ATLAS STARK | KNIGHTDALE STATION MIXED-USE

0 & 7790 Knightdale Blvd
Knightdale, North Carolina

CAROLINIA AVE. & MORNING FLYER WAY MIXED USE SITES
ORDINANCE #23-10-18-004

ZONING MAP AMENDMENT #ZMA-3-23
LAND DISTURBANCE PERMIT #SEC-000009-2024

MASTER PLAN APPROVED: OCTOBER 18,2023
CONSTRUCTION DRAWING SUBMITTAL 1: JANUARY 18, 2024
CONSTRUCTION DRAWING SUBMITTAL 2: FEBRUARY 21, 2024
CONSTRUCTION DRAWING SUBMITTAL 3: APRIL 12, 2024
CONSTRUCTION DRAWING SUBMITTAL 4: JUNE 14, 2024
CONSTRUCTION DRAWING SUBMITTAL 5: AUGUST 2, 2024
CONSTRUCTION DRAWING SUBMITTAL 6: SEPTEMBER 20, 2024
CONSTRUCTION DRAWING SUBMITTAL 7: OCTOBER 14, 2024

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 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. This approval of this electronic document is only valid if the document has not been modified and the digital signature below is valid:

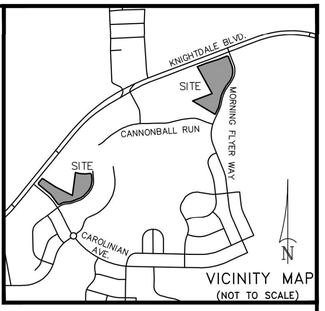
C.O.R. Dev. Approval: Cydney S. Terry — Digitally signed by Cydney S. Terry Date: 2024.10.29 17:01:44-04'00'

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**.



THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. NYE
10/14/2024

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ZONING CONDITIONS

1. The width of the Type B Buffer between the Knightdale Station Commercial – Carolinian Avenue site and Wake County PIN 1754-77-3240, as labeled on the Master Plan, shall be a minimum of 18.5-feet and be planted with the same vegetative materials required by the standard 20-foot Type B Buffer.
2. The maximum front setback for certain buildings on the Knightdale Station Commercial – Carolinian Avenue site, as labeled on the Master Plan, shall be as follows:
   a. Building 200 40-foot
   b. Building 202: 20-foot
3. The maximum front setback for certain buildings on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall be as follows:
   a. Building 100: 40-foot
   b. Building 101: 40-foot
   c. Building 102: 40-foot
   d. Building 103: No maximum front setback
4. Park and Ride spaces shall not be required on the Knightdale Station Commercial – Carolinian Avenue site.
5. Each individual unit of the multiple tenant buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site shall be permitted to have one primary wall sign on the front façade and one primary wall sign on the rear façade, not to exceed 10% of each individual unit's façade.
6. A Development Option has been reserved to allow all buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site to be constructed as two-story structures in accordance with Section 3.4 of the Unified Development Ordinance through an administrative process if desired at a later date.
7. Building 103 on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall not be required to meet Transparency requirements outlined in Section 6.8 of the Unified Development Ordinance.
8. Architectural Standards are provided for all buildings as indicated in the PUD document.
9. The following uses, subject to all applicable additional use standards, shall be permitted in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
   a. Hotels
   b. Animal Services, Non-boarding & Boarding
   c. Banks, Credit Unions, Financial Services
   d. Business Support Services
   e. Child/Adult Day Care Home (fewer than 6 people)
   f. Child/Adult Day Care Center (6 or more people)
   g. Community Service Organization
   h. Government Services
   i. Medical Services
   j. Personal Services
   k. Professional Services
   l. Studio – Art, dance, martial arts, music
   m. Bar, Tavern, Microbrewery
   n. General Retail (10,000 square feet or less)
   o. Neighborhood Retail/Restaurant (2,000 square feet or less)
   p. Restaurant
   q. Tasting Room
   r. Indoor Amusements (5,000 - 10,000 square feet)
   s. Indoor Amusements (10,001 - 20,000 square feet; Special Use Permit required)
   t. Cultural or Community Facility
   u. Movie Theater
   v. Indoor Recreation Facility
   w. Live Performance Theater
   x. Neighborhood Manufacturing
   y. Wireless Telecommunication Facility – Small Wireless Facilities outside Right-of-Way
   z. Accessory Building/Structure
   aa. Solar Energy Collection – Roof/Building Mounted
   bb. Mobile MR Unit (subject to the additional use standard outlined in the PUD Document)
10. The following uses shall be expressly prohibited, and all other uses not expressly permitted shall be prohibited, in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
   a. Dwelling-Duplex
   b. Dwelling-Multifamily above ground floor as part of mixed use
   c. Dwelling-Multifamily, 4 units/bldg. or less
   d. Dwelling-Multifamily, more than 4 units/bldg.
   e. Dwelling-Single Family
   f. Family Care Home (6 or less resident)
   g. Housing Services for the Elderly
   h. Townhouse, 4 units or less
   i. Townhouse, more than 4 units
   j. Post Office
   k. Auto Parts Sales
   l. Gas Station with Convenience Store
   m. Medical Cannabis Centers
   n. Night club
   o. Vape, Tobacco, and CBD Store
   p. Sweepstakes Centers
   q. Cemeteries
   r. Wireless Telecommunication Facility – Stealth
   s. Wireless Telecommunication Facility – Small Wireless Facilities inside Right-of-Way
   t. Utilities – Class 1 & 2
   u. Cluster Mailbox Unit
   v. Standalone ATM
   w. Drive-Thru Service
   x. Drive-Thru Retail/Restaurants
   y. Home Occupation
   z. Solar Energy Collection, Ground Mounted

The submitted Planned Unit Development document and submitted Master Plan will serve as the site-specific development plan. The Applicant must submit Construction Drawings to the Town that conform to the approved conditions of the NMX-PUD zoning district, Master Plan comments, the Unified Development Ordinance, and comments from the June 6, 2023 DRC meeting.

According to Unified Development Ordinance Section 12.2.G.7.F.III, the Applicant must secure a valid building or construction permit(s) within a 24-month period from date of approval (October 18, 2025), otherwise the ZMA may be subject to recission by Town Council. The vested rights period may be extended as detailed in UDO Section 12.2.G.4.

Please don't hesitate to reach out to me if you have any questions.

Sincerely,
Gideon Smith, AICP

Private
Sewer Collection / Extension System

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

City of Raleigh Public Utilities Department Permit # S-5454P

Authorization to Construct _____ Cydney S. Terry — Digitally signed by Cydney S. Terry Date: 2024.10.29 17:01:44-04'00'

Date _____

Public
Water Distribution / Extension System

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

City of Raleigh Public Utilities Department Permit # W-4132

Authorization to Construct _____ Cydney S. Terry — Digitally signed by Cydney S. Terry Date: 2024.10.29 17:53:51-04'00'

Date _____

CLIENT:
ATLAS STARK HOLDINGS, LLC
C/O HUNTER DIEFES
PO BOX 6309
RALEIGH, NC 27628
PHONE: (910) 770-1145
E-MAIL: hdiefes@atlasstark.com

CONTACT:
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PHONE: (919) 835-4787
FAX: (919) 839-2255
EMAIL: srn@thesitegroup.net

KNIGHTDALE CONTACTS:
KNIGHTDALE PUBLIC WORKS
919-217-2250
SWENGINEER@KNIGHTDALENC.GOV

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SENIOR PLANNER – CURRENT
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CODE ENFORCEMENT OFFICER
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a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald — Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith — Date: _____
Land Use Administrator

a. **Town Approved Standards Shall Control.** In the event of a conflict or inconsistency between these construction drawings and the Town of Knightdale's Approved Standards for this project, the Approved Standards shall control. Town of Knightdale Approved Standards shall mean all development documents necessary for approval for the Property including, but not limited to, any special use permit, subdivision plan, site plan, subdivision plat(s), phasing schedule, Development Agreement, Utility Allocation Agreement, Annexation Agreement, the Town of Knightdale Standard Specification and Details Manual and applicable provisions of the North Carolina State Building Code.

b. **Professional Design Engineer Certification.** These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Knightdale.

I, Samuel R. Nye, PE, certify that the Standard Specifications of the Town of Knightdale have been thoroughly checked and found to be applicable to this project. All exceptions to the applicable Town standards have been previously approved by the Town of Knightdale. All exceptions are shown on Sheet(s) _____ of these drawings.

Seal — By: Samuel R. Nye, PE — Date: 12/20/2024

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. NYE
12/20/2024

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

WATER ALLOCATION POLICY NOTE

THE WATER ALLOCATION POLICY HAS BEEN MET AND THE PROPOSED DEVELOPMENT REMAINS CONSISTENT WITH THAT PRIOR APPROVAL.

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

INFRASTRUCTURE QUANTITIES:

	CAROLINIAN AVE	MORNING FLYER WAY
PHASE NUMBER	2 PHASES	2 PHASES
NUMBER OF LOTS	1	1
LOT NUMBERS BY PHASE	1	1
NUMBER OF UNITS (BLDGS)	3	4
LIVABLE BUILDINGS (COMMERCIAL BUILDINGS NOT LIVABLE DWELLINGS)	3	4
PUBLIC WATER (LF)	200 LF	0 LF
PUBLIC GRAVITY SEWER (LF)	0 LF	0 LF
PRIVATE GRAVITY SEWER (LF)	582 LF	1,233 LF
PUBLIC STREET (LF)	207 LF	0 LF
PUBLIC SIDEWALK (LF)	750 LF	547 LF
WATER SERVICE STUBS	5*	4*
SEWER SERVICE STUBS	4*	3*

*STUB COUNT INCLUDES TIE-IN POINTS THAT NEED TO BE INSPECTED

FLOODPLAIN NOTE:

1. **THIS PROPERTY IS LOCATED OUTSIDE THE WAKE COUNTY 100 YEAR FUTURE CONDITIONS FLOODPLAIN (1% FUTURE CONDITIONS FLOODPLAIN").**

FEMA REFERENCE DATA:
FEMA FIRM PANEL No.: 3720175400K
EFFECTIVE DATE: JULY 19, 2022
FEMA STREAM NAME: N/A
FEMA FLOOD ZONE: Shade Zone X(0.2% annual chance flood)

FOR SITES WITHOUT FLOODPLAIN: THIS SITE IS NOT IN ANY SPECIAL FLOOD HAZARD AREAS OR FUTURE CONDITIONS FLOOD HAZARD AREAS, AS SHOWN ON FIRM PANEL 3720175400K DATED JULY 19, 2022.

SITE DATA SUMMARY

PROJECT NAME:	KNIGHTDALE STATION – MORNING FLYER WAY	KNIGHTDALE STATION – CAROLINIAN AVE
PROPERTY OWNER:	KNIGHTDALE COMMERCIAL, LLC	KNIGHTDALE COMMERCIAL, LLC
PIN(S):	1754988657	1754764820
SITE ADDRESS:	0 KNIGHTDALE BLVD	7790 KNIGHTDALE BLVD
JURISDICTION:	KNIGHTDALE	
ZONING:	NMX–PUD	
OVERLAY DISTRICT:	N/A	
WATERSHED:	MARKS CREEK	
RIVER BASIN:	NEUSE	
TOTAL PROJECT AREA:	6.87 AC.	4.39 AC.
CURRENT USE:	VACANT	
PROPOSED USE:	MEDICAL, OFFICE, PROFESSIONAL SERVICES, GENERAL RETAIL, AND NEIGHBORHOOD RETAIL/RESTAURANT (UDO 6.8). (SEE APPROVED ZONING CONDITIONS 9 & 10)	
PLACE TYPE:	MIXED–USE CENTER	MIXED–USE CENTER & MIXED DENSITY NEIGHBORHOOD
PROPOSED BUILDING TYPE:	MIXED USE BUILDING TYPE	
NEW BUILDING AREA:	BUILDING 100: 10,000 SF. BUILDING 101: 10,000 SF. BUILDING 102: 10,000 SF. BUILDING 103: 1,500 SF. TOTAL BUILDING AREA: 31,500 SF.	BUILDING 200: 7,500 SF. BUILDING 201: 5,500 SF. BUILDING 202: 8,500 SF. TOTAL BLDG AREA: 21,500 SF.
BUILDING HEIGHT REQ. (MAX.):	56', 4 STORIES (UDO 3.4)	
PROVIDED BUILDING HEIGHT:	BUILDING 100 = 31'–0" BUILDING 101 = 31'–4" BUILDING 102 = 22'–4" BUILDING 103 = 20'–0"	BUILDING 200 = 28'–0" BUILDING 201 = 23'–4" BUILDING 202 = 22'–0"
EXISTING IMPERVIOUS AREA ONSITE:	0 SF.	0 SF.
PROPOSED IMPERVIOUS AREA ONSITE:	147,192 SF.	101,543 SF.
PROPOSED IMPERVIOUS AREA IN R/W:	3,948 SF.	2,913 SF.
PARKING REQUIRED:	87 SPACES (MIN.) – 173 SPACES (MAX.)	59 SPACES (MIN.) – 118 SPACES (MAX.)
PARKING PROVIDED:	173 SPACES	118 SPACES
ADA PARKING REQUIRED:	6 SPACES	5 SPACES
ADA PARKING PROVIDED:	12 SPACES	6 SPACES
EV CHARGING STATIONS REQUIRED:	4 CHARGING STATIONS (1/40 MOTOR VEH.)	3 CHARGING STATIONS (1/40 MOTOR VEH.)
EV CHARGING STATIONS PROVIDED:	4 CHARGING STATIONS	4 CHARGING STATIONS
BICYCLE PARKING REQ. (MIN.):	17 SPACES (1/10 MOTOR VEH.)	12 SPACES (1/10 MOTOR VEH.)
BICYCLE PARKING PROVIDED:	18 SPACES	18 SPACES
PARK & RIDE SPACES REQUIRED(5%):	173(.05) = 9 SPACES REQ'D/PROVIDED	N/A (SEE ZONING CONDITION #4)
BUILDING SETBACKS:	PLEASE SEE ZONING CONDITIONS #2 & #3 FOR BUILDING SETBACK REQUIREMENTS	
YARD SETBACKS:		
FRONT:	40' MAX (DOES NOT APPLY TO 1,500 SF BLDG)	60' MAX
SIDE:	10' MIN.	10' MIN
REAR:	0' MIN.	0' MIN.
CORNER:	N/A	N/A
PARKING SETBACKS:		
FRONT YARD:	N/A	
SIDE YARD:	0'	
REAR YARD:	5'	
TREE SAVE AREA REQUIRED:	10% – 0.69 AC.	10% – 0.44 AC.
TREE SAVE AREA PROVIDED:	14.0% – 0.96 AC.	7.6% – 0.33 AC.
TOTAL TREE SAVE AREA REQUIRED:	6.87 AC. + 4.39 AC. = 11.26 AC.(.10) = 1.12 AC. REQUIRED (10%)	
TOTAL TREE SAVE AREA PROVIDED:	0.96 AC. + 0.33 AC. = 1.29 AC. PROVIDED (11.4%)	
REPLANTED AREA REQUIRED:	0.0 AC.	5,793 SF./0.13 AC.
REPLANTED AREA PROVIDED:	4,166 SF./0.09 AC. (AREA PROVIDED FOR SOUTH SITE REQUIREMENT)	18,224 SF./0.41 AC.
TREE PROTECTION FENCING:	1,397 LF.	2,705 LF.
PUBLIC GATHERING SPACE REQ:	500 SF	500 SF
PUBLIC GATHER SPACE PROVIDED:	38,826 SF	4,301 SF
PERMITTED MONUMENT SIGN TYPES :	(UDO 8.5)	
NEIGHBORHOOD/CAMPUS GATEWAYS:	16 SF MAX AREA – 7' MAX HEIGHT – 2 PER ENTRANCE	
LOTS LESS THAN 2 AC.:	25 SF MAX AREA – 4' MAX HEIGHT – 2**	
LOTS EQ. TO OR GREATER THAN 2 AC.:	50 SF MAX AREA – 7' MAX HEIGHT – 2**	
PERMITTED BUILDING PRIMARY WALL SIGN:		
FRONT FACADES:	SEE APPROVED ZONING CONDITION #5	
REAR FACADES:	SEE APPROVED ZONING CONDITION #5	
PUBLIC IMPROVEMENT QUANTITIES:		
LINEAR FT/WIDTH OF STREETS:	0 LF.	207 LF.
LINEAR FT/WIDTH OF PUBLIC GREENWAY TRAILS:	976 LF. 10' WIDTH	121 LF. 10' WIDTH
LINEAR FEET OF PUBLIC SIDEWALKS:	547 LF.	750 LF.
LINEAR FEET OF PUBLIC CURB & GUTTER:	3,688 LF.	3,057 LF.
LINEAR FEET OF STORM DRAINAGE:	2,231 LF.	1,334 LF.

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
DATE: _____
PERMIT NO. SEC-____-____
Town of Knightdale Public Works
Sedimentation & Erosion Control
(919) 217-2250
Town of Knightdale Construction Inspector Signature

NORTH

MORNING FLYER WAY & CAROLINIAN AVE. COVER SHEET

SCALE: 1" = 250' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 250 500 750 1,000

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC
1111 Oberlin Road
Raleigh, NC 27605–1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 14 OCT 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY & CAROLINIAN AVE. COVER SHEET

Job Code ASKSCD

Dwg No. SITE 001

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GENERAL NOTES

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4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

WATER ALLOCATION POLICY NOTE

1. THE WATER ALLOCATION POLICY HAS BEEN MET AND THE PROPOSED DEVELOPMENT REMAINS CONSISTENT WITH THAT PRIOR APPROVAL.

DEMOLITION NOTES

1. LANDSCAPE AREAS REQUIRED BY CHAPTER 7 OF THE UDO SHALL NOT CONTAIN ANY DEVELOPMENT, IMPERVIOUS SURFACES, OR SITE FEATURES THAT DO NOT FUNCTION TO MEET THE APPLICABLE STANDARDS FOR THAT AREA OR THAT REQUIRE REMOVAL OF EXISTING SIGNIFICANT VEGETATION [UDO SECT. 7.4.E.1].
2. NO GRADING, DEVELOPMENT OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE [UDO SECT. 7.4.E.2].
3. ALL AREAS WITHIN REQUIRED BUFFER YARDS, STREAM BUFFERS, SLOPE AREAS GREATER THAN 25% AND WETLANDS ARE TREE SAVE AREAS AND ALL VEGETATION AND SOIL IS TO REMAIN UNDISTURBED [UDO SECT. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANING STRIP AND SLOPE AREAS OF 15-25% ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
5. ALL TREES GREATER THAN 24" DBH ON-SITE ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
6. THROUGH THE PROTECTION OF TREES AND EXISTING VEGETATION, THE TOWN ENCOURAGES NEW DEVELOPMENT TO BE CREATIVE IN DESIGN AND PLACEMENT OF BUILDINGS, STRUCTURES, PARKING, AND OTHER IMPERVIOUS SURFACES AS TO PRESERVE NATURAL FEATURES AND TO COMPLEMENT THE EXISTING TOPOGRAPHY WHEN PRACTICAL. NO TREE GREATER THAN TWELVE (12) INCHES IN DIAMETER AT BREAST HEIGHT (DBH: MEASURED AT 4.5 FEET ABOVE GRADE) LOCATED ON PUBLIC PROPERTY OR WITHIN A REQUIRED TREE PROTECTION AREA (SECTION 7.4) SHALL BE REMOVED FOR THE PURPOSE OF SURVEYING WITHOUT APPROVAL FROM THE LAND USE ADMINISTRATOR. [UDO SECT. 7.4.D.4.a.ii.a]
7. TREE PROTECTION FENCES SHALL BE PLACED AROUND ALL PROTECTED TREES DESIGNATED TO BE SAVED PRIOR TO THE START OF DEVELOPMENT ACTIVITIES OR GRADING IN ACCORDANCE WITH STANDARD 2.10 OF THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS MANUAL. TREE PROTECTION FENCES SHALL REMAIN IN PLACE UNTIL DEVELOPMENT ACTIVITIES ARE COMPLETED. TO PREVENT UNINTENDED COMPACTION OF SOIL, THE AREA WITHIN THE PROTECTIVE BARRICADE SHALL REMAIN FREE OF ALL BUILDING MATERIALS, DIRT OR OTHER CONSTRUCTION DEBRIS, CONSTRUCTION TRAFFIC, STORAGE OF VEHICLES AND MATERIALS, AND MASS GRADING. [UDO SECT. 7.4.D.4.a.ii.b]
8. EXCEPT FOR DRIVEWAY ACCESS POINTS, SIDEWALKS, CURB, AND GUTTER: NO PAVING WITH CONCRETE OR OTHER IMPERVIOUS MATERIALS WITHIN FIVE (5) FEET OF A TREE DRIP LINE SHALL BE ALLOWED UNLESS OTHERWISE APPROVED. WHERE GRADING WITHIN A TREE DRIPLINE CANNOT BE AVOIDED, CUT AND FILL SHALL BE LIMITED TO ONE-QUARTER (1/4) TO ONE-HALF (1/2) OF THE AREA WITHIN THE DRIPLINE, AND TREE ROOTS MUST BE PRUNED WITH CLEAN CUTS AT THE EDGE OF THE DISTURBED AREA. NO FILL SHALL BE PLACED WITHIN THE DRIPLINE OF A TREE WITHOUT VENTING TO ALLOW AIR AND WATER TO REACH THE ROOTS. [UDO SECT. 7.4.D.4.a.ii.c]

STREET TREE REPLACEMENT NOTE:

ANY EXISTING STREET TREE PROPOSED TO BE REMOVED WILL BE REPLANTED IN ACCORDANCE WITH THE STREET TREE LOCATIONS PER THE APPLICABLE ROADWAY CROSS-SECTION OUTLINED IN SECTION 10.4.A OF THE UDO

FIRE ACCESS NOTES

1. A FIRE HYDRANT MUST BE WITHIN 400' OF ALL PORTIONS OF THE EXTERIOR OF THE BUILDING FOR NON-SPRINKLERED BUILDINGS, AND 600' FOR SPRINKLERED (NCFC 507.5.1).
2. ALL PORTIONS OF THE BUILDINGS MUST BE WITHIN 150' OF THE APPARATUS ACCESS ROAD SURFACE (503.1.1 NCFC), 200' WITH A 13R SPRINKLER SYSTEM, AND 250' FOR 13 SYSTEM.

WE ARE SHOWING THE HOSE LAYING LENGTHS FROM FIRE HYDRANTS AND DISTANCES FROM FIRE ACCESS ROADS ON THIS SHEET.

STRIPING NOTES

1. ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAMES.
2. ALL PAVEMENT MARKING SHALL BE THERMOPLASTIC.
3. ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

GRADING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING, AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL HAVE ALL EXISTING UTILITIES LOCATED AT LEAST 48 HOURS PRIOR TO BEGINNING DEMOLITION, EXCAVATION, OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
2. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALL PERMITS, INSPECTIONS, CERTIFICATIONS, AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT ARE OBTAINED.
4. IF DEPARTURES FROM THIE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREFOR SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO CONSTRUCTION. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
5. THE ENGINEER DISCLAIMS ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
6. THE STREETS IN FRONT OF THE PROJECT WILL BE KEPT CLEAN AT ALL TIMES OR A WASH STATION WILL BE REQUIRED.
7. ALL SLOPES EQUAL TO 2:1 SHALL BE STABILIZED WITH PERMANENT SLOPE RETENTION OR A SUITABLE COMBINATION OF PLANTINGS AND RETENTION DEVICES.
8. SLOPES STEEPER THAN 3:1 BUT LESS THAN 2:1 SHALL BE STABILIZED WITH PERMANENT GROUNDCOVER, NOT WITH TURF GRASS.

REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR 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 NCDEQ – 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 NCDEQ-DEMLR CONTACT PERSON AND COP'Y ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: TOWN OF KNIGHTDALE, TOK 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 USING NON-CLUMPING TURF GRASS (CENTIPEDE / HYBRID BERMUDA)
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR 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 EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.**

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
1) SITE SUPERVISOR
2) GEOTECH
3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION
THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI-SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI-FLOTATION BALLAST
5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
   a. SUBGRADE OR CONSTRUCTED FOUNDATION
   b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
   c. FILTER MEDIA
   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICATION
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. FILL EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

TOWN OF KNIGHTDALE SCM PLANTING NOTES

1. THE DAM STRUCTURE, INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE VEGETATED WITH NON-CLUMPING TURF GRASS OR SOD. (CENTIPEDE/HYBRID-BERMUDA) 90% GERMINATION OF NON-CLUMPING TURF WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION FORM THE TOWN.
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OF THREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 50 PLANTS PER 200 FEET OF SHELF AREA.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT PROPER ESTABLISHMENT AND GROWTH OF THE AQUATIC PLANTINGS. CONTRACTOR TO AMEND SOILS AND INSTALL SOILS IN PLANT, SHRUB, AND TREE AREAS PER DETAILS, SOIL SPECIFICATIONS. NCDENR SPECIFICATION, AND SOIL SCIENTIST RECOMMENDATIONS.
4. ALL AQUATIC PLANTINGS ARE TO BE INSTALLED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY. (LAST SPRING FROST AND THE FIRST FALL FROST)
5. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE DEVICE SHALL BE SEEDED WITH A LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS, AND WILDFLOWERS.
6. IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 4"OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.
7. CONTRACTOR SHALL WATER ALL VEGETATION AND GRASS ON A WEEKLY BASIS AS NEEDED TO ENSURE GRASS AND PLANT SURVIVAL UNTIL AFTER THE SCM IS CERTIFIED AND ACCEPTED BY THE TOWN.

STORMWATER CONTROL MEASURE CONSTRUCTION SEQUENCE

THE FOLLOWING MUST OCCUR PRIOR TO FINAL PLAT AND/OR CERTIFICATE OF OCCUPANCY (CO):

1. ALL STORMWATER CONTROL MEASURES (SCMS) MUST BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS.
2. DURING THE SCM CONVERSION PROCESS, ALL EFFORTS SHALL BE MADE TO PROTECT DOWNSTREAM WATER RESOURCES. THE DRAIN VALVE SHALL NOT BE LEFT OPEN AT ANY TIME DURING SCM CONVERSION. A SKIMMER DRAWDOWN SYSTEM SHALL BE INSTALLED AND UTILIZED UNTIL THE SCM IS FULLY CONVERTED.
3. THE REQUIRED LANDSCAPING SHALL BE INSTALLED DURING THE APPROPRIATE GROWING SEASON AND COORDINATED WITH THE TOWN ZONING COMPLIANCE OFFICER PRIOR TO INSTALLATION.
4. AS-BUILT TOPOGRAPHY OF THE BASIN IS REQUIRED PRIOR TO CONVERSION. AFTER MOST OF SITE IS STABILIZED AND READY FOR CONVERSION, DRAIN AND MUCKED OUT POND. HAVE SURVEYOR COMPLETE TOPOGRAPHY AND SEND TO DESIGN ENGINEER OF RECORD FOR REVIEW. ENGINEER WILL VERIFY DIMENSIONS AND AUTHORIZE PLANTING LITTORAL SHELF.

CONSTRUCTION SEQUENCE MORNING FLYER WAY

1. REQUEST PRECONSTRUCTION MEETING.
2. INSTALL TREE PROTECTION FENCING AND CONTACT THE TOWN OF KNIGHTDALE INSPECTOR FOR APPROVAL.
3. OBTAIN GRADING PERMIT.
4. CLEAR ONLY WHAT IS NECESSARY FOR INSTALLATION OF EROSION CONTROL MEASURES.
5. IN ORDER, INSTALL PERIMETER SILT AND TREE FENCING. INSTALL INLET PROTECTION ON EXISTING INLETS. INSTALL BASIN, DIVERSION DITCHES, CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
6. INSTALL CLEAN WATER DIVERSION PIPING AND STRUCTURES AS SHOWN ON INITIAL EROSION CONTROL PLAN. INSTALL JB 53, JB 52, JB 51, JB 50, AND RCP STORM PIPES TO DIVERT OFFSITE STORMWATER THRU SITE. INSTALL PIPING DURING A PERIOD OF DRY WEATHER. PROTECT TRENCH BY STOCKPILING EXCAVATION MATERIAL ON UPHILL SIDE OF TRENCH. AT THE END OF EACH DAY UTILIZE STANDARD DETAIL ON SHEET SITE 708 FOR STANDARD PIPE INLET PROTECTION (PLYWOOD AND STONE). TRENCH CROSSING OF TEMPORARY DIVERSION DITCH TO BE PLANNED FOR A PERIOD OF DRY WEATHER. BACKFILL AREA OF TRENCH AT CROSSING AND REESTABLISH DITCH PRIOR TO CONCLUDING DAYS WORK. [BLOCK INLETS/TOPS FOR CLEAN WATER DIVERSION SO SEDIMENT-LADEN RUNOFF DOES NOT BYPASS THE SEDIMENT SKIMMER BASIN]
7. INSTALL ALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE INITIAL EROSION CONTROL PLAN, SITE 302.
8. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY EROSION CONTROL OFFICER.
9. BEGIN CONSTRUCTION AS SHOWN ON PLANS. PROCEED WITH ROUGH GRADING.
10. COMPACT NEW BACKFILL MATERIAL PER SPECIFICATIONS.
11. CLEAN SEDIMENT BASIN WHEN ONE-HALF FULL.
12. SEED AND MULCH DENUDED AREA WITHIN 15 DAYS AFTER ANY PHASE OF GRADING AND/OR AS SPECIFIED ON THE NPDES GROUND STABILIZATION CHART, WHICHEVER IS MORE RESTRICTIVE.
13. BRING SITE UP TO FINISHED GRADE AND INSTALL RETAINING WALLS. ADJUST DIVERSION DITCHES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.
14. INSTALL INLET PROTECTION AROUND ALL NEW CATCH BASINS AS THEY ARE INSTALLED.
15. ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE SITE IS STABILIZED TO THE EXTENT POSSIBLE, CONTACT THE TOWN OF KNIGHTDALE FOR INSPECTION.
16. AFTER APPROVAL BY THE TOWN INSPECTOR, REMOVE THE SEDIMENT BASIN AND CONVERT BASIN TO FINAL CONFIGURATION.
17. COMPLETE CONSTRUCTION.
18. WHEN CONSTRUCTION IS COMPLETE, REQUEST FINAL APPROVAL BY TOWN INSPECTOR.
19. REMOVE REMAINING EROSION CONTROL MEASURES AND STABILIZE THOSE AREAS.

CONSTRUCTION SEQUENCE CAROLINIAN AVE.

1. REQUEST PRECONSTRUCTION MEETING.
2. INSTALL TREE PROTECTION FENCING AND CONTACT THE TOWN OF KNIGHTDALE INSPECTOR FOR APPROVAL.
3. OBTAIN GRADING PERMIT.
4. CLEAR ONLY WHAT IS NECESSARY FOR INSTALLATION OF EROSION CONTROL MEASURES.
5. INSTALL ALL EROSION CONTROL MEASURES AS SHOWN ON THE INITIAL EROSION CONTROL PLAN, SITE 302.
6. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY EROSION CONTROL OFFICER.
7. BEGIN CONSTRUCTION AS SHOWN ON PLANS. PROCEED WITH ROUGH GRADING.
8. COMPACT NEW BACKFILL MATERIAL PER SPECIFICATIONS.
9. CLEAN SEDIMENT BASIN WHEN ONE-HALF FULL.
10. SEED AND MULCH DENUDED AREA WITHIN 15 DAYS AFTER ANY PHASE OF GRADING AND/OR AS SPECIFIED ON THE NPDES GROUND STABILIZATION CHART, WHICHEVER IS MORE RESTRICTIVE.
11. BRING SITE UP TO FINISHED GRADE AND INSTALL RETAINING WALLS. ADJUST DIVERSION DITCHES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.
12. INSTALL INLET PROTECTION AROUND ALL NEW CATCH BASINS AS THEY ARE INSTALLED.
13. ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE SITE IS STABILIZED TO THE EXTENT POSSIBLE, CONTACT THE TOWN OF KNIGHTDALE FOR INSPECTION.
14. AFTER APPROVAL BY THE TOWN INSPECTOR, REMOVE THE SEDIMENT BASIN AND CONVERT BASIN TO FINAL CONFIGURATION.
15. COMPLETE CONSTRUCTION.
16. WHEN CONSTRUCTION IS COMPLETE, REQUEST FINAL APPROVAL BY TOWN INSPECTOR.
17. REMOVE REMAINING EROSION CONTROL MEASURES AND STABILIZE THOSE AREAS.

REQUIRED TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE

1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS, CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN. BEING CONSTRUCTION, BUILDING, ETC.
8. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1. ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.
   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).
   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.
   D. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.
   E. FOLLOWING SITE MOBILIZATION, ROUTINE 'CONSTRUCTION SITE INSPECTIONS'BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, 'COMPLIANT/SATISFACTORY' INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
      I.INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) – 'PERIMETER CONTROL INSPECTION'.
      II.INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES – 'CERTIFICATE OF COMPLIANCE INSPECTION'.

IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS, OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
   A. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION.
      I.SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
      II.IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
      III.FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES –*BEFORE* ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
2. UTILITY SEPARATION REQUIREMENTS:
a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS, HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETW

LANDSCAPE REQUIREMENTS:

1. THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
2. ALL MECHANICAL EQUIPMENT, WASTE DISPOSAL FACILITIES, SHALL BE SCREENED FROM PUBLIC VIEW. ALL SIDES OF PARKING LOTS SHALL BE SCREENED WITH A TYPE A BUFFER YARD (SECT. 7.4.I.2)[UDO, SECT. 7.5.B.1]
3. ALL ABOVE GROUND UTILITY EQUIPMENT AND FACILITIES ASSOCIATED WITH ON-SITE ELECTRIC, CABLE, TELEPHONE, GAS OR OTHER SIMILAR UTILITY SHALL BE LOCATED IN THE SIDE OF REAR YARD AREA OF THE SITE AND SCREENED WITH A TYPE B BUFFER YARD (SECT. 7.4.I.3) THAT PERTAIN TO SEMI-OPAQUE SCREENS UP TO SIX FEET IN HEIGHT OR THE HEIGHT OF THE UTILITY, WHICHEVER IS LESS [UDO, SECT. 7.5.D]. PLANTINGS SHALL ALLOW FOR A MINIMUM OF 5' CLEARANCE AROUND THE STRUCTURE TO ALLOW FOR ACCESS. ADDITIONALLY, ANY SIDE OF THE STRUCTURE HAVING A DOOR OR LOCK, THE PLANTINGS SHALL ALLOW FOR A 10' CLEARANCE. THE AMOUNT OF CLEARANCE SHALL ACCOUNT FOR THE SIZE OF THE PLANT MATERIAL AT MATURITY. ALSO ANY ROOF MOUNTED MECHANICAL EQUIPMENT MUST BE SCREENED FROM STREETS AND ADJACENT PROPERTIES.
4. ALL STORMWATER DEVICES SUCH AS CULVERTS, RIP RAP STRUCTURES, RETENTION AND DETENTION PONDS AND OTHER STORMWATER-RELATED DEVICES SHALL BE SCREENED WITH EVERGREEN PLANTINGS TO REDUCE THEIR VISUAL IMPACT.
5. ENTRY FEATURE WALLS REQUIRE FOUNDATION PLANTINGS AT THE BASE OF THE WALL.
6. ALL PLANTING MEDIANS AND/OR ISLANDS IN VEHICULAR USE AREAS SHALL BE AT LEAST TEN FEET LONG BY TEN FEET WIDE FROM BACK OF CURB TO BACK OF CURB, WITH A MINIMUM OF 300 SQUARE FEET OF SPACE PER CANOPY TREE WHERE THESE TREES ARE PROPOSED AND SHOULD BE PLANTED ON SLOPES NOT TO EXCEED 1:4 VERTICAL TO HORIZONTAL DISTANCE.
7. THE SIZE OF THE PLANTING AREA AND SIZE OF PLANT MATERIAL AT MATURITY SHALL ALLOW FOR A 2.5' BUMPER OVERHANG FROM THE BACK OF CURB. EACH CANOPY TREE SHALL BE SEPERATED FROM PARKING SPACES BY AN 18" STANDARD CURB & GUTTER DESIGNED TO MINIMIZE DAMAGE BY VEHICLES TO PLANTS WITHIN THE LANDSCAPE AREA.
8. NO CANOPY TREE SHALL BE LOCATED WITHIN A ROADWAY RIGHT OF WAY OR WITHIN 5' OF A SIDEWALK, WITHIN 10' OF A LIGHTING LOCATION OR WITHIN 12' OF ELECTRICAL TRANSFORMERS.
9. ALL SHRUBS INSTALLED AS VEHICULAR USE SCREENING WILL BE MAINTAINED AS A CONTINUOUS HEDGE AT A MINIMUM HEIGHT OF 36 INCHES.
10. WHERE EXISTING OR PROPOSED VEGETATION FAILS TO FUNCTION ADEQUATELY AS REQUIRED, THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUIRE SUPPLEMENTAL PLANTINGS IN ADDITION TO THOSE SHOWN ON THE LANDSCAPE PLAN BASED ON ACTUAL FIELD CONDITIONS.
11. UPON ESTABLISHMENT OF FINISHED GRADES AND PRIOR TO BEGINNING INSTALLATION OF ANY TREES, A SOIL AMENDMENT SCHEDULE FOR ALL TREE PLANTINGS SHALL BE PREPARED BY A CERTIFIED LANDSCAPE ARCHITECT AND BE PROVIDED TO THE TOWN OF KNIGHTDALE.
12. PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY, A CERTIFIED STATEMENT SHALL BE PROVIDED TO TOWN STAFF KNIGHTDALE SITE INSPECTOR ATTESTING TO THE FACT THAT THE SOIL AMENDMENT SCHEDULE WAS FOLLOWED AS SPECIFIED IN THE APPROVED SITE AND/OR SUBDIVISION PLAN. THIS STATEMENT SHALL BE CERTIFIED BY A REGISTERED LANDSCAPE ARCHITECT, CERTIFIED ARBORIST, OR OTHER SPECIALIST AS DETERMINED ACCEPTABLE BY THE PLANNING DIRECTOR.
13. THE PROPERTY OWNER OR DEVELOPER SHALL PROVIDE FOR CONTINUOUS MAINTENANCE OF THE LANDSCAPE AREAS AFTER OCCUPANCY OF THE BUILDING. THE PROPERTY OWNER SHALL ENSURE THAT PERFORMANCE CRITERIA WITHIN THIS ORDINANCE AND/OR INCLUDED ON THE APPROVED SITE AND/OR SUBDIVISION PLAN ARE MET. FAILURE TO CORRECT DEFICIENCIES IN A TIMELY MANOR SHALL RESULT IN A CITATION FOR VIOLATION OF THIS ORDINANCE IN ACCORDANCE WITH CHAPTER 11.
14. ALL FOUNDATION PLANTINGS SHALL BE DESIGNED TO TOWN OF KNIGHTDALE UDO SECTION 7.4 REQUIREMENTS.
    THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUIRE ADDITIONAL PLANTINGS BASED ON ACTUAL FIELD CONDITIONS.
15. ALL IRRIGATION SYSTEM PLANS ARE SUBMITTED THROUGH THE BUILDING PERMIT PROCESS AND ARE EVALUATED SEPARATELY FROM AND IN ADDITION TO THE SITE PLAN AND BUILDING PLAN REVIEWS.
16. LARGE EVERGREEN SHRUBS OR FENCING SHALL BE USED TO SCREEN HVAC EQUIPMENT FROM ADJOINING LOTS AND COMMON AREAS.
17. ALL LANDSCAPING, MULCHING AND SEEDING SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED SITE PLAN AND THE STANDARDS OF SECTION 7.4 OF THE UDO PRIOR TO ISSUANCE OF A CO.
18. REQUIRED BUFFER YARDS MUST HAVE AT LEAST 40% BUT NO MORE THAN 60% EACH OF CANOPY AND UNDERSTORY TREES, AND AT LEAST 80% OF SHRUBS MUST BE EVERGREENS.
19. NOTHING SHALL BE PLANTED WITHIN AN UNDERGROUND OR OVERHEAD UTILITY EASEMENT OR A DRAINAGE EASEMENT WITHOUT THE CONSENT OF THE TOWN AND THE EASEMENT HOLDER AT THE TIME OF MASTER PLAN APPROVAL.
20. ANY TREES LOCATED WITHIN THE SIGHT TRIANGLES SHALL BE LIMBED UP TO A HEIGHT OF 8' ABOVE THE CURB LINE ELEVATION. ANY SHRUBS LOCATED WITHIN THE SITE TRIANGLES SHALL BE PRUNED TO A MAX. HEIGHT OF 2' ABOVE CURB LINE ELEVATION.
21. **DUKE ENERGY PLANTING REQUIREMENTS** – ACCORDING TO DUKE ENERGY, PLANTINGS WITHIN 20' OF OVERHEAD POWER LINES SHALL NOT EXCEED 15' INHEIGHT. TREES PLANTED 20-50' FROM POWER LINES SHALL NOT EXCEED 40' IN HEIGHT. TREES PLANTED OVER 50' FROM POWER LINES MAY EXCEED 40' IN HEIGHT.

LANDSCAPE MAINTENANCE PLAN:

THE OWNERS OF THE PROPERTY AND THEIR AGENTS, HEIRS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION AND MAINTENANCE OF ALL PLANTINGS AND PHYSICAL FEATURES SHOWN ON THIS PLAN. THE OWNERS SHALL BE RESPONSIBLE FOR ANNUAL MAINTENANCE OF THE VEGETATION TO INCLUDE BUT NOT LIMITED TO:

A. FERTILIZATION: FERTILIZE LAWNS TWICE PER YEAR (FEBRUARY 15-MARCH 15 AND AGAIN SEPTEMBER 1-OCTOBER 31) ACCORDING TO SOIL TEST. FERTILIZE WARM SEASON GRASSES ONCE DURING THE GROWING SEASON PER SOIL TEST.

B. PRUNING: PRUNING SHALL BE LIMITED TO REMOVAL OF DEAD WOOD OR BRANCHES FOR TREES OR FOR SIGHT DISTANCES/SAFETY REASONS. THE ANSI A300 STANDARDS SHOULD BE ADHERED TO. THE PRUNING OF SHRUBS SHALL BE LIMITED TO THE PRUNING NECESSARY TO MAINTAIN THE NATURAL SHAPE OF THE PLANT EXCEPT FOR SHEARED HEDGES. THE OWNER OF ANY TREE OR SHRUB ON PRIVATE PROPERTY THAT OVERHANGES ANY PUBLIC RIGHT-OF-WAY SHALL PRUNE THE BRANCHES SO THAT SUCH BRANCHES SHALL NOT OBSTRUCT THE LIGHT FROM ANY STREETLAMP OR OBSTRUCT THE VIEW OF ANY STREET INSTERSECTION AND SO THAT THERE SHALL BE A CLEAR SPACE OF 8 FEET ABOVE THE SURFACE OF THE STREET OR SIDEWALK.

C. PEST CONTROL: PRE-EMERGENT WEED CONTROL FOR SHRUB BEDS MAY BE APPLIED IN FEBRUARY. CHEMICAL TREATMENT FOR INSECT INFESTATION AND DISEASE MAY BE APPLIED AND SHALL BE SPECIFIC TO THE PROBLEM.

D. MULCHING: MULCHING SHALL BE MAINTAINED AT A DEPTH OF 2-3" IN SHRUB BEDS. MULCH SHALL BE REAPPLIED EVERY TWO YEARS. AS NECESSARY TO MAINTAIN THE AVERAGE DEPTH OF THE PLANT BED.

E. MOWING: PRIMARY FESCUE LAWNS SHALL BE MAINTAINED AT A HEIGHT OF 3" AND SHALL BE MOWED APPROXIMATELY 30 TIMES PER YEAR. SECONDARY TURF AREAS MAY BE MAINTAINED HIGHER AND LESS FREQUENTLY. WARM SEASON GRASSES SHALL BE MOWED AS NEEDED DURING THE GROWING SEASON TO MAINTAIN THE RECOMMENDED HEIGHT OF THE SPECIES OF TURF GRASS.

F. PLANT PROTECTION: AVOID EXCESS INTRUSION INTO THE ROOT ZONE AREA OF ESTABLISHED PLANTINGS.

G. WATERING: IF ANY IRRIGATION SYSTEM IS UTILIZED, THE SYSTEM SHALL BE REGULATED TO PROVIDE APPROXIMATELY 1" OF RAINFALL PER WEEK DURING THE GROWING SEASON. (PENDING TOWN OF KNIGHTDALE WATER/IRRIGATION SUPPLIES.)

REMOVAL OF DISEASE INFESTED MATERIAL SHALL BE ALLOWED SO LONG AS REQUIRED SHRUBS ARE REPLACED AT THE REQUIRED RATES AND SIZES.

FAILURE TO MAINTAIN ALL PLANTINGS IN ACCORDANCE WITH THIS PLAN MAY CONSTITUTE A VIOLATION OF THE LAND DEVELOPMENT ORDINANCE AND MAY RESULT IN FINES.

GENERAL LIGHTING NOTES

1. LIGHT POLES ARE TO BE LOCATED:
   * 10' MIN. AWAY FROM CANOPY/STREET TREES
   * 5' MIN. AWAY FROM UNDERSTORY TREES
   * 12' MIN. AWAY FROM FLEC. TRANSFORMERS
2. FIXTURE SYMBOLS ARE ILLUSTRATIVE AND HAVE BEEN INCREASED IN SIZE.
3. DUKE ENERGY PROGRESS SERVICE IS AVAILABLE FOR THIS SITE. FINAL PHOTOMETRICS TO BE PER DUKE ENERGY LAYOUT.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NI
4/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
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E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
14 JUN 2024
REVISED:
1 02 AUG 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY & CAROLINIAN AVE. SITE NOTES

Job Code ASKSCD

Dwg No.
SITE
003

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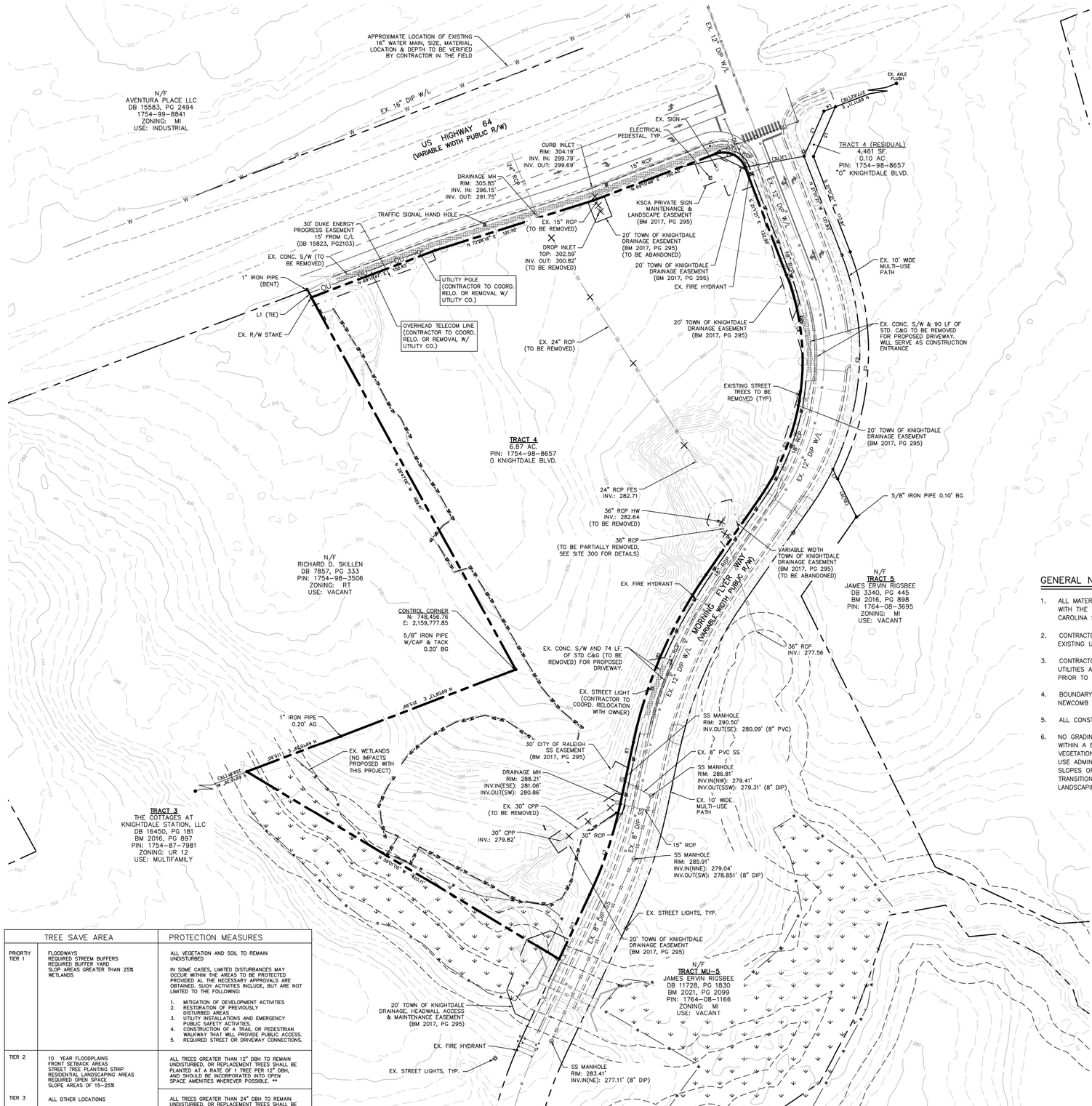
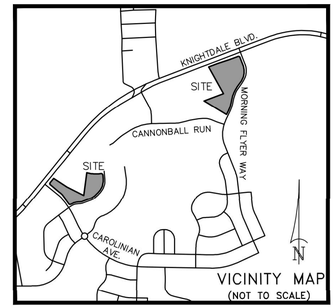


DEMOLITION NOTES

1. LANDSCAPE AREAS REQUIRED BY CHAPTER 7 OF THE UDO SHALL NOT CONTAIN ANY DEVELOPMENT, IMPERVIOUS SURFACES, OR SITE FEATURES THAT DO NOT FUNCTION TO MEET THE APPLICABLE STANDARDS FOR THAT AREA OR THAT REQUIRE REMOVAL OF EXISTING SIGNIFICANT VEGETATION [UDO SECT. 7.4.E.1].
2. NO GRADING, DEVELOPMENT OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE [UDO SECT. 7.4.E.2].
3. ALL AREAS WITHIN REQUIRED BUFFER YARDS, STREAM BUFFERS, SLOPE AREAS GREATER THAN 25% AND WETLANDS ARE TREE SAVE AREAS AND ALL VEGETATION AND SOIL IS TO REMAIN UNDISTURBED [UDO SECT. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANING STRIP AND SLOPE AREAS OF 15-25% ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
5. ALL TREES GREATER THAN 24" DBH ON-SITE ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
6. THROUGH THE PROTECTION OF TREES AND EXISTING VEGETATION, THE TOWN ENCOURAGES NEW DEVELOPMENT TO BE CREATIVE IN DESIGN AND PLACEMENT OF BUILDINGS, STRUCTURES, PARKING, AND OTHER IMPERVIOUS SURFACES AS TO PRESERVE NATURAL FEATURES AND TO COMPLEMENT THE EXISTING TOPOGRAPHY WHEN PRACTICAL. NO TREE GREATER THAN TWELVE (12) INCHES IN DIAMETER AT BREAST HEIGHT (DBH: MEASURED AT 4.5 FEET ABOVE GRADE) LOCATED ON PUBLIC PROPERTY OR WITHIN A REQUIRED TREE PROTECTION AREA (SECTION 7.4) SHALL BE REMOVED FOR THE PURPOSE OF SURVEYING WITHOUT APPROVAL FROM THE LAND USE ADMINISTRATOR. [UDO SECT. 7.4.D.4.a.ii.a]
7. TREE PROTECTION FENCES SHALL BE PLACED AROUND ALL PROTECTED TREES DESIGNATED TO BE SAVED PRIOR TO THE START OF DEVELOPMENT ACTIVITIES OR GRADING IN ACCORDANCE WITH STANDARD 2.10 OF THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS MANUAL. TREE PROTECTION FENCES SHALL REMAIN IN PLACE UNTIL DEVELOPMENT ACTIVITIES ARE COMPLETED. TO PREVENT UNINTENDED COMPACTION OF SOIL, THE AREA WITHIN THE PROTECTIVE BARRICADE SHALL REMAIN FREE OF ALL BUILDING MATERIALS, DIRT OR OTHER CONSTRUCTION DEBRIS, CONSTRUCTION TRAFFIC, STORAGE OF VEHICLES AND MATERIALS, AND MASS GRADING. [UDO SECT. 7.4.D.4.a.ii.b]
8. EXCEPT FOR DRIVEWAY ACCESS POINTS, SIDEWALKS, CURB, AND GUTTER: NO PAVING WITH CONCRETE OR OTHER IMPERVIOUS MATERIALS WITHIN FIVE (5) FEET OF A TREE DRIP LINE SHALL BE ALLOWED UNLESS OTHERWISE APPROVED. WHERE GRADING WITHIN A TREE DRIPLINE CANNOT BE AVOIDED, CUT AND FILL SHALL BE LIMITED TO ONE-QUARTER (1/4) TO ONE-HALF (1/2) OF THE AREA WITHIN THE DRIPLINE, AND TREE ROOTS MUST BE PRUNED WITH CLEAN CUTS AT THE EDGE OF THE DISTURBED AREA. NO FILL SHALL BE PLACED WITHIN THE DRIPLINE OF A TREE WITHOUT VENTING TO ALLOW AIR AND WATER TO REACH THE ROOTS. [UDO SECT. 7.4.D.4.a.ii.c]

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.



LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- EXISTING STORM DRAIN LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

TREE SAVE AREA		PROTECTION MEASURES
PRIORITY TIER 1	FLOODWAYS REQUIRED STREEM BUFFERS REQUIRED BUFFER YARD SLOP AREAS GREATER THAN 25% WETLANDS	ALL VEGETATION AND SOIL TO REMAIN UNDISTURBED IN SOME CASES, LIMITED DISTURBANCES MAY OCCUR WITHIN THE AREAS TO BE PROTECTED PROVIDED AL THE NECESSARY APPROVALS ARE OBTAINED. SUCH ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: 1. MITIGATION OF DEVELOPMENT ACTIVITIES 2. RESTORATION OF PREVIOUSLY DISTURBED AREAS 3. UTILITY INSTALLATIONS AND EMERGENCY PUBLIC SAFETY ACTIVITIES. 4. CONSTRUCTION OF A TRAIL OR PEDESTRIAN WALKWAY THAT WILL PROVIDE PUBLIC ACCESS. 5. REQUIRED STREET OR DRIVEWAY CONNECTIONS.
TIER 2	10 YEAR FLOODPLAINS FRONT SETBACK AREAS STREET TREE PLANTING STRIP RESIDENTIAL LANDSCAPING AREAS REQUIRED OPEN SPACE SLOPE AREAS OF 15-25%	ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **
TIER 3	ALL OTHER LOCATIONS	ALL TREES GREATER THAN 24" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **

** REQUIRED STREET TREES, PARKING LOT LANDSCAPING, RESIDENTIAL LANDSCAPING AND BUFFER YARD PLANTINGS MAY NOT BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- C Cable pedestal
- T Telephone pedestal
- E Electric pedestal
- F Fiber-optic marker
- S Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- D Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- OU Overhead utility
- W Water
- SS Sanitary sewer
- SD Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right-of-way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right-of-way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

NORTH

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

MORNING FLYER WAY EXISTING CONDITIONS & DEMO PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

SEAL 34881
ENGINEER
SAMUEL R. NEWCOMB
4/20/2024

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY EXISTING CONDITIONS & DEMO PLAN

Job Code ASKSCD

Dwg No. SITE 100

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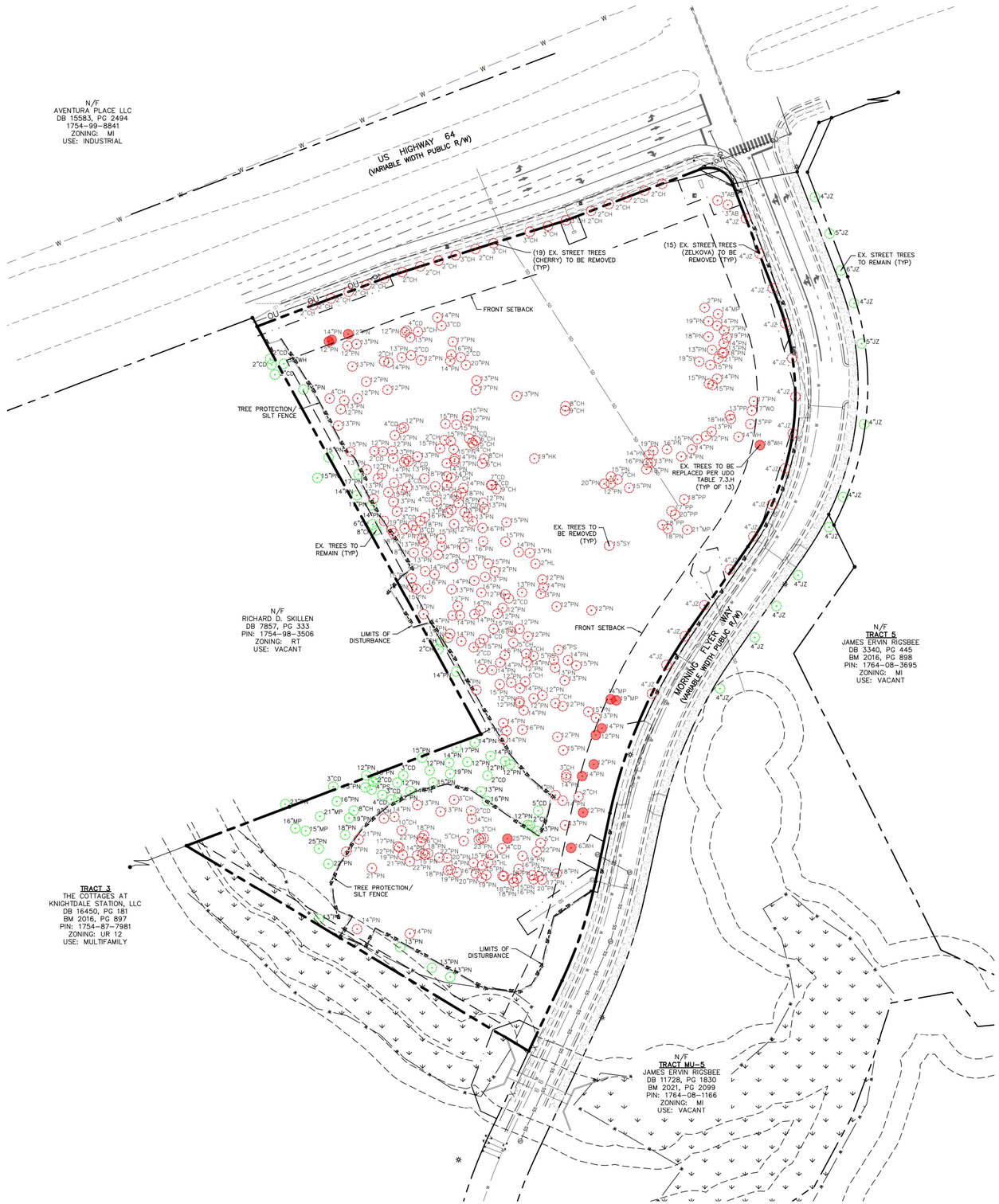

TREE SAVE AREA		PROTECTION MEASURES
PRIORITY TIER 1	FLOODWAYS REQUIRED STREEM BUFFERS REQUIRED BUFFER YARD SLOP AREAS GREATER THAN 25% WETLANDS	ALL VEGETATION AND SOIL TO REMAIN UNDISTURBED IN SOME CASES, LIMITED DISTURBANCES MAY OCCUR WITHIN THE AREAS TO BE PROTECTED PROVIDED AL THE NECESSARY APPROVALS ARE OBTAINED. SUCH ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: 1. MITIGATION OF DEVELOPMENT ACTIVITIES 2. RESTORATION OF PREVIOUSLY DISTURBED AREAS 3. UTILITY INSTALLATIONS AND EMERGENCY PUBLIC SAFETY ACTIVITIES. 4. CONSTRUCTION OF A TRAIL OR PEDESTRIAN WALKWAY THAT WILL PROVIDE PUBLIC ACCESS. 5. REQUIRED STREET OR DRIVEWAY CONNECTIONS.
TIER 2	10 YEAR FLOODPLAINS FRONT SETBACK AREAS STREET TREE PLANTING STRIP RESIDENTIAL LANDSCAPING AREAS REQUIRED OPEN SPACE SLOPE AREAS OF 15-25%	ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **
TIER 3	ALL OTHER LOCATIONS	ALL TREES GREATER THAN 24" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **

** REQUIRED STREET TREES, PARKING LOT LANDSCAPING, RESIDENTIAL LANDSCAPING AND BUFFER YARD PLANTINGS MAY NOT BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber-optic marker
- Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- OU — Overhead utility
- W — Water
- SS — Sanitary sewer
- SD — Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right-of-way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right-of-way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- EXISTING STORM DRAIN LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

TREE LEGEND

AB – ARBOVITAE
CD – CEDAR
CH – CHERRY
HK – HICKORY
HL – HOLLY
JZ – JAPANESE ZELKOVA
MP – MAPLE
PN – PINE
PP – POPLAR
PS – PERSIMMON
SW – SOURWOOD
SY – SYCAMORE
WH – WHITE OAK
WO – WILLOW OAK

- TREES TO BE REMOVED
- TREES TO BE REMOVED & REPLACED
- TREES TO BE PRESERVED

NOTE: SEE SITE 500 FOR REPLACEMENT TREE LOCATIONS

REQUIRED TREE REPLACEMENT CALCULATIONS:

TIER 2 – FRONT SETBACK AREAS: ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE/12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE.

FRONT SETBACK AREA REMOVALS = 12 TREES
1. 12" PINE
2. 14" PINE
3. 12" PINE
4. 18" WHITE OAK
5. 14" MAPLE
6. 19" MAPLE
7. 14" PINE
8. 12" PINE
9. 12" PINE
10. 14" PINE
11. 12" PINE
12. 16" WILLOW OAK

169 TOTAL DBH INCHES REMOVED, 169/12 = 14 REPLACEMENT TREES REQUIRED

TIER 3 – ALL OTHER LOCATIONS: ALL TREES GREATER THAN 24 "DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE/12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE.

OTHER LOCATION REMOVALS = 1 TREE
1. 25" PINE

25 TOTAL DBH REMOVED, 25/12 = 2 REPLACEMENT TREES REQUIRED

STREET TREE REPLACEMENT NOTE:

1. ANY EXISTING STREET TREE PROPOSED TO BE REMOVED WILL BE REPLANTED IN ACCORDANCE WITH THE STREET TREE LOCATIONS PER THE APPLICABLE ROADWAY CROSS-SECTION OUTLINED IN SECTION 10.4.A OF THE UDO

BUFFER NOTE:

1. ALL TREES TO BE REMOVED FROM WITHIN THE 30-FOOT TYPE C BUFFER ARE NECESSARY TO ACCOMMODATE THE CONSTRUCTION OF THE REQUIRED 10-FOOT-WIDE MULTI-USE PATH AND OTHER SITE RELATED IMPROVEMENTS. A TYPE C BUFFER WILL BE PLANTED IN ACCORDANCE WITH 7.4.1.4 OF THE UDO. THE LAND USE ADMINISTRATOR RESERVES THE RIGHT TO REQUIRE ADDITIONAL VEGETATION TO BE PLANTED PRIOR TO CERTIFICATE OF OCCUPANCY TO MEET THE PERFORMANCE STANDARDS OF THE TYPE C BUFFER.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

NORTH

MORNING FLYER WAY EXISTING TREE COVERAGE PLAN

SCALE: 1" = 60'

(DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1419 BRANDON D. HOUSE
DEC 2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
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Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 APR 2024
REVISED:
1 02 AUG 2024
2 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY EXISTING TREE COVERAGE PLAN

Job Code ASKSCD

Dwg No. SITE 101

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Trees to be Removed Table			
Point #	Northing	Easting	Description
2	748581.22	2159747.81	14 pine
3	748562.15	2159745.32	12 pine
6	748609.91	2159721.68	16 pine
7	748547.84	2159770.19	2 cedar
8	748556.57	2159780.50	4 cedar
9	748567.41	2159791.16	15 pine
10	748557.90	2159743.19	13 pine
11	748554.37	2159757.18	14 pine
12	748552.45	2159776.74	15 pine
13	748480.32	2159890.79	15 pine
14	748513.02	2159865.92	13 pine
15	748532.87	2159826.08	12 pine
16	748473.79	2159898.85	13 pine
19	748523.98	2159789.53	14 pine
20	748525.24	2159779.04	14 pine
22	748552.78	2159811.93	5 cherry
23	748539.52	2159802.94	15 pine
24	748531.87	2159798.15	14 pine
25	748775.29	2160020.63	13 pine
26	748770.66	2160014.59	12 pine
27	748767.20	2160005.46	15 pine
29	748783.19	2160061.28	13 poplar
30	748769.73	2160048.88	14 white oak
31	748755.23	2159959.28	19 pine
32	748750.74	2159954.66	14 pine
33	748742.19	2159956.69	13 pine
34	748756.55	2159999.59	14 pine
35	748748.80	2159988.66	14 pine
36	748756.50	2159973.58	16 pine
37	748541.04	2159825.46	4 cherry
38	748538.78	2159833.18	14 pine
39	748526.49	2159855.87	13 pine
40	748564.24	2159809.77	16 pine
41	748567.24	2159818.36	12 pine
42	748559.19	2159827.21	12 pine
43	748545.26	2159859.38	6 persimmon
44	748586.64	2159894.07	12 pine
45	748655.06	2159912.77	15 sycamore
46	748528.78	2159878.21	15 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
47	748534.21	2159869.38	14 pine
48	748534.59	2159854.56	5 persimmon
49	748309.82	2159772.38	16 pine
50	748305.13	2159778.70	20 pine
51	748308.11	2159783.48	19 pine
52	748313.74	2159746.07	14 pine
53	748311.12	2159752.57	19 pine
54	748320.95	2159769.84	15 pine
55	748336.36	2159800.00	4 cedar
56	748328.24	2159821.53	19 pine
57	748307.32	2159800.50	18 pine
58	748318.44	2159778.98	15 pine
59	748321.58	2159785.42	3 holly
60	748329.29	2159788.09	4 cherry
63	748396.80	2159703.43	14 pine
64	748355.19	2159694.36	10 cherry
65	748369.38	2159686.78	14 pine
67	748326.62	2159733.93	22 pine
68	748326.17	2159742.09	20 pine
69	748313.16	2159742.93	18 pine
70	748381.90	2159710.84	13 pine
71	748374.79	2159735.26	13 pine
72	748343.98	2159759.64	5 cherry
75	748413.68	2159867.69	3 cherry
77	748386.47	2159863.74	14 pine
78	748392.32	2159856.12	14 pine
82	748410.84	2159867.46	14 pine
83	748390.68	2159880.53	2 cherry
85	748304.27	2159815.83	18 pine
86	748314.67	2159817.44	16 pine
87	748307.86	2159831.62	12 pine
88	748307.08	2159802.04	18 pine
89	748300.47	2159812.22	16 pine
90	748304.36	2159810.78	15 pine
91	748309.88	2159857.48	18 pine
92	748332.77	2159836.55	22 pine
93	748341.91	2159840.55	5 cherry
94	748303.65	2159833.16	20 pine
95	748303.17	2159842.13	17 pine
96	748306.88	2159838.86	14 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
97	748861.17	2160020.98	13 pine
98	748857.93	2160031.71	18 pine
99	748851.91	2160027.73	21 pine
100	748874.14	2160036.45	19 pine
101	748868.00	2160033.28	14 pine
102	748858.26	2160033.12	13 pine
103	748845.25	2159761.98	20 pine
104	748802.00	2159866.84	8 cherry
105	748869.62	2159748.21	17 pine
106	748848.83	2160007.46	19 sycamore
107	748845.43	2160019.19	15 pine
108	748797.33	2159866.27	9 cherry
109	748765.70	2159772.36	6 cherry
110	748761.69	2159770.20	4 cherry
111	748763.45	2159768.67	5 cherry
112	748741.50	2159778.92	6 cherry
113	748743.93	2159749.85	17 pine
114	748746.78	2159781.32	8 cherry
115	748824.21	2160021.40	15 pine
116	748825.65	2160017.66	15 pine
117	748830.77	2160026.25	14 pine
118	748792.29	2160039.66	13 poplar
119	748768.05	2159765.48	5 cedar
120	748788.63	2160040.88	18 hickory
121	748975.68	2159792.53	3 cherry
122	748959.31	2159751.78	3 cherry
123	748988.59	2159830.87	3 cherry
126	748946.04	2159685.73	2 cherry
130	749018.63	2160026.75	3 leland cypress
131	748997.67	2159867.39	3 cherry
133	748881.26	2159699.67	4 cedar
134	748880.15	2159711.53	3 cherry
135	748879.41	2159697.82	12 pine
136	748895.19	2159731.98	14 pine
137	748886.44	2159736.34	3 cedar
138	748874.13	2159703.29	13 pine
143	748843.66	2159642.44	13 pine
145	748700.38	2159780.19	12 pine
146	748693.87	2159781.28	13 pine
147	748715.70	2159759.39	14 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
148	748685.08	2159763.70	13 pine
149	748680.44	2159769.13	13 pine
150	748690.15	2159760.59	3 cedar
151	748689.60	2159742.98	13 pine
152	748692.58	2159746.64	12 pine
153	748701.66	2159731.33	4 cedar
154	748707.07	2159751.77	12 pine
155	748710.46	2159757.18	18 pine
156	748699.79	2159754.31	18 pine
157	748720.08	2159907.69	20 pine
158	748727.66	2159914.67	15 pine
159	748746.72	2159834.04	19 hickory
160	748735.36	2159951.96	18 pine
161	748742.11	2159953.33	16 pine
162	748724.63	2159921.65	7 cherry
163	748673.65	2159779.48	16 pine
164	748679.56	2159804.69	15 pine
165	748677.67	2159749.53	12 pine
166	748719.03	2159789.36	7 cherry
167	748718.75	2159788.43	5 cedar
168	748714.63	2159794.17	9 cherry
169	748718.82	2159742.07	6 cherry
170	748717.52	2159729.77	8 cedar
171	748726.43	2159746.54	7 cherry
172	748716.56	2159700.28	4 cedar
173	748713.85	2159694.70	13 pine
174	748725.74	2159718.25	18 pine
175	748746.16	2159750.15	14 pine
176	748756.53	2159749.04	15 pine
177	748741.78	2159741.88	14 pine
178	748766.31	2159739.50	2 cherry
179	748727.83	2159741.87	14 pine
180	748765.44	2159746.11	15 pine
181	748704.28	2159664.63	4 cherry
182	748711.18	2159680.34	15 pine
184	748681.04	2159713.76	18 pine
185	748684.78	2159718.81	16 pine
186	748701.22	2159685.57	13 pine
187	748747.00	2159685.49	13 pine
188	748754.96	2159665.72	12 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
189	748721.26	2159686.41	13 pine
190	748725.61	2159669.41	13 pine
191	748735.10	2159657.51	13 pine
192	748730.89	2159673.86	12 pine
193	748624.88	2159729.04	14 pine
194	748626.46	2159750.24	12 pine
195	748632.09	2159748.50	8 cherry
196	748611.24	2159705.57	14 pine
197	748620.51	2159704.87	15 pine
198	748609.38	2159709.75	15 pine
199	748582.57	2159770.93	14 pine
200	748618.14	2159770.79	14 pine
201	748586.68	2159776.87	14 pine
202	748609.12	2159746.98	13 pine
203	748591.13	2159753.33	12 pine
204	748581.50	2159755.83	14 pine
205	748481.65	2159822.69	14 pine
206	748489.22	2159818.24	12 pine
207	748491.12	2159818.58	12 pine
208	748485.98	2159863.89	12 pine
209	748489.20	2159856.15	7 cherry
210	748497.42	2159842.58	12 pine
211	748510.88	2159809.68	12 pine
212	748503.12	2159772.97	15 pine
272	748439.48	2159864.45	15 pine
273	748453.72	2159858.29	12 pine
274	748451.49	2159801.08	14 pine
275	748460.29	2159804.90	12 pine
276	748468.29	2159801.25	14 pine
279	748345.49	2159775.50	23 pine
281	748387.30	2159749.52	3 cherry
283	748375.85	2159767.56	2 cedar
286	748346.83	2159777.79	2 holly
287	748367.32	2159768.22	4 cherry
288	748347.05	2159780.65	3 cherry
289	748807.98	2159634.01	13 pine
290	748810.12	2159618.61	4 cherry
291	748798.74	2159630.23	12 pine
292	748819.17	2159679.41	12 pine
293	748827.68	2159657.06	12 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
294	748810.10	2159647.92	12 pine
295	748954.17	2159733.38	2 cherry
296	748991.11	2159842.83	3 cherry
297	749014.01	2160037.72	3 leyland cypress
299	748867.15	2159646.89	13 pine
300	748865.59	2159637.30	12 pine
301	748829.01	2159773.15	13 pine
302	748853.42	2159756.62	2 cedar
303	748856.20	2159746.52	16 pine
304	748874.94	2160017.20	18 pine
305	748812.66	2159815.48	13 pine
306	748818.86	2159772.44	17 pine
307	748853.24	2159694.43	13 pine
308	748849.08	2159675.84	2 cherry
309	748847.90	2159680.68	14 pine
310	748849.57	2159745.44	14 pine
311	748850.15	2159714.68	12 pine
312	748855.40	2159704.19	2 cedar
313	748328.83	2159710.86	22 pine
314	748330.96	2159716.74	14 pine
315	748329.47	2159719.08	15 pine
316	748338.33	2159690.36	17 pine
317	748329.25	2159695.59	19 pine
318	748322.37	2159702.98	21 pine
319	748343.27	2159714.89	6 cherry
320	748367.63	2159675.68	9 cherry
321	748409.01	2159667.34	15 pine
322	748330.86	2159722.25	18 pine
323	748347.02	2159716.22	22 pine
324	748350.01	2159717.94	18 pine
332	748246.35	2159703.00	14 pine
333	748337.05	2159691.98	22 pine
336	748251.05	2159647.46	14 pine
337	748668.13	2159685.89	18 pine
338	748690.89	2159689.34	12 pine
339	748671.72	2159683.59	19 pine
340	748647.99	2159720.80	13 pine
341	748647.64	2159707.02	18 pine
342	748673.07	2159697.50	12 pine
348	748681.07	2159675.82	14 pine

Trees to be Removed Table			
Point #	Northing	Easting	Description
349	748653.08	2159759.85	2 cherry
350	748654.19	2159736.70	14 pine
351	748645.51	2159732.54	12 pine
352	748636.09	2159785.34	15 pine
353	748635.05	2159768.20	13 pine
354	748659.73	2159780.02	16 pine
355	748662.42	2159715.88	14 pine
356	748658.97	2159717.58	13 pine
357	748628.10	2159719.13	7 cherry
358	748662.56	2159735.86	15 pine
359	748676.52	2159705.86	3 cedar
360	748671.22	2159709.19	3 cedar
361	748787.51	2159763.02	12 pine
362	748791.63	2159763.47	15 pine
363	748797.27	2160062.88	17 willow oak
364	748757.38	2159734.68	15 pine
365	748783.51	2159740.50	15 pine
366	748782.66	2159752.02	15 pine
367	748898.76	2160027.31	14 maple
368	748905.55	2160013.21	20 pine
369	748891.16	2160017.31	19 pine
370	748807.15	2160064.95	17 pine
371	748886.43	2160026.36	14 pine
372	748881.40	2160033.54	17 pine
373	748779.75	2159696.75	12 pine
374	748778.29	2159694.08	4 cedar
375	748771.39	2159687.18	12 pine
377	748781.53	2159627.63	13 pine
378	748753.90	2159640.43	15 pine
379	748743.84	2159701.69	13 pine
380	748746.12	2159699.05	2 cedar
381	748748.71	2159710.95	13 pine
382	748754.39	2159674.39	2 cedar
383	748755.19	2159684.51	12 pine
384	748742.95	2159696.94	14 pine
1001	748582.70	2159717.42	16 pine
1214	748494.25	2159833.19	12 pine
1215	748504.98	2159818.98	14 pine
1216	748511.95	2159824.38	6 cherry
1217	748671.86	2159994.88	21 maple

Trees to be Removed Table			
Point #	Northing	Easting	Description
1218	748676.93	2159968.83	18 poplar
1219	748672.84	2159974.47	18 pine
1220	748691.39	2159978.30	17 poplar
1221	748703.68	2159991.72	18 poplar
1222	748687.60	2159982.09	20 poplar
1223	748659.21	2159803.63	15 pine
1224	748627.98	2159792.52	12 pine
1225	748648.29	2159817.54	14 pine
1226	748715.69	2159933.76	15 pine
1227	748647.39	2159829.23	13 pine
1228	748720.41	2159914.59	12 pine
1229	748583.24	2159795.32	12 pine
1230	748599.35	2159807.18	2 cedar
1231	748605.65	2159821.05	13 pine
1232	748622.11	2159782.17	13 pine
1233	748589.27	2159800.61	12 pine
1234	748605.54	2159778.28	16 pine
1235	748611.07	2159843.53	14 pine
1236	748619.38	2159842.45	12 pine
1237	748635.96	2159835.21	2 holly
1238	748603.69	2159803.39	12 pine
1239	748604.27	2159840.84	3 cherry
1240	748590.71	2159857.44	12 pine
1243	748406.40	2159664.43	2 cedar
1251	748405.62	2159727.40	15 pine
1254	748332.63	2159635.95	17 pine
1255	748315.48	2159663.08	21 pine
1262	748345.61	2159649.18	21 pine
1265	748360.60	2159866.33	13 pine
1271	748461.39	2159821.40	16 pine
2213	748509.09	2159797.54	15 pine

Trees to be Replaced Table			
Point #	Northing	Easting	Description
17	748493.25	2159914.25	14 maple
18	748492.19	2159920.14	19 maple
28	748761.10	2160071.36	18 white oak
76	748374.01	2159885.29	12 pine
79	748424.55	2159896.48	12 pine
80	748455.80	2159898.59	12 pine
81	748462.85	2159904.99	14 pine
84	748412.19	2159884.19	14 pine
124	748877.55	2159638.09	12 pine
125	748869.95	2159617.75	12 pine
141	748871.62	2159620.78	14 pine
278	748346.38	2159805.72	25 pine
1269	748336.66	2159872.70	16 willow oak

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1419 SEAL SHANNON D. NOLEN

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By JHJ
Checked By SRN

DATE:
02 AUG 2024
REVISED:
1 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY TREE POINT DATA TABLE SHEET

Job Code ASKSCD

Dwg No.
SITE 102

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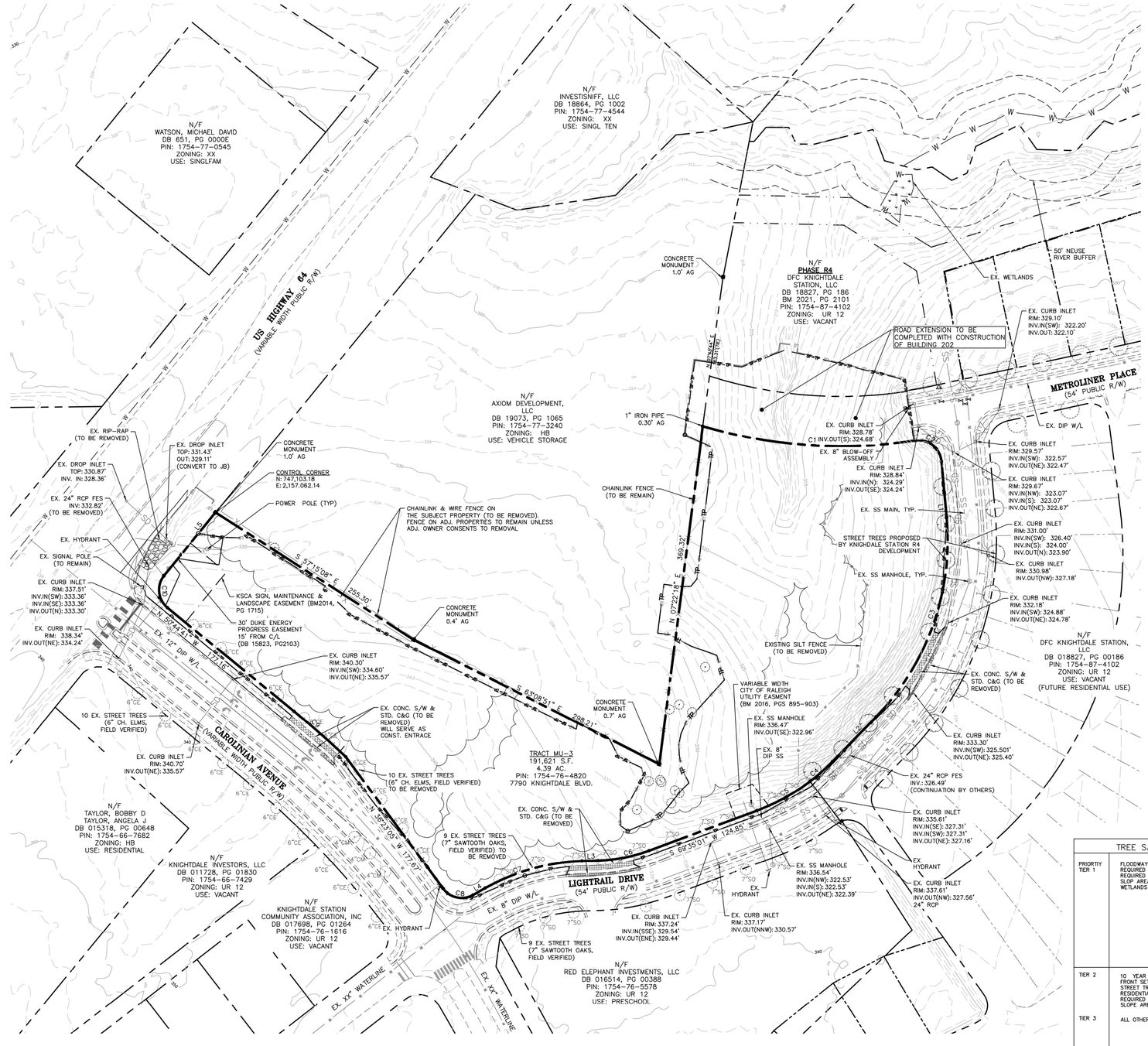

DEMOLITION NOTES

1. LANDSCAPE AREAS REQUIRED BY CHAPTER 7 OF THE UDO SHALL NOT CONTAIN ANY DEVELOPMENT, IMPERVIOUS SURFACES, OR SITE FEATURES THAT DO NOT FUNCTION TO MEET THE APPLICABLE STANDARDS FOR THAT AREA OR THAT REQUIRE REMOVAL OF EXISTING SIGNIFICANT VEGETATION [UDO SECT. 7.4.E.1].
2. NO GRADING, DEVELOPMENT OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE [UDO SECT. 7.4.E.2].
3. ALL AREAS WITHIN REQUIRED BUFFER YARDS, STREAM BUFFERS, SLOPE AREAS GREATER THAN 25% AND WETLANDS ARE TREE SAVE AREAS AND ALL VEGETATION AND SOIL IS TO REMAIN UNDISTURBED [UDO SECT. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANING STRIP AND SLOPE AREAS OF 15-25% ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
5. ALL TREES GREATER THAN 24" DBH ON-SITE ARE TO REMAIN UNDISTURBED OR REPLACEMENT TREES ARE REQUIRED AT A RATE OF 1 TREE PER 12" DBH AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES/PUBLIC GATHERING AREAS/PEDESTRIAN PLAZA WHENEVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO SECT. 7.4.H.1].
6. THROUGH THE PROTECTION OF TREES AND EXISTING VEGETATION, THE TOWN ENCOURAGES NEW DEVELOPMENT TO BE CREATIVE IN DESIGN AND PLACEMENT OF BUILDINGS, STRUCTURES, PARKING, AND OTHER IMPERVIOUS SURFACES AS TO PRESERVE NATURAL FEATURES AND TO COMPLEMENT THE EXISTING TOPOGRAPHY WHEN PRACTICAL. NO TREE GREATER THAN TWELVE (12) INCHES IN DIAMETER AT BREAST HEIGHT (DBH: MEASURED AT 4.5 FEET ABOVE GRADE) LOCATED ON PUBLIC PROPERTY OR WITHIN A REQUIRED TREE PROTECTION AREA (SECTION 7.4) SHALL BE REMOVED FOR THE PURPOSE OF SURVEYING WITHOUT APPROVAL FROM THE LAND USE ADMINISTRATOR. [UDO SECT. 7.4.D.4.a.ii.a]
7. TREE PROTECTION FENCES SHALL BE PLACED AROUND ALL PROTECTED TREES DESIGNATED TO BE SAVED PRIOR TO THE START OF DEVELOPMENT ACTIVITIES OR GRADING IN ACCORDANCE WITH STANDARD 2.10 OF THE TOWN OF KNIGHTDALE STANDARD SPECIFICATIONS AND DETAILS MANUAL. TREE PROTECTION FENCES SHALL REMAIN IN PLACE UNTIL DEVELOPMENT ACTIVITIES ARE COMPLETED. TO PREVENT UNINTENDED COMPACTION OF SOIL, THE AREA WITHIN THE PROTECTIVE BARRICADE SHALL REMAIN FREE OF ALL BUILDING MATERIALS, DIRT OR OTHER CONSTRUCTION DEBRIS, CONSTRUCTION TRAFFIC, STORAGE OF VEHICLES AND MATERIALS, AND MASS GRADING. [UDO SECT. 7.4.D.4.a.ii.b]
8. EXCEPT FOR DRIVEWAY ACCESS POINTS, SIDEWALKS, CURB, AND GUTTER: NO PAVING WITH CONCRETE OR OTHER IMPERVIOUS MATERIALS WITHIN FIVE (5) FEET OF A TREE DRIP LINE SHALL BE ALLOWED UNLESS OTHERWISE APPROVED. WHERE GRADING WITHIN A TREE DRIPLINE CANNOT BE AVOIDED, CUT AND FILL SHALL BE LIMITED TO ONE-QUARTER (1/4) TO ONE-HALF (1/2) OF THE AREA WITHIN THE DRIPLINE, AND TREE ROOTS MUST BE PRUNED WITH CLEAN CUTS AT THE EDGE OF THE DISTURBED AREA. NO FILL SHALL BE PLACED WITHIN THE DRIPLINE OF A TREE WITHOUT VENTING TO ALLOW AIR AND WATER TO REACH THE ROOTS. [UDO SECT. 7.4.D.4.a.ii.c]

LINE TABLE-THIS SHEET ONLY		
LINE	LENGTH	BEARING
L1	61.50	S 5°12'30" E
L2	67.88	S 44°18'43" W
L3	17.70	S 88°14'49" W
L4	15.39	S 60°33'28" W
L5	88.13	N 39°8'32" E

CURVE TABLE-THIS SHEET ONLY				
CURVE	LENGTH	RADIUS	BEARING	CHORD
C1	232.40	527.00	S 86°5'52" E	230.52
C2	40.86	25.00	N 52°2'2" W	36.46
C3	235.96	273.00	N 19°33'7" E	228.68
C4	32.56	223.00	N 48°29'43" E	32.53
C5	65.80	223.00	N 61°7'52" E	65.56
C6	56.35	173.00	N 78°54'55" E	56.10
C7	109.70	227.00	S 74°24'9" W	108.64
C8	36.24	25.00	S 7°54'48" E	33.15
C9	74.61	1054.00	N 48°43'1" W	74.59
C10	39.28	25.00	S 5°44'41" E	35.36

TREE SAVE AREA		PROTECTION MEASURES
PRIORITY TIER 1	FLOODWAYS REQUIRED STREEM BUFFERS REQUIRED BUFFER YARD SLOP AREAS GREATER THAN 25% WETLANDS	ALL VEGETATION AND SOIL TO REMAIN UNDISTURBED IN SOME CASES, LIMITED DISTURBANCES MAY OCCUR WITHIN THE AREAS TO BE PROTECTED PROVIDED AL THE NECESSARY APPROVALS ARE OBTAINED. SUCH ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: 1. MITIGATION OF DEVELOPMENT ACTIVITIES 2. RESTORATION OF PREVIOUSLY DISTURBED AREAS 3. UTILITY INSTALLATIONS AND EMERGENCY PUBLIC SAFETY ACTIVITIES. 4. CONSTRUCTION OF A TRAIL OR PEDESTRIAN WALKWAY THAT WILL PROVIDE PUBLIC ACCESS. 5. REQUIRED STREET OR DRIVEWAY CONNECTIONS.
TIER 2	10 YEAR FLOODPLAINS FRONT SETBACK AREAS STREET TREE PLANTING STRIP RESIDENTIAL LANDSCAPING AREAS REQUIRED OPEN SPACE SLOPE AREAS OF 15-25%	ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **
TIER 3	ALL OTHER LOCATIONS	ALL TREES GREATER THAN 24" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **

** REQUIRED STREET TREES, PARKING LOT LANDSCAPING, RESIDENTIAL LANDSCAPING AND BUFFER YARD PLANTINGS MAY NOT BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS.

GENERAL NOTES

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4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

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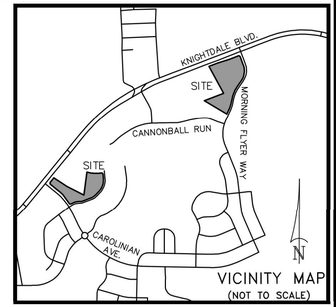
Land Use Administrator



LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- EXISTING STORM DRAIN LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber-optic marker
- Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- Overhead utility
- Water
- Sanitary sewer
- Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right-of-way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right-of-way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

NORTH

CAROLINIAN AVE. DEMO & EXISTING CONDITIONS PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NEWCOMB
4/26/2024

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CONSTRUCTION DRAWINGS FOR:
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0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. EXISTING CONDITIONS PLAN

Job Code ASKSCD

Dwg No.
SITE
110

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SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber-optic marker
- Traffic signal box
- Water meter
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- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

TREE LEGEND

AB – ARBORVITAE
CD – CEDAR
CE – CHINESE ELM
CH – CHERRY
CM – CRAPE MYRTLE
HK – HICKORY
HL – HOLLY
MP – MAPLE
PN – PINE
PP – POPLAR
PS – PERSIMMON
SO – SAWTOOTH OAK
SW – SOURWOOD
SY – SYCAMORE
WH – WHITE OAK
WO – WILLOW OAK

- TREES TO BE REMOVED
- TREES TO BE REMOVED & REPLACED
- TREES TO BE PRESERVED

NOTE: SEE SITE 510 FOR REPLACEMENT TREE LOCATIONS

TREE SAVE AREA		PROTECTION MEASURES
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REQUIRED TREE REPLACEMENT CALCULATIONS:

TIER 2 – FRONT SETBACK AREAS: ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE/12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE.
FRONT SETBACK AREA REMOVALS = 0 TREES GREATER THAN 12" DBH

TIER 3 – ALL OTHER LOCATIONS: ALL TREES GREATER THAN 24 "DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE/12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE.
OTHER LOCATION REMOVALS = 2 TREES
1. 25" MAPLE
2. 27" MAPLE
52 TOTAL DBH REMOVED, 52/12 = 4 REPLACEMENT TREES REQUIRED

STREET TREE REPLACEMENT NOTES:

1. ANY EXISTING STREET TREE PROPOSED TO BE REMOVED WILL BE REPLANTED IN ACCORDANCE WITH THE STREET TREE LOCATIONS PER THE APPLICABLE ROADWAY CROSS-SECTION OUTLINED IN SECTION 10.4.A OF THE UDO.
2. ALL STREET TREES SHOWN ON LIGHTRAIL DRIVE EXTENSION ARE BONDED BY KNIGHTDALE STATION DEVELOPMENT, PHASE R4. CONTRACTOR SHALL COORDINATE THE 9 STREET TREE REPLACEMENT INSTALLATIONS WITH KNIGHT STATION DEVELOPMENT, THE OWNER AND THE SITE GROUP.

GENERAL NOTES

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a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NORTH

CAROLINIAN AVE. EXISTING TREE COVERAGE PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1419 BRANDON D. HOUSE
DRAFT 2024

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 APR 2024
REVISED:
1 02 AUG 2024

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. EXISTING TREE COVERAGE PLAN

Job Code ASKSCD

Dwg No.
SITE 111

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Trees to be Removed Table			
Point #	Northing	Easting	Description
213	747121.61	2157716.23	12 maple
216	747006.64	2157708.49	14 maple
217	746998.34	2157706.36	20 maple
218	747018.24	2157756.91	16 sourwood
219	746933.96	2157634.20	15 hickory
224	746758.41	2157488.96	15 cedar
225	746796.30	2157437.80	14 pine
226	746738.36	2157384.06	12 pine
227	746743.04	2157371.37	13 pine
228	746737.36	2157338.81	13 pine
229	746759.31	2157320.71	14 pine
230	746757.85	2157335.52	12 pine
231	746766.85	2157322.95	12 pine
232	746741.49	2157314.32	8 cherry
233	746764.38	2157294.34	14 pine
234	746789.91	2157296.66	12 pine
235	746795.55	2157297.79	15 pine
236	746828.32	2157282.74	13 pine
237	746833.66	2157282.91	13 pine
238	746830.88	2157266.00	12 pine

Trees to be Removed Table			
239	746825.06	2157256.52	17 pine
240	746838.17	2157245.51	13 pine
241	746843.97	2157256.75	14 pine
242	746845.43	2157257.49	16 pine
243	746861.12	2157236.80	14 pine
244	746865.82	2157207.73	17 pine
245	746871.13	2157212.73	13 pine
246	746881.14	2157225.71	15 pine
247	746897.97	2157243.69	12 pine
248	746886.24	2157255.91	18 pine
249	746893.53	2157195.37	13 pine
250	746901.10	2157182.07	5 cherry
251	746906.38	2157177.93	15 pine
252	746911.04	2157182.62	13 pine
253	746936.84	2157196.20	7 cherry
254	746936.56	2157191.37	13 pine
255	746911.08	2157165.67	3 cherry
256	746908.93	2157163.12	3 cherry
257	746903.16	2157155.62	17 pine
258	746934.22	2157159.95	14 pine

Trees to be Removed Table			
259	746933.07	2157150.45	16 pine
260	746925.27	2157134.34	7 cherry
261	746940.92	2157121.31	13 pine
262	746954.28	2157125.44	6 cherry
263	746956.22	2157130.87	18 pine
264	747012.78	2157122.31	12 pine
265	747023.16	2157054.57	3 leland cypress
266	747012.23	2157049.61	4 leland cypress
267	747002.03	2157047.01	4 leland cypress
268	746993.04	2157035.83	5 leland cypress
269	747037.14	2157047.32	3 leland cypress
270	747031.86	2157114.26	13 pine
271	747028.40	2157119.40	12 pine
444	747144.93	2157673.43	15 holly
452	746855.34	2157465.61	5 cedar
453	746851.69	2157464.73	5 cedar
454	746839.21	2157445.94	5 cedar
455	746855.67	2157452.65	7 cherry
456	746866.15	2157416.70	12 pine
457	746885.33	2157334.61	14 pine

Trees to be Removed Table			
458	746869.58	2157329.55	12 pine
459	746848.29	2157313.34	13 pine
460	746874.11	2157306.93	12 pine
461	746852.79	2157293.73	12 pine
462	746875.85	2157273.40	13 pine
463	746882.91	2157282.34	13 pine
464	746901.68	2157305.96	12 pine
465	746927.18	2157268.02	13 pine
466	746936.31	2157271.90	2 cherry
467	746975.41	2157206.71	13 pine
468	746971.87	2157204.44	12 pine
469	746983.82	2157166.99	21 cherry
470	746987.79	2157169.38	9 cedar
471	747027.93	2157173.92	7 cedar
472	747009.82	2157144.12	16 cedar
473	747000.93	2157150.28	15 cedar
474	747042.32	2157153.31	11 cedar
476	747048.68	2157142.96	8 cedar
477	747048.88	2157139.99	6 cherry
479	747071.78	2157101.76	11 cedar

Trees to be Replaced Table			
Point #	Northing	Easting	Description
214	747034.55	2157696.02	25 maple
215	747007.73	2157710.62	27 maple

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1419 SEAL GORDON D. MOORE
DEC 2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS

THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
02 AUG 2024
REVISED:
1 20 SEP 2024

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. TREE POINT DATA TABLE SHEET

Job Code ASKSCD

Dwg No.
SITE
112

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SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber–optic marker
- Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- OU — Overhead utility
- W — Water
- SS — Sanitary sewer
- SD — Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right–of–way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right–of–way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- ADA ROUTE

TREE SAVE AREA		PROTECTION MEASURES
PRIORITY TIER 1	FLOODWAYS REQUIRED STREEM BUFFERS REQUIRED BUFFER YARD SLOP AREAS GREATER THAN 25% WETLANDS	ALL VEGETATION AND SOIL TO REMAIN UNDISTURBED IN SOME CASES, LIMITED DISTURBANCES MAY OCCUR WITHIN THE AREAS TO BE PROTECTED PROVIDED AL THE NECESSARY APPROVALS ARE OBTAINED, SUCH ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: 1. MITIGATION OF DEVELOPMENT ACTIVITIES 2. RESTORATION OF PREVIOUSLY DISTURBED AREAS 3. UTILITY INSTALLATIONS AND EMERGENCY PUBLIC SAFETY ACTIVITIES. 4. CONSTRUCTION OF A TRAIL OR PEDESTRIAN WALKWAY THAT WILL PROVIDE PUBLIC ACCESS. 5. REQUIRED STREET OR DRIVEWAY CONNECTIONS.
TIER 2	10 YEAR FLOODPLAINS FRONT SETBACK AREAS STREET TREE PLANTING STRIP RESIDENTIAL LANDSCAPING AREAS REQUIRED OPEN SPACE SLOPE AREAS OF 15–25%	ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **
TIER 3	ALL OTHER LOCATIONS	ALL TREES GREATER THAN 24" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **

** REQUIRED STREET TREES, PARKING LOT LANDSCAPING, RESIDENTIAL LANDSCAPING AND BUFFER YARD PLANTINGS MAY NOT BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Samuel A. MacDonald
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

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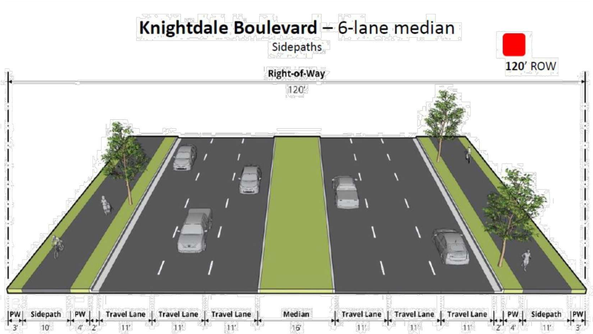
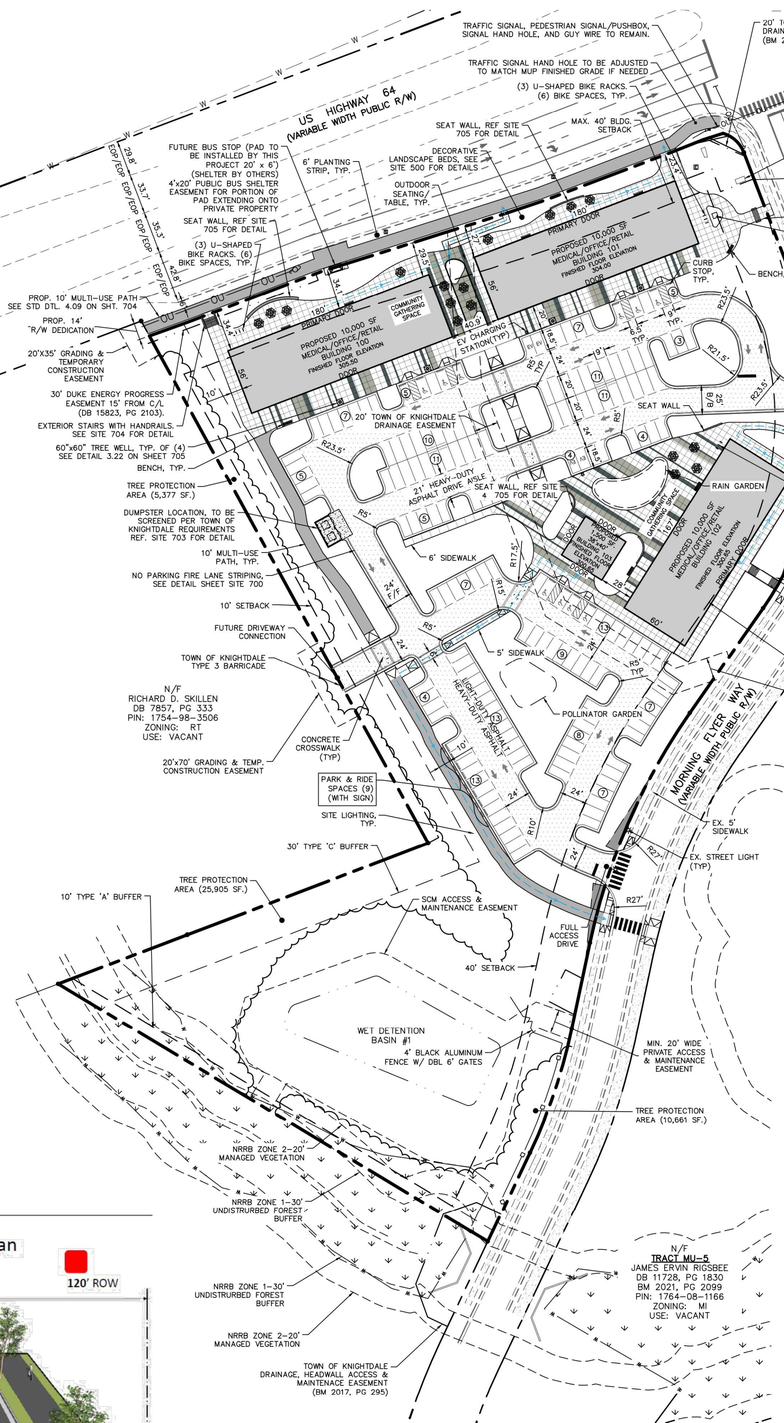
Land Use Administrator

Figure 10.13: 6 Lane Boulevard Cross Section Standards – Sidepath





PUBLIC ART NOTE:

ALL PUBLIC ART AND MURAL ART SHALL BE APPROVED BY DEVELOPMENT SERVICES PRIOR TO INSTALLMENT. THE PUBLIC ART AND MURAL ART ASSOCIATED WITH CERTAIN BUILDINGS ON BOTH SITES MUST BE INSTALLED OR BONDED PRIOR TO ISSUANCE OF THE APPLICABLE BUILDING'S CERTIFICATE OF OCCUPANCY.

- MIXED-USE PATH
- HD ASPHALT
- SIDEWALK JOINT
- EXISTING S/W
- CONC. XWALK

ZONING CONDITIONS

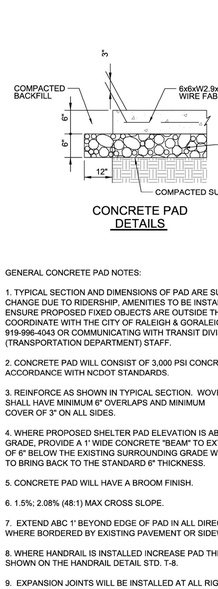
1. The width of the Type B Buffer between the Knightdale Station Commercial – Carolinian Avenue site and Wake County PIN 1754-77-3240, as labeled on the Master Plan, shall be a minimum of 18.5-feet and be planted with the same vegetative material/s required by the standard 20-foot Type B Buffer.
2. The maximum front setback for certain buildings on the Knightdale Station Commercial – Carolinian Avenue site, as labeled on the Master Plan, shall be as follows:
   a. Building 200: 60-foot
   b. Building 202: 20-foot
3. The maximum front setback for certain buildings on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall be as follows:
   a. Building 100: 40-foot
   b. Building 101: 40-foot
   c. Building 102: 40-foot
   d. Building 103: No maximum front setback
4. Park and Ride spaces shall not be required on the Knightdale Station Commercial – Carolinian Avenue site.
5. Each individual unit of the multiple tenant buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site shall be permitted to have one primary wall sign on the front façade and one primary wall sign on the rear façade, not to exceed 10% of each individual unit's façade.
6. A Development Option has been reserved to allow all buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site to be constructed as two-story structures in accordance with Section 3.4 of the Unified Development Ordinance through an administrative process if desired at a later date.
7. Building 101 on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall not be required to meet Transparency requirements outlined in Section 6.6 of the Unified Development Ordinance.
8. Architectural Standards are provided for all buildings as indicated in the PUD document.
9. The following uses, subject to all applicable additional use standards, shall be permitted in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
   a. Hotels
   b. Animal Services, Non-boarding & Boarding
   c. Banks, Credit Unions, Financial Services
   d. Business Support Services
   e. Child/Adult Day Care Home (Fewer than 6 people)
   f. Child/Adult Day Care Center (6 or more people)
   g. Community Service Organization
   h. Government Services
   i. Medical Services
   j. Personal Services
   k. Professional Services
   l. Studio – Art, dance, martial arts, music
   m. Bar, Tavern, Microbrewery
   n. General Retail (10,000 square feet or less)
   o. Neighborhood Retail/Restaurant (2,000 square feet or less)
   p. Restaurant
   q. Tasting Room
   r. Indoor Amusements (5,000 – 10,000 square feet)
   s. Indoor Amusements (10,001 – 25,000 square feet; Special Use Permit required)
   t. Cultural or Community Facility
   u. Movie Theater
   v. Indoor Recreation Facility
   w. Live Performance Theater
   x. Neighborhood Manufacturing
   y. Wireless Telecommunication Facility – Small Wireless Facilities outside Right-of-Way
   z. Accessory Building/Structure
   aa. Solar Energy Collection – Roof/Building Mounted
   bb. Mobile MRI Unit (subject to the additional use standard outlined in the PUD Document)
10. The following uses shall be expressly prohibited, and all other uses not expressly permitted shall be prohibited, in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
    a. Dwelling Duplex
    b. Dwelling Multifamily above ground floor as part of mixed use
    c. Dwelling Multifamily, 4 units/bldg. or less
    d. Dwelling Multifamily, more than 4 units/bldg.
    e. Dwelling Single Family
    f. Family Care Home (6 or less residents)
    g. Housing Services for the Elderly
    h. Townhouse, 4 units or less
    i. Townhouse, more than 4 units
    j. Post Office
    k. Auto Parts Sales
    l. Gas Station with Convenience Store
    m. Medical Cannabis Centers
    n. Nightclub
    o. Vape, Tobacco, and CBD Store
    p. Sweepstakes Centers
    q. Cemeteries
    r. Wireless Telecommunication Facility – Stealth
    s. Wireless Telecommunication Facility – Small Wireless Facilities Inside Right-of-Way
    t. Utilities – Class I & 2
    u. Cluster Mailbox Unit
    v. Standalone ATM
    w. Drive-Thru Service
    x. Drive-Thru Retail/Restaurants
    y. Home Occupation
    z. Solar Energy Collection, Ground Mounted

The submitted Planned Unit Development document and submitted Master Plan will serve as the site-specific development plan. The Applicant must submit Construction Drawings to the Town that conform to the approved conditions of the NMX-PUD zoning district, Master Plan comments, the Unified Development Ordinance, and comments from the June 6, 2023 DRC meeting.

According to Unified Development Ordinance Section 12.2.G.3.f.iii, the Applicant must secure a valid building or construction permit(s) within a 24-month period from date of approval (October 18, 2025), otherwise the ZMA may be subject to recission by Town Council. The vested rights period may be extended as detailed in UDO Section 12.2.G.4.

Please don't hesitate to reach out to me if you have any questions.

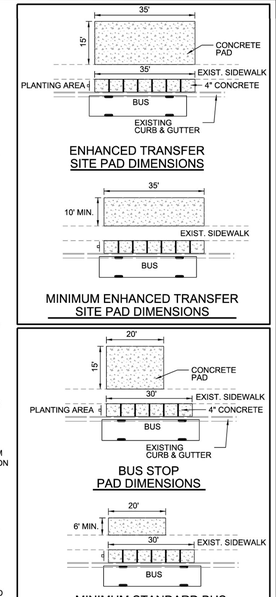
Sincerely,
Gideon Smith, AICP



CONCRETE PAD DETAILS

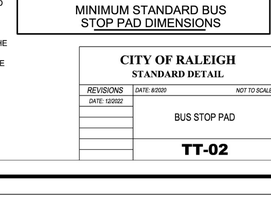
GENERAL CONCRETE PAD NOTES:

1. TYPICAL SECTION AND DIMENSIONS OF PAD ARE SUBJECT TO CHANGE DUE TO RIDERSHIP, AMENITIES TO BE INSTALLED, AND TO ENSURE PROPOSED FIXED OBJECTS ARE OUTSIDE THE CLEAR ZONE. COORDINATE WITH THE CITY OF RALEIGH & GORALEIGH, BY CALLING 919-996-4043 OR COMMUNICATING WITH TRANSIT DIVISION (TRANSPORTATION DEPARTMENT) STAFF.
2. CONCRETE PAD WILL CONSIST OF 3,000 PSI CONCRETE IN ACCORDANCE WITH NCDOT STANDARDS.
3. REINFORCE AS SHOWN IN TYPICAL SECTION. WOVEN WIRE FABRIC SHALL HAVE MINIMUM 6" OVERLAPS AND MINIMUM COVER OF 3" ON ALL SIDES.
4. WHERE PROPOSED SHELTER PAD ELEVATION IS ABOVE EXISTING GRADE, PROVIDE A 1' WIDE CONCRETE "BEAM" TO EXTEND A MINIMUM OF 6" BELOW THE EXISTING SURROUNDING GRADE WITH A 45° SECTION TO BRING BACK TO THE STANDARD 6" THICKNESS.
5. CONCRETE PAD WILL HAVE A BROOM FINISH.
6. 1.5%; 2.08% (48:1) MAX CROSS SLOPE.
7. EXTEND ABC 1' BEYOND EDGE OF PAD IN ALL DIRECTIONS EXCEPT WHERE BORDERED BY EXISTING PAVEMENT OR SIDEWALK.
8. WHERE HANDRAIL IS INSTALLED INCREASE PAD THICKNESS AS SHOWN ON THE HANDRAIL DETAIL STD. T-8.
9. EXPANSION JOINTS WILL BE INSTALLED AT ALL RIGID OBJECTS AND ADJACENT TO EXISTING PAVEMENT AND HAVE 1/8 " RADIUS TOOLED EDGE AND FILL WITH SEALER. JOINT SEALER TO BE GREY IN COLOR.
10. WHERE SIDEWALK IS EXISTING, PLACE CONCRETE IN BETWEEN THE SIDEWALK AND THE EDGE OF PAVEMENT OR CURBING. IF NO SIDEWALK IS EXISTING PLACE CONCRETE IN THREE (3) SECTIONS: THE UTILITY STRIP, THE SIDEWALK SECTION, AND THE SHELTER PAD.
11. SIDEWALK AND CONCRETE IN UTILITY STRIP AT BACK OF CURB WILL BE 4" THICK IN ACCORDANCE WITH THE STANDARD SIDEWALK SECTION.



ENHANCED TRANSFER SITE PAD DIMENSIONS

MINIMUM ENHANCED TRANSFER SITE PAD DIMENSIONS



BUS STOP PAD DIMENSIONS

MINIMUM STANDARD BUS STOP PAD DIMENSIONS

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
DATE: 12/2022	BUS STOP PAD	
	TT-02	

SITE DATA SUMMARY

PROJECT NAME:	KNIGHTDALE STATION – MORNING FLYER WAY
PROPERTY OWNER:	KNIGHTDALE COMMERCIAL, LLC
PIN(S):	1754988657
SITE ADDRESS:	0 KNIGHTDALE BLVD
JURISDICTION:	KNIGHTDALE
ZONING:	NMX–PUD
OVERLAY DISTRICT:	N/A
WATERSHED:	MARKS CREEK
RIVER BASIN:	NEUSE
TOTAL PROJECT AREA:	6.87 AC.
CURRENT USE:	VACANT
PROPOSED USE:	MEDICAL, OFFICE, PROFESSIONAL SERVICES, GENERAL RETAIL, AND NEIGHBORHOOD RETAIL/RESTAURANT (UDO 6.8) (SEE APPROVED ZONING CONDITIONS 9 & 10)
PLACE TYPE:	MIXED–USE CENTER
PROPOSED BUILDING TYPE:	MIXED USE BUILDING
NEW BUILDING AREA:	BUILDING 100: 10,000 SF. BUILDING 101: 10,000 SF. BUILDING 102: 10,000 SF. BUILDING 103: 1,500 SF. TOTAL BLDG AREA: 31,500 SF.
BUILDING HEIGHT REQ. (MAX.):	56', 4 STORIES (UDO 3.4)
PROVIDED BUILDING HEIGHT:	BUILDING 100 = 31'–0" BUILDING 101 = 31'–4" BUILDING 102 = 22'–4" BUILDING 103 = 20'–0"
EXISTING IMPERVIOUS AREA ONSITE:	0 SF.
PROPOSED IMPERVIOUS AREA ONSITE:	147,192 SF.
PROPOSED IMPERVIOUS AREA WITHIN R/W	3,948 SF.
PARKING REQUIRED:	87 SPACES (MIN.) – 173 SPACES (MAX.)
PARKING PROVIDED:	173 SPACES
ADA PARKING REQUIRED:	6 SPACES
ADA PARKING PROVIDED:	12 SPACES
EV CHARGING STATIONS REQUIRED:	4 CHARGING STATIONS (1/40 MOTOR VEH.)
EV CHARGING STATIONS PROVIDED:	4 CHARGING STATIONS
BICYCLE PARKING REQ. (MIN.):	17 SPACES (1/10 MOTOR VEH.)
BICYCLE PARKING PROVIDED:	18 SPACES
PARK & RIDE SPACES REQUIRED(5%):	173(.05) = 9 SPACES REQ'D/PROVIDED
BUILDING SETBACKS:	PLEASE SEE ZONING CONDITIONS #2 & #3 FOR BUILDING SETBACK REQUIREMENTS
YARD SETBACKS:	
FRONT YARD (MIN):	0'
FRONT YARD (MAX.):	10'
SIDE YARD (MIN.):	10' (IF PARTIWALL EXISTS, 0' SIDE YARD MIN.)
REAR YARD (MIN.):	0'
PARKING SETBACKS:	
FRONT YARD:	N/A
SIDE YARD:	0'
REAR YARD:	5'
TREE SAVE AREA REQUIRED:	10% – 0.69 AC.
TREE SAVE AREA PROVIDED:	14.0% – 0.96 AC.
REPLANTED AREA REQUIRED:	0.0 AC.
REPLANTED AREA PROVIDED:	4,166 SF./0.09 AC. (AREA PROVIDED FOR SOUTH SITE REQUIREMENT)
TREE PROTECTION FENCING:	1,397 LF.
PUBLIC GATHERING SPACE REQ:	500 SF
PUBLIC GATHER SPACE PROVIDED:	38,826 SF
PERMITTED MONUMENT SIGN TYPES :	(UDO 8.5)
NEIGHBORHOOD/CAMPUS GATEWAYS:	16 SF MAX AREA – 7' MAX HEIGHT – 2 PER ENTRANCE
LOTS LESS THAN 2 AC.:	25 SF MAX AREA – 4' MAX HEIGHT – 2**
LOTS EQ. TO OR GREATER THAN 2 AC.:	50 SF MAX AREA – 7' MAX HEIGHT – 2**
PERMITTED BUILDING WALL TYPES:	
FRONT FACADES:	SEE APPROVED ZONING CONDITION #5
ALL OTHER FACADES:	SEE APPROVED ZONING CONDITION #5
PUBLIC IMPROVEMENT QUANTITIES:	
LINEAR FT/WIDTH OF STREETS:	0 LF.
LINEAR FT/WIDTH OF PUBLIC GREENWAY TRAILS:	976 LF. 10' WIDTH
LINEAR FEET OF PUBLIC SIDEWALKS:	547 LF.
LINEAR FEET OF PUBLIC CURB & GUTTER:	3,688 LF.
LINEAR FEET OF STORM DRAINAGE:	2,231 LF.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND–DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

NORTH

MORNING FLYER WAY SITE PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24×36 INCH PLOTS)

0 60 120 180 240

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NC ENGINEERING LICENSE NO. P–0803

SEAL 34981 ENGINEER SAMUEL R. NEWCOMB 7/17/2025

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025
8 17 JUL 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY SITE PLAN

Job Code ASKSCD

Dwg No. SITE 200

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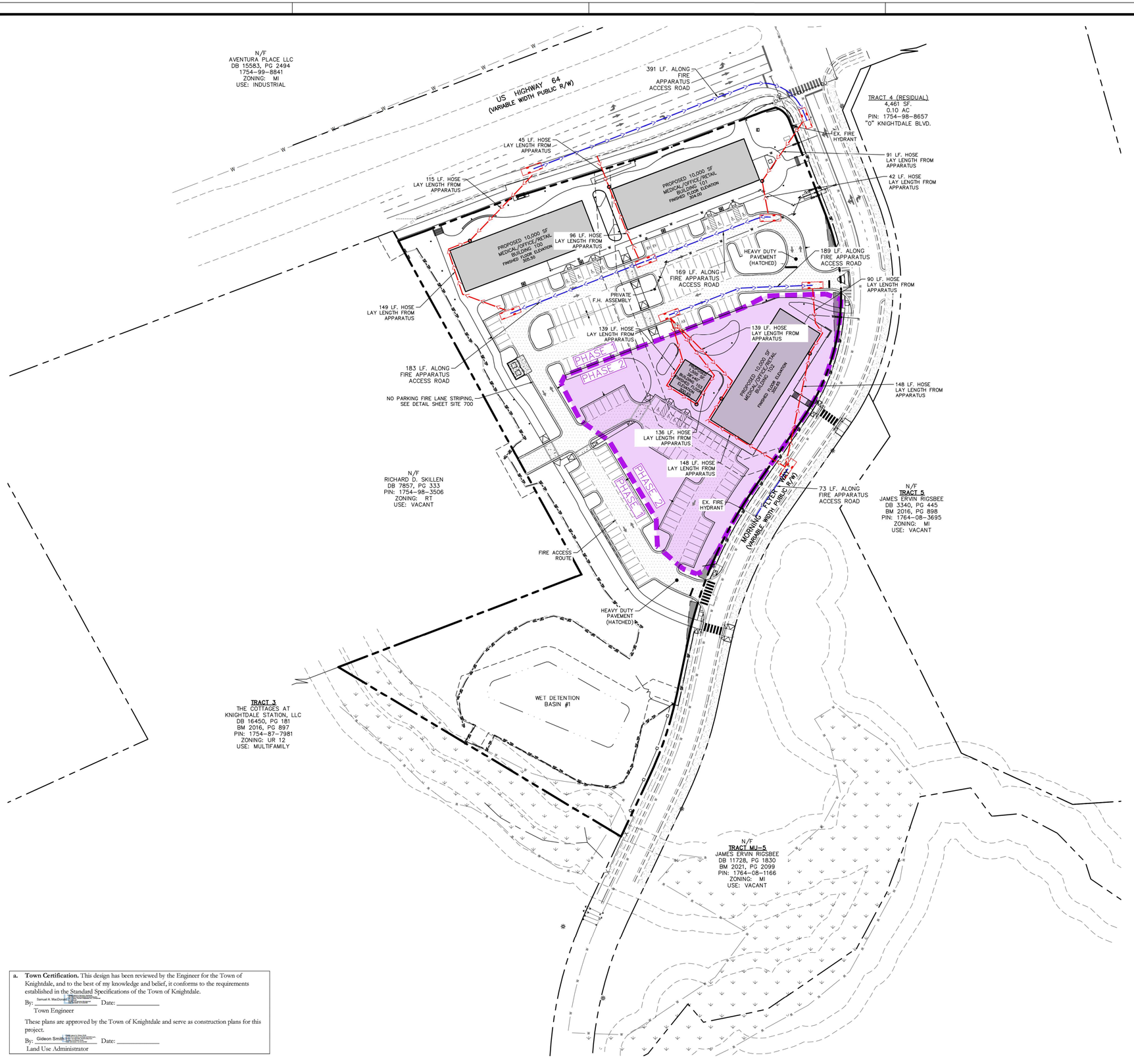

SURVEY LEGEND

SYMBOLS		LINETYPES	
●	Ex. iron pipe/rod or nail	—X—	Fence
■	Ex. concrete monument	—OU—	Overhead utility
●	New iron pipe	—W—	Water
●	Calculated point	—SS—	Sanitary sewer
C	Cable pedestal	—SD—	Storm drain
T	Telephone pedestal		
E	Electric pedestal	ABBREVIATIONS	
F	Fiber-optic marker	DB	Deed Book
S	Traffic signal box	PB or BM	Plat Book / Book of Maps
	Water meter	N/F	Now or formerly
	Fire hydrant	Pg.	Page
	Valve (water or gas)	SF	Square feet
S	Sanitary sewer manhole	Ac.	Acres
	Sanitary sewer cleanout	R/W	Right-of-way
	Storm curb inlet	NCSR	North Carolina State Route
	Drainage inlet (w/ grate)	NCDOT	North Carolina Dept. of Transportation
D	Storm drain manhole	R/W	Right-of-way
	Utility pole	Ex.	Existing
	Lamp post	RCP	Reinforced concrete pipe
	Signal pole	PVC	Polyvinyl chloride pipe
	Guy wire	(M)	Measured
	Sign post	AG	Above ground
		BG	Below ground

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- EXISTING STORM DRAIN LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

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FIRE ACCESS NOTES

1. A FIRE HYDRANT MUST BE WITHIN 400' OF ALL PORTIONS OF THE EXTERIOR OF THE BUILDING FOR NON-SPRINKLERED BUILDINGS, AND 600' FOR SPRINKLERED (NCFC 507.5.1).
2. ALL PORTIONS OF THE BUILDINGS MUST BE WITHIN 150' OF THE APPARATUS ACCESS ROAD SURFACE (503.1.1 NCFC), 200' WITH A 13R SPRINKLER SYSTEM, AND 250' FOR 13 SYSTEM.

WE ARE SHOWING THE HOSE LAYING LENGTHS FROM FIRE APPARATUS AND DISTANCES ALONG FIRE ACCESS ROADS ON THIS SHEET.

NORTH

MORNING FLYER WAY FIRE PROT. & PHASING PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

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RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. MACDONALD
7/17/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025
8 17 JUL 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY FIRE PROTECTION & PHASING PLAN

Job Code ASKSCD

Dwg No.
SITE 201

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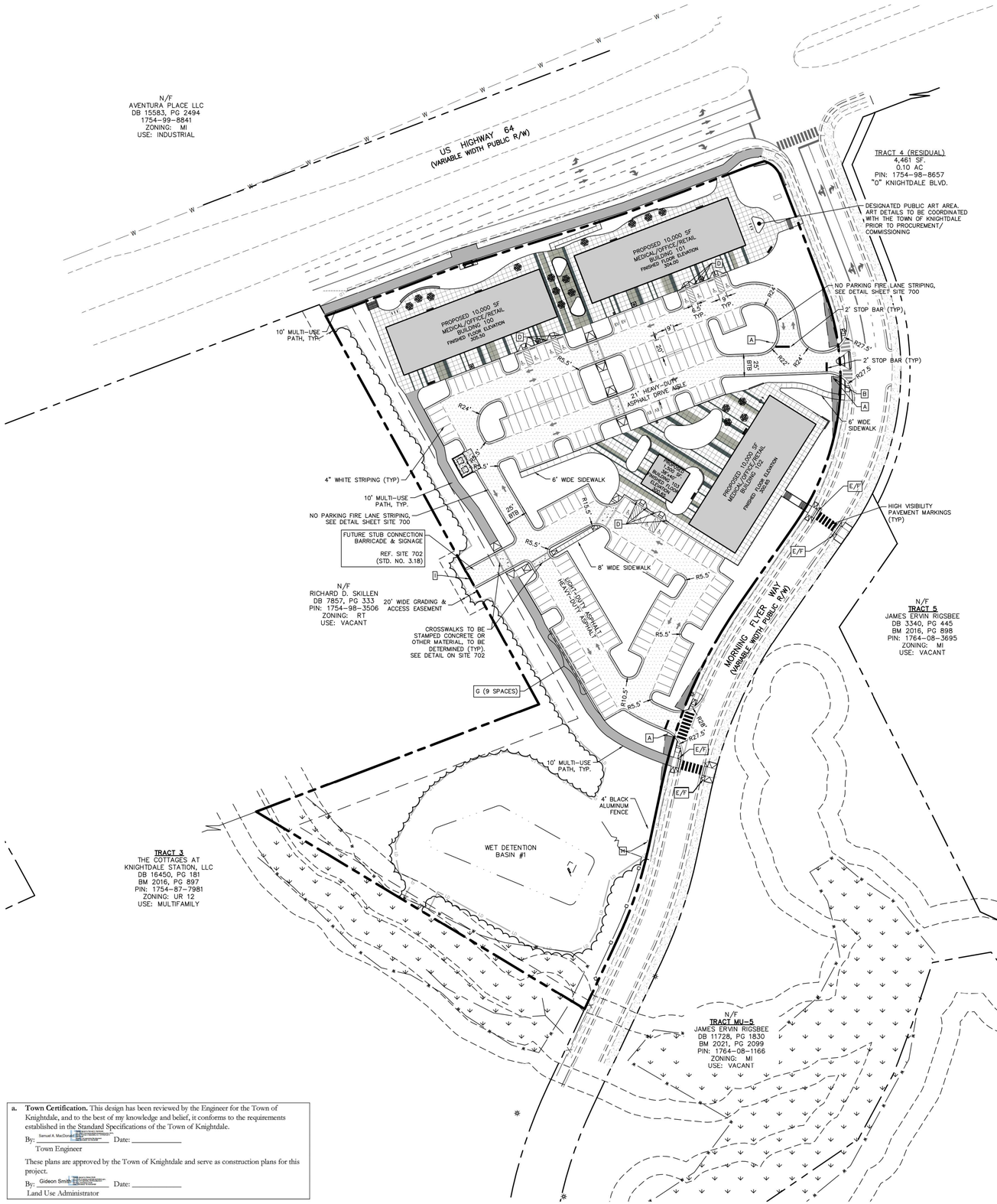

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
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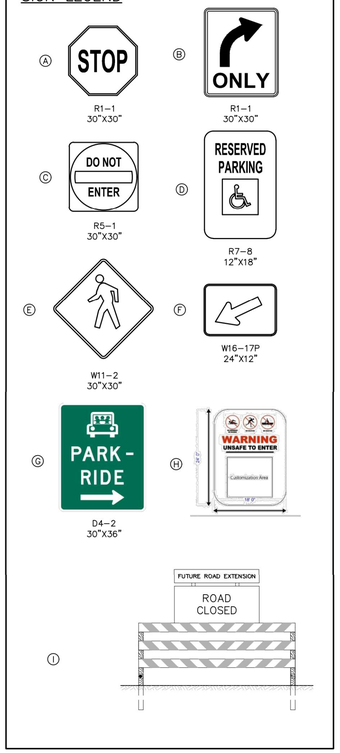
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

STRIPING NOTES

1. ALL MARKINGS AND SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH MUTCD STANDARDS, INCLUDING COLOR, LETTER HEIGHT, AND LETTER CASE OF THE STREET NAMES.
2. ALL PAVEMENT MARKING SHALL BE THERMOPLASTIC.
3. ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

MIXED-USE PATH
HD ASPHALT
SIDEWALK JOINT
EXISTING S/W
CONC. XWALK

SIGN LEGEND



NORTH

MORNING FLYER WAY SIGNAGE & PVM'T PLAN

SCALE: 1" = XX' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. HILL
7/17/2025

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ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

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CONSTRUCTION DRAWINGS

MORNING FLYER WAY SIGNAGE & PAVEMENT MARKING PLAN

Job Code ASKSCD

Dwg No.
SITE
202

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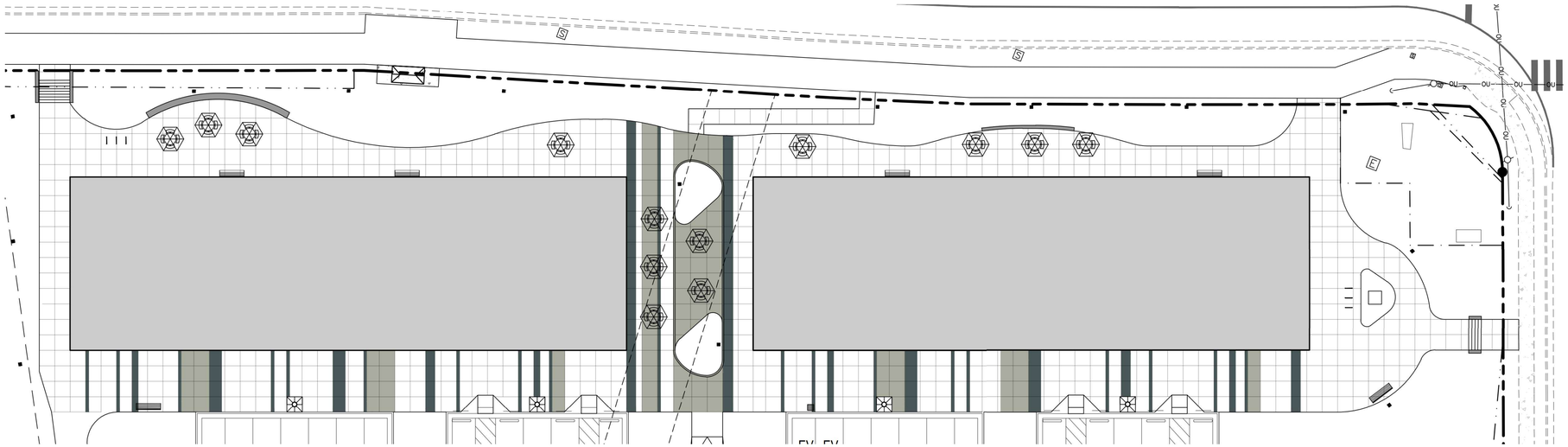
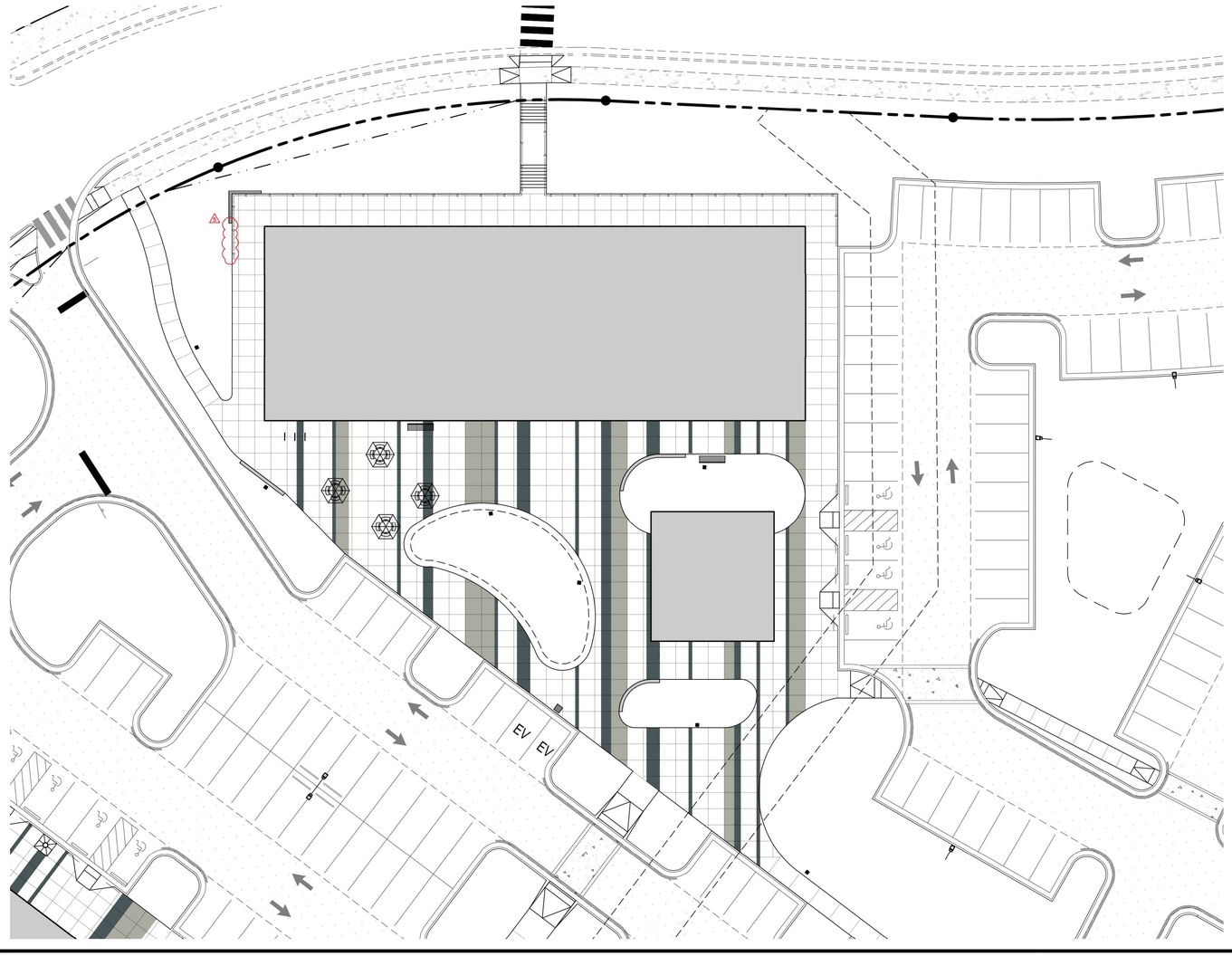


PUBLIC GATHERING SPACE ACTIVATION:
1. PEDESTRIAN SCALE LIGHTING
2. PUBLIC ART
3. OUTDOOR SEATING/TABLES
4. SEAT WALLS
5. BENCHES
6. BICYCLE PARKING



PUBLIC GATHERING SPACE ACTIVATION:
1. PEDESTRIAN SCALE LIGHTING
2. RAIN GARDEN
3. POLLINATOR GARDEN
4. OUTDOOR SEATING/TABLE
5. SEAT WALLS
6. BENCHES



SIDEWALK VIEW PROVIDED BY ARCHITECT TO DISPLAY HOW THE COLORED CONCRETE AND PAVERS TIE IN WITH THE PROPOSED BUILDING DESIGN.

PUBLIC ART NOTE:

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By: Samuel A. MacDonald Date: _____
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By: Gideon Smith Date: _____
Land Use Administrator

MORNING FLYER WAY COMMUNITY GATHERING SPACES

SCALE: 1" = 20' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 20 40 60 80

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LANDSCAPE ARCHITECTURAL CORPORATION
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NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

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5/16/2025

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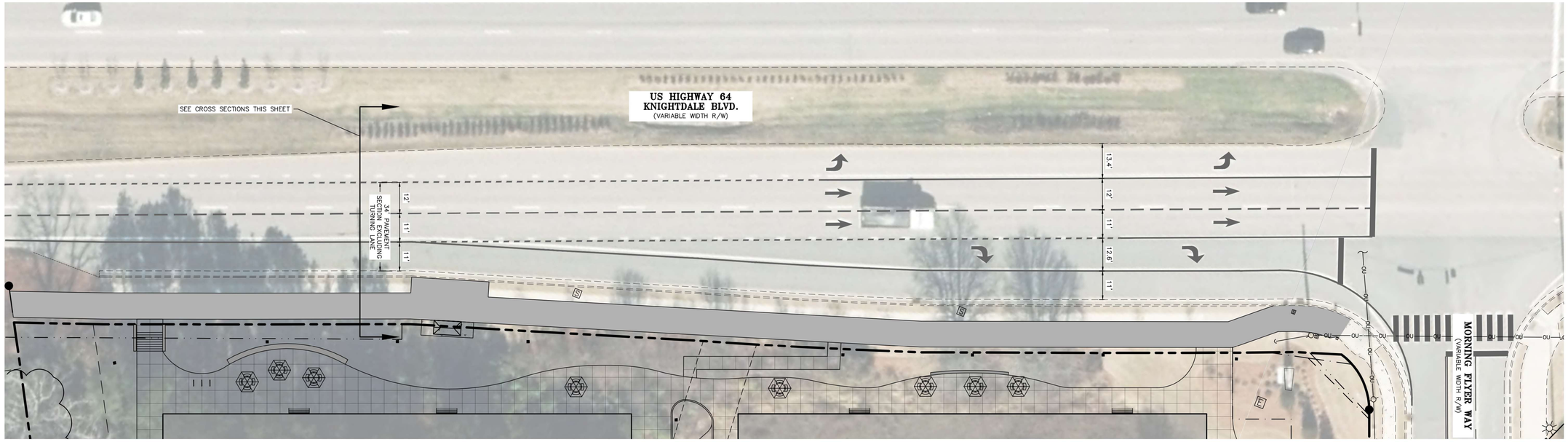
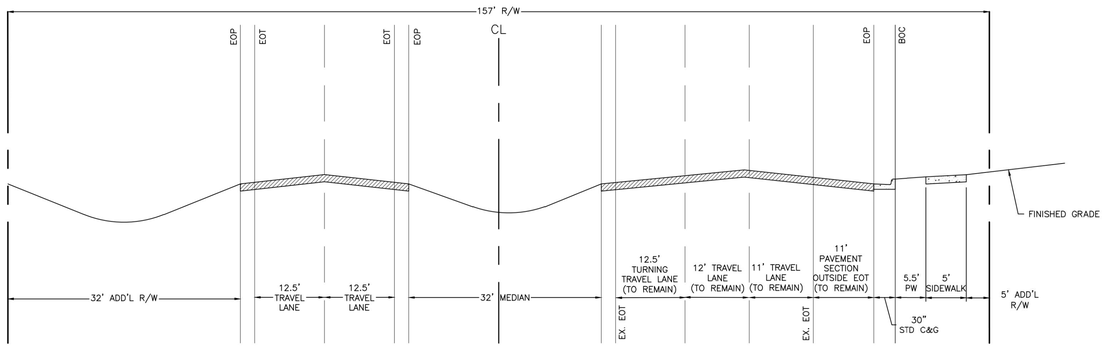
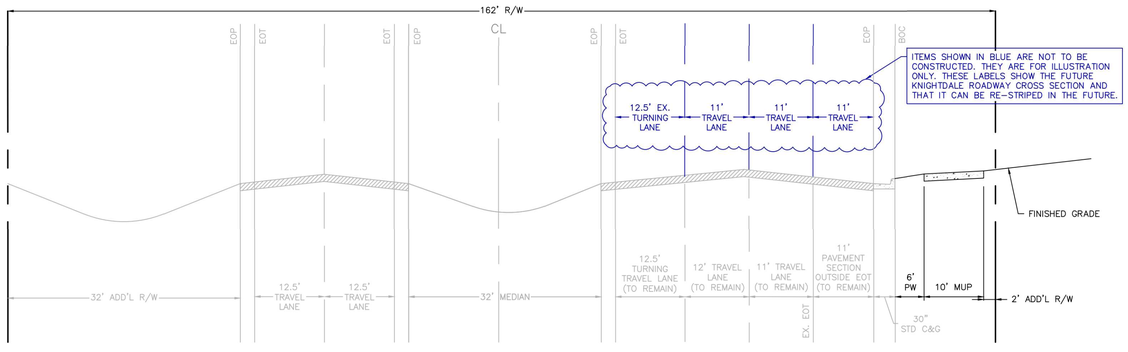


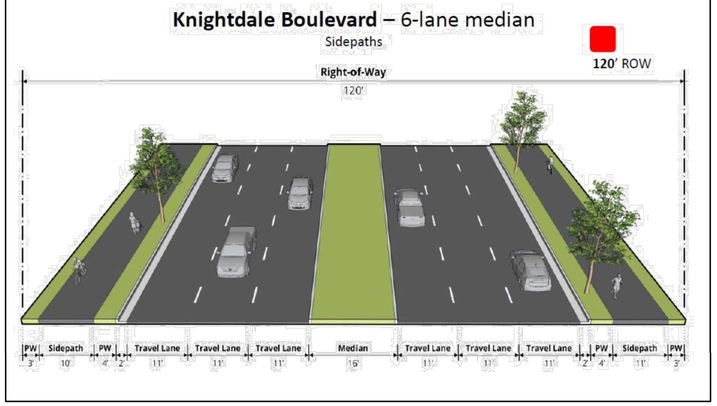


KNIGHTDALE BLVD. EXISTING CROSS SECTION
N.T.S.



KNIGHTDALE BLVD. MODIFIED CROSS SECTION
N.T.S.

Figure 10.13: 6 Lane Boulevard Cross Section Standards – Sidepath



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Land Use Administrator

NORTH

MORNING FLYER WAY
KNIGHTDALE BLVD. IMPROVEMENTS

SCALE: 1" = 20' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 20 40 60 80

THE SITE GROUP, PLLC. LANDSCAPE ARCHITECTURAL CORPORATION CERT. NO. 353 NORTH CAROLINA RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. MYE 9/20/2024

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ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By CJB
Checked By SRN

DATE:
20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY KNIGHTDALE BLVD. IMPROVEMENTS

Job Code ASKSCD

Dwg No.
SITE 204

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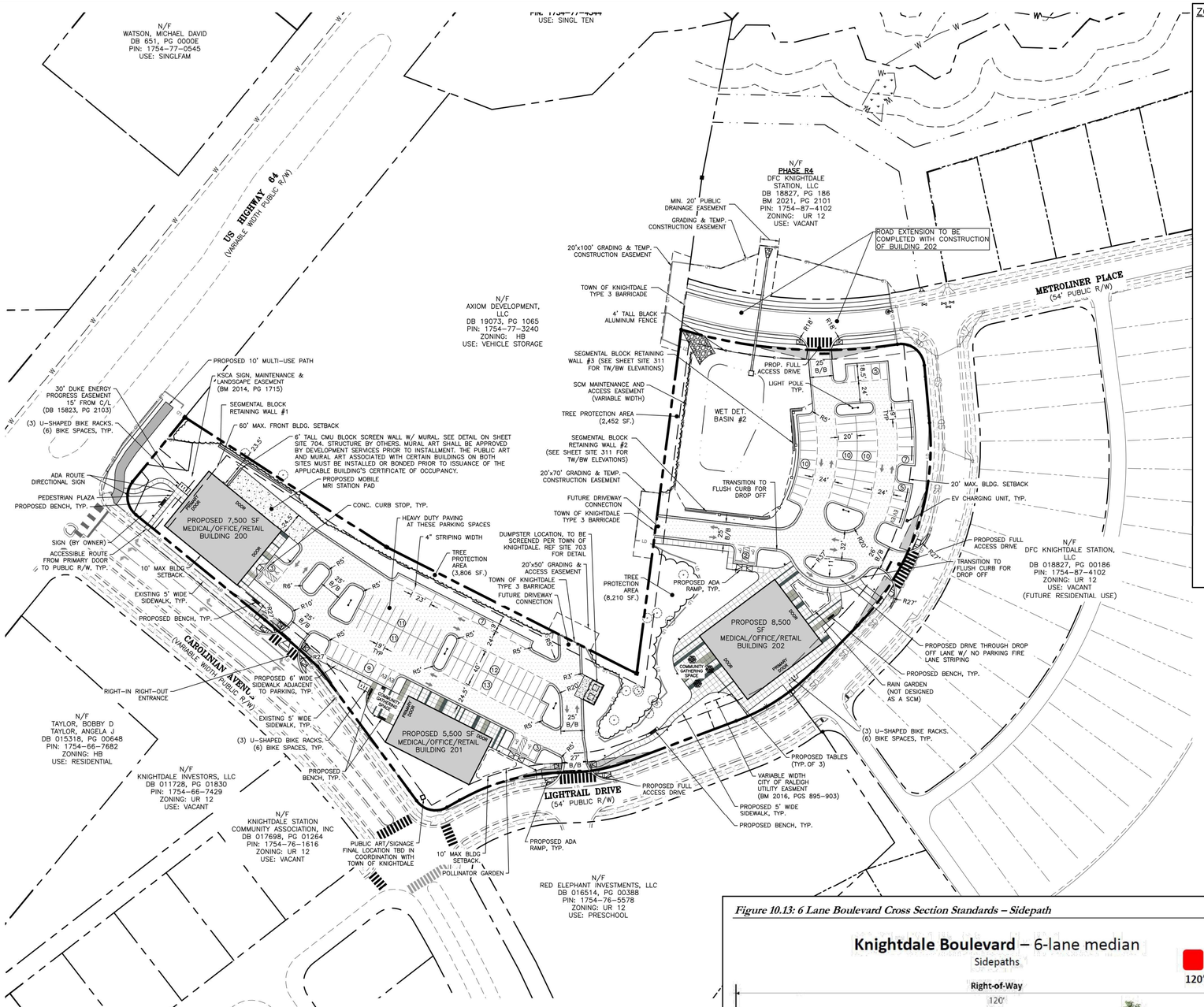

ZONING CONDITIONS

1. The width of the Type B Buffer between the Knightdale Station Commercial – Carolinian Avenue site and Wake County PIN 1754-77-3240, as labeled on the Master Plan, shall be a minimum of 16.5-feet and be planted with the same vegetative materials required by the standard 20-foot Type B Buffer.
2. The maximum front setback for certain buildings on the Knightdale Station Commercial – Carolinian Avenue site, as labeled on the Master Plan, shall be as follows:
   a. Building 200: 60-foot
   b. Building 202: 20-foot
3. The maximum front setback for certain buildings on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall be as follows:
   a. Building 100: 40-foot
   b. Building 101: 40-foot
   c. Building 102: 40-foot
   d. Building 103: No maximum front setback
4. Park and Ride spaces shall not be required on the Knightdale Station Commercial – Carolinian Avenue site.
5. Each individual unit of the multiple tenant buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site shall be permitted to have one primary wall sign on the front façade and one primary wall sign on the rear façade, not to exceed 10% of each individual unit's façade.
6. A Development Option has been reserved to allow all buildings on both the Knightdale Station Commercial – Carolinian Avenue site and the Knightdale Station Commercial – Morning Flyer Way site to be constructed as two-story structures in accordance with Section 3.4 of the Unified Development Ordinance through an administrative process if desired at a later date.
7. Building 103 on the Knightdale Station Commercial – Morning Flyer Way site, as labeled on the Master Plan, shall not be required to meet Transparency requirements outlined in Section 6.8 of the Unified Development Ordinance.
8. Architectural Standards are provided for all buildings as indicated in the PUD document.
9. The following uses, subject to all applicable additional use standards, shall be permitted in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
   a. Hotels
   b. Animal Services, Non-boarding & Boarding
   c. Banks, Credit Unions, Financial Services
   d. Business Support Services
   e. Child/Adult Day Care Home (Fewer than 6 people)
   f. Child/Adult Day Care Center (6 or more people)
   g. Community Service Organization
   h. Government Services
   i. Medical Services
   j. Personal Services
   k. Professional Services
   l. Studio – Art, dance, martial arts, music
   m. Bar, Tavern, Microbrewery
   n. General Retail (10,000 square feet or less)
   o. Neighborhood Retail/Restaurant (2,000 square feet or less)
   p. Restaurant
   q. Tasting Room
   r. Indoor Amusements (5,000 - 10,000 square feet)
   s. Indoor Amusements (10,001 - 20,000 square feet; Special Use Permit required)
   t. Cultural or Community Facility
   u. Movie Theater
   v. Indoor Recreation Facility
   w. Live Performance Theater
   x. Neighborhood Manufacturing
   y. Wireless Telecommunication Facility - Small Wireless Facilities outside Right-of-Way
   z. Accessory Building/Structure
   aa. Solar Energy Collection – Roof/Building Mounted
   bb. Mobile Mini Unit (subject to the additional use standard outlined in the PUD Document)
10. The following uses shall be expressly prohibited, and all other uses not expressly permitted shall be prohibited, in any of the buildings constructed on either the Knightdale Station Commercial – Carolinian Avenue site or the Knightdale Station Commercial – Morning Flyer Way site:
    a. Dwelling-Duplex
    b. Dwelling Multifamily above ground floor as part of mixed use
    c. Dwelling Multifamily, 4 units/bldg. or less
    d. Dwelling Multifamily, more than 4 units/bldg.
    e. Dwelling-Single Family
    f. Family Care Home (6 or less residents)
    g. Housing Services for the Elderly
    h. Townhouse, 4 units or less
    i. Townhouse, more than 4 units
    j. Post Office
    k. Auto Parts Sales
    l. Gas Station with Convenience Store
    m. Medical Cannabis Centers
    n. Nightclub
    o. Vape, Tobacco, and CBD Store
    p. Sweepstakes Centers
    q. Cemeteries
    r. Wireless Telecommunication Facility - Stealth
    s. Wireless Telecommunication Facility - Small Wireless Facilities inside Right-of-Way
    t. Utilities – Class 1 & 2
    u. Cluster Mailbox Unit
    v. Standalone ATM
    w. Drive-Thru Service
    x. Drive-Thru Retail/Restaurants
    y. Home Occupation
    z. Solar Energy Collection, Ground Mounted

The submitted Planned Unit Development document and submitted Master Plan will serve as the site-specific development plan. The Applicant must submit Construction Drawings to the Town that conform to the approved conditions of the NMX-PUD zoning district, Master Plan comments, the Unified Development Ordinance, and comments from the June 8, 2023 DRC meeting.

According to Unified Development Ordinance Section 12.2.G.3.f.ii, the Applicant must secure a valid building or construction permit(s) within a 24-month period from date of approval (October 18, 2025), otherwise the ZMA may be subject to recission by Town Council. The vested rights period may be extended as detailed in UDO Section 12.2.G.4.

Please don't hesitate to reach out to me if you have any questions.

Sincerely,

Gideon Smith, AICP

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- PROPOSED SETBACK
- PROPOSED ROW LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- PROPOSED TREELINE
- ADA ROUTE

SITE DATA SUMMARY

PROJECT NAME:	KNIGHTDALE STATION – CAROLINIAN AVE
PROPERTY OWNER:	KNIGHTDALE COMMERCIAL, LLC
PIN(S):	1754764820
SITE ADDRESS:	7790 KNIGHTDALE BLVD
JURISDICTION:	KNIGHTDALE
ZONING:	NMX–PUD
OVERLAY DISTRICT:	N/A
WATERSHED:	MARKS CREEK
RIVER BASIN:	NEUSE
TOTAL PROJECT AREA:	4.39 AC.
CURRENT USE:	VACANT
PROPOSED USE:	MEDICAL, OFFICE, PROFESSIONAL SERVICES, GENERAL RETAIL, AND NEIGHBORHOOD RETAIL/RESTAURANT (UDO 6.8) (SEE APPROVED ZONING CONDITIONS 9 & 10)
PLACE TYPE:	MIXED–USE CENTER & MIXED DENSITY NEIGHBORHOOD
PROPOSED BUILDING TYPE:	MIXED USE BUILDING
NEW BUILDING AREA:	BUILDING 200: 7,500 SF. BUILDING 201:5,500 SF. BUILDING 202: 8,500 SF. TOTAL BUILDING AREA: 21,5000 SF.
BUILDING HEIGHT REQ. (MAX.):	56', 4 STORIES (UDO 3.4)
PROVIDED BUILDING HEIGHT:	BUILDING 200 = 28'–0" BUILDING 201 = 23'–4" BUILDING 202 = 22'–0"
EXISTING IMPERVIOUS AREA ONSITE:	0 SF.
PROPOSED IMPERVIOUS AREA ONSITE:	101,543 SF.
PROPOSED IMPERVIOUS AREA IN R/W:	2,913 SF.
PARKING REQ.:	59 SPACES (MIN.) – 118 SPACES (MAX.)
PARKING PROVIDED:	118 SPACES
ADA PARKING REQUIRED:	5 SPACES
ADA PARKING PROVIDED:	6 SPACES
EV CHARGING STATIONS REQ:	3 CHARGING STATIONS (1/40 MOTOR VEH.)
EV CHARGING STATIONS PROVIDED:	4 CHARGING STATIONS
BICYCLE PARKING REQ. (MIN.):	12 SPACES (1/10 MOTOR VEH.)
BICYCLE PARKING PROVIDED:	18 SPACES
BUILDING SETBACKS:	PLEASE SEE ZONING CONDITIONS #2 & #3 FOR BUILDING SETBACK REQUIREMENTS
SETBACKS:	
FRONT:	60' MAX
SIDE:	10' MIN
REAR:	0' MIN
CORNER:	N/A
PARKING SETBACKS:	
FRONT YARD:	N/A
SIDE YARD:	0'
REAR YARD:	5'
TREE SAVE AREA REQUIRED:	10% – 0.44 AC.
TREE SAVE AREA PROVIDED:	7.6% – 0.33 AC.
TREE REPLACEMENT AREA REQUIRED:	5,793 SF./0.13 AC.
TREE REPLACEMENT AREA PROVIDED:	18,224 SF./0.41 AC.
ADDITIONAL TREE SAVE & TREE REPLACEMENT AREA PROVIDED ON NORTH SITE (200)	
TREE PROTECTION FENCING:	2,705 LF.
PUBLIC GATHERING SPACE REQ:	500 SF
PUBLIC GATHER SPACE PROVIDED:	4,301 SF
PERMITTED MONUMENT SIGN TYPES :	(UDO 8.5)
NEIGHBORHOOD/CAMPUS GATEWAYS	16 SF MAX AREA – 7' MAX HEIGHT – 2 PER ENTRANCE
LOTS LESS THAN 2 AC.	25 SF MAX AREA – 4' MAX HEIGHT – 2**
LOTS EQ. TO OR GREATER THAN 2 AC.	50 SF MAX AREA – 7' MAX HEIGHT – 2**
PERMITTED BUILDING WALL TYPES:	
FRONT FACADES	SEE APPROVED ZONING CONDITION #5
ALL OTHER FACADES	SEE APPROVED ZONING CONDITION #5
PUBLIC IMPROVEMENT QUANTITIES:	
LINEAR FT/WIDTH OF STREETS:	0 LF.
LINEAR FT/WIDTH OF PUBLIC GREENWAY TRAILS:	121 LF. 10' WIDTH
LINEAR FEET OF PUBLIC SIDEWALKS:	750 LF.
LINEAR FEET OF PUBLIC CURB & GUTTER:	3,057 LF.
LINEAR FEET OF STORM DRAINAGE:	1,334 LF.

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Town Engineer

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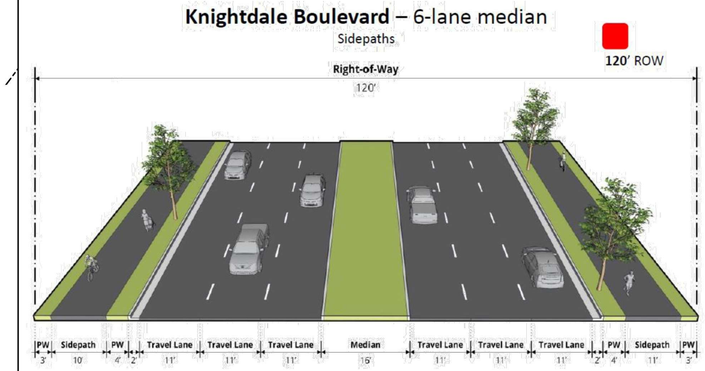
Land Use Administrator

	TREE SAVE AREA	PROTECTION MEASURES
PRIORITY TIER 1	FLOODWAYS REQUIRED STREEM BUFFERS REQUIRED BUFFER YARD SLOPE AREAS GREATER THAN 25% WETLANDS	ALL VEGETATION AND SOIL TO REMAIN UNDISTURBED IN SOME CASES, LIMITED DISTURBANCES MAY OCCUR WITHIN THE AREAS TO BE PROTECTED PROVIDED AL THE NECESSARY APPROVALS ARE OBTAINED. SUCH ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: 1. MITIGATION OF DEVELOPMENT ACTIVITIES 2. RESTORATION OF PREVIOUSLY DISTURBED AREAS 3. UTILITY INSTALLATIONS AND EMERGENCY PUBLIC SAFETY ACTIVITIES. 4. CONSTRUCTION OF A TRAIL OR PEDESTRIAN WALKWAY THAT WILL PROVIDE PUBLIC ACCESS. 5. REQUIRED STREET OR DRIVEWAY CONNECTIONS.
TIER 2	10 YEAR FLOODPLAINS FRONT SETBACK AREAS STREET TREE PLANTING STRIP RESIDENTIAL LANDSCAPING AREAS REQUIRED OPEN SPACE SLOPE AREAS OF 15–25%	ALL TREES GREATER THAN 12" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **
TIER 3	ALL OTHER LOCATIONS	ALL TREES GREATER THAN 24" DBH TO REMAIN UNDISTURBED, OR REPLACEMENT TREES SHALL BE PLANTED AT A RATE OF 1 TREE PER 12" DBH, AND SHOULD BE INCORPORATED INTO OPEN SPACE AMENITIES WHEREVER POSSIBLE. **

** REQUIRED STREET TREES, PARKING LOT LANDSCAPING, RESIDENTIAL LANDSCAPING AND BUFFER YARD PLANTINGS MAY NOT BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS.

Figure 10.13: 6 Lane Boulevard Cross Section Standards – Sidepath



HATCH LEGEND

- MULTI USE PATH
- HD ASPHALT
- SIDEWALK JOINT
- EXISTING S/W

NORTH

CAROLINIAN AVE. SITE LAYOUT PLAN

SCALE: 1" = 60'

(DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

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THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025
8 17 JUL 2025

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. SITE LAYOUT PLAN

Job Code ASKSCD

Dwg No. SITE 210

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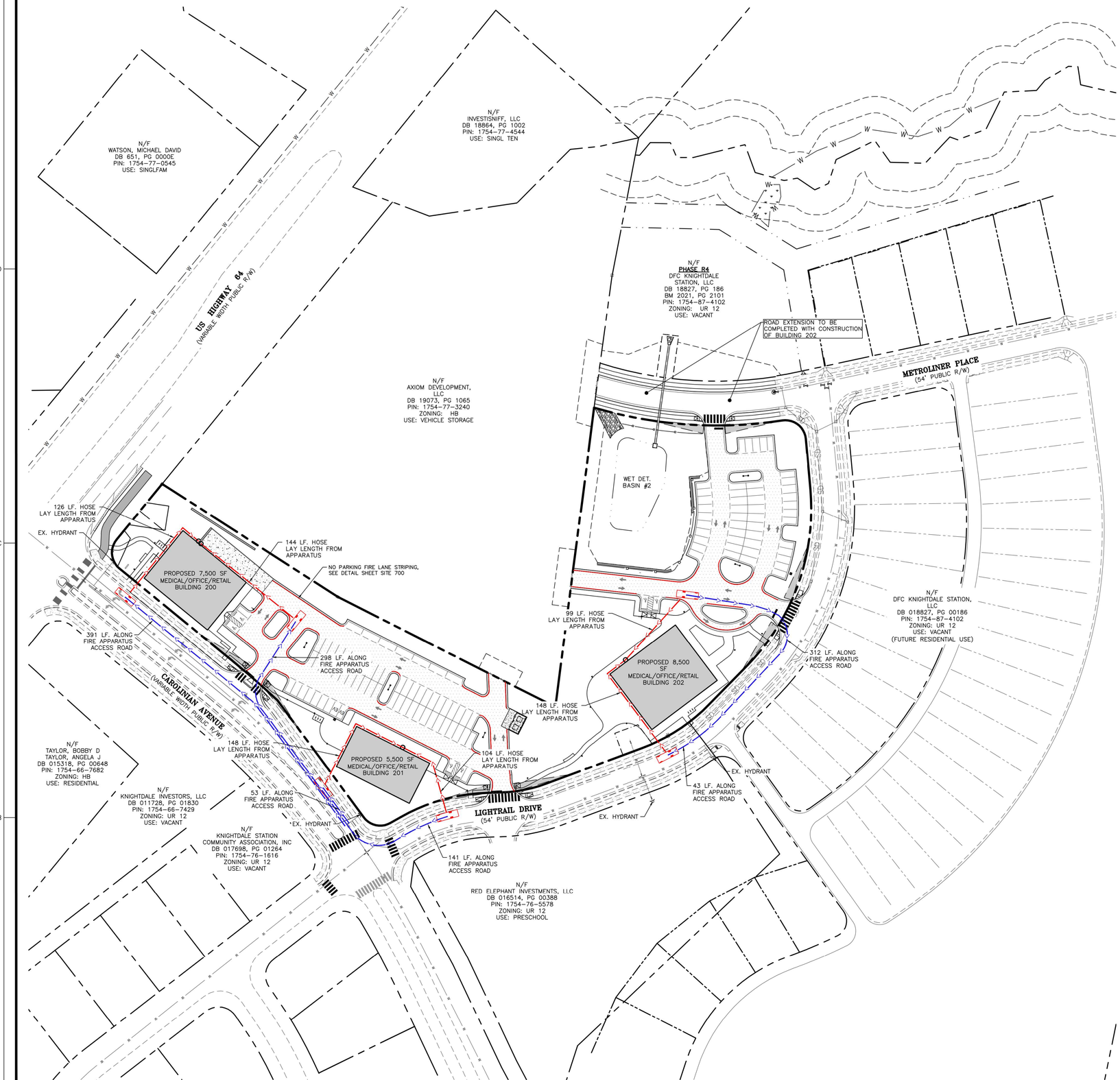

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.

FIRE ACCESS NOTES

1. A FIRE HYDRANT MUST BE WITHIN 400' OF ALL PORTIONS OF THE EXTERIOR OF THE BUILDING FOR NON-SPRINKLERED BUILDINGS, AND 600' FOR SPRINKLERED (NCFC 507.5.1).
2. ALL PORTIONS OF THE BUILDINGS MUST BE WITHIN 150' OF THE APPARATUS ACCESS ROAD SURFACE (503.1.1 NCFC), 200' WITH A 13R SPRINKLER SYSTEM, AND 250' FOR 13 SYSTEM.

WE ARE SHOWING THE HOSE LAYING LENGTHS FROM FIRE APPARATUS AND DISTANCES ALONG FIRE ACCESS ROADS ON THIS SHEET.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NORTH

CAROLINIAN AVE. FIRE PROT. & PHASING PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. MYE
7/17/2025

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CONSTRUCTION DRAWINGS

CAROLINIAN AVE. FIRE PROTECTION & PHASING PLAN

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Dwg No. SITE 211

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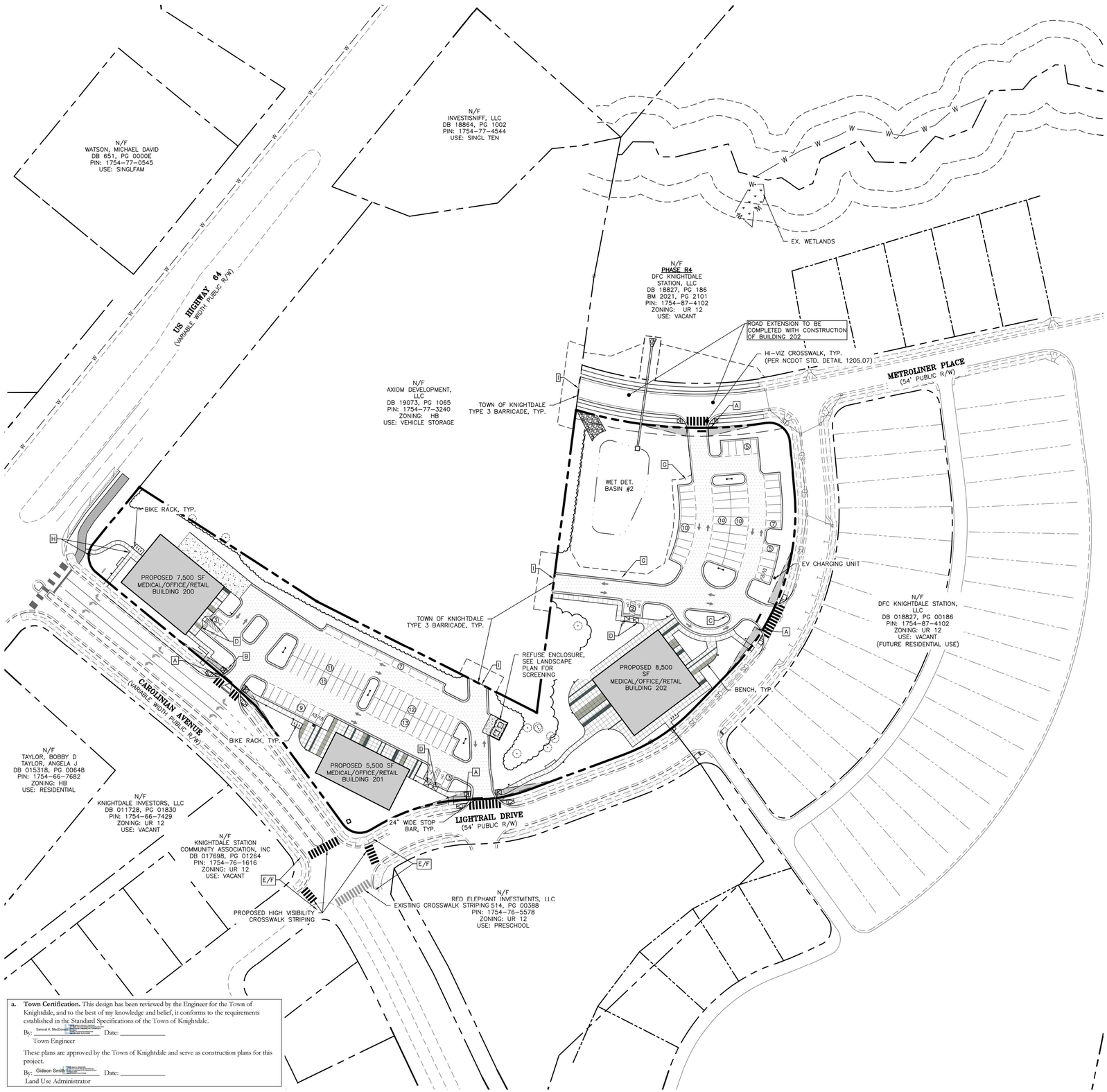

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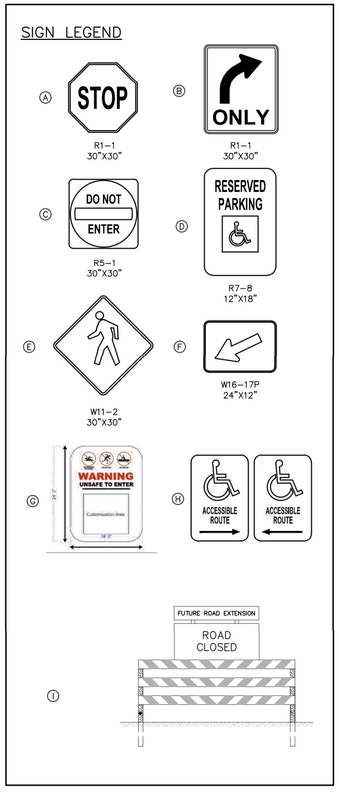
2. ALL PAVEMENT MARKING SHALL BE THERMOPLASTIC.
3. ANY EXISTING PAVEMENT STRIPING THAT IS IN CONFLICT WITH THE PROPOSED STRIPING SHOWN ON THIS PLAN SHALL BE REMOVED.

SIGN LEGEND



NORTH

CAROLINIAN AVE. SIGNAGE & PVMNT. MARKING PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

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CONSTRUCTION DRAWINGS

CAROLINIAN AVE. SIGNAGE & PVMNT. MARKING PLAN

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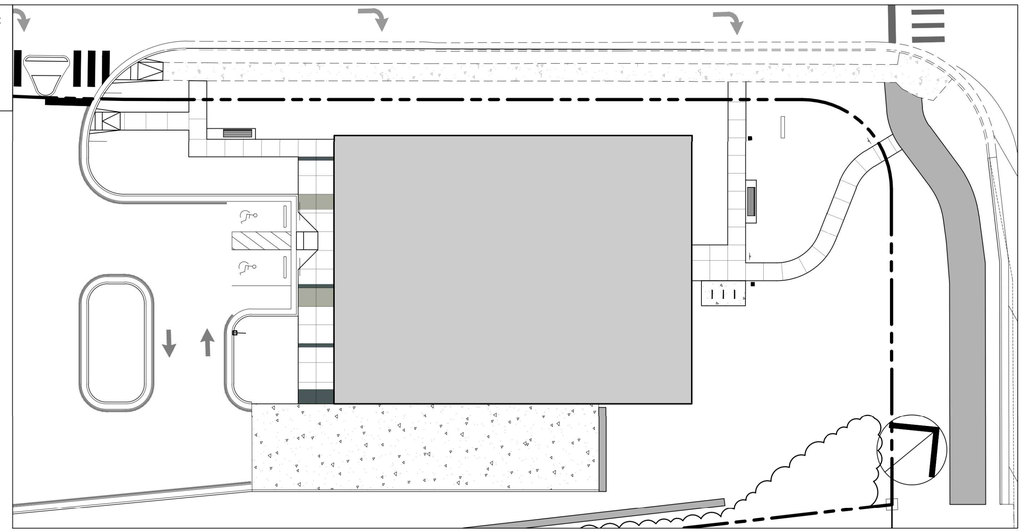
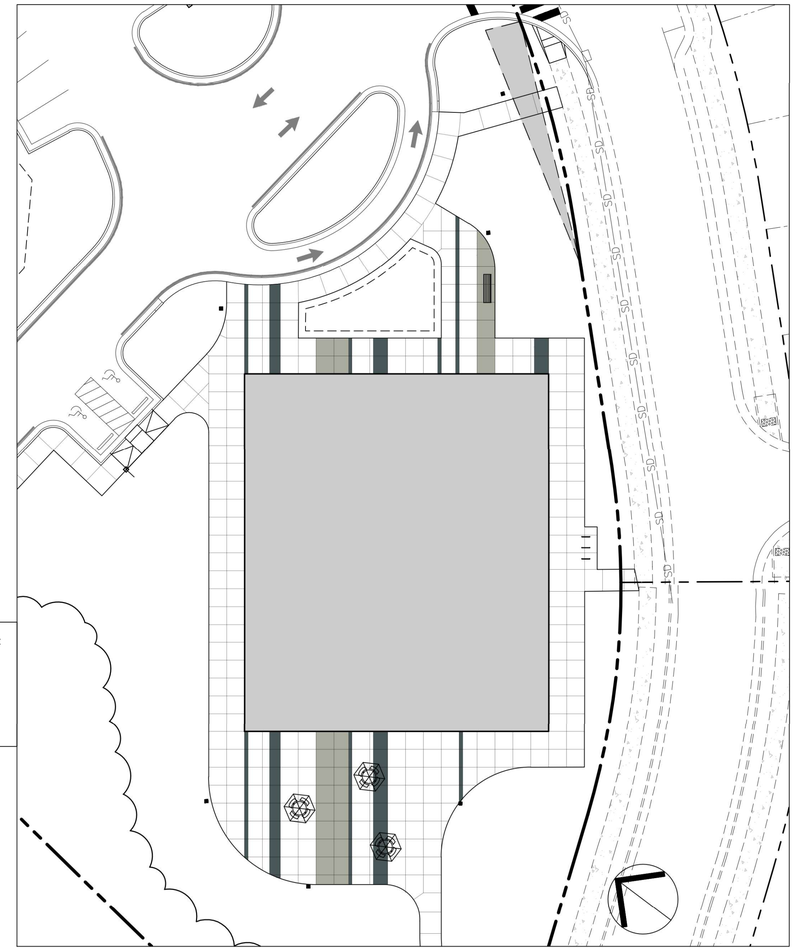
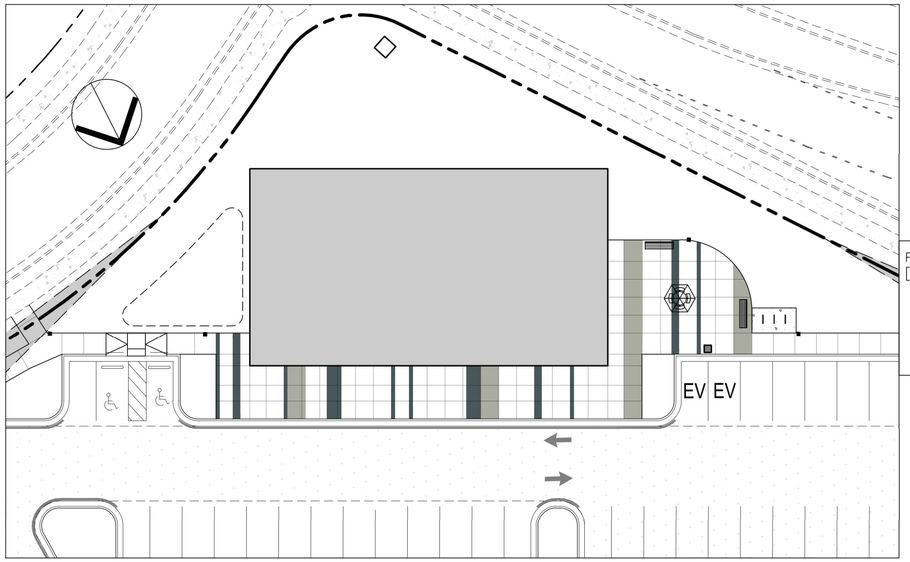
PUBLIC GATHERING SPACE ACTIVATION:
[NEAR BUILDING 200]
1. PEDESTRIAN SCALE LIGHTING
2. PUBLIC ART (WALL MURAL)
3. BENCHES
4. BICYCLE PARKING





PUBLIC GATHERING SPACE ACTIVATION:
[NEAR BUILDING 202]
1. PEDESTRIAN SCALE LIGHTING
2. RAIN GARDEN
3. OUTDOOR SEATING/TABLES
4. BENCHES
5. BICYCLE PARKING



PUBLIC GATHERING SPACE ACTIVATION:
[NEAR BUILDING 201]
1. PEDESTRIAN SCALE LIGHTING
2. OUTDOOR SEATING/TABLE
3. POLLINATOR GARDEN
4. BENCHES
5. BICYCLE PARKING
6. PUBLIC ART



SIDEWALK VIEW PROVIDED BY ARCHITECT TO DISPLAY HOW THE COLORED CONCRETE AND PAVERS TIE IN WITH THE PROPOSED BUILDING DESIGN.

PUBLIC ART NOTE:

ALL PUBLIC ART AND MURAL ART SHALL BE APPROVED BY DEVELOPMENT SERVICES PRIOR TO INSTALLMENT. THE PUBLIC ART AND MURAL ART ASSOCIATED WITH CERTAIN BUILDINGS ON BOTH SITES MUST BE INSTALLED OR BONDED PRIOR TO ISSUANCE OF THE APPLICABLE BUILDING'S CERTIFICATE OF OCCUPANCY.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

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By: Gideon Smith _____ Date: _____
Land Use Administrator

CAROLINIAN AVE. COMMUNITY GATHERING SPACES

SCALE: 1" = 20'

0 20 40 60 80

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NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. HYE
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CAROLINIAN AVE. COMMUNITY GATHERING SPACES

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Dwg No. SITE 213

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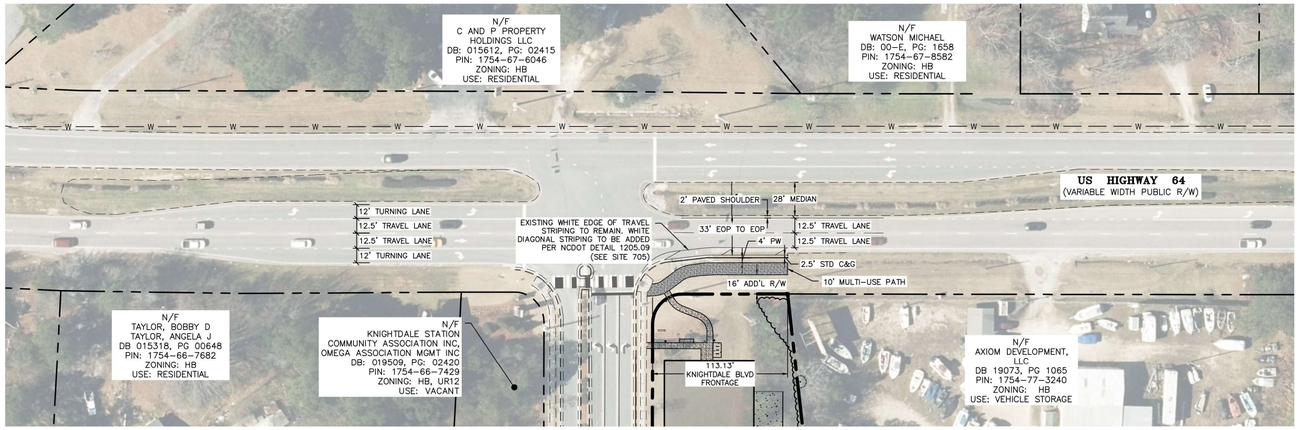
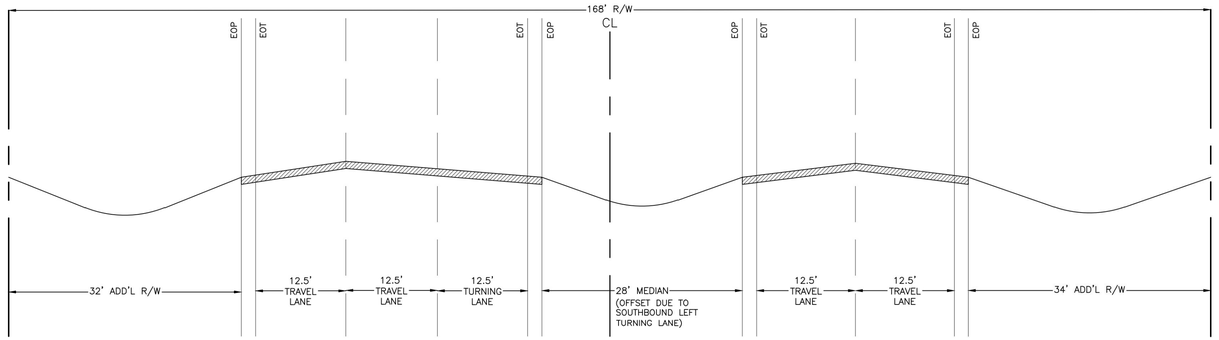
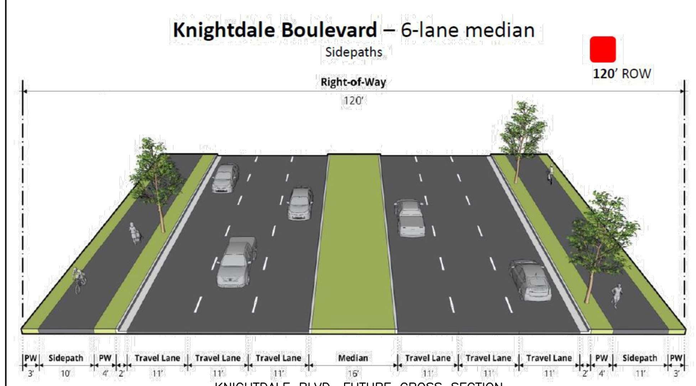




KNIGHTDALE BLVD. EXISTING CROSS SECTION
N.T.S.

KNIGHTDALE BLVD. MODIFIED CROSS SECTION
N.T.S.

Figure 10.13: 6 Lane Boulevard Cross Section Standards – Sidepath



KNIGHTDALE BLVD. FUTURE CROSS SECTION
N.T.S.

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NORTH

CAROLINIAN AVE. KNIGHTDALE BLVD. IMPROVEMENTS

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

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CAROLINIAN AVE. KNIGHTDALE BLVD. IMPROVEMENTS

Job Code ASKSCD

Dwg No. SITE 214

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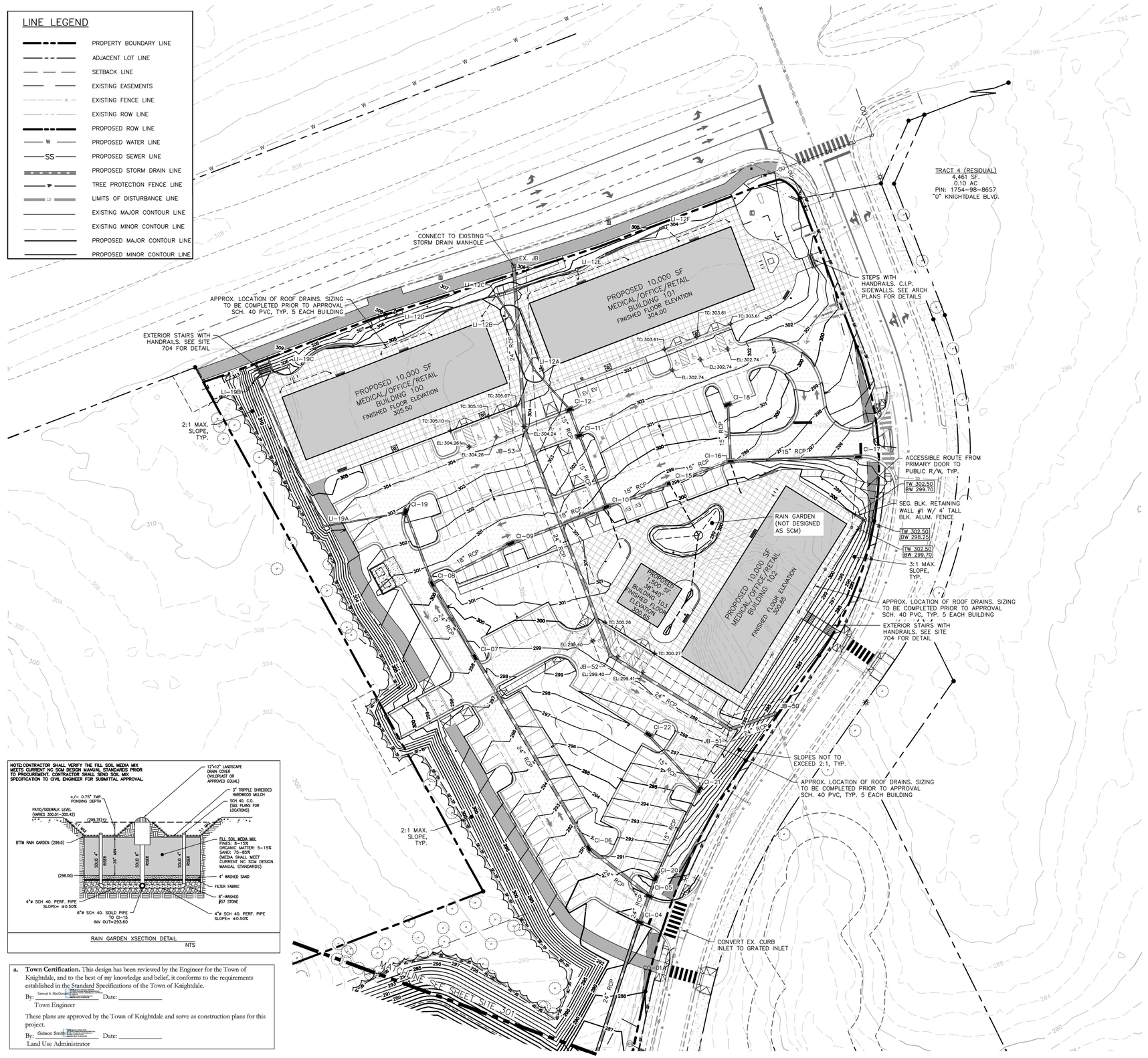
LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- W — PROPOSED WATER LINE
- SS — PROPOSED SEWER LINE
- PROPOSED STORM DRAIN LINE
- TP — TREE PROTECTION FENCE LINE
- LD — LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE


TRACT 4 (RESIDUAL)
4,461 SF.
0.10 AC
PIN: 1754-98-8657
"0" KNIGHTDALE BLVD.
CONNECT TO EXISTING STORM DRAIN MANHOLE
EX. JB
PROPOSED 10,000 SF MEDICAL/OFFICE/RETAIL BUILDING 101 FINISHED FLOOR ELEVATION 304.00
PROPOSED 10,000 SF MEDICAL/OFFICE/RETAIL BUILDING 100 FINISHED FLOOR ELEVATION 305.50
PROPOSED 10,000 SF MEDICAL/OFFICE/RETAIL BUILDING 102 FINISHED FLOOR ELEVATION 300.65
PROPOSED 1,200 SF 39'-40" BUILDING 103 FINISHED FLOOR ELEVATION 300.65
APPROX. LOCATION OF ROOF DRAINS. SIZING TO BE COMPLETED PRIOR TO APPROVAL SCH. 40 PVC, TYP. 5 EACH BUILDING
EXTERIOR STAIRS WITH HANDRAILS. SEE SITE 704 FOR DETAIL
STEPS WITH HANDRAILS. C.I.P. SIDEWALLS. SEE ARCH PLANS FOR DETAILS
2:1 MAX. SLOPE, TYP.
ACCESSIBLE ROUTE FROM PRIMARY DOOR TO PUBLIC R/W, TYP.
FW 302.50
BW 299.70
SEG. BLK. RETAINING WALL #1 W/ 4' TALL BLK. ALUM. FENCE
TW 302.50
BW 298.25
TW 302.50
BW 299.70
3:1 MAX. SLOPE, TYP.
RAIN GARDEN (NOT DESIGNED AS SCM)
SLOPES NOT TO EXCEED 2:1, TYP.
CONVERT EX. CURB INLET TO GRATED INLET
JB-53
JB-52
JB-51
JB-50
CI-04
CI-05
CI-06
CI-07
CI-08
CI-09
CI-10
CI-11
CI-12
CI-15
CI-16
CI-17
CI-18
CI-19
CI-20
CI-21
CI-22
LI-12A
LI-12B
LI-12C
LI-12E
LI-12F
LI-19A
LI-19B
LI-19C
LI-20
24" RCP
18" RCP
15" RCP
12" RCP
EV/ EV
TC: 303.61
TC: 305.07
TC: 305.10
TC: 300.26
TC: 300.27
EL: 304.24
EL: 304.26
EL: 302.74
EL: 299.40
EL: 299.41
EL: 303.61
EL: 303.61
EL: 303.61

SCM #1 - WETPOND SIZING CALCULATIONS - Morning Flyer Way - North

(Drainage Area #1)

	Offsite (sf)	Onsite (sf)	Total Area (sf)	Total Area (Ac.)
Total Impervious Landcover:	67364	147,139	214,503	4.924
Total Drainage Area (DA):	-	-	338,437	7.769
Percent of Impervious in Drainage Area (I):				63.38%

Calculate the required storage volume (Rv) for the 1" first flush storm event:
Rv = 0.05 + (0.009)(Where I = Percent of impervious from above.
Rv = 0.620
Calculate the required drainage volume from the 1" storm to be controlled:
WQV = (design rainfall)(Rv)(Drainage Area)
WQv=3600*Rd*Rv*A
Required WQV = 17,498 C.F.
Provided WQV = 30,991 C.F.
Calculate the Wet Pond Dimensions:

Elev.	Tot. Inc. SA	Forebay	Mainpool	FB Inc. Vol.	MP Inc. Vol.	Disc.	Inc. Vol.	Total Vol.
285	19247		19247		18431	Top of Pond	18431	122537
284	17614		17614		16827		16827	104106
283	16039		16039		15279		15279	87280
282	14519		14519		13788	WQv	13788	72001
281	13056		13056		12353		12353	58213
280	11650		11650		4851	A-top shelf	4851	45860
279.5	10301	2549	7752	1132	3610	A-perm pool	4742	41010
279	8866	1979	6887	619	6350	A-bot shelf	6969	36268
278	7648	1636	6012	619	5689		6308	29300
277	6687	1322	5365	1180	5056		6236	22992
276	5785	1038	4747	912	4454		5366	16756
275	4946	786	4160	676	3882		4558	11391
274	4169	566	3603	473	3340		3812	6833
273	3465	379	3076	190	2832		3021	3021
272	2587	0	2587	0	0	Sed Cleanout	0	0
271.5				0	0	Bottom	0	0

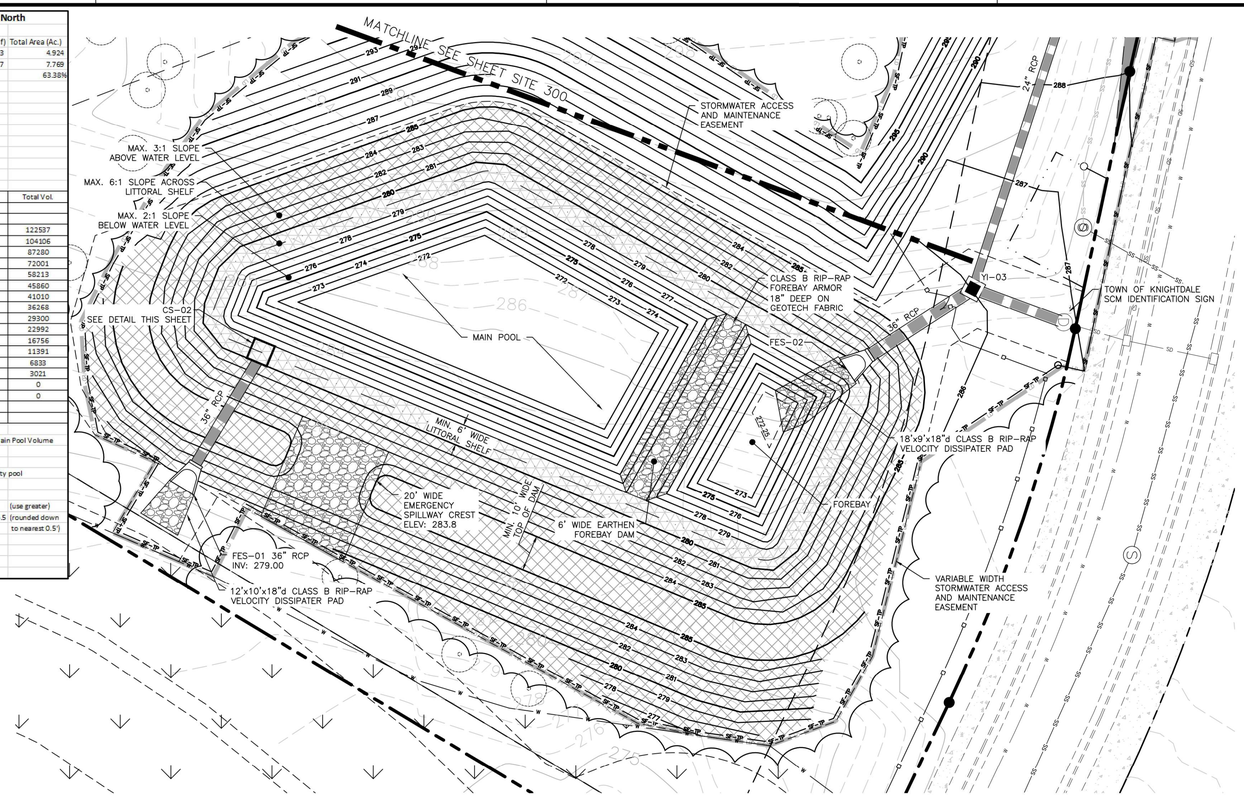
5800 35210 16% Forebay to Main Pool Volume

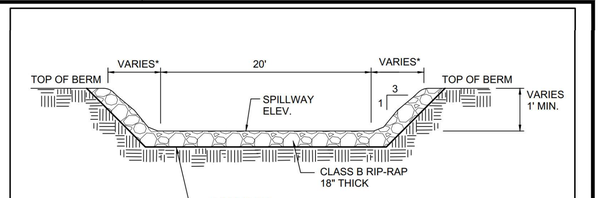
41,010 V-perm pool
30,991 V-water quality pool

Ave Depth Calcs
Davg with shelf 4.54 d-ave
Davg w/o shelf 4.70 d-ave (use greater)
Ave Depth 4.70 4.5 (rounded down to nearest 0.5')

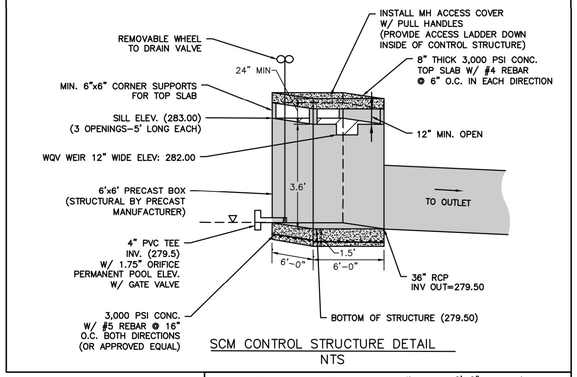
SA/DA 1.73

Required SA 5,855 S.F.
Provided SA 7,752 S.F.

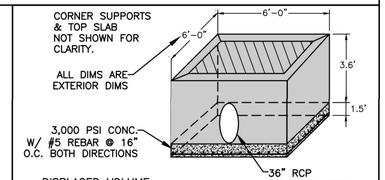




EMERGENCY SPILLWAY
NTS



SCM CONTROL STRUCTURE DETAIL
NTS



DISPLACED VOLUME
V=(6')(6')(3.6'+1.5')= 184 C.F.
DISPLACE WATER=(184 CF)(62.4 PCF)= 11,482 LBS
ADD 15% FACTOR OF SAFETY= 13,204 LBS

WEIGHT OF STRUCTURE
WALLS=(2)(6'+5')(3.6')(8")(150 PCF)=7,960 LBS
BASE=(6')(6')(1.5')(150 PCF)=8,100 LBS
36" RCP=(3.14)(1.5^2)(8")(150 PCF)=-706 LBS
STRUCTURE WEIGHT= 15,354 LBS > 13,204 LBS

STRUCTURE W/O TOP SLAB DOES NOT FLOAT
WT. OF TOP SLAB=(6')(6')(8")(150 PCF)=3,600 LBS

CONCRETE ANTI-BOUYANCY FOOTING
NTS

SCM PLANTING LEGEND

CENTIPEDE SOD ±14,300 SF

LITTORAL SHELF PLANTINGS 2,639 SF

SCM PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	REMARKS
WET POND LITTORAL SHELF – 2,639 SF /200 x 50 = 660 PLUGS REQUIRED				
CT	165	Carex tenera	Quill Sedge	3" x 2.5" SQUARE PLUGS (MIN)
EM	165	Eupatoriadelphus maculatus	Spotted trumpetweed	3" x 2.5" SQUARE PLUGS (MIN)
PV	165	Saccharum Baldwinii	Narrow plumegrass	3" x 2.5" SQUARE PLUGS (MIN)
SA	165	Chelone Glabra	White Turtlehead	3" x 2.5" SQUARE PLUGS (MIN)
SLOPE STABILIZATION GRASSES				
CENTIPEDE GRASS	12,000 SF	Eremochloa ophiuroides		SOD

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
1) SITE SUPERVISOR
2) GEOTECH
3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI-SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI-FLOTATION BALLAST
5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
   a. SUBGRADE OR CONSTRUCTED FOUNDATION
   b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
   c. FILTER MEDIA
   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICAITON
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

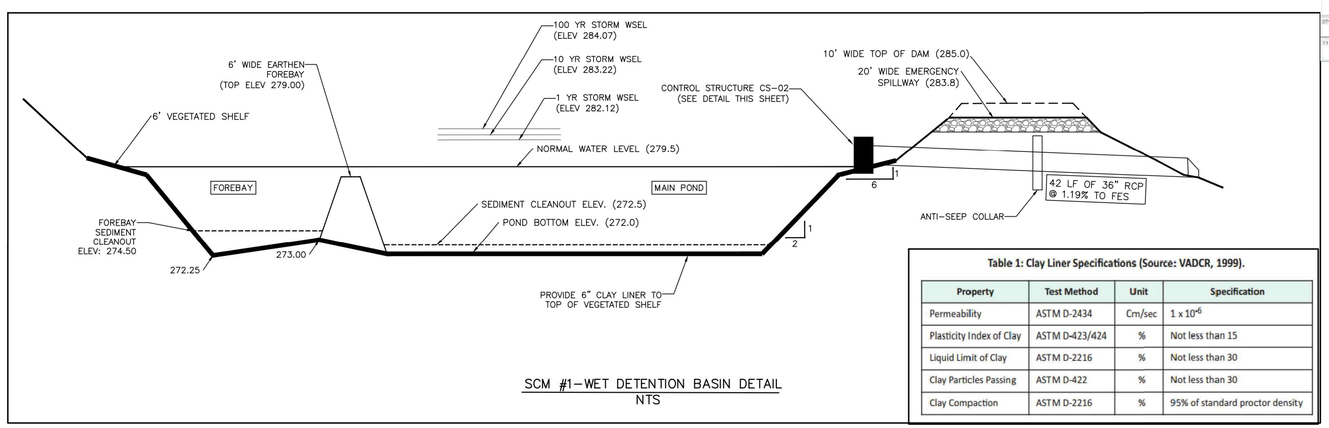
TOWN OF KNIGHTDALE SCM PLANTING NOTES

1. THE DAM STRUCTURE, INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE VEGETATED WITH NON-CLUMPING TURF GRASS OR SOD. (CENTIPEDE/HYBRID-BERMUDA) 90% GERMINATION OF NON-CLUMPING TURF WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION FORM THE TOWN.
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OF THREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 50 PLANTS PER 200 FEET OF SHELF AREA.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT PROPER ESTABLISHMENT AND GROWTH OF THE AQUATIC PLANTINGS. CONTRACTOR TO AMEND SOILS AND INSTALL SOILS IN PLANT, SHRUB, AND TREE AREAS PER DETAILS, SOIL SPECIFICATIONS. NCDENR SPECIFICATION, AND SOIL SCIENTIST RECOMMENDATIONS.
4. ALL AQUATIC PLANTINGS ARE TO BE INSTALLED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY. (LAST SPRING FROST AND THE FIRST FALL FROST)
5. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE DEVICE SHALL BE SEEDED WITH A LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS, AND WILDFLOWERS.
6. IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 4"OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.
7. CONTRACTOR SHALL WATER ALL VEGETATION AND GRASS ON A WEEKLY BASIS AS NEEDED TO ENSURE GRASS AND PLANT SURVIVAL UNTIL AFTER THE SCM IS CERTIFIED AND ACCEPTED BY THE TOWN.

STORMWATER CONTROL MEASURE CONSTRUCTION SEQUENCE

THE FOLLOWING MUST OCCUR PRIOR TO FINAL PLAT AND/OR CERTIFICATE OF OCCUPANCY (CO):

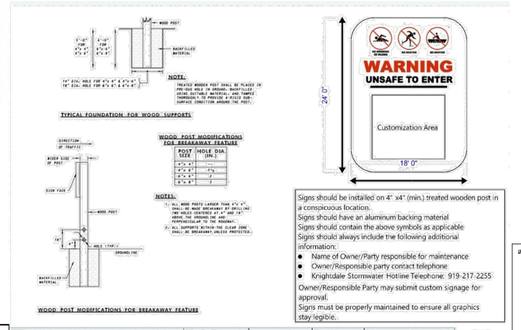
1. ALL STORMWATER CONTROL MEASURES (SCMS) MUST BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS.
2. DURING THE SCM CONVERSION PROCESS, ALL EFFORTS SHALL BE MADE TO PROTECT DOWNSTREAM WATER RESOURCES. THE DRAIN VALVE SHALL NOT BE LEFT OPEN AT ANY TIME DURING SCM CONVERSION. A SKIMMER DRAWDOWN SYSTEM SHALL BE INSTALLED AND UTILIZED UNTIL THE SCM IS FULLY CONVERTED.
3. THE REQUIRED LANDSCAPING SHALL BE INSTALLED DURING THE APPROPRIATE GROWING SEASON AND COORDINATED WITH THE TOWN ZONING COMPLIANCE OFFICER PRIOR TO INSTALLATION.
4. AS-BUILT TOPOGRAPHY OF THE BASIN IS REQUIRED PRIOR TO CONVERSION. AFTER MOST OF SITE IS STABILIZED AND READY FOR CONVERSION, DRAIN AND MUCKED OUT POND. HAVE SURVEYOR COMPLETE TOPOGRAPHY AND SEND TO DESIGN ENGINEER OF RECORD FOR REVIEW. ENGINEER WILL VERIFY DIMENSIONS AND AUTHORIZE PLANTING LITTORAL SHELF.



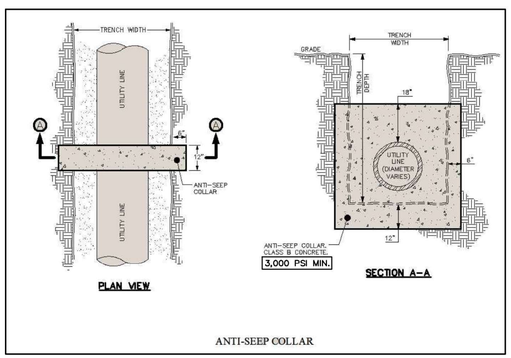
SCM #1-WET DETENTION BASIN DETAIL
NTS

Table 1: Clay Liner Specifications (Source: VADCR, 1999).

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	Cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423/424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of standard proctor density



SPEC: 1.02 SCM Identification Sign	Drawing Type: Detail		Drawn: PB	TOWN OF KNIGHTDALE STANDARD DETAILS
Title: Stormwater Control Measure Signage Detail	Scale: N/A	Date: 10-23-2020	Rev: 5.0	



ANTI-SEEP COLLAR

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NORTH

MORNING FLYER WAY SCM PLAN

SCALE: 1" = 20' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 20 40 60 80

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SCOTT R. NYE 7/17/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025
8 17 JUL 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY SCM PLAN

Job Code ASKSCD

Dwg No. SITE 301

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EROSION CONTROL LEGEND

- SF-TP — SILT/TREE PROT. FENCE
- TP — TREE PROTECTION FENCE
- SF — SILT FENCE
- TEMPORARY DIVERSION DITCH
- LD — LIMITS OF DISTURBANCE
- NEUSE RIVER BUFFER
- INLET PROTECTION
- CHECK DAM
- GUTTER INLET FILTER
- HORSESHOE INLET PROTECTION
- SILT FENCE OUTLET
- EXISTING WETLANDS
- ROLLED EC MATTING

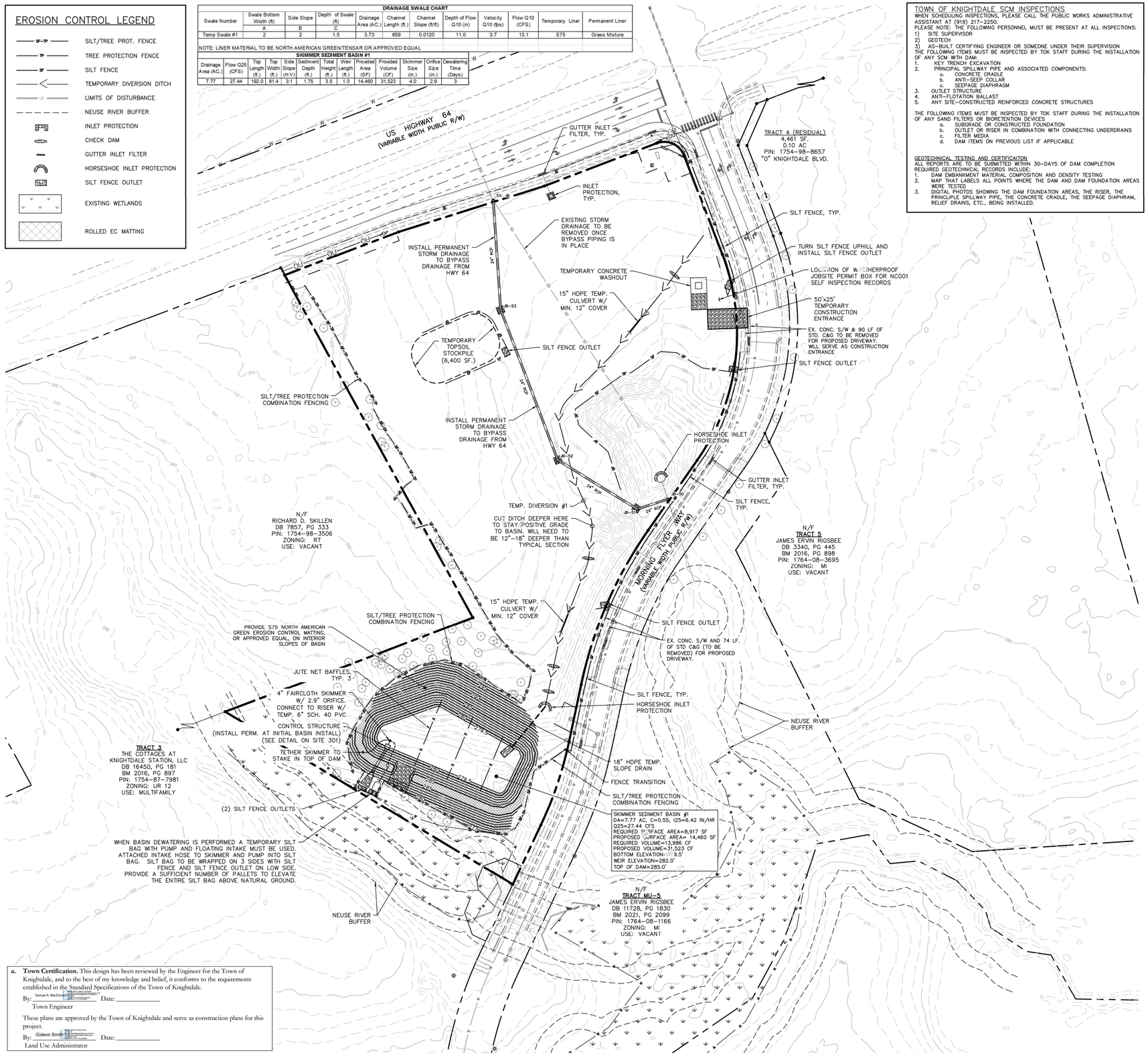
DRAINAGE SWALE CHART

Swale Number	Swale Bottom Width (ft)	Side Slope	Depth of Swale (ft)	Drainage Area (AC.)	Channel Length (ft.)	Channel Slope (ft/ft)	Depth of Flow Q10 (in)	Velocity Q10 (fps)	Flow Q10 (CFS)	Temporary Liner	Permanent Liner
	A	B	C								
Temp Swale #1	2	2	1.5	3.73	659	0.0120	11.0	3.7	13.1	S75	Grass Mixture

NOTE: LINER MATERIAL TO BE NORTH AMERICAN GREEN/TENSAR OR APPROVED EQUAL

SKIMMER SEDIMENT BASIN #1

Drainage Area (AC.)	Flow Q25 (CFS)	Top Length (ft.)	Top Width (ft.)	Side Slope (H:V.)	Sediment Depth (ft.)	Total Height (ft.)	Weir Length (ft.)	Provided Area (SF)	Provided Volume (CF)	Skimmer Size (in.)	Orifice Size (in.)	Dewatering Time (Days)
7.77	27.44	192.0	81.4	3:1	1.75	3.5	1.0	14,460	31,523	4.0	2.9	3



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2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
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   c. SEEPAGE DIAPHRAGM
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   a. SUBGRADE OR CONSTRUCTED FOUNDATION
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   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICATION
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
   DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

CONSTRUCTION SEQUENCE

1. REQUEST PRECONSTRUCTION MEETING.
2. INSTALL TREE PROTECTION FENCING AND CONTACT THE TOWN OF KNIGHTDALE INSPECTOR FOR APPROVAL.
3. OBTAIN GRADING PERMIT.
4. CLEAR ONLY WHAT IS NECESSARY FOR INSTALLATION OF EROSION CONTROL MEASURES.
5. IN ORDER, INSTALL PERIMETER SILT AND TREE FENCING. INSTALL INLET PROTECTION ON EXISTING INLETS. INSTALL BASIN, DIVERSION DITCHES, CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
6. INSTALL CLEAN WATER DIVERSION PIPING AND STRUCTURES AS SHOWN ON INITIAL EROSION CONTROL PLAN. INSTALL JB 53, JB 52, JB 51, JB 50, AND RCP STORM PIPES TO DIVERT OFFSITE STORMWATER THRU SITE. INSTALL PIPING DURING A PERIOD OF DRY WEATHER. PROTECT TRENCH BY STOCKPILING EXCAVATION MATERIAL ON UPHILL SIDE OF TRENCH. AT THE END OF EACH DAY UTILIZE STANDARD DETAIL ON SHEET SITE 708 FOR STANDARD PIPE INLET PROTECTION (PLYWOOD AND STONE). TRENCH CROSSING OF TEMPORARY DIVERSION DITCH TO BE PLANNED FOR A PERIOD OF DRY WEATHER. BACKFILL AREA OF TRENCH AT CROSSING AND REESTABLISH DITCH PRIOR TO CONCLUDING DAYS WORK. [BLOCK INLETS/TOPS FOR CLEAN WATER DIVERSION SO SEDIMENT-LADEN RUNOFF DOES NOT BYPASS THE SEDIMENT SKIMMER BASIN]
5. INSTALL ALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE INITIAL EROSION CONTROL PLAN, SITE 302.
6. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY EROSION CONTROL OFFICER.
7. BEGIN CONSTRUCTION AS SHOWN ON PLANS. PROCEED WITH ROUGH GRADING.
8. COMPACT NEW BACKFILL MATERIAL PER SPECIFICATIONS.
9. CLEAN SEDIMENT BASIN WHEN ONE-HALF FULL.
10. SEED AND MULCH DENUDED AREA WITHIN 15 DAYS AFTER ANY PHASE OF GRADING AND/OR AS SPECIFIED ON THE NPDES GROUND STABILIZATION CHART, WHICHEVER IS MORE RESTRICTIVE.
11. BRING SITE UP TO FINISHED GRADE AND INSTALL RETAINING WALLS. ADJUST DIVERSION DITCHES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.
12. INSTALL INLET PROTECTION AROUND ALL NEW CATCH BASINS AS THEY ARE INSTALLED.
13. ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE SITE IS STABILIZED TO THE EXTENT POSSIBLE, CONTACT THE TOWN OF KNIGHTDALE FOR INSPECTION.
14. AFTER APPROVAL BY THE TOWN INSPECTOR, REMOVE THE SEDIMENT BASIN AND CONVERT BASIN TO FINAL CONFIGURATION.
15. COMPLETE CONSTRUCTION.
16. WHEN CONSTRUCTION IS COMPLETE, REQUEST FINAL APPROVAL BY TOWN INSPECTOR.
17. REMOVE REMAINING EROSION CONTROL MEASURES AND STABILIZE THOSE AREAS.

REQUIRED TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE

1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS, CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN, BEING CONSTRUCTION, BUILDING, ETC.
8. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1. ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.
   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).
   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.
   D. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.
   E. FOLLOWING SITE MOBILIZATION, ROUTINE 'CONSTRUCTION SITE INSPECTIONS' BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, 'COMPLIANT/SATISFACTORY' INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
      I.INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) – 'PERIMETER CONTROL INSPECTION';
      II.INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES – 'CERTIFICATE OF COMPLANCE INSPECTION';

IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

   F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS, OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
   A. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION.
      I.SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
      II.IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
      III.FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES –BEFORE ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

NORTH

MORNING FLYER WAY INITIAL EROSION CONTROL PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

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NORTH CAROLINA
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NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NEWTON
4/20/2024

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

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12 JAN 2024
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5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY INITIAL EROSION CONTROL PLAN

Job Code ASKSCD

Dwg No. SITE 302

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- SF-TP — SILT/TREE PROT. FENCE
- TP — TREE PROTECTION FENCE
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- LD — LIMITS OF DISTURBANCE
- NEUSE RIVER BUFFER
- INLET PROTECTION
- CHECK DAM
- GUTTER INLET FILTER
- EXISTING WETLANDS
- ROLLED EROSION CONTROL PRODUCT



a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

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By: Gideon Smith Date: _____
Land Use Administrator

REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR 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 NCDEQ – 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 NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: TOWN OF KNIGHTDALE, TOK 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 USING NON-CLUMPING TURF GRASS (CENTIPEDE / HYBRID BERMUDA)
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR 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 EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.**

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
1) SITE SUPERVISOR
2) GEOTECH
3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI-SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI-FLOTATION BALLAST
5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
   a. SUBGRADE OR CONSTRUCTED FOUNDATION
   b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
   c. FILTER MEDIA
   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICAITON
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

CONSTRUCTION SEQUENCE

1. REQUEST PRECONSTRUCTION MEETING.
2. INSTALL TREE PROTECTION FENCING AND CONTACT THE TOWN OF KNIGHTDALE INSPECTOR FOR APPROVAL.
3. OBTAIN GRADING PERMIT.
4. CLEAR ONLY WHAT IS NECESSARY FOR INSTALLATION OF EROSION CONTROL MEASURES.
5. IN ORDER, INSTALL PERIMETER SILT AND TREE FENCING. INSTALL INLET PROTECTION ON EXISTING INLETS. INSTALL BASIN, DIVERSION DITCHES, CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
6. INSTALL CLEAN WATER DIVERSION PIPING AND STRUCTURES AS SHOWN ON INITIAL EROSION CONTROL PLAN. INSTALL JB 53, JB 52, JB 51, JB 50, AND RCP STORM PIPES TO DIVERT OFFSITE STORMWATER THRU SITE. INSTALL PIPING DURING A PERIOD OF DRY WEATHER. PROTECT TRENCH BY STOCKPILING EXCAVATION MATERIAL ON UPHILL SIDE OF TRENCH. AT THE END OF EACH DAY UTILIZE STANDARD DETAIL ON SHEET SITE 708 FOR STANDARD PIPE INLET PROTECTION (PLYWOOD AND STONE). TRENCH CROSSING OF TEMPORARY DIVERSION DITCH TO BE PLANNED FOR A PERIOD OF DRY WEATHER. BACKFILL AREA OF TRENCH AT CROSSING AND REESTABLISH DITCH PRIOR TO CONCLUDING DAYS WORK. [BLOCK INLETS/TOPS FOR CLEAN WATER DIVERSION SO SEDIMENT-LADEN RUNOFF DOES NOT BYPASS THE SEDIMENT SKIMMER BASIN]
5. INSTALL ALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE INITIAL EROSION CONTROL PLAN, SITE 302.
6. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY EROSION CONTROL OFFICER.
7. BEGIN CONSTRUCTION AS SHOWN ON PLANS. PROCEED WITH ROUGH GRADING.
8. COMPACT NEW BACKFILL MATERIAL PER SPECIFICATIONS.
9. CLEAN SEDIMENT BASIN WHEN ONE-HALF FULL.
10. SEED AND MULCH DENUDED AREA WITHIN 15 DAYS AFTER ANY PHASE OF GRADING AND/OR AS SPECIFIED ON THE NPDES GROUND STABILIZATION CHART, WHICHEVER IS MORE RESTRICTIVE.
11. BRING SITE UP TO FINISHED GRADE AND INSTALL RETAINING WALLS. ADJUST DIVERSION DITCHES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.
12. INSTALL INLET PROTECTION AROUND ALL NEW CATCH BASINS AS THEY ARE INSTALLED.
13. ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE SITE IS STABILIZED TO THE EXTENT POSSIBLE, CONTACT THE TOWN OF KNIGHTDALE FOR INSPECTION.
14. AFTER APPROVAL BY THE TOWN INSPECTOR, REMOVE THE SEDIMENT BASIN AND CONVERT BASIN TO FINAL CONFIGURATION.
15. COMPLETE CONSTRUCTION.
16. WHEN CONSTRUCTION IS COMPLETE, REQUEST FINAL APPROVAL BY TOWN INSPECTOR.
17. REMOVE REMAINING EROSION CONTROL MEASURES AND STABILIZE THOSE AREAS.

REQUIRED TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE

1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS, CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN. BEING CONSTRUCTION, BUILDING, ETC.
8. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1. ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.

   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).

   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.

   D. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.

   E. FOLLOWING SITE MOBILIZATION, ROUTINE 'CONSTRUCTION SITE INSPECTIONS' BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, 'COMPLIANT/SATISFACTORY' INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
      I.INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) – 'PERIMETER CONTROL INSPECTION';
      II.INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES – 'CERTIFICATE OF COMPLIANCE INSPECTION';

IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

   F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS, OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
   A. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION.
      I.SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
      II.IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINAN AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
      III.FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES –BEFORE ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

NORTH

MORNING FLYER WAY FINAL EROSION CONTROL

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. MYE
7/17/2025

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP | WAKE COUNTY

Drawn By: MRK
Checked By: SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025
8 17 JUL 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY FINAL EROSION CONTROL PLAN

Job Code: ASKSCD

Dwg No.
SITE 303

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SEEDING SCHEDULE

BERMUDA LAWN, SLOPES (MAX. 3:1)		
DATE	TYPE	PLANTING RATE
APR. 15 - JUNE 15	BERMUDA	2 LBS/1000 SF
LATE SPRING(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
EARLY SUMMER(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
LATE SUMMER(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
EARLY FALL(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
MID SUMMER(ESTABLISHED)	16-04-08 SLOW RELEASE FERTILIZER	5 LBS/1000 SF
LATE SUMMER(ESTABLISHED)	16-04-08 SLOW RELEASE FERTILIZER	5 LBS/1000 SF

SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)		
DATE	TYPE	PLANTING RATE
MAR 1. - JUN. 1	SERICEA LESPEDESA	50 LBS/ACRE
& MAR 1. - APR. 15	ADD TALL FESCUE	120 LBS/ACRE
JUN. 1 - SEP. 1	***TALL FESCUE AND	120 LBS/ACRE
	***BROWNTOP MILLET OR	25 LBS/ACRE
	SOUGHNUM-SUDAN HYBRID	30 LBS/ACRE
SEP. 1 - MAR. 1	ERICEA LESEDESCA AND	70 LBS/ACRE
	TALL FESCUE	120 LBS/ACRE
NOV. 1 - MAR. 1	ADD ABRUZZI RYE.	25 LBS/ACRE

CONSULT EROSION CONTROL ENGINEER OR SOIL CONSERVATION SERVICES FOR OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROWN OVER 12-INCHES IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADED OUT.

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS. IF THEY OCCUR. AFTER ALL ROUGH GRADING IS COMPLETED, TILL SOIL AREAS TO BE SEEDED AND PLANTED TO A DEPTH OF FIVE INCHES.

2. REMOVE ALL LOOSE ROCKS, ROOTS, DIRT CLODS, AND OTHER OBSTRUCTIONS LEAVING GROUND SURFACE SMOOTH AND UNIFORM.

3. TO PREPARE UNIFORM SEEDBED, INCORPORATE AGRICULTURAL LIME FERTILIZER AND SUPERPHOSPHATE INTO SOIL AREAS TO BE VEGETATED. DISK NUTRIENTS INTO SOIL UNTIL WELL PULVERIZED.

4. SEED ON PREPARED SEEDBED AND COVER LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK. APPLY TEMPORARY SEEDING TO SOIL STOCKPILE AREAS THAT WILL BE DISTURBED WITHIN 30 DAYS. APPLY PERMANENT SEEDING TO WHERE FINISH GRADES ARE ESTABLISHED.

5. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR WITH LIQUID ASPHALT AT 400 GAL./ACRE OR EMULSIFIED ASPHALT AT 300 GAL./ACRE.

6. MULCH ALL SEEDED AREAS WITH SMALL GRAIN STRAW AT 90 LBS./1000 SF AND SPREAD UNIFORMLY. GROUND SURFACE SHOULD BE VISIBLE TO ALLOW SUNLIGHT PENETRATION.

7. MULCH AROUND SHRUBBERY AND TREES WITH SHREDDED HARDWOOD TO A DEPTH OF 3 INCHES.

8. AFTER WORK IS COMPLETED AND AREAS ARE STABILIZED, CALL EROSION CONTROL OFFICER FOR SITE INSPECTION AND RECEIVE CERTIFICATE OF COMPLETION. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES, INSTALL RIP-RAP, AND SEED AND MULCH ANY REMAINING BARE AREAS.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
• 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 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 and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

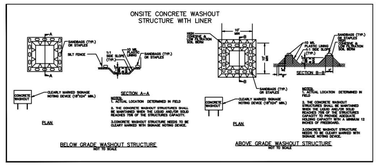
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6) • Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

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

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

NPDES GROUND STABILIZATION SCHEDULE

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS	AREAS ON THIS SITE
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE	TEMPORARY DIVERSION DITCHES
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	REMAINDER OF PROJECT AREA
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)	INCLUDED W/ 3:1 OR FLATTER SLOPES

NPDES PLAN 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 IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT IS NOT PART OF THE APPROVED PLANS FOR PURPOSES OF ENFORCEMENT ACTION UNDER THE CITY CODE.

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. NEWTON
4/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY
NPDES PLAN

Job Code ASKSCD

Dwg No.
SITE
304

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SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber–optic marker
- Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- OU — Overhead utility
- W — Water
- SS — Sanitary sewer
- SD — Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right–of–way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right–of–way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

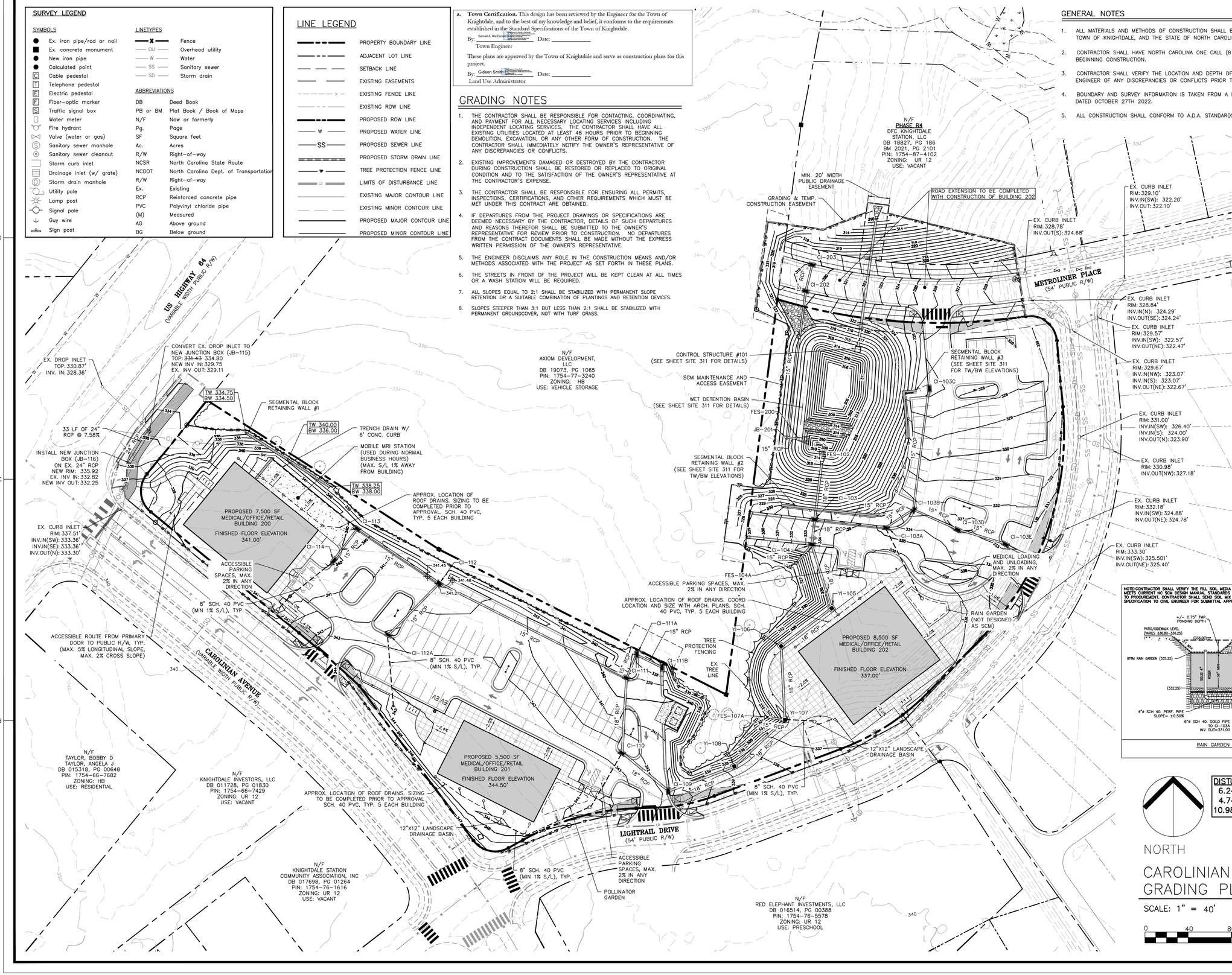
By: Gideon Smith Date: _____
Land Use Administrator

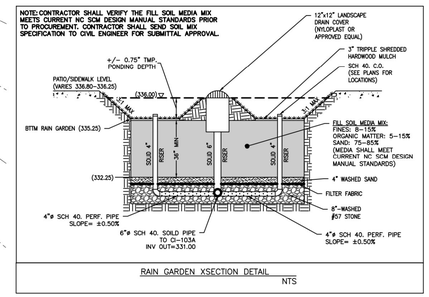
GRADING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING, AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL HAVE ALL EXISTING UTILITIES LOCATED AT LEAST 48 HOURS PRIOR TO BEGINNING DEMOLITION, EXCAVATION, OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
2. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALL PERMITS, INSPECTIONS, CERTIFICATIONS, AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT ARE OBTAINED.
4. IF DEPARTURES FROM THIE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREFOR SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO CONSTRUCTION. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
5. THE ENGINEER DISCLAIMS ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
6. THE STREETS IN FRONT OF THE PROJECT WILL BE KEPT CLEAN AT ALL TIMES OR A WASH STATION WILL BE REQUIRED.
7. ALL SLOPES EQUAL TO 2:1 SHALL BE STABILIZED WITH PERMANENT SLOPE RETENTION OR A SUITABLE COMBINATION OF PLANTINGS AND RETENTION DEVICES.
8. SLOPES STEEPER THAN 3:1 BUT LESS THAN 2:1 SHALL BE STABILIZED WITH PERMANENT GROUNDCOVER, NOT WITH TURF GRASS.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.





RAIN GARDEN XSECTION DETAIL
NTS

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

NORTH

CAROLINIAN AVE. GRADING PLAN

SCALE: 1" = 40'

(DRAWING SCALED FOR 24x36 INCH PLOTS)

0 40 80 120 160

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P–0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NYE
7/17/2025

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By MRK
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8 17 JUL 2025

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. GRADING PLAN

Job Code ASKSCD

Dwg No. SITE 310

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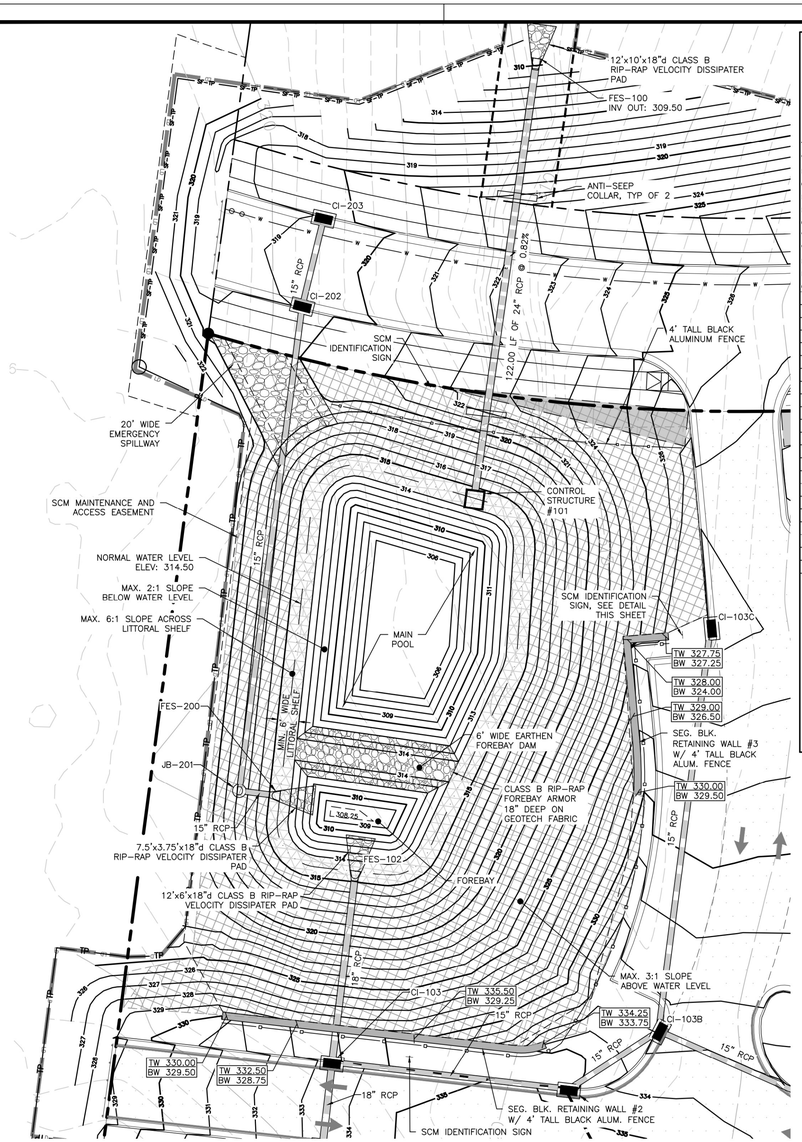


ASKSCD
12-Apr-24

SCM #2 - WETPOND SIZING CALCULATIONS

(Drainage Area #2)

	Area (Ac.)
Total Impervious Landcover:	2.470
Total Drainage Area (DA):	5.080
Percent of Impervious in Drainage Area (I):	49.00%

Calculate the required storage volume (Rv) for the 1" first flush storm event:

Rv = 0.05 + (0.009) Where I = Percent of impervious from above.

Rv = 0.491

Calculate the required drainage volume from the 1" storm to be controlled:

WQV = (design rainfall)(Rv)(Drainage Area)

WQv=3600*Rd*Rv*A

Required WQV = 9,054 C.F.

Provided WQV = 10,270 C.F.

Calculate the Wet Pond Dimensions:

Elev.	Tot. Inc. SA	Forebay	Mainpool	FB Inc. Vol.	MP Inc. Vol.	Disc.	Inc. Vol.	Total Vol.
320	12487		12487		11872	Top of Pond	11872	68427
319	11256		11256		10670		10670	56555
318	10083		10083		9525		9525	45886
317	8966		8966		4349		4349	36361
316.5	8428		8428		4083		4083	28693
316	7905		7905		7403	WQv	7403	32013
315	6901		6901		2867	A-top shelf	2867	24610
314.5	5953	1387	4566	591	2096	A-perm pool	2687	21743
314	4794	977	3817	859	3585	A-bot shelf	4444	19056
313	4094	741	3353	639	3135		3774	14612
312	3453	537	2916	450	2712		3161	10839
311	2869	362	2507	290	2316		2606	7678
310	2342	217	2125	161	1948		2109	5072
309	1875	104	1771	52	1610		1662	2964
308	1448	0	1448	0	1302		1302	1302
307	1156	0	1156	0	0	Sed Cleanout	0	0
306	895	0	895	0	0	Bottom	0	0

3041 18702 16% Forebay to Main Pool Volume

21,743 V-perm pool

10,270 V-water quality pool

Ave Depth Calcs

Davg with shelf 4.10 d-ave

Davg w/o shelf 4.30 d-ave (use greater)

Ave Depth 4.30 4.00 (rounded down to nearest 0.5')

SA/DA 1.45

Required SA 3,209 S.F.

Provided SA 4,566 S.F.

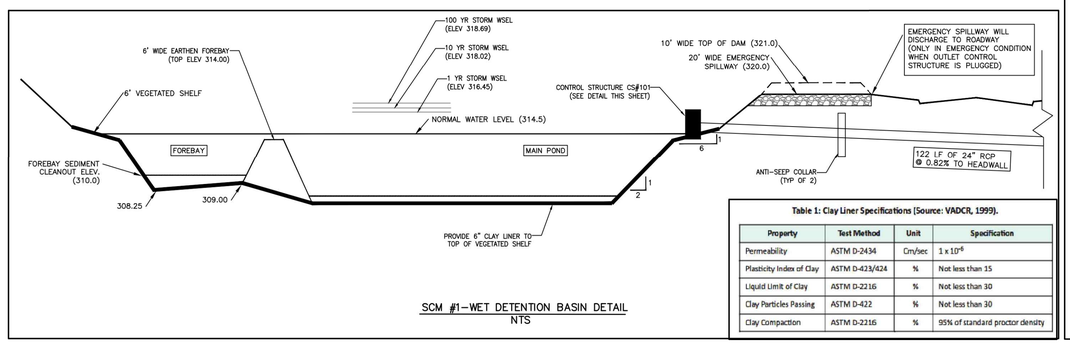
SCM PLANTING LEGEND

CENTIPEDE SOD ±14,500 SF

LITTORAL SHELF PLANTINGS 1,825 SF

SCM PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	REMARKS
WET POND LITTORAL SHELF = 1,825 SF /200 x 50 = 456 PLUGS REQUIRED				
CT	114	Carex tenera	Quill Sedge	3" x 2.5" SQUARE PLUGS (MIN)
LM	114	Eupatoriadelphus maculatus	Spotted trumpeteed	3" x 2.5" SQUARE PLUGS (MIN)
PV	114	Saccharum Baldwinii	Narrow plumegrass	3" x 2.5" SQUARE PLUGS (MIN)
SA	114	Chelone Glabra	White Turtlehead	3" x 2.5" SQUARE PLUGS (MIN)
SLOPE STABILIZATION GRASSES				
CENTIPEDE GRASS	±14,500 SF	Eremochloa ophiuroides		SOD



SCM #1–WET DETENTION BASIN DETAIL
NTS

Table 1: Clay Liner Specifications (Source: VADCR, 1999).

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	Cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423/424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of standard proctor density

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217–2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:

1) SITE SUPERVISOR
2) GEOTECH
3) AS–BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:

1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI–SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI–FLOTATION BALLAST
5. ANY SITE–CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES

a. SUBGRADE OR CONSTRUCTED FOUNDATION
b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
c. FILTER MEDIA
d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICATION

ALL REPORTS ARE TO BE SUBMITTED WITHIN 30–DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:

1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

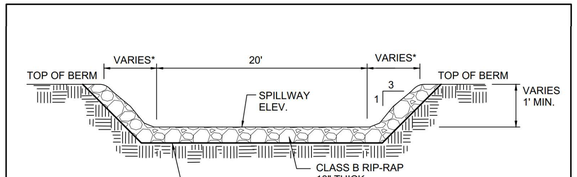
TOWN OF KNIGHTDALE SCM PLANTING NOTES

1. THE DAM STRUCTURE, INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE VEGETATED WITH NON–CLUMPING TURF GRASS OR SOD. (CENTIPEDE/HYBRID–BERMUDA) 90% GERMINATION OF NON–CLUMPING TURF WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION FORM THE TOWN.
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OF THREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 50 PLANTS PER 200 FEET OF SHELF AREA.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT PROPER ESTABLISHMENT AND GROWTH OF THE AQUATIC PLANTINGS. CONTRACTOR TO AMEND SOILS AND INSTALL SOILS IN PLANT, SHRUB, AND TREE AREAS PER DETAILS, SOIL SPECIFICATIONS. NCDENR SPECIFICATION, AND SOIL SCIENTIST RECOMMENDATIONS.
4. ALL AQUATIC PLANTINGS ARE TO BE INSTALLED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY. (LAST SPRING FROST AND THE FIRST FALL FROST)
5. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE DEVICE SHALL BE SEEDED WITH 4: LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS, AND WILDFLOWERS.
6. IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 4"OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.
7. CONTRACTOR SHALL WATER ALL VEGETATION AND GRASS ON A WEEKLY BASIS AS NEEDED TO ENSURE GRASS AND PLANT SURVIVAL UNTIL AFTER THE SCM IS CERTIFIED AND ACCEPTED BY THE TOWN.

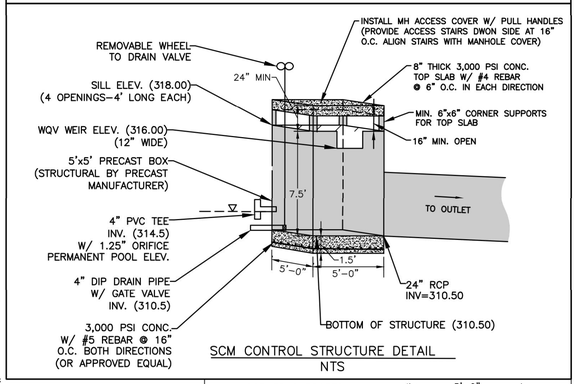
STORMWATER CONTROL MEASURE CONSTRUCTION SEQUENCE

THE FOLLOWING MUST OCCUR PRIOR TO FINAL PLAT AND/OR CERTIFICATE OF OCCUPANCY (CO):

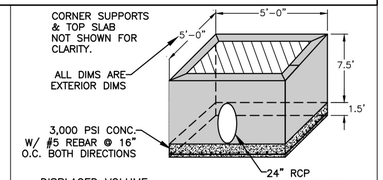
1. ALL STORMWATER CONTROL MEASURES (SCMS) MUST BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS.
2. DURING THE SCM CONVERSION PROCESS, ALL EFFORTS SHALL BE MADE TO PROTECT DOWNSTREAM WATER RESOURCES. THE DRAIN VALVE SHALL NOT BE LEFT OPEN AT ANY TIME DURING SCM CONVERSION. A SKIMMER DRAWDOWN SYSTEM SHALL BE INSTALLED AND UTILIZED UNTIL THE SCM IS FULLY CONVERTED.
3. THE REQUIRED LANDSCAPING SHALL BE INSTALLED DURING THE APPROPRIATE GROWING SEASON AND COORDINATED WITH THE TOWN ZONING COMPLIANCE OFFICER PRIOR TO INSTALLATION.
4. AS–BUILT TOPOGRAPHY OF THE BASIN IS REQUIRED PRIOR TO CONVERSION. AFTER MOST OF SITE IS STABILIZED AND READY FOR CONVERSION, DRAIN AND MUCKED OUT POND. HAVE SURVEYOR COMPLETE TOPOGRAPHY AND SEND TO DESIGN ENGINEER OF RECORD FOR REVIEW. ENGINEER WILL VERIFY DIMENSIONS AND AUTHORIZE PLANTING LITTORAL SHELF.



EMERGENCY SPILLWAY
NTS



SCM CONTROL STRUCTURE DETAIL
NTS

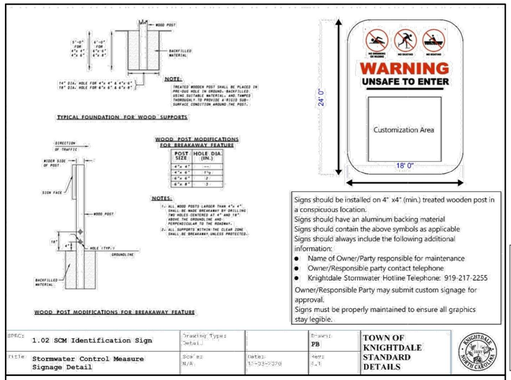


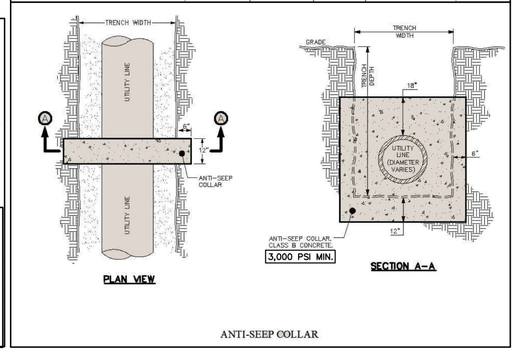
DISPLACED VOLUME
V=(5')(5')(7.5'+1.5')= 225 C.F.
DISPLACE WATER=(225 CF)(62.4 PCF)= 14,040 LBS
ADD 15% FACTOR OF SAFETY= 16,146 LBS

WEIGHT OF STRUCTURE
WALLS=(2)(5'+4')(7.5')(8")(150 PCF)=13,567 LBS
BASE=(5')(5')(1.5')(150 PCF)=5,625 LBS
24" RCP=(3.14)(1.0^2)(8")(150 PCF)=–316 LBS
12" WEIR=(1')(2')(8")(150 PCF)=–201 LBS
STRUCTURE WEIGHT= 18,675 LBS > 16,146 LBS

STRUCTURE W/O TOP SLAB DOES NOT FLOAT
WT. OF TOP SLAB=(5')(5')(8")(150 PCF)=2,512 LBS

CONCRETE ANTI–BOUYANCY FOOTING
NTS





ANTI-SEEP COLLAR

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NORTH

CAROLINIAN AVE. SCM PLAN

SCALE: 1" = 20' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 20 40 60 80

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P–0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. NEWTON
5/16/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605–1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. SCM PLAN

Job Code ASKSCD

Dwg No.
SITE 311

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EROSION CONTROL LEGEND

- SF-TP — SILT/TREE PROT. FENCE
- TP — TREE PROTECTION FENCE
- SF — SILT FENCE
- TEMPORARY DIVERSION DITCH
- LD — LIMITS OF DISTURBANCE
- INLET PROTECTION
- CHECK DAM
- GUTTER INLET FILTER
- TEMP. CONSTRUCTION ENTRANCE

DRAINAGE SWALE CHART

Swale Number	Swale Bottom Width (ft) A	Side Slope B	Depth of Swale (ft) C	Drainage Area (AC.)	Channel Length (ft.)	Channel Slope (ft/ft)	Depth of Flow Q10 (in)	Velocity Q10 (fps)	Flow Q10 (CFS)	Temporary Liner	Permanent Liner
Temp Swale #102	1	2	1.5	1.98	580	0.0320	6.2	4.4	7.0	S75	Grass Mixture
Temp Swale #102	1	2	1.5	1.27	180	0.0100	7.6	2.5	4.5	S75	Grass Mixture

NOTE: LINER MATERIAL TO BE NORTH AMERICAN GREEN TENSAR OR APPROVED EQUAL

SKIMMER SEDIMENT BASIN #100

Drainage Area (AC.)	Flow Q25 (CFS)	Top Length (ft.)	Top Width (ft.)	Side Slope (H:V)	Sediment Depth (ft.)	Total Height (ft.)	Weir Length (ft.)	Provided Area (SF)	Provided Volume (CF)	Skimmer Size (in.)	Orifice Size (in.)	Dewatering Time (Days)
4.01	14.16	123.0	73	3:1	3.5	5.0	1.0	7,898	15,166	2.5	2.3	3

N/F
INVESTISNIFF, LLC
DB 18864, PG 1002
PIN: 1754-77-4544
ZONING: XX
USE: SINGL TEN

N/F
PHASE R4
DFC KNIGHTDALE STATION, LLC
DB 18827, PG 186
BM 2021, PG 2101
PIN: 1754-87-4102
ZONING: UR 12
USE: VACANT

US HIGHWAY 64 (VARIABLE WIDTH PUBLIC R/W)

WHEN BASIN DEWATERING IS PERFORMED A TEMPORARY SILT BAG WITH PUMP AND FLOATING INTAKE MUST BE USED. ATTACHED INTAKE HOSE TO SKIMMER AND PUMP INTO SILT BAG. SILT BAG TO BE WRAPPED ON 3 SIDES WITH SILT FENCE AND SILT FENCE OUTLET ON LOW SIDE. PROVIDE A SUFFICIENT NUMBER OF PALLETS TO ELEVATE THE ENTIRE SILT BAG ABOVE NATURAL GROUND.

25'x50' TEMPORARY CONSTRUCTION ENTRANCE

METROLINER PLACE (54' PUBLIC R/W)

SILT/TREE PROTECTION COMBINATION FENCING

N/F
AXIOM DEVELOPMENT, LLC
DB 19073, PG 1065
PIN: 1754-77-3240
ZONING: HB
USE: VEHICLE STORAGE

FENCE TRANSITION

TEMPORARY EMERGENCY SPILLWAY

2.5" FAIRCLOTH SKIMMER W/ 2.3" ORIFICE, CONNECT TO RISER W/ TEMP. 6" SCH. 40 PVC. INSTALL #57 STONE GRAVEL PAD UNDER SKIMMER

JUTE NET BAFFLES, TYP. 3

12'x8'x19"d CLASS B VELOCITY RIP-RAP DISSIPATER PAD

12" HDPE TEMP. SLOPE DRAIN

TREE PROTECTION FENCING

HORSESHOE INLET PROTECTION

TETHER SKIMMER TO STAKE IN TOP OF DAM

CONTROL STRUCTURE (INSTALL PERM. AT INITIAL BASIN INSTALL) (SEE SITE 311 FOR DETAIL)

TEMPORARY TOPSOIL STOCKPILE (6,500 SF)

SKIMMER SEDIMENT BASIN #100
DA=4.01 AC, C=0.55, I25=6.42 IN/HR
Q25=14.16 CFS
REQUIRED SURFACE AREA=4,602 SF
PROPOSED SURFACE AREA= 7,898 SF
REQUIRED VOLUME=7,218 CF
PROPOSED VOLUME=15,166 CF
BOTTOM ELEVATION=311.0'
WEIR ELEVATION=316.0'
TOP OF DAM=320.0'

CHECK DAMS, TYP.

EX. DROP INLET (CONVERT TO JB)

INLET PROTECTION, TYP.

SILT FENCE

INSTALL (2) SILT FENCE OUTLETS

TURN SILT FENCE UPHILL AND INSTALL SILT FENCE OUTLET

TREE PROTECTION FENCE

FENCE TRANSITION

SILT/TREE PROTECTION COMBINATION FENCING

GUTTER INLET FILTER, TYP.

TEMPORARY CONCRETE WASHOUT

EX. CONC. S/W & STD. C&G (TO BE REMOVED) WILL SERVE AS CONST. ENTRANCE

CAROLINIAN AVENUE (VARIABLE WIDTH PUBLIC R/W)

25'x50' TEMPORARY CONSTRUCTION ENTRANCE

TURN SILT FENCE UP HILL TO LF

SILT/TREE PROTECTION COMBINATION FENCING

INSTALL SILT FENCE OUTLET

15" HDPE TEMP. CULVERT W/ MIN. 12" COVER

SILT FENCE

EX. CONC. S/W & STD. C&G (TO BE REMOVED)

N/F
DFC KNIGHTDALE STATION, LLC
DB 018827, PG 00186
PIN: 1754-87-4102
ZONING: UR 12
USE: VACANT
(FUTURE RESIDENTIAL USE)

TEMPORARY DIVERSION #103

RAISE GRADE IN THIS AREA TO ALLOW AREA TO DRAIN TO BASIN

TEMPORARY DIVERSION #102

FENCE TRANSITION

15" HDPE TEMP. CULVERT W/ MIN. 12" COVER

EX. CONC. S/W & STD. C&G (TO BE REMOVED)

CHECK DAM EVERY 2' OF VERTICAL CHANGE, TYP.

LIGHTRAIL DRIVE (54' PUBLIC R/W)

FENCE TRANSITION

SILT/TREE PROTECTION COMBINATION FENCING

N/F
TAYLOR, BOBBY D
TAYLOR, ANGELA J
DB 015318, PG 00648
PIN: 1754-66-7682
ZONING: HB
USE: RESIDENTIAL

LOCATION OF WEATHERPROOF JOBSITE PERMIT BOX FOR NCG01 SELF INSPECTION RECORDS & HARD COPY OF APPROVED PLANS

N/F
KNIGHTDALE INVESTORS, LLC
DB 011728, PG 01830
PIN: 1754-66-7429
ZONING: UR 12
USE: VACANT

N/F
KNIGHTDALE STATION COMMUNITY ASSOCIATION, INC
DB 017698, PG 01264
PIN: 1754-76-1616
ZONING: UR 12
USE: VACANT

N/F
RED ELEPHANT INVESTMENTS, LLC
DB 016514, PG 00388
PIN: 1754-76-5578
ZONING: UR 12
USE: PRESCHOOL

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
1) SITE SUPERVISOR
2) GEOTECH
3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI-SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI-FLOTATION BALLAST
5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
   a. SUBGRADE OR CONSTRUCTED FOUNDATION
   b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
   c. FILTER MEDIA
   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICAITON
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

CONSTRUCTION SEQUENCE

1. REQUEST PRECONSTRUCTION MEETING.
2. INSTALL TREE PROTECTION FENCING AND CONTACT THE TOWN OF KNIGHTDALE INSPECTOR FOR APPROVAL.
3. OBTAIN GRADING PERMIT.
4. CLEAR ONLY WHAT IS NECESSARY FOR INSTALLATION OF EROSION CONTROL MEASURES.
5. INSTALL ALL EROSION CONTROL MEASURES AS SHOWN ON THE INITIAL EROSION CONTROL PLAN, SITE 302.
6. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY EROSION CONTROL OFFICER.
7. BEGIN CONSTRUCTION AS SHOWN ON PLANS. PROCEED WITH ROUGH GRADING.
8. COMPACT NEW BACKFILL MATERIAL PER SPECIFICATIONS.
9. CLEAN SEDIMENT BASIN WHEN ONE-HALF FULL.
10. SEED AND MULCH DENUDED AREA WITHIN 15 DAYS AFTER ANY PHASE OF GRADING AND/OR AS SPECIFIED ON THE NPDES GROUND STABILIZATION CHART, WHICHEVER IS MORE RESTRICTIVE.
11. BRING SITE UP TO FINISHED GRADE AND INSTALL RETAINING WALLS. ADJUST DIVERSION DITCHES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.
12. INSTALL INLET PROTECTION AROUND ALL NEW CATCH BASINS AS THEY ARE INSTALLED.
13. ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE AND THE SITE IS STABILIZED TO THE EXTENT POSSIBLE, CONTACT THE TOWN OF KNIGHTDALE FOR INSPECTION.
14. AFTER APPROVAL BY THE TOWN INSPECTOR, REMOVE THE SEDIMENT BASIN AND CONVERT BASIN TO FINAL CONFIGURATION.
15. COMPLETE CONSTRUCTION.
16. WHEN CONSTRUCTION IS COMPLETE, REQUEST FINAL APPROVAL BY TOWN INSPECTOR.
17. REMOVE REMAINING EROSION CONTROL MEASURES AND STABILIZE THOSE AREAS.

REQUIRED TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE

1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN. BEING CONSTRUCTION, BUILDING, ETC.
8. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1. ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.

   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).

   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.

   D. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.

   E. FOLLOWING SITE MOBILIZATION, ROUTINE 'CONSTRUCTION SITE INSPECTIONS' BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE; 'COMPLIANT/SATISFACTORY' INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
      I. INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) – 'PERIMETER CONTROL INSPECTION';
      II. INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES – 'CERTIFICATE OF COMPLANCE INSPECTION';

   IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

   F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS, OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
   A. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION.
      I. SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
      II. IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
      III. FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES –BEFORE ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

NORTH

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

CAROLINIAN AVE. INITIAL EROSION CONTROL PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 54881 ENGINEER SAMUEL R. MACDONALD
4/20/2024

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. EXISTING CONDITIONS PLAN

Job Code ASKSCD

Dwg No. SITE 312

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EROSION CONTROL LEGEND

- SF-TP — SILT/TREE PROT. FENCE
- TP — TREE PROTECTION FENCE
- SF — SILT FENCE
- TEMPORARY DIVERSION DITCH
- LD — LIMITS OF DISTURBANCE
- INLET PROTECTION
- CHECK DAM
- GUTTER INLET FILTER
- TEMP. CONSTRUCTION ENTRANCE
- ROLLED EROSION CONTROL PRODUCT



GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

REQUIRED TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE

1. SCHEDULE AN INITAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND-DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS, CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN. BEING CONSTRUCTION, BUILDING, ETC.
8. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
10. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
11. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.

PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1. ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.

   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE MAINTENANCE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).

   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON-SITE PRECONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.

   D. ONCE THE PRECON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.

   E. FOLLOWING SITE MOBILIZATION, ROUTINE 'CONSTRUCTION SITE INSPECTIONS' BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, 'COMPLIANT/SATISFACTORY' INSPECTIONS WILL NEED TO OCCUR FOLLOWING:
      I. INSTALLATION OF INITIAL ESC PERIMETER CONTROLS (SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) – 'PERIMETER CONTROL INSPECTION';
      II. INSTALLATION OF ALL PHASE 1 ESC MEASURES INCLUDING ENGINEERED STRUCTURES – 'CERTIFICATE OF COMPLANCE INSPECTION'.

   IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

   F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS, OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY.
   A. IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401 CERTIFICATIONS. PROVIDE
   A COPY OF THE DWR BUFFER AUTHORIZATION.
      I. SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.
      II. IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE 404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.
      III. FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES – BEFORE ANY SITE WORK OCCURS, ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF-SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON THE SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE NC DIVISION OF SOLID WASTE MANAGEMENT, OR PER NC DIVISION OF SOLID WASTE MANAGEMENT OR NC DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

TOWN OF KNIGHTDALE SCM INSPECTIONS

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATIVE ASSISTANT AT (919) 217-2250.
PLEASE NOTE: THE FOLLOWING PERSONNEL MUST BE PRESENT AT ALL INSPECTIONS:
1) SITE SUPERVISOR
2) GEOTECH
3) AS-BUILT CERTIFYING ENGINEER OR SOMEONE UNDER THEIR SUPERVISION

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SCM WITH DAM:
1. KEY TRENCH EXCAVATION
2. PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
   a. CONCRETE CRADLE
   b. ANTI-SEEP COLLAR
   c. SEEPAGE DIAPHRAGM
3. OUTLET STRUCTURE
4. ANTI-FLOTATION BALLAST
5. ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

THE FOLLOWING ITEMS MUST BE INSPECTED BY TOK STAFF DURING THE INSTALLATION OF ANY SAND FILTERS OR BIORETENTION DEVICES
   a. SUBGRADE OR CONSTRUCTED FOUNDATION
   b. OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
   c. FILTER MEDIA
   d. DAM ITEMS ON PREVIOUS LIST IF APPLICABLE

GEOTECHNICAL TESTING AND CERTIFICAITON
ALL REPORTS ARE TO BE SUBMITTED WITHIN 30-DAYS OF DAM COMPLETION
REQUIRED GEOTECHNICAL RECORDS INCLUDE:
1. DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING
2. MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
3. DIGITAL PHOTOS SHOWING THE DAM FOUNDATION AREAS, THE RISER, THE PRINCLIPLE SPILLWAY PIPE, THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAM, RELIEF DRAINS, ETC., BEING INSTALLED.

DISTURBED AREA:
6.24 AC. (MORNING FLYER)
4.74 AC. (CAROLINIAN)
10.98 AC. (TOTAL BOTH SITES)

NORTH

CAROLINIAN AVE. FINAL EROSION CONTROL PLAN

SCALE: 1" = 60'
(DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL A. MYE 7/17/2025

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CONSTRUCTION DRAWINGS

CAROLINIAN AVE. FINAL EROSION CONTROL PLAN

Job Code: ASKSCD

Dwg No.
SITE
313

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SEEDING SCHEDULE

BERMUDA LAWN, SLOPES (MAX. 3:1)		
DATE	TYPE	PLANTING RATE
APR. 15 - JUNE 15	BERMUDA	2 LBS/1000 SF
LATE SPRING(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
EARLY SUMMER(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
LATE SUMMER(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
EARLY FALL(1st 2 YEARS)	16-04-08 SLOW RELEASE FERTILIZER	5-10 LBS/1000 SF
MID SUMMER(ESTABLISHED)	16-04-08 SLOW RELEASE FERTILIZER	5 LBS/1000 SF
LATE SUMMER(ESTABLISHED)	16-04-08 SLOW RELEASE FERTILIZER	5 LBS/1000 SF
SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)		
DATE	TYPE	PLANTING RATE
MAR 1. - JUN. 1	SERICEA LESPEDESA	50 LBS/ACRE
& MAR 1. - APR. 15	ADD TALL FESCUE	120 LBS/ACRE
JUN. 1 - SEP. 1	***TALL FESCUE AND	120 LBS/ACRE
	***BROWNTOP MILLET OR	25 LBS/ACRE
	SOUGHNUM-SUDAN HYBRID	30 LBS/ACRE
SEP. 1 - MAR. 1	ERICEA LESEDESCA AND	70 LBS/ACRE
	TALL FESCUE	120 LBS/ACRE
NOV. 1 - MAR. 1	ADD ABRUZZI RYE.	25 LBS/ACRE

CONSULT EROSION CONTROL ENGINEER OR SOIL CONSERVATION SERVICES FOR OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROWN OVER 12-INCHES IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADED OUT.

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS. IF THEY OCCUR. AFTER ALL ROUGH GRADING IS COMPLETED, TILL SOIL AREAS TO BE SEEDED AND PLANTED TO A DEPTH OF FIVE INCHES.

2. REMOVE ALL LOOSE ROCKS, ROOTS, DIRT CLODS, AND OTHER OBSTRUCTIONS LEAVING GROUND SURFACE SMOOTH AND UNIFORM.

3. TO PREPARE UNIFORM SEEDBED, INCORPORATE AGRICULTURAL LIME FERTILIZER AND SUPERPHOSPHATE INTO SOIL AREAS TO BE VEGETATED. DISK NUTRIENTS INTO SOIL UNTIL WELL PULVERIZED.

4. SEED ON PREPARED SEEDBED AND COVER LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK. APPLY TEMPORARY SEEDING TO SOIL STOCKPILE AREAS THAT WILL BE DISTURBED WITHIN 30 DAYS. APPLY PERMANENT SEEDING TO WHERE FINISH GRADES ARE ESTABLISHED.

5. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR WITH LIQUID ASPHALT AT 400 GAL./ACRE OR EMULSIFIED ASPHALT AT 300 GAL./ACRE.

6. MULCH ALL SEEDED AREAS WITH SMALL GRAIN STRAW AT 90 LBS./1000 SF AND SPREAD UNIFORMLY. GROUND SURFACE SHOULD BE VISIBLE TO ALLOW SUNLIGHT PENETRATION.

7. MULCH AROUND SHRUBBERY AND TREES WITH SHREDDED HARDWOOD TO A DEPTH OF 3 INCHES.

8. AFTER WORK IS COMPLETED AND AREAS ARE STABILIZED, CALL EROSION CONTROL OFFICER FOR SITE INSPECTION AND RECEIVE CERTIFICATE OF COMPLETION. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES, INSTALL RIP-RAP, AND SEED AND MULCH ANY REMAINING BARE AREAS.

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
▪ 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 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 and evenly distributed ground cover sufficient to restrain erosion ▪ Structural methods such as concrete, asphalt or retaining walls ▪ Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

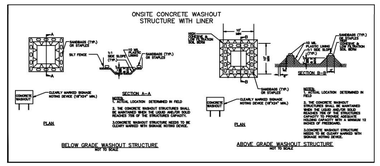
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NPDES GROUND STABILIZATION SCHEDULE

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS	AREAS ON THIS SITE
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE	TEMPORARY DIVERSION DITCHES
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	REMAINDER OF PROJECT AREA
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)	INCLUDED W/ 3:1 OR FLATTER SLOPES

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rainmonitoring device approved by the Division
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	▪ ***Within 24 hours***, an oral or electronic notification. ▪ ***Within 7 calendar days,*** a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. ▪ If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	▪ ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	▪ ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	▪ ***Within 24 hours***, an oral or electronic notification. ▪ ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	▪ ***Within 24 hours***, an oral or electronic notification. ▪ ***Within 7 calendar days,*** a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). ▪ Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

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

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

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P--0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NEWTON 9/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
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Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. NDPES PLAN

Job Code ASKSCD

Dwg No. SITE 314

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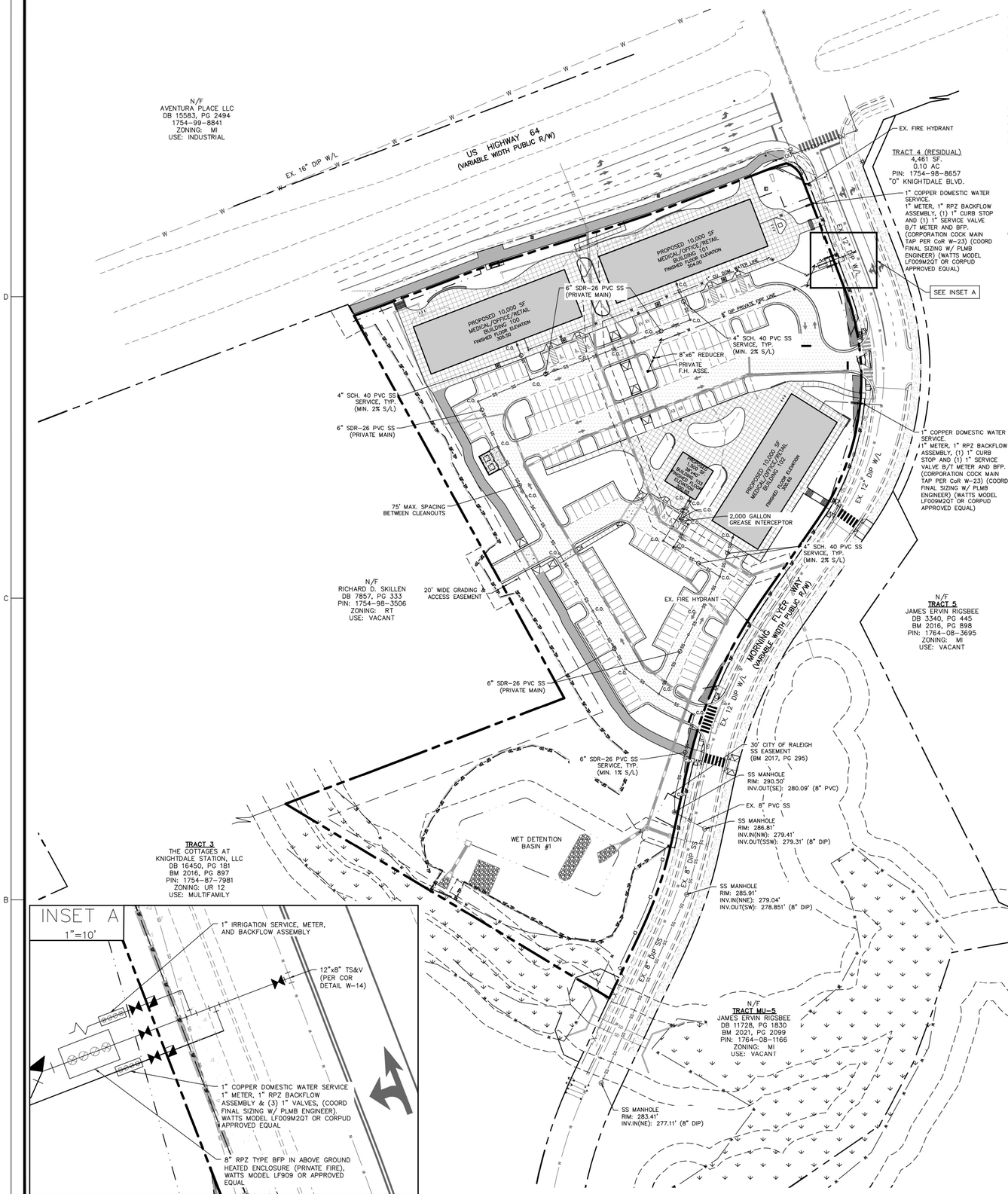

The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and constructions methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh Public Utilities Department Permit # S-5454P

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

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 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.
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
8. INSTALL 1" 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 PROVIDE ADEQUATE FLOW & PRESSURE/.
9. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
10. 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.
11. 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.
12. NCDOT/RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
13. GREASE INTERCEPTOR/OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919)996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASE 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. A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OBTAINED FROM THE RW CROSS-CONNECTION COORDINATOR FOR EACH DEVICE PRIOR ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919)996-5923 OR CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
15. NOTICE FOR PROJECTS WITH REPLACED OR OVERSIZED MAINS: IF THE CITY'S REIMBURSEMENT FOR AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT PROJECT IS $250,000 OR GREATER – THE PROJECT MUST BE PUBLICLY BID.

UTILITY NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
5. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRIC, GAS AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVED AREAS.
6. THIS PLAN IS DIAGRAMMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
7. ALL EXISTING UTILITY SERVICES (UNUSED) SHALL BE ABANDONED AT TAP (MAIN) & REMOVED FROM ROW OF EASEMENT.
8. CONTRACTOR TO COMPLY WITH REQUIREMENTS FOR FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.(CHAPTER 14, 2012 NC FIRE CODE, NFPA 241 AND CHAPTER 33, 2012 NC BUILDING CODE).
9. A NCDOT PERMIT IS REQUIRED PRIOR TO STARTING ANY WORKING IN THE NCDOT RIGHT OF WAY.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

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**.

NORTH

MORNING FLYER WAY UTILITY PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. MACDONALD
5/16/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 14 OCT 2024
8 16 MAY 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY UTILITY PLAN

Job Code ASKSCD

Dwg No. SITE 400

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SURVEY LEGEND

SYMBOLS

- Ex. iron pipe/rod or nail
- Ex. concrete monument
- New iron pipe
- Calculated point
- Cable pedestal
- Telephone pedestal
- Electric pedestal
- Fiber–optic marker
- Traffic signal box
- Water meter
- Fire hydrant
- Valve (water or gas)
- Sanitary sewer manhole
- Sanitary sewer cleanout
- Storm curb inlet
- Drainage inlet (w/ grate)
- Storm drain manhole
- Utility pole
- Lamp post
- Signal pole
- Guy wire
- Sign post

LINETYPES

- Fence
- OU — Overhead utility
- W — Water
- SS — Sanitary sewer
- SD — Storm drain

ABBREVIATIONS

DB	Deed Book
PB or BM	Plat Book / Book of Maps
N/F	Now or formerly
Pg.	Page
SF	Square feet
Ac.	Acres
R/W	Right–of–way
NCSR	North Carolina State Route
NCDOT	North Carolina Dept. of Transportation
R/W	Right–of–way
Ex.	Existing
RCP	Reinforced concrete pipe
PVC	Polyvinyl chloride pipe
(M)	Measured
AG	Above ground
BG	Below ground

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- SETBACK LINE
- EXISTING EASEMENTS
- EXISTING FENCE LINE
- EXISTING ROW LINE
- PROPOSED ROW LINE
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED STORM DRAIN LINE
- TREE PROTECTION FENCE LINE
- LIMITS OF DISTURBANCE LINE
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE

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

City of Raleigh Public Utilities Department Permit # S–5454P

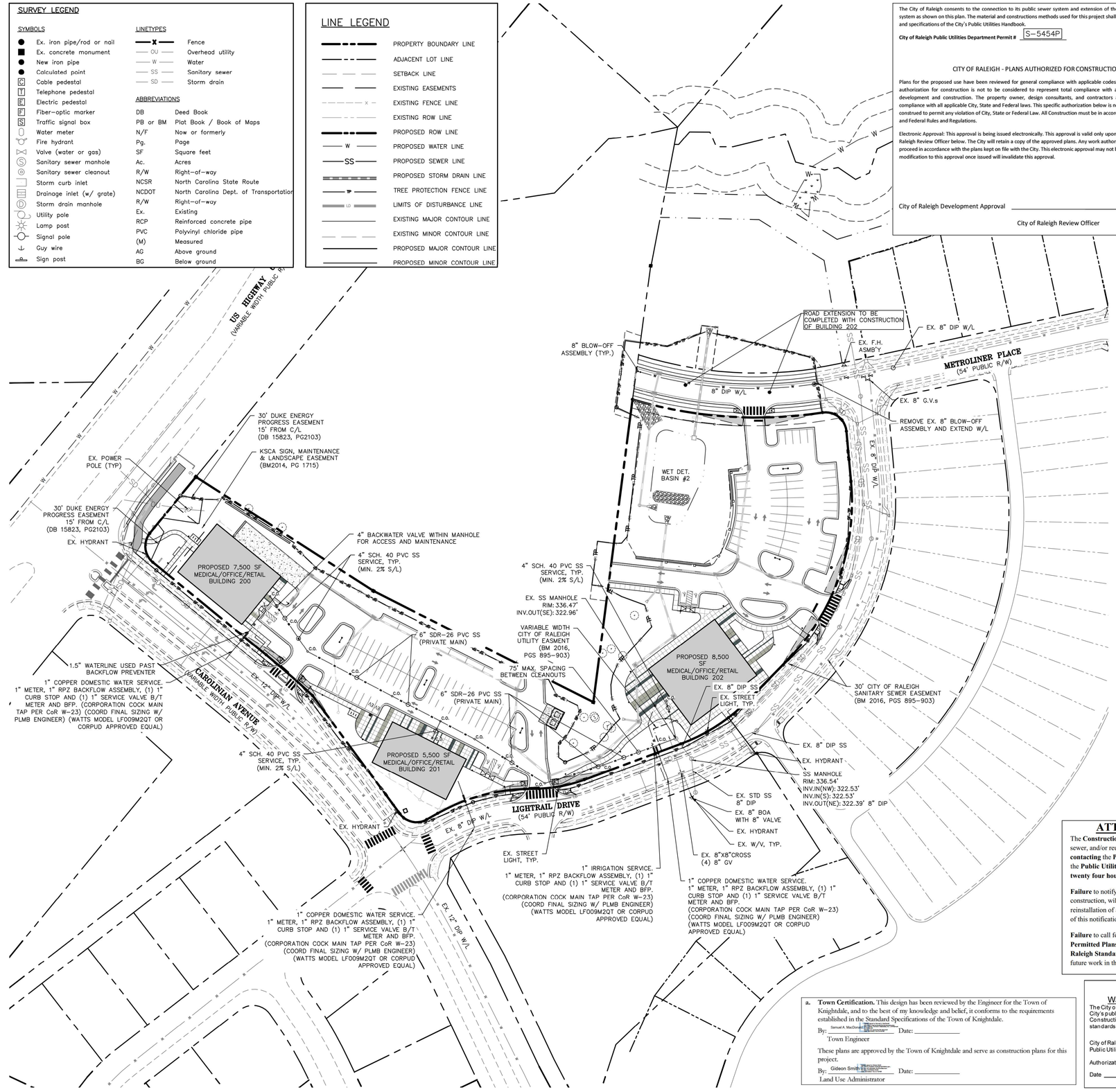
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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



STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 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
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATION CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W41 & S–49)
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
6. SEWER BYPASS PUMPING – A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL 1" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75' LINEAR FEET MAXIMUM
11. 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
12. 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.
13. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
14. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996–4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION
15. 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.
16. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
17. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A – GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
18. 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 CROSS.CONNECTIONS@RALEIGHNC.GOV FOR MORE INFORMATION
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS.

UTILITY NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1–800–632–4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
5. CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRIC, GAS AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVED AREAS.
6. THIS PLAN IS DIAGRAMMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
7. ALL EXISTING UTILITY SERVICES (UNUSED) SHALL BE ABANDONED AT TAP (MAIN) & REMOVED FROM ROW OF EASEMENT.
8. CONTRACTOR TO COMPLY WITH REQUIREMENTS FOR FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.(CHAPTER 14, 2012 NC FIRE CODE, NFPA 241 AND CHAPTER 33, 2012 NC BUILDING CODE).
9. A NCDOT PERMIT IS REQUIRED PRIOR TO STARTING ANY WORKING IN THE NCDOT RIGHT OF WAY.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.

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**.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____

Land Use Administrator

Public
Water Distribution / Extension System

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

City of Raleigh
Public Utilities Department Permit # W–4132

Authorization to Construct _____

Date _____

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.

NORTH

CAROLINIAN AVE. UTILITY PLAN

SCALE: 1" = 60' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P–0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. NYE 7/17/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605–1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By	MRK
Checked By	SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 14 OCT 2024
8 16 MAY 2025
9 17 JUL 2025

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. UTILITY PLAN

Job Code ASKSCD

Dwg No. SITE 410

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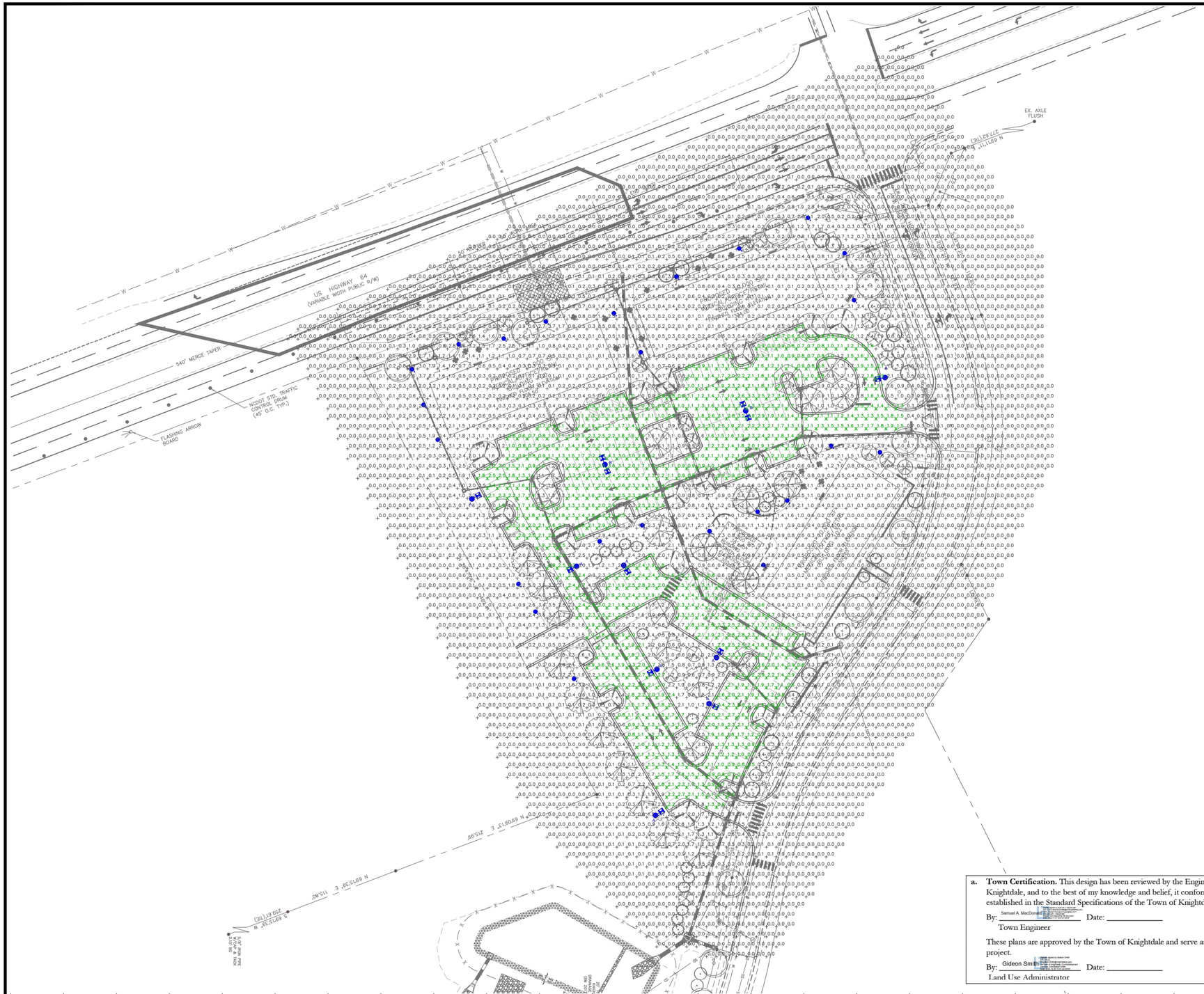
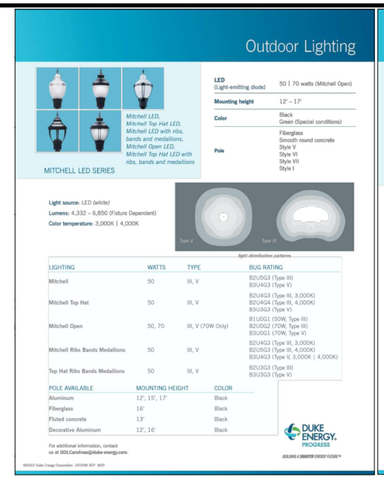


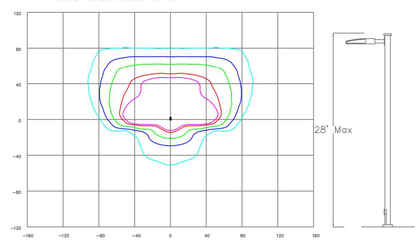




ISOFOOTCANDLE CURVES

FIXTURE: LED150W SHOEBOX
MOUNTING HEIGHT: 25 FT
LIGHT SOURCE: LED'S, 4000K, 70 CRI
LUMENS = 18459
PATTERN: TYPE IV B3-U0-G4 (zero light at or above 90 degrees)
NOTE: THE FOOTCANDLE READINGS BELOW ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LED LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION FOR INITIAL FOOTCANDLES. DIVIDE THE READINGS BELOW BY .85.

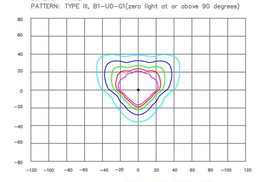
ASSY# LFIX-SBX-LED-150-BLK-IV-MULTIV-____-P
POLE ASSY# LPOLE-AB-STL-25FT-BLK-SQ-____-P (BLACK)
BRACKET ASSY# LBKT-SIDE-12IN-BLK-UNV-STL-____-P (BLACK)



LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.50 , 1.00 , 1.25

ISOFOOTCANDLE CURVES

FIXTURE: LED 50w Open Mitchell
MOUNTING HEIGHT: 12 FT
LIGHT SOURCE: LED, 3000K
LUMENS = 4102
PATTERN: TYPE III, B1-U0-G1(zero light at or above 90 degrees)
LFIX-MTCHO-LED-50-BLK-III-3000K-MULTIV-____-P





LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.50 , .75 , 1.00

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking	✳	1.7 fc	4.3 fc	0.5 fc	8.6:1	3.4:1

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

Schedule

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
	A	8	LED 150w Shoebox - Type IV - 4000K	48	385	0.85
	B	2	(2) LED 150w Shoebox - Type IV - 4000K	48	385	0.85
	C	24	LED 50w Open Mitchell - Type III - 3000K	1	4104	0.85

NO.	DATE	REVISION	BY
REV C	09/11/24	TOWN REQUIRED ADDITIONAL PEDESTRIAN SCALE LIGHTING.	NJ
REV B	08/12/24	CUSTOMER REQUESTED PEDESTRIAN LIGHTING.	NJ

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

LIGHTING DESIGN TOLERANCE

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

DUKE ENERGY® PROGRESS

PROPRIETARY & CONFIDENTIAL

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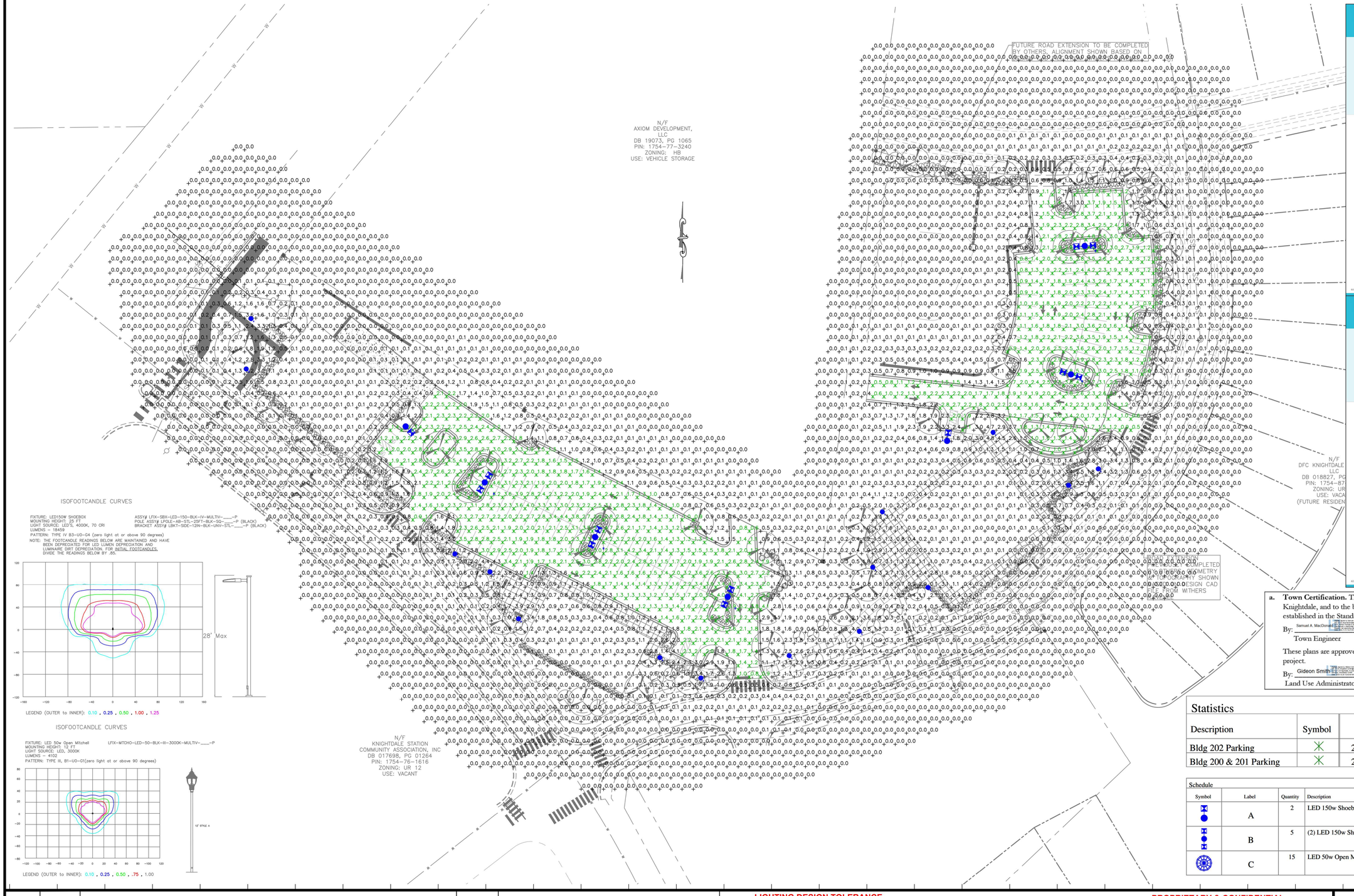
ATLAS STARK
Knightdale, NC
SITE LIGHTING ARRANGEMENT

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by N. Johnson Scale 1" = 50'
Date 09/11/2024 Size Drawing size "D"
Description LED Shoebox
Drawing No. 24-0068C (SITE-450) Sht. 1 OF 1



ISOFOOTCANDLE CURVES

FIXTURE: LED150W SHOEBOX
MOUNTING HEIGHT: 25 FT
LIGHT SOURCE: LED'S, 4000K, 70 CRI
LUMENS = 18459
PATTERN: TYPE IV B3-U0-G4 (zero light at or above 90 degrees)
NOTE: THE FOOTCANDLE READINGS BELOW ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LED LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION. FOR INITIAL FOOTCANDLES, DIVIDE THE READINGS BELOW BY .85.

ASSY# LFIX-SBX-LED-150-BLK-IV-MULTIV-____-P
POLE ASSY# LPOLE-AB-STL-25FT-BLK-SQ-____-P (BLACK)
BRACKET ASSY# LBKT-SIDE-12IN-BLK-UNV-STL-____-P (BLACK)

LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.50 , 1.00 , 1.25

ISOFOOTCANDLE CURVES

FIXTURE: LED 50w Open Mitchell
MOUNTING HEIGHT: 12 FT
LIGHT SOURCE: LED, 3000K
LUMENS = 4102
PATTERN: TYPE III, B1-U0-G1(zero light at or above 90 degrees)

LFIX-MTCHO-LED-50-BLK-III-3000K-MULTIV-____-P

LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.50 , .75 , 1.00

Outdoor Lighting



SHOEBOX LED
(Meets Dark Sky Criteria)

LED (Light-emitting diode)	150 | 220 | 420 | 530 watts
Mounting height	25', 30', 35'
Color	Black | Bronze | Grey | White
Pole	Fiberglass *(1 or 2 fixtures per pole)* Decorative tapered metal Decorative square metal
Applications	Neighborhoods Roadways Shopping centers

Light source: LED *(white)*
Wattage: 150 | 220 | 420 | 530 watts
Light pattern: IES Type V | Type IV (forward throw) | Type III
IESNA cutoff classification: Full-cutoff

BUG rating: 150W Type III = B2U0G3 / Type IV = B3U0G4 / Type V = B5U0G3
220W Type III = B2U0G4 / Type IV = B3U0G4 / Type V = B4U0G3
420W Type IV = B3U0G5 / Type V = B5U0G5
530W Type IV = B3U0G5 / Type V = B5U0G5

Color temperature: 4,000K

POLE AVAILABLE	MOUNTING HEIGHT	COLOR
Round tapered decorative metal*	35'	Black, Bronze
Decorative square metal*	25' and 30'	Black, Bronze, Gray, White
Fiberglass	25' and 30'	Black *(1 or 2 fixtures per pole)* Gray *(1 or 2 fixtures per pole)*



light distribution pattern

FEATURES	BENEFITS
Turnkey operation	Provides hassle-free installation and service
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance, electricity & warranty included	Eliminates high and unexpected repair bills
One low monthly cost on your electric bill	Convenience and savings for you

For additional information, email us at ODLCarolinas@duke-energy.com.

DUKE ENERGY. PROGRESS

BUILDING A SMARTER ENERGY FUTURE®

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Outdoor Lighting



MITCHELL LED SERIES

Mitchell LED, Mitchell Top Hat LED, Mitchell LED with ribs, bands and medallions, Mitchell Open LED, Mitchell Top Hat LED with ribs, bands and medallions

LED (Light-emitting diode)	50 | 70 watts (Mitchell Open)
Mounting height	12' – 17'
Color	Black Green (Special conditions)
Pole	Fiberglass Smooth round concrete Style V Style VI Style VII Style I

Light source: LED *(white)*
Lumens: 4,332 – 6,850 (Fixture Dependent)
Color temperature: 3,000K | 4,000K



light distribution patterns

LIGHTING	WATTS	TYPE	BUG RATING
Mitchell	50	III, V	B2U5G3 (Type III) B3U4G3 (Type V)
Mitchell Top Hat	50	III, V	B2U4G3 (Type III, 3,000K) B2U4G4 (Type III, 4,000K) B3U3G3 (Type V)
Mitchell Open	50, 70	III, V (70W Only)	B1UG1 (50W, Type III) B2UG2 (70W, Type III) B3UG1 (70W, Type V)
Mitchell Ribs Bands Medallions	50	III, V	B2U4G3 (Type III, 3,000K) B2U5G3 (Type III, 4,000K) B3U4G3 (Type V, 3,000K | 4,000K)
Top Hat Ribs Bands Medallions	50	III, V	B2U3G3 (Type III) B3U3G3 (Type V)

POLE AVAILABLE	MOUNTING HEIGHT	COLOR
Aluminum	12', 15', 17'	Black
Fiberglass	16'	Black
Fluted concrete	13'	Black
Decorative Aluminum	12', 16'	Black

For additional information, contact us at ODLCarolinas@duke-energy.com.

DUKE ENERGY. PROGRESS

BUILDING A SMARTER ENERGY FUTURE®

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a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Bldg 202 Parking	+	2.0 fc	5.3 fc	0.5 fc	10.6:1	4.0:1
Bldg 200 & 201 Parking	+	2.3 fc	5.6 fc	0.6 fc	9.3:1	3.8:1

Schedule

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
	A	2	LED 150w Shoebox - Type IV - 4000K	48	385	0.85
	B	5	(2) LED 150w Shoebox - Type IV - 4000K	48	385	0.85
	C	15	LED 50w Open Mitchell - Type III - 3000K	1	4104	0.85

NO.	DATE	REVISION	BY
Rev A	0/12/24	CUSTOMER REQUESTED LOCATIONS.	NJ

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

LIGHTING DESIGN TOLERANCE

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

DUKE ENERGY® PROGRESS

PROPRIETARY & CONFIDENTIAL

This document together with the concepts and designs presented herein, presented as an instrument of service, is the sole property of Duke Energy, and is intended only for the specific purpose and prospective client as stated in the title block of this drawing. Any use, copying, reproduction or disclosure of the drawing, design or any information contained herein by the prospective customer or other entities, including without limitation, architects, engineers, or equipment manufacturers is hereby expressly prohibited and shall not be permitted absent prior written consent from, and payment of compensation to Duke Energy. Duke Energy disclaims any liability or responsibility for any unauthorized use of or reliance on this document.

THE CAROLINIAN - ATLAS STARK
Knightdale, NC
SITE LIGHTING ARRANGEMENT

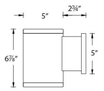
Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by N. Johnson Scale 1" = 40'
Date 08/12/2024 Size Drawing size "D"
Description LED Shoebox & Open Mitchell
Drawing No. 24-0329A (SITE-460) Sht. 1 OF 1

TUBE ARCHITECTURAL DS-WS05

LED Wall Mounts

WAC LIGHTING
Responsible Lighting®





Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest LED, Bluetooth, and DMX technology for precise color selection in an appealing cylindrical profile. Perfect for accent and wall wash lighting. Available in various light distribution and beam angle options.

FEATURES

- Full color gamut control through gradients of saturated colors from 1-100%
- Tunable White (CCT) Range: 1650-8000K
- Bluetooth control via ilumenight™ iOS App
- High performance LED wall mounted light
- Solid die cast aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277V, 50/60Hz
Controls: **DMX512-A** with advanced commissioning via Bluetooth. **Bluetooth v4.0** - Configured with ilumenight™ iOS App for localized (within 150ft line of sight) groups of 8 luminaires or less. (DMX512-A hardwire recommended for high wireless signal interference environments).
Dimming: 100%-1% in CCT & Color via DMX or Bluetooth control
Light Source: High output 2 Step Mac AdamEllipse LEDs, 90+ CRI Rated life of 50,000 hours at L70
Finish: Electrostatically powder coated white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed
Operating Temperature: -40°F to 104°F (-40°C to 40°C)

Diameter	Power	Beam	Delivered Lumens @ 3000K	CBCP @ 3000K	Light Direction	Color Temp	Finish
		S 15°	745	6186	**S** Straight up or down		**BK** Black
		N 25°	645	1951			**WT** White
		F 33°	620	1386			**BZ** Bronze
Single **DS-WS05** 5" 31W		**F**	840	-	**A** Away from the wall	**CC** Color Changing	**GH** Graphite
					B Towards the wall		

DS-WS05-__-CC-___

Example: **DS-WS05-FA-CC-GH**

Download on the App Store

waclighting.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters/Eastern Distribution Center
44 Harbor Park Drive
Port Washington, NY 11050

Central Distribution Center
1600 Distribution Ct
Lithia Springs, GA 30122

Western Distribution Center
1750 Archibald Avenue
Ontario, CA 91760

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TUBE ARCHITECTURAL DS-WD05

Color Changing LED Wall Mounts

WAC LIGHTING
Responsible Lighting®





Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest LED, Bluetooth, and DMX technology for precise color selection in an appealing cylindrical profile. Perfect for accent and wall wash lighting. Available in various light distribution and beam angle options.

FEATURES

- Full color gamut control through gradients of saturated colors from 1-100%
- Tunable White (CCT) Range: 1650-8000K
- Bluetooth control via ilumenight™ iOS App
- High performance LED wall mounted light
- Solid die cast aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277V, 50/60Hz
Controls: **DMX512-A** with advanced commissioning via Bluetooth. **Bluetooth v4.0** - Configured with ilumenight™ iOS App for localized (within 150ft line of sight) groups of 4 luminaires or less. (DMX512-A hardwire recommended for high wireless signal interference environments).
Dimming: 100%-1% in CCT & Color via DMX or Bluetooth control
Light Source: High output 2 Step Mac AdamEllipse LEDs, 90+ CRI Rated life of 50,000 hours at L70
Finish: Electrostatically powder coated white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed
Operating Temperature: -40°F to 104°F (-40°C to 40°C)

Diameter	Power	Beam	Delivered Lumens @ 3000K	CBCP @ 3000K	Light Direction	Color Temp	Finish
		S 15°	735 x2	6186 x2	**S** Straight up or down		**BK** Black
		N 25°	645 x2	1951 x2			**WT** White
		F 33°	630 x2	1386 x2			**BZ** Bronze
Double **DS-WD05** 5" 31W x2		**F**	840 x2	-	**A** Away from the wall	**CC** Color Changing	**GH** Graphite
					B Towards the wall		
					C One side each		

DS-WD05-__-CC-___

Example: **DS-WD05-FA-CC-GH**

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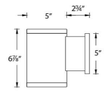
TUBE ARCHITECTURAL DS-WS05

LED Wall Mounts

WAC LIGHTING
Responsible Lighting®





Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest LED, Bluetooth, and DMX technology for precise color selection in an appealing cylindrical profile. Perfect for accent and wall wash lighting. Available in various light distribution and beam angle options.

FEATURES

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SPECIFICATIONS

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Light Source: High output 2 Step Mac AdamEllipse LEDs, 90+ CRI Rated life of 50,000 hours at L70
Finish: Electrostatically powder coated white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed
Operating Temperature: -40°F to 104°F (-40°C to 40°C)

Diameter	Power	Beam	Delivered Lumens @ 3000K	CBCP @ 3000K	Light Direction	Color Temp	Finish
		S 15°	745	6186	**S** Straight up or down		**BK** Black
		N 25°	645	1951			**WT** White
		F 33°	620	1386			**BZ** Bronze
Single **DS-WS05** 5" 31W		**F**	840	-	**A** Away from the wall	**CC** Color Changing	**GH** Graphite
					B Towards the wall		

DS-WS05-__-CC-___

Example: **DS-WS05-FA-CC-GH**

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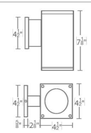
CUBE ARCHITECTURAL DC-WS05

LED Wall Mounts

WAC LIGHTING
Responsible Lighting®





Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest energy efficient LED technology in an appealing cubical profile delivers accent and wall wash lighting. Comes in various light distribution and beam angle options.

FEATURES

- High performance exterior rated LED wall mount light
- Fixture can install upside down to alter light distribution
- Solid aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277VAC, 50/60Hz
Dimming: Electronic low voltage (ELV) : 100% - 5% (120V only) 0-10V: 100% - 1% (120-277V)
Light Source: High output 3 Step Mac Adam Ellipse COB Rated life of 60,000 hours at L70
Finish: Electrostatically powder coated, white, black, bronze and graphite
Standards: IP65 rated, UL & cUL wet location listed, Energy Star® 2.0 rated (labeled with *)
Operating Temp: -13°F to 122°F (-25°C to 50°C)

ORDERING NUMBER

Diameter	Watt	Beam	Beam Angle	Color Temp	CRI	Lumen	CBCP	Efficacy (lm/w)	Light Distribution	Finish
DC-WS05 5" 27W		**S** Straight up or down	18°	**927S*** 2700K	90	1680	8526	62		**BK** Black
				827S* 2700K	85	1800	9151	67		**WT** White
				930S* 3000K	90	1700	8639	63		**BZ** Bronze
				830S 3000K	85	1995	10126	74		**GH** Graphite
				~~**835S***~~ ~~3500K~~	~~85~~	~~2100~~	~~11118~~	~~81~~		
				~~**840S***~~ ~~4000K~~	~~85~~	~~2260~~	~~11483~~	~~84~~		
		N Straight up or down	25°	**927S*** 2700K	90	1730	5513	64		
				827S* 2700K	85	1855	5918	69		
				930S* 3000K	90	1750	5587	65		
				~~**830S***~~ ~~3000K~~	~~85~~	~~2055~~	~~6548~~	~~76~~		
				~~**835S***~~ ~~3500K~~	~~85~~	~~2255~~	~~7190~~	~~84~~		
				~~**840S***~~ ~~4000K~~	~~85~~	~~2330~~	~~7426~~	~~86~~		
		F Straight up or down	33°	**927S*** 2700K	90	1725	4246	64		
				827S* 2700K	85	1850	4557	69		
				930S* 3000K	90	1745	4302	65		
				~~**830S***~~ ~~3000K~~	~~85~~	~~2045~~	~~5043~~	~~76~~		
				~~**835S***~~ ~~3500K~~	~~85~~	~~2245~~	~~5537~~	~~83~~		
				~~**840S***~~ ~~4000K~~	~~85~~	~~2320~~	~~5719~~	~~86~~		
		F Away from the wall	N/A	**927A*** 2700K	90	1815		67		
				827A* 2700K	85	1950		72		
				930A* 3000K	90	1840	N/A	68		
				~~**830A***~~ ~~3000K~~	~~85~~	~~2155~~		~~80~~		
				~~**835A***~~ ~~3500K~~	~~85~~	~~2370~~		~~88~~		
				~~**840A***~~ ~~4000K~~	~~85~~	~~2445~~		~~91~~		
		F Towards the wall	N/A	**927B*** 2700K	90	1815		67		
				827B* 2700K	85	1950		72		
				930B* 3000K	90	1840	N/A	68		
				~~**830B***~~ ~~3000K~~	~~85~~	~~2155~~		~~80~~		
				~~**835B***~~ ~~3500K~~	~~85~~	~~2370~~		~~88~~		
				~~**840B***~~ ~~4000K~~	~~85~~	~~2445~~		~~91~~		

DC-WS05-_____-___

Example: **DC-WS05-F930A-WT**

waclighting.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters/Eastern Distribution Center
44 Harbor Park Drive
Port Washington, NY 11050

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1600 Distribution Ct
Lithia Springs, GA 30122

Western Distribution Center
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Ontario, CA 91760

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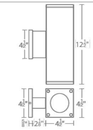
CUBE ARCHITECTURAL DC-WD05

LED Wall Mounts

WAC LIGHTING
Responsible Lighting®



Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest energy efficient LED technology in an appealing cubical profile delivers accent and wall wash lighting. Comes in various light distribution and beam angle options.

FEATURES

- High performance exterior rated LED wall mount light
- Fixture can install upside down to alter light distribution
- Solid aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277VAC, 50/60Hz
Dimming: Electronic low voltage (ELV) : 100% - 5% (120V only) 0-10V: 100% - 1% (120-277V)
Light Source: High output 3 Step Mac Adam Ellipse COB Rated life of 60,000 hours at L70
Finish: Electrostatically powder coated, white, black, bronze and graphite
Standards: IP65 rated, UL & cUL wet location listed
Operating Temp: -13°F to 122°F (-25°C to 50°C)

ORDERING NUMBER

Diameter	Watt	Beam	Beam Angle	Color Temp	CRI	Lumen	CBCP	Efficacy (lm/w)	Light Distribution	Finish
DC-WD05 5" 27W x2		**S** Straight up and down	18°	**827S** 2700K	85	1680 x 2	8526 x 2	62 x 2		**BK** Black
				927S 2700K	90	1800 x 2	9151 x 2	67 x 2		**WT** White
				830S 3000K	85	1700 x 2	8639 x 2	63 x 2		**BZ** Bronze
				930S 3000K	90	1995 x 2	10126 x 2	74 x 2		**GH** Graphite
				~~**835S**~~ ~~3500K~~	~~85~~	~~2100 x 2~~	~~11118 x 2~~	~~81 x 2~~		
				~~**840S**~~ ~~4000K~~	~~85~~	~~2260 x 2~~	~~11483 x 2~~	~~84 x 2~~		
		N Straight up and down	25°	**827S** 2700K	85	1730 x 2	5513 x 2	64 x 2		
				927S 2700K	90	1855 x 2	5918 x 2	69 x 2		
				830S 3000K	85	1750 x 2	5587 x 2	65 x 2		
				~~**930S**~~ ~~3000K~~	~~90~~	~~2055 x 2~~	~~6548 x 2~~	~~76 x 2~~		
				~~**835S**~~ ~~3500K~~	~~85~~	~~2255 x 2~~	~~7190 x 2~~	~~84 x 2~~		
				~~**840S**~~ ~~4000K~~	~~85~~	~~2330 x 2~~	~~7426 x 2~~	~~86 x 2~~		
		F Straight up and down	33°	**827S** 2700K	85	1725 x 2	4246 x 2	64 x 2		
				927S 2700K	90	1850 x 2	4557 x 2	69 x 2		
				830S 3000K	85	1745 x 2	4302 x 2	65 x 2		
				~~**930S**~~ ~~3000K~~	~~90~~	~~2045 x 2~~	~~5043 x 2~~	~~76 x 2~~		
				~~**835S**~~ ~~3500K~~	~~85~~	~~2245 x 2~~	~~5537 x 2~~	~~83 x 2~~		
				~~**840S**~~ ~~4000K~~	~~85~~	~~2320 x 2~~	~~5719 x 2~~	~~86 x 2~~		
		F Away from the wall	N/A	**827A** 2700K	85	1815 x 2		67 x 2		
				927A 2700K	90	1950 x 2		72 x 2		
				830A 3000K	85	1840 x 2	N/A	68 x 2		
				~~**930A**~~ ~~3000K~~	~~90~~	~~2155 x 2~~		~~80 x 2~~		
				~~**835A**~~ ~~3500K~~	~~85~~	~~2370 x 2~~		~~88 x 2~~		
				~~**840A**~~ ~~4000K~~	~~85~~	~~2445 x 2~~		~~91 x 2~~		
		F Towards the wall	N/A	**827B** 2700K	85	1815 x 2		67 x 2		
				927B 2700K	90	1950 x 2		72 x 2		
				830B 3000K	85	1840 x 2	N/A	68 x 2		
				~~**930B**~~ ~~3000K~~	~~90~~	~~2155 x 2~~		~~80 x 2~~		
				~~**835B**~~ ~~3500K~~	~~85~~	~~2370 x 2~~		~~88 x 2~~		
				~~**840B**~~ ~~4000K~~	~~85~~	~~2445 x 2~~		~~91 x 2~~		
		F One side each	N/A	**827C** 2700K	85	1815 x 2		67 x 2	One side away from wall, one side towards the wall	
				927C 2700K	90	1950 x 2		72 x 2		
				830C 3000K	85	1840 x 2	N/A	68 x 2		
				~~**930C**~~ ~~3000K~~	~~90~~	~~2155 x 2~~		~~80 x 2~~		
				~~**835C**~~ ~~3500K~~	~~85~~	~~2370 x 2~~		~~88 x 2~~		
				~~**840C**~~ ~~4000K~~	~~85~~	~~2445 x 2~~		~~91 x 2~~		

DC-WD05-_____-___ Example: **DC-WD05-F930A-WT**

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Phone (800) 526.2588
Fax (800) 526.2585

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MAX LUMEN LIGHTING NOTE:

ACCENT/SECURITY LIGHTING NOT TO EXCEED 2,000 SOURCE LUMENS PER UDO SECTION 7.7.E.3.a & 7.7.E.5.b.i

PEDESTRIAN SCALE LIGHTING CERTIFICATION

a. **Lighting Plan Certification:** I hereby certify I am the applicant and that a Lighting Plan shall be submitted by the utility provider to the Knightdale Planning Department for approval prior to the installation of all required lighting. The lighting plan shall designate the proposed location of all light poles and shall be in compliance with sections 8.10 and 16.8B as well as Chapter 11 of the Town of Knightdale UDO. If a proposed light pole location should present a conflict with existing or proposed vegetation according to the approved construction drawings, the Landscaping Plan shall be revised to comply with the Town of Knightdale approval.

_____ _____
Date Applicant

I (officer authorized to take acknowledgments) do hereby certify that _____ personally appeared before me this day and acknowledged the due execution of this certificate. Witness my hand and (where an official seal is required by law) official seal this ___ day of _____, A.D., ____ (year).

Official Seal _____ Notary

_____ Commission Expires

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC.
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P--0803

NORTH CAROLINA PROFESSIONAL SEAL 34983 ENGINEER SAMUEL R. MITCHELL
10/14/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
02 AUG 2024
REVISED:
1 14 OCT 2024

CONSTRUCTION DRAWINGS

BUILDING ACCENT LIGHTING DETAILS

Job Code ASKSCD

Dwg No.
SITE
461

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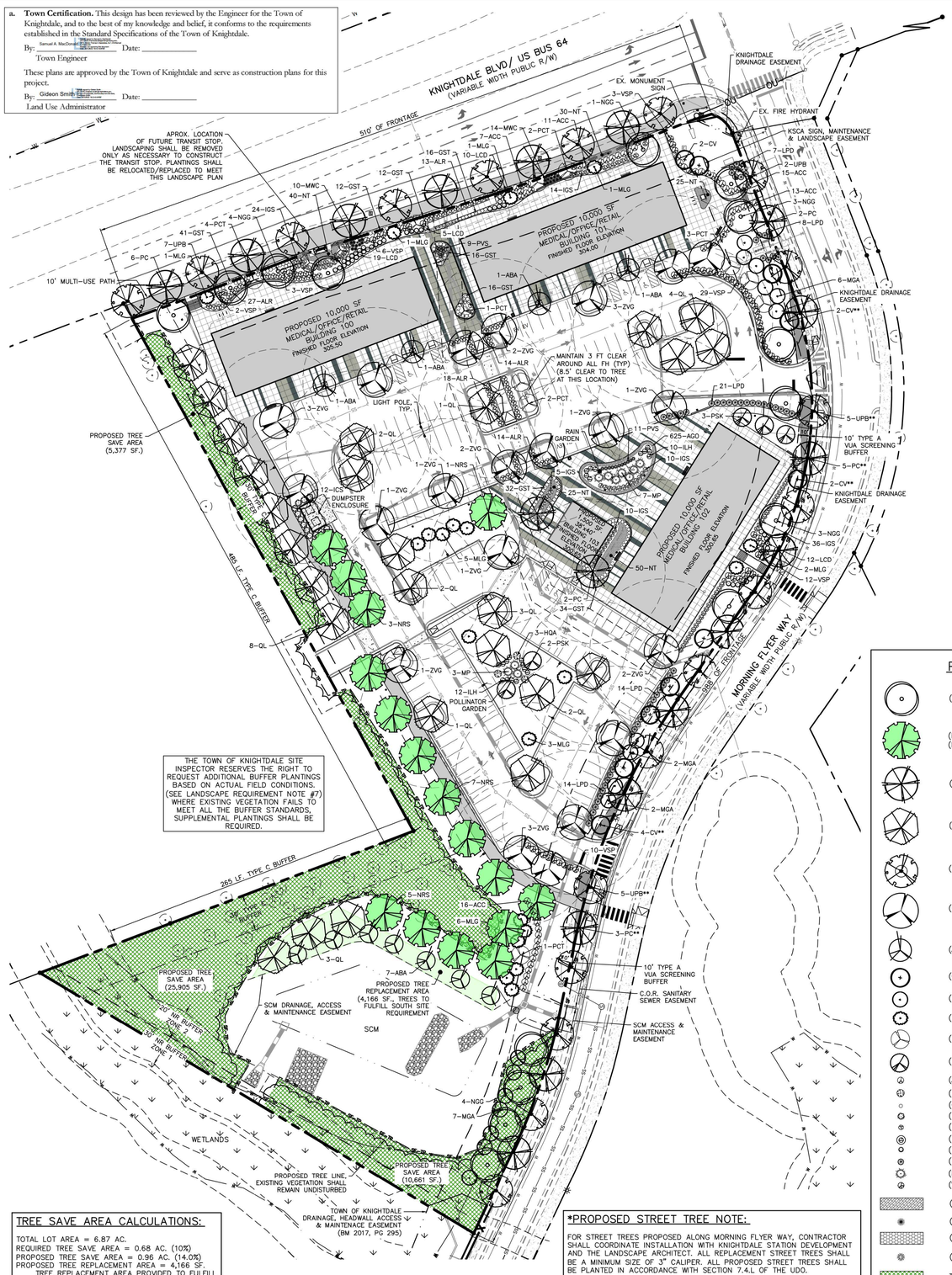
a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator



TREE SAVE AREA CALCULATIONS:

TOTAL LOT AREA = 6.87 AC.
REQUIRED TREE SAVE AREA = 0.68 AC. (10%)
PROPOSED TREE SAVE AREA = 0.96 AC. (14.0%)
PROPOSED TREE REPLACEMENT AREA = 4,166 SF.
TREE REPLACEMENT AREA PROVIDED TO FULFILL REPLACEMENT REQUIREMENT ON SOUTH SITE.

INTERIOR PARKING LOT LANDSCAPING COMPLIANCE

REQUIREMENT:	PROVIDED:
60' CANOPY RING MUST COVER ALL PROPOSED PARKING SPACES.	27 CANOPY TREES PROVIDED TO MEET REQUIREMENT

*PROPOSED STREET TREE NOTE:

FOR STREET TREES PROPOSED ALONG MORNING FLYER WAY, CONTRACTOR SHALL COORDINATE INSTALLATION WITH KNIGHTDALE STATION DEVELOPMENT AND THE LANDSCAPE ARCHITECT. ALL REPLACEMENT STREET TREES SHALL BE A MINIMUM SIZE OF 3" CALIPER. ALL PROPOSED STREET TREES SHALL BE PLANTED IN ACCORDANCE WITH SECTION 7.4.L OF THE UDO.

LANDSCAPE SPECIES & TOLERANCE NOTE:

A MINIMUM OF 60% OF THE LANDSCAPE FEATURES UTILIZED ON A PARCEL THAT IS BETWEEN 0.5 AND 5 ACRES SHALL BE DROUGHT AND SALT-TOLERANT NATIVE SPECIES. TOTAL LANDSCAPE FEATURES, EXCLUDING TURN. SHALL NOT BE COMPRISED OF MORE THAN 30% OF ANY SINGLE SPECIES OR 50% OF ANY GENUS [UDO, SEC. 7.4.G.1.B.iv].

PLANT LEGEND

(NGG) NYSSA SYLVATICA 'GREEN GABLE'

(NRS) NYSSA SYLVATICA 'RED SPLYNDOR' (REPLACEMENT TREES)

(PC) PISTACHIA CHINENSIS

(QL) QUERCUS LYRATA

(UPB) ULMUS PARVIFOLIA 'BOSQUE'

(ZVG) ZELKOVA ERRATA 'VILLAGE GREEN'

(ABA) ACER BUERGERIANUM 'AERYN'

(CV) CHIONANTHUS VIRGINICUS

(MGA) GRANDIFLORA 'ALTA'

(MLG) MAGNOLIA GRANDIFLORA 'LITTLE GEM'

(PCT) PRUNUS CERASIFERA 'THUNDERCLOUD'

(PSK) PRUNUS SERRULATA 'KWANZAN'

(ACC) ABELIA GRANDIFLORA 'CANYON CREEK'

(HQA) HYDRANGEA QUERCIFOLIA 'ALICE'

(GST) ILEX CRENATA 'GOLDEN SOFT TOUCH'

(ICS) ILEX CRENATA 'STEEDS'

(IGS) ILEX GLABRA 'SHAMROCK'

(ILH) ITEA VIRGINICA 'LITTLE HENRY

(LCD) LOROPETALUM CHINENSE 'PURPLE DAYDREAM'

(LPD) LOROPETALUM CHINENSE 'PURPLE DIAMOND'

(MP) MYRICA PENSYLVANICA

(VSP) VIBURNUM TINUS 'SHADES OF PINK'

(AGO) AGORUS GRAMINEUS 'OGON'

(MWC) MUHLENBERGIA CAPILLARIS 'WHITE CLOUD'

(NT) NASSELLA TENUISSIMA

(PVS) PANICUM VIRGATUM 'SHENANDOAH'

TREE SAVE AREA

TREE REPLACEMENT AREA

LANDSCAPE REQUIREMENTS:

1. THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
2. ALL MECHANICAL EQUIPMENT, WASTE DISPOSAL FACILITIES, SHALL BE SCREENED FROM PUBLIC VIEW. ALL SIDES OF PARKING LOTS SHALL BE SCREENED WITH A TYPE A BUFFER YARD (SECT. 7.4.1.2)[UDO, SECT. 7.5.B.1]
3. ALL ABOVE GROUND UTILITY EQUIPMENT AND FACILITIES ASSOCIATED WITH ON-SITE ELECTRIC, CABLE, TELEPHONE, GAS OR OTHER SIMILAR UTILITY SHALL BE LOCATED IN THE SIDE OF REAR YARD AREA OF THE SITE AND SCREENED WITH A TYPE B BUFFER YARD (SECT. 7.4.1.3) THAT PERTAIN TO SEMI-OPAQUE SCREENS UP TO SIX FEET IN HEIGHT OR THE HEIGHT OF THE UTILITY, WHICHEVER IS LESS [UDO, SECT. 7.5.D]. PLANTINGS SHALL ALLOW FOR A MINIMUM OF 5' CLEARANCE AROUND THE STRUCTURE TO ALLOW FOR ACCESS. ADDITIONALLY, ANY SIDE OF THE STRUCTURE HAVING A DOOR OR LOCK, THE PLANTINGS SHALL ALLOW FOR A 10' CLEARANCE. THE AMOUNT OF CLEARANCE SHALL ACCOUNT FOR THE SIZE OF THE PLANT MATERIAL AT MATURITY. ALSO ANY ROOF MOUNTED MECHANICAL EQUIPMENT MUST BE SCREENED FROM STREETS AND ADJACENT PROPERTIES.
4. ALL STORMWATER DEVICES SUCH AS CULVERTS, RIP RAP STRUCTURES, RETENTION AND DETENTION PONDS AND OTHER STORMWATER-RELATED DEVICES SHALL BE SCREENED WITH EVERGREEN PLANTINGS TO REDUCE THEIR VISUAL IMPACT.
5. ENTRY FEATURE WALLS REQUIRE FOUNDATION PLANTINGS AT THE BASE OF THE WALL.
6. ALL PLANTING MEDIANS AND/OR ISLANDS IN VEHICULAR USE AREAS SHALL BE AT LEAST TEN FEET LONG BY TEN FEET WIDE FROM BACK OF CURB TO BACK OF CURB, WITH A MINIMUM OF 300 SQUARE FEET OF SPACE PER CANOPY TREE WHERE THESE TREES ARE PROPOSED AND SHOULD BE PLANTED ON SLOPES NOT TO EXCEED 1:4 VERTICAL TO HORIZONTAL DISTANCE.
7. THE SIZE OF THE PLANTING AREA AND SIZE OF PLANT MATERIAL AT MATURITY SHALL ALLOW FOR A 2.5' BUMPER OVERHANG FROM THE BACK OF CURB. EACH CANOPY TREE SHALL BE SEPERATED FROM PARKING SPACES BY AN 18" STANDARD CURB & GUTTER DESIGNED TO MINIMIZE DAMAGE BY VEHICLES TO PLANTS WITHIN THE LANDSCAPE AREA.
8. NO CANOPY TREE SHALL BE LOCATED WITHIN A ROADWAY RIGHT OF WAY OR WITHIN 5' OF A SIDEWALK, WITHIN 10' OF A LIGHTING LOCATION OR WITHIN 12' OF ELECTRICAL TRANSFORMERS.
9. ALL SHRUBS INSTALLED AS VEHICULAR USE SCREENING WILL BE MAINTAINED AS A CONTINUOUS HEDGE AT A MINIMUM HEIGHT OF 36 INCHES.
10. WHERE EXISTING OR PROPOSED VEGETATION FAILS TO FUNCTION ADEQUATELY AS REQUIRED, THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUIRE SUPPLEMENTAL PLANTINGS IN ADDITION TO THOSE SHOWN ON THE LANDSCAPE PLAN BASED ON ACTUAL FIELD CONDITIONS.
11. UPON ESTABLISHMENT OF FINISHED GRADES AND PRIOR TO BEGINNING INSTALLATION OF ANY TREES, A SOIL AMENDMENT SCHEDULE FOR ALL TREE PLANTINGS SHALL BE PREPARED BY A CERTIFIED LANDSCAPE ARCHITECT AND BE PROVIDED TO THE TOWN OF KNIGHTDALE.
12. PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY, A CERTIFIED STATEMENT SHALL BE PROVIDED TO TOWN STAFF KNIGHTDALE SITE INSPECTOR ATTESTING TO THE FACT THAT THE SOIL AMENDMENT SCHEDULE WAS FOLLOWED AS SPECIFIED IN THE APPROVED SITE AND/OR SUBDIVISION PLAN. THIS STATEMENT SHALL BE CERTIFIED BY A REGISTERED LANDSCAPE ARCHITECT, CERTIFIED ARBORIST, OR OTHER SPECIALIST AS DETERMINED ACCEPTABLE BY THE PLANNING DIRECTOR.
13. THE PROPERTY OWNER OR DEVELOPER SHALL PROVIDE FOR CONTINUOUS MAINTENANCE OF THE LANDSCAPE AREAS AFTER OCCUPANCY OF THE BUILDING. THE PROPERTY OWNER SHALL ENSURE THAT PERFORMANCE CRITERIA WITHIN THIS ORDINANCE AND/OR INCLUDED ON THE APPROVED SITE AND/OR SUBDIVISION PLAN ARE MET. FAILURE TO CORRECT DEFICIENCIES IN A TIMELY MANOR SHALL RESULT IN A CITATION FOR VIOLATION OF THIS ORDINANCE IN ACCORDANCE WITH CHAPTER 11.
14. ALL FOUNDATION PLANTINGS SHALL BE DESIGNED TO TOWN OF KNIGHTDALE UDO SECTION 7.4 REQUIREMENTS. THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUIRE ADDITIONAL PLANTINGS BASED ON ACTUAL FIELD CONDITIONS.
15. ALL IRRIGATION SYSTEM PLANS ARE SUBMITTED THROUGH THE BUILDING PERMIT PROCESS AND ARE EVALUATED SEPARATELY FROM AND IN ADDITION TO THE SITE PLAN AND BUILDING PLAN REVIEWS.
16. LARGE EVERGREEN SHRUBS OR FENCING SHALL BE USED TO SCREEN HVAC EQUIPMENT FROM ADJOINING LOTS AND COMMON AREAS.
17. ALL LANDSCAPING, MULCHING AND SEEDING SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED SITE PLAN AND THE STANDARDS OF SECTION 7.4 OF THE UDO PRIOR TO ISSUANCE OF A CO.
18. REQUIRED BUFFER YARDS MUST HAVE AT LEAST 40% BUT NO MORE THAN 60% EACH OF CANOPY AND UNDERSTORY TREES, AND AT LEAST 80% OF SHRUBS MUST BE EVERGREENS.
19. NOTHING SHALL BE PLANTED WITHIN AN UNDERGROUND OR OVERHEAD UTILITY EASEMENT OR A DRAINAGE EASEMENT WITHOUT THE CONSENT OF THE TOWN AND THE EASEMENT HOLDER AT THE TIME OF MASTER PLAN APPROVAL.
20. ANY TREES LOCATED WITHIN THE SIGHT TRIANGLES SHALL BE LIMBED UP TO A HEIGHT OF 8' ABOVE THE CURB LINE ELEVATION. ANY SHRUBS LOCATED WITHIN THE SITE TRIANGLES SHALL BE PRUNED TO A MAX. HEIGHT OF 2' ABOVE CURB LINE ELEVATION.
21. **DUKE ENERGY PLANTING REQUIREMENTS** – ACCORDING TO DUKE ENERGY, PLANTINGS WITHIN 20' OF OVERHEAD POWER LINES SHALL NOT EXCEED 15' INHEIGHT. TREES PLANTED 20-50' FROM POWER LINES SHALL NOT EXCEED 40' IN HEIGHT. TREES PLANTED OVER 50' FROM POWER LINES MAY EXCEED 40' IN HEIGHT.

LANDSCAPE MAINTENANCE PLAN:

THE OWNERS OF THE PROPERTY AND THEIR AGENTS, HEIRS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION AND MAINTENANCE OF ALL PLANTINGS AND PHYSICAL FEATURES SHOWN ON THIS PLAN. THE OWNERS SHALL BE RESPONSIBLE FOR ANNUAL MAINTENANCE OF THE VEGETATION TO INCLUDE BUT NOT LIMITED TO:

A. FERTILIZATION: FERTILIZE LAWNS TWICE PER YEAR (FEBRUARY 15–MARCH 15 AND AGAIN SEPTEMBER 1–OCTOBER 31) ACCORDING TO SOIL TEST. FERTILIZE WARM SEASON GRASSES ONCE DURING THE GROWING SEASON PER SOIL TEST.

B. PRUNING: PRUNING SHALL BE LIMITED TO REMOVAL OF DEAD WOOD OR BRANCHES FOR TREES OR FOR SIGHT DISTANCES/SAFETY REASONS. THE ANSI A300 STANDARDS SHOULD BE ADHERED TO. THE PRUNING OF SHRUBS SHALL BE LIMITED TO THE PRUNING NECESSARY TO MAINTAIN THE NATURAL SHAPE OF THE PLANT EXCEPT FOR SHEARED HEDGES. THE OWNER OF ANY TREE OR SHRUB ON PRIVATE PROPERTY THAT OVERHANGES ANY PUBLIC RIGHT-OF-WAY SHALL PRUNE THE BRANCHES SO THAT SUCH BRANCHES SHALL NOT OBSTRUCT THE LIGHT FROM ANY STREETLAMP OR OBSTRUCT THE VIEW OF ANY STREET INTERSECTION AND SO THAT THERE SHALL BE A CLEAR SPACE OF 8 FEET ABOVE THE SURFACE OF THE STREET OR SIDEWALK.

C. PEST CONTROL: PRE-EMERGENT WEED CONTROL FOR SHRUB BEDS MAY BE APPLIED IN FEBRUARY. CHEMICAL TREATMENT FOR INSECT INFESTATION AND DISEASE MAY BE APPLIED AND SHALL BE SPECIFIC TO THE PROBLEM.

D. MULCHING: MULCHING SHALL BE MAINTAINED AT A DEPTH OF 2–3" IN SHRUB BEDS. MULCH SHALL BE REAPPLIED EVERY TWO YEARS. AS NECESSARY TO MAINTAIN THE AVERAGE DEPTH OF THE PLANT BED.

E. MOWING: PRIMARY FESCUE LAWNS SHALL BE MAINTAINED AT A HEIGHT OF 3" AND SHALL BE MOWED APPROXIMATELY 30 TIMES PER YEAR. SECONDARY TURF AREAS MAY BE MAINTAINED HIGHER AND LESS FREQUENTLY. WARM SEASON GRASSES SHALL BE MOWED AS NEEDED DURING THE GROWING SEASON TO MAINTAIN THE RECOMMENDED HEIGHT OF THE SPECIES OF TURF GRASS.

F. PLANT PROTECTION: AVOID EXCESS INTRUSION INTO THE ROOT ZONE AREA OF ESTABLISHED PLANTINGS.

G. WATERING: IF ANY IRRIGATION SYSTEM IS UTILIZED, THE SYSTEM SHALL BE REGULATED TO PROVIDE APPROXIMATELY 1" OF RAINFALL PER WEEK DURING THE GROWING SEASON. (PENDING TOWN OF KNIGHTDALE WATER/IRRIGATION SUPPLIES.)

REMOVAL OF DISEASE INFESTED MATERIAL SHALL BE ALLOWED SO LONG AS REQUIRED SHRUBS ARE REPLACED AT THE REQUIRED RATES AND SIZES.

FAILURE TO MAINTAIN ALL PLANTINGS IN ACCORDANCE WITH THIS PLAN MAY CONSTITUTE A VIOLATION OF THE LAND DEVELOPMENT ORDINANCE AND MAY RESULT IN FINES.

OVERALL SITE PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	HEIGHT	SIZE	MATURE HT./SPREAD	ROOT	SPACING	LOCATION
CANOPY TREES									
NGG	15	NYSSA SYLVATICA 'GREEN GABLE'	GREEN GABLE BLACK GUM	8-10'	2" CAL.	60'/30'	B&B	AS SHOWN	BUFFER
NRS	16	NYSSA SYLVATICA 'RED SPLYNDOR'	RED SPLYNDOR BLACK GUM	8-10'	2" CAL.	50'/30'	B&B	AS SHOWN	O.S., REPLACEMENT
PC	8	PISTACHIA CHINENSIS	CHINESE PISTACHE	8-10'	2" CAL.	35'/30'	B&B	AS SHOWN	STREET TREE, O.S.
*PC	10	PISTACHIA CHINENSIS (SEE STREET TREE NOTE)	CHINESE PISTACHE	8-10'	3" CAL.	35'/30'	B&B	AS SHOWN	STREET TREE
QL	26	QUERCUS LYRATA	OVERCUP OAK	8-10'	2" CAL.	60'/40'	B&B	AS SHOWN	V.U.A.
QL	3	QUERCUS LYRATA	OVERCUP OAK	8-10'	2" CAL.	60'/40'	B&B	AS SHOWN	REPLANTED AREA
UPB	7	ULMUS PARVIFOLIA 'BOSQUE'	BOSQUE CHINESE ELM	8-10'	2" CAL.	60'/40'	B&B	AS SHOWN	STREET TREE
*UPB	12	ULMUS PARVIFOLIA 'BOSQUE' (SEE STREET TREE NOTE)	BOSQUE CHINESE ELM	8-10'	3" CAL.	60'/40'	B&B	AS SHOWN	STREET TREE
ZVG	21	ZELKOVA SERRATA 'VILLAGE GREEN'	VILLAGE GREEN ZELKOVA	8-10'	2" CAL.	60'/40'	B&B	AS SHOWN	V.U.A.
UNDERSTORY TREES									
ABA	4	ACER BUERGERIANUM 'AERYN'	AERYN TRIDENT MAPLE	8' HT. MIN.	1.5" CAL.	20'/30'	B&B	AS SHOWN	TREE WELLS
ABA	7	ACER BUERGERIANUM 'AERYN'	AERYN TRIDENT MAPLE	8' HT. MIN.	1.5" CAL.	20'/30'	B&B	AS SHOWN	REPLANTED AREA
CV	10	CHIONANTHUS VIRGINICUS	NATIVE FRINGE TREE	8' HT. MIN.	1.5" CAL.	20'/20'	B&B	AS SHOWN	BUFFER, O.S.
MGA	17	MAGNOLIA GRANDIFLORA 'ALTA'	ALTA MAGNOLIA	6' HT. MIN.	2" CAL.	20'/12'	B&B	AS SHOWN	BUFFER
MLG	20	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA	6' HT. MIN.	2" CAL.	25'/10'	B&B	AS SHOWN	BUFFER, O.S.
PCT	13	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PURPLE PLUM	8' HT. MIN.	1.5" CAL.	20'/20'	B&B	AS SHOWN	BUFFER, O.S.
PK	5	PRUNUS SERRULATA 'KWANZAN'	KWANZAN CHERRY	8' HT. MIN.	1.5" CAL.	30'/25'	B&B	AS SHOWN	OPEN SPACE
SHRUBS									
ACC	62	ABELIA GRANDIFLORA 'CANYON CREEK'	CANYON CREEK ABELIA	24" HT. MIN.	3 GAL.	5'/5'	CONT.	5' O.C.	BUFFER
ALR	86	ABELIA GRANDIFOLIA 'LITTLE RICHARD'	LITTLE RICHARD ABELIA	24" HT. MIN.	3 GAL.	4'/4'	CONT.	4' O.C.	V.U.A
GST	179	ILEX CRENATA 'GOLDEN SOFT TOUCH'	GOLDEN SOFT TOUCH HOLLY	18" HT. MIN.	3 GAL.	3'/3'	CONT.	3' O.C.	OPEN SPACE
HQA	3	HYDRANGEA QUERCIFOLIA 'ALICE'	ALICE OAKLEAF HYDRANGEA	30" HT. MIN.	7 GAL.	6'/6'	CONT.	6' O.C.	POLLINATOR
ICS	12	ILEX CRENATA 'STEEDS'	STEEDS HOLLY	30" HT. MIN.	10 GAL.	10'/6'	CONT.	5' O.C.	DUMPSTER SCREEN
IGS	103	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY	24" HT. MIN.	3 GAL.	5'/4'	CONT.	3.5' O.C.	OPEN SPACE
LCD	46	LOROPETALUM CHINENSE 'PURPLE DAYDREAM'	PURPLE DAYDREAM LOROPETALUM	24" HT. MIN.	3 GAL.	3'/4'	CONT.	3' O.C.	BUFFER, O.S.
LPD	64	LOROPETALUM CHINENSE 'PURPLE DIAMOND'	PURPLE DIAMOND LOROPETALUM	24" HT. MIN.	3 GAL.	5'/5'	CONT.	4' O.C.	BUFFER
MP	10	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	30" HT. MIN.	7 GAL.	6'/6'	CONT.	6' O.C.	RAIN GARDEN
VSP	68	VIBURNUM TINUS 'SHADES OF PINK'	SHADES OF PINK VIBURNUM	24" HT. MIN.	3 GAL.	5'/5'	CONT.	5' O.C.	BUFFER, O.S.
GRASSES									
AGO	625	ACORUS GRAMINEUS 'OGON'	OGON SEET FLAG	6" HT. MIN.	QT.	1'/6"	CONT.	6" O.C.	RAIN GARDEN
MWC	24	MUHLENBERGIA CAPILLARIS 'WHITE CLOUD'	WHITE CLOUD MUHLY GRASS	18" HT. MIN.	3 GAL.	4'/3'	CONT.	2.5' O.C.	OPEN SPACE
NT	170	NASSELLA TENUISSIMA	MEXICAN FEATHER GRASS	12" HT. MIN.	3 GAL.	2'/2'	CONT.	1.5' O.C.	OPEN SPACE
PVS	20	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	15" HT. MIN.	1 GAL.	3'/3'	CONT.	2' O.C.	RAIN GARDEN

**FOR ALL PLANTINGS WITHIN OR OVERHANGING A SIGHT DISTANCE TRIANGLE SEE LANDSCAPE REQUIREMENT NOTE #20.

LANDSCAPE REQUIREMENT CALCULATIONS:

TYPE A VUA BUFFER REQUIREMENTS PER 100 LINEAR FEET OF BUFFER (10' WIDE MIN.):
3 CANOPY TREES, 2 UNDERSTORY TREES, 20 SHRUBS
615 LF. TYPE A VUA BUFFER PROPOSED
6.15(3) = 19 CANOPY TREES REQUIRED/PROVIDED
6.15(2) = 13 UNDERSTORY TREES REQUIRED/PROVIDED
6.15(20) = 123 SHRUBS REQUIRED/PROVIDED

TYPE C BUFFER REQUIREMENTS PER 100 LINEAR FEET OF BUFFER (30' WIDE MIN.):
5 CANOPY TREES, 5 UNDERSTORY TREES, 25 SHRUBS
750 LF. TYPE C BUFFER PROPOSED
7.5(5) = 38 CANOPY TREES REQUIRED/PROVIDED
7.5(5) = 38 UNDERSTORY TREES REQUIRED/PROVIDED
7.5(25) = 188 SHRUBS REQUIRED/PROVIDED

STREET TREE REQUIREMENT PER 40 LINEAR FEET OF FRONTAGE:
1 CANOPY TREE @ 40' O.C.

MORNING FLYER WAY: 988 LF. OF FRONTAGE – 2 ENTRY DRIVES (65 LF) = 923 LF.
923/40 = 23 STREET TREES REQUIRED/22 PROVIDED DUE TO UTILITY, DRAINAGE & STORMWATER EASEMENTS. ONE ADDITIONAL QUERCUS LYRATA (QL) HAS BEEN ADDED TO THE LARGE CENTER PLANTING ISLAND ON SITE.

KNIGHTDALE BOULEVARD: 510 LF. OF FRONTAGE
510/40 = 13 STREET TREES REQUIRED/PROVIDED

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH & TOWN OF KNIGHTDALE DESIGN STANDARDS, DETAILS AND SPECIFICATIONS.

NORTH

MORNING FLYER WAY LANDSCAPE PLAN

SCALE: 1" = 50' (DRAWING SCALED FOR 24x36 INCH PLOTS)

0 50 100 150 200

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1419 BRANDON D. MOORE 11/14/25

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
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1111 Oberlin Road
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E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By JHJ
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 14 JUN 2024
4 02 AUG 2024
5 20 SEP 2024
6 16 MAY 2025
7 17 JUL 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY LANDSCAPE PLAN

Job Code ASKSCD

Dwg No. SITE 500

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KNIGHTDALE BLVD/ US BUS 64
(VARIABLE WIDTH PUBLIC R/W)
CAROLINIAN AVE.
(VARIABLE WIDTH PUBLIC R/W)
LIGHTRAIL DRIVE
(54' PUBLIC R/W)
PHASE R4
DFC KNIGHTDALE STATION, LLC
DB 18827, PG 186
BM 2021, PG 2101
PIN: 1754-87-4102
AXIOM DEVELOPMENT, LLC
DB 19073, PG 1065
PIN: 1754-77-3240
DUKE ENERGY PLANTING REQUIREMENTS
"PLANT THE RIGHT TREE IN THE RIGHT PLACE"
PLANTINGS WITHIN 20' OF OVERHEAD POWER LINES SHALL NOT EXCEED 15' IN HEIGHT. TREES PLANTED 20-50' FROM POWER LINES SHALL NOT EXCEED 40' IN HEIGHT. TREES PLANTED OVER 50' FROM POWER LINES MAY EXCEED 40' IN HEIGHT.
THE TOWN OF KNIGHTDALE SITE INSPECTOR RESERVES THE RIGHT TO REQUEST ADDITIONAL BUFFER PLANTINGS BASED ON ACTUAL FIELD CONDITIONS.
(SEE LANDSCAPE REQUIREMENT NOTE #7) WHERE EXISTING VEGETATION FAILS TO MEET ALL THE BUFFER STANDARDS, SUPPLEMENTAL PLANTINGS SHALL BE REQUIRED.
30' DUKE POWER EASEMENT
EX. POWER POLE
DUKE POWER EASEMENT
MAINTAIN 3' CLEAR AROUND FH (TYP)
PROPOSED TREE REPLACEMENT AREA (5,321 SF.)
436 LF. TYPE B BUFFER
PROPOSED TREE SAVE AREA (3,806 SF.)
SEG. BLOCK RET. WALL #1
20' TYPE B BUFFER (AVG WIDTH 20')
EXISTING STREET TREES (TYP)
10'x70' SIGHT DISTANCE TRIANGLES (TYP)
10' TYPE A VUA SCREENING BUFFER
WET DETENTION BASIN #2
PROPOSED TREE SAVE AREA (2,452 SF.)
PROPOSED TREE REPLACEMENT AREA (4,256 SF.)
8-QL (4 REPLACEMENTS)
SEG. BLOCK RET. WALL #3
SEG. BLOCK RET. WALL #2
TREE PROTECTION FENCE (TYP)
PROPOSED TREE SAVE AREA (8,210 SF.)
PROPOSED TREE REPLACEMENT AREA (8,647 SF.)
DUMPSTER ENCLOSURE
RAIN GARDEN
POLLINATOR GARDEN
10' TYPE A VUA SCREENING BUFFER
232' OF FRONTAGE
STREET TREES PROPOSED UNDER KNIGHTDALE STATION (FUTURE DEVELOPMENT)
EX. STREET LIGHT (TYP)
C.O.R. UTILITY EASEMENT
1-PCT
22-ACC
2-MLG
1-UPB
3-OA**
2-PC
2-UP**
1-CV
1-CV**
1-PC**
3-PCT
1-MGA
10-ACC
4-MLG
1-ZVG
15-VSP
1-CV
1-MGA
1-ZVG
3-PCT
2-QL
1-PCT
10-ACC
5-UPB**
1-CV**
3-UP**
3-CV
4-MLG
12-ALR
2-QL
1-ZVG
2-PSK
2-MP
1-ZVG
36-GST
5-ALR
2-NRS**
3-OA**
7-PCT
5-MGA
18-PVS
2-MP
7-ILF
200-AGO
20-IGS
4-UP**
1-UPB**
3-PCT
1-CV
1-UPB
14-ALR
11-ALR
8-NGG
15-IGS
1-PSK
1-PCT
4-CV
5-MLG
6-VSP
4-MGA
2-CV**
4-QA**
1-MGA
2-ZVG
1-CV
9-ACC
1-MGA
16-IGS
7-LPD
2-MP
6-ILH
2-PCT
2-MGA
1-QA**
11-VSP
2-UP**
5-UPB
1-UP
2-PCT
10-VSP
6-LPD
2-PC
2-PSK
27-VSP
12-LPD
2-PCT
12-ACC
5-ALR
6-LPD
1-ZVG
13-GST
2-PSK
12-VSP
6-LPD
1-ZVG
2-PCT
2-QL
9-IGS
2-PSK
15-ALR
1-ZVG
5-ACC
2-QA**
2-CV**
3-UP**
1-ZVG**
4-ACC
3-OA**
2-UP**
9-VSP
1-ZVG
1-CV
7-NRS
7-PC
12-ACC
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2-PSK
2-QL
12-VSP
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6-LPD
14-IVS
2-QL
14-ICS
2-CV
6-QL
1-CV
2-ZVG
1-CV
2-PCT
5-ACC
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4-ACC
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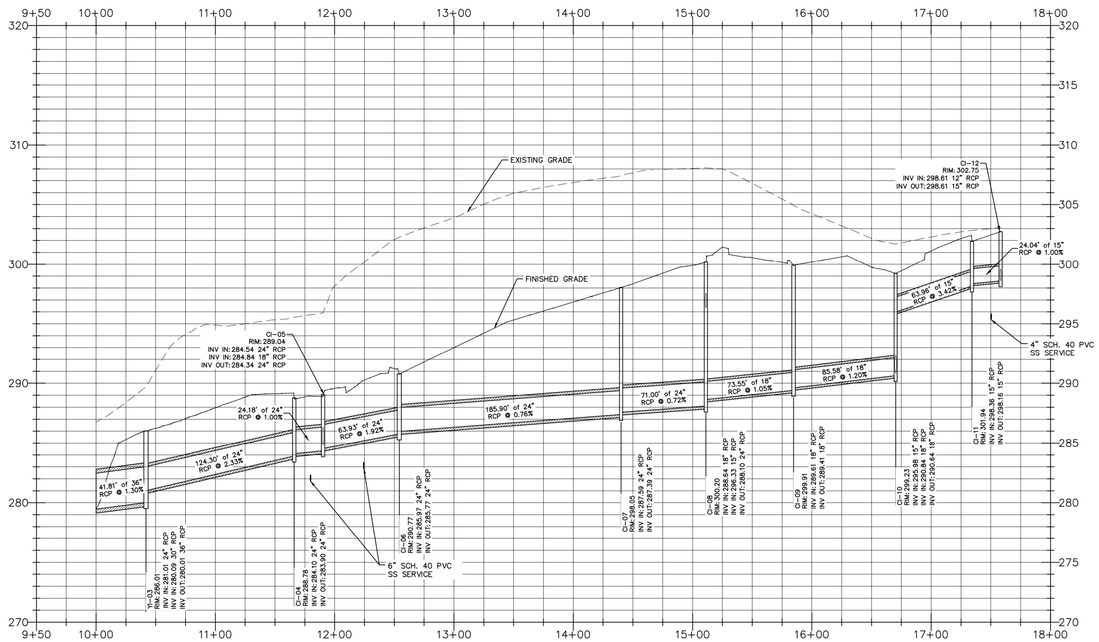
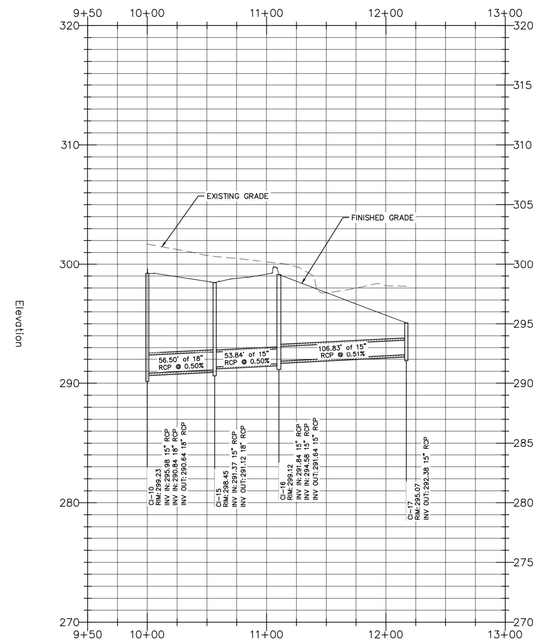
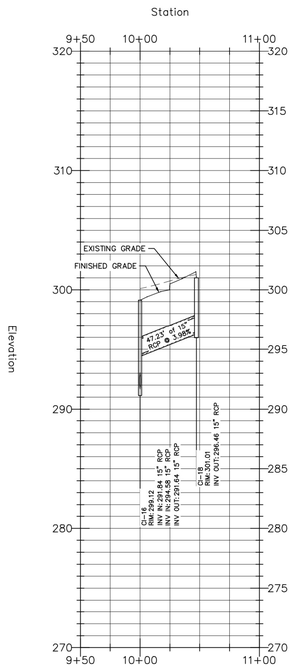
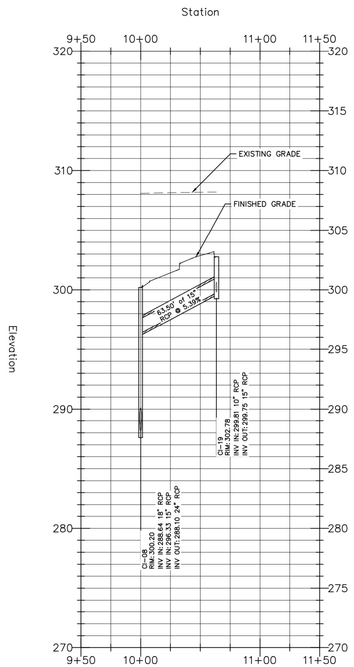
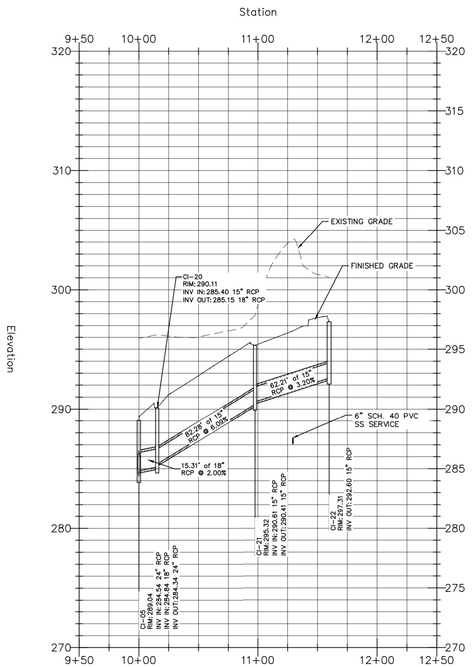
2-QL











STORM DRAINAGE NOTES:

1. YARD INLET (YI) RIM ELEVATION LISTED IS TOP OF GRATE ELEVATION.
2. CURB INLET (CI) RIM ELEVATION LISTED IS TOP OF CURB.
3. RCP SHALL BE MINIMUM CLASS III.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

PROFILE: 1"=60' HORIZ.
1"=6' VERT.

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. MITCH
5/16/2025

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CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By: MRK
Checked By: SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY STORM DRAIN PROFILES

Job Code: ASKSCD

Dwg No.
SITE 600

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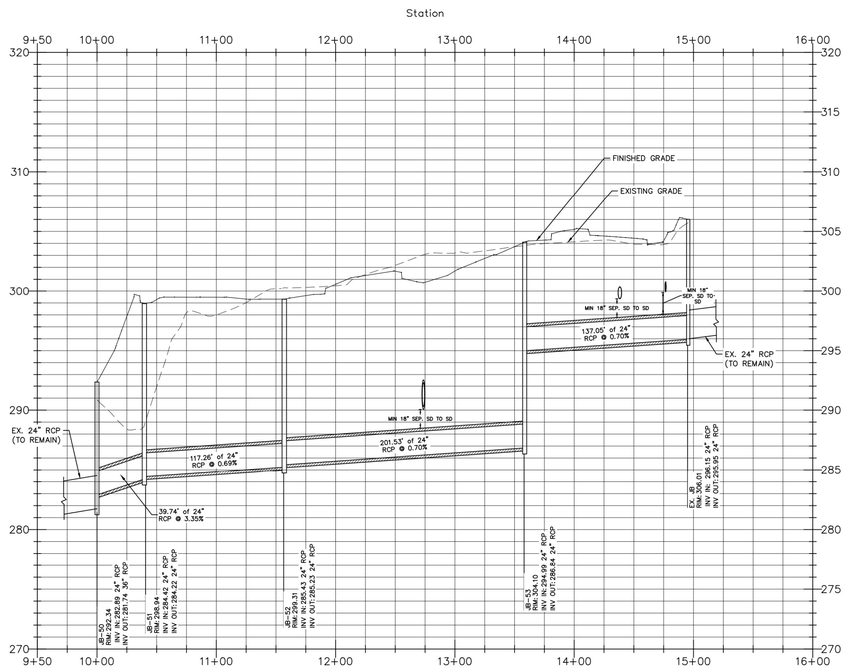

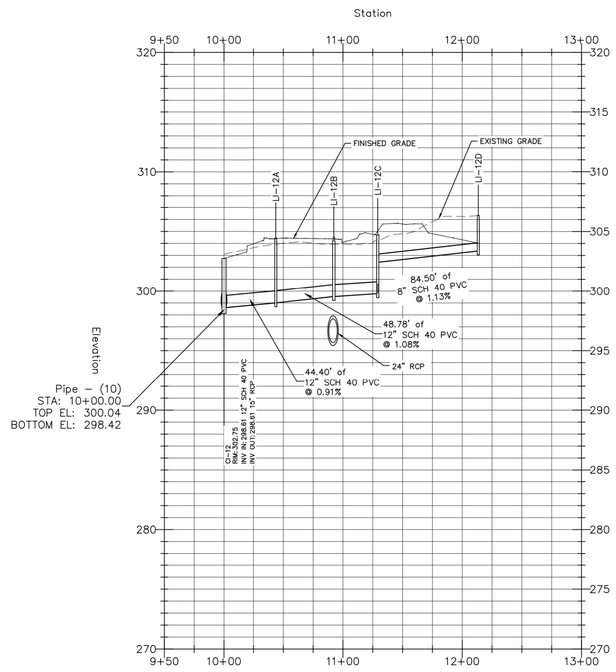

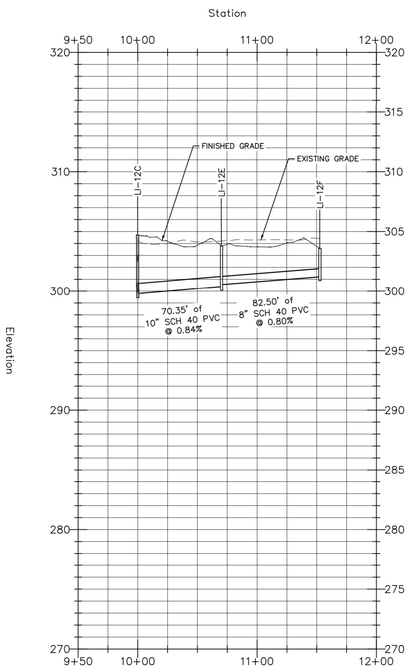

STORM SEWER STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CI-18	RIM = 303.01 INV OUT = 298.46 (47.3 LF 15" RCP @ 3.99%)
CI-08	RIM = 302.20 INV IN = 291.64 (73.5 LF 18" RCP @ 0.50%) INV IN = 298.33 (63.6 LF 15" RCP @ 5.39%) INV OUT = 291.44 (71.0 LF 18" RCP @ 0.50%)
CI-09	RIM = 301.91 INV IN = 292.21 (85.6 LF 18" RCP @ 0.50%) INV OUT = 292.01 (73.5 LF 18" RCP @ 0.50%)
JB-52	RIM = 301.31 INV IN = 289.63 (201.5 LF 24" RCP @ 0.70%) INV OUT = 289.43 (115.8 LF 24" RCP @ 0.70%)
CI-10	RIM = 301.23 INV IN = 295.98 (64.0 LF 15" RCP @ 3.42%) INV IN = 292.84 (56.5 LF 15" RCP @ 0.50%) INV OUT = 292.64 (85.6 LF 18" RCP @ 0.50%)
CI-16	RIM = 301.12 INV IN = 293.84 (106.8 LF 15" RCP @ 0.50%) INV IN = 296.58 (47.3 LF 15" RCP @ 3.99%) INV OUT = 293.64 (53.8 LF 15" RCP @ 0.50%)
JB-51	RIM = 300.97 INV IN = 288.62 (115.8 LF 24" RCP @ 0.70%) INV OUT = 288.42 (40.7 LF 24" RCP @ 3.27%)
CI-15	RIM = 300.45 INV IN = 293.37 (53.8 LF 15" RCP @ 0.50%) INV OUT = 293.12 (56.5 LF 15" RCP @ 0.50%)
CI-07	RIM = 300.05 INV IN = 291.09 (71.0 LF 18" RCP @ 0.50%) INV OUT = 290.89 (185.9 LF 18" RCP @ 1.41%)
CI-22	RIM = 299.31 INV OUT = 294.60 (62.2 LF 15" RCP @ 3.20%)
CI-21	RIM = 297.32 INV IN = 292.61 (62.2 LF 15" RCP @ 3.20%) INV OUT = 292.51 (82.5 LF 15" RCP @ 7.31%)
JB-53	RIM = 306.10 INV IN = 294.99 (137.1 LF 24" RCP @ 0.70%) INV OUT = 291.04 (201.5 LF 24" RCP @ 0.70%)

STORM SEWER STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CI-17	RIM = 297.07 INV OUT = 294.38 (106.8 LF 15" RCP @ 0.50%)
CI-06	RIM = 292.77 INV IN = 288.27 (185.9 LF 18" RCP @ 1.41%) INV OUT = 288.07 (64.0 LF 18" RCP @ 4.49%)
JB-50	RIM = 292.34 INV IN = 287.09 (40.7 LF 24" RCP @ 3.27%)
CI-20	RIM = 292.11 INV IN = 286.49 (82.5 LF 15" RCP @ 7.31%) INV OUT = 286.29 (15.3 LF 18" RCP @ 1.89%)
CI-04	RIM = 289.75 INV IN = 284.76 (24.2 LF 24" RCP @ 1.01%) INV OUT = 284.70 (124.4 LF 24" RCP @ 3.38%)
CI-05	RIM = 289.36 INV IN = 285.20 (64.0 LF 18" RCP @ 4.49%) INV IN = 286.01 (15.3 LF 18" RCP @ 1.89%) INV OUT = 285.01 (24.2 LF 24" RCP @ 1.01%)
EX. SD MH	RIM = 286.86 INV OUT = 281.00 (27.1 LF 30" RCP @ 3.36%)
CI-03	RIM = 285.95 INV IN = 280.50 (124.4 LF 24" RCP @ 3.38%) INV IN = 280.09 (27.1 LF 30" RCP @ 3.36%) INV OUT = 280.01 (41.8 LF 36" RCP @ 1.30%)
FES-02	RIM = 283.30 INV IN = 279.46 (41.8 LF 36" RCP @ 1.30%)
CI-19	RIM = 304.78 INV IN = 299.81 (69.8 LF 10" RCP @ 1.00%) INV OUT = 301.75 (63.6 LF 15" RCP @ 5.39%)
CI-12	RIM = 304.75 INV IN = 298.61 (40.5 LF 10" RCP @ 1.00%) INV OUT = 298.61 (24.0 LF 15" RCP @ 1.00%)
CI-11	RIM = 303.94 INV IN = 298.36 (24.0 LF 15" RCP @ 1.00%) INV OUT = 298.16 (64.0 LF 15" RCP @ 3.42%)
EX. JB	RIM = 306.01 INV OUT = 295.95 (137.1 LF 24" RCP @ 0.70%)

STORM DRAINAGE NOTES:

1. YARD INLET (YI) RIM ELEVATION LISTED IS TOP OF GRATE ELEVATION.
2. CURB INLET (CI) RIM ELEVATION LISTED IS TOP OF CURB.
3. RCP SHALL BE MINIMUM CLASS III.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH, TOWN OF KNIGHTDALE, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (811) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION IS TAKEN FROM A DIGITAL SURVEY BY NEWCOMB LAND SURVEYOR DATED OCTOBER 27TH 2022.
5. ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
6. NO GRADING, DEVELOPMENT, OR LAND-DISTURBING ACTIVITIES SHALL OCCUR WITHIN A BUFFER YARD IF FOREST CANOPY, SPECIMEN TREES, OR SIGNIFICANT VEGETATION EXISTS WITHIN THESE AREAS, UNLESS APPROVED BY THE LAND USE ADMINISTRATOR. IF GRADING WITHIN A BUFFER YARD IS PROPOSED, SLOPES OF 1:3 OR LESS ARE ENCOURAGED TO ENSURE THE PROPER TRANSITION OF GRADES TO THE ADJACENT PROPERTY AND TO FACILITATE LANDSCAPING AND MAINTENANCE.

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

PROFILE: 1"=60' HORIZ.
1"=6' VERT.

0 60 120 180 240

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. NEWCOMB
4/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4287
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By: MRK
Checked By: SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024

CONSTRUCTION DRAWINGS

MORNING FLYER WAY STORM DRAIN PROFILES

Job Code: ASKSCD

Dwg No.
SITE
601

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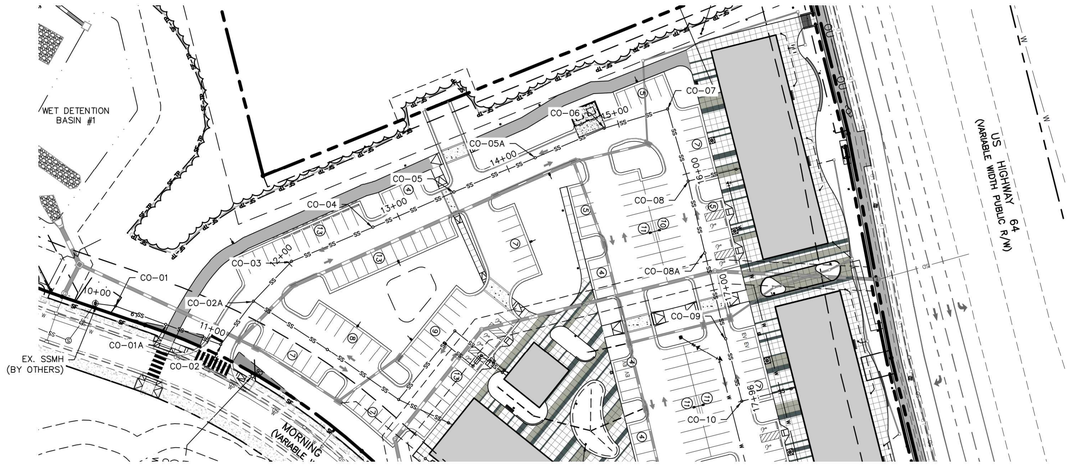
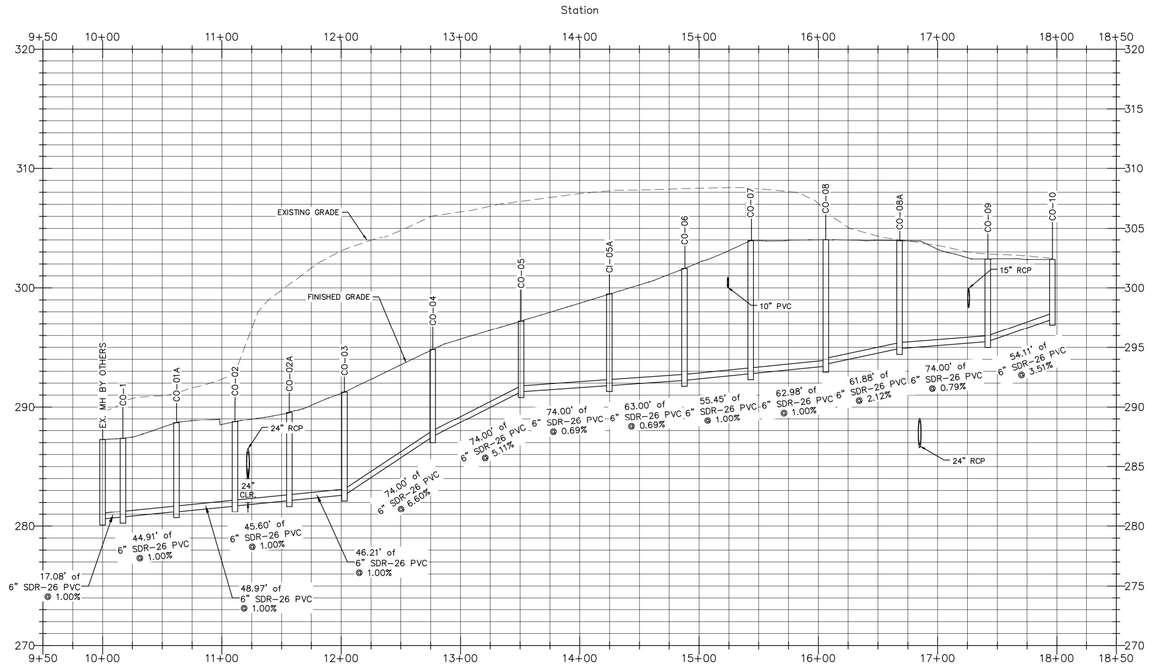
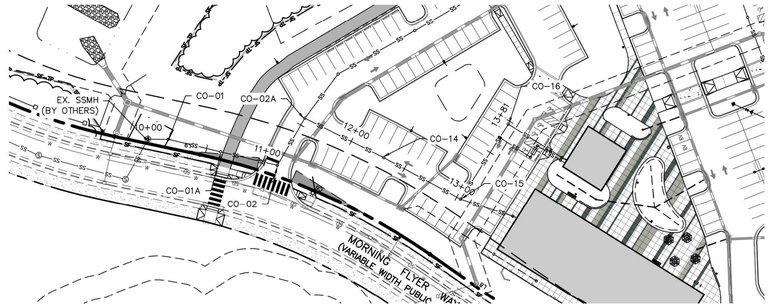


PLAN: 1"=60'
PROFILE: 1"=60' HORIZ.
1"=6' VERT.

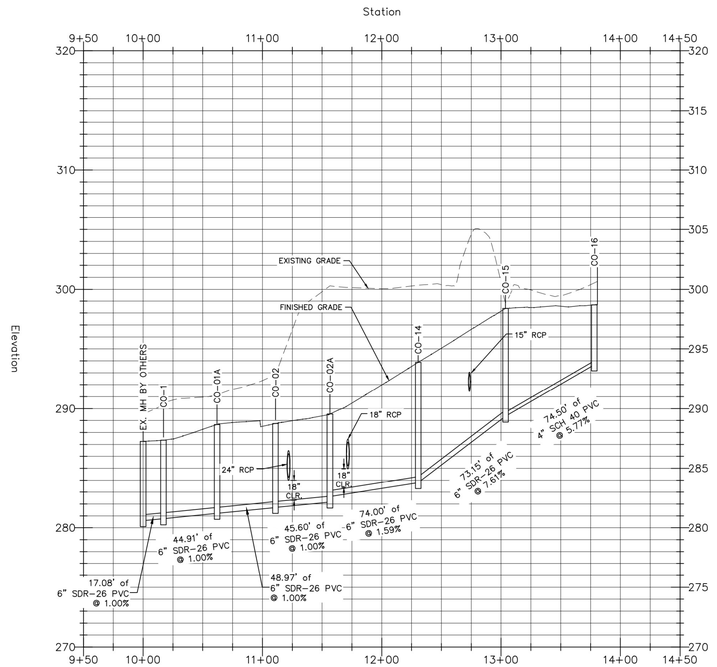
0 60 120 180 240





PLAN: 1"=60'
PROFILE: 1"=60' HORIZ.
1"=6' VERT.

0 60 120 180 240



Private
Sewer Collection / Extension System

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

City of Raleigh
Public Utilities Department Permit # S-5454P

Authorization to Construct _____

Date _____

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NEE
5/16/2025

THE SITE GROUP
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1111 Oberlin Road
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Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEW'S TOWNSHIP | WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 14 OCT 2024
8 16 MAY 2025

CONSTRUCTION DRAWINGS

MORNING FLYER WAY
SS SERVICE PROFILES

Job Code ASKSCD

Dwg No.
SITE
602

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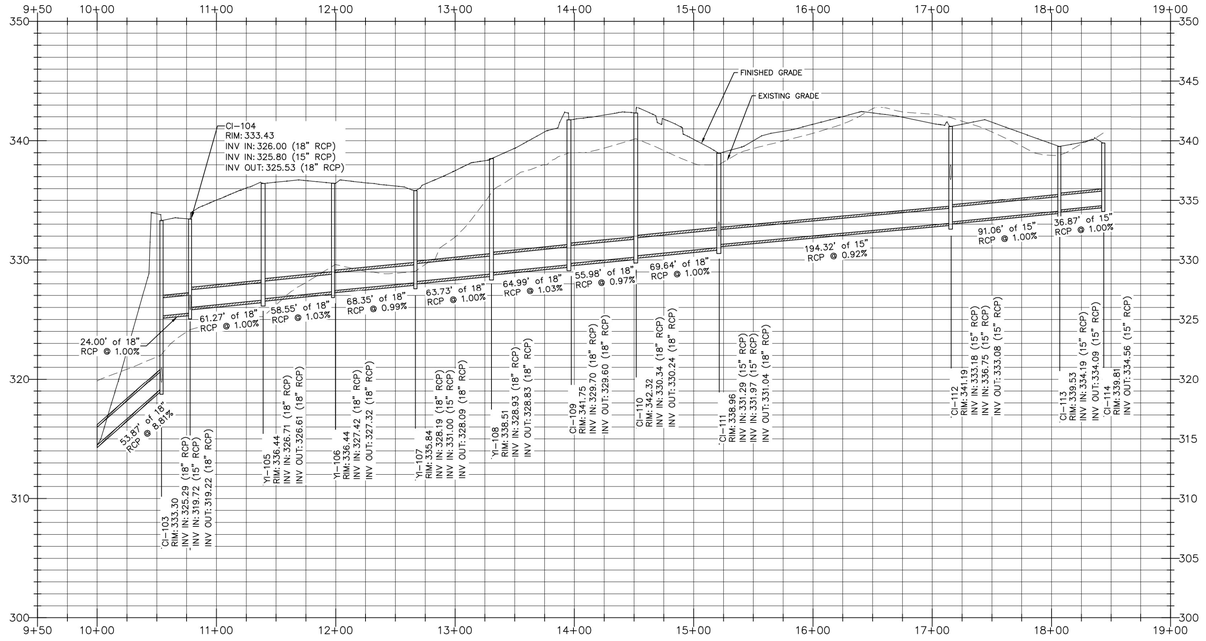
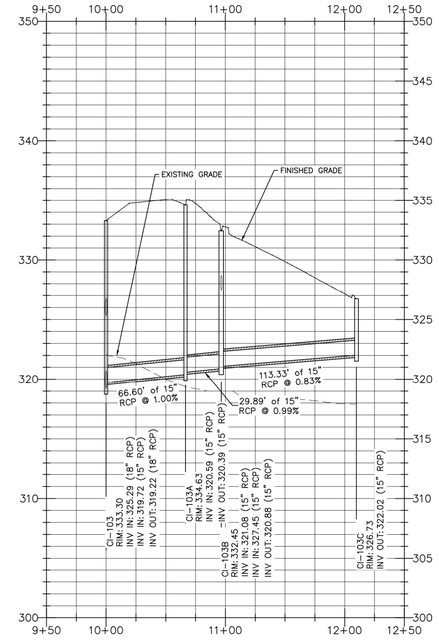
SD-01 PROFILE



SD-02 PROFILE



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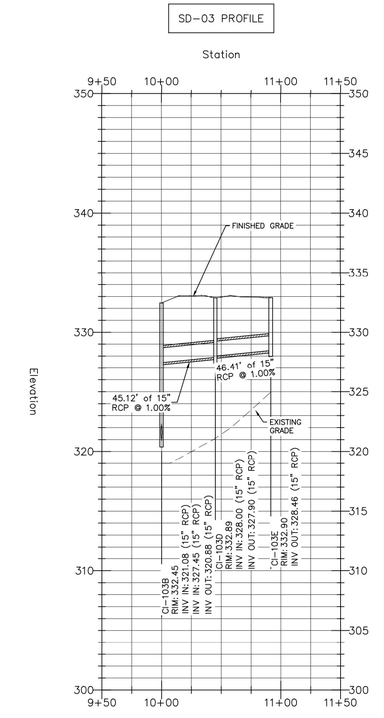
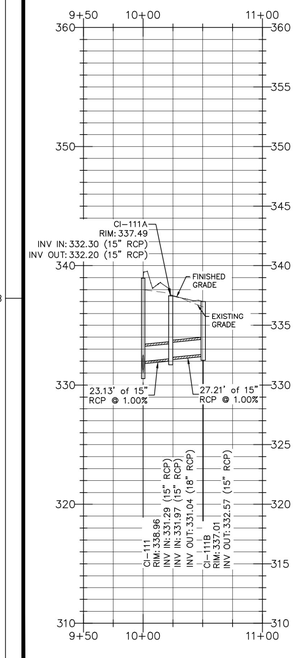


SD-04 PROFILE



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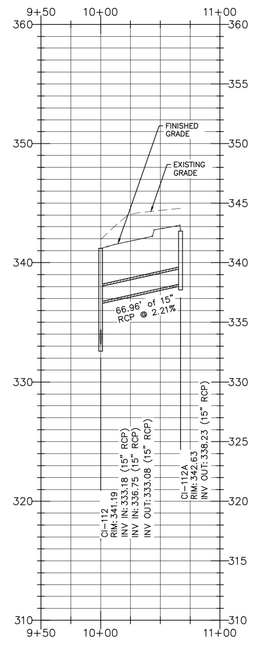
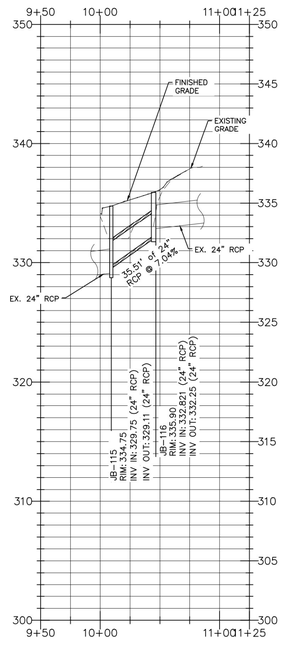
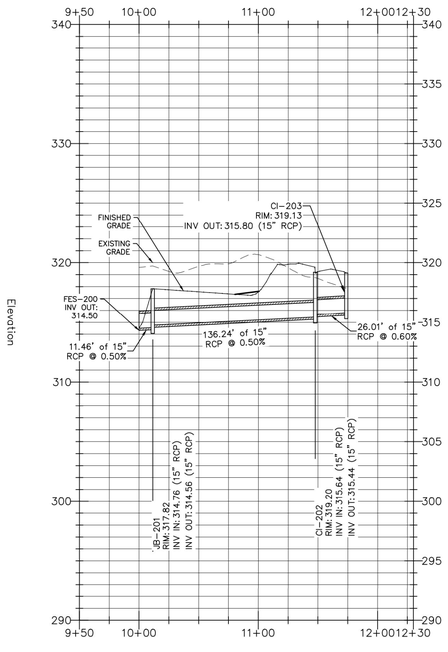


SD-06 PROFILE



SD-07 PROFILE



STORM SEWER STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CI-112A	RIM = 342.63 INV OUT = 338.23 (67.0 LF 15" RCP @ 2.21%)
CI-110	RIM = 342.32 INV IN = 330.34 (69.6 LF 18" RCP @ 1.00%) INV OUT = 330.24 (56.0 LF 18" RCP @ 0.97%)
CI-109	RIM = 341.75 INV IN = 329.70 (56.0 LF 18" RCP @ 0.97%) INV OUT = 329.60 (65.0 LF 18" RCP @ 1.03%)
CI-112	RIM = 341.19 INV IN = 333.18 (91.1 LF 15" RCP @ 1.00%) INV IN = 336.75 (67.0 LF 15" RCP @ 2.21%) INV OUT = 333.08 (194.3 LF 15" RCP @ 0.92%)
CI-114	RIM = 339.81 INV OUT = 334.56 (36.9 LF 15" RCP @ 1.00%)
CI-113	RIM = 339.53 INV IN = 334.19 (36.9 LF 15" RCP @ 1.00%) INV OUT = 334.09 (91.1 LF 15" RCP @ 1.00%)
CI-111	RIM = 338.96 INV IN = 331.29 (194.3 LF 15" RCP @ 0.92%) INV IN = 331.97 (23.1 LF 15" RCP @ 1.00%) INV OUT = 331.04 (69.6 LF 18" RCP @ 1.00%)
YI-108	RIM = 338.51 INV IN = 328.93 (65.0 LF 18" RCP @ 1.03%) INV OUT = 328.83 (63.7 LF 18" RCP @ 1.00%)
CI-111A	RIM = 337.49 INV IN = 332.30 (27.2 LF 15" RCP @ 1.00%) INV OUT = 332.20 (23.1 LF 15" RCP @ 1.00%)
CI-111B	RIM = 337.01 INV OUT = 332.57 (27.2 LF 15" RCP @ 1.00%)
YI-106	RIM = 336.44 INV IN = 327.42 (68.4 LF 18" RCP @ 0.99%) INV OUT = 327.32 (58.6 LF 18" RCP @ 1.03%)
YI-105	RIM = 336.44 INV IN = 326.71 (58.6 LF 18" RCP @ 1.03%) INV OUT = 326.61 (61.3 LF 18" RCP @ 1.00%)
JB-116	RIM = 335.91 INV OUT = 332.25 (35.6 LF 24" RCP @ 7.04%)
YI-107	RIM = 335.84 INV IN = 328.19 (63.7 LF 18" RCP @ 1.00%) INV IN = 331.00 (19.3 LF 15" RCP @ -5.18%) INV OUT = 328.09 (68.4 LF 18" RCP @ 0.99%)
JB-115	RIM = 334.75 INV IN = 329.75 (35.6 LF 24" RCP @ 7.04%)

STORM SEWER STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
CI-103A	RIM = 334.63 INV IN = 320.64 (29.9 LF 15" RCP @ 0.83%) INV OUT = 320.39 (66.6 LF 18" RCP @ 1.00%)
CI-104	RIM = 333.43 INV IN = 326.00 (61.3 LF 18" RCP @ 1.00%) INV IN = 325.80 (23.4 LF 15" RCP @ 1.28%) INV OUT = 325.53 (24.0 LF 18" RCP @ 1.00%)
CI-103	RIM = 333.30 INV IN = 325.29 (24.0 LF 18" RCP @ 1.00%) INV IN = 319.72 (66.6 LF 15" RCP @ 1.00%) INV OUT = 319.22 (54.1 LF 18" RCP @ 8.81%)
CI-103E	RIM = 332.90 INV OUT = 328.46 (46.4 LF 15" RCP @ 1.00%)
CI-103D	RIM = 332.89 INV IN = 328.00 (46.4 LF 15" RCP @ 1.00%) INV OUT = 327.90 (45.1 LF 15" RCP @ 1.00%)
CI-103B	RIM = 332.45 INV IN = 321.08 (113.3 LF 15" RCP @ 0.83%) INV IN = 327.45 (45.1 LF 15" RCP @ 1.00%) INV OUT = 320.88 (29.9 LF 15" RCP @ 0.83%)
CI-103C	RIM = 326.73 INV OUT = 322.02 (113.3 LF 15" RCP @ 0.83%)
CI-202	RIM = 319.20 INV IN = 315.64 (28.0 LF 15" RCP @ 0.60%) INV OUT = 315.44 (136.2 LF 15" RCP @ 0.50%)
CI-203	RIM = 319.13 INV OUT = 315.80 (26.0 LF 15" RCP @ 0.60%)
JB-201	RIM = 317.82 INV IN = 314.76 (136.2 LF 15" RCP @ 0.50%) INV OUT = 314.56 (11.5 LF 15" RCP @ 0.50%)

STORM DRAINAGE NOTES:

1. YARD INLET (YI) RIM ELEVATION LISTED IS TOP OF GRATE ELEVATION.
2. CURB INLET (CI) RIM ELEVATION LISTED IS TOP OF CURB.
3. RCP SHALL BE MINIMUM CLASS III.

PROFILE: 1"=60' HORIZ.
1"=6' VERT.

0 60 120 180 240

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. MITCHELL
5/16/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 02 AUG 2024
6 20 SEP 2024
7 16 MAY 2025

CONSTRUCTION DRAWINGS

CAROLINIAN AVE. STORM DRAIN PROFILE

Job Code ASKSCD

Dwg No.
SITE
610

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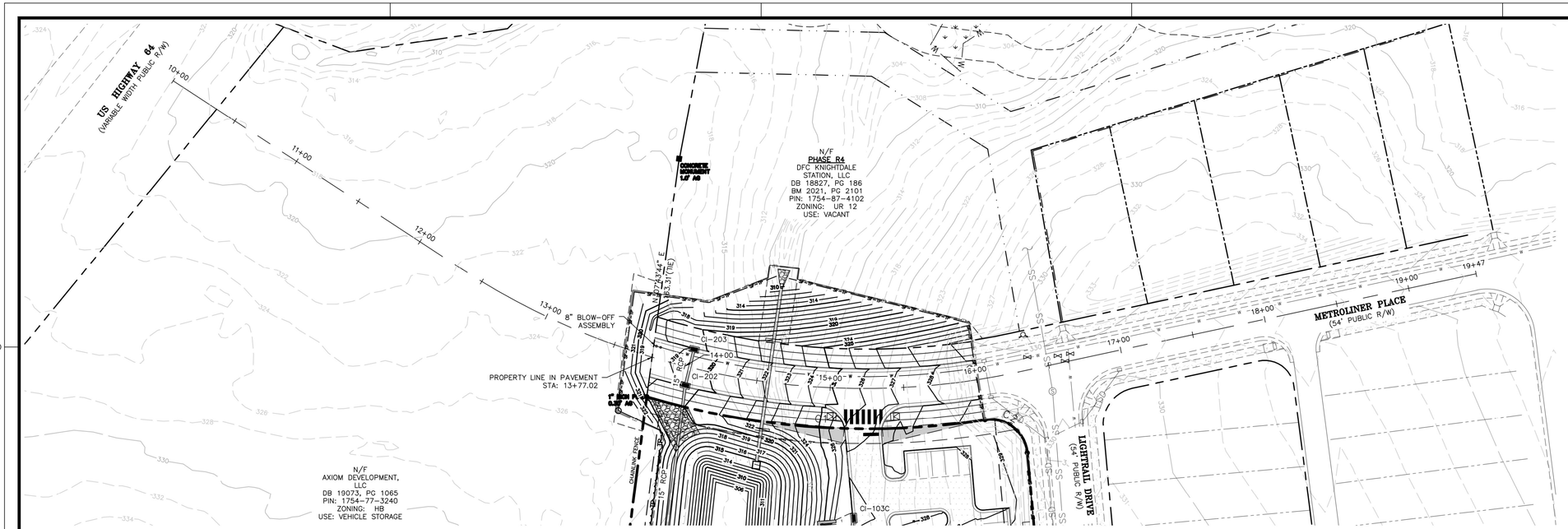

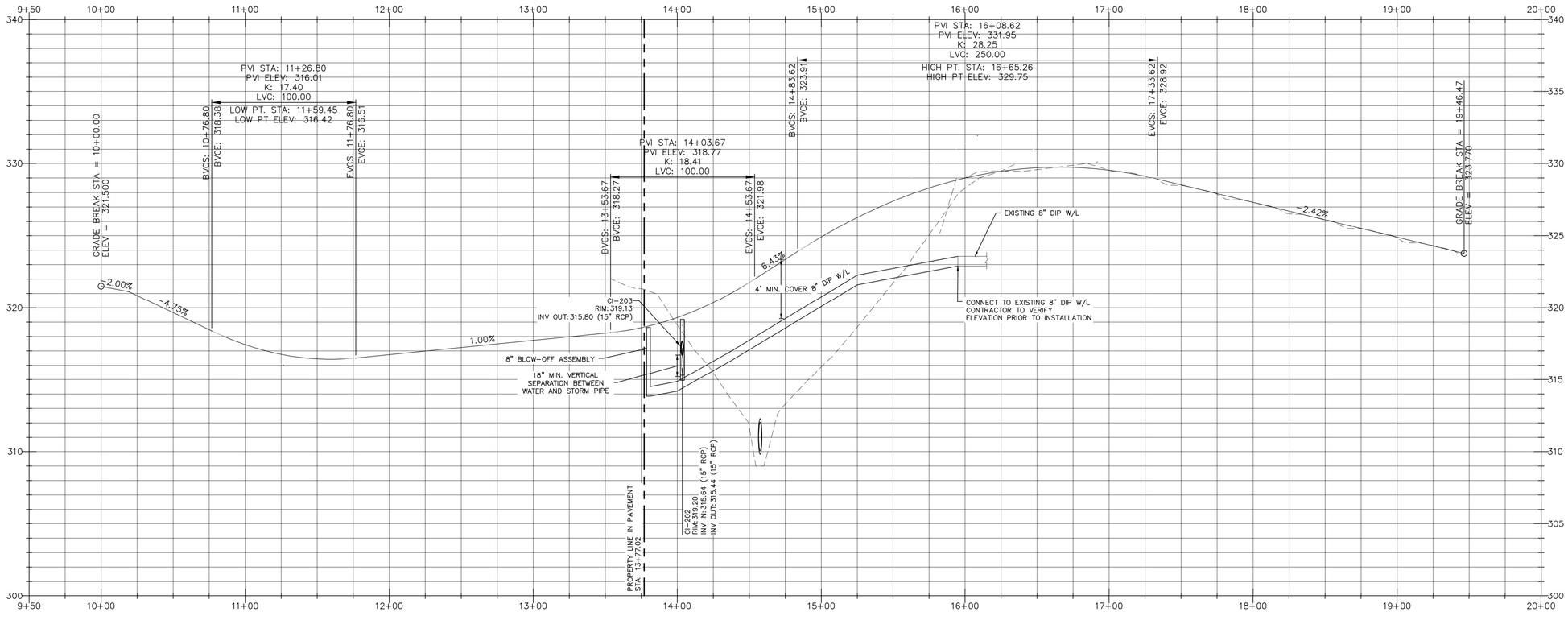

STORM DRAINAGE NOTES:

1. YARD INLET (YI) RIM ELEVATION LISTED IS TOP OF GRATE ELEVATION.
2. CURB INLET (CI) RIM ELEVATION LISTED IS TOP OF CURB.
3. RCP SHALL BE MINIMUM CLASS III.

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

City of Raleigh Public Utilities Department Permit # W-4132

Authorization to Construct Cydney S. Terry Digitally signed by Cydney S. Terry Date: 2024.09.20 17:55:04-04'00'

Date

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date:
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date:
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NITE
9/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By	MRK
Checked By	SRN

DATE:
12 APR 2024
REVISED:
1 14 JUN 2024
2 02 AUG 2024
3 20 SEP 2024

CONSTRUCTION DRAWINGS

METROLINER PLACE PLAN & PROFILE

Job Code ASKSCD

Dwg No.
SITE
611

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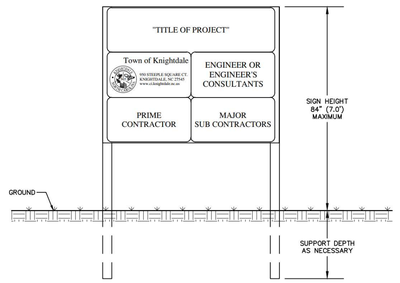
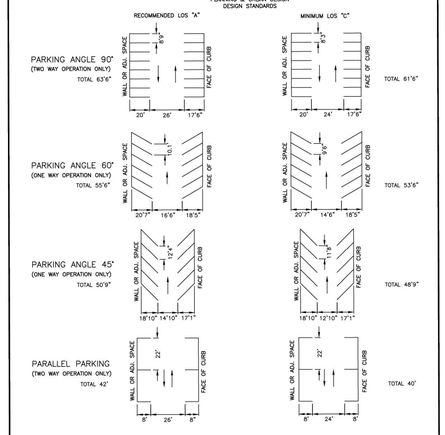


REVISIONS	
DATE	DESCRIPTION

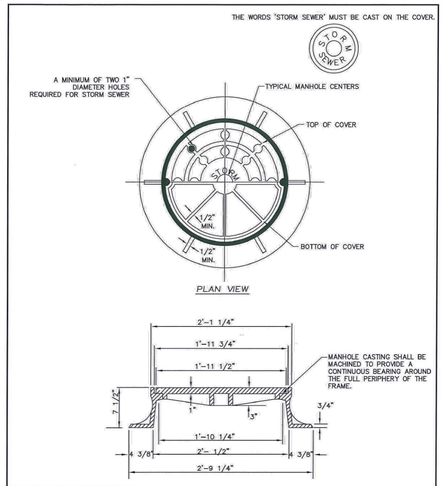
TOWN OF KNIGHTDALE STANDARD DETAILS	PROJECT IDENTIFICATION SIGN	STD. NO. 1.01



NOTE:
1. FOR ACCESSIBLE PARKING STANDARDS SEE TOWN UNIFIED DEVELOPMENT ORDINANCE.
2. PAVEMENT MARKINGS SHALL BE 4" WHITE PAINT TO TOWN STANDARDS.

REVISIONS	
DATE	DESCRIPTION

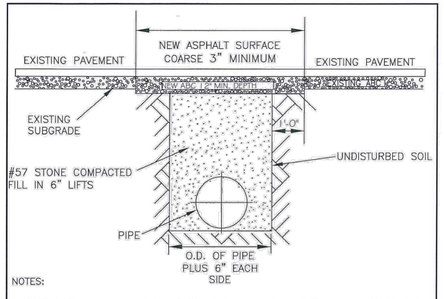
TOWN OF KNIGHTDALE STANDARD DETAILS	PARKING STANDARDS	STD. NO. 3.20



MINIMUM AVERAGE WEIGHT	
RING	190
COVER	120
TOTAL	310

REVISIONS	
DATE	DESCRIPTION

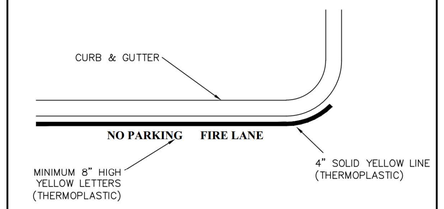
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD MANHOLE RING & COVER	STD. NO. 5.10



NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. NO HAND PATCHING ALLOWED.
8. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
9. MINIMUM PATCH WIDTH TO BE WIDTH OF THE ROADWAY.
10. ANY EXISTING PAVEMENT MARKINGS DISTURBED BY WORK SHALL BE REPLACED.

REVISIONS	
DATE	DESCRIPTION

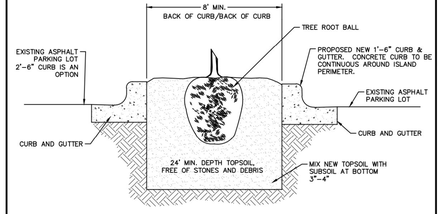
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD ASPHALT PAVEMENT PATCH DETAIL	STD. NO. 3.14



TYPICAL FIRE LANE PAVEMENT MARKING DETAIL

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	FIRE LANE PAVEMENT MARKING	STD. NO. 3.31

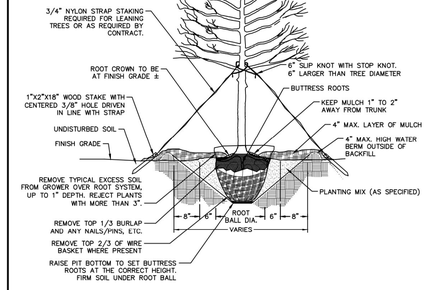


NOTES:
1. 300 SF MIN. TOTAL REQUIRED AREA PER TREE.
2. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB-BASE AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES.
3. REMOVE COMPACTED SOIL AND ADD 24" NEW OR TOPSOIL/PLANTING MIX OR UNCOMPACT AND AMEND TOP 24" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING MIX STANDARDS FOR TREES.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PLANTING ISLAND IN PARKING LOTS	STD. NO. 3.23

NOTES:
1. REMOVE WIRE OR NYLON TWINE FROM BALL.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.



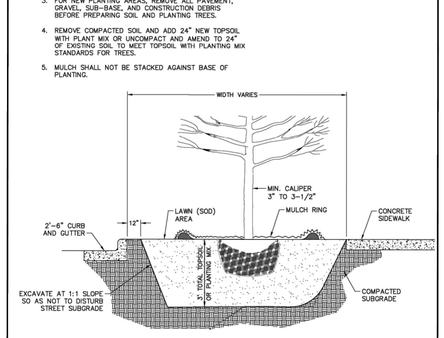
ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK
(AMSI, 1990, PART 1, "SHADE AND FLOWERING TREES")

FOR EXAMPLE: CALIPER	HEIGHT (RANGE)	MAX. HEIGHT	MIN. ROOT BALL DIA.	MIN. ROOT BALL DEPTH
2"	12–14'	16'	24"	16"
3"	14–16'	18'	32"	21"

REVISIONS	
DATE	DESCRIPTION

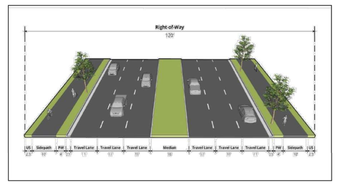
TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PLANTING (FOR SINGLE AND MULTI-STEM TREES)	STD. NO. 3.25

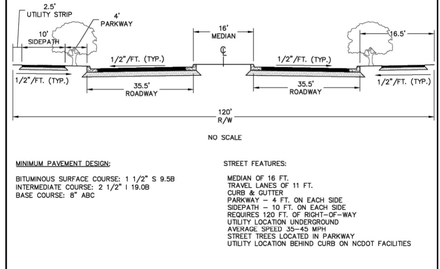
NOTES:
1. MEANT TO PROVIDE GUIDANCE ON STREET TREE PLANTING. REFERENCE SPECIFIC CROSS SECTION FOR PLANTING LOCATION AND WIDTH.
2. 6 FT. PLANTING WIDTH PREFERRED, WHERE POSSIBLE.
3. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL, SUB-BASE, AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES.
4. REMOVE COMPACTED SOIL AND ADD 24" NEW TOPSOIL WITH PLANT MIX OR UNCOMPACT AND AMEND TO 24" OF EXISTING SOIL TO MEET TOPSOIL WITH PLANTING MIX STANDARDS FOR TREES.
5. MULCH SHALL NOT BE STACKED AGAINST BASE OF PLANTING.



REVISIONS	
DATE	DESCRIPTION
07.01.2024	

TOWN OF KNIGHTDALE STANDARD DETAILS	STREET TREE PLANTING	STD. NO. 3.26





MINIMUM PAVEMENT DESIGN:

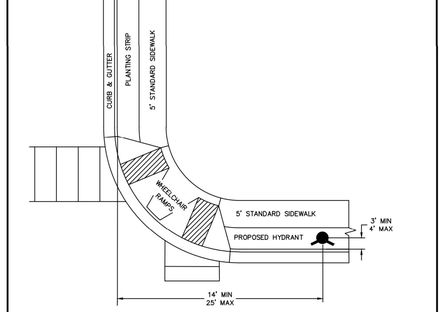
BITUMINOUS SURFACE COURSE: 1 1/2" S 9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

STREET FEATURES:

MEDIAN OF 16 FT.
TRAVEL LANES OF 11 FT.
CURB & GUTTER
PARKWAY – 4 FT. ON EACH SIDE
SIDEPATH – 10 FT. ON EACH SIDE
REQUIRES 120 FT. OF RIGHT-OF-WAY
UTILITY LOCATION UNDERGROUND
AVERAGE SPEED 35–43 MPH
STREET TREES LOCATED IN PARKWAY
UTILITY LOCATION BEHIND CURB ON NCDOT FACILITIES

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	KNIGHTDALE BOULEVARD - 6 LANE MEDIAN SIDEPATHS	STD. NO. 3.07-3



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD HYDRANT LOCATION	STD. NO. 6.03

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Samuel A. MacDonald
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Gideon Smith
Land Use Administrator

THE SITE GROUP, PLLC
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Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34881 ENGINEER SAMUEL R. NEWTON
4/20/2024

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 14 JUN 2024
4 02 AUG 2024
5 20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
700

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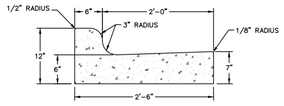
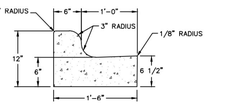
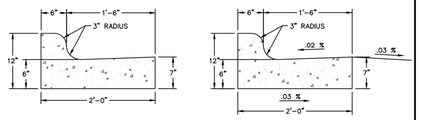


STANDARD 2'-6" CURB AND GUTTER



1'-6" STANDARD CURB AND GUTTER

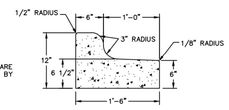


2'-0" STANDARD CURB & GUTTER

SLOPE FOR VARIABLE SUPER ELEVATION RATES

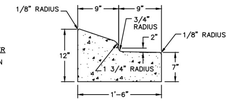
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	1 of 3 STD. NO. 4.01



1'-6" MEDIAN CURB AND GUTTER

TO BE USED IN MEDIANS WHEN LANES ARE SLOPED FROM ISLAND OR AS SPECIFIED BY THE TOWN ENGINEER.

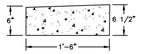


1'-6" MOUNTABLE CURB AND GUTTER

TO BE USED IN MEDIANS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.

1'-6" BINDER CURB

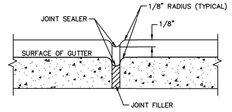
TO BE USED IN ALLEYS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.



1'-6" STANDARD CURB AND GUTTER

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	2 of 3 STD. NO. 4.01



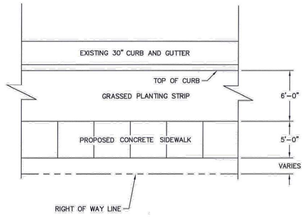
TRANSVERSE EXPANSION JOINT

NOTES:

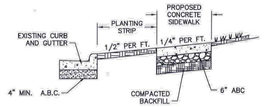
1. CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 90-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	3 of 3 STD. NO. 4.01



PLAN VIEW



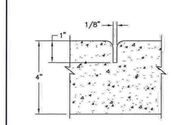
TYPICAL SECTION

NOTES:

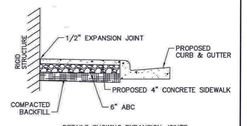
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET APART.
2. CONTROL JOINTS TO BE AT 5 FEET O.C.
3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.

REVISIONS	
DATE	DESCRIPTION

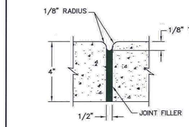
TOWN OF KNIGHTDALE STANDARD DETAILS	CONCRETE SIDEWALKS	1 of 2 STD. NO. 4.04-1



GROOVE JOINT IN SIDEWALK



DETAILS SHOWING EXPANSION JOINTS IN CONCRETE SIDEWALK



TRANSVERSE EXPANSION JOINT IN SIDEWALK

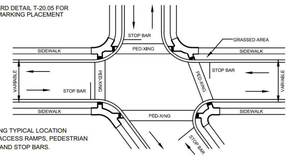
NOTES:

1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
3. WIDTH OF SIDEWALK SHALL CORRESPOND TO STREET CROSS SECTION BUT SHALL BE 5' AT A MINIMUM.
4. SIDEWALK ADJACENT TO CURB AND GUTTER IN PARKING LOT OR ALONG STREET SHALL BE 6' WIDE AT A MINIMUM.
5. SIDEWALK TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS.
6. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.

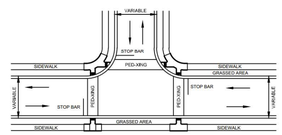
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CONCRETE SIDEWALKS	2 of 2 STD. NO. 4.04-2

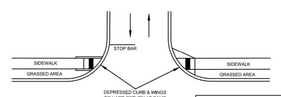
NOTE: SEE STANDARD DETAIL T-20.05 FOR PAVEMENT MARKING PLACEMENT



DETAIL SHOWING TYPICAL LOCATION OF SIDEWALK RAMPS, PEDESTRIAN CROSSWALKS AND STOP BARS.



DETAIL SHOWING TYPICAL LOCATION OF SIDEWALK ACCESS RAMPS PEDESTRIAN CROSSWALKS AND STOP BARS FOR TEE INTERSECTION.



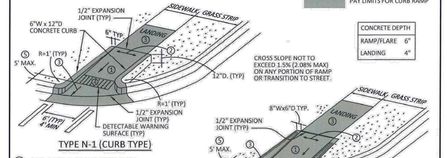
FOR RAMPS AT ASPHALT TO ASPHALT STREET TYPE DRIVEWAYS OR PRIVATE STREET TIE IN.

SHEET 1 OF 8

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE 8/2020	NOT TO SCALE
	CURB RAMPS	
	T-20.01.1	

PAY LIMITS FOR CURB RAMP



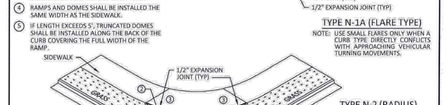
CONCRETE DEPTH	
RAMP/FLARE	6"
LANDING	4"

TYPE N-1 (CURB TYPE)

1. 7.5%; 8.33% (1:12) MAX RAMP SLOPE
2. 1.5%; 2.08% (1:48) MAX CROSS SLOPE
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
4. RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
5. IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

TYPE N-1A (FLARE TYPE)

NOTE: USE SMALL FLARES ONLY WHEN A CURB TYPE DIRECTLY CONFLICTS WITH APPROACHING VEHICULAR TURNING MOVEMENTS.



TYPE N-2 (RADIUS)

CONCRETE DEPTH	
RAMP/FLARE	6"
LANDING	4"

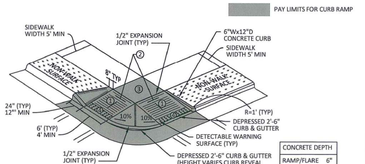


TYPE N-2 (TEE INTERSECTION)

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	1 of 8 STD. NO. 4.06-1

PAY LIMITS FOR CURB RAMP



TYPE N-3

NOTE: USE SMALL FLARES ONLY WHEN A CURB TYPE DIRECTLY CONFLICTS WITH APPROACHING VEHICULAR TURNING MOVEMENTS.

CONCRETE DEPTH	
RAMP/FLARE	6"
LANDING	4"

CROSS SLOPE NOT TO EXCEED 1.5% (2.08% MAX) ON ANY PORTION OF RAMP OR TRANSITION TO STREET.

1. 7.5%; 8.33% (1:12) MAX RAMP SLOPE
2. 1.5%; 2.08% (1:48) MAX CROSS SLOPE
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
4. RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
5. SIDEWALK WIDTH TO MATCH CORRESPONDING STREET SECTION.

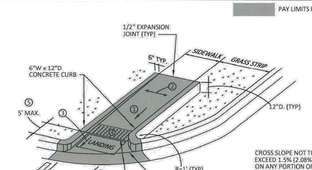


TYPE N-3A (COMMERCIAL/RETAIL USE)

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	2 of 8 STD. NO. 4.06-2

PAY LIMITS FOR CURB RAMP



TYPE N-4

CONCRETE DEPTH	
RAMP/FLARE	6"
LANDING	4"

1. 7.5%; 8.33% (1:12) MAX RAMP SLOPE
2. 1.5%; 2.08% (1:48) MAX CROSS SLOPE
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
4. RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
5. IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

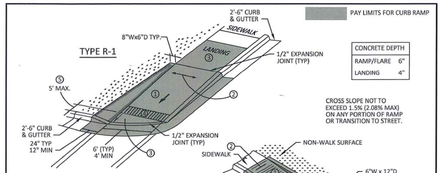


TYPE N-4A

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	3 of 8 STD. NO. 4.06-3

PAY LIMITS FOR CURB RAMP



CONCRETE DEPTH	
RAMP/FLARE	6"
LANDING	4"

1. 7.5%; 8.33% (1:12) MAX RAMP SLOPE
2. 1.5%; 2.08% (1:48) MAX CROSS SLOPE
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
4. RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
5. IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

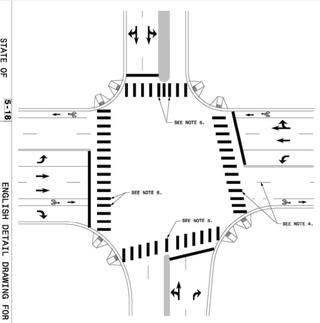
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	4 of 8 STD. NO. 4.06-4

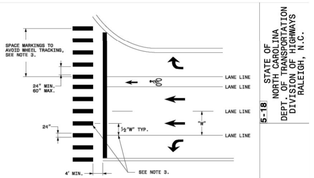
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

8-18

ENGLISH DETAIL DRAWING FOR **PAVEMENT MARKINGS** HI-VISIBILITY CROSSWALKS NO-TRACK MARKING GUIDANCE



CROSSWALK INTERSECTION DETAIL



CROSSWALK MARKING DETAIL

GENERAL NOTES:

1- THE GUIDANCE IN THIS DETAIL IS TO BE USED WHEN NO-TRACK SPACING OF HI-VISIBILITY MARKINGS IS REQUESTED.

2- USE THE GUIDANCE SHOWN ON THE ABOVE DETAILS IN CONJUNCTION WITH PAVEMENT MARKING GUIDANCE SHOWN ON ROADWAY STANDARD DRAWINGS 1205.01 AND 1205.07.

3- PLACE MARKINGS TO AVOID WHEELPATH OF VEHICLES. MARKINGS TYPICALLY WILL BE LOCATED CENTERED AT THE LANE LINES AND STOP LINES WITH ONE ADDITIONAL MARKING CENTERED IN THE MIDDLE OF THE LANE. AT WIDE LANES, SUCH AS THOSE WITHOUT PARKING, MARKINGS MAY BE PLACED TO AVOID WHEEL TRACKING. THE SPACE BETWEEN MARKINGS SHALL NOT BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES.

4- WHERE THE CROSSWALK IS SKEWED TO THE LANE LINES, THE MARKINGS SHOULD BE PARALLEL TO THE LANE LINES.

5- PLACE MARKINGS ON BOTH EDGES OF THE NOSE OF A MEDIAN. FOR NARROW MEDIANS LESS THAN 6 FEET WIDE, PLACE ONE MARKING CENTERED ON THE NOSE. PLACE ONE ADDITIONAL MARKING IN THE MEDIAN AREA. THE SPACE BETWEEN THE MARKINGS SHALL NOT TO BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES.

6- LOCATE MARKINGS CENTERED ON BICYCLE LANE LINES. MARKINGS SHALL NOT BE LOCATED IN THE CENTER OF THE BICYCLE PATH.

SHEET 1 OF 1

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

5-18

ENGLISH DETAIL DRAWING FOR **PAVEMENT MARKINGS** HI-VISIBILITY CROSSWALKS NO-TRACK MARKING GUIDANCE

SHEET 1 OF 1

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____

Land Use Administrator

THE SITE GROUP, PLLC.
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
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THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. NEWTON 4/20/2024

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 14 JUN 2024
4 02 AUG 2024
5 20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
701

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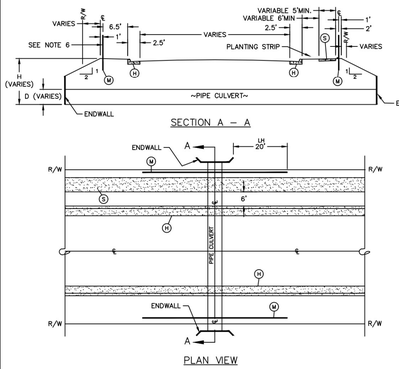


LH = DISTANCE FROM END OF WINGWALL TO END OF HANDRAIL.

(H) 2'-6" CURB AND GUTTER, STANDARD DETAIL 4.01
(M) HANDRAIL, STANDARD DETAIL 4.13
(S) 5'-0" SIDEWALK, MINIMUM STANDARD DETAIL 4.04

REVISIONS	
DATE	DESCRIPTION

1 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS	CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS	STD. NO. 5.01

NOTES:

1. UNLESS OTHERWISE DETERMINED BY THE TOWN ENGINEER, THE MEASURES ILLUSTRATED SHALL BE USED WHEN CULVERT DIAMETER, D, IS GREATER THAN OR EQUAL TO 24 INCHES AND WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE CULVERT INVERT AND THE TOP OF SLOPE, H, IS GREATER THAN OR EQUAL TO 3 FEET.
2. INSTALLATION OF 2'-6" CURB AND GUTTER MAY NOT BE REQUIRED WHEN AN ADEQUATE CLEAR ZONE IS PROVIDED FOR VEHICLES WITH A MAXIMUM OF 6:1 SLOPE (SEE TABLE 1).
3. INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 10-FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE SIDEWALK WITH A MAXIMUM OF 6:1 SLOPE. WHERE NO SIDEWALK IS REQUIRED, INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 15-FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
4. FOR CULVERT CROSSINGS WITHOUT ENDWALLS, LH SHALL BE MEASURED FROM THE OUTSIDE OF THE NEAREST WALL OF THE CULVERT BARREL.
5. WHEN NECESSARY, AS DETERMINED BY THE TOWN ENGINEER, ADDITIONAL MEASURES MAY BE REQUIRED.
6. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF SIDEWALK IS REQUIRED ON BOTH SIDES.
7. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF NO SIDEWALK IS REQUIRED EXCEPT WHEN A 15-FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
8. INSTALLATION OF HANDRAIL IS REQUIRED ON THE SIDEWALK SIDE OF STREET IF SIDEWALK IS ONLY REQUIRED ON ONE SIDE OF STREET.
9. DESIGN ADT IS CALCULATED ASSUMING A TRIP GENERATION OF 13 DAILY TRIPS PER SINGLE FAMILY DWELLING UNIT.

TABLE 1.
CLEAR ZONE DISTANCES
LOCAL, COLLECTOR, AND COMMERCIAL STREETS

DESIGN ADT	CLEAR ZONE FROM EDGE OF PAVEMENT	
	TANGENT SECTION	CURVE (WITHIN 125' OF CULVERT)
UNDER 750	10'	15'
750 – 1500	12'	18'
1501 – 6000	14'	21'
OVER 6000	16'	24'

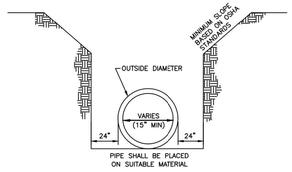
REVISIONS	
DATE	DESCRIPTION

2 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS	CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS	STD. NO. 5.01

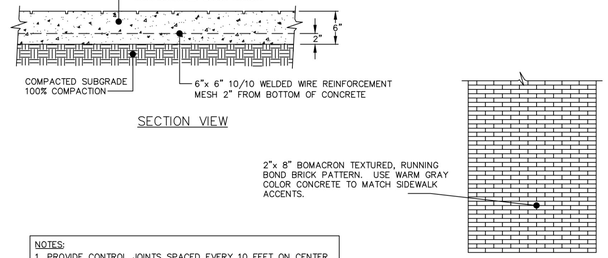
NOTES:

1. A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6". UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
2. ALL BACKFILL MATERIAL SHALL HAVE AN IN PLACE COMPACTED DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
3. THE FINAL 24" OF BACKFILL MATERIAL SHALL BE COMPACTED TO 100% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
4. ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
5. BACKFILL MATERIAL BENEATH ROADWAY SHALL BE SELECT BACKFILL MATERIAL.



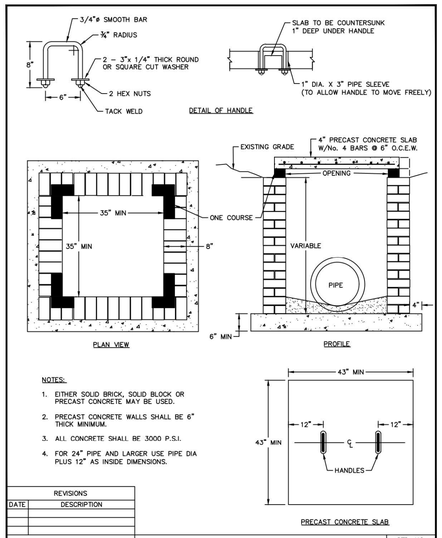
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TRENCH FOR STORM DRAIN PIPES	STD. NO. 5.02



NOTES:
1. PROVIDE CONTROL JOINTS SPACED EVERY 10 FEET ON CENTER.
2. PROVIDE EXPANSION JOINTS AT ALL RIGID OBJECTS.
3. NO STAMPED ASPHALT.

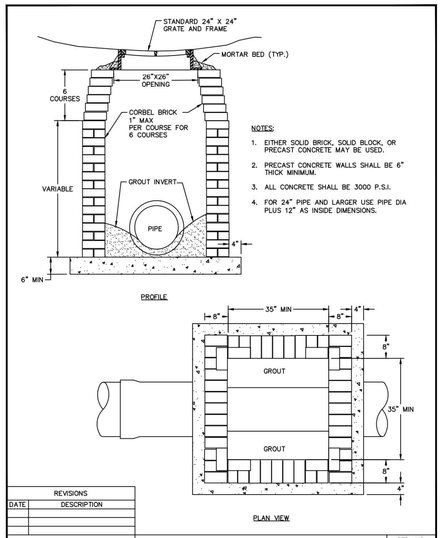
STANDARD STAMPED COLORED CONCRETE CROSSWALK



NOTES:
1. EITHER SOLID BRICK, SOLID BLOCK OR PRECAST CONCRETE MAY BE USED.
2. PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
3. ALL CONCRETE SHALL BE 3000 P.S.I.
4. FOR 24" PIPE AND LARGER USE PIPE DIA PLUS 12" AS INSIDE DIMENSIONS.

REVISIONS	
DATE	DESCRIPTION

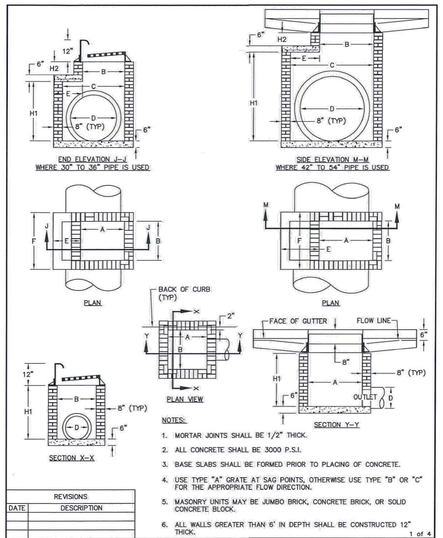
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD YARD INLET WITH CONCRETE SLAB	STD. NO. 5.03



NOTES:
1. EITHER SOLID BRICK, SOLID BLOCK, OR PRECAST CONCRETE MAY BE USED.
2. PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
3. ALL CONCRETE SHALL BE 3000 P.S.I.
4. FOR 24" PIPE AND LARGER USE PIPE DIA PLUS 12" AS INSIDE DIMENSIONS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD DROP INLET WITH GRATE AND FRAME	STD. NO. 5.04

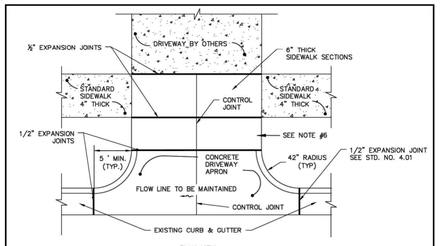


NOTES:
1. MORTAR JOINTS SHALL BE 1/2" THICK.
2. ALL CONCRETE SHALL BE 3000 P.S.I.
3. BASE SLABS SHALL BE FORMED PRIOR TO PLACING OF CONCRETE.
4. USE TYPE "A" GRATE AT SAG POINTS, OTHERWISE USE TYPE "B" OR "C" FOR THE APPROPRIATE FLOW DIRECTION.
5. MASONRY UNITS MAY BE JUMBO BRICK, CONCRETE BRICK, OR SOLID CONCRETE BLOCK.
6. ALL WALLS GREATER THAN 8' IN DEPTH SHALL BE CONSTRUCTED 12" THICK.

1 of 4

REVISIONS	
DATE	DESCRIPTION

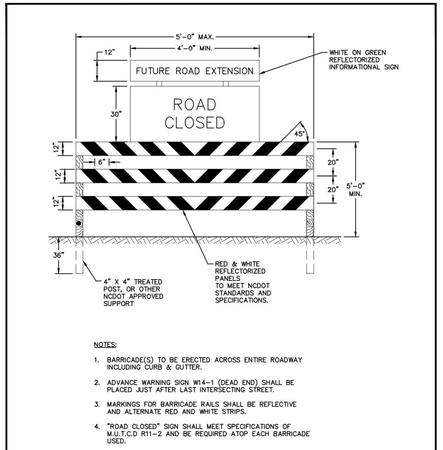
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET BRICK BOX	STD. NO. 5.05-1



NOTES:
1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 18' WIDE AT RIGHT-OF-WAY.
2. COMMERCIAL DRIVEWAYS TO BE A MAXIMUM OF 36' WIDE AT RIGHT-OF-WAY.
3. CONCRETE SHALL BE 3000 P.S.I.
4. CONTROL JOINTS NOT TO EXCEED 10' ON CENTER.
5. CURB RADIUS SHALL NOT RISE MORE THAN 1 (ONE) INCH.
6. IF THE DRIVEWAY SECTION BETWEEN THE SIDEWALK AND THE DRIVEWAY APRON IS 18" OR LESS THE SIDEWALK WILL BE WIDENED TO THE APRON AND AN EXPANSION JOINT ELIMINATED.
7. DRIVEWAY SHALL BE A MINIMUM OF 2 FEET FROM PROPERTY LINES.

REVISIONS	
DATE	DESCRIPTION

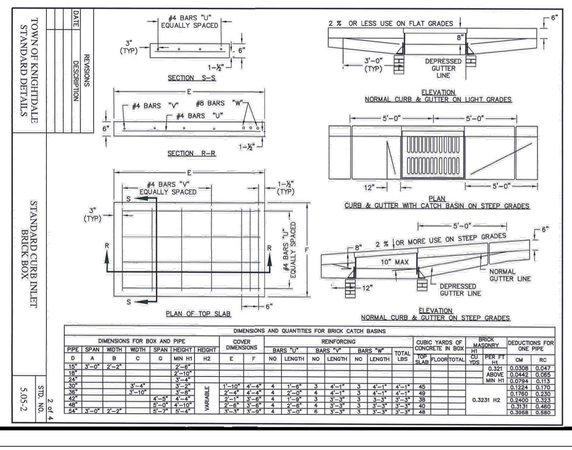
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD DRIVEWAY APRON	STD. NO. 4.03



NOTES:
1. BARRICADE(S) TO BE ERECTED ACROSS ENTIRE ROADWAY INCLUDING CURB & GUTTER.
2. ADVANCE WARNING SIGN W14-1 (DEAD END) SHALL BE PLACED JUST AFTER LAST INTERSECTING STREET.
3. MARKINGS FOR BARRICADE RAILS SHALL BE REFLECTIVE AND ALTERNATE RED AND WHITE STRIPS.
4. "ROAD CLOSED" SIGN SHALL MEET SPECIFICATIONS OF M.U.T.C.D R11-2 AND BE REQUIRED ATOP EACH BARRICADE USED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY BARRICADE FOR DEAD END ROADS	STD. NO. 3.18



DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASINS

DIMENSIONS FOR BOX AND PIPE							COVER DIMENSIONS		REINFORCING						CUBIC YARDS OF CONCRETE IN BOX			BRICK MASONRY	DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	HEIGHT	HEIGHT			BARS "U"		BARS "V"		BARS "W"		TOTAL LBS	TOP SLAB	FLOOR	TOTAL	IN PER FT USE	PER FT USE	CM	RC
D	A	B	C	G	MIN H1	H2	E	F	NO.	LENGTH	NO	LENGTH	NO	LENGTH								
18"	2'-0"	2'-0"			3'-6"														0.321	0.3308	0.0437
24"					3'-10"														ABOVE MIN H1	0.0442	0.065
30"					4'-4"															0.0784	0.113
36"			3'-6"		5'-0"		1'-10"	4'-4"	4	1'-8"	3	4'-1"	3	4'-1"	40					0.1224	0.170
42"			4'-0"		5'-6"		2'-4"	4'-10"	4	1'-8"	4	4'-7"	3	4'-1"	49					0.1760	0.230
48"			4'-6"		6'-0"		2'-10"	5'-4"	4	1'-8"	4	5'-1"	3	4'-7"	58				0.3231 H2	0.2400	0.303
54"			5'-0"		6'-6"	VARIABLE	3'-4"	5'-10"	4	1'-8"	5	5'-7"	3	5'-1"	68					0.3131	0.460
60"	5'-0"	5'-0"			7'-0"		3'-10"	6'-4"	4	1'-8"	6	6'-1"	3	5'-7"	78					0.3989	0.680

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET BRICK BOX	STD. NO. 5.05-2

2 of 4

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34381 MICHAEL R. NYE
8/19/2025

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E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 12 APR 2024
2 14 JUN 2024
3 02 AUG 2024
4 20 SEP 2024
5 19 AUG 2025

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
702

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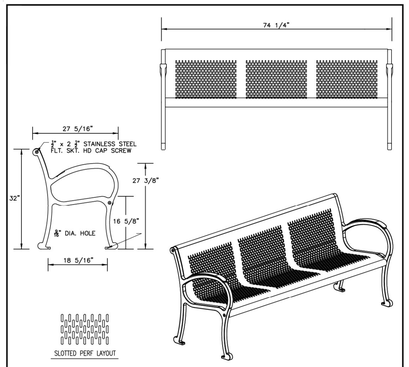
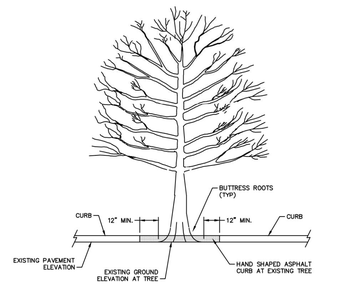


NOTES:

1. BENCH SHALL BE DUMOR 169 SERIES 6 FT. STEEL PERFORATED SEAT (BLACK), OR EQUIVALENT.
2. OTHER DESIGNS MAY BE ALLOWED PER TOWN OF KNIGHTDALE REVIEW AND APPROVAL.
3. BENCH TO BE INSTALLED BY CONTRACTORS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.
4. ALL STEEL MEMBERS COATED WITH ZINC RICH COATING THEN POLYESTER POWDER COATED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL BENCH	STD. NO. 4.14

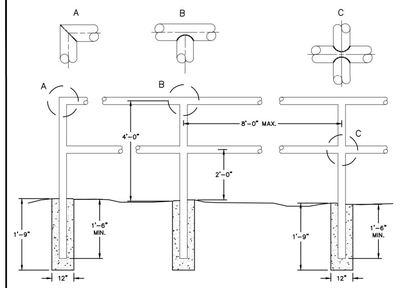


NOTES:

1. CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR EXISTING TREES.
2. WHERE EXISTING TREES ARE WITHIN 4' OF THE PROPOSED BACK OF CURB, THE PROPOSED CURB SHALL END A MINIMUM OF 12" FROM THE TREE'S BUTTRESS ROOTS.
3. CONTRACTOR SHALL COORDINATE WITH THE TOWN TO IDENTIFY TREES FOR WHICH THIS DETAIL APPLIES PRIOR TO CONSTRUCTION NEAR THE TREE(S).
4. NO TREES SHALL BE REMOVED UNLESS CLEARLY SPECIFIED ON THE PLANS OR IDENTIFIED BY THE ENGINEER.
5. AVOID FILL PLACEMENT NEAR TREE.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ASPHALT CURB PLACEMENT AT EXISTING TREES	STD. NO. 4.08



NOTES:

1. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
2. TYPE OF PIPE TO BE USED IS 1-5/8" MAX. O.D. BLACK IRON, LOW CARBON PIPE.
3. ALL JOINTS TO HAVE A 1/2" FILLET WELD.
4. AFTER INSTALLATION, PAINT ASSEMBLY WITH BLACK ALL WEATHER ENAMEL.
5. TO BE USED AS REQUIRED BY THE TOWN ENGINEER.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL HANDRAIL	STD. NO. 4.13

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SPORTWORKS
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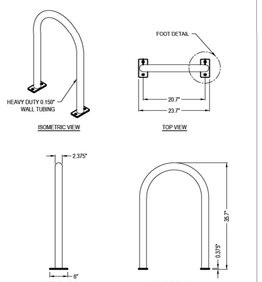
PHONE: (425) 483-7000
FAX: (425) 488-9007
www.sportworks.com

- SELECT DESIRED MOUNT:
  - SURFACE (SHOWN)
  - EMBEDDED
  - RAIL
- SELECT DESIRED FASTENER:
  - CONCRETE WEDGE ANCHOR
  - ASPHALT ANCHOR
- SELECT DESIRED MATERIAL:
  - MILD STEEL
  - STAINLESS STEEL
- SELECT DESIRED FINISHES:
  - TGIC POWDER COAT
  - PPA-5/1 THERMOPLASTIC POWDER COAT
  - GALVANIZED
  - BEAD BLAST



SPECIFICATIONS
WEIGHT: ~27.4 LB
MANUFACTURER NOTES:
1. PLEASE CONTACT MANUFACTURER FOR ALL STANDARD AND CUSTOM COLOR OPTIONS

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/mb AND ENTER REFERENCE NUMBER 4819-004

STANDARD BIKE RACKS
HEAVY DUTY INVERTED-U RACK, SURFACE MOUNT

4819-004 REVISION DATE: 11/01/2024

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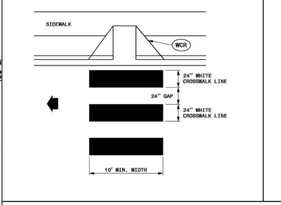
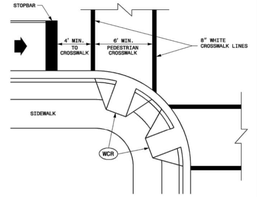
HI-VISIBILITY CROSSWALK



STANDARD CROSSWALK

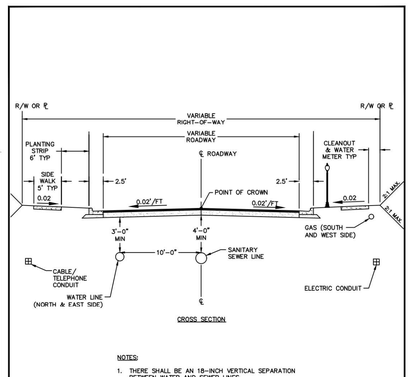


GENERAL NOTES

1- THE MINIMUM WIDTH OF STANDARD CROSSWALKS IS 6 FEET. THE MINIMUM WIDTH OF HI-VISIBILITY CROSSWALKS IS 10 FEET.
2- CENTER CROSSWALKS TO THEIR CORRESPONDING WHEELCHAIR RAMPS, BUT DO NOT SET THEM WITHIN THE INTERSECTION AREA ESTABLISHED BY BISECTING THE INTERSECTION RADII.
3- PLACE STOP BARS A MINIMUM OF 4 FEET FROM NEAREST CROSSWALK LINE, BUT NOT MORE THAN 30 FEET. STOP BARS SHALL BE PLACED PARALLEL TO TRAVEL LANES. CROSSWALK LINES, BUT CAN BE PLACED PERPENDICULAR TO TRAVEL LANES.
4- COORDINATE PLACEMENT OF CROSSWALKS IN ALL CASES WITH THE LOCATION OF WHEELCHAIR RAMPS. (SEE SIGNAL PLANS).

LEGEND
DIRECTION OF TRAFFIC FLOW
WCR WHEELCHAIR RAMP

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
Z-20B
ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS
SHEET 1 OF 1
1205.07



CROSS SECTION

NOTES:

1. THERE SHALL BE AN 18-INCH VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES.
2. WATER AND/OR SANITARY SEWER LINES SHALL BE A MINIMUM OF TWO (2) FEET FROM THE EDGE OF THE CURB AND GUTTER.
3. ENCROACHMENT ONTO TOWN MAINTAINED RIGHT OF WAY SHALL FOLLOW CONDITIONS OF THE APPLICABLE ENCROACHMENT AGREEMENT OR FRANCHISE AGREEMENT.
4. STREET LAMPS SHALL BE PLACED SUCH THAT THERE ARE NO CONFLICTS WITH STREET TREES.

REVISIONS	
DATE	DESCRIPTION

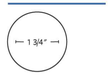
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD UTILITY LOCATION IN STREET	STD. NO. 3.13

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS
SHEET 1 OF 1
1205.07

AUGUSTA
PRESTIGE COLLECTION



POLE DIAMETER



Recommended for freestanding use

HUB DETAIL



POLE FINISHES



CANOPY COLOR

4642
Oyster

(OTHER COLOR OPTIONS AVAILABLE)

SIZE/ SHAPE	MODEL #	FINISH COLOR*	POLE	FIBERGLASS RIBS	LIFT	HEIGHT	WEIGHT
9' Oct	9APU	TF – Teak, CH – Chestnut, AG – Aged Teak	One piece, 1 1/4" diam aluminum core, FiberTeak™ Simulated Wood Finish	3/4" diam	Push Up & Pin	96"	36 lbs
11' Oct	11APP			3/4" diam	Pulley & Pin	102"	40 lbs
6' Sq	6SQAPU			3/4" diam	Push Up & Pin	96"	32 lbs
7 1/2' Sq	7SQAPP			3/4" diam	Pulley & Pin	102"	34 lbs
10' Sq	10SQAPP			3/4" diam	Pulley & Pin	108"	58 lbs

*Designate finish color by adding color letter abbreviation to the model number.

maxR

Picnic Tables
SITE FURNISHINGS

Picnic Tables Specifications



Standard Picnic Table

COLLECTION	DIMENSIONS
6 Foot	72" W × 60" D × 31" H
8 Foot	96" W × 60" D × 31" H
8 Foot ADA*	96" W × 60" D × 28" H

*ADA width is 40"

Deluxe Picnic Table

COLLECTION	DIMENSIONS
6 Foot	72" W × 61" D × 31" H
8 Foot	96" W × 61" D × 31" H
8 Foot ADA*	96" W × 61" D × 28" H

*ADA width is 40"

Hexagon Picnic Table

COLLECTION	DIMENSIONS
80 Inch	80" DIA × 31" H
80 Inch ADA*	85" DIA × 31" H

*ADA width is 30"

Available Top Colors



Available Trim Colors



max-r DESIGN FLEXIBILITY

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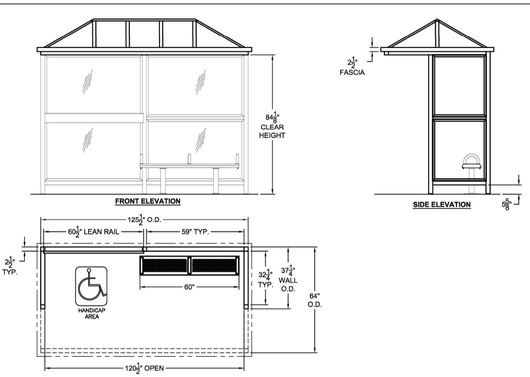

SHELTER SHOWN FOR REFERENCE ONLY. SHELTER TO BE PROVIDED AND INSTALLED BY OTHERS. CONCRETE PAD FOR SHELTER TO BE INSTALLED WITH THIS PROJECT.

QUANTITY (20) SHELTERS THUS

SPECIFICATIONS:
-POWDER COATED ALUMINUM STRUCTURE (RAL 9017 TRAFFIC BLACK)
-3/8" CLEAR TEMPERED SAFETY GLASS
-BRONZE ACRYLIC GLAZED ROOF WITH FASCIA/GUTTER SYSTEM
-5" STEEL PERFORATED PEDESTAL BENCH
-5" ALUMINUM LEAN RAIL

BRASCO INTERNATIONAL, INC.
32400 INDUSTRIAL DRIVE
MADISON HEIGHTS, MICHIGAN 48071
1-800-893-3665 WWW.BRASCO.COM

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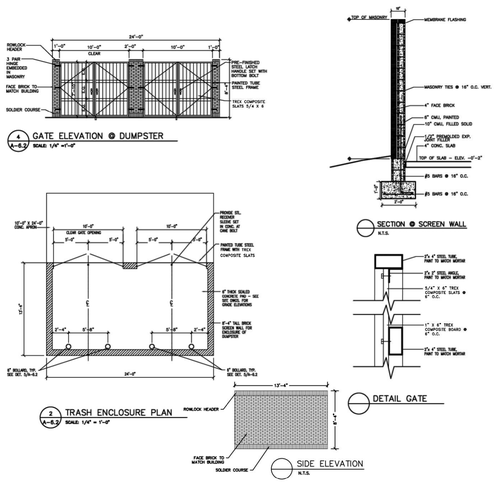
LEAD TIME BEGINS UPON RECEIPT OF SIGNED APPROVAL.

SIGNED:_____ DATE:_____

CUSTOMER:	BRASCO INTERNATIONAL	ENGINEER:	ZTL
		DATE:	3-9-17
PROJECT:	GLAZED HIP STYLE TRANSIT SHELTER	CHECKER:	SJT
		DATE:	3-23-17
MODEL:	SLIMLINE SERIES - SL510-C	JOB #: 4910A	SHEET #: 4910A-1



a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. MYERS
9/19/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 09 MAY 2024
4 14 JUN 2024
5 20 SEP 2024
6 19 AUG 2025

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE 703

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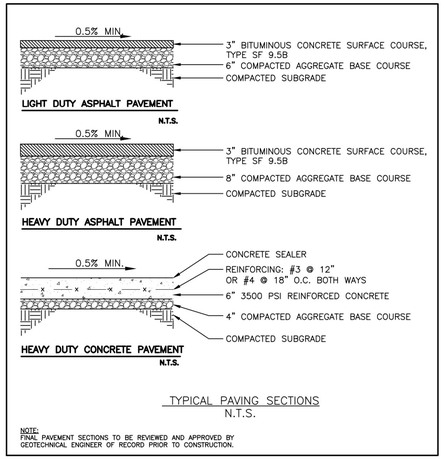
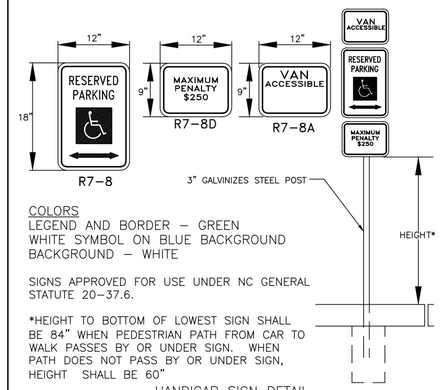


TYPICAL PAVING SECTIONS
N.T.S.

NOTE:
FINAL PAVEMENT SECTIONS TO BE REVIEWED AND APPROVED BY GEOTECHNICAL ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

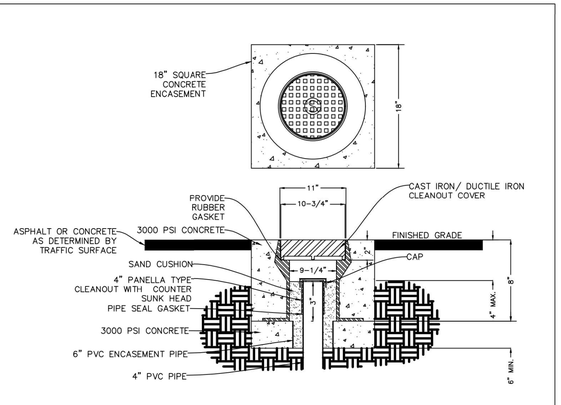


COLORS
LEGEND AND BORDER – GREEN
WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND – WHITE

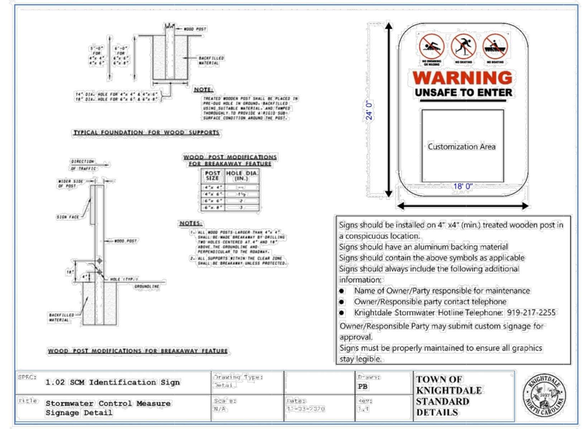
SIGNS APPROVED FOR USE UNDER NC GENERAL STATUTE 20–37.6.

*HEIGHT TO BOTTOM OF LOWEST SIGN SHALL BE 84" WHEN PEDESTRIAN PATH FROM CAR TO WALK PASSES BY OR UNDER SIGN. WHEN PATH DOES NOT PASS BY OR UNDER SIGN, HEIGHT SHALL BE 60"

HANDICAP SIGN DETAIL
N.T.S.



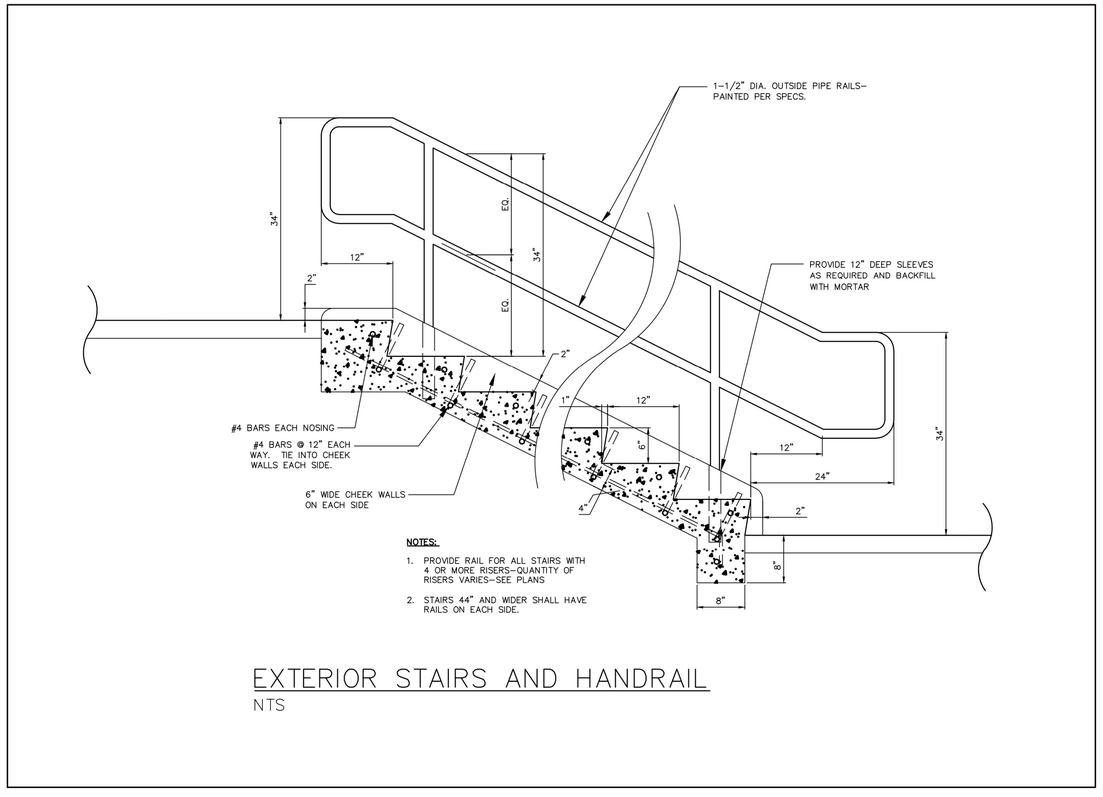
CLEANOUT COVER FOR VEHICLE TRAFFIC AREAS



Signs should be installed on 4" x4" (min.) treated wooden post in a conspicuous location.
Signs should have an aluminum backing material
Signs should contain the above symbols as applicable
Signs should always include the following additional information:
- Name of Owner/Party responsible for maintenance
- Owner/Responsible party contact telephone
- Knightdale Stormwater Hotline Telephone: 919-217-2255

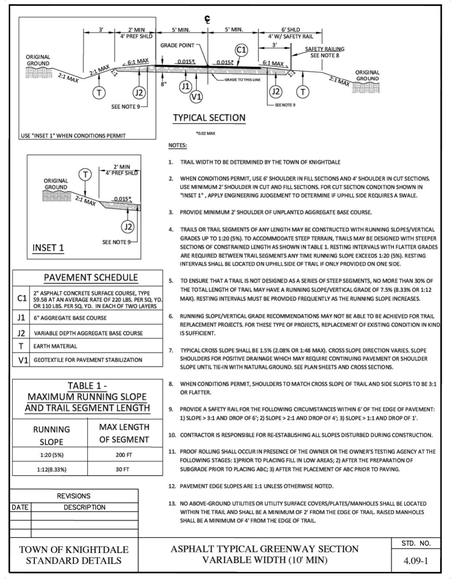
Owner/Responsible Party may submit custom signage for approval.
Signs must be properly maintained to ensure all graphics stay legible.

SPEC: 1.02 SCM Identification Sign	Drawing Type: Detail		Drawn: PB	TOWN OF KNIGHTDALE STANDARD DETAILS
Title: Stormwater Control Measure Signage Detail	Scale: N/A	Date: 11-30-2020	Sht: 1 of 1	



NOTES:
1. PROVIDE RAIL FOR ALL STAIRS WITH 4 OR MORE RISERS–QUANTITY OF RISERS VARIES–SEE PLANS
2. STAIRS 44" AND WIDER SHALL HAVE RAILS ON EACH SIDE.

EXTERIOR STAIRS AND HANDRAIL
NTS



PAVEMENT SCHEDULE	
C1	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD. OR 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
J1	6" AGGREGATE BASE COURSE
J2	VARIABLE DEPTH AGGREGATE BASE COURSE
T	EARTH MATERIAL
V1	GEOTEXTILE FOR PAVEMENT STABILIZATION

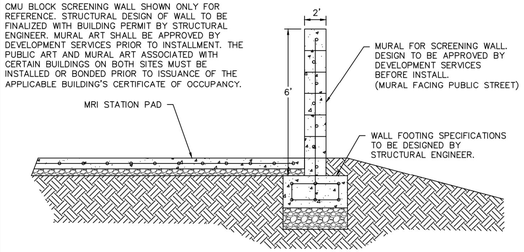
TABLE 1 - MAXIMUM RUNNING SLOPE AND TRAIL SEGMENT LENGTH	
RUNNING SLOPE	MAX LENGTH OF SEGMENT
1:20 (5%)	200 FT
1:12(8.33%)	30 FT

NOTES:
1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. WHEN CONDITIONS PERMIT, USE 6' SHOULDER IN FILL SECTIONS AND 4' SHOULDER IN CUT SECTIONS. USE MINIMUM 2' SHOULDER IN CUT AND FILL SECTIONS. FOR CUT SECTION CONDITION SHOWN IN "INSET 1", APPLY ENGINEERING JUDGEMENT TO DETERMINE IF UPHILL SIDE REQUIRES A SWALE.
3. PROVIDE MINIMUM 2' SHOULDER OF UNPLANTED AGGREGATE BASE COURSE.
4. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER GRADES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANY TIME RUNNING SLOPE EXCEEDS 1:20 (5%). RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.
5. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE OF 7.5% (8.33% OR 1:12 MAX). RESTING INTERVALS MUST BE PROVIDED FREQUENTLY AS THE RUNNING SLOPE INCREASES.
6. RUNNING SLOPE/VERTICAL GRADE RECOMMENDATIONS MAY NOT BE ABLE TO BE ACHIEVED FOR TRAIL REPLACEMENT PROJECTS. FOR THESE TYPE OF PROJECTS, REPLACEMENT OF EXISTING CONDITION IN KIND IS SUFFICIENT.
7. TYPICAL CROSS SLOPE SHALL BE 1.5% (2.08% OR 1:48 MAX). CROSS SLOPE DIRECTION VARIES. SLOPE SHOULDERS FOR POSITIVE DRAINAGE WHICH MAY REQUIRE CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.
8. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SIDE SLOPES TO BE 3:1 OR FLATTER.
9. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6' OF THE EDGE OF PAVEMENT: 1) SLOPE > 3:1 AND DROP OF 6'; 2) SLOPE > 2:1 AND DROP OF 4'; 3) SLOPE > 1:1 AND DROP OF 1'.
10. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.
11. PROOF ROLLING SHALL OCCUR IN PRESENCE OF THE OWNER OR THE OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: 1)PRIOR TO PLACING FILL IN LOW AREAS; 2) AFTER THE PREPARATION OF SUBGRADE PRIOR TO PLACING ABC; 3) AFTER THE PLACEMENT OF ABC PRIOR TO PAVING.
12. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
13. NO ABOVE-GROUND UTILITIES ON UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2' FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4' FROM THE EDGE OF TRAIL.

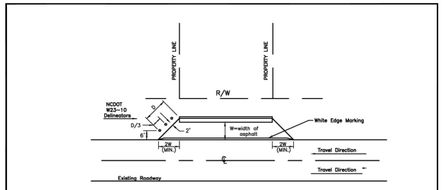
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ASPHALT TYPICAL GREENWAY SECTION VARIABLE WIDTH (10' MIN)	STD. NO. 4.09-1

CMU BLOCK SCREENING WALL SHOWN ONLY FOR REFERENCE. STRUCTURAL DESIGN OF WALL TO BE FINALIZED WITH BUILDING PERMIT BY STRUCTURAL ENGINEER. MURAL ART SHALL BE APPROVED BY DEVELOPMENT SERVICES PRIOR TO INSTALLMENT. THE PUBLIC ART AND MURAL ART ASSOCIATED WITH CERTAIN BUILDINGS ON BOTH SITES MUST BE INSTALLED OR BONDED PRIOR TO ISSUANCE OF THE APPLICABLE BUILDING'S CERTIFICATE OF OCCUPANCY.

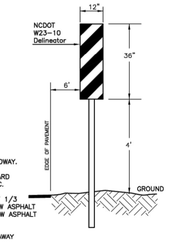


CMU BLOCK SCREEN WALL
N.T.S.



PLAN VIEW

NOTES:
1. TAPER ON BOTH ENDS OF ROADWAY WIDENING SHALL BE A MINIMUM 2:1. THE TOWN ENGINEER AND/OR NCDOT RESERVE THE RIGHT TO REQUIRE A LONGER TAPER IF DEEMED NECESSARY FOR THE SAFETY OF THE PUBLIC.
2. A SOLID WHITE EDGE MARKING SHALL BE EXTENDED ALONG WIDENING AT EXISTING PAVEMENT.
3. DELINEATORS SHALL ONLY BE REQUIRED AT TAPER FROM CURB TO EXISTING PAVEMENT IN DIRECTION OF TRAVEL.
4. DELINEATORS SHALL BE ORIENTED SUCH THAT THE FACE OF THE SIGN IS PERPENDICULAR TO TRAVEL LANE.

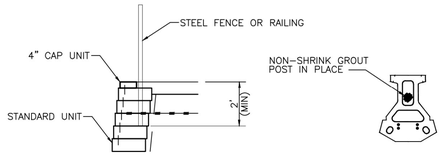


A. BOTTOM EDGE OF DELINEATOR 4' ABOVE ROADWAY.
B. THE DELINEATOR STRIPES SHALL SLOPE UPWARD SLOPE UPWARD AND OUTWARD FROM TRAFFIC.
C. DELINEATORS TO BE SPACED ON CENTERS AT 1/3 OF THE DISTANCE D SHOWN BELOW FOR NEW ASPHALT WIDTHS ≤ 15 FT. OR AT 1/4 OF D FOR NEW ASPHALT WIDTHS > 15 FT.
D. DELINEATORS SHALL BE MOUNTED ON BREAKAWAY POSTS.
E. DELINEATORS SHALL BE REFLECTORIZED.

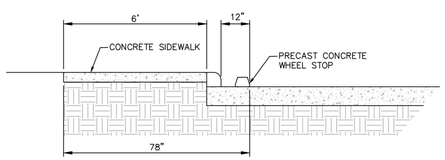
DETAIL

REVISIONS	
DATE	DESCRIPTION

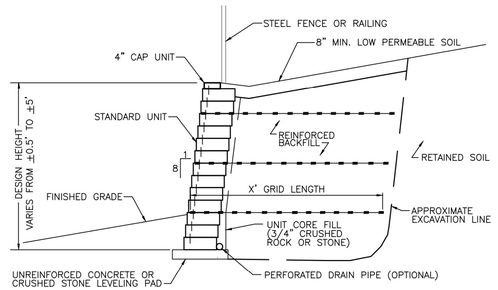
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD PAVEMENT WIDENING TAPER AND MARKINGS	STD. NO. 3.19



FENCE SECTION & PLAN DETAIL
STANDARD UNIT – 1" MINIMUM SETBACK



WHEEL STOP DETAIL
N.T.S.



MODULAR BLOCK WALLS GREATER THAN 3' IN HEIGHT SHALL BE DESIGNED BY A STRUCTURAL ENGINEER AND REQUIRE A SEPARATE BUILDING PERMIT. THIS DRAWING IS FOR REFERENCE ONLY.

MODULAR BLOCK WALL SHALL BE INTEGRALLY TINTED MEDIUM TO DARK BROWN OR RUST COLORED.

TYPICAL REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. MYERS
2/19/2025

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4287
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By: MRK
Checked By: SRN

DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 14 JUN 2024
4 02 AUG 2024
5 20 SEP 2024
6 19 AUG 2025

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code: ASKSCD

Dwg No.
SITE 704

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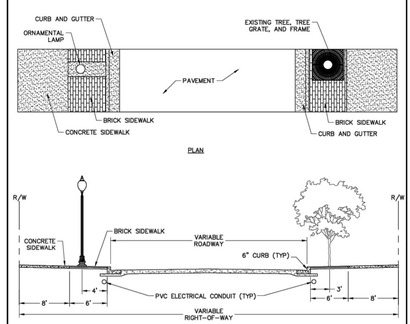
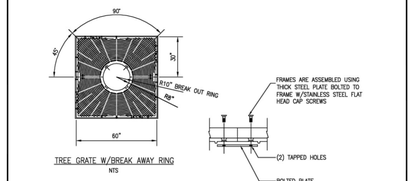


NOTES:

1. TO BE USED ON URBAN MAIN STREET AND URBAN AVENUE CROSS SECTIONS.
2. FOR ILLUSTRATIVE PURPOSES. FOLLOW DESIGN DETAIL FOR SPECIFIC CROSS SECTION.
3. STAMPED CONCRETE MAY BE USED IN LIEU OF BRICK PAVERS.
4. STREET LAMPS SHALL BE SPACED SUCH THAT THERE ARE NO CONFLICTS WITH STREET TREES.
5. STREETSCAPE ELEMENTS SHOULD INCLUDE BENCHES, TRASH CANS, AND BIKE RACKS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	URBAN STREETSCAPE DESIGN FEATURES	STD. NO. 3.11



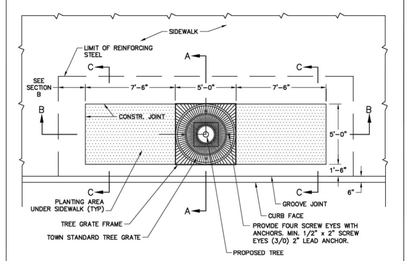
NOTE: MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B FINISH: NOT PAINTED

NOTES:

1. TREE GRATES ARE REQUIRED AT VARIOUS LOCATIONS IN TOWN TO COMPLY WITH ZONING REQUIREMENTS. ALL OTHER INSTALLATIONS OF TREE GRATES WITHIN THE R/W OF STATE MAINTAINED STREETS REQUIRE AN ENCROACHMENT AGREEMENT EXECUTED THROUGH NCDOT.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. MATERIAL SHALL BE CAST GRAY IRON ASTM A-48, CLASS 35B WITH A NON PAINTED FINISH.
4. AN INSPECTION SCHEDULE IS NEEDED FOR TREES THAT WILL BE PLANTED IN THE STREET R/W DUE TO ZONING OR OTHER REQUIREMENTS. LANDSCAPE INSPECTION INCLUDES THE FOLLOWING:
   - TREE PIT/WELL OR PLANTING STRIP INSPECTION
   - SOIL MIX APPROVALS/INSPECTIONS
   - TREE APPROVALS/INSPECTIONS – PRIOR TO PURCHASING THE TREES, TO BE MADE BY TOWN
   - TREE PLANTING INSPECTION
   - FINAL WALK THROUGH
5. ALL OF THE ABOVE INSPECTIONS WILL BE PERFORMED BY THE TOWN

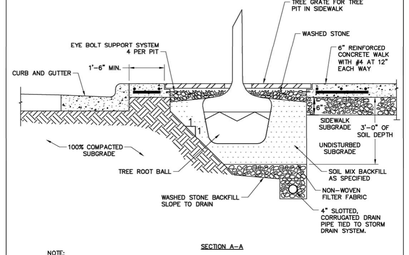
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE GRATE DETAIL	STD. NO. 3.22



REVISIONS	
DATE	DESCRIPTION

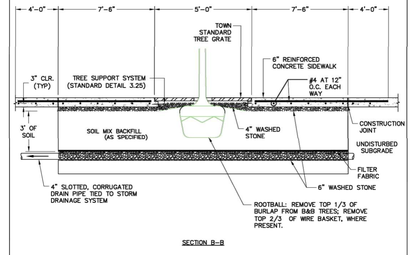
TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PIT WITH GRATE IN SIDEWALK	1 of 4 STD. NO. 3.24



NOTE:
SIDEWALK SUBBASE SHALL BE A 70 PERCENT AGGRATE TO 30 PERCENT SANDY SOIL MIXTURE PER TOWN STANDARD SPECIFICATIONS.

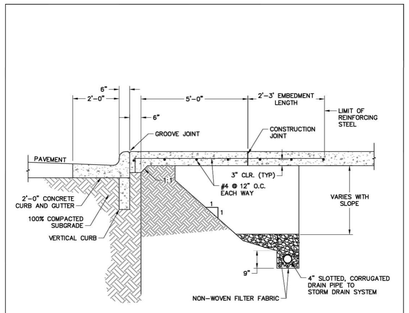
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PIT WITH GRATE IN SIDEWALK	2 of 4 STD. NO. 3.24



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PIT WITH GRATE IN SIDEWALK	3 of 4 STD. NO. 3.24



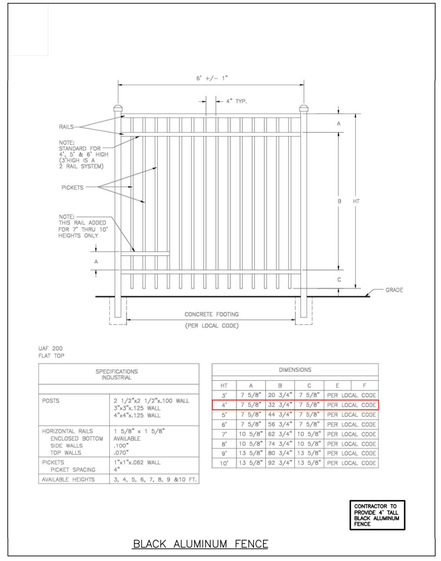
NOTES:

1. EXPANSION JOINTS ARE PERMITTED AT 40' MIN. SPACING AND NOT LESS THAN 12'-6" FROM CENTER OF TREE GRATE.
2. SEE STANDARD DETAIL 4.04 (2 OF 2) FOR GROOVE JOINT.
3. CONCRETE SHALL BE 3600 PSI IN 28 DAYS.
4. ALL REINFORCING STEEL SHALL BE GRADE 60.
5. USE REINFORCED STEEL BAR SUPPORTS IN COMPLIANCE WITH NCDOT STANDARD SPECIFICATION 970-4.

SECTION C-C

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PIT WITH GRATE IN SIDEWALK	4 of 4 STD. NO. 3.24



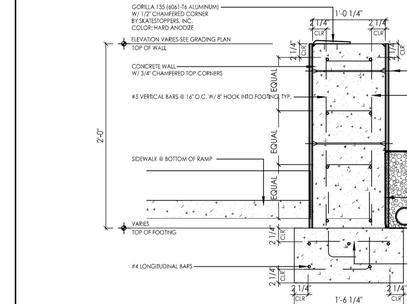
UAF 200
FLAT TOP

SPECIFICATIONS INDUSTRIAL	
POSTS	2 1/2"x2 1/2"x.100 WALL 3"x3"x.125 WALL 4"x4"x.125 WALL
HORIZONTAL RAILS ENCLOSED BOTTOM SIDE WALLS TOP WALLS	1 5/8" x 1 5/8" AVAILABLE .100" .070"
PICKETS PICKET SPACING	1"x1"x.062 WALL 4"
AVAILABLE HEIGHTS	3, 4, 5, 6, 7, 8, 9 &10 FT.

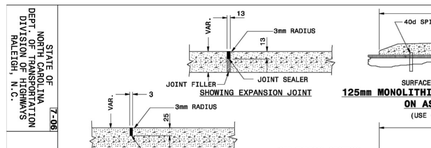
DIMENSIONS					
HT	A	B	C	E	F
3'	7 5/8"	20 3/4"	7 5/8"	PER LOCAL CODE	
4'	7 5/8"	32 3/4"	7 5/8"	PER LOCAL CODE	
5'	7 5/8"	44 3/4"	7 5/8"	PER LOCAL CODE	
6'	7 5/8"	56 3/4"	7 5/8"	PER LOCAL CODE	
7'	10 5/8"	62 3/4"	10 5/8"	PER LOCAL CODE	
8'	10 5/8"	74 3/4"	10 5/8"	PER LOCAL CODE	
9'	13 5/8"	80 3/4"	13 5/8"	PER LOCAL CODE	
10'	13 5/8"	92 3/4"	13 5/8"	PER LOCAL CODE	

CONTRACTOR TO PROVIDE 4' TALL BLACK ALUMINUM FENCE

BLACK ALUMINUM FENCE



LANDSCAPE SEAT WALL DETAIL
NTS



PARTIAL LONGITUDINAL SECTIONS OF PAVED ISLANDS

NOTES:

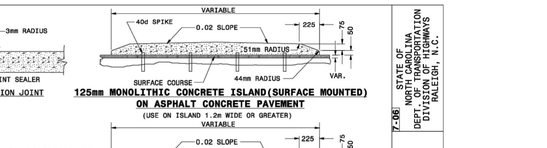
WHEN MONOLITHIC CONCRETE ISLAND IS ON TOP OF SURFACE COURSE, DRIVE 40d SPIKES INTO THE SURFACE UNDER THE MONOLITHIC CONCRETE ISLAND. STAGGER SPIKES 600mm ON CENTERS EACH WAY.

IN THE CONCRETE PAVEMENT (ISLAND) AND CONCRETE ISLAND (MONOLITHIC), PLACE 13mm EXPANSION JOINTS AT 9.0m INTERVALS AND GROOVED JOINTS 25mm DEEP AT 3.0m INTERVALS BETWEEN EXPANSION JOINTS.

LINE UP THE JOINTS IN THE CONCRETE PAVEMENT (ISLAND) WITH THE JOINTS IN THE CURB OR CURB AND GUTTER. FILL AND SEAL THE TOP 13mm OF THE EXPANSION JOINTS AND THE ENTIRE DEPTH OF GROOVED JOINTS WITH JOINT SEALER.

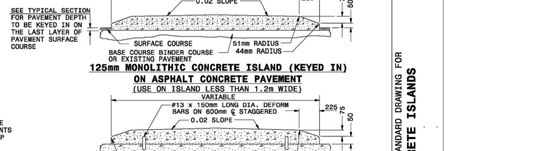
FOR JOINTS IN THE CURB OR CURB & GUTTER, SEE STD. DWG. 846.01.

Note:
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

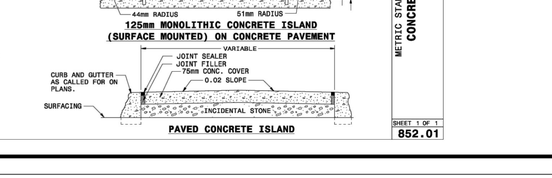


125mm MONOLITHIC CONCRETE ISLAND(SURFACE MOUNTED) ON ASPHALT CONCRETE PAVEMENT
(USE ON ISLAND 1.2m WIDE OR GREATER)

SEE TYPICAL SECTION FOR PAVEMENT DEPTH TO BE KEYED IN ON THE LAST LAYER OF PAVEMENT SURFACE COURSE



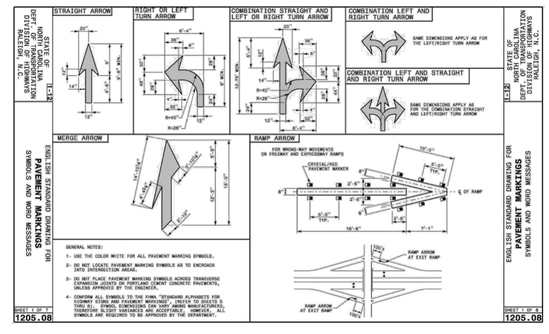
125mm MONOLITHIC CONCRETE ISLAND (KEYED IN) ON ASPHALT CONCRETE PAVEMENT
(USE ON ISLAND LESS THAN 1.2m WIDE)



125mm MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON CONCRETE PAVEMENT

PAVED CONCRETE ISLAND

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
7-06
METRIC STANDARD DRAWING FOR **CONCRETE ISLANDS**
SHEET 1 OF 1
852.01



a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, N.C.

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34881 SAMUEL R. NEWTON 9/20/2024

THE SITE GROUP
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
21 FEB 2024
REVISED:
1 12 APR 2024
2 14 JUN 2024
3 02 AUG 2024
4 20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
705

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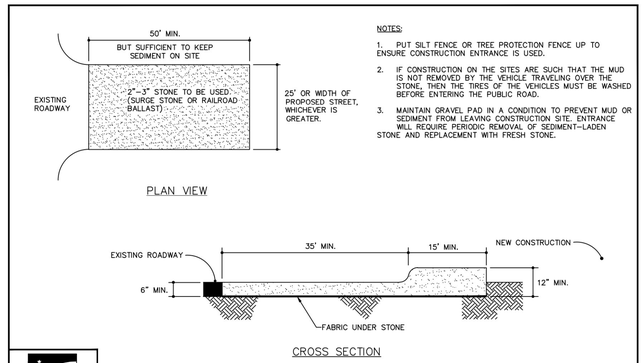


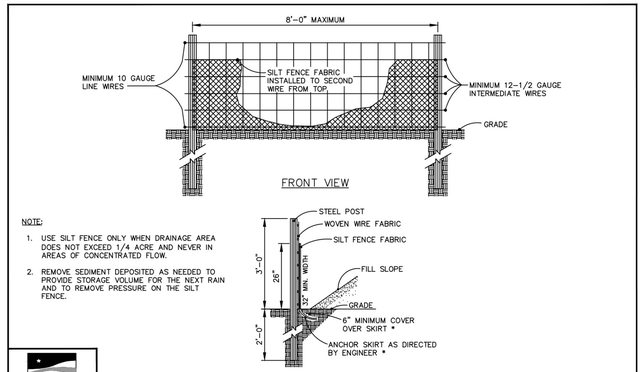
NOTES:

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT–LADEN STONE AND REPLACEMENT WITH FRESH STONE.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD CONSTRUCTION ENTRANCE



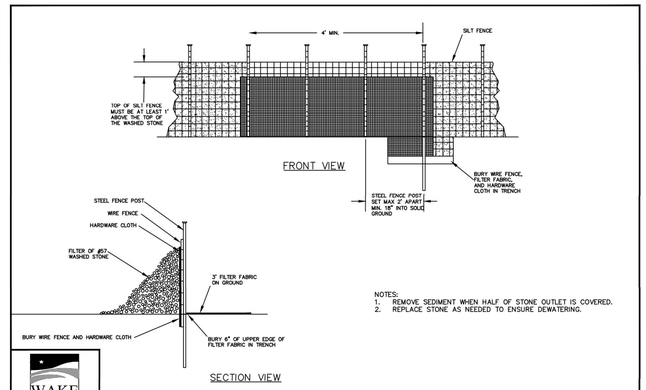
NOTE:

1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY SILT FENCE



NOTES:

1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

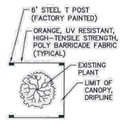
WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SILT FENCE OUTLET

NOTES:

1. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT.
2. LANDSCAPING PLANS SHALL SHOW LOCATIONS OF ALL TREE PROTECTION FENCES.
3. ALL PLANTS TO BE SAVED SHALL BE PROTECTED BY FENCING AS SHOWN IN THIS DETAIL.
4. CONTRACTOR SHALL INSTALL FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING ACTIVITY.
5. CONTRACTOR SHALL CALL FOR INSPECTION AND APPROVAL OF PROTECTIVE FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING.
6. PROTECTIVE FENCING SHALL BE LOCATED 5' OUTSIDE DRIPLINE OF TREES AND 1' MINIMUM OUTSIDE SHRUBS OR OTHER PLANTS.



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	PLANT PROTECTIVE FENCING	STD. NO. 2.10

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P–0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NT
4/12/2024

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CONSTRUCTION DRAWINGS FOR:
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Drawn By MRK
Checked By SRN

DATE:
12 APR 2024
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1 09 MAY 2024
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4 20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
706

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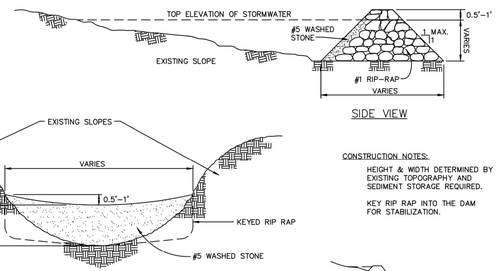


CONSTRUCTION NOTES:

HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.

KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

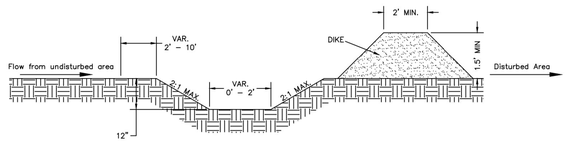
WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD CHECK DAM

NOTES:

1. DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORM RUNOFF FROM ENTERING THE DISTURBED AREA.
2. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS (STABILIZATION MUST OCCUR BEFORE ISSUANCE OF A CERTIFICATE OF COMPLIANCE). STABILIZATION METHOD IS BASED ON VELOCITY OF OFFSITE DRAINAGE.
3. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGES 5 ACRES OR LESS.
4. ANY SEDIMENT LADEN WATER PRIOR TO STABILIZATION OF THE DIVERSION MUST BE DIVERTED INTO AN APPROVED EROSION AND SEDIMENT CONTROL BMP. CLEAN WATER SHOULD EMPTY INTO AN APPROVED OUTLET DEVICE.

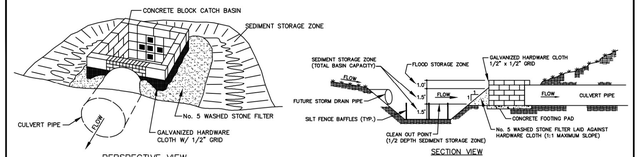


CROSS SECTIONAL VIEW

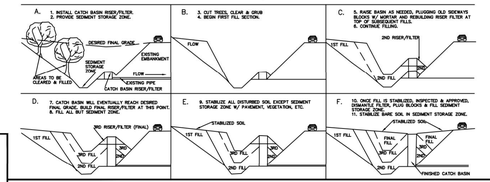
WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD CLEAN WATER DIVERSION



USE OF CATCH BASIN RISER/FILTER ON FILL SITES



WAKE COUNTY NORTH CAROLINA

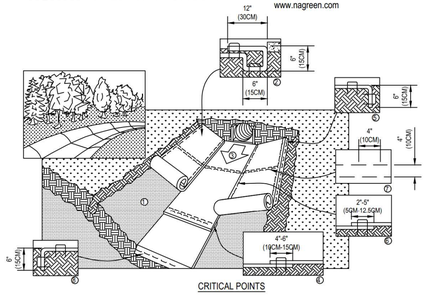
EFFECTIVE: 01/31/08

STANDARD CATCH BASIN RISER/FILTER

Tensar

NORTH AMERICAN GREEN®

NORTH AMERICAN GREEN
5401 ST. WENDEL-CYNTHIANA ROAD
POSEYVILLE, IN 47633
TOLL FREE: 1-800-522-5011
PHONE: (812) 867-6632
FAX: (812) 867-0247
www.nagreen.com



CRITICAL POINTS

A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES



* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. REFER TO 140-001B FOR ADDITIONAL NOTES.
4. CONTRACTORS NOTE: FOR PRODUCT AND PURCHASING INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 140-001A.

ROLLED EROSION CONTROL PRODUCT

CHANNEL INSTALLATION

140-001A

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CADdetails.com

Tensar

NORTH AMERICAN GREEN®

NORTH AMERICAN GREEN
5401 ST. WENDEL-CYNTHIANA ROAD
POSEYVILLE, IN 47633
TOLL FREE: 1-800-522-5011
PHONE: (812) 867-6632
FAX: (812) 867-0247
www.nagreen.com

CONSTRUCTION SPECIFICATIONS

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH THE PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6"(15CM) DEEP X 6"(15CM) WIDE TRENCH WITH APPROXIMATELY 12"(30CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12"(30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12"(30CM) PORTION OF BLANKET OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12"(30CM) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6"(10CM-15CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4"(10CM) APART AND 4"(10") ON CENTER TO SECURE BLANKETS.

5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12"(30CM) APART IN A 6"(15CM)DEEP X 6"(15CM)WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5CM-12.5CM) (DEPENDING ON BLANKET TYPE)AND STAPLED.TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET(BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30' TO 40' (9M-12M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4"(10CM)APART AND 4"(10CM) ON CENTER OVER ENTIRE WIDTH OF CHANNEL.

8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12"(30CM) APART IN A 6"(15CM)DEEP X 6"(15CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

MAINTENANCE
1. Visually inspect erosion control matting after every rain event.
2. Replace any damaged matting with new .
3. Regrade damaged diversion ditches and replace matting as necessary.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND PURCHASING INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 140-001B.

ROLLED EROSION CONTROL PRODUCT

CHANNEL INSTALLATION

140-001B

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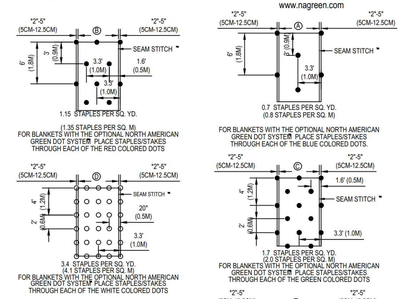
www.nagreen.com



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND PURCHASING INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 140-004.

ROLLED EROSION CONTROL PRODUCT

STAPLE PATTERN GUIDE

140-004

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TOWN OF KNIGHTDALE REQUIRED ESC PLAN MAINTENANCE NOTES

PROVIDE A PLAN DETAIL, CONSTRUCTION SPECIFICATIONS, AND SPECIFIC MAINTENANCE REQUIREMENTS FOR ALL PROPOSED SEDIMENT AND EROSION CONTROL STRUCTURES INCLUDED ON THE PLAN. RECOMMEND PLACING MAINTENANCE REQUIREMENTS WITH THE ASSOCIATED CONSTRUCTION DETAIL.

1. MAINTENANCE AND/OR CLEAN OUT, IS NECESSARY ANYTIME THE DEVICE IS AT 50% CAPACITY. ALL SEDIMENT STORAGE MEASURES WILL REMAIN ON SITE AND FUNCTIONAL UNTIL ALL GRADING AND FINAL LANDSCAPING OF THE PROJECT IS COMPLETE.
2. AS DESIGNATED BY NCDEQ NCG01 PERMITTING, 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 1 INCH OR GREATER. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED.
3. PROVIDE THE MINIMUM MAINTENANCE STANDARDS AS SPECIFIED BELOW:

SURVEYOR FLAGS/TAPE/STAKES:
- ☐ REPLACE IDENTIFIERS IF DAMAGED OR KNOCKED DOWN DURING DEVELOPMENT.
- ☐ ENSURE KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES MAINTAIN IDENTIFIERS.
- ☐ COLORS SHOULD ADHERE TO THE APWA UNIFORM COLOR CODE. USE ACCEPTED SURVEY SYMBOLS AND ENSURE OPERATORS UNDERSTAND DESIGNATIONS. UTILITY LINE OWNERS/OPERATORS SHALL IDENTIFY THE DESIGNATING FIRM.

PERMITS/NCG01 INSPECTIONS BOX:
- ☐ CONFIRM BOX IS SECURELY FASHIONS TO A POST OR WALL IN A VISIBLE LOCATION IN PROXIMITY TO THE CONSTRUCTION ENTRANCE.
- ☐ MAINTAIN RELEVANT IDENTIFICATION ON THE EXTERIOR OF THE BOX.
- ☐ ENSURE PAPER DOCUMENTS REMAIN DRY / LEGIBLE (LAMINATION, TICKET HOLDERS, BINDERS, ETC.)
- ☐ REPLACE ANY MISSING DOCUMENTS IMMEDIATELY. CONSIDER PLACING TIES OR FASTENERS IF NECESSARY.

RAIN GUAGE:
- ☐ CHECK AND REMOVE ANY ITEMS FROM THE RAIN FUNNEL AND THE DEBRIS FILTER DUST, BUGS AND OTHER DEBRIS).
- ☐ OPEN THE RAIN GAUGE AND REMOVE ANY FOREIGN OBJECTS.
- ☐ PERFORM ROUTINE MAINTENANCE AS SPECIFIED BY THE MANUFACTURER.
- ☐ CHECK THAT THE GAUGE IS NOT BEING OBSTRUCTED FROM RAIN CAPTURE AND IS LEVEL BEFORE AND AFTER REASSEMBLY. TREE PROTECTION FENCE:
- ☐ PRUNE ANY DAMAGED TREES. (IF) DAMAGE TO PROTECTED TREES OCCURS, REPAIR ANY DAMAGE TO THE CROWN, TRUNK, OR ROOT SYSTEM IMMEDIATELY.
- ☐ REPAIR ROOTS BY CUTTING OFF THE DAMAGED AREAS AND PAINTING THEM WITH TREE PAINT. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.
- ☐ REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREA, TAPER THE CUT TO PROVIDE DRAINAGE AND PAINT WITH TREE PAINT.
- ☐ CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN USE THREE SEPARATE CUTS TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.

SILT FENCE:
- ☐ SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
- ☐ REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUTS.
- ☐ REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SILT FENCE OUTLET:
- ☐ FRESHEN STONE WHEN SEDIMENT ACCUMULATION EXCEEDS 6 INCHES.
- ☐ KEEP MESH FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW AND REPLACE STONE AS NEEDED TO FACILITATE DE-WATERING.

CONSTRUCTION ENTRANCE:
- ☐ MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE.
- ☐ IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

SKIMMER:
- ☐ CONFIRM SKIMMER IS FUNCTIONAL, INSTALLED IN THE CORRECT ORIENTATION AND HAS MOBILITY TO FLOAT ON TOP OF THE WATER COLUMN.
- ☐ ENSURE ROCK PAD STABILIZATION IS PRESENT UNDER THE SKIMMER.
- ☐ REPAIR ANY STRUCTURAL DEFICIENCIES (E.G., ORIFICE DISK, FLEX HOSE CONNECTION, VENT FUNCTIONING, CRACKED PVC)

SEDIMENT BASIN
- ☐ BASIN REQUIRES MAINTENANCE WHEN THE INLET ZONE (1ST QUADRANT) HAS BEEN FILLED WITH SEDIMENT.
- ☐ BAFFLE MATERIAL SHALL BE MAINTAINED IN GOOD CONDITION FOR THE LIFE OF THE POND UNTIL REMOVAL OR CONVERSION. SEDIMENT BASIN / ROLLED EROSION CONTROL PRODUCT:
- ☐ INSPECT INITIAL CHANNEL ANCHORING HAS BEEN INSTALLED CORRECTLY, CONFIRM SEGMENTS ARE ROLLED IN CORRECT ORIENTATION.
- ☐ ANY AREAS THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
- ☐ MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

BASIN CONVEYANCES / SLOPE DRAIN / RIP-RAP LINED CHANNEL
- ☐ ANY EROSION OF THE SLOPE, BERM OR OUTLET SHOULD BE REPAIRED IMMEDIATELY TO PREVENT HEAD CUTTING BACK INTO THE SLOPE.
- ☐ CONVEYANCE SHOULD BE REFRESHED IF PORE SPACE HAS BEEN COMPROMISED. CLOGGED DRAINS SHOULD BE FLUSHED OUT OR REPLACED.
- ☐ ADDITIONAL PERFORMANCE MEASURES MAY BE REQUIRED AT CONVEYANCE ENTRANCE TO SLOW WATER ENTERING THE BASIN.

FILTER BAG / DEWATERING ACTIVITIES
- ☐ ENSURE THE DEWATERING PAD IS IN A GOOD STABILIZED CONDITION.
- ☐ PRIOR TO USE INSPECT BAGS FOR ANY DEFECTS. ENSURE PUMP HOE IS SECURE AND A FLOATING INTAKE IS BEING USED (WHEN POSSIBLE).
- ☐ FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR INSPECTION AND MAINTENANCE GUIDELINES. REPLACE WHEN TRAPPED SEDIMENT HAS ACCUMULATED TO 50% OF THE BAG CAPACITY OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TEMPORARY DIVERSION DITCHES / ROLLED EROSION CONTROL PRODUCT:
- ☐ ANY AREAS THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
- ☐ MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

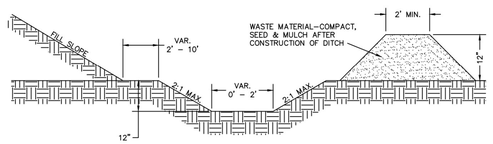
WITH WATTLES / SILT SOCKS
- • REMOVE SEDIMENT ACCUMULATION BEHIND MEASURE AS NECESSARY TO PREVENT DAMAGE TO CHANNEL VEGETATION.
- • REPLACE WATTLE/SOCK IF CLOGGED OR TORN. REINSTALL PER DETAIL IF DAMAGED OR DISLODGED.
- • IF PONDING BECOMES EXCESSIVE, REPLACE WITH A LARGER DIAMETER WATTLE/SOCK OR A DIFFERENT MEASURE.

WITH CHECK DAMS
- • REMOVE SEDIMENT ACCUMULATION BEHIND MEASURE AS NECESSARY TO PREVENT DAMAGE TO CHANNEL VEGETATION.
- • CHECK FOR EROSION, PIPING, ROCK DISPLACEMENT, AND CORRECT STONE REPAIR IMMEDIATELY.
- • CONFIRM WEIR PRESENT AND LOCATED AT THE CENTER OF THE DEVICE.

INLET PROTECTIONS (PIPE / YARD / DROP / CURB)
- ☐ INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT.
- ☐ KEEP FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW AND IF PRESENT REPLACE

NOTES:

1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.

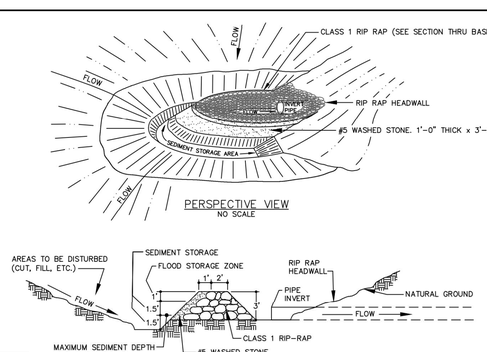


CROSS SECTIONAL VIEW

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY DIVERSION DITCH



SECTION THRU CATCH BASIN, FILTER AND CULVERT PIPE
NO SCALE

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD HORSESHOE INLET PROTECTION

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NI
4/20/2024

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E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD, KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 JAN 2024
REVISED:
1 12 APR 2024
2 14 JUN 2024
3 02 AUG 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
707

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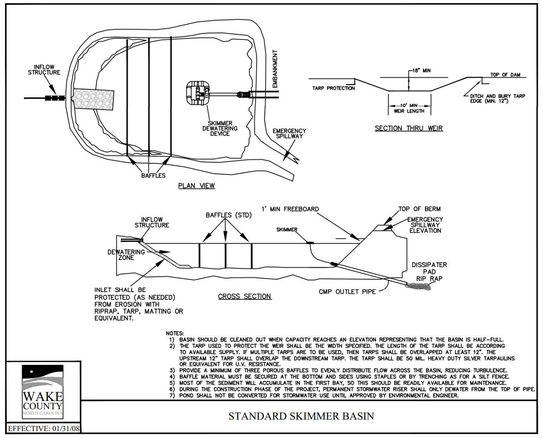
a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

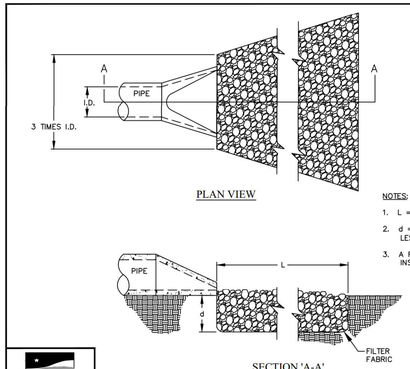
By: Gideon Smith Date: _____
Land Use Administrator



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

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

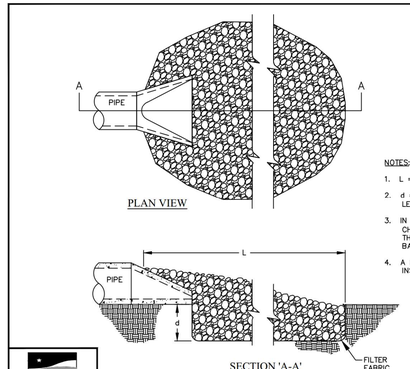
STANDARD SKIMMER BASIN



NOTES:
1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

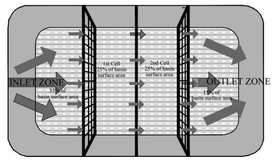
STANDARD PIPE OUTLET TO FLAT AREA
NO WELL-DEFINED CHANNEL



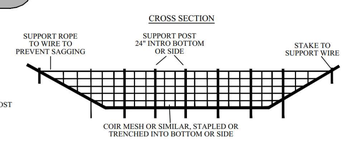
NOTES:
1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (INCHES) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL

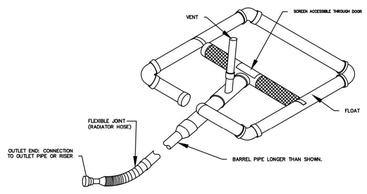


NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL



WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

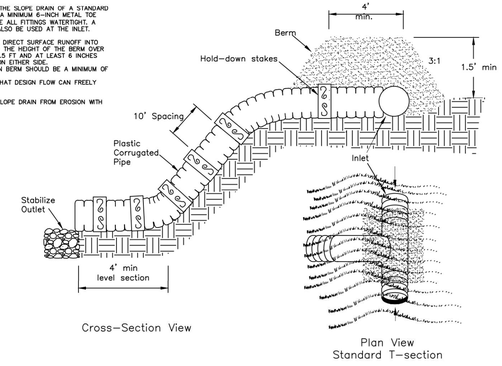
STANDARD BAFFLES DETAIL



WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD SKIMMER DETAIL

NOTES:
1. CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED-END SECTION OF PIPE WITH A MINIMUM 6-INCH METAL TOE PLATE (CROSS-SECTION VIEW). MAKE ALL FITTINGS WATERTIGHT; A STANDARD T-SECTION FITTING MAY ALSO BE USED AT THE INLET.
2. USE AN EARTHEN DIVERSION TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE HEIGHT OF THE BERM OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ADJOINING BERM ON EITHER SIDE. THE LOWEST POINT OF THE DIVERSION BERM SHOULD BE A MINIMUM OF 1 FT ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.
3. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP DISSIPATOR.



WAKE COUNTY NORTH CAROLINA
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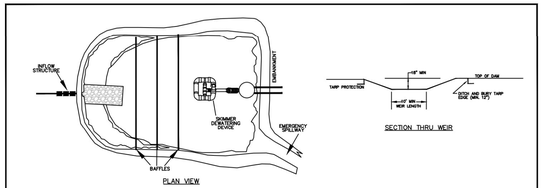
STANDARD TEMPORARY SLOPE DRAIN



NOTES:
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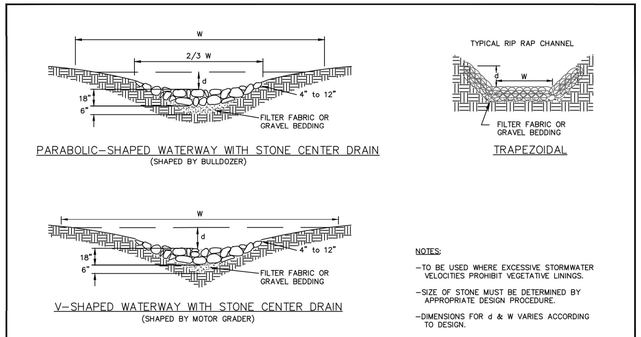
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD SKIMMER ATTACHED TO PERMANENT RISER



NOTES:
- TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS.
- SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN PROCEDURE.
- DIMENSIONS FOR d & W VARIES ACCORDING TO DESIGN.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD RIP-RAP LINED CHANNELS

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

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THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC
NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NT
9/20/2024

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1111 Oberlin Road
Raleigh, NC 27605-1136 USA
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E Mail: SRN@thesitegroup.net

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

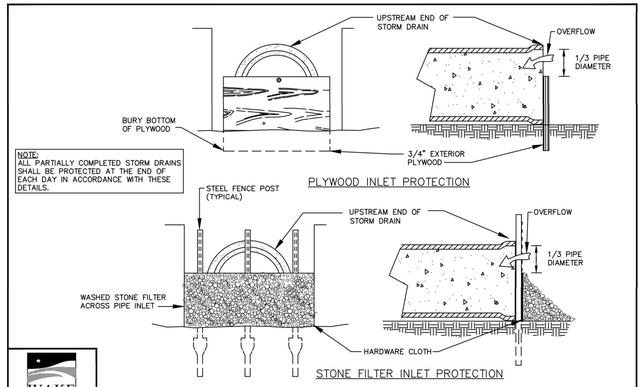
DATE:
12 JAN 2024
REVISED:
1 21 FEB 2024
2 12 APR 2024
3 14 JUN 2024
4 02 AUG 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

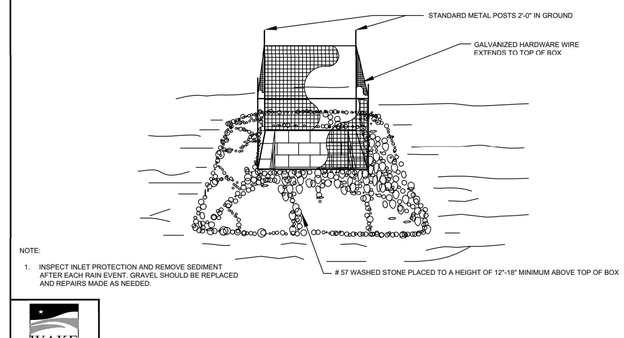
Dwg No.
SITE 708



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

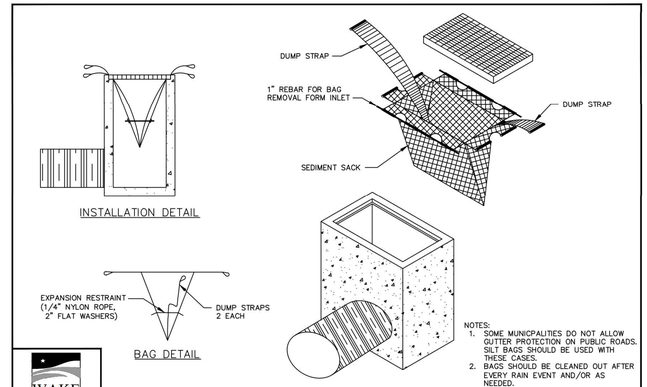
STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

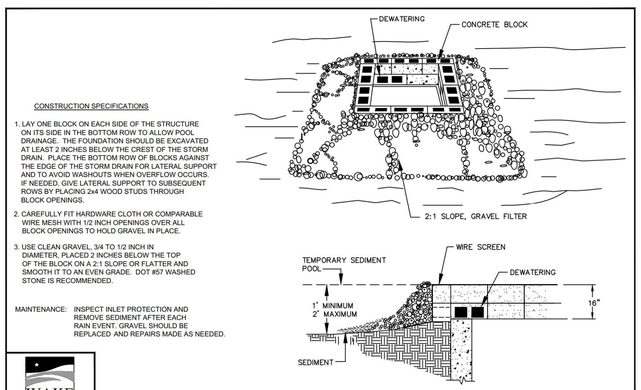
STANDARD GRAVEL YARD INLET PROTECTION



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

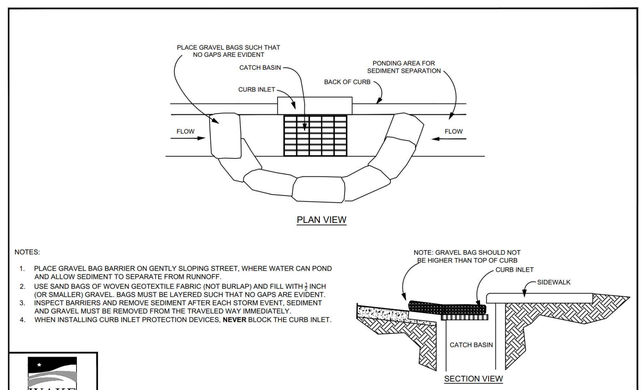
STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD BLOCK & GRAVEL DROP INLET PROTECTION



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD GRAVEL BAG CURB INLET PROTECTION

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

THE SITE GROUP, PLLC. LANDSCAPE ARCHITECTURAL CORPORATION CERT. NO. 353 NORTH CAROLINA RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NT 4/12/2024

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD., KNIGHTDALE, NC
ST. MATHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
12 APR 2024
REVISED:
1 09 MAY 2024
2 14 JUN 2024
3 02 AUG 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
709

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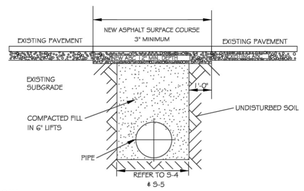
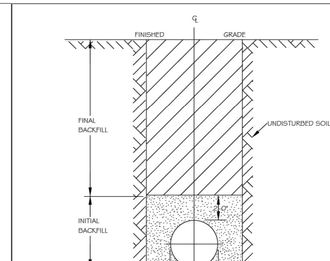


NOTES:
1. IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.
2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.
3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
4. THE FINAL 1'-0" FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
5. THE ENTIRE THICKNESS AND VERTICAL EDGE OF CUT SHALL BE TACKED.
6. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
7. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
8. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING (S-4 & S-5) FOR ADDITIONAL DETAILS.
9. NO HAND PATCHING ALLOWED.
10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL

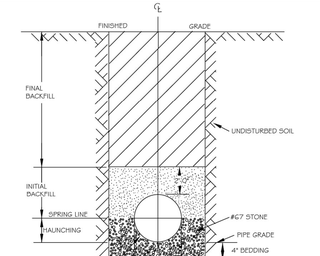
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-3	D.W.C.	1-1-99	A.B.D.	4-19-04
	RRH	3-30-00	J.F.S.	10-5-10



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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		

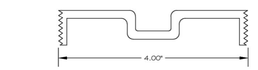


TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

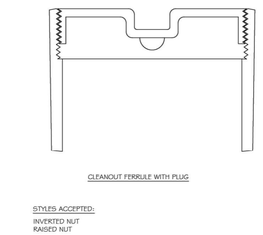
NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-07	D.W.C.	9-3-99
		7-2-02	RRH	3-30-00


4.00"

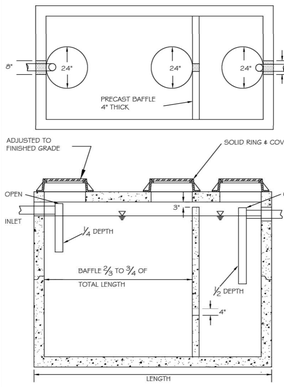
STANDARD 4" BRONZE CLEANOUT PLUG


CLEANOUT FERRULE WITH PLUG

STYLES ACCEPTED:
INVERTED NUT
RAISED NUT

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" CLEANOUT PLUG

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34	D.W.C.	3-1-07	RRH	3-30-00
		3-27-98		



NOTES:
1. REINFORCEMENT: H-20 BRIDGE LOADING (TRAFFIC RATED)
2. CONCRETE: 4000 PSI @28 DAYS
3. EARTHCOVER, 0' TO 5' MAX.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
1000 GALLON GREASE INTERCEPTOR

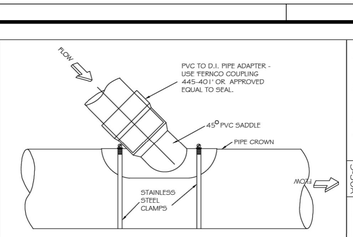
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-40	RRH	3/9/00	D.H.L.	6/16/06
	ABD	3/19/04		

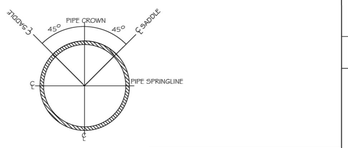
LOCALLY AVAILABLE SIZES	
INTERCEPTORS CAPACITY (GAL.)	SEPARATORS CAPACITY (GAL.)
500	1000
550	1200
750	1600
1000	
1200	
1500	
2000	
2500	
3000	
4000	
5000	
6000	
8000	

NOTES:
1. BAFFLE WALL LOCATED AT A DISTANCE FROM INLET WALL ⅜ TO ¾ OF THE TOTAL LENGTH OF THE INTERCEPTOR OR DEPARATOR AS SHOWN ON DETAIL S-40.
BAFFLE WALLS LOCATED AT A DISTANCE APPROXIMATELY OF ½ OF THE TOTAL LENGTH OF THE DEPARATOR AS SHOWN ON DETAIL S-40.01.
2. EACH INTERCEPTOR OR SEPARATOR SHALL HAVE INLET AND OUTLET TEES. THE OUTLET TEE SHALL EXTEND 50% INTO THE LIQUID DEPTH. THE INLET TEE SHALL EXTEND 25% INTO THE LIQUID DEPTH. INLET AND OUTLET TEES MUST BE OPEN TO ALLOW THE COLLECTION OF F.O.G. SAMPLE.
3. ACCESS OPENINGS OVER EACH COMPARTMENT WITHIN THE INTERCEPTOR OR SEPARATOR SHALL BE 24 INCHES IN DIAMETER AND CONTAIN PICK HOLES. ALL COVERS SHALL BE CONSTRUCTED OF CAST IRON OR EQUIVALENT TRAFFIC BEARING MATERIAL. MANHOLE COVERS MUST EXTEND TO FINISH GRADE AND BE INSTALLED TO EXCLUDE THE ENTRANCE OF STORMWATER INTO THE INTERCEPTOR OR SEPARATOR.
4. FULL SIZE DUAL SWEEP CLEANOUTS SHALL BE INSTALLED ON THE INLET AND OUTLET SIDES OF THE INTERCEPTOR OR SEPARATOR.
5. INTERCEPTORS AND SEPARATORS MUST BE VENTED IN ACCORDANCE WITH THE NC STATE PLUMBING CODE.
6. CONCRETE: 4000 PSI @ 28 DAYS.
7. DESIGN: ACI 318 BUILDING CODE
ASTM C1613-06 FOR GREASE INTERCEPTORS
ASTM C913-02 FOR WATER AND WASTEWATER STRUCTURES
ASTM C890-06 FOR MINIMAL STRUCTURAL DESIGN LOADING
8. INTERCEPTORS AND SEPARATORS SHALL BE DESIGNED TO WITHSTAND AN H-20 WHEEL LOAD.
9. INTERCEPTORS OR SEPARATORS MADE OF POLYETHYLENE OR FIBERGLASS SHALL INCLUDE A MINIMUM / 1,000 PSI TENSILE STRENGTH, / 15,000 PSI FLEXURAL STRENGTH, AND 400,000 PSI FEDURAL MODULUS.
10. ALL INTERCEPTORS AND DEPARATORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
DIMENSIONS: GREASE INTERCEPTORS OIL-WATER-SAND SEPARATORS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-41	RRH	3/9/00	D.H.L.	6/16/06
	ABD	3/19/04		





CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE

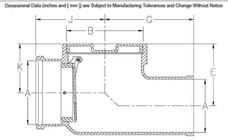
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-31	RRH	3-1-07		
		3-30-00		

ZURN

Z1095
BACKWATER VALVE
FLAPPER TYPE

SPECIFICATION SHEET
TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Dimensions In Inches[mm]						Approx. Wt. Lbs. [Kg]
Pipe Size		E	G	J	K	
A	B					
2 [52]	4 [102]	4-3/8 [111]	7 [178]	5 [127]	2-7/8 [73]	23 [10]
3 [76]	5 [127]	5-1/8 [130]	8 [203]	6 [152]	3-5/8 [92]	30 [14]
4 [102]	6 [152]	5-5/8 [143]	8-1/2 [216]	6-3/4 [171]	4-1/8 [105]	34 [15]
6 [152]	8 [203]	6 [156]	10 [254]	7-3/4 [197]	5-1/2 [114]	57 [26]
8 [203]	10 [254]	7-1/2 [190]	11-7/8 [302]	9-3/8 [238]	6 [152]	79 [36]
10 [254]	12 [305]		13-3/4 [324]	10-7/8 [276]	7 [178]	102 [46]

*Inlet sizes up to 4" [102] utilize a flapper that hangs normally closed. Sizes greater than 4" [102] utilize a bronze flapper that hangs 1/4" [6] normally open.

ENGINEERING SPECIFICATION: ZURN Z1095
Backwater Valve, Dura-Coated cast iron body, hub inlet and offset spigot outlet, bronze threaded cover, automatic PVC (3" [76mm] and 4" [102mm] sizes only) flapper type backwater valve with O-ring.

CONNECTIONS (Check/specify appropriate options)

PIPE SIZE (Specify size) **CONNECTION**
2, 3, 4, 6, 8, 10 [52, 76, 102, 152, 203, 254] ____ HB X SP Hub x Spigot

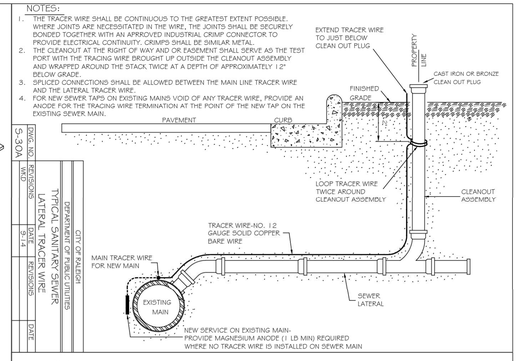
PREFIXES
____ Z D.C.C.I. Body*

SUFFIXES
____ -BC Bolted Cover
____ -BV Bronze Flapper Valve (3-and 4 [76 thru 102] Sizes)
____ -G Galvanized Cast Iron

* Regularly furnished unless otherwise specified

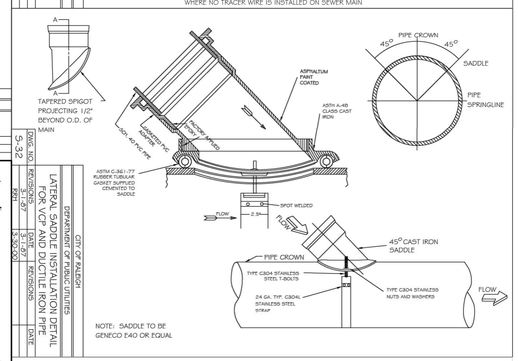
Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502 Ph. 814-455-0921 Fax 814-454-7929
In Canada | Zurn Industries, Limited
5335 Tomken Drive, Mississauga, Ontario L4V 1C2 Ph. 905-405-8370, Fax 905-405-1292
www.zurn.com

Rev: G
Date: 04/05/2018
C.N. No. 159535
Prod. | Dwg. No. Z1095



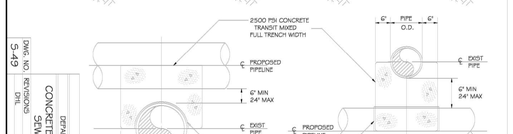
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL TRACER WIRE

DWG. NO.	REVISIONS	DATE
S-30A		
S-30		
S-31		



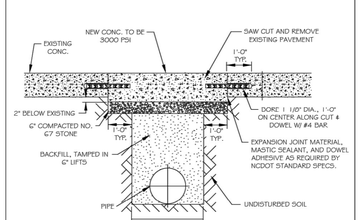
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
LATERAL SADDLE INSTALLATION DETAIL FOR PVC AND DUCTILE IRON PIPE

DWG. NO.	REVISIONS	DATE
S-32		
S-30		
S-31		
S-30.00		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS

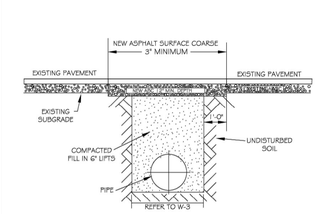
DWG. NO.	REVISIONS	DATE
S-43	DHL	2-20-08



NOTES:
1. SEE CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING W-3 FOR ADDITIONAL DETAILS
2. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
3. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT. 5. THE FINAL 0' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT .

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD CONCRETE PAVEMENT PATCH DETAIL

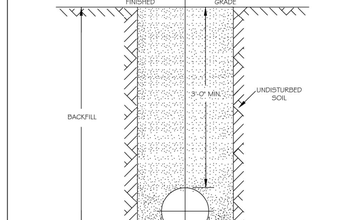
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-1	RRH	3-31-00	A.B.D.	10-29-10
	A.B.D.	2-9-05	MAD	10-31-13



NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3. FOR ADDITIONAL DETAILS.
8. NO HAND PATCHING ALLOWED.
9. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL

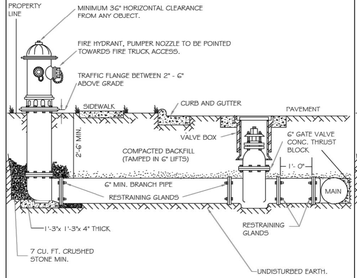
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-2	RRH	3-31-00	A.B.D.	4-16-04
	D.W.C.	1-1-99	J.F.S.	10-29-10



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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C.	9-3-99	ABD	2-15-05
	RRH	3-31-00	J.F.S.	10-29-10

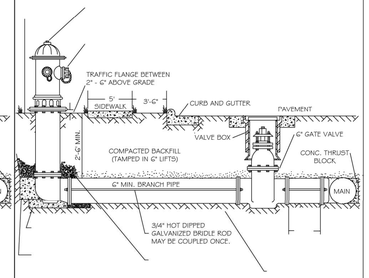


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M44, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABD	4-6-04	FAF	2/17/09
	DHL	2/1/08		



NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M44, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4a	ABD	4-6-04		

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____ Cydney S. Terry Digitally signed by Cydney S. Terry Date: 2024.10.29 17:05:14-04'00'

Raleigh Water Review Officer

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

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THE SITE GROUP, PLLC.
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E Mail: SRN@thesitegroup.net

THE SITE GROUP, PLLC
LANDSCAPE ARCHITECTURAL CORPORATION
CERT. NO. 353
NORTH CAROLINA
RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34981 SAMUEL R. NITZ
4/20/2024

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD, KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

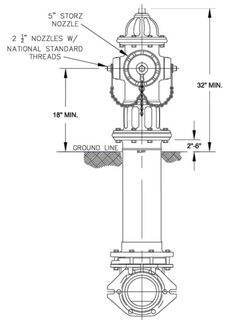
DATE:
20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

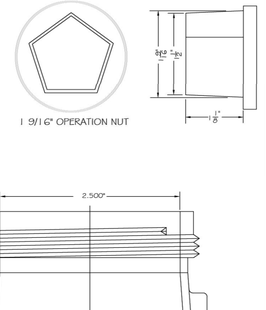
Dwg No.
SITE
710



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

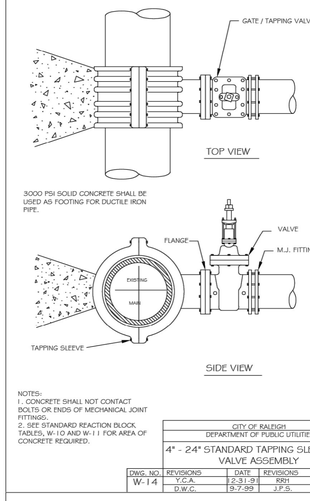
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-1	MAB	8-30-16		
	KAT	9-15-17		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS

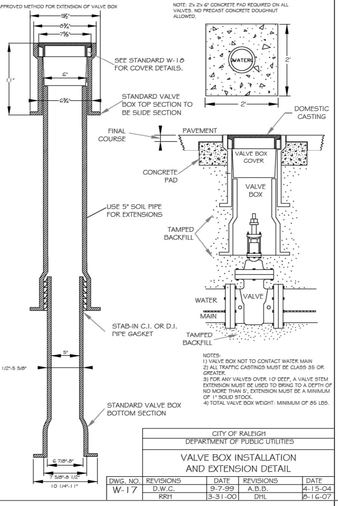
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RRH	3-31-00	DRL	2-16-06
	A.B.B.	4-13-04	J.P.S	11-1-10



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

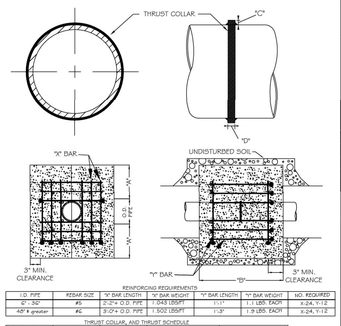
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	2-23-99	RRH	3-31-00
	D.W.C.	9-7-99	J.P.S.	11-1-10



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
	RRH	3-31-00	DRL	5-1-07



REINFORCING REQUIREMENTS

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

THRUST COLLAR AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6" - 12"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

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

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY, 4000 LBS/FT²	SOFT CLAY, 2000 LBS/FT²	LOOSE WET GRAVEL, SAND OR MUD	ROCK, SHIFTING DRY CLAY, 6000 LBS/FT²	SAND, COMPACT FIRM 4000 LBS/FT²	SAND, CLEAN DRY 3000 LBS/FT²	SOFT CLAY LIGHTLY COMPACTED, 1000 LBS/FT²	ROCK, FOOR TO GOOD 10,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	2	1	
22 1/2°	2,207	1	2	2	1	1	3	1	
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

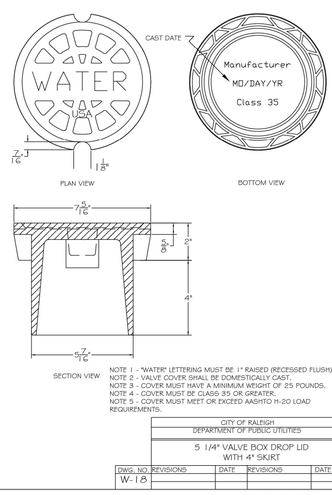
SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY, 4000 LBS/FT²	SOFT CLAY, 2000 LBS/FT²	LOOSE WET GRAVEL, SAND OR MUD	ORGANIC/MUCK, SAND CONTAINING	ROCK, SHIFTING DRY CLAY, 6000 LBS/FT²	SAND, COMPACT FIRM 4000 LBS/FT²	SAND, CLEAN DRY 3000 LBS/FT²	SOFT CLAY LIGHTLY COMPACTED, 1000 LBS/FT²	ROCK, FOOR TO GOOD 10,000 LBS/FT²
24"										
11 1/4°	17,734	5	9	11	3	3	5	18	2	
22 1/2°	35,305	9	18	22	5	5	9	36	4	
45°	69,252	18	35	42	9	9	18	70	7	
90°	127,936	32	64	77	16	16	32	128	13	
PLUG	90,478	23	46	55	12	12	23	91	10	
30"										
11 1/4°	27,709	7	14	17	4	4	7	2	3	
22 1/2°	55,163	14	28	34	7	7	14	56	6	
45°	108,206	28	55	65	14	14	28	109	11	
90°	199,900	50	100	120	25	25	50	200	20	
PLUG	141,373	36	71	85	18	18	36	142	15	
36"										
11 1/4°	39,901	10	20	24	5	5	10	40	4	
22 1/2°	79,439	20	40	48	10	10	20	30	8	
45°	155,814	39	78	94	20	20	39	156	16	
90°	287,855	72	144	172	36	36	72	288	29	
PLUG	203,575	51	102	122	26	26	51	204	21	
48"										
11 1/4°	70,935	18	36	43	9	9	18	71	8	
22 1/2°	141,218	36	71	85	18	18	36	142	15	
45°	277,007	70	139	166	35	35	70	277	28	
90°	511,742	128	256	320	64	64	128	512	52	
PLUG	361,911	91	181	217	46	46	91	362	37	

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 0° - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

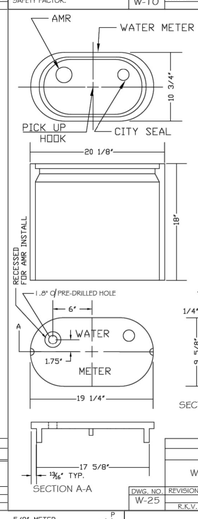
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	3-31-00	J.P.S.	11-1-10
	D.H.L.	6-18-08		

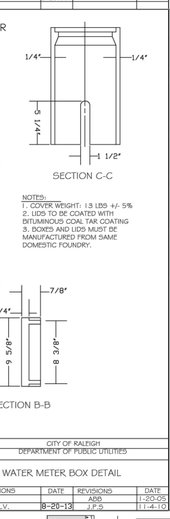


NOTE 1 - "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

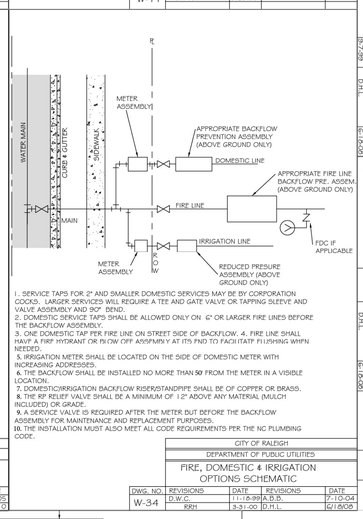




NOTES:
1. COVER WEIGHT: 13 LBS +/- 5%
2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING
3. BOXES AND LIDS MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
WATER METER BOX DETAIL

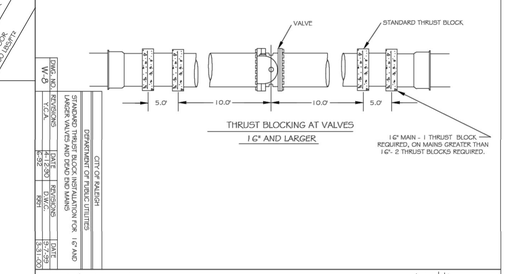
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25			ADS	1-20-05
	K.K.V.	8-20-13	J.P.S.	11-4-10

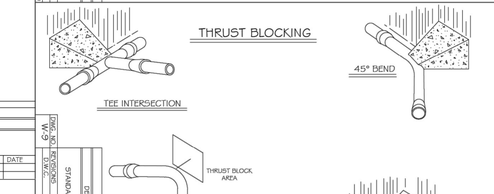


1. SERVICE TAPS FOR 2" AND SMALLER DOMESTIC SERVICES MAY BE BY CORPORATION COCKS. LARGER SERVICES WILL REQUIRE A TEE AND GATE VALVE OR TAPPING SLEEVE AND VALVE ASSEMBLY AND 90° BEND.
2. DOMESTIC SERVICE TAPS SHALL BE ALLOWED ONLY ON 6" OR LARGER FIRE LINES BEFORE THE BACKFLOW ASSEMBLY.
3. ONE DOMESTIC TAP PER FIRE LINE ON STREET SIDE OF BACKFLOW. 4. FIRE LINE SHALL HAVE A FIRE HYDRANT OR BLOW OFF ASSEMBLY AT ITS END TO FACILITATE FLUSHING WHEN NEEDED.
5. IRRIGATION METER SHALL BE LOCATED ON THE SIDE OF DOMESTIC METER WITH INCREASING ADDRESSES.
6. THE BACKFLOW SHALL BE INSTALLED NO MORE THAN 50 FROM THE METER IN A VISIBLE LOCATION.
7. DOMESTIC/IRRIGATION BACKFLOW RISER/STAND/PIPE SHALL BE OF COPPER OR BRASS.
8. THE RP RELIEF VALVE SHALL BE A MINIMUM OF 12" ABOVE ANY MATERIAL (MULCH INCLUDED) OR GRADE.
9. A SERVICE VALVE IS REQUIRED AFTER THE METER BUT BEFORE THE BACKFLOW ASSEMBLY FOR MAINTENANCE AND REPLACEMENT PURPOSES.
10. THE INSTALLATION MUST ALSO MEET ALL CODE REQUIREMENTS PER THE NC PLUMBING CODE.

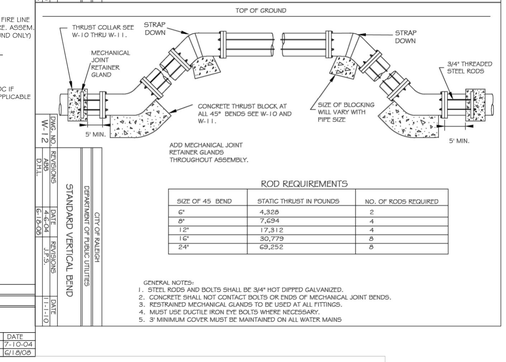
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
FIRE, DOMESTIC & IRRIGATION OPTIONS SCHEMATIC

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-34	D.W.C.	11-15-99	A.B.B.	7-10-04
	RRH	3-31-00	D.H.L.	6/18/08





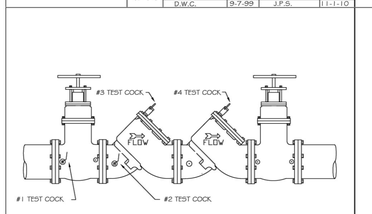
NOTES:
1. CONCRETE SHALL BE 3000 PSI
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.



ROD REQUIREMENTS

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

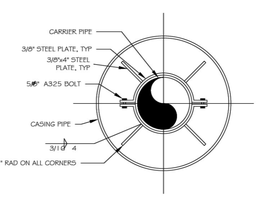
GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON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



1. SHUT-OFF VALVES, CHECK VALVES, AND TEST COCKS SHALL BE STANDARD TO THE APPROVED BACKFLOW ASSEMBLY.
2. ALL LARGE(2-1/2" - 10") ASSEMBLIES TO BE SUPPORTED BY A CRADLE.
3. ENCLOSURE FOUNDATIONS SHALL BE CONSTRUCTED OF 4" OF CONCRETE OR 6" OF STONE.
4. ASSEMBLIES MUST BE ON CURRENT APPROVAL LIST.
5. 2 1/2" AND LARGER ASSEMBLIES SHALL BE FUSION BONDED EPOXY COATED INCLUDING SHUTOFF VALVES.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD DOUBLE CHECK VALVE ASSEMBLY

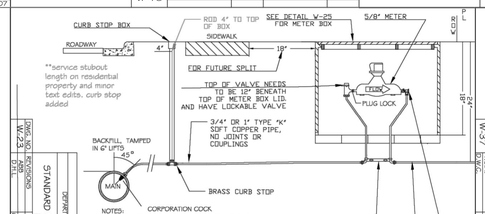
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-38	D.W.C.	12-28-99	A.B.B.	4-13-04
	RRH	3-31-00	D.H.L.	6/18/08



NOTE:
1) USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
PIPE ALIGNMENT GUIDE

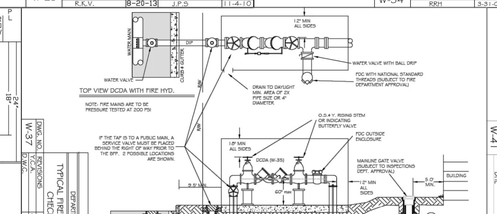
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-40	RRH	3-31-00		
	A.B.B.	4-16-04		



NOTES:
CORPORATION COCK.
1. WATER METER AS MANUFACTURED BY SENSUS, OR SCHLUMBERGER.
2. DIRECT TAP ALLOWED ON MAINS NO LARGER THAN 1.5" LINE.
3. METER BOX TO BE LOCATED IN R/W ADJACENT TO PROPERTY OR IN APPROVED EASEMENT ADJACENT TO R/W.
4. WHEN THE GRADE CHANGES ON EXISTING SERVICES, A COPPER RESETTER CAN BE USED TO ADJUST TO GRADE. COPPER RESETTERS ARE PROHIBITED ON NEW SERVICES.
5. CURB STOP BOX SHALL HAVE PLUG-STYLE LID WITH PENTAGON BOLT, 1-1/4" STEEL UPPER SECTION, AND ARCH STYLE BASE. STEEL STATIONARY ROD TO BE PROVIDED FOR CURB STOP OPERATION.

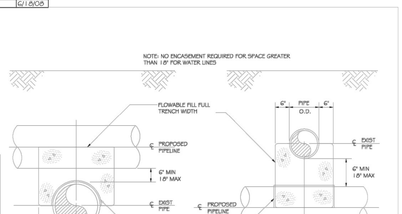
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD 3/4" & 1" WATER SERVICE INSTALLATION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-23	ADS	1-20-05		
	K.K.V.	8-20-13		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL FIRE MAIN DOUBLE DETECTOR CHECK VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-37				



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE PROTECTION FOR WATER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	KEYBOARD DRL	2-20-06		

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval — Cydney S. Terry — Digitally signed by Cydney S. Terry, Date: 2024.10.29 17:05:29-04'00'

Raleigh Water Review Officer

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald — Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith — Date: _____
Land Use Administrator

THE SITE GROUP, PLLC
CIVIL ENGINEERS • LANDSCAPE ARCHITECTS
THE SITE GROUP, PLLC.
1111 Oberlin Road
Raleigh, NC 27605-1136 USA
Office: 919.835.4787
Fax: 919.839.2255
E Mail: SRN@thesitegroup.net

THE SITE GROUP, PLLC — LANDSCAPE ARCHITECTURAL CORPORATION — CERT. NO. 353 — RALEIGH, NC

NC ENGINEERING LICENSE NO. P-0803

NORTH CAROLINA PROFESSIONAL SEAL 34981 ENGINEER SAMUEL R. NT — 4/20/2024

CONSTRUCTION DRAWINGS FOR:
ATLAS STARK | KNIGHTDALE
STATION MIXED-USE
0 & 7790 KNIGHTDALE BLVD, KNIGHTDALE, NC
ST. MATTHEWS TOWNSHIP WAKE COUNTY

Drawn By MRK
Checked By SRN

DATE:
20 SEP 2024

CONSTRUCTION DRAWINGS

SITE DETAILS

Job Code ASKSCD

Dwg No.
SITE
711

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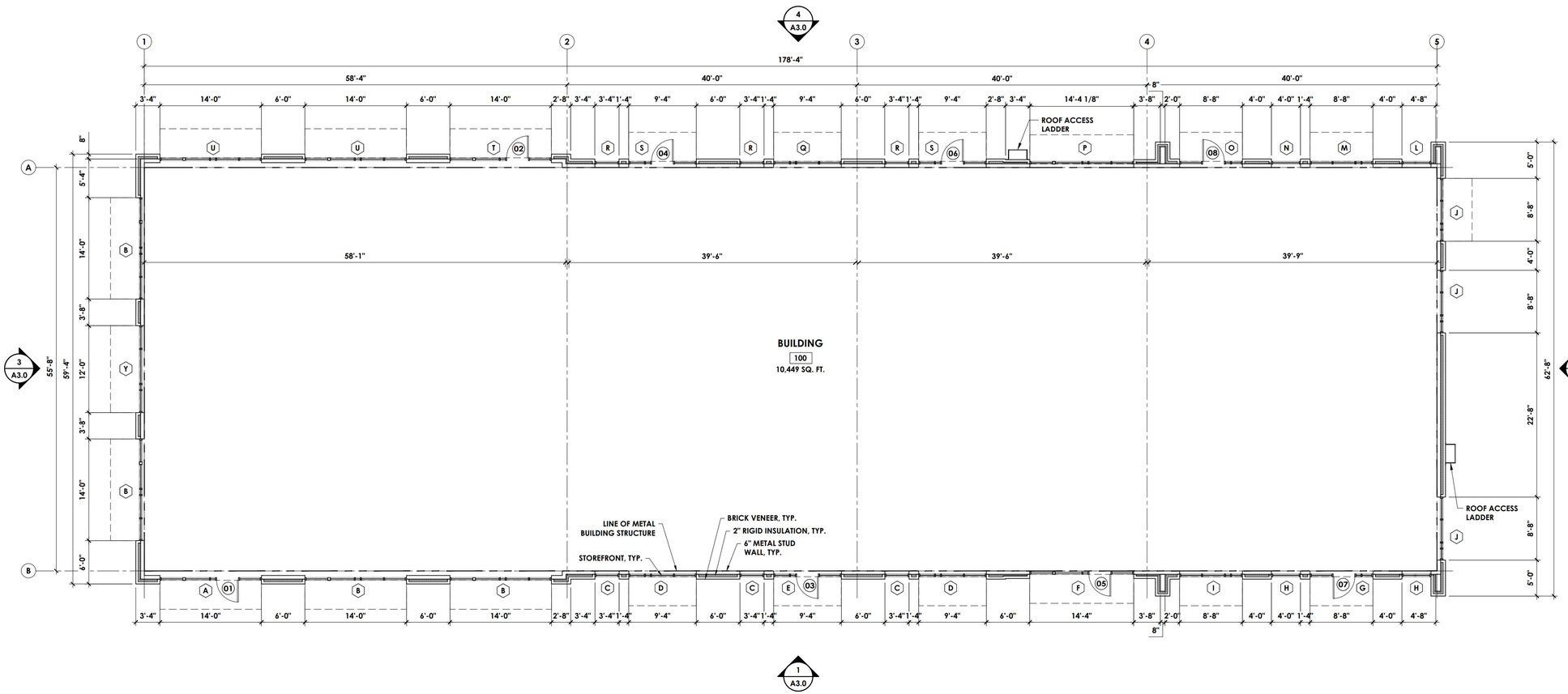

SYMBOL LEGEND

- WALL TYPE TAG
- FINISH TAG
- EQUIPMENT TAG
- WINDOW TAG
- DOOR TYPE TAG
- KEYNOTE TAG
- WALL SECTION TAG
- EXTERIOR ELEVATION TAG
- PLAN DETAIL TAG

WALL TYPE LEGEND

W01	6" METAL STUDS @ 16" O.C. W/ R-19 FOIL FACED BATT INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W02	6" METAL STUDS @ 16" O.C. W/ 4" CLOSED CELL SPRAY FOAM INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER, SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W03	8" CMU WALL W/ FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

KEYNOTES

1. PROVIDE FRAMING OF COLUMN TIGHT TO PIPES, ETC. AT THIS LOCATION. REMOVE EXCESS RISER CLAMPS, OR ROTATE TO REDUCE COLUMN SIZE IMPACT, AS REQUIRED. MAINTAIN CLEAR DIMENSION AS INDICATED. MATCH COLUMN SIZES AS INDICATED.
1. PROVIDE FURRED WALL UNDERNEATH EXISTING SHAFT SOFFIT AND ALIGN WITH EXISTING GYP. BD. FACES.
1. PROVIDE ONE LAYER 5/8" GYP. BD. AT ALL EXISTING PERIMETER WALLS ON EXISTING FRAMING TO STRUCTURAL DECK ABOVE. PROVIDE CONT. CAULKING AT TOP AND BOTTOM OF NEW GYP. BD.
1. EXTERIOR EXIT BALCONIES ARE EXISTING AND HAVE BEEN PREVIOUSLY APPROVED.

1 FLOOR PLAN
Scale: 1/8" = 1'-0"

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Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 100
KNIGHTDALE, NC

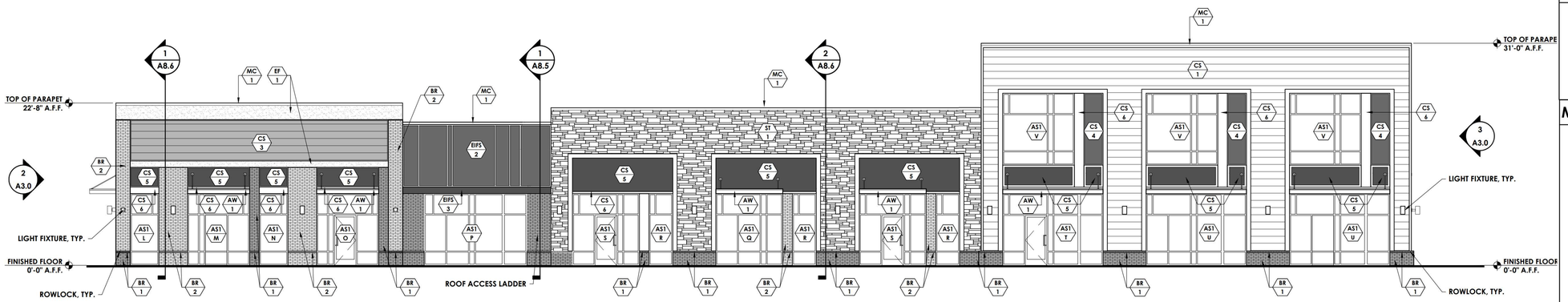
REVISIONS

PROJECT:	2263
DATE:	9/12/24
DRAWN BY:	
CHECKED BY:	XXX

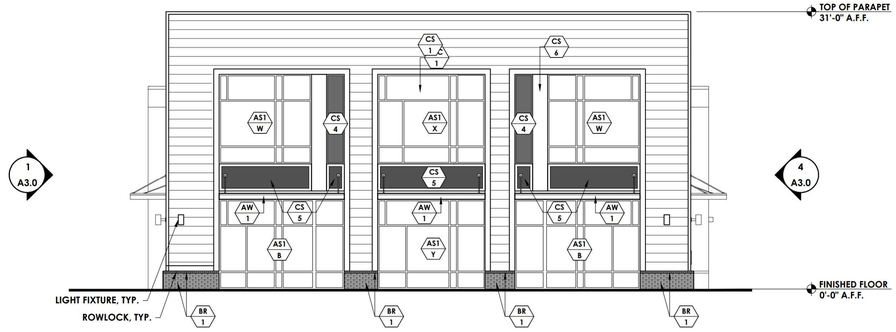
FLOOR PLAN

A1.0

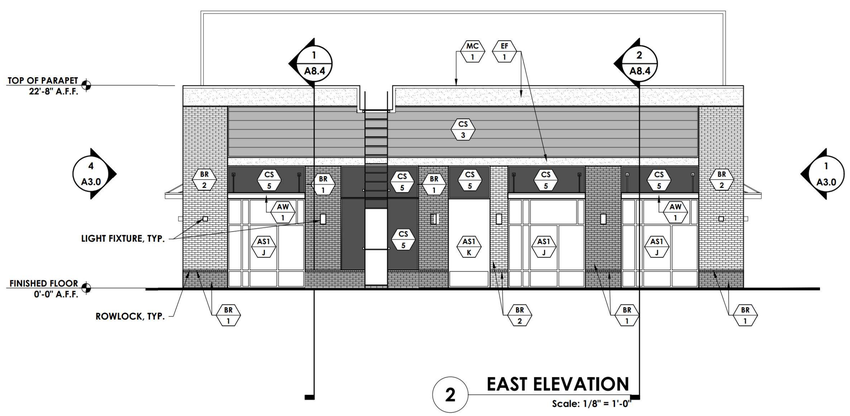
/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 100/2263 BLDG 100 - FLOOR PLAN.DWG



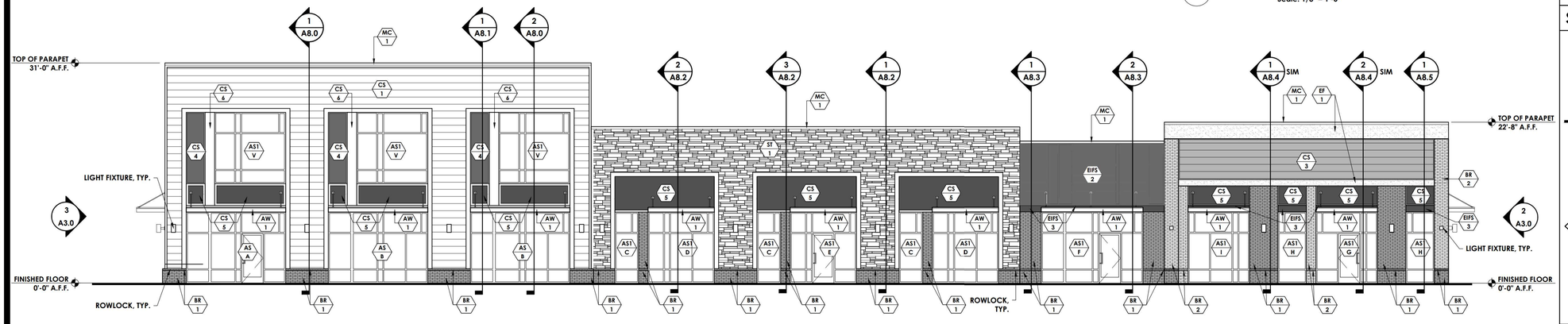
4 **NORTH ELEVATION**
Scale: 1/8" = 1'-0"



3 **WEST ELEVATION**
Scale: 1/8" = 1'-0"



2 **EAST ELEVATION**
Scale: 1/8" = 1'-0"



1 **SOUTH ELEVATION**
Scale: 1/8" = 1'-0"

GENERAL NOTES

1. DO NOT SCALE ELEVATIONS. REFERENCE PLAN AND WALL SECTIONS FOR MORE INFORMATION.
2. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
3. ALL TRIM TO BE PAINTED WHITE (PT-1) UNLESS OTHERWISE NOTED
4.

MATERIALS LEGEND

BR 1	BRICK - CHARCOAL
BR 2	BRICK - WHITE
ST 1	STONE - GRAY
CS 1	FIBERCEMENT SIDING - LAP SIDING - WHITE
CS 2	FIBERCEMENT SIDING - LAP SIDING - GRAY
CS 3	FIBERCEMENT SIDING - LAP SIDING - STAINED
CS 4	FIBERCEMENT SIDING - SMOOTH PANELING - BROWN
CS 5	FIBERCEMENT SIDING - SMOOTH PANELING - CHARCOAL
CS 6	FIBERCEMENT SIDING - SMOOTH PANELING - WHITE
EIFS 1	EIFS - WHITE
EIFS 2	EIFS - BROWN
EIFS 3	EIFS - CHARCOAL
MC 1	METAL COPING - WHITE
MC 2	METAL COPING - CHARCOAL
PT 1	PAINT - SHERWIN-WILLIAMS - SW7006 - EXTRA WHITE
PT 2	PAINT - SHERWIN-WILLIAMS -SW2806 - ROOKWOOD BROWN
PT 3	PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
PT 4	PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
PT 5	PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
AW 1	AWNING - WHITE
AS -	ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

01	DOOR TAG	A	WINDOW TAG
1	KEYNOTE TAG	E101	EQUIPMENT TAG
W000.0 / 1	WALL TYPE TAG	FIN 1	FINISH TAG
1	REVISION NUMBER	1 / 3.0	EXTERIOR ELEVATION TAG
1 / 2 A4.0 3 / 4	INTERIOR ELEVATION TAG	1 / A8.0	SECTION TAG
ROOM 100 SQ. FT.	ROOM TAG	1 / A9.10	PLAN DETAIL TAG

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DESIGN DEVELOPEMENT

KNIGHTDALE STATION
BUILDING 100
KNIGHTDALE, NC

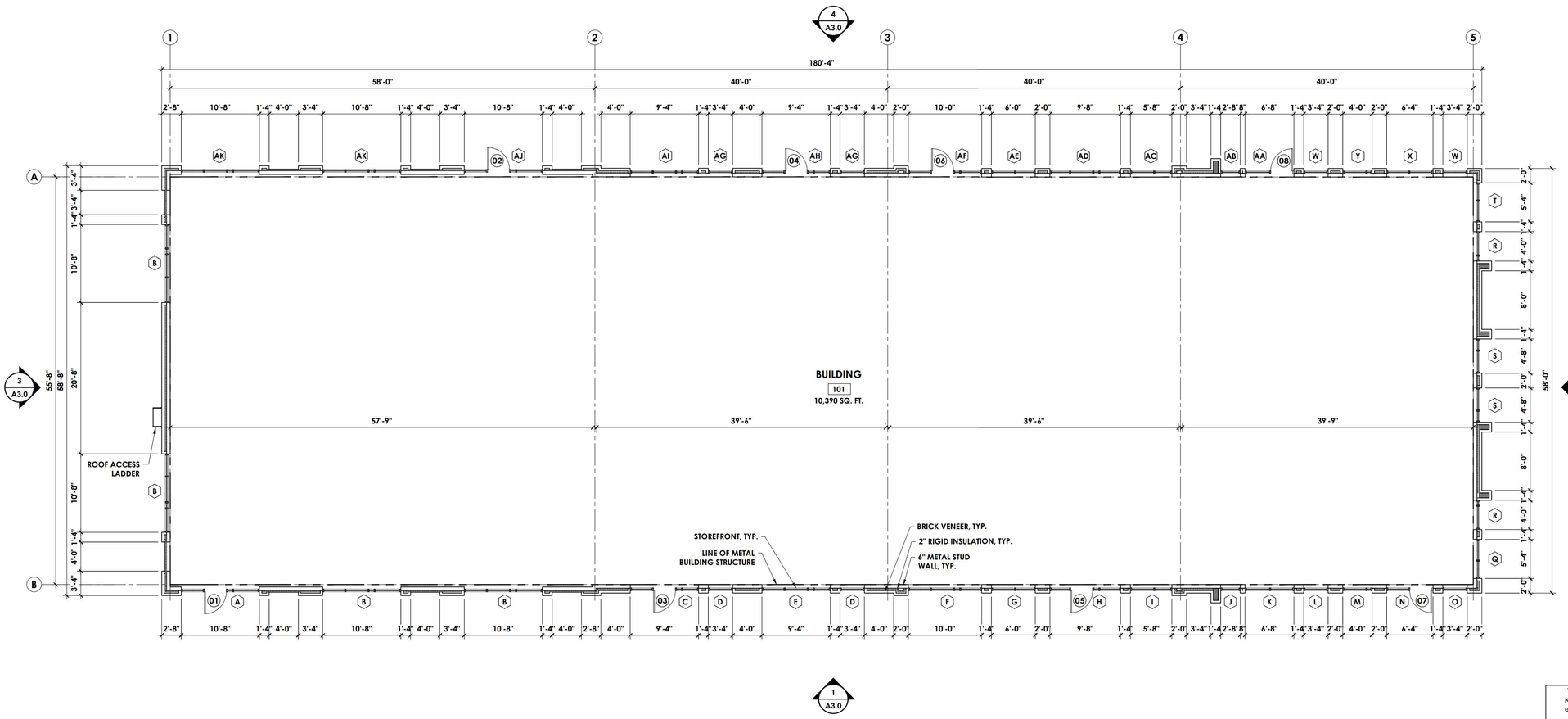
REVISIONS

PROJECT:	2263
DATE:	10/11/24
DRAWN BY:	
CHECKED BY:	XXX

EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 100/2263 BLDG 100 - EXTERIOR ELEVATIONS-MOE.DWG



1 **FLOOR PLAN**
Scale: 1/8" = 1'-0"

SYMBOL LEGEND

- W000.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- E101 — EQUIPMENT TAG
- A — WINDOW TAG
- 01 — DOOR TYPE TAG
- XX — KEYNOTE TAG
- 1 / A8.0 — WALL SECTION TAG
- X / 1 — EXTERIOR ELEVATION TAG
- 1 / A9.10 — PLAN DETAIL TAG

WALL TYPE LEGEND

D / W01	6" METAL STUDS @ 16" O.C. W/ R-19 FOIL FACED BATT INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W02	6" METAL STUDS @ 16" O.C. W/ 4" CLOSED CELL SPRAY FOAM INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER, SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W03	8" CMU WALL W/ FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

KEYNOTES

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919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 101
KNIGHTDALE, NC

REVISIONS

PROJECT:	2263
DATE:	10/14/24
DRAWN BY:	
CHECKED BY:	XXX

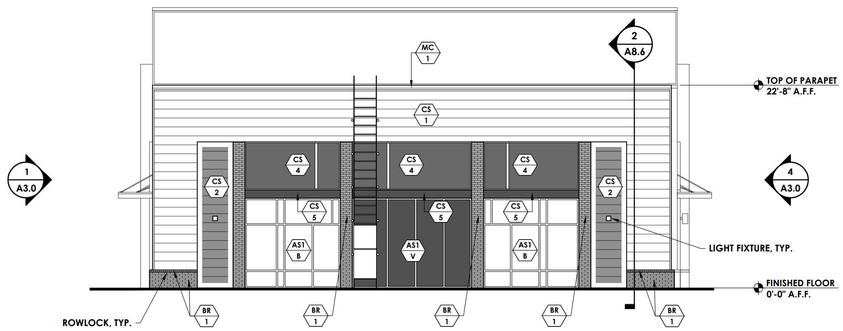
FLOOR PLAN

A1.0

/VOLUMES/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 101/2263 BLDG 101 - FLOOR PLAN.DWG



4 **NORTH ELEVATION**
Scale: 1/8" = 1'-0"



3 **WEST ELEVATION**
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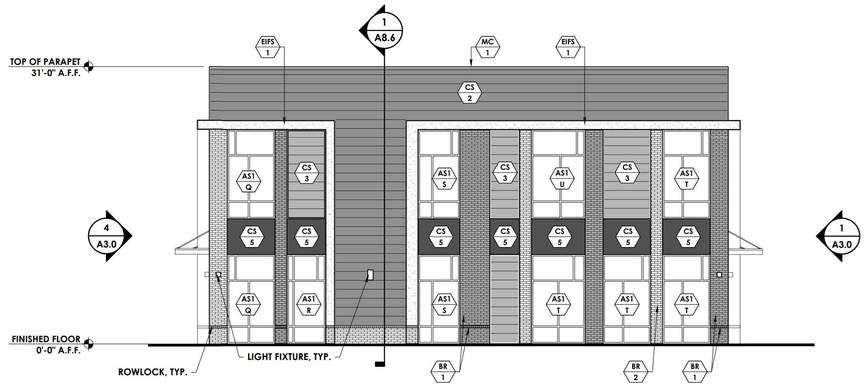

2 **EAST ELEVATION**
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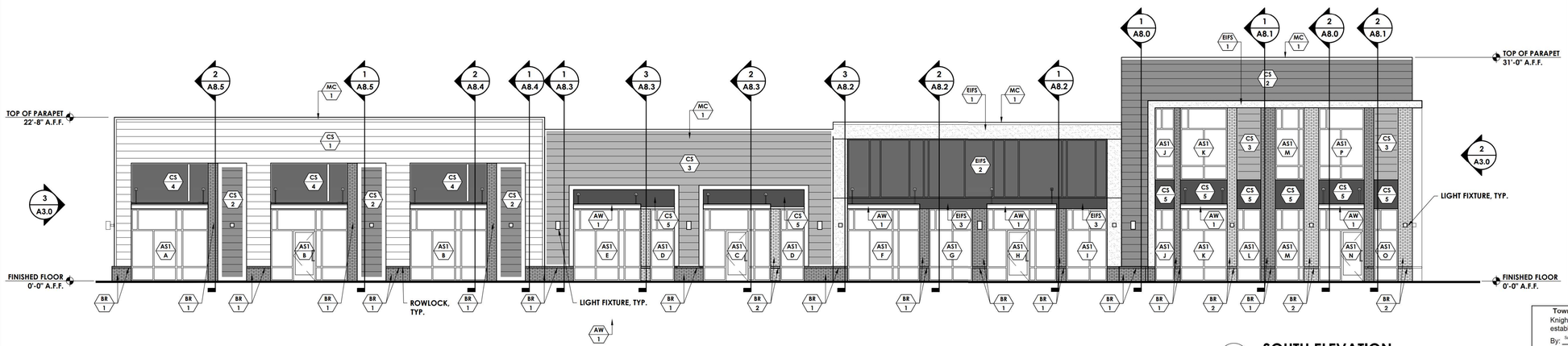

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BR 2	BRICK - WHITE
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EIFS 2	EIFS - BROWN
EIFS 3	EIFS - CHARCOAL
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MC 2	METAL COPING - CHARCOAL
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PT 3	PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
PT 4	PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
PT 5	PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
AW 1	AWNING - WHITE
AS -	ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

01	DOOR TAG	A	WINDOW TAG
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W000.0	WALL TYPE TAG	FIN 1	FINISH TAG
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919-493-8200
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DESIGN DEVELOPEMENT

KNIGHTDALE STATION
BUILDING 101
KNIGHTDALE, NC

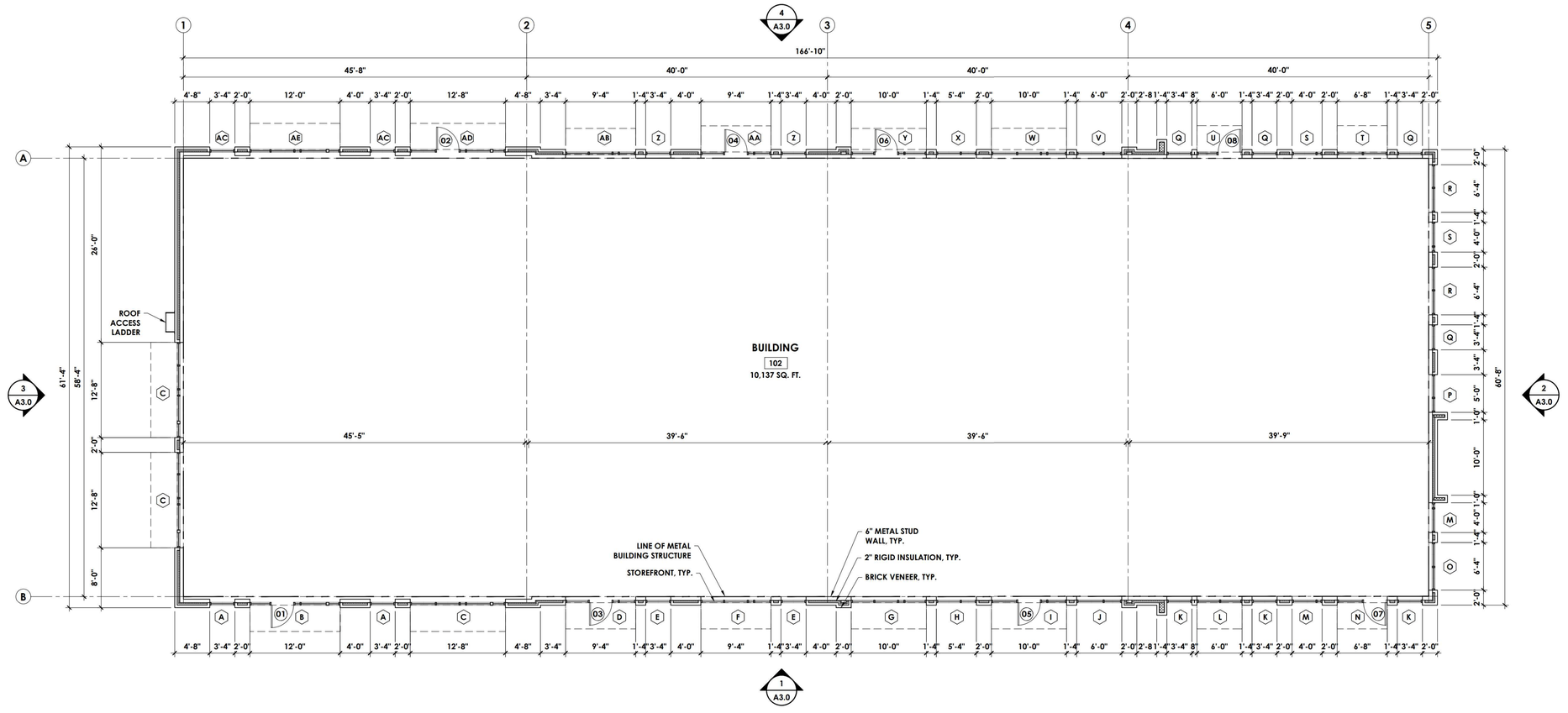
REVISIONS

PROJECT:	2263
DATE:	10/14/24
DRAWN BY:	
CHECKED BY:	XXX

EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 101/2263 BLDG 101 - EXTERIOR ELEVATIONS.DWG



1 FLOOR PLAN
Scale: 1/8" = 1'-0"

SYMBOL LEGEND

W0001.0	WALL TYPE TAG
FIN 1	FINISH TAG
E101	EQUIPMENT TAG
A	WINDOW TAG
01	DOOR TYPE TAG
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NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 102
KNIGHTDALE, NC

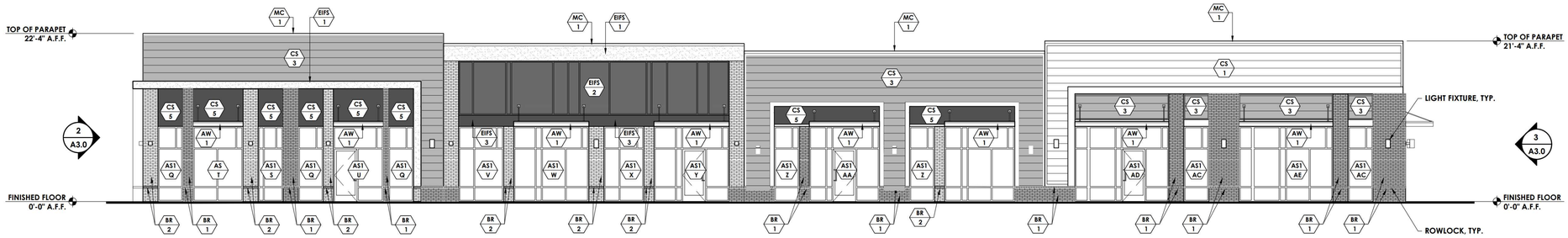
REVISIONS

PROJECT:	2263
DATE:	7/31/24
DRAWN BY:	
CHECKED BY:	XXX

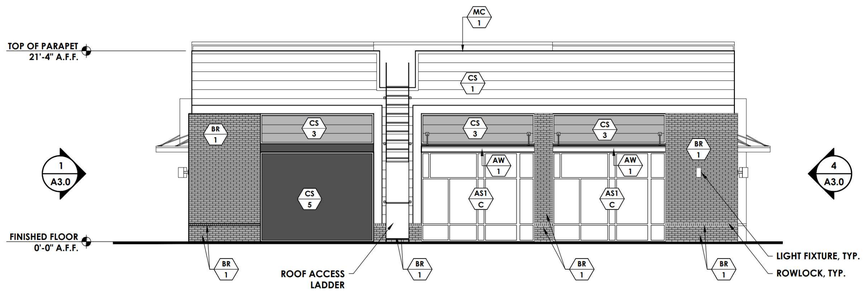
FLOOR PLAN

A1.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 102/2263 BLDG 102 - FLOOR PLAN.DWG



4 SOUTH ELEVATION
Scale: 1/8" = 1'-0"



3 EAST ELEVATION
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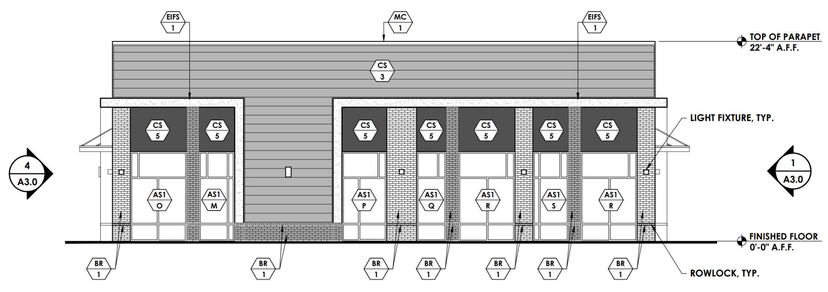

2 WEST ELEVATION
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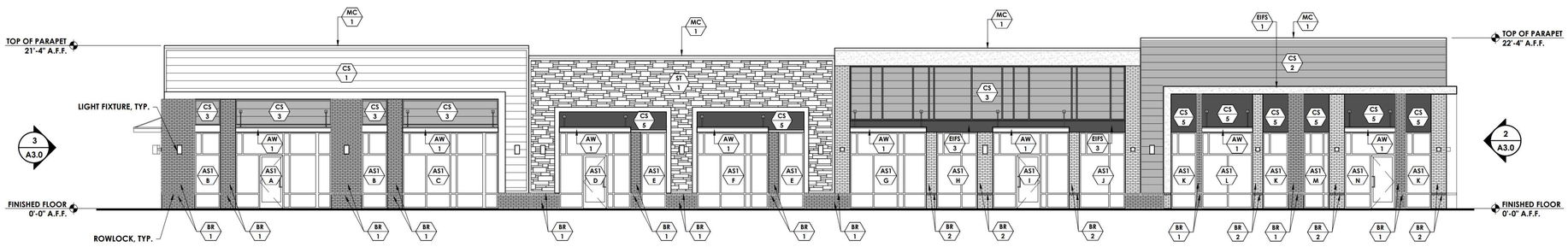

1 NORTH ELEVATION
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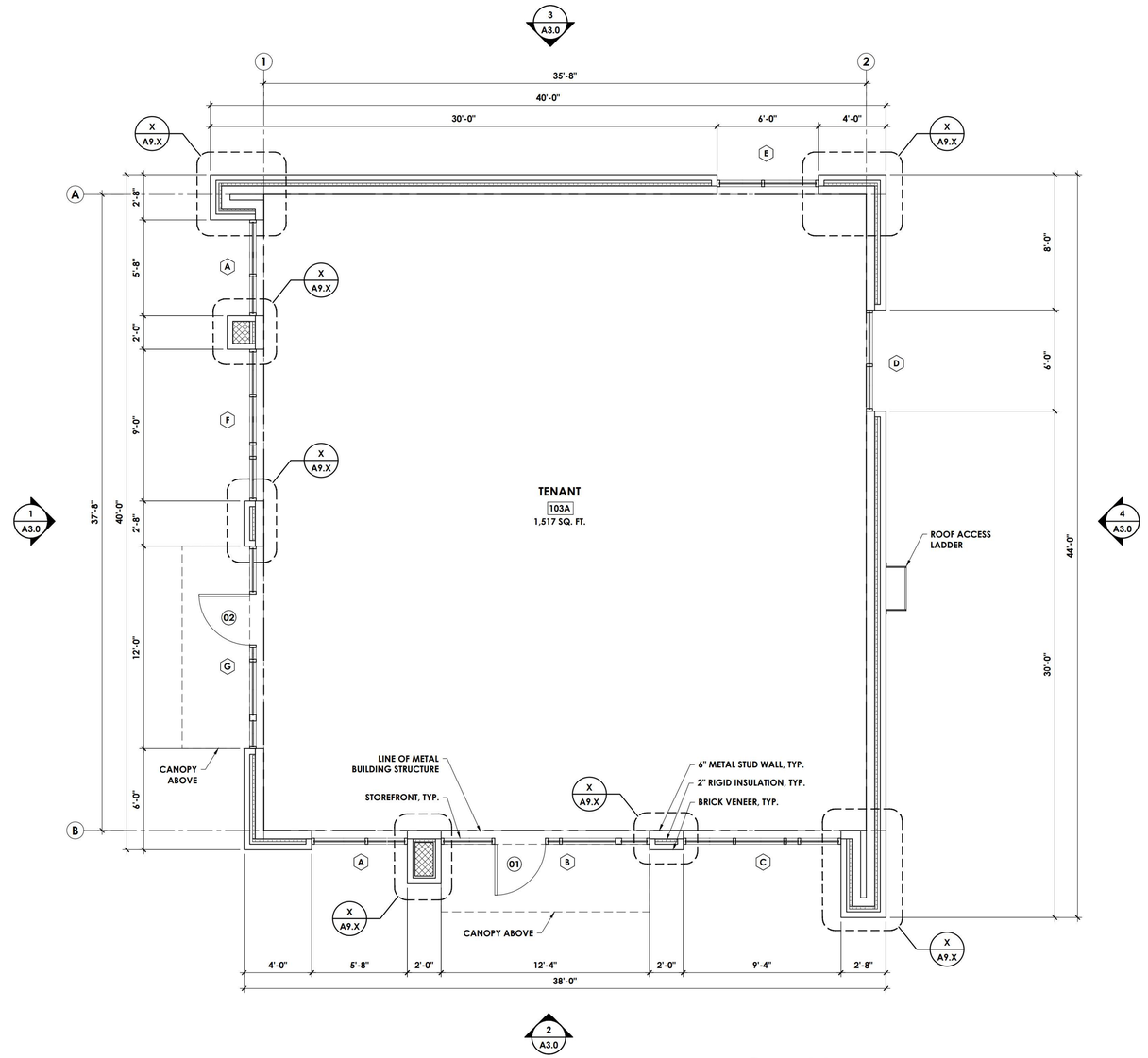
EXTERIOR ELEVATIONS

A2.0

//USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 102/2263 BLDG 102 - EXTERIOR ELEVATIONS.DWG



1 **FLOOR PLAN**
Scale: 1/4" = 1'-0"

SYMBOL LEGEND

- W0001.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- E101 — EQUIPMENT TAG
- A — WINDOW TAG
- 01 — DOOR TYPE TAG
- 1 — KEYNOTE TAG
- 1 / A8.0 — WALL SECTION TAG
- 1 / A3.0 — EXTERIOR ELEVATION TAG
- 1 / A9.10 — PLAN DETAIL TAG

WALL TYPE LEGEND

W01	6" METAL STUDS @ 16" O.C. W/ R-19 FOIL FACED BATT INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W02	6" METAL STUDS @ 16" O.C. W/ 4" CLOSED CELL SPRAY FOAM INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER, SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W03	8" CMU WALL W/ FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

KEYNOTES

1. PROVIDE FRAMING OF COLUMN TIGHT TO PIPES, ETC. AT THIS LOCATION. REMOVE EXCESS RISER CLAMPS, OR ROTATE TO REDUCE COLUMN SIZE IMPACT, AS REQUIRED. MAINTAIN CLEAR DIMENSION AS INDICATED. MATCH COLUMN SIZES AS INDICATED.
1. PROVIDE FURRED WALL UNDERNEATH EXISTING SHAFT SOFFIT AND ALIGN WITH EXISTING GYP. BD. FACES.
1. PROVIDE ONE LAYER 5/8" GYP. BD. AT ALL EXISTING PERIMETER WALLS ON EXISTING FRAMING TO STRUCTURAL DECK ABOVE. PROVIDE CONT. CAULKING AT TOP AND BOTTOM OF NEW GYP. BD.
1. EXTERIOR EXIT BALCONIES ARE EXISTING AND HAVE BEEN PREVIOUSLY APPROVED.

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald — Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith — Date: _____
Land Use Administrator

Finley Design PA
7806 NC HWY 751
Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 103
KNIGHTDALE, NC

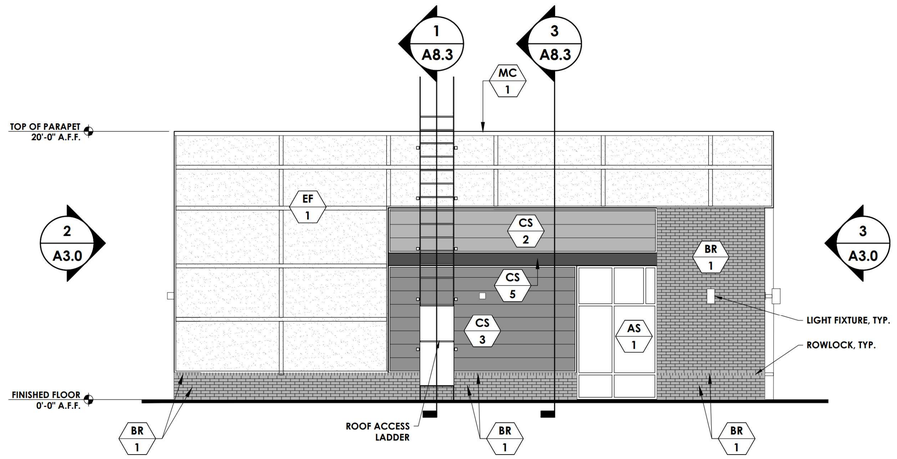
REVISIONS

PROJECT:	2263
DATE:	7/31/24
DRAWN BY:	
CHECKED BY:	XXX

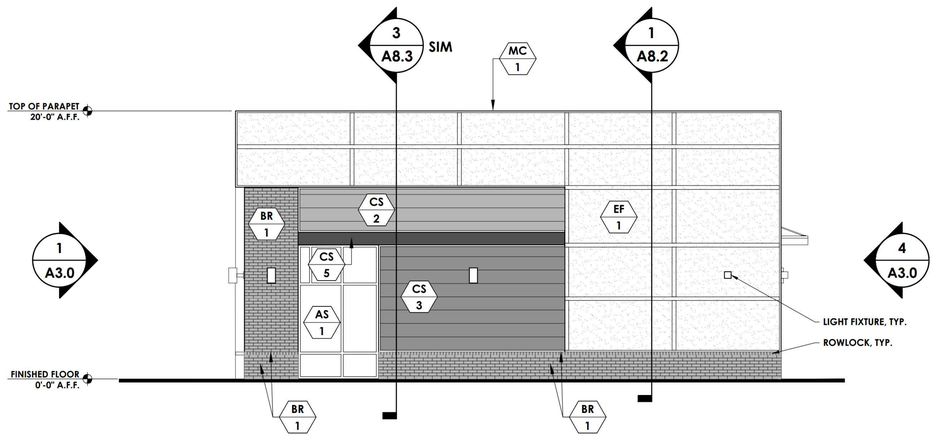
FLOOR PLAN

A1.0

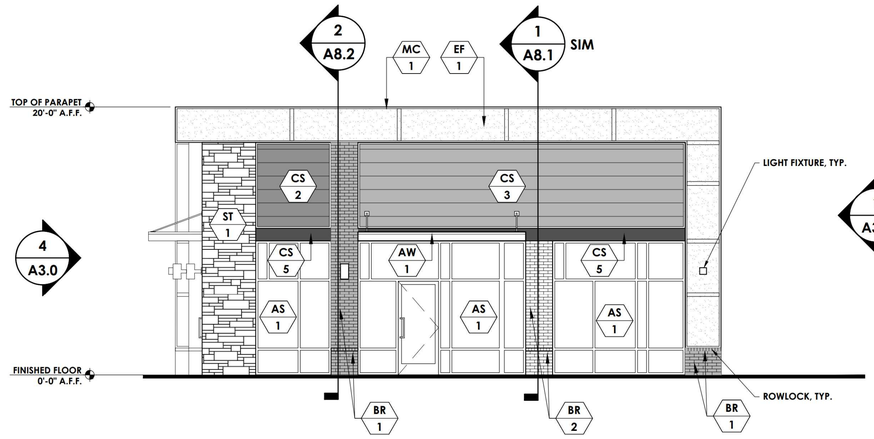
/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 103/2263 BLDG 103 - FLOOR PLAN.DWG



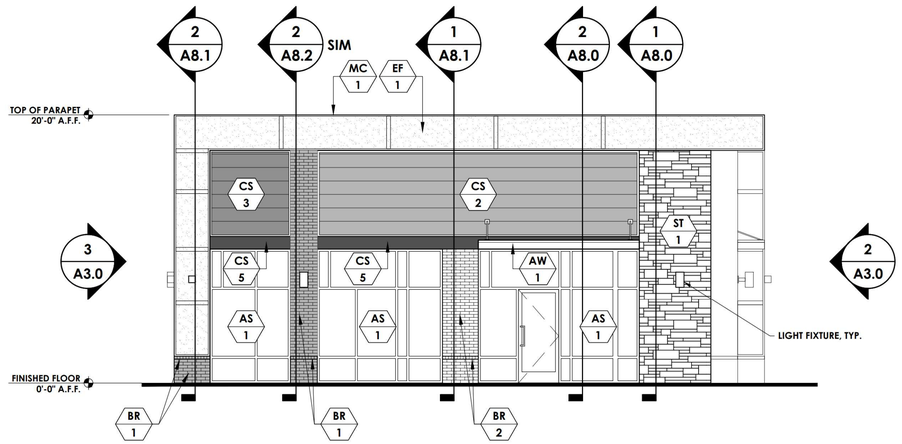
4 WEST ELEVATION
Scale: 3/16" = 1'-0"



3 SOUTH ELEVATION
Scale: 3/16" = 1'-0"



2 NORTH ELEVATION
Scale: 3/16" = 1'-0"



1 EAST ELEVATION
Scale: 3/16" = 1'-0"

GENERAL NOTES

1. DO NOT SCALE ELEVATIONS. REFERENCE PLAN AND WALL SECTIONS FOR MORE INFORMATION.
2. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
3. ALL TRIM TO BE PAINTED WHITE (PT-1) UNLESS OTHERWISE NOTED
4. "BUILDING 103 IS NOT REQUIRED TO MEET THE TRANSPARENCY REQUIREMENTS OUTLINED IN Section 6.8 OF THE UNIFIED DEVELOPMENTS ORDINANCE PER ORDINANCE #23-10-18-004.

MATERIALS LEGEND

- BR 1 — BRICK - CHARCOAL
- BR 2 — BRICK - WHITE
- ST 1 — STONE - GRAY
- CS 1 — FIBERCEMENT SIDING - LAP SIDING - WHITE
- CS 2 — FIBERCEMENT SIDING - LAP SIDING - GRAY
- CS 3 — FIBERCEMENT SIDING - LAP SIDING - STAINED
- CS 4 — FIBERCEMENT SIDING - SMOOTH PANELING - BROWN
- CS 5 — FIBERCEMENT SIDING - SMOOTH PANELING - CHARCOAL
- CS 6 — FIBERCEMENT SIDING - SMOOTH PANELING - WHITE
- EIFS 1 — EIFS - WHITE
- EIFS 2 — EIFS - BROWN
- EIFS 3 — EIFS - CHARCOAL
- MC 1 — METAL COPING - WHITE
- MC 2 — METAL COPING - CHARCOAL
- PT 1 — PAINT - SHERWIN-WILLIAMS - SW7006 - EXTRA WHITE
- PT 2 — PAINT - SHERWIN-WILLIAMS -SW2806 - ROOKWOOD BROWN
- PT 3 — PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
- PT 4 — PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
- PT 5 — PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
- AW 1 — AWNING - WHITE
- AS - — ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

- 01 — DOOR TAG
- A — WINDOW TAG
- 1 — KEYNOTE TAG
- E101 — EQUIPMENT TAG
- W000.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- 1 — REVISION NUMBER
- 1 / 3.0 — EXTERIOR ELEVATION TAG
- 1 / 2 / A4.0 / 3 / 4 — INTERIOR ELEVATION TAG
- 1 / A8.0 — SECTION TAG
- ROOM / 100 / SQ. FT. — ROOM TAG
- 1 / A9.10 — PLAN DETAIL TAG

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

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By: Gideon Smith Date: _____
Land Use Administrator

Finley Design PA
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Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

DESIGN DEVELOPEMENT

KNIGHTDALE STATION
BUILDING 103
KNIGHTDALE, NC

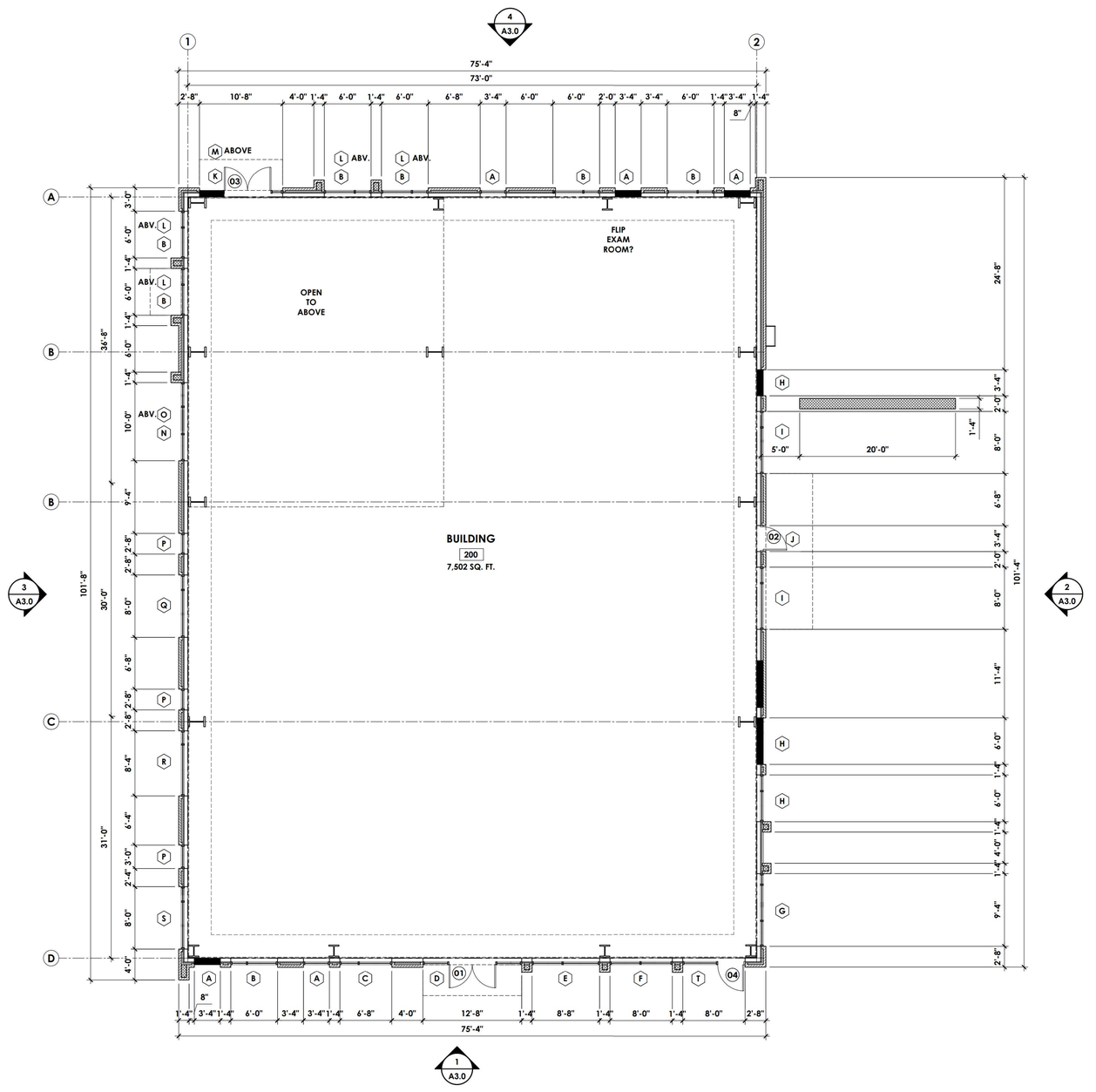
REVISIONS

PROJECT:	2263
DATE:	9/12/24
DRAWN BY:	
CHECKED BY:	XXX

EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 103/2263 BLDG 103 - EXTERIOR ELEVATIONS.DWG



1 FLOOR PLAN

Scale: 1/8" = 1'-0"

SYMBOL LEGEND

W000.0	WALL TYPE TAG
FIN 1	FINISH TAG
E101	EQUIPMENT TAG
A	WINDOW TAG
01	DOOR TYPE TAG
1	KEYNOTE TAG
1 / A8.0	WALL SECTION TAG
1 / A3.0	EXTERIOR ELEVATION TAG
	PLAN DETAIL TAG

WALL TYPE LEGEND

W01	6" METAL STUDS @ 16" O.C. W/ R-19 FOIL FACED BATT INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W02	6" METAL STUDS @ 16" O.C. W/ 4" CLOSED CELL SPRAY FOAM INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER, SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W03	8" CMU WALL W/ FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

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By: Gideon Smith Date: _____
Land Use Administrator

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919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 200
KNIGHTDALE, NC

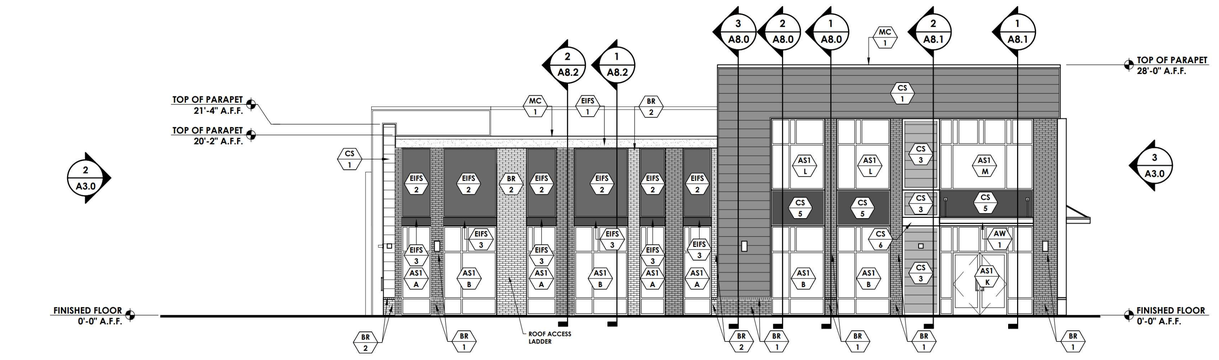
REVISIONS

PROJECT:	2263
DATE:	9/13/24
DRAWN BY:	
CHECKED BY:	TWR

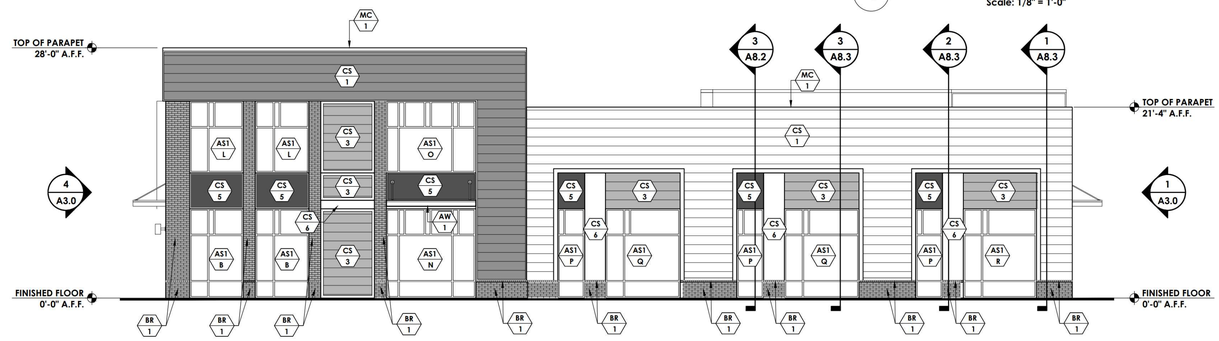
FLOOR PLAN

A1.0

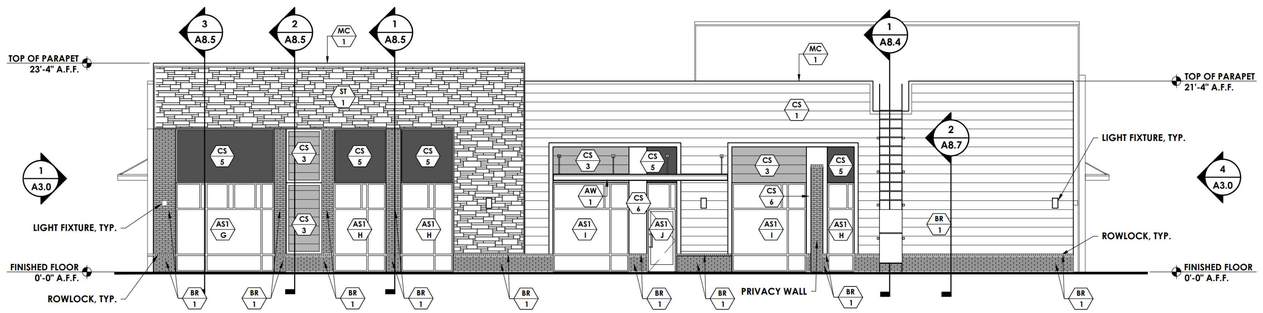
/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 200/2263 BLDG 200 - FLOOR PLAN.DWG



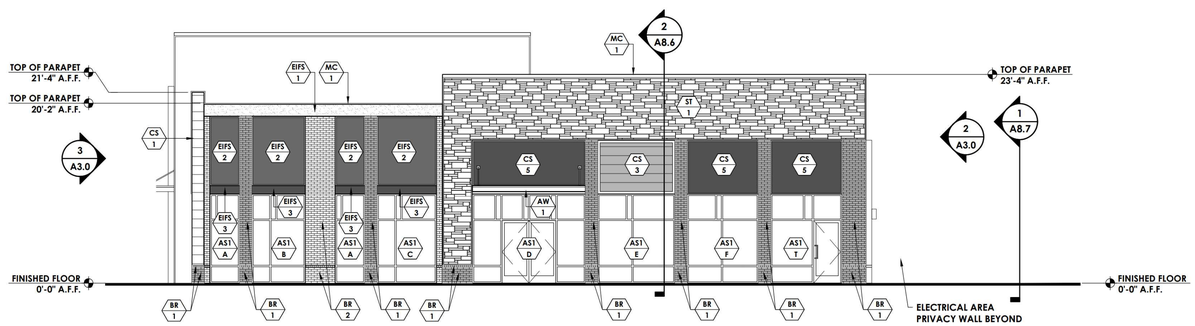
4 **SOUTH ELEVATION**
Scale: 1/8" = 1'-0"



3 **WEST ELEVATION**
Scale: 1/8" = 1'-0"



2 **EAST ELEVATION**
Scale: 1/8" = 1'-0"



1 **NORTH ELEVATION**
Scale: 1/8" = 1'-0"

GENERAL NOTES

1. DO NOT SCALE ELEVATIONS. REFERENCE PLAN AND WALL SECTIONS FOR MORE INFORMATION.
2. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
3. ALL TRIM TO BE PAINTED WHITE (PT-1) UNLESS OTHERWISE NOTED
4.

MATERIALS LEGEND

- BR 1 — BRICK - CHARCOAL
- BR 2 — BRICK - WHITE
- ST 1 — STONE - GRAY
- CS 1 — FIBERCEMENT SIDING - LAP SIDING - WHITE
- CS 2 — FIBERCEMENT SIDING - LAP SIDING - GRAY
- CS 3 — FIBERCEMENT SIDING - LAP SIDING - STAINED
- CS 4 — FIBERCEMENT SIDING - SMOOTH PANELING - BROWN
- CS 5 — FIBERCEMENT SIDING - SMOOTH PANELING - CHARCOAL
- CS 6 — FIBERCEMENT SIDING - SMOOTH PANELING - WHITE
- EIFS 1 — EIFS - WHITE
- EIFS 2 — EIFS - BROWN
- EIFS 3 — EIFS - CHARCOAL
- MC 1 — METAL COPING - WHITE
- MC 2 — METAL COPING - CHARCOAL
- PT 1 — PAINT - SHERWIN-WILLIAMS - SW7006 - EXTRA WHITE
- PT 2 — PAINT - SHERWIN-WILLIAMS -SW2806 - ROOKWOOD BROWN
- PT 3 — PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
- PT 4 — PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
- PT 5 — PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
- AW 1 — AWNING - WHITE
- AS - — ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

- 01 — DOOR TAG
- A — WINDOW TAG
- 1 — KEYNOTE TAG
- E101 — EQUIPMENT TAG
- W000.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- 1 — REVISION NUMBER
- 1 / 3.0 — EXTERIOR ELEVATION TAG
- 1 / A4.0 / 2 3 4 — INTERIOR ELEVATION TAG
- 1 / A8.0 — SECTION TAG
- ROOM / 100 SQ. FT. — ROOM TAG
- 1 / A9.10 — PLAN DETAIL TAG

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By: Samuel A. MacDonald Date: _____
Town Engineer

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By: Gideon Smith Date: _____
Land Use Administrator

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7806 NC HWY 751
Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

DESIGN DEVELOPMENT

KNIGHTDALE STATION
BUILDING 200 KNIGHTDALE, NC

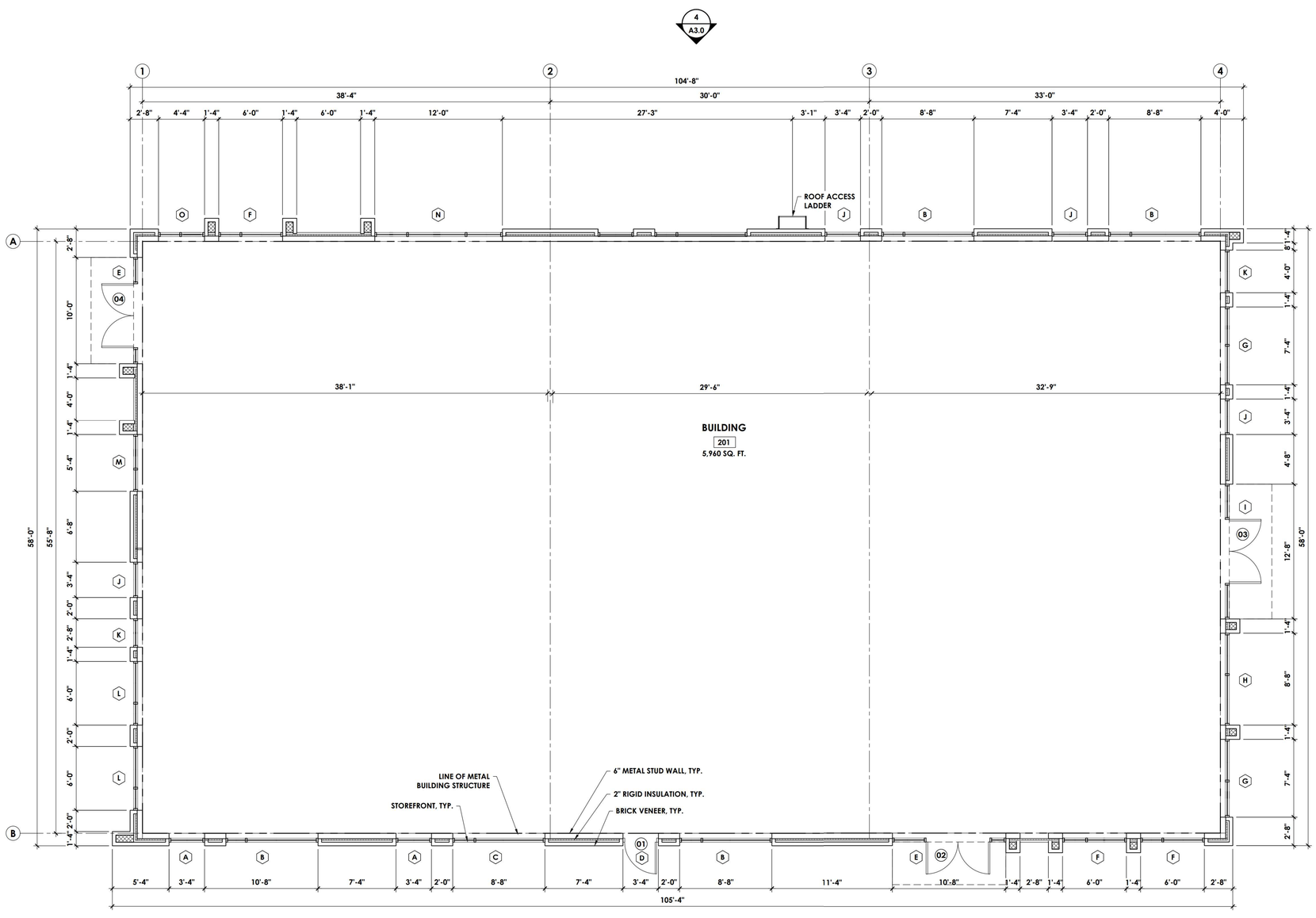
REVISIONS

PROJECT:	2263
DATE:	9/12/24
DRAWN BY:	
CHECKED BY:	TWR

EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 200/2263 BLDG 200 - EXTERIOR ELEVATIONS.DWG



1 FLOOR PLAN

Scale: 3/16" = 1'-0"

SYMBOL LEGEND

- W001.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- E101 — EQUIPMENT TAG
- A — WINDOW TAG
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- 1 / A8.0 — WALL SECTION TAG
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WALL TYPE LEGEND

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W02	6" METAL STUDS @ 16" O.C. W/ 4" CLOSED CELL SPRAY FOAM INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER, SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W03	8" CMU WALL W/ FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

KEYNOTES

- XX — PROVIDE FRAMING OF COLUMN TIGHT TO PIPES, ETC. AT THIS LOCATION. REMOVE EXCESS RISER CLAMPS, OR ROTATE TO REDUCE COLUMN SIZE IMPACT, AS REQUIRED. MAINTAIN CLEAR DIMENSION AS INDICATED. MATCH COLUMN SIZES AS INDICATED.
- XX — PROVIDE FURRED WALL UNDERNEATH EXISTING SHAFT SOFFIT AND ALIGN WITH EXISTING GYP. BD. FACES.
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By: Samuel A. MacDonald Date: _____
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By: Gideon Smith Date: _____
Land Use Administrator

Finley Design PA
7806 NC HWY 751
Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 201
KNIGHTDALE, NC

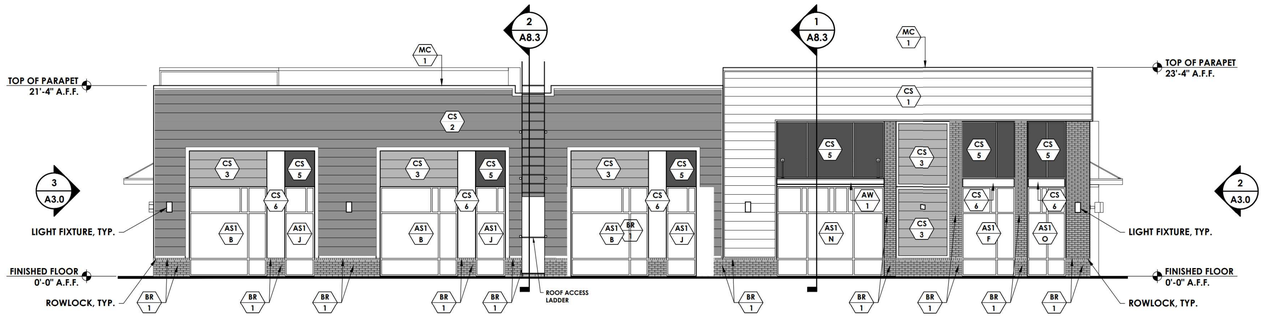
REVISIONS

PROJECT:	2263
DATE:	10/14/24
DRAWN BY:	
CHECKED BY:	XXX

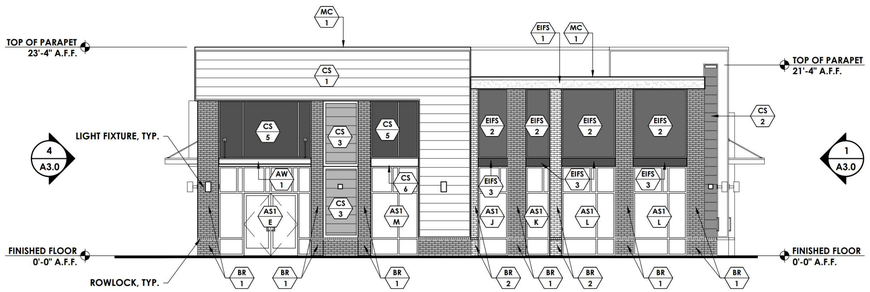
FLOOR PLAN

A1.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 201/2263 BLDG 201 - FLOOR PLAN.DWG



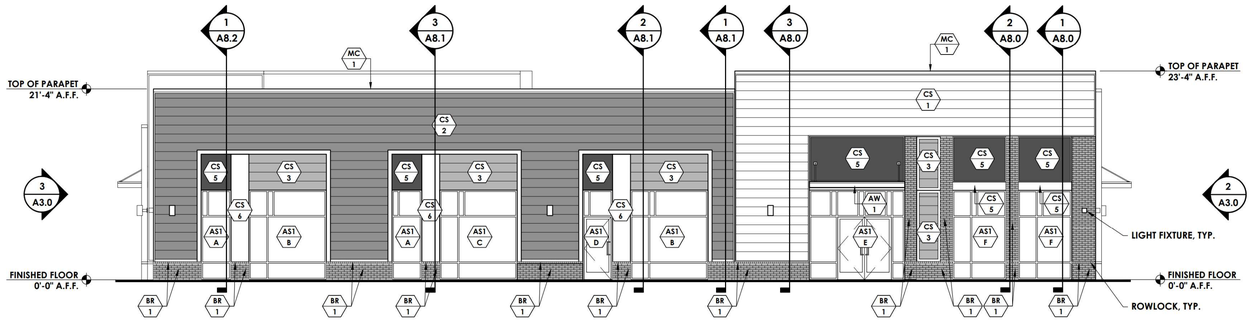
4 SOUTH ELEVATION
Scale: 1/8" = 1'-0"



3 WEST ELEVATION
Scale: 1/8" = 1'-0"



2 NORTH ELEVATION
Scale: 1/8" = 1'-0"



1 EAST ELEVATION
Scale: 1/8" = 1'-0"

GENERAL NOTES

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2. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
3. ALL TRIM TO BE PAINTED WHITE (PT-1) UNLESS OTHERWISE NOTED
4.

MATERIALS LEGEND

- BR 1 — BRICK - CHARCOAL
- BR 2 — BRICK - WHITE
- CS 1 — FIBERCEMENT SIDING - LAP SIDING - WHITE
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- CS 4 — FIBERCEMENT SIDING - SMOOTH PANELING - BROWN
- CS 5 — FIBERCEMENT SIDING - SMOOTH PANELING - CHARCOAL
- CS 6 — FIBERCEMENT SIDING - SMOOTH PANELING - WHITE
- EIFS 1 — EIFS - WHITE
- EIFS 2 — EIFS - BROWN
- EIFS 3 — EIFS - CHARCOAL
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- PT 2 — PAINT - SHERWIN-WILLIAMS -SW2806 - ROOKWOOD BROWN
- PT 3 — PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
- PT 4 — PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
- PT 5 — PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
- AW 1 — AWNING - WHITE
- AS - — ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

- 01 — DOOR TAG
- A — WINDOW TAG
- 1 — KEYNOTE TAG
- E101 — EQUIPMENT TAG
- W000.0 / 1 — WALL TYPE TAG
- FIN 1 — FINISH TAG
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Land Use Administrator

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DESIGN DEVELOPEMENT

KNIGHTDALE STATION
BUILDING 201
KNIGHTDALE, NC

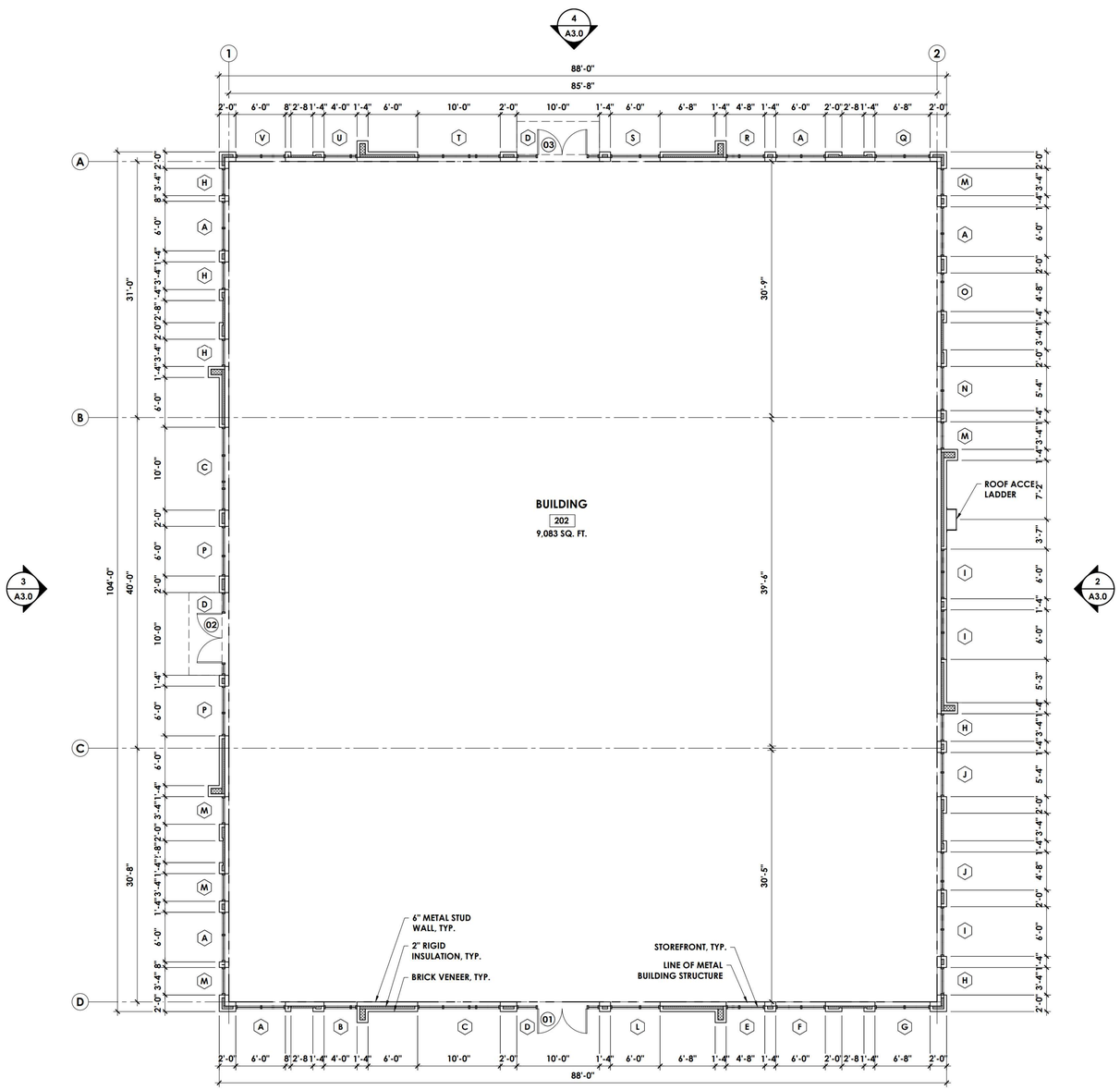
REVISIONS

PROJECT:	2263
DATE:	9/12/24
DRAWN BY:	
CHECKED BY:	XXX

EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 201/2263 BLDG 201 - EXTERIOR ELEVATIONS.DWG



SYMBOL LEGEND

- WALL TYPE TAG (W001.0)
- FINISH TAG (FIN 1)
- EQUIPMENT TAG (E101)
- WINDOW TAG (A)
- DOOR TYPE TAG (01)
- KEYNOTE TAG (1)
- WALL SECTION TAG (1 / A8.0)
- EXTERIOR ELEVATION TAG (1 / A3.0)
- PLAN DETAIL TAG (1 / A9.10)

WALL TYPE LEGEND

W01	6" METAL STUDS @ 16" O.C. W/ R-19 FOIL FACED BATT INSULATION W/ FIRE BARRIER ABOVE 12'-0" A.F.F., 5/8" GLASS MAT SHEATHING, FLUID APPLIED AIR/WATER BARRIER. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES
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W04	FIRE BARRIER: 2 HOUR RATED WALL. SEE RATED ASSEMBLY ON SHEET A0.2 FOR MORE INFORMATION.

KEYNOTES

1. PROVIDE FRAMING OF COLUMN TIGHT TO PIPES, ETC. AT THIS LOCATION. REMOVE EXCESS RISER CLAMPS, OR ROTATE TO REDUCE COLUMN SIZE IMPACT, AS REQUIRED. MAINTAIN CLEAR DIMENSION AS INDICATED. MATCH COLUMN SIZES AS INDICATED.
2. PROVIDE FURRED WALL UNDERNEATH EXISTING SHAFT SOFFIT AND ALIGN WITH EXISTING GYP. BD. FACES.
3. PROVIDE ONE LAYER 5/8" GYP. BD. AT ALL EXISTING PERIMETER WALLS ON EXISTING FRAMING TO STRUCTURAL DECK ABOVE. PROVIDE CONT. CAULKING AT TOP AND BOTTOM OF NEW GYP. BD.
4. EXTERIOR EXIT BALCONIES ARE EXISTING AND HAVE BEEN PREVIOUSLY APPROVED.

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____
Land Use Administrator

1 / A3.0

1 **FLOOR PLAN**
Scale: 1/8" = 1'-0"

Finley Design PA
7806 NC HWY 751
Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

NOT FOR CONSTRUCTION

KNIGHTDALE STATION
BUILDING 202 KNIGHTDALE, NC

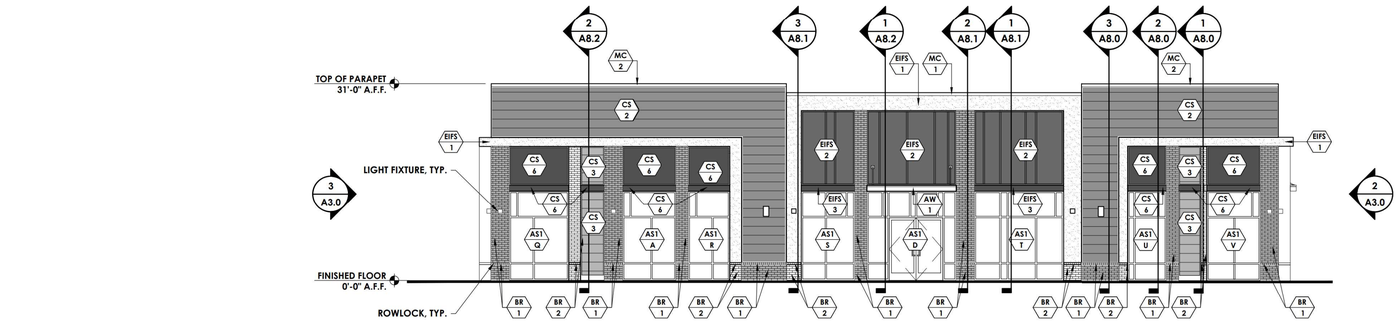
REVISIONS

PROJECT:	2263
DATE:	10/14/24
DRAWN BY:	
CHECKED BY:	TWR

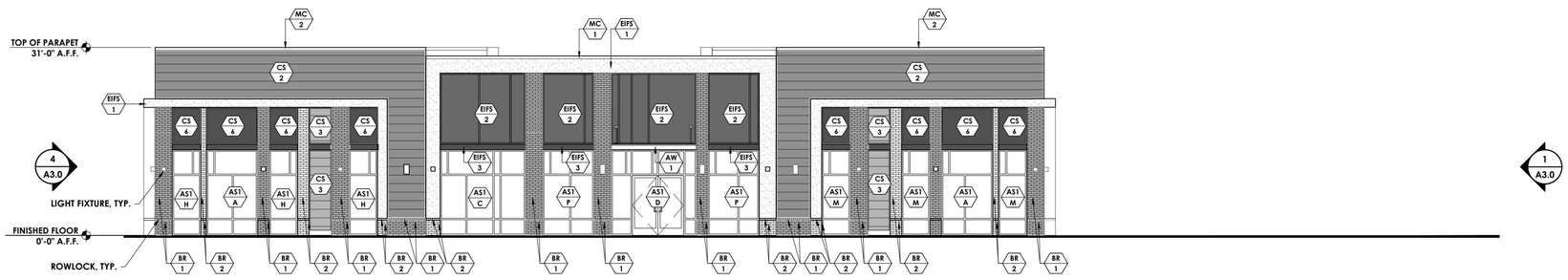
FLOOR PLAN

A1.0

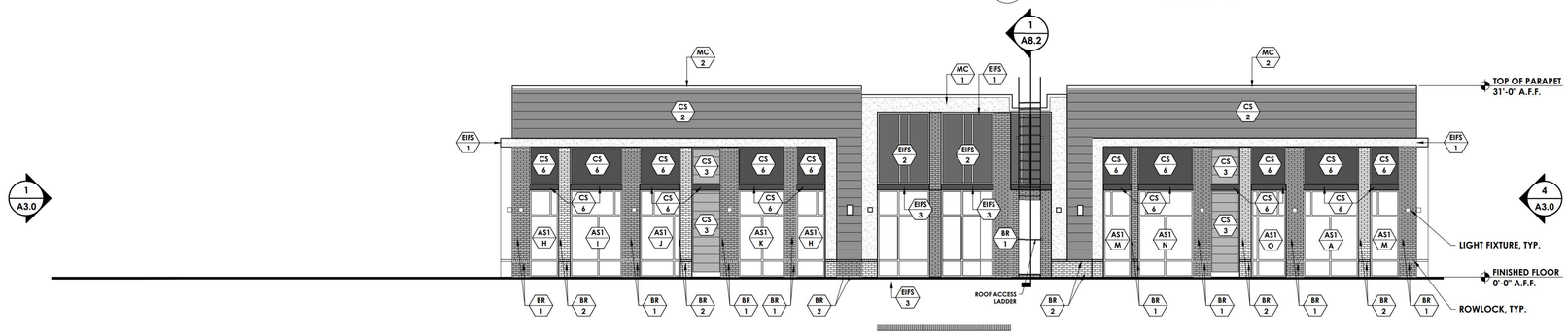
/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 202/2263 BLDG 202 - FLOOR PLAN.DWG



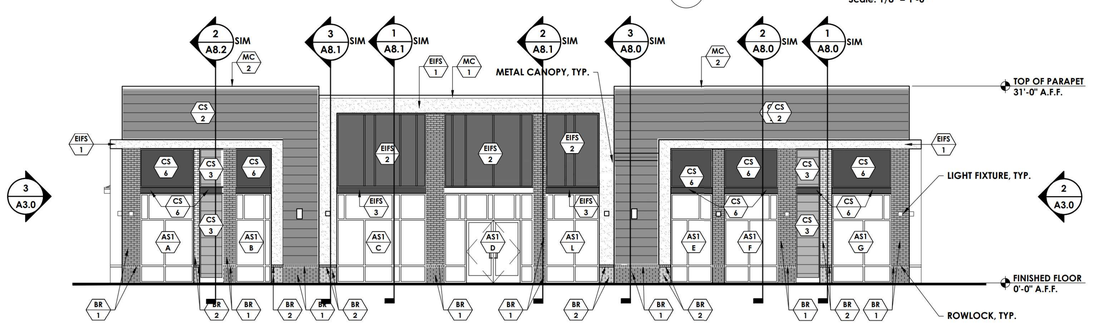
4 **WEST ELEVATION**
Scale: 1/8" = 1'-0"



3 **NORTH ELEVATION**
Scale: 1/8" = 1'-0"



2 **SOUTH ELEVATION**
Scale: 1/8" = 1'-0"



1 **EAST ELEVATION**
Scale: 1/8" = 1'-0"

GENERAL NOTES

1. DO NOT SCALE ELEVATIONS. REFERENCE PLAN AND WALL SECTIONS FOR MORE INFORMATION.
2. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
3. ALL TRIM TO BE PAINTED WHITE (PT-1) UNLESS OTHERWISE NOTED
4.

MATERIALS LEGEND

- BR 1 — BRICK - CHARCOAL
- BR 2 — BRICK - WHITE
- CS 1 — FIBERCEMENT SIDING - LAP SIDING - WHITE
- CS 2 — FIBERCEMENT SIDING - LAP SIDING - GRAY
- CS 3 — FIBERCEMENT SIDING - LAP SIDING - STAINED
- CS 4 — FIBERCEMENT SIDING - SMOOTH PANELING - BROWN
- CS 5 — FIBERCEMENT SIDING - SMOOTH PANELING - CHARCOAL
- CS 6 — FIBERCEMENT SIDING - SMOOTH PANELING - WHITE
- EIFS 1 — EIFS - WHITE
- EIFS 2 — EIFS - BROWN
- EIFS 3 — EIFS - CHARCOAL
- MC 1 — METAL COPING - WHITE
- MC 2 — METAL COPING - CHARCOAL
- PT 1 — PAINT - SHERWIN-WILLIAMS - SW7006 - EXTRA WHITE
- PT 2 — PAINT - SHERWIN-WILLIAMS -SW2806 - ROOKWOOD BROWN
- PT 3 — PAINT - SHERWIN-WILLIAMS -SW2800- ROOKWOOD DARK BROWN
- PT 4 — PAINT - SHERWIN-WILLIAMS - SW6341 - RED CENT
- PT 5 — PAINT - SHERWIN-WILLIAMS - SW6113 - INTERACTIVE CREAM
- AW 1 — AWNING - WHITE
- AS — ALUMINUM STOREFRONT - KAWNEER - WHITE

SYMBOLS LEGEND

- 01 — DOOR TAG
- A — WINDOW TAG
- 1 — KEYNOTE TAG
- E101 — EQUIPMENT TAG
- W000.0 — WALL TYPE TAG
- FIN 1 — FINISH TAG
- 1 — REVISION NUMBER
- 1 / 3.0 — EXTERIOR ELEVATION TAG
- 1 / 2 / A4.0 / 3 / 4 — INTERIOR ELEVATION TAG
- 1 / A8.0 — SECTION TAG
- ROOM 100 SQ. FT. — ROOM TAG
- 1 / A9.10 — PLAN DETAIL TAG

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

Finley Design PA
7806 NC HWY 751
Suite 110
Durham, NC 27713
919-493-8200
FINLEYDESIGNARCH.COM

DESIGN DEVELOPMENT

KNIGHTDALE STATION
BUILDING 202 KNIGHTDALE, NC

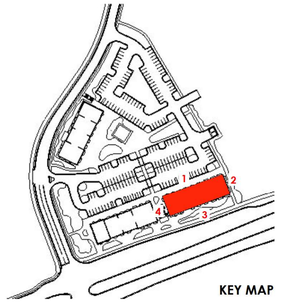
REVISIONS

PROJECT:	2263
DATE:	9/12/24
DRAWN BY:	
CHECKED BY:	TWR

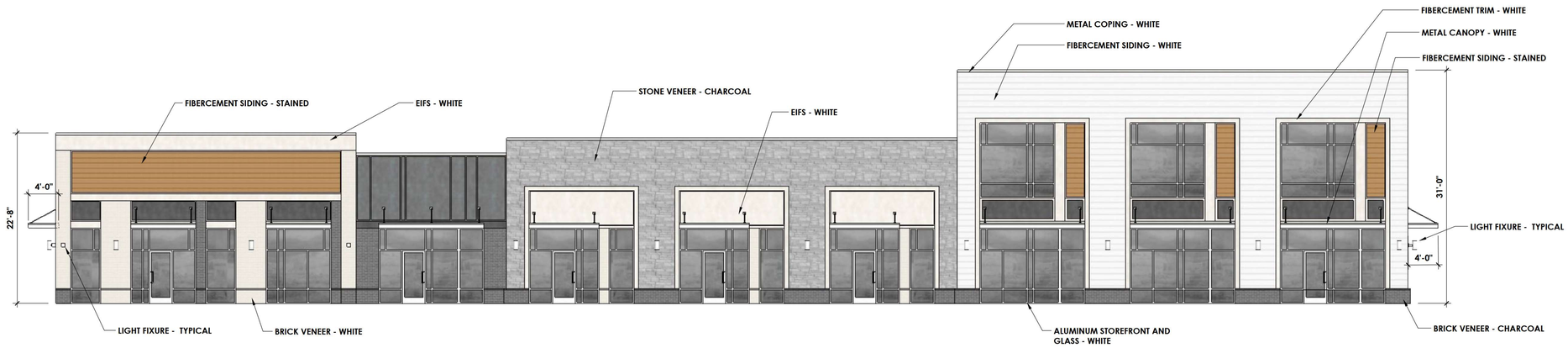
EXTERIOR ELEVATIONS

A2.0

/USERS/SHARED/FINLEY DESIGN/PROJECTS/2263 KNIGHTDALE STATION/DRAWINGS/BLDG 202/2263 BLDG 202 - EXTERIOR ELEVATIONS.DWG



KEY MAP



3 FRONT ELEVATION - NORTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(180'L X 14'H) = 2,520 SF X 0.4 = 1008 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,193 SF (47%)
ACTUAL EIFS PROVIDED: 620 SF (14%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
63'L X 14'H = 882 SF x 0.4 = 353 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 367 SF (42%)
ACTUAL EIFS PROVIDED: 199 SF (19%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
59'L X 14'H = 826 SF x 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 367 SF (44%)
ACTUAL EIFS PROVIDED: 200 SF (14%)



1 BACK ELEVATION - SOUTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(180'L X 14'H) = 2,520 SF X 0.4 = 1008 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,193 SF (47%)
ACTUAL EIFS PROVIDED: 700 SF (16%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

Finley Design PA
7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

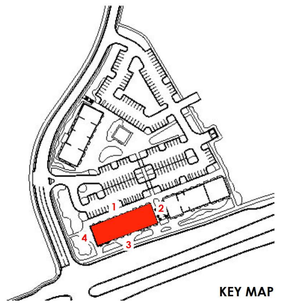
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

Project: 2263
Date: 10/11/24

Building Elevations: Building 100

A3.0



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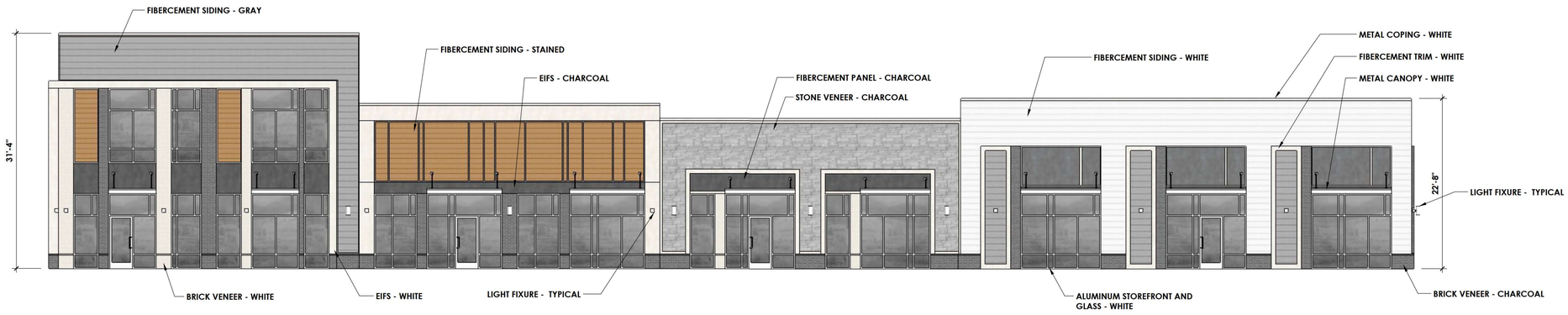


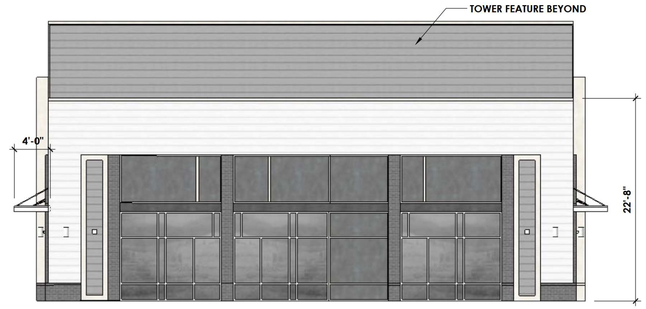
3 FRONT ELEVATION - NORTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(181'L X 14'H) = 2,534 SF X 0.4 = 1014 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,153 SF (46%)
ACTUAL EIFS PROVIDED: 595 SF (14%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
59'L X 14'H = 826 SF X 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 353 SF (43%)
ACTUAL EIFS PROVIDED: 240 SF (13%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
59'L X 14'H = 826 SF X 0.4 = 333 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 213 SF (40%)
ACTUAL EIFS PROVIDED: 302 SF (22%)



1 BACK ELEVATION - SOUTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(181'L X 14'H) = 2,534 SF X 0.4 = 1014 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,153 SF (46%)
ACTUAL EIFS PROVIDED: 888 SF (21%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

Finley Design PA
7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

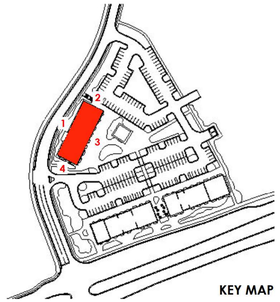
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

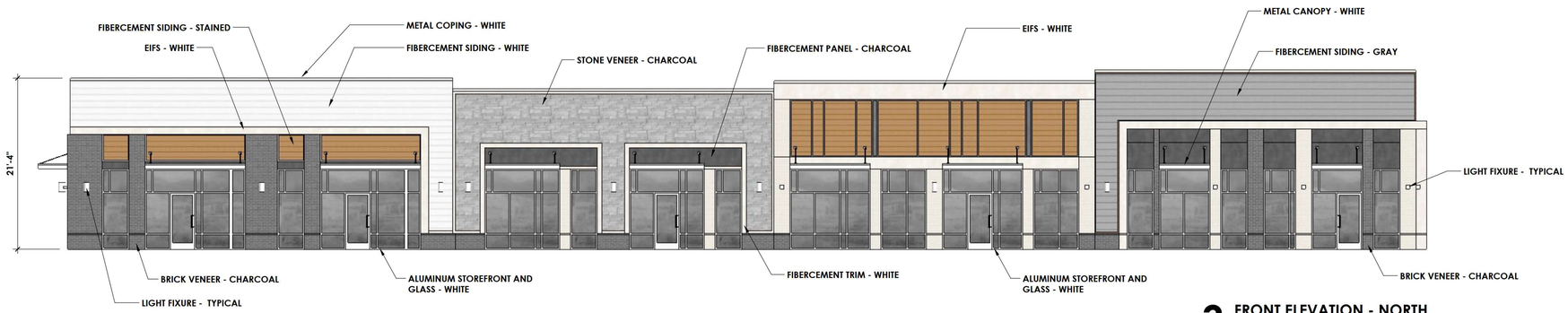
Project: 2263
Date: 10/11/24

Building Elevations: Building 101

A3.1



KEY MAP



3 FRONT ELEVATION - NORTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(169'L X 14'H) = 2,366 SF X 0.4 = 946 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,150 SF (49%)
ACTUAL EIFS PROVIDED: 400 SF (11%)



4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
61'L X 14'H = 854 SF X 0.4 = 342 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 341 SF (40%)
ACTUAL EIFS PROVIDED: 120 SF (9%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
61'L X 14'H = 854 SF X 0.4 = 342 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 353 SF (41%)
ACTUAL EIFS PROVIDED: 165 SF (19%)



1 BACK ELEVATION - SOUTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
(169'L X 14'H) = 2,366 SF X 0.4 = 946 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 1,150 SF (49%)
ACTUAL EIFS PROVIDED: 656 SF (18%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

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7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

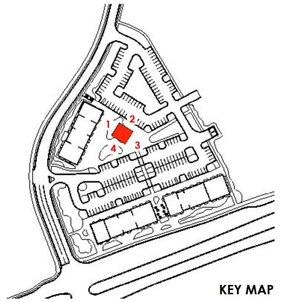
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

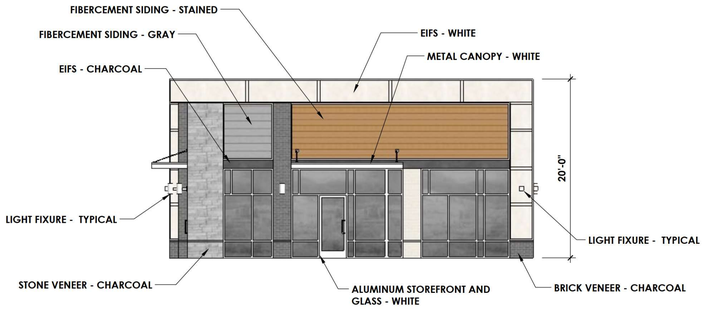
Project: 2263
Date: 10/11/24

Building Elevations: Building 102

A3.2



KEY MAP



3 FRONT ELEVATION - NORTH
1/8" = 1'-0"

GLAZING CALCULATIONS:
39'L X 14'H = 546 SF X 0.4 = 218 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 280 SF (51%)
ACTUAL EIFS PROVIDED: 157 SF (20%)

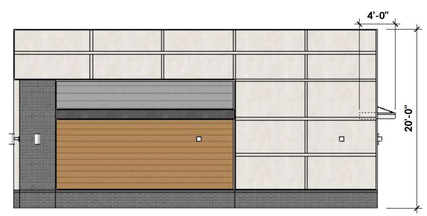
4 LEFT ELEVATION - EAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
41'L X 14'H = 574 SF X 0.4 = 230 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 281 SF (49%)
ACTUAL EIFS PROVIDED: 166 SF (20%)



2 RIGHT ELEVATION - WEST
1/8" = 1'-0"

CALCULATIONS:
44'L X 14'H = 616 SF
ACTUAL EIFS PROVIDED: 443 SF (51%)



1 BACK ELEVATION - SOUTH
1/8" = 1'-0"

CALCULATIONS:
41'L X 14'H = 574 SF
ACTUAL EIFS PROVIDED: 424 SF (52%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: [signature] Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: [signature] Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

BUILDING 103 IS NOT REQUIRED TO MEET THE TRANSPARENCY REQUIREMENTS OUTLINED IN SECTION 6.8 OF THE UNIFIED DEVELOPMENT ORDINANCE PER ORDINANCE #23-10-18-004

Finley Design PA
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Durham, NC 27713
919-493-8200

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SITE PLAN SUBMITTAL

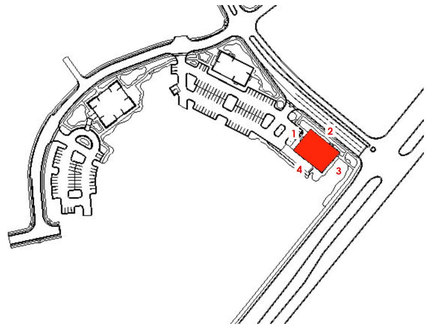
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

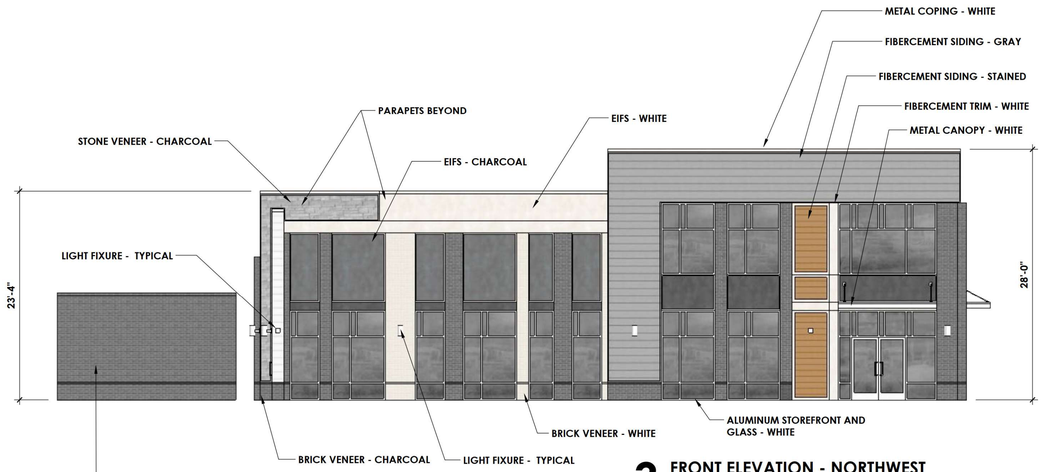
Project: 2263
Date: 10/11/24

Building Elevations:
Building 103

A3.3



KEY MAP



All public art and mural art shall be approved by Development Services prior to installment. The Public art and mural art **associated with certain buildings on both sites** must be installed or **bonded** prior to issuance of **the applicable building's** Certificate of Occupancy.

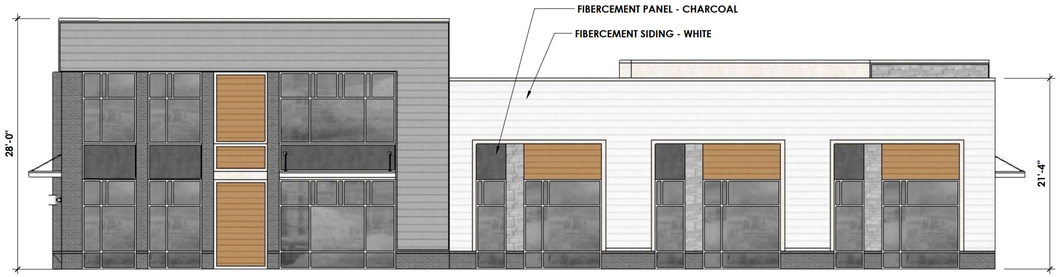
3 FRONT ELEVATION - NORTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(79'L X 14'H) = 1,106 SF X 0.4 = 442 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 478 SF (43%)
ACTUAL EIFS PROVIDED: 319 SF (17%)



4 LEFT ELEVATION - NORTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(103'L X 14'H) = 1,442 SF X 0.4 = 578 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 599 SF (42%)
ACTUAL EIFS PROVIDED: 312 SF (14%)



2 RIGHT ELEVATION - SOUTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(104'L X 14'H) = 1,456 SF X 0.4 = 582 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 610 SF (42%)
ACTUAL EIFS PROVIDED: 119 SF (5%)



1 BACK ELEVATION - SOUTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(76'L X 14'H) = 1,064 SF X 0.4 = 426 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 577 SF (54%)
ACTUAL EIFS PROVIDED: 307 SF (18%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. Vlachos Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

Finley Design PA
7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

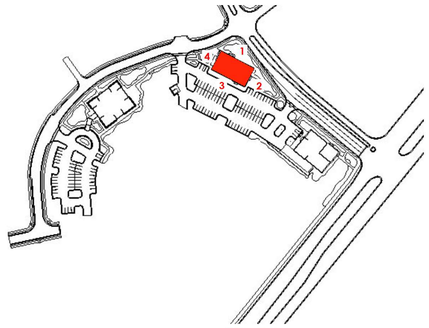
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

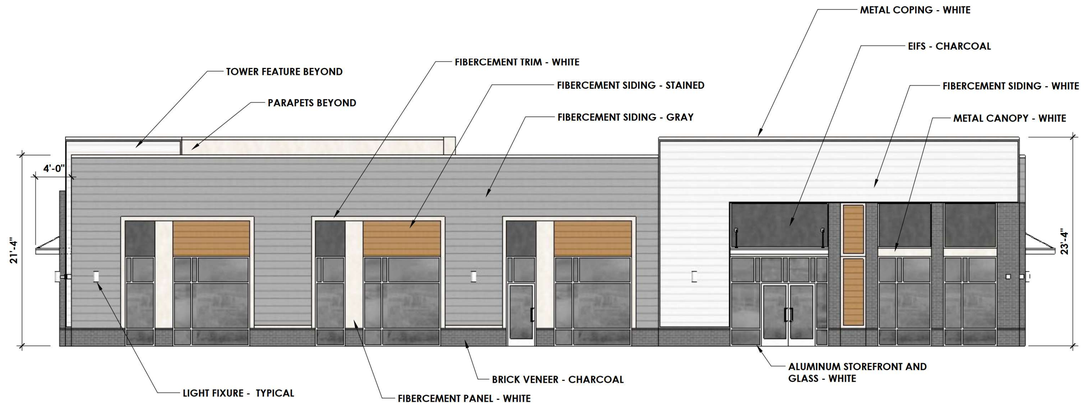
Project: 2263
Date: 10/11/24

Building Elevations: Building 200

A3.4



KEY MAP



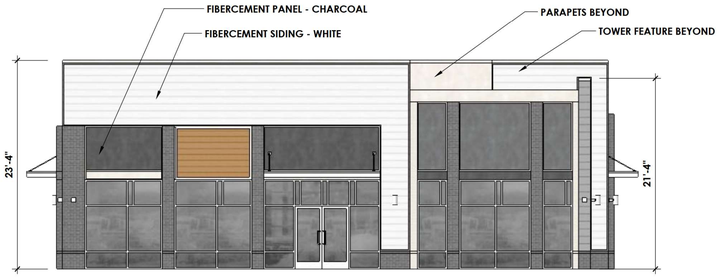
3 FRONT ELEVATION - NORTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(106'L X 14'H) = 1484 SF X 0.4 = 594 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 590 SF (40%)
ACTUAL EIFS PROVIDED: 220 SF (9%)



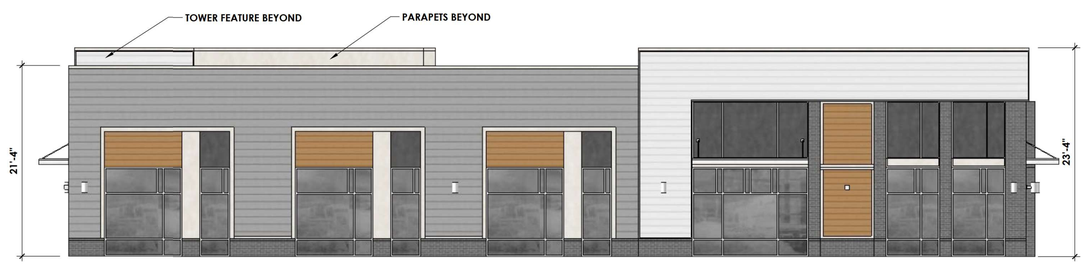
4 LEFT ELEVATION - NORTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(60'L X 14'H) = 840 SF X 0.4 = 336 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 352 SF (42%)
ACTUAL EIFS PROVIDED: 250 SF (19%)



2 RIGHT ELEVATION - SOUTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(59'L X 14'H) = 826 SF X 0.4 = 330 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 450 SF (54%)
ACTUAL EIFS PROVIDED: 227 SF (18%)



1 BACK ELEVATION - SOUTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(108'L X 14'H) = 1512 SF X 0.4 = 605 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 610 SF (40%)
ACTUAL EIFS PROVIDED: 267 SF (11%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDougall, Jr., Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith, Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

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7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

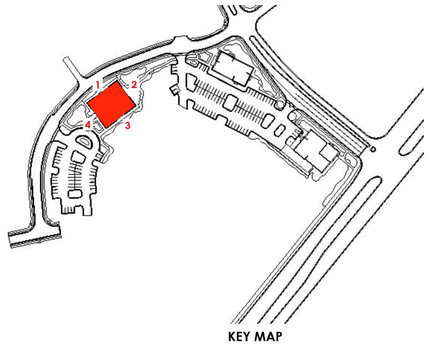
KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

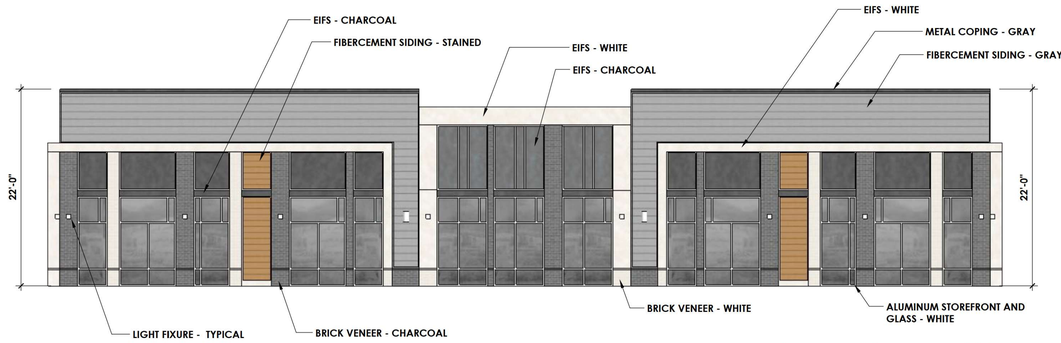
Project: 2263
Date: 10/11/24

Building Elevations: Building 201

A3.5



KEY MAP



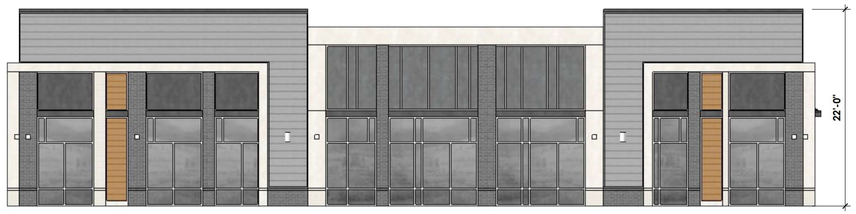
3 FRONT ELEVATION - NORTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(104'L X 14'H) = 1,456 SF X 0.4 = 582 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 637 SF (44%)
ACTUAL EIFS PROVIDED: 547 SF (24%)



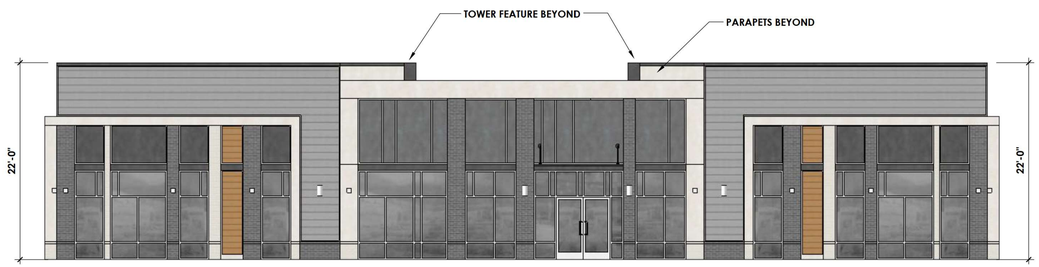
4 LEFT ELEVATION - NORTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(88'L X 14'H) = 1,232 SF X 0.4 = 493 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 537 SF (44%)
ACTUAL EIFS PROVIDED: 511 SF (27%)



2 RIGHT ELEVATION - SOUTHWEST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(88'L X 14'H) = 1,232 SF X 0.4 = 493 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 537 SF (44%)
ACTUAL EIFS PROVIDED: 511 SF (27%)



1 BACK ELEVATION - SOUTHEAST
1/8" = 1'-0"

GLAZING CALCULATIONS:
(104'L X 14'H) = 1,456 SF X 0.4 = 582 SF REQUIRED (40%)
ACTUAL GLAZING PROVIDED: 640 SF (44%)
ACTUAL EIFS PROVIDED: 600 SF (27%)

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

NOTE: ALL ROOFTOP HVAC EQUIPMENT TO BE SCREENED BY BUILDING PARAPETS FOR ALL SIDES OF BUILDING

FINAL BUILDING CANOPIES TO BE REVIEWED AND APPROVED DURING THE BUILDING PERMIT PROCESS TO CONFIRM COMPLIANCE WITH THE APPROVED MASTER PLAN (CASE ZMA-2-23), APPROVED BY TOWN COUNCIL

Finley Design PA
7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

KNIGHTDALE STATION
KNIGHTDALE, NC

REVISIONS

Project: 2263
Date: 10/11/24

Building Elevations: Building 202

A3.6

SW 7008
Alabaster

SW 7069
Iron Ore

FIBERCEMENT: WHITE
EIFS: WHITE
SHERWIN WILLIAMS
SW7008
"ALABASTER"

FIBERCEMENT: CHARCOAL
EIFS: CHARCOAL
SHERWIN WILLIAMS
SW7069
"IRON ORE"

ALUMINUM STOREFRONT
KYNAR "BONE WHITE"



FIBERCEMENT SIDING: STAINED
CAROLINA COLORTONES
"WHITE"



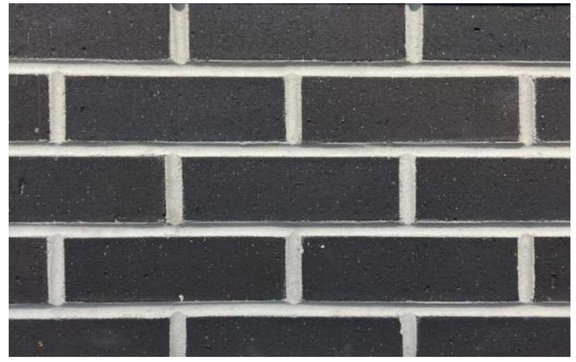
FIBERCEMENT SIDING: STAINED
CAROLINA COLORTONES
"CHESTNUT"



FIBERCEMENT SIDING: STAINED
CAROLINA COLORTONES
"LIGHT GRAY"



BRICK VENEER: WHITE
PALMETTO BRICK
"WHITESTONE WIRECUT"



BRICK VENEER: CHARCOAL
PALMETTO BRICK
"BLACKSTONE WIRECUT"



STONE VENEER: CHARCOAL RIDGE
OLD WORLD STONE VENNER
"CHARCOAL RIDGE LEDGESTONE

Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

1 MATERIAL SELECTIONS
NOT TO SCALE

Finley Design PA
7806 NC Hwy 751
Suite 110
Durham, NC 27713
919-493-8200

FINLEYDESIGNARCH.COM

SITE PLAN SUBMITTAL

KNIGHTDALE STATION
KNIGHTDALE, NC

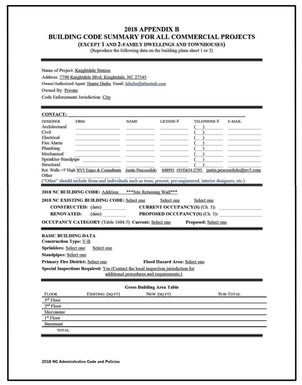
REVISIONS

Project: 2263
Date: 10/11/24

Material Selections

A5.0

RETAINING WALL DESIGN FOR
KNIGHTDALE STATION
KNIGHTDALE, NORTH CAROLINA



2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: Knightdale Station
Address: 7746 Knightdale Blvd, Knightdale, NC 27545
Owner/Authorized Agent: Hunter Dailey Email: hdailey@atlanticdi.com
Owned By: Private
Code Enforcement Jurisdiction: City

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( ) -	
Civil				( ) -	
Electrical				( ) -	
Fire Alarm				( ) -	
Plumbing				( ) -	
Mechanical				( ) -	
Sprinkler-Standpipe				( ) -	
Structural				( ) -	

Ref. Walls <9' High NV5 Eagan & Crumbaugh Justin Pescosolido 848991 (919)834-2793 justin.pescosolido@nv5.com
Other
(Other = should include fence and walls(check mark to know, person, area/contractor(s), interior designers, etc.)

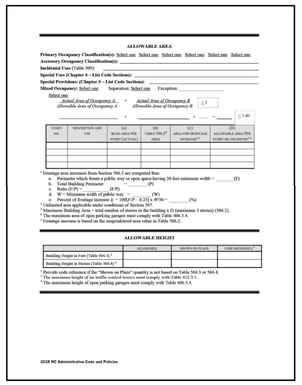
2018 NC BUILDING CODE: Addition ***Site Retaining Wall***
2018 NC EXISTING BUILDING CODE: Select one Select one Select one
CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S) (Ch. 3):** _____
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S) (Ch. 3):** _____
OCCUPANCY CATEGORY (Table 1604.5): Current: Select one **Proposed:** Select one

BASIC BUILDING DATA
Construction Type: V-B
Sprinklers: Select one Select one
Standpipes: Select one
Primary Fire District: Select one **Flood Hazard Area:** Select one
Special Inspections Required: Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	TOTAL (SQ FT)
4th Floor			
3rd Floor			
Mezzanine			
2nd Floor			
1st Floor			
Basement			
TOTAL			

2018 NC Administrative Code and Policies



ALLOWABLE AREA

Primary Occupancy Classification(s): Select one Select one Select one Select one Select one Select one
Accessory Occupancy Classification(s): _____
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions (Chapter 5 – List Code Sections): _____
Mixed Occupancy: Select one **Separation:** Select one **Exception:** _____
Select one
Actual Area of Occupancy A / *Allowable Area of Occupancy A* + *Actual Area of Occupancy B* / *Allowable Area of Occupancy B* + ... ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(a) BUILDING AREA PER STORY (ACTUAL)	(b) TABULAR AREA PER STORY (a)	(c) AREA FOR FRONTAGE INCREASE[1,2]	(d) ALLOWABLE AREA PER STORY (b+[c×b])[1,2]

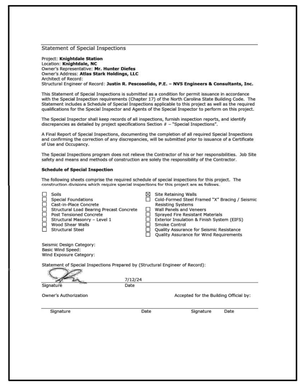
[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. F/P = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I = 100[(F/P - 0.25) \times W/30] =$ _____ (%)
[2] Unlimited area applicable under conditions of Section 507
[3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
[4] Tabular area shall be multiplied by the open perimeter coefficient of 0.75 (506.3.4).
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ACTUAL	SHOWN ON PLANS	CODE REFERENCE[1]
Building Height in Feet (Table 504.3)[2]			
Building Height in Stories (Table 504.4)[3]			

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.3.4.

2018 NC Administrative Code and Policies



Statement of Special Inspections

Project: **Knightdale Station**
Location: **Knightdale, NC**
Owner's Authorized Agent: **Hunter Dailey**
Owner's Address: **Atlas Stark Holdings, LLC**
Architect of Record:
Structural Engineer of Record: **Justin R. Pescosolido, P.E. – NV5 Engineers & Consultants, Inc.**

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Special Inspection requirements (Chapter 17) of the North Carolina State Building Code. The Special Inspector shall be employed by the owner, the engineer of record, or an agent of the owner who is qualifications for the Special Inspector and Agents of the Special Inspector to perform on this project.

The Special Inspector shall keep records of all inspections, furnish inspection reports, and identify discrepancies as detailed by project specifications Section # – "Special Inspections".

A Final Report of Special Inspections, documenting the completion of all required Special Inspections and confirming the correction of any discrepancies, will be submitted prior to issuance of a Certificate of Use and Occupancy.

The Special Inspections program does not relieve the Contractor of his or her responsibilities. Job Site safety and means and methods of construction are solely the responsibility of the Contractor.

Schedule of Special Inspection

The following sheets comprise the required schedule of special inspections for this project. The construction divisions which require special inspections for this project are as follows.

- ☐ Soils
- ☐ Special Foundations
- ☐ Cast-in-Place Concrete
- ☐ Structural Load Bearing Precast Concrete
- ☐ Cold-Formed Steel Framing
- ☐ Structural Masonry – Level 1
- ☐ Wood Shear Walls
- ☐ Structural Steel
- ☒ Site Retaining Walls
- ☐ Cold-Formed Steel Framed "A" Bracing / Seismic Resisting Systems
- ☐ Wall Panels and Veneers
- ☐ Architectural Cladding Materials
- ☐ Exterior Insulation & Finish System (EIFS)
- ☐ Smoke Control
- ☐ Quality Assurance for Seismic Resistance
- ☐ Quality Assurance for Wind Requirements

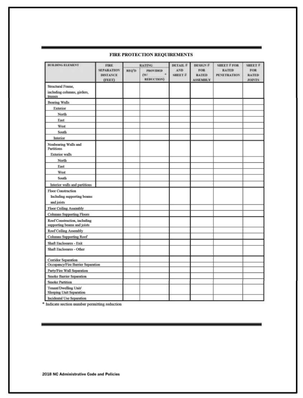
Seismic Design Category:
Basic Wind Speed:
Wind Exposure Category:

Statement of Special Inspections Prepared by (Structural Engineer of Record):

Signature: _____ Date: 7/12/24

Owner's Authorization — Accepted for the Building Official by:

Signature Date — Signature Date

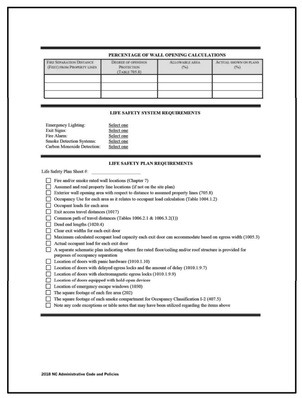


FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING (HOURS) — SUPPORTING BEAMS & JOISTS	RATING (HOURS) — NON-BEARING WALLS AND PARTITIONS	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATIONS	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Interior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/							
Sleeping Unit Separation							
Incidental Use Separation							

* Indicate section number permitting reduction

2018 NC Administrative Code and Policies



PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) (NON-PROPERTY LINES)	DEGREE OF OPENING PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS

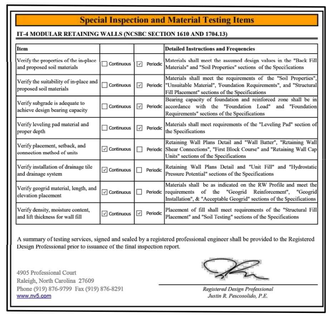
Emergency Lighting: Select one
Exit Signs: Select one
Fire Alarm: Select one
Smoke Detection Systems: Select one
Carbon Monoxide Detection: Select one

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

- ☐ Fire and/or smoke rated wall locations (Chapter 7)
- ☐ Assessed and real property line locations (if not on the site plan)
- ☐ Exterior wall openings which are subject to distance to assessed property lines (705.8)
- ☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- ☐ Occupant loads for each area
- ☐ Exit access travel distances (1017)
- ☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- ☐ Dead end lengths (1020.4)
- ☐ Clear exit widths for each exit door
- ☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- ☐ Actual occupant load for each exit door
- ☐ Occupancy separations, including where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1010.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1030)
- ☐ The square footage of each fire area (202)
- ☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

2018 NC Administrative Code and Policies



Special Inspection and Material Testing Items

IT-4 MODULAR RETAINING WALLS (NCSBC SECTION 1610 AND 1704.13)

Item			Detailed Instructions and Frequencies
Verify the properties of the in-place and proposed soil materials	☐ Continuous	☑ Periodic	Materials shall meet the assumed design values in the "Back Fill Materials" and "Soil Properties" sections of the Specifications
Verify the suitability of in-place and proposed soil materials	☐ Continuous	☑ Periodic	Materials shall meet the requirements of the "Soil Properties" "Unsuitable Material", "Foundation Requirements", and "Structural Fill Placement" sections of the Specifications
Verify subgrade is adequate to achieve design bearing capacity	☐ Continuous	☑ Periodic	Bearing capacity of foundation and reinforced zone shall be in accordance with the "Foundation Load" and "Foundation Requirements" sections of the Specifications
Verify leveling pad material and proper depth	☐ Continuous	☑ Periodic	Materials shall meet requirements of the "Leveling Pad" section of the Specifications
Verify placement, setback, and connection method of units	☑ Continuous	☐ Periodic	Retaining Wall Plans Detail and "Wall Batter", "Retaining Wall Shear Connections", "First Block Course" and "Retaining Wall Cap Units" sections of the Specifications
Verify installation of drainage tile and drainage system	☑ Continuous	☐ Periodic	Retaining Wall Plans Detail and "Unit Fill" and "Hydrostatic Pressure Potential" sections of the Specifications
Verify geogrid material, length, and elevation placement	☑ Continuous	☐ Periodic	Materials shall be as indicated on the RW Profile and meet the requirements of the "Geogrid Reinforcement", "Geogrid Installation", & "Acceptable Geogrid" sections of the Specifications
Verify density, moisture content, and lift thickness for wall fill	☑ Continuous	☑ Periodic	Placement of fill shall meet requirements of the "Structural Fill Placement" and "Soil Testing" sections of the Specifications

A summary of testing services, signed and sealed by a registered professional engineer shall be provided to the Registered Design Professional prior to issuance of the final inspection report.

4905 Professional Court
Raleigh, North Carolina 27609
Phone (919) 876-9799 Fax (919) 876-8291
www.nv5.com

Registered Design Professional
Justin R. Pescosolido, P.E.

Plan Sheet Index:

RW-1	***Title Sheet***
RW-2	***Retaining Wall Layout***
RW-3	***Retaining Wall 1 Profile***
RW-4	***Retaining Wall 2 Profile***
RW-5	***Retaining Wall 3 Profile***
RW-6	***Retaining Wall 4 Profile***
RW-7	***Retaining Wall 5 Profile***
RW-8	***Retaining Wall 6 Profile***
RW-9	***Anchor Diamond Pro PS Unit Details***
RW-10	***Additional Details***
RW-11	***Specifications***

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

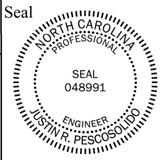
By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

NV5 Engineers and Consultants, Inc.
3300 Regency Parkway #100
Cary, North Carolina 27518
Phone: (919) 876-9799
North Carolina Corporate License No. F-1333

Seal



Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

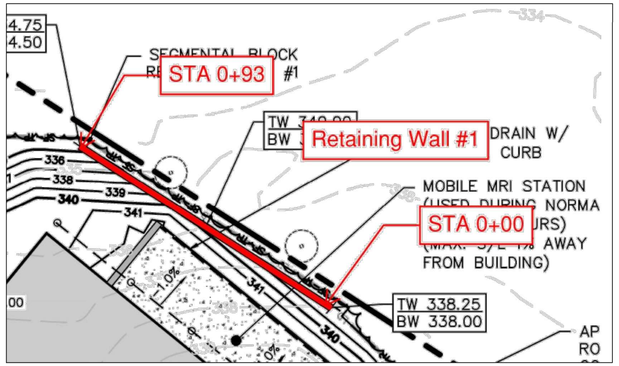
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

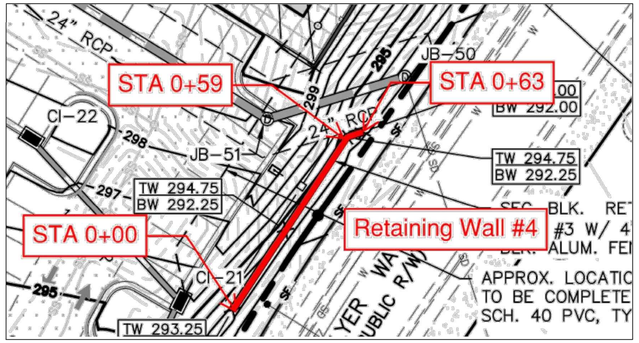
Title Sheet

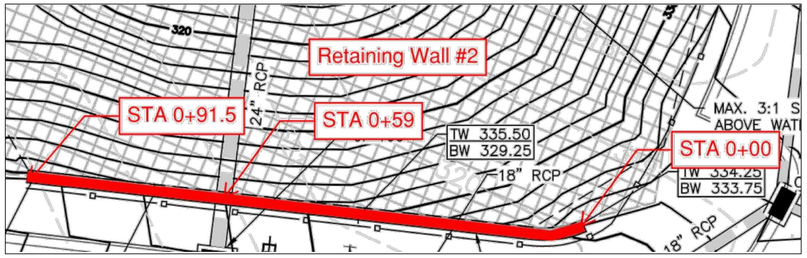
Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

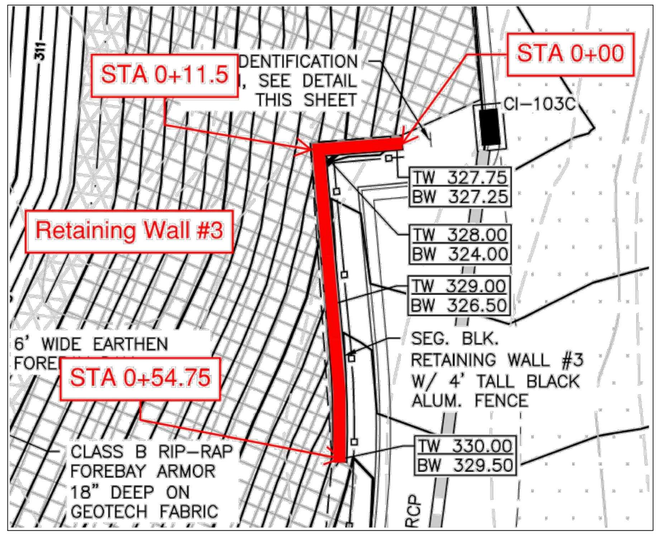
SHEET **RW-1**

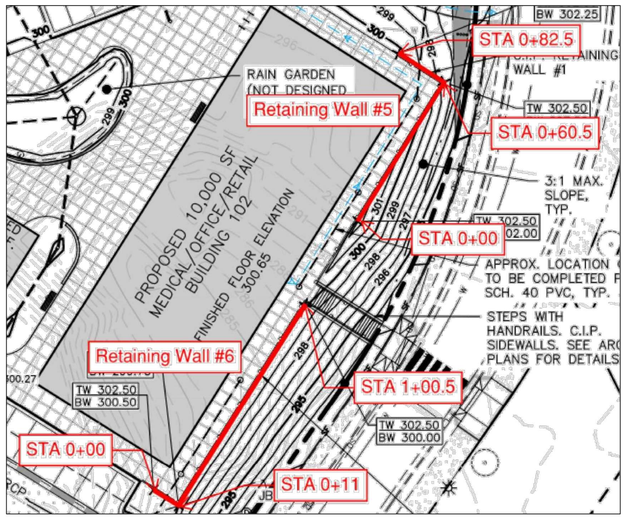
Retaining Wall Design











General Notes

The retaining wall(s) contained herein have been designed using active earth pressure theory. Therefore, outward movement at the top of the wall(s) should be expected. Outward movement of the retaining wall(s) may be limited by using high quality fill soils with a low fines content within the reinforced zone of the wall(s). Some cracks could develop at the ground surface due to lateral movement of the wall(s). These cracks should be filled in as soon as they are observed to help protect the soils below the ground surface from softening related to water infiltration that could affect the support characteristics for adjacent construction.

Preliminary analyses for global stability and total and differential settlement were performed as part of the design services for the segmental retaining wall(s). Our analyses were based, in part, on assumed in-situ soil properties derived from our previous experience with similar conditions in close geographic proximity to this site. If soil conditions encountered during construction are significantly different than those assumed herein, NV5 Engineers and Consultants, Inc. shall be contacted immediately for review of and possible alterations to this design.

The Engineer requests that representatives of the owner and/or general contractor arrange a pre-construction meeting with all pertinent parties involved for the construction of the retaining wall(s) shown on these plans. The Engineer's responsibility is limited to providing only the design services of the project's retaining wall(s) contained herein. Retaining wall construction monitoring and retaining wall certifying are beyond the scope of these design services. The Engineer shall not be required to sign any document, no matter by whom requested, in which the Engineer is required to certify, guarantee, or warrant conditions of which the Engineer has not or cannot ascertain.

The retaining wall(s) shown herein were designed considering an additional 250 pounds per square foot (psf) live load surcharge to account for vehicle traffic in the planned parking lot and drive aisles (where applicable). A 1,500 psf dead load surcharge was considered in order to model the planned structure loading behind Retaining Wall #5 and #6. Structures such as light poles, handrail, guardrail, or drainage structures to be installed in the vicinity of the retaining wall(s) shall be designed and constructed to resist imposing additional lateral loads on the retaining wall(s). If future construction alters the assumed loading conditions of the retaining wall(s), NV5 Engineers and Consultants, Inc. shall be notified to review the design criteria for the imposed loads.

As a apart of this retaining wall design we have assumed pond pond elevation will not exceed emergency spillway elevations of each respective pond.

Construction Notes

1. *Prior to construction, confirmation of the distances to property lines, Tree Buffers, roadways, sidewalks, and/or curb and gutter to the face(s) of the proposed wall(s) shall be performed.*
2. *Prior to construction, confirmation of existing utility line locations (Stormwater, Sewer, Water, Electrical, and Gas) and the locations of future utility lines shall be performed.*
3. *Prior to construction, confirmation of the in-situ and proposed grades shall be performed by a qualified surveyor. NV5 Engineers and Consultants, Inc. shall be notified if the site grades are different than those shown on these drawings.*
4. *During construction, care must be exercised to prevent the undermining of any existing structures.*
5. *Utility structures and underground lines located within the reinforced zone of the retaining wall(s) shall be installed prior to or during construction of the retaining wall(s) to prevent damage to the reinforcement layers. If the presence of utility structures interferes with the integrity of the reinforcement, NV5 Engineers and Consultants, Inc. shall be notified during construction to recommend suitable remedial measures that will ensure proper operation of the retaining wall(s).*
6. *After construction, heavy equipment should not operate within 3 feet of the top portion of the wall(s) to prevent adverse impacts to the structural integrity of the retaining wall(s).*
7. *After construction, care must be exercised to prevent damage to the upper layers of reinforcement and degrading of the retained soils of the retaining wall(s). Installation of light poles, signs, handrails, guardrails, shrubs, or trees (etc.) in the reinforced zone of this retaining wall(s) shall not damage the upper layers of reinforcement. Any damaged reinforcement shall be repaired.*
8. *Surface water drainage shall be designed by others to discharge surface water away from the wall face(s) and away from the foundations of adjacent construction at all times during and after construction of the retaining wall(s).* ***All downspouts from the nearby structures should be directed away from the wall(s) and slope(s) above the wall(s).***
9. ***Regular inspection and maintenance of the planned stormwater pond(s) is critical to long term performance of the retaining wall(s). Improper or irregular stormwater pond maintenance could negatively impact wall stability.***

WE NOTE THAT THIS SITE LAYOUT IS APPROXIMATE. STAKING OF THE ACTUAL WALL LOCATIONS IN THE FIELD IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE PERFORMED BASED ON THE APPROVED SITE/CIVIL DRAWINGS.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

NV5 Engineers and Consultants, Inc.

3300 Regency Parkway #100
Cary, North Carolina 27518
Phone: (919) 876-9799
North Carolina Corporate License No. F-1333

Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

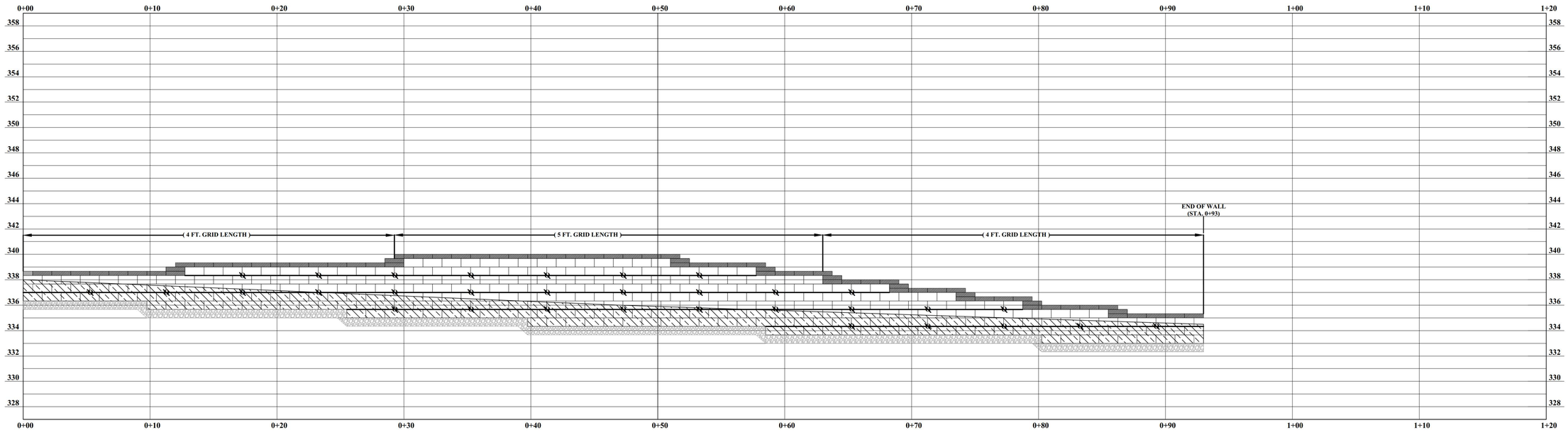
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall Layout

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-2**

Retaining Wall Design



Retaining Wall 1 Profile

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____

Land Use Administrator

LEGEND:

1). MIRAFI 3XT GEOGRID DESIGNATION

2). EMBEDDED BLOCK DESIGNATION

3). LEVELING PAD DESIGNATION

NV5 Engineers and Consultants, Inc.

3300 Regency Parkway #100
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Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 1 Profile

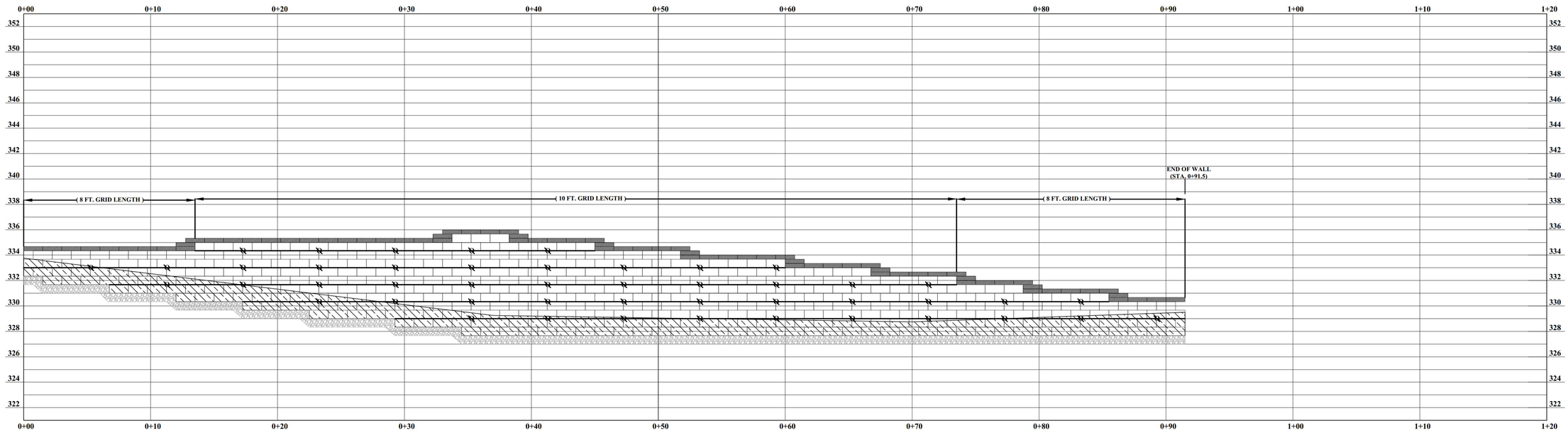
Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24

Drawn By: Jalen G. Deatherage Date: 7/12/24

Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-3**

Retaining Wall Design



Retaining Wall 2 Profile

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

LEGEND:
1). MIRAFI 3XT GEOGRID DESIGNATION
2). EMBEDDED BLOCK DESIGNATION
3). LEVELING PAD DESIGNATION

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Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

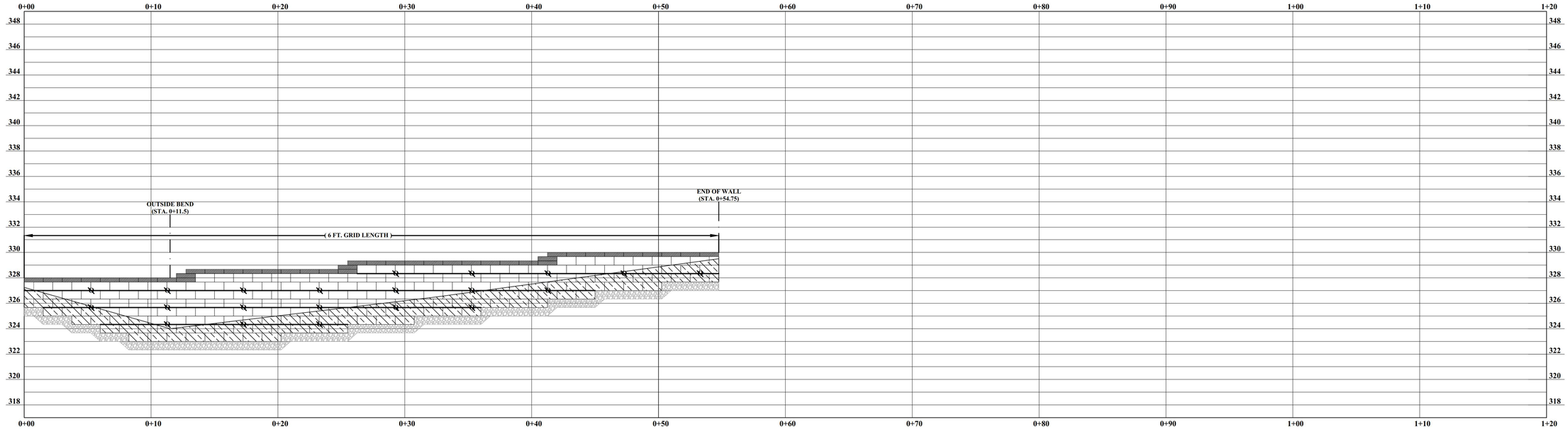
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 2 Profile

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-4**

Retaining Wall Design



Retaining Wall 3 Profile

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____

Land Use Administrator

LEGEND:

1). MIRAFI 3XT GEOGRID DESIGNATION

2). EMBEDDED BLOCK DESIGNATION

3). LEVELING PAD DESIGNATION

NV5 Engineers and Consultants, Inc.

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NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 3 Profile

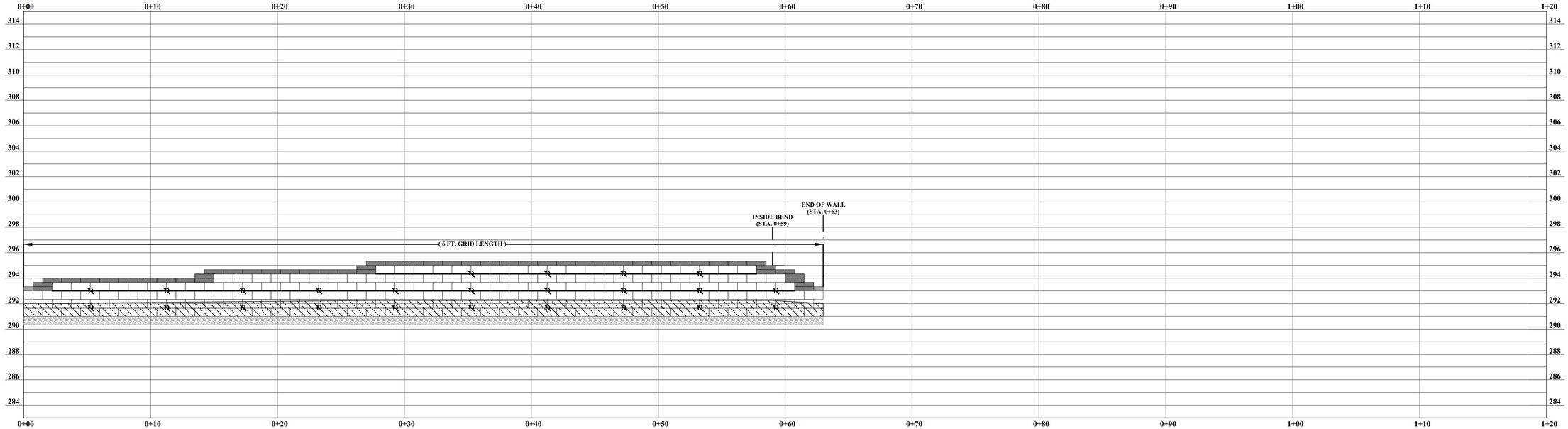
Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24

Drawn By: Jalen G. Deatherage Date: 7/12/24

Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-5**

Retaining Wall Design



Retaining Wall 4 Profile

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

LEGEND:
1). MIRAFI 3XT GEOGRID DESIGNATION
2). EMBEDDED BLOCK DESIGNATION
3). LEVELING PAD DESIGNATION

NV5 Engineers and Consultants, Inc.

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Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

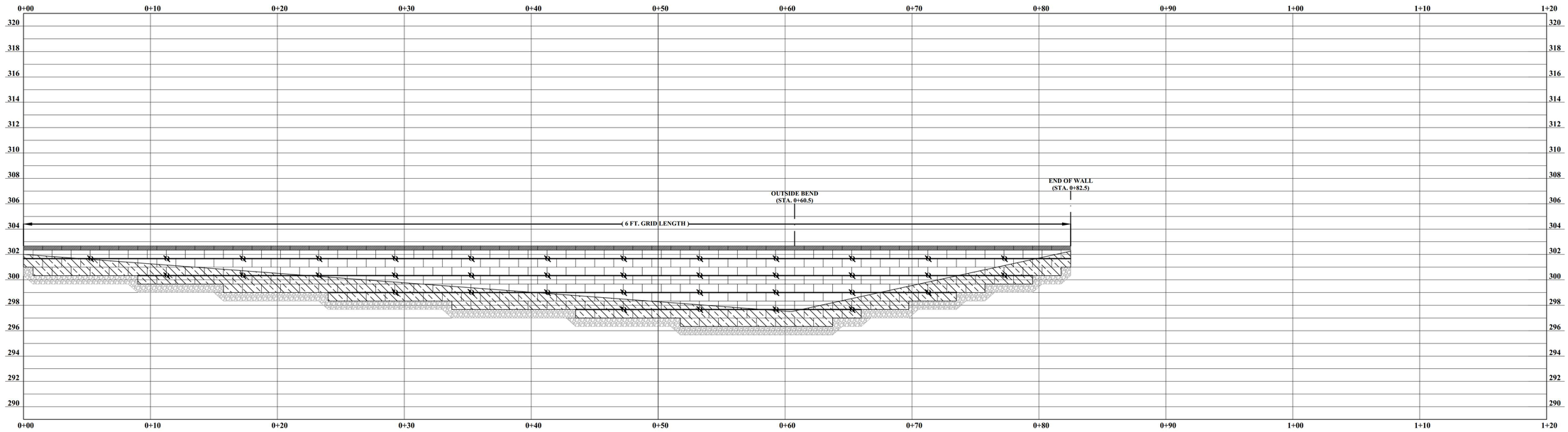
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 4 Profile

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET
RW-6

Retaining Wall Design



Retaining Wall 5 Profile

NV5 & SEOR shall verify design compatibility between this wall and the adjacent building foundation prior to wall or building construction. (See Note F of Section 9.0 on Sheet RW-11)

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____
Land Use Administrator

LEGEND:
1). MIRAFI 3XT GEOGRID DESIGNATION
2). EMBEDDED BLOCK DESIGNATION
3). LEVELING PAD DESIGNATION

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3300 Regency Parkway #100
Cary, North Carolina 27518
Phone: (919) 876-9799
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Seal
NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

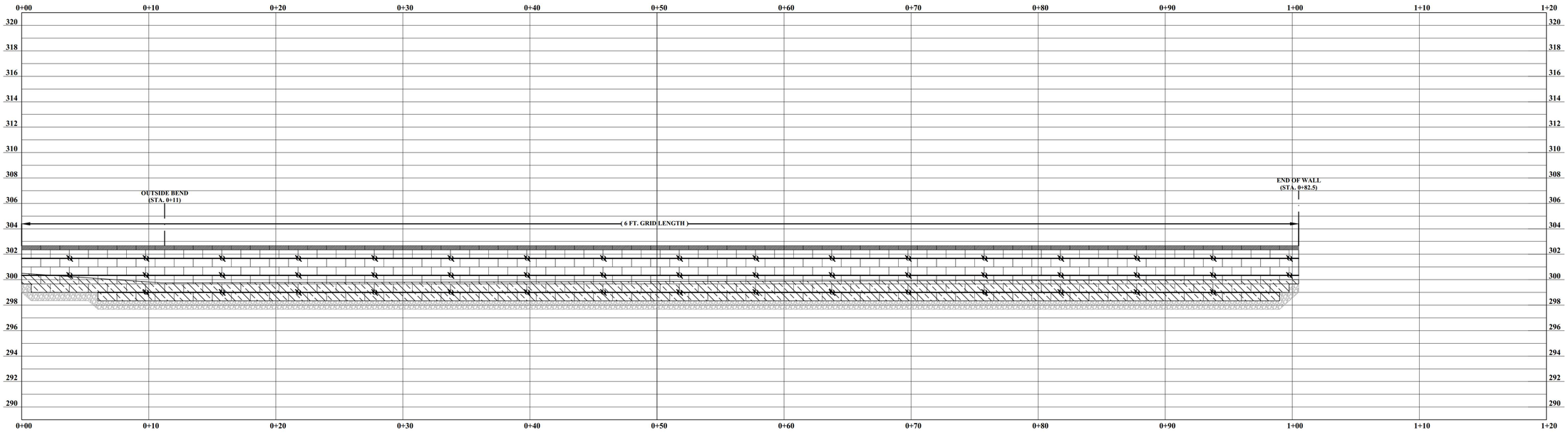
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 5 Profile

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET
RW-7

Retaining Wall Design



Retaining Wall 6 Profile

NV5 & SEOR shall verify design compatibility between this wall and the adjacent building foundation prior to wall or building construction. (See Note F of Section 9.0 on Sheet RW-11)

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith Date: _____
Land Use Administrator

LEGEND:
1). MIRAFI 3XT GEOGRID DESIGNATION
2). EMBEDDED BLOCK DESIGNATION
3). LEVELING PAD DESIGNATION

NV5 Engineers and Consultants, Inc.

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Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

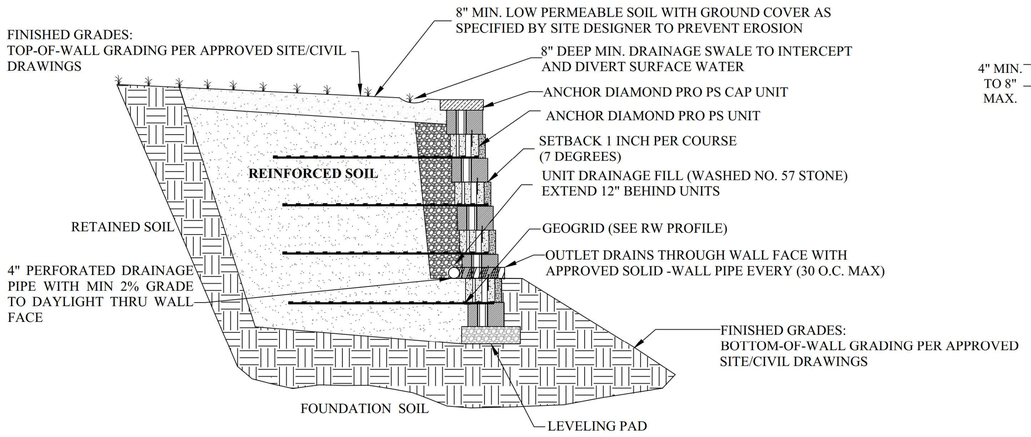
REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Retaining Wall 6 Profile

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

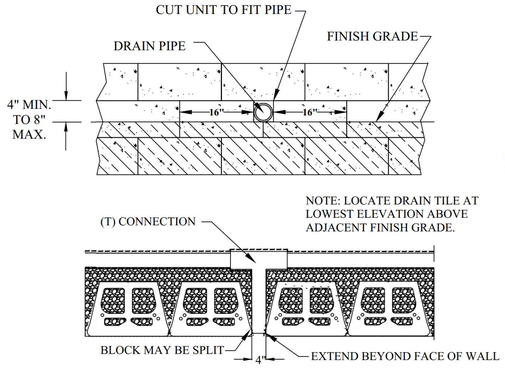
SHEET
RW-8

Retaining Wall Design



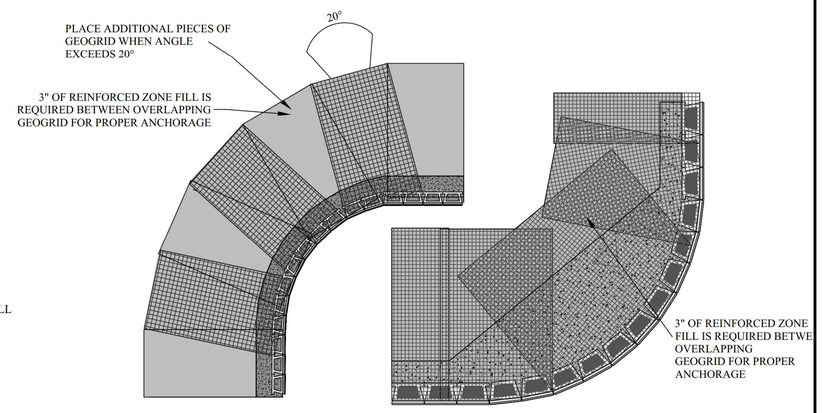
ANCHOR DIAMOND PRO PS RETAINING WALL DETAIL

SCALE: NONE



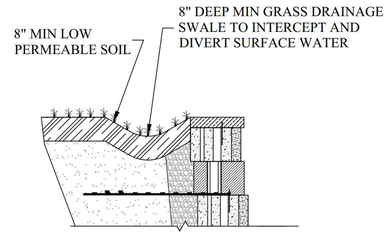
FACE OUTLET DRAIN DETAIL

SCALE: NONE



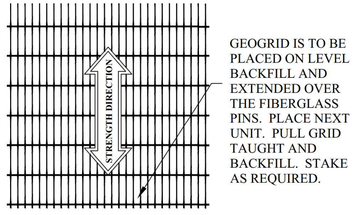
GEOGRID INSTALLATION AT CURVES

SCALE: NONE



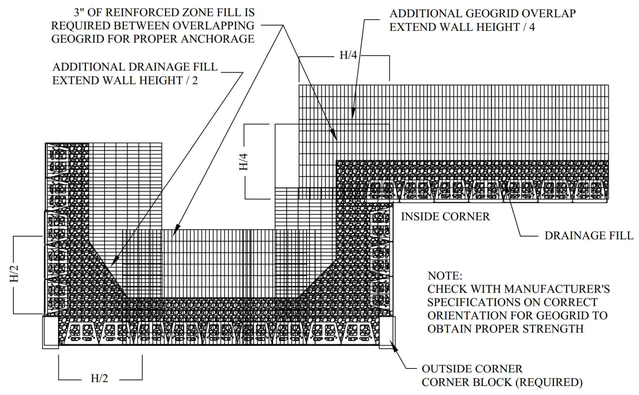
DRAINAGE SWALE DETAIL

SCALE: NONE



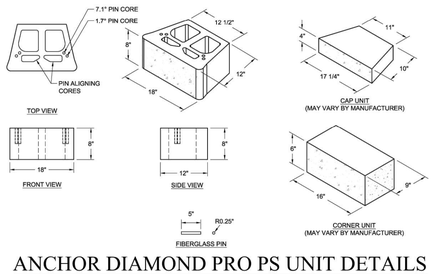
GRID AND PIN CONNECTION

SCALE: NONE



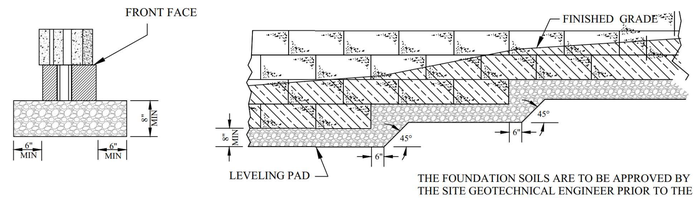
GEOGRID INSTALLATION AT CORNERS

SCALE: NONE



ANCHOR DIAMOND PRO PS UNIT DETAILS

SCALE: NONE



THE FOUNDATION SOILS ARE TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF THE LEVELING PAD

THE LEVELING PAD IS TO BE CONSTRUCTED OF WASHED NO. 57 STONE, ABC STONE, OR UNREINFORCED CONCRETE.

LEVELING PAD DETAILS

SCALE: NONE

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____

Land Use Administrator

NV5 Engineers and Consultants, Inc.

3300 Regency Parkway #100
Cary, North Carolina 27518
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North Carolina Corporate License No. F-1333

Seal



Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Anchor Diamond Pro PS Unit Details

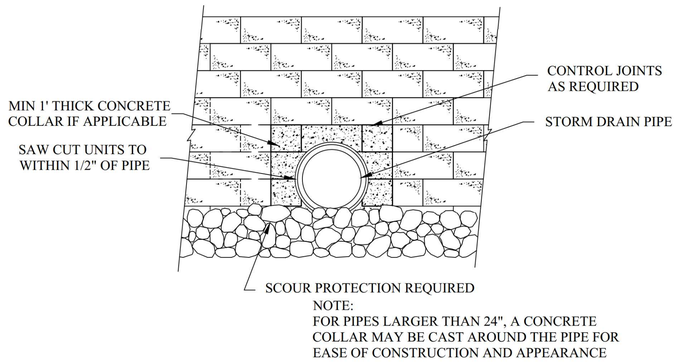
Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24

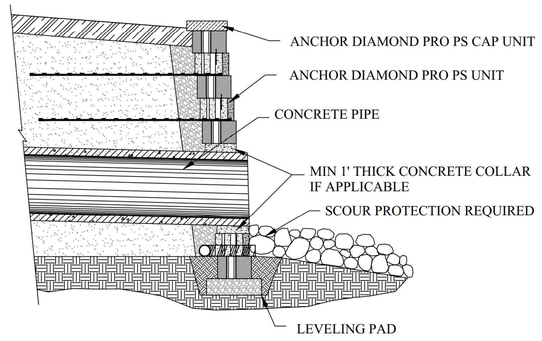
Drawn By: Jalen G. Deatherage Date: 7/12/24

Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-9**

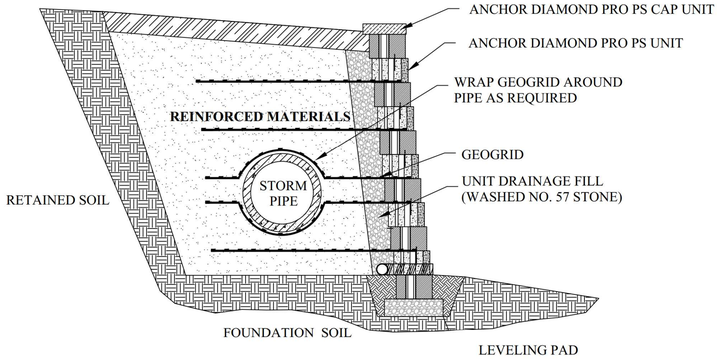
Retaining Wall Design





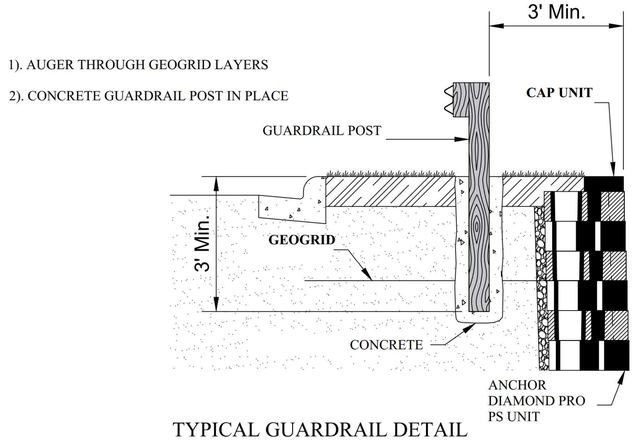
ANCHOR DIAMOND PRO PS WALL PIPE OUTLET

SCALE: NONE



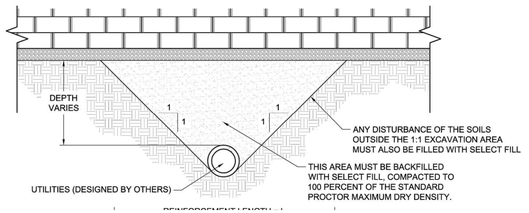
ANCHOR DIMAOND PRO PS WITH PIPE IN REINFORCED ZONE

SCALE: NONE



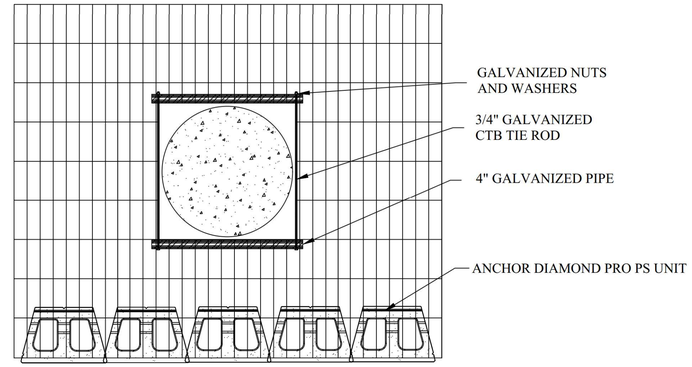
TYPICAL GUARDRAIL DETAIL

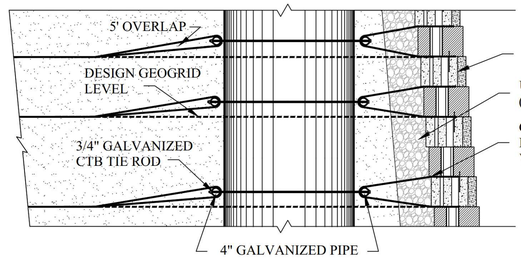
SCALE: NONE



UTILITY INSTALLATION BELOW WALL

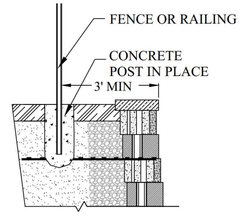
SCALE: NONE

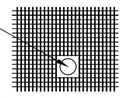




ANCHOR DIAMOND PRO PS WALL AT PIER / MANHOLE

SCALE: NONE





CUT SUCCESSIVE LAYERS OF GEOGRID AROUND PROPOSED FENCE POST INSTALLATION POINTS AND SET CONCRETE TUBE OR FORMS DURING WALL CONSTRUCTION. CHECK FENCE DESIGN FOR EMBEDMENT DEPTH OF FENCE POST

RAILING REQUIREMENTS FOR THE RETAINING WALL SHALL BE DETERMINED BY THE GENERAL CONTRACTOR. THE RAILING SHOULD BE DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE BY A REGISTERED DESIGN PROFESSIONAL. THE RAILING SHOULD BE DESIGNED SUCH THAT IT DOES NOT ADD ANY ADDITIONAL LATERAL FORCES TO THE RETAINING WALL. THE CONCRETE TUBES OR SLEEVE-IT FORMS FOR THE RAILINGS SHALL BE INSTALLED BY THE SITE CONTRACTOR AND COORDINATED WITH THE RETAINING WALL CONTRACTOR DURING CONSTRUCTION OF THE RETAINING WALL.

TYPICAL HAND RAILING DETAIL

SCALE: NONE

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Land Use Administrator

NV5 Engineers and Consultants, Inc.

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Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Additional Details

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24
Drawn By: Jalen G. Deatherage Date: 7/12/24
Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET
RW-10

Retaining Wall Design

1.0 GENERAL

SEGMENTAL RETAINING WALL SYSTEMS ARE DESIGNED AS GRAVITY RETAINING WALLS UTILIZING A HIGH DENSITY POLYESTER GEOGRID TO REINFORCE THE SOIL ZONE BEHIND THE WALL. THE GEOGRID IS POSITIVELY CONNECTED TO THE MODULAR CONCRETE BLOCK CREATING A REINFORCED SOIL MASS CAPABLE OF RESISTING CERTAIN LATERAL EARTH PRESSURES AND SURCHARGED LOADS. ALL REFERENCES TO THE ENGINEER REFER TO NV5 ENGINEERS AND CONSULTANTS, INC.

1.1 QUALITY ASSURANCE

WORK SHALL BE PERFORMED ONLY BY AN EXPERIENCED CONTRACTOR. CONTRACTOR SHALL SUBMIT TO THE CERTIFYING ENGINEER EVIDENCE OF QUALIFICATIONS AND REFERENCES ON PROJECTS OF SIMILAR SCOPE. THE CERTIFYING ENGINEER RESERVES THE RIGHT TO REJECT ANY AND ALL QUALIFICATIONS SUBMITTALS. THE OWNER AND/OR GENERAL CONTRACTOR SHOULD PROVIDE AN INSPECTOR AS A FULL-TIME CONTINUOUS MONITOR OF WORK QUALITY.

1.2 BACK FILL MATERIALS

THE SOIL MATERIAL ASSOCIATED WITH THE RETAINING WALL(S) IN THE REINFORCED ZONE, THE RETAINED ZONE, OR THE FOUNDATION BEDDING SHALL HAVE, AT A MINIMUM, THE FOLLOWING PROPERTIES:

A.) FOUNDATION SOILS	Φ = 26 DEGREES, COHESION = 0 PSF, WET UNIT WEIGHT = 115 LBS/CU.FT
B.) RETAINED SOILS	Φ = 26 DEGREES, COHESION = 0 PSF, WET UNIT WEIGHT = 115 LBS/CU.FT
C.) REINFORCED SOILS	Φ = 28 DEGREES, COHESION = 0 PSF, WET UNIT WEIGHT = 120 LBS/CU.FT

SEE PROFILE SHEETS FOR BOTTOM OF WALL ELEVATIONS. IF THE ASSUMED VALUES DO NOT REPRESENT THE ACTUAL SOIL CONDITIONS, THE ENGINEER SHALL BE NOTIFIED AND THE WALL(S) SHALL BE REDESIGNED.

1.3 FOUNDATION LOADS

THE MAXIMUM APPLIED FOUNDATION LOAD FOR THE WALL(S) IS **2000 PSF.**

1.4 WALL BATTER

BATTER FOR THE ENTIRETY OF THE WALL SHALL BE MAINTAINED AT 7 DEGREES. (REAR-PIN SETTING)

2.0 CONCRETE MASONRY WALL UNITS

CONCRETE WALL UNITS SHALL BE SEGMENTAL UNITS MANUFACTURED IN ACCORDANCE WITH ASTM C-1372 AND ASTM C-140, AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI. UNITS SHALL BE INTERLOCKED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

2.1 RETAINING WALL SHEAR CONNECTIONS

SEGMENTAL UNITS SHALL BE INTERLOCKED WITH SUITABLE SHEAR PINS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

2.2 GEOGRID REINFORCEMENT

GEOSYNTHETIC REINFORCEMENT FOR THE WALL SHALL CONSIST OF HIGH TENACITY GEOGRIDS MANUFACTURED FOR SOIL REINFORCEMENT APPLICATIONS. THE TYPE, LENGTH, AND PLACEMENT OF THE REINFORCING GEOSYNTHETIC SHALL BE AS SHOWN ON THE PLANS.

2.3 GEOTEXTILE FILTER FABRIC

GEOTEXTILE FILTER FABRIC (IF REQUIRED) SHALL CONSIST OF NEEDLE PUNCHED NON-WOVEN POLYPROPYLENE MATERIAL WHICH MEETS THE AASHTO M288-2006 CLASS 3 STRENGTH CRITERIA. IT SHALL HAVE A MAXIMUM AVERAGE ROLL VALUE OF 0.25 MM FOR ITS APPARENT OPENING SIZE AND PERMITIVITY OF AT LEAST 0.2/SEC. PRE-APPROVED NON-WOVEN GEOTEXTILES INCLUDE AMOCO 4546, CARTHAGE MILLS FX-40HS, SYNTHETIC INDUSTRIES GEOTEX 401, AND TENCATE MIRAFI 140N.

2.4 LEVELING PAD

MATERIAL SHALL CONSIST OF COMPACTED AGGREGATE BASE COURSE (ABC) STONE, WASHED NO. 57 STONE, OR UNREINFORCED CONCRETE. THE LEVELING PAD SHALL BE AT LEAST 8" IN DEPTH. IF ABC STONE IS USED, IT SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR (ASTM D-698) MAXIMUM DRY DENSITY. AGGREGATE MATERIAL SHALL RECEIVE A MINIMUM OF ONE PASS OF THE COMPACTION EQUIPMENT. THE LEVELING PAD TOP FOR THE WALL SECTIONS SHALL BE MAINTAINED AS SHOWN ON THE RETAINING WALL PROFILES.

2.5 UNIT FILL

THE VOID WITHIN AND BETWEEN EACH UNIT SHALL BE FILLED WITH WASHED (NO. 57) STONE HAVING 100% OF THE AGGREGATE PASSING THE 2" SIEVE. MINIMUM 3/8" WASHED STONE SIZE IS REQUIRED (NO MORE THAN 5% PASSING THE NO. 200 SIEVE). A MINIMUM OF 12 INCHES OF THIS SAME MATERIAL SHALL BE PLACED AT THE BACK OF EACH BLOCK AS INDICATED ON THE ANCHOR DIAMOND PRO PS UNIT DETAILS SHEET. EACH COURSE SHALL BE COMPLETELY FILLED AND EXCESS MATERIAL SWEPT CLEAN FROM THE TOP BLOCK BEFORE INSTALLING THE NEXT COURSE.

2.6 SOIL PROPERTIES

REINFORCED ZONE FILL MATERIALS (WHERE SOILS PERMITTED) SHALL CLASSIFY AS GM, GP, SP, SP-SM, SM OR SC WITH NO MORE THAN 20% FINES (W/W). THE MINIMUM INTERNAL ANGLE OF FRICTION, COHESION, AND WET UNIT WEIGHT SHALL BE EQUAL TO OR GREATER THAN THE DESIGN VALUES PROVIDED IN SECTION 1.2. WHERE NOTED ON PROFILE, REINFORCED ZONE SHALL CONSIST OF WASHED NO. 57 STONE.

2.7 UNSUITABLE MATERIAL

SOILS CONTAINING ROOTS, BRUSH, SOD, OR OTHER ORGANIC MATERIAL SHALL NOT BE PERMITTED AS FILL. FROZEN SOILS, SNOW, ICE, HEAVY CLAYS, OR WET SOILS SHALL NOT BE PERMITTED AS FILL. MATERIAL PASSING THE NO. 40 SIEVE SHALL NOT HAVE A LIQUID LIMIT GREATER THAN 40 AND A PLASTICITY INDEX OF GREATER THAN 15, UNLESS WRITTEN CONSENT IS OBTAINED FROM THE DESIGN ENGINEER PRIOR TO PLACEMENT.

3.0 FOUNDATION REQUIREMENTS

THE FOUNDATION BEARING CAPACITY ASSUMED FOR THIS DESIGN SHALL BE VERIFIED IN THE FIELD AND COPIES OF THE TESTS PROVIDED TO THE CERTIFYING ENGINEER. THE FOUNDATION SURFACE SHALL BE CLEARED OF ALL DEBRIS AND LOOSE SOIL. FOUNDATION SOILS NOT MEETING THE MINIMUM DESIGN CRITERIA, SHALL BE REMOVED AND REPLACED UTILIZING AGGREGATE BASE COURSE (ABC) STONE, PLACED IN LIFTS NOT EXCEEDING 9", AND COMPACTED TO AT LEAST 95% OF THE MODIFIED PROCTOR (ASTM D-698) MAXIMUM DRY DENSITY.

3.1 FIRST BLOCK COURSE

THE FIRST COURSE OF BLOCK SHALL BE PLACED ON TOP OF AND IN FULL CONTACT WITH THE LEVELING PAD. THE UNITS SHALL MAINTAIN A MINIMUM DISTANCE OF 6" FROM THE FRONT AND BACK OF THE LEVELING PAD. PROPER ALIGNMENT MAY BE ACHIEVED WITH THE AID OF A STRING LINE. PROCEED TO THE NEXT COURSE OF BLOCK. EACH UNIT SHALL BE IN CONTACT WITH THE UNITS ON BOTH SIDES AS WELL AS ABOVE AND BELOW. SOME ADJUSTMENTS MAY BE REQUIRED FOR WALLS WITH CURVES AND A BATTER.

3.2 GEOGRID INSTALLATION

THE GEOGRID REINFORCEMENT SHALL BE LAID HORIZONTALLY ON COMPACTED REINFORCED ZONE FILL AND POSTITIVELY CONNECTED TO THE CONCRETE WALL UNITS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. GEOGRID SHALL BE PULLED TAUT, REMOVING ALL SLACK, AND ANCHORED BEFORE ADDING FILL. GEOGRID SHALL BE INSTALLED AT THE ELEVATIONS AND LENGTHS INDICATED ON THE RETAINING WALL PROFILE. THE SOIL SURFACE SHALL BE SMOOTH AND LEVEL AND HAVE BEEN COMPACTED BEFORE INSTALLING THE GEOGRID.

3.3 REINFORCED ZONE FILL PLACEMENT

REINFORCED ZONE PROCESSED FILL OR ABC STONE SHALL BE PLACED IN A MAXIMUM 6" LIFT THAT IS COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT A MOISTURE CONTENT WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT. ONLY HAND OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE SEGMENTAL UNITS. FILL SHALL BE PLACED FROM THE WALL REARWARD TO INSURE TAUTNESS OF THE GEOGRID. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID. AGGREGATE FILL TO RECEIVE NO LESS THAN 4 PASSES OF SUITABLE COMPACTION EQUIPMENT.

3.4 RETAINING WALL CAP UNITS

RETAINING WALL CAPS TO BE SECURED TO TOP COURSE OF BLOCK WITH APPROPRIATE ADHESIVE.

4.0 SOIL TESTING

WHERE REINFORCED PROCESSED FILL MATERIALS ARE PLACED, COMPACTION TESTING SHALL BE PERFORMED FOR EVERY LIFT ELEVATION REQUIRING GEOGRID OR EVERY THIRD LIFT AS A MINIMUM. TEST RESULTS SHALL BE PROVIDED TO THE CERTIFYING ENGINEER. VERIFICATION OF SUFFICIENT COMPACTIVE EFFORT SHOULD BE PERFORMED FOR CLEAN AGGREGATE PLACEMENT. VISUAL OBSERVATIONS ARE SUFFICIENT FOR CLEAN AGGREGATE COMPACTION VERIFICATION.

5.0 HYDROSTATIC PRESSURE POTENTIAL

ANY SURFACE RUNOFF OR STORMWATER SHALL BE DISCHARGED AWAY FROM THE WALL FOUNDATION AND ANY ADJACENT FOUNDATION SYSTEMS. FOUNDATION DRAINS FOR ADJACENT STRUCTURES SHOULD BE ADEQUATELY PIPED AWAY FROM THE RETAINING WALL. ROOF DRAINAGE SYSTEMS SHOULD BE DESIGNED TO PREVENT ROOF RUNOFF FROM BEING DISCHARGED BEHIND THE RETAINING WALL. SURFACE WATER COLLECTION AND PIPING SYSTEMS SHALL BE DESIGNED BY OTHERS FOR YARD AREAS BEHIND THE RETAINING WALL. DRAINAGE SYSTEMS SHALL BE DESIGNED AND MAINTAINED TO AVOID EROSION OF THE SOILS AT THE AREA BELOW THE WALL.

6.0 ACCEPTABLE BLOCK

SEGMENTAL BLOCK UNITS SHALL BE USED AND KEPT FREE OF DEFECTS THAT WOULD INTERFERE WITH THE PLACING OR POSITIONING OF THE UNIT OR IMPAIR ITS STRENGTH. THE CONTRACTOR SHALL PREVENT EXCESS MUD, WET CEMENT, EPOXY, AND THE LIKE MATERIALS FROM COMING IN CONTACT WITH AND AFFIXING TO THE UNITS. MINOR CRACKS INCIDENTAL TO THE USUAL METHOD OF MANUFACTURING OR MINOR CHIPPING RESULTING FROM SHIPMENT AND DELIVERY ARE NOT GROUNDS FOR REJECTION.

7.0 ACCEPTABLE GEOGRID

GEOGRID SHALL BE REJECTED IF 20% OR MORE OF A STRUCTURAL RIB HAS BEEN CUT OR RIPPED. THE CONTRACTOR SHALL INSPECT ALL GEOGRID DELIVERED TO THE SITE AND REJECT MATERIALS THAT MEET THIS CRITERIA. THE CONTRACTOR SHALL PREVENT EXCESS MUD, WET CEMENT, EPOXY, AND THE LIKE MATERIALS FROM COMING IN CONTACT WITH AND AFFIXING TO THE GEOGRID MATERIAL. IF THE GEOGRID IS DAMAGED ONSITE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

8.0 DRAINAGE COMPOSITE

DRAINAGE COMPOSITE REQUIREMENTS TO BE DETERMINED BY PROJECT GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION.

9.0 SPECIAL PROVISIONS

A). MAINTAIN THE DIRECTION OF DRAINAGE AWAY FROM THE WALL FACE AT ALL TIMES DURING CONSTRUCTION OF THE RETAINING WALL(S) AND FINISHED GRADING AS SHOWN ON THE DRAINAGE PLANS TO BE PREPARED BY OTHERS.

B). NV5 ENGINEERS SHALL BE CONTACTED FOR REVIEW OF THE STRUCTURAL DRAWINGS FOR ADJACENT BUILDINGS AS THEY BECOME AVAILABLE.

C). THE ENGINEER SHALL BE NOTIFIED BY THE INSTALLING CONTRACTOR SHOULD THE EMBEDMENT DEPTH OF THE RETAINING WALL BE LESS THAN THAT WHICH IS SHOWN ON THE RETAINING WALL PROFILE.

D). AS PER THE NORTH CAROLINA STATE BUILDING CODE, A BUILDING PERMIT MUST BE OBTAINED PRIOR TO WALL CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE LOCAL MUNICIPALITY CODE ENFORCEMENT DIVISION TO OBTAIN A BUILDING PERMIT.

E). PROPER FUNCTIONALITY OF THE ADJACENT STORMWATER POND IS CRITICAL TO LONG-TERM WALL PERFORMANCE. REGULAR MAINTENANCE OF THE POND IS SOLELY THE RESPONSIBILITY OF THE OWNER.

F). REGARDING RETAINING WALLS #5 AND #6, NV5 SHALL BE CONTACTED FOR REVIEW OF THE FOUNDATION DESIGN OF THE ADJACENT STRUCTURES PRIOR TO WALL CONSTRUCTION. BOTH NV5 AND SEOR SHALL VERIFY DESIGN COMPATIBILITY.

10.0 QUALIFICATION OF DESIGN

A). STABILITY OF ANY TEMPORARY SLOPES REQUIRED BY THE INSTALLATION OF A SEGMENTAL RETAINING WALL SHALL BE ADDRESSED BY A QUALIFIED GEOTECHNICAL ENGINEER. RESPONSIBILITY OF THESE TEMPORARY SLOPES RESTS WITH THE OWNER AND/OR THE CONTRACTOR OF THE PROJECT. ALL SLOPES SHALL MEET CURRENT OSHA STANDARDS.

B). HANDRAIL/GUARDRAIL REQUIREMENTS SHALL BE DETERMINED BY THE ARCHITECT OR GENERAL CONTRACTOR.

C). NOTIFY THE DESIGN ENGINEER PRIOR TO MODIFYING WALL CONSTRUCTION IF EXISTING SITE CONDITIONS DEVIATE FROM CONDITIONS OUTLINED ON THE RETAINING WALL PROFILE.

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald _____ Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Gideon Smith _____ Date: _____

Land Use Administrator

NV5 Engineers and Consultants, Inc.

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North Carolina Corporate License No. F-1333

Seal

NORTH CAROLINA PROFESSIONAL SEAL 048991 ENGINEER JUSTIN R. PESCOSOLIDO

Knightdale Station
Knightdale, North Carolina
Our Project Number 121-24-106145

REV	DATE	DESCRIPTION	BY
1	8/14/24	Wall 5 and 6 Addition	JGD

Specifications

Designed by: Justin R. Pescosolido, P.E. Date: 7/12/24

Drawn By: Jalen G. Deatherage Date: 7/12/24

Reviewed By: Justin R. Pescosolido, P.E. Date: 7/12/24

SHEET **RW-11**

Retaining Wall Design