

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE ADMINISTRATOR OF THE DEPARTMENT OF PUBLIC WORKS TO ENTER INTO AN AGREEMENT WITH AMEC ENVIRONMENT AND INFRASTRUCTURE, INC. FOR PROFESSIONAL SERVICES RELATIVE TO CONTRACT NO. S-12-004-101, WPA DITCH PROGRAM PHASE 1, FOR A TOTAL AMOUNT NOT TO EXCEED SIX HUNDRED TWENTY-FIVE THOUSAND DOLLARS (\$625,000.00).

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, it is hereby authorizing the Administrator of the Department of Public Works to enter into an agreement with AMEC Environment and Infrastructure, Inc. for professional services relative to Contract No. S-12-004-101, WPA Ditch Program Phase 1, for a total amount not to exceed \$625,000.00.

ADOPTED: _____, 2013.

/mms

City of Chattanooga



Resolution Request Form

(This form is only required for resolutions requiring expenditure of City funds)

Date: November 11, 2013

Preparer: William C. Payne

Department: Public Works - Engineering

Brief Description of Purpose for Resolution:

Resolution Number (if approved by Council): _____

A City Council Action is requested to authorize the Administrator of the Public Works Department to enter into an agreement with AMEC Environment & Infrastructure, Inc. for professional services relative to Contract No. S-12-004-101, WPA Ditch Program Phase 1 for a total amount not to exceed \$625,000.

Name of Vendor/Contractor/Grant, etc.	AMEC Environment & Infrastructure, Inc.	New Contract/Project? (Yes or No)	Yes
Total project cost \$	625,000.00	Funds Budgeted? (YES or NO)	Yes
Total City of Chattanooga Portion \$	625,000.00	Provide Fund	6031
City Amount Funded \$	625,000.00	Provide Cost Center	Varies
New City Funding Required \$		Proposed Funding Source if not budgeted	
City's Match Percentage %		Grant Period (if applicable)	

List all other funding sources and amount for each contributor.

Amount(s)	Grantor(s)

Agency Grant Number _____
 CFDA Number if known _____

Other comments: (Include contingency amount, contractor, and other information useful in preparing resolution)
 Water Quality Capital Budget

Approved by: DESIGNATED OFFICIAL/ADMINISTRATOR

Reviewed by: FINANCE OFFICE
 Please submit completed form to @budget, City Attorney and City Finance Officer

Rec'd
NOV - 8 2013

CK

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NOTICE OF TRANSMITTAL

TO: City of Chattanooga DATE: November 7, 2013
1250 Market Street, Suite 2100 PROJECT NO.: NonCharge
Chattanooga, TN 37402 PROJECT NAME: Chattanooga
SUBMITTED BY: Bradley Heilwagen, P.E., CFM

ATTENTION: Jim Luebbering Brad.heilwagen@amec.com
615-268-1554

THE ENCLOSED DOCUMENTS AND/OR DRAWINGS ARE SUBMITTED:

- FOR YOUR APPROVAL AS REQUESTED FOR YOUR REVIEW AND COMMENT
 FOR YOUR INFORMATION FOR YOUR SIGNATURE

NUMBER OF ITEMS:	DESCRIPTION:
7	Signed Contract Documents

REMARKS: _____



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

SOP 2003-8
Date of Issue 10-16-03
Rev. 12-14-10

THIS AGREEMENT, is between the City of Chattanooga, Tennessee, a municipal corporation in the state of Tennessee, hereinafter called Owner, and

AMEC Environment & Infrastructure, Inc.,

hereinafter called Engineer.

The Owner wishes to employ the Engineer to perform professional engineering services for

S-12-004-101 WPA Ditch Program Phase 1,

hereinafter called Project.

In consideration of the provisions contained in this Agreement, the Owner and Engineer agree to the following:

1. **EFFECTIVE DATE**
The effective date of this Agreement shall be _____, 20_____.
2. **GOVERNING LAW**
This Agreement shall be governed by the laws of the State of Tennessee and the codes of the City of Chattanooga.
3. **SERVICES TO BE PERFORMED BY ENGINEER**
Engineer shall perform the Services described in Attachment A, Scope of Services, in accordance with applicable sections of the City of Chattanooga Design and Construction Standards in effect on the date of this agreement.
4. **COMPENSATION**
Owner shall pay Engineer in accordance with the Attachment B, Compensation.
5. **OWNER'S RESPONSIBILITIES**
Owner shall be responsible for all matters described in Attachment C, Owner's Responsibilities.
6. **SUPPLEMENTAL AGREEMENTS**
The provisions set forth in Attachment D, Supplemental Agreements, shall be incorporated into this Agreement
7. **PROJECT SCHEDULE**
The provisions set forth in the Attachment E, Project Schedule, shall be incorporated into this Agreement.
8. **RATE SCHEDULE**
The Engineer shall provide a schedule of standard hourly rates for all employees to be used in the performance of all contracts with a cost-not-to-exceed basis. This schedule shall be incorporated into the agreement as Attachment F.
9. **INVOICING**
The Engineer will use the format established in Attachment G, Standard Invoice, for all invoices submitted for services on the Project.



10. STANDARD OF CARE

Engineer shall exercise the same degree of care, skill, and diligence in the performance of Services as is ordinarily possessed and exercised by a professional engineer under similar circumstances in the same area of practice. Engineer makes no warranty or guarantee, either expressed or implied, as part of this agreement.

11. INDEMNIFICATION

Engineer hereby agrees to fully indemnify and hold harmless Owner and any of its departments, divisions, agencies, officers, employees and elected officials from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Owner and any of its officers, employees or elected officials arising out of Engineer's actual negligent performance of Services under this Agreement, including errors or omissions.

Owner hereby agrees to fully indemnify and hold harmless Engineer and any of its officers, employees, or designated agents from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Engineer and any of its officers, employees or designated agents arising out of Owner's negligence to the extent provided by the Tennessee Governmental Tort Liability Act, T.C.A. 29-20-201 et seq.

12. INSURANCE

Engineer shall purchase and maintain during the life of this Agreement, insurance coverage which will satisfactorily insure him against claims and liabilities which arise because of the execution of this Agreement, with the minimum insurance coverages as follows:

- a. Commercial General Liability Insurance, with a limit of \$1,000,000 for each occurrence and \$2,000,000 in the general aggregate.
- b. Automobile Liability Insurance, with a limit of \$1,000,000 for each accident, combined single limit for bodily injury and property damage.
- c. Worker's Compensation Insurance and Employer's Liability Insurance, in accordance with statutory requirements, with a limit of \$500,000 for each accident.
- d. Professional Liability Insurance, with a limit of \$1,000,000 for each claim and aggregate.

Prior to issuance of the Notice to Proceed by Owner, Engineer shall have on file with Owner certificates of insurance acceptable to Owner. Said certificates of insurance shall be filed with Owner in January of each year or may be submitted with each agreement. Upon completion of all Services, obligations, and duties provided for in this Agreement, or if this Agreement is terminated for any reason, the terms and conditions of this section shall survive.

Notwithstanding any other provision of the Agreement, Owner waives any claim against Engineer and, to the maximum extent permitted by law, agrees to defend, indemnify, and hold Engineer harmless from any claim, liability, and/or defense costs for injury or loss arising from Engineer's discovery of unanticipated hazardous materials or suspected hazardous materials, including, but not limited to, any costs created by delay of the project and any cost associated with possible reduction of the property value.

13. LIMITATIONS OF RESPONSIBILITY

Engineer shall not be responsible for: (1) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project, (2) the failure of any contractor, subcontractor, vendor, or other Project participant, not under contract to Engineer,



to fulfill contractual responsibilities to the Owner or to comply with federal, state or local laws, regulations, and codes; or (3) procuring permits, certificates, and licenses required for any construction unless such responsibilities are specifically assigned to Engineer in Attachment A, Scope of Services.

14. OPINIONS OF COST AND SCHEDULE

Since Engineer has no control over the cost of labor, materials, or equipment furnished by others, or over the resources provided by others to meet Project construction schedules, Engineer's opinion of probable construction costs and of construction schedules shall be made on the basis of experience and qualifications as a professional engineer. Engineer does not guarantee that costs will not vary from Engineer's cost estimates or that actual construction schedules will not vary from Engineer's projected schedules.

15. REUSE OF DOCUMENTS

All documents, including, but not limited to calculations, drawings, specifications, and computer software prepared by Engineer pursuant to the Agreement are instruments of service in respect to the Project. They are not intended or represented to be suitable for reuse by Owner or others on extensions of the Project or on any other project. Any reuse without prior written verification or adaptation by Engineer for the specific purpose intended will be at Owner's sole risk and without liability or legal exposure to Engineer. Any verification or adaptation requested by Owner shall entitle Engineer to compensation at rates to be agreed upon by Owner and Engineer.

16. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

Except as otherwise provided herein, engineering documents, calculations, drawings, specifications, and other documents prepared by Engineer as part of the Services shall become and be the sole property of Owner. However, both Owner and Engineer shall have the unrestricted right to their use. Engineer shall retain its rights in its standard drawing details, specifications, databases, computer software, and other proprietary property protected under the copyright laws of the United States. Rights to intellectual property developed, utilized, or modified in the performance of services shall remain the property of Engineer.

17. RECORDS RETENTION AND AUDIT PROVISION

The term "Engineer" is used interchangeably to describe signatories to contracts, grants, and agreements with the City and applies to reflect the relationship with the City (Engineer, Contractor, Licensee, Supplier, Vendor, Consultant, Grant Recipient, etc.).

- a. All records relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Engineer or the Engineer's consultants, shall be made available for inspection and copying upon written request to the Owner. Additionally, said records shall be made available, upon request by the Owner, to any state, federal or other regulatory authorities and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the time expended by the Engineer and its personnel to perform the obligations of this Agreement and the records of expenses incurred by the Engineer in its performance under said Agreement. The Engineer shall maintain and protect these records for no less than seven (7) years after the completion of the Project, or for any longer period of time as may be required by applicable law, good engineering practice, and upon notice during the pendency of any claims or litigation arising from the Project.



- b. The Owner or its assign may audit all financial and related records (including digital) associated with the terms of the contract or agreement including timesheets, reimbursable out of pocket expenses, materials, goods, and equipment claimed by the Engineer. The Owner may further audit any of Engineer's records to conduct performance audits (to identify waste and abuse or to determine efficiency and effectiveness of the contract or agreement) or to identify conflicts of interest.
- c. The Engineer shall at all times during the term of the contract or agreement and for a period of seven years after the end of the contract, keep and maintain records of the work performed pursuant to this Contract or Agreement. This shall include proper records of quotations, contracts, correspondence, invoices, vouchers, timesheets, and other documents that support actions taken by the Engineer. Documents shall be maintained by the Engineer, which are necessary to clearly reflect all work and actions taken. All such records shall be maintained in accordance with generally accepted accounting principles. The Engineer shall at its own expense make such records available for inspection and audit (including copies and extracts of records as required) by the Owner at all reasonable times and without prior notice.
- d. The obligations of this Section shall be explicitly included in any subcontracts or agreements formed between the Engineer and any subcontractors or suppliers of goods or services to the extent that those subcontracts or agreements relate to fulfillment of the Engineer's obligations to the Owner.
- e. Costs of any audits conducted under the authority of this section and not addressed elsewhere will be borne by the Owner unless the audit identifies significant findings that would benefit the Owner. The Engineer shall reimburse the Owner for the total costs of an audit that identifies significant findings that would benefit the Owner.
- f. This Section shall not be construed to limit, revoke, or abridge any other rights, powers, or obligations relating to audit which the Owner may have by Federal, State, or Municipal law, whether those rights, powers, or obligations are express or implied.

18. TERMINATION

This Agreement may be terminated by either party upon written notice in the event of substantial failure by the other party to perform in accordance with the terms of this Agreement. The nonperforming party shall have fifteen calendar days from the date of the termination notice to cure or to submit a plan for cure acceptable to the other party. Owner may terminate or suspend performance of this Agreement for Owner's convenience upon written notice to Engineer. If termination or suspension is for Owner's convenience, Owner shall pay Engineer for all Services performed prior to the date of the termination notice. Upon restart, an adjustment acceptable to Owner and Engineer shall be made to Engineer's compensation.

19. DELAY IN PERFORMANCE

Neither Owner nor Engineer shall be considered in default of the Agreement for delays in performance caused by circumstances beyond the reasonable control of the nonconforming party. For purposes of this Agreement, such circumstances include abnormal weather conditions; floods; earthquakes; fire; epidemics; war, riots, or other civil disturbances; sabotage; judicial restraint; discovery of unanticipated hazardous wastes; and inability to procure permits, licenses, or authorizations from any local, state, or federal agency for any of the supplies, materials, accesses, or services required to be provided by either Owner or Engineer under this Agreement. Should such circumstances occur, the nonconforming party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of the



Agreement. If the Engineer is delayed in the performance of the services for more than 365 calendar days, either by the Owner or circumstances beyond his control, an equitable adjustment to the contract amount can be made to compensate for additional costs incurred.

For delays in performance by Engineer, as set forth in Attachment E, Project Schedule, caused by circumstances which are within its control, such delays shall be documented on the Engineer's Project Performance Evaluation form. Said form shall be completed at the conclusion of Project and acknowledged by both Owner and Engineer. Completed form shall be retained by Owner for a period of seven years and reviewed prior to consultant selection for City projects. In the event Engineer is delayed in the performance of Services because of delays caused by Owner, Engineer shall have no claim against Owner for damages or contract adjustment other than an extension of time.

20. HAZARDOUS MATERIALS

Hazardous materials may exist at a site where there is no reason to believe they could or should be present. The Owner and Engineer agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work or termination of services. Owner and Engineer also agree that the discovery of unanticipated hazardous materials may make it necessary for the Engineer to take immediate measures to protect health and safety. Owner agrees to compensate Engineer for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous materials.

Engineer agrees to notify Owner when unanticipated hazardous materials or suspected hazardous materials are encountered. Owner agrees to make any disclosures required by law to the appropriate governing agencies, and agrees to hold Engineer harmless for any and all consequences of disclosures made by Engineer which are required by governing law. In the event the project site is not owned by Owner, the Owner agrees to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

21. COMMUNICATIONS

Any communication required by this Agreement shall be made in writing to the address specified below:

Engineer: AMEC Environment & Infrastructure, Inc. Attn: Bradley Heilwagen
3800 Ezell Road, Suite 100, Nashville, TN 37211
(615) 333-0630 brad.heilwagen@amec.com

Owner: City of Chattanooga
Department of Public Works
Engineering Division
Suite 2100, Development Resource Center
1250 Market Street
Chattanooga, TN 37402
(423) 643- 6033

Nothing contained in the Article shall be construed to restrict the transmission of routine communications between representatives of Engineer and Owner.

22. WAIVER

A waiver by either Owner or Engineer of any breach of this Agreement shall be in writing. Such a waiver shall not affect the waiving party's rights with respect to any other or further breach.



23. DISPUTE RESOLUTION

Claims, disputes or other matters in question between the parties to this Agreement arising out of or relating to this Agreement or breach thereof shall be subject to mediation in Chattanooga, Tennessee, in accordance with the following provisions:

- a. The mediation shall be conducted by a mediator mutually acceptable to both parties.
- b. The parties agree to share equally in the expenses of mediations.
- c. Such mediation may include the Engineer or any other person or entity who may be affected by the subject matter of the dispute.
- d. Unless the parties agree otherwise, mediation shall be a condition precedent to the exercise of any legal remedy other than a proceeding seeking an immediate injunction or restraining order to protect the rights of a party pending litigation. Notwithstanding the issuance of an injunction or restraining order or the refusal of a court to issue such an order, the dispute shall continue to be subject to mediation.

24. SEVERABILITY

The invalidity, illegality, or unenforceability of any provision of this Agreement or the occurrence of any event rendering any portion or provision of this Agreement void shall in no way affect the validity or enforceability of any other portion or provision of this Agreement. Any void provision shall be deemed severed from this Agreement, and the balance of this Agreement shall be construed and enforced as if this Agreement did not contain the particular portion or provision held to be void. The parties further agree to amend this Agreement to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this Article shall not prevent this entire Agreement from being void should a provision which is of the essence of this Agreement be determined void.

25. INTEGRATION

This Agreement represents the entire and integrated agreement between Owner and Engineer. All prior and contemporaneous communications, representations, and agreements by Engineer, whether oral or written, relating to the subject matter of this Agreement, as set forth in Attachment D, Supplemental Agreements, are hereby incorporated into and shall become a part of this Agreement.

26. SUCCESSORS AND ASSIGNS

Owner and Engineer each binds itself and its directors, officers, partners, successors, executors, administrators, assigns, and legal representatives to the other party of this Agreement and to the directors, officers, partners, successors, executors, administrators, assigns, and legal representatives of such other party in respect to all provisions of this Agreement.

27. ASSIGNMENT

Neither Owner nor Engineer shall assign any rights or duties under this Agreement without the prior written consent of the other party. Unless otherwise stated in the written consent to an assignment, no assignment will release or discharge the assignor from any obligation under this Agreement. Nothing contained in this Article shall prevent Engineer from employing independent consultants, associates, and subcontractors to assist in the performance of the Services; however, other agreements to the contrary notwithstanding, in the event Engineer employs independent consultants, associates, and subcontractors to assist in performance of the Services, Engineer shall be solely responsible for the negligent performance of the independent consultants, associates, and subcontractors so employed.



ATTACHMENT A

Owner: City of Chattanooga, Tennessee

Engineer: AMEC Environment & Infrastructure, Inc.
Project Number & Name: S-12-004-101
WPA Ditch Program Phase 1

SCOPE OF SERVICES

1. BASIC SERVICES

The project is specifically defined as: The objective of Phase 1 of the Chattanooga WPA Ditch Program is to prepare a Condition Assessment Report, Ranking System, and Rehabilitation Plan for the system of ditches within the City of Chattanooga that were originally constructed by the Works Progress Administration (WPA) between the years of 1936 and 1941 and last assessed in 1975. Through a desktop comparison between the 1975 report and City of Chattanooga GIS data, the Engineer has identified 38 WPA ditches for a total of approximately 22 linear miles. Of the 22 linear miles, approximately 17 have been identified as being open channel. The remaining miles are comprised of closed channel or pipe. The identified ditches are listed, by neighborhood, in Tables 1a-1j. As a part of Phase 1, the Engineer will collect field survey data for the ditches identified in Tables 1a-1j, which will be integrated into the City's GIS system. In addition, the Engineer will develop a ranking system for current ditch conditions as well as identify specific areas of concern, such as adverse geomorphic and hydrologic or hydraulic conditions and threatened vegetation communities and aquatic habitat. The Engineer will also establish viable alternatives to rehabilitate and/or improve those ditches identified as having the poorest conditions or most critical areas of concern that can be implemented in subsequent phases of the program.

The Engineer agrees to provide the following services:

Task 1: Program Management, Consulting, and Outreach – The purpose of this task is to provide comprehensive support to the Owner throughout Phase 1 of the Chattanooga WPA Ditch Program.

Task 1a: Project Initiation – The Engineer will create a Project Management Plan (PMP) to be used throughout the life of Phase 1. The PMP will include the project scope, schedule, QA/QC plan, health and safety plan, and a communication plan to encourage a chain of accountability for project performance. This task will also include a project kick-off meeting with key team members from the Engineer and the Owner.

Task 1b: Routine Communications – The Engineer will provide routine status reports to the Owner's Project Manager every two weeks, at a minimum, for the duration of Phase 1, which is assumed to be 12 months. These status reports will include a comparison of the Phase 1 schedule to actual progress. The Engineer will also facilitate monthly progress meetings, either in-person or via conference call, with the Owner to discuss Phase 1 status, schedule, and milestone deliverables.

Task 1c: Stormwater Consulting – The Engineer will provide up to 80 hours of professional or expert advice as it relates to stormwater management on an as-needed, as-requested basis. Consulting services under this task can vary, ranging from assistance with design drawings or general drainage calculations to litigation assistance and expert witness testimony.



Task 1d: General Program Outreach – The Engineer will provide up to 160 hours of general outreach and support services throughout the life of the Chattanooga WPA Ditch Program, including meetings with regulatory agencies, presentations to boards, committees, and/or city council, and open house/public meetings for property owners affected by rehabilitation projects.

In addition, this task will include the preparation of one presentation to City Administration showing the flood reduction benefits and costs related to construction of the off-channel storage reservoir tested in Task 6 and designed in Task 7.

Task 1 Deliverables: The Engineer will submit status reports every two weeks, at a minimum, detailing services rendered during the previous two weeks. Additional deliverables will be in the form of effort spent on the project kick-off meeting, monthly progress meetings and general liaison and outreach services as detailed in the tasks above.

Task 2: Data Collection – To achieve the objectives of Phase 1 of the Program, a wide range of data collection or data creation is necessary. The purpose of this task is to collect spatial data that currently exists from the Owner, as well as the new field reconnaissance data that is necessary to perform a conditions assessment of the WPA ditch system.

Task 2a: GIS Base Data Collection & Compilation – The Engineer will collect and compile the relevant base data from the Owner and other sources to be used throughout Phase 1. These data may include land use, zoning, development projections, impervious area, parcel data, planimetrics, topography, orthophotography, transportation features, catchment inventory, and current conveyance inventory. It is assumed that the Owner has, at minimum, complete planimetrics, digital elevation model tiles, orthophotography tiles, catchment inventory, and current conveyance inventory in ArcGIS format. The Engineer will mosaic the digital elevation model tiles for areas contributing to the WPA ditches into a seamless model and incorporate the orthophotography tiles into a seamless image service.

Task 2b: Water Quality Data – The Engineer will coordinate with the City's Water Quality group or the Chattanooga field office of TDEC to collect data for ditches that are listed in the Stream Corridor Evaluation (SCORE) database or on the 303(d) list of impaired and threatened waters as a part of the Clean Water Act. The Engineer will also research reports of spills or illicit discharges that have been reported to the City or TDEC on WPA ditches in Chattanooga.

Task 2c: Survey Plan Preparation and Outreach – The Engineer will utilize the collected GIS base data to determine location of desired cross-section survey and develop a detailed cross-section survey schedule. In addition, the Engineer will prepare a list of property owners to be notified in advance of the impending field survey work, prepare a draft letter to be mailed to the affected property owners, and prepare text and a survey schedule to be posted on the City's website. It is assumed that the City will mail the hard copy letters and post the digital notices.

Task 2d: Cross-Section Survey – It is assumed that the Owner possesses the opening size, upstream invert, and downstream invert elevations for all culverts, pipes, and bridge crossings as part of their catchment and conveyance inventory. To supplement this data, the Engineer will conduct field surveys to obtain channel dimensions and photographs for the WPA ditches identified in Tables 1a – 1j.

Open Channels: For open channels, cross-sections will be surveyed at approximate 200-foot intervals along each ditch, with at least one cross-section for each ditch. Cross-sectional surveys will include a minimum of four points (left bank, left footer, right footer, and right bank). In some cases, additional points, such as edge-of-water, may be collected as necessary. At each surveyed



cross-section, photographs will be taken from the bottom of the channel in the upstream, downstream, left, and right directions.

Closed Channels: For closed channels, the Engineer will only acquire photographs for the purpose of a condition assessment. The Engineer field personnel will physically enter the closed channels. These photographs will be of the inside of the structure at approximate 200-foot intervals and at damaged locations, with at least one set of photographs per structure. Photographs will be taken from the bottom of the inside of the structure in the upstream, downstream, left, and right directions.

Task 2e: Videography – The Engineer will collect high-resolution video along the lengths of ditches listed in Tables 1a – 1j, for both open and closed channel segments. Video will be collected using hand-held methods and/or remote-controlled video collection devices, as appropriate given current field conditions.

Task 2f: Technical and Ecological Areas-of-Concern Survey – The Engineer will field visit pertinent and/or sensitive locations identified during Tasks 2a - 2d. Technical areas-of-concern may include failing pipes, erosion/stream bank failures, exposed utilities, gullies, and debris jams. Ecological areas-of-concern may include areas identified as having special regulatory status or areas of vegetation, wetlands, aquatic habitat, or invasive species that would be impacted by rehabilitation of the ditch. Illicit connections discovered during this Task will be noted and promptly reported.

Task 2g: Conveyance Inventory Update – The Engineer will utilize the data collected in Tasks 2b – 2f to update the conveyance inventory for the Owner. This task will include an update of the attributes for the conveyance features intersecting the ditches in Tables 1a – 1j according to the guidelines found in the City's Stormwater As-Found Data Dictionary (Attachment 1) with customized attributes and line break as determined during the course of the project.

Task 2 Deliverables: The Engineer will include the results of the data collection in the overall Condition Assessment Report, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System. The data collection portion will include a description of survey reaches, survey methods, survey datum, control source and accuracy, technical areas of concern, ecological areas of concern, and the QAQC procedures applied to the data. The Engineer will also deliver the photographs and video collected in a format consistent with the Owner's conveyance and catchment photography storage system. The Engineer will prepare the following spatial data within a database that can be integrated into the City's GIS system:

- Updated conveyance line file
- Updated catchment point file
- Technical areas of interest point file
- Ecological areas of interest point file
- Cross-Section survey point file

Task 3: Hydrologic and Hydraulic Modeling – An important part of the conditions assessment is the ability to determine the risk of flooding posed by each ditch on heavily traveled roadways, critical facilities, and residential and commercial properties. To accomplish this goal, the Engineer will perform existing conditions hydrologic and hydraulic modeling for the reaches listed in Tables 1a – 1j to calculate flood elevations for the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year return period storms. Potential hydrologic methodologies will include development of limited detail HEC-HMS models or existing USGS regression equations. To perform hydraulic modeling, the Engineer will develop HEC-RAS models for the reaches listed in Tables 1a – 1j utilizing the digital elevation models prepared in Task 2a, supplemented with field survey data collected in Task 2d. Inundation



layers calculated from the results of the hydrologic and hydraulic modeling will be generated for both recurrence intervals, as well as depth and water surface elevation grids.

Task 3 Deliverables: Hydrologic and hydraulic study methodologies and results will be included in the overall Condition Assessment Report, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System. Digital hydrologic and hydraulic models and/or GIS-based databases will accompany the report.

vii. Task 4: Priority Ranking System – The purpose of this task is to establish an overall ranking system for the WPA ditch segments that will allow the Owner to identify and prioritize those segments with the most critical issues and establish a rehabilitation plan for each segment.

Task 4a: Flood Risk Ranking – The Engineer will perform an evaluation of flood risk posed by individual ditch segments on heavily traveled roadways, critical facilities, and residential and commercial properties. This will be accomplished by intersecting the inundation layers generated in Task 3 with the GIS data collected in Task 2. For roadway flooding risks, considerations will be made for the level-of-service and average daily traffic on a given roadway. Critical facilities ranking will be based on the quantity and type of facilities affected by each ditch segment. The property-based ranking will consider the type, value and number of buildings flooded by each ditch segment.

Task 4b: Technical Deterioration Ranking – The Engineer will establish a ranking system for the ditches listed in Tables 1a – 1j that will reflect existing conditions as determined by field inspection. The ranking system will include considerations for silt, rocks, and debris in the bottom, overgrown side slopes, vegetation in joins, and visible deterioration of bottom and side slopes which indicate potential for undermined structures or system collapse.

Task 4c: Ecological Ranking – The Engineer will establish a ranking system related to the ecological risk and permitting requirements association with performing rehabilitation actions on the ditches list in Tables 1a – 1j.

Task 4d: Overall Ranking System – The Engineer will combine the results of Tasks 2 – 6 into a composite ranking system for ditch segments, weighting the flood, technical deterioration, and ecological risk factors based on a pre-determined weighting system that will be agreed-upon between the Engineer and the Owner. In addition, the Engineer will aggregate the rankings of ditch segments into a ranking system for the individual ditches.

Task 4 Deliverables: Results of individual ranking systems (Flood, Technical Deterioration, Ecological), as well as the overall ranking system for ditch segments and aggregate ranking system for individual ditches will be included in the overall Condition Assessment Report, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System. The assessment rankings will also be incorporated into the conveyance inventory update as described in Task 2g.

Task 5: Rehabilitation Alternatives – The Engineer will utilize the results of the condition assessment and ranking systems to determine the best rehabilitation alternatives for segments of the WPA ditch system. Example rehabilitation alternatives are follows:

- No Rehabilitation Necessary
- Routine Maintenance - cleaning of vegetation in channel bottom or walls
- Remedial Maintenance - sediment and/or debris removal
- Resurfacing – gunite or concrete overlays of existing ditches, etc.
- Flood Reduction & Restoration Alternatives - restoration to natural conditions, off-channel storage, culvert replacement, etc. Only the necessity of the alternative will be established as a part of this task. The effectiveness of the different types of Capital Improvement Projects (CIPs) will



be tested in subsequent tasks.

Actual rehabilitation alternative classifications will be determined during a kickoff meeting with City personnel. In addition, costs for performing rehabilitation alternatives, with the exception of flood reduction & restoration alternatives, will be determined at this time.

Task 5 Deliverables: The Rehabilitation Alternatives will be included in the overall Condition Assessment Report, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System. In addition, a supplemental report will be created at the completion of this task that outlines rehabilitation alternatives that are immediately actionable, along with their anticipated costs, similar to the Rehabilitation of WPA Storm Drainage System report, published in March 1975 by the City.

Task 6: Flood Reduction Alternatives – The purpose of this task is to test the various flood reduction alternatives on the ditch segments identified as needing flood reduction and restoration on the top five ditch segments, as identified by the ranking system established in Task 4.

Task 6a: Flood Reduction Alternatives Testing - The Engineer will perform a preliminary evaluation of the flood reduction and restoration alternatives for the top five ditch segments in the composite ranking system developed in Task 4d where rehabilitation by a CIP has been identified as necessary in Task 5. Up to five alternatives will be tested for each of the five ditch segments, as appropriate, including:

- Restoration to Natural Conditions
- Daylight Closed System
- Off-Channel Storage
- Culvert or Bridge Replacement/Improvement
- Channel Modification

Alternatives will be tested by adjusting the hydrologic and hydraulic modeling developed in Task 3 to calculate alternative flood elevations, inundation mapping and associated flood risk to life and property. At minimum, one off-channel storage alternative will be tested at one location as a viable flood reduction alternative.

Task 6b: Flood Reduction Alternatives Vetting – Following testing of flood reduction alternatives, the Engineer will liaison with the Tennessee Department of Environment and Conservation (TDEC), the U.S. Army Corps of Engineers, and other relevant agencies for a pre-design conference. The purpose of this conference will be to ensure that the proposed alternatives are vetted with relevant agencies before proceeding with preliminary design. As a result of this meeting, the Engineer and the Owner will select four viable alternatives to proceed with conceptual designs.

Task 6 Deliverables: It is estimated that a total of 15 plausible alternatives will be tested. Results of the flood alternative testing will be included in the overall Condition Assessment Report, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System, including descriptions of the alternatives and tables for comparing flood elevations and flood risk for the various alternatives. Digital hydrologic and hydraulic models for each alternative and GIS-based databases will accompany the report and will include inundation mapping, depth grids, and water surface elevation grids. Additionally, results from the pre-design conference and documentation of the four viable alternatives will be included in the report.

Task 7: Preliminary Flood Reduction Alternative Designs – For projects deemed viable following regulatory vetting, preliminary designs will be prepared by the Engineer with the computations



performed in Task 6. It is estimated that a total of 4 preliminary flood reduction alternative designs will be performed, with at least one being an off-channel storage alternative. These designs will be conceptual in nature, used to establish the extent and complexity of a full project design and to generate an opinion of probable construction costs for budgeting purposes. The task will include:

- Field survey and location of above-ground and below-ground utilities
- Documentation of existing easements and determination of additional required easements
- Performance of additional drainage calculations, if necessary
- AutoCAD drawing of existing and preliminary design plans
- Calculation of bid quantities
- Development of easement drawings
- Preparation of a public outreach plan
- Identification of utility conflicts
- It is assumed that upon the completion of the preliminary designs and delivery, City staff will determine which projects will be selected for full designs, which will occur in future Phases of the Chattanooga WPA Ditch Program.

Task 7 Deliverables: The Engineer will provide preliminary project designs for 4 flood reduction alternatives in AutoCAD format. The designs will include, as necessary, a cover sheet, vicinity map, bid quantities, notes page, details page, existing plan view, proposed plan view, traffic control plan, and plan and profile sheets for water and sewer lines. The Engineer will also provide drawings for dedication of temporary easements.

Task 8: Final Report – The Engineer will prepare a Final Report that includes the Condition Assessment, Ranking System, and Rehabilitation Plan for the Chattanooga WPA Ditch System. This Final Report will provide a ranked inventory for each segment, prioritization for rehabilitation, and a summary of the rehabilitation alternatives. The Final Report will be comprised of the following sections:

•**Data Collection:** The data collection section will include a description of survey reaches, survey methods, survey datum, control source and accuracy, technical areas of concern, ecological areas of concern, and the QAQC procedures applied to the data.

•**Hydrologic & Hydraulic Analyses:** The hydrologic and hydraulic analyses section will include study methodologies and results for the 25- and 100-year return period storms.

•**Ranking System:** This section will include the results of the individual ranking systems (Flood, Technical Deterioration, Ecological), as well as the overall ranking system for each ditch segment and aggregate ranking system for individual ditches.

•**Rehabilitation Alternatives:** Utilizing the results of the condition assessment and ranking systems, this section will summarize the best rehabilitation alternatives for the various segments of the WPA ditch system.

•**Flood Reduction Alternatives Testing:** This section will contain the results of the flood alternative testing for the top five ditch segments in the composite ranking system, including descriptions of the alternatives and tables for comparing flood elevations and flood risk for the various alternatives.

•**Preliminary Flood Reduction Alternative Designs:** This section will contain a summary of the preliminary flood reduction alternative designs for each of the five ditch segments identified in Task 6.

Task 8 Deliverables: Word Document and Adobe PDF of Final Report.

2. SUPPLEMENTAL SERVICES



Any work requested by the Owner that is not included in the Basic Services will be classified as Supplemental Services. Supplemental Services shall include, but are not limited to the following:

No supplemental services are anticipated as a part of this project.

3. REIMBURSABLE EXPENSES:

Project specific reimbursable expenses and charges shall include the following:

Direct labor charges, in accordance with the hourly employee bill rates described in Attachment F. For expert witness testimony and related services in connection with litigation, the Owner agrees to reimburse the Engineer for 1.5 times the direct labor rates in Attachment F.

Subcontractor expenses, billed at cost +15%.



ATTACHMENT B

Owner: City of Chattanooga, Tennessee
 Engineer: AMEC Environment & Infrastructure, Inc.
 Project Number & Name: S-12-004-101
 WPA Ditch Program Phase 1

COMPENSATION

For the services covered by this Agreement, the Owner agrees to pay the Engineer as follows:

1. For the Basic Services described in Attachment A, cost-plus with total project compensation not-to-exceed \$625,925.00. Payments shall be made monthly in amounts which are consistent with the amount of engineering services provided, as determined by the Engineer.
 - Task 1: \$66,920.00
 - Task 2: \$261,320.00
 - Task 3: \$155,645.00
 - Task 4: \$24,900.00
 - Task 5: \$17,440.00
 - Task 6: \$24,320.00
 - Task 7: \$54,180.00
 - Task 8: \$21,200.00

Subtotal \$625,925.00

2. Compensation for Supplemental Services shall be made as defined below, when authorized in writing by the Owner. The maximum limit for each item of additional service shall be established individually and specifically agreed to by the Owner as stated below, unless the service is included in a subsequent agreement.

Subtotal \$ 0.00

Grand Total \$625,925.00

3. Hourly rates for each classification as defined by the Engineer's rate schedule, see Attachment F. Overtime, when authorized by the Owner, will be billed at 1.0 times the rates listed (non-engineer time only).
4. Reimbursable charges will be considered the amount of actual costs of project related expenses or charges times a markup of 15%. Charges for use of computer equipment or software, local travel, local telephone, project photographs, miscellaneous supplies, and reproduction are not considered reimbursable charges. Allowable project-specific reimbursable expenses shall be outlined in Attachment A.
5. The entire amount of each statement shall be due and payable 30 days after receipt by the Owner.
6. The Engineer shall keep records on the basis of generally accepted accounting practice of costs and expenses which records shall be available for inspection at all reasonable times.
7. Invoices shall be submitted using the Standard Invoice form, Attachment G.



ATTACHMENT C

Owner: City of Chattanooga, Tennessee

Engineer: AMEC Environment & Infrastructure, Inc.
Project Number & Name: S-12-004-101
WPA Ditch Program Phase 1

OWNER'S RESPONSIBILITIES

The Owner will furnish, as required by the work and not at the expense of the Engineer, the following:

1. Make available to the Engineer the current City of Chattanooga Design and Construction Standards, all records, reports, maps, and other data pertinent to provision of the services required under this contract.
2. Examine all plans, specifications and other documents submitted by the Engineer and render decisions promptly to prevent delay to the Engineer.
3. Designate one City of Chattanooga employee as the Owner representative with respect to all services to be rendered under this agreement. This individual shall have the authority to transmit instructions, receive information and to interpret and define the Owner's policies and decisions pertinent to the Engineer's services.
4. Issue Notice(s) to Proceed to the Engineer for each phase of the design services.
5. Owner will grant or obtain free access to the project site for all equipment and personnel necessary for the Engineer to perform the work set forth in this Agreement. Owner will notify any and all possessors of the project site that Engineer has been granted free access to the site. Engineer will take reasonable precautions to minimize damage to the site.
6. Owner will acquire all lands, rights-of-way, and easements necessary for the construction of the project.
7. Owner will make a reasonable effort to evaluate if hazardous materials are on or near the project site, and will inform Engineer of findings relative to the possible presence of such materials.



ATTACHMENT D

Owner: City of Chattanooga, Tennessee

Engineer: AMEC Environment & Infrastructure, Inc.
Project Number & Name: S-12-004-101
WPA Ditch Program Phase 1

SUPPLEMENTAL AGREEMENTS

Owner and Engineer agree that the following communications, representations, and agreements by Engineer relating to the subject matter of the Agreement are hereby incorporated into and shall become a part of the Agreement.

The following schedule assumes a notice-to-proceed date of November 1, 2013. Should notice-to-proceed occur at a later date, the actual start and finish dates for project tasks and meeting will be adjusted to reflect that change.

Task 1	Start Date: 11/4/2013	End Date: 3/27/2015
Task 2	Start Date: 11/4/2013	End Date: 5/16/2014
Task 3	Start Date: 5/1/2014	End Date: 7/31/2014
Task 4	Start Date: 7/28/2014	End Date: 8/15/2014
Task 5	Start Date: 8/15/2014	End Date: 9/1/2014
Task 6	Start Date: 9/15/2014	End Date: 9/26/2014
Task 7	Start Date: 10/6/2014	End Date: 10/17/2014
Task 8	Start Date: 10/20/2014	End Date: 10/31/2014

Milestones (dates are approximate pending Engineer, Owner, and Partner schedule conflicts)

Kickoff Meeting	11/6/2013
Data Collection Review Meeting	5/21/2014
Ranking & Alternatives Review Meeting	9/10/2014
Flood Reduction Vetting Conference	10/1/2014
Project Closeout Meeting	11/5/2014



ATTACHMENT E

Owner: City of Chattanooga, Tennessee

Engineer: AMEC Environment & Infrastructure, Inc.
Project Number & Name: S-12-004-101
WPA Ditch Program Phase 1

PROJECT SCHEDULE

Owner and Engineer recognize that time is of the essence of the Agreement and that Owner will suffer financial loss if the work is not completed within the times stipulated herein, plus any extensions thereof. Accordingly, Engineer has established time intervals, in calendar days, for submittals at various stages of the project as detailed below. As each actual submittal date occurs, Engineer shall meet with Owner to discuss the progress of the work and the actual submittal date shall be documented. If project is behind schedule, the reason shall be recorded. Engineer shall not be responsible for the time required by Owner's representative to review Engineer's submittal. When review is complete, Owner shall, in writing, authorize Engineer to proceed to the next submittal date. After final submittal date, Engineer and Owner shall meet to evaluate Engineer's performance with regard to design schedule. An Engineer's Project Performance Evaluation form shall be completed and acknowledged by both Owner and Engineer. Completed form shall be retained by Owner for a period of seven years and reviewed prior to consultant selection for City projects. Past performance shall be accounted for on the evaluation sheet used to rank consultants during the interview process.

Schedule: Engineer will make plan submittals to Owner based on the following schedule:

1. Concept Drawings - Engineer will submit concept drawings within N/A calendar days after Notice to Proceed by Owner.
2. Field Check - Engineer will submit field check drawings within N/A calendar days after Notice to Proceed by Owner.
3. Right-of-Way Drawings - Engineer will submit right-of-way drawings within N/A calendar days after the Notice to Resume Work is given by Owner following Field Check.
4. Office Check - Engineer will submit office check drawings and specifications within N/A calendar days after the Notice to Resume Work is given by Owner following Field Check.
5. Bid Documents - Engineer will submit bid documents within N/A calendar days after the Notice to Resume Work is given by Owner following Office Check.
6. Bid / Award Services – 60 calendar days.
7. Construction Administration Services and/or CEI – N/A calendar days.
8. It is understood and agreed that the Engineer shall start the performance of Services within 10 days of receipt of a written Notice to Proceed and shall complete the work in accordance with the contract times set forth herein.



ATTACHMENT F

Owner: City of Chattanooga, Tennessee

Engineer: AMEC Environment & Infrastructure, Inc.
Project Number & Name: S-12-004-101
WPA Ditch Program Phase 1

RATE SCHEDULE

Project Manager

Principal Project Manager	\$175.00/hr
Associate Project Manager	\$160.00/hr
Senior 2 Project Manager	\$130.00/hr
Senior 1 Project Manager	\$120.00/hr

Engineer (Agricultural, Civil, Environmental, Geotechnical, Water Resources)

Principal Engineer	\$200.00/hr
Associate Engineer	\$180.00/hr
Senior 2 Engineer	\$155.00/hr
Senior 1 Engineer	\$145.00/hr
Tech Prof 3 Engineer	\$125.00/hr
Tech Prof 2 Engineer	\$115.00/hr
Tech Prof 1 Engineer	\$105.00/hr

Specialist (Application Developer, GIS Analyst, Planner)

Principal Specialist	\$165.00/hr
Associate Specialist	\$145.00/hr
Senior 2 Specialist	\$120.00/hr
Senior 1 Specialist	\$110.00/hr
Tech Prof 3 Specialist	\$105.00/hr
Tech Prof 2 Specialist	\$95.00/hr
Tech Prof 1 Specialist	\$75.00/hr

Geologist

Principal Geologist	\$190.00/hr
Associate Geologist	\$145.00/hr
Senior 2 Geologist	\$120.00/hr
Senior 1 Geologist	\$115.00/hr
Tech Prof 3 Geologist	\$110.00/hr
Tech Prof 2 Geologist	\$105.00/hr
Tech Prof 1 Geologist	\$100.00/hr

Scientist (Biologist, Ecology, Environmental)

Principal Scientist	\$165.00/hr
Associate Scientist	\$155.00/hr
Senior 2 Scientist	\$130.00/hr
Senior 1 Scientist	\$115.00/hr
Tech Prof 3 Scientist	\$95.00/hr
Tech Prof 2 Scientist	\$85.00/hr
Tech Prof 1 Scientist	\$75.00/hr



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

SOP 2003-8
Date of Issue 10-16-03
Rev. 12-14-10

Architect

Principal Architect	\$155.00/hr
Associate Architect	\$145.00/hr
Senior 2 Architect	\$135.00/hr
Senior 1 Architect	\$125.00/hr
Tech Prof 3 Architect	\$115.00/hr
Tech Prof 2 Architect	\$105.00/hr
Tech Prof 1 Architect	\$95.00/hr

Registered Land Surveyor

Principal Survey	\$160.00/hr
Associate Survey	\$145.00/hr
Senior 2 Survey	\$135.00/hr
Senior 1 Survey	\$130.00/hr
Tech Prof 3 Survey	\$125.00/hr

Survey Technician

Survey Technician 5	\$85.00/hr
Survey Technician 4	\$70.00/hr
Survey Technician 3	\$65.00/hr
Survey Technician 2	\$60.00/hr
Survey Technician 1	\$55.00/hr

Designer / Drafter

CAD Technician 5	\$95.00/hr
CAD Technician 4	\$85.00/hr
CAD Technician 3	\$65.00/hr
CAD Technician 2	\$47.50/hr
CAD Technician 1	\$37.50/hr

Engineering Technician

Engineering Technician 5	\$70.00/hr
Engineering Technician 4	\$65.00/hr
Engineering Technician 3	\$45.00/hr
Engineering Technician 2	\$40.00/hr
Engineering Technician 1	\$35.00/hr

Administrative

Admin Staff 5	\$120.00/hr
Admin Staff 4	\$70.00/hr
Admin Staff 3	\$60.00/hr
Admin Staff 2	\$50.00/hr
Admin Staff 1	\$40.00/hr



ATTACHMENT G

STANDARD INVOICE

Indicates MANDATORY Item

CONSULTANT LETTERHEAD

ATTN: City Project Manager
REF: **Provided by City**
CODE: Consultant Project Number
PO: **Must be Sequential Number**

INVOICE

TERMS: Net 25 days
DUE: 08/01/03

Invoice Must show Billing Period.

For Professional Services from May 31 to June 27, 2003

This Breakdown must list each item of the Contract.

Consultant Project No.	Description	Fee	Basis	Percent		Amount Billed	Previous Billed	This Invoice Billed
				Work to Date				
C03009-01	01 - Design	\$51,500.00	LS	55%		\$28,325.00	\$18,540.00	\$9,785.00
	02 - Survey	\$15,700.00	LS	0%		\$0.00	\$0.00	\$0.00
C03009-02	Barton Avenue and Brown Acres Golf Course Design	\$20,000.00	CP	12%		\$2,391.02	\$2,033.00	\$358.02
C03009-03	Permitting/Easement Assistance	\$5,000.00	CP	6%		\$291.08	\$0.00	\$291.08
C03009-04	Bidding/Construction Assistance	\$10,000.00	CP	0%		\$0.00	\$0.00	\$0.00
C03009-05	Misc. As-Requested Services	\$5,000.00	CP	7%		\$363.85	\$0.00	\$363.85
Total Contract Amount		\$107,200.00				\$31,370.95	\$20,573.00	
TOTAL THIS INVOICE								\$10,797.95

Must Match Contract Amount

Prior invoices	\$20,573.00
This Invoice	\$10,797.95
Payments	-\$20,573.00
Balance on Account	\$10,797.95

NOTE:

- There shall be only one invoice per contract per billing period.
- Any necessary details should be attached as backup.