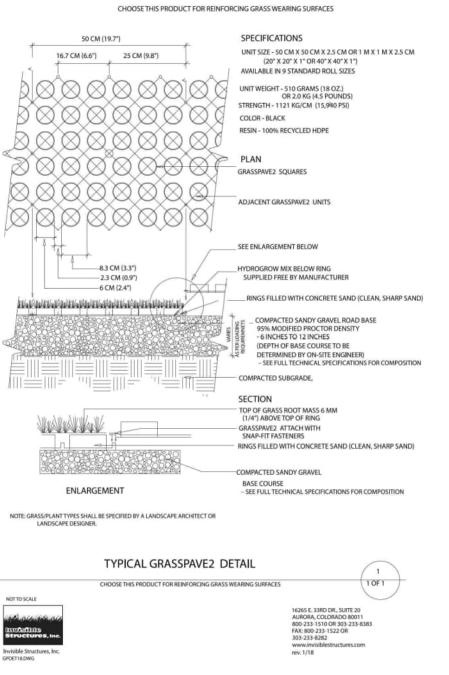
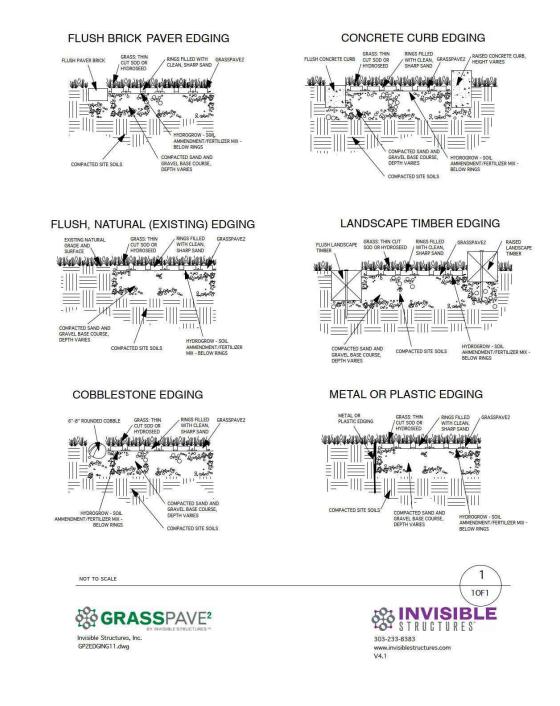
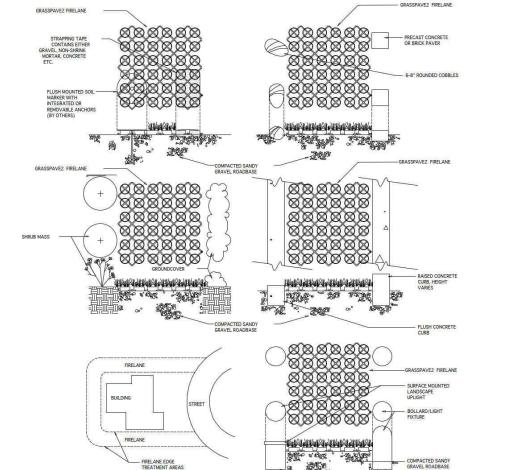


# TYPICAL GRASSPAVE2 DETAIL









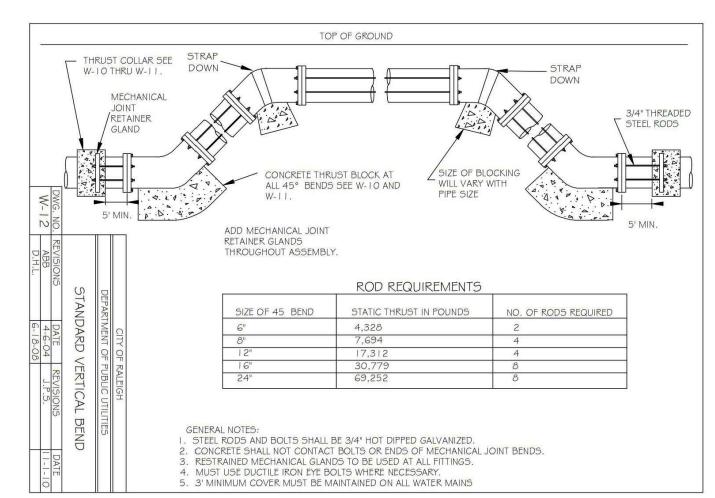
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**GRASS**PAVE<sup>2</sup>

GRASSPAVE2 Firelane Detail

Use this detail for delineating a Grasspave2 firelane





# CONCURRENT REVIEW APPROVAL

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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must be in accordance with all Local, State, and Federal Rules and Regulations.

PUBLIC UTILITIES

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

The John R. McAdams Company, Inc. 2905 Meridian Parkway Durham, NC 27713

phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

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# CLIENT

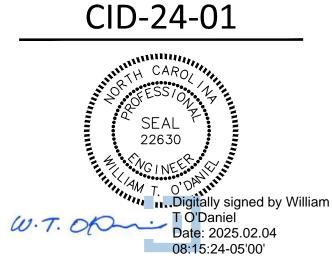
ASHTON RALEIGH RESIDENTIAL, LLC. 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 **CONTACT: BOB MISHLER** 

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# **REVISIONS**

NO. DATE 1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

# 3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

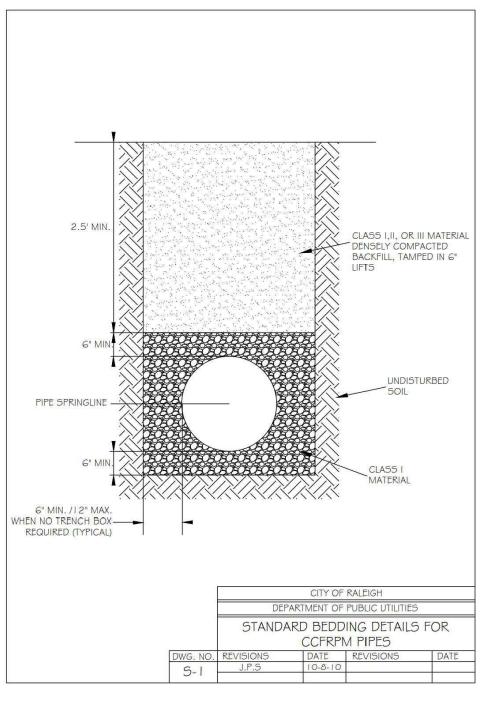
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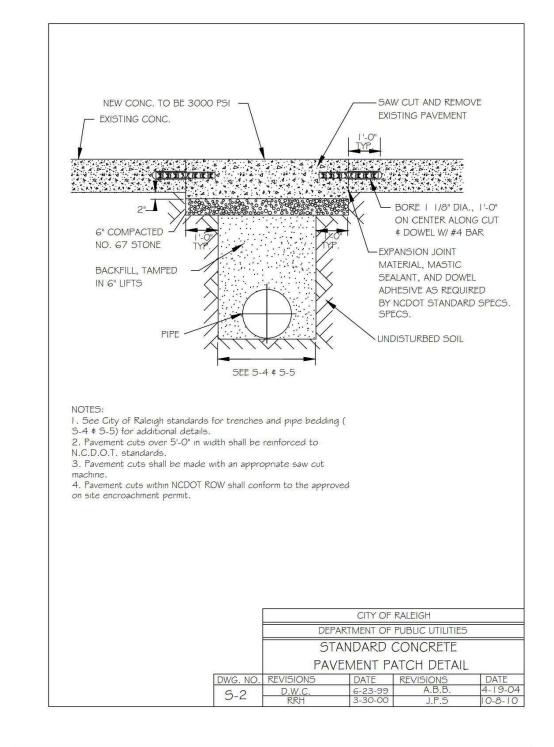
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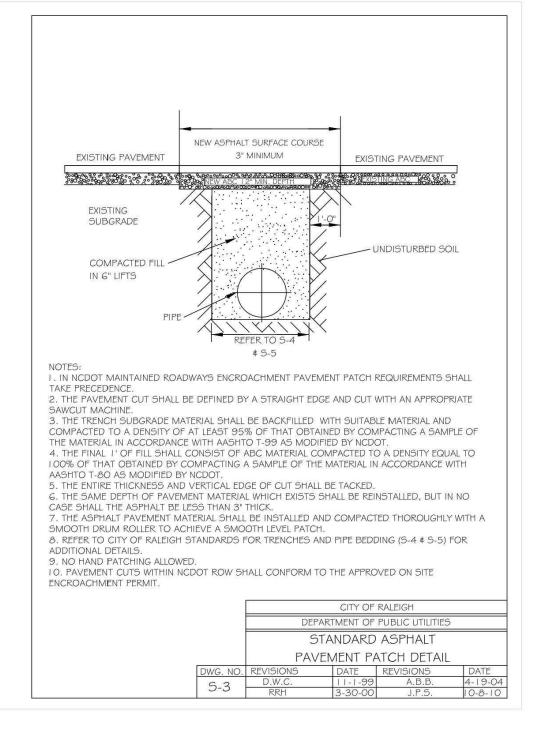
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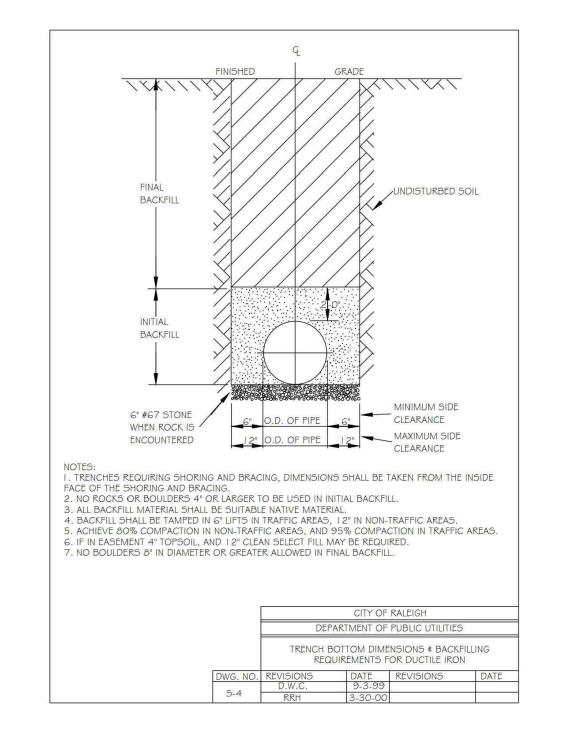
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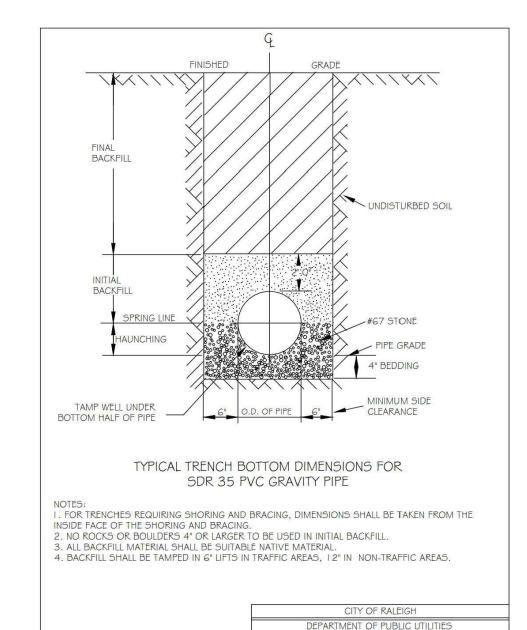
**WATER DETAILS** 

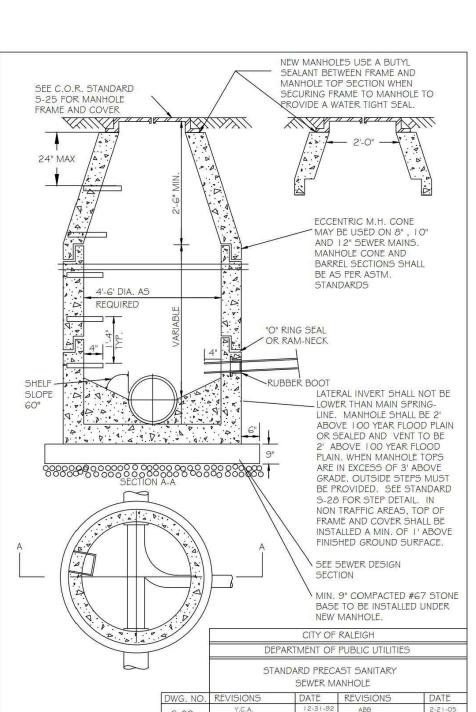


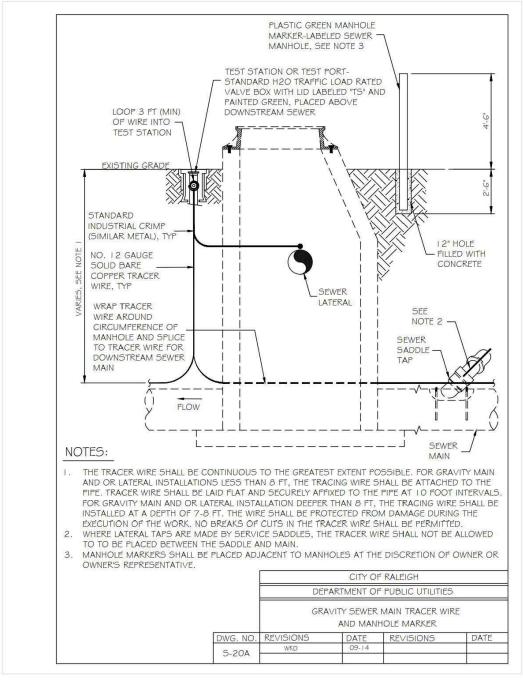


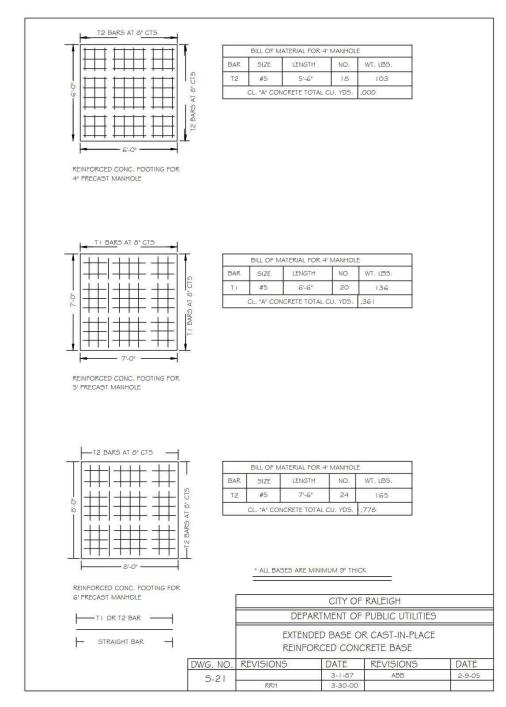


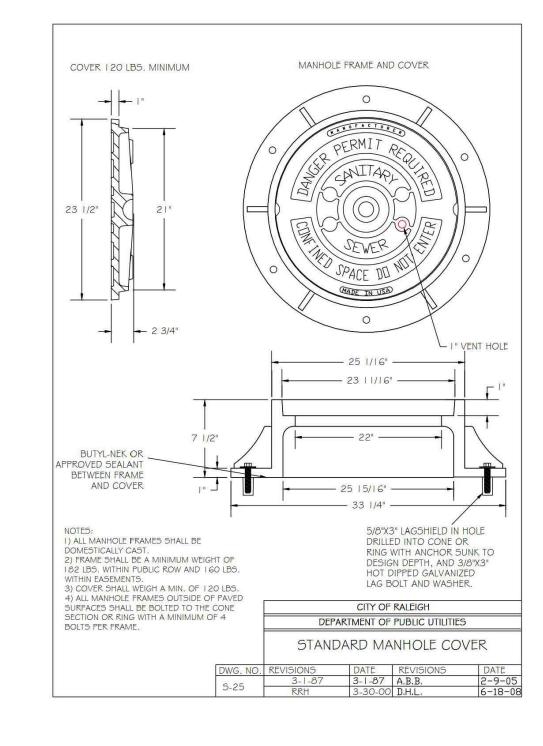


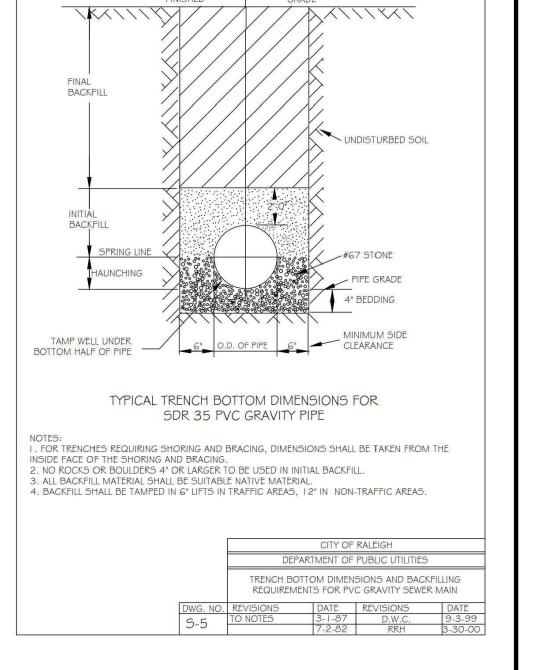










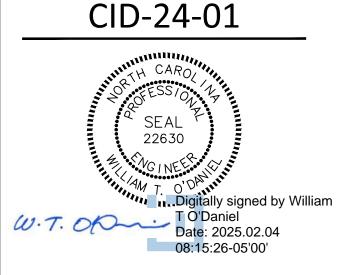




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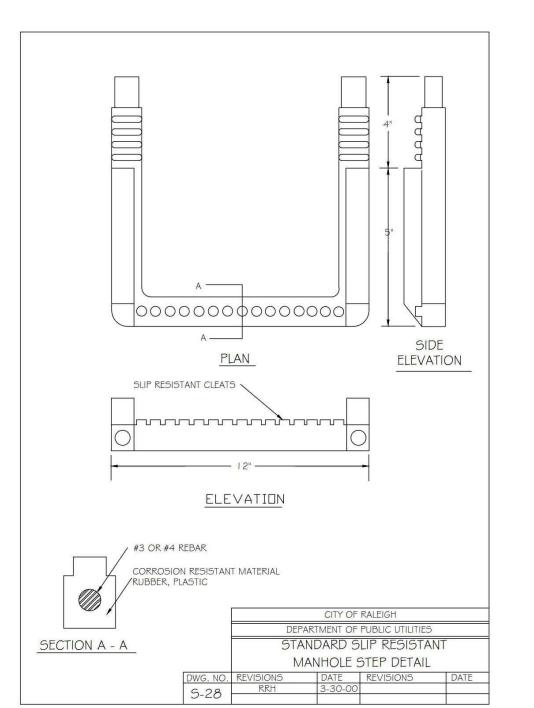
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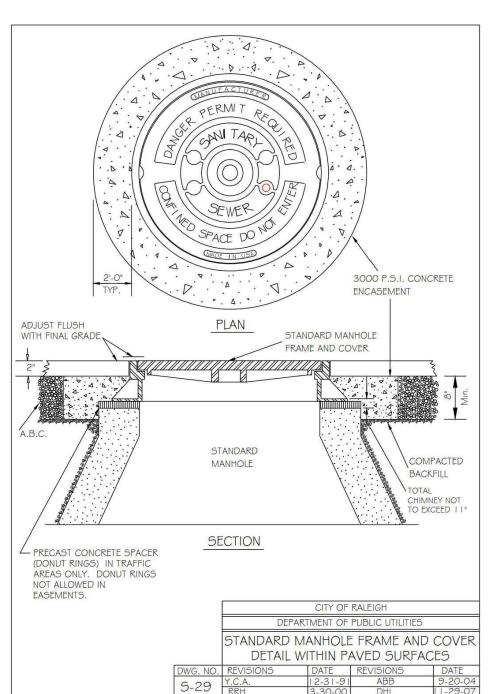
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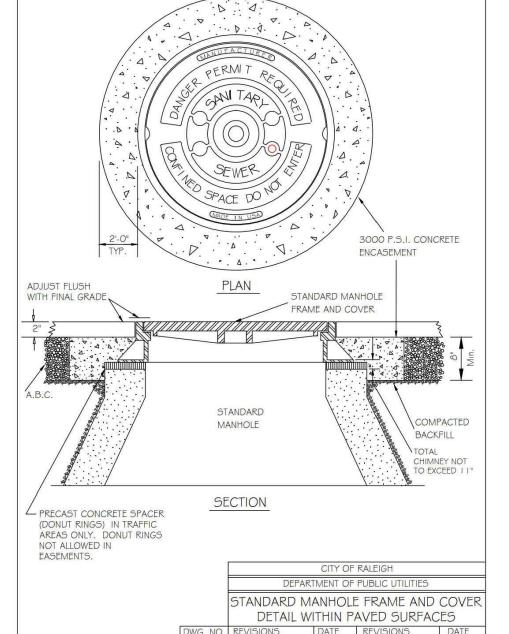
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**SANITARY SEWER DETAILS** 







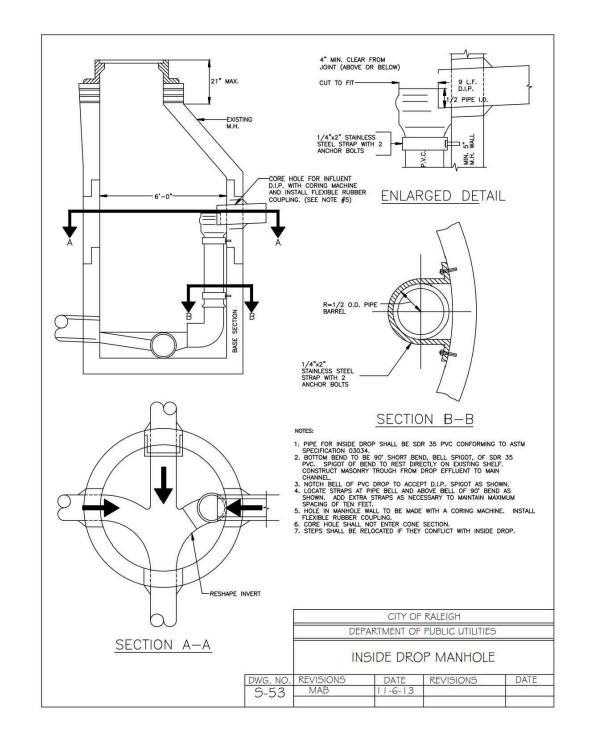
CONCURRENT REVIEW APPROVAL

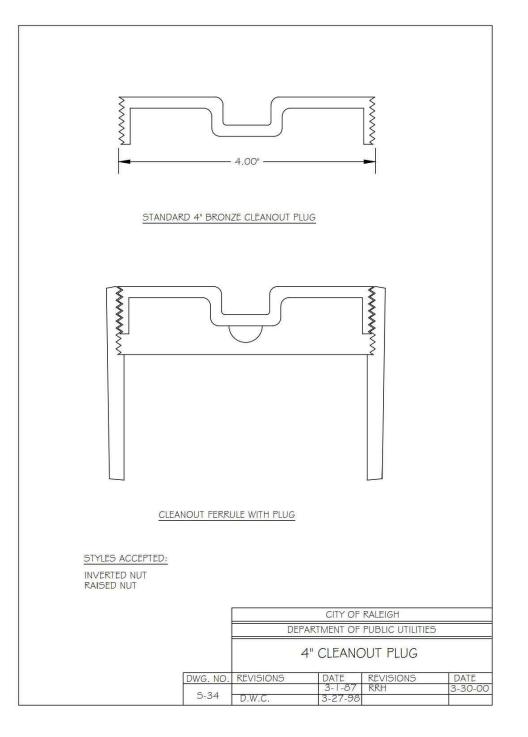
CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

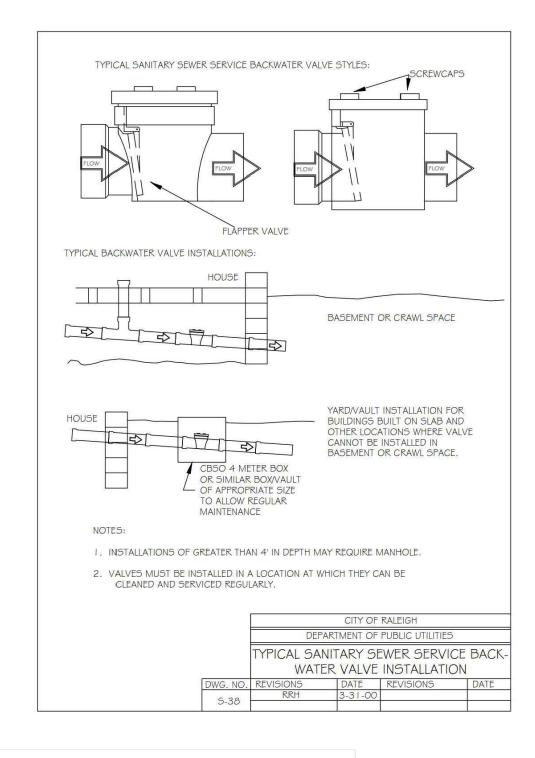
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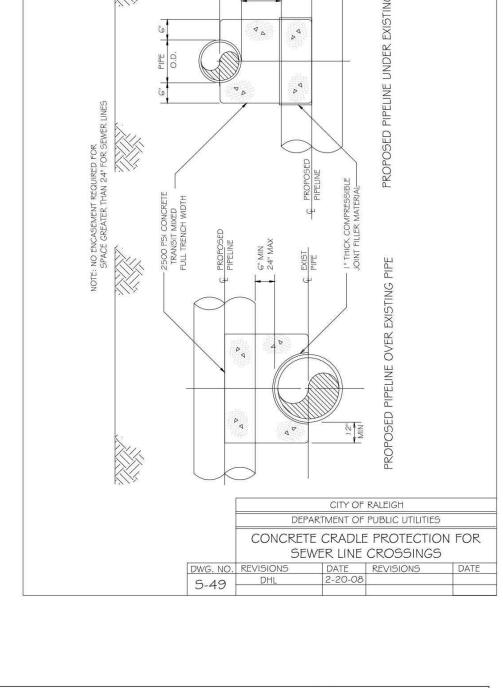
PUBLIC UTILITIES\_

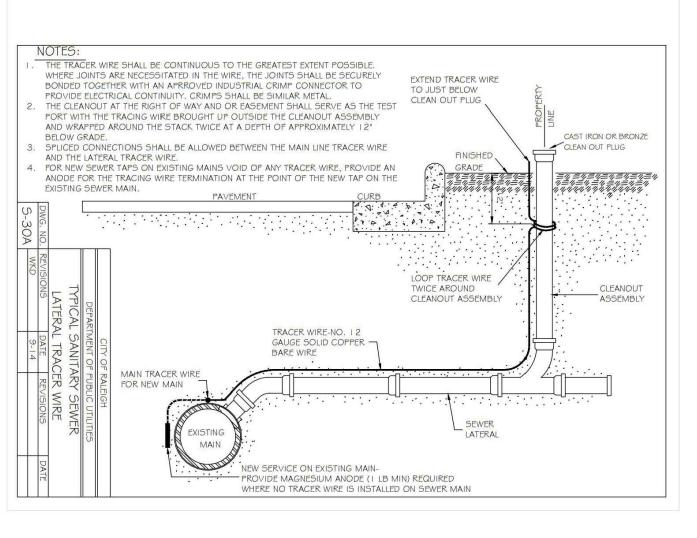
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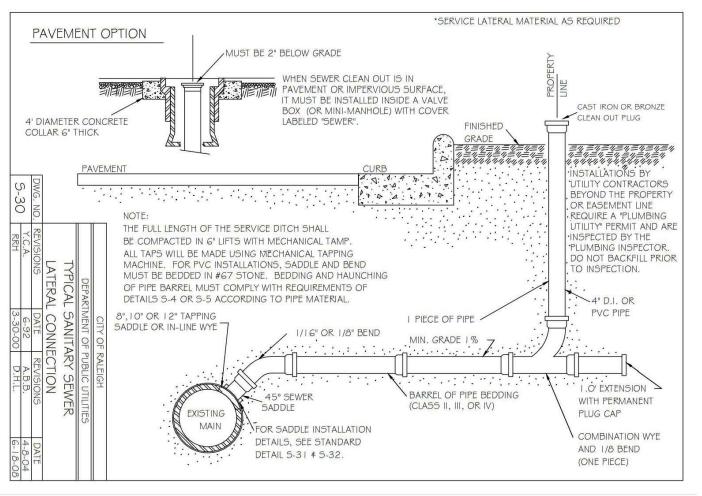












# CONCURRENT REVIEW APPROVAL

# CITY OF RALEIGH — PLANS AUTHORIZED FOR CONSTRUCTION

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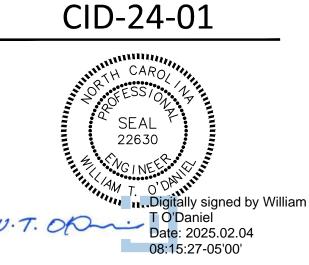
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PROJECT NO. AWH-20000 AWH20000-CD-PKG-03-D1 FILENAME

PLAN INFORMATION

CHECKED BY

DRAWN BY N.T.S. SCALE

DATE 12. 13. 2023

SHEET

**SANITARY SEWER DETAILS** 

GENERAL NOTES

PRIOR TO CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION

- 2. THE FINAL CERTIFICATION FOR THIS FACILITY WILL INCLUDE A CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE PROJECT WAS CONSTRUCTED PER THE APPROVED PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE ON-SITE GEOTECHNICAL ENGINEER FOR OBSERVATION AND TESTING SUCH THAT THE ON-SITE GEOTECHNICAL ENGINEER CAN CERTIFY THE CONSTRUCTION OF THE DAM EMBANKMENT AND SPILLWAY. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY.
- 3. ALL CONSTRUCTION ACTIVITY RELATED TO THE PROPOSED STORMWATER CONTROL MEASURE SHALL BE PER THE DETAILS AND SPECIFICATIONS SHOWN IN THESE DRAWINGS. SOILS, COMPACTION, AND OTHER MISCELLANEOUS DETAILS AND SPECIFICATIONS MAY BE MODIFIED PER THE RECOMMENDATIONS OF THE ON-SITE GEOTECHNICAL ENGINEER. HOWEVER, PRIOR TO IMPLEMENTATION, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATION FROM THESE DESIGN DRAWINGS, INCLUDING SHOP DRAWINGS FOR ANY PROPOSED
- 4. DURING THE INITIAL STAGES OF CONSTRUCTION, THE STORMWATER CONTROL MEASURE MAY BE USED AS A SEDIMENT BASIN FOR EROSION CONTROL PURPOSES. IF SO, THE CONTRACTOR SHALL FOLLOW THE GENERAL CONSTRUCTION SEQUENCE BELOW:

  A THE CONTRACTOR SHALL CONSTRUCT THE ENTIRE FACILITY (PERMANENT OUTLIET STRUCTURE, DAM, ETC.) WITH THE EXCEPTION OF
- THE INTERIOR FINE GRADING FOR THE FACILITY. THE INTERIOR FINE GRADING WILL BE CONSTRUCTED ONCE THE EROSION CONTROL PHASE IS COMPLETE.

  B. THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) SHALL BE CONNECTED TO THE PERMANENT 6"Ø DIP DRAIN PIPE.
- C. ONCE THE UPSTREAM DRAINAGE AREA IS STABILIZED AND THE EROSION CONTROL INSPECTOR APPROVES THE REMOVAL OF THE SEDIMENT BASIN, THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) AND CLEAN OUT THE BASIN. ALL SEDIMENT, TRASH, ETC. SHALL BE DISPOSED OF PROPERLY (I.E. PLACED IN A LANDFILL) AND NOT STOCKPILED IN AN AREA WHERE WATER QUALITY COULD BE ADVERSELY AFFECTED.
- D. ONCE THE BASIN IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED, THE CONTRACTOR SHALL CONSTRUCT THE INTERIOR GRADING SHOWN ON THIS SHEET.
   E. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER CONTROL MEASURE PLANTS. HE THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR
- E. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER CONTROL MEASURE PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
- F. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER CONTROL MEASURE PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER CONTROL MEASURE PLANTING PLAN.
- 6. ALL OSHA REQUIREMENTS FOR EXCAVATIONS (SHORING, DEPTH, ETC.) ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A NC P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IF AN EXCAVATION PLAN IS REQUIRED. THE JOHN R. MCADAMS COMPANY ASSUMES NO RESPONSIBILITY FOR ANY EXCAVATION DESIGN RELATED TO SAFETY OR OSHA REQUIREMENTS.
- ON-SITE GEOTECHNICAL ENGINEER TO DETERMINE IF IN-SITU SOILS ENCOUNTERED WOULD MAINTAIN A STORMWATER CONTROL MEASURE PERMANENT POOL AT DESIGN ELEVATION. IF HIGHLY PERMEABLE SOILS ARE ENCOUNTERED THAT WOULD NOT MAINTAIN THE PERMANENT POOL ELEVATION AS DESIGNED, A CLAY LINER MAY BE REQUIRED TO MAINTAIN A PERMANENT POOL OF WATER IN THE STORMWATER CONTROL MEASURE. FINAL DETERMINATION IF A CLAY LINER IS NEEDED SHALL BE THE RESPONSIBILITY OF THE ON-SITE GEOTECHNICAL ENGINEER (REPLACE ON-SITE GEOTECHNICAL ENGINEER WITH DESIGN ENGINEER FOR TOWN OF ROLESVILLE PROJECTS). UPON DETERMINATION OF HIGHLY PERMEABLE SOIL CONDITIONS, ON-SITE GEOTECHNICAL ENGINEER WILL INFORM THE DESIGN ENGINEER AND RECOMMEND LINER SPECIFICATIONS.
- 8. IT IS ANTICIPATED THAT DEWATERING WILL BE NECESSARY IN THE EXCAVATION AREAS (E.G. EMBANKMENT SUB GRADE, INTERIOR PORTIONS OF THE STORMWATER CONTROL MEASURE, KEY TRENCH, ETC.). THEREFORE, THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE STORMWATER CONTROL MEASURE SITE. DURING PLACEMENT OF FILL WITHIN THESE AREAS, THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE SUCH AS A DIRT BAG (ACF ENVIRONMENTAL), OR ENGINEER APPROVED EQUIVALENT, PRIOR TO DISCHARGE).
- 9. THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES. IF THE EXISTING SOIL LAYER AFTER CONSTRUCTION / COMPACTION IS NOT DETERMINED SUITABLE BY A LANDSCAPE PROFESSIONAL FOR THE WET POND PLANTINGS, THEN THE CONTRACTOR SHALL AMEND THE PLANTING AREA OF THE WET POND AS DIRECTED BY A LANDSCAPE PROFESSIONAL.
- 10. PRIOR TO TOPSOIL INSTALLATION, THE CONTRACTOR SHALL SCARIFY THE TOP 2"-3" OF THE BERM SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL RANGE FROM 3"-4" ON THE DAM EMBANKMENT AND AQUATIC SHELF. PLEASE NOTE THE TOPSOIL SHALL BE AMENDED, AS DIRECTED BY A LANDSCAPE PROFESSIONAL, PRIOR TO INSTALLATION ON THE FMBANKMENT AND AQUATIC SHELF.
- 11. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLAN FOR THE PERMANENT PLANTING PLAN/SCHEDULE FOR THIS FACILITY.
  CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING FOR PLANT INSTALLATION. PLEASE NOTE
  THAT NO TREES/SHRUBS OF ANY TYPE MAY BE PLANTED ON THE PROPOSED DAM EMBANKMENT (FILL AREAS).

# **OUTLET STRUCTURE MATERIAL SPECIFICATIONS**

LOADS ARE SUPPORTED BY THE CONCRETE RISER STRUCTURE

- THE 24"Ø RCP OUTLET BARREL SHALL BE CLASS III RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS OF ASTM C76-LATEST
  THE PIPES SHALL HAVE CONFINED O-RING RUBBER GASKET JOINTS MEETING ASTM C-443-LATEST. THE PIPE JOINTS SHALL BE TYPE R-4.
- 2. THE STRUCTURAL DESIGN FOR THE 4' X 4' (INTERNAL DIMENSIONS) RISER BOX WITH EXTENDED BASE SHALL BE BY OTHERS. PRIOR TO ORDERING THE STRUCTURES, THE CONTRACTOR SHALL PROVIDE, TO THE DESIGN ENGINEER FOR REVIEW, SHOP DRAWINGS AND SUPPORTING STRUCTURAL CALCULATIONS SEALED BY A P.E. REGISTERED IN NORTH CAROLINA DEMONSTRATING THE PERTINENT VERTICAL
- 3. THE RISER BOX OUTLET STRUCTURE SHALL BE PROVIDED WITH STEPS 16" ON CENTER. STEPS SHALL BE PROVIDED ON THE INNER WALL OF THE RISER BOX. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STD. 840.66. PLEASE REFER TO SHEET C9.02K FOR LOCATION OF THE RISER STEPS. NOTE THE STEPS SHALL LINE UP WITH THE ACCESS HATCH OF THE TRASH RACK.
- 4. THE CONCRETE ANTI-FLOTATION BLOCK SHALL BE CAST-IN-PLACE. STEEL REINFORCEMENT AND CONNECTION TO THE RISER SHALL BE PROVIDED IN ACCORDANCE WITH THE DETAIL ON SHEET C9.02K. THE CONTRACTOR SHALL ENSURE THE WEIGHT OF THE ENTIRE RISER STRUCTURE IS GREATER THAN OR EQUAL TO XX,XXX LBS. IN LIEU OF CAST-IN-PLACE, THE CONTRACTOR MAY OPT FOR A PRECAST ANTI-FLOTATION BLOCK. SHOP DRAWINGS FOR THE PRECAST BLOCK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE PRECAST ANTI-FLOTATION BLOCK SHALL HAVE A SHIPPING WEIGHT OF XX,XXX LBS.
- 5. THE RISER BOX JOINTS SHALL BE SEALED USING BUTYL RUBBER SEALANT CONFORMING TO ASTM-C990-LATEST. IF NECESSARY, THE CONTRACTOR SHALL INCORPORATE A WATERSTOP INTO THE RISER BOX JOINT TO ENSURE A WATERTIGHT CONNECTION. THE CONTRACTOR SHALL PARGE JOINTS ON BOTH THE INSIDE AND OUTSIDE WITH NON-SHRINK GROUT AND INSTALL GALVANIZED STEEL STRAPS PER DETAIL ON SHEET C9.01K.
- 6. PRIOR TO ORDERING, THE CONTRACTOR SHALL SUBMIT TRASH RACK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL ENSURE THAT AN ACCESS HATCH IS PROVIDED WITHIN THE TRASH RACK (SEE DETAIL FOR LOCATION) THAT WILL ALLOW FOR FUTURE MAINTENANCE ACCESS. CONTRACTOR SHALL ALSO PROVIDE A CHAIN AND LOCK FOR SECURING THE ACCESS HATCH. NOTE THE ACCESS HATCH SHALL LINE UP WITH THE ACCESS STEPS AFTER INSTALLATION.
- 7. ALL POURED CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:

-MINIMUM 3000 PSI (28 DAY) -SI I IMP = 3" - 5"

-SLUMP = 3" - 5" -ENTRAINED AIR = 5% - 7%

PLEASE NOTE NO CONCRETE SHALL BE POURED WHEN THE AMBIENT AIR TEMPERATURES ARE EXPECTED TO BE ABOVE 85°F OR BELOW 40°F. CAST-IN-PLACE CONCRETE SHALL BE "WET CURED" AFTER FINISHING FOR A MINIMUM OF 48 HOURS.

ON-SITE GEOTECHNICAL ENGINEER TO ENSURE AND CERTIFY ALL POURED CONCRETE MEETS THE ABOVE SPECIFICATIONS.

- 8. GEOTEXTILE FABRIC FOR THE 24"Ø RCP OUTLET BARREL JOINTS SHALL BE MIRAFI 180N OR ENGINEER APPROVED EQUAL (NON-WOVEN FABRIC).
- 9. STORMWATER CONTROL MEASURE EMERGENCY DRAW DOWN IS VIA AN 6"Ø PLUG VALVE. THE VALVE SHALL BE A M&H STYLE 1820 ECCENTRIC VALVE OR APPROVED EQUAL. THIS VALVE IS IN ACCORDANCE WITH AWWA C-517, AND SHALL BE OPERABLE FROM TOP OF OUTLET STRUCTURE VIA A HAND WHEEL (SEE DETAIL SHEET C9.01K). THE CONTRACTOR SHALL PROVIDE A REMOVABLE VALVE WRENCH WITH A HAND WHEEL ON TOP FOR OPERATION OF THE 6"Ø PLUG VALVE.

# CONSTRUCTION SEQUENCE

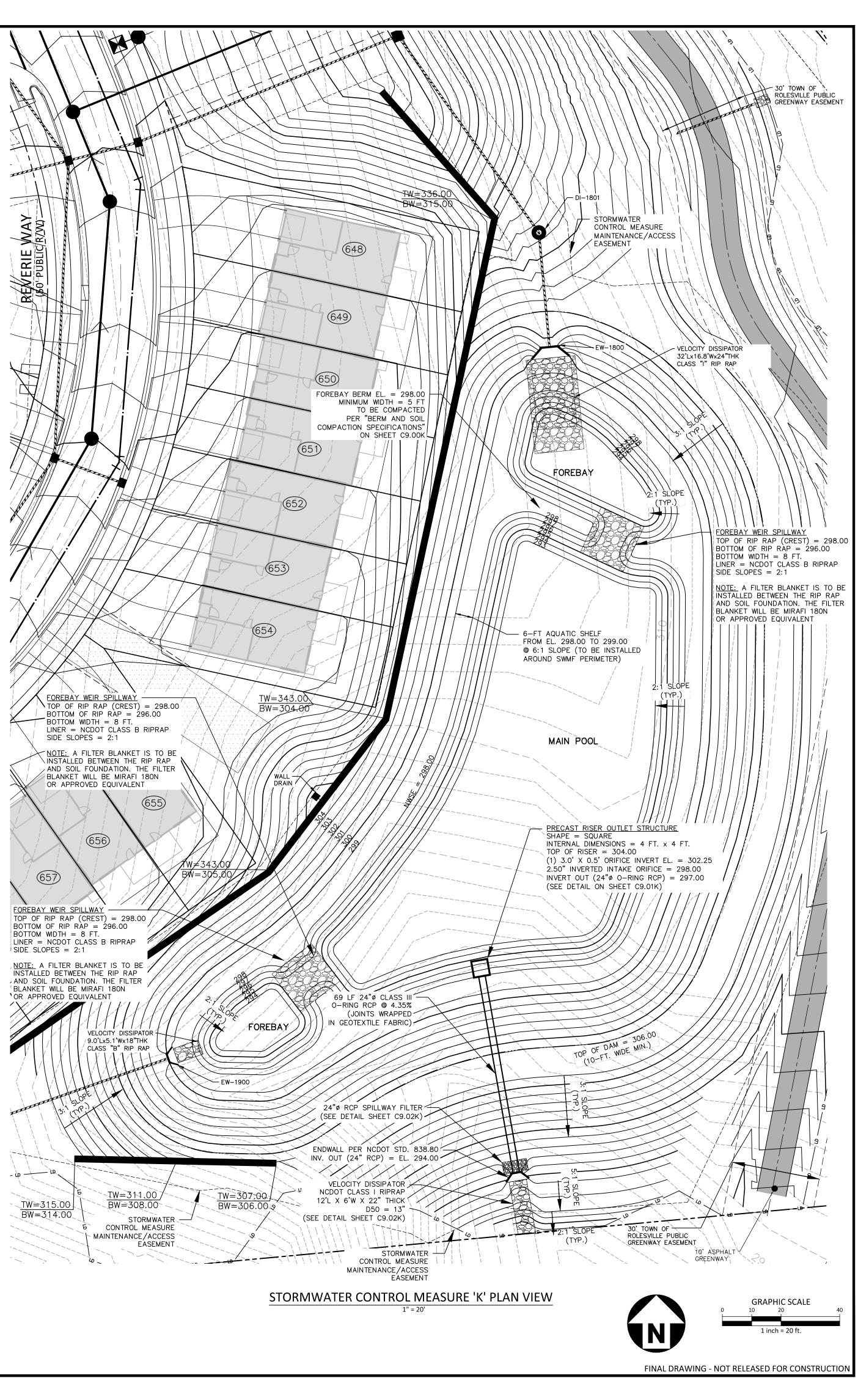
- 1. PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING (GRADING) PERMIT AND AN "APPROVAL TO CONSTRUCT" FROM THE TOWN OF ROLESVILLE AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G. 404 / 401 PERMITS)
- 2. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE ENTIRE PROJECT, AS REQUIRED. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE EROSION CONTROL INSPECTOR, AS REQUIRED BY GOVERNING AGENCIES. PRIOR TO ANY CLEARING.
- 3. CLEAR AND GRUB AREA WITHIN THE LIMITS OF THE PROPOSED DAM CONSTRUCTION. ALL TREES AND THEIR ENTIRE ROOT SYSTEMS MUST BE REMOVED FROM THE DAM FOOTPRINT AREA AND BACKFILLED WITH SUITABLE SOIL MATERIAL. THE BACKFILLED AREAS SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUITABLE DEPTH AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER. ANY RESIDUAL SOILS TO BE LEFT IN PLACE MUST BE WELL SCARIFIED TO PROMOTE BONDING OF THE NEW EMBANKMENT FILL. NO EMBANKMENT MATERIAL SHALL BE PLACED FOR THE DAM OR KEY TRENCH UNTIL APPROVAL OF THE DAM SUBGRADE IS OBTAINED FROM THE ON-SITE GEOTECHNICAL ENGINEER.
- 4. EXCAVATE FOR THE NEW KEY TRENCH ALONG THE CENTERLINE OF THE PROPOSED DAM EMBANKMENT. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE OR 2 FT BELOW THE 24"Ø RCP OUTLET BARREL AND SHALL HAVE A MINIMUM BOTTOM WIDTH OF 5 FEET. THE KEY TRENCH SIDESLOPES SHALL BE A MINIMUM OF 1:1 (H:V). WHEN EXCAVATING THE KEY TRENCH, IF ANY DEBRIS IS ENCOUNTERED TO AN EXTENT THAT SUCH DEBRIS MAY EXIST IN OTHER INSITU PORTIONS OF THE DAM EMBANKMENT, IT SHOULD ALSO BE REMOVED. THE KEY TRENCH SHALL BE COMPACTED TO THE SAME SPECIFICATION LISTED IN ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." DEPENDING UPON ON-SITE SOIL CONDITIONS ENCOUNTERED DURING EXCAVATION, THE ON-SITE GEOTECHNICAL ENGINEER MAY VARY THE DEPTH AND DIMENSIONS OF THE KEY TRENCH AS DEEMED NECESSARY. THE ON-SITE GEOTECHNICAL ENGINEER SHALL RETAIN DOCUMENTATION OF ANY VARIATION FOR FUTURE AS-BUILT SUBMITTALS TO THE TOWN OF ROLESVILLE.
- 5. BEGIN PLACEMENT OF BACKFILL WITHIN THE KEY TRENCH. THE KEY TRENCH SHALL BE COMPACTED TO THE SPECIFICATIONS LISTED ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." THE KEY TRENCH SHALL BE TESTED PER THE SPECIFICATIONS LISTED IN THAT SECTION.
- 6. PRIOR TO INSTALLATION, SUBGRADE CONDITIONS ALONG THE SPILLWAY PIPES SHOULD BE EVALUATED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ASSESS WHETHER SUITABLE BEARING CONDITIONS EXIST AT THE SUBGRADE LEVEL. SHOULD SOFT OR OTHERWISE UNSUITABLE CONDITIONS BE ENCOUNTERED ALONG THE PIPE ALIGNMENTS, THESE MATERIALS SHOULD BE UNDERCUT AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE UNDERCUT MATERIALS SHALL BE REPLACED WITH ADEQUATELY COMPACTED STRUCTURAL FILL, LEAN CONCRETE OR FLOWABLE FILL AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.
- 7. IN ORDER TO HELP PROTECT THE SOIL SUBGRADE FROM DETERIORATION (DUE TO EXPOSURE, RAINFALL, SEEPAGE, AND RUNOFF) BEFORE THE CRADLE CAN BE POURED, IT IS STRONGLY RECOMMENDED THAT A 3" TO 4" THICK CONCRETE MUD MAT BE POURED OVER THE SUBGRADE ONCE IT IS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE MUD MAT WILL ALSO PROVIDE BEARING FOR THE BLOCKS THAT TEMPORARILY SUPPORT THE SPILLWAY PIPE UNTIL THE CRADLE CAN BE POURED. THE METHOD OF BLOCK SUPPORT FOR THE PIPE PROPOSED BY THE CONTRACTOR SHOULD BE SUBMITTED TO THE JOHN R. McADAMS COMPANY FOR REVIEW.
- 8. BEGIN CONSTRUCTION OF THE NEW EMBANKMENT. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8" THICK LIFTS PRIOR TO COMPACTION, UNLESS DIRECTED OTHERWISE BY THE ON-SITE GEOTECHNICAL ENGINEER. FILL LIFTS SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF FILL. IF IT IS NECESSARY, THE EMBANKMENT FILL MATERIAL WILL BE OVERBUILT IN HORIZONTAL LIFTS AND CUT BACK TO FINAL GRADE IN ORDER TO ACHIEVE PROPER COMPACTION.
- AS CONSTRUCTION OF THE EMBANKMENT MOVES FORWARD, IT WILL BE NECESSARY TO INSTALL THE CONCRETE CRADLE. SEE NOTE ON CRADLE DETAIL (SHEET C9.02K). THIS MAY BE CONSTRUCTED USING ONE OF THE FOLLOWING METHODS:
  - A. IF THE PROPOSED STRUCTURAL FILL MATERIAL IS UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN THE STRUCTURAL FILL SHOULD BE INSTALLED AND COMPACTED UP TO THE TOP OF CONCRETE CRADLE ELEVATION. ONCE THE STRUCTURAL FILL REACHES THE NEXT DOWNSTREAM JUNCTION BOX OR HEADWALL AND IS COMPACTED TO THE ELEVATION OF THE TOP OF THE CONCRETE CRADLE, EXCAVATE THE CONCRETE CRADLE TRENCH PER THE PROVIDED DETAILS AND CONSTRUCT THE CONCRETE CRADLE AS PER THE PROVIDED CONCRETE CRADLE DETAIL.
- B. IF THE PROPOSED STRUCTURAL FILL IS NOT UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN PRIOR TO CONSTRUCTING THE STRUCTURAL FILL EMBANKMENT, THE FORMWORK FOR THE CONCRETE CRADLE SHOULD BE INSTALLED ON EXISTING GROUND AND/OR THE MUD MAT. THE CONCRETE CRADLE SHALL BE CONSTRUCTED PER THE PROVIDED DETAILS
- 10. AS AN ALTERNATE TO A CONCRETE CRADLE UNDER THE BARREL PIPE (SEE SHEET C9.02K), THE CONTRACTOR MAY CHOOSE TO ELIMINATE THE CONCRETE CRADLE AND USE COMPACTED BACKFILL IF THE ON-SITE GEOTECHNICAL ENGINEER WILL PROVIDE A NC PE SEALED LETTER CERTIFYING THAT THE COMPACTION UNDER, AROUND, AND ABOVE THE BARREL MEETS THE SPECIFICATIONS OF THE EMBANKMENT COMPACTION REQUIREMENTS AND MOISTURE CONTENT. THIS CERTIFICATION LETTER MUST BE SUBMITTED TO THE DESIGN ENGINEER PRIOR TO BACKFILL. THIS SEPARATE CERTIFICATION MUST BE SPECIFIC TO THE BARREL PIPE FOR THE FACILITY, AND MUST CLEARLY STATE THAT ALL SOIL MATERIAL UNDER, AROUND, AND ABOVE THE BARREL PIPE MEETS THE BERM AND SOIL COMPACTION SPECIFICATIONS ON THIS SHEET. THIS CERTIFICATION IS TO INCLUDE REFERENCE TO BOTH MATERIAL AND COMPACTION, AND MUST STATE THAT ALL MATERIALS UNDER, AROUND, AND ABOVE THE BARREL HAVE BEEN COMPACTED PER THE BERM MATERIAL SPECIFICATIONS (AT LEAST 95% OF MAXIMUM DRY DENSITY USING ASTM D698 STANDARD PROCTOR) WITH NO VOID SPACES PRESENT. THE CONTRACTORS INTENT TO UTILIZE THIS ALTERNATIVE MUST BE STATED PRIOR TO CONSTRUCTION TAKING PLACE. THIS CONTRACTORS CERTIFICATION MUST BE PRESENTED TO THE DESIGN ENGINEER BEFORE AN AS-BUILT CERTIFICATION CAN BE ISSUED FOR THIS FACILITY.
- 11. INSTALL RISER / BARREL ASSEMBLY, ALONG WITH THE EMERGENCY DRAIN SYSTEM. INSTALL 24" RCP OUTLET BARREL SPILLWAY FILTER FROM THE DETAILS SHOWN ON SHEET C9.02K.
- 12. CONSTRUCT EMBANKMENT PER SPECIFICATIONS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS" AND REQUIREMENTS OF THE ON-SITE GEOTECHNICAL ENGINEER. ALL CHARACTERISTICS OF THE EMBANKMENT FILL MATERIAL SHALL MEET THE STANDARDS SET FORTH IN "BERM AND SOIL COMPACTION SPECIFICATIONS", INCLUDING COMPACTION AND MOISTURE REQUIREMENTS. IF NECESSARY TO ACHIEVE PROPER COMPACTION, THE EMBANKMENT FILL MATERIAL WILL BE OVERBUILT IN HORIZONTAL LIFTS AND CUT BACK TO PROPER FINAL GRADE. ANY HAND COMPACTION ACTIVITIES AROUND SPILLWAY OR DRAIN STRUCTURES SHALL BE CONDUCTED IN 4-INCH LOOSE LIFTS AND BE TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT. ALL COMPACTION AND MOISTURE TESTING SHALL BE CARRIED OUT AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER AND AS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS".
- 13. UPON COMPLETION OF DAM EMBANKMENT, PROMPTLY STABILIZE AND SEED DAM EMBANKMENT PER SEEDING SCHEDULE. PERMANENT GROUND COVER SHALL BE ESTABLISHED PER THE PERMANENT SEEDING SCHEDULE FOUND ON SHEET C9.03K.
- 14. SCHEDULE A FINAL AS-BUILT INSPECTION AND AS-BUILT SURVEY WITH THE ENGINEER AND SURVEYOR. AN AS-BUILT INSPECTION AND SURVEY SHALL BE SCHEDULED BEFORE IMPOUNDING WATER IN THE FACILITY AND A MINIMUM OF 60 DAYS PRIOR TO THE ANTICIPATED DATE OF CERTIFICATION APPROVAL. ANY COMMENTS OR DEFICIENCIES IN THE SCM CONSTRUCTION MUST BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND OWNER BEFORE CERTIFICATION SHALL BE GRANTED.

# BERM AND SOIL COMPACTION SPECIFICATIONS

- PRIOR TO CONSTRUCTION, THE ON-SITE GEOTECHNICAL ENGINEER SHALL IDENTIFY BORROW / FILL AREAS AND VERIFY THEIR SUITABILITY FOR USE WITHIN THE DAM EMBANKMENT. ALSO, THE ON-SITE GEOTECHNICAL ENGINEER SHALL PERFORM STANDARD PROCTORS ON THE PROPOSED BORROW MATERIAL TO ENSURE THAT OPTIMUM MOISTURE CONTENT AND COMPACTION CAN BE ACHIEVED / CONTROLLED DURING CONSTRUCTION
- 2. ALL FILL MATERIALS TO BE USED FOR THE DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, WOOD, STONES GREATER THAN 6", AND FROZEN OR OTHER OBJECTIONABLE MATERIAL. THE FOLLOWING SOIL TYPES ARE SUITABLE FOR USE AS FILL WITHIN THE DAM EMBANKMENT AND KEY TRENCH: ML AND CL. ALL FILL MATERIALS SHALL BE APPROVED BY THE ONSITE GEOTECHNICAL ENGINEER FOR THE INTENDED USE.
- 3. FILL PLACEMENT FOR THE EMBANKMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT (UNCOMPACTED). EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL FOR THE BERM SECTION, ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND THE SURFACE PROPERLY PREPARED FOR FILL PLACEMENT. FILL MATERIAL ADJACENT TO ALL SPILLWAY AND DRAINAGE STRUCTURES SHALL BE PLACED IN 4-INCH (UNCOMPACTED) LIFTS AND HAND-COMPACTED TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT.
- 4. ALL FILL SOILS USED IN THE EMBANKMENT CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN -1 TO +3 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTION TESTS SHALL BE PERFORMED BY THE ON-SITE GEOTECHNICAL ENGINEER DURING CONSTRUCTION TO VERIFY THAT THE PROPER COMPACTION LEVEL HAS BEEN REACHED. THE FILL SHOULD BE COMPACTED USING A SHEEPSFOOT TYPE COMPACTOR. IN ORDER TO PREVENT DAMAGE TO THE PIPE, NO COMPACTION EQUIPMENT SHALL CROSS ANY PIPE UNTIL MINIMUM COVER IS ESTABLISHED ALONG THE PIPE.
- 5. THE DESIGN ENGINEER SHALL BE PROVIDED WITH REPORTS AND CERTIFICATION, BY THE ON-SITE GEOTECHNICAL ENGINEER, THAT THE GEOTECHNICAL ASPECTS OF THE FACILITY HAVE BEEN CONSTRUCTED PER PLAN. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY. THESE REPORTS AND CERTIFICATION WILL BE NEEDED DURING THE AS-BUILT CERTIFICATION PROCESS FOR THIS STORMWATER CONTROL MEASURE. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TESTING AND OBSERVATION WITH THE ON-SITE GEOTECHNICAL ENGINEER.
- 6. TESTING OF THE NEW FILL MATERIALS SHALL BE PERFORMED TO VERIFY THAT THE RECOMMENDED LEVEL OF COMPACTION IS ACHIEVED DURING CONSTRUCTION. THEREFORE, ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2,500 SQUARE FEET OF AREA FOR EVERY LIFT OF FILL OR AS RECOMMENDED BY THE ON-SITE GEOTECHNICAL ENGINEER.
- 7. TESTING WILL BE REQUIRED ALONG THE 24"Ø RCP OUTLET BARREL AT A FREQUENCY OF ONE TEST PER 25 LF OF PIPE PER VERTICAL FOOT OF FILL OR AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.

# STATEMENT OF RESPONSIBILITY

1. ALL REQUIRED MAINTENANCE AND INSPECTIONS OF THE STORMWATER CONTROL MEASURE SHALL BE THE RESPONSIBILITY OF THE OWNER, PER THE EXECUTED OPERATION AND MAINTENANCE AGREEMENT FOR THIS FACILITY.





# McAdams

The John R. McAdams Company, In 2905 Meridian Parkway Durham, NC 27713

phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

www.mcadamsco.com

# CLIENT

ASHTON RALEIGH RESIDENTIAL, LLC. 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 CONTACT: BOB MISHLER

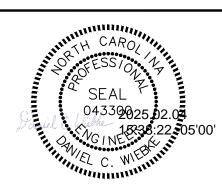
ASHTON WOODS,

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PHASES 8 AND 14

ISTRUCTION DRAWINGS - PAC
EAST YOUNG STREET

CID-24-01



# **REVISIONS**

NO. DATE

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS
2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS
3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

# PLAN INFORMATION

PROJECT NO. AWH-20000

FILENAME AWH20000 - SCM K

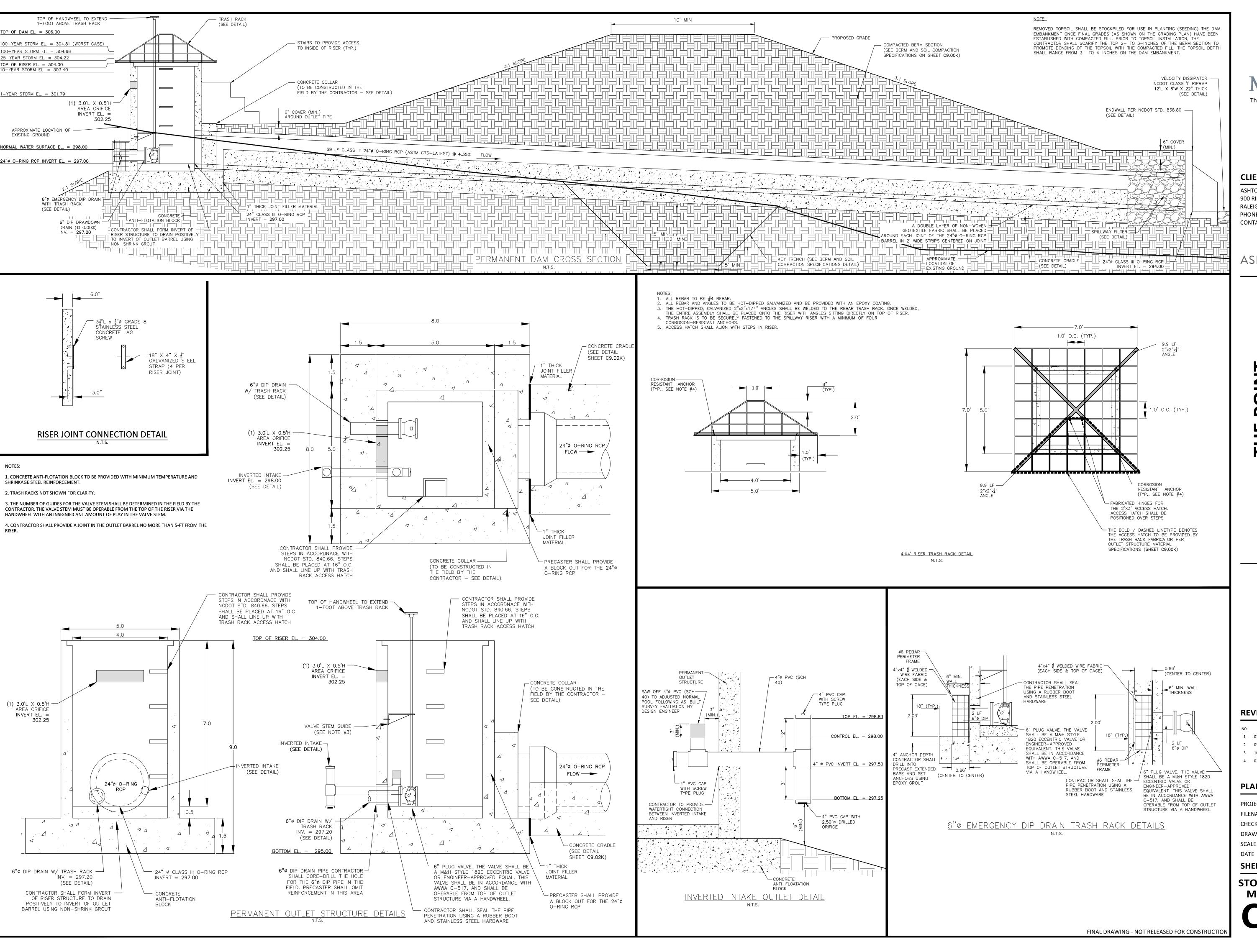
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DRAWN BY TKD
SCALE 1"=20'
DATE 12. 13. 2023

SHEET

STORMWATER CONTROL MEASURE 'K' DETAILS

C9.00K



phone 919. 361. 5000 fax 919. 361. 2269

license number: C-0293, C-187

www.mcadamsco.com

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ASHTON WOODS

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CID-24-01



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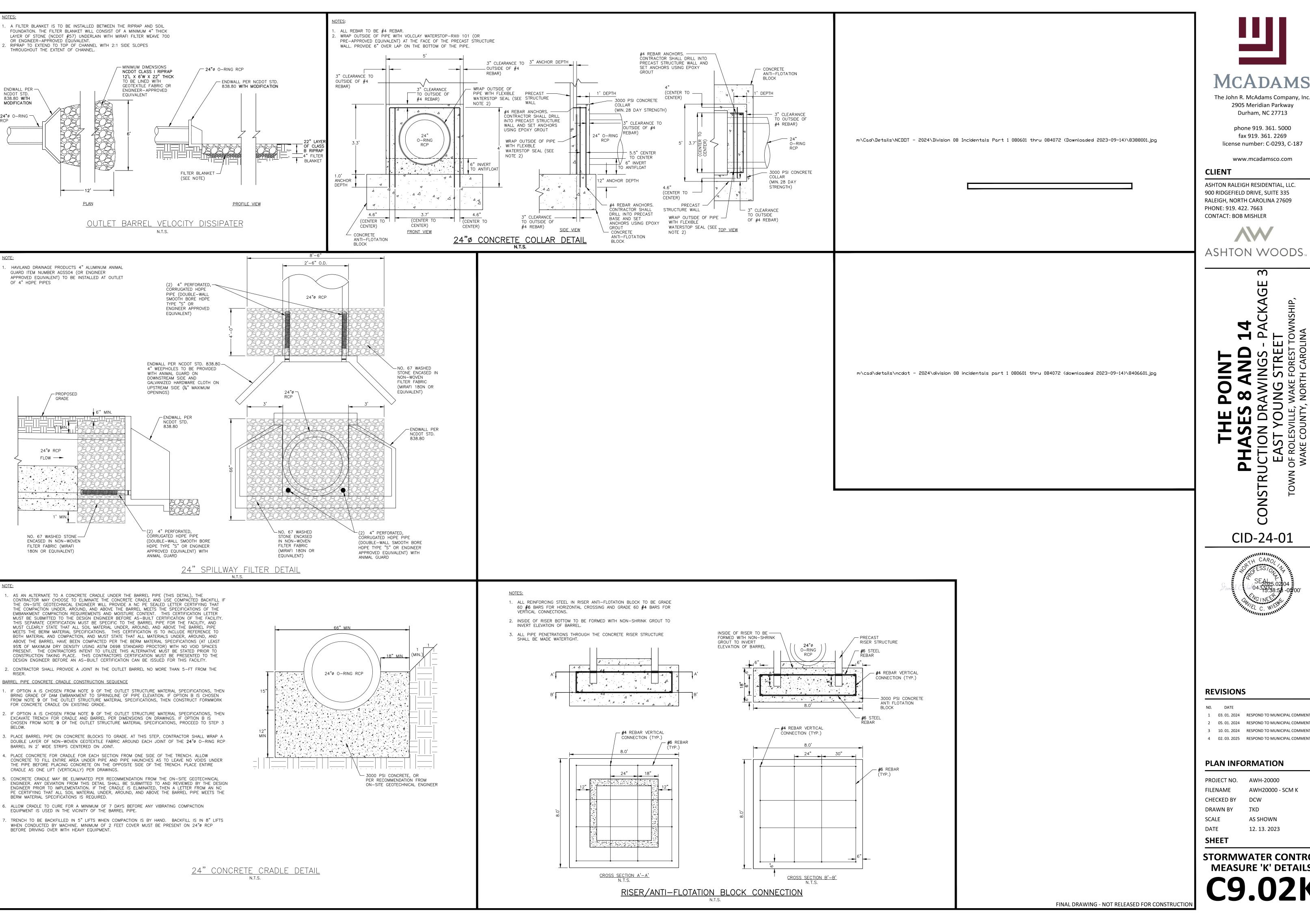
PROJECT NO. AWH-20000 FILENAME AWH20000 - SCM K

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**SHEET** 

STORMWATER CONTROL **MEASURE 'K' DETAILS** 

C9.01K



Durham, NC 27713 phone 919. 361. 5000

fax 919. 361. 2269

license number: C-0293, C-187

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ASHTON WOODS

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PLAN INFORMATION

PROJECT NO. AWH-20000 AWH20000 - SCM K

CHECKED BY ŢKD

AS SHOWN 12. 13. 2023

STORMWATER CONTROL **MEASURE 'K' DETAILS** 

C9.02K

# STORMWATER CONTROL MEASURE 'K' LANDSCAPE SPECIFICATIONS

# LEGEND

QTY.	SYM.	SCIENTIFIC NAME	COMMON NAME	HATCH	ТҮРЕ	SPACING
SHA	ALLOW	/ WATER				
216	IV	IRIS VIRGINIANA	BLUE FLAG IRIS		4-INCH CONTAINER	24" O.C.
181	PC	PONTEDERIA CORDATA	PICKEREL WEED	+ + + +	4-INCH CONTAINER	24" O.C.
215	ST	SCHOENOPLECTUS TABERNAEMONTANI	SOFT-STEM BULRUSH		4-INCH CONTAINER	24" O.C.
SHA	ALLOW	/ LAND				
203	CS	CAREX SPP.	SEDGES		4-INCH CONTAINER	24" O.C.
141	CA	CRINUM AMERICANUM	AMERICAN CRINUM LILY	$\nabla$	4-INCH CONTAINER	24" O.C.
132	НА	HIBISCUS ACULEATUS	PINELANDS MALLOW		4-INCH CONTAINER	24" O.C.

# SEEDBED PREPARATION

- 1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3-4 INCHES DEEP OVER ADVERSE SOIL CONDITIONS. TOPSOIL SHOULD BE INCORPORATED INTO THE FINAL GRADING OF THE BASIN SIDE SLOPES AND AQUATIC SHELF. CONTRACTOR SHOULD SCARIFY THE TOP 3-4 INCHES OF THE COMPACTED FILL TO PROMOTE BONDING WITH TOPSOIL.
- 2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- 3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- 4. PER ONE TIME ONLY, APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
- 5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- 6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER.
- 7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- 8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. AFTER PERMANENT COVER IS ESTABLISHED.
- 9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT.

# TEMPORARY SEEDING SCHEDULE

SEEDING MIXTURE APPLICATION RATE JAN 1 - MAY 1 RYE (GRAIN) 120 LBS/AC KOBE LESPEDEZA 50 LBS/AC MAY 1 - AUG 15 GERMAN MILLET 40 LBS/AC AUG 15 - DEC 30 120 LBS/AC RYE (GRAIN)

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 750 LB/AC 10-10-10 FERTILIZER (FROM AUG 15 - DEC 30, INCREASE 10-10-10 FERTILIZER TO 1000 LB/AC).

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

### MAINTENANCI JAN 1 - AUG 15:

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

AUG 15 - DEC 30: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LB/AC OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC KOBE LESPEDEZA IN

LATE FEBRUARY OR EARLY MARCH.

NOTE: USE THE TEMPORARY SEEDING SCHEDULE ONLY WHEN DATE IS NOT CORRECT TO USE THE PERMANENT SEEDING SCHEDULE.

# PERMANENT SEEDING SCHEDULE (DAM EMBANKMENTS)

MAY 1 - AUG 31 APRIL 1 - SEPT 1 OCT 1 - MARCH 1

SEEDING MIXTURE OPTIONS (CHOOSE ONE) CENTIPEDE RAW SUMMER MIX (80% HULLED BERMUDA/20% MILLET) FALL MIX

200 LBS/AC

200 LBS/AC (80% TALL FESCUE/20% ANNUAL RYEGRASS)

APPLICATION RATE

30 LBS/AC

# FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 1000 LB/AC 10-10-10 FERTILIZER.

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH

# BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150

LB/AC 10-10-10 FERTILIZER. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE: PERMANENT SEEDING SCHEDULE IS FOR SLOPES OF THE BASIN AND TOP OF BERM.

# PLANTING INSTRUCTIONS

- PLANTING TECHNIQUES

  A. ENSURE THAT ROOTS, ONCE REMOVED FROM POT, ARE STRAIGHTENED AND FACE DOWNWARD. CREATE PLANTING AREA FOR EACH PLANT AND EXCAVATE PIT.
- PLACE PLANTS IN PIT ENSURING ROOTS ARE FACING COMPLETELY DOWNWARD.
- HEEL IN SOIL AROUND PLANT AND PROCEED TO NEXT PLANTING LOCATION. NEWLY PLANTED PLANTS NEED TO BE FASTENED TO THE SUBSTRATE FOR THE ESTABLISHMENT OF
- NEW ROOTS. F. ROOTS SHALL BE SPREAD IN THEIR NORMAL POSITION. ALL BROKEN OR FRAYED ROOTS SHALL BE CUT
- OFF CLEANLY. G. THE DIAMETER OF THE PITS FOR ALL VEGETATIVE STOCK SHALL BE AT LEAST THREE TIMES THE
- DIAMETER OF THE ROOT MASS. PLANT PIT WALL SHALL BE SCARIFIED PRIOR TO PLANT INSTALLATION. H. SET THE PLANTS UPRIGHT, IN THE CENTER OF THE PIT. THE BOTTOM OF THE ROOT MASS SHOULD BE
- RESTING ON UNDISTURBED SOIL. PLACE THE BACKFILL AROUND THE BASE AND SIDES OF THE ROOT MASS, AND WORK EACH LAYER TO SETTLE BACKFILL AND TO ELIMINATE VOIDS AND AIR POCKETS. WHEN PIT IS APPROXIMATELY 2/3 FULL, WATER THOROUGHLY BEFORE PLACING REMAINDER OF THE BACKFILL. WATER AGAIN AFTER PLACING
- BROKEN OR DAMAGED PARTS WILL BE CUT BACK TO UNDAMAGED TISSUE, LEAVING AS MUCH GREEN BASAL TISSUE AS POSSIBLE ABOVE THE ROOTS. IF MORE THAN FIFTY PERCENT (50%) OF THE PLANT IS DAMAGED THEN CONTRACTOR SHALL REPLACE THE PLANT.

## CONTAINER STOCK / BARE ROOT

- A. STOCK SHALL HAVE BEEN GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER ONCE REMOVED FROM THE CONTAINER. CONTAINER PLANTS WILL NEED TO BE WATERED REGULARLY AND PLACED IN SHADY CONDITIONS UNTIL PLANTING OCCURS.
- BARE ROOT PLANTS ARE FOR IMMEDIATE PLANTING, OTHERWISE SEE D) BELOW. D. IF BARE ROOTS SPECIMENS ARE NOT TO BE PLANTED WITHIN FOUR (4) DAYS, TEMPORARY HOLDING OF BARE ROOT SPECIMENS ARE TO BE COVERED ENTIRELY BY A SUITABLE MEDIUM (ETC. SOIL,

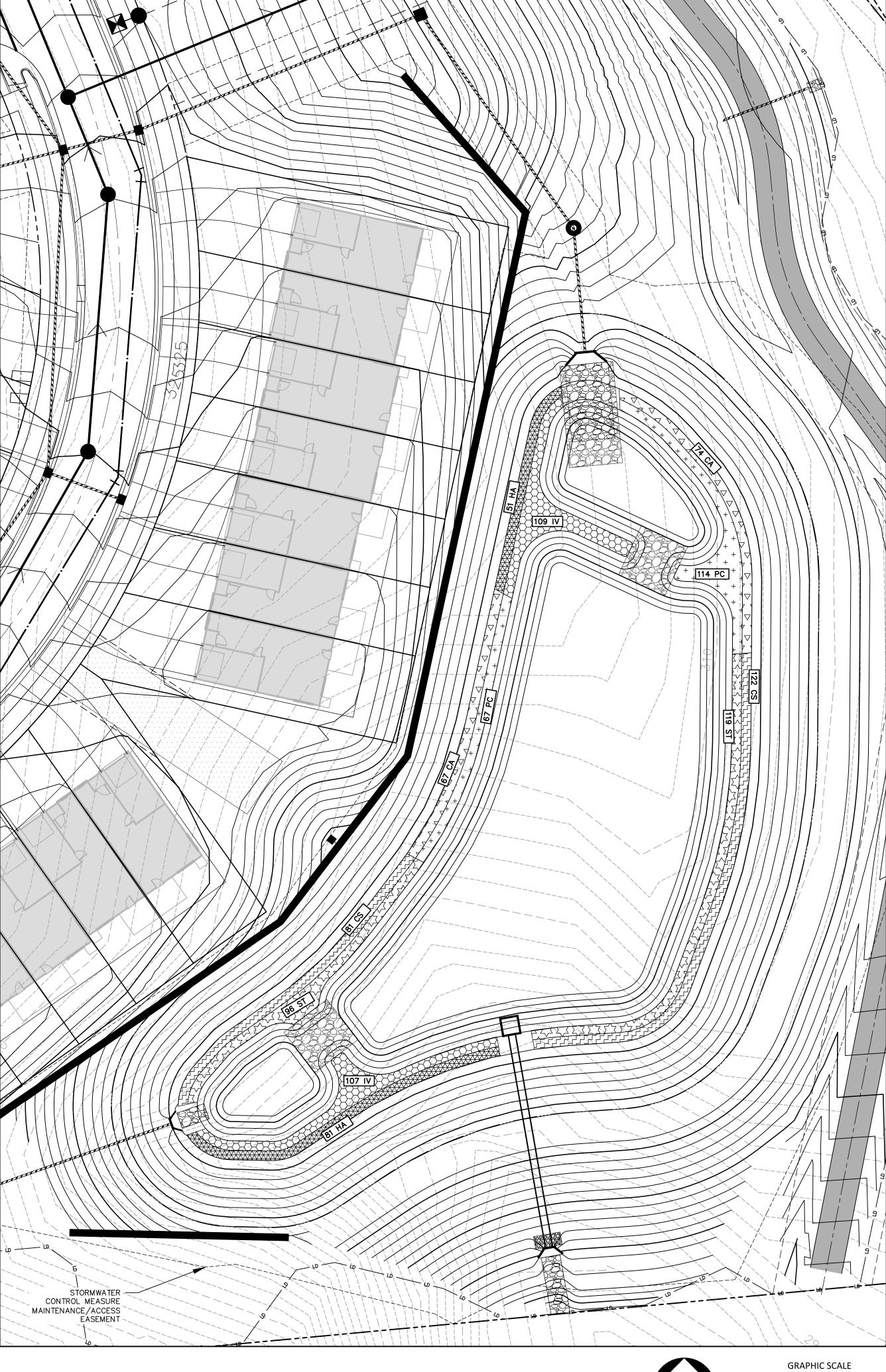
SAWDUST, MULCH OR THE LIKE) AND WATERED REGULARLY SO AS TO NOT DRY OUT.

A. NEW PLANTINGS SHALL BE LOCATED WHERE SHOWN ON PLAN EXCEPT WHERE CHANGES HAVE BEEN MADE IN PROPOSED CONSTRUCTION. B. NECESSARY ADJUSTMENTS SHALL BE MADE ONLY AFTER APPROVAL BY THE OWNER OR THE OWNER'S

WATER SHALL BE POTABLE AND SHALL NOT CONTAIN ELEMENTS TOXIC TO PLANT LIFE.

# PLANTING SCHEDULE

- 1. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER MANAGEMENT FACILITY PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
- 2. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER MANAGEMENT FACILITY PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER MANAGEMENT FACILITY PLANTING PLAN.
- OPTIMAL PLANTING PERIODS RANGE APPROXIMATELY FROM APRIL 15TH THRU JUNE 30TH AND EPTEMBER 1ST THRU OCTOBER 31ST. FOR FINAL DETERMINATION OF THE SITE'S PLANTING PERIOD, THE CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING FOR PLANT INSTALLATION.
- 4. IT IS RECOMMENDED THAT THE CONTRACTOR TAKE MEASURES TO PREVENT WILDLIFE FROM DAMAGING OR CONSUMING WETLAND PLANTINGS.



STORMWATER CONTROL MEASURE 'K' PLAN VIEW



FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

STORMWATER CONTROL

**REVISIONS** 

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

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CID-24-01

The John R. McAdams Company, Inc. 2905 Meridian Parkway Durham, NC 27713

phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

www.mcadamsco.com

ASHTON RALEIGH RESIDENTIAL, LLC. 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609

ASHTON WOODS

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PHONE: 919. 422. 7663 **CONTACT: BOB MISHLER** 

CLIENT

PLAN INFORMATION

PROJECT NO. AWH-20000 FILENAME AWH20000 - SCM K

CHECKED BY DRAWN BY SCALE 12. 13. 2023

SHEET

IEASURE 'K' LANDSCAPE PLANS

PRIOR TO CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION

- THE FINAL CERTIFICATION FOR THIS FACILITY WILL INCLUDE A CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE PROJECT WAS CONSTRUCTED PER THE APPROVED PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE ON-SITE GEOTECHNICAL ENGINEER FOR OBSERVATION AND TESTING SUCH THAT THE ON-SITE GEOTECHNICAL ENGINEER CAN CERTIFY THE CONSTRUCTION OF THE DAM EMBANKMENT AND SPILLWAY. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY.
- ALL CONSTRUCTION ACTIVITY RELATED TO THE PROPOSED STORMWATER CONTROL MEASURE SHALL BE PER THE DETAILS AND SPECIFICATIONS SHOWN IN THESE DRAWINGS. SOILS, COMPACTION, AND OTHER MISCELLANEOUS DETAILS AND SPECIFICATIONS MAY BE MODIFIED PER THE RECOMMENDATIONS OF THE ON-SITE GEOTECHNICAL ENGINEER. HOWEVER, PRIOR TO IMPLEMENTATION, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATION FROM THESE DESIGN DRAWINGS, INCLUDING SHOP DRAWINGS FOR ANY PROPOSED
- 4. DURING THE INITIAL STAGES OF CONSTRUCTION, THE STORMWATER CONTROL MEASURE MAY BE USED AS A SEDIMENT BASIN FOR FROSION CONTROL PURPOSES, IE SO, THE CONTRACTOR SHALL FOLLOW THE GENERAL CONSTRUCTION SEQUENCE BELOW: A. THE CONTRACTOR SHALL CONSTRUCT THE ENTIRE FACILITY (PERMANENT OUTLET STRUCTURE, DAM, ETC.) WITH THE EXCEPTION OF THE INTERIOR FINE GRADING FOR THE FACILITY. THE INTERIOR FINE GRADING WILL BE CONSTRUCTED ONCE THE EROSION CONTROL
- PHASE IS COMPLETE. THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) SHALL BE CONNECTED TO THE PERMANENT 6"Ø DIP DRAIN PIPE. ONCE THE UPSTREAM DRAINAGE AREA IS STABILIZED AND THE EROSION CONTROL INSPECTOR APPROVES THE REMOVAL OF THE SEDIMENT BASIN, THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) AND CLEAN OUT THE
- BASIN. ALL SEDIMENT, TRASH, ETC. SHALL BE DISPOSED OF PROPERLY (I.E. PLACED IN A LANDFILL) AND NOT STOCKPILED IN AN AREA WHERE WATER QUALITY COULD BE ADVERSELY AFFECTED. ONCE THE BASIN IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED, THE CONTRACTOR SHALL CONSTRUCT THE INTERIOR GRADING SHOWN ON THIS SHEET
- ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER CONTROL MEASURE PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE
- ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER CONTROL MEASURE PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER CONTROL MEASURE PLANTING PLAN.
- ALL OSHA REQUIREMENTS FOR EXCAVATIONS (SHORING, DEPTH, ETC.) ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A NC P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IF AN EXCAVATION PLAN IS REQUIRED. THE JOHN R. MCADAMS COMPANY ASSUMES NO RESPONSIBILITY FOR ANY EXCAVATION DESIGN RELATED TO SAFETY OR OSHA REQUIREMENTS.
- ON-SITE GEOTECHNICAL ENGINEER TO DETERMINE IF IN-SITU SOILS ENCOUNTERED WOULD MAINTAIN A STORMWATER CONTROL MEASURE PERMANENT POOL AT DESIGN ELEVATION. IF HIGHLY PERMEABLE SOILS ARE ENCOUNTERED THAT WOULD NOT MAINTAIN THE PERMANENT POOL ELEVATION AS DESIGNED. A CLAY LINER MAY BE REQUIRED TO MAINTAIN A PERMANENT POOL OF WATER IN THE STORMWATER CONTROL MEASURE. FINAL DETERMINATION IF A CLAY LINER IS NEEDED SHALL BE THE RESPONSIBILITY OF THE ON-SITE GEOTECHNICAL ENGINEER. UPON DETERMINATION OF HIGHLY PERMEABLE SOIL CONDITIONS, ON-SITE GEOTECHNICAL ENGINEER WILL INFORM THE DESIGN ENGINEER AND RECOMMEND LINER SPECIFICATIONS.
- 8. IT IS ANTICIPATED THAT DEWATERING WILL BE NECESSARY IN THE EXCAVATION AREAS (E.G. EMBANKMENT SUB GRADE, INTERIOR PORTIONS OF THE STORMWATER CONTROL MEASURE, KEY TRENCH, ETC.). THEREFORE, THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE AND MAINTAIN ANY PLIMPING FOLIPMENT FTC NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE STORMWATER CONTROL MEASURE SITE. DURING PLACEMENT OF FILL WITHIN THESE AREAS. THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE SUCH AS A DIRT BAG (ACF ENVIRONMENTAL), OR ENGINEER APPROVED EQUIVALENT, PRIOR TO DISCHARGE).
- THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES. IF THE EXISTING SOIL LAYER AFTER CONSTRUCTION / COMPACTION IS NOT DETERMINED SUITABLE BY A LANDSCAPE PROFESSIONAL FOR THE WET POND PLANTINGS, THEN THE CONTRACTOR SHALL AMEND THE PLANTING AREA OF THE WET POND AS DIRECTED BY A LANDSCAPE PROFESSIONAL
- 10. PRIOR TO TOPSOIL INSTALLATION, THE CONTRACTOR SHALL SCARIFY THE TOP 2"-3" OF THE BERM SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL RANGE FROM 3"-4" ON THE DAM EMBANKMENT AND AQUATIC SHELF. PLEASE NOTE THE TOPSOIL SHALL BE AMENDED, AS DIRECTED BY A LANDSCAPE PROFESSIONAL, PRIOR TO INSTALLATION ON THE EMBANKMENT AND AQUATIC SHELF.
- 11. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLAN FOR THE PERMANENT PLANTING PLAN/SCHEDULE FOR THIS FACILITY. CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING FOR PLANT INSTALLATION. PLEASE NOTE THAT NO TREES/SHRUBS OF ANY TYPE MAY BE PLANTED ON THE PROPOSED DAM EMBANKMENT (FILL AREAS).

# **OUTLET STRUCTURE MATERIAL SPECIFICATIONS**

- .. THE 36"Ø RCP OUTLET BARREL SHALL BE CLASS III RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS OF ASTM C76-LATEST THE PIPES SHALL HAVE CONFINED O-RING RUBBER GASKET JOINTS MEETING ASTM C-443-LATEST. THE PIPE JOINTS SHALL BE TYPE R-4.
- . THE STRUCTURAL DESIGN FOR THE 5' X 5' (INTERNAL DIMENSIONS) RISER BOX WITH EXTENDED BASE SHALL BE BY OTHERS. PRIOR TO ORDERING THE STRUCTURES, THE CONTRACTOR SHALL PROVIDE, TO THE DESIGN ENGINEER FOR REVIEW, SHOP DRAWINGS AND SUPPORTING STRUCTURAL CALCULATIONS SEALED BY A P.E. REGISTERED IN NORTH CAROLINA DEMONSTRATING THE PERTINENT VERTICAL LOADS ARE SUPPORTED BY THE CONCRETE RISER STRUCTURE
- 3. THE RISER BOX OUTLET STRUCTURE SHALL BE PROVIDED WITH STEPS 16" ON CENTER. STEPS SHALL BE PROVIDED ON THE INNER WALL OF THE RISER BOX. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STD. 840.66. PLEASE REFER TO SHEET C9.02L FOR LOCATION OF THE RISER STEPS. NOTE THE STEPS SHALL LINE UP WITH THE ACCESS HATCH OF THE TRASH RACK
- 4. THE CONCRETE ANTI-FLOTATION BLOCK SHALL BE CAST-IN-PLACE. STEEL REINFORCEMENT AND CONNECTION TO THE RISER SHALL BE PROVIDED IN ACCORDANCE WITH THE DETAIL ON SHEET C9.02L. THE CONTRACTOR SHALL ENSURE THE WEIGHT OF THE ENTIRE RISER STRUCTURE IS GREATER THAN OR EQUAL TO XX.XXX LBS. IN LIEU OF CAST-IN-PLACE. THE CONTRACTOR MAY OPT FOR A PRECAST ANTI-FLOTATION BLOCK. SHOP DRAWINGS FOR THE PRECAST BLOCK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE PRECAST ANTI-FLOTATION BLOCK SHALL HAVE A SHIPPING WEIGHT OF XX,XXX LBS.
- 5. THE RISER BOX JOINTS SHALL BE SEALED USING BUTYL RUBBER SEALANT CONFORMING TO ASTM-C990-LATEST. IF NECESSARY, THE CONTRACTOR SHALL INCORPORATE A WATERSTOP INTO THE RISER BOX JOINT TO ENSURE A WATERTIGHT CONNECTION. THE CONTRACTOR SHALL PARGE JOINTS ON BOTH THE INSIDE AND OUTSIDE WITH NON-SHRINK GROUT AND INSTALL GALVANIZED STEEL STRAPS PER DETAIL ON SHEET C9.01L
- 6. PRIOR TO ORDERING, THE CONTRACTOR SHALL SUBMIT TRASH RACK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL ENSURE THAT AN ACCESS HATCH IS PROVIDED WITHIN THE TRASH RACK (SEE DETAIL FOR LOCATION) THAT WILL ALLOW FOR FUTURE MAINTENANCE ACCESS. CONTRACTOR SHALL ALSO PROVIDE A CHAIN AND LOCK FOR SECURING THE ACCESS HATCH. NOTE THE ACCESS HATCH SHALL LINE UP WITH THE ACCESS STEPS AFTER INSTALLATION.
- 7. ALL POURED CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:

-MINIMUM 3000 PSI (28 DAY)

-SLUMP = 3" - 5" -ENTRAINED AIR = 5% - 7%

PLEASE NOTE NO CONCRETE SHALL BE POURED WHEN THE AMBIENT AIR TEMPERATURES ARE EXPECTED TO BE ABOVE 85°F OR BELOW 40°F. CAST-IN-PLACE CONCRETE SHALL BE "WET CURED" AFTER FINISHING FOR A MINIMUM OF 48 HOURS.

ON-SITE GEOTECHNICAL ENGINEER TO ENSURE AND CERTIFY ALL POURED CONCRETE MEETS THE ABOVE SPECIFICATIONS.

- 8. GEOTEXTILE FABRIC FOR THE 36" Ø RCP OUTLET BARREL JOINTS SHALL BE MIRAFI 180N OR ENGINEER APPROVED EQUAL (NON-WOVEN
- 9. STORMWATER CONTROL MEASURE EMERGENCY DRAW DOWN IS VIA AN 6"Ø PLUG VALVE. THE VALVE SHALL BE A M&H STYLE 1820 ECCENTRIC VALVE OR APPROVED EQUAL. THIS VALVE IS IN ACCORDANCE WITH AWWA C-517, AND SHALL BE OPERABLE FROM TOP OF OUTLET STRUCTURE VIA A HAND WHEEL (SEE DETAIL SHEET C9.01L). THE CONTRACTOR SHALL PROVIDE A REMOVABLE VALVE WRENCH WITH A HAND WHEEL ON TOP FOR OPERATION OF THE 6"Ø PLUG VALVE.

# CONSTRUCTION SEQUENC

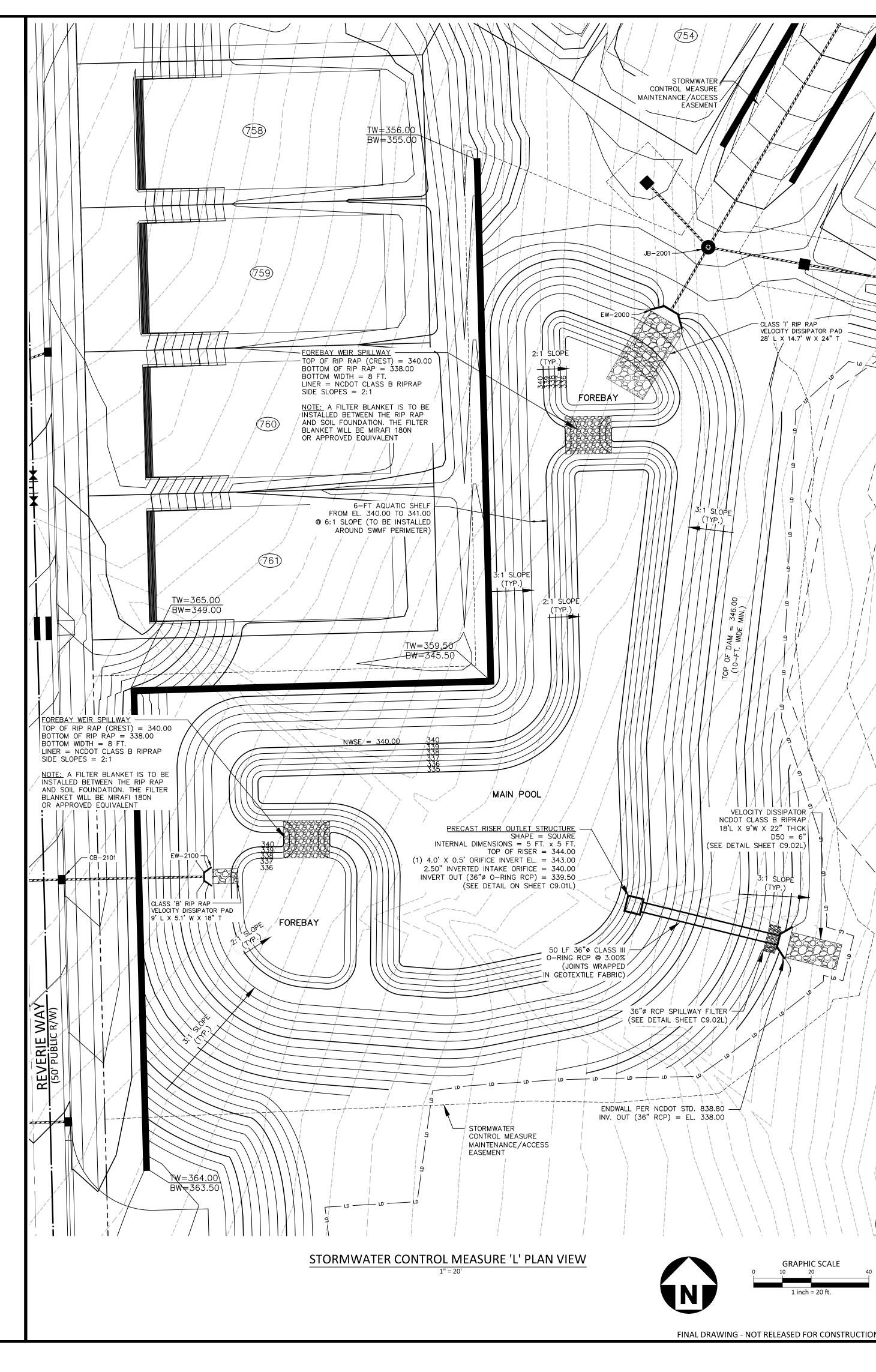
- PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING (GRADING) PERMIT AND AN "APPROVAL TO CONSTRUCT FROM THE TOWN OF ROLESVILLE AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G. 404 / 401 PERMITS)
- 2. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE ENTIRE PROJECT, AS REQUIRED. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE EROSION CONTROL INSPECTOR, AS REQUIRED BY GOVERNING AGENCIES, PRIOR TO ANY CLEARING
- 3. CLEAR AND GRUB AREA WITHIN THE LIMITS OF THE PROPOSED DAM CONSTRUCTION. ALL TREES AND THEIR ENTIRE ROOT SYSTEMS MUST BE REMOVED FROM THE DAM FOOTPRINT AREA AND BACKFILLED WITH SUITABLE SOIL MATERIAL. THE BACKFILLED AREAS SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUITABLE DEPTH AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER. ANY RESIDUAL SOILS TO BE LEFT IN PLACE MUST BE WELL SCARIFIED TO PROMOTE BONDING OF THE NEW EMBANKMENT FILL. NO EMBANKMENT MATERIAL SHALL BE PLACED FOR THE DAM OR KEY TRENCH UNTIL APPROVAL OF THE DAM SUBGRADE IS OBTAINED FROM THE ON-SITE GEOTECHNICAL ENGINEER.
- 4 FXCAVATE FOR THE NEW KEY TRENCH ALONG THE CENTERLINE OF THE PROPOSED DAM EMBANKMENT. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE OR 2 FT BELOW THE 36"Ø RCP OUTLET BARREL AND SHALL HAVE A MINIMUM BOTTOM WIDTH OF 5 FEET. THE KEY TRENCH SIDESLOPES SHALL BE A MINIMUM OF 1:1 (H:V), WHEN EXCAVATING THE KEY TRENCH, IF ANY DEBRIS IS ENCOUNTERED TO AN EXTENT THAT SUCH DEBRIS MAY EXIST IN OTHER INSITU PORTIONS OF THE DAM EMBANKMENT, IT SHOULD ALSO BE REMOVED. THE KEY TRENCH SHALL BE COMPACTED TO THE SAME SPECIFICATION LISTED IN ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." DEPENDING UPON ON-SITE SOIL CONDITIONS ENCOUNTERED DURING EXCAVATION, THE ON-SITE GEOTECHNICAL ENGINEER MAY VARY THE DEPTH AND DIMENSIONS OF THE KEY TRENCH AS DEEMED NECESSARY. THE ON-SITE GEOTECHNICAL ENGINEER SHALL RETAIN DOCUMENTATION OF ANY VARIATION FOR FUTURE AS-BUILT SUBMITTALS TO THE TOWN OF
- 5. BEGIN PLACEMENT OF BACKFILL WITHIN THE KEY TRENCH. THE KEY TRENCH SHALL BE COMPACTED TO THE SPECIFICATIONS LISTED ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." THE KEY TRENCH SHALL BE TESTED PER THE SPECIFICATIONS LISTED IN THAT SECTION.
- 6. PRIOR TO INSTALLATION, SUBGRADE CONDITIONS ALONG THE SPILLWAY PIPES SHOULD BE EVALUATED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ASSESS WHETHER SUITABLE BEARING CONDITIONS EXIST AT THE SUBGRADE LEVEL. SHOULD SOFT OR OTHERWISE UNSUITABLE CONDITIONS BE ENCOUNTERED ALONG THE PIPE ALIGNMENTS, THESE MATERIALS SHOULD BE UNDERCUT AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE UNDERCUT MATERIALS SHALL BE REPLACED WITH ADEQUATELY COMPACTED STRUCTURAL FILL, LEAN CONCRETE OR FLOWABLE FILL AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER
- 7. IN ORDER TO HELP PROTECT THE SOIL SUBGRADE FROM DETERIORATION (DUE TO EXPOSURE, RAINFALL, SEEPAGE, AND RUNOFF) BEFORE THE CRADIE CAN BE POLIBED. IT IS STRONGLY RECOMMENDED THAT A 3" TO 4" THICK CONCRETE MUD MAT BE POLIBED OVER THE SUBGRADE ONCE IT IS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE MUD MAT WILL ALSO PROVIDE BEARING FOR THE BLOCKS THAT TEMPORARILY SUPPORT THE SPILLWAY PIPE UNTIL THE CRADLE CAN BE POURED. THE METHOD OF BLOCK SUPPORT FOR THE PIPE PROPOSED BY THE CONTRACTOR SHOULD BE SUBMITTED TO THE JOHN R. McADAMS COMPANY FOR REVIEW.
- 8. BEGIN CONSTRUCTION OF THE NEW EMBANKMENT. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8" THICK LIFTS PRIOR TO COMPACTION, UNLESS DIRECTED OTHERWISE BY THE ON-SITE GEOTECHNICAL ENGINEER. FILL LIFTS SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF FILL. IF IT IS NECESSARY, THE EMBANKMENT FILL MATERIAL WILL BE OVERBUILT IN HORIZONTAL LIFTS AND CUT BACK TO FINAL GRADE IN ORDER TO ACHIEVE PROPER COMPACTION.
- 9. AS CONSTRUCTION OF THE EMBANKMENT MOVES FORWARD, IT WILL BE NECESSARY TO INSTALL THE CONCRETE CRADLE. SEE NOTE ON CRADLE DETAIL (SHEET C9.02L). THIS MAY BE CONSTRUCTED USING ONE OF THE FOLLOWING METHODS:
- A. IF THE PROPOSED STRUCTURAL FILL MATERIAL IS UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADIF. THEN THE STRUCTURAL FILL SHOULD BE INSTALLED AND COMPACTED UP TO THE TOP OF CONCRETE CRADLE ELEVATION. ONCE THE STRUCTURAL FILL REACHES THE NEXT DOWNSTREAM JUNCTION BOX OR HEADWALL AND IS COMPACTED TO THE ELEVATION OF THE TOP OF THE CONCRETE CRADLE, EXCAVATE THE CONCRETE CRADLE TRENCH PER THE PROVIDED DETAILS AND CONSTRUCT THE CONCRETE CRADLE AS PER THE PROVIDED CONCRETE CRADLE DETAIL
- B. IF THE PROPOSED STRUCTURAL FILL IS NOT UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN PRIOR TO CONSTRUCTING THE STRUCTURAL FILL EMBANKMENT, THE FORMWORK FOR THE CONCRETE CRADLE SHOULD BE INSTALLED ON EXISTING GROUND AND/OR THE MUD MAT. THE CONCRETE CRADLE SHALL BE CONSTRUCTED PER THE PROVIDED DETAILS
- 10. AS AN ALTERNATE TO A CONCRETE CRADLE UNDER THE BARREL PIPE (SEE SHEET C9.02L), THE CONTRACTOR MAY CHOOSE TO ELIMINATE THE CONCRETE CRADLE AND USE COMPACTED BACKFILL IF THE ON-SITE GEOTECHNICAL ENGINEER WILL PROVIDE A NC PE SEALED LETTER CERTIFYING THAT THE COMPACTION UNDER, AROUND, AND ABOVE THE BARREL MEETS THE SPECIFICATIONS OF THE EMBANKMENT COMPACTION REQUIREMENTS AND MOISTURE CONTENT. THIS CERTIFICATION LETTER MUST BE SUBMITTED TO THE DESIGN ENGINEER PRIOR TO BACKFILL. THIS SEPARATE CERTIFICATION MUST BE SPECIFIC TO THE BARREL PIPE FOR THE FACILITY, AND MUST CLEARLY STATE THAT ALL SOIL MATERIAL UNDER, AROUND, AND ABOVE THE BARREL PIPE MEETS THE BERM AND SOIL COMPACTION SPECIFICATIONS ON THIS SHEET. THIS CERTIFICATION IS TO INCLUDE REFERENCE TO BOTH MATERIAL AND COMPACTION. AND MUST STATE THAT ALL MATERIALS UNDER, AROUND, AND ABOVE THE BARREL HAVE BEEN COMPACTED PER THE BERM MATERIAL SPECIFICATIONS (AT LEAST 95) OF MAXIMUM DRY DENSITY USING ASTM D698 STANDARD PROCTOR) WITH NO VOID SPACES PRESENT. THE CONTRACTORS INTENT TO UTILIZE THIS ALTERNATIVE MUST BE STATED PRIOR TO CONSTRUCTION TAKING PLACE. THIS CONTRACTORS CERTIFICATION MUST BE PRESENTED TO THE DESIGN ENGINEER BEFORE AN AS-BUILT CERTIFICATION CAN BE ISSUED FOR THIS FACILITY.
- 11. INSTALL RISER / BARREL ASSEMBLY, ALONG WITH THE EMERGENCY DRAIN SYSTEM. INSTALL 36" RCP OUTLET BARREL SPILLWAY FILTER FROM THE DETAILS SHOWN ON SHEET C9.02L.
- 12. CONSTRUCT EMBANKMENT PER SPECIFICATIONS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS" AND REQUIREMENTS OF THE ON-SITE GEOTECHNICAL ENGINEER. ALL CHARACTERISTICS OF THE EMBANKMENT FILL MATERIAL SHALL MEET THE STANDARDS SET FORTH IN "BERM AND SOIL COMPACTION SPECIFICATIONS", INCLUDING COMPACTION AND MOISTURE REQUIREMENTS. IF NECESSARY TO ACHIEVE PROPER COMPACTION. THE EMBANKMENT FILL MATERIAL WILL BE OVERBLUIT IN HORIZONTAL LIFTS AND CLIT BACK TO PROPER FINAL GRADE. ANY HAND COMPACTION ACTIVITIES AROUND SPILLWAY OR DRAIN STRUCTURES SHALL BE CONDUCTED IN 4-INCH LOOSE LIFTS AND BE TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT. ALL COMPACTION AND MOISTURE TESTING SHALL BE CARRIED OUT AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER AND AS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS".
- 13. UPON COMPLETION OF DAM EMBANKMENT, PROMPTLY STABILIZE AND SEED DAM EMBANKMENT PER SEEDING SCHEDULE, PERMANENT GROUND COVER SHALL BE ESTABLISHED PER THE PERMANENT SEEDING SCHEDULE FOUND ON SHEET C9.03H.
- 14. SCHEDULE A FINAL AS-BUILT INSPECTION AND AS-BUILT SURVEY WITH THE ENGINEER AND SURVEYOR. AN AS-BUILT INSPECTION AND SURVEY SHALL BE SCHEDULED BEFORE IMPOUNDING WATER IN THE FACILITY AND A MINIMUM OF 60 DAYS PRIOR TO THE ANTICIPATED DATE OF CERTIFICATION APPROVAL. ANY COMMENTS OR DEFICIENCIES IN THE SCM CONSTRUCTION MUST BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND OWNER BEFORE CERTIFICATION SHALL BE GRANTED.

# BERM AND SOIL COMPACTION SPECIFICATIONS

- PRIOR TO CONSTRUCTION, THE ON-SITE GEOTECHNICAL ENGINEER SHALL IDENTIFY BORROW / FILL AREAS AND VERIFY THEIR SUITABILITY FOR USE WITHIN THE DAM EMBANKMENT. ALSO, THE ON-SITE GEOTECHNICAL ENGINEER SHALL PERFORM STANDARD PROCTORS ON THE PROPOSED BORROW MATERIAL TO ENSURE THAT OPTIMUM MOISTURE CONTENT AND COMPACTION CAN BE ACHIEVED / CONTROLLED DURING CONSTRUCTION.
- ALL FILL MATERIALS TO BE USED FOR THE DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, WOOD, STONES GREATER THAN 6", AND FROZEN OR OTHER OBJECTIONABLE MATERIAL. THE FOLLOWING SOIL TYPES ARE SUITABLE FOR USE AS FILL WITHIN THE DAM EMBANKMENT AND KEY TRENCH: ML AND CL. ALL FILL MATERIALS SHALL BE APPROVED BY THE ONSITE GEOTECHNICAL ENGINEER FOR THE INTENDED USE.
- 3. FILL PLACEMENT FOR THE EMBANKMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT (UNCOMPACTED). EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL FOR THE BERM SECTION, ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND THE SURFACE PROPERLY PREPARED FOR FILL PLACEMENT. FILL MATERIAL ADJACENT TO ALL SPILLWAY AND DRAINAGE STRUCTURES SHALL BE PLACED IN 4-INCH (UNCOMPACTED) LIFTS AND HAND-COMPACTED TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT
- 4. ALL FILL SOILS USED IN THE EMBANKMENT CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN -1 TO +3 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTION TESTS SHALL BE PERFORMED BY THE ON-SITE GEOTECHNICAL ENGINEER DURING CONSTRUCTION TO VERIFY THAT THE PROPER COMPACTION LEVEL HAS BEEN REACHED. THE FILL SHOULD BE COMPACTED USING A SHEEPSFOOT TYPE COMPACTOR. IN ORDER TO PREVENT DAMAGE TO THE PIPE, NO COMPACTION EQUIPMENT SHALL CROSS ANY PIPE UNTIL MINIMUM COVER IS ESTABLISHED ALONG THE PIPE
- THE DESIGN ENGINEER SHALL BE PROVIDED WITH REPORTS AND CERTIFICATION, BY THE ON-SITE GEOTECHNICAL ENGINEER, THAT THE GEOTECHNICAL ASPECTS OF THE FACILITY HAVE BEEN CONSTRUCTED PER PLAN. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY. THESE REPORTS AND CERTIFICATION WILL BE NEEDED DURING THE AS-BUILT CERTIFICATION PROCESS FOR THIS STORMWATER CONTROL MEASURE. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TESTING AND OBSERVATION WITH THE ON-SITE GEOTECHNICAL ENGINEER.
- TESTING OF THE NEW FILL MATERIALS SHALL BE PERFORMED TO VERIFY THAT THE RECOMMENDED LEVEL OF COMPACTION IS ACHIEVED DURING CONSTRUCTION. THEREFORE, ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2,500 SQUARE FEET OF AREA FOR EVERY LIFT OF FILL OR AS RECOMMENDED BY THE ON-SITE GEOTECHNICAL ENGINEER.
- 7. TESTING WILL BE REQUIRED ALONG THE 36" Ø RCP OUTLET BARREL AT A FREQUENCY OF ONE TEST PER 25 LF OF PIPE PER VERTICAL FOOT OF FILL OR AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.

# STATEMENT OF RESPONSIBILITY

1. ALL REQUIRED MAINTENANCE AND INSPECTIONS OF THE STORMWATER CONTROL MEASURE SHALL BE THE RESPONSIBILITY OF THE OWNER, PER THE EXECUTED OPERATION AND MAINTENANCE AGREEMENT FOR THIS FACILITY.





Durham, NC 27713 phone 919. 361. 5000

2905 Meridian Parkway

fax 919. 361. 2269 license number: C-0293, C-187

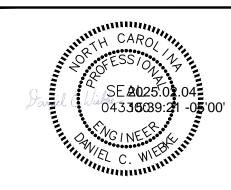
# www.mcadamsco.com

# CLIENT

ASHTON RALEIGH RESIDENTIAL, LLC 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 **CONTACT: BOB MISHLER** 



CID-24-01



# **REVISIONS**

NO. DATE

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

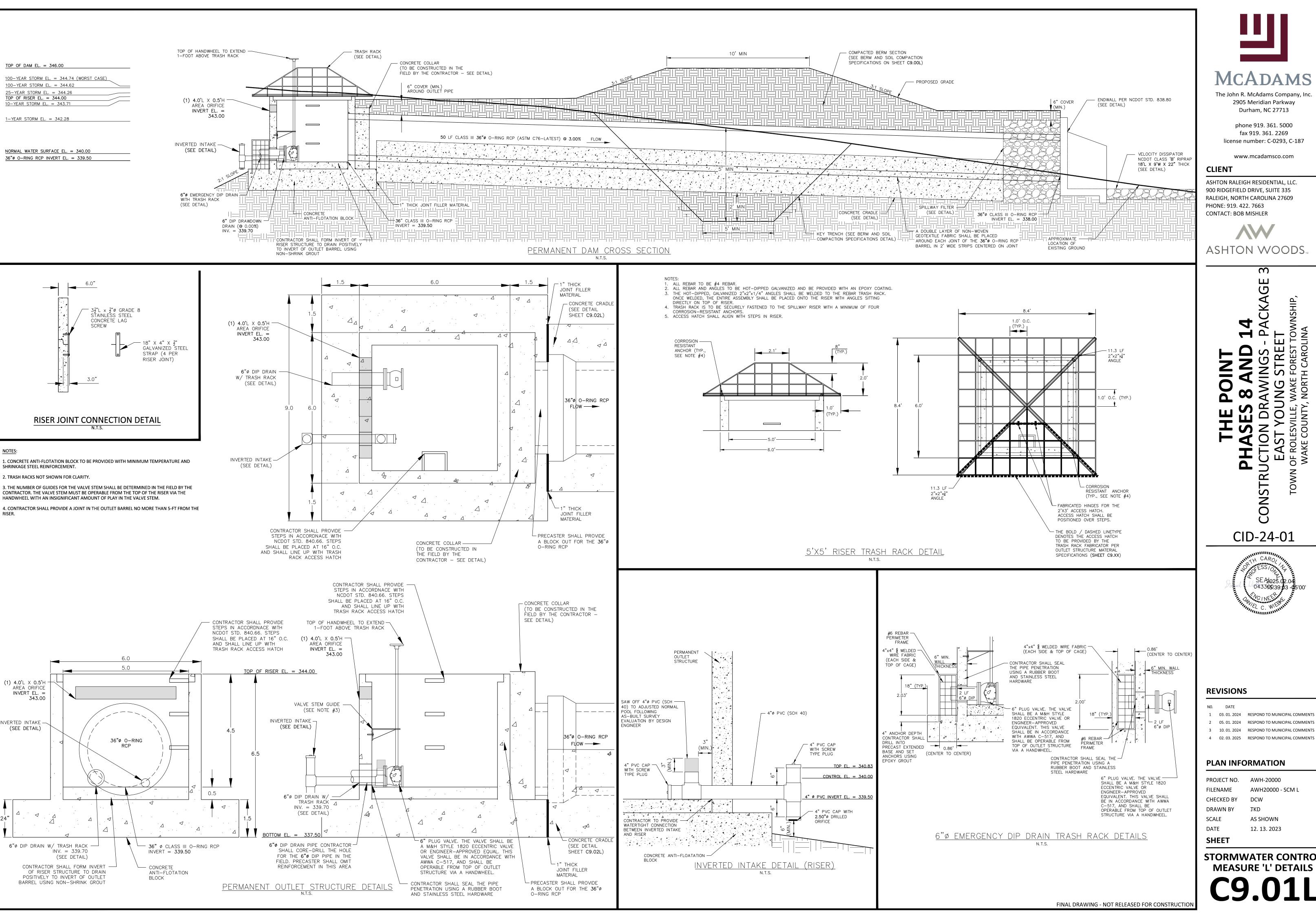
# PLAN INFORMATION

PROJECT NO. AWH-20000 FILENAME AWH20000 - SCM L CHECKED BY

DRAWN BY SCALE

AS SHOWN DATE 12. 13. 2023 **SHEET** 

STORMWATER CONTROL **MEASURE 'L' DETAILS** 





> phone 919. 361. 5000 fax 919. 361. 2269

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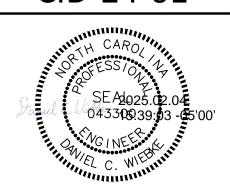
ASHTON RALEIGH RESIDENTIAL, LLC 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 **CONTACT: BOB MISHLER** 

ASHTON WOODS

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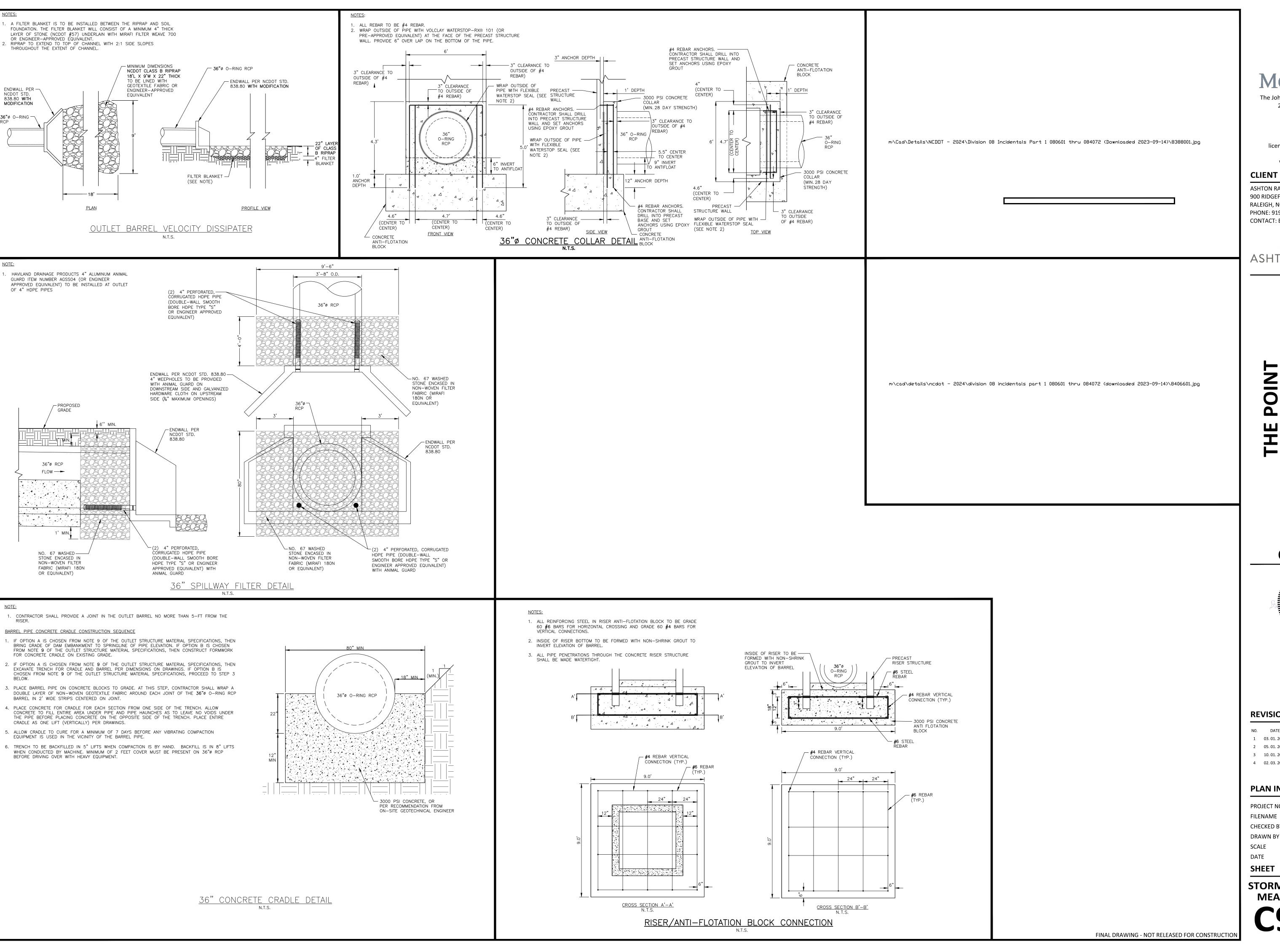
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AS SHOWN 12. 13. 2023

**SHEET** 

STORMWATER CONTROL **MEASURE 'L' DETAILS** 



phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

www.mcadamsco.com

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ASHTON WOODS

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# PLAN INFORMATION

PROJECT NO. AWH-20000 FILENAME AWH20000 - SCM L CHECKED BY

DRAWN BY ŢKD AS SHOWN 12. 13. 2023

STORMWATER CONTROL **MEASURE 'L' DETAILS** 

# STORMWATER CONTROL MEASURE 'L' LANDSCAPE SPECIFICATIONS

# LEGEND

QTY.	SYM.	SCIENTIFIC NAME	COMMON NAME	НАТСН	ТҮРЕ	SPACING
SHA	LLOW	WATER				
228	IV	IRIS VIRGINIANA	BLUE FLAG IRIS		4-INCH CONTAINER	24" O.C.
188	PC	PONTEDERIA CORDATA	PICKEREL WEED	+ + + +	4-INCH CONTAINER	24" O.C.
296	ST	SCHOENOPLECTUS TABERNAEMONTANI	SOFT-STEM BULRUSH		4-INCH CONTAINER	24" O.C.
SHA	LLOW	LAND				
209	CS	CAREX SPP.	SEDGES		4-INCH CONTAINER	24" O.C.
174	CA	CRINUM AMERICANUM	AMERICAN CRINUM LILY	$\nabla$ $\nabla$ $\nabla$	4-INCH CONTAINER	24" O.C.
145	НА	HIBISCUS ACULEATUS	PINELANDS MALLOW		4-INCH CONTAINER	24" O.C.

# SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3-4 INCHES DEEP OVER ADVERSE SOIL CONDITIONS. TOPSOIL SHOULD BE INCORPORATED INTO THE FINAL GRADING OF THE BASIN SIDE SLOPES AND AQUATIC SHELF. CONTRACTOR SHOULD SCARIFY THE TOP 3-4 INCHES OF THE COMPACTED FILL TO PROMOTE BONDING WITH TOPSOIL.
- 2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- 3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- 4. PER ONE TIME ONLY, APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
- 5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- 6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER.
- 7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- 8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. AFTER PERMANENT COVER IS ESTABLISHED.
- 9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT.

# TEMPORARY SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
JAN 1 - MAY 1	RYE (GRAIN)	120 LBS/AC
	KOBE LESPEDEZA	50 LBS/AC
MAY 1 - AUG 15	GERMAN MILLET	40 LBS/AC
AUG 15 - DEC 30	RYE (GRAIN)	120 LBS/AC

# FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 750 LB/AC 10-10-10 FERTILIZER (FROM AUG 15 - DEC 30, INCREASE 10-10-10 FERTILIZER TO 1000 LB/AC).

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

### MAINTENANCI JAN 1 - AUG 15:

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

AUG 15 - DEC 30: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LB/AC OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC KOBE LESPEDEZA IN

LATE FEBRUARY OR EARLY MARCH.

NOTE: USE THE TEMPORARY SEEDING SCHEDULE ONLY WHEN DATE IS NOT CORRECT TO USE THE PERMANENT SEEDING SCHEDULE.

# PERMANENT SEEDING SCHEDULE (DAM EMBANKMENTS)

SEEDING DATE	SEEDING MIXTURE OPTIONS (CHOOSE ONE)	APPLICATION RATE
MAY 1 - AUG 31	CENTIPEDE RAW	30 LBS/AC
APRIL 1 - SEPT 1	SUMMER MIX	200 LBS/AC
	(80% HULLED BERMUDA/20% MILLET)	
OCT 1 - MARCH 1	FALL MIX	200 LBS/AC
	(80% TALL FESCUE/20% ANNUAL RYEGRASS)	

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 1000 LB/AC 10-10-10 FERTILIZER.

APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 LB/AC 10-10-10 FERTILIZER. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

NOTE: PERMANENT SEEDING SCHEDULE IS FOR SLOPES OF THE BASIN AND TOP OF BERM.

# PLANTING INSTRUCTIONS

- PLANTING TECHNIQUES

  A. ENSURE THAT ROOTS, ONCE REMOVED FROM POT, ARE STRAIGHTENED AND FACE DOWNWARD. CREATE PLANTING AREA FOR EACH PLANT AND EXCAVATE PIT.
- PLACE PLANTS IN PIT ENSURING ROOTS ARE FACING COMPLETELY DOWNWARD.
- HEEL IN SOIL AROUND PLANT AND PROCEED TO NEXT PLANTING LOCATION. NEWLY PLANTED PLANTS NEED TO BE FASTENED TO THE SUBSTRATE FOR THE ESTABLISHMENT OF
- NEW ROOTS. F. ROOTS SHALL BE SPREAD IN THEIR NORMAL POSITION. ALL BROKEN OR FRAYED ROOTS SHALL BE CUT
- OFF CLEANLY. G. THE DIAMETER OF THE PITS FOR ALL VEGETATIVE STOCK SHALL BE AT LEAST THREE TIMES THE
- DIAMETER OF THE ROOT MASS. PLANT PIT WALL SHALL BE SCARIFIED PRIOR TO PLANT INSTALLATION. H. SET THE PLANTS UPRIGHT, IN THE CENTER OF THE PIT. THE BOTTOM OF THE ROOT MASS SHOULD BE RESTING ON UNDISTURBED SOIL.
- PLACE THE BACKFILL AROUND THE BASE AND SIDES OF THE ROOT MASS, AND WORK EACH LAYER TO SETTLE BACKFILL AND TO ELIMINATE VOIDS AND AIR POCKETS. WHEN PIT IS APPROXIMATELY 2/3 FULL, WATER THOROUGHLY BEFORE PLACING REMAINDER OF THE BACKFILL. WATER AGAIN AFTER PLACING
- BROKEN OR DAMAGED PARTS WILL BE CUT BACK TO UNDAMAGED TISSUE, LEAVING AS MUCH GREEN BASAL TISSUE AS POSSIBLE ABOVE THE ROOTS. IF MORE THAN FIFTY PERCENT (50%) OF THE PLANT IS DAMAGED THEN CONTRACTOR SHALL REPLACE THE PLANT.

- . STOCK SHALL HAVE BEEN GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER ONCE REMOVED FROM THE CONTAINER. CONTAINER PLANTS WILL NEED TO BE WATERED REGULARLY AND PLACED IN SHADY CONDITIONS
- UNTIL PLANTING OCCURS. BARE ROOT PLANTS ARE FOR IMMEDIATE PLANTING, OTHERWISE SEE D) BELOW. D. IF BARE ROOTS SPECIMENS ARE NOT TO BE PLANTED WITHIN FOUR (4) DAYS, TEMPORARY HOLDING OF BARE ROOT SPECIMENS ARE TO BE COVERED ENTIRELY BY A SUITABLE MEDIUM (ETC. SOIL,

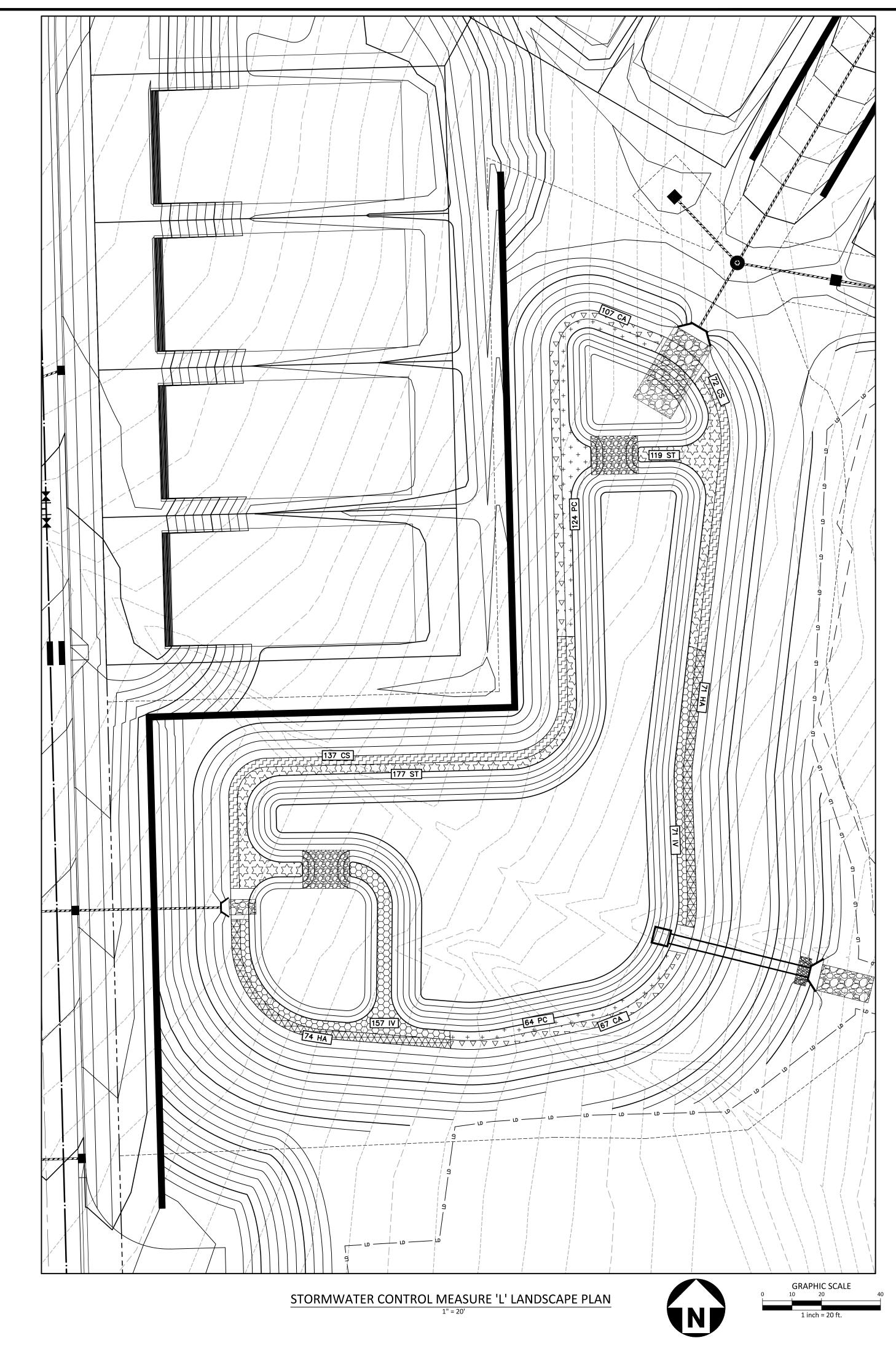
SAWDUST, MULCH OR THE LIKE) AND WATERED REGULARLY SO AS TO NOT DRY OUT.

A. NEW PLANTINGS SHALL BE LOCATED WHERE SHOWN ON PLAN EXCEPT WHERE CHANGES HAVE BEEN MADE IN PROPOSED CONSTRUCTION. B. NECESSARY ADJUSTMENTS SHALL BE MADE ONLY AFTER APPROVAL BY THE OWNER OR THE OWNER'S

WATER SHALL BE POTABLE AND SHALL NOT CONTAIN ELEMENTS TOXIC TO PLANT LIFE.

# PLANTING SCHEDULE

- 1. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER MANAGEMENT FACILITY PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
- 2. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER MANAGEMENT FACILITY PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER MANAGEMENT FACILITY PLANTING PLAN.
- OPTIMAL PLANTING PERIODS RANGE APPROXIMATELY FROM APRIL 15TH THRU JUNE 30TH AND SEPTEMBER 1ST THRU OCTOBER 31ST. FOR FINAL DETERMINATION OF THE SITE'S PLANTING PERIOD, THE CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING
- 4. IT IS RECOMMENDED THAT THE CONTRACTOR TAKE MEASURES TO PREVENT WILDLIFE FROM DAMAGING OR CONSUMING WETLAND PLANTINGS.



The John R. McAdams Company, Inc. 2905 Meridian Parkway Durham, NC 27713

phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

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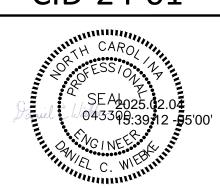
# CLIENT

ASHTON RALEIGH RESIDENTIAL, LLC. 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 **CONTACT: BOB MISHLER** 

ASHTON WOODS

 $\mathcal{C}$ 

CID-24-01



# **REVISIONS**

NO. DATE

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS 4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

# PLAN INFORMATION

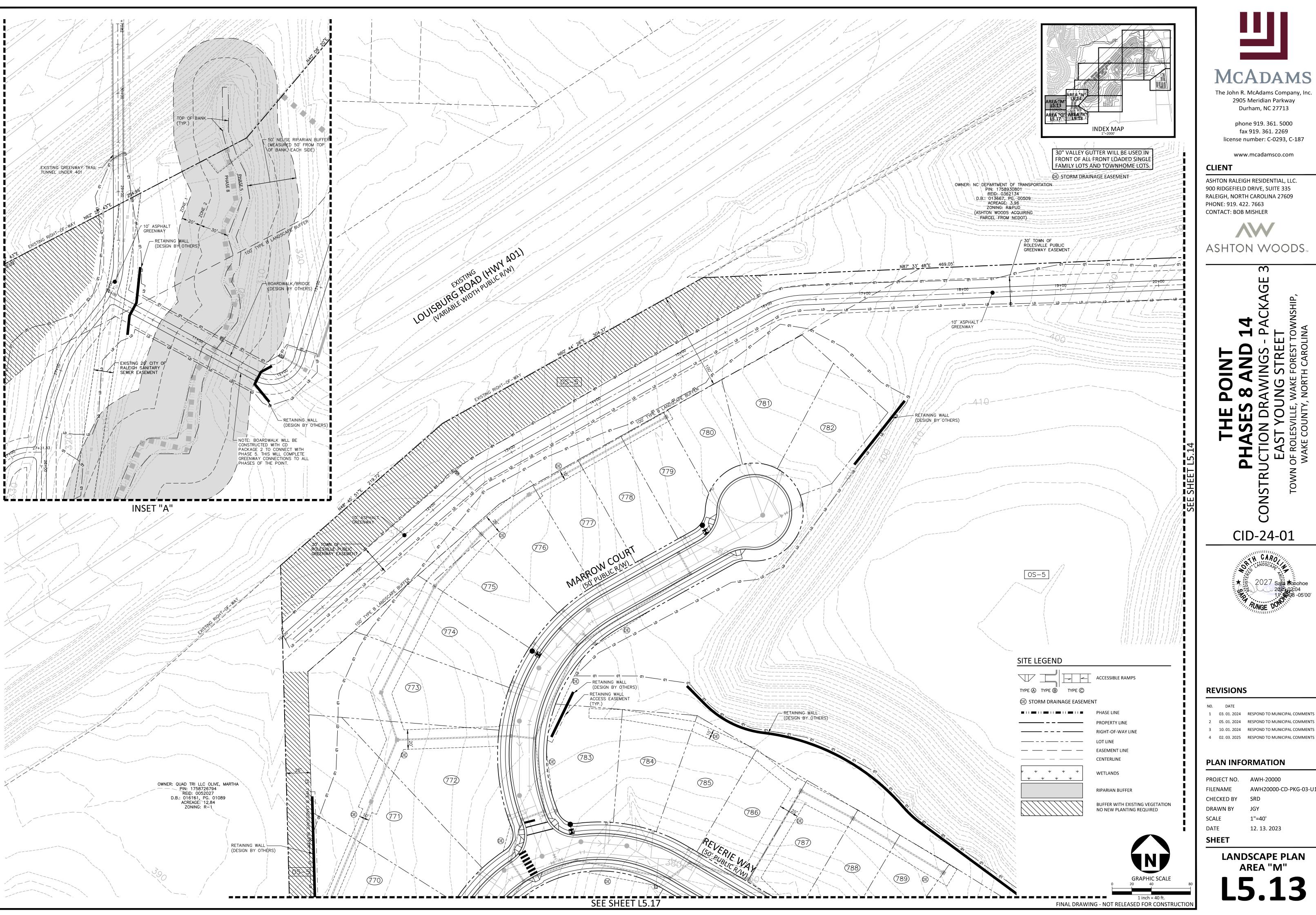
PROJECT NO. AWH-20000 FILENAME AWH20000 - SCM L CHECKED BY

DRAWN BY SCALE 12. 13. 2023

**SHEET** 

STORMWATER CONTROL IEASURE 'L' LANDSCAPE PLANS

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION





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2905 Meridian Parkway Durham, NC 27713 phone 919. 361. 5000

fax 919. 361. 2269

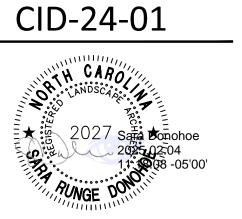
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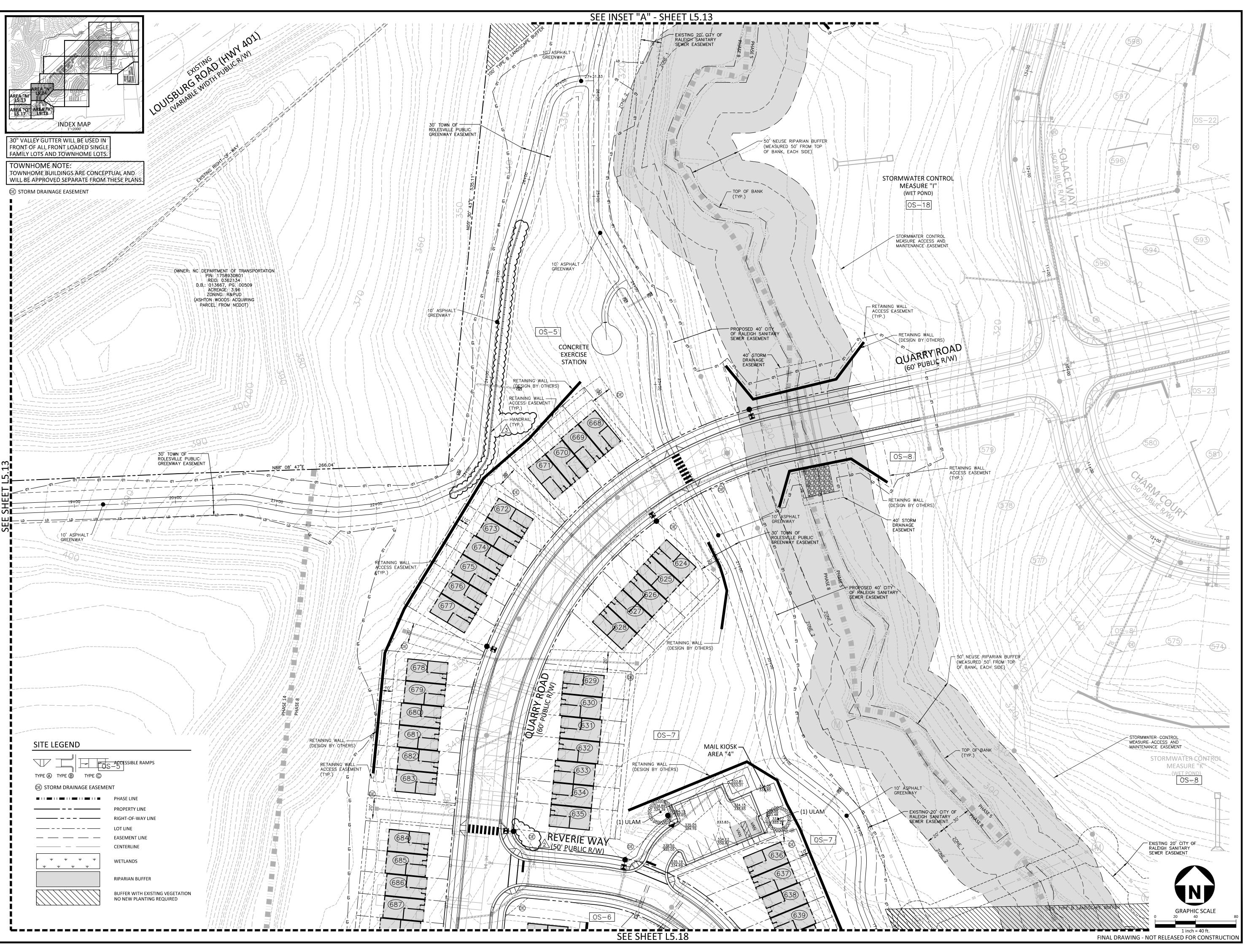
# PLAN INFORMATION

PROJECT NO. AWH-20000 AWH20000-CD-PKG-03-U1 FILENAME CHECKED BY

DRAWN BY 12. 13. 2023

DATE SHEET

> LANDSCAPE PLAN AREA "M"





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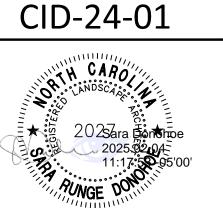
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4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

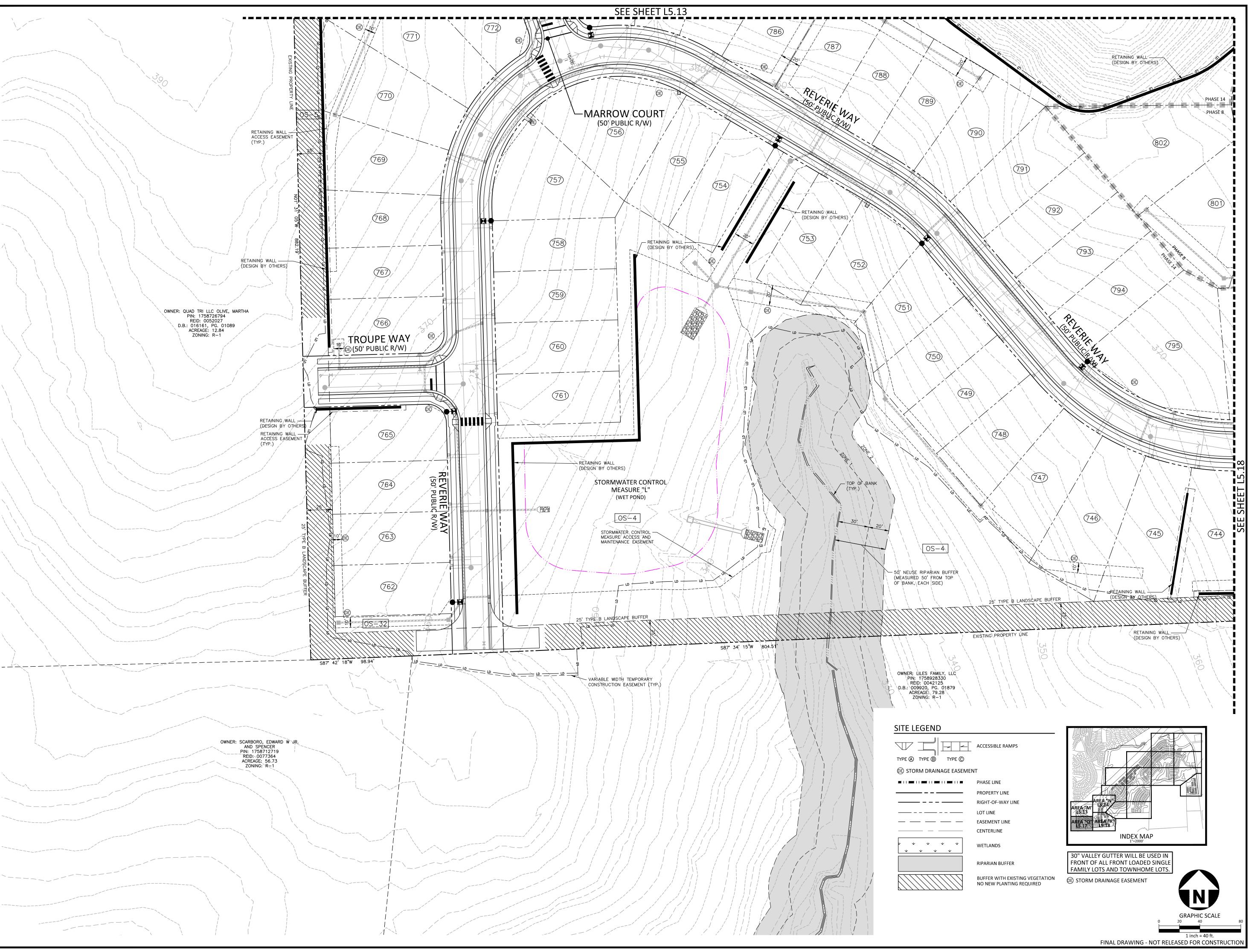
# PLAN INFORMATION

PROJECT NO. AWH-20000 AWH20000-CD-PKG-03-U1 FILENAME CHECKED BY

DRAWN BY SCALE DATE 12. 13. 2023

SHEET

LANDSCAPE PLAN AREA "N"





# McAdam

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phone 919. 361. 5000 fax 919. 361. 2269 license number: C-0293, C-187

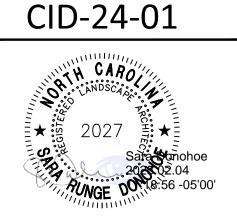
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ASHTON WOODS 30

THE POINT
ASES 8 AND 14
ON DRAWINGS - PACKAC



# REVISIONS

NO. DATE

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS
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# PLAN INFORMATION

PROJECT NO. AWH-20000

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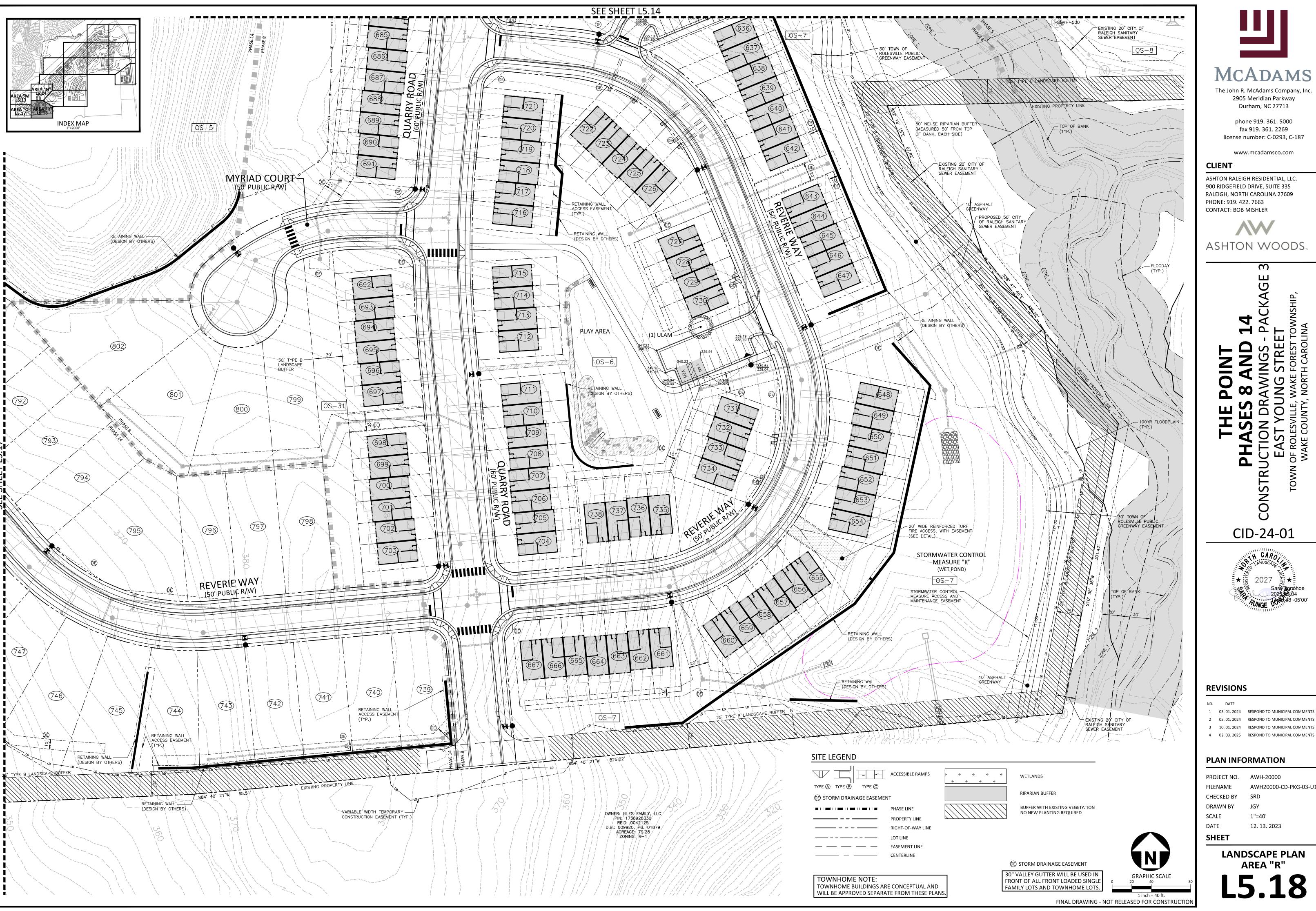
SCALE 1"=40'

DATE 12. 13. 2023

SHEET

LANDSCAPE PLAN AREA "Q"

L5.17





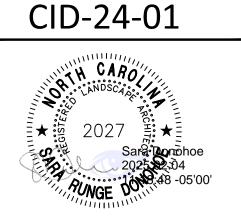
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ASHTON WOODS.



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# PLAN INFORMATION

PROJECT NO. AWH-20000 AWH20000-CD-PKG-03-U1 FILENAME

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SHEET

LANDSCAPE PLAN AREA "R"

# LANDSCAPE CALCULATIONS

# STREETSCAPE BUFFERS

E YOUNG STREET - 30' STREETSCAPE BUFFER

960 LF

1020 TOTAL LF - 60 LF DRIVEWAY

CANOPY TREES

REQUIRED: 24 (1/40 LF)

# LANDSCAPE BUFFERS

PROVIDED:

# NORTHERN/WESTERN PROPERTY (NC 401 LIMITED CONTROLLED ACCESS HWY) 587 LF 100' TYPE B LANDSCAPE BUFFER

- REQUIRED: PROVIDE AND MAINTAIN A VEGETATED BUFFER ALONG LIMITED CONTROLLED ACCESS HIGHWAYS.
- PROVIDED: SEE TYPICAL BUFFER PLANTING DETAILS THIS SHEET FOR PLANTINGS. EXISTING VEGETATION TO COUNT TOWARD BUFFER REQUIREMENT AS INDICATED ON PLAN. ALL EXISTING VEGETATION TO REMAIN UNDISTURBED WHERE APPLICABLE.
- SOUTHERN PROPERTY (ABUTTING LILES PROPERTY) 1794 LI 25' TYPE B LANDSCAPE BUFFER
- REQUIRED: PROVIDE A SEMI-OPAQUE VEGETATED BUFFER FROM THE GROUND TO AT LEAST THREE FEET WITH AT LEAST 50% EVERGREEN SPECIES.
- PROVIDED: EXISTING VEGETATION TO COUNT TOWARD BUFFER REQUIREMENT (ENTIRE BUFFER LENGTH). ALL EXISTING VEGETATION TO REMAIN UNDISTURBED IN BUFFER AREAS.
- EASTERN PROPERTY (ABUTTING LILES PROPERTY) 680 LF
  25' TYPE B LANDSCAPE BUFFER
- REQUIRED: PROVIDE A SEMI-OPAQUE VEGETATED BUFFER FROM THE GROUND TO AT LEAST THREE FEET WITH AT LEAST 50% EVERGREEN SPECIES.
- PROVIDED: EXISTING VEGETATION TO COUNT TOWARD BUFFER REQUIREMENT (ENTIRE BUFFER LENGTH). ALL EXISTING VEGETATION TO REMAIN UNDISTURBED IN BUFFER AREAS.
- 25' TYPE B LANDSCAPE BUFFER

  REQUIRED: PROVIDE A SEMI-OPAQUE VEGETATED BUFFER FROM THE GROUND TO AT LEAST THREE FEET WITH AT LEAST 50% EVERGREEN SPECIES.
- PROVIDED: EXISTING VEGETATION TO COUNT TOWARD BUFFER REQUIREMENT (ENTIRE BUFFER LENGTH). ALL EXISTING VEGETATION TO REMAIN UNDISTURBED IN BUFFER AREAS.
- PROVIDED: SEE TYPICAL BUFFER PLANTING DETAILS THIS SHEET FOR PLANTINGS.

# VEHICLE USE AREAS

REVERIE WAY MAIL KIOSK PARKING AREA (LANDSCAPE AREA "N") 14 SPACES

CANOPY TREES

REQUIRED: ALL SPACES WITHIN 60' FROM PLANTED TREE PROVIDED: 2

REVERIE WAY SOUTH PARKING AREA (LANDSCAPE AREA "R")

CANOPY TREES

REQUIRED: ALL SPACES WITHIN 60' FROM PLANTED TREE
PROVIDED: 1

WESTERN PROPERTY (ABUTTING QUAD TRI LLC PROPERTY)

# PLANT SCHEDULE

# SYMBOL CODE QTY BOTANICAL / COMMON NAME CAL

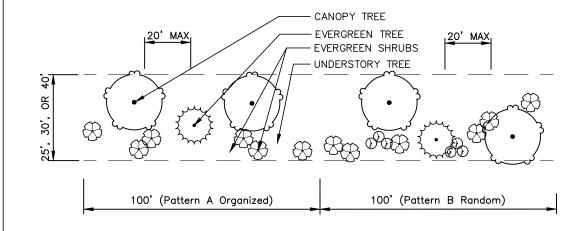
# CANOPY TREE

· S ULAM :

ULMUS AMERICANA 'PRINCETON' 2.5" MIN AMERICAN ELM

8 SPACES

# TYPICAL BUFFER PLANTING



TYPE 'B' BUFFER - 25', 30', AND

40' WIDTH

NOT TO SCALE

TYPE 'B' BUFFER
CREATE A SEMI—OPAQUE BUFFER FROM THE GROUND
UP TO A HEIGHT OF AT LEAST 3 FEET. NO
UNOBSTRUCTED OPENINGS GREATER THAN 20 FEET
BETWEEN CANOPIES OF CANOPY TREES.
50% OF SHRUBS SHALL BE EVERGREEN.

CANOPY TREE SPECIES

(INSTALLED AT 2.5" CAL., 8" HT. MIN.)

LIRIODENDRON TULIPIFERA

LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'

NYSSA SYLVATICA

QUERCUS NUTTALLII

QUERCUS PHELLOS

QUERCUS RUBRA

PLATANUS OCCIDENTALIS

ULMUS AMERICANA 'PRINCETON'

EVERGREEN TREE SPECIES

(INSTALLED AT 1.5" CAL., 8' HT. MIN.)

CEDRUS DEODORA

MAGNOLIA GRANDIFLORA

PINUS TAEDA

THUJA OCCIDENTALIS 'GREEN GIANT'

UNDERSTORY TREE SPECIES
(INSTALLED AT 1.5" CAL, 6' HT. MIN.)
CARPINUS CAROLINIANA
CERCIS CANADENSIS

CHIONANTHUS RETUSUS
CORNUS 'SPP'
ILEX OPACA 'CAROLINA #2'
ILEX X EMILY BRUNER'
ILEX VOMITORIA
JUNIPERUS VIRGINIANA
PISTACHIA CHINENSIS

VIBURNUM AWABUKI VIBURNUM DENTATUM

# CANOPY TREE EVERGREEN TREE EVERGREEN SHRUBS GREENWAY IN PUBLIC GREENWAY EASEMENT

TYPE 'B' BUFFER - 100' WIDTH

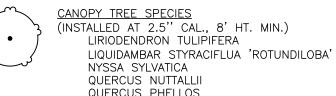
TYPE 'B' BUFFER
CREATE A SEMI—OPAQUE BUFFER FROM THE GROUND
UP TO A HEIGHT OF AT LEAST 3 FEET. NO
UNOBSTRUCTED OPENINGS GREATER THAN 20 FEET
BETWEEN CANOPIES OF CANOPY TREES.
50% OF SHRUBS SHALL BE EVERGREEN.

NOTE: TO MAINTAIN SPECIES DIVERSITY, NO SINGLE TREE OR SHRUB SPECIES SHOULD EXCEED 20% OF OVERALL QUANTITIES.

TO MAINTAIN SPECIES DIVERSITY, NO

SINGLE TREE OR SHRUB SPECIES

SHOULD EXCEED 20% OF OVERALL



NYSSA SYLVATICA
QUERCUS NUTTALLII
QUERCUS PHELLOS
QUERCUS RUBRA
PLATANUS OCCIDENTALIS
ULMUS AMERICANA 'PRINCETON'

EVERGREEN TREE SPECIES

(INSTALLED AT 1.5" CAL., 8" HT. MIN.)

CEDRUS DEODORA

MAGNOLIA GRANDIFLORA

PINUS TAEDA

THUJA OCCIDENTALIS 'GREEN GIANT'

UNDERSTORY TREE SPECIES
(INSTALLED AT 1.5" CAL, 6' HT. MIN.)
CARPINUS CAROLINIANA
CERCIS CANADENSIS
CHIONANTHUS RETUSUS
CORNUS 'SPP'
ILEX OPACA 'CAROLINA #2'
ILEX X EMILY BRUNER'
ILEX VOMITORIA
JUNIPERUS VIRGINIANA
PISTACHIA CHINENSIS
VIBURNUM AWABUKI
VIBURNUM DENTATUM

EVERGREEN SHRUB SPECIES

(INSTALLED AT 36" HT. MIN.)

CALLICARPA AMERICANA

ILEX CORNUTA 'NEEDLEPOINT'

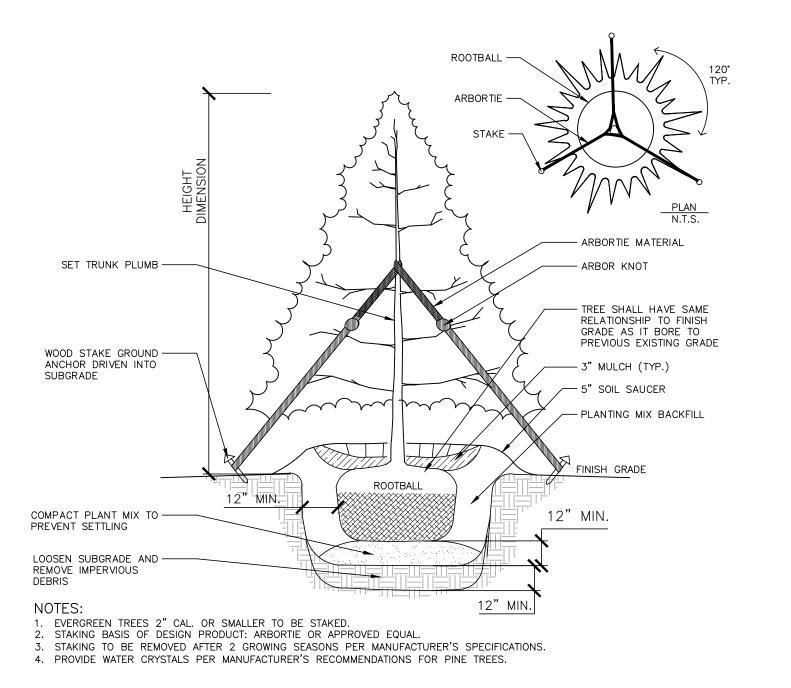
ILEX GLABRA 'NIGRA'

ILEX CRENATA 'COMPACTA'

AZALEA HYBRIDS

ILLICIUM PARVIFOLIUM
MYRICA SP.
ILEX VOMITORIA 'NANA'
CAMELLIA SASANQUA
OSMANTHUS X FORTUNEI
PRUNUS CAROLINIANA
HYDRANGEA MACROPHYLLA

# TRUNK FLARE AND TOP OF ROOT BALL SHOULD BE 2" ABOVE INSING OF PLANTING HOLE SHALL DAMETER IN HIGHLY COMPACTED OR CLAY SOL, 2 TIMES THE STEEL AND STARES IN HEAD CLAY SOL, WITH DRIP OR CLAY SOL, 2 TIMES THE ROOT BALL DAMETER IN HIGHLY COMPACTED OR CLAY SOL, 2 TIMES THE STEEL AND SOL BEST TO RECEIVE AND SOLD TO RECEIVE AND SOLD

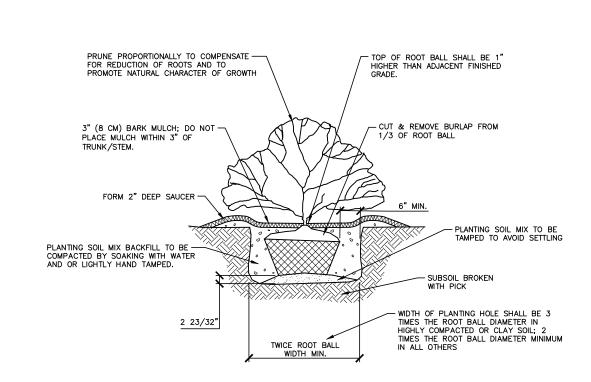


# Robinia Embankment Slide | Company | Company

# MAINTENANCE NOTES:

- 1. WARRANTY: INSTALLER SHALL REPAIR OR REPLACE ANY PLANTINGS THAT FAIL IN MATERIALS, WORKMANSHIP, OR GROWTH WITHIN ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
  - DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE, NEGLECT, ABUSE BY OWNER, OR INCIDENTS THAT ARE BEYOND CONTRACTOR'S CONTROL.
     STRUCTURAL FAILURES INCLUDING PLANTINGS FALLING OR BLOWING
- 2. THE OWNER OF THE PROPERTY AND THEIR AGENTS, HEIRS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION AND MAINTENANCE OF ALL PLANTINGS AND PHYSICAL FEATURES ON THIS PLAN. FAILURE TO MAINTAIN ALL PLANTINGS IN ACCORDANCE WITH THIS PLAN MAY CONSTITUTE A VIOLATION OF THIS ORDINANCE AND MAY RESULT IN FINES.
- THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE VEGETATION,
- INCLUDING BUT NOT LIMITED TO:FERTILIZATION
- PRUNING WITHIN LIMITS
- PEST CONTROLMULCHING
- MOWING
  PROTECTION OF THE ROOT ZONES FROM EQUIPMENT, CONSTRUCTION
- AND RELATED MATERIALS, ETC.

   METHOD OF IRRIGATION
- OTHER CONTINUING MAINTENANCE OPERATIONS



# **GENERAL LANDSCAPE NOTES:**

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF ROLESVILLE AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
- 2. CONTRACTOR IS RESPONSIBLE FOR THE SITE INSPECTION BEFORE LANDSCAPE CONSTRUCTION AND INSTALLATION IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS.
- 3. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE BEGINNING DEMOLITION OR INSTALLATION.
- 4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE NOTES, SPECIFICATIONS, DRAWINGS OR SITE CONDITIONS FOR RESOLUTION PRIOR TO INSTALLATION.
- 5. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 6. VERIFICATION OF TOTAL PLANT QUANTITIES AS SHOWN IN THE PLANT SCHEDULE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCRPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
- 13. SUBSTITUTIONS OF SPECIFIC PLANTS CAN ONLY OCCUR WITH PRIOR WRITTEN PERMISSION OF BOTH OWNER AND LANDSCAPE ARCHITECT.
- 14. CONTRACTOR TO ENSURE PROPER STABILIZATION AND SEEDING OF THE SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.
- 15. LANDSCAPE MATERIAL SHALL BE WELL FORMED, VIGOROUS, GROWING SPECIMENS WITH GROWTH TYPICAL OF VARIETIES SPECIFIED AND SHALL BE FREE FROM DAMAGE, INSECTS AND DISEASES. MATERIAL SHALL EQUAL OR SURPASS #1 QUALITY AS DEFINED IN THE CURRENT ISSUE OF "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY AMERICAN HORT AMERICANHORT.ORG.
- 16. ALL PLANT MATERIAL IS TO BE CAREFULLY HANDLED BY THE ROOT BALL, NOT THE TRUNK, BRANCHES AND/OR FOLIAGE OF THE PLANT. MISHANDLED PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT.
- 17. ALL PLANT MATERIAL IS TO BE WELL ROOTED, NOT ROOT BOUND, SUCH THAT THE ROOT BALL REMAINS INTACT THROUGHOUT THE PLANTING PROCESS. DEFICIENT PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
- 18. ALL PLANTS TO BE A MINIMUM OF WHAT IS SPECIFIED IN THE PLANT SCHEDULE. ANY CHANGES OR SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND GOVERNING JURISDICTION PRIOR TO ANY HOLE BEING DUG.
- 19. ALL TREES MUST BE PLANTED AFTER OCTOBER 1 AND BEFORE MARCH 31.20. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AND LANDSCAPE

ARCHITECT TO ESTABLISH THE EXTENTS OF MULCH/SEED/SOD IF NOT SPECIFICALLY

SHOWN ON PLANS.

21. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE IN ALL PLANTING AREAS.

MEASURED FROM TRUNK OF THE TREE TO THE POLE.

- 22. PROPOSED TREES TO BE PLANTED A MINIMUM 15 FEET FROM ANY LIGHT POLE AS
- 23. PROPOSED TREES TO BE PLANTED A MINIMUM 5 FEET FROM ANY FIRE HYDRANT AS MEASURED FROM TRUNK OF THE TREE TO THE HYDRANT.
- 24. ALL TREE PLANTINGS SHALL BE MULCHED WITH 3 INCHES OF SHREDDED BARK OR 4 INCHES OF PINE STRAW IN A 3 FOOT RADIUS AROUND THE TREE, OR TO THE DRIPLINE, WHICHEVER IS GREATER. THE MULCH SHALL BE FREE OF TRASH AND MAINTAINED WEED FREE THEREAFTER. MULCH SHALL NOT COVER THE ROOT COLLAR.

# McAdams

2905 Meridian Parkway Durham, NC 27713

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# CLIENT

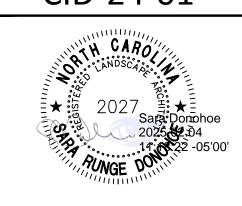
ASHTON RALEIGH RESIDENTIAL, LLC. 900 RIDGEFIELD DRIVE, SUITE 335 RALEIGH, NORTH CAROLINA 27609 PHONE: 919. 422. 7663 CONTACT: BOB MISHLER



AGE 3

PHASES 8 AND 14
CONSTRUCTION DRAWINGS - PA
EAST YOUNG STREET
TOWN OF ROLESVILLE, WAKE FOREST TOW

CID-24-01



# REVISIONS

NO. DATE

1 03. 01. 2024 RESPOND TO MUNICIPAL COMMENTS
2 05. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

3 10. 01. 2024 RESPOND TO MUNICIPAL COMMENTS

4 02. 03. 2025 RESPOND TO MUNICIPAL COMMENTS

# PLAN INFORMATION

PROJECT NO. AWH-20000
FILENAME AWH20000-CD-PKG-03-U1

CHECKED BY SRD

DRAWN BY JGY

SCALE 1"=40'

DATE SHEET

NOTES

12. 13. 2023