Stormwater Control Measure's (SCM)

Inspection & Maintenance

Thomas Moore
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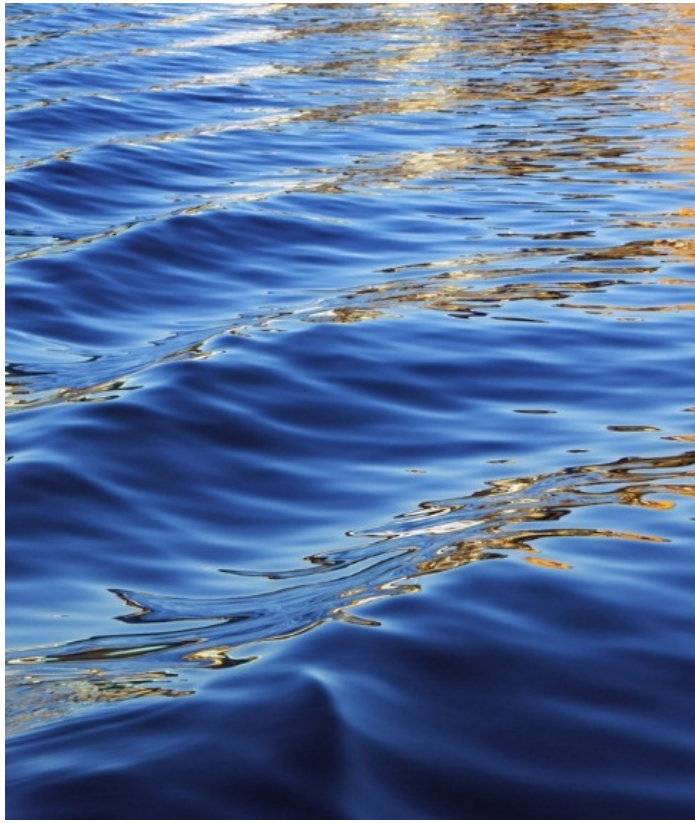
G2 Design P.A

Part I:
Common SCM
Constructability Issues



Pipe & Structure Joints

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Symptom

Part I: Common SCM Constructability Issues
Pipe & Structure Joints

The Cause

- Improper pipe alignment
- Improper subgrade or footing
- Joint not wrapped externally (waterproofed)
- Joint not grouted internally
- No early detection of the issue (lack of routine maintenance)

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Symptom

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Cause

- Joint infiltration
- Soil piping
- Improper pipe alignment
- Improper compaction
- Joint's not waterproofed (wrapped externally or grouted internally)

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Symptom

- Low permanent pool elevation
- Water discharging at the outlet while pond is below normal pool

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Cause

- Improper grout type
- Pipe penetration not grouted internally & externally properly
- Stacking joint not waterproofed

Part I: Common SCM Constructability Issues

Pipe & Structure Joints

The Cause

- Outlet pipe joint infiltration
- Joint's not waterproofed (wrapped externally or grouted internally)
- Improper pipe alignment
- Improper dam compaction

Stone Dissipater's

Part I: Common SCM Constructability Issues

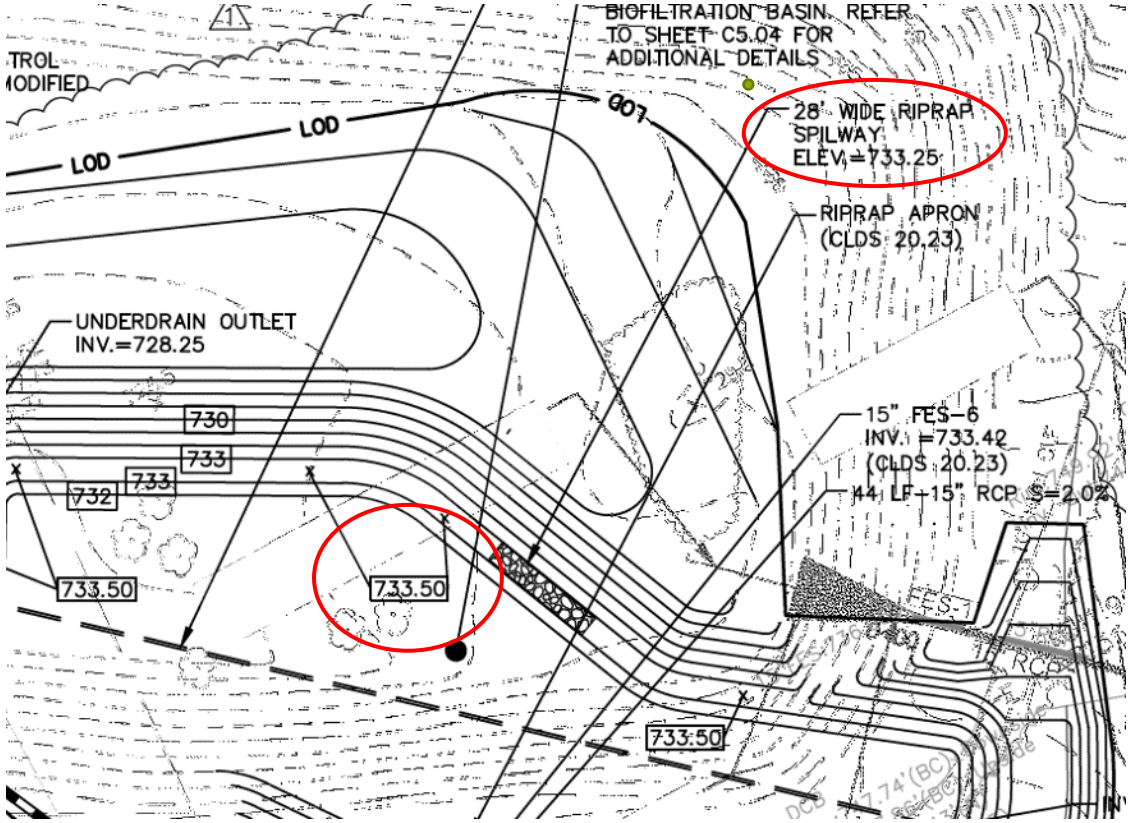
Stone Dissipater's

The Symptom

Part I: Common SCM Constructability Issues

Stone Dissipater's

The Cause



- Stone (rip rap) laid flat; not concave
- 6"-17" size stone laid within 4" grade creating an elevated spillway
- Stone should be recessed into the dam in a concave profile to prevent by-pass

Part I: Common SCM Constructability Issues

Stone Dissipater's

The Symptom

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The Symptom

Part I: Common SCM Constructability Issues

Stone Dissipater's

The Cause

- Fabric not folded and tucked properly beneath the outlet flared end section (FES)

Part I: Common SCM Constructability Issues

Stone Dissipater's

The Cause

- Fabric not folded and tucked properly beneath the outlet flared end section (FES)
- Lack of supplemental anchoring for steep slopes

  -Metal posts, concrete slurry, hog wire, gabion baskets

Perennial Turf Establishment

Part I: Common SCM Constructability Issues

Perennial Turf Establishment

The Symptom

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Perennial Turf Establishment

The Cause

EROSION CONTROL NOTES

SEDIMENT & EROSION CONTROL NARRATIVE
THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND ANY ADJACENT WETLAND AREA AND ANY ADJACENT WATER COURSE FROM SEDIMENT LADEN SURFACE RUNOFF AND EROSION. A CONSTRUCTION SEQUENCE IS PROVIDED TO PROVIDE SURFACE RUNOFF EROSION CONTROLS PRIOR TO THE BEGINNING OF PROJECT DEMOLITION AND/OR CONSTRUCTION.

CONSTRUCTION SCHEDULE
THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS MARCH 2017 WITH COMPLETION ANTICIPATED NOVEMBER 2017. APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES AS DESCRIBED HEREIN SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL DEMOLITION OR CONSTRUCTION ACTIVITY. SCHEDULE WORK TO MINIMIZE THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED.

CONTINGENCY EROSION PLAN
THE CONTRACTOR SHALL INSTALL ALL SPECIFIED SEDIMENT AND EROSION CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE AGENTS OF THE CITY (IF CHARLOTTE AND/OR CIVIL ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

CONSTRUCTION SEQUENCE
THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:
1. CONTACT MUNICIPALITY AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT.
2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE MUNICIPALITY AGENT PRIOR TO THE START OF WORK ON THE SITE. INSTALL TREE PROTECTION AND PERIMETER SILT FENCE.
3. CONSTRUCT STONE CONSTRUCTION ENTRANCE AT CONSTRUCTION ENTRANCES/EXITS AND INSTALL FILTER FABRIC AROUND GRATES OF CATCH BASINS OR INSTALL SILT SACKS ON CATCH BASIN INLETS ON OFF SITE ROADS. INSTALL SILT FENCE AND OTHER EROSION CONTROL DEVICES INDICATED ON THESE PLANS AT PERIMETER OF PROPOSED SITE DISTURBANCE AND INSTALL ALL EROSION CONTROL MEASURES AND TREE PROTECTION INDICATED ON THESE PLANS. INSTALL SEDIMENT BASINS AND SEDIMENT TRAPS IF REQUIRED AT LOW AREAS OF SITE OR AS ORDERED BY THE ENGINEER OR AS SHOWN ON THESE PLANS.
4. CLEAR AND GRUB SITE. STOCKPILE CHIPS. STOCKPILE TOPSOIL. INSTALL SEDIMENT AND EROSION CONTROLS AT STOCKPILES.
5. BUILDING AND SITE DEMOLITION AND REMOVAL PAVEMENT REMOVAL.
6. INSTALL SILT FENCE, CONSTRUCT DIVERSION SWALES AND SEDIMENT BASINS. COMMENCE INSTALLATION OF STORM DRAINAGE SYSTEM.
7. COMMENCE EARTHWORK. CONSTRUCT FILL SLOPE AND RETAINING WALLS. INSTALL ADDITIONAL SEDIMENT AND EROSION CONTROLS AS WORK PROGRESSES AND CONTINUE STORM DRAINAGE SYSTEM CONSTRUCTION. TOPSOIL AND SEED SLOPES WHICH HAVE ACHIEVED FINAL SITE GRADING.
8. EXCAVATE DETENTION BASIN EXPANSION WORKING FROM WEST TO EAST WHILE MAINTAINING BERM SEPERATION BETWEEN EXISTING POND / POND WATER AND WORK AREA. STABILIZE NEW EMBANKMENT BEFORE EXCAVATING REMAINING BERM AND LINKING POND EXPANSION AREA TO EXISTING POND.
9. CONSTRUCTION STAKING OF ALL UTILITIES, ACCESS DRIVES, AND PARKING AREAS.
10. ROUGH GRADING AND FILLING OF SUBGRADES AND SLOPES.
11. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
12. BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE CONTRACTOR MUST PROVIDE EVIDENCE THAT EACH SPOIL OR BORROW AREA HAS A SEDIMENT AND EROSION CONTROL PLAN APPROVED BY THE MUNICIPALITY AND WHICH IS BEING IMPLEMENTED AND MAINTAINED. THE CONTRACTOR SHALL ALSO NOTIFY THE MUNICIPALITY IN WRITING OF ALL RECEIVING SPOIL AND BORROW AREAS WHEN THEY HAVE BEEN IDENTIFIED.
13. CONTINUE INSTALLATION OF STORM DRAINAGE AS SUBGRADE ELEVATIONS ARE ACHIEVED.
14. THROUGHOUT CONSTRUCTION SEQUENCE, REMOVE SEDIMENT FROM BEHIND SILT FENCES, HAY BALES AND OTHER EROSION CONTROL DEVICES, AND FROM SEDIMENT BASINS AS REQUIRED. REMOVAL SHALL BE ON A PERIODIC BASIS (EVERY SIGNIFICANT RAINFALL OF 0.25 INCH OR GREATER). INSPECTION OF SEDIMENT AND EROSION CONTROL MEASURES SHALL BE ON A WEEKLY BASIS AND AFTER EACH RAINFALL OF 0.25 INCHES OR GREATER. SEDIMENT COLLECTED SHALL BE DEPOSITED AND SPREAD EVENLY UPLAND ON SLOPES DURING CONSTRUCTION.
15. INSTALL UTILITIES. COMPLETE STORM DRAINAGE SYSTEM.
16. INSTALL SITE LIGHTING.
17. COMPLETE GRADING TO SUBGRADES AND CONSTRUCT PARKING AREA SUBGRADE.
18. CONSTRUCT CURBS, PAVEMENT STRUCTURE AND SIDEWALKS.
19. CONDUCT FINE GRADING.
20. CONSTRUCT OFF SITE ROADWAY IMPROVEMENTS.
21. PAVING OF PARKING AREAS AND DRIVEWAYS.
22. FINAL FINE GRADING OF SLOPE AND NON-PAVED AREAS.
23. PLACE 4" TOPSOIL ON SLOPES AFTER FINAL GRADING IS COMPLETED. FERTILIZE SEED AND MULCH. SEED MIXTURE TO BE INSTALLED APRIL 1– JUNE 15 OR AUGUST 15–OCTOBER 15 USE EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED FOR SLOPES GREATER THAN 3:1 AND AS SHOWN ON LANDSCAPE PLANS OR EROSION CONTROL PLANS. FOR TEMPORARY STABILIZATION BEYOND SEEDING DATES USE ANNUAL RYE AT 4.0 LBS/1,000 S.F. FERTILIZE WITH 10–10–10 AT 1.0 LBS. OF NITROGEN PER 1,000 S.F. AND LIME AT 100 LBS/1,000 S.F. (MAX.).
24. LANDSCAPE ISLANDS, INTERIOR NON–PAVED AREAS, AND PERIMETER AREAS.
25. INSTALL SIGNING AND PAVEMENT MARKINGS
26. CLEAN STORM DRAINAGE PIPE STRUCTURES, DETENTION SYSTEMS AND WATER QUALITY DEVICES OF DEBRIS AND SEDIMENT.
27. UPON DIRECTION OF THE MUNICIPALITY AGENT, SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED FOLLOWING STABILIZATION OF THE SITE.

OPERATION REQUIREMENTS

CLEARING AND GRUBBING OPERATIONS
1. ALL SEDIMENT AND EROSION CONTROL MEASURES, INCLUDING THE CONSTRUCTION OF TEMPORARY SEDIMENTATION BASINS AND STONE CONSTRUCTION ENTRANCE, WILL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.
2. FOLLOWING INSTALLATION OF ALL SEDIMENT AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL NOT PROCEED WITH GRADING, FILLING OR OTHER CONSTRUCTION OPERATIONS UNTIL THE ENGINEER HAS INSPECTED AND APPROVED ALL INSTALLATIONS.
3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CLEARING AND GRUBBING OPERATIONS SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR SEDIMENT AND EROSION CONTROL DEVICES.
4. FOLLOWING THE COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ALL AREAS SHALL BE STABILIZED WITH TOPSOIL AND SEEDING OR CRUSHED STONE AS SOON AS PRACTICAL.

ROUGH GRADING OPERATIONS

1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE GRADING PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.
2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH HAY, AND ENCLOSED BY A SILTATION FENCE.

FILLING OPERATIONS

1. PRIOR TO FILLING, ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THIS PLAN.
2. ALL FILL MATERIAL ADJACENT TO ANY WETLAND AREAS, IF APPLICABLE TO THIS PROJECT, SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN LIFT THICKNESSES NOT GREATER THAN THAT SPECIFIED IN PROJECT SPECIFICATIONS AND/OR THE PROJECT GEOTECHNICAL REPORT. LIFTS SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS OR IN THE GEOTECHNICAL REPORT.
3. AS GENERAL GRADING OPERATIONS PROGRESS, ANY TEMPORARY DIVERSION DITCHES SHALL BE RAISED OR LOWERED, AS NECESSARY, TO DIVERT SURFACE RUNOFF TO THE SEDIMENT BASINS OR SEDIMENT TRAPS.

PLACEMENT OF DRAINAGE STRUCTURES AND UTILITIES CONSTRUCTION OPERATIONS.

1. SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF EXCAVATIONS, MUD PUMP DISCHARGES, AND UTILITY TRENCH MATERIAL STOCKPILES. HAY BALES/STRAW BALES MAY BE USED IF SHOWN ON THE SEDIMENT AND EROSION CONTROL PLANS OR IF DIRECTED BY THE CIVIL ENGINEER.

FINAL GRADING AND PAVING OPERATIONS

1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS SHOWN ON SEDIMENT AND EROSION CONTROL PLANS AND DETAILS, AND AS DESCRIBED IN SPECIFICATIONS AND AS DESCRIBED HEREIN.
2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, OR JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND ANY ROAD OR DRIVEWAY SHOULDER AND BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.
3. PAVEMENT SUB–BASE AND BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB–GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEMS HAVE BEEN INSTALLED.
4. AFTER CONSTRUCTION OF PAVEMENT, TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING, REMOVE ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE IS STABLE AND HAS BEEN INSPECTED AND APPROVED BY THE MUNICIPALITY AGENT.

INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES

I. SILTATION FENCE
A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION.
B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE POST AT LEAST 2 FEET INTO THE GROUND.
C. LAY THE BOTTOM EIGHT INCHES OF THE FABRIC INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUN–OFF.
D. BACKFILL THE TRENCH AND COMPACT.

I. HAY BALES/STRAW BALES
A. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PARALLEL TO THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
B. BALES SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR INCHES. AFTER THE BALES ARE STAKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER.
C. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES.
D. THE GAPS BETWEEN BALES SHALL BE WEDGED WITH STRAW TO PREVENT WATER LEAKAGE.
E. THE BARRIER SHALL BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE, TO ENSURE THAT RUN–OFF WILL FLOW EITHER THROUGH OR OVER THE BARRIER, BUT NOT AROUND IT.

OPERATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES
I. SILTATION FENCE
A. ALL SILTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.
B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY EXCEED A HEIGHT OF ONE FOOT.

I. HAY BALES/STRAW BALES
A. ALL HAY BALE/STRAW BALE RINGS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE PROMPTLY MADE AS NEEDED.
B. DEPOSITS SHALL BE REMOVED AND CLEANED–OUT IF ONE HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.

II. SEDIMENT BASINS/SEDIMENT TRAPS
A. CONTRACTOR TO KEEP WEEKLY CHECKLIST LOGS FOR INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL DEVICES AND MAKE THEM READILY AVAILABLE ON–SITE AT ALL TIMES FOR INSPECTION BY NC DEQ, LOCAL AUTHORITIES OR ENGINEER.
B. ALL SEDIMENT BASINS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF SLOPES SHALL BE PROMPTLY MADE AS NEEDED.
C. SEDIMENT DEPOSITS SHALL BE REMOVED FROM SEDIMENT BASINS WHEN THEY EXCEED A HEIGHT OF ONE FOOT UNLESS OTHERWISE INDICATED ON THE EROSION CONTROL PLANS AND DETAILS TO BE AT A SPECIFIC ELEVATION PER CLEAN OUT MARKERS.
D. SEDIMENT SHALL BE DISPOSED OF ON–SITE OR AS DIRECTED BY THE ENGINEER AND LOCAL GOVERNING OFFICIALS. SEE SEDIMENT AND EROSION CONTROL NOTES HEREIN REGARDING DISPOSAL REQUIREMENTS FOR OFF SITE SPOIL DISPOSAL.

SEDIMENT AND EROSION CONTROL PLAN
1. HAY BALE/STRAW BALE FILTERS WILL BE INSTALLED AT ALL CULVERT OUTLETS IF CULVERT OUTLETS ARE APPLICABLE TO THIS PROJECT AND SILTATION FENCE INSTALLED ALONG THE TOE OF ALL CRITICAL CUT AND FILL SLOPES.
2. CULVERT DISCHARGE AREAS WILL BE PROTECTED WITH RIP RAP CHANNELS. ENERGY DISSIPATORS WILL BE INSTALLED AS SHOWN ON THESE PLANS AND AS NECESSARY.
3. CATCH BASINS WILL BE PROTECTED WITH HAY BALE/STRAW BALE FILTERS, SILT SACKS, SILTATION FENCE, OR OTHER INLET PROTECTION DEVICES PER DETAILS, THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
4. ALL SEDIMENT AND EROSION CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE NC DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL LATEST EDITION.
5. SEDIMENT AND EROSION CONTROL MEASURES WILL BE INSTALLED PRIOR TO DEMOLITION AND/OR CONSTRUCTION WHENEVER POSSIBLE.
6. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE DEMOLITION AND CONSTRUCTION PERIOD UNTIL THE SITE IS DETERMINED TO BE STABILIZED BY THE AUTHORITY HAVING JURISDICTION.
7. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED OR AS DIRECTED BY THE CIVIL ENGINEER OR BY THE AUTHORITY HAVING JURISDICTION.
8. SEDIMENT REMOVED FROM EROSION CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT AND REQUIREMENTS OF THE SEDIMENTATION AND EROSION CONTROL PLANS, NOTES, AND DETAILS.
9. FEDEX GROUND ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS SEDIMENTATION AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFICATION OF THE MUNICIPALITY AGENT OR AUTHORITY HAVING JURISDICTION OF ANY TRANSFER OF THIS RESPONSIBILITY AND FOR CONVEYING A COPY OF THE SEDIMENTATION AND EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.

SEDIMENT AND EROSION CONTROL NOTES
1. THE SEDIMENTATION AND EROSION CONTROL PLAN IS ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL TREATMENT FOR THIS SITE. SEE SEDIMENT AND EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.
2. FEDEX GROUND IS RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN, AND CAN BE REACHED AT (412)859–2563. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND

- SOIL PREPARATION!

  -Not following erosion control/seeding guidelines

Part I: Common SCM Constructability Issues
Perennial Turf Establishment

The Cause

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP.
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. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
5. SEED ON A FRESHLY PREPARED SEEDBED AND COVER
6. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
7. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES. SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.

* SEE SEASONAL APPLICATION SCHEDULE

NOTE: ALL POND BERMS AND INTERIOR POND AREAS WILL REQUIRE A HEALTHY STAND OF GRASS ON A MINIMUM OF 85% OF THE TOTAL AREA AT THE TIME THE CERTIFICATION PACKAGE IS SUBMITTED TO THE CITY. THE SCM'S WILL NOT RECEIVE FINAL CERTIFICATION UNTIL THIS REQUIREMENT HAS BEEN MET.

"the many plans that specify retrofitting a layer of topsoil on slopes/dam upon permanent pond conversion are almost universally ignored"

-Marc Burke – EDGE Environmental

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Perennial Turf Establishment

The Cause

- SOIL PREPARATION!
  - -Not following erosion control/seeding guidelines
  - -Highly compacted

Part I: Common SCM Constructability Issues
Perennial Turf Establishment

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- SOIL PREPARATION!
  - -Not following erosion control/seeding guidelines
  - -Highly compacted
  - - Soil not amended

Part I: Common SCM Constructability Issues
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- POOR IMPLEMENTATION
  - -Wheat straw instead of matting leading to wash out

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  - - Seeding method: plug core aerator instead of tilling and broadcast spreader

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  - -Wheat straw instead of matting leading to wash out
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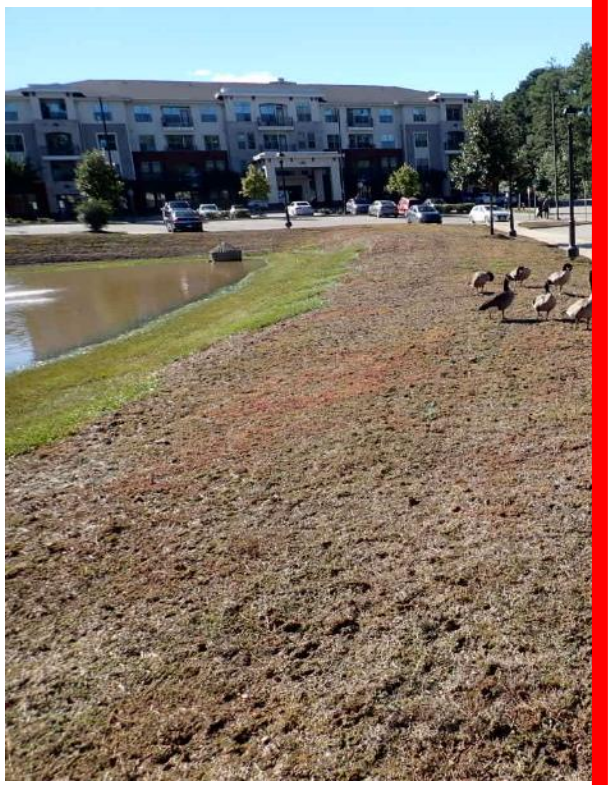
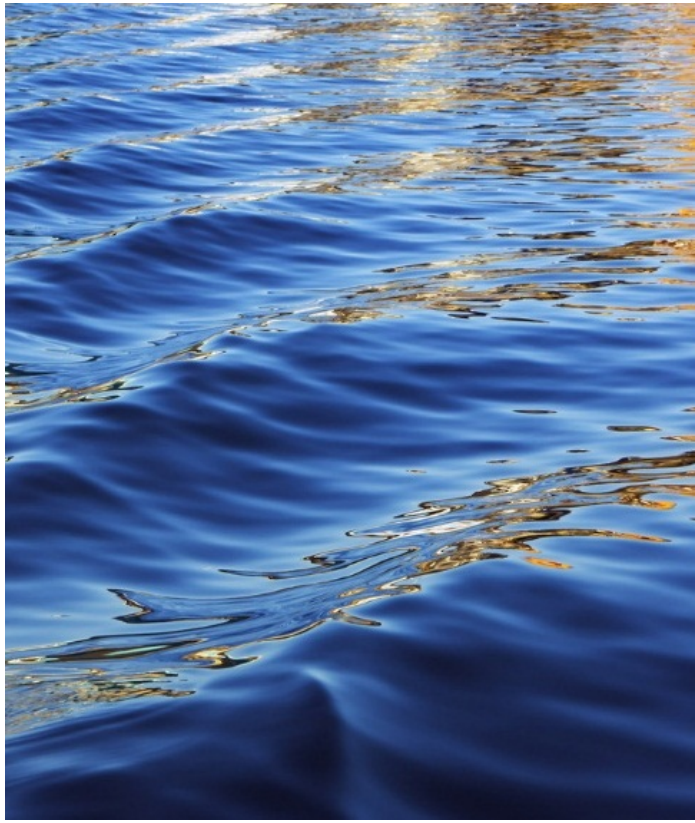


Part II:
Common SCM
Maintenance Issues



Vegetative Maintenance

Part II: Common SCM Maintenance Issues
Vegetative Maintenance

Mowing

- Lack of comprehensive mowing; side slopes, dam, inlet's, outlets, easements
- Over mowing of littoral shelves
- Mowing of riparian areas
- Scalping of dam and side slopes
- Infrequency of mowing leading to heavy detritus

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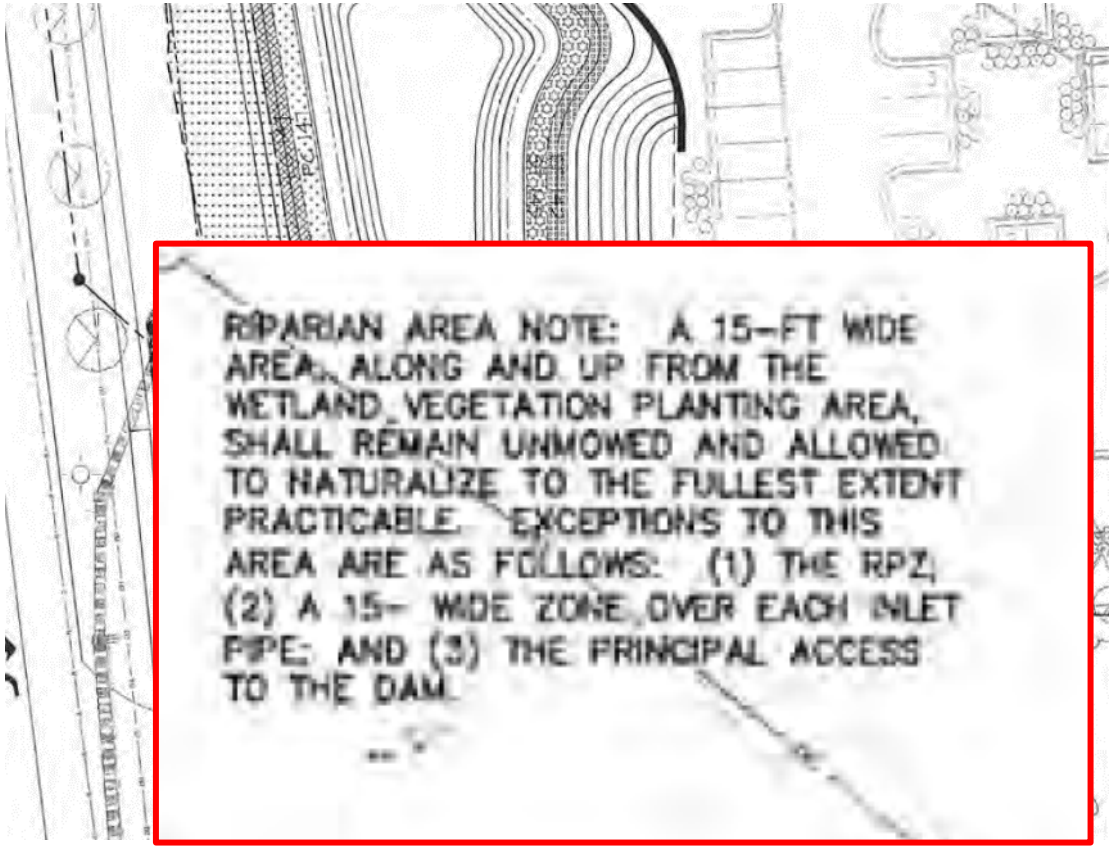

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- Over mowing of littoral shelves
- Mowing of riparian areas
- Scalping of dam and side slopes & Improper mowing patterns
- Infrequency of mowing leading to heavy detritus

Part II: Common SCM Maintenance Issues

Vegetative Maintenance

Mowing

- Lack of comprehensive mowing; side slopes, dam, inlet's, outlets, easements
- Over mowing of littoral shelves
- Mowing of riparian areas
- Scalping of dam and side slopes & Improper mowing patterns
- Infrequency of mowing leading to heavy detritus

Invasive Weed Control

Part II: Common SCM Maintenance Issues

Invasive Weed Control

Aquatic Invasive Vegetation

- Cattails & Black Willows are the most common offenders

Part II: Common SCM Maintenance Issues

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Maintaining Normal Pool

Part II: Common SCM Maintenance Issues
Maintaining Normal Pool

Obstructed Orifices or Outlets

- Elevated pond level leads to decreased storage capacity
- Damage to littoral shelf plantings
- "Burn out" of pond perimeter

Part II: Common SCM Maintenance Issues

Maintaining Normal Pool

Obstructed Orifices or Outlets

Part II: Common SCM Maintenance Issues

Maintaining Normal Pool

Obstructed Orifices or Outlets

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Maintaining Normal Pool

Obstructed Orifices or Outlets

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Maintaining Normal Pool

Obstructed Orifices or Outlets

Part II: Common SCM Maintenance Issues
Maintaining Normal Pool

Valve Left Open

- Emergency valve left after final construction
- No maintenance in place; pond sits dry for entire first year

Part II: Common SCM Maintenance Issues

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Valve Left Open

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- No maintenance in place; pond sits dry for entire first year

Part II: Common SCM Maintenance Issues

Maintaining Normal Pool

Draw Down Orifice Issues

- Installed but grouted or covered over

Part II: Common SCM Maintenance Issues

Maintaining Normal Pool

Draw Down Orifice Not Installed

- Installed but grouted or covered over
- Installed but "capped"

Stormwater Control Measure's (SCM)

Inspection & Maintenance

Thomas Moore
Senior Stormwater Inspector
G2 Design P.A