

Proposal to City of Griffin, GA for Stormwater Services – Geomorphic Assessment Cabin Creek

Submitted to:

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August 9, 2013

Geomorphic Assessment of Cabin Creek

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A. Introduction

A geomorphic assessment was conducted in the Cabin Creek watershed in 2004 and again in 2008. The 2004 study, *Source Assessment and Data Analysis for the Cabin Creek Watershed*, focused on stream reaches where DO monitoring was being conducted for a concurrent study. The 2008 study assessed the headwaters of Cabin Creek downstream to State Highway 16. The primary goals were to document potential sediment sources and locations of streambank instability, and to describe the general character of the streams.

B. Scope of Work

Task 1. Geomorphic Assessment of Cabin Creek

An updated geomorphic assessment is proposed. A geomorphologist will conduct stream walks to collect data along the main stem of Cabin Creek and its major tributaries. A watershed slope analysis will also be conducted using LiDAR data and ground truthing to identify potential sediment source features. Details on the streamwalks and watershed slope analysis are described in the sections below.

A report will be prepared that will include a description of assessment methodologies, a characterization of each stream reach, a summary of streamwalk field data organized in tables by tributary, and a photo log. The report will identify specific problem areas such as active headcuts and threats to infrastructure (utility lines, parking lots, etc.). Data collected in the new stream walks will be compared to the 2008 data to monitor changes in channel stability. Results of the watershed slope analysis will include a map with potential sediment source features identified and photos from the ground truthing field effort.

Streamwalks

Tetra Tech will duplicate the streamwalks conducted as part of the most recent geomorphic assessment. The streamwalks consist of collecting data while walking the wadable streams. Data types are primarily qualitative and include GPS coordinates, Channel Evolution Model stage, bankface vegetation density, bank height, riparian zone land use, percent of eroding streambank, bank material type, bed material grainsize, and photographs.

Data are interpreted to classify the stream reaches as “Low,” “Moderate,” or “High” for erosion activity. The condition of each tributary is described in a narrative that includes impacts due to additional factors such as: beavers, water front management, trash, channelization, large woody debris, and ponds. Select photographs are used to illustrate the features described in the narrative.

Scope of Work – City of Griffin Stormwater Services



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Watershed slope analysis

In the time since the original assessments LiDAR generated topographic data has become available for the watersheds. The following additional assessment, that utilizes this data, is proposed.

A slope analysis utilizes LiDAR based topography to locate potential sediment source features that are otherwise undetectable through stream walks, aerial photos, and USGS topo maps. These features, such as gullies, dry tributaries, abandoned quarries, etc. are often obscured by tree canopy in aerial photos, are not located on perennial streams, or are too recent to register on a USGS topo map. However, when high resolution LiDAR generated topography is available these types of features can be detected.

Initially a draft slope analysis is conducted. Candidate sediment source features are identified and several features are selected for ground truthing. A field assessment is made of these features to determine the nature and extent of their erosion potential. The results are then extrapolated to the remaining similar features throughout the watershed.

Photos are taken to document the ground truthing field effort. Potential sediment source features are described in a narrative and identified on a map of the watershed.

Deliverable: Cabin Creek Geomorphic Assessment Report

Approximate duration: Two months

C. Project Cost

An estimate of project cost is provided in the table below. The cost is based on current understanding and best estimates of level of effort required to perform the basic services and may be subject to change upon agreement between the City and Tetra Tech.

Task	Cost
Task 1. Geomorphic Assessment of Cabin Creek	\$28,000
Total:	\$28,000

D. Project Schedule

The “approximate duration” quoted is based on current understanding and best estimates of time required to perform the basic services and may be subject to change upon agreement between the City and Tetra Tech.