



# CCR ENVIRONMENTAL, Inc.

3772 PLEASANTDALE ROAD, SUITE 150, ATLANTA, GEORGIA 30340  
TEL: 770-458-7943, FAX: 770-458-2454

December 11, 2020

## LONG-TERM MONITORING CITY OF SENOIA, GEORGIA G. BEN TURNIPSEED ENGINEERS, INC.

### WORK PLAN

#### Water Quality Monitoring

Water quality monitoring will be conducted at three (3) study locations in 2021:

- Site 1: Keg Creek at Byrom Road;
- Site 3: Keg Creek at State Route (SR) 74/85;
- Site 5: Marimac Creek at SR 85.

A total of three sampling events (two dry and one wet) shall be conducted. A dry event is one with no rainfall for 72 hours prior to sampling. A wet event will be defined as  $> 0.2$  inches of rainfall over previous 24 hours with dry conditions (no rainfall) for 72 hours prior. Rainfall information will be tracked (real-time) using the USGS website (<http://water.usgs.gov/realtime.html>) for nearby sites. Stream flow will be measured directly during all dry sampling events at each site. Single, discreet grab samples will be collected for all events. The wet sample will be collected on the rising limb of the hydrograph, whenever possible.

Samples from all study sites will be analyzed in the laboratory (GEPD-approved) for the following parameters: COD, BOD<sub>5</sub>, TSS, alkalinity, hardness, total phosphorus and orthophosphate, TKN, ammonia, and nitrate-nitrite. Additionally, the wet sample will be analyzed for total recoverable metals (Pb, Cu, Zn, and Cd). “Clean metals” sampling techniques will be employed for the wet/metals sampling. In addition to laboratory analyses, the following *in situ* parameters will be measured during sample collection: air and water temperature, dissolved oxygen (DO), % DO, salinity, pH, turbidity, and specific conductance.

In addition to the aforementioned parameters, bacteriological monitoring (fecal coliform and *E. coli*) will be monitored over two sampling periods. During each sampling period, a total of four grab samples will be collected on a regular schedule (regardless of weather) within a 30-day period. No sample will be collected within 24 hours of another sample. Sampling will be performed between the months of May – October to correspond to state standards. No flow measurements will be made during bacteriological monitoring.

A report will be provided that describes the methods used, results, and discussion of results and potential problem areas, and EPD spreadsheets will be completed and submitted for each year. The report will be provided to G. Ben Turnipseed Engineers, Inc. in early 2022.



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**COST ESTIMATE**

**Water Quality Monitoring**

**Labor**

Senior Biologist – 10 hrs. @ \$110/hr.= \$ 1100

Staff Biologist – 58 hrs. @ \$75/hr. = \$ 4350

Total = \$5,450

**Laboratory (water chemistry)**

Total = \$2,895

**Other Expenses (mileage, field supplies, copying, etc.)**

Total = \$710

**Lump sum bid for water quality monitoring = \$9,055**



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This proposal represents a lump sum bid, based on the previous assumptions. Additional or out-of-scope work will be billed at an hourly rate of \$110 per hour for senior biologist and \$75 per hour for staff biologist plus expenses. No additional or out-of-scope will be conducted without expressed permission of the client

Your acceptance of this proposal may be indicated by signing in the space provided below. Payment terms are 30 days upon receipt of invoice.

**ACCEPTANCE OF PROPOSAL AND AUTHORIZATION TO PROCEED**

Authorized By:

Title:

Firm Name:

Date: