HAVEN AT GRIFFITH MEADOWS

CONSTRUCTION DRAWINGS

TOWN OF KNIGHTDALE, ST. MATTHEWS TOWNSHIP, WAKE COUNTY, NORTH CAROLINA

KNIGHTDALE PROJECT: #ZMA -12-22

ORDINANCE: #23-11-15-002

SITE DATA

PROJECT:	HAVEN AT GRIFFITH MEADOWS
ENGINEER:	TIMMONS GROUP 5410 TRINITY ROAD, SUITE 102 RALEIGH, NC 27607 PHONE: (919) 532-3271 FAX: 919-833-8124 TYLER CROSS, PE EMAIL: TYLER.CROSS@TIMMONS.COM
DEVELOPER:	MERITAGE HOMES WILLIAM ROBINSON 3300 PARAMOUNT PARKWAY, SUITE 120 MORRISVILLE, NC 27560 PHONE: (919) 322-2289 EMAIL: BILL.ROBINSON@MERITAGEHOMES.COM
PROPERTY LOCATION:	8613 POOLE ROAD KNIGHTDALE, NC 27545
OWNERS ON RECORD:	TPG AG EHC III (MTH) MULTI STATE 4 LLC 8585 E HARTFORD DR, STE 118 SCOTTSDALE, AZ 85255 PIN #: 1752-59-7507 DB: 19824 PG: 1748 TPG AG EHC III (MTH) MULTI STATE 4 LLC 8585 E HARTFORD DR, STE 118 SCOTTSDALE, AZ 85255 PIN #: 1752-59-9261 DB: 19824 PG: 1748
ZONING:	GR-3 PUD GENERAL RESIDENTIAL 3
TOWNSHIP:	ST. MATTHEWS
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL
TOTAL SITE AREA:	60.15 ACRES
FIRM MAP#:	3720175200K & 3720175300K EFFECTIVE 07/19/2022

LOT TYPE BREAKDOWN:
TOTAL PROPOSED NUMBER OF LOTS = 180
PROPOSED DENSITY = 2.99 DU/A

FRONT LOAD SINGLE FAMILY LOTS = 72
MINIMUM LOT SIZE REQUIRED: 7,100 SF
MINIMUM LOT SIZE PROVIDED: 7,102 SF
AVERAGE LOT SIZE PROVIDED: 8,469 SF
LOT WIDTH: 60'
FRONT SETBACK: 10'
DRIVEWAY LENGTH: 25'
SIDE SETBACK: 5'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'

REAR LOAD SINGLE FAMILY LOTS = 55
MINIMUM LOT SIZE REQUIRED: 4,100 SF
MINIMUM LOT SIZE PROVIDED: 4,101 SF
AVERAGE LOT SIZE PROVIDED: 4,614 SF
LOT WIDTH: 38'
FRONT SETBACK: 10'
SIDE SETBACK: 3'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

REAR LOAD TOWNHOME LOTS = 53
MINIMUM LOT SIZE REQUIRED: 2,000 SF
MINIMUM LOT SIZE PROVIDED: 2,000 SF
AVERAGE LOT SIZE PROVIDED: 2,032 SF
MINIMUM LOT WIDTH: 20'
FRONT SETBACK:10'
BUILDING SEPARATION: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

UTILITY DEMANDS:
SEWAGE USAGE: 54,000 GPD
WATER USAGE: 86,400 GPD

STREET TYPE SUMMARY:
70' W/ PARALLEL PARKING:
70' ROW W/ MEDIAN:
54' ROW:
32' ROW (ONE WAY):

GENERAL NOTES:

1. FIELD TOPOGRAPHIC SURVEY PERFORMED BY TIMMONS GROUP DATED MARCH 19, 2022.
2. THE CONTRACTOR SHALL CONTACT NC ONE CALL CENTER PRIOR TO ANY DIGGING.
3. ALL PUBLIC WATER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT AND NCDEQ PWS STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT AND NCDEQ DWR STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL CHECK PLANS AND FIELD CONDITIONS FOR CONFLICTS AND DISCREPANCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICT BEFORE PERFORMING WORK IN THE AFFECTED AREA.
5. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FACILITIES, ABOVE AND BELOW GROUND THAT MAY OCCUR AS A RESULT OF THE WORK PERFORMED BY THE CONTRACTOR.
6. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXCAVATION AGAINST COLLAPSE AND SHALL PROVIDE BRACING, SHEETING, OR SHORING AS NECESSARY. TRENCHES SHALL BE KEPT DRY WHILE PIPE ARE BEING PLACED, DEWATERING SHALL BE USED AS REQUIRED., AND PERMITTED THROUGH LOCAL GOVERNMENT AGENCIES AND WATER MANAGEMENT DISTRICT PER CURRENT REGULATIONS AT THE SOLE COST OF THE CONTRACTOR.
8. WORK BEING PERFORMED UNDER THIS CONTRACT SHALL INTERFACE SMOOTHLY WITH OTHER WORK BEING PERFORMED IN THE AREA BY OTHER CONTRACTORS AND UTILITY COMPANIES. IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE HIS ACTIVITIES, WHERE NECESSARY, WITH OTHER CONTRACTORS AND UTILITY COMPANIES.
9. PIPE SPECIFICATIONS SHALL CONFORM TO CITY OF RALEIGH PUBLIC UTILITY STANDARDS.
   - 9.1. WATER MAIN: 8" DUCTILE IRON PIPE, AWWA STND. C-150
   - 9.2. WATER SERVICE: SOFT COPPER TYPE 'K' ¾" TO 2" IN PUBLIC RIGHT-OF-WAY
   - 9.3. SANITARY SEWER MAIN: DEPTHS 3' - 5' IN TRAFFIC AREAS: DUCTILE IRON PIPE, AWWA STND. C-150; DEPTHS >5' IN TRAFFIC AREAS: SDR 26 PVC; DEPTHS 3' - 12' IN NON-TRAFFIC AREAS: SDR 35 PVC; DEPTHS 12' - 20' IN NON-TRAFFIC AREAS: SDR 26 PVC
   - 9.4. SANITARY SEWER SERVICE: SCHEDULE 40 PVC
   - 9.5. SANITARY SEWER MANHOLES: DEPTHS 0' - 12': 4' DIAMETER; DEPTHS 12' - 20' : 5' DIAMETER; DEPTHS 20' OR GREATER: 6' DIAMETER

ZONING CONDITIONS:

1. RESIDENTIAL DRIVEWAYS SHALL BE A MINIMUM OF 25-FEET LONG ON FRONT-LOADED LOTS AND 20-FEET LONG ON REAR-LOADED LOTS.
2. FRONT-LOADED SINGLE-FAMILY LOTS SHALL BE A MINIMUM OF 60-FEET WIDE.
3. REAR SETBACKS FOR SINGLE-FAMILY SHALL BE A MINIMUM OF 20-FEET.
4. FRONT-LOADED SINGLE-FAMILY LOTS IDENTIFIED ON THE MASTER PLAN AS LOTS 86-99 AND 113-118 SHALL NOT BE MASS GRADED. ALL OTHER SINGLE-FAMILY LOTS SHALL BE ELIGIBLE FOR MASS GRADING.
5. USES WITHIN THE DEVELOPMENT SHALL BE DISTRIBUTED AS FOLLOWS: 11% OF THE DEVELOPMENT SHALL BE TOWNHOMES, 74% SHALL BE SINGLE-FAMILY LOTS, AND 15% SHALL BE DEDICATED TOWARDS MIXED-USE/COMMERCIAL USES.
6. ALLEYS A AND E AS DEPICTED ON THE MASTER PLAN SHALL BE DEDICATED AS PUBLIC 32-FOOT-WIDE PUBLIC-RIGHTS-OF-WAY.
7. EVERY HOME SHALL CONTAIN AN ELECTRICAL CONDUIT CONNECTING THE ROOF TO AN ELECTRICAL SUPPLY PANEL TO FACILITATE THE FUTURE INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEMS.
8. THE FIRST TWO MODEL HOMES OPEN TO THE PUBLIC FOR VIEWING SHALL INCLUDE A SOLAR PHOTOVOLTAIC SYSTEM.
9. THE CLUBHOUSE BUILDING SHALL CONTAIN A SOLAR PHOTOVOLTAIC SYSTEM.
10. TO CONTINUE THE FARMING TRADITION IN THIS AREA, A COMMUNITY GARDEN, INCLUDING RAISED PLANTING BEDS, SHALL BE INSTALLED AND ADMINISTERED BY THE HOMEOWNERS ASSOCIATION FOR USE BY RESIDENTS.
11. ALL STORMWATER DEVICES SHALL BE SCREENED FROM VIEW OF A PUBLIC RIGHT-OF-WAY WITH PLANT MATERIALS MEETING THE TYPE A BUFFER STANDARD IN THE KNIGHTDALE UDO.
12. NO BUILDING PERMIT FOR A RESIDENTIAL STRUCTURE SHALL BE ISSUED BEFORE MARCH 1, 2025.
13. 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 GR3-PUD ZONING DISTRICT, MASTER PLAN COMMENTS, UNIFIED DEVELOPMENT ORDINANCE, AND COMMENTS FROM THE DECEMBER 20, 2022 DRC MEETING.



VICINITY MAP

1"=500'

811 KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG.

IMPERVIOUS AREA DATA

TOTAL SITE AREA	60.15 AC	2,619,964.71 SF
IMPERVIOUS IN 127 SINGLE FAMILY LOTS (3200 SF/LOT)	9.3 AC	406,400 SF
IMPERVIOUS IN 53 TOWNHOME LOTS (1900 SF/LOT)	2.3 AC.	100,700 SF
IMPERVIOUS IN ROADWAY	9.4 AC	408,915 SF
TOTAL IMPERVIOUS	21.0	916,015 SF
PERCENT IMPERVIOUS		35%

PER THE ZONING CONDITIONS OF THE REZONING APPROVAL, NO BUILDING PERMIT FOR A RESIDENTIAL STRUCTURE WILL BE ISSUED PRIOR TO MARCH 1, 2025.

RALEIGH WATER INSPECTIONS QUANTITIES TABLE

RALEIGH WATER INSPECTIONS QUANTITIES SUBDIVISIONS AND SITE PLANS			
Phase Number(s)	PHASE 1	PHASE 2	TOTAL
Number of Lots	120	60	180
Number of Units	120	60	180
Public Water (LF)	4,823	4,388	9,212
Public Sewer* (LF)	6,276	2,510	8,786
Water Service Stubs (Quantity)	121	60	181
Sewer Service Stubs (Quantity)	121	60	181
Average Daily Flow Water	57,600	28,800	86,400
Average Daily Flow Sewer**	36,000	18,000	54,000

*Sewer mains and manholes as part of a collection system
**Entire Project Flow. Based on 75 GPD per bedroom for residential (Apartments, single Family dwelling, townhouse for condos)
The meter size must match domestic service size (Exemption - 3/4" service tap with 5/8" meter)

CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MATERIALS ORDERED PRIOR TO FINAL, APPROVED PLANS THAT ARE RELEASED FOR CONSTRUCTION, AND IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS TO THOSE MATERIALS TO MEET THE FINAL, APPROVED DESIGN, SUCH AS STRUCTURE HEIGHTS, ANGLES, PIPE MATERIALS, ETC., WITHOUT ADDITIONAL COST TO DEVELOPER OR ENGINEER.

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	OVERALL EXISTING CONDITIONS
C1.1	DETAILED EXISTING CONDITIONS - SHEET 1 OF 3
C1.2	DETAILED EXISTING CONDITIONS - SHEET 2 OF 3
C1.3	DETAILED EXISTING CONDITIONS - SHEET 3 OF 3
C1.4	EXISTING CONDITIONS TREE SURVEY - SHEET 1 OF 3
C1.5	EXISTING CONDITIONS TREE SURVEY - SHEET 2 OF 3
C1.6	EXISTING CONDITIONS TREE SURVEY - SHEET 3 OF 3
C2.0	OVERALL SITE PLAN
C2.1	DETAILED SITE PLAN - SHEET 1 OF 3
C2.2	DETAILED SITE PLAN - SHEET 2 OF 3
C2.3	DETAILED SITE PLAN - SHEET 3 OF 3
C2.4	OVERALL SIGNS & MARKINGS PLAN
C2.5	DETAILED SIGNS & MARKINGS PLAN SHEET 1 OF 2
C2.6	DETAILED SIGNS & MARKINGS PLAN SHEET 2 OF 2
C2.7	DETAILED ROUNDABOUT VEHICLE TRACKING SHEET
C2.8	ROUNDABOUT SIGHT DISTANCE
C2.9	PHASE SITE PLAN
C3.0	OVERALL UTILITY PLAN
C3.1	DETAILED UTILITY PLAN - SHEET 1 OF 3
C3.2	DETAILED UTILITY PLAN - SHEET 2 OF 3
C3.3	DETAILED UTILITY PLAN - SHEET 3 OF 3
C3.4	SANITARY SEWER SCHEDULE
C4.0	OVERALL GRADING & DRAINAGE PLAN
C4.1	DETAILED GRADING & DRAINAGE PLAN - SHEET 1 OF 3
C4.2	DETAILED GRADING & DRAINAGE PLAN - SHEET 2 OF 3
C4.3	DETAILED GRADING & DRAINAGE PLAN - SHEET 3 OF 3
C4.4	STORM SEWER SCHEDULE
C4.5	DETAILED ROUNDABOUT GRADING
C5.0	ROAD A PROFILE - SHEET 1 OF 2
C5.1	ROAD A PROFILE - SHEET 2 OF 2
C5.2	ROAD B PROFILE
C5.3	ROAD C PROFILE
C5.4	ROAD D PROFILE - SHEET 1 OF 2
C5.5	ROAD D PROFILE - SHEET 2 OF 2
C5.6	ROAD E PROFILE - SHEET 1 OF 2
C5.7	ROAD E PROFILE - SHEET 2 OF 2
C5.8	ROAD F PROFILE
C5.9	ROAD G PROFILE
C5.10	ROAD H PROFILE
C5.11	ALLEY A PROFILE
C5.12	ALLEY B PROFILE
C5.13	ALLEY C PROFILE
C5.14	ALLEY D PROFILE
C5.15	ALLEY E PROFILE
C5.16	ALLEY F PROFILE
C5.17	SEWER OUTFALL PLAN & PROFILE
C6.1	STORM OUTFALL PROFILES
C6.2	STORM OUTFALL PROFILES
C6.3	CULVERT PLAN & PROFILE
C7.0	SCM NOTES AND DETAILS
C7.1	SCM 1 PLAN & PROFILE
C7.2	SCM 2 PLAN & PROFILE
C7.3	SCM 3 PLAN & PROFILE
C8.0	OVERALL LIGHTING PLAN
C8.1	DETAILED LIGHTING PLAN
C8.2	DETAILED LIGHTING PLAN
C8.3	DETAILED LIGHTING PLAN
C9.0	OVERALL LANDSCAPE PLAN
C9.1	DETAIL LANDSCAPE PLAN - SHEET 1 OF 3
C9.2	DETAIL LANDSCAPE PLAN - SHEET 2 OF 3
C9.3	DETAIL LANDSCAPE PLAN - SHEET 3 OF 3
C10.0	DETAILED ROADWAY WIDENING PLAN
C10.1	DETAILED ROADWAY WIDENING GRADING PLAN
C10.2	DETAILED ROADWAY WIDENING DETIALS
C10.3	ROAD WIDENING CROSS SECTIONS - SHEET 1 OF 4
C10.4	ROAD WIDENING CROSS SECTIONS - SHEET 2 OF 4
C10.5	ROAD WIDENING CROSS SECTIONS - SHEET 3 OF 4
C10.6	ROAD WIDENING CROSS SECTIONS - SHEET 4 OF 4
C12.0	SITE DETAILS - SHEET 1 OF 3
C12.1	SITE DETAILS - SHEET 2 OF 3
C12.2	SITE DETAILS - SHEET 3 OF 3
C12.3	WATER AND SEWER DETAILS
C12.4	STORM DETAILS
C12.5	LANDSCAPE DETAILS

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, _____, 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 and said exceptions are shown on Sheet(s) _____ of these drawings.

Seal By: _____, PE
Date: _____

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

ATTENTION CONTRACTORS

The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Infrastructure Inspections Division and schedule a Pre-construction meeting on the Development Portal prior to beginning any construction.
Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

Failure to notify City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for Inspection, install a downstream plug, have permitted plans on the jobsite, or any other violation of City of Raleigh Standards will result in a fine and possible exclusion from future work in the City of Raleigh.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 500'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

COVER SHEET

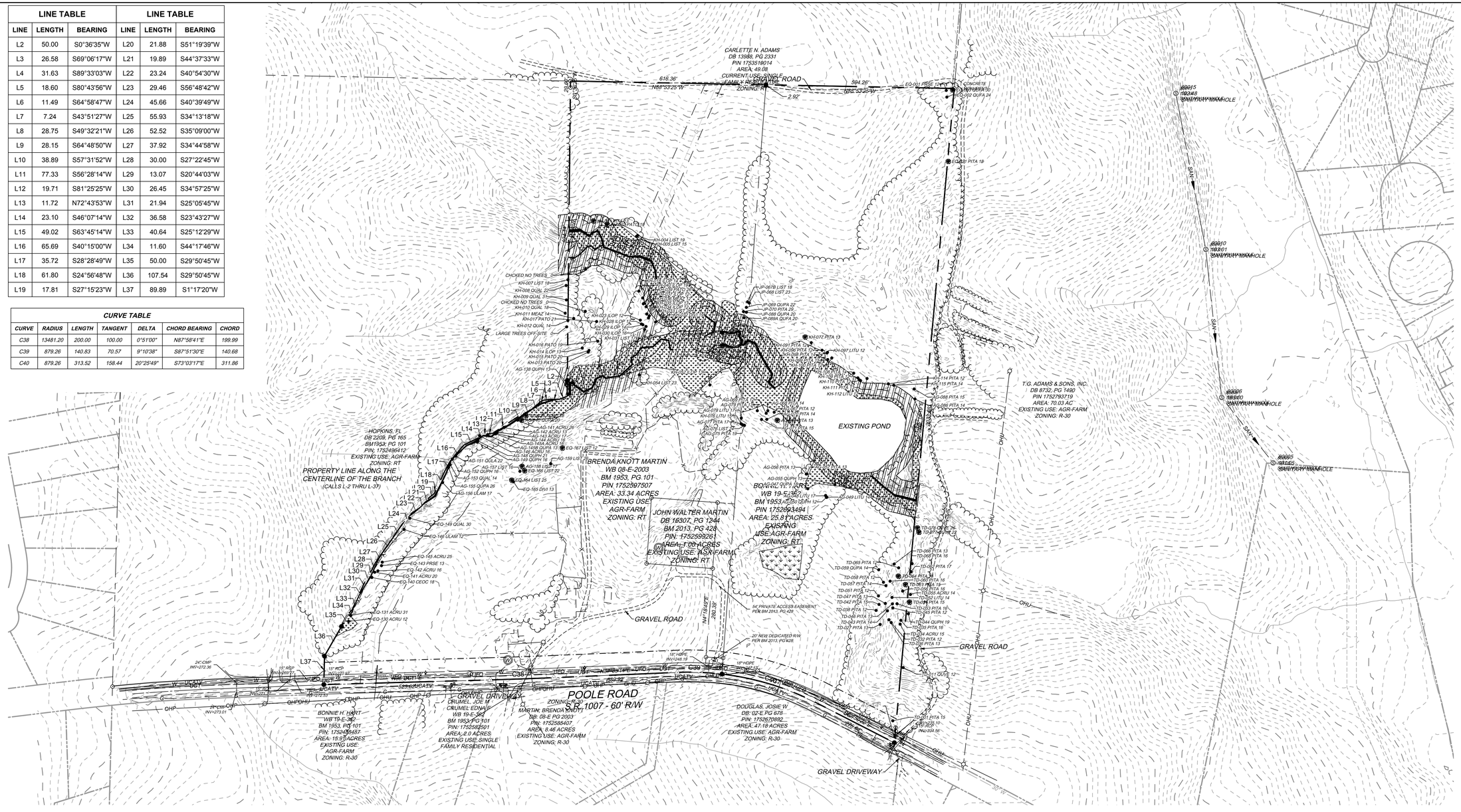
JOB NO. 51557
SHEET NO. C0.0

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LINE TABLE			LINE TABLE		
LINE	LENGTH	BEARING	LINE	LENGTH	BEARING
L2	50.00	S0°36'35"W	L20	21.88	S51°19'39"W
L3	26.58	S69°06'17"W	L21	19.89	S44°37'33"W
L4	31.63	S89°33'03"W	L22	23.24	S40°54'30"W
L5	18.60	S80°43'56"W	L23	29.46	S56°48'42"W
L6	11.49	S64°58'47"W	L24	45.66	S40°39'49"W
L7	7.24	S43°51'27"W	L25	55.93	S34°13'18"W
L8	28.75	S49°32'21"W	L26	52.52	S35°09'00"W
L9	28.15	S64°48'50"W	L27	37.92	S34°44'58"W
L10	38.89	S57°31'52"W	L28	30.00	S27°22'45"W
L11	77.33	S56°28'14"W	L29	13.07	S20°44'03"W
L12	19.71	S81°25'25"W	L30	26.45	S34°57'25"W
L13	11.72	N72°43'53"W	L31	21.94	S25°05'45"W
L14	23.10	S46°07'14"W	L32	36.58	S23°43'27"W
L15	49.02	S63°45'14"W	L33	40.64	S25°12'29"W
L16	65.69	S40°15'00"W	L34	11.60	S44°17'46"W
L17	35.72	S28°28'49"W	L35	50.00	S29°50'45"W
L18	61.80	S24°56'48"W	L36	107.54	S29°50'45"W
L19	17.81	S27°15'23"W	L37	89.89	S1°17'20"W

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD BEARING	CHORD
C38	13481.20	200.00	100.00	0°51'00"	N87°58'41"E	199.99
C39	879.26	140.83	70.57	9°10'38"	S87°51'30"E	140.68
C40	879.26	313.52	158.44	20°25'49"	S73°03'17"E	311.86



LEGEND

- IPF - IRON PIPE FOUND
- IRF - IRON ROD FOUND
- IPS - IRON PIPE SET
- CP - COMPUTED EASEMENT POINT
- CMF - CONCRETE MONUMENT
- MNF - MAG NAIL FOUND
- CP - COMPUTED POINT
- CSF - COTTON SPINDLE FOUND
- BFP - BACKFLOW PREVENTER
- WV - WATER VAULT
- VT - TELEPHONE VAULT
- TC - TRAFFIC CONTROL BOX
- VP - POWER VAULT
- UV - UTILITY VAULT
- WF - WETLAND FLAG
- RCP - REINFORCED CONCRETE PIPE
- CMP - CORRUGATED METAL PIPE
- VCP - VITRIFIED CLAY PIPE
- DIP - DUCTILE IRON PIPE
- HDPE - HIGH DENSITY POLYETHYLENE PIPE
- FES - FLARED END SECTION
- MKF - FIBER OPTIC MARKER
- MKG - GAS MARKER
- TVP - TELEVISION PEDESTAL
- SIGP - SIGNAL POLE
- HVAC - HEATING, VENTILATION AND AIR CONDITIONING
- LSA -LANDSCAPED AREA
- R / W - RIGHT-OF-WAY
- P / L - PROPERTY LINE
- C / L - CENTERLINE
- NTS - NOT TO SCALE
- GV - GAS VALVE
- CB - CATCH BASIN
- GI - GRATE INLET
- YI - YARD INLET
- CI - CURB INLET
- EP - EDGE OF PAVING
- TBC - TOP BACK OF CURB
- CCR - CHATHAM COUNTY RECORD
- WCR - WAKE COUNTY RECORDS
- DB - DEED BOOK
- PB - PLAT BOOK
- SF - SQUARE FEET
- (XXXX) - SITE ADDRESS

- MH DRAINAGE
- MH SANITARY
- MH ELECTRIC
- MH TELEPHONE
- MH WATER
- STORM INLET
- ELECTRIC BOX
- TELEPHONE PEDESTAL
- CABLE TV PEDESTAL
- SIGN
- ELECTRIC METER
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- LIGHT POLE
- YARD LIGHT
- GROUND LAMP

- SPRINKLER BOX
- SPRINKLER HEAD
- SPRINKLER VALVE
- GAS TEST LOCATION
- GAS METER
- GAS VALVE
- FLAG POLE
- TREE
- BOLLARD
- BOREHOLE
- AC UNIT
- MAILBOX
- CLEAN OUT
- GUY
- HC HANDICAP PARKING
- WELL
- MONITORING WELL
- ROOF DRAIN
- WATER SPIGOT

- DEED LINE
- LINE NOT SURVEYED
- STORM LINE
- SANITARY LINE
- PAINTED WATER LINE
- WETLAND BUFFER ZONE
- PAINTED STORM LINE
- CREEK TOP OF BANK
- 50' CREEK BUFFER (ZONE 1)
- 50' CREEK BUFFER (ZONE 2)
- FLOODPLAIN
- FEMA 100-YEAR FLOODPLAIN
- FEMA 500-YEAR FLOODPLAIN

NOTES:
1. BOUNDARY TAKEN FROM SURVEY BY TIMMONS GROUP, DATED MARCH 19, 2022.
2. TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY BY TIMMONS GROUP DATED MARCH 19, 2022. WITH SUPPLEMENTAL SURVEY BY TIMMONS GROUP DATED DECEMBER 12, 2024.
3. WETLAND AND STREAM DELINEATION BY TIMMONS GROUP DATED DECEMBER 26, 2024.
4. THE SUBJECT PROPERTY IS LOCATED WITHIN ZONE X, IN ACCORDANCE WITH FIRM MAP #3720175200K & #3720175300K EFFECTIVE 07/19/2022.

ENVIRONMENTAL LEGEND

- NEUSE RIPARIAN BUFFER ZONE 1
- NEUSE RIPARIAN BUFFER ZONE 2
- WETLANDS

NAD 83

SCALE 1"=150'
0 150' 300'

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

811 Know what's below. Call before you dig.

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

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5410 Trinity Road, Suite 102 | Raleigh, NC 27607
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REVISION DESCRIPTION	DATE

DATE: 04/29/2025
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DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 150'

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NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

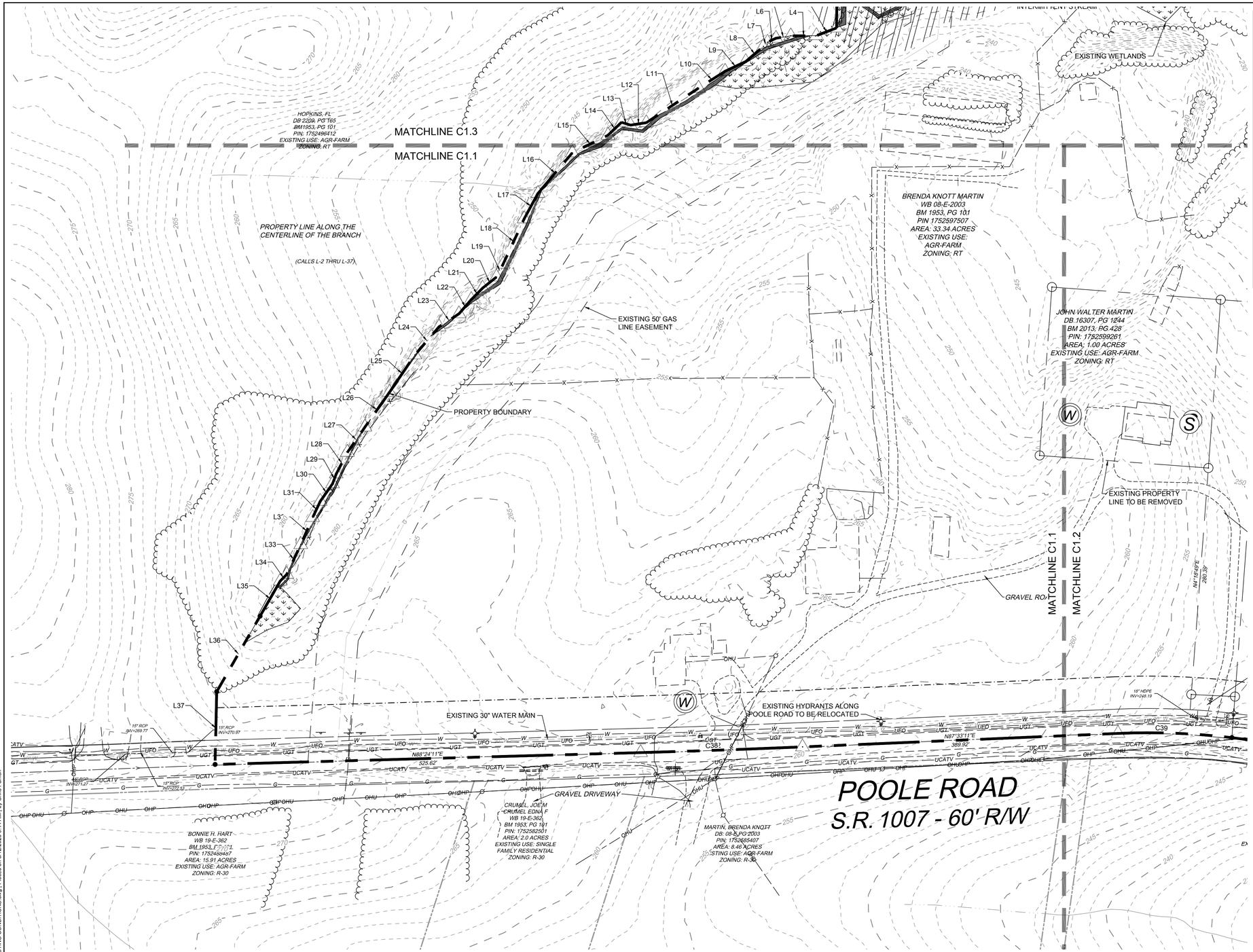
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

OVERALL EXISTING CONDITIONS

JOB NO. 51557
SHEET NO. C1.0

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LEGEND

IPF - IRON PIPE FOUND	MH DRAINAGE	SPRINKLER BOX
IRF - IRON ROD FOUND	MH SANITARY	SPRINKLER HEAD
IPS - IRON PIPE SET	MH ELECTRIC	SPRINKLER VALVE
CP - COMPUTED EASEMENT POINT	MH TELEPHONE	GAS TEST LOCATION
CMF - CONCRETE MONUMENT	MH WATER	GAS METER
MNF - MAG NAIL FOUND	STORM INLET	GAS VALVE
CP - COMPUTED POINT	ELECTRIC BOX	FLAG POLE
CSF - COTTON SPINDLE FOUND	TELEPHONE PEDESTAL	TREE
BFP BACKFLOW PREVENTER	CABLE TV PEDESTAL	BOLLARD
WV WATER VAULT	SIGN	BOREHOLE
TV TELEPHONE VAULT	ELECTRIC METER	AC UNIT
TC TRAFFIC CONTROL BOX	WATER METER	MAILBOX
PV POWER VAULT	WATER VALVE	CLEAN OUT
UV UTILITY VAULT	FIRE HYDRANT	GUY
WF - WETLAND FLAG	POWER POLE	HC HANDICAP PARKING
RCP - REINFORCED CONCRETE PIPE	LIGHT POLE	WELL
CMP - CORRUGATED METAL PIPE	YARD LIGHT	MONITORING WELL
VCP - VITRIFIED CLAY PIPE	GROUND LAMP	ROOF DRAIN
DIP - DUCTILE IRON PIPE		WATER SPIGOT
HDPE - HIGH DENSITY POLYETHYLENE PIPE		
FES - FLARED END SECTION		
MKF - FIBER OPTIC MARKER		
MKG - GAS MARKER		
TVP - TELEVISION PEDESTAL		
SIGP - SIGNAL POLE		
HVAC - HEATING, VENTILATION AND AIR CONDITIONING		
LSA - LANDSCAPED AREA		
R / W - RIGHT-OF-WAY		
P / L - PROPERTY LINE		
C / L - CENTERLINE		
NTS - NOT TO SCALE		
GV - GAS VALVE		
CB - CATCH BASIN		
GI - GRATE INLET		
YI - YARD INLET		
CI - CURB INLET		
EP - EDGE OF PAVING		
TBC - TOP BACK OF CURB		
CCR - CHATHAM COUNTY RECORD		
WCR - WAKE COUNTY RECORDS		
DB - DEED BOOK		
PB - PLAT BOOK		
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SF - SQUARE FEET		
(XXX) - SITE ADDRESS		

DEED LINE	
LINE NOT SURVEYED	
STORM LINE	
SANITARY LINE	SAN
PAINTED WATER LINE	W
WETLAND BUFFER ZONE	
PAINTED STORM LINE	
CREEK TOP OF BANK	
50' CREEK BUFFER (ZONE 1)	
50' CREEK BUFFER (ZONE 2)	
FLOODPLAIN	
FEMA 100-YEAR FLOODPLAIN	
FEMA 500-YEAR FLOODPLAIN	

ENVIRONMENTAL LEGEND

- NEUSE RIPARIAN BUFFER ZONE 1
- NEUSE RIPARIAN BUFFER ZONE 2
- WETLANDS

NOTES:

1) THIS SURVEY WAS PREPARED WITH THE BENEFIT OF A TITLE COMMITMENT NUMBER 14R123, REVISED 11-26-2014 AT 3:06PM, BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.
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811 Know what's below. Call before you dig.

NAD 83

SCALE 1"=60'
0 60' 120'

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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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City of Raleigh Public Utilities Department Permit # _____

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

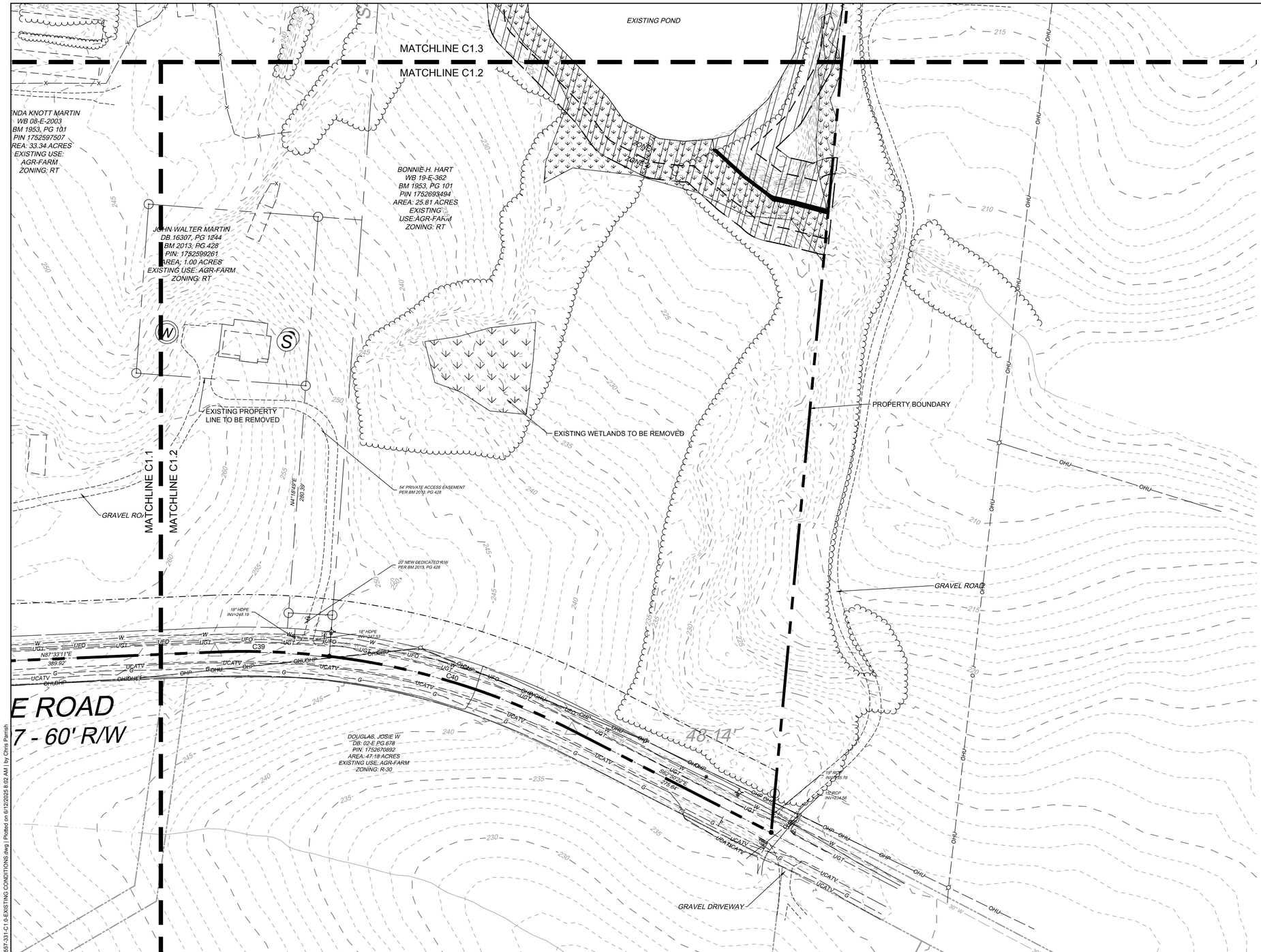
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED EXISTING CONDITIONS - SHEET 1 OF 3

JOB NO. 51557
SHEET NO. C1.1

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LEGEND

- IPF - IRON PIPE FOUND
- IRF - IRON ROD FOUND
- IPS - IRON PIPE SET
- CP - COMPUTED EASEMENT POINT
- CMF - CONCRETE MONUMENT
- MNF - MAG NAIL FOUND
- CP - COMPUTED POINT
- CSF - COTTON SPINDLE FOUND
- BFP - BACKFLOW PREVENTER
- WV - WATER VAULT
- TV - TELEPHONE VAULT
- TC - TRAFFIC CONTROL BOX
- PV - POWER VAULT
- UV - UTILITY VAULT
- WF - WETLAND FLAG
- RCP - REINFORCED CONCRETE PIPE
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- FEMA 500-YEAR FLOODPLAIN

ENVIRONMENTAL LEGEND

- NEUSE RIPARIAN BUFFER ZONE 1
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- WETLANDS

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811 Know what's below. Call before you dig.

NAD 83

SCALE 1"=250'
0 250' 500'

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

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Raleigh Water Review Officer

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REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 60'

JOB NO.
51557

SHEET NO.
C1.2

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED EXISTING CONDITIONS - SHEET 2 OF 3

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CARLETTE N. ADAMS
DB 13988, PG 2331
PIN 1753519014
AREA: 49.08
CURRENT USE: SINGLE FAMILY RESIDENTIAL
ZONING: RT

GRAVEL ROAD

616.36'
N88°53'25"W

2.92'

594.26'
N88°53'25"W

CONCRETE MONUMENT

PROPERTY BOUNDARY

EXISTING 50' GAS LINE EASEMENT

PERENNIAL STREAM

INTERMITTENT STREAM

PERENNIAL STREAM

INTERMITTENT STREAM

INTERMITTENT STREAM

PERENNIAL STREAM

EXISTING WETLANDS

EXISTING POND

S41°51'58"W 1,818.87'

N6°41'19"E
267.08'

MATCHLINE C1.1

MATCHLINE C1.3

MATCHLINE C1.2

MATCHLINE C1.2

BRENDA KNOTT MARTIN
WB 08-F-2003

L2 L3 L4 L5 L6 L7 L8 L9

LEGEND

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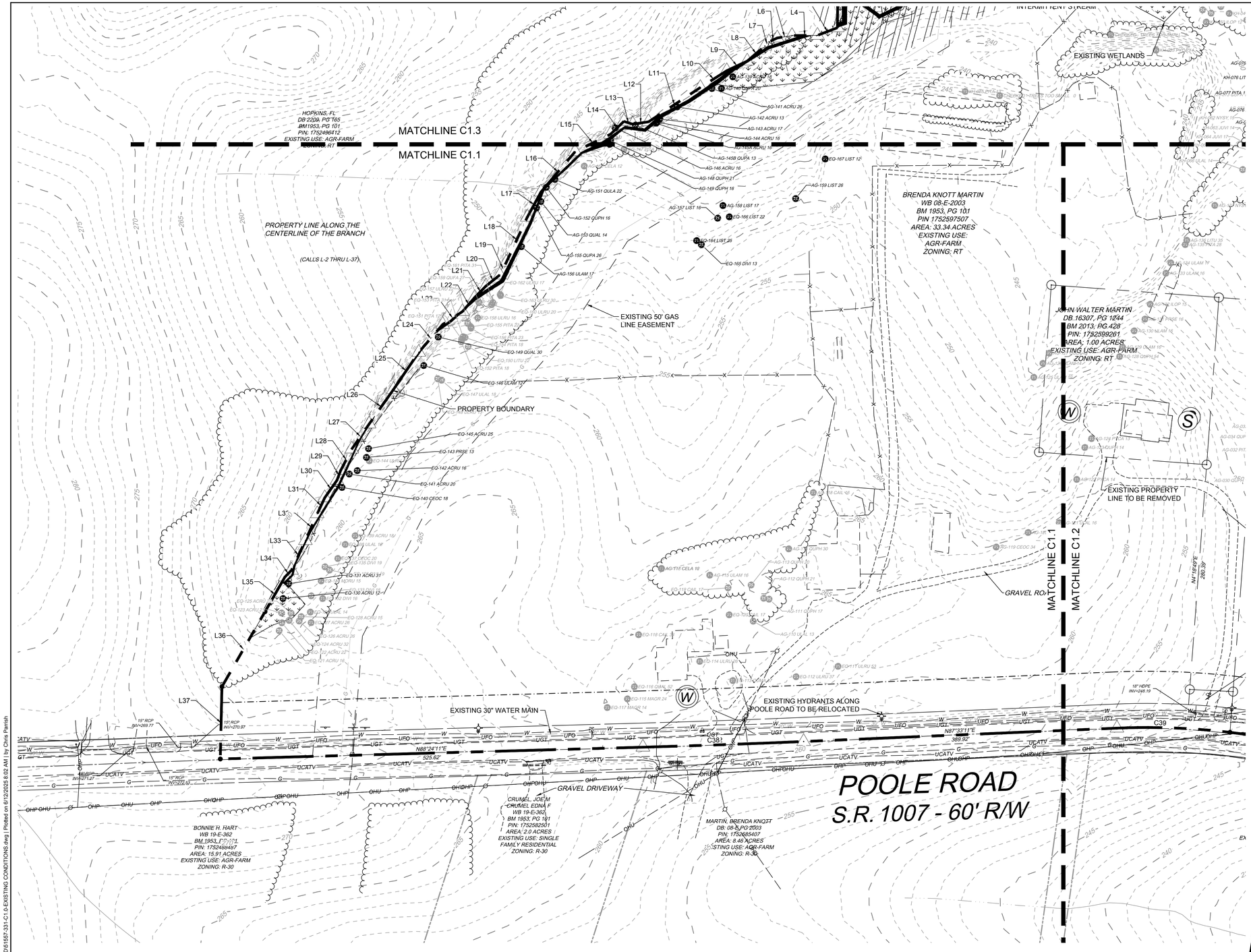
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED EXISTING CONDITIONS - SHEET 3 OF 3

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- PB - PLAT BOOK
- PG - PAGE
- SF - SQUARE FEET
- XXXX - SITE ADDRESS

- MH DRAINAGE
- MH SANITARY
- MH ELECTRIC
- MH TELEPHONE
- MH WATER
- STORM INLET
- ELECTRIC BOX
- TELEPHONE PEDESTAL
- CABLE TV PEDESTAL
- SIGN
- ELECTRIC METER
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- LIGHT POLE
- YARD LIGHT
- GROUND LAMP
- SPRINKLER BOX
- SPRINKLER HEAD
- SPRINKLER VALVE
- GAS TEST LOCATION
- GAS METER
- GAS VALVE
- FLAG POLE
- TREE
- BOLLARD
- BOREHOLE
- AC UNIT
- MAILBOX
- CLEAN OUT
- GUY
- HC HANDICAP PARKING
- WELL
- MONITORING WELL
- ROOF DRAIN
- WATER SPIGOT

- DEED LINE
- LINE NOT SURVEYED
- STORM LINE
- SANITARY LINE
- PAINTED WATER LINE
- WETLAND BUFFER ZONE
- PAINTED STORM LINE
- CREEK TOP OF BANK
- 50' CREEK BUFFER (ZONE 1)
- 50' CREEK BUFFER (ZONE 2)
- FLOODPLAIN
- FEMA 100-YEAR FLOODPLAIN
- FEMA 500-YEAR FLOODPLAIN

TREE SPECIES LEGEND

Species Acronym	Scientific Name	Common Name
ACRU	*Acer rubrum*	red maple
CAIL	*Carya illinoinensis*	pecan
CELA	*Celtis laevigata*	sugarberry
CEOC	*Celtis occidentalis*	common hackberry
DIVI	*Diospyros virginiana*	common persimmon
ILOP	*Ilex opaca*	American holly
JUVI	*Juniperus virginiana*	eastern red-cedar
LIST	*Liquidambar styraciflua*	sweetgum
LITU	*Liriodendron tulipifera*	tulip-poplar
MAGR	*Magnolia grandiflora*	southern magnolia
MEAZ	*Melia azedarach*	chinaberrytree
MORU	*Morus rubra*	red mulberry
NYSY	*Nyssa sylvatica*	black tupelo
PATO	*Paulownia tomentosa*	princesstree
PITA	*Pinus taeda*	loblolly pine
PRSE	*Prunus serotina*	black cherry
PYCA	*Pyrus calleryana*	callery pear
QUAL	*Quercus alba*	white oak
QUFA	*Quercus falcata*	southern red oak
QULA	*Quercus laurifolia*	laurel oak
QUMA	*Quercus marilandica*	blackjack oak
QUNI	*Quercus nigra*	water oak
QUPA	*Quercus pagoda*	cherrybark oak
QUPH	*Quercus phellos*	willow oak
QURU	*Quercus rubra*	northern red oak
QUVE	*Quercus velutina*	black oak
ULAL	*Ulmus alata*	winged elm
ULAM	*Ulmus americana*	American elm
ULRU	*Ulmus rubra*	slippery elm

ENVIRONMENTAL LEGEND

- NEUSE RIPARIAN BUFFER ZONE 1
- NEUSE RIPARIAN BUFFER ZONE 2
- WETLANDS
- EX TREE TO BE REMOVED
- EX TREE TO REMAIN

ENVIRONMENTAL SURVEY NOTES:
1. LANDSCAPED 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, SEC. 7.4.E.1].
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NOTES:
1. BOUNDARY TAKEN FROM SURVEY BY TIMMONS GROUP, DATED MARCH 19, 2022.
2. TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY BY TIMMONS GROUP DATED MARCH 19, 2022. WITH SUPPLEMENTAL SURVEY BY TIMMONS GROUP DATED DECEMBER 12, 2024.
3. WETLAND AND STREAM DELINEATION BY TIMMONS GROUP DATED DECEMBER 26, 2024.
4. THE SUBJECT PROPERTY IS LOCATED WITHIN ZONE X, IN ACCORDANCE WITH FIRM MAP #3720175200K & #3720175300K EFFECTIVE 07/19/2022.

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

NAD 83

SCALE 1"=60'
0 60' 120'

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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 60'

JOB NO.
51557

SHEET NO.
C1.4

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

EXISTING CONDITIONS TREE SURVEY - SHEET 1 OF 3

NORTH CAROLINA LICENSE NO. C-1652

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TREE SPECIES LEGEND

Species Acronym	Scientific Name	Common Name
ACRU	*Acer rubrum*	red maple
CAIL	*Carya illinoinensis*	pecan
CELA	*Celtis laevigata*	sugarberry
CEOC	*Celtis occidentalis*	common hackberry
DIVI	*Diospyros virginiana*	common persimmon
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ENVIRONMENTAL LEGEND

- NEUSE RIPARIAN BUFFER ZONE 1
- NEUSE RIPARIAN BUFFER ZONE 2
- WETLANDS
- EX TREE TO BE REMOVED
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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit # __** S-5503 **__**

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-4142 **__**

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 # _____

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NAD 83

SCALE 1"=60'
0 60' 120'

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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025
DRAWN BY
331
DESIGNED BY
331
CHECKED BY
T. CROSS
SCALE
1" = 60'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

EXISTING CONDITIONS TREE SURVEY - SHEET 2 OF 3

JOB NO.
51557
SHEET NO.
C1.5

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LAND USE ADMINISTRATOR

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City of Raleigh Public Utilities Department Permit # _____

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 60'

JOB NO. 51557
SHEET NO. C1.6

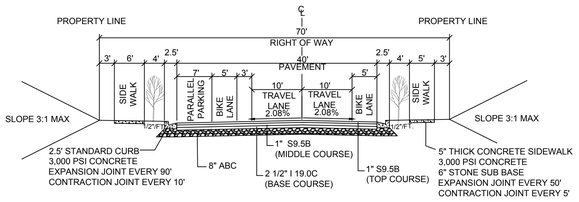
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
EXISTING CONDITIONS TREE SURVEY - SHEET 3 OF 3

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

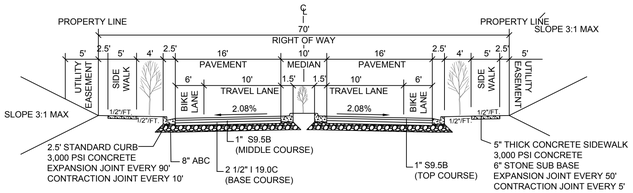
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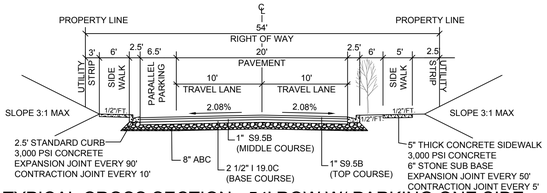
TYPICAL MODIFIED MAIN STREET CROSS SECTION - 70' W/ PARALLEL PARKING

NOT TO SCALE



TYPICAL MAIN STREET CROSS SECTION - 70' ROW W/ MEDIAN

NOT TO SCALE



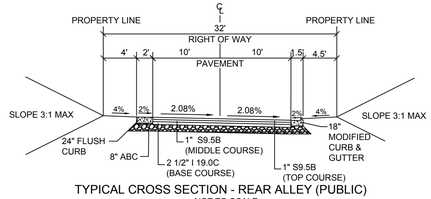
TYPICAL CROSS SECTION - 54' ROW W/ PARKING ONE SIDE

NOT TO SCALE



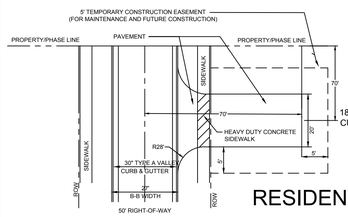
TYPICAL CROSS SECTION - 54' ROW

NOT TO SCALE

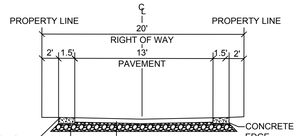


TYPICAL CROSS SECTION - REAR ALLEY (PUBLIC)

NOT TO SCALE



TEMPORARY TURNAROUND



TYPICAL CROSS SECTION - REAR ALLEY

NOT TO SCALE

RESIDENTIAL LANDSCAPING NOTES

FIRE NOTE:
WHEN FUEL TANKS ARE DELIVERED FOR MOBILE FUELING OPERATIONS OF CONSTRUCTION VEHICLES, PLEASE CONTACT THE KNIGHTDALE FIRE MARSHAL'S OFFICE AT (919) 217-2292 OR RONNIE.PRIVETTE@KNIGHTDALENC.GOV TO SCHEDULE AN INSPECTION. WE HAVE ISSUE A FIRE SERVICE OPERATIONAL PERMIT AND THEY WILL NEED TO BE INSPECTED

SITE DATA

DEVELOPER:
MERITAGE HOMES
WILLIAM ROBINSON
3300 PARAMOUNT PARKWAY, SUITE 120
MORRISVILLE, NC 27560
EMAIL: (919) 322-2289
PHONE: BILL.ROBINSON@MERITAGEHOMES.COM

ENGINEER:
TIMMONS GROUP
TYLER CROSS, PE
5410 TRINITY ROAD, STE 102
RALEIGH, NC 27607
PHONE: (919) 532-3271
FAX: (919) 859-5663
EMAIL: TYLER.CROSS@TIMMONS.COM

OWNER ON RECORD
TPG AG EHC III (MTH) MULTI STATE 4 LLC
8585 E HARTFORD DR, STE 118
SCOTTSDALE, AZ 85255
PIN #: 1752-59-7507
DB: 19824
PG: 1748

TPG AG EHC III (MTH) MULTI STATE 4 LLC
8585 E HARTFORD DR, STE 118
SCOTTSDALE, AZ 85255
PIN #: 1752-59-9261
DB: 19824
PG: 1748

FIRM MAP# = 3720175200K & 3720175300K
EFFECTIVE 07/19/2022

CBU PARKING
CBU PARKING MAXIMUM: 8 SPACES
CBU PARKING MINIMUM: 4 SPACES
CBU PARKING PROVIDED: 7 SPACES
ON-STREET PARKING PROVIDED: 67 SPACES

TOTAL EXISTING TRACT = 60.15 ACRES
EXISTING ZONING = GR-3 PUD

TOTAL PROPOSED NUMBER OF LOTS = 180
PROPOSED DENSITY = 2.99 DU/A

FRONT LOAD SINGLE FAMILY LOTS = 72
MINIMUM LOT SIZE REQUIRED: 7,100 SF
MINIMUM LOT SIZE PROVIDED: 7,102 SF
AVERAGE LOT SIZE PROVIDED: 8,469 SF
LOT WIDTH: 60'
FRONT SETBACK: 10'
DRIVEWAY LENGTH: 25'
SIDE SETBACK: 5'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'

REAR LOAD SINGLE FAMILY LOTS = 55
MINIMUM LOT SIZE REQUIRED: 4,100 SF
MINIMUM LOT SIZE PROVIDED: 4,101 SF
AVERAGE LOT SIZE PROVIDED: 4,614 SF
LOT WIDTH: 38'
FRONT SETBACK: 10'
SIDE SETBACK: 3'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

REAR LOAD TOWNHOME LOTS = 53
MINIMUM LOT SIZE REQUIRED: 2,000 SF
MINIMUM LOT SIZE PROVIDED: 2,000 SF
AVERAGE LOT SIZE PROVIDED: 2,032 SF
MINIMUM LOT WIDTH: 20'
FRONT SETBACK:10'
BUILDING SEPARATION: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

NOTE:
COMPLIANCE WITH THE CBU PARKING REQUIREMENTS WILL BE CONFIRMED DURING REVIEW OF THE OPEN SPACE PLANS.

NAD 83

SCALE 1"=150'
0 150' 300'

STREET TABLE

	LENGTH (LF)	ROW	DEDICATION TYPE	SPEED LIMIT (MPH)
ROAD A	1,776	64	PUBLIC	25
ROAD B	609	54	PUBLIC	20
ROAD C	751	54	PUBLIC	20
ROAD D	2,039	54	PUBLIC	20
ROAD E	1,212	64	PUBLIC	25
ROAD F	904	54	PUBLIC	20
ROAD G	345	54	PUBLIC	20
ROAD H	573	54	PUBLIC	20
ALLEY A	858	32	PUBLIC	10
ALLEY B	143	20	PRIVATE	10
ALLEY C	639	20	PRIVATE	10
ALLEY D	147	20	PRIVATE	10
ALLEY E	339	32	PUBLIC	10
ALLEY F	414	20	PRIVATE	10
TOTAL	10,749			
TOTAL W/O ALLEYS	8,209			

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PERIMETER BUFFER
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- PROPOSED ROAD
- CENTER PHASE LINE
- DRAINAGE EASEMENT
- SANITARY SEWER EASEMENT
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA
- PROPOSED 4' FENCE
- PROPOSED SIDEWALK
- PROPOSED 10' MUP
- PROPOSED ASPHALT
- GREENWAY PROPOSED MULCH
- TRAIL LANDSCAPE BUFFER
- FEE-IN-LIEU ROADWORK
- 30" STANDARD CURB & GUTTER

RETAINING WALL NOTES:

1. ALL RETAINING WALLS TO BE DESIGNED AND PERMITTED BY OTHERS.
2. ALL RETAINING WALLS GREATER THAN 30" IN HEIGHT SHALL INCLUDE A MINIMUM 4' HIGH BLACK ALUMINUM FENCE.
3. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN(S) FOR REVIEW AND APPROVAL FROM CITY OF SANFORD INSPECTIONS DEPARTMENT.
4. PRIOR TO CONSTRUCTION CONTRACTOR TO FIELD VERIFY BOTTOM OF WALL AND ALL OTHER ASSOCIATED ELEVATIONS.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR COORDINATION PURPOSED WITH FIELD CONDITIONS. UNSEEN CONFLICTS AND ASSOCIATED DRAINAGE AS NEEDED.
6. ALL RETAINING WALLS WILL REQUIRE A BUILDING PERMIT FROM THE JURISDICTIONS INSPECTIONS DEPARTMENT.
7. TOP OF WALL SPOT GRADES PROVIDE 6" ELEVATION DIFFERENCE ABOVE GRADE SHOWN.
8. CONTRACTOR WILL BE REQUIRED TO MITIGATE ANY LOCALIZED LOW POINTS THAT MAY LEAD TO PONDING ALONG THE TOP OF WALL.
9. DRAINAGE SWALES TO BE LINED WITH RIP RAP AT END OF WALLS TO PREVENT EROSION.

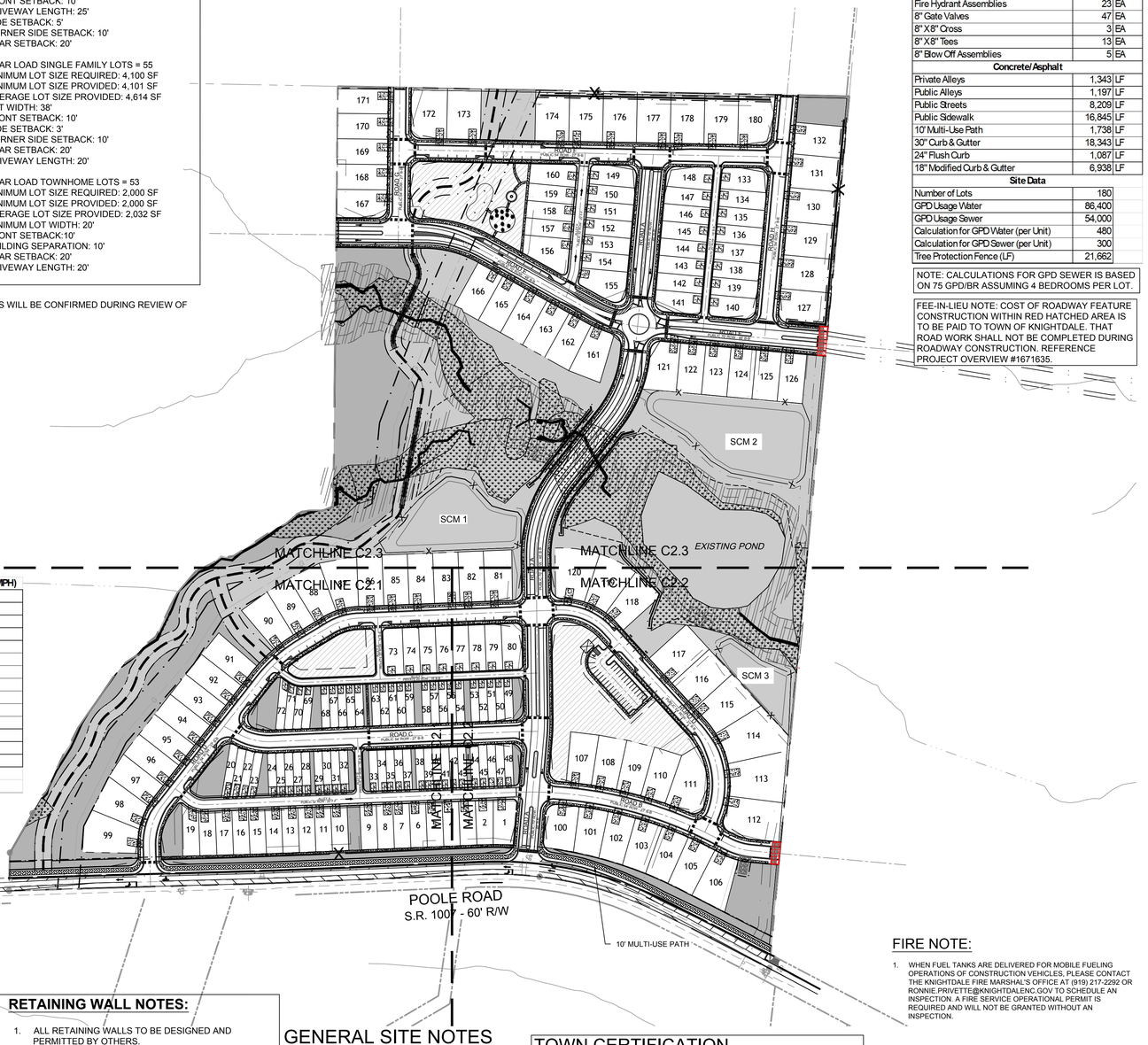
IMPERVIOUS AREA DATA

TOTAL SITE AREA	60.15 AC	2,619,964.71 SF
IMPERVIOUS IN 127 SINGLE FAMILY LOTS (3200 SF/LOT)	9.3 AC	406,400 SF
IMPERVIOUS IN 53 TOWNHOME LOTS (1900 SF/LOT)	2.3 AC.	100,700 SF
IMPERVIOUS IN ROADWAY	9.4 AC	408,915 SF
TOTAL IMPERVIOUS	21.0	916,015 SF
PERCENT IMPERVIOUS		35%

USPS NOTE

CLUSTER MAILBOXES TO BE LOCATED WITHIN NEIGHBORHOOD ACTIVE OS 1. KIOSK LOCATION SHALL BE APPROVED BY USPS PRIOR TO SUBDIVISION APPROVAL. IF TEMPORARY LOCATIONS ARE REQUIRED, APPROVAL OF LOCATIONS SHALL BE RECEIVED FROM USPS AND TOWN OF KNIGHTDALE. MAIL KIOSK WILL HAVE ADA COMPLIANT RAMPS AND PARKING SPACES.

A HOMEOWNER'S ASSOCIATION (HOA) WILL OWN AND MAINTAIN ALL OPEN SPACE PARCELS, PRIVATE ALLEYS, AND WILL BE RESPONSIBLE FOR MAINTAINING ALL LANDSCAPING REQUIRED BY TOWN OF KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE (UDO).



SITE QUANTITIES

Sewer		
48" Manholes	35	EA
60" Manholes	25	EA
72" Inside Drop Manhole	1	EA
8" Public Sanitary Sewer	8,802	LF
Sewer Services	181	EA
Water		
8" Public Watermain	8,930	LF
6" Private Watermain	342	LF
Water Services	181	EA
Fire Hydrant Assemblies	23	EA
8" Gate Valves	47	EA
8" X 8" Cross	3	EA
8" X 8" Tees	13	EA
8" Blow Off Assemblies	5	EA
Concrete/Asphalt		
Private Alleys	1,343	LF
Public Alleys	1,197	LF
Public Streets	8,209	LF
Public Sidewalk	16,845	LF
10' Multi-Use Path	1,738	LF
30" Curb & Gutter	18,343	LF
24" Flush Curb	1,087	LF
18" Modified Curb & Gutter	6,938	LF
Site Data		
Number of Lots	180	
GPD Usage Water	86,400	
GPD Usage Sewer	54,000	
Calculation for GPD Water (per Unit)	480	
Calculation for GPD Sewer (per Unit)	300	
Tree Protection Fence (LF)	21,662	

NOTE: CALCULATIONS FOR GPD SEWER IS BASED ON 75 GPD/BR ASSUMING 4 BEDROOMS PER LOT.

FEE-IN-LIEU NOTE: COST OF ROADWAY FEATURE CONSTRUCTION WITHIN RED HATCHED AREA IS TO BE PAID TO TOWN OF KNIGHTDALE. THAT ROAD WORK SHALL NOT BE COMPLETED DURING ROADWAY CONSTRUCTION. REFERENCE PROJECT OVERVIEW #1671635.

FIRE NOTE:

1. WHEN FUEL TANKS ARE DELIVERED FOR MOBILE FUELING OPERATIONS OF CONSTRUCTION VEHICLES, PLEASE CONTACT THE KNIGHTDALE FIRE MARSHAL'S OFFICE AT (919) 217-2292 OR RONNIE.PRIVETTE@KNIGHTDALENC.GOV TO SCHEDULE AN INSPECTION. A FIRE SERVICE OPERATIONAL PERMIT IS REQUIRED AND WILL NOT BE GRANTED WITHOUT AN INSPECTION.

GENERAL SITE NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. ROADS AND DRIVEWAYS SHALL COMPLY WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS.
3. SIGN PERMITS SHALL BE REQUIRED FOR ANY ENTRANCE SIGNAGE. PERMITS SHALL BE REQUIRED PRIOR TO FABRICATION OR INSTALLATION OF SIGNS. SIGNAGE SHALL BE RESTRICTED TO AN ON-SITE LOCATION.
4. THE WATER AND SEWER SYSTEMS SHALL COMPLY WITH CITY OF RALEIGH STANDARDS.
5. ALL DESIGN AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF KNIGHTDALE'S SEDIMENTATION AND EROSION CONTROL REGULATIONS. AN EROSION CONTROL PLAN SHALL BE APPROVED BY THE TOWN OF KNIGHTDALE PRIOR TO CONSTRUCTION DRAWINGS APPROVAL AND ANY GRADING.
6. CONSTRUCTION DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE TOWN OF KNIGHTDALE AND CITY OF RALEIGH PRIOR TO CONSTRUCTION.
7. RESTRICTIVE COVENANTS SHALL BE APPROVED AND RECORDED PRIOR TO RECORDING OF FINAL PLAT.
8. STORMWATER CONTROL MEASURES SHALL BE CONTAINED IN AND ACCESSED VIA OPEN SPACE MAINTAINED AND OWNED BY THE HOMEOWNER'S ASSOCIATION. A MAINTENANCE PLAN MUST BE DEVELOPED TO ADDRESS THE STORMWATER CONTROL MEASURES.
9. PRIVATE STORM DRAINAGE EASEMENTS SHALL BE MAINTAINED BY THE HOA.
10. SUBDIVISION LOTS MUST BE LOTS OF RECORD PRIOR TO RECEIVING A BUILDING PERMIT.
11. PER UDO SEC 6.4.H, ALL UTILITIES SHALL BE PLACED UNDERGROUND.

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

811 Know what's below. Call before you dig.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 150'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

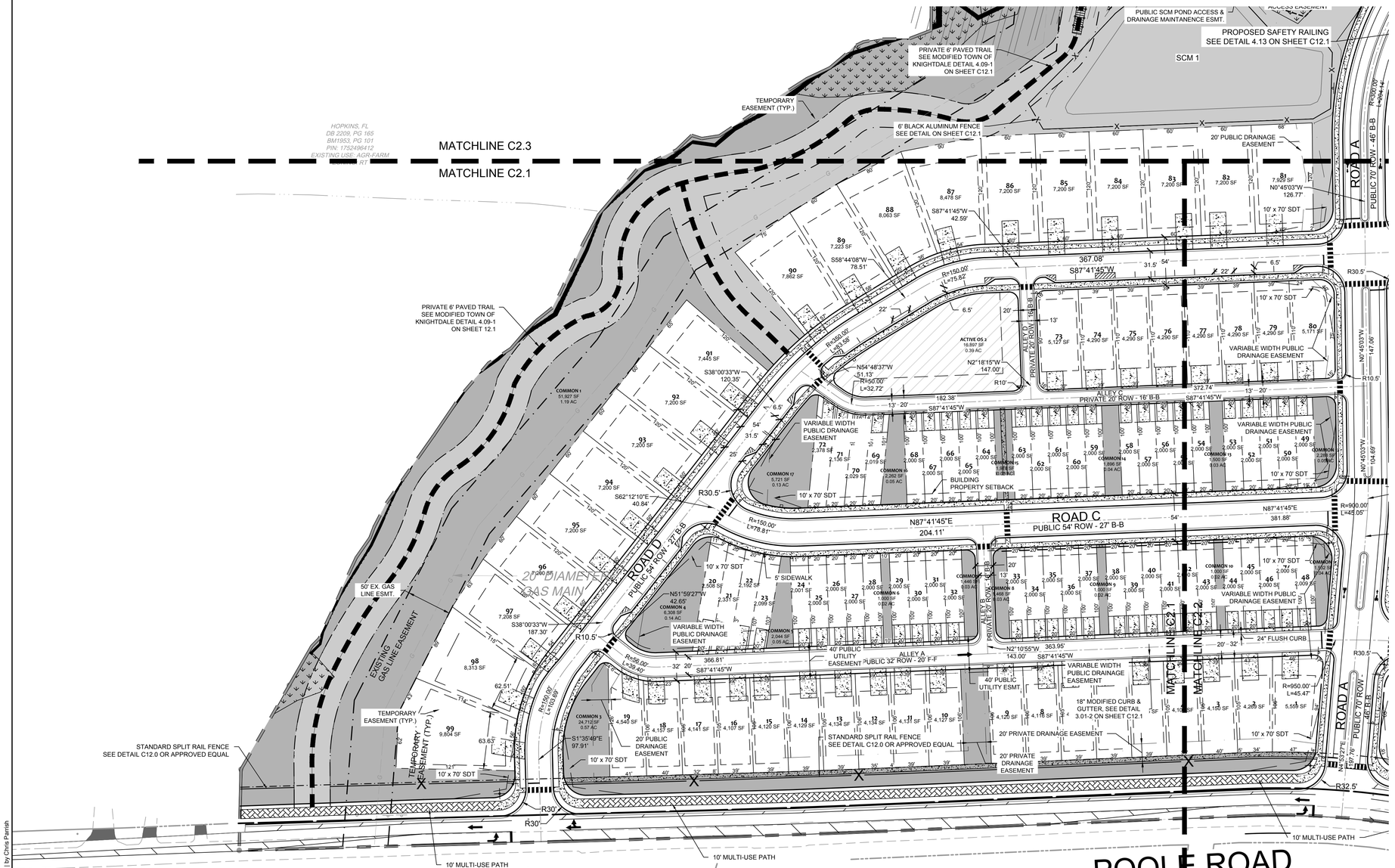
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
OVERALL SITE PLAN

JOB NO. 51557
SHEET NO. C2.0

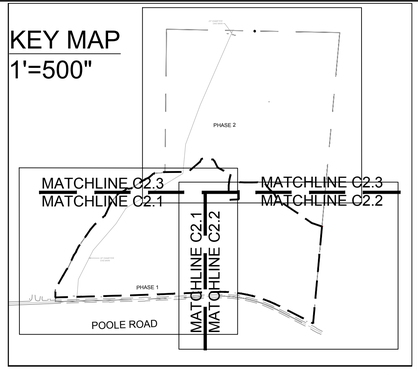
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KEY MAP

1'=500"



NOTES:

1. FIELD TOPOGRAPHIC SURVEY PERFORMED BY TIMMONS GROUP ON MARCH, 2022.
2. THE CONTRACTOR SHALL CONTACT NC ONE CALL CENTER PRIOR TO ANY DIGGING.
3. ALL PUBLIC WATER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPT. AND NCDENR DEH PWS STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPT. AND NCDENR DWQ STANDARDS AND SPECIFICATIONS
4. **THE CONSTRACTOR SHALL CHECK PLANS AND FIELD CONDITIONS FOR CONFLICTS AND DISCREPANCIES PRIOR TO CONSTRUCTION. THE CONCTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICT BEFORE PERFORMING WORK IN THE AFFECTED AREA.**
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6. WETLAND AND RIPARIAN BUFFER DELINEATION BY TIMMONS GROUP DATED JUNE 2, 2022.
7. ALL STREETS SHALL BE PUBLIC. ALLEYS SHALL BE PRIVATE WITH THE EXCEPTION OF PROPOSED PUBLIC ALLEYS A AND E.
8. ALL UTILITIES SHALL BE UNDERGROUND.
9. EACH LOT WILL BE SERVED BY CITY OF RALEIGH PUBLIC WATER SYSTEM.
10. EACH LOT WILL BE SERVED BY CITY OF RALEIGH PUBLIC SEWER SYSTEM.
11. TOWN OF KNIGHTDALE STORMWATER PERMITS WILL BE REQUIRED.
12. TOWN OF KNIGHTDALE EROSION CONTROL REGULATIONS SHALL BE COMPLIED WITH.
13. CONSTRUCTION DRAWINGS MUST BE APPROVED PRIOR TO ANY WORK BEGINNING.
14. SIGNAGE SHALL BE APPROVED THROUGH A SEPARATE PROCESS. APPROVAL OF CDS DOES NOT GRANT APPROVAL OF ANY SIGNAGE
15. NCDOT DRIVEWAY PERMIT WILL BE REQUIRED PRIOR TO FINAL PLAT APPROVAL.
16. STREET NAMES MUST BE APPROVED BY WAKE COUNTY GIS PRIOR TO FINAL PLAT.
17. DEDICATED OPEN SPACE AREAS WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION
18. OPEN SPACE SHALL BE DEDICATED FOR PROVISION OF ACTIVE AND/OR PASSIVE OUTDOOR RECREATION OPPORTUNITIES FOR THE SUBDIVISION'S RESIDENTS AND THEIR GUESTS.
19. VERTICAL CLEARANCE OF 13 FEET 6 INCHES REQUIRED FOR ALL ROADWAYS.
20. AREAS OF DISCONNECTED IMPERVIOUS SHALL BE SHOWN ON THE RECORDED PLAT.
21. A FINANCIAL GUARANTEE FOR INCOMPLETE PUBLIC IMPROVEMENTS REQUIRED PRIOR TO FINAL PLAT.

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PERIMETER BUFFER
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- PROPOSED ROAD
- CENTER PHASE LINE
- DRAINAGE EASEMENT
- SANITARY SEWER EASEMENT
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- TRAIL LANDSCAPE BUFFER
- 30" STANDARD CURB & GUTTER

STREET TABLE

	LENGTH (LF)	ROW	DEDICATION TYPE	SPEED LIMIT (MPH)
ROAD A	1,776	64	PUBLIC	25
ROAD B	609	54	PUBLIC	20
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ALLEY E	339	32	PUBLIC	10
ALLEY F	414	20	PRIVATE	10
TOTAL	**10,749**			
TOTAL W/O ALLEYS	**8,209**			

DETAILED LOTS DATA

FRONT LOAD SINGLE FAMILY LOTS = 20 (LOTS 81-99)
MINIMUM LOT SIZE REQUIRED: 7,100 SF

REAR LOAD SINGLE FAMILY LOTS = 27 (LOTS 1-19 & 73-80)
MINIMUM LOT SIZE REQUIRED: 4,100 SF

REAR LOAD TOWNHOME LOTS = 53 (LOTS 20-72)
MINIMUM LOT SIZE REQUIRED: 2,000 SF

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

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: _____ DATE: _____
LAND USE ADMINISTRATOR

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5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 60'
JOB NO. 51557
SHEET NO. C2.1

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

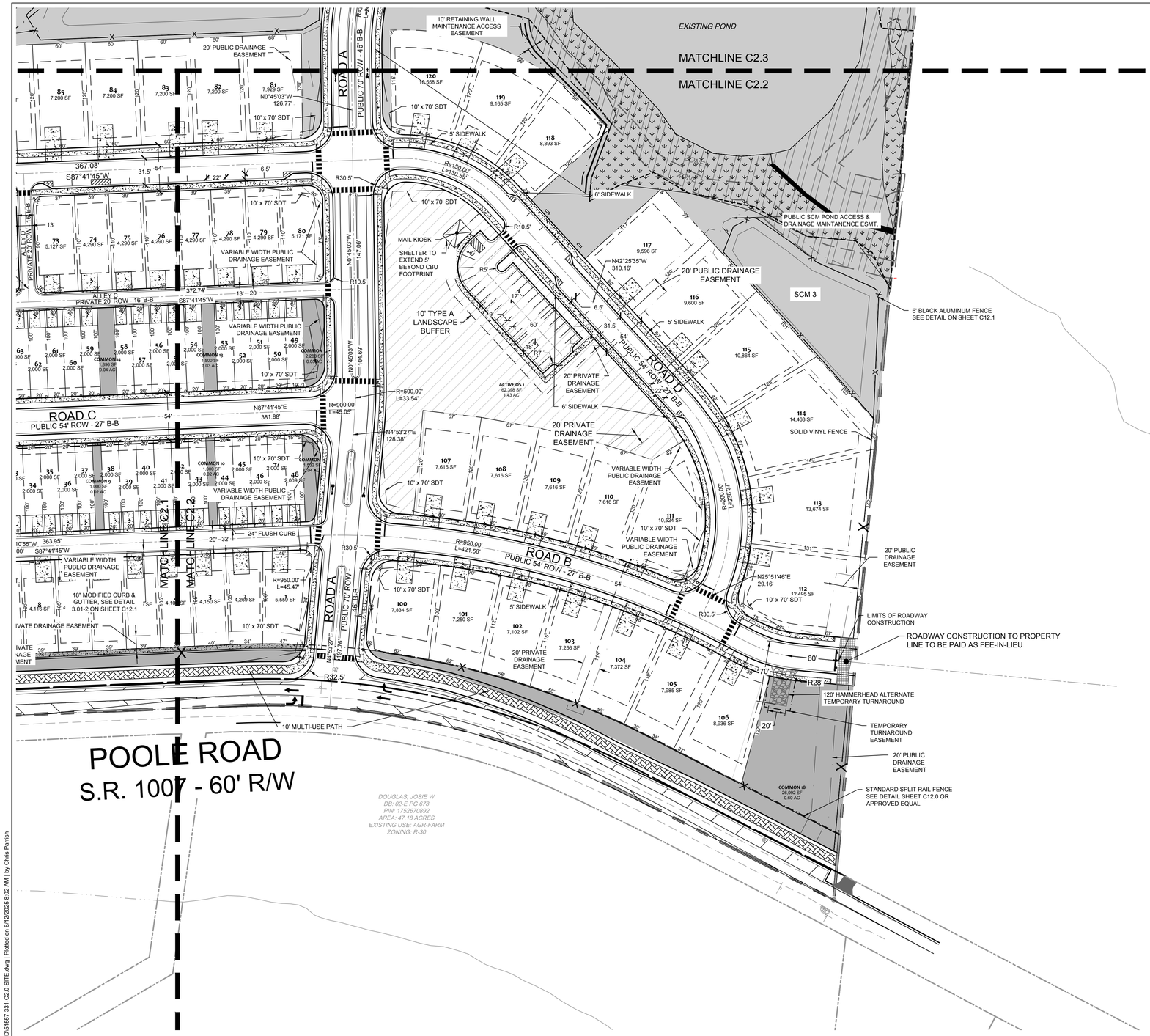
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

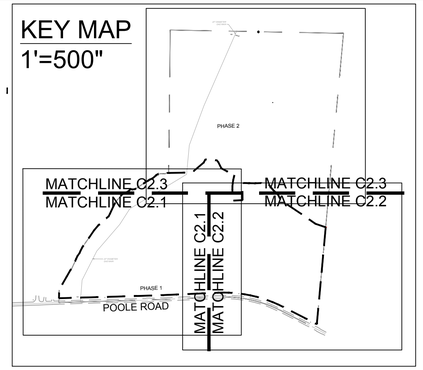
DETAILED SITE PLAN - SHEET 1 OF 3

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NOTES:

1. FIELD TOPOGRAPHIC SURVEY PERFORMED BY TIMMONS GROUP ON MARCH, 2022.
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LEGEND

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- PROPOSED 10' MUP
- PROPOSED ASPHALT
- GREENWAY PROPOSED MULCH
- TRAIL LANDSCAPE BUFFER
- 30" STANDARD CURB & GUTTER

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

DETAILED LOTS DATA

FRONT LOAD SINGLE FAMILY LOTS = 21 (LOTS 100-120)
MINIMUM LOT SIZE REQUIRED: 7,100 SF

NAD 83

SCALE 1"=60'
0 60' 120'

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

811 Know what's below. Call before you dig.

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

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE	04/29/2025
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	T. CROSS
SCALE	1" = 60'
JOB NO.	51557
SHEET NO.	C2.2

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

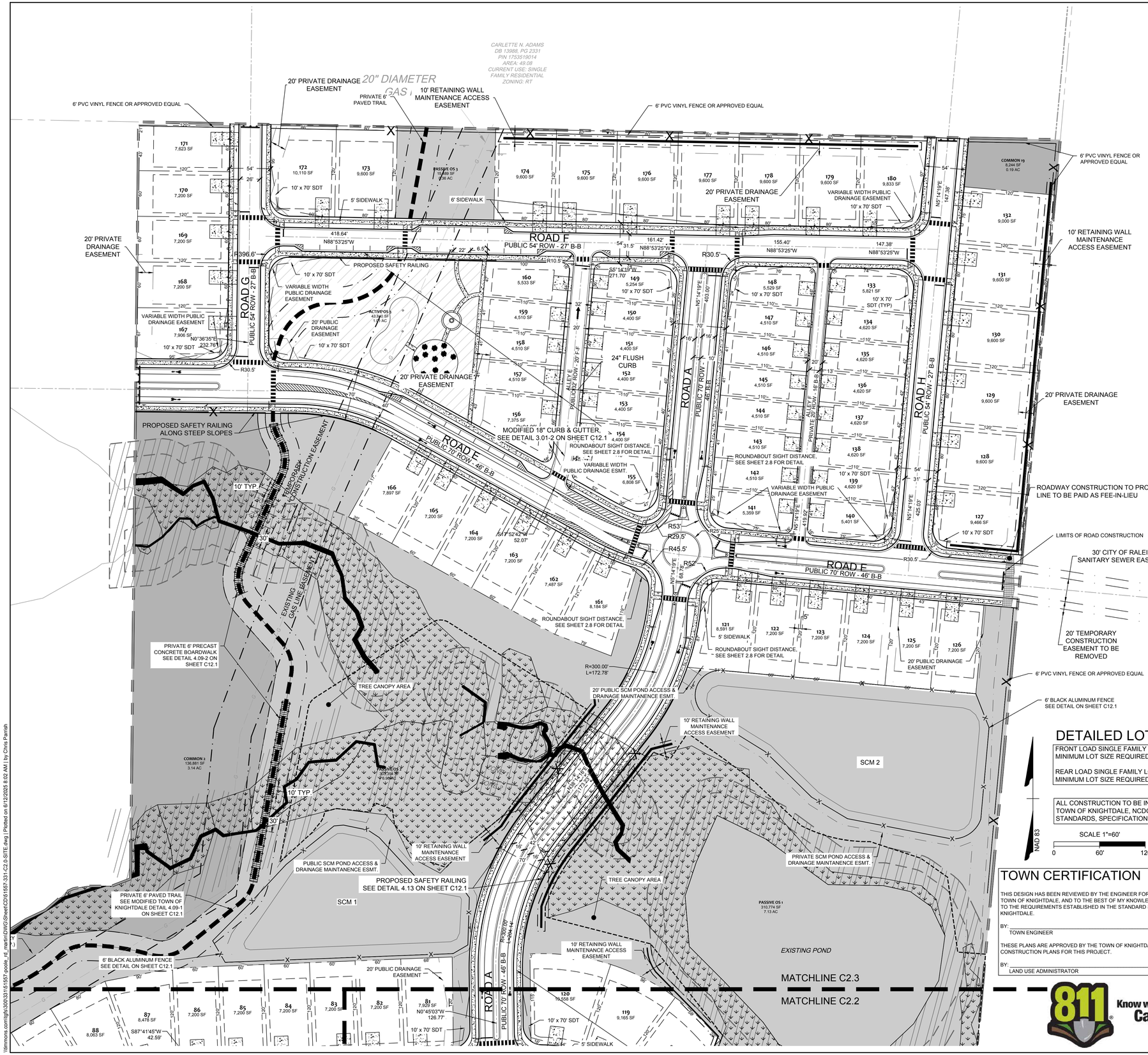
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

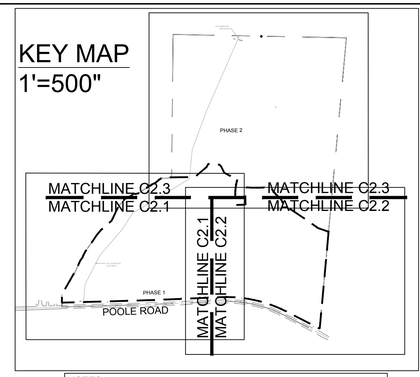
DETAILED SITE PLAN - SHEET 2 OF 3

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

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NOTES:

1. FIELD TOPOGRAPHIC SURVEY PERFORMED BY TIMMONS GROUP ON MARCH, 2022.
2. THE CONTRACTOR SHALL CONTACT NC ONE CALL CENTER PRIOR TO ANY DIGGING.
3. ALL PUBLIC WATER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPT. AND NCDENR DEH PWS STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER IMPROVEMENTS SHALL CONFORM TO ALL CITY OF RALEIGH PUBLIC UTILITIES DEPT. AND NCDENR DWQ STANDARDS AND SPECIFICATIONS
4. **THE CONSTRACTOR SHALL CHECK PLANS AND FIELD CONDITIONS FOR CONFLICTS AND DISCREPANCIES PRIOR TO CONSTRUCTION. THE CONCTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICT BEFORE PERFORMING WORK IN THE AFFECTED AREA.**
5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE, CITY OF RALEIGH, AND NCDOT STANDARDS AND SPECIFICATIONS.
6. WETLAND AND RIPARIAN BUFFER DELINEATION BY TIMMONS GROUP DATED JUNE 2, 2022.
7. ALL STREETS SHALL BE PUBLIC. ALLEYS SHALL BE PRIVATE WITH THE EXCEPTION OF PROPOSED PUBLIC ALLEYS A AND E.
8. ALL UTILITIES SHALL BE UNDERGROUND.
9. EACH LOT WILL BE SERVED BY CITY OF RALEIGH PUBLIC WATER SYSTEM.
10. EACH LOT WILL BE SERVED BY CITY OF RALEIGH PUBLIC SEWER SYSTEM.
11. TOWN OF KNIGHTDALE STORMWATER PERMITS WILL BE REQUIRED.
12. TOWN OF KNIGHTDALE EROSION CONTROL REGULATIONS SHALL BE COMPLIED WITH.
13. CONSTRUCTION DRAWINGS MUST BE APPROVED PRIOR TO ANY WORK BEGINNING.
14. SIGNAGE SHALL BE APPROVED THROUGH A SEPARATE PROCESS. APPROVAL OF CDS DOES NOT GRANT APPROVAL OF ANY SIGNAGE
15. NCDOT DRIVEWAY PERMIT WILL BE REQUIRED PRIOR TO FINAL PLAT APPROVAL.
16. STREET NAMES MUST BE APPROVED BY WAKE COUNTY GIS PRIOR TO FINAL PLAT.
17. DEDICATED OPEN SPACE AREAS WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION
18. OPEN SPACE SHALL BE DEDICATED FOR PROVISION OF ACTIVE AND/OR PASSIVE OUTDOOR RECREATION OPPORTUNITIES FOR THE SUBDIVISION'S RESIDENTS AND THEIR GUESTS.
19. VERTICAL CLEARANCE OF 13 FEET 6 INCHES REQUIRED FOR ALL ROADWAYS.
20. AREAS OF DISCONNECTED IMPERVIOUS SHALL BE SHOWN ON THE RECORDED PLAT.
21. A FINANCIAL GUARANTEE FOR INCOMPLETE PUBLIC IMPROVEMENTS REQUIRED PRIOR TO FINAL PLAT.

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PERIMETER BUFFER
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- PROPOSED ROAD
- CENTER PHASE LINE
- DRAINAGE EASEMENT
- SANITARY SEWER EASEMENT
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA
- PROPOSED 4' FENCE
- PROPOSED SIDEWALK
- PROPOSED 10' MUP
- PROPOSED ASPHALT
- GREENWAY PROPOSED MULCH
- TRAIL LANDSCAPE BUFFER
- 30" STANDARD CURB & GUTTER

DETAILED LOTS DATA

FRONT LOAD SINGLE FAMILY LOTS = 32 (LOTS 121-132 & 161-180)
MINIMUM LOT SIZE REQUIRED: 7,100 SF

REAR LOAD SINGLE FAMILY LOTS = 28 (LOTS 133-160)
MINIMUM LOT SIZE REQUIRED: 4,100 SF

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

NAD 83

SCALE 1"=60'
0 60' 120'

TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

CITY OF RALEIGH – PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 60'

JOB NO. 51557
SHEET NO. C2.3

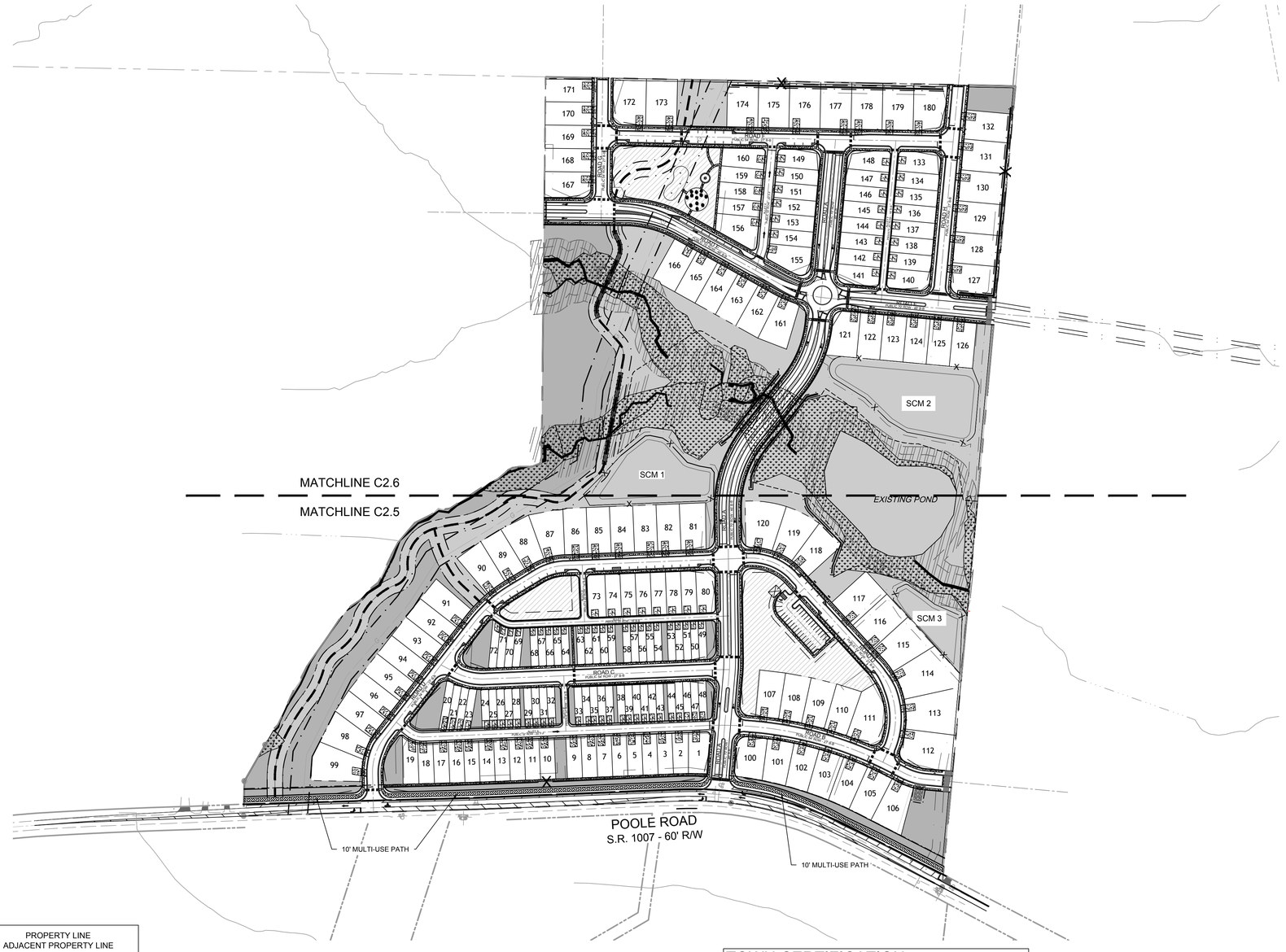
PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED SITE PLAN - SHEET 3 OF 3

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SIGN LEGEND

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.

SIGN	MUTCD STD.
STOP	R1-1
25 MPH	R2-1
ROAD CLOSED	R11-2
BIKE LANE ENDS	R3-17, R3-17bP
BIKE LANE	R3-17
STREET NAME	D3-1
NO PARKING FIRE LANE	R8-3
YIELD	R1-2
YIELD TO PEDESTRIANS	R1-6
ROUNDABOUT CIRCULATION (PLAQUE)	R6-5P
PEDESTRIAN CROSSING SIGN	W11-2
DOWNWARD DIAGONAL ARROW	W16-7P
DO NOT ENTER	R5-1
NARROW KEEP RIGHT	R4-7C
INTERSECTION WARNING	W2-6
ACCESSIBLE PARKING	R7-8
VAN ACCESSIBLE	R7-8aP
ONE-WAY	R6-1

2. ALL SIGNS SHALL BE MOUNTED WITH 7-FT MIN. VERTICAL CLEARANCE TO THE BOTTOM OF THE SIGN ON 3-LB. GALV. STEEL U-CHANNEL POST SET IN 3-FT DEEP x 12-IN DIA. CONCRETE FOOTING.
3. ALL SIGNAGE SHALL BE FIELD STAKED AND THE LOCATIONS APPROVED BY THE TOWN OF KNIGHTDALE AND/OR NCDOT PRIOR TO SIGN INSTALLATION.
4. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE TOWN OF KNIGHTDALE, THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ALL NCDOT STANDARDS AND SPECIFICATIONS.
5. THE TOWN OF KNIGHTDALE REQUIRES ALL REGULATORY PAVEMENT MARKINGS TO BE HI-VIS THERMOPLASTIC, EXCEPT FOR PARKING SPACE STRIPING WHICH MAY BE WHITE PAINT.
6. PEDESTRAIN CROSSINGS AT MID-BLOCK OR UNSIGNALIZED LOCATIONS SHALL BE ACCOMPANIED BY RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGNALS.

T60	WHITE LINE, RR X (16", 90 MIL)	Thermo	4891000000-E	1
T61	WHITE STOPBAR (24", 90 MIL)	Thermo	4891000000-E	1
T62	WHITE CROSSWALK LINE (24", 90 MIL)	Thermo	4891000000-E	1
T70	LEFT TURN ARROW (90 MIL)	Thermo	4725000000-E	1
T71	RIGHT TURN ARROW (90 MIL)	Thermo	4725000000-E	1
T72	STRAIGHT ARROW (90 MIL)	Thermo	4725000000-E	1
T91	BICYCLE STRAIGHT ARROW, HEATED-IN-PLACE (90 MIL)	Thermo	4726110000-E	1
T92	BICYCLE LEFT ARROW, HEATED-IN-PLACE (90 MIL)	Thermo	4726110000-E	1
T101	HANDICAP PARKING (90 MIL)	Thermo	4725000000-E	1

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PERIMETER BUFFER
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- PROPOSED ROAD
- CENTER PHASE LINE
- DRAINAGE EASEMENT
- SANITARY SEWER EASEMENT
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA
- PROPOSED 4' FENCE
- PROPOSED SIDEWALK
- PROPOSED 10' MUP
- PROPOSED ASPHALT
- GREENWAY PROPOSED MULCH
- TRAIL LANDSCAPE BUFFER
- 30" STANDARD CURB & GUTTER

SIGNS & MARKINGS NOTES

1. ALL CROSS-WALKS AND PAVEMENT MARKINGS ARE REQUIRED TO BE HIGH-VISIBILITY THERMOPLASTIC STRIPING (STANDARD SPECIFICATIONS & CONSTRUCTION DETAILS MANUAL, SECTION 3.05.A).

GENERAL SITE NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. ROADS AND DRIVEWAYS SHALL COMPLY WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS.
3. SIGN PERMITS SHALL BE REQUIRED FOR ANY ENTRANCE SIGNAGE. PERMITS SHALL BE REQUIRED PRIOR TO FABRICATION OR INSTALLATION OF SIGNS. SIGNAGE SHALL BE RESTRICTED TO AN ON-SITE LOCATION.
4. THE WATER AND SEWER SYSTEMS SHALL COMPLY WITH CITY OF RALEIGH STANDARDS.
5. ALL DESIGN AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF KNIGHTDALE'S SEDIMENTATION AND EROSION CONTROL REGULATIONS. AN EROSION CONTROL PLAN SHALL BE APPROVED BY THE TOWN OF KNIGHTDALE PRIOR TO ANY GRADING.
6. CONSTRUCTION DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE TOWN OF KNIGHTDALE AND CITY OF RALEIGH PRIOR TO CONSTRUCTION.
7. ALL STREETS WITHIN THE SUBDIVISION WILL HAVE A POSTED SPEED LIMIT OF 25 MPH.
8. RESTRICTIVE COVENANTS SHALL BE APPROVED AND RECORDED PRIOR TO RECORDING OF FINAL PLAT.
9. STORMWATER CONTROL MEASURES SHALL BE CONTAINED IN AND ACCESSED VIA OPEN SPACE MAINTAINED AND OWNED BY THE HOMEOWNER'S ASSOCIATION. A MAINTENANCE PLAN MUST BE DEVELOPED TO ADDRESS THE STORMWATER CONTROL MEASURES.
10. PRIVATE STORM DRAINAGE EASEMENTS SHALL BE MAINTAINED BY THE HOA.
11. SUBDIVISION LOTS MUST BE LOTS OF RECORD PRIOR TO RECEIVING A BUILDING PERMIT.
12. PER UDO SEC 6.4.H, ALL UTILITES SHALL BE PLACED UNDERGROUND.

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: _____ DATE: _____
LAND USE ADMINISTRATOR

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Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

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- DO NOT USE FOR CONSTRUCTION

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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 150'

JOB NO.
51557

SHEET NO.
C2.4

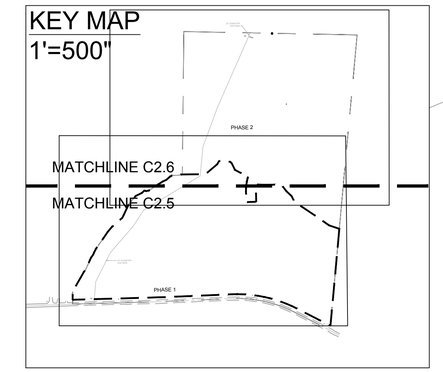
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
OVERALL SIGNS & MARKINGS PLAN

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

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MATCHLINE C2.6

MATCHLINE C2.5

HOPKINS, FL
DB 2209, PG 165
BM1953, PG 101
PIN: 1752496412
EXISTING USE: AGR-FARM
ZONING: RT

COMMON 2
136,881 SF
3.14 AC

PASSIVE OS 2
136,881 SF
3.14 AC

TOK SCM SIGN

ROAD A
PUBLIC 70' ROW - 46' B-B

PASSIVE OS 1
310,774 SF
7.13 AC

EXISTING POND

(11) ON-STREET PARKING SPACES
SEE SHEET C12.2 FOR STANDARD DETAIL

PROPOSED FHA LOCATION
SEE SHEET C3.1

ACTIVE OS 3
16,897 SF
0.39 AC

ALLEY B
PRIVATE 20' ROW - 18' B-B

ALLEY C
PRIVATE 20' ROW - 18' B-B

(11) ON-STREET PARKING SPACES

COMMON 1
51,927 SF
1.19 AC

R11-2
W16-7P
ACCOMPANIED BY
RECTANGULAR RAPID
FLASHING BEACON

COMMON 17
5,721 SF
0.13 AC

COMMON 16
2,092 SF
0.05 AC

ROAD C
PUBLIC 54' ROW - 27' B-B

ROAD D
PUBLIC 54' ROW - 27' B-B

COMMON 4
6,308 SF
0.14 AC

(4) ON-STREET PARKING SPACES

COMMON 3
49,712 SF
0.57 AC

ALLEY A
PUBLIC 32' ROW - 20' F-F

ROAD A
PUBLIC 70' ROW

ROAD B
PUBLIC 54' ROW - 27' B-B

(13) ON-STREET PARKING SPACES

ACTIVE OS 1
62,389 SF
1.43 AC

COMMON 18
28,092 SF
0.60 AC

TYPE 3 BARRICADE
(TYP.)

NAD 83

SCALE 1"=80'
0 80' 160'

10' MULTI-USE PATH

10' MULTI-USE PATH

10' MULTI-USE PATH

POOLE ROAD
S.R. 1007 - 60' R/W

BONNIE H. HART
WB 19-E-362
BM 1953, PG 101
PIN: 1752488487
AREA: 15.91 ACRES
EXISTING USE: AGR-FARM
ZONING: R-30

CRUMEL, JOE M
CRUMEL, EDNA F
WB 19-E-362
BM 1953, PG 101
PIN: 1752582501
AREA: 2.0 ACRES
EXISTING USE: SINGLE
FAMILY RESIDENTIAL
ZONING: R-30

MARTIN, BRENDA KNOTT
DB: 08-E PG 2003
PIN: 1752585407
AREA: 8.46 ACRES
EXISTING USE: AGR-FARM
ZONING: R-30

DOUGLAS, JOSIE W
DB: 02-E PG 678
PIN: 1752670892
AREA: 47.18 ACRES
EXISTING USE: AGR-FARM
ZONING: R-30

T60	WHITE LINE, RR X (18", 90 MIL)	Thermo	4891000000-E	1
T61	WHITE STOPBAR (24", 90 MIL)	Thermo	4891000000-E	1
T62	WHITE CROSSWALK LINE (24", 90 MIL)	Thermo	4891000000-E	1
T70	LEFT TURN ARROW (90 MIL)	Thermo	4725000000-E	1
T71	RIGHT TURN ARROW (90 MIL)	Thermo	4725000000-E	1
T72	STRAIGHT ARROW (90 MIL)	Thermo	4725000000-E	1
T91	BICYCLE STRAIGHT ARROW, HEATED-IN-PLACE (90 MIL)	Thermo	4726110000-E	1
T101	HANDICAP PARKING (90 MIL)	Thermo	4725000000-E	1

SIGN LEGEND

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.

SIGN	MUTCD STD.
STOP	R1-1
25 MPH	R2-1
ROAD CLOSED	R11-2
BIKE LANE ENDS	R3-17, R3-17bP
BIKE LANE	R3-17
STREET NAME	D3-1
NO PARKING FIRE LANE	R8-3
YIELD	R1-2
YIELD TO PEDESTRIANS	R1-6
ROUNDABOUT CIRCULATION (PLAQUE)	R6-5P
PEDESTRIAN CROSSING SIGN	W11-2
DOWNWARD DIAGONAL ARROW	W16-7P
DO NOT ENTER	R5-1
NARROW KEEP RIGHT	R4-7C
INTERSECTION WARNING	W2-6
ACCESSIBLE PARKING	R7-8
VAN ACCESSIBLE	R7-8aP
ONE-WAY	R6-1

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SIGNS & MARKINGS NOTES

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NOTES:
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- PERIMETER BUFFER
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Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 80'

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TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

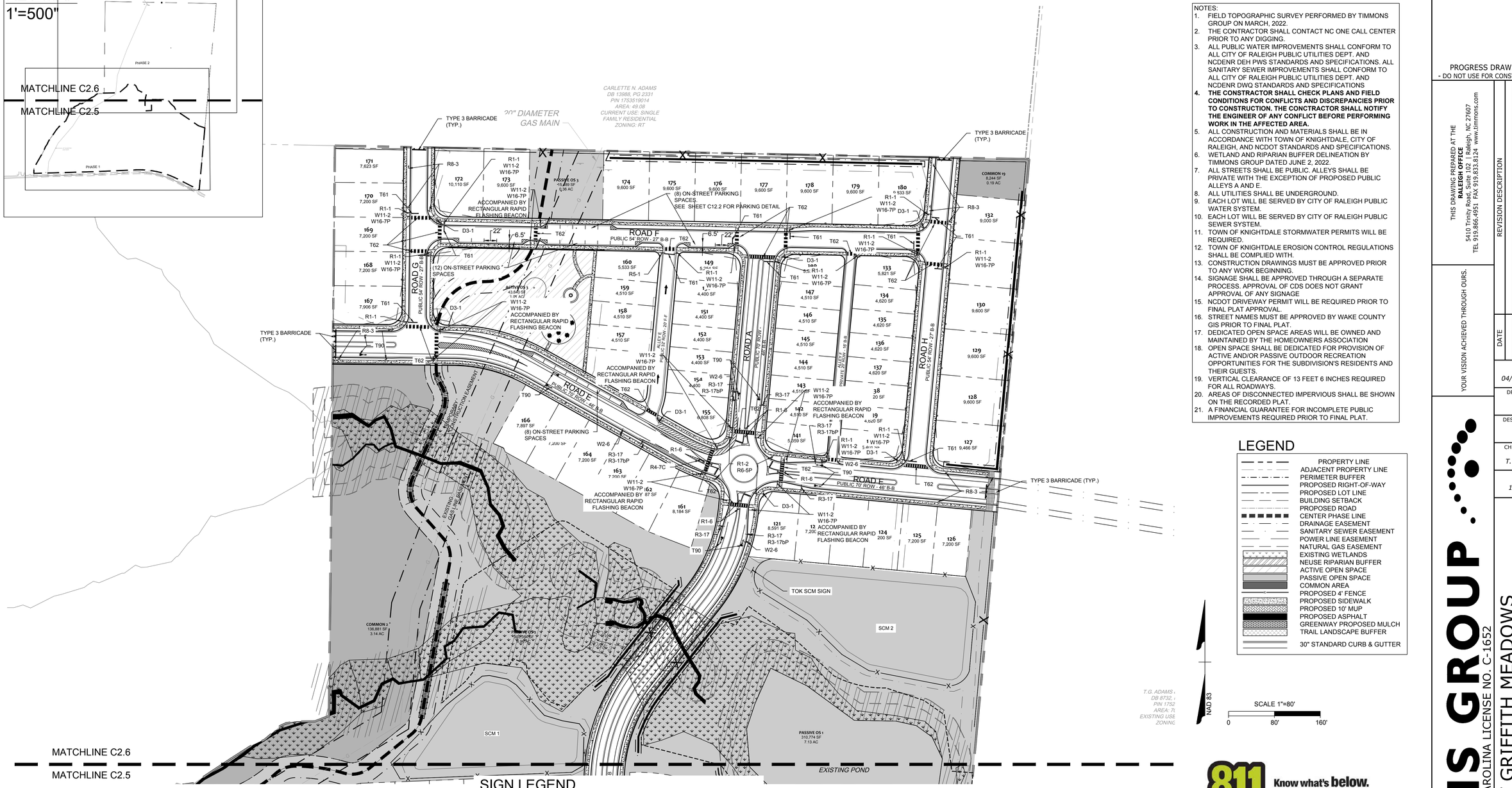
HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED SIGNS & MARKINGS PLAN SHEET 1 OF 2

JOB NO. 51557
SHEET NO. C2.5

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MATCHLINE C2.6

MATCHLINE C2.5

SIGN LEGEND

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.

SIGN	MUTCD STD.
STOP	R1-1
25 MPH	R2-1
ROAD CLOSED	R11-2
BIKE LANE ENDS	R3-17, R3-17bP
BIKE LANE	R3-17
STREET NAME	D3-1
NO PARKING FIRE LANE	R8-3
YIELD	R1-2
YIELD TO PEDESTRIANS	R1-6
ROUNDABOUT CIRCULATION (PLAQUE)	R6-5P
PEDESTRIAN CROSSING SIGN	W11-2
DOWNWARD DIAGONAL ARROW	W16-7P
DO NOT ENTER	R5-1
NARROW KEEP RIGHT	R4-7C
INTERSECTION WARNING	W2-6
ACCESSIBLE PARKING	R7-8
VAN ACCESSIBLE	R7-8aP
ONE-WAY	R6-1

2. ALL SIGNS SHALL BE MOUNTED WITH 7-FT MIN. VERTICAL CLEARANCE TO THE BOTTOM OF THE SIGN ON 3-LB. GALV. STEEL U-CHANNEL POST SET IN 3-FT DEEP x 12-IN DIA. CONCRETE FOOTING.
3. ALL SIGNAGE SHALL BE FIELD STAKED AND THE LOCATIONS APPROVED BY THE TOWN OF KNIGHTDALE AND/OR NCDOT PRIOR TO SIGN INSTALLATION.
4. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE TOWN OF KNIGHTDALE, THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ALL NCDOT STANDARDS AND SPECIFCATIONS.
5. THE TOWN OF KNIGHTDALE REQUIRES ALL REGULATORY PAVEMENT MARKINGS TO BE HI-VIS THERMOPLASTIC, EXCEPT FOR PARKING SPACE STRIPING WHICH MAY BE WHITE PAINT.
6. PEDESTRAIN CROSSINGS AT MID-BLOCK OR UNSIGNALIZED LOCATIONS SHALL BE ACCOMPANIED BY RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGNALS.

SIGNS & MARKINGS NOTES

1. ALL CROSS-WALKS AND PAVEMENT MARKINGS ARE REQUIRED TO BE HIGH-VISIBILITY THERMOPLASTIC STRIPING [STANDARD SPECIFICATIONS & CONSTRUCTION DETAILS MANUAL, SECTION 3.05.A].

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DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 80'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

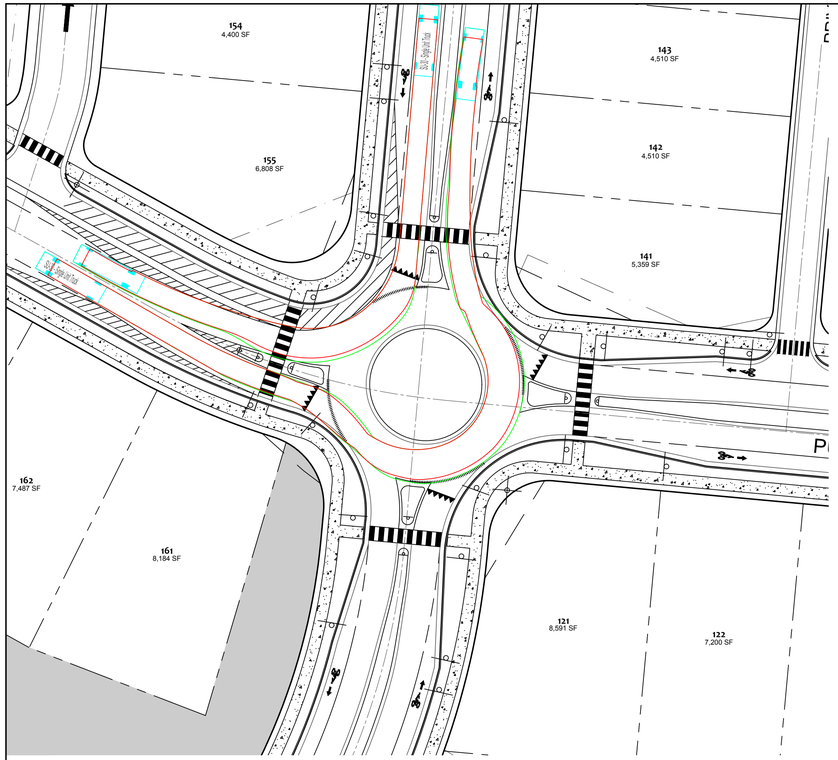
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED SIGNS & MARKINGS PLAN SHEET 2 OF 2

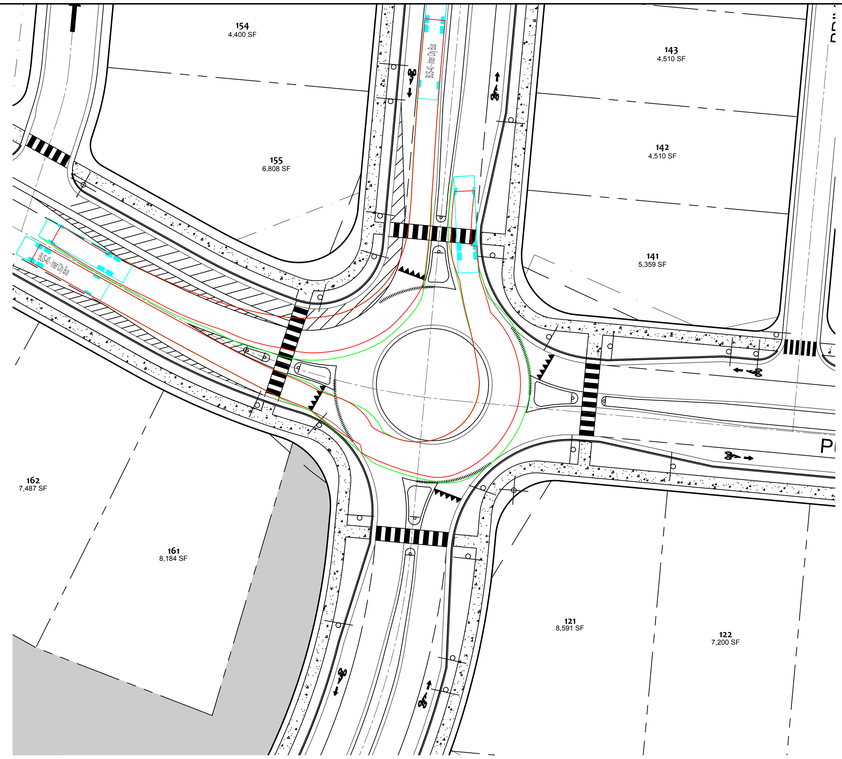
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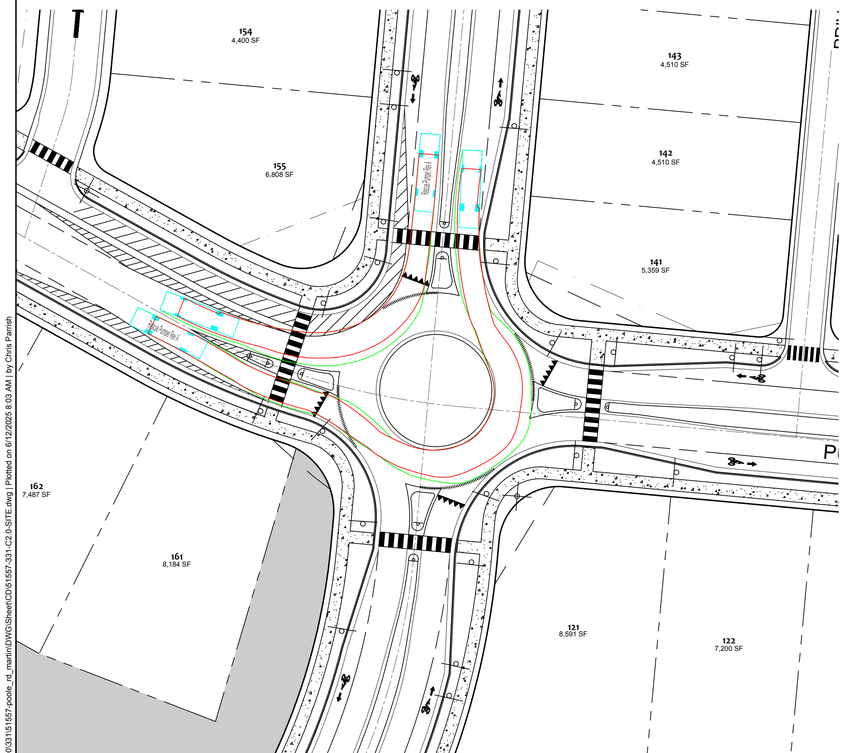
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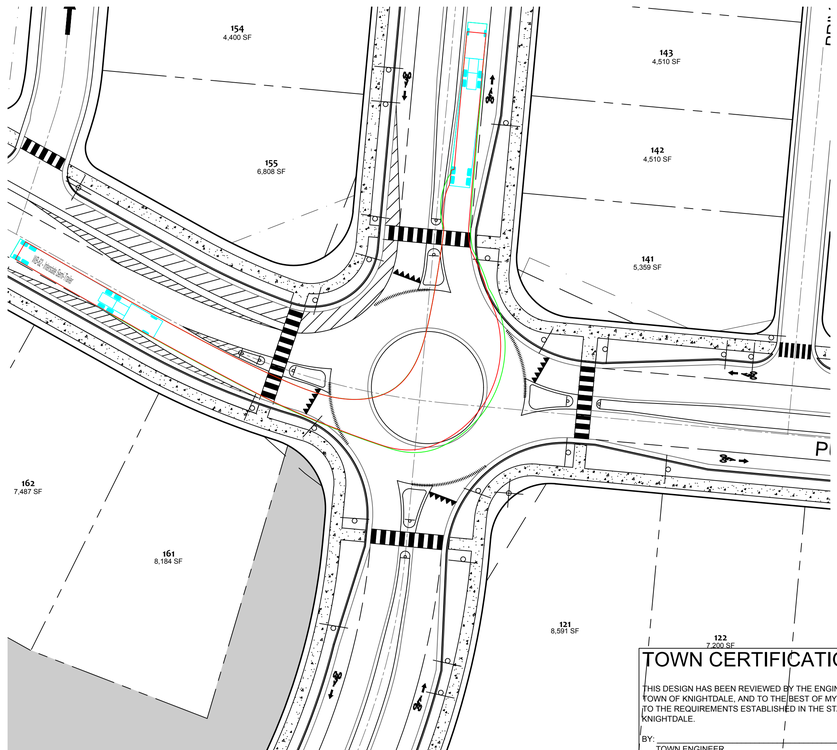
SU-30



BUS-40



FIRE TRUCK - RESCUE PUMPER REV A



WB-62

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NAD 83

SCALE 1"=30'
0 30' 60'

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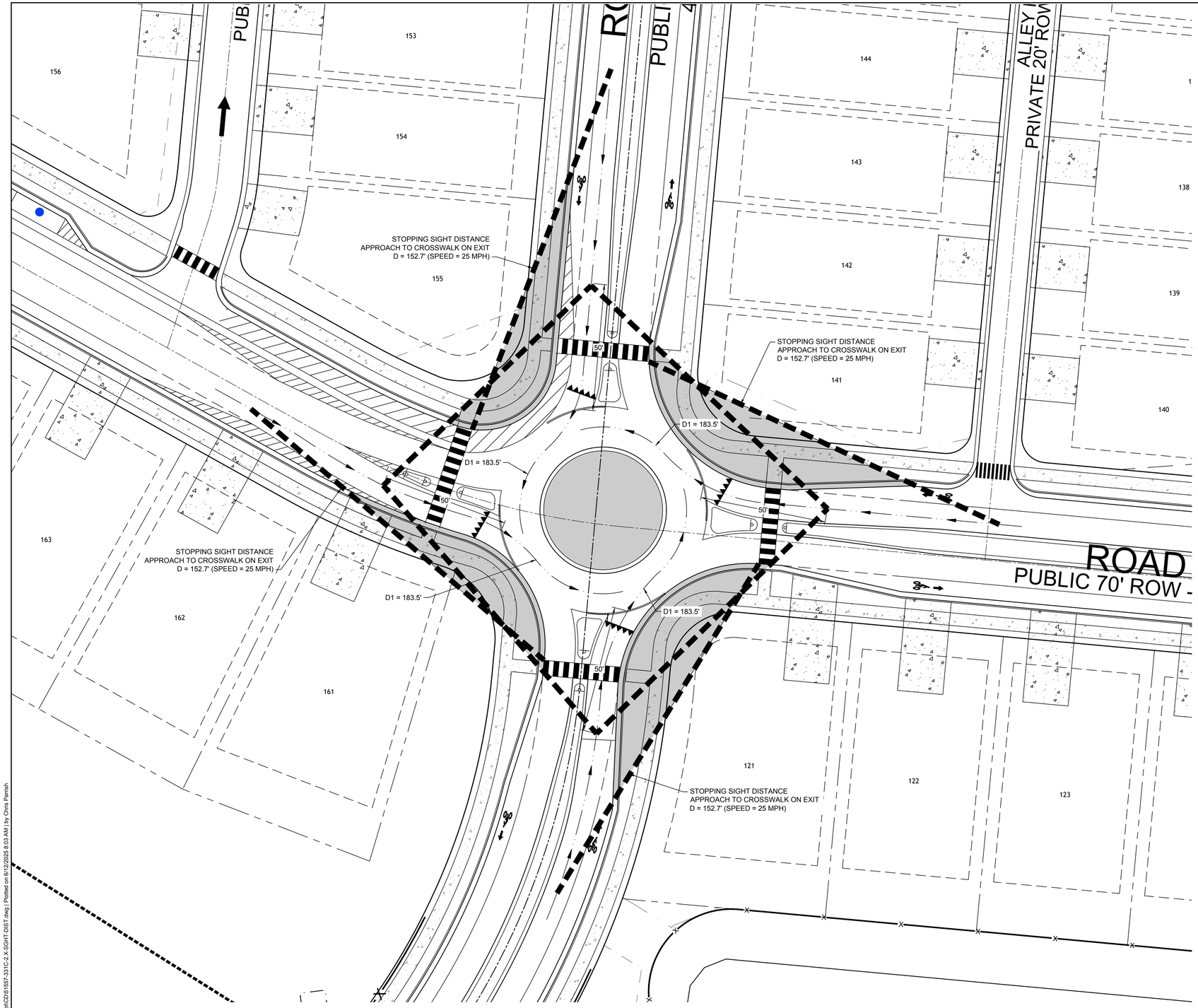
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HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED ROUNDABOUT VEHICLE TRACKING SHEET

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REFERENCE MATERIAL

SECTION 6.7.3 OF NCHRP REPORT 672 (REFERRED TO BY NCDOT ROAD DESIGN MANUAL) AND TOWN OF KNIGHTDALE STD NO. 3.33

STOPPING SIGHT DISTANCE

SPEED = 25 MPH
COMPUTED DISTANCE = 152.7' (EXHIBIT 6-54)
TO BE CHECKED AT:

APPROACH TO CROSSWALK ON ENTRY
NOT APPLICABLE BECAUSE ALL APPROACHES ARE STRAIGHT

CIRCULATORY ROADWAY
RESULTS IN ENTIRE ISLAND AFFECTED BY SIGHT DISTANCE RESTRICTIONS

APPROACH TO CROSSWALK ON EXIT
APPLIES TO ALL APPROACHES

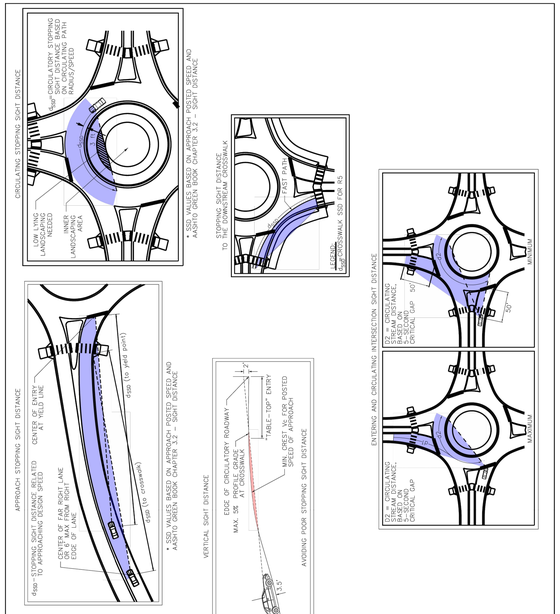
INTERSECTION SIGHT DISTANCE

TOWN OF KNIGHTDALE STD. NO 3.33 PG 7 (MINIMUM INTERSECTION DISTANCE)
MEASURED AT 50' BACK FROM YIELD LINE TO 50' BACK FROM ADJACENT YIELD LINE
TO BE CHECKED AT:

ENTERING STREAM
APPLIES TO ALL APPROACHES

CIRCULATING STREAM
NOT APPLICABLE ON ANY ENTRIES - CIRCULATORY SIGHT DISTANCE GOVERNS MORE STRICTLY WITHIN ISLAND THAN INTERSECTION SIGHT DISTANCE

SIGHT DISTANCE CALCULATIONS WERE BASED ON THE NCHRP REPORT, WHICH IS BASED ON GUIDANCE FROM THE AASHTO GREENBOOK. CALCULATIONS ASSUME AN OBJECT HEIGHT OF 24" FOR STOPPING SIGHT DISTANCE, AND 42" FOR INTERSECTION SIGHT DISTANCE.



REVISIONS	
DATE	DESCRIPTION

7 of 8

TOWN OF KNIGHTDALE STANDARD DETAILS	SIGHT DISTANCE CHECKS SINGLE LANE ROUNDABOUT	STD. NO. 3.33

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LAND USE ADMINISTRATOR

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-6142

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 # _____

NAD 83

SCALE 1"=20'

0 20' 40'

PROGRESS DRAWINGS
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RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 20'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROUNDABOUT SIGHT DISTANCE

JOB NO. 51557
SHEET NO. C2.8

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LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- PERIMETER BUFFER
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- PROPOSED ROAD
- CENTER PHASE LINE
- DRAINAGE EASEMENT
- SANITARY SEWER EASEMENT
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA
- PROPOSED 4' FENCE
- PROPOSED SIDEWALK
- PROPOSED 10' MUP
- PROPOSED ASPHALT
- GREENWAY PROPOSED MULCH
- TRAIL LANDSCAPE BUFFER
- 30" STANDARD CURB & GUTTER

GENERAL SITE NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. ROADS AND DRIVEWAYS SHALL COMPLY WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS.
3. SIGN PERMITS SHALL BE REQUIRED FOR ANY ENTRANCE SIGNAGE. PERMITS SHALL BE REQUIRED PRIOR TO FABRICATION OR INSTALLATION OF SIGNS. SIGNAGE SHALL BE RESTRICTED TO AN ON-SITE LOCATION.
4. THE WATER AND SEWER SYSTEMS SHALL COMPLY WITH CITY OF RALEIGH STANDARDS.
5. ALL DESIGN AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF KNIGHTDALE'S SEDIMENTATION AND EROSION CONTROL REGULATIONS. AN EROSION CONTROL PLAN SHALL BE APPROVED BY THE TOWN OF KNIGHTDALE PRIOR TO CONSTRUCTION DRAWINGS APPROVAL AND ANY GRADING.
6. CONSTRUCTION DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE TOWN OF KNIGHTDALE AND CITY OF RALEIGH PRIOR TO CONSTRUCTION.
7. RESTRICTIVE COVENANTS SHALL BE APPROVED AND RECORDED PRIOR TO RECORDING OF FINAL PLAT.
8. STORMWATER CONTROL MEASURES SHALL BE CONTAINED IN AND ACCESSED VIA OPEN SPACE MAINTAINED AND OWNED BY THE HOMEOWNER'S ASSOCIATION. A MAINTENANCE PLAN MUST BE DEVELOPED TO ADDRESS THE STORMWATER CONTROL MEASURES.
9. PRIVATE STORM DRAINAGE EASEMENTS SHALL BE MAINTAINED BY THE HOA.
10. SUBDIVISION LOTS MUST BE LOTS OF RECORD PRIOR TO RECEIVING A BUILDING PERMIT.
11. PER UDO SEC 6.4.H, ALL UTILITES SHALL BE PLACED UNDERGROUND.

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: _____ DATE: _____
LAND USE ADMINISTRATOR

811 Know what's below. Call before you dig.

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 150'

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

PHASE SITE PLAN

JOB NO.
51557

SHEET NO.
C2.9

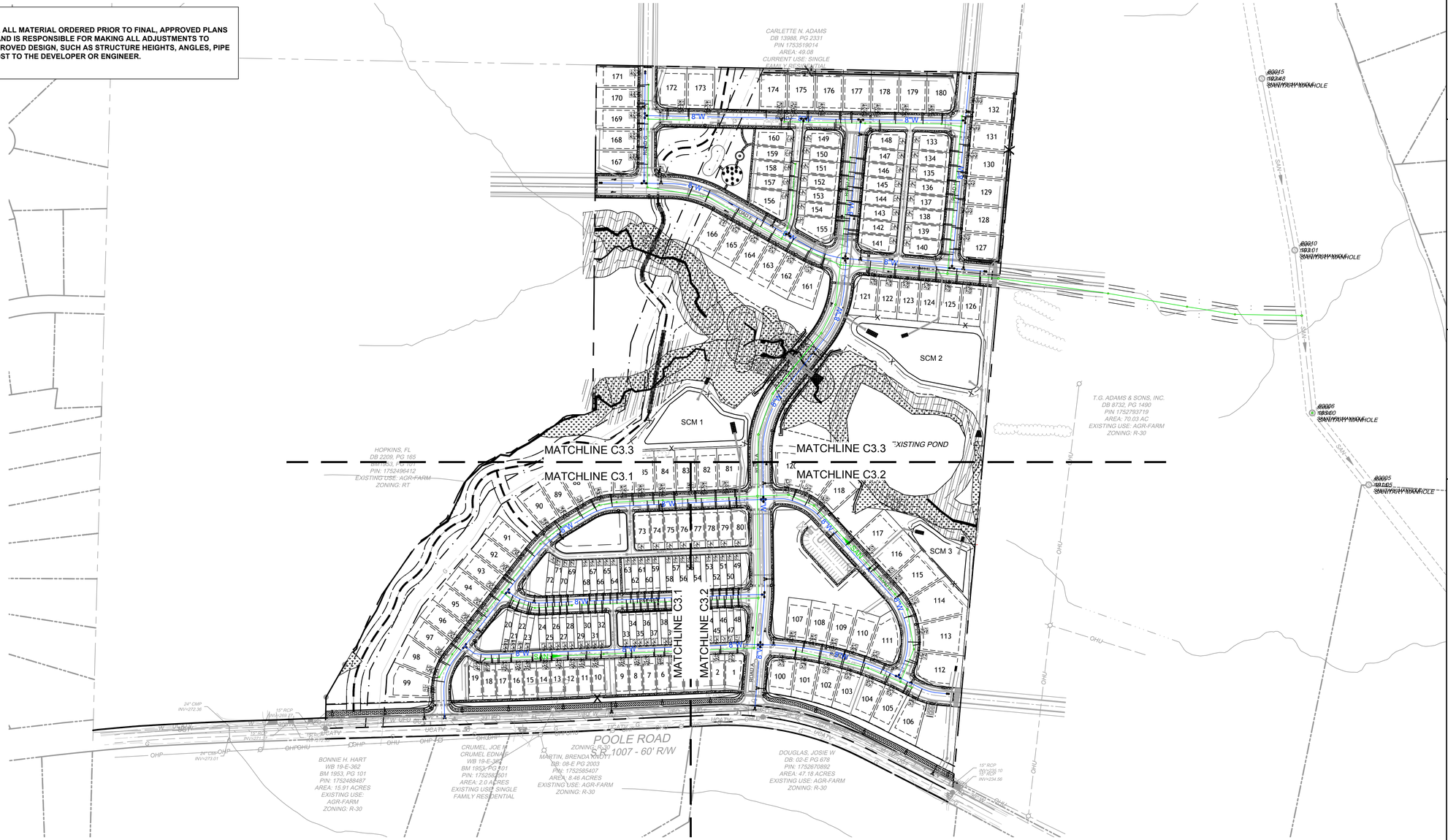
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NOTE:

1. **CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MATERIAL ORDERED PRIOR TO FINAL, APPROVED PLANS THAT ARE RELEASED FOR CONSTRUCTION AND IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS TO THOSE MATERIALS TO MEET THE FINAL, APPROVED DESIGN, SUCH AS STRUCTURE HEIGHTS, ANGLES, PIPE MATERIALS, TOC. , WITHOUT ADDITIONAL COST TO THE DEVELOPER OR ENGINEER.**



LEGEND

- PROPERTY LINE
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- PROPOSED FENCE
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- PRIMARY OPEN SPACE
- SECONDARY OPEN SPACE
- COMMON GREEN

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 10 FT.
   WATER AND STORM SEWER MAINS - 5 FT.
   SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
   GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.
3. MINIMUM UTILITY VERTICAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 18 IN.
   WATER AND STORM SEWER MAINS - 18 IN.
   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.

LEGEND

SEWER

- SAN — SANITARY SEWER
- (S) SANITARY MANHOLE

WATER

- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY

CORPUD STANDARD UTILITY NOTES:

STANDARD UTILITY NOTES:

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 stormdrain 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. 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 force mains. 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 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. Inspections of 4" and larger water mains of the private distribution system will be inspected as part of the infrastructure permit.
11. Private sewer mains as part of a collection system are permitted and inspected under the private Infrastructure permit for sewer.
12. Any water or sewer services on private property that will be installed under Construction Drawings may require a Plumbing Utility Permit in the City of Raleigh. Consult with the Engineering Inspection Coordinator during the pre-construction meeting on the necessary permits.
13. Install sewer services with cleanouts located at ROW or easement line & spaced per the current NC Plumbing code.
14. 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 upstreammanhole.
15. 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.
16. NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction.
17. Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the RW FOG Program Coordinator prior to issuance of a UC and/or Building Permit. Contact (919) 996-4516 or fog@raleighnc.gov for more information.
18. Cross-connection control protection devices are required based on the degree of health hazard involved as listed in Appendix B of the Rules Governing Public Water Systems in North Carolina.
19. The devices shall meet the American Society of Sanitary Engineering (ASSE) standards and be on the University of Southern California approval list.
20. The device and installation shall meet the guidelines of Appendix A – Guidelines and Requirements for the Cross Connection Program in Raleigh's Service Area.
21. 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.connection@raleighnc.gov for more information.
22. 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.
23. Private sub-metering - No resale of water shall occur without approval of the North Carolina Utility Commission. Sub-metering shall be in accordance with Section 1400 of the "SAFE DRINKING WATER ACT".

TOWN CERTIFICATION

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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

SCALE 1"=150'
0 150' 300'

NAD 83

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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DRAWN BY
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CHECKED BY
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SCALE
1" = 150'

JOB NO.
51557

SHEET NO.
C3.0

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

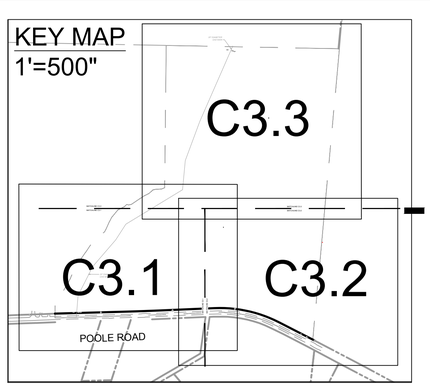
HAVEN AT GRIFFITH MEADOWS

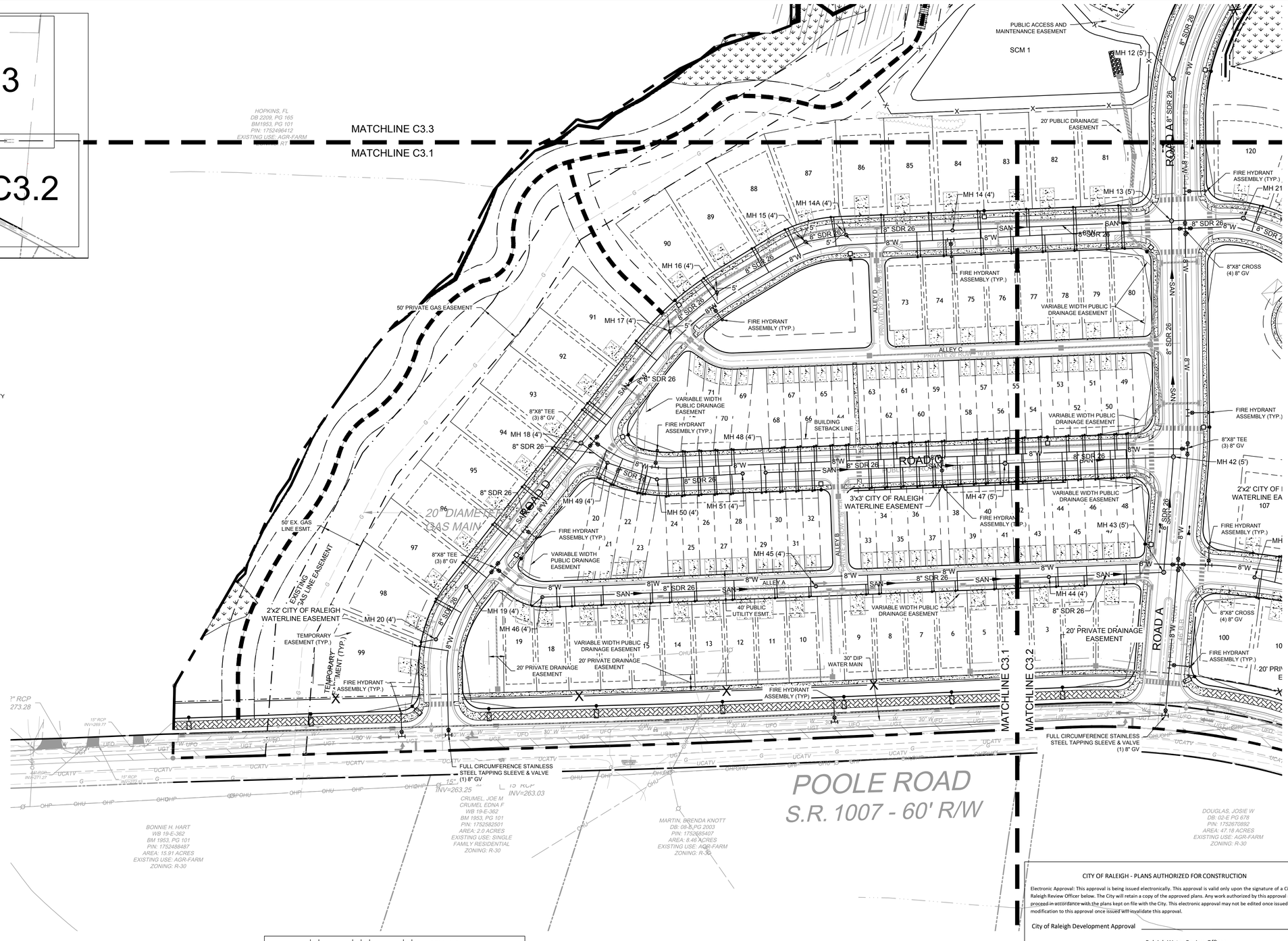
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

OVERALL UTILITY PLAN

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UTILITY NOTES:

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NAD 83

SCALE 1"=60'
0 60' 120'

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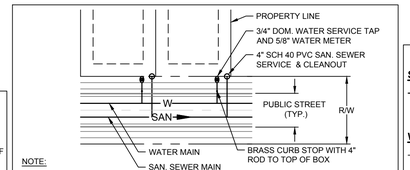
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BY: _____ DATE: _____
TOWN ENGINEER

THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.

BY: _____ DATE: _____
LAND USE ADMINISTRATOR



NOTE:
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2. DOMESTIC WATER AND SAN. SEWER SERVICES SHALL BE INSTALLED ON THE LOW SIDE OF THE LOT.

TYPICAL UTILITY SERVICE LOCATION

N.T.S.

LEGEND

SEWER
- SAN — SANITARY SEWER
- (S) — SANITARY MANHOLE

WATER
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
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LEGEND

- PROPERTY LINE
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DESIGNED BY: 331
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SCALE: 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

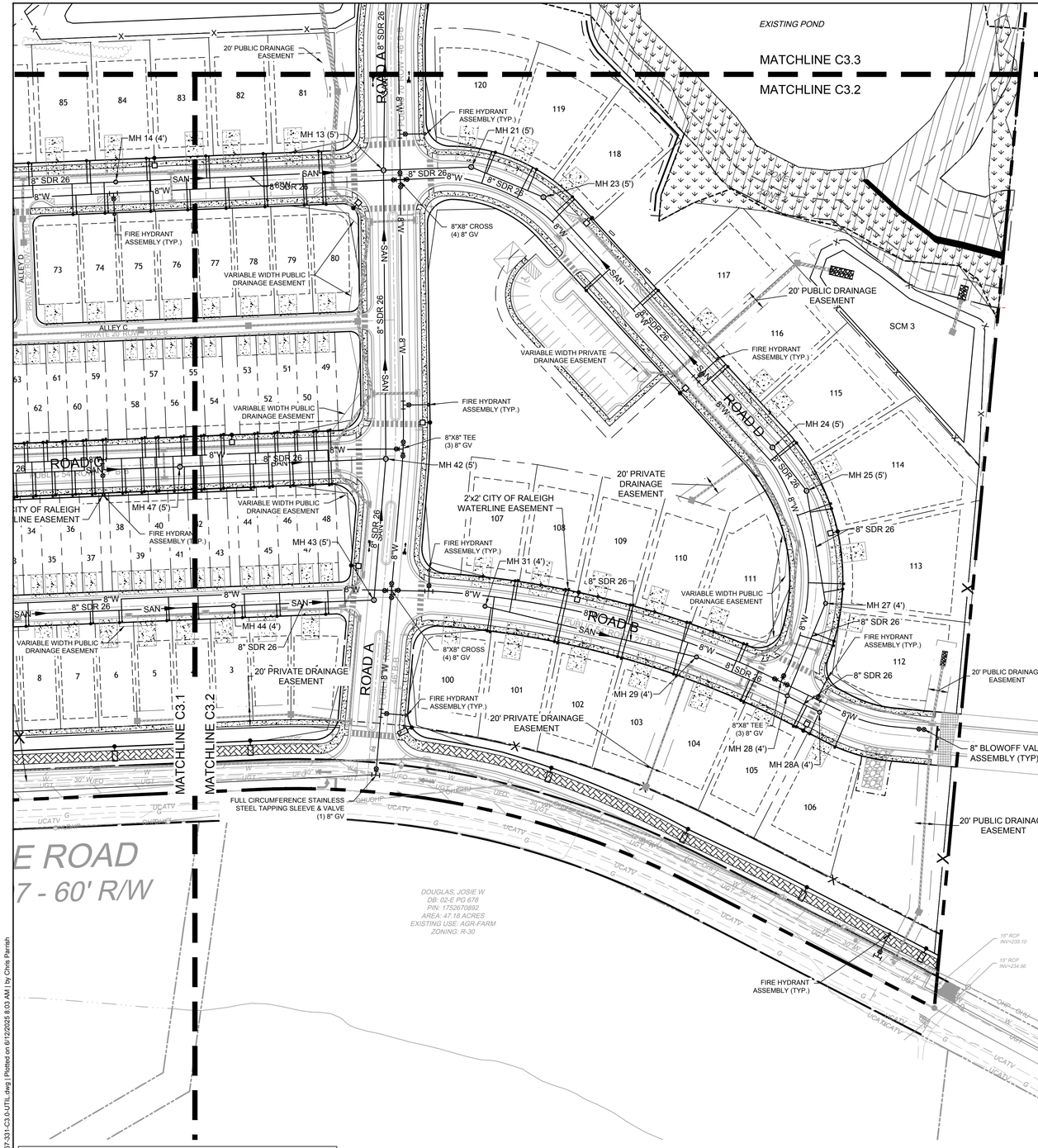
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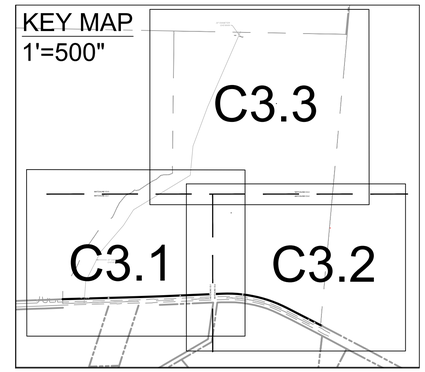
DETAILED UTILITY PLAN - SHEET 1 0F 3

JOB NO. 51557
SHEET NO. C3.1

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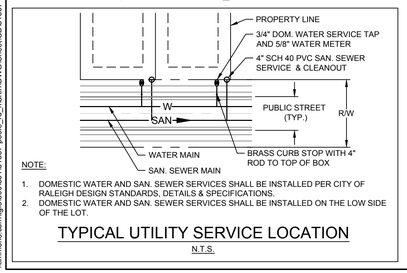


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UTILITY NOTES:

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N.T.S.

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- NEUSE RIPARIAN BUFFER
- PRIMARY OPEN SPACE
- SECONDARY OPEN SPACE
- COMMON GREEN

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 60'

JOB NO. 51557
SHEET NO. C3.2

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

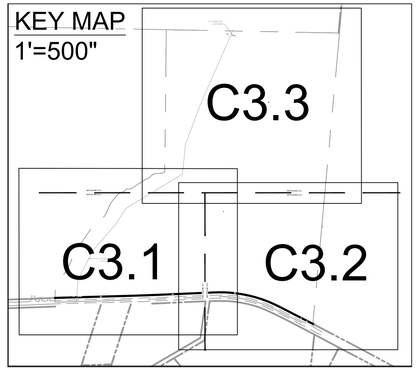
DETAILED UTILITY PLAN - SHEET 2 OF 3

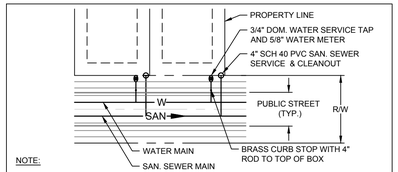
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KEY MAP
1'=500"





NOTE:
1. DOMESTIC WATER AND SAN. SEWER SERVICES SHALL BE INSTALLED PER CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS.
2. DOMESTIC WATER AND SAN. SEWER SERVICES SHALL BE INSTALLED ON THE LOW SIDE OF THE LOT.

TYPICAL UTILITY SERVICE LOCATION
N.T.S.

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

SCALE 1"=60'
0 60' 120'
NAD 83

LEGEND

- PROPERTY LINE
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- PROPOSED FENCE
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- PRIMARY OPEN SPACE
- SECONDARY OPEN SPACE
- COMMON GREEN

LEGEND

SEWER
- SAN — SANITARY SEWER
- (S) SANITARY MANHOLE

WATER
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY

811 Know what's **below.** **Call** before you dig.

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City of Raleigh Public Utilities Department Permit # _____

CARLETTE N. ADAMS
DB 13988, PG 2331
PIN 1753519014
AREA: 49.08
CURRENT USE: SINGLE FAMILY RESIDENTIAL
ZONING: RT

20" DIAMETER GAS MAIN

ROAD G — ROAD F — ROAD A — ROAD H — ROAD E — ROAD D

8" BLOWOFF VALVE ASSEMBLY (TYP.) — 20' PRIVATE DRAINAGE EASEMENT — 2'x2' CITY OF RALEIGH WATERLINE EASEMENT — 3'x3' CITY OF RALEIGH WATERLINE EASEMENT — VARIABLE WIDTH PUBLIC DRAINAGE EASEMENT — VARIABLE WIDTH PRIVATE DRAINAGE EASEMENT — 20' PUBLIC DRAINAGE EASEMENT — 30' CITY OF RALEIGH SANITARY SEWER EASEMENT — PUBLIC DRAINAGE EASEMENT — PUBLIC ACCESS AND MAINTENANCE EASEMENT — TEMPORARY CONSTRUCTION EASEMENT — TEMPORARY EASEMENT (TYP.) — EXISTING GAS LINE EASEMENT — 50' EX. GAS LINE ESMT.

MH 1 (5') · MH 2 (5') · MH 2A (4') · MH 3 (4') · MH 5 (4') · MH 6 (4') · MH 8 (5') · MH 9 (5') · MH 10 (5') · MH 11 (5') · MH 12 (5') · MH 13 (5') · MH 14 (4') · MH 14A (4') · MH 21 (5') · MH 32 (5') · MH 32A (4') · MH 33 (5') · MH 38 (4') · MH 38A (4') · MH 39 (4') · MH 40 (4') · MH 41 (4') · MH 53 (4') · MH 54 (4') · MH 8A (4')

FIRE HYDRANT ASSEMBLY (TYP.) · 8"X8" TEE (3) 8" GV · 8"X6" TEE (2) 8" GV (1) 6" GV · 8"X8" TEE (3) 8" GV · 8"X6" TEE (2) 8" GV (1) 6" GV · 8"X6" CROSS (4) 8" GV

8" SDR 26 · 8"W · SAN

SCM 1 · SCM 2 · EXISTING POND

MATCHLINE C3.3
MATCHLINE C3.2

UTILITY NOTES:

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2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 10 FT.
   WATER AND STORM SEWER MAINS - 5 FT.
   SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
   GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.
3. MINIMUM UTILITY VERTICAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 18 IN.
   WATER AND STORM SEWER MAINS - 18 IN.
   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.

PROGRESS DRAWINGS
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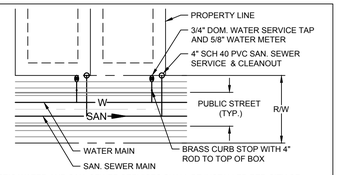
PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED UTILITY PLAN - SHEET 3 OF 3

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LAND USE ADMINISTRATOR

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NOTE:
FOR MANHOLES WITH DEPTHS 0'-12' = 4' DIAMETER
FOR MANHOLES WITH DEPTHS 12'-20' = 4' DIAMETER
FOR MANHOLES WITH DEPTHS >20' = 6' DIAMETER

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   WATER AND STORM SEWER MAINS - 5 FT.
   SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
   GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.
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   WATER AND SANITARY SEWER MAINS - 18 IN.
   WATER AND STORM SEWER MAINS - 18 IN.
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LEGEND

- PROPERTY LINE
- POWER LINE EASEMENT
- NATURAL GAS EASEMENT
- PROPOSED FENCE
- EXISTING WETLANDS
- NEUSE RIPARIAN BUFFER
- PRIMARY OPEN SPACE
- SECONDARY OPEN SPACE
- COMMON GREEN

SCALE 1"=60'
0 60' 120'

NAD 83

LEGEND

SEWER
- SAN — SANITARY SEWER
- (S) SANITARY MANHOLE

WATER
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- ⊗ WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY

SANITARY SEWER SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
MH 1 (5')	11.71'	251.74			240.05'	99 LF 8" SDR 26 @ 6.33% (MH 2 (5'))
MH 2 (5')	14.35'	245.64	233.79' 233.79'	99 LF 8" SDR 26 @ 6.33% (MH 1 (5')) 117 LF 8" SDR 26 @ 4.36% (MH 2A (4'))	231.29'	196 LF 8" SDR 26 @ 0.55% (MH 3 (4'))
MH 2A (4')	7.61'	246.49			238.89'	117 LF 8" SDR 26 @ 4.36% (MH 2 (5'))
MH 3 (4')	9.73'	239.48	230.21'	196 LF 8" SDR 26 @ 0.55% (MH 2 (5'))	230.01'	177 LF 8" SDR 26 @ 0.55% (MH 5 (4'))
MH 5 (4')	9.31'	238.15	229.04'	177 LF 8" SDR 26 @ 0.55% (MH 3 (4'))	228.84'	242 LF 8" SDR 26 @ 1.75% (MH 6 (4'))
MH 6 (4')	10.05'	233.92	224.62' 224.12'	242 LF 8" SDR 26 @ 1.75% (MH 5 (4')) 35 LF 8" SDR 26 @ 0.55% (MH 52 (4'))	223.87'	185 LF 8" SDR 26 @ 3.36% (MH 8 (5'))
MH 8 (5')	18.45'	233.59	217.64' 217.64' 215.34'	185 LF 8" SDR 26 @ 3.36% (MH 6 (4')) 311 LF 8" SDR 26 @ 4.31% (MH 8A (4')) 115 LF 8" SDR 26 @ 0.55% (MH 9 (5'))	215.14'	308 LF 8" SDR 26 @ 0.55% (MH 32 (5'))
MH 8A (4')	9.67'	240.67			231.00'	310 LF 8" SDR 26 @ 4.31% (MH 8 (5'))
MH 9 (5')	16.45'	232.42	216.17'	91 LF 8" SDR 26 @ 0.55% (MH 10 (5'))	215.97'	115 LF 8" SDR 26 @ 0.55% (MH 8 (5'))
MH 10 (5')	14.84'	231.51	216.87'	222 LF 8" DUCTILE IRON @ 0.55% (MH 11 (5'))	216.67'	91 LF 8" SDR 26 @ 0.55% (MH 9 (5'))
MH 11 (5')	15.60'	233.70	220.59'	125 LF 8" SDR 26 @ 0.55% (MH 12 (5'))	218.09'	222 LF 8" DUCTILE IRON @ 0.55% (MH 10 (5'))
MH 12 (5')	13.97'	235.24	222.27'	177 LF 8" SDR 26 @ 0.55% (MH 13 (5'))	221.28'	125 LF 8" SDR 26 @ 0.55% (MH 11 (5'))
MH 13 (5')	16.31'	239.55	225.74' 223.44' 225.74'	293 LF 8" SDR 26 @ 2.60% (MH 42 (5')) 89 LF 8" SDR 26 @ 0.55% (MH 21 (5')) 272 LF 8" SDR 26 @ 2.53% (MH 14 (4'))	223.24'	177 LF 8" SDR 26 @ 0.55% (MH 12 (5'))
MH 14 (4')	11.99'	244.60	234.33'	132 LF 8" SDR 26 @ 3.52% (MH 14A (4'))	232.63'	272 LF 8" SDR 26 @ 2.53% (MH 13 (5'))
MH 14A (4')	11.46'	250.45	240.18'	51 LF 8" SDR 26 @ 1.96% (MH 15 (4'))	238.99'	132 LF 8" SDR 26 @ 3.52% (MH 14 (4'))
MH 15 (4')	10.84'	252.00	241.97'	127 LF 8" SDR 26 @ 2.36% (MH 16 (4'))	241.18'	51 LF 8" SDR 26 @ 1.96% (MH 14A (4'))
MH 16 (4')	10.43'	255.39	245.16'	76 LF 8" SDR 26 @ 0.58% (MH 17 (4'))	244.96'	127 LF 8" SDR 26 @ 2.36% (MH 15 (4'))
MH 17 (4')	9.79'	255.39	245.80'	177 LF 8" SDR 26 @ 0.54% (MH 18 (4'))	245.60'	76 LF 8" SDR 26 @ 0.58% (MH 16 (4'))
MH 18 (4')	9.06'	255.81	246.95' 246.95'	228 LF 8" SDR 26 @ 1.87% (MH 19 (4')) 41 LF 8" SDR 26 @ 0.55% (MH 49 (4'))	246.75'	177 LF 8" SDR 26 @ 0.54% (MH 17 (4'))
MH 19 (4')	11.09'	262.30	253.71'	75 LF 8" SDR 26 @ 2.79% (MH 20 (4'))	251.21'	228 LF 8" SDR 26 @ 1.87% (MH 18 (4'))
MH 20 (4')	8.86'	264.65			255.81'	75 LF 8" SDR 26 @ 2.79% (MH 19 (4'))
MH 21 (5')	15.15'	239.08	224.13'	79 LF 8" SDR 26 @ 0.55% (MH 23 (5'))	223.93'	89 LF 8" SDR 26 @ 0.55% (MH 13 (5'))
MH 23 (5')	13.96'	238.53	224.77'	345 LF 8" SDR 26 @ 0.55% (MH 24 (5'))	224.57'	79 LF 8" SDR 26 @ 0.55% (MH 21 (5'))
MH 24 (5')	10.73'	237.37	226.96'	56 LF 8" SDR 26 @ 0.55% (MH 25 (5'))	226.66'	345 LF 8" SDR 26 @ 0.55% (MH 23 (5'))
MH 25 (5')	10.12'	237.39	227.47'	116 LF 8" SDR 26 @ 0.55% (MH 27 (4'))	227.27'	56 LF 8" SDR 26 @ 0.55% (MH 24 (5'))
MH 27 (4')	8.16'	236.27	228.31'	102 LF 8" SDR 26 @ 0.55% (MH 28 (4'))	228.11'	116 LF 8" SDR 26 @ 0.55% (MH 25 (5'))
MH 28 (4')	6.89'	235.74	229.71' 229.07'	100 LF 8" SDR 26 @ 0.73% (MH 29 (4')) 37 LF 8" SDR 26 @ 0.55% (MH 28A (4'))	228.87'	102 LF 8" SDR 26 @ 0.55% (MH 27 (4'))
MH 28A (4')	5.44'	234.69			229.27'	37 LF 8" SDR 26 @ 0.55% (MH 28 (4'))
MH 29 (4')	8.19'	238.62	232.94'	221 LF 8" SDR 26 @ 3.18% (MH 31 (4'))	230.44'	100 LF 8" SDR 26 @ 0.73% (MH 28 (4'))
MH 31 (4')	7.86'	247.81			239.97'	221 LF 8" SDR 26 @ 3.18% (MH 29 (4'))
MH 32 (5')	17.46'	230.71	213.45' 215.72'	308 LF 8" SDR 26 @ 0.55% (MH 8 (5')) 218 LF 8" SDR 26 @ 3.58% (MH 32A (4'))	213.25'	147 LF 8" SDR 26 @ 0.55% (MH 33 (5'))

SANITARY SEWER SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
MH 32A (4')	11.55'	235.09	223.74'	207 LF 8" SDR 26 @ 3.25% (MH 38 (4'))	223.54'	218 LF 8" SDR 26 @ 3.58% (MH 32 (5'))
MH 33 (5')	10.35'	222.79	212.44'	147 LF 8" SDR 26 @ 0.55% (MH 32 (5'))	212.24'	318 LF 8" SDR 26 @ 2.79% (MH 34 (4'))
MH 34 (4')	5.03'	208.00	203.37'	318 LF 8" SDR 26 @ 2.79% (MH 33 (5'))	202.97'	230 LF 8" SDR 35 @ 4.44% (MH 35 (4'))
MH 35 (4')	5.04'	197.49	192.78'	230 LF 8" SDR 35 @ 4.44% (MH 34 (4'))	192.44'	139 LF 8" SDR 35 @ 3.03% (MH 36 (4'))
MH 36 (4')	5.05'	192.91	188.23'	139 LF 8" SDR 35 @ 3.03% (MH 35 (4'))	187.89'	192 LF 8" SDR 35 @ 3.83% (MH 37 (DOGHOUSE))
MH 37 (DOGHOUSE)	7.41'	187.93	180.54'	192 LF 8" SDR 35 @ 3.83% (MH 36 (4'))		
MH 38 (4')	11.70'	242.15	232.95' 232.95'	30 LF 8" SDR 26 @ 2.00% (MH 38A (4')) 56 LF 8" SDR 26 @ 1.11% (MH 39 (4'))	230.45'	206 LF 8" SDR 26 @ 3.25% (MH 32A (4'))
MH 38A (4')	9.68'	243.21			233.55'	30 LF 8" SDR 26 @ 2.00% (MH 38 (4'))
MH 39 (4')	9.10'	242.67	233.77'	219 LF 8" SDR 26 @ 0.71% (MH 40 (4'))	233.57'	56 LF 8" SDR 26 @ 1.11% (MH 38 (4'))
MH 40 (4')	8.59'	243.91	235.52'	232 LF 8" SDR 26 @ 2.24% (MH 41 (4'))	235.32'	219 LF 8" SDR 26 @ 0.71% (MH 39 (4'))
MH 41 (4')	6.90'	247.59			240.71'	232 LF 8" SDR 26 @ 2.24% (MH 40 (4'))
MH 42 (5')	13.16'	246.52	235.51' 233.56'	144 LF 8" SDR 26 @ 2.47% (MH 43 (5')) 209 LF 8" SDR 26 @ 0.80% (MH 47 (5'))	233.36'	293 LF 8" SDR 26 @ 2.60% (MH 13 (5'))
MH 43 (5')	12.09'	251.13	240.76'	143 LF 8" SDR 26 @ 0.79% (MH 44 (4'))	239.06'	144 LF 8" SDR 26 @ 2.47% (MH 42 (5'))
MH 44 (4')	10.79'	252.65	243.43'	289 LF 8" SDR 26 @ 0.87% (MH 45 (4'))	241.89'	143 LF 8" SDR 26 @ 0.79% (MH 43 (5'))
MH 45 (4')	9.49'	255.43	248.44'	340 LF 8" SDR 26 @ 1.77% (MH 46 (4'))	245.94'	289 LF 8" SDR 26 @ 0.87% (MH 44 (4'))
MH 46 (4')	6.46'	260.89			254.45'	340 LF 8" SDR 26 @ 1.77% (MH 45 (4'))
MH 47 (5')	14.39'	249.64	237.75'	297 LF 8" SDR 26 @ 2.43% (MH 48 (4'))	235.25'	209 LF 8" SDR 26 @ 0.80% (MH 42 (5'))
MH 48 (4')	10.78'	255.75			244.99'	297 LF 8" SDR 26 @ 2.43% (MH 47 (5'))
MH 49 (4')	7.93'	255.11	247.38'	65 LF 8" SDR 26 @ 0.83% (MH 50 (4'))	247.18'	41 LF 8" SDR 26 @ 0.55% (MH 18 (4'))
MH 50 (4')	7.14'	255.04	250.42'	107 LF 8" SDR 26 @ 0.93% (MH 51 (4'))	247.92'	65 LF 8" SDR 26 @ 0.83% (MH 49 (4'))
MH 51 (4')	4.40'	255.79			251.41'	107 LF 8" SDR 26 @ 0.93% (MH 50 (4'))
MH 52 (4')	9.39'	233.71	224.94'	41 LF 8" SDR 26 @ 4.06% (MH 53 (4'))	224.32'	35 LF 8" SDR 26 @ 0.55% (MH 6 (4'))
MH 53 (4')	7.34'	233.92	226.79'	146 LF 8" SDR 26 @ 5.02% (MH 54 (4'))	226.59'	41 LF 8" SDR 26 @ 4.06% (MH 52 (4'))
MH 54 (4')	6.75'	240.81			234.08'	145 LF 8" SDR 26 @ 5.02% (MH 53 (4'))

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SCALE: NTS

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NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

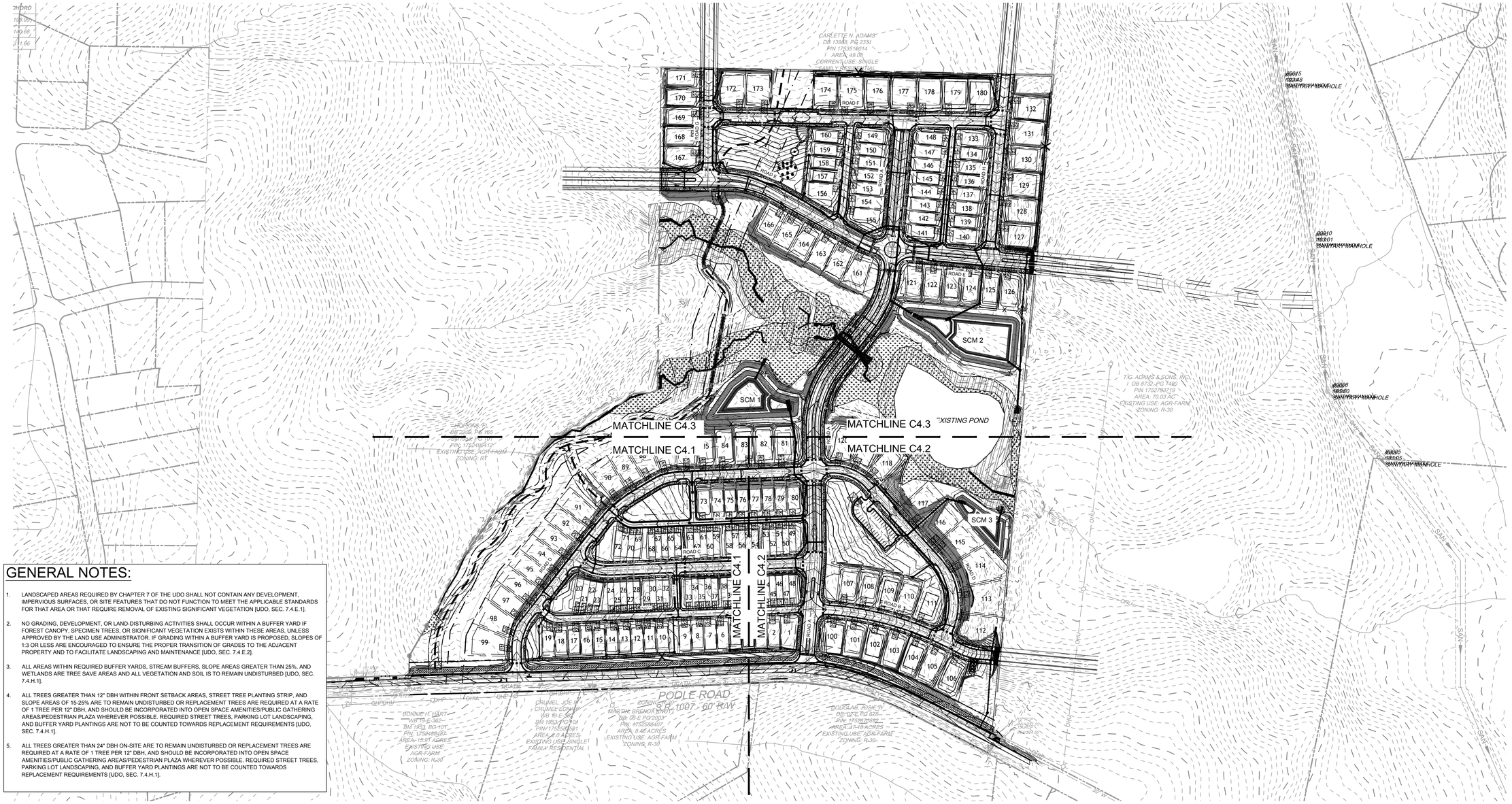
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

SANITARY SEWER SCHEDULE

JOB NO. 51557
SHEET NO. C3.4

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GENERAL NOTES:

1. LANDSCAPED 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, SEC. 7.4.E.1].
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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, SEC. 7.4.H.1].
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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

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

NAD 83

SCALE 1"=150'
0 200' 400'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
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- PHASE LINE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- TREE PROTECTION FENCE
- 100-YR FLOODPLAIN
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- NUESE RIPARIAN BUFFER
- LANDSCAPE BUFFER

811 Know what's below. Call before you dig.

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3. SCMS SHALL BE DESIGNED TO CONTROL AND TREAT THE DIFFERENCE IN STORMWATER RUNOFF VOLUME LEAVING THE PROJECT SITE BETWEEN THE PRE- AND POST- DEVELOPMENT CONDITIONS FOR, AT A MINIMUM, THE 1-YEAR, 24-HOUR STORM.
4. SCMS SHALL BE DESIGNED TO HAVE A MINIMUM OF 85% AVERAGE ANNUAL REMOVAL FOR TOTAL SUSPENDED SOLIDS.
5. ALL SCMS ASSOCIATED WITH THIS PROJECT WILL REQUIRE MAINTENANCE EASEMENTS AND AN OPERATION AND MAINTENANCE AGREEMENT TO BE NOTED ON THE FINAL PLAT. ALL OF THESE ITEMS WILL NEED TO BE RECORDED WITH THE COUNTY REGISTER OF DEEDS.
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7. ANY FILL PLACED WITHIN AN HRW EASEMENT SHALL BE FIELD TESTED/APPROVED BY THE OWNERS GEOTECHNICAL ENGINEER.
8. BUILDING PADS SHALL BE A MIN OF 18" ABOVE THE TOP OF CURB. DRIVEWAY SLOPE SHALL NOT EXCEED 8%
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13. ALL SCM'S WILL PROVIDE A MINIMUM 20' VEHICULAR ACCESSIBLE ACCESS EASEMENT FOR FUTURE MAINTENANCE AND INSPECTIONS. ACCESS EASEMENTS SHALL PROVIDE DIRECT ACCESS TO THE PRIMARY OUTFALL/BERM AND EASEMENT SLOPE SHALL NOT EXCEED 33.33% MAXIMUM LONGITUDINAL SLOPE.
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18. **IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER PRIOR TO POURING ANY CONCRETE SO THAT A SOLUTION CAN BE FOUND.**
19. RETAINING WALL AND ASSOCIATED DRAINAGE TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

RETAINING WALL NOTES:

1. ALL RETAINING WALLS TO BE DESIGNED AND PERMITTED BY OTHERS.
2. ALL RETAINING WALLS GREATER THAN 30" IN HEIGHT SHALL INCLUDE A MINIMUM 4' HIGH BLACK ALUMINUM FENCE.
3. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN(S) FOR REVIEW AND APPROVAL FROM CITY OF SANFORD INSPECTIONS DEPARTMENT.
4. PRIOR TO CONSTRUCTION CONTRACTOR TO FIELD VERIFY BOTTOM OF WALL AND ALL OTHER ASSOCIATED ELEVATIONS.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR COORDINATION PURPOSED WITH FIELD CONDITIONS. UNSEEN CONFLICTS AND ASSOCIATED DRAINAGE AS NEEDED.
6. ALL RETAINING WALLS WILL REQUIRE A BUILDING PERMIT FROM THE JURISDICTIONS INSPECTIONS DEPARTMENT.
7. TOP OF WALL SPOT GRADES PROVIDE 6" ELEVATION DIFFERENCE ABOVE GRADE SHOWN.
8. CONTRACTOR WILL BE REQUIRED TO MITIGATE ANY LOCALIZED LOW POINTS THAT MAY LEAD TO PONDING ALONG THE TOP OF WALL.
9. DRAINAGE SWALES TO BE LINED WITH RIP RAP AT END OF WALLS TO PREVENT EROSION.

TREE PROTECTION

PHASE 1:	9,938 SF
PHASE 2:	2,831 SF
PHASE 3:	1,974 SF
PHASE 4:	152 SF
PHASE 5:	1,787 SF
PHASE 6:	4,980 SF
TOTAL LENGTH:	21,662 SF

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025
DRAWN BY
331
DESIGNED BY
331
CHECKED BY
T. CROSS
SCALE
1" = 150'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

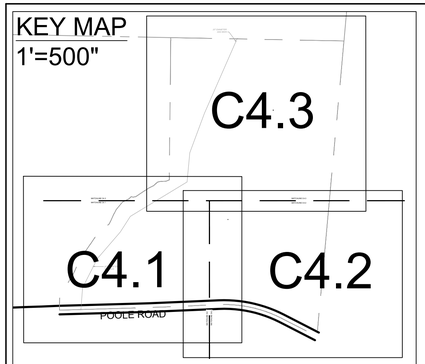
OVERALL GRADING & DRAINAGE PLAN

JOB NO.
51557
SHEET NO.
C4.0

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KEY MAP
1'=500"



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Raleigh Water Review Officer

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811 Know what's below. Call before you dig.

SCALE 1"=60'
0 60' 120'
NAD 83

PROGRESS DRAWINGS
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THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION	04/29/2025

DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED GRADING & DRAINAGE PLAN - SHEET 1 OF 3

JOB NO. 51557
SHEET NO. C4.1

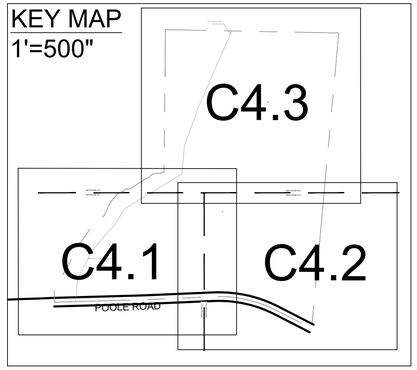
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KEY MAP
1'=500"



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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, SEC. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANTING 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 7.4.H.1].

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- PHASE LINE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- TREE PROTECTION FENCE
- 100-YR FLOODPLAIN
- WETLANDS
- NUESE RIPARIAN BUFFER
- LANDSCAPE BUFFER

NAD 83

SCALE 1"=60'

0 60' 120'

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

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

811 Know what's below. Call before you dig.

NOTE:
RETAINING WALL TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

PROGRESS DRAWINGS
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REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 60'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED GRADING & DRAINAGE PLAN - SHEET 2 OF 3

JOB NO. 51557
SHEET NO. C4.2

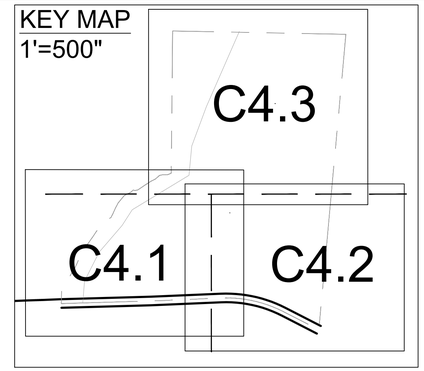
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GENERAL NOTES:

1. LANDSCAPED 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, SEC. 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, SEC. 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, SEC. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANTING 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 7.4.H.1].

KEY MAP
1'=500"



GRADING AND STORMWATER PLAN NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
2. ALL PERMITS SHALL BE OBTAINED FROM THE TOWN OF KNIGHTDALE, WAKE COUNTY, NCDOT, NCDEQ-DWR, AND USACE AS APPLICABLE PRIOR TO BEGINNING CONSTRUCTION. A COPY OF ALL PERMITS SHALL BE SUBMITTED TO THE TOWN OF KNIGHTDALE FOR THEIR RECORDS.
3. SCMS SHALL BE DESIGNED TO CONTROL AND TREAT THE DIFFERENCE IN STORMWATER RUNOFF VOLUME LEAVING THE PROJECT SITE BETWEEN THE PRE- AND POST- DEVELOPMENT CONDITIONS FOR, AT A MINIMUM, THE 1-YEAR, 24-HOUR STORM.
4. SCMS SHALL BE DESIGNED TO HAVE A MINIMUM OF 85% AVERAGE ANNUAL REMOVAL FOR TOTAL SUSPENDED SOLIDS.
5. ALL SCMS ASSOCIATED WITH THIS PROJECT WILL REQUIRE MAINTENANCE EASEMENTS AND AN OPERATION AND MAINTENANCE AGREEMENT TO BE NOTED ON THE FINAL PLAT. ALL OF THESE ITEMS WILL NEED TO BE RECORDED WITH THE COUNTY REGISTER OF DEEDS.
6. ALL PUBLIC SANITARY SEWER EASEMENTS SHALL HAVE MAX. FINISHED GRADE SLOPE OF 3:1 TO ASSURE SAFE ACCESS FOR MAINTENANCE VEHICLES AND MOWERS.
7. ANY FILL PLACED WITHIN AN HRW EASEMENT SHALL BE FIELD TESTED/APPROVED BY THE OWNERS GEOTECHNICAL ENGINEER.
8. BUILDING PADS SHALL BE A MIN OF 18" ABOVE THE TOP OF CURB. DRIVEWAY SLOPE SHALL NOT EXCEED 8%
9. PAD GRADE DENOTES FINISHED SUBGRADE.
10. SWALES SHALL HAVE A MIN SLOPE OF 2% BUT NO LESS THAN 1% IF MIN CANNOT BE MET. ALL SWALES BETWEEN HOUSES TO BE MORE THAN 1% SLOPE. SWALE HIGH POINTS TO BE 6" BELOW BUILDING PAD. REAR YARD SWALES TO BE MIN. 2% SLOPE.
11. HIGH POINT WITHIN SWALE AS NOTED TO BE 6 IN BELOW FINISHED SUBGRADE.
12. HOUSE SIDE SLOPES TO BE 3:1 FROM PAD TO SIDE SWALE. PAD TO BE .5' (6") HIGHER THAN GRADE AND SWALE TO BE LOCATED 1.5' LENGTH FROM PAD.
13. ALL SCM'S WILL PROVIDE A MINIMUM 20' VEHICULAR ACCESSIBLE ACCESS EASEMENT FOR FUTURE MAINTENANCE AND INSPECTIONS. ACCESS EASEMENTS SHALL PROVIDE DIRECT ACCESS TO THE PRIMARY OUTFALL/BERM AND EASEMENT SLOPE SHALL NOT EXCEED 33.33% MAXIMUM LONGITUDINAL SLOPE.
14. ALL ROOF DRAINS SHALL BE DIRECTED TO THE STORM DRAIN SYSTEM.
15. ALL SEWER ACCESS EASEMENTS WILL NOT EXCEED A 33.33% SLOPE
16. ALL HANDICAP PARKING SPACES AND STRIPED ACCESSIBILITY AISLES ARE TO HAVE NO MORE THAN A 1:50 SLOPE IN ALL DIRECTIONS.
17. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 SLOPE FOR THE WIDTH OF THE SIDEWALK.
18. **IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER PRIOR TO POURING ANY CONCRETE SO THAT A SOLUTION CAN BE FOUND.**
19. RETAINING WALL AND ASSOCIATED DRAINAGE TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

NOTE:
RETAINING WALL TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

TOWN CERTIFICATION

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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

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- PHASE LINE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- TREE PROTECTION FENCE
- 100-YR FLOODPLAIN
- WETLANDS
- NUESE RIPARIAN BUFFER
- LANDSCAPE BUFFER

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

Know what's below. Call before you dig. 811

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 60'
JOB NO.: 51557
SHEET NO.: C4.3

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED GRADING & DRAINAGE PLAN - SHEET 3 OF 3

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STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 101	9.65'	240.14'	231.99' 231.99'	164 LF 30" RCP @ 1.45% (CB 120) 25 LF 30" RCP @ 0.96% (CB 102)	230.49'	75 LF 48" RCP @ 3.29% (DI 101)
CB 102	7.91'	240.14'	232.23'	50 LF 30" RCP @ 0.97% (CB 103)	232.23'	25 LF 30" RCP @ 0.96% (CB 101)
CB 103	9.15'	241.86'	232.71' 233.71'	102 LF 30" RCP @ 0.68% (DI 102) 47 LF 18" RCP @ 0.51% (CB 111)	232.71'	50 LF 30" RCP @ 0.97% (CB 102)
CB 104	10.70'	246.10'	235.90' 235.90'	61 LF 24" RCP @ 1.11% (CB 105) 47 LF 24" RCP @ 1.28% (CB 112)	235.40'	75 LF 30" RCP @ 2.00% (DI 102)
CB 105	10.18'	246.76'	236.58' 236.58'	176 LF 24" RCP @ 3.20% (CB 113) 31 LF 24" RCP @ 1.55% (CB 106)	236.58'	61 LF 24" RCP @ 1.11% (CB 104)
CB 106	9.72'	246.78'	237.90'	45 LF 24" RCP @ 2.31% (CB 107)	237.06'	31 LF 24" RCP @ 1.55% (CB 105)
CB 107	8.91'	247.85'	239.44'	72 LF 18" RCP @ 5.36% (CB 108)	238.94'	45 LF 24" RCP @ 2.31% (CB 106)
CB 108	7.09'	250.36'	243.27'	39 LF 18" RCP @ 1.54% (CB 108A)	243.27'	72 LF 18" RCP @ 5.36% (CB 107)
CB 108A	6.78'	250.65'	244.12' 243.87'	59 LF 15" RCP @ 4.08% (CB 108B) 19 LF 18" RCP @ 1.58% (CB 109)	243.87'	39 LF 18" RCP @ 1.54% (CB 108)
CB 108B	5.02'	251.55'	246.53'	80 LF 15" RCP @ 3.12% (CB 108C)	246.53'	59 LF 15" RCP @ 4.08% (CB 108A)
CB 108C	4.03'	253.06'	249.03'	78 LF 15" RCP @ 2.63% (CB 108D)	249.03'	80 LF 15" RCP @ 3.12% (CB 108B)
CB 108D	3.44'	254.53'			251.09'	78 LF 15" RCP @ 2.63% (CB 108C)
CB 109	7.71'	251.88'	244.17'	106 LF 18" RCP @ 0.66% (CB 110)	244.17'	19 LF 18" RCP @ 1.58% (CB 108A)
CB 110	7.19'	252.06'	244.94'	60 LF 18" RCP @ 3.71% (DI 103)	244.87'	106 LF 18" RCP @ 0.66% (CB 109)
CB 111	7.86'	241.81'			233.95'	47 LF 18" RCP @ 0.51% (CB 103)
CB 112	9.60'	246.10'			236.50'	47 LF 24" RCP @ 1.28% (CB 104)
CB 113	8.01'	250.21'	242.70' 242.95'	192 LF 18" RCP @ 1.45% (CB 114) 31 LF 15" RCP @ 0.45% (CB 115)	242.20'	176 LF 24" RCP @ 3.20% (CB 105)
CB 114	8.74'	254.22'	245.48'	52 LF 18" RCP @ 1.61% (DI 106)	245.48'	192 LF 18" RCP @ 1.45% (CB 113)
CB 115	7.12'	250.21'			243.09'	31 LF 15" RCP @ 0.45% (CB 113)
CB 117	6.54'	255.29'	248.84' 252.43'	17 LF 15" RCP @ 1.99% (CB 117A) 37 LF 15" RCP @ 1.71% (CB 117E)	248.75'	27 LF 15" RCP @ 1.68% (DI 116)
CB 117A	5.95'	255.12'	249.17' 249.17'	107 LF 15" RCP @ 2.94% (DI 137) 58 LF 15" RCP @ 3.10% (CB 117B)	249.17'	17 LF 15" RCP @ 1.99% (CB 117)
CB 117B	5.79'	256.59'	250.98'	69 LF 15" RCP @ 3.72% (CB 117C)	250.98'	58 LF 15" RCP @ 3.10% (CB 117A)
CB 117C	4.30'	257.86'	253.56'	82 LF 15" RCP @ 3.03% (CB 117D)	253.56'	69 LF 15" RCP @ 3.72% (CB 117B)
CB 117D	3.70'	259.74'			256.04'	82 LF 15" RCP @ 3.03% (CB 117C)
CB 117E	2.94'	256.01'			253.07'	37 LF 15" RCP @ 1.71% (CB 117)
CB 120	8.17'	242.53'	234.86' 235.61'	150 LF 24" RCP @ 3.58% (CB 121) 32 LF 15" RCP @ -0.51% (CB 132)	234.36'	164 LF 30" RCP @ 1.45% (CB 101)
CB 121	8.91'	249.14'	240.53' 240.73'	47 LF 24" RCP @ 3.76% (CB 122) 42 LF 18" RCP @ 0.52% (DI 121)	240.23'	150 LF 24" RCP @ 3.58% (CB 120)
CB 122	8.94'	251.03'	242.62'	53 LF 24" RCP @ 2.68% (CB 123)	242.28'	47 LF 24" RCP @ 3.76% (CB 121)
CB 123	8.45'	252.49'	244.04'	115 LF 24" RCP @ 2.55% (CB 124)	244.04'	53 LF 24" RCP @ 2.68% (CB 122)
CB 124	8.71'	255.57'	246.86'	77 LF 24" RCP @ 1.73% (CB 125)	246.96'	115 LF 24" RCP @ 2.55% (CB 123)

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 125	7.60'	255.79'	248.19' 249.08'	98 LF 24" RCP @ 0.84% (CB 126) 52 LF 15" RCP @ 0.35% (DI 122)	248.19'	77 LF 24" RCP @ 1.73% (CB 124)
CB 126	5.64'	254.65'	249.51' 249.76'	226 LF 18" RCP @ 1.37% (CB 127) 31 LF 15" RCP @ 1.19% (CB 133)	249.01'	98 LF 24" RCP @ 0.84% (CB 125)
CB 127	7.43'	260.03'	252.60'	32 LF 18" RCP @ 0.50% (CB 128)	252.60'	226 LF 18" RCP @ 1.37% (CB 126)
CB 128	7.14'	259.90'	252.76'	43 LF 18" RCP @ 2.13% (CB 129)	252.76'	32 LF 18" RCP @ 0.50% (CB 127)
CB 129	7.29'	260.97'	253.78'	24 LF 18" RCP @ 0.55% (CB 130)	253.68'	43 LF 18" RCP @ 2.13% (CB 128)
CB 130	6.94'	260.85'	256.06'	32 LF 15" RCP @ 0.69% (DI 131)	253.91'	23 LF 18" RCP @ 0.55% (CB 129)
CB 132	7.95'	243.40'			235.45'	32 LF 15" RCP @ -0.51% (CB 120)
CB 133	3.89'	254.02'	250.13'	74 LF 15" RCP @ 0.50% (CB 134)	250.13'	31 LF 15" RCP @ 1.19% (CB 126)
CB 134	4.70'	255.20'	250.50'	31 LF 15" RCP @ 0.71% (CB 135)	250.50'	74 LF 15" RCP @ 0.50% (CB 133)
CB 135	4.48'	255.20'			250.72'	31 LF 15" RCP @ 0.71% (CB 134)
DI 101	11.90'	239.92'	228.02'	75 LF 48" RCP @ 3.29% (CB 101)	228.02'	96 LF 48" RCP @ 1.07% (FES 100)
DI 102	12.03'	245.43'	233.90' 237.60'	75 LF 30" RCP @ 2.00% (CB 104) 111 LF 18" RCP @ 3.27% (DI 104)	233.40'	102 LF 30" RCP @ 0.68% (CB 103)
DI 103	4.55'	251.70'	247.40'	156 LF 15" RCP @ 1.82% (DI 120)	247.15'	60 LF 18" RCP @ 3.71% (CB 110)
DI 104	6.00'	247.23'	241.48'	109 LF 15" RCP @ 1.94% (DI 104A)	241.23'	111 LF 18" RCP @ 3.27% (DI 102)
DI 104A	6.37'	249.97'	243.60'	129 LF 15" RCP @ 2.04% (DI 105)	243.60'	109 LF 15" RCP @ 1.94% (DI 104)
DI 105	5.81'	252.04'			246.23'	129 LF 15" RCP @ 2.04% (DI 104A)
DI 106	7.68'	253.99'	246.31'	90 LF 18" RCP @ 1.65% (DI 116)	246.31'	52 LF 18" RCP @ 1.61% (CB 114)
DI 116	1.90'	249.50'	248.29'	27 LF 15" RCP @ 1.68% (CB 117)	247.79'	90 LF 18" RCP @ 1.65% (DI 106)
DI 120	4.60'	254.84'			250.24'	156 LF 15" RCP @ 1.82% (DI 103)
DI 121	8.03'	248.98'	240.95'	24 LF 15" RCP @ 0.71% (DI 121A)	240.95'	42 LF 18" RCP @ 0.52% (CB 121)
DI 121A	8.16'	249.28'			241.12'	24 LF 15" RCP @ 0.71% (DI 121)
DI 122	5.80'	255.06'			249.26'	52 LF 15" RCP @ 0.35% (CB 125)
DI 131	6.33'	262.61'	256.28'	95 LF 15" RCP @ 0.68% (DI 136)	256.28'	32 LF 15" RCP @ 0.69% (CB 130)
DI 136	6.34'	263.27'			256.93'	95 LF 15" RCP @ 0.68% (DI 131)
DI 137	5.16'	257.46'	252.90'	210 LF 15" RCP @ 1.50% (DI 138)	252.30'	107 LF 15" RCP @ 2.94% (CB 117A)
DI 138	4.27'	260.32'			256.05'	210 LF 15" RCP @ 1.50% (DI 137)
FES 100	228.00'	231.42'	227.00'	96 LF 48" RCP @ 1.07% (DI 101)		

N/A

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 201	9.66'	232.33'	223.67' 224.60'	81 LF 36" RCP @ 0.74% (CB 202) 90 LF 24" RCP @ 0.51% (CB 233)	222.67'	69 LF 48" RCP @ 0.72% (FES 200)
CB 202	8.96'	233.23'	224.27'	148 LF 36" RCP @ 0.74% (CB 205)	224.27'	81 LF 36" RCP @ 0.74% (CB 201)
CB 203	7.89'	232.65'	224.76'	45 LF 36" RCP @ 0.53% (CB 204)	224.77'	170 LF 36" RCP @ 0.87% (CB 241)
CB 204	7.65'	232.65'	225.00' 226.75'	41 LF 36" RCP @ 0.72% (DI 201) 72 LF 15" RCP @ 0.55% (DI 204A)	225.00'	45 LF 36" RCP @ 0.53% (CB 203)
CB 205	9.20'	234.57'	225.36'	41 LF 36" RCP @ 0.74% (CB 206)	225.36'	148 LF 36" RCP @ 0.74% (CB 202)
CB 206	9.26'	234.93'	225.67' 228.46'	72 LF 36" RCP @ 0.74% (CB 207) 166 LF 24" RCP @ 1.29% (CB 220)	225.67'	41 LF 36" RCP @ 0.74% (CB 205)
CB 207	6.58'	232.78'	226.71' 227.96'	52 LF 30" RCP @ 2.31% (CB 208) 45 LF 15" RCP @ 0.53% (CB 222)	226.20'	72 LF 36" RCP @ 0.74% (CB 206)
CB 208	5.25'	233.17'	227.92'	55 LF 30" RCP @ 1.52% (CB 209)	227.92'	52 LF 30" RCP @ 2.31% (CB 207)
CB 209	5.08'	233.83'	228.75' 229.84'	30 LF 30" RCP @ 2.02% (CB 210) 96 LF 15" RCP @ 4.05% (CB 223)	228.75'	55 LF 30" RCP @ 1.52% (CB 208)
CB 210	5.81'	235.17'	229.35'	101 LF 30" RCP @ 0.90% (CB 211)	229.35'	30 LF 30" RCP @ 2.02% (CB 209)
CB 211	6.95'	237.21'	230.76' 232.40'	68 LF 24" RCP @ 0.50% (CB 212) 20 LF 15" RCP @ 0.90% (DI 203)	230.26'	101 LF 30" RCP @ 0.90% (CB 210)
CB 212	7.38'	238.30'	231.10'	111 LF 24" RCP @ 0.64% (CB 213)	231.10'	68 LF 24" RCP @ 0.50% (CB 211)
CB 213	5.98'	237.79'	231.81' 232.97'	65 LF 24" RCP @ 0.71% (CB 214) 41 LF 15" RCP @ 0.56% (CB 225)	231.81'	111 LF 24" RCP @ 0.64% (CB 212)
CB 214	5.98'	238.25'	232.27'	36 LF 24" RCP @ 0.84% (DI 205)	232.27'	65 LF 24" RCP @ 0.71% (CB 213)
CB 215	7.01'	239.84'	233.43' 233.43'	100 LF 18" RCP @ 4.16% (CB 216) 31 LF 18" RCP @ 0.55% (CB 226)	232.83'	29 LF 24" RCP @ 0.55% (DI 205)
CB 216	6.06'	243.65'	237.84'	44 LF 15" RCP @ 3.02% (CB 217)	237.59'	100 LF 18" RCP @ 4.16% (CB 215)
CB 217	6.59'	245.76'	239.17'	25 LF 15" RCP @ 3.02% (CB 218)	239.17'	44 LF 15" RCP @ 3.02% (CB 216)
CB 218	6.03'	245.77'	239.92'	47 LF 15" RCP @ 3.18% (CB 219)	239.92'	25 LF 15" RCP @ 3.02% (CB 217)
CB 219	8.02'	249.43'	241.97' 241.41'	31 LF 15" RCP @ 0.71% (CB 229) 90 LF 15" RCP @ 1.84% (DI 208)	241.41'	47 LF 15" RCP @ 3.18% (CB 218)
CB 220	7.98'	238.59'	231.36' 231.36'	114 LF 15" RCP @ 6.02% (CB 230) 47 LF 15" RCP @ 1.07% (CB 221)	230.61'	166 LF 24" RCP @ 1.29% (CB 206)
CB 221	6.73'	238.59'			231.86'	47 LF 15" RCP @ 1.07% (CB 220)
CB 222	4.78'	232.98'			228.20'	45 LF 15" RCP @ 0.53% (CB 207)
CB 223	3.80'	237.54'	233.74'	83 LF 15" RCP @ 4.39% (CB 224)	233.74'	96 LF 15" RCP @ 4.05% (CB 209)
CB 224	7.43'	241.73'			237.38'	83 LF 15" RCP @ 4.39% (CB 223)
CB 225	4.78'	237.79'			233.20'	41 LF 15" RCP @ 0.56% (CB 213)
CB 226	6.23'	239.83'	233.70'	63 LF 18" RCP @ 0.55% (CB 227)	233.60'	31 LF 18" RCP @ 0.55% (CB 215)
CB 227	7.29'	241.14'	234.77' 234.39'	71 LF 18" RCP @ 0.52% (DI 206) 47 LF 15" RCP @ 0.50% (CB 228)	234.04'	63 LF 18" RCP @ 0.55% (CB 226)
CB 228	6.71'	241.14'			234.62'	47 LF 15" RCP @ 0.50% (CB 227)
CB 229	7.24'	249.43'			242.19'	31 LF 15" RCP @ 0.71% (CB 219)
CB 230	4.54'	242.73'	238.66'	62 LF 15" RCP @ 2.52% (CB 231)	238.20'	113 LF 15" RCP @ 6.02% (CB 220)

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 231	3.76'	243.99'	240.33'	96 LF 15" RCP @ 1.97% (CB 232)	240.23'	62 LF 15" RCP @ 2.52% (CB 230)
CB 232	3.40'	245.63'			242.23'	96 LF 15" RCP @ 1.97% (CB 231)
CB 233	6.10'	231.16'	225.56' 225.81'	87 LF 18" RCP @ 0.50% (CB 234) 46 LF 15" RCP @ 0.54% (CB 236)	225.06'	90 LF 24" RCP @ 0.51% (CB 201)
CB 234	6.45'	232.45'	226.25'	48 LF 15" RCP @ 0.53% (CB 235)	226.00'	87 LF 18" RCP @ 0.50% (CB 233)
CB 235	5.82'	232.32'			226.50'	48 LF 15" RCP @ 0.53% (CB 234)
CB 236	5.79'	231.67'			226.06'	46 LF 15" RCP @ 0.54% (CB 233)
CB 241	8.25'	231.55'	223.80' 223.30'	55 LF 30" RCP @ 0.53% (CB 242) 170 LF 36" RCP @ 0.87% (CB 203)	223.30'	117 LF 36" RCP @ 1.58% (DI 241)
CB 242	8.49'	232.58'	224.59'	43 LF 24" RCP @ 0.76% (CB 243)	224.09'	55 LF 30" RCP @ 0.53% (CB 241)
CB 243	6.20'	231.12'	224.92'	31 LF 24" RCP @ 0.79% (CB 244)	224.92'	43 LF 24" RCP @ 0.76% (CB 242)
CB 244	6.21'	231.12'	225.16'	144 LF 24" RCP @ 0.76% (CB 245)	225.16'	31 LF 24" RCP @ 0.79% (CB 243)
CB 245	8.83'	234.91'	228.60' 227.01'	201 LF 18" RCP @ 2.44% (CB 246) 31 LF 15" RCP @ 0.63% (CB 250)	226.26'	144 LF 24" RCP @ 0.76% (CB 244)
CB 246	8.47'	241.76'	233.75'	64 LF 15" RCP @ 5.34% (CB 247)	233.50'	201 LF 18" RCP @ 2.44% (CB 245)
CB 247	5.82'	242.79'	237.15'	31 LF 15" RCP @ 1.68% (CB 248)	237.15'	64 LF 15" RCP @ 5.34% (CB 246)
CB 248	5.31'	242.79'	237.67'	48 LF 15" RCP @ 1.91% (CB 249)	237.67'	31 LF 15" RCP @ 1.68% (CB 247)
CB 249	5.83'	244.22'	238.78'	88 LF 15" RCP @ 0.55% (DI 242)	238.58'	48 LF 15" RCP @ 1.91% (CB 248)
CB 250	7.89'	234.91'			227.20'	31 LF 15" RCP @ 0.63% (CB 245)
DI 201	7.28'	232.58'	227.05'	135 LF 15" RCP @ 4.70% (DI 202)	225.30'	41 LF 36" RCP @ 0.72% (CB 204)
DI 202	3.26'	236.44'	233.37'	118 LF 15" RCP @ 2.02% (DI 202A)	233.37'	135 LF 15" RCP @ 4.70% (DI 201)
DI 202A	4.68'	240.44'			235.76'	118 LF 15" RCP @ 2.02% (DI 202)
DI 203	4.11'	236.69'	232.58'	120 LF 15" RCP @ 1.42% (DI 204)	232.58'	20 LF 15" RCP @ 0.90% (CB 211)
DI 204	6.69'	240.98'			234.28'	120 LF 15" RCP @ 1.42% (DI 203)
DI 204A	7.06'	234.21'			227.15'	72 LF 15" RCP @ 0.55% (CB 204)
DI 205	7.10'	239.67'	232.67'	29 LF 24" RCP @ 0.55% (CB 215)	232.57'	36 LF 24" RCP @ 0.84% (CB 214)
DI 206	3.26'	238.19'	235.39'	111 LF 15" RCP @ 2.27% (DI 207)	235.14'	71 LF 18" RCP @ 0.52% (CB 227)
DI 207	5.05'	242.97'			237.92'	111 LF 15" RCP @ 2.27% (DI 206)
DI 208	4.23'	247.11'			243.07'	90 LF 15" RCP @ 1.84% (CB 219)
DI 241	9.41'	230.87'	221.46'	117 LF 36" RCP @ 1.58% (CB 241)	221.47'	95 LF 36" RCP @ 0.49% (FES 240)
DI 242	4.59'	243.67'	239.47'	305 LF 15" RCP @ 0.55% (DI 243)	239.27'	88 LF 15" RCP @ 0.55% (CB 249)
DI 243	3.61'	244.76'			241.15'	305 LF 15" RCP @ 0.55% (DI 242)
FES 200	N/A	226.59'	222.17'	69 LF 48" RCP @ 0.72% (CB 201)		

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
FES 240	N/A	224.33'	221.00'	95 LF 36" RCP @ 0.49% (DI 241)		

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 302	9.38'	236.67'	228.37' 228.92'	31 LF 30" RCP @ 0.65% (CB 307) 180 LF 15" RCP @ 0.75% (CB 303)	227.29'	138 LF 30" RCP @ 5.54% (DI 301)
CB 303	8.31'	238.32'	230.01'	32 LF 15" RCP @ 0.76% (CB 304)	230.26'	180 LF 15" RCP @ 0.75% (CB 302)
CB 304	8.23'	238.48'			230.25'	32 LF 15" RCP @ 0.76% (CB 303)
CB 307	7.47'	236.04'	229.07' 229.82'	115 LF 24" RCP @ 0.68% (CB 308) 26 LF 15" RCP @ 1.29% (CB 315)	228.57'	31 LF 30" RCP @ 0.65% (CB 302)
CB 308	7.15'	237.00'	229.85' 230.05'	100 LF 24" RCP @ 0.56% (CB 309) 74 LF 18" RCP @ 4.68% (DI 308)	229.85'	115 LF 24" RCP @ 0.68% (CB 307)
CB 309	6.86'	237.27'	230.86'	100 LF 24" RCP @ 0.54% (CB 310)	230.41'	100 LF 24" RCP @ 0.56% (CB 308)
CB 310	4.78'	236.18'	232.14' 231.40'	44 LF 24" RCP @ 0.50% (CB 311) 31 LF 15" RCP @ 0.55% (CB 316)	231.40'	100 LF 24" RCP @ 0.54% (CB 309)
CB 311	4.81'	237.17'	232.86'	31 LF 18" RCP @ 0.52% (CB 312)	232.36'	44 LF 24" RCP @ 0.50% (CB 310)
CB 312	4.33'	237.17'	233.27'	54 LF 18" RCP @ 0.52% (CB 313)	233.02'	31 LF 18" RCP @ 0.52% (CB 311)
CB 313	5.60'	238.96'	233.78'	129 LF 15" RCP @ 0.50% (DI 314)	233.55'	54 LF 18" RCP @ 0.52% (CB 312)
CB 315	7.88'	237.85'			230.16'	26 LF 15" RCP @ 1.29% (CB 307)
CB 316	4.62'	236.19'			231.57'	31 LF 15" RCP @ 0.55% (CB 310)
DI 301	5.27'	224.44'	219.67'	138 LF 30" RCP @ 5.54% (CB 302)	219.17'	29 LF 36" RCP @ 1.17% (FES 300)
DI 308	4.05'	237.34'			233.50'	74 LF 18" RCP @ 4.68% (CB 308)
DI 314	3.68'	238.11'			234.43'	129 LF 15" RCP @ 0.50% (CB 313)
FES 300	219.94'	222.16'	218.83'	29 LF 36" RCP @ 1.17% (DI 301)		

N/A

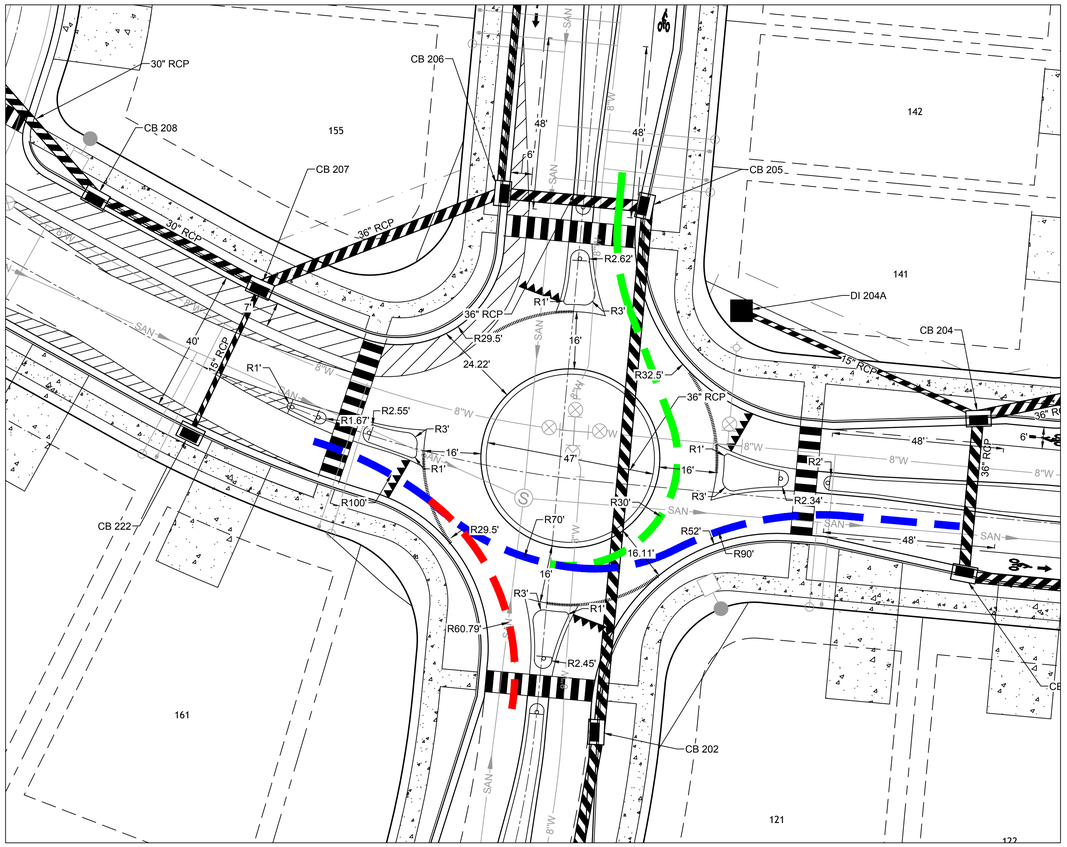
STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 401	5.45'	226.58'	221.63' 221.88'	31 LF 18" RCP @ 0.55% (CB 402) 105 LF 15" RCP @ 4.93% (CB 403)	221.13'	53 LF 24" RCP @ 2.80% (FES 400)
CB 402	4.78'	226.58'	221.80'	161 LF 18" RCP @ 4.06% (DI 410)	221.80'	31 LF 18" RCP @ 0.55% (CB 401)
CB 403	7.67'	234.70'			227.03'	104 LF 15" RCP @ 4.93% (CB 401)
CB 411	7.41'	237.84'	230.89' 232.42'	254 LF 15" RCP @ 2.17% (CB 412) 36 LF 15" RCP @ 0.57% (CB 411A)	230.43'	51 LF 18" RCP @ 4.11% (DI 410)
CB 411A	4.53'	237.16'			232.63'	36 LF 15" RCP @ 0.57% (CB 411)
CB 412	5.25'	241.65'	236.45'	265 LF 15" RCP @ 2.55% (CB 413)	236.40'	253 LF 15" RCP @ 2.17% (CB 411)
CB 413	6.46'	249.67'	243.21' 243.89'	335 LF 15" RCP @ 2.23% (CB 414) 335 LF 15" RCP @ 2.00% (CB 414)	243.21'	265 LF 15" RCP @ 2.55% (CB 412)
CB 414	6.60'	257.19'	250.69'	336 LF 15" RCP @ 1.87% (CB 415)	250.69' 250.59'	335 LF 15" RCP @ 2.23% (CB 413) 335 LF 15" RCP @ 2.00% (CB 413)
CB 415	6.00'	262.97'	256.97'	212 LF 15" RCP @ 0.92% (CB 416)	256.97'	336 LF 15" RCP @ 1.87% (CB 414)
CB 416	7.61'	266.53'	258.92'	129 LF 15" RCP @ 1.72% (CB 417)	258.92'	212 LF 15" RCP @ 0.92% (CB 415)
CB 417	7.18'	268.31'	261.13'	261 LF 15" RCP @ 1.59% (CB 418)	261.13'	129 LF 15" RCP @ 1.72% (CB 416)
CB 418	7.58'	272.85'			265.27'	261 LF 15" RCP @ 1.59% (CB 417)
DI 410	7.49'	235.65'	228.35'	51 LF 18" RCP @ 4.11% (CB 411)	228.35'	161 LF 18" RCP @ 4.06% (CB 402)
FES 400	N/A	221.90'	219.65'	53 LF 24" RCP @ 2.80% (CB 401)		

STORM DRAINAGE SCHEDULE						
STRUCTURE	HEIGHT	TOP	INV IN	INLET PIPE	INV OUT	OUTLET PIPE
CB 262	5.20'	225.21'	220.19'	47 LF 18" RCP @ 0.49% (CB 263)	220.19'	115 LF 18" RCP @ 0.50% (DI 261)
CB 263	4.95'	225.19'	220.67'	31 LF 15" RCP @ 3.09% (DI 264)	220.42'	47 LF 18" RCP @ 0.49% (CB 262)
DI 261	7.40'	226.83'	219.62'	115 LF 18" RCP @ 0.50% (CB 262)	219.62'	195 LF 18" RCP @ 0.50% (SCM 2 JB)
DI 264	10.73'	232.35'	224.12'	227 LF 15" RCP @ 3.90% (DI 265)	221.62'	31 LF 15" RCP @ 3.09% (CB 263)
DI 265	5.26'	238.23'			232.97'	227 LF 15" RCP @ 3.90% (DI 264)
SCM 1 - RISER	13.00'	233.50'			227.50'	41 LF 36" RCP @ 0.60% (SCM 1 FES)
SCM 1 FES	N/A	230.58'	227.25'	41 LF 36" RCP @ 0.60% (SCM 1 - RISER)		
SCM 2 - RISER	10.50'	226.00'			220.00'	42 LF 36" RCP @ 1.41% (SCM 2 JB)
SCM 2 FES	N/A	219.99'	216.66'	109 LF 36" RCP @ 0.45% (SCM 2 JB)		
SCM 2 JB	12.23'	229.37'	218.64' 219.40'	195 LF 18" RCP @ 0.50% (DI 261) 42 LF 36" RCP @ 1.41% (SCM 2 - RISER)	217.14'	109 LF 36" RCP @ 0.45% (SCM 2 FES)
SCM 3 FES	N/A	219.54'	216.75'	27 LF 30" RCP @ 0.91% (SCM 3 RISER)		
SCM 3 RISER	10.25'	220.75'			217.00'	27 LF 30" RCP @ 0.91% (SCM 3 FES)

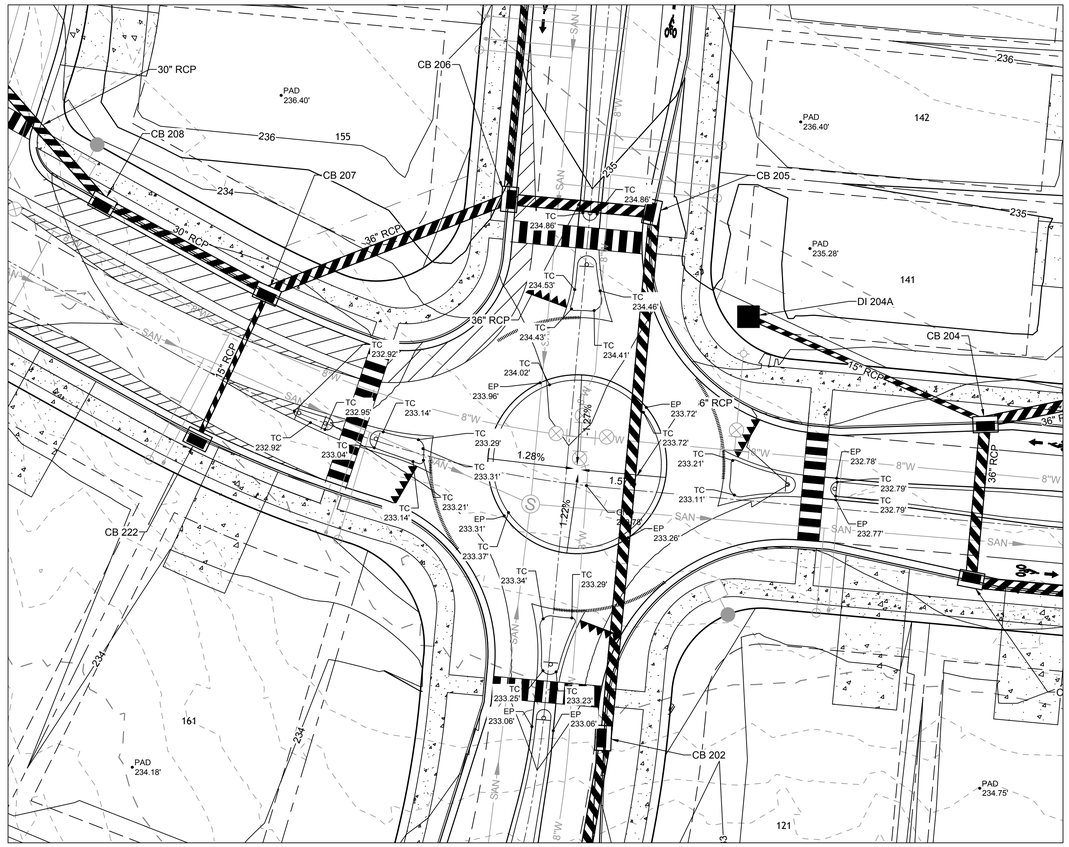
VELOCITY DISSIPATION PAD (VDP) DESIGN											
OUTLET NAME	PIPE DIA.	PIPE SLOPE	Q10	V10	ZONE	PAD DIMENSIONS			STONE SIZING		
						LENGTH	WIDTH	DEPTH	D50	Dmax	CLASS
	(in)	(ft/ft)	(cfs)	(fps)		(ft)	(ft)	(in)	(in)	(in)	(NCDOT)
FES 100	48	0.01	46	10.01	3	32	12	26	10	17	1
FES 220	48	0.01	38.35	9.51	3	32	12	26	10	17	1
FES 240	36	0.005	13.32	5.71	2	18	9	18	8	12	B
FES 300	36	0.02	28.04	11.68	3	24	9	26	10	17	1
FES 400	18	0.5	3.61	21.97	6	15	5	36	14	23	2
FES 500	24	0.0195	2.16	5.26	1	8	6	12	4	6	A
SCM 1 FES	36	0.0051	47.7	7.69	2	18	9	18	8	12	B
SCM 2 FES	36	0.0064	53.4	8.62	2	18	9	18	8	12	B
SCM 3 FES	30	0.0054	16.6	6.30	2	15	8	18	8	12	B

GRADING AND STORMWATER PLAN NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
2. ALL PERMITS SHALL BE OBTAINED FROM THE TOWN OF KNIGHTDALE, WAKE COUNTY, NCDOT, NCDEQ-DWR, AND USACE AS APPLICABLE PRIOR TO BEGINNING CONSTRUCTION. A COPY OF ALL PERMITS SHALL BE SUBMITTED TO THE TOWN OF KNIGHTDALE FOR THEIR RECORDS.
3. SCMS SHALL BE DESIGNED TO CONTROL AND TREAT THE DIFFERENCE IN STORMWATER RUNOFF VOLUME LEAVING THE PROJECT SITE BETWEEN THE PRE- AND POST- DEVELOPMENT CONDITIONS FOR, AT A MINIMUM, THE 1-YEAR, 24-HOUR STORM.
4. SCMS SHALL BE DESIGNED TO HAVE A MINIMUM OF 85% AVERAGE ANNUAL REMOVAL FOR TOTAL SUSPENDED SOLIDS.
5. ALL SCMS ASSOCIATED WITH THIS PROJECT WILL REQUIRE MAINTENANCE EASEMENTS AND AN OPERATION AND MAINTENANCE AGREEMENT TO BE NOTED ON THE FINAL PLAT. ALL OF THESE ITEMS WILL NEED TO BE RECORDED WITH THE COUNTY REGISTER OF DEEDS.
6. ALL PUBLIC SANITARY SEWER EASEMENTS SHALL HAVE MAX. FINISHED GRADE SLOPE OF 3:1 TO ASSURE SAFE ACCESS FOR MAINTENANCE VEHICLES AND MOWERS.
7. ANY FILL PLACED WITHIN AN HRW EASEMENT SHALL BE FIELD TESTED/APPROVED BY THE OWNERS GEOTECHNICAL ENGINEER.
8. BUILDING PADS SHALL BE A MIN OF 18" ABOVE THE TOP OF CURB. DRIVEWAY SLOPE SHALL NOT EXCEED 8%
9. PAD GRADE DENOTES FINISHED SUBGRADE.
10. SWALES SHALL HAVE A MIN SLOPE OF 2% BUT NO LESS THAN 1% IF MIN CANNOT BE MET. ALL SWALES BETWEEN HOUSES TO BE MORE THAN 1% SLOPE. SWALE HIGH POINTS TO BE 6" BELOW BUILDING PAD. REAR YARD SWALES TO BE MIN. 2% SLOPE.
11. HIGH POINT WITHIN SWALE AS NOTED TO BE 6 IN BELOW FINISHED SUBGRADE.
12. HOUSE SIDE SLOPES TO BE 3:1 FROM PAD TO SIDE SWALE. PAD TO BE .5' (6") HIGHER THAN GRADE AND SWALE TO BE LOCATED 1.5' LENGTH FROM PAD.
13. ALL SCM'S WILL PROVIDE A MINIMUM 20' VEHICULAR ACCESSIBLE ACCESS EASEMENT FOR FUTURE MAINTENANCE AND INSPECTIONS. ACCESS EASEMENTS SHALL PROVIDE DIRECT ACCESS TO THE PRIMARY OUTFALL/BERM AND EASEMENT SLOPE SHALL NOT EXCEED 33.33% MAXIMUM LONGITUDINAL SLOPE.
14. ALL ROOF DRAINS SHALL BE DIRECTED TO THE STORM DRAIN SYSTEM.
15. ALL SEWER ACCESS EASEMENTS WILL NOT EXCEED A 33.33% SLOPE
16. ALL HANDICAP PARKING SPACES AND STRIPED ACCESSIBILTY AISLES ARE TO HAVE NO MORE THAN A 1:50 SLOPE IN ALL DIR



ROUNDABOUT PLAN



ROUNDABOUT GRADING PLAN

GRADING AND STORMWATER PLAN NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS.
2. ALL PERMITS SHALL BE OBTAINED FROM THE TOWN OF KNIGHTDALE, WAKE COUNTY, NCDOT, NCDEQ-DWR, AND USACE AS APPLICABLE PRIOR TO BEGINNING CONSTRUCTION. A COPY OF ALL PERMITS SHALL BE SUBMITTED TO THE TOWN OF KNIGHTDALE FOR THEIR RECORDS.
3. SCMS SHALL BE DESIGNED TO CONTROL AND TREAT THE DIFFERENCE IN STORMWATER RUNOFF VOLUME LEAVING THE PROJECT SITE BETWEEN THE PRE- AND POST- DEVELOPMENT CONDITIONS FOR, AT A MINIMUM, THE 1-YEAR, 24-HOUR STORM.
4. SCMS SHALL BE DESIGNED TO HAVE A MINIMUM OF 85% AVERAGE ANNUAL REMOVAL FOR TOTAL SUSPENDED SOLIDS.
5. ALL SCMS ASSOCIATED WITH THIS PROJECT WILL REQUIRE MAINTENANCE EASEMENTS AND AN OPERATION AND MAINTENANCE AGREEMENT TO BE NOTED ON THE FINAL PLAT. ALL OF THESE ITEMS WILL NEED TO BE RECORDED WITH THE COUNTY REGISTER OF DEEDS.
6. ALL PUBLIC SANITARY SEWER EASEMENTS SHALL HAVE MAX. FINISHED GRADE SLOPE OF 3:1 TO ASSURE SAFE ACCESS FOR MAINTENANCE VEHICLES AND MOWERS.
7. ANY FILL PLACED WITHIN AN HRW EASEMENT SHALL BE FIELD TESTED/APPROVED BY THE OWNERS GEOTECHNICAL ENGINEER.
8. BUILDING PADS SHALL BE A MIN OF 18" ABOVE THE TOP OF CURB. DRIVEWAY SLOPE SHALL NOT EXCEED 8%
9. PAD GRADE DENOTES FINISHED SUBGRADE.
10. SWALES SHALL HAVE A MIN SLOPE OF 2% BUT NO LESS THAN 1% IF MIN CANNOT BE MET. ALL SWALES BETWEEN HOUSES TO BE MORE THAN 1% SLOPE. SWALE HIGH POINTS TO BE 6" BELOW BUILDING PAD. REAR YARD SWALES TO BE MIN. 2% SLOPE.
11. HIGH POINT WITHIN SWALE AS NOTED TO BE 6 IN BELOW FINISHED SUBGRADE.
12. HOUSE SIDE SLOPES TO BE 3:1 FROM PAD TO SIDE SWALE. PAD TO BE .5' (6") HIGHER THAN GRADE AND SWALE TO BE LOCATED 1.5' LENGTH FROM PAD.
13. ALL SCM'S WILL PROVIDE A MINIMUM 20' VEHICULAR ACCESSIBLE ACCESS EASEMENT FOR FUTURE MAINTENANCE AND INSPECTIONS. ACCESS EASEMENTS SHALL PROVIDE DIRECT ACCESS TO THE PRIMARY OUTFALL/BERM AND EASEMENT SLOPE SHALL NOT EXCEED 33.33% MAXIMUM LONGITUDINAL SLOPE.
14. ALL ROOF DRAINS SHALL BE DIRECTED TO THE STORM DRAIN SYSTEM.
15. ALL SEWER ACCESS EASEMENTS WILL NOT EXCEED A 33.33% SLOPE
16. ALL HANDICAP PARKING SPACES AND STRIPED ACCESSIBILTY AISLES ARE TO HAVE NO MORE THAN A 1:50 SLOPE IN ALL DIRECTIONS.
17. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 SLOPE FOR THE WIDTH OF THE SIDEWALK.
18. **IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER PRIOR TO POURING ANY CONCRETE SO THAT A SOLUTION CAN BE FOUND.**
19. RETAINING WALL AND ASSOCIATED DRAINAGE TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

GENERAL NOTES:

1. LANDSCAPED 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, SEC. 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, SEC. 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, SEC. 7.4.H.1].
4. ALL TREES GREATER THAN 12" DBH WITHIN FRONT SETBACK AREAS, STREET TREE PLANTING 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 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 WHEREVER POSSIBLE. REQUIRED STREET TREES, PARKING LOT LANDSCAPING, AND BUFFER YARD PLANTINGS ARE NOT TO BE COUNTED TOWARDS REPLACEMENT REQUIREMENTS [UDO, SEC. 7.4.H.1].

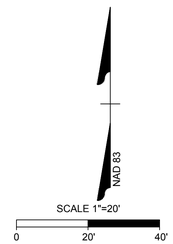
TOWN CERTIFICATION

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:
RETAINING WALL TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT, AND CITY OF RALEIGH STANDARDS, SPECIFICATIONS, AND DETAILS.

811 Know what's below. Call before you dig.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- PHASE LINE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- TREE PROTECTION FENCE
- 100-YR FLOODPLAIN
- WETLANDS
- NUESE RIPARIAN BUFFER
- LANDSCAPE BUFFER

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
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5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: 1" = 20'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

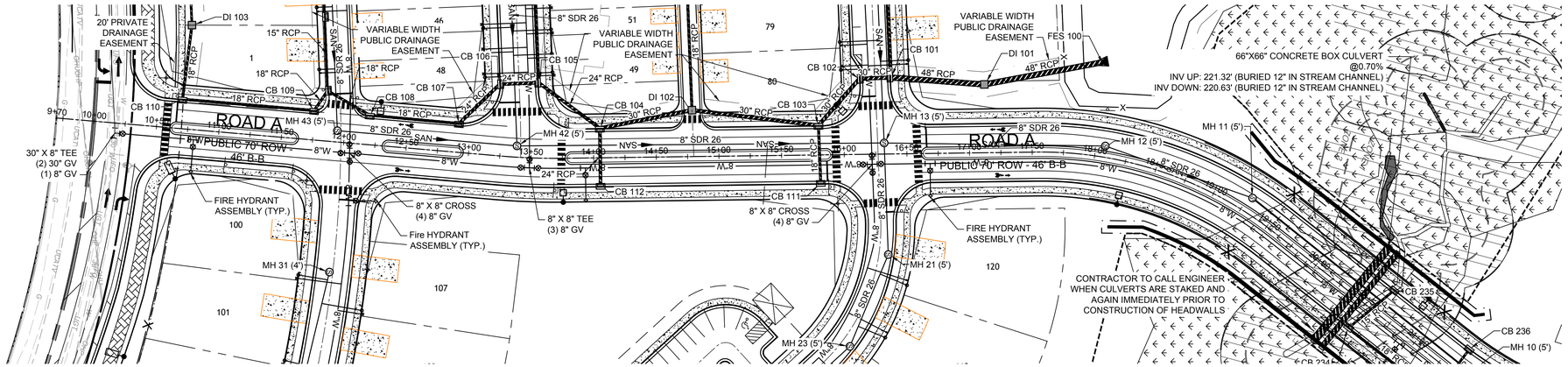
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAILED ROUNDABOUT GRADING

JOB NO. 51557
SHEET NO. C4.5

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ROAD A PLAN VIEW (STA 9+00 TO 21+00)

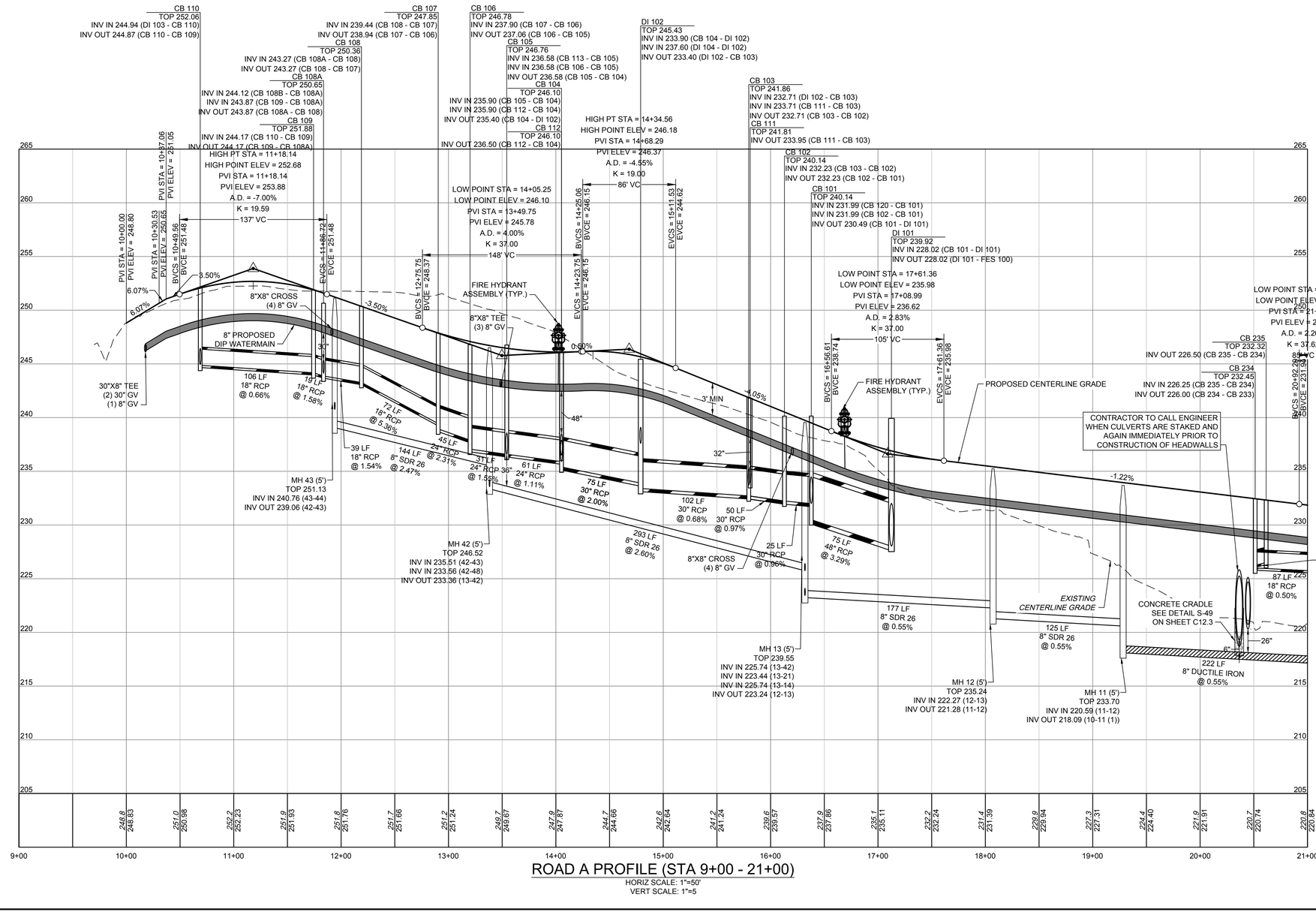
1" = 50'

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 10 FT.
   WATER AND STORM SEWER MAINS - 5 FT.
   SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
   GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.
3. MINIMUM UTILITY VERTICAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 18 IN.
   WATER AND STORM SEWER MAINS - 18 IN.
   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
4. CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

811 Know what's below. Call before you dig.



ROAD A PROFILE (STA 9+00 - 21+00)

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

SCALE 1"=50'
0 50' 100'

5
0 0 50
PROFILE SCALE

NAD 83

UTILITY LEGEND

- SAN — PROPOSED SEWER LINE
- 8"W — PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4152

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 # _____

PRELIMINARY DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
	02/05/2025

DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: H: 1" = 50' V: 1" = 5'
JOB NO.: 51557
SHEET NO.: C5.0

TIMMONS GROUP

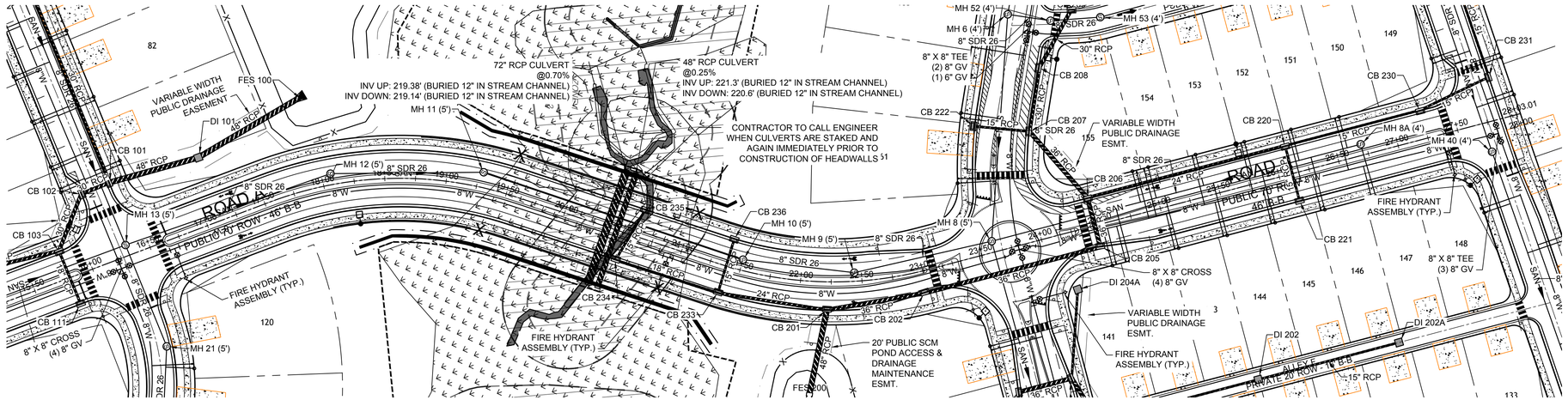
NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

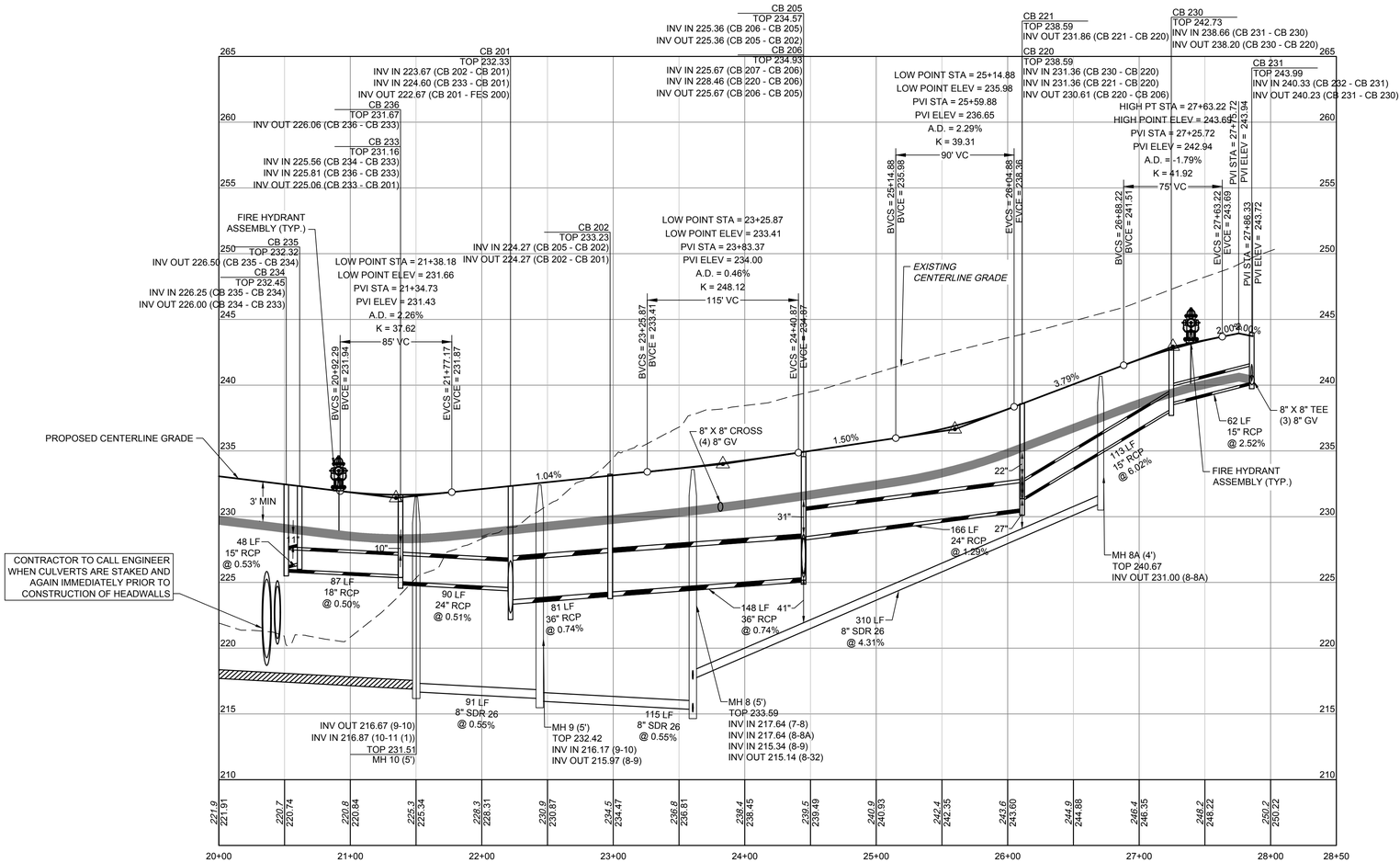
ROAD A PROFILE - SHEET 1 OF 2

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ROAD A PLAN VIEW (STA 20+00 TO 27+86.72)

1" = 50'



ROAD A PROFILE (STA 20+00 - 28+50)

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY LEGEND

- PROPOSED SEWER LINE
- PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

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: _____ DATE: _____
LAND USE ADMINISTRATOR

UTILITY NOTES:

1. **ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.**
2. **MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES: WATER AND SANITARY SEWER MAINS - 10 FT. WATER AND STORM SEWER MAINS - 5 FT. SANITARY SEWER AND STORM SEWER MAINS - 5 FT. GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.**
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4. **CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).**

ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

811 Know what's below. Call before you dig.

NAD 83
SCALE 1"=50'
0 50' 100'
3' MI

5
0
0 50
PROFILE SCALE

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

PRELIMINARY DO NOT USE FOR CONSTRUCTION

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
	02/05/2025

DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

THE HAVEN AT GRIFFITH MEADOWS

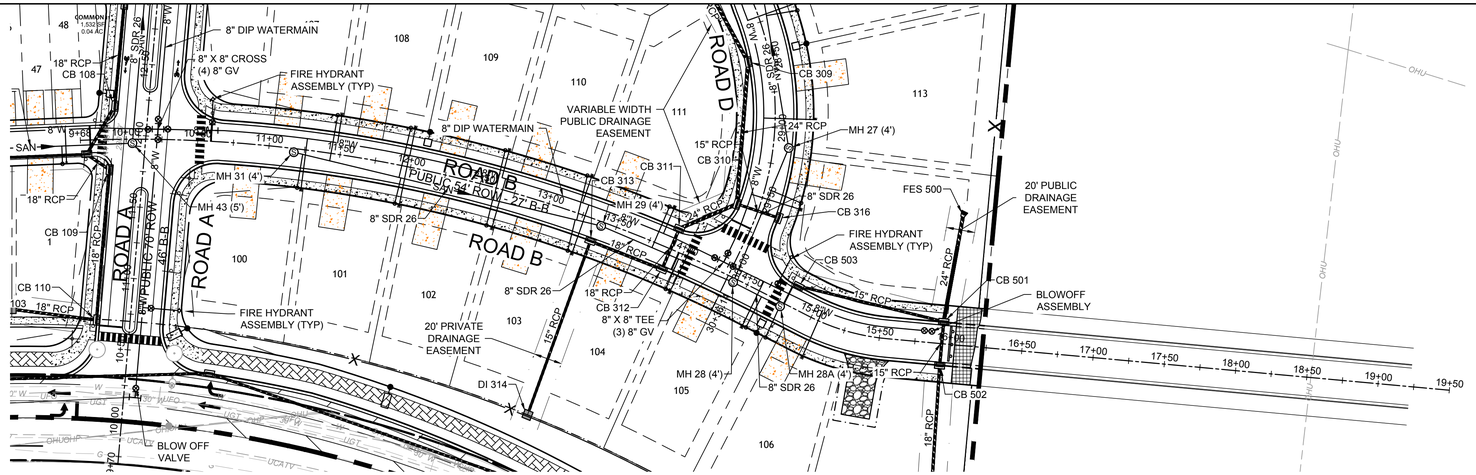
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROAD A PROFILE - SHEET 2 OF 2

NORTH CAROLINA LICENSE NO. C-1652

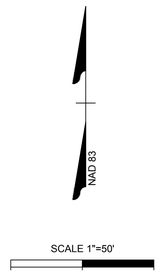
JOB NO. 51557
SHEET NO. C5.1

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ROAD B PLAN VIEW (STA 8+50 TO 19+50)

1" = 50'

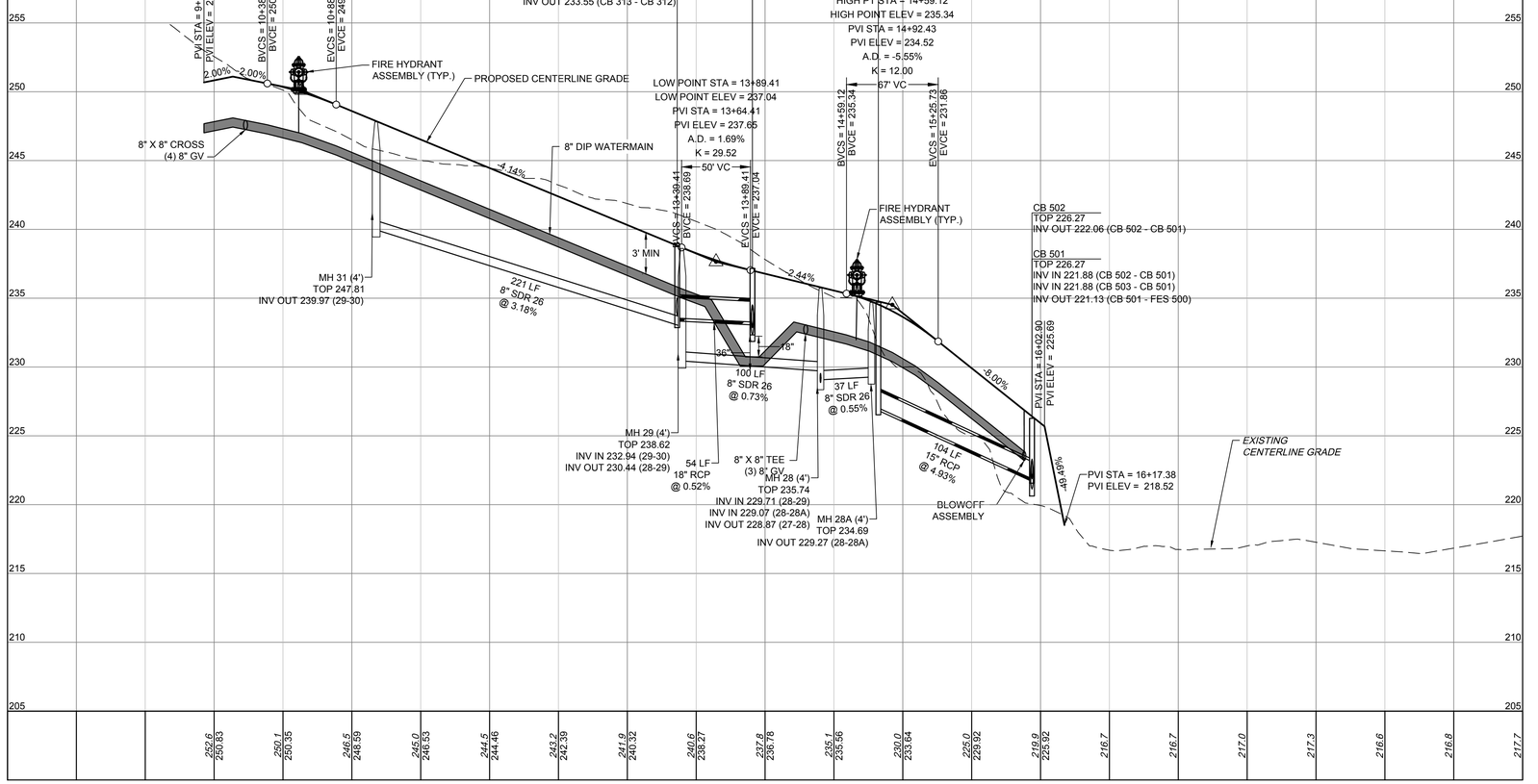


SCALE 1"=50'
0 50' 100'

5
0
0 50
PROFILE SCALE

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
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   WATER AND STORM SEWER MAINS - 18 IN.
   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
4. CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).



ROAD B PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

811 Know what's below. Call before you dig.

TOWN CERTIFICATION

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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

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

JOB NO.
51557

SHEET NO.
C5.2

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

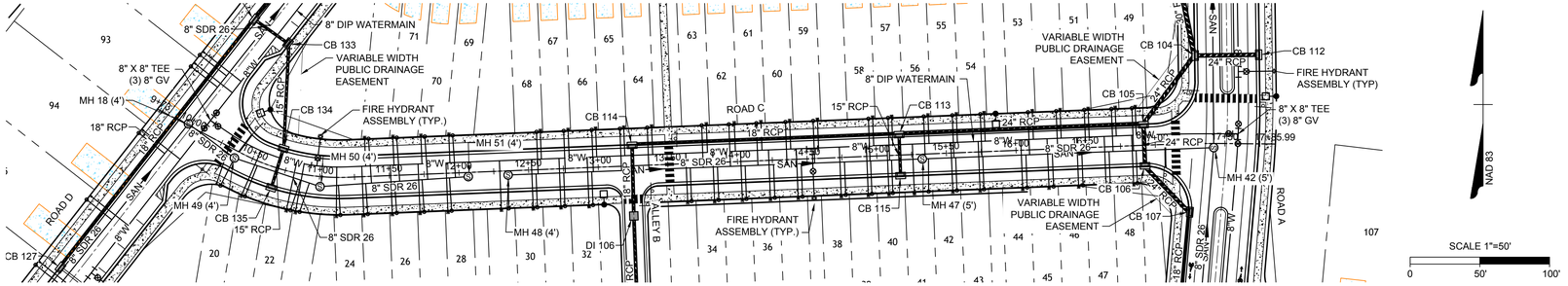
HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROAD B PROFILE

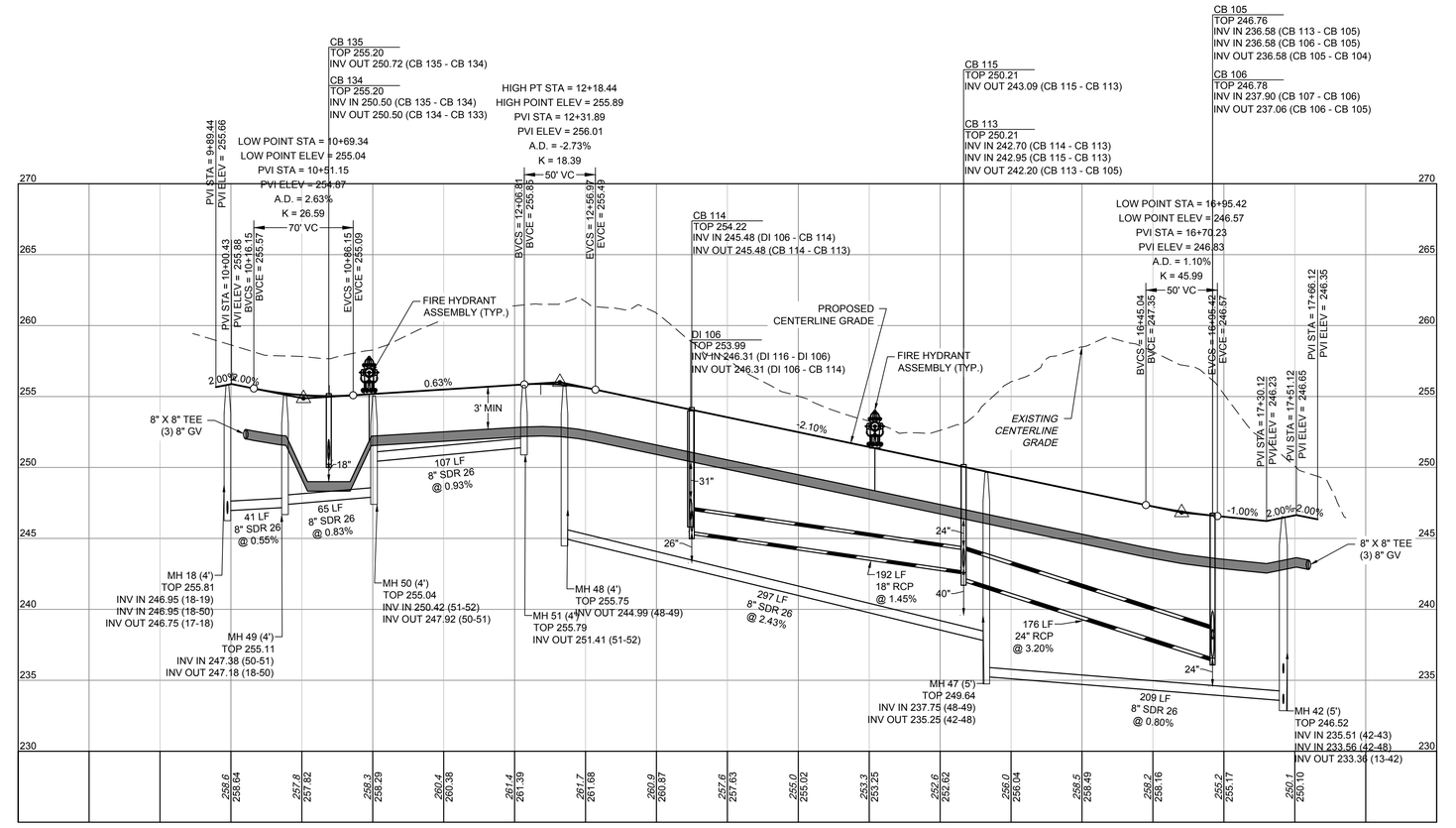
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ROAD C PLAN VIEW (STA 8+50 TO 18+50)

1" = 50'



ROAD C PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
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   WATER AND SANITARY SEWER MAINS - 18 IN.
   WATER AND STORM SEWER MAINS - 18 IN.
   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
4. CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

5
0
0 50
PROFILE SCALE

ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

811 Know what's below. Call before you dig.

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

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
@	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

PRELIMINARY DO NOT USE FOR CONSTRUCTION

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION

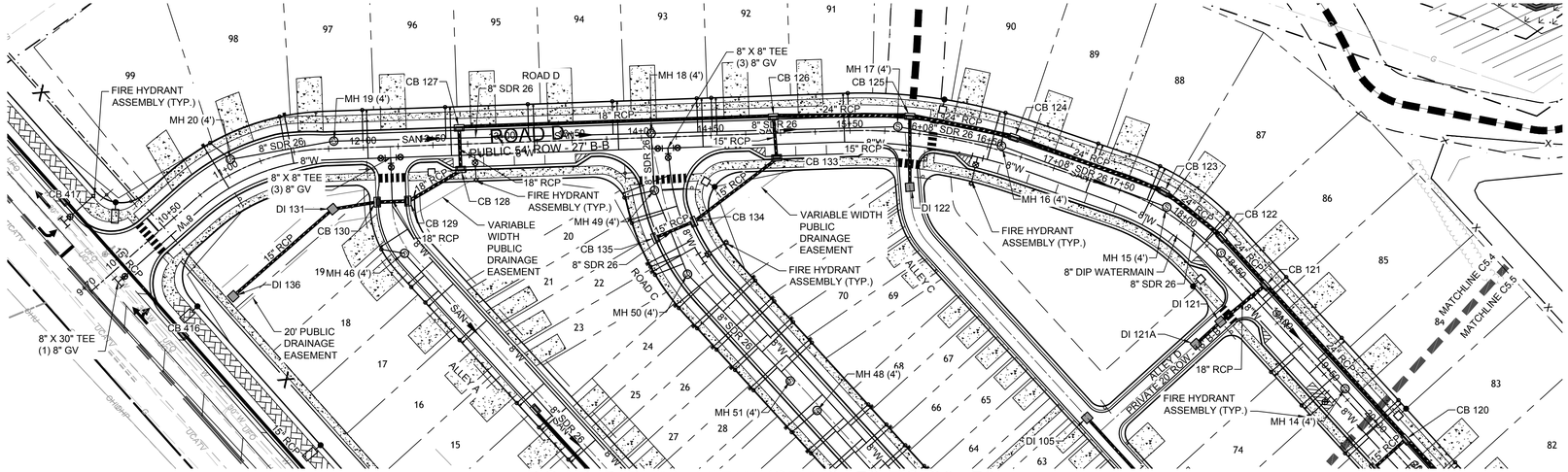
DATE

DATE 02/05/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T.CROSS
SCALE H: 1" = 50' V: 1" = 5'
JOB NO. 51557
SHEET NO. C5.3

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

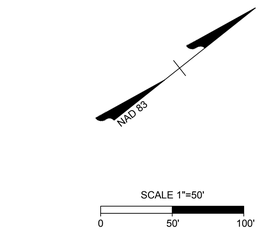
THE HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
ROAD C PROFILE

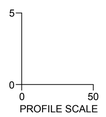
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ROAD D PLAN VIEW (STA 9+50 TO 20+50)

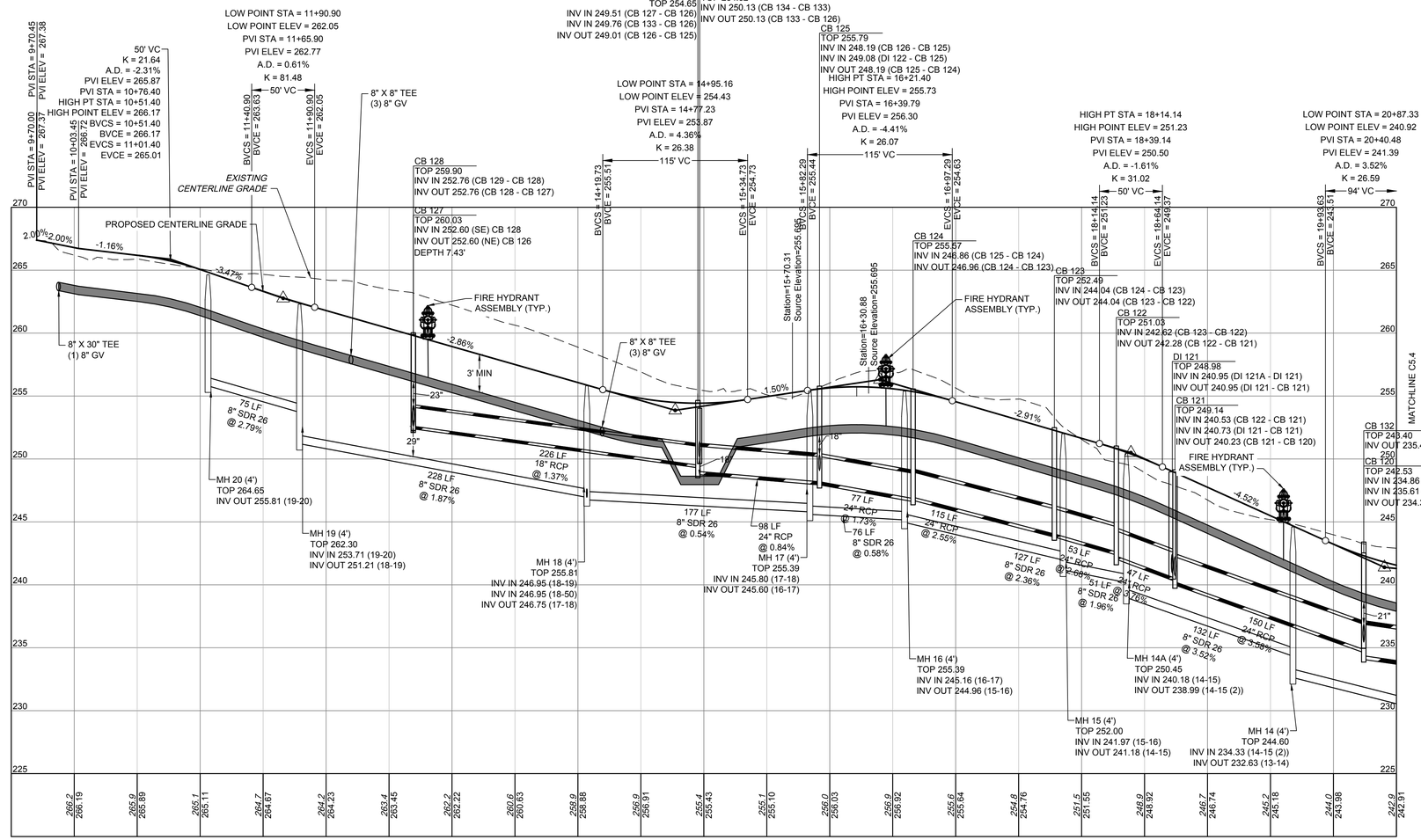
1" = 50'





UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY



ROAD D PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 10 FT.
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ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

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TOWN CERTIFICATION

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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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION	DATE
	02/05/2025

DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: 1" = 50'

TIMMONS GROUP

THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

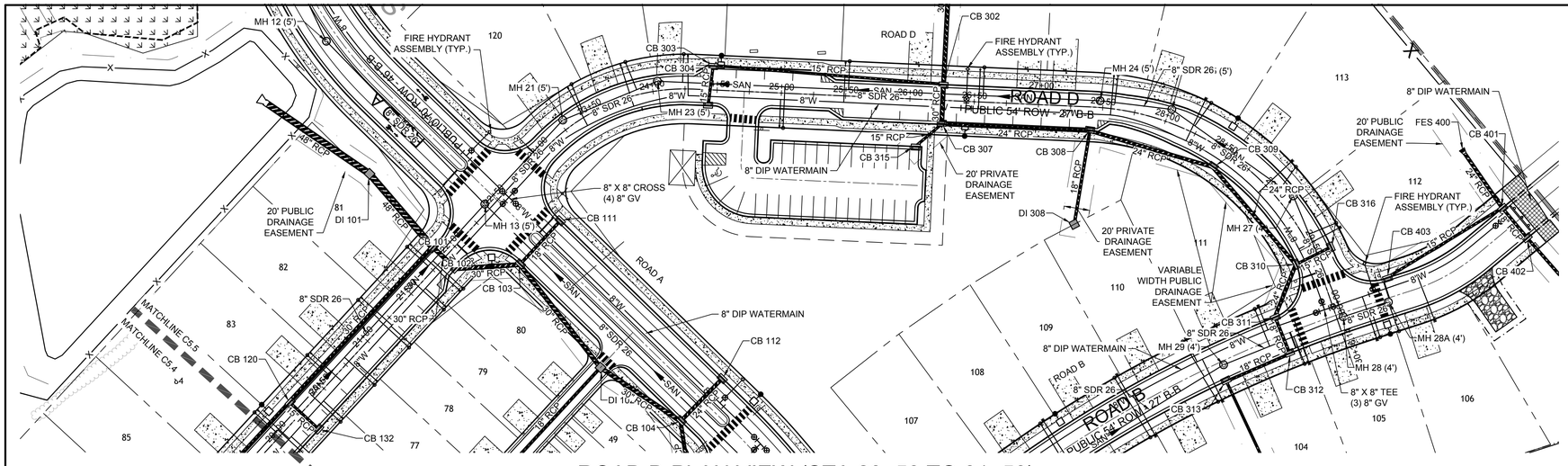
ROAD D PROFILE - SHEET 1 OF 2

NORTH CAROLINA LICENSE NO. C-1652

JOB NO. 51557

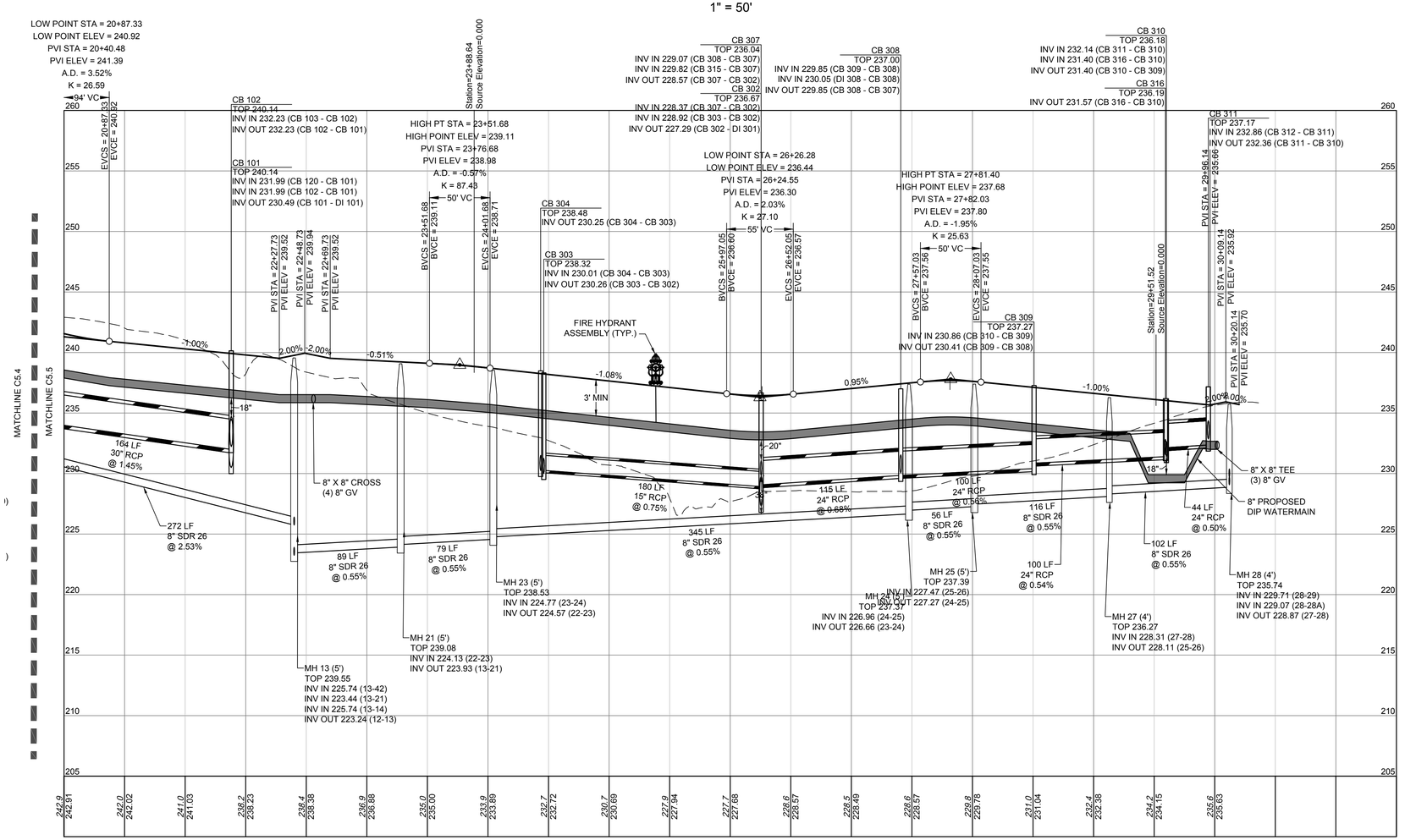
SHEET NO. C5.4

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ROAD D PLAN VIEW (STA 20+50 TO 31+50)

1" = 50'



ROAD D PROFILE (2)

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

5
0
0 50
PROFILE SCALE

UTILITY NOTES:

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

UTILITY LEGEND

- SAN — PROPOSED SEWER LINE
- 8"W — PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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City of Raleigh Public Utilities Department Permit # _____

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION	DATE
	02/05/2025

DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: 1" = 50'

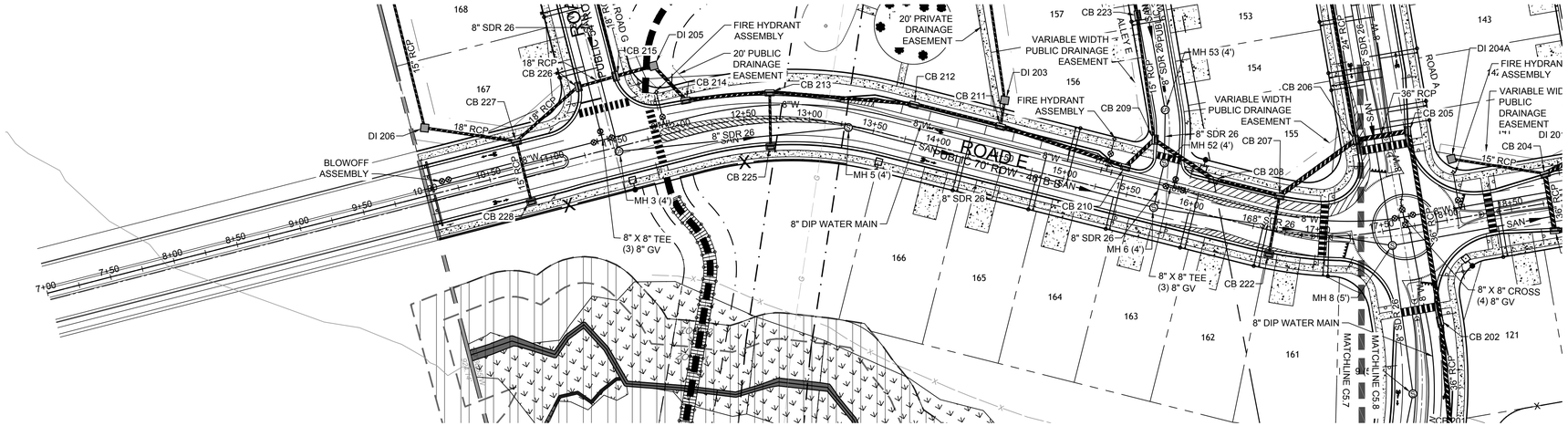
THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROAD D PROFILE - SHEET 2 OF 2

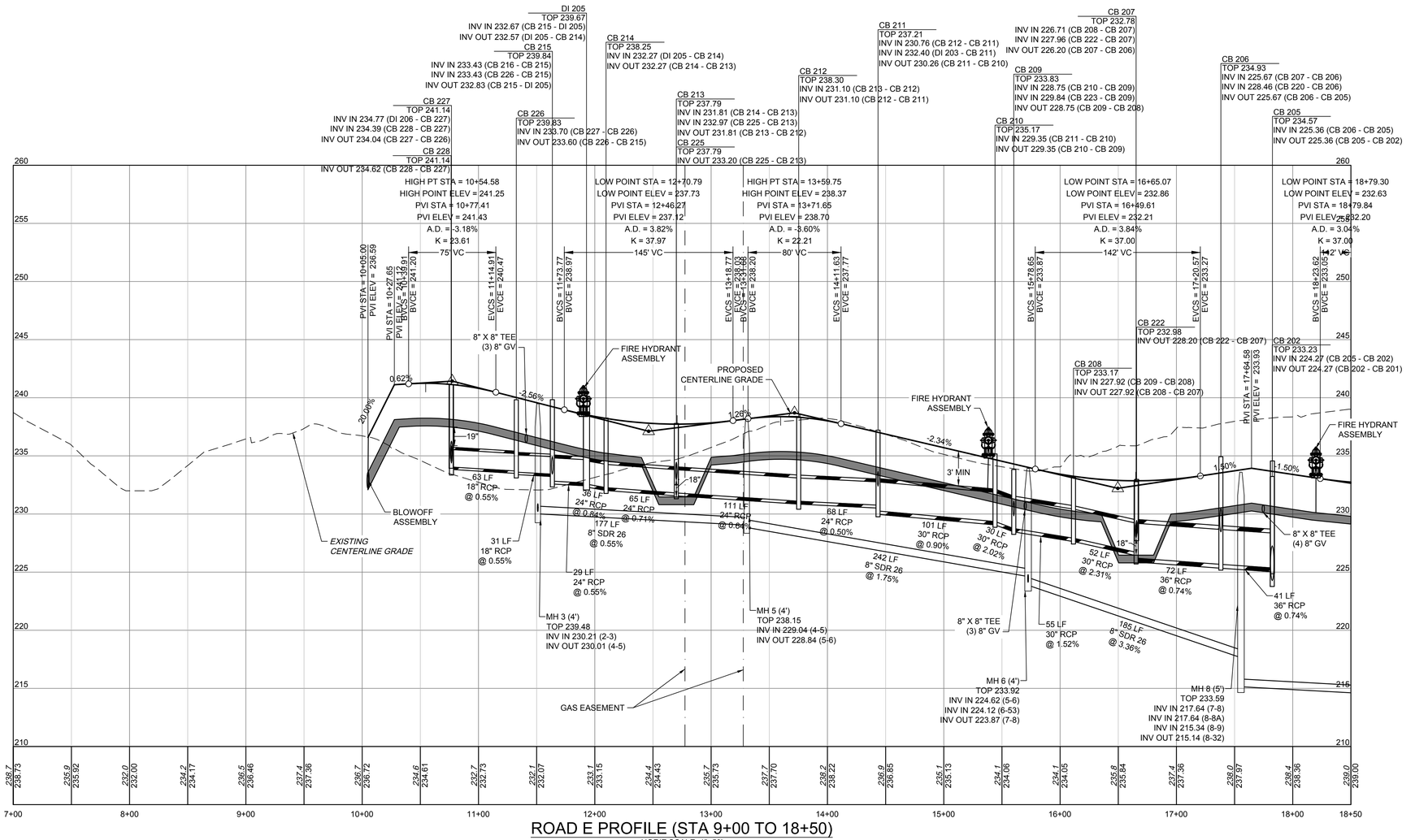
JOB NO. 51557
SHEET NO. C5.5

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ROAD E PLAN VIEW (STA 9+00 TO 18+50)

1" = 50'



ROAD E PROFILE (STA 9+00 TO 18+50)

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

UTILITY NOTES:

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

NAD 83

SCALE 1"=50'
0 50' 100'

5
0
0 50
PROFILE SCALE

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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REVISION DESCRIPTION	DATE

DATE 02/05/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T.CROSS
SCALE 1" = 50'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

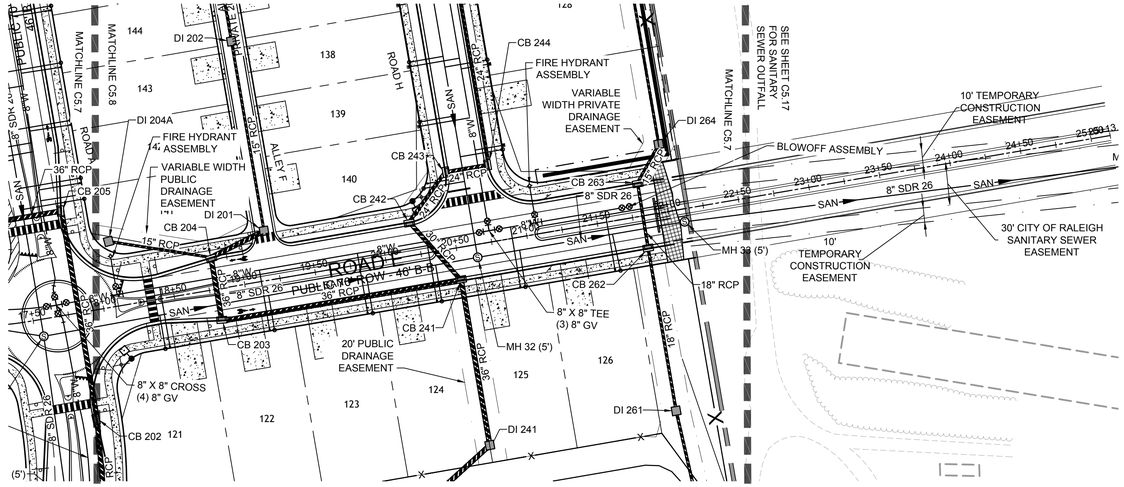
THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

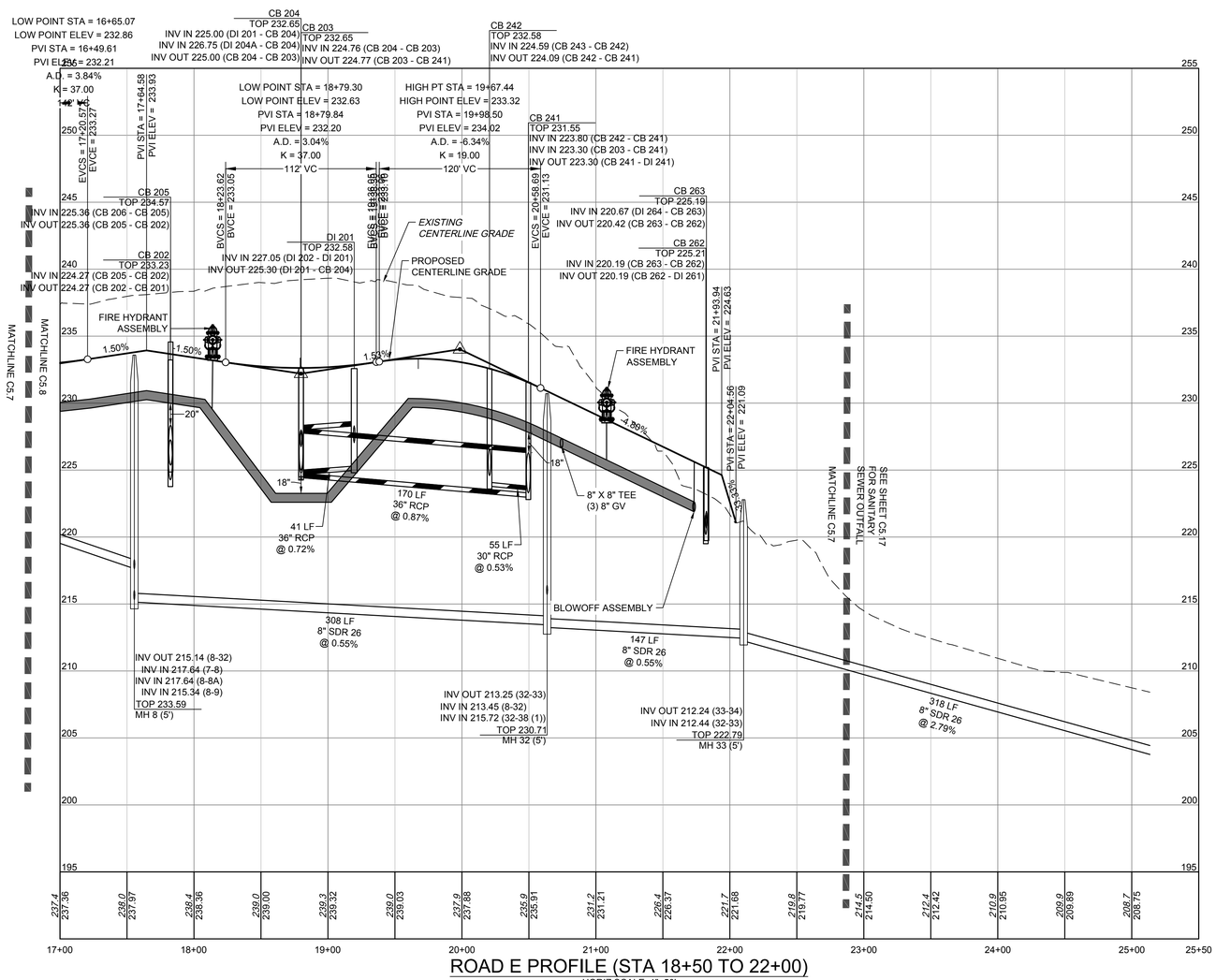
ROAD E PROFILE - SHEET 1 OF 2

JOB NO. 51557
SHEET NO. C5.6

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ROAD E PLAN VIEW (STA 17+00 TO 22+50) 1" = 50'



ROAD E PROFILE (STA 18+50 TO 22+00)

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

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2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

SCALE 1"=50'
0 50' 100'

5
0
0 50
PROFILE SCALE

NAD 83

UTILITY LEGEND

- SAN — PROPOSED SEWER LINE
- 8"W — PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- @ WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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REVISION DESCRIPTION

DATE

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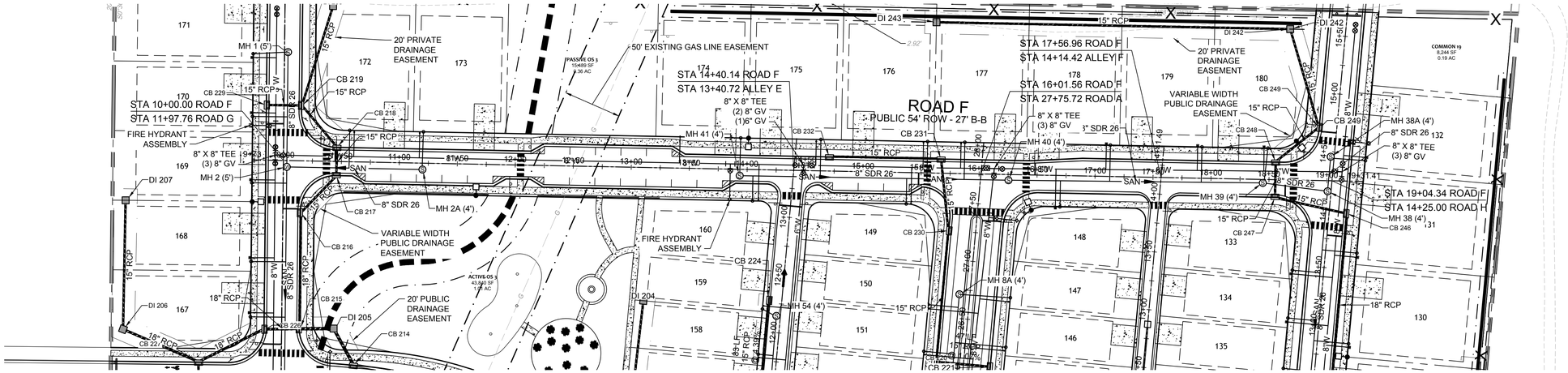
NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

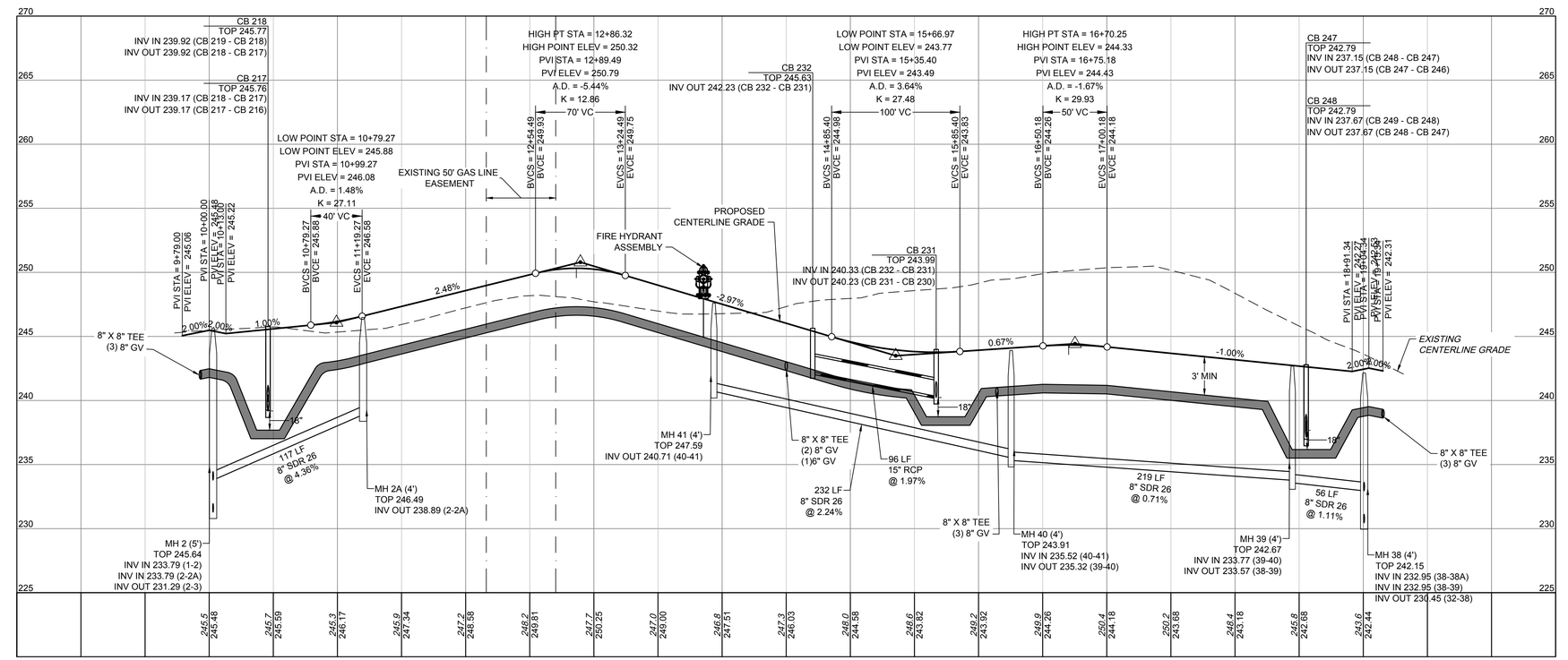
ROAD E PROFILE - SHEET 1 OF 2

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ROAD F PLAN VIEW (STA 8+50 TO 20+50)

1" = 50'



ROAD F PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

5
0
0
50
PROFILE SCALE

UTILITY NOTES:

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UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE
02/05/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T.CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

JOB NO.
51557

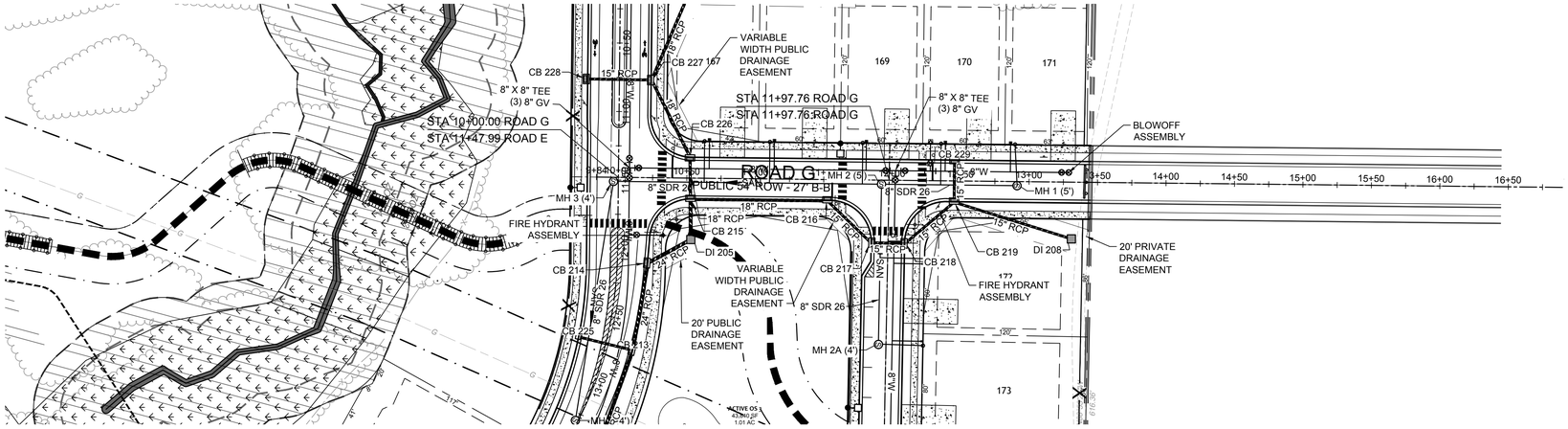
SHEET NO.
C5.8

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

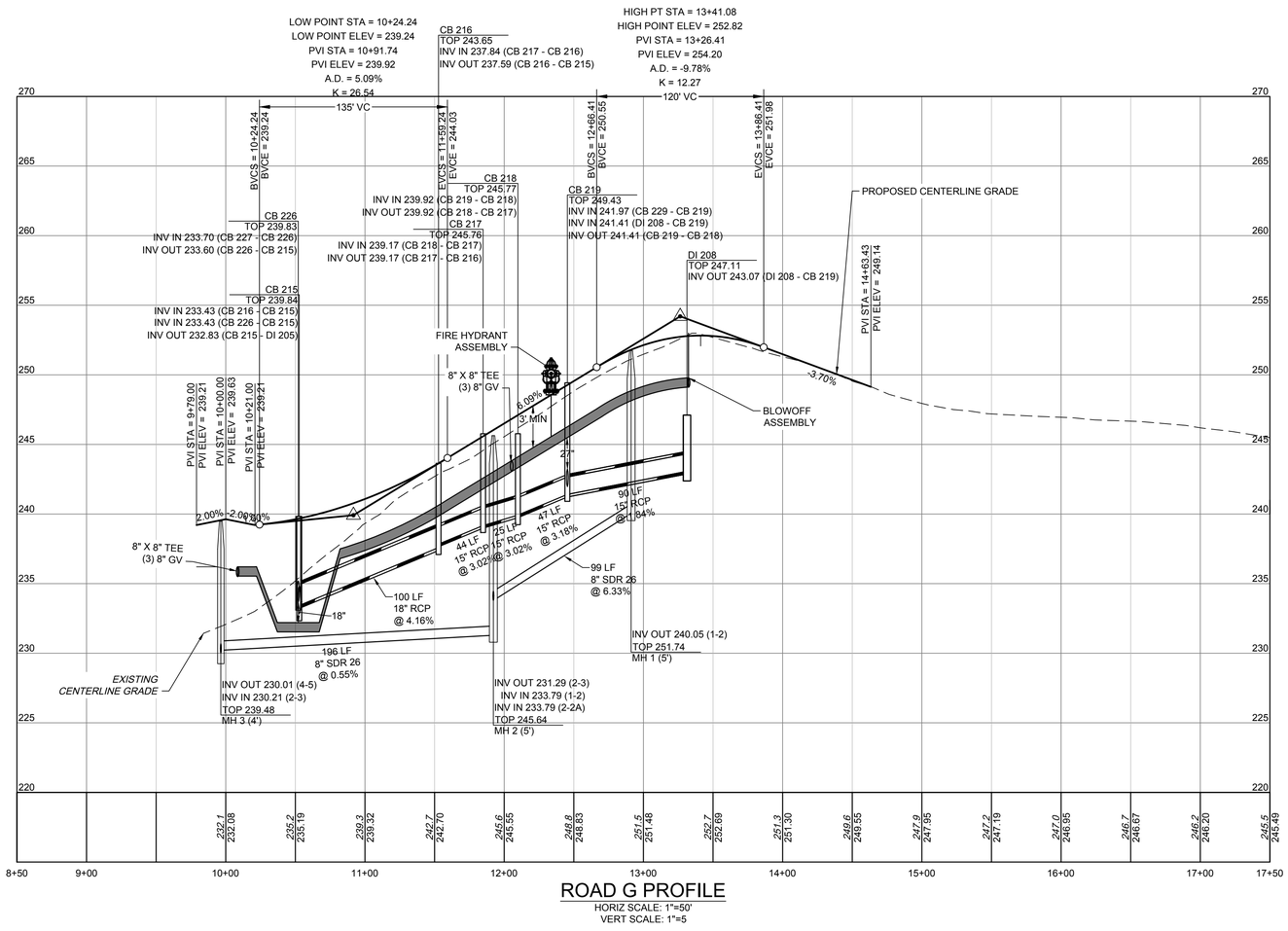
ROAD F PROFILE

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ROAD G PLAN VIEW (STA 8+50 TO 15+50)

1" = 50'



ROAD G PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

NAD 83

SCALE 1"=50'
0 50' 100'

5
0
0 50
PROFILE SCALE

UTILITY NOTES:

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ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

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TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE 02/05/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T.CROSS
SCALE H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

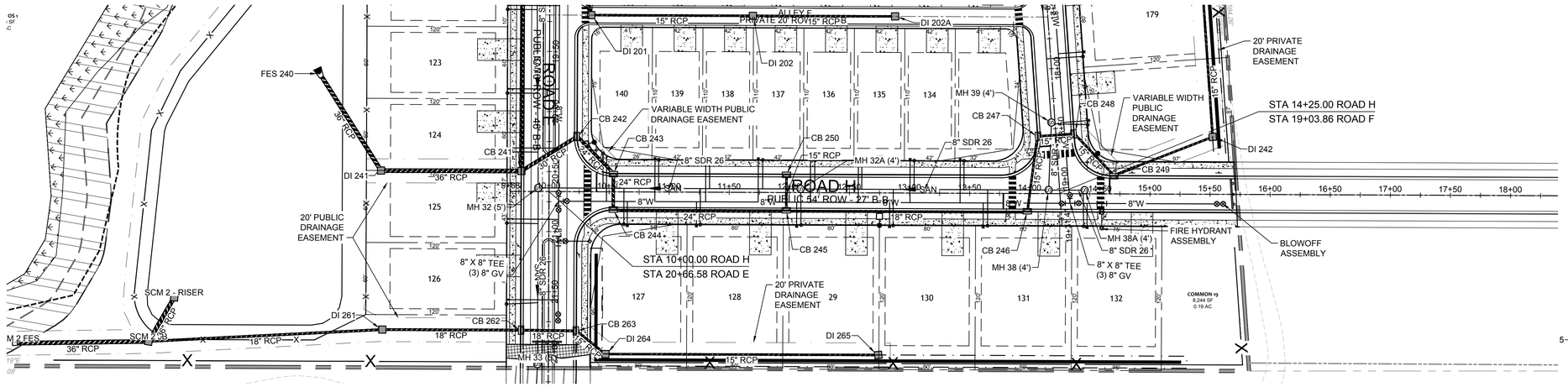
THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROAD G PROFILE

JOB NO. 51557
SHEET NO. C5.9

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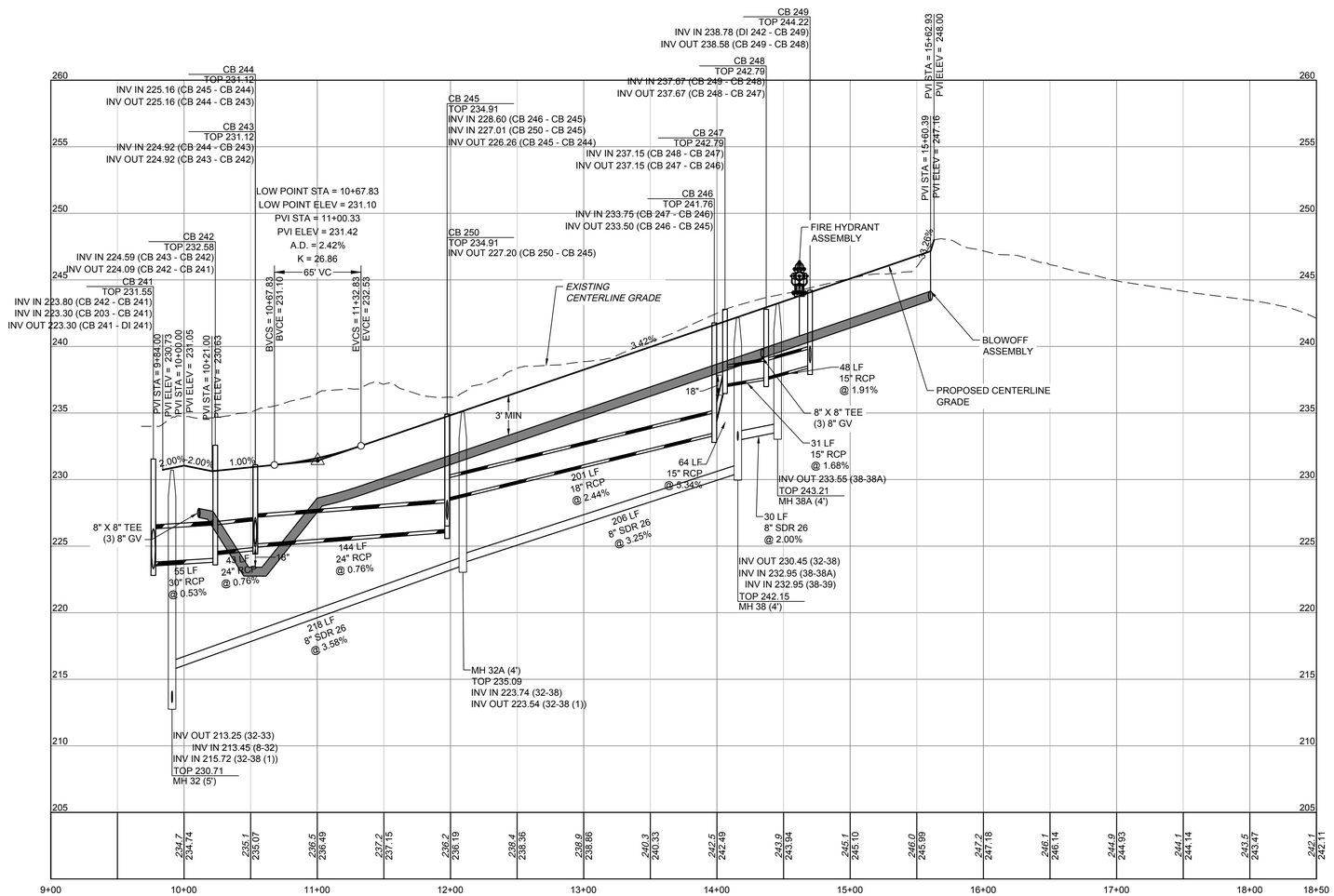
ROAD H PLAN VIEW (STA 9+00 TO 17+00)

1" = 50'

PROFILE SCALE 0 50 5 0

NAD 83

SCALE 1"=50' 0 50' 100'



ROAD H PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE: 02/05/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS

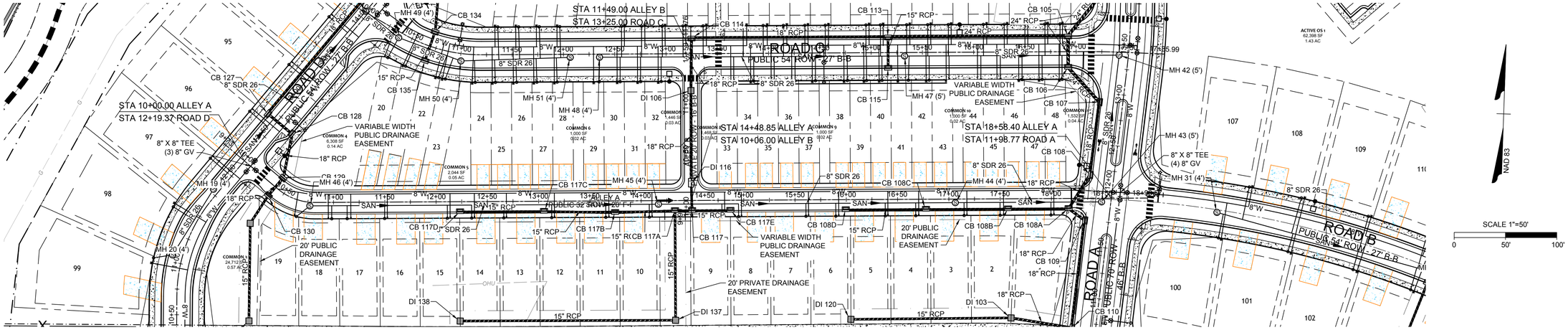
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ROAD H PROFILE

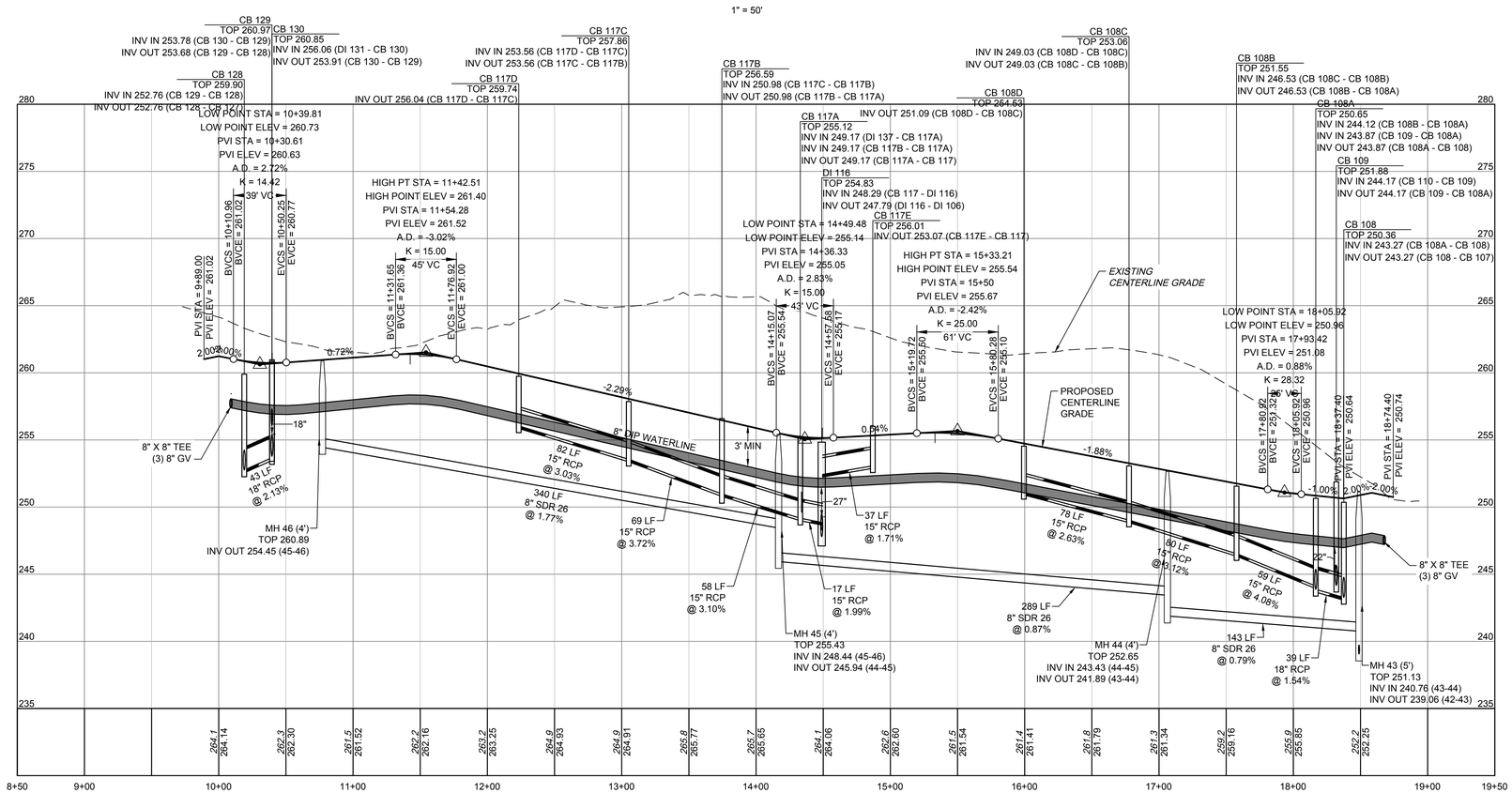
JOB NO. 51557

SHEET NO. C5.10

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ALLEY A PLAN VIEW (STA 8+00 TO 19+50)



ALLEY A PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

5
0
50
PROFILE SCALE

UTILITY LEGEND

- SAN — PROPOSED SEWER LINE
- 8"W — PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Public Utilities Department Permit # _____

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

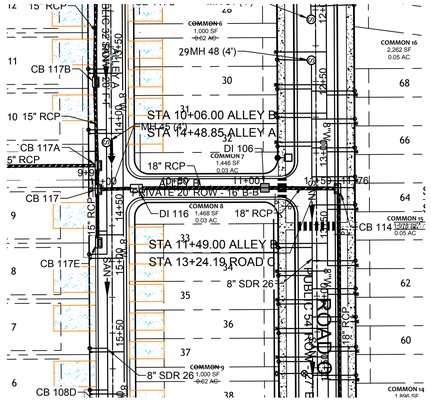
THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ALLEY A PROFILE

JOB NO. 51557
SHEET NO. C5.11

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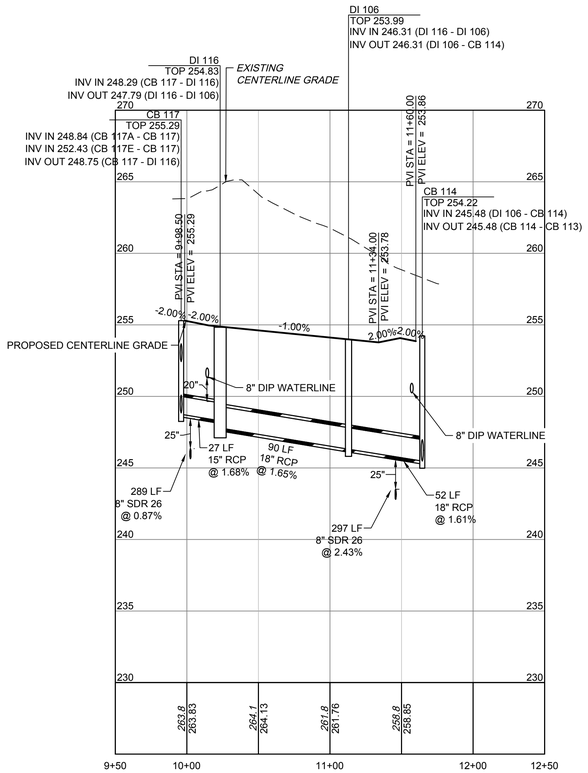
ALLEY B PLAN VIEW (STA 9+50 TO 12+50)

1" = 50'

NAD 83

SCALE 1"=50'

0 50' 100'



ALLEY B PROFILE

HORIZ SCALE: 1"=50'

VERT SCALE: 1"=5

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

5
0
0 50
PROFILE SCALE

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

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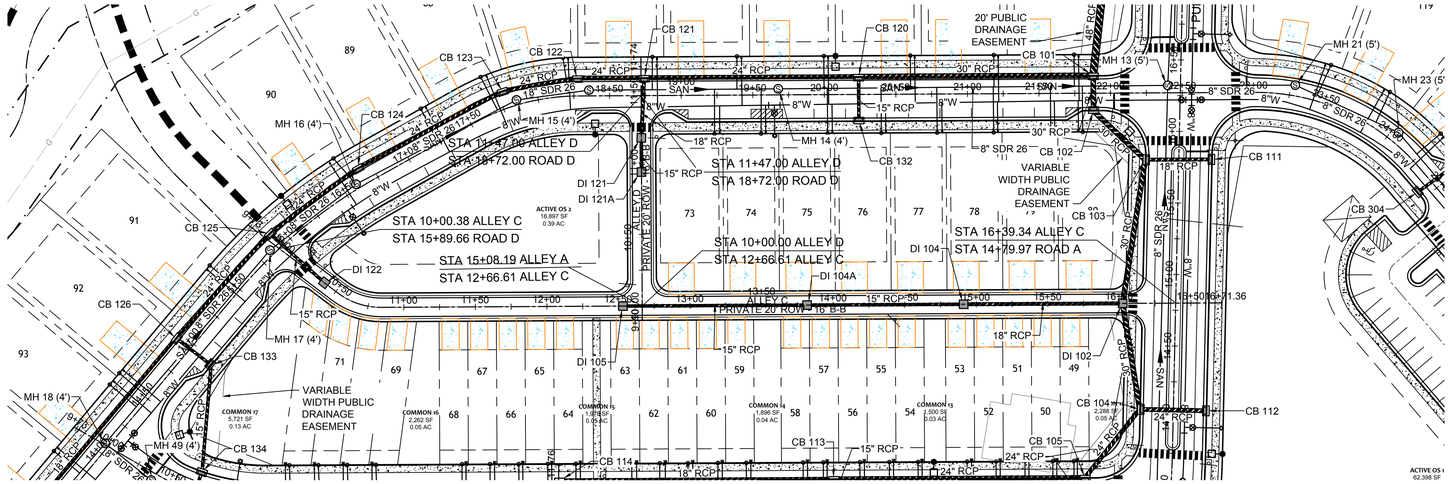
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ALLEY B PROFILE

JOB NO. 51557

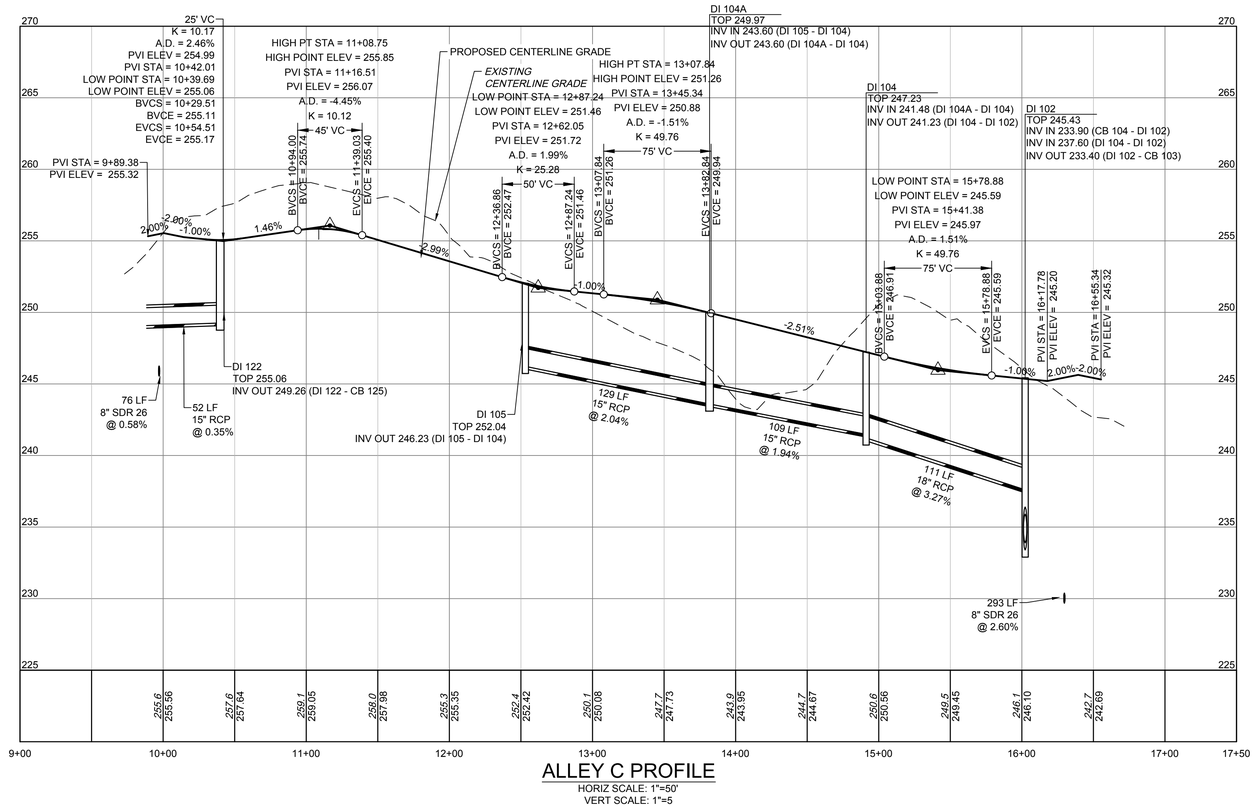
SHEET NO. C5.12

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ALLEY C PLAN VIEW (STA 9+00 TO 17+50)

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ALLEY C PROFILE

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

5
0
0 50
PROFILE SCALE

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
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TIMMONS GROUP

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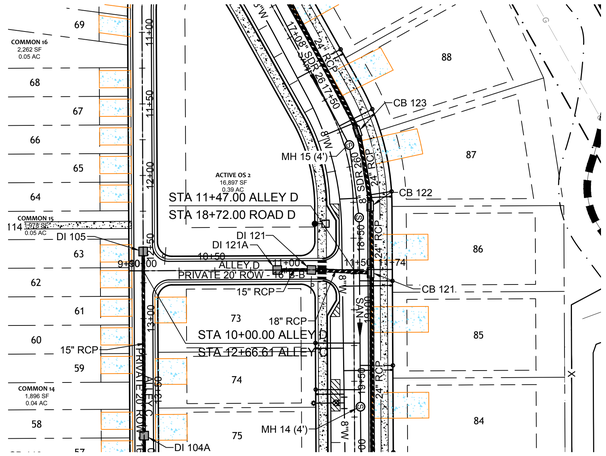
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ALLEY C PROFILE

JOB NO. 51557

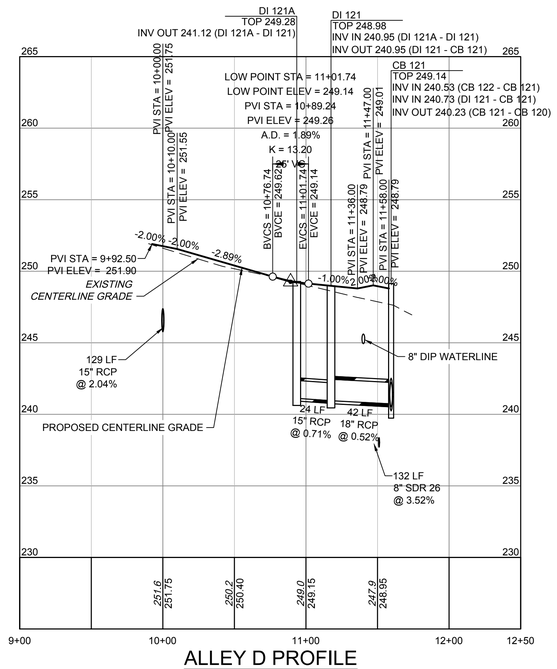
SHEET NO. C5.13

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ALLEY D PLAN VIEW (STA 9+00 TO 12+50)

1" = 50'



ALLEY D PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 10 FT.
   WATER AND STORM SEWER MAINS - 5 FT.
   SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
   GRAVITY SANITARY SEWER AND FORCE MAINS - 5 FT.
3. MINIMUM UTILITY VERTICAL SEPARATION DISTANCES:
   WATER AND SANITARY SEWER MAINS - 18 IN.
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   SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
4. CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

ALL SEWER SERVICES GREATER THAN 12' IN DEPTH TO USE DEEP SEWER SERVICE DETAIL

811 Know what's below. Call before you dig.

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

5
0
0 50
PROFILE SCALE

UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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City of Raleigh Public Utilities Department Permit # _____

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 02/05/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T.CROSS
SCALE H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

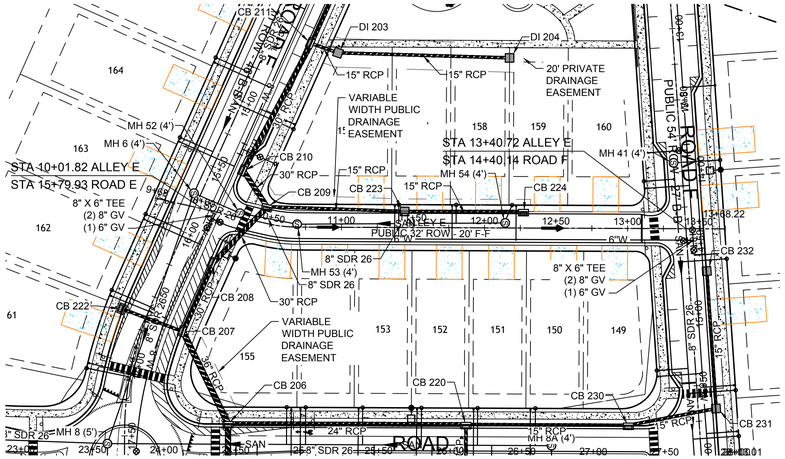
THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

ALLEY D PROFILE

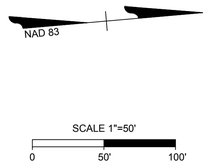
JOB NO. 51557
SHEET NO. C5.14

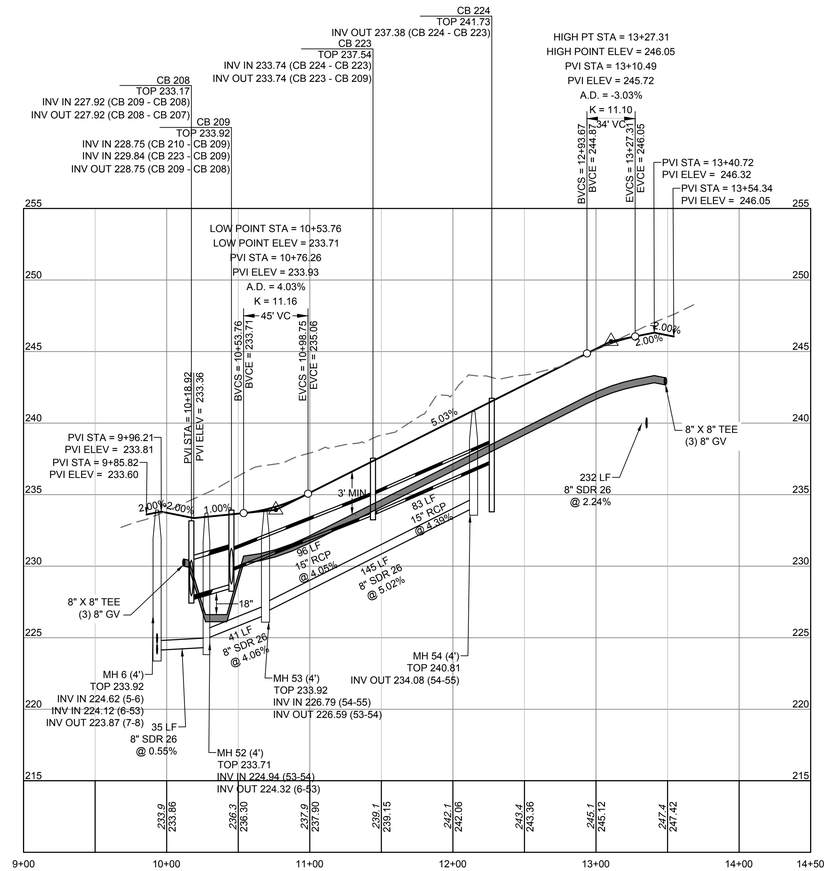
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ALLEY E PLAN VIEW (STA 9+00 TO 14+50)

1" = 50'





ALLEY E PROFILE

HORIZ SCALE: 1"=50'

VERT SCALE: 1"=5

UTILITY NOTES:

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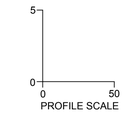
TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR



UTILITY LEGEND

SAN	PROPOSED SEWER LINE
8"W	PROPOSED WATER LINE
	WATER LINE TEE
	FIRE HYDRANT
@	WATER METER
	REDUCER
	GATE VALVE
	BLOWOFF ASSEMBLY

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City of Raleigh Public Utilities Department Permit # _____

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 02/05/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T.CROSS
SCALE: H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

THE HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

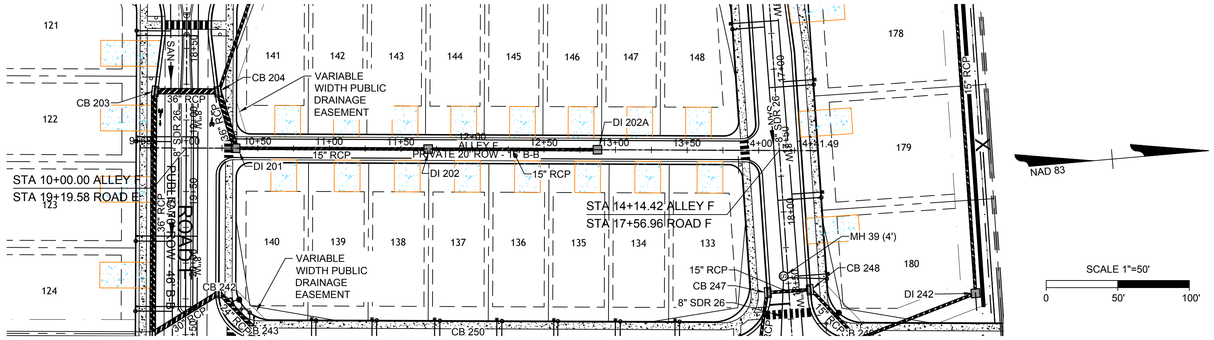
NORTH CAROLINA LICENSE NO. C-1652

ALLEY E PROFILE

JOB NO. 51557

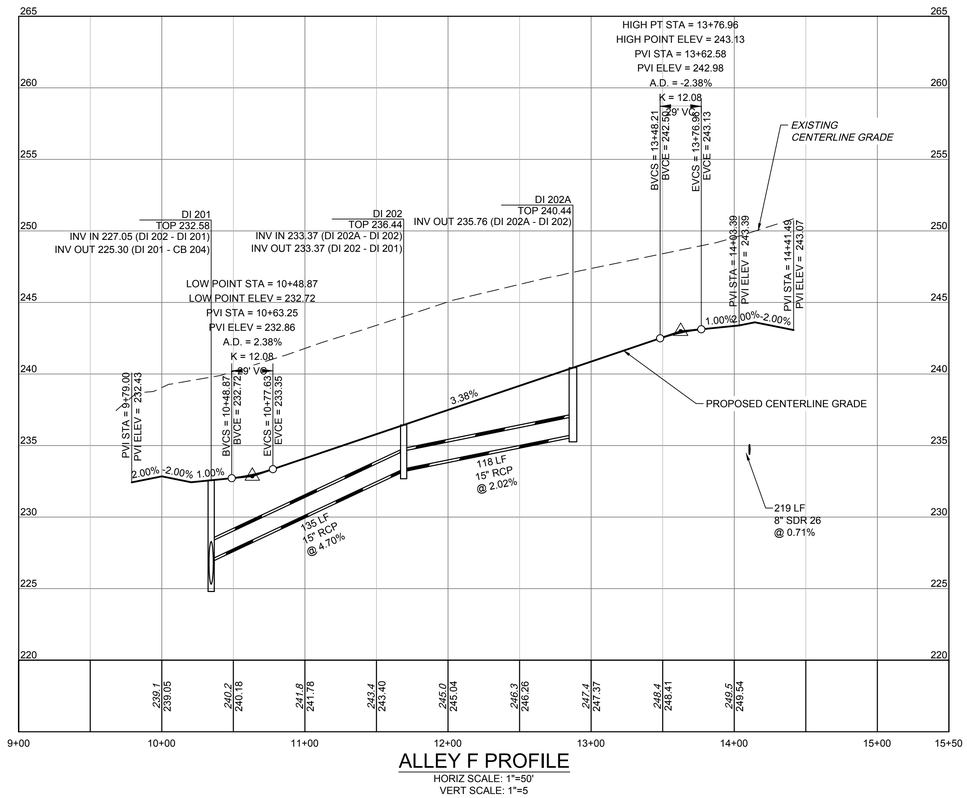
SHEET NO. C5.15

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ALLEY F PLAN VIEW (STA 9+00 TO 15+50)

1" = 50'



ALLEY F PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

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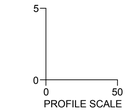
TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR



UTILITY LEGEND

- SAN — PROPOSED SEWER LINE
- 8"W — PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE
02/05/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T.CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS

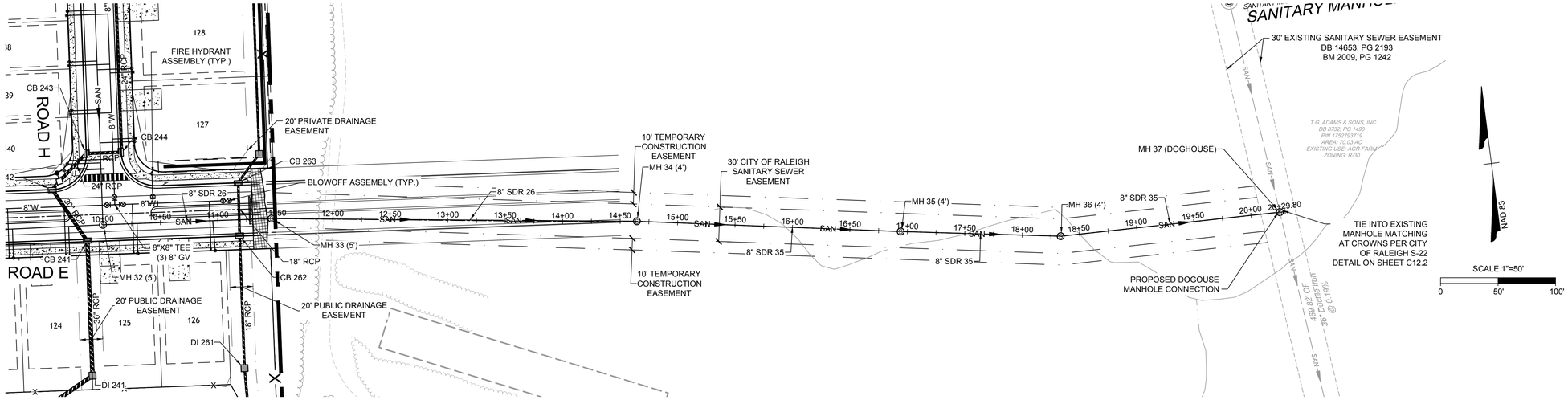
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

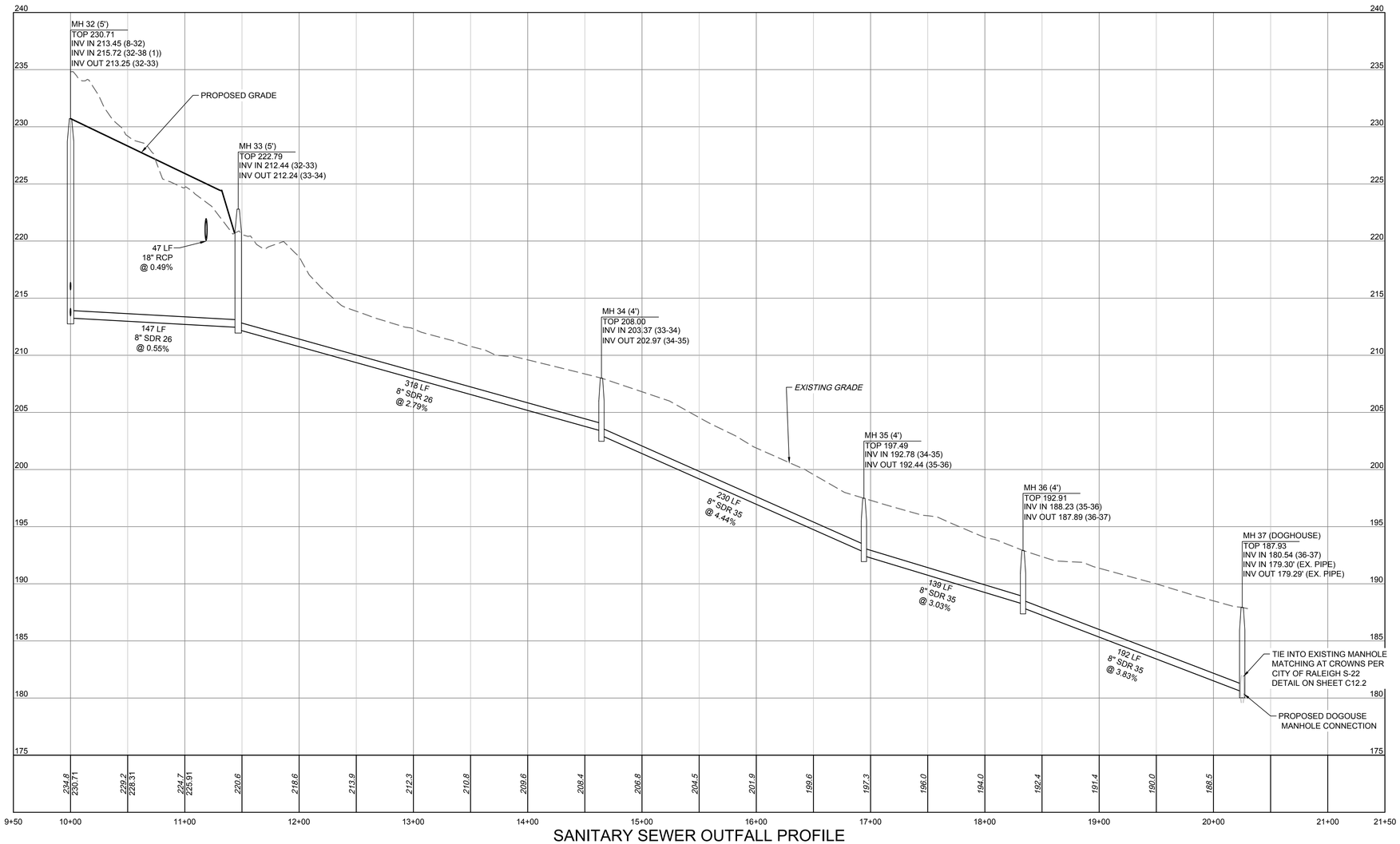
ALLEY F PROFILE

JOB NO.
51557

SHEET NO.
C5.16

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SANITARY SEWER OUTFALL PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

UTILITY NOTES:

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

NOTE: FILL SECTION AT ALL MANHOLES SHOWN ON PROFILE SHALL BE TESTED BY A GEOTECHNICAL FIRM AND TEST RESULTS PROVIDED TO WAKE COUNTY.

5
0
0 50
PROFILE SCALE

UTILITY LEGEND

- SAN→ PROPOSED SEWER LINE
- 8"W PROPOSED WATER LINE
- WATER LINE TEE
- FIRE HYDRANT
- WATER METER
- REDUCER
- GATE VALVE
- BLOWOFF ASSEMBLY

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DATE
02/05/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T.CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

THE HAVEN AT GRIFFITH MEADOWS

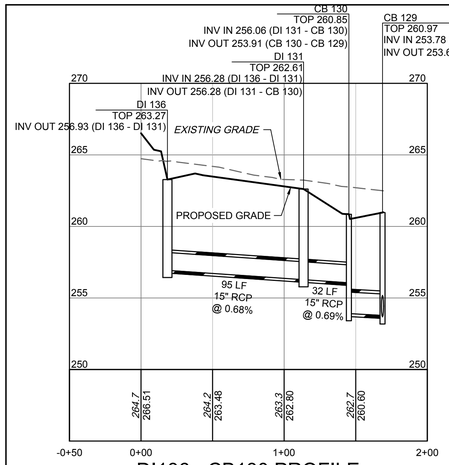
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

SEWER OUTFALL PLAN & PROFILE

JOB NO.
51557

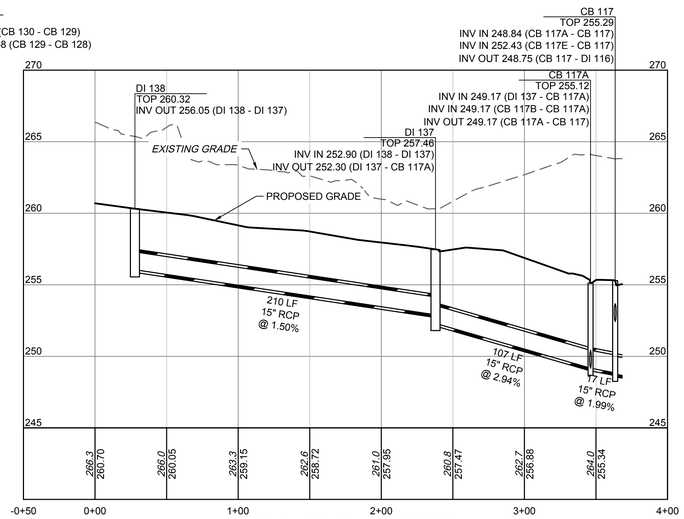
SHEET NO.
C5.17

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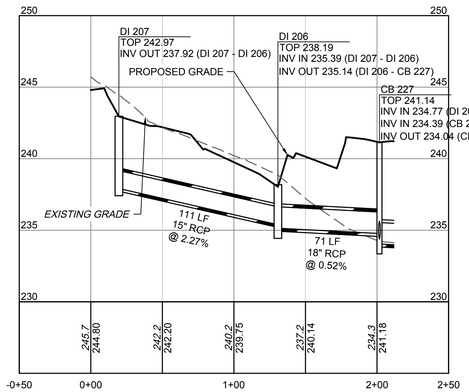
DI136 - CB130 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



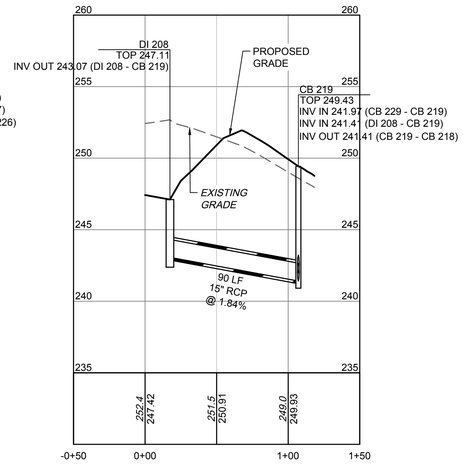
DI138 - CB117 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



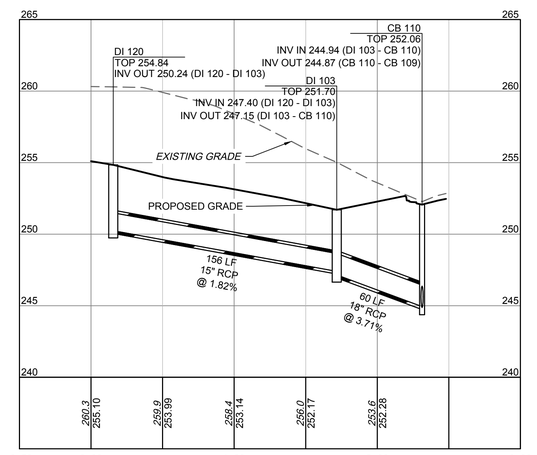
DI207 - CB227 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



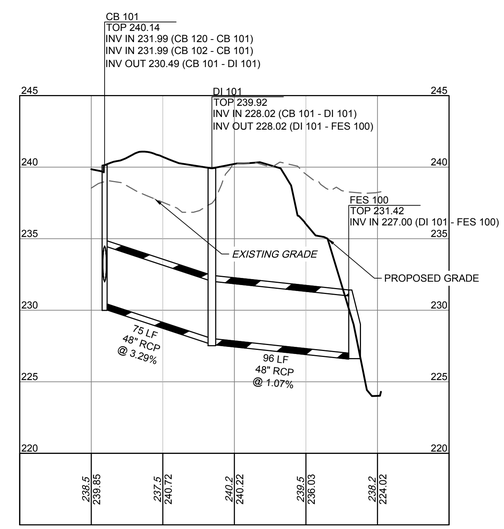
DI208 - CB219 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



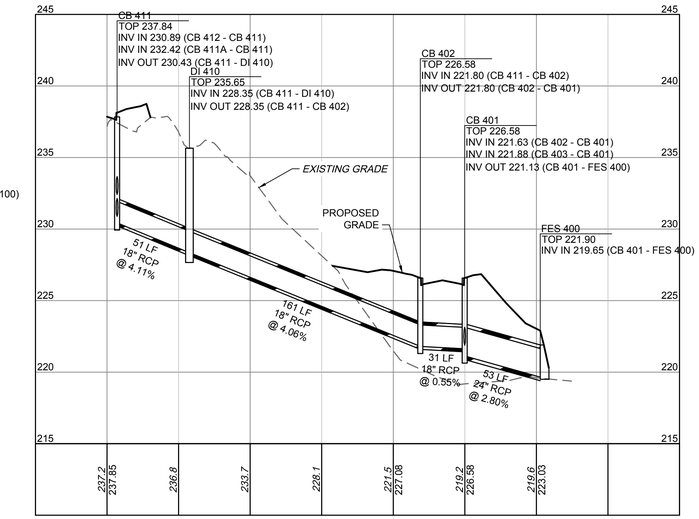
DI120 - CB110 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



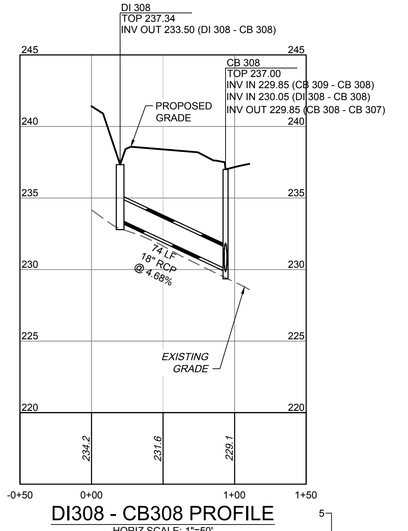
CB101 - FES100 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



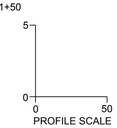
CB411 - FES400 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



DI308 - CB308 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



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LAND USE ADMINISTRATOR

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

JOB NO.
51557

SHEET NO.
C6.1

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

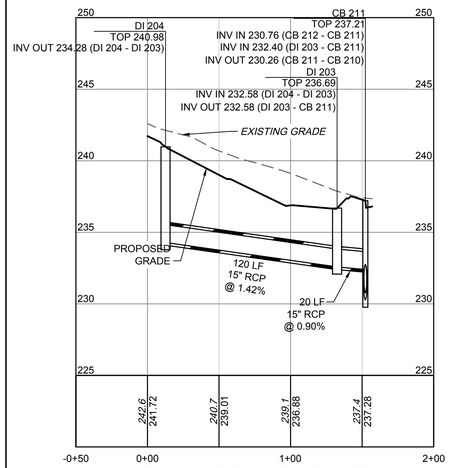
HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

STORM OUTFALL PROFILES

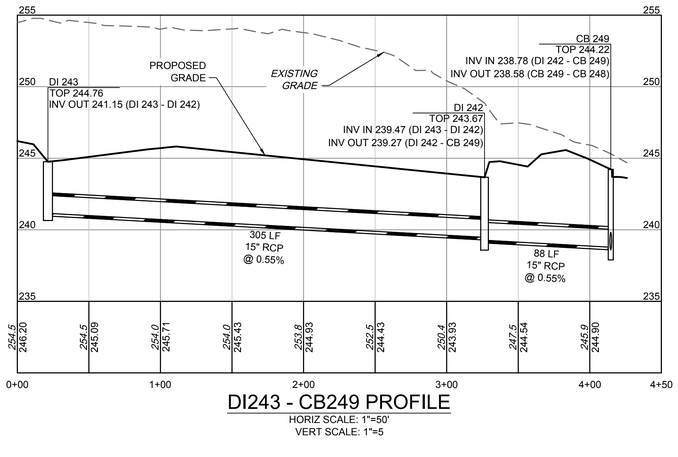
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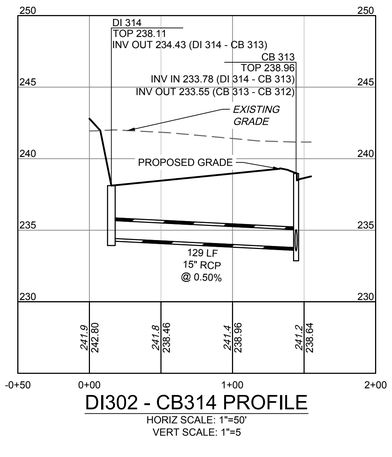
DI204 - CB211 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



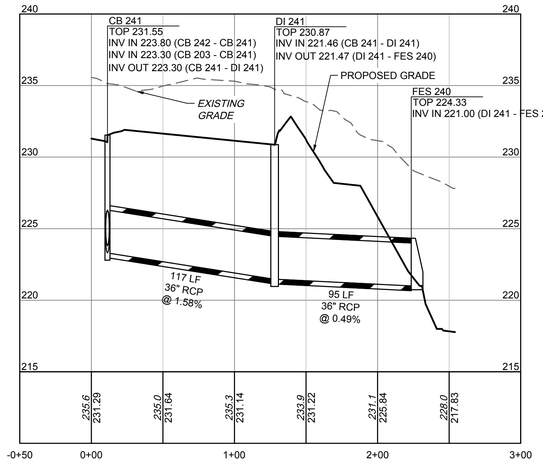
DI243 - CB249 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



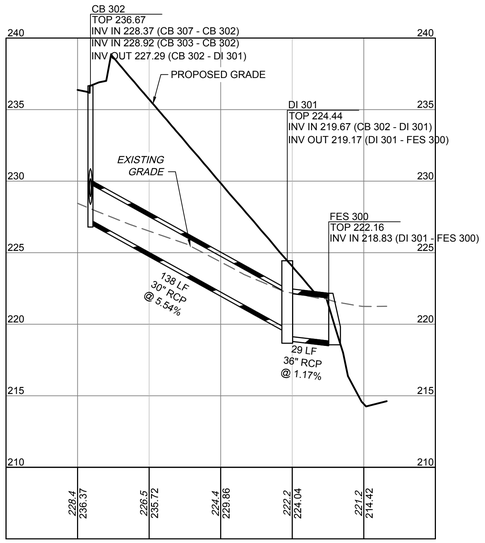
DI302 - CB314 PROFILE

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VERT SCALE: 1"=5



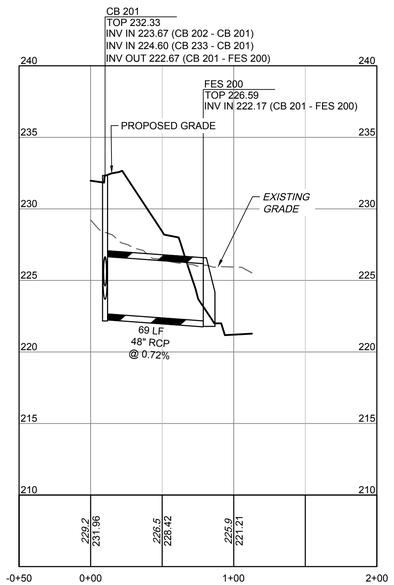
CB241 - FES240 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



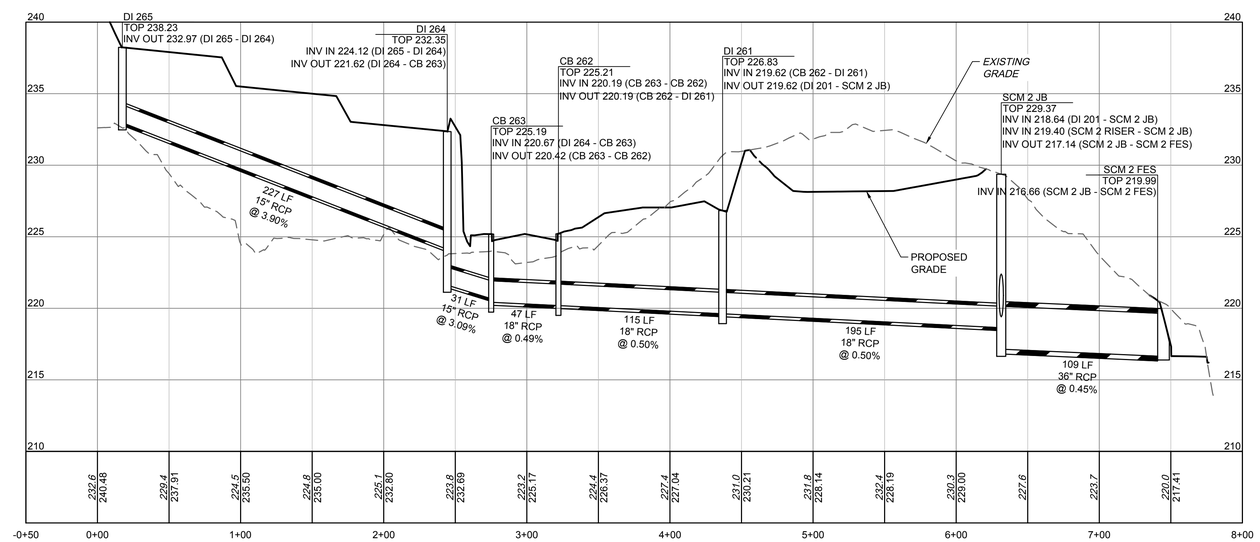
CB301 - FES300 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



CB201 - FES220 PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



DI265 - SCM2FES PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

5
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PROFILE SCALE

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

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Raleigh Water Review Officer

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REVISION DESCRIPTION

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DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
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PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

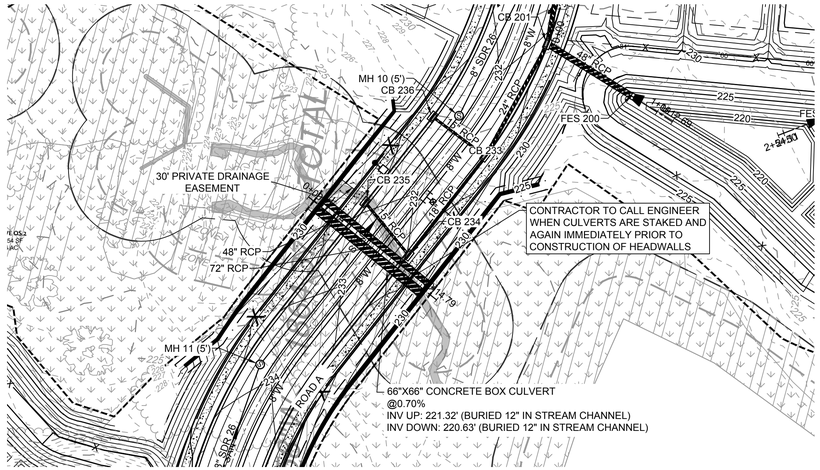
STORM OUTFALL PROFILES

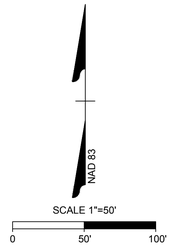
JOB NO.
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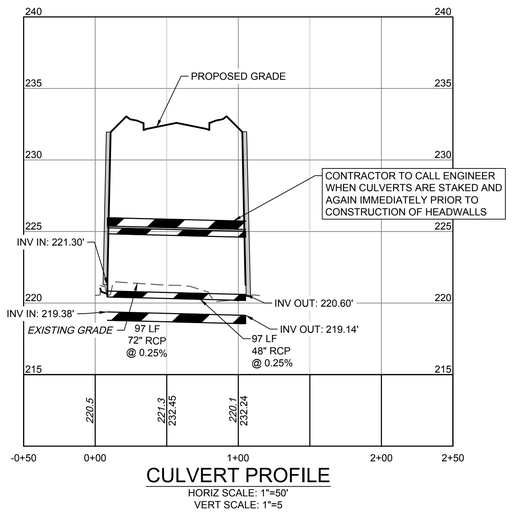
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.

811 Know what's **below.** **Call** before you dig.

LEGEND

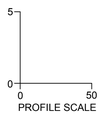
- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- PHASE LINE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- TREE PROTECTION FENCE
- 100-YR FLOODPLAIN
- WETLANDS
- NUESE RIPARIAN BUFFER
- LANDSCAPE BUFFER

NOTE:
RETAINING WALL AND ASSOCIATED DRAINAGE TO BE DESIGNED BY OTHERS. CONTRACTOR SHALL COORDINATE DESIGN AND SUBMIT SEALED PLAN FOR REVIEW AND APPROVAL BY THE TOWN INSPECTIONS DEPARTMENT.



CULVERT PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5



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TIMMONS GROUP

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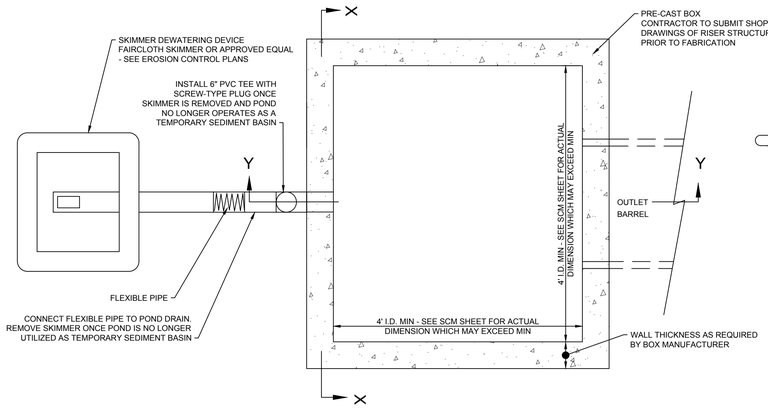
CULVERT PLAN & PROFILE

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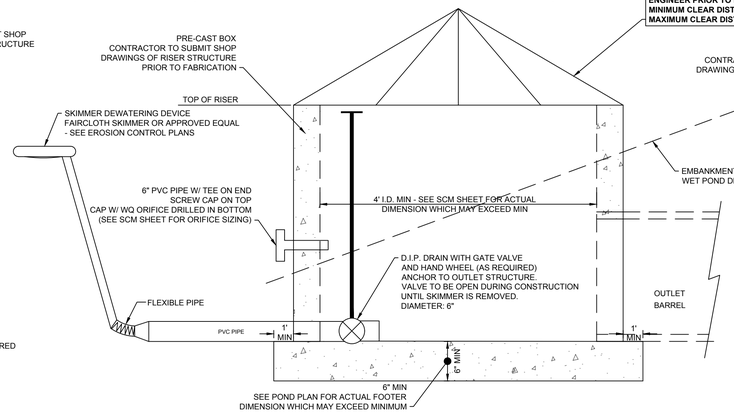
PERMANENT OUTLET "RISER" STRUCTURE NOTES & DETAILS

NOT TO SCALE



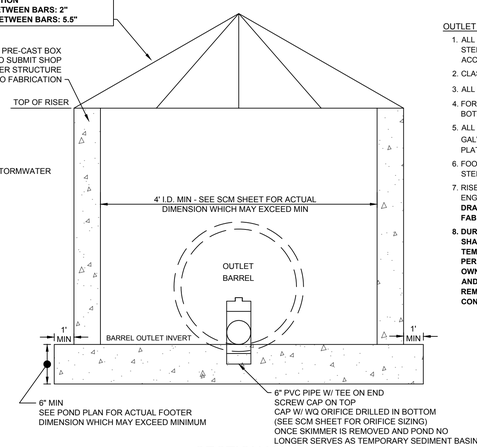
PLAN VIEW

NOT TO SCALE



SECTION Y-Y

NOT TO SCALE



SECTION X-X

NOT TO SCALE

OUTLET STRUCTURE / RISER NOTES:

1. ALL STRUCTURES OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON-CENTERS VERTICALLY. STEPS SHALL BE IN ACCORDANCE WITH NCDOT RSD 840.66 OR APPROVED EQUAL.
2. CLASS "B" CONCRETE TO BE USED THROUGHOUT.
3. ALL MORTAR JOINTS (IF APPLICABLE) ARE ¾" +/- ¼".
4. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
5. ALL RISER JOINTS SHALL BE WATER-TIGHT AND HAVE (4) GALVANIZED STEEL PLATES 10"x10"x¼" TH WITH (4) ¾" BOLTS PER PLATE.
6. FOOTER SHALL BE SECURED TO RISER WITH STRUCTURAL STEEL.
7. RISER SHALL BE ENGINEERED BY PRECASTER'S STRUCTURAL ENGINEER TO RESIST BUOYANCY FORCES. **SUBMIT SHOP DRAWINGS OF RISER STRUCTURE TO ENGINEER PRIOR TO FABRICATION.**
8. **DURING EROSION CONTROL STAGES, ALL RISER ORIFICES SHALL BE TEMPORARILY PLUGGED, EXCEPT FOR THE TEMPORARY SKIMMER. AT TIME OF SKIMMER REMOVAL, WITH PERMISSION FROM EROSION CONTROL PERMITTING AGENCY, OWNER, AND ENGINEER, THE DRAIN VALVE SHALL BE CLOSED AND ALL RISER ORIFICES SHALL BE UNPLUGGED. SEE BASIN REMOVAL/CONVERSION SEQUENCE ON APPROVED EROSION CONTROL PLANS.**

GENERAL NOTES:

1. MINIMUM DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LIFT OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. ALL COMPACTION IS DETERMINED PER AASHTO METHOD T-99 (STANDARD PROCTOR).
2. DAM EMBANKMENT IS TO BE SEEDED IMMEDIATELY AFTER DAM CONSTRUCTION IS COMPLETE.
3. **STORMWATER MANAGEMENT STRUCTURE IS TO BE UTILIZED AS A TEMPORARY EROSION CONTROL DEVICE INITIALLY. ONCE CONSTRUCTION IS COMPLETED, UPSTREAM SURFACES HAVE BEEN PERMANENTLY STABILIZED, AND APPROVAL HAS BEEN ISSUED BY EROSION CONTROL AUTHORITY, OWNER, AND ENGINEER, CONTRACTOR IS TO REMOVE ALL SEDIMENT FROM BASIN AND CONVERT TO PERMANENT WATER QUALITY STRUCTURE. THIS INCLUDES INSTALLING THE PROPOSED PLANTINGS ALONG THE LITTORAL SHELF, IF APPLICABLE.**
4. **DO NOT REMOVE ANY EROSION AND SEDIMENT CONTROL MEASURES UNTIL ALL CONTRIBUTING AREAS HAVE BEEN PERMANENTLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM THE EROSION CONTROL AUTHORITY, OWNER, AND ENGINEER.**

DAM EMBANKMENT CONSTRUCTION NOTES:

1. CONSTRUCTION OF THIS DAM SHALL BE DONE UNDER THE OBSERVATION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA, CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT SHALL BE PLACED IN 6-INCH LOOSE LAYERS (3-INCH LOOSE LAYERS WITHIN 3-FEET OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2-FEET OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
2. ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
3. FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
4. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
5. SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
7. TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING AND ROCK FOUNDATION PREPARATION (I.E., TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER.
8. FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
9. EARTHWORK COMPACTION WITHIN 3-FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF-PROPELLED ROLLERS.
10. COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
11. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES (INCLUDING THE CRADLE) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
12. TO RE-ESTABLISH VEGETATION AFTER CONSTRUCTION, A 2- TO 3-INCH LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED.
13. THE EMBANKMENT MATERIAL SHALL BE COMPRISED OF CLAYEY SAND OR SANDY CLAY WITH A MINIMUM OF 30% PASSING THE #200 SIEVE, A LIQUID LIMIT OF AT LEAST 25 AND A PLASTICITY INDEX OF AT LEAST 10%, AND LESS THAN 5% ORGANICS. THIS MATERIAL SHALL ALSO HAVE A UNIFIED SOIL CLASSIFICATION OF SC OR CL.

INSTALLATION AND MAINTENANCE OF LANDSCAPING:

1. ALL LANDSCAPING SHALL BE OF NURSERY-STOCK QUALITY AND SHALL BE INSTALLED IN A SOUND, WORKMANLIKE MANNER AND ACCORDING TO ACCEPTED GOOD PLANTING PROCEDURES. ALL LANDSCAPING SHALL BE ADAPTABLE TO CLIMATIC CONDITIONS OF THE AREA, AND CONSIDERATION SHALL BE GIVEN TO NOT PLANTING LARGE TREES NEAR UTILITIES. ALL LANDSCAPING SHALL BE MAINTAINED IN GOOD CONDITION.
2. ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET BY THE U.S.D.A. STANDARD FOR NURSERY STOCK SPONSORED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
3. ALL LANDSCAPING SHALL AT ALL TIMES SHALL PRESENT A HEALTHY, NEAT, CLEAN, ORDERLY, DISEASE-FREE AND PEST-FREE APPEARANCE.
4. ALL LANDSCAPING SOIL AND FILL SHALL BE FREE FROM WEEDS, REFUSE, AND DEBRIS AT ALL TIMES.
5. ANY DEAD PLANT MATERIAL OR MATERIAL THAT FAILS TO SHOW HEALTHY GROWTH MUST BE REMOVED WITHIN 30 DAYS.
6. REPLACEMENT OF REMOVED PLANT MATERIAL MUST TAKE PLACE WITHIN 90 DAYS OF REMOVAL OR NOTIFICATION BY THE CITY, WHICHEVER OCCURS FIRST.
7. ANY REPLACEMENT PLANT MATERIAL MUST MEET THE SIZE AND OTHER CHARACTERISTICS OF NEWLY PLANTED MATERIAL.
8. MAINTENANCE OF THE LANDSCAPING IS THE RESPONSIBILITY OF THE OWNER.

STORMWATER WET POND NOTES & DETAILS

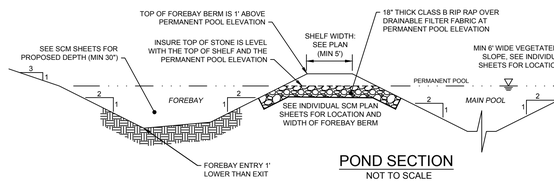
NOT TO SCALE

STORMWATER WET POND NOTES:

1. EMBANKMENT SHALL BE CONSTRUCTED OF CLEAN STRUCTURAL SOIL, FREE OF ROOTS, VEGETATION, ROCKS & OTHER OBJECTIONABLE MATERIAL. SCARIFY SURFACES BEFORE PLACING FILL. PLACE FILL IN 6-8 INCH LOOSE LIFTS. COMPACTS TO AT LEAST 95% OF THE STANDARD PROCTOR DENSITY. SEE DAM EMBANKMENT CONSTRUCTION NOTES - THIS SHEET.
2. CONTRACTOR TO SUPPLY SHOP DRAWINGS OF RISER STRUCTURES PRIOR TO FABRICATION.
3. ALL RISERS SHALL BE PRECAST CONCRETE SOLID 6" MIN WALL STRUCTURES.
4. 4-6 INCH LAYER OF AMENDED SOIL IS RECOMMENDED IN ANY AREA WHERE PLANTINGS ARE REQUIRED (SEE NCDENR BMP DESIGN MANUAL).

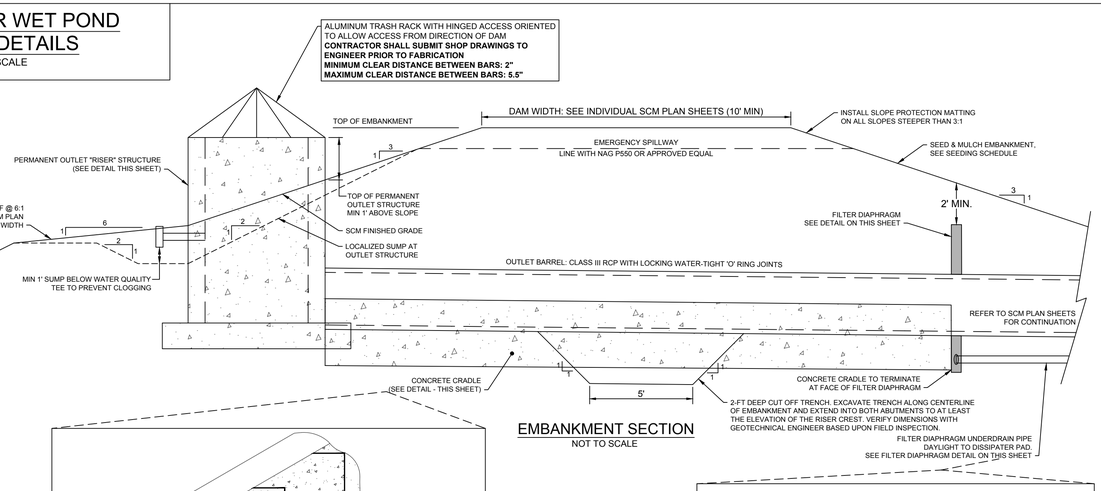
GEOTECHNICAL CERTIFICATION NOTE:

ASBUILT CERTIFICATION OF THE EMBANKMENT COMPACTION, ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM, CUT OFF TRENCH, ETC. WILL BE REQUIRED PRIOR TO CERTIFICATE OF OCCUPANCY



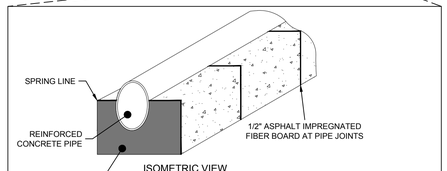
POND SECTION

NOT TO SCALE

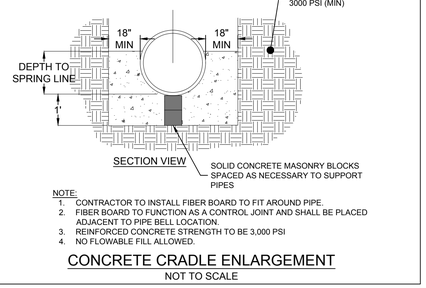


EMBANKMENT SECTION

NOT TO SCALE



ISOMETRIC VIEW



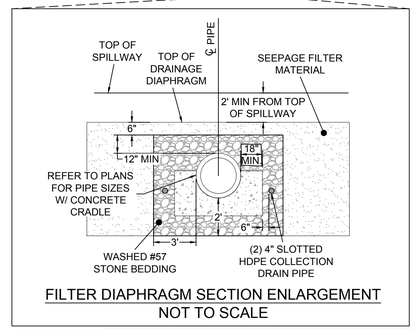
SECTION VIEW

NOTE:

1. CONTRACTOR TO INSTALL FIBER BOARD TO FIT AROUND PIPE.
2. FIBER BOARD TO FUNCTION AS A CONTROL JOINT AND SHALL BE PLACED ADJACENT TO PIPE BELL LOCATION.
3. REINFORCED CONCRETE STRENGTH TO BE 3,000 PSI
4. NO FLOWABLE FILL ALLOWED.

CONCRETE CRADLE ENLARGEMENT

NOT TO SCALE

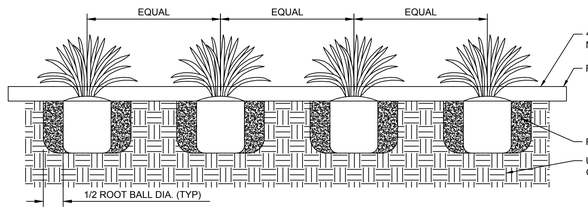


FILTER DIAPHRAGM SECTION ENLARGEMENT

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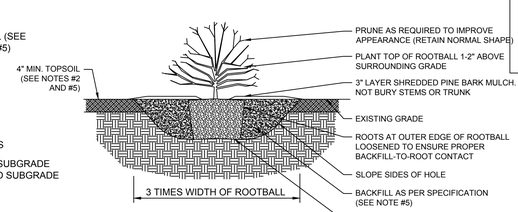
WET POND PLANTINGS NOTES & DETAILS

NOT TO SCALE



HERBACEOUS PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

811 Know what's below. Call before you dig.

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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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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 # _____

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REVISION DESCRIPTION	DATE

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE NTS

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
SCM NOTES AND DETAILS

JOB NO. 51557
SHEET NO. C7.0

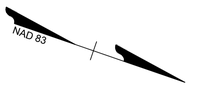
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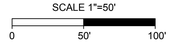
\\timmons.com\gis\300\53151657-poole_rd_martin\DWG\Sheet\C2\51657-33 I-C7.0-POND.dwg | Plotted on 8/12/2025 8:11 AM | by Chris Parrish



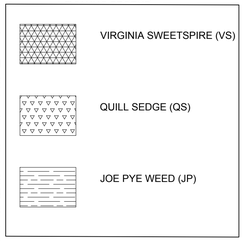
SCM 1 WET POND PLAN VIEW

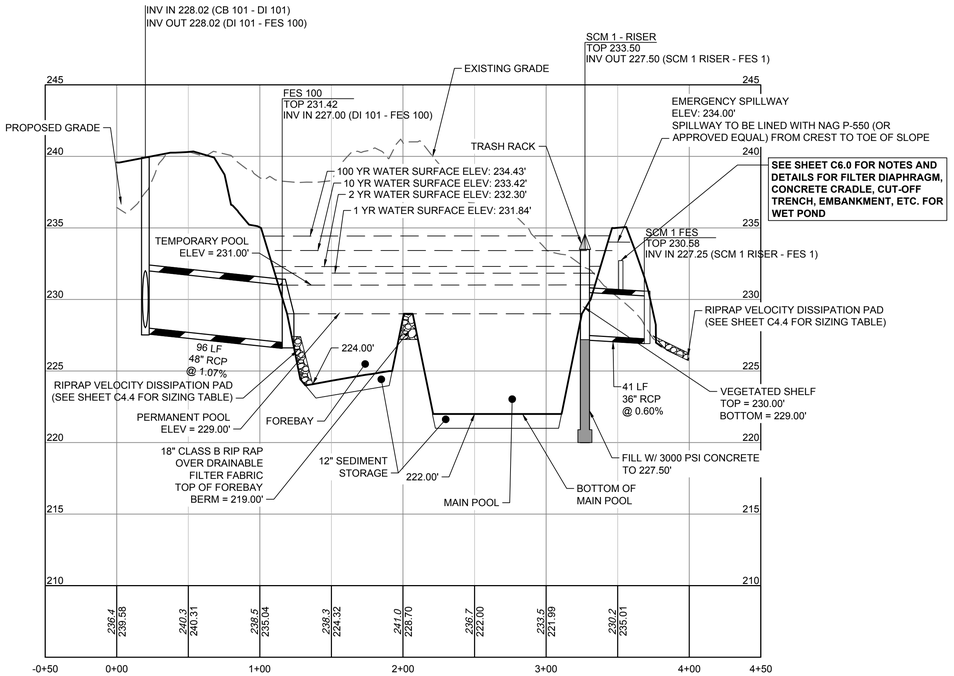
SCALE: 1" = 50'





PLANTING LEGEND

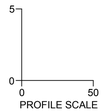




SCM 1 WET POND PROFILE

HORIZ SCALE: 1"=50'

VERT SCALE: 1"=5



Know what's **below.** **Call** before you dig.

SCM INSPECTIONS SEQUENCE - SCM INSTALLATION

WHEN SCHEDULING INSPECTIONS, PLEASE CALL THE PUBLIC WORKS ADMINISTRATION 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
- KEY TRENCH EXCAVATION
- PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
  -- CONCRETE CRADLE
  -- ANTI-SEEP COLLAR
  -- SEEPAGE DIAPHRAGM
  -- OUTLET STRUCTURE
  -- ANTI-FLOTATION BALLAST
  -- 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:
- SUBGRADE OR CONSTRUCTED FOUNDATION
- OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
- FILTER MEDIA
- DATE 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:
- DAM EMBANKMENT MATERIAL COMPOSITION AND DENSITY TESTING WITH A PASSING COMPACTION OF 95% OR GREATER
- MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
- DIGITAL PHOTOS SHOWING THE DAM AREAS, THE RISER, THE PRINCIPLE SPILLWAY PIPE THE CONCRETE CRADLE, THE SEEPAGE DIAPHRAGM RELIEF, DRAINS, ETC., BEING INSTALLED.

SCM INSPECTION NOTE:

THE TOWN OF KNIGHTDALE REQUIRES THAT ALL INFRASTRUCTURE INSTILLATION BE OBSERVED BY SOMEONE OPERATING UNDER THE DESIGN ENGINEERS AUTHORITY, A LICENSED GEOTECH, AND A REPRESENTATIVE FROM THE TOWN OF KNIGHTDALE. REFERENCE THE DETAILED SCM INSPECTIONS SEQUENCE.

WHEN PREPARING FOR THESE INSTALLATIONS, SCHEDULE AN INSPECTION BY CALLING THE PUBLIC WORKS OFFICE AT (919) 217-2250.

SCM SEQUENCE - PLANTING NOTES:

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.

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.

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.

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.

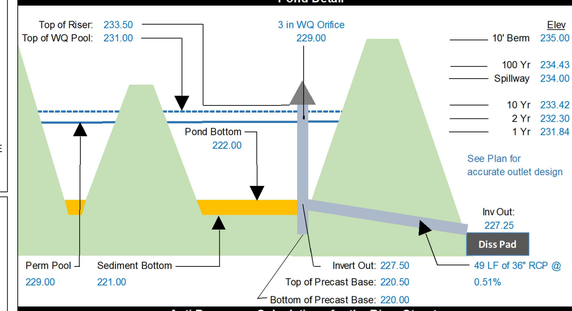
IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 4" OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.

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.

Pond / Riser Data & Elevations

Pond Type	Wet Pond		
TSS Removal	85%		
Top of Pond / Berm	235.00 ft		
Secondary Spillway Width	75.00 ft		
Bottom of Secondary Spillway	234.00 ft		
Top of Riser	233.50 ft	(at least 1' Above TPE)	
Riser Type / Size	4x4 ft		
Top of Water Quality / Temp Pool Elev	231.00 ft	(1" Runoff)	
Top of Veg. Shelf	230.00 ft		
Permanent Pool Elevation (Normal Pool)	229.00 ft		
Water Quality Orifice Elevation & Size	229.00 ft		3.00 in
Secondary Orifice Elevation & Size (Rise & Span)	NA ft	0.00 inch	0.00 inch
		^ Rise	^ Span
Weir Elevation, Width, & Number of Sides	231.50 ft	36.00 inch	2
Bottom of Veg. Shelf	229.00 ft	^ Width	^ # of Sides
Top of Sediment Storage / Pond Bottom	222.00 ft		
Bottom of Sediment Storage	221.00 ft	(Min 1 ft)	
Invert Out of Riser	227.50 ft		
Outlet Pipe Size	36.00 in	Diameter RCP	
Outlet Pipe Length & Slope	49.00 ft		0.51 %
Downstream Outlet Elevation	227.25 ft		
1 Yr Water Surface Elev / Peak Flow (CFS)	231.84 ft		4.31 CFS
2 Yr Water Surface Elev Peak Flow (CFS)	232.30 ft		14.76 CFS
10 Yr Water Surface Elev Peak Flow (CFS)	233.42 ft		52.96 CFS
100 Yr Water Surface Elev Peak Flow (CFS)	234.43 ft		131.76 CFS

Pond Detail



Anti-Buoyancy Calculations for the Riser Structure

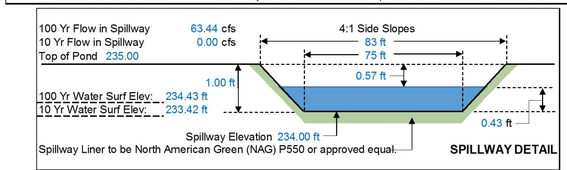
Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	5.00 ft	Walls =	17,550 LBS	V = LxWx(HT) = C.F.	
Inside Width	4.00 ft	Base =	3,675 LBS		
Outside Length	5.00 ft	FILL =	16,800 lbs	Displaced Water =	
Inside Length	4.00 ft			C.F. * 62.4 PCF = LBS	
Height	13.00 ft	Outlet Pipe =	530 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	4 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	0 LBS	V =	325 C.F.
Areas removed from Riser		Weir #2 =	900 LBS	Disp. Water =	20,280 LBS
Outlet Pipe	7.07 ft	Weir #3 =	0 LBS	15% F.S. =	3,042 LBS
WQ Orifice	0.05 ft	Weir #4 =	0 LBS		
Orifice #1	0.00 ft	Other #1 =	0 LBS	Safety Factor	1.57
Orifice #2	12.00 ft				
Orifice #3	0.00 ft	Weight =	36,591 LBS	Weight =	23,322 LBS
Orifice #4	0.00 ft	Precast Concrete Riser Structure to be 4 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast Extended Base			
Other	0.00 ft				

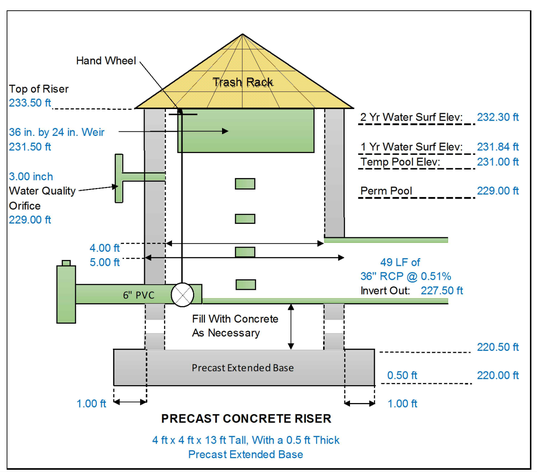
Planting Summary Requirements

Dam / Berm — Non-Clumping Turf Grass

6' Shelf Length 457 — Area of Shelf = 2742 SF — (50 Plants per 200 SF of Area)

Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
229	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
229	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
229	Herbaceous	Container	Joe Pye Weed	Eupat' Fistulosus	4" Pot	24"-36" OC





PRECAST CONCRETE RISER

4 ft x 4 ft x 13 ft Tall, With a 0.5 ft Thick Precast Extended Base

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: _____
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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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REVISION DESCRIPTION

DATE

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DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

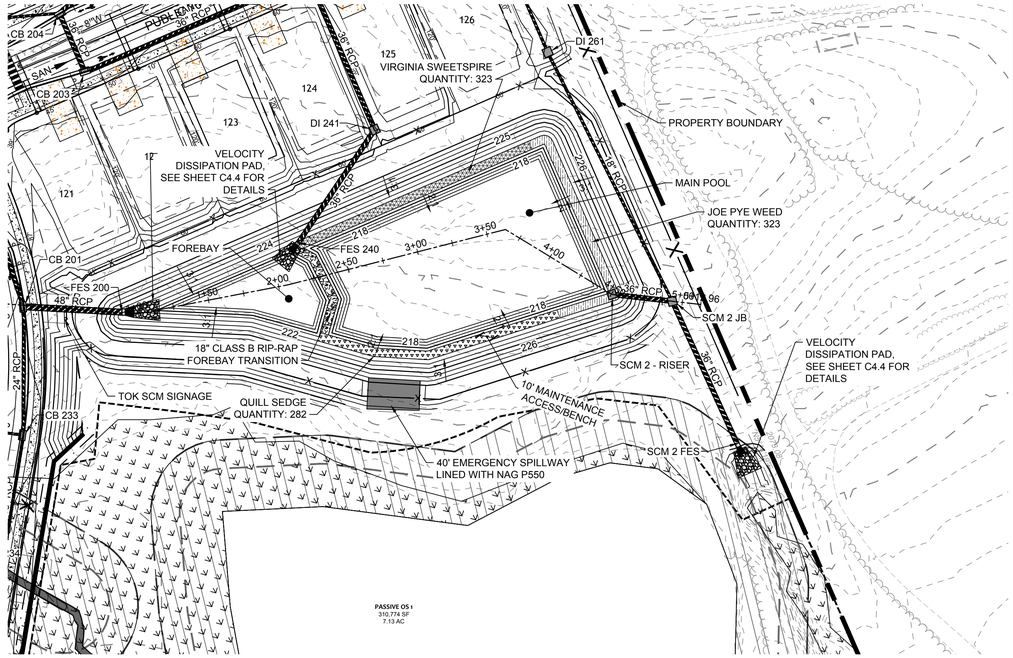
SCM 1 PLAN & PROFILE

JOB NO.
51557

SHEET NO.
C7.1

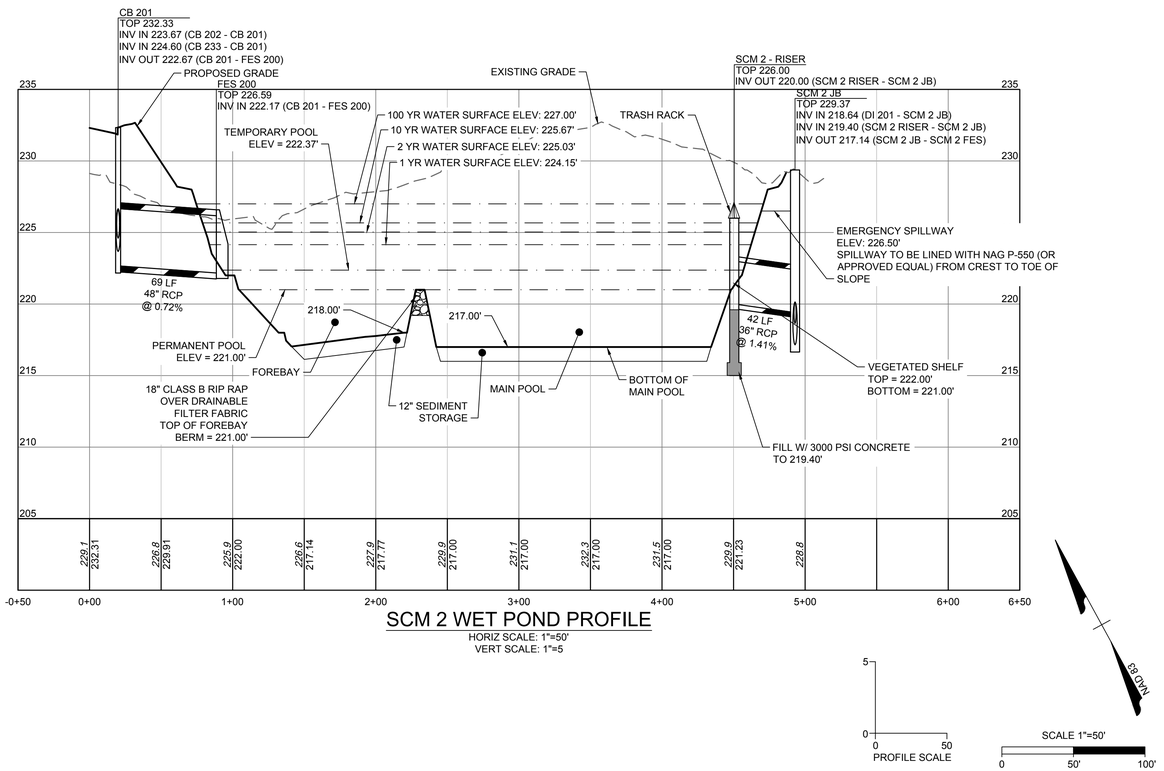
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SCM 2 WET POND PLAN VIEW

SCALE: 1" = 50'

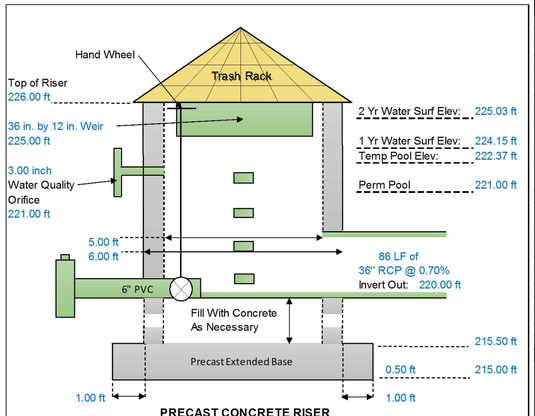


SCM 2 WET POND PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

PROFILE SCALE 5 / 0 / 0 / 50

SCALE 1"=50' 0 / 50' / 100'



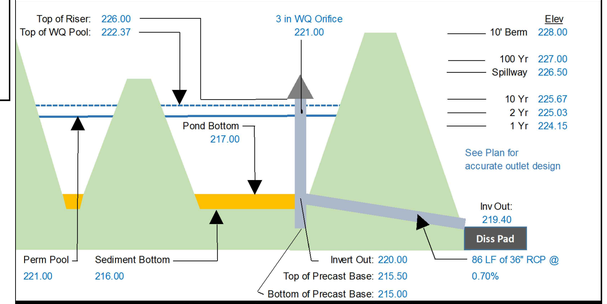
PRECAST CONCRETE RISER

5 ft x 5 ft x 10.5 ft Tall, With a 0.5 ft Thick Precast Extended Base

Pond / Riser Data & Elevations

Pond Type	Wet Pond		
TSS Removal	85%		
Top of Pond / Berm	228.00 ft		
Secondary Spillway Width	40.00 ft		
Bottom of Secondary Spillway	226.50 ft		
Top of Riser	226.00 ft	(at least 1' Above TPE)	
Riser Type / Size	5x5 ft		
Top of Water Quality / Temp Pool Elev	222.37 ft	(1" Runoff)	
Top of Veg. Shelf	222.00 ft		
Permanent Pool Elevation (Normal Pool)	221.00 ft		
Water Quality Orifice Elevation & Size	221.00 ft		3.00 in
Secondary Orifice Elevation & Size (Rise & Span)	NA ft	0.00 inch ^ Rise	0.00 inch ^ Span
Weir Elevation, Width, & Number of Sides	225.00 ft	36.00 inch ^ Width	3 ^ # of Sides
Bottom of Veg. Shelf	221.00 ft		
Top of Sediment Storage / Pond Bottom	217.00 ft		
Bottom of Sediment Storage	216.00 ft	(Min 1 ft)	
Invert Out of Riser	220.00 ft		
Outlet Pipe Size	36.00 in	Diameter RCP	
Outlet Pipe Length & Slope	86.00 ft		0.70 %
Downstream Outlet Elevation	219.40 ft		
1 Yr Water Surface Elev / Peak Flow (CFS)	224.15 ft		0.41 CFS
2 Yr Water Surface Elev Peak Flow (CFS)	225.03 ft		0.75 CFS
10 Yr Water Surface Elev Peak Flow (CFS)	225.67 ft		16.87 CFS
100 Yr Water Surface Elev Peak Flow (CFS)	227.00 ft		115.71 CFS

Pond Detail

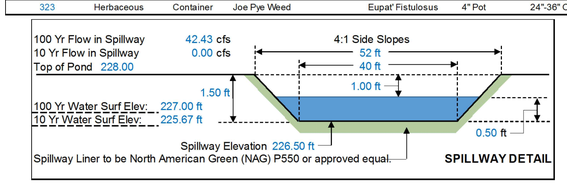


Anti-Buoyancy Calculations for the Riser Structure

Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	6.00 ft	Walls =	17,325 LBS	V = LxWx(HT) = C.F.	
Inside Width	5.00 ft	Base =	4,800 LBS		
Outside Length	6.00 ft	FILL =	16,875 lbs	Displaced Water =	
Inside Length	5.00 ft			C.F. * 62.4 PCF = LBS	
Height	10.50 ft	Outlet Pipe =	530 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	4 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	0 LBS	V =	378 C.F.
Areas removed from Riser		Weir #2 =	675 LBS	Disp. Water =	23,587 LBS
Outlet Pipe	7.07 ft	Weir #3 =	0 LBS	15% F.S. =	3,538 LBS
WQ Orifice	0.05 ft	Weir #4 =	0 LBS		
Orifice #1	0.00 ft	Other #1 =	0 LBS	Safety Factor	1.39
Orifice #2	9.00 ft				
Orifice #3	0.00 ft	Weight =	37,791 LBS	Weight =	27,125 LBS
Orifice #4	0.00 ft	Precast Concrete Riser Structure to be 5 ft x 5 ft x 10.5 ft Tall, With a 0.5 ft Thick Precast Extended Base			
Other	0.00 ft				

Planting Summary Requirements

	Dam / Berm			Non-Clumping Turf Grass		
6' Shelf Length	646	Area of Shelf =	3876 SF	(50 Plants per 200 SF of Area)		
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
323	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
323	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
323	Herbaceous	Container	Joe Pye Weed	Eupat' Fistulosus	4" Pot	24"-36" OC



SCM INSPECTIONS SEQUENCE - SCM INSTALLATION

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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

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- PRINCIPAL SPILLWAY PIPE AND ASSOCIATED COMPONENTS:
  - CONCRETE CRADLE
  - ANTI-SEEP COLLAR
  - SEEPAGE DIAPHRAGM
  - OUTLET STRUCTURE
  - ANTI-FLOTATION BALLAST
  - ANY SITE-CONSTRUCTED REINFORCED CONCRETE STRUCTURES

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- OUTLET OR RISER IN COMBINATION WITH CONNECTING UNDERDRAINS
- FILTER MEDIA
- DATE ITEMS ON PREVIOUS LIST IF APPLICABLE

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- MAP THAT LABELS ALL POINTS WHERE THE DAM AND DAM FOUNDATION AREAS WERE TESTED
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SCM INSPECTION NOTE:

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PLANTING LEGEND

VIRGINIA SWEETSPIRE (VS)

QUILL SEDGE (QS)

JOE PYE WEED (JP)

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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LAND USE ADMINISTRATOR

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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REVISION DESCRIPTION

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

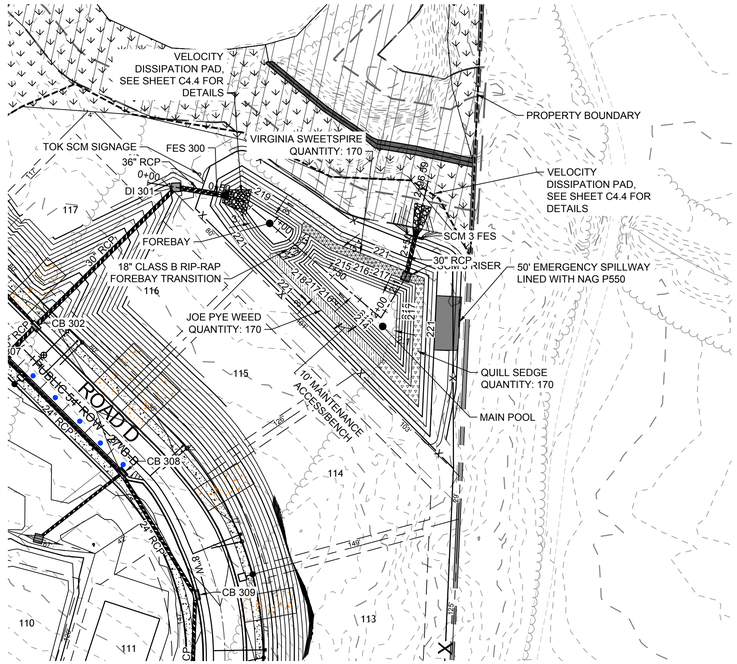
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

SCM 2 PLAN & PROFILE

DATE	04/29/2025
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	T. CROSS
SCALE	H: 1" = 50' V: 1" = 5'
JOB NO.	51557
SHEET NO.	C7.2

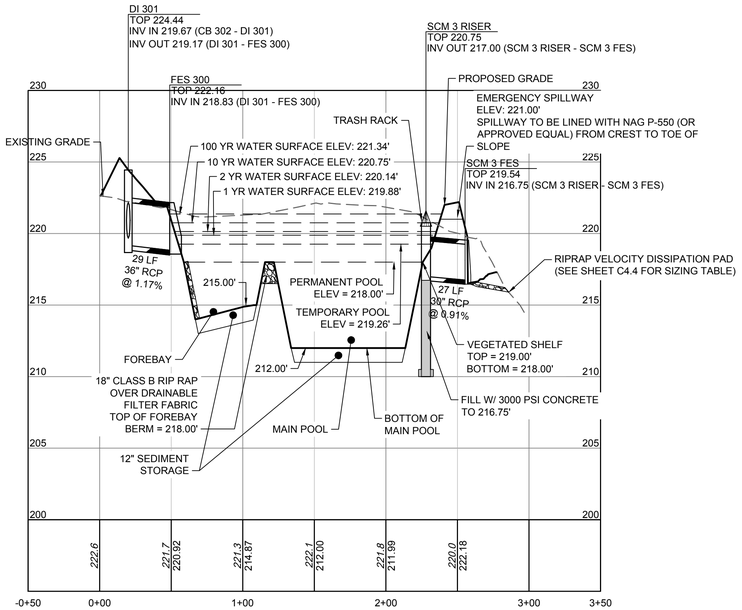
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SCM 3 WET POND PLAN VIEW

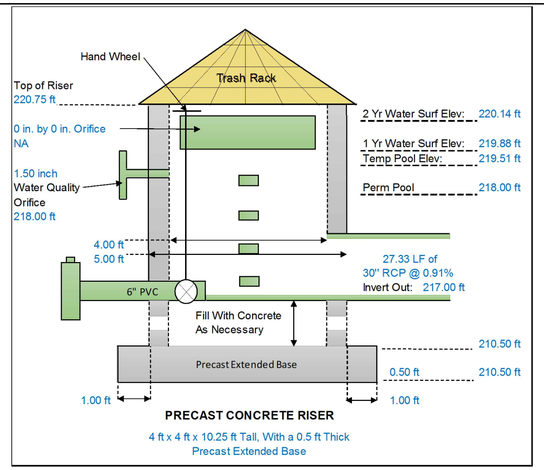
SCALE: 1" = 50'



SCM 3 WET POND PROFILE

HORIZ SCALE: 1"=50'

VERT SCALE: 1"=5



PRECAST CONCRETE RISER

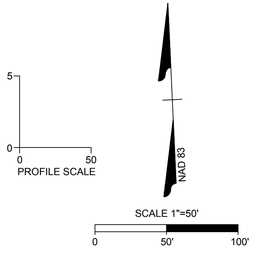
4 ft x 4 ft x 10.25 ft Tall, With a 0.5 ft Thick Precast Extended Base

PLANTING LEGEND

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QUILL SEDGE (QS)

JOE PYE WEED (JP)



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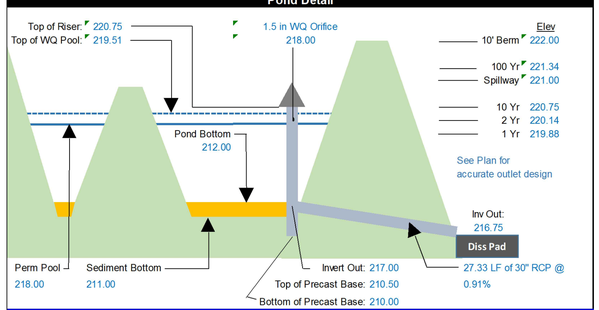
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Pond / Riser Data & Elevations

Pond Type	Wet Pond			
TSS Removal	85%			
Top of Pond / Berm	222.00 ft			
Secondary Spillway Width	50.00 ft			
Bottom of Secondary Spillway	221.00 ft			
Top of Riser	220.75 ft	(at least 1' Above TPE)		
Riser Type / Size	4x4 ft			
Top of Water Quality / Temp Pool Elev	219.51 ft	(1" Runoff)		
Top of Veg. Shelf	219.00 ft			
Permanent Pool Elevation (Normal Pool)	218.00 ft			
Water Quality Orifice Elevation & Size	218.00 ft		1.50	in
Secondary Orifice Elevation & Size (Rise & Span)	NA ft		0.00 inch (^ Rise)	0.00 inch (^ Span)
Weir Elevation, Width, & Number of Sides	219.50 ft		36.00 inch (^ Width)	3 (^ # of Sides)
Bottom of Veg. Shelf	218.00 ft			
Top of Sediment Storage / Pond Bottom	212.00 ft			
Bottom of Sediment Storage	211.00 ft	(Min 1 ft)		
Invert Out of Riser	217.00 ft			
Outlet Pipe Size	30.00 in	Diameter RCP		
Outlet Pipe Length & Slope	27.33 ft		0.91	%
Downstream Outlet Elevation	216.75 ft			
1 Yr Water Surface Elev / Peak Flow (CFS)	219.88 ft		7.05	CFS
2 Yr Water Surface Elev Peak Flow (CFS)	220.14 ft		15.17	CFS
10 Yr Water Surface Elev Peak Flow (CFS)	220.75 ft		29.94	CFS
100 Yr Water Surface Elev Peak Flow (CFS)	221.34 ft		65.80	CFS

Pond Detail



Anti-Buoyancy Calculations for the Riser Structure

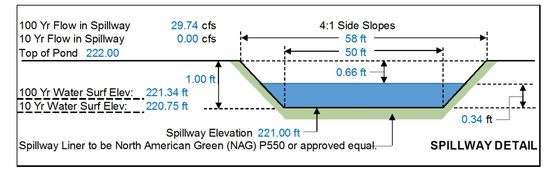
Riser Dimensions		Weight of Structure		Displaced Volume	
Outside Width	5.00 ft	Walls =	13,838 LBS	V = LxWx(HT) = C.F.	
Inside Width	4.00 ft	Base =	3,675 LBS		
Outside Length	5.00 ft	FILL =	15,600 lbs	Displaced Water =	
Inside Length	4.00 ft			C.F. * 62.4 PCF = LBS	
Height	10.25 ft	Outlet Pipe =	368 LBS		
Base Thick' (ft)	0.50 ft	WQ Orifice =	1 LBS	Add 15% Factor of Safety	
Wall Thick' (ft)	0.50 ft				
Ext Base (ft)	1.00 ft	Weir #1 =	0 LBS	V =	256 C.F.
Areas removed from Riser		Weir #2 =	843.75 LBS	Disp. Water =	15,990 LBS
Outlet Pipe	4.91 ft	Weir #3 =	0 LBS	15% F.S. =	2,399 LBS
WQ Orifice	0.01 ft	Weir #4 =	0 LBS		
Orifice #1	0.00 ft	Other #1 =	0 LBS	Safety Factor	1.73
Orifice #2	11.25 ft				
Orifice #3	0.00 ft	Weight =	31,900 LBS	Weight =	18,389 LBS
Orifice #4	0.00 ft	Precast Concrete Riser Structure to be 4 ft x 4 ft x 10.25 ft Tall, With a 0.5 ft Thick Precast Extended Base			
Other	0.00 ft				

Planting Summary Requirements

Dam / Berm — Non-Clumping Turf Grass

6' Shelf Length 339 — Area of Shelf = 2034 SF — (50 Plants per 200 SF of Area)

Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
170	Herbaceous	Container	Quill Sedge	Cerex Tenera	4" Pot	24"-36" OC
170	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
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REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE: H: 1" = 50' V: 1" = 5'

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

SCM 3 PLAN & PROFILE

JOB NO. 51557

SHEET NO. C7.3

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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 DEVELOPMENT SERVICES 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 SECTION 7.7 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 UDO REQUIREMENTS. ALL REVISIONS ARE SUBJECT TO 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

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

NAD 83

SCALE 1"=150'
0 150' 300'

LIGHTING LEGEND

MICRO LED STREET LIGHTS
(5,407 LUMENS LED 50 WATT MICRO ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

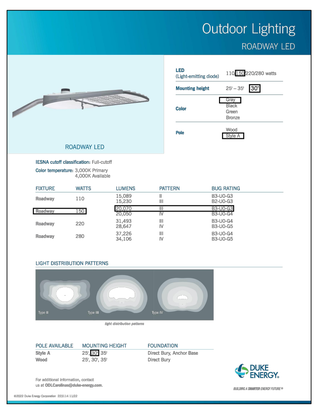
ROADWAY LED STREET LIGHTS
(20,070 LUMENS LED 150 WATT ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

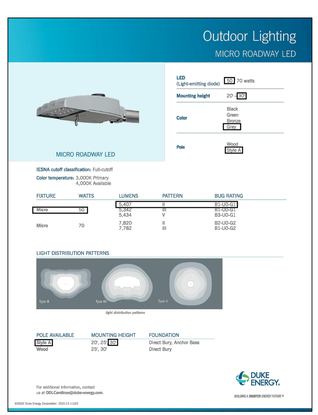
NOTES

1. ALL FIXTURES SHALL HAVE A FULL CUTOFF CLASSIFICATION OR BE FULLY SHIELDED.
2. ALL POLE-MOUNTED FIXTURES CANNOT EXCEED 37' IN HEIGHT.
3. ALL STREET LIGHT POLES SHALL BE FIBERGLASS WITH A FULLY SHIELDED, ARM-MOUNTED LED FIXTURE.
4. AVERAGE SPACING FOR INTERNAL STREETS AND COLLECTOR ROADS SHALL BE 250' APART AND 150' ALONG POOLE ROAD.
5. BUG RATING CANNOT EXCEED B1 U1 G2 FOR LOCAL STREETS AND B3 U3 G4 ON POOLE ROAD.
6. POLES SHALL BE PLACED ON ALTERNATIVE SIDES OF THE STREET.
7. LIGHTING FOR THE AMENITY CENTER PARKING LOT SHALL NOT EXCEED A BUG RATING OF B3 U0 G4.
8. MINIMUM INITIAL DELIVERED LUMEN LEVELS SHALL BE 4,800 LUMENS FOR LOCAL STREETS, AND 18,500 LUMENS FOR POOLE ROAD.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- NEUSE RIPARIAN BUFFER





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REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 150'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

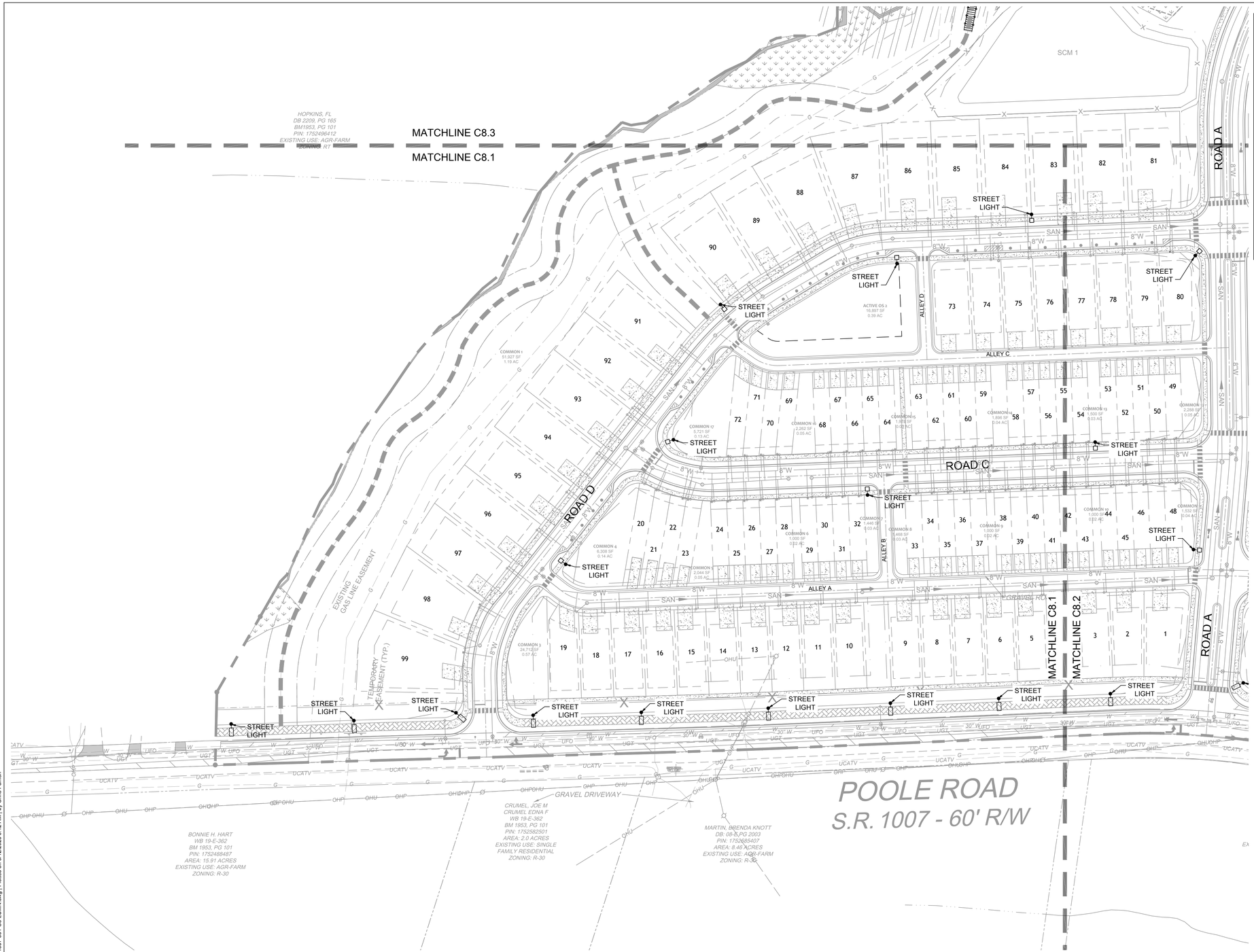
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
OVERALL LIGHTING PLAN

JOB NO. 51557
SHEET NO. C8.0

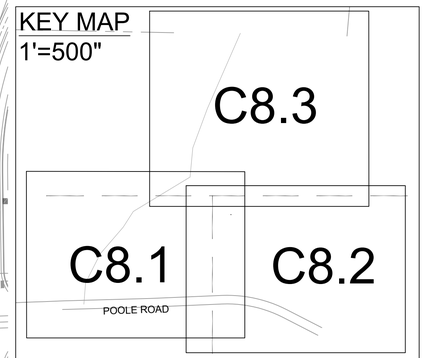
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KEY MAP

1'=500"



LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- NEUSE RIPARIAN BUFFER

LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

NOTES

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OFFICIAL SEAL _____ NOTARY

_____ COMMISSION EXPIRES

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BY: _____ DATE: _____
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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

NAD 83

SCALE 1"=60'
0 60' 120'

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 60'

JOB NO. 51557
SHEET NO. C8.1

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

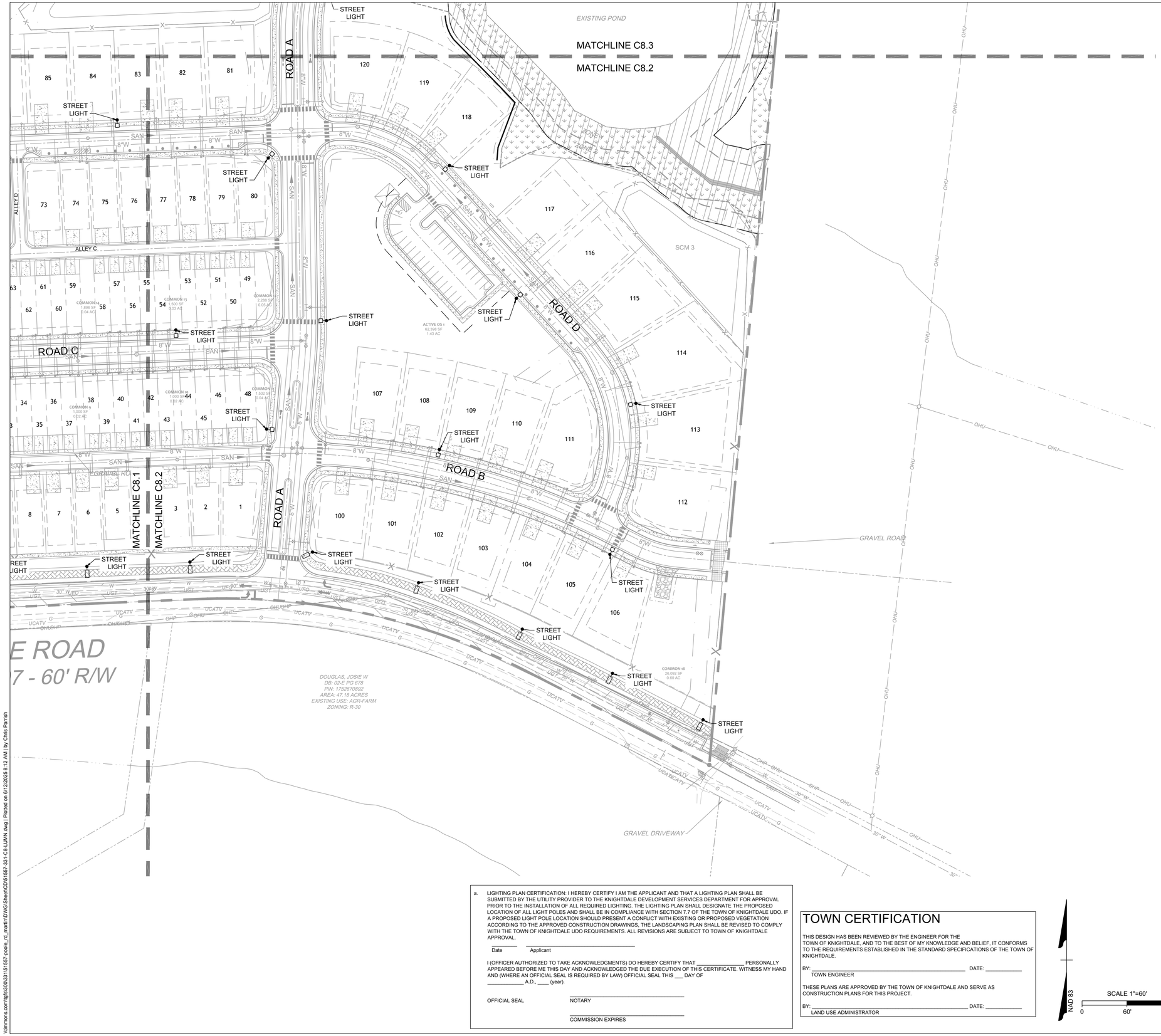
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED LIGHTING PLAN

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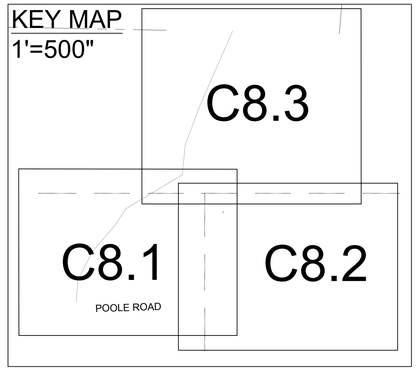
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KEY MAP

1'=500"



LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

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DATE
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DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

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JOB NO.
51557

SHEET NO.
C8.2

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

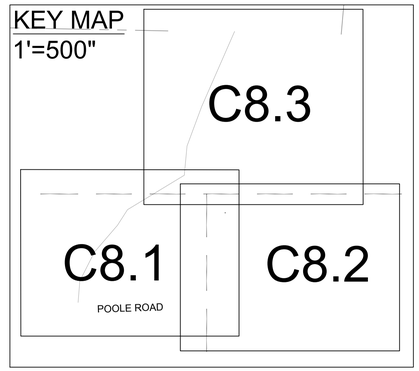
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

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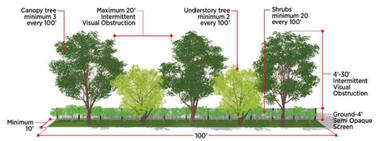
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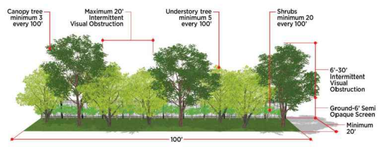
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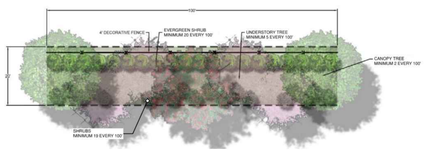
BY: _____ DATE: _____
LAND USE ADMINISTRATOR



TYPE A BUFFER YARD
NOT TO SCALE



TYPE B BUFFER YARD
NOT TO SCALE



ENHANCED ROADSIDE LANDSCAPING - POOLE RD
NOT TO SCALE

PLANTING SCHEDULE - CANOPY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
SM	56	0	ACER SACCHARUM	SUGAR MAPLE	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
CP	53	0	PISTACIA CHINENSIS	CHINESE PISTACHIA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SO	65	0	QUERCUS ACUTISSIMA	SAWTOOTH OAK	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
AE	31	54	ULMUS PARVIFOLIA	LACEBARK ELM (CHINESE)	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE, OPAQUE SCREEN, LANDSCAPE BUFFER
JZ	84	0	ZELKOA SERRATA	JAPANESE ZELKOVA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SZ	103	0	ZELKOVA SCHNEIDERIANA	SCHNEIDER ZELKOVA	2" CAL.	6' MIN.	B&B	CANOPY	STREET TREE

PLANTING SCHEDULE - UNDERSTORY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
JC	27	50	PRUNUS SERULLATA	JAPANESE CHERRY FLOWERING	1.25" CAL.	6' MIN.	B&B	UNDERSTORY	LANDSCAPE BUFFER, ROADWAY MEDIAN
DC	0	32	CORNUS KOUS CHINENSIS	DOGWOOD CHINESE	1.25" CAL.	6' MIN	B&B	UNDERSTORY	OPAQUE SCREEN

PLANTING SCHEDULE - SHRUBS

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	LOCATION
IC	196	431	ILLEX CRENATA 'HELLERI'	HELLERIE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	LANDSCAPE BUFFER,SEMI OPAQUE SCREEN, ROADWAY MEDIAN
IH	0	177	ILLEX CRENATA 'HETZA'	JAPANESE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	OPAQUE SCREEN

TREE COVER AREA

SITE PERIMETER:	7,391 LF
TREE COVER REQUIRED (20 X PERIMETER):	147,820 SF
TREE SAVE AREA PROVIDED:	245,476 SF
LANDSCAPE BUFFER AREA PROVIDED:	39,697 SF
TOTAL TREE COVER AREA PROVIDED:	285,173 SF

LEGEND

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- PROPOSED LOT LINE
- TREE SAVE
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NOTES

1. STREET TREES SHALL BE LOCATED WITHIN THE RIGHT OF WAY.
2. STREET TREES SHALL BE PLANTED IN ACCORDANCE WITH STD. 3.26 AND SECTION 7.4 L OF THE UDO AND THE APPLICABLE ROADWAY CROSS-SECTION DETAILED IN SECTION 10.4 A OF THE UDO
3. ALL LANDSCAPING SHOULD BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STD. 3.25 AND THE TOWN OF KNIGHTDALE'S UDO.
4. ALL PLANT MATERIALS TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI.Z60.1
5. CONTRACTOR ENGAGED IN LANDSCAPE IMPLEMENTATION SHALL BE A LANDSCAPE CONTRACTOR REGISTERED IN THE STATE OF NORTH CAROLINA.
6. SUBSTITUTIONS OF PLANT MATERIALS SPECIFIED CAN ONLY OCCUR WITH PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
7. ALL NEW TREES TO HAVE A 5' DIAMETER SHREDDED HARDWOOD MULCH RING AT 4" DEEP UNLESS OTHERWISE NOTED OR LOCATED IN A PLANT BED PER SITE PLAN.
8. LANDSCAPE CONTRACTOR TO GUARANTEE PLANT MATERIALS FOR A ONE YEAR PERIOD FOLLOWING SUBSTANTIAL COMPLETION.
9. AREAS DAMAGED BY LANDSCAPE CONTRACTOR TO BE REPAIRED TO PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE OWNER.
10. ALL LANDSCAPE ISLANDS SHALL BE GRADED FOR POSITIVE DRAINAGE WITH NO LOW SPOTS ALLOWING WATER TO BE TRAPPED.
11. ALL ABOVE GROUND UTILITIES MUST BE SCREENED.
12. WITHIN THE AREA OF A DEFINED SIGHT TRIANGLE, THERE SHALL BE NO SIGHT OBSTRUCTING OR PARTLY OBSTRUCTING WALL, FENCE, SIGN, FOLIAGE, BERM, OR PARKED VEHICLES BETWEEN 24 INCHES AND EIGHT FEET ABOVE THE CURB LINE ELEVATION, OBJECTS, WHICH MAY BE LOCATED IN THE SIGHT DISTANCE TRIANGLE, ARE ITEMS SUCH AS HYDRANTS, UTILITY POLES, UTILITY JUNCTION BOXES, AND TRAFFIC CONTROL DEVICES PROVIDED THESE OBJECTS ARE LOCATED TO MINIMIZE VISUAL OBSTRUCTION [UDO, SEC. 10.5.D.3.b].
13. ANY REQUIRED STREET TREES PLANTED ON PRIVATE PROPERTY MUST REMAIN AND CANNOT BE REMOVED BY PROPERTY OWNER

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 150'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

OVERALL LANDSCAPE PLAN

JOB NO. 51557
SHEET NO. C9.0

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\\timmons.com\gfx\300\32\151557-poole_rd_raleigh\DWG\Sheet\C9\151557-C9.0-PLNT .dwg | Plotted on 6/12/2025 8:12 AM | by Chris Parrish

PLANTING SCHEDULE - CANOPY TREES

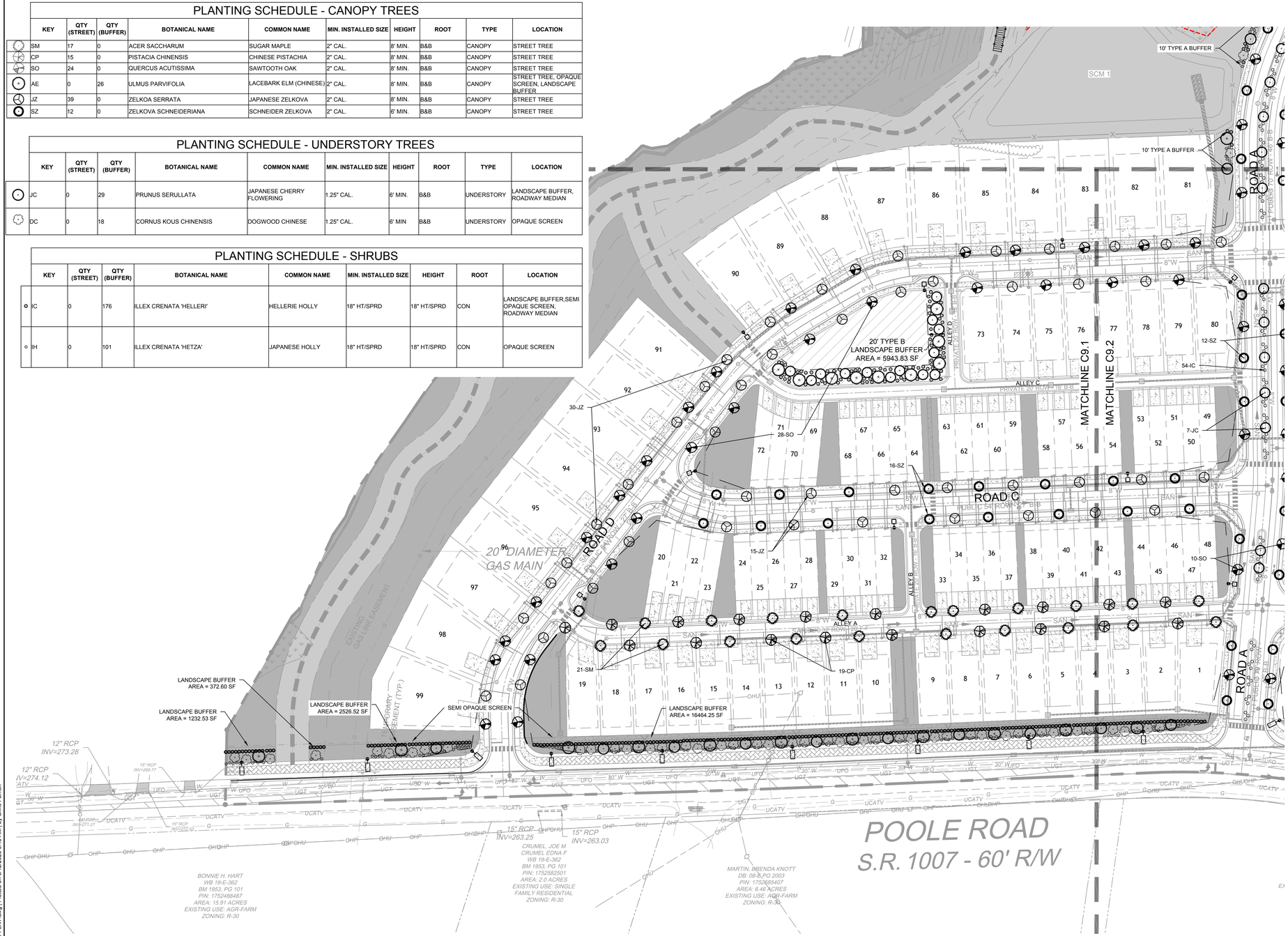
KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
SM	17	0	ACER SACCHARUM	SUGAR MAPLE	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
CP	15	0	PISTACIA CHINENSIS	CHINESE PISTACHIA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SO	24	0	QUERCUS ACUTISSIMA	SAWTOOTH OAK	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
AE	0	26	ULMUS PARVIFOLIA	LACEBARK ELM (CHINESE)	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE, OPAQUE SCREEN, LANDSCAPE BUFFER
JZ	39	0	ZELKOA SERRATA	JAPANESE ZELKOVA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SZ	12	0	ZELKOVA SCHNEIDERIANA	SCHNEIDER ZELKOVA	2" CAL.	6' MIN.	B&B	CANOPY	STREET TREE

PLANTING SCHEDULE - UNDERSTORY TREES

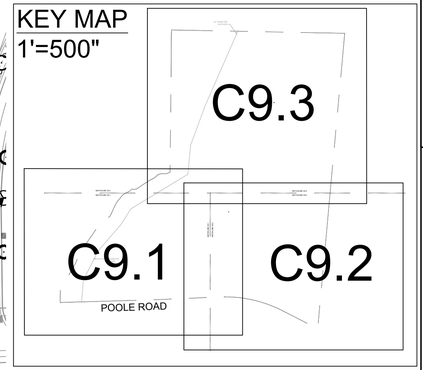
KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
JC	0	29	PRUNUS SERULLATA	JAPANESE CHERRY FLOWERING	1.25" CAL.	6' MIN.	B&B	UNDERSTORY	LANDSCAPE BUFFER, ROADWAY MEDIAN
DC	0	18	CORNUS KOUS CHINENSIS	DOGWOOD CHINESE	1.25" CAL.	6' MIN	B&B	UNDERSTORY	OPAQUE SCREEN

PLANTING SCHEDULE - SHRUBS

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	LOCATION
IC	0	176	ILLEX CRENATA 'HELLERI'	HELLERIE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	LANDSCAPE BUFFER,SEMI OPAQUE SCREEN, ROADWAY MEDIAN
IH	0	101	ILLEX CRENATA 'HETZA'	JAPANESE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	OPAQUE SCREEN



KEY MAP
1'=500"



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

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- TREE SAVE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- NEUSE RIPARIAN BUFFER

NAD 83

SCALE 1"=60'
0 60' 120'

NOTES

1. STREET TREES SHALL BE LOCATED WITHIN THE RIGHT OF WAY.
2. STREET TREES SHALL BE PLANTED IN ACCORDANCE WITH STD. 3.26 AND SECTION 7.4.L OF THE UDO AND THE APPLICABLE ROADWAY CROSS-SECTION DETAILED IN SECTION 10.4.A OF THE UDO
3. ALL LANDSCAPING SHOULD BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STD. 3.25 AND THE TOWN OF KNIGHTDALE'S UDO.
4. ALL PLANT MATERIALS TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI.Z60.1
5. CONTRACTOR ENGAGED IN LANDSCAPE IMPLEMENTATION SHALL BE A LANDSCAPE CONTRACTOR REGISTERED IN THE STATE OF NORTH CAROLINA.
6. SUBSTITUTIONS OF PLANT MATERIALS SPECIFIED CAN ONLY OCCUR WITH PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
7. ALL NEW TREES TO HAVE A 5' DIAMETER SHREDDED HARDWOOD MULCH RING AT 4" DEEP UNLESS OTHERWISE NOTED OR LOCATED IN A PLANT BED PER SITE PLAN.
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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 60'

JOB NO.
51557

SHEET NO.
C9.1

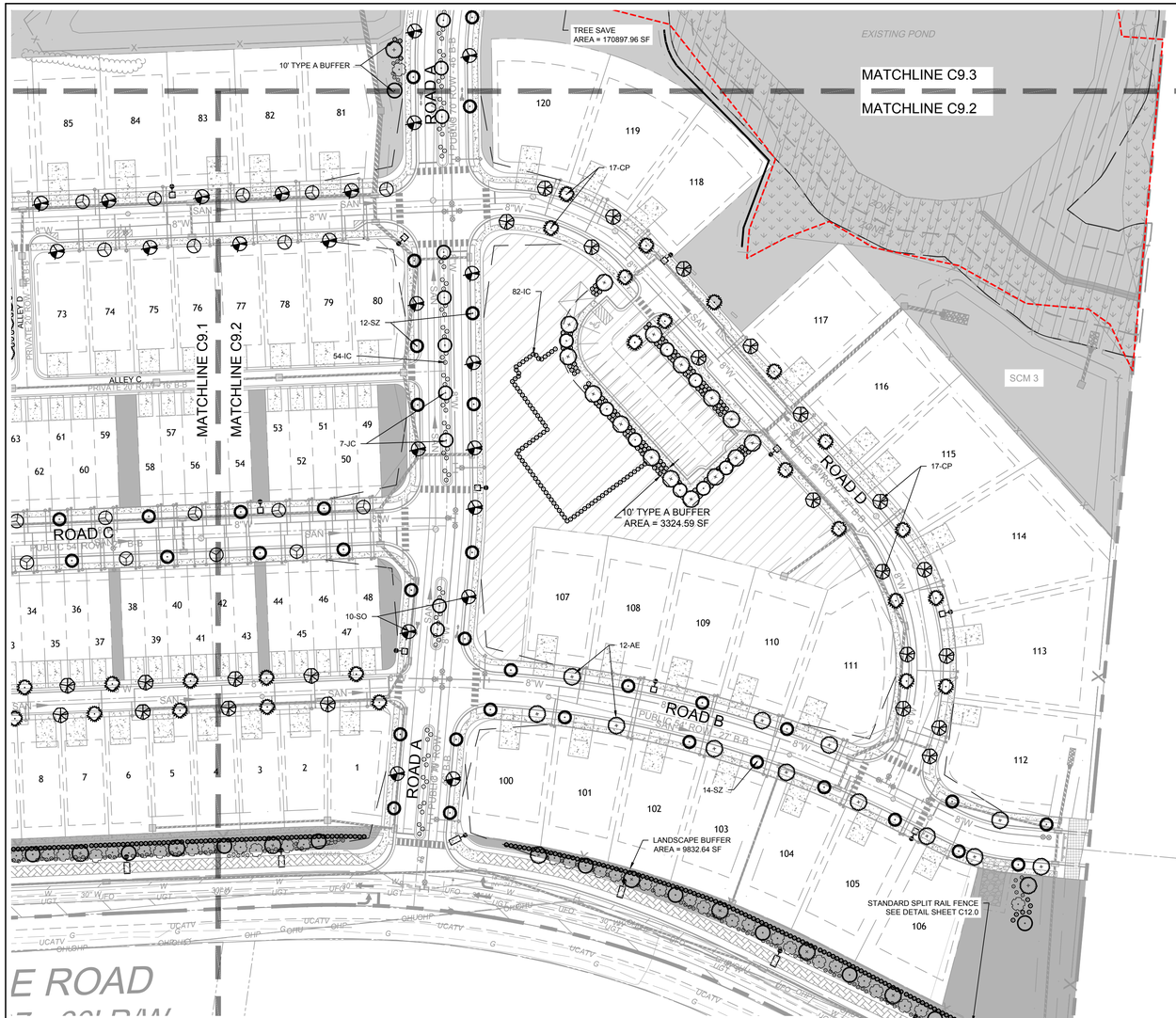
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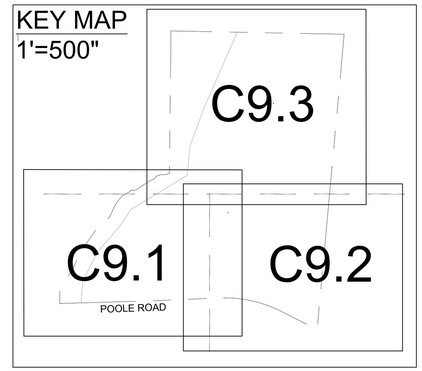
TIMMONS GROUP

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAIL LANDSCAPE PLAN - SHEET 1 0F 3
NORTH CAROLINA LICENSE NO. C-1652

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NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- TREE SAVE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- NEUSE RIPARIAN BUFFER

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PLANTING SCHEDULE - CANOPY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
SM	20	0	ACER SACCHARUM	SUGAR MAPLE	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
CP	21	0	PISTACIA CHINENSIS	CHINESE PISTACHIA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SO	15	0	QUERCUS ACUTISSIMA	SAWTOOTH OAK	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
AE	12	28	ULMUS PARVIFOLIA	LACEBARK ELM (CHINESE)	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE, OPAQUE SCREEN, LANDSCAPE BUFFER
JZ	6	0	ZELKOA SERRATA	JAPANESE ZELKOVA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SZ	31	0	ZELKOVA SCHNEIDERIANA	SCHNEIDER ZELKOVA	2" CAL.	6' MIN.	B&B	CANOPY	STREET TREE

PLANTING SCHEDULE - UNDERSTORY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
JC	8	21	PRUNUS SERULLATA	JAPANESE CHERRY FLOWERING	1.25" CAL.	6' MIN.	B&B	UNDERSTORY	LANDSCAPE BUFFER, ROADWAY MEDIAN
DC	0	14	CORNUS KOUS CHINENSIS	DOGWOOD CHINESE	1.25" CAL.	6' MIN	B&B	UNDERSTORY	OPAQUE SCREEN

PLANTING SCHEDULE - SHRUBS

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	LOCATION
IC	63	255	ILLEX CRENATA 'HELLERI'	HELLERIE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	LANDSCAPE BUFFER,SEMI OPAQUE SCREEN, ROADWAY MEDIAN
IH	0	76	ILLEX CRENATA 'HETZA'	JAPANESE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	OPAQUE SCREEN

TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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BY: _____ DATE: _____
LAND USE ADMINISTRATOR

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION	DATE

DATE
04/29/2025
DRAWN BY
331
DESIGNED BY
331
CHECKED BY
T. CROSS
SCALE
1" = 60'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
DETAIL LANDSCAPE PLAN - SHEET 2 OF 3

JOB NO.
51557
SHEET NO.
C9.2

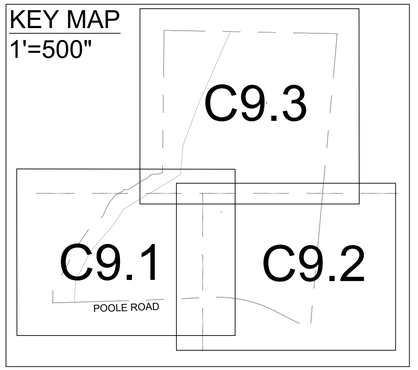
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CARLETTE N. ADAMS
DB 13988, PG 2331
PIN 1753519014
AREA: 49.08
CURRENT USE: SINGLE FAMILY RESIDENTIAL
ZONING: RT

ROAD F
ROAD G
ROAD E
ROAD A
ROAD H
PUBLIC 54' ROW - 27' B-B
PUBLIC 46' ROW - 27' B-B
PUBLIC 50' ROW - 27' B-B
PUBLIC 40' ROW - 16' B-B
PRIVATE ALLEY - 16' B-B
ALLEY E
ALLEY F
TEMPORARY CONSTRUCTION EASEMENT
EXISTING GAS LINE EASEMENT
SCM 1
TREE SAVE AREA = 74578.03 SF
TREE SAVE AREA = 170897.96 SF
10' TYPE A BUFFER
8"W
SAN
X

KEY MAP
1'=500"



TOWN CERTIFICATION

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NAD 83

SCALE 1"=60'
0 60' 120'

PLANTING SCHEDULE - CANOPY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
SM	19	0	ACER SACCHARUM	SUGAR MAPLE	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
CP	17	0	PISTACIA CHINENSIS	CHINESE PISTACHIA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SO	26	0	QUERCUS ACUTISSIMA	SAWTOOTH OAK	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
AE	19	0	ULMUS PARVIFOLIA	LACEBARK ELM (CHINESE)	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE, OPAQUE SCREEN, LANDSCAPE BUFFER
JZ	39	0	ZELKOA SERRATA	JAPANESE ZELKOVA	2" CAL.	8' MIN.	B&B	CANOPY	STREET TREE
SZ	60	0	ZELKOVA SCHNEIDERIANA	SCHNEIDER ZELKOVA	2" CAL.	6' MIN.	B&B	CANOPY	STREET TREE

PLANTING SCHEDULE - UNDERSTORY TREES

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	TYPE	LOCATION
JC	19	0	PRUNUS SERULLATA	JAPANESE CHERRY FLOWERING	1.25" CAL.	6' MIN.	B&B	UNDERSTORY	LANDSCAPE BUFFER, ROADWAY MEDIAN
DC	0	0	CORNUS KOUS CHINENSIS	DOGWOOD CHINESE	1.25" CAL.	6' MIN	B&B	UNDERSTORY	OPAQUE SCREEN

PLANTING SCHEDULE - SHRUBS

KEY	QTY (STREET)	QTY (BUFFER)	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	HEIGHT	ROOT	LOCATION
IC	133	0	ILLEX CRENATA 'HELLERI'	HELLERIE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	LANDSCAPE BUFFER,SEMI OPAQUE SCREEN, ROADWAY MEDIAN
IH	0	0	ILLEX CRENATA 'HETZA'	JAPANESE HOLLY	18" HT/SPRD	18" HT/SPRD	CON	OPAQUE SCREEN

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- TREE SAVE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- NEUSE RIPARIAN BUFFER

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
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REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 60'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAIL LANDSCAPE PLAN - SHEET 3 OF 3

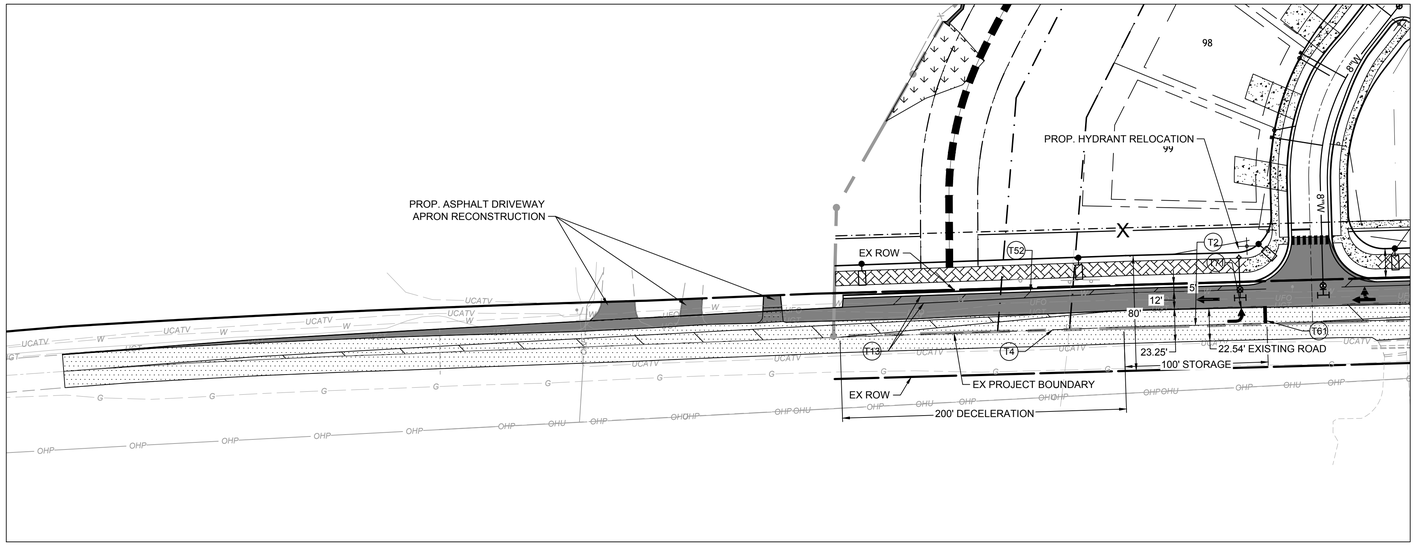
JOB NO.
51557

SHEET NO.
C9.3

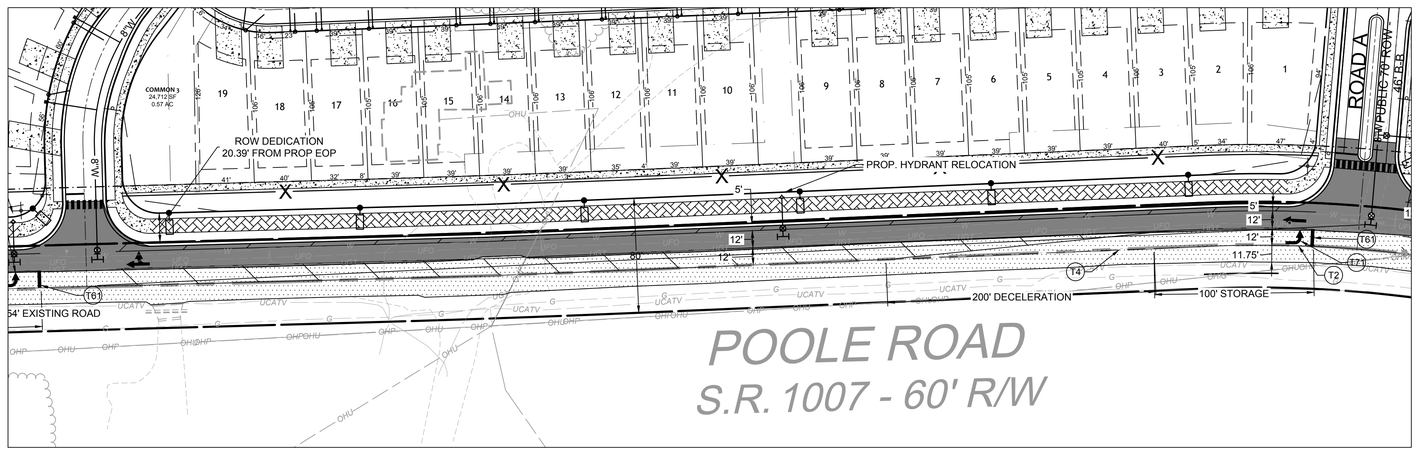
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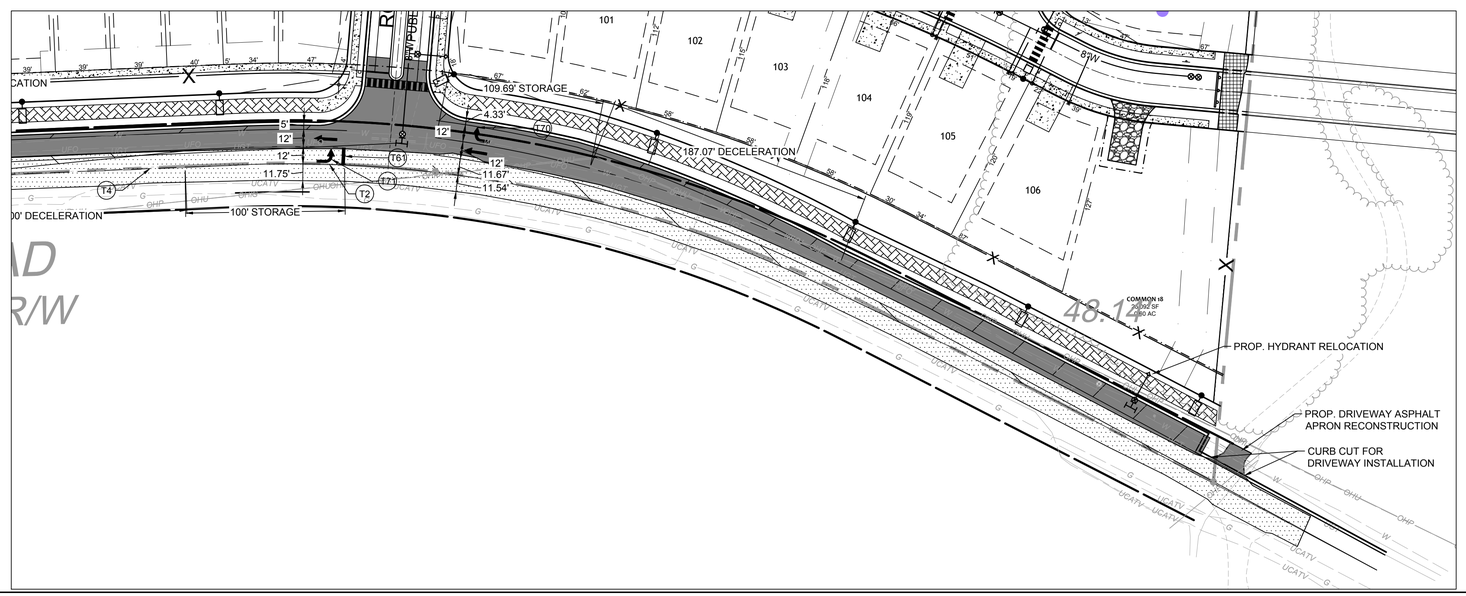
POOLE ROAD WIDENING
PROPOSED STRIPING



POOLE ROAD WIDENING
PROPOSED STRIPING



POOLE ROAD WIDENING
PROPOSED STRIPING



PAVEMENT MARKING NOTES

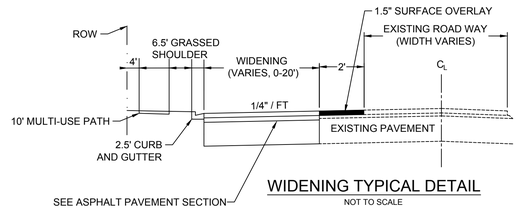
1. LOCATION OF PAVEMENT MARKINGS SHALL CONFORM TO NCDOT PAVEMENT MARKING STANDARDS . APPLICATION OF PAVEMENT MARKINGS SHALL BE DONE IN ACCORDANCE WITH SECTION 1205 OF THE N.C. DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES HANDBOOK (2012 EDITION) WITH REVISION(S) THERETO.
2. ALL EXISTING PAVEMENT MARKINGS SHALL BE ERADICATED PER NCDOT SPECIFICATIONS PRIOR TO PLACEMENT OF MARKING SHOWN HEREIN.
3. THE CONTRACTOR SHALL BE REQUIRED TO PRE-MARK THE PAVEMENT PRIOR TO ACTUAL APPLICATION OF MARKINGS WITHIN THE NCDOT RIGHT OF WAY. THE CONTRACTOR SHALL SCHEDULE A PRE-MARKING INSPECTION REVIEW WITH THE NCDOT DISTRICT ENGINEER AT LEAST ONE WEEK PRIOR TO MARKING. PAVEMENT MARKINGS SHALL NOT BE INSTALLED UNTIL AFTER FIELD REVIEW AND APPROVAL BY THE NCDOT DISTRICT ENGINEER.
4. PAVEMENT MARKINGS SHALL MATCH TO AND ALIGN WITH EXISTING CONDITIONS AND MARKINGS. THE CONTRACTOR SHALL PROVIDE THERMOPLASTIC MARKINGS ON ROADWAYS .
5. INSTALLATION OF PAVEMENT MARKINGS AND RAISED REFLECTIVE PAVEMENT MARKERS FOR NEWLY CONSTRUCTED TURN LANES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR .
6. ALL PAVEMENT MARKINGS WITHIN NCDOT RIGHT-OF-WAY SHALL BE LONG LIFE THERMOPLASTIC.
7. CONTACT NCDOT TRAFFIC SERVICES FOR PAVEMENT MARKING LAYOUT.

PAVEMENT MARKING LEGEND
T1 - WHITE EDGELINE (4", 90 MIL)
T2 - WHITE SOLID (4", 90 MIL)
T4 - 3FT - 9 FT SP WHITE MINI SKIP (4", 90 MIL)
T13 - YELLOW DOUBLE CENTER (4", 90 MIL)
T40 - WHITE GORELINE (8", 90 MIL)
T41 - WHITE DIAGONAL (8", 90 MIL)
T52 - YELLOW DIAGONAL (12", 90 MIL)
T61 - WHITE STOPBAR (24", 90 MIL)
T70 - RIGHT TURN ARROW (90 MIL)
T71 - LEFT TURN ARROW (90 MIL)

DESIGN SPEED: 60 MPH

POSTED SPEED: 55 MPH

LEGEND
1.5" MILL AND OVERLAY
PROPOSED PAVEMENT



WIDENING TYPICAL DETAIL
NOT TO SCALE

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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

NAD 83
SCALE 1"=50'
0 50' 100'

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REVISION DESCRIPTION

DATE

DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

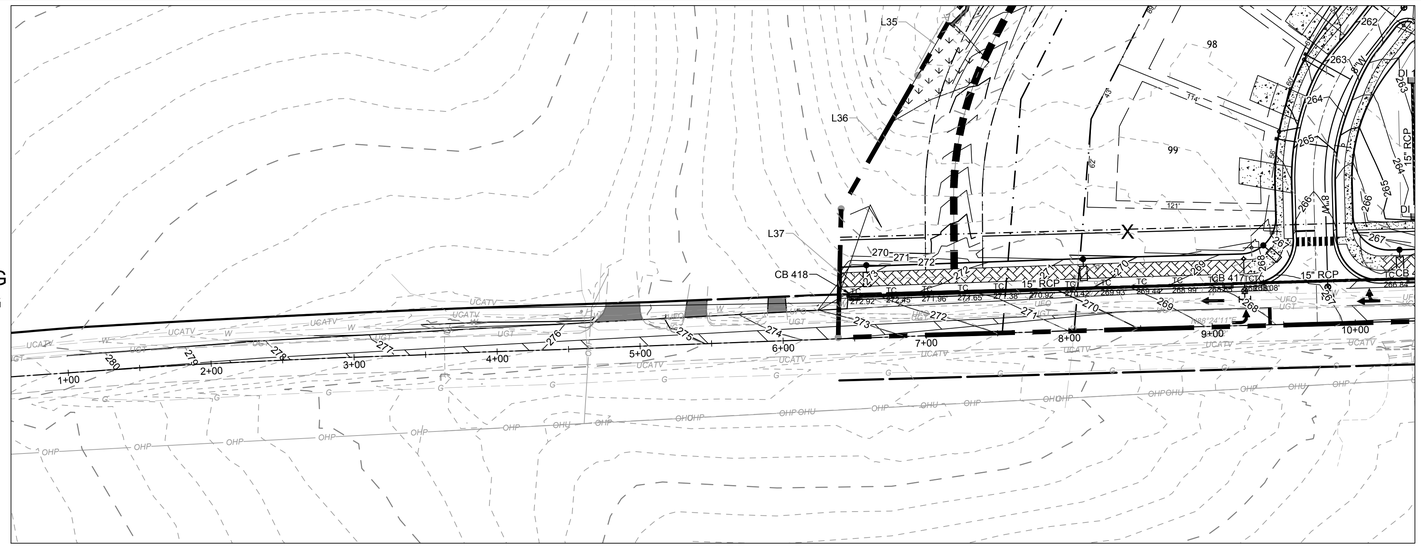
DETAILED ROADWAY WIDENING PLAN

JOB NO. 51557
SHEET NO. C10.0

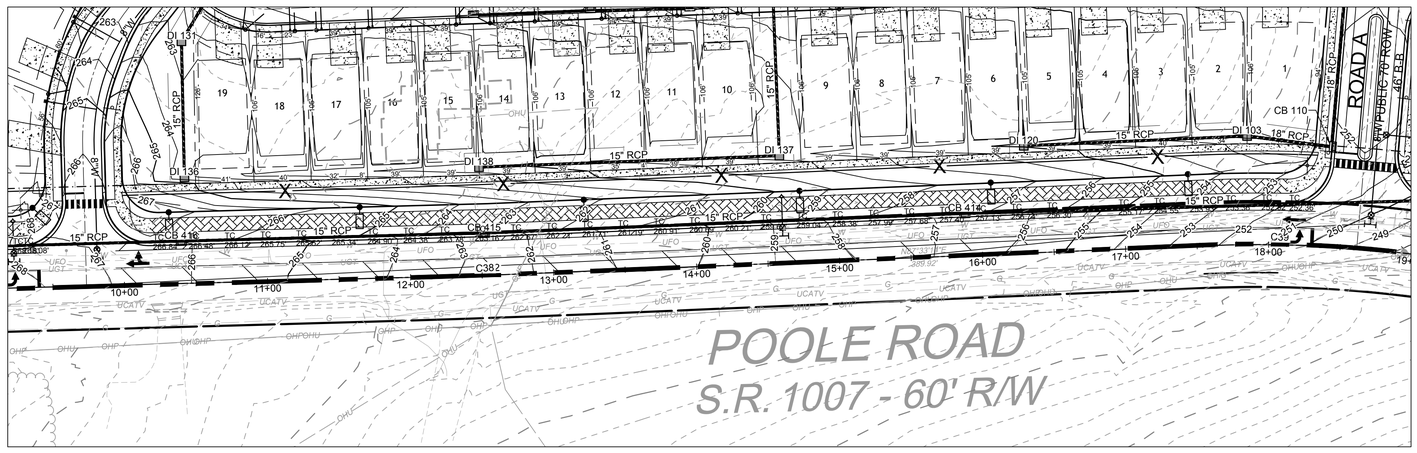
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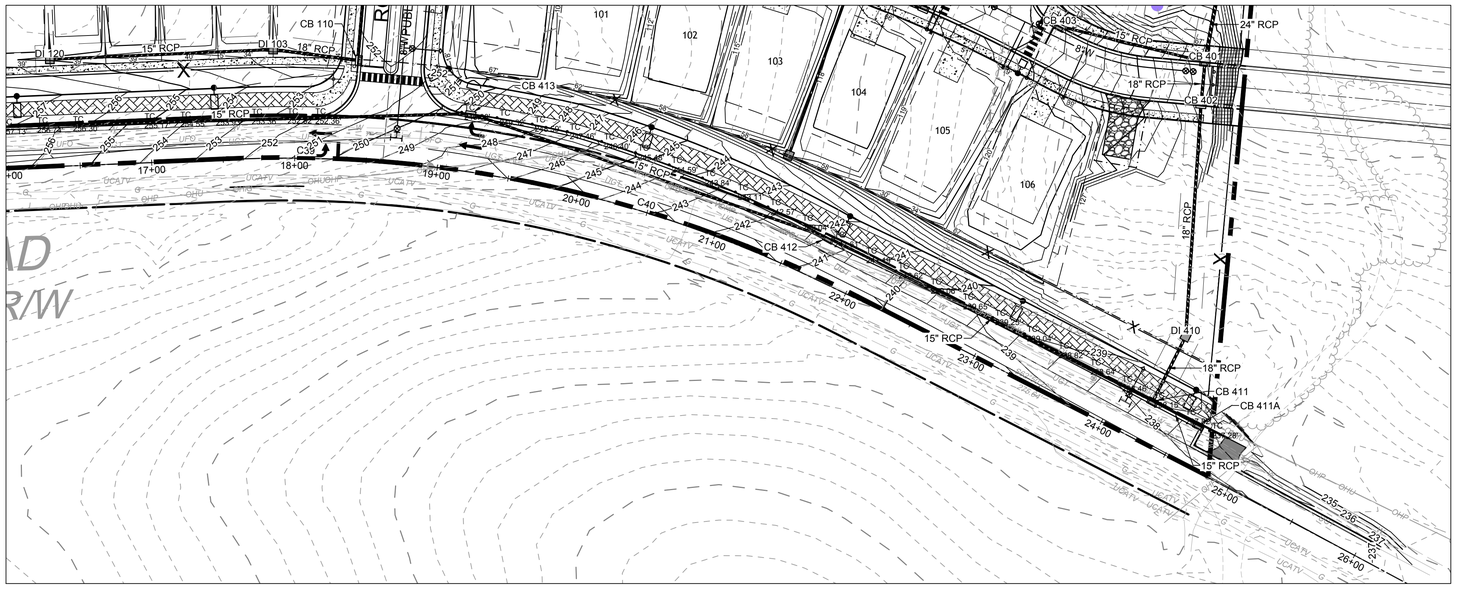
POOLE ROAD WIDENING
PROPOSED GRADING



POOLE ROAD WIDENING
PROPOSED GRADING



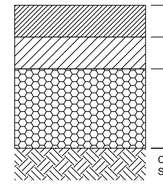
POOLE ROAD WIDENING
PROPOSED GRADING



ASPHALT PAVEMENT SECTION

NOT TO SCALE

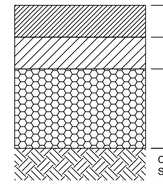
PAVEMENT SECTION-WIDENING GREATER THAN 6' WIDTH



TYPE S-9.5B SURFACE COURSE	3-IN
TYPE I19.0C BINDER COURSE	4-IN
AGGREGATE BASE COURSE	10-IN

COMPACTED SUBGRADE

PAVEMENT SECTION-WIDENING LESS THAN OR EQUAL TO 6' WIDTH



TYPE S-9.5B SURFACE COURSE	3-IN
TYPE I19.0C BINDER COURSE	4-IN
TYPE B-25.0C BASE COURSE	5-IN

COMPACTED SUBGRADE

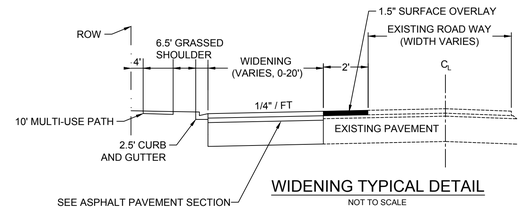
* OVERLAY AREAS - 1.5" SF9.5B

NOTES:

1. PREPARING, GRADING, SHAPING, AND COMPACTION OF SUBGRADE SOILS SHOULD BE PERFORMED IN ACCORDANCE WITH DIVISION 5, SECTION 501 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2006). PREPARING, GRADING, SHAPING, AND COMPACTION OF AGGREGATE BASE COURSE (CABC) STONE SHOULD BE PERFORMED IN ACCORDANCE WITH DIVISION 5, SECTION 520 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2006). PLACEMENT AND COMPACTION OF THE BITUMINOUS CONCRETE SHOULD BE PERFORMED IN ACCORDANCE WITH DIVISION 6, SECTION 600 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (2006). PROPER SUBGRADE COMPACTION, ADHERENCE TO THE NCDOT SPECIFICATIONS, AND COMPLIANCE WITH PROJECT PLANS AND SPECIFICATIONS ARE CRITICAL TO THE PERFORMANCE OF THE CONSTRUCTED PAVEMENT.
2. THE CONTRACTOR MAY CHOOSE TO INSTALL INTERMEDIATE COURSES OF PAVEMENT TO STABILIZE THE SITE DURING CONSTRUCTION AT NO ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ADEQUATE THICKNESS REQUIRED FOR INTERMEDIATE PAVING. INCREASES IN THE DESIGN PAVEMENT SECTION TO FACILITATE INTERMEDIATE PAVING SHALL BE PROVIDED AT NO ADDITIONAL COST.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGES TO SUBGRADE, INSTALLED BASE COURSE AND/OR INTERMEDIATE PAVING PRIOR TO PLACING SUBSEQUENT PAVEMENT LIFTS AT NO ADDITIONAL COST.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING PAVEMENT DURING ALL PHASES OF WORK. THE FINAL SURFACE OF PAVEMENT SHALL BE FREE OF ALL DEFECTS OR DAMAGE.
5. MILL 1.5" AND OVERLAY WITH 1.5" S9.5C TO REMOVE CONFLICTING PAVEMENT MARKING.

ROAD WIDENING NOTES

1. CONTRACTOR SHALL OBTAIN AND READ ALL NCDOT DRIVEWAY PERMITS AND ENCROACHMENTS. THEY SHALL BE A PART OF THESE PLANS.
2. ALL FINISHED SURFACES SHALL SLOPE TOWARDS DRAINAGE STRUCTURES AT POSITIVE SLOPE AND TO AVOID STANDING WATER.
3. CONTRACTOR TO PERFORM TRAFFIC AND PEDESTRIAN CONTROL PER NCDOT AND CITY OF ARCHDALE STANDARDS.
4. CONTRACTOR SHALL COORDINATE ALL WORK IN R/W WITH NCDOT AND CITY OF ARCHDALE INSPECTORS.



WIDENING TYPICAL DETAIL

NOT TO SCALE

TOWN CERTIFICATION

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Raleigh Water Review Officer

LEGEND

1.5" MILL AND OVERLAY

PROPOSED PAVEMENT

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SITE PERMITTING APPROVAL

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DATE 04/29/2025
DRAWN BY 331
DESIGNED BY 331
CHECKED BY T. CROSS
SCALE 1" = 50'

TIMMONS GROUP

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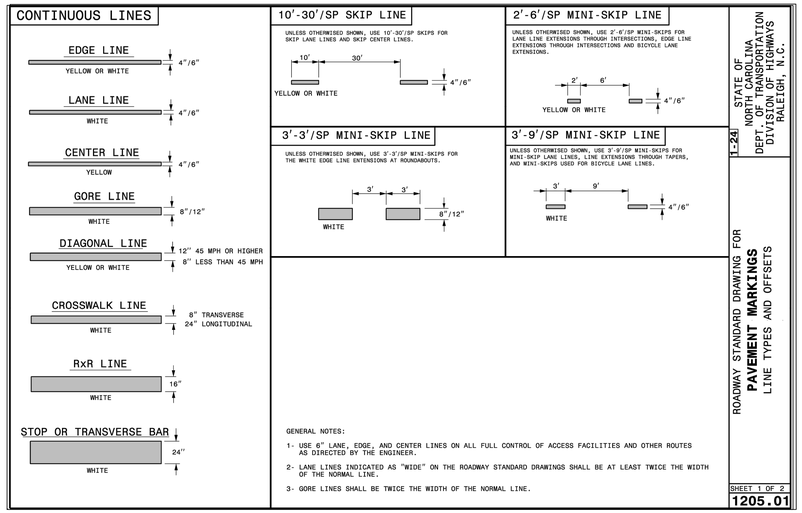
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

DETAILED ROADWAY WIDENING GRADING PLAN

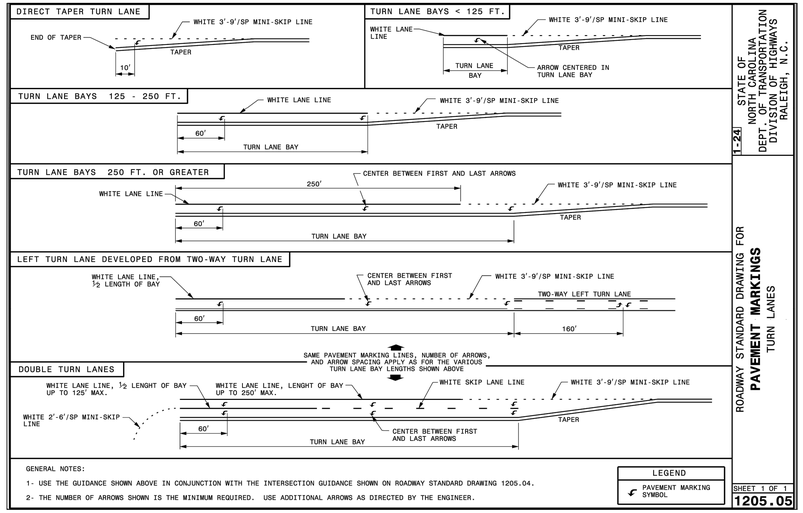
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SHEET NO. C10.1

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1 PAVEMENT MARKINGS
PLAN NTS



2 STANDARD ASPHALT MARKINGS
PLAN NTS

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04/29/2025

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DESIGNED BY
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CHECKED BY
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SCALE
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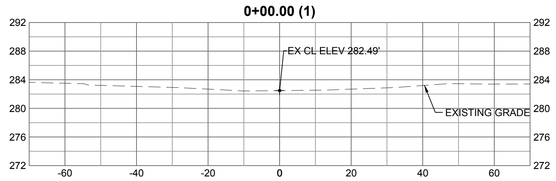
DETAILED ROADWAY WIDENING DETIALS

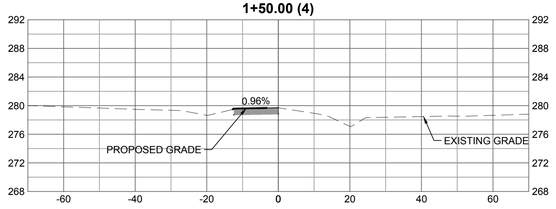
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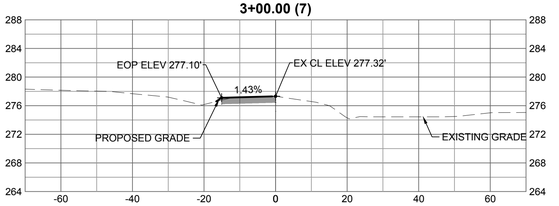
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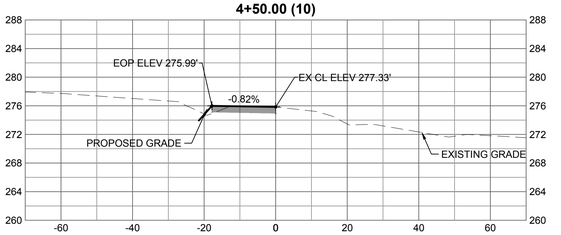
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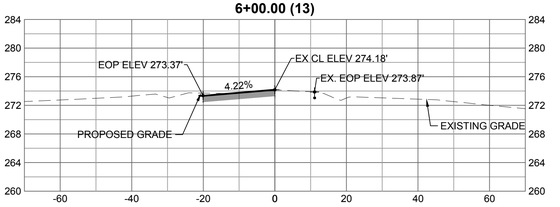
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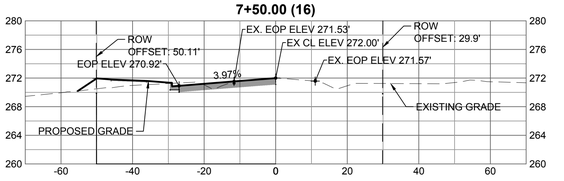


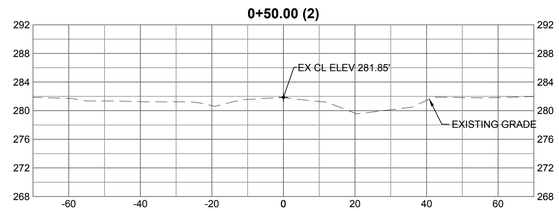


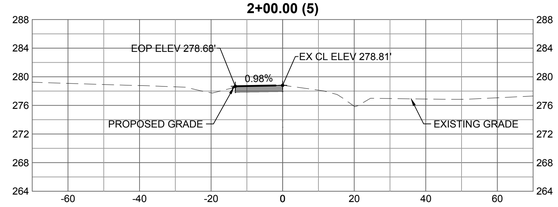


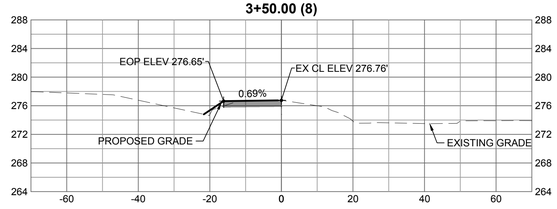


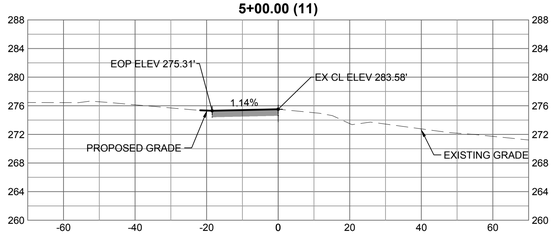


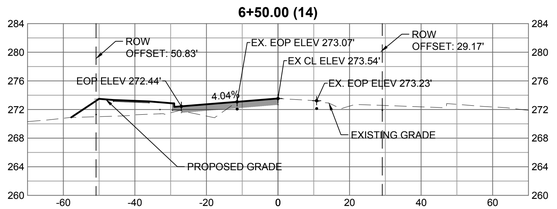


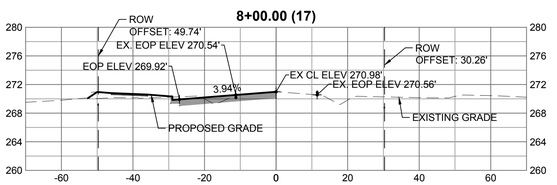


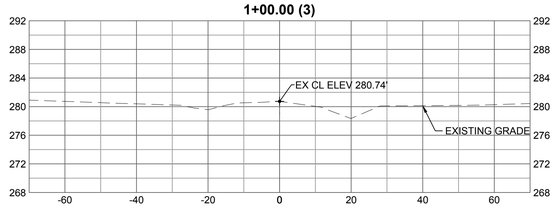


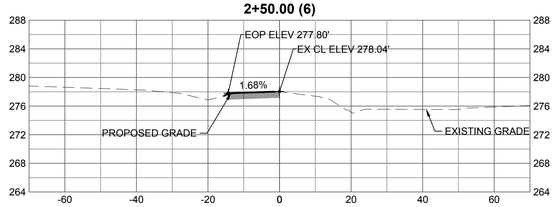


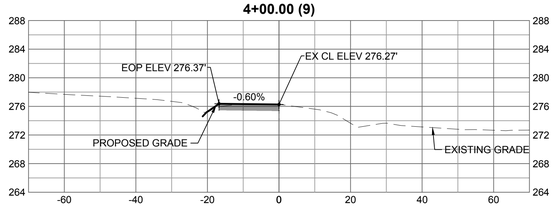


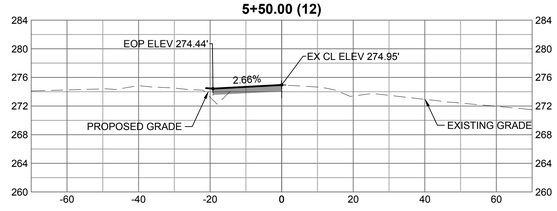


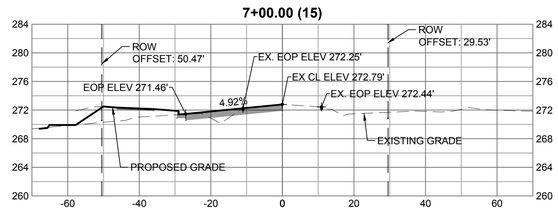












TOWN CERTIFICATION

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

811 Know what's below. Call before you dig.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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City of Raleigh Public Utilities Department Permit # _____

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

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RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025
DRAWN BY
331
DESIGNED BY
331
CHECKED BY
T. CROSS
SCALE
1" = 50'

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

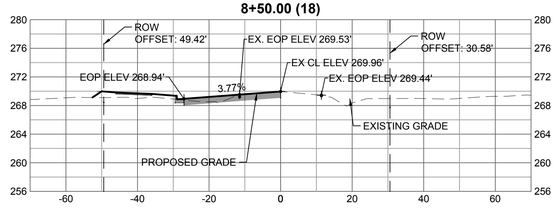
ROAD WIDENING CROSS SECTIONS - SHEET 1 OF 4

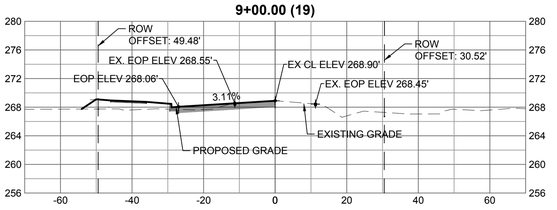
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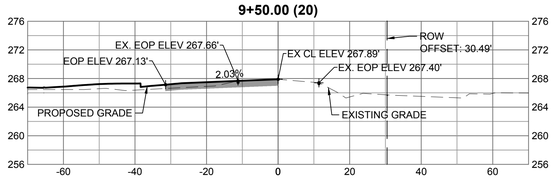
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51557
SHEET NO.
C10.3

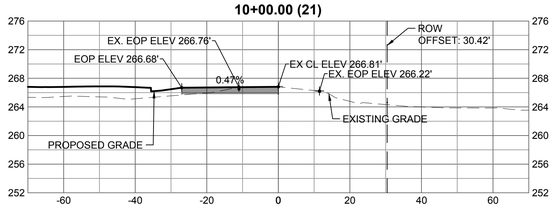
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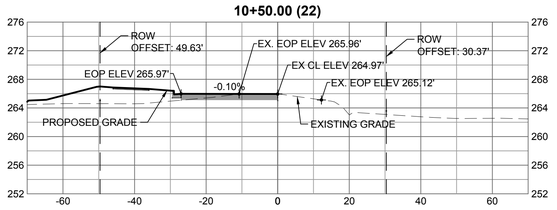
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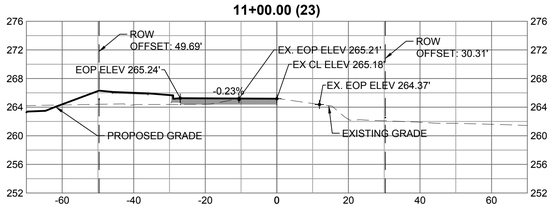


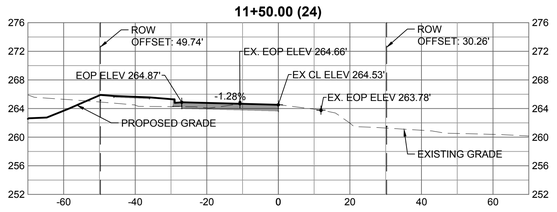


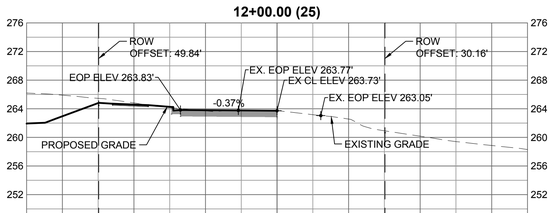


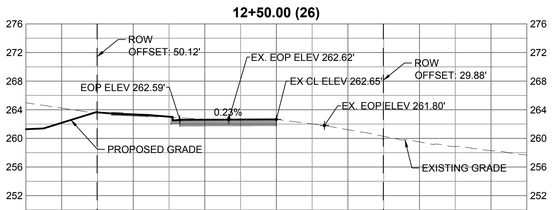


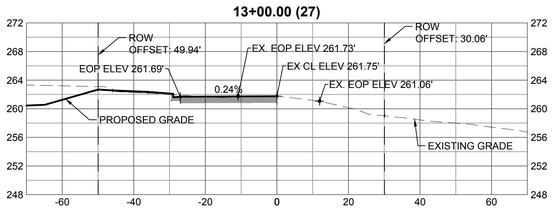


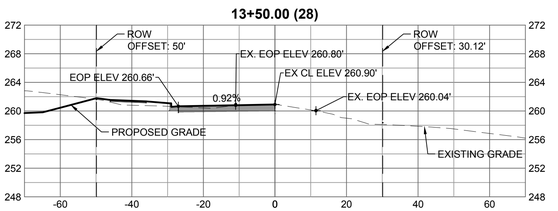


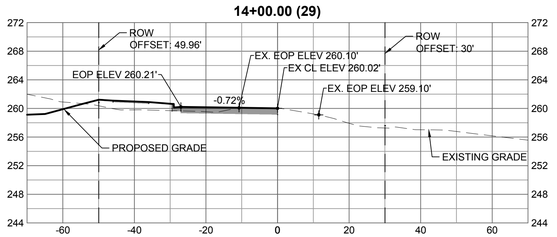


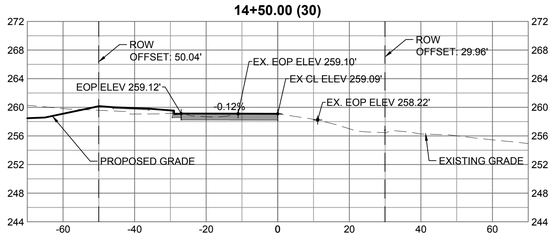


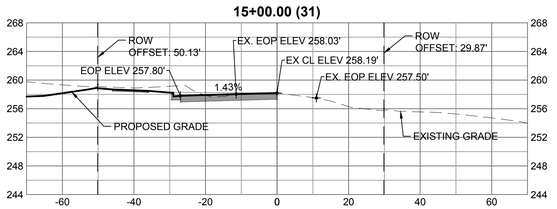


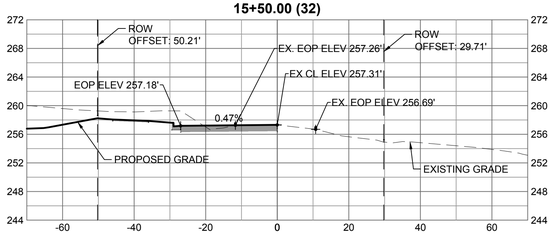


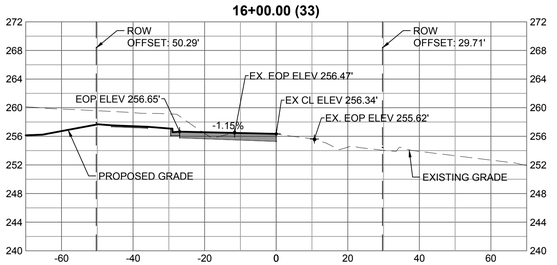


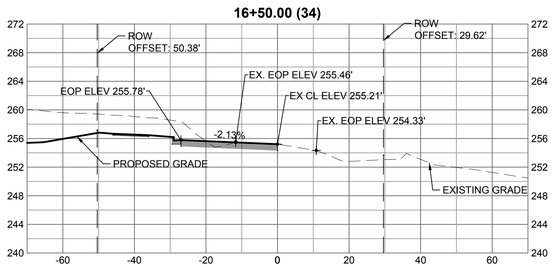












TOWN CERTIFICATION

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BY: _____ DATE: _____
TOWN ENGINEER

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LAND USE ADMINISTRATOR

Know what's **below.** **Call** before you dig.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

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City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 50'

JOB NO.
51557

SHEET NO.
C10.4

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

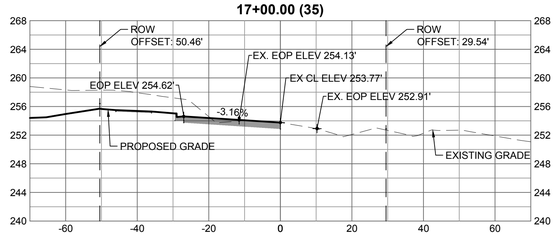
HAVEN AT GRIFFITH MEADOWS

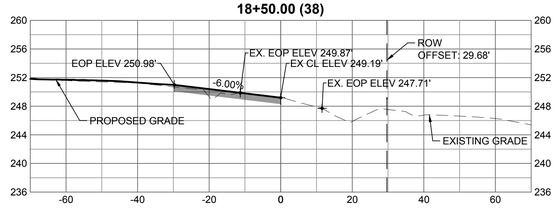
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

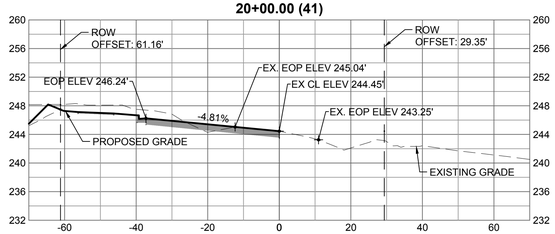
ROAD WIDENING CROSS SECTIONS - SHEET 2 OF 4

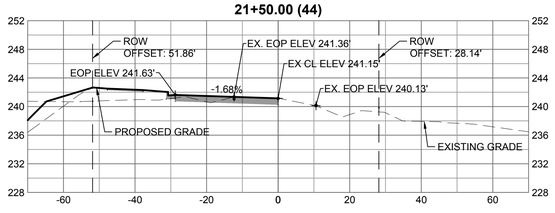
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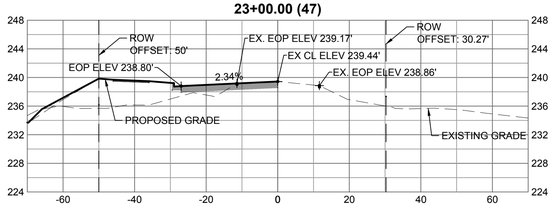
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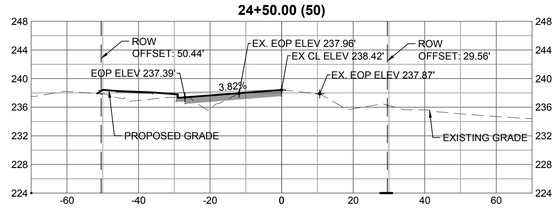


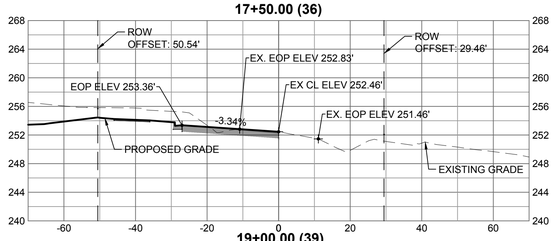


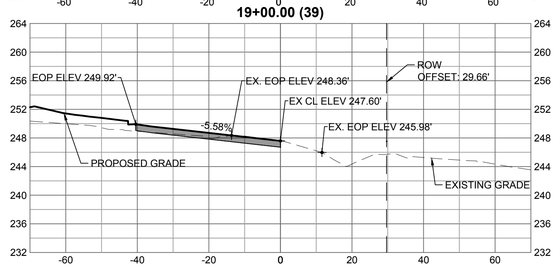


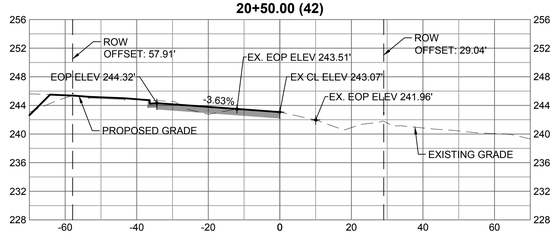


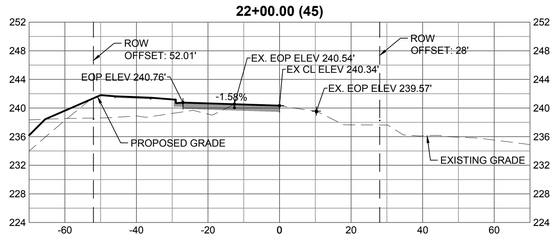


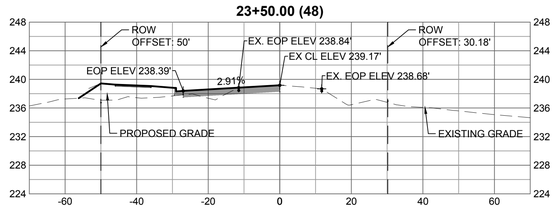


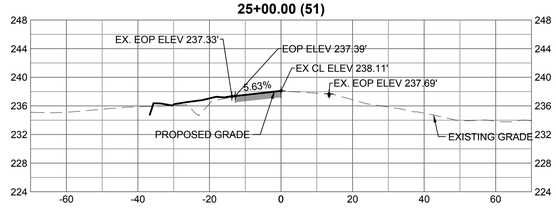


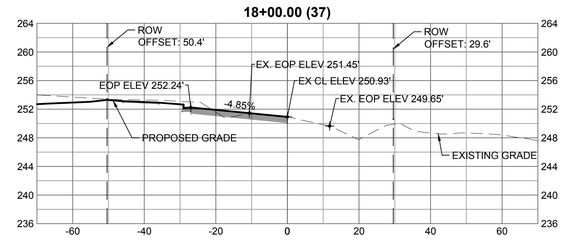


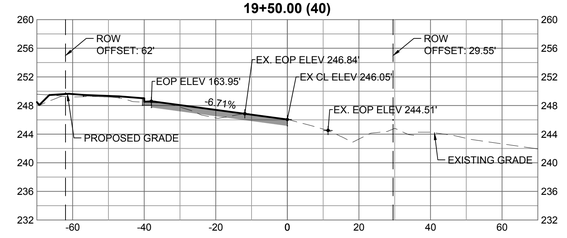


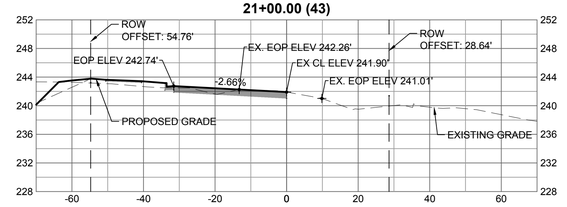


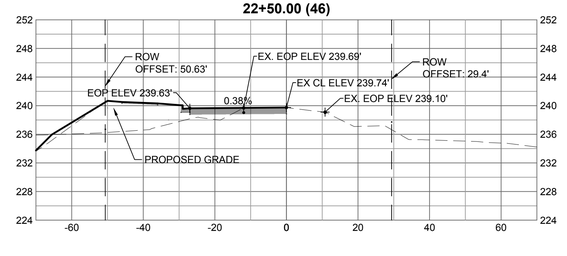


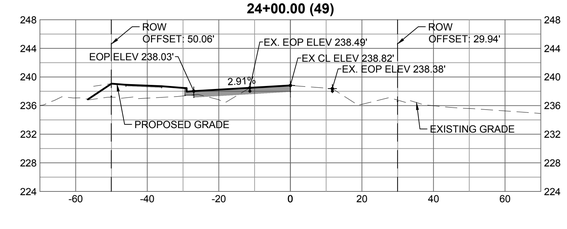












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Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must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

City of Raleigh Development Approval _____

Raleigh Water Review Officer

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

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

PROGRESS DRAWINGS
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REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE
1" = 50'

JOB NO.
51557

SHEET NO.
C10.5

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

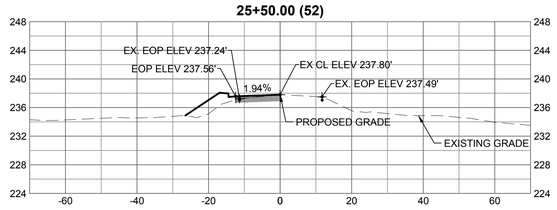
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

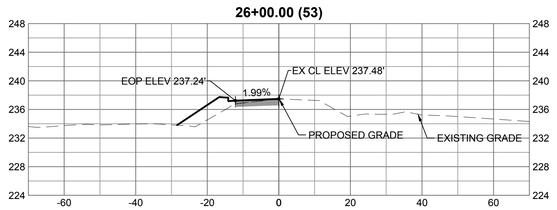
ROAD WIDENING CROSS SECTIONS - SHEET 3 OF 4

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\\timmons.com\dfs\300\331\51557-pools_rd_martin\DWG\Sheet\C2\51557-331C-10.3-ROAD WIDN CROSSSECTION.dwg | Plotted on 6/12/2025 8:14 AM | by Chris Parrish





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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LAND USE ADMINISTRATOR

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TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

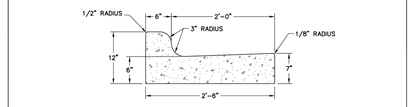
ROAD WIDENING CROSS SECTIONS - SHEET 4 OF 4

JOB NO.
51557

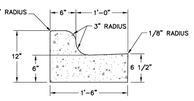
SHEET NO.
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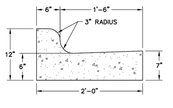
\\timmons.com\gdr-300\301561557_poole_rd_mann\DWG\Sheet\C2561557-331C-10.3-ROAD WIDN CROSSSECTION.dwg | Plotted on 6/12/2025 8:14 AM | by Chris Parrish



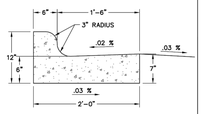
STANDARD 2'-6" CURB AND GUTTER



1'-6" STANDARD CURB AND GUTTER



2'-0" STANDARD CURB & GUTTER



SLOPE FOR VARIABLE
SUPER ELEVATION RATES

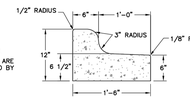
REVISIONS	
DATE	DESCRIPTION

1 of 3

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

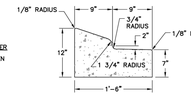
1'-6" MEDIAN CURB AND GUTTER

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



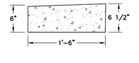
1'-6" MOUNTABLE CURB AND GUTTER

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.

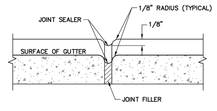


1'-6" STANDARD CURB AND GUTTER

REVISIONS	
DATE	DESCRIPTION

2 of 3

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



TRANSVERSE EXPANSION JOINT

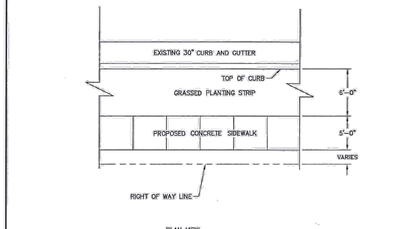
NOTES:

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



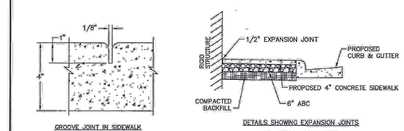
NOTES:

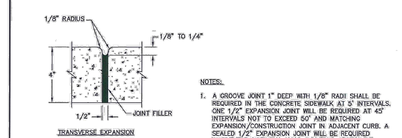
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET APART.
2. CONTROL JOINTS TO BE AT 5 FEET O.C.
3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.

REVISIONS	
DATE	DESCRIPTION

1 of 2

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





NOTES:

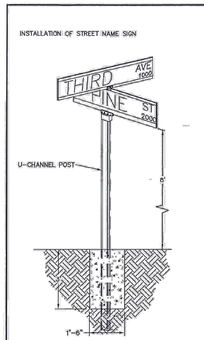
1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SCALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK 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.

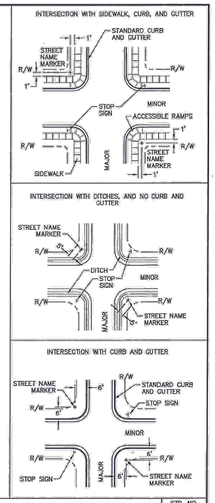
REVISIONS	
DATE	DESCRIPTION

2 of 2

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

INSTALLATION OF STREET NAME SIGN



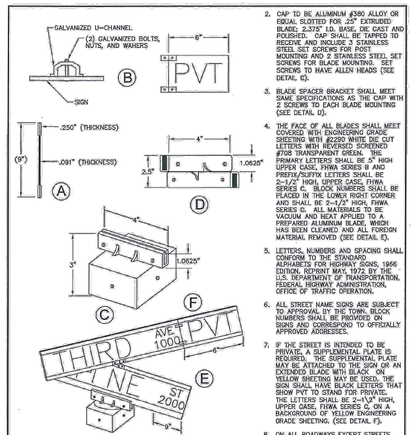


NOTES:

1. TWO STREET NAME MARKERS ARE REQUIRED IF THE MAJOR STREET HAS 3 OR MORE LANES.
2. ANY VARIANCE FROM THIS STANDARD MUST BE APPROVED BY THE TOWN OF KNIGHTDALE.
3. ALL DECORATIVE SIGNS MUST BE REVIEWED AND APPROVED BY THE TOWN.

REVISIONS	
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TOWN OF KNIGHTDALE STANDARD DETAILS	STREET NAME SIGN INSTALLATION LOCATIONS	STD. NO. 3.16

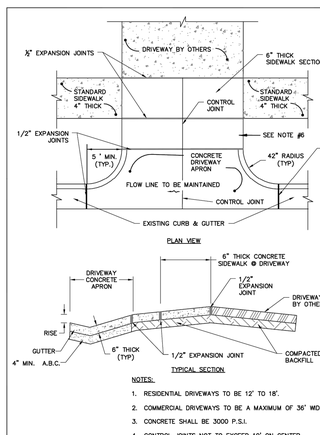


NOTES:

1. BLADES SHALL BE EXTRUDED ALUMINUM 6063T5 OR 6063T6 ALLOY .080" THICK. POST SHALL BE 10'-0" IN LENGTH, 3 LB. STEEL U-CHANNEL. SUPPORTS PER NCDOT STD. 1094-1(01).
2. CAP TO BE ALUMINUM #380 ALLOY OR EQUAL SLOTTED FOR .25" EXTRUDED BLADE, 2.375" I.D. BASE, DIE CAST AND POLISHED. CAP SHALL BE TAPPED TO RECEIVE AND INCLUDE 3 STAINLESS STEEL SET SCREWS FOR POST MOUNTING AND 2 STAINLESS STEEL SET SCREWS FOR BLADE MOUNTING. SET SCREWS TO HAVE ALLEN HEADS (SEE DETAIL C).
3. BLADE SPACER BRACKET SHALL MEET SAME SPECIFICATIONS AS THE CAP WITH 2 SCREWS TO EACH BLADE MOUNTING (SEE DETAIL D).
4. THE FACE OF ALL BLADES SHALL MEET COVERED WITH ENGINEERING GRADE SHEETING WITH #2290 WHITE DIE CUT LETTERS WITH REVERSED SCREENED #708 TRANSPARENT GREEN. THE PRIMARY LETTERS SHALL BE 5" HIGH UPPER CASE, FHWA SERIES B AND PREFIX/SUFFIX LETTERS SHALL BE 2-1/2" HIGH, UPPER CASE, FHWA SERIES C. BLOCK NUMBERS SHALL BE PLACED IN THE LOWER RIGHT CORNER AND SHALL BE 2-1/2" HIGH, FHWA SERIES G. ALL MATERIALS TO BE VACUUM AND HEAT APPLIED TO A PREPAINTED ALUMINUM BLADE, WHICH HAS BEEN CLEANED AND ALL FOREIGN MATERIAL REMOVED (SEE DETAIL E).
5. LETTERS, NUMBERS AND SPACING SHALL CONFORM TO THE STANDARD ALPHABETS FOR HIGHWAY SIGNS, 1966 EDITION, REPRINT MAY, 1972 BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, OFFICE OF TRAFFIC OPERATION.
6. ALL STREET NAME SIGNS ARE SUBJECT TO APPROVAL BY THE TOWN. BLOCK NUMBERS SHALL BE PROVIDED ON SIGNS AND CORRESPOND TO OFFICIALLY APPROVED ADDRESSES.
7. IF THE STREET IS INTENDED TO BE PRIVATE, A SUPPLEMENTAL PLATE IS REQUIRED. THE SUPPLEMENTAL PLATE MAY BE ATTACHED TO THE SIGN OR AN EXTENDED BLADE WITH BLACK ON YELLOW SHEETING MAY BE USED. THE SIGN SHALL HAVE BLACK LETTERS THAT SHOW PVT TO STAND FOR PRIVATE. THE LETTERS SHALL BE 2-1/2" HIGH, UPPER CASE, FHWA SERIES C, ON A BACKGROUND OF YELLOW ENGINEERING GRADE SHEETING. (SEE DETAIL F).
8. ON ALL ROADWAYS EXCEPT STREETS WITH STANDARD CURB AND GUTTER AND SPEED LIMITS EQUAL TO OR LESS THAN 25 MPH, ALL SIGNS WITHIN CLEAR ZONE SHALL BE OF A BREAKAWAY DESIGN THAT COMPLIES WITH THE LATEST EDITION OF AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE. (MASH)AND NCHRP REPORT 350.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STREET NAME SIGN	STD. NO. 3.17

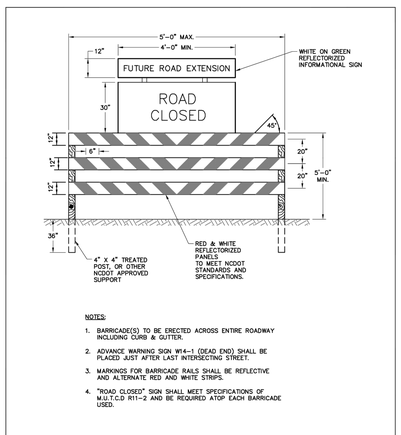


NOTES:

1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 18'.
2. COMMERCIAL DRIVEWAYS TO BE A MAXIMUM OF 36' WIDE.
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 5 FEET FROM PROPERTY LINE.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD DRIVEWAY APRON	STD. NO. 4.03

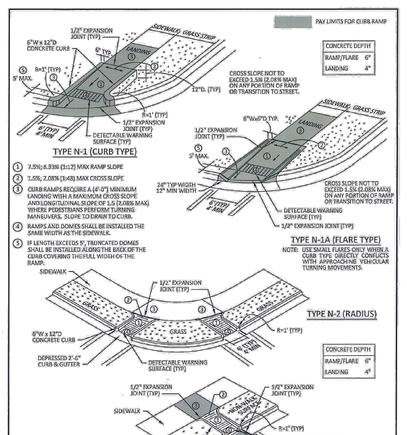


NOTES:

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 911-2 AND BE REQUIRED ATOP EACH BARRICADE USED.

REVISIONS	
DATE	DESCRIPTION

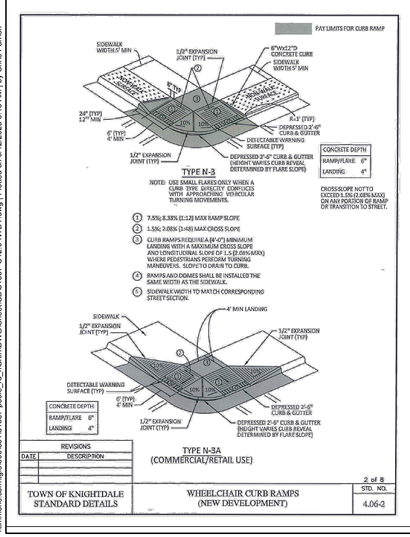
TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY BARRICADE FOR DEAD END ROADS	STD. NO. 3.18



REVISIONS	
DATE	DESCRIPTION

1 of 8

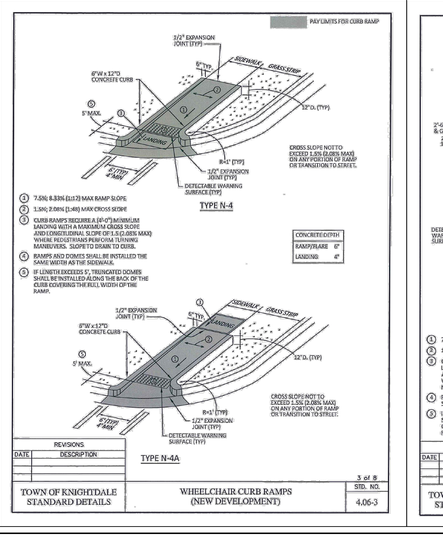
TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	STD. NO. 4.06-1



REVISIONS	
DATE	DESCRIPTION

2 of 8

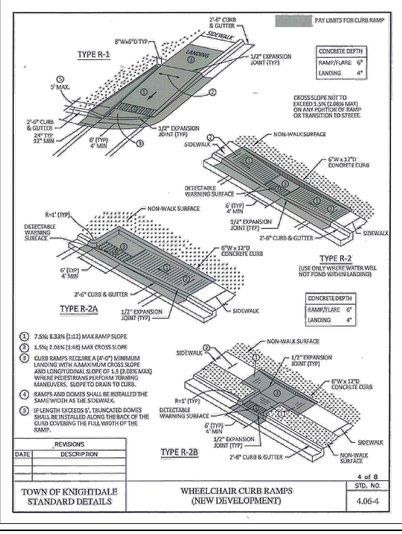
TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	STD. NO. 4.06-2



REVISIONS	
DATE	DESCRIPTION

3 of 8

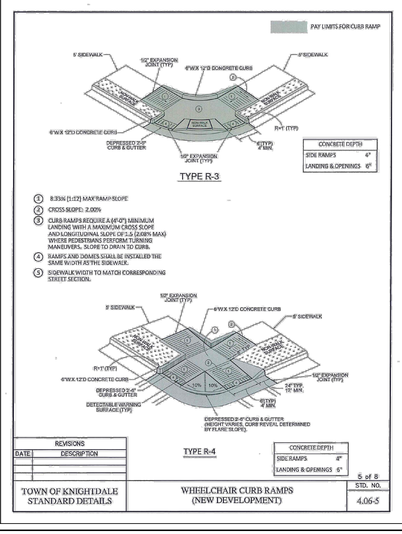
TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	STD. NO. 4.06-3



REVISIONS	
DATE	DESCRIPTION

4 of 8

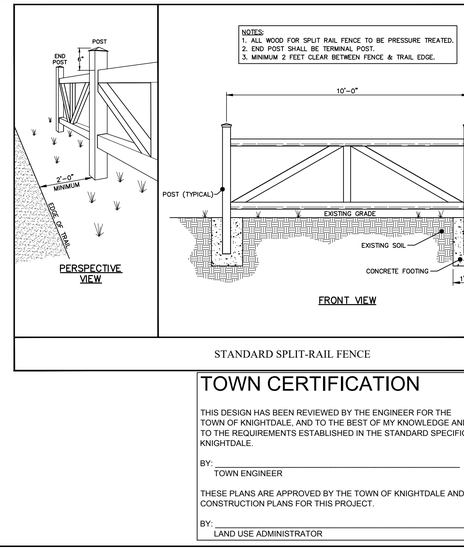
TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	STD. NO. 4.06-4



REVISIONS	
DATE	DESCRIPTION

5 of 8

TOWN OF KNIGHTDALE STANDARD DETAILS	WHEELCHAIR CURB RAMPS (NEW DEVELOPMENT)	STD. NO. 4.06-5



STANDARD SPLIT-RAIL FENCE

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

PROGRESS DRAWINGS
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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION

DATE

DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE:

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

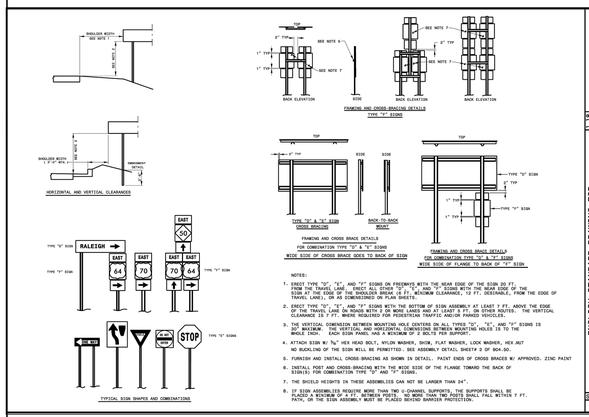
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
SITE DETAILS - SHEET 1 OF 3

JOB NO. 51557
SHEET NO. C12.0

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NOTES:

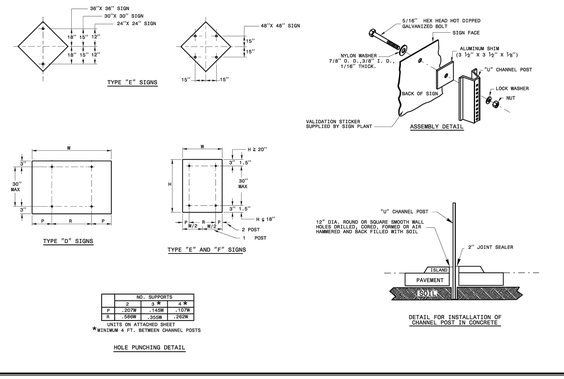
1. EXCEPT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE REAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL SIGNS "C" AND "F" SIGNS WITH THE REAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (8 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE). OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE SHOULDER BREAK (8 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE). WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGNS W/ ⅜" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX JAT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEETS # OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT EDGE OF CROSS BRACES W/ APPROVED. ZINC PAINT
6. INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "B" AND "F" SIGNS.
7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LANGER THAN 24".
8. IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED ON CENTERS NOT EXCEEDING 10 FT. SIGN ASSEMBLIES SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

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

1-1B

ENGLISH STANDARD DRAWING FOR
MOUNTING OF 'D', 'E' AND 'F' SIGNS
TYPE 'U' CHANNEL POSTS

SHEET 1 OF 2
904.50



NO. SUPPORTS		
2	3 ft	4 ft
P	.207ft	.145ft	.107ft
n	.586ft	.310ft	.207ft

*MINIMUM 4 FT. BETWEEN CHANNEL POSTS

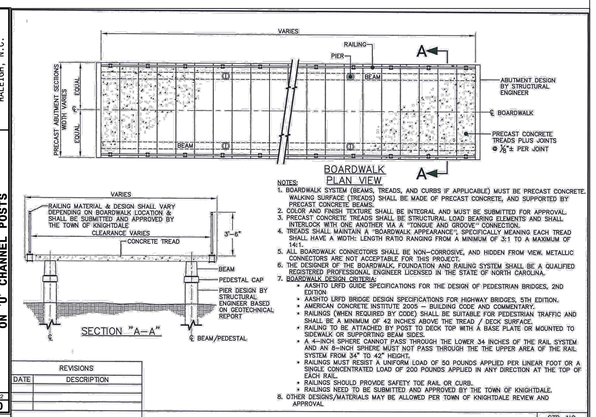
HOLE PUNCHING DETAIL

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

1-1B

ENGLISH STANDARD DRAWING FOR
MOUNTING OF SIGNS
TYPE 'D','E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 2 OF 2
904.50



NOTES:

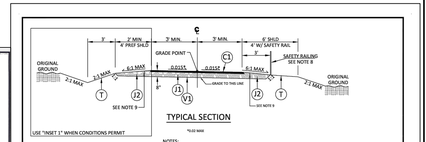
1. BOARDWALK SYSTEM (BEAMS, TREADS, AND CURBS IF APPLICABLE) MUST BE PRECAST CONCRETE. WALKING SURFACE (TREADS) SHALL BE MADE OF PRECAST CONCRETE, AND SUPPORTED BY PRECAST CONCRETE BEAMS.
2. COLOR AND FINISH TEXTURE SHALL BE INTEGRAL AND MUST BE SUBMITTED FOR APPROVAL.
3. PRECAST CONCRETE TREADS SHALL BE STRUCTURAL LOAD BEARING ELEMENTS AND SHALL INTERLOCK WITH ONE ANOTHER VIA A "TONGUE AND GROOVE" CONNECTION.
4. TREADS SHALL MAINTAIN A "BOARDWALK APPEARANCE", SPECIFICALLY MEANING EACH TREAD SHALL HAVE A WIDTH: LENGTH RATIO RANGING FROM A MINIMUM OF 3:1 TO A MAXIMUM OF 1:4:1.
5. ALL BOARDWALK CONNECTORS SHALL BE NON-CORROSIVE, AND HIDDEN FROM VIEW. METALLIC CONNECTORS ARE NOT ACCEPTABLE FOR THIS PROJECT.
6. THE DESIGNER OF THE BOARDWALK, FOUNDATION AND RAILING SYSTEM SHALL BE A QUALIFIED REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA.
7. BOARDWALK DESIGN CRITERIA:
   - AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2ND EDITION
   - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, 5TH EDITION.
   - AMERICAN CONCRETE INSTITUTE 2005 — BUILDING CODE AND COMMENTARY.
   - RAILINGS (WHEN REQUIRED BY CODE) SHALL BE SUITABLE FOR PEDESTRIAN TRAFFIC AND SHALL BE A MINIMUM OF 42 INCHES ABOVE THE TREAD / DECK SURFACE.
   - RAILING TO BE ATTACHED BY POST TO DECK TOP WITH A BASE PLATE OR MOUNTED TO SIDEWALK OR SUPPORTING BEAM SIDES.
   - A 4-INCH SPHERE CANNOT PASS THROUGH THE LOWER 34 INCHES OF THE RAIL SYSTEM AND AN 8-INCH SPHERE MUST NOT PASS THROUGH THE THE UPPER AREA OF THE RAIL SYSTEM FROM 34" TO 42" HEIGHT.
   - RAILINGS MUST RESIST A UNIFORM LOAD OF 50 POUNDS APPLIED PER LINEAR FOOT OR A SINGLE CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT THE TOP OF EACH RAIL.
   - RAILINGS SHOULD PROVIDE SAFETY TOE RAIL OR CURB.
   - RAILINGS NEED TO BE SUBMITTED AND APPROVED BY THE TOWN OF KNIGHTDALE.
8. OTHER DESIGNS/MATERIALS MAY BE ALLOWED PER TOWN OF KNIGHTDALE REVIEW AND APPROVAL.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD PRECAST CONCRETE BOARDWALK (PLAN & SECTION VIEW)

STD. NO. 4.09-2



NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. WHEN CONDITIONS PERMIT, USE 4' 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 SOD 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 3'.
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 OR 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.

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

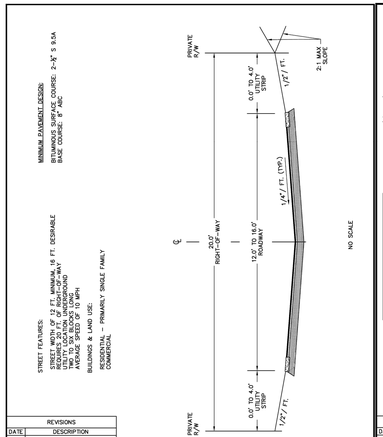
RUNNING SLOPE	MAX LENGTH OF SEGMENT
1:20 (5%)	200 FT
1:12(8.33%)	30 FT

REVISIONS	
DATE	DESCRIPTION

MODIFIED TOWN OF KNIGHTDALE STANDARD DETAILS

MODIFIED ASPHALT TYPICAL GREENWAY SECTION VARIABLE WIDTH (0' MIN)

STD. NO. MODIFIED 4.09-1

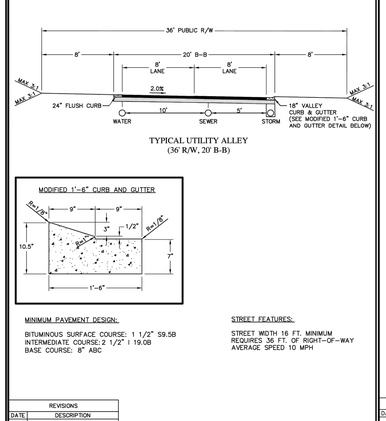


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

ALLEY SECTION

STD. NO. 3.01-1



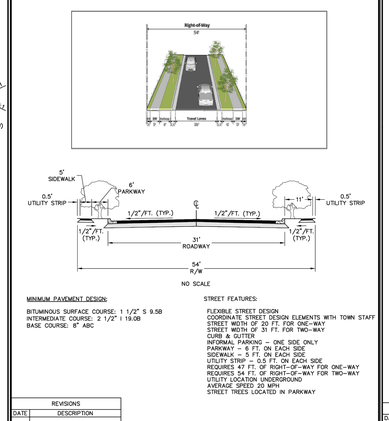
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

PUBLIC ALLEY SECTION

STD. NO. 3.01-2

1 of 1

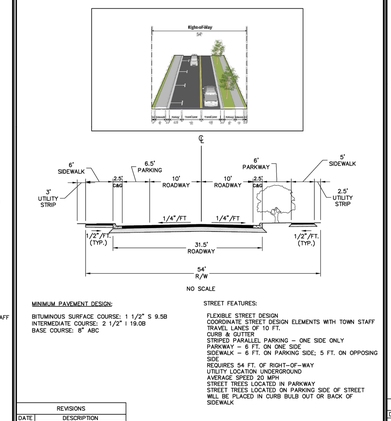


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

LOCAL STREET - 2 LANES
SIDEWALKS

STD. NO. 3.02-1

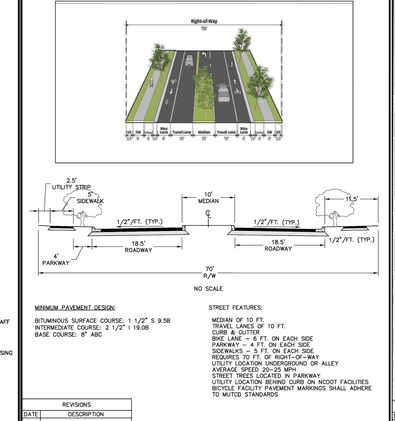


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

LOCAL STREET - ON STREET PARKING
ONE SIDE ONLY

STD. NO. 3.02-2

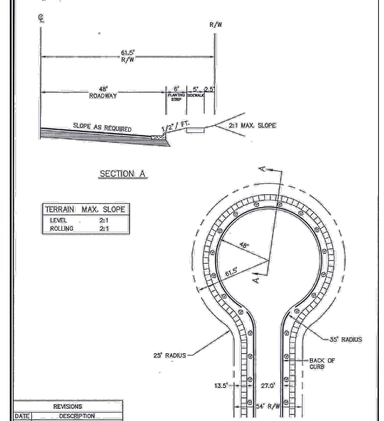


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

MAIN STREET - 3 LANES
BIKE LANES

STD. NO. 3.03

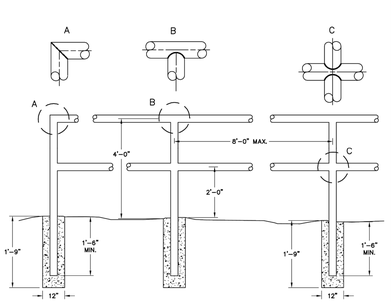


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

CUL DE SAC SECTION

STD. NO. 3.08



NOTES:

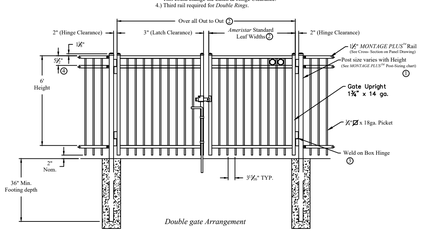
1. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
2. TYPE OF PIPE TO BE USED IS 1-5/8" MAX. O.D. BLACK IRON, LOW CARBON PIPE.
3. ALL JOINTS TO HAVE A 1/2" FILLET WELD.
4. AFTER INSTALLATION, PAINT ASSEMBLY WITH BLACK ALL WEATHER ENAMEL.
5. TO BE USED AS REQUIRED BY THE TOWN ENGINEER.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

TYPICAL HANDRAIL

STD. NO. 4.13



NOTES:

1.) Post size depends on fence height, weight and wind loads. See *MONTAGE PLUS™* specifications for post sizing chart.
2.) See *Americast* Standard Leaf Widths for standard out to outs. Custom gate openings available but require additional width.
3.) Additional styles of gate hardware are available on request. This could change the Latch & Hinge Clearance.
4.) Third rail required for *Double Rings*.

Values shown are nominal and not to be used for installation purposes. See product specification for installation requirements.

ALUMIUM FENCE DETAIL (BLACK) NTS

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

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DATE: 04/29/2025
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: T. CROSS
SCALE:

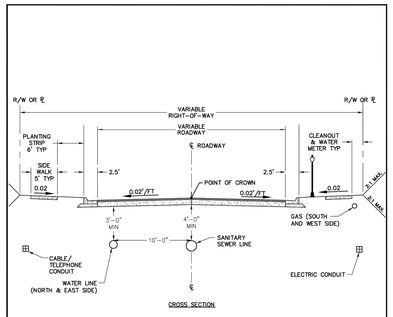
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
SITE DETAILS - SHEET 2 OF 3

JOB NO. 51557
SHEET NO. C12.1

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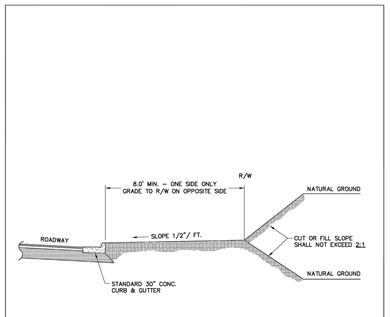
CROSS SECTION

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.

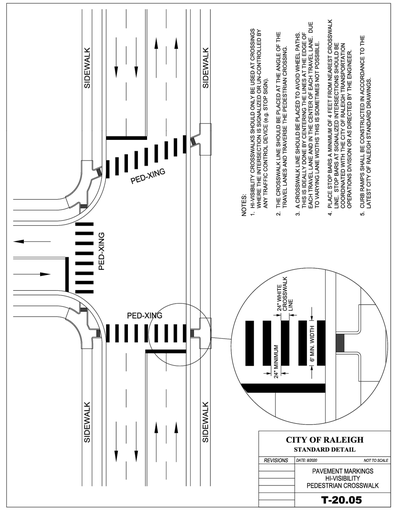
REVISIONS	
DATE	DESCRIPTION

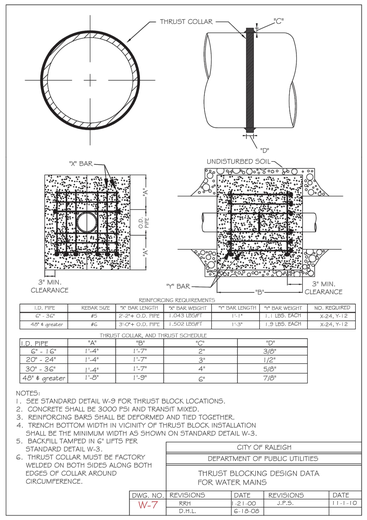
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD UTILITY LOCATION IN STREET	STD. NO. 3.13



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD SHOULDER SECTION WITHOUT SIDEWALK	STD. NO. 3.09


SIDEWALK
SIDEWALK
PED-XING
PED-XING
PED-XING
SIDEWALK
SIDEWALK
24" WHITE
STOP BAR
LANE LINE
6" MIN.
6" MIN.
6" MIN.



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"A" BAR LENGTH	"B" BAR WEIGHT	"H" BAR LENGTH	"T" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2"# O.D. PIPE	3.043 LBS/FT	1'-1"	1.1 LBS. EACH	x-24, Y-12
42" & greater	#6	3'-0"# O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	x-24, Y-12

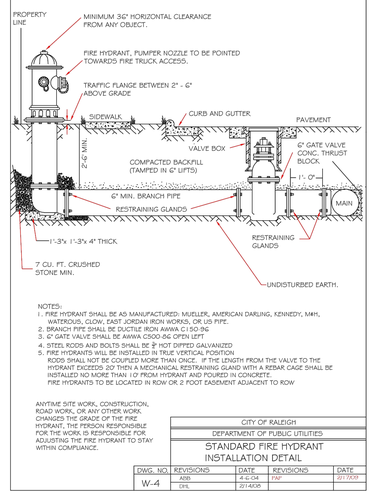
THRUST COLLAR AND THRUST SCHEDULE

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"
42" & greater	1'-8"	1'-9"	6"	7/8"

NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	2-1-00	J.P.S.	11-1-10
	D.H.L.	6-18-08		

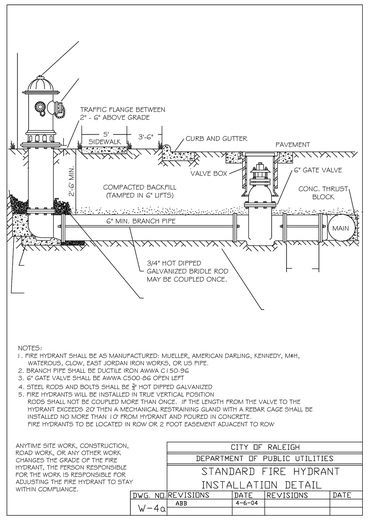


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M+H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96.
3. 6" GATE VALVE SHALL BE AWWA C500-06 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED
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 1-0 FROM HYDRANT AND POURED IN CONCRETE. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABB	4-6-04	PM	07/7/09
	DHL	07/4/08		

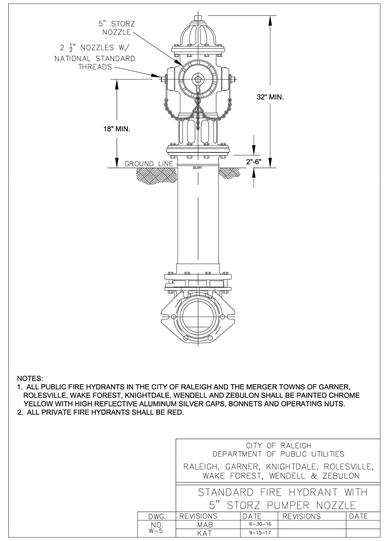


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M+H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
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CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

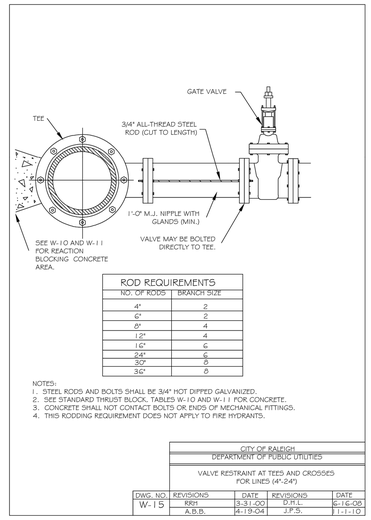
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4a	ABB	4-6-04		



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-5	MAB	6-30-16		
	KAT	9-15-17		



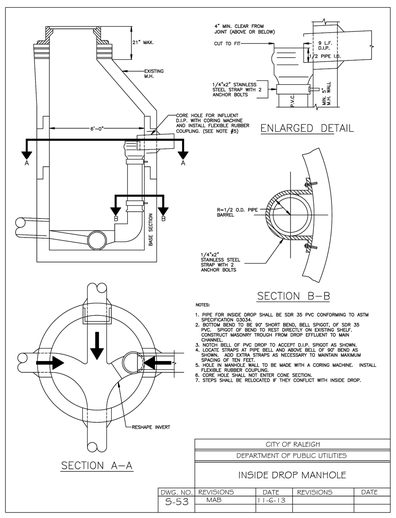
ROD REQUIREMENTS

NO. OF RODS	BRANCH SIZE
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	6
36"	0

NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. SEE STANDARD THRUST BLOCK TABLES W-10 AND W-11 FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"-24")

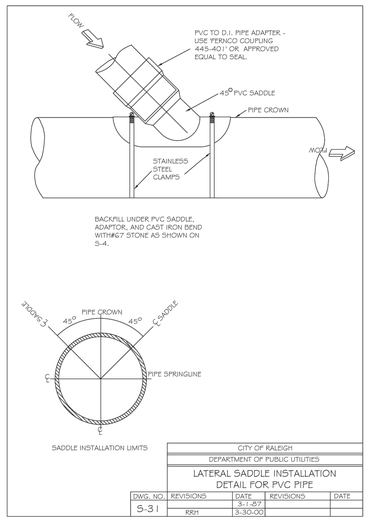
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	RRH	3-31-00	D.H.L.	6-16-06
	A.B.B.	4-19-04	J.P.S.	11-1-10



NOTES:
1. PIPE FOR INSIDE DROP SHALL BE SDR 35 PVC CONFORMING TO ASTM SPECIFICATION D3034.
2. BOTTOM BEND TO BE 90° SHORT BEND, BELL SPIGOT, OF SDR 35 SPIGOT OF BEND TO REST DIRECTLY ON EXISTING SHELF. CONCRETE MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNELS.
3. NOTCH BELL OF PVC DROP TO ACCEPT D.I.P. SPIGOT AS SHOWN. PROVIDE 3 STAINLESS STEEL STRAPS AS SHOWN. ADD EXTRA STRAPS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF TEN FEET.
4. ALL CUTTING OF PIPE SHALL TO BE MADE WITH A CORING MACHINE. INSTALL FLEXIBLE RUBBER COUPLING.
5. CORE HOLE SHALL NOT ENTER CONE SECTION.
6. STEPS SHALL BE RELOCATED IF THEY CONFLICT WITH INSIDE DROP.

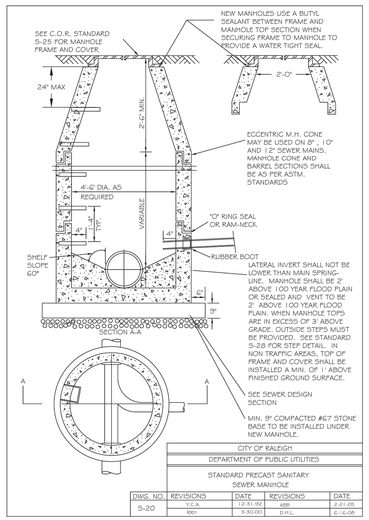
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
INSIDE DROP MANHOLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-53	MAB	11-6-13		



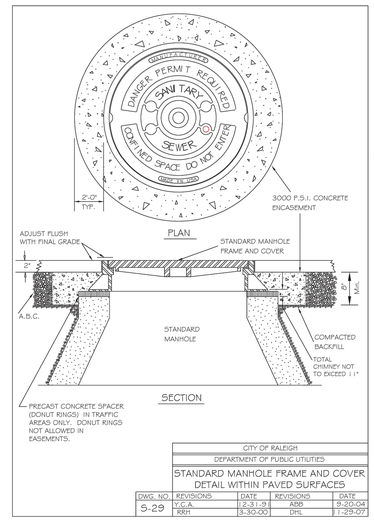
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-31		3-1-07		
	RRH	3-30-00		



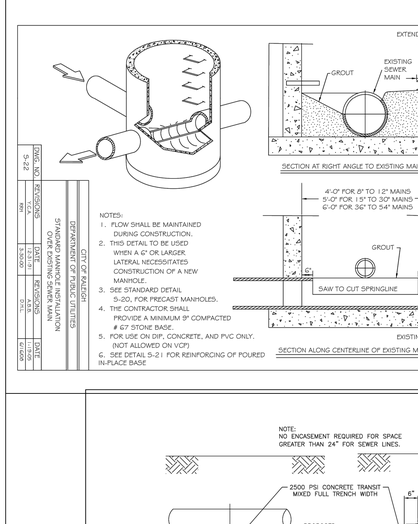
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-31-92	ABB	2-21-05
	RRH	3-30-00	D.H.L.	6-16-08



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

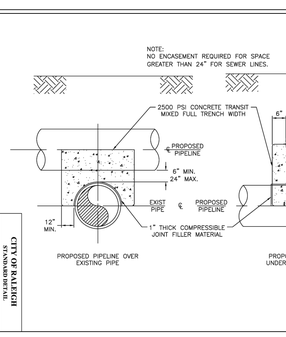
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	2-31-91	ABB	9-20-04
	RRH	3-30-00	DHL	1-29-07



NOTES:
1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.
2. THIS DETAIL TO BE USED WHEN A 6" OR LARGER LATERAL NECESSITATES CONSTRUCTION OF A NEW MANHOLE.
3. SEE STANDARD DETAIL S-20, FOR PRECAST MANHOLES.
4. THE CONTRACTOR SHALL PROVIDE A MINIMUM 9" COMPACTED #67 STONE BASE.
5. FOR USE ON DIP, CONCRETE, AND PVC ONLY. (NOT ALLOWED ON VCP)
6. SEE DETAIL S-21 FOR REINFORCING OF POURED IN-PLACE BASE

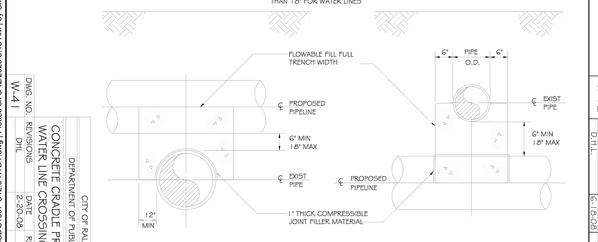
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE INSTALLATION OVER EXISTING SEWER MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-22	A.B.B.	4-19-04	J.P.S.	11-1-10
	D.H.L.	6-16-08		



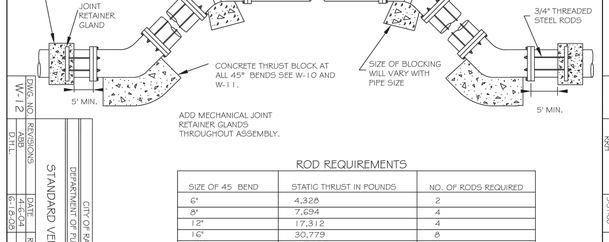
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD DETAIL FOR SEWER LINE CROSSINGS OVER PROTECTION FOR SEWER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	JEFF ZIMMER	4-19-04	JEFF ZIMMER	4-19-04



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	D.H.L.	2-20-06		



ROD REQUIREMENTS

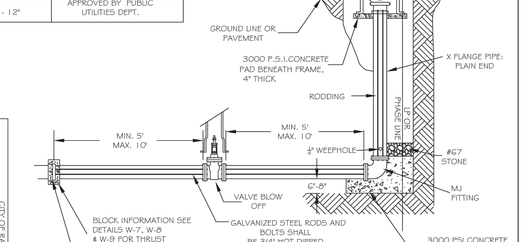
SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	6
24"	69,252	6

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

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD VERTICAL BEND

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	ABB	4-6-04	P.S.	11-1-10
	D.H.L.	6-18-08		

MAIN SIZE	END PIPE SIZE
16" & GREATER	6" MIN.
6" - 12"	APPROVED BY PUBLIC UTILITIES DEPT.



NOTES:
1) NO ROD COUPLINGS ALLOWED

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	D.H.L.	6-18-08		
	J.P.S.	11-1-10		
	A.B.B.	4-19-04		
	D.H.L.	6-16-08		

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

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

PROGRESS DRAWINGS
- DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

TIMMONS GROUP

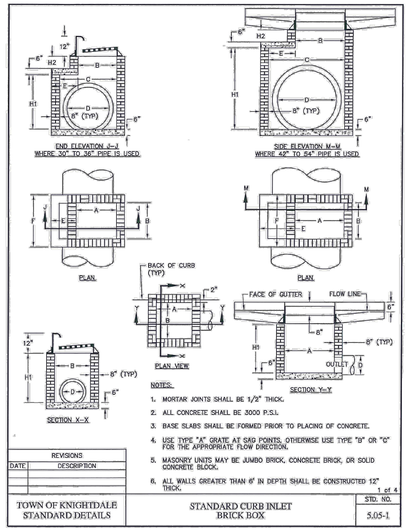
HAVEN AT GRIFFITH MEADOWS
KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
WATER AND SEWER DETAILS
NORTH CAROLINA LICENSE NO. C-1652

JOB NO.
51557

SHEET NO.
C12.3

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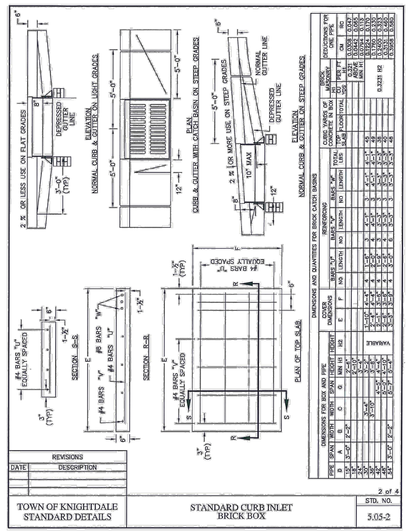
\\timmons.com\gis\300533151\527\pooch_nt_mentin\DWG\Sheet\03151527-C12.3.NTDT.dwg | Plotted on 6/12/2025 8:15 AM | by Chris Parrish



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET BRICK BOX	STD. NO. 5.05-1

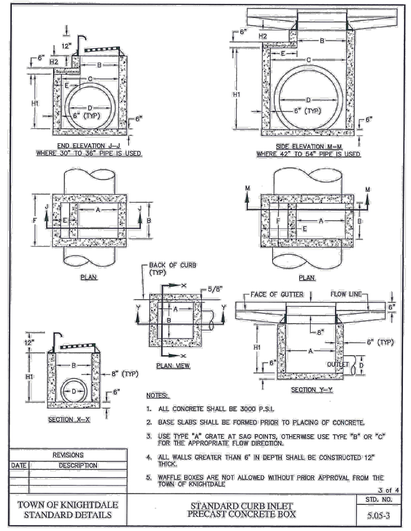
1 of 4



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET BRICK BOX	STD. NO. 5.05-2

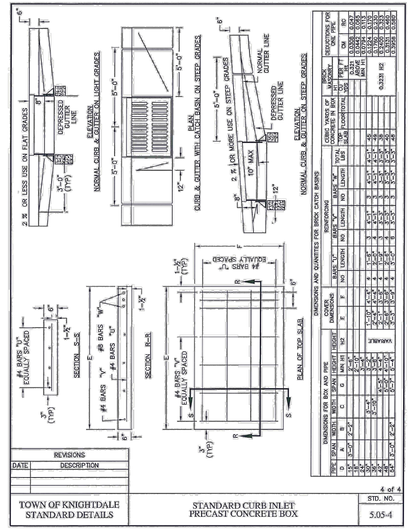
2 of 4



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET PRECAST CONCRETE BOX	STD. NO. 5.05-3

3 of 4



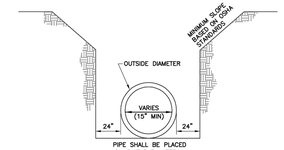
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB INLET PRECAST CONCRETE BOX	STD. NO. 5.05-4

4 of 4

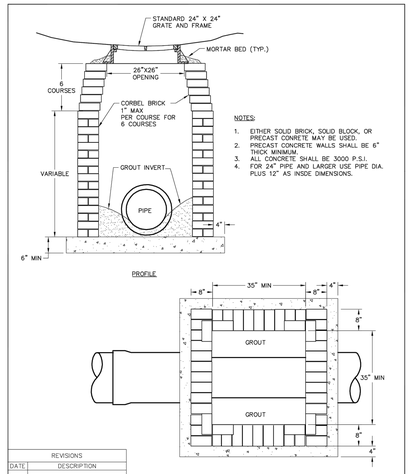
NOTES:

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.



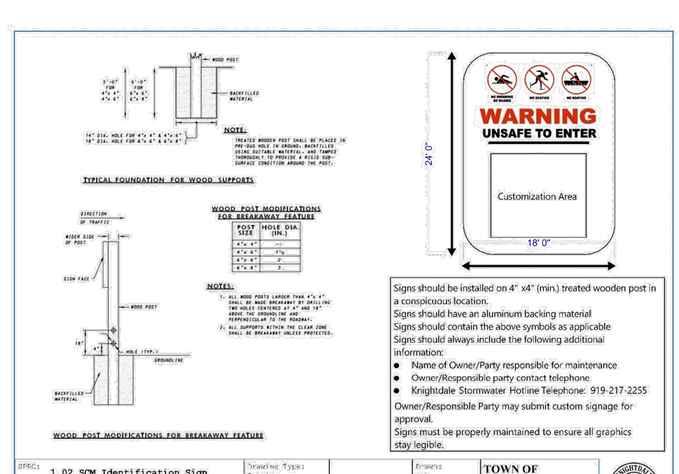
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TRENCH FOR STORM DRAIN PIPES	STD. NO. 5.02

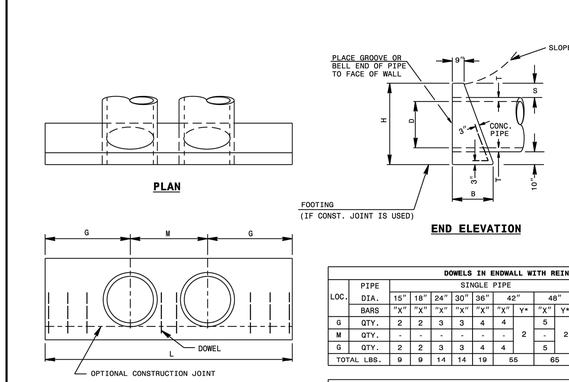


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD DROP INLET WITH GRATE AND FRAME	STD. NO. 5.04



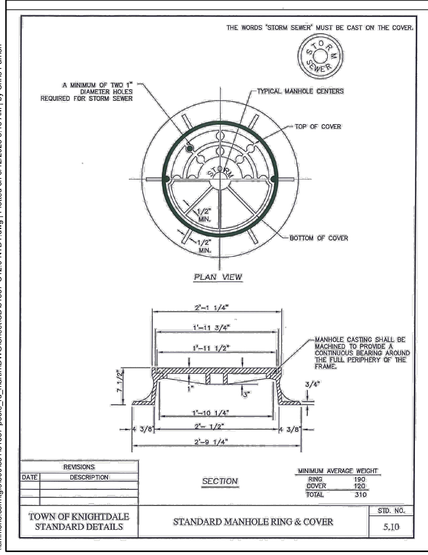
SPECs: 1.02 SCM Identification Sign	Drawing Type: Detail		Drawn: PB	TOWN OF KNIGHTDALE STANDARD DETAILS
Title: Stormwater Control Measure Signage Detail	Scale: N/A	Date: 11-30-2020	Rev: 1.1	



DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE																	
LOC.	PIPE	SINGLE PIPE								DOUBLE PIPE							
	DIA.	15"	18"	24"	30"	36"	42"		48"		15"	18"	24"	30"	36"	42"		48"	
	BARS	"X"	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*	"X"	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*
G	QTY.	2	2	3	3	4	4		5		2	2	3	3	4	4		5	
M	QTY.	-	-	-	-	-	-	2	-	2	1	1	2	2	2	2	2	3	2
G	QTY.	2	2	3	3	4	4		5		2	2	3	3	4	4		5	
TOTAL LBS.		9	9	14	14	19	55		65		12	12	19	19	23	77		92	

DIMENSIONS AND CONCRETE QUANTITIES USING CONCRETE PIPE										
	COMMON DIMENSIONS					SINGLE PIPE		DOUBLE PIPE		
D	H	B	G	T	S	L	YD³	L	YD³
15"	3'-3"	1'-8"	2'-9"	2¼"	9½"	5'-6"	0.7	2'-2"	7'-8"	1.0
18"	3'-7"	1'-10"	3'-2"	2½"	10"	6'-4"	1.0	2'-7"	8'-11"	1.3
24"	4'-2"	2'-1"	4'-0"	3"	10"	8'-0"	1.5	3'-5"	11'-5"	2.0
30"	5'-0"	2'-6"	4'-7"	4¼"	11½"	9'-2"	2.3	4'-3"	13'-5"	3.1
36"	5'-8"	2'-8"	5'-6"	4¾"	11½"	11'-0"	3.4	5'-0"	16'-0"	4.5
42"	6'-2"	3'-1"	6'-4"	5¼"	11½"	12'-8"	4.5	5'-10"	18'-6"	6.0
48"	6'-9"	3'-5"	7'-2"	5¾"	11½"	14'-4"	6.0	6'-8"	21'-0"	8.0

*SEE SHEET 3



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

SITE PERMITTING APPROVAL

Water and Sewer Permits (if applicable)

The City of Raleigh consents to the connection and extension of the City's **Public Sewer System** as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. **City of Raleigh Public Utilities Department Permit #** S-5503

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-4142

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 # _____

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

PROGRESS DRAWINGS
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5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
04/29/2025

DRAWN BY
331

DESIGNED BY
331

CHECKED BY
T. CROSS

SCALE

PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION

1-18

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

ROADWAY STANDARD DRAWING FOR
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3
838.01

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HAVEN AT GRIFFITH MEADOWS

KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

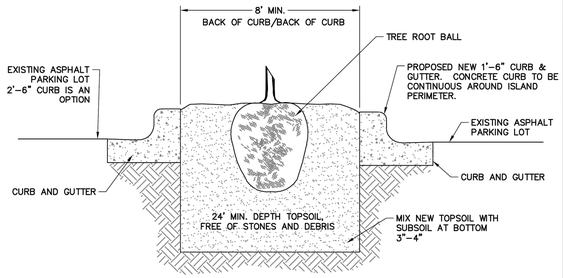
STORM DETAILS

JOB NO.
51557

SHEET NO.
C12.4

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NOTES:

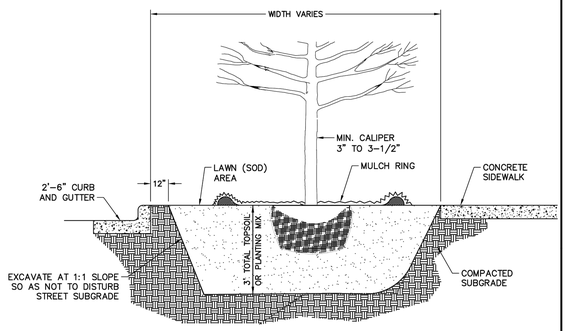
1. 300 SF MIN. TOTAL REQUIRED AREA PER TREE.
2. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB-BASE AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES.
3. REMOVE COMPACTED SOIL AND ADD 24" NEW OR TOPSOIL/PLANTING MIX OR UNCOMPACT AND AMEND TOP 24" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING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

REVISIONS	
DATE	DESCRIPTION

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

NOTES:

1. 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.

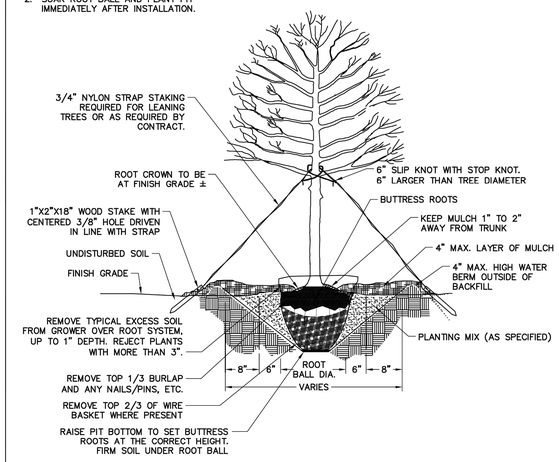


REVISIONS	
DATE	DESCRIPTION
	07.01.2024

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

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

MATERIAL PROPERTY DATA SHEET

WESTERN GREEN

VMax® C350™

Permanent • Triple Net • Organic Fiber Matrix • Turf Reinforcement Mat

DESCRIPTION

C350 Turf Reinforcement Mat (TRM) is composed of 100% coconut fibers mechanically (stitch) bound between a three-dimensional UV stabilized, heavy duty synthetic net structure. Stitching is secured on two-inch centers using UV stabilized, synthetic thread. C350 is a permanent, three-dimensional TRM that provides immediate erosion protection and long-term turf reinforcement and is intended for applications requiring erosion protection for greater than thirty-six months.



Each roll of C350 is made in the USA and manufactured under Western Green's Quality Assurance Program to ensure a continuous distribution of fibers and consistent thickness.

Material Content	
Matrix	Coconut
Netting	Top Net: Heavyweight, UV stable Middle Net: Corrugated Ultra-Heavyweight, UV stable Bottom Net: Heavyweight, UV stable
Thread	Synthetic, UV Stable

Standard Roll Sizes				
Width	8 ft	(2.4 m)	6.5 ft	(2.0 m)
Length	90 ft	(27.4 m)	55.5 ft	(17.0 m)
Weight ± 10%	74 lb	(34.0 kg)	37 lb	(17.0 kg)
Area	80 sy	(66.9 m²)	40 sy	(33.4 m²)

Material available in custom roll sizes

Approvals & Classification	
Classification	FHWA: Type 5.C / ECTC: 5.D
TTI Approvals	Class 2 Type H
NTPEP Number	ECP-2020-01-14

Index Property	Test Method	Typical	
Thickness	ASTM D6525	0.58 in.	(15 mm)
Mass/Unit Area	ASTM D6566	15.0 oz/sy	(500 g/sm)
Tensile Strength – MD	ASTM D6818	750 lbs/ft	(10.9 kN/m)
Tensile Strength – TD	ASTM D6818	750 lbs/ft	(10.9 kN/m)
Elongation – MD	ASTM D6818	30%	
Elongation – TD	ASTM D6818	20%	
UV Stability	ASTM D4355	80% @1000 hr	
Light Penetration	ASTM D6567	10%	
Biomass Improvement	ASTM D7322	350%	
Specific Gravity	ASTM D792	57.4 lb/ft³	(0.92 g/cm³)
Porosity	ECTC	N/A	

Design Parameters		
Property	Unvegetated	Vegetated[3]
RUSLE C Factor[2]	0.05	N/A
Slope Maximum Gradient[1]	0.5H:1V	0.5H:1V
Permissible Shear Stress[2]	3.2 psf (155 Pa)	12.0 psf (575 Pa)
Permissible Velocity[2]	10.5 fps (3.2 m/s)	18.0 fps (5.5 m/s)
τ_{max} / τ_{max} (HEC-15)	N/A	0.44
Manning's n Roughness (HEC-15)		
T_{unvg}	T_{veg}	T_{upper}
0.035	0.032	0.027

1 Maximum Gradient a recomendation for typical installations.
2 Hydraulic thresholds compliant with ASTM D6459/D6460 but generalized for typical applications.
3 Vegetated values dependent on established stand of vegetation

Disclaimer: The information contained herein may represent product index data, performance ratings, bench scale testing or other material utility quantifications. Each representation may have unique utility and limitations. Every effort has been made to ensure accuracy, however, no warranty is claimed and no liability shall be assumed by Western Green or its affiliates regarding the completeness, accuracy or fitness of these values for any particular application or interpretation. While testing methods are provided for reference, values shown may be derived from interpolation or adjustment to be representative of intended use. For further information, please feel free to contact Western Green.

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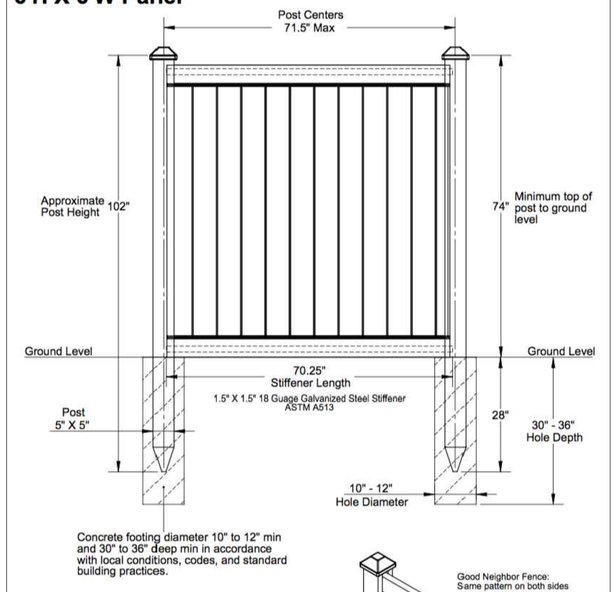
NORTH AMERICAN GREEN

Rev. 4.2023
Scan for additional and updated product information, or click here.

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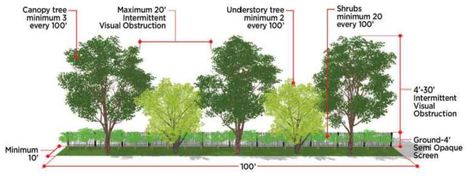
westerngreen.com

6'H X 6'W Panel

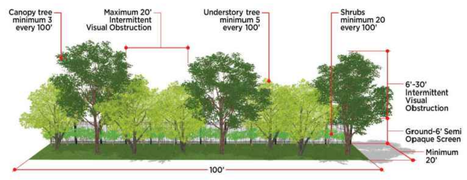


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Date: May 1, 2015	Scale: not to scale	REV: A Gleason
Sheet 1 of 1	U.S. Patents: 7,478,797 / 7,635,114 Foreign Patents Pending	

SimTek FENCE
www.simtekfence.com



TYPE A BUFFER YARD
NOT TO SCALE



TYPE B BUFFER YARD
NOT TO SCALE

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T. CROSS
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KNIGHTDALE - ST. MATTHEWS TOWNSHIP - WAKE COUNTY - NORTH CAROLINA
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