSIBLE, IF THE STAND IS MORE THAN 80% DAMAGED, REESTABLISH IT USING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES. CONSULT WAKE COUNTY SOIL & WATER OR NC STATE COOPERATIVE EXTENSION ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

SEEDING MIXTURES

MIXTURE APPLICATION RATES MIXTURE: AGRICULTURAL LIMESTONE APPLICATION: 2 TONS PER ACRE, OR 3 TONS PER ACRE IN CLAY SOILS MIXTURE: FERTILIZER APPLICATION: 1,000 LBS PER ACRE (APPLY 10-10-10) MIXTURE: SUPERPHOSPHATE APPLICATION: 500 LBS PER ACRE (20% ANALYSIS) MIXTURE: MULCH OR SMALL GRAIN STRAW APPLICATION: 2 TONS PER ACRE MIXTURE: ANCHOR APPLICATION: ASPHALT EMULSION AT 400 GAL PER ACRE SEEDING SCHEDULE FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)

DATE: AUG 15 - NOV 1
TYPE: TALL FESCUE
PLANTING RATE: 300 LBS PER ACRE
DATE: NOV 1 - MAR 1
TYPE: TALL FESCUE & ABRUZZI RYE
PLANTING RATE: 300 LBS PER ACRE
DATE: MAR 1 - APR 15
TYPE: TALL FESCUE
PLANTING RATE: 300 LBS PER ACRE
DATE: APR 15 - JUN 30
TYPE: HULLED COMMON BERMUDAGRASS
PLANTING RATE: 25 LBS PER ACRE
DATE: JUL 1 - AUG 15
TYPE: ALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS*
PLANTING RATE: 125 LBS PER ACRE (TALL FESCUE), 35 LBS PER ACRE (BROWNTOP MILLET), 30 LBS PER ACRE (SORGHUM-SUDAN HYBRIDS), FOR SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)
DATE: SEPT 1 - JUN 1
TYPE: SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED) AND TALL FESCUE
PLANTING RATE: 50 LBS PER ACRE
DATE: MAR 1 - APR 15
TYPE: ADD TALL FESCUE
PLANTING RATE: 120 LBS PER ACRE
DATE: MAR 1 - JUN 30
TYPE: ADD WEEPING LOVEGRASS
PLANTING RATE: 10 LBS PER ACRE
DATE: MAR 1 - JUN 30
TYPE: ADD HULLED COMMON BERMUDAGRASS
PLANTING RATE: 25 LBS PER ACRE
DATE: JUN 1 - SEPT 1
TYPE: TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS*
PLANTING RATE: 120 LBS PER ACRE (TALL FESCUE), 35 LBS PER ACRE (BROWNTOP MILLET), 30 LBS PER ACRE (SORGHUM-SUDAN HYBRIDS)
DATE: SEPT 1 - MAR 1
TYPE: SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED) AND TALL FESCUE
PLANTING RATE: 70 LBS PER ACRE (SERICEA LESPEDEZA), 120 LBS PER ACRE (TALL FESCUE)
DATE: NOV 1 - MAR 1
TYPE: ADD ABRUZZI RYE
PLANTING RATE: 25 LBS PER ACRE

*FOR SORGHUM-SUDAN HYBRIDS, RESEED ACCORDING TO THE OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW MORE THAN 12 INCHES BEFORE MOVING. OTHERWISE, FESCUE MAY BE SHADED OUT. CONSULT WAKE COUNTY SOIL & WATER CONSERVATION DISTRICT OR NC STATE COOPERATIVE EXTENSION FOR ADDITIONAL INFORMATION. THE ABOVE VEGETATION RATES PERFORM WELL UNDER LOCAL CONDITIONS.

Gettle Engineering and Design, PLLC
3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934
Firm License P-2538

NO.	DATE	REVISION DESCRIPTION	BY
1	8-28-2023	Initial Submittal	KPG
2	5-22-2026	Trans Wake County Comment	KPG
3	07-28-2026	WAKE COUNTY AND TOWN REVIEW	KPG
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
7	DATE	COMMENT	BY

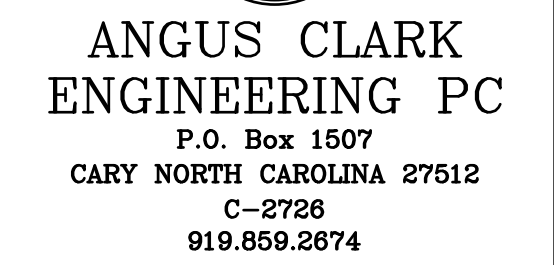


Erosion Control Details
Vineyard Pine Commercial (SDP-26-0005)
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EC6



Gettle Engineering and Design, PLLC
3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

Statistics					
Description	Symbol	Avg	Max	Min	Avg/Min
PARKING LOT	+	2.0 fc	4.8 fc	0.8 fc	2.5:1
PROPERTY LINE	+	1.4 fc	3.8 fc	0.1 fc	14.0:1

1			
2			
3			
3			
4			
5			
6			
8	Date	Comment	By
NO	DATE	REVISION DESCRIPTION	BY



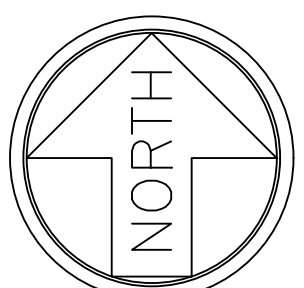
Site Lighting Plan

Vineyard Pine Commercial
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

SL1



CALVIN™ WALL

APPLICATION	• WALL MOUNT • INDOOR OR OUTDOOR RATED
DIMENSION	•16" (41CM)
ILLUMINATION	• DIRECT • LED 90CRI • INCANDESCENT MEDIUM BASE SOCKET • 753 - 1602 LUMENS
ELECTRICAL	• 120V, 277V, AND 347V • 10KA SURGE SUPPRESSION STANDARD
DIFFUSERS	• CLEAR OR FROSTED, ELONGATED, GLASS GLOBE • CLEAR, FLAT LENS
DRIVER	• WALL MOUNT (INTEGRAL) • REMOTE MOUNT (INDOOR OR OUTDOOR)
MOUNTING	• WALL, MOUNTED TO A 4" (10CM) J-BOX
CONSTRUCTION	• ALUMINUM
FINISHES	• AVAILABLE ANODIZED, BRUSHED, AND IN SEVERAL TMS POWDER COATED FINISHES • CUSTOM RAL FINISHES AVAILABLE
DIMMING	• 0 - 10V STANDARD DIMMING
WEIGHT	• 7.5 LBS MAXIMUM



2W - - - - - 1 2 3 4 5 6 7 8 9 10

NOTE: SOME OPTIONS MAY NOT BE COMPATIBLE WITH OTHERS. **ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. CONTACT TMS LIGHTING FOR UPDATED SPECIFICATIONS.**



CALVIN™ WALL

PN	ILLUMINATION	LUMENS	WATTAGE
2W	15LED	1351	15
	16LED	1440	16
	19LED	1803	19
	150IN	2158	150

LUMINAIRE LUMENS	135
TOTAL LUMINAIRE EFFICIENCY	95
LUMINAIRE EFFICACY RATING	9
TOTAL LUMINAIRE WATTS	1

LUMINAIRE LUMENS	2158
TOTAL LUMINAIRE EFFICIENCY	81%
LUMINAIRE EFFICACY RATING	14
TOTAL LUMINAIRE WATTS	150



 PROJECT NAME: _____ TYPE: _____
 QTY: _____



MADE IN USA bios ETL

AU1	B	C	D	E	/	UNV	DM1	I
SERIES	HANGING SYSTEM	SIZE	DIFFUSER	FINISH	LIGHT SOURCE	VOLTAGE	CONTROL	OPTIONS

A	B	C	D	E
SERIES	HANGING SYSTEM	SIZE	DIFFUSER	FINISH
 A111 ALLURE	ST5A INDOOR ADA COMPLIANT SCENCE	18	GW GLOSS WHITE ACRYLIC NOTE:REQUIRED FOR Ø10A	POWDER COAT FINISHES BKP BLACK BMP BRASS METALLIC BMP BRONZE BTP BLACK TEXTURED GRP GRAPHITE GLP GOLDTASTIC MWP MATTE WHITE SGP STEEL GRAY SMP SILVER METALLIC SWP SKY WHITE WTP WHITE TEXTURED
	Ø10A OUTDOOR ADA COMPLIANT SCENCE	24	MW MATTE WHITE ACRYLIC	
		36		
		48		

F		G		H		I	
LIGHT SOURCE		VOLTAGE		CONTROL		OPTIONS	
LED OUTPUT	COLOR TEMP	UNV	120-277	DM1	0-10V DIMMING RAS	ULD	DAMP LABEL (SSA ONLY)
LED1	27K					RIDS	BIOS SKYBLUE™ OR BIOS SKYBLUE™ DYNAMIC LIGHT ENGINE*
LED2	30K					MOD	MODIFIED LUMINAIRE (CONTACT LOCAL REP)
	35K						
	40K						

*Contact factory for BIOS SkyBlue® or BIOS SkyBlue® Dynamic light engine and control options. Visit ocl.com/BIOS for more information.

UP TO 58 LM/W

		LUMENS AND WATTAGE CHART			
		18"	24"	36"	48"
LED1	LUMENS DELIVERED	1050	1600	2600	3700
	SYSTEM WATTAGE	20	30	45	65
LED2	LUMENS DELIVERED	1350	2000	3250	4600
	SYSTEM WATTAGE	25	35	60	80

This chart was created for a 35K color temp. Multiply by 0.95 for 27k color temp, 0.97 for 30K color temp, and 1.03 for 40k color temp. Wattage and lumen data approx. pending LM-79 testing.



Designed and Fabricated in St. Louis, Missouri > USA

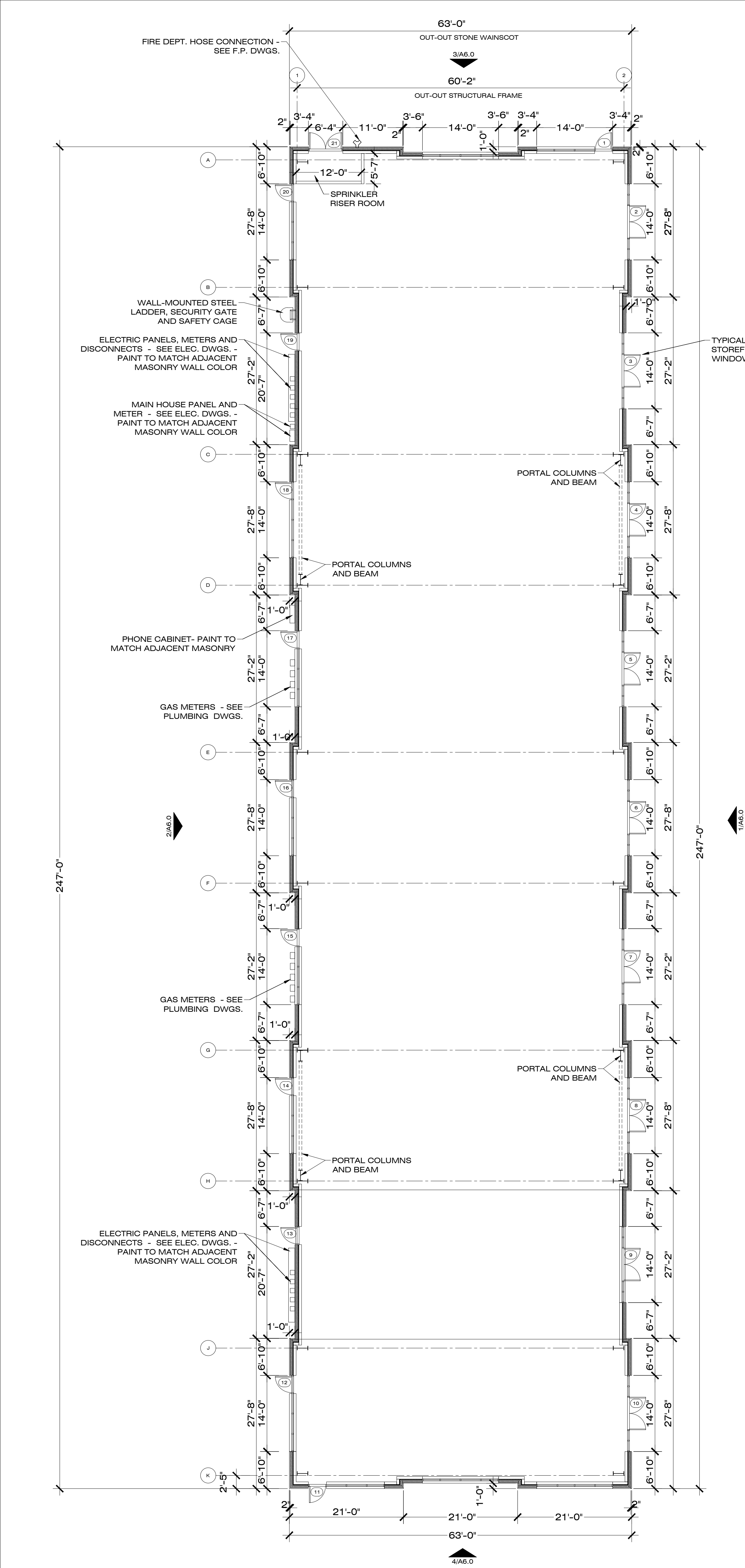
p: 314.863.1895 | f: 314.863.3278 | www.pcl.com A brand at **legrand**

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4			
5			
6	Date	Comment	By
NO	DATE	REVISION DESCRIPTION	BY

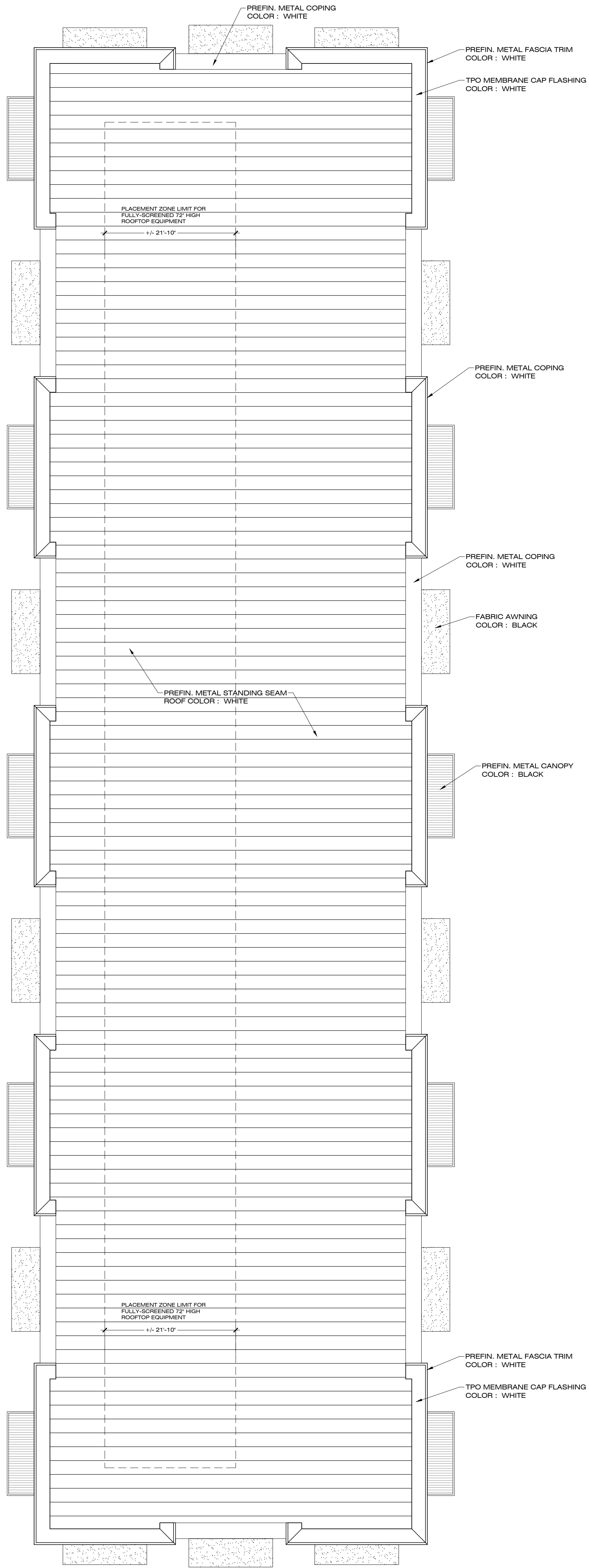


Project No.
Dwg No.

SL3



1 FLOOR PLAN
SCALE: 3/32" = 1'-0"



2 ROOF PLAN
SCALE: 3/32" = 1'-0"



REDLINE

6601 Six Forks Rd.
Suite 130
Raleigh, NC 27615
919.878.1660
www.redlinedg.com

xx.xx.26

JONESVILLE ROAD COMMERCIAL BUILDING

5402 VINEYARD PINE LANE
ROLESVILLE, NC

#	Δ	DESCRIPTION	DATE
1		SITE PLAN SUBMITTAL	04.29.26
2		ROLESVILLE PLANNING DEPT. REVISION	07.14.26
3			
4			
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9			
10			

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PROJECT # RDU 23-039

FLOOR PLAN

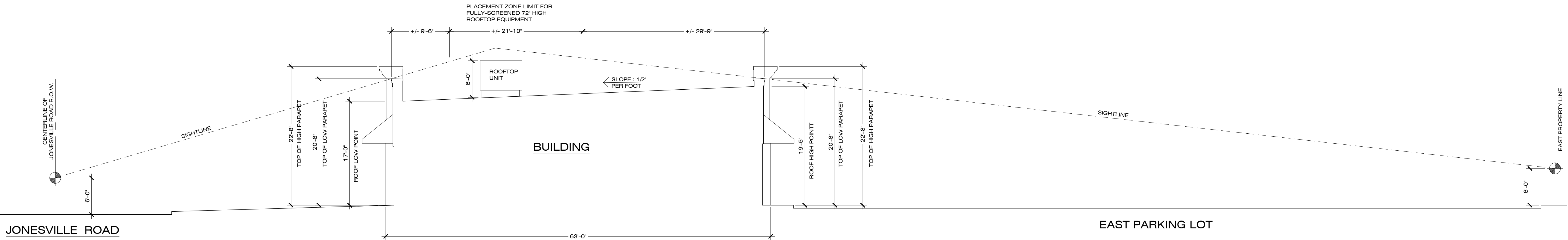
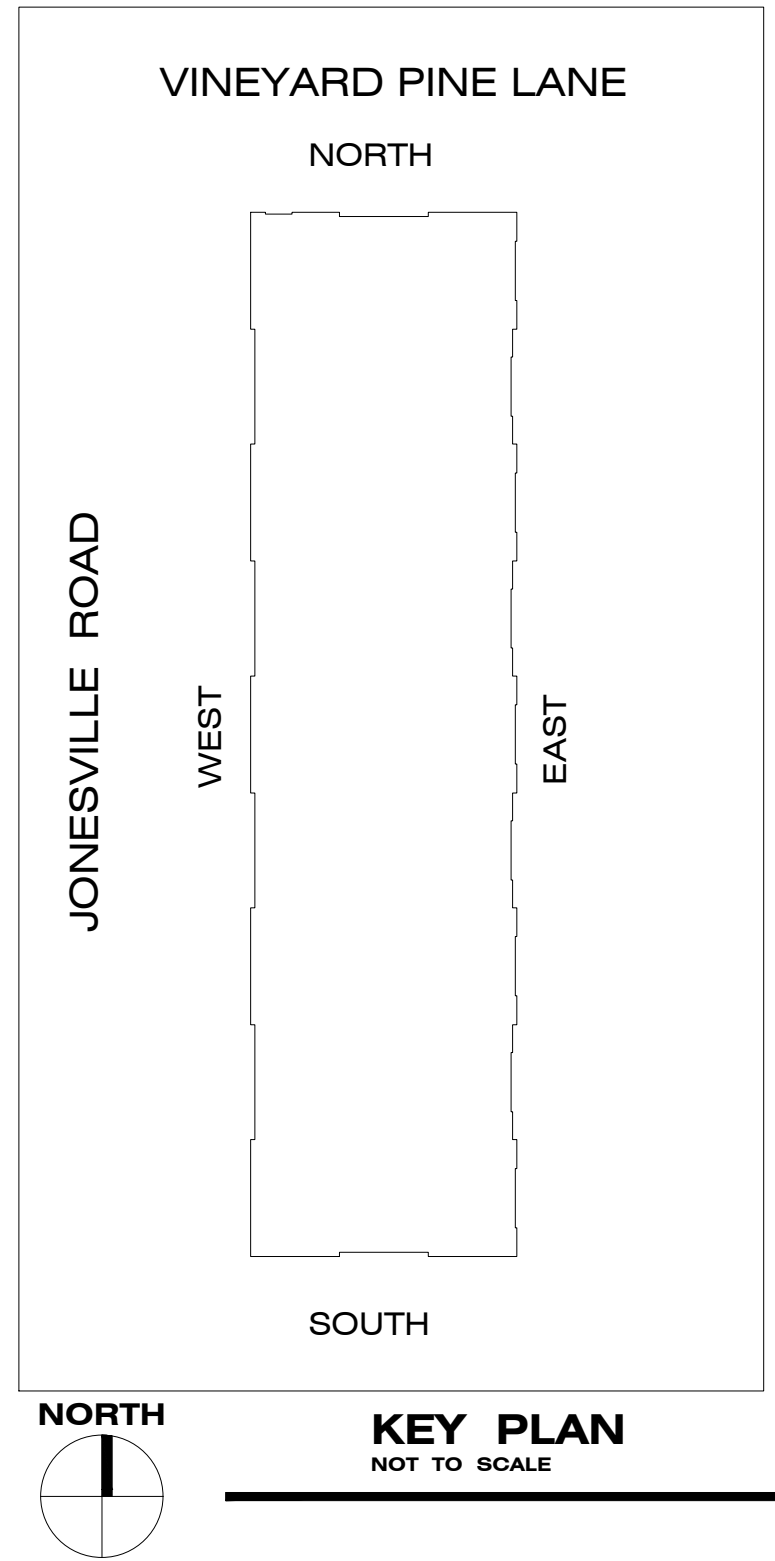
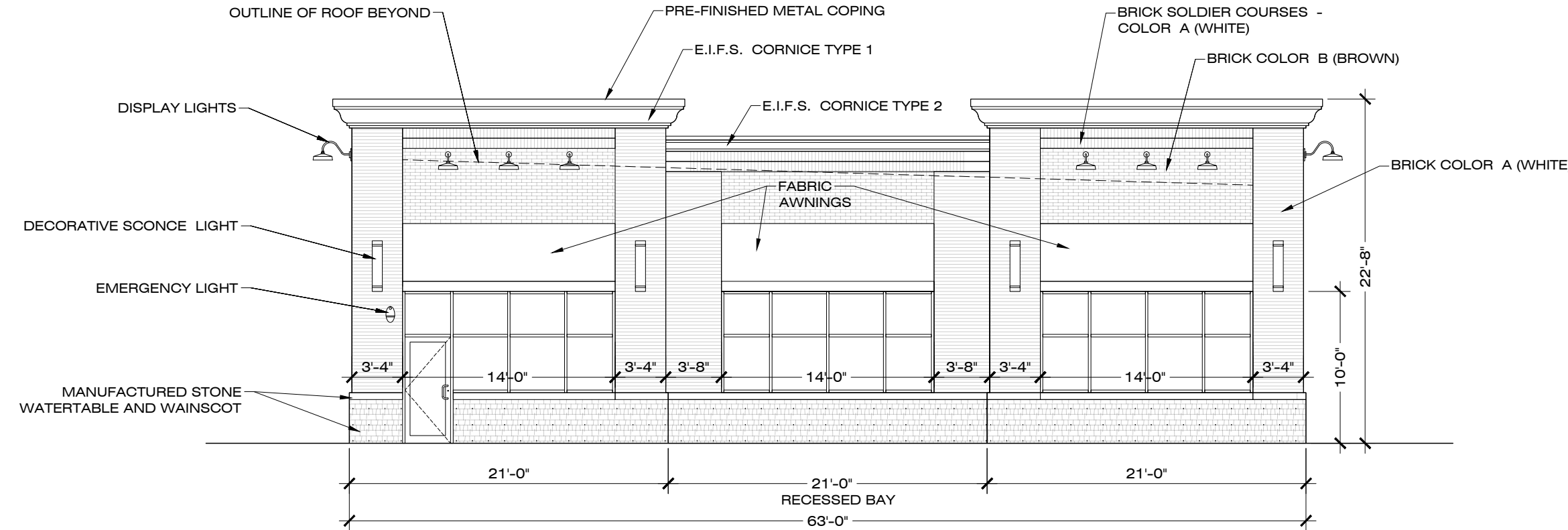
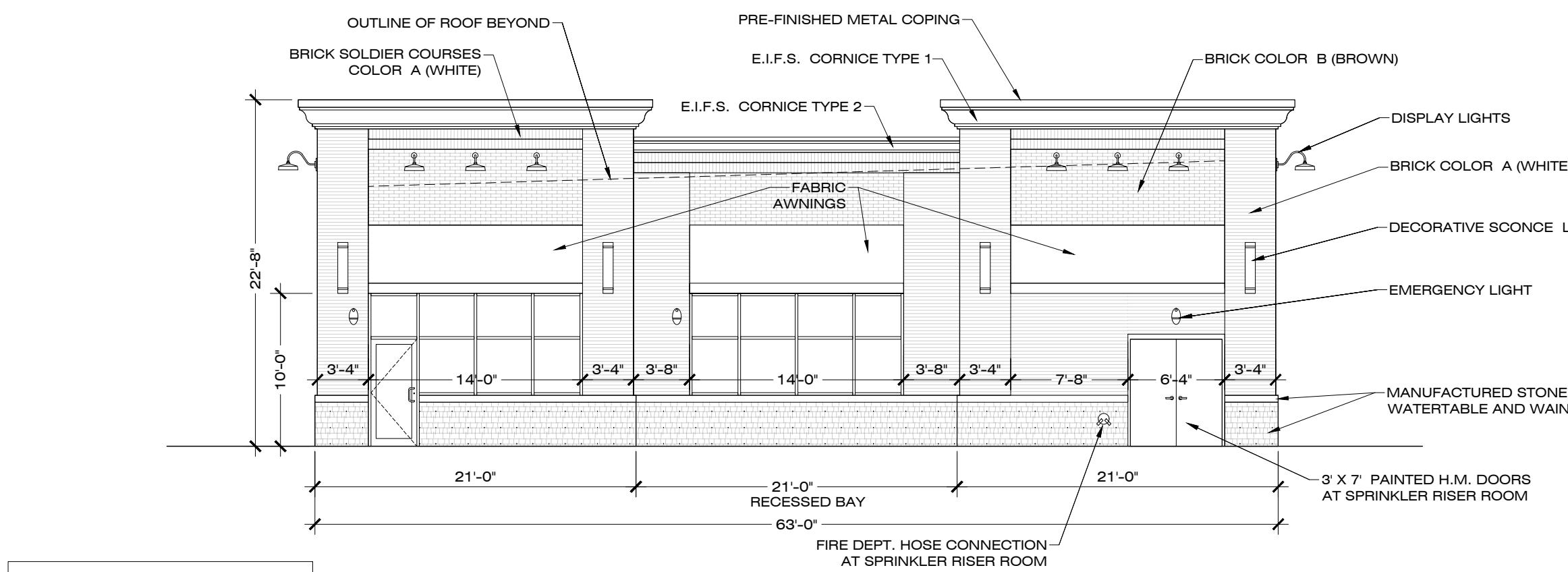
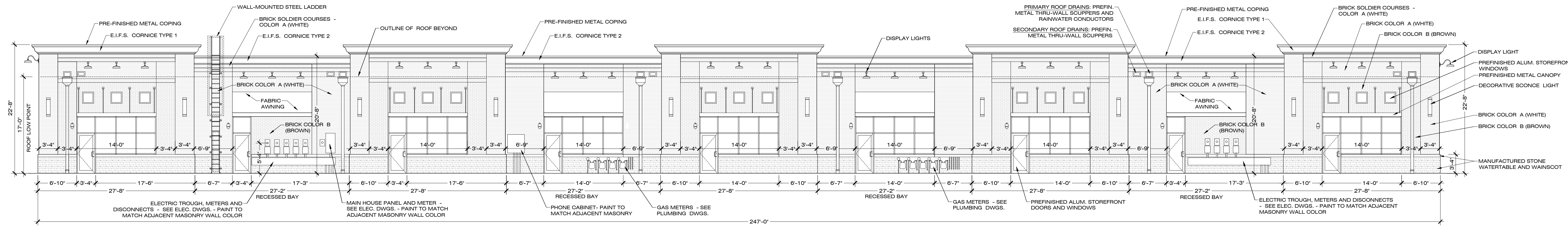
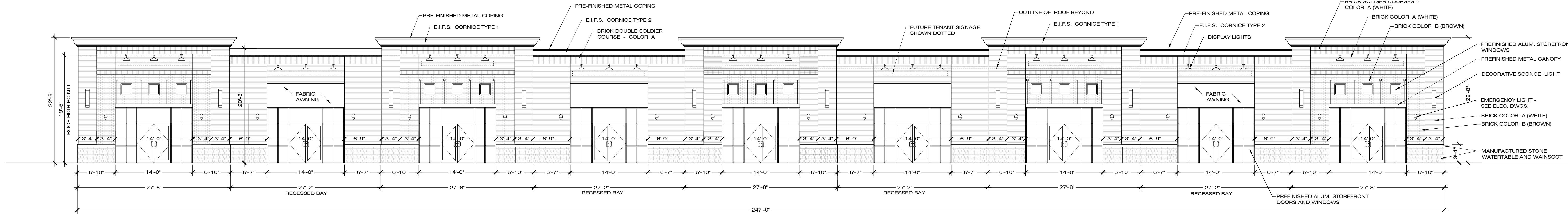
SHEET #

A1.1



REDLINE

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xx.xx.26

JONESVILLE ROAD COMMERCIAL BUILDING

5402 VINEYARD PINE LANE
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PROJECT # RDU 23-039

BUILDING ELEVATIONS

SHEET # A6.0



Planning and Development Services

919-856-7436

Watershed Management
336 Fayetteville St. • Raleigh, NC 27601
P.O. Box 550 • Raleigh, NC 27602
wake.gov

WMCPA – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT CONSTRUCTION PLAN APPROVAL

Project Name	Vineyard Pine Commercial	Watershed	Lower Neuse	Jurisdiction	Rolesville
Date Received	7/8/2026	Date Processing Initiated	7/10/2026	Disturbed Acreage	1.48
S&E Permit Number	SEC-175078-2026	S&E Plan Review Fee	\$370.00 PAID \$10.00 PAID \$370.00 PAID	S&E Permit Fee	\$370.00 PENDING
SW Permit Number	SWF-175083-2026	SW Plan Review Fee	\$10.00 PENDING	SW Permit Fee	\$370.00 PENDING

Financial Responsible Party (FRP):

Name: Omar El-Kaissi
10121 Capital Blvd Unit 105 Wake Forest,
Address: NC 27587
Phone: 330-573-4030
Email: Omar@meinekeNC.com

Engineer:

Name: Gettle Engineering and Design, PLLC
Address: 3616 Waxwing Ct. Wake Forest, NC 27587
Phone: 919-210-3934
Email: N/A

Plan Date/Revision Date: 07/28/2026

Approval Date: 08/10/2026	The above-referenced erosion control and stormwater management plans have been reviewed and conditionally approved. 1. Engineering Approval: Copy of approval notification for projects in a municipality's zoning jurisdiction 2. NCDOT Approval (Temporary Construction Entrances, Encroachment Agreements) Vineyard Pine Commercial is approved for the creation of 1 lot. Plans approved limiting the maximum impervious surface of 45,302 SF (1.04 acres) that has been dispersed over 1 lot, roads, utilities, and parking lot. The project shall provide stormwater control (peak attenuation, volume management and water quality) with an underground Storm Filter with pipe detention. See approved site data below.
------------------------------	---

Approved Site Data:

Permitted Road (SF)	Lots (SF)	Other (SF)	Total (SF)
Impervious (SF)		45,302	45,302

Conditions of Approval

Items marked with an "X" were noted as conditions of the Stormwater and Sediment and Erosion Control Plan approval.

References for Erosion and Sediment Control: [Wake County Unified Development Ordinance \(UDO\) Article 10](#)

References for Stormwater Management are as follows:

ROLESVILLE: Town of Rolesville [Land Development Ordinance Appendix B: Flood Damage Prevention and Stormwater Management, Section 1.2 Stormwater Management](#) effective June 1, 2021.

WENDELL: Town of Wendell Unified Development Ordinance (UDO) [Chapter 6: Environmental Protection, adopted 7/26/10.](#)

ZEBULON: Town of Zebulon, NC Code of Ordinances: [Chapter 151](#)



Planning and Development Services

☎ 919-856-7436

Watershed Management
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P.O. Box 550 • Raleigh, NC 27602
wake.gov

WMCPA – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT CONSTRUCTION PLAN APPROVAL

☒	1.	A mandatory preconstruction meeting is required between the owner, contractor, and Wake County prior to issuance of the Stormwater and Land Disturbance Permits. Please call to schedule this meeting at your convenience. Please ensure all conditions of approval are addressed, all applicable fees are paid, and an NCG01 permit is obtained. Provide copies of the plans to our office (with conditions addressed, if any) to Wake County Planning and Development Services – Watershed Management, Suite 717, 336 Fayetteville Street, Raleigh, NC 27602. ATTN: KARYN PAGEAU. Once submitted, please contact KARYN PAGEAU at 919-796-8769 to schedule the preconstruction meeting.
☒	2.	Grading, other than for installation of soil erosion and sedimentation control measures, is prohibited prior to the issuance of a Certificate of Compliance. [10-30-7(D)]
☒	3.	Contractor shall follow plans strictly and maintain contact with Wake County prior to making any field modifications to erosion and sediment control devices. No devices shall be removed without prior approval from Wake County.
☒	4.	Wake County's sedimentation pollution control program is <u>performance oriented</u> , requiring protection of the natural resources and adjoining properties. If at any time during the project it is determined that the Erosion and Sedimentation Control Plan is inadequate to meet the requirements of the Erosion and Sedimentation Control Ordinance of Wake County, this office may require revisions in the plan and its implementation to ensure compliance with the Ordinance.
☒	5.	As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (eNOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction Stormwater General Permit. You must apply for coverage by submitting a Construction Stormwater – NCG01 (Subject to the SPCA) in the AccessDEQ Portal . Once your application is complete, you will receive an invoice for the annual permit fee and can submit payment through the AccessDEQ Portal. Once the fee is processed and the application approved, you will receive the COC via email. As the Financially Responsible Party shown on the FRO form submitted for this project, you MUST obtain the COC prior to commencement of any land disturbing activity. Please direct questions about the NCG01 application to the Stormwater Program staff in the Raleigh central office. If the owner/operator of this project changes in the future, the new responsible party must obtain a new COC.
☒	6.	SUBDIVISIONS ONLY Builders are required to obtain grading permits for cumulative disturbance over one acre (including non-contiguous lots).
North Carolina General Statute § 113A-61 (c) - Right to Appeal the Decision		
☒	7.	The applicant has the right to appeal modifications of this decision per North Carolina General Statute § 113A-61(c).
Stormwater COA - All Conditions of Approval (COA) must be completed and approved by Wake County prior to final plat approval or signoff of the Certificate of Occupancy (C.O.) for future building permits. Items required prior to final plat or building permit approval are checked and listed below.		
☒	8.	As-Built Plans – Upon completion of required improvements, an as-built plan of required stormwater improvements must be submitted (must indicate that stormwater improvements were constructed in accordance with the approved plan).
☒	9.	Maintenance Plan
	☒ a.	The developer must record and reference on the record plat, a maintenance plan providing instruction about annual maintenance tasks and associated costs for at least a 20-year period.
	☒ b.	It will be the responsibility of the property owners' association or lot owner to update the maintenance plan at least every 10 years.
☒	10.	Maintenance Agreement

WMCPA – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT CONSTRUCTION PLAN APPROVAL

☒	☒	a.	The developer must record and reference on the record plat, a maintenance agreement or restrictive covenant that sets for the property owners' association's or lot owner's continuing responsibilities for maintenance, including how cost will be apportioned among lot owners served.
☒	☒	b.	The maintenance agreement must provide that the association and its individual members are jointly and severable liable for maintenance.
☒	11.		All maintenance documents required must be submitted prior to record plat approval and must be referenced on the record plat. For developments not requiring record plats, documentation must be submitted prior to building permit issuance.
☒	12.		Performance Guarantee – The municipality may not approve a record plat or issue a building permit until stormwater improvements required of the developer have been completed or a performance guarantee has been provided.
Applicable Regulations			
☒	13.	Parties Responsible for Maintenance of Improvements	
☒	☒	a.	The developer must maintain stormwater improvements until accepted by a property owners' association or lot owner. The developer must disclose which party will be responsible for continued maintenance on the record plat.
☒	☒	b.	Before improvements are accepted for maintenance by the property owners' association or lot owner, the developer must certify to the property owners association or lot owner and the county that improvements are complete and functioning as designed.
☒	14.	Enforcement and Penalties	
☒	☒	a.	Failure to complete required improvements or failure to maintain improvements as required by the approved plan are violations and subject to a fine of up to \$1,000 per day.
☒	☒	b.	Inspection of Stormwater Improvements – Wake County agents have the right to inspect sites to determine whether stormwater improvements are being installed and maintained in compliance with the ordinance.
☒	15.	Validity of Plan, Lapse of Approval – An approved erosion and sedimentation control plan is valid for 2 calendar years from the date of approval. If a land disturbance permit has not been obtained within the 2-year period, the erosion and sedimentation control plan approval becomes null and void.	
☒	16.	Actions Required Prior to Land Disturbance	
☒	☒	a.	S&EC plan approval and land disturbance permit issued must be prominently displayed until all construction is complete, all permanent sedimentation and erosion control measures are installed and the site has been stabilized. A copy of the approved plan must be kept on file at the job site.
☒	☒	b.	No person shall initiate a land-disturbing activity until notifying Wake County of the date that the land-disturbing activity will begin.
☒	17.	Authority	
☒	☒	a.	County officials may enter any property, public or private, at reasonable times for the purpose of investigating and inspecting the sites of any land-disturbing activity. No person shall refuse entry or access to any authorized representative or agent for the County who requests entry for purposes of inspections, and presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representatives while in the process of carrying out their official duties.



Planning and Development Services

919-856-7436

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WMCPA – ROLESVILLE, WENDELL, ZEBULON WATERSHED MANAGEMENT CONSTRUCTION PLAN APPROVAL

☒	b.	Agents and officials of the County will periodically inspect land-disturbing activities to ensure compliance with the North Carolina Sedimentation Pollution Control Act, this article, or rules or orders adopted or issued pursuant to this article, and to determine whether the measures required in the erosion and sedimentation control plan are effective in controlling erosion and sedimentation resulting from land-disturbing activity.
☒	c.	Any land-disturbing activity will be the responsibility of the person(s) conducting the land disturbing activity, including the property owners. Failure to prevent off site sedimentation will be deemed a violation of the erosion and sedimentation control regulations of this article.
☒	18.	15A NCAC 2B.0714 – Due to the location of this project, it should be noted that a rule to protect and maintain existing buffers along watercourses in all of Wake County became effective in 2006. The Neuse River Riparian Area Protection and Maintenance Rule applies to all perennial and intermittent streams, lakes, ponds and estuaries in Wake County with forest vegetation on the adjacent land or “riparian area”. In riparian areas with existing forest vegetation in the first 30 feet directly adjacent to the stream, the rule prohibits land disturbance, new development and fertilizer use within the first 50 feet of land next to the water. In riparian areas with forest vegetation that is less than 30 feet wide, the rule prohibits land disturbance, new development and fertilizer use within the area that contains forest vegetation (but not the entire 50-foot riparian area). For more information about this riparian area rule, please contact the NC DEQ Division of Water Quality’s Wetland/401 Unit at 919-707-3631. Wake County enforces the Neuse Buffer Rules in both the Cape Fear River Basin and the Neuse River Basin except when superseded by the Jordan Buffer Rules [15A NCAC 02B.0265].
Wake County Watershed Management division is not responsible for subject approvals of other Local, State or Federal Agencies. The subject approvals are (but not limited to) conditioned upon compliance with Federal Emergency Management Area Flood regulations/requirements, Division of Water Quality under stormwater or other water quality regulations/requirements, U.S. Army Corps of Engineers under Article 404/401 (Wetlands/Streams) jurisdiction/requirements, and/or any Federal and State water quality laws, regulations, and rules, and County and Local municipal regulations or permit requirements. The approval issued in this letter cannot supersede any other required permit or approval.		
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