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TRCcompanies.com

TO: Mr. Robert Williams  
Orange County Solid Waste

FROM: C. Tyrus Clayton, Jr., PE  
Regional Growth Leader

DATE: September 28, 2023

**SUBJECT: Ferguson and Bradshaw Quarry W&R Site Consolidation  
Supplemental Task Order Request #2  
Survey Location, Environmental Sampling, and Traffic Study  
DAA/TRC Project No. 500002.0000.0000**

Total Budget Estimate, including T&M = \$26,000

At your request, Draper Aden Associates/TRC Engineering (DAA/TRC) is pleased to offer this proposal support services related to the additional due diligence required by the County to verify parcel owned by Orange Water and Sewer Authority (OWASA) on the northeast corner of Orange Grove Road and NC Highway 54 for use as a Waste and Recycling Center. This proposal outlines our understanding of the project scope, tasks to be completed, assumptions underlying our fee proposal, and fees for the project.

**PROJECT DESCRIPTION:** The project will consolidate and replace the two existing waste and recycling centers located on Bradshaw Quarry Road and the second on Ferguson Road. The proposed site is located between two centers the County is planning to close located on Bradshaw Quarry Road in the Cane Creek Reservoir watershed and on Ferguson Road in the University Lake watershed.

### **SCOPE OF SERVICES**

**Task 1 – Limited Survey Services:** DAA/TRC will provide limited survey services to locate and flag the property boundary, limits of clearing, and proposed improvements.

- A. DAA/DAA/TRC will recover and verify property boundary monumentation as a basis of location and to establish site control.
- B. Mark the perimeter of the property improvements for the proposed Waste and Recycling Center and access road.
  - i. Markings will be colored flagging tied to existing vegetation or stakes to be set at an approximate 50 ft intervals (or less as needed) and at corners or changes in direction. Markings before and after should be visible from each point marked.
  - ii. Limited clearing/cutting of smaller vegetation may occur.
- C. Project Assumptions, Conditions and Limitations
  - i. DAA/TRC's proposal is based upon the set plans provided by OCSW (the client). Property Boundary is shown on these plans and will be used for calculations of clearing limit locations.

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- ii. This fee is based on the stake out of project limits on plans developed by Draper Aden/DAA/TRC. Property boundary is shown on said plans and will be used for calculations of location of project limits.
- iii. DAA/TRC will provide field support and quality control with office staff including project surveyors, survey technicians and licensed surveyors to complete the requested stakeout. Support will include computation of the locations of the requested items along with QA/QC review of data.
- iv. This is not a boundary survey and is only for onsite visual presentation purposes.
- v. No deliverable is proposed for this task, other than flagging in the field.
- vi. Should stakes or flagging be lost due to site operations, tampering, or other reasons outside of TRC's control, re-staking will be considered an additional service.

Task 2 – Environmental Sampling: DAA/DAA/TRC will mobilize to the site of the proposed Orange County Solid Waste facility to conduct an assessment of existing soil and groundwater conditions. The purpose of our assessment will be to identify baseline (background) soil and groundwater conditions and evaluate potential impacts (if any) from the residuals spray irrigation field 11-8 operated by Orange Water and Sewer Authority.

Soil Analysis: Our assessment will consist of the advancement of two soil borings on the northern and southern portions of the site and the installation of two temporary groundwater monitoring wells. The borings will be advanced with a truck-mounted Geoprobe® Direct Push Technology (DPT) rig. Based on DAA/TRC's knowledge of the regional groundwater elevations in the vicinity of the site, we anticipate that groundwater will be encountered at a depth of 10-15 feet below land surface (bls). We will collect a composite soil sample from each boring at four-foot intervals from acetate sleeves until groundwater is encountered, transfer the samples into laboratory-supplied containers, and submit the samples to a North Carolina-certified lab for analyses of the following:

Arsenic	Iron	Zinc
Aluminum	Mercury	Oil and grease
Barium	Magnesium	Nitrate
Calcium	Manganese	Nitrite
Copper	Potassium	Total Phosphorous
Cadmium	Nickel	
Total Chromium	Lead	

Groundwater Analysis: Following soil sampling, we will install the groundwater wells to a depth of 10-15 feet below land surface (bls) using Geoprobe DPT. Following boring advancement, we will insert five feet of 10 PVC slot screen material into each boring to bracket the stabilized water table and connect the screened pipe to 10 feet of PVC solid riser pipe. We will construct the wells with a sand pack that will be poured to a depth one foot above the top of the screen interval to isolate the screened interval from the bentonite seal. We will then seal the well with bentonite pellets that will be poured directly above and in contact with the sand pack and extend at least one foot or greater to ground surface.

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Following well construction, we will collect depth-to-water measurements after the groundwater has had sufficient time to stabilize, develop and sample the wells using new disposable polyethylene tubing inserted into each temporary well location and connected to a peristaltic pump. During the well development activities, a handheld YSI multiparameter instrument will be used to measure temperature, turbidity, dissolved oxygen, conductivity, specific conductance, and pH of the extracted groundwater to verify that representative samples are collected. Development activities will cease when the measured parameters have stabilized or until the sample location fails to generate groundwater due to slow recovery. Following well development and confirmation of stable parameters, groundwater samples will be pumped from each well directly into laboratory-provided glassware. The groundwater samples will be transported in an ice-filled cooler under chain-of-custody protocols and shipped overnight to a North Carolina certified laboratory for analyses of the following:

Arsenic	Aluminum	Barium
Chemical Oxygen Demand	Fecal Coliform	Total Coliform
Calcium	Copper	Cadmium
Total Chromium	Chloride	Iron
Magnesium	Manganese	Mercury
Total Ammonia	TKN (as N)	Nitrate
Nitrite	Nickel	Lead
Oil and Grease	Phenol	Phosphorous
Orthophosphate	Potassium	Total Dissolved Solids
Total Organic Carbon	pH	Specific Conductance
Zinc	Sulfate	

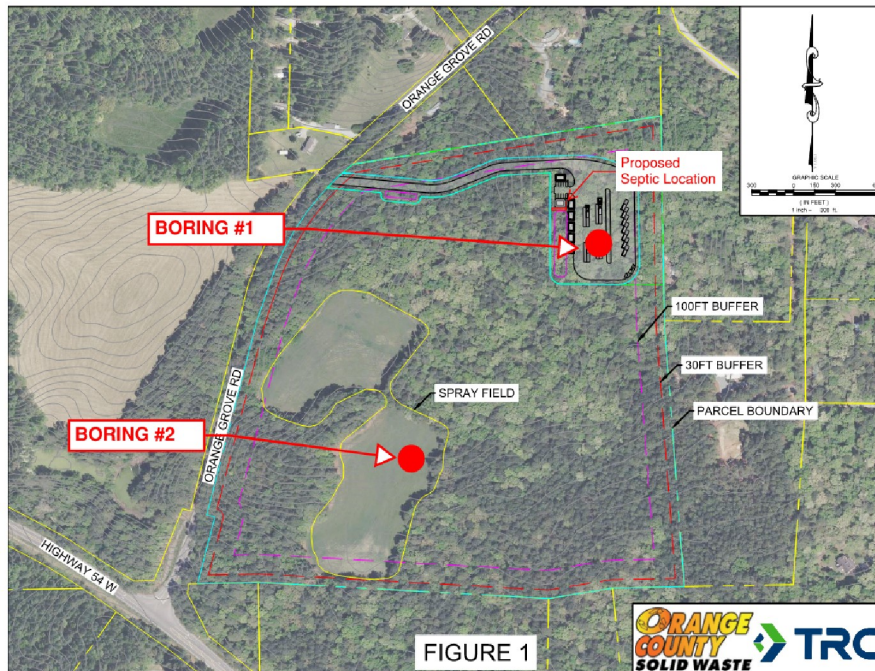
Following sample collection, we will abandon the wells in accordance with 15A NCAC 02C.0113. We will prepare a letter report for Orange County Solid Water that summarizes our sample collection activities, provides the laboratory analytical results with comparison to results obtained from monitoring well(s) installed on Field 11-8 to determine if there is a measurable contribution of pollutant loading from the spray irrigation system that will impact the allowable pollutant loading from the septic system planned for the solid waste site.

*Assumptions:*

- A. Site will be accessible with our Geoprobe DPT truck-mounted rig.
- B. Standard turnaround time (10 business days) for lab
- C. No duplicate samples, trip blanks or equipment blanks

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### ***Approximate Boring/Sampling Locations***



***Task 3 – Preliminary Traffic Investigation & TIA Scoping:*** DAA/TRC’s subconsultant, Kimley-Horn, will consult with the project team regarding site access and circulation and the type of type of operations anticipated on the site. At this point, we anticipate that trip generation for the proposed site will be determined by available data for two existing recycling sites that will be consolidated at the subject site. We will review data to determine average weekday and weekend daily and peak hour rates.

We will obtain readily available average daily traffic count data from NCDOT. Based on this information, we will investigate historical traffic growth rates for relevant roadway segments. We will also research readily available public data related to funded transportation projects and pending/approved developments in the project vicinity.

With this information, we will coordinate and attend one meeting with NCDOT and the Orange County Staff to discuss and finalize the scope and parameters of the proposed study. Based on these discussions, we will prepare a memorandum of understanding summarizing the analysis assumptions for the TIA for review by the County and NCDOT.

***Future Task – Traffic Impact Analysis:*** As the study area and assumptions of this analysis will be based on the findings of Task 3 above, the scope and fee for the Traffic Impact Analysis will be quoted once Task 3 is completed.

***Additional Services:*** Any services not specifically provided for in the above scope, as well as any additional scope the Client requests, will be considered additional services and will be performed at our then current hourly rates. Additional services we can provide include, but are not limited to, the following:

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- Traffic counts
- Traffic impact analyses and/or signal warrant analyses
- Driveway permits/right-of-way encroachments
- Off-site roadway design/traffic signal design

*Information Provided By Client:* The following information shall be provided by the Client:

- Specific information regarding on-site operations
- Proposed development plan, including land uses and intensities as well as site access
- Proposed build-out year.

We shall be entitled to rely on the completeness and accuracy of all information provided by the Client.


**FEES:** These lump sum fees will be invoiced monthly based on our estimation of the percentage complete on each task. Time and material (T&M) fees will be based upon current 2023/2024 bill rates.

1. Survey Services.....	\$ 6,500
2. Environmental Sampling .....	\$13,500 (T&M)
3. Preliminary Traffic Investigation .....	\$6,000 (T&M)
<b>TOTAL.....</b>	<b>\$26,000*</b>

*(Note: allowances for reimbursable costs (mileage, printing) are included). Total is a budget estimate, based on time and material tasks. TRC will request written approval prior to exceeding the time and material estimates.*

**TERMS AND CONDITIONS:** The proposed services will be provided in accordance with the conditions presented herein and an existing agreement between Draper Aden Associates and Orange County Solid Waste Management.

Sincerely,




C. Tyrus Clayton, PE  
Regional Growth Leader

cc: Bruce Woody (OCSWM)  
Cheryl Young (OCSWM)  
Ian Spurlock (DAA/TRC)

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**Orange County Solid Waste  
Ferguson and Bradshaw Quarry W&R Site Consolidation  
Supplemental Task Order Request #2  
Draper Aden Associates Proposal No. 500002.0000.0000  
AUTHORIZATION TO PROCEED**

DocuSigned by:  
  
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Orange County Solid Waste Management

10/3/2023  
\_\_\_\_\_  
Date

**THIS INSTRUMENT HAS BEEN PRE-AUDITED IN THE MANNER REQUIRED BY THE LOCAL  
GOVERNMENT BUDGET AND FISCAL CONTROL ACT:**

DocuSigned by:  
  
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Office of the Chief Financial Officer

10/3/2023  
\_\_\_\_\_  
Date

**THIS SCOPE OF WORK IS SUBMITTED PURSUANT TO THE TERMS OF THE AGREEMENT DATED  
FEBRUARY 22, 2017  
BETWEEN DRAPER ADEN ASSOCIATES AND ORANGE COUNTY.**

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C. Tyrus Clayton, Jr., PE

10/3/2023  
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Date