Total Maximum Daily Load Evaluation for Forty-Nine Stream Segments in the Coosa River Basin for Sediment

(Biota Impacted)

Submitted to:

The U.S. Environmental Protection Agency
Region 4
Atlanta, Georgia

Submitted by:
The Georgia Department of Natural Resources
Environmental Protection Division
Atlanta, Georgia

January 2009

SUMMARY MEMORANDUM
Total Allowable Sediment Load
Toonigh Creek

1. 303(d) Listed Waterbody Information

State:	**Georgia**
County:	**Cherokee**
Major River Basin:	**Coosa**
8-Digit Hydrologic Unit Code(s):	**03150104**
Waterbody Name:	**Toonigh Creek**
Location:	**Headwaters to Lake Allatoona**
Stream Length:	**6 miles**
Watershed Area:	**6.1 square miles**
Tributary to:	**Lake Allatoona**
Ecoregion:	**Piedmont**
Constituent(s) of Concern:	**Sediment**
Designated Use:	**Fishing (not supporting designated use)**

Applicable Water Quality Standard:
All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.

2. TMDL Development

Analysis/Modeling:	**Universal Soil Loss Equation was used to determine the average annual sediment load**

3. Allocation Watershed/Stream Reach

Wasteload Allocations (WLA):	
Future Construction Sites	**Meet requirements of General Storm Water Permit**
Wasteload Allocations (WLA_{SW}):	**104.8 tons/yr**
Load Allocation (LA) :	**214.5 tons/yr**
Margin of Safety (MOS):	**implicit**
Total Allowable Sediment Load:	**319.3 tons/yr**

6.0 RECOMMENDATIONS

6.1 Monitoring

Monitoring is conducted at a number of locations across the State each year. GA EPD has adopted a basin approach to water quality management; an approach that divides Georgia's major river basins into five groups. This approach provides for additional sampling work to be focused on one of the five basin groups each year and offers a five-year planning and assessment cycle. The Coosa River Basin, along with the Tallapoosa and Tennessee River Basins, will again receive focused monitoring in 2011. One goal of the focused basin monitoring is to continue to monitor 303(d) listed waters. Therefore, additional monitoring of these streams will be initiated as appropriate during the next monitoring cycle to determine if there has been improvement in the biological communities.

6.2 Sediment Management Practices

It has been determined that most of the sediment found in the Coosa River Basin streams is due to past land use practices and is referred to as "legacy" sediment. Therefore, it is recommended that there be no net increase in sediment delivered to the impaired stream segments, so that these streams will recover over time.

The measurement of sediment delivered to a stream is difficult, if not impossible, to determine. Therefore, setting a numeric TMDL may be ineffective given the difficulty in measuring it. In addition, habitat and aquatic communities can be slow to respond to changes in sediment loading, which is why monitoring will continue according to the five-year monitoring cycle. Thus, this TMDL recommends that compliance with NPDES permits and implementation of Best Management Practices (BMPs) be monitored. The anticipated effects of compliance with NPDES permits and implementation of BMPs will be the improvement of stream habitats and water quality, and thus be an indirect measurement of the TMDL.

Management practices recommended to maintain the total allowable sediment loads at current levels include:

- Compliance with NPDES permit limits and requirements; ← ESPC PLAN & CMP
- Implementation of GFC Best Management Practices for forestry; ← N/A
- Adoption of NRCS Conservation Practices; ← ESPC PLAN
- Adherence to the Mined Land Use Plan prepared as part of the Surface Mining Permit Application; ← N/A
- Adoption of proper unpaved road maintenance practices; ← SEE SECTION 6.2.2.4.
- Implementation of Erosion and Sedimentation Control Plans for land disturbing activities; and ← ESPC PLAN
- Mitigation and prevention of stream bank erosion due to increased stream flow and velocities caused by urban runoff. ← N/A; NO INCREASES DUE TO PROJECT.

6.2.1 Point Source Approaches

Point sources are defined as discharges of treated wastewater or storm water into rivers and streams at discrete locations. Treated wastewater tends to be discharged at relatively stable rates; whereas, storm water is discharged at irregular, intermittent rates, depending on precipitation and runoff. The NPDES permit program provides a basis for developing municipal, industrial and storm water permits, monitoring and compliance with limitations, and appropriate

6.2.2.4 Roads

Unpaved roads can be a major contributor of sediment to our waterways if not properly managed. The following guidance for the maintenance and service of unpaved roadways, drainage ditches, and culverts can be used to minimize roadway erosion. One publication that may include some additional guidance is *Recommended Practices Manual, A Guideline for Maintenance and Service of Unpaved Roads* (Choctawhatchee, et. al, 2000).

Disturbances to unpaved roadway surfaces and ditches, and poor road surface drainage, result in deterioration of the road surface. This leads to increased roadway erosion and, thus, stream sedimentation. Unpaved roads are typically maintained by blading and / or scraping of the roads to remove loose material. Proper, timely, and selective surface maintenance can prevent and minimize erosion of unpaved roadways. This in turn lengthens the life of the road and reduces maintenance costs. Roadway blading that occurs during periods when there is enough moisture content allows for immediate re-compaction. In addition, roadwork performed near streams or stream-crossings during "dry" months of the year can reduce the amount of sediment that enters a stream.

Roadside ditches convey storm water runoff to an outlet. A good drainage ditch is shaped and lined with appropriate vegetative or structural material. A well-vegetated ditch slows, controls and filters the storm water runoff, providing an opportunity for sediments to be removed from the runoff before it enters surface waters. Energy dissipating structures to reduce velocity, dissipate turbulence or flatten flow grades in ditches are often necessary. Efficient disposal of runoff from the road helps preserve the roadbed and banks. Properly installed "turn-outs" or intermittent discharge points help to maintain a stable velocity and proper flow capacity within the ditch by timely outleting water from them. This in turns alleviates roadway flooding, erosion, and maintenance problems. Properly placed "turn-outs" distribute roadway runoff and sediments over a larger vegetative filtering area, helping to reduce road side ditch maintenance to remove accumulated sediment.

Culverts are conduits used to convey water from one side of a road to another. Installation, modification, and / or improvements of culverts when stream flows and expected rainfall is low can reduce the amount of sediment that enters a stream. If the entire installation process, from beginning to end, can be completed before the next rainfall event, stream sedimentation can be minimized. Diverting all existing or potential stream flows while the culvert is being installed can also help reduce or avoid sedimentation below the installation. The culvert design can have a significant impact on the biological community if the size and species of fish passing through it are not considered. Changes in water velocities and the creation of vertical barriers affect the biological communities.

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REVISION	DATE

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DRAWN BY: M.R.T.
CHECKED BY: W.F.L.
APPROVED BY: W.F.L.
DATE: AUGUST, 2013
SCALE: NO SCALE

CHEROKEE COUNTY WATER & SEWERAGE AUTHORITY
HOLLY SPRINGS
DOWNTOWN SANITARY SEWER SYSTEM

TOONIGH CREEK BASIN TMDL

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