

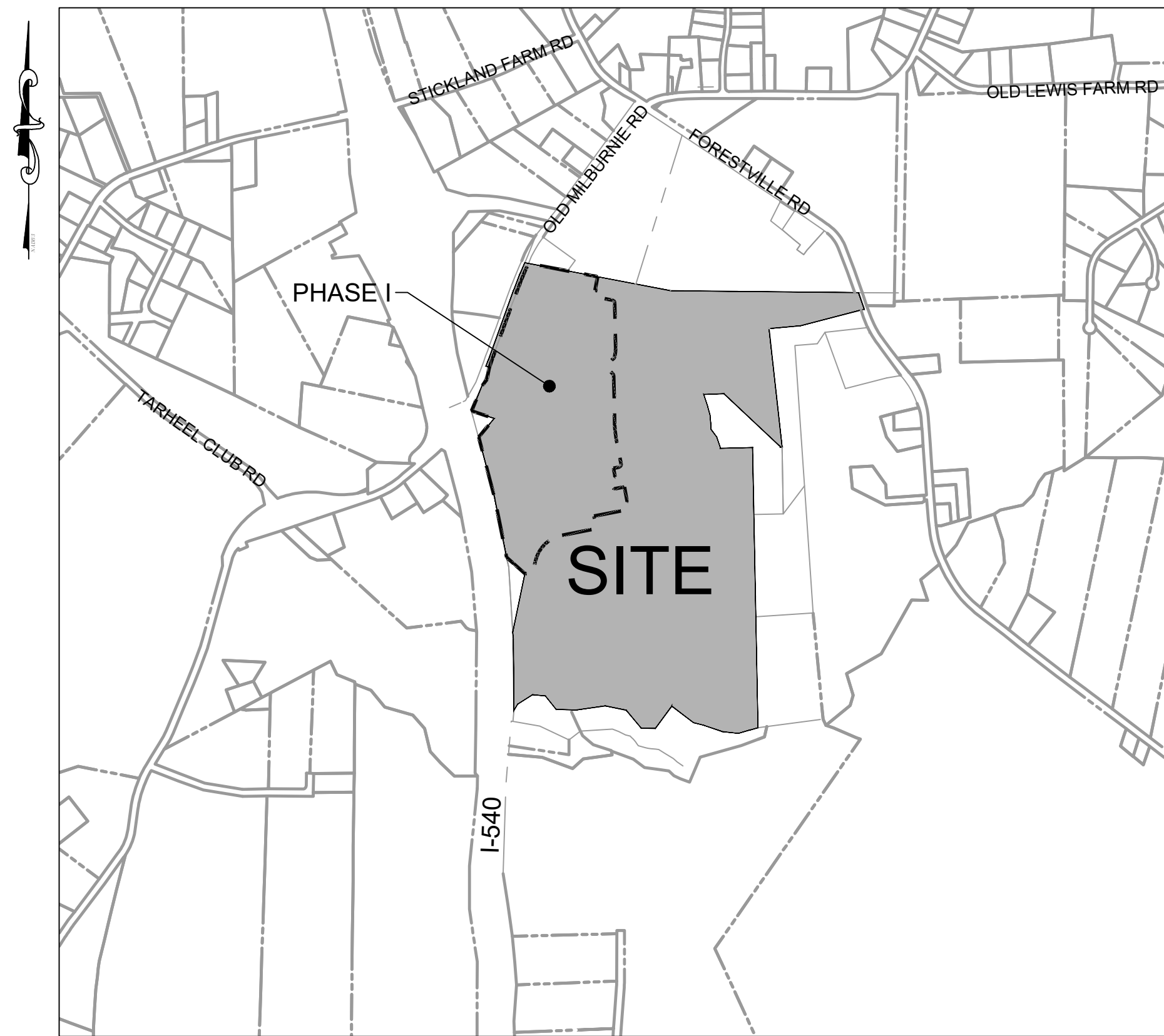
ALLEN PARK SUBDIVISION

CONSTRUCTION DOCUMENTS - PHASE 1 TOWN OF KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

ZMA-5-20

SITE DATA

PROJECT:	ALLEN PARK SUBDIVISION - PHASE 1	
ENGINEER:	TIMMONS GROUP 5410 TRINITY ROAD, SUITE 102 RALEIGH, NC 27607 PHONE: 919-866-4509 FAX: 919-859-5663 MIKE ZACCARDO, PE EMAIL: MIKE.ZACCARDO@TIMMONS.COM	
DEVELOPER:	NATELLI COMMUNITIES 1903 N. HARRISON AVE CARY, NC 27513 PHONE: 919-868-3102 BRIAN MASSENGILL EMAIL: BRIAN@NATELLI.COM	
PROPERTY LOCATION:	2300 OLD MILBURNIE ROAD WAKE COUNTY, NORTH CAROLINA	
PINS:	1745-43-7740, 1745-43-0006, 1745-54-5662, PORTION OF 1745-54-6015	
EXISTING ZONING:	GR-8 PUD (APPROVED ON 4/21/21)	
TOWNSHIP:	ST. MATTHEW'S	
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL	
TOTAL PROPOSED UNITS:	138 TOTAL 81 SINGLE FAMILY + 57 ATTACHED TOWNHOMES	
SETBACKS:	FRONT LOAD DETACHED FRONT: 10' DRIVEWAY LENGTH: 20' REAR: 20' SIDE: 5' CORNER: 10'	REAR LOAD DETACHED FRONT: 10' DRIVEWAY LENGTH: 20' REAR: 20' CORNER: 10'
	REAR LOAD TOWNHOME FRONT: 10' DRIVEWAY LENGTH: 20' REAR: 20' BUILDING SEPARATION: 10' CORNER: 10'	
DENSITY:	PROPOSED DENSITY = 3.46 DU/A	
CONNECTIVITY INDEX:	NODES = 50 LINKS = 73 73 / 50 = 1.46	
OPEN SPACE:	OPEN SPACE AREA PROVIDED: 24.80 AC ACTIVE OPEN SPACE AREA PROVIDED: 13.12 AC	
TREE COVER AREA:	DEVELOPMENT PERIMETER = 15,165 LF TREE COVER AREA = 15,165 LF * 20 LF = 303,280 SF NEUSE RIVER BUFFER AREA = 465,991 SF SHOD OVERLAY AREA = 137,319 SF TREE COVERAGE PROVIDED = 603,310 SF	



VICINITY MAP

SCALE 1"=1,000'
0 1,000' 2,000'

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER
C0.1	PROJECT NOTES
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C1.3	EXISTING CONDITIONS - SHEET 3 OF 3
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C5.4	LAMPLIGHTER DRIVE PLAN & PROFILE
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C5.6	SWEET BRIAR COURT PLAN & PROFILE
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C5.11	ALLEY C SOUTH PLAN & PROFILE
C5.12	ALLEY D PLAN & PROFILE
C5.13	ALLEY G PLAN & PROFILE
C5.14	ALLEY I PLAN & PROFILE
C5.15	ALLEY K PLAN & PROFILE

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C5.18	STORM OUTFALL PROFILES
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C6.2	SCM2 PLAN & PROFILE
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C9.3	LANDSCAPE DETAILS

ATTENTION CONTRACTORS

The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Works Department at (919) 996-2409, and the Public Utilities Department at (919) 996-4540 at least twenty four hours prior to beginning any of their construction.

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

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

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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: _____
DEVELOPMENT SERVICES ENGINEER
THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
BY: _____ DATE: _____
ADMINISTRATOR

PUBLIC INFRASTRUCTURE QUANTITIES TABLE - PHASE 1

Sewer		Concrete/Asphalt		Stormwater		Site Data	
PHASE 1				PHASE 1			
Manholes	43 EA	Private Streets	4,222 LF	15" RCP	5,701 LF	Number of Lots	138
8" Public Sanitary Sewer	5,921 LF	Public Streets	5,814 LF	18" RCP	423 LF	GPD Usage Water	66,240
Sewer Services	138 EA	Public 5' Sidewalk	10,855 LF	18" HDPE	169 LF	GPD Usage Sewer	41,400
PHASE 1				PHASE 1			
12" Public Water main	746 LF	30" Curb & Gutter	12,290 LF	24" RCP	833 LF	Calculation for GPD Water (per Unit)	480
8" Public Water main	4,878 LF			30" RCP	137 LF	Calculation for GPD Sewer (per Unit)	300
6" Public Water main	364 LF			36" RCP	1824 LF		
Water Services	140 EA			42" RCP	474 LF		
Fire Hydrant Assemblies	18 EA						
12" Gate Valves	5 EA						
8" Gate Valves	22 EA						
6" Gate Valves	1 EA						
12" X 12" Tees	2 EA						
8" X 8" Tees	7 EA						
8" X 8" Cross	1 EA						
8" Blow Off Assemblies	4 EA						
8" Water Reducers	2 EA						
6" Water Reducers	1 EA						

PIPE SPECIFICATIONS

WATER:
A) 12" AND 8" DUCTILE IRON PIPE
SANITARY SEWER:
B) 8" SDR 35 PVC, 8" DUCTILE IRON PIPE

OWNER OF RECORD

ALLEN PARK LLC
MICHAEL J NATELLI
506 MAIN ST STE 300
GAITHERSBURG MD 20878-5768

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

Natelli Communities

THOUGHTFUL PLANNING
TIMELESS DESIGN
ATTENTION TO DETAIL

SURVEY NOTE

BOUNDARY TAKEN FROM SURVEY BY TAYLOR LAND, DATED NOVEMBER 12, 2020.

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-4890

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-3827

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 # _____

CONSTRUCTION DRAWING APPROVAL REQUIRED FOR DEVELOPMENT



FOR REVIEW ONLY

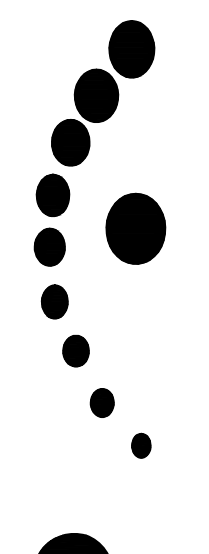
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5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919-866-4509 FAX 919-859-5663 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.
REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022
11/21/2022

DRAWN BY
33J
DESIGNED BY
33J
CHECKED BY

SCALE
N/A



ALLEN PARK SUBDIVISION - PHASE 1
NORTH CAROLINA LICENSE NO. C-1652
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

JOB NO.
44529
SHEET NO.
C0.0

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COVER
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S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase 1\44529-331-CO.0-COVR.dwg | Plotted by Logan Oriss

GENERAL NOTES

- BOUNDARY SURVEY TAKEN FROM KCI ASSOCIATES, DATED JANUARY 16, 2020, CERTIFIED BY JAMES. M GELLENTHIN, PLS. TOPOGRAPHY IS FROM SURVEY BY TAYLOR LAND ON 11/1/2021.
- THE CONTRACTOR SHALL CONTACT NC ONE CALL CENTER PRIOR TO ANY DIGGING.
- ALL PUBLIC WATER IMPROVEMENTS SHALL CONFORM TO ALL WAKE COUNTY PUBLIC UTILITIES DEPT. AND NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DEPARTMENT OF ENVIRONMENTAL HEALTH PUBLIC WATER SUPPLY STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER IMPROVEMENTS SHALL CONFORM TO ALL WAKE COUNTY PUBLIC UTILITIES DEPT. AND NCDENR DWQ STANDARDS AND SPECIFICATIONS.
- 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.
- THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FACILITIES, ABOVE OR BELOW GROUND THAT MAY OCCUR AS A RESULT OF THE WORK PERFORMED BY THE CONTRACTOR.
- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXCAVATIONS AGAINST COLLAPSE AND SHALL PROVIDE BRACING, SHEETING OR SHORING AS NECESSARY. TRENCHES SHALL BE KEPT DRY WHILE PIPES ARE BEING PLACED, DEWATERING SHALL BE USED AS REQUIRED, AND PERMITTED THROUGH LOCAL GOVERNMENTAL AGENCIES AND WATER MANAGEMENT DISTRICT PER CURRENT REGULATIONS AT THE SOLE COST OF THE CONTRACTOR.
- 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.

ZONING CONDITIONS

- TOWNHOMES SHALL BE TWO-STORY HOMES WITH A MINIMUM WIDTH OF 22' WIDE AND HAVE A MINIMUM HEATED AREA OF 1,500 SQUARE FEET.
- NEO TRADITIONAL SINGLE FAMILY DETACHED HOMES SHALL BE REAR LOADED TWO-STORY HOMES BUILT ON LOTS LESS THAN 60 FEET WIDE WITH A MINIMUM HEATED AREA OF 1,500 SQUARE FEET.
- SINGLE FAMILY RANCH DETACHED HOMES SHALL BE BUILT ON LOTS TYPICALLY 60 FEET WIDE, BUT UP TO 20 HOMES MAY BE BUILT ON LOTS THAT ARE AT LEAST 55 FEET WIDE, WITH A MINIMUM HEATED AREA OF 1,480 SQUARE FEET, AND NO MORE THAN 25% OF THE RANCH HOMES MAY BE LESS THAN 1,500 SQUARE FEET.
- TRADITIONAL SINGLE FAMILY DETACHED HOMES SHALL BE TWO-STORY HOMES BUILT ON LOTS AT LEAST 60 FEET WIDE WITH A MINIMUM HEATED AREA OF 2,100 SQUARE FEET. NO MORE THAN 10% OF THE TRADITIONAL SINGLE FAMILY DETACHED HOMES MAY BE HOMES LESS THAN 35' WIDE.
- ALL HOMES WILL EITHER CONSIST OF A SINGLE MATERIAL OF BRICK OR STONE OR WILL HAVE A COMBINATION OF 2 OR MORE OF THE FOLLOWING MATERIALS ON THE FRONT FACADE (NOT INCLUDING FOUNDATIONS): STONE, BRICK, LAP SIDING, FIBER CEMENT SIDING, SHAKES, OR BOARD AND BATTEN SIDING, WITH SIDE AND REAR FACADES OF FIBER CEMENT SIDING. WHEN 2 MATERIALS ARE USED, THE MATERIALS SHALL BE DIFFERENT BUT COMPLIMENTARY COLORS. VINYL MAY ONLY BE USED OF SOFFITS, FASCIA, AND CORNER BOUNDS.
- ALL SINGLE FAMILY DETACHED HOMES WILL HAVE FRONT PORCHES WITH A MINIMUM DEPTH OF 5 FEET. TOWNHOMES WILL HAVE FRONT PORCHES WITH A MINIMUM DEPTH OF 3 FEET.
- ALL TRADITIONAL SINGLE FAMILY DETACHED HOMES WILL HAVE A REAR PATIO OR DECKS A MINIMUM OF 10' X 10'. ALL SINGLE FAMILY RANCHED DETACHED HOMES WILL HAVE A MINIMUM 6' X 10' COVERED PATIO.
- MAIN ROOF PITCHES (EXCLUDING PORCHES) FRONTING THE STREET WILL BE AT LEAST 7-12, WITH THE EXCEPTION OF RANCH HOMES IN WHICH 6:12 SHALL BE ALLOWED.
- FOR EVERY 30 FEET (OR FRACTION) OF CONTINUOUS SIDE ELEVATION (CALCULATED ON A PER FLOOR BASIS), THERE SHALL BE ONE WINDOW OR DOOR ADDED TO THE SIDE ELEVATIONS. ANY SIDING BREAK ON THE SIDE OF THE HOME, SUCH AS A FIREPLACE, SIDE PORCH, OR WALL OFFSETS MAY BE USED AS AN ALTERNATE TO WINDOWS.
- THERE SHALL BE A MINIMUM 12 INCH OVERHANG ON EVERY GABLE END FOR EVERY HOME.
- GARAGES ON ALL NEO TRADITIONAL SINGLE FAMILY DETACHED HOMES AND TOWNHOMES SHALL BE ALLEY FED.
- ALL FRONT LOADED GARAGE DOORS SHALL HAVE GLASS WINDOWS AND CARRIAGE STYLE HARDWARE.
- ALL SINGLE FAMILY DETACHED HOMES SHALL BE RAISED FROM THE FINISHED GRADE A MINIMUM OF 18" AND SHALL HAVE STEM WALL OR RAISED SLAB FOUNDATIONS THAT SHALL BE COVERED ON ALL SIDES WITH BRICK OR STONE. AREAS UNDER PORCHES MAY BE ENCLOSED WITH LATTICE.
- ALL SINGLE FAMILY ATTACHED HOMES SHALL BE RAISED FROM THE FINISHED GRADE A MINIMUM OF 18" AND SHALL HAVE STEM WALL OR RAISED SLAB FOUNDATIONS THAT SHALL BE COVERED ON ALL SIDES WITH BRICK OR STONE. AREAS UNDER PORCHES MAY BE ENCLOSED WITH LATTICE.
- ANY SINGLE FAMILY HOMES WITH A CRAWL SPACE SHALL BE WRAPPED IN BRICK, OR STONE ON ALL SIDES.
- ALL HOMES SHALL HAVE FRONT DOOR GLASS INSERTS.
- GARAGES FOR LOTS THAT ARE TYPICALLY AT LEAST 60 FEET WIDE, THOUGH SOME MAY BE 55 FEET WIDE, WILL NOT PROTRUDE MORE THAN SIX (6) FEET FROM THE FRONT PORCH OR STOOP AND ALL GARAGE DOORS SHALL HAVE WINDOW INSERTS AND HARDWARE.
- GARAGE DOORS FOR THE FRONT LOAD SINGLE FAMILY DETACHED HOMES SHALL BE DOUBLE GARAGE DOORS. THE WIDTH OF THE FRONT FACADE OF THE GARAGE SHALL NOT EXCEED 60% OF THE CORRESPONDING FRONT FACADE'S TOTAL WIDTH. A DECORATIVE TRELIS ABOVE THE GARAGE DOOR WILL BE INCLUDED ON ALL SINGLE FAMILY RANCH HOMES.

UDO EXCEPTIONS

TRANSPORTATION NETWORK
 AN EXCEPTION TO NOT CONSTRUCT THE FUTURE FORESTVILLE ROAD COLLECTOR IS REQUESTED. THE COLLECTOR CROSSES THIS DEVELOPMENT FOR ONLY A SMALL PORTION OF THE FUTURE ROAD.

 AN EXCEPTION TO ALLOW A 32' PUBLIC RIGHT OF WAY STREET SECTION, A MODIFIED ONE WAY LOCAL STREET, TO SERVE HOMES FRONTING ON OPEN SPACE AREAS IS REQUESTED.

 AN EXCEPTION TO ALLOW AN 84' PUBLIC RIGHT OF WAY STREET SECTION, A MODIFIED URBAN AVENUE SECTION FROM THE STANDARDS IN THE UDO, WITH A SMALLER MEDIAN TO PROVIDE AN ENHANCED ACCESS TO THE SECONDARY AMENITY AREA.

SECTION 6.2 OF THE KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE STATES THAT LOTS LESS THAN 60' ARE EXEMPT FROM THE RESIDENTIAL CLEARING AND GRADING REQUIREMENTS OF THAT SECTION. THE PROPOSED DEVELOPMENT WILL HAVE A MAXIMUM LOT WIDTH OF 60'. LIMITED EXEMPTIONS TO THE CLEARING AND GRADING REQUIREMENTS PRESENTED IN SECTION 6.2 OF THE UDO ARE REQUESTED FOR PROPOSED LOTS THAT ARE 60' WIDE OR WIDER.

SECTION 2.7 OF THE KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE REQUIRES THAT ANY LOT LESS THAN 80' IN WIDTH BE ACCESSED VIA AN ALLEY OR REAR LANE ACCESS. ADDITIONALLY, THE UDO REQUIRES THAT SIDE SETBACKS BE A MINIMUM OF 20% OF THE LOT WIDTH (TO A MINIMUM OF 6 FEET), AND DRIVEWAY LENGTH BE A MINIMUM OF 35'. IT IS PROPOSED THAT THE MINIMUM LOT WIDTH STANDARD BE REDUCED TO 60', SIDE SETBACKS BE REDUCED TO A MINIMUM OF 3 FEET, AND DRIVEWAY LENGTHS BE REDUCED TO A MINIMUM OF 20 FEET IN ORDER TO BE ADEQUATELY DEVELOPED WITHIN THE SITE'S CONSTRAINTS.

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: _____
 DEVELOPMENT SERVICES ENGINEER
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: _____ DATE: _____
 ADMINISTRATOR

FOR REVIEW ONLY

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.
 DATE
 09/30/2022
 11/21/2022

REVISION DESCRIPTION
 KNIGHTDALE SUBMITTAL # 5
 DATE
 11/21/2022
 DRAWN BY
 331
 DESIGNED BY
 331
 CHECKED BY

 SCALE
 N/A



TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
PROJECT NOTES

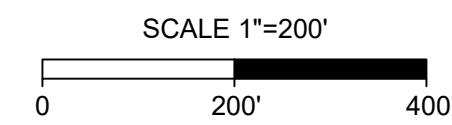
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Know what's below.
Call before you dig.



LEGEND

---	PROPERTY LINE
.....	1% CHANCE FLOOD AREA
-----	NEUSE STREAM BUFFER
	WETLANDS

- NOTES:
- BOUNDARY TAKEN FROM SURVEY FROM KCI ASSOCIATES DATED JANUARY 16, 2020.
 - TOPOGRAPHIC INFORMATION BY TAYLOR LAND DATED NOVEMBER 1, 2021
 - WETLAND AND STREAM DELINEATION BY SOIL & ENVIRONMENTAL CONSULTANTS, PA DATED DECEMBER 03, 2020.
 - THE SUBJECT PROPERTY IS LOCATED IN ZONE X & AE IN ACCORDANCE WITH FIRM MAP #3720174500J, WITH AN EFFECTIVE DATE OF MAY 2, 2006.

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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

LEGEND

⊙	IPF - IRON PIPE FOUND	⊙	MH DRAINAGE	⊙	SPRINKLER BOX
⊙	IPB - IRON BOX FOUND	⊙	MH SANITARY	⊙	SPRINKLER HEAD
⊙	IPB - 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
⊙	BACKFLOW PREVENTER	⊙	CABLE TV PEDESTAL	⊙	BORHOLE
⊙	WATER VAULT	⊙	SIGN	⊙	ELECTRIC METER
⊙	TELEPHONE VAULT	⊙	POWER VAULT	⊙	WATER METER
⊙	UTILITY VAULT	⊙	WATER VALVE	⊙	MAILBOX
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	FIRE HYDRANT
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	CLEAN OUT
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	GUY
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	POWER POLE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	HC HANDCAP PARKING
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	WELL
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	MONITORING WELL
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	ROOF DRAIN
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	WATER SPIGOT
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	DEED LINE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	LINE NOT SURVEYED
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	STORM LINE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	SANITARY LINE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	PAINTED WATER LINE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	WETLAND BUFFER ZONE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	PAINTED STORM LINE
⊙	W - WETLAND FLAG	⊙	W - WETLAND FLAG	⊙	CREEK TOP OF BANK

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

OVERALL EXISTING CONDITIONS

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TEL 919-866-4951 FAX 919-833-8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

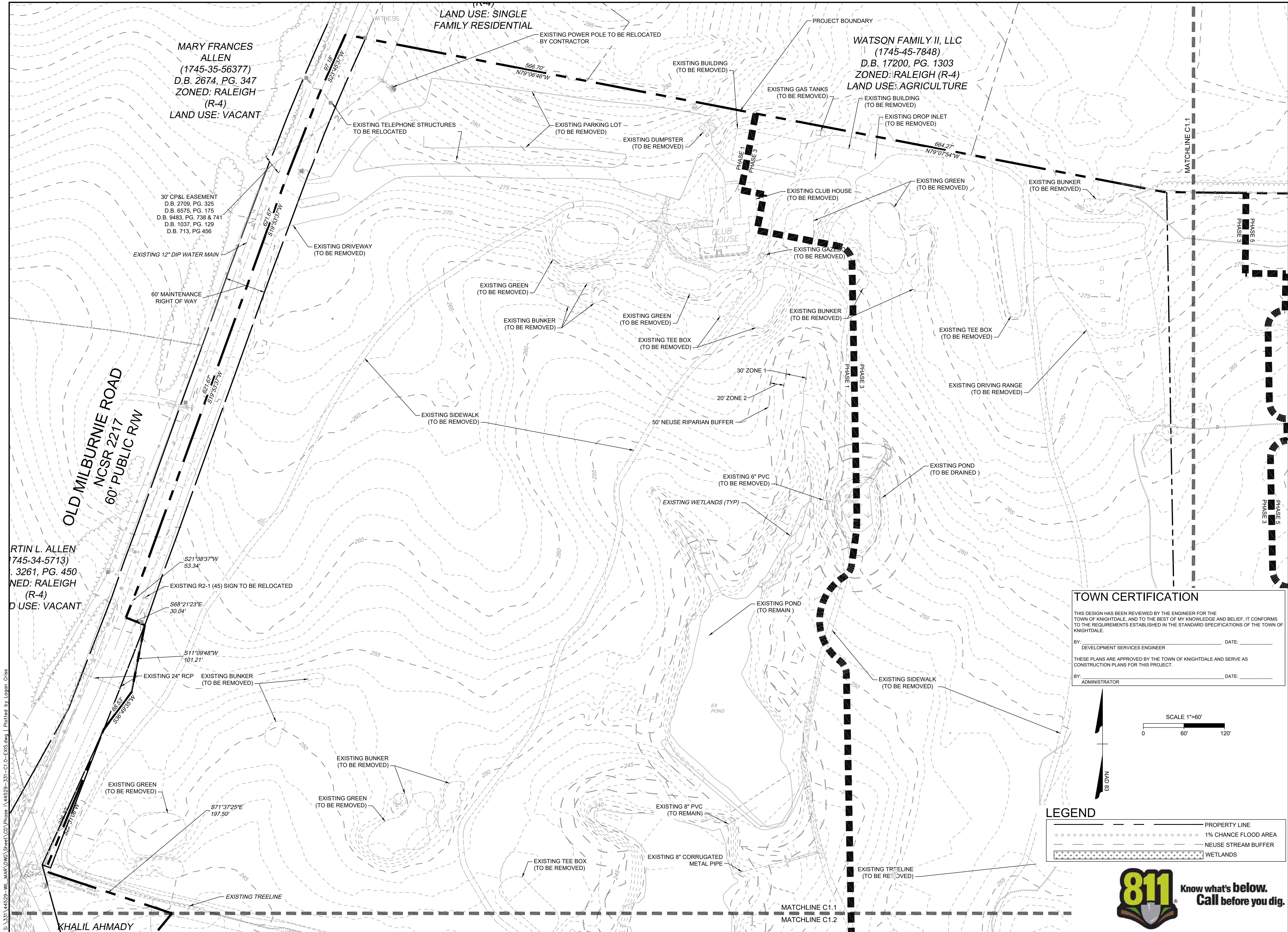
DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5

DATE	11/21/2022
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=200'

JOB NO.	44529
SHEET NO.	C1.0

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MARY FRANCES ALLEN
(1745-35-56377)
D.B. 2674, PG. 347
ZONED: RALEIGH (R-4)
LAND USE: VACANT

WATSON FAMILY II, LLC
(1745-45-7848)
D.B. 17200, PG. 1303
ZONED: RALEIGH (R-4)
LAND USE: AGRICULTURE

MARTIN L. ALLEN
(745-34-5713)
D.B. 3261, PG. 450
ZONED: RALEIGH (R-4)
LAND USE: VACANT

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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

LEGEND

- PROPERTY LINE
- 1% CHANCE FLOOD AREA
- - - - - NEUSE STREAM BUFFER
- WETLANDS

Scale: 1"=60'
0 60' 120'

North Arrow: NAD 88

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DATE: 09/30/2022

DATE: 11/21/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: ---

SCALE: 1"=60'

TIMMONS GROUP

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

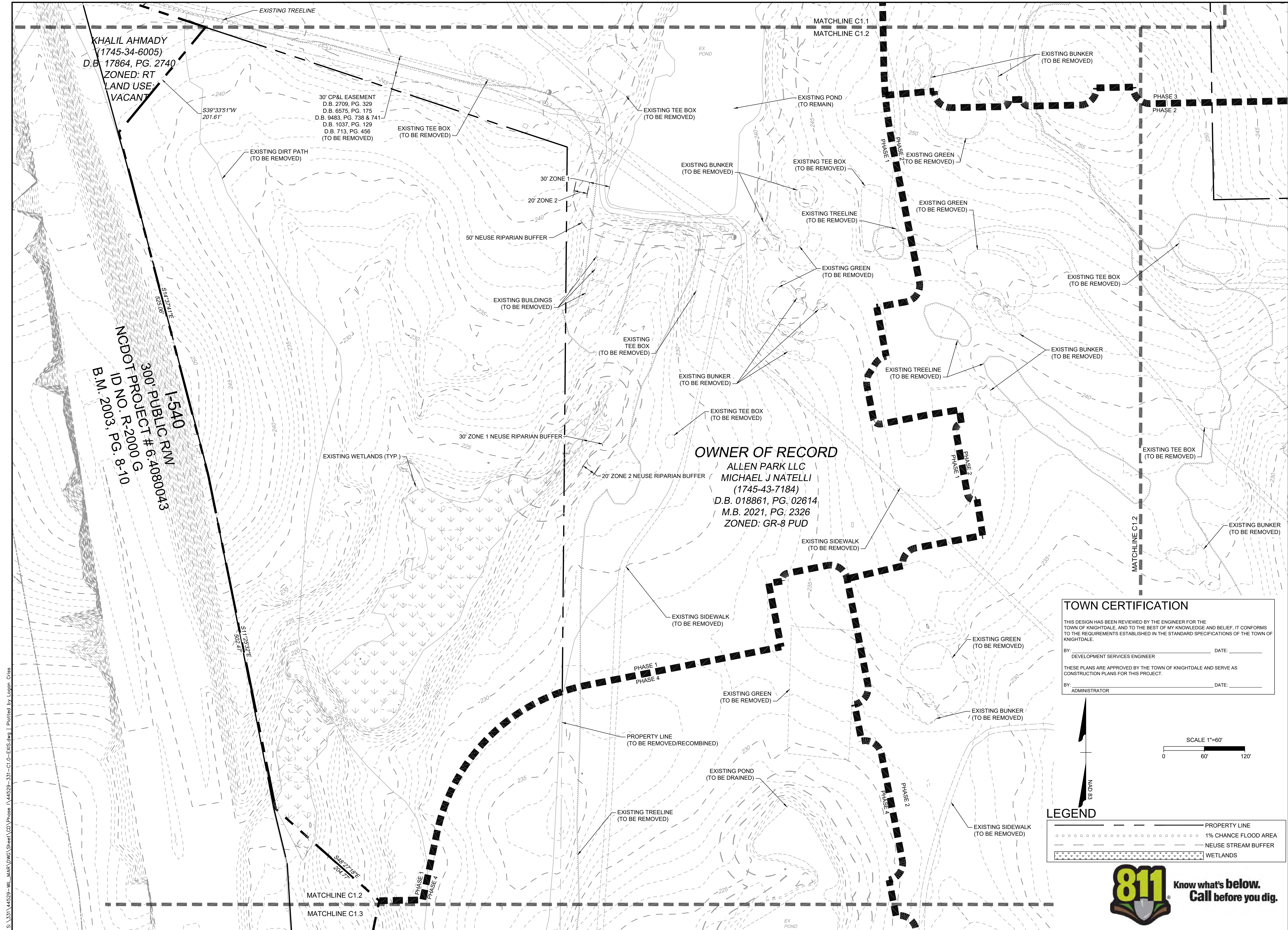
EXISTING CONDITIONS - SHEET 1 OF 3

NORTH CAROLINA LICENSE NO. C-1652

JOB NO. 44529
SHEET NO. C1.1

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KHALIL AHMADY
(1745-34-6005)
D.B. 17864, PG. 2740
ZONED: RT
LAND USE
VACANT

S33°23'51"W
201.61'

30' CP&L EASEMENT
D.B. 2709, PG. 329
D.B. 6575, PG. 175
D.B. 9483, PG. 738 & 741
D.B. 1037, PG. 129
D.B. 713, PG. 456
(TO BE REMOVED)

1-540
300' PUBLIC R/W
MCDOT PROJECT # 6.4080043
ID NO. R-2000 G
B.M. 2003, PG. 8-10

OWNER OF RECORD
ALLEN PARK LLC
MICHAEL J NATELLI
(1745-43-7184)
D.B. 018861, PG. 02614
M.B. 2021, PG. 2326
ZONED: GR-8 PUD

TOWN CERTIFICATION
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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER
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BY: _____ DATE: _____
ADMINISTRATOR

LEGEND

- PROPERTY LINE
- 1% CHANCE FLOOD AREA
- NEUSE STREAM BUFFER
- WETLANDS

SCALE 1"=60'
0 60' 120'

NAD 83

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DATE	09/30/2022
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DRAWN BY	331
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CHECKED BY	---
SCALE	1"=60'

REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EXISTING CONDITIONS - SHEET 2 OF 3

JOB NO.
44529

SHEET NO.
C1.2

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FOR REVIEW ONLY

NC DOT
(1745.03-32-8695)
D.B. 9489, PG. 2407

MATCHLINE C1.2
MATCHLINE C1.3

NC DOT OWNED PROPERTY

EXISTING WETLANDS (TYP)

EXISTING WETLANDS (TYP)

PROPERTY LINE (TO BE REMOVED)

EXISTING DIRT PATH (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

EXISTING TEE BOX (TO BE REMOVED)

MATCHLINE C1.3

40' CITY OF RALEIGH
SEWER EASEMENT
BM 2008 PG 12
DB 13179 PG 2546

40' CITY OF RALEIGH
SEWER EASEMENT
BM 2008 PG 12
DB 13179 PG 2546

NC DEPARTMENT OF
TRANSPORTATION
(1745-41-1535)
D.B. 7609, PG. 292
ZONED: MQ
LAND USE: VACANT

WAKE STONE CORPORATION
(1744-59-2845)
D.B. 12601, PG. 1144
ZONED: MQ
LAND USE: VACANT

EXISTING 8" CMP
(TO BE REMOVED)

EXISTING TREELINE
(TO BE REMOVED)

EXISTING BUNKERS
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING GREEN
(TO BE REMOVED)

EXISTING BUNKERS
(TO BE REMOVED)

EXISTING GREEN
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING BUILDING
(TO BE REMOVED)

EXISTING SIDEWALK
(TO BE REMOVED)

EXISTING SIDEWALK
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING SIDEWALK
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING 8" CMP
(TO BE REMOVED)

EXISTING GREEN
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING BUNKER
(TO BE REMOVED)

EXISTING GREEN
(TO BE REMOVED)

EXISTING WETLANDS
TO BE DRAINED

EXISTING BUNKER
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

EXISTING BUNKER
(TO BE REMOVED)

EXISTING 12" CMP
(TO BE REMOVED)

EXISTING BUNKER
(TO BE REMOVED)

EXISTING 18" CMP
(TO BE REMOVED)

EXISTING GREEN
(TO BE REMOVED)

EXISTING SIDEWALK
(TO BE REMOVED)

QUARRY OVERLAY DISTRICT

100 YEAR FLOODPLAIN

EXISTING WETLANDS (TYP)

EXISTING SIDEWALK
(TO BE REMOVED)

EXISTING TEE BOX
(TO BE REMOVED)

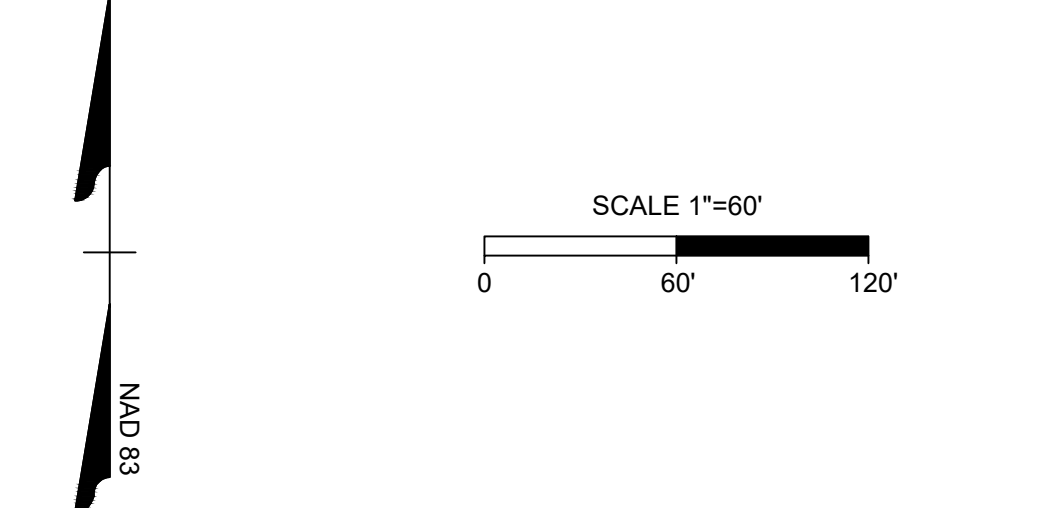
TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: ADMINISTRATOR DATE: _____



LEGEND

	PROPERTY LINE
	1% CHANGE FLOOD AREA
	NEUSE STREAM BUFFER
	WETLANDS



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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
1"=60'

JOB NO.
44529

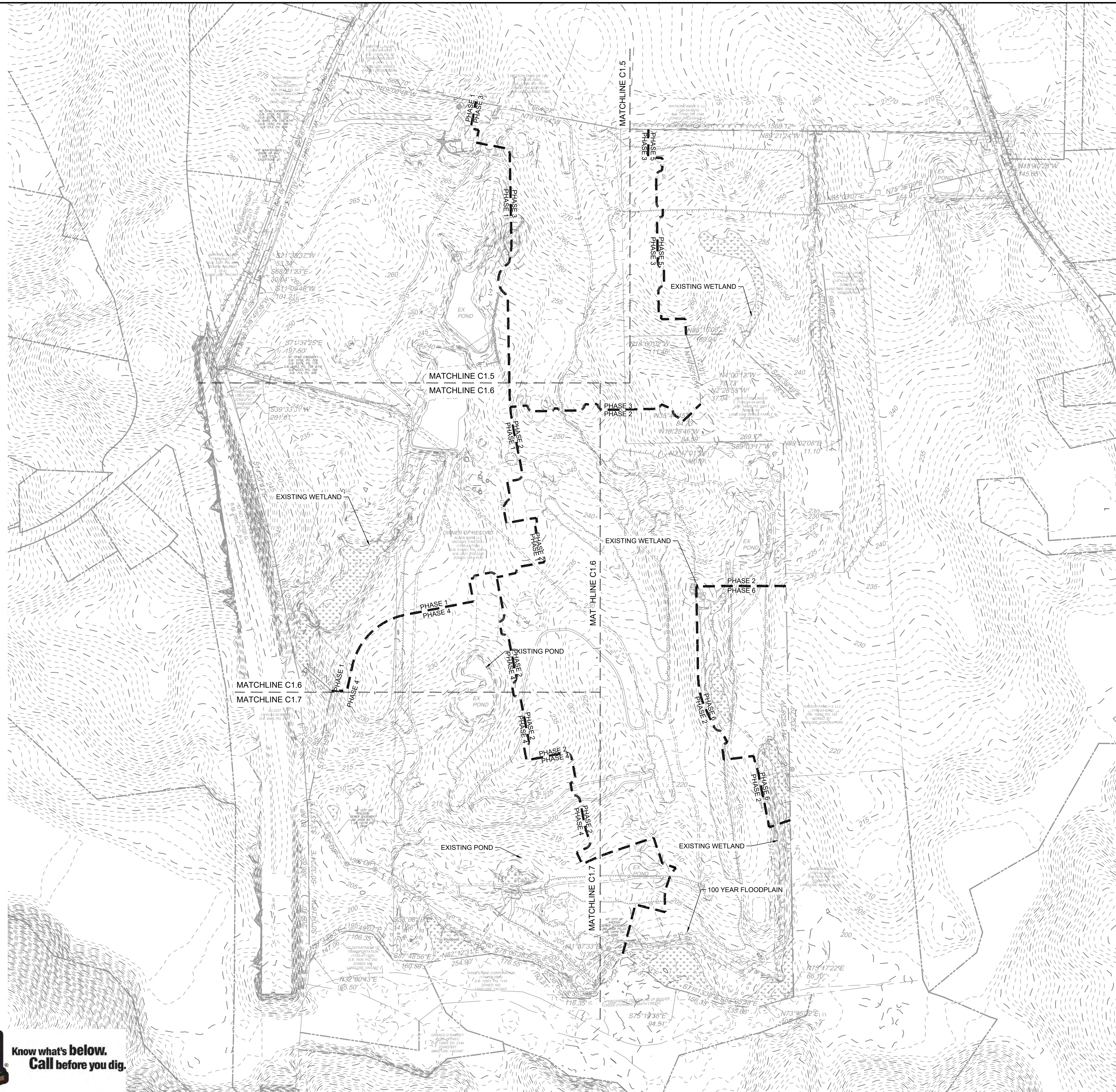
SHEET NO.
C1.3

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
NORTH CAROLINA LICENSE NO. C-1652

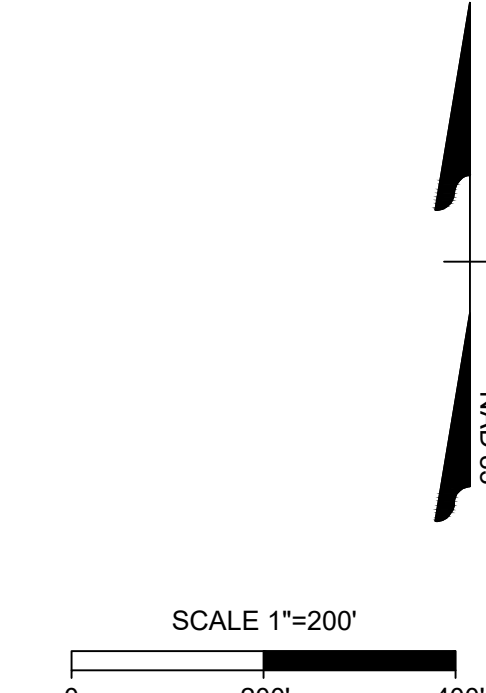
EXISTING CONDITIONS - SHEET 3 OF 3

FOR REVIEW ONLY: NOT FOR CONSTRUCTION

S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-C1.0-EXIS.dwg | Plotted by Logan Criss



Tree Preservation			
Tier	Total Tree Inches	Applicable Tree Inches	Number of Trees Required for Replacement
Tier 1	2499	0	0
Tier 2	7135	4558	381
Tier 3	12919	6469	540
Total	22553	11027	921



LEGEND	
	PROPERTY LINE
	1% CHANCE FLOOD AREA
	NEUSE STREAM BUFFER
	WETLANDS

- NOTES:
- BOUNDARY TAKEN FROM SURVEY BY TIMMONS GROUP DATED JANUARY 8, 2021.
 - TOPOGRAPHIC INFORMATION TAKEN FROM GIS DATED SEPTEMBER 2020.
 - WETLAND AND STREAM DELINEATION BY SOIL & ENVIRONMENTAL CONSULTANTS, PA DATED DECEMBER 03, 2020.
 - THE SUBJECT PROPERTY IS LOCATED IN ZONE X & AE IN ACCORDANCE WITH FIRM MAP #3270174500J, WITH AN EFFECTIVE DATE OF MAY 2, 2006.

TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

LEGEND					
	IF - IRON PIPE FOUND		MH DRAINAGE		SPRINKLER BOX
	RF - IRON ROD FOUND		MH SANITARY		SPRINKLER HEAD
	PS - IRON PIPE SET		MH ELECTRIC		SPRINKLER VALVE
	CP - COMPUTED EASEMENT POINT		MH TELEPHONE		GAS TEST LOCATION
	CM - CONCRETE MONUMENT		MH WATER		GAS VALVE
	MNF - MAG NAIL FOUND		STORM INLET		FLAG POLE
	CP - COMPUTED POINT		ELECTRIC BOX		TREE
	CSF - COTTON SPINDLE FOUND		TELEPHONE PEDESTAL		BOLLARD
	BFP - BACKFLOW PREVENTER		CABLE TV PEDESTAL		AC UNIT
	TV - TELEPHONE VAULT		SIGN		CLEAN OUT
	TR - TRAFFIC CONTROL BOX		ELECTRIC METER		GUY
	PV - POWER VAULT		WATER METER		WATER SPRIG
	UT - UTILITY VAULT		WATER VALVE		WELL
	WF - WETLAND FLAG		FIRE HYDRANT		MONITORING WELL
	RC - REINFORCED CONCRETE PIPE		POWER POLE		ROOF DRAIN
	CM - CORRUGATED METAL PIPE		LIGHT POLE		WATER SIGHT
	VCP - VITRIFIED CLAY PIPE		YARD LIGHT		DEED LINE
	DIP - ENCASED IRON PIPE		GROUND LAMP		LINE NOT SURVEYED
	HDPE - HIGH DENSITY POLYETHYLENE PIPE		SANITARY LINE		STORM LINE
	FLARE END SECTION		PAINTED WATER LINE		WELL
	FIBER OPTIC MARKER		WETLAND BUFFER ZONE		MONITORING WELL
	GAS MARKER		PAINTED STORM LINE		ROOF DRAIN
	TVP - TELEVISION PEDESTAL		CREEK TOP OF BANK		50' CREEK BUFFER
	SIGP - SIGNAL POLE		FLOODWAY		FEMA 100-YEAR FLOODPLAIN
	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				
	G - GAS VALVE				
	CB - CATCH BASIN				
	G - GUY WIRE				
	V1 - VARD INLET				
	C - CURB INLET				
	EP - EDGE OF PAVING				
	TR - TOP BACK OF CURB				
	CCR - CHATHAM COUNTY RECORDS				
	WCR - WAKE COUNTY RECORDS				
	DB - DEED BOOK				
	FB - FILL BOOK				
	SF - SQUARE FEET				
	XXX - SITE ADDRESS				

FOR REVIEW ONLY

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

OVERALL ENVIRONMENTAL SURVEY

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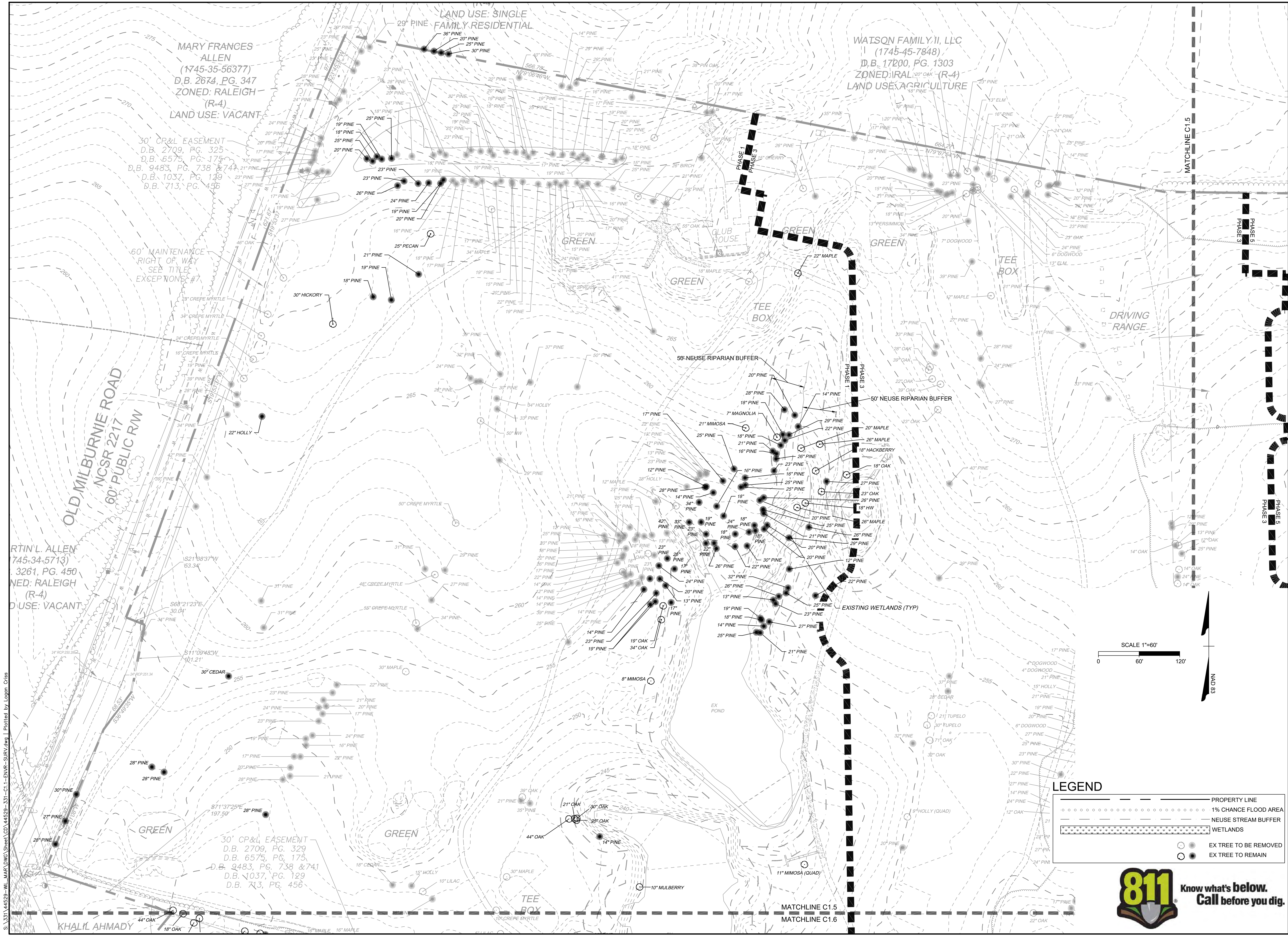
YOUR VISION ACHIEVED THROUGH OURS.

DATE	09/30/2022
REVISION DESCRIPTION	KNIGHTDALE SUBMITTAL # 5
DATE	11/21/2022
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=200'

JOB NO. 44529
SHEET NO. C1.4

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REVISION DESCRIPTION	DATE
KNIGHTDALE SUBMITTAL # 5	09/30/2022
	11/21/2022

DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ENVIRONMENTAL SURVEY - SHEET 1 OF 3

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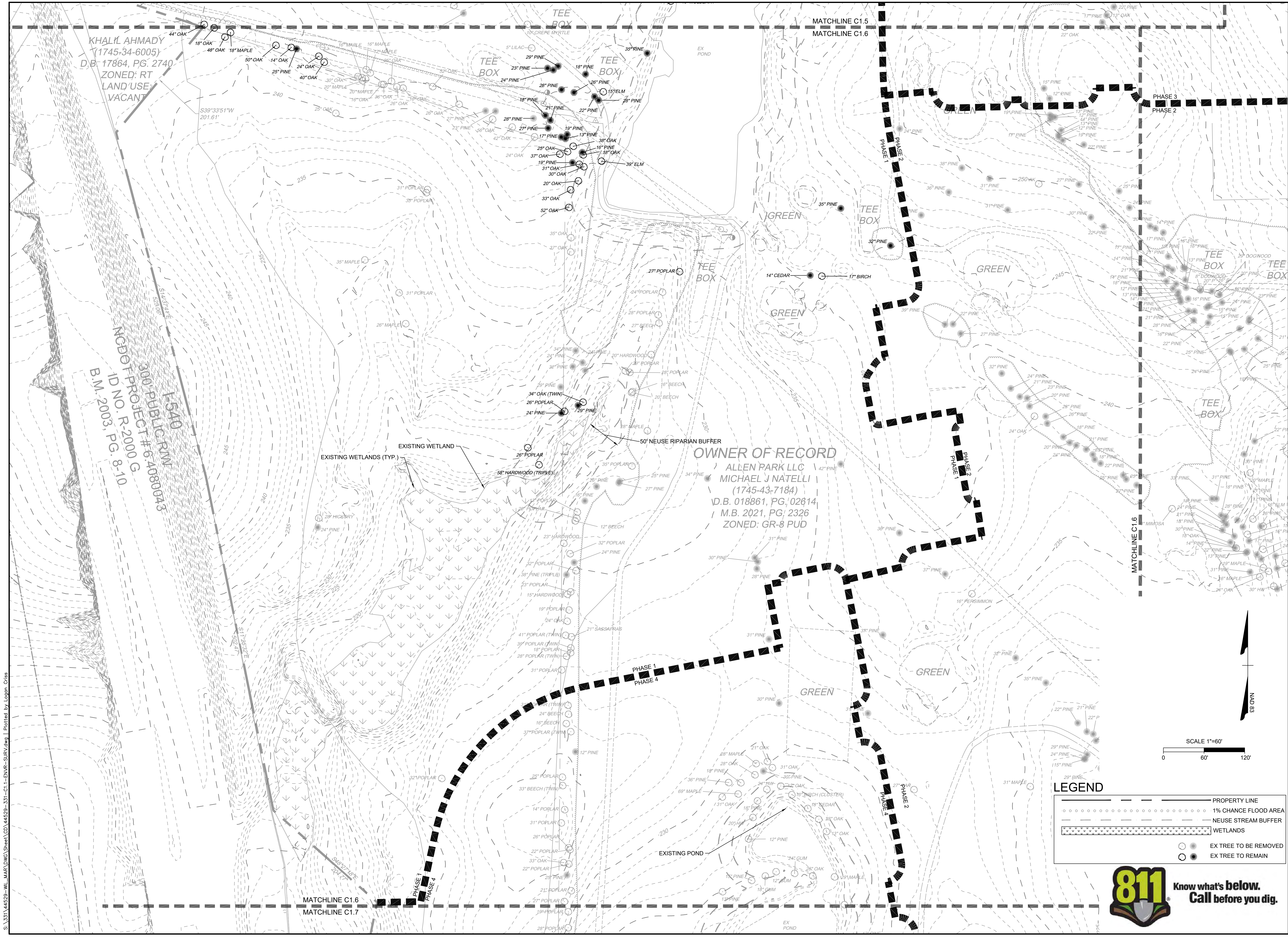
JOB NO.	44529
SHEET NO.	C1.5

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LEGEND

- PROPERTY LINE
- 1% CHANCE FLOOD AREA
- NEUSE STREAM BUFFER
- WETLANDS
- EX TREE TO BE REMOVED
- EX TREE TO REMAIN

S:\331\44529-WL-MAR\DWG\Sheet\CD\44529-331-C1.5-ENVIR-SURV.dwg | Plotted by Logan Criss



KHALIL AHMADY
(1745-34-6005)
D.B. 17864, PG. 2740
ZONED: RT
LAND USE:
VACANT

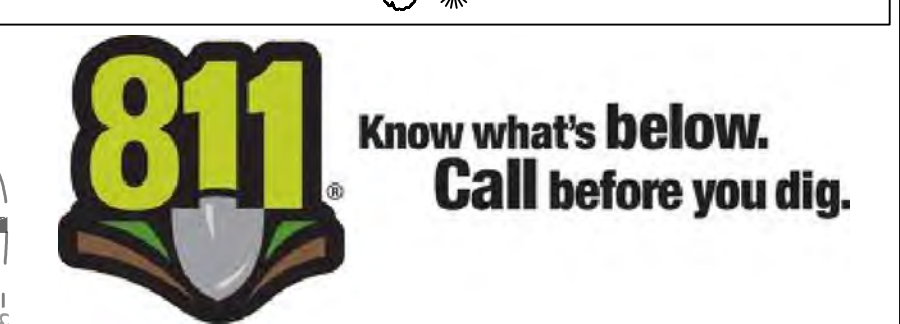
B.M. 2003, PG. 8-10
ID NO. R-2000 G
300 PUBLIC R.M.
MCGEET PROJECT # 6:4080043
1-5A10

OWNER OF RECORD
ALLEN PARK LLC
MICHAEL J NATELLI
(1745-43-7184)
D.B. 018861, PG. 02614
M.B. 2021, PG. 2326
ZONED: GR-8 PUD

LEGEND

	PROPERTY LINE
	1% CHANCE FLOOD AREA
	NEUSE RIBBON BUFFER
	WETLANDS
	EX TREE TO BE REMOVED
	EX TREE TO REMAIN

SCALE 1"=60'
0 60' 120'



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REVISION DESCRIPTION	KNIGHTDALE SUBMITTAL # 5
DATE	09/30/2022
DATE	11/21/2022
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=60'

PHASE 1
PHASE 2
PHASE 3
PHASE 4

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ENVIRONMENTAL SURVEY - SHEET 2 OF 3

JOB NO.	44529
SHEET NO.	C1.6

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NC DOT
(1745.03-32-8695)
D.B. 9489, PG. 2407

MATCHLINE C1.6
MATCHLINE C1.7

EXISTING WETLANDS (TYP)

40" CITY OF RALEIGH
SEWER BASEMENT
BM 2008 PG 12
DB 13179 PG 2540

30" DIP

30" DIP

EXISTING POND

EXISTING WETLAND

100 YEAR FLOODPLAIN

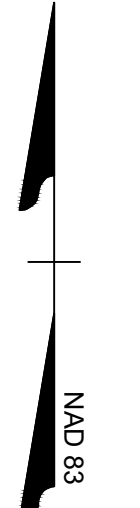
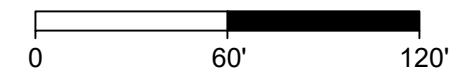
NC DEPARTMENT OF
TRANSPORTATION
(1745-41-1535)
D.B. 7609, PG. 292
ZONED: MQ
LAND USE: VACANT

WAKE STONE CORPORATION
(1744-59-2845)
D.B. 12601, PG. 1144
ZONED: MQ
LAND USE: VACANT

LEGEND

- PROPERTY LINE
- 1% CHANCE FLOOD AREA
- NEUSE STREAM BUFFER
- WETLANDS
- EX TREE TO BE REMOVED
- EX TREE TO REMAIN

SCALE 1"=60'



FOR REVIEW ONLY

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09/30/2022	KNIGHTDALE SUBMITTAL # 5
11/21/2022	
331	DRAWN BY
331	DESIGNED BY
---	CHECKED BY
1"=60'	SCALE

TIMMONS GROUP

ALLEN PARK SUBDIVISION - PHASE I
NORTH CAROLINA LICENSE NO. C-1652
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ENVIRONMENTAL SURVEY - SHEET 3 OF 3

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JOB NO.
44529
SHEET NO.
C1.7

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FOR REVIEW ONLY

TOWN CERTIFICATION
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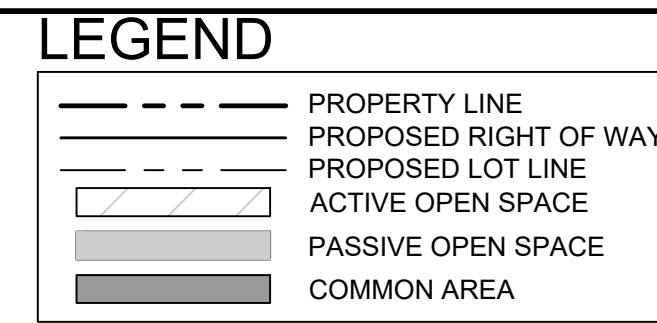
ACTIVE OPEN SPACE TABLE
ACTIVE OPEN SPACE 1 305,953 SF 7.02 AC
ACTIVE OPEN SPACE 2 5,615 SF 0.13 AC
ACTIVE OPEN SPACE 3 3,534 SF 0.08 AC
ACTIVE OPEN SPACE 4 38,661 SF 0.89 AC
ACTIVE OPEN SPACE 5 31,520 SF 0.72 AC
ACTIVE OPEN SPACE 6 86,700 SF 1.99 AC
ACTIVE OPEN SPACE 7 8,400 SF 0.19 AC
ACTIVE OPEN SPACE 8 34,570 SF 0.79 AC
ACTIVE OPEN SPACE 9 12,819 SF 0.29 AC
TOTAL 527,772 SF 12.12 AC

PASSIVE OPEN SPACE TABLE
PASSIVE OPEN SPACE 1 260,542 SF 5.98 AC
PASSIVE OPEN SPACE 2 5,808 SF 0.13 AC
PASSIVE OPEN SPACE 3 242,263 SF 5.56 AC
TOTAL 508,613 SF 11.68 AC

COMMON AREA TABLE
COMMON AREA 1 2,990 SF 0.07 AC
COMMON AREA 2 3,232 SF 0.07 AC
COMMON AREA 3 104,949 SF 2.41 AC
COMMON AREA 4 31,978 SF 0.73 AC
COMMON AREA 5 211,185 SF 4.85 AC
TOTAL 354,334 SF 8.13 AC

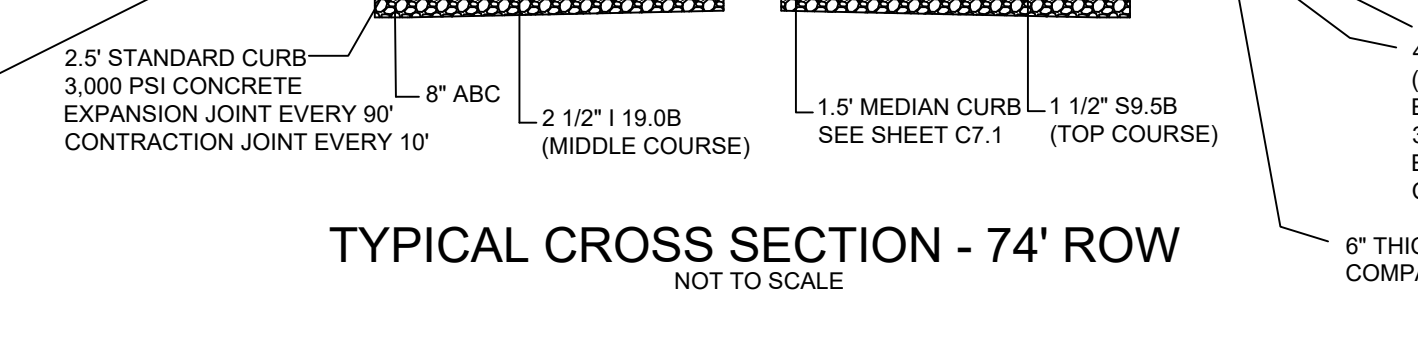
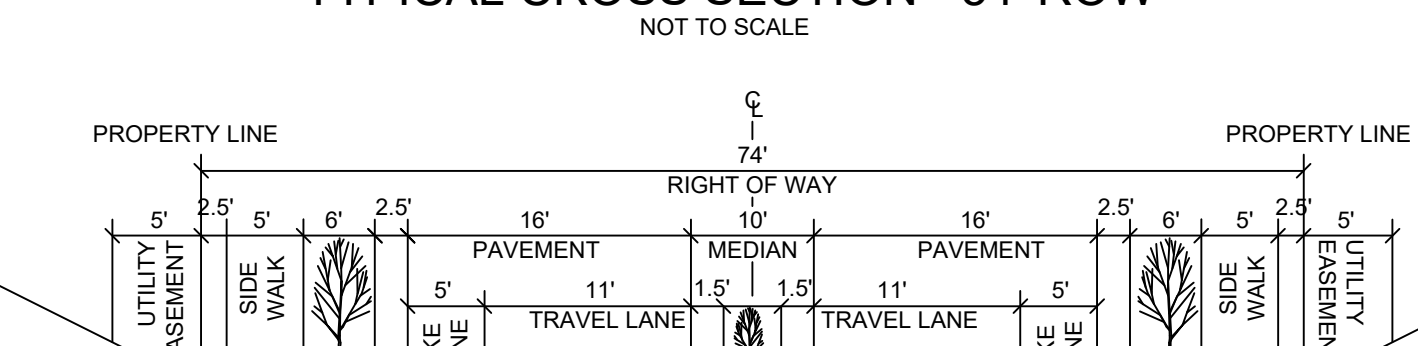
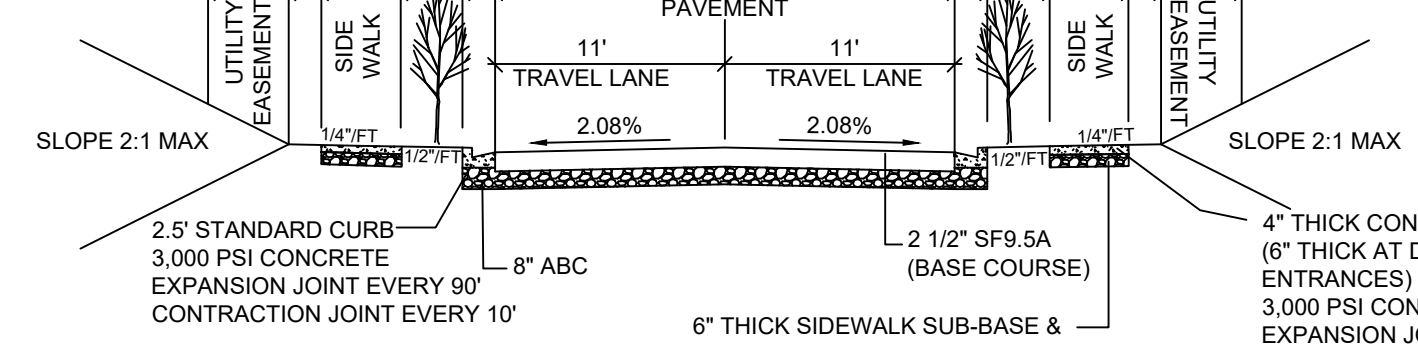
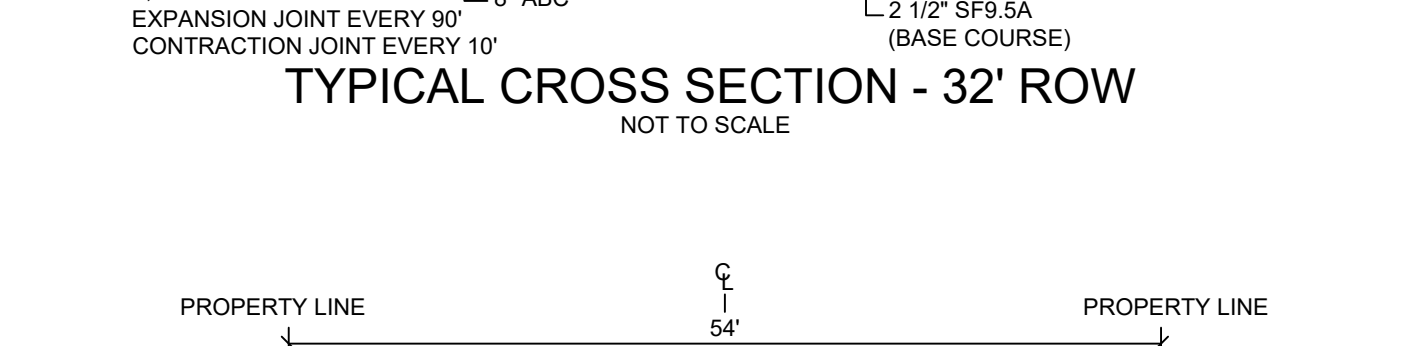
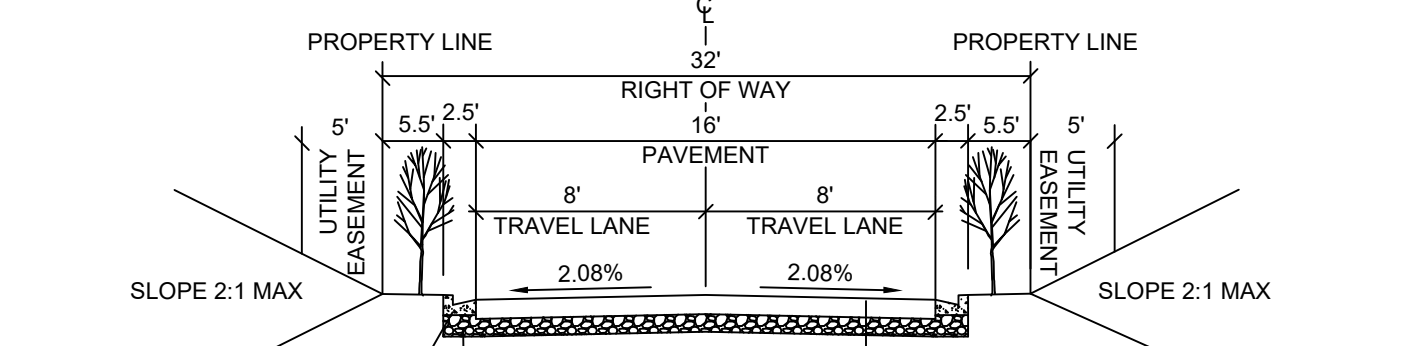
STREET NAME LENGTH (LF)
ROAD A 1,374
ROAD B 2,182
ROAD C 1,511
ROAD D 1,596
ROAD E 2,124
ROAD F 1,452
ROAD G 1,088
ROAD H 1,073
ROAD I 912
ROAD J 510
ROAD K 2,018
ROAD L 257
ROAD M 639
ROAD N 1,085
ROAD O 2,002
ROAD P 1,226
ROAD Q 1,779
ROAD R 287
ROAD T 403
ROAD U 1,006
ROAD V 1,625
ROAD W 785
ROAD X 324
TOTAL 9,749

- 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.



SITE DATA
DEVELOPER: BRIAN MASSINGILL, NATELLI COMMUNITIES, 1903 N. HARRISON AVE, CARY, NC 27513, BRIAN@NATELLI.COM, PHONE: 919-868-3102
ENGINEER: TIMMONS GROUP, MIKE ZACCARDO, PE, 5410 TRINITY ROAD, STE. 102, RALEIGH, NC 27607, PHONE: 919-532-3281
OWNER OF RECORD: ALLEN PARK LLC, MICHAEL J. NATELLI, 506 MAIN ST STE 300, GAITHERSBURG MD 20878-5768
PIN #S = 1745-43-7740, 1745-43-0006, 1745-54-5662, PORTION OF 1745-54-6015, DB = 8765 PG = 1840; DB = 9686 PG = 2190, DB = 2896 PG = 452; PORTION OF DB = 14929 PG = 2331
TOTAL EXISTING TRACT = 180.4 ACRES, PHASE 1 TRACT AREA = 52.1 ACRES
ZONING = GR8 PUD (APPROVED ON 4/21/21)
PROPOSED NUMBER OF LOTS = 138, PROPOSED DENSITY = 2.65 DU/A
MINIMUM PROVIDED LOT WIDTH = 22', MINIMUM LOT SIZE PROVIDED = 2,089 SQ.FT., AVERAGE LOT SIZE PROVIDED = 5,164 SQ.FT.
OPEN SPACE REQUIRED: 23.9 ACRES, ACTIVE OPEN SPACE REQUIRED: 11.5 ACRES, TOTAL LENGTH OF PUBLIC ROADS = 27,258 LF, TOTAL LENGTH OF PRIVATE ROADS = 9,749 LF
SETBACKS: FRONT LOAD DETACHED FRONT: 10', DRIVEWAY LENGTH: 20', REAR: 20', SIDE: 5', CORNER: 10'; REAR LOAD DETACHED FRONT: 10', DRIVEWAY LENGTH: 20', REAR: 20', SIDE: 5', CORNER: 10'

USPS NOTE
CLUSTER MAILBOXES TO BE LOCATED WITHIN NEIGHBORHOOD OPEN SPACE 3 AND ACTIVE OPEN SPACE 2 ONCE FULLY BUILT. KIOSK LOCATION SHALL BE APPROVED BY USPS PRIOR TO SUBDIVISION APPROVAL. A MAINTENANCE PLAN MUST BE DEVELOPED TO ADDRESS THE STORMWATER CONTROL MEASURES.



TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
OVERALL SITE PLAN

YOUR VISION ACHIEVED THROUGH OURS.
DATE: 09/30/2022
REVISION DESCRIPTION: KNIGHTDALE SUBMITTAL # 5

DATE: 11/21/2022
DESIGNED BY: 331

CHECKED BY: 331
SCALE: 1"=200'

JOB NO. 44529
SHEET NO. C2.0

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA

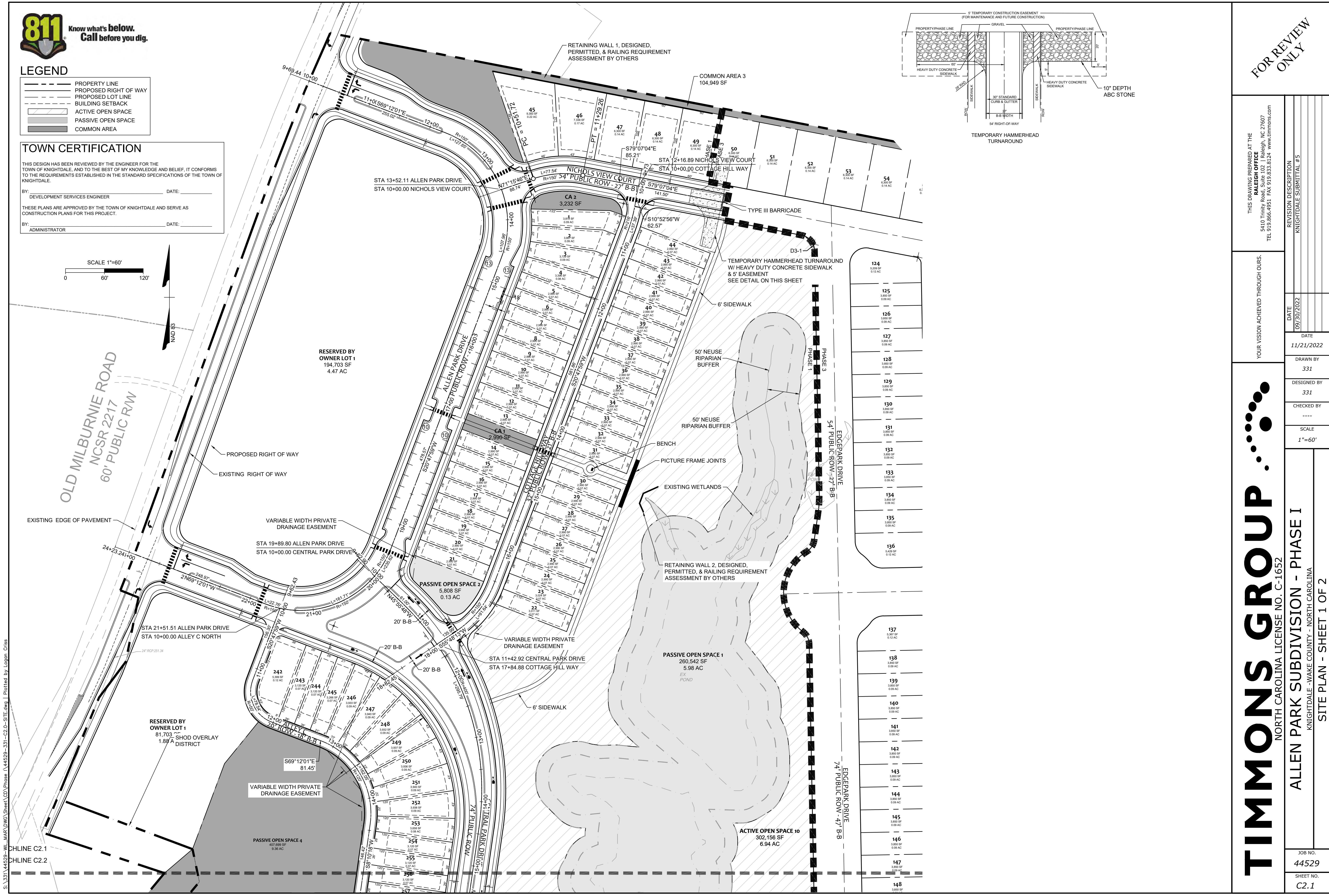
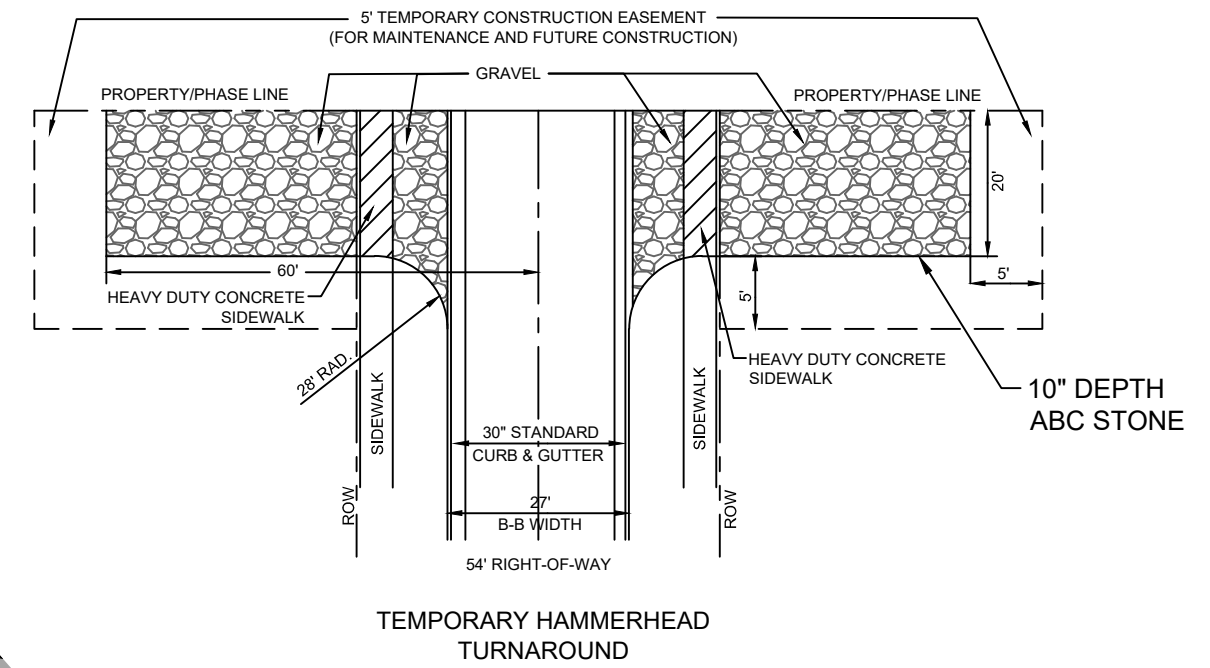
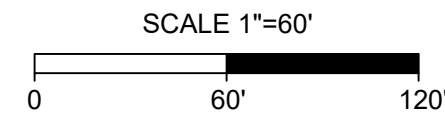
TOWN CERTIFICATION

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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR



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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
KNIGHTDALE SUBMITTAL # 5

DATE: 09/30/2022
DATE: 11/21/2022
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ---
SCALE: 1"=60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SITE PLAN - SHEET 1 OF 2

JOB NO. 44529
SHEET NO. C2.1

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DATE
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CHECKED BY

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JOB NO.
44529

SHEET NO.
C2.2

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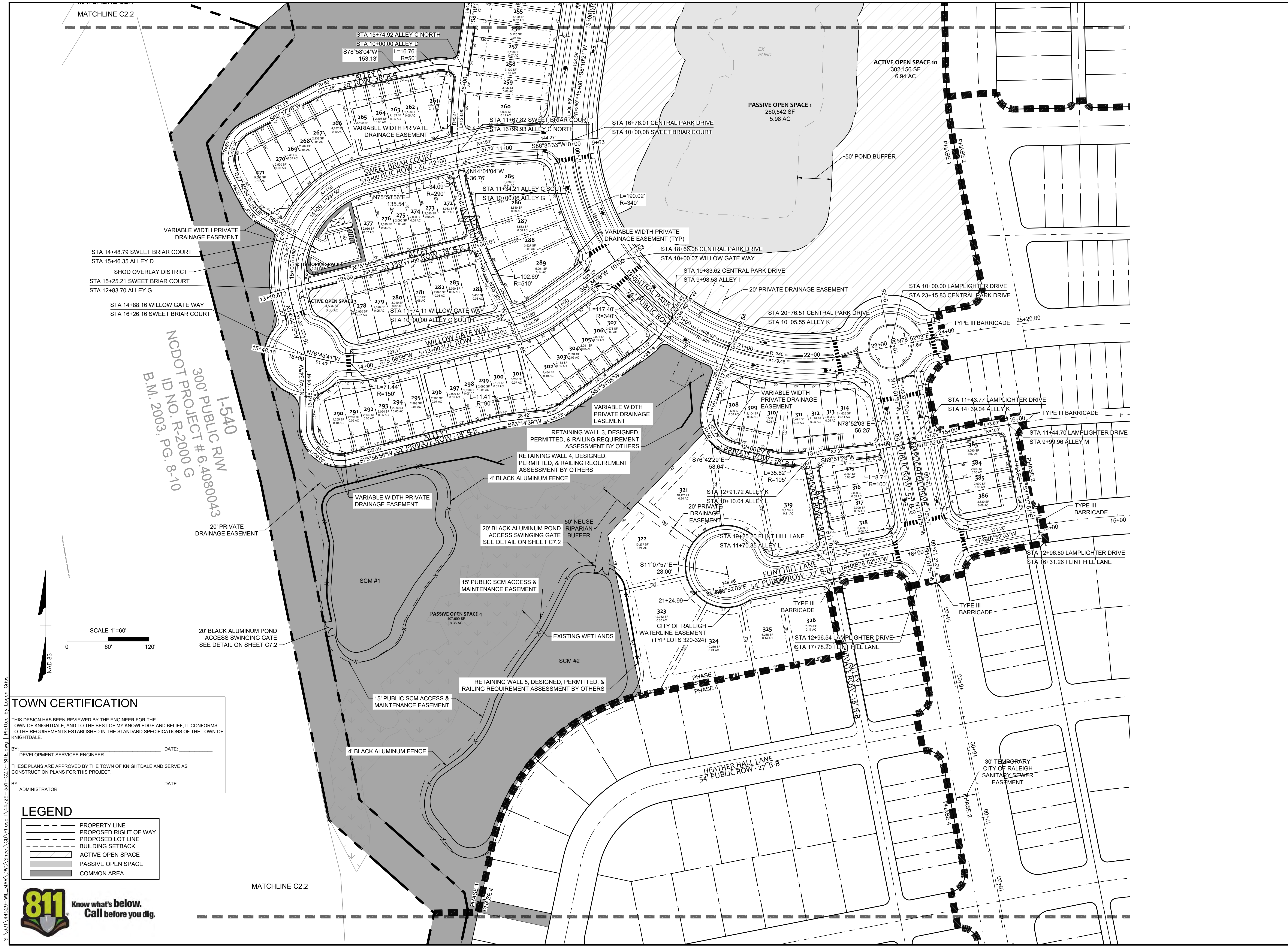
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SITE PLAN - SHEET 2 OF 2

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1-540
300' PUBLIC ROW
PROJECT # 6.4080043
ID NO. R-2000 G
MCDOT PROJECT
B.M. 2003, PG. 8-10

MATCHLINE C2.2

MATCHLINE C2.2

SCALE 1"=60'
0 60' 120'

TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

- ### LEGEND
- PROPERTY LINE
 - PROPOSED RIGHT OF WAY
 - PROPOSED LOT LINE
 - BUILDING SETBACK
 - ACTIVE OPEN SPACE
 - PASSIVE OPEN SPACE
 - COMMON AREA





LEGEND

	PROPERTY LINE
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	BUILDING SETBACK
	ACTIVE OPEN SPACE
	PASSIVE OPEN SPACE
	COMMON AREA

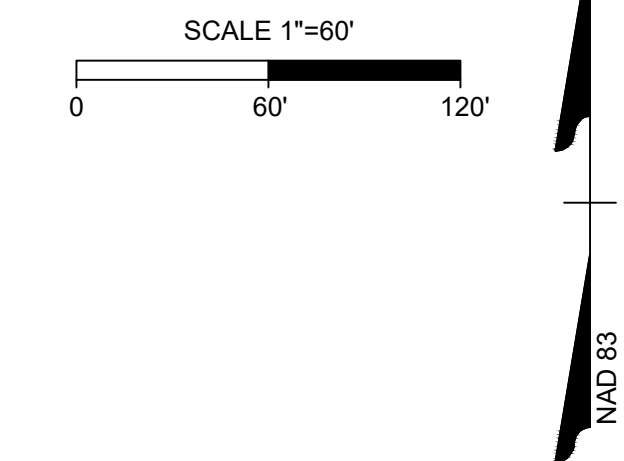
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REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
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DESIGNED BY
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CHECKED BY

SCALE
1"=60'

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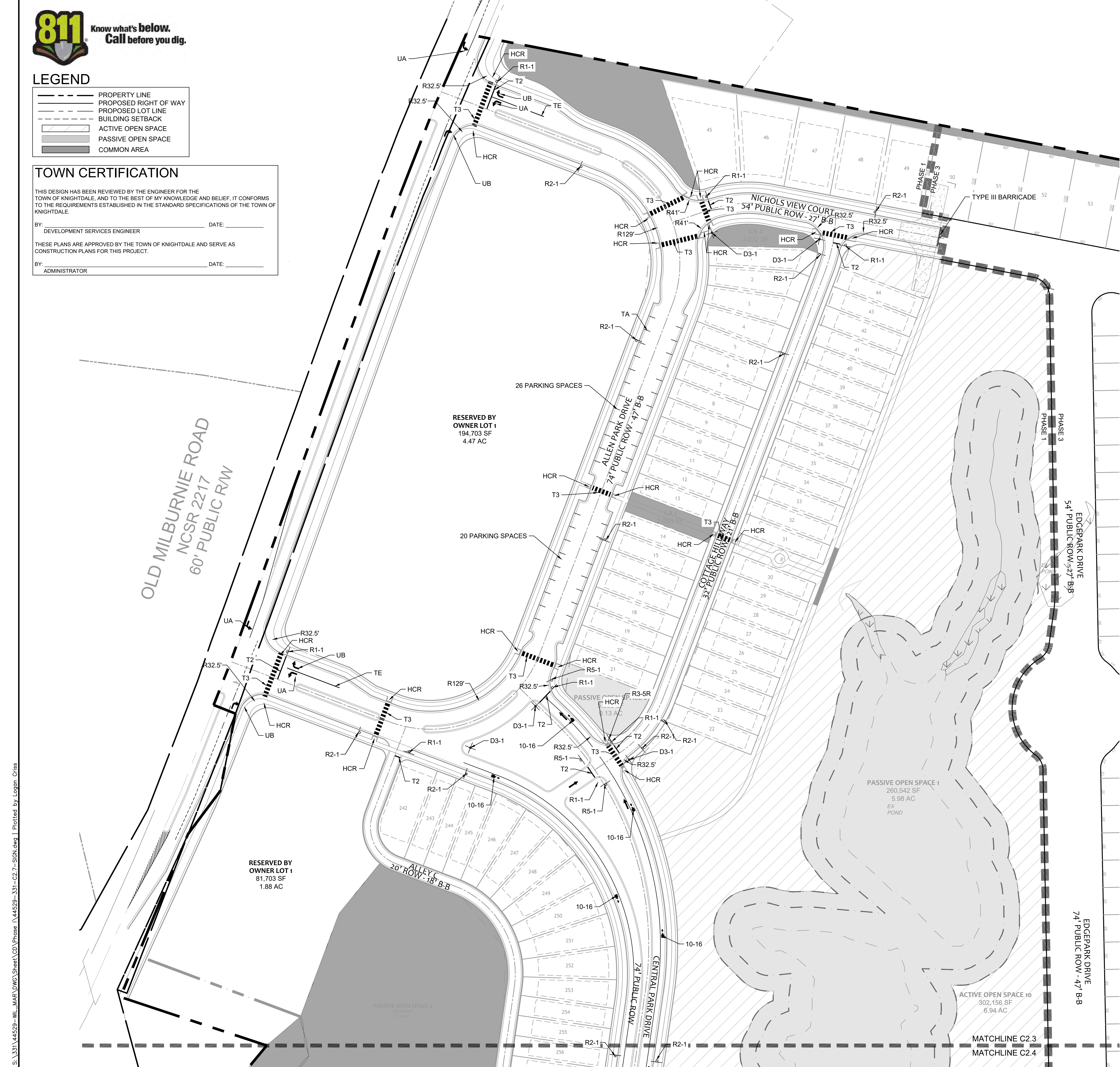
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SIGNAGE AND MARKING PLAN - SHEET 1 OF 2

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SIGN LEGEND

- ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.
- ALL SIGNAGE SHALL BE FIELD STAKED AND THE LOCATIONS APPROVED BY THE TOWN OF KNIGHTDALE AND/OR NCDOT PRIOR TO SIGN INSTALLATION.
- 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.
- THE TOWN OF KNIGHTDALE REQUIRES ALL REGULATORY PAVEMENT MARKINGS TO BE H-VIS THERMOPLASTIC, EXCEPT FOR PARKING SPACE STRIPING WHICH MAY BE WHITE PAINT.
- SEE STANDARD DETAIL 3.16 FOR PROPER PLACEMENT OF STREET SIGN ON SHEET C7.1

SIGN	MUTCD STD.	SIZE
STOP	R1-1	30"x30"
ROAD CLOSED	R11-2	48"x30"
STREET NAME	D3-1	VARIES"x12"
SPEED LIMIT	R2-1	24"x30"
DO NOT ENTER	R5-1	30"x30"
ONE WAY	R6-1R	36"x12"
YIELD	R1-2	36"x12"
PEDESTRIAN CROSSING	S1-1	36"x36"
CROSSING ARROW	W16-7P	12"x24" (FLUORESCENT YELLOW/GREEN)
ROUNDABOUT CHEVRONS	R5-4A	48"x24"
YIELD AHEAD	W3-2	30"x30"
ROUNDABOUT WARNING	W2-6	30"x30"
RIGHT TURN ONLY	R3-5R	30"x36"
BIKE LANE MARKING	10-16	

Pavement Marking Symbols - English

Symbol	Description	Material	Transport Pay Item No.	Linear Length Adjustment
T2	WHITE STOPBAR (24", 120 ML)	Thermo	4710000000-E	1
T3	WHITE CROSSWALK LINE (24", 120 ML)	Thermo	4710000000-E	1
T10	3 FT. - 3 FT./SP WHITE MINISKIP (12", 120 ML) (Roundabouts only)	Thermo	4702000000-E	.5
TA	WHITE EDGELINE (4", 90 ML)	Thermo	4685000000-E	1
TE	WHITE SOLID LANE LINE (4", 120 ML)	Thermo	4686000000-E	1
T5	WHITE CORNERLINE (12", 90 ML)	Thermo	4700000000-E	1
UA	LEFT TURN ARROW (90 ML)	Thermo	4725000000-E	1
UB	RIGHT TURN ARROW (90 ML)	Thermo	4725000000-E	1
UF	COMBO, LEFT/RIGHT ARROW (90 ML)	Thermo	4725000000-E	1
UN	24" YIELD LINE TRIANGLE (90 ML)	Thermo	4725000000-E	1

S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-C2.3-SIGN.dwg | Plotted by Logan Criss

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REVISION DESCRIPTION	DATE
KNIGHTDALE SUBMITTAL # 5	09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
1"=60'

TOWN CERTIFICATION
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 BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: _____ DATE: _____
 ADMINISTRATOR

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
SIGNAGE AND MARKING PLAN - SHEET 2 OF 2

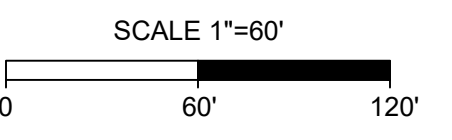
JOB NO.
44529
SHEET NO.
C2.4

FOR REVIEW ONLY: NOT FOR CONSTRUCTION



1-540
 300' PUBLIC ROW
 NCDOT PROJECT # 6.4080043
 ID NO. R-2000 G
 B.M. 2003, PG. 8-10

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 ADMINISTRATOR



LEGEND

---	PROPERTY LINE
---	PROPOSED RIGHT OF WAY
---	PROPOSED LOT LINE
---	BUILDING SETBACK
---	ACTIVE OPEN SPACE
---	PASSIVE OPEN SPACE
---	COMMON AREA

SIGN LEGEND

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BIKE LANE MARKING	10-16

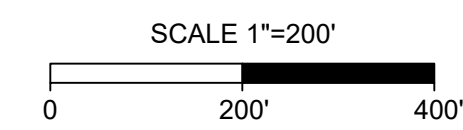
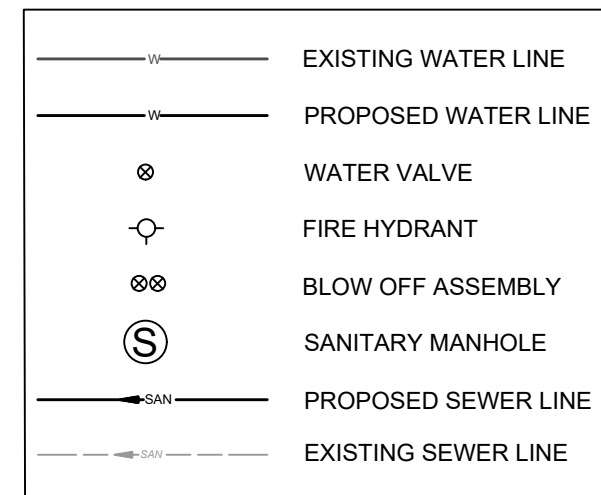
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UN	24" YIELD LINE TRIANGLE (90 ML)	Thermo	4725000000-E	1



S:\331\44529-WL-MAR-DWG Sheet\CD\Phase I\44529-331-C2.7-SIGN.dwg | Plotted by Logan Criss

UTILITY LEGEND

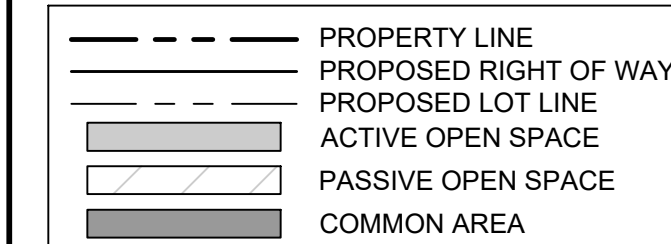


TOWN CERTIFICATION

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BY: DEVELOPMENT SERVICES ENGINEER DATE: _____
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: ADMINISTRATOR DATE: _____

LEGEND



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 _____

Water and Sewer Mains (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-4890

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-3827

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

UTILITY NOTES

- ALL UTILITY DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES (CORPUD) STANDARDS AND SPECIFICATIONS. UTILITY DESIGN SHALL ALSO MEET FIRE FLOW REQUIREMENTS OF NCFD.
- UTILITY SIZES AND LOCATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY AND ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN AND CONSTRUCTION DRAWING APPROVAL. THIS SHALL INCLUDE BUT NOT LIMITED TO FIRE HYDRANT LOCATIONS.
- ANY EXISTING WATER AND SEWER LINES TO BE USED AS PART OF THE FINAL DESIGN OF THE PROJECT SHALL BE LOCATED BY SURVEY, TESTED BY A LICENSED CONTRACTOR AND APPROVED BY THE CITY OF RALEIGH INSPECTOR PRIOR TO SUBMITTAL OF CONSTRUCTION DRAWINGS.
- AS PART OF CONSTRUCTION DRAWING SUBMITTAL, FIRE FLOW CALCULATIONS SHALL BE PROVIDED SHOWING COMPLIANCE WITH NCFD. PROJECT MAY BE DEVELOPED IN PHASES AND ALL PHASES SHALL BE REQUIRED TO MEET THE MINIMUM REQUIRED FIRE FLOWS PER OCCUPANCY PROPOSED IN EACH PHASE.
- AN APPROVED WATER SUPPLY FOR FIRE SUPPRESSION (TEMPORARY OR PERMANENT) SHALL BE PROVIDED AS SOON AS COMBUSTIBLE MATERIALS ARRIVE ON SITE.
- UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR THIS PROJECT. PLANS TO BE PREPARED BY NC PROFESSIONAL ENGINEER.
- RIGHT OF WAY AND/OR EASEMENT DEDICATION PLAT IS REQUIRED FOR THIS PROJECT (PRIOR TO CITY ACCEPTANCE OF UTILITIES).
- ALL NECESSARY WETLAND, RIPARIAN BUFFER AND FLOODPLAIN PERMITS FROM USACE, NCDWQ & FEMA SHALL BE OBTAINED PRIOR TO CONSTRUCTION.
- PROJECT SHALL EXTEND PUBLIC WATER MAINS ALONG ALL INTERIOR AND ABUTTING RIGHT OF WAYS OF DEVELOPMENT.
- FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED AT EVERY INTERSECTION AND AT 500' (RESIDENTIAL) MAX INTERVALS ALONG SITE FRONTAGE.
- ALL MAINS UP TO 12 INCHES IN SIZE SHALL BE DESIGNED WITH A BLOW-OFF ASSEMBLY THE SAME SIZE AS THE DIAMETER OF THE PIPE.
- ALL WATER MAINS SHALL BE PRESSURE CLASS OR THICKNESS CLASS DUCTILE IRON PIPE DESIGNED IN ACCORDANCE WITH AWWA STANDARD C-150.
- PROJECT SHALL EXTEND PUBLIC GRAVITY SEWER TO PERIPHERY OF DEVELOPMENT BASED ON NATURAL TOPOGRAPHY.
- ALL CITY OF RALEIGH SANITARY SEWER EASEMENTS SHALL BE A MINIMUM OF 30 FEET.
- THE SANITARY SEWER DESIGN SHALL BE EVALUATED DURING THE CONSTRUCTION DRAWING REVIEW TO ENSURE ADJACENT PROPERTIES HAVE ACCESS TO SANITARY SEWER WHERE FEASIBLE AND IN COMPLIANCE WITH THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT STANDARDS AND SPECIFICATIONS.
- ALL OFF-SITE EASEMENTS SHALL BE ACQUIRED BY THE DEVELOPER. THESE OFF-SITE EASEMENTS SHALL BE RECORDED BY MAP AND BY DEED OF EASEMENT PRIOR TO CONSTRUCTION APPROVAL. THE EASEMENTS SHALL BE DEDICATED TO THE CITY OF RALEIGH AND ENTITLED "CITY OF RALEIGH SANITARY SEWER EASEMENT".
- MAINTAIN APPROPRIATE COVER AND SEPARATION ON UTILITIES AND LABEL IN PROFILES; ANY UTILITY CROSSINGS ARE SUBJECT TO MINIMUM REQUIREMENTS.
- CONSTRUCTION APPROVAL WILL BE REQUIRED FOR ANY EXTENSIONS OF PUBLIC WATER OR SEWER MAINS.
- PLAT RECORDATION REQUIRED AFTER CONSTRUCTION APPROVAL PRIOR TO BUILDING PERMIT.
- DOT ENCROACHMENT AGREEMENT REQUIRED.
- PRIVATE WATER SERVICES SIZED 3" - 2" SHOULD BE TYPE "K" SOFT COPPER AND IN ACCORDANCE WITH PU HANDBOOK, APP. B, STANDARD WATER DETAIL W-23 AND W-25. IF WATER METERS CANNOT BE LOCATED WITHIN THE RIGHT-OF-WAY THEY MUST BE WITHIN RECORDED "CITY OF RALEIGH WATER MAIN EASEMENTS".

CORPUD STANDARD UTILITY NOTES:

- STANDARD UTILITY NOTES (AS APPLICABLE):
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
 - UTILITY SEPARATION REQUIREMENTS:
 - A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATER MAIN SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
 - WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.
 - ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
 - WHERE IT IS POSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, PVC MATERIALS OR STEEL ENCASMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATER MAIN SPECIFICATIONS
 - 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS PVC MATERIAL IS SPECIFIED FOR SANITARY SEWER
 - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY PVC MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
 - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
 - ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
 - CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
 - 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
 - IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
 - INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATER MAIN EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
 - INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
 - PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
 - ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
 - NCDOT /RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
 - GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT TIM BEASLEY AT (919) 996-2334 OR TIMOTHY.BEASLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
 - CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-9293 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION

UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

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

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YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5
11/21/2022	

DATE 11/21/2022
 DRAWN BY 331
 DESIGNED BY 331
 CHECKED BY ---
 SCALE 1"=200'

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

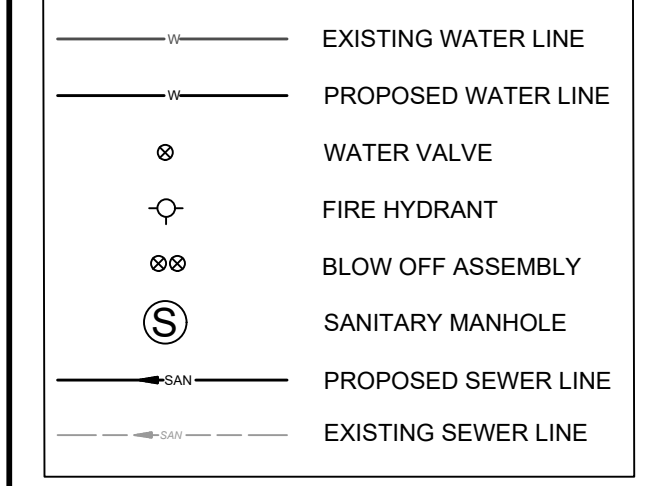
OVERALL UTILITY PLAN
 JOB NO. 44529
 SHEET NO. C3.0

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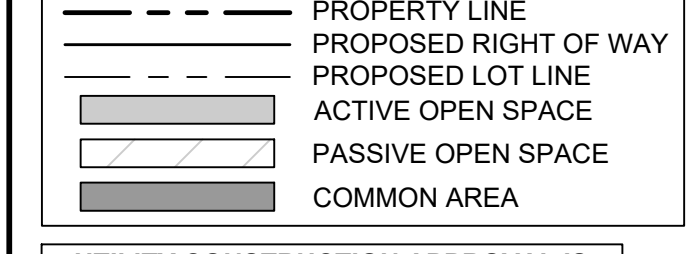




UTILITY LEGEND

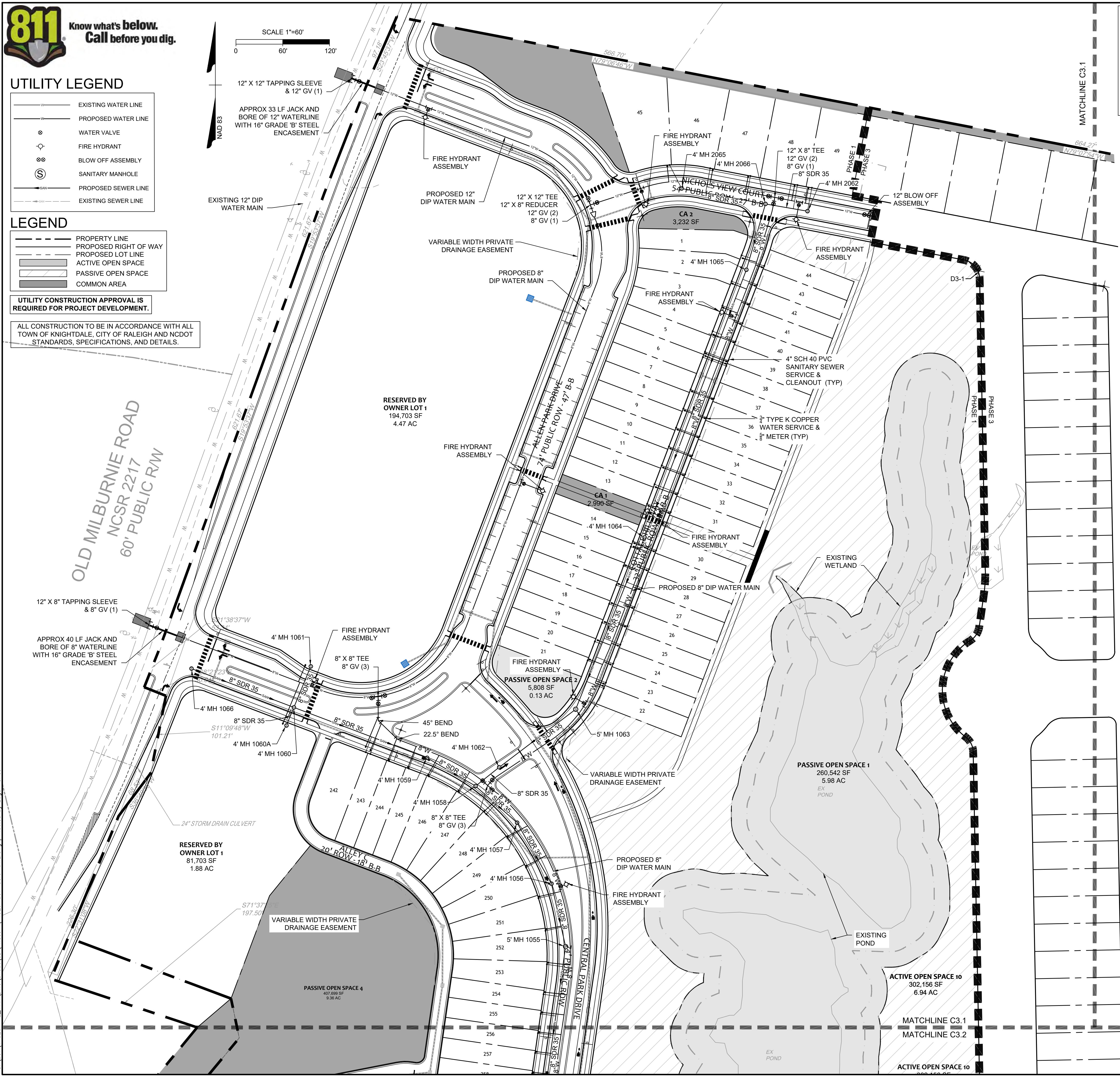
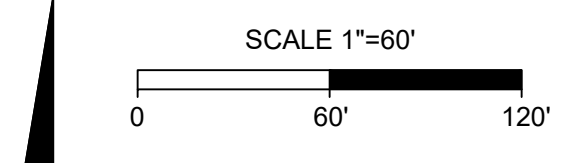


LEGEND



UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CITY OF RALEIGH AND NCDOT 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: _____
 DEVELOPMENT SERVICES ENGINEER
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: _____ DATE: _____
 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

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-4830
 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-3827
 The City of Raleigh consents to the connection to its public sewer system and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh Public Utilities Department Permit # _____

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REVISION DESCRIPTION
 KNIGHTDALE SUBMITTAL # 5

DATE
 09/30/2022

DATE
 11/21/2022

DRAWN BY
 331

DESIGNED BY
 331

CHECKED BY

SCALE
 1"=60'

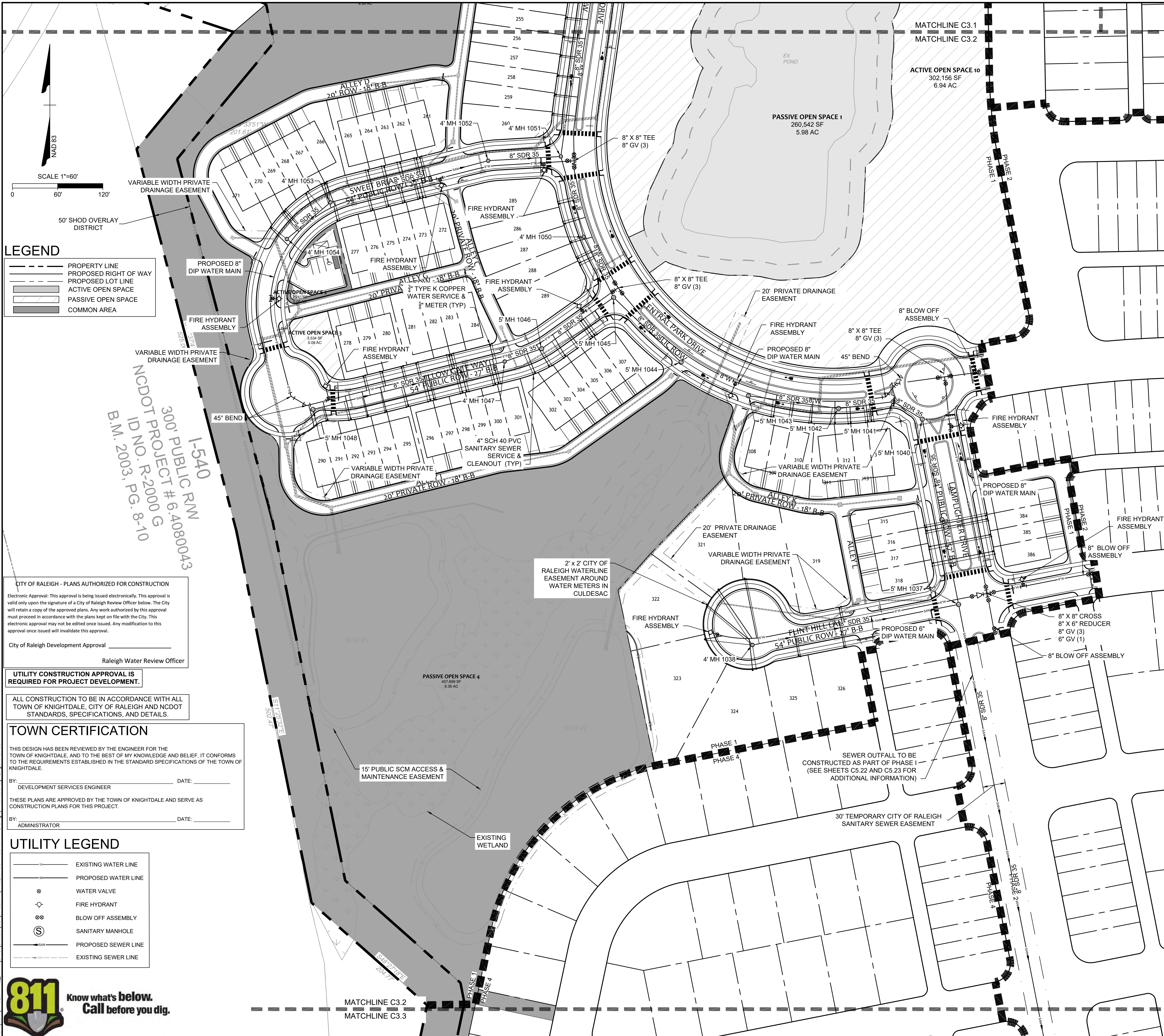


ALLEN PARK SUBDIVISION - PHASE I
 NORTH CAROLINA LICENSE NO. C-1652
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

JOB NO.
44529
 SHEET NO.
C3.1

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UTILITY PLAN - SHEET 1 OF 2
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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CITY OF RALEIGH AND NCDOT 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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOW OFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE



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REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE: 09/30/2022
DATE: 11/21/2022
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ---
SCALE: 1"=60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

UTILITY PLAN - SHEET 2 OF 2

JOB NO. 44529
SHEET NO. C3.2

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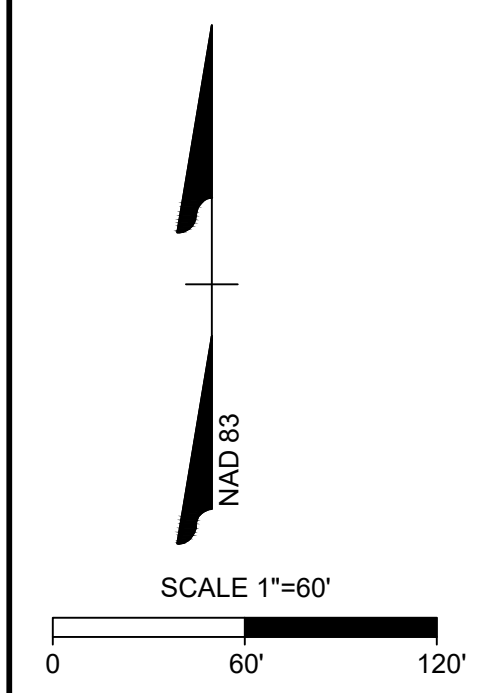
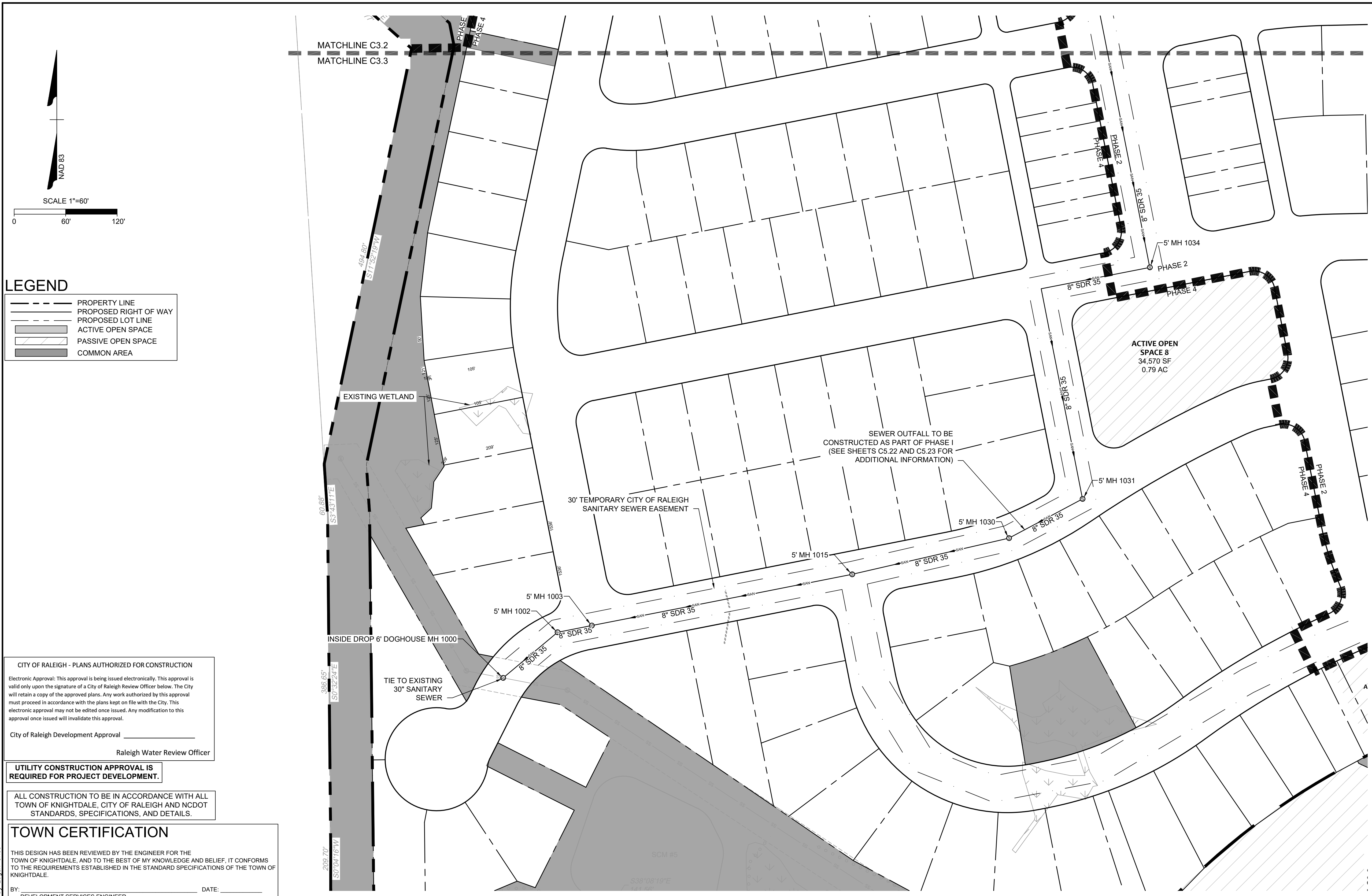
Water and Sewer Permits (if applicable)

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-4690

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-3827

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City of Raleigh Public Utilities Department Permit # _____



LEGEND

	PROPERTY LINE
	PROPOSED RIGHT OF WAY
	PROPOSED LOT LINE
	ACTIVE OPEN SPACE
	PASSIVE OPEN SPACE
	COMMON AREA

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND

	EXISTING WATER LINE
	PROPOSED WATER LINE
	WATER VALVE
	FIRE HYDRANT
	BLOW OFF ASSEMBLY
	SANITARY MANHOLE
	PROPOSED SEWER LINE
	EXISTING SEWER LINE

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-4890

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-3827

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

City of Raleigh Public Utilities Department Permit # _____

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DATE: 09/30/2022

DATE: 11/21/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: ---

SCALE: 1"=60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

UTILITY PLAN - PHASE 1 SEWER OUTFALL

JOB NO. 44529

SHEET NO. C3.3

FOR REVIEW ONLY: NOT FOR CONSTRUCTION



SANITARY SEWER SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
4' MH 1033	11.07'	223.65	212.80' (8" SDR 35) 5' MH 1034	212.60' (8" SDR 35)	250' @ 3.48%	5' MH 1031
4' MH 1038	5.06'	232.45		227.40' (8" SDR 35)	279' @ 2.40%	5' MH 1037
4' MH 1047	10.67'	235.35	224.90' (8" SDR 35) 5' MH 1048	224.70' (8" SDR 35)	52' @ 0.58%	5' MH 1046
4' MH 1050	9.48'	239.65	230.40' (8" SDR 35) 4' MH 1051	230.20' (8" SDR 35)	90' @ 4.80%	5' MH 1045
4' MH 1051	11.40'	242.38	231.20' (8" SDR 35) 5' MH 1055 231.20' (8" SDR 35) 4' MH 1052	231.00' (8" SDR 35)	111' @ 0.54%	4' MH 1050
4' MH 1052	9.00'	240.78	232.00' (8" SDR 35) 4' MH 1053	231.80' (8" SDR 35)	97' @ 0.62%	4' MH 1051
4' MH 1053	11.06'	244.24	235.38' (8" SDR 35) 4' MH 1054	233.20' (8" SDR 35)	216' @ 0.55%	4' MH 1052
4' MH 1054	7.27'	243.01		235.76' (8" SDR 35)	76' @ 0.50%	4' MH 1053
4' MH 1056	9.51'	250.09	240.80' (8" SDR 35) 4' MH 1057	240.60' (8" SDR 35)	83' @ 1.58%	5' MH 1055
4' MH 1057	9.76'	251.94	242.40' (8" SDR 35) 4' MH 1058	242.20' (8" SDR 35)	90' @ 1.56%	4' MH 1056
4' MH 1058	11.06'	254.15	243.31' (8" SDR 35) 4' MH 1062 245.61' (8" SDR 35) 4' MH 1059	243.11' (8" SDR 35)	71' @ 1.00%	4' MH 1057
4' MH 1059	7.69'	256.09	248.60' (8" SDR 35) 4' MH 1060	248.40' (8" SDR 35)	72' @ 3.87%	4' MH 1058
4' MH 1060	9.89'	260.66	253.29' (8" SDR 35) 4' MH 1061 250.79' (8" SDR 35) 4' MH 1060A 250.79' (8" SDR 35) 4' MH 1066	250.79' (8" SDR 35)	183' @ 1.20%	4' MH 1059
4' MH 1060A	7.59'	260.59		253.00' (8" SDR 35)	25' @ 8.80%	4' MH 1060
4' MH 1061	6.59'	261.58		255.00' (8" SDR 35)	57' @ 3.01%	4' MH 1060
4' MH 1062	11.06'	254.91	244.07' (8" SDR 35) 5' MH 1063	243.87' (8" SDR 35)	39' @ 1.44%	4' MH 1058
4' MH 1064	10.69'	266.47	256.00' (8" SDR 35) 4' MH 1065	255.80' (8" SDR 35)	238' @ 3.49%	5' MH 1063
4' MH 1065	11.65'	284.58	273.15' (8" SDR 35) 4' MH 2066	272.95' (8" SDR 35)	367' @ 4.61%	4' MH 1064
4' MH 1066	5.82'	257.82		252.00' (8" SDR 35)	141' @ 0.86%	4' MH 1060
4' MH 2062	7.47'	281.57		274.10' (8" SDR 35)	55' @ 0.55%	4' MH 2066
4' MH 2065	9.74'	284.12		274.40' (8" SDR 35)	109' @ 0.55%	4' MH 2066
4' MH 2066	10.17'	283.77	273.80' (8" SDR 35) 4' MH 2062 273.80' (8" SDR 35) 4' MH 2065	273.60' (8" SDR 35)	88' @ 0.51%	4' MH 1065
5' MH 1002	16.13'	209.41	193.50' (8" SDR 35) 5' MH 1003	193.30' (8" SDR 35)	83' @ 0.60%	INSIDE DROP 6' DOGHOUSE MH 1000

SANITARY SEWER SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
5' MH 1003	15.73'	209.51	196.30' (8" SDR 35) 5' MH 1004 194.00' (8" SDR 35) 5' MH 1015	193.80' (8" SDR 35)	41' @ 0.75%	5' MH 1002
5' MH 1015	13.75'	209.63	196.10' (8" SDR 35) 5' MH 1016 198.40' (8" SDR 35) 5' MH 1030	195.90' (8" SDR 35)	309' @ 0.61%	5' MH 1003
5' MH 1030	12.19'	214.17	202.20' (8" SDR 35) 5' MH 1031	202.00' (8" SDR 35)	188' @ 1.82%	5' MH 1015
5' MH 1031	12.84'	216.52	203.90' (8" SDR 35) 4' MH 1033 206.20' (8" SDR 35) 5' MH 1032	203.70' (8" SDR 35)	97' @ 1.55%	5' MH 1030
5' MH 1034	12.76'	226.24	213.70' (8" SDR 35) 5' MH 1035	213.50' (8" SDR 35)	129' @ 0.54%	4' MH 1033
5' MH 1035	13.17'	228.25	215.30' (8" SDR 35) 5' MH 1036	215.10' (8" SDR 35)	274' @ 0.51%	5' MH 1034
5' MH 1036	16.05'	232.93	217.10' (8" SDR 35) 5' MH 1037	216.90' (8" SDR 35)	311' @ 0.51%	5' MH 1035
5' MH 1037	18.15'	236.33	218.40' (8" SDR 35) 5' MH 1039 220.70' (8" SDR 35) 4' MH 1038	218.20' (8" SDR 35)	217' @ 0.51%	5' MH 1036
5' MH 1039	18.67'	237.64	219.19' (8" SDR 35) 5' MH 1040	218.99' (8" SDR 35)	115' @ 0.51%	5' MH 1037
5' MH 1040	16.21'	236.09	220.10' (8" SDR 35) 5' MH 1041	219.90' (8" SDR 35)	136' @ 0.52%	5' MH 1039
5' MH 1041	16.32'	236.70	220.60' (8" SDR 35) 5' MH 1042	220.40' (8" SDR 35)	45' @ 0.66%	5' MH 1040
5' MH 1042	13.65'	234.59	221.16' (8" SDR 35) 5' MH 1043	220.96' (8" SDR 35)	73' @ 0.50%	5' MH 1041
5' MH 1043	11.95'	233.74	222.00' (8" Ductile Iron) 5' MH 1044	221.80' (8" SDR 35)	121' @ 0.53%	5' MH 1042
5' MH 1044	12.48'	234.97	222.70' (8" SDR 35) 5' MH 1045	222.50' (8" Ductile Iron)	100' @ 0.50%	5' MH 1043
5' MH 1045	14.71'	238.09	225.90' (8" SDR 35) 4' MH 1050 223.60' (8" SDR 35) 5' MH 1046	223.40' (8" SDR 35)	124' @ 0.56%	5' MH 1044
5' MH 1046	11.98'	236.16	224.40' (8" SDR 35) 4' MH 1047	224.20' (8" SDR 35)	117' @ 0.51%	5' MH 1045
5' MH 1048	13.23'	239.42		226.20' (8" SDR 35)	262' @ 0.50%	4' MH 1047
5' MH 1055	11.59'	248.36	239.30' (8" SDR 35) 4' MH 1056	236.80' (8" SDR 35)	272' @ 2.06%	4' MH 1051
5' MH 1063	10.15'	255.13	247.50' (8" SDR 35) 4' MH 1064	245.00' (8" SDR 35)	123' @ 0.76%	4' MH 1062
INSIDE DROP 6' DOGHOUSE MH 1000	29.50'	207.77	192.80' (8" SDR 35) 5' MH 1002 195.30' (8" SDR 35) 4' MH 1001			

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 # **3-4690**

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-3827**

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

City of Raleigh Public Utilities Department Permit # _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval _____
Raleigh Water Review Officer

FOR REVIEW ONLY

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
N/A

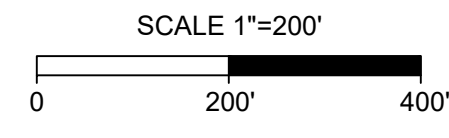
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
SANITARY SEWER SCHEDULE

JOB NO.
44529
SHEET NO.
C3.4

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NOTES

1. THE STORM DRAINAGE LAYOUT IS CONCEPTUAL AND SUBJECT TO CHANGE. APPROVAL BY TOWN STAFF IS REQUIRED.
2. THE STORM DRAINAGE SYSTEM SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH TOWN OF KNIGHTDALE UDO AND ENGINEERING STANDARDS & SPECIFICATIONS.
3. THE STORMWATER PLAN SHALL PROVIDE FOR ADEQUATE NITROGEN REDUCTION AND ATTENUATION OF STORMWATER RUNOFF.
4. FENCING AND LANDSCAPING FOR ALL PROPOSED STORMWATER CONTROL MEASURES SHALL MEET TOWN OF KNIGHTDALE REQUIREMENTS FOR EACH TYPE OF MEASURE PROPOSED.
5. STORMWATER CONTROL MEASURES SHALL BE LOCATED IN OPEN SPACE AREAS DEDICATED TO AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION (HOA).
6. A MAINTENANCE PLAN ALONG WITH A MEMORANDUM OF AGREEMENT MUST BE DEVELOPED FOR ALL STORMWATER CONTROL MEASURES (SCMS) INSTALLED TO ACHIEVE NITROGEN LOADING AND/OR FLOW ATTENUATING REQUIREMENTS AS PART OF THIS PROJECT. THIS MAINTENANCE PLAN IS REQUIRED TO BE RECORDED AT THE WAKE COUNTY REGISTER OF DEEDS PRIOR TO PLAT RECORDEATION. PROOF OF SAID RECORDING WILL BE REQUIRED AT THE TIME OF PLAT RECORDEATION.
7. MAINTENANCE AND ACCESS EASEMENTS ARE REQUIRED FOR ALL SCMS.
8. AT THE CONCLUSION OF THE PROJECT ALL SCMS INSTALLED ON-SITE MUST BE CERTIFIED BY A DESIGN PROFESSIONAL AND THE TOWN OF KNIGHTDALE ENGINEERING DEPT. MUST RECEIVE ALL AS-BUILT DRAWINGS PRIOR TO RECEIVING THE CERTIFICATE OF OCCUPANCY.

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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

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.

NOTE:
RETAINING WALLS 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.

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- FENCE
- PROPOSED DRAIN EASEMENT
- PROPOSED PERIMETER BUFFER
- 100-YR FLOODPLAIN
- WETLANDS
- PROPERTY LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA

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

S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-C4.0-GRAD.dwg | Plotted by Logan Criss



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REVISION DESCRIPTION
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
1"=200'

JOB NO.
44529

SHEET NO.
C4.0

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
OVERALL GRADING & DRAINAGE PLAN

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SCALE 1"=60'
0 60' 120'

LEGEND

- PROPOSED CONTOUR
- - - EXISTING CONTOUR
- FENCE
- - - PROPOSED DRAIN EASEMENT
- - - PROPOSED PERIMETER BUFFER
- - - 100-YR FLOODPLAIN
- WETLANDS
- PROPERTY LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA

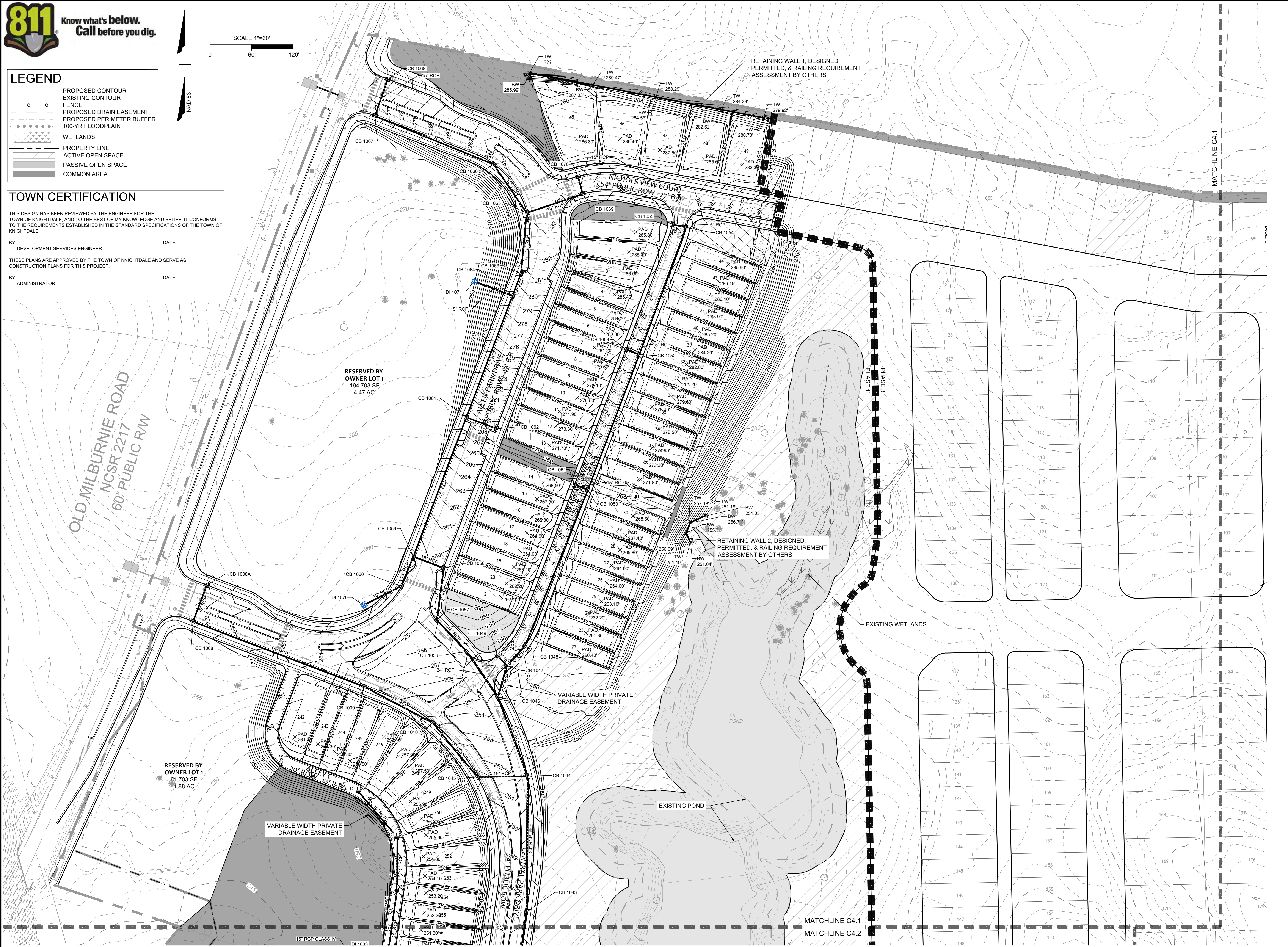
TOWN CERTIFICATION

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BY: DEVELOPMENT SERVICES ENGINEER DATE: _____

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

BY: ADMINISTRATOR DATE: _____



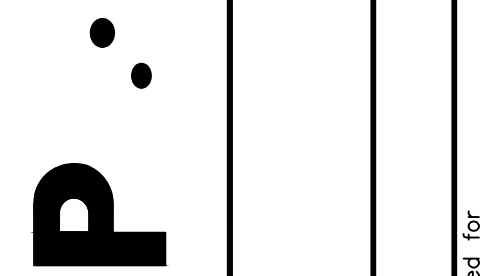
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DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5

DATE	11/21/2022
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=60'



ALLEN PARK SUBDIVISION - PHASE I
NORTH CAROLINA LICENSE NO. C-1652
GRADING & DRAINAGE PLAN - SHEET 1 OF 3

JOB NO.	44529
SHEET NO.	C4.1

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S:\331\44529-WL-MAR-DWG Sheet\CD Phase I\44529-331-C4.0-GRAD.dwg | Plotted by Logan Criss



NCEB01 PROJECT # 6: 4080043
 300 PUBLIC ROW
 1-540
 B.M. 2003, PG. 8-10

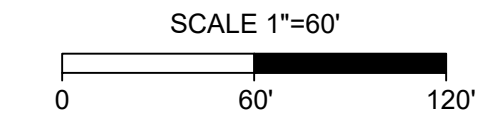
TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



LEGEND

	PROPOSED CONTOUR
	EXISTING CONTOUR
	FENCE
	PROPOSED DRAIN EASEMENT
	PROPOSED PERIMETER BUFFER
	100-YR FLOODPLAIN
	WETLANDS
	PROPERTY LINE
	ACTIVE OPEN SPACE
	PASSIVE OPEN SPACE
	COMMON AREA

MATCHLINE C4.2
 MATCHLINE C4.3

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REVISION DESCRIPTION	KNIGHTDALE SUBMITTAL # 5
DATE	09/30/2022
DATE	11/21/2022
DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	1"=60'

TIMMONS GROUP

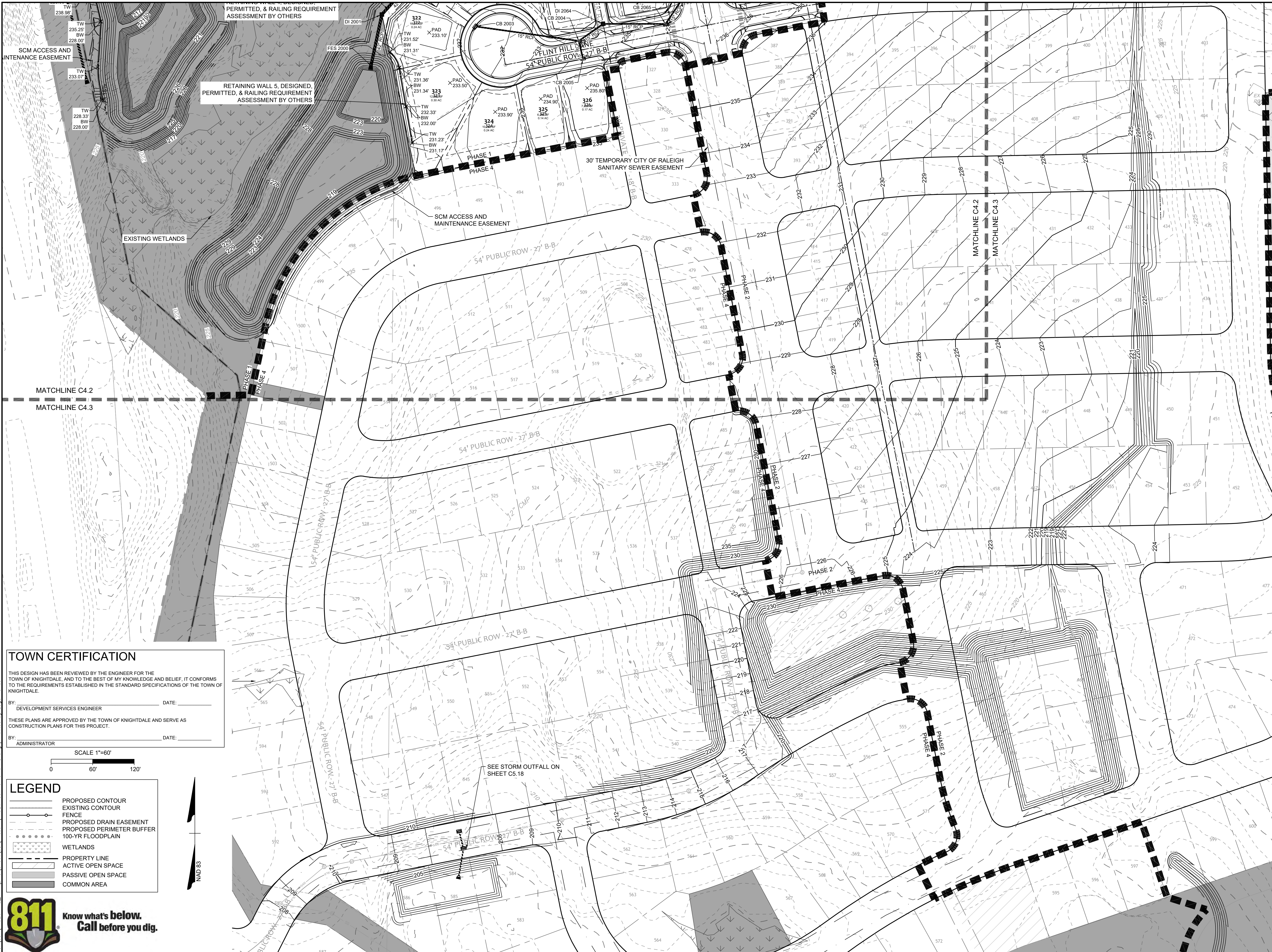
ALLEN PARK SUBDIVISION - PHASE I
 NORTH CAROLINA LICENSE NO. C-1652
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

GRADING & DRAINAGE PLAN - SHEET 2 OF 3

JOB NO.	44529
SHEET NO.	C4.2

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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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

SCALE 1"=60'

0 60' 120'

- LEGEND**
- PROPOSED CONTOUR
 - - - EXISTING CONTOUR
 - FENCE
 - - - PROPOSED DRAIN EASEMENT
 - - - PROPOSED PERIMETER BUFFER
 - - - 100-YR FLOODPLAIN
 - WETLANDS
 - PROPERTY LINE
 - ACTIVE OPEN SPACE
 - PASSIVE OPEN SPACE
 - COMMON AREA



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DATE: 11/21/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: ---

SCALE: 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

GRADING & DRAINAGE PLAN - SHEET 3 OF 3

JOB NO. 44529

SHEET NO. C4.3

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STORM DRAINAGE SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
CB 1006	11.23'	238.38	227.40' (24" RCP) CB 1013 228.15' (15" RCP) CB 1007	227.40' (24" RCP)	61' @ 0.65%	CB 1006A
CB 1006A	13.16'	240.06	227.00' (24" RCP) CB 1006	226.90' (24" RCP)	44' @ 0.67%	DI 1004
CB 1007	8.54'	238.45		230.10' (15" RCP)	27' @ 7.19%	CB 1006
CB 1008	2.94'	258.94	256.00' (15" RCP) CB 1008A	256.00' (15" RCP)	265' @ 1.96%	CB 1009
CB 1008A	2.94'	259.24		256.30' (15" RCP)	57' @ 0.53%	CB 1008
CB 1009	5.77'	256.57	250.80' (15" RCP) CB 1008	250.80' (15" RCP)	113' @ 2.93%	CB 1010
CB 1010	6.17'	253.67	247.50' (15" RCP) CB 1009	247.50' (15" RCP)	101' @ 2.77%	CB 1045
CB 1013	6.81'	235.06	228.95' (18" RCP) CB 1015 229.20' (15" RCP) CB 1014	228.45' (24" RCP)	159' @ 0.66%	CB 1006
CB 1014	5.39'	235.06		229.85' (15" RCP)	27' @ 2.41%	CB 1013
CB 1015	6.58'	235.77	229.40' (18" RCP) CB 1017 229.65' (15" RCP) DI 1016	229.40' (18" RCP)	66' @ 0.68%	CB 1013
CB 1017	7.82'	237.88	230.30' (15" RCP) CB 1018	230.05' (18" RCP)	124' @ 0.52%	CB 1015
CB 1018	7.37'	237.69	230.50' (15" RCP) CB 1019	230.50' (15" RCP)	27' @ 0.74%	CB 1017
CB 1019	6.75'	238.96	232.40' (15" RCP) DI 1032	232.40' (15" RCP)	45' @ 4.18%	CB 1018
CB 1020	6.29'	239.00		232.90' (15" RCP)	47' @ 1.06%	CB 1019
CB 1023	9.42'	240.06	230.97' (36" RCP) CB 1024	230.97' (36" RCP)	145' @ 2.74%	DI 1004
CB 1024	9.22'	240.06	231.17' (36" RCP) DI 1011	231.17' (36" RCP)	27' @ 0.74%	CB 1023
CB 1025	10.41'	243.03	232.95' (36" RCP) CB 1027 234.70' (15" RCP) DI 1026	232.95' (36" RCP)	100' @ 0.50%	DI 1011
CB 1027	11.15'	244.07	233.25' (36" RCP) CB 1028	233.25' (36" RCP)	49' @ 0.61%	CB 1025
CB 1028	10.96'	244.23	233.60' (36" RCP) CB 1032 A 235.35' (15" RCP) CB 1029	233.60' (36" RCP)	64' @ 0.55%	CB 1027
CB 1029	9.31'	244.01		236.70' (15" RCP)	29' @ 4.64%	CB 1028
CB 1030	6.43'	240.98	234.55' (36" RCP) CB 1039 236.30' (15" RCP) CB 1030 A	234.55' (36" RCP)	69' @ 0.50%	CB 1032 A
CB 1030 A	4.53'	240.98		236.45' (15" RCP)	27' @ 0.56%	CB 1030
CB 1031 A	5.65'	241.85	236.20' (15" RCP) DI 1031	236.20' (15" RCP)	27' @ 0.91%	CB 1032 A
CB 1032 A	7.64'	241.85	234.20' (36" RCP) CB 1030 235.95' (15" RCP) CB 1031 A 235.95' (15" RCP) DI 1032	234.20' (36" RCP)	119' @ 0.51%	CB 1028
CB 1039	7.25'	241.91	234.95' (36" RCP) CB 1041 236.70' (15" RCP) CB 1040	234.95' (36" RCP)	75' @ 0.53%	CB 1030
CB 1040	5.57'	241.92		238.35' (15" RCP)	27' @ 6.11%	CB 1039
CB 1041	8.57'	243.47	235.20' (36" RCP) CB 1042	235.20' (36" RCP)	51' @ 0.49%	CB 1039
CB 1042	8.50'	243.66	236.45' (24" RCP) CB 1043	235.45' (36" RCP)	48' @ 0.52%	CB 1041
CB 1043	7.63'	246.88	239.50' (24" RCP) CB 1044	239.50' (24" RCP)	137' @ 2.22%	CB 1042
CB 1044	8.59'	251.29	242.95' (24" RCP) CB 1048 243.70' (15" RCP) CB 1045	242.95' (24" RCP)	196' @ 1.76%	CB 1043

STORM DRAINAGE SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
CB 2003	4.96'	231.41	226.70' (15" RCP) CB 2004	226.45' (18" RCP)	112' @ 0.58%	DI 2002
CB 2004	6.81'	234.31	227.50' (15" RCP) CB 2005 227.50' (15" RCP) DI 2064	227.50' (15" RCP)	152' @ 0.53%	CB 2003
CB 2005	6.81'	234.32		227.70' (15" RCP)	27' @ 0.74%	CB 2004
CB 2011	7.00'	234.30		227.30' (15" RCP)	51' @ 0.48%	DI 2010
CB 2012	6.69'	234.07		227.57' (15" RCP)	47' @ 0.58%	CB 2013A
CB 2013	9.04'	234.54	226.00' (36" RCP) CB 2017 227.00' (24" RCP) CB 2014	225.50' (42" RCP)	75' @ 0.53%	CB 2013A
CB 2013A	8.97'	234.07	225.10' (42" RCP) CB 2013 227.30' (15" RCP) CB 2012	225.10' (42" RCP)	49' @ 0.62%	DI 2010
CB 2014	8.53'	235.93	227.40' (24" RCP) CB 2015	227.40' (24" RCP)	81' @ 0.50%	CB 2013
CB 2015	8.77'	236.19	228.17' (15" RCP) CB 2016	227.42' (24" RCP)	51' @ 0.04%	CB 2014
CB 2016	9.73'	236.20		228.47' (15" RCP)	57' @ 0.53%	CB 2015
CB 2017	8.04'	234.54	226.50' (36" RCP) CB 2020	226.50' (36" RCP)	47' @ 1.06%	CB 2013
CB 2018	10.43'	239.68	229.25' (36" RCP) CB 2022	231.25' (36" RCP)	52' @ 3.65%	CB 2020
CB 2019	5.45'	238.86		233.60' (15" RCP)	47' @ 5.32%	CB 2020
CB 2020	9.51'	238.86	229.35' (36" RCP) CB 2018 231.10' (15" RCP) CB 2019	229.35' (36" RCP)	214' @ 1.33%	CB 2017
CB 2022	9.74'	240.24	231.00' (30" RCP) CB 2022A 232.50' (24" RCP) CB 2023	230.50' (36" RCP)	48' @ 2.62%	CB 2018
CB 2022A	9.18'	240.93	231.75' (30" RCP) CB 2025	231.75' (30" RCP)	50' @ 1.50%	CB 2022
CB 2023	7.89'	240.64	233.00' (24" RCP) DI 2024	233.00' (24" RCP)	47' @ 1.06%	CB 2022
CB 2025	9.19'	242.80	233.61' (30" RCP) CB 2041 233.61' (30" RCP) CB 2026	233.61' (30" RCP)	125' @ 1.49%	CB 2022A
CB 2026	9.10'	243.21	234.11' (30" RCP) CB 2027	234.11' (30" RCP)	47' @ 1.06%	CB 2025
CB 2027	8.28'	242.90	235.12' (24" RCP) CB 2029 235.87' (15" RCP) CB 2028	234.62' (30" RCP)	51' @ 1.01%	CB 2026
CB 2028	6.95'	242.90		236.14' (15" RCP)	27' @ 1.00%	CB 2027
CB 2029	7.78'	244.18	236.40' (24" RCP) DI 2030	236.40' (24" RCP)	85' @ 1.51%	CB 2027
CB 2034	7.28'	252.11	244.83' (24" RCP) CB 2035	244.83' (24" RCP)	28' @ 0.18%	DI 2033
CB 2035	6.78'	252.11	245.33' (24" RCP) DI 2036	245.33' (24" RCP)	47' @ 1.06%	CB 2034
CB 2039	8.33'	273.93	266.10' (18" RCP) CB 2040	265.60' (24" RCP)	60' @ 0.50%	DI 2038
CB 2040	7.83'	273.93	267.44' (15" RCP) DI 2061	266.29' (18" RCP)	27' @ 0.70%	CB 2039
CB 2041	8.06'	243.96	235.90' (30" RCP) CB 2043 237.15' (15" RCP) CB 2042	235.90' (30" RCP)	80' @ 2.86%	CB 2025
CB 2042	9.04'	244.67		237.63' (15" RCP)	51' @ 0.93%	CB 2041
CB 2043	8.27'	247.02	239.25' (24" RCP) CB 2045 240.50' (15" RCP) CB 2044	238.75' (30" RCP)	209' @ 1.36%	CB 2041
CB 2044	8.42'	247.42		241.00' (15" RCP)	47' @ 1.06%	CB 2043

STORM DRAINAGE SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
CB 1045	6.68'	251.19	244.70' (15" RCP) CB 1010	244.70' (15" RCP)	73' @ 1.37%	CB 1044
CB 1046	8.45'	254.10	246.40' (18" RCP) CB 1047 245.90' (24" RCP) CB 1056	245.90' (24" RCP)	122' @ 2.41%	CB 1044
CB 1047	7.98'	254.64	247.10' (15" RCP) CB 1048 247.10' (15" RCP) CB 1049	246.85' (18" RCP)	47' @ 0.96%	CB 1046
CB 1048	7.43'	255.61	248.18' (15" RCP) CB 1050	248.18' (15" RCP)	40' @ 2.72%	CB 1047
CB 1049	7.83'	255.13		247.30' (15" RCP)	21' @ 0.98%	CB 1047
CB 1050	7.44'	267.44	260.00' (15" RCP) CB 1052 260.00' (15" RCP) CB 1051	260.00' (15" RCP)	243' @ 4.86%	CB 1048
CB 1051	7.15'	267.45		260.30' (15" RCP)	21' @ 1.43%	CB 1050
CB 1052	11.22'	280.17	268.95' (15" RCP) CB 1054 268.95' (15" RCP) CB 1053	268.95' (15" RCP)	210' @ 4.27%	CB 1050
CB 1053	11.07'	280.17		269.10' (15" RCP)	21' @ 0.71%	CB 1052
CB 1054	8.32'	284.22	276.08' (15" RCP) CB 1055	276.08' (15" RCP)	196' @ 3.63%	CB 1052
CB 1055	8.01'	284.22		276.39' (15" RCP)	21' @ 1.48%	CB 1054
CB 1056	7.90'	256.57	249.42' (18" RCP) CB 1057	248.92' (24" RCP)	80' @ 3.77%	CB 1046
CB 1057	7.71'	258.51	251.00' (18" RCP) CB 1058	251.00' (18" RCP)	63' @ 2.52%	CB 1056
CB 1058	8.39'	259.98	251.80' (18" RCP) CB 1059	251.80' (18" RCP)	76' @ 1.05%	CB 1057
CB 1059	7.69'	259.98	252.75' (15" RCP) CB 1061 252.75' (15" RCP) CB 1060	252.50' (18" RCP)	47' @ 1.49%	CB 1058
CB 1060	6.85'	259.68	253.02' (15" RCP) DI 1070	253.02' (15" RCP)	46' @ 0.58%	CB 1059
CB 1061	10.42'	268.88	258.65' (15" RCP) CB 1064 258.65' (15" RCP) CB 1062	258.65' (15" RCP)	216' @ 2.73%	CB 1059
CB 1062	5.80'	268.80		263.00' (15" RCP)	47' @ 9.26%	CB 1061
CB 1063	12.57'	281.08	268.70' (15" RCP) CB 1065	268.70' (15" RCP)	35' @ 4.51%	CB 1064
CB 1064	12.55'	279.69	267.14' (15" RCP) CB 1063 267.14' (15" RCP) DI 1071	267.14' (15" RCP)	188' @ 4.51%	CB 1061
CB 1065	12.27'	283.58	271.50' (15" RCP) CB 1066 271.50' (15" RCP) CB 1069	271.50' (15" RCP)	88' @ 3.17%	CB 1063
CB 1066	11.27'	283.08	272.00' (15" RCP) CB 1067	272.00' (15" RCP)	85' @ 0.59%	CB 1065
CB 1067	3.46'	276.28	273.00' (15" RCP) CB 1068	273.00' (15" RCP)	186' @ 0.54%	CB 1066
CB 1068	3.12'	276.34		273.40' (15" RCP)	57' @ 0.70%	CB 1067
CB 1069	10.68'	282.68	272.00' (15" RCP) CB 1070	272.00' (15" RCP)	86' @ 0.58%	CB 1065
CB 1070	10.48'	282.68		272.20' (15" RCP)	27' @ 0.74%	CB 1069
DI 1001	13.59'	238.44	234.85' (36" RCP) DI 1003 226.60' (15" RCP) DI 1002	224.85' (36" RCP)	56' @ 8.65%	FES 1000
DI 1002	9.97'	240.77	230.80' (15" RCP) DI 1002.1	230.80' (15" RCP)	225' @ 1.87%	DI 1001
DI 1002.1	7.62'	239.02	231.40' (15" RCP) DI 1002.2	231.40' (15" RCP)	99' @ 0.61%	DI 1002
DI 1002.2	4.02'	235.86		232.20' (15" RCP)	169' @ 0.47%	DI 1002.1

STORM DRAINAGE SCHEDULE						
STRUCTURE UP	HEIGHT	TOP	INV IN	INV OUT	OUTLET PIPE	STRUCTURE DOWN
CB 2045	8.27'	249.27	241.00' (24" RCP) CB 2046	241.00' (24" RCP)	149' @ 1.17%	CB 2043
CB 2046	7.63'	249.63	242.50' (18" RCP) CB 2047	242.00' (24" RCP)	47' @ 2.13%	CB 2045
CB 2047	7.78'	251.59	243.81' (18" RCP) CB 2048	243.81' (18" RCP)	132' @ 1.00%	CB 2046
CB 2048	6.22'	250.63	244.41' (18" RCP) CB 2049	244.41' (18" RCP)	75' @ 0.80%	CB 2047
CB 2049	5.75'	250.63	244.88' (18" RCP) CB 2050	244.88' (18" RCP)	47' @ 1.00%	CB 2048
CB 2050	7.35'	253.73	246.38' (18" RCP) CB 2052 246.63' (15" RCP) CB 2051	246.38' (18" RCP)	75' @ 2.01%	CB 2049
CB 2051	8.54'	253.55		247.01' (15" RCP)	38' @ 1.01%	CB 2050
CB 2052	7.64'	261.99	254.60' (15" RCP) CB 2054 255.09' (15" RCP) CB 2053	254.35' (18" RCP)	228' @ 3.49%	CB 2050
CB 2053	6.61'	261.98		255.37' (15" RCP)	27' @ 1.04%	CB 2052
CB 2054	7.39'	273.35	265.96' (15" RCP) CB 2055	265.96' (15" RCP)	217' @ 5.24%	CB 2052
CB 2055	7.12'	274.32	267.20' (15" RCP) CB 2056	267.20' (15" RCP)	33' @ 3.80%	CB 2054
CB 2056	7.41'	275.91	268.50' (15" RCP) CB 2057	268.50' (15" RCP)	40' @ 3.23%	CB 2055
CB 2057	7.13'	275.93		268.80' (15" RCP)	27' @ 1.11%	CB 2056

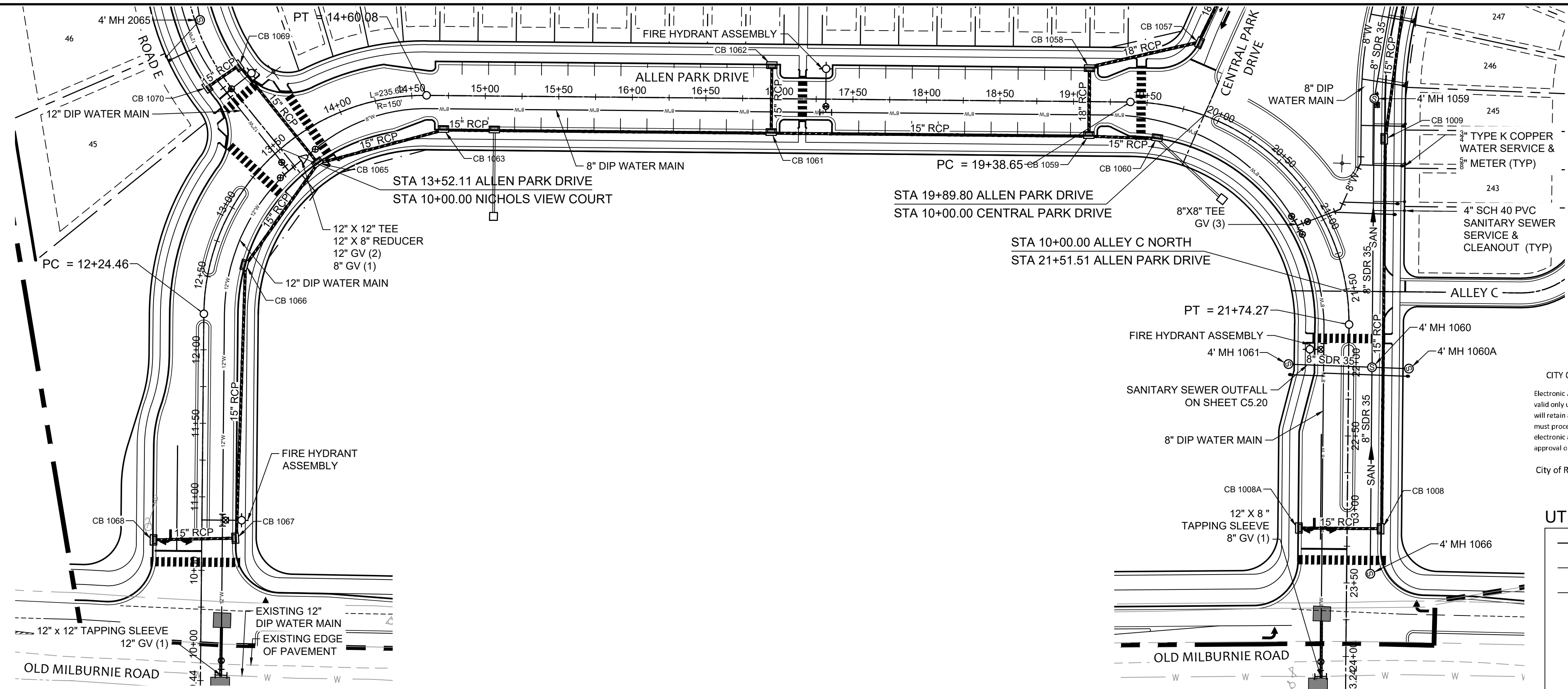
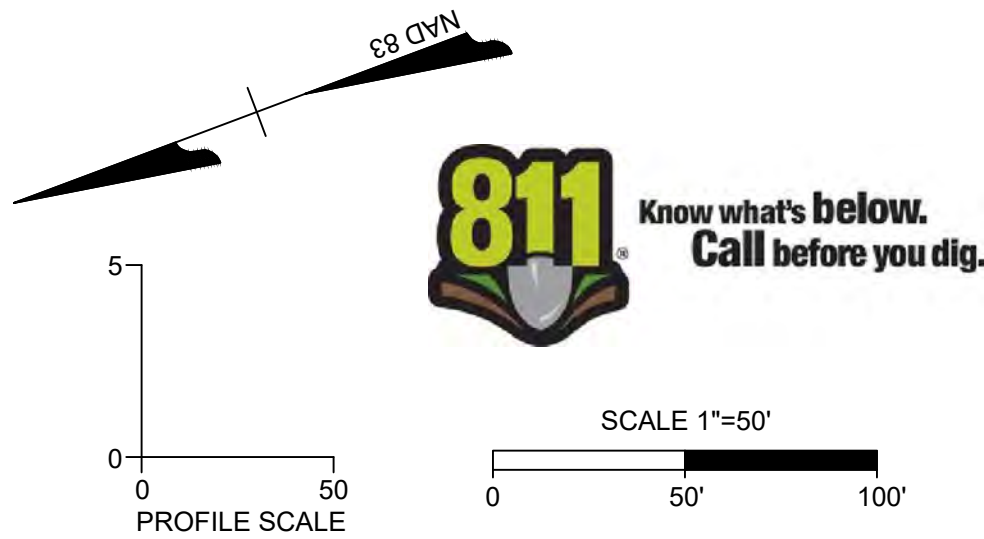
TOWN CERTIFICATION

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

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 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.
- 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.
- CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).



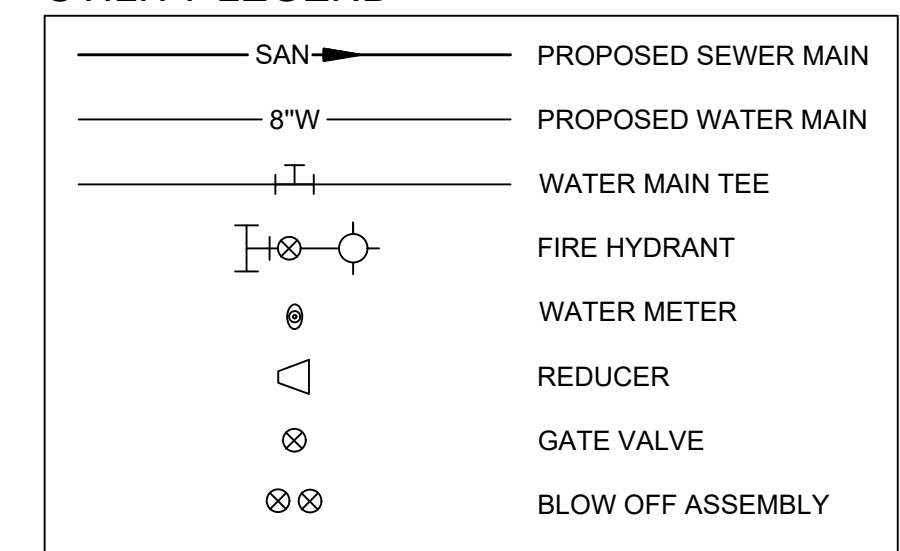
Water and Sewer Permits (if applicable)
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 City of Raleigh Public Utilities Department Permit # _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

UTILITY LEGEND



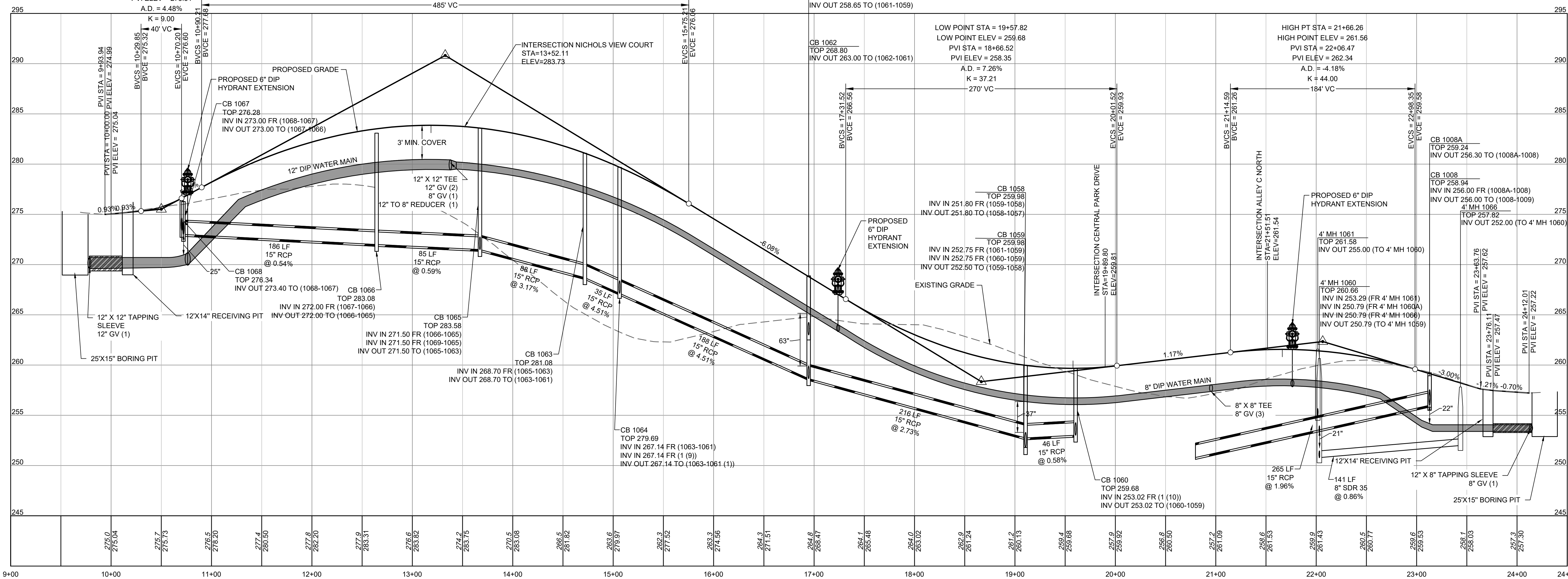
LOW POINT STA = 10+29.85
 LOW POINT ELEV = 275.32
 PVI STA = 10+50.03
 PVI ELEV = 275.51
 A.D. = 4.48%
 K = 9.00
 40' VC
 BVC STA = 10+29.85
 BVE STA = 275.32
 EVC STA = 10+70.20
 EVE STA = 276.60
 BVC STA = 10+90.31
 BVE STA = 277.88
 EVC STA = 15+75.14
 EVE STA = 276.06

HIGH PT STA = 13+18.60
 HIGH POINT ELEV = 283.87
 PVI STA = 13+32.71
 PVI ELEV = 290.81
 A.D. = -11.49%
 K = 42.20
 485' VC

CB 1061
 TOP 268.88
 INV IN 258.65 FR (1063-1061 (1))
 INV IN 258.65 FR (1062-1061)
 INV OUT 258.65 TO (1061-1059)

LOW POINT STA = 19+57.82
 LOW POINT ELEV = 259.68
 PVI STA = 18+66.52
 PVI ELEV = 258.35
 A.D. = 7.26%
 K = 37.21
 270' VC

HIGH PT STA = 21+66.26
 HIGH POINT ELEV = 261.56
 PVI STA = 22+06.47
 PVI ELEV = 262.34
 A.D. = -4.18%
 K = 44.00
 184' VC



ALLEN PARK DRIVE PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'

FOR REVIEW ONLY

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 TEL 919.866.9591 FAX 919.866.9824 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.
 DATE: 09/30/2022
 REVISION DESCRIPTION: KNIGHTDALE SUBMITTAL # 5

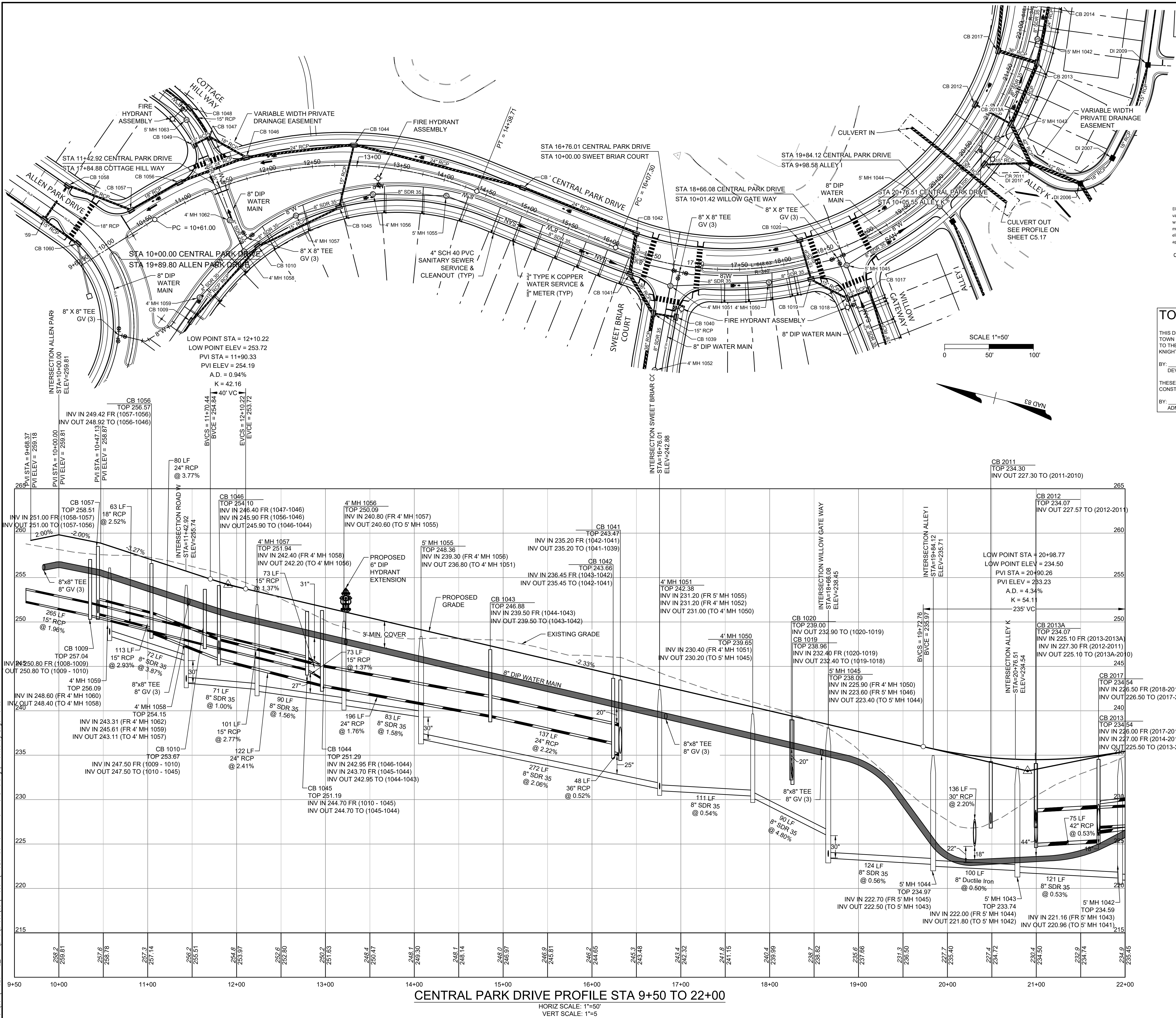
DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1" = 50'
 V: 1" = 5'

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
ALLEN PARK DRIVE PLAN & PROFILE
 JOB NO. 44529
 SHEET NO. C5.1

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 City of Raleigh Public Utilities Department Permit # _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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 City of Raleigh Development Approval _____
 Raleigh Water Review Officer _____

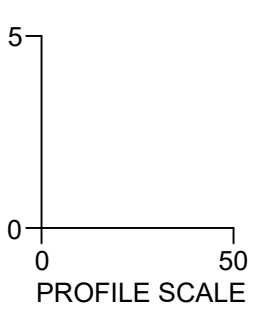
TOWN CERTIFICATION
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 BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: _____ DATE: _____
 ADMINISTRATOR

UTILITY LEGEND

	PROPOSED SEWER MAIN
	PROPOSED WATER MAIN
	WATER MAIN TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOW OFF ASSEMBLY



- UTILITY NOTES:**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
 - 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.
 - 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.
 - CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).



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RALEIGH OFFICE
 5410 Trinity Road, Suite 102 | Raleigh, NC 27607
 TEL 919.866.9511 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.	REVISION DESCRIPTION
DATE	KNIGHTDALE SUBMITTAL # 5
09/30/2022	
DATE	
11/21/2022	
DRAWN BY	
331	
DESIGNED BY	
331	
CHECKED BY	

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

TOWN CERTIFICATION

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

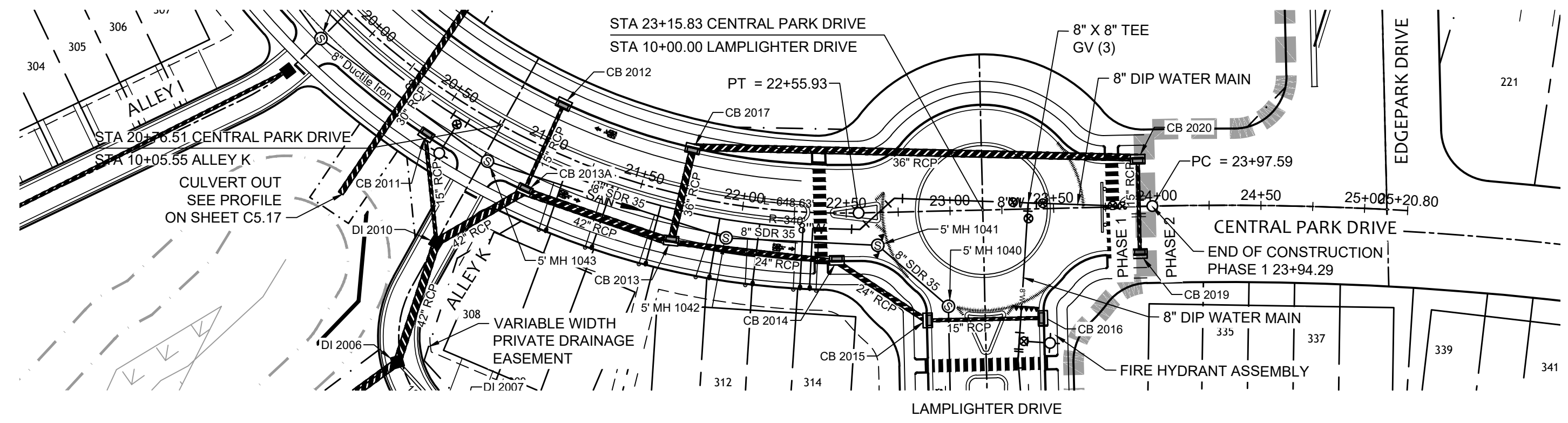
CENTRAL PARK DRIVE PLAN & PROFILE - STA 9+50 - 22+00

JOB NO.	44529
SHEET NO.	C5.2

FOR REVIEW ONLY: NOT FOR CONSTRUCTION

S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-CX-D-PROF-ROAD-C.dwg | Plotted by Logan Cires

FOR REVIEW ONLY



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

Water and Sewer Permits (if applicable)

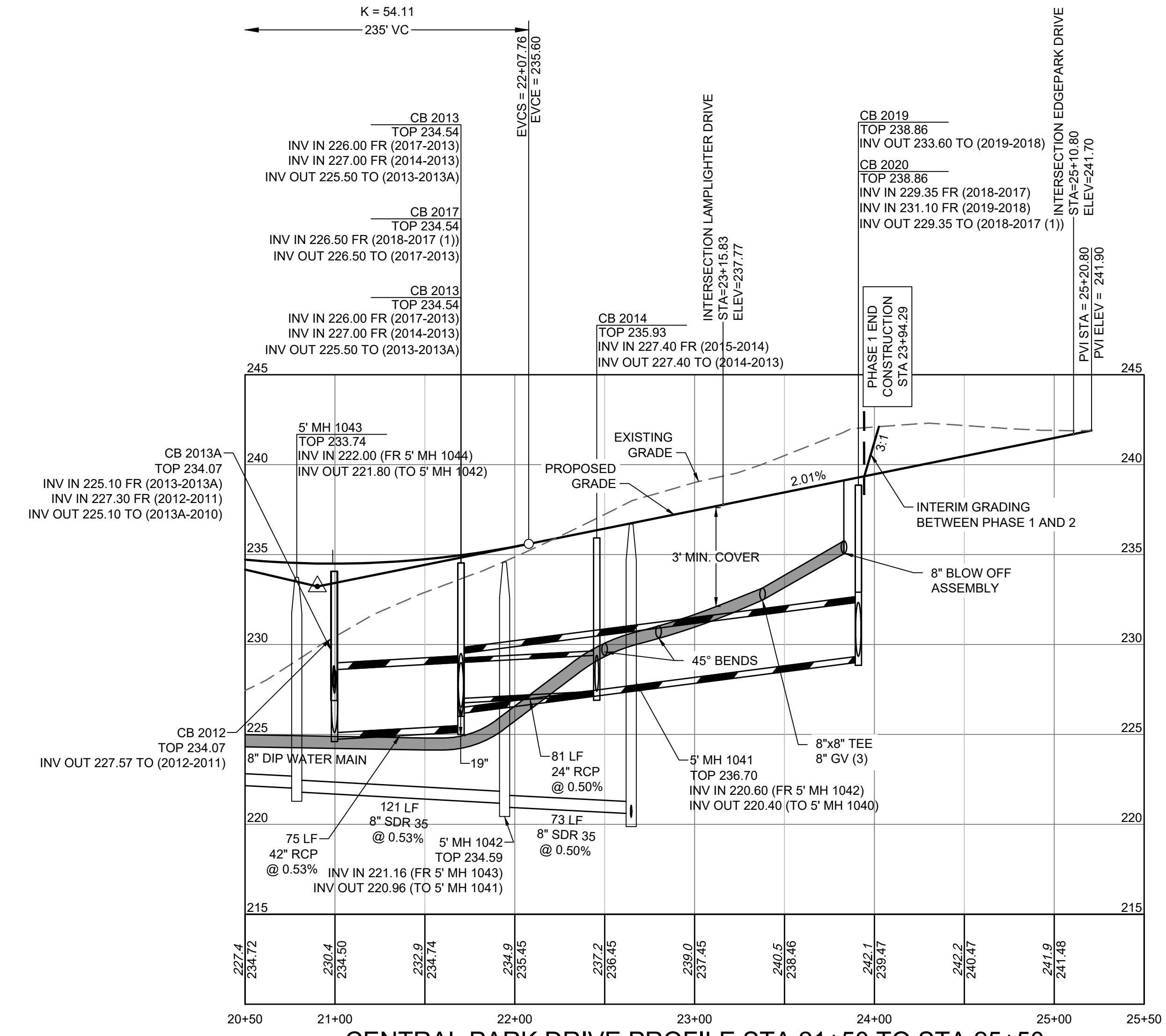
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City of Raleigh Public Utilities Department Permit # _____

LOW POINT STA = 20+98.77
 LOW POINT ELEV = 234.50
 PVI STA = 20+90.26
 PVI ELEV = 233.23
 A.D. = 4.34%
 K = 54.11
 235' VC



CENTRAL PARK DRIVE PROFILE STA 21+50 TO STA 25+50
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'

TOWN CERTIFICATION

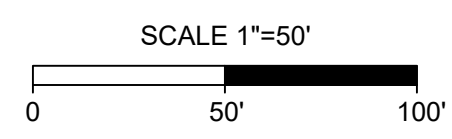
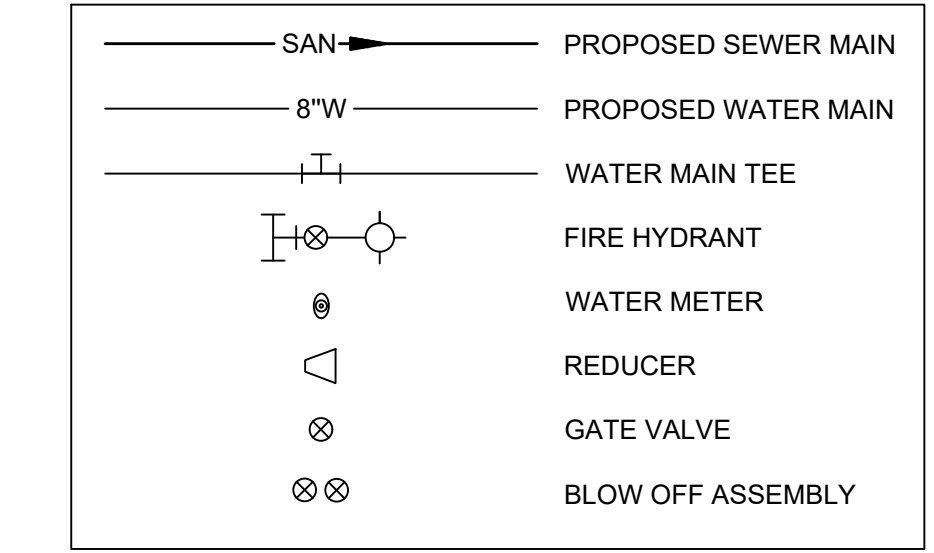
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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
 ADMINISTRATOR

UTILITY LEGEND



UTILITY NOTES:

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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.

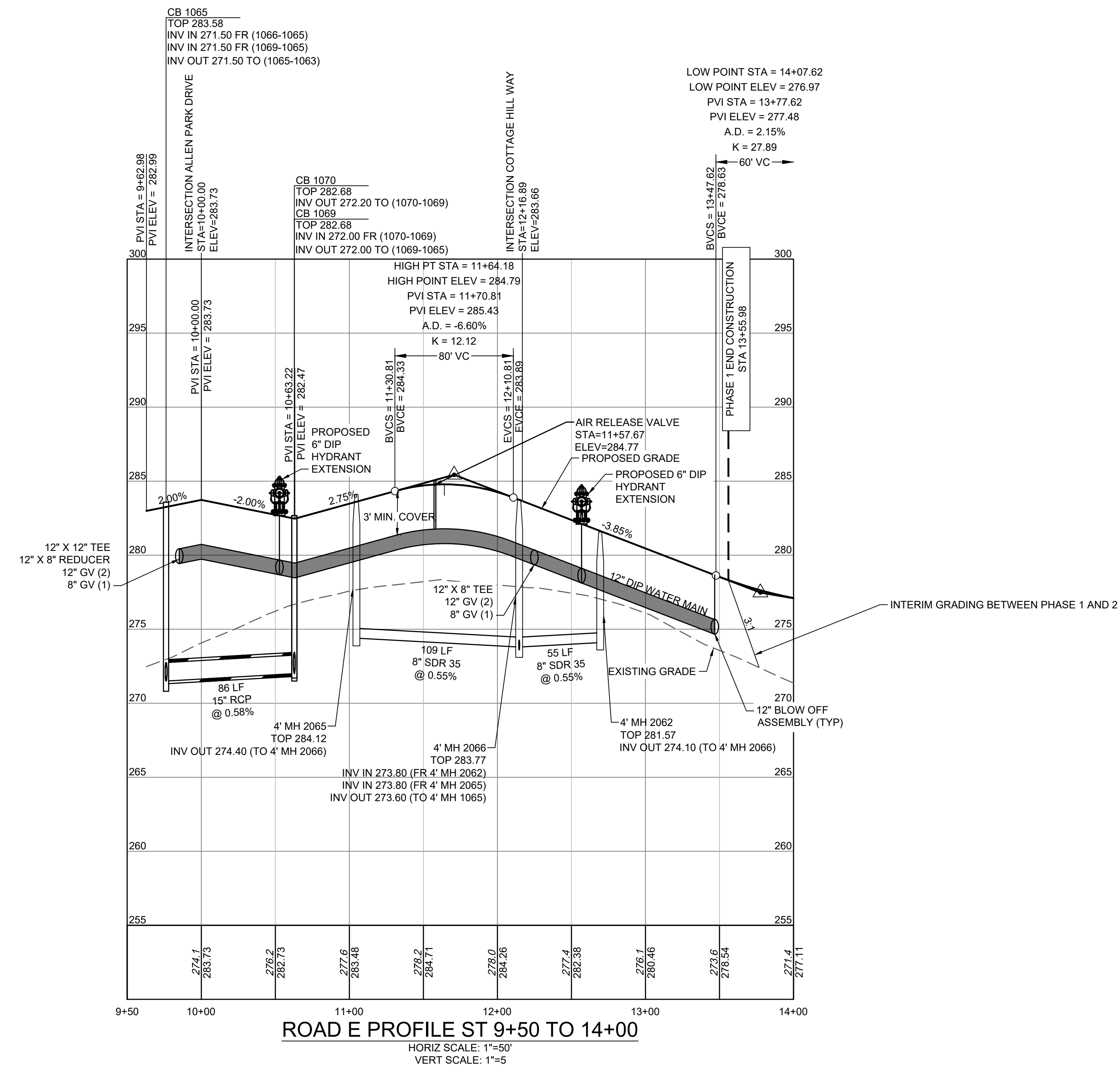
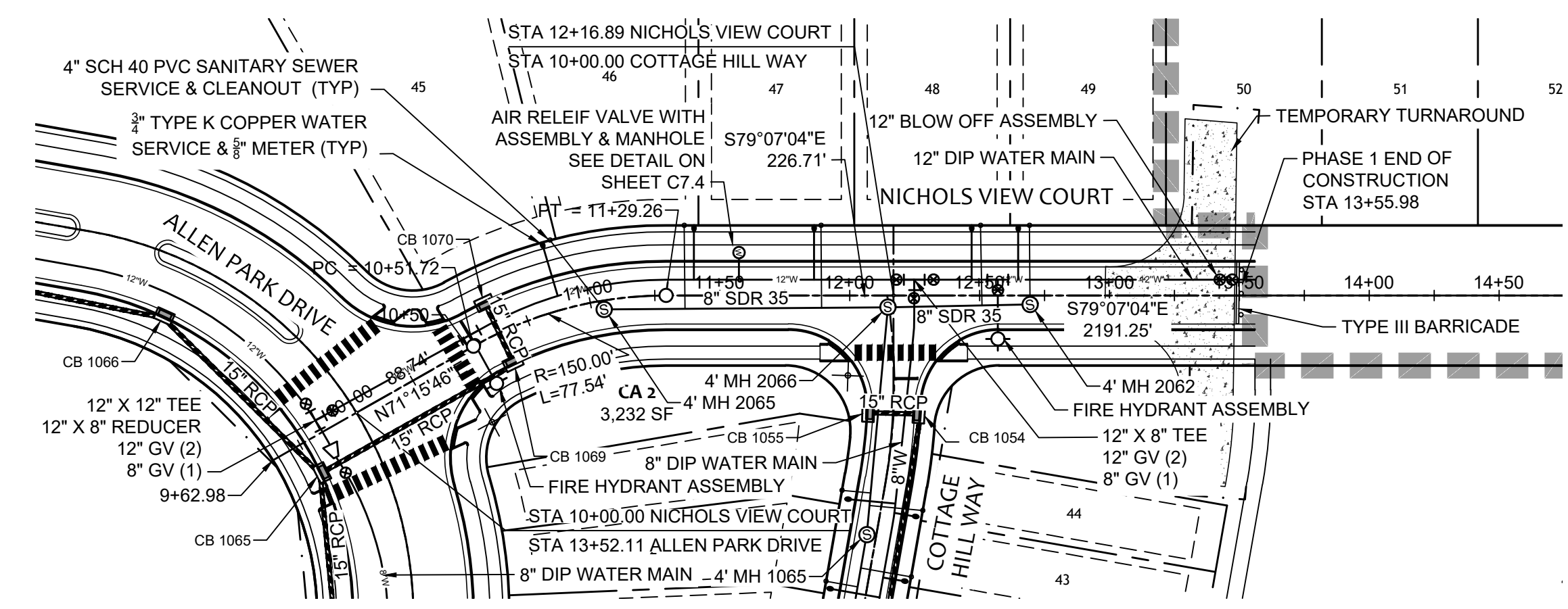
TIMMONS GROUP

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

CENTRAL PARK DRIVE PLAN & PROFILE - STA 21+50 - 25+50

JOB NO. 44529
 SHEET NO. C5.3

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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

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City of Raleigh Public Utilities Department Permit # _____

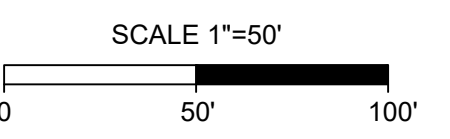
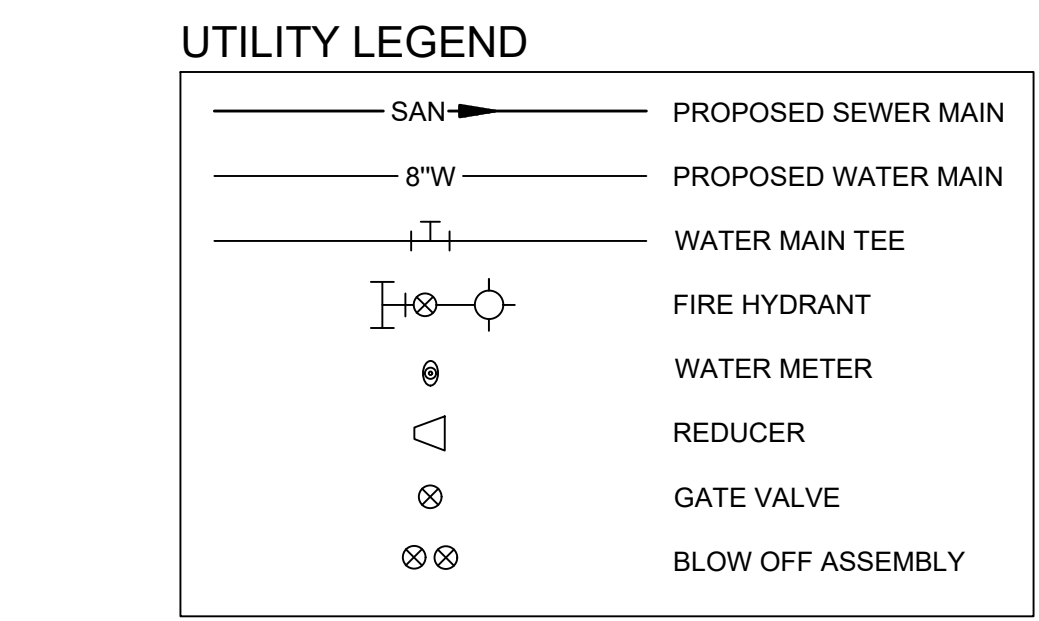
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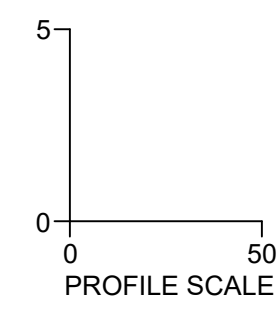
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ADMINISTRATOR



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FOR REVIEW ONLY

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE: 09/30/2022
DATE: 11/21/2022
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ---
SCALE: H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

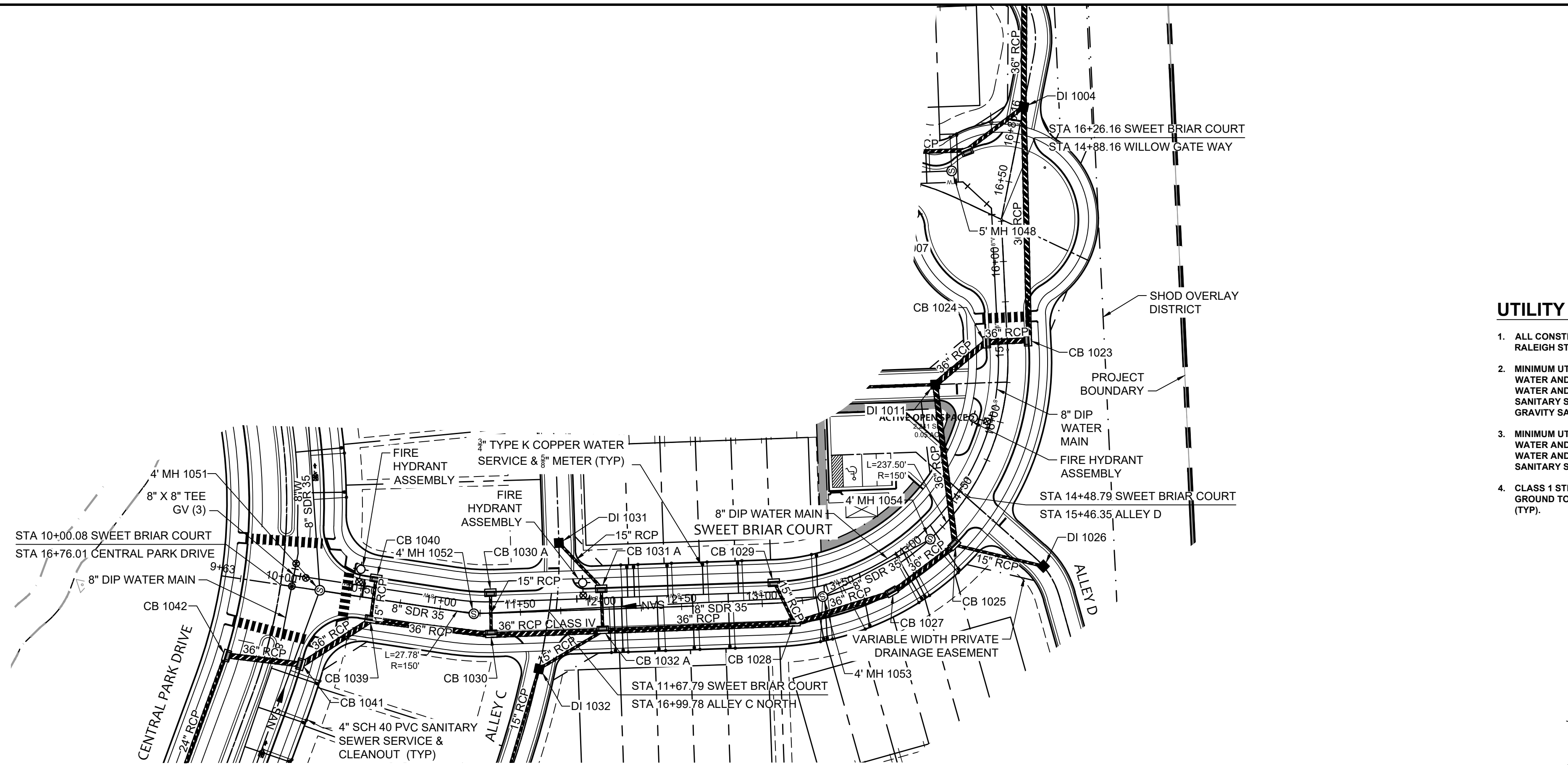
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

NICHOLS VIEW COURT PLAN & PROFILE

JOB NO. 44529
SHEET NO. C5.5

FOR REVIEW ONLY: NOT FOR CONSTRUCTION

FOR REVIEW ONLY



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City of Raleigh Development Approval _____
Raleigh Water Review Officer

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WATER AND STORM SEWER MAINS - 18 IN.
SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
- CLASS 1 STRUCTURAL MATERIAL REQUIRED FOR EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

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TOWN CERTIFICATION

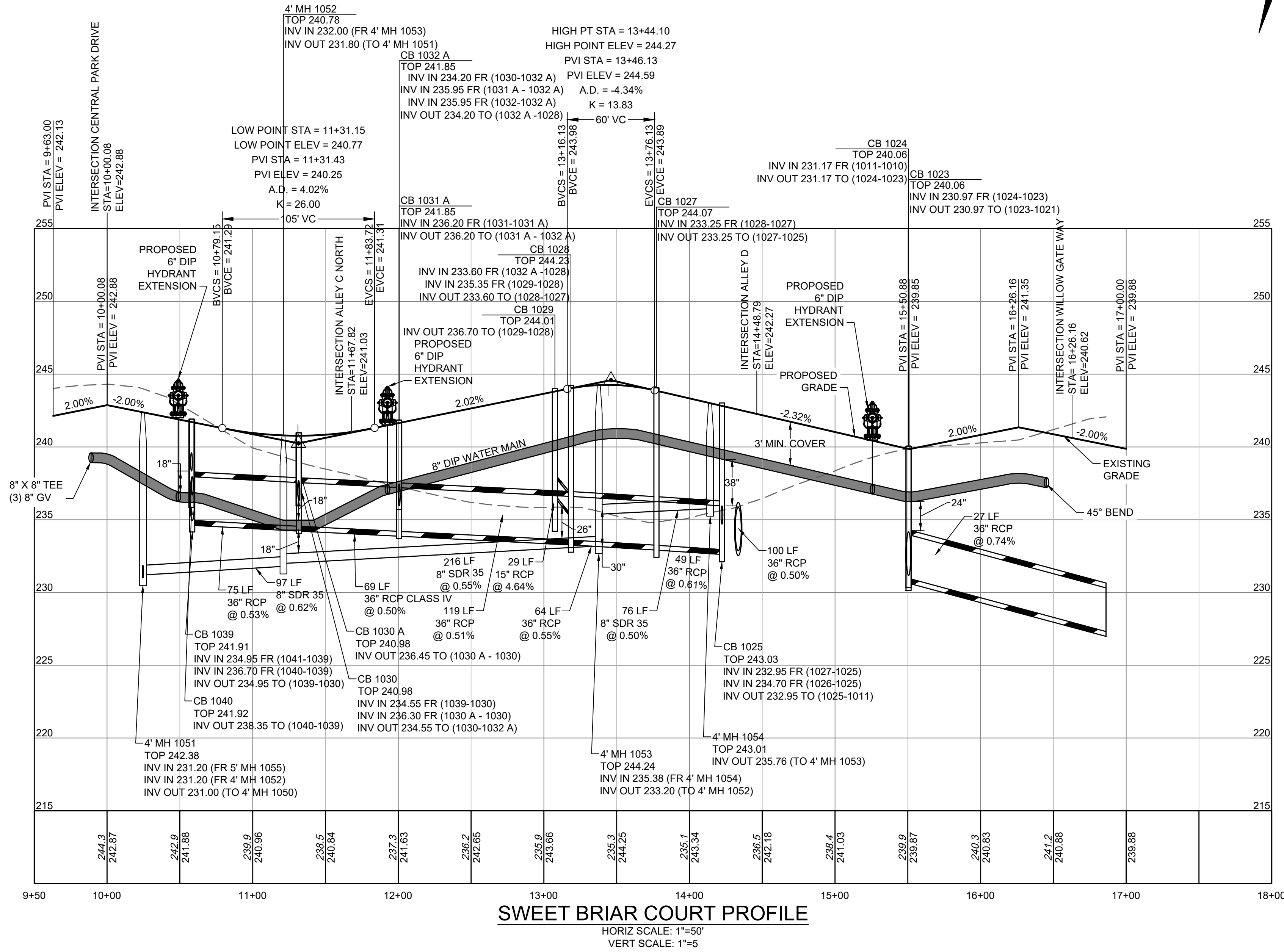
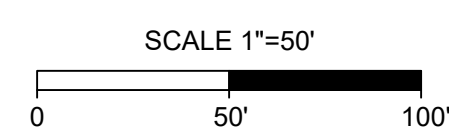
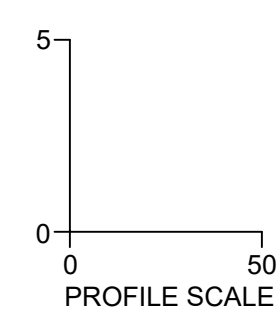
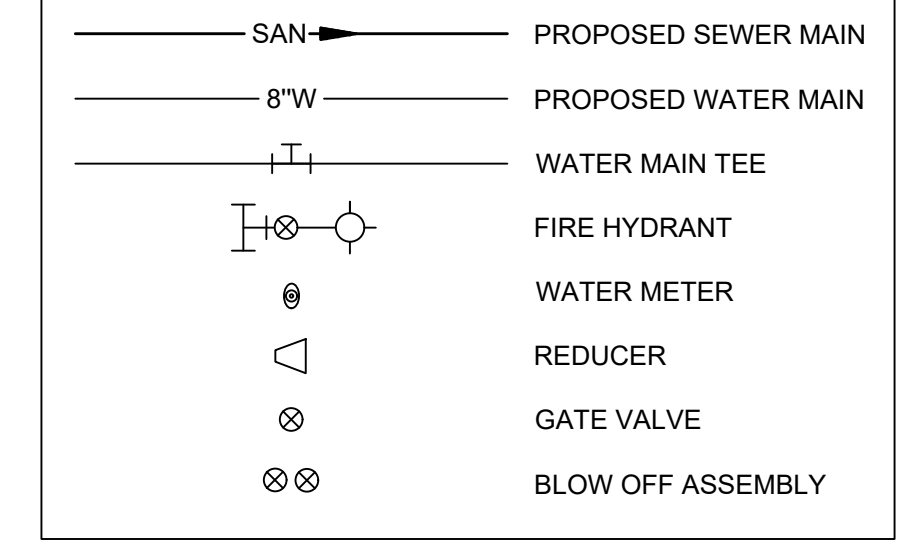
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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND



SWEET BRIAR COURT PROFILE
HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5'

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DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5

DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	H: 1" = 50' V: 1" = 5'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

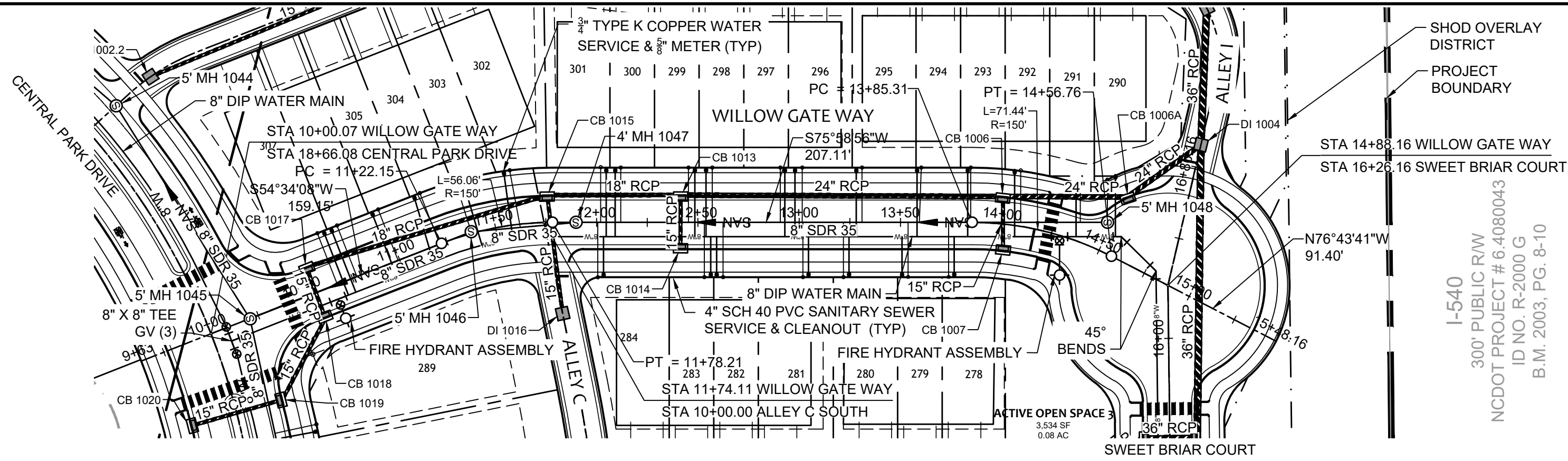
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SWEET BRIAR COURT PLAN & PROFILE

JOB NO. 44529
SHEET NO. C5.6

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UTILITY NOTES:

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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.
- 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.
- CLASS 3 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

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

Water and Sewer Permits (if applicable)

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TOWN CERTIFICATION

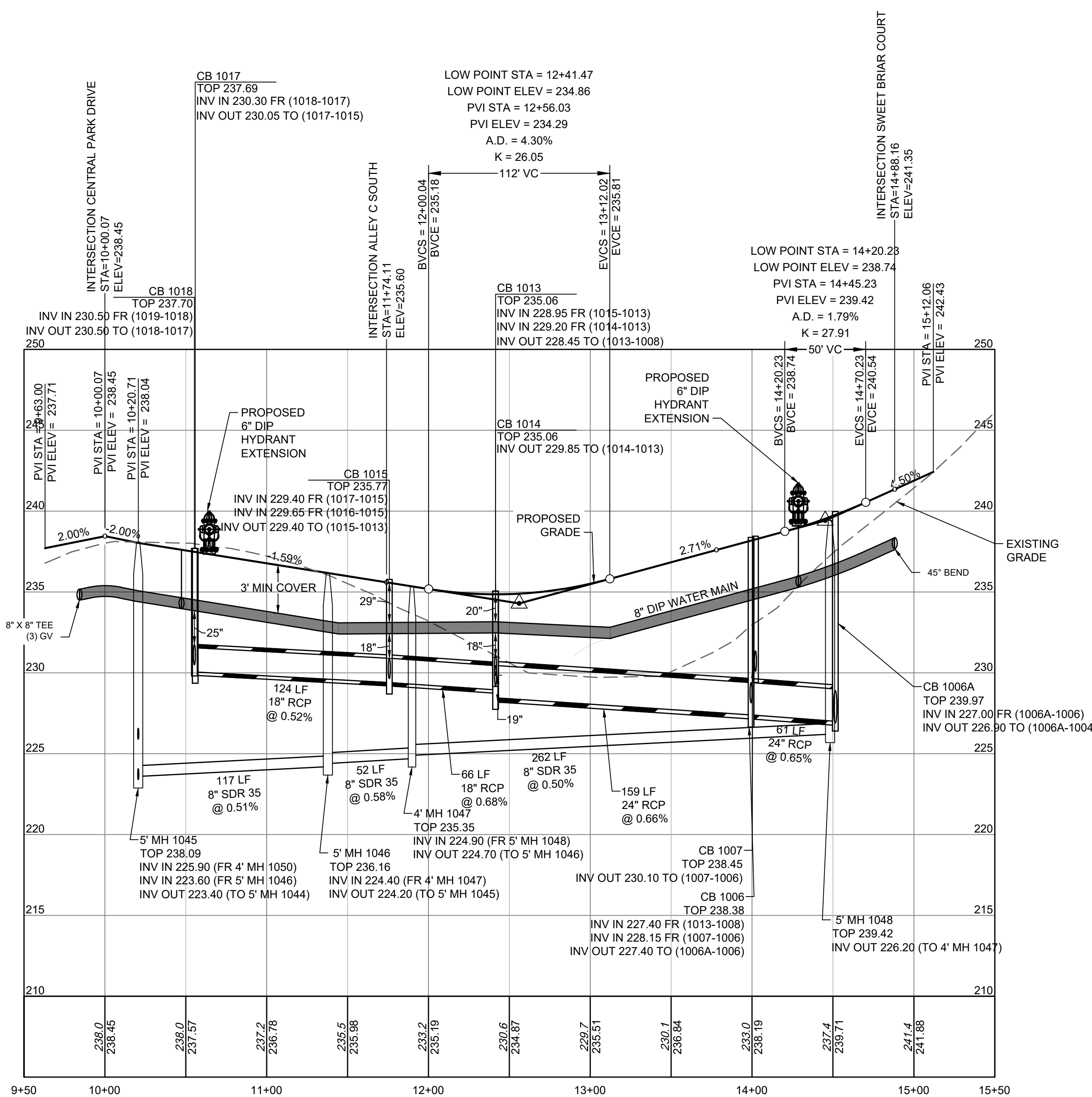
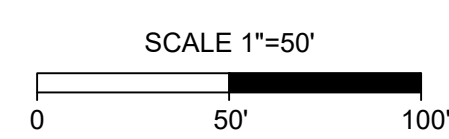
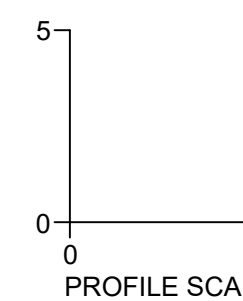
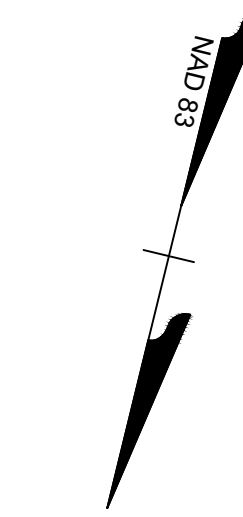
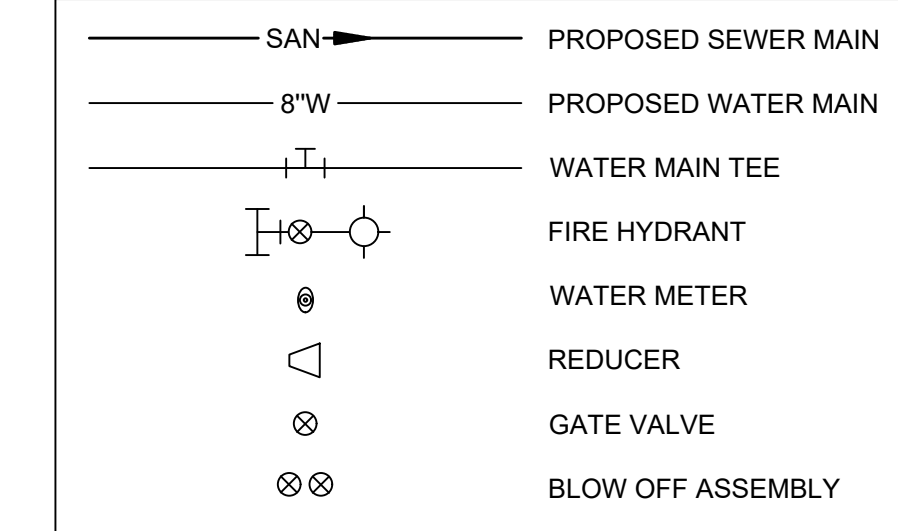
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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND



WILLOW GATE WAY PROFILE
HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5'

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DATE: 09/30/2022
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ---

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

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
WILLOW GATE WAY PLAN & PROFILE

JOB NO.
44529
SHEET NO.
C5.7

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UTILITY NOTES:

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 WATER AND SANITARY SEWER MAINS - 10 FT.
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 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.
 SANITARY SEWER AND STORM SEWER MAINS - 24 IN.



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
 Raleigh Water Review Officer

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TOWN CERTIFICATION

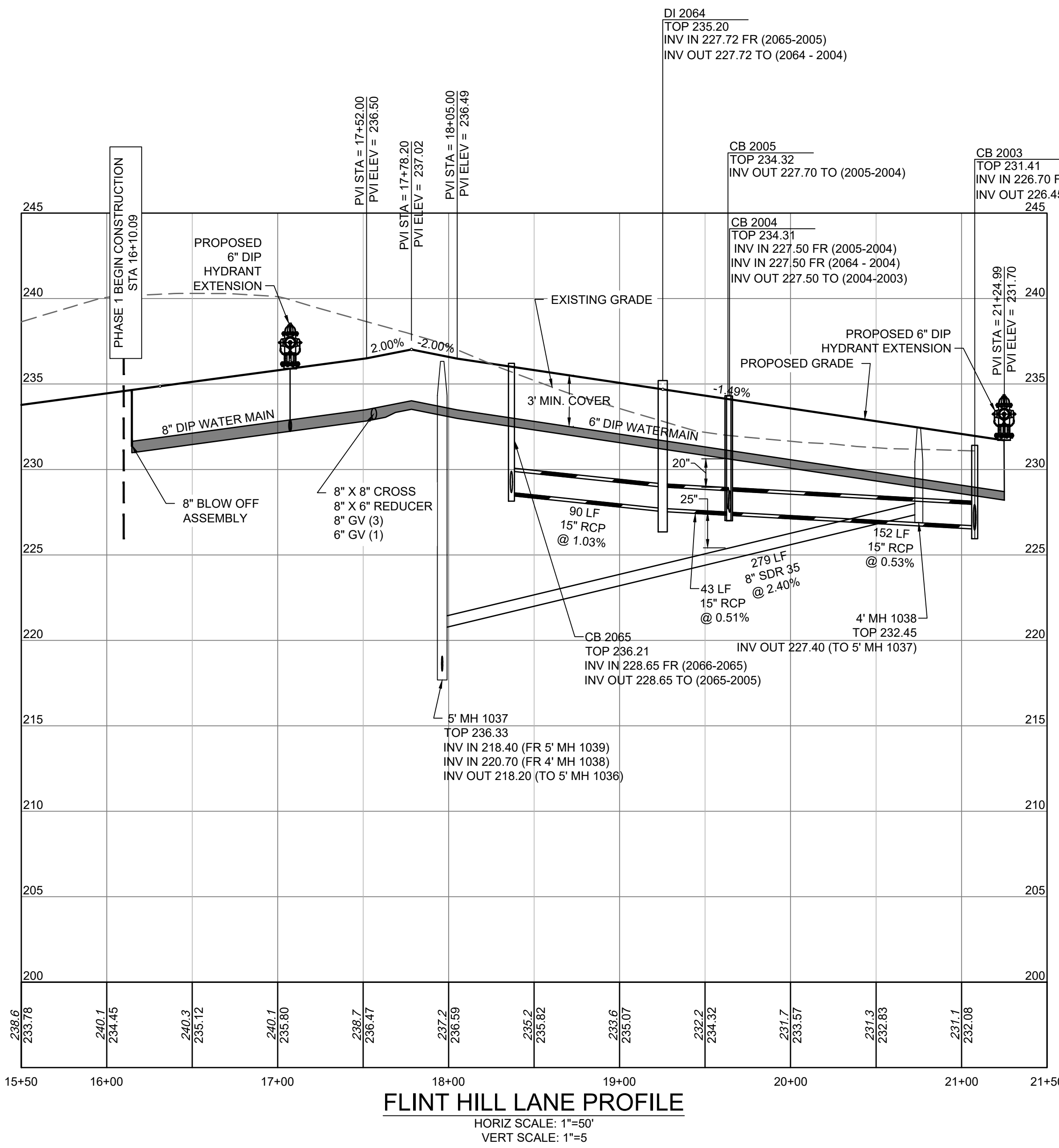
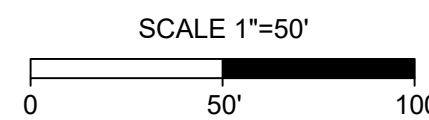
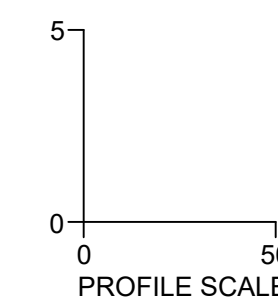
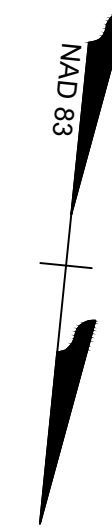
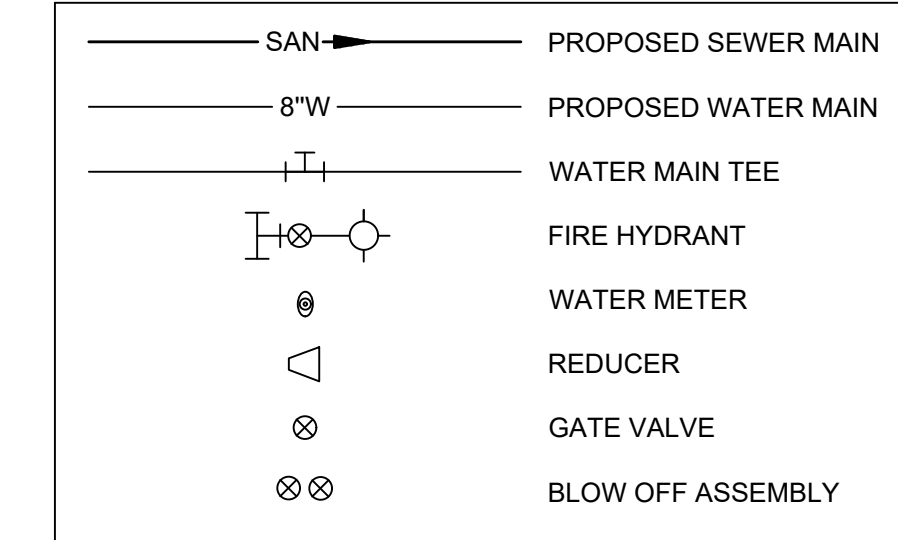
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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR

UTILITY LEGEND



FLINT HILL LANE PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'

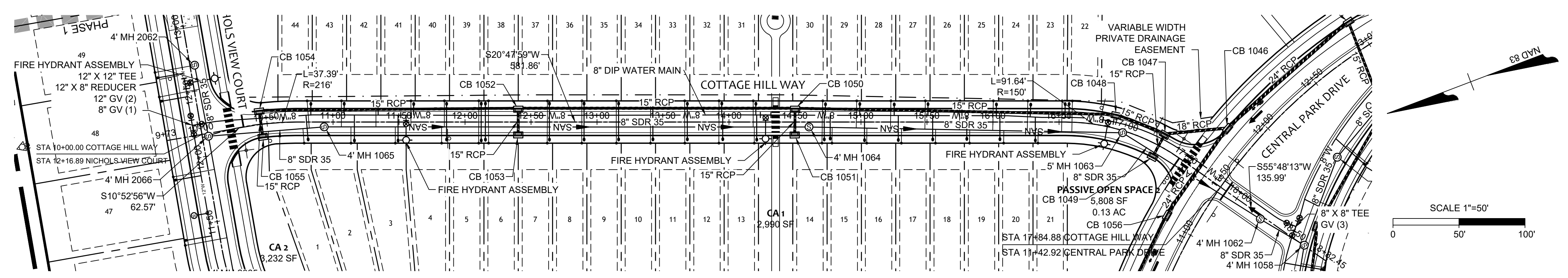
TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
FLINT HILL LANE PLAN & PROFILE

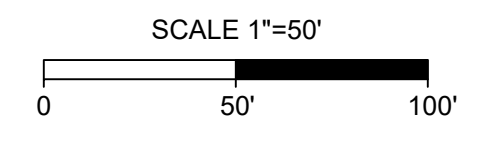
JOB NO. 44529
 SHEET NO. C5.8

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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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 Raleigh Water Review Officer _____



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City of Raleigh Public Utilities Department Permit # _____

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DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5

DATE	DRAWN BY	DESIGNED BY	CHECKED BY	SCALE
11/21/2022	331	331	---	H: 1" = 50' V: 1" = 5'

TIMMONS GROUP

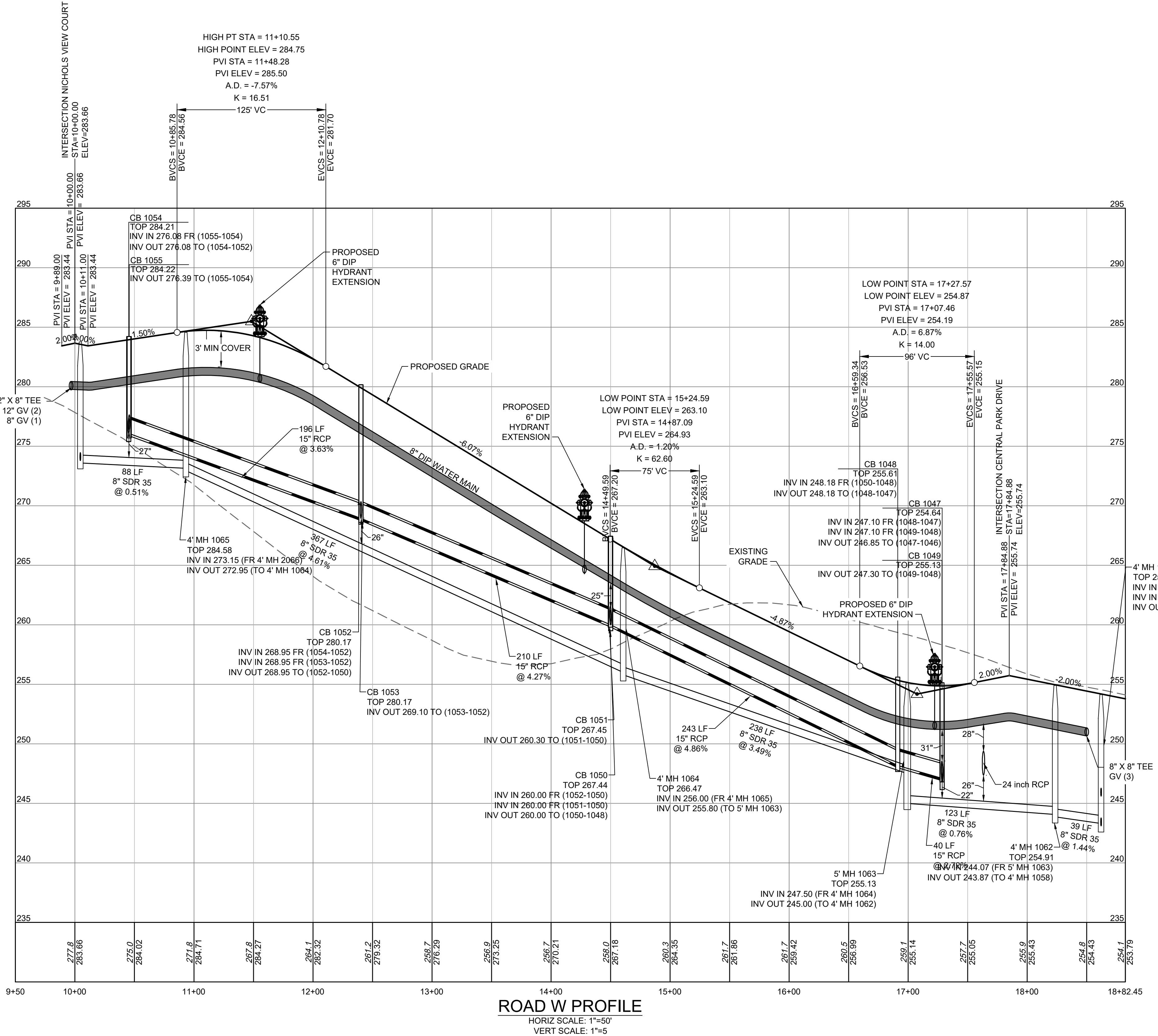
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

COTTAGE HILL WAY PLAN & PROFILE

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UTILITY NOTES:

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 WATER AND STORM SEWER MAINS - 18 IN.
 SANITARY SEWER AND STORM SEWER MAINS - 24 IN.
- CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).

TOWN CERTIFICATION

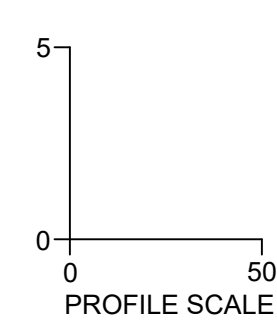
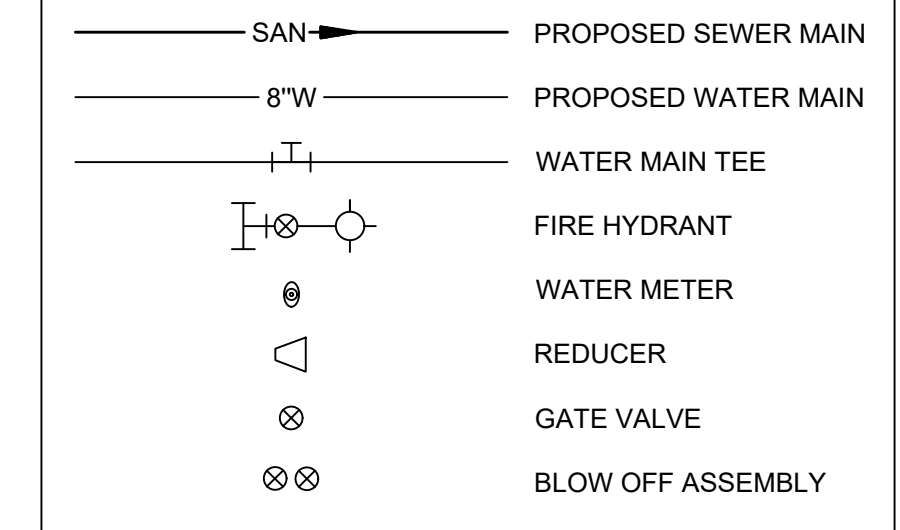
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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
 ADMINISTRATOR

UTILITY LEGEND



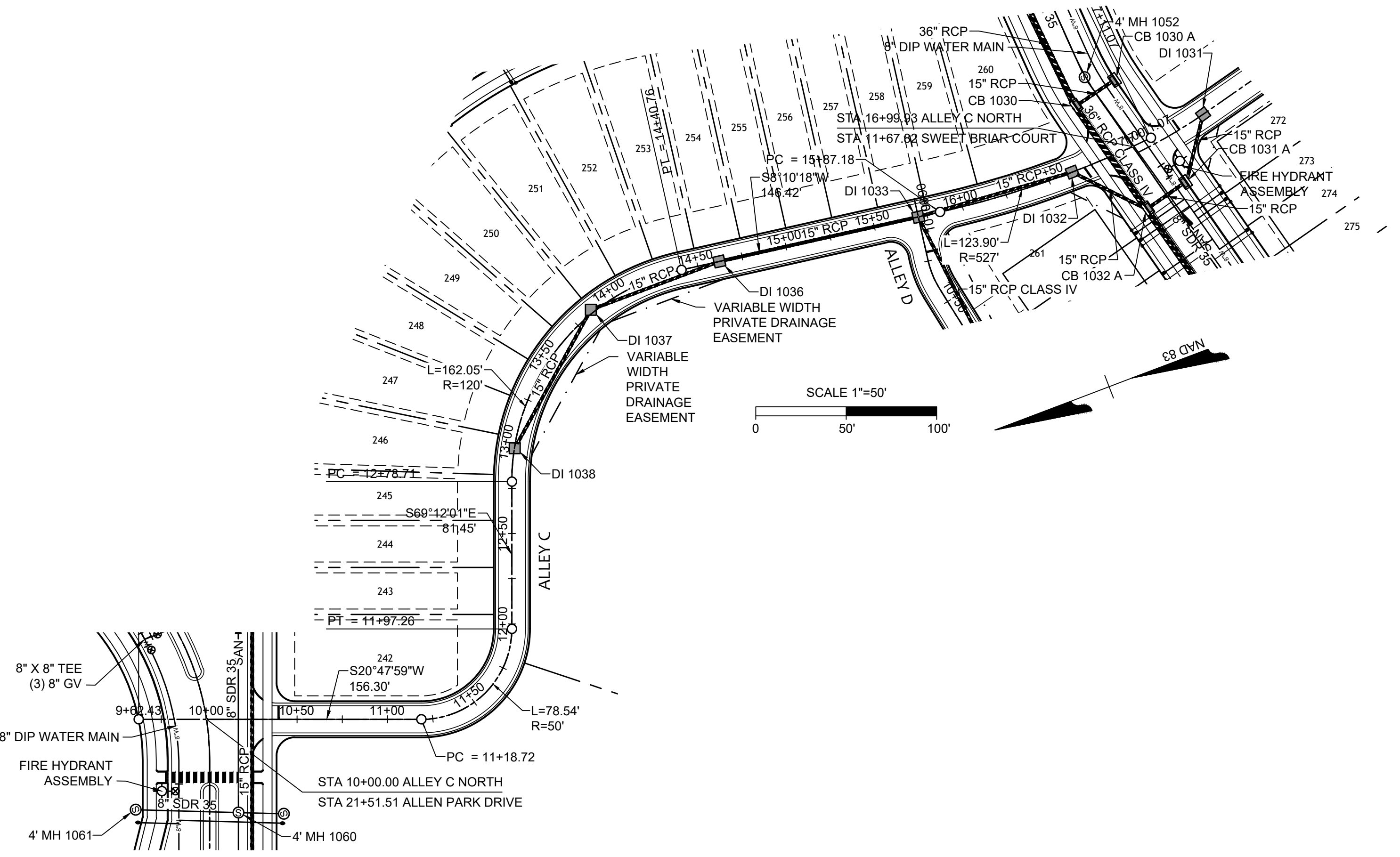
ROAD W PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'

S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-CX-D-PROF-ROAD-W.dwg | Plotted by Logan Criss

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SHEET NO.	C5.9



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

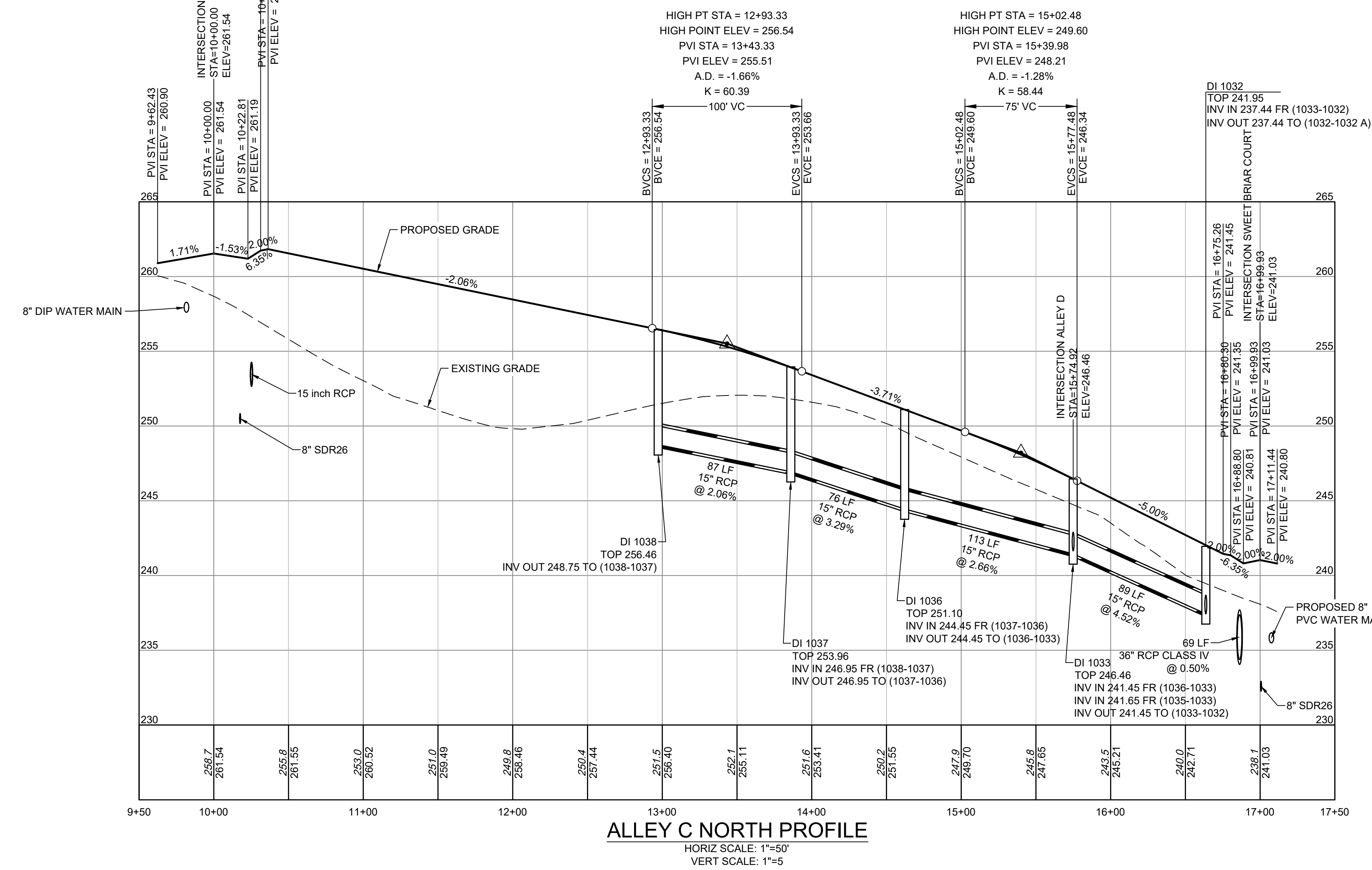
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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

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Water and Sewer Permits (if applicable)

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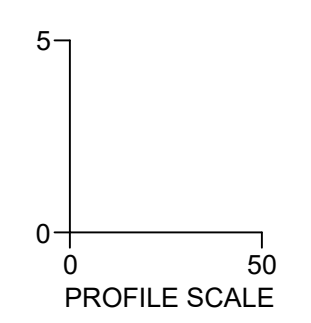
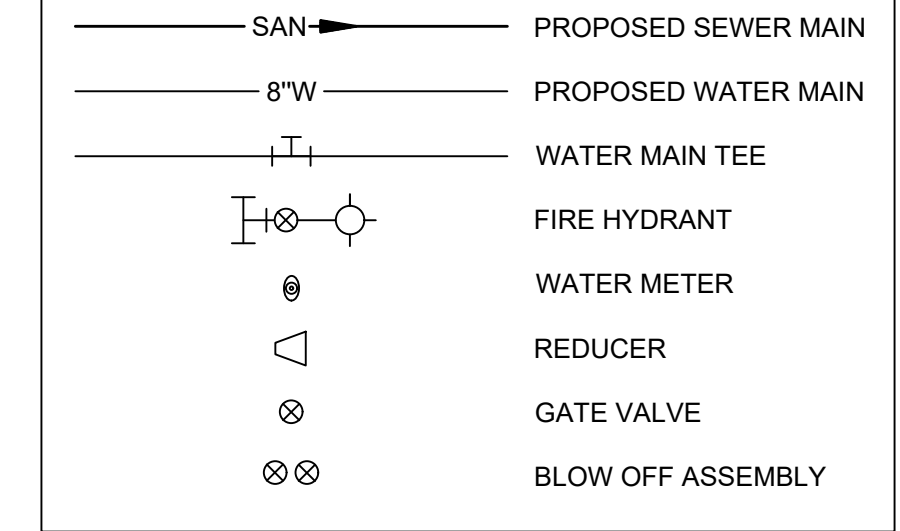
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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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 ADMINISTRATOR

UTILITY LEGEND



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KNIGHTDALE SUBMITTAL # 5	09/30/2022

DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1" = 50'
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TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ALLEY C NORTH PLAN & PROFILE

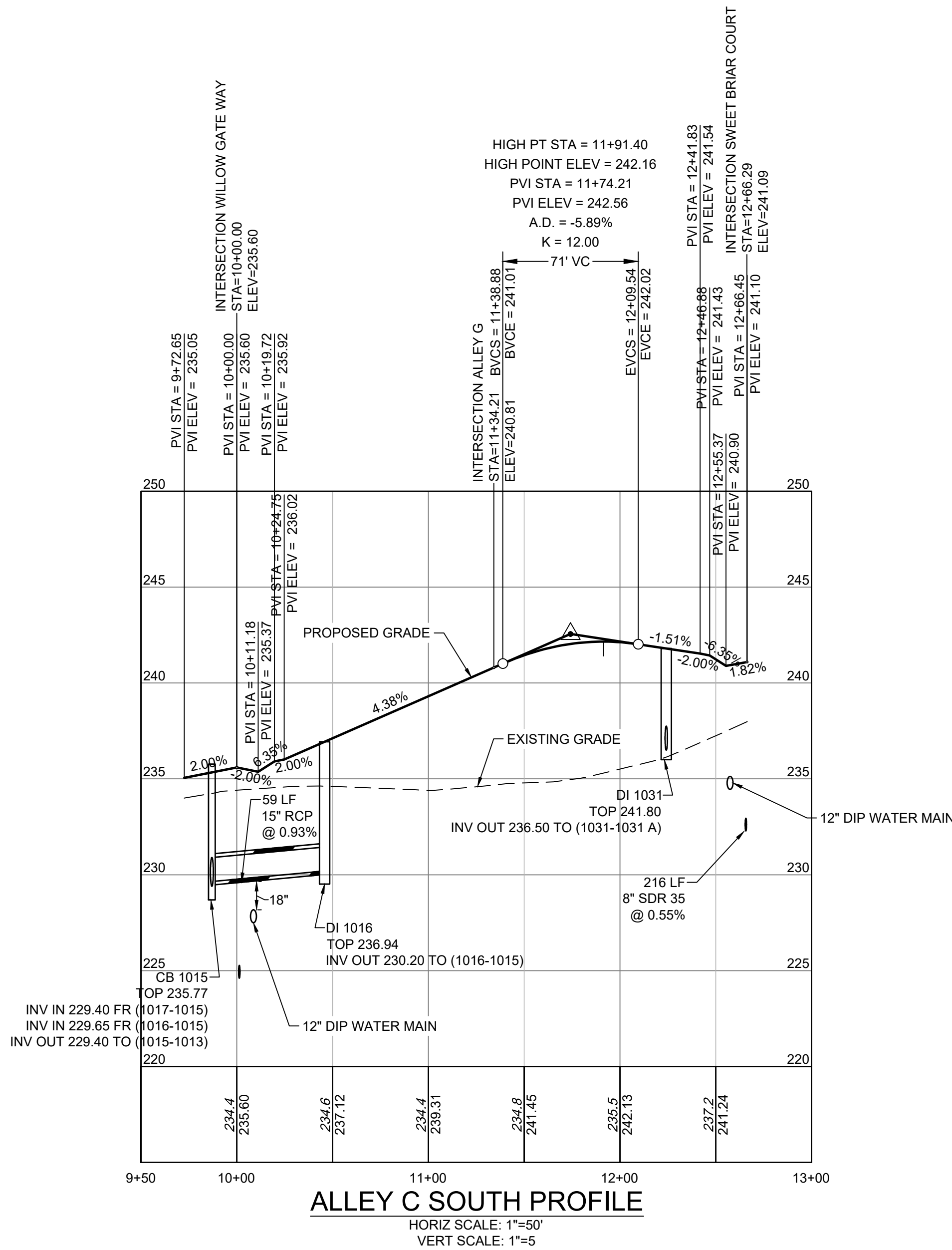
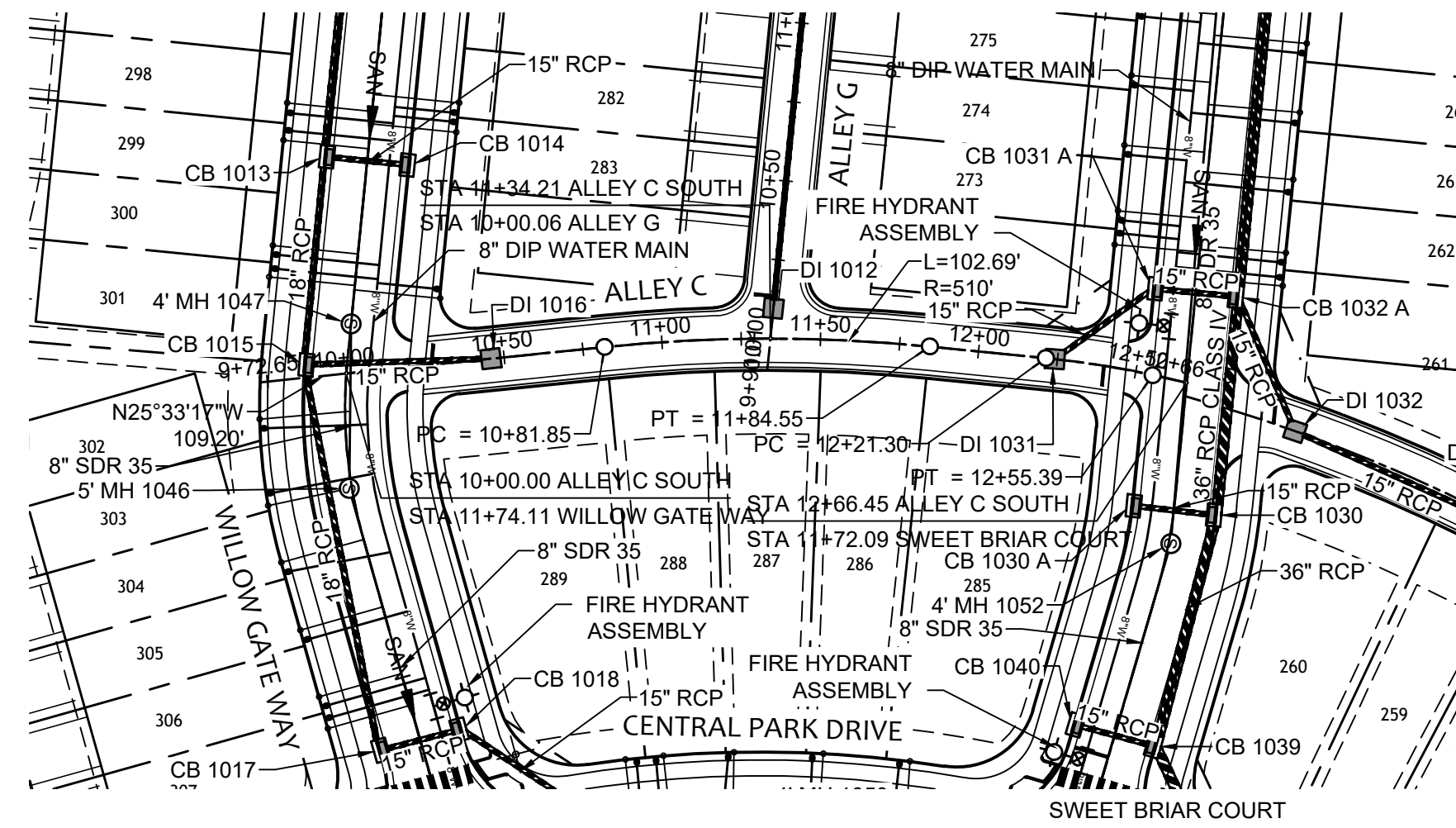
JOB NO.
44529

SHEET NO.
C5.10

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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

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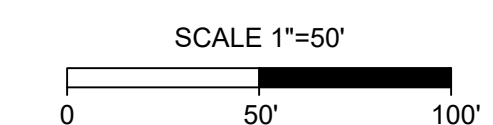
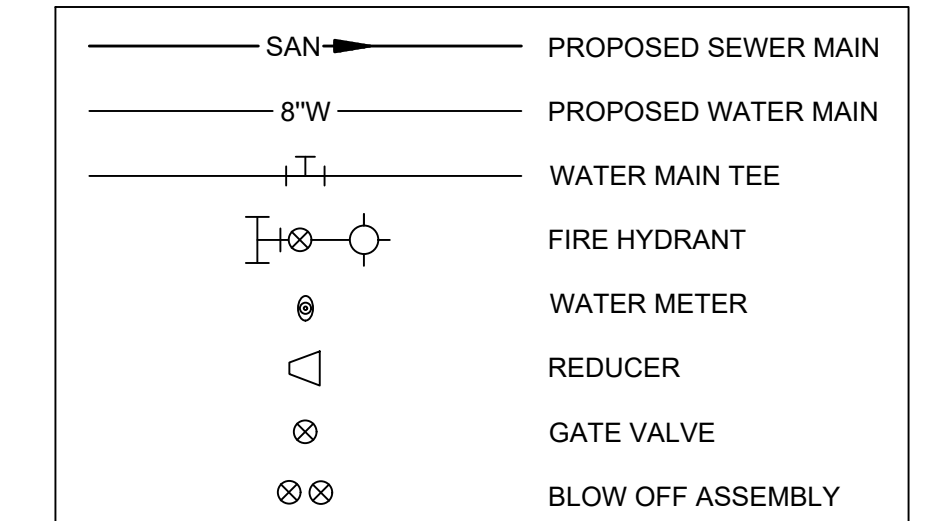
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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND



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DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5
11/21/2022	

DRAWN BY: 331

DESIGNED BY: 331

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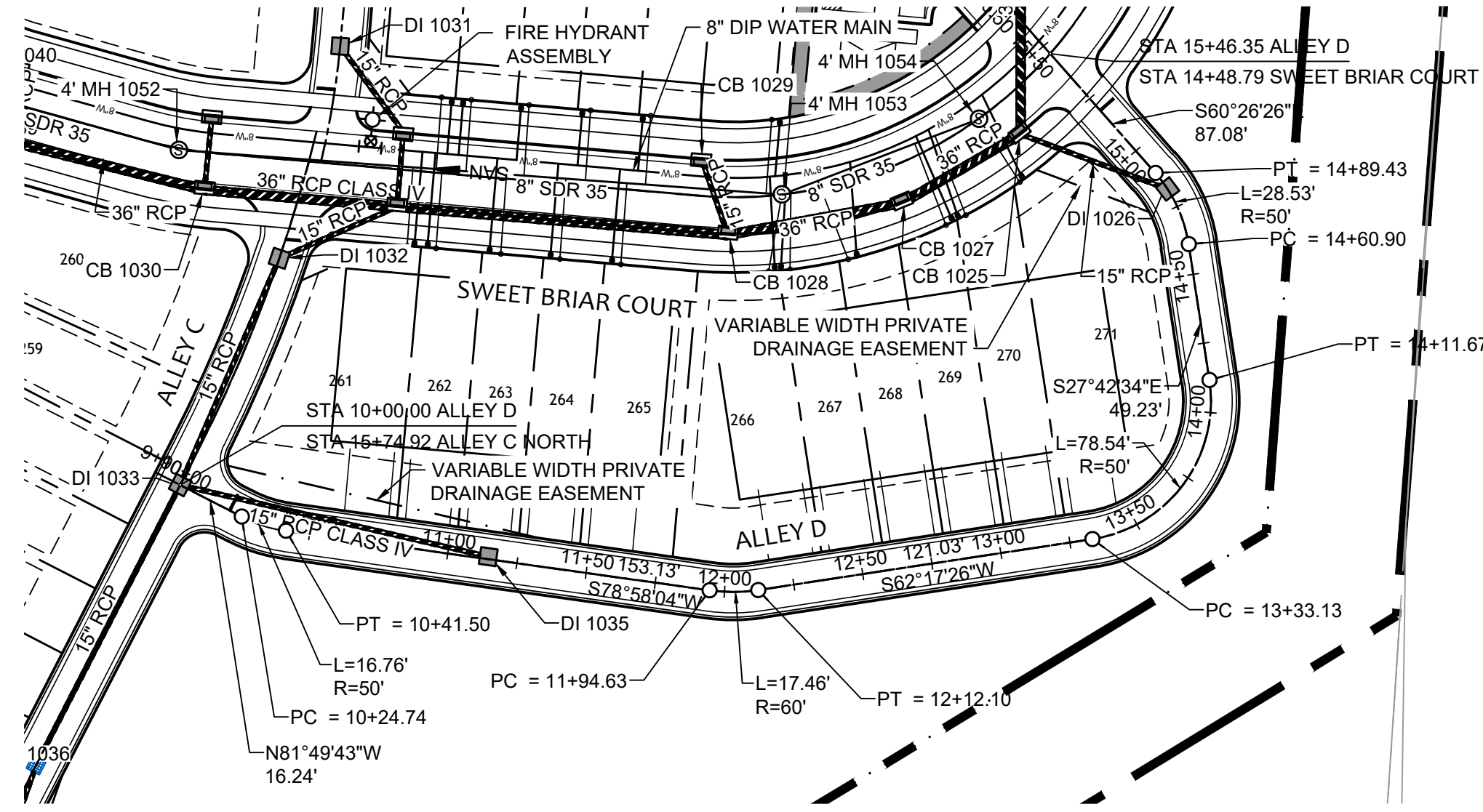
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
ALLEY C SOUTH PLAN & PROFILE

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 Raleigh Water Review Officer

UTILITY NOTES:

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

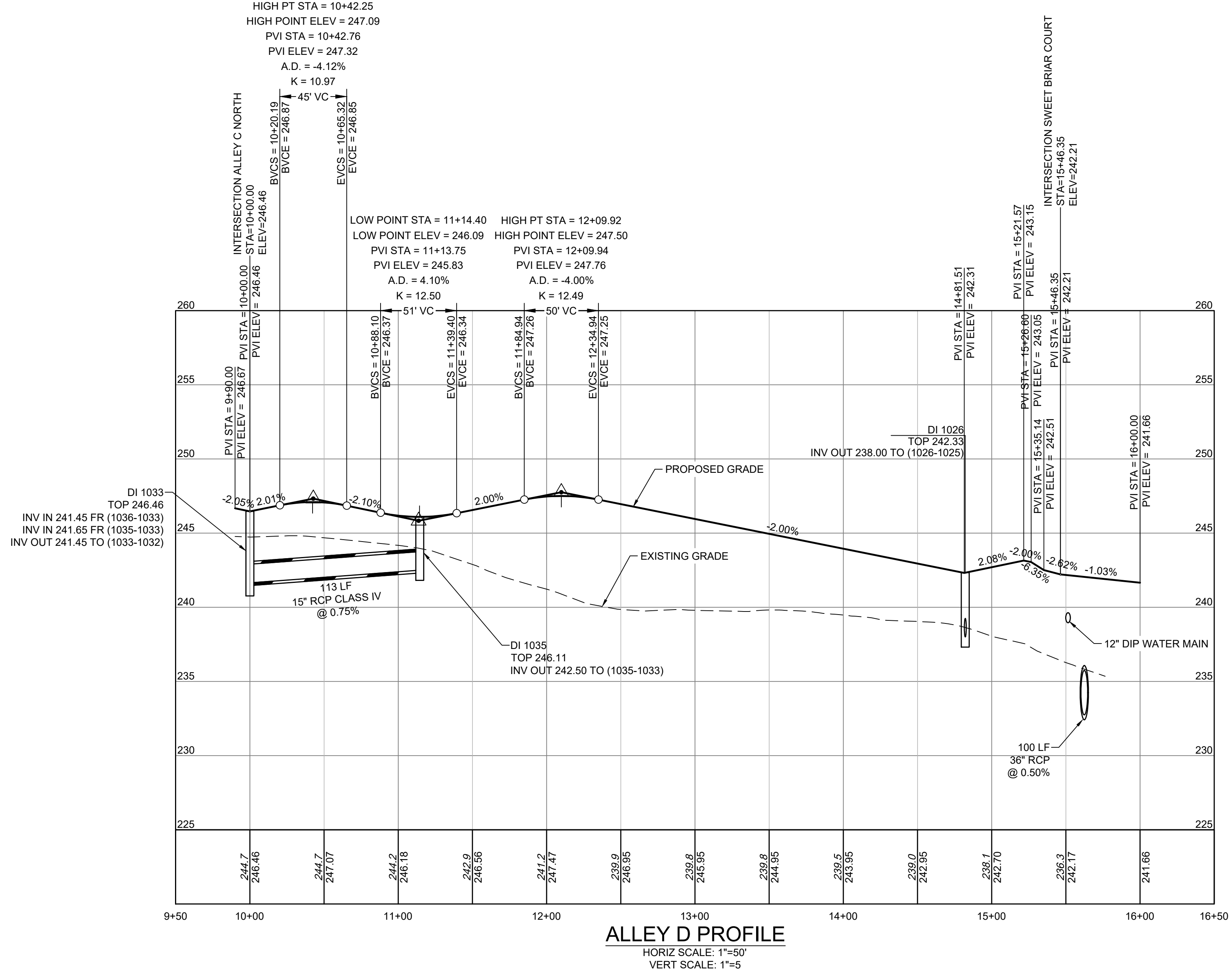
Water and Sewer Permits (if applicable)

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-4890

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-5827

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

City of Raleigh Public Utilities Department Permit # _____



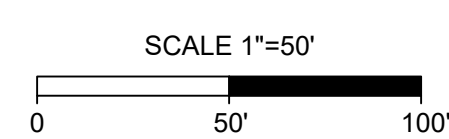
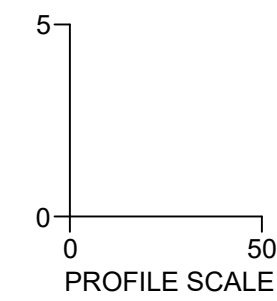
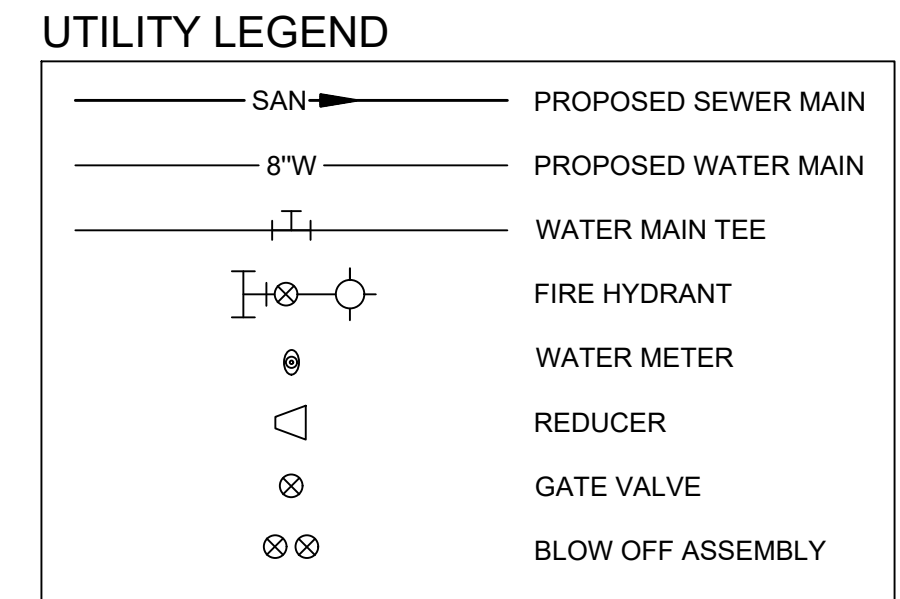
TOWN CERTIFICATION

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: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



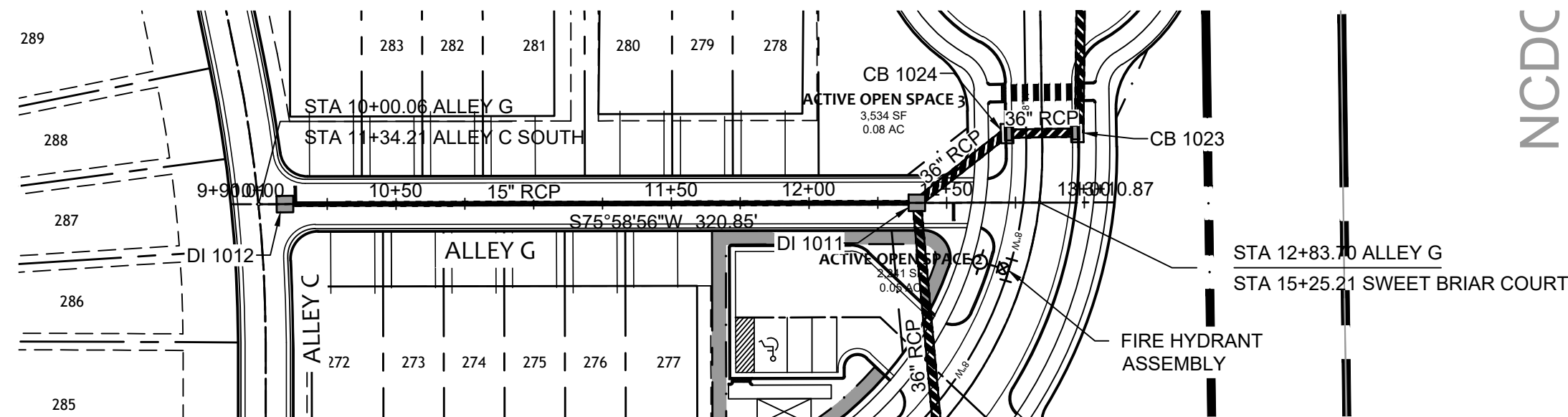
TIMMONS GROUP

ALLEN PARK SUBDIVISION - PHASE I
 NORTH CAROLINA LICENSE NO. C-1652
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
 ALLEY D PLAN & PROFILE

YOUR VISION ACHIEVED THROUGH OURS.	DATE	11/21/2022
REVISION DESCRIPTION	KNIGHTDALE SUBMITTAL # 5	
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S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase\44529-331-CX-D-PROF-ALLEY G.dwg | Plotted by Logan Criss



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

UTILITY NOTES:

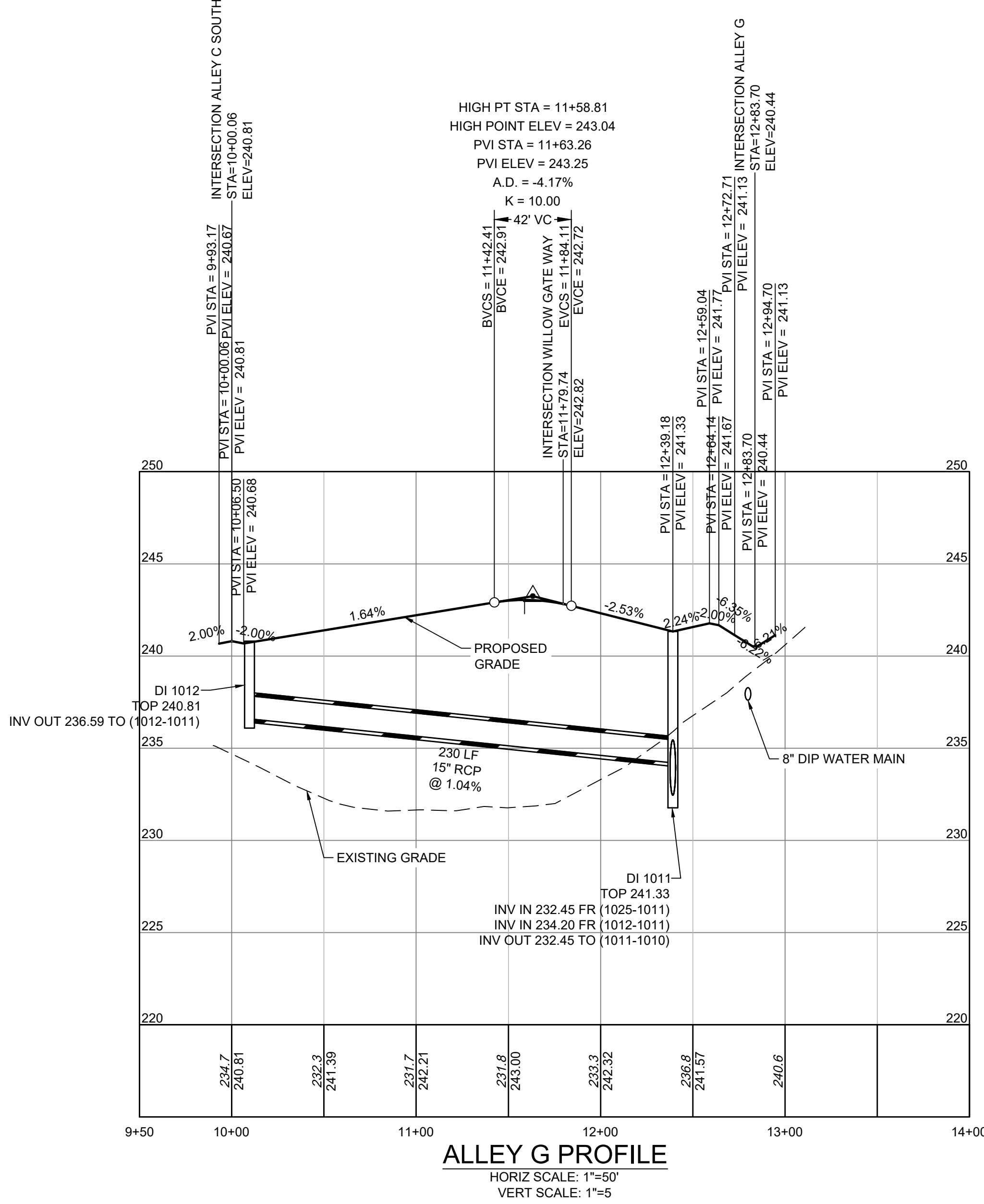
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
- MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
WATER AND SANITARY SEWER MAINS - 10 FT.
WATER AND STORM SEWER MAINS - 5 FT.
SANITARY SEWER AND STORM SEWER MAINS - 5 FT.
GRAVITY SANITARY SEWER AND FORCE MAINS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

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-4890**

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-3827**

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



TOWN CERTIFICATION

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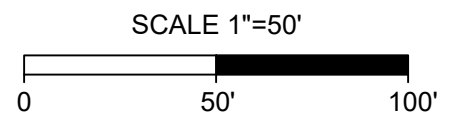
BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND

	PROPOSED SEWER MAIN
	PROPOSED WATER MAIN
	WATER MAIN TEE
	FIRE HYDRANT
	WATER METER
	REDUCER
	GATE VALVE
	BLOW OFF ASSEMBLY



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DATE	REVISION DESCRIPTION
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11/21/2022	

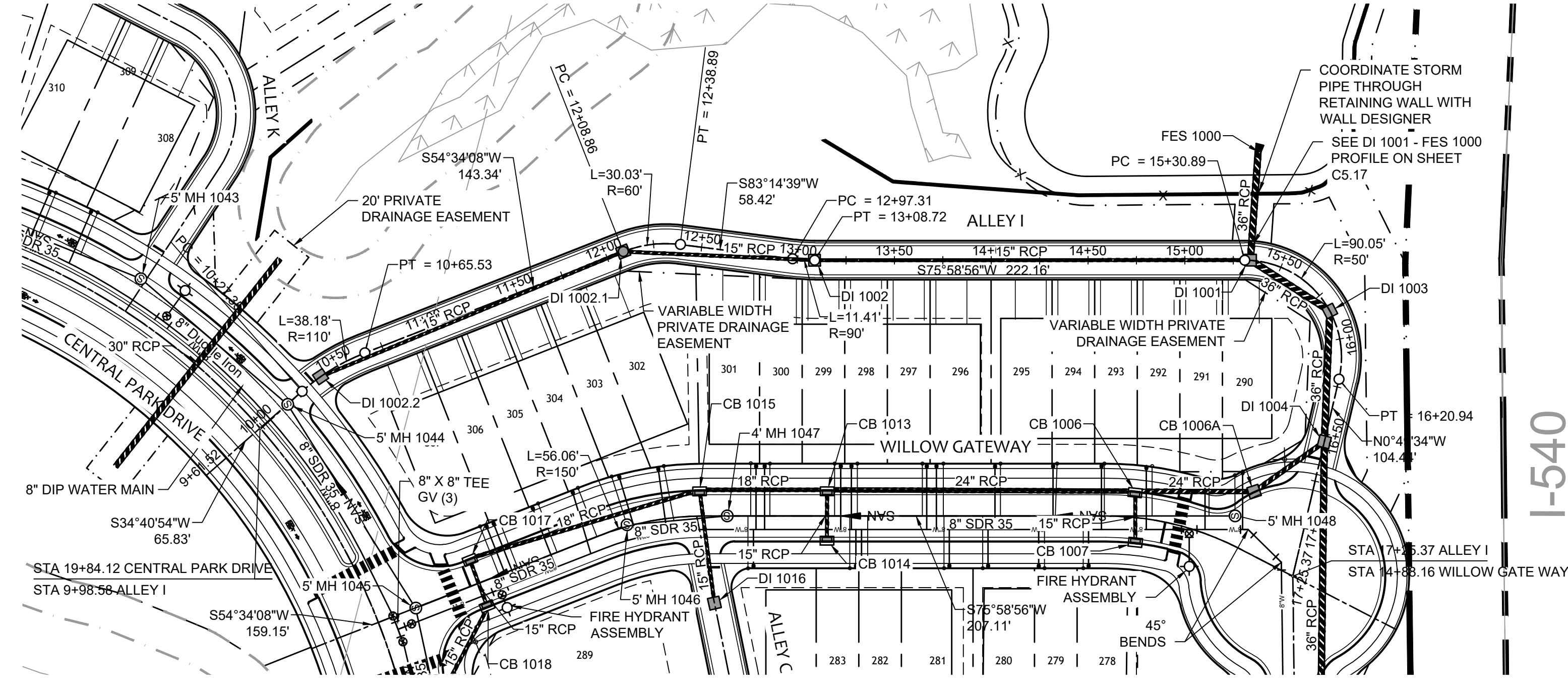
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ---
SCALE: H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
ALLEY G PLAN & PROFILE

JOB NO. 44529
SHEET NO. C5.13

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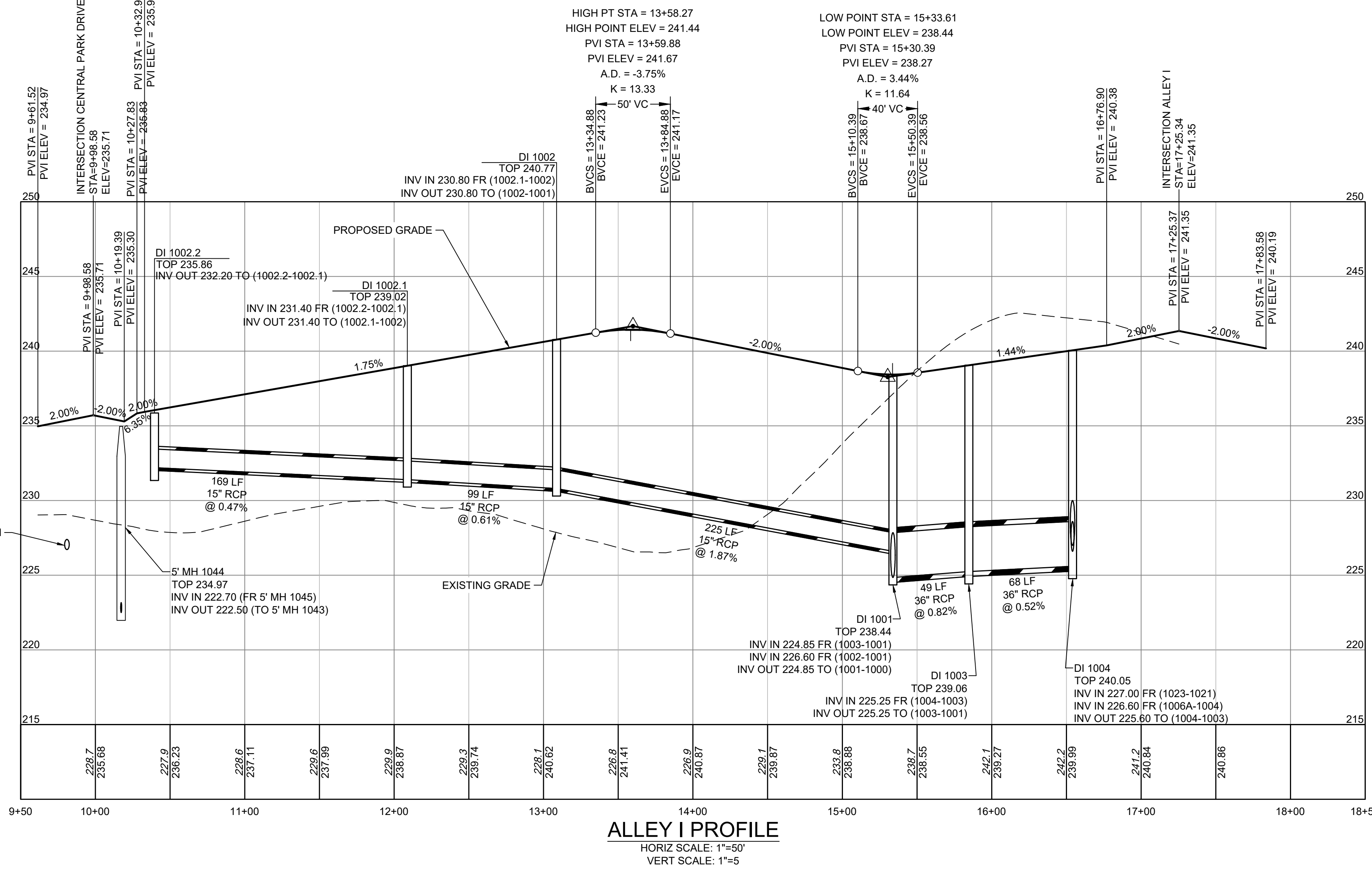
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CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION
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 City of Raleigh Development Approval _____
 Raleigh Water Review Officer

UTILITY NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
- MINIMUM UTILITY HORIZONTAL SEPARATION DISTANCES:
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Water and Sewer Permits (if applicable)
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 City of Raleigh Public Utilities Department Permit # _____

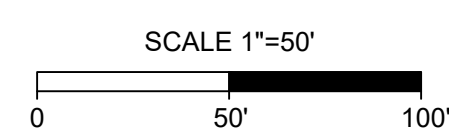
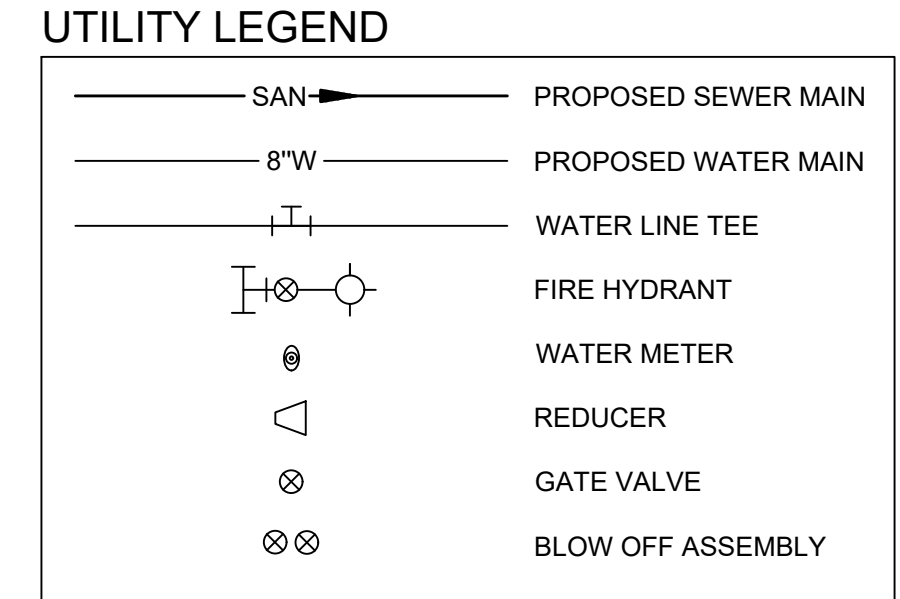
TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652
 ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
 ALLEY I PLAN & PROFILE

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
09/30/2022	KNIGHTDALE SUBMITTAL # 5
11/21/2022	

DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1" = 50', V: 1" = 5'

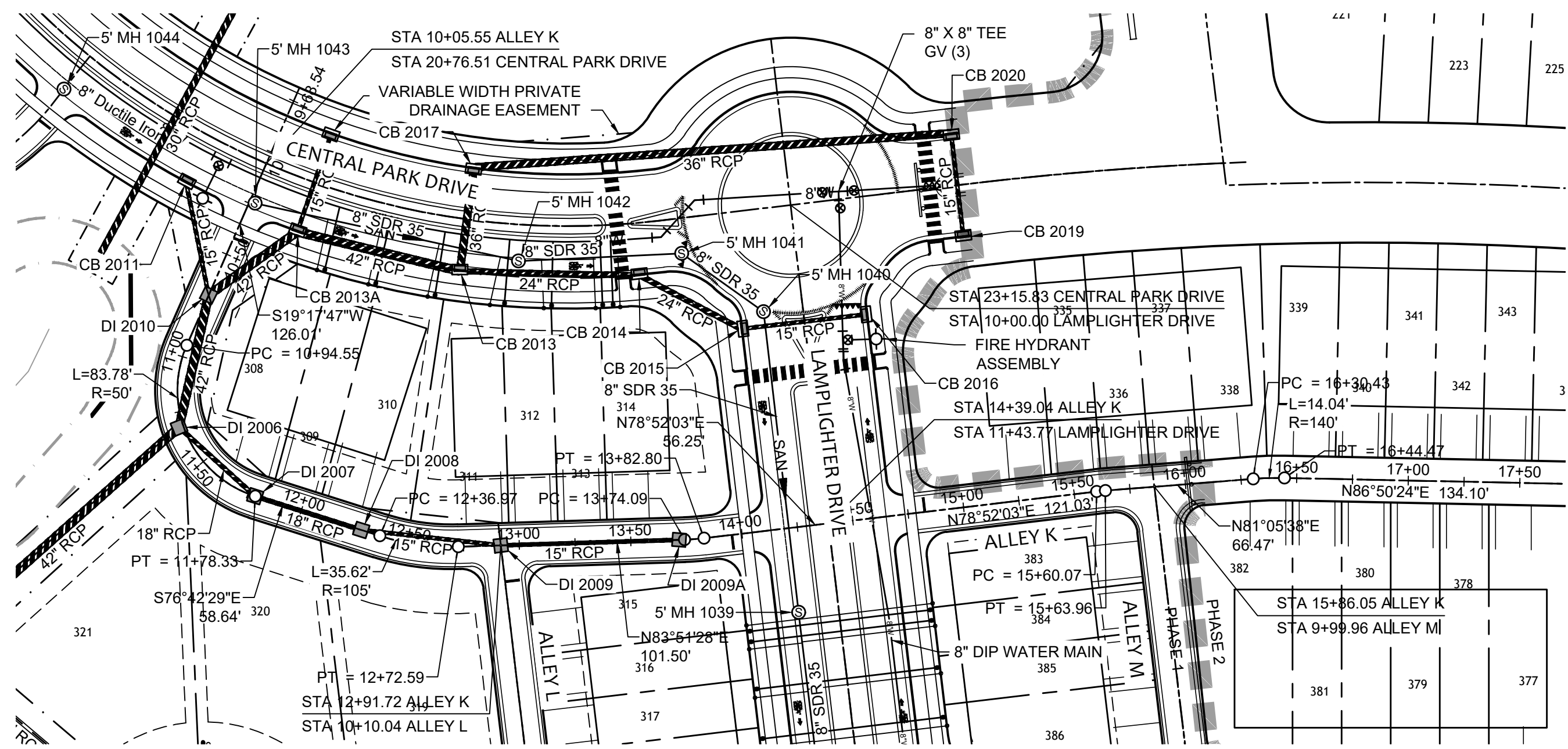
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JOB NO. 44529
 SHEET NO. C5.14

FOR REVIEW ONLY



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-4880

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-3827

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City of Raleigh Public Utilities Department Permit # _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____

Raleigh Water Review Officer _____

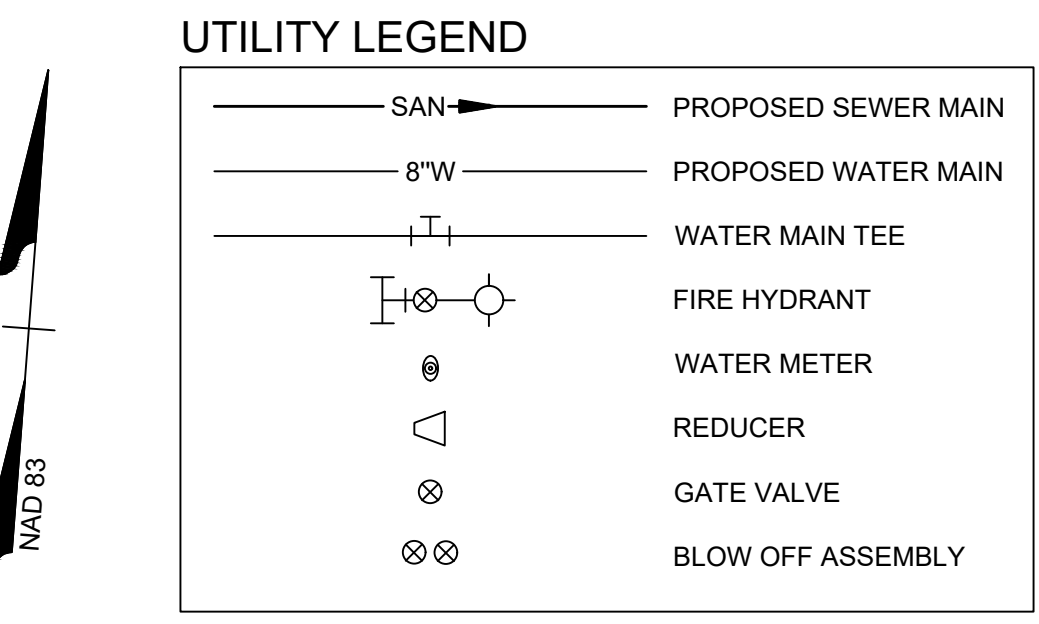
TOWN CERTIFICATION

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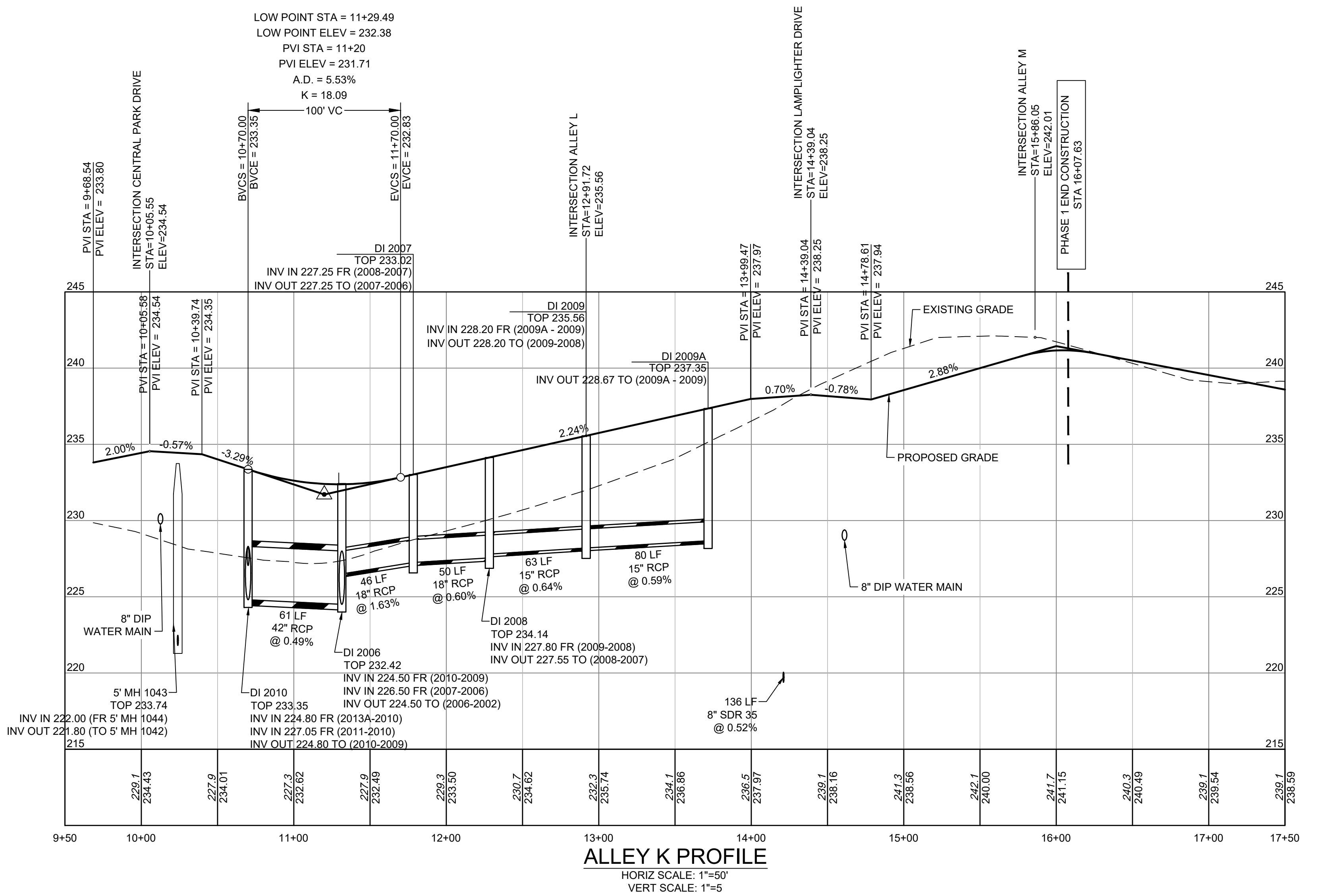
BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR



- UTILITY NOTES:**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
 - 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.
 - 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.
 - CLASS 1 STRUCTURAL MATERIAL REQUIRED FROM EXISTING GROUND TO SPRING LINE OF PROPOSED PIPE IN FILL CONDITIONS (TYP).



TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

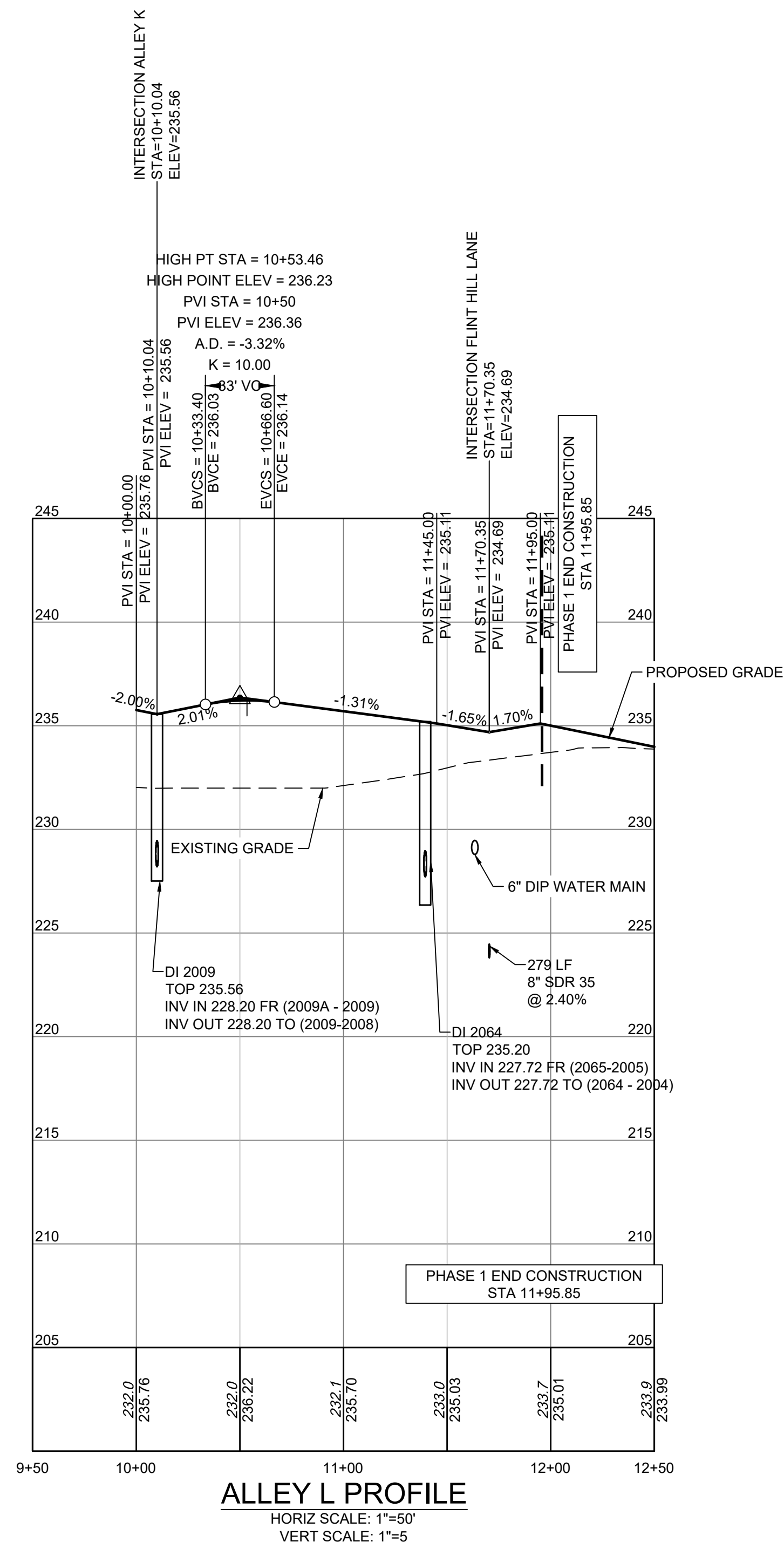
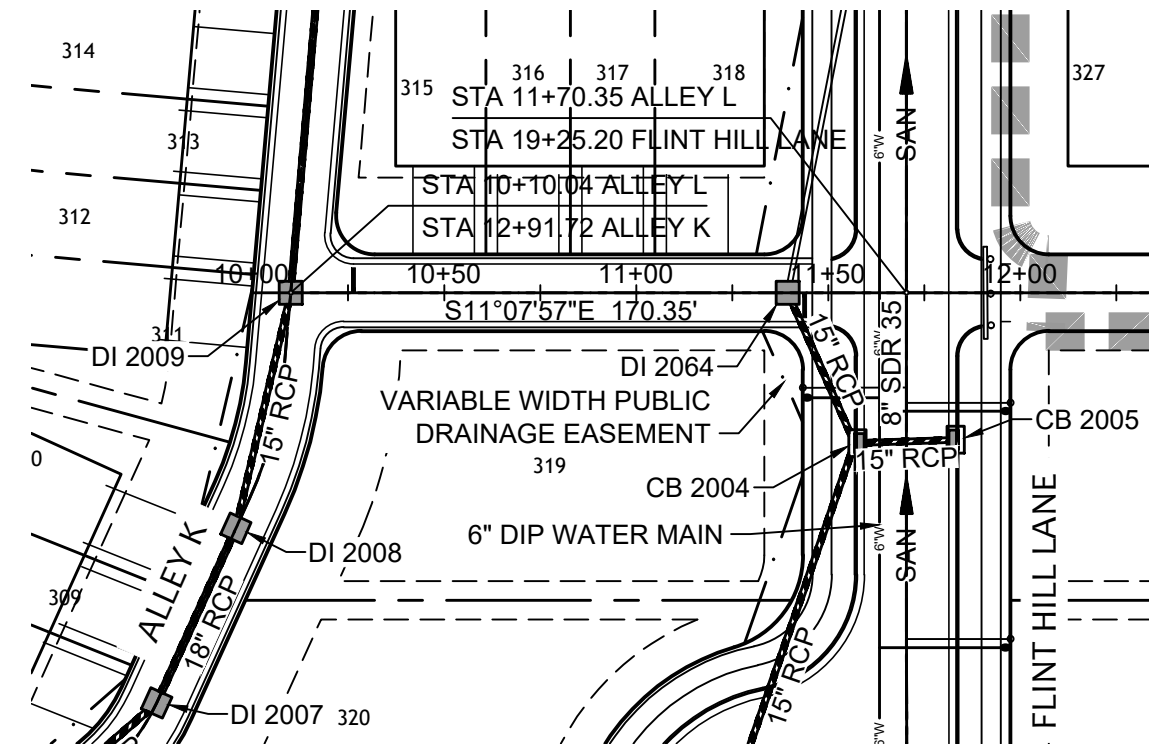
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ALLEY K PLAN & PROFILE

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	REVISION DESCRIPTION KNIGHTDALE SUBMITTAL # 5
YOUR VISION ACHIEVED THROUGH OURS.	DATE 09/30/2022
	DATE 11/21/2022
	DRAWN BY 331
	DESIGNED BY 331
	CHECKED BY ----
	SCALE H: 1" = 50' V: 1" = 5'
JOB NO. 44529	
SHEET NO. C5.15	

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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-4890**

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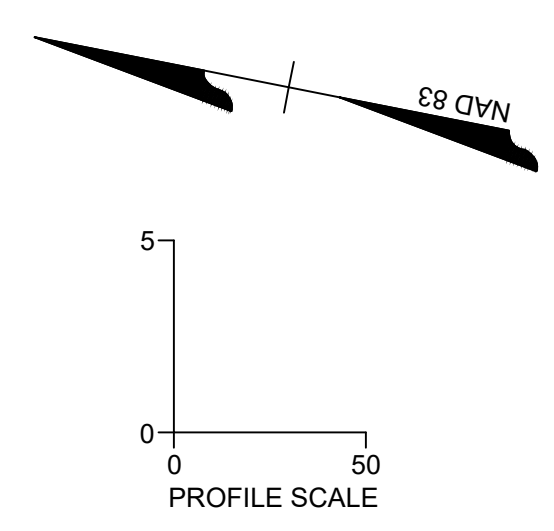
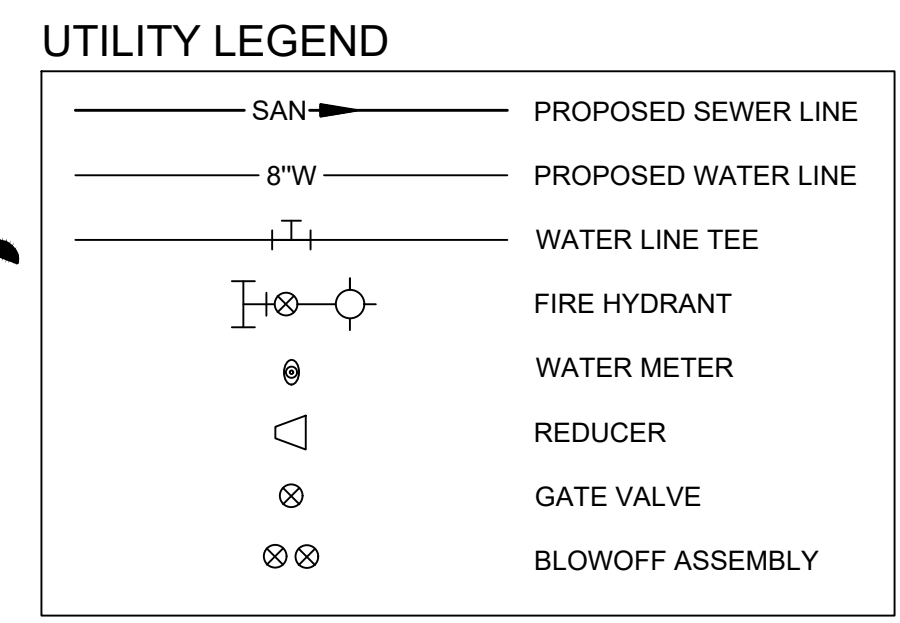
TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
 ADMINISTRATOR



SCALE 1"=50'

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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City of Raleigh Development Approval _____
 Raleigh Water Review Officer

- UTILITY NOTES:**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
 - 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.
 - 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.

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

ALLEY L PLAN & PROFILE

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DATE: 09/30/2022
 REVISION DESCRIPTION: KNIGHTDALE SUBMITTAL # 5

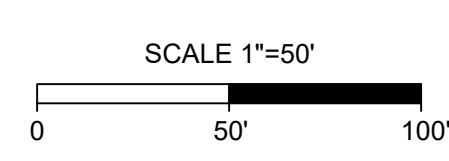
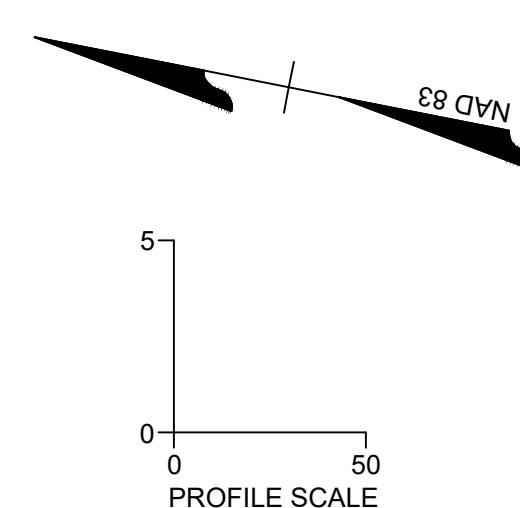
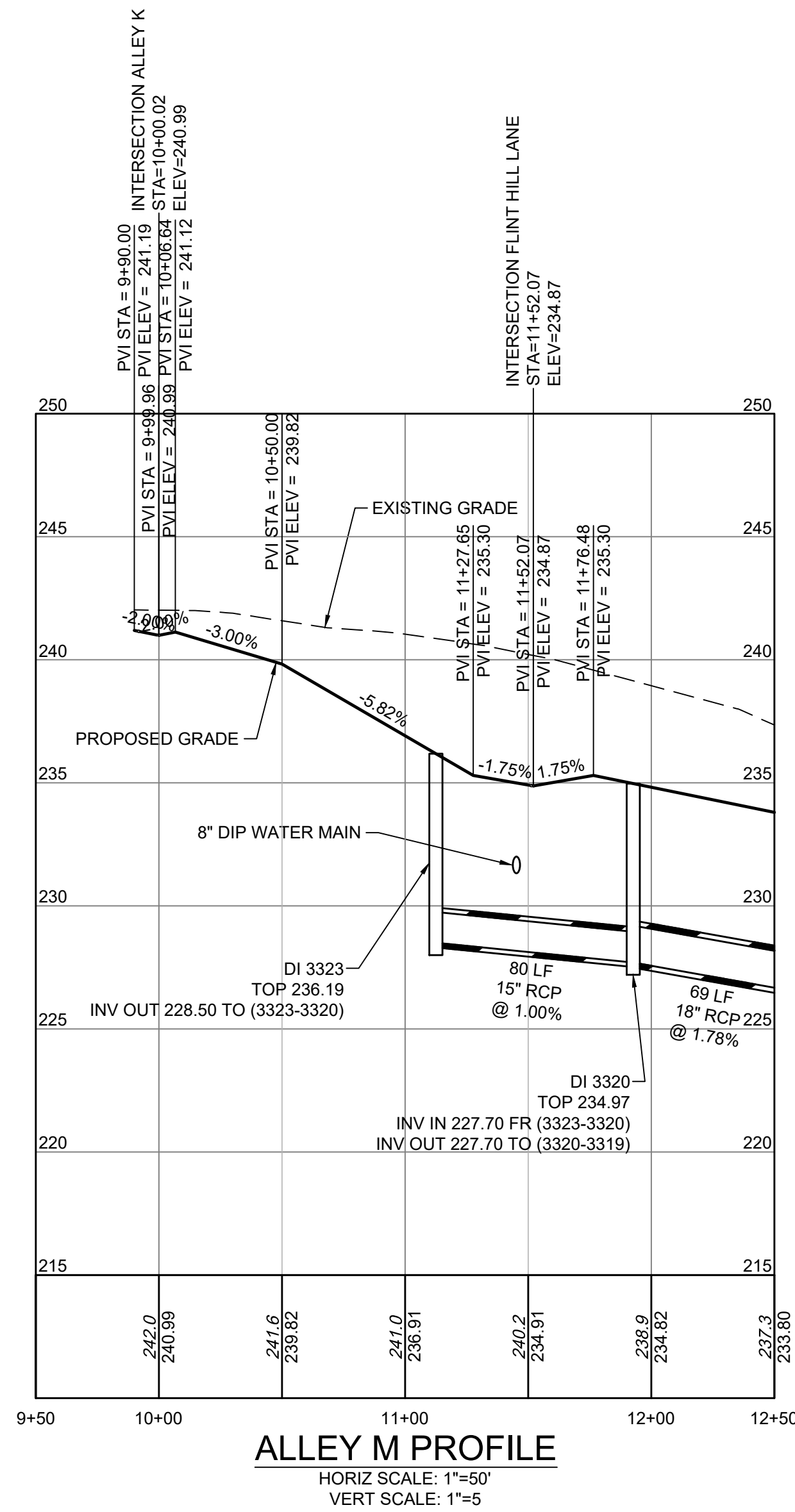
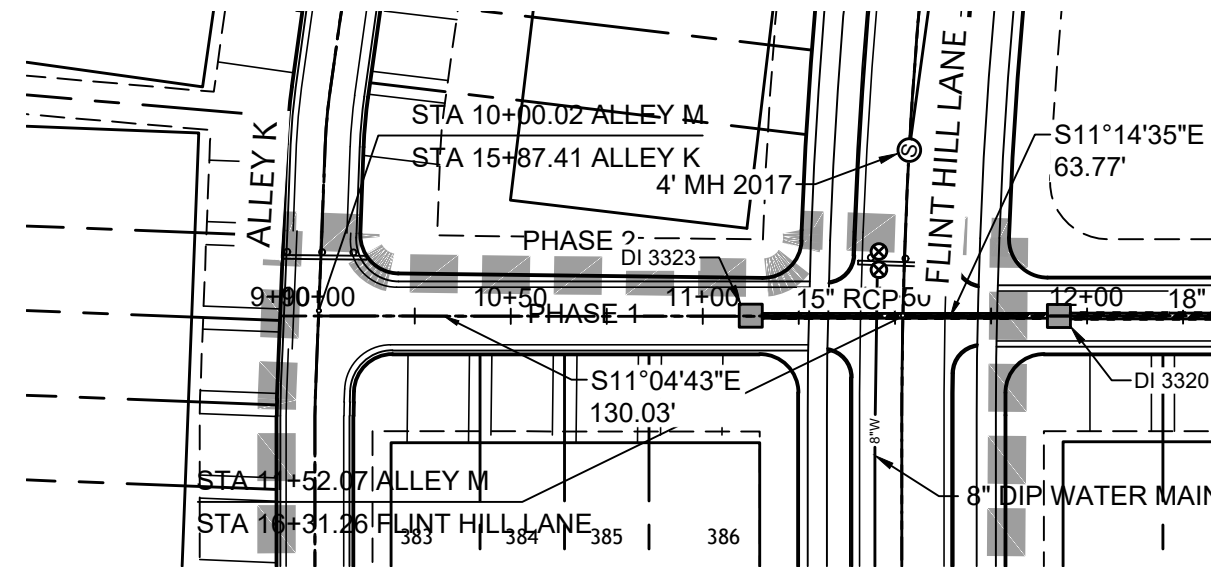
DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1" = 50'
 V: 1" = 5'

JOB NO. 44529
 SHEET NO. C5.16

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UTILITY NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH WAKE COUNTY STANDARDS AND SPECIFICATIONS.
- 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.
- MINIMUM UTILITY VERTICAL SEPARATION DISTANCES:
 WATER AND SANITARY SEWER MAINS - 18 IN.
 WATER AND STORM SEWER MAINS - 12 IN.
 SANITARY SEWER AND STORM SEWER MAINS - 18 IN.

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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TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR

UTILITY LEGEND

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



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DATE
 09/30/2022

DATE
 11/21/2022

DRAWN BY
 331

DESIGNED BY
 331

CHECKED BY

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

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

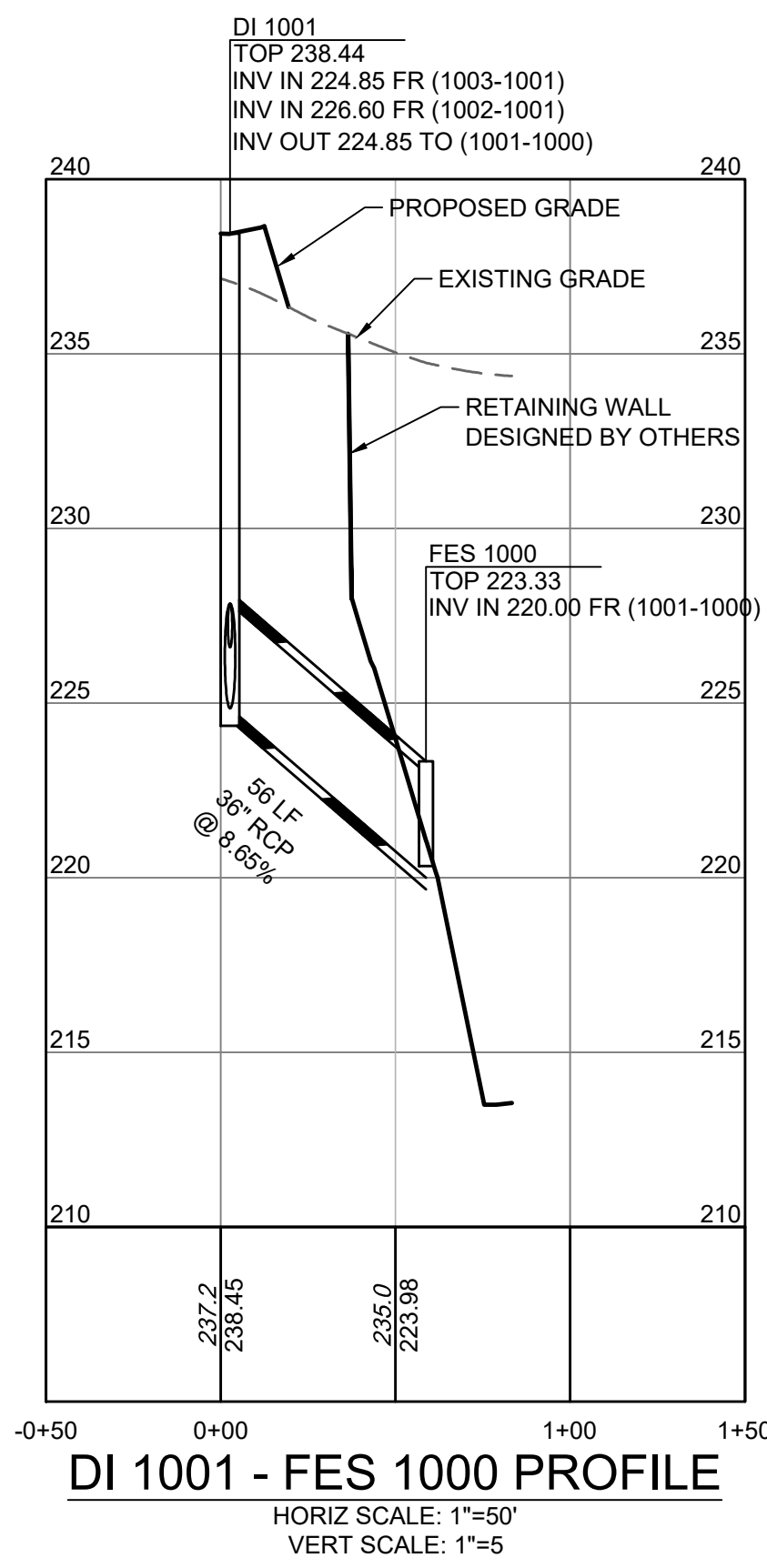
ALLEY M PLAN & PROFILE

JOB NO.
 44529

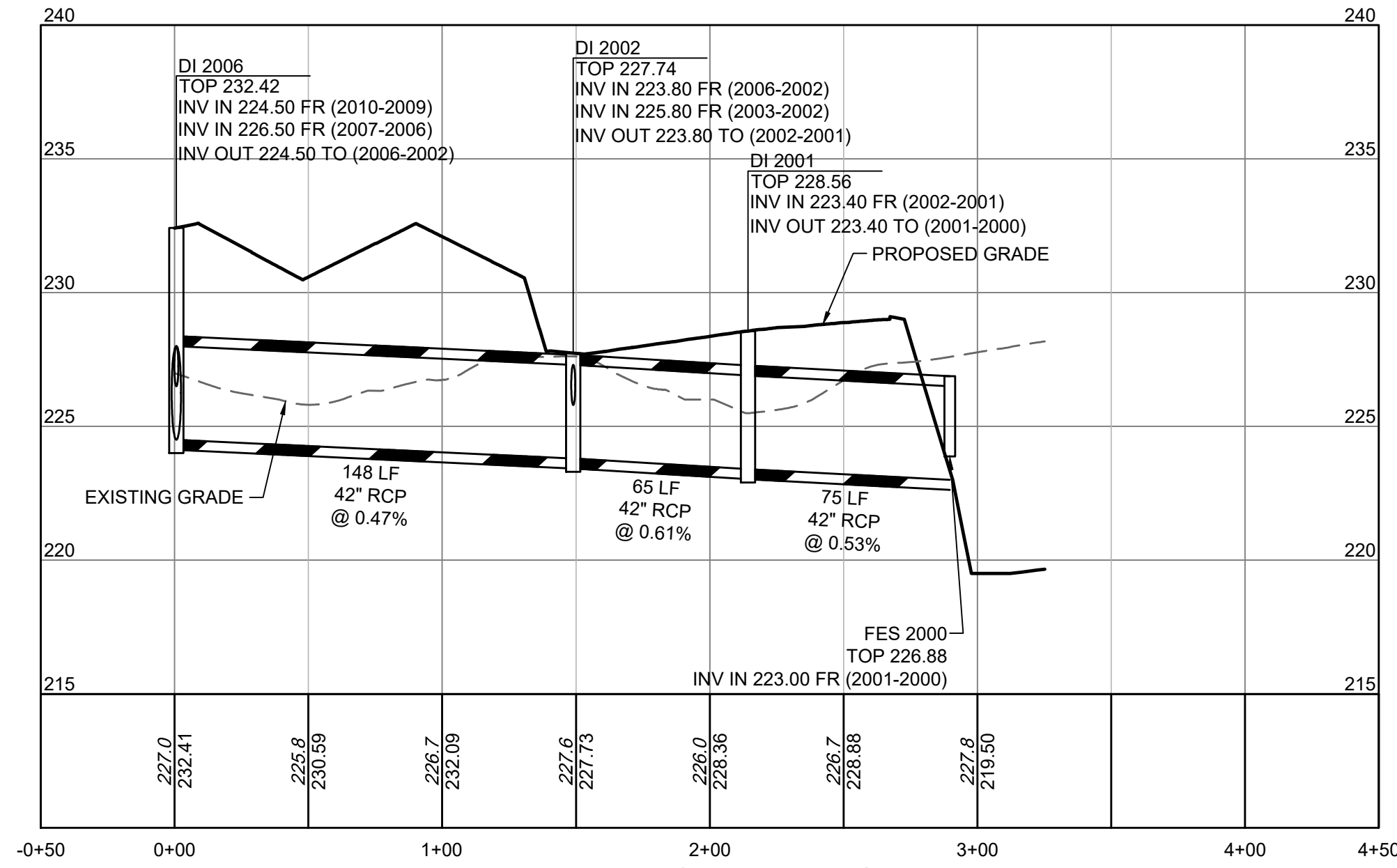
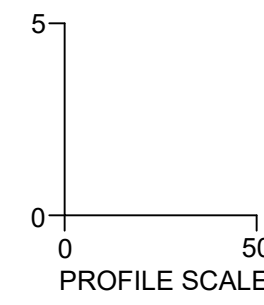
SHEET NO.
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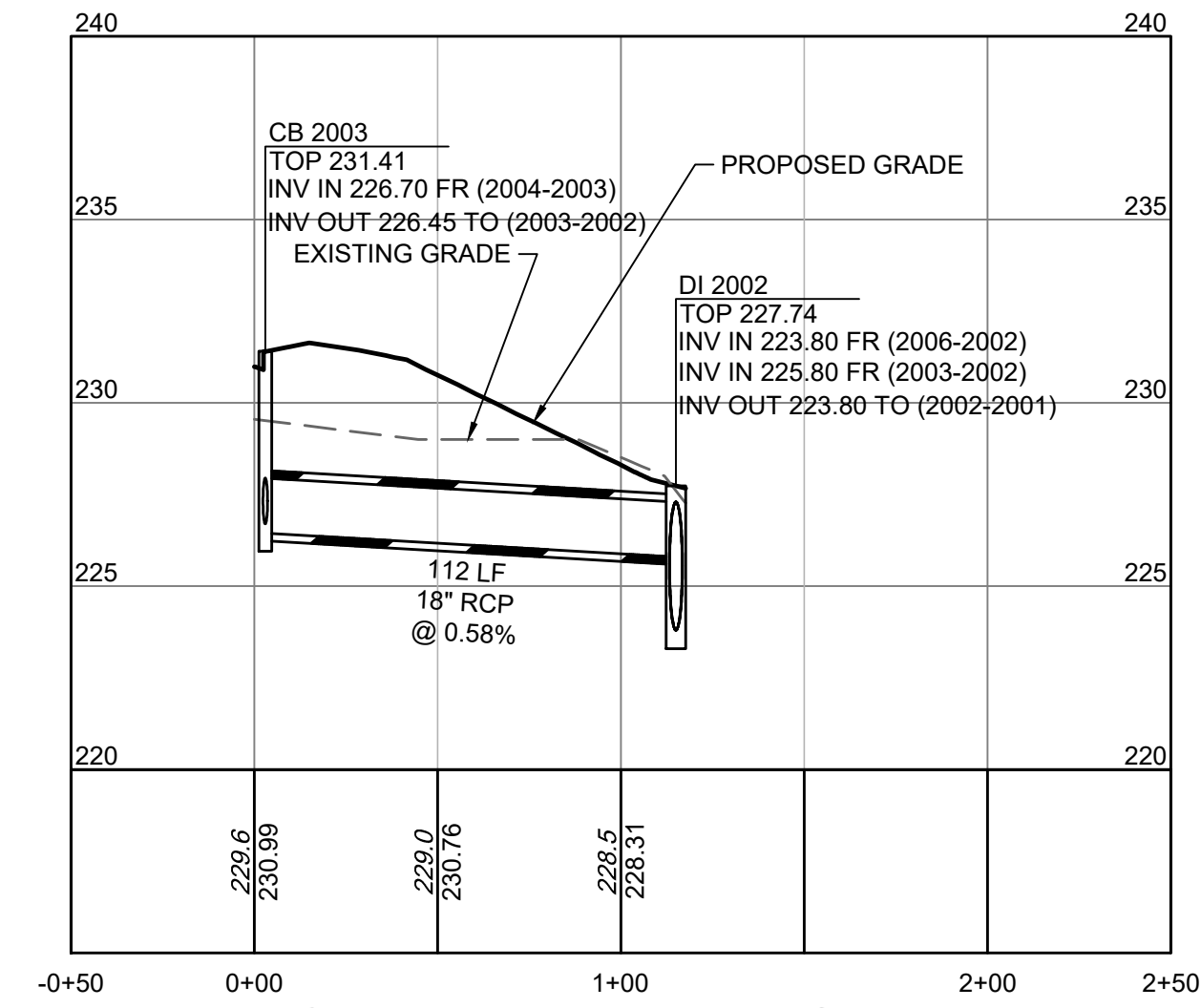
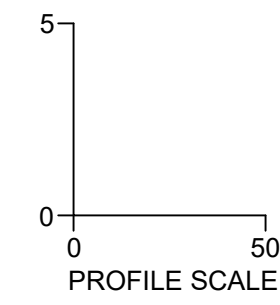
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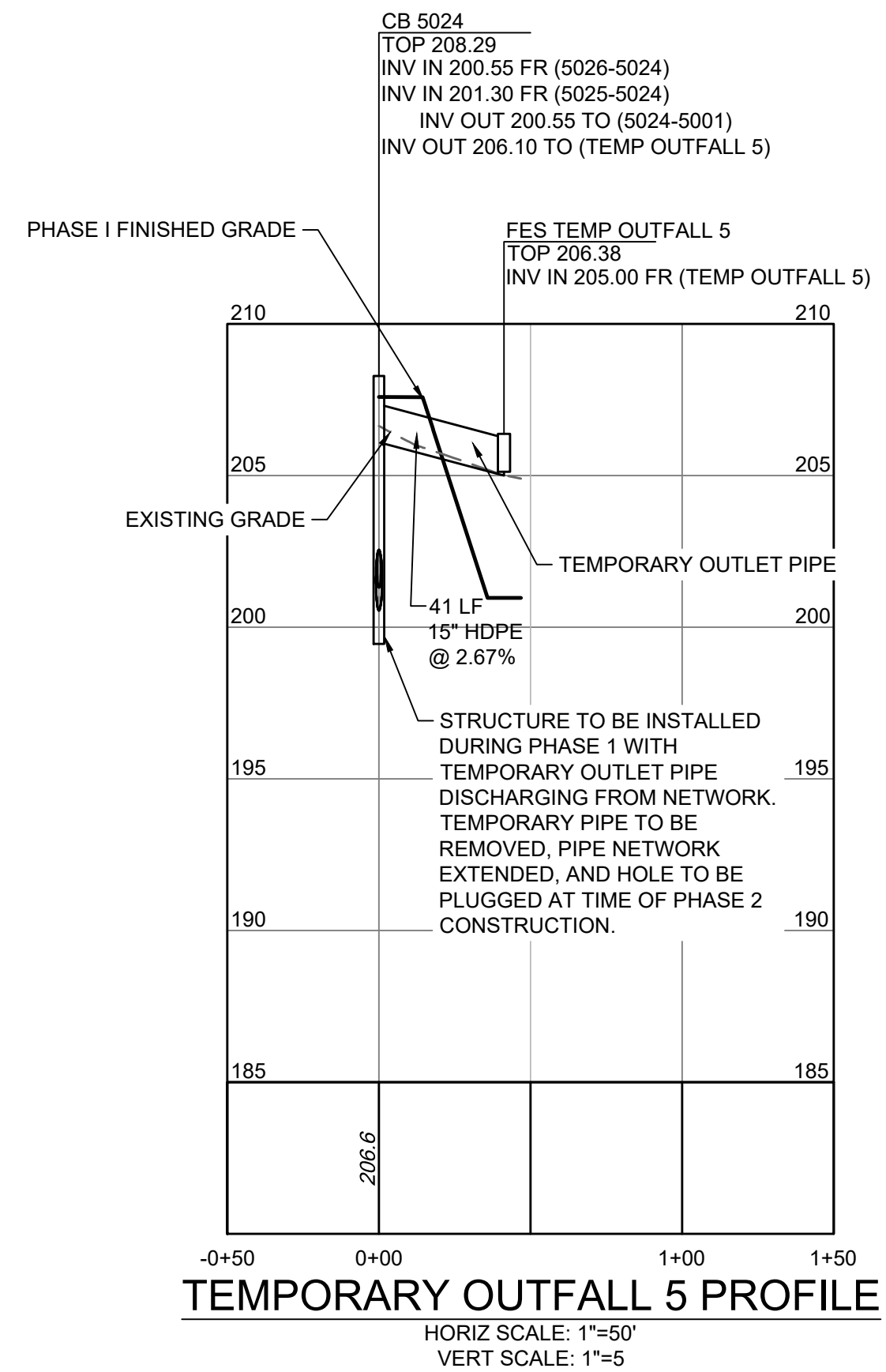
DI 1001 - FES 1000 PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'



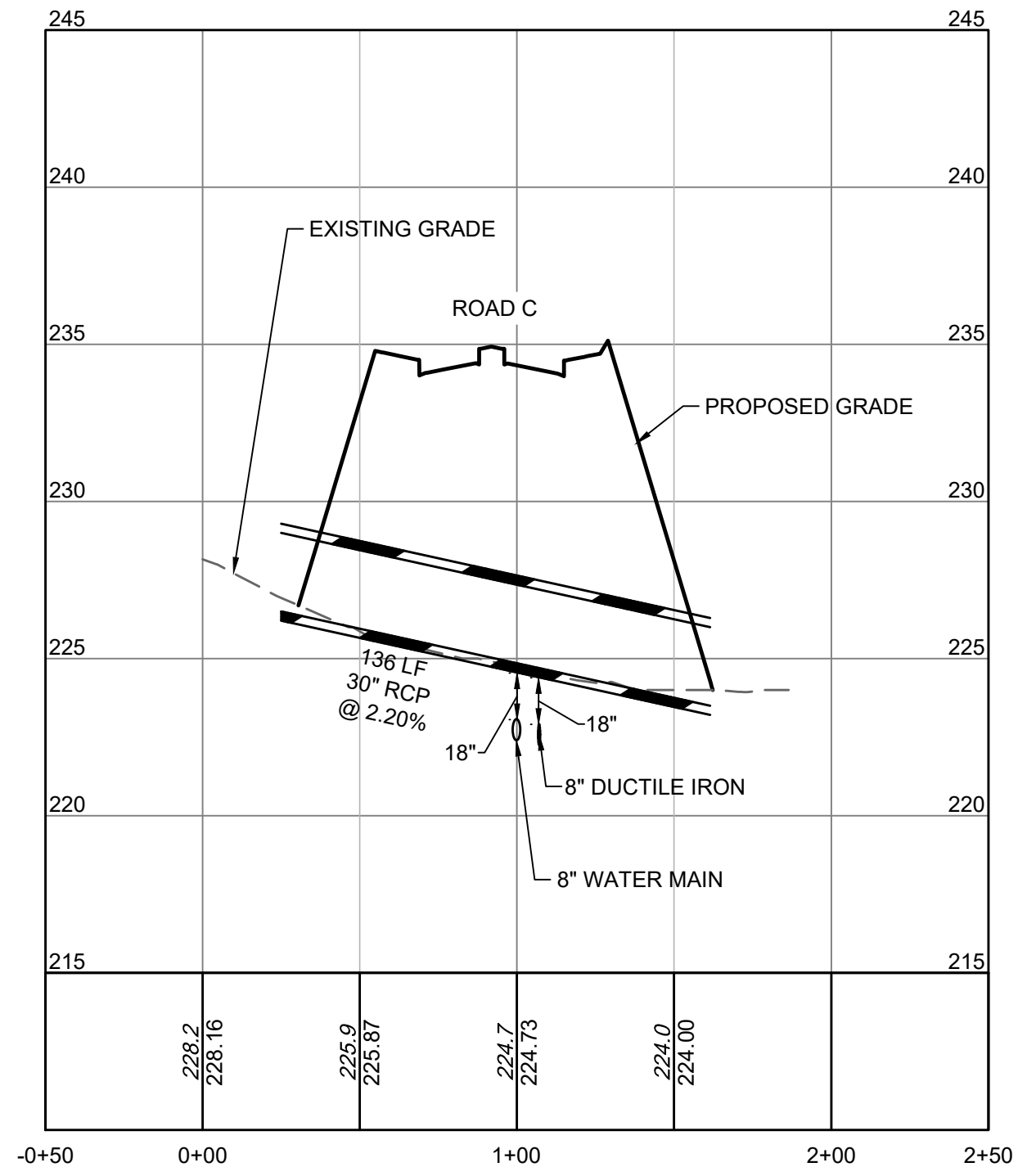
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 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'



CB 2003 - DI 2002 PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'



TEMPORARY OUTFALL 5 PROFILE
 HORIZ SCALE: 1"=50'
 VERT SCALE: 1"=5'



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

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: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



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DATE: 09/30/2022
 DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1"=50' V: 1"=5'

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

JOB NO. 44529
 SHEET NO. C5.18

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STORM OUTFALL PROFILES

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Water and Sewer Permits (if applicable)

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

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

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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-3827

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- UTILITY NOTES:**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
 - 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.
 - 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.

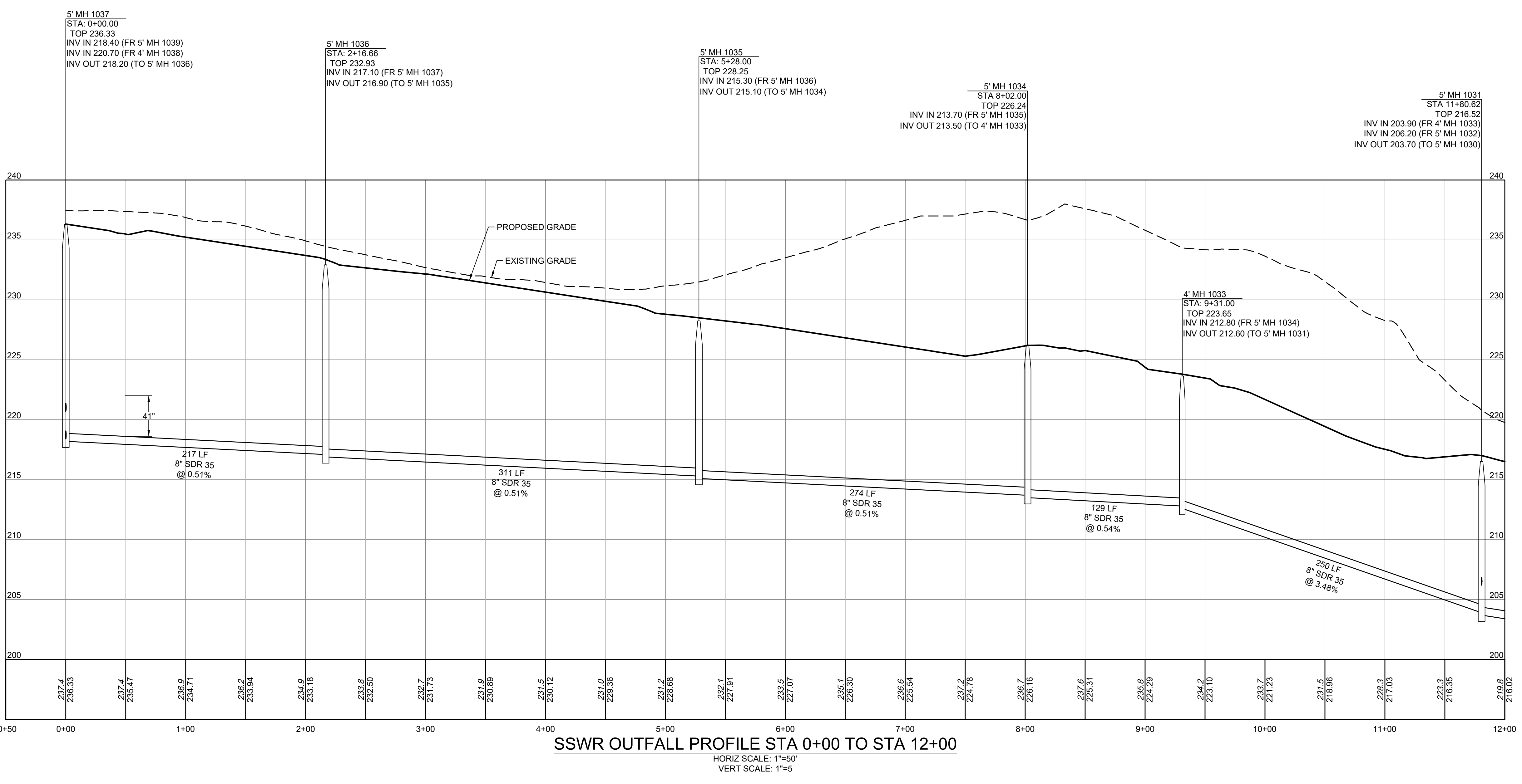
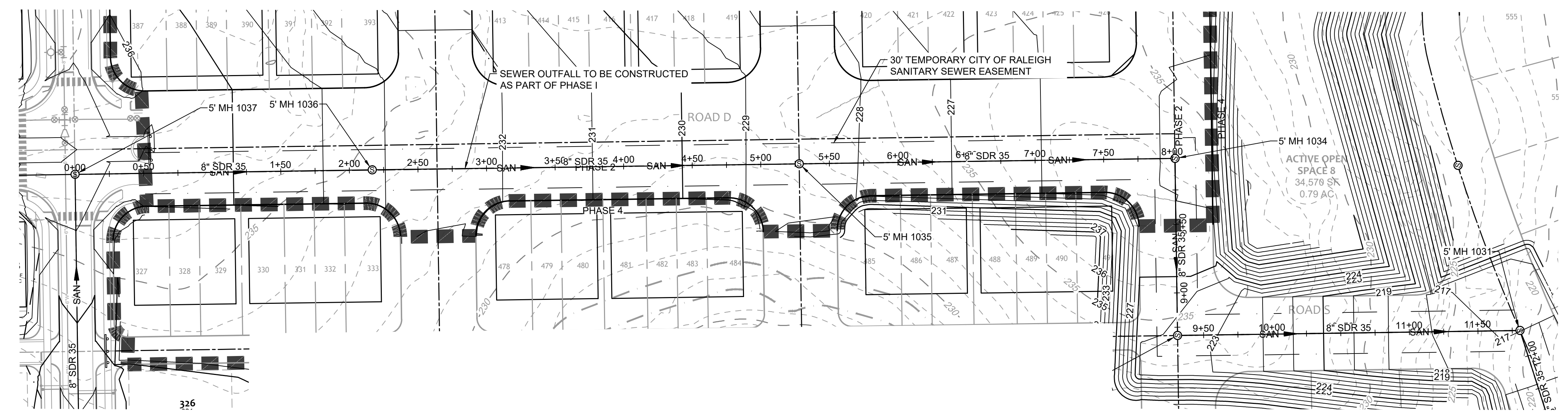
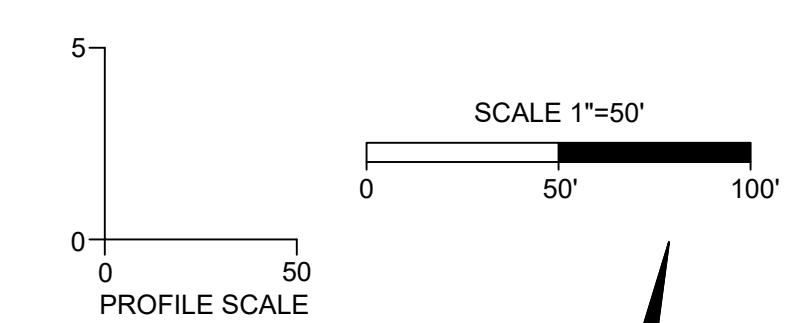
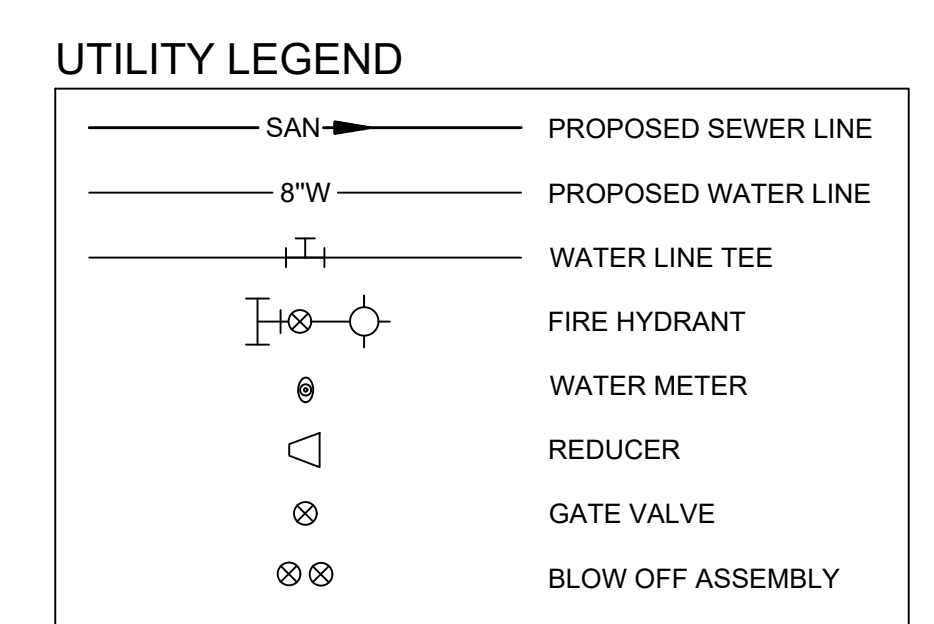
TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR



TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SEWER OUTFALL PROFILE - SHEET 1 OF 2

JOB NO. 44529

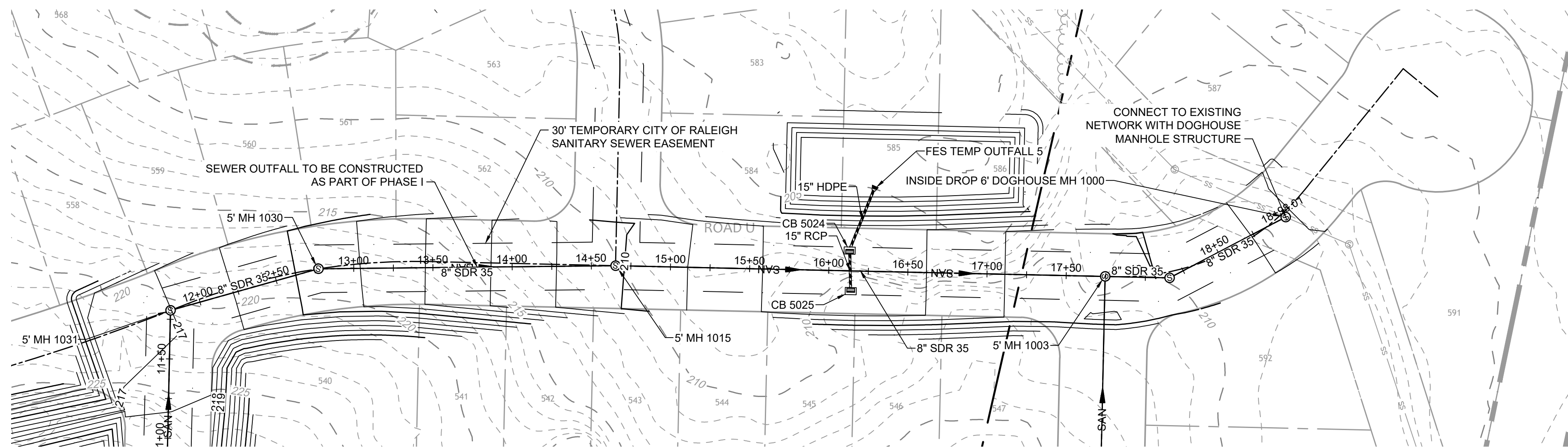
SHEET NO. C5.19



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S:\331\44529-WL-MAR\DWG\Sheet\CD\Phase I\44529-331-C5.X-SSWR OUTFALL.dwg | Plotted by Logan Criss

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TOWN CERTIFICATION

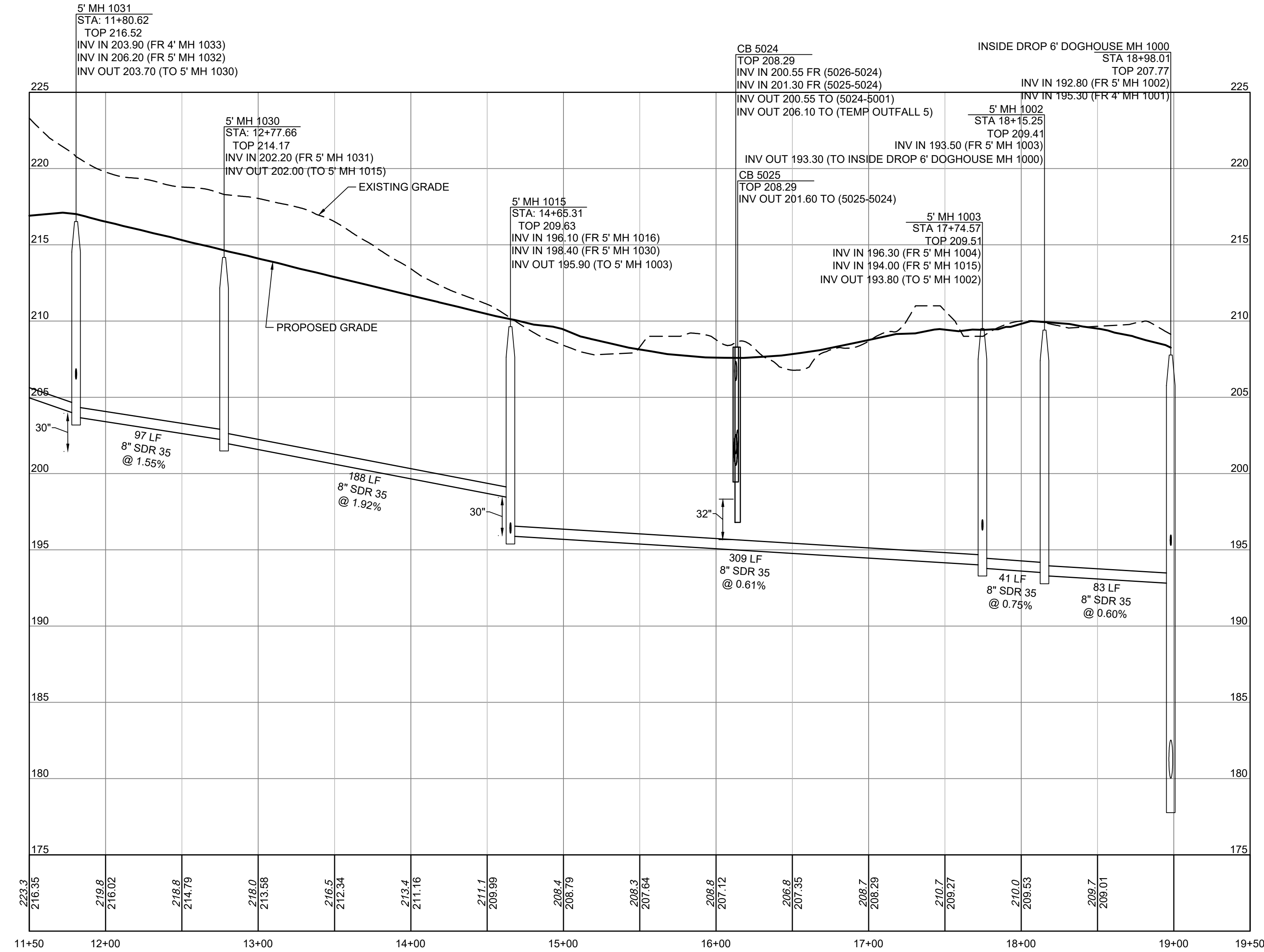
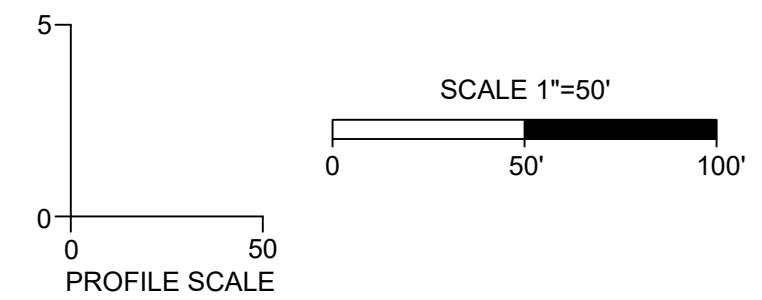
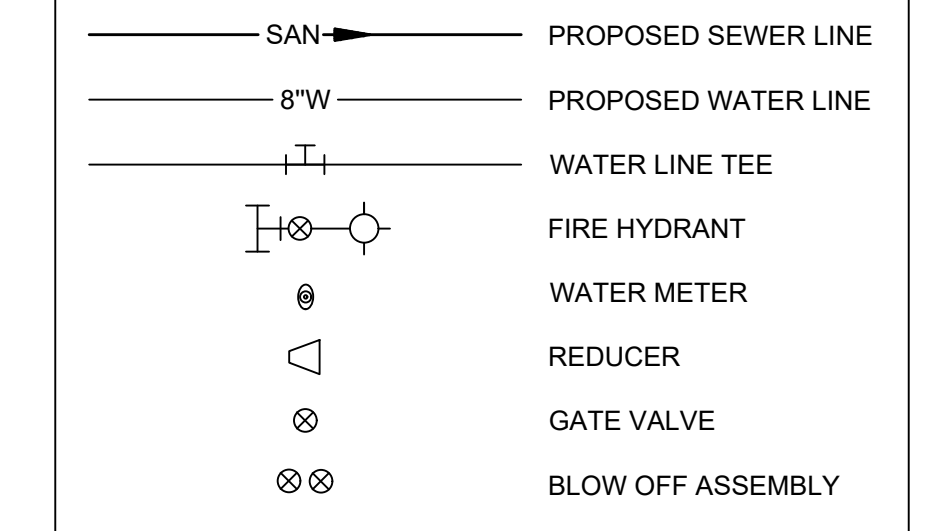
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DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR

UTILITY LEGEND



SSWR OUTFALL PROFILE STA 11+50 TO STA 19+50
HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5'

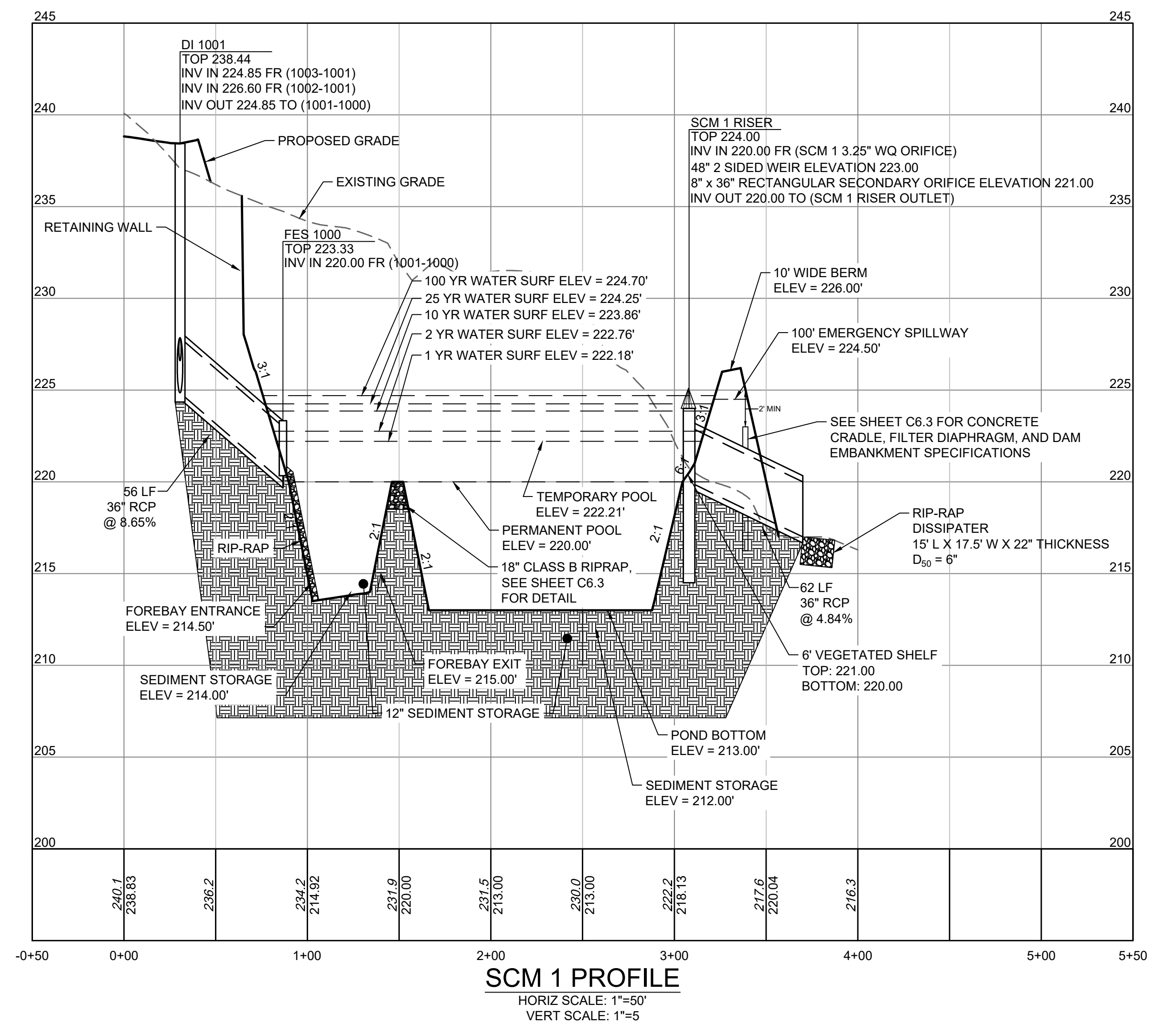
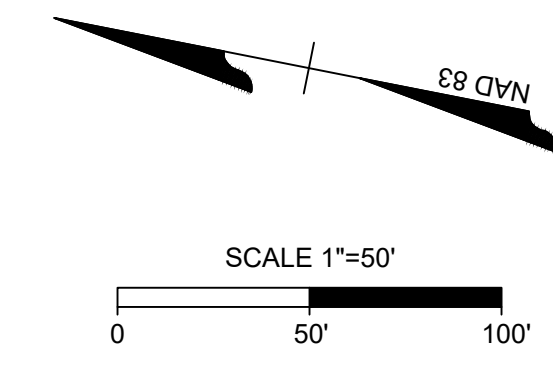
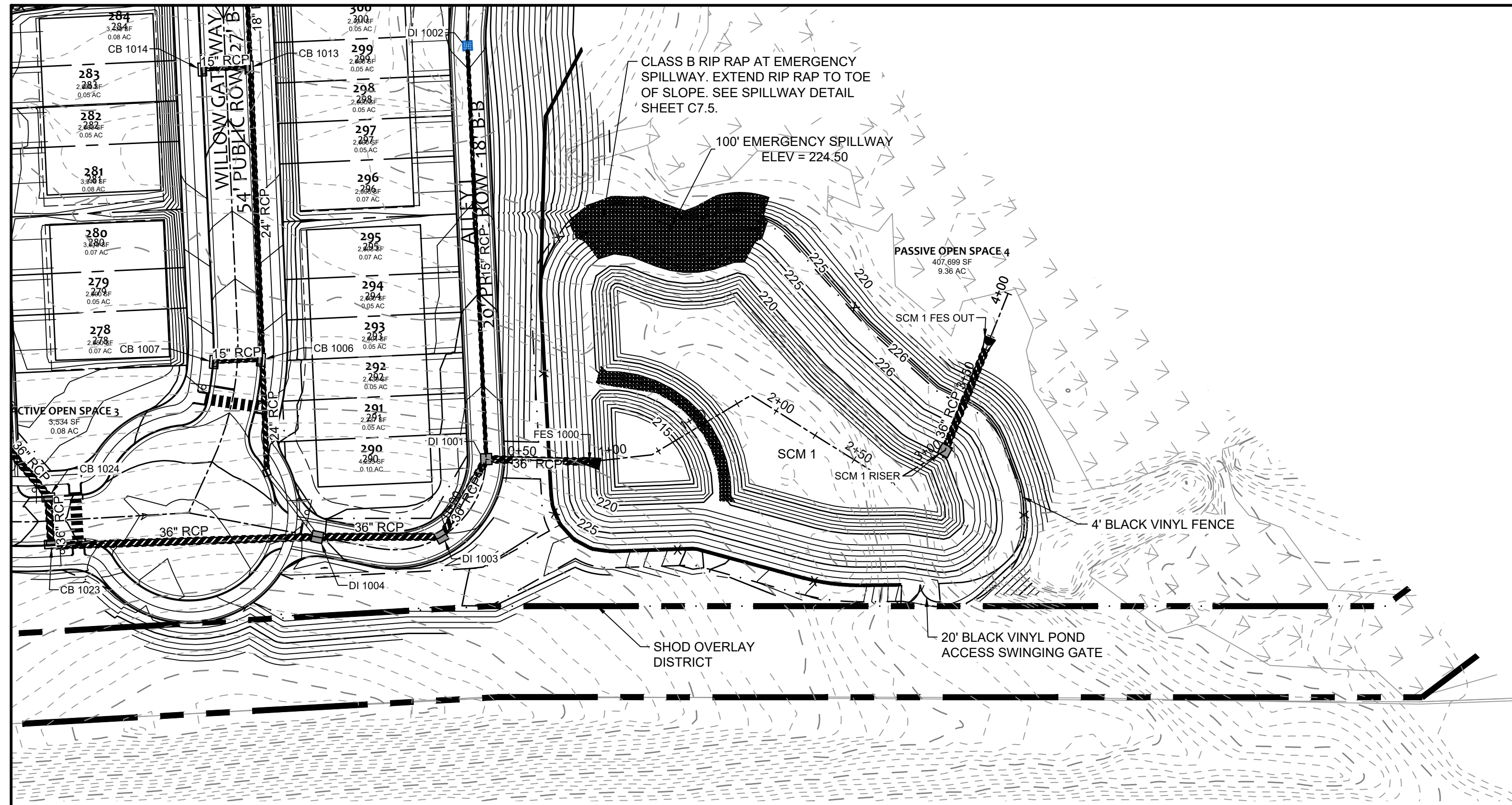
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
SEWER OUTFALL PROFILE - SHEET 2 OF 2

JOB NO.	44529
SHEET NO.	C5.20

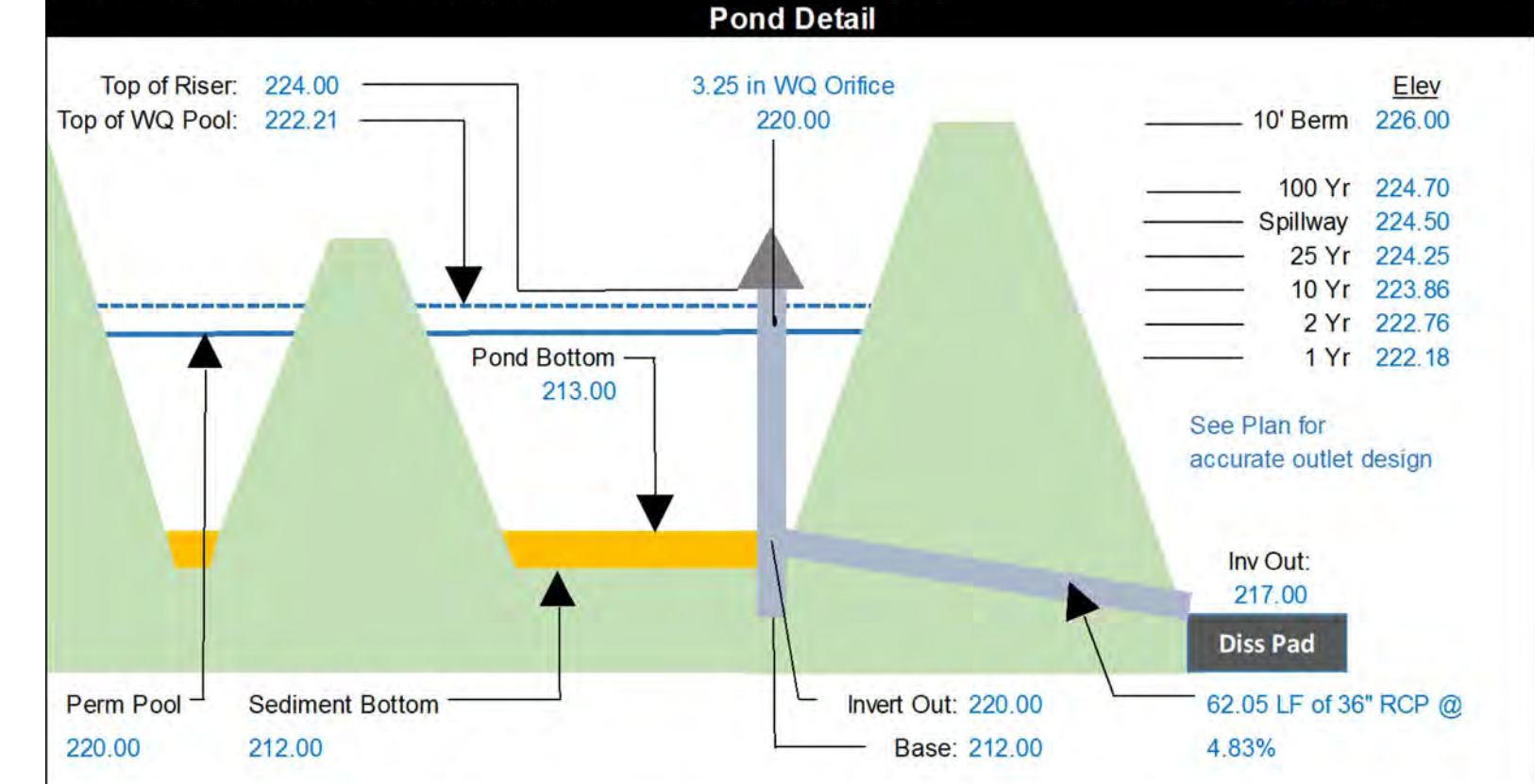


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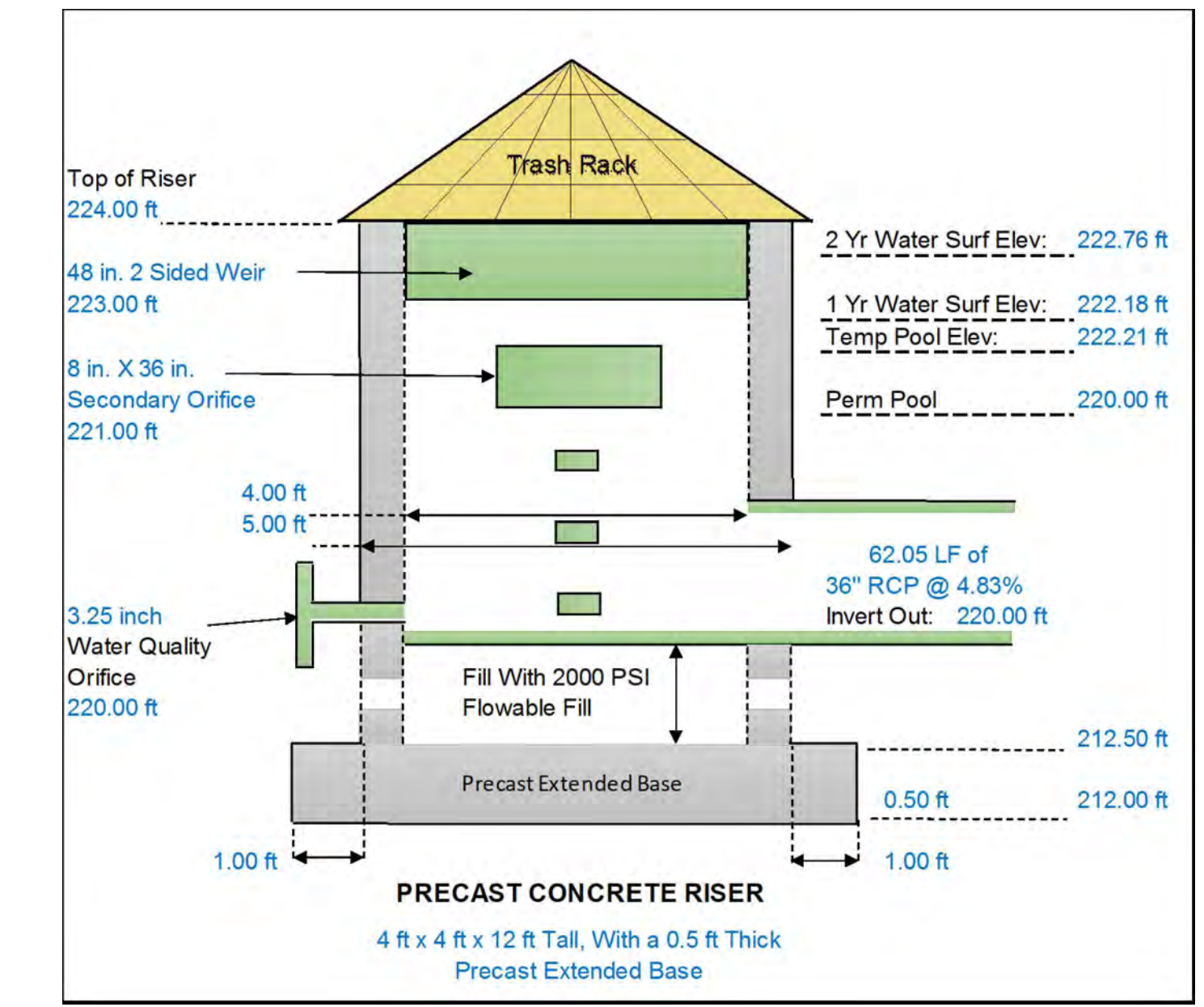


Please add location of SCM Sign and detail
TOK Std Spec 1.02: SCM Identification Sign

Pond / Riser Data & Elevations		
Pond Type	Wet Pond	
TSS Removal	89%	
Top of Pond / Berm	226.00 ft	
Secondary Spillway Width	100.00 ft	
Bottom of Secondary Spillway	224.50 ft	
Top of Riser	224.00 ft (at least 1' Above TPE)	
Riser Type / Size	4x4 ft	
Top of Water Quality / Temp Pool Elev	222.21 ft (1" Runoff)	
Top of Veg. Shelf	221.00 ft	
Permanent Pool Elevation (Normal Pool)	220.00 ft	
Water Quality Orifice Elevation & Size	220.00 ft 3.25 in	
Secondary Orifice Elevation & Size (Rise & Span)	221.00 ft 8.00 inch ^ Rise 36.00 inch ^ Span	
Weir Elevation, Size, and # of Sides	223.00 ft 48.00 inch ^ Rise 2 side(s) ^ Width ^ # of Sides	
Bottom of Veg. Shelf	220.00 ft	
Top of Sediment Storage / Pond Bottom	213.00 ft	
Bottom of Sediment Storage	212.00 ft (Min 1 ft)	
Invert Out of Riser	220.00 ft	
Outlet Pipe Length & Slope	36.00 in Diameter RCP 4.83 %	
Downstream Outlet Elevation	217.00 ft	
1 Yr Water Surface Elev / Peak Flow (CFS)	222.18 ft 9.16 CFS	
2 Yr Water Surface Elev Peak Flow (CFS)	222.76 ft 11.81 CFS	
10 Yr Water Surface Elev Peak Flow (CFS)	223.86 ft 32.93 CFS	
25 Yr Water Surface Elev Peak Flow (CFS)	224.25 ft 48.09 CFS	
100 Yr Water Surface Elev Peak Flow (CFS)	224.70 ft 80.95 CFS	



Anti-Bouyancy Calculations for the Riser Structure		
Riser Dimensions	Weight of Structure	Displaced Volume
Outside Width 5.00 ft	Walls = 16,200 LBS	V = LxWx(H) = C.F.
Inside Width 4.00 ft	Base = 3,675 LBS	
Outside Length 5.00 ft	FILL = 18,000 lbs	Displaced Water =
Inside Length 4.00 ft		C.F. * 62.4 PCF = LBS
Height 12.00 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	Weir #1 = 50 LBS	V = 300 C.F.
Ext Base (ft) 1.00 ft	Weir #2 = 0 LBS	Disp. Water = 18,720 LBS
Areas removed from Riser	Weir #3 = 0 LBS	15% F.S. = 2,808 LBS
Outlet Pipe 7.07 ft	Weir #4 = 0 LBS	
WQ Orifice 0.06 ft	Other #1 = 0 LBS	Safety Factor = 1.73
Orifice #1 0.67 ft		
Orifice #2 0.00 ft		
Orifice #3 0.00 ft	Weight = 37,291 LBS	Weight = 21,528 LBS
Orifice #4 0.00 ft		
Other 0.00 ft	Precast Concrete Riser Structure to be 4 ft x 4 ft x 12 ft Tall, With a 0.5 ft Thick Precast Extended Base	



TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR

AS-BUILT SURVEY REQUIREMENTS

NOTE: CONTRACTOR SHALL PROVIDE AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY A PROFESSIONAL LAND SURVEYOR CERTIFYING STORMWATER POND AREA DIMENSIONS, ELEVATIONS, OUTLET STRUCTURE INVERTS, ORIFICE DIAMETER, PIPE SIZES AND CLEANOUT LOCATIONS. TOPOGRAPHY SHALL EXTEND 20 FEET OUTSIDE LIMITS OF POND.

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

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DATE: 09/30/2022
REVISION DESCRIPTION: KNIGHTDALE SUBMITTAL # 5

DATE: 11/21/2022
DRAWN BY: 331
DESIGNED BY: 331
CHECKED BY: ----
SCALE: H: 1" = 50'
V: 1" = 5'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

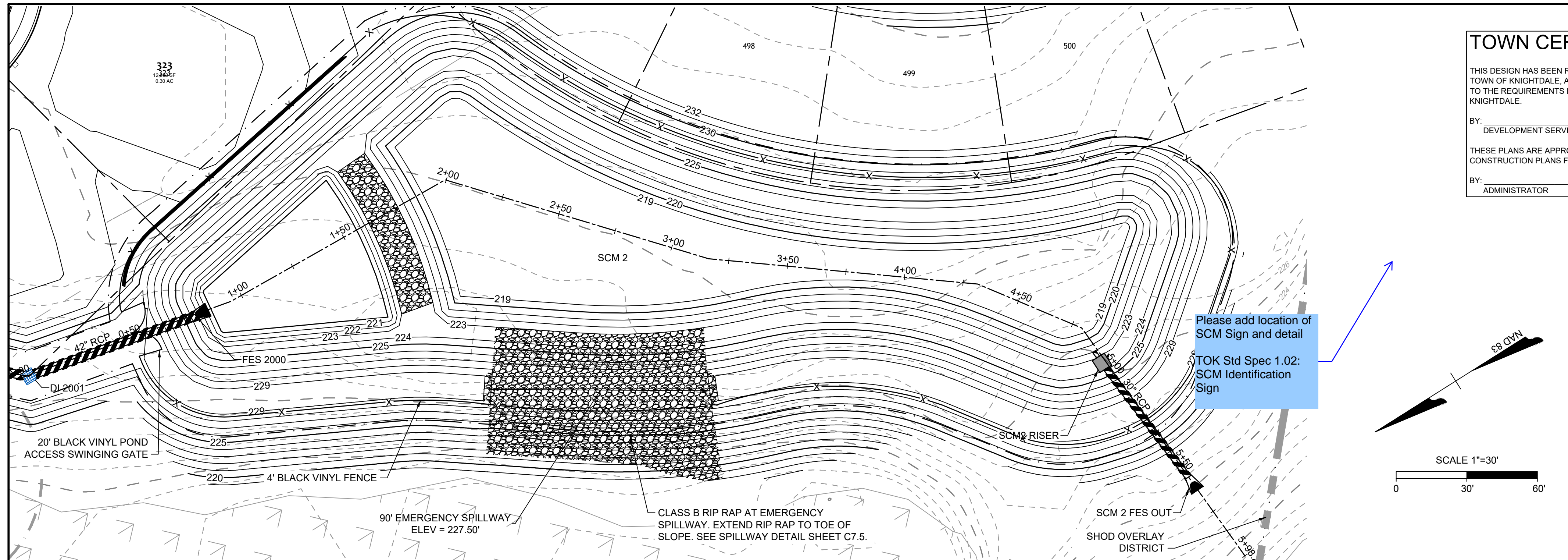
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SCM1 PLAN & PROFILE

JOB NO. 44529
SHEET NO. C6.1

FOR REVIEW ONLY: NOT FOR CONSTRUCTION

S:\331\44529-WL-MAR-DWG-Sheet\CD\Phase I\44529-331-CX-X-POND1.dwg | Plotted by Logan Criss



TOWN CERTIFICATION

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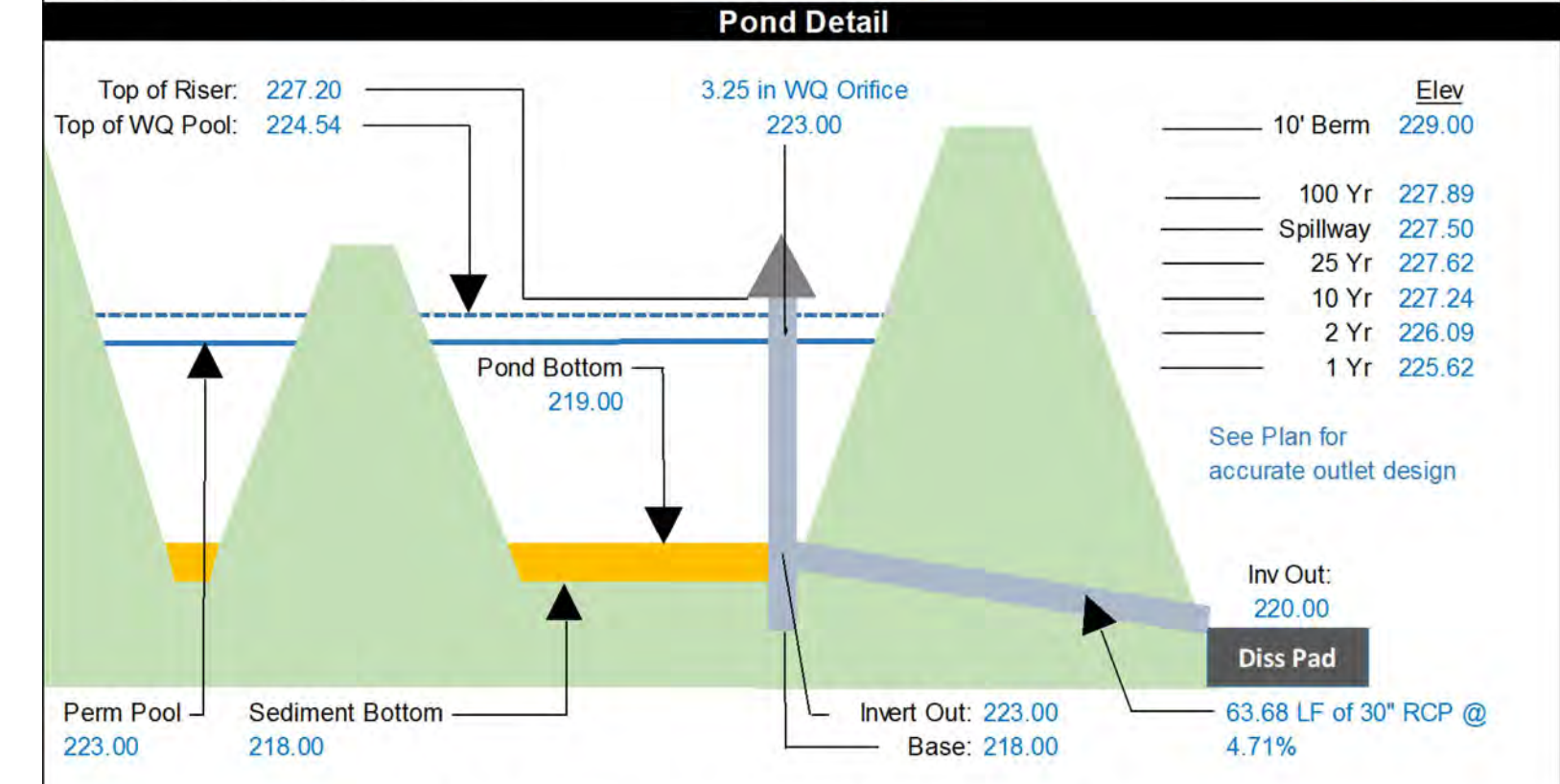
BY: _____ DATE: _____
 ADMINISTRATOR

AS-BUILT SURVEY REQUIREMENTS

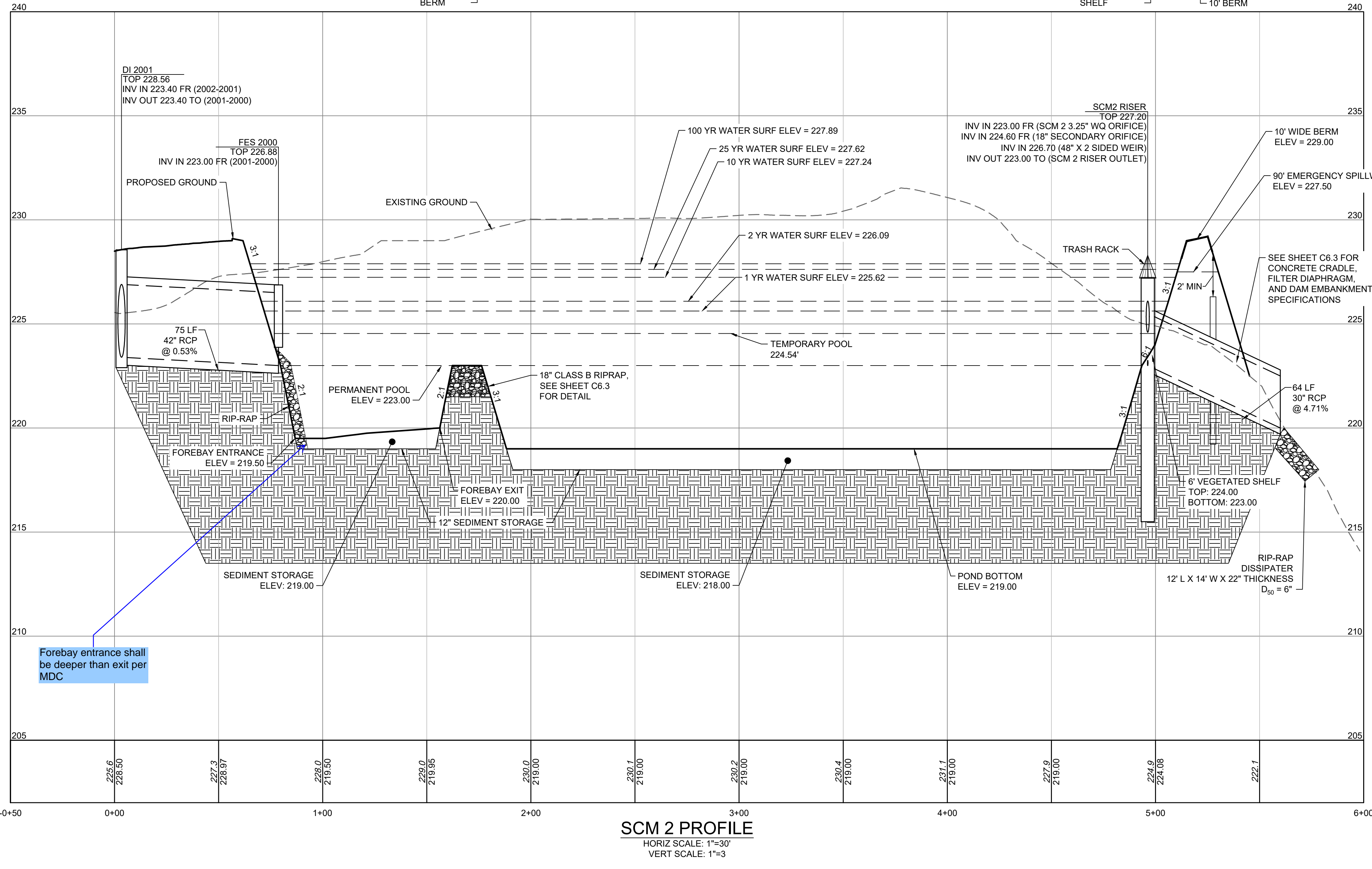
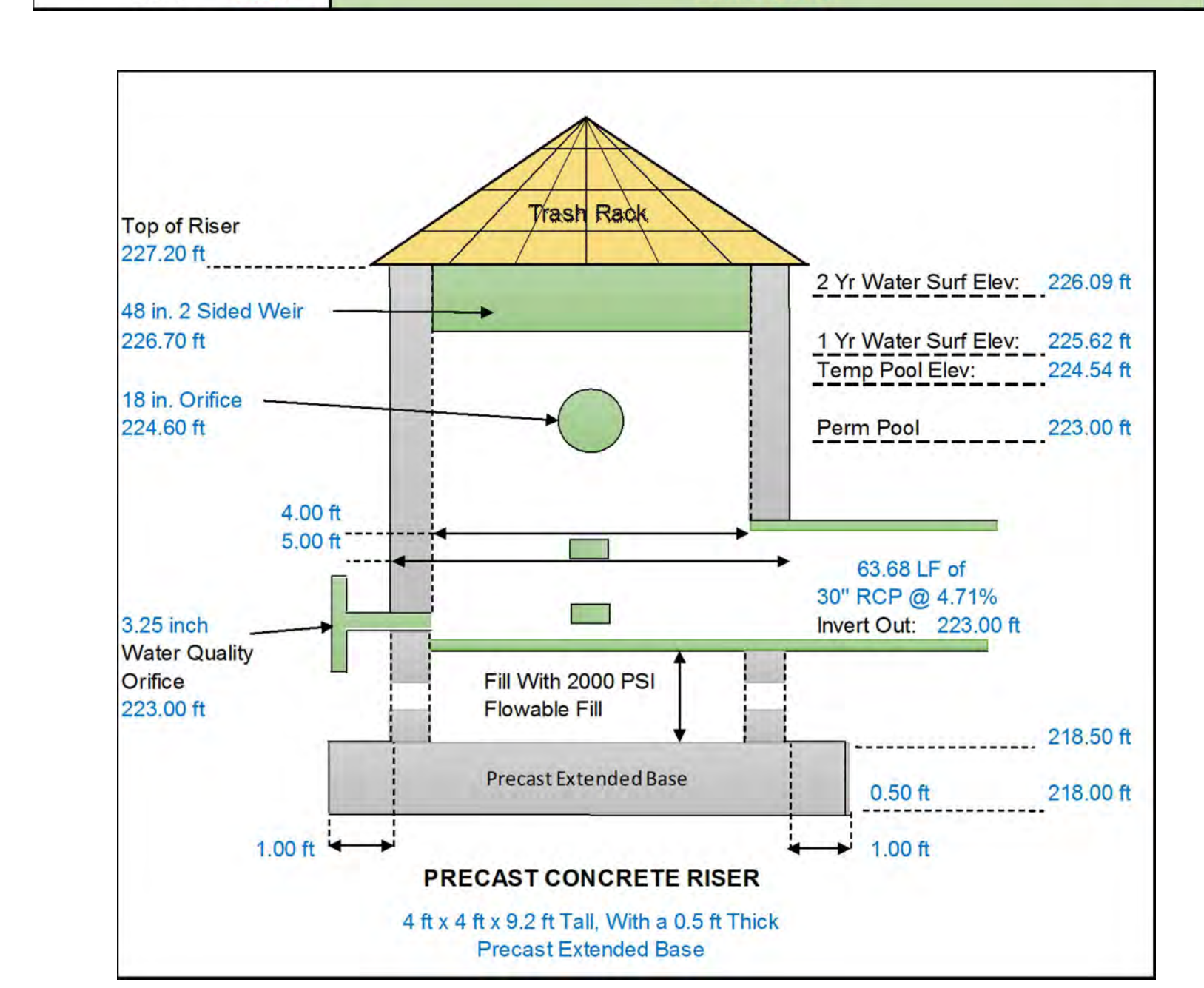
NOTE: CONTRACTOR SHALL PROVIDE AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY A PROFESSIONAL LAND SURVEYOR CERTIFYING STORMWATER POND AREA DIMENSIONS, ELEVATIONS, OUTLET STRUCTURE INVERTS, ORIFICE DIAMETER, PIPE SIZES AND CLEANOUT LOCATIONS. TOPOGRAPHY SHALL EXTEND 20 FEET OUTSIDE LIMITS OF POND.



Pond / Riser Data & Elevations	
Pond Type	Wet Pond
TSS Removal	85%
Top of Pond / Berm	229.00 ft
Secondary Spillway Width	90.00 ft
Bottom of Secondary Spillway	227.50 ft
Top of Riser	227.20 ft (at least 1' Above TPE)
Riser Type / Size	4x4 ft
Top of Water Quality / Temp Pool Elev	224.54 ft (1" Runoff)
Top of Veg. Shelf	224.00 ft
Permanent Pool Elevation (Normal Pool)	223.00 ft
Water Quality Orifice Elevation & Size	223.00 ft
Secondary Orifice Elevation & Size (Rise & Span)	224.60 ft
	18.00 inch
	18.00 inch
Weir Elevation, Size, and # of Sides	226.70 ft
Bottom of Veg. Shelf	223.00 ft
Top of Sediment Storage / Pond Bottom	219.00 ft
Bottom of Sediment Storage	218.00 ft (Min 1 ft)
Invert Out of Riser	223.00 ft
Outlet Pipe Size	30.00 in Diameter RCP
Outlet Pipe Length & Slope	63.68 ft
Downstream Outlet Elevation	220.00 ft
1 Yr Water Surface Elev / Peak Flow (CFS)	225.62 ft
2 Yr Water Surface Elev Peak Flow (CFS)	226.09 ft
10 Yr Water Surface Elev Peak Flow (CFS)	227.24 ft
25 Yr Water Surface Elev Peak Flow (CFS)	227.62 ft
100 Yr Water Surface Elev Peak Flow (CFS)	227.89 ft



Anti-Bouyancy Calculations for the Riser Structure		
Riser Dimensions	Weight of Structure	Displaced Volume
Outside Width: 5.00 ft	Walls = 12,420 LBS	V = LxWx(H) = C.F.
Inside Width: 4.00 ft	Base = 3,675 LBS	Displaced Water =
Outside Length: 5.00 ft	FILL = 10,800 lbs	C.F. * 62.4 PCF = LBS
Inside Length: 4.00 ft		
Height: 9.20 ft	Outlet Pipe = 368 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 = 50 LBS	V = 230 C.F.
Areas removed from Riser	Weir #2 = 0 LBS	Disp. Water = 14,352 LBS
Outlet Pipe: 4.91 ft	Weir #3 = 0 LBS	15% F.S. = 2,153 LBS
WQ Orifice: 0.06 ft	Weir #4 = 0 LBS	
Orifice #1: 0.67 ft	Other #1 = 0 LBS	Safety Factor: 1.60
Orifice #2: 0.00 ft		
Orifice #3: 0.00 ft	Weight = 26,473 LBS	Weight = 16,505 LBS
Orifice #4: 0.00 ft	Precast Concrete Riser Structure to be 4 ft x 4 ft x 9.2 ft Tall, With a 0.5 ft Thick Precast Extended Base	
Other: 0.00 ft		



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REVISION DESCRIPTION
 KNIGHTDALE SUBMITTAL # 5

DATE: 09/30/2022
 DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: H: 1" = 30'
 V: 1" = 3'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SCM2 PLAN & PROFILE

JOB NO. 44529
 SHEET NO. C6.2

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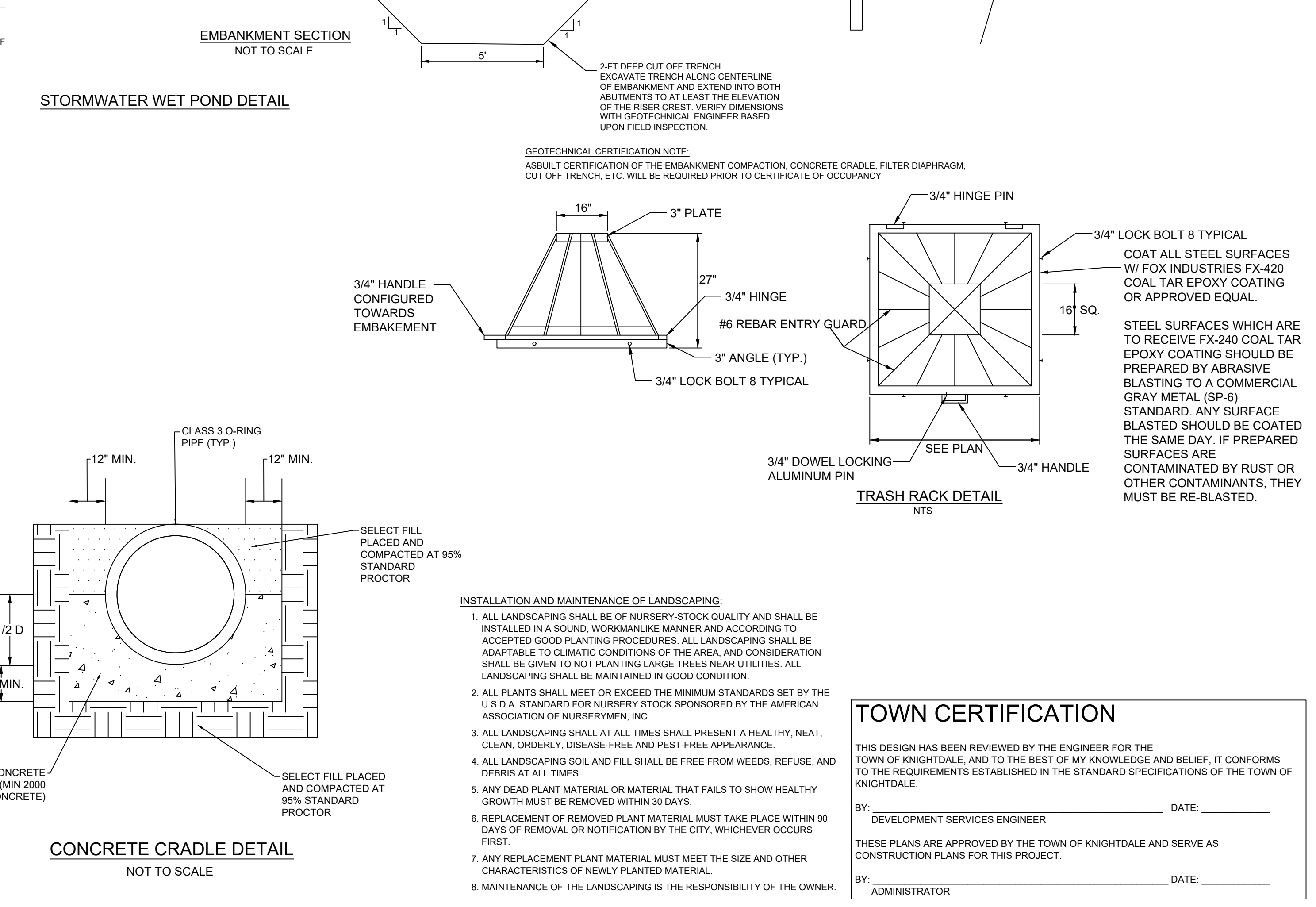
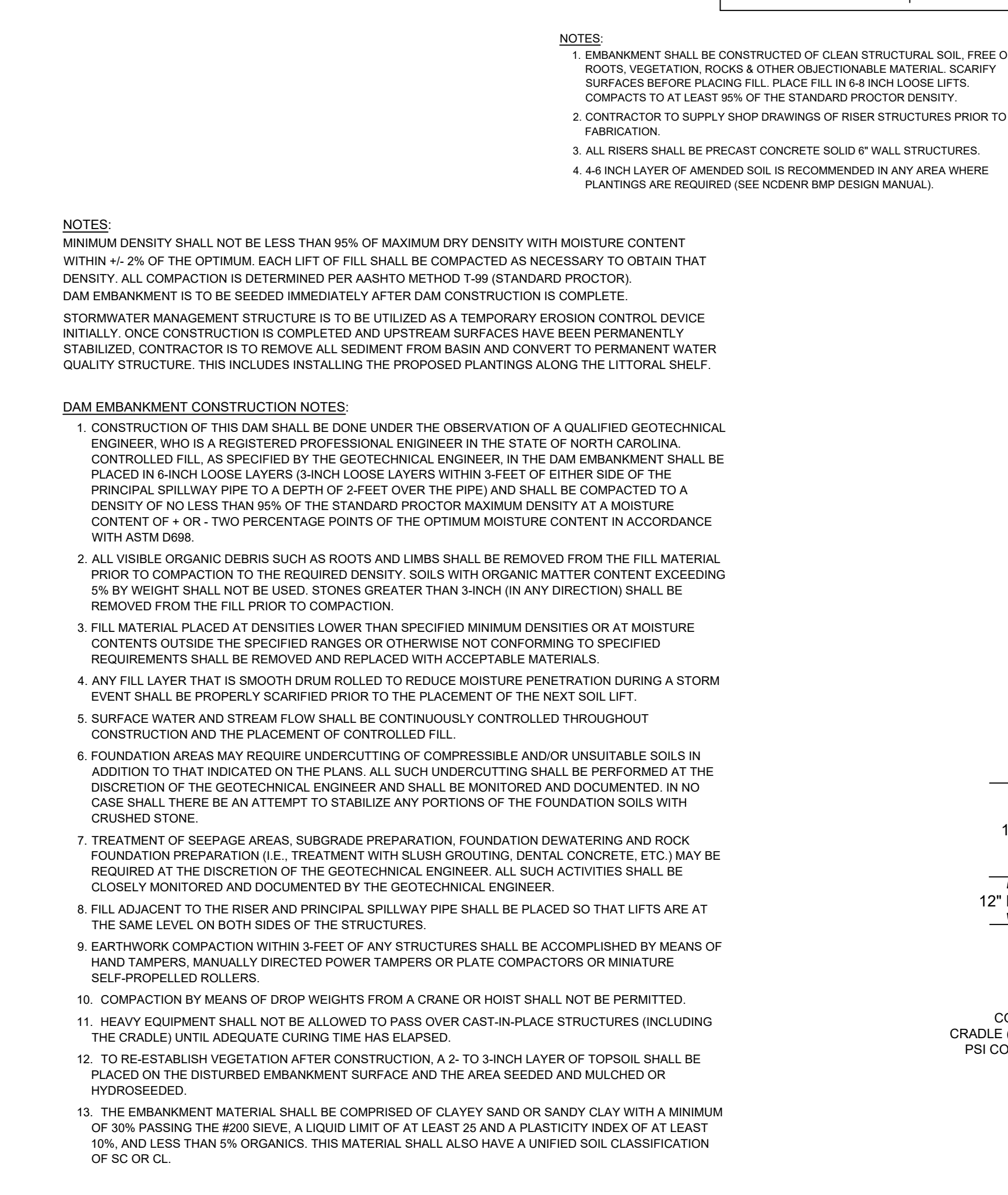
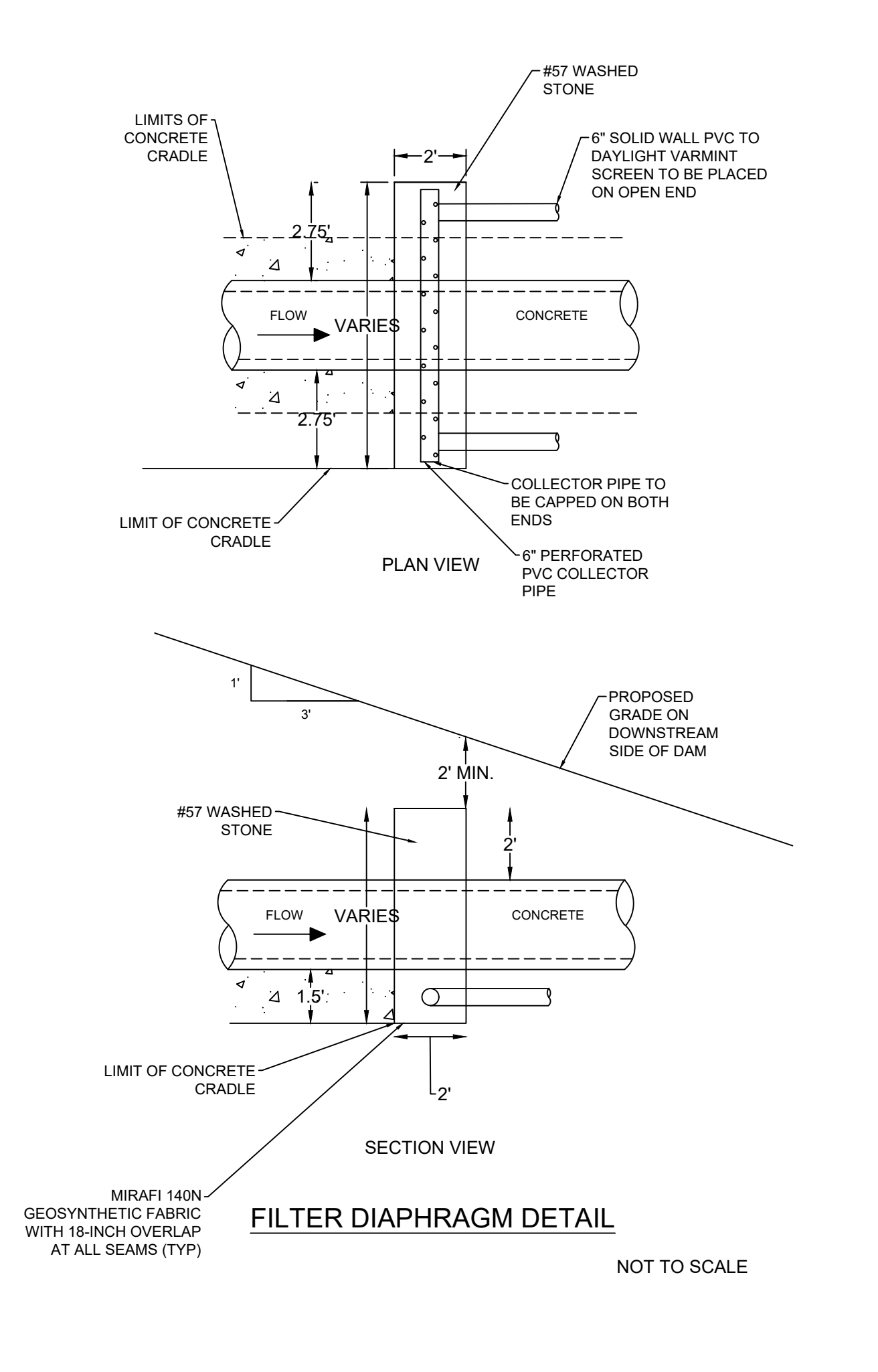
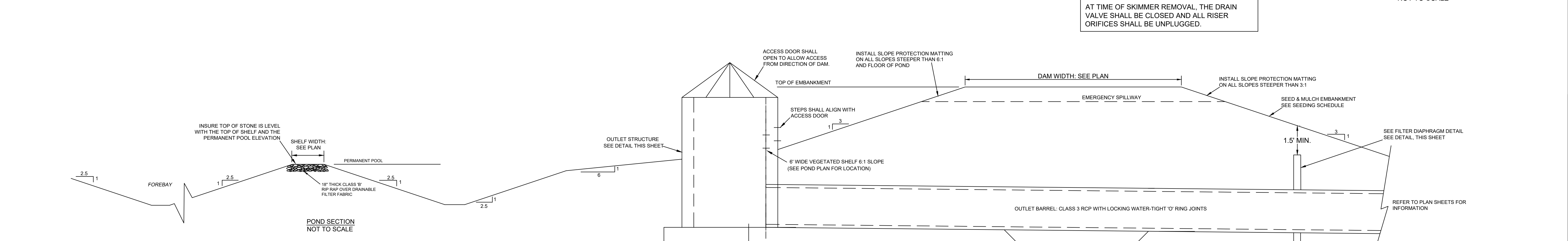
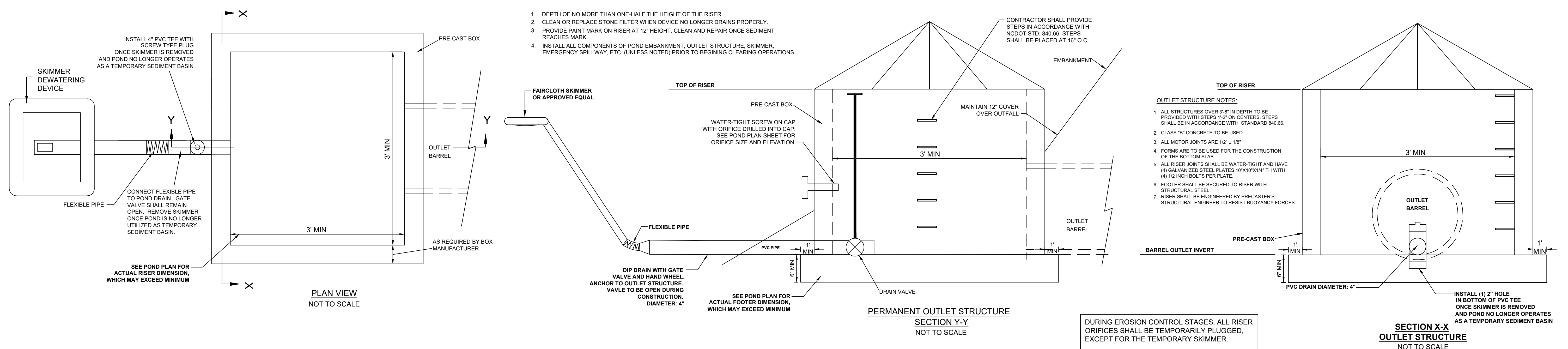
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CHECKED BY: ---
SCALE: N/A

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
SCM NOTES & DETAILS

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- DEPTH OF NO MORE THAN ONE-HALF THE HEIGHT OF THE RISER.
- CLEAN OR REPLACE STONE FILTER WHEN DEVICE NO LONGER DRAINS PROPERLY.
- PROVIDE PAINT MARK ON RISER AT 12" HEIGHT. CLEAN AND REPAIR ONCE SEDIMENT REACHES MARK.
- INSTALL ALL COMPONENTS OF POND EMBANKMENT, OUTLET STRUCTURE, SKIMMER, EMERGENCY SPILLWAY, ETC. (UNLESS NOTED) PRIOR TO BEGINNING CLEARING OPERATIONS.

- OUTLET STRUCTURE NOTES:**
- ALL STRUCTURES OVER 3'-0" IN DEPTH TO BE PROVIDED WITH STEPS 1'-2" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STANDARD 840.66.
 - CLASS 1" CONCRETE TO BE USED.
 - ALL MOTOR JOINTS ARE 1/2" ± 1/8"
 - FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 - ALL RISER JOINTS SHALL BE WATER-TIGHT AND HAVE (4) GALVANIZED STEEL PLATES 10"x10"x1/4" TH WITH 1/4" TO NICH BOLTS PER PLATE.
 - FOOTER SHALL BE SECURED TO RISER WITH STRUCTURAL STEEL.
 - RISER SHALL BE ENGINEERED BY PRECASTER'S STRUCTURAL ENGINEER TO RESIST BUOYANCY FORCES.

DURING EROSION CONTROL STAGES, ALL RISER ORIFICES SHALL BE TEMPORARILY PLUGGED, EXCEPT FOR THE TEMPORARY SKIMMER.

AT TIME OF SKIMMER REMOVAL, THE DRAIN VALVE SHALL BE CLOSED AND ALL RISER ORIFICES SHALL BE UNPLUGGED.

- NOTES:**
- 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-INCH LOOSE LIFTS, COMPACTS TO AT LEAST 95% OF THE STANDARD PROCTOR DENSITY.
 - CONTRACTOR TO SUPPLY SHOP DRAWINGS OF RISER STRUCTURES PRIOR TO FABRICATION.
 - ALL RISERS SHALL BE PRECAST CONCRETE SOLID 6" WALL STRUCTURES.
 - 4.4 INCH LAYER OF AMENDED SOIL IS RECOMMENDED IN ANY AREA WHERE PLANTINGS ARE REQUIRED (SEE NCDNR BMP DESIGN MANUAL).

- DAM EMBANKMENT CONSTRUCTION NOTES:**
- 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.
 - 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.
 - 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.
 - 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.
 - SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
 - 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.
 - TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DRAINAGE 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.
 - 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.
 - 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.
 - COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
 - HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES (INCLUDING THE CRADLE) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
 - 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.
 - 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.

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.

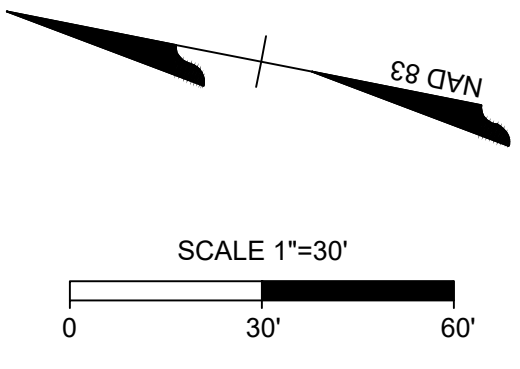
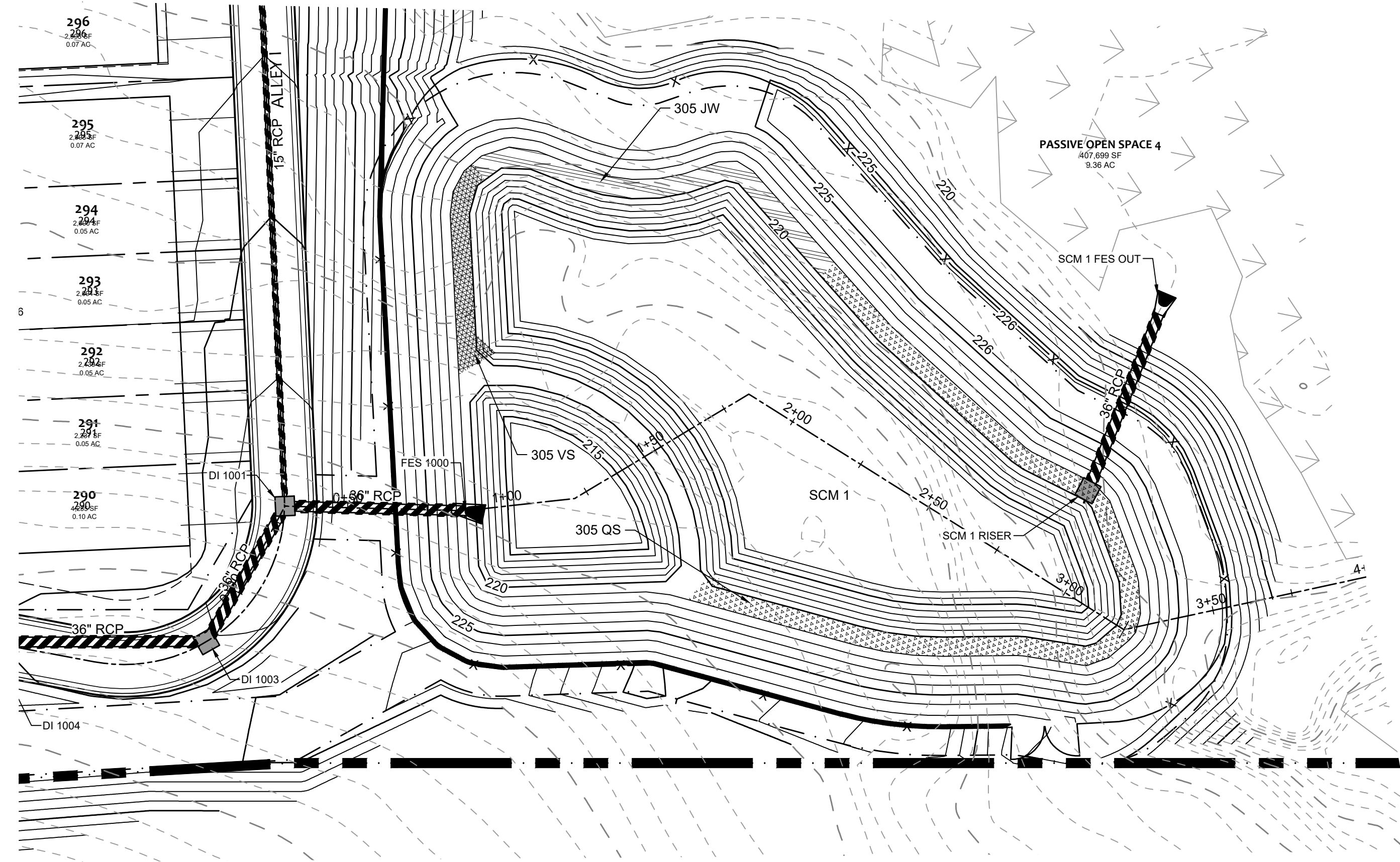
BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

S:\331\44529-NL-MAR-DWG Sheet\CD Phase I\44529-331-CX-X-POND-NDT.dwg | Plotted by Logan Criss

FOR REVIEW ONLY



PLANTING PLAN LEGEND

	QUAIL SEDGE (CEREZ TENERA)
	VIRGINIA SWEETSPIRE (ITEA VIRGINICA)
	JOE PYE WEED (EUPAT FISTULOSUS)

PLANTING NOTES:

1. THE DAM STRUCTURE, INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE VEGETATED WITH NON-CLUMPING TURF GRASS OR SOD. TREES AND WOODY SHRUBS SHALL NOT BE ALLOWED.
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OF THREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 50 PLANTS PER 200 SQUARE FEET OF SHELF AREA. 90% GERMINATION OF ALL VEGETATION WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT ESTABLISHMENT AND GROWTH OF THE WETLAND 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 AQUATIC VEGETATION SHOULD BE PLANTED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY.
4. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE WET POND SHALL BE SEEDED WITH A LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS AND WILDFLOWERS.
5. IF THE WETPOND 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 THE CONSTRUCTION.
6. 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 MUNICIPALITY.

INSTALLATION AND MAINTENANCE OF LANDSCAPING:

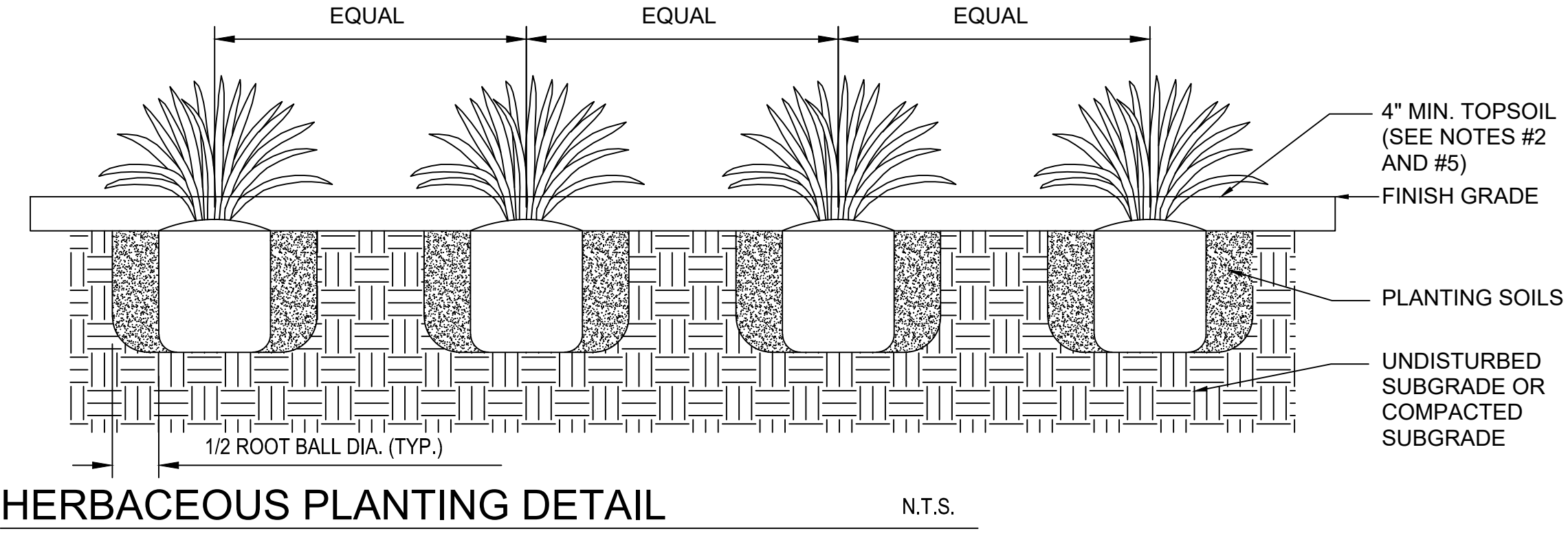
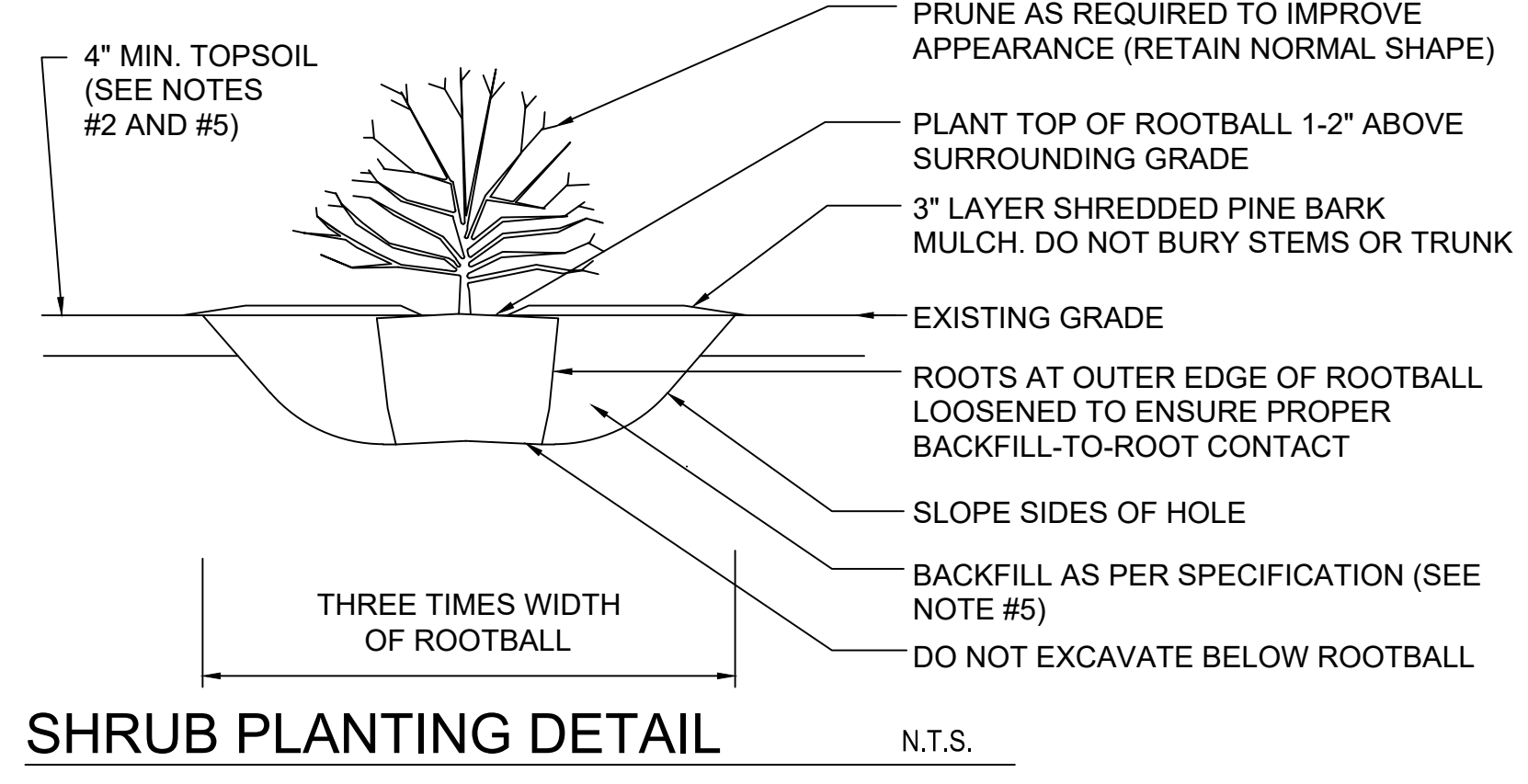
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6. REPLACEMENT OF REMOVED PLANT MATERIAL MUST TAKE PLACE WITHIN 90 DAYS OF REMOVAL OR NOTIFICATION BY THE CITY, WHICHEVER OCCURS FIRST.
7. ANY REPLACEMENT PLANT MATERIAL MUST MEET THE SIZE AND OTHER CHARACTERISTICS OF NEWLY PLANTED MATERIAL.
8. MAINTENANCE OF THE LANDSCAPING IS THE RESPONSIBILITY OF THE OWNER.

Planting Summary Requirements						
Dam / Berm		Area of Shelf = 3657 SF		Non-Clumping Turf Grass		
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
305	Herbaceous	Container	Quail Sedge	Cerez Tenera	4" Pot	24"-36" OC
305	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
305	Herbaceous	Container	Joe Pye Weed	Eupat Fistulosus	4" Pot	24"-36" OC

SEEDING SCHEDULE

FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1):		
DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS***	125 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30 LBS/ACRE (SORGHUM-SUDAN HYBRIDS)

FOR SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1):		
DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	SERICALES LESPEDEZA (SCARIFIED) AND USE THE FOLLOWING COMBINATIONS:	50 LBS/ACRE (SERICEA LESPEDEZA)
MAR 1 - APR 15	ADD TALL FESCUE	120 LBS/ACRE
MAR 1 - JUN 30	OR ADD WEeping LOVE GRASS	10 LBS/ACRE
MAR 1 - JUN 30	OR ADD HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUN 1 - SEP 1	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS***	120 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30 LBS/ACRE (SORGHUM-SUDAN HYBRIDS)
SEP 1 - MAR 1	SERICALES LESPEDEZA (UNHULLED - UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE (SERICEA LESPEDEZA); 120 LBS/ACRE (TALL FESCUE)
NOV 1 - MAR 1	AND ABRUZZI RYE	25 LBS/ACRE



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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR

AS-BUILT SURVEY REQUIREMENTS

NOTE: CONTRACTOR SHALL PROVIDE AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY A PROFESSIONAL LAND SURVEYOR CERTIFYING STORMWATER POND AREA DIMENSIONS, ELEVATIONS, OUTLET STRUCTURE INVERTS, ORIFICE DIAMETER, PIPE SIZES AND CLEANOUT LOCATIONS. TOPOGRAPHY SHALL EXTEND 20 FEET OUTSIDE LIMITS OF POND.



TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SCM1 PLANTING PLAN

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
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
1" = 30'

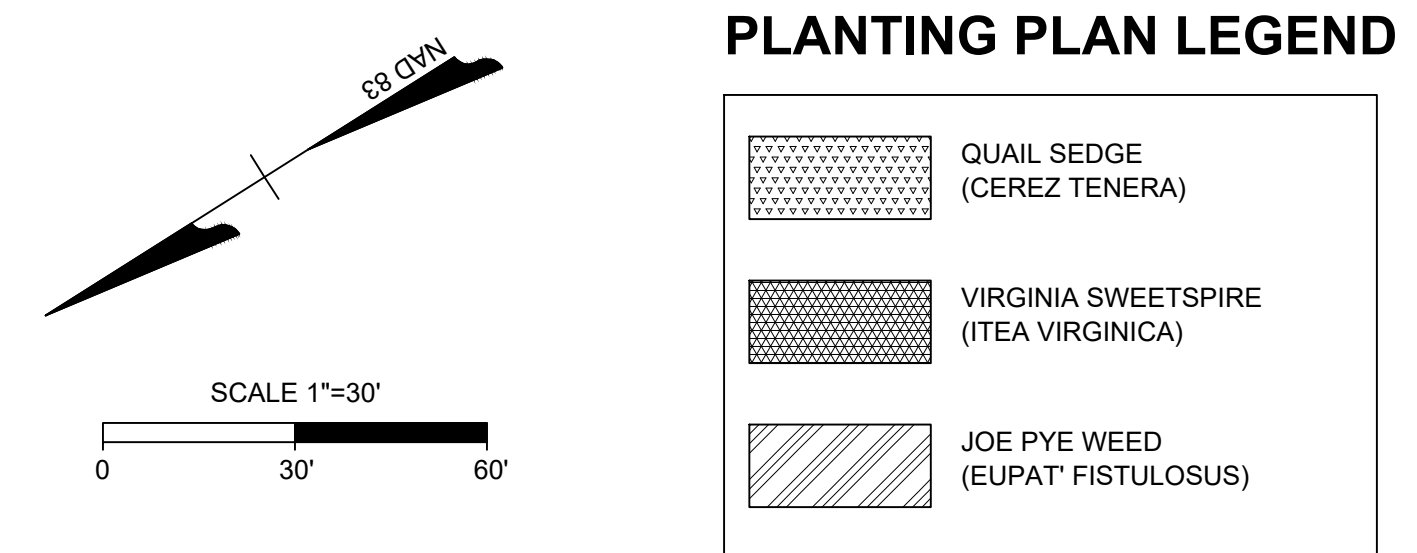
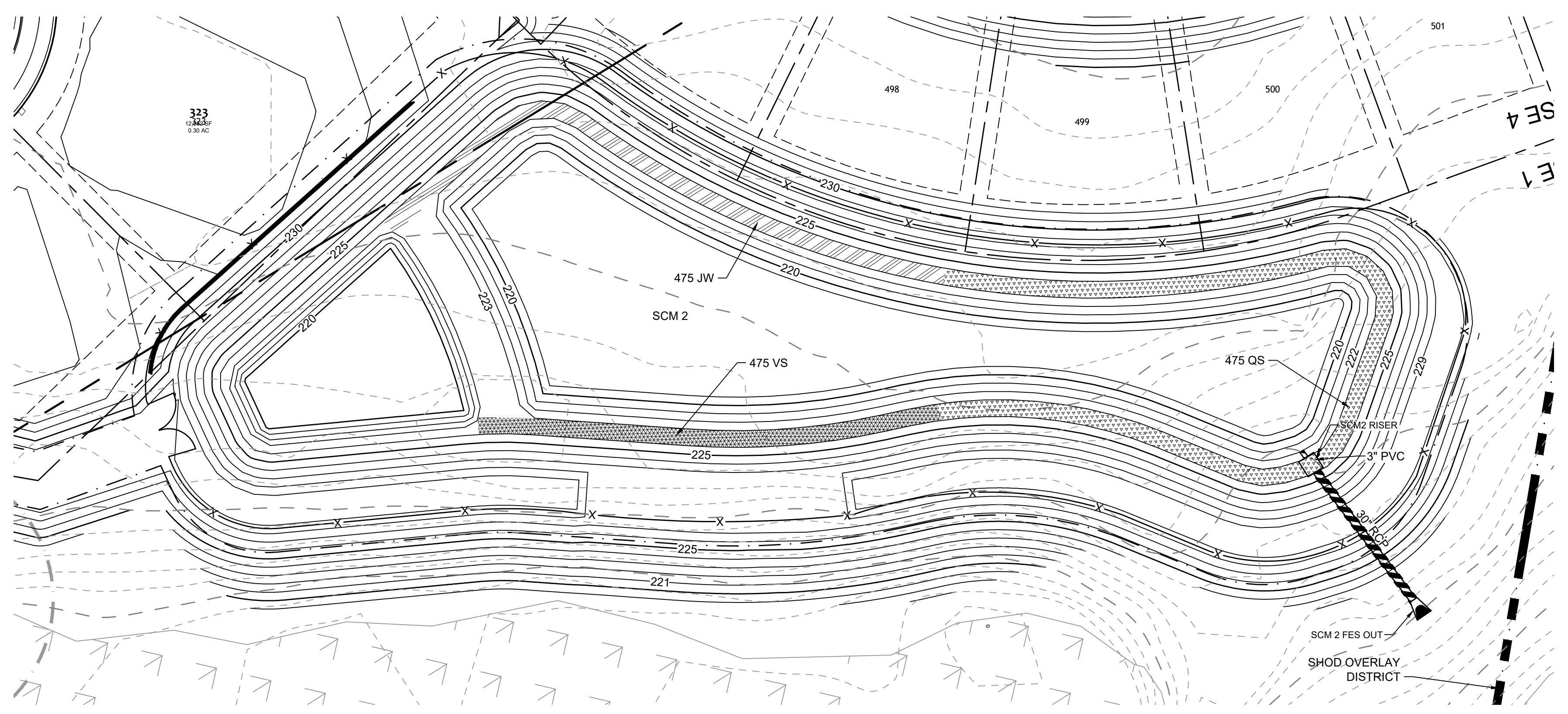
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44529

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FOR REVIEW ONLY



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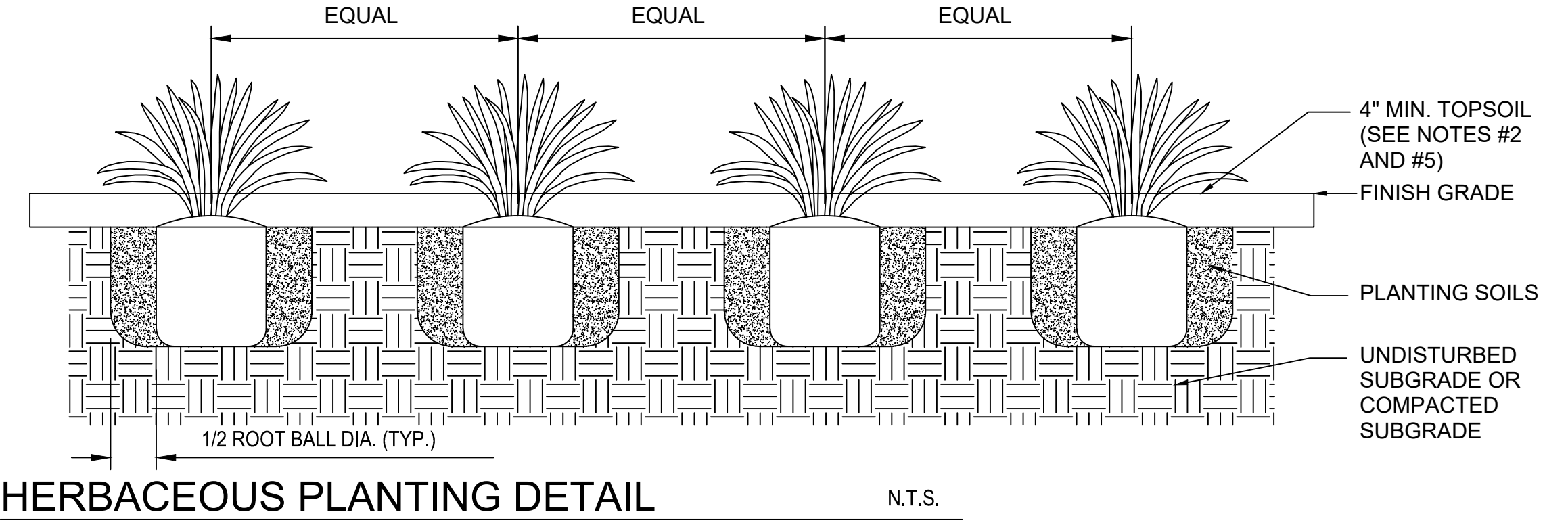
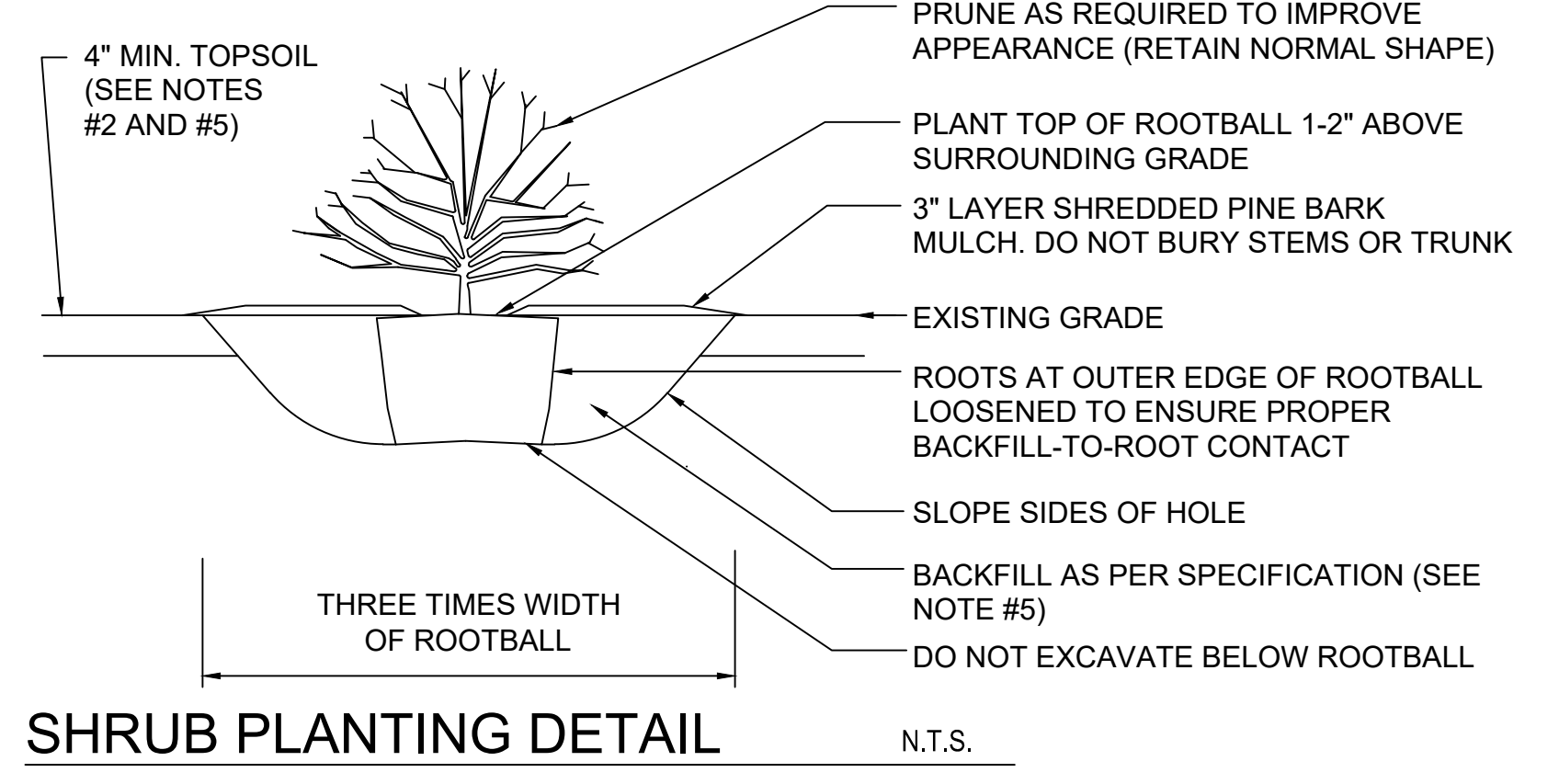
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8. MAINTENANCE OF THE LANDSCAPING IS THE RESPONSIBILITY OF THE OWNER.

Planting Summary Requirements						
Dam / Berm		Non-Clumping Turf Grass				
6' Shelf Length	969	Area of Shelf = 5705 SF				
Quantity	Type	Root	Common Name	Scientific Name	Planting Size	Notes
475	Herbaceous	Container	Quail Sedge	Cerez Tenera	4" Pot	24"-36" OC
475	Herbaceous	Container	Virginia Sweetspire	Itea Virginica	4" Pot	24"-36" OC
475	Herbaceous	Container	Joe Pye Weed	Eupat fistulosus	4" Pot	24"-36" OC

SEEDING SCHEDULE

FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1):		
DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
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FOR SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1):		
DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	SERICA LESPEDeza (SCARIFIED) AND USE THE FOLLOWING COMBINATIONS:	50 LBS/ACRE (SERICA LESPEDeza)
MAR 1 - APR 15	ADD TALL FESCUE	120 LBS/ACRE
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NOV 1 - MAR 1	AND ABRUZZI RYE	25 LBS/ACRE



TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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ADMINISTRATOR

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TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SCM2 PLANTING PLAN

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
KNIGHTDALE SUBMITTAL # 5

DATE
09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

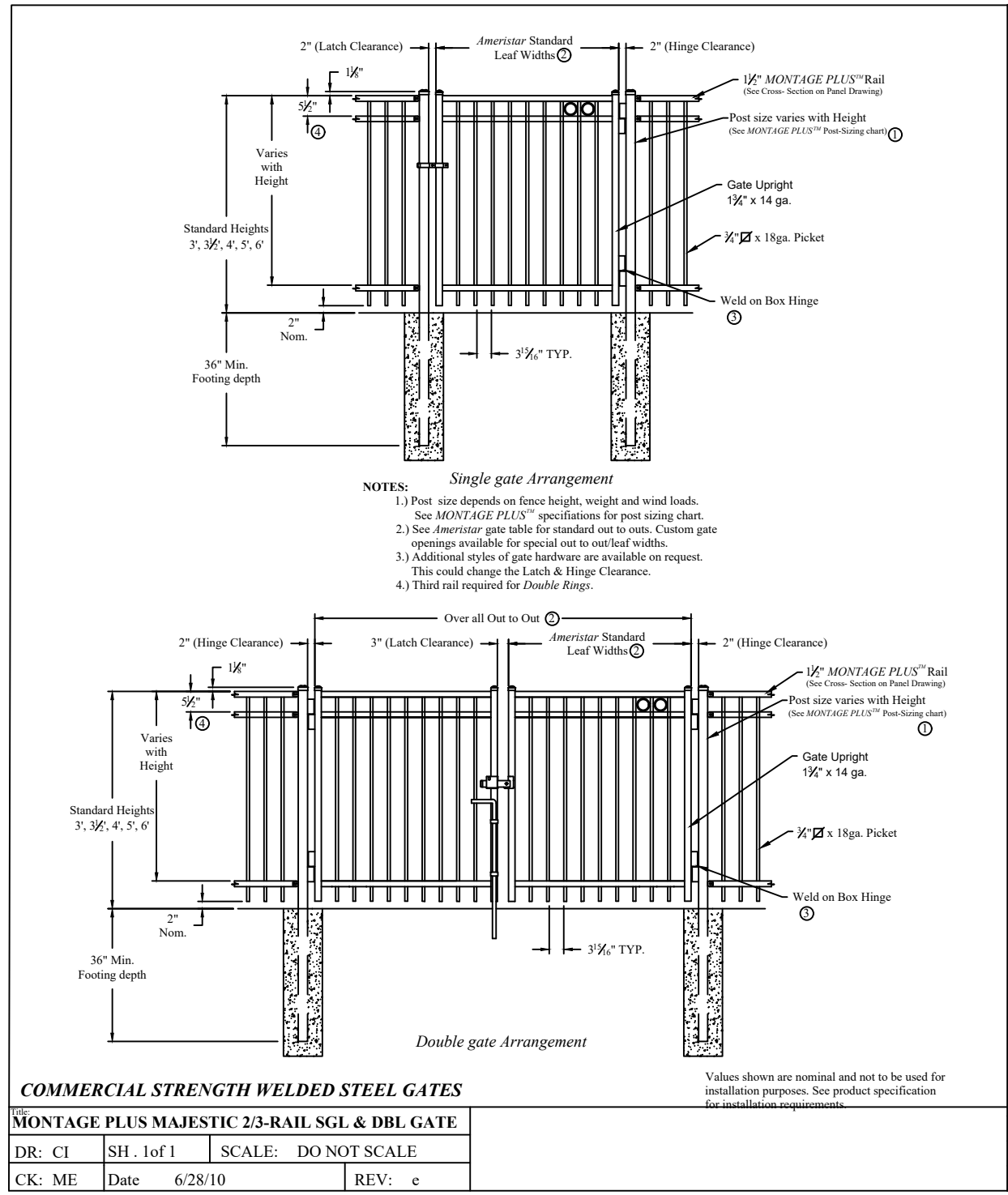
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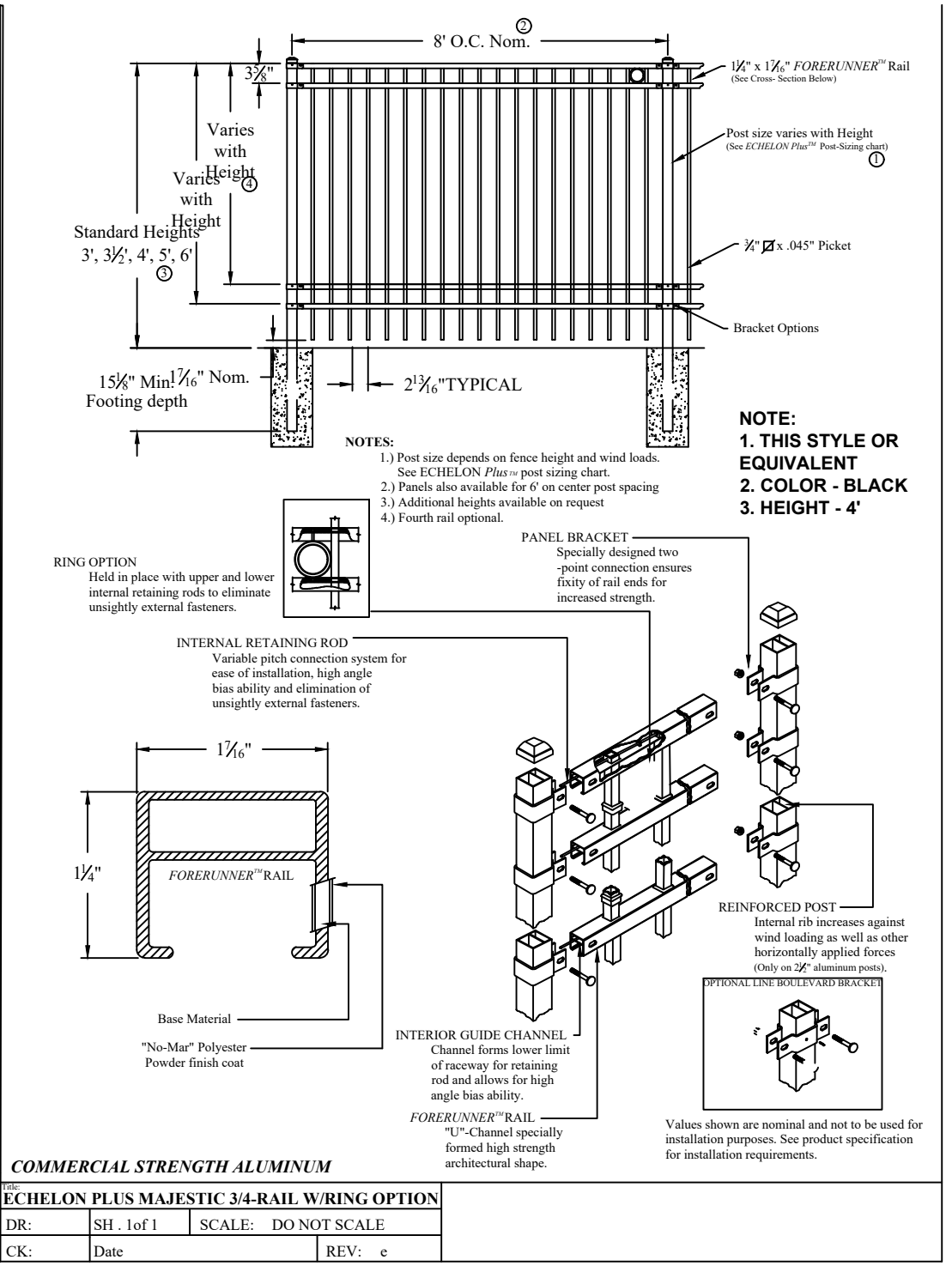
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C6.5

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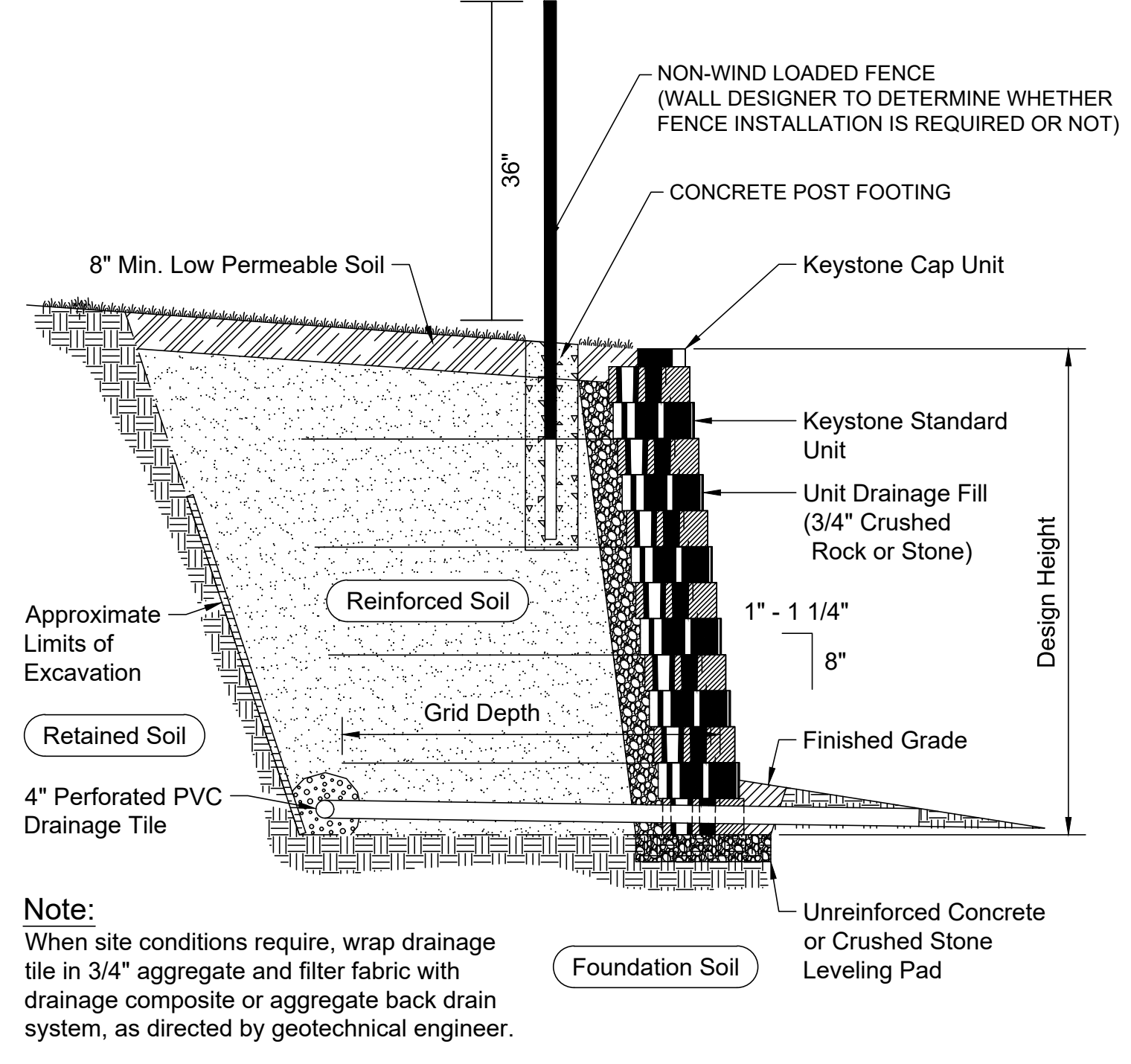
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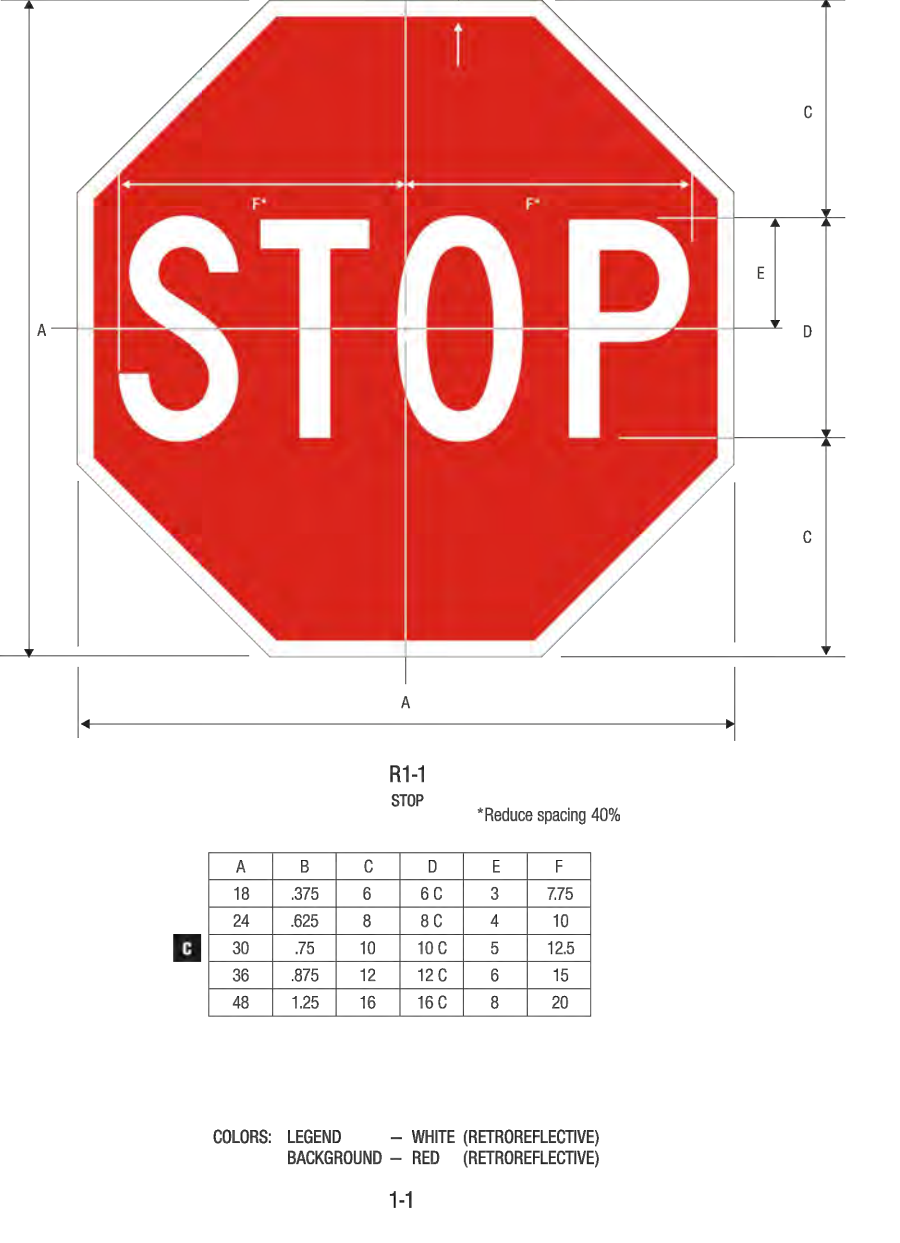
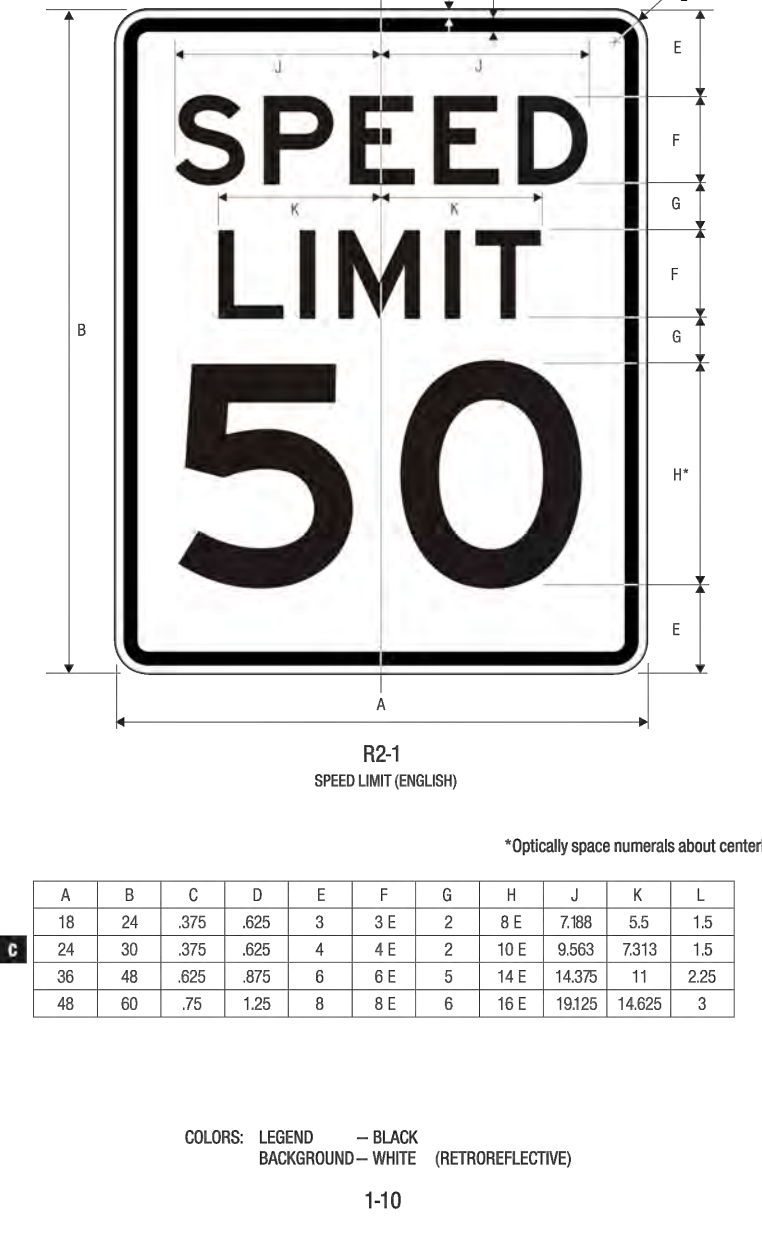
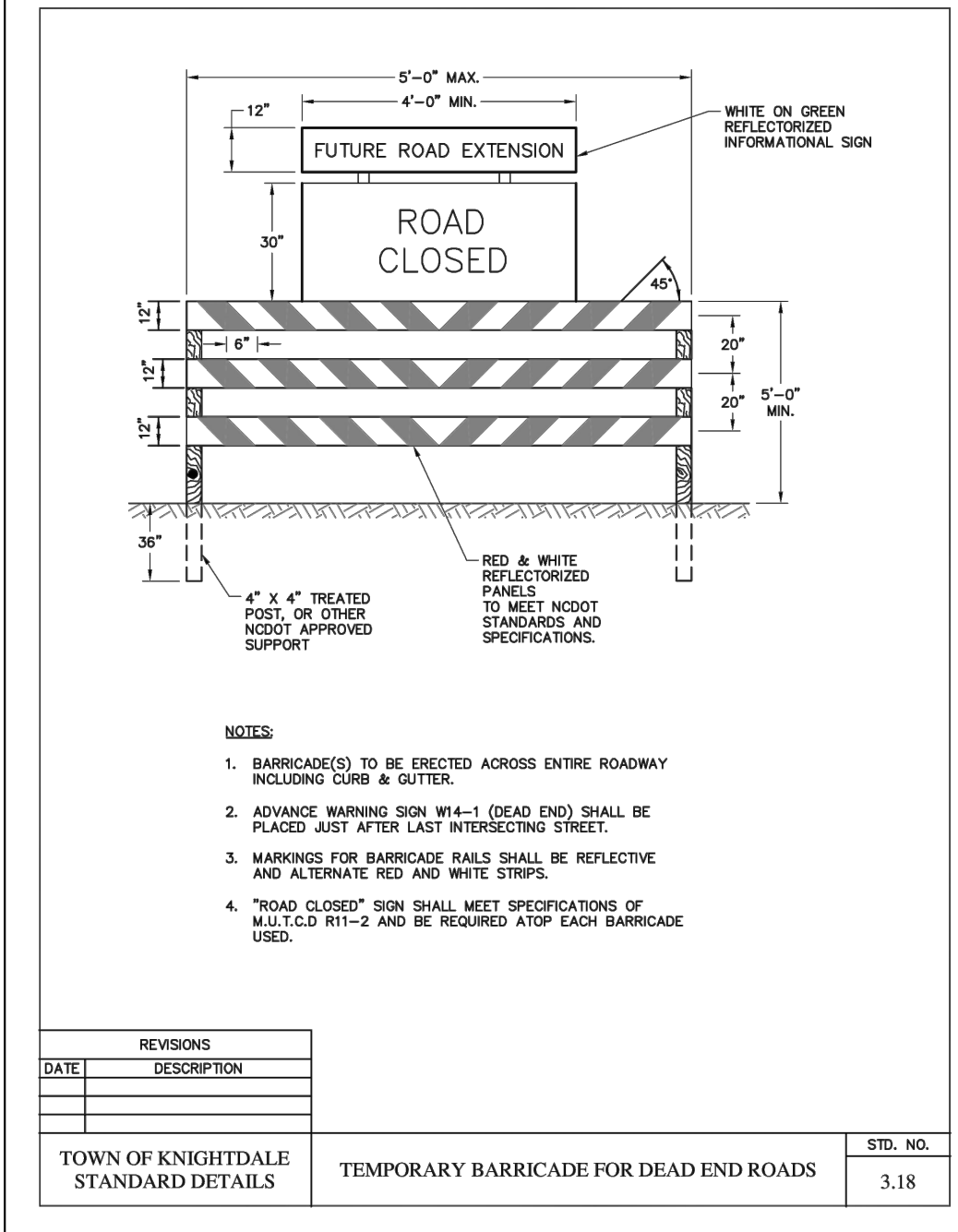
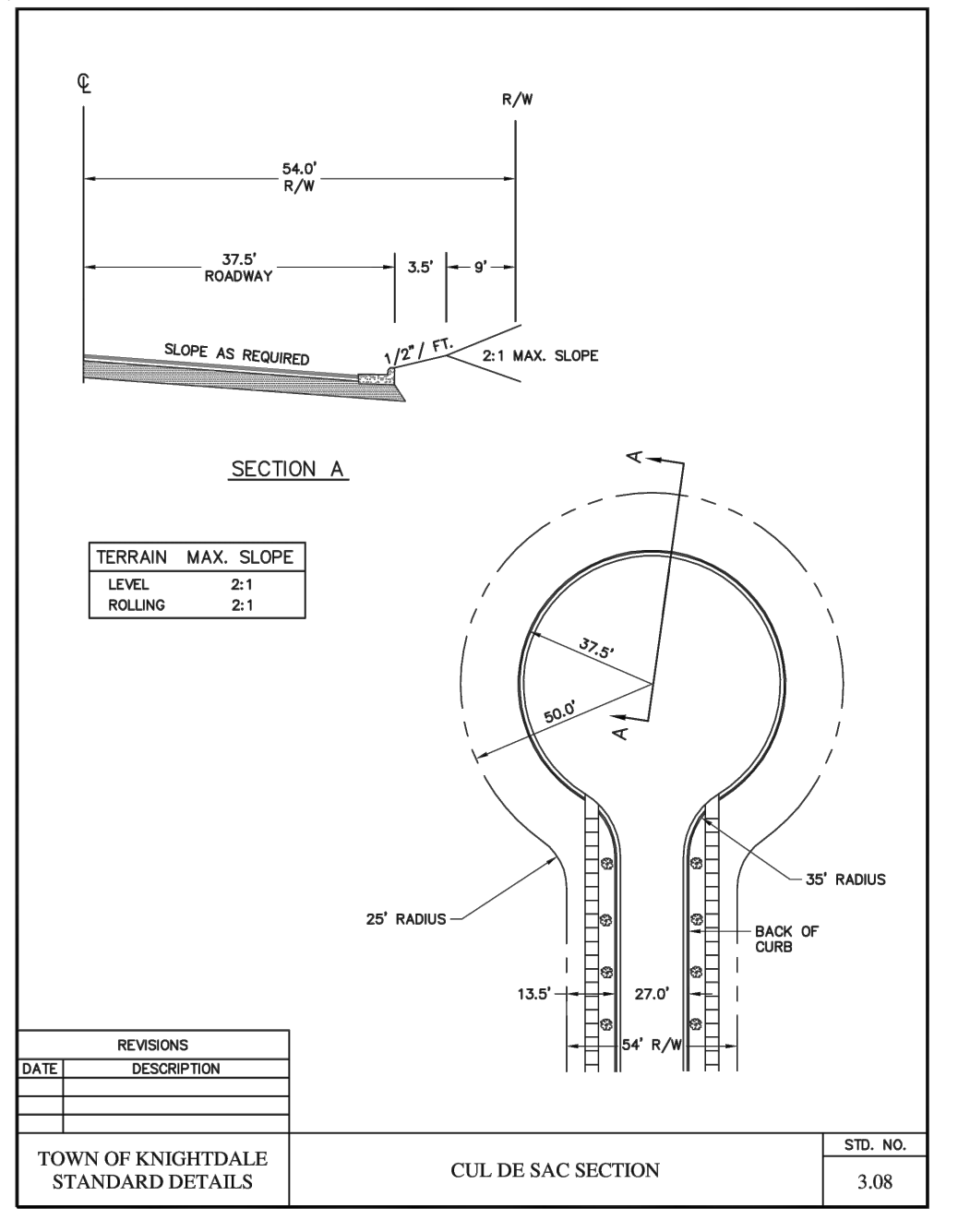
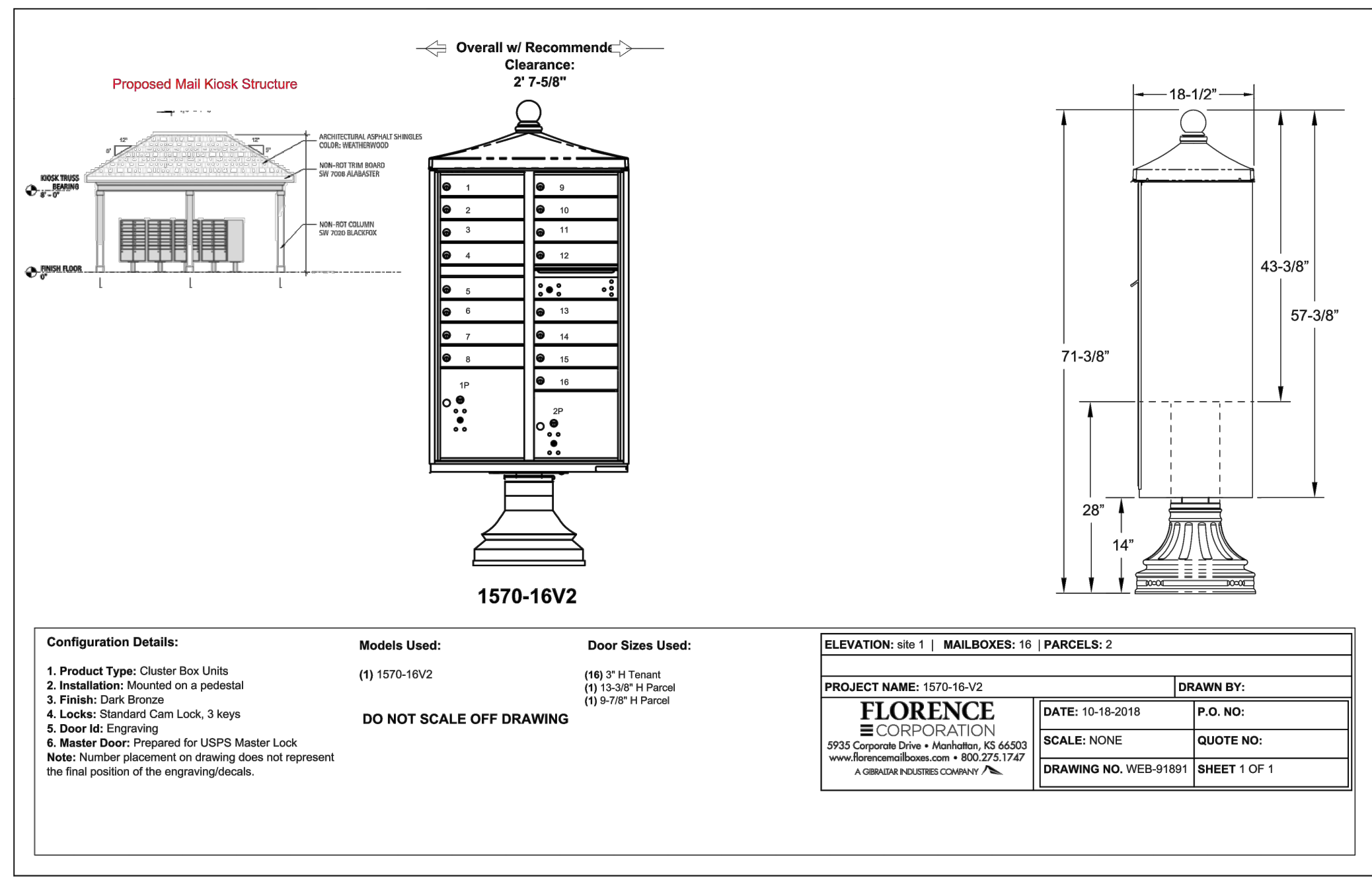
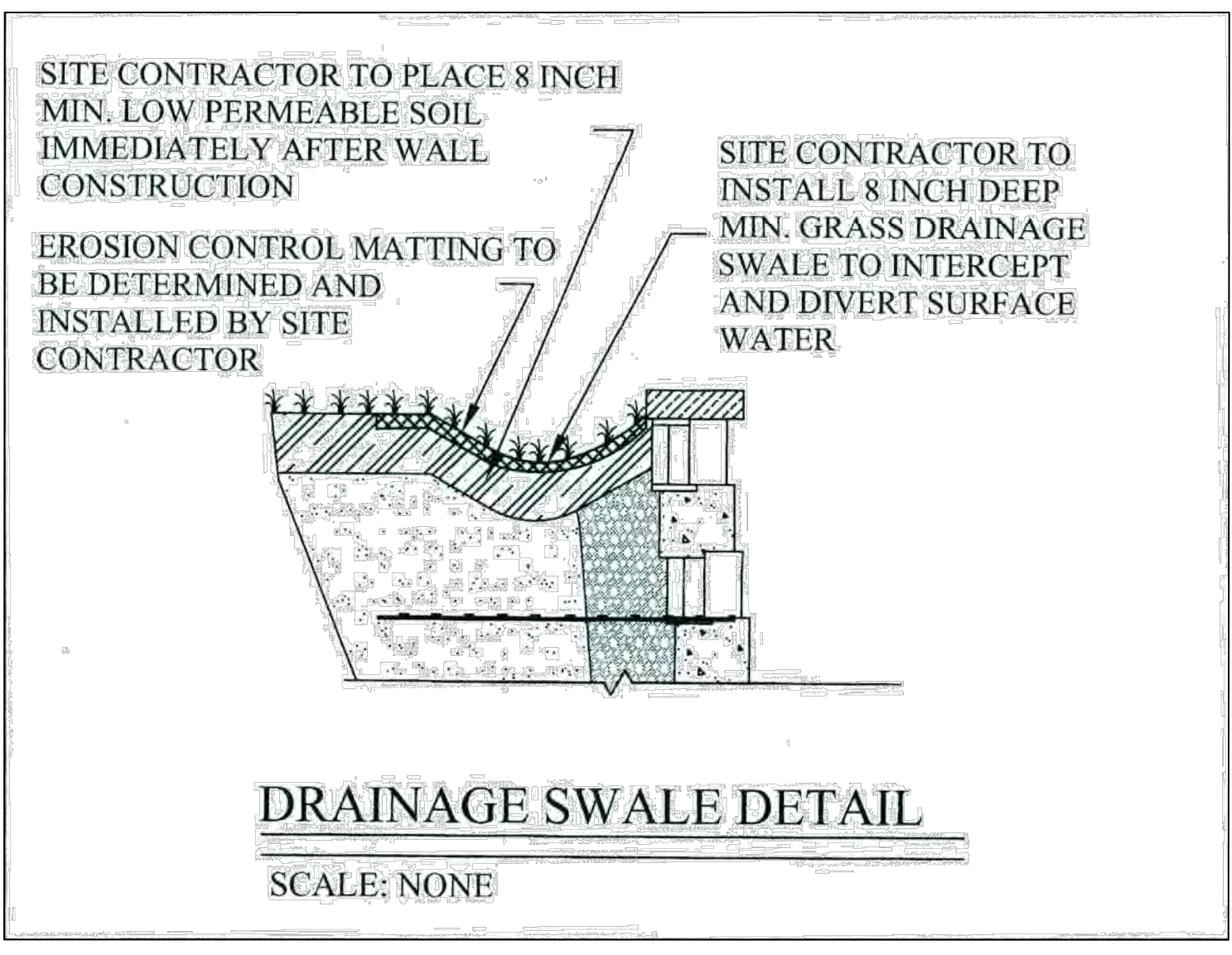
COMMERCIAL STRENGTH WELDED STEEL GATES			
MONTAGE PLUS MAJESTIC 23-RAIL SGL & DBL GATE			
DR. CI	SH. 1st 1	SCALE: DO NOT SCALE	
CK. ME	Date: 6/28/10	REV: c	



COMMERCIAL STRENGTH ALUMINUM			
ECHOLON PLUS MAJESTIC 34-RAIL WRING OPTION			
DR. CI	SH. 1st 1	SCALE: DO NOT SCALE	
CK. ME	Date:	REV: c	



Note: When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.



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ADMINISTRATOR

FOR REVIEW ONLY

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YOUR VISION ACHIEVED THROUGH OURS.	REVISION DESCRIPTION
DATE: 09/30/2022	KNIGHTDALE SUBMITTAL # 5
DATE: 11/21/2022	
DRAWN BY: 331	
DESIGNED BY: 331	
CHECKED BY: ---	
SCALE: N/A	

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

SITE DETAILS - SHEET 2 OF 2

JOB NO. 44529

SHEET NO. C7.2

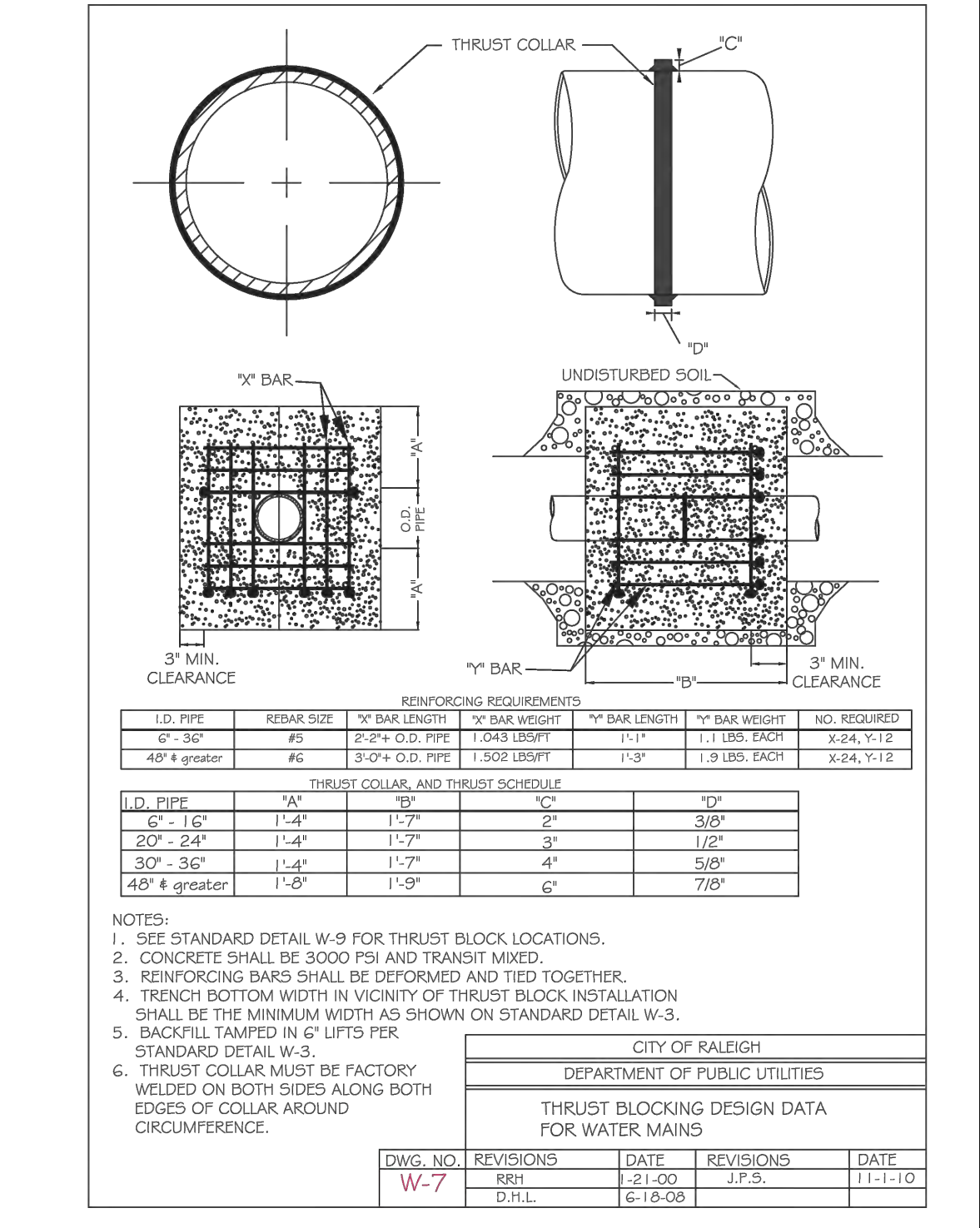
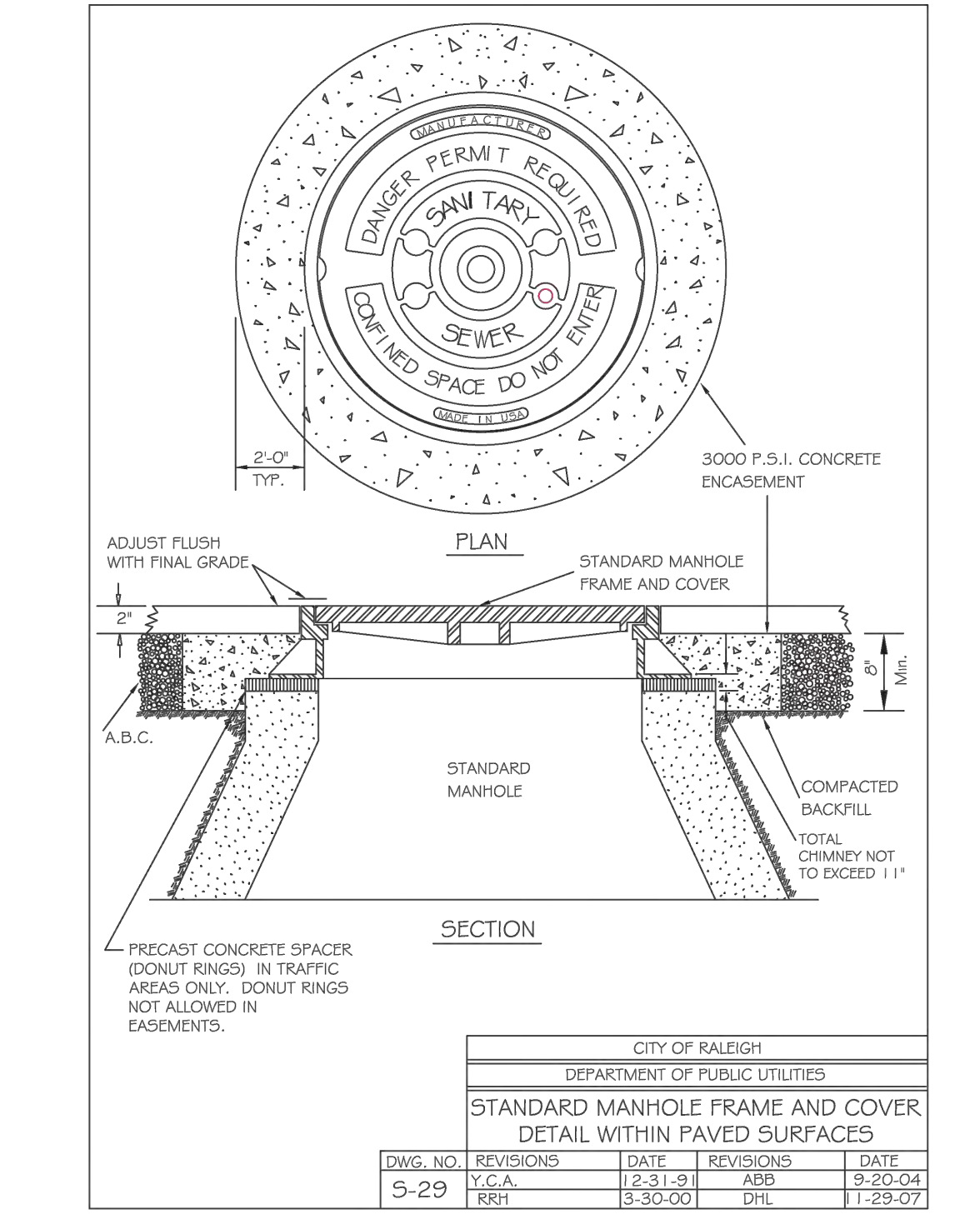
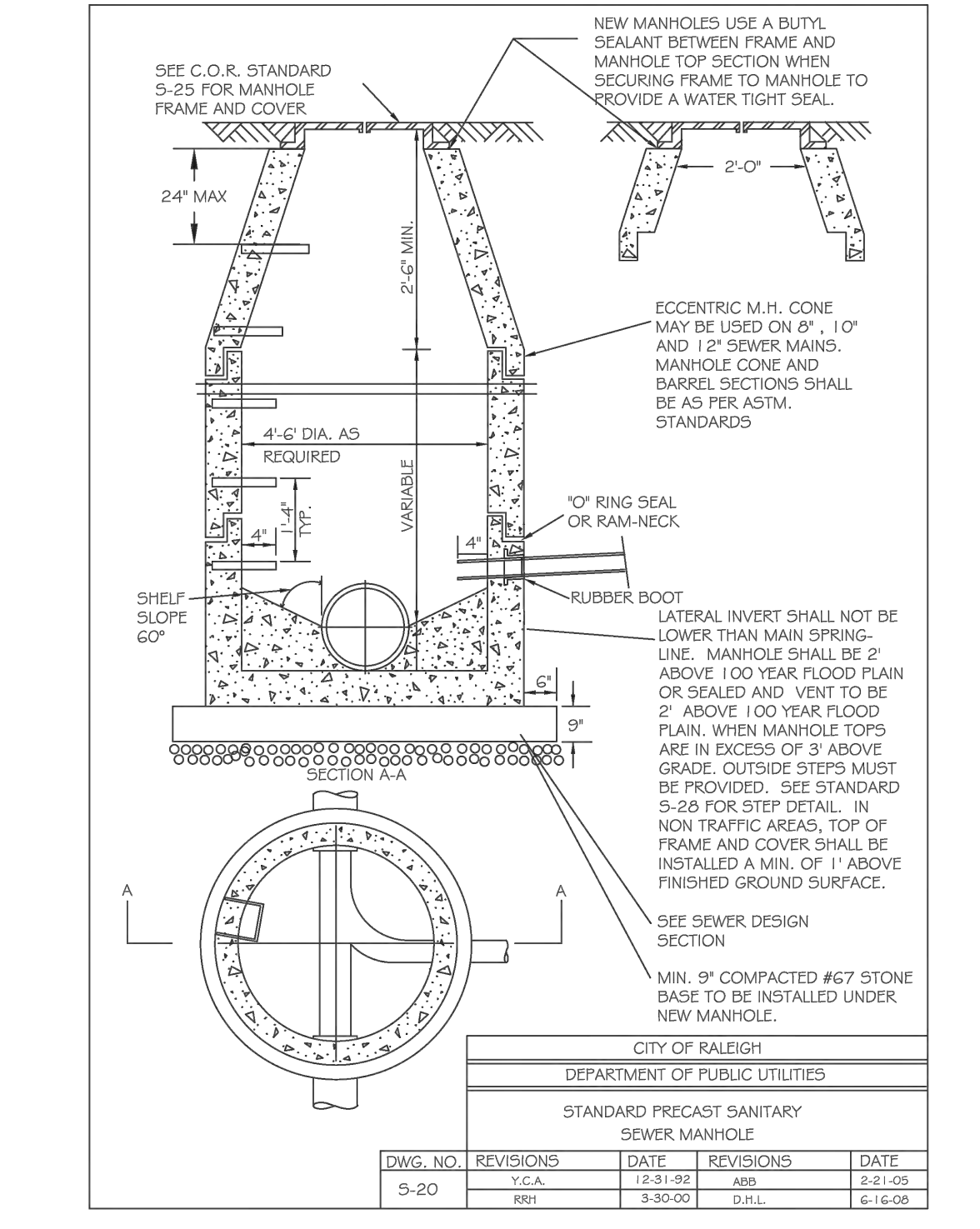
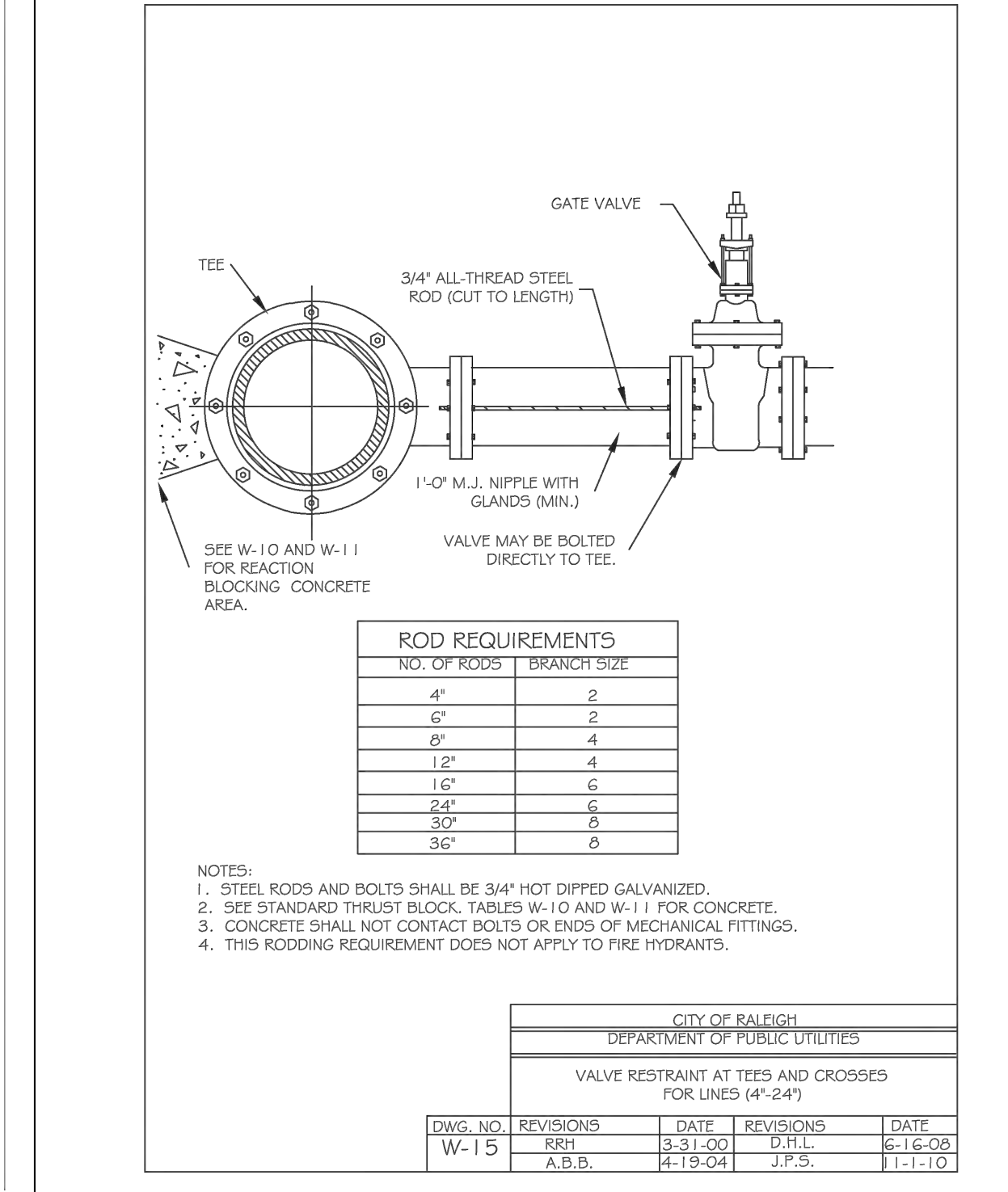
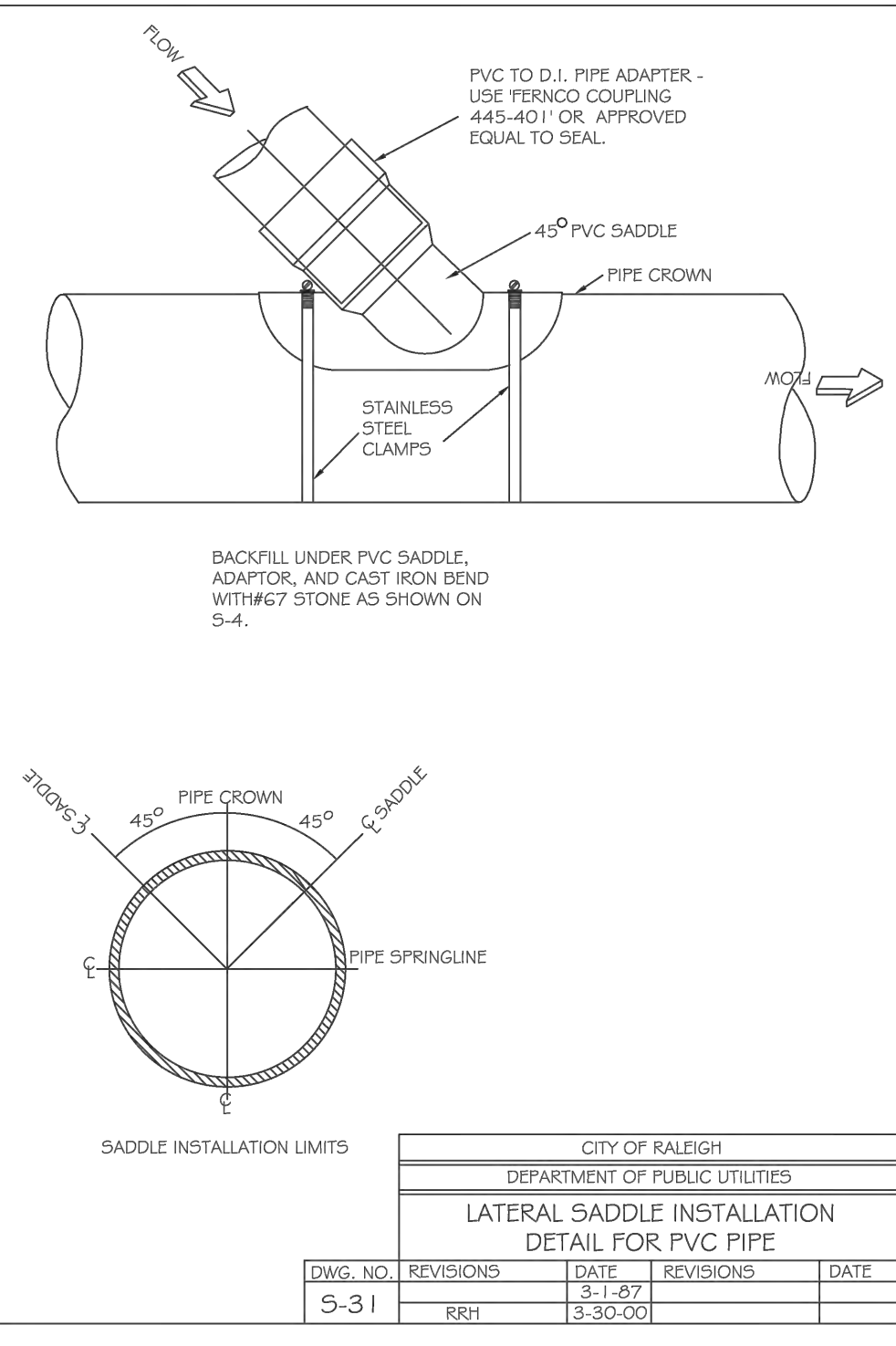
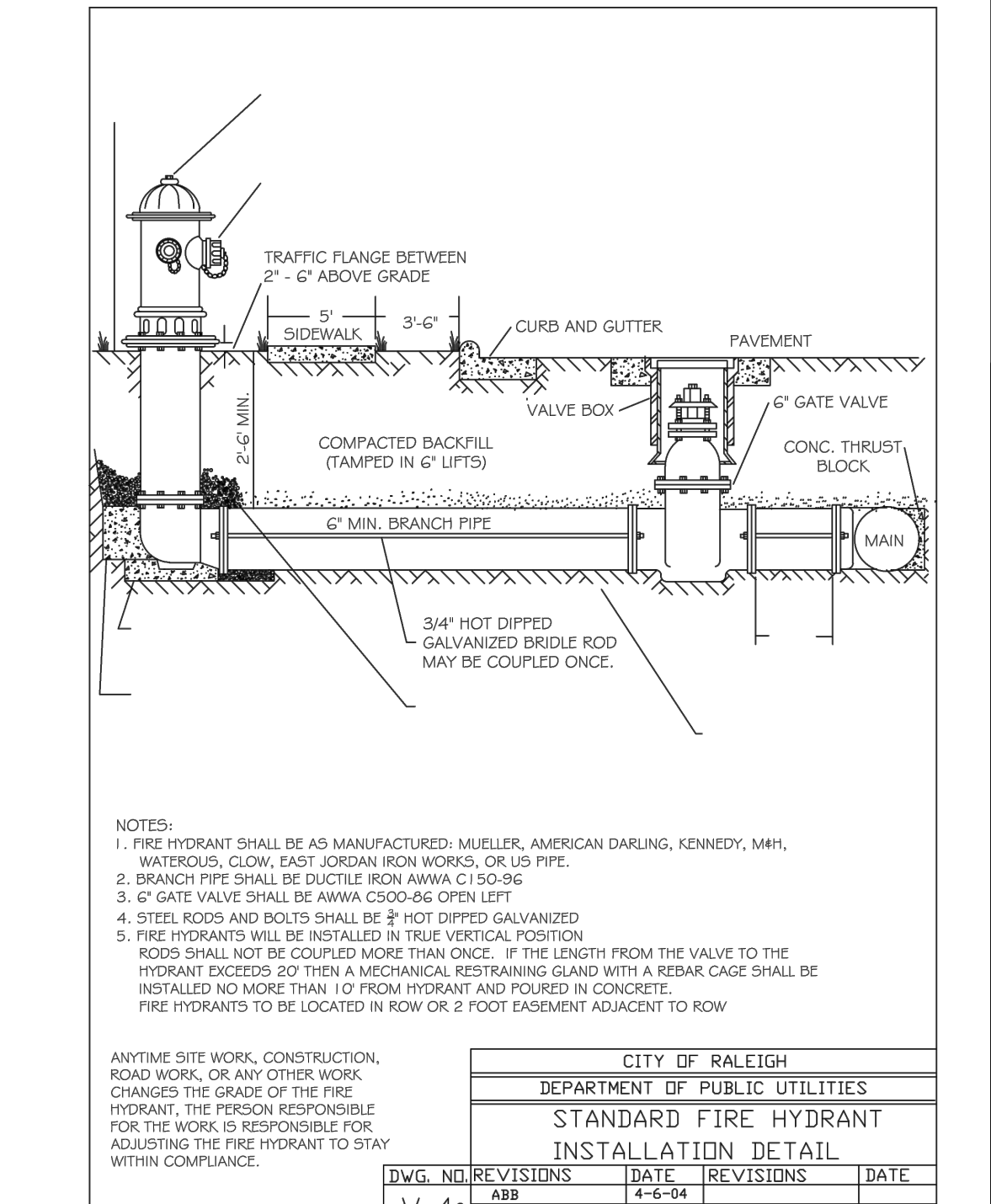
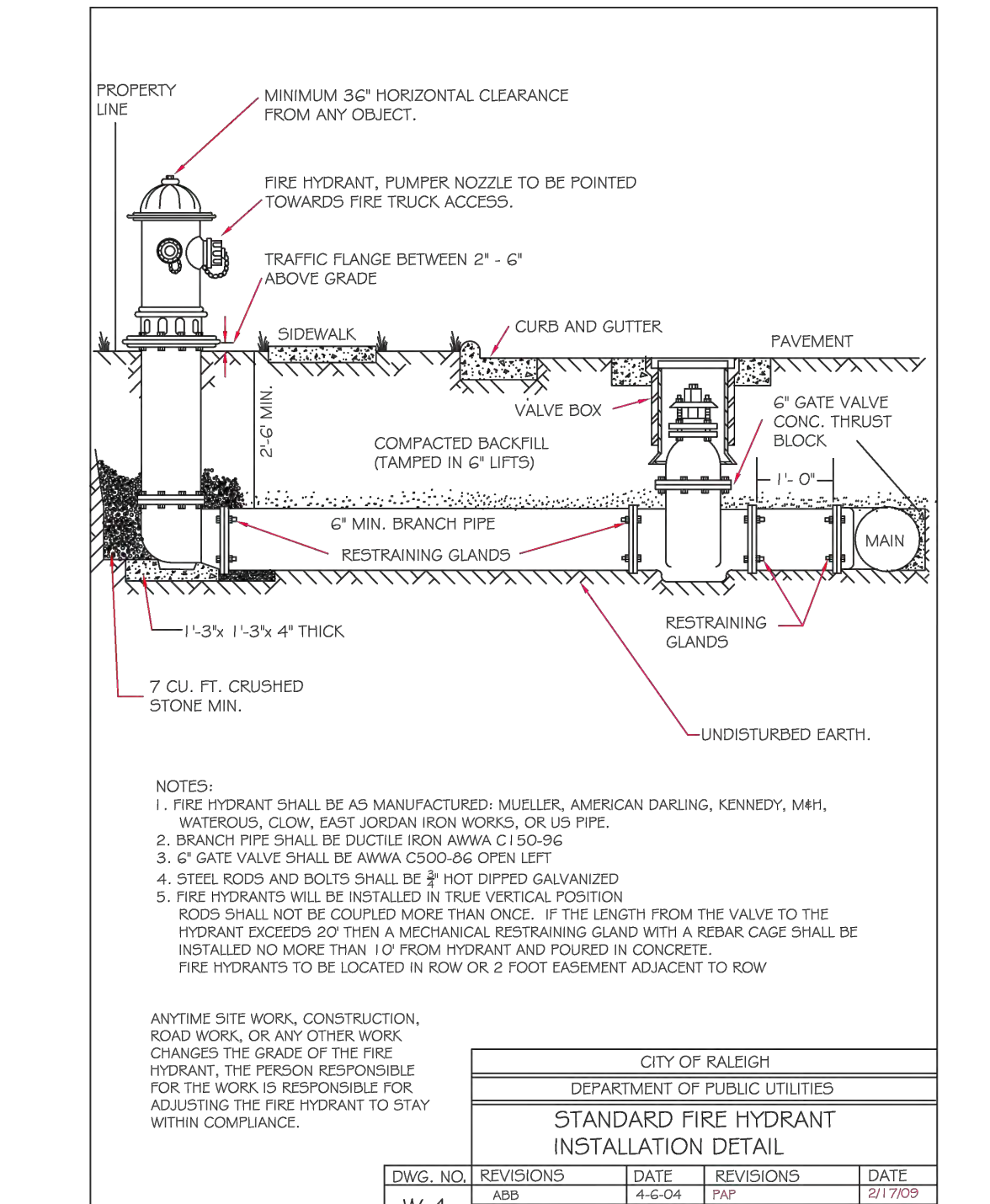
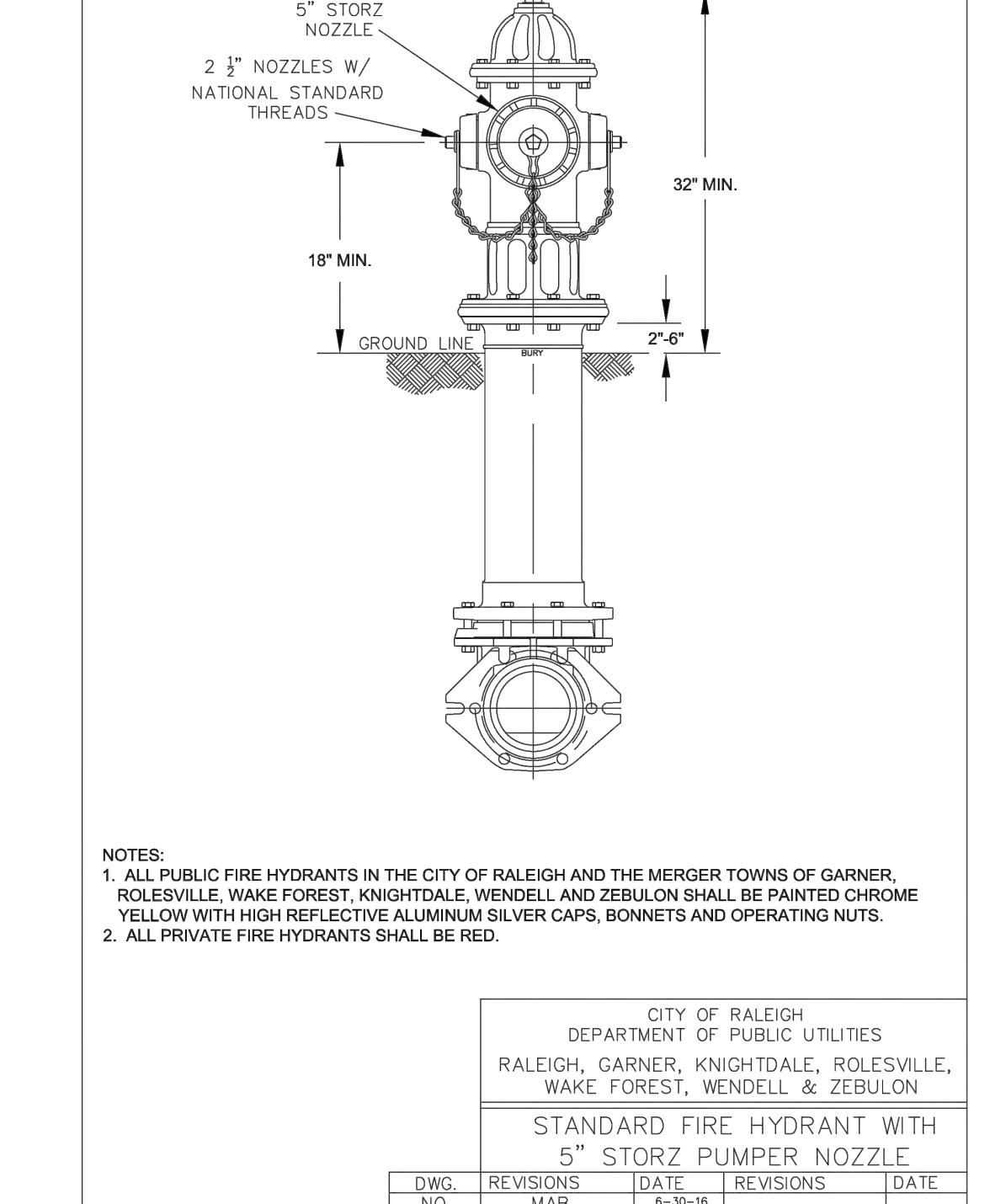
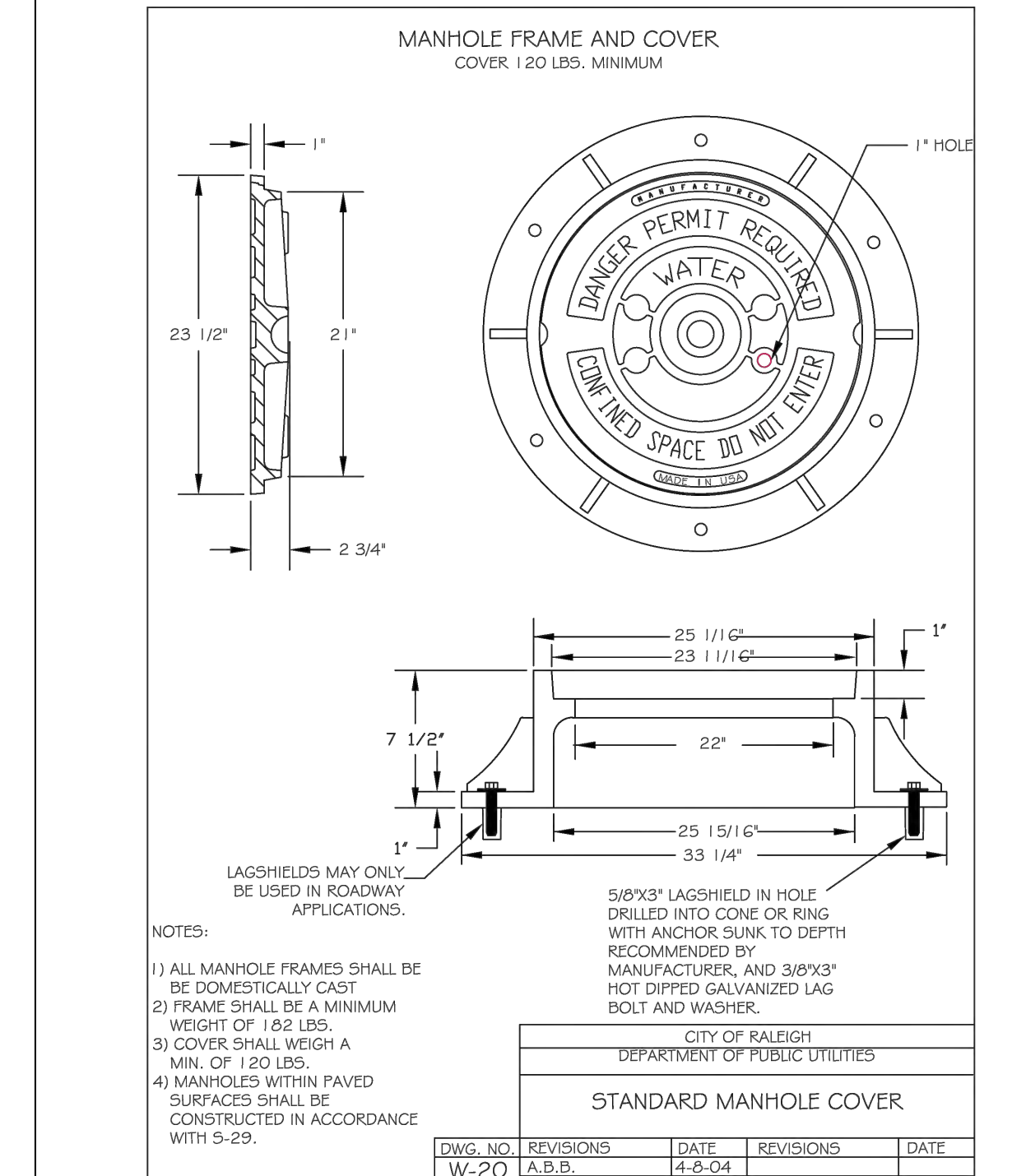
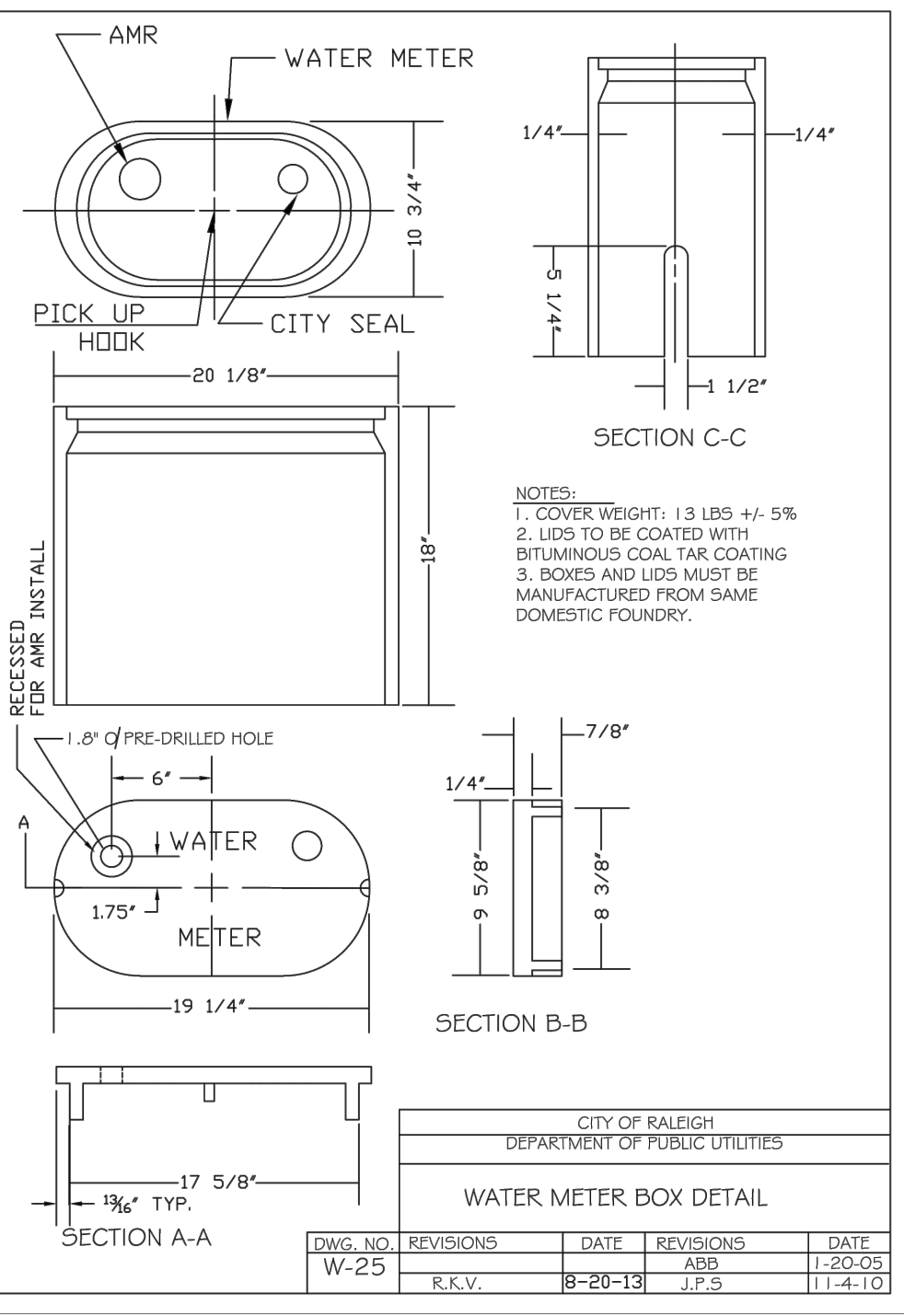
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STANDARD UTILITY NOTES (AS APPLICABLE):

- 1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER 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
c) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
d) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
e) 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
CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT

- 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
4. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
7. INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
8. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
9. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
10. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
11. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
12. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT TIM BEASLEY AT (919) 996-2334 OR TIMOTHY.BEASLEY@RALEIGHNC.GOV FOR MORE INFORMATION
13. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION



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Table with columns: DATE, DRAWN BY, DESIGNED BY, CHECKED BY, SCALE. Values include 09/30/2022, 11/21/2022, 331, N/A.

Table with columns: DATE, DRAWN BY, DESIGNED BY, CHECKED BY, SCALE. Values include 11/21/2022, 331, 331, N/A.

TIMMONS GROUP logo and project information: ALLEN PARK SUBDIVISION - PHASE I, NORTH CAROLINA LICENSE NO. C-1652, WATER & SEWER DETAILS - SHEET 1 OF 2.

Table with columns: JOB NO., SHEET NO. Values include 44529, C7.3.

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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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

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-4990

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-3827

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

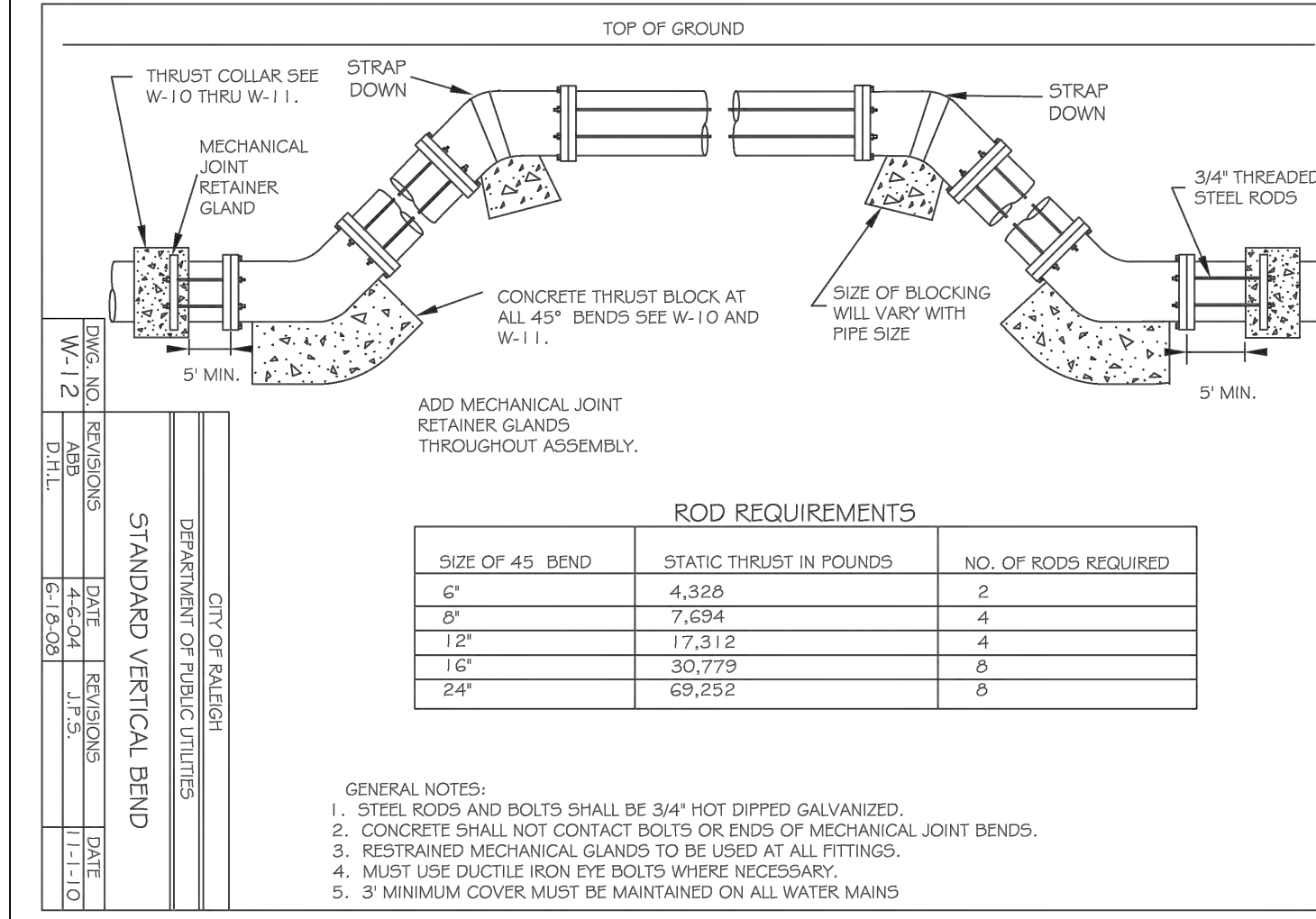
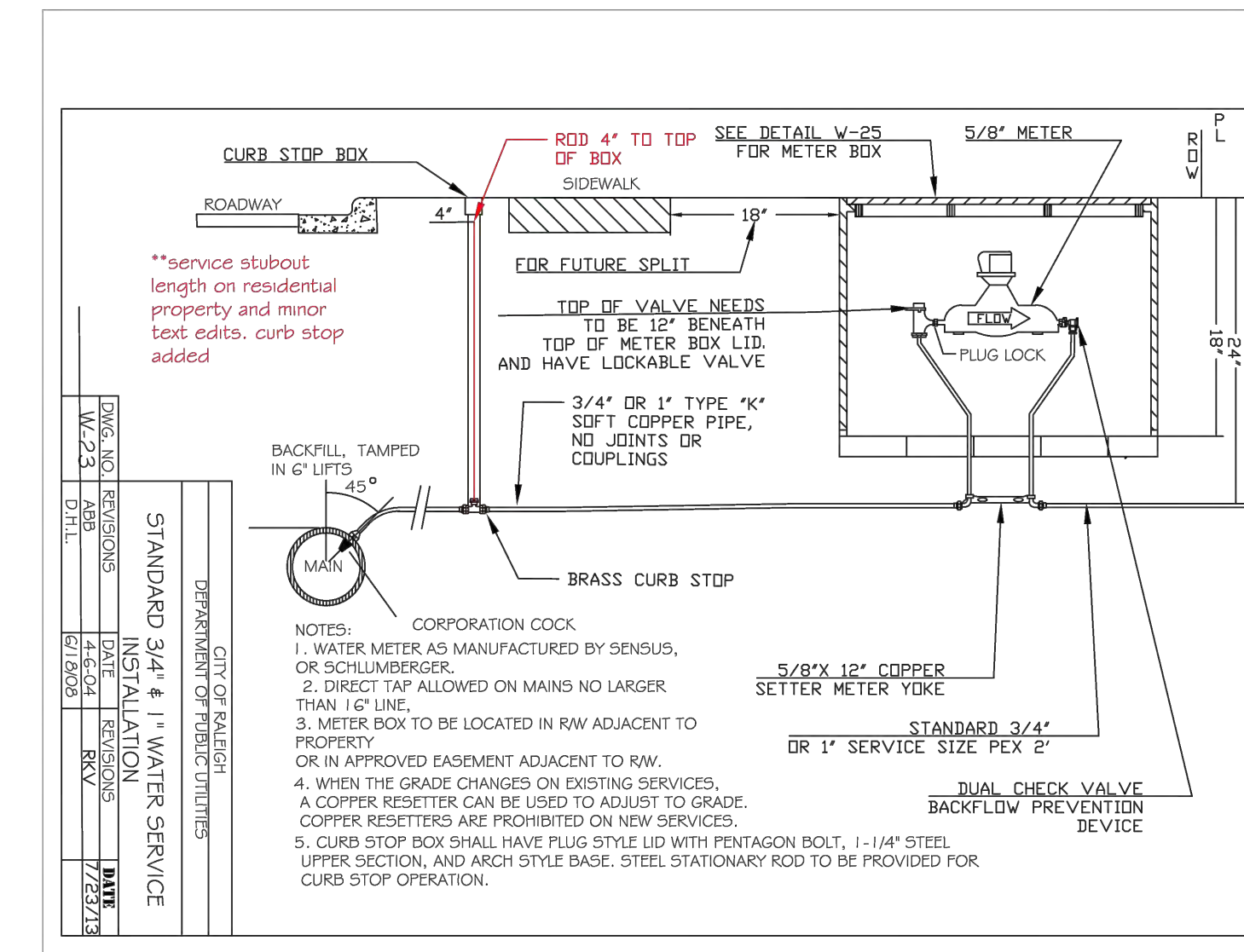
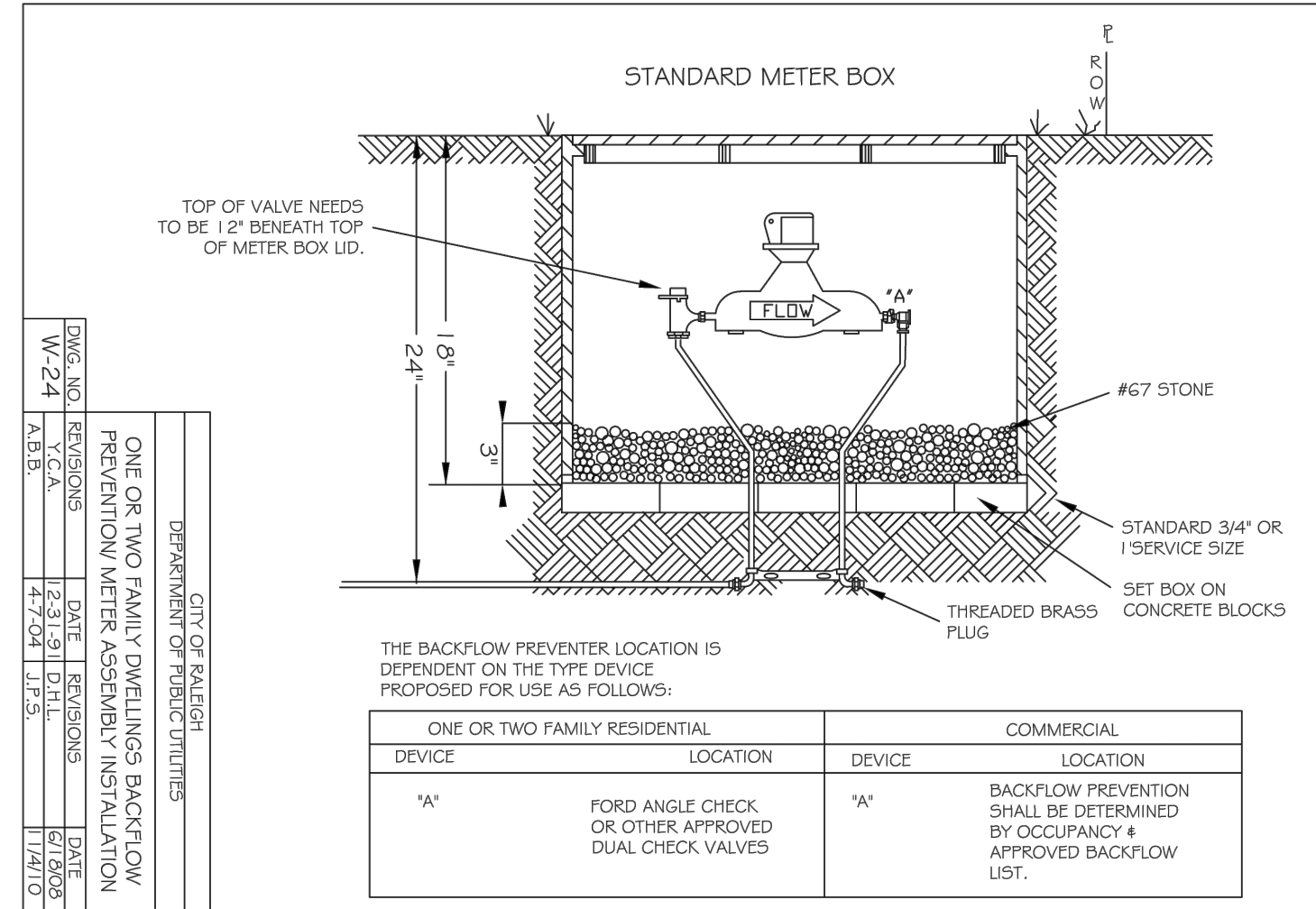
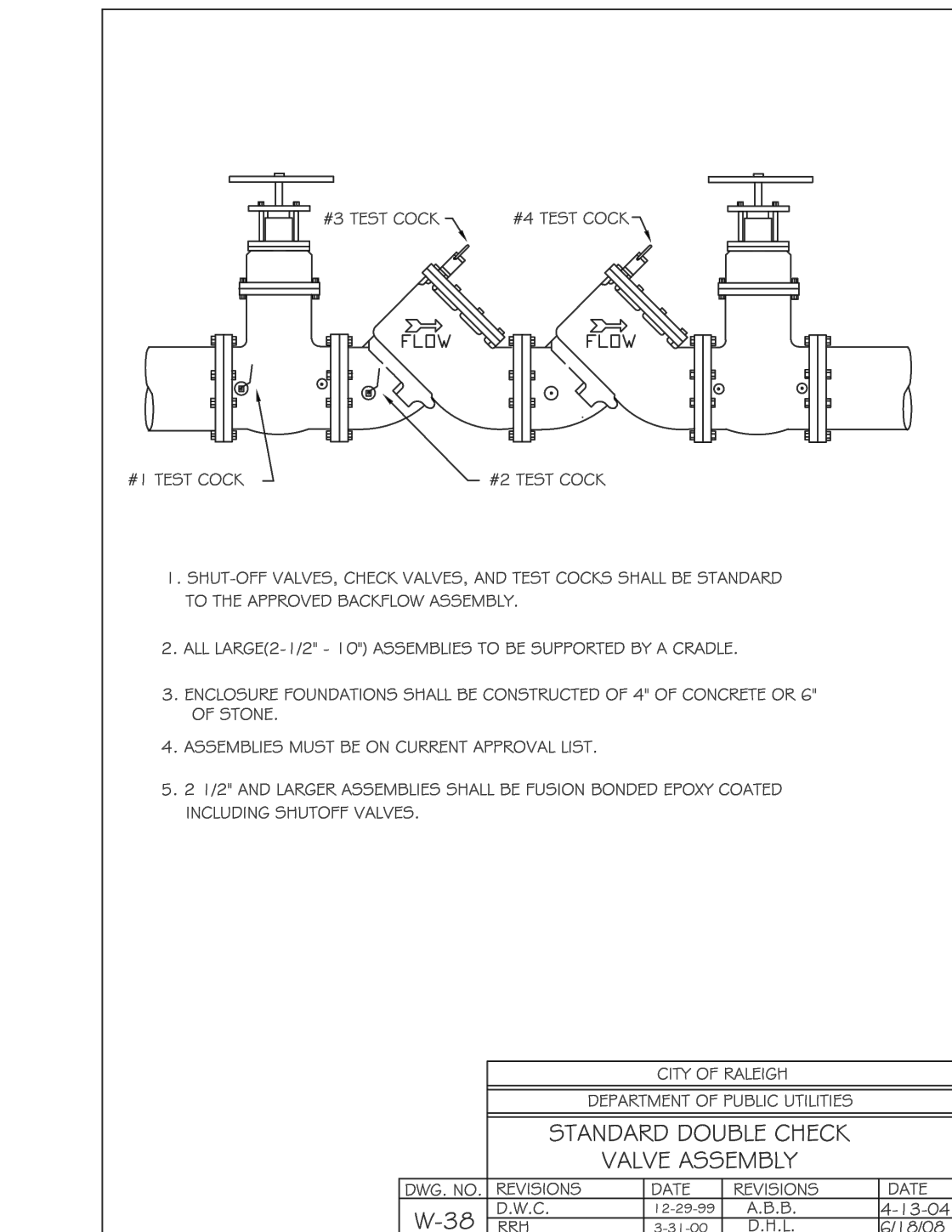
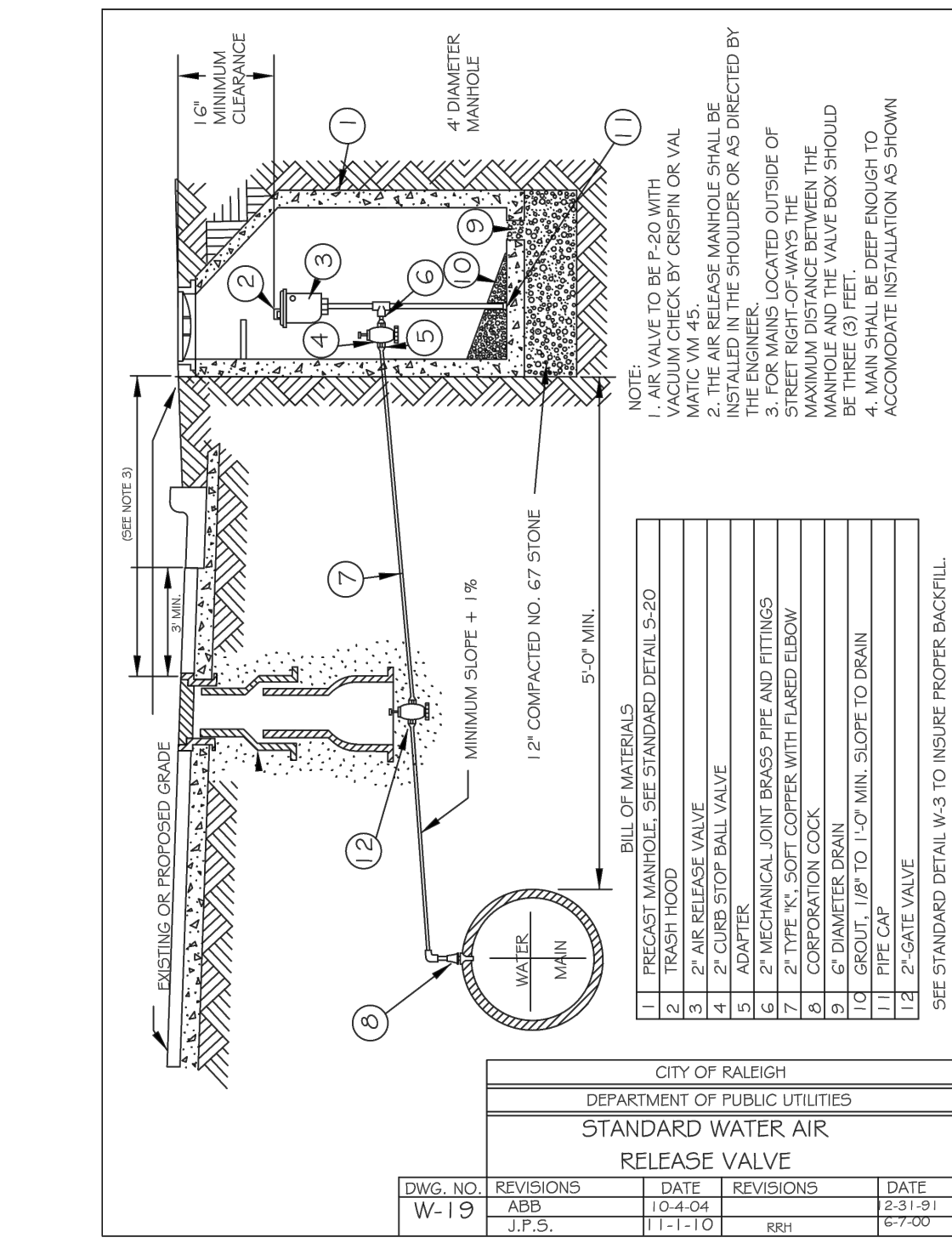
City of Raleigh Public Utilities Department Permit # _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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

City of Raleigh Development Approval

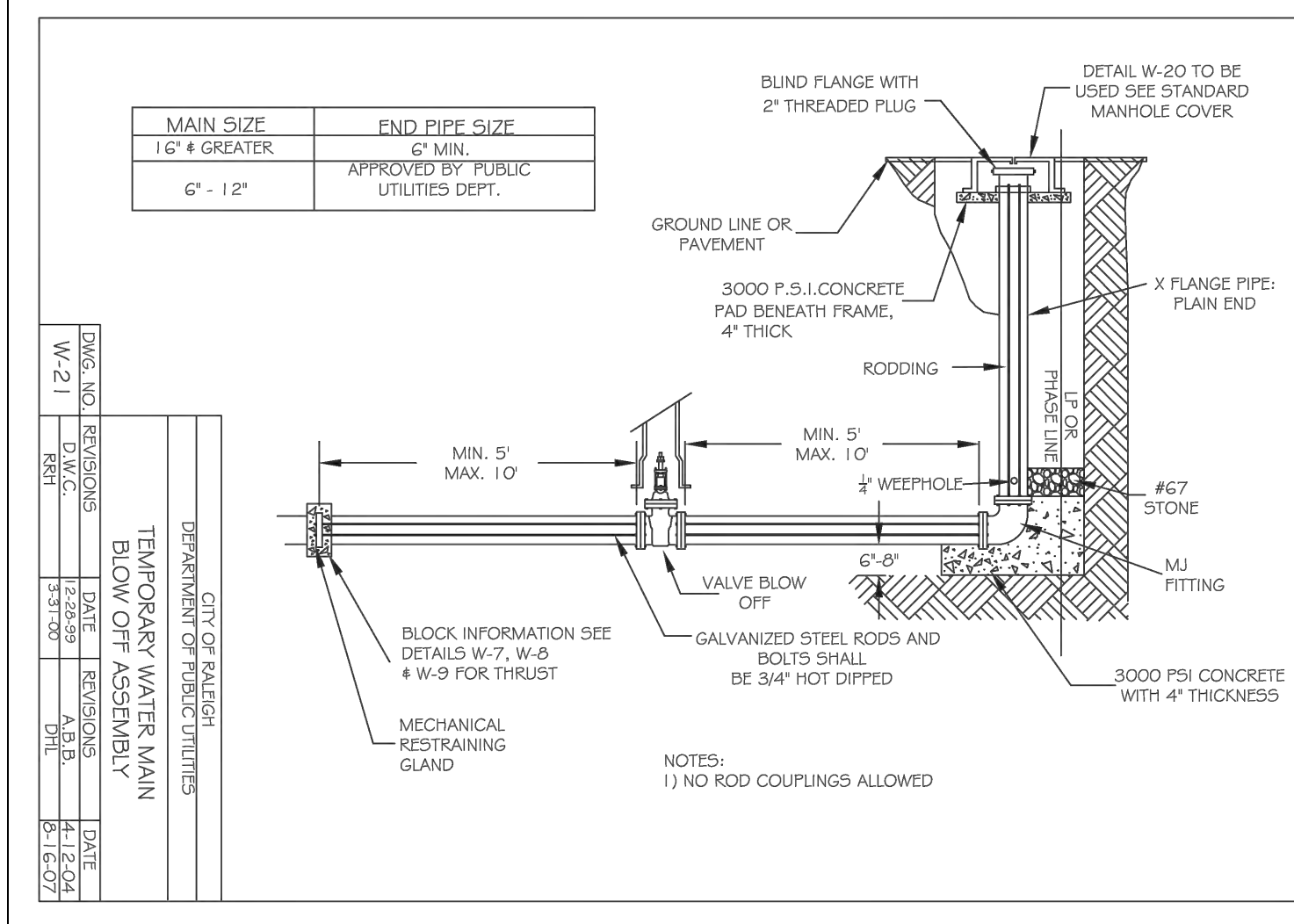
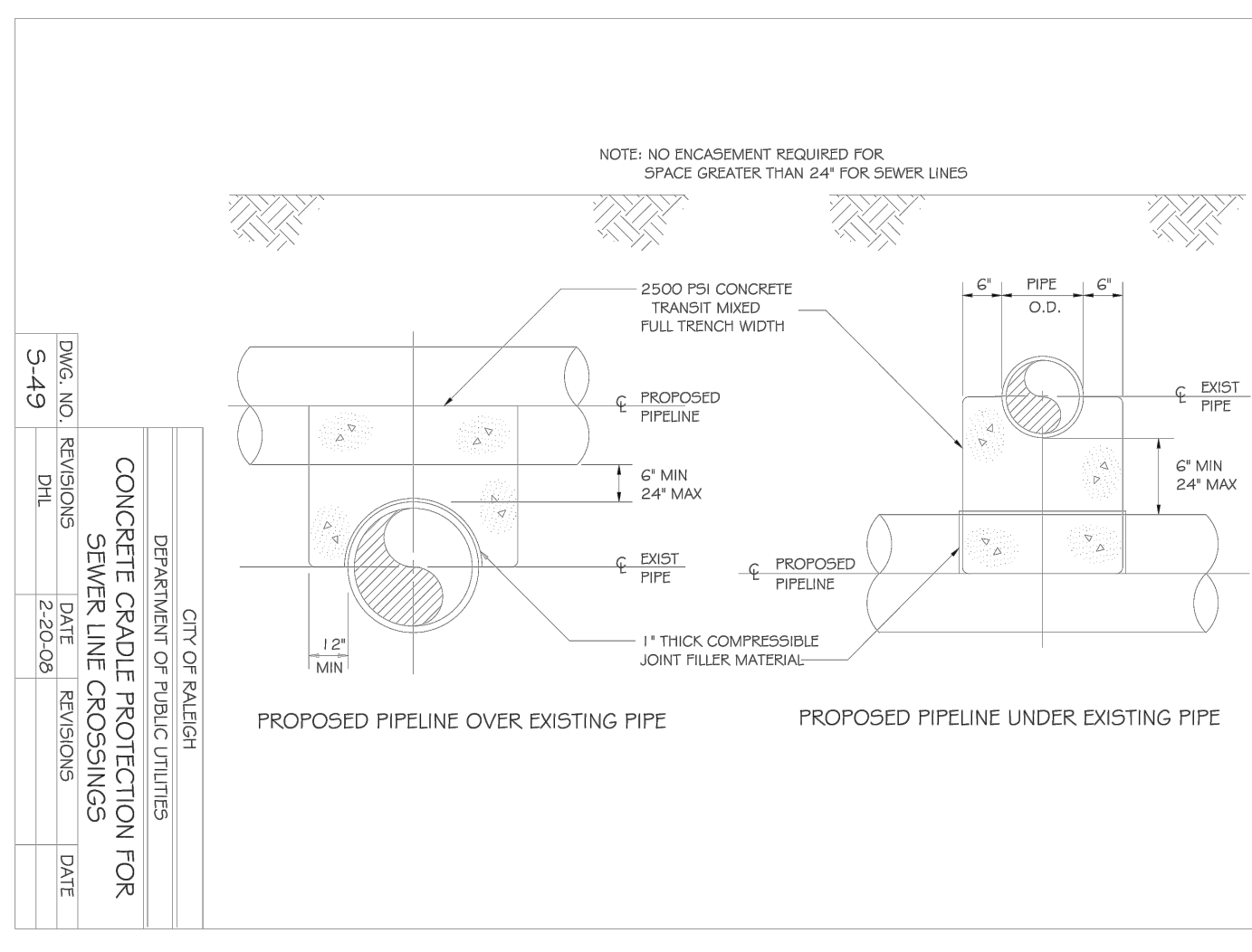
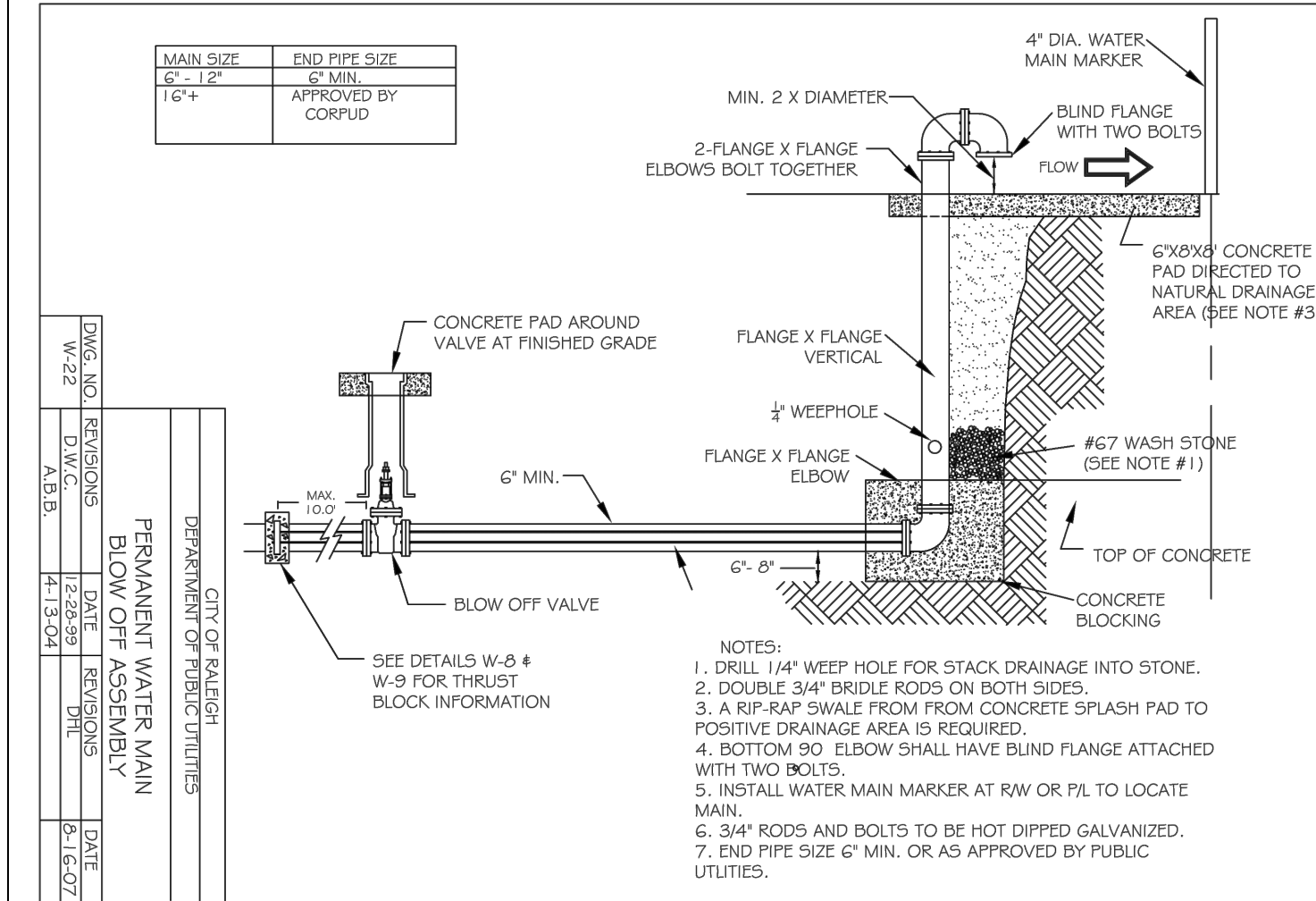
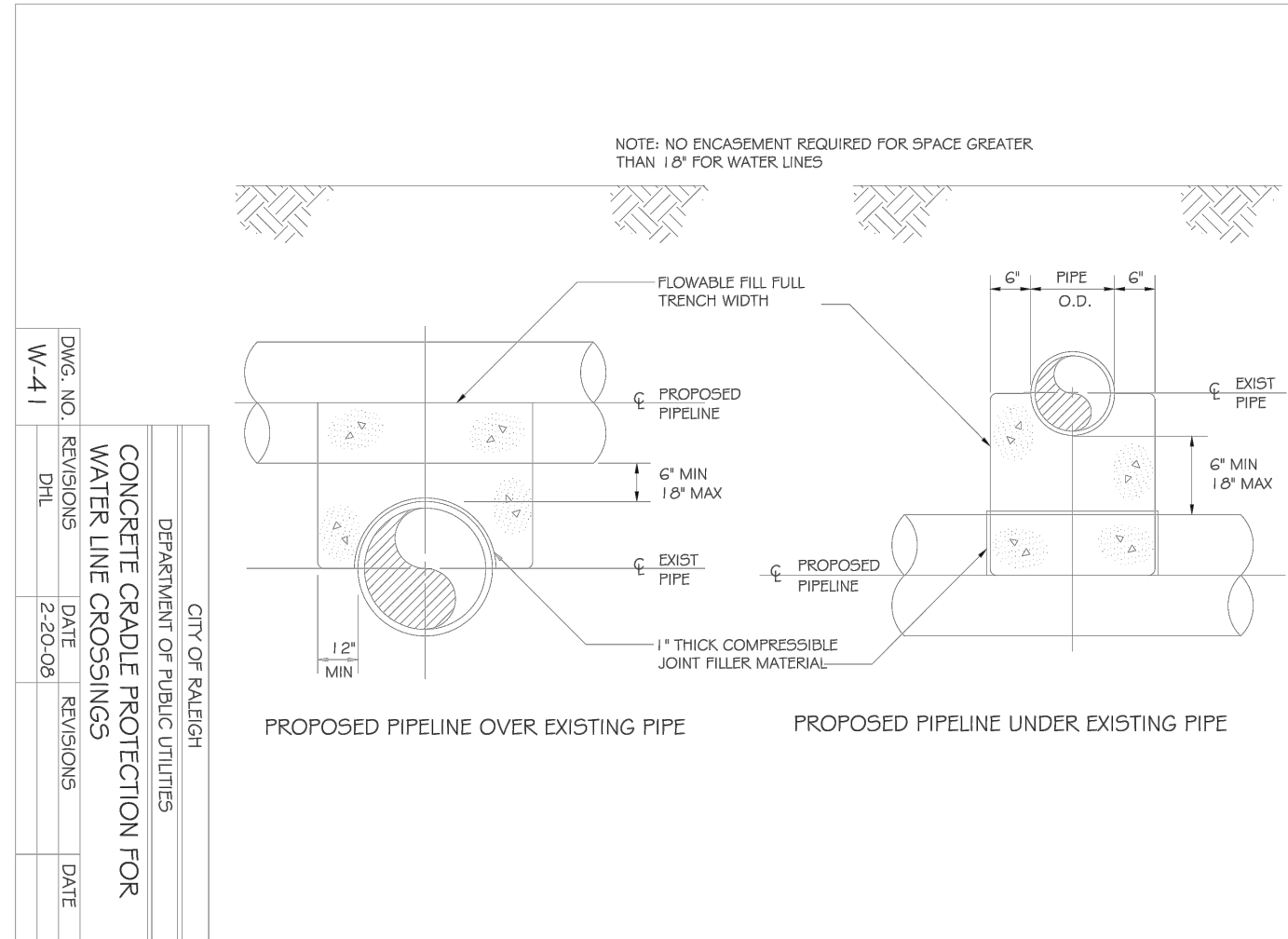
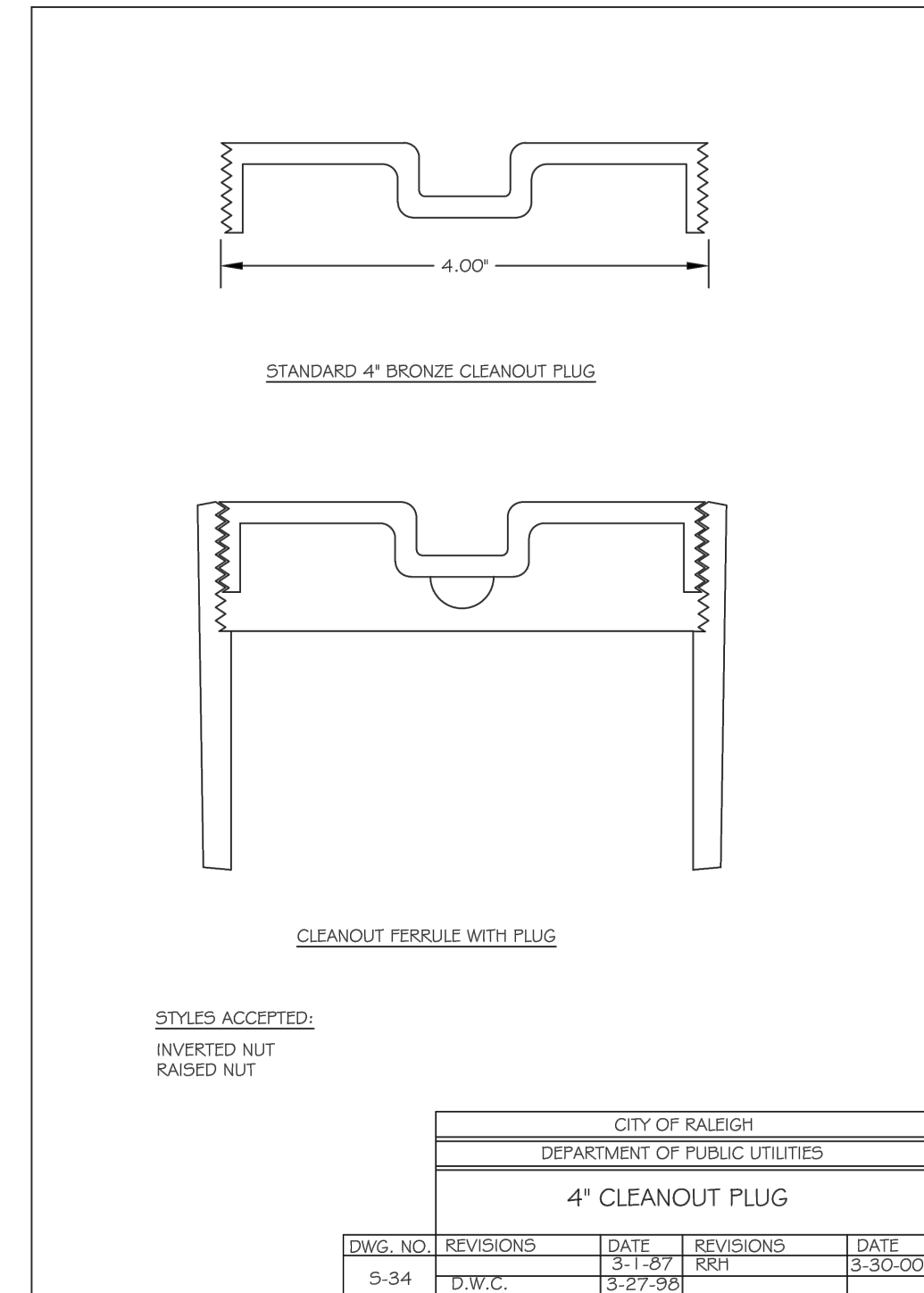
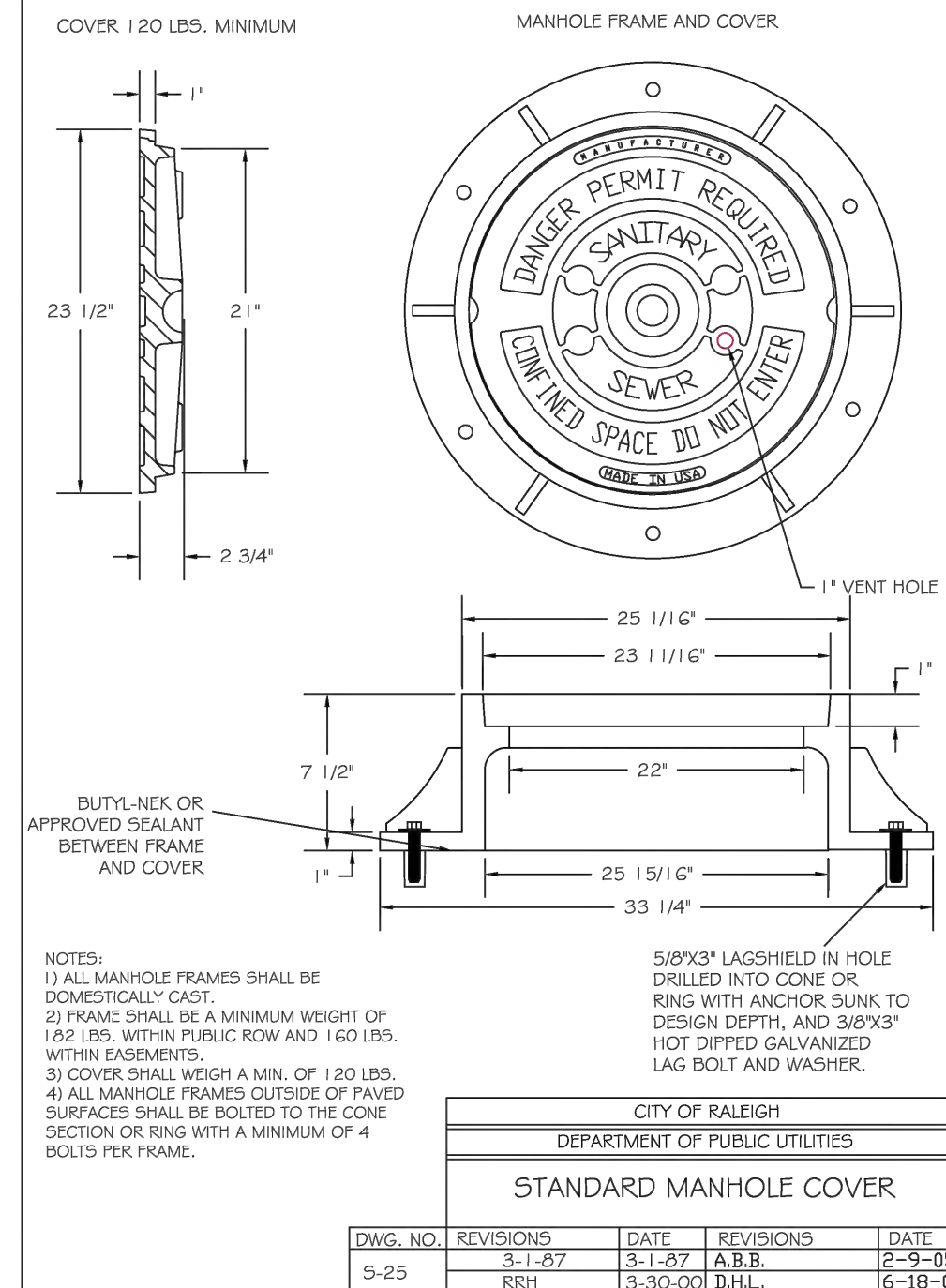
Raleigh Water Review Officer



ROD REQUIREMENTS

SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,325	2
8"	7,534	4
12"	17,312	4
16"	30,779	6
24"	69,252	8

- GENERAL NOTES:**
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON PIPE BOLTS WHERE NECESSARY.
5. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.



FOR REVIEW ONLY

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION	DATE
KNIGHTDALE SUBMITTAL # 5	09/30/2022
	11/21/2022

DRAWN BY	331
DESIGNED BY	331
CHECKED BY	---
SCALE	N/A

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I

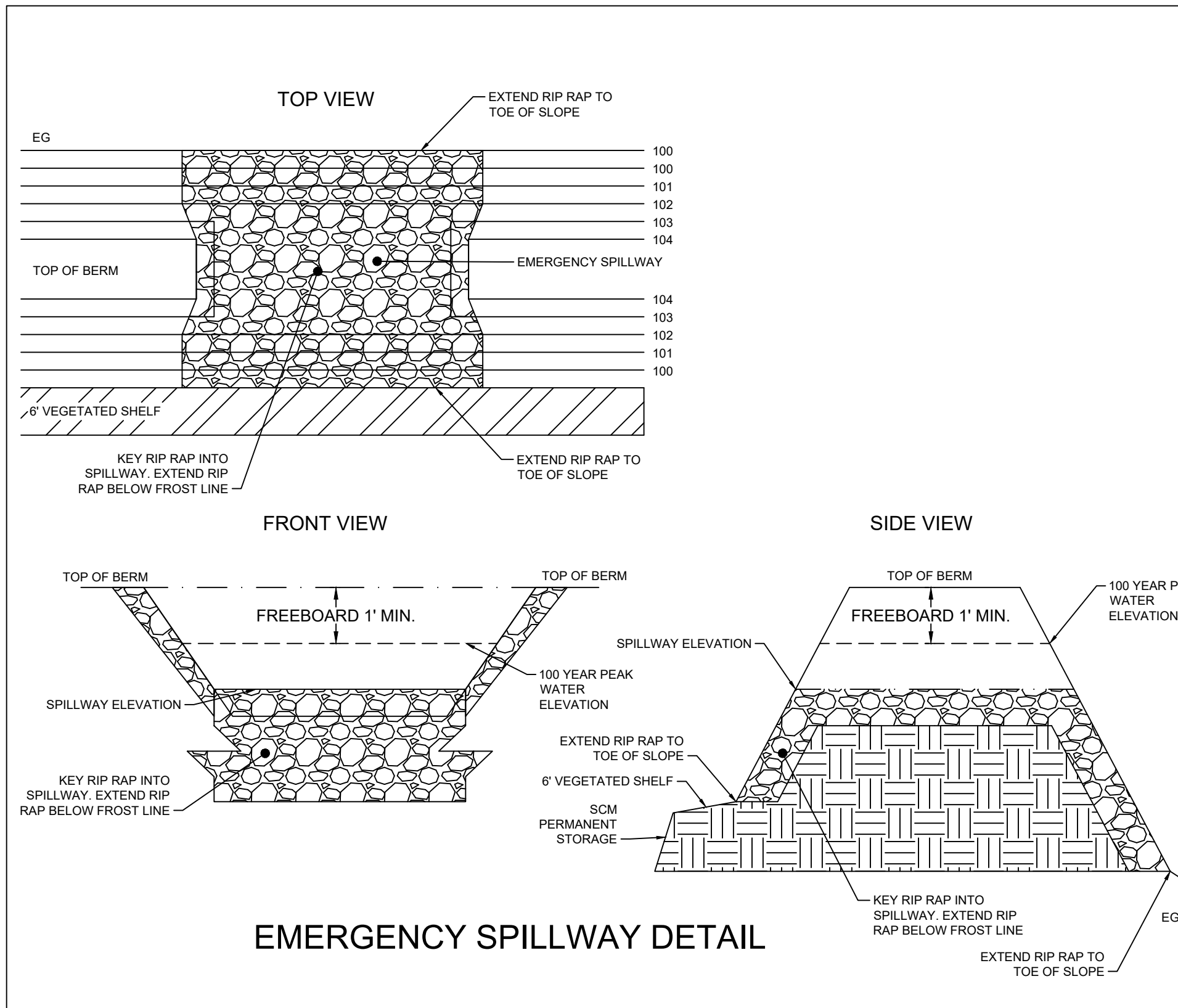
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

WATER & SEWER DETAILS - SHEET 2 OF 2

JOB NO. 44529
SHEET NO. C7.4

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EMERGENCY SPILLWAY DETAIL

1. DIMENSIONS FOR SINGLE PIPE HEADWALLS
 2. DIMENSIONS FOR DOUBLE PIPE HEADWALLS

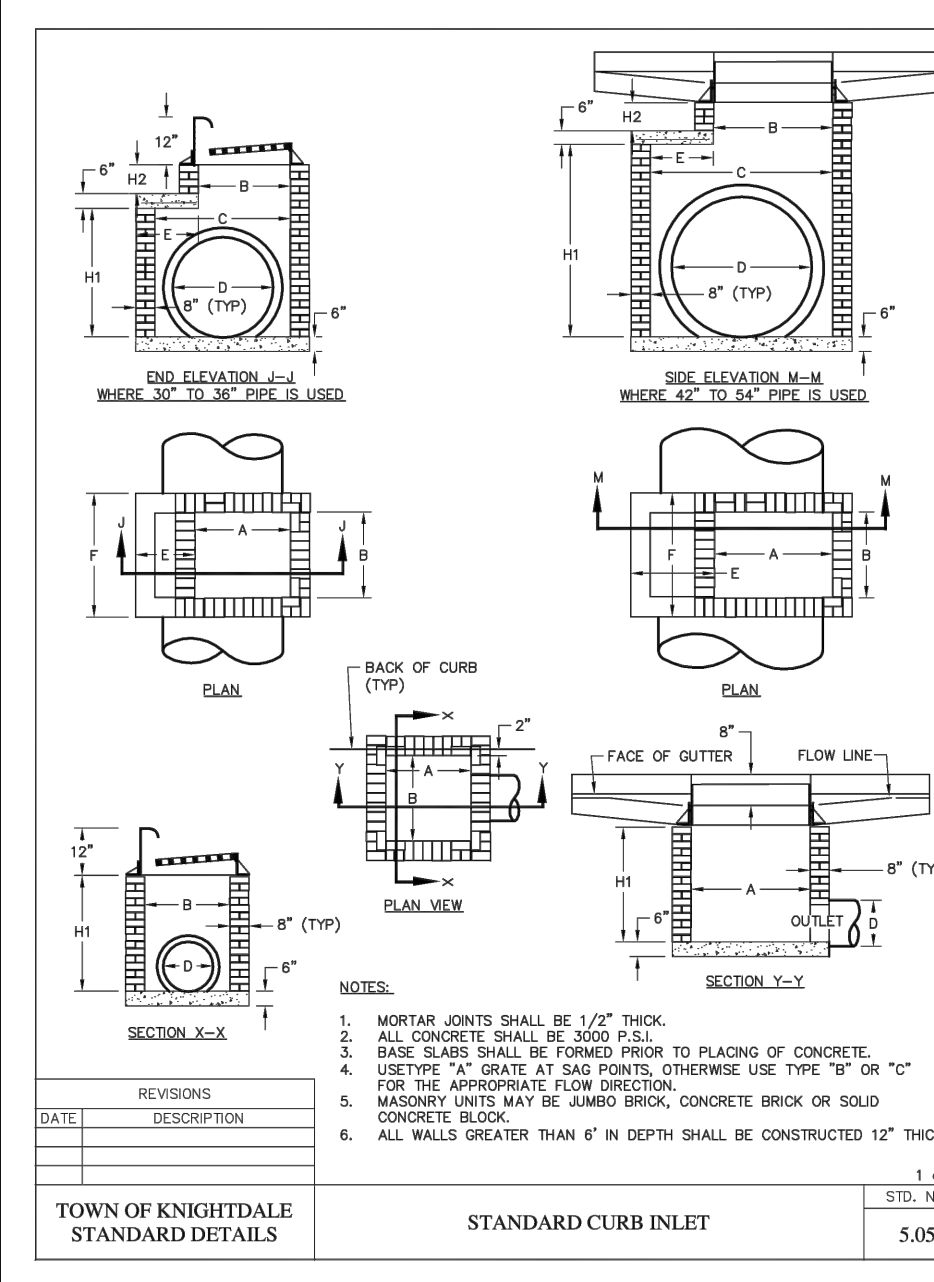
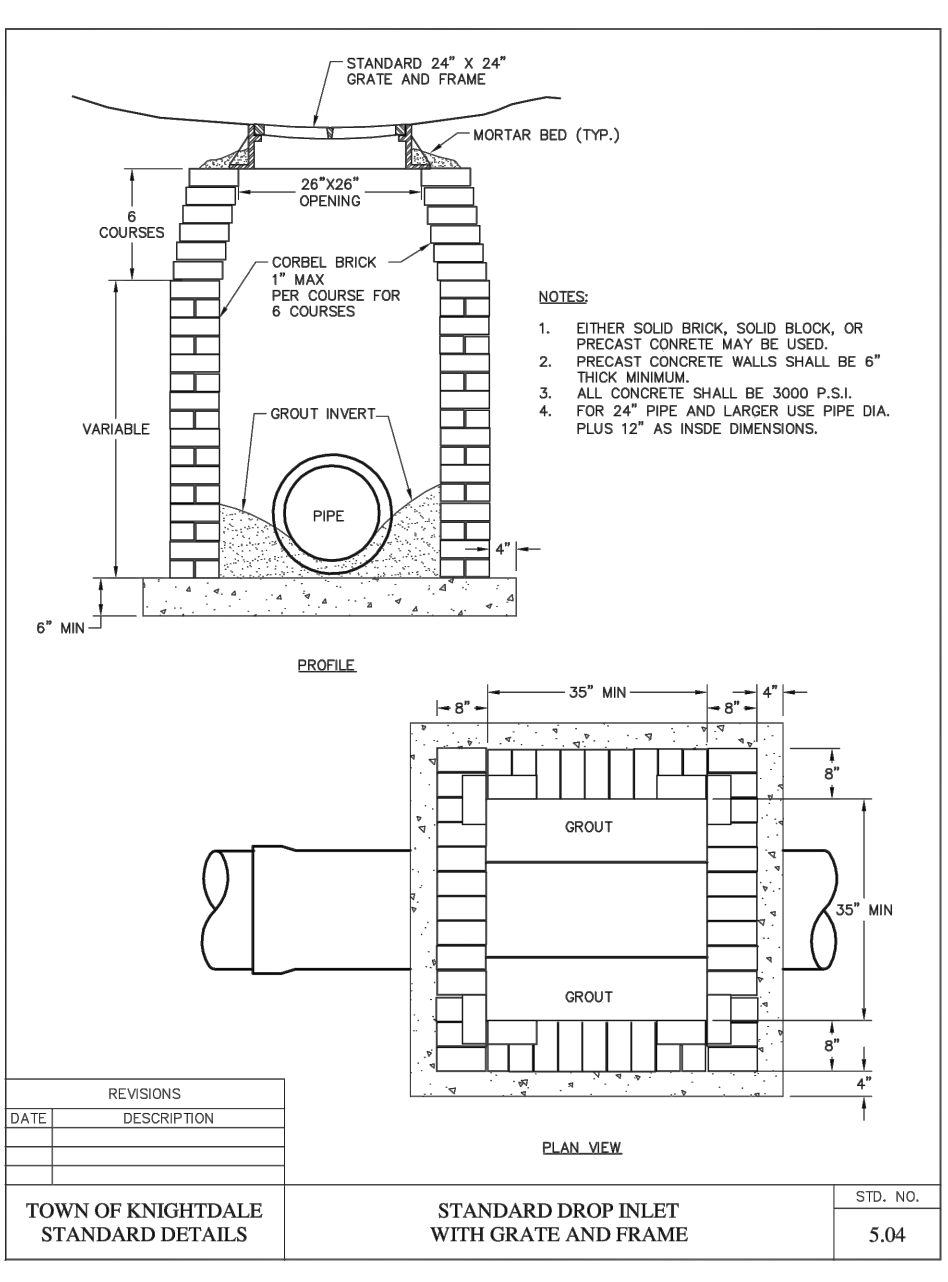
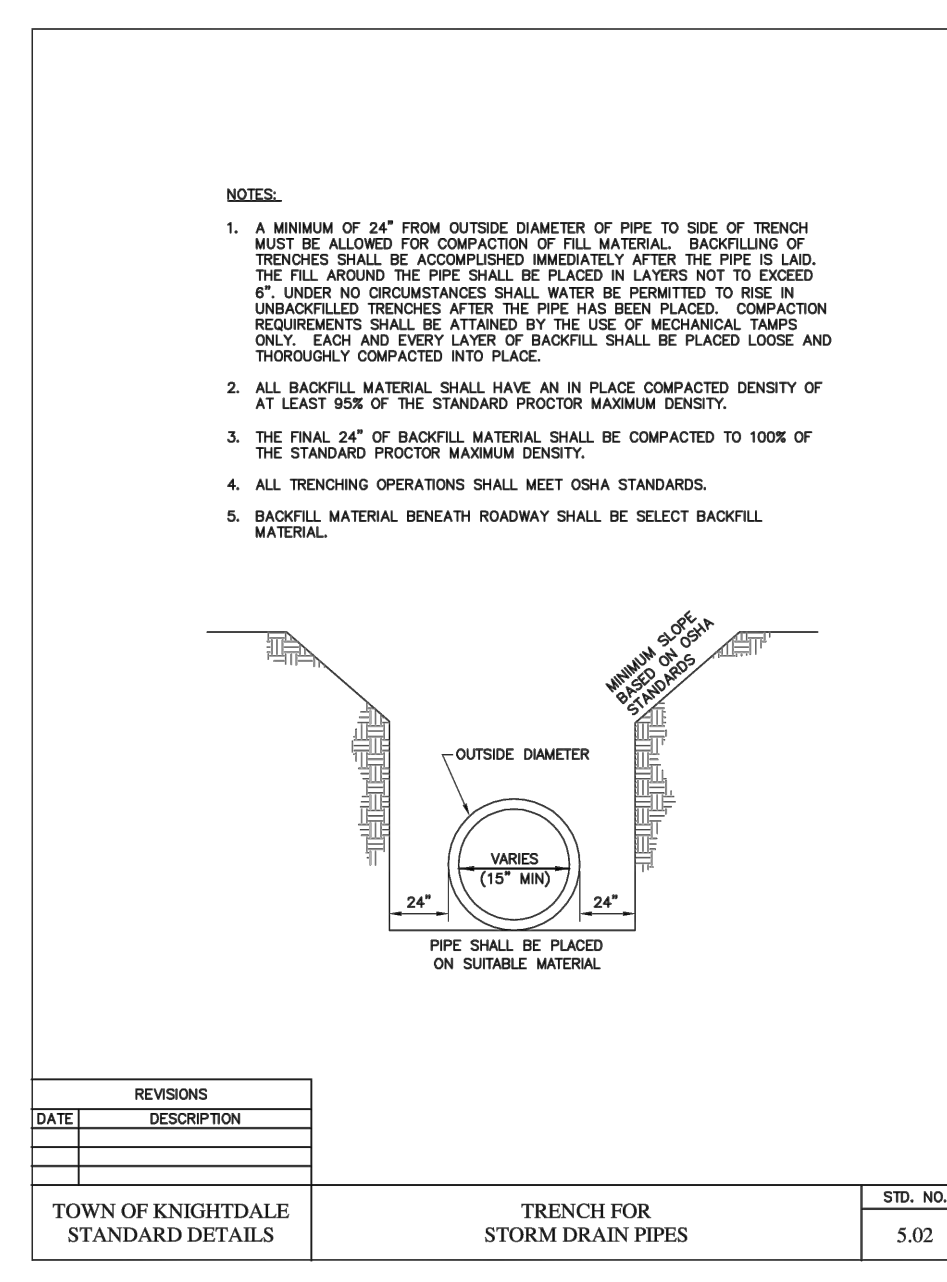
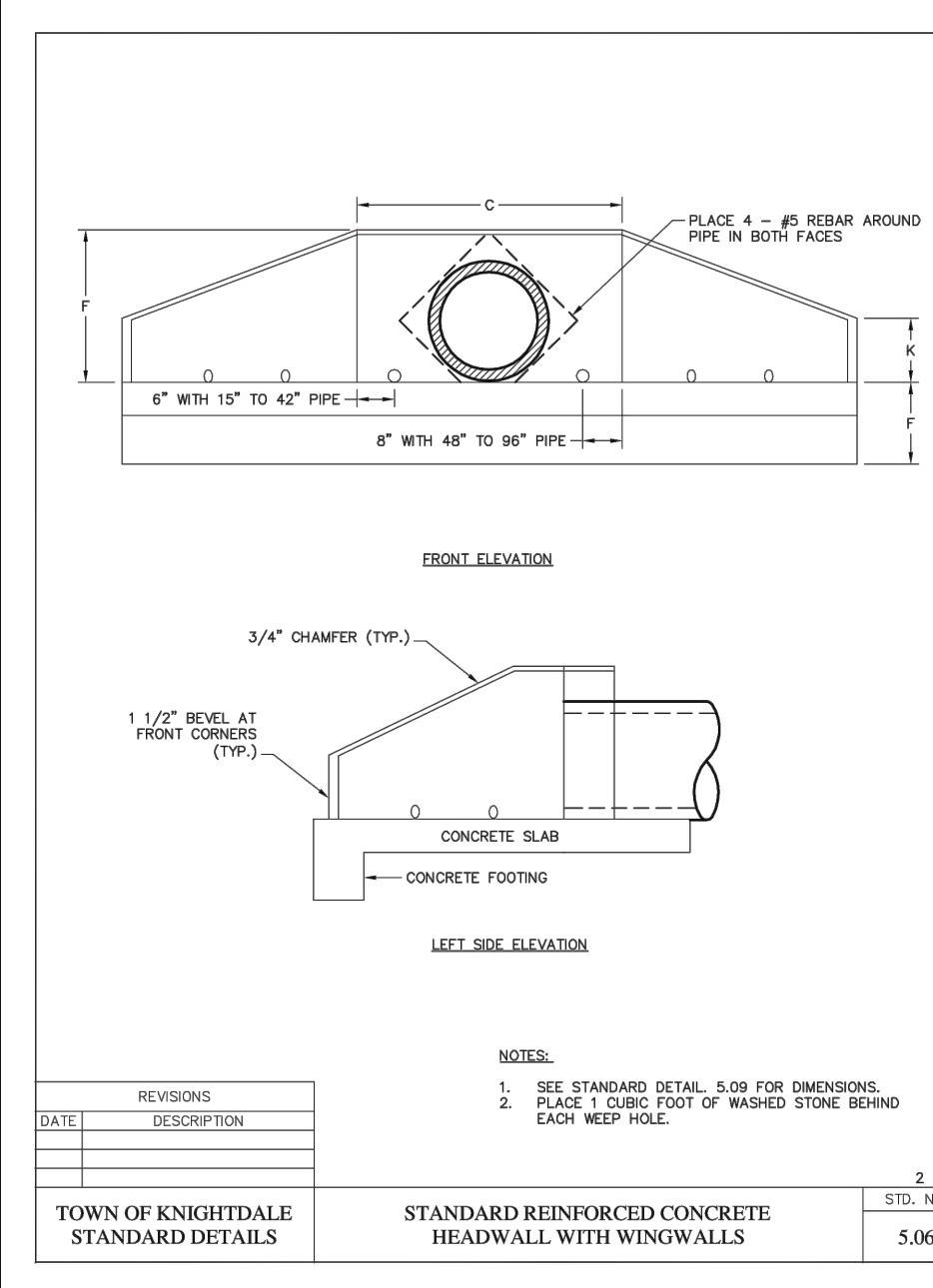
PIPE DIAMETER (IN)	PIPE WALL THICKNESS (IN)	MIN. SPACING BETWEEN PIPES (IN)	MIN. SPACING BETWEEN PIPES (IN)	MIN. SPACING BETWEEN PIPES (IN)
18	2.0	12	12	12
20	2.0	12	12	12
24	2.0	12	12	12
30	2.0	12	12	12
36	2.0	12	12	12
42	2.0	12	12	12
48	2.0	12	12	12
54	2.0	12	12	12
60	2.0	12	12	12
66	2.0	12	12	12
72	2.0	12	12	12
78	2.0	12	12	12
84	2.0	12	12	12
90	2.0	12	12	12
96	2.0	12	12	12
102	2.0	12	12	12
108	2.0	12	12	12
114	2.0	12	12	12
120	2.0	12	12	12
126	2.0	12	12	12
132	2.0	12	12	12
138	2.0	12	12	12
144	2.0	12	12	12
150	2.0	12	12	12

1. DIMENSIONS FOR DOUBLE PIPE HEADWALLS

PIPE DIAMETER (IN)	PIPE WALL THICKNESS (IN)	MIN. SPACING BETWEEN PIPES (IN)	MIN. SPACING BETWEEN PIPES (IN)	MIN. SPACING BETWEEN PIPES (IN)
18	2.0	12	12	12
20	2.0	12	12	12
24	2.0	12	12	12
30	2.0	12	12	12
36	2.0	12	12	12
42	2.0	12	12	12
48	2.0	12	12	12
54	2.0	12	12	12
60	2.0	12	12	12
66	2.0	12	12	12
72	2.0	12	12	12
78	2.0	12	12	12
84	2.0	12	12	12
90	2.0	12	12	12
96	2.0	12	12	12
102	2.0	12	12	12
108	2.0	12	12	12
114	2.0	12	12	12
120	2.0	12	12	12
126	2.0	12	12	12
132	2.0	12	12	12
138	2.0	12	12	12
144	2.0	12	12	12
150	2.0	12	12	12

NOTES:
 1. DIMENSIONS FOR DOUBLE PIPE HEADWALLS
 2. DIMENSIONS FOR SINGLE PIPE HEADWALLS
 3. ALL DIMENSIONS ARE AS SHOWN UNLESS NOTED OTHERWISE
 4. SPACING BETWEEN PIPES IS 12" MIN.

REVISIONS: 2 of 2
 TOWN OF KNIGHTDALE STANDARD DETAILS DIMENSIONS FOR HEADWALL WITH WINGWALLS STD. NO. 5.09



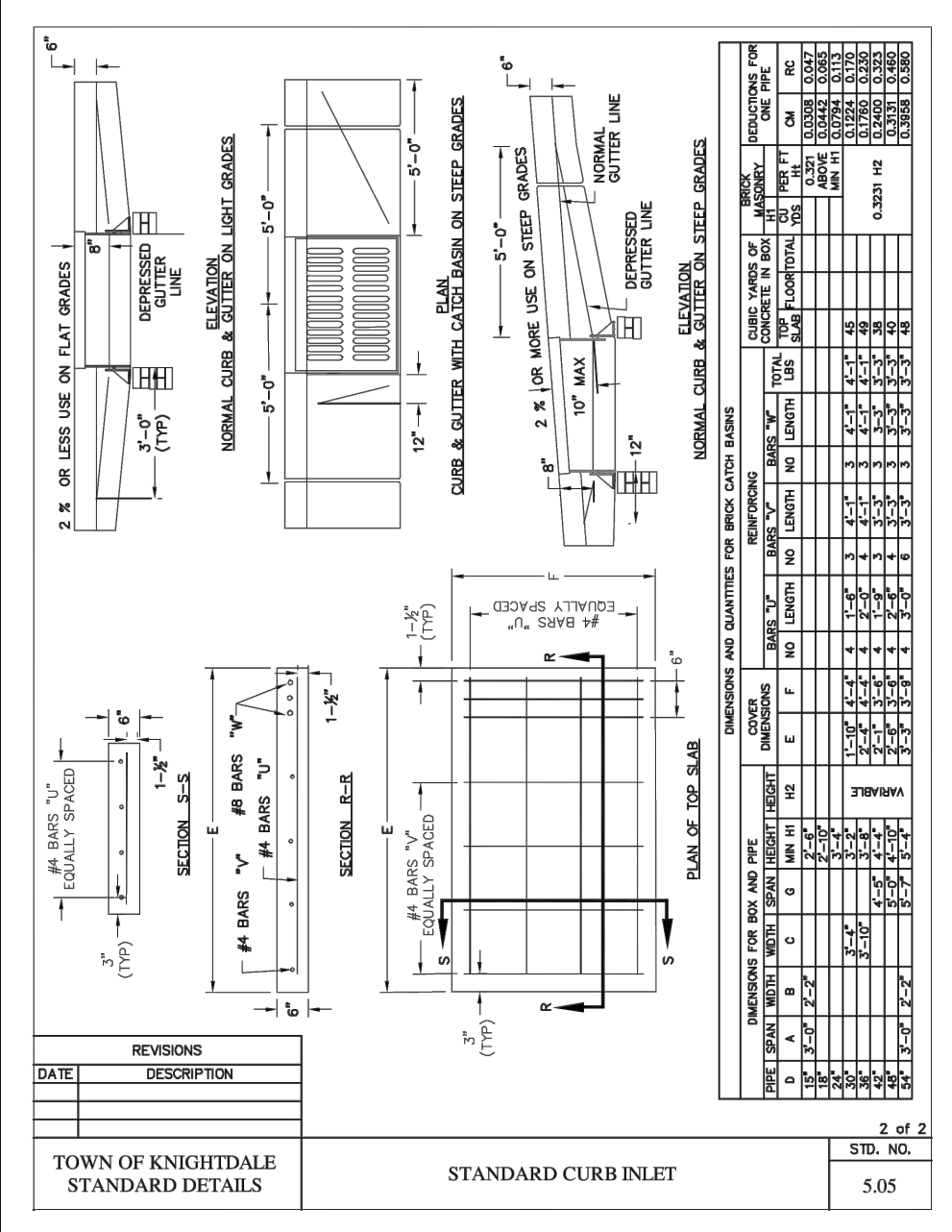
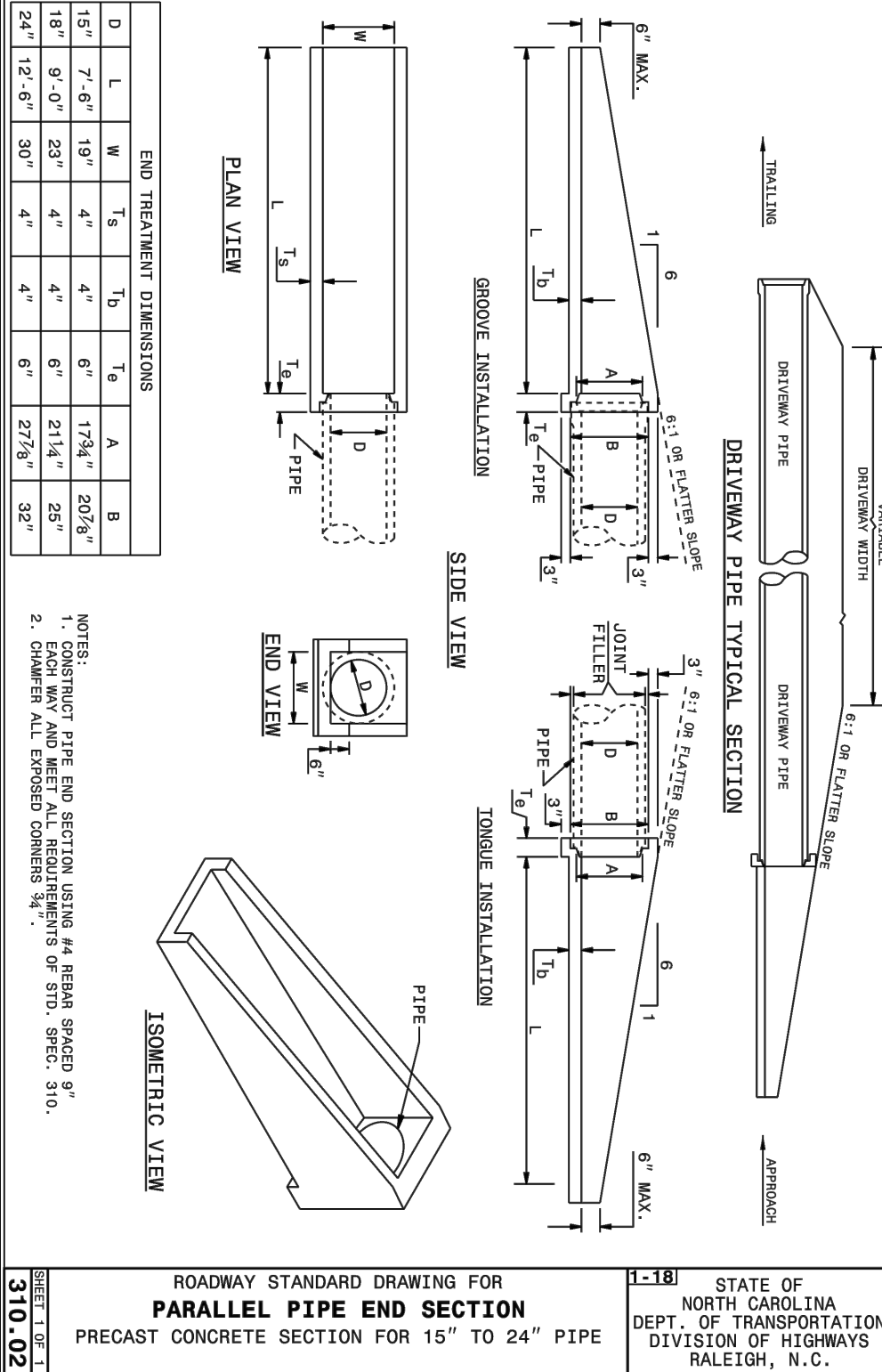
TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652
 ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
 STORM DETAILS

YOUR VISION ACHIEVED THROUGH OURS.
 DATE: 09/30/2022
 DATE: 11/21/2022
 DRAWN BY: 331
 DESIGNED BY: 331
 CHECKED BY: ---
 SCALE: N/A
 JOB NO. 44529
 SHEET NO. C7.5

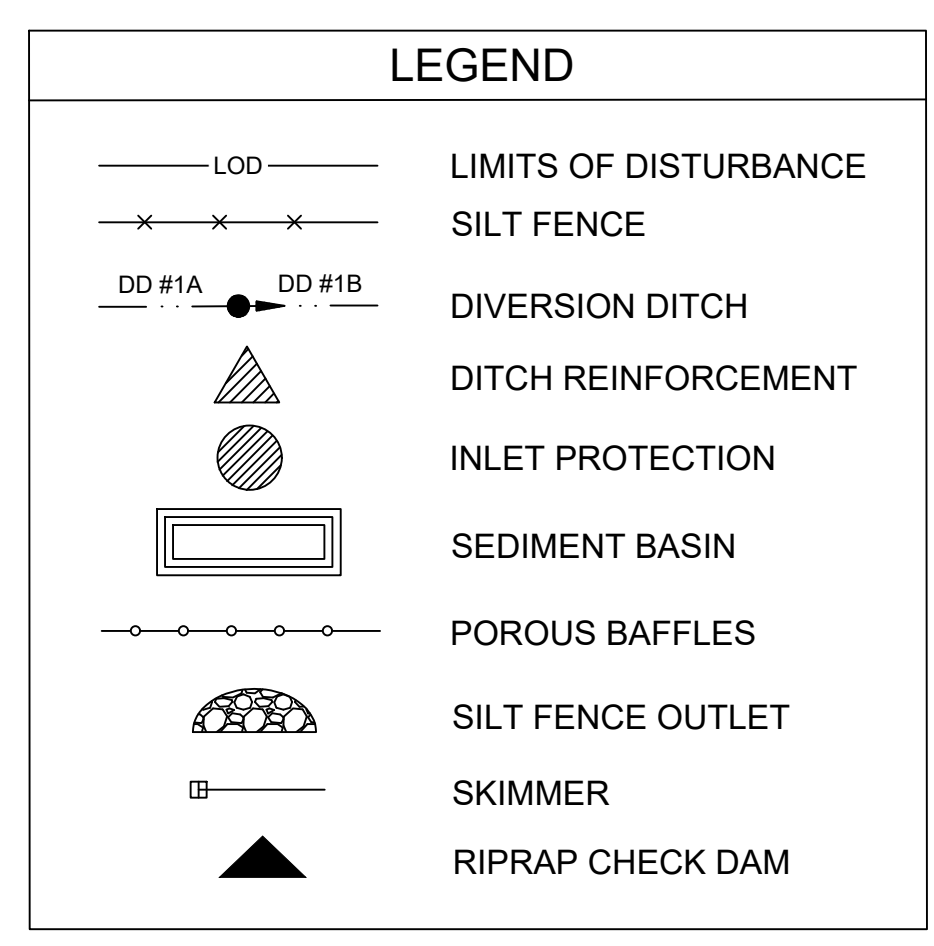
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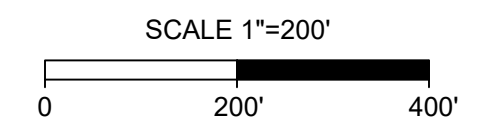
REVISION DESCRIPTION KNIGHTDALE SUBMITTAL # 5

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TOTAL DISTURBED AREA = 57.5 ACRES



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DEVELOPMENT SERVICES ENGINEER

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BY: _____ DATE: _____
ADMINISTRATOR

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE: _____
PERMIT NO. S- _____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

NOTE: THE AREA DOWNSTREAM OF TEMPORARY DIVERSIONS AND BASINS SHALL BE PROVIDED WITH ANCHORED GROUND COVER/SEED AND ANCHORED MULCH.

VELOCITY DISSIPATION PAD (VDP) DESIGN

OUTLET NAME	PIPE DIA. (in)	PIPE SLOPE (ft/ft)	Q10 (cfs)	V10 (fps)	ZONE	PAD DIMENSIONS			STONE SIZING		
						LENGTH (ft)	WIDTH (ft)	DEPTH (in)	D50 (in)	Dmax (in)	CLASS (NCDDOT)
BASIN 1 OUTFALL	6	0.016	8.2	41.76	1	2	2	12	10	17	1
BASIN 2 OUTFALL	6	0.016	8.2	41.76	1	2	2	12	10	17	1
BASIN 3 OUTFALL	6	0.041	13.1	66.72	1	2	2	12	10	17	1
SCM 1 OUTFALL	36	0.062	166.3	26.82	6	30	9	36	14	23	2
SCM 2 OUTFALL	36	0.068	174.2	28.09	6	30	9	36	14	23	2
BASIN 6 OUTFALL	15	0.011	6.8	6.30	1	5	4	12	4	6	A
BASIN 7 OUTFALL	6	0.026	10.4	52.97	1	2	2	12	10	17	1
BASIN 7 TEMP IN	15	0.027	10.6	9.88	2	7.5	4	18	8	12	B

TEMPORARY CHANNEL AND DIVERSION SCHEDULE (10 YR)

(Chapter 8.05 of the NCDEQ E&SC Planning and Design Manual)

NAME	LENGTH (FT)	DA (AC)	ACCUM. DA (AC)	c	I ₁₀ (IN/HR)	Q ₂ (CFS)	SLOPE (FT/FT)	N VALUE	V (FT/S)	SHEAR (PSF)	FLOW DEPTH (FT)	FLOW AREA (FT ²)	Wp (FT)	R (FT)	SWALE DEPTH (IN)	SIDE SLOPE (H:V)	TEMPORARY LINING
DITCH 1A	500	7.43	7.43	0.50	7.43	21.03	3.6%	0.022	7.53	2.13	0.95	2.71	6.01	0.45	24	3:1	NAG C125
DITCH 1B	230	0.62	0.62	0.50	5.66	1.75	1.9%	0.022	4.07	1.08	0.91	1.12	3.86	0.29	24	3:1	BARE EARTH
DITCH 2A	220	3.78	3.78	0.50	5.66	10.70	2.2%	0.022	5.29	1.11	0.81	1.97	5.12	0.38	24	3:1	BARE EARTH
DITCH 2B	205	2.80	2.80	0.50	5.66	7.92	3.4%	0.022	5.80	1.42	0.67	1.35	4.24	0.32	24	3:1	BARE EARTH
DITCH 3A	235	0.39	0.39	0.50	5.66	1.10	3.0%	0.023	4.29	0.94	0.50	0.75	3.16	0.24	24	3:1	BARE EARTH
DITCH 3B	510	1.92	1.92	0.50	5.66	5.43	1.5%	0.022	4.93	0.91	0.97	2.82	6.13	0.46	24	3:1	BARE EARTH
DITCH 4	810	10.36	10.36	0.50	5.66	29.32	2.5%	0.021	7.38	1.76	1.13	3.83	7.15	0.54	24	3:1	BARE EARTH
DITCH 5A	440	4.69	4.69	0.50	5.66	13.27	1.5%	0.022	4.82	0.98	0.94	2.65	5.95	0.45	24	3:1	BARE EARTH
DITCH 5B	410	0.91	0.91	0.50	5.66	2.58	1.0%	0.022	3.51	0.49	0.79	1.87	5.00	0.37	24	3:1	BARE EARTH
DITCH 6A	300	0.89	0.89	0.50	5.66	2.52	1.5%	0.022	3.25	0.49	0.52	0.81	3.29	0.25	24	3:1	BARE EARTH
DITCH 6B	1010	1.32	1.32	0.50	5.66	3.74	1.8%	0.022	3.81	0.64	0.58	1.01	3.67	0.28	24	3:1	BARE EARTH
DITCH 7A	240	N/A	N/A	0.50	5.66	6.10	0.4%	0.022	2.46	0.23	0.92	2.54	5.82	0.44	36	3:1	BARE EARTH
DITCH 7B	420	4.10	4.10	0.50	5.66	11.60	3.3%	0.022	6.37	1.63	0.79	1.87	5.00	0.37	24	3:1	BARE EARTH
DITCH 7C	106	0.64	0.64	0.50	5.66	1.81	3.8%	0.023	4.08	0.92	0.39	0.46	2.47	0.18	24	3:1	BARE EARTH

SEDIMENT TRAPS AND BARRIERS

(Wake County Minimum Requirements for Sizing Sediment Basins)

BASIN ID	BASIN TYPE	DRAINAGE AREA PRE (AC)	DRAINAGE AREA POST (AC)	DISTURBED AREA (AC)	i(10)	c	Q10 (TOTAL DA) (CF)	REQUIRED VOLUME (CF)	PROVIDED VOLUME (CF)	BASIN LENGTH (FT)	BASIN WIDTH (FT)	BASIN DEPTH (FT)	SURFACE AREA REQ' (SF)	SURFACE AREA PROV'D (SF)	BOTTOM ELEV (FT)	WEIR ELEV (FT)	WEIR LENGTH (FT)	Q10 FLOW (CFS)	FLOW DEPTH (FT)	DEWATER DEPTH (FT)	SKIMMER DEWATER (IN)	SKIMMER ORIFICE (IN)	SKIMMER TIME (DAYS)
BASIN 1	SKIMMER BASIN	9.02	N/A	7.98	7.25	0.50	32.70	16,236	47,871	197	81	3.0	14,223	15,957	252.00	254.00	35	32.70	0.46	SKIMMER	4.0	2	3.04
BASIN 2	SKIMMER BASIN	6.74	N/A	3.87	7.25	0.50	24.43	12,132	32,412	148	73	3.0	10,628	10,804	245.00	247.00	25	24.43	0.47	SKIMMER	4.0	1.75	2.97
BASIN 3	SKIMMER BASIN	2.49	N/A	2.36	7.25	0.50	9.03	4,482	15,684	120	44	3.0	3,926	5,228	243.00	245.00	10	9.03	0.45	SKIMMER	2.5	1.25	2.15
BASIN 4	SEDIMENT BASIN	11.70	16.00	8.74	7.25	0.50	58.00	28,800	98,943	--	--	3.0	25,230	32,981	223.00	225.00	60	58.00	0.47	SKIMMER	5.0	2.5	3.46
BASIN 5	SEDIMENT BASIN	7.33	15.77	5.80	7.25	0.50	57.17	28,386	139,487	--	--	3.0	24,867	46,496	226.00	228.00	55	57.17	0.49	SKIMMER	4.0	2.5	3.41
BASIN 6	SEDIMENT BASIN	17.42	N/A	11.91	7.25	0.50	63.15	31,366	55,900	215	130	2.0	27,469	27,950	207.00	209.00	65	63.15	0.47	SKIMMER	5.0	3	2.61
BASIN 7	SKIMMER BASIN	4.74	N/A	2.15	7.25	0.50	17.18	8,532	15,000	150	50	2.0	7,474	7,500	201.00	203.00	20	17.18	0.43	SKIMMER	3.0	1.75	2.41

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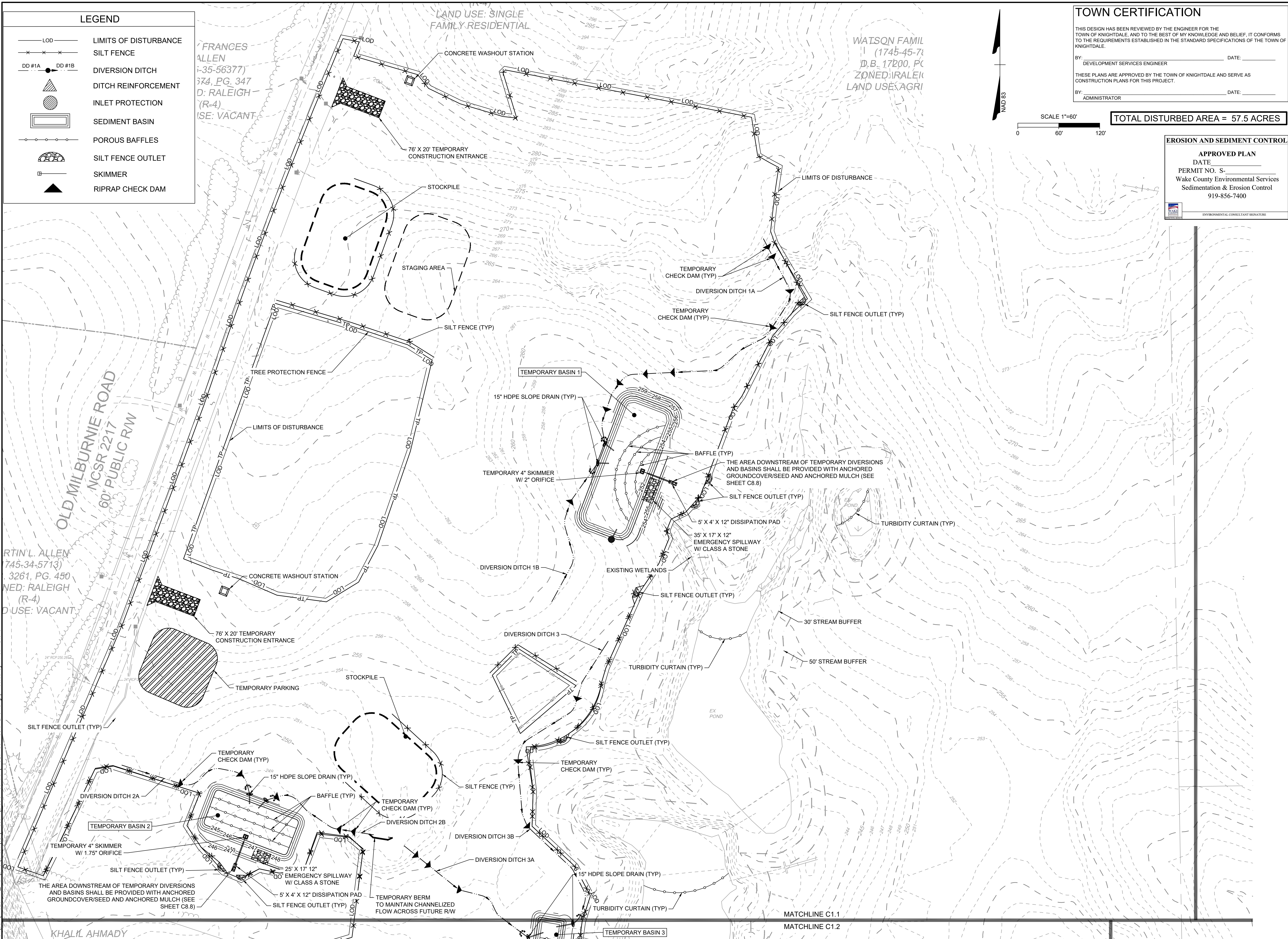
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

OVERALL EROSION & SEDIMENT CONTROL PLAN PHASE 1

JOB NO. 44529

SHEET NO. C8.0



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: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR

SCALE 1"=60'

0 60' 120'

TOTAL DISTURBED AREA = 57.5 ACRES

EROSION AND SEDIMENT CONTROL

APPROVED PLAN

DATE: _____

PERMIT NO. S- _____

Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

- LEGEND**
- LOD — LIMITS OF DISTURBANCE
 - × × × SILT FENCE
 - DD #1A ● DD #1B DIVERSION DITCH
 - ▴ DITCH REINFORCEMENT
 - ▭ INLET PROTECTION
 - ▭ SEDIMENT BASIN
 - ○ ○ POROUS BAFFLES
 - ▭ SILT FENCE OUTLET
 - ▭ SKIMMER
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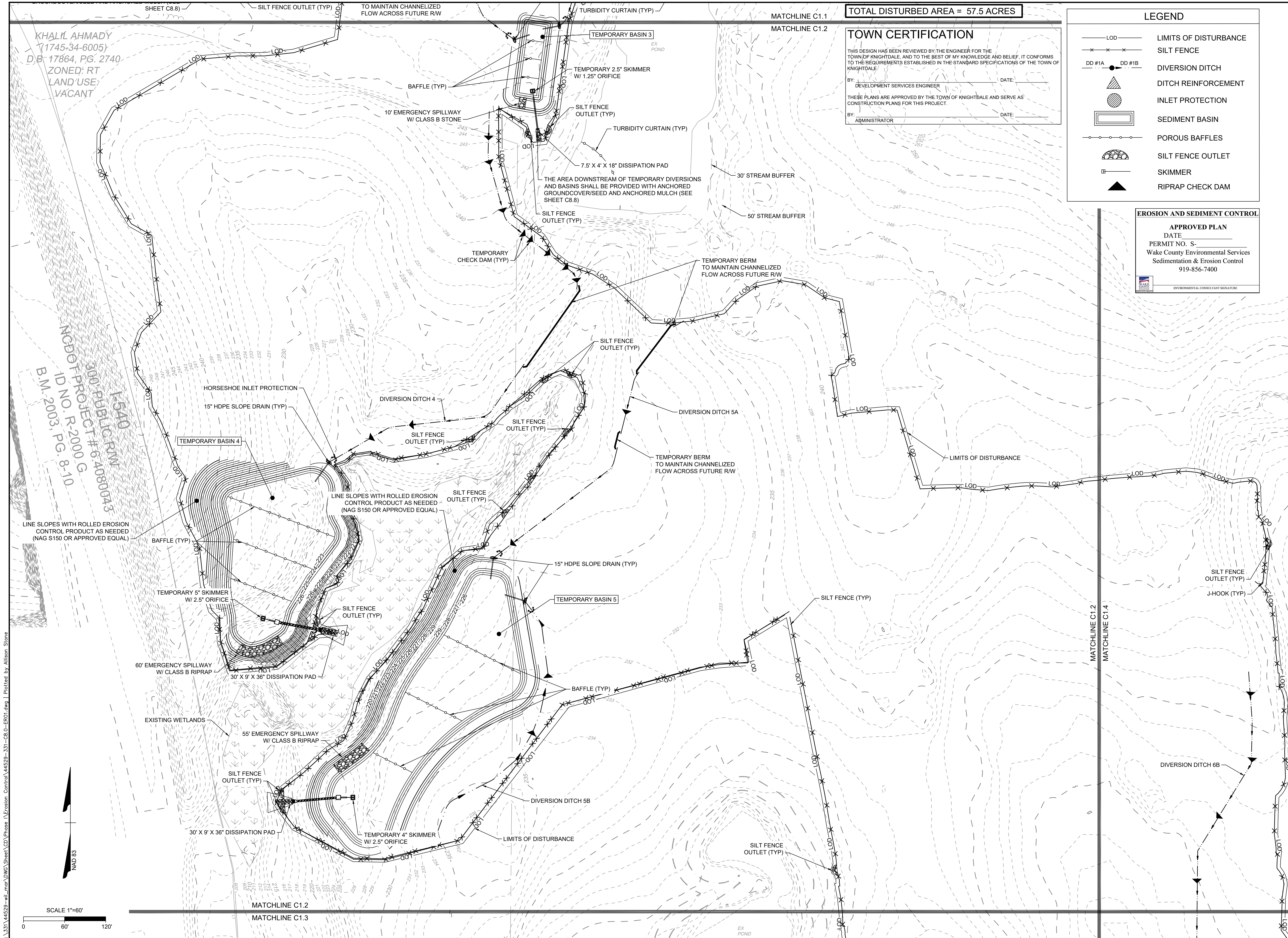
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 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL PLAN PHASE 1 - SHEET 1 OF 4

JOB NO.	44529
SHEET NO.	C8.1

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 BY: _____ DATE: _____
 ADMINISTRATOR

LEGEND

- LOD — LIMITS OF DISTURBANCE
- × × × SILT FENCE
- DD #1A ● DD #1B DIVERSION DITCH
- ▲ DITCH REINFORCEMENT
- INLET PROTECTION
- ▭ SEDIMENT BASIN
- POROUS BAFFLES
- ◐ SILT FENCE OUTLET
- SKIMMER
- ▲ RIPRAP CHECK DAM

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
 DATE: 08/19/2022
 PERMIT NO. S-331
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

KHALIL AHMADY
 (1745-34-6005)
 D.B. 17864, PG. 2740
 ZONED: RT
 LAND USE:
 VACANT

300-PUBLIC/RM
 1-540
 MCBOT PROJECT # 6.4080043
 ID NO. R-2000 G
 B.M. 2003, PG. 8-10

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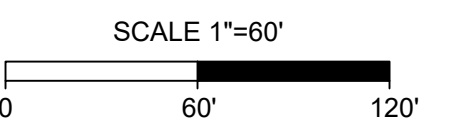
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 NORTH CAROLINA LICENSE NO. C-1652

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 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

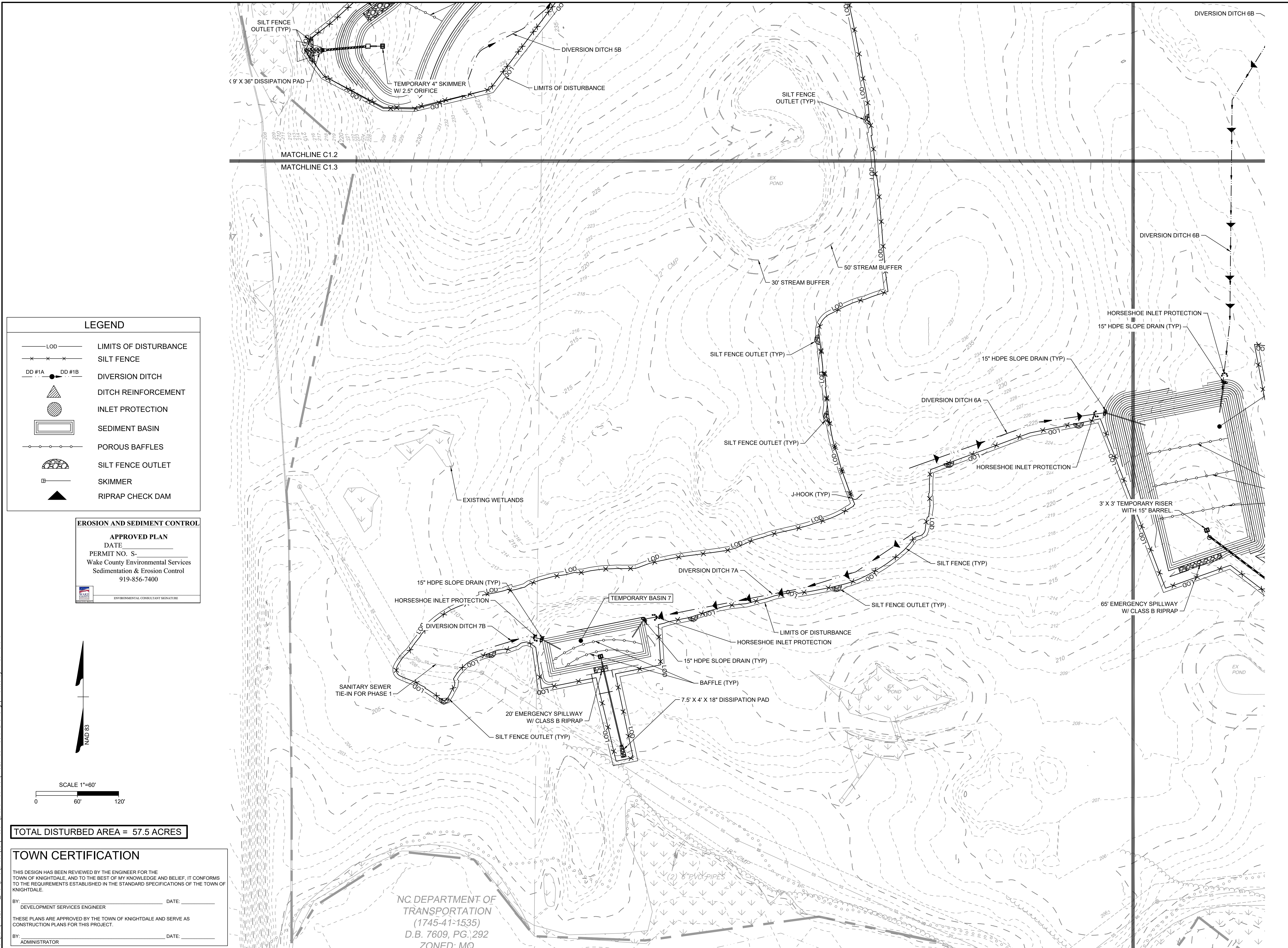
EROSION & SEDIMENT CONTROL PLAN PHASE 1 - SHEET 2 OF 4

JOB NO.	44529
SHEET NO.	C8.2

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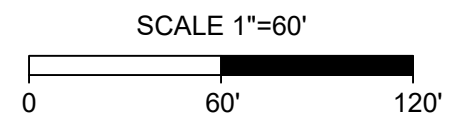
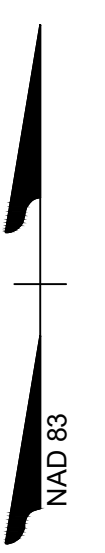
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LEGEND

— LOD —	LIMITS OF DISTURBANCE
— x — x —	SILT FENCE
DD #1A ● DD #1B	DIVERSION DITCH
▲	DITCH REINFORCEMENT
○	INLET PROTECTION
□	SEDIMENT BASIN
○ ○ ○ ○	POROUS BAFFLES
⌒	SILT FENCE OUTLET
▭	SKIMMER
▲	RIPRAP CHECK DAM

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
 DATE: _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400



TOTAL DISTURBED AREA = 57.5 ACRES

TOWN CERTIFICATION
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 BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER
 THESE PLANS ARE APPROVED BY THE TOWN OF KNIGHTDALE AND SERVE AS CONSTRUCTION PLANS FOR THIS PROJECT.
 BY: _____ DATE: _____
 ADMINISTRATOR

NC DEPARTMENT OF TRANSPORTATION
 (1745-41-1535)
 D.B. 7609, PG. 292
 ZONED: MQ

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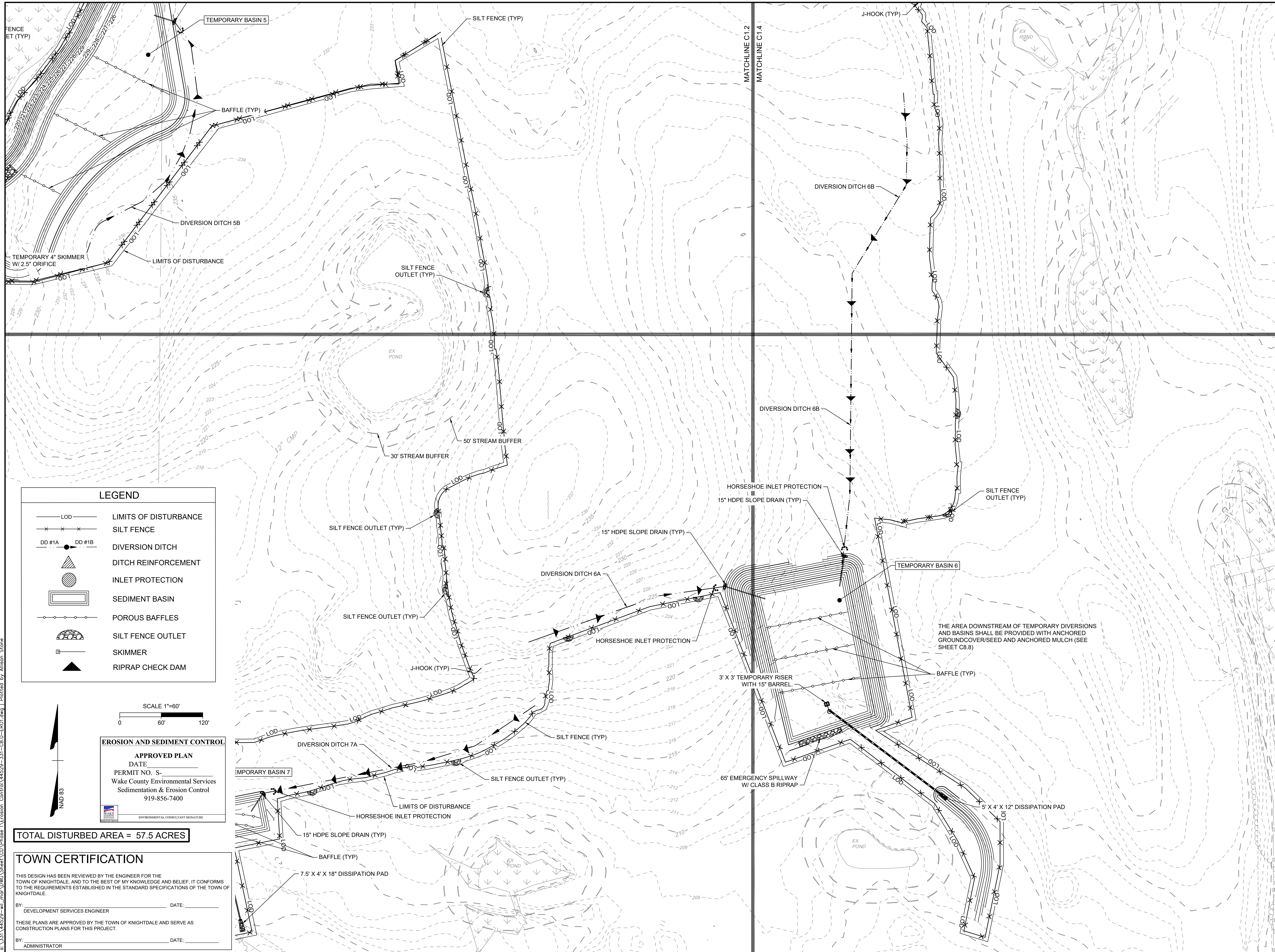
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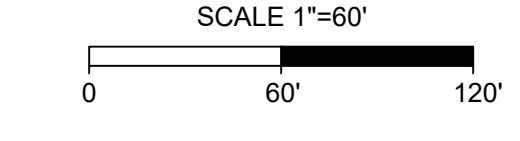
ALLEN PARK SUBDIVISION
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EROSION & SEDIMENT CONTROL PLAN PHASE 1 - SHEET 3 OF 4
 JOB NO.
44529
 SHEET NO.
C8.3

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LEGEND

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— x — x —	SILT FENCE
DD #1A ● DD #1B	DIVERSION DITCH
▲	DITCH REINFORCEMENT
◐	INLET PROTECTION
▭	SEDIMENT BASIN
○ ○ ○ ○	POROUS BAFFLES
◑	SILT FENCE OUTLET
▭	SKIMMER
▲	RIPRAP CHECK DAM



EROSION AND SEDIMENT CONTROL
APPROVED PLAN
 DATE: _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

TOTAL DISTURBED AREA = 57.5 ACRES

TOWN CERTIFICATION
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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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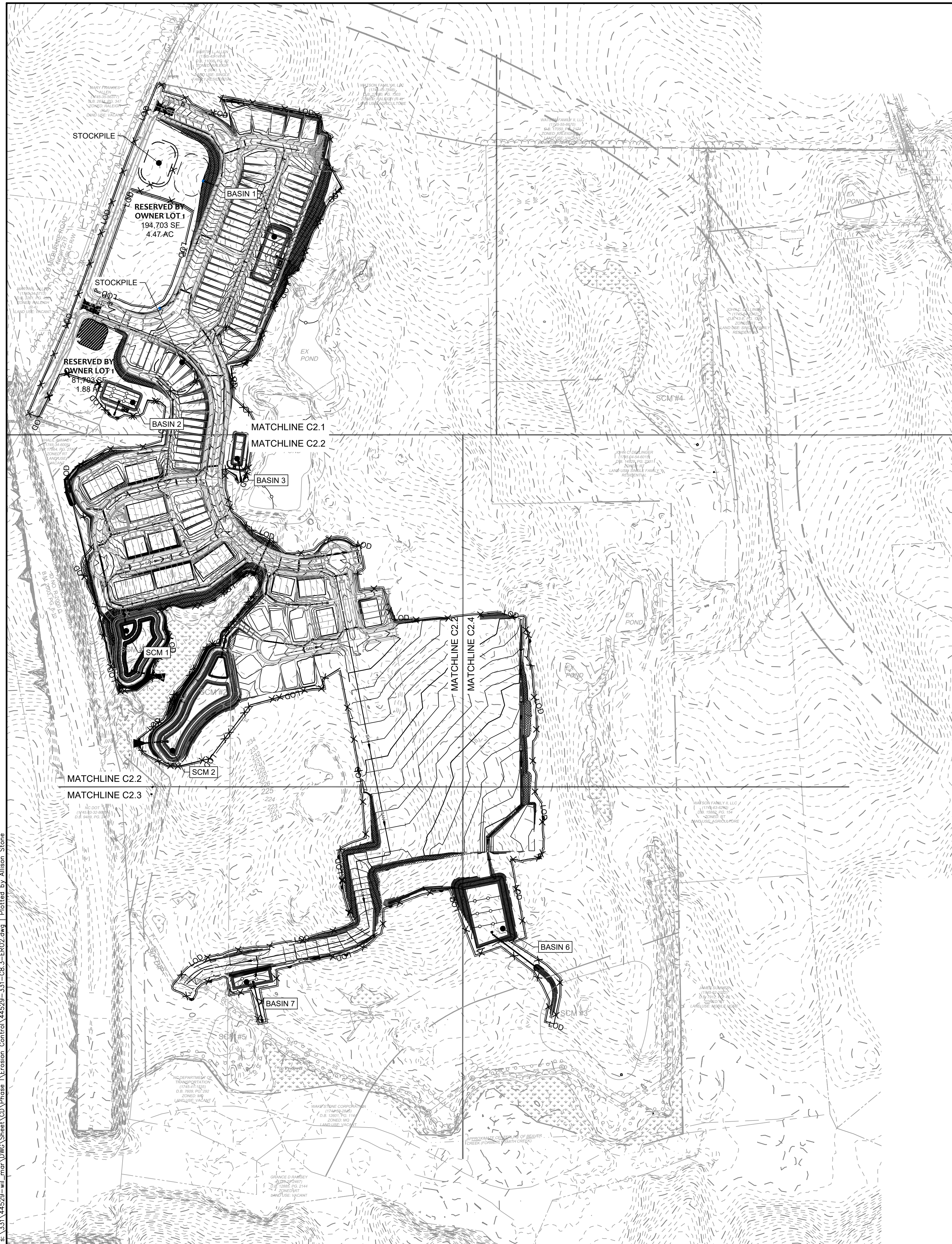
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 DESIGNED BY: 331
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 SCALE: 1"=60'

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 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL PLAN PHASE 1 - SHEET 4 OF 4
 JOB NO. 44529
 SHEET NO. C8.4

REVISION DESCRIPTION	DATE

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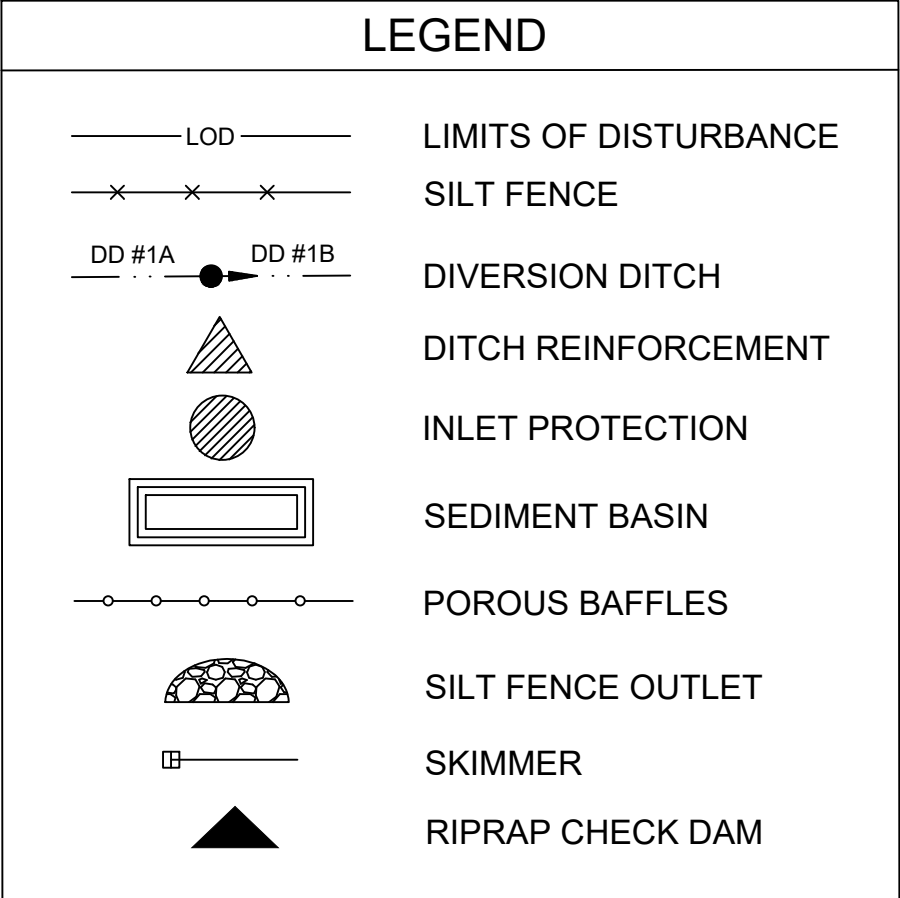
(Chapter 8.05 of the NCDEQ E&S Planning and Design Manual)

NAME	LENGTH (FT)	DA (AC)	ACCUM. DA (AC)	C	I ₁₀	Q ₁₀	SLOPE (FT/FT)	N VALUE	V (FT/S)	SHEAR (PSF)	FLOW DEPTH (FT)	FLOW AREA (FT ²)	Wp (FT)	R (FT)	SWALE DEPTH (IN)	SIDE SLOPE (H:V)	TEMPORARY LINING
					(IN/HR)	(CFS)											
DITCH 6A	300	0.89	0.89	0.50	7.25	3.23	1.5%	0.055	1.73	0.75	0.80	1.92	5.06	0.38	24	3:1	STRAW W/ TACK
DITCH 6B	1010	1.32	1.32	0.50	7.25	4.79	1.8%	0.055	2.75	0.99	0.89	3.76	5.63	0.67	24	3:1	STRAW W/ TACK
DITCH 6C	240	N/A	N/A	0.50	7.25	6.10	0.4%	0.021	2.58	0.23	0.89	2.38	5.63	0.42	36	3:1	NAG C125
DITCH 7A	420	4.10	4.10	0.50	7.25	14.86	3.3%	0.021	7.02	1.75	0.85	2.17	5.38	0.40	24	3:1	NAG C125
DITCH 7B	106	0.64	0.64	0.50	7.25	2.32	3.8%	0.055	2.23	1.38	0.58	1.01	3.67	0.28	24	3:1	STRAW W/ TACK

OUTLET NAME	PIPE DIA. (in)	PIPE SLOPE (ft/ft)	Q ₁₀ (cfs)	V ₁₀ (fps)	ZONE	PAD DIMENSIONS			STONE SIZING		
						LENGTH (ft)	WIDTH (ft)	DEPTH (in)	D ₅₀ (in)	D _{max} (in)	CLASS (NCDOT)
BASIN 1 OUTFALL	6	0.016	8.2	41.76	1	2	2	12	10	17	1
BASIN 2 OUTFALL	6	0.016	8.2	41.76	1	2	2	12	10	17	1
BASIN 3 OUTFALL	6	0.041	13.1	66.72	1	2	2	12	10	17	1
SCM 1 OUTFALL	36	0.062	166.3	26.82	6	30	9	36	14	23	2
SCM 2 OUTFALL	36	0.068	174.2	28.09	6	30	9	36	14	23	2
BASIN 6 OUTFALL	15	0.011	6.8	6.30	1	5	4	12	4	6	A
BASIN 7 OUTFALL	6	0.026	10.4	52.97	1	2	2	12	10	17	1
BASIN 7 TEMP IN	15	0.027	10.6	9.88	2	7.5	4	18	8	12	B

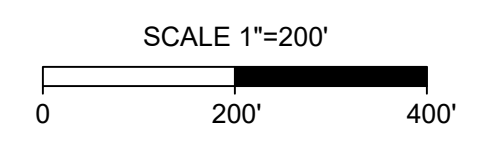
TOTAL DISTURBED AREA = 57.5 ACRES

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



EROSION AND SEDIMENT CONTROL
APPROVED PLAN
 DATE _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

TOWN CERTIFICATION
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 BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER
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 BY: _____ DATE: _____
 ADMINISTRATOR



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 DATE
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DRAWN BY
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DESIGNED BY
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CHECKED BY
 M. ZACCARDO

SCALE
 1"=200'

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652
ALLEN PARK SUBDIVISION
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
OVERALL EROSION & SEDIMENT CONTROL PLAN PHASE 2

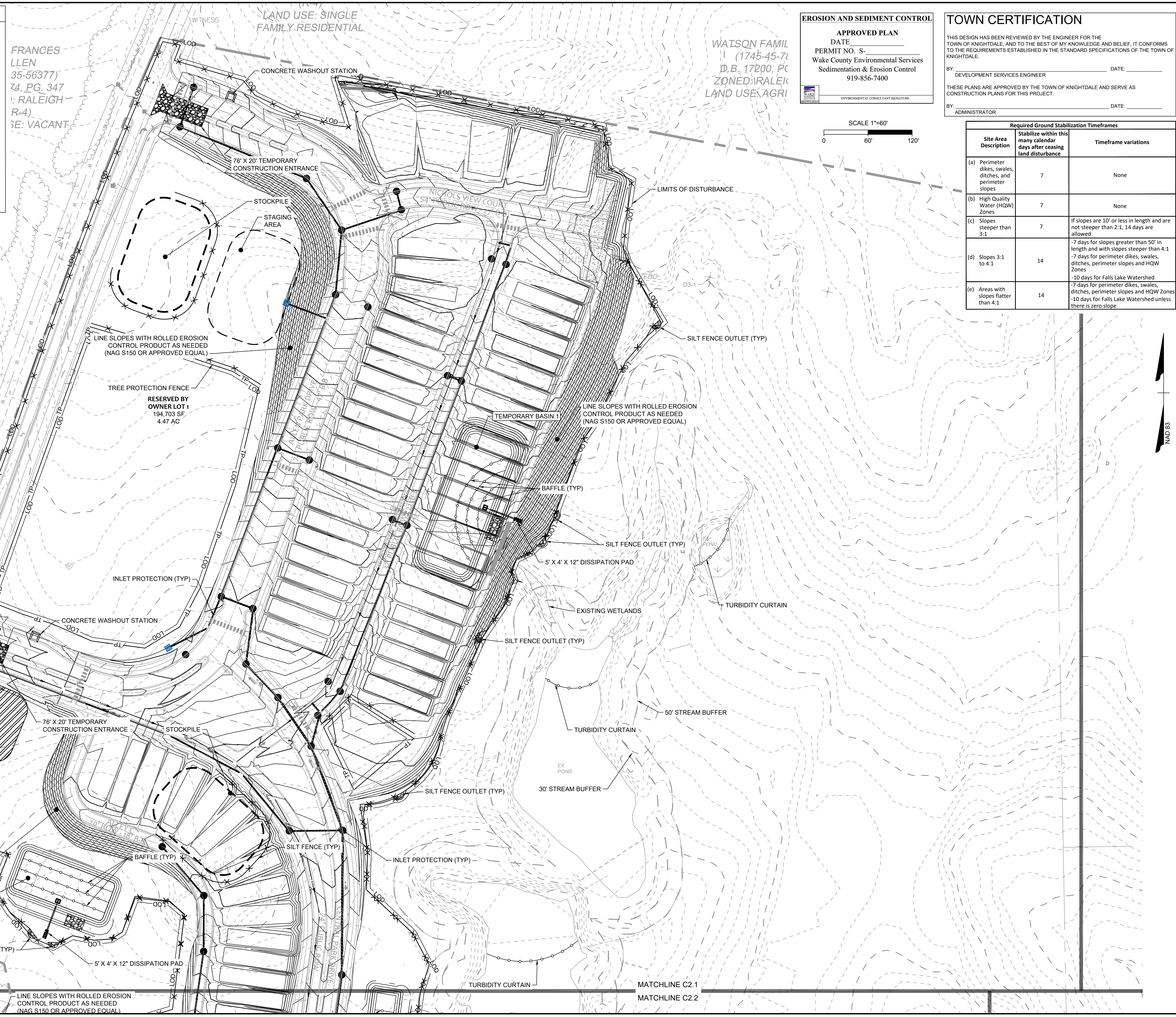
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LEGEND

- LOD — LIMITS OF DISTURBANCE
- x — x — SILT FENCE
- DD #1A ● DD #1B DIVERSION DITCH
- ▲ DITCH REINFORCEMENT
- INLET PROTECTION
- ▭ SEDIMENT BASIN
- o — o — POROUS BAFFLES
- ◐ SILT FENCE OUTLET
- SKIMMER
- ▲ RIPRAP CHECK DAM

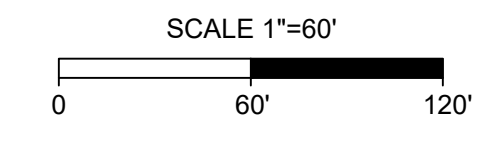
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 ADMINISTRATOR

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

MARTIN L. ALLEN
 (745-34-5713)
 3261, PG. 450
 ZONED: RALEIGH
 (R-4)
 LAND USE: VACANT

RESERVED BY OWNER LOT 1
 81,703 SF
 1.88 AC

RESERVED BY OWNER LOT 1
 194,703 SF
 4.47 AC

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL PLAN PHASE 2 - SHEET 1 OF 4

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DATE: 08/19/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: M. ZACCARDO

SCALE: 1"=60'

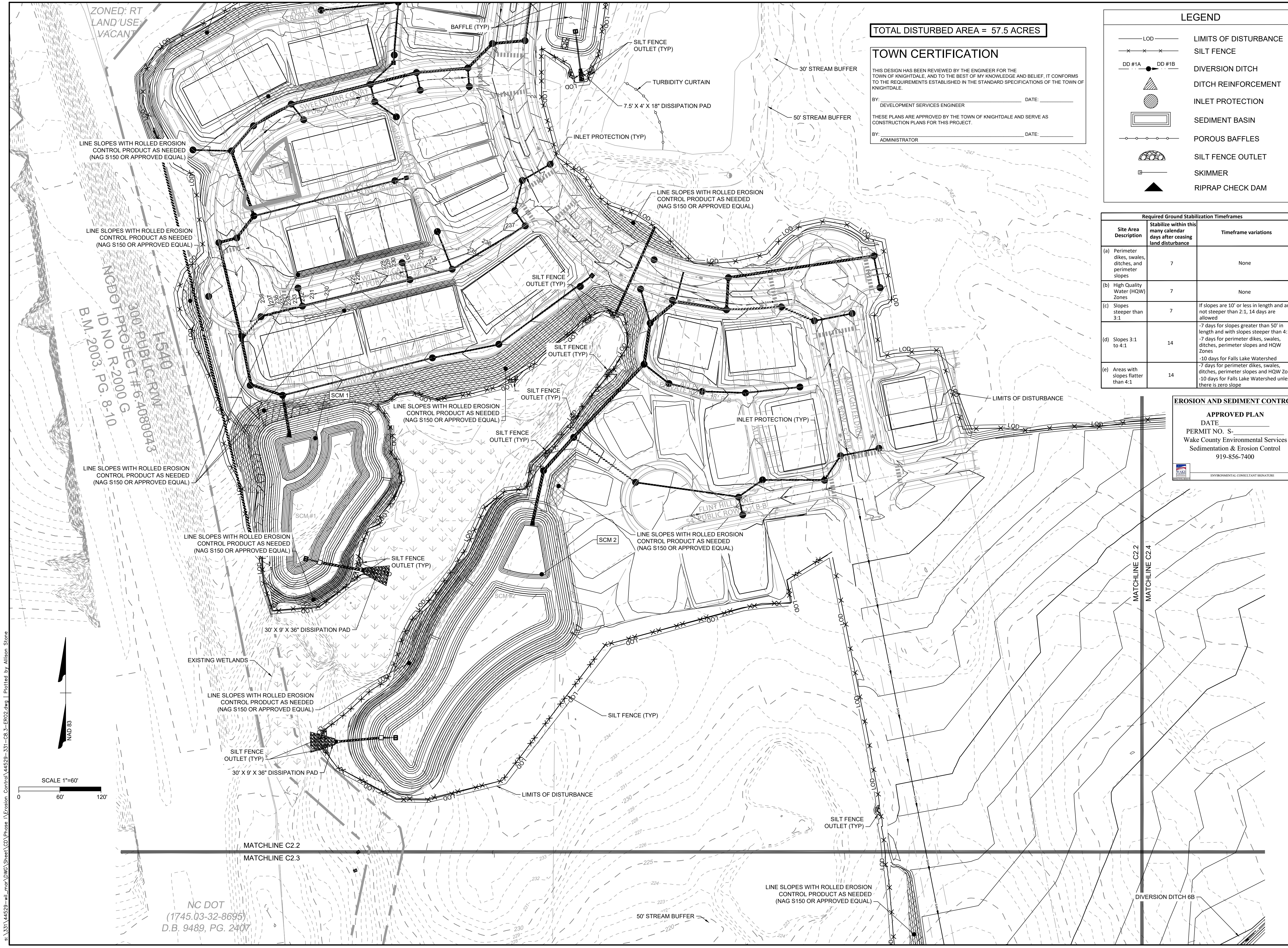
JOB NO. 44529

SHEET NO. C8.6

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REVISION DESCRIPTION

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TOTAL DISTURBED AREA = 57.5 ACRES

TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

LEGEND

- LOD — LIMITS OF DISTURBANCE
- x — x — SILT FENCE
- DD #1A ● DD #1B DIVERSION DITCH
- ▲ DITCH REINFORCEMENT
- INLET PROTECTION
- ▭ SEDIMENT BASIN
- o — o — POROUS BAFFLES
- ▲ SILT FENCE OUTLET
- SKIMMER
- ▲ RIPRAP CHECK DAM

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

EROSION AND SEDIMENT CONTROL

APPROVED PLAN
DATE _____
PERMIT NO. S-_____
Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE

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DESIGNED BY
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CHECKED BY
M. ZACCARDO
SCALE
1"=60'

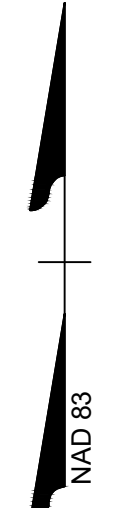
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NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA
EROSION & SEDIMENT CONTROL PLAN PHASE 2 - SHEET 2 OF 4

JOB NO.
44529
SHEET NO.
C8.7

NC DOT
(1745.03-32-8695)
D.B. 9489, PG. 2407

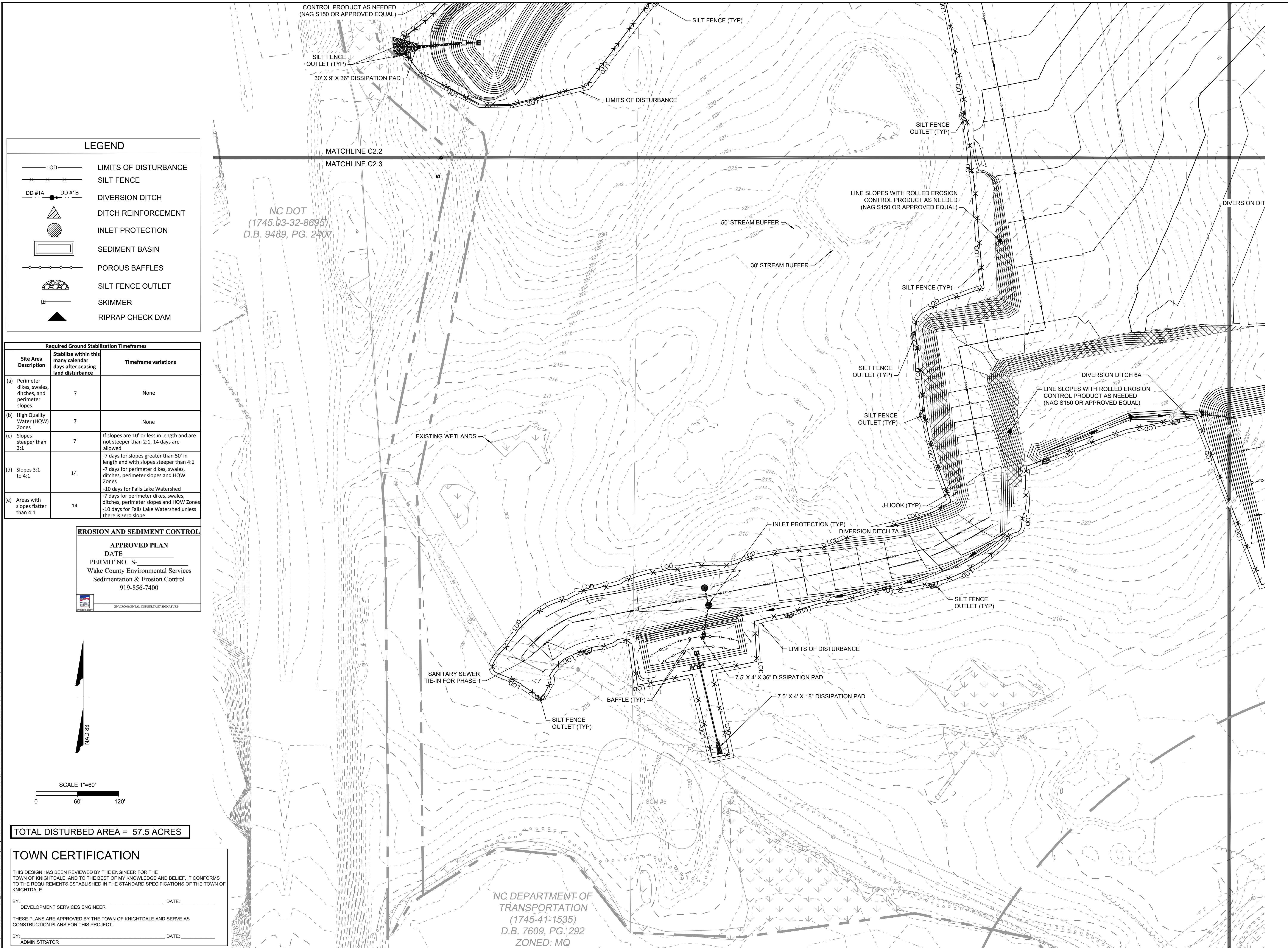
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SCALE 1"=60'
0 60' 120'

300-PUBLIC ROW
PROJECT # 6 4080043
ID NO. R-2000 G
PG. 8-10
B.M. 2003, PG. 8-10

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LEGEND

- LOD — LIMITS OF DISTURBANCE
- x — x — SILT FENCE
- DD #1A ● DD #1B DIVERSION DITCH
- ▴ DITCH REINFORCEMENT
- ▭ INLET PROTECTION
- ▭ SEDIMENT BASIN
- ○ ○ ○ POROUS BAFFLES
- ▭ SILT FENCE OUTLET
- ▭ SKIMMER
- ▴ RIPRAP CHECK DAM

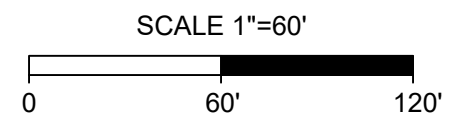
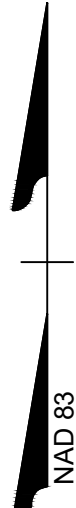
Required Ground Stabilization Timeframes

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EROSION AND SEDIMENT CONTROL

APPROVED PLAN
 DATE _____
 PERMIT NO. S- _____
 Wake County Environmental Services
 Sedimentation & Erosion Control
 919-856-7400

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TOTAL DISTURBED AREA = 57.5 ACRES

TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR

NC DEPARTMENT OF
 TRANSPORTATION
 (1745-41-1535)
 D.B. 7609, PG. 292
 ZONED: MQ

NC DOT
 (1745.03-32-8695)
 D.B. 9489, PG. 2407

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DRAWN BY
 331

DESIGNED BY
 331

CHECKED BY
 M. ZACCARDO

SCALE
 1"=60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

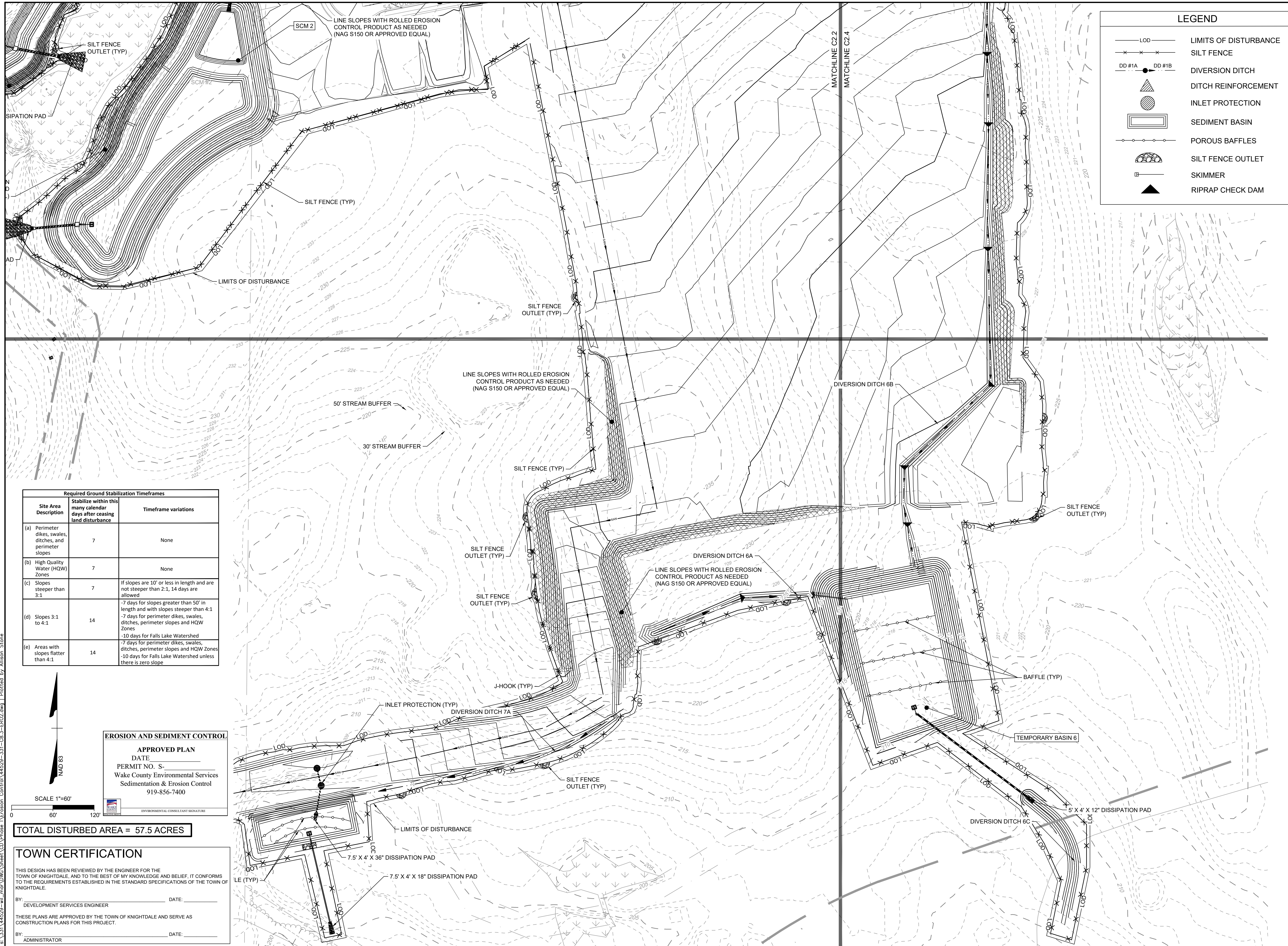
ALLEN PARK SUBDIVISION
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EROSION & SEDIMENT CONTROL PLAN PHASE 2 - SHEET 3 OF 4

JOB NO.
44529

SHEET NO.
C8.8

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LEGEND	
	LIMITS OF DISTURBANCE
	SILT FENCE
	DIVERSION DITCH
	DITCH REINFORCEMENT
	INLET PROTECTION
	SEDIMENT BASIN
	POROUS BAFFLES
	SILT FENCE OUTLET
	SKIMMER
	RIPRAP CHECK DAM

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EROSION AND SEDIMENT CONTROL

APPROVED PLAN

DATE: _____

PERMIT NO. S- _____

Wake County Environmental Services
Sedimentation & Erosion Control
919-856-7400

ENVIRONMENTAL CONSULTANT SIGNATURE: _____

SCALE 1"=60'

NAD 83

TOTAL DISTURBED AREA = 57.5 ACRES

TOWN CERTIFICATION

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BY: _____ DATE: _____
DEVELOPMENT SERVICES ENGINEER

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ADMINISTRATOR

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CHECKED BY: M. ZACCARDO
SCALE: 1"=60'

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KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

OVERALL EROSION & SEDIMENT CONTROL PLAN PHASE 2

JOB NO. 44529
SHEET NO. C8.5

REVISION DESCRIPTION

DATE

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DATE 08/19/2022

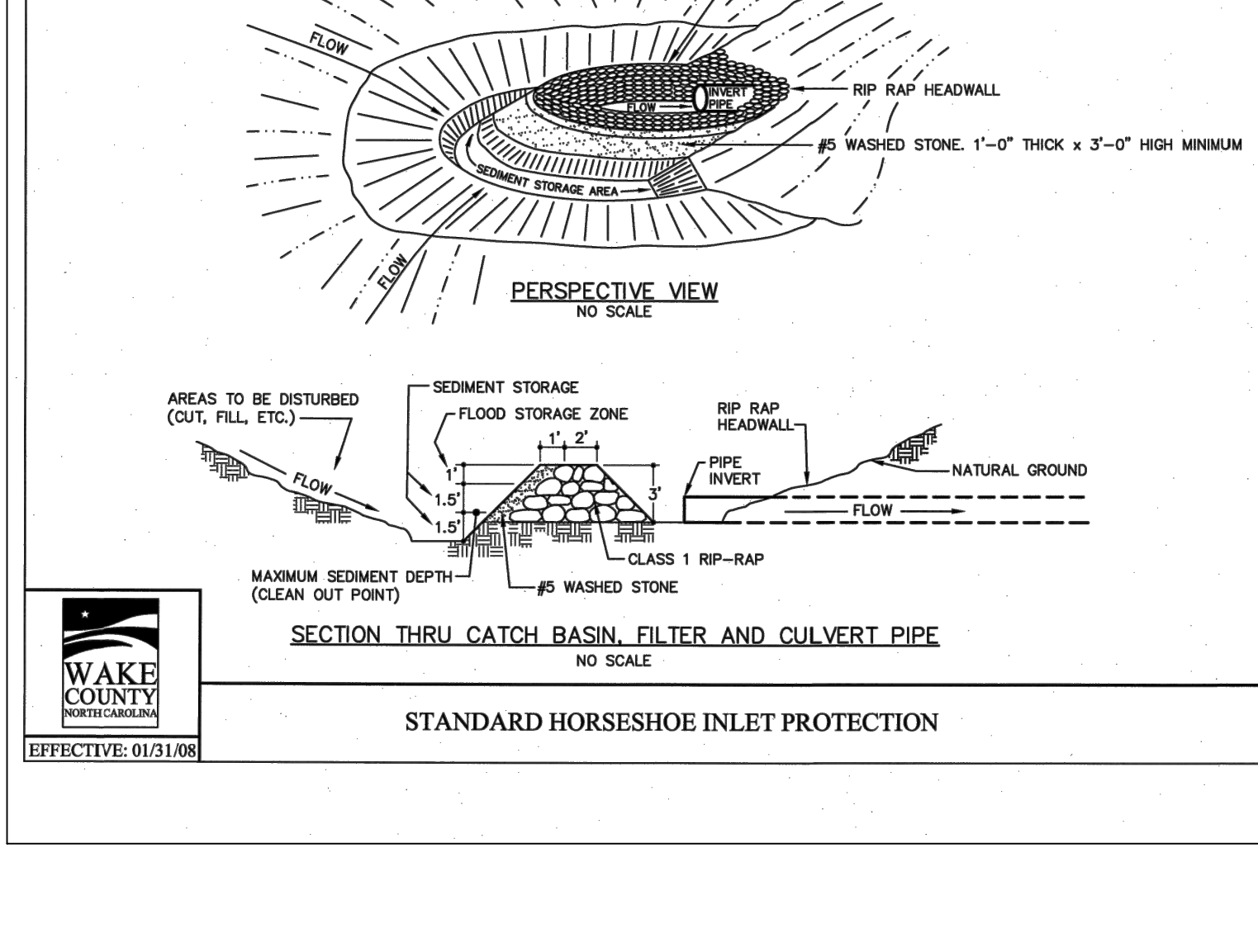
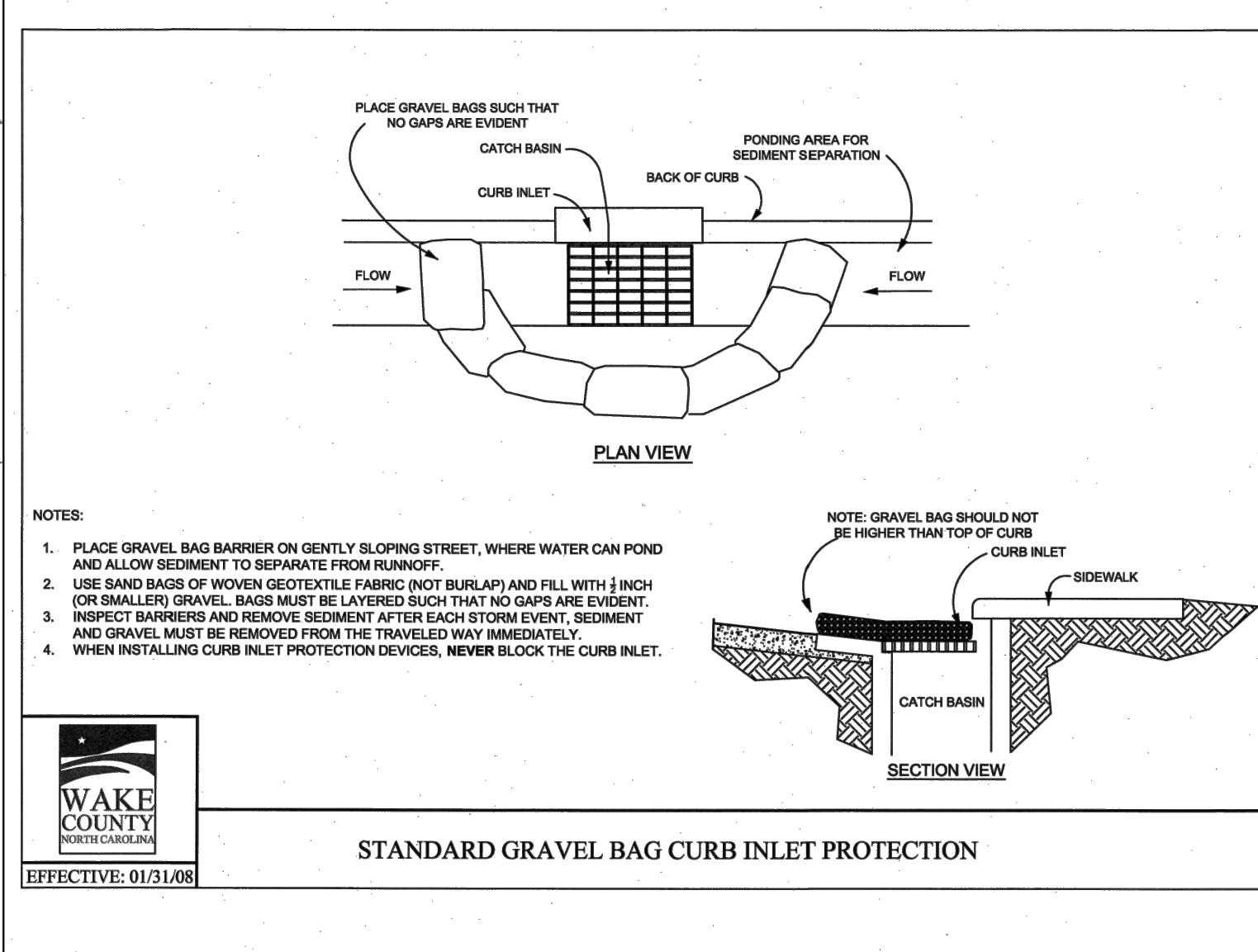
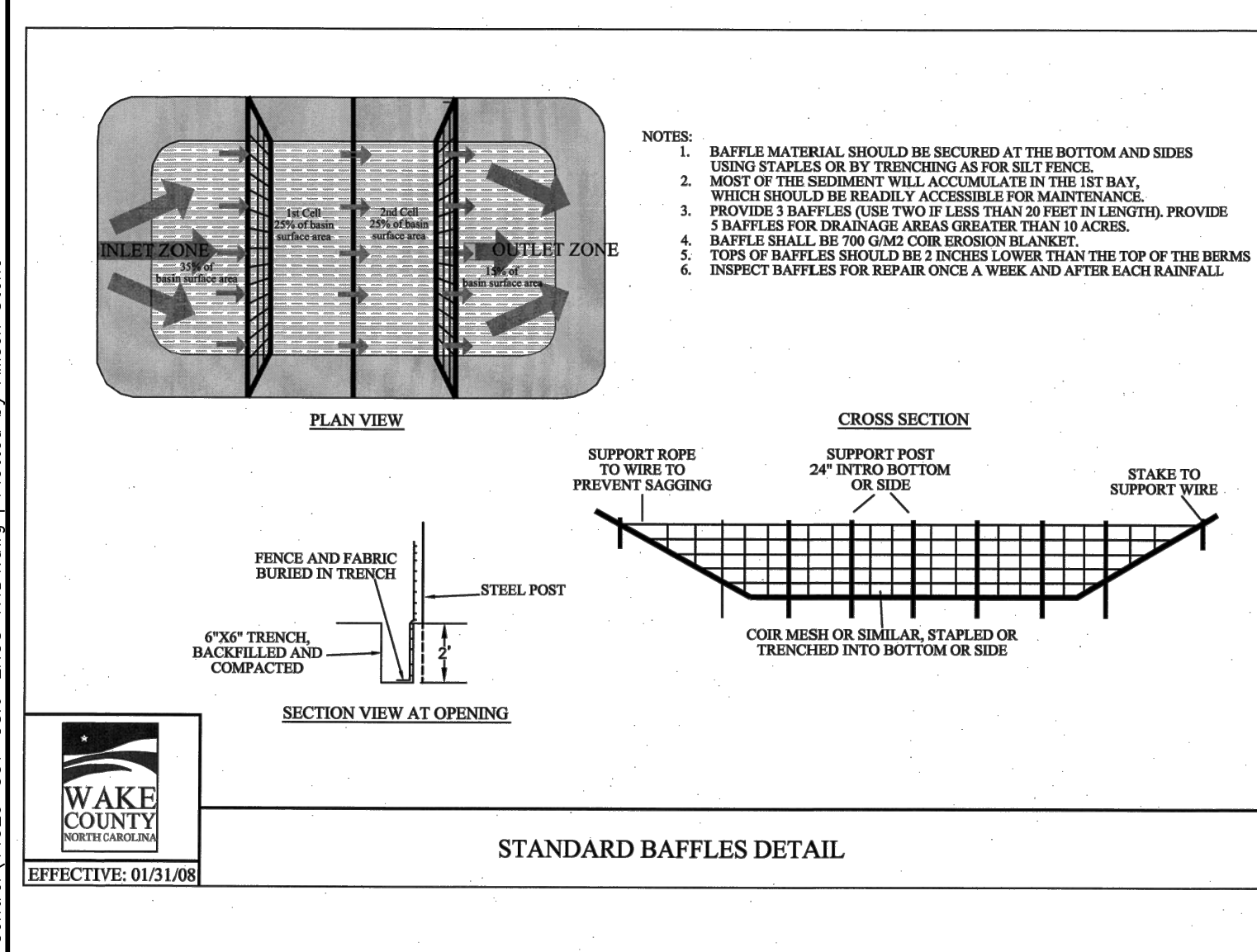
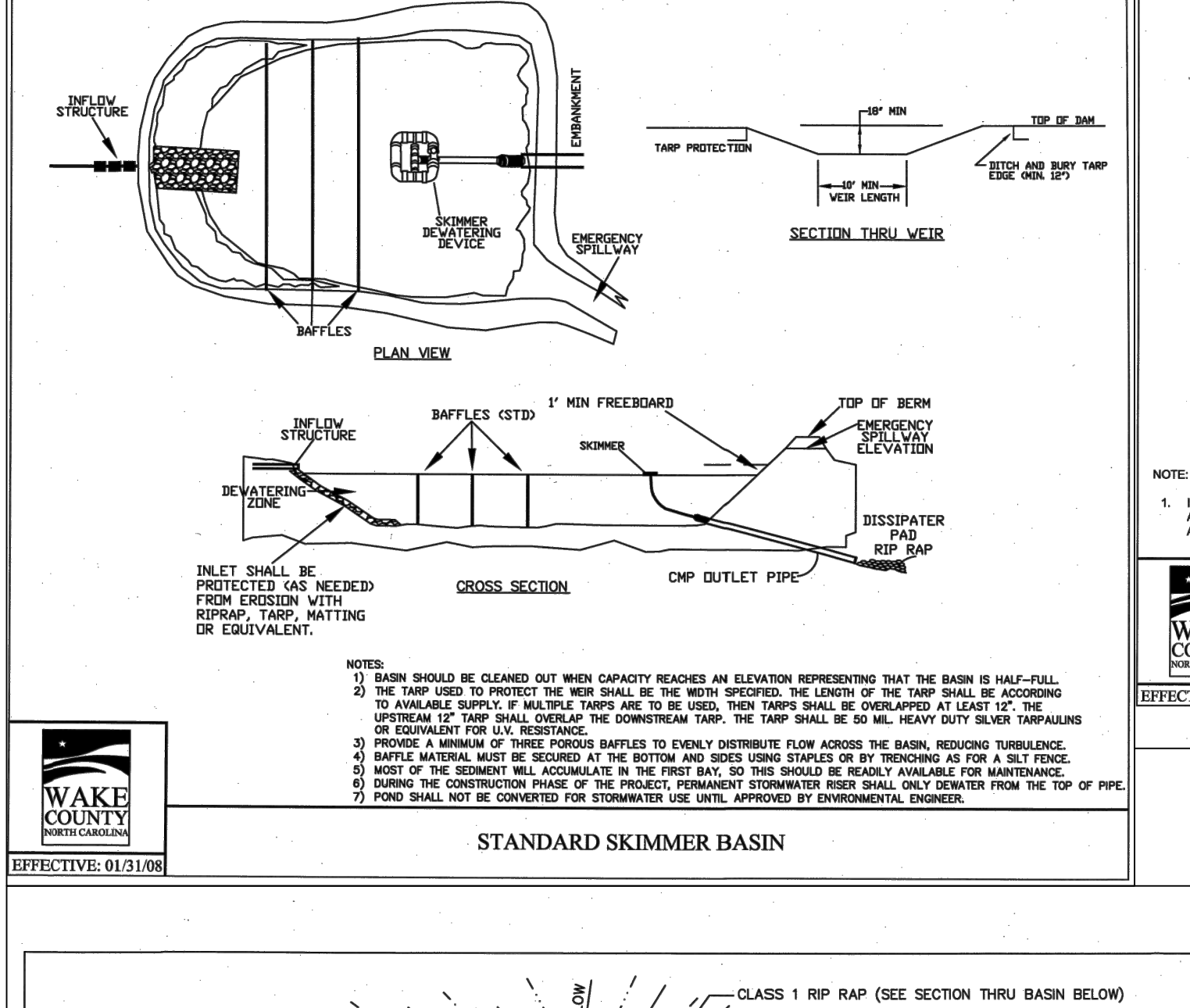
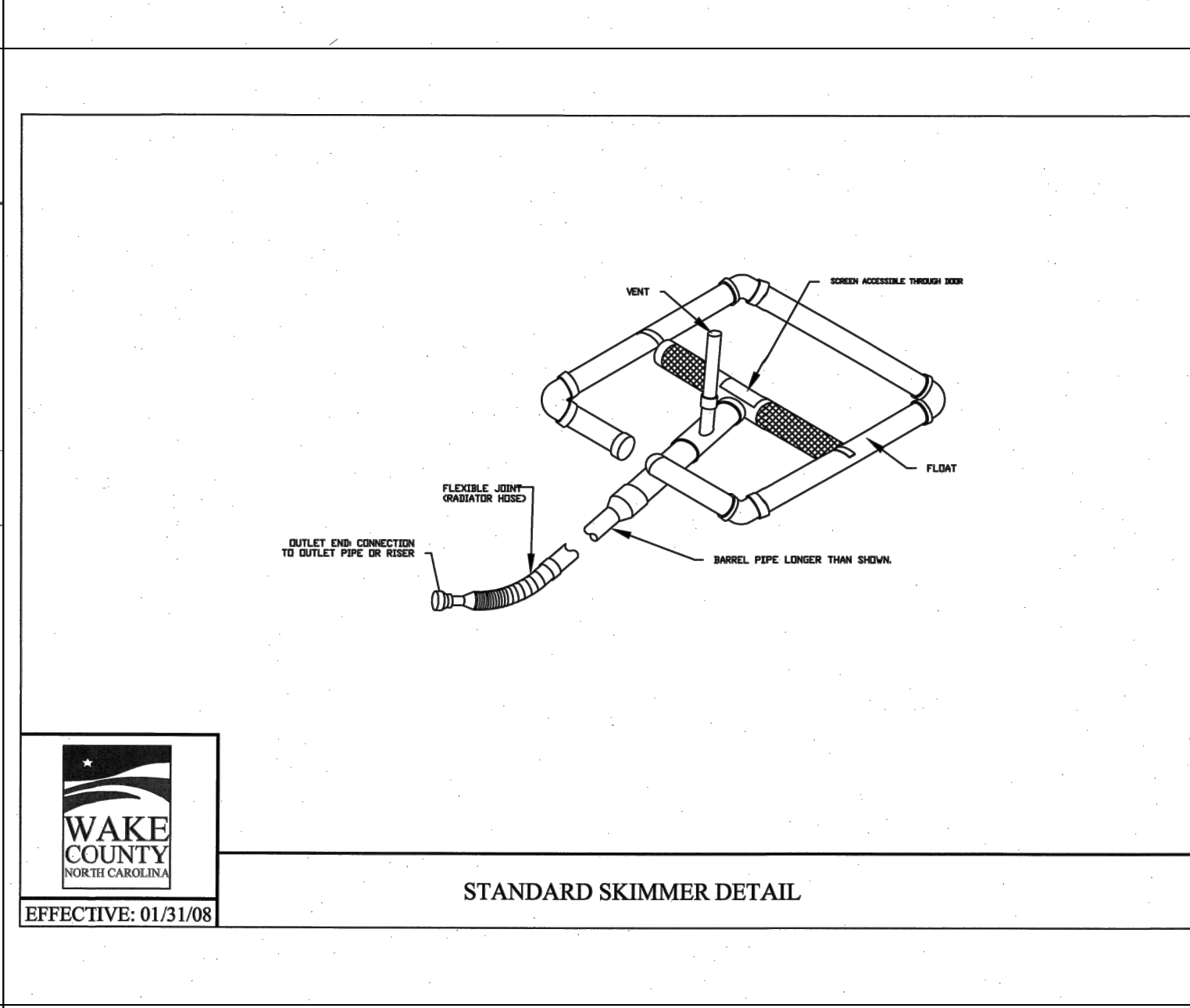
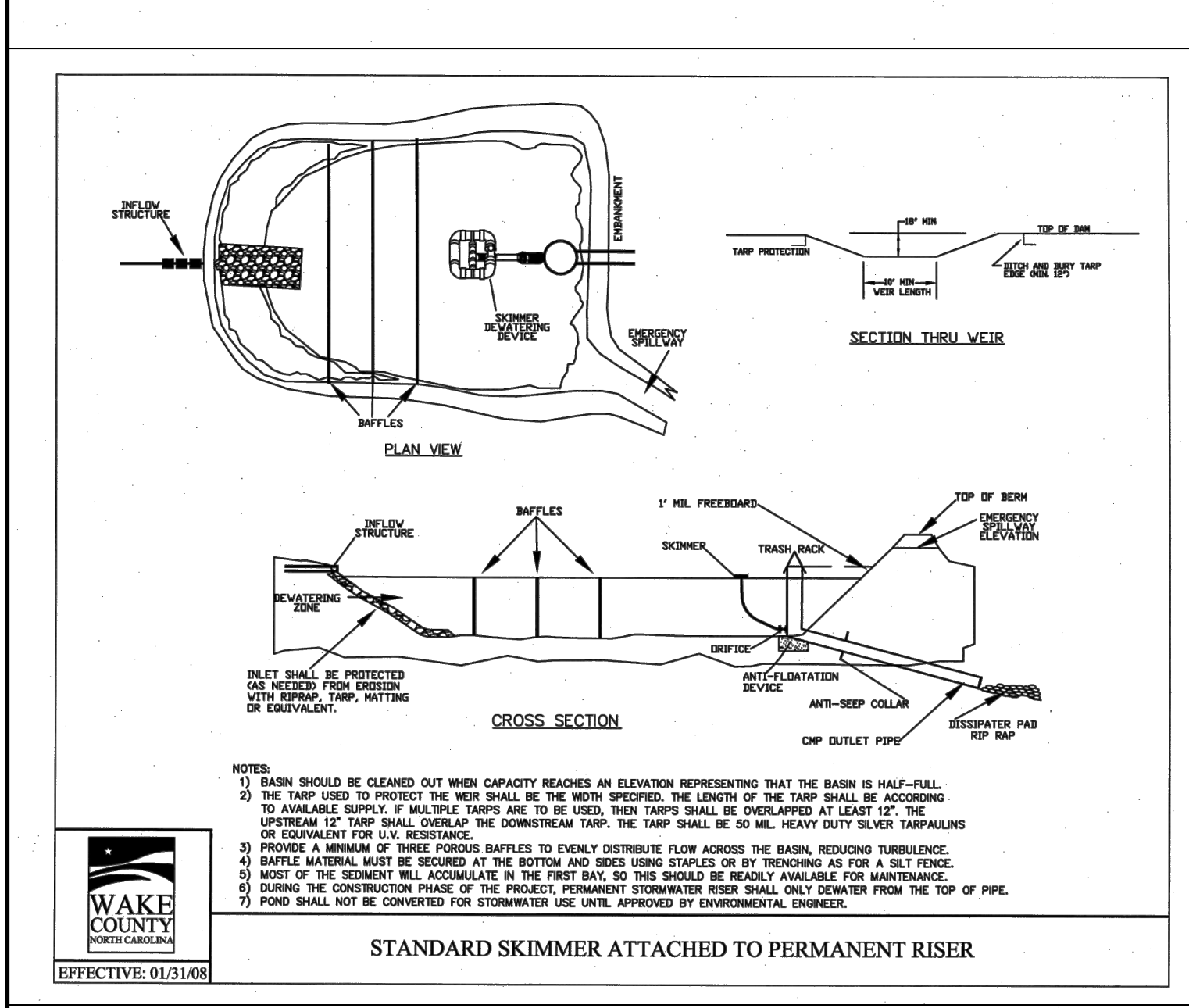
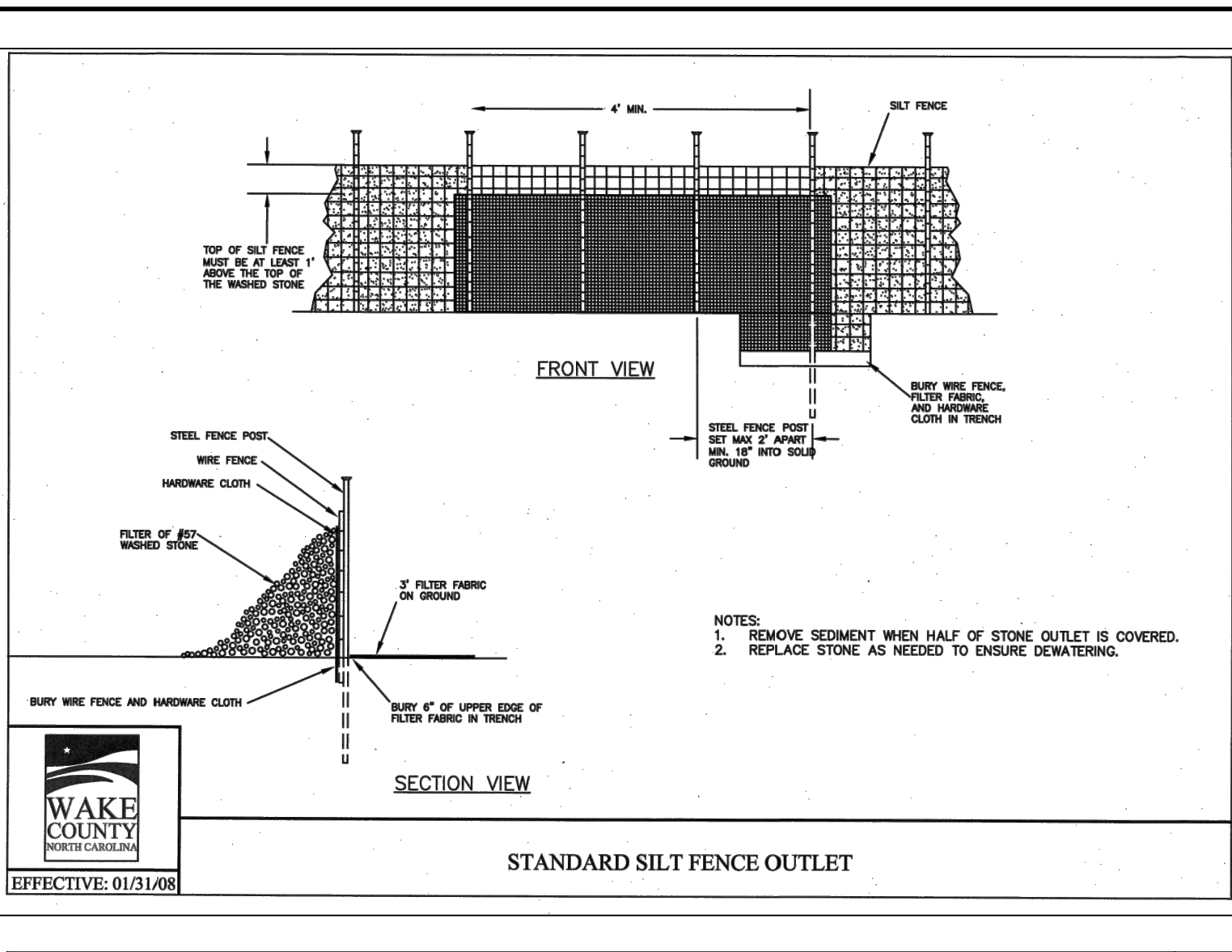
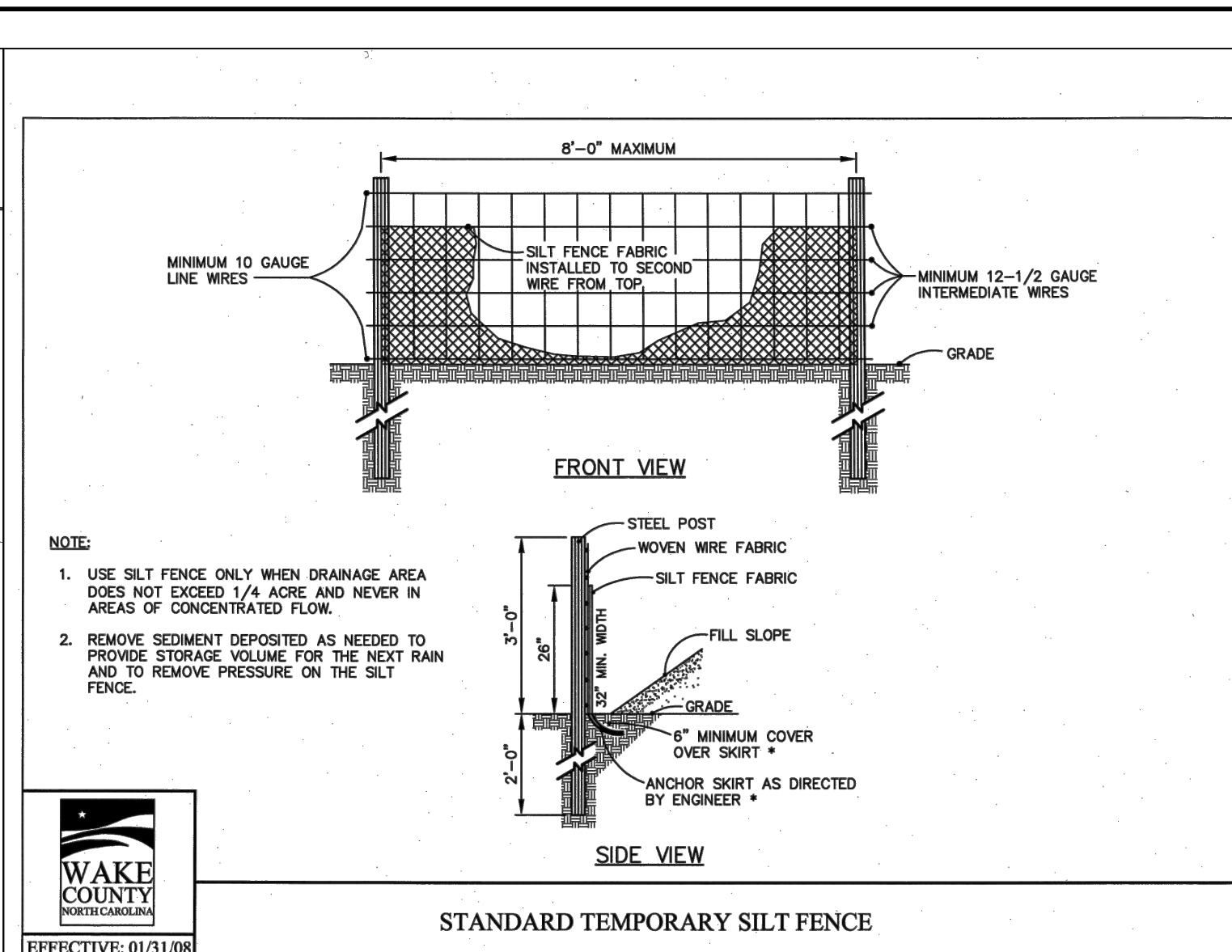
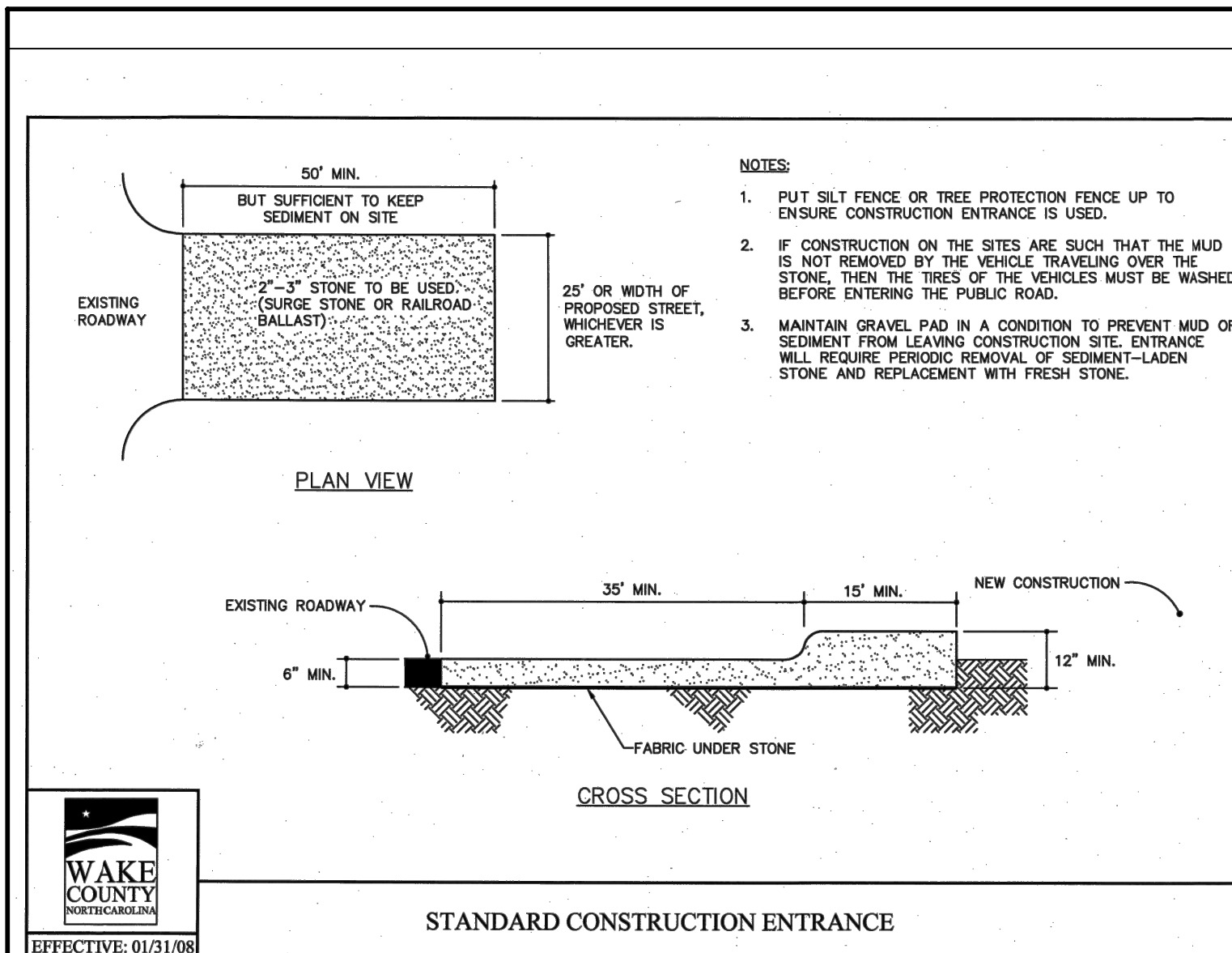
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DESIGNED BY 331

CHECKED BY M. ZACCARDO

SCALE 1"=60'

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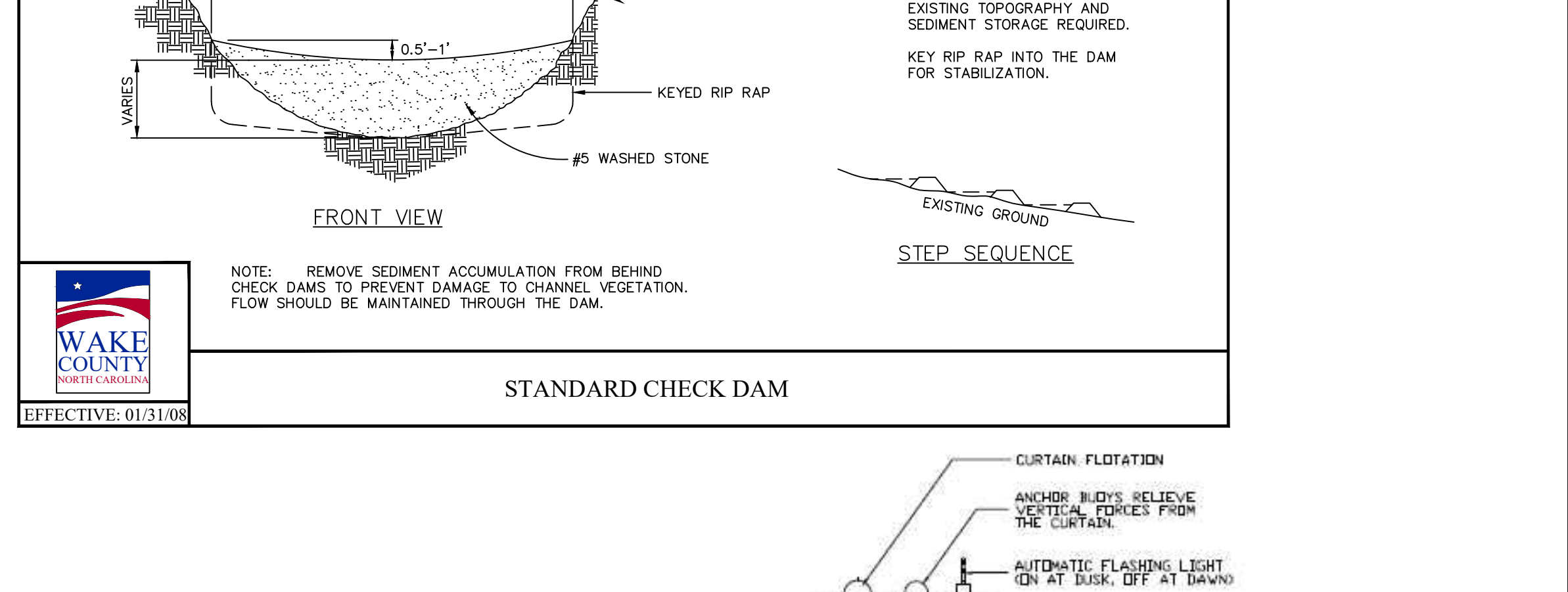
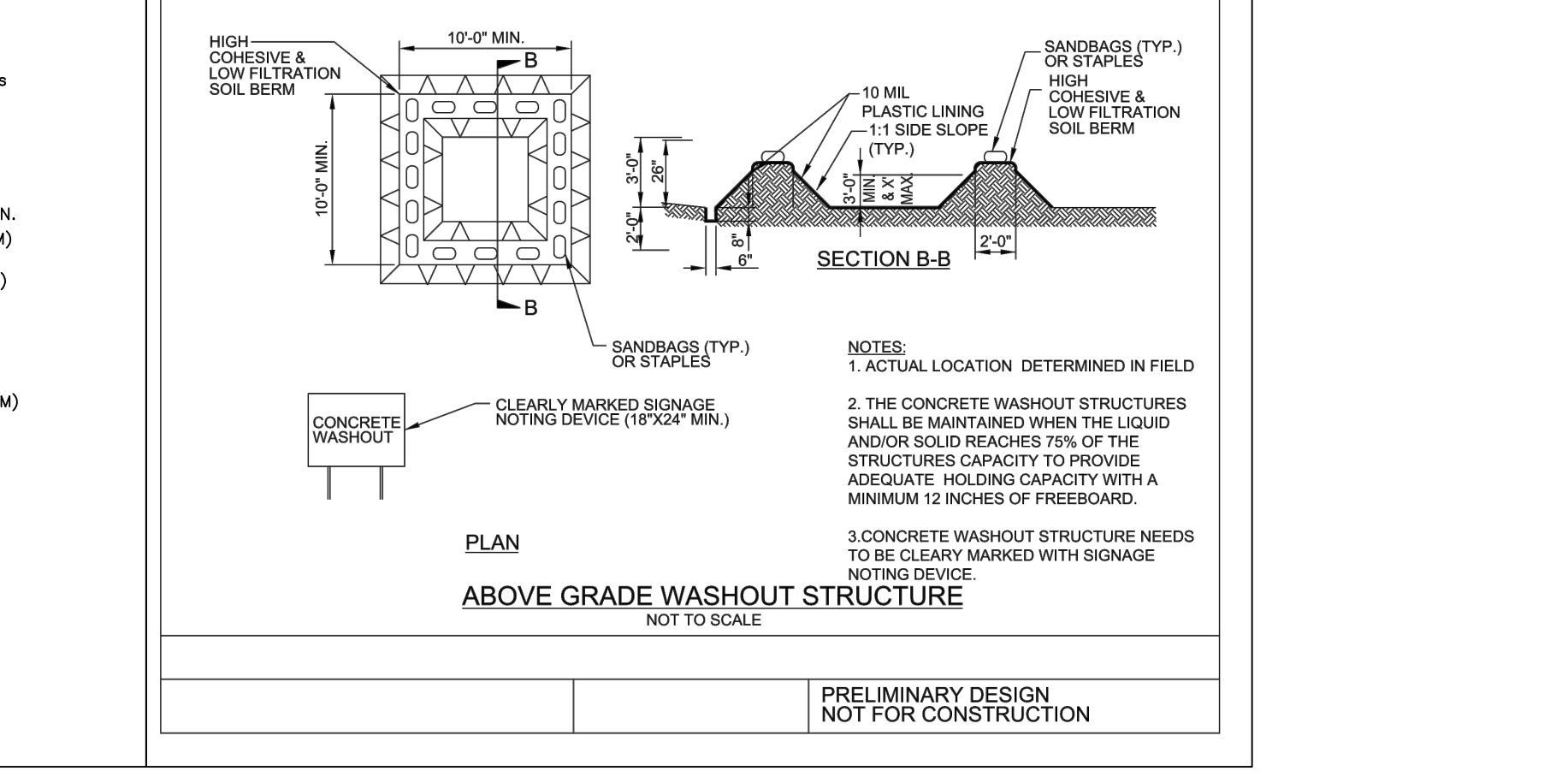
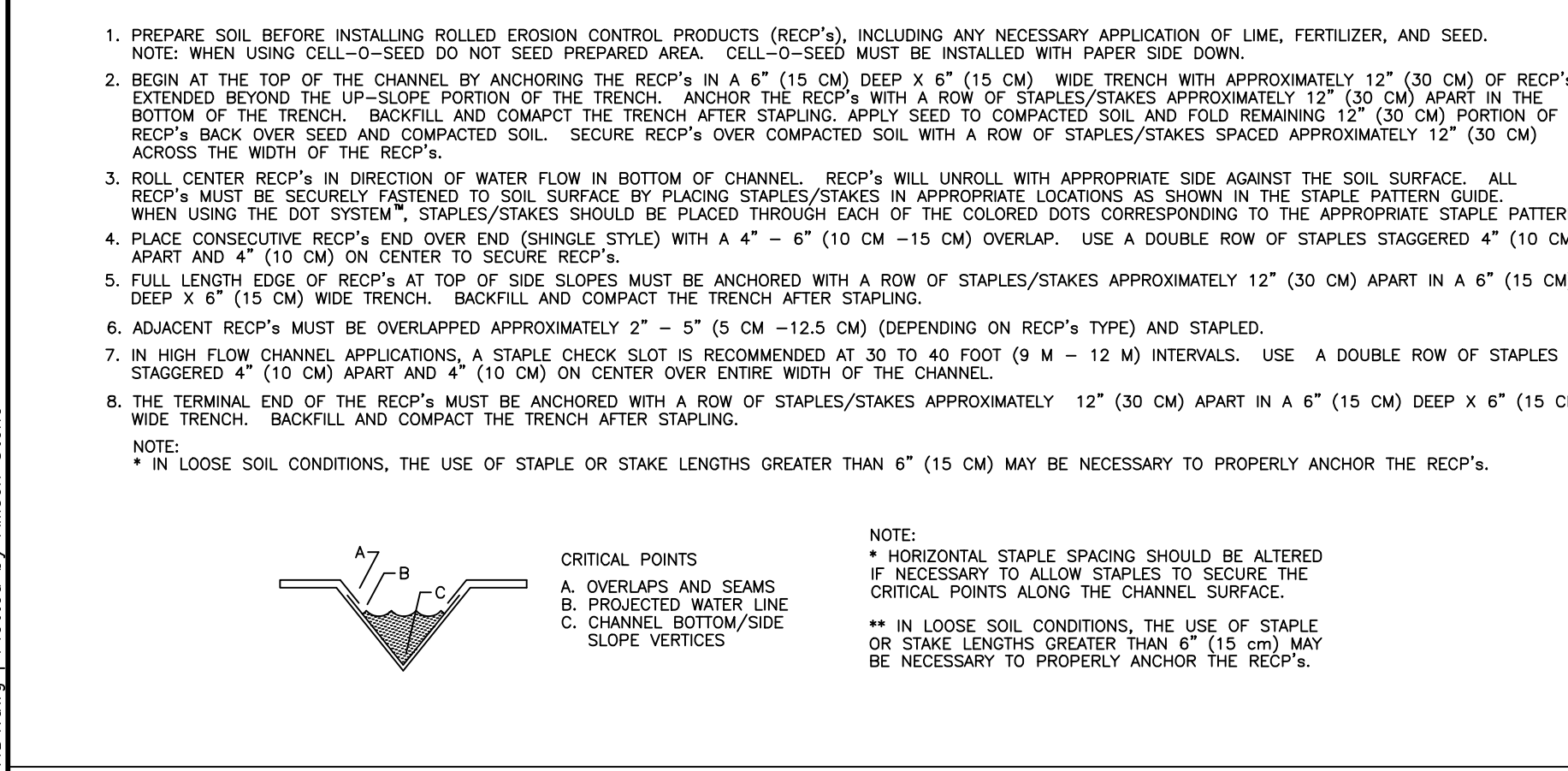
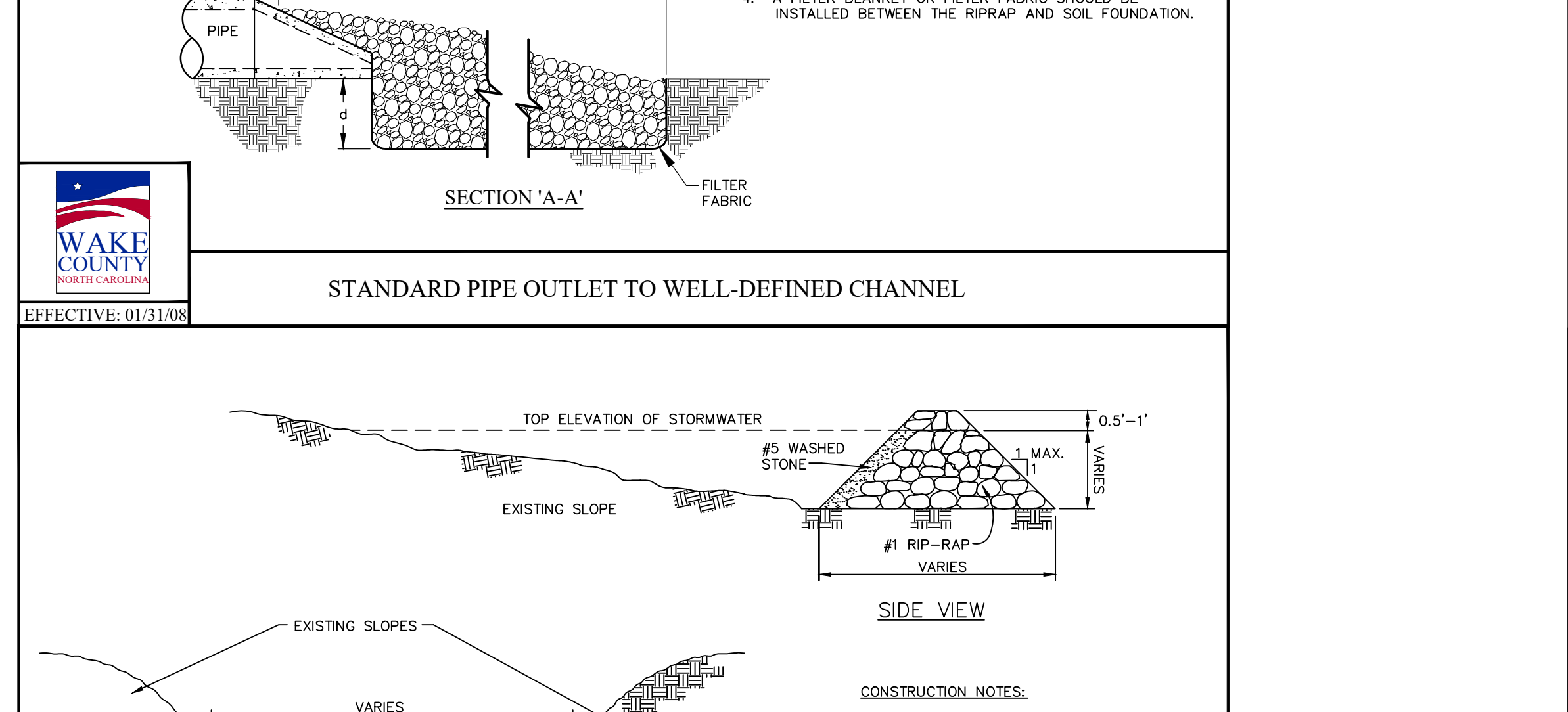
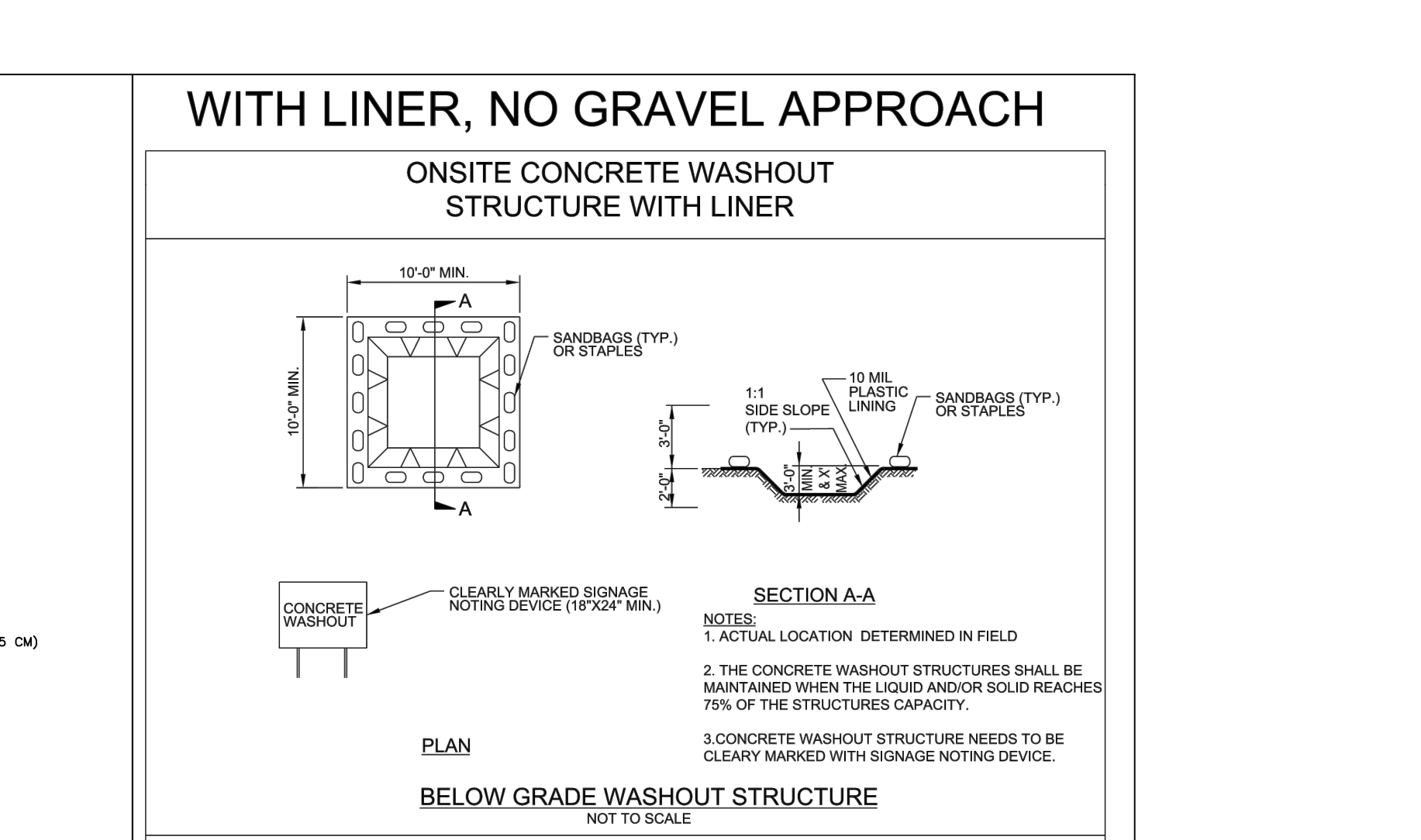
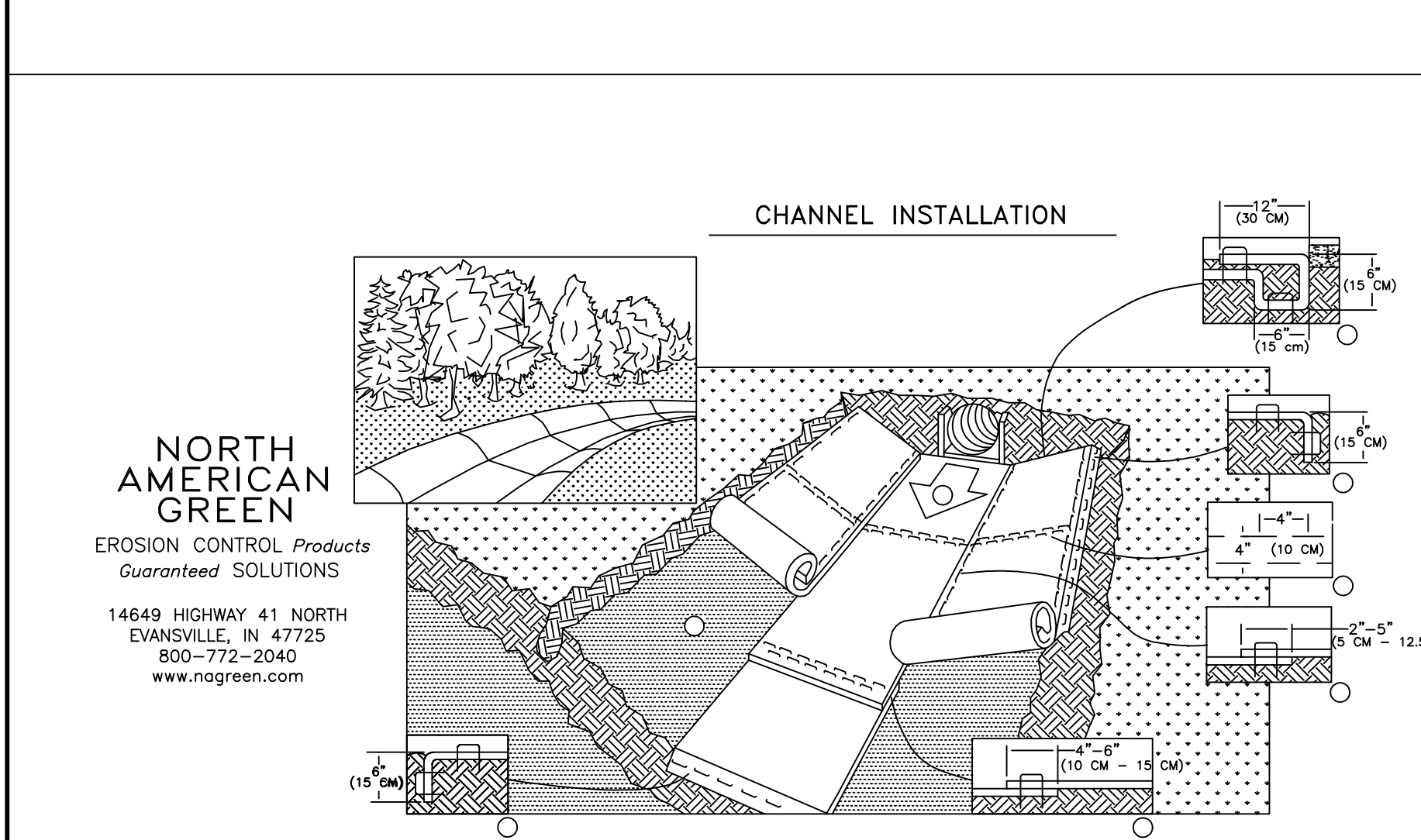
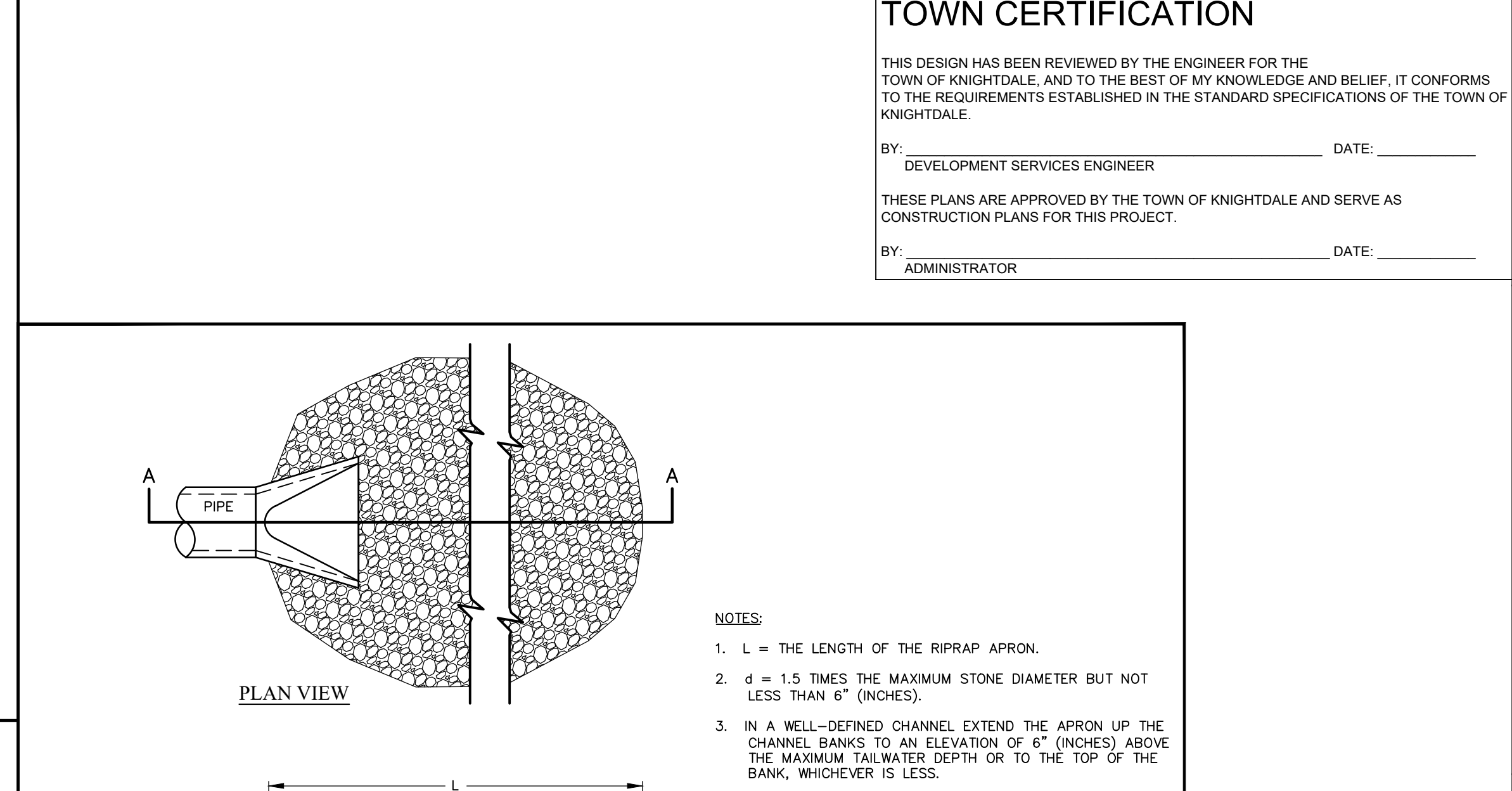
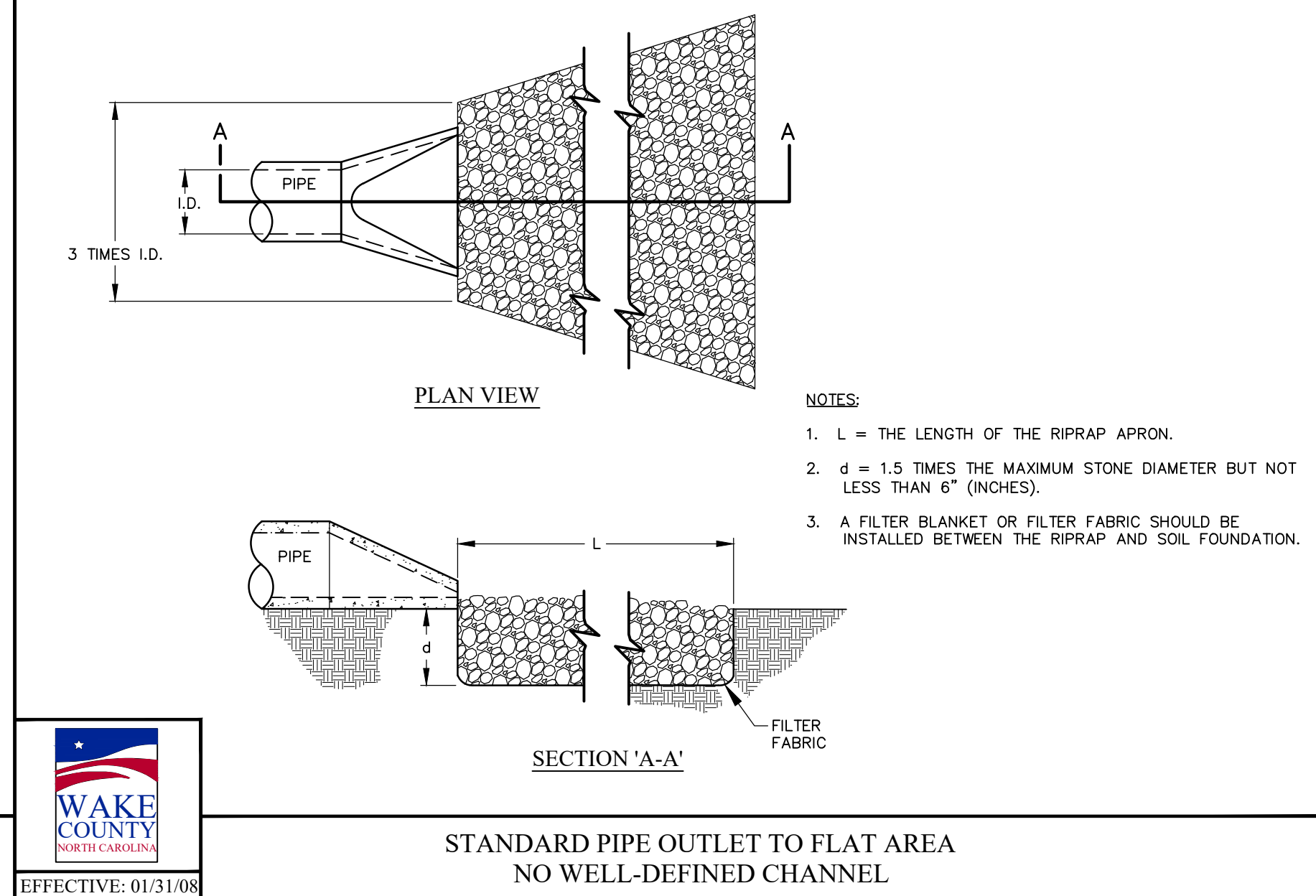
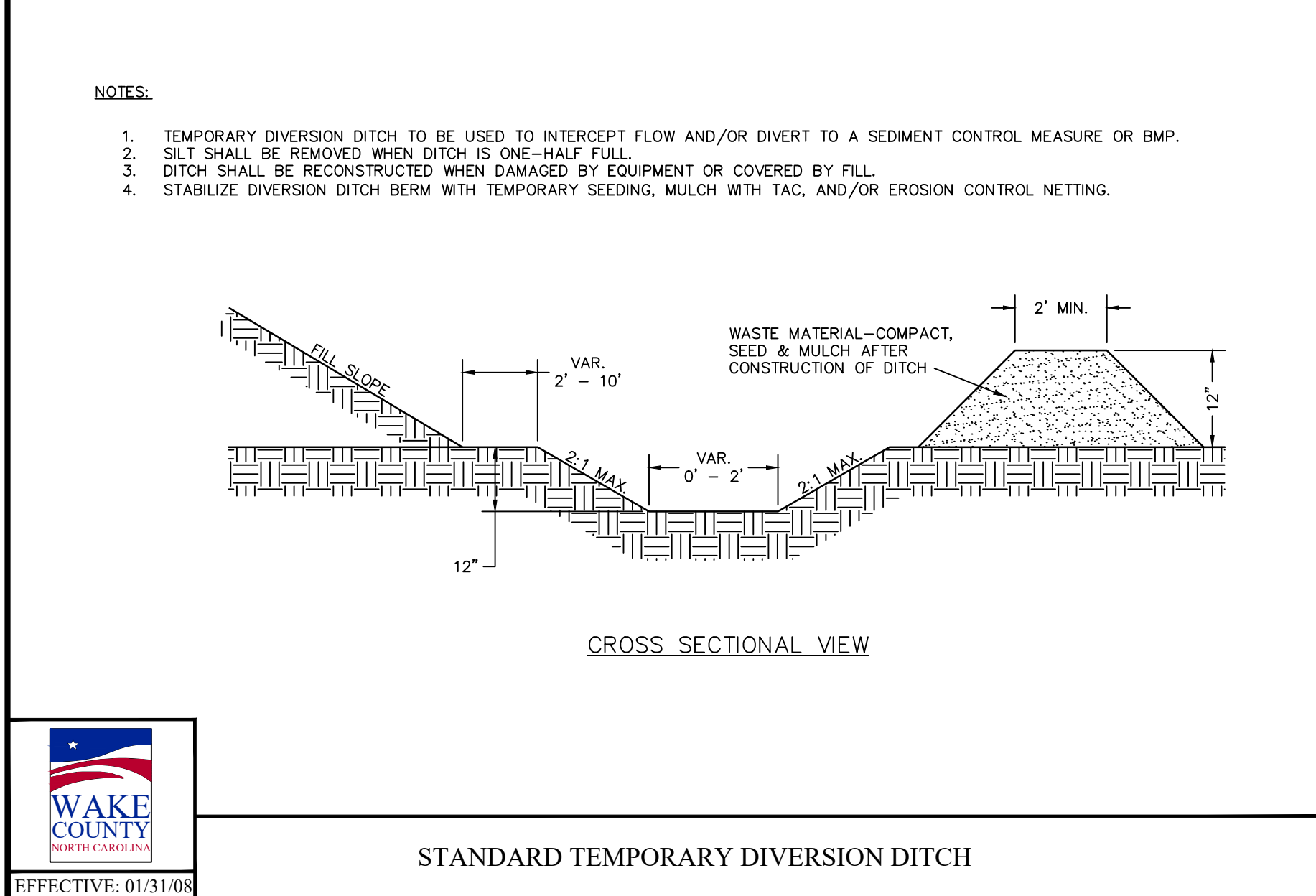
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL NOTES & DETAILS - SHEET 1 OF 3

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SHEET NO.	C8.10

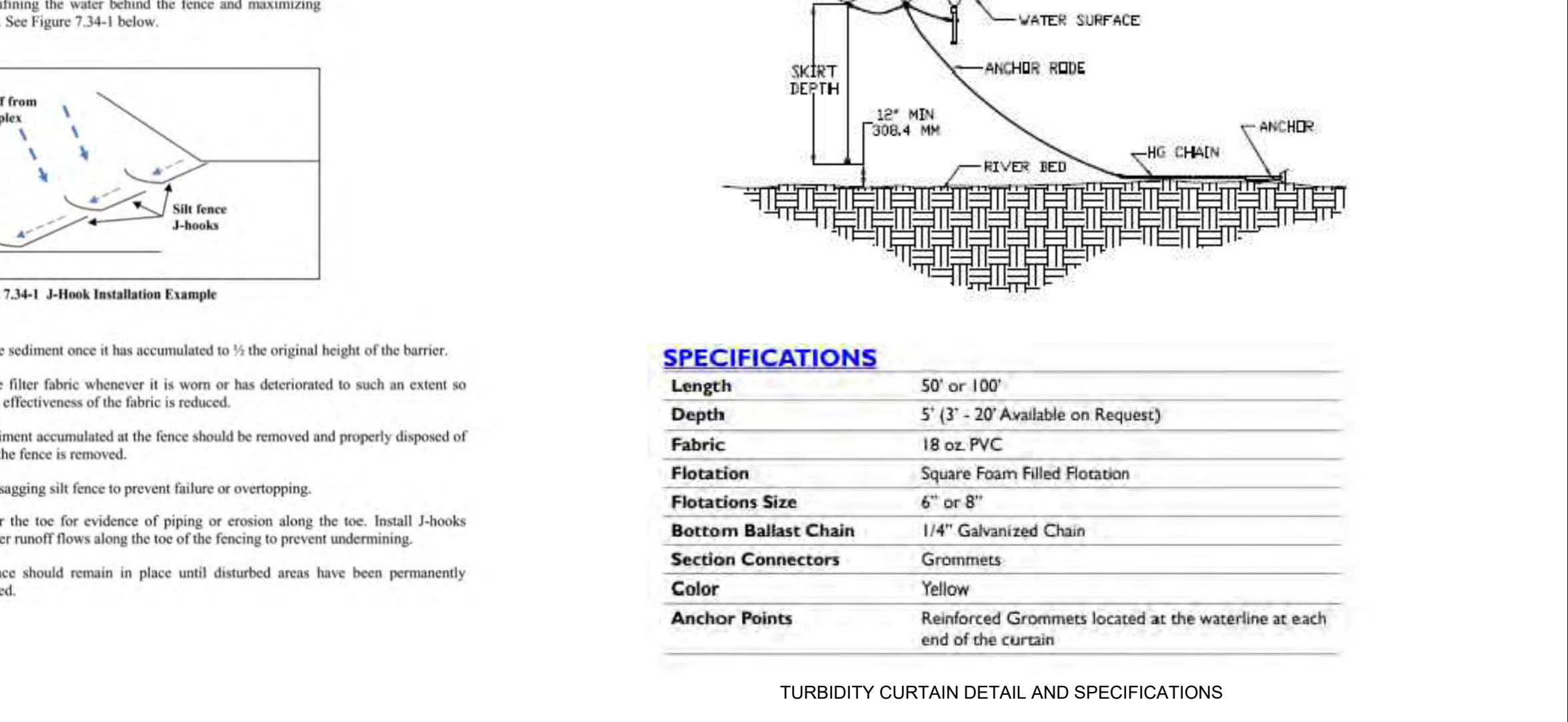
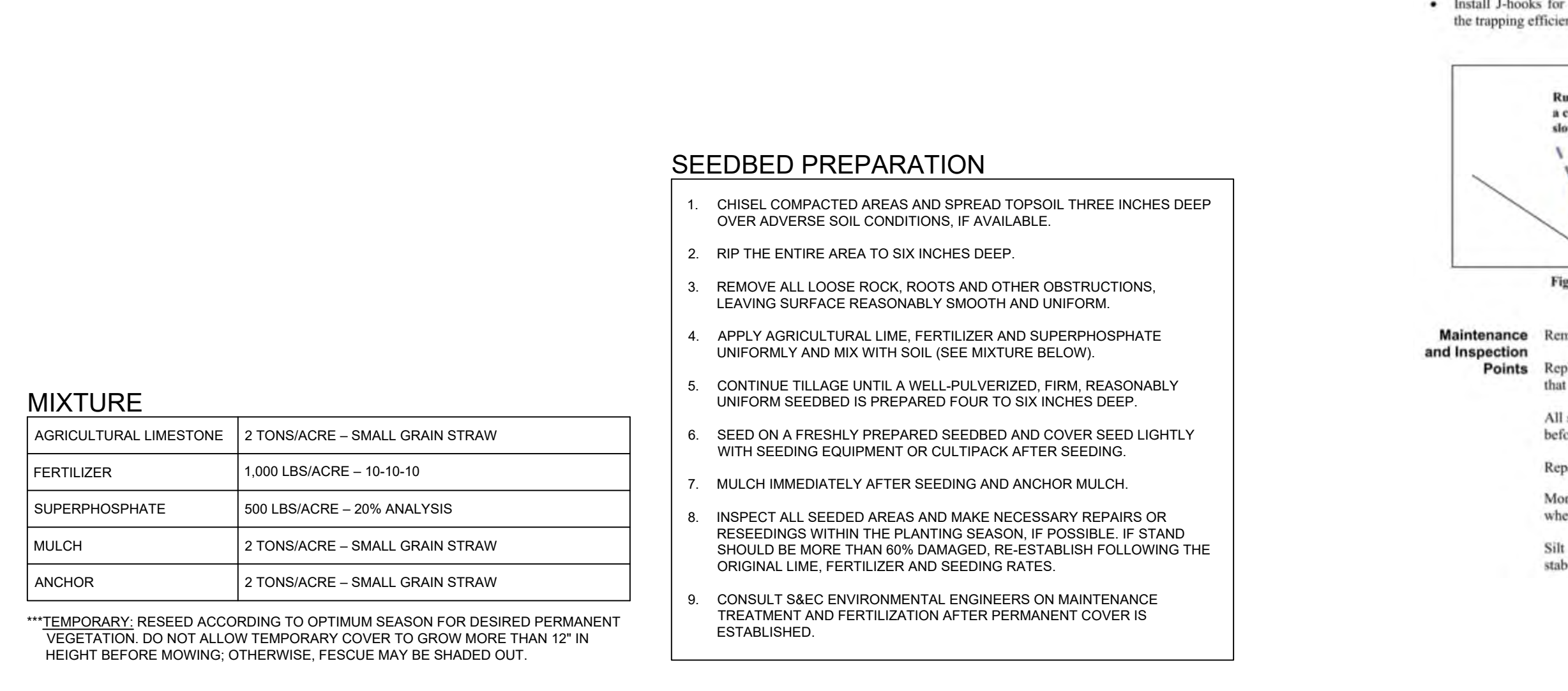


SEEDING SCHEDULE
FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1):

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS**	125 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30 LBS/ACRE (SORGHUM-SUDAN HYBRIDS)

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

DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	SERICIA LESPEDEZA (SCARIFIED) AND USE THE FOLLOWING COMBINATIONS:	50 LBS/ACRE (SERICIA LESPEDEZA)
MAR 1 - APR 15	ADD TALL FESCUE	120 LBS/ACRE
MAR 1 - JUN 30	OR ADD WEEPING LOVE GRASS	10 LBS/ACRE
MAR 1 - JUN 30	OR ADD HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUN 1 - SEP 1	TALL FESCUE AND BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS**	120 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30 LBS/ACRE (SORGHUM-SUDAN HYBRIDS)
SEP 1 - MAR 1	SERICIA LESPEDEZA (UNHULLED - UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE (SERICIA LESPEDEZA); 120 LBS/ACRE (TALL FESCUE)
NOV 1 - MAR 1	AND ABRUZZI RYE	25 LBS/ACRE



TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL NOTES & DETAILS - SHEET 2 OF 3

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DATE: 08/19/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: M. ZACCARDO

SCALE: N/A

JOB NO. 44529
SHEET NO. C8.11

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

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

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

GROUND STABILIZATION SPECIFICATION	
Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:	
Temporary Stabilization <ul style="list-style-type: none">Temporary grass seed covered with straw or other mulches and tackifiersHydroseedingRoller erosion control products with or without temporary grass seedAppropriately applied straw or other mulchPlastic sheeting	Permanent Stabilization <ul style="list-style-type: none">Permanent grass seed covered with straw or other mulches and tackifiersGeotextile fabrics such as permanent soil reinforcement mattingHydroseedingShrubs or other permanent plantings covered with mulchUniform and evenly distributed ground cover sufficient to restrain erosionStructural methods such as concrete, asphalt or retaining wallsRoller erosion control products with grass seed

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

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

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

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

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

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



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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

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

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

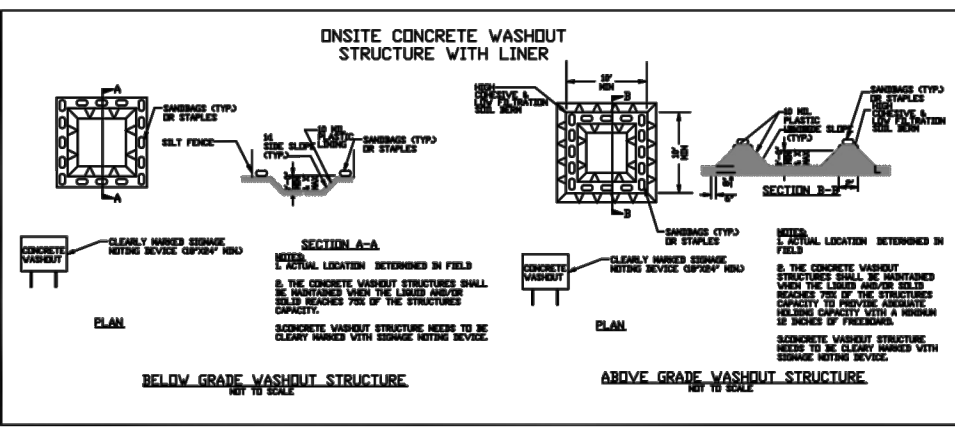
NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

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

- Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:
- The E&S plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&S plan authority has approved these items.
 - The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.
 - Detouring discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, wrink tanks, and filtration systems.
 - Vegetated, upland areas of the site or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above.
 - Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices.
 - Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.



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



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

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

- HAZARDOUS AND TOXIC WASTE**
- Create designated hazardous waste collection areas on-site.
 - Place hazardous waste containers under cover or in secondary containment.
 - Do not store hazardous chemicals, drums or bagged materials directly on the ground.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

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

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

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

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

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



- STAGE I EROSION CONTROL CONSTRUCTION SEQUENCE:**
- CONTACT TOWN OF KNIGHTDALE E&S INSPECTOR JOHN STOVER AT (919) 349-2521 TO SET UP A PRE-CONSTRUCTION MEETING AFTER RECEIVING THE CERTIFICATE OF COVERAGE.
 - CONTRACTOR TO DIG A TEST PIT WITHIN THE LIMITS OF THE BOTTOM OF THE STORMWATER CONTROL MEASURE. CONTRACTOR TO HAVE A LICENSED SOIL SCIENTIST PERFORM AN INFILTRATION TEST AT THE BOTTOM ELEVATION OF THE SCM AND IMMEDIATELY REPORT THE INFILTRATION RATE TO THE ENGINEER.
 - OWNER/CONTRACTOR SHALL NOTIFY TOWN OF KNIGHTDALE E&S INSPECTOR JOHN STOVER AT (919) 349-2521 TO DETERMINE IF CONSTRUCTION ON EACH PHASE.
 - ONLY CLEAR/GRADE ENOUGH TO INSTALL SEDIMENT CONTROL DEVICES AS SHOWN IN PHASE I.
 - INSTALL CONSTRUCTION ENTRANCE, CLEAN WATER DIVERSION DITCH AND TEMPORARY PIPE AS INDICATED ON PLAN. INSTALL SILT FENCE, SILT FENCE OUTLETS AROUND THE PERIMETER OF THE SITE. DISTURB ONLY THE AREAS NECESSARY FOR INSTALLATION.
 - STABILIZE AREAS DOWNSTREAM OF TEMPORARY DIVERSIONS AND BASINS UPON CONSTRUCTION.
 - ADJUST EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY FOR PROPER OPERATION. INSTALL ADDITIONAL EROSION CONTROL MEASURES IF DETERMINED NECESSARY BY INSPECTOR.
 - CONTACT TOWN OF KNIGHTDALE E&S INSPECTOR JOHN STOVER AT (919) 349-2521 TO RECEIVE A CERTIFICATE OF COMPLIANCE INSPECTION.
 - PROCEED TO PHASE 2 OF THE EROSION CONTROL SEQUENCE WHEN PHASE 1 MEASURES HAVE BEEN COMPLETED, INSPECTED, AND APPROVED.

PHASE II EROSION CONTROL CONSTRUCTION SEQUENCE:

- MAINTAIN ALL EXISTING EROSION CONTROL FEATURES PREVIOUSLY CONSTRUCTED AND ASSOCIATED WITH PHASE 2 EROSION CONTROL.
- CONTINUE BRINGING FILL INTO THE SITE. IMPORTED MATERIAL WILL REQUIRE A PERMITTED SITE APPROVAL BEFORE THIS PROCESS BEGINS. ALL FILL SHALL BE BROUGHT INTO THE SITE AND EVENLY SPREAD OUT THROUGH THE SITE AS SHOWN IN LIMITS OF NO MORE THAN 1.0' AT A TIME. FILL SHALL BE ROLL COMPACTED BY A DOZER OR EQUIVALENT AS IT IS PLACED.
- BEGIN INSTALLATION OF THE STORM PIPE SYSTEM FROM JB201 TO OCS204. ONCE THIS RUN IS COMPLETE, INSTALL SKIMMER SEDIMENT BASIN.
- AFTER THE SEDIMENT BASIN IS CONSTRUCTED, CONTINUE INSTALLING STORM DRAINAGE SYSTEM FROM OUTLET POINT (LOW END) AND WORK UPSTREAM. PIPE INLET PROTECTION SHALL BE UTILIZED AT THE END OF EACH WORK DAY TO ASSURE PIPE NETWORK IS NOT INUNDATED WITH SEDIMENT.
- INSTALL SITE IMPROVEMENTS, STORMWATER DRAINAGE SYSTEM, UTILITY SERVICES, SIDEWALKS AND DRIVES AS SHOWN ON THE APPROVED PLANS. ALL OPEN TRENCHES FOR UTILITY AND STORMWATER INSTALLATION SHALL BE PROTECTED FROM SEDIMENTATION BY PILING EXCAVATED MATERIAL ON THE UPHILL SIDE OF EXCAVATION.
- INSTALL ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES AND/OR INCREASE MAINTENANCE FREQUENCY WHERE APPROVED MEASURES FAIL TO PREVENT ACCELERATED EROSION, OFF-SITE SEDIMENTATION, OR REPETITIVE NON-COMPLIANCE ISSUES. ALL MEASURES MUST BE INSTALLED PER PLAN DETAIL. ENSURE CONSTRUCTION TRAFFIC IS LIMITED TO THE CONSTRUCTION ENTRANCE ONLY. GROUND COVER SHALL BE PROVIDED AS FOLLOWS:
 - FOR ALL AREAS OF MODERATE AND/OR STEEP SLOPES, PROVIDE TEMPORARY GROUND COVER TO THE SLOPE HAS NOT BEEN DISTURBED FOR A PERIOD OF FOURTEEN (14) DAYS. SLOPES GREATER THAN 3:1 REQUIRE GROUND COVER IN 7 DAYS.
 - PROVIDE GROUND COVER SUFFICIENT TO RESTRAIN EROSION ON ANY PORTION OF THE SITE UPON WHICH FURTHER LAND-DISTURBING ACTIVITY IS NOT BEING UNDERTAKEN WITHIN FOURTEEN (14) CALENDAR DAYS OF TEMPORARILY OR PERMANENTLY SUSPENDING LAND DISTURBING ACTIVITY.
 - ESTABLISH PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION WITHIN FOURTEEN (14) CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT AND/OR PRIOR TO FINAL INSPECTION.
- INSTALL CURB & GUTTER AND GRAVEL BASE.
- MODIFICATIONS TO THE APPROVED AND PERMITTED PLANS SHALL BE APPROVED BY EROSION CONTROL INSPECTIONS PRIOR TO REMOVAL OR INSTALLATION. CONTACT THE EROSION CONTROL INSPECTOR TO OBTAIN APPROVAL ON THE PLANS.
- MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER. SILT FENCE, INLET PROTECTION, AND OTHER SIMILAR MEASURES MUST BE CLEANED OUT BEFORE THEY ARE HALF FULL. CLOGGED STONE FILTERS MUST BE REFRESHED/REPLACED. SILT FENCE CAN NOT HAVE HOLES OR TEARS.
- ONCE GRADING IS COMPLETE, ALL UTILITIES, AND ALL STORM SYSTEMS ARE INSTALLED AND THE SITE IS COMPLETELY STABILIZED PER THE NPDES PLAN AND ABOVE, CONVERT THE SEDIMENT BASIN TO A STORMWATER INFILTRATION BASIN AS FOLLOWS:
 - CONSULT WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR PRIOR TO BEGINNING THE CONVERSION FROM SEDIMENT BASIN TO INFILTRATION BASIN.
 - PUMP DOWN BASIN - USE APPROVED DEWATERING MEASURES. EFFLUENT MUST BE FILTERED.
 - REMOVE ACCUMULATED SEDIMENT (AS NEEDED) TO ESTABLISH THE FINAL GRADE OF THE POND. SEDIMENT MUST BE DISPOSED OF IN AN APPROVED AREA.
 - REMOVE TEMPORARY SKIMMER AND BAFFLES.
 - REMOVE TEMPORARY ORIFICE PLUGS FROM RISER AND CLOSE RISER DRAIN.
 - INSTALL PERFORATION IN DRAIN PIPE PER DETAIL.
 - ACCURATELY FINE GRADE BASIN TO DESIGN CONTOURS. CONTRACTOR TO SURVEY TO VERIFY ALL GRADES.
 - INSTALL SAND LAYER AND OBSERVATION PORT.
 - INSTALL FOREBAY BERMS AND RIPRAP.
 - INSTALL PLANTINGS, SOD, MULCH, ETC. AS SHOWN ON APPROVED PLAN.
- CONTRACTOR TO HAVE A LICENSED SOIL SCIENTIST PERFORM AN INFILTRATION TEST AT THE BOTTOM ELEVATION OF THE SCM AND IMMEDIATELY REPORT THE INFILTRATION RATE TO THE ENGINEER.
- AT A MINIMUM OF SEVEN (7) DAYS PRIOR TO SCHEDULING THE STORMWATER FINAL INSPECTION, SUBMIT ANY REQUIRED PAPERWORK TO THE EROSION CONTROL INSPECTORS FOR APPROVAL. FAILURE TO DO SO WILL PREVENT A CERTIFICATE OF OCCUPANCY FROM BEING ISSUED.
- ONCE THE STORMWATER FINAL INSPECTION IS APPROVED, CLOSE THE GRADING PERMIT AND OBTAIN A CERTIFICATE OF COMPLETION.

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: _____
DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
ADMINISTRATOR

- NOTES:**
- AREAS WILL BE STABILIZED PER THE GROUND STABILIZATION CHART AFTER ANY GRADING.
 - ALL BASINS SHOULD BE CLEANED AFTER ANY RAIN EVENT THAT EXCEEDS 1" IN 24 HOURS.
 - SEDIMENT BASINS WILL BE INSTALLED WHERE STORM DRAINAGE PIPE IS LOCATED. I.E. PIPES WILL BE LEFT SHORT AND EXTENDED THROUGH BASIN AREAS AFTER SITE HAS BEEN STABILIZED.
 - (LOD) INDICATES THE LIMITS OF ULTIMATE DISTURBANCE FOR RUTHERFORD.

SLOPE STABILIZATION REQUIREMENTS:
3:1 AND FLATTER—GRASS
3:1 TO 2:1—SLOPE—ADAPTIVE PLANTS (SHRUBS AND VINES)
2:1 TO 1.5:1—RIP RAP
STEEPER THAN 1.5 TO 1—RETAINING WALL

WAKE COUNTY SEDIMENT BASIN REMOVAL SEQUENCE:

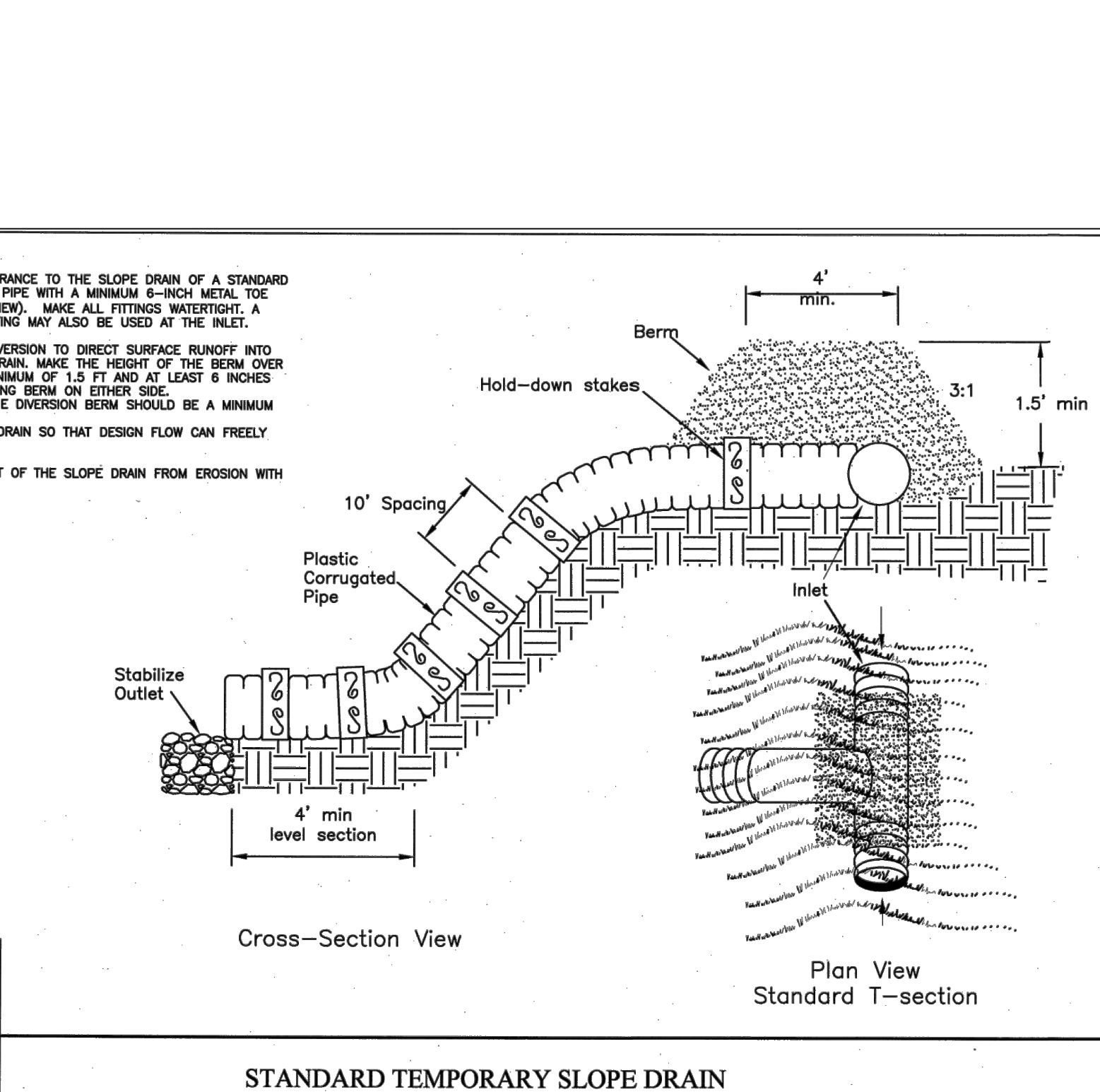
- SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT FROM TOWN OF KNIGHTDALE JOHN STOVER (919) 349-2521 TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
- CONTACT NCDEQ - RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ON SITE. THE EMAIL SHOULD INCLUDE: E&S JURISDICTION: TOWN OF KNIGHTDALE, TOWN OF KNIGHTDALE PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: REASON FOR CONVERSION, OJBASIN #, D/WATERING METHOD, AND D) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION)
- AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
- PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY.
- INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
- WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

STOCKPILE AREA NOTES:

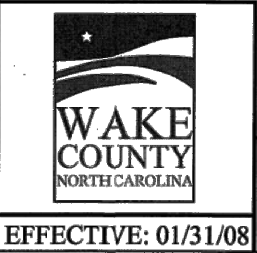
- MAXIMUM SIDE SLOPES: 2:1.
- MAXIMUM HEIGHT SHALL NOT EXCEED 35 FEET.
- ENSURE STOCKPILE AREAS ARE SUFFICIENTLY STABILIZED TO MINIMIZE SEDIMENT RUNOFF.
- STOCKPILE AREAS SHALL BE KEPT WITHIN PROPOSED LIMITS SHOWN ON PLANS

STOCKPILE MAINTENANCE:

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



- NOTES:**
- CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED-HEAD SECTION OF PIPE WITH A MINIMUM 2-INCH METAL TOE PLATE. (CROSS-SECTION VIEW). MAKE ALL FITTINGS WATER-TIGHT. A STANDARD T-SECTION FITTING MAY ALSO BE USED AT THE INLET.
 - USE AN EARTHEN DIVERSION TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE INLET OF THE DRAIN OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ADJACENT BERM. THE LOWEST POINT OF THE DIVERSION BERM SHOULD BE A MINIMUM OF 1 FT ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.
 - PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP DISPOSAL.



EFFECTIVE: 01/31/08

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENT CONTROL NOTES & DETAILS - SHEET 3 OF 3

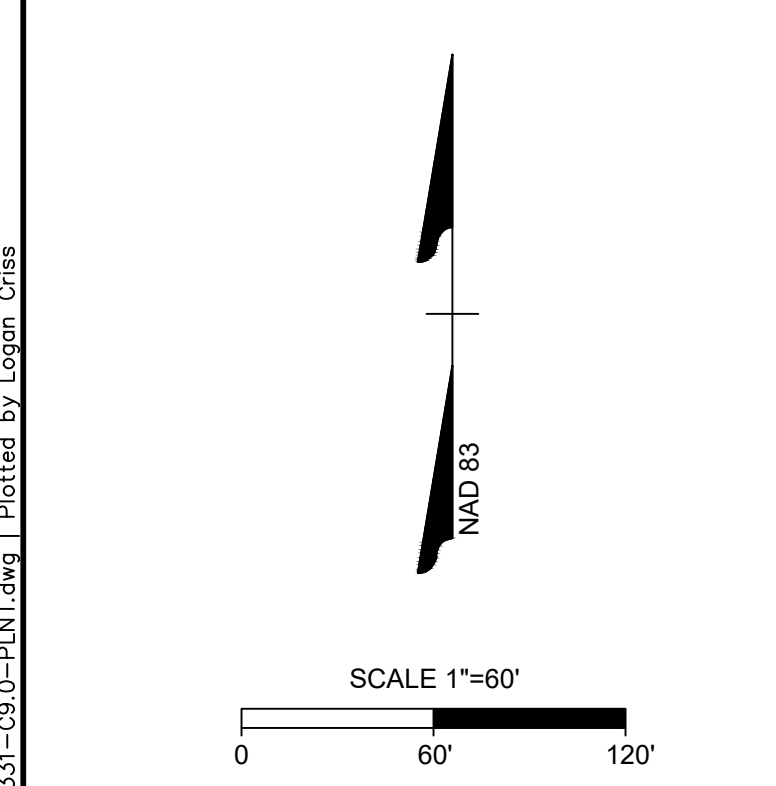
REVISION DESCRIPTION	DATE	DRAWN BY	DESIGNED BY	CHECKED BY	SCALE
	08/19/2022	331	331	M. ZACKARDO	N/A

JOB NO. 44529
SHEET NO. C8.12

TREES - PHASE ONE REPLACEMENT TREES - CANOPY										
SYM	CODE	QUANT	SCIENTIFIC NAME	COMMON NAME		CAL	CONT	HT	SP	NOTES
AR	39	ACER RUBUM	RED MAPLE	D	2'	B&B	10'12'	6'-8'	FULL	
AS	52	ACER SACCHARUM	SUGAR MAPLE	D	2'	B&B	10'12'	6'-8'	FULL	
BN	31	BETULA NIGRA	RIVER BIRCH	D	1.5"/STEM	B&B	8-10'	5'-7'	FULL	
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	D	1.5"	B&B	8-10'	5'-7'	FULL	
CD	15	CEDRUS DEODORA	DEODORA CEDER	E	2'	B&B	10'12'	6'-8'	FULL	
FP	4	FRAXINUS PENNSYLVANICA	GREEN ASH	D	2'	B&B	10'12'	6'-8'	FULL	
IO	22	ILEX OPACA	AMERICAN HOLLY	E	2'	B&B	10'12'	6'-8'	FULL	
KN	33	ILEX X NELLIE STEVENS	NELLIE STEVENS HOLLY	E	2'	B&B	10'12'	6'-8'	FULL	
LC	11	LIQUIDAMBAR CHINENSE	CHINESEE TULIP TREE	D	2'	B&B	10'12'	6'-8'	FULL	
MG	22	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	E	2'	B&B	10'12'	6'-8'	FULL	
NS	8	NYSSA SYLVATICA	BLACK GUM	D	2'	B&B	10'12'	6'-8'	FULL	
PC	21	PISTACIA CHINENSIS	CHINESE PISTACHIO	D	2'	B&B	10'12'	6'-8'	FULL	
PO	12	PLATANUS ORIENTALIS	ORIENTAL PLANETREE	D	2'	B&B	10'12'	6'-8'	FULL	
PT	64	PINUS TAEDA	LOBLOLLY PINE	E	2'	B&B	10'12'	6'-8'	FULL	
QAU	2	QUERCUS ACUTISSIMA	SAWTOOTH OAK	D	2'	B&B	10'12'	6'-8'	FULL	
QL	5	QUERCUS LAURIFLOIA	LAURAL OAK	SE	2'	B&B	10'12'	6'-8'	FULL	
QP	19	QUERCUS PHELLOS	WILLOW OAK	D	2'	B&B	10'12'	6'-8'	FULL	
QR	13	QUERCUS RUBRA	RED OAK	D	2'	B&B	10'12'	6'-8'	FULL	
ZA	3	ZELCOVA SERRATA	JAPANESE ZELCOVA	D	2'	B&B	10'12'	6'-8'	FULL	
	381	TOTAL								

TREES INCLUDED IN TREE REPLACEMENT COUNT										
SYM	CODE	QUANT	SCIENTIFIC NAME	COMMON NAME		CAL	CONT	HT	SP	NOTES
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	D	1.5"	B&B	8-10'	5'-7'	FULL	
CF	11	CORNUS FLORIDA	DOGWOOD	D	1.5"	B&B	8-10'	5'-7'	FULL	

STREET TREES - PHASE ONE										
SYM	CODE	QUANT	SCIENTIFIC NAME	COMMON NAME		CAL	CONT	HT	SP	NOTES
AR	122	ACER RUBUM	RED MAPLE	D	2'	B&B	10'12'	6'-8'	FULL	
AS	34	ACER SACCHARUM	SUGAR MAPLE	D	2'	B&B	10'12'	6'-8'	FULL	
BN	106	BETULA NIGRA	RIVER BIRCH	D	1.5"/STEM	B&B	8-10'	5'-7'	FULL	
QP	36	QUERCUS PHELLOS	WILLOW OAK	D	2'	B&B	10'12'	6'-8'	FULL	
	298	TOTAL								



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

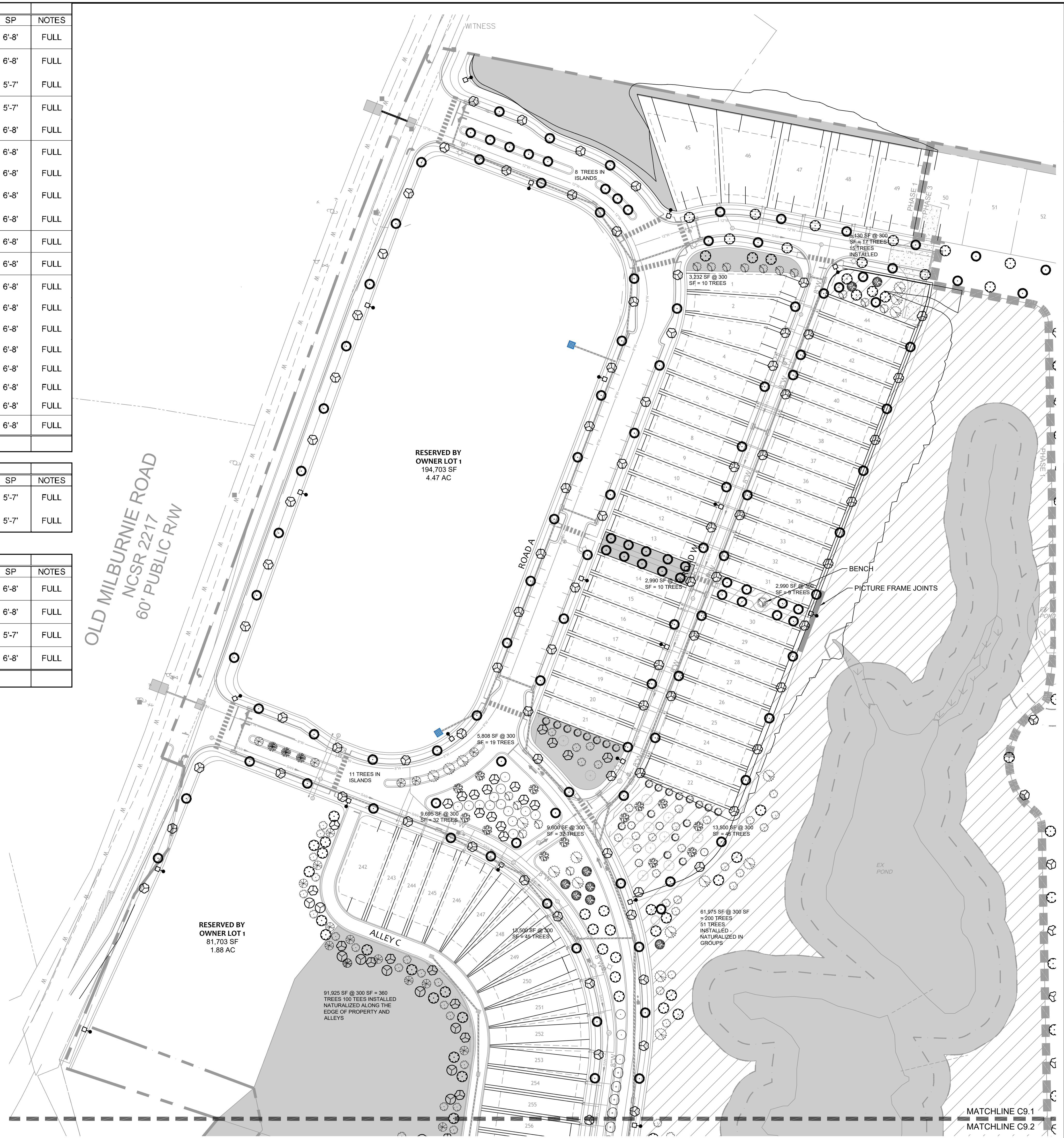
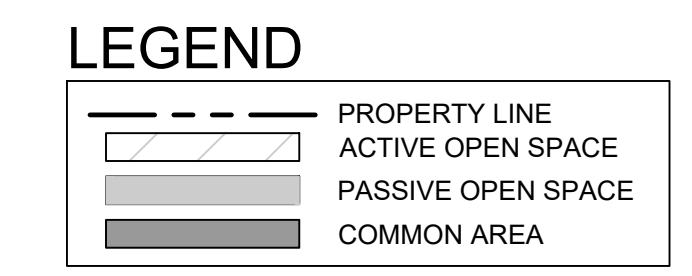
TOWN CERTIFICATION

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: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR



MATCHLINE C9.1
 MATCHLINE C9.2

FOR REVIEW ONLY

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPING PLAN - SHEET 1 OF 2

JOB NO. 44529
 SHEET NO. C9.1

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION: KNIGHTDALE SUBMITTAL # 5

DATE: 09/30/2022

DATE: 11/21/2022

DRAWN BY: 331

DESIGNED BY: 331

CHECKED BY: ---

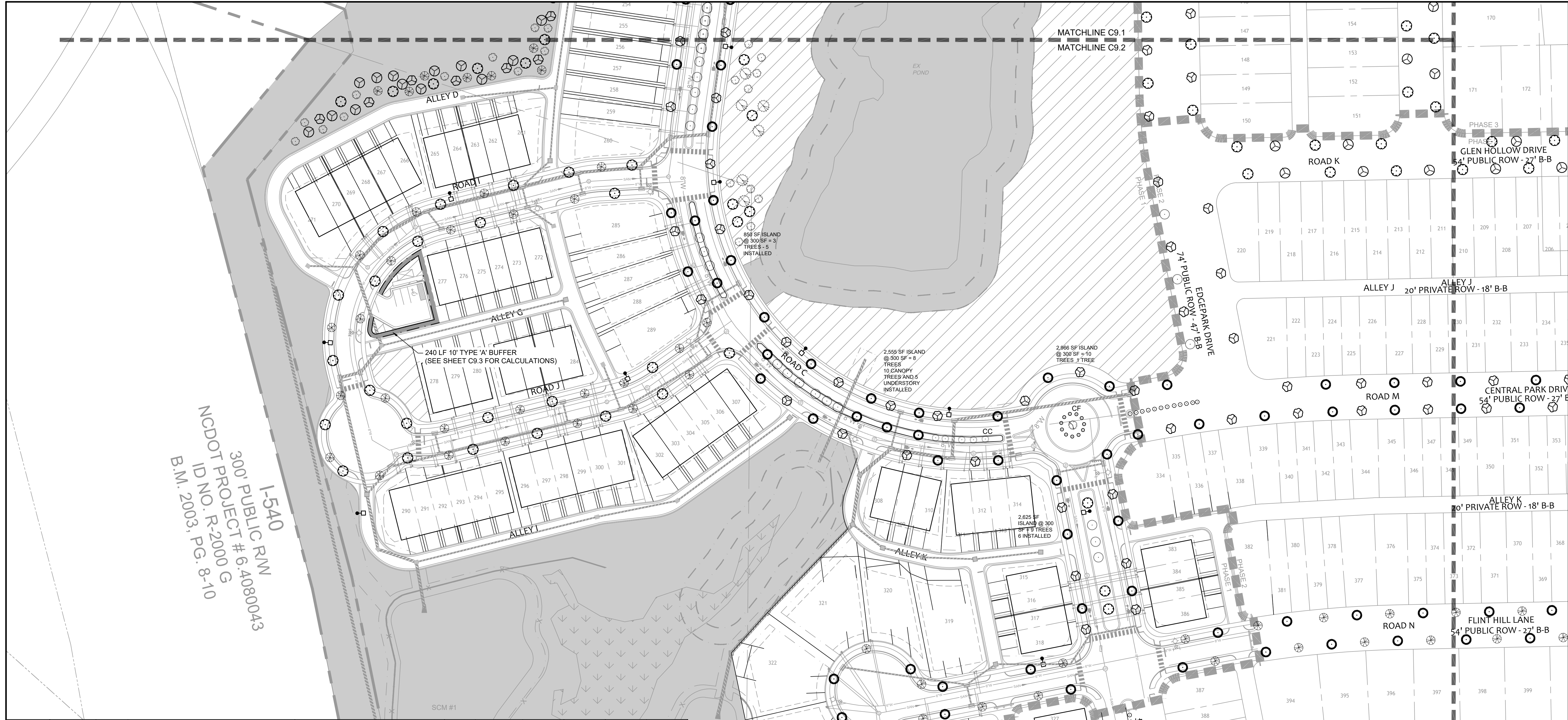
SCALE: 1"=60'

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NCDOT PROJECT # 6.4080043
 300' PUBLIC R/W
 I-540
 ID NO. R-2000 G
 B.M. 2003, PG. 8-10

TREES SYM	CODE	QUANT	SCIENTIFIC NAME	COMMON NAME	CAL	CONT	HT	SP	NOTES
	AR		ACER RUBUM	RED MAPLE	D 2'	B&B	10'-12'	6'-8'	FULL
	AS		ACER SACCHARUM	SUGAR MAPLE	D 2'	B&B	10'-12'	6'-8'	FULL
	BN		BETULA NIGRA	RIVER BIRCH	D 1.5"/STEM	B&B	8-10'	5'-7'	FULL
	FP		FRAXINUS PENNSYLVANICA	GREEN ASH	D 2'	B&B	10'-12'	6'-8'	FULL
	IO		ILEX OPACA	AMERICAN HOLLY	E 2'	B&B	10'-12'	6'-8'	FULL
	KN		ILEX X NELLIE STEVENS	NELLIE STEVENS HOLLY	E 2'	B&B	10'-12'	6'-8'	FULL
	LT		LIQUIDAMBAR TULIPIFERA	TULIP POPLAR	D 2'	B&B	10'-12'	6'-8'	FULL
	MG		MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	E 2'	B&B	10'-12'	6'-8'	FULL
	NS		NYSSA SYLVATICA	BLACK GUM	D 2'	B&B	10'-12'	6'-8'	FULL
	PT		PINUS TAEDA	LOBLOLLY PINE	E 2'	B&B	10'-12'	6'-8'	FULL
	PO		PLATANUS OCCIDENTALIS	SYCAMORE	D 2'	B&B	10'-12'	6'-8'	FULL
	PT		PINUS TAEDA	LOBLOLLY PINE	E 2'	B&B	10'-12'	6'-8'	FULL
	PC		PRUNUS CAROLINIANA	CHERRY LAURAL	E 2'	B&B	10'-12'	6'-8'	FULL
	QA		QUERCUS ALBA	WHITE OAK	D 2'	B&B	10'-12'	6'-8'	FULL
	QAU		QUERCUS ACUTISSIMA	SAWTOOTH OAK	D 2'	B&B	10'-12'	6'-8'	FULL
	QL		QUERCUS LAURIFLOIA	LAURAL OAK	SE 2'	B&B	10'-12'	6'-8'	FULL
	QP		QUERCUS PHELLOS	WILLOW OAK	D 2'	B&B	10'-12'	6'-8'	FULL
	TD		ZELCOVA SERRATA	JAPANESE ZELCOVA	D 2'	B&B	10'-12'	6'-8'	FULL
	0	TOTAL							

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

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Official Seal _____ Notary _____
 Commission Expires _____

TOWN CERTIFICATION

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BY: _____ DATE: _____
 DEVELOPMENT SERVICES ENGINEER

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

BY: _____ DATE: _____
 ADMINISTRATOR

LEGEND

- PROPERTY LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON AREA

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

SCALE 1"=60'

0 60 120'

NAD 83

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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION
 KNIGHTDALE SUBMITTAL # 5

DATE 09/30/2022
 DATE 11/21/2022
 DRAWN BY 331
 DESIGNED BY 331
 CHECKED BY ---
 SCALE 1"=60'

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE 1
 KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPING PLAN - SHEET 2 OF 2

JOB NO. 44529
 SHEET NO. C9.2

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SEEDING SCHEDULE		
MAXIMUM SLOPE 3:1		
SEEDING PERIOD	SEEDING TYPE	APPLICATION RATE (LBS/ACRE)
AUGUST 15 – NOVEMBER 01	TALL FESCUE	300
NOVEMBER 01 – MARCH 01	TALL FESCUE AND ABRUZZI RYE	300
	TALL FESCUE	25
MARCH 01 – APRIL 15	TALL FESCUE	300
APRIL 15 – JUNE 30	HULLED COMMON BERMUDAGRASS	25
	TALL FESCUE AND	120
JULY 01 – AUGUST 15	*BROWNTOP MILLET OR	35
	*SORGHUM-SUDAN HYBRIDS	30
SLOPES 2:1 TO 3:1		
MARCH 01 – JUNE 01	SERICEA LESPEDEZA (SCARIFIED) AND	50
MARCH 01 – APRIL 15	TALL FESCUE OR	120
MARCH 01 – JUNE 30	WEeping LOVEGRASS OR	10
	HULLED COMMON BERMUDAGRASS	25
JUNE 01 – SEPTEMBER 01	*TALL FESCUE AND	120
	*BROWNTOP MILLET OR	35
SEPTEMBER 01 – MARCH 01	*SORGHUM-SUDAN HYBRIDS	30
	SERICEA LESPEDEZA (UNHULLED, USCARIFIED) AND	70
NOVEMBER 01 – MARCH 01	TALL FESCUE OR	120
	ABRUZZI RYE	25

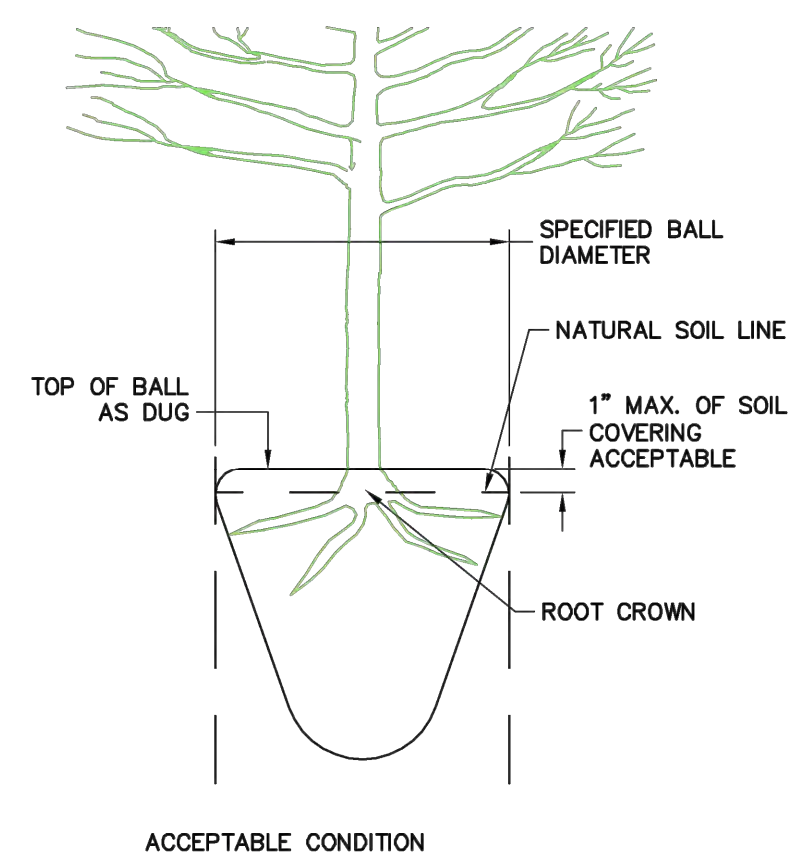
*TEMPORARY – RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT. CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

GROUND COVER – WHEREVER LAND DISTURBING ACTIVITY IS UNDERTAKEN ON A TRACT COMPRISING MORE THAN ONE (1) ACRE, A GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE PLANTED OR PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS.

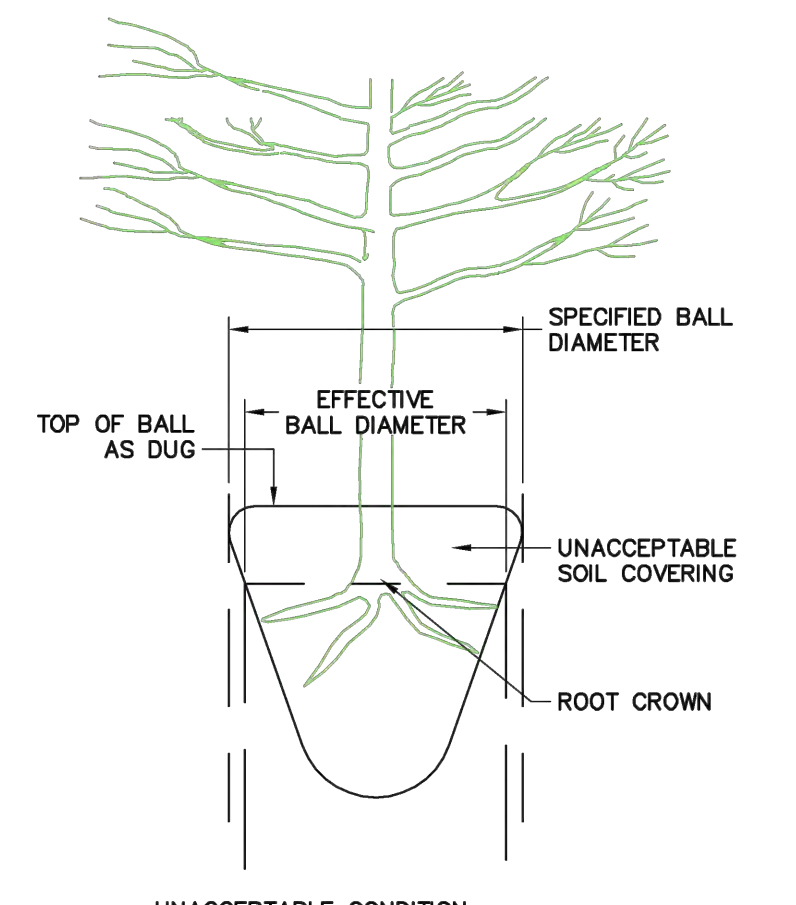
GRADED SLOPES AND FILLS – WITHIN 15 WORKING DAYS OR 30 CALENDAR DAYS, OR COMPLETION OF ANY PHASE OF GRADING, WHICHEVER PERIOD IS SHORTER, SLOPES SHALL BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	SEEDING SCHEDULE	STD. NO. 2.01
-------------------------------------	------------------	------------------



ACCEPTABLE CONDITION



UNACCEPTABLE CONDITION

NOTE:

A ROOT COLLAR EXCAVATION FOR ALL TREES SPECIFIED WILL BE DONE BY THE TOWN TO ENSURE THAT TREES WERE NOT PLANTED/GROWN TOO DEEPLY AT SOURCE (NURSERY). LANDSCAPE CONTRACTOR SHALL HAVE SUPPLIER MARK GROUND LEVEL LINE ABOVE ROOT BALL IF TOWN DETERMINES THAT THERE IS EXCESSIVE SOIL OVER THE ROOT CROWN. THESE TREES WILL BE REJECTED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ROOT CROWN DEPTHS	STD. NO. 3.21
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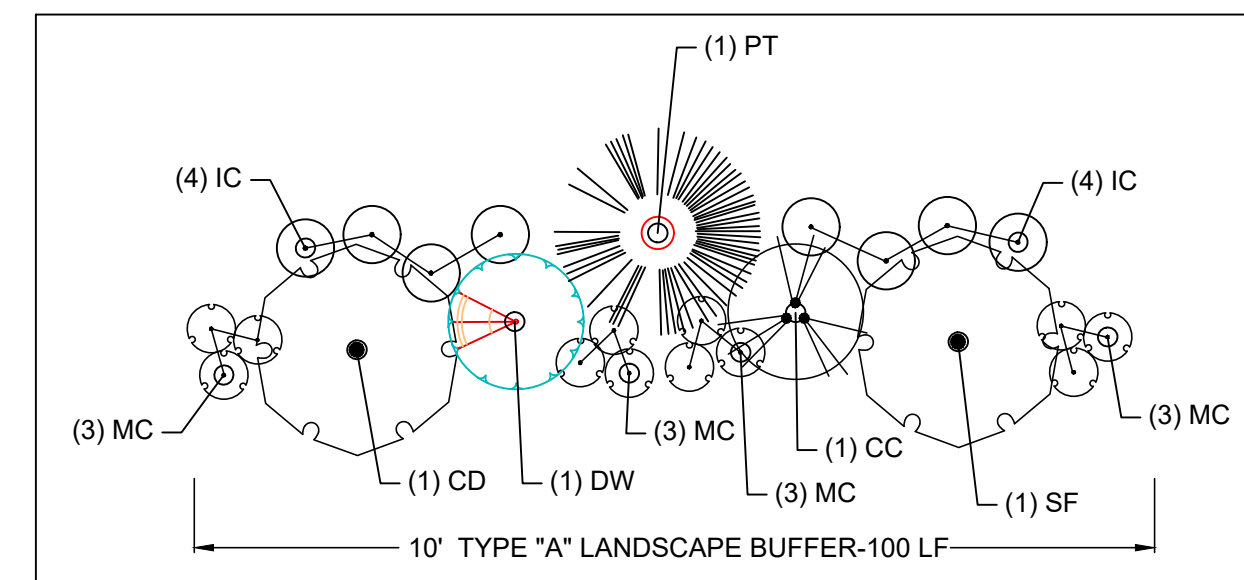
10' TYPE "A" LANDSCAPE BUFFER- 240 LF			
TREES PER 100 LF:	REQ.	PROP.	
(3) CANOPY TREES:	7	7	
(2) UNDERSTORY TREES:	6	6	
SHRUB PER 100 LF:	REQ.	PROP.	
(20) EVER. SHRUBS:	48	48	

PLANT SCHEDULE TYPE "A" BUFFER

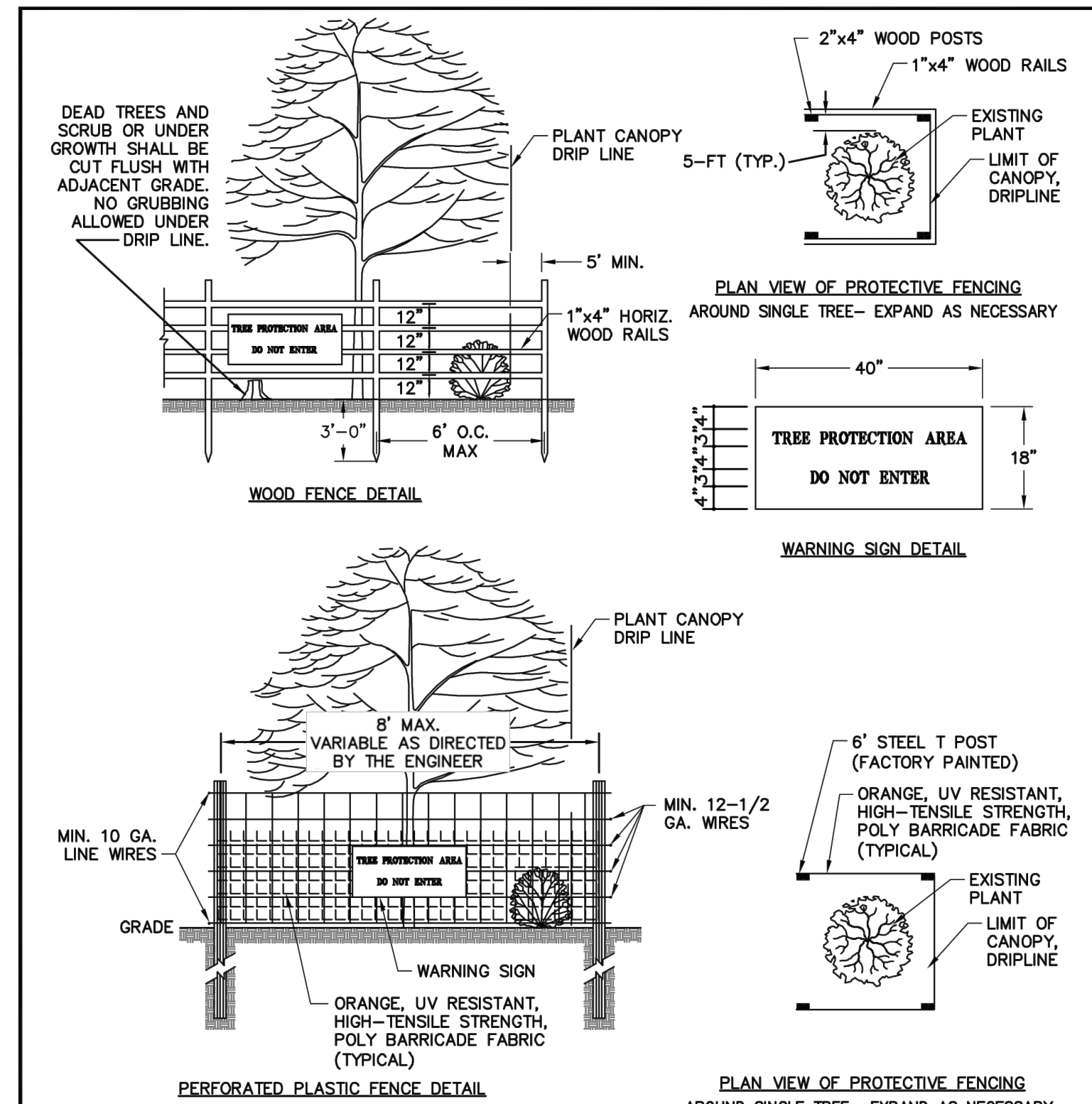
TREES	QTY	BOTANICAL NAME	COMMON NAME	MINIMUM INSTALLED SIZE	REMARKS
CD	3	CALOCEDRUS DECURRENS	INCENSE CEDAR	2" CAL., 8' HT.	CANOPY
SF	1	SASSAFRAS ALBIDUM	SASSAFRASS	2" CAL., 8' HT.	CANOPY
PT	3	PINUS TAEDA	LOBLOLLY PINE	2" CAL., 8' HT.	CANOPY
CC	3	CERCIS CANADENSIS	EASTERN REDBUD	2" CAL., 8' HT.	UNDERSTORY
DW	3	CORNUS X SPP.	DOGWOOD	2" CAL., 8' HT.	UNDERSTORY

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	REMARKS
IC	24	ILEX CRENATA 'HELLERI'	HELLERI HOLLY	18" HT/SPRD 3 GAL	
MC	24	MYRICA CERIFERA	WAX MYRTLE	18" HT/SPRD 3 GAL	

ALL PORTIONS OF THE BUFFER YARD NOT PLANTED WITH TREES AND SHRUBS MUST HAVE A MIN. DEPTH OF 3" OF NATURAL MULCH.



TYPE A BUFFER DETAIL



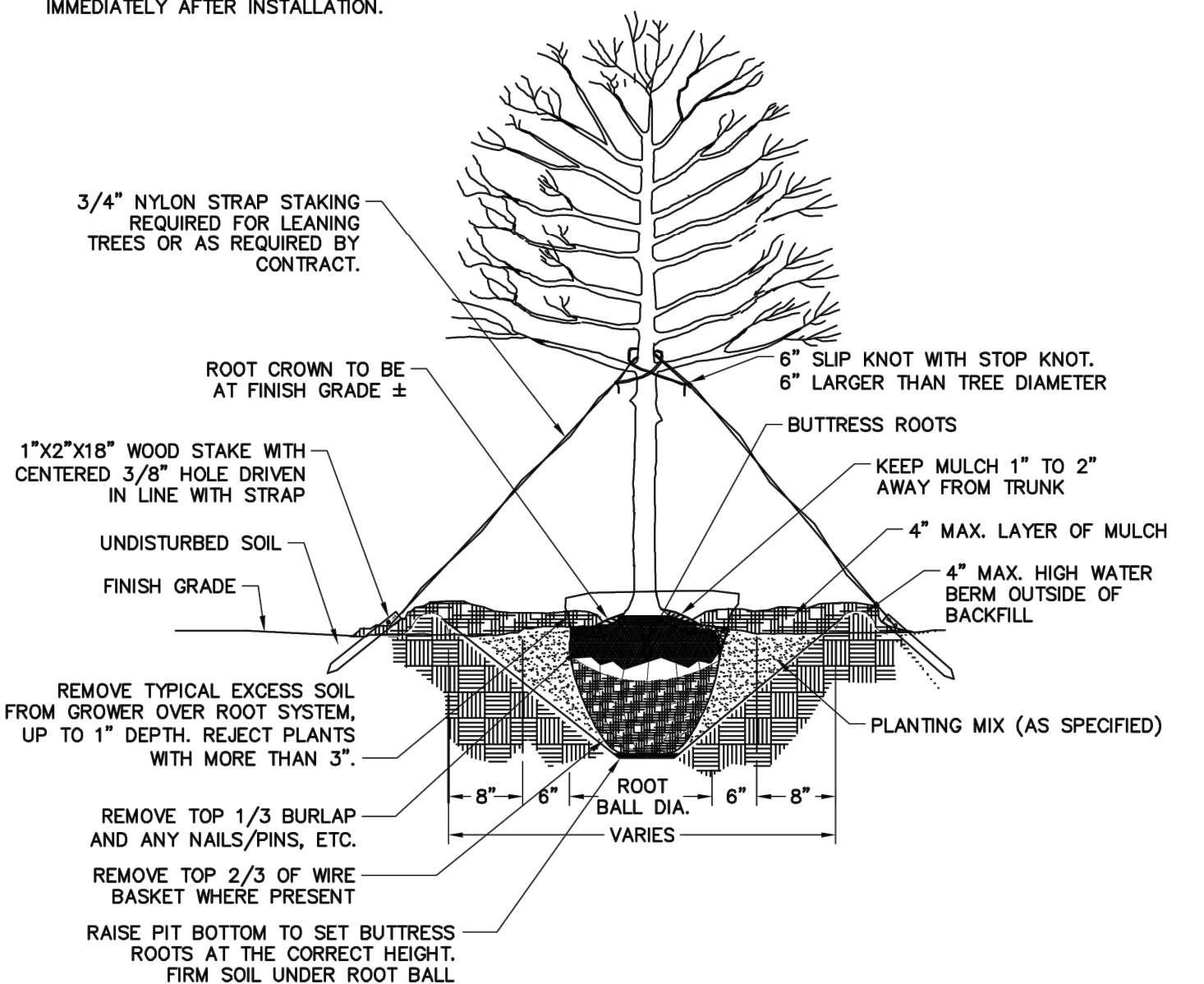
- NOTES:**
1. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT.
 2. LANDSCAPING PLANS SHALL SHOW LOCATIONS OF ALL TREE PROTECTION FENCES.
 3. ALL PLANTS TO BE SAVED SHALL BE PROTECTED BY FENCING AS SHOWN IN THIS DETAIL.
 4. CONTRACTOR SHALL INSTALL FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING ACTIVITY.
 5. CONTRACTOR SHALL CALL FOR INSPECTION AND APPROVAL OF PROTECTIVE FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING.
 6. PROTECTIVE FENCING SHALL BE LOCATED 5' OUTSIDE DRIPLENE OF TREES AND 1' MINIMUM OUTSIDE SHRUBS OR OTHER PLANTS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	PLANT PROTECTIVE FENCING	STD. NO. 2.10
-------------------------------------	--------------------------	------------------

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
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09/30/2022

DATE
11/21/2022

DRAWN BY
331

DESIGNED BY
331

CHECKED BY

SCALE
1"=60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ALLEN PARK SUBDIVISION - PHASE I
KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPE DETAILS
JOB NO.
44529
SHEET NO.
C9.3

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