

**CITY OF FAYETTEVILLE
WORK AUTHORIZATION
FOR
PROFESSIONAL SERVICES
BY
WK DICKSON & CO., INC.**

In accordance with the General Services Agreement (Agreement) dated March 3, 2017, between THE CITY OF FAYETTEVILLE (hereinafter called OWNER) and WK DICKSON & CO., INC. (hereinafter called CONSULTANT), OWNER hereby authorizes CONSULTANT to proceed and CONSULTANT agrees to perform in accordance with the terms of the Agreement and this Work Authorization, the following services for the following Project:

I. PROJECT

This Work Authorization is for professional services related to:

- Professional design services for the Devonwood Lower Dam repair.
- Detailed CONSULTANT Scope of Services provided in Exhibit A.
- City representation by the Engineering and Infrastructure Department/Engineering Division.

II. AGREEMENT & SCOPE OF SERVICE

The terms of the Agreement are incorporated herein by reference as if written herein and the parties confirm that its terms are a part of this Work Authorization.

The Scope of Services to be provided by CONSULTANT, in connection with this Authorization is as follows:

Scope and deliverables as specified in Attachment A: Design Phase Scope of Services for Devonwood Lower Dam.

The CONSULTANT shall request written confirmation and or execute an additional Work Authorization describing any scope change before performing any work beyond the scope specified in this Work Authorization. The confirmation shall identify any change in compensation and/or delay in completion which the scope changes entails and must be approved by the City Manager or his designee.

III. RESPONSIBILITIES

The responsibilities of the OWNER and CONSULTANT, in addition to those provided in the Agreement which are specific to this Project, are as follows:

As specified in Attachment A: Design Phase Scope of Services for Devonwood Lower Dam.

IV. COMPENSATION

OWNER shall compensate CONSULTANT for providing the services set forth herein in accordance with the terms of the Agreement.

In the absence of a lump sum fee agreement, it is understood and agreed that:

1. CONSULTANT will perform under this Agreement on a best effort, not-to-exceed ceiling price basis and will notify OWNER when the ceiling price will be exceeded.
2. The not to exceed compensation (including travel) for this Work Authorization is \$199,539. This is not a guaranteed maximum amount but CONSULTANT shall not continue performing work in excess of this amount without further specific authorization. OWNER will be billed only for actual time worked and identified expenses.

Payment shall be made in accordance with the terms of the above referenced Agreement.

V. SCHEDULE

All work under this Work Authorization shall begin March 1, 2018 and shall be complete by March 1, 2020.

VI. MISCELLANEOUS

AUTHORIZATION NO. _____

1. The terms in this Work Authorization shall have the same meaning as provided in the Agreement.
2. As mandated by N.C. Gen. Stat. § 147-86.59(a), CONSULTANT certifies that it is not listed on the Final Divestment List created by the North Carolina State Treasurer pursuant to N.C. Gen. Stat. § 147-86.58. CONSULTANT further certifies that, in accordance with N.C. Gen. Stat. § 147-86-59(b), it shall not utilize any subcontractor found on the State Treasurer's Final Divestment List. CONSULTANT certifies that the signatory to this Work Authorization is authorized by CONSULTANT to make the foregoing statement.
3. CONSULTANT acknowledges that "E-Verify" is the federal E-Verify program operated by the U.S. Department of Homeland Security and other federal agencies which is used to verify the work authorization of newly hired employees pursuant to federal law and in accordance with Article 2, Chapter 64 of the North Carolina General Statutes. CONSULTANT further acknowledges that all employers, as defined by Article 2, Chapter 64 of the North Carolina General Statutes, must use E-Verify and after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with N.C. Gen. Stat. § 64-26(a). CONSULTANT pledges, attests and warrants through execution of this contract that CONSULTANT complies with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes and further pledges, attests and warrants that any subcontractors currently employed by or subsequently hired by CONSULTANT shall comply with any and all E-Verify requirements. Failure to comply with the above requirements shall be considered a breach of this Work Authorization.

CONSULTANT ACCEPTANCE:

WK Dickson & Co., Inc.

BY: 

TITLE: Vice President

DATE: 1-26-2017

AUTHORIZATION BY:

AUTHORIZATION NO. _____

CITY OF FAYETTEVILLE

BY: _____

TITLE: _____

DATE: _____

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

Cheryl Spivey, Finance Director

ATTACHMENT A
DESIGN PHASE SCOPE OF SERVICES for DEVONWOOD LOWER DAM

The Engineer shall perform services in accordance with the latest edition of the:

- Applicable published City of Fayetteville Standards
- NCDOT Standard Specifications for Roads and Structures
- NCDEQ Erosion and Sediment Control Planning Design Manual
- MUTCD (Manual on Uniform Traffic Control Devices)

PROJECT DESCRIPTION

The project scope detailed below includes the rehabilitation of the Devonwood Lower Dam located along McFadyen Drive. The proposed design should meet all regulatory requirements including NCDEQ Dam Safety requirements as outlined in the Notice of Deficiency dated July 11, 2017 sent from Timothy LaBounty, Regional Engineer with DEMLR to the City of Fayetteville.

The Engineer's services shall include the following:

1. **Project Administration**

WK Dickson will manage the project in a manner so as to be responsive to the needs and schedule of the City of Fayetteville (the City) and assure the quality of the product. The following project management efforts will be conducted in coordination with the City:

Prepare and submit a project schedule for review and approval by the City's project manager. The schedule shall be broken down by work tasks and milestone events. This schedule will be used as a project control system for WK Dickson and as a basis for status reporting.

WK Dickson shall prepare and submit a monthly progress report to update the project schedule, list milestones achieved, provide current status of each major task, support and document schedule changes, update project costs and justify

any changes to the schedule or proposed budgets. Monthly progress reports are due at the end of each month and shall accompany each invoice.

All project deliverables shall be certified (signed, sealed and dated) by a professional engineer and/or surveyor registered in the state of North Carolina. WK Dickson shall participate in project closeout and ensure it is completed on a timely basis.

WK Dickson shall coordinate and conduct QA/QC according to our in-house QA/QC plan and procedures including reviews at key stages of the project, independent project quality control reviews to assess conformance to project scope, data collection, methodologies, model output, budget, schedule, and prepare QA/QC documentation.

WK Dickson shall attend a maximum of three (3) conference calls with the City to update project progress and review design plans.

2. **Meetings**

WK Dickson will attend the following meetings:

- Progress meeting with City staff (3);
- Coordination meeting with NC Dam Safety (2);
- Coordination meeting with FEMA representatives (1);
- Public meeting (1)
- 401/404 permit coordination (1)
- Utility coordination meeting (1)

WK Dickson will have two (2) attendees at each meeting. Agendas and meeting minutes will be prepared for each meeting with the exception of the public meeting. The agenda and meeting minutes for the public meeting will be prepared by others.

3. **Field Surveys**

WK Dickson will perform supplemental survey required for final design documents. Survey will be limited to a total of 0.8 acres for the topographic and planimetric survey. The City shall furnish to the Engineer any available topographic and storm water infrastructure inventory data relative to the project to be used only as a verification tool. All horizontal surveys shall be tied to the North Carolina State Plane Coordinate System (North American Datum 1983) and all vertical surveys shall be based on the National American Vertical Datum of 1988. Three (3) benchmarks will be established for survey control. Benchmarks will be established outside of the anticipated construction limits. The survey shall comply to the standards of a Class A survey as detailed in the Standards of Practice for Land Surveying in North Carolina, Amended August 1, 2014, or latest revision.

3.1 **Survey Notifications**

The Engineer shall not commence the survey effort until the City provides written authorization and survey notifications to citizens in the Project area. The Engineer will provide the City with a list of property owners in the Project area that should be notified.

3.2 **Wetland/Stream Delineation**

WK Dickson will delineate Waters of the United States (WOTUS) in the project area utilizing the USACE three-parameter approach described in the 1987 Wetland Delineation Manual and the Atlantic and Gulf Coastal Plain Regional Supplement (2010). The wetlands, streams, and open water identified will be marked with sequentially numbered flagging tape and noted in field books and field maps. The ordinary high water mark elevations in stream channels will be marked with wire stake flags on an approximate 200-foot spacing. WK Dickson will complete representative USACE Atlantic and Gulf Coastal Plain Wetland Delineation Data Forms, North Carolina Stream Assessment (NCWAM), and North Carolina Stream Assessment (NCSAM) forms, as needed. Digital photographs will be recorded at representative WOTUS locations. In conjunction with the

delineation, WK Dickson will document natural community types and extents and, assess the presence of protected species habitats, and historic/cultural resources in the project area.

3.3 **Detailed Location and Design Survey**

The survey shall include sufficient data within the agreed limits of the project area as shown in Exhibit 1 to produce a digital topographic map with contours at a minimum of 1' intervals. The Engineer shall supplement the base mapping provided by the City to produce a survey that, at a minimum, includes the following:

- a. Elevations at upstream and downstream invert of any significant hydraulic restriction or system element including: culverts, bridges, pedestrian bridges and low water crossings;
- b. Location and height of guardrail or handrail and profiles adequate to perform overtopping analysis on all significant hydraulic elements;
- c. Channel information including low point (thalweg), toe and top of bank elevation, any major change in slope of bank at locations (minimum every 50 feet) such that an accurate channel plan view and profile can be generated (all major changes in slope, cross-section, and direction of the channel must be captured). Each channel cross-section shall have at least five points within and inclusive of the channel banks and shall have a minimum of two points outside the channel banks on each side of the channel;
- d. Elevations along the road centerlines, edge of pavement, and curb lines (left and right) adequate to produce profiles suitable for accurate design;

- e. Locations of storm drain pipes and structures including sizes, wingwall angles, inlet conditions (e.g., beveled), shapes, material, condition, invert elevations, and rim/grate elevations;
- f. Locations of sanitary sewer pipes, structures, including sizes, materials, invert elevations, and rim elevations, horizontal locations of clean-outs if they are visible and within the survey corridor;
- g. Horizontal locations of all underground non-gravity utilities including valves, hydrants, meters, etc.; and overhead utilities including: poles, lines, guys, boxes, etc. Vertical clearance of overhead utilities will be measured in areas where construction equipment may impact the overhead utilities. Horizontal locations of non-gravity utilities will be located utilizing NC-OneCall. Horizontal location of non-gravity utilities by a Subsurface Utility Engineering Company is excluded from this contract;
- h. Vertical locations of non-gravity utilities is excluded unless otherwise noted.
- i. Locations of other physical features which may be affected by construction of possible alternatives including walkways and driveways (type), fences (type, height/material), walls (type), signs, planters, sheds, brick or stone mailboxes, rock outcroppings, etc.;
- j. Locations of all trees greater than, or equal to, 12" diameter labeled with size and variety, ornamental trees of any size, any landscaped areas within the projected work area;
- k. Locations of property irons to the extent necessary for purposes of producing easement plats and legal descriptions of the proposed easements.

- I. Description, book, and page number of the official registry of all properties affected by the Project, including current property owner name(s), tax parcel identification number, street address, existing property acquisitions, rights-of-way, and all existing recorded easements associated with the Project from the Register of Deeds.

3.4 **Field Survey Project Administration**

Prior to acceptance and use of the survey, the Engineer shall perform a field review of the survey to verify that it is complete and accurate.

3.5 **Survey Submittal**

The Engineer shall provide the survey data to the City in an electronic AutoCAD format, version 2012 or higher, and in ASCII format.

4. **Alternatives Analysis**

The Engineer shall refine the Alternatives Analysis prepared as part of the October 11, 2017 memo to include an evaluation of the potential for detention for the 2-year, 5-year, 10-year, and 25-year, 50-year, and 100-year storm events. While detention will be maximized to the extent practicable, the dam and spillway must pass the regulatory 1/3 PMP event required by Dam Safety. The Alternatives Analysis will be summarized in a Technical Memorandum addressing the following:

- Hydrology (including future conditions)
- Hydraulics
- Historical flood data validation
- Summary of alternatives with pros and cons
 - o Conceptual design drawings
 - o Concept-level cost estimates
- Conclusion and recommendation

5. **401/404 Permitting**

The Engineer shall prepare submittals and approvals required by the US Army

Corps of Engineers and the Division of Water Resources for stream and wetland impacts.

5.1 **Agency Coordination**

This task includes coordination between WK Dickson project staff, Client, and regulators. Information presented at these meetings will include mapping, conceptual design with associated impacts, statement of project purpose and project description.

5.2 **Permit Submittals**

Nationwide Permit and General Certification Pre-Construction Notification This task will include preparation and submittal of a Joint Pre-Construction Notification for 404 Nationwide Permit and 401 Water Quality General Certification. The PCN submittal will include:

- Jurisdictional Determination Request and associated data forms
- Completed PCN form
- Project narrative
- 70 percent design plans
- Additional information requested by regulatory agencies during pre-application coordination

WK Dickson will prepare a draft PCN for client review prior to submittal. Following submittal of the application, review agency comments will be addressed under Task 5.3. Agency review time is estimated to be 90 days from the PCN submittal to receipt of approval letter.

5.3 **Response to Agency Comments**

This task includes preparing responses to the PCN resulting from review agency comments or design changes. The Client will be copied on correspondence with regulatory agencies.

6. **Erosion Control Permitting**

The Engineer shall prepare submittals and approvals required for NCDEQ erosion

control permits and NPDES permits for construction activities.

6.1 **Permit Submittal**

The Erosion Control permit submittal will be prepared and submitted upon completion of the 90% design drawings.

6.2 **Permit Approval**

The Engineer will respond to permitting agency comments and incorporate comments into design documents if feasible.

7. **Dam Safety Permitting**

The Engineer shall be responsible for seeking approval for the design of Devonwood Lower Dam from the North Carolina Dam Safety Program.

7.1 **Permit Submittal**

The Engineer shall prepare appropriate applications/forms, calculations, reports, submittals, and pay any fees required to submit the design to Dam Safety and receive approval. All submittals to Dam Safety shall first be reviewed by the City. All fees associated with two rounds of submittals will be paid by the Engineer and reimbursed by the City out of reimbursables.

7.2 **Preliminary Report**

The Engineer will prepare a preliminary report on the dam and proposed repairs for submittal to Dam Safety and submit to the City for review. Final repairs will need to comply with Dam Safety Law of 1967 NCGS 143-215.28.

7.3 **Emergency Action Plan**

The Engineer will prepare an Emergency Action Plan (EAP) and obtain approval from Dam Safety using the standard EAP format provided by Dam Safety. Downstream inundation mapping will be developed for the

sunny day and 1/3 PMP breach events for a maximum of two miles downstream of the dam.

7.4 **Operation and Maintenance Plan**

The Engineer will prepare an Operation and Maintenance Plan to be reviewed by Dam Safety and utilized by the City.

7.5 **Permit Approval**

The Engineer will respond to permitting agency comments and incorporate comments into design documents if feasible.

8. **Utility Coordination**

The Engineer shall contact utilities, and agencies whose facilities (both existing and proposed) may be affected by the design of the Project. The Engineer shall furnish information pertaining to proposed construction to involved utility companies and agencies. Design plans will be submitted to each utility or agency affected by the design of the Project upon completion of the 70% and 90% design plans along with a letter requesting comments and identification of conflicts. The Engineer shall resolve utility conflicts in a timely manner prior to the completion of the final design plans. The City's Project Manager shall be copied on all correspondence or communications between the Engineer and any agency or utility.

Utility Coordination shall include the following tasks:

8.1 **Utility Easements**

The Engineer will request that the utilities provide documentation that defines the location or description of existing easements of record, including blanket easements, within the Project limits.

8.2 **Utility Review**

The Engineer shall submit plans for review and incorporate into design the

alignment needs of the utilities as provided to the Engineer by the utilities. The Engineer shall coordinate the resolution of any conflicts (both private and public) identified. These resolutions shall be included in the design.

8.3 **Public Utilities Conflict Resolution**

The Engineer shall coordinate the resolution of major relocations and incidental adjustments for existing PWC-owned utilities (i.e., water, sewer) as required to construct the Project.

All of the above tasks shall be performed with the review and approval of the City's Project Manager.

9. **Subsurface Utility Engineering (SUE)**

The Engineer shall secure and manage a consultant to perform subsurface utility location services. Vertical locations will be obtained for those utility locations where conflicts are anticipated. Anticipated conflict locations will be provided by the Engineer to the SUE. Two (2) bore holes are anticipated for this task. Horizontal location of utilities by the SUE is excluded from this contract. Horizontal location of non-gravity utilities will be based on locations provided by NC-OneCall.

10. **Erosion Control Plans**

The Engineer shall design and specify erosion control measures that minimize erosion and prevent off-site sedimentation during construction of the Project. The design shall be in accordance with the requirements of the North Carolina Department of Environmental Quality (NCDEQ), Erosion and Sediment Control Planning Design Manual.

The Engineer shall show erosion control measures and details on the plans.

11. **Construction Traffic Control Plans**

The Engineer shall furnish traffic control plans that shall indicate the Engineer's proposed phasing of construction for the Project including any utility construction and/or relocation.

The Engineer shall prepare the construction traffic control plans in conformance with the following:

- Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD), current as of the date Final Traffic Control plans are begun as prepared by the National Advisory Committee on Uniform Traffic Control Devices, including subsequent revisions;
- The 1985 edition of the "North Carolina Supplement to the MUTCD, Part VI; NCDOT;
- "The State Policy and Procedure for Traffic Control Through Construction Work Zones"; and
- The 2002 edition of the "Highway Design Branch Roadway Design Standards", with all subsequent revisions.

The final traffic control plans shall include a phasing sequence listing work to be done in each phase, the traffic control details of each phase (NCDOT or consultant prepared drawing) and any special considerations, such as time limitations, hour of day limitations, or intermediate completion times. It shall also include temporary pavement markings. The final construction traffic control plans shall be sealed by a registered professional engineer.

12. **Construction Plans and Contract Documents**

The Engineer shall submit design drawings at the 35%, 70%, 90%, and 100% completion stages for the projects described in the Project Description. The final construction plans and contract documents shall include, but not be limited to, the following:

12.1 **Design Plans**

Design plans shall include but may not be limited to the following:

- a. Existing conditions, including roadway, planimetric features, structures, vegetation and utilities, as determined by field survey;
- b. Existing deed title lines, existing and proposed right-of-way lines, existing easements as provided by the City. Proposed storm drainage easements, proposed temporary construction easements, and permanent conservation easements. Fee simple, right-of-way and/or easements shall be sufficient to encompass all improvements, including landscaping;
- c. Location (plan and profile) of proposed storm drainage features (channels, culverts, pipes, manholes, drop inlets, etc.);
- d. Location (plan and profile) of identified existing utilities and proposed utilities and shall indicate proposed underground and overhead utilities to be reconstructed and/or relocated as part of the Project.
- e. Location of construction work areas and indication of which existing features may be impacted by construction (fences, trees, sheds, etc.) indicating the party responsible for removal and/or re-establishment;
- f. Typical cross sections of open channels showing armoring or stabilization techniques;
- g. Recommendation of construction materials to be used;
- h. For culverts or bridges, the submittal shall include an economical type of construction, culvert opening size or span arrangement for the site shall be indicated on the plans, along with overall plan and

elevation views and typical section(s);

- i. For each property, the City tax code designation, the deed book and page number, parcel number, and street address as well as names of property owners per tax records;
- j. Erosion control plans;

The Engineer shall prepare plans on 24" x 36" plan and profile sheets at a scale of 1"=20' horizontal and 1"=5' vertical or as directed by the City. The Engineer shall furnish five (5) sets to the City's Project Manager for review and approval at each stage of completion. The City's Project Manager will return to the Engineer all pertinent comments summarized on a single plan set or in an itemized word document. The Engineer shall revise the plans as required by the City's Project Manager in conformance with the review comments.

The Engineer shall use City standard details to the extent possible. NCDOT standard details will be used if there is not an appropriate City standard.

12.2 **Cost Estimate**

Engineers' opinion of probable cost including Quantity take-offs in the City standard format shall be provided.

12.3 **Contract Document Preparation**

The Engineer shall review the City's Technical specifications and provide Project Special Provisions as needed to complete the project. The Engineer shall deliver the Project Special Provisions with the 90% submittal to the City. Preparation of the bid-package including front-end documents is excluded from the scope.

13. **CONSTRUCTION PHASE SERVICES**

13.1 **Construction Administration**

- The Engineer will provide the necessary supervision for Dam Safety permitting purposes of construction by a professional engineer including part time construction inspection. Fulltime construction observation is not included
- The Engineer will review a maximum of five (5) shop drawings and provide comments to the City and contractor.
- The Engineer shall attend a maximum of six (6) progress meetings.
- The Engineer shall respond to a maximum of ten (10) requests for information and/or clarification.
- The Engineer shall produce as-built drawings sufficient to meet Dam Safety requirements and in accordance with standards set by the NC Board of Examiners for Engineers and Surveyors.
- Two (2) copies of the as-built drawings, "Engineer's Certification", "Owner's Certification", "Operation and Maintenance Plan", and applicable fees shall be submitted to Dam Safety by the Engineer.
- The Engineer shall meet with Dam Safety at the site for the post construction inspection.
- Attend pre-bid, bid.
- Construction staking.

13.2 Final Inspections

The Engineer shall attend the final inspection and walk through for the completed Project. The Engineer shall note any significant deviations from the plan and shall provide comments on the acceptability of the final product.

14. Additional Services

The following services are excluded from this scope and shall be billed at the Engineer's standard rates:

- 14.1 Meetings in addition to those specified in Task 2
- 14.2 Field survey outside the survey limits shown in Exhibit 1
- 14.3 Preparation of permits in addition to those specified in Tasks 5, 6, and 7
- 14.4 Geotechnical services

- 14.5 Preparation of front end documents and bid documents
- 14.6 Preparation of easement plats or easement exhibits
- 14.7 Easement acquisition services
- 14.8 Bid assistance
- 14.9 Construction assistance/observation in addition to that specified in Task 13.
- 14.10 Services not specifically outlined in the scope of services.

SECTION NUMBER	TASK DESCRIPTION	TASK TOTAL
1.0	PROJECT ADMINISTRATION	\$11,750
2.0	MEETINGS	\$17,480
3.0	FIELD SURVEYS	\$6,600
4.0	ALTERNATIVES ANALYSIS	\$8,360
5.0	401/404 PERMITTING	\$6,820
6.0	EROSION CONTROL PERMITTING	\$2,358
7.0	DAM SAFETY PERMITTING	\$30,928
8.0	UTILITY COORDINATION	\$5,140
9.0	SUBSURFACE UTILITY ENGINEERING	\$3,170
10.0	EROSION CONTROL PLANS	\$2,940
11.0	CONSTRUCTION TRAFFIC CONTROL PLANS	\$5,940
12.0	CONSTRUCTION PLANS AND CONTRACT DOCUMENTS	\$53,878
13.0	CONSTRUCTION PHASE SERVICES	\$40,175

TOTAL FOR DESIGN PHASE

\$195,539

14.0 TOTAL REIMBURSABLE EXPENSES

\$4,000

PROJECT TOTAL

\$199,539