

AMENDMENT NUMBER ONE TO AGREEMENT

THIS AMENDMENT ("Amendment") entered into this 24th day of April, 2017 between SHELBY COUNTY GOVERNMENT, hereinafter referred to as ("COUNTY") and Barge, Waggoner, Sumner and Cannon, Inc., hereinafter referred to as "CONSULTANT".

WHEREAS, the parties previously entered into an agreement ("Agreement") dated August 25, 2015 (Shelby County Contract No. CA163874) whereby Consultant would assist the County in its Phase II Resilience Submittal and develop approaches, based on the County's Phase I framing, of optimal choices to improve disaster recovery and resilience in the most impacted and distressed areas of the County; and

WHEREAS, the parties desire to enter into this Amendment Number One so as to initiate CONSULTANT'S Proposal for the COUNTY's "Big Creek-Making Room for the River" conceptual plan presented in the COUNTY's NDR Grant Application approved by the United States Department of Housing and Urban Development for the CDBG-NDR Competition, to provide for the payment of the Fee for said services and provide that the work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3).

NOW THEREFORE, for and in consideration of mutual promises and covenants herein contained, the parties hereto agree as follows:

1. Section II of the Agreement entitled Term and Compensation is hereby amended to include the Fee for the services as outlined within CONSULTANT's Final Big Creek National Disaster Resilience Grant Design Project Services Proposal dated January 20, 2017 and more particularly identified as BWSC Project No. 3508507 which is attached hereto as Exhibit A and incorporated herein by reference as if stated verbatim.
2. The total cost for this Amendment Number One shall not exceed Two Million Seven Hundred Fifty Two Thousand and Eight Hundred (\$2,752,800.00) Dollars payable in

accordance with the terms of the Agreement. The fee for Additional Services set forth within the above referenced Proposal in the amount of Two Hundred Seventy Nine Thousand and Five Hundred (\$279,500.00) is expressly excluded at this time.

3. CONSULTANT shall not be permitted or authorized to incur costs beyond the extent that purchase orders have been issued during the term of the Original Contract, this Amendment and/or subsequent to the termination date of the preceding without prior, expressed written authorization pursuant to County Purchasing Policies and Procedures. The County is not obligated to pay nor shall CONSULTANT be entitled to receive payment for fees and expenses incurred in violation of this provision.

4. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

5. The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

6. The contractor agrees to send to each labor organizations or representative of workers with which the contractor has a collective bargaining agreement or other understanding. If any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s)

taking applications for each of the positions; and the anticipated date the work shall begin.

7. The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR parts 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

8. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

9. Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

10. With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogations of compliance with Section 7(b).


11. The terms and conditions of the original Agreement, except as amended herein, shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have set their signatures for the purposes contained herein, on the day and date first above written.


APPROVED AS TO FORM
AND LEGALITY:

SHELBY COUNTY GOVERNMENT


Contract Administrator/
Assistant County Attorney


for Mark H. Luttrell, Jr., Mayor

Barge, Waggoner, Sumner and Cannon, Inc.

BY: 
TITLE: EVP, COO

CORPORATE ACKNOWLEDGMENT

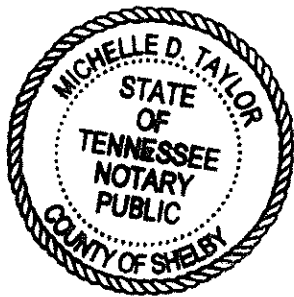
STATE OF TENNESSEE
COUNTY OF SHELBY

Before me, the undersigned Notary Public, in and for the State and County aforesaid, personally appeared R. Randolph Ferguson, with whom I am personally acquainted or proved to me on the basis of satisfactory evidence, and who, upon oath, acknowledged himself/herself to be president or other officer authorized by appropriate Corporate action and/or Resolution to execute the preceding instrument of the BWSC Inc., the within named bargainer, a corporation, and that he as such Executive Vice President executed the foregoing instrument for the purpose therein contained, by signing the name of the corporation by himself/herself as Executive Vice President, COO

WITNESS my hand and official seal at office this 20th day of January, 2017.

Michelle D. Taylor
Notary Public

My Commission Expires: July 28, 2018





January 20, 2017
BWSC Project No. 3508507

Mr. Tom Needham, P.E., Director
Shelby County Division of Public Works
160 N. Main St., Suite 1100
Memphis, TN 38103

RE: FINAL BIG CREEK NATIONAL DISASTER RESILIENCE GRANT DESIGN PROJECT SERVICES PROPOSAL

Dear Mr. Needham:

Barge Waggoner Sumner & Cannon, Inc. (BWSC) is pleased to respond to your request for a proposal on the above-referenced project. The details of our proposal, with estimated fee, are provided in the enclosed Scope of Services.

This current revision of the proposal was prepared based on the "Big Creek-Making Room for the River" activity conceptual plan presented in the NDR Grant Application approved by the United States Department of Housing and Urban Development for the Community Development Block Grant National Disaster Resilience Competition (CDBG-NDR) and several subsequent scoping meetings and conference calls with Shelby County Government and the BWSC Team members. The scope of this proposal has also been modified to include Section 3 team members and input from a conference call on August 17, 2016 to discuss the BWSC Team's interaction with Sasaki Associates, Inc., who will be working on the project under direct contract to Shelby County, and to clearly define the roles and responsibilities of each.

Sincerely,

Chris Triplett, PE, PMP, CPESC
Memphis Office Manager/Vice President

Carrie Stokes, PE
Vice President, Director – Environment & Water Resources

Enclosure

cc: Trevor Cropp, PE, CFM
Joe Lawson, PE, CPESC

EXHIBIT A



BARGE WAGGONER SUMNER AND CANNON, INC.

PROFESSIONAL SCOPE OF SERVICES

Barge Waggoner Sumner & Cannon, Inc. (**BWSC**) professional services for the assignment are described as follows:

- Project Title:** Big Creek National Disaster Resilience (NDR) Grant Design Services
- Location:** Big Creek in Millington, Shelby County, TN
- Project Objective:** To address unmet needs from the May 2011 flooding by providing improvements to increase the community's resilience to future flooding particularly in Low to Moderate Income (LMI) areas.
- Project Overview:** Using the updated Big Creek HEC-RAS model developed under a previous contract, BWSC will refine the model and finalize the design of the proposed Big Creek activity portion of the approved NDR Grant project to reduce floodwater levels in the project area. The current concept is to provide additional floodwater conveyance in the south overbank area from U.S. Highway 51 to Sledge Road. Alternative locations for some of the proposed work may have to be evaluated to resolve permitting and/or land acquisition issues. BWSC will also provide the environmental permitting services and assistance in the Public Involvement stage of the project. Recreational facilities will be installed in the areas disturbed by project construction to provide an amenity to the local community. In the construction phase, BWSC will assist with the advertisement and receipt of construction bids and will provide some limited construction administration services, but full-time construction observation services will be done by Others under direct contract to the County. More details on the specific services anticipated to be required are given below.

I. PROFESSIONAL SERVICES: BWSC agrees to perform the following Basic Services:

A. Contract Development Services \$42,200

BWSC will serve as the Prime Consultant and assemble a project team including subconsultants to provide the broad range of skills and experience needed to accomplish the various tasks required in the execution of this project. To the extent practical and with benefit to the project, BWSC will utilize Locally Owned Small Businesses (LOSB's) recognized by Shelby County Government (the County) to meet additional manpower needs and provide specialized services using local disadvantaged firms. BWSC will secure executed subcontracts with the LOSB's and will oversee and coordinate their work while performing major portions of the work itself and providing a central point-of-contact for the County. BWSC will prepare and execute, in a form acceptable to the County, an agreement to this effect. A project of this scope will require extensive coordination and project management services, not only in setting up and initiating the work, but also throughout the life of the project coordinating the work of the various team members and design disciplines. In addition, BWSC will communicate to The County the project progress and any major problems which may arise through regularly scheduled monthly project status meetings and by phone or email at other times. The costs for these project management services are included in the fees for the various work elements shown below. The primary points of contact for the project will be:



- Chris Triplett, PE, Principal-In-Charge, 901.244.5512, Chris.Triplett@bwsc.net
- Trevor Cropp, Project Manager, 901.244.5520, Trevor.Cropp@bwsc.net

B. Additional Data Collection

\$262,900

Survey Data

The updated Big Creek HEC-RAS model previously developed by BWSC used the current effective FEMA model, recent Shelby County LiDAR topographic data, and new creek channel cross-sections at intervals of approximately one-quarter mile to evaluate the effects of the proposed conceptual project design. To support the final design of the project, the collection of additional field survey data at several locations within the project reach (from U.S. Highway 51 to Sledge Road) will be required for the HEC-RAS model development. This data consists primarily of:

- a) additional Big Creek channel cross-sections to reduce the distance between sections in the design model,
- b) a field profile of the existing levees on the north bank where work is proposed under this project (about 7,000 feet) to confirm profiles developed from the LiDAR data,
- c) detailed field sections of existing bridge openings as needed to confirm and/or upgrade the bridge opening geometry currently in the model, and
- d) other locations to field-verify LiDAR elevations in the areas where significant excavation is proposed in order that design earthwork quantity calculations are as accurate as practical.

The field survey will be provided by the County to BWSC at no cost. The survey data will be processed for input into the existing HEC-RAS model of Big Creek.

Natural Resources Data Collection

The NEPA documentation and environmental permitting phases of this project require that a significant amount of field and published data be collected to effectively complete these aspects of the project. The County will provide the necessary stream and wetlands delineation work to BWSC at no cost. As previously agreed, BWSC will have one biologist present during the wetland delineations, hydrologic determinations, and stream assessments to provide continuity in BWSC's presentation and extensive use of this information in the remainder of the 404/401 permitting and NEPA processes.

In addition to the above, BWSC will independently provide the necessary equipment and services for the collection of protected species data.

Prior to field studies, an office review of available resources will be performed to develop a list of potential federal and state listed species known to occur in Shelby County, Tennessee. A tentative list of known protected species will be compiled by reviewing the USFWS County Database (<http://www.fws.gov/endangered/>) as well as the USFWS Information, Planning, and Conservation System (IPaC) database (<http://ecos.fws.gov/ipac/>).

Field surveys for protected species will be conducted based on the identification of preferred/suitable habitat for species listed in Shelby County, Tennessee and the project vicinity. If suitable habitat is identified within the project study areas, the identified habitat will be thoroughly surveyed for species of occurrence. In particular, two protected species of bats, the Indiana bat and the Northern Long-eared bat (NLEB), are currently listed as "federally endangered species" in Shelby County. Because several hundred forested areas occur within the proposed Big Creek NDR Project study areas, BWSC ecologists will evaluate these areas for the presence of suitable summer roosting habitat for both of these protected bat species. Land features indicative of suitable habitat will first be identified during a preliminary desktop analysis using GIS land coverage and property data. Features such as forested areas, open fields, water resources, and flight corridors will be noted during the field investigation. Features such as dead trees/snags, trees with loose or shaggy bark, and man-made structures (such as bridges, culverts, and old buildings/houses for the NLEB) will also be identified.



It is assumed that the areas being initially evaluated for potentially jurisdictional aquatic waters and protected species habitat encompass no greater than 1,200 acres and include all of Areas 1 and 2, and a portion of Area 3 (the Non TDOT-Owned Mitigation Site) as designated in the Conceptual Plan. If additional areas, not exceeding 300 acres, are identified by the County as potentially viable alternative options for the Big Creek NDR Project, BWSC will also evaluate these areas for potential wetlands, streams, and protected species habitat. As previously mentioned, BWSC understands that necessary stream determinations and wetlands delineation work associated with additional areas will be provided by the County, while one BWSC biologist will also participate in these field efforts.

Finally, it is assumed that areas of identified bat habitat will require bat surveys by the USFWS. The scope of this proposal includes mist net surveys, telemetry surveys, and emergence surveys necessary to determine the presence or absence of the Indiana bat and NLEB for the currently proposed Big Creek NDR Project study areas, which is assumed to require no more than 45 net nights.

Summary reports for both the Protected Species Habitat Assessments and Bat Surveys will be prepared for the client, HUD, and other regulatory agencies.

C. Hydraulic Model and Preliminary Design \$452,500

Using the additional survey data described above, the BWSC Team will refine the current HEC-RAS hydraulic model so that it can be used to develop and evaluate the design parameters for the proposed improvements. Given the potential permitting difficulties for Area 3 of the approved Conceptual Plan, BWSC will also investigate up to two potential alternatives to the project plan to support options should the Area 3 as designated in the Conceptual Plan not be viable. This detailed model will be used to refine the selected design to try and minimize the excavation required for the proposed work while still meeting the floodwater surface elevation reduction requirements for the project. BWSC and its land planning, landscape architecture and park design Team member, Dalhoff Thomas Design Studio (DTD), will work closely with Sasaki Associates (who will be under contract directly with Shelby County Government) to optimize the overall project plan. The intent is to create a park development that blends hydraulics, ecology and social function with adventure play and recreation to become a local and regional destination park. This will be done through a series of design charrettes with the County and Team members to finalize viable alternatives for the project elements. These meetings are assumed to consist of not more than three physical all-day meetings and up to four half-day conference calls. Once the extent of the proposed work is felt to be optimized and the potential for permitting the various alternatives has been assessed, the County will be asked to select a preferred alternative for use in developing preliminary plans for the hydraulic and recreational improvements. Construction plans depicting the preliminary design will then be prepared for use in the Public Involvement and Environmental Permitting phases. The Preliminary Engineer's Opinion of Probable Cost will be developed for the selected project configuration.

D. Public Involvement Phase \$68,000

BWSC assumes that the County will conduct the primary role in this phase of scheduling, coordinating and conducting the Public Involvement meetings for interested stakeholders. The BWSC Team will provide digital and/or hardcopy graphics depicting the project elements as requested by the County (up to a maximum of 15 individual figures). BWSC staff will attend the stakeholder meetings to assist the County with the logistics and be available to answer technical questions from the participants. Effort is assumed based on a maximum of four such meetings held during the course of the Preliminary Design, Environmental Permitting, NEPA, and Land Acquisition phases of the project.

Additionally, BWSC and its team will coordinate with the City of Millington Parks Department to ensure the project meets their needs. It is assumed that two such meetings will occur, and a maximum of two design charrettes will be developed to support the meetings.



E. Additional Environmental Technical Studies \$20,800

The NEPA Environmental Assessment (EA) and environmental permitting phases of this project require that a significant amount of field and published data be collected to effectively complete these aspects of the project. The following environmental technical studies will be conducted once the Big Creek NDR final alignment has been determined and a set of preliminary engineering plans are complete.

Noise and Air Surveys

BWSC team will complete a noise and air quality analysis for the project study area. The noise analysis will consist of identification of noise-sensitive land uses, noise data collection and measurements, prediction of future noise levels, and determination of noise impacts. The air quality analysis will consist of establishing project conformity and conducting a mobile source air toxics evaluation. Finally, a summary report will be prepared for both the noise and air quality analysis.

Archaeological and Cultural/Historical Literature Search

BWSC team will conduct a background literature and records search in order to identify known archaeological sites in the project area and to develop the historic context for the study area. The background search will include research on the state archaeological site files at the TDOA and the National Register of Historic Places (NRHP) listings and pending files. We will also collect and review information on previously identified sites and previous cultural resource investigations in and around the project area. The product of the literature and records search will be an overview of the environment (past and existing) and prehistory and history of the general area, as well as a compilation of the archaeological and other relevant historical resources that are either known or likely to be present within the project area. The results of the literature and records search will be fully documented in the project report.

At the direction of the County, an archaeological field survey of the Big Creek NDR Project area **is not** included in this proposal. If a field survey is required to complete the project report, BWSC can provide this service as shown in Additional Services Section III shown below.

Hazardous Waste/ Phase I Environmental Site Assessment

At the direction of the County, Hazardous Waste/Phase I ESA of the Big Creek NDR Project area **is not** included in this proposal. If necessary, BWSC can provide this service as shown in Additional Services Section III shown below.

F. NEPA Documentation and Agency Coordination \$150,200

Based on information provided by HUD's Community Development Block Grant (CDBG) Program and their Environmental Chapter Guidance, BWSC understands that the Big Creek NDR project will require an Environmental Assessment. The CDBG Handbook's Environmental Chapter states that "new construction or substantial improvements to existing facilities" will require an Environmental Assessment (EA) and agency coordination subject to the National Environmental Policy Act (NEPA). BWSC also understands that because the Big Creek NDR project is a HUD grant directly awarded to Shelby County and not through the Tennessee CDGB Office of Federal Programs (OFFP), the project will follow HUD-specific federal NEPA guidance and not the CDBG State Environmental Chapter process. BWSC assumes that this project meets the conditions of an EA and will not require an Environmental Impact Statement (EIS).

An environmental assessment (EA) of the proposed Big Creek NDR project will be conducted by the BWSC Team. The BWSC Team will include both in-house resources and LOSB subconsultants intimately familiar with the NEPA process. All required environmental documentation for the proposed project will be accomplished in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.), which requires federal agencies to evaluate the potential impacts of their proposed actions. BWSC will summarize all data



necessary for the EA using existing databases such as the NEPAassist website, and the required environmental technical studies (described in Sections B and E) to support the NEPA documentation requirements for this project. BWSC will prepare a detailed inventory of all the environmental elements in the project study area.

The EA and all supporting environmental technical studies will serve as a basis for recommending the issuance of a Finding of No Significant Impact (FONSI). The EA will address the proposed actions and alternative impacts on the affected environmental resources. Specifically, it will identify the purpose and need for the proposed action; define the proposed action; detail the reasonable alternatives considered, including the no action alternative; describe the affected environment of the Big Creek NDR Project and surrounding areas; provide a discussion of the environmental consequences and permitting requirements of the proposed action and reasonable alternatives; if deemed necessary, identify any wetland and stream mitigation measures; provide for consultation with state and federal agencies, other organizations and interested parties; and provide the opportunity for public hearing.

G. Environmental Permitting Phase

\$325,800

For a project of the size, scope and nature of the Big Creek NDR Project, the environmental permitting phase is expected to be one of the major elements of the project as a whole. The BWSC Team will include both in-house resources and LOSB subconsultants intimately familiar with these processes and well known to the Local and State regulators who administer these permits. BWSC plans to involve the regulatory community in the project development process early and openly to try and minimize conflicts with the regulators and duplication of effort from having to re-design elements to satisfy permitting requirements. BWSC expects that, at a minimum, an Individual U.S. Army Corps of Engineers (USACE) Section 404 Permit and an Individual 401/Aquatic Resource Alteration Permit (ARAP) from the Tennessee Department of Environment and Conservation (TDEC) will be required. Additionally, a large portion near the upstream end of the project area is currently owned by the Tennessee Department of Transportation (TDOT) as a wetlands mitigation feature. The proposed work in this area will have to be closely coordinated with TDOT to insure that it meets the needs of the County project while maintaining, or hopefully enhancing its usefulness to TDOT. It is also anticipated that significant stream and wetland mitigation planning efforts will be required in order for the Big Creek NDR Project to successfully receive its 401 and 404 CWA permits. At a minimum, an on-site stream and/or wetland restoration design and mitigation plan is anticipated in order to help achieve mitigation to impacts to site wetlands and streams.

For the Big Creek NDR Project, it is assumed that sufficient "on-site" mitigation opportunities will be available to offset both temporary and permanent impacts to existing streams and wetlands and "off-site" mitigation efforts or will not be required to fulfill the 404/401 permitting mitigation requirements for this project. It is also assumed that no greater than 5,000 LF of "on-site" stream restoration and 50 acres of on-site wetland restoration will be needed to mitigate for project impacts.

If required, BWSC will prepare a 12-Part Mitigation Plan for the Proposed Big Creek NDR Project as part of the County's requirements to successfully attain a Section 404 permit. As part of their 2008 Mitigation Rule, the U.S. Army Corps of Engineers (USACE) now requires a 12-part Compensatory Mitigation Plan for all three mitigation mechanisms: 1.) Mitigation Banking, 2.) In-Lieu Fee Mitigation, and 3.) Permittee-Responsible Mitigation. The "on-site" mitigation efforts described above would be considered a Permittee-Responsible Mitigation Project. The 12 parts to the Compensatory Mitigation Plan include the following items:

1. Objectives
2. Site Selection
3. Site Protection Instrument
4. Baseline Information
5. Determination of Credits
6. Mitigation Work Plan
7. Maintenance Plan



8. Performance Standards
9. Monitoring Requirements
10. Long-Term Management Plan
11. Adaptive Management Plan
12. Financial Assurances

As part of the scope for this effort, BWSC will prepare a Compensatory Mitigation Plan that addresses these 12 items, including supporting documentation.

H. Land Acquisition Phase \$108,000

Once the project permitting issues are resolved, acquisition of the necessary land rights should begin. BWSC will prepare land acquisition documents consisting of acquisition plats and legal descriptions for the County's use in acquiring and recording the land rights for the construction and operation of the project. For the purpose of developing a proposed fee for these services, the total number of individual parcels to be acquired is assumed to not exceed fifty (50). If this number is exceeded in the actual prosecution of the work, BWSC's fee for this phase will need to be increased appropriately as mutually agreed to by The County.

I. Final Design and Construction Documents \$1,171,900

During this phase the BWSC Team will update and refine the HEC-RAS hydraulic modeling to incorporate any project revisions brought about through the public involvement and environmental permitting phases and look for ways to improve the performance, constructability and estimated costs of the Preliminary Design developed in item C. The conceptual design for the project as submitted in the grant application consists of the following major items and this proposed configuration was the basis for the proposed design fee shown above.

- Clearing, excavation and site drainage of Conceptual Plan Areas 1, 2 and 3 (approximately 1,200 acres).
- Addition of a new 4@10'x18' box culvert in the left overbank area at U.S. Highway 51.
- Two new pedestrian bridges across Big Creek.
- Raise/improve approximately 5,500 feet of existing levee on the north bank of Big Creek between U.S. Highway 51 and the I.C.G.R.R.
- Raise/improve approximately 1,500 feet of existing levee and a pump station on the west bank of North Fork Creek north of Veterans' Parkway.
- Gravel park roads (approximately 44,000 lin. ft.)
- Gravel parking lots (approximately 22,000 sq. yd.)
- Pedestrian trails and boardwalks (approximately 41,300 lin. ft.)
- Equestrian trails (approximately 20,000 lin. ft.)
- 1 Restroom/concessions building (Area 1).
- 2 Restroom buildings (Area 2 and 3).
- 5-Field softball complex (Area 1).
- Community garden (Area 1).
- Dog Park (Area 1).
- Assorted park accessories, such as fishing piers, benches, signs, trash containers,

The BWSC Team will continue to evaluate the proposed recreational amenities to minimize project costs while still meeting the needs of the Community, the requirements of the environmental permits and the intent of the NDR Grant. Changes recommended during this process will be incorporated into the original Plan. Geotechnical investigations will be done to evaluate the foundation conditions for the proposed structures such as the



pedestrian bridges, restroom buildings, park access roads and levees where work will be done. Construction details and notes to clearly define the construction requirements will be developed and added to produce Final Construction Plans for the project. Construction Specifications for the work will also be developed to complete the Construction Documents package for The County's use in advertising the project for construction bids. BWSC will provide the construction documents package to The County at 30%, 60% and 90% stages of completion for review and comment prior to producing Final Design Construction Documents. In addition to the design submittals, BWSC will participate in monthly progress meetings to provide updates to the current status of the project.

Coordination with the environmental regulatory agencies will also continue during the Final Design phase to continue to receive their input and buy-in to the Final Design as it progresses. At each submittal stage BWSC will provide an updated Engineer's Opinion of Probable Cost and Estimated Construction Schedule reflecting the current status of the plans. It is assumed that the design of the two proposed pedestrian bridges and modifications to existing bridges can be done to provide a "No-Rise" condition and FEMA "No-Rise" Certificates will be prepared for these two sites. Once the final site configuration is determined, construction stormwater runoff permit documents will be prepared (NPDES Permit, the Stormwater Pollution Prevention Plan (SWPPP), NOI, NOC). The final deliverable for this phase will be a maximum of three Construction Bid Packages which The County can then use to solicit bids from potential contractors for the construction of the project. The Bid Package will be provided in digital form as PDF files and six paper copies, unless requested otherwise by The County.

J. Construction Phase Services \$150,500

BWSC will assist The County in the advertisement for and receipt of construction bids. If so requested, BWSC will assist The County in the review of the bids and recommendations for award. BWSC has been instructed that once the construction contract has been awarded, the full-time resident construction observation services are not a part of this contract and will be provided by Others under a direct contract with Shelby County Government. BWSC does anticipate providing some incidental services during the construction of the project consisting of:

- Review and approval or rejection of Contractor's submittals such as shop drawings, product data or samples
- Provide the County with information as to the intent of the construction plans for its use in responding to questions from the Contractor during the construction
- Review proposed changes in the work and provide the County with an opinion on their anticipated effects on the performance of the completed project

Assumptions

The estimated fees shown herein are based on several assumptions, as listed below:

1. Access for the various field data collection efforts described above will be provided at no cost to the BWSC Team and The County will render assistance as needed to provide this access.
2. Accurate survey data required for the basic services in this proposal will be provided by Others at no cost to the BWSC Team.
3. Data collection efforts are based on the project area in the conceptual plan, and include an additional 300 acres of natural resources data collection for alternatives. Natural resources data collection of the TDOT wetland mitigation site in Area 3 is not included in this scope and will be provided by TDOT.
4. The mitigation of bat habitat is not included in this scope of work.
5. Hydraulic modelling of potential additional configurations for modification of the work in Area 3 will be limited to no more than two.
6. The County will take the lead role in scheduling and conducting the public involvement meetings. The BWSC Team will provide graphic aids for The County's use in the meetings and will attend the meetings to assist in answering technical questions asked by the stakeholders.



7. The Environmental Technical Studies will be conducted within the constraints discussed in detail in Sections B and E above.
8. As discussed in Section F. above, BWSC assumes that this project meets the conditions for an Environmental Assessment and will not require an Environmental Impact Statement (EIS).
9. The proposed environmental permitting efforts are limited to a USACE Section 404 permit, an Individual 401/Aquatic Resource Alteration Permit (ARAP) from TDEC, and an individual NPDES Stormwater Construction Permit from TDEC as described above for the "Big Creek-Making Room for the River" activity conceptual plan presented in the NDR Grant Application recently approved by the United States Department of Housing and Urban Development for the Community Development Block Grant National Disaster Resilience Competition (CDBG-NDR).
10. The services described in Task G do not include off-site evaluation and design of wetland and stream mitigation.
11. The effort related to short-term and long-term monitoring of mitigated wetlands and streams is included in Section III as additional services in this scope of work.
12. The proposed work on this project will lower projected water surface elevations for the various theoretical storms which would change the FEMA Flood Rate Insurance Maps (FIRMs) and the Shelby County Flood Insurance Study (FIS) for this area, but these revisions are not necessary for the execution of this project and are not included in the costs shown.
13. The preparation of a FEMA Letter of Map Revision (LOMR) is not necessary for the execution of this project and is not included in this scope of work.
14. The certification of new or modified levees is not included in this scope of services.
15. Benefit Cost Analyses (BCA) will not be performed for the alternatives developed as a part of this scope of work.
16. Since The County's intent is to contract with Others to provide full-time Construction Administration Services, BWSC's construction phase services will be limited to those specifically mentioned in Section J above.
17. A maximum of three Construction Bid Packages will be prepared by BWSC for the County's use in soliciting bids to potential contractors.
18. The services described in this proposal include the preparation of an Environmental Assessment. It is assumed that this project will not require an Environmental Impact Statement.

Risks

Risks associated with this project will be captured in a Risk Register maintained by BWSC. The Risk Register will be updated and reviewed during the monthly progress meetings.

II. COMPENSATION: BWSC shall be compensated for the Basic Services as follows:

Total Lump Sum **\$2,752,800**

The BWSC team is comprised of Locally Owned Small Businesses (LOSB's), Disadvantaged Business Enterprises (DBE's), Women Owned Business Enterprises (WBE's), and businesses registered with HUD's Section 3 program. The table below presents the amount of participation from these teaming partners.

| | Total Amount \$ | Participation % |
|-------------|-----------------|-----------------|
| LOSB % | \$618,500 | 22.47% |
| W/DBE % | \$280,000 | 10.17% |
| Section 3 % | \$165,000 | 5.99% |



The lump sum fees listed above includes travel, in-house printing, reproduction, and photography charges for the Basic Services scope listed above. Additional services performed beyond the Basic Scope of Services will be performed in accordance with the hourly rate schedule attached as Exhibit "A" to this Agreement.

III. ADDITIONAL SERVICES AVAILABLE:

If so requested by the County, BWSC can provide the additional services described below for the fees as shown.

A. Archaeological and Cultural/Historical Resources Field Surveys **\$149,500**

BWSC team will complete an archaeological literature search as a part of the activities included in Task E of the basic services. The results of the literature search may require additional field work to evaluate the potential impacts of the project on identified archaeological resources. The archaeological field survey will closely follow all guidelines for Phase I archaeological surveys as defined by the State of Tennessee Division of Archaeology (TDOA). BWSC team members will review and search the archaeological records at the (TDOA) for the general project study area and conduct a Phase I archaeological survey of the project study area. The archaeological survey will include the following:

- A field inspection and complete Phase I archaeological survey to determine the presence, density and distribution of archaeological resources within the area of potential effect (APE);
- An evaluation of the potential impact of the project on identified archaeological resources.

Archaeological Survey

The Phase I archaeological survey will combine systematic pedestrian examination of all exposed ground surfaces and shovel testing in areas exhibiting limited ground surface visibility. Those areas with greater than 25 percent ground visibility and without potential for buried deposits, and/or greater than 20 percent slope, will be visually inspected at 15 m intervals for cultural materials. Areas that are relatively level and contain less than 25 percent ground surface visibility, or with the potential for buried deposits, will require systematic shovel testing at 30 m intervals. Judgmental shovel tests may be excavated at the discretion of the Field Director.

Shovel tests will consist of 30 x 30 cm excavations to sterile subsoil, the water table, or to the maximum effective depth of a standard shovel, whichever is encountered first. Soil will be screened through ¼-inch mesh hardware cloth to insure uniform artifact recovery. Notes, including location, depth, soil stratification (if any), color, texture, and artifact recovery, will be maintained on each shovel test excavated. Artifacts will be bagged according to horizontal and vertical provenience. A representative sample of shovel tests will be photographed throughout the APE.

If an archaeological site is identified, shovel testing will be conducted in a grid pattern at 10-m intervals to define the site boundaries within the APE and gather data on the horizontal and vertical artifact distributions at the site. All excavated soil from those tests will be screened through ¼-inch mesh hardware cloth, and all artifacts will be segregated by provenience. All identified sites, including a representative sample of positive shovel tests, will be photographed using digital cameras, and standardized notes will be taken on the site and landscape. Sites will be mapped using hand-held GPS equipment. TDOA Site Survey Forms will be completed for all sites identified during the survey.

Following the fieldwork, all artifacts, notes, maps, photographs, and other project materials will be returned to the laboratory for analysis. Laboratory analysis will include a complete catalogue of all recovered material, with special attention paid to materials that are temporally diagnostic or can help determine the function of the site at discrete points in time. The analyses will proceed following established laboratory protocols for Southeastern archaeology in general, and the TDOA specifically. Following analysis, the artifact collection will be prepared for permanent curation and temporarily stored at our Nashville office.

Reporting

Digital versions in .pdf format of the draft report will be submitted within four weeks of the completion of the fieldwork. The draft report will provide appropriate descriptions of the environmental, cultural, and historical background, results of the literature and records search, the results of the fieldwork, and analysis of results, and will contain appropriate maps and other graphics. The draft report also will include sufficient information for



assessing the nature and the extent of any cultural resources located within the project area and evaluate the need for further investigations to determine its NRHP eligibility. The draft report will include USGS maps depicting the locations of all recorded resources, color-coded as to their NRHP eligibility recommendation. Recommendations for further archaeological work relative to Phase II testing programs will be provided at this time. The report will comply with the formats outlined in the TN-SHPO guidelines for archaeological survey. As directed by the TN-SHPO and/or Corps, TRC will make any revisions requested and promptly produce and submit an appropriate number of hard copies and digital copies on CD of the final report after receipt of all agency review comments.

B. Hazardous Waste/ Phase I Environmental Site Assessment \$20,000

BWSC will prepare a Phase I ESA for the site using the applicable guidelines from ASTM E1527-13. The scope of services will include a site visit conducted by a qualified environmental professional to review and document the condition of the site. A review draft of the report will be provided to The County in a PDF file format. Following review and incorporation of appropriate comments, a final copy of the report, in PDF format, will be prepared. The scope of services for the Hazardous Waste/ Phase I Environmental Site Assessment does not include an asbestos inspection; however, these services can be conducted if requested

C. Stream Success Criteria and Monitoring \$45,000

Stream mitigation requires visual observations and a review of the entire stream system to be conducted annually. Costs shown above include initial setup and annual monitoring for the first five years. Following stream construction and the as-built survey, BWSC will establish specific performance standards to meet several objectives, including measuring the success of the stream restoration's specific objectives, and comparing the ecological improvement or increase in function and value of pre- and post- restoration efforts. In general success criteria for the applicable aspects of a project will consist of the following:

- Qualitative Habitat Assessment - The Rapid Bioassessment Protocols (RBP) Habitat Assessment score for the project reach must be greater than 75% of the median ecoregion reference score at the end of the monitoring period.
- Vegetation – Following the 5 year monitoring period, is expected that a minimum of 200 stems per acre, comprised of both planted and desirable (native) seedlings from natural regeneration, shall remain growing at the end of the monitoring period.
- Invasive Species Control - Invasive species will continue to be evaluated and maintained (if needed) throughout post-restoration monitoring period. Exotic invasive plant species shall not include greater than 10 percent of the vegetative cover at the end of the 5-year monitoring period.
- Morphology and Stability - The constructed channel morphology shall not deviate significantly from the approved plans.
- Stability – A Modified Pfankuch Stability Rating must be "Good" during every monitored year.
- Hydrology (Stage/Discharge) - One continuous stage gauge will be installed along the restored channel. Monitored stream flow data should indicate that a bankfull event occurs during 2 out of 5 years of the monitored period, given normal precipitation patterns during the monitoring period.

Qualitative Visual Assessment

Visual assessments will be used to qualitatively evaluate project site conditions. Annual evaluations utilizing the applicable EPA Rapid Bioassessment Protocol Habitat Assessment Form will be conducted for the project. An overall visual assessment of the entire project reach will also be conducted to ensure that areas that are not otherwise measured or documented do not contain conditions that may require further analysis or attention. Conditions observed during the overall visual assessment will be documented, photographed and described in a narrative section of each report.



Photo Documentation

To further assist in the qualitative evaluation of the project, photograph reference points will be established to assist in characterizing the site and to allow qualitative evaluation of the site conditions. The location of each photo point will be permanently marked in the field and the bearing/orientation of the photograph will be documented. Photograph reference points include the following:

- Cross-section Photograph Reference Points
- Vegetation Sampling Plot Photographic Reference Points
- In-stream Structure Photographs

Vegetation

Vegetation monitoring plots will be randomly established along transects within the riparian buffer restoration areas at the end of the first growing season following planting. Vegetation monitoring should document species composition, height and survival of planted and volunteer species. Vegetation will be monitored for a period of three to five years depending on monitoring objectives to determine survival percentages and overall riparian forest growth.

Morphology

The purpose of morphological monitoring is to evaluate the stability of the restored stream. Procedures established in the USDA Forest Service Manual, Stream Channel Reference Sites (Harrelson, et al., 1994) and the methodologies utilized in the Rosgen stream assessment and classification system will be followed. Data collected and developed will consist of measurements of the dimension, profile, pattern, and bed materials of the restored channel.

Stability (Bed and Bank)

The Modified Pfankuch Channel Stability Form will be used to evaluate the upper and lower banks and streambed for evidence of instability.

Hydrology (Stage/Discharge)

The occurrence of stream flows meeting and/or exceeding the designed bankfull stage will be evaluated using a crest gauge, which will be installed following implementation. On a project-specific basis, automatic stream monitoring gauges (pressure transducer with automatic data logger) may be utilized to record stream depth readings at a specified interval (daily, weekly, peak). One gauge will be placed at a permanent riffle cross-section located near the upstream limits of the project reach.

D. Wetland Success Criteria and Monitoring

\$65,000

Wetland mitigation requires visual observations and a review of the mitigated area to be conducted annually. Costs shown above include initial setup and annual monitoring for the first seven years. Following wetland construction and the as-built survey, BWSC will establish specific performance standards to meet several objectives, including measuring the success of the wetland restoration's specific objectives, and comparing the ecological improvement or increase in function and value of pre- and post- restoration efforts. In general success criteria for the applicable aspects of a project will consist of the following:

- Vegetation – Following the 7 year monitoring period, is expected that a minimum of 200 stems per acre, comprised of both planted and desirable (native) seedlings from natural regeneration, shall remain growing at the end of the monitoring period.
- Hydrology – Multiple continuous water level data loggers will be installed throughout the wetland mitigation site in order to monitor depth to water table. Depth to water during the growing season will be used to determine hydrologic success with Wetland Hydrology being defined as 14 consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season.



- Soils – Following the 7 year monitoring period it is expected that soils within the mitigation site will meet one of the field indicators for hydric soils as defined by the National Technical Committee for Hydric Soils.
- Invasive Species Control – Invasive species will continue to be evaluated and maintained (if needed) throughout post-restoration monitoring period. Exotic invasive plant species shall not include greater than 10 percent of the vegetative cover at the end of the 5-year monitoring period.

Vegetation

Vegetation monitoring plots will be randomly established along transects within the wetland mitigation site at the end of the first growing season following planting. Vegetation monitoring should document species composition, height and survival of planted and volunteer species. Vegetation will be monitored for a period of five to seven years depending on monitoring objectives to determine survival percentages and overall forest growth.

Hydrology

The purpose of the hydrologic monitoring is to determine the success of restoring wetland hydrology to the site. A minimum of 10 monitoring wells will be established throughout the restoration area and placed in areas based on site contours and elevations in order to sufficiently capture water levels within the restoration site. Monitoring wells will consist of perforated pipes set vertically in the ground to passively intercept groundwater and will be topped with automatic Water Level Data Loggers which will record depth to groundwater. Depth to groundwater will be recorded automatically by the data loggers and the data downloaded periodically.

Soils

Soil color will be evaluated within the vegetation monitoring plots to determine if the restoration area meets the criteria for hydric soils as specified by the National Technical Committee for Hydric Soils for saturated conditions and aerobic conditions.

Photo Documentation

To further assist in the qualitative evaluation of the project, photograph reference points will be established to assist in characterizing the site and to allow qualitative evaluation of the site conditions. The location of each photo point will be permanently marked in the field and the bearing/orientation of the photograph will be documented.



EXHIBIT A

SCHEDULE OF STANDARD CHARGES

HOURLY-RATE BASIS

Hourly Rates:

| | |
|---|----------------|
| Principal Engineer, Planner, or Architect | \$170 to \$280 |
| Professional Engineer, Planner, Architect, Senior Ecologist, Stream Restoration Design Engineer, Landscape Architect, or Land Surveyor, | \$100 to \$170 |
| Graduate Engineer, Planner, NEPA Specialist, Project Ecologist or Architect | \$70 to \$130 |
| Designer, Ecologist or Technician | \$60 to \$120 |
| Drafter, Secretary, etc. | \$50 to \$100 |
| Construction Representative | \$50 to \$100 |
| Surveyor | \$ 30 to \$80 |

Outside services contracted for a specific project, such as professional and technical consultants, laboratory testing, reproduction, photography, etc., will be invoiced at the amount of the subcontractor's statement plus 15 percent.

Other expenses which are properly chargeable to the work will be invoiced as follows:

- a. Travel by company or private vehicle at the IRS approved standard mileage rate.
- b. In-house printing, reproduction, and photography charges at commercial rates.
- c. Travel and living expenses for all personnel when required to be away from headquarters in connection with the work at cost.

Invoices will be issued on a monthly basis.

NOTE: The average two-member survey crew rate ranges from \$145 to \$160 per hour, depending upon the personnel used.