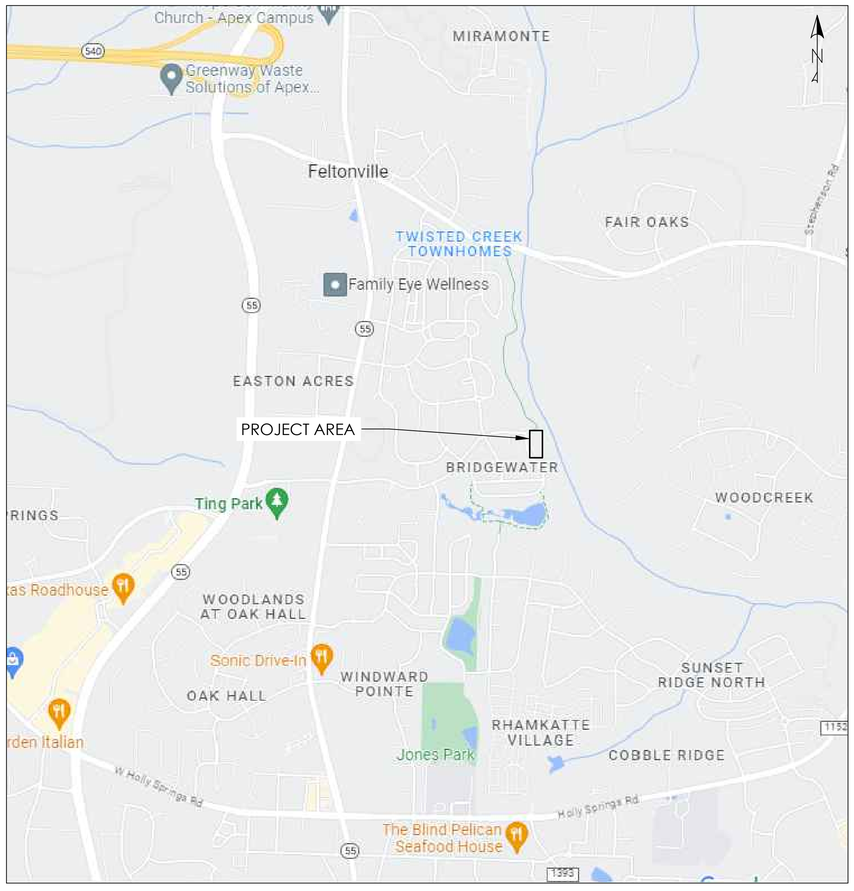
MIDDLE CREEK STREAM RESTORATION

TOWN PROJECT #23-003

PINS: 0659294300, 0750303969, 0659294088, 0659292286, 0659292291

SHEET INDEX:

VICINITY MAP



OVERVIEW MAP

I certify that these plans were prepared and that this project shall be constructed in accordance with the following plans, the latest edition of the Engineering Design and Construction Standards of the Town of Holly Springs and other applicable Town ordinances and policies. The Engineer whose seal and signature appear below certifies that the Town of Holly Springs Engineering Design and Construction Standards have been thoroughly reviewed for applicability to this particular project.

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

All construction shall conform to Town of Holly Springs Engineering Design and Construction Standards.

TOWN OF HOLLY SPRINGS CONTACT:
CARRIE KENNEDY, PE
TOWN OF HOLLY SPRINGS
919.567.4718

PROJECT ENGINEER:
CONNOR BROWN, PE
KRIS BASS ENGINEERING, PLLC
704.641.4621

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
COVER

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

REVISIONS	DESCRIPTION	APPROVED
DATE		

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET C1

PROJECT NARRATIVE:

THIS PROJECT SITE IS LOCATED ALONG ANCHOR CREEK WAY IN HOLLY SPRINGS, NORTH CAROLINA IN THE NEUSE RIVER BASIN. MIDDLE CREEK IS CURRENTLY EXPERIENCING HEIGHTENED EROSION AND INCISED BANKS. THE PROJECT INVOLVES THE STREAM RESTORATION OF OVER 260 LINEAR FEET OF STREAM.

TO ACCOMPLISH THE STREAM RESTORATION PROJECT, WORK WILL INCLUDE THE CONSTRUCTION OF POOLS, RIFFLES, GRADE CONTROL STRUCTURES, BOULDER WALLS, AND VEGETATED GEOLIFTS. CONSTRUCTION OF THE STABILIZATION FEATURES SHALL BE COMPLETED IN THE DRY AND A TYPICAL PUMP AROUND SYSTEM SHALL BE USED TO ACHIEVE THIS. AT THE CONCLUSION OF CONSTRUCTION ALL DISTURBED AREAS SHALL BE PLANTED AND SEEDED TO ENSURE A HEALTHY STAND OF VEGETATION.

ENGINEER'S NOTES:

1) THE LOCATION AND ALIGNMENT OF ALL IMPROVEMENTS SHOWN ARE APPROXIMATE. THE FINAL LOCATION AND ALIGNMENT SHALL BE DETERMINED DURING CONSTRUCTION USING BEST PROFESSIONAL JUDGMENT AND APPROVED BY THE PROJECT ENGINEER.
2) MATERIALS LISTS ARE PROVIDED AS AN APPROXIMATION ONLY. CONTRACTOR SHALL INDEPENDENTLY VERIFY THE NUMBER AND AMOUNT OF STONE, BACKFILL, OR OTHER ITEMS NECESSARY TO PROPERLY COMPLETE THE JOB.
3) THE LATEST VERSION OF THE FOLLOWING STANDARDS APPLIES TO THESE SPECIFICATIONS:
   A. NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018
   B. NCDENR "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, 2013"
4) THE CONTRACTOR SHALL CALL THE "CALL BEFORE YOU DIG" TOLL FREE NUMBER TO MAKE SURE THAT ALL UTILITIES ARE LOCATED AND MARKED. ANY DAMAGE TO EXISTING UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5) THE CONTRACTOR SHALL CONDUCT PRE- AND POST- CONSTRUCTION VIDEO INSPECTION OF UNDERGROUND UTILITIES TO ENSURE NO PROJECT RELATED DAMAGE.
6) ANY DAMAGE RESULTING FROM ACTIONS OF THE CONTRACTOR TO STRUCTURES, SIDEWALKS, OR GROUNDS ON SITE WILL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR, TO A QUALITY MEETING OR EXCEEDING THEIR PREVIOUS STANDARDS.
7) THE CONTRACTOR IS TO ENSURE PUBLIC SAFETY DURING ALL PHASES OF CONSTRUCTION.
8) THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ANY STOCKPILED MATERIALS DURING CONSTRUCTION.
9) THE CONTRACTOR IS RESPONSIBLE FOR CLEARING AND DISPOSING OF ANY MAN-MADE MATERIALS OR OTHER DEBRIS THAT LIE WITHIN THE CONSTRUCTION LIMITS, AS REQUESTED AND APPROVED BY THE PROJECT ENGINEER.
10) THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, MARKING, AND PROTECTING SEWER LINES AS NECESSARY WITHIN THE LIMITS OF DISTURBANCE OF THE PROJECT FOR THE DURATION OF CONSTRUCTION.
11) THE LIMITS OF DISTURBANCE FOR THE STABILIZATION WORK UNDER THESE CONSTRUCTION PLANS ARE GREATER THAN 1 ACRE. NCG01 GENERAL PERMIT CONDITIONS APPLY.
12) DEVELOPMENT WHICH WILL TAKE PLACE WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN AT ELEVATION 341.2' IS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF EXECUTIVE ORDER NO.123- UNIFORM FLOODPLAIN MANAGEMENT POLICY.

GRADE CONTROL STRUCTURE NOTES:

1. FIELD CONDITIONS AND PROJECT VARIABILITY MAY REQUIRE ADAPTATION OF THE PLAN SHEETS AND/OR DETAILS PROVIDED IN THE CONSTRUCTION DOCUMENTS DEPENDING ON SITE CONDITIONS OR PROJECT NEEDS. MINOR VARIATION(S) OR ADAPTATION(S) OF THE PROPOSED WORK SHOWN ON THE PLAN SHEETS AND /OR DETAILS ARE CONSIDER INCIDENTAL TO THE WORK.
2. PRIOR TO CLEARING AND GRUBBING, THE CONTRACTOR SHALL MARK THE LIMITS OF CLEARING NEAR TREES FOR VERIFICATION OF INTENT BY THE ENGINEER. SOME MINOR ADJUSTMENT OF CHANNEL ALIGNMENT MAY BE REQUIRED TO PRESERVE TREES OR MINIMIZE IMPACT TO TREES AND EXISTING VEGETATION.
3. THE CONTRACTOR SHALL STAKE OUT THE PROPOSED CENTERLINE USING TRADITIONAL SURVEY METHODS OR SURVEY GRADE GPS EQUIPMENT FOR REVIEW BY THE ENGINEER BEFORE BEGINNING EXCAVATION AND GRADING. STAKING MAY BE OMITTED FOR PORTIONS OF THE STREAM WHEN SURVEY-GRADE GPS IS USED TO CONSTRUCT THE CHANNEL.
4. WHERE PRACTICABLE, EXISTING TREES AND VEGETATION SHOULD BE LEFT IN PLACE TO FACILITATE NATURAL REGENERATION AND SOIL STABILIZATION.
5. CONTRACTOR SHALL MINIMUM, TO THE MAXIMUM EXTENT POSSIBLE, IMPACTS TO THE TREES AND EXISTING VEGETATION ADJACENT TO THE WORK AREA.
6. CONSTRUCTION EQUIPMENT TRACKS AND ACCESS PATHS SHALL BE GRADED AND RE-CONTOURED AFTER CONSTRUCTION TO PREVENT RILL AND FULLY EROSION.
7. CONTRACTOR SHALL USE AN EXCAVATOR WITH A HYDRAULIC THUMB TO INSTALL GRADE CONTROL FEATURES.
8. EXCAVATION AND GRADING QUANTITIES DO NOT INCLUDE UNDERCUT EXCAVATION FOR GRADE CONTROL FEATURES.
9. FEATURE INSTALLATION SHALL OCCUR BY FIRST GRADING THE ADJACENT POOLS TO THE SPECIFIED ELEVATIONS THEN EXCAVATING TO THE SPECIFIED FEATURE SUB-GRADE. THE FEATURE SHALL BE THEN CONSTRUCTED BY FIRST INSTALLING THE MEDIA FILTER BED, THEN WORKING FROM THE DOWNSTREAM FOOTER WORKING UPSTREAM INSTALLING THE BOULDER OR RIFFLE IN LIFTS EQUAL TO APPROXIMATELY 8" TO 12" SEGMENTS.
10. THE CHANNEL WORK SHALL BE DONE WITH LOW GROUND PRESSURE TRACK EQUIPMENT AND IN DRY WORKING CONDITIONS.
11. PLAN DETAILS PROVIDE DIMENSIONS, ELEVATIONS, AND SLOPES TO AID IN CONSTRUCTION OF THE CHANNEL. THE FEATURE CONSTRUCTION SHALL OCCUR THEN FINE GRADING OF THE CROSS-SECTION AND SIDE SLOPES SHALL BE PREFORMED.
12. ANY TEMPORARY STOCKPILING OF DOUBLE HANDLING OF EXCESS EARTH NECESSARY TO BUILD THE CHANNEL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
13. FEATURE DIMENSIONS WILL BE HELD TO THE DIMENSIONS SHOWN ON THE DETAIL SHEETS. ELEVATIONS SHALL BE CONSTRUCTED WITHIN 0.1' (VERTICAL). WIDTHS AND DEPTHS MUST FALL WITHIN RANGES SHOWN IN THE PLAN SHEETS. FEATURE CROSS-SECTION DIMENSIONS SHALL BE WITHIN 0.1' (HORIZONTAL).
14. STRUCTURES SHALL BE FINISHED TO A SMOOTH SURFACE IN ACCORDANCE WITH THE LINES, GRADES, AND ELEVATION SHOWN IN THE CONSTRUCTION DOCUMENTS. THE FINISHED STRUCTURE SLOPES AND PROFILE ELEVATIONS SHALL BE WITHIN 0.1' (VERTICAL) OF THE CONSTRUCTION DOCUMENTS.
15. ALL FILTER FABRIC INSTALLED AS PART OF THE STRUCTURE SHALL BE A NON-WOVEN GEOTEXTILE OF 6OZ. WEIGHT OR GREATER UNLESS OTHERWISE SPECIFIED IN THE STRUCTURE DETAILS OR SPECIFICATIONS. FILTER FABRIC SHALL BE TRIMMED TO THE SURFACE OF THE STRUCTURE AND SHALL NOT BE OBSERVED BY VISUAL INSPECTION.
16. BOULDER STRUCTURES SHALL BE CONSTRUCTED FROM BOULDERS THAT ARE CUBICAL OR RECTANGULAR IN SHAPE AND SIZE ACCORDING TO THE STRUCTURE DETAILS. GAPES AND VOIDS BETWEEN BOULDERS SHALL BE CHINKED TIGHTLY WITH SMALLER STONE TO CREATE A STRONG RESILIENT MATRIX OF STONE.
17. AFTER THE STRUCTURE IS COMPLETE AND THE FLOW IS RESTORED TO THE CHANNEL, SOME ADJUSTMENT TO THE STRUCTURE OR ADDITIONAL STABILIZATION MEASURES MAY BE NECESSARY TO ACHIEVE THE DESIRE FUNCTION.
18. CHANNEL WORK SHALL BE COMPLETED AND STABILIZED PRIOR TO ALLOWING FLOW TO ENTER IN TO THE NEWLY CONSTRUCTED CHANNEL.
19. THE CONSTRUCTED CHANNEL SHALL BE STABILIZED AS SOON AS POSSIBLE BY TEMPORARY AND PERMANENT SEEDING, ADDING STRAW MULCH TO BARE SOIL AND INSTALLING EROSION CONTROL MATTING FROM THE TOE OF SLOPE TO 10' OFFSET FROM THE TOE COVERING THE FEATURE TOP OF BANK AND GRADING BERM. PRIOR TO INSTALLING THE EROSION CONTROL MATTING, PREPARE THE SOIL SURFACE BY LOOSENING 2" TO 4" OF SOIL OR APPLYING 2" TO 4" OF TOPSOIL TO THE PROPOSED ELEVATIONS AND APPLY SEED AND THE STRAW MULCH. SEED SHALL BE BROADCAST EVENLY OVER THE AREA USING A BROADCAST SPREADER PRIOR TO COVERING WITH THE EROSION CONTROL MATTING. THE MATTING SHALL BE ROLLED OUT IN THE DIRECTION OF ANTICIPATED FLOW. INSTALL MATTING IN ACCORDANCE WITH THE DETAIL INCLUDED IN THE CONSTRUCTION DOCUMENTS. REWORKING OF AREAS THAT DO NOT ESTABLISH VEGETATION OR BECOME UNSTABLE SHALL BE NECESSARY IF THE MATTING SEPARATES FROM THE SOIL.

POCKET WETLAND NOTES:

1. A CLAY OR GEOMEMBRANE LINER SHALL BE INSTALLED ON THE BOTTOM OF THE POCKET WETLAND TO ENSURE SEEPAGE THROUGH THE BERM DOES NOT OCCUR.
2. WETLAND PLANTING SURFACE DESIGN ELEVATION IS 347.47'. BERM DESIGN ELEVATION IS 348.72'. OVERFLOW WEIR DESIGN INVERT ELEVATION IS 348.22'.

EROSION CONTROL NOTES:

1) ALL EROSION CONTROL MUST BE SET-UP AND INSPECTED PRIOR TO COMMENCEMENT OF GRADING OPERATIONS.
2) ALL SLOPES SHALL BE SEEDED AND STABILIZED WITH A DENSE COVERAGE OF GRASS. ANY EXPOSED OR BARE SLOPES SHALL BE RE-SEEDED OR PROTECTED WITH EROSION CONTROL MATTING.
3) ALL BACKFILL SHALL BE SUITABLE FOR PLANT GROWTH AND GENERALLY FREE OF DEBRIS OR OTHER MATERIAL GREATER THAN 2 INCHES IN SIZE.
4) ALL ELEVATIONS AND CHANNEL DIMENSIONS SHALL BE MET WITHIN A TOLERANCE OF 0.1'
5) STABILIZATION MEASURES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE FOLLOWING COMPLETED AREAS OF CONSTRUCTION. SPECIFIC SEEDING REQUIREMENTS ARE PROVIDED IN THE PLANTING PLAN.
6) PROVIDE TEMPORARY OR PERMANENT GROUNDCOVER ON ALL EXPOSED AREAS WITHIN 7 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING. PROVIDE A PERMANENT GROUNDCOVER FOR ALL DISTURBED AREAS WITHIN 14 WORKING DAYS OR WITHIN 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
7) ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY SEVEN (7) DAYS OR AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE-HALF (1/2) INCH. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
8) ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF THE CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF-SITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
9) THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD TO OFF SITE AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

GENERAL NOTES:

1) FENCES: THE CONTRACTOR SHALL REMOVE AND RESET ALL FENCES AS NOTED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER. THE EXACT LOCATION AND DIMENSIONS OF THE THESE ITEMS TO BE REMOVED OR DISTURBED DURING CONSTRUCTION SHALL BE RECORDED AND PHOTOGRAPHED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2) TREES, SHRUBS, AND HEDGES: THE CONTRACTOR SHALL PROTECT ALL TREES AND SHRUBS OUTSIDE OF THE LIMITS OF DISTURBANCE. THE CONTRACTOR IS ALSO REQUESTED TO SAVE ALL OTHER EXISTING TREES AND SHRUBS WHERE POSSIBLE. TREE ROOTS EXPOSED AND/OR DAMAGED DURING CONSTRUCTION SHALL BE PRUNED USING EQUIPMENT SPECIFICALLY DESIGNED FOR PRUNING. ALL PRUNING SHALL BE ACCOMPLISHED BY AN ISA CERTIFIED ARBORIST.
3) GRASSED SURFACE RESTORATION: ALL EXISTING GRASSED AREAS DISTURBED DURING CONSTRUCTION ARE TO BE SEEDED AND MULCHED PER THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
4) ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH TOWN OF HOLLY SPRINGS AND/OR NCDOT STANDARD DETAILS AND SPECIFICATIONS.
5) ANY DISTURBANCE WITHIN THE RIGHT-OF-WAY WILL BE REQUIRED TO BE REPLACED TO THE TOWN OF HOLLY SPRINGS AND/OR NCDOT STANDARDS AND INSPECTED.
6) CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE LATEST TOWN OF HOLLY SPRINGS STANDARD DETAILS.

GENERAL CONSTRUCTION SEQUENCE:

1) INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND THE CONSTRUCTION ENTRANCE AND SILT FENCING AS CALLED FOR ON THE PLANS. LIMIT CLEARING AND LAND DISTURBING ACTIVITY TO THE AREA NECESSARY TO INSTALL THE PERMITTED MEASURES.
2) IF NCDEMLR DOESN'T CONDUCT AN INITIAL INSPECTION, SCHEDULE AN INITIAL SITE STORMWATER CONTROL INSPECTION FROM THE TOWN OF HOLLY SPRINGS.
3) UPON APPROVAL OF THE INITIAL SITE STORMWATER CONTROL INSPECTION, COMMENCE PERMITTED LAND DISTURBING ACTIVITY.
4) PERFORM CLEARING, GRUBBING, AND DEBRIS REMOVAL AS SHOWN ON THE PLANS FOR CONSTRUCTION.
5) PERFORM ALL EXCAVATION AND GRADING TASKS AS SHOWN ON THE PLANS.
6) INSTALL ALL STRUCTURES PER THE DESIGN PLANS.
7) PLANT THE STREAM CORRIDOR ACCORDING TO THE PLANTING PLAN.
8) INSTALL WOODY VEGETATION AS CALLED FOR ON THE PLANTING PLAN.
9) SEED AND MULCH ALL DISTURBED AREAS PER THE APPROVED PLANS AND SPECIFICATIONS.
10) ONCE GRADING IS COMPLETE AND THE SITE IS STABILIZED, REQUEST AN AS-BUILT INSPECTION AND OBTAIN APPROVAL TO REMOVE TEMPORARY MEASURES. DO NOT REMOVE TEMPORARY MEASURES WITHOUT PRIOR STORMWATER INSPECTOR APPROVAL.
11) ONCE GRADING IS COMPLETE, TEMPORARY MEASURES ARE REMOVED, AND THE SITE IS STABILIZED, SCHEDULE A STORMWATER FINAL INSPECTION.
12) COMPLETE AS-BUILT SURVEY INSPECTION.

TYPICAL CHANNEL DIMENSIONS:

RIFFLE:
BOTTOM WIDTH- **15 FT**
TOP WIDTH- **26 FT**
SIDE SLOPES- **N/A (BOULDER WALL)**
DEPTH- **3 FT**

POOL:
BOTTOM WIDTH- **15 FT**
TOP WIDTH- **20 FT**
SIDE SLOPES- **1:1; 1.5:1**
DEPTH- **2 FT**

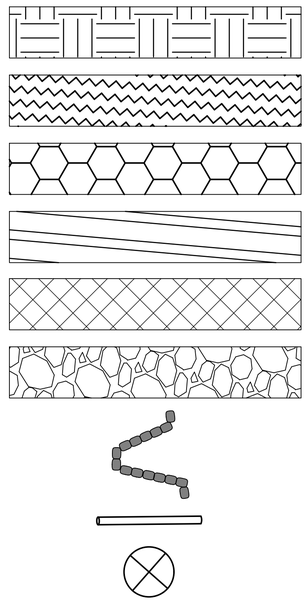
LEFT BANK BOULDER WALL HEIGHT: **3 FT**
RIGHT BANK BOULDER WALL HEIGHT: **5 FT**

MATERIAL ESTIMATES:
LOD- 0.90 AC
CLEARING AND GRUBBING- 0.90 AC
12"-18" TREE REMOVAL- 16 EA
18"-24" TREE REMOVAL- 6 EA
>24" TREE REMOVAL- 1 EA

EARTHWORK:
CUT- 640 CY
FILL- 1,150 CY
NET- 510 CY FILL

TREE PROTECTION FENCE- 1,200 LF
SILT FENCE- 200 LF
COIR LOGS- 6 EA
#57 STONE- 53 TN
SURGE STONE- 40 TN
CLASS A STONE- 78 TN
CLASS B STONE- 78 TN
CLASS 1 STONE- 78 TN
SMALL BOULDERS- 42 TN
LARGE BOULDERS- 330 TN
LOG SILLS- 3 EA
GEOLIFTS- 45 SY
COIR MATTING- 1,560 SY
FILTER FABRIC- 530 SY
LIVE STAKES- 180 EA
WETLAND PLUGS- 900 EA
BARE ROOT TREES- 40 EA
RIPARIAN SEED MIX- 0.17 AC
TEMP/PERMANENT SEEDING AND MULCHING- 0.76 AC
CONCRETE DIVERTER BLOCK- 4 CF

LEGEND:



DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
NOTES

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

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CARY, NC 27511
FIRM #: P-1133
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KRIS BASS ENGINEERING

REVISIONS
DESCRIPTION | APPROVED
DATE

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET E1

EXISTING CONDITIONS SURVEY CONDUCTED BY TRANSYSTEMS, DATED 7-10-2023, SUPERVISED BY FABIEN LUKEBA, PLS L-5448. SEALED SURVEY AVAILABLE UPON REQUEST.

NOTES
1. COORDINATES ARE BASED NC GRID (NAD 83).
2. THE VERTICAL DATUM IS NAVD 88.
3. THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE NAD83(NA201 I) STATE PLANE GRID COORDINATES FOR THE FOLLOWING NCDOT MONUMENT: "R272 I AZ- I" N=697986.5430 E=2070504.8120.
4. THE AVG. COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.999902588. ALL COORDINATES SHOWN HEREON ARE GROUND COORDINATES.

0 40 80 Feet

SCALE: 1 INCH = 20 FEET

APPARENT TREES REMOVED BY GREENWAY PROJECT WITHIN LOD SINCE SURVEY

PLANNED GREENWAY

GAS/SEWER EASEMENT, TYP

PLANNED GREENWAY BRIDGE

PARCEL BOUNDARY, TYP

ROCK SHELF, TYP

MAJOR CONTOUR, TYP

MINOR CONTOUR, TYP

CREEK CENTERLINE

DRAINAGE EASEMENT, TYP

0750303969
MATA FAMILY LLC THE

0659294300
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659294088
BRIDGEWATER SUBDIVISION HOMEOWNERS ASSN INC

0659294001
SATTERWHITE, SEAN BOULWARE
SATTERWHITE, MEGHAN ELIZABETH

0659293556
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659293076
BODA, SHRUTHI
BODA, VAMSHIDHAR R

0659293140
MARSH, DEMETRIC

0659293115
SMITH, SHERMAN J

0659292291
PINNELL, ERIC LOUIS
PINNELL, KRISTINA ANNE

0659292387
BEHLING, MICHAEL
BEHLING, KATHRYN

0659292382
PATIL, VINOD S
LALWANI, BHAVANA V

0659292286
HUFF, CHRISTOPHER JAMES
HUFF, EMILY ELISABETH

0659292534
BERNATZKY, KENNETH J
TAYLOR, ANNETTE C

0659292007
KENNEY, THOMAS E
KENNEY, YANETH P

ANCHOR CREEK WAY

20" WHITE OAK
12" BLACK GUM
33" SWEETGUM
31" CHERRYBARK OAK
16" POPLAR
19" POSTOAK
15" NORTHERN RED OAK
18" NORTHERN RED OAK
13" RED MAPLE
12" BLACK GUM
16" WHITE OAK
13" BEECH
25" SWEETGUM
22" POPLAR
17" POPLAR
18" RED MAPLE
22" IRONWOOD
30" SWEETGUM
22" OAK
21" POPLAR
12" POPLAR
18" OAK
14" POPLAR
13" POPLAR
13" RED MAPLE
15" NORTHERN RED OAK
14" NORTHERN RED OAK
13" WHITE ASH
16" DAMAGED WHITE OAK
16" DAMAGED POPLAR
28" POPLAR
13" BLACK GUM
15" BEECH
22" POPLAR
18" NORTHERN RED OAK
27" POPLAR
19" NORTHERN RED OAK
15" WHITE OAK
14" IRONWOOD
15" NORTHERN RED OAK
17" NORTHERN RED OAK
15" WHITE OAK
12" RED MAPLE
21" POPLAR
15" SWEET GUM
14" WHITE OAK
17" POPLAR
20" TWIN NORTHERN RED OAK
15" SYCAMORE
13" NORTHERN RED OAK
12" POPLAR
13" POPLAR

0+00
0+50
1+00
1+50
2+00
2+65

RIPRAP
12"HDPE
INV: 348.70
15"RCP
CB
TOC: 359.90
INV OUT: 355.43
CB
TOC: 358.49
INV IN: 354.66
INV OUT: 354.14
GPS CONTROL
POINT #900050
N: 699,449.97
E: 2,052,313.13
ELEV: 359.50
RIPRAP
24"FES
INV: 348.10
18"FES
INV: 347.72
SDMH ON EXTENDED CONCRETE PEDESTAL
RIM: 357.88
INV IN(42"RCP): 347.91
INV OUT(24"RCP): 347.98
INV OUT(18"RCP): 347.46
42"RCP
CB
TOC: 365.20
INV OUT: 359.11

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
EXISTING CONDITIONS

PROJECT LOCATION: 706 ANCHOR CREEK WAY
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kbass@kbeng.org

REVISIONS

DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET E2

TREE DEMOLITION TABLE

DBH (IN)	SPECIES	NORTHING	EASTING
12	POPLAR	699442.5697	2052377.683
14	POPLAR	699428.7804	2052370.644
14	POPLAR	699427.823	2052367.106
13	POPLAR	699425.2756	2052368.124
18	OAK	699390.8899	2052381.25
18	OAK	699384.8241	2052397.708
13	RED MAPLE	699382.8388	2052370.752
15	NORTHERN RED OAK	699344.7741	2052359.852
13	NORTHERN RED OAK	699274.9638	2052368.363
20	TWIN NORTHERN RED OAK	699248.9287	2052387.976
15	SYCAMORE	699225.1093	2052384.524
17	POPLAR	699231.8974	2052407.055
14	WHITE OAK	699210.9579	2052430.277
15	SWEET OAK	699201.9839	2052434.53
21	POPLAR	699207.429	2052440.822
12	RED MAPLE	699249.9366	2052444.958
15	NORTHERN RED OAK	699233.1139	2052471.805
14	IRONWOOD	699227.3915	2052471.256
19	NORTHERN RED OAK	699221.4867	2052480.565
13	BLACK GUM	699210.0677	2052528.847
15	BEECH	699237.6212	2052509.206
22	POPLAR	699295.9871	2052461.716
30	SWEETGUM	699322.146	2052434.57

NOTES:

ALL EROSION CONTROL SHALL BE INSTALLED AND INSPECTED PRIOR TO BEGINNING DEMOLITION.

CONTRACTOR SHALL MAKE EFFORT TO SAVE AS MANY TREES AS FEASIBLE WITHIN THE LIMITS OF DISTURBANCE. TREES INCLUDED FOR DEMOLITION REPRESENT TREES THAT APPEAR IN CONFLICT WITH PROPOSED GRADING AND MACHINERY ACCESS.

0 40 80 Feet

SCALE: 1 INCH = 20 FEET

APPARENT TREES REMOVED BY GREENWAY PROJECT WITHIN LOD

SEWER EASEMENT, TYP

ROCK SHELF, TYP

MAJOR CONTOUR, TYP

MINOR CONTOUR, TYP

CREEK CENTERLINE

PARCEL BOUNDARY, TYP

TREE REMOVAL, TYP

APPROXIMATE WOODEN FENCE. INSTALLED AFTER SITE SURVEY CONDUCTED. REMOVE FENCING AS NEEDED TO ACCESS PROJECT AREA, REPLACE AT THE CONCLUSION OF CONSTRUCTION MEETING OR EXCEEDING THE STANDARD OF THE ORIGINAL FENCE.

0750303969
MATA FAMILY LLC THE

0659294300
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659294088
BRIDGEWATER SUBDIVISION HOMEOWNERS ASSN INC

0659294001
SATTERWHITE, SEAN BOULWARE
SATTERWHITE, MEGHAN ELIZABETH

0659293556
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659293076
BODA, SHRUTHI
BODA, VAMSHIDHAR R

0659293140
MARSH, DEMETRIC

0659293115
SMITH, SHERMAN J

0659292534
BERNATZKY, KENNETH J
TAYLOR, ANNETTE C

0659292387
BEHLING, MICHAEL
BEHLING, KATHRYN

0659292382
PATIL, VINOD S
LALWANI, BHAVANA V

0659292286
HUFF, CHRISTOPHER JAMES
HUFF, EMILY ELISABETH

0659292291
PINNELL, ERIC LOUIS
PINNELL, KRISTINA ANNE

0659292007
KENNEY, THOMAS E
KENNEY, YANETH P

ANCHOR CREEK WAY

20" WHITE OAK
12" BLACK GUM
33" SWEETGUM
31" CHERRYBARK OAK
16" POPLAR
19" POSTOAK
15" NORTHERN RED OAK
18" NORTHERN RED OAK
22" POPLAR
13" RED MAPLE
12" BLACK GUM
25" SWEETGUM
27" POPLAR
16" WHITE OAK
13" BEECH
17" POPLAR
22" POPLAR
18" RED MAPLE
30" SWEETGUM
22" IRONWOOD
22" OAK
21" POPLAR
12" POPLAR
18" OAK
18" OAK
13" RED MAPLE
12" POPLAR
14" POPLAR
14" POPLAR
13" POPLAR
RIPRAP
15" NORTHERN RED OAK
14" NORTHERN RED OAK
13" WHITE ASH
16" DAMAGED WHITE OAK
16" DAMAGED POPLAR
12"HDPE
INV: 348.70
15"RCP
CB
TOC: 359.90
INV OUT: 355.43
CB
TOC: 358.49
INV IN: 354.66
INV OUT: 354.14
RIPRAP
24"FES
INV: 348.10
GPS CONTROL
POINT #900050
N: 699,449.97
E: 2,052,313.13
ELEV: 359.50
36" POPLAR
13" BLACK GUM
15" BEECH
19" NORTHERN RED OAK
15" WHITE OAK
12" IRONWOOD
15" NORTHERN RED OAK
17" NORTHERN RED OAK
15" WHITE OAK
12" RED MAPLE
21" POPLAR
15" SWEET GUM
14" WHITE OAK
17" POPLAR
20" TWIN NORTHERN RED OAK
15" SYCAMORE
RIPRAP
13" NORTHERN RED OAK
12" POPLAR
13" POPLAR
18"FES
INV: 347.72
SDMH ON EXTENDED CONCRETE PEDESTAL
RIM: 357.88
INV IN(42"RCP): 347.91
INV OUT(24"RCP): 347.98
INV OUT(18"RCP): 347.46
42"RCP
CB
TOC: 365.20
INV OUT: 359.11
0+00
0+50
1+00
1+50
2+00
2+65

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
06/26/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN OF HOLLY SPRINGS PROJECT #23-003
DEMOLITION PLAN

PROJECT LOCATION: 706 ANCHOR CREEK WAY
HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kboss@kbeng.org

REVISIONS		
DATE	DESCRIPTION	APPROVED

DATE 6/26/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET E3

0 40 80 Feet

SCALE: 1 INCH = 20 FEET

0750303969
MATA FAMILY LLC THE

PUMP AROUND OPERATION (SEE DETAIL 1/D3)

APPROXIMATE FINAL EROSION CONTROL MATTING BOUNDARY

CREEK CENTERLINE

LOD/TREE PROTECTION FENCE (SEE DETAIL HS403/D1), TYP

SILT FENCE OUTLET

SILT FENCE, TYP (SEE DETAIL HS401 & HS404/D1)

TAKE EFFORT TO NOT DISPLACE EXISTING RIP RAP DISSIPATION PADS. REFRESH RIP RAP AT CONCLUSION OF CONSTRUCTION.

EXISTING MAJOR CONTOUR, TYP

EXISTING MINOR CONTOUR, TYP

0659294300
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659294088
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0659294001
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PINNELL, KRISTINA ANNE

0659292007
KENNEY, THOMAS E
KENNEY, YANETH P

ANCHOR CREEK WAY

STAGING AREA

RIPRAP

RIPRAP

RIPRAP

24"HDPE
INV: 348.70

18"FES
INV: 347.72

SDMH ON EXTENDED CONCRETE PEDESTAL
RIM: 357.88
INV IN(42"RCP): 347.91
INV OUT(24"RCP): 347.98
INV OUT(18"RCP): 347.46

24"FES
INV: 348.10

42"RCP

CB
TOC: 359.90
INV OUT: 355.43

CB
TOC: 358.49
INV IN: 354.66
INV OUT: 354.14

CB
TOC: 365.20
INV OUT: 359.11

CONSTRUCTION ENTRANCE (SEE DETAIL H432/D1)

GPS CONTROL POINT #900050
N: 699,449.97
E: 2,052,313.13
ELEV: 359.50

PARCEL BOUNDARY, TYP

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
E&SC PLAN

PROJECT LOCATION: 706 ANCHOR CREEK WAY
HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

REVISIONS		
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DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET E4

IMPACTS TABLE			
	ZONE 1	ZONE 2	STREAM
TEMPORARY IMPACTS	15,256 SF	4,793 SF	326 LF
PERMANENT IMPACTS	0 SF	0 SF	0 LF

STREAM IMPACTS

ZONE 1 RIPARIAN BUFFER IMPACTS

ZONE 2 RIPARIAN BUFFER IMPACTS

0 40 80 Feet

SCALE: 1 INCH = 20 FEET

N

0750303969
MATA FAMILY LLC THE

ZONE 2 BUFFER LINE

ZONE 1 BUFFER LINE

CREEK CENTERLINE

LIMITS OF DISTURBANCE= 0.90 AC

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0659294088
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0659292007
KENNEY, THOMAS E
KENNEY, YANETH P

PARCEL BOUNDARY, TYP

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
IMPACTS MAP

PROJECT LOCATION: 706 ANCHOR CREEK WAY
HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
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CARY, NC 27511
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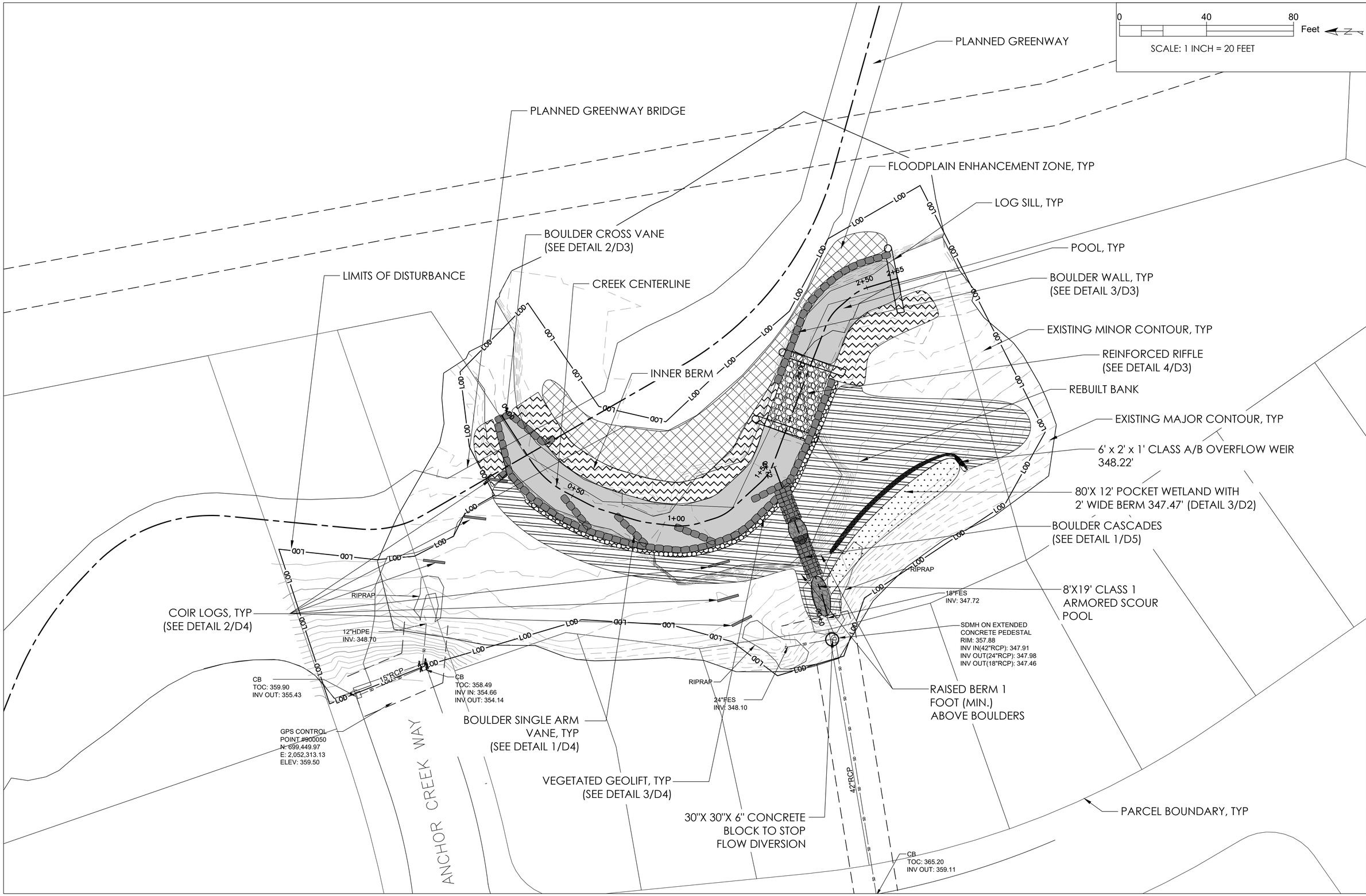
kbass@kbeng.org

REVISIONS		
DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET E5



DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

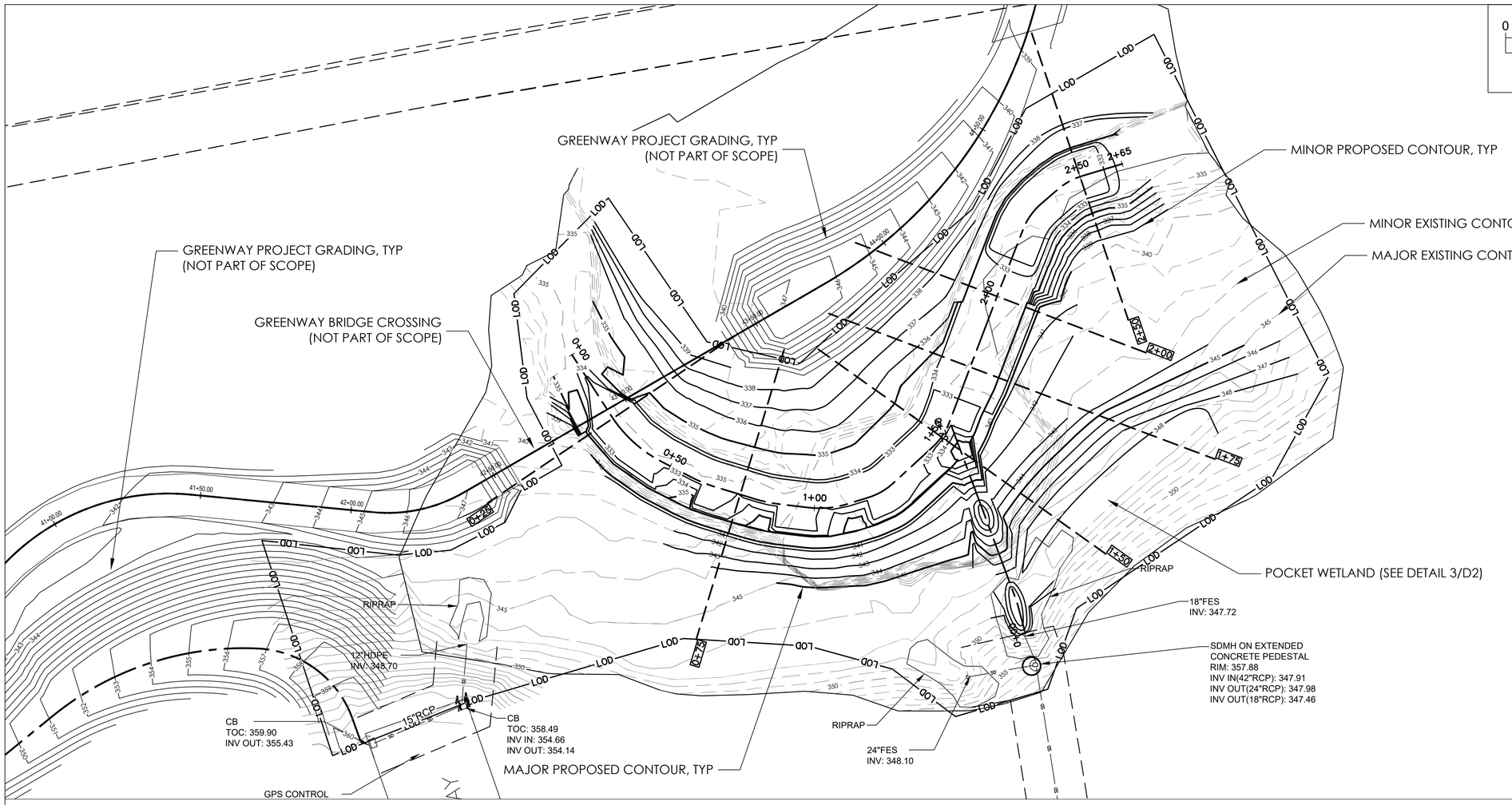
MIDDLE CREEK STREAM RESTORATION: TOWN PROJECT #23-003
SCHEMATIC

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

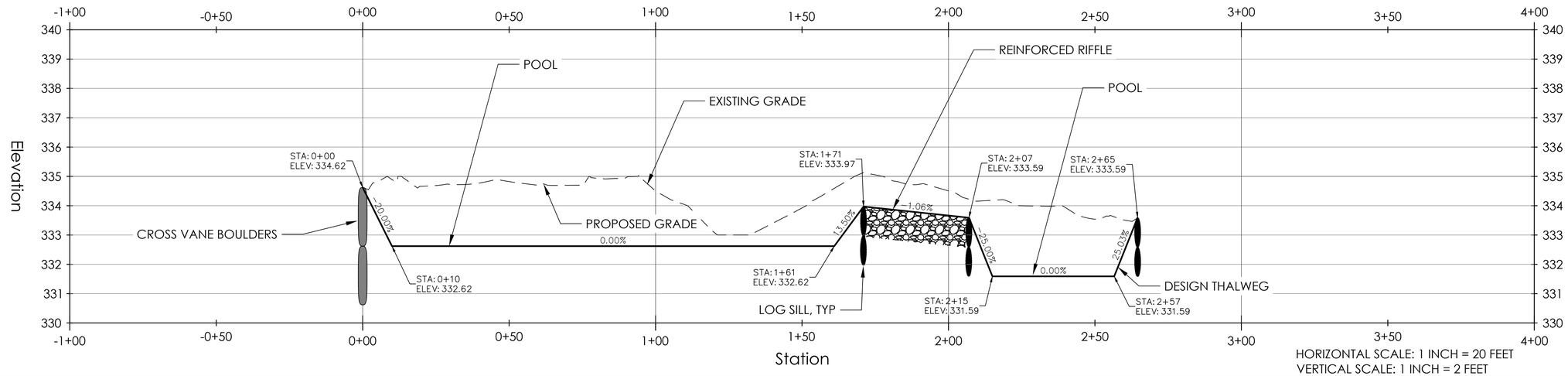
KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

REVISIONS			
DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET S1



MIDDLE CREEK PROFILE



HORIZONTAL SCALE: 1 INCH = 20 FEET
VERTICAL SCALE: 1 INCH = 2 FEET

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
GRADING PLAN

PROJECT LOCATION: 706 ANCHOR CREEK WAY
HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
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REVISIONS		
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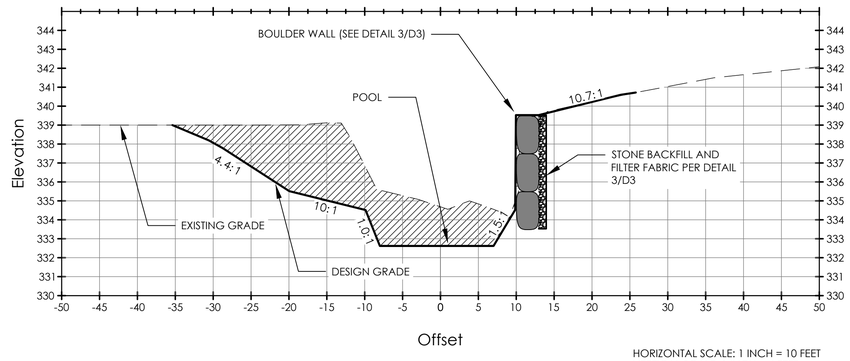
DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG

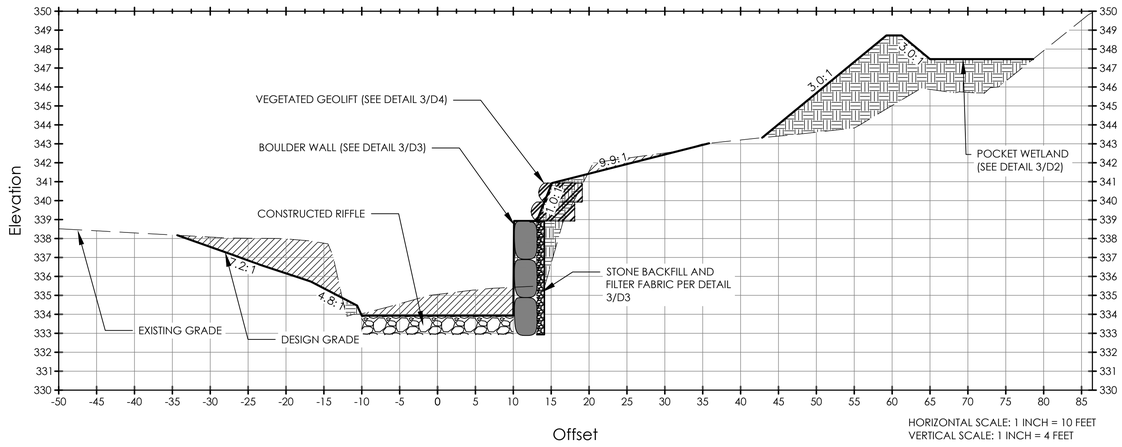
SHEET S2

0+25 SECTION VIEW



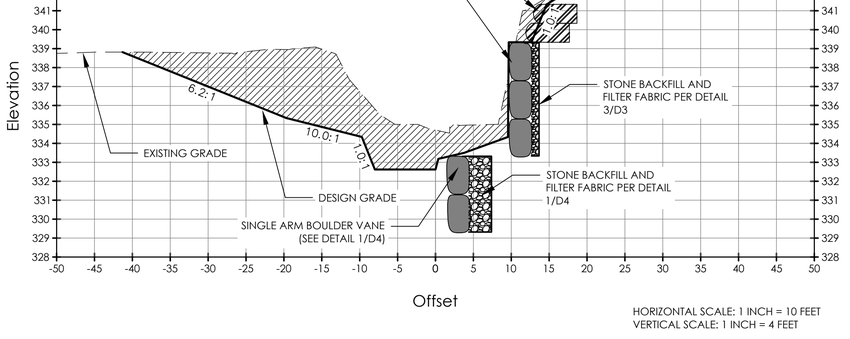
HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

1+75 SECTION VIEW



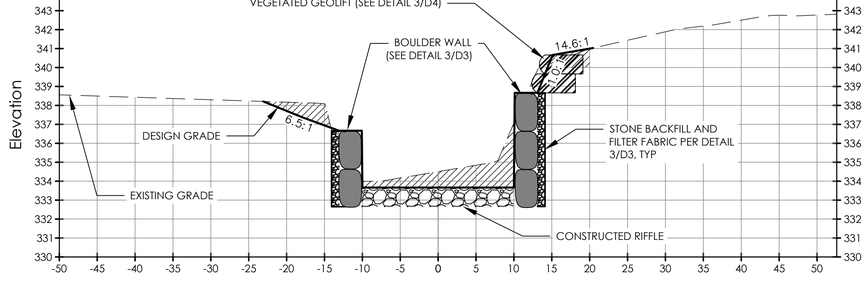
HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

0+75 SECTION VIEW



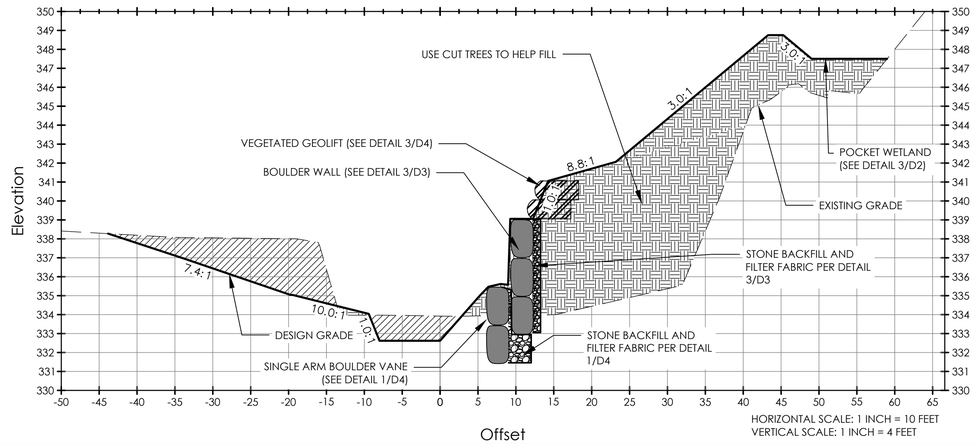
HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

2+00 SECTION VIEW



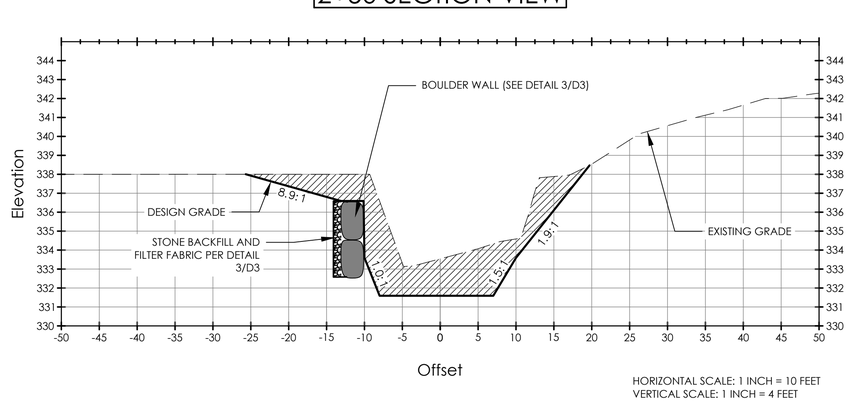
HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

1+50 SECTION VIEW



HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

2+50 SECTION VIEW



HORIZONTAL SCALE: 1 INCH = 10 FEET
VERTICAL SCALE: 1 INCH = 4 FEET

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
Connor D Brown
05/08/2025

MIDDLE CREEK STREAM RESTORATION: TOWN PROJECT #23-003 SECTIONS

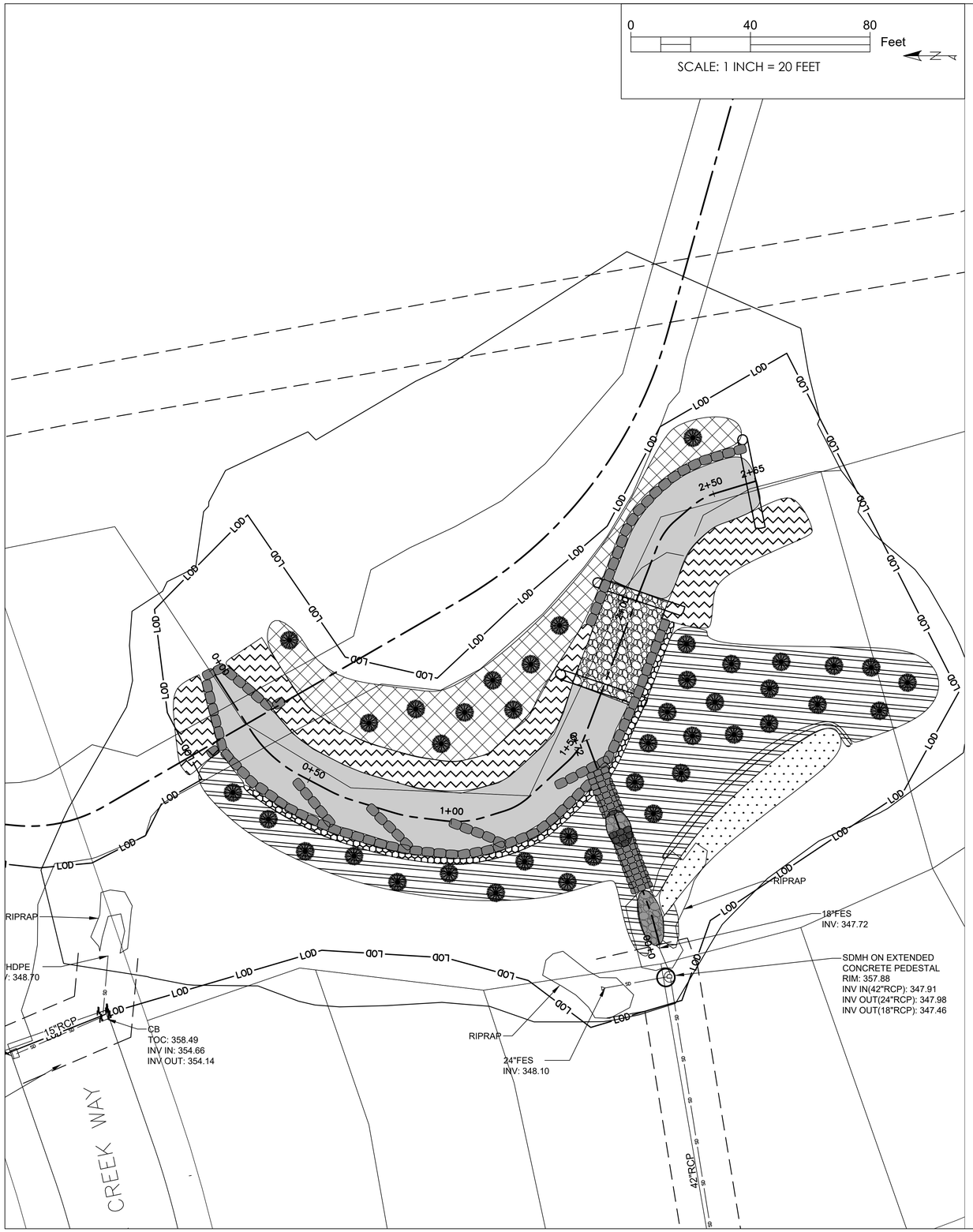
PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

KRIS BASS ENGINEERING

REVISIONS		
DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET S3



GENERAL PLANTING NOTES:

1. A DENSE STAND OF TEMPORARY AND PERMANENT VEGETATION IS REQUIRED PRIOR TO PROJECT COMPLETION. ANY AREAS NOT ESTABLISHED MUST BE RETILLED, RESEEDED, AND PROTECTED WITH COIR MATTING.
2. ALL INVASIVE SPECIES TO BE REMOVED FROM ALL ZONES BEFORE PROCEEDING WITH PLANTINGS.
3. ALL PLANTS SHALL BE INSPECTED AND APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION. PLANTING LOCATIONS ARE APPROXIMATE AND MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION.
4. AREAS TO BE PLANTED ARE SHOWN ON THE PLAN. IF UTILITIES ARE ENCOUNTERED, PLANTS MAY BE REPOSITIONED TO AVOID IMPACT.
5. PLANTS AND PLANTING SHALL MEET THE STANDARDS OF ANSI Z60.1 AND ANSI A 300 AND BE COMPLETED ACCORDING TO PROJECT SPECIFICATIONS.
6. ALL PLANTS, SPECIES, QUANTITIES, AND PROVIDERS SHALL BE PROVIDED FOR APPROVAL BY THE PROJECT ENGINEER. ALL TREES SHALL BE MADE AVAILABLE FOR INSPECTION FOR HEALTH AND QUALITY PRIOR TO DELIVERY TO THE SITE. ALL PLANTS ARE SUBJECT TO REFUSAL BASED ON INSPECTION OF THE PROJECT ENGINEER.
7. ALL PLANTING SHALL BE DONE IN A SUITABLE SEASONAL TIMEFRAME FOR EACH SPECIES:
   - 7.1. WETLAND SEEDING AND WETLAND PLUGS SHALL BE INSTALLED IN THE SPRING PRIOR TO JUNE 1 OR IN THE FALL PRIOR TO OCTOBER 31.
   - 7.2. TREES AND SHRUBS SHALL BE PLANTED IN THEIR DORMANT SEASON BETWEEN OCTOBER 1 AND APRIL 30. STAKING MAY BE ALLOWED WITH APPROVAL AND INSPECTION OF THE PROJECT ENGINEER.
8. BARE ROOT TREES TO BE PLANTED AT TOP OF BANK AND IN STREAM CORRIDOR/FLOODPLAIN ZONE. BARE ROOT TREES TO BE PLANTED AND SPACED ACCORDING TO TABLE ON SHEET P1.
9. PERCENT COMPOSITION OF PLANTINGS MAY VARY BASED ON SPECIES AVAILABILITY AT THE TIME OF PLANTING. NO SPECIES SHALL ACCOUNT FOR MORE THAN 20% IN ANY PLANTING AREA. AN PLANT SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT ENGINEER.
10. SPECIES SHALL BE DISTRIBUTED SUCH THAT 4 TO 7 PLANTS OF THE SAME SPECIES ARE GROUPED TOGETHER.
11. SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS AND REQUIREMENTS.

SOIL PREPARATION REQUIREMENTS:
ALL DISTURBED AREAS SHALL BE PREPARED PRIOR TO PLANTING BY DISC OR SPRING-TOOTH CHISEL PLOW TO MINIMUM DEPTH OF 12 INCHES. MULTIPLE PASSES SHALL BE MADE ACROSS PLANTING AREAS WITH THE IMPLEMENT AND THE FINAL PASS SHALL FOLLOW TOPOGRAPHIC CONTOURS. PRIOR TO ALL SEEDING, PLANTING, AND STABILIZATION, THE PLANTING SURFACE SHALL BE ROUGHENED MECHANICALLY SUCH THAT PLACED SEED AND FERTILIZER WILL NOT WASH DOWNSLOPE. FOLLOWING SOIL PREPARATION, PLANT AND STABILIZE SLOPES ACCORDING TO THE PLANTING PLAN AND TECHNICAL SPECIFICATIONS.

TREE PLANTING NOTE:
NO NEW TREES OR THEIR MATURE PROJECTED CANOPIES SHALL BE PLANTED WITHIN SANITARY SEWER OR DRAINAGE EASEMENTS, NOR IN PLANNED GREEWNAY BRIDGE AREA.

SEEDING AND LIVE STAKING NOTES:

1. RE-SEED ALL SLOPES AND DISTURBED AREAS AS DIRECTED.
   TEMPORARY SEEDING OF:
   120 LBS/ACRE RYEGRAIN - SEPTEMBER THROUGH MARCH
   40 LBS/ACRE BROWNTOP MILLET-APRIL THROUGH AUGUST

   PERMANENT TURF SEEDING (SPRING/SUMMER ONLY) OF:
   15 LBS/ACRE KY BLUEGRASS
   5 LBS/ACRE CENTIPEDE
   25 LBS/ACRE BERMUDAGRASS (HULLED).
2. APPLY FERTILIZER (10-20-20) AT A RATE OF 500LBS/AC AND LIME AT 2000LBS/ACRE. SPREAD STRAW MULCH ON ANY DISTURBED AREAS AT A RATE OF 2 TONS /ACRE. ANCHOR STRAW BY TACKING WITH BIODEGRADABLE NETTING OR A MULCH ANCHORING TOOL.
3. COVER ALL SLOPES 3(H):1(V) AND GREATER WITH COIR MATTING OVER STRAW AND SECURE WITH BIODEGRADABLE STAKING (DETAIL 4/D2). MULCHING SHALL BE PLACED UNDERNEATH COIR MATTING AT A RATE OF 2 TONS/ACRE.

   AREA FOR RESEEDING: 0.76AC
4. PERMANENT SEEDING SHALL NOT CONTAIN ANY FESCUE GRASSES. PLACE SEEDING AS SPECIFIED IN THE PLAN (UNDER THE COIR MATTING).
5. SPREAD SEED UNIFORMLY UNDER COIR FIBER MATTING ALONG CHANNEL BANKS.
6. STABILIZE ALL EXPOSED AREAS AT STREAM BANKS WITH THE PERMANENT RIPARIAN BUFFER SEED MIX.
7. WATER SEEDED AREAS AND WETLAND PLUGS THOROUGHLY AT PLANTING AND WEEKLY DURING THE FIRST GROWING SEASON.
8. LIVE STAKES SHALL BE PLANTED ACCORDING TO DETAIL 2/D2.
9. SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS AND REQUIREMENTS.

INNER CORRIDOR AREA (0.07 AC)- WETLAND PLUGS (690), LIVE STAKES (180), RIPARIAN SEED MIX, TEMPORARY AND PERMANENT TURF SEEDING

FLOODPLAIN ENHANCEMENT ZONE (0.07 AC)- RIPARIAN SEED MIX, BARE ROOT TREES (10), TEMPORARY AND PERMANENT TURF SEEDING

VEGETATED GEOLIFTS (0.01 AC)- RIPARIAN SEED MIX, TEMPORARY AND PERMANENT TURF SEEDING

UPPER SLOPED PLANTING AREA (0.15 AC)- BARE ROOT TREES (30), TEMPORARY AND PERMANENT TURF SEEDING

WETLAND PLANTING AREA (0.02 AC)- RIPARIAN SEED MIX, WETLAND PLUGS (210)

PLANTING SCHEDULE:

	QTY	COMMON NAME (SCIENTIFIC)	TYPE	SPACING
WETLAND PLUGS	180	SOFT RUSH (JUNCUS EFFUSES)	2" PLUG	2 FT CENTERS
	180	SHALLOW SEDGE (CAREX LURIDA)	2" PLUG	2 FT CENTERS
	180	SWITCHGRASS (PANICUM VIRGATUM)	2" PLUG	2 FT CENTERS
	180	BLUE FLAG IRIS (IRIS VIRGINICA)	2" PLUG	2 FT CENTERS
	180	SWAMP SUNFLOWER (HELIANTHUS ANGUSTIFOLIUS)	2" PLUG	2 FT CENTERS
LIVE STAKES	90	SILKY DOGWOOD (SWIDA AMOMUM)	LIVE STAKE	4 FT CENTERS
	90	SILKY WILLOW (SALIX SERICEA)	LIVE STAKE	4 FT CENTERS
BARE ROOT TREE PLANTING	8	AMERICAN SYCAMORE (PLATANUS OCCIDENTALIS)	BARE ROOT	15 FT CENTERS
	8	WILLOW OAK (QUERCUS PHELLOS)	BARE ROOT	15 FT CENTERS
	8	RIVER BIRCH (BETULA NIGRA)	BARE ROOT	15 FT CENTERS
	8	TULIP POPLAR (LIRIODENDRON TULIPIFERA)	BARE ROOT	15 FT CENTERS
	8	WATER OAK (QUERCUS NIGRA)	BARE ROOT	15 FT CENTERS

RIPARIAN SEED MIX	JOE-PYE-WEED (EUPATORIUM FISTULOSUM)	15 %
	SWITCHGRASS (PANICUM VIRGATUM)	15 %
	FOX SEDGE (CAREX VULPINOIDEA)	10 %
	DEER TONGUE (PANICUM CLANDESTINUM)	15 %
	SOFT RUSH (JUNCUS EFFUSUS)	15 %
	HOP SEDGE (CAREX LUPULINA)	15 %
	BLACK EYED SUSAN (RUDBEKIA HIRTA)	15 %
QUANTITY ESTIMATE - 4 LBS		APPLY AT 20 LBS/AC

DESIGNED: CB
DRAWN: CB
CHECKED: KB

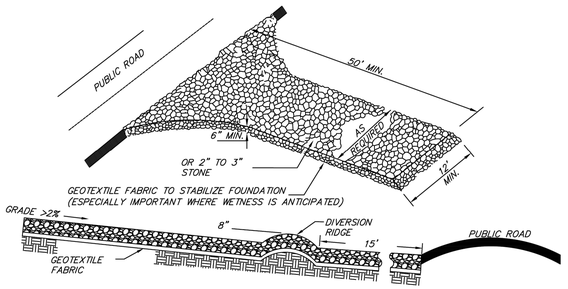
NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
PLANTING PLAN
PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

REVISIONS
DESCRIPTION
APPROVED
DATE

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET P1

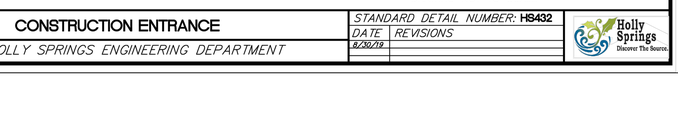


APPLICABLE AT ALL POINTS OF INGRESS & EGRESS UNTIL SITE IS STABILIZED.
FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.

NOTES:
A. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGER TRUCKS IS TO BE PROVIDED.
B. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILIZATION BY ALL CONSTRUCTION TRUCKS.
C. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF TRAFFIC ONTO STREETS. PERIODIC TOP DRESSING WITH STONE WILL BE NECESSARY, KEEP SOME ON HAND.
D. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED IMMEDIATELY.

DRAWING NOT TO SCALE

CONSTRUCTION ENTRANCE	STANDARD DETAIL NUMBER: HS432
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT	DATE: 8/30/19 — REVISIONS



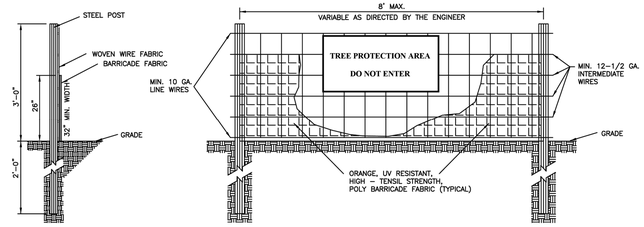
NOTE:

1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. UV RESISTANT SILT FENCE FABRIC MUST BE USED NO ORANGE SILT FENCE PERMITTED.

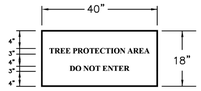
* FOR REPAIR OF SILT FENCE FAILURES, USE No. 57 WASHED STONE. SILT FENCE SHOULD NOT BE USED AS INLET PROTECTION AROUND CATCH BASINS.

DRAWING NOT TO SCALE

STANDARD TEMPORARY SILT FENCE	STANDARD DETAIL NUMBER: HS401
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT	DATE: 7/24/09 — REVISIONS

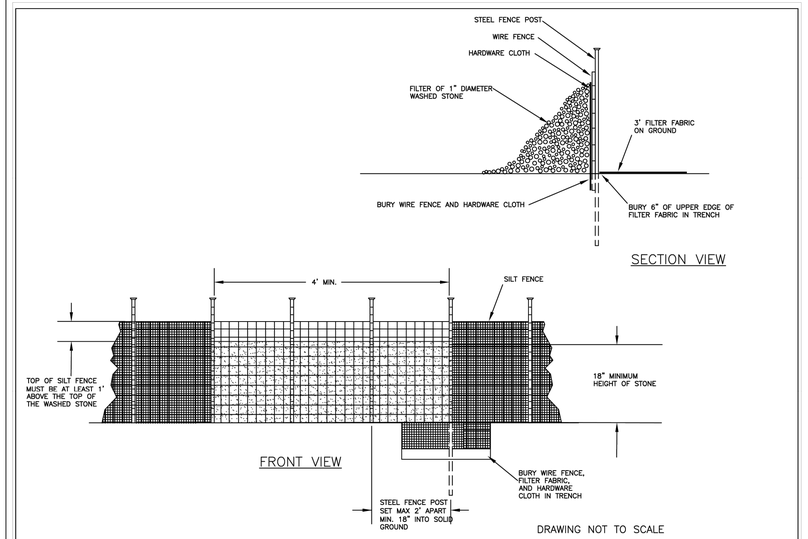


NOTES:
1. NO ORANGE SILT FENCE PERMITTED.
2. ORANGE, UV RESISTANT, HIGH-TENSIL STRENGTH, POLY BARRICADE FABRIC MUST BE USED.
3. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
4. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
5. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
6. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
7. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
8. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
9. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
10. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
11. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.



DRAWING NOT TO SCALE

STANDARD TREE PROTECTION DETAIL	STANDARD DETAIL NUMBER: HS403
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT	DATE: 1/24/19 — REVISIONS



DRAWING NOT TO SCALE

SILT FENCE OUTLET	STANDARD DETAIL NUMBER: HS404
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT	DATE: 4/8/17 — REVISIONS

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

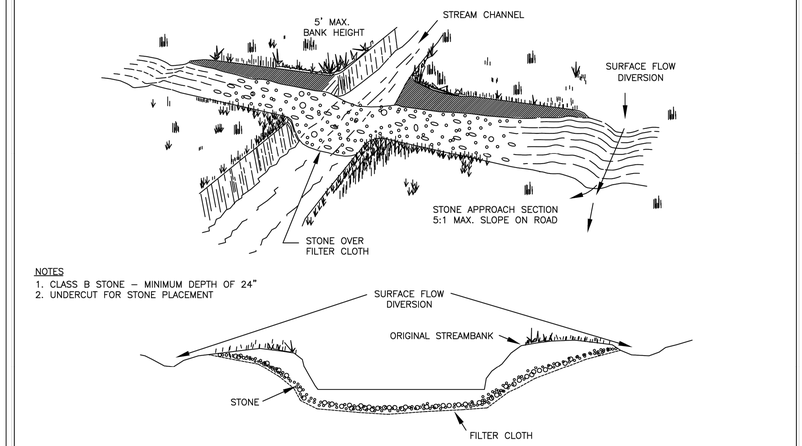
MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23-003
CONSTRUCTION DETAILS

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
kbass@kbeng.org

REVISIONS		
DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET D1

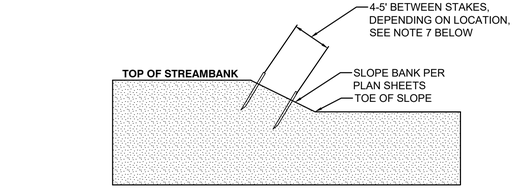


NOTES
1. CLASS B STONE – MINIMUM DEPTH OF 24"
2. UNDERCUT FOR STONE PLACEMENT

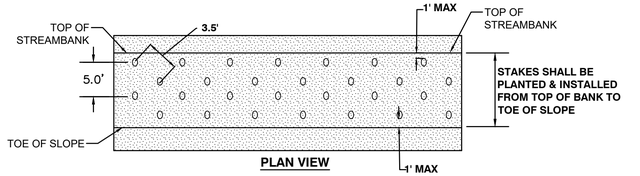
DRAWING NOT TO SCALE

TEMPORARY STREAM CROSSING OPTION	STANDARD DETAIL NUMBER: HS419	
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT	DATE	REVISIONS
	7/24/18	

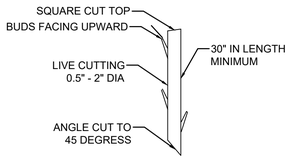
Holly Springs
Discover The Source.



CROSS-SECTION



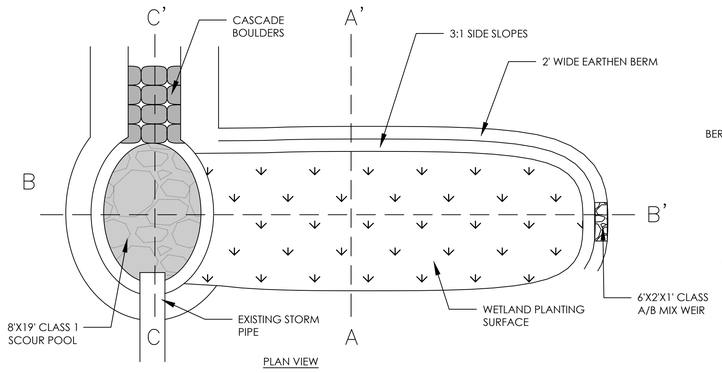
PLAN VIEW



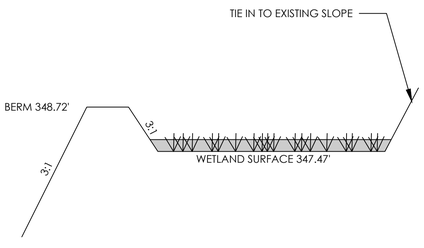
LIVE STAKE DETAIL

NOTES
1. **STAKES SHALL BE CUT AND INSTALLED ON THE SAME DAY.**
2. **STAKES THAT HAVE BEEN SPLIT SHALL BE REJECTED AND NOT USED FOR CONSTRUCTION.**
3. **STAKES SHALL BE INSTALLED WITH BUDS POINTING UPWARD.**
4. **STAKES SHALL BE INSTALLED PERPENDICULAR TO BANK.**
5. **STAKES SHALL BE 0.5" - 2" INCHES IN DIAMETER AND 30" IN LENGTH MINIMUM.**
6. **STAKES SHALL BE INSTALLED WITH APPROXIMATELY 3" OF STAKE REMAINING ABOVE GROUND.**
7. **STAKE SPACING SHALL BE 5' ON CENTER.**

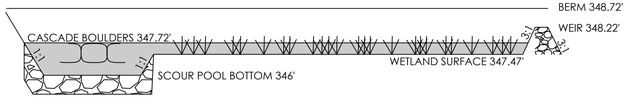
2/D2 LIVE STAKE
NOT TO SCALE



PLAN VIEW



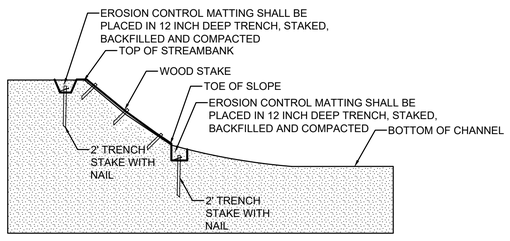
A-A' PROFILE



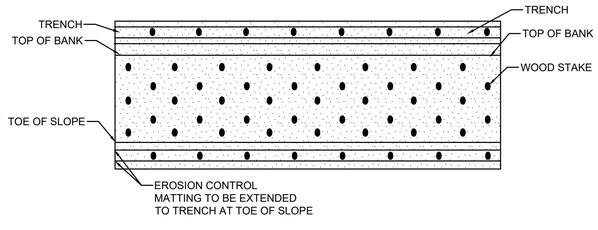
B-B' PROFILE

POCKET WETLAND NOTES:
1. THE PONDING DEPTH FROM THE WETLAND PLANTING SURFACE TO THE TOP OF THE FIRST CASCADE BOULDERS SHALL BE 3".
2. THE VERTICAL DIFFERENCE BETWEEN THE WEIR AND THE BERM SHALL BE 6".
3. THE VERTICAL DISTANCE BETWEEN THE WETLAND PLANTING SURFACE AND THE WEIR SHALL BE SET AT 9".
4. BOULDER CASCADE AND PROFILE C-C' SHALL BE BUILT ACCORDING TO DETAIL 1/D5.
5. THE WEIR AND THE SCOUR POOL SHALL BE LINED WITH CLASS 2 NONWOVEN GEOTEXTILE FILTER FABRIC.
6. ALL DIISTURBED SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITH STRAW MULCH, SEED, AND EROSION CONTROL MATTING ACCORDING TO THE PLANTING PLAN AND DETAIL 4/D2.

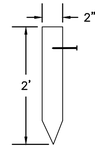
3/D2 POCKET WETLAND
NOT TO SCALE



CROSS-SECTION



PLAN VIEW



THE WOOD STAKE SHALL BE THE NORTH AMERICAN GREEN ECO-STAKE OR APPROVED EQUAL WITH THE FOLLOWING DIMENSIONS:

LEG LENGTH	11.00 IN (27.94 CM)
HEAD WIDTH	1.25 IN (3.18 CM)
HEAD THICKNESS	0.40 IN (1.02 CM)
LEG WIDTH	0.60 IN (1.52 CM) (TAPERED TO POINT)
LEG THICKNESS	0.40 IN (1.02 CM)
TOTAL LENGTH	12.00 IN (30.48 CM)

TYPICAL TRENCH STAKE

EROSION CONTROL MATTING NOTES
1. BANKS SHALL BE SEEDED (PERMANENT & TEMPORARY) PRIOR TO PLACEMENT OF MATTING.
2. WOODEN STAKES SHALL BE PLACED IN A DIAMOND SHAPE PATTERN PER THE PLAN VIEW.
3. TRENCH STAKES AND WOOD STAKES SHALL BE PLACED A MAXIMUM DISTANCE APART OF 3'.
4. EROSION CONTROL MATTING (ECM) SHOULD BE USED TO AID PERMANENT VEGETATED STABILIZATION OF SLOPES 2:1 OR AREAS SPECIFIED IN THE PLANS.
5. ECM SHOULD BE USED WHEN MULCH CANNOT BE ADEQUATELY TACKED AND WHERE IMMEDIATE GROUND COVER IS REQUIRED TO PREVENT EROSION DAMAGE.
6. 6" MINIMUM OVERLAP IN THE HORIZONTAL
7. ECM SHALL BE 900 GRAM COIR MATTING OR EQUIVALENT PRODUCT APPROVED BY THE PROJECT ENGINEER.

EROSION CONTROL MATTING MAINTENANCE NOTES
1. INSPECT ECM AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE ECM.
3. ANY AREAS OF THE ECM THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE ECM AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

4/D2 EROSION CONTROL MATTING
NOT TO SCALE

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 056429 CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23-003
CONSTRUCTION DETAILS (2)
PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
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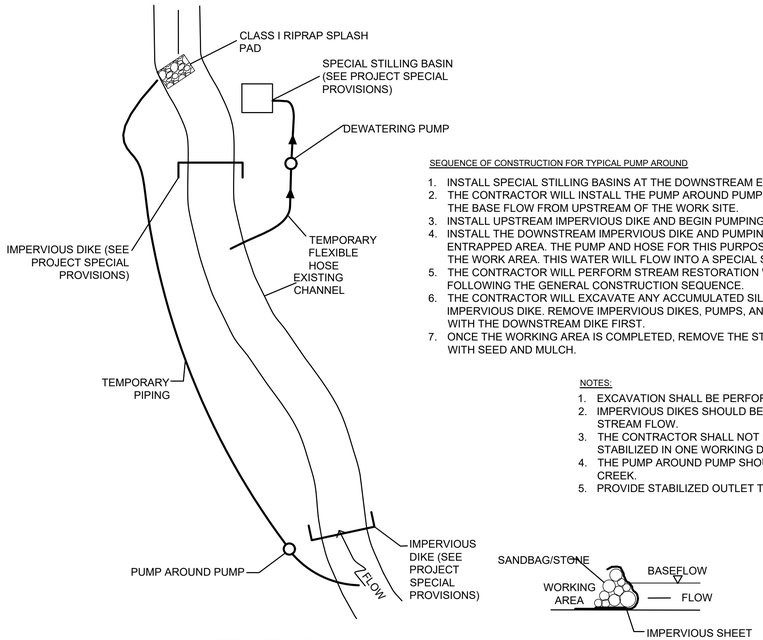
kbass@kbeng.org

KRIS BASS PE

DATE	DESCRIPTION	APPROVED
	REVISIONS	

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET D2



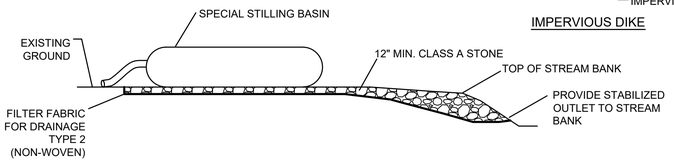
SEQUENCE OF CONSTRUCTION FOR TYPICAL PUMP AROUND

1. INSTALL SPECIAL STILLING BASINS AT THE DOWNSTREAM END OF THE DESIGNATED PROJECT WORKING AREA.
2. THE CONTRACTOR WILL INSTALL THE PUMP AROUND PUMP AND THE TEMPORARY PIPING THAT WILL CONVEY THE BASE FLOW FROM UPSTREAM OF THE WORK SITE.
3. INSTALL UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. INSTALL THE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS IF NEEDED TO DEWATER THE ENTRAPPED AREA. THE PUMP AND HOSE FOR THIS PURPOSE SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA. THIS WATER WILL FLOW INTO A SPECIAL STILLING BASIN.
5. THE CONTRACTOR WILL PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLAN AND FOLLOWING THE GENERAL CONSTRUCTION SEQUENCE.
6. THE CONTRACTOR WILL EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF THE IMPERVIOUS DIKE. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE/PIPING STARTING WITH THE DOWNSTREAM DIKE FIRST.
7. ONCE THE WORKING AREA IS COMPLETED, REMOVE THE STILLING BASINS AND STABILIZE DISTURBED AREAS WITH SEED AND MULCH.

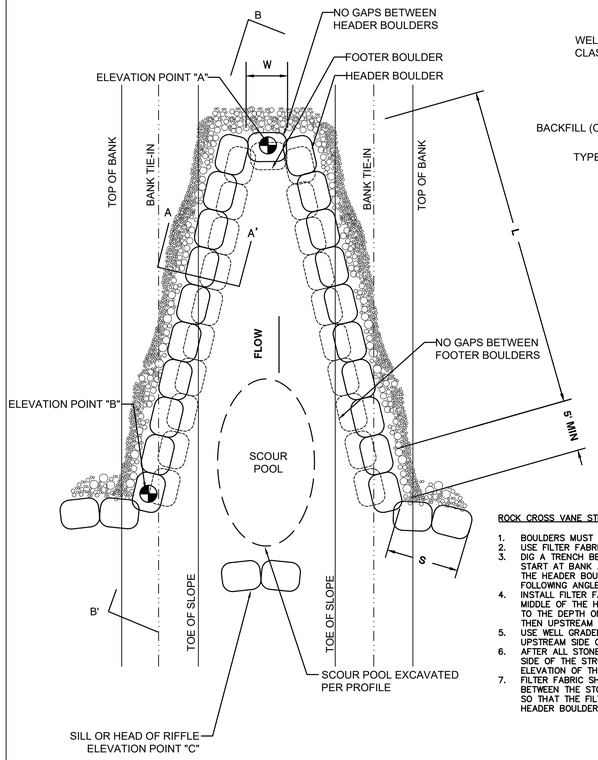
NOTES:

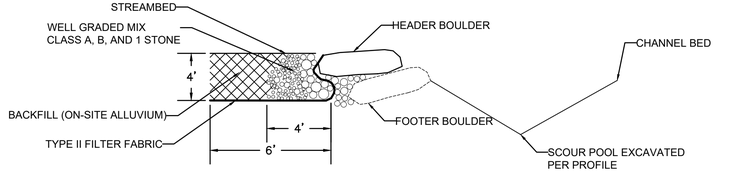
1. EXCAVATION SHALL BE PERFORMED IN ONLY DRY SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES SHOULD BE USED TO ISOLATE WORK AREAS FROM STREAM FLOW.
3. THE CONTRACTOR SHALL NOT DISTURB MORE AREA THAN CAN BE STABILIZED IN ONE WORKING DAY.
4. THE PUMP AROUND PUMP SHOULD ADEQUATELY CONVEY 7 CFS FOR MIDDLE CREEK.
5. PROVIDE STABILIZED OUTLET TO STREAM BANK.

IMPERVIOUS DIKE

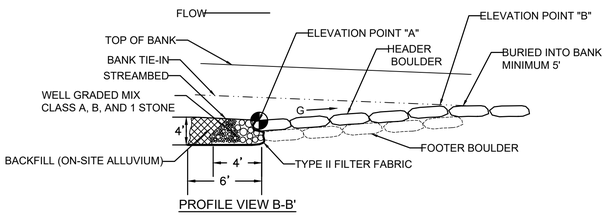


1 / D3 TYPICAL PUMP AROUND OPERATION
NOT TO SCALE





SECTION A - A'



PROFILE VIEW B-B'

ROCK CROSS VANE STRUCTURE NOTES:

1. BOULDERS MUST BE AT LEAST 2.5'x2.0x1.5'.
2. USE FILTER FABRIC TO SEAL GAPS BETWEEN BOULDERS.
3. DIG A TRENCH BELOW THE BED FOR FOOTER BOULDERS. START AT BANK AND PLACE FOOTER BOULDERS FIRST AND THE HEADER BOULDERS. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE MIDDLE OF THE HEADER BOULDERS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER BOULDERS, AND THEN UPSTREAM FOR A MINIMUM OF SIX FEET.
5. USE WELL GRADED MIX OF CLASS A AND B STONE ON UPSTREAM SIDE OF STRUCTURE.
6. AFTER ALL STONE HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH ON-SITE ALLUVIUM TO THE ELEVATION OF THE TOP OF THE HEADER BOULDER.
7. FILTER FABRIC SHALL BE TRIMMED ALONG THE TRANSITION BETWEEN THE STONE BACKFILL AND THE HEADER BOULDERS SO THAT THE FILTER FABRIC DOES NOT OVERLAP THE HEADER BOULDERS.

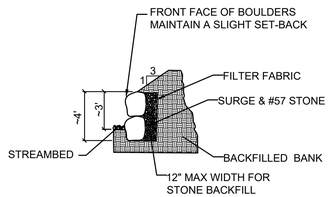
*CROSS VANE DIMENSION TABLE

VANE (STA)	ELEVATION POINT A (FT)	ELEVATION POINT B (FT)	VANE ARM GRADE, G (%)	VANE ARM LENGTH, L (FT)	W (FT)
1 (0+00)	334.62'	335.62'	5%	L- 23'; R- 27'	8'

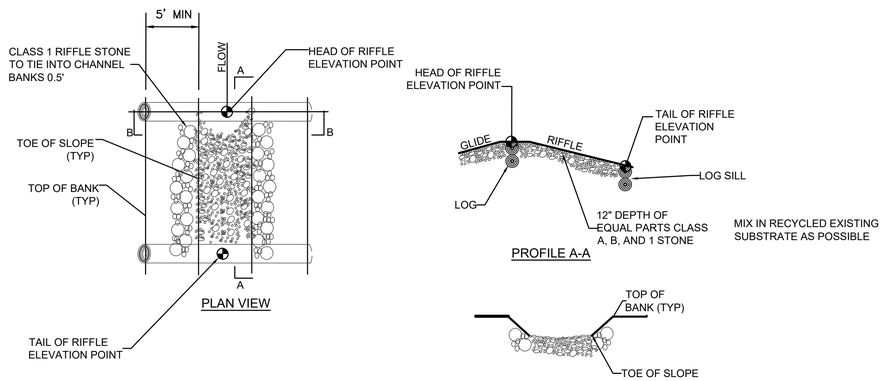
2 / D3 ROCK CROSS VANE
NOT TO SCALE

BOULDER WALL STRUCTURE NOTES:

1. BOULDERS MUST BE AT LEAST 2.5'x2.0x1.5'.
2. DIG A TRENCH BELOW THE BED FOR FOOTER BOULDERS. START AT BANK AND PLACE FOOTER BOULDERS FIRST AND THE HEADER BOULDERS. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
3. INSTALL FILTER FABRIC BETWEEN REBUILT STREAMBANK AND STONE BACKFILL. FILTER FABRIC TO EXTEND THE ENTIRE LENGTH OF BOULDER BANK PROTECTION.
4. USE WELL GRADED MIX OF SURGE AND #57 STONE BETWEEN STRUCTURE AND BACKFILLED BANK.
5. STREAM BANK TO BE SLOPED UP TO DESIGN GRADE ABOVE HEADER BOULDER.
6. FILTER FABRIC SHALL BE TRIMMED ALONG THE TRANSITION BETWEEN THE STONE BACKFILL AND THE REBUILT STREAM BANK SO THAT THE FILTER FABRIC DOES NOT OVERLAP THE HEADER BOULDERS.
7. LEFT BANK BOULDER PROTECTION IS 3 FEET ABOVE DESIGN THALWEG, RIGHT BANK BOULDER PROTECTION IS 5 FEET ABOVE DESIGN THALWEG.



3 / D3 BOULDER WALL
NOT TO SCALE



4 / D3 REINFORCED RIFFLE
NOT TO SCALE

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23-003
CONSTRUCTION DETAILS (3)

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
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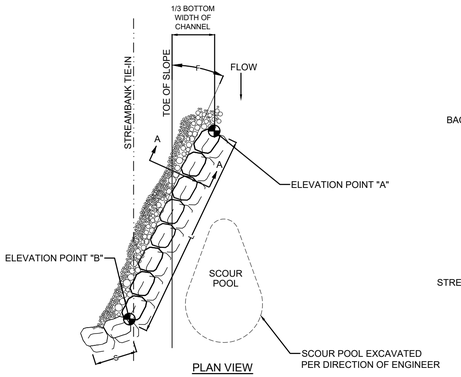
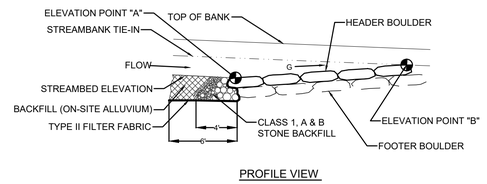
KRIS BASS FIRM 1133

REVISIONS			
DATE	DESCRIPTION	APPROVED	

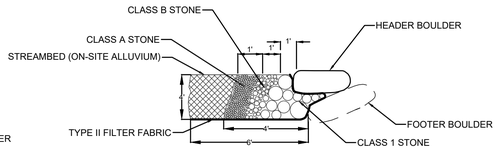
DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET D3



PLAN VIEW



PROFILE VIEW



SECTION A - A

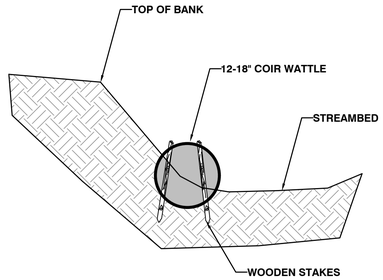
LARGE ROCK VANE STRUCTURE NOTES:

1. BOULDERS MUST BE AT LEAST 1.5'x2.0'x2.5'.'.
2. USE FILTER FABRIC TO SEAL GAPS BETWEEN BOULDERS.
3. DIG A TRENCH BELOW THE BED FOR FOOTER BOULDERS. START AT BANK AND PLACE FOOTER BOULDERS FIRST AND THEN HEADER BOULDERS. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. INSTALL FILTER FABRIC FOR DRAINAGE BEGINNING AT THE TOP OF THE HEADER BOULDERS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER BOULDERS, AND THEN UPSTREAM FOR A MINIMUM OF SIX FEET.
5. USE WELL GRADED MIX OF CLASS 1, A AND B STONE ON STREAMBANK SIDE OF STRUCTURE, SEE SECTION A–A FOR STONE DIMENSIONS. JOIN STONE BACKFILL WITH GEOLIFT STONE BACKFILL WHERE APPROPRIATE.
6. AFTER ALL STONE HAS BEEN PLACED, FILL IN THE STREAMBANK SIDE OF THE STRUCTURE WITH ON–SITE ALLUVIUM TO THE ELEVATION OF THE TOP OF THE HEADER BOULDER, FILLING IN VOIDS OF THE BACKFILL.
7. FILTER FABRIC SHALL BE TRIMMED ALONG THE TRANSITION BETWEEN THE STONE BACKFILL AND THE HEADER BOULDERS SO THAT THE FILTER FABRIC DOES NOT EXTEND OVER THE HEADER BOULDERS.

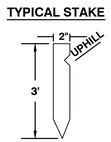
SINGLE ARM VANE STRUCTURE TABLE

STATION	L (FT)	G (%)	F (DEGREES)	ELEVATION POINT A (FT)	ELEVATION POINT B (FT)
0+50	20	20	23	332.62	335.74
0+75	20	20	31	332.62	335.78
1+00	20	20	32	332.62	335.79
1+50	20	20	20	332.62	335.76

1 / D4 SINGLE ARM VANE
NOT TO SCALE



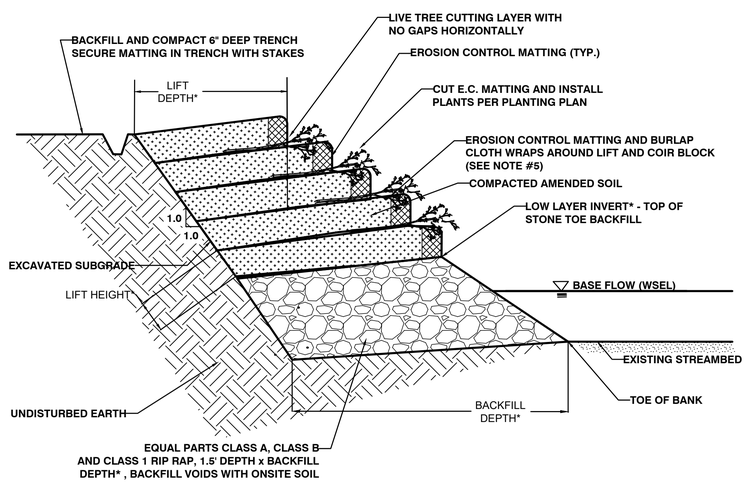
CROSS-SECTION



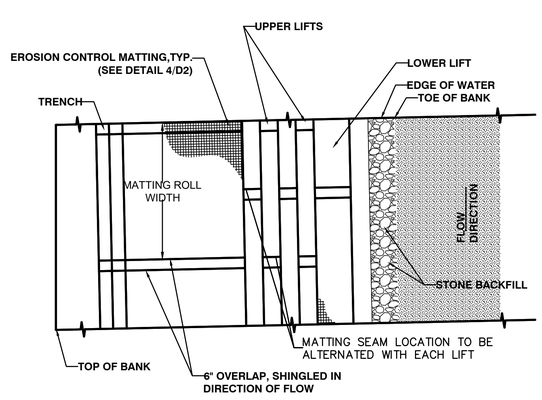
NOTES
1. INSTALL STAKES ON 3' CENTERS ON EACH SIDE OF ROLL. TOP OF STAKE SHOULD NOT EXTEND ABOVE ROLL.
2. EXCAVATE A SHALLOW TRENCH FOR LEVEL PLACEMENT OF EACH COIR LOG.
3. COIR LOGS SHALL BE 12-20" DIAMETER AND 10' LONG.
4. CONFIRM DIAMETER AND PLACEMENT WITH BANKFULL DEPTH AND ENGINEER PRIOR TO INSTALLATION.
5. COIR WATTLES ARE NOT SUITABLE FOR THIS INSTALLATION. COIR LOG PRODUCTS MUST MEET A WEIGHT REQUIREMENT OF 5 LBS/FT AND DENSITY REQUIREMENT OF 9 LBS/CF.
6. PROVIDE PRODUCT DATA FOR APPROVAL BY ENGINEER.

2 / D4 COIR LOG (TOE PROTECTION)
NOT TO SCALE

SCHEMATIC CROSS–SECTION



PLAN VIEW



VEGETATED GEOLIFT STRUCTURE NOTES:

1. IF GEOLIFT IS NOT FRONTED BY A ROCK VANE, INCORPORATE A BOULDER TOE WITHIN THE STONE BACKFILL. BOULDERS SHALL BE NO LESS THAN 4.0'x3.0'x2.0'.
2. THE CHANNEL BASE FLOW OR WATER SURFACE ELEVATION (WSEL) WILL VARY SEASONALLY AND MAY BE VERY LOW DURING TIMES OF DROUGHT. DURING DROUGHT, AS DETERMINED BY THE ENGINEER, THE WSEL WILL BE CONSIDERED TO BE EQUAL TO THE DOWNSTREAM GRADE CONTROL ELEVATION.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR CHANGES TO THE VEGETATED GEOLIFT PLACEMENT IF IT IS DETERMINED BY THE ENGINEER THAT THE VEGETATED GEOLIFT WAS NOT INSTALLED PROPERLY.
4. PLANTS SHALL MEET MATERIALS SPECIFICATIONS OUTLINED IN THE SPECIAL PROVISIONS.
5. AT THE DISCRETION OF THE PROJECT ENGINEER, COIR BLOCKS SHALL BE USED IN ALL LIFT LAYERS WITHIN THE GEOLIFT.

VEGETATED GEOLIFT DIMENSION TABLE

LIFT NUMBER	LIFT HEIGHT (FT)	BACKFILL DEPTH (FT)	INITIAL LIFT DEPTH (FT)	FINAL LIFT DEPTH (FT)	LIFT INVERT EL.	HIGH LIFT EL.	X, BANK SLOPE
1	1.0'	N/A	5.0'	5.0'	339.34'	340.34'	1.0:1.0
2	1.0'	N/A	5.0'	5.0'	340.34'	341.34'	1.0:1.0

3 / D4 VEGETATED GEOLIFT
NOT TO SCALE

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23–003
CONSTRUCTION DETAILS (4)

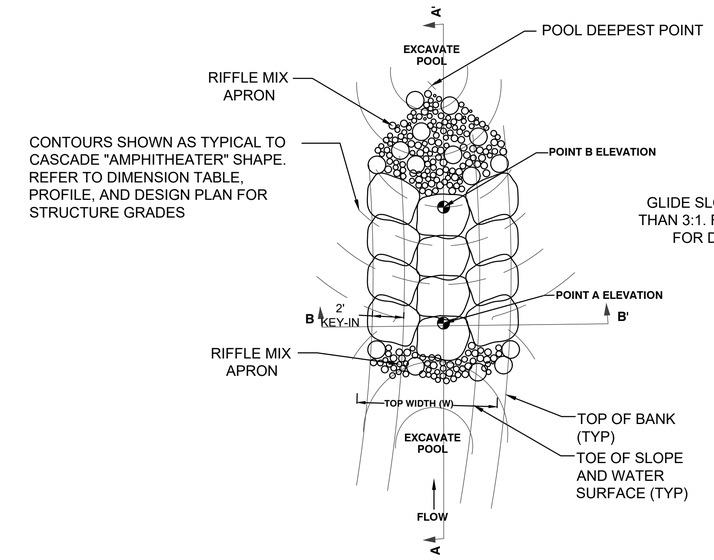
PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P–1133
919.960.1552 (c)
kbass@kbeng.org

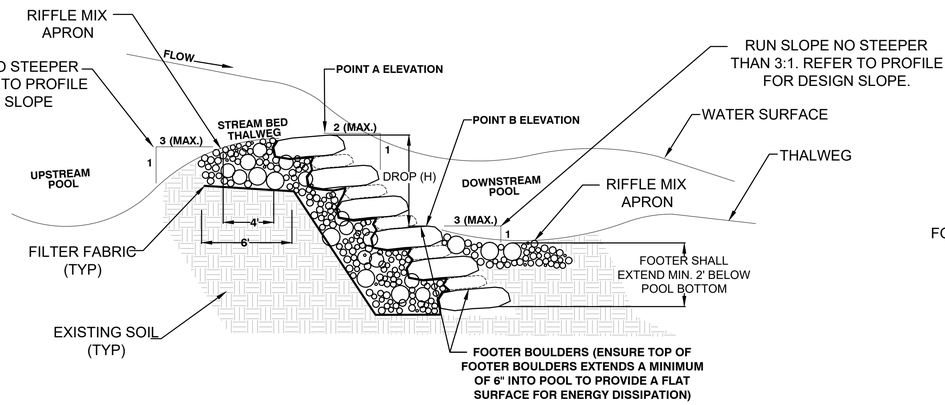
REVISIONS

DATE	DESCRIPTION	APPROVED

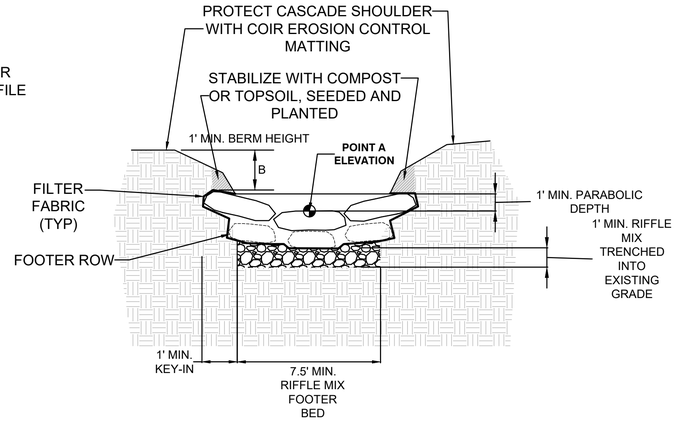
DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET D4



PLAN VIEW



CHANNEL PROFILE-SECTION A-A'



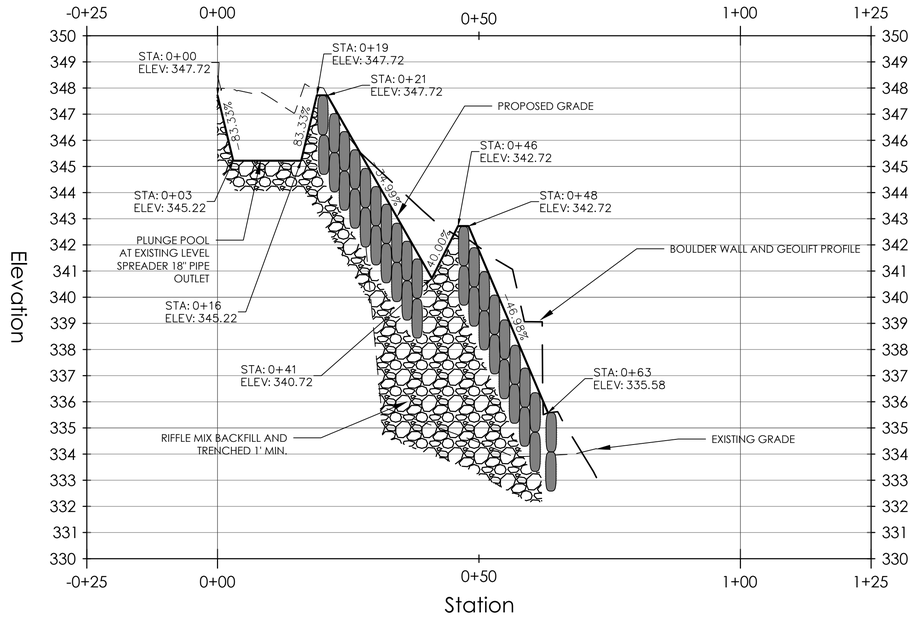
CHANNEL SECTION B-B' LOOKING UPSTREAM

BOULDER CASCADE STRUCTURE NOTES:

1. CASCADE SHALL BE CONSTRUCTED OF SMALL BOULDERS WITH SMALLER STONE BEING USED FOR FOOTERS AND CHINKING. CHINKING SHALL BE TIGHT AND UNIFORM.
2. ALL PORTIONS OF THE CASCADE SHALL BE HAND CHINKED TO PRODUCE A RIDGED STEPPING CASCADE FROM UPSTREAM INVERT TO FOOTER.
3. THE FOOTER STEP SHALL EXTEND AT LEAST 2' BELOW THE BOTTOM OF THE FOLLOWING POOL AND BE COVERED WITH SOIL OR RIFFLE MIX APRON.
4. THE CASCADE GLIDE AND RUN SLOPES SHALL BE NO STEEPER THAN 3:1 AND SHALL INCLUDE A RIFFLE MIX APRON. THE RUN RIFFLE MIX APRON SHALL EXTEND TO THE DEEPEST PART OF THE POOL. THE GLIDE RIFFLE MIX APRON SHALL BE 4' MINIMUM IN LENGTH.
5. USE A MINIMUM 6OZ. NON-WOVEN FILTER FABRIC BENEATH BOULDERS AND STONE BACKFILL.
6. LENGTH AND WIDTH OF BOULDER STEP VARIES PER REACH AND STATION, SEE TABLE.
7. BEGIN STRUCTURE AT EXISTING SUBSOIL. SET FOOTER BOULDERS AND FILTER FABRIC.
8. BACKFILL STONE EVENLY CONSTRUCTING STRUCTURE ONE STEP, STONE LIFT AT A TIME, MEET INVERT AT POINT B ELEVATION CONTINUE CONSTRUCTION UNTIL POINT A ELEVATION POINT IS REACHED.

BOULDER CASCADE TABLE									
REACH	POINT A STATION	POINT A ELEVATION	POINT B STATION	POINT B ELEVATION	W(FT)	L(FT)	H(FT)	G(FT/FT)	B (FT)
MIDDLE CR.	0+18.75	347.72	0+35	342.72	5.5	20	5	0.35	1
MIDDLE CR.	0+46	342.72	0+63.2	335.60	5.5	18	7.14	0.47	1

BOULDER CASCADE PROFILE



1 / D5 **BOULDER CASCADE**

NOT TO SCALE

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

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MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23-003
CONSTRUCTION DETAILS (5)

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

REVISIONS
DESCRIPTION
APPROVED
DATE

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET D5

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

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

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

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

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

GROUND STABILIZATION SPECIFICATION

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

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

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

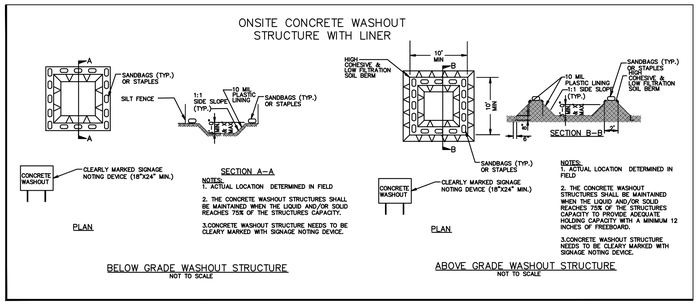
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

MIDDLE CREEK STREAM RESTORATION
TOWN PROJECT #23-003
NCG01 PERMIT

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REVISIONS		
DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET N1

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

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

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

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

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

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

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

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

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
NCG01 PERMIT (2)
PROJECT LOCATION: 706 ANCHOR CREEK WAY HOLLY SPRINGS, NC 27540

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DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET N2

EXHIBIT A

0 40 80 Feet

SCALE: 1 INCH = 20 FEET

0750303969
MATA FAMILY LLC THE

TEMPORARY CONSTRUCTION EASEMENT
4300 SUNSET LAKE DR.
0.221 ACRES

TEMPORARY CONSTRUCTION EASEMENT
706 ANCHOR CREEK WAY
0.038 ACRES

TEMPORARY CONSTRUCTION EASEMENT
0 ANCHOR CREEK WAY
0.536 ACRES

TEMPORARY CONSTRUCTION EASEMENT
709 WELLSPRING DR.
0.003 ACRES

TEMPORARY CONSTRUCTION EASEMENT
713 WELLSPRING DR.
0.014 ACRES

0659294300
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659294088
BRIDGEWATER SUBDIVISION HOMEOWNERS ASSN INC

0659294001
SATTERWHITE, SEAN BOULWARE
SATTERWHITE, MEGHAN ELIZABETH

0659293556
BRIDGEWATER HOLLY SPRINGS HOMEOWNERS ASSN INC

0659293076
BODA, SHRUTHI
BODA, VAMSHIDHAR R

0659293140
MARSH, DEMETRIC

0659293115
SMITH, SHERMAN J

0659292387
BEHLING, MICHAEL
BEHLING, KATHRYN

0659292382
PATIL, VINOD S
LALWANI, BHAVANA V

0659292286
HUFF, CHRISTOPHER JAMES
HUFF, EMILY ELISABETH

0659292291
PINNELL, ERIC LOUIS
PINNELL, KRISTINA ANNE

0659292534
BERNATZKY, KENNETH J
TAYLOR, ANNETTE C

0659292007
KENNEY, THOMAS E
KENNEY, YANETH P

DESIGNED: CB
DRAWN: CB
CHECKED: KB

NORTH CAROLINA PROFESSIONAL SEAL 056429 ENGINEER CONNOR D. BROWN
05/08/2025

MIDDLE CREEK STREAM RESTORATION:
TOWN PROJECT #23-003
TCE EXHIBIT A

PROJECT LOCATION: 706 ANCHOR CREEK WAY
HOLLY SPRINGS, NC 27540

KRIS BASS ENGINEERING
219 E CHATHAM ST.
STE. 205
CARY, NC 27511
FIRM #: P-1133
919.960.1552 (c)
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KRIS BASS ENGINEERING

REVISIONS

DATE	DESCRIPTION	APPROVED

DATE 5/8/2025
REVISION # 01
FILE NAME: MIDDLE_CREEK.DWG
SHEET TCE