Docusign Envelope ID: CB74500B-E20B-49BF-A01B-1EAF6D6BBADA

EROSION AND SEDIMENT CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT APPROVED

EROSION CONTROL ☐ SEC-136720-2024

STORMWATER MGMT. ☐ SWF-137088-2024

FLOOD STUDY ☐ _____

DATE _____

WAKE COUNTY NORTH CAROLINA EFFECTIVE SINCE 07

ENVIRONMENTAL CONSULTANT SIGNATURE

ACCORDING TO PRIOR AGREEMENT WITH THE CORPUD, THE KALAS FALLS PHASE 3 SUBDIVISION PLANS CAN BE APPROVED WITHOUT THE APPROVAL OF THE HARRIS CREEK SEWER REPLACEMENT PLAN APPROVAL. THE HARRIS CREEK REPLACEMENT WILL BE REQUIRED TO BE DESIGNED AND APPROVED AT THE TIME THE DOWNSTREAM SEWER HAS REACHED 65% CAPACITY. THE 65% CAPACITY IS BASED ON THE APPROVED SEWER STUDY FOR THE KALAS FALLS SUBDIVISION WHICH INCLUDES LOTS WITHIN THIS PHASE. NO ADDITIONAL BUILDING PERMITS CAN BE ISSUED WITHIN THIS PHASE ONCE THE HARRIS CREEK SEWER LEG OR LEGS REACH 65% AND UNTIL THE REPLACEMENT DESIGN HAS BEEN APPROVED.

CONSTRUCTION DRAWINGS FOR KALAS FALLS PHASE 3

CD 21-07

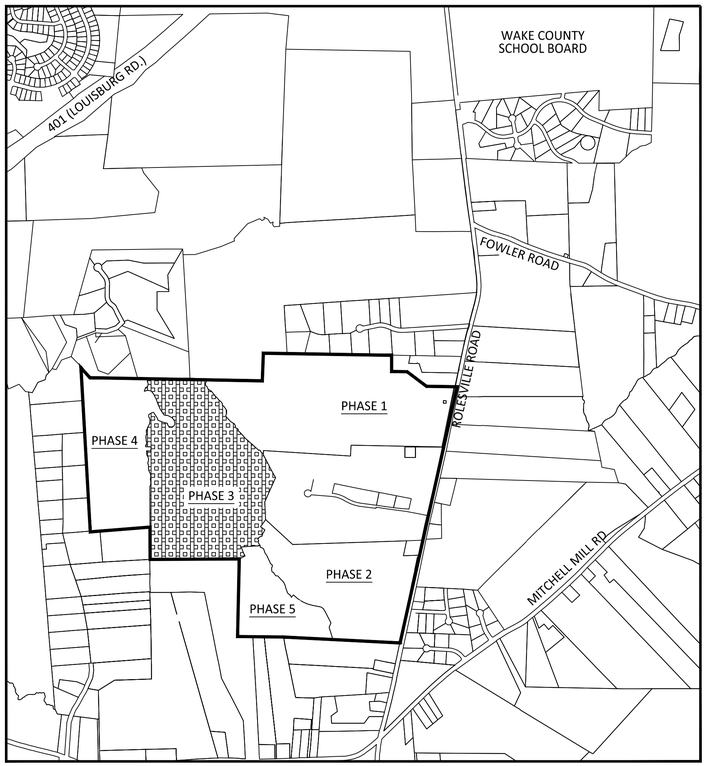
SITUATED AT

ROLESVILLE ROAD, ROLESVILLE

WAKE COUNTY, NORTH CAROLINA

1ST CD SUBMITTAL: 02-19-2021
2ND CD SUBMITTAL: 08-17-2021
3RD CD SUBMITTAL: 12-03-2024
4TH CD SUBMITTAL: 02-03-2025
5TH CD SUBMITTAL: 03-11-2025

PROPRTY OWNER:	MITCHELL MILL ROAD INVESTORS LLC CONTACT: KARL BLACKLEY 105 WESTON ESTATES WAY CARY, NC 27513 919-481-3000
DEVELOPER:	MITCHELL MILL ROAD INVESTORS LLC CONTACT: KARL BLACKLEY 105 WESTON ESTATES WAY CARY, NC 27513 919-481-3000
SURVEYOR:	WITHERS RAVENEL CONTACT: MATT TIMBLIN 115 MACKENAN DRIVE CARY, NC 27511 919-469-3340
BUFFER/WETLAND:	WITHERS RAVENEL CONTACT: TROY BEASLEY 115 MACKENAN DRIVE CARY, NC 27511 919-469-3340



VICINITY MAP
SCALE: 1"=1000'

THESE IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND THE STANDARD SPECIFICATIONS OF THE TOWN OF ROLESVILLE, THE CITY OF RALEIGH, WAKE COUNTY, AND NCDOT.

PUBLIC IMPROVEMENTS PHASE 3	
PUBLIC WATER (12")	4,230 LF
PUBLIC WATER (8")	5,803 LF
PUBLIC WATER (6")	411 LF
PUBLIC SEWER (8")	8,567 LF
PUBLIC STREETS	10,273 LF
TOTAL NO. OF LOTS	145
LIMITS OF DISTURBANCE	NEW: 70.55 AC (PREVIOUS: 28.04 AC)

RALEIGH WATER INSECTIONS QUANTITIES (SUBDIVISIONS AND SITE PLANS)	
PHASE NUMBERS	PHASE 3
NUMBER OF LOT(S)	145
NUMBER OF UNITS	145
PUBLIC WATER (LF)	10417
PUBLIC SEWER (LF)	8,567
PUBLIC FORCE MAIN (LF)	N/A
PRIVATE SEWER* (LF)	N/A
WATER SERVICE STUBS (QUANTITY	145
SEWER SERVICE STUBS (QUANTITY	145
AVERAGE DAILY FLOW PER PHASE**	38,325

*Sewer mains and manholes as part of a collection system
**Entire Project Flow. Based on 75gpd per bedroom for residential (Apartments, single Family dwelling, townhouse, condos), or based on 15A NCAC 02T .0114 Wastewater Design Flow Rates for Commercial and Industrial.
The meter size must match domestic service size (Exemption - 3/4" service tap with 5/8" meter)

PROJECT NARRATIVE

THIS PROJECT IS LOCATED IN ROLESVILLE, NORTH CAROLINA AT ROLESVILLE ROAD. IT INVOLVES THE COMBINING OF SEPARATELY PROPOSED PROJECTS KNOWN AS KALAS FALLS, ROGERS FARM AND ONE OTHER TRACT KNOWN AS THE WATKINS PROPERTY. IT DRAINS TO TRIBUTARIES OF HARRIS BRANCH WHICH IS PART OF THE NEUSE RIVER BASIN. IT IS ALSO BOUNDED ON ALL SIDES BY MOSTLY UNDEVELOPED LAND. IT IS APPROXIMATELY 0.5 MILES NORTHWEST OF THE INTERSECTION OF MITCHELL MILL ROAD AND ROLESVILLE ROAD IN WAKE COUNTY, NORTH CAROLINA. THE TOTAL AREA OF THE PROJECT IS 282.726 AC(EXCLUDES EXISTING ROW AND CEMETERY).THE CURRENT PHASE IS 79.96 ACRES.

GENERAL NOTES:
1. ALL PUBLIC WATER AND SEWER MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT NORTH CAROLINA ONE CALL (1-800-632-4949) TO LOCATE ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE EXISTING UTILITIES AND NOTIFY THE PROJECT ENGINEER (919-469-1101) OF ANY CONFLICTS.
4. ALL BOUNDARY AND FIELD TOPOGRAPHY PROVIDED BY WITHERS & RAVENEL.

SHEET INDEX	
CVR	COVER SHEET
1.0	OVERALL EXISTING CONDITIONS
1.1-1.2	EXISTING CONDITIONS PHASE 3
2.0-2.1	EROSION CONTROL STAGE 1
2.2-2.6	EROSION CONTROL STAGE 2
2.7	CULVERT CROSSING DETAILS
2.8-2.12	EROSION CONTROL STAGE 3
3.0	GENERAL NOTES AND LEGENDS
3.1-3.2	SCHEDULE PLAN
4.0	DRAINAGE PLAN OVERALL
4.1-4.5	GRADING & DRAINAGE PHASE 3 (50 SCALE)
4.6	SCM 3B DETAIL
4.7	SCM 3C DETAIL
4.8	SCM 4B DETAIL
4.9	SCM 4C DETAIL
4.10	SCM 4E DETAIL
4.11	SCM 8A DETAIL
5.0	SITE PLAN OVERALL
5.1	SITE PLAN PHASE 3 OVERALL
5.2-5.6	SITE PLAN PHASE 3 (50 SCALE)
6.0	OVERALL UTILITIES PLAN
6.1-6.5	UTILITY SHEET (50 SCALE)
7.0	PLEASANT RUN ST PLAN AND PROFILE
8.0	DIOMERE LANE PLAN AND PROFILE
9.0-9.1	FALLS BLUFF DR PLAN AND PROFILE
10.0	DONNINGTON HILL DR PLAN AND PROFILE
11.0	WOODLYN PARK DR PLAN AND PROFILE
12.0	HARVEST HILL WAY PLAN AND PROFILE
13.0	ELAM FIELD CT PLAN AND PROFILE
14.0	BROOKBANK DR PLAN AND PROFILE
15.0	STAFFORDSHIRE BLUFF ST PLAN AND PROFILE
16.0	GRAYMONT OAKS DRIVE PLAN AND PROFILE
17.0-17.1	OFF STREET STORMWATER PLAN AND PROFILE
18.0	GREEN WAY TRAIL "A" PLAN AND PROFILE
19.0	GREEN WAY TRAIL "B" PLAN AND PROFILE
20.0	SANITARY OUTFALL PLAN AND PROFILES
21.0	TRANSPORTATION PLAN
CD1-CD19	CIVIL DETAILS
L1	LANDSCAPE PLAN
L2	LANDSCAPE DETAILS

ATTENTION CONTRACTORS
The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Inspector at 919-996-3245 or https://cityworks.raleighnc.gov/pucontractors/New and schedule a Pre-construction meeting prior to beginning any construction.
Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

Failure to notify the Divisions 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.

Public
Sewer Collection / Extension System
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 #_____

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

City of Raleigh
Public Utilities Department Permit # _____

North Carolina 811 811 or 1-800-632-4949

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 029170 ENGINEER JOHN R. HARMON 5/12/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

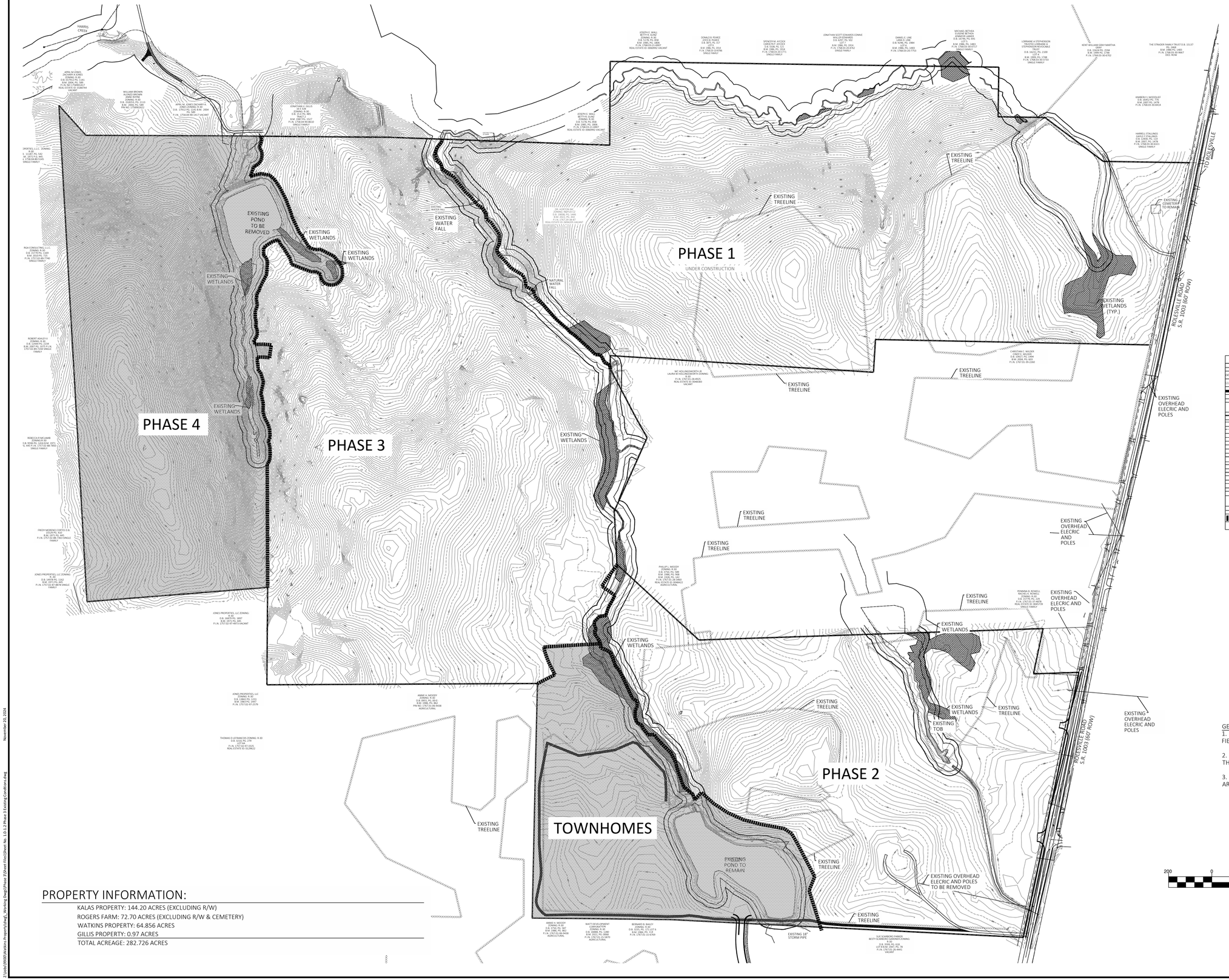
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
COVER SHEET

SHEET NO.:
CVR

March 17, 2025

Z:\Jobs\9900\Watkins Property\Dwg_Working Dwgs\Phase 3\Sheet Files\CVR.dwg



PROPERTY INFORMATION:

KALAS PROPERTY: 144.20 ACRES (EXCLUDING R/W)
ROGERS FARM: 72.70 ACRES (EXCLUDING R/W & CEMETERY)
WATKINS PROPERTY: 64.856 ACRES
GILLIS PROPERTY: 0.97 ACRES
TOTAL ACREAGE: 282.726 ACRES

GENERAL NOTES:
1. TOPO SHOWN ON THIS SHEET IS 1' CONTOURS AND IS FIELD TOPOGRAPHY.

2. SURVEY DATA PROVIDED BY WITHERSRAVENEL WITH THE LATEST SURVEY DATA RECEIVED ON 9-28-18.

3. ALL PROPERTIES WITHIN THE PROJECT BOUNDARY ARE OWNED BY MITCHELL MILL ROAD INVESTORS, LLC.

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch =200

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

JOHN R. HARMAN 9810 ENGINEER 11-1-24

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

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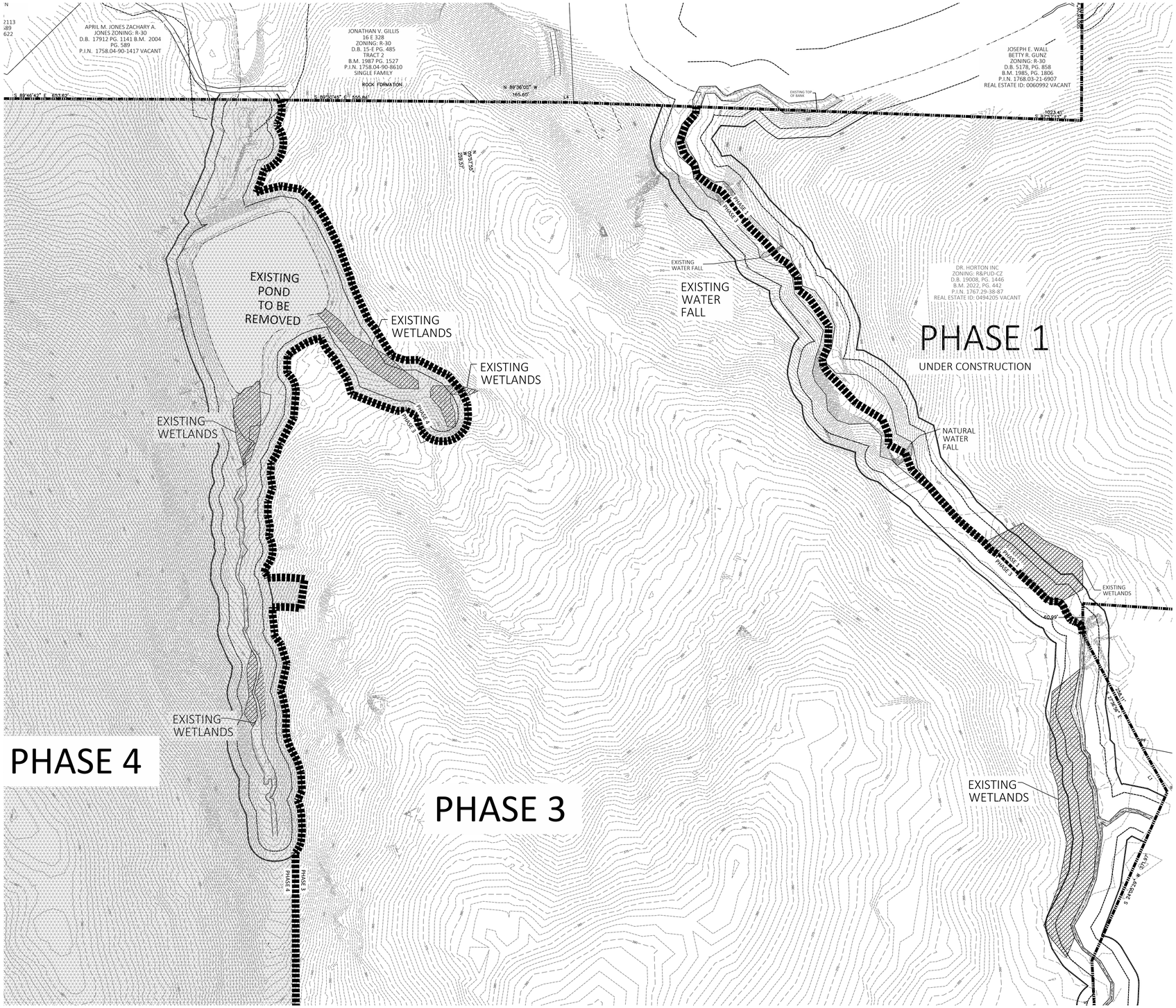
KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

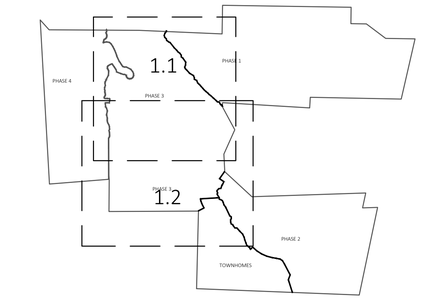
JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
OVERALL EXISTING CONDITIONS

SHEET NO.:
1.0

November 26, 2024
21-0605/09900/Written Property/Land_Planning Design/Phase 3/Sheet Files/Sheet No. 1.0-1.2 Phase 3 Existing Conditions.dwg





GRAPHIC SCALE 1"=1000'

EXISTING LEGEND
EXISTING ADJACENT PROPERTY
EXISTING TREE LINE
EXISTING TOPOGRAPHY
EXISTING BOUNDARY
EXISTING WETLANDS
EXISTING WETLANDS AREA
EXISTING 50' NEUSE RIPERIAN BUFFER
EXISTING BUFFER ZONES
EXISTING TOP OF BANK
EXISTING OVERHEAD ELECTRIC
EXISTING FENCE TO BE REMOVED
EXISTING CENTERLINE
EXISTING EOP TO BE REMOVED
EXISTING ROW TO BE REMOVED
EXISTING CHANNEL TO BE REMOVED
EXISTING GRAVEL DRIVE TO BE REMOVED
EXISTING STREAM CENTERLINE
EXISTING GRAVEL PATHWAY
EXISTING WATERLINE
PHASE LINE
FUTURE PHASES

GENERAL NOTES:
1. TOPO SHOWN ON THIS SHEET IS 1' CONTOURS AND IS FIELD TOPOGRAPHY.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch =100

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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard. Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

JOHN R. HARMAN PROFESSIONAL ENGINEER 9810 JOHN R. HARMAN

NO.	DATE	REVISION:
1	7/31/2024	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EXISTING CONDITIONS

SHEET NO.:
1.1

North Carolina 811 811.com
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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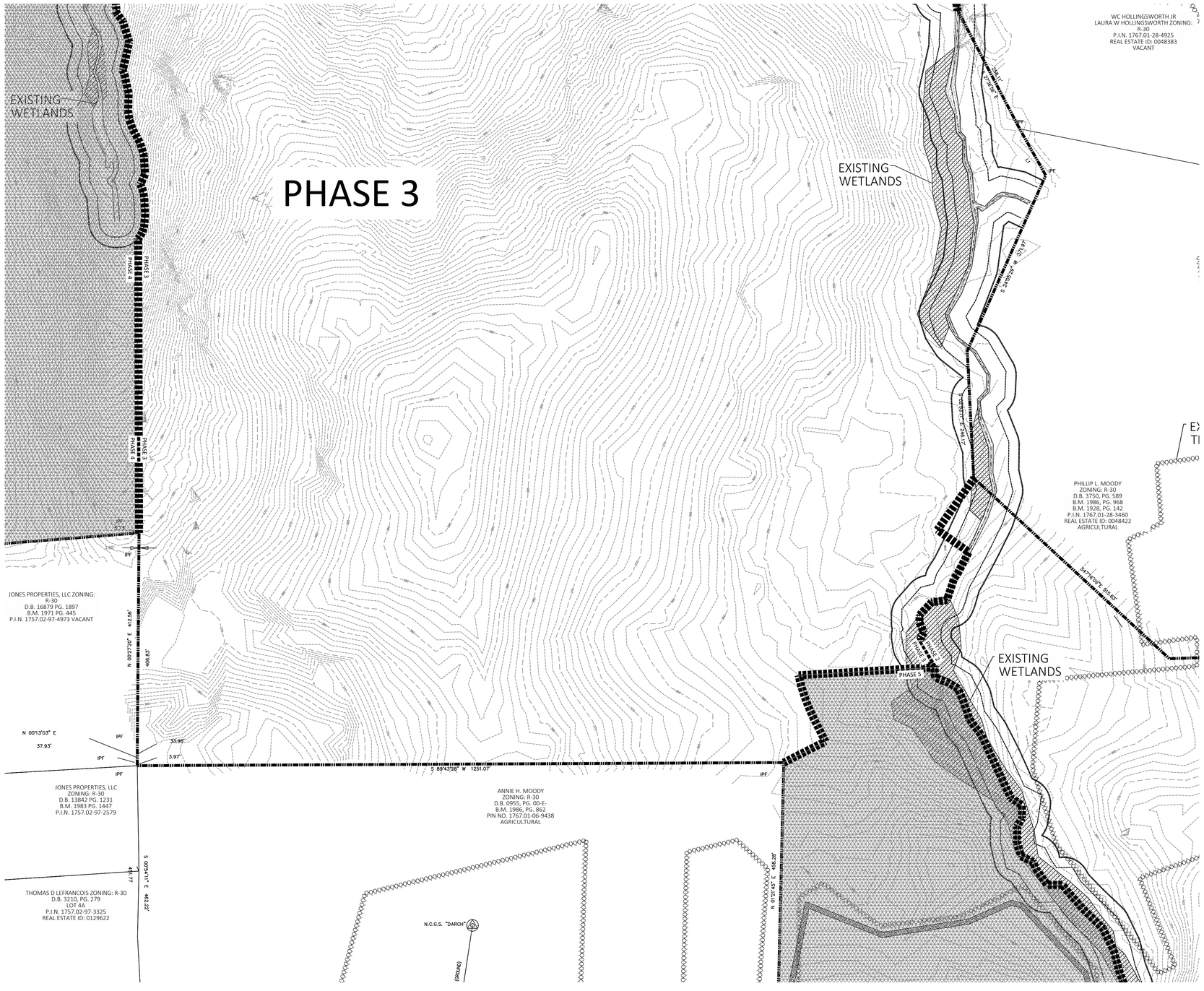

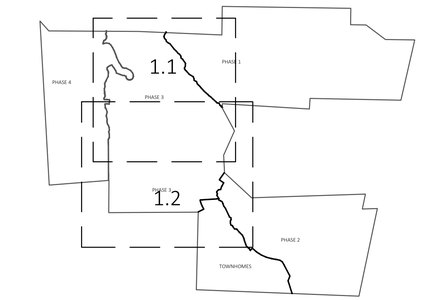

GRAPHIC SCALE 1"=1000'

EXISTING LEGEND
EXISTING ADJACENT PROPERTY
EXISTING TREE LINE
EXISTING TOPOGRAPHY
EXISTING BOUNDARY
EXISTING WETLANDS
EXISTING WETLANDS AREA
EXISTING 50' NEUSE RIPERIAN BUFFER
EXISTING BUFFER ZONES
EXISTING TOP OF BANK
EXISTING OVERHEAD ELECTRIC
EXISTING FENCE TO BE REMOVED
EXISTING CENTERLINE
EXISTING EOP TO BE REMOVED
EXISTING ROW TO BE REMOVED
EXISTING CHANNEL TO BE REMOVED
EXISTING GRAVEL DRIVE TO BE REMOVED
EXISTING STREAM CENTERLINE
EXISTING GRAVEL PATHWAY
EXISTING WATERLINE
PHASE LINE
FUTURE PHASES

GENERAL NOTES:
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GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch =100

North Carolina 811
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North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

JOHN R. HARMAN 9810 REGISTERED PROFESSIONAL ENGINEER JOHN R. HARMAN

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EXISTING CONDITIONS

SHEET NO.:
1.2

November 20, 2024
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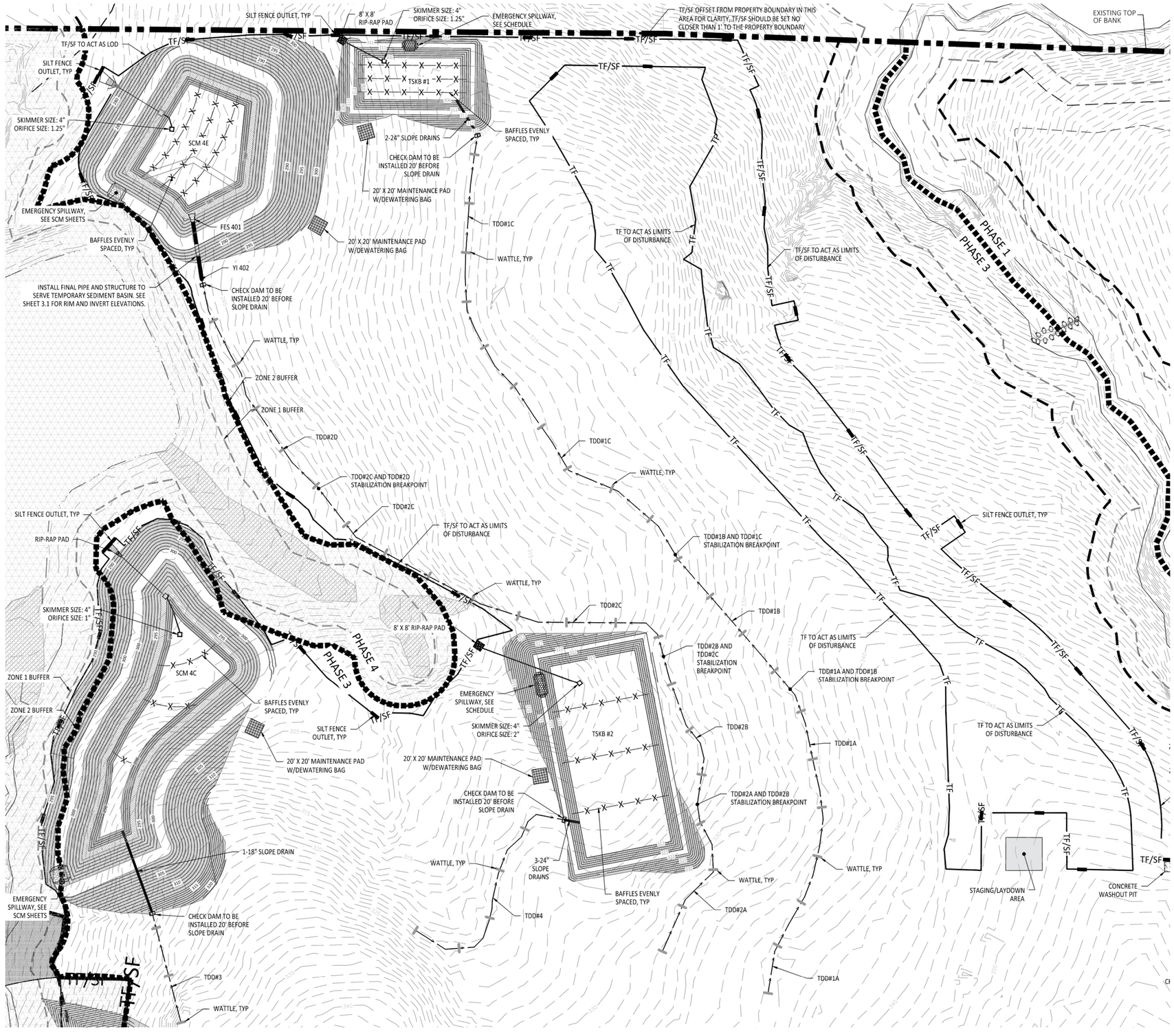

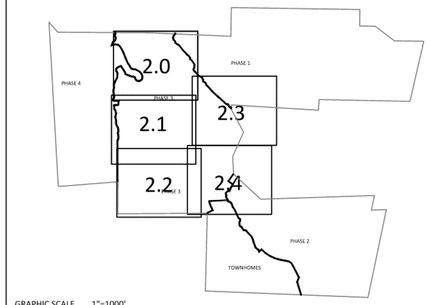

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:

1. ALL SEDIMENT TRAPS/PONDS SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION.
2. WATTLE/CHECK DAM ARE TO BE PLACED EVERY 3 TO 4 FT VERTICALLY.
3. THE COMBINATION TREE FENCE/SILT FENCE IS TO ACT AS THE LIMITS OF DISTURBANCE
4. SEE SHEET 3.2 FOR SEDIMENT BASIN CHART SHOWING THE SKIMMER/ORIFICE SIZES
5. DIVERSION SWALE DESIGN, SEE SHEET 3.2 FOR DETAILS AND REFERENCE TABLE.
6. SEE SHEETS 2.0 TO 2.4 FOR SLOPE DRAIN PIPE SIZES.
7. SEE SHEET 3.2 FOR RIP RAP PAD SIZES.
8. SEE SHEETS 4.6-4.11 FOR SCM RISER AND PIPING SIZES.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL
Signed by: John R. Harman
EXPIRATION: 12/31/2026
JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/31/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3
EROSION
CONTROL
STAGE 1

SHEET NO.:
2.0

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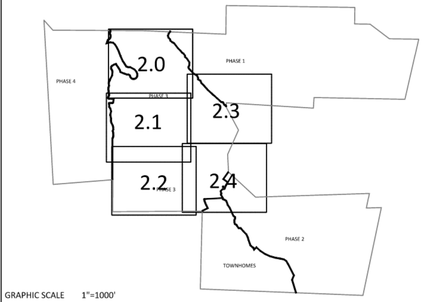

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
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	PROPOSED CENTERLINE
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	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
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	BASIN WEIR
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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 036766 ENGINEER JOHN R. HARMAN
JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 1

SHEET NO.:
2.1

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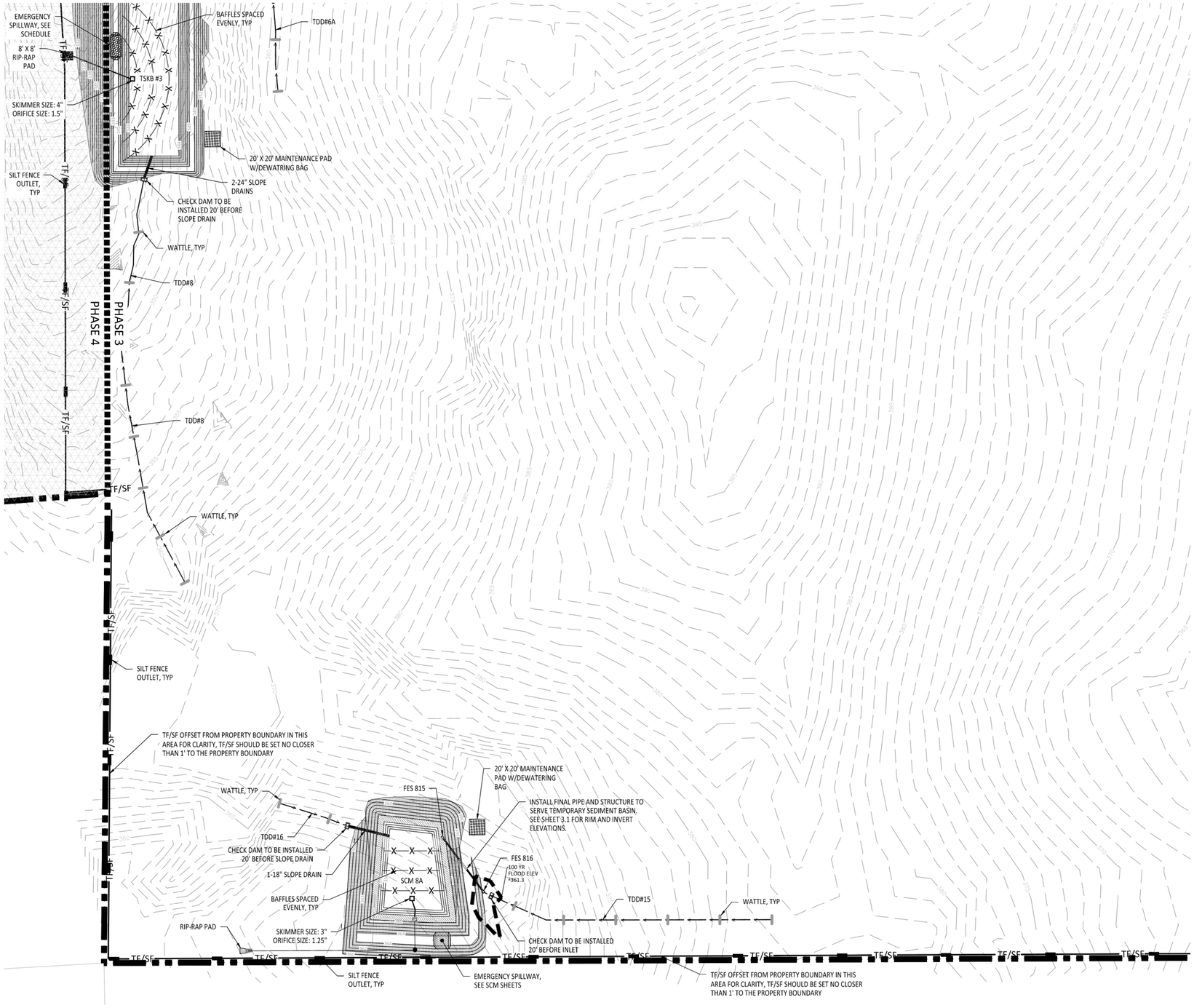

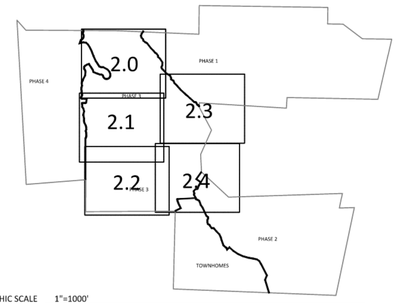

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	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
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Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 038178 ENGINEER JOHN R. HARMAN
JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3
EROSION
CONTROL
STAGE 1

SHEET NO.:
2.2

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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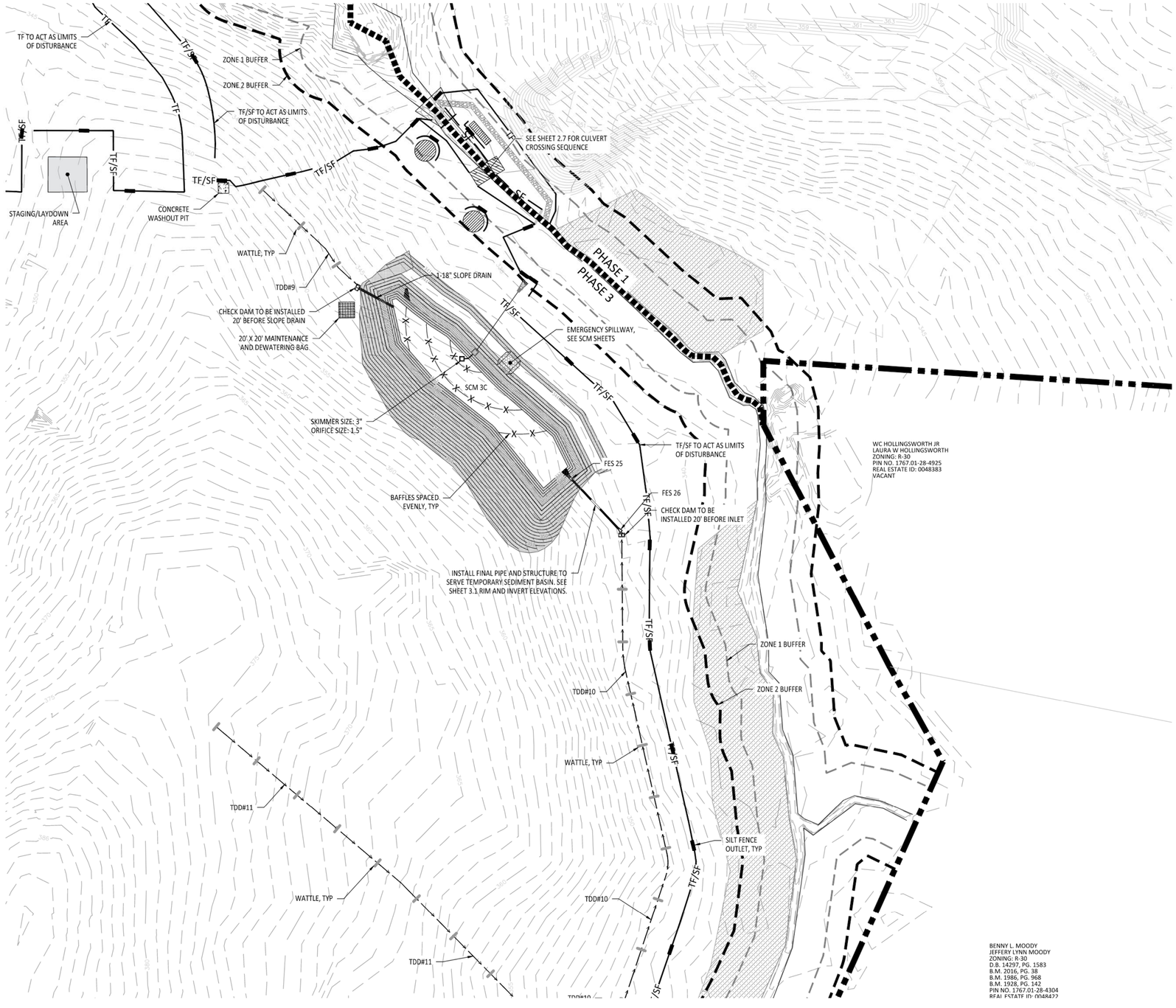

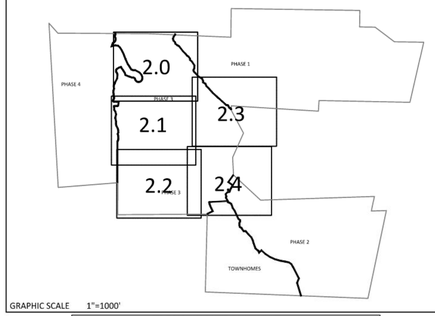

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NORTH CAROLINA CORPORATE CERTIFICATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

NORTH CAROLINA PROFESSIONAL SEAL
JOHN R. HARMAN
ENGINEER
JOHN R. HARMAN
11.26.2025

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 1

SHEET NO.:
2.3

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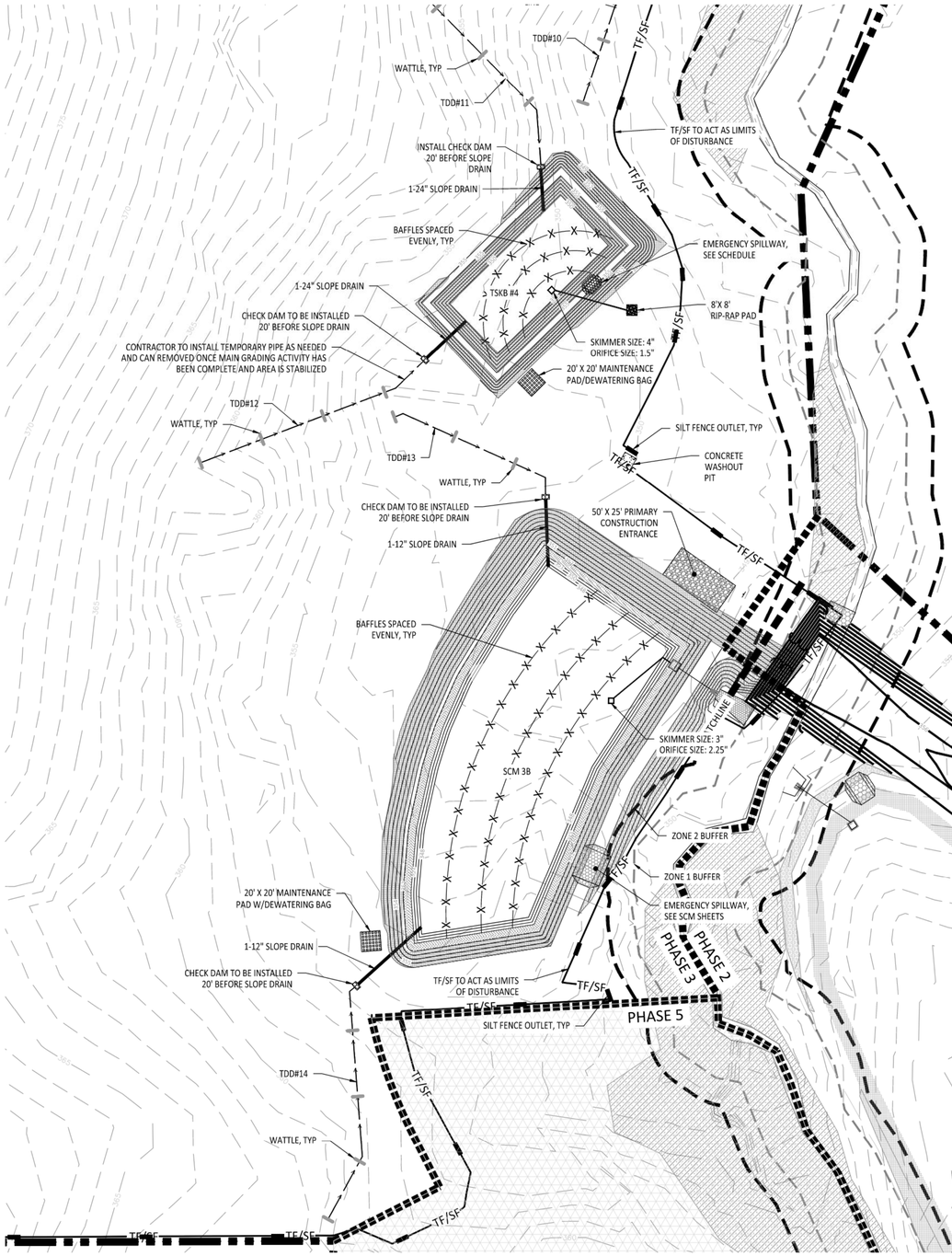

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B.M. 1986, PG. 968
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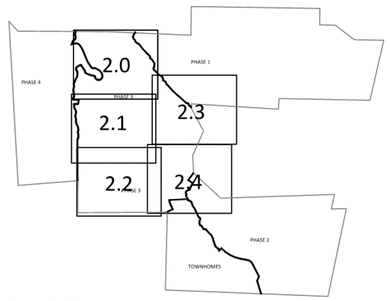

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NORTH CAROLINA PROFESSIONAL SEAL
SEAL 036190
JOHN R. HARMAN
REGISTERED PROFESSIONAL ENGINEER
7/28/2025

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1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 1

SHEET NO.:
2.4

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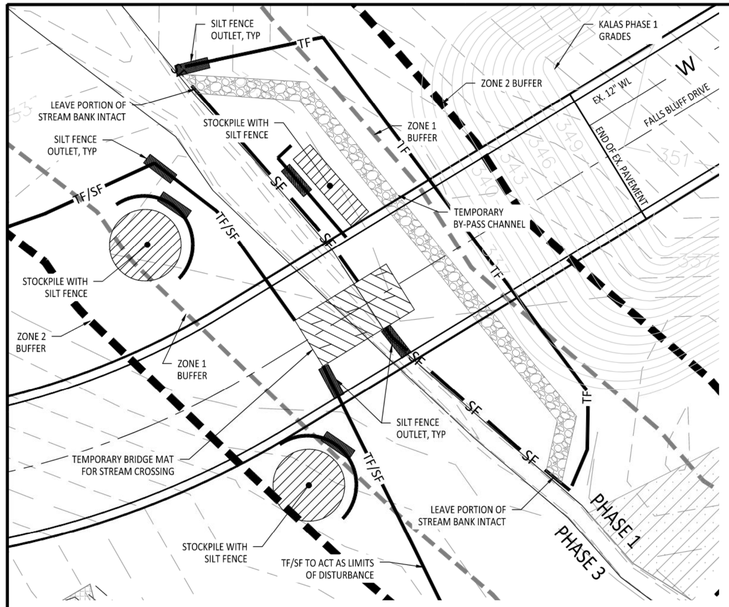
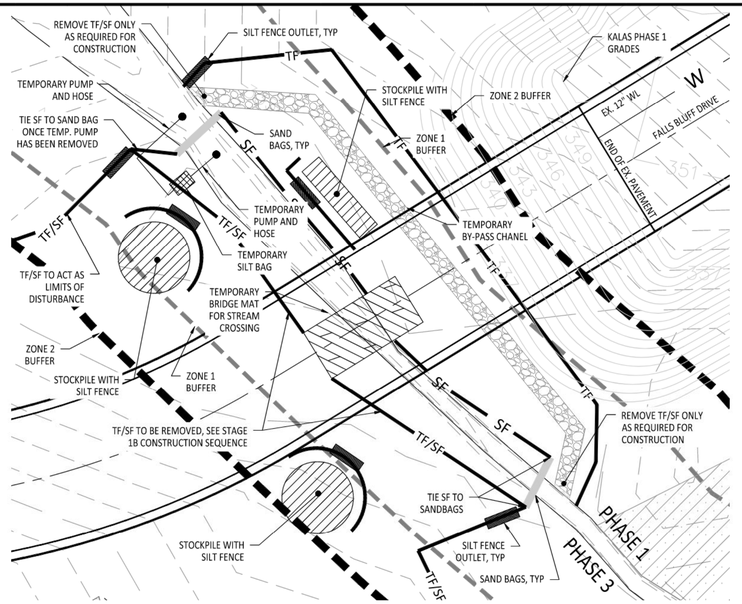
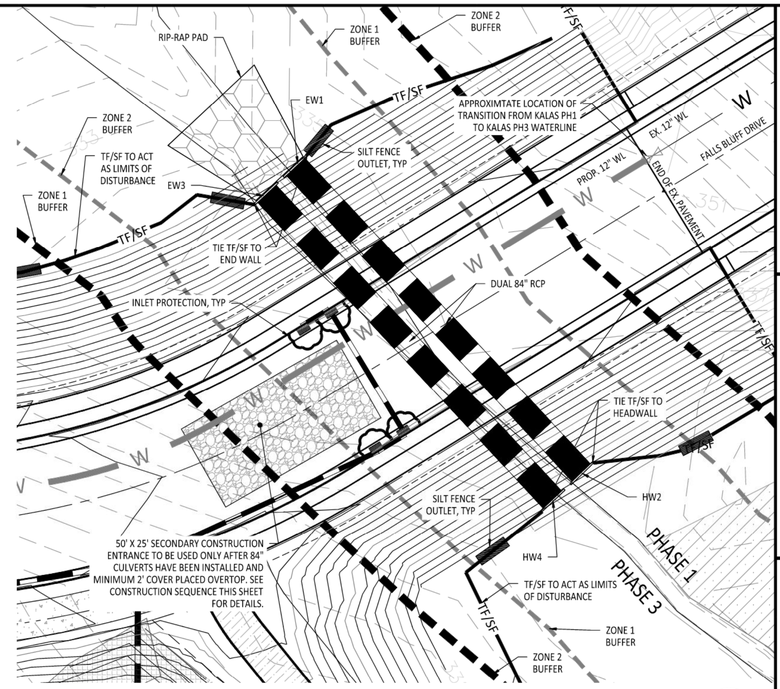


INITIAL STREAM CROSSING



INTERMEDIATE STREAM CROSSING

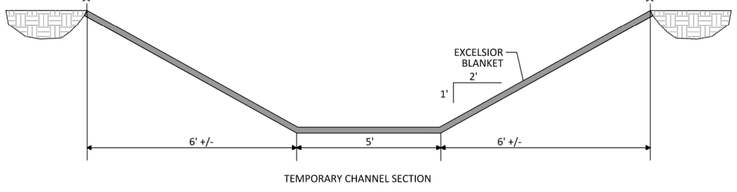


FINAL STREAM CROSSING

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20



TEMPORARY CHANNEL SECTION

SEQUENCE FOR DUAL 84" RCP CULVERT CROSSING USING BY-PASS CHANNEL

STAGE 1A CREEK CROSSING INSTALLATION

1. CONDUCT MEETING WITH WAKE COUNTY INSPECTOR PRIOR TO PROCEEDING WITH THE STREAM CROSSING CONSTRUCTION.
2. INSTALL THE BRIDGE MAT, SILT FENCE, AND BYPASS CHANNEL WITH LINING, AS SHOWN IN THE INITIAL STREAM CROSSING LEAVING A PORTION OF THE STREAM BANK ON EACH END TO ACT AS A DAM TO PREVENT WATER FLOW DURING CONSTRUCTION OF THE CHANNEL **(STEPS 3 - 7 SHOULD BE ACCOMPLISHED DURING ONE WORKDAY)**.
3. DURING A PERIOD OF DRY WEATHER REMOVE THE DOWNSTREAM DAM AND CONSTRUCT THE REMAINDER OF THE CHANNEL TO THE EXISTING STREAM BED. NOTE, REMOVE SILT FENCE ONLY AS REQUIRED TO CONSTRUCT THE REMAINDER OF THE BY-PASS CHANNEL.
4. ADD SANDBAGS ACROSS THE DOWNSTREAM END OF THE STREAM, JUST ABOVE THE POINT WHERE THE BY-PASS CHANNEL RE-ENTERS THE STREAM TO PREVENT BACKFLOW.
5. REMOVE THE UPSTREAM DAM AND CONSTRUCT THE REMAINDER OF THE CHANNEL ON THAT END INCLUDING LINING. NOTE, REMOVE SILT FENCE ONLY AS REQUIRED TO CONSTRUCT THE REMAINDER OF THE BY-PASS CHANNEL.
6. ADD SANDBAGS ACROSS THE STREAM AT THE UPSTREAM END TO FORCE THE STREAM FLOW INTO THE BY-PASS CHANNEL.
7. SEED/SOD AND STABILIZE ALL DENUDED AREAS ONCE THE CHANNEL IS IN PLACE.

STAGE 1B CREEK CROSSING INSTALLATION

1. OBTAIN PERMISSION FROM THE WAKE COUNTY INSPECTOR TO PROCEED WITH THIS STEP.
2. INSTALL TEMPORARY HOSE AND PUMP WITH SILT BAG TO ALLOW FOR PUMP DOWN OF THE WORK AREA. PUMPS TO BE USED AS NEEDED.
3. ONCE THE STREAM HAS BEEN PUMPED DOWN AND THE SILT FENCE HAS BEEN TIED TO THE SANDBAGS AS SHOWN, REMOVE THE SILT FENCE AS SHOWN IN THE INTERMEDIATE STAGE
4. EXCAVATE AREA AS SHOWN AND INSTALL PIPE WITH HEADWALLS AND DOWNSTREAM RIP RAP AS SHOWN IN RIP-RAP CROSS-SECTION.
5. OBTAIN WAKE COUNTY APPROVAL OF THE PIPE INSTALLATION.

STAGE 1C CREEK CROSSING INSTALLATION

1. REMOVE TEMPORARY SANDBAGS ON DOWNSTREAM END.
2. REMOVE TEMPORARY SANDBAGS ON UPSTREAM END.
3. REMOVE LINING ON UPSTREAM END OF BY-PASS CHANNEL AND INSTALL EARTHEN DAM ACROSS THE UPSTREAM END OF THE BY-PASS CHANNEL TO FORCE STREAM FLOW THROUGH THE PIPE.
4. INSTALL EARTHEN DAM ACROSS THE DOWNSTREAM END OF THE BY-PASS CHANNEL AFTER REMOVING THE LINING TO PREVENT WATER FROM RE-ENTERING THE BY-PASS CHANNEL.
5. REMOVE THE REMAINDER OF THE BY-PASS CHANNEL LINING AND FILL THE BY-PASS CHANNEL COMPACTING THOROUGHLY IN LAYERS.
6. INSTALL SILT FENCE AT THE TOE OF SLOPES AND TIE TO ENDWALLS AS SHOWN ON THIS PLAN.
7. COMPLETE FILL AROUND THE PIPE TO A LEVEL AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE TO ALLOW CONSTRUCTION EQUIPMENT TO PASS OVER IT. ONLY AFTER THE FILL AROUND THE PIPE HAS BEEN INSTALLED AS SPECIFIED, MAY THIS AREA BE USED AS A SECONDARY CONSTRUCTION ENTRANCE.
8. COMPLETE FILL BRINGING THE AREA TO FINISHED GRADE.
9. INSTALL PAVEMENT AND FOLLOW THE SEEDING SCHEDULE FOR ALL BARE AREAS.
10. REFER TO MAIN CONSTRUCTION SEQUENCE FOR OTHER DETAILS.

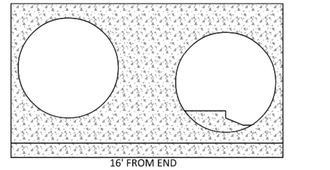
GENERAL NOTES

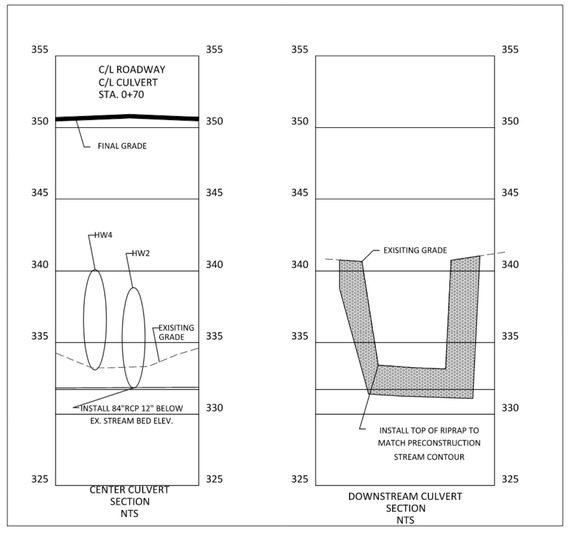
1. CONTRACTOR TO DIVERT ANY STORM RUNOFF FROM THE EXISTING PHASE 1 DEVELOPMENT AS NEEDED WHEN TYING INTO THE EXISTING ROAD.
2. CONTRACTOR MAY USE A CLEAN WATER PUMP AROUND IN PLACE OF A BY-PASS CHANNEL. THE Q10 FLOW IS 408 CFS. CONTRACTOR IS RESPONSIBLE FOR PUMP SIZING.

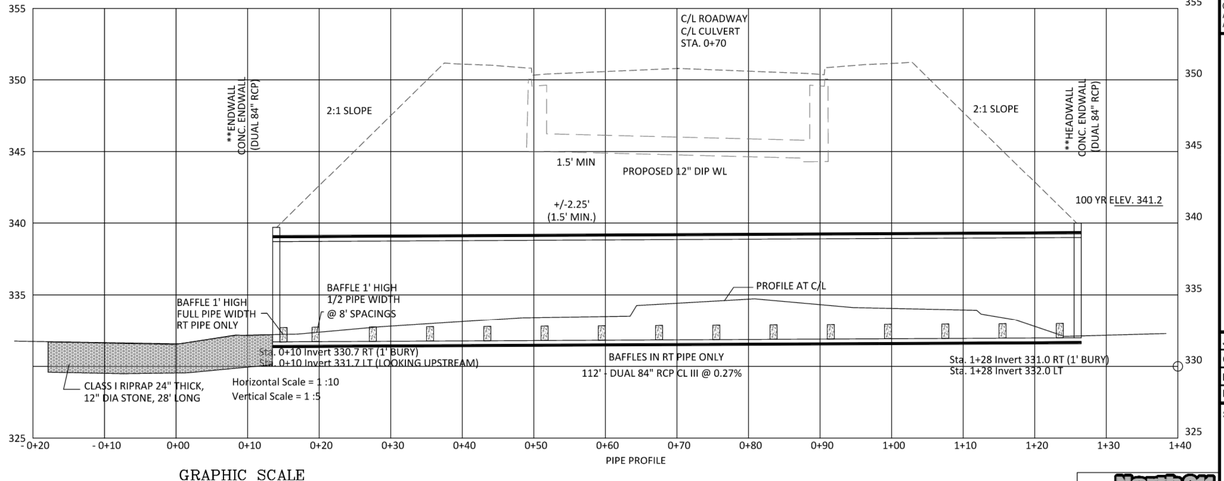
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20







GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10

**HEADWALL AND ENDWALL TO BE NCDOT STANDARD
SEE SHEET CD8

AMERICAN Engineering
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4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING CORPORATION CERTIFICATE OF AUTHORIZATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881

NORTH CAROLINA PROFESSIONAL SEAL 038187 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/20/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
CULVERT CROSSING ON FALLS BLUFF DR

SHEET NO.:
2.5

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\9900\Worksite Property\Mod_Working Dwgs\Phase 3\Sheet Files\Sheet No. 2.0-2.5 Phase 3 Erosion Control Stage 1.dwg July 27, 2025

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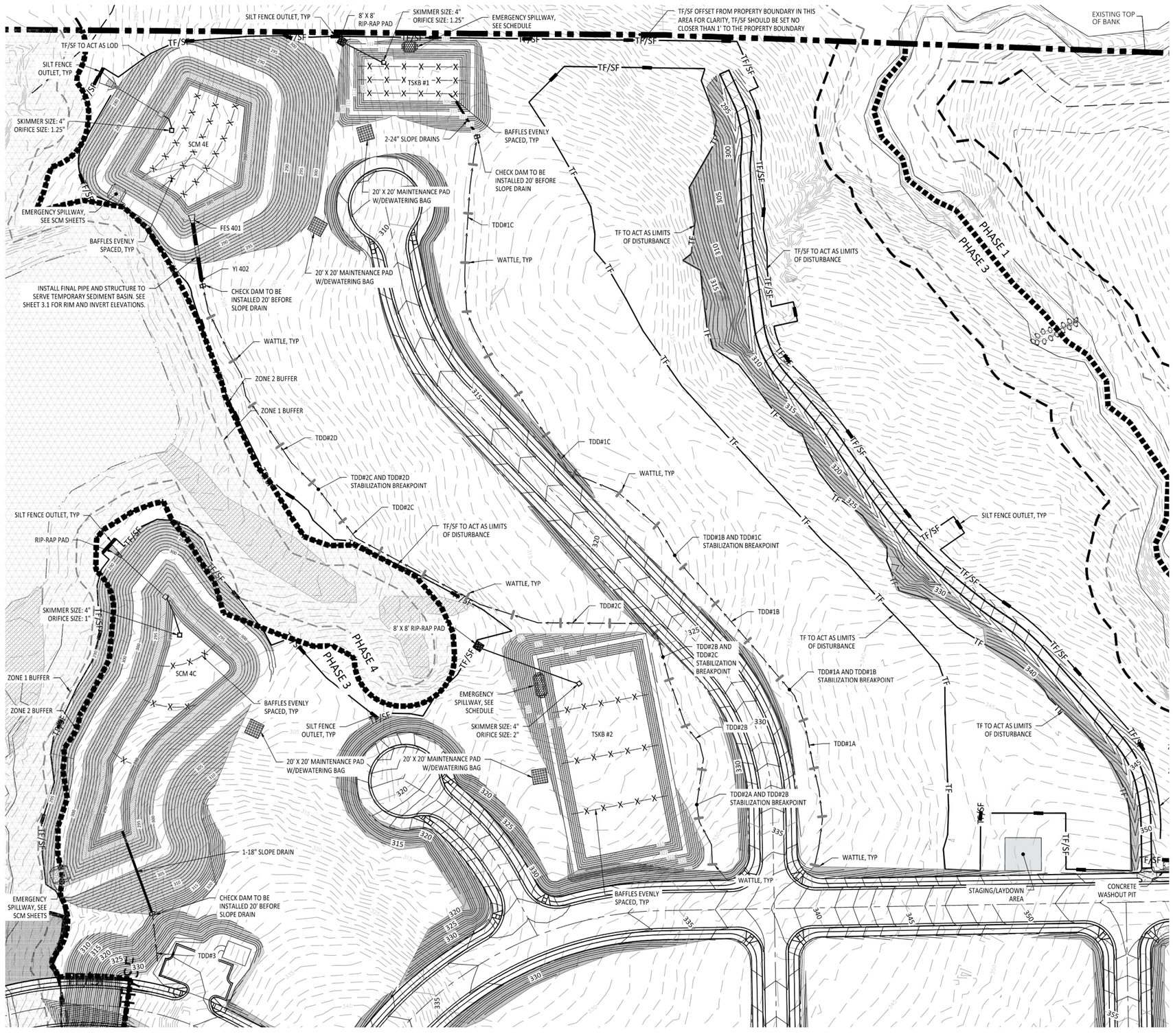

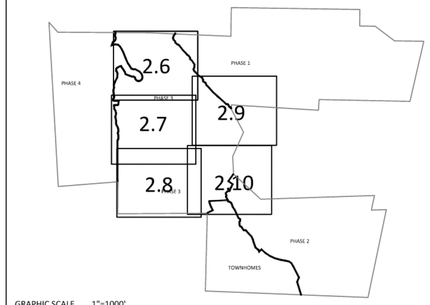

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:

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6. SEE SHEETS 2.0 TO 2.4 FOR SLOPE DRAIN PIPE SIZES.
7. SEE SHEET 3.2 FOR RIP RAP PAD SIZES.
8. SEE SHEETS 4.6-4.11 FOR SCM RISER AND PIPING SIZES.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL JOHN R. HARMAN ENGINEER
ELECTRONICALLY SIGNED AND SEALED
JOHN R. HARMAN 11/21/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/31/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 2

SHEET NO.:
2.6

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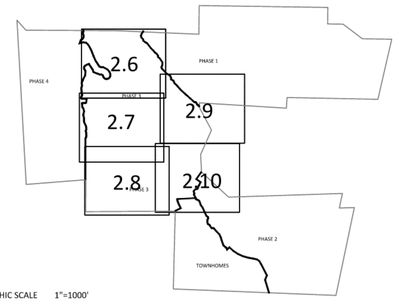

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING CORPORATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 29119 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
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STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 2

SHEET NO.:
2.7

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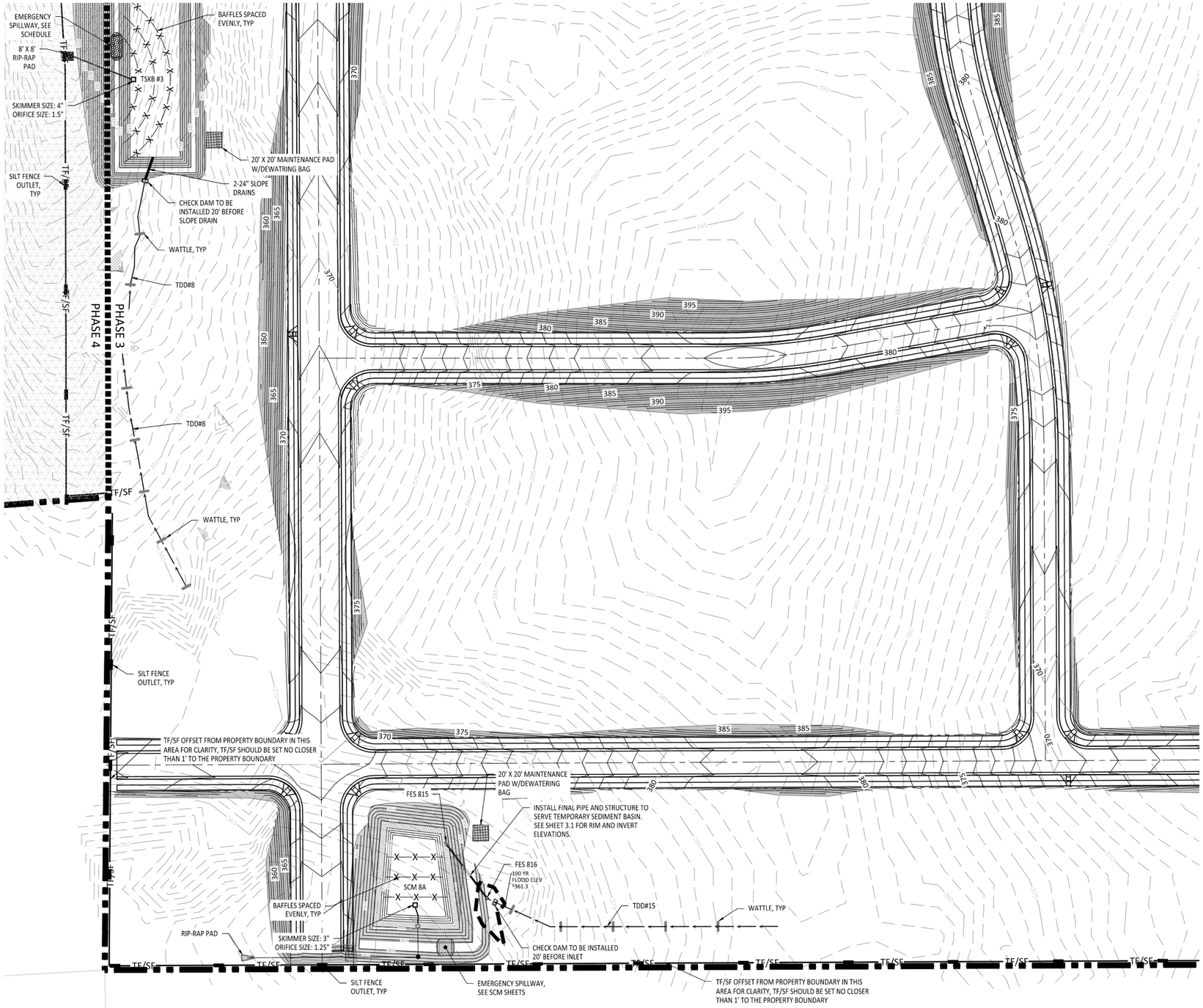

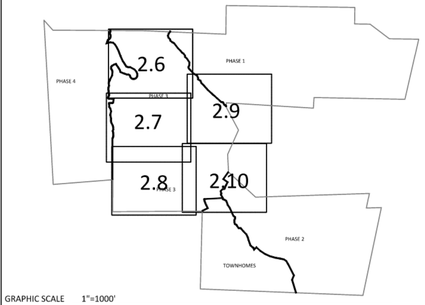

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
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	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
MAINT PAD	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

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919-469-1101

NORTH CAROLINA CORPORATE CERTIFICATE OF AUTHORIZATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881

NORTH CAROLINA PROFESSIONAL SEAL 036107 JOHN R. HARMAN REGISTERED PROFESSIONAL ENGINEER 7/24/2025

REVISION:

NO.	DATE	REVISION
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
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5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

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KALAS FALLS PHASE 3

1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 2

SHEET NO.:
2.8

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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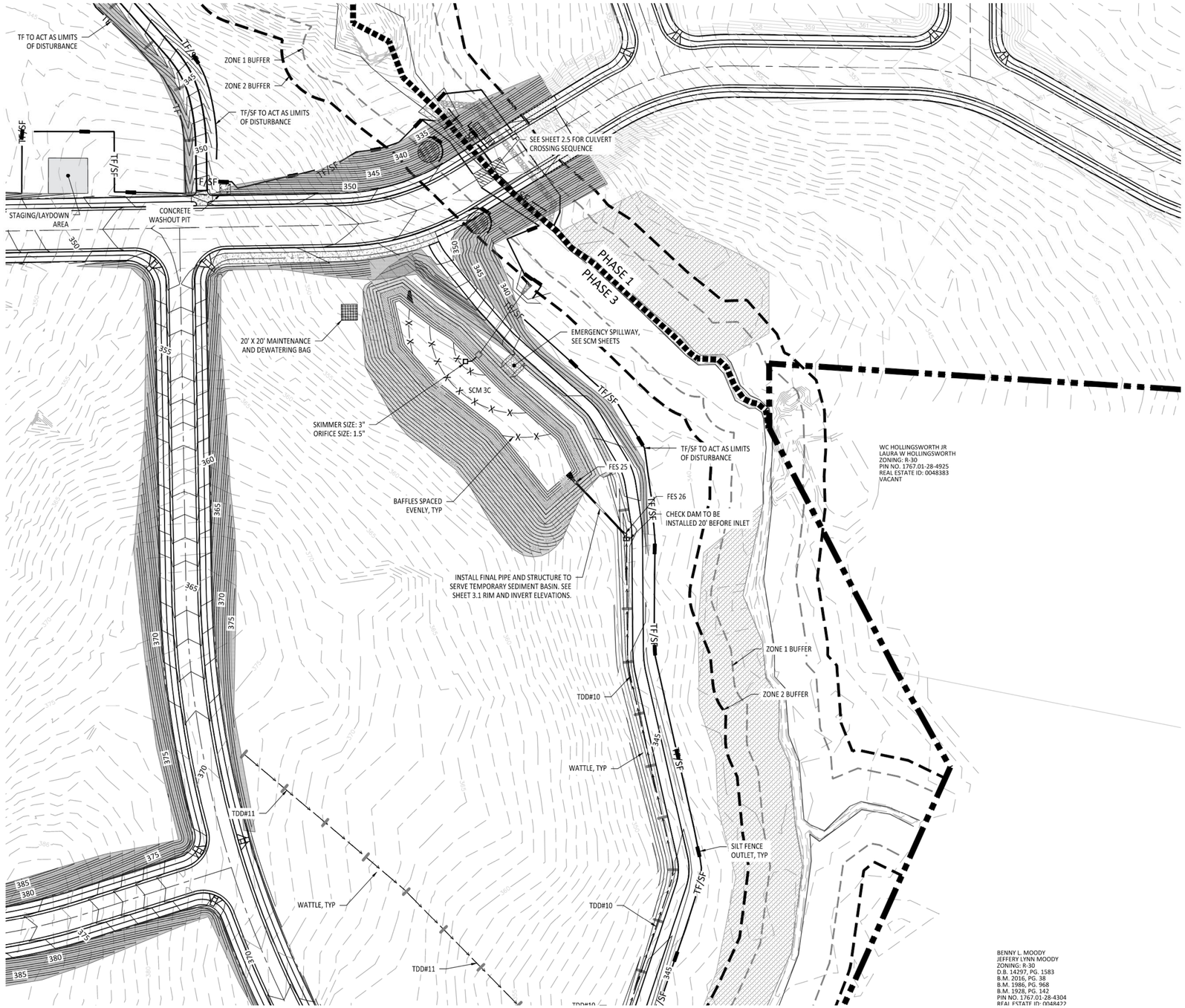

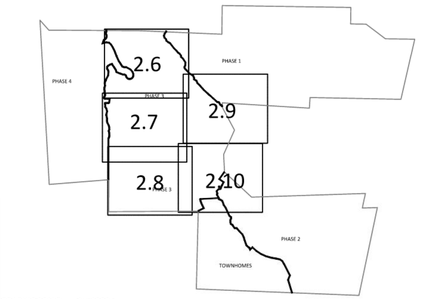

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
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NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

NORTH CAROLINA PROFESSIONAL SEAL
049119
JOHN R. HARMAN
ENGINEER
7/28/2025

NO.	DATE	REVISION:
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3
EROSION
CONTROL
STAGE 2

SHEET NO.:
2.9

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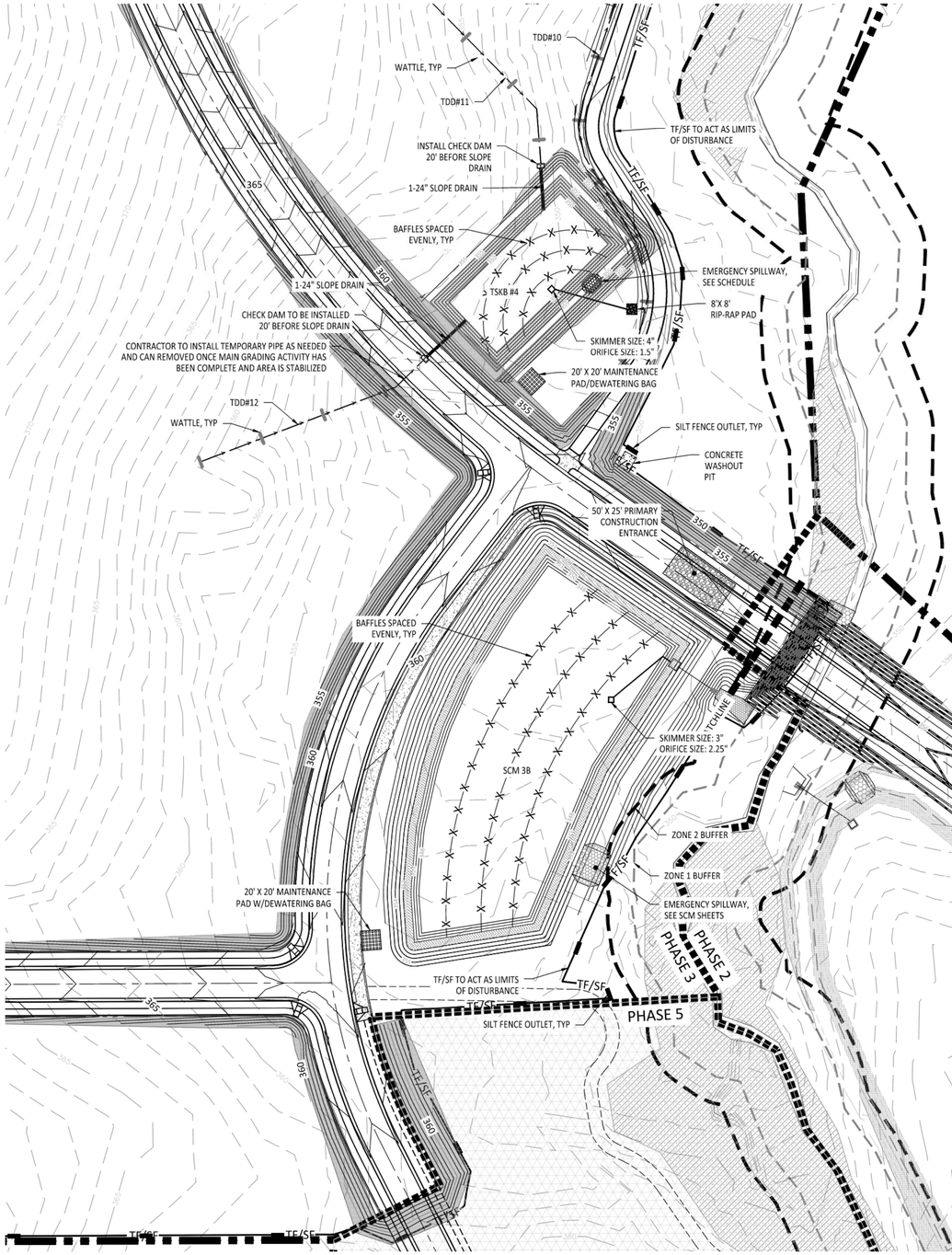

B.M. 2010, PG. 36
B.M. 1986, PG. 968
B.M. 1928, PG. 142
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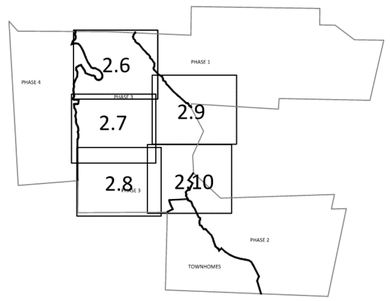
REAL ESTATE ID: 0048422



GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:
1. ALL SEDIMENT TRAPS/PONDS SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION.
2. WATTLE/CHECK DAM ARE TO BE PLACED EVERY 3 TO 4 FT VERTICALLY.
3. THE COMBINATION TREE FENCE/SILT FENCE IS TO ACT AS THE LIMITS OF DISTURBANCE
4. SEE SHEET 3.2 FOR SEDIMENT BASIN CHART SHOWING THE SKIMMER/ORIFICE SIZES
5. DIVERSION SWALE DESIGN, SEE SHEET 3.2 FOR DETAILS AND REFERENCE TABLE.
6. SEE SHEETS 2.0 TO 2.4 FOR SLOPE DRAIN PIPE SIZES.
7. SEE SHEET 3.2 FOR RIP RAP PAD SIZES.
8. SEE SHEETS 4.6-4.11 FOR SCM RISER AND PIPING SIZES.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 049870 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 2

SHEET NO.:
2.10

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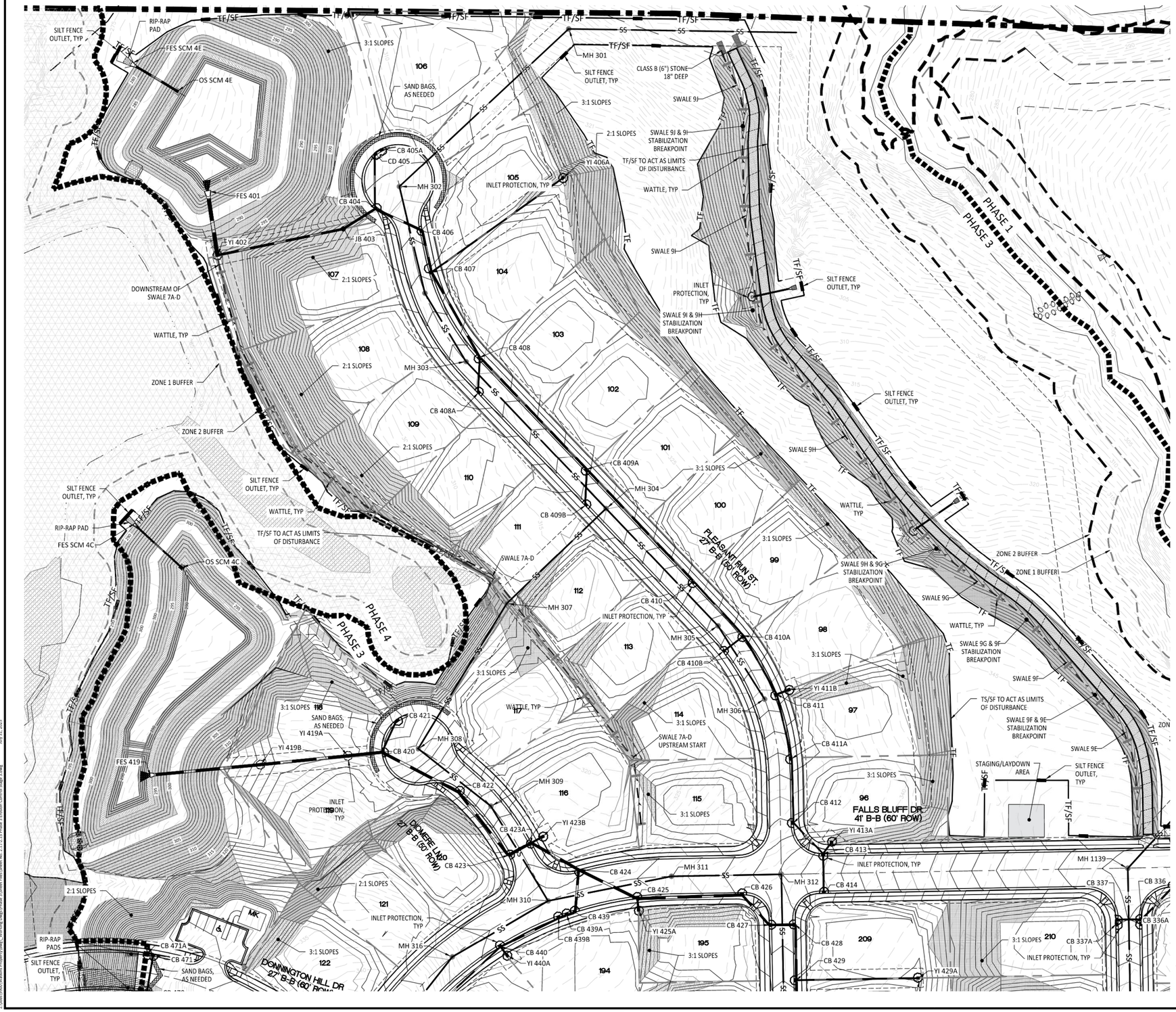

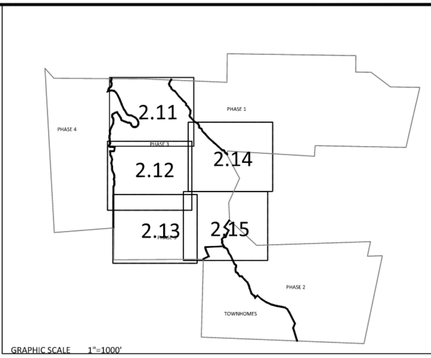

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	STABILIZATION HATCH FOR 3:1 SLOPES LESS THAN 8FT VERTICAL
	STABILIZATION HATCH FOR 3:1 SLOPES MORE THAN 8FT VERTICAL OR SLOPES GREATER THAN 50' IN LENGTH
	STABILIZATION HATCH FOR 2:1 SLOPES LESS THAN 8FT VERTICAL
	STABILIZATION HATCH FOR 2:1 SLOPES GREATER THAN 8FT VERTICAL
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
SF	PROPOSED SILT FENCE
TP	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED COMBINATION FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
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	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

NORTH CAROLINA PROFESSIONAL SEAL
JOHN R. HARMAN
7/31/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/31/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3

1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 3

SHEET NO.:
2.11

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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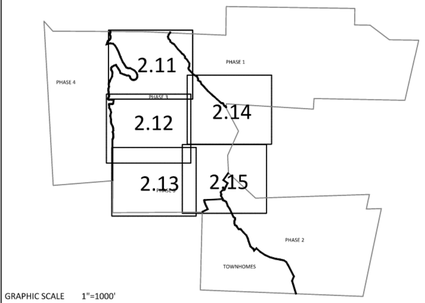

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	STABILIZATION HATCH FOR 3:1 SLOPES LESS THAN 8FT VERTICAL
	STABILIZATION HATCH FOR 3:1 SLOPES MORE THAN 8FT VERTICAL OR SLOPES GREATER THAN 50' IN LENGTH
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	STABILIZATION HATCH FOR 2:1 SLOPES GREATER THAN 8FT VERTICAL
	PROPOSED BASIN MAINTENANCE PAD
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GENERAL NOTES:

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
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4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL
JOHN R. HARMAN
ENGINEER
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		AND CITY OF RALEIGH
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3

1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3
EROSION
CONTROL
STAGE 3

SHEET NO.:
2.12

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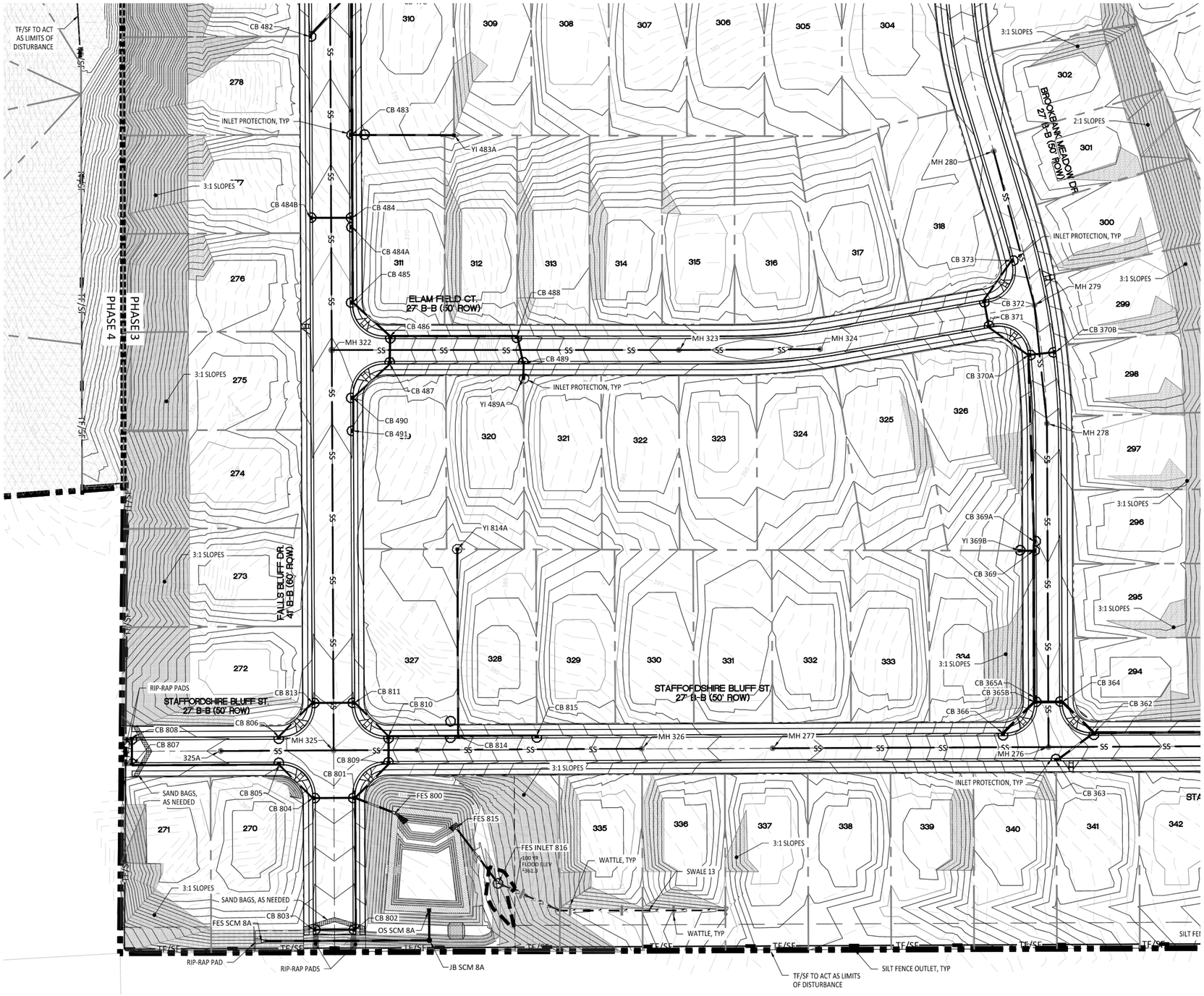

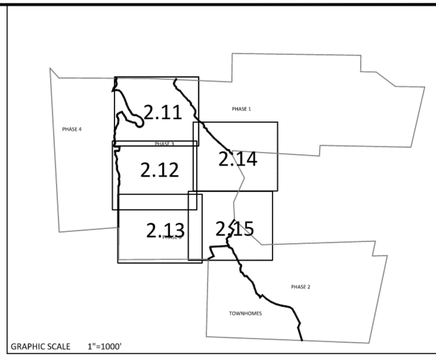

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
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GENERAL NOTES:

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 036107 ENGINEER JOHN R. HARMAN 7/28/2025

REVISION:

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		COUNTY AND CITY OF RALEIGH
		WAKE COUNTY AND TOWN OF ROLESVILLE CONSULTANT COMMENTS.
	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
2	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
3	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
4	4/28/2025	COUNTY COMMENT RESPONSES
5		

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3
EROSION
CONTROL
STAGE 3

SHEET NO.:
2.13

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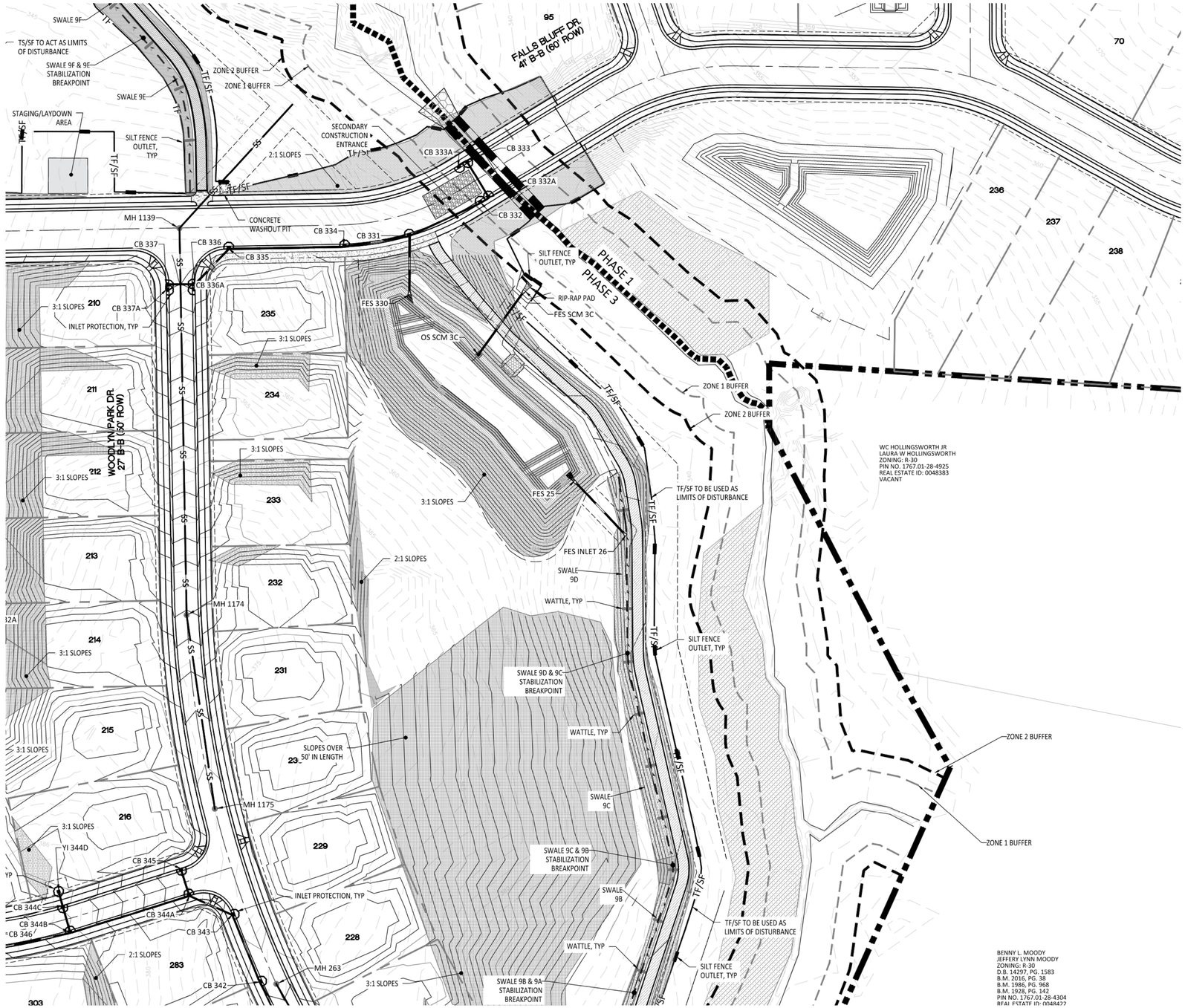

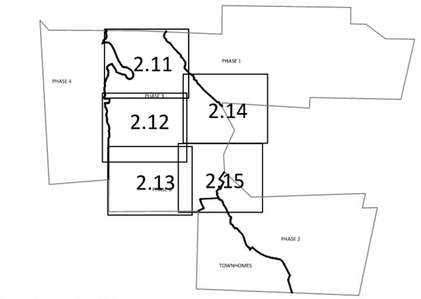

GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
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4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881

NORTH CAROLINA PROFESSIONAL SEAL 036121 JOHN R. HARMAN REGISTERED PROFESSIONAL ENGINEER JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 3

SHEET NO.:
2.14

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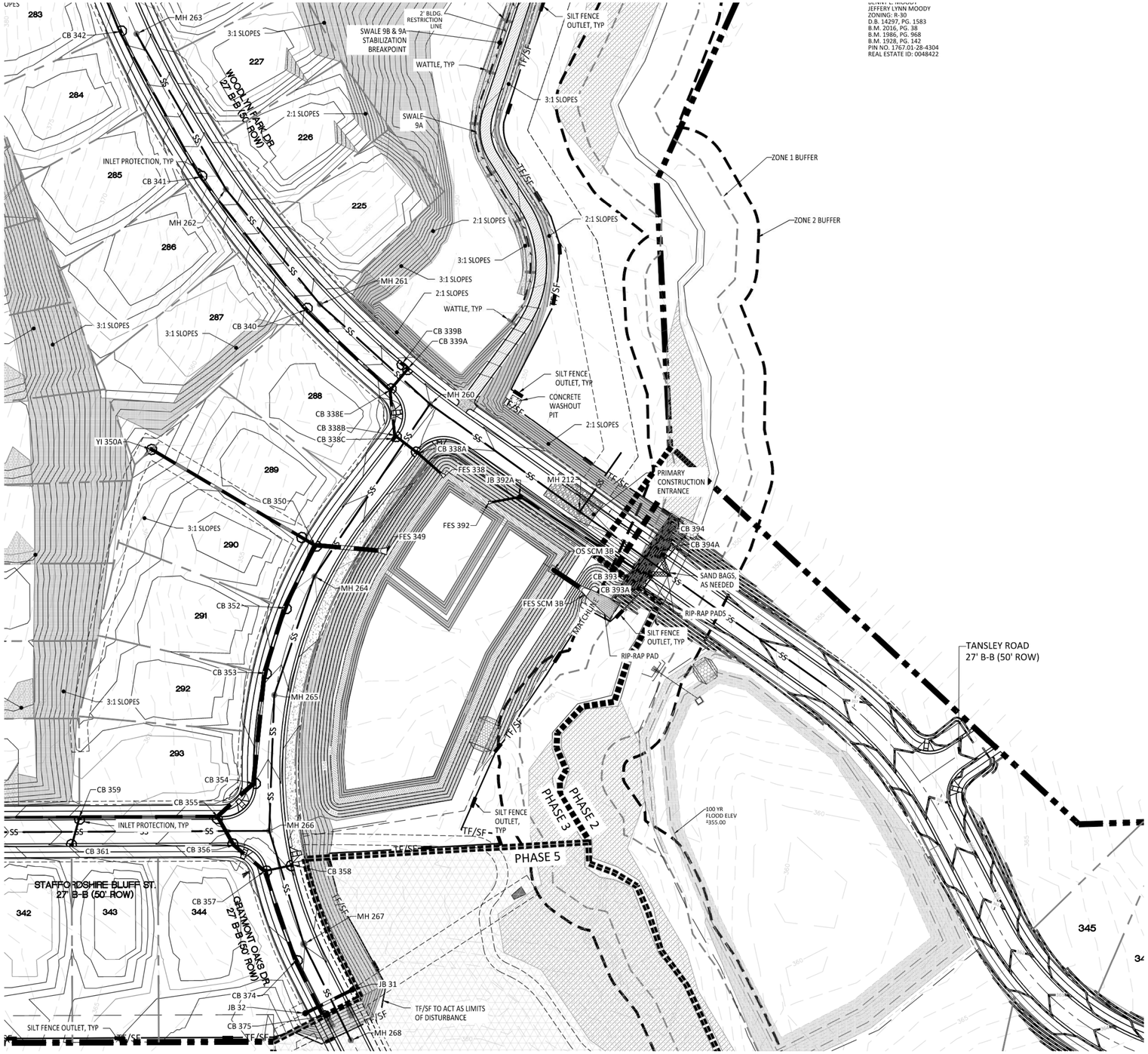
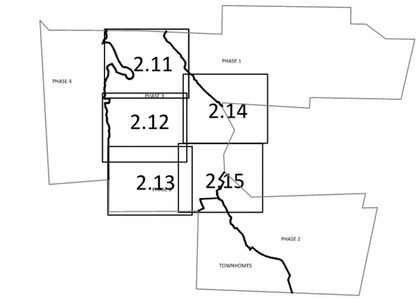


BENNY E. MOODY
JEFFERY LYNN MOODY
ZONING: R-30
D.B. 14297, PG. 1583
B.M. 2016, PG. 38
B.M. 1986, PG. 968
B.M. 1928, PG. 142
PIN NO. 1767.01-28-4304
REAL ESTATE ID: 0048422



GRAPHIC SCALE 1"=1000'

EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	STABILIZATION HATCH FOR 3:1 SLOPES LESS THAN 8FT VERTICAL
	STABILIZATION HATCH FOR 3:1 SLOPES MORE THAN 8FT VERTICAL OR SLOPES GREATER THAN 50' IN LENGTH
	STABILIZATION HATCH FOR 2:1 SLOPES LESS THAN 8FT VERTICAL
	STABILIZATION HATCH FOR 2:1 SLOPES GREATER THAN 8FT VERTICAL
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
SF	PROPOSED SILT FENCE
TP	PROPOSED TREE PROTECTION FENCE/ LIMITS OF DISTURBANCE
	PROPOSED COMBINATION FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:
1. ALL SEDIMENT TRAPS/PONDS SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION.
2. WATTLE/CHECK DAM ARE TO BE PLACED EVERY 3 TO 4 FT VERTICALLY.
3. THE COMBINATION TREE FENCE/SILT FENCE IS TO ACT AS THE LIMITS OF DISTURBANCE
4. SEE SHEET 3.2 FOR SEDIMENT BASIN CHART SHOWING THE SKIMMER/ORIFICE SIZES
5. DIVERSION SWALE DESIGN, SEE SHEET 3.2 FOR DETAILS AND REFERENCE TABLE.
6. SEE SHEETS 2.0 TO 2.4 FOR SLOPE DRAIN PIPE SIZES.
7. SEE SHEET 3.2 FOR RIP RAP PAD SIZES.
8. SEE SHEETS 4.6-4.11 FOR SCM RISER AND PIPING SIZES.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL L-4930 JOHN R. HARMAN ENGINEER
Signed by: John R. Harman
7/28/2025

NO.	DATE	REVISION:
1	7/31/2024	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 EROSION CONTROL STAGE 3

SHEET NO.:
2.15

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July 27, 2025

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CONSTRUCTION SEQUENCE FOR KALAS FALLS PHASE 3, STAGE 1 SHALL BE AS FOLLOWS:

1. THE OWNER SHALL SUBMIT A NCG01 PERMIT AND OBTAIN A CERTIFICATE OF COMPLIANCE.
2. SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH WAKE COUNTY TO OBTAIN A LAND DISTURBING PERMIT.
3. TREE PROTECTION FENCES, SILT FENCES AND CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS SHOWN ON THE EROSION CONTROL PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES INCLUDING STOCKPILE LOCATIONS. STOCKPILE LOCATIONS SHOULD BE ENCLOSED BY SILT FENCE AS SHOWN ON THE PLANS. SEED ALL RESULTING BARE AREAS IMMEDIATELY AFTER CONSTRUCTION/INSTALLATION.
4. CONSTRUCT SCMS #3B, #3C, #4B, #4C, #4E, AND #8A PER THE SCM DETAIL SHEETS 4.6 THROUGH 4.11 OMITTING THE FOREBAYS. CONNECT SKIMMERS TO THE OUTLET STRUCTURES. CONSTRUCT TEMPORARY SKIMMER BASINS (TSKBS) #1-#4 AS SHOWN ON THE STAGE 1 EROSION AND SEDIMENT CONTROL PLAN. ANY INLET(S) INSTALLED SHOULD HAVE INLET PROTECTION INSTALLED IMMEDIATELY AS SEEN THESE PLANS. THE SEDIMENT BASINS AND TEMPORARY SKIMMER BASINS SHALL BE FULLY CONSTRUCTED PRIOR TO THE INSTALLATION OF ANY TEMPORARY DIVERSION DITCHES. ANY PIPE INSTALLATION SHALL BE EXCAVATED, INSTALLED, AND BACKFILLED WITHIN A SINGLE WORKING DAY. SEE SHEET 3.2 FOR THE SEDIMENT BASIN/SEDIMENT TRAP SCHEDULE.
5. INSTALL ANY APPLICABLE RIP RAP DISSIPATERS SEEN WITHIN STAGE 1 EROSION AND SEDIMENT CONTROL PLAN. SEE SHEET 3.2 FOR SCHEDULE.
6. INSTALL TEMPORARY DIVERSION DITCHES SHOWN IN THIS PHASE TO CONVEY SEDIMENT AND RUN OFF TO RESPECTIVE SEDIMENT BASINS. INSTALL RECOMMENDED LINER AND SEED/STABILIZE DENUDED GROUND IMMEDIATELY FOLLOWING DIVERSION DITCH INSTALLATION. SEE SHEET 3.2 FOR THE TEMPORARY DIVERSION DITCH SCHEDULE WITH RECOMMENDED LINER.
7. CALL FOR INSPECTION BY THE WAKE COUNTY WATERSHED MANAGER, PROCEED TO STAGE 2 EROSION AND SEDIMENT CONTROL ACTIVITIES ONLY ONCE APPROVAL IS GRANTED.

CONSTRUCTION SEQUENCE FOR KALAS FALLS PHASE 3, STAGE 2 SHALL BE AS FOLLOWS:

1. GENERAL SITE GRADING MAY BEGIN.
2. CONTRACTOR TO FOLLOW THE "SEQUENCE FOR DUAL 84" RCP CULVERT CROSSING" AS SHOWN ON SHEET 2.5 FOR THE CULVERT CROSSING INSTALLATION BETWEEN KALAS FALLS PHASE 3 AND KALAS FALLS PHASE 1. ONLY AFTER THE PIPES HAVE BEEN PLACED AND A MINIMUM OF 2' OF FILL HAS BEEN INSTALLED, MAY THIS CROSSING BE USED AS A SECONDARY CONSTRUCTION ENTRANCE.
3. INSTALL STORM DRAINAGE PIPE SYSTEMS AS SEEN IN THE CD SET. INSTALLATION SHOULD BE DONE IN THE MANAGEABLE SERIES. ANY SERIES OF PIPE AND STRUCTURE INSTALLATION(S) SHALL BE DONE SO THAT TRENCHING/EXCAVATION THAT IS PERFORMED THAT DAY IS ABLE TO HAVE BEDDING PREPARED, PIPE INSTALLED AND BACKFILLED WITHIN THE SAME WORKING DAY. DENUDED AREAS SHOULD BE STABILIZED IMMEDIATELY.
4. AS EACH CATCH BASIN OR YARD INLET IS INSTALLED, IT SHALL HAVE INLET PROTECTION INSTALLED. THIS IS TO REMAIN IN PLACE AND BE MAINTAINED PERIODICALLY UNTIL APPROVED FOR REMOVAL BY THE WAKE COUNTY WATERSHED MANAGER.
5. INSTALL ANY APPLICABLE RIP RAP DISSIPATERS SEEN WITHIN THE CD SET FOR THE STAGE 2 EROSION AND SEDIMENT CONTROL PLAN. SEE SHEET 3.2 FOR SCHEDULE.
6. CLEAN SEDIMENT BASINS WHEN ONE-HALF FULL.
7. SEED AND MULCH DENUDED AREA INCLUDING ANY CUT/FILL SLOPES WITHIN FOURTEEN (14) DAYS AFTER FINISHED GRADES ARE ESTABLISHED.
8. MAINTAIN SOIL EROSION CONTROL MEASURES UNTIL PERMANENT GROUND IS ESTABLISHED.
9. UTILITIES (WATER, ELECTRIC, GAS, CABLE TV, TELEPHONE, ETC.) WILL BE INSTALLED DURING THIS PHASE.
10. CALL FOR INSPECTION BY THE WAKE COUNTY WATERSHED MANAGER, PROCEED TO STAGE 3 EROSION AND SEDIMENT CONTROL ACTIVITIES ONLY ONE APPROVAL IS GRANTED.
11. ADDITIONAL MEASURES OR DITCH EXTENSIONS MAY BE REQUIRED BY THE WAKE COUNTY WATERSHED MANAGER TO ROUTE RUNOFF TO SEDIMENT BASINS BASED ON FIELD CONDITIONS. THESE MEASURES SHALL BE INSTALLED UPON THE INSPECTOR'S DETERMINATION.

CONSTRUCTION SEQUENCE FOR KALAS FALLS PHASE 3, STAGE 3 SHALL BE AS FOLLOWS:

1. WHEN ALL CONTRIBUTING AREAS ARE STABILIZED, OBTAIN APPROVAL FROM THE WAKE COUNTY WATERSHED MANAGER TO REMOVE THE TEMPORARY SKIMMER BASINS AND TO CONVERT THE SEDIMENT BASINS (SB) TO PERMANENT STORMWATER CONTROL MEASURES (SCM). SEE RECOMMENDED INSTRUCTIONS TO CONVERT SEDIMENT BASINS TO PERMANENT STORMWATER CONTROL MEASURES ON THIS SHEET OF THE PROJECT CONSTRUCTION DRAWINGS.
2. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL THE WAKE COUNTY WATERSHED MANAGER FOR AN INSPECTION.
3. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCES, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATERS SHOULD BE INSTALLED.
4. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE WAKE COUNTY WATERSHED MANAGER. OBTAIN CERTIFICATE OF COMPLETION. FINALIZE NCG01 PERMIT

REQUIRED WAKE COUNTY BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
3. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
4. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
5. 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.

SCM CONVERSION SEQUENCE

1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION, IF NEEDED.
3. CONSTRUCT FOREBAY DIVIDERS AS SHOWN.
4. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE, EMERGENCY OVERFLOW, ETC. EXAMINE RIP-RAP TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
5. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
6. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
7. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.

GENERAL NOTES:

A. ALL TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL REMAIN UNTIL ISSUANCE OF CERTIFICATE OF OCCUPANCY (CO).

B. WITHIN THE SIGHT TRIANGLES SHOWN ON ALL SITE PLAN AND LANDSCAPE PLAN SHEETS, NO OBSTRUCTION BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION SHALL BE LOCATED IN WHOLE OR PART. OBSTRUCTIONS INCLUDE, BUT ARE NOT LIMITED TO, ANY BERM, FOLIAGE, FENCE, WALL SIGN, PARKED CAR, OR OTHER OBJECT. ALL STREET TREES FALLING WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN SHALL BE LIMBED UP BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION.

C. ALL STREETS SHOWN ON THESE PLANS HAVE FULL WIDTH OF RIGHT-OF-WAY CLEARED AND GRADED WITHIN 50 FEET OF ALL STREET INTERSECTIONS. THE FULL WIDTH OF RIGHT-OF-WAY SHALL BE CLEARED AND GRADED ALONG ALL MAJOR, MINOR AND SENSITIVE AREA THOROUGHFARES.

D. WHEEL CHAIR ACCESS RAMPS WILL BE PROVIDED IN ACCORDANCE WITH STANDARD DRAWING SHOWN ON SHEET CD19. WHERE SIDEWALK IS NOT REQUIRED ALONG THE PUBLIC RIGHT-OF-WAY, CURB IS TO BE DEPRESSED AT ALL RAMP LOCATIONS SHOWN ON THE STANDARD DETAIL.

NOTES FOR CONSTRUCTION:

1. PLANS FOR INFRASTRUCTURE ONLY.
2. ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT CITY OF RALEIGH STANDARD SPECS AND DETAILS, WAKE COUNTY SPECIFICATIONS, NCDOT SPECIFICATIONS AND TOWN OF ROLESVILLE SPECIFICATIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE DRAWINGS.
4. CONTRACTOR WILL KEEP STREETS CLEAN AT ALL TIMES, OR A WASH STATION WILL BE REQUIRED.
5. ALL CATCH BASINS SHALL HAVE INLET PROTECTION.
6. ALL CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 14 DAYS OF ANY PHASE OF GRADING, WITH SOME SLOPES TO BE STABALIZED WITHIN 7 DAYS AS SHOWN ON CHART TO THE LEFT AND ON THE EC SHEETS..
7. TREE PROTECTION FENCING ON THIS PROJECT WILL BE INSTALLED AND INSPECTED BEFORE THE
8. GRADING PERMIT IS ISSUED. A PRE-CONSTRUCTION CONFERENCE MAY BE REQUIRED BEFORE GRADING PERMIT IS ISSUED.
9. PERMANENT GROUND COVER WILL BE ESTABLISHED IN 15 WORKING DAYS OR 90 CALENDAR DAYS WHICHEVER IS SHORTER.
10. THE AREA DESIGNATED SHALL BE USED FOR TOPSOIL STOCKPILE.
11. THIS PROJECT IS IN THE NEUSE RIVER WATERSHED. PROJECT AREA = 283 ACRES.
12. WETLANDS ON THIS PROJECT ARE AS SHOWN.
13. MINIMUM CORNER CLEARANCE FROM THE CURB LINE OF INTERSECTING STREETS SHALL BE AT LEAST TWENTY (20) FEET FROM THE POINT OF TANGENCY.

GENERAL NOTES:

A. ALL TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY (CO).

B. ALL TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL REMAIN UNTIL ISSUANCE OF CERTIFICATE OF OCCUPANCY (CO).

C. WITHIN THE SIGHT TRIANGLES SHOWN ON ALL SITE PLAN AND LANDSCAPE PLAN SHEETS, NO OBSTRUCTION BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION SHALL BE LOCATED IN WHOLE OR PART. OBSTRUCTIONS INCLUDE, BUT ARE NOT LIMITED TO, ANY BERM, FOLIAGE, FENCE, WALL SIGN, PARKED CAR, OR OTHER OBJECT. ALL STREET TREES FALLING WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN SHALL BE LIMBED UP BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION.

D. MINIMUM CORNER CLEARANCE FROM THE CURB LINE OF INTERSECTING STREETS SHALL BE AT LEAST 20 FEET FROM THE POINT OF TANGENCY OF THE CURB. NO DRIVEWAYS SHALL ENCROACH ON THIS MINIMUM CORNER CLEARANCE.

E. ALL STREETS SHOWN ON THESE PLANS HAVE FULL WIDTH OF RIGHT-OF-WAY CLEARED AND GRADED WITHIN 50 FEET OF ALL STREET INTERSECTIONS. THE FULL WIDTH OF RIGHT-OF-WAY SHALL BE CLEARED AND GRADED ALONG ALL MAJOR, MINOR AND SENSITIVE AREA THOROUGHFARES.

F. WHEEL CHAIR ACCESS RAMPS WILL BE PROVIDED IN ACCORDANCE WITH STANDARD DRAWING SHOWN ON SHEET CD19. WHERE SIDEWALK IS NOT REQUIRED ALONG THE PUBLIC RIGHT-OF-WAY, CURB IS TO BE DEPRESSED AT ALL RAMP LOCATIONS SHOWN ON THE STANDARD DETAIL.

G. ALL INDIVIDUAL LOTS SHALL HAVE AN EROSION CONTROL PLAN SUBMITTED PRIOR TO CONSTRUCTION OF HOUSES THERE UPON. IF MULTIPLE LOTS WITH A TOTAL DISTURBED AREA OF MOTRE THAN 12,000 SF ARE TO BE BUILT UPON AT ONE TIME, A COORDINATED EROSION CONTROL PLAN SHALL BE SUBMITTED.

MAINTENANCE OF EROSION CONTROL MEASURES

SILT FENCE MAINTENANCE - ANY DAMAGE IS TO BE REPAIRED AS SOON AS POSSIBLE AFTER IT IS DISCOVERED. FENCE POSTS ARE TO BE STRAIGHTENED OR REPLACED AS NECESSARY. WIRE FENCING SUPPORTING THE FILTER FABRIC SHALL BE REPLACED AS NECESSARY. ANY TORN FILTER FABRIC SHALL BE PATCHED OR REPLACED. WHEN STONE IS CONTAMINATED IT SHALL BE REMOVED AND REPLACED WITH CLEAN STONE.

SILT FENCE OUTLETS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF DAMAGED, THEY SHALL HAVE FABRIC, POSTS OR WIRE BACKING REPLACED TO RESTORE TO ORIGINAL CONDITION.

TREE PROTECTION FENCE MAINTENANCE - ANY SEGMENTS THAT ARE DAMAGED ARE TO BE REPLACED AS SOON AS POSSIBLE FOLLOWING DISCOVERY.

CONSTRUCTION ENTRANCE - IF ANY OF THE STONE SHALL BE LOST, IT SHALL BE REPLACED. IF THE FILTER FABRIC UNDER THE STONE IS DAMAGED, THAT PORTION SHALL BE REPLACED. IF THE STONE BECOMES COMPLETELY CLOGGED WITH SOIL, IT SHALL BE REMOVED AND REPLACED.

SOIL STOCKPILE AREAS/OTHER GRASSED AREAS MAINTENANCE - GRASS AREAS SHALL BE RESEEDED AS NECESSARY. SOIL STOCKPILE AREAS SHALL BE SEEDED WHEN THEIR USE IS COMPLETE.

TEMPORARY SEDIMENT TRAP - THESE BASINS SHALL BE INSPECTED AT LEAST ONCE PER WEEK AND AFTER EVERY STORM OF 1" OR MORE OF RAIN. DEBRIS SHALL BE REMOVED IMMEDIATELY. ANY DAMAGE TO THE TRAP SHALL BE REPAIRED TO THE STANDARD FOR INITIAL CONSTRUCTION. SEDIMENT IS TO BE REMOVED WHEN IT REACHES 6" DEEP OR AT LEAST ONCE EVERY SIX MONTHS.

SEDIMENT BASINS - ALL REQUIREMENTS FOR SEDIMENT TRAPS SHALL APPLY.

CONCRETE WASHOUT - IT SHALL BE CLEANED PERIODICALLY AS NEEDED. IF THE PLASTIC LINER IS DAMAGED, IT SHALL BE REPLACED.

BAFFLES - SHALL BE INSPECTED AFTER EACH SIGNIFICANT RAINFALL AND AT LEAST ONCE A WEEK. IF NECESSARY, THEY SHALL BE REPAIRED TO THE ORIGINAL PERFORMANCE LEVEL USING MATERIALS SPECIFIED IN THE DETAIL.

DITCH LINER - SHALL BE INSPECTED AT LEAST ONCE A WEEK AND FOLLOWING SIGNIFICANT RAINFALL. IF NECESSARY, THE LINER SHALL BE REPLACED WITH THE ORIGINAL TYPE MATERIAL AND ANCHORED ACCORDING TO THE METHODS SHOWN ON SHEET CD3.

SKIMMERS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. THEY SHALL BE CLEANED OF DEBRIS AND ANY REPAIRS MADE TO THE ORIGINAL QUALITY OR THE ITEM REPLACED.

RIP-RAP CHANNEL - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF STONE IS MISSING IT SHALL BE REPLACED TO THE ORIGINAL SPECIFICATIONS. DEBRIS AND SEDIMENT SHALL BE REMOVED AS NECESSARY.

RIP-RAP APRONS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF STONE IS MISSING, IT SHALL BE REPLACED TO THE ORIGINAL SPECIFICATIONS. DEBRIS AND SEDIMENT SHALL BE REMOVED AS NECESSARY.

TEMPORARY SILT DITCH - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF SIGNIFICENT EROSION OF THE DITCH IS HAPPENING IT SHALL BE REGRADED. ANY BREACH OF THE DOWNHILL SIDE BERM SHALL BE FIXED IMMEDIATELY.

WATTLES - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. ACCUMULATED SEDIMENT SHALL BE REMOVED. IF THE WATTLE ANCHORS ARE DISPLACED OR DAMAGED THEY SHALL BE REINSTALLED OR REPLACED. IF THE WATTLE IS DAMAGED SUCH THAT IT NO LONGERS FUNCTIONS, IT SHALL BE REPLACED.

INLET PROTECTION - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. SEDIMENT SHALL BE REMOVED. IF STONE IS SIGNIFICANTLY CLOGGED, IT SHALL BE REMOVED AND REPLACED WITH CLEAN STONE. ANY DAMAGE TO SILT FENCE TYPE PROTECTION SHALL BE REPAIRED BY PATCHING OR REPLACEMENT.

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6-INCH DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW *).
5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, RE-ESTABLISHED FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

*APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE (3 TONS/ACRE IN CLAY SOILS)
FERTILIZER - 1,000 LB/ACRE - 10-10-10
SUPERPHOSPHATE - 500 LB/ACRE - 20% ANALYSIS
MULCH - 2 TONS/ACRE - SMALL GRAIN STRAW
ANCHOR - ASPHALT EMULSION @ 300 GALS/ACRE

SEEDING SCHEDULE

SHOULDERS, SIDE DITCHES, SLOPES
(Maximum 3:1)

Date	Type*	Planting Rate
Aug 15 - Nov 1	Tall Fescue or Hard Fescue	300 lb./acre
Nov 1 - Mar 1	Tall Fescue and Abriuzzi Rye or Annual Rye	300 lb./acre
Mar 1 - Apr 15	Tall Fescue or Hard Fescue	300 lb./acre
Apr 15 - June 30	Hulled common Bermuda grass, Weeping Love Grass	25 lb./acre
July 15 - Aug 15	Tall Fescue and ***Browntop Millet ***or Sorghum-Sudan Hybrids	35 lb./acre

Consult Erosion Control Officer or NRCS for additional alternatives for vegetating denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.
***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing to keep fescue from being shaded out.
*Bahia grass shall not be used in City maintained areas.

SHOULDERS, SIDE DITCHES, SLOPES
Slopes (3:1 and 2:1) (not mowed)

Date	Type*	Planting Rate
Mar 1 - June 1	Sericea Lespedeza (scarified) and Add Tall Fescue or	50 lb./acre 120 lb./acre
Mar 1 - June 30	Add Weeping Love Grass or	10 lb./acre
Mar 1 - June 30	Add Hulled Common Bermuda grass	25 lb./acre
June 1 - Sept 1	***Tall Fescue and ***Browntop Millet ***or Sorghum-Sudan Hybrids	120 lb./acre 35 lb./acre 30 lb./acre
Sept 1 - Mar 1	Sericea Lespedeza (unhulled/unscarified) and Tall Fescue Add Abruzzi Rye or Annual Rye	70 lb./acre 120 lb./acre 25 lb./acre

Consult Erosion Control Officer or NRCS for additional alternatives for vegetating denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.
***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing to keep fescue from being shaded out.
*Bahia grass shall not be used in City maintained areas.

STOCKPILE DESIGN CRITERIA

A. A 25-FOOT TEMPORARY MAINTENANCE AND ACCESS EASEMENT SHALL BE SHOWN AROUND ALL PROPOSED STOCKPILES (EROSION CONTROL MEASURES SURROUNDING THE STOCKPILE SHALL BE SHOWN AT THE OUTER LIMIT OF THIS EASEMENT).
B. STOCKPILE FOOTPRINTS SHALL BE SETBACK A MINIMUM OF 25' FROM ADJACENT PROPERTY LINES.
C. A NOTE SHALL BE PROVIDED ON THE APPROVED PLAN THAT STOCKPILE HEIGHT SHALL NOT EXCEED 35 FEET.
D. STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.
E. APPROVED BMPS SHALL BE SHOWN ON A PLAN TO CONTROL ANY POTENTIAL SEDIMENT LOSS FROM A STOCKPILE.
F. STOCKPILING MATERIALS ADJACENT TO A DITCH, DRAINAGEWAY, WATERCOURSE, WETLAND, STREAM BUFFER, OR OTHER BODY OF WATER SHALL BE AVOIDED UNLESS AN ALTERNATIVE LOCATION IS DEMONSTRATED TO BE UNAVAILABLE.
G. ANY CONCENTRATED FLOW LIKELY TO AFFECT THE STOCKPILE SHALL BE DIVERTED TO AN APPROVED BMP.
H. OFF-SITE SPOIL OR BORROW AREAS MUST BE IN COMPLIANCE WITH WAKE COUNTY UDO AND STATE REGULATIONS. ALL SPOIL AREAS OVER AN ACRE ARE REQUIRED TO HAVE AN APPROVED SEDIMENT CONTROL PLAN. DEVELOPER/CONTRACTOR SHALL NOTIFY WAKE COUNTY OF ANY OFFSITE DISPOSAL OF SOIL, PRIOR TO DISPOSAL. FILL OF FEMA FLOODWAYS AND NON-ENCROACHMENT AREAS ARE PROHIBITED EXCEPT AS OTHERWISE PROVIDED BY SUBSECTION 14-19-2 OF THE WAKE COUNTY UNIFIED DEVELOPMENT ORDINANCE (CERTIFICATIONS AND PERMITS REQUIRED).

MAINTENANCE REQUIREMENTS TO BE NOTED ON THE PLAN

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

STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
   A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   E) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORMDRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W- 41 & S-49).
   F) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24-HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
6. SEWER BYPASS PUMPING – A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
9. INSTALL ¾" COPPER* WATER SERVICES WITH METER LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT.
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER.
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH. CONSULT WITH THE ENGINEERING INSPECTION COORDINATOR DURING THE PRE-CONSTRUCTION MEETING ON THE NECESSARY PERMITS.
13. INSTALL 4" PVC* SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING

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NETWORK SCM 3B - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 338A	FES 338	24"	32.87	1.83%	351.50	352.10	Reinforced Concrete Pipe
CB 338B	CB 338A	24"	27.00	1.00%	352.20	352.47	Reinforced Concrete Pipe
CB 338C	CB 338B	15"	4.00	0.20%	352.60	352.61	Reinforced Concrete Pipe
CB 338E	CB 338B	24"	42.16	0.50%	352.60	352.81	Reinforced Concrete Pipe
CB 339A	CB 338E	24"	27.05	1.00%	352.91	353.18	Reinforced Concrete Pipe
CB 339B	CB 339A	15"	7.12	0.20%	353.55	353.56	Reinforced Concrete Pipe
CB 340	CB 338E	24"	108.12	0.50%	352.91	353.45	Reinforced Concrete Pipe
CB 341	CB 340	18"	156.84	3.50%	353.95	359.44	Reinforced Concrete Pipe
CB 342	CB 341	18"	153.88	3.00%	359.55	364.17	Reinforced Concrete Pipe
CB 343	CB 342	15"	68.21	0.92%	364.27	364.90	Reinforced Concrete Pipe
CB 344A	CB 343	15"	44.02	0.80%	365.00	365.35	Reinforced Concrete Pipe
CB 344B	CB 344A	15"	117.31	3.46%	365.55	369.60	Reinforced Concrete Pipe
CB 344C	CB 344B	15"	27.00	1.00%	369.70	369.97	Reinforced Concrete Pipe
* CB 345	CB 344A	15"	27.00	1.00%	365.81	366.08	Reinforced Concrete Pipe
CB 346	CB 344B	15"	82.38	2.12%	369.70	371.45	Reinforced Concrete Pipe
CB 347	CB 346	15"	40.89	0.48%	371.55	371.75	Reinforced Concrete Pipe
CB 348	CB 347	15"	27.00	1.00%	371.85	372.12	Reinforced Concrete Pipe
CB 350	FES 349	42"	67.18	0.60%	351.50	351.90	Reinforced Concrete Pipe
CB 352	CB 350	42"	64.32	0.60%	352.00	352.39	Reinforced Concrete Pipe
CB 353	CB 352	42"	63.17	1.58%	352.50	353.50	Reinforced Concrete Pipe
CB 354	CB 353	42"	102.76	1.00%	353.60	354.63	Reinforced Concrete Pipe
CB 355	CB 354	42"	45.16	1.25%	354.79	355.35	Reinforced Concrete Pipe
* CB 356	CB 355	36"	30.31	0.50%	355.46	355.61	Reinforced Concrete Pipe
CB 357	CB 356	36"	37.60	0.50%	355.71	355.90	Reinforced Concrete Pipe
CB 358	CB 357	15"	27.10	1.65%	357.65	358.10	Reinforced Concrete Pipe
CB 359	CB 355	30"	127.82	2.45%	356.20	359.33	Reinforced Concrete Pipe
CB 361	CB 359	15"	28.03	1.00%	360.58	360.86	Reinforced Concrete Pipe
CB 362	CB 359	24"	130.78	2.87%	359.45	363.20	Reinforced Concrete Pipe
CB 363	CB 362	18"	45.61	4.27%	363.30	365.25	Reinforced Concrete Pipe
CB 364	CB 362	24"	42.78	1.82%	363.30	364.08	Reinforced Concrete Pipe
CB 365A	CB 365B	24"	4.49	1.17%	364.72	364.77	Reinforced Concrete Pipe
* CB 365B	CB 364	24"	27.00	0.50%	364.20	364.34	Reinforced Concrete Pipe
CB 366	CB 365B	24"	42.78	1.01%	364.90	365.33	Reinforced Concrete Pipe
CB 369	CB 365A	24"	141.70	0.68%	364.97	365.94	Reinforced Concrete Pipe
CB 369A	CB 369	18"	9.00	1.00%	366.10	366.19	Reinforced Concrete Pipe
CB 370A	CB 369A	18"	180.08	1.00%	366.30	368.10	Reinforced Concrete Pipe
CB 370B	CB 370A	15"	26.75	1.00%	369.96	370.23	Reinforced Concrete Pipe
CB 371	CB 370A	15"	46.38	3.67%	368.20	369.90	Reinforced Concrete Pipe
CB 372	CB 371	15"	27.01	0.50%	371.06	371.20	Reinforced Concrete Pipe
CB 373	CB 372	15"	46.29	0.48%	371.53	371.75	Reinforced Concrete Pipe
CB 374	CB 357	36"	87.91	1.25%	356.00	357.10	Reinforced Concrete Pipe
* CB 375	CB 374	36"	57.09	0.68%	357.90	358.29	Reinforced Concrete Pipe
* CB 393	JB 392A	18"	127.25	0.50%	351.04	351.68	Reinforced Concrete Pipe
CB 393A	CB 393	15"	7.91	0.20%	351.78	351.80	Reinforced Concrete Pipe
* CB 394	CB 393	15"	27.00	0.50%	351.78	351.92	Reinforced Concrete Pipe
CB 394A	CB 394	15"	7.91	0.20%	352.02	352.04	Reinforced Concrete Pipe
** JB 392A	FES 392	18"	29.83	0.50%	350.75	350.90	Reinforced Concrete Pipe
OS SCM 3B	FES SCM 3B	48"	39.09	0.74%	347.71	348.00	Reinforced Concrete Pipe
YI 344D	CB 344C	15"	13.67	1.00%	370.13	370.26	Reinforced Concrete Pipe
YI 350A	CB 350	30"	175.44	0.62%	352.00	353.09	Reinforced Concrete Pipe
YI 369B	CB 369	18"	13.67	8.00%	366.10	367.19	Reinforced Concrete Pipe

NETWORK SCM 3C - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 331	FES 330	18"	55.26	6.33%	340.50	344.00	Reinforced Concrete Pipe
CB 332	CB 331	15"	73.93	0.50%	344.31	344.68	Reinforced Concrete Pipe
CB 332A	CB 332	15"	9.00	0.20%	344.78	344.80	Reinforced Concrete Pipe
CB 333	CB 332A	15"	41.00	0.50%	344.90	345.10	Reinforced Concrete Pipe
CB 333A	CB 333	15"	9.00	0.20%	345.20	345.22	Reinforced Concrete Pipe
CB 334	CB 331	18"	62.09	1.59%	344.46	345.45	Reinforced Concrete Pipe
CB 335	CB 334	18"	108.80	1.25%	345.65	347.01	Reinforced Concrete Pipe
CB 336	CB 335	18"	45.96	0.50%	347.21	347.44	Reinforced Concrete Pipe
* CB 336A	CB 336	15"	4.84	5.17%	347.64	347.89	Reinforced Concrete Pipe
* CB 337	CB 336	15"	27.00	0.50%	347.70	347.83	Reinforced Concrete Pipe
* CB 337A	CB 337	15"	4.84	0.20%	347.93	347.94	Reinforced Concrete Pipe
FEs INLET 26	FES 25	18"	70.49	1.33%	340.50	341.44	Reinforced Concrete Pipe
OS SCM 3C	FES SCM 3C	18"	74.04	0.51%	337.50	337.88	Reinforced Concrete Pipe

NETWORK SCM 4E - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 404	JB 403	24"	38.76	11.12%	295.70	300.01	Reinforced Concrete Pipe
CB 405A	CD 405	15"	8.00	1.75%	301.39	301.53	Reinforced Concrete Pipe
CB 406	CB 404	24"	53.59	6.48%	300.21	303.68	Reinforced Concrete Pipe
CB 407	CB 406	24"	44.09	3.24%	303.88	305.31	Reinforced Concrete Pipe
CB 408	CB 407	24"	100.96	2.71%	305.51	308.25	Reinforced Concrete Pipe
CB 408A	CB 408	15"	37.16	1.00%	308.45	308.82	Reinforced Concrete Pipe
CB 409A	CB 408	24"	160.14	2.50%	308.45	312.45	Reinforced Concrete Pipe
CB 409B	CB 409A	15"	37.33	1.00%	315.00	315.37	Reinforced Concrete Pipe
CB 410	CB 409A	24"	160.00	3.37%	312.65	318.05	Reinforced Concrete Pipe
CB 410A	CB 410	18"	76.13	4.23%	318.55	321.77	Reinforced Concrete Pipe
CB 410B	CB 410A	15"	27.00	1.00%	323.50	323.77	Reinforced Concrete Pipe
CB 411	CB 410A	18"	69.57	4.24%	321.97	324.92	Reinforced Concrete Pipe
CB 411A	CB 411	15"	68.03	3.79%	325.17	327.75	Reinforced Concrete Pipe
CB 412	CB 411A	15"	66.18	3.79%	327.95	330.46	Reinforced Concrete Pipe
CB 413	CB 412	15"	44.23	6.31%	330.66	333.45	Reinforced Concrete Pipe
CB 414	CB 413	15"	41.00	0.71%	333.65	333.94	Reinforced Concrete Pipe
CD 405	CB 404	15"	57.36	0.75%	300.76	301.19	Reinforced Concrete Pipe
JB 403	YI 402	24"	132.83	9.79%	282.50	295.50	Reinforced Concrete Pipe
OS SCM 4E	FES SCM 4E	24"	55.28	0.90%	276.50	277.00	Reinforced Concrete Pipe
YI 402	FES 401	42"	66.95	0.75%	280.50	281.00	Reinforced Concrete Pipe
YI 406A	CB 407	15"	167.09	0.50%	305.51	306.35	Reinforced Concrete Pipe
YI 411B	CB 411	18"	13.50	1.00%	324.50	324.64	Reinforced Concrete Pipe
YI 413A	CB 413	15"	14.65	2.00%	333.65	333.94	Reinforced Concrete Pipe

NETWORK SCM 4C - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 420	YI 419A	30"	35.34	4.37%	304.10	305.64	Reinforced Concrete Pipe
CB 421	CB 420	15"	37.45	3.07%	306.63	307.78	Reinforced Concrete Pipe
CB 422	CB 420	30"	88.97	4.99%	307.64	312.08	Reinforced Concrete Pipe
CB 423	CB 422	30"	83.20	5.00%	318.24	322.40	Reinforced Concrete Pipe
CB 423A	CB 423	30"	27.00	0.52%	324.26	324.40	Reinforced Concrete Pipe
CB 424	CB 423A	30"	56.34	3.99%	325.17	327.42	Reinforced Concrete Pipe
CB 425	CB 424	30"	67.56	0.50%	327.92	328.26	Reinforced Concrete Pipe
CB 426	CB 425	30"	108.27	1.54%	328.66	330.33	Reinforced Concrete Pipe
CB 427	CB 426	24"	41.84	3.25%	330.53	331.89	Reinforced Concrete Pipe
CB 428	CB 427	24"	27.00	1.41%	332.09	332.47	Reinforced Concrete Pipe
CB 429	CB 428	24"	57.85	1.50%	332.67	333.54	Reinforced Concrete Pipe
CB 430	CB 429	24"	70.00	1.00%	333.74	334.44	Reinforced Concrete Pipe
CB 431	CB 430	24"	50.10	1.50%	334.64	335.39	Reinforced Concrete Pipe
CB 432	CB 431	24"	74.86	1.27%	335.59	336.54	Reinforced Concrete Pipe
CB 433	CB 432	24"	35.99	0.92%	337.04	337.37	Reinforced Concrete Pipe
CB 434	CB 433	18"	29.17	4.70%	337.57	338.94	Reinforced Concrete Pipe
CB 435	CB 434	18"	46.09	1.45%	339.16	339.83	Reinforced Concrete Pipe
CB 436	CB 435	18"	63.82	1.19%	340.03	340.79	Reinforced Concrete Pipe
CB 438	CB 431	15"	27.03	1.74%	336.14	336.61	Reinforced Concrete Pipe
CB 439	CB 424	24"	43.96	0.50%	327.92	328.14	Reinforced Concrete Pipe
CB 439A	CB 439	24"	9.00	0.56%	328.34	328.39	Reinforced Concrete Pipe
CB 439B	CB 439A	24"	9.00	0.56%	328.58	328.63	Reinforced Concrete Pipe
CB 440	CB 439B	18"	67.25	0.51%	329.13	329.47	Reinforced Concrete Pipe
CB 441	CB 440	15"	136.53	2.24%	329.72	332.78	Reinforced Concrete Pipe
CB 442	CB 441	15"	47.60	3.21%	332.98	334.51	Reinforced Concrete Pipe
CB 443	CB 442	15"	27.04	1.00%	334.71	334.98	Reinforced Concrete Pipe
CB 443A	CB 443	15"	4.17	1.20%	335.18	335.23	Reinforced Concrete Pipe
OS SCM 4C	FES SCM 4C	18"	66.55	1.50%	289.00	290.00	Reinforced Concrete Pipe
YI 419A	YI 419B	30"	90.75	4.96%	299.50	304.00	Reinforced Concrete Pipe
YI 419B	FES 419	30"	114.56	4.38%	293.50	298.52	Reinforced Concrete Pipe
YI 423B	CB 423A	18"	13.67	2.00%	324.60	324.87	Reinforced Concrete Pipe
YI 425A	CB 425	18"	11.67	2.00%	329.51	329.74	Reinforced Concrete Pipe
YI 429A	CB 429	15"	125.66	0.98%	334.64	335.87	Reinforced Concrete Pipe
YI 432A	CB 432	15"	121.81	0.66%	338.46	339.26	Reinforced Concrete Pipe
YI 437	CB 436	15"	122.10	0.50%	340.99	341.60	Reinforced Concrete Pipe
YI 440A	CB 440	18"	11.72	2.00%	329.47	329.70	Reinforced Concrete Pipe

*DENOTES CLASS IV RCP
**DENOTES GASKET JOINT

NETWORK SCM 4B - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 470	CB 472	15"	90.41	1.21%	327.61	328.70	Reinforced Concrete Pipe
CB 470A	CB 470	15"	5.00	1.00%	328.91	328.96	Reinforced Concrete Pipe
CB 471	CB 470	15"	41.00	1.00%	328.90	329.31	Reinforced Concrete Pipe
CB 471A	CB 471	15"	5.73	1.05%	329.51	329.57	Reinforced Concrete Pipe
CB 472	FES 469	36"	42.52	0.82%	323.50	323.85	Reinforced Concrete Pipe
CB 473	CB 472	36"	129.39	1.75%	328.76	331.02	Reinforced Concrete Pipe
CB 474	CB 473	36"	42.58	2.00%	335.95	336.80	Reinforced Concrete Pipe
CB 475	CB 474	36"	103.49	6.00%	337.00	343.21	Reinforced Concrete Pipe
CB 476	CB 475	30"	260.35	5.33%	343.86	357.73	Reinforced Concrete Pipe
CB 477	CB 476	30"	47.43	2.91%	357.93	359.31	Reinforced Concrete Pipe
CB 477A	CB 477	15"	4.72	1.06%	360.56	360.61	Reinforced Concrete Pipe
CB 478	CB 477	30"	27.00	1.00%	359.51	359.78	Reinforced Concrete Pipe
CB 478A	CB 478	18"	4.17	1.20%	360.78	360.83	Reinforced Concrete Pipe
CB 479	CB 478A	18"	134.04	3.42%	361.03	365.62	Reinforced Concrete Pipe
CB 480	CB 479	15"	150.00	2.43%	365.92	369.57	Reinforced Concrete Pipe
CB 481	CB 478	30"	47.87	0.48%	360.28	360.51	Reinforced Concrete Pipe
CB 482	CB 481	18"	60.25	1.00%	361.04	361.64	Reinforced Concrete Pipe
CB 483	CB 481	24"	139.49	1.46%	360.71	362.75	Reinforced Concrete Pipe
CB 484	CB 483	18"	80.00	1.00%	363.25	364.05	Reinforced Concrete Pipe
CB 484A	CB 484	18"	9.00	0.56%	364.25	364.30	Reinforced Concrete Pipe
CB 484B	CB 484	15"	41.00	0.70%	364.45	364.74	Reinforced Concrete Pipe
CB 485	CB 484A	18"	72.90	0.66%	364.59	365.07	Reinforced Concrete Pipe
CB 486	CB 485	18"	48.42	0.95%	365.27	365.73	Reinforced Concrete Pipe
CB 487	CB 486	18"	27.00	0.52%	365.93	366.07	Reinforced Concrete Pipe
CB 488	CB 486	18"	122.71	4.34%	365.93	371.26	Reinforced Concrete Pipe
CB 489	CB 488	15"	27.69	1.01%	371.46	371.74	Reinforced Concrete Pipe
CB 490	CB 487	15"	48.06	0.96%	366.32	366.78	Reinforced Concrete Pipe
CB 491	CB 490	15"	32.00	1.00%	366.98	367.30	Reinforced Concrete Pipe
FES 475A	CB 475	15"	157.60	0.57%	345.11	346.01	Reinforced Concrete Pipe
OS SCM 4B	FES SCM 4B	30"	83.83	0.60%	310.00	310.50	Reinforced Concrete Pipe
YI 483A	CB 483	15"	98.50	0.65%	363.41	364.05	Reinforced Concrete Pipe
YI 489A	CB 489	15"	13.67	2.00%	371.94	372.21	Reinforced Concrete Pipe

NETWORK SCM 8A - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 801	FES 800	18"	41.36	1.21%	359.51	360.01	Reinforced Concrete Pipe
CB 802	CB 801	15"	127.12	0.52%	360.46	361.12	Reinforced Concrete Pipe
CB 803	CB 802	15"	41.00	0.51%	361.32	361.53	Reinforced Concrete Pipe
CB 804	CB 801	15"	41.00	1.61%	360.46	361.12	Reinforced Concrete Pipe
CB 805	CB 804	15"	45.96	0.48%	361.32	361.54	Reinforced Concrete Pipe
CB 806	CB 813	15"	45.96	0.50%	365.01	365.24	Reinforced Concrete Pipe
CB 807	CB 805	15"	141.83	0.50%	361.74	362.45	Reinforced Concrete Pipe
CB 808	CB 807	15"	27.00	0.52%	362.65	362.79	Reinforced Concrete Pipe
CB 809	CB 801	18"	45.96	3.74%	361.71	363.43	Reinforced Concrete Pipe
CB 810	CB 809	18"	27.00	1.00%	363.63	363.90	Reinforced Concrete Pipe
CB 811	CB 810	15"	45.96	0.50%	364.17	364.40	Reinforced Concrete Pipe
CB 813	CB 811	15"	41.00	0.50%	364.60	364.81	Reinforced Concrete Pipe
CB 814	CB 810	15"	67.33	3.39%	364.37	366.65	Reinforced Concrete Pipe
CB 815	CB 814	15"	75.89	4.38%	367.15	370.47	Reinforced Concrete Pipe
FES INLET 816	FES 815	15"	67.15	3.57%	359.50	361.90	Reinforced Concrete Pipe
JB SCM 8A	FES SCM 8A	18"	162.15	0.50%	354.95	355.76	Reinforced Concrete Pipe
OS SCM 8A	JB SCM 8A	18"	29.12	1.20%	355.66	356.01	Reinforced Concrete Pipe
YI 814A	CB 814	15"	180.40	0.51%	367.10	368.02	Reinforced Concrete Pipe

NETWORK PH3 to PH5 Bypass - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
JB 32	JB 31	30"	48.44	0.50%	353.78	354.03	Reinforced Concrete Pipe

NETWORK PH3 Trail Culverts - PIPE SUMMARY

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSTREAM INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
FES INLET 18	FES 17	15"	42.62	2.35%	305.00	306.00	Reinforced Concrete Pipe
FES INLET 20	FES 19	15"	51.11	1.19%	324.67	325.28	Reinforced Concrete Pipe

NOTE: ALL PIPE TO BE CLASS III RCP UNLESS OTHERWISE DENOTED

Public
Sewer Collection / Extension System
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 #_____

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

City of Raleigh
Public Utilities Department Permit # _____

811 North Carolina
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING CERTIFICATE OF AUTHORIZATION AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881

NORTH CAROLINA PROFESSIONAL SEAL 030882 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS:
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
SCHEDULE PLAN

SHEET NO.: 3.1

Z:\Jobs\9900\Working Property\Civil_Working Dwgs\Phase 3\Sheet Files\Sheet No. 3.0-3.1 Phase 3 General Notes-Legends-Schedule.dwg July 23, 2025

Docusign Envelope ID: E5CC0942-DA7D-410C-80AA-854412230390

STRUCTURE NAME	RIM (FT)
CB 331	351.55
CB 332	350.82
CB 332A	350.78
CB 333	350.78
CB 333A	350.82
CB 334	352.59
CB 335	353.15
CB 336	352.23
CB 336A	352.43
CB 337	352.21
CB 337A	352.43
CB 338A	358.53
CB 338B	358.82
CB 338C	358.87
CB 338E	358.89
CB 339A	358.82
CB 339B	358.95
CB 340	361.05
CB 341	365.44
CB 342	369.73
CB 343	370.79
CB 344A	370.55
CB 344B	375.36
CB 344C	375.35
CB 345	370.58
CB 346	377.37
CB 347	377.36
CB 348	377.30
CB 350	360.23
CB 352	360.93
CB 353	361.62
CB 354	362.78
CB 355	363.29
CB 356	363.08
CB 357	363.75
CB 358	363.35
CB 359	365.87
CB 361	366.03
CB 362	368.99
CB 363	370.46
CB 364	369.85
CB 365A	370.19
CB 365B	370.54
CB 366	373.03
CB 369	371.31
CB 369A	371.27
CB 370A	375.15
CB 370B	375.41
CB 371	376.36
CB 372	376.95
CB 373	378.95
CB 374	364.30
CB 375A	364.19
CB 393	356.12
CB 393A	356.15
CB 394	356.35
CB 394A	356.39
CB 470	333.80
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CB 471	333.80
CB 471A	333.80
CB 471A	333.80
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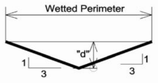
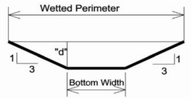
CB 491	372.14
CB 491	372.14
CB 491	372.14
CB 801	368.70
CB 802	364.69
CB 803	364.69
CB 804	368.74
CB 805	369.02
CB 806	369.14
CB 807	367.33
CB 808	367.32
CB 809	369.19
CB 810	369.39
CB 811	371.20
CB 813	371.19
CB 814	371.54
CB 815	375.01
FES 17	306.52
FES 19	327.02
FES 25	342.29
FES 330	342.29
FES 338	353.83
FES 349	355.46
FES 392	352.82
FES 469	326.92
FES 469	326.92
FES 469	326.92
FES 800	361.30
FES 815	361.03
FES INLET 18	308.77
FES INLET 20	328.27
FES INLET 26	342.65
FES INLET 816	366.71
FES SOM 3B	352.21
FES SOM 3C	338.47
FES SOM 4B	312.88
FES SOM 4B	312.88
FES SOM 4B	312.88
FES SOM 8A	356.74
JB 31	364.91
JB 32	363.89
JB 392A	356.83
JB SOM 8A	362.34
OS SOM 3B	352.42
OS SOM 3C	340.45
OS SOM 4B	323.49
OS SOM 4B	323.49
OS SOM 4B	323.49
OS SOM 8A	359.65
YI 344D	376.58
YI 350A	359.27
YI 369B	372.54
YI 483A	369.67
YI 483A	369.67
YI 483A	369.67
YI 489A	377.81
YI 489A	377.81
YI 489A	377.81
YI 814A	372.78



Ditch Section (For Bottom Width = 0)
(Not To Scale)



Trapezoidal Ditch / Swale Section
(Not To Scale)

RIP-RAP PADS

Date: 6/14/21 **Kalas Falls, Phase 3**

Y:\Jobs\9900\Watkins Property\Documents\Schedules\Rip Rap Pads, Ph3.xlsx

Using NYSDOT Method

OUTLET NO.	PIPE DIA. (IN.)	VELOCITY (FPS)	ZONE	STONE SIZE	STONE CLASS	WIDTH (FT.)*	LENGTH (FT.)	DEPTH (IN.)
FES 3O	24	9.36	2	6"	B	8	12	18
FES 3B	48	9.69	3	13"	1	17.5	32	24
FES 3C	18	6.54	1	3"	A	5.5	6	12
FES 4B	30	6.76	3***	13"	1	11	20	24
FES 4C	18	7.06	3***	13"	1	6.5	12	24
FES 4E	24	5.55	3***	13"	1	8.75	16	24
FES 8A	18	5.01	1	3"	A	5.5	6	12
FES 17	15	7.41	1	3"	A	4.75	5	12
FES 19	15	8.34	2	6"	B	5	7.5	18
FES 21	15	4.52	1	3"	A	4.75	5	12
FES 23	18	6.95	2	6"	B	6	9	18
SB#403	4	**	1	3"	A	2	4	12
SB#404	4	**	1	3"	A	2	4	12
SB#406	4	**	1	3"	A	2	4	12
FES 25	18	6.73	2	6"	B	6	9	18
FES 330	18	5.53	1	3"	A	5.5	6	12
FES 338	24	5.73	2	6"	B	8	12	18
FES 349	42	5.77	2	6"	B	14	21	18
FES 392	18	4.07	1	3"	A	5.5	6	12
FES 401	24	7.55	2	6"	B	8	12	18
FES 419	30	12.91	3	13"	1	11	20	24
FES 469	36	8.89	2	6"	B	12	18	18
FES 800	18	8.76	2	6"	B	6	9	18
FES 815	15	6.13	1	3"	A	4.75	5	12

Note: Sediment basins to be converted to SCM's are shown by the permanent SCM number.

*Downstream width, use 3 x pipe diameter upstream.

**Flow velocity very small as it comes through max. 2" orifice only a few inches below the surface.

***Next higher zone due to steep ground slope

TRAPEZOIDAL SWALE DRAINAGE CHART-PHASE THREE

Ditch I.D.	D.A., Ac.	C	i10, in/hr	Q10, cfs	Left Side Slope, Z Z:1	Right Side Slope, Z Z:1	Avg. Ditch Slope, %	Bottom Width	Ditch Lining	Manning, n *	Q10 Flow Depth, ft	Flow Velocity V10, fps	Calc.Shear Stress, psf
DS 7A	0.20	0.45	7.22	**0.65**	3.00	3.00	1.2	0.00	Reinforced Mesh(Grass)	0.022	**0.32**	**2.08**	0.24
DS 7B	0.51	0.48	7.22	**1.77**	3.00	3.00	12.0	0.00	RipRap	0.037	**0.37**	**4.29**	2.77
DS 7C	0.78	0.46	7.22	**2.59**	3.00	3.00	4.0	0.00	RipRap	0.037	**0.52**	**3.12**	1.30
DS 7D	2.05	0.41	7.22	**6.07**	3.00	3.00	1.2	2.00	RipRap	0.037	**0.55**	**3.04**	0.41
DS 9A	1.60	0.35	7.22	**4.04**	3.00	3.00	2.0	1.00	Reinforced Mesh(Grass)	0.022	**0.44**	**3.95**	0.55
DS 9B	2.39	0.34	7.22	**5.87**	3.00	3.00	1.7	1.00	Reinforced Mesh(Grass)	0.022	**0.54**	**4.10**	0.58
DS 9C	0.78	0.32	7.22	**1.80**	3.00	3.00	1.5	0.00	Reinforced Mesh(Grass)	0.022	**0.45**	**2.93**	0.42
DS 9D	4.33	0.34	7.22	**10.63**	3.00	3.00	1.3	2.00	RipRap	0.037	**0.82**	**2.93**	0.68
DS 9E	0.26	0.34	7.22	**0.64**	3.00	3.00	6.6	0.00	Reinforced Mesh(Grass)	0.022	**0.23**	**3.92**	0.96
DS 9F	0.50	0.34	7.22	**1.23**	3.00	3.00	2.0	0.00	Reinforced Mesh(Grass)	0.022	**0.37**	**2.96**	0.46
DS 9G	0.83	0.34	7.22	**2.04**	3.00	3.00	8.4	0.00	RipRap	0.037	**0.42**	**3.90**	2.19
DS 9H	0.81	0.34	7.22	**1.99**	3.00	3.00	8.3	0.00	RipRap	0.037	**0.42**	**3.86**	2.15
DS 9I	0.65	0.34	7.22	**1.60**	3.00	3.00	8.3	0.00	RipRap	0.037	**0.38**	**3.65**	1.98
DS 9J	0.80	0.34	7.22	**1.96**	3.00	3.00	9.5	0.00	RipRap	0.037	**0.40**	**4.03**	2.37
DS 13	1.05	0.45	7.22	**3.41**	3.00	3.00	7.0	1.00	RipRap	0.037	**0.40**	**4.16**	1.75

TEMPORARY - TRIANGULAR SWALE DRAINAGE CHART - KALAS FALLS PHASE 3

Ditch I.D.	D.A., Ac.	C	i10, in/hr	Q10, cfs	Left Side Slope, Z Z:1	Right Side Slope, Z Z:1	Avg. Ditch Slope, %	Bottom Width	Ditch Lining*	Manning, n	Q10 Flow Depth, ft	Flow Velocity V10, fps	Calc.Shear Stress, psf
TDD#1A	2.75	0.60	7.20	**11.88**	2.00	2.00	1.85	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.21**	**4.05**	1.40
TDD#1B	3.12	0.60	7.20	**13.48**	2.00	2.00	6.10	0.00	Geocoir/Dekowe; 400	0.033	**1.02**	**6.54**	3.87
TDD#1C	4.28	0.60	7.20	**18.49**	2.00	2.00	0.38	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.92**	**2.51**	0.46
TDD#2A	0.39	0.60	7.20	**1.68**	2.00	2.00	3.71	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.51**	**3.21**	1.19
TDD#2B	0.88	0.60	7.20	**3.80**	2.00	2.00	0.49	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.01**	**1.85**	0.31
TDD#2C	2.26	0.60	7.20	**9.76**	2.00	2.00	7.57	0.00	Geocoir/Dekowe; 400	0.033	**0.86**	**6.53**	4.08
TDD#2D	3.28	0.60	7.20	**14.17**	2.00	2.00	0.56	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.62**	**2.71**	0.56
TDD#3	0.47	0.60	7.20	**2.01**	2.00	2.00	14.10	0.00	Geocoir/Dekowe; 400	0.033	**0.43**	**5.52**	3.75
TDD#4	9.06	0.60	7.20	**39.14**	2.00	2.00	0.62	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**2.32**	**3.64**	0.90
TDD#5A	1.33	0.60	7.20	**5.75**	2.00	2.00	3.54	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.82**	**4.30**	1.81
TDD#5B	1.92	0.60	7.20	**8.29**	2.00	2.00	0.25	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.54**	**1.75**	0.24
TDD#6A	0.38	0.60	7.20	**1.64**	2.00	2.00	1.49	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.60**	**2.27**	0.56
TDD#6B	1.53	0.60	7.20	**6.61**	2.00	2.00	4.40	0.00	Geocoir/Dekowe; 400	0.033	**0.83**	**4.83**	2.27
TDD#6C	1.85	0.60	7.20	**7.99**	2.00	2.00	1.00	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.17**	**2.91**	0.73
TDD#7	0.47	0.60	7.20	**2.03**	2.00	2.00	1.54	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.65**	**2.42**	0.62
TDD#8	5.15	0.60	7.20	**22.25**	2.00	2.00	3.92	0.00	Geocoir/Dekowe; 400	0.033	**1.33**	**6.29**	3.25
TDD#9	0.82	0.60	7.20	**3.54**	2.00	2.00	2.52	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.73**	**3.35**	1.14
TDD#10	2.90	0.60	7.20	**12.51**	2.00	2.00	0.60	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**1.52**	**2.70**	0.57
TDD#11	2.48	0.60	7.20	**10.72**	2.00	2.00	4.90	0.00	Geocoir/Dekowe; 400	0.033	**0.97**	**5.68**	2.97
TDD#12	2.49	0.60	7.20	**10.77**	2.00	2.00	4.80	0.00	Geocoir/Dekowe; 400	0.033	**0.98**	**5.65**	2.93
TDD#13	0.34	0.60	7.20	**1.47**	2.00	2.00	0.68	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.67**	**1.64**	0.28
TDD#14	0.31	0.60	7.20	**1.36**	2.00	2.00	1.60	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.55**	**2.22**	0.55
TDD#15	1.55	0.60	7.20	**6.69**	2.00	2.00	7.10	0.00	Geocoir/Dekowe; 400	0.033	**0.76**	**5.79**	3.37
TDD#16	0.26	0.60	7.20	**1.12**	2.00	2.00	0.91	0.00	Am. Excelsior Co.; Curlex II.98; 2 nets	0.033	**0.57**	**1.71**	0.32

*Alternate lining may be used if it is an approved equal to the one listed

Sediment Basin/Sediment Trap Schedule

Basin No.	Bottom Elev.	Top of Dam Elev.	Top of Riser Elev.	Spillway Elev.	Weir Length	Riser/ Barrel Size	Basin Dimensions			Skimmer Size	Skimmer Hole Size	Anti-Flotation Size*
							At Top of Dam	At Emerg. Spillway	At Bott. of Basin			
SCM#3B	348.00	356.00	353.33	354.00	24'	6'x6'	**	**	**	3"	2.25"	7'x7'x17"
SCM#3C	337.00	344.00	342.00	342.50	12'	4'x4'	**	**	**	3"	1.50"	5'x5'x7.5"
SCM#4B	320.00	329.00	326.50	327.50	24'	5'x5'	**	**	**	4"	1.25"	6'x6'x37"
SCM#4C	290.00	300.00	296.90	298.50	12'	4'x4'	**	**	**	4"	1.00"	5'x5'x9"
SCM#4E	277.00	286.00	284.00	285.00	12'	6'x6'	**	**	**	4"	1.25"	7'x7'x22.5"
SCM#8A	354.00	362.00	360.50	361.00	12'	3'x3'	**	**	**	3"	1.25"	4'x4'x8"
TSKB#1	306.00	311.00	N/A	309.50	10	N/A	63'x118'	57'x112'	43'x98'	4"	1.25"	N/A
TSKB#2	322.00	317.00	N/A	320.50	20	N/A	108'x218'	102'x212'	88'x198'	4"	2.00"	N/A
TSKB#3	349.00	344.00	N/A	347.50	20	N/A	68'x168'	61.5'x162'	48'x148'	4"	1.75"	N/A
TSKB#4	355.00	350.00	N/A	353.50	10	N/A	73'x138'	67'x132'	53'x128'	4"	1.50"	N/A

*Side x side x depth **Irregular, see plans

Y:\Jobs\9900\Watkins Property\Documents\Schedules\Sediment Basin Schedule, Ph3.xlsx

Phase 3 Lot Areas

LOT NUMBER	SQUARE FOOTAGE(SF)
96	13,190
97	14,291
98	13,390
99	11,742
100	11,127
101	11,189
102	11,253
103	11,317
104	12,633
105	10,868
106	15,452
107	16,188
108	17,306
109	14,503
110	11,400
111	9,455
112	9,592
113	10,044
114	12,212
115	11,203
116	15,386
117	12,552
118	14,846
119	13,349
120	10,651
121	10,202
122	11,981
193	15,664
194	12,220
195	9,729
196	8,686
197	11,652
198	12,717
199	18,066
200	14,471
201	11,591
202	10,033

LOT NUMBER	SQUARE FOOTAGE(SF)
203	10,592
204	9,521
205	20,160
206	11,561
207	10,305
208	10,360
209	11,706
210	12,666
211	12,800
212	12,800
213	12,800
214	12,929
215	14,854
216	14,707
217	15,091
218	13,611
219	13,684
220	13,757
221	13,830
222	13,903
223	13,972
224	12,583
225	10,906
226	10,906
227	10,906
228	10,906
229	10,906
230	10,906
231	11,004
232	10,398
233	10,400
234	10,400
235	11,566
270	15,021
271	14,802
272	16,386
273	16,406

LOT NUMBER	SQUARE FOOTAGE(SF)
274	16,307
275	16,283
276	16,268
277	16,253
278	16,238
279	16,223
280	16,223
281	15,139
282	15,835
283	11,262
284	10,397
285	11,445
286	13,212
287	15,801
288	11,576
289	11,575
290	12,808
291	11,394
292	9,909
293	11,097
294	11,849
295	11,300
296	12,491
297	14,056
298	15,111
299	13,279
300	12,079
301	10,849
302	10,923
303	10,923
304	14,394
305	12,279
306	12,236
307	12,194
308	12,151
309	12,108
310	14,179

LOT NUMBER	SQUARE FOOTAGE(SF)
311	14,402
312	12,774
313	12,760
314	12,746
315	12,734
316	13,051
317	13,992
318	14,618
319	13,251
320	12,565
321	12,581
322	12,596
323	12,617
324	15,552
325	14,424
326	17,343
327	15,146
328	12,789
329	12,746
330	12,702
331	12,658
332	12,615
333	12,569
334	14,663
335	13,600
336	13,600
337	13,600
338	13,600
339	13,600
340	13,600
341	13,600
342	13,600
343	13,600
344	18,698

Public
Sewer Collection / Extension System
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 #_____

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

City of Raleigh
Public Utilities Department Permit #_____

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040444 Signed by: JOHN R. HARMAN REGISTERED 7/28/2025 JOHN R. HARMAN

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		& CITY OF RALEIGH
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS:
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
SCHEDULE PLAN

SHEET NO.: 3.2

Z:\Jobs\9900\Watkins Property\[dwg]_Working Dwgs\Phase 3\Sheet Files\[Sheet No. 3.0 3.1 Phase 3 General Notes-Legend-Schedule.dwg July 23, 2025

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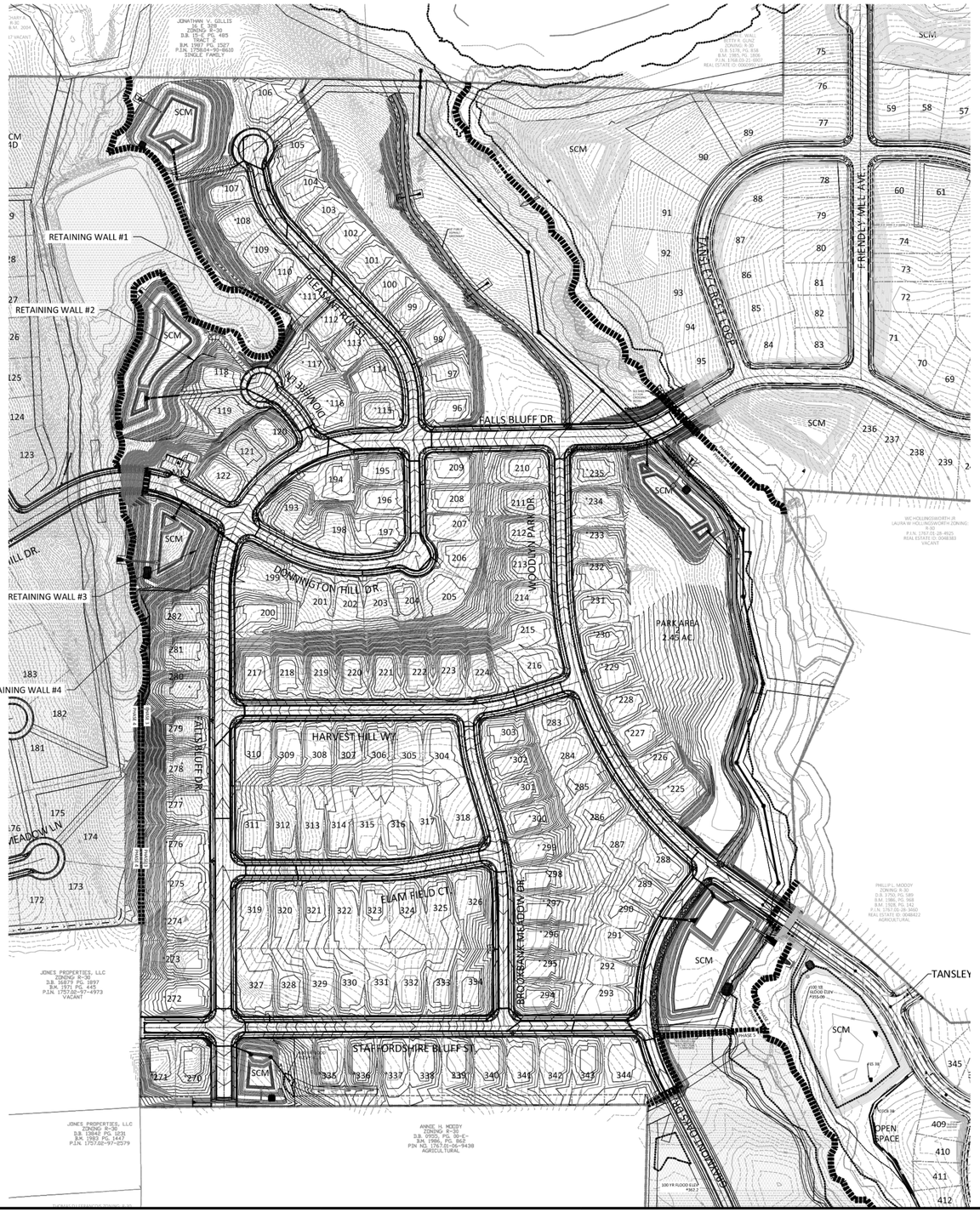

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch =150

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL
John R. Harman
ENGINEER
JOHN R. HARMAN
5/6/2025

NO.	DATE	REVISION:
1	7/25/2024	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH
3	11/01/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
4	3/17/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/29/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
6	5/6/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:

PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.0

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\9900\Watkins Property\Dwg_Working Dwgs\Phase 3\Sheet Files\Sheet Nos. 4.0-4.5 Phase 3 Grading and Drainage.dwg April 29, 2025

Docusign Envelope ID: D991F8CB-95DF-4B9C-8AE0-C07426AE3451

GRAPHIC SCALE 1"=1000'

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

✱LOTS SHOWN WITH AN ASTERISK MUST BE GRADED TO DRAIN TO REAR AWAY FROM ROAD EXCEPT ANY PORTION ALREADY DRAINING TOWARD ROAD DUE TO GRADING SHOWN ON THESE PLANS MAY CONTINUE

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

GENERAL NOTES:
1. REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)
2. ALL ROAD AND SIDE YARD SWALES TO HAVE A MINIMUM OF 2% AT FINISHED GRADE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 38107 JOHN R. HAMMER
7/28/2025

NO.	DATE	REVISION:
1	12/5/2024	TOWN OF ROLESVILLE CONSULTANT
2	1/27/2025	1ST REVIEW FROM TOWN OF ROLESVILLE
3	2/4/2025	WAKE COUNTY AND CITY OF RALEIGH
4	5/7/2025	TOWN OF ROLESVILLE CONSULTANT
5	6/12/2025	CONSTRUCTION DRAWING COMMENTS
6	7/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.1

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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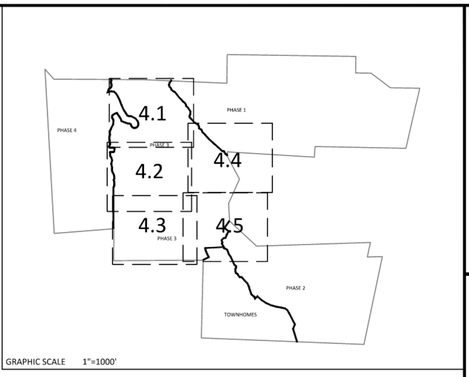
Docusign Envelope ID: D991F8CB-95DF-4B9C-8AE0-C07426AE3451

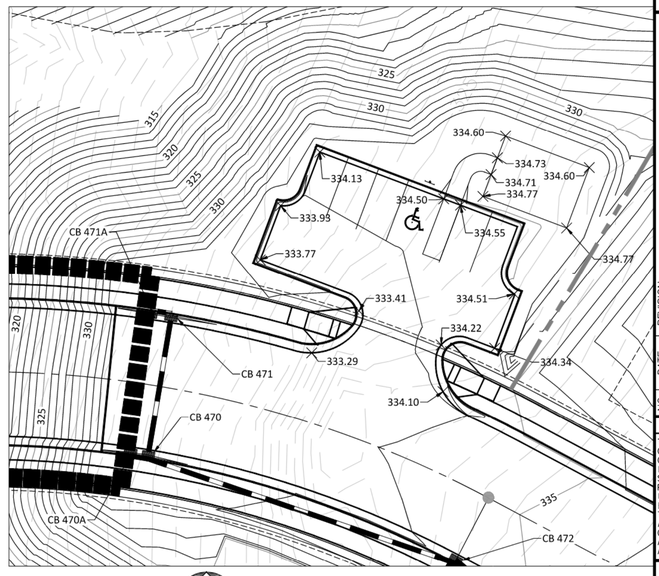
GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50



GRAPHIC SCALE 1"=1000'

*LOTS SHOWN WITH AN ASTERISK MUST BE GRADED TO DRAIN TO REAR AWAY FROM ROAD EXCEPT ANY PORTION ALREADY DRAINING TOWARD ROAD DUE TO GRADING SHOWN ON THESE PLANS MAY CONTINUE



GRAPHIC SCALE
40 0 10 20 40 80
(IN FEET)
1 inch = 20

GENERAL NOTES:
1. REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)
2. ALL ROAD AND SIDE YARD SWALES TO HAVE A MINIMUM OF 2% AT FINISHED GRADE

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 049842 ENGINEER JOHN R. HARMAN 11/20/2024

NO.	DATE	REVISION:
1	2/27/2025	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT
2	3/26/2025	1ST REVIEW FROM WAKE COUNTY AND CITY OF RALEIGH
3	9/4/2025	2ND REVIEW FROM TOWN OF ROLESVILLE CONSULTANT COMMENTS
4	11/07/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	2/17/2026	CONSTRUCTION DRAWING COMMENT RESPONSES
6	4/20/2026	CONSTRUCTION DRAWING COMMENT RESPONSES
7	5/7/2026	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.2

North Carolina 811 Know what's below. Call before you dig.
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North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\9900\Watkins Property\Plat_ Working Dwgs\Phase 3\Sheet Files\Sheet No. 4.0-4.5 Phase 3 Grading and Drainage.dwg July 24, 2025

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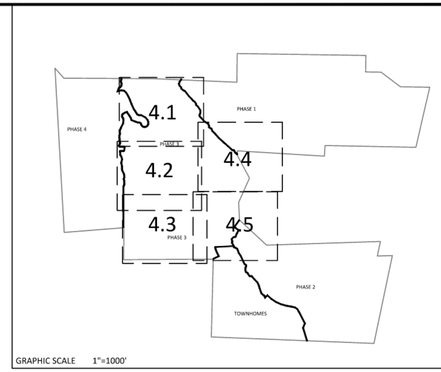

GRAPHIC SCALE 1"=1000'

* LOTS SHOWN WITH AN ASTERISK MUST BE GRADED TO DRAIN TO REAR AWAY FROM ROAD EXCEPT ANY PORTION ALREADY DRAINING TOWARD ROAD DUE TO GRADING SHOWN ON THESE PLANS MAY CONTINUE

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

GENERAL NOTES:
1. REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)
2. ALL ROAD AND SIDE YARD SWALES TO HAVE A MINIMUM OF 2% AT FINISHED GRADE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 040107 ENGINEER JOHN R. HARMAN
7/26/2025

NO.	DATE	REVISION:
1	12/27/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT
2	3/4/2024	WAKE COUNTY AND CITY OF RALEIGH
3	10/7/2024	TOWN OF ROLESVILLE CONSTRUCTION DRAWING COMMENT RESPONSES
4	2/7/2025	TOWN OF ROLESVILLE CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.3

July 24, 2025
Z:\Jobs\9900\Watkins Property\Mep_Working Dwgs\3Phase 3\Sheet Files\Sheet No. 4.0-4.5 Phase 3 Grading and Drainage.dwg

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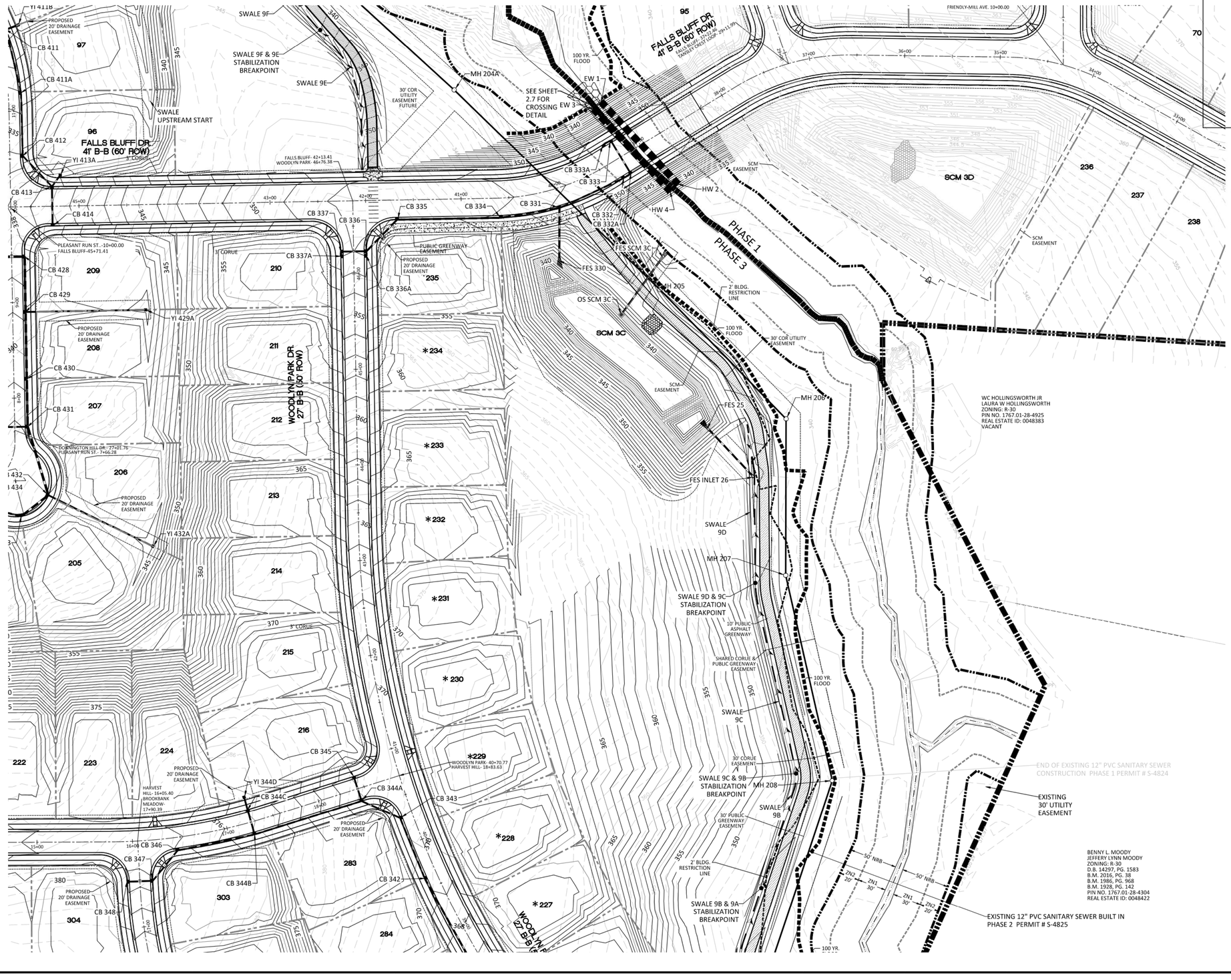

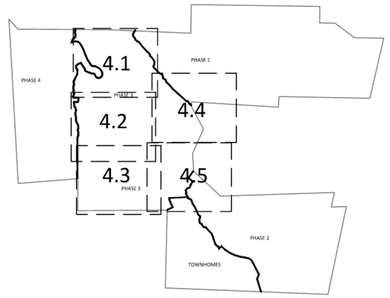

GRAPHIC SCALE 1"=1000'

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

GENERAL NOTES:
1. REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)
2. ALL ROAD AND SIDE YARD SWALES TO HAVE A MINIMUM OF 2% AT FINISHED GRADE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 049627 ENGINEER JOHN R. HARMAN
JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
1	7/21/2025	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT
2	9/4/2025	WAKE COUNTY AND CITY OF RALEIGH
3	10/6/2025	TOWN OF ROLESVILLE CONSULTANT COMMENTS
4	11/7/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	12/8/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
6	4/28/2026	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.4

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 24, 2025
Z:\Jobs\9900\Watkins Property\Civil_Working Dwgs\Phase 3\Sheet Files\Sheet No. 4.0-4.5 Phase 3 Grading and Drainage.dwg

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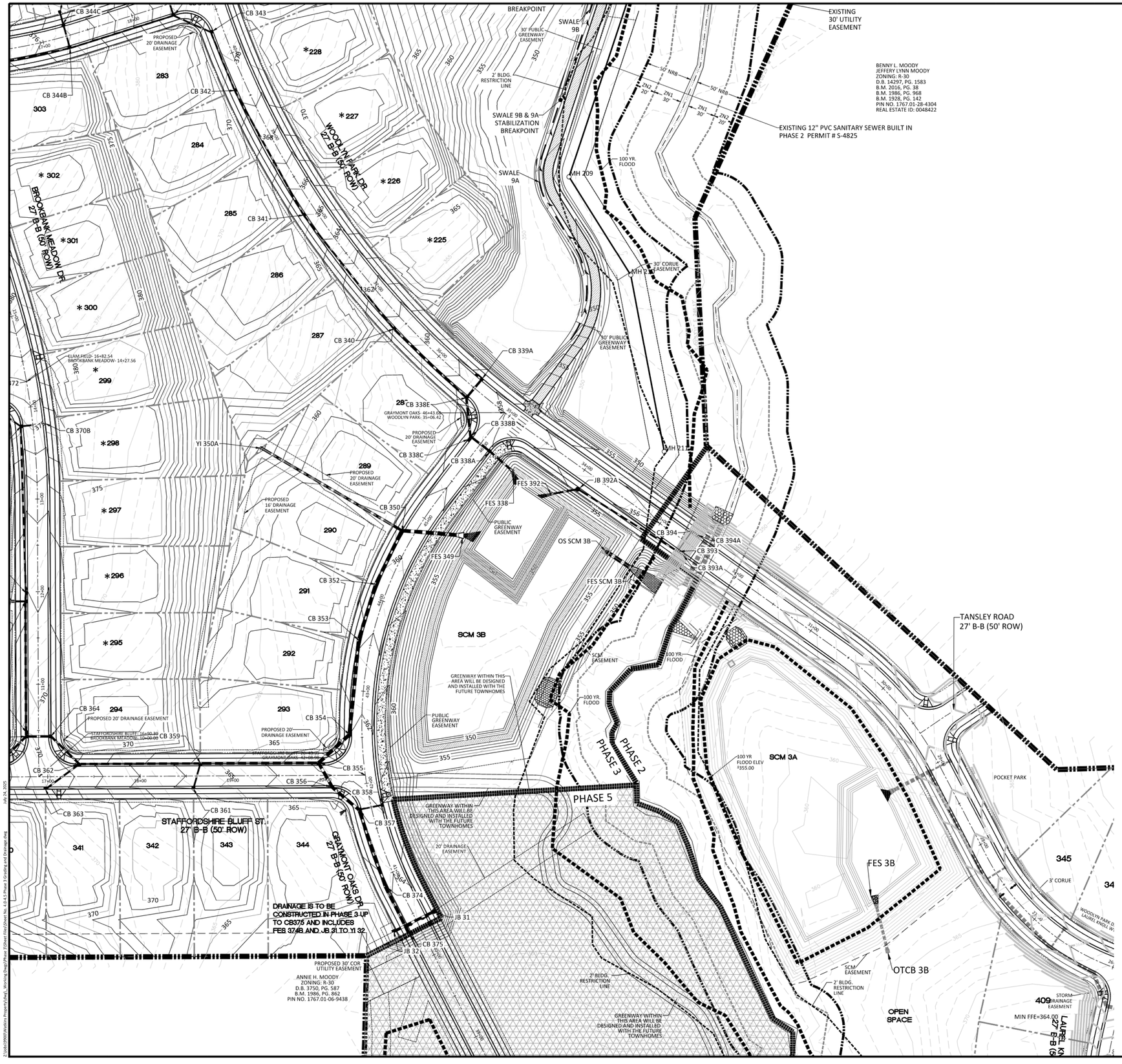

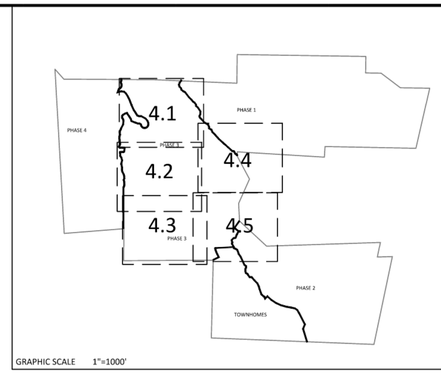

GRAPHIC SCALE 1"=1000'

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

GENERAL NOTES:
1. REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)
2. ALL ROAD AND SIDE YARD SWALES TO HAVE A MINIMUM OF 2% AT FINISHED GRADE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50

*** 3 Days Before Digging ***
North Carolina 811
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919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024627 JOHN R. HARMAN REGISTERED PROFESSIONAL ENGINEER JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
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3	10/1/2025	TOWN OF ROLESVILLE CONSULTANT COMMENTS
4	2/12/2026	CONSTRUCTION DRAWING RESPONSES
5	4/6/2026	CONSTRUCTION DRAWING RESPONSES
		WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 GRADING & DRAINAGE

SHEET NO.:
4.5

July 24, 2025
Z:\Jobs\09900\Wardona Property\Revit_Working Dwgs\Phase 3\Sheet Files\Sheet No. 4.6-4.5 Phase 3 Grading and Drainage.dwg

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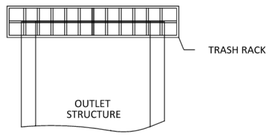
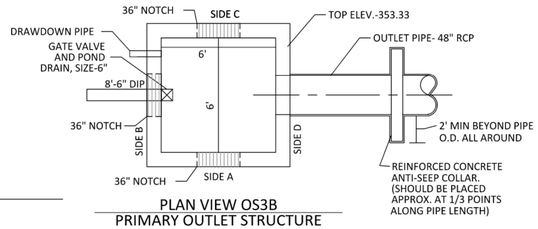
TRASH RACK DETAIL

N.T.S.



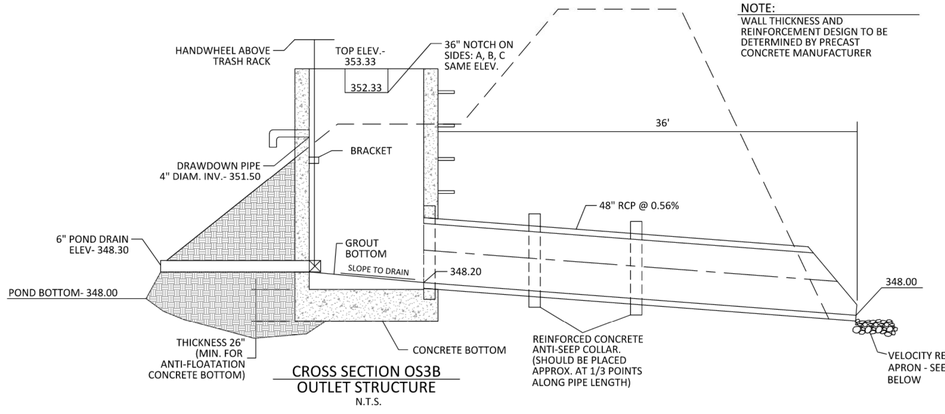
TRASH RACK NOTES

1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
3. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
4. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
5. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
6. CLEAR OPENING BETWEEN BARS SHALL BE MAX 5.5" X 5.5"



PLAN VIEW OS3B
PRIMARY OUTLET STRUCTURE
N.T.S.

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.



NOTE:
WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER

CROSS SECTION OS3B
OUTLET STRUCTURE
N.T.S.

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND
(HERB.)

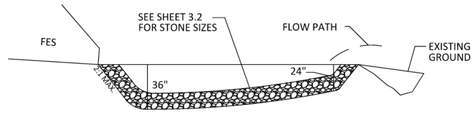
EF	EUPATORIUM FISTRULOSUM	JOE PYE WEED	4-6" POT @ 3' SPACING
HC	HIBICUS COCCINEA	SCARLET ROSE MALLOW	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING

SHALLOW WATER
(HERB.)

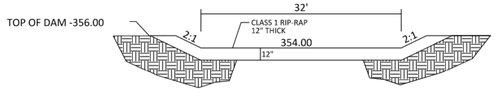
JE	JUNCUS EFFUSES	SOFTRUSH	4-6" POT @ 3' SPACING
AS	ACORUS SPP	SWEET FLAG	4-6" POT @ 3' SPACING
IV	IRIS VERSICOLOR	BLUE FLAG IRIS	4-6" POT @ 3' SPACING
PC	PONTEDERIA CORDATA	PECKEREL WEED	4-6" POT @ 3' SPACING
PV	PELTANDRA VIRGINICA	ARROW ARUM	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:
SHALLOW LAND= 2,438 sf (USE 609 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 2,374 sf (USE 594 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF



OS3B RIP-RAP OUTLET DETAIL
N.T.S.



EMERGENCY SPILLWAY
CROSS-SECTION

OUTLET STRUCTURE GENERAL NOTES

1. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
2. THE OUTLET STRUCTURE SHALL HAVE A TRASH RACK COVERING THE OPENINGS. SUCH TRASH RACK SHALL BE 6" OUT FROM THE OPENING AND SHALL HAVE A MAXIMUM OPENING OF 6"x6". IT SHALL BE SECURELY FASTENED TO THE STRUCTURE BUT REMOVEABLE FOR MAINTENANCE.
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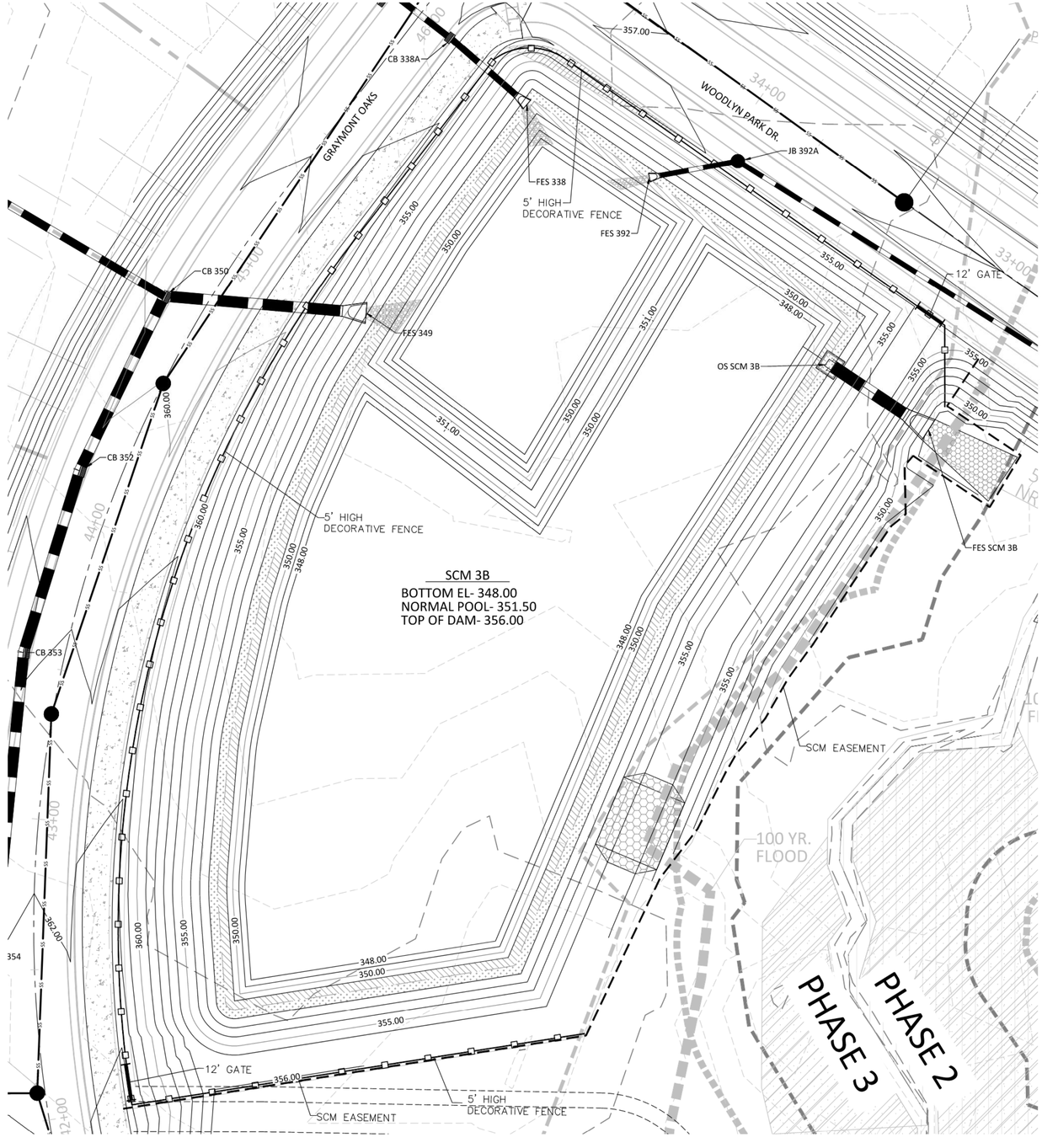
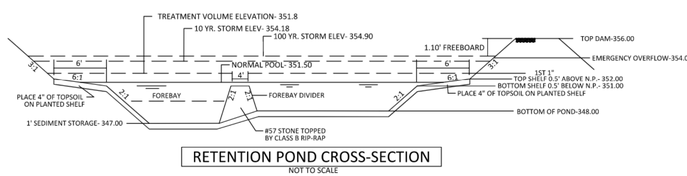
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

POND NOTES

1. SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.





RETENTION POND CROSS-SECTION
NOT TO SCALE

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 9810 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	ISSUED FOR REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
SCM 3B DETAILS

SHEET NO.:
4.6

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 23, 2025
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TRASH RACK DETAIL

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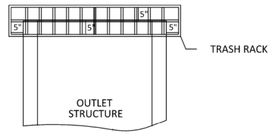

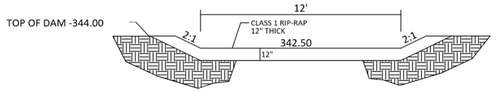

EMERGENCY SPILLWAY
CROSS-SECTION

TRASH RACK NOTES

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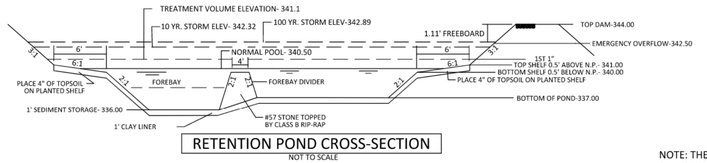

RETENTION POND CROSS-SECTION
NOT TO SCALE

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PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND
(HERB.)

EF	EUPATORUIM FISTRULOSUM	JOE PYE WEED	4-6" POT @ 3' SPACING
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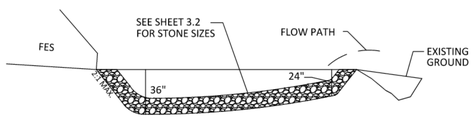
PC	PONTEDERIA CORDATA	PECKEREL WEED	4-6" POT @ 3' SPACING
PV	PELTANDRA VIRGINICA	ARROW ARUM	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

SHALLOW LAND= 1,734 sf (USE 434 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,668 sf (USE 417 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF



OS3C RIP-RAP OUTLET DETAIL
N.T.S.

OUTLET STRUCTURE GENERAL NOTES

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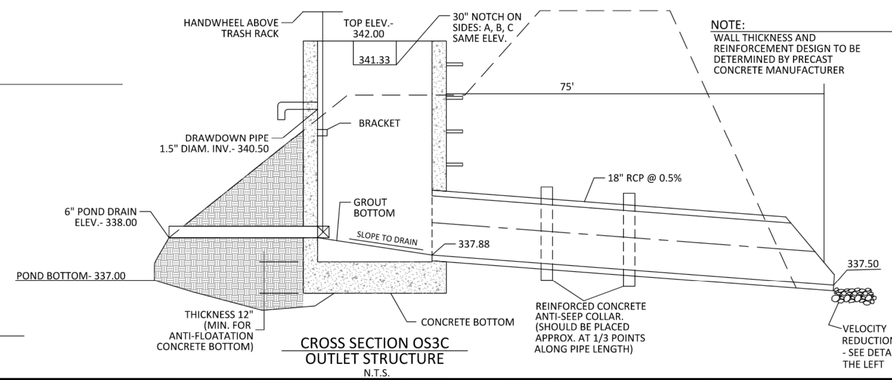

NOTE:
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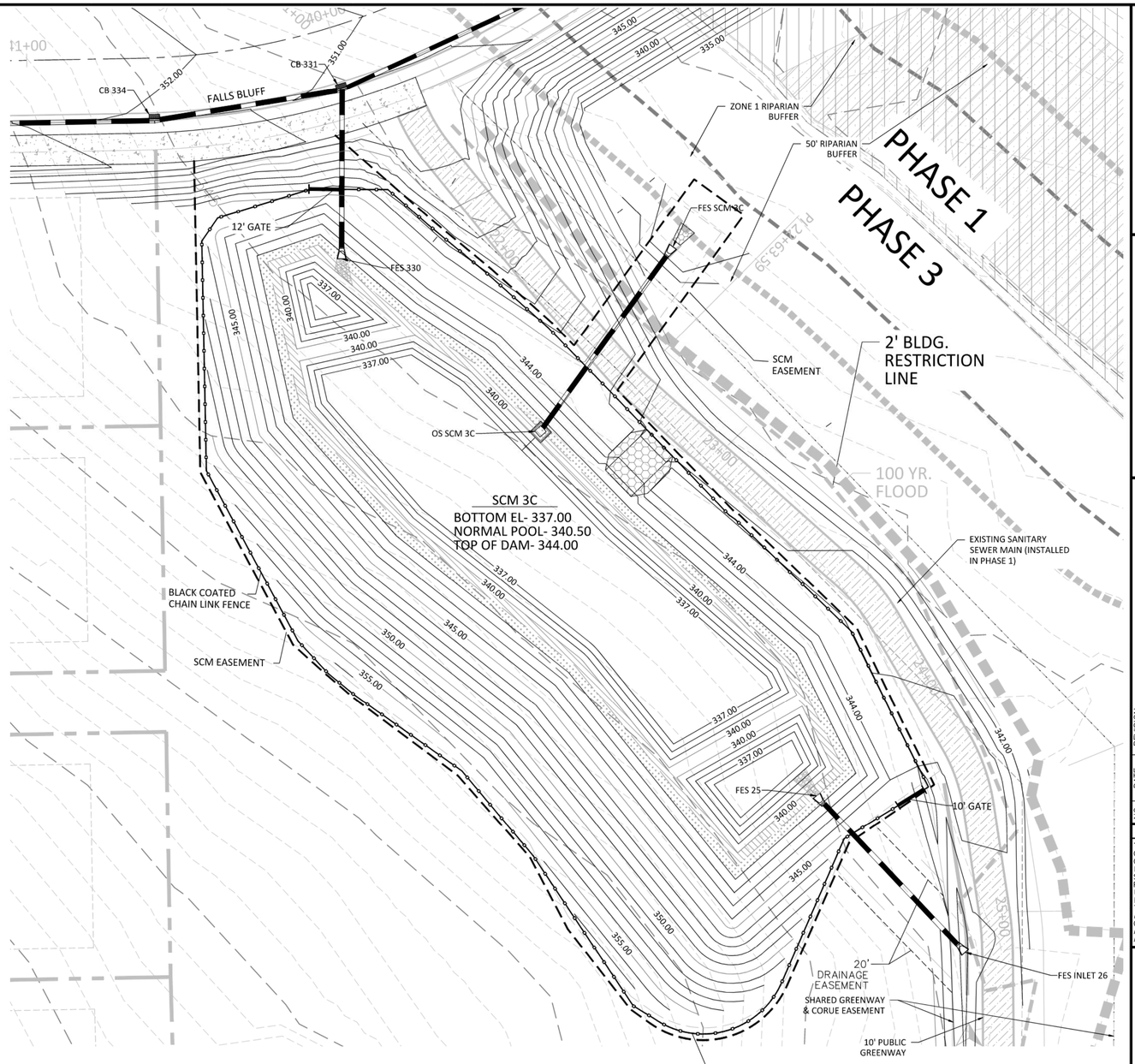
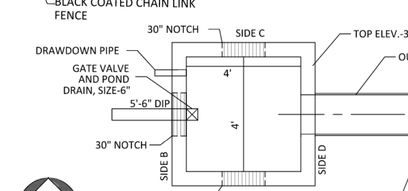
CROSS SECTION OS3C
OUTLET STRUCTURE
N.T.S.





PLAN VIEW OS3C
PRIMARY OUTLET STRUCTURE
N.T.S.

GRAPHIC SCALE

40 0 10 20 40 80
(IN FEET)
1 inch = 20

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919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 029191 ENGINEER JOHN R. HARMAN

REVISION:

NO.	DATE	REVISION:
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4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:

SCM 3C DETAILS

SHEET NO.: 4.7

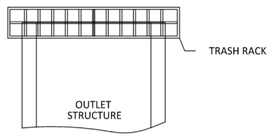
July 23, 2025

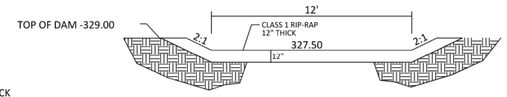
Z:\Jobs\9900\Watkins Property\Civil_Working Dwgs\Phase 3\Sheet Files\Sheet No. 4.6 & 4.11 Phase 3 SCM Details.dwg

Docusign Envelope ID: 08BB23ED-73EF-4DA9-9328-AD76B46C8EE5

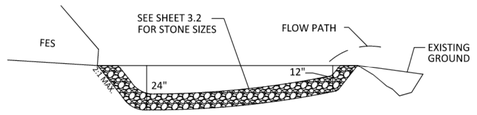
TRASH RACK DETAIL

N.T.S.





EMERGENCY SPILLWAY
CROSS-SECTION



OS4B RIP-RAP OUTLET DETAIL

N.T.S.

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND
(HERB.)
EF EUPATORUIM FISTRULOSUM JOE PYE WEED 4-6" POT @ 3' SPACING
HC HIBICUS COCCINEA SCARLET ROSE MALLOW 4-6" POT @ 3' SPACING
CG CHELONE GLABRA WHITE TURTLEHEAD 4-6" POT @ 3' SPACING
LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

SHALLOW WATER
(HERB.)
JE JUNCUS EFFUSES SOFTRUSH 4-6" POT @ 3' SPACING
AS ACORUS SPP SWEET FLAG 4-6" POT @ 3' SPACING
IV IRIS VERSICOLOR BLUE FLAG IRIS 4-6" POT @ 3' SPACING
PC PONTEDERIA CORDATA PECKEREL WEED 4-6" POT @ 3' SPACING
PV PELTANDRA VIRGINICA ARROW ARUM 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

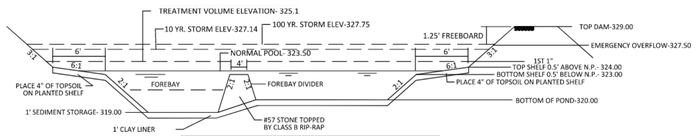
SHALLOW LAND= 1,281 sf (USE 320 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,217 sf (USE 304 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

TRASH RACK NOTES

1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
3. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
4. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
5. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
6. CLEAR OPENING BETWEEN BARS SHALL BE MAX 5.5" X 5.5"

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.



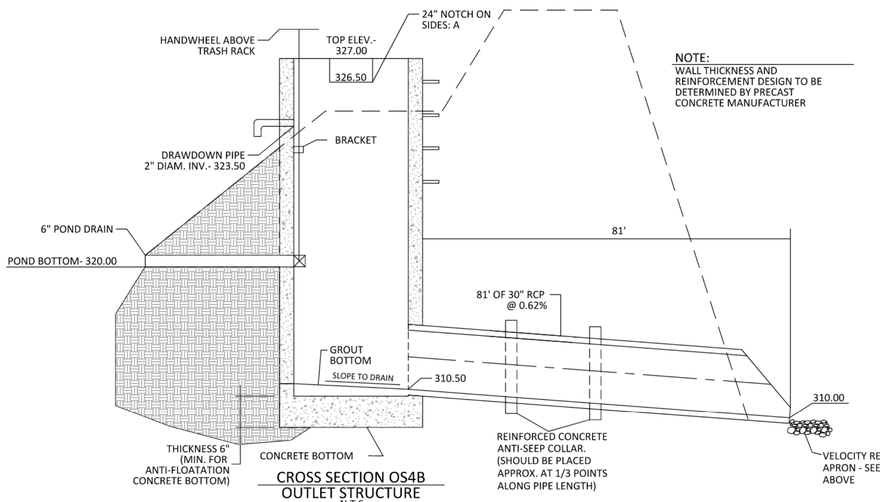
RETENTION POND CROSS-SECTION
NOT TO SCALE

OUTLET STRUCTURE GENERAL NOTES

1. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
2. THE OUTLET STRUCTURE SHALL HAVE A TRASH RACK COVERING THE OPENINGS. SUCH TRASH RACK SHALL BE 6" OUT FROM THE OPENING AND SHALL HAVE A MAXIMUM OPENING OF 6"x6". IT SHALL BE SECURELY FASTENED TO THE STRUCTURE BUT REMOVEABLE FOR MAINTENANCE.
3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

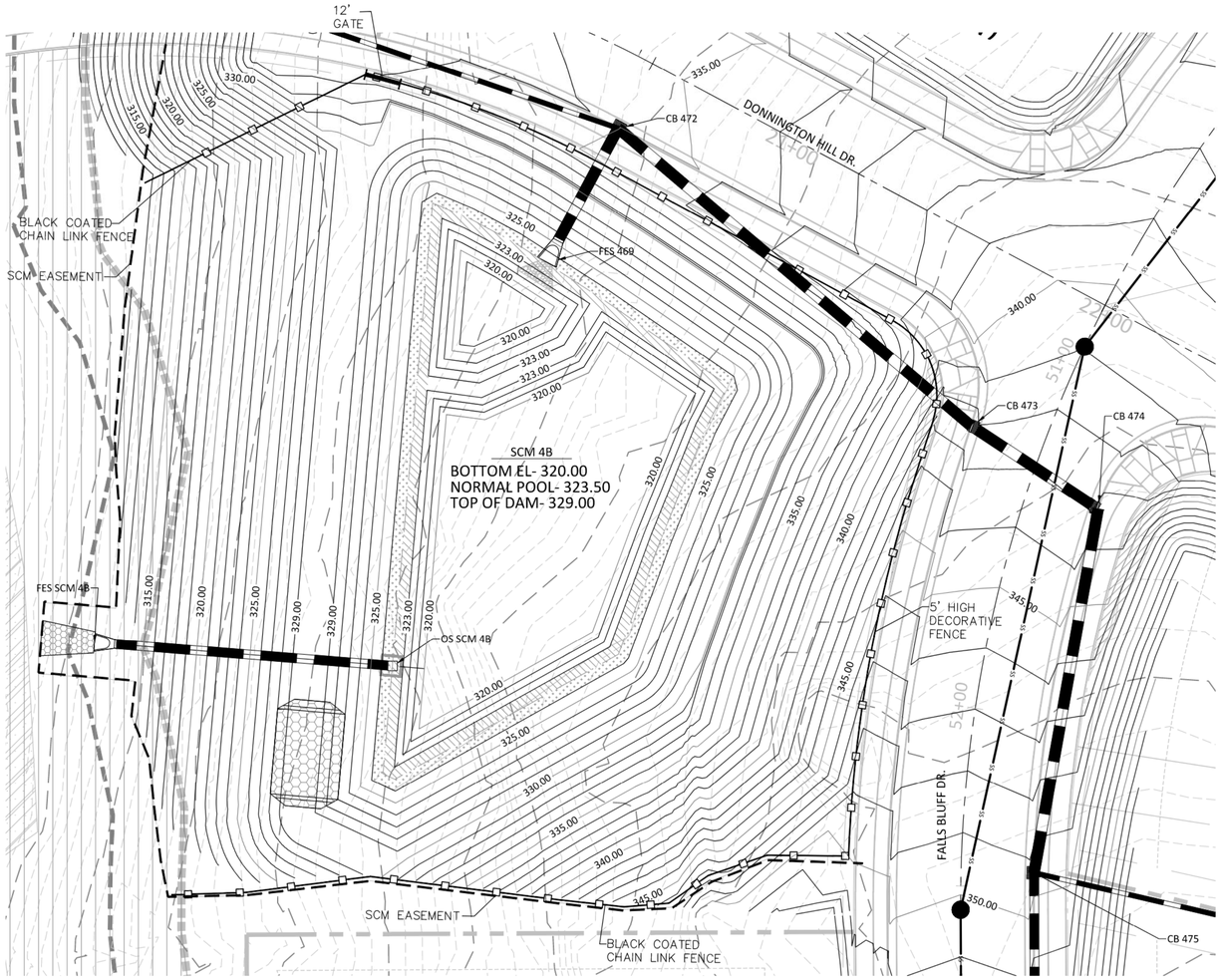
POND NOTES

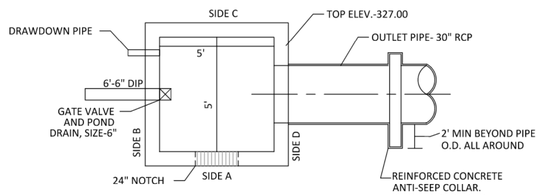
1. SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.



NOTE:
WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER

CROSS SECTION OS4B
OUTLET STRUCTURE
N.T.S.





PLAN VIEW OS4B
PRIMARY OUTLET STRUCTURE
N.T.S.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch =100

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 038119 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
SCM 4B DETAILS

SHEET NO.: 4.8

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 23, 2025
Z:\Jobs\9900\Kraktivs Property\dwg_Working Dwgs\Phase 3\Sheet Files\Sheet No. 4.8 4.11 Phase 3 SCM Details.dwg

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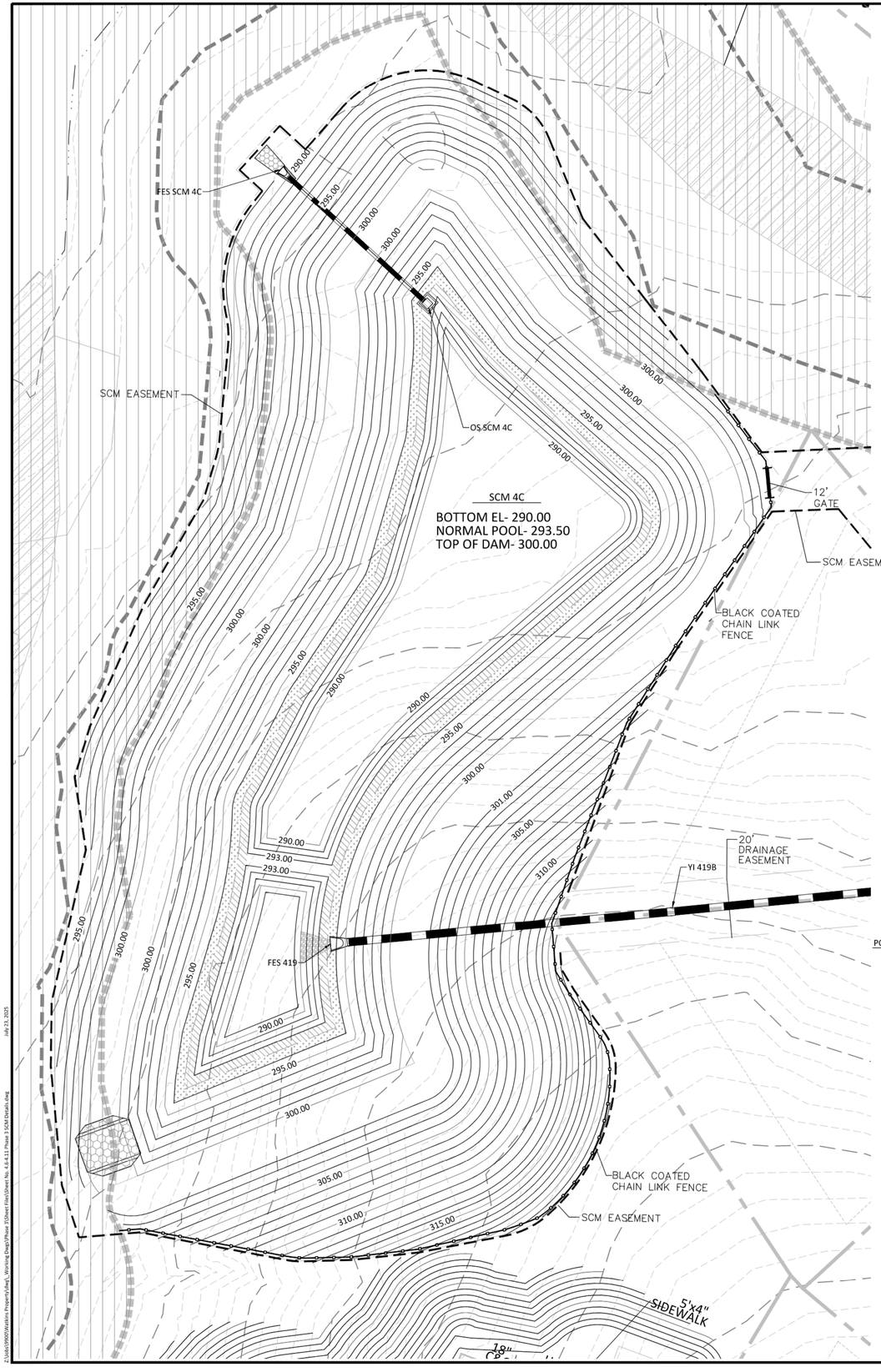
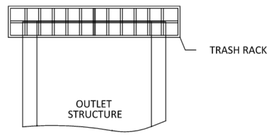


TRASH RACK DETAIL

N.T.S.



TRASH RACK NOTES

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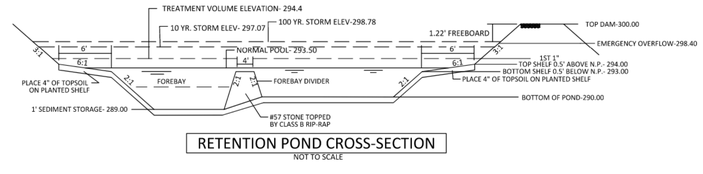
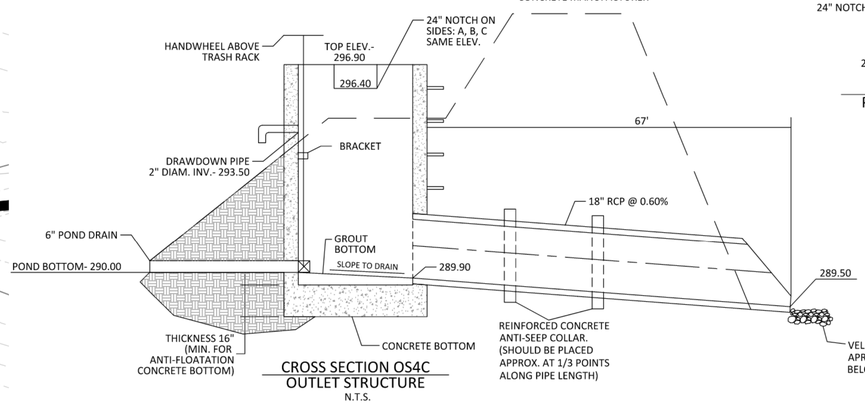
6. CLEAR OPENING BETWEEN BARS SHALL BE MAX 5.5" X 5.5"



RETENTION POND CROSS-SECTION

NOT TO SCALE

NOTE:
WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER



CROSS SECTION OS4C
OUTLET STRUCTURE
N.T.S.

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

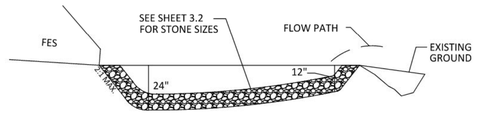
SHALLOW LAND
(HERB.)
- EF EUPATORUIM FISTRULOSUM JOE PYE WEED 4-6" POT @ 3' SPACING
- HC HIBICUS COCCINEA SCARLET ROSE MALLOW 4-6" POT @ 3' SPACING
- CG CHELONE GLABRA WHITE TURTLEHEAD 4-6" POT @ 3' SPACING
- LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

SHALLOW WATER
(HERB.)
- JE JUNCUS EFFUSES SOFTRUSH 4-6" POT @ 3' SPACING
- AS ACORUS SPP SWEET FLAG 4-6" POT @ 3' SPACING
- IV IRIS VERSICOLOR BLUE FLAG IRIS 4-6" POT @ 3' SPACING
- PC PONTEDERIA CORDATA PECKEREL WEED 4-6" POT @ 3' SPACING
- PV PELTANDRA VIRGINICA ARROW ARUM 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

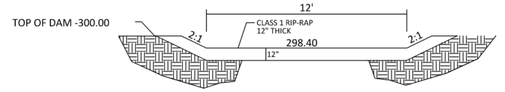
SHALLOW LAND= 2,039 sf (USE 510 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,961 sf (USE 490 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

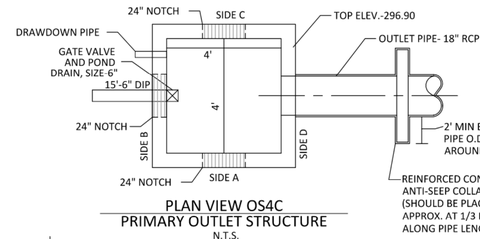


OS4C RIP-RAP OUTLET DETAIL

N.T.S.



EMERGENCY SPILLWAY
CROSS-SECTION



PLAN VIEW OS4C
PRIMARY OUTLET STRUCTURE
N.T.S.

OUTLET STRUCTURE GENERAL NOTES

1. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
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4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

POND NOTES

1. SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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Raleigh, NC 27607
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NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 038107 ENGINEER JOHN R. HARMAN 7/28/2025

REVISION:

NO.	DATE	REVISION:
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:

SCM 4C
DETAILS

SHEET NO.:
4.9

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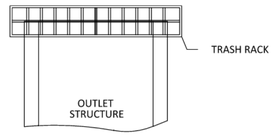
July 23, 2025

Docusign Envelope ID: 08BB23ED-73EF-4DA9-9328-AD76B46C8EE5

TRASH RACK DETAIL

N.T.S.



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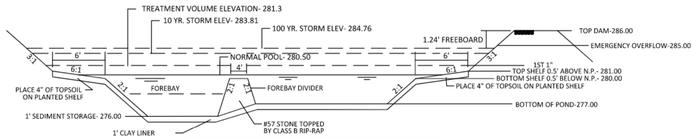

RETENTION POND CROSS-SECTION

NOT TO SCALE

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND
(HERB.)
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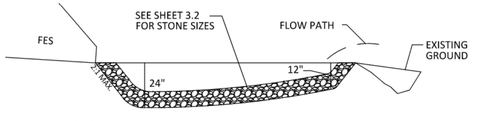
PC PONTEDERIA CORDATA PECKEREL WEED 4-6" POT @ 3' SPACING
PV PELTANDRA VIRGINICA ARROW ARUM 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

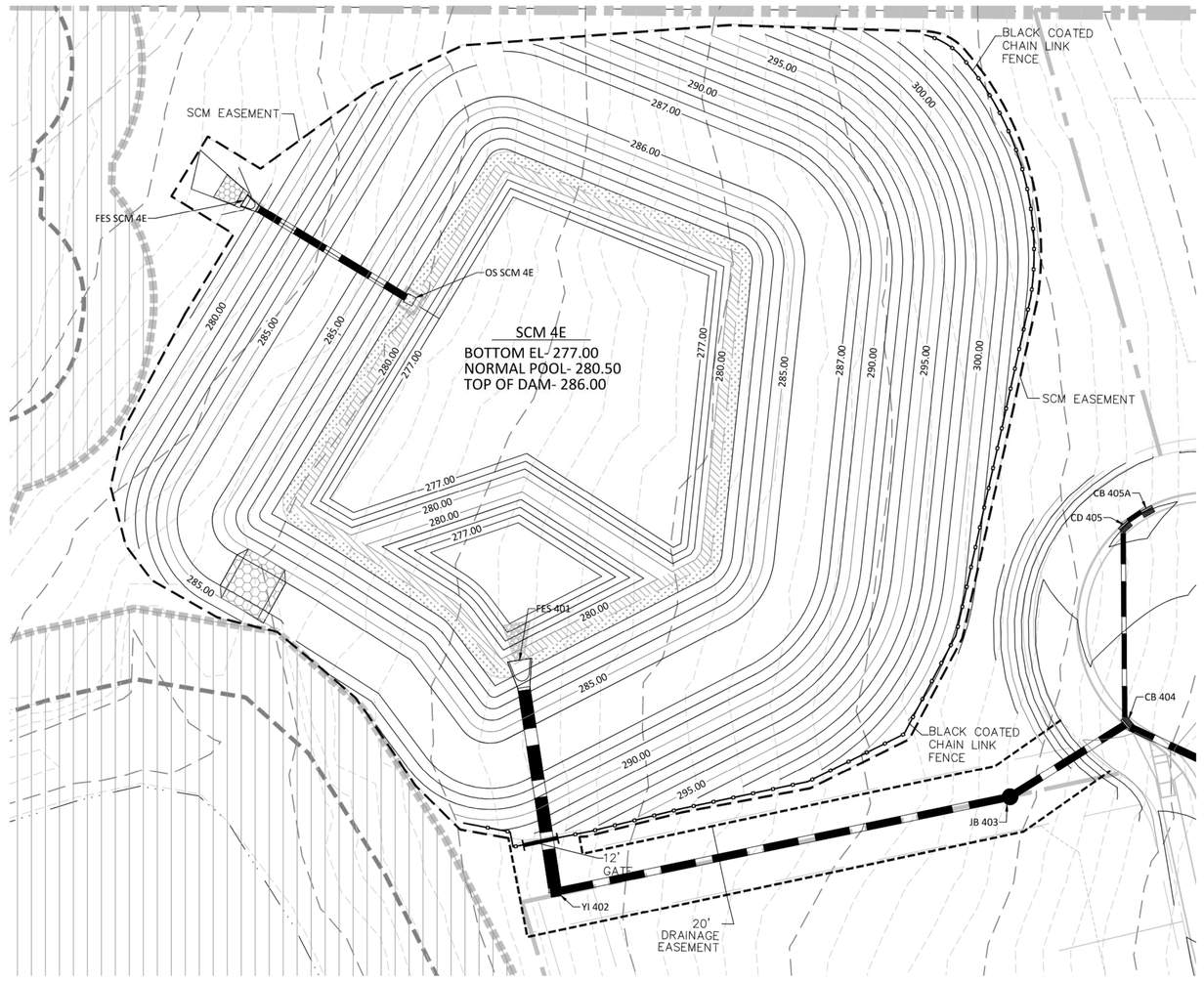
SHALLOW LAND= 1,290 sf (USE 322PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,233 sf (USE 308 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

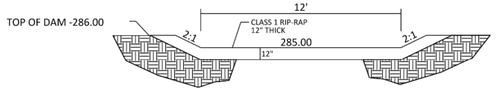
CALCULATION: 50 PLANTS PER 200 SF



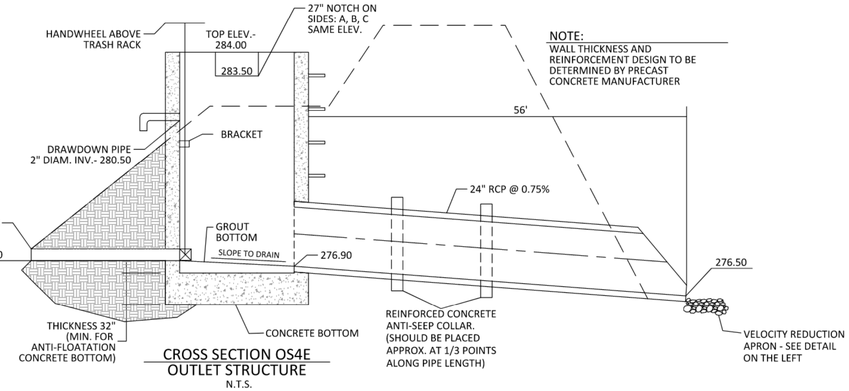
OS4E RIP-RAP OUTLET DETAIL

N.T.S.





EMERGENCY SPILLWAY
CROSS-SECTION



NOTE:
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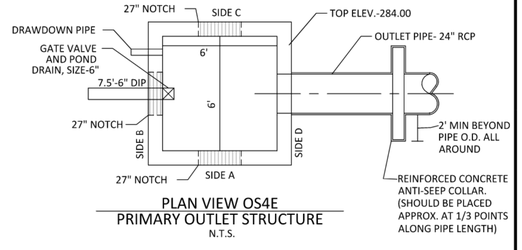
CROSS SECTION OS4E
OUTLET STRUCTURE
N.T.S.



PLAN VIEW OS4E
PRIMARY OUTLET STRUCTURE
N.T.S.

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch =100

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Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 038210 ENGINEER JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:

SCM 4E DETAILS

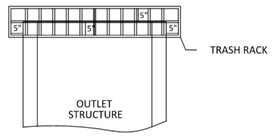
SHEET NO.:
4.10

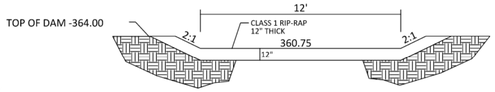
July 23, 2025
Z:\Jobs\9900\Written Property\Rad_Working\Dwgs\Phase 3\Sheet Files\Sheet Nos. 4.6-4.11 Phase 3 SCM Details.dwg

Docusign Envelope ID: 08BB23ED-73EF-4DA9-9328-AD76B46C8EE5

TRASH RACK DETAIL

N.T.S.

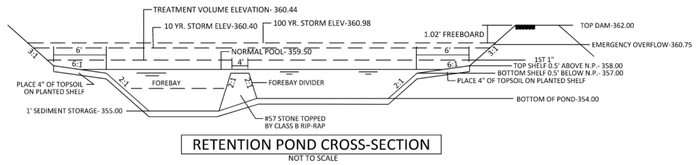




EMERGENCY SPILLWAY
CROSS-SECTION

TRASH RACK NOTES

1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
3. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
4. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
5. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
6. CLEAR OPENING BETWEEN BARS SHALL BE MAX 5.5" X 5.5"



RETENTION POND CROSS-SECTION
NOT TO SCALE

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND (HERB.)

EE	EUPATORUIM FISTRULOSUM	JOE PYE WEED	4-6" POT @ 3' SPACING
HC	HIBICUS COCCINEA	SCARLET ROSE MALLOW	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING

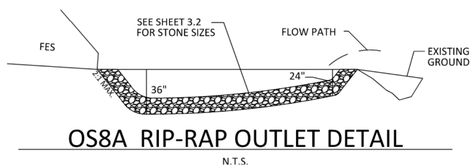
SHALLOW WATER (HERB.)

JE	JUNCUS EFFUSES	SOFTRUSH	4-6" POT @ 3' SPACING
AS	ACORUS SPP	SWEET FLAG	4-6" POT @ 3' SPACING
IV	IRIS VERSICOLOR	BLUE FLAG IRIS	4-6" POT @ 3' SPACING
PC	PONTEDERIA CORDATA	PECKEREL WEED	4-6" POT @ 3' SPACING
PV	PELTANDRA VIRGINICA	ARROW ARUM	4-6" POT @ 3' SPACING

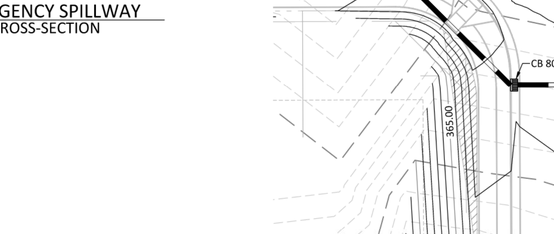
LANDSCAPE PLAN:

SHALLOW LAND= 1,008 sf (USE 252 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 936 sf (USE 234 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF



OS8A RIP-RAP OUTLET DETAIL
N.T.S.



PLAN VIEW OS8A
PRIMARY OUTLET STRUCTURE
N.T.S.

OUTLET STRUCTURE GENERAL NOTES

1. OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.

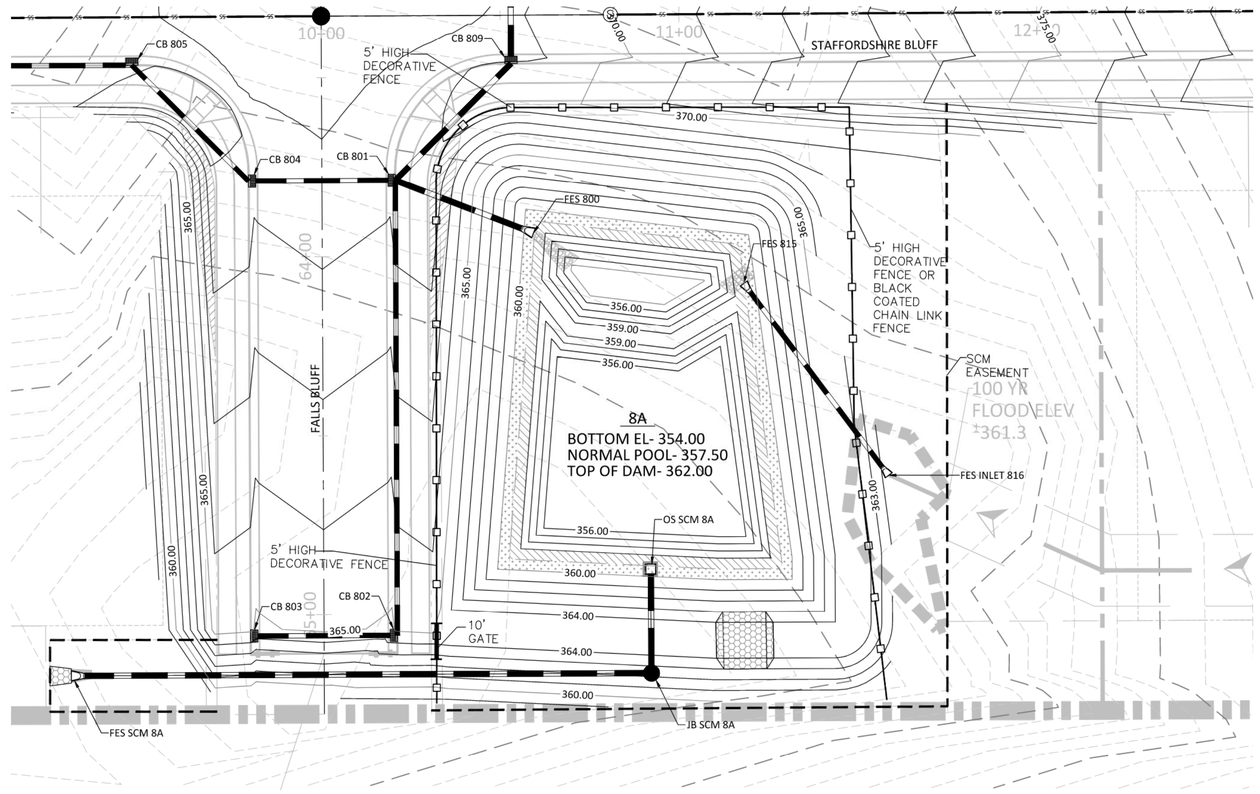
2. THE OUTLET STRUCTURE SHALL HAVE A TRASH RACK COVERING THE OPENINGS. SUCH TRASH RACK SHALL BE 6" OUT FROM THE OPENING AND SHALL HAVE A MAXIMUM OPENING OF 6"x6". IT SHALL BE SECURELY FASTENED TO THE STRUCTURE BUT REMOVEABLE FOR MAINTENANCE.

3. OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.

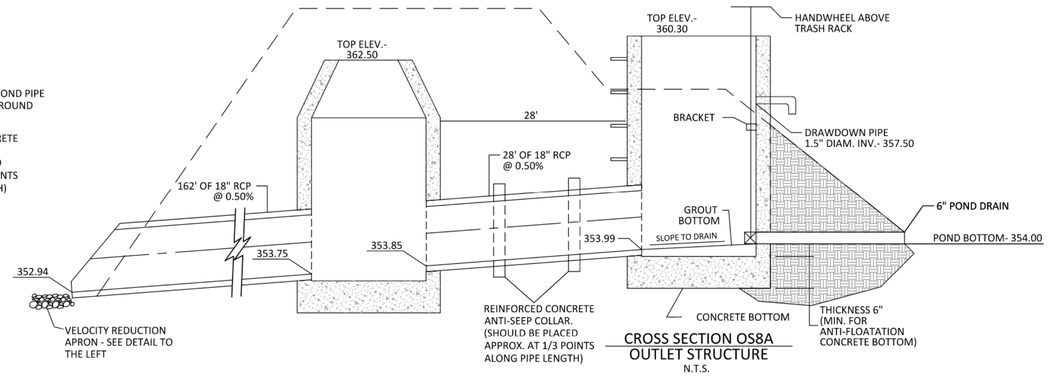
4. TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

POND NOTES

1. SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.



NOTE:
WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER



CROSS SECTION OS8A
OUTLET STRUCTURE
N.T.S.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch =100

North Carolina 811 Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 9810 ENGINEER JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:

SCM 8A DETAILS

SHEET NO.:
4.11

July 23, 2025
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Docusign Envelope ID: 878CFF05-B777-4452-AA9B-79B9751AB04E

SITE DATA

OWNER	MITCHELL MILL ROAD INVESTORS, LLC 105 WESTON ESTATES WAY CARY, NC 27519
PARCEL ADDRESS	1600 & 1832 ROLESVILLE ROAD ROLESVILLE NC
PIN NUMBER	1767-17-8299, 1767-08-3228, 1768-00-2153, 1767-29-5866
DEED BOOK	DB 011940 PG 01155, DB 012007 PG 02228
DEEDED ACREAGE	284.44 AC
TOTAL PROJECT AREA	282.73 AC (MINUS ROW AREA TO RD CL)
GOVERNMENTAL USE	1.91 AC
TOTAL AREA IN FUTURE TOWNHOMES	17.01 AC
AREA IN ROW	38.57 AC
AREA IN OPEN SPACE PROVIDED	96.75 AC
AREA IN LOTS	128.47 AC
EXISTING ZONING	R& P.U.D
MAX # OF LOTS	550 LOTS
SINGLE FAMILY LOTS PROPOSED	454 LOTS
MAX. # OF TOWNHOMES	95 UNITS
MIN. LOT WIDTH	50'
MIN. LOT SIZE PROVIDED	6,024 SF
LF OF PUBLIC STREETS	35,964 LF
IMPERVIOUS AREA	88.44 AC
PERCENT IMPERVIOUS	30.2%

SETBACK TABLE SINGLE FAMILY

	50'	50' W ALLEY	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'	25'
REAR	20'	15'	20'	25'	25'	25'	30'
SIDE	**	**	**	*	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	10,400	14,000

* AGGREGATE 12', MIN. 5'
** MIN. 3' AGGREGATE 10'

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch =200

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

NORTH CAROLINA PROFESSIONAL SEAL 040212 ENGINEER JOHN R. HARMAN
7/24/2025

REVISION:

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

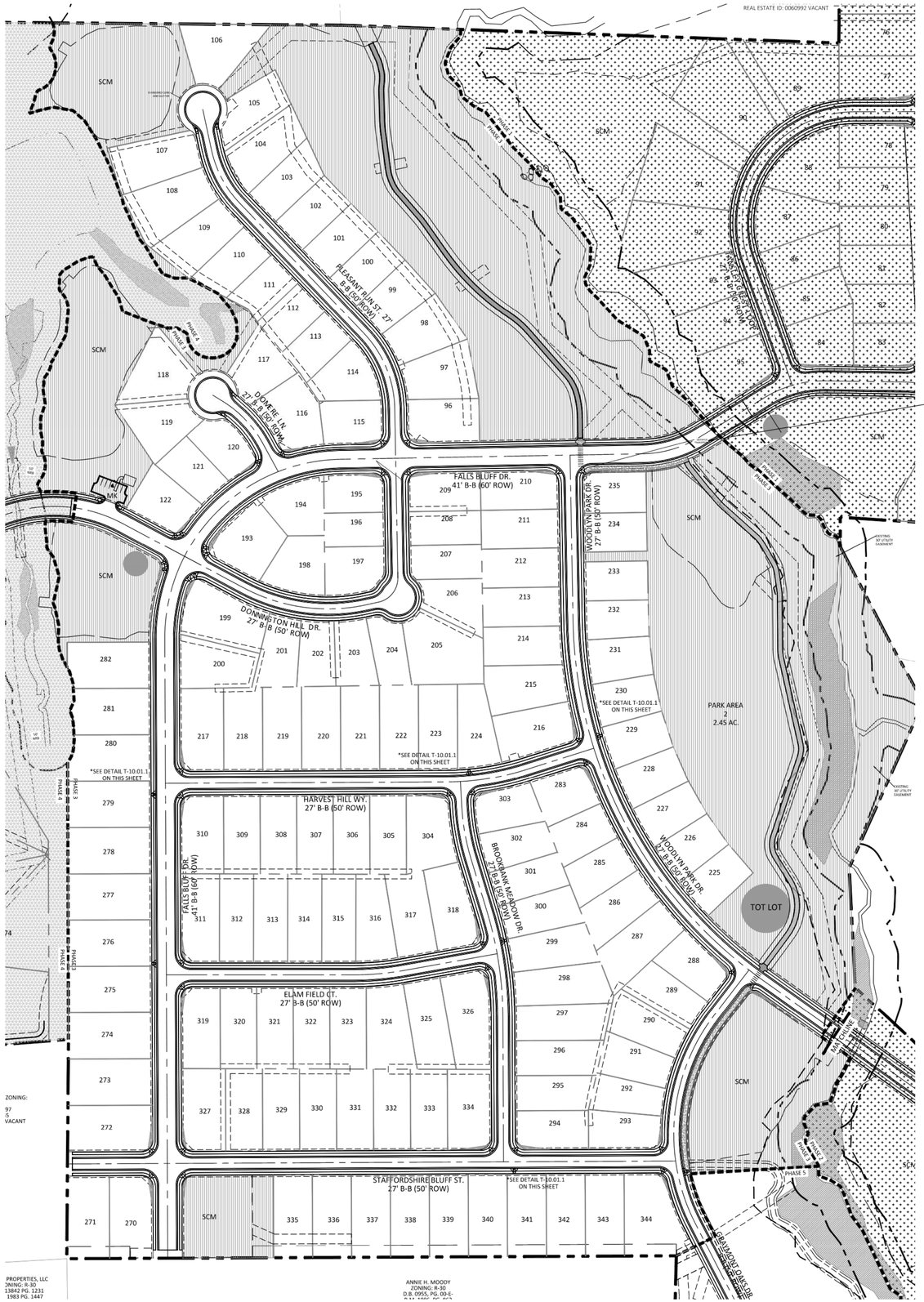
SHEET TITLE:
OVERALL SITE PLAN

SHEET NO.: 5.0

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\9900\Watkins Property\Acad_Working Dwgs\Phase 3\Sheet Files\Sheet No. 5.0 & Phase 3 Site Plan.dwg
July 24, 2025

Docusign Envelope ID: 878CFF05-B777-4452-AA9B-79B9751AB04E



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SIDE	**	**	**	*	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	10,400	14,000

* AGGREGATE 12', MIN. 5'
** MIN. 3' AGGREGATE 10'

Phase 3 - Drainage Area Land Use Breakdown

	Associated Drainage Area
Land Use	Area (Acres)
Impervious	
Roadways	6.55
Sidewalks	2.43
Roofs	10.04
Driveways	1.86
Pervious	
Open Space	59.08
TOTAL IMPERVIOUS	**20.88**
TOTAL	**79.96**

*This data was used as the input values for the Wake County Storm Tool
**3600 SF Impervious per lot

SEE SHEET 5.5 FOR TRANSITION SIDEWALK LOCATION

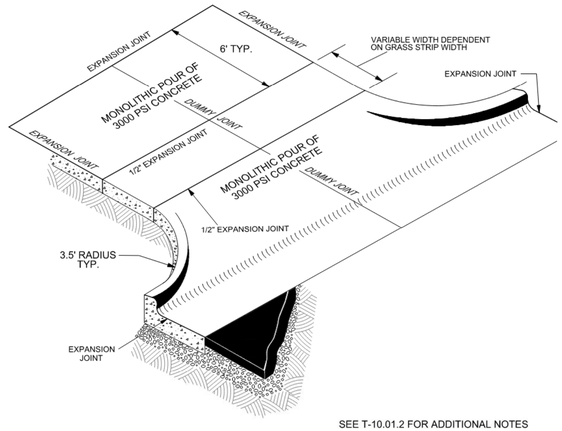
★ IF HANDICAP RAMP LOCATIONS CONFLICT WITH DRIVEWAY LOCATION PLEASE SEE THIS SHEET FOR STANDARD DETAIL MODIFIED DRIVWAY DETAIL

PHASE 3 SITE DATA
TOTAL AREA IN LOTS 18,841,52SF/43.25 AC
TOTAL NUMBER OF LOTS 145
AVERAGE LOT SIZE 13,000 SF
MIN. LOT SIZE 8,686 SF
MAX. LOT SIZE 20,160 SF
PHASE 3 AREA IN OPEN SPACE PROVIDED 24.36 AC
PHASE 3 TOTAL DISTURBED AREA 70.55 AC

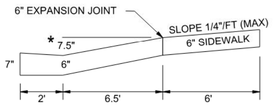
GENERAL NOTE:

1. SIGHT DISTANCE TRIANGLES ARE 10'x70'. WHERE SIGHT LINES ENCROACH ONTO A PRIVATE LOT A SIGHT EASEMENT IS REQUIRED.
2. BACK OF CURB RADIUS AT INTERSECTIONS-
RESIDENTIAL-RESIDENTIAL- 28'
RESIDENTIAL-COLLECTOR- 30'
COLLECTOR-COLLECTOR- 30'
ENTRANCE AT CUL-DE-SAC- 32.5
ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND	
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGEEASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
MK	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE



SEE T-10.01.2 FOR ADDITIONAL NOTES

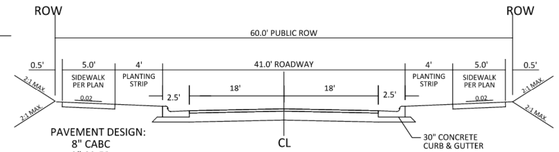


★ USE 6.5" WHEN DRIVEWAY IS USED IN LIEU OF A WHEELCHAIR RAMP TO ACCOMMODATE 12:1 MAXIMUM SLOPE (ADA COMPLIANT), SUCH AS IN A CUL-DE SAC.

SHEET 1 OF 2

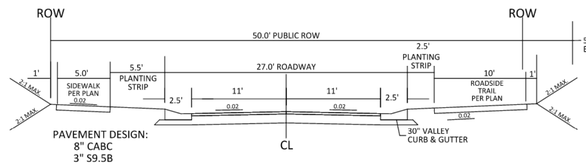
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020 NOT TO SCALE
	DRIVEWAY AND SIDEWALK DETAIL
	T-10.01.1



NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

41' B-B ON A 60' R/W
TYPICAL SECTION



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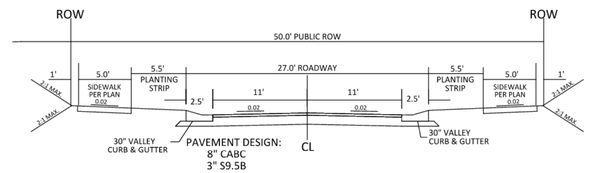
27' B-B ON A 50' R/W
TYPICAL SECTION



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TYPICAL SECTION

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120 0 60 120 240 480
(IN FEET)
1 inch =120

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NORTH CAROLINA PROFESSIONAL SEAL Joseph R. Harman ENGINEER JOHN R. HARMAN
7/28/2025

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1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MA/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
PHASE 3 SITE PLAN

SHEET NO.:
5.1

Z:\Jobs\9900\Kalas Property\dwg_Working Dwgs\Phase 3\Sheet Files\Sheet No. 5.1-5.6 Phase 3 Site Plan.dwg
July 24, 2025

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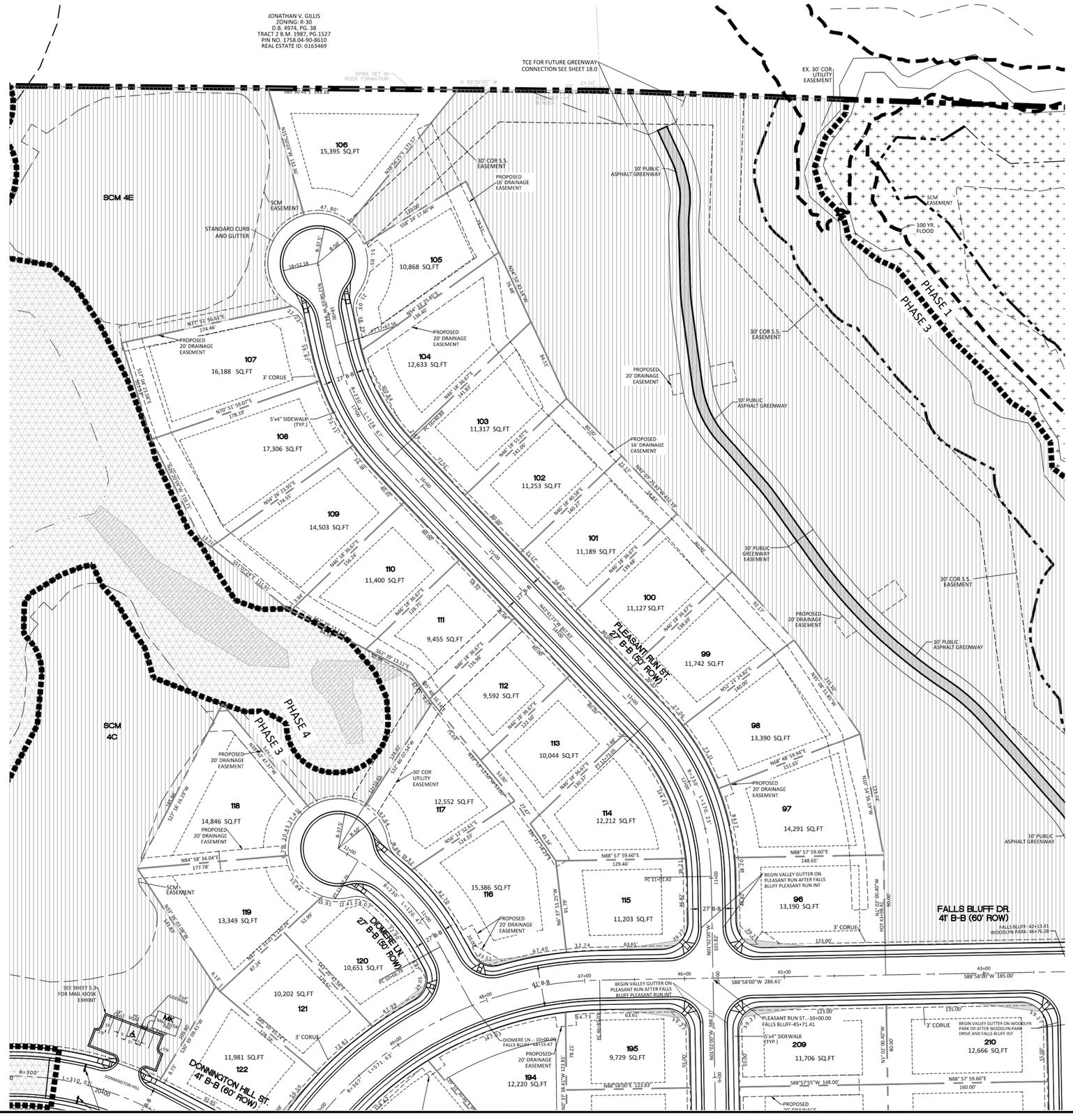

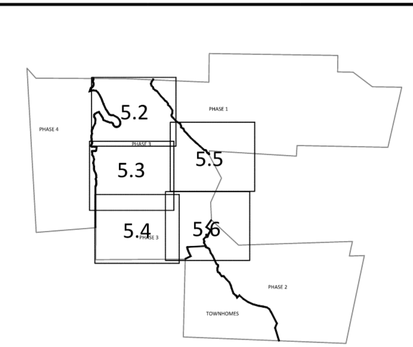

GRAPHIC SCALE 1"=1000'

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** MIN. 3' AGGREGATE 10'

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   RESIDENTIAL-COLLECTOR- 30'
   COLLECTOR-COLLECTOR- 30'
   ENTRANCE AT CUL-DE-SAC- 32.5
   ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND	
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGEEASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
MK	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 040181 JOHN R. HARMAN ENGINEER
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 SITE PLAN

SHEET NO.:
5.2

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 24, 2025
Z:\Jobs\09900\Watkins Property\Revit_Working Dwgs\Phase 3\Sheet Files\Sheet No. 5.0-5.6 Phase 3 Site Plan.dwg

Docusign Envelope ID: 878CFF05-B777-4452-AA9B-79B9751AB04E

FALLS BLUFF DR.
41' B-B (60' ROW)
DIOMEDE LN.
27' B-B (50' ROW)
DONNINGTON HILL ST.
41' B-B (60' ROW)
DONNINGTON HILL DR.
27' B-B (50' ROW)
HARVEST HILL WY.
27' B-B (50' ROW)
BROOKBANK MEADOW DR.
27' B-B (50' ROW)
SCM EASEMENT
SCM 4B
ROAD BARRICADE SEE DETAIL 1145.01 ON SHEET CD19
SEE SHEET 5.3 FOR MAIL KIOSK EXHIBIT
20' DRAINAGE EASEMENT
PROPOSED 20' DRAINAGE EASEMENT
PROPOSED 16' DRAINAGE EASEMENT
5'x4' SIDEWALK (TYP.)
3' CORUE
50' NRB
PHASE 3
PHASE 4
96 13,190 SQ.FT
115 11,203 SQ.FT
116 15,386 SQ.FT
119 13,349 SQ.FT
120 10,651 SQ.FT
121 10,202 SQ.FT
122 11,981 SQ.FT
193 15,664 SQ.FT
194 12,220 SQ.FT
195 9,729 SQ.FT
196 8,686 SQ.FT
197 11,652 SQ.FT
198 12,717 SQ.FT
199 18,066 SQ.FT
200 14,471 SQ.FT
201 11,591 SQ.FT
202 10,033 SQ.FT
203 10,592 SQ.FT
204 9,521 SQ.FT
205 20,160 SQ.FT
206 11,561 SQ.FT
207 10,305 SQ.FT
208 10,360 SQ.FT
209 11,706 SQ.FT
210 12,666 SQ.FT
211 12,800 SQ.FT
212 12,800 SQ.FT
213 12,800 SQ.FT
214 12,929 SQ.FT
215 14,854 SQ.FT
217 15,091 SQ.FT
218 13,611 SQ.FT
219 13,684 SQ.FT
220 13,757 SQ.FT
221 13,830 SQ.FT
222 13,903 SQ.FT
223 13,972 SQ.FT
224 12,583 SQ.FT
277 16,253 SQ.FT
278 16,238 SQ.FT
279 16,223 SQ.FT
280 16,223 SQ.FT
281 15,139 SQ.FT
282 15,835 SQ.FT
301 10,849 SQ.FT
302 10,923 SQ.FT
303 10,923 SQ.FT
304 14,394 SQ.FT
305 12,279 SQ.FT
306 12,236 SQ.FT
307 12,194 SQ.FT
308 12,151 SQ.FT
309 12,108 SQ.FT
310 14,179 SQ.FT
14,618 SQ.FT
PROPOSED SWALE
PROPOSED PHASELINE
BEGIN VALLEY GUTTER ON PLEASANT RUN AFTER FALLS BLUFF PLEASANT RUN INT
PLEASANT RUN ST.-10+00.00 FALLS BLUFF-45+71.41
DIOMEDE LN.-10+00.00 FALLS BLUFF-45+15.67
DONNINGTON HILL DR.-21+98.31 FALLS BLUFF-50+80.82
DONNINGTON HILL DR.-27+01.76 PLEASANT RUN ST.-?+66.28
HARVEST HILL-10+00.00 FALLS BLUFF-55+52.78
BEGIN VALLEY GUTTER ON DONNINGTON HILL AFTER HARVEST HILL AND FALLS BLUFF INT
BEGIN VALLEY GUTTER ON HARVEST HILL AFTER DONNINGTON HILL AND FALLS BLUFF INT
HARVEST HILL-16+05.40 BROOKBANK MEADOW-17+90.39
S89° 04' 15.01"W 624.94' (TOTAL)
S88° 58' 00"W 286.61'
S88° 57' 55"W 148.00'
N88° 57' 59.60"E 160.00'
N88° 57' 59.60"E 164.29'
N89° 43' 28.16"E 158.15'
N89° 43' 28.16"E 157.33'
N89° 43' 28.16"E 170.69'
N89° 43' 28.16"E 170.85'
N89° 43' 28.16"E 171.01'
N89° 43' 28.16"E 170.21'
N89° 22' 21.59"E 75.38'
N88° 58' 00"E 125.63'
N89° 43' 28.16"E 577.20'
S89° 50' 29.42"E 80.00'
N89° 50' 29.42"W 70.00'
S76° 28' 42.35"E 170.01'
S28° 44' 19.13"E 9.30'
S18° 52' 52.90"E 24.58'
S3° 44' 36.84"E 24.93'
S23° 22' 02.45"W 22.00'
S20° 57' 23.94"E 15.31'
S7° 07' 32.84"E 17.11'
S3° 38' 04.95"E 18.62'
S2° 38' 04.95"E 9.61'
S4° 10' 14.06"W 18.29'
N3° 37' 38.41"W 123.81'
N3° 37' 38.41"W 125.88'
N3° 37' 38.41"W 101.47'
N0° 16' 31.84"W 169.68'
N0° 16' 31.84"W 170.59'
N0° 16' 31.84"W 171.50'
N0° 16' 31.84"W 172.42'
N0° 16' 31.84"W 173.33'
N0° 16' 31.84"W 174.24'
N0° 16' 31.84"W 174.66'
N0° 16' 31.84"W 161.16'
N0° 16' 31.84"W 161.73'
N0° 16' 31.84"W 162.30'
N0° 16' 31.84"W 162.86'
N0° 16' 31.84"W 163.43'
N0° 16' 31.84"W 164.00'
N3° 02' 00.40"W 80.00'
N3° 02' 00.40"W 90.00'
N3° 02' 00.40"W 101.82'
N3° 02' 00.40"W 388.22'
N3° 02' 00.40"W 435.48' (TOTAL)
N3° 02' 00.40"W 193.60'
N3° 02' 00.40"W 122.92'
N3° 02' 00.40"W 93.23'
N3° 02' 00.40"W 36.15'
N3° 02' 00.40"W 69.56'
N3° 02' 00.40"W 58.98'
N3° 02' 00.40"W 97.13'
N3° 02' 00.40"W 92.86'
N3° 02' 00.40"W 95.37'
N3° 02' 00.40"W 143.22'
N3° 02' 00.40"W 148.00'
N3° 02' 00.40"W 154.38'
N76° 35' 11.88"E 111.04'
N76° 35' 11.88"E 75.67'
N78° 57' 25.43"E 161.94'
N78° 57' 25.43"E 154.38'
N13° 51' 25"W 91.79'
N11° 02' 00.40"W 90.00'
N11° 02' 00.40"W 101.82'
N11° 02' 00.40"W 388.22'
N11° 02' 00.40"W 435.48' (TOTAL)
N11° 02' 00.40"W 193.60'
N11° 02' 00.40"W 122.92'
N11° 02' 00.40"W 93.23'
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N11° 02' 00.40"W 69.56'
N11° 02' 00.40"W 58.98'
N11° 02' 00.40"W 97.13'
N11° 02' 00.40"W 92.86'
N11° 02' 00.40"W 95.37'
N11° 02' 00.40"W 143.22'
N11° 02' 00.40"W 148.00'
N11

Docusign Envelope ID: 878CFF05-B777-4452-AA9B-79B9751AB04E

PHASE 4
PHASE 3
FALLS BLUFF DR.
41' B-B (60' ROW)
ELAM FIELD CT.
27' B-B (50' ROW)
BROOKBANK MEADOW DR.
27' B-B (50' ROW)
STAFFORDSHIRE BLUFF ST.
27' B-B (50' ROW)
PROPOSED 20' DRAINAGE EASEMENT
5'x4" SIDEWALK (TYP.)
3' CORUE
SCM 8A
SCM EASEMENT
ROAD BARRICADE SEE DETAIL 1145.01 ON SHEET CD19
END OF PAVEMENT STATION- 8+02.67
END OF PAVEMENT STATION- 65+10.90
IODGE, WILLIAM FRANK II MILES, GWENDOLYN H
ZONING: R-30
B. 15305, PG. 2406
TRACT 5
.M. 1971, PG. 445
VO. 1757.02-97-4973
. ESTATE ID: 0087115
JONES PROPERTIES, LLC
ZONING: R-30
D.B. 13842, PG. 1231
LOT 4A
278 16,238 SQ.FT
277 16,253 SQ.FT
276 16,268 SQ.FT
275 16,283 SQ.FT
274 16,307 SQ.FT
273 16,406 SQ.FT
272 16,386 SQ.FT
271 14,802 SQ.FT
270 15,021 SQ.FT
310 14,179 SQ.FT
309 12,108 SQ.FT
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315 12,734 SQ.FT
316 13,051 SQ.FT
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322 12,596 SQ.FT
323 12,617 SQ.FT
324 15,552 SQ.FT
325 14,424 SQ.FT
326 17,343 SQ.FT
327 15,146 SQ.FT
328 12,789 SQ.FT
329 12,746 SQ.FT
330 12,702 SQ.FT
331 12,658 SQ.FT
332 12,615 SQ.FT
333 12,569 SQ.FT
334 14,663 SQ.FT
335 13,600 SQ.FT
336 13,600 SQ.FT
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338 13,600 SQ.FT
339 13,600 SQ.FT
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341 13,600 SQ.FT
342 13,600 SQ.FT
300 12,079 SQ.FT
301 10,849 SQ.FT
302 10,923 SQ.FT
294 11,849 SQ.FT
295 11,300 SQ.FT
296 12,491 SQ.FT
297 14,056 SQ.FT
298 15,111 SQ.FT
299 13,279 SQ.FT
N89° 43' 28.16"E 170.85'
N89° 43' 28.16"E 171.01'
N89° 43' 28.16"E 171.16'
N89° 43' 28.16"E 171.32'
N89° 43' 28.16"E 171.48'
N89° 43' 28.16"E 172.09'
N89° 43' 28.16"E 173.30'
S00°16'32"E 1191.85'
N89°43'28"E 1248.22'
N90°00'00"E 381.13'
N79°50'16"E 192.23'
N76° 35' 11.88"E 111.04'
S89° 50' 29.42"E
N89° 50' 29.42"W 70.00'
N89° 50' 29.42"W 90.33'
N89° 50' 29.42"W 75.89'
N89° 50' 29.42"W 75.88'
N89° 50' 29.42"W 58.41'
S89° 50' 29.42"E 64.67'
N89° 43' 28.16"E 182.22'
N89° 43' 28.16"E 166.08'
N89° 43' 28.16"E 149.78'
N89° 43' 28.16"E 124.79'
N88° 38' 19.32"E 141.22'
N73° 11' 05.57"E 148.60'
N73° 11' 05.57"E 154.38'
N77° 55' 11.09"E 168.20'
N88° 10' 05.33"E 199.81'
N88° 10' 05.33"E 182.04'
N78° 02' 42.51"E 182.04'
N12° 4
N0° 16' 31.84"W 170.00'
N0° 15' 31.38"W 167.45'
N0° 15' 31.38"W 168.04'
N0° 15' 31.38"W 168.63'
N0° 15' 31.38"W 167.29'
N0° 15' 31.38"W 166.54'
N0° 15' 31.38"W 165.79'
N0° 15' 31.38"W 165.37'
N0° 16' 31.84"W 161.16'
N0° 16' 31.84"W 161.73'
N0° 16' 31.84"W 162.86'
N0° 16' 31.84"W 163.43'
N0° 16' 31.84"W 164.00'
N0° 00' 00.00"E 182.26'
N0° 00' 00.00"E 182.26'
N0° 00' 00.00"E 182.26'
N0° 00' 00.00"E 181.99'
N0° 00' 00.00"E 181.72'
N0° 00' 00.00"E 181.72'
N0° 48' 38.38"W 343.45'
N0° 48' 38.38"W 343.45'
N0° 48' 38.38"W 343.45'
N0° 48' 38.38"W 343.45'
N0° 48' 38.38"W 343.45'
N0° 48' 38.38"W 343.45'
N0° 16' 52"W 298.14'
N29° 19' 49" E 57.91'
N0° 13' 03.48"W 37.93'
S89° 50' 29.42"E 11.21'
S89° 50' 29.42"E 14.45'
S89° 50' 29.42"E 18.40'
S89° 50' 29.42"E 61.43'
S89° 50' 29.42"E 71.27'
S89° 50' 29.42"E 75.89'
S89° 50' 29.42"E 9.00'
S89° 50' 29.42"E 10.33'
S89° 50' 29.42"E 13.87'
S89° 50' 29.42"E 64.67'
S89° 50' 29.42"E 65.33'
S89° 50' 29.42"E 64.67'
N89° 43' 28.16" E 826.37'
80.00'
70.00'
61.00'
14.00'
56.00'
19.00'
51.00'
24.01'
45.99'
29.01'
29.40'
45.60'
58.41'
35.37'
75.67'
67.14'
67.59'
54.24'
33.39'
86.95'
67.12'
72.72'
75.00'
34.88'
23.43'
76.21'
51.38'
23.40'
75.89'
63.79'
12.10'
62.90'
12.99'
62.01'
13.87'
14.45'
61.43'
71.27'
18.40'
89.67'
204.83'
690.30'
86.00'
64.15'
88.01'
88.15'
64.67'
65.33'
124.79'
149.51'
182.26'
182.04'
199.81'
168.20'
154.38'
148.60'
141.22'
166.08'
149.78'
182.22'
386.86'
380.86'
393.14'
343.45'
298.14'
343.25'
343.45'
343.45'
343.45

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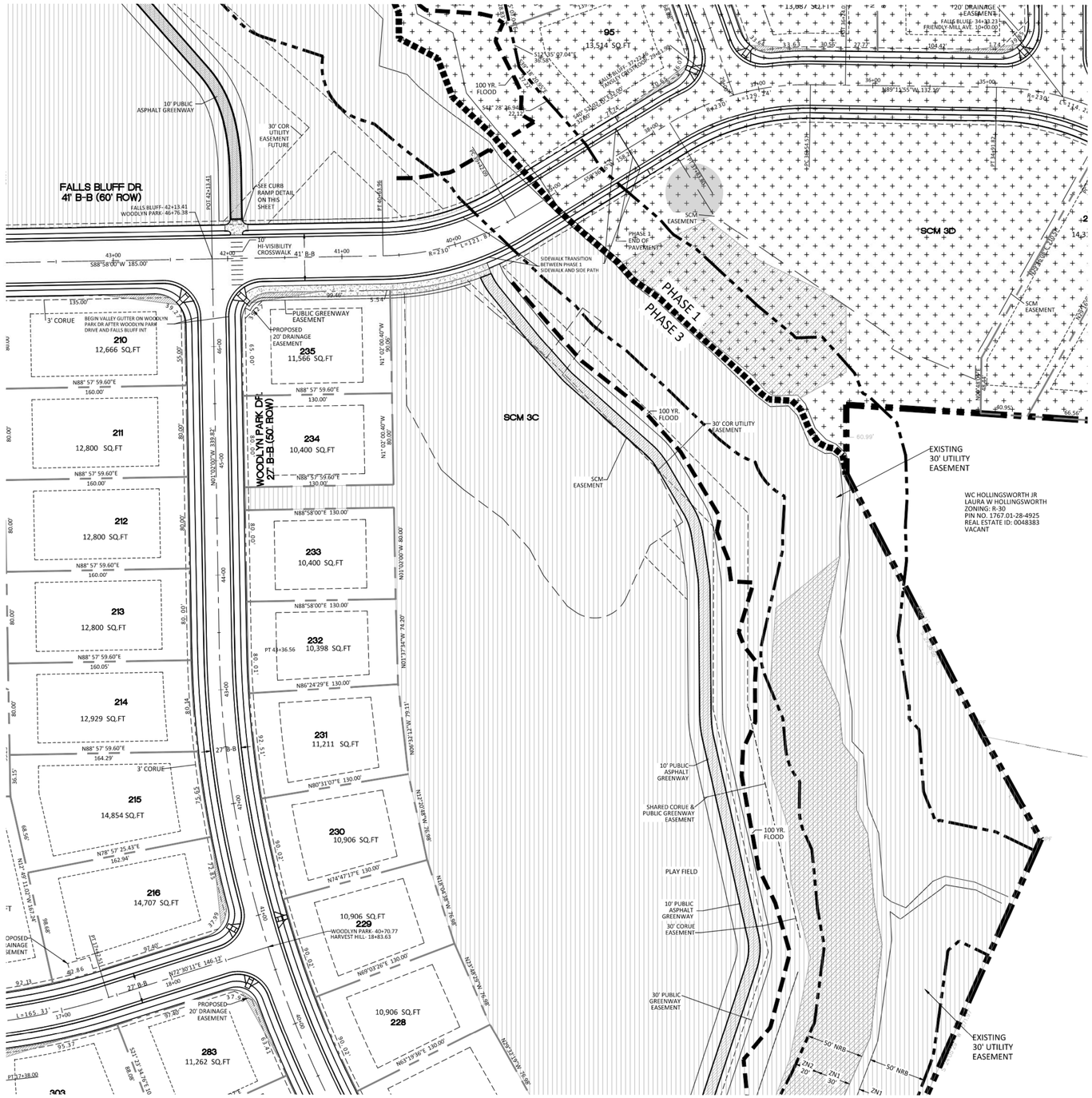

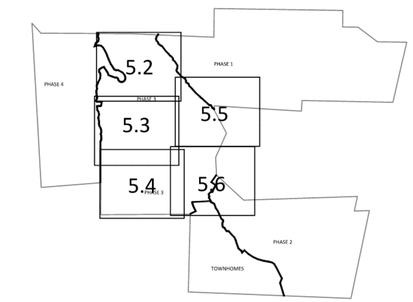

GRAPHIC SCALE 1"=1000'

SETBACK TABLE SINGLE FAMILY

	50'	50' W ALLEY	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'	25'
REAR	20'	15'	20'	25'	25'	25'	30'
SIDE	**	**	**	*	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	10,400	14,000

* AGGREGATE 12', MIN. 5'
** MIN. 3' AGGREGATE 10'

GENERAL NOTE:

1. SIGHT DISTANCE TRIANGLES ARE 10'x70'. WHERE SIGHT LINES ENCROACH ONTO A PRIVATE LOT A SIGHT EASEMENT IS REQUIRED.
2. BACK OF CURB RADIUS AT INTERSECTIONS-
   RESIDENTIAL-RESIDENTIAL- 28'
   RESIDENTIAL-COLLECTOR- 30'
   COLLECTOR-COLLECTOR- 30'
   ENTRANCE AT CUL-DE-SAC- 32.5
   ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND	
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGEEASEMENT
	PROPOSED UTILITY EASEMENT
HC	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
MK	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
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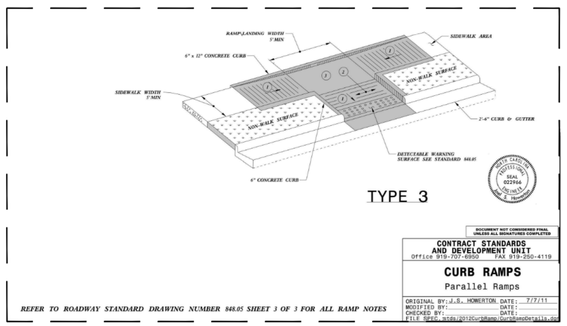
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

811 North Carolina
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 049021 ENGINEER JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
		WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

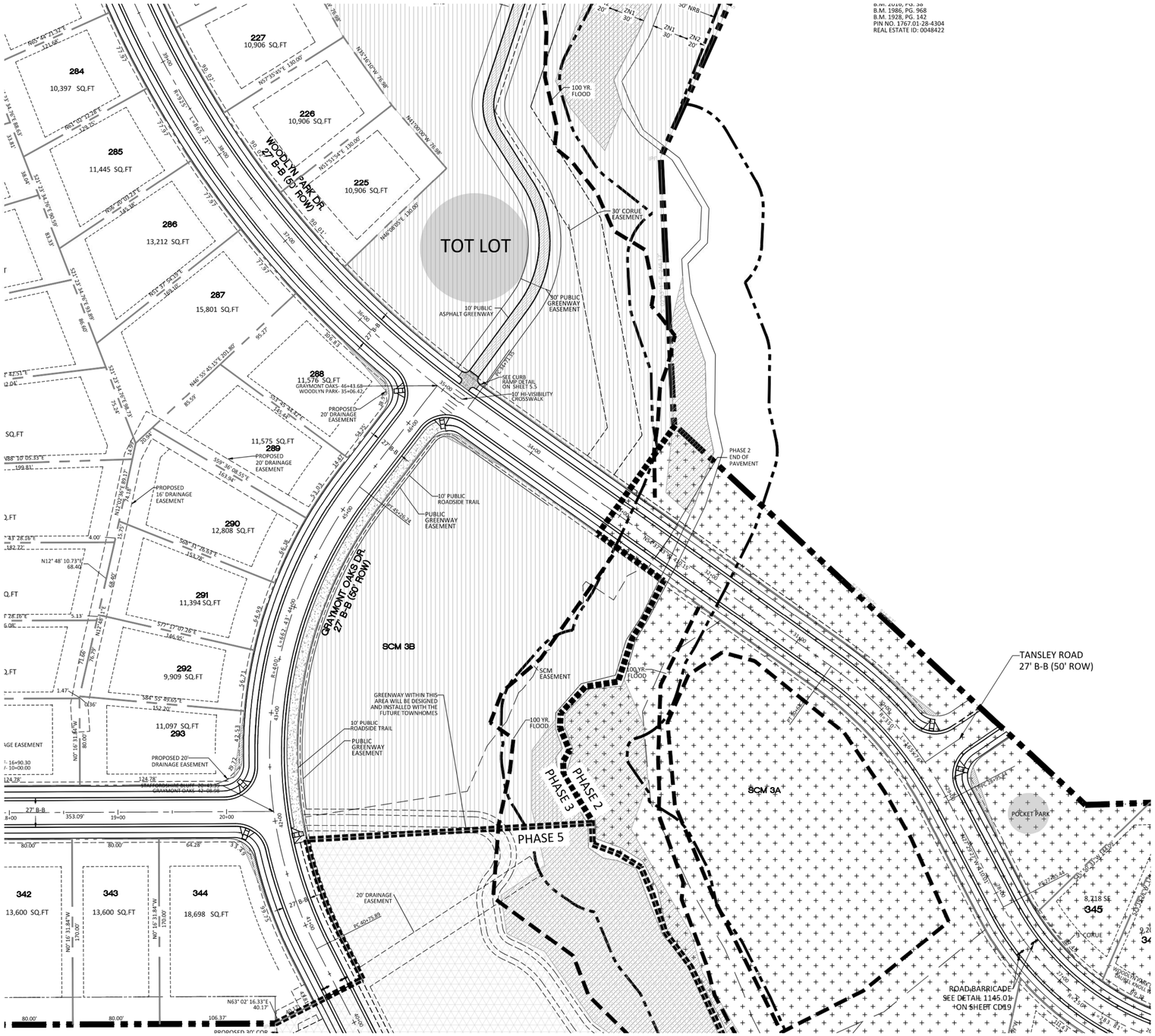
JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

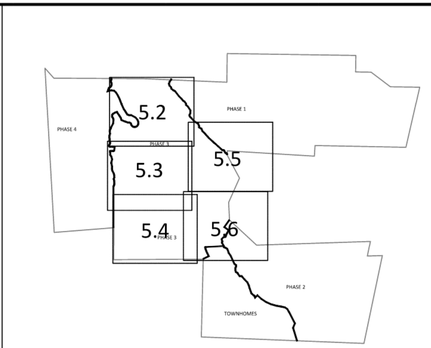
SHEET TITLE:
PHASE 3 SITE PLAN

SHEET NO.:
5.5

July 24, 2025
Z:\Jobs\9900\Watkins Property\Dwg_Working Dwgs\Phase 3\Sheet Files\Sheet No. 5.5 & 6 Phase 3 Site Plan.dwg

Docusign Envelope ID: 878CFF05-B777-4452-AA9B-79B9751AB04E





GRAPHIC SCALE 1"=1000'

SETBACK TABLE SINGLE FAMILY

	50'	50' W ALLEY	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'	25'
REAR	20'	15'	20'	25'	25'	25'	30'
SIDE	**	**	**	*	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	10,400	14,000

* AGGREGATE 12', MIN. 5'
** MIN. 3' AGGREGATE 10'

GENERAL NOTE:

1. SIGHT DISTANCE TRIANGLES ARE 10'x70'. WHERE SIGHT LINES ENCROACH ONTO A PRIVATE LOT A SIGHT EASEMENT IS REQUIRED.
2. BACK OF CURB RADIUS AT INTERSECTIONS-
   RESIDENTIAL-RESIDENTIAL- 28'
   RESIDENTIAL-COLLECTOR- 30'
   COLLECTOR-COLLECTOR- 30'
   ENTRANCE AT CUL-DE-SAC- 32.5
   ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND	
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGEEASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
MK	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 038170 ENGINEER JOHN R. HARMAN 7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES
4	3/11/2025	CONSTRUCTION DRAWING COMMENT RESPONSES
5	4/28/2025	WAKE COUNTY COMMENT RESPONSES

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

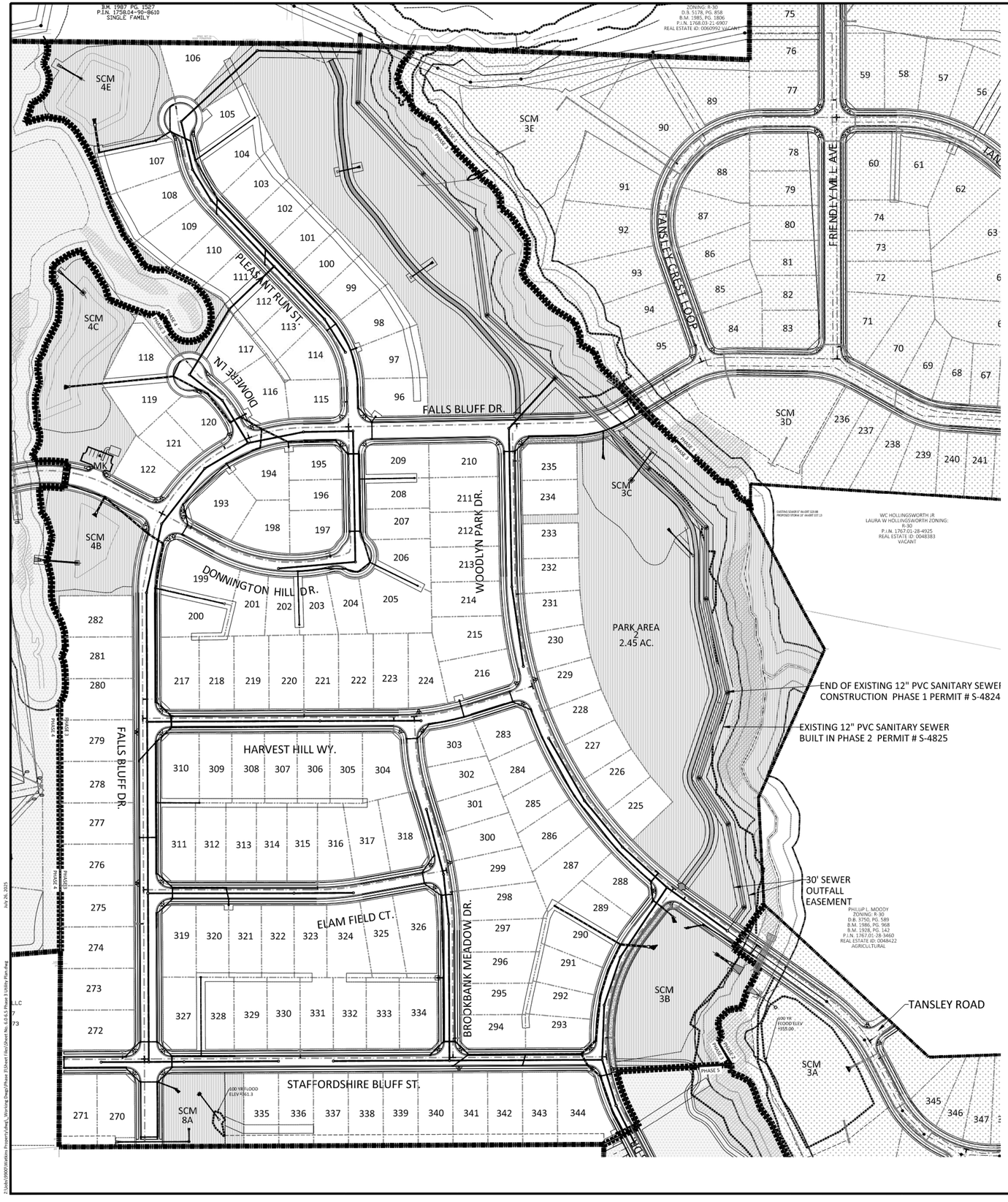
SHEET TITLE:
PHASE 3 SITE PLAN

SHEET NO.:
5.6

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\9900\Watkins Property\dwg_Working Dwgs\Phase 3\Sheet Files\Sheet No. 5.5\5.6 Phase 3 Site Plan.dwg
July 24, 2025

Docusign Envelope ID: 7AC7ED87-6B2D-454D-81F7-2D092E4DF85F



NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
W W	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

ATTENTION CONTRACTORS

The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Inspector at 919-996-3245 or https://cityworks.raleighnc.gov/pucontractors/New and schedule a Pre-construction meeting prior to beginning any construction.
Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

Failure to notify the Divisions 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.

GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch =120

Public
Sewer Collection / Extension System
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-5617

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

City of Raleigh
Public Utilities Department Permit # W-4213

North Carolina 811 Know what's below. Call before you dig.
*** 3 Days Before Digging ***
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811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL SEAL
Signed by: John R. Harman
ENGINEERING
JOHN R. HARMAN
7/28/2025

NO.	DATE	REVISION:
1	7/21/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SM/MA/LL/ES/AH/DH
DATE:	NOV 1, 2024

SHEET TITLE:
PHASE 3 OVERALL UTILITY PLAN

SHEET NO.:
6.0

J:\Jobs\9900\Kalas Property\Civil_Working Dwgs\Phase 3\Sheet Files\Sheet No. 6.0 & Phase 3 Utility Plan.dwg
July 26, 2025