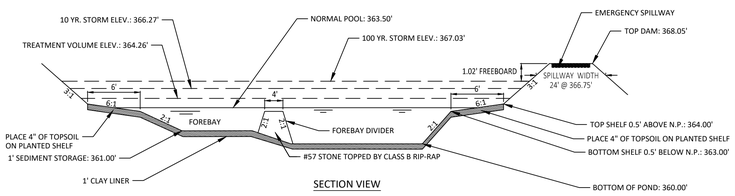
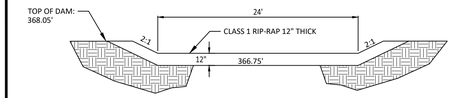


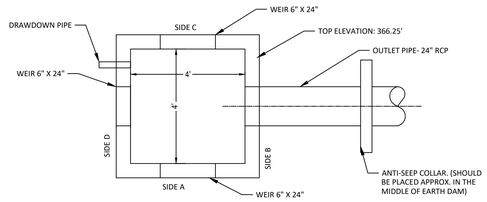
SECTION VIEW

NOTES:
1. SEE SHEET 2.0 FOR SCM CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

01 RETENTION POND
NTS

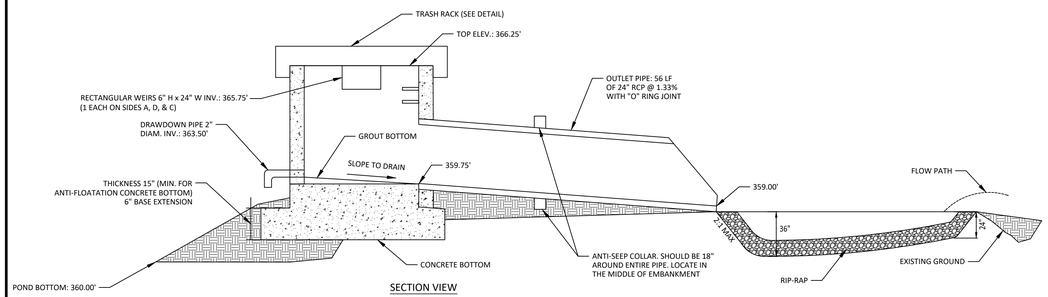


02 EMERGENCY SPILLWAY SECTION
NTS



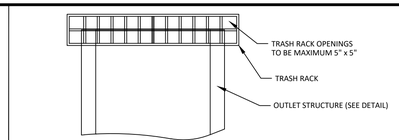
PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. 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.
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.



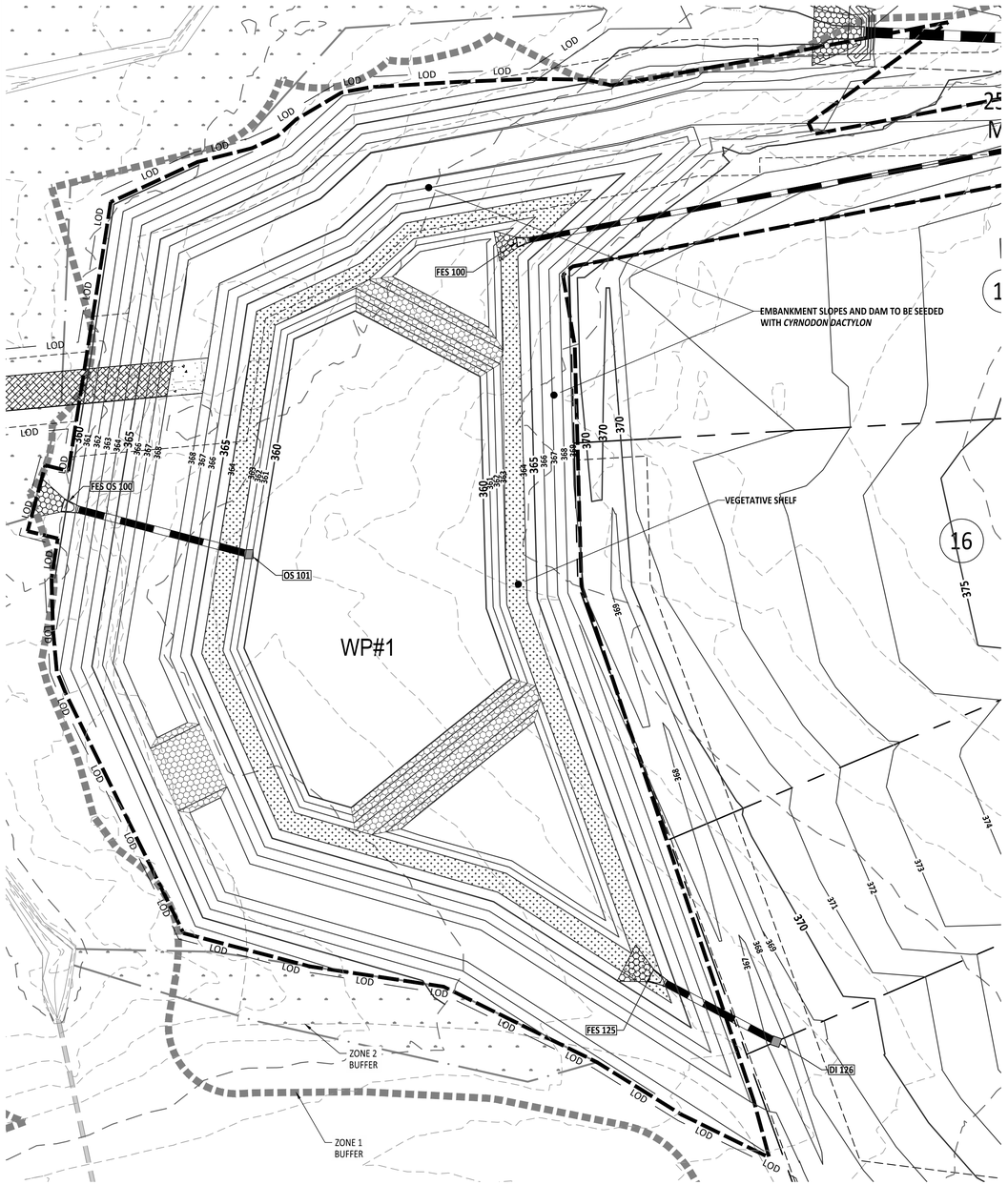
SECTION VIEW

04 OUTLET STRUCTURE #1
NTS



NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. 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.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

03 TRASH RACK
NTS



PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(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

LANDSCAPE PLAN:
VEGETATED SHELF= 3,503 sf (USE 876 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

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

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 ENGINEERING CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
26528
JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWINGS
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWINGS
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWINGS
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWINGS

STIPULATION FOR REUSE

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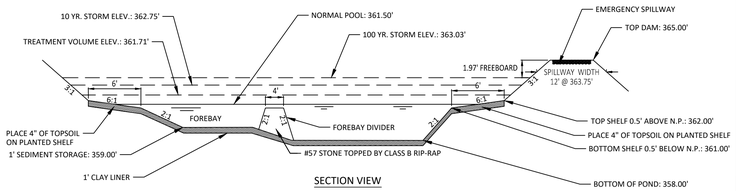
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SCM 1

SHEET NO.:
C8.0

July 16, 2025
Z:\Job\21-002 Moody Development Tract (R21000)\Dwg_Working Dwgs\Construction Set\8.0 & 8.1 SCM Plan.dwg



SECTION VIEW

NOTES:
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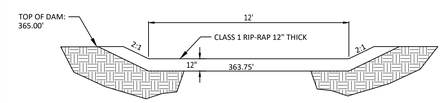
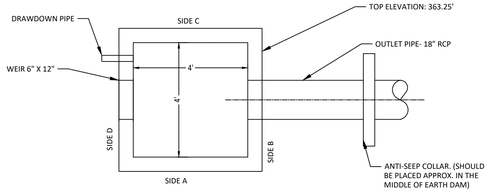
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

01 RETENTION POND
NTS



02 EMERGENCY SPILLWAY SECTION
NTS



PLAN VIEW

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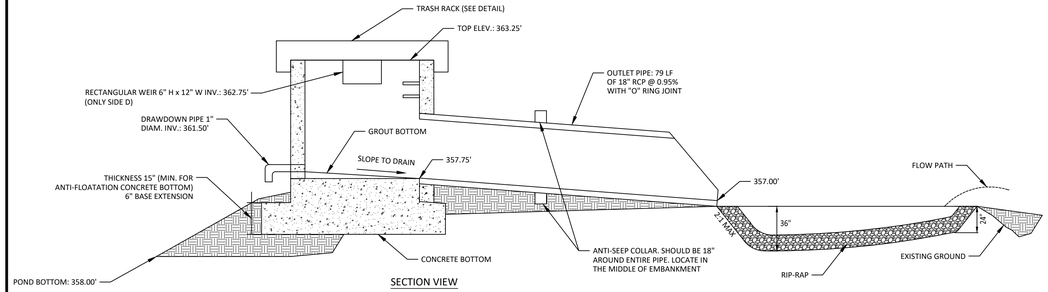
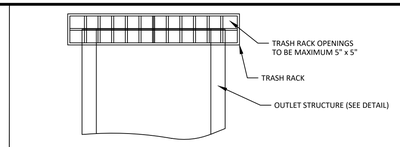


SECTION VIEW

04 OUTLET STRUCTURE #2
NTS



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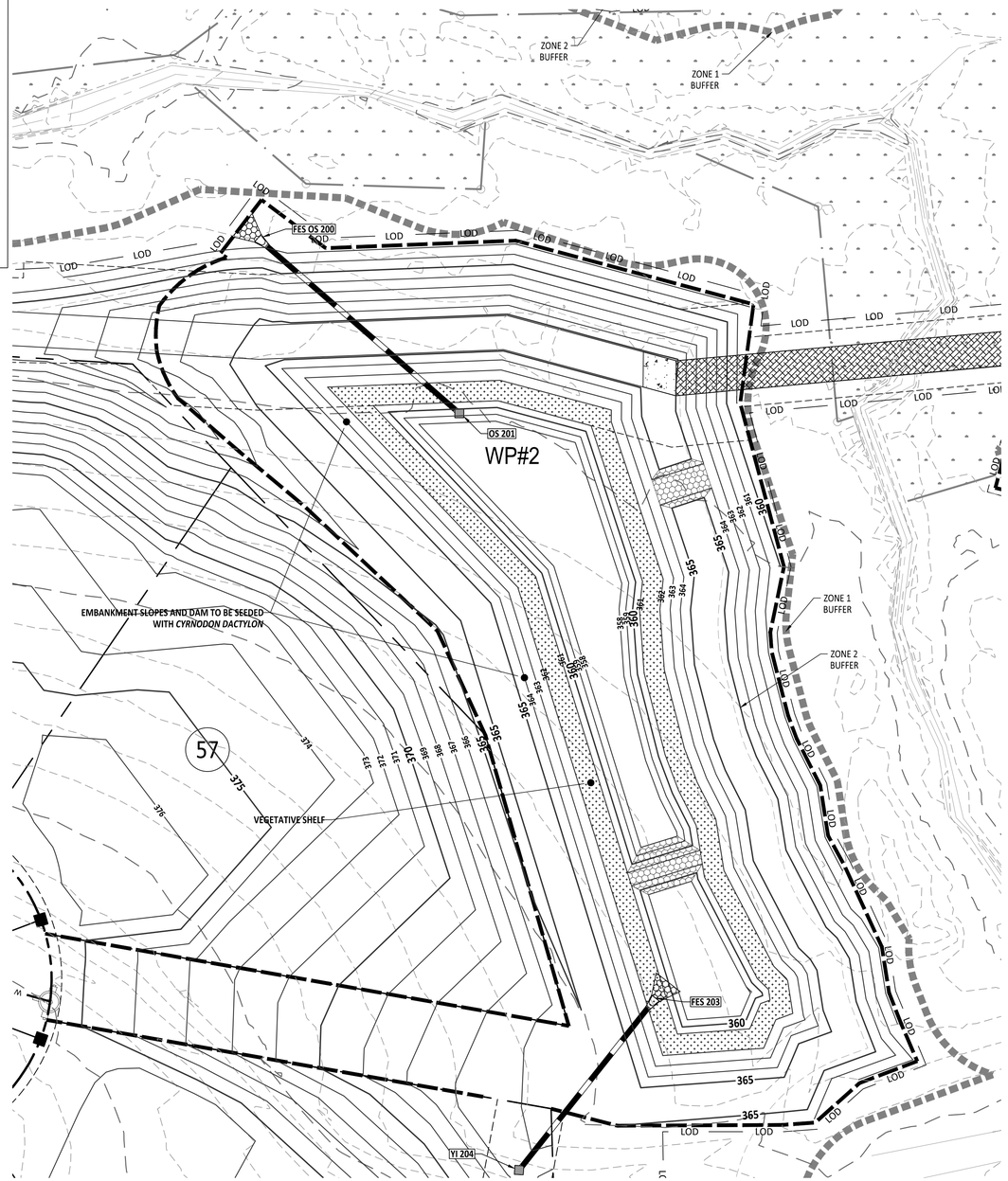
03 TRASH RACK
NTS



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CG CHELONE GLABRA WHITE TURTLEHEAD 4-6" POT @ 3' SPACING
LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3,100 sf (USE 775 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

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 450 919-469-1101
Raleigh, NC 27607

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

PRELIMINARY
DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
36528
JAROD P. NILES

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

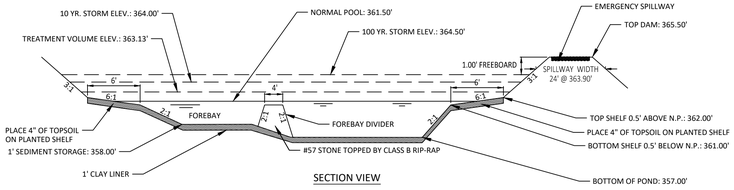
SHEET TITLE:
SCM 2

SHEET NO.:
C8.1

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

July 16, 2025

Z:\Jobs\21-002 Moody Development Trust (R210002)\Reg_Working Dwgs\Construction Set\8.0 & 1 SCM Plan.dwg



SECTION VIEW

NOTES:
1. SEE SHEET 2.0 FOR SCM CONVERSION SEQUENCE.
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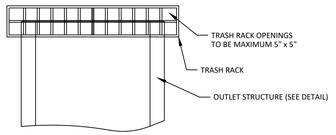
01 RETENTION POND
NTS



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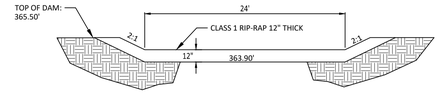
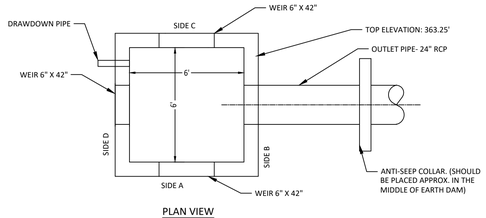
02 TRASH RACK
NTS



03 EMERGENCY SPILLWAY SECTION
NTS



PLAN VIEW

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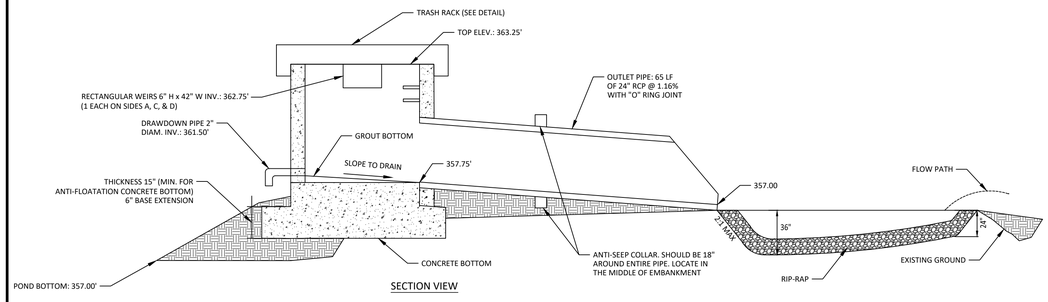
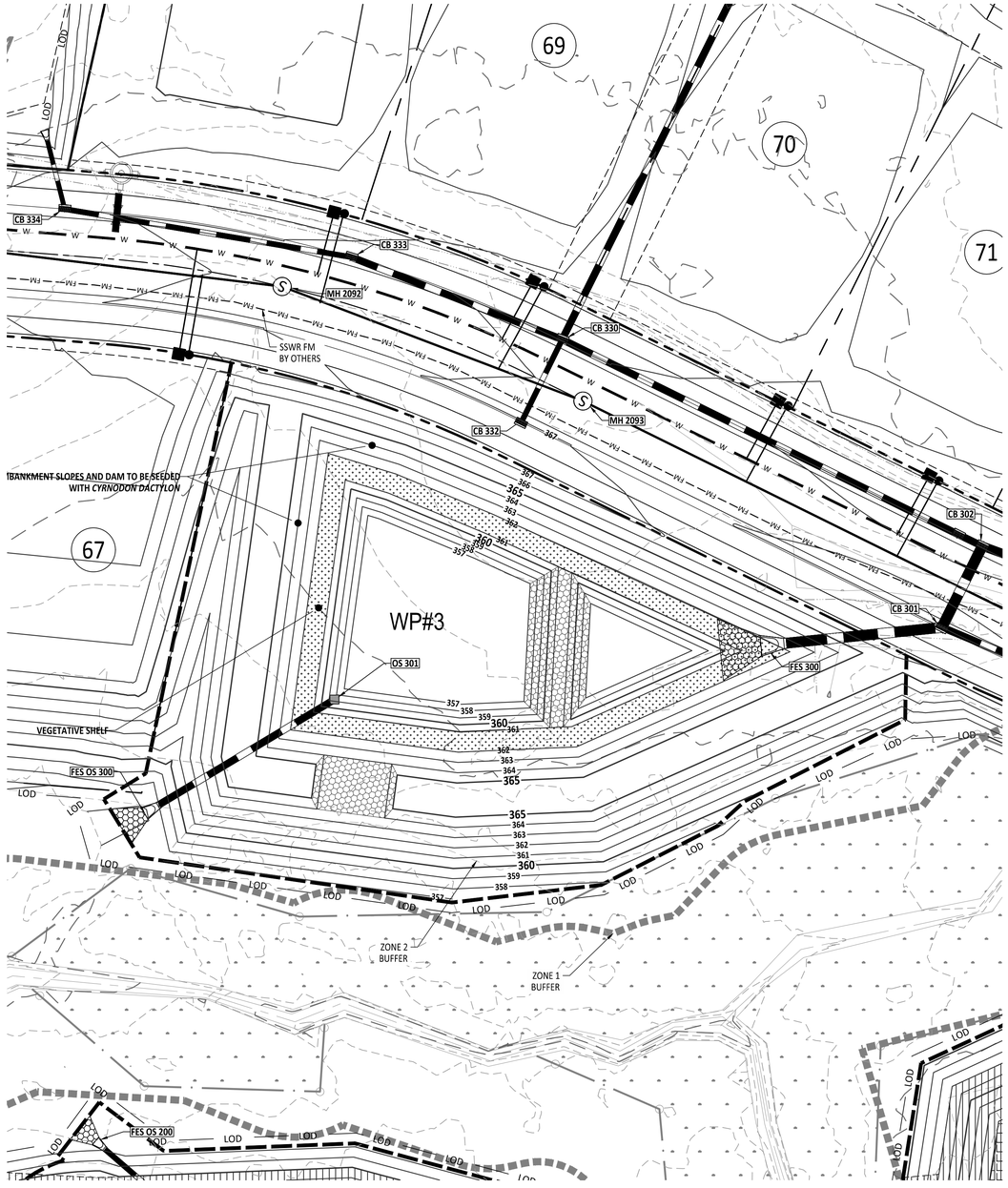


SECTION VIEW

04 OUTLET STRUCTURE #3
NTS



PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

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EF EUPATORUIM FISTRULOSUM JOE PYE WEED 4-6" POT @ 3' SPACING
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LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 2,109 sf (USE 528 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20

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

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA
PROFESSIONAL
053128
ENGINEER
JAKOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
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CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

SCM 3

SHEET NO.:

C8.2

North Carolina 811
*** 3 Days Before Digging ***
- North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
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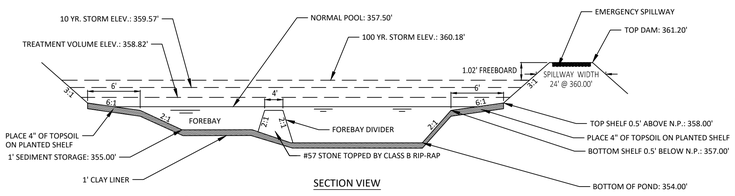
July 16, 2025

Z:\Jobs\21-002 Moody Development Tract 8210002\Dwg_Working Dwgs\Construction Set\8.0 & 1 SCM Plan.dwg



SECTION VIEW

NOTES:
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01 RETENTION POND
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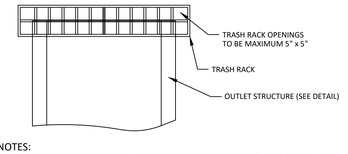

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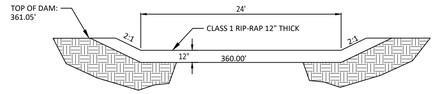
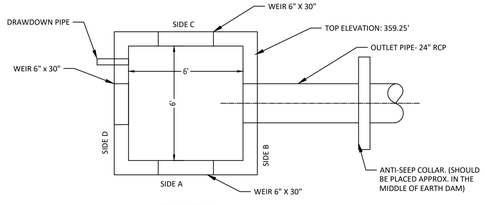
02 TRASH RACK
NTS



03 EMERGENCY SPILLWAY SECTION
NTS



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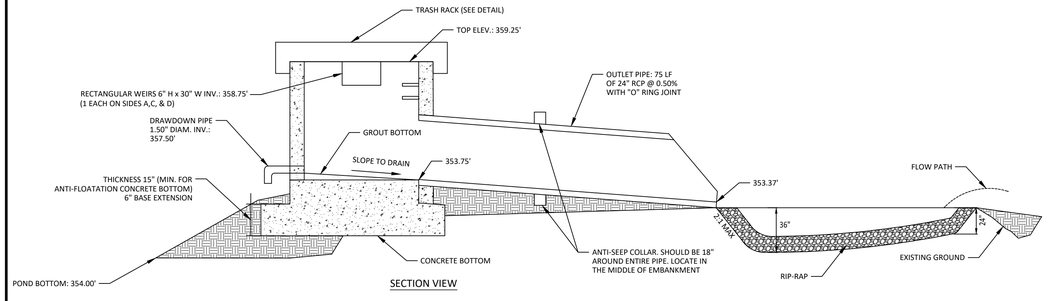
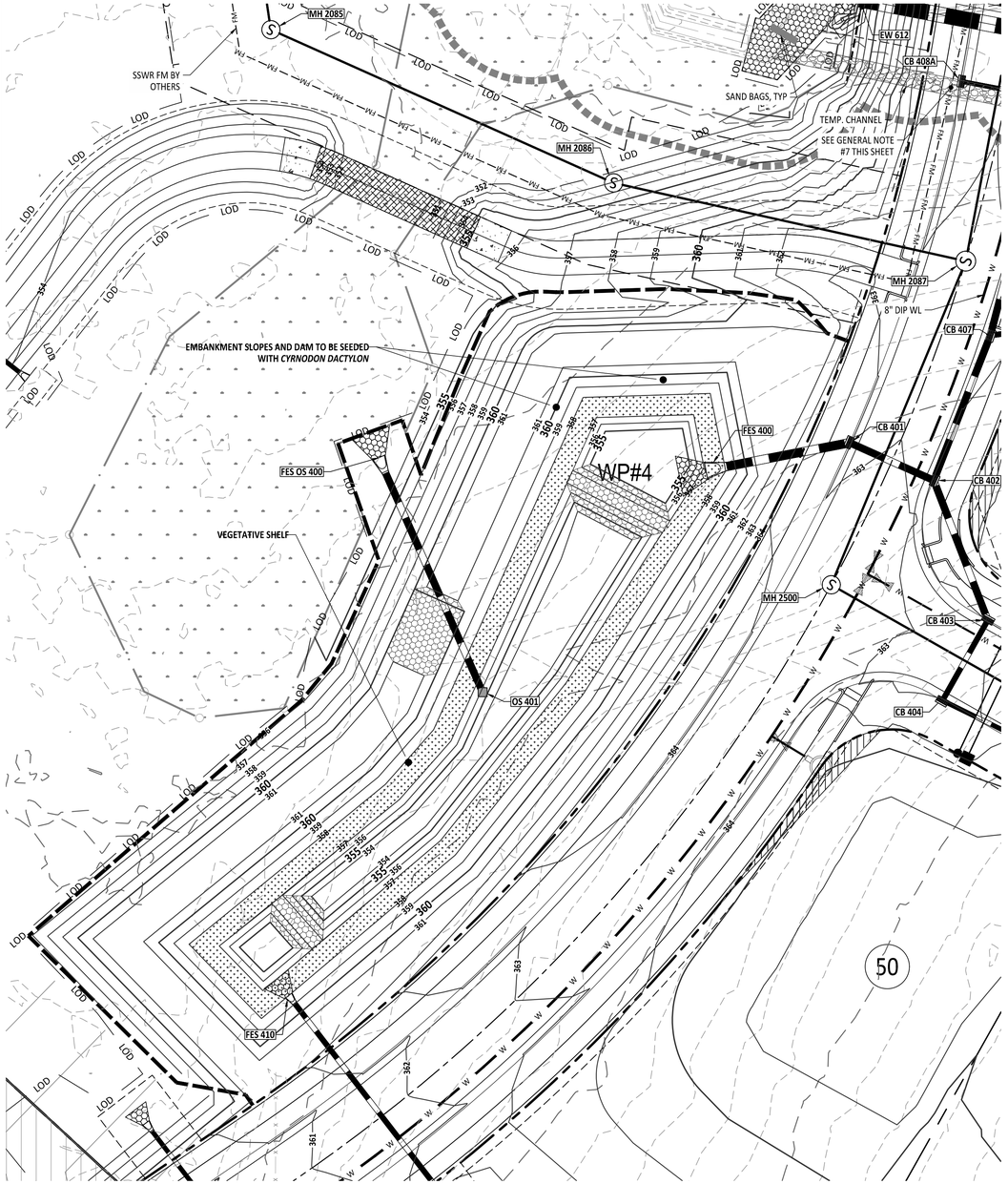


SECTION VIEW

04 OUTLET STRUCTURE #4
NTS



PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

VEGETATED SHELF
(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

LANDSCAPE PLAN:

VEGETATED SHELF= 2,890 sf (USE 723 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

GRAPHIC SCALE

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

North Carolina 811 Before You Dig
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North Carolina 811
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NORTH CAROLINA ENGINEERING CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

PRELIMINARY
NOT FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
053281
JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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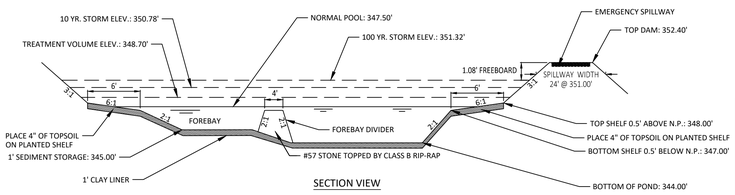
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SCM 4

SHEET NO.:
C8.3

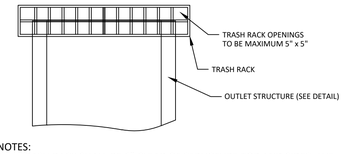
July 16, 2025
Z:\Jobs\21-002 Moody Development Tract (R2100019)\Dwgs_Working Dwgs\Construction Set\8.0-8.3 SCM Plan.dwg



SECTION VIEW

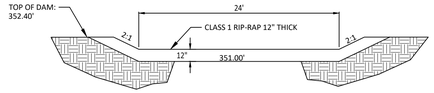
NOTES:
1. SEE SHEET 2.0 FOR SCM CONVERSION SEQUENCE.
2. FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.

01 RETENTION POND
NTS

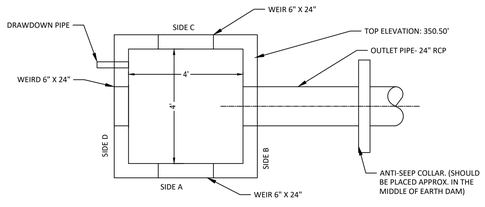


NOTES:
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
2. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
3. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
4. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
5. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

02 TRASH RACK
NTS



03 EMERGENCY SPILLWAY SECTION
NTS



PLAN VIEW

NOTES:
1. WALL THICKNESS AND REINFORCEMENT TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER.
2. 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.
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.
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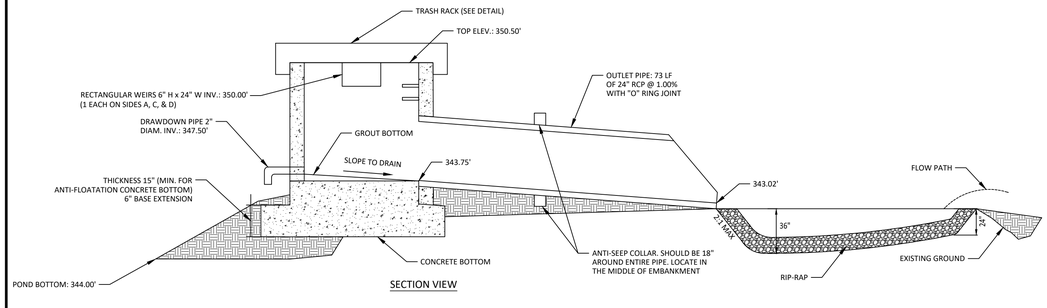
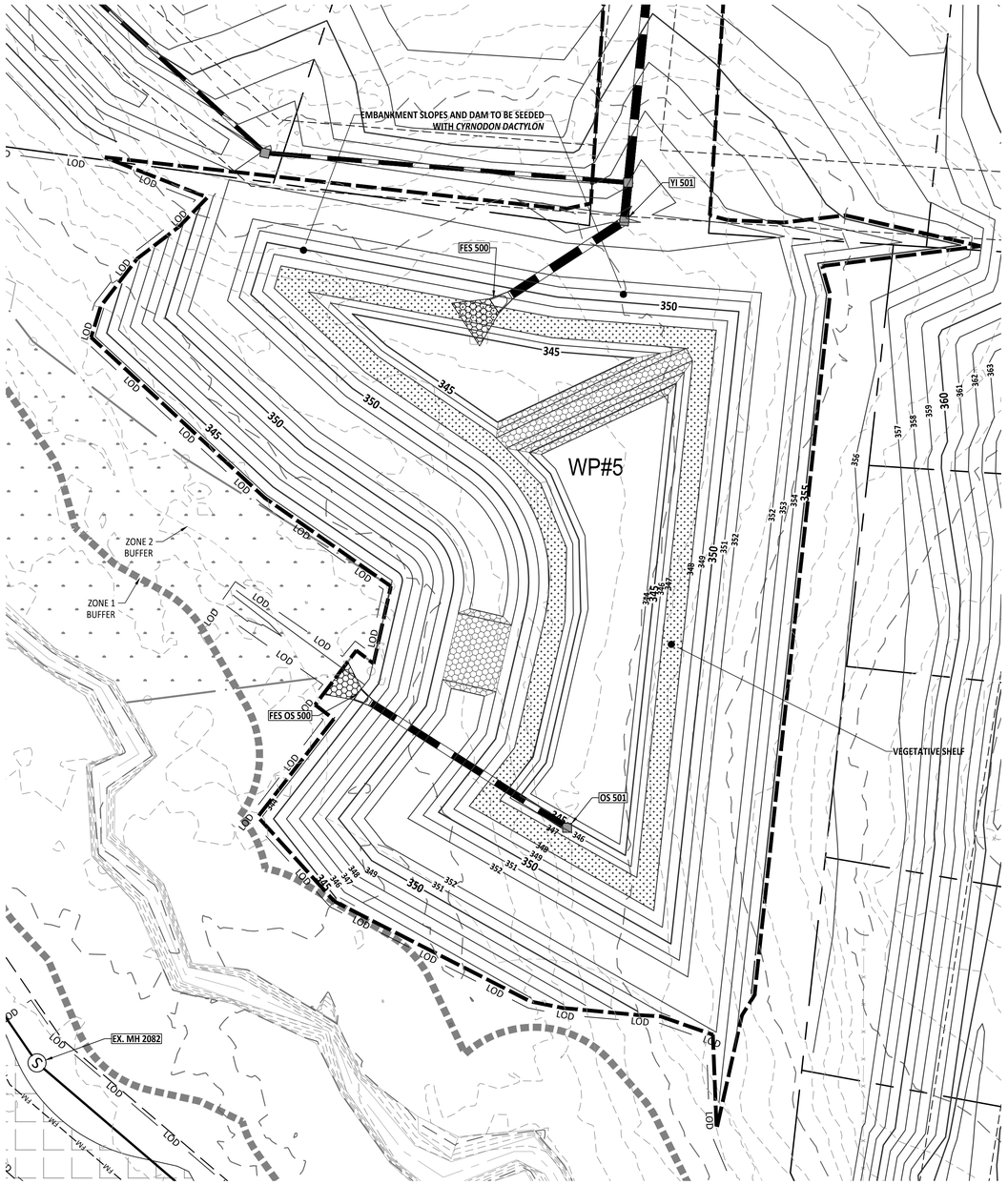


SECTION VIEW

04 OUTLET STRUCTURE #5
NTS



PLANT LIST VEGETATED SHELF PLANT SCHEDULE:

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LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

VEGETATED SHELF= 3172 sf (USE 793 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

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 AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER 053528 JACOB P. KLEIN

NO.	DATE	REVISION:
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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SCM 5

SHEET NO.:
C8.4

North Carolina 811 811.com
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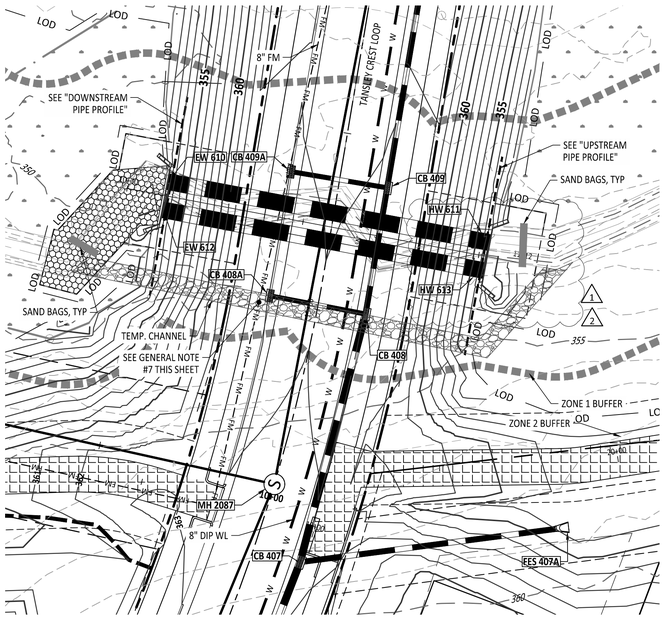
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 16, 2025
Z:\Jobs\21-002 Moody Development Tract (R21002)\dwg_Working Dwgs\Construction Set\8.0 & 8.1 SCM Plan.dwg

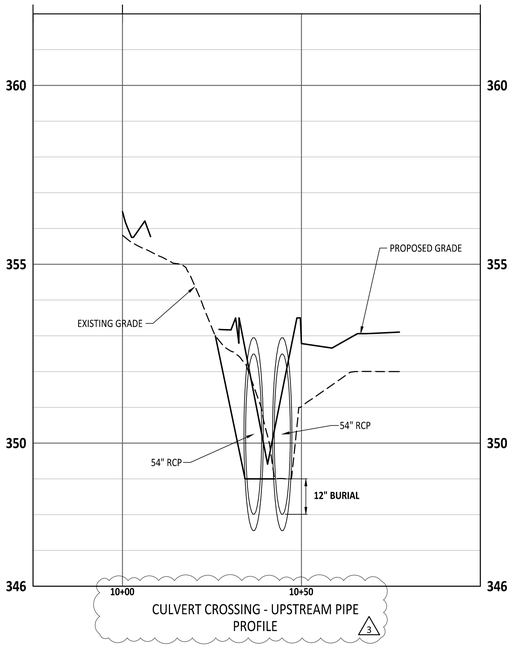


CULVERT CROSSING PLAN

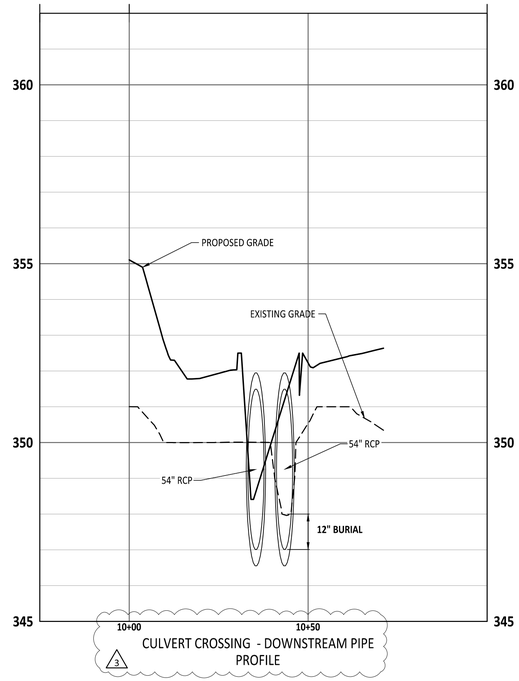
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20



CULVERT CROSSING - UPSTREAM PIPE PROFILE 3



CULVERT CROSSING - DOWNSTREAM PIPE PROFILE 3

CULVERT CROSSING PROFILE

SEQUENCE FOR 54" RCP CULVERT CROSSING

STAGE 1A CREEK CROSSING INSTALLATION

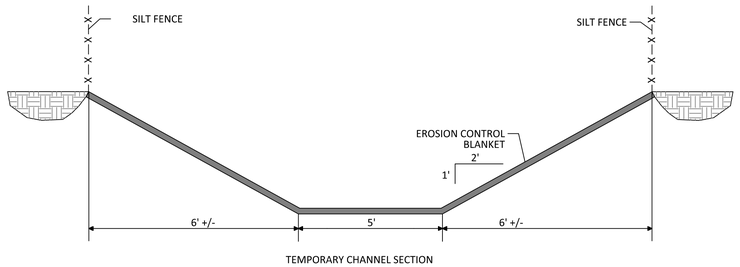
1. CONDUCT MEETING WITH WAKE COUNTY INSPECTOR PRIOR TO PROCEEDING WITH THE STREAM CROSSING CONSTRUCTION.
2. INSTALL THE BYPASS CHANNEL AS SHOWN WITH LINING LEAVING A PORTION OF THE STREAM BANK ON EACH END TO ACT AS A DAM TO PREVENT WATER FLOW DURING CONSTRUCTION OF THE CHANNEL. **(STEPS 3 - 9 SHOULD BE ACCOMPLISHED DURING ONE WORKDAY)**.
3. DURING A PERIOD OF DRY WEATHER REMOVE THE DOWNSTREAM DAM FIRST AND CONSTRUCT THE REMAINDER OF THE CHANNEL TO THE EXISTING STREAM BED.
4. REMOVE THE UPSTREAM DAM AND CONSTRUCT THE REMAINDER OF THE CHANNEL ON THAT END INCLUDING LINING.
5. ADD SANDBAGS ACROSS THE STREAM AT THE UPSTREAM END TO FORCE THE STREAM FLOW INTO THE BY-PASS CHANNEL.
6. ADD SANDBAGS ACROSS THE DOWNSTREAM END OF THE STREAM JUST ABOVE THE POINT WHERE THE BY-PASS CHANNEL RE-ENTERS THE STREAM TO PREVENT FLOW INTO THE LOCATION OF THE PIPE TO BE INSTALLED.
7. INSTALL TEMPORARY HOSE AND PUMP TO ALLOW FOR PUMP AROUND. PUMPS TO BE USED AS NEEDED.
8. RELOCATE BRIDGE MAT OVER THE TEMPORARY BY-PASS CHANNEL.
9. 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. EXCAVATE AREA AS SHOWN AND INSTALL PIPE WITH HEADWALLS AND DOWNSTREAM RIP RAP AS SHOWN IN RIP-RAP CROSS-SECTION.
3. OBTAIN WAKE COUNTY APPROVAL OF THE PIPE INSTALLATION.

STAGE 1C CREEK CROSSING INSTALLATION

1. REMOVE TEMPORARY DAM ON DOWNSTREAM END.
2. REMOVE TEMPORARY DAM 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 OF THE BY-PASS CHANNEL AFTER REMOVING THE LINING.
5. REMOVE REMAINDER OF THE BY-PASS CHANNEL LINING AND FILL THE 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.
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.



TEMPORARY CHANNEL SECTION

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH WAKE COUNTY STANDARDS AND REGULATIONS.
2. THERE SHALL BE NO DISTURBANCE OUTSIDE THE LIMITS SHOWN ON THIS PLAN WITHOUT AN APPROVED PLAN AMENDMENT BY WAKE COUNTY.
3. ALL DISTURBED AREAS SHALL BE SEEDED PER THE TABLE.
4. PERMANENT GROUND COVER SHALL BE ESTABLISHED PER NPDES SEEDING SCHEDULE AT EITHER 7 DAYS OR 14 DAYS DEPENDING ON MEASURE AND SLOPE.
5. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SELF-INSPECTION LOG.
6. CUT AND FILL SLOPES THAT ARE 2:1 OR GREATER SHALL BE STABILIZED WITH PERMANENT SLOPE RETENTION DEVICES OR A SUITABLE COMBINATION OF PLANTING AND RETENTION DEVICES. SLOPES GREATER THAN 3:1 SHALL NOT BE STABILIZED WITH TURF GRASS BUT MUST BE STABILIZED WITH VEGETATION THAT REQUIRES MINIMAL MAINTENANCE: WEEPING LOVE GRASS, RED FESCUE, OR OTHER APPROVED VARIETY.
7. CONTRACTOR TO LOCATE EXISTING FORCE MAIN AND MAINTAIN ADEQUATE COVER WHEN ROUTING TEMPORARY CHANNEL.

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
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City of Raleigh
Public Utilities Department Permit # _____

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C-3881

PRELIMINARY
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NORTH CAROLINA PROFESSIONAL ENGINEER
JACOB P. KLEIN
053528

NO.	DATE	REVISION:
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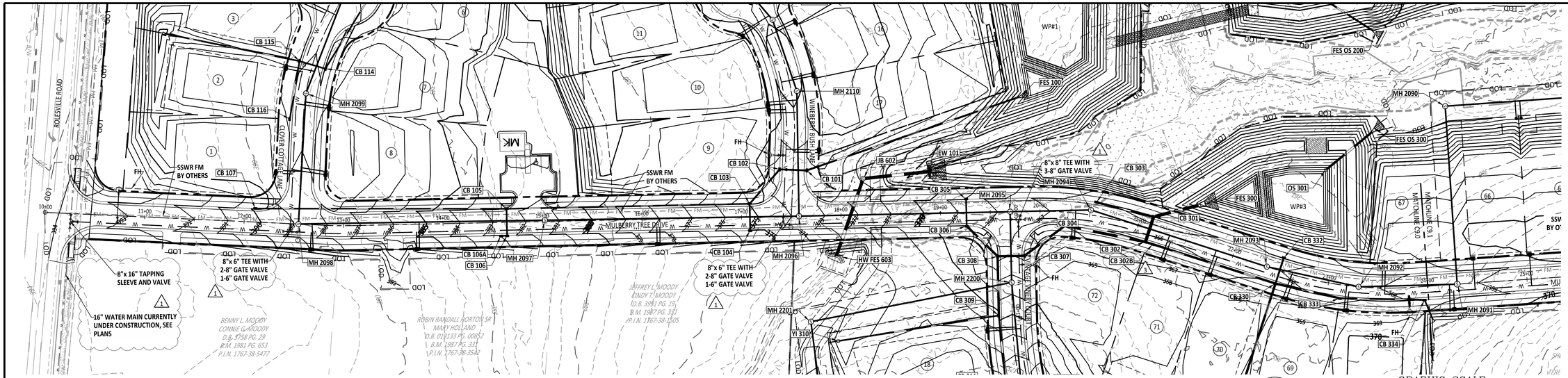
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
CULVERT CROSSING

SHEET NO.:
C8.5

Z:\Jobs-21-002 Moody Development Tract (8210023)\Dwgs_Working Dwgs\Construction Set\8.0 & 1 SCM Plan.dwg July 15, 2025



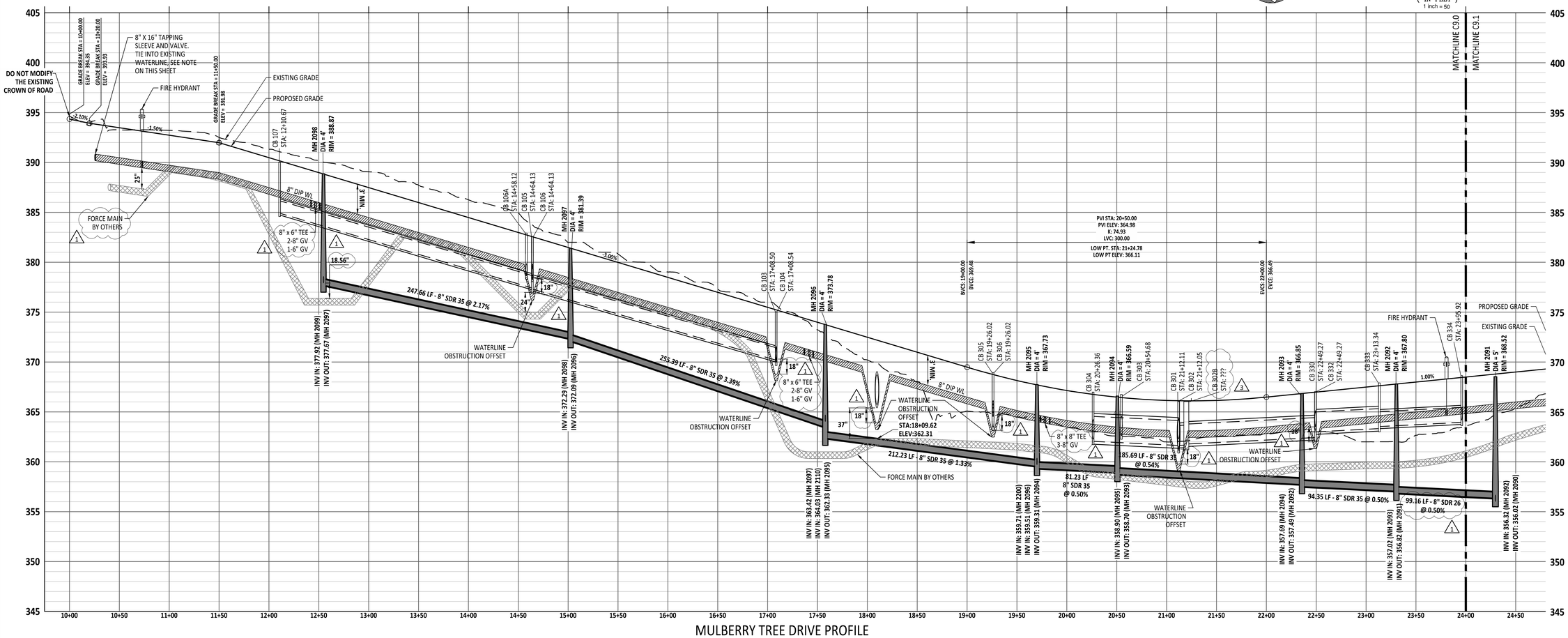
MULBERRY TREE DRIVE PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

NOTE:
1. CONTRACTOR TO CONFIRM LOCATION, DEPTH, SIZE, AND MATERIAL OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES TO AMERICAN ENGINEERING.



MULBERRY TREE DRIVE PROFILE

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City of Raleigh Public Utilities Department Permit # _____

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065157
JAMOB P. KLEIN

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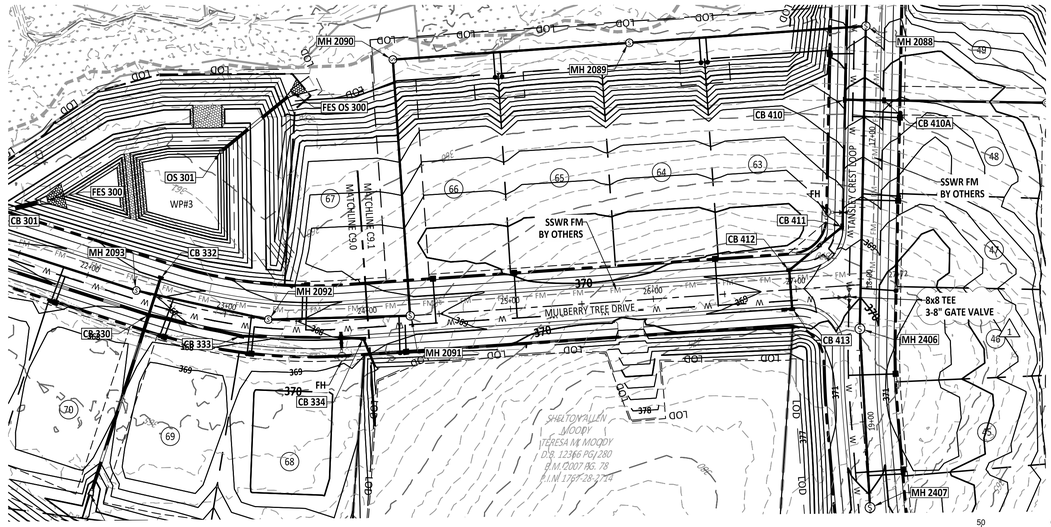
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
MULBERRY PLAN AND PROFILE

SHEET NO.:
C9.0

Z:\Jobs\21-002 Moody Development Tract (R21000)\Dwg_Working Dwgs\Construction Set\9.0 n 9.1 Mulberry Plan and Profile.dwg July 15, 2025



MULBERRY TREE DRIVE PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
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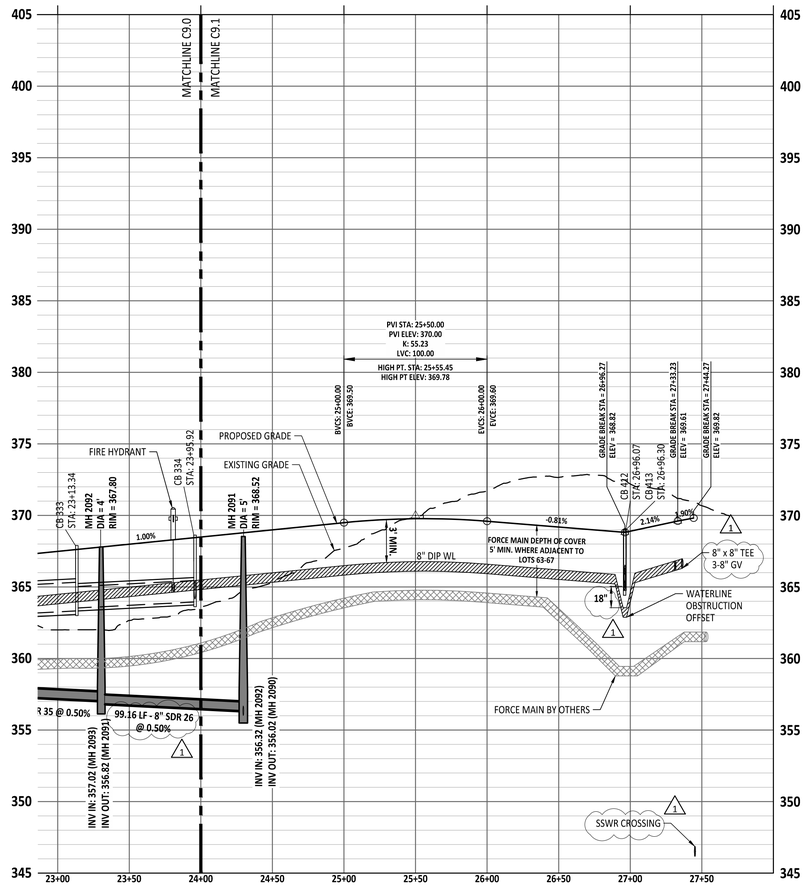

MULBERRY TREE DRIVE PROFILE

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CERTIFICATE OF AUTHORIZATION

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053.28
JAMES P. KLEIN

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1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
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3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

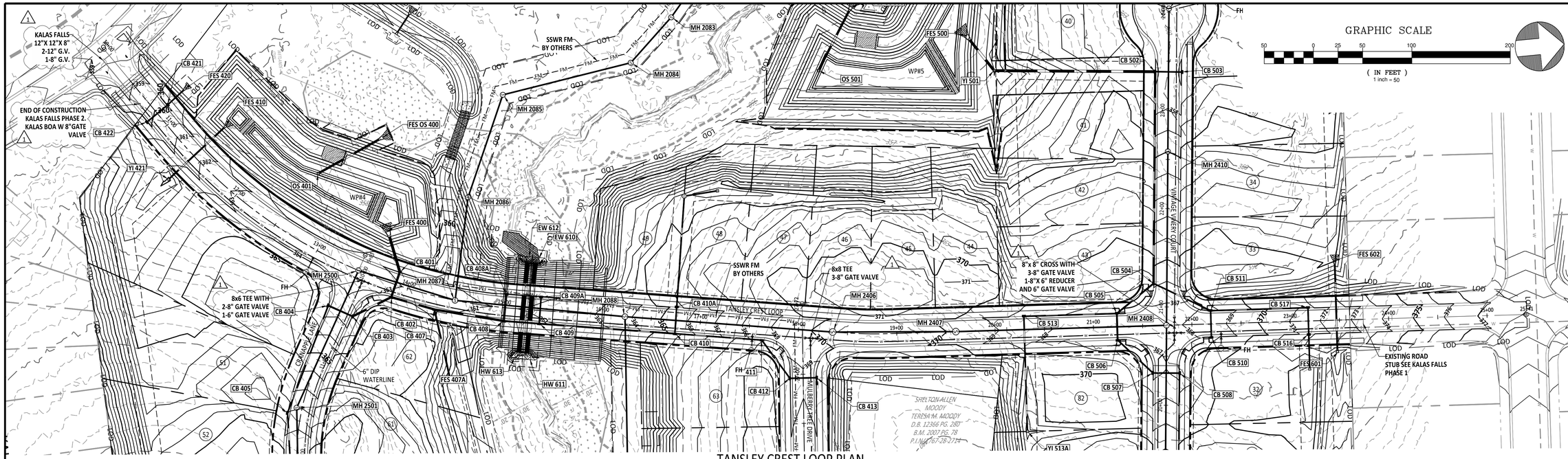
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

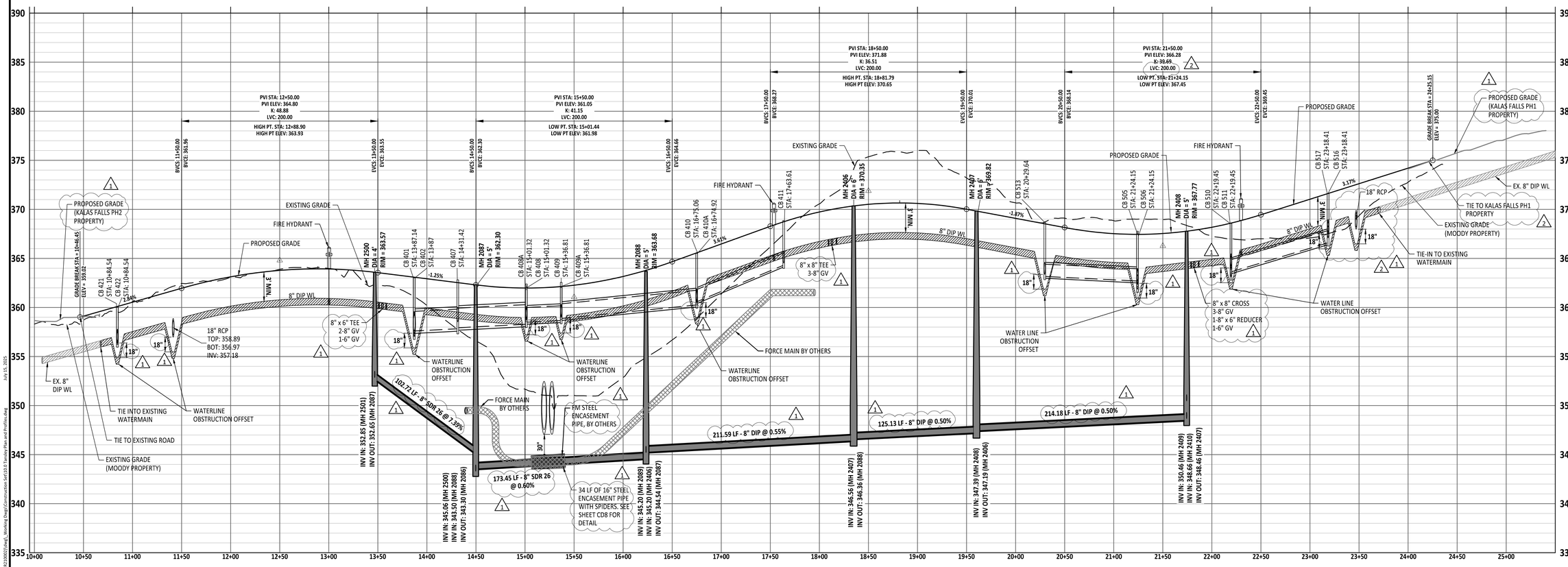
SHEET TITLE:
MULBERRY PLAN AND PROFILE

SHEET NO.:
C9.1

Z:\Jobs\21-002 Moody Development Tract\R21000\Civil_ Working Dwgs\Construction Set\C9.0 - 9.1 Mulberry Plan and Profiles.dwg July 15, 2025



TANSLEY CREST LOOP PLAN



TANSLEY CREST LOOP PROFILE

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 it's the law!
*** 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 053284 JACOB P. KLEIN

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

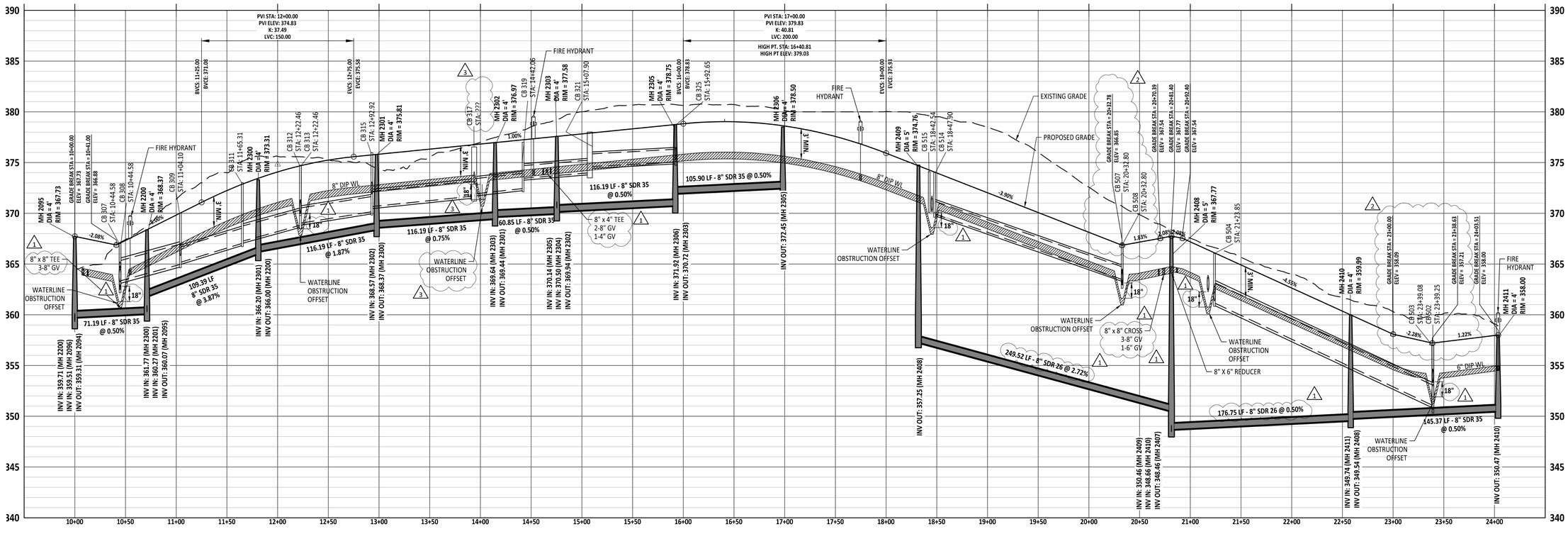
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
TANSLEY CREST LOOP PLAN AND PROFILE

SHEET NO.:
C10.0

July 15, 2025
Z:\Jobs\21-002 Moody Development Tract (8210002)\Dwg_Working Dwgs\Construction Set\10.0 Tansley Plan and Profiles.dwg

VINTAGE VINERY COURT PLAN



VINTAGE VINERY COURT PROFILE

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
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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 ENGINEERING CERTIFICATE OF AUTHORIZATION
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
JACOB P. KLEIN
065288

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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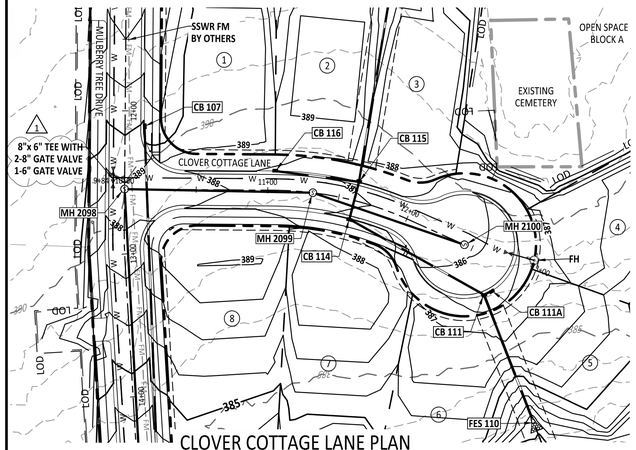
THE PRESERVE
AT
MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
VINTAGE VINERY CT PLAN AND PROFILE

SHEET NO.:
C11.0

Z:\Jobs\21-002 Moody Development Tract (R31600Z)\dwg_Working Dwgs\Construction Set\11.0 Vintage Winery Plan and Profile.dwg July 15, 2025

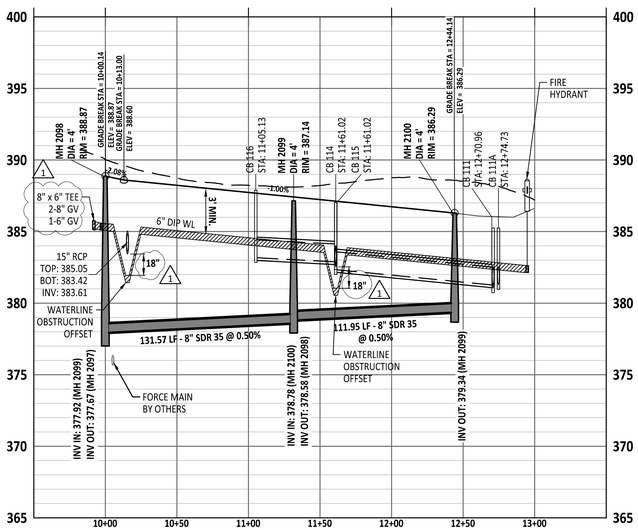


CLOVER COTTAGE LANE PLAN

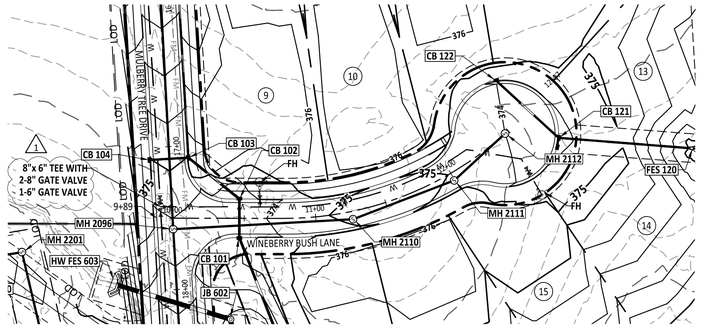
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



CLOVER COTTAGE LANE PROFILE



WINEBERRY BUSH LANE PLAN

GRAPHIC SCALE

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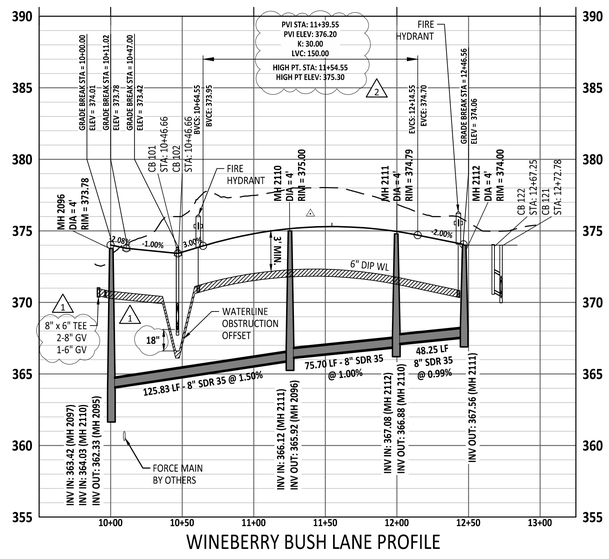
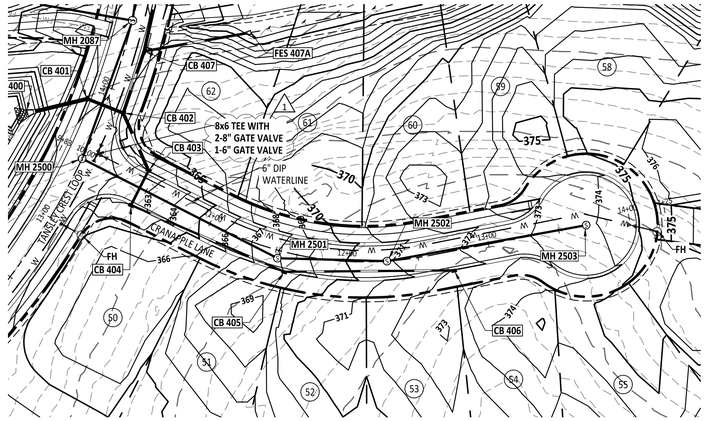
(IN FEET)
1 inch = 50



WINEBERRY BUSH LANE PROFILE

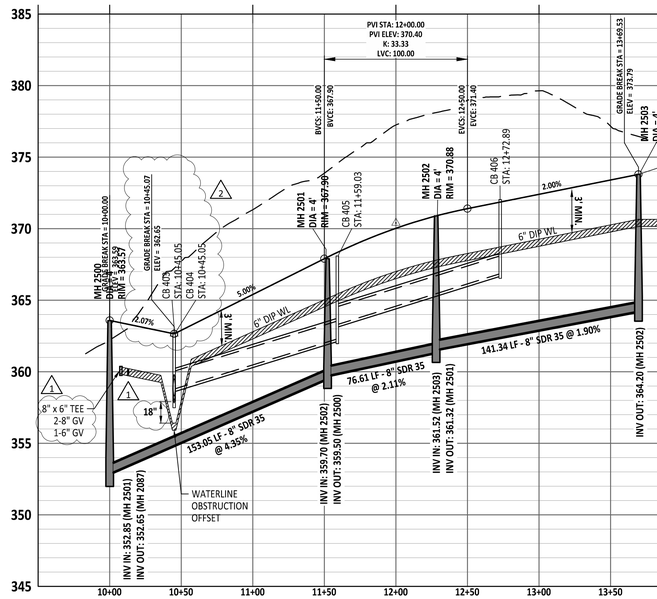


CRANAPPLE LANE PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



CRANAPPLE LANE PROFILE

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
053728
JAMES P. KLEIN

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

STIPULATION FOR REUSE

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THE PRESERVE
AT
MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
CUL-DE-SAC AND STUB PLAN AND PROFILES

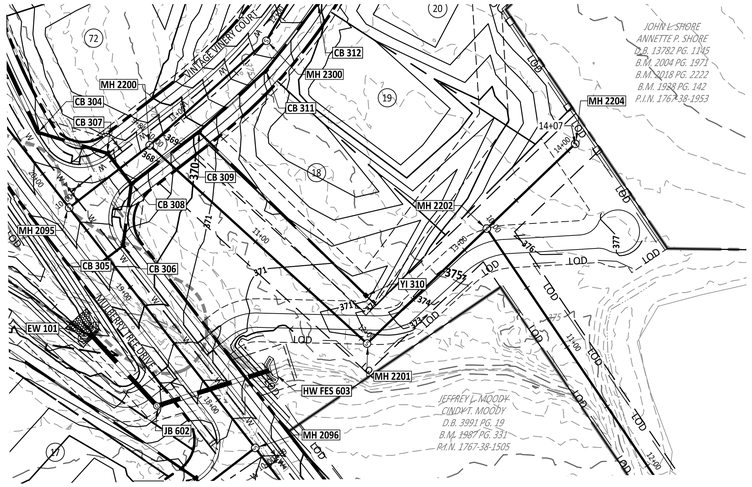
SHEET NO.:
C12.0

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 # _____

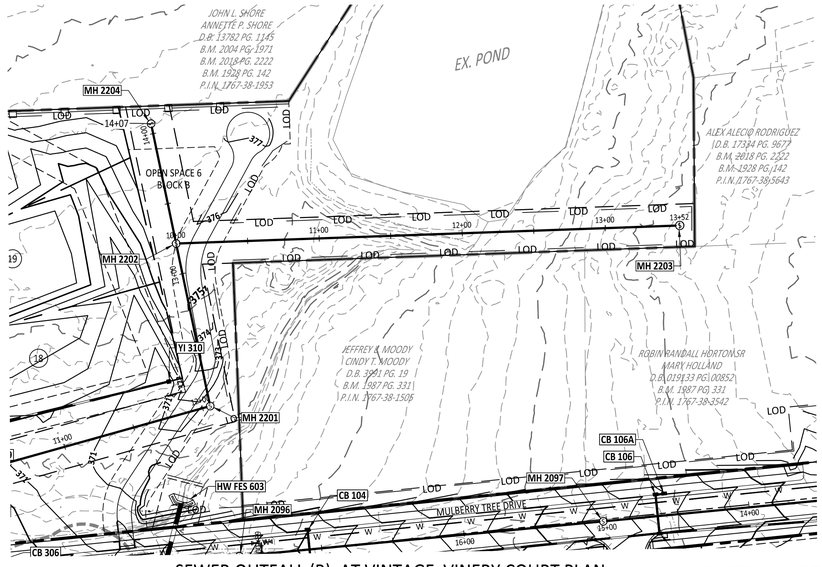
Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities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

Z:\Jobs\21-002 Moody Development Trust (#21100027)\Dwg_Working Dwgs\Construction Set\12.0 Cul-de-sac & StubPlan and Profiles.dwg July 15, 2025



SEWER OUTFALL (A) AT VINTAGE VINERY COURT PLAN

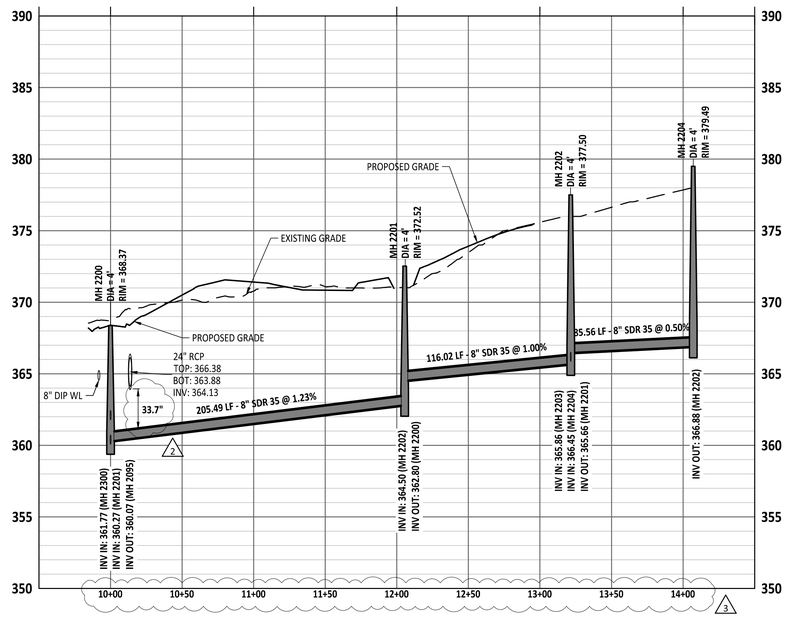


SEWER OUTFALL (B) AT VINTAGE VINERY COURT PLAN

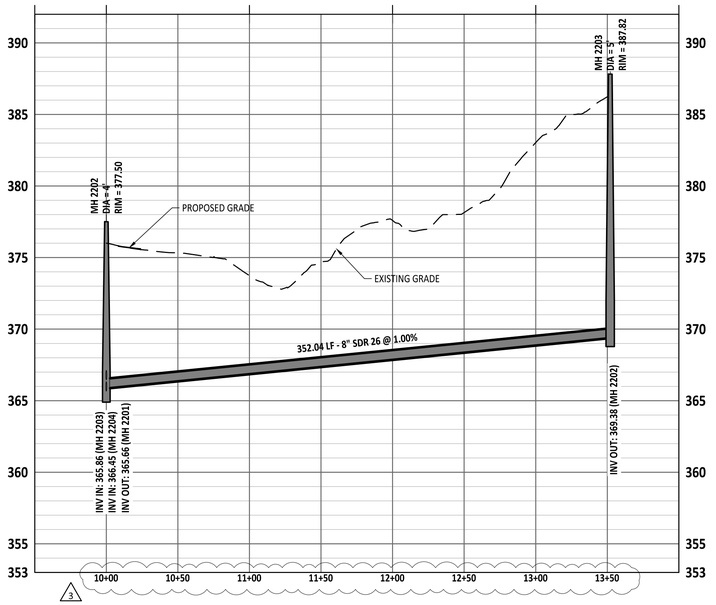
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



SEWER OUTFALL (A) AT VINTAGE VINERY COURT PROFILE



SEWER OUTFALL (B) AT VINTAGE VINERY COURT PROFILE

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
053128
JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
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4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

SEWER OUTFALL

SHEET NO.:

C13.0

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
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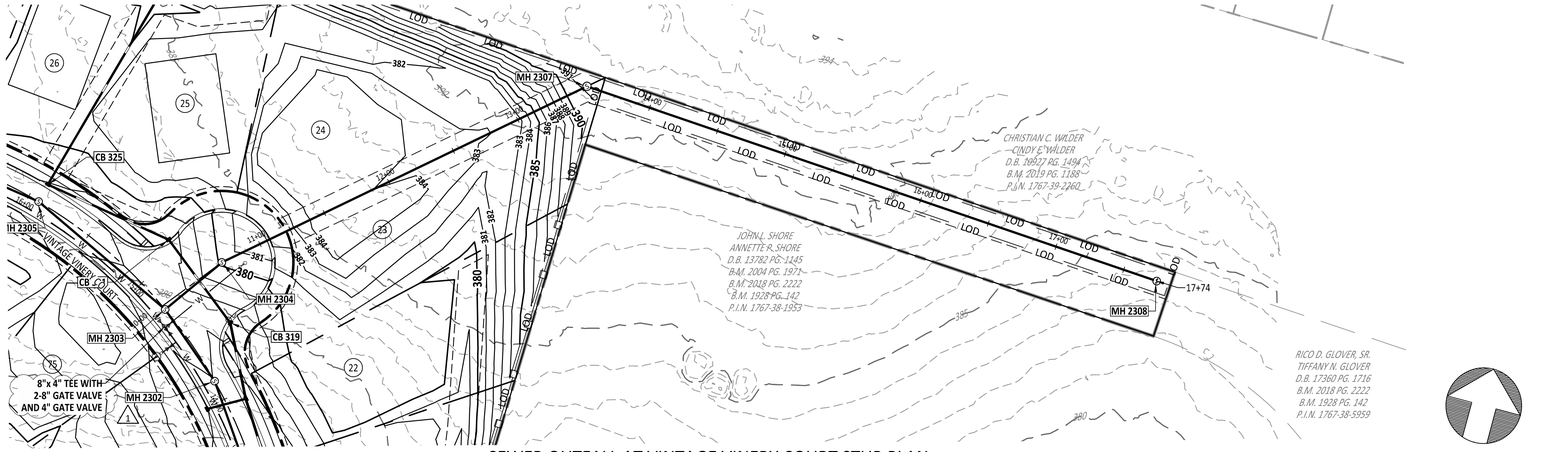
City of Raleigh
Public Utilities Department Permit # _____

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

Z:\Jobs\21-002 Moody Development Tract (8210007)\Dwg_Working Dwgs\Construction Set\13 Sewer Outfall Plan and Profile.dwg July 15, 2025

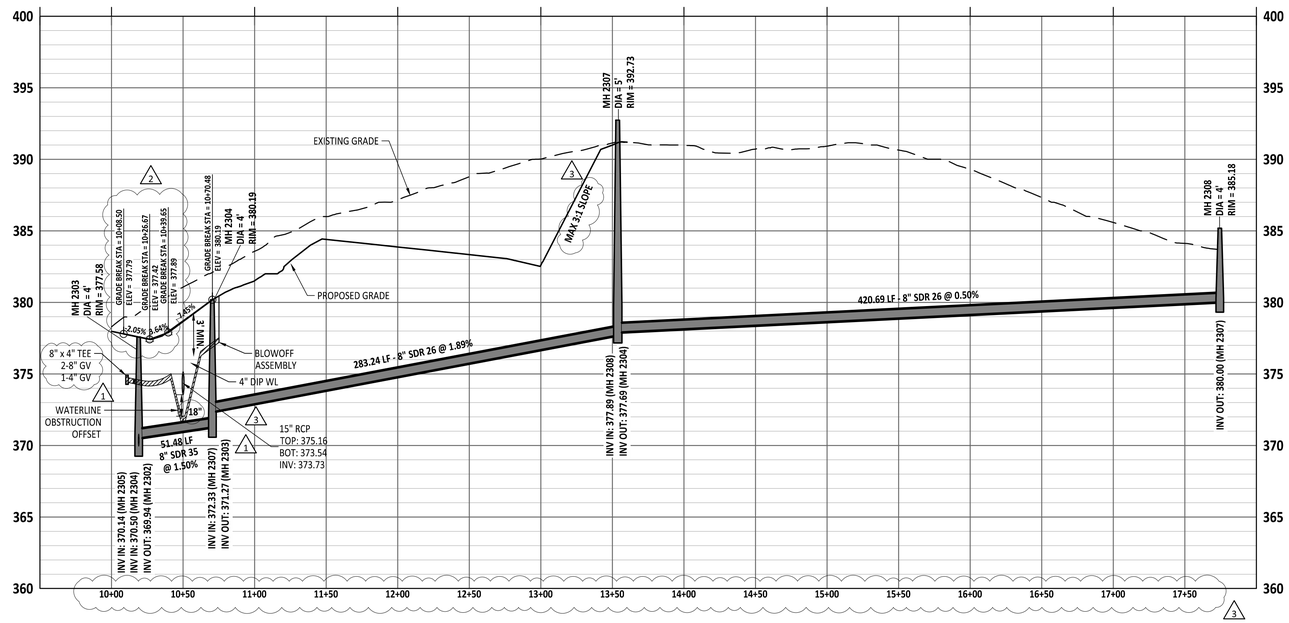


SEWER OUTFALL AT VINTAGE VINERY COURT STUB PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



SEWER OUTFALL AT VINTAGE VINERY COURT STUB PROFILE

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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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

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

SEWER OUTFALL

SHEET NO.:

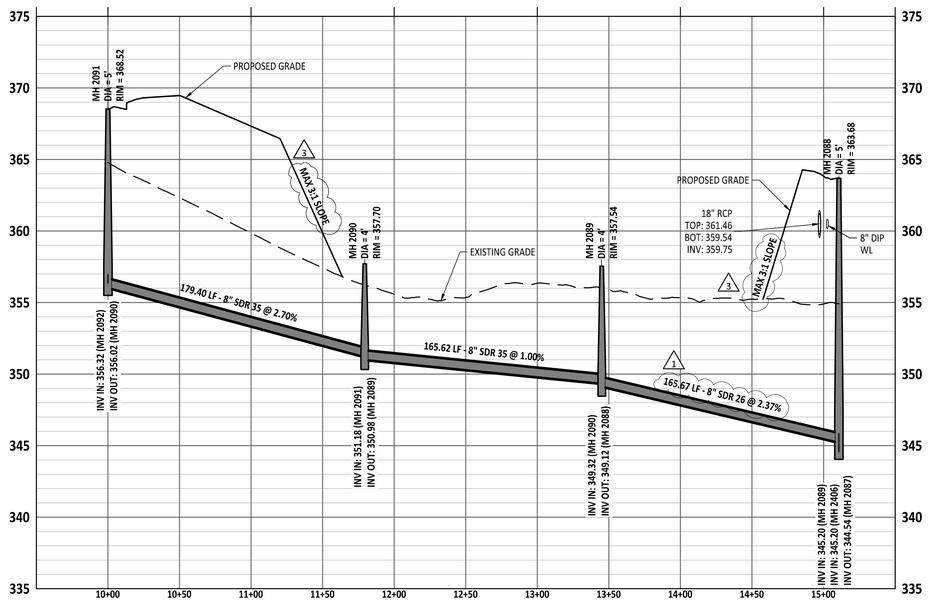
C13.1

SEWER OUTFALL AT MULBERRY AND TANSLEY PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



SEWER OUTFALL AT MULBERRY AND TANSLEY PROFILE

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
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA
PROFESSIONAL
053128
ENGINEER
JAMES P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
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STIPULATION FOR REUSE

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THE PRESERVE
AT
MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

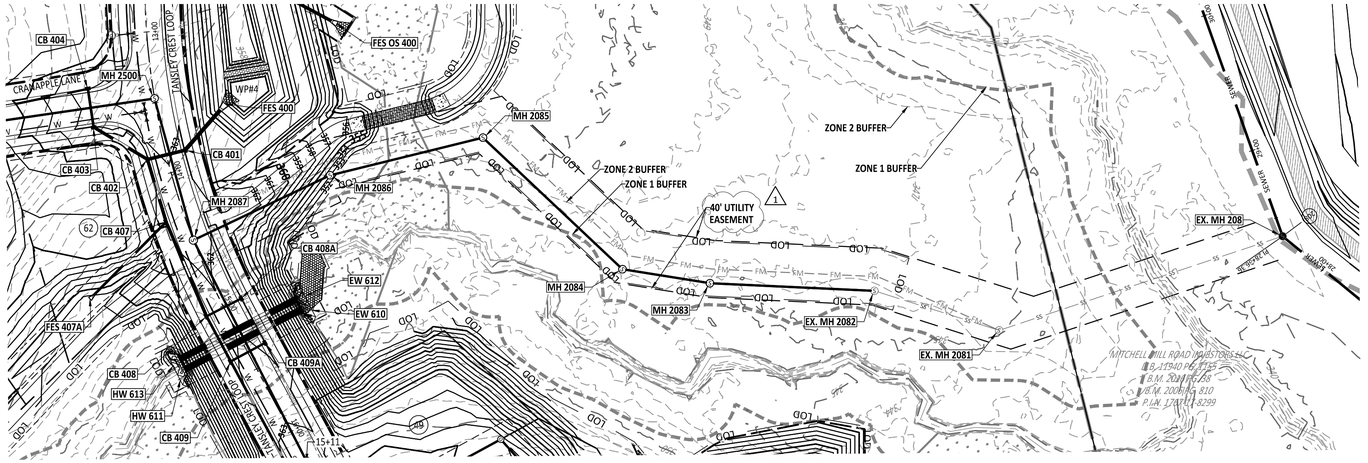
SHEET TITLE:

SEWER OUTFALL

SHEET NO.:

C13.2

Z:\Job\21-002 Moody Development Tract (8210003)\Engl_ Working Dwgs\Construction Set\C13.0 Sewer Outfall Plan and Profile.dwg July 15, 2025

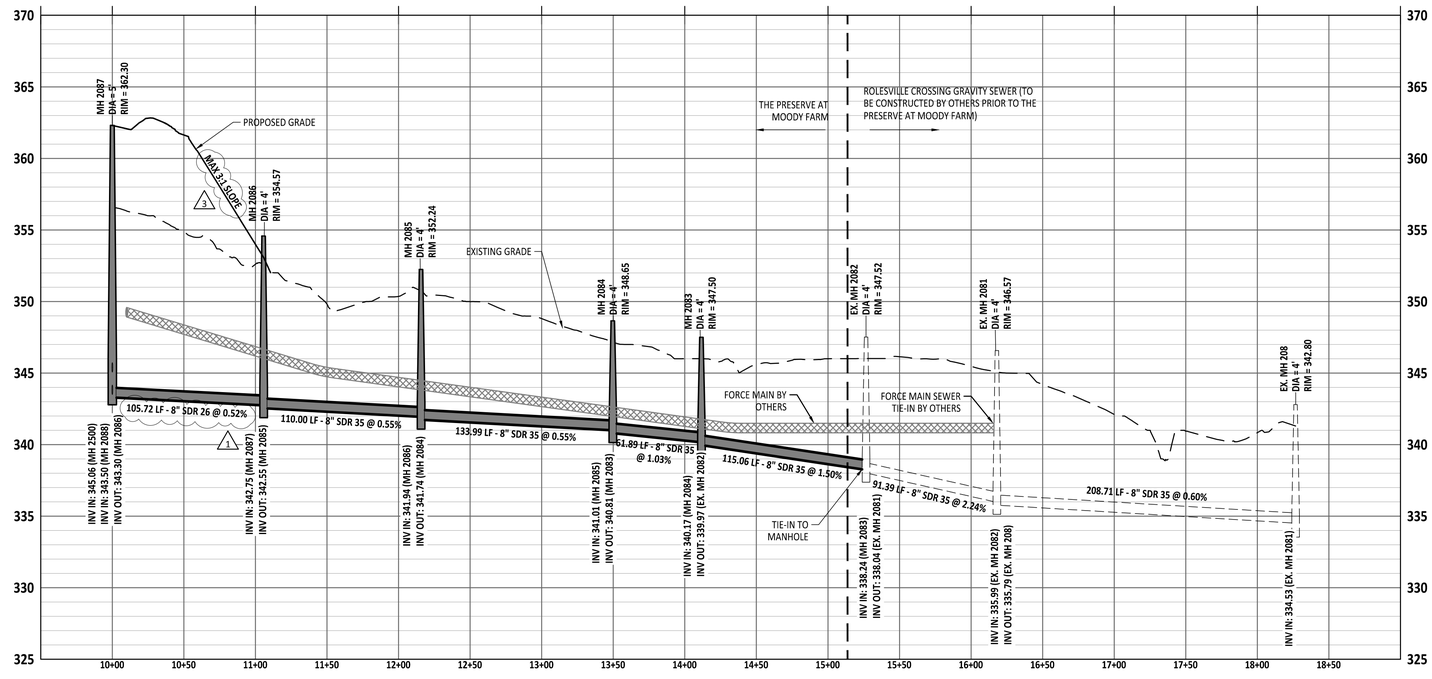


SEWER OUTFALL AT TANSLEY CREST LOOP (TIE-IN TO KALAS FALLS) PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50



SEWER OUTFALL AT TANSLEY CREST LOOP (TIE-IN TO KALAS FALLS) PROFILE

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
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City of Raleigh
Public Utilities Department Permit # _____

North Carolina 811
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North Carolina 811
811 or 1-800-632-4949
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NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA
053528
PROFESSIONAL ENGINEER
JACOB P. KLEIN

NO.	DATE	REVISION:
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4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

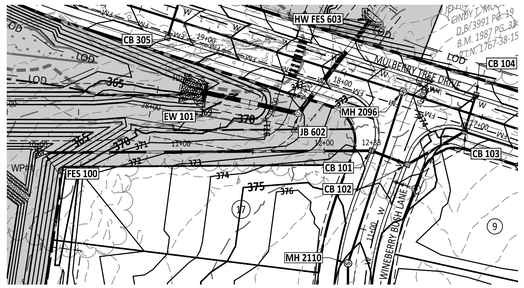
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

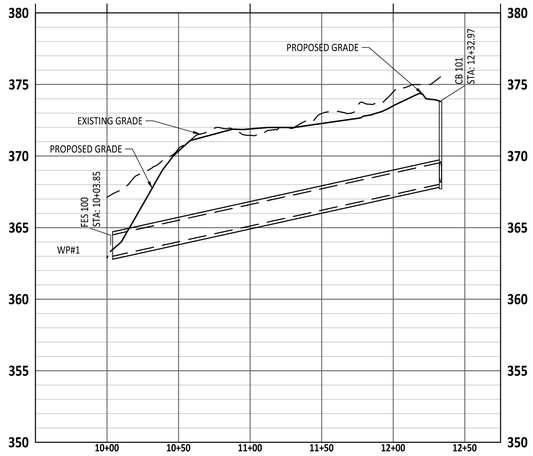
SEWER OUTFALL

SHEET NO.:
C13.3

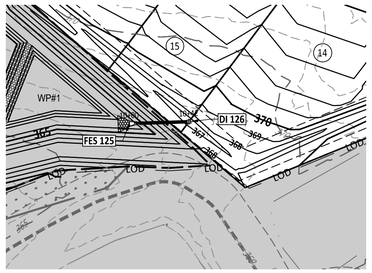
Z:\Jobs\21-002 Moody Development Tract (R21000)\Dwgs_Working Dwgs\Construction Set\13.0 Sewer Outfall Plan and Profile.dwg July 15, 2025



CB 101 TO FES 100 PLAN



CB 101 TO FES 100 PROFILE



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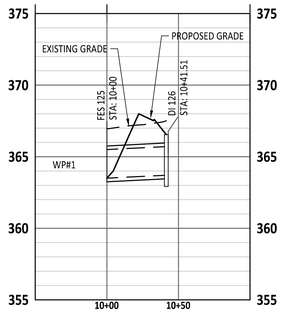

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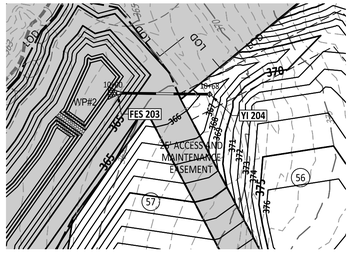

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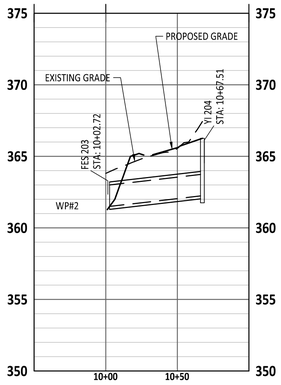

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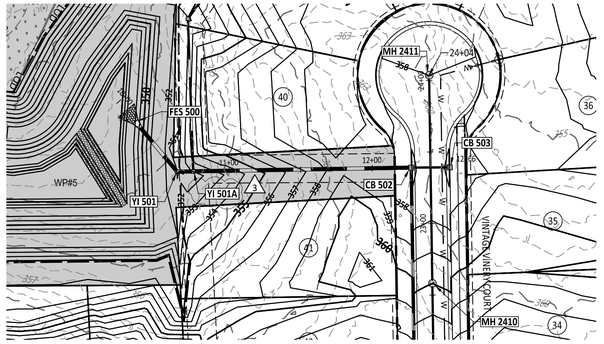

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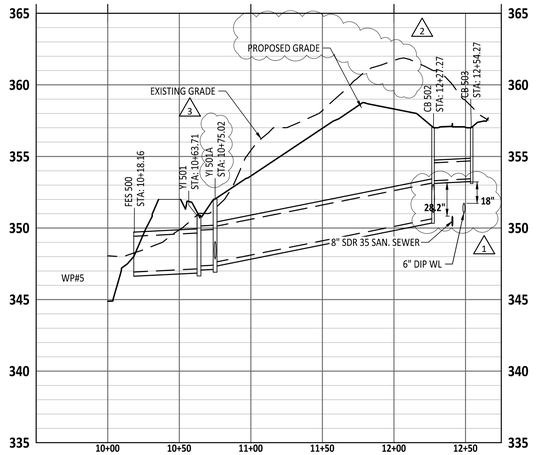
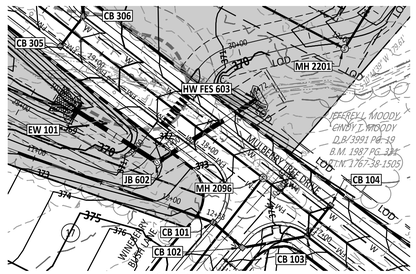


CB 503 TO FES 500 PROFILE



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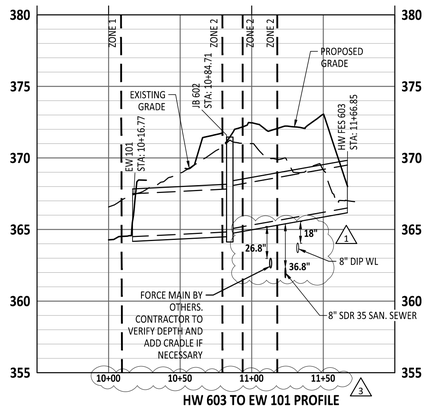
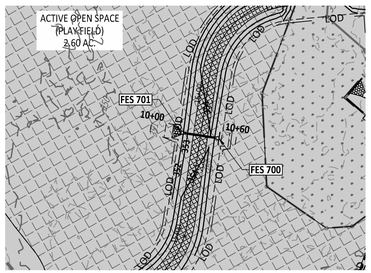
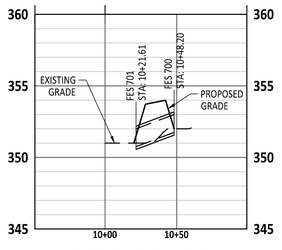


HW 603 TO EW 101 PROFILE



FES 700 TO FES 701 PLAN



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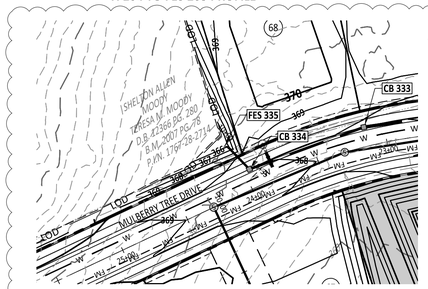
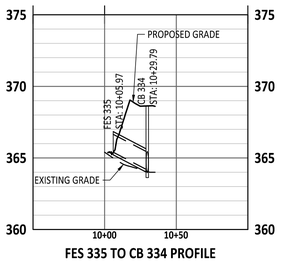


FES 335 TO CB 334 PLAN



FES 335 TO CB 334 PROFILE

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
JACOB P. KLEIN
053528

NO.	DATE	REVISION:
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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

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

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
STORM OUTFALL PLAN AND PROFILES

SHEET NO.:
C14.0

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
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North Carolina 811
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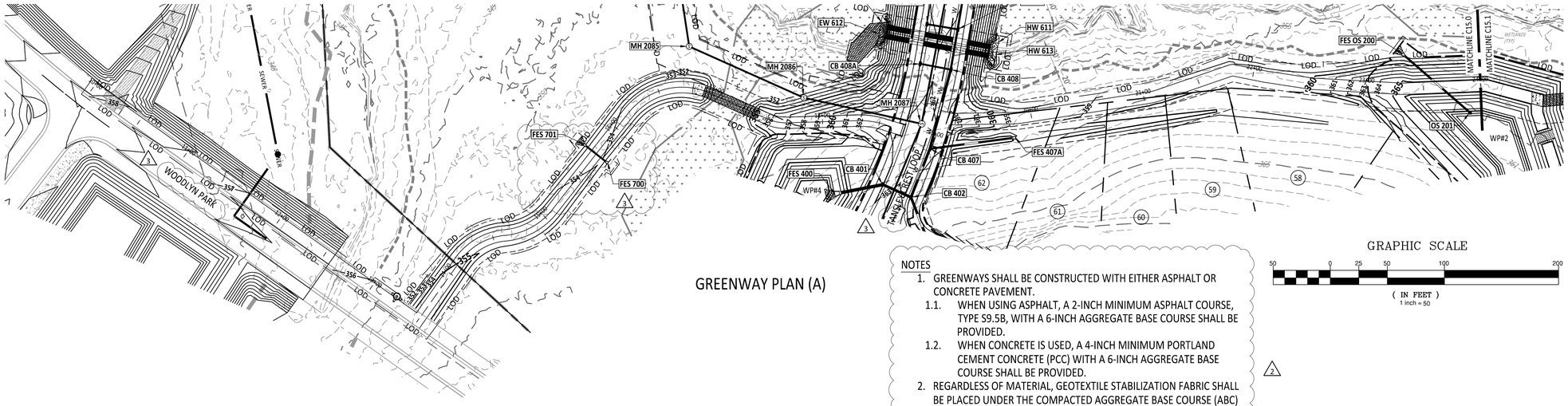
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Job\21-002 Moody Development Tract (R2100035)\Awgl_ Working Dwgs\Construction Set\14.0 Storm Outfall Plan and Profile.dwg July 16, 2025



GREENWAY PLAN (A)

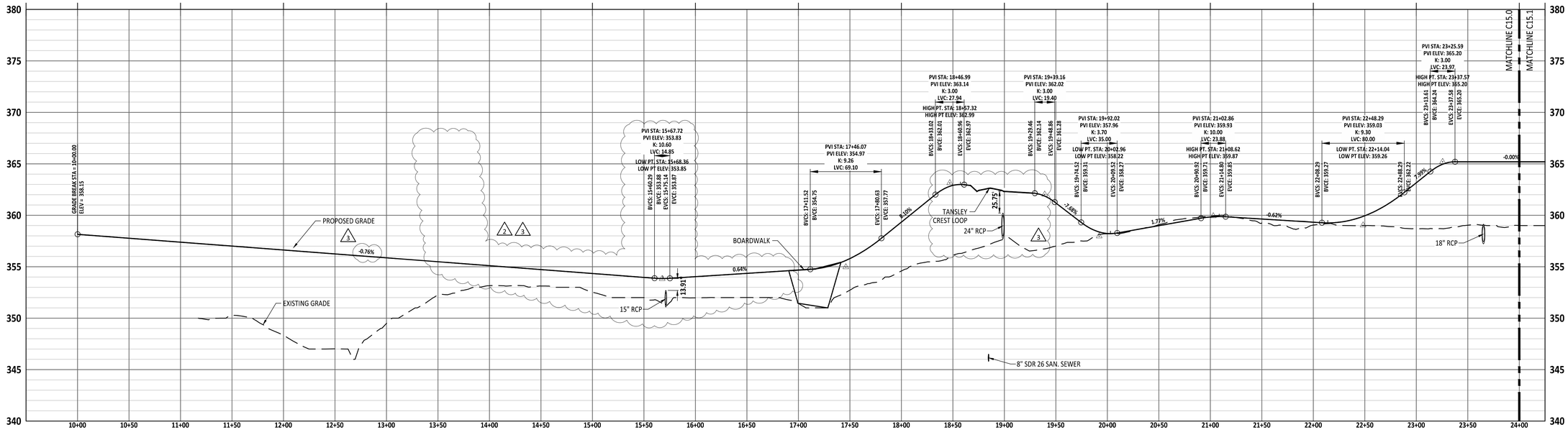
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

NOTES

1. GREENWAYS SHALL BE CONSTRUCTED WITH EITHER ASPHALT OR CONCRETE PAVEMENT.
   - 1.1. WHEN USING ASPHALT, A 2-INCH MINIMUM ASPHALT COURSE, TYPE S9.5B, WITH A 6-INCH AGGREGATE BASE COURSE SHALL BE PROVIDED.
   - 1.2. WHEN CONCRETE IS USED, A 4-INCH MINIMUM PORTLAND CEMENT CONCRETE (PCC) WITH A 6-INCH AGGREGATE BASE COURSE SHALL BE PROVIDED.
2. REGARDLESS OF MATERIAL, GEOTEXTILE STABILIZATION FABRIC SHALL BE PLACED UNDER THE COMPACTED AGGREGATE BASE COURSE (ABC) THE ENTIRE LENGTH AND WIDTH OF THE GREENWAY.



GREENWAY PROFILE (A)

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919-469-1101

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

PRELIMINARY
- DO NOT USE FOR CONSTRUCTION -
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
035258
JAMES P. KLEIN

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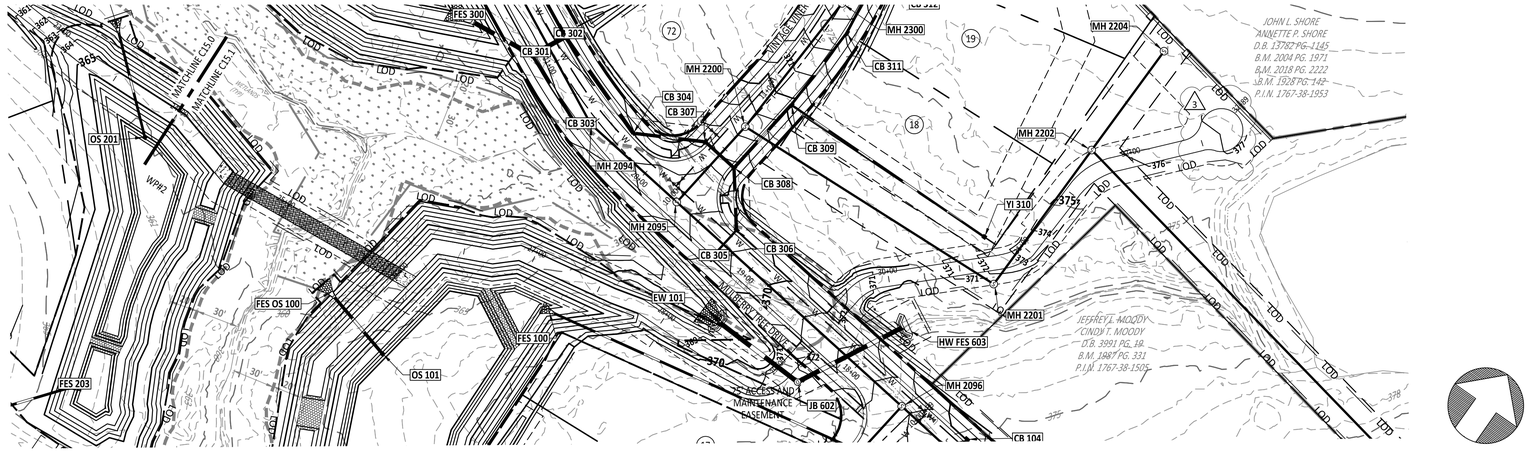
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
GREENWAY PLAN AND PROFILE

SHEET NO.: C15.0

Z:\Jobs\21-002 Moody Development Trust (P21002)\Dwg_Working Dwgs\Construction Set\15.0 Greenway Plan and Profile.dwg July 15, 2025



GREENWAY PLAN (B)

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50

NOTES

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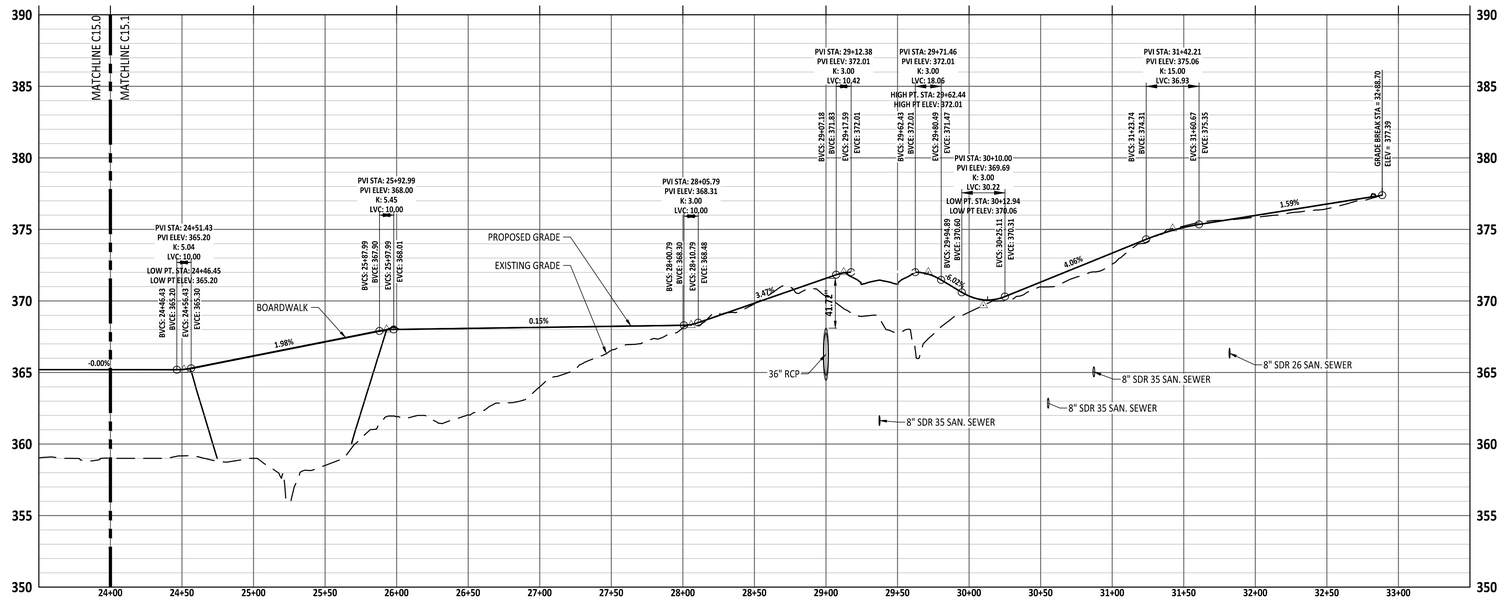

GREENWAY PROFILE (B)

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Raleigh, NC 27607
919-469-1101

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAMOR P. KLEIN

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

GREENWAY PLAN AND PROFILE

SHEET NO.: 1 C15.1

Public
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City of Raleigh
Public Utilities Department Permit # _____

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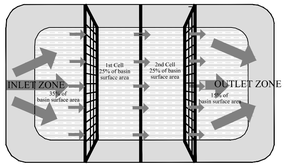
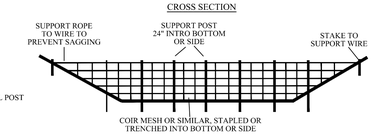
Z:\Jobs\21-002 Moody Development Tract II\110002\Engr_ Working Dwgs\Construction Set\15.0 Greenway Plan and Profile.dwg July 15, 2025

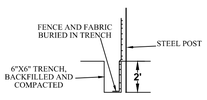


PLAN VIEW

NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL

CROSS SECTION

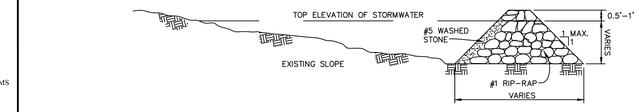




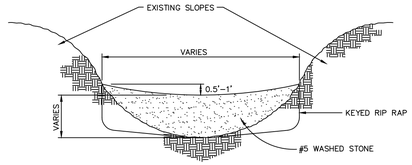
SECTION VIEW AT OPENING

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD BAFFLES DETAIL



SIDE VIEW



FRONT VIEW

CONSTRUCTION NOTES:

HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.

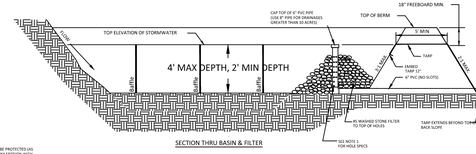
KEY RIP RAP INTO THE DAM FOR STABILIZATION.

STEP SEQUENCE

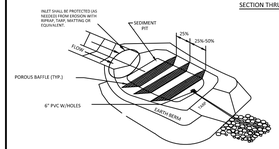
NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

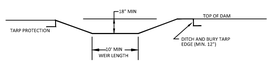
STANDARD CHECK DAM



SECTION THRU BASIN & FILTER



PERSPECTIVE VIEW



SECTION THRU WEIR

GENERAL NOTES

1. DRAW DOWN RISER & BARREL SHALL BE 6" SCH. 40 PVC WITH CLEAN OUT 2.5' ABOVE HOLES. SEE NOTE 3 FOR NUMBER AND SPACING OF HOLES.
2. THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 30 MIL HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
3. MAINTENANCE: SEDIMENT TO BE REMOVED AND PROPERLY DISPOSED OF WHEN BASIN IS HALF FULL. GRAVEL FILTER AROUND RISER SHOULD BE REPLACED AS NEEDED TO ENSURE DEWATERING.

NOTE 1

HOLE SPECS:

DEWATERING HOLES WILL BE INSTALLED IN SETS OF HORIZONTAL RINGS. THE FIRST SET OF HOLES WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER. RINGS WILL CONTINUE UP THE RISER IN INTERVALS OF 3 INCHES. HOLES WILL BE 3/4 INCH IN DIAMETER AND WILL BE SPACED EQUALLY AROUND THE RISER. THE NUMBER OF HOLES PER RING WILL EQUAL TO THE DRAINAGE AREA.

EXAMPLE:
A 10 ACRE DRAINING 2.0 ACRES SHOULD HAVE 2 HOLES PER RING EVERY 3 INCHES ON THE RISER PIPE. THE FIRST RING (2 HOLES) WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER.

NOTE: ROUND DRAINAGE AREA TO THE NEAREST WHOLE NUMBER TO DETERMINE NUMBER OF HOLES.

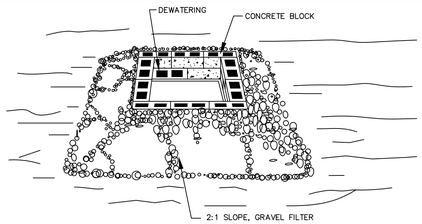
WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

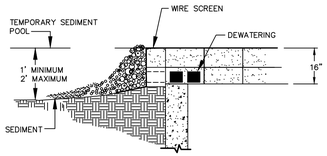
STANDARD CUSTOM BASIN

CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2 INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL, 3/4 TO 1/2 INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.

MAINTENANCE: INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.



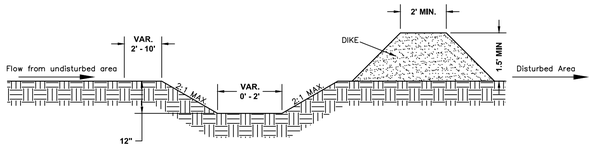


WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD BLOCK & GRAVEL DROP INLET PROTECTION

NOTES:

1. DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORM RUNOFF FROM ENTERING THE DISTURBED AREA.
2. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS (STABILIZATION MUST OCCUR BEFORE ISSUANCE OF A CERTIFICATE OF COMPLIANCE). STABILIZATION METHOD IS BASED ON VELOCITY OF OFFSITE DRAINAGE.
3. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGES 5 ACRES OR LESS.
4. ANY SEDIMENT LADEN WATER PRIOR TO STABILIZATION OF THE DIVERSION MUST BE DIVERTED INTO AN APPROVED EROSION AND SEDIMENT CONTROL BMP. CLEAN WATER SHOULD EMPTY INTO AN APPROVED OUTLET DEVICE.



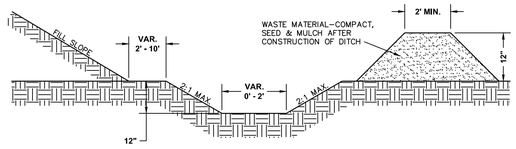
CROSS SECTIONAL VIEW

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD CLEAN WATER DIVERSION

NOTES:

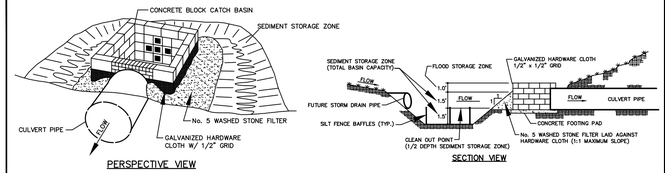
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE–HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.



CROSS SECTIONAL VIEW

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

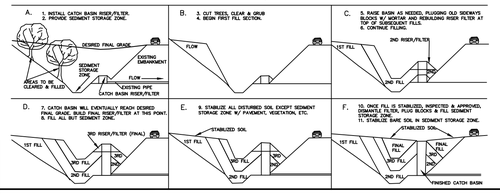
STANDARD TEMPORARY DIVERSION DITCH



PERSPECTIVE VIEW

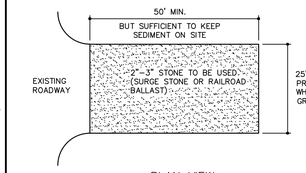
SECTION VIEW

USE OF CATCH BASIN RISER/FILTER ON FILL SITES

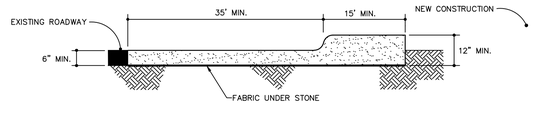


WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD CATCH BASIN RISER/FILTER



PLAN VIEW



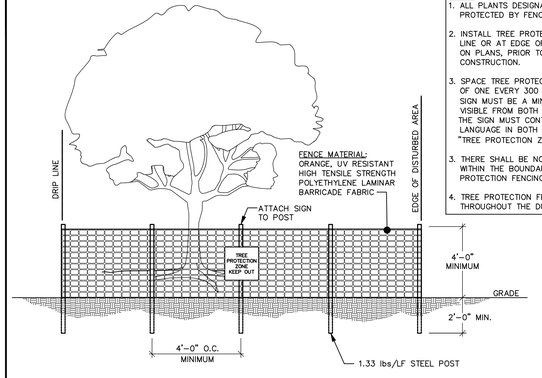
CROSS SECTION

NOTES:

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT–LADEN STONE AND REPLACEMENT WITH FRESH STONE.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD CONSTRUCTION ENTRANCE



NOTES:
1. ALL PLANTS DESIGNATED TO BE SAVED SHALL BE PROTECTED BY FENCING, AS ILLUSTRATED.
2. INSTALL TREE PROTECTION FENCE AT TREE DRIP LINE OR AT EDGE OF DISTURBED AREA, AS SHOWN ON PLANS, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SPACE TREE PROTECTION ZONE SIGNS A MINIMUM OF ONE EVERY 300 FEET. THE SIZE OF EACH SIGN MUST BE A MINIMUM OF 2' x 2' AND BE VISIBLE FROM BOTH SIDES OF THE FENCE. THE SIGN MUST CONTAIN THE FOLLOWING LANGUAGE IN BOTH ENGLISH & SPANISH: "TREE PROTECTION ZONE, KEEP OUT".
3. THERE SHALL BE NO STORAGE OF MATERIAL WITHIN THE BOUNDARIES OF THE TREE PROTECTION FENCING.
4. TREE PROTECTION FENCING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

TREE PROTECTION FENCE

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
JACOB P. KLEIN
053528
ENGINEER

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

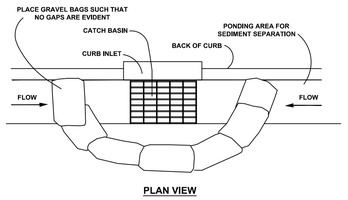
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
EROSION CONTROL DETAILS

SHEET NO.:
CD1

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

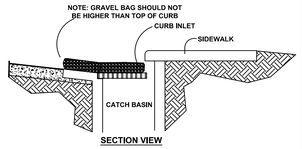
Jul 15, 2025
Z:\Jobs\21-002 Moody Development Tract (RA13003)\Engr_Working Dwgs\Construction Set\CD1 Project Details.dwg



PLAN VIEW

NOTES:

1. PLACE GRAVEL BAG BARRIER ON GENTLY SLOPING STREET, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNNOFF.
2. USE SAND BAGS OF WOVEN GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH ¾ INCH (OR SMALLER) GRAVEL. BAGS MUST BE LAYERED SUCH THAT NO GAPS ARE EVIDENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.
4. WHEN INSTALLING CURB INLET PROTECTION DEVICES, NEVER BLOCK THE CURB INLET.

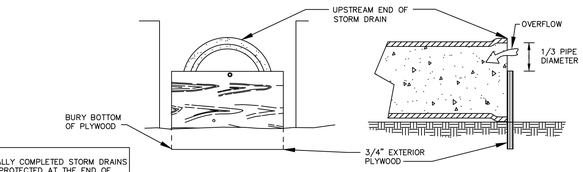


SECTION VIEW

WAKE COUNTY NORTH CAROLINA

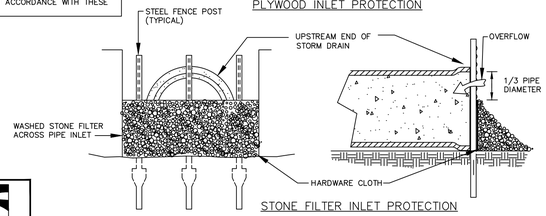
EFFECTIVE: 01/31/08

STANDARD GRAVEL BAG CURB INLET PROTECTION



NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

PLYWOOD INLET PROTECTION

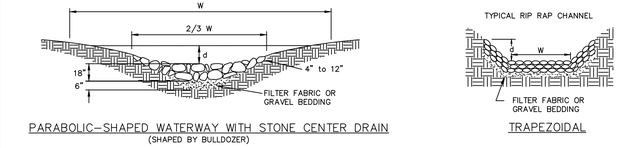


STONE FILTER INLET PROTECTION

WAKE COUNTY NORTH CAROLINA

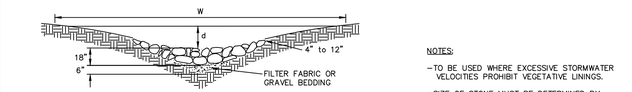
EFFECTIVE: 01/31/08

STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



PARABOLIC-SHAPED WATERWAY WITH STONE CENTER DRAIN
(SHAPED BY BULLDOZER)

TRAPEZOIDAL



V-SHAPED WATERWAY WITH STONE CENTER DRAIN
(SHAPED BY MOTOR GRADER)

NOTES:

-TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS.

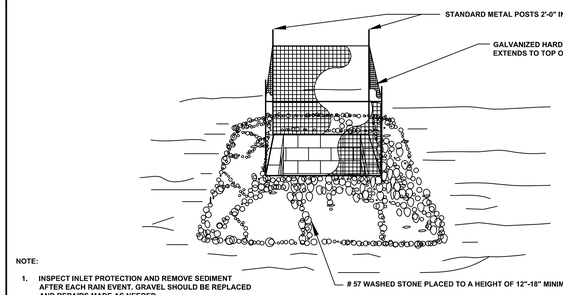
-SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN PROCEDURE.

-DIMENSIONS FOR d & W VARIES ACCORDING TO DESIGN.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD RIP-RAP LINED CHANNELS



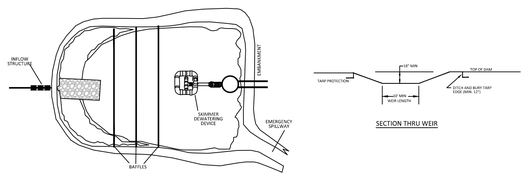
NOTE:

1. INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD GRAVEL YARD INLET PROTECTION

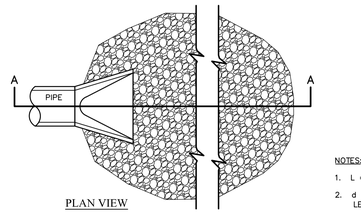


NOTES:
1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SKIMMER ATTACHED TO PERMANENT RISER



PLAN VIEW

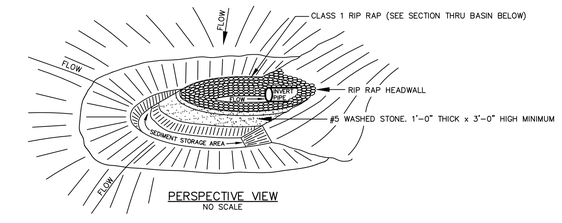
NOTES:

1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (INCHES) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

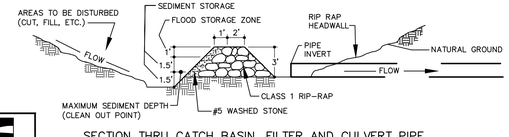
WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL



PERSPECTIVE VIEW
NO SCALE

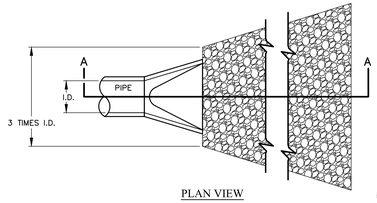


SECTION THRU CATCH BASIN, FILTER AND CULVERT PIPE
NO SCALE

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD HORSESHOE INLET PROTECTION



PLAN VIEW

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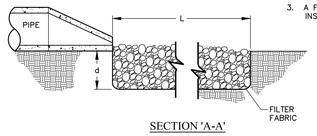
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

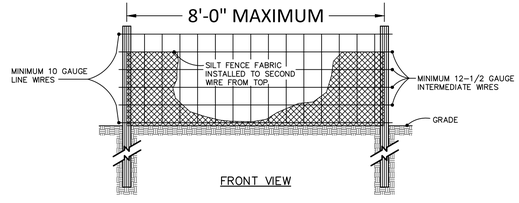


SECTION 'A-A'

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

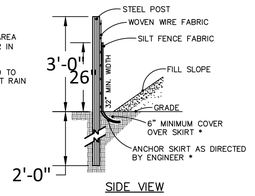
STANDARD PIPE OUTLET TO FLAT AREA
NO WELL-DEFINED CHANNEL



FRONT VIEW

NOTE:

1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE.



SIDE VIEW

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY SILT FENCE

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER 35528 JAMES P. KLEIN

REVISION:

NO.	DATE	REVISION:
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2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
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4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

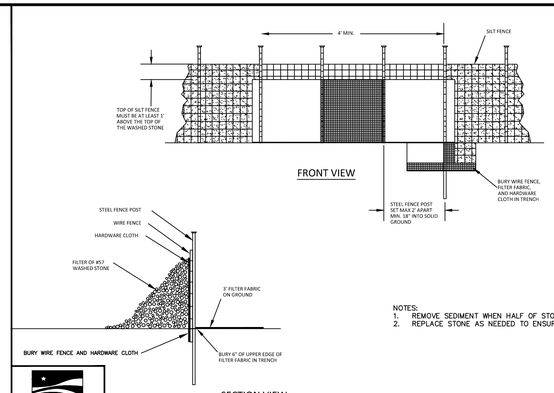
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
EROSION CONTROL DETAILS

SHEET NO.:
CD2

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

Z:\Jobs\21-002 Moody Development Tract\[R2100021dwg_Working Dwgs\Construction Set\CD1 Project Details.dwg July 15, 2025



NOTES:
1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

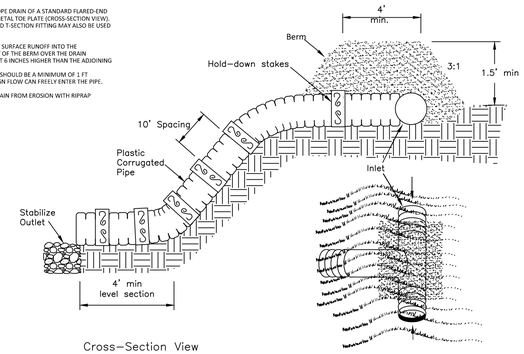
STANDARD SILT FENCE OUTLET

NOTES:

1. CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED-END SECTION OF PIPE WITH A MINIMUM 6-INCH METAL TOE PLATE (CROSS-SECTION VIEW). MAKE ALL FITTINGS WATERTIGHT. A STANDARD T-SECTION FITTING MAY ALSO BE USED AT THE INLET.

2. USE AN EARTHEN DIVERSION TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE HEIGHT OF THE BERM OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ADJOINING BERM ON EITHER SIDE. THE LOWEST POINT OF THE DIVERSION BERM SHOULD BE A MINIMUM OF 1 FT ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.

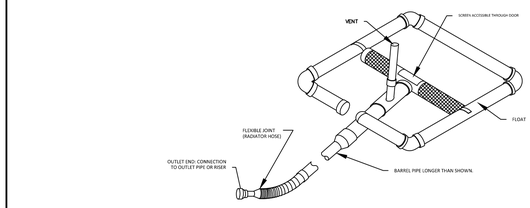
3. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP DISSIPATOR.



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

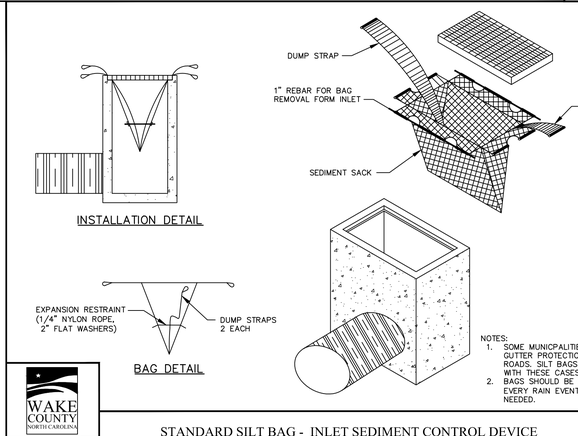
STANDARD TEMPORARY SLOPE DRAIN



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SKIMMER DETAIL

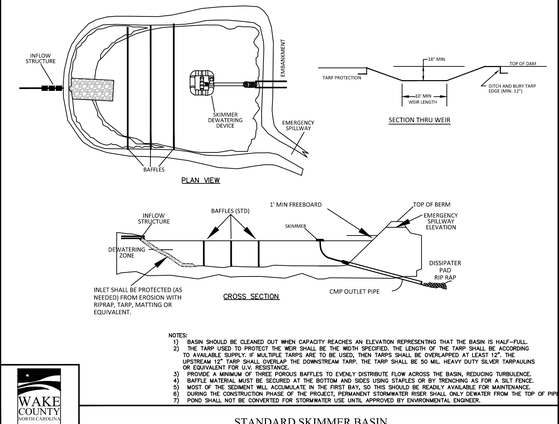


NOTES:
1. SOME MUNICPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE

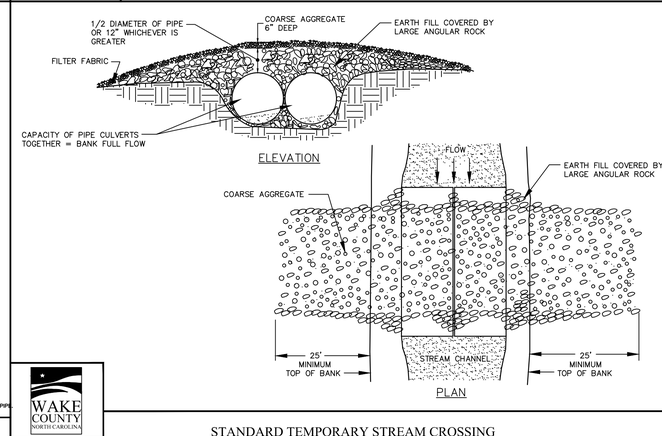


NOTES:
1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED, THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

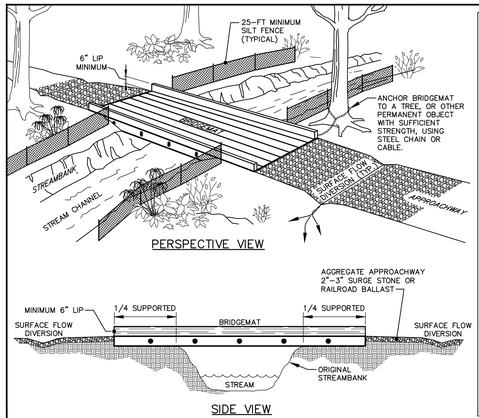
STANDARD SKIMMER BASIN



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD TEMPORARY STREAM CROSSING



INSTALLATION NOTES:
1. REFER TO "NORTH CAROLINA DIVISION OF FOREST RESOURCES" LITERATURE, INSTALLATION MAINTENANCE GUIDELINES, & "NORTH CAROLINA FORESTRY BMP MANUAL–2006".
2. INSTALL WATER DIVERSION DEVICES (WATER BARS, TURNOUTS, BROAD–BASED DIPS, ETC.) ON BOTH SIDES OF THE MATS.
3. STABILIZE EXPOSED MINERAL SOIL WITH TREE TOPS OR BRUSH DURING MAT INSTALLATION, AND SEEDING/MULCH AFTER MAT REMOVAL.
4. INSTALL MATS TO CREATE A MINIMUM TEN FOOT BRIDGE WIDTH.
5. INCLUDE COARSE AGGREGATE ON THE APPROACHWAY FOR A MINIMUM OF 25 FEET AND SILT FENCE ALONG STREAMBANKS ADJACENT TO CROSSING FOR A MINIMUM OF 25 FEET.

MAINTENANCE NOTES:
1. KEEP MATS' SURFACE FREE OF MINERAL SOIL AND DEBRIS THAT COULD ENTER STREAM.
2. PERIODICALLY CHECK MAT HARDWARE; RETIGHTEN NUTS & CABLE CLAMPS AS NECESSARY TO MAINTAIN BRIDGE STRENGTH AND INTEGRITY.
3. IMMEDIATELY REMOVE ANY DEBRIS WHICH ENTERS THE STREAM AT THE CROSSING LOCATION.

REMOVAL NOTES:
1. CLEAN OFF BRIDGE SURFACE.
2. REMOVE MATS BY USING MAT CABLE LOOP OR SKIDDER GRAPPLE.
3. PERMANENTLY STABILIZE DISTURBED PORTIONS OF STREAMBANK AND APPROACH ROADS WITH PERENNIAL GRASSES/MULCH (OR WETLAND MIX WHEN APPLICABLE).
4. LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF STREAM.
5. RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS–SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.

STANDARD TEMPORARY STREAM CROSSING OPTION

DATE: PAGE:

Design Criteria

Drainage Area:		5 acres or less	
Dike Design		**Channel Design**	
Side Slope:	2:1 or flatter	Shape:	Parabolic, Trapezoidal, or V-Shaped
	3:1 of flatter where vehicles must cross	Side Slope:	2:1 or flatter
Width:	2.0 ft minimum		3:1 or flatter where vehicles must cross
Height:	1.5 ft minimum	Stabilization:	Based on velocity of reaches
Freeboard:	0.5 ft minimum		
Settlement:	10% of total fill height minimum		

NOTES:
1. Remove and properly dispose of all trees, brush, stumps, and other objectionable material. Fill and compact all ditches and gullies that will be crossed by machinery to natural ground level or above.
2. Disk the base of the dike before placing fill.
3. Ensure that the constructed cross section meets all design requirements.
4. Compact the dike by tracking with construction equipment.
5. Divert all sediment laden water into a temporary sediment trap or sediment basin. Runoff from undisturbed areas should empty into an outlet protection device such as a level spreader or riprap outlet structure unless well stabilized natural outlets exist.
6. Ensure that the top of the dike is not lower at any point than the design elevation plus the specified settlement after it has been compacted.
7. Leave sufficient area along the dike to permit machine re-grading and cleanout.
8. Immediately seed and mulch the dike after its construction, and stabilize the flow portion in accordance with design requirements.

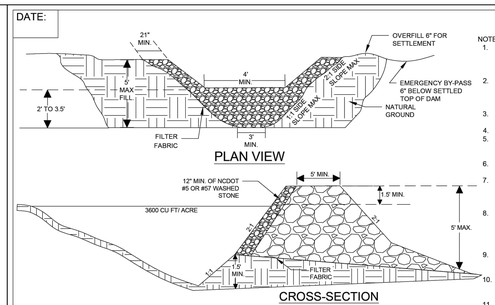
Maintenance:
1. Inspect diversion dikes at least weekly and after each rainfall of 1.0 inch or greater.
2. Immediately remove sediment from the flow area and repair the dike.
3. Check outlets, and make timely repairs as needed to avoid gully formation.
4. when area above the temporary diversion dike is permanently stabilized, remove the dike, and fill and stabilized the channel to blend with the natural surface.

DEQ

DIVERSION DIKE (PERIMETER PROTECTION)

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

DATE: PAGE:



NOTES:
1. Clear, grub, and strip the area under the embankment of all vegetation and root mat. Remove all surface soil containing high amounts of organic matter. Haul all objectionable material to the designated disposal area.
2. Ensure that fill material is free of roots, woody vegetation, organic material and other objectionable material. Place fill in lifts not exceeding 9 inches, and machine compact. Overfill the embankment 6 inches to allow for settlement.
3. Clear the pond area below the elevation of the crest of the spillway to facilitate sediment cleanout.
4. All cut and fill slopes should be 2:1 or flatter.
5. Ensure the stone section of the embankment has a 3 foot minimum, bottom width and maximum side slopes of 1:1 that extend to the bottom of the spillway section.
6. The weir must be level and constructed to grade to assure design capacity.
7. Discharge inlet water in a manner to prevent erosion, using temporary slope drains or diversions with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin trap efficiency.
8. Ensure the stone spillway outlet section extends downstream past the toe of the embankment until stable conditions are reached and the outlet velocity is acceptable for the receiving stream. Keep the edges of the stone outlet section flush with the surrounding ground, and shape the center to confine the outflow stream.
9. Place emergency spillway in undisturbed soils and direct emergency bypass to natural, stable areas. Locate bypass outlets so that flow will not damage the embankment.
10. Stabilize the embankment and all disturbed areas above the sediment pool and bare soil downstream from the trap immediately after construction.
11. Show the distance from the top of the spillway to the sediment cleanout level(1/2 design depth) on the plans and indicate in the field.
12. Install porous baffles as specified on following sheets.
13. If trap is to be de-watered using a pump and silt bag, show location on plans.

Spillway Design	
Drainage Area (acres)	Weir Length (ft)*
1	4
2	6
3	8
4	10
5	12
*Dimensions shown are minimums.	

MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater.
2. Remove sediment and restore the trap to its original dimensions when the sediment has accumulated to one-half the design depth of the trap.
3. Place the sediment that is removed in the designated disposal area, and replace the part of the gravel facing that is impaired by sediment.
4. Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to ensure it is a minimum of 1.5 feet below the low point of the embankment. Immediately fill any settlement of the embankment to slightly above design grade.
5. Any riprap displaced from the spillway must be replaced immediately.
6. After all sediment-producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend and stabilize properly.

DEQ

TEMPORARY SEDIMENT TRAP

Effective Date: 9/1/2023
In accordance with the 2013 Design Manual Updates

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
JAMES P. KLEIN
053.08

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

EROSION CONTROL DETAILS

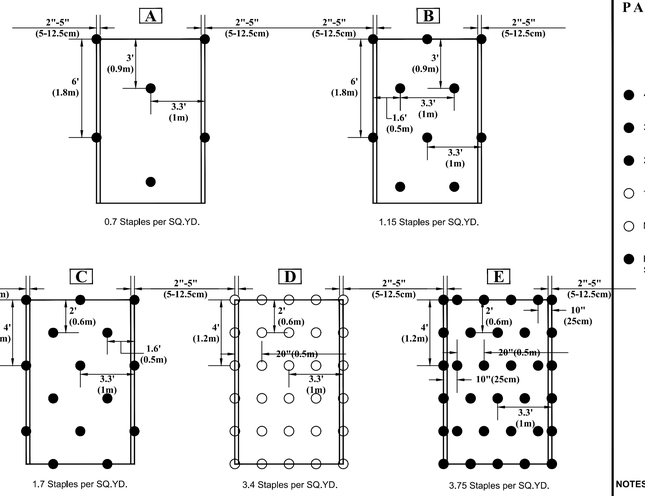
SHEET NO.:

CD3

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

Jul 15, 2025
Z:\Jobs\21-002 Moody Development Tract (RJ13003)\Civil_Working Dwgs\Construction Set\CD3 Project Details.dwg

STAPLE PATTERN GUIDE



- 4:1 Slopes (A)
- 3:1 Slopes (B)
- 2:1 Slopes (C)
- 1:1 & Steeper Slopes (D)
- Medium/High Flow Channel (D)
- High Flow Channel And Shoreline (E)

NOTES:

* Use ECMDS® for more accurate staple pattern selection.

NORTH AMERICAN GREEN

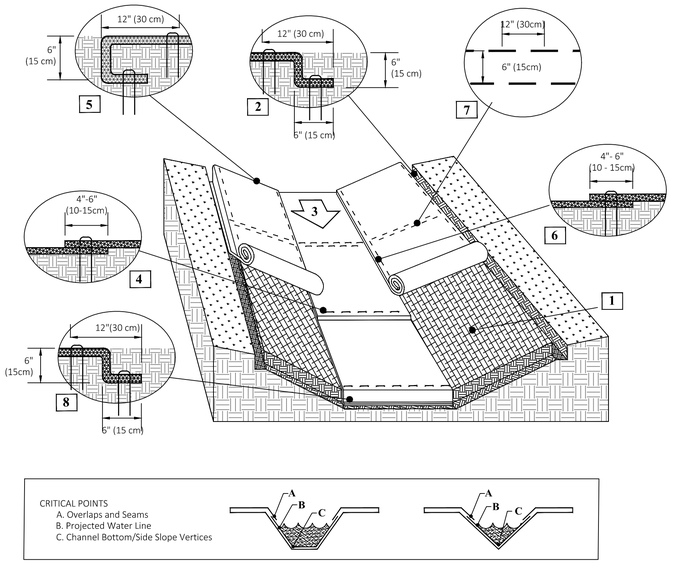
5401 St. Wendel - Cynthiana Rd.
Poseyville, IN 47633

PH: 800-722-2040
www.nagreen.com

Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

Drawing Not To Scale

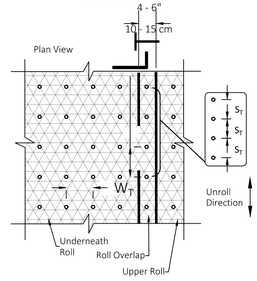


NOTES:
*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

Instructions

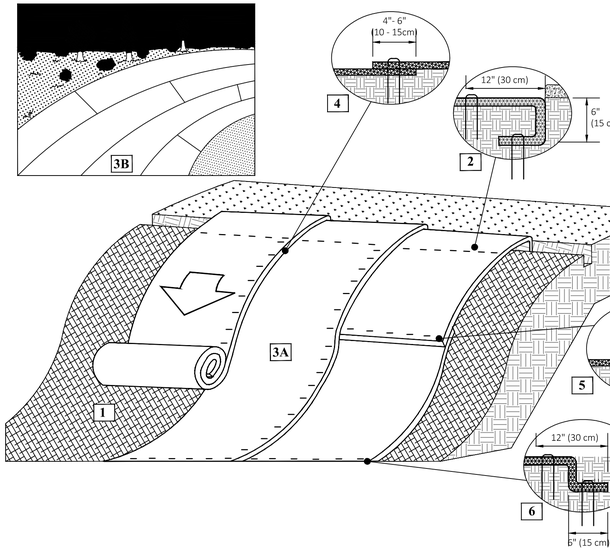
1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the channel by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench with approximately 12" (30 cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes/pins approximately 12" (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12" (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced approximately 12" (30 cm) apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4"- 6" (10 - 15 cm) overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
5. Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6"(15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 4"- 6" (10 - 15 cm) and secured with staples/stakes/pins at S_T.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 -12m) intervals. Use a double row of staples staggered 6" (15 cm) apart and 12" (30 cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
9. Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may by used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide



- Pin / Staple / Twist Pin, as appropriate for field conditions

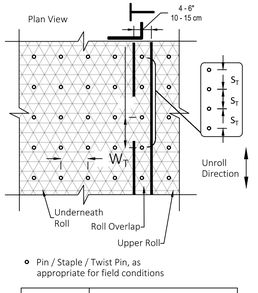
	Staple Pattern
Dimension	E
W_T	20" (50 cm)
L_T	20" (50 cm)
S_T	18" (45 cm)
Nominal Frequency	3.8 / SY



Instructions

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
4. The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
5. Consecutive RECPs spliced down the slope must overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
6. At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T. If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
7. Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may by used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide



- Pin / Staple / Twist Pin, as appropriate for field conditions

	Staple Pattern	
Dimension	C	D
W_T	30" (75 cm)	24" (60 cm)
L_T	30" (75 cm)	20" (50 cm)
S_T	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7 / SY	3.0 / SY
Application	ECB (Degradable)	TRM (Permanent)

*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.

Figure 1. Minimum Anchor Pattern

Maximum Design Conditions			Anchor Pattern
Shear Stress	Velocity	Wave Heigth	
<= 6 lbs/ft2	<= 14 ft/s	6 in.	F
> 6-8 lbs/ft2	> 14-18 ft/s	12 in.	G
> 8 lbs/ft2	> 18 ft/s	18 in.	H

Figure 2. Minimum Anchor Type

Soil Type	Anchor Type
Clay-Clay Loam	10 in Wire Staple
Silt Loam - Loam	10 in Wire Staple
Sandy Loam	12 in Wire Staple
Sand / Muck <= 6 in	12in Rebar Staple
Sand / Muck 6-12 in	18 in Rebar Staple
Sand / Muck 12-18 in	24 in Earth Anchor + 12 in Rebar Staple
Sand / Muck > 18 in	36 in Earth Anchor + 18 in Rebar Staple

Figure 3. Anchor Patterns for use with Wire/Rebar Staples

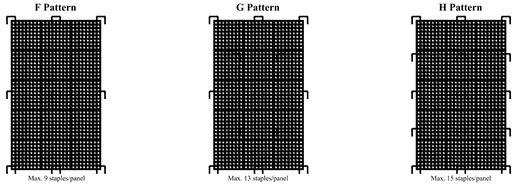
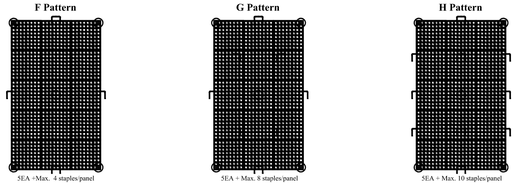


Figure 4. Anchor Patterns for use with Combination of Earth Anchors and Staples



ShoreMax™

ANCHORING GUIDE

1. When installing ShoreMax mat, the anchor pattern (figure 3 or 4) should be selected based on the expected maximum design conditions (shear stress, velocity, or wave impact) (figure 1).
2. Anchor selection should be based on the soil type and pull-out strength required (figure 2). In soft, highly erodible soils percussion earth anchors may be necessary. Earth anchors can be installed in conjunction with rebar staples (figure 4).
3. When using percussion earth anchors, position anchors in each corner and the center of the panel. Place staples in the appropriate pattern through remainder of mat. Staples can be shared between two adjacent panels.

***Note:**
Number of staples used per panel can be reduced by 30-40% when sharing staples between panels.

- Wire/Rebar Staple

⊕ - Percussion Earth Anchor

NORTH AMERICAN GREEN

5401 St. Wendel - Cynthiana Rd.
Poseyville, IN 47633

PH: 800-722-2040
www.nagreen.com

Disclaimer:
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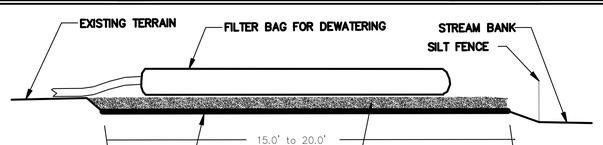
Drawn on: 5-4-17

Drawing Not To Scale



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

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

PRELIMINARY - NOT FOR CONSTRUCTION - DO NOT USE FOR CONSTRUCTION - NORTH CAROLINA PROFESSIONAL ENGINEER 36528 JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
EROSION CONTROL DETAILS

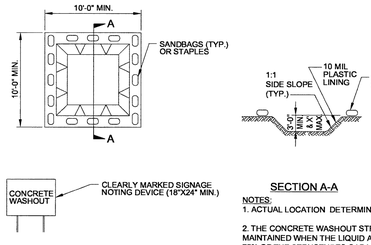
SHEET NO.:
CD4

North Carolina 811 811 It's the Law

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

July 15, 2025
Z:\Jobs\21-002 Moody Development Tract (R12000359wp)_Working Dwgs\Construction Set\CD3 Project Details.dwg

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



SECTION A-A

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

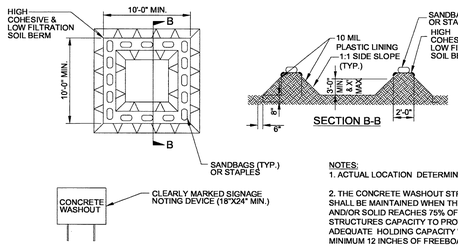
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



SECTION B-B

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

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

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

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

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

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

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

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

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

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

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

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

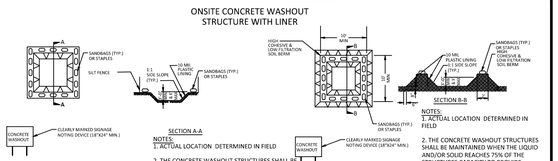
PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



SECTION A-A

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

SECTION B-B

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

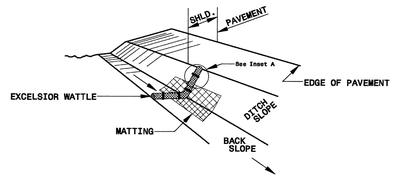
1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

WATTLE DETAIL

PROJECT REFERENCE NO.	SHEET NO.
X-XXXX	EC-20
RD ENGR'S SEAL	RD PROJECT NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

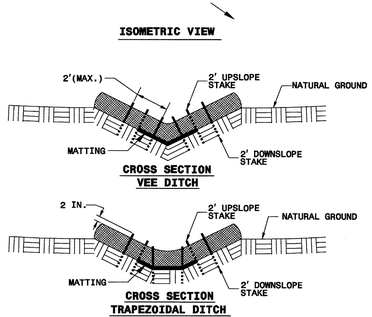
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

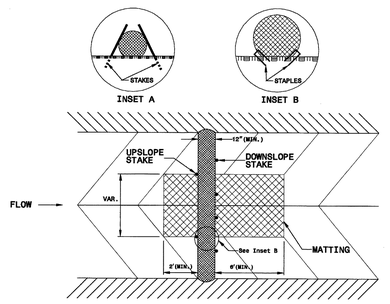
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL WATTLING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



CROSS SECTION VEE DITCH

CROSS SECTION TRAPEZOIDAL DITCH



TOP VIEW

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

NORTH CAROLINA BOARD OF EXAMINERS FOR ENGINEERING AND SURVEYING
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
JOSEPH P. KLEIN
36528
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
EROSION CONTROL DETAILS

SHEET NO.:
CD5

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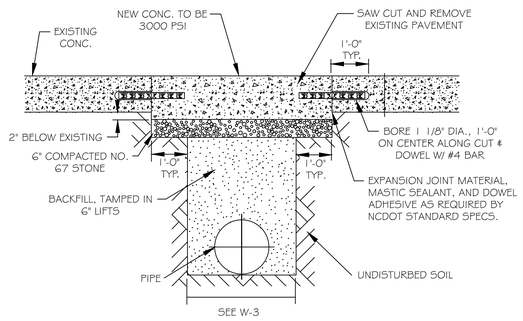
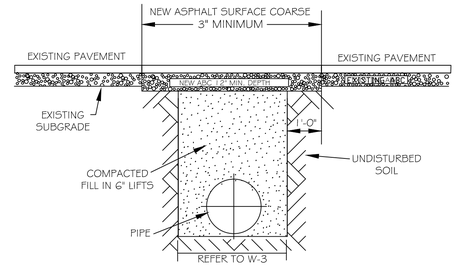
July 15, 2025
Z:\Jobs\21-002 Moody Development Tract (R)\100\03\Revit_Working Dwgs\Construction Set\CD3 Project Details.dwg



NOTES:
1. SEE CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING W-3 FOR ADDITIONAL DETAILS
2. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
3. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT. 5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT .

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD CONCRETE PAVEMENT PATCH DETAIL

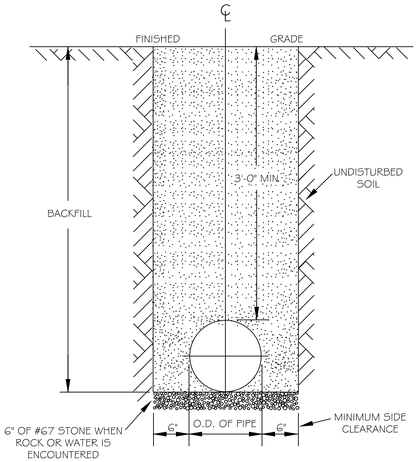
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-1	RRH	3-31-00	A.B.B.	10-29-10
	A.B.B.	2-8-05	MAB	10-31-13



NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1'-0" FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3. FOR ADDITIONAL DETAILS.
8. NO HAND PATCHING ALLOWED.
9. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL

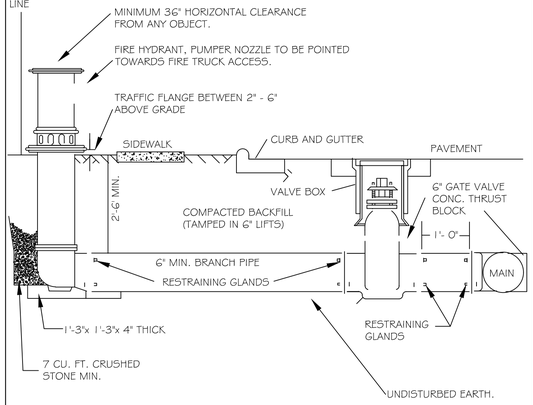
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-2	RRH	3-31-00	A.B.B.	4-16-04
	D.W.C.	11-1-99	J.P.S.	10-29-10



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C.	9-3-99	ABB	2-15-05
	RRH	3-31-00	J.P.S.	10-29-10

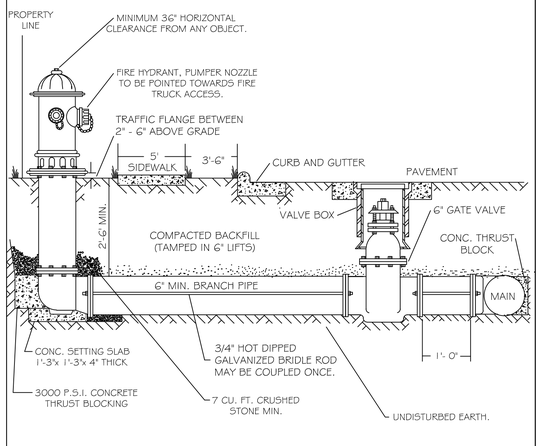


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR U5 PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE ⅜" HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

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

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

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABB	4-6-04	PAP	2/17/09
	DHL	2/14/08		

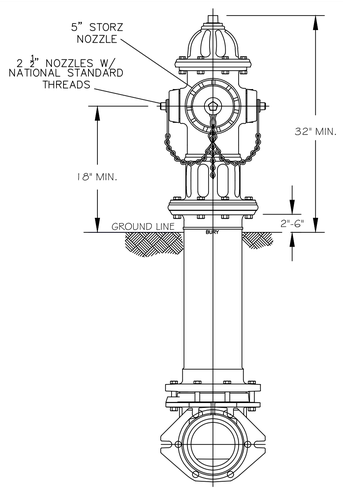


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE ⅜" HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

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

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

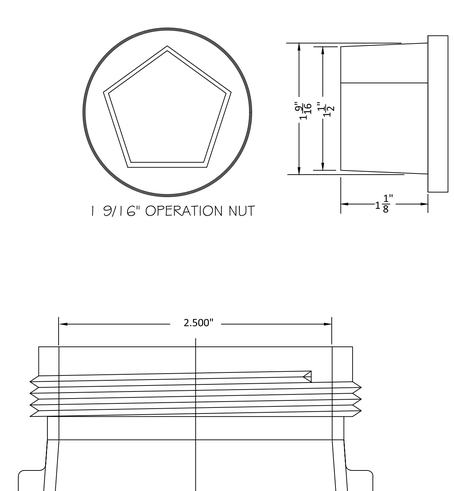
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4a	ABB	4-6-04		



NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

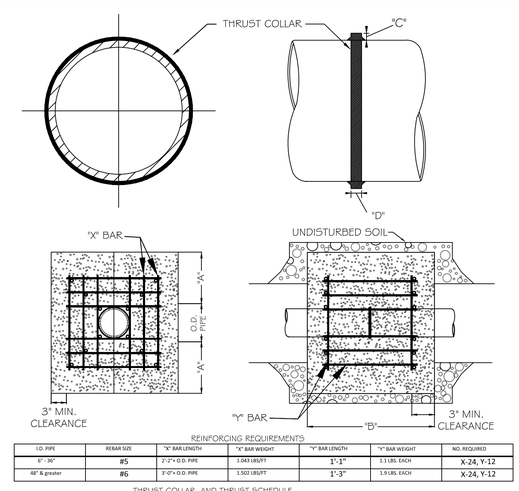
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	MAB	6-30-16		
	KAT	9-15-17		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RRH	3-31-00	DHL	2-18-08
	A.B.B	4-13-04	J.P.S	11-1-10



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
4"- 36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

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

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

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	1-21-00	J.P.S. 11-1-10	
	D.H.L.	6-18-08		

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

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER 36528 JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

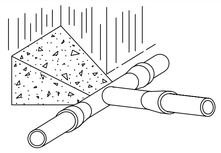
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
UTILITY DETAILS

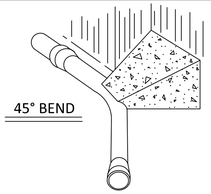
SHEET NO.:
CD6

Z:\Jobs\21-002 Moody Development Tract (R)\100%\Dwgs_Working Dwgs\Construction Set\CD3 Project Details.dwg July 15, 2025

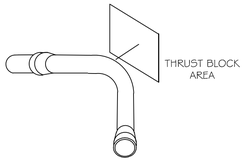
THRUST BLOCKING

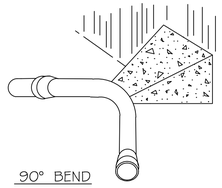


TEE INTERSECTION



45° BEND





90° BEND

NOTES:

1. CONCRETE SHALL BE 3000 PSI
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

DWG. NO. W-9

REVISIONS	DATE
D.W.C.	3-1-87
RRH	3-31-00
D.H.L.	6-16-06

STANDARD THRUST BLOCKING VIEWS

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS

BASED ON TEST PRESSURE OF 200 P.S.I.

ALL AREAS GIVEN IN SQUARE FEET.

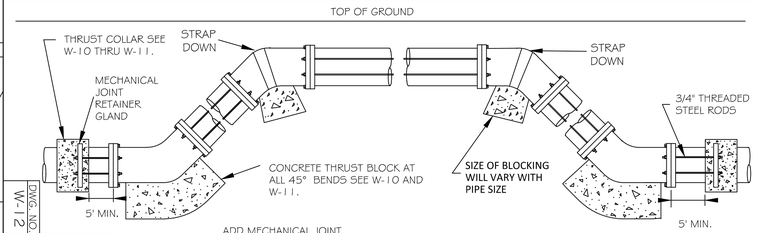
SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	1600 LBS/FT² GRAVEL/ COARSE SAND	4000 LBS/FT² DRY CLAY - ALWAYS DRY	SAND - COMPACT FIRM 8000 LBS/FT²	SAND - CLEAN DRY 4000 LBS/FT²	SOIL 1000 LBS/FT² QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		



DWG. NO. W-12

REVISIONS	DATE
A.B.B. D.H.L.	4-6-04 6-18-06
J.P.S.	11-1-10

STANDARD VERTICAL BEND

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

ROD REQUIREMENTS

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

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

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
26528
JOSHUA P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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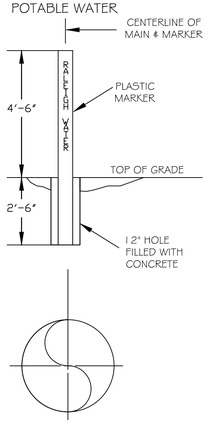
THE PRESERVE AT MOODY FARM
CD-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
UTILITY DETAILS

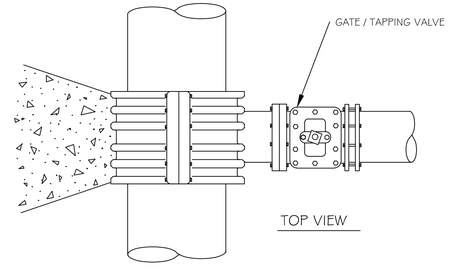
SHEET NO.:
CD7



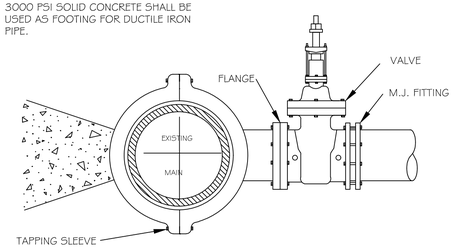
NOTES
1. POTABLE WATER MARKER TO BE BLUE IN COLOR.
2. POTABLE WATER MARKER TO BE LABELED "RALEIGH WATER".
3. TO BE SPACED ALONG CENTERLINE OF MAIN EVERY 300 FEET.
4. MARKERS TO BE ROUND AND 4" IN DIAMETER.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MAIN & VALVE MARKERS FOR POTABLE & REUSE WATER IN EASEMENTS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-13	D.W.C.	9-7-99	DHL	8-16-07
	RRH	3-31-00	J.P.S.	11-1-10



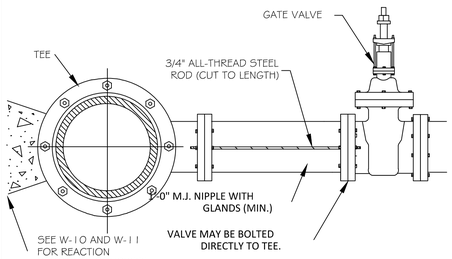
3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.



NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	12-31-91	RRH	3-31-00
	D.W.C.	9-7-99	J.P.S.	11-1-10



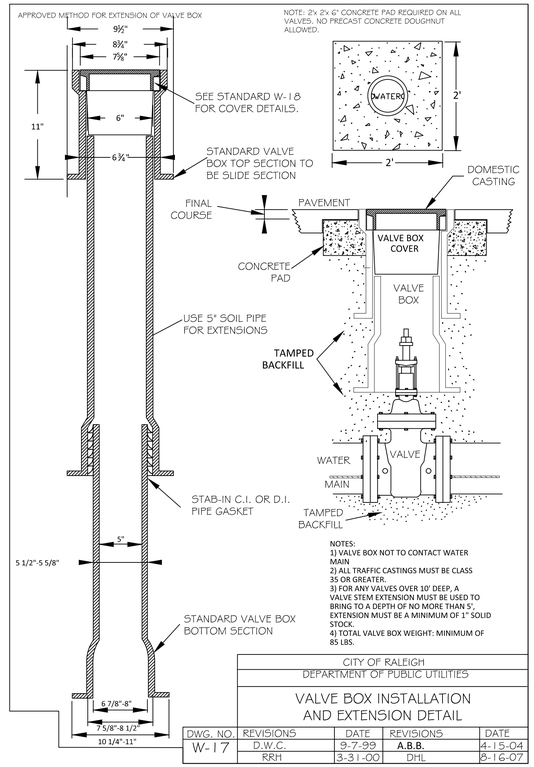
ROD REQUIREMENTS

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

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

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

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



NOTES:
1) VALVE BOX NOT TO CONTACT WATER MAIN
2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3) FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5'. EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
	RRH	3-31-00	DHL	8-16-07

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.

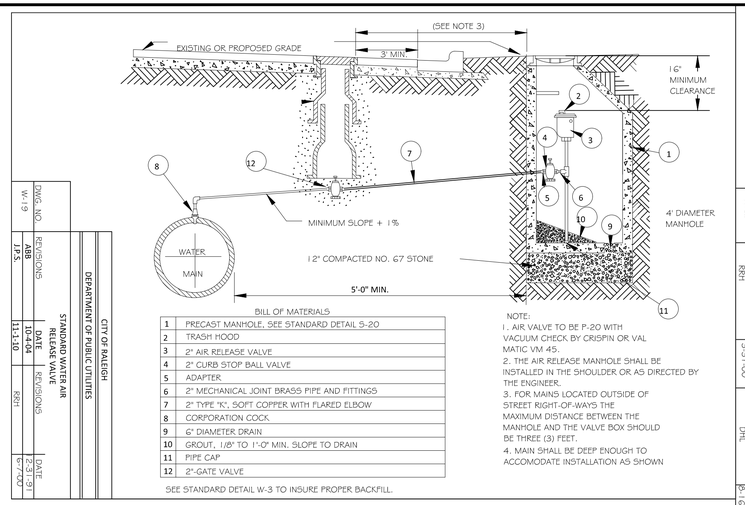
City of Raleigh
Public Utilities Department Permit # _____

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

July 15, 2025
Z:\Jobs-21-002 Moody Development Tract (8210002)\Dwgs_Working Dwgs\Construction Set\CD1 Project Details.dwg



BILL OF MATERIALS

1	PRECAST MANHOLE, SEE STANDARD DETAIL S-20
2	TRASH HOOD
3	2" AIR RELEASE VALVE
4	2" CURB STOP BALL VALVE
5	ADAPTER
6	2" MECHANICAL JOINT BRASS PIPE AND FITTINGS
7	2" TYPE "K", SOFT COPPER WITH FLARED ELBOW
8	CORPORATION COCK
9	6" DIAMETER DRAIN
10	GROUT, 1/8" TO 1'-0" MIN. SLOPE TO DRAIN
11	PIPE CAP
12	2"-GATE VALVE

SEE STANDARD DETAIL W-3 TO INSURE PROPER BACKFILL.

NOTE:
1. AIR VALVE TO BE P-20 WITH VACUUM CHECK BY CRISPIN OR VAL MATIC VM 45.
2. THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER.
3. FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE BETWEEN THE MANHOLE AND THE VALVE BOX SHOULD BE THREE (3) FEET.
4. MAIN SHALL BE DEEP ENOUGH TO ACCOMODATE INSTALLATION AS SHOWN

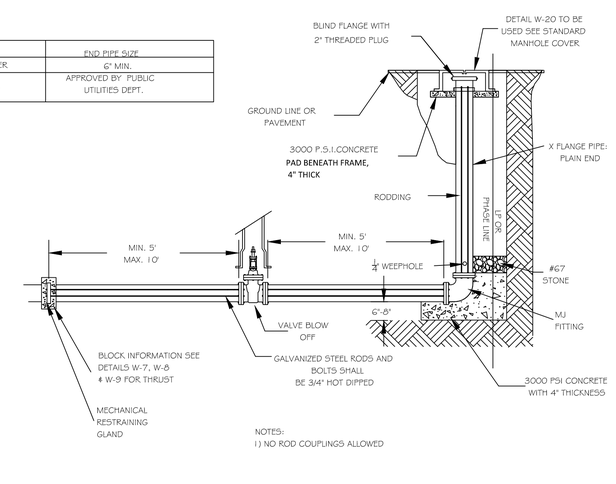
DWG. NO. W-19 | REVISIONS: JPS 10-08; ABB 11-10 | DATE: 2-00

STANDARD WATER AIR RELEASE VALVE

DEPARTMENT OF PUBLIC UTILITIES

CITY OF RALEIGH

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



NOTES:
1) NO ROD COUPLINGS ALLOWED

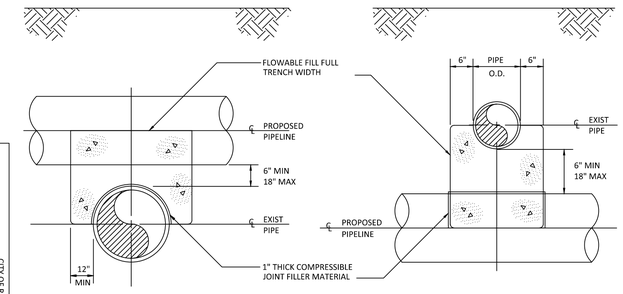
DWG. NO. W-21 | REVISIONS: JPS 10-08; ABB 11-10 | DATE: 2-00

TEMPORARY WATER MAIN BLOW OFF ASSEMBLY

DEPARTMENT OF PUBLIC UTILITIES

CITY OF RALEIGH

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 18" FOR WATER LINES



PROPOSED PIPELINE OVER EXISTING PIPE

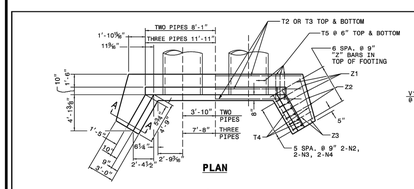
PROPOSED PIPELINE UNDER EXISTING PIPE

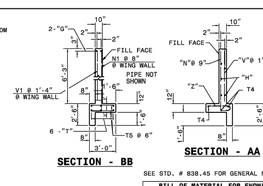
DWG. NO. W-41 | REVISIONS: DHN | DATE: 2-00-08 | REVISIONS | DATE

CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS

DEPARTMENT OF PUBLIC UTILITIES

CITY OF RALEIGH





SEE STD. # 838.45 FOR GENERAL NOTES.

BILL OF MATERIAL FOR ENDWALL

REINF. STEEL			2 PIPES		3 PIPES	
BAR	SIZE	LENGTH	NO.	WEIGHT	NO.	WEIGHT
B1	#4	5'-6"	8	29	12	44
B2	#4	4'-6"	4	12	4	12
B3	#4	6'-0"	4	16	8	32
G1	#7	8'-2"	-	-	-	-
G2	#7	15'-10"	2	65	-	-
G3	#7	23'-6"	-	-	2	96
H1	#4	5'-6"	10	37	10	37
H2	#4	3'-6"	4	9	4	9
N1	#4	7'-11"	8	42	12	63
N2	#4	6'-7"	4	18	4	18
N3	#4	5'-8"	4	15	4	15
N4	#4	4'-9"	4	13	4	13
T1	#4	11'-10"	-	-	-	-
T2	#4	19'-6"	6	78	-	-
T3	#4	27'-2"	-	-	6	109
T4	#4	5'-3"	6	21	6	21
T5	#4	2'-6"	64	107	96	160
V1	#4	5'-9"	12	46	18	69
V2	#4	4'-10"	6	19	6	19
V3	#4	3'-11"	6	16	6	16
V4	#4	3'-1"	6	12	6	12
Z1	#4	3'-11"	6	16	6	16
Z2	#4	3'-6"	4	9	4	9
Z3	#4	3'-1"	4	8	4	8
REINF. STEEL LBS.			588		778	
CON./R.C. CU. YDS			6.9		8.8	

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

1-25

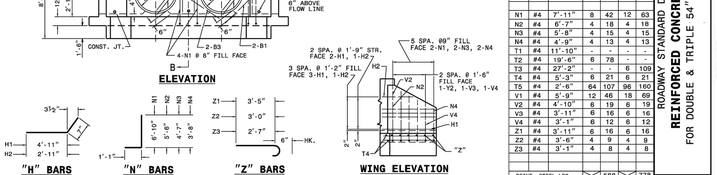
ROADWAY STANDARD DRAWING FOR

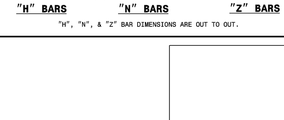
REINFORCED CONCRETE ENDWALL

FOR DOUBLE & TRIPLE 54" PIPE - 90° SKEW

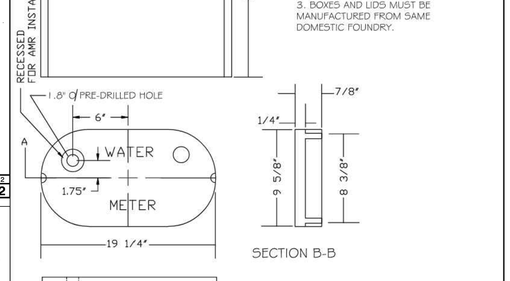
SHEET 1 OF 2

838.22





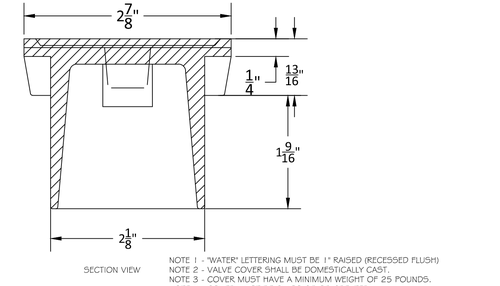
"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.



NOTES:
1. COVER WEIGHT: 13 LBS +/- 5%
2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING
3. BOXES AND LIDS MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
WATER METER BOX DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25			ABB	1-20-05
	R.K.V.	8-20-13	J.P.S	11-4-10

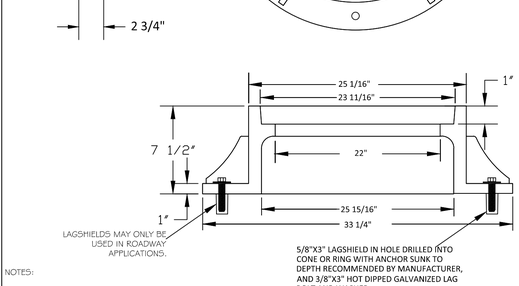


NOTE 1 - "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT

DWG. NO.	REVISIONS	DATE			
W-18					

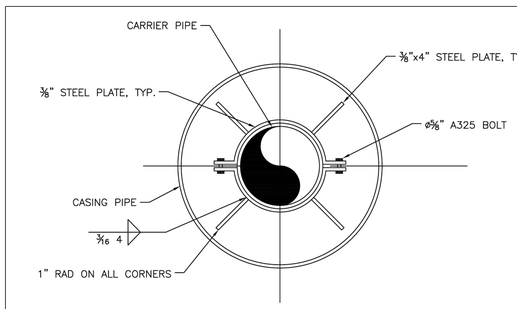
MANHOLE FRAME AND COVER
COVER 120 LBS. MINIMUM



NOTES:
1) ALL MANHOLE FRAMES SHALL BE BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH S-29.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20	A.B.B.	4-8-04		
	D.H.L.	6-18-06		



NOTE:
USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/8/2025	NOT TO SCALE
	PIPE ALIGNMENT GUIDE	
	S-39	

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 811 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 AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA 26528 PROFESSIONAL ENGINEER JAMES P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

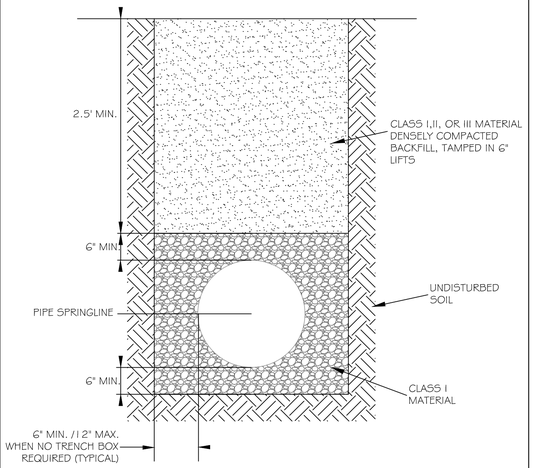
UTILITY DETAILS

SHEET NO.:

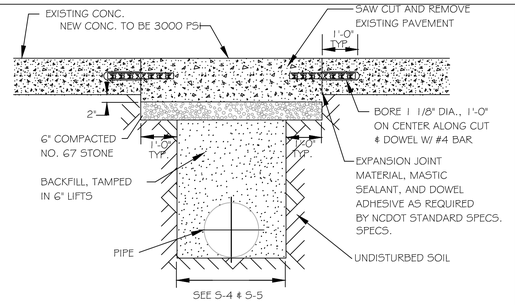
CD8

July 15, 2025

Z:\Jobs\21-002 Moody Development Tract (R)\000\Dwg_Working Dwgs\Construction Set\CD3 Project Details.dwg

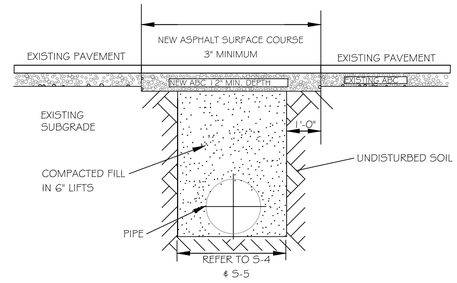


CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD BEDDING DETAILS FOR CCFRPM PIPES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-1	J.P.S	10-8-10		



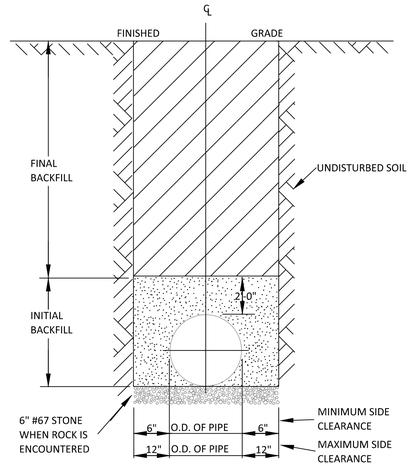
NOTES:
1. See City of Raleigh standards for trenches and pipe bedding (S-4 & S-5) for additional details.
2. Pavement cuts over 5'-0" in width shall be reinforced to N.C.D.O.T. standards.
3. Pavement cuts shall be made with an appropriate saw cut machine.
4. Pavement cuts within NCDOT ROW shall conform to the approved on site encroachment permit.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD CONCRETE PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-2	D.W.C.	6-23-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S	10-8-10



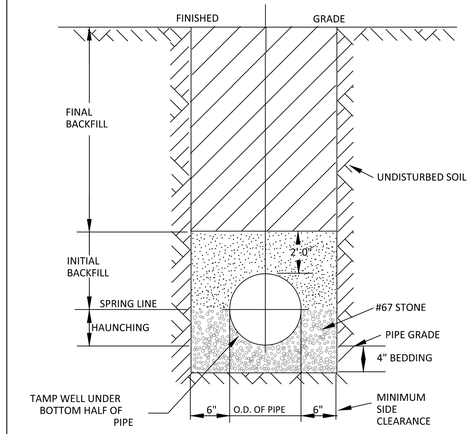
NOTES:
1. IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.
2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.
3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
4. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
5. THE ENTIRE THICKNESS AND VERTICAL EDGE OF CUT SHALL BE TACKED.
6. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
7. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
8. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING (S-4 & S-5) FOR ADDITIONAL DETAILS.
9. NO HAND PATCHING ALLOWED.
10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD ASPHALT PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-3	D.W.C.	11-1-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

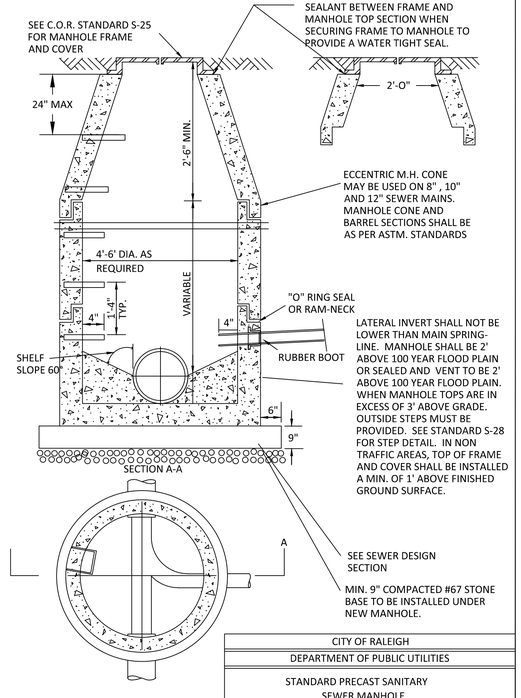
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		



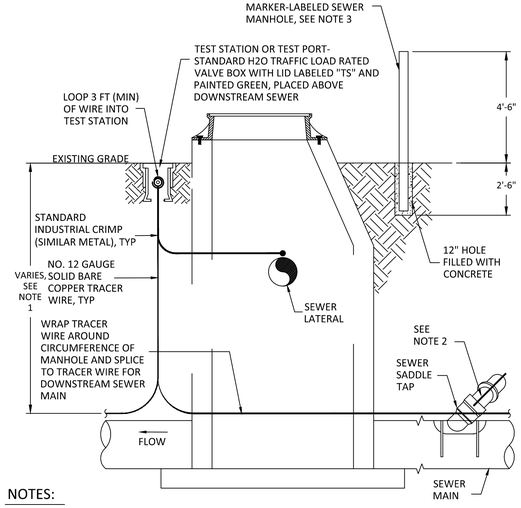
TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00

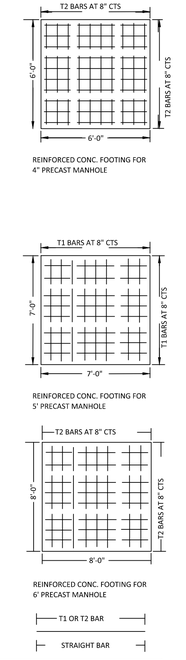


CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD PRECAST SANITARY SEWER MANHOLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-31-92	ABB	2-21-05
	RRH	3-30-00	D.H.L.	6-16-08



NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	WKD	09-14		



BILL OF MATERIAL FOR 4' MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T2	#5	5'-6"	18	103
CL. "A" CONCRETE TOTAL CU. YDS. 1.000				

BILL OF MATERIAL FOR 4' MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T1	#5	6'-6"	20	136
CL. "A" CONCRETE TOTAL CU. YDS. 1.261				

BILL OF MATERIAL FOR 4' MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T2	#5	7'-6"	24	165
CL. "A" CONCRETE TOTAL CU. YDS. 1.278				

* ALL BASES ARE MINIMUM 9" THICK

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
EXTENDED BASE OR CAST-IN-PLACE REINFORCED CONCRETE BASE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-21		3-1-87	ABB	2-9-05
	RRH	3-30-00		

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 1-800-622-HOLD

*** 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

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER 35528 JACOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

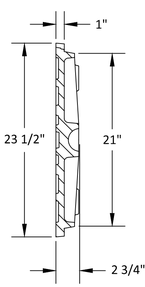
SHEET TITLE:
UTILITY DETAILS

SHEET NO.:
CD9

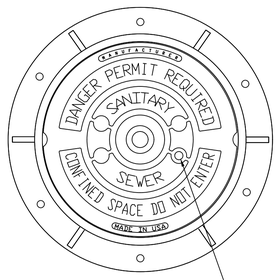
July 15, 2025

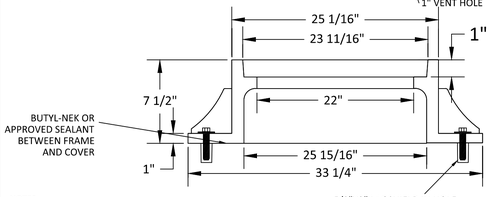
Z:\Jobs\21-002 Moody Development Tract (R21002)\dwg_Working Dwgs\Construction Set\CD3 Project Details.dwg

COVER 120 LBS. MINIMUM



MANHOLE FRAME AND COVER

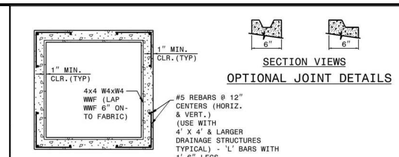




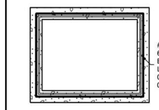
NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

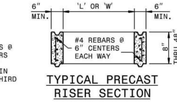
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-08



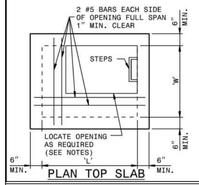
PLAN VIEW OF BASE UNIT



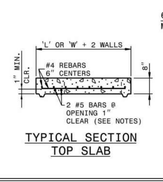
PRECAST RISER PLAN



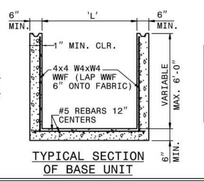
TYPICAL PRECAST RISER SECTION



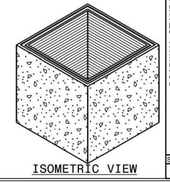
PLAN TOP SLAB



TYPICAL SECTION TOP SLAB



TYPICAL SECTION OF BASE UNIT



ISOMETRIC VIEW

SECTION VIEWS

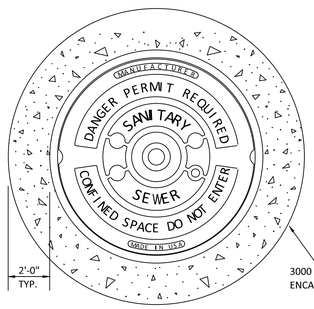
OPTIONAL JOINT DETAILS

GENERAL NOTES:
* THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.04, 840.05, 840.14, 840.15, 840.31, 840.32, 840.34, 840.35, 840.36 AND 840.41.
* INSTALL AND PAY FOR PRECAST DRAINAGE STRUCTURES IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATION SECTION 840.
* USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
* USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).
* LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB TO 15'-0".
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.)
* ORIENT STRUCTURES SO THAT CORNERS WILL NOT BE CUT OR MODIFIED UNLESS ALLOWED BY DETAIL IN PLANS.
* PRECAST ALL ELEMENTS TO MEET ASTM C913.
* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
* PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR IF THE SAME MIN. AREA OF STEEL IS PROVIDED.
* SEAL JOINTS WITH AN APPROVED SEALANT (SEE SECTION 840 OF NCDOT STANDARD SPECIFICATIONS.
* LIMIT MAXIMUM STRUCTURE SIZE INSIDE CLEAR DIMENSIONS TO 6'-0" X 6'-0".
* THE OUTSIDE PIPE DIAMETER PLUS 2" IS THE MINIMUM STRUCTURE SIZE OR THE OPENING REQUIRED FOR GRATE AND FRAME WHICHEVER IS GREATER.
* ROUND MANHOLE MAY BE USED IN LIEU OF SQUARE PROVIDED 2 EXTRA #5'S ARE PLACED ON EVERY SIDE NOT ADJACENT TO A WALL. SEE STD. DWG. 840.34 FOR MANHOLE INSTALLATION.

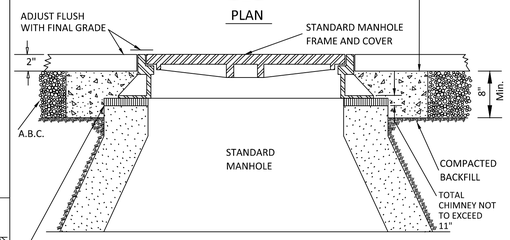
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE

SHEET 1 OF 1
840.46



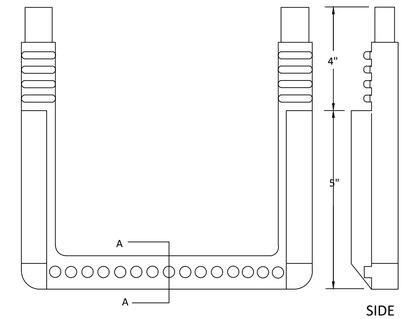
PLAN



SECTION

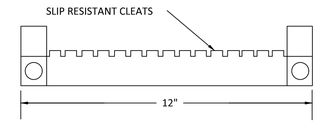
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	12-31-91	ABB	9-20-04
	RRH	3-30-00	DHL	11-29-07



PLAN

SIDE ELEVATION



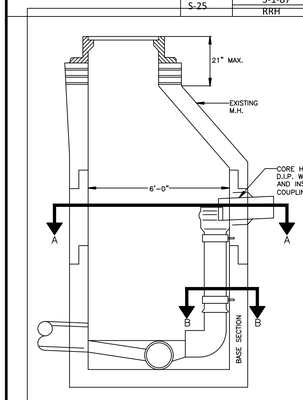
ELEVATION

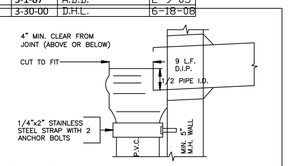
SECTION A - A

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL

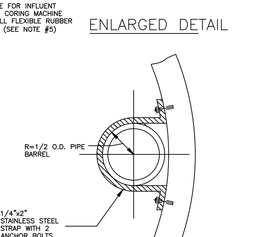
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28	RRH	3-30-00		

*SERVICE LATERAL MATERIAL AS REQUIRED



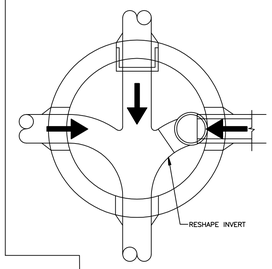


ENLARGED DETAIL



SECTION B–B

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

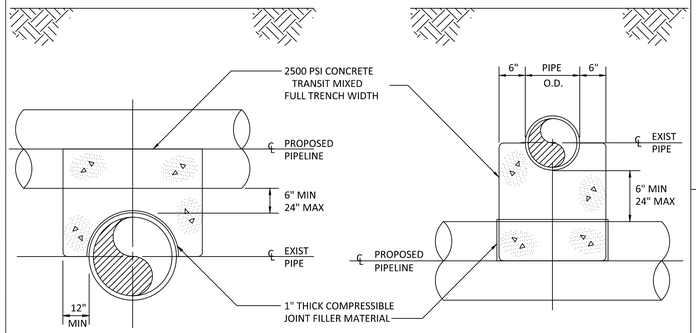


SECTION A–A

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
INSIDE DROP MANHOLE

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

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 24" FOR SEWER LINES



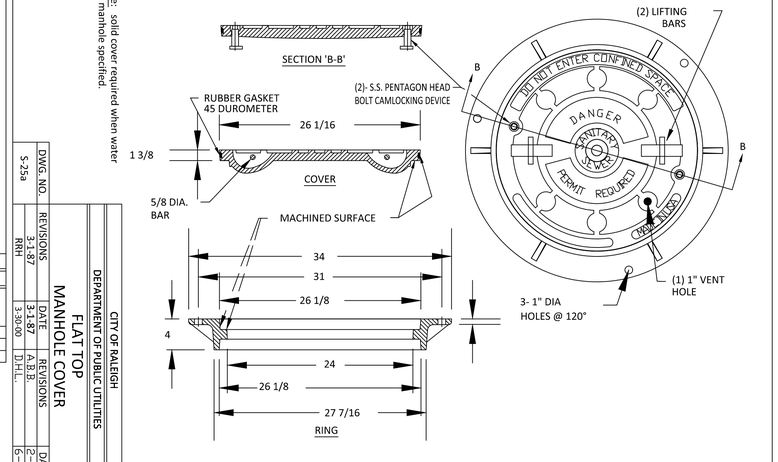
PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

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

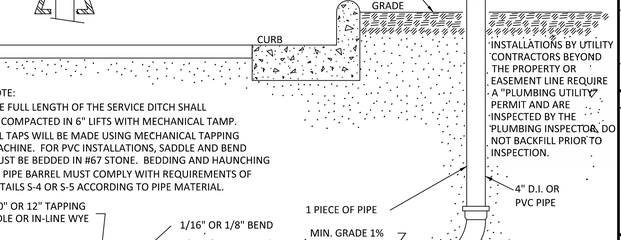
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	DHL	2-20-08		

Note: solid cover required when water tight manhole specified.



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
FLAT TOP MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25a	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-08



NOTE:
THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAILS S-4 OR S-5 ACCORDING TO PIPE MATERIAL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL CONNECTION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30	Y.C.A.	6-92	A.B.B.	4-8-04
	RRH	3-30-00	D.H.L.	6-18-08

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
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4020 Westchase Boulevard, Suite 450
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NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35528 JAKOB P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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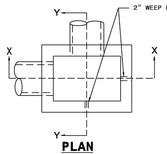
THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
UTILITY DETAILS

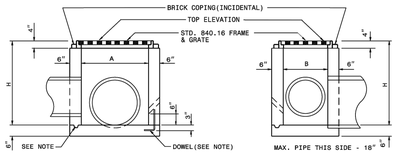
SHEET NO.:
CD10

July 15, 2025
Z:\Jobs\21-002 Moody Development Trust (P21002)\Dwg_Working Dwgs\Construction Set\CD1 Project Details.dwg



PLAN

WITH GRATE & FRAME REMOVED



SECTION X-X **SECTION Y-Y**

DOWEL

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

MAX.DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12'-0". STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.

CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

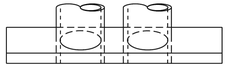
DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)							
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.Y.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026
15"	/	/	2'-3"	/	/	0.648	0.023	0.036
18"	/	/	2'-6"	/	/	0.703	0.033	0.049
24"	/	/	3'-0"	/	/	0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

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

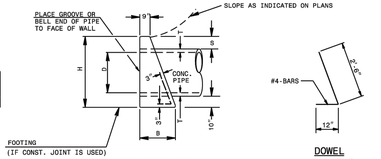
1-24

ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.14

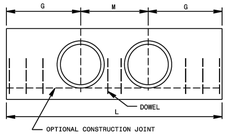


PLAN



END ELEVATION

DOWEL
BAR-"X"



ELEVATION

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

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

*SEE SHEET 3

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

1-24

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

SHEET 1 OF 3
838.01

GENERAL NOTES:

CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

PLACE 2 #6 "Y" BARS IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL LENGTH.

CONSTRUCT BOTTOM SLAB WITH FORMS.

DO NOT INTERPRET WALL THICKNESS (T) SHOWN FOR THE THICKNESS ACCEPTABLE, BUT IS USED IN COMPUTING ENDWALL QUANTITIES.

WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE, PLACE BAR "X" DOWELS IN THE BASE AS SHOWN ON PLANS. SPACE BARS APPROXIMATELY ON 12" CENTERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE AND POUR THE BASE SEPARATELY LEAVE THE POUR ROUGH.

USE CLASS "B" CONCRETE.

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

1-24

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

SHEET 3 OF 3
838.01

GENERAL NOTES:

CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

PLACE 2 #6 "Y" BARS IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL LENGTH.

CONSTRUCT BOTTOM SLAB WITH FORMS.

DO NOT INTERPRET WALL THICKNESS (T) SHOWN FOR THE THICKNESS ACCEPTABLE, BUT IS USED IN COMPUTING ENDWALL QUANTITIES.

WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE, PLACE BAR "X" DOWELS IN THE BASE AS SHOWN ON PLANS. SPACE BARS APPROXIMATELY ON 12" CENTERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE AND POUR THE BASE SEPARATELY LEAVE THE POUR ROUGH.

USE CLASS "B" CONCRETE.

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

1-18

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

SHEET 2 OF 3
838.01

GENERAL NOTES:

USE CLASS "A" CONCRETE.

CHAMFER ALL EXPOSED CORNERS 1".

ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS.

PLACE A STONE DRAIN CONSISTING OF ONE (1) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A POROUS FABRIC AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT THICK. WHERE THERE IS MORE THAN ONE WEEP HOLE IN A WING WALL, PLACE A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION OF TWO (2) FEET BELOW THE SURFACE OF THE EMBANKMENT.

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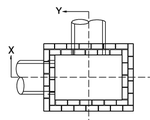
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
NOTES FOR REINFORCED CONCRETE ENDWALL
STANDARD DRAWINGS 838.21 THRU 838.40

SHEET 1 OF 1
838.45



PLAN

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GENERAL NOTES:

MORTAR JOINTS ½" +/- ⅛" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.

USE #4 BAR DOWELS AT 12" CENTERS.

DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 8'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITES TO BE ADJUSTED ACCORDINGLY.

MAX.DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12'-0". STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.

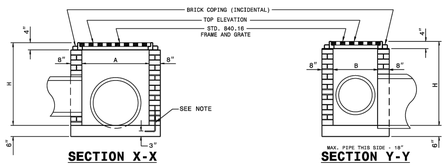
CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.

DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



SECTION X-X **SECTION Y-Y**

DOWEL

DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)							
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.S.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.020	0.032
15"	/	/	2'-3"	0.268	0.313	0.600	0.031	0.047
18"	/	/	2'-6"	0.268	0.313	0.678	0.044	0.065
24"	/	/	3'-0"	0.268	0.313	0.835	0.078	0.113
30"	3'-0"	2'-0"	3'-6"	0.268	0.313	0.991	0.122	0.170

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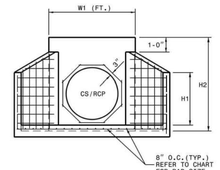
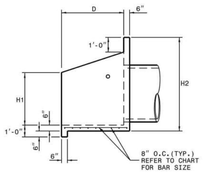
1-24

ROADWAY STANDARD DRAWING FOR
BRICK DROP INLET
12" THRU 30" PIPE

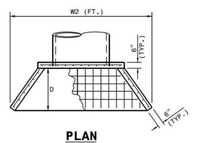
SHEET 1 OF 1
840.15



ELEVATION



SIDE



PLAN

NOTES:

* THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.39, 838.51, 838.57, 838.63 AND 838.69.
* INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
* USE 4000 PSI CONCRETE.
* PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
* PIPE TO BE GROUTED INTO HEADWALL AT JOB SITE BY CONTRACTOR
* ALL ELEMENTS PRECAST TO MEET ASTM C913.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
* CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 8" CTS.THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS						
FT.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.	BAR SIZE	H1(FT.)	H2(FT.)	D (FT.)	W1	W2
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

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

1-18

ROADWAY STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL
FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

SHEET 1 OF 1
838.80

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

PRELIMINARY
DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
JACOB P. KLEIN
053281

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

THE PRESERVE
AT
MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

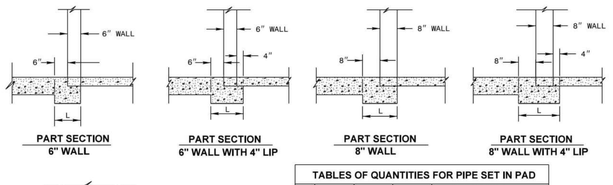
DRAINAGE DETAILS

SHEET NO.:

CD11

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\21-002 Moody Development Tract (8210003)\Dwgs_Working Dwgs\Construction Set\CD11 Project Details.dwg July 15, 2025



GENERAL NOTES:
USE THIS STANDARD WITH ALL DRAINAGE STRUCTURES USING REINFORCED CONCRETE PIPE SET IN BASE SLAB.

TABLES OF QUANTITIES FOR PIPE SET IN PAD

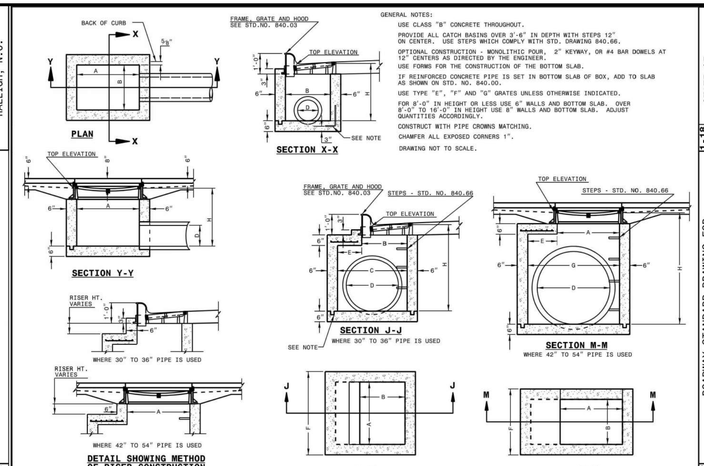
PIPE	"W"	"W1"	"T"	C.Y. QUANTITIES WHEN L IS		
D	DIM	DIM	DIM	12'	16'	20'
12"	1'-1⅞"	0'-7⅞"	0'-2"	0.005	0.007	0.008
15"	1'-3⅝"	0'-9⅛"	0'-2"	0.006	0.008	0.010
18"	1'-5¼"	0'-10⅜"	0'-2"	0.007	0.010	0.012
24"	1'-8¾"	1'-0⅛"	0'-3"	0.011	0.014	0.018
30"	2'-0¼"	1'-2¾"	0'-3½"	0.014	0.018	0.023
36"	2'-3¾"	1'-5⅜"	0'-4"	0.017	0.023	0.025
42"	2'-7½"	1'-7"	0'-5¼"	0.025	0.030	0.038
48"	2'-10⅝"	1'-8¾"	0'-5¾"	0.028	0.038	0.047
54"	3'-2⅛"	1'-10½"	0'-6¼"	0.035	0.047	0.058
60"	3'-5⅝"	2'-0¼"	0'-6¾"	0.042	0.056	0.071
66"	3'-9"	2'-2¼"	0'-7¼"	0.050	0.067	0.084
72"	4'-0½"	2'-3¾"	0'-7¾"	0.059	0.078	0.098

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

1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE BASE PAD FOR DRAINAGE STRUCTURES

SHEET 1 OF 1
840.00



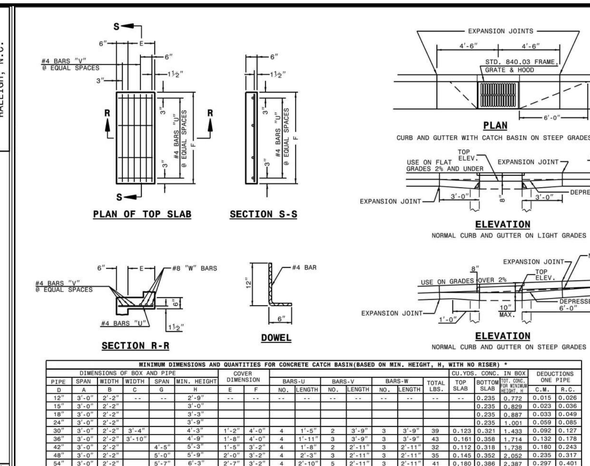
GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CROWNS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

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

1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 1 OF 2
840.02



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE					COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	CU.YDS. CONC. IN BOX		DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT		NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		TOP SLAB	BOTTOM SLAB	TOP CONC. ARCH SECT.	C.M.	R.C.
D	A	B	C	G	H	E	F											
12"	3'-0"	2'-3"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-3"			3'-0"										0.235	0.829	0.023	0.036
18"	3'-0"	2'-3"			3'-3"										0.235	0.887	0.033	0.049
24"	3'-0"	2'-3"			3'-9"										0.235	1.001	0.059	0.085
30"	3'-0"	2'-3"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.125	0.321	0.092	0.127
36"	3'-0"	2'-3"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"			4'-5"	5'-3"	1'-5"	3'-2"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-3"		5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	2'-2"		5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

1-18

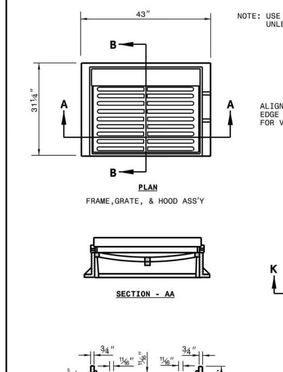
ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02

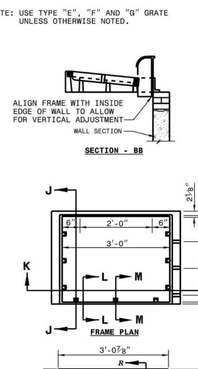
AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

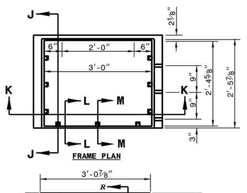
NORTH CAROLINA ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

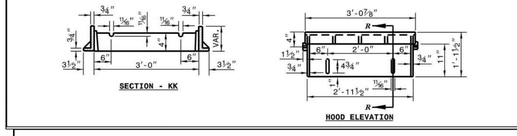
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
JOSHUA P. KLEIN
NORTH CAROLINA PROFESSIONAL ENGINEER
053528



NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.





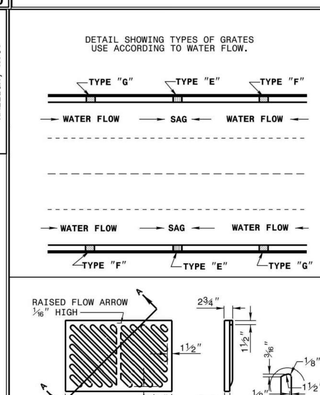


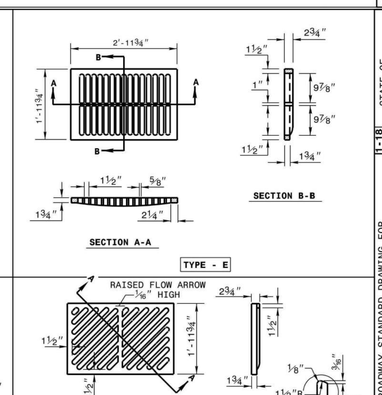
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

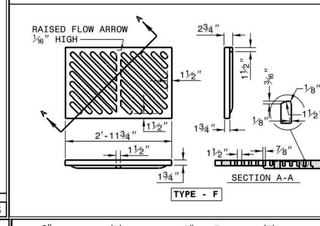
1-18

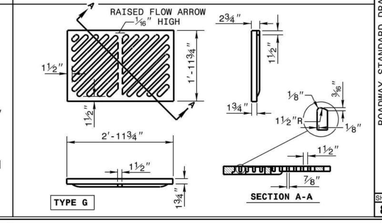
ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 1 OF 2
840.03







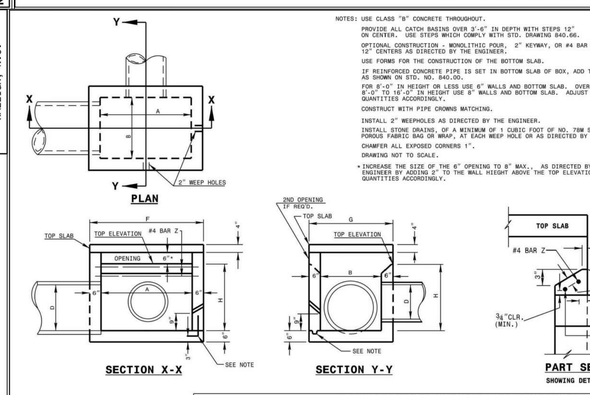


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2
840.03



NOTES: USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CROWNS MATCHING.
INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.
* INCREASE THE SIZE OF THE 6" OPENING TO 8" MAX., AS DIRECTED BY THE ENGINEER BY ADDING 2" TO THE WALL HEIGHT ABOVE THE TOP ELEVATION. ADJUST QUANTITIES ACCORDINGLY.

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)

DIM'S OF BOX & PIPE				REINFORCING						TOP & BOT. SLAB DIMENSIONS		CU. YDS. CONC. IN BOX		TOTAL QUANTITIES BOX & SLABS	DEDUCTION ONE PIPE	MIN. ONE CIRCULAR OPENING
PIPE	SPAN	WIDTH	HEIGHT	BARS - X		BARS - Y		BARS - Z								
D	A	B	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	F	G	TOP SLAB	BOT. SLAB	WALLS, ET. AL	C.S.	R.C.	YD³
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.048	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	3'-8"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	3'-8"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	2	4'-9"	5'-0"	4'-6"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-0"	4'-0"	3'-10"	5	4'-3"	10	5'-3"	2	5'-3"	5'-6"	5'-0"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	2	5'-9"	6'-0"	5'-6"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	2	5'-9"	6'-0"	6'-0"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

STATE OF NORTH CAROLINA
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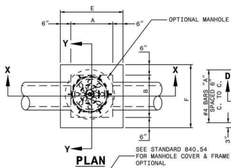
RALEIGH, N.C.

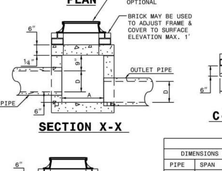
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

SHEET 1 OF 2
840.04



GENERAL NOTES:
CHAMFER ALL EXPOSED CORNERS 1".
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
PROVIDE ALL JUNCTION BOXES OVER 5'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E., DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS			DEDUCTIONS FOR ONE PIPE
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
D	A	B	H											
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

STATE OF NORTH CAROLINA
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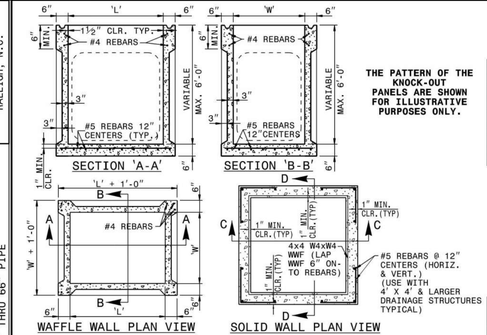
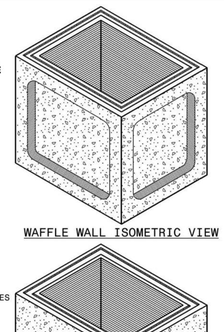
ROADWAY STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

SHEET 1 OF 1
840.31



THE PATTERN OF THE KNOCK-OUT PANELS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.



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

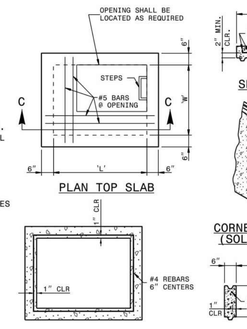
1-18

ROADWAY STANDARD DRAWING FOR
PRECAST DRAINAGE STRUCTURE
(SOLID AND WAFFLE WALL)

SHEET 1 OF 2
840.45

GENERAL NOTES:

* THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.13, 840.14, 840.15, 840.17, 840.18, 840.19, 840.26, 840.27, 840.28, 840.31, 840.32 AND 840.41.
* INSTALL PRECAST DRAINAGE STRUCTURES AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
* DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURED.
* USE 4000 PSI CONCRETE.
* PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
* LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
* CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
* ALL ELEMENTS PRECAST TO MEET ASTM C913.
* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
* PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
* SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.
* LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 5'-0" X 5'-0".
* THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
* USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.



STATE OF NORTH CAROLINA
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RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
PRECAST DRAINAGE STRUCTURE
(GENERAL NOTES AND DETAILS)

SHEET 2 OF 2
840.45

NO.	DATE	REVISION:
1	02.03.2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04.01.2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02.2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

STIPULATION FOR REUSE

THIS PRECAST BOX MAY BE 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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

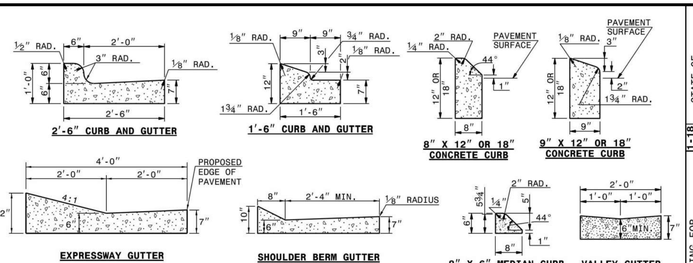
SHEET TITLE:

DRAINAGE DETAILS

SHEET NO.:
CD12

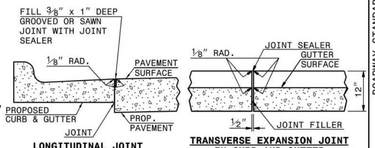
North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

July 15, 2025
Z:\Jobs\21-002 Moody Development Tract (8210037)\Dwg_Working Dwgs\[Construction Set\CD1 Project Details.dwg



SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
-PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
-JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
-CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
-FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
-SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



LONGITUDINAL JOINT

TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

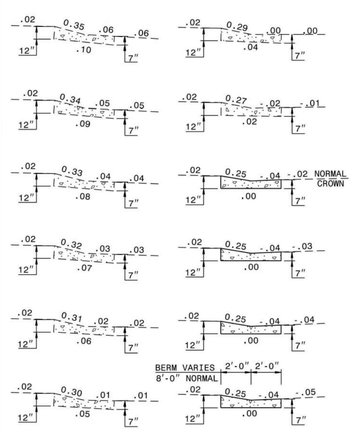
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

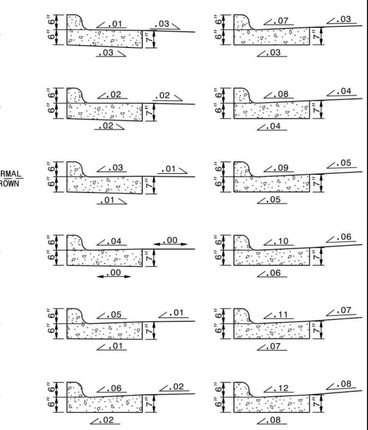
ROADWAY STANDARD DRAWING FOR **CONCRETE CURB, GUTTER AND CURB & GUTTER**

SHEET 1 OF 3

846.01



SECTION VIEWS OF EXPRESSWAY GUTTER IN SUPER ELEVATION



SECTION VIEWS OF 2'-6" CURB AND GUTTER SUPERELEVATION RATES

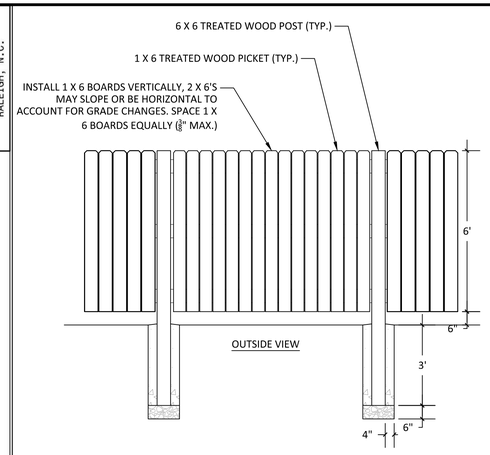
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

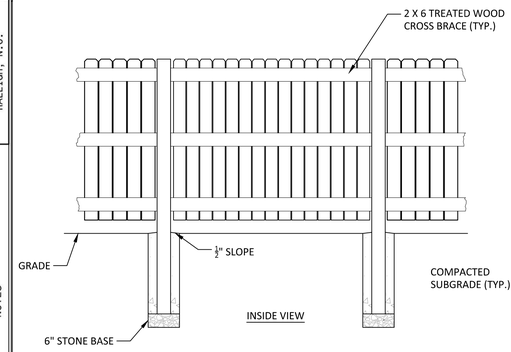
1-18

ROADWAY STANDARD DRAWING FOR **CONCRETE CURB, GUTTER AND CURB & GUTTER**

SHEET 2 OF 3

846.01

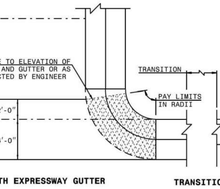


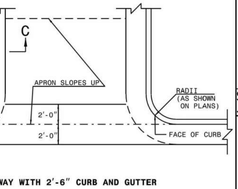


NOTES
1. FENCE TO BE INSTALLED SO 'OUTSIDE VIEW' FACES ADJACENT PARCELS

1 WOOD PICKET FENCE

NOT TO SCALE





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

7-06

METRIC STANDARD DRAWING FOR **BARRICADES** TYPE-III

GENERAL NOTES

1-HORIZONTAL RAILS FOR TYPE-III BARRICADES MAY BE HOLLOW/CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED RAILS. PLASTIC TYPE RAILS MUST BE FLAME TREATED BY THE MANUFACTURER SO THAT REFLECTIVE SHEETING MAY ADHERE PROPERLY.

2-BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 2.4m UNLESS NCHRP 350 CRASH TESTED AND NCDOT APPROVED.

3-ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADED RAILS USING MINIMUM SIZES BOLT TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.

4-SIGNS MOUNTED ON BARRICADES SHOULD NOT COVER MORE THAN 50 PERCENT OF THE TOP TWO RAILS OR 33 PERCENT OF THE TOTAL AREA OF THE THREE RAILS.

5-USE TYPE VII, VIII OR IX RETROREFLECTIVE SHEETING ON BOTH SIDES OF THE BARRICADE RAILS.

6-BARRICADE MUST BE NCHRP 350 AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.

7-ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.

8-BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.

9-STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES. USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.

10-SEE NCDOT APPROVED PRODUCTS LIST FOR MANUFACTURERS OF APPROVED BARRICADES.

11-PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.

12-PLACE SANDBAGS ON FEET OF THE FRAME FOR BALLASTING. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

NOTE:
THIS DRAWING IS DIMENSIONED IN MILLIMETERS UNLESS OTHERWISE DEPICTED WITHIN THE DRAWING.

SHEET 1 OF 1

1145.01

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

7-06

METRIC STANDARD DRAWING FOR **BARRICADES** TYPE-III

SHEET 1 OF 1

1145.01

NOTES:
1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

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

1-18

ROADWAY STANDARD DRAWING FOR **CURB RAMPS** NOTES

SHEET 3 OF 3

848.05

CURB RAMP AND EXISTING SIDEWALK

NOTES:
1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

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

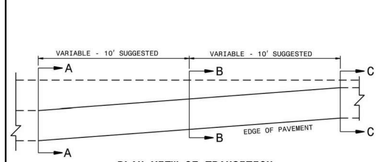
1-18

ROADWAY STANDARD DRAWING FOR **CURB RAMP** EXISTING CURB AND GUTTER

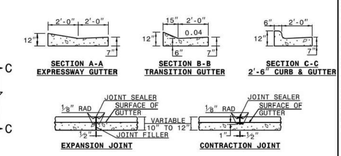
SHEET 5 OF 5

848.06

PLAN VIEW OF TYPICAL CURB AND GUTTER OCCURENCES



PLAN VIEW OF TRANSITION
EXPRESSWAY GUTTER TO 2'-6" CURB AND GUTTER



NOTES:
-IN THE TRANSITION FROM 4'-0" CONCRETE EXPRESSWAY GUTTER TO 2'-6" CONCRETE CURB AND GUTTER, PLACE ½" EXPANSION JOINTS AT 25' INTERVALS.
-PLACE GROOVE JOINTS 1" DEEP AT 12'-6" INTERVALS BETWEEN EXPANSION JOINTS.
-FILL AND SEAL THE TOP ½" OF THE EXPANSION JOINTS AND 1" OF CONTRACTION JOINTS WITH APPROVED JOINT SEALING COMPOUND.

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

1-18

ROADWAY STANDARD DRAWING FOR **CONCRETE CURB, GUTTER AND CURB & GUTTER**

SHEET 3 OF 3

846.01

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

PRELIMINARY - NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER 35528 JAMES P. KLEIN

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:

SITE DETAILS

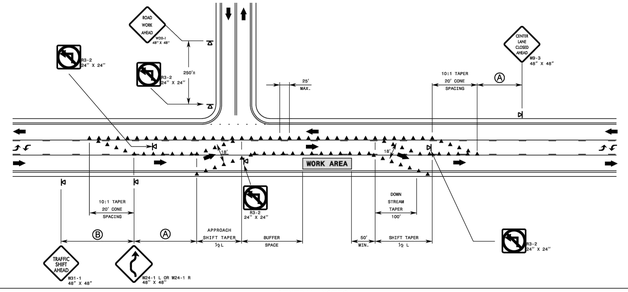
SHEET NO.:

CD13

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

July 15, 2025

Z:\Jobs\21-002 Moody Development Tract (R)\2000\Dwg_Working Dwgs\Construction Set\CD3 Project Details.dwg



GENERAL NOTES

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.

2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

3- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE BEGINNING OF THE APPROACH SHIFT TAPER (REFER TO RSD. 1101.11, SHEET 2).

4- TMAs ARE REQUIRED WHEN ADEQUATE BUFFER SPACE CANNOT BE ATTAINED. POSITION TMAs TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY RSD 1165.01.

5- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.

6- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

7- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (R20-7d) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS, PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

8- THIS DETAIL IS APPLICABLE FOR OPERATIONS IN PLACE FOR 72 HOURS OR LESS. FOR LONGER DURATION OPERATIONS, SIGNING AND PAVEMENT MARKINGS MAY NEED TO BE ALTERED.

LEGEND

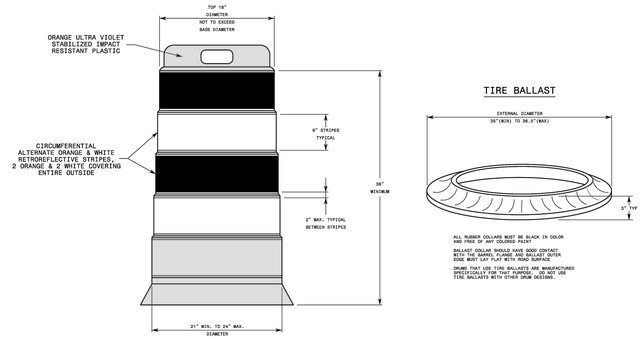
- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

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

1-24

ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY WITH 2-WAY TURN LANE
1 THRU LANE CLOSED

SHEET 2 OF 19
1101.02



TIRE BALLAST

ALL RUBBER COLLARS MUST BE BLACK IN COLOR AND FREE OF ANY COLORED PAINT.

BALLAST COLLAR SHOULD HAVE GOOD CONTACT WITH THE BARREL FLANGE AND BALLAST OUTER EDGE, BUT LAY FLAT WITH ANY GAP.

DRUM TIRE BALLASTS ARE MANUFACTURED SPECIFICALLY FOR THE BARRELS AND MAY NOT USE TIRE BALLASTS WITH OTHER DRUM DESIGNS.

GENERAL NOTES

1- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL, OR PREFORMED WEIGHTED BASE METHODS. USE THE TIRE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

2- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

3- ALL DRUMS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCT LIST.

4- REFER TO THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL INFORMATION.

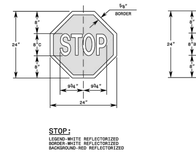
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

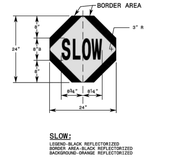
ROADWAY STANDARD DRAWING FOR
DRUMS

SHEET 1 OF 1
1130.01

STOP/SLOW PADDLE

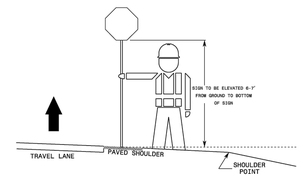


STOP;
LEGEND-WHITE REFLECTORIZED
BORDER-WHITE REFLECTORIZED
BACKGROUND-RED REFLECTORIZED



SLOW:
LEGEND-BLACK REFLECTORIZED
BORDER AREA-BLACK REFLECTORIZED
BACKGROUND-ORANGE REFLECTORIZED

FLAGGER AND PADDLE PLACEMENT



GENERAL NOTES

1- USE HAND SIGNALING DEVICES SUCH AS STOP-SLOW PADDLES, FLASHLIGHTS TO CONTROL TRAFFIC. USE STOP-SLOW PADDLES AS THE PRIMARY DEVICE.

2- FABRICATE STOP-SLOW PADDLES FROM SHEET METAL OR OTHER LIGHT SEMI RIGID MATERIAL. PROVIDE A RIGID HANDLE OF SUFFICIENT LENGTH SO THE PADDLE IS HELD AT 6-7' ABOVE GROUND LEVEL.

3- PROVIDE STOPPING SIGHT DISTANCE TO EACH FLAGGER STATION. REFER TO RSD. 1101.11, SHEET 2.

4- ILLUMINATE FLAGGER STATIONS DURING NIGHT OPERATIONS.

5- FOLLOW FLAGGER QUALIFICATIONS AND METHODS OF HAND-SIGNALING PROCEDURES IN ACCORDANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

6- ALL FLAGGERS MUST BE CERTIFIED BY AN NCDOT APPROVED TRAINING RESOURCE.

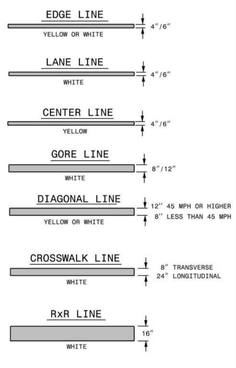
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

ROADWAY STANDARD DRAWING FOR
FLAGGERS

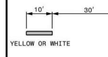
SHEET 1 OF 1
1150.01

CONTINUOUS LINES



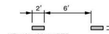
10'-30'/SP SKIP LINE

UNLESS OTHERWISED SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.



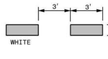
2'-6'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND MINI-SKIPS USED FOR BICYCLE LANE LINES.



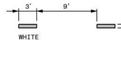
3'-3'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS.



3'-9'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES AND LINE EXTENSIONS THROUGH TAPERS.



GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.

2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

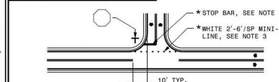
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

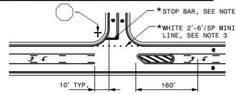
ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
LINE TYPES AND OFFSETS

SHEET 1 OF 2
1205.01

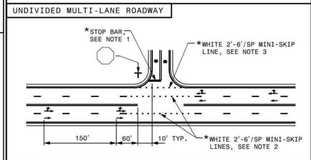
TWO-LANE, TWO-WAY ROADWAY



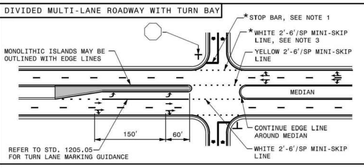
TWO-LANE, TWO-WAY ROADWAY WITH TWO-WAY LEFT TURN LANE



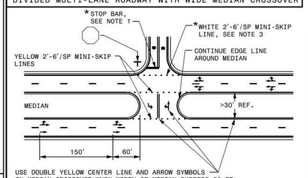
UNDIVIDED MULTI-LANE ROADWAY



DIVIDED MULTI-LANE ROADWAY WITH TURN BAY



DIVIDED MULTI-LANE ROADWAY WITH WIDE MEDIAN CROSSOVER



USE DOUBLE YELLOW CENTER LINE AND ARROW SYMBOLS IN MEDIAN CROSSOVER WHEN WIDTH OF MEDIAN EXCEEDS 30 FT, OTHERWISE THEY ARE NOT REQUIRED.

GENERAL NOTES:

1- PLACEMENT OF STOP BARS AT NON-SIGNALIZED INTERSECTIONS IS OPTIONAL AND USED WHERE IT IS IMPORTANT TO INDICATE THE POINT WHICH VEHICLES ARE REQUIRED TO STOP. PLACE STOP BARS NO LESS THAN 4 FEET AND NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. USE 10 FEET AS THE TYPICAL SETBACK DISTANCE OR AS DIRECTED BY THE ENGINEER.

2- MINI-SKIP LANE LINE EXTENSIONS SHOULD BE USED AT INTERSECTIONS THAT HAVE REDUCED VISIBILITY CONDITIONS SUCH AS OFFSET, SKEWED, OR CURVED ROADWAYS.

3- MINI-SKIP EDGE LINE EXTENSIONS MAY BE PLACED THROUGH INTERSECTIONS AND MAJOR DRIVEWAYS.

4- REFER TO ROADWAY STANDARD DRAWINGS 1205.01, 1205.02, 1205.05, 1205.08 AND 1205.09 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

LEGEND

- STOP SIGN
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- PAVEMENT MARKING SYMBOLS
- OPTIONAL

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

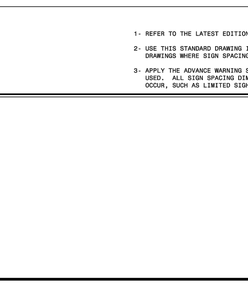
1-18

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
INTERSECTIONS

SHEET 2 OF 2
1205.04

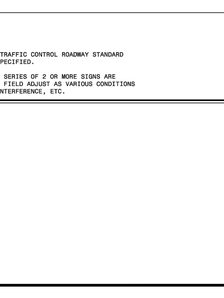
28 INCH CONE

(MINIMUM SIZE CONE FOR ALL CLASSES OF ROADS EXCEPT FREEWAYS AND INTERSTATES)



36 INCH CONE

(REQUIRED FOR FREEWAYS AND INTERSTATES)



GENERAL NOTES

1- ACHIEVE BALLASTING BY USING SPECIAL WEIGHTED BASES SUCH AS SAND BAG RINGS, DOUBLING CONES, OR BASES THAT CAN BE FILLED WITH BALLAST. SEVENTY PERCENT OF THE WEIGHT OF THE CONE MUST BE IN THE BASE. USE BALLAST'S THAT DO NOT PRESENT A HAZARD WHEN STRUCK.

2- ALL CONES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

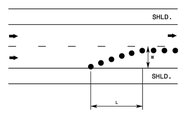
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
CONES

SHEET 1 OF 1
1135.01

EXAMPLE OF "L" & "W" DESIGNATIONS



TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES

TYPES OF TAPERS	TAPER LENGTH
UPSTREAM TAPER	
MERGING TAPER	L MINIMUM
SHIFTING TAPER	½ L MINIMUM *
SHOULDER TAPER	⅓ L MINIMUM
TWO-WAY TRAFFIC TAPER	50 - 100 FEET MAXIMUM
DOWNSTREAM TAPER	100 FEET MAXIMUM

DO NOT INTRODUCE A MERGING OR SHIFTING TAPER WITHIN A CURVE OF THE ROADWAY

*USE FULL L FOR CONTROLLED-ACCESS FACILITIES UNLESS RESTRICTED BY FIELD CONDITIONS AS DETERMINED BY THE TRAFFIC CONTROL SUPERVISOR OR THE ENGINEER.

QUICK REFERENCE - "L" DISTANCE TABLE

POSTED SPEED "S" (MPH)	MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES) — LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

GENERAL NOTES

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE MUTCD. WHERE:

SPEED LIMIT	FORMULA
40 MPH OR LESS	$L_{min} = \frac{W \times S^2}{60}$
45 MPH OR GREATER	$L_{min} = W \times S$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)
S = EXISTING POSTED SPEED LIMIT PRIOR TO THE IMPLEMENTATION OF A WORK ZONE SPEED LIMIT REDUCTION

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

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

1-24

ROADWAY STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
"L" DISTANCE AND CHANNELIZING DEVICE TAPER CRITERIA

SHEET 1 OF 4
1101.11

DESIGN SPEED (MPH)	MINIMUM SIGHT DISTANCE — STOPPING SIGHT DISTANCE (FEET)	MINIMUM LONGITUDINAL BUFFER SPACE (FEET)
30	200	85
35	250	120
40	305	155
45	360	195
50	425	240
55	495	290
60	570	345
65	645	405
70	730	470
75	820	540
80	910	615

GENERAL NOTES

1- TABLES ARE BASED ON THE AASHTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE AASHTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.

2- BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.

3- USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER. FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE MERGE TAPER, OR FLASHING ARROW BOARD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.

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

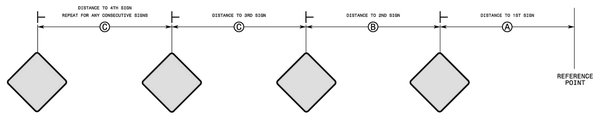
1-24

ROADWAY STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
BUFFER SPACE & SIGHT DISTANCE

SHEET 2 OF 4
1101.11

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET)‡		
	Ⓐ	Ⓑ	Ⓒ
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

STATIONARY OR PORTABLE SIGNS



GENERAL NOTES

1- REFER TO THE LATEST EDITION OF THE MUTCD.

2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.

3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

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

1-24

ROADWAY STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
SPACING OF TEMPORARY SIGNS IN SERIES

SHEET 4 OF 4
1101.11

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

PRELIMINARY - NOT TO BE USED FOR CONSTRUCTION - 365.28 - JOSHUA P. KLEIN - PROFESSIONAL ENGINEER

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

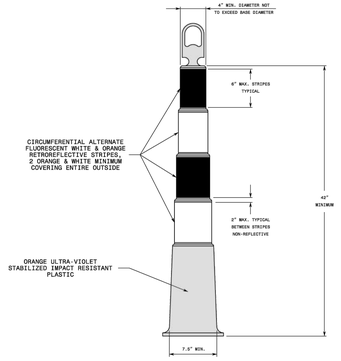
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SITE DETAILS

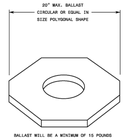
SHEET NO.:
CD14

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

July 15, 2025
Z:\Jobs\21-002 Moody Development Tract\R21000\Civil_Working Dwgs\Construction Set\CD3 Project Details.dwg



TYPICAL BALLAST



GENERAL NOTES

1- USE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

2- IF NECESSARY, PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

3- REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL REQUIREMENTS.

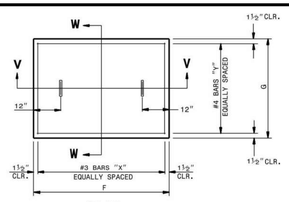
4- ALL SKINNY DRUMS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

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

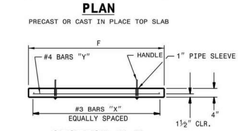
1-24

ROADWAY STANDARD DRAWING FOR
SKINNY DRUMS

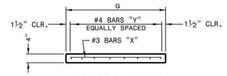
SHEET 1 OF 1
1180.01



PLAN
PRECAST OR CAST IN PLACE TOP SLAB



SECTION V-V



SECTION W-W

DETAIL OF HANDLE

PART SECTION
THRU COVER SHOWING HANDLE

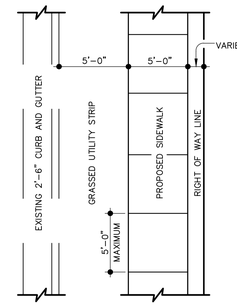
DOWEL

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

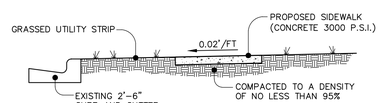
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

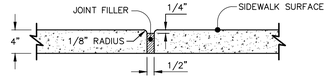
SHEET 2 OF 2
840.04



PLAN VIEW



TYPICAL SECTION



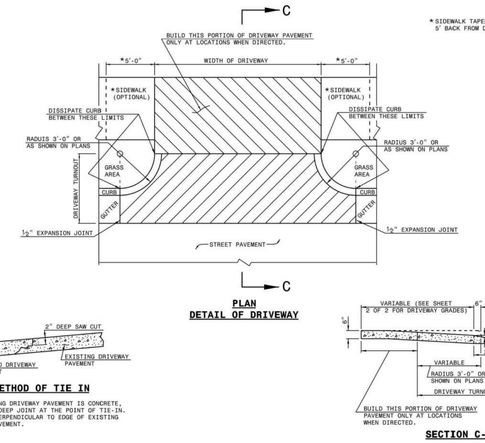
TRANSVERSE EXPANSION JOINT

NOTES:

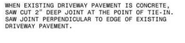
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
3. A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS (ALONG THE LENGTH OF RADIUS CURB RETURNS), AND IN THE HANDICAP RAMPS.

STANDARD CONCRETE SIDEWALK

DETAIL No.
03000.07
SHEET 1 OF 2



PLAN
DETAIL OF DRIVEWAY



METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

SECTION C-C

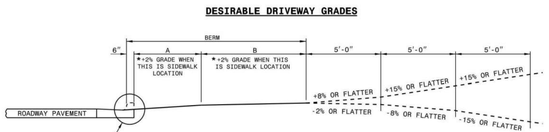
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

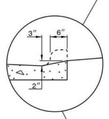
1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 2
848.02

DESIRABLE DRIVEWAY GRADES



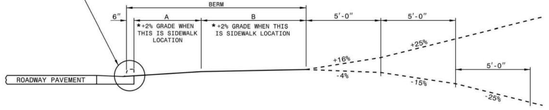


*SIDEWALK LOCATION (DO NOT PLACE SIDEWALK ON BERMS LESS THAN 6' WIDE.)

DESIRABLE OR MAXIMUM DRIVEWAY GRADES

BERM WIDTH	A		B	
	DIST.	GRADE	DIST.	GRADE
8' OR LESS	5'-0"	+2%*	2'-6"	+5%
8' OR LESS	2'-0"	+6%	5'-6"	+2%*
10'	4'-0"	+4%	5'-6"	+2%*
12' & OVER	4'-6"	+4%	7'-0"	+2%*

MAXIMUM DRIVEWAY GRADES



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

1-18

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
DRIVEWAY GRADES

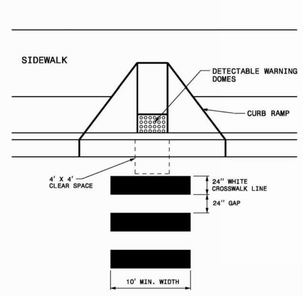
SHEET 2 OF 2
848.02

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

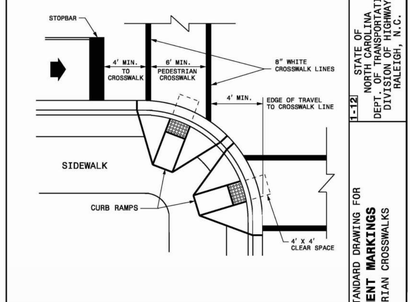
1-12

ENGLISH STANDARD DRAWING FOR
PAVEMENT MARKINGS
PEDESTRIAN CROSSWALKS

HI-VISIBILITY CROSSWALK



STANDARD CROSSWALK



1- THE MINIMUM WIDTH OF STANDARD CROSSWALKS IS 6 FEET. THE MINIMUM WIDTH OF HI-VISIBILITY CROSSWALKS IS 10 FEET.

2- SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

3- BEYOND THE CURB FACE, A CLEAR SPACE OF 4' X 4' FEET MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE CROSSWALK.

4- PLACE STOP BARS A MINIMUM OF 4 FEET FROM NEAREST CROSSWALK LINE. STOP BARS AT SIGNALIZED INTERSECTIONS SHOULD BE COORDINATED WITH THE SIGNAL DESIGN SECTION OR AS DIRECTED BY THE ENGINEER.

5- CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

LEGEND

- DIRECTION OF TRAFFIC FLOW
- CURB RAMP WITH DETECTABLE WARNING DOMES

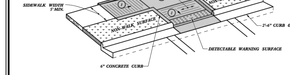
SHEET 1 OF 1
1205.07

ENGLISH STANDARD DRAWING FOR
PAVEMENT MARKINGS
PEDESTRIAN CROSSWALKS

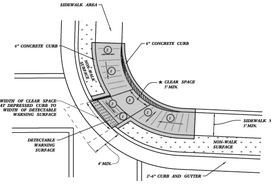
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

SHEET 1 OF 1
1205.07



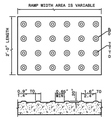
TYPE 3



TYPE 3 MODIFIED
INSTALLATION IN A RADIUS

NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.

DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING SURFACE

2 8.33% (12:1) *MAX RAMP SLOPE*
2 *CROSS SLOPE: 2.00%*
2 *MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.*

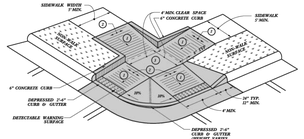
PAY LIMITS FOR 1 CURB RAMP

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

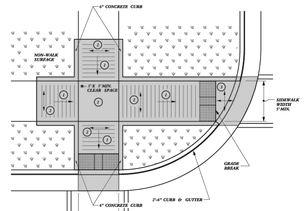
1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
PARALLEL RAMP

SHEET 9 OF 13
848.06



TYPE 5

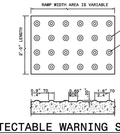


★ - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 7' MINIMUM X 7' DIAGONAL WITH 7' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

TYPE 5A

NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.

DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING SURFACE

2 *8.33% (12:1) MAX SLOPE*
2 *CROSS SLOPE: 2.00%*
2 *MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.*

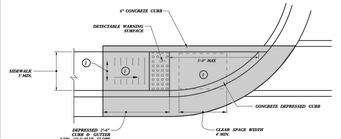
PAY LIMITS FOR 1 OR 2 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF DETECTABLE WARNING SURFACES)

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

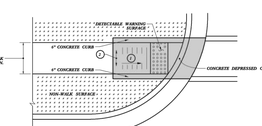
1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
SHARED LANDING

SHEET 11 OF 13
848.06



TYPE 1



TYPE 1 MODIFIED

2 8.33% (12:1) *MAX RAMP SLOPE*
2 *CROSS SLOPE: 2.00%*
2 *MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.*

NOTES:
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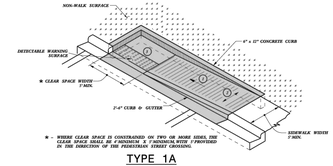
DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

DETECTABLE WARNING SURFACE



★ - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 7' MINIMUM X 7' DIAGONAL WITH 7' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

TYPE 1A

PAY LIMITS FOR 1 CURB RAMP

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

1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
DIRECTIONAL RAMP

SHEET 6 OF 13
848.06

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 35528 JACOB P. KLEIN

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

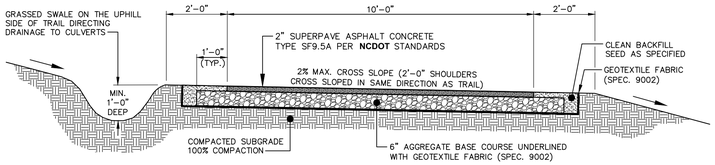
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SITE DETAILS

SHEET NO.:
CD15

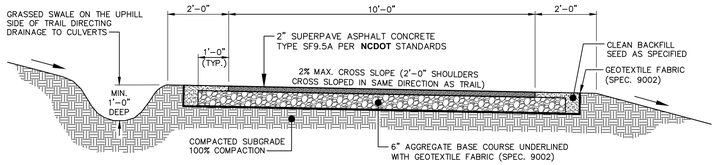
North Carolina 811 Know what's below. Call before you dig.
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\21-002 Moody Development Tract (R2100021)\dwg_Working Dwgs\Construction Set\CD3 Project Details.dwg July 15, 2025



NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
2. NO ABOVE GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE MINIMUM 4 FEET FROM TRAIL EDGE.
3. ALL TRAILS SHALL BE LOCATED MINIMUM 5 FEET FROM THE BACK OF CURB.
4. SIDE SLOPES SHALL NOT EXCEED 3:1. CUT & FILL SLOPES SHALL TIE INTO EXISTING SLOPES TO CREATE AN EVEN TRANSITION.
5. CROSS SLOPE TYPICALLY TO LOW SIDE BUT CROSS SLOPE TO INSIDE OF DOWNHILL CURVES, WITH GRADUAL TRANSITIONS BETWEEN ANY CROSS SLOPE DIRECTION CHANGES.

STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL



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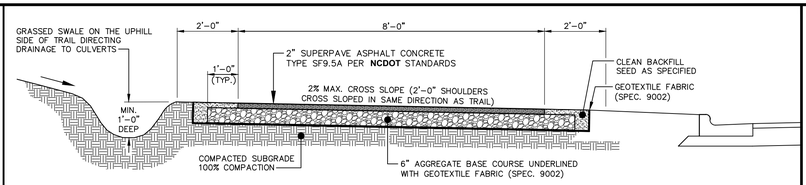

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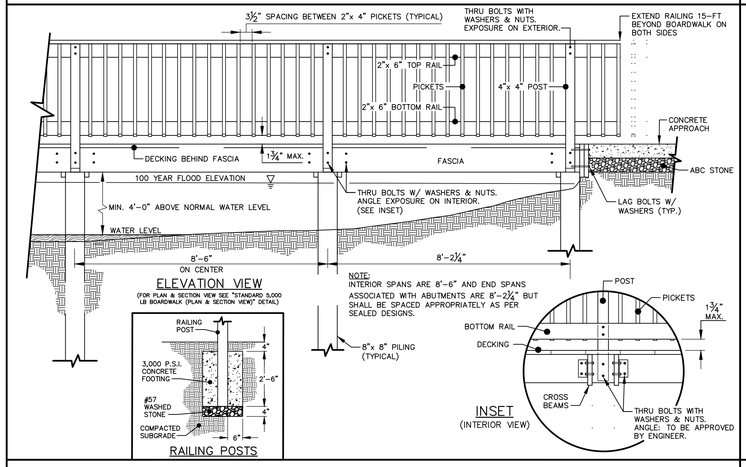
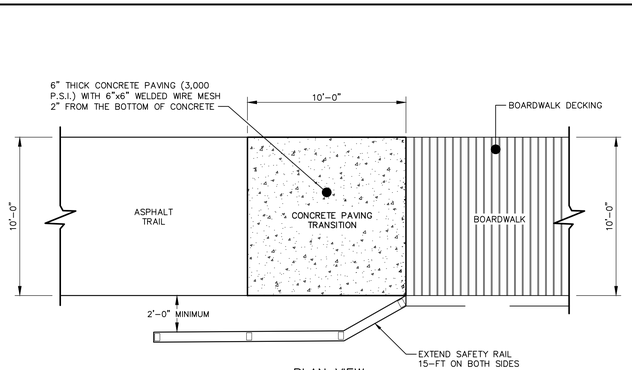
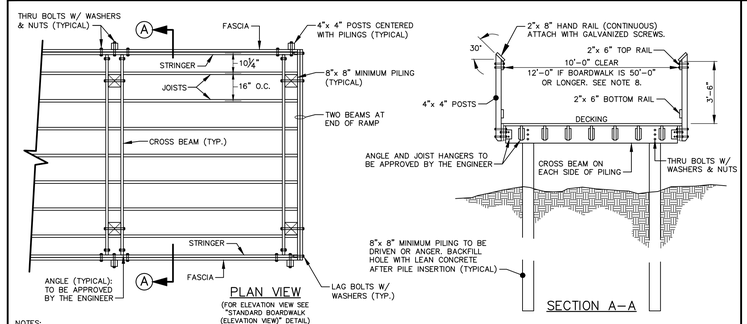
STANDARD 8-FT ROADWAY TRAIL



STANDARD BOARDWALK (ELEVATION VIEW)

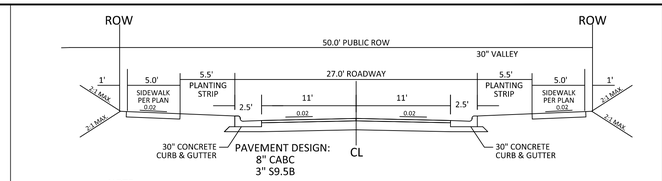


STANDARD 5,000 LB BOARDWALK APPROACH



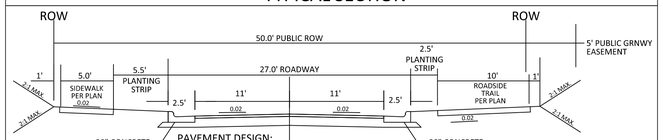
NOTES:
1. MINIMUM PILE PENETRATION FOR PIERS SHALL BE 10 FEET (OR APPROVED DEPTH BY GEOTECHNICAL ENGINEER).
2. SMALL MEMBERS SHALL HAVE PRE-DRILLED HOLES TO PREVENT SPLITTING DURING CONSTRUCTION. DECKING TO BE ATTACHED TO JOISTS USING GALVANIZED SCREWS & HARDWARE (ALL WOODEN MEMBERS SHALL BE BOLTED OR SCREWED TOGETHER. NO NAIL CONNECTIONS).
3. ALL BOLTS, NUTS, WASHERS, ETC. SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A153.
4. TIMBER BOARDWALK IS DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (17 EDITION – 2002). DESIGN LIVE LOAD IS SMALL VEHICLE OF 5000 POUNDS, 2500 POUNDS PER AXLE WITH A MINIMUM 96 INCH WHEEL BASE.
5. SITE SOIL PROPERTIES ARE ASSUMED TO SUPPORT FOUNDATION LOADS. CONTRACTOR SHALL PROVIDE GEOTECHNICAL REPORT TO THE ENGINEER INDICATING THE SITE SOIL PROPERTIES THAT CAN SUPPORT FOUNDATION LOADS PRIOR TO BEGINNING CONSTRUCTION.
6. JOIST HANGER SHALL BE CAPABLE OF SUPPORTING A MINIMUM SAFE WORKING LOAD OF 3150 POUNDS AND SHALL BE GALVANIZED.
7. STRUCTURAL ENGINEER SHALL SIZE ALL LUMBER AND SPACING APPROPRIATELY TO MEET CAPACITY REQUIREMENTS, AND SHALL PROVIDE A SEALED CERTIFICATION TO TOWN THAT STRUCTURE WAS CONSTRUCTED IN ACCORDANCE WITH PLANS AND TOWN SPECIFICATIONS.
8. IF RUNNING SLOPE EXCEEDS 5%, HANDRAILS SHALL BE PROVIDED IN ACCORDANCE WITH **AASHTO/ADA** DESIGN REQUIREMENTS; 10 TO 12 FEET CLEARANCE, AS INDICATED IN SECTION A-A, SHALL BE BETWEEN HANDRAILS.

STANDARD 5,000 LB BOARDWALK (PLAN & SECTION VIEW)



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

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



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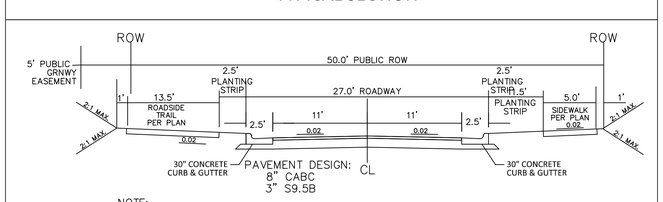
TYPICAL SECTION



NOTE:
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2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

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

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

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER
045528
JACOB P. KLEIN

NO.	DATE	REVISION:
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4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFF-LINE)

STIPULATION FOR REUSE

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

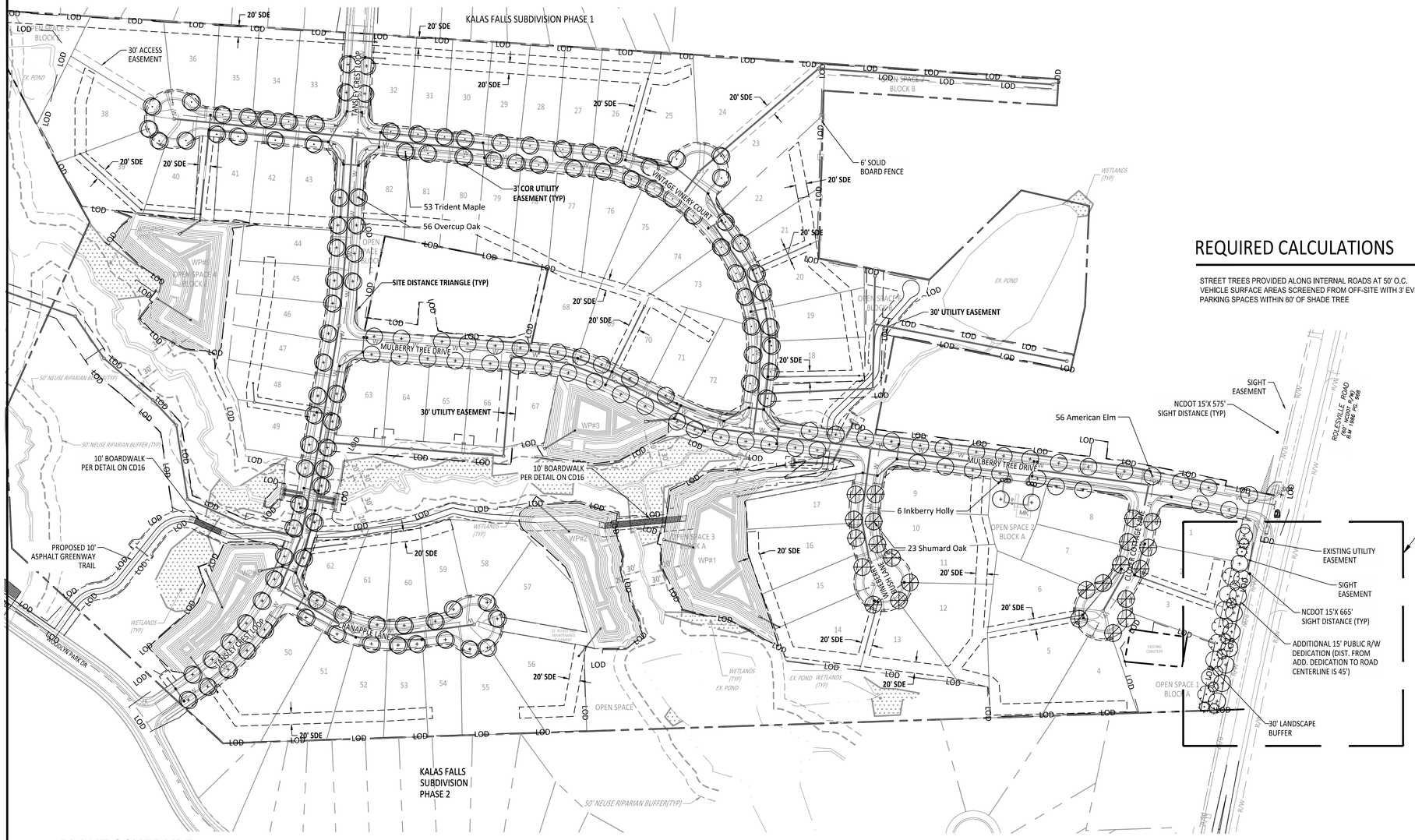
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
SITE DETAILS

SHEET NO.:
CD16

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 15, 2025
Z:\Jobs\21-002 Moody Development Tract (R)\100DWG\Dwg_Working Dwgs\Construction Set\CD3 Project Details.dwg



REQUIRED CALCULATIONS

STREET TREES PROVIDED ALONG INTERNAL ROADS AT 50' O.C.
VEHICLE SURFACE AREAS SCREENED FROM OFF-SITE WITH 3' EVERGREEN HEDGE
PARKING SPACES WITHIN 60' OF SHADE TREE

PLANT SCHEDULE

KEY	QUAN.	BOTANICAL NAME	COMMON NAME	SIZE	CONT.	NOTES
		TREES				
	4	Ginkgo biloba 'Goldspire'	Goldspire Ginkgo	2.5" Cal., 8' Ht.	B & B	Large mature tree
	4	Juniperus virginiana	Eastern Red Cedar	1.5" Cal., 6' Ht.	B & B	Evergreen tree
	4	Nyssa sylvatica 'Green Gable'	Green Gable Blackgum	1.5" Cal., 6' Ht.	B & B	Small mature tree
	23	Quercus shumardii	Shumard Oak	2.5" Cal., 8' Ht.	B & B	Large mature tree
	56	Quercus lyrata	Overcup Oak	2.5" Cal., 8' Ht.	B & B	Large mature tree
	8	Thuja occidentalis 'Emerald Green'	Emerald Green Arbovitae	1.5" Cal., 6' Ht.	B & B	Evergreen tree
	66	Ulmus americana	American Elm	2.5" Cal., 8' Ht.	B & B	Large mature tree
	53	Acer buergerianum	Trident Maple	2.5" Cal., 8' Ht.	B & B	Large mature tree
		SHRUBS				
⊙	6	Ilex glabra	Inkberry Holly	#3 Gallon	Cont.	Evergreen shrub

GENERAL NOTE: LOCATION OF STREET TREES MAY VARY DUE TO PROPOSED DRIVEWAYS. CONTRACTOR SHALL COORDINATE BETWEEN THE PROPOSED STREET TREES AND DRIVEWAYS. ENSURE A MINIMUM SPACING OF 15' BETWEEN SMALL STREET TREES, 25' BETWEEN MEDIUM STREET TREES, AND 35' BETWEEN LARGE STREET TREES IS MAINTAINED.

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

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
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City of Raleigh
Public Utilities Department Permit # _____

North Carolina 811 811 or 1-800-GO-UTILITY
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AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA PROFESSIONAL ENGINEERING CORPORATION C-652 AMERICAN ENGINEERING SERVICES

PRELIMINARY - DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA 18161 LAUREN E. DICKSON

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

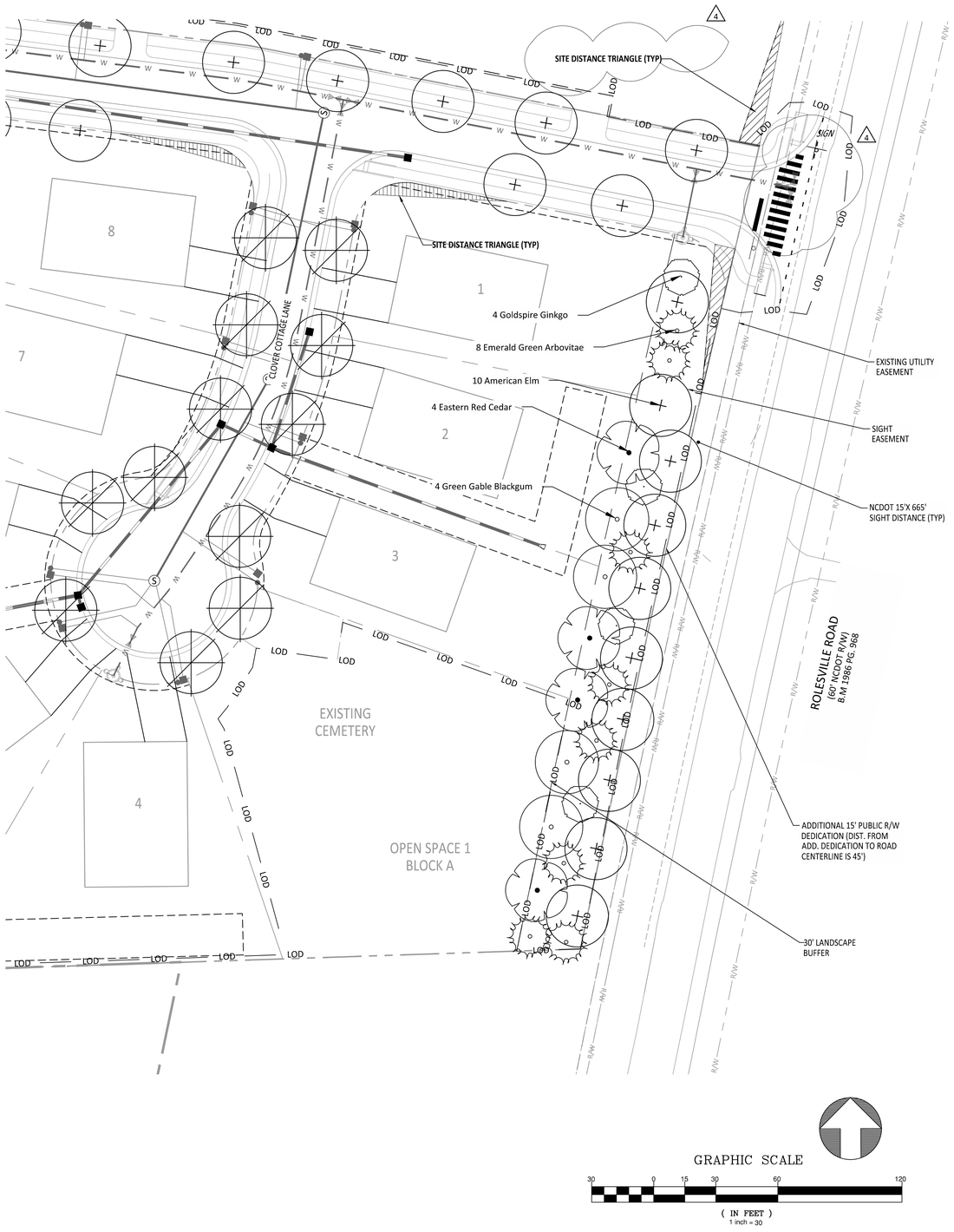
JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
LANDSCAPE PLAN

SHEET NO.:
L1

4

July 15, 2025
Z:\Jobs\21-002 Moody Development Tract (R210003)\dwg_Working Dwgs\Construction Set\13.0 Landscape Plan.dwg



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30

REQUIRED CALCULATIONS

STREET BUFFER ALONG ROLESVILLE ROAD: (387.504 LF)
PER UDO SECTION 14.4
- REQUIRED: 30' WIDTH FROM ROW LINE
  - PER 40 LF; 1 STREET TREE AND 2 UNDERSTORY ORNAMENTAL TREES
  - REQUIRED PLANTINGS: 10 STREET TREES, 20 UNDERSTORY ORNAMENTAL TREES
  - PROVIDED: 10 STREET TREES, 20 UNDERSTORY ORNAMENTAL TREES

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
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North Carolina 811
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NORTH CAROLINA C-652 AMERICAN ENGINEERING SERVICES

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NORTH CAROLINA 1816 LAURENE E. DICKSON

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THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
BUFFER PLAN

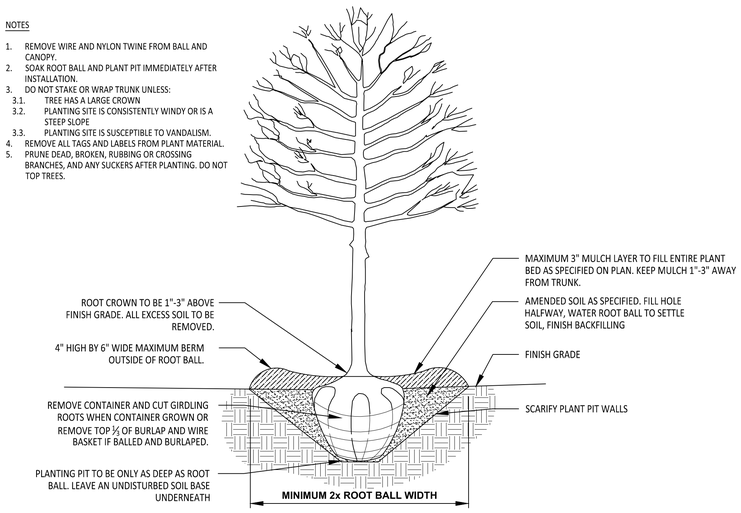
SHEET NO.:
L2

Z:\Jobs\21-002 Moody Development Tract (R2100023)\Dwg_ Working Dwgs\Construction Set\13 Landscape Plan.dwg
July 15, 2025

PLANT DETAILS

NOTES

1. REMOVE WIRE AND NYLON TWINE FROM BALL AND CANOPY.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.
3. DO NOT STAKE OR WRAP TRUNK UNLESS:
   - 3.1. TREE HAS A LARGE CROWN
   - 3.2. PLANTING SITE IS CONSISTENTLY WINDY OR IS A STEEP SLOPE
   - 3.3. PLANTING SITE IS SUSCEPTIBLE TO VANDALISM.
4. REMOVE ALL TAGS AND LABELS FROM PLANT MATERIAL.
5. PRUNE DEAD, BROKEN, RUBBING OR CROSSING BRANCHES, AND ANY SUCKERS AFTER PLANTING. DO NOT TOP TREES.



ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004)

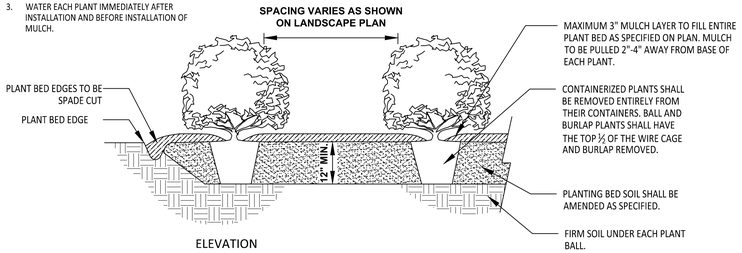
FOR EXAMPLE:	CALIPER	HEIGHT (RANGE)	MAX. HEIGHT	MIN. ROOT BALL DIA.	MIN. ROOT BALL DEPTH
	2"	12'-14'	16'	24"	16"
	3"	14'-16'	18'	32"	21"

TYPICAL TREE PLANTING

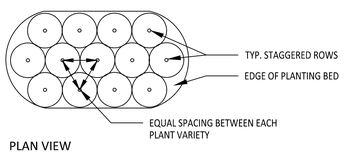
(FOR SINGLE AND MULTI-STEM TREES) NOT TO SCALE

NOTES:

1. SCARIFY ROOT MASS OF CONTAINERIZED PLANTS.
2. PLANT ROOT BALL SHOULD BE INSTALLED 1"-3" MAXIMUM ABOVE FINISHED GRADE.
3. WATER EACH PLANT IMMEDIATELY AFTER INSTALLATION AND BEFORE INSTALLATION OF MULCH.



ELEVATION



PLAN VIEW

TYPICAL SHRUB PLANTING

NOT TO SCALE

PLANT NOTES

PLANT INSTALLATION & MAINTENANCE NOTES:

1. ALL LANDSCAPING SHALL BE OF NURSERY STOCK QUALITY AND SHALL BE INSTALLED TO ACCEPTED NC LANDSCAPE CONTRACTOR STANDARDS.
2. ALL LANDSCAPING SHALL BE ADAPTABLE TO CLIMATIC CONDITIONS OF THE AREA.
3. LARGE TREES SHOULD NOT BE PLANTED WITHIN EASEMENTS AND A MINIMUM OF 6' FROM UTILITY LINES, UNLESS OTHERWISE SPECIFIED BY REVIEWING AGENCY. SHRUBS MAY BE PLANTED IN EASEMENTS, BUT A MINIMUM OF 3' FROM UTILITY LINES, UNLESS OTHERWISE SPECIFIED BY REVIEWING AGENCY.
4. ALL LANDSCAPING SHALL BE MAINTAINED IN GOOD CONDITION.
5. ALL LANDSCAPING SHALL AT ALL TIMES PRESENT A HEALTHY, NEAT, CLEAN, ORDERLY, DISEASE-FREE AND PEST-FREE APPEARANCE.
6. ALL LANDSCAPING SOIL AND FILL SHALL BE FREE FROM WEEDS, REFUSE, AND DEBRIS AT ALL TIMES.
7. EXCESS SOIL SHALL BE DISPOSED OF IN A LEGAL MANNER.
8. ANY DEAD PLANT MATERIAL OR MATERIAL THAT FAILS TO SHOW HEALTHY GROWTH MUST BE REMOVED WITHIN 30 DAYS.
9. REPLACEMENT OF REMOVED PLANT MATERIAL MUST TAKE PLACE WITHIN 90 DAYS OF REMOVAL OR NOTIFICATION BY THE TOWN, WHICHEVER OCCURS FIRST.
10. ANY REPLACEMENT PLANT MATERIAL MUST MEET THE SIZE AND OTHER CHARACTERISTICS OF NEWLY PLANTED MATERIAL.
11. IF USING STAKES AND GUYS SUCH SUPPORTS SHALL BE DESIGNED SO AS TO PROTECT TREES AND SHRUBS FROM INJURY. TREES AND SHRUBS SHALL BE FASTENED TO THE SUPPORT WITH AN ACCEPTABLE COMMERCIAL TREE TIE OF PLASTIC OR HOSE-COVERED WIRE. AFTER THE WARRANTY PERIOD HAS ENDED, STAKES AND GUYS SHALL BE REMOVED.
12. CONTRACTOR IS RESPONSIBLE TO CONTACT MISS UTILITIES (811) 48 HOURS PRIOR TO COMMENCEMENT OF WORK. CONTACT LANDSCAPE ARCHITECT IF FIELD CONFLICTS/DISCREPANCIES ARISE.
13. CONTRACTOR RESPONSIBLE TO VERIFY PLANT COUNTS. PLANTING PLAN SHALL GOVERN IN THE CASE OF A CONFLICT.
14. ALL PLANTS SHALL MEET OR EXCEED STANDARDS AS DETERMINED BY THE AMERICAN STANDARD OF NURSERY STOCK.
15. CONTRACTOR SHALL WARRANTY ALL PLANTS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
16. WHEN POSSIBLE, PLANTING SHALL BE INSTALLED BETWEEN SEPTEMBER 1 - JUNE 30TH AND IN FAVORABLE WEATHER CONDITIONS. WHEN PLANTING MUST BE PERFORMED OUTSIDE OF SPECIFIED DATES, PLANTS MUST BE WATERED ON A REGULAR BASIS TO ENSURE VIABILITY.
17. PLANT VARIETIES, SIZES AND LAYOUT SHALL CONFORM ACCURATELY TO THE LANDSCAPE PLAN. CONTACT LANDSCAPE ARCHITECT FOR FIELD CONFLICTS.
18. DISTURBED AREAS SHALL BE SEEDED ACCORDING TO THE NOTES FOUND ON THIS PAGE.
19. PLANT SUBSTITUTIONS SHALL BE BROUGHT TO THE ATTENTION OF AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
20. MULCH USED ON-SITE SHALL BE OF A NON-DYED, NATURAL HARDWOOD VARIETY TO BE INSTALLED AT A MAXIMUM DEPTH OF 3", MINIMUM DEPTH OF 2".

GENERAL NOTES:

1. LOCATION OF STREET TREES MAY VARY DUE TO PROPOSED DRIVEWAYS. CONTRACTOR SHALL COORDINATE BETWEEN THE PROPOSED STREET TREES AND DRIVEWAYS. ENSURE A MINIMUM SPACING OF 15' BETWEEN SMALL STREET TREES, 25' BETWEEN MEDIUM STREET TREES, AND 35' BETWEEN LARGE STREET TREES IS MAINTAINED.

TOPSOIL / PLANTING MIX MINIMUM REQUIREMENTS:

1. TOPSOIL/PLANTING MIX SHOULD BE NATURAL, FERTILE, AGRICULTURAL SOIL CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH. IT SHOULD BE UNIFORM COMPOSITION THROUGHOUT, WITH ADMIXTURE OF SUBSOIL. IT SHOULD BE FREE OF STONES, LUMPS, LIVE PLANTS AND THEIR ROOTS, STICKS AND OTHER EXTRANEOUS MATTER. TOPSOIL SHOULD NOT BE USED WHILE IN A FROZEN OR MUDDY CONDITION.
2. TOPSOIL/PLANTING MIX SHALL HAVE AN ACIDITY RANGE OF PH 5.5-7.0 AND THE FOLLOWING COMPOSITION:

CLAY (RED CLAY, WELL PULVERIZED)	MINIMUM 10%; MAXIMUM 35%
COMPOST*/ORGANIC	MINIMUM 5%; MAXIMUM 10%
SILT	MINIMUM 30%; MAXIMUM 50%
COARSE SAND (FREE OF ROCKS, 0.5 TO 1.0 MM F)	MINIMUM 30%; MAXIMUM 45%

3. ORGANIC MATERIAL SUCH AS SAWDUST OR LEAF MOLD THAT HAS COMPLETED THE DECOMPOSITION PROCESS
4. RECOMMENDATIONS:
5. ALL PLANTING AREAS SHOULD BE TESTED FOR PROPER DRAINAGE. DRAINAGE SHOULD BE CORRECTED AS NECESSARY TO INSURE PROPER TREE GROWTH AND SURVIVAL. THE FOLLOWING LEVEL OF NUTRIENT ELEMENTS IS RECOMMENDED FOR PROPER GROWTH:

CALCIUM	55 - 80%
MAGNESIUM	10 - 30%
POTASSIUM	5 - 8%

SEEDING SCHEDULE FOR LAWNS & SLOPES (MAXIMUM 3:1):

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE AND ABRUZZI RYE	300 LBS/ACRE OR ANNUAL RYE
MAR 1 - APR 15	TALL FESCUE OR HARD FESCUE	300 LBS/ACRE
MAR 1 - JUL 15	HULLED COMMON BERMUDA GRASS OR HYBRID BERMUDA GRASS OR CENTIPEDE GRASS OR ZOYSIA GRASS OR ST. AUGUSTINE GRASS	200 LBS/ACRE
APR 15 - JUN 30	WEEPING LOVE GRASS OR BAHIA GRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE AND *** BROWNTOP MILLET *** OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE

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 REGISTERED LANDSCAPE ARCHITECTURAL CORPORATION C-652 AMERICAN SERVICES

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1816 LAUREN E. DICKERSON

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NO.	DATE	REVISION:
1	02-03-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #2
2	04-01-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #3
3	06-02-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4
4	07-16-2025	CONSTRUCTION INFRASTRUCTURE DRAWING SUBMITTAL #4 (OFFLINE)

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.

THE PRESERVE AT MOODY FARM
CID-24-09
ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 21-002
CHECKED BY: JK
DRAWN BY: RC
DATE: 07/16/2025

SHEET TITLE:
PLANTING NOTES AND DETAILS

SHEET NO.:
L3

Z:\Jobs\21-002 Moody Development Tract (R21000259)\wgL_Working Dwgs\Construction Set\13.0-Landscape Plan.dwg July 15, 2025

DR HORTON INC
D.B. 019008 PG. 01446
B.M. 2022 PG. 00442
P.I.N. 1767-29-3887

KALAS FALLS SUBDIVISION PHASE 1

VINTAGE VINERY COURT
TINSLEY CREST LOOP
VINTAGE VINERY COURT
MULBERRY TREE DRIVE
ANSLEY CREST LOOP
GRANADA STREET
WOODLYN PARK DR
WOODLYN PARK DR

SHELTON ALLEN MOODY
TERESA M. MOODY
D.B. 12366 PG. 280
B.M. 2007 PG. 78
P.I.N. 1767-28-2714

JEFFREY L. MOODY
CINDY T. MOODY
D.B. 3991 PG. 19
B.M. 1987 PG. 331
P.I.N. 1767-38-1505

BENNY L. MOODY
CONNIE G. MOODY
D.B. 3758 PG. 29
B.M. 1981 PG. 653
P.I.N. 1767-38-5477

MULBERRY TREE DRIVE
MULBERRY TREE DRIVE
CUTTING EAGLE LANE
ROLESVILLE ROAD
(ROLESVILLE ROAD 100' WIDE PUBLIC R/W) BM 1988 PG. 995
ROLESVILLE ROAD
(ROLESVILLE ROAD 100' WIDE PUBLIC R/W) BM 1988 PG. 995

30' LANDSCAPE BUFFER
30' LANDSCAPE BUFFER

MERITAGE HOMES OF THE CAROLINAS INC
D.B. 019789 PG. 02515
B.M. 2016 PG. 38
B.M. 2006 PG. 810

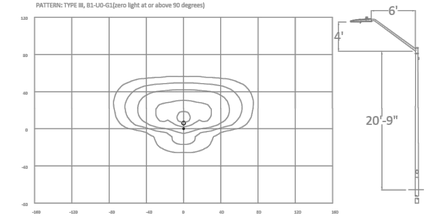
KALAS FALLS SUBDIVISION

PENNINA B. ROWELL
RACHEL K. ROWELL
D.B. 16967 PG. 1066
P.I.N. 1767-37-4878

ISOFOOTCANDLE CURVES

FIXTURE: LED 50W ROADWAY
MOUNTING HEIGHT: 25 FT
LIGHT SOURCE: LED, 3000K, 70 CRI
LUMENS - 5342
PATTERN: TYPE III, B1-U0-G1[zero light at or above 90 degrees]

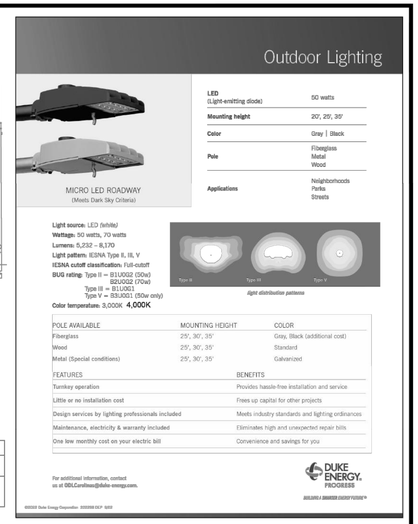
ASSY# LFIX-RW-LED-50-GRAY-III-3000K-____P
POLE ASSY# LPOLE-DB-FG-25FT-GRAY-____P (GRAY)



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

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Road	+	0.5 fc	1.1 fc	0.1 fc	11.0:1	5.0:1

Schedule						
Symbol	Label	QTY	Description	Number Lamps	Lamp Output	LLF
	A	26	LED 50w Roadway - Type III - 3000K	1	5312	0.85



OVERALL SITE LIGHTING PLAN - NO GRID

ES100

NO.	DATE	REVISION	BY

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

LIGHTING DESIGN TOLERANCE

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

DUKE ENERGY® PROGRESS

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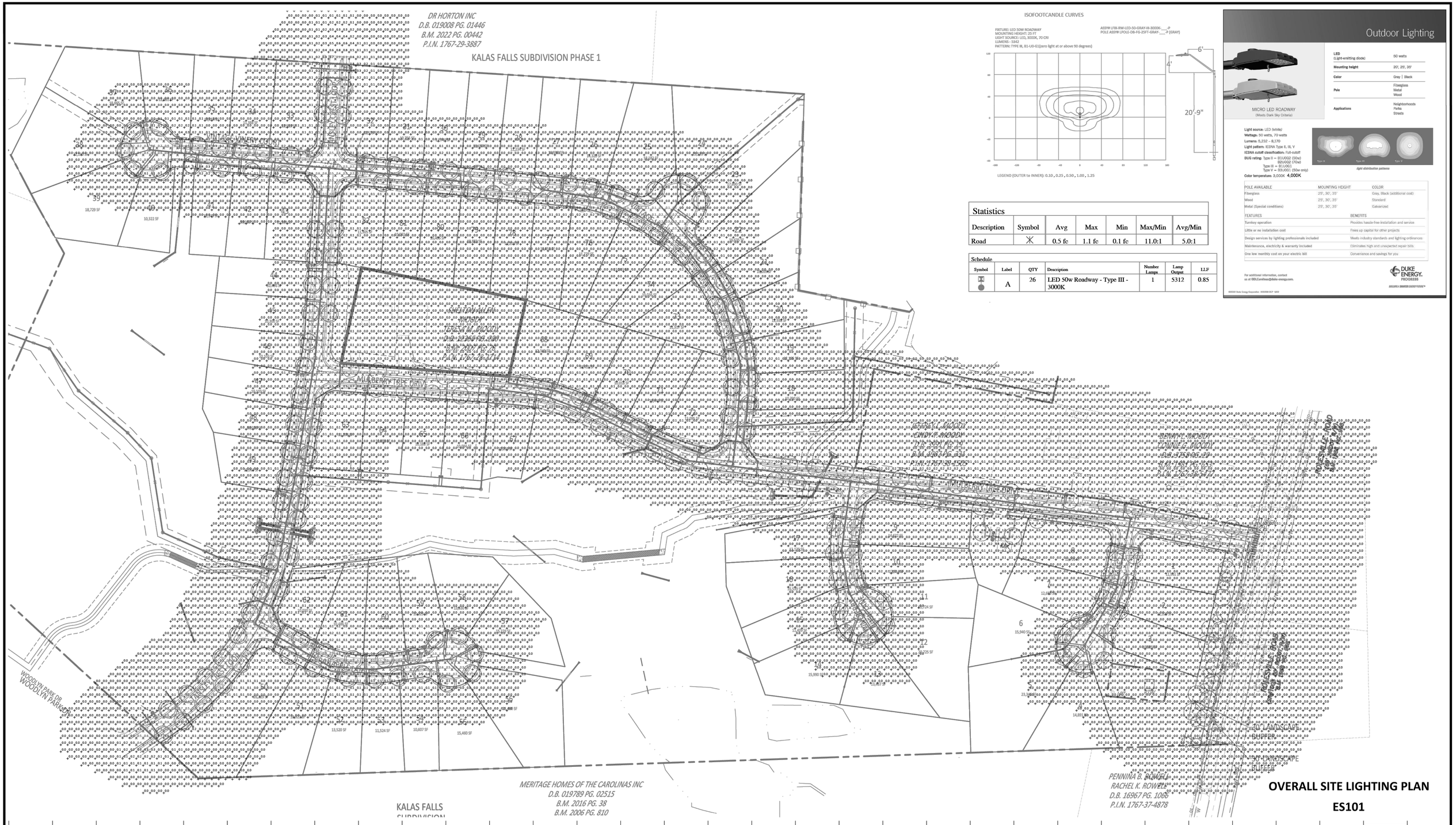
MOODY FARMS
WAKE FOREST, NC
STREET LIGHTING ARRANGEMENT
Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by N. Johnson Scale 1" = 60'
Date 03/28/2025 Size Drawing size "D"
Description LED ROADWAY
Drawing No. 25-0124A Sht. 1 OF 1



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Schedule

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OVERALL SITE LIGHTING PLAN

ES101

NO.	DATE	REVISION	BY

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

LIGHTING DESIGN TOLERANCE

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MOODY FARMS
WAKE FOREST, NC
STREET LIGHTING ARRANGEMENT

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by N. Johnson Scale 1" = 60'
Date 03/28/2025 Size Drawing size "D"
Description LED ROADWAY
Drawing No. 25-0124A Sht. 1 OF 1