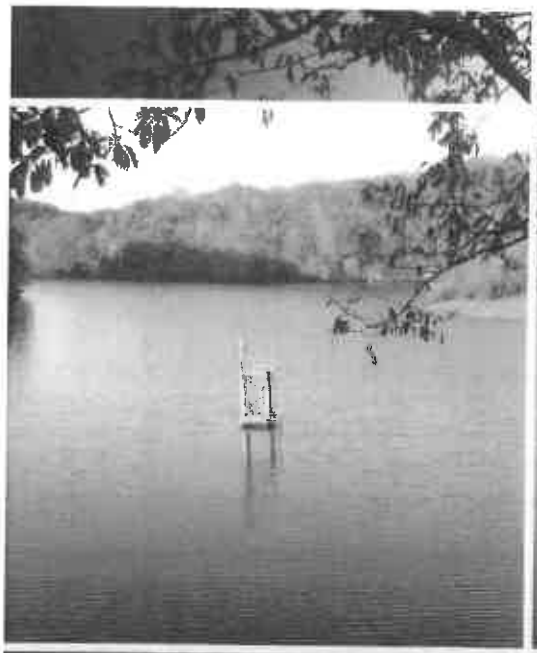
Expression of Interest

Submitted to:

West Virginia
Conservation Agency

Watershed Dam Rehabilitation Program



June 2015

Submitted by:

Gannett Fleming
100 Years
of Excellence Delivered As Promised

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Gannett Fleming
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of Excellence Delivered As Promised

June 2, 2015

Ms. Laura Hooper, Buyer
West Virginia Conservation Agency
2019 Washington Street, East
Charleston, WV 25305

RE: Expression of Interest – Watershed Dam Rehabilitation Program

Ms. Hooper:

To assist the West Virginia Conservation Agency (WVCA) with the planning required for several floodwater prevention dams along with construction of the Upper Deckers Creek Site 1 Dam, Gannett Fleming, Inc. assembled a team with extensive and broad dam engineering expertise and environmental investigation and assessment proficiency, specifically in West Virginia. Gannett Fleming has provided dam engineering services for Natural Resource Conservation Service (NRCS) dams in West Virginia for the past 20 years. Many of these dams required environmental investigations, planning, design, and construction inspection services. Our team members have great working relationships with NRCS and the state and local regulatory agencies, which allows us to easily help you navigate the permitting process and helps to maintain the project schedule.

Gannett Fleming's first three projects 100 years ago were the design of dams. Since that time, we have designed or rehabilitated more than 200 dams throughout the country. Our personnel are experts in their field and consistently contribute to identifying innovative dam safety solutions and sharing this information with dam owners and engineers throughout the industry. Paul Schweiger, PE, CFM, our Project Manager and a West Virginia Professional Engineer, regularly provides Dam Owner and Engineering Workshops and Emergency Action Planning Exercises throughout the country. Our personnel will use this experience to efficiently provide planning services using the most current NRCS approved computer models and analysis methodologies to evaluate the full range of dam rehabilitation options available to address deficiencies at each site while assessing the costs, benefits, and impacts of each alternative to establish the preferred alternative.

We have included Cultural Resources Analysts, Inc. (CRA) on our team to provide cultural resources services. Their extensive experience includes working with state and federal agencies on survey and evaluation strategies and requirements and the development, negotiation, and implementation of mitigation plans. CRA provided Section 106 cultural resource compliance services for the NRCS at Brush Creek Dam Site 14 and other dam projects within West Virginia for the USACE, Huntington District, involving National Register evaluations, archaeological surveys, and historic property management plans.

By selecting Gannett Fleming for this contract, WVCA will partner with a proven team dedicated to developing dam safety solutions that minimize risk while meeting budget, schedule, and quality objectives by leveraging our:

- Experience and familiarity with these sites
- Experience and familiarity with NRCS WV projects and personnel
- Experience with similar projects and scope of work items
- Qualified and experienced personnel who are dam industry thought leaders

Gannett Fleming, Inc.
P.O. Box 67100 • Harrisburg, PA 17106-7100 | 207 Senate Avenue • Camp Hill, PA 17011-2316
t: 717.763.7211 • f: 717.763.8150

www.gannettfleming.com

Thank you for the opportunity to submit our Expression of Interest to WVCA. Should you have any questions regarding our submission, please do not hesitate to contact me directly at 717-763-7212, ext. 2504 or by email at pschweiger@gfnet.com.

Sincerely,

GANNETT FLEMING, INC.

Paul G. Schweiger, PE, Vice President

SF 330 Part I

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Sections A-D

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ARCHITECT – ENGINEER QUALIFICATIONS

PART I – CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION *(City and State)*
Watershed Dam Rehabilitation Program, Charleston, WV

2. PUBLIC NOTICE DATE
May 4, 2015

3. SOLICITATION OR PROJECT NUMBER
AGR1500000004

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE
Paul G. Schweiger, PE, CFM, Vice President

5. NAME OF FIRM
Gannett Fleming

6. TELEPHONE NUMBER
(717) 763-7211

7. FAX NUMBER
(717) 763-8150

8. E-MAIL ADDRESS
pschweiger@gfnet.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all subcontractors)

	(Check) PRIME	(Check) JV PARTNER	(Check) SUB-CONTRACTOR	9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
a.	√			Gannett Fleming **Harrisburg, PA** ☑ CHECK IF BRANCH OFFICE	207 Senate Avenue Camp Hill, PA 17011	Project Manager Dam Rehabilitation Alternatives Public Involvement Project Principal & Quality Assurance/ Quality Control Planning Studies – Task Manager Pollution Control Upper Deckers Creek Site 1 Construction Oversight-Task Manager Hydraulics and Hydrology Subsurface Investigation/ Geologic Evaluation Submittal Review Foundation Inspection NEPA- Lead Economics/GIS Social Environment/Cultural Resources Natural Resources/Wetland Delineation Prepare Record/As-Built Drawings Survey QC Inspections & Tests/ Document Daily Activities
b.	√			Gannett Fleming **Valley Forge, PA** ☑ CHECK IF BRANCH OFFICE	Valley Forge Corporate Center 1010 Adams Avenue Audubon PA 19403-2402	NEPA
c.	√			Gannett Fleming **Pittsburgh, PA** ☑ CHECK IF BRANCH OFFICE	Foster Plaza 8, Suite 400 730 Holiday Drive Pittsburgh PA 15220-2748	Safety/ Schedule
d.			√	METAPER DRILLING **Punxsutawney, PA** ☑ CHECK IF BRANCH OFFICE	1857 Woodland Avenue Ext Punxsutawney, PA 15767	Subsurface Investigation/Geologic Evaluation
e.			√	cra cultural resource analysts, inc **Hurricane, WV** ☑ CHECK IF BRANCH OFFICE	3556 Teays Valley Road, Suite 3 Hurricane, West Virginia 25526	Social Environment/Cultural Resources
f.			√	cra cultural resource analysts, inc **Lexington, KY** ☑ CHECK IF BRANCH OFFICE	151 Walton Avenue Lexington, KY 40508	Social Environment/Cultural Resources

D. ORGANIZATIONAL CHART OF PROPOSED TEAM

☑ *(Attached)*

D. ORGANIZATIONAL CHART OF PROPOSED TEAM.

Led by Project Manager Paul Schweiger, our team has all the disciplines needed to successfully complete the goals and objectives of the WVCA.

LEGEND:

(CRA) = Cultural Resource Analysts, Inc.

Project Principal & Quality Assurance/Quality Control
Rodney E. Holderbaum, PE, PLS, PS

Project Manager
Paul G. Schweiger, PE, CFM

Planning Studies - Task Manager
Eric C. Neast, PE

Dam Rehabilitation Alternatives
Donald P. Roarabaugh, PE
Robert T. Saber, PE
Timothy W. Johnston, PE
William J. Franz, PE, PG
Paul G. Schweiger, PE, CFM

Hydraulics and Hydrology
Amanda J. Hess, PE, CFM
Benjamin P. Israel-Devadason, PE, CFM
Gregory L. Richards, PE, CFM
William J. Kingston III, CFM

Subsurface Investigation/ Geologic Evaluation
Cari R. Beenenga, PE
David M. Snyder, PE
Jeremy S. Robinson, PG
Edward J. Barben, PE
Andrew J. Smithmyer, PG
L. G. Hetager Drilling, Inc.
Gannett Fleming Soils Laboratory

NEPA
Katherine E. Sharpe, AICP - *Lead*
Steven J. Wittig, CE
Kristin L. Civitella

Public Involvement
Michelle A. Brummer, AICP
Paul G. Schweiger, PE, CFM

Social Environment/ Cultural Resources
Craig S. Shirk, AICP, ENV SP
C. Michael Anslinger, RPA (CRA)
Elizabeth Heavrin (CRA)

Natural Resources/Wetland Delineation
Steven C. Smith, WPIT
David H. Graff, PWS, CE, CWB
Corey W. Myers
Samantha R. Hockenberry
Jillian N. Arnold, CFM

Economics/GIS
Katherine E. Sharpe, AICP
Matthew D. Houtz, GISP
Christopher D. Krebs, PE, CFM, GISP

Upper Deckers Creek Site 1 Construction Oversight - Task Manager
Donald P. Roarabaugh, PE

Submittal Review
Vladimir Cecka, PE
Cari R. Beenenga, PE

Prepare Record/As-Built Drawings
Chad T. Hoover, EIT

Pollution Control
Eric C. Neast, PE

Survey
Adam J. Moyer, PLS
Brian S. Miller, PE, SIT

QC Inspections & Tests/Document Daily Activities
Aaron D. Achenbach, Assoc. DBIA, ENV SP

Foundation Inspection
Edward J. Barben, PE
David M. Snyder, PE

Safety/Schedule
Michael A. MacAllister, PE

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Section E

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E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Paul G. Schweiger, PE, CFM	**Project Manager; Dam Rehabilitation Alternatives; Public Involvement**	31	28

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/WV, PA, NJ, NY, ND, IL, VA, AZ, NH
MS/Hydraulics/Water Resources	ASFPM Certified Floodplain Manager

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Paul's areas of expertise include dam assessments, risk assessments, dam design, design review, and hydrologic and hydraulic (H&H) analyses. During his 31 years of experience, he worked on the design of 10 new dams and 28 dam rehabilitations, and served as a Project Manager for more than 100 dam projects. Paul serves as an expert hydrology and hydraulics Engineer on USACE Independent Peer Review Panels for DSAC I Dams and new dam designs. He is an approved FERC facilitator for performing failure-modes analysis exercises for dams and an ASDSO instructor for conducting engineering and dam-owner workshops.

Professional Organizations: United States Society on Dams (USSD); Association of state Dam Safety Officials (ASDSO)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Creek Site 1 Dam, Preston County, WV** — **Section F #1**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Natural Resources Conservation Service (NRCS). Project Manager/Principal conducting planning study, hydrologic and hydraulic study, auxiliary spillway integrity analyses, dambreak analyses, conceptual alternatives design, preliminary design and final design for Upper Deckers Creek Site 1 Dam. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Lost River Site No. 16, Planning through Final Design, Hardy County, WV** — **Section F #6**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2005; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Project Manager for the completion of planning-level studies through final design of a new 90-foot-high zoned earthfill flood control and water supply dam. Detailed hydrologic and hydraulic analyses were completed using the NRCS SITES computer model. The project included establishing Global Positioning System (GPS) control, extensive aerial mapping of the Lost River Valley, stakeout of exploratory drill holes and test pits, on-site exploration of subsurface conditions, laboratory testing of soil and rock samples, materials studies, zoning/design of the earthfill embankment, proportioning of hydraulic structures, and preparing final design documents for the construction of the dam. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Dam (New RCC Dam), Randolph County, WV** — **Section F #7**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Project Manager and chief designer for new 130-foot-high, 700-foot-long roller-compacted concrete (RCC) gravity dam with a construction cost of $33 million. Services included ground surveys and aerial mapping; subsurface exploration and testing of soil and rock materials; hydrologic and hydraulic analyses; preliminary design and layout; final design; preparation of plans, specifications, construction cost estimate and schedule. Tasks also included providing bid-phase and construction support services. Construction was completed in 2009. Fee: $1.5M

d.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Grant County, WV** — **Section F #2**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Project Manager providing investigations, preliminary and final design, and construction-phase services for a 114-foot-high, 940-foot-long zoned earthfill dam rehabilitation. Rehabilitation included slope stabilization, RCC auxiliary spillway armoring, a new toe drain system, and outlet works modifications. Fee: $2.4M

e.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Dam Architectural/Engineering Services, Dam Assessments, WV, NH, NM, WI, and ND**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Project Principal preparing dam assessment reports for 113 NRCS dams located throughout the United States. Work includes performing dam inspections; conducting reconnaissance of downstream impact areas; performing dam-failure modeling using HEC-RAS; preparing inundation maps; conducting hydrologic and hydraulic analyses; performing auxiliary spillway analyses using SITES; identifying deficiencies; and developing rehabilitation alternatives and planning-level costs. Work also includes estimating persons at risk and completing NRCS risk evaluations. Fee: $1.8M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Rodney E. Holderbaum, PE, PLS, PS	**Project Principal & Quality Assurance/Quality Control**	41	34

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/WV, PA, OH, CO, NY, GA, IA, NC, PLS/PA PS/OH

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Rod provides technical oversight of design and construction phase services for dam projects. Throughout his career, he provided engineering services on more than 200 dam and flood control projects including 13 assignments for the NRCS. Rod establishes requirements for RCC-mix designs, performs technical reviews of concepts and designs, and conducts periodic site visits and consultations during construction of dam rehabilitations. He has provided quality review for nearly 15 dam projects and was the Project Director for the Concrete Design Chapter for the *National Engineering Handbook,* which is used by NRCS personnel as a guide for designing or repairing concrete structures within their jurisdiction.

Professional Organizations: American Concrete Institute, USSD, ASDSO, Portland Cement Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Dam 14 Rehabilitation, Grant County, WV** — **Section F #2**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Engineering Manager responsible for technical oversight of design and construction-phase services for upgrading an existing 114-foot-high, 940-foot-long zoned earthfill dam. Responsible for establishing requirements for RCC-mix designs, performing a technical review of concepts and designs, attending periodic meetings with the clients, conducting periodic site visits and consultation during construction, and allocating resources to the project. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Dam, Randolph County, WV** — **Section F #7**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Principal for overall coordination and management of investigations and design of a 130-foot-high, 700-foot-long RCC gravity dam. Services included ground surveys and aerial mapping of the dam and reservoir area; subsurface exploration and testing of soil and rock materials; pre-screening of concrete aggregates for susceptibility to alkali-aggregate reaction; hydrologic and hydraulic analyses; preliminary design and layout; final design; preparation of plans, specifications, and construction cost estimate (PS&E); and preparation of a construction schedule. Fee: $1.5M

c.

(1) TITLE AND LOCATION *(City and State)*: **Renwick Dam Design Review, Pembina County, ND** — **Section F #9**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2014

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Administrator and Senior Engineer managing and performing peer review of 90 percent design documents prepared by NRCS, North Dakota. Responsible for developing a work plan, coordinating review team efforts, and reviewing civil features and RCC drawings and specifications for proposed rehabilitation of a multipurpose earthfill embankment dam located in North Dakota. Fee: $466K

d.

(1) TITLE AND LOCATION *(City and State)*: **Various Dam Engineering Services, Chester County, PA** — **Section F #8**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Chester County Water Resources Authority (CCWRA). Project Principal and Assistant Project Manager for allocation of resources, review and development of work plans, and quality review of final work products for various assignments including annual dam inspections, preparation of emergency action operation and maintenance plans, investigation of observed deficiencies at the dams, development of repair concepts, and preparation of reports to document findings. Fee: $2.5M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Water Resources Studies, Hardy County, WV**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2003; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Principal for technical review and quality control of water resources studies and reports completed for three sites in eastern West Virginia. The project included evaluating the safe yield of two existing reservoirs and one river intake and developing concepts and estimated costs for constructing and operating two water treatment plants. Fee: $163K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Eric C. Neast, PE	**Planning Studies - Task Manager; Pollution Control**	26	25

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/PA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Over his 26-year career, Eric has developed a broad background in the management of hydrology, hydraulics, and dam assessment, rehabilitation design, and breaching projects along with specialized expertise in sedimentation erosion control for small to mid-sized recreational lake dam projects. Through this experience, he has developed a specialized understanding of the state and local regulatory agencies and their permitting process, while successfully cultivating key relationships with stakeholders, including local Authorities, state agencies, Chambers of Commerce, and local community groups. In the past 10 years alone, Eric has served as Project Manager or Engineer on more than 15 dam assessment and engineering projects where he has successfully completed the assessment, permit preparation, and design of dams.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Harmon Creek Riser Structure Modifications, Brook County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Water Resources Engineer for modification of six 2-stage riser structures within the Harmon Creek watershed to address chronic clogging of the lower opening that sets normal pool. Evaluated existing trash racks and lower level orifices; developed alternate trash rack options including modifications to the existing and complete reconstruction; modified the lower level orifices; and prepared design reports, cost estimates, and construction documents. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Keyser, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Project Engineer providing design and construction-phase support services for the rehabilitation of a 114-foot-high, 940-foot-long zoned earthfill dam. Design-phase support included the preparation of an erosion control plan and permitting. Construction-phase support services included shop drawing reviews; on-site coordination meeting with client and contractor; coordination with survey subconsultant; and response to requests for information. Rehabilitation measures included slope stabilization, RCC spillway armoring, a new toe-drain system, and outlet works modifications. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Dam, Randolph County, WV** — Section F #7

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Water Resources Engineer responsible for preparing an erosion and sediment control plan for the control of sediment-laden runoff from both the dam construction site (a new 130-foot high roller-compacted concrete water supply dam) and the associated staging/laydown areas and access roads. Also assisted with various final design analyses and activities including preparation of design details, specifications, and construction cost estimates. Construction-phase services included responding to requests for information and shop drawing reviews. Fee: $1.5M (fee)

d.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing (2016); CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

CCWRA. Water Resources Engineer responsible for the preparation of an erosion and sediment pollution control plan for a new siphon system installed at the crest of the dam. Design included controls for site access routes, staging/laydown areas and in-lake work areas. Performed an assessment of the contributing watershed to identify potential land treatment measures which can be implemented to reduce sediment loading to the reservoir. Fee: $2.5M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Shenango Intake Dam Rehabilitation Project, Sharon, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Aqua Pennsylvania, Inc. Assistant Project Manager for an Alternatives Analysis featuring dam modifications to address structural and public safety concerns at Shenango Intake Dam, a 110-foot-long low-head dam. Alternatives considered included grouted boulder fill on the downstream face, a rock-ramp fishway, and structural modifications. Hydropower alternatives were also analyzed. Responsibilities included permitting and construction-phase services. Fee: $300K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Donald P. Roarabaugh, PE	**Upper Deckers Creek Site 1 Construction Oversight - Task Manager; Dam Rehabilitation Alternatives**	18	17

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/PA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Don has served on nearly 15 dam rehabilitation projects and 10 NRCS dam projects. Don provides construction-phase support for variety of dams, with a particular specialty for providing start-up support for conventional mass concrete and RCC dam projects. His technical specialties include developing and implementing quality assurance/quality control programs for the construction of concrete dams, developing mass concrete mix designs, and performing mass concrete material studies and thermal analyses.

Professional Organizations: USSD, ASDSO, American Society of Civil Engineers, American Concrete Institute

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Creek Site 1 Dam Rehabilitation, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Assistant Project Manager and Lead Civil Designer developing conceptual, preliminary and final design documents for rehabilitation of a 46-foot-high zoned embankment dam. Led civil design tasks and coordinated efforts of the design team for field surveys; prepared contract drawings, specifications, structural details, RCC material investigations and preliminary RCC mix designs, design reports, performance time (project schedule) estimates, construction cost estimates, quality control measures and a quality assurance plan, erosion and sediment control plan, bid schedule, inspection staffing plan, operation and maintenance plan, and instructions to the engineer to be used during the construction phase. Features of the rehabilitation include raising the normal pool by approximately 11 feet to augment water supply and conservation releases; flattening the embankment slopes to improve slope stability; constructing a new internal drainage system, new principal spillway riser structure, new RCC auxiliary spillway; and abandoning existing vegetated earth auxiliary spillway. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Keyser, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Manager managing construction-phase support services for the rehabilitation of a 114-foot-high, 940-foot-long zoned earthfill dam. Provided resident engineering services during the RCC trial-mix batching, trial placement, and production placement of the RCC. Construction-phase support services included full-time resident inspection, shop drawing reviews, RCC trial-mix batching and testing, and inspection. Rehabilitation included slope stabilization measures, installation of a toe and chimney drainage system, construction of a new 85-foot riser intake structure, placement of 26,000 cubic yards of RCC for spillway armoring and enlargement, and outlet works modifications. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **Lost River Site 16, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Engineer for the preliminary layout and development of auxiliary spillway alternatives for a new 90-foot-high zoned-earthfill dam. The project scope of work included establishing GPS control, aerial mapping, stakeout of exploratory drill holes and test pits, on-site exploration of subsurface conditions, laboratory testing, materials studies, preliminary zoning and design of the earthfill embankment, H&H analyses, and proportioning of various hydraulic structures. Fee: >$2M

d.

(1) TITLE AND LOCATION *(City and State)*: **Renwick Dam Rehabilitation Phase 2, Pembina County, ND** — Section F #9

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2014

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Manager managing construction-phase support services for the rehabilitation of a 50-foot-high, 2,100-foot-long zoned earthfill dam. Provided resident engineering services during the trial placement and production placement of the RCC. Construction-phase support services include full-time resident inspection, shop drawing reviews, and inspection of the all aspects of the construction project. Rehabilitation measures include a new embankment section at the location of the original grass-lined auxiliary spillway, placement of approximately 19,000 cubic yards of air-entrained RCC for a new stepped spillway, construction of reinforced-concrete spillway training walls, installation of a drainage system under the new spillway, and outlet works modifications. Fee: $466K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Robert T. Saber, PE	**Dam Rehabilitation Alternatives**	29	28

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering MS/Civil Engineering	Project Engineer/PA,TX, WV, VA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Chi Epsilon

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Final Design and Construction-Phase Services for New Creek Site 14, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Principal Geotechnical Engineer for conceptual planning-level studies through a final design and construction package associated with the rehabilitation design of a 100-foot-high zoned earth embankment dam. Rehabilitation includes auxiliary spillway RCC armoring and flattening downstream slope with drainage blanket and toe drain installation. Services include subsurface investigation (21 test borings and 8 test pits); piezometer installation (16 Casagrande with vibrating-wire piezometers and data loggers); field falling-head permeability testing; geophysical testing (seismic refraction and self-potential); soils and rock laboratory testing; design for slope stability and seepage with the GEO-Studio Suite; and design calculations for settlement, filters, and drains. Prepared construction plans, cost estimates, construction specifications, schedule, and instructions to the engineer. Controlled drawdown of the reservoir to permit construction in the dry was completed through monitoring instrumentation. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Design of Elkwater Fork Dam, Randolph County, WV** — Section F #7

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Project Manager for overall coordination and management of investigations and design of a 130-foot-high, 700-foot-long RCC gravity dam. Services included ground surveys and aerial mapping of the dam and reservoir area; subsurface exploration and testing of soil and rock materials; foundation design; seismic hazard assessment; hydrologic and hydraulic analyses; preliminary design and layout; final design; preparation of plans, specifications, and construction cost estimate; and preparation of construction schedule. Fee: $1.5M

c.

(1) TITLE AND LOCATION *(City and State)*: **Final Design and Construction-Phase Services for Lost River Site 16, Hardy County WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Project Manager for the management of investigations and design of this new 80-foot-high zoned earthfill dam. Services included subsurface exploration and testing of soil and rock materials; final design; preparation of plans, specifications, and construction cost estimate (PS&E); and preparation of construction schedule. Fee: >$2M

d.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam Safety Assessment, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing 2016; CONSTRUCTION *(if appl.)* N/a

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

CCWRA. Principal Geotechnical Engineer responsible for evaluation of piezometric readings for a 64-foot-high, 700-foot-long earth embankment dam designed and constructed in 1994 by the Natural Resources Conservation Service. Monthly piezometric readings indicated elevated phreatic surface within the downstream dam embankment, which led to temporary reservoir drawdown, additional subsurface investigation, piezometer installation, and laboratory testing of collected soils to diagnosis cause of elevated pore pressures and assess downstream slope stability. Fee: $2.5M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **NRCS Dam Assessments, WV, NH, WI, and ND**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2010; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Principal Geotechnical Engineer responsible for assessing the geotechnical elements and preparing dam assessment reports for 82 NRCS dams located in West Virginia, New Hampshire, Wisconsin, and North Dakota. The objective of the assessments was to determine if the dams complied with current NRCS and State design standards. Site visits and reviews of all available engineering data were used to assess the dams. Each dam required an NRCS Water Resources SITES computer analysis for the emergency spillway and an evaluation of existing seepage control elements. The assessments identified and provided preliminary cost estimates for high-priority rehabilitation projects. Fee: $1.8M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Timothy W. Johnston, PE	**Dam Rehabilitation Alternatives**	39	39

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/PA, NY

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: American Concrete Institute; ASDSO

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Water Supply Dam, Randolph County, WV,** **Section F #7**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Design Engineer assisting with the management of investigations and design of this 130-foot-high, 700-foot-long RCC gravity dam. Services included ground surveys and aerial mapping of the dam and reservoir area, subsurface exploration and testing of soil and rock materials, hydrologic and hydraulic analyses, preliminary design and layout of the stepped spillway, final design, preparation of plans and specifications, and preparation of construction cost estimate and schedule. Fee: $1.5M

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Dam Site 14 Rehabilitation, Grant County, WV** **Section F #2**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Manager for technical quality assurance review of contract plans and specifications for upgrading an existing 100-foot-high, 940-foot-long zoned earthfill dam. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **Dam Assessments, Dam Design, Dam Design Reviews, Construction Management, Floodplain Restoration Design, and Legal Land Surveys, Nationwide**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Coordinator for a multiyear nationwide Indefinite Delivery/Indefinite Quantity Contract where the firm served as a preferred provider to NRCS for dam assessments, dam design, design reviews, construction management, floodplain restoration design, and legal land survey services for projects located in WV, WI, ME, NH, ND, and NM. Performed site inspection, review of operation and maintenance procedures, hydrologic analyses, identification of dam and spillway capacity deficiencies, the NRCS SITES integrity analysis of auxiliary spillways, preparation of recommended dam rehabilitation alternatives and cost estimates, and preparation of risk assessment and priority-ranking spreadsheets. Perofrmed hydraulic modeling and dam break analyses and prepared inundation mapping that depicted areas of flood risk in the event of a dam failure. Inundation mapping was prepared for more than 100 dams. Performed design peer reviews for Fort Worth National Centers Servicing Unit on 90 percent design documents prepared by NRCS, North Dakota for proposed rehabilitation of Renwick Dam in Pembina County, North Dakota, which is a multipurpose earthfill embankment dam. Coordinated and compiled multidiscipline engineering reviews of civil features and RCC drawings and specifications. Responsible for preparation of, compliance with, and reporting related to an approved Small Business Subcontracting Plan and administering engineering and surveying support services provided by 12 subconsultants. Fee: $1.8M

d.

(1) TITLE AND LOCATION *(City and State)*: **Thorn Run Dam Rehabilitation, Township of Oakland, Butler County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania America Water. Project Manager for quality assurance review of contract plans and specifications for 39-foot-high, 600-foot-long zoned earthfill embankment dam, including spillway reconstruction, embankment armoring with RCC for overtopping protection, and installation of toe drains and embankment instrumentation. Fee: $1.3M

e.

(1) TITLE AND LOCATION *(City and State)*: **Redbank Valley Intake Dam Rehabilitation, Armstrong and Clarion Counties, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2007; CONSTRUCTION *(if appl.)*: 2007

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Redbank Valley Municipal Authority. Project Manager for the design of a new concrete gravity dam, water supply intake, and Denil-type fish passage facility to replace the existing dam and eliminate hazardous hydraulic backwash. Responsibilities included quality assurance/quality control review of contract drawings. The project also included H&H analyses to assess the impact of the dam rehabilitation and proposed pump station and water treatment plant upgrades on the water surface profiles of the Redbank Creek. Fee: $421K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
William J. Franz, PE, PG	**Dam Rehabilitation Alternatives**	35	21

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Geology	Professional Engineer/PA, VA
BSET/Water Resources Engineering Technology	PG/PA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASTM International; ASDSO

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Renwick Dam, Pembina County, ND** — Section F #9

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Engineer responsible for reviewing the geotechnical design elements of a rehabilitation project for the existing 40-foot-high dam. The dam has a 145-square-mile drainage area and was constructed in 1961 for flood-control and recreation purposes. The rehabilitation project increases the height of the dam by about 5 feet and includes the construction of a 500-foot-wide RCC spillway within the central portion of the embankment. Fee: $466K

b.

(1) TITLE AND LOCATION *(City and State)*: **Salem Fork Dam, WV** — Section F #10

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2014	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Engineer responsible for assessing the geotechnical elements for a 40-foot-high flood-control dam. A review of the original design report and as-built plans were used to assess the dam and provide preliminary cost estimates for several remedial alternatives. Fee: $200K

c.

(1) TITLE AND LOCATION *(City and State)*: **Forty-one Dam Assessments, Various Locations, WV**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2011	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Engineer responsible for assessing the geotechnical elements of 41 flood-control dams located in 11 counties in northern and central West Virginia. Site visits and reviews of the original design reports and as-built plans were used to assess the dams. Each dam required a SITES analysis for the auxiliary spillway and an evaluation of existing seepage-control elements. The assessments identified and provided preliminary cost estimates for high-priority rehabilitation projects. Fee: $750K

d.

(1) TITLE AND LOCATION *(City and State)*: **Dam Assessments, Western WI**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Engineer responsible for assessing the geotechnical elements of three flood-control dams. The objective of the assessments was to determine if the dams complied with current NRCS and state design standards. Site visits and reviews of the available engineering data were used to assess the dams. Each dam required a SITES analysis for the emergency spillway and an evaluation of existing seepage-control elements and the severity of stress-relief jointing within the abutment bedrock. The assessments identified and provided preliminary cost estimates for high-priority rehabilitation projects. Fee: $287K

e.

(1) TITLE AND LOCATION *(City and State)*: **Dam Assessments, Walsh County, ND**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Geotechnical Engineer responsible for assessing the geotechnical elements of five flood-control dams. The objective of the assessments was to determine if the dams complied with current NRCS and state design standards. Site visits and reviews of all available engineering data were used to assess the dams. Each dam required a SITES analysis for the emergency spillway and an evaluation of existing seepage-control elements. The assessments identified and provided preliminary cost estimates for high-priority rehabilitation projects. Fee: $100K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Amanda J. Hess, PE, CFM	**Hydraulics and Hydrology**	16	15

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering MS/Civil Engineering	Professional Engineer/PA, TX, NH ASFPM Certified Floodplain Manager

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: American Society of Civil Engineers; ASDSO; Chi Epsilon Civil Engineering Honor Society; Tau Beta Pi National Engineering Honor Society; Virginia Lakes and Watersheds Association; USSD, Member, Committee on Hydraulics

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Architectural/Engineering Services, Upper Deckers Creek Site 1 Safe-Yield Study, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Senior Project Engineer responsible for assessing safe yield for Upper Deckers Creek Site 1. Work included developing a computer model and a hydrologic database to simulate the daily operation of the reservoir for the period of transposed streamflow record from approximately 1910 to 2011. Safe yield for a range of possible storage conditions was investigated based on computer model simulation and on requirements in compliance with the West Virginia Division of Health Guidelines. Prepared drawdown statistics, a safe-yield-probability relationship, and a summary report. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Reservoir Fluctuation Study, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

CCWRA. Senior Project Engineer responsible for assessing the reservoir pool fluctuations of Chambers Lake (impounded by Hibernia Dam). Work included developing a computer model and hydrologic database to simulate the daily operation of the reservoir for the period of transposed streamflow record from 1912 to 2010. Minimum reservoir pool level was investigated based on computer model simulation and was used to design improvements to the outlet works to be able to reliably supply water to a downstream intake. Results were summarized in an engineering report. Fee: $2.5M

c.

(1) TITLE AND LOCATION *(City and State)*: **White Tanks Flood-Retarding Structure (FRS) No. 4, Maricopa County, AZ** — Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2009; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Flood Control District of Maricopa County. Project Engineer responsible for an NRCS planning-phase study for the rehabilitation of White Tanks FRS No. 4. The project included preparing an NRCS work plan/environmental assessment, which involved developing alternatives, including no action, decommissioning/removing the dam, and/or rehabilitating the dam to meet current criteria, as well as developing a national economic development alternative. Completed unsteady-flow analyses using the HEC-RAS computer model for the reach downstream of the dam to estimate flood depths and velocities during extreme events for the alternatives under consideration. Fee: $1.7M

d.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Safe-Yield and Reservoir-Sizing Study, Randolph County, WV** — Section F #7

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Engineer responsible for assessing the safe yield and sizing of the proposed Elkwater Fork reservoir. Also responsible for completing analyses related to the diversion of water during construction. The new structure is a RCC gravity dam. Fee: $1.5M

e.

(1) TITLE AND LOCATION *(City and State)*: **Lost River Watershed Dams, Site No. 16, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

NRCS. Project Engineer responsible for completing H&H planning-level studies and investigations to support an environmental impact statement and designing a new 90-foot-high zoned earthfill dam. Completed hydrologic analyses using the NRCS SITES computer model, which was also used to evaluate the proposed spillway's susceptibility to erosion damage and breaching. Performed dam break analyses using HEC-RAS and HEC-GeoRAS in conjunction with ARC-GIS. Tasks also included preparing dam break inundation mapping. Fee: >$2M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Benjamin P. Israel-Devadason, PE, CFM	**Hydraulics and Hydrology**	10	7

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering MS/Civil Engineering	Professional Engineer/TX CFM

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASFPM; ASCE; American Water Resources Association; Chi Epsilon Civil Engineering Honor Society

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Site 1 Dam, Preston County, WV,** **Section F #1**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Ongoing (2016)	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRCS. H&H Engineer conducting a detailed hydrologic study, auxiliary spillway integrity analyses, and dam break hydraulic analyses of Upper Deckers Site 1 Dam and its floodplain. Reviewed existing H&H data; collected topographic data; developed SITES H&H models; performed site visit; completed an approximate survey of channel obstructions; and developed a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS software. Ran the dam breach model to simulate dam failure during sunny day and hydrologic loading conditions to predict flood extents and water surface elevations of outflow from the reservoir for those scenarios. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Lost River Site No. 16 Dam, Hardy County, WV** **Section F #6**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2015	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRCS. H&H Designer conducting a detailed dam break hydraulic analysis of Lost River and its floodplain. Reviewed existing H&H data; collected topographic data; and developed a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcView. The model was used to simulate dam break scenarios, including sunny day failure and PMF failure, and to predict flood extents and water surface elevations of outflow from the reservoir for those scenarios. Modeled temporary structures, including bridge structures within HEC-RAS, and plotted flood extents for dam breach scenarios. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site No. 14 Dam, Grant County, WV** **Section F #2**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2013	2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRCS. H&H Engineer conducting a detailed hydrologic study, auxiliary spillway integrity analyses, and detailed dam break hydraulic analysis of New Creek and its floodplain. Reviewed existing H&H data, collected topographic data, developed SITES H&H models, performed site visit, completed an approximate survey of channel obstructions, and developed detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS. Ran model to simulate dam failure during sunny day and hydrologic loading conditions to predict flood extents and water surface elevations of outflow from the reservoir. Fee: $3M

d.

(1) TITLE AND LOCATION *(City and State)*: **Salem Fork Site 11 and Site 11A Dam, Harrison County, WV** **Section F #10**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2014	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRCS. H&H Engineer conducting a detailed hydrologic study, auxiliary spillway integrity analyses, and dam break hydraulic analyses of the dams and their floodplain. Reviewed H&H data; collected topographic data; developed SITES H&H models; performed site visit; completed an approximate survey of channel obstructions; and developed a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS. Ran dam breach model to simulate failure of dam during sunny day and hydrologic loading conditions to predict the flood extents and water surface elevations of outflow from the reservoir. Fee: $200K

e.

(1) TITLE AND LOCATION *(City and State)*: **Dam Assessments, Breach Modeling, and Inundation Mapping for 112 Dams Located in WV, WI, NH, ND, and NM**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

NRCS. H&H Engineer developing dam failure models; preparing inundation mapping using HEC-GeoRAS, HEC-RAS, ArcGIS, and Google Earth software; and performing dam assessments. The dam breach unsteady-state hydraulic models range in reach lengths from 2 miles to 66 miles. The dam assessment tasks included performing dam inspections; conducting reconnaissance of downstream impact areas; preparing hydrologic and auxiliary spillway models using the NRCS SITES program to evaluate the sufficiency of the existing dams to conform to current design and analysis criteria; identifying deficiencies; preparing failure indexes; and developing and evaluating rehabilitation alternatives. Fee: $1.8M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Gregory L. Richards, PE, CFM	**Hydraulics and Hydrology**	8	5

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional/UT
MS/Civil and Environmental Engineering	ASFPM Certified Floodplain Manager

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASFPM; USSD; ASDSO, Dam Failure and Incidents Committee

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
New Creek Site No. 14 Dam Break Analysis and Inundation Mapping, Grant County, WV Section F #2	2013	2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Hydraulic and Hydrologic Designer conducting a detailed dam break hydraulic analysis of New Creek and its floodplain. Reviewed existing H&H data; collected topographic data; performed a site visit; completed an approximate survey of channel obstructions, including 22 bridges; and developed a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS software. Model was run to simulate failure of dam during both sunny day and hydrologic loading conditions to predict the flood extents and water surface elevations of outflow from the reservoir for those scenarios. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Upper Deckers Site 1 Dam Rehabilitation, Preston County, WV Section F #1	Ongoing (2016)	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Hydraulic and Hydrologic Engineer for the preliminary and final rehabilitation design of a 45-foot-high, 600 LF, high-hazard zoned earth embankment dam constructed in 1969. This project is a continuation of the planning study completed in 2011. Rehabilitation included a new stair-stepped RCC spillway armoring detail on the existing embankment, replacement of the riser structure, slope flattening, internal drainage elements, and embankment construction in the existing auxiliary spillway. Directly responsible for completion and technical review of hydraulic proportioning and auxiliary spillway analysis for the rehabilitation project. Fee: $999K (est.)

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
NRCS Dam Assessments, WV	2011	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Hydraulic and Hydrologic Designer preparing dam assessment reports for 66 NRCS dams and dam failure inundation mapping reports for 34 additional NRCS dams located in West Virginia. Work included performing dam inspections; conducting reconnaissance of downstream impact areas; performing dam failure modeling using HEC-RAS; preparing inundation mapping; completing hydraulic, hydrologic, and auxiliary spillway analyses using SITES; identifying deficiencies; and developing rehabilitation alternatives and planning-level cost estimations. Fee: $1.8M

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Pikes Creek Dam Rehabilitation, Luzerne County, PA	Ongoing (2016)	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Project Manager for completion of preliminary design-phase services for a high-hazard 65-foot-high, 2,155-foot-long homogenous earthfill dam with a concrete core wall. Engineering studies and construction plans were reviewed and augmented with subsurface explorations, site reconnaissance, and field surveys to assess the dam's condition and compliance with current dam safety design criteria. Alternative design solutions were developed and critiqued. Two-dimensional hydraulic analyses were performed to identify downstream infrastructure at risk. Alternative solutions evaluated included embankment armoring and the application of crest gates, fuse gates, and labyrinth spillways. Final rehabilitation design includes expanding existing auxiliary spillway and installing HydroPlus fuse gates to increase discharge capacity, flattening downstream embankment slope, installing new drainage facilities, and retrofitting existing outlet works with pneumatically-operated knife gate valves to provide a means of upstream closure. Fee: $1.85M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Six Dam Assessments, Statewide Massachusetts	Ongoing (2015)	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Manager for the completion of dam assessment reports for six NRCS dams. Performed dam inspections; conducted reconnaissance of downstream impact areas; performed dam failure modeling using HEC-RAS; prepared inundation mapping; completed hydraulic, hydrologic, and auxiliary spillway analyses using SITES; identified deficiencies; and developed rehabilitation alternatives and planning-level cost estimations. Fee: $114K (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
William J. Kingston III, CFM	**Hydraulics and Hydrology**	5	2

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	EIT/PA
MS/Civil Engineering	Certified Floodplain Manager

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASFPM; ASCE, Board of Directors, 2015-2016

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Beaverdam Creek Dam Rehabilitation, Loudoun County, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

City of Fairfax Department of Utilities. H&H Designer reviewing the rehabilitation design and preparing a preliminary construction cost estimate for the dam rehabilitation. Checked structural stability analyses that were performed for proposed structure, estimated quantities, unit costs, and lump sum costs for various components, and developed a detailed construction cost summary. Fee: $797K

b.

(1) TITLE AND LOCATION *(City and State)*: **Smithfield Lake Hydrologic Assessment, Smithfield, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Town of Smithfield. H&H Designer evaluating H&H characteristics of a significant hazard structure and watershed. In support of a reassessment of the dam's hazard potential classification, conducted hydrologic evaluation to determine rainfall-runoff response of watershed and assess reservoir response under different loading conditions. Reviewed previous documents and analyses including dam breach analyses, H&H models, and design reports; calculated watershed parameters following NRCS methodology; developed watershed and reservoir routing model; assessed prior hazard potential classification and spillway design flood; evaluated frequency of road overtopping; and determined alternatives to increase spillway capacity. Fee: $12K

c.

(1) TITLE AND LOCATION *(City and State)*: **Necedah National Wildlife Refuge Dam Breach Consequence and Hazard Classification Reassessment and Inundation Mapping, Juneau County, WI**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

U.S. Fish and Wildlife Service. H&H Designer conducting detailed hydrologic analyses for four dams. Work supported 2D dam break hydraulic analyses to reassess the hazard potential classification of each structure. Reviewed existing H&H data; provided field reconnaissance; collected traffic count data;, analyzed soil, land use, and topographic data; determined key watershed parameters following NRCS methodology; obtained probable maximum precipitation/storm estimates, developed a HEC-HMS hydrologic model, and estimated dam breach parameters. Fee: $2.5M

d.

(1) TITLE AND LOCATION *(City and State)*: **Sheppard-Myers Dam Rehabilitation Conceptual Design, West Manheim Township, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Borough of Hanover. H&H Designer performing H&H analyses and design for improvements at Sheppard-Myers Dam. Performed alternatives analysis to determine most appropriate rehabilitation alternative. Conducted site inspection, reviewed historic documentation, watershed and reservoir routing models, and annual inspection reports, compiled a list of known and potential dam deficiencies, performed H&H analyses for conceptual design of dam rehabilitation alternatives, estimated PMF and other events, evaluated conveyance capacity and prepared spillway discharge rating curves, performed standard-step backwater analyses of the reach downstream, designed single- and two-stage labyrinth weir spillway, designed new spillway chutes and stilling basins for proposed alternatives, prepared detailed cost estimate for each alternative, and created conceptual design report to document conceptual design process. Fee: $122K

e.

(1) TITLE AND LOCATION *(City and State)*: **Dam Break Analysis for Clifton Forge Dam, Clifton Forge, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

☒ Check if project performed with current firm

Town of Clifton Forge. H&H Designer conducting a detailed dam break analysis of a 54-foot-high concrete gravity dam. Reviewed existing H&H data; provided field reconnaissance; analyzed soil, land use, and topographic data; performed hydrologic analyses using GIS-based watershed models and HEC-HMS, applying HMR 51 and 52 methodology to obtain probable maximum precipitation/storm estimates; developed a hydraulic computation using HEC-GeoRAS and HEC-RAS; analyzed complex hydraulics beneath the town; conducted dam breach analyses and hydraulic computations using HEC-RAS; identified flood hazard areas; and developed flood inundation hazard area maps. Evaluated sunny day and hydrologic loading conditions to predict the flood extents and water surface elevations of outflow from the reservoir. Fee: $62K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Cari R. Beenenga, PE	**Subsurface Investigation/Geologic Evaluation; Submittal Review**	27	27

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
AA/Engineering BS/Civil Engineering	Professional Engineer/WV, PA, VA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASCE; Geotechnical Conference Organizing Committee Chair (1991-present); ASDSO; USSD

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Site 1 Dam Rehabilitation, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Manager and Senior Geotechnical Engineer for preliminary and final rehabilitation design of a 45-foot-high, 600 LF, high-hazard zoned earth embankment dam constructed in 1969. This project is a continuation of planning study completed in 2011. Rehabilitation included new stair-stepped RCC spillway armoring detail on existing embankment, replacement of riser structure, slope flattening, internal drainage elements, and embankment construction in existing auxiliary spillway. Directly responsible for completion of field investigations, laboratory testing of soil and rock, design effort, construction plans, specifications, and a cost estimate. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Final Design and Construction-Phase Services for New Creek Site 14, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Assistant Project Manager and Geotechnical Project Manager for conceptual planning-level studies through final design and construction package associated with rehabilitation of 114-foot-high, 940-foot-long zoned earth embankment dam. Rehabilitation includes auxiliary spillway RCC armoring and flattening of downstream slope with drainage blanket and toe drain installation and outlet works modifications. Services included subsurface investigation; piezometer installation; field falling-head permeability testing; geophysical testing; soils and rock laboratory testing; design for slope stability and seepage; and design calculations for settlement, filters, and drains. Prepared construction plans, cost estimates, construction specifications, schedule, and instructions. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation Planning Assistance for Salem Fork Dams Sites 11 and 11A, Preston County, WV** — Section F #10

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Senior Geotechnical Engineer planning and coordinating a subsurface investigation program for 18 foot-high embankment dams. The investigation included soil and rock drilling and sampling. The subsurface investigation included borehole rock-pressure testing. Coordinated laboratory testing program of soil and rock samples and design calculations associated with NRCS SITES software modeling of existing auxiliary spillways. Fee: $200K

d.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam, Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Senior Geotechnical Project Engineer for investigation and analyses for rehabilitation of 100-year-old, 101-foot-high, 538 foot-long composite earth embankment and stone masonry dam with masonry core wall. Performed review of historical data, visual inspection, and analysis and interpretation of performance data. Prepared report with evaluation of performance and recommendations for additional investigations and analyses. Performed first and second phases of subsurface investigation. Developed geotechnical data report summarizing findings. Fee: $3.7M

e.

(1) TITLE AND LOCATION *(City and State)*: **Pikes Creek Dam Rehabilitation Project – Preliminary Design Phase, Luzerne County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Project Geotechnical Engineer for completion of design-phase services for rehabilitating high-hazard 65-foot-high, 2,155-foot-long homogenous earthfill dam. Reviewed and augmented engineering studies and construction plans with subsurface explorations, site reconnaissance, and field surveys to assess dam's condition and compliance with current dam safety design criteria. Alternative solutions evaluated included embankment armoring and application of crest gates, fuse gates, and labyrinth spillways. Preliminary design memorandum presented preliminary design construction plans, design analyses documentation, and estimated cost of construction. Fee: $1.85M (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
David M. Snyder, PE	**Subsurface Investigation/Geologic Evaluation; Foundation Inspection**	10	10

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil and Environmental Engineering MEng/Geotechnical Engineering	Professional Engineer/PA Approved Level 1 Drilling Inspector First Aid-Adult CPR/AED-Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASCE; ASDSO; USSD

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation Planning Assistance for Upper Deckers Creek Site 1, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Project Engineer planning and coordinating a subsurface investigation program for an existing 45-foot-high zoned embankment dam. The investigation included 890 LF of soil and rock drilling and sampling, as well as 2,300 LF of geophysical surveys consisting of seismic refraction and multichannel analysis of surface waves. The subsurface investigation also included borehole rock pressure testing and installation of vibrating-wire piezometers. Additional services included coordination of the laboratory testing program of soil and rock samples, preparation of an investigation report, and design calculations associated with NRCS SITES modeling of existing and proposed auxiliary spillways. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Final Design and Construction-Phase Services for Lost River Site 16, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Project Engineer for final design calculations associated with the design of a new 80-foot-high zoned embankment dam. Services included design calculations for slope stability, seepage, settlement, and filters and drains and toe drain pipes for final design. Additional services included review of construction plans and preparation of cost estimates, construction specifications, and instructions to the engineer. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **Final Design and Construction-Phase Services for New Creek Site 14, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Engineer for final design calculations associated with the rehabilitation design of an existing 94-foot-high zoned embankment dam. Services included design calculations for slope stability, seepage, settlement, and filters and drains for final design. Additional services included review of construction plans and preparation of cost estimates, construction specifications, and instructions to the engineer. Fee: $3M

d.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation of Thorn Run Dam, Butler County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Geotechnical Designer for subsurface investigation and vibrating-wire piezometer installation inspection. The testing program for the borings included penetration testing and NX rock coring. Encountered sandstone, siltstone, or shale rock formations during coring. Additional responsibilities included calculations and design reports addressing slope stability, seepage, and settlement of soils due to spillway construction and RCC armoring of the dam. The project included geotechnical investigation and laboratory soil and rock analysis of the existing dam. Fee: $1.3M

e.

(1) TITLE AND LOCATION *(City and State)*: **Elmhurst Dam Rehabilitation, Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2017); CONSTRUCTION *(if appl.)*: Ongoing (2017)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Geotechnical Project Engineer for preliminary and final design calculations for rehabilitation of an existing 64-foot-high composite stone masonry and earthfill embankment dam. Geotechnical calculations included slope stability, seepage and drain design, dam and retaining wall stability, post-tensioned anchor design, temporary support of excavation design, and dewatering system design for excavations up to 40 feet in depth. Additional responsibilities include generating cost estimates, design reports, and a geotechnical baseline report and writing, editing, and finalizing contract documents including specifications and drawings. Fee: $1.9M (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jeremy S. Robinson, PG	**Subsurface Investigation/Geologic Evaluation**	14	12

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Earth Sciences MS/Geology	PG/PA, MO, NC; MSHA Mine Safety Certified; PennDOT Certified Drilling Inspector; First Aid-Adult; CPR/AED-Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: National Ground Water Association; Association of Environmental and Engineering Geologists; Harrisburg Area Geological Society

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Site 1 Dam Rehabilitation, Geotechnical Drilling and Site Investigation, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Geologist responsible for overseeing a subsurface investigation program for an existing 45-foot-high zoned embankment dam. The investigation included 306 LF of soil and rock drilling and sampling, as well as the assessment of existing vibrating-wire pressure transducer instrumentation installed in existing Casagrande piezometers. The rock formation encountered during coring comprised sandstone, siltstone, claystone, and coal of the Allegheny Formation of Pennsylvanian age. The subsurface investigation included borehole rock pressure testing and installation of a Casagrande piezometer. Additional services included coordination of the laboratory testing program of soil, rock, and water samples; preparation of an investigation report; and the troubleshooting, reprogramming, and redeployment of vibrating-wire pressure transducer instrumentation. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Soil Test Pit Investigation, Lost River Site No. 16, Lost River, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2005; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Staff Geologist responsible for conducting excavation inspection and sampling at 30 test pits located at proposed soil barrow areas, the proposed spillway area, and along the proposed centerline of the dam. The soil test pit information was included in an investigation report to the NRCS in May 2005. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Staff Geologist responsible for monitoring embankment slope stability during reservoir dewatering. New Creek Site 14 Dam is an existing 93-foot-high, 940-foot-long zoned earth embankment dam. Data collection of 16 Casagrande piezometers equipped with vibrating wire pressure transducers and inclinometers was performed to monitor site conditions during the drawdown of the reservoir. Fee: $3M

d.

(1) TITLE AND LOCATION *(City and State)*: **Pikes Creek Dam, Geotechnical Drilling and Site Investigation, Luzerne County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Project Geologist for the subsurface investigation. The drilling program included standard penetration testing, NX rock coring, and rock pressure testing for the borings. Test pit excavation was also performed to assess material in a proposed borrow area. The rock formations encountered during coring consisted of sandstone and siltstone of the Catskill Formation of Devonian age. The data and samples obtained during the site exploration program were used to address the rehabilitation and remedial construction concerns at Pikes Creek Dam, which include insufficient spillway capacity, seepage, slope stability, and structural stability. The subsurface exploration results were summarized in a geotechnical exploration report and used in the preliminary geotechnical design report. Fee: $ 1.85M

e.

(1) TITLE AND LOCATION *(City and State)*: **State Park Dams Rehabilitation, Swift Creek Dam Geotechnical Drilling and Site Investigation, Chesterfield County, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2015); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Virginia Department of Conservation and Recreation. Project Geologist for subsurface investigation at an existing concrete dam. Investigation included 135 LF of concrete and rock drilling conducted at top of the non-overflow abutment sections. Rock formation encountered during coring comprised the Petersburg Granite of Mississippian age. Drilling investigation was performed to assess character and condition of concrete and bedrock at dam. Data obtained from subsurface investigation was used to assess condition of dam and bring dam into compliance with regulations. Fee: $321K (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Edward J. Barben, PE	**Subsurface Investigation/Geologic Evaluation; Foundation Inspection**	10	10

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering MS/Civil Engineering	Professional Engineer/PA Standard First Aid; CPR/AED

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASDSO; USSD; Chi Epsilon, Civil Engineering Honor Society

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Designer for subsurface investigation and vibrating-wire piezometer installation inspection for a 114-foot-high, 940-foot-long, zoned earth embankment dam. Drilling program included penetration testing, borehole falling-head permeability testing, and NX rock coring. Rock formations encountered during coring were composed of siltstone and shale. Assisted in inspection of two boreholes advanced through dam's central clay core conforming to specifications required by ER-1110-1-1807. Configured borehole logging software, prepared site investigation report, prepared laboratory testing program, and designed calculations addressing auxiliary spillway integrity. Performed liquefaction, slope stability, and seepage collection system analyses. Assisted in seepage modeling and embankment zoning compatibility analyses. Prepared final geotechnical design deliverable and addressed client review comments where applicable. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Lost River No. 16 Dam, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Designer preparing final design investigation report for new 80-foot-high, zoned earth embankment dam. Prepared subsurface profiles based on test-boring information, prepared a proposed soil and rock laboratory testing program, analysis of collected bulk soil and rock core samples for hardness and breakdown ability, and completed of analysis using Water Resources Site Analysis Computer Program. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing (2016); CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

CCWRA. Geotechnical Designer for geotechnical analysis and insight of 64.5-foot-high Hibernia Dam. Unusually high phreatic levels observed in existing casagrande piezometers prompted a concern over the integrity and stability of the dam. Created embankment cross sections based on historic data and performed preliminary slope stability analysis. Prepared cost estimate, drilling contract, and bid documents for proposed subsurface investigation and piezometer installation plan. Developed laboratory soil testing program and completed additional slope stability and seepage analyses using interpreted soil properties and piezometric data. Prepared technical report documenting subsurface exploration and laboratory testing findings. Provided recommendations for future investigations. Fee: $2.5M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*: **NRCS Dam Assessments, Various Locations, WV**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Geotechnical Designer assessing the geotechnical elements for 21 flood control dams in multiple West Virginia watersheds to determine if the dams complied with current NRCS and state design standards. Work included performing dam inspections, providing geotechnical parameters for auxiliary spillway analyses using SITES, and evaluating existing seepage control elements. Additional responsibilities included summarizing findings within dam assessment reports and reviewing priority ranking spreadsheets for each dam. Fee: $400K

e.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam, Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Geotechnical Designer for final design analysis for rehabilitation of 100-year-old, 101-foot-high, 538-foot-long, composite earth embankment and stone masonry dam with a masonry core wall. Analysis and calculations included borehole falling-head permeability, rock strength, downstream hillside slope stability, relief-well design, and filter compatibility. Fee: $3.7M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Andrew J. Smithmyer, PG	**Subsurface Investigation/Geologic Evaluation**	14	14

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Geology MS/Engineering Geology	PG/PA, VA; MSHA Mine Safety Certified; General Miner Certification/VA; Level 1 Drilling Inspector/PA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: National Ground Water Association, Association of Ground Water Scientists and Engineers; Pennsylvania Council of Professional Geologists

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation Planning Assistance for Upper Deckers Creek Site 1, Preston County, WV** — Section F #1

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Geologist planning, coordinating, and overseeing subsurface investigation program for a 45 foot-high zoned embankment dam. Investigation included 890 LF of soil and rock drilling and sampling, and 2,300 LF of geophysical surveys consisting of seismic refraction and multichannel analysis of surface waves. Subsurface investigation included borehole rock pressure testing and installation of vibrating-wire piezometers. Coordinated laboratory testing program of soil and rock samples, prepared investigation report, and designed calculations associated with NRCS SITES modeling of existing and proposed auxiliary spillways. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Geologist for subsurface investigation and vibrating-wire piezometer installation inspection for 114-foot-high, 940-foot-long zoned earth embankment dam. Drilling program included penetration testing, borehole falling head permeability testing, and NX rock coring. Assisted in inspection of boreholes advanced through dam's central clay core conforming to specifications required by ER-1110-1-1807. Configured borehole logging software, prepared site investigation report, prepared laboratory testing program, researched geologic literature, and reviewed results of subsurface investigation and seismic refraction survey. Determined location of Kittlelick fault and finalized geologic mapping of site. Fee: $2.4M

c.

(1) TITLE AND LOCATION *(City and State)*: **Lost River No. 16 Dam, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Staff Geologist for geotechnical investigation of potential dam. Inspected standard penetration testing of overburden and NX wireline rock coring, logging materials in accordance with U.S. Bureau of Reclamation's Engineering Geology Field Manual. Inspected single- and double-packer water-pressure testing of bedrock, determining target effective pressures and gauge pressures. Measured bedding and cleavage orientation from rock outcrop upstream of proposed dam axis. Completed test pit logs and collected soil samples for laboratory analyses. Reviewed geological literature and prepared summary of physiography, soils, stratigraphy, and structural geology for site investigation report. Fee: >$2M

d.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

CCWRA. Project Geologist for subsurface exploratory program for existing 64.5-foot-high, 700-foot-long zoned earth embankment dam. Unusually high phreatic levels observed in existing casagrande piezometers prompted a concern over integrity and stability of dam. Provided oversight of soil and rock sampling methods during drilling operations and piezometer construction. Procured and installed instrumentation and provided client with instruction and maintenance of instrumentation. Established cost estimate for proposed subsurface investigation and piezometer installation plan. Monitored and analyzed historic and current piezometric data and provided information to client. Fee: $2.5M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Dam, Randolph County, WV** — Section F #7

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Project Geologist for geotechnical investigation of new 123-foot-tall dam. Measured bedrock discontinuity orientation from rock outcrop exposures at the proposed dam axis. Reviewed geological literature and prepared a summary of physiography, soils, stratigraphy, and structural geology for the site investigation report. Fee: $1.5M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Katherine E. Sharpe, AICP	**NEPA – Lead; Economics/GIS**	15	15

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BA/English, Minor in Environmental Economics MPS/Environmental Management	AICP

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: American Planning Association (APA); American Institute of Certified Planners (AICP)

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **FRS 7 and 13A, Environmental Assessment and Watershed Plan, Upper Brushy Creek Watershed, Williamson County, TX** — Section F #3

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2005; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Environmental Economist conducting cost-benefit analysis to determine whether to rehabilitate or remove two aging dams. Quantified benefits of maintaining flood protection for agriculture, residential, and commercial properties, and roads and bridges. Used NRCS URB1 model to estimate benefits of continuing residential flood protection. Quantified benefits that sediment pool behind one of dams provided including recreation, water supply, stormwater detention, and aesthetic value to adjacent properties. Analysis identified engineering alternative to maximize net benefits. Fee: $273K

b.

(1) TITLE AND LOCATION *(City and State)*: **Environmental Assessment (EA) and Watershed Plan, White Tanks FRS No. 4, Maricopa County, AZ** — Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2008; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Flood Control District of Maricopa County. Environmental Economist assisting in preparation of NRCS work plan and EA for rehabilitation of White Tanks FRS No. 4. Conducted cost-benefit analysis to determine whether to rehabilitate or remove aging White Tanks Dam. Quantified benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; roadways; and other infrastructure. Used NRCS URB1 model to estimate benefits of continuing residential flood protection. Analysis identified engineering alternative to maximize net benefits. Assisted in developing alternatives for project, including no action, decommissioning/removal of the dam, the rehabilitation of the dam to meet current criteria, and the National Economic Development alternative. Fee: $1.7M

c.

(1) TITLE AND LOCATION *(City and State)*: **Pre-Planning Concepts Study for Saddleback FRS Rehabilitation Project, Maricopa County** — Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Flood Control District of Maricopa County. Economist preparing an economic assessment of flood damages to infrastructure and agriculture in the 100-year storm event under With Dam and Without Dam conditions, based on FLO-2D modeling conducted for the project. Purpose of analysis was to provide quantitative input on potential damages to use in conceptual development of rehabilitation alternatives. Fee: $455K

d.

(1) TITLE AND LOCATION *(City and State)*: **Fredonia FRS Work Plan and EA, Coconino County, AZ** — Section F #5

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2009; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Town of Fredonia. Assistant Project Manager/Environmental Economist assisting in the preparation of NRCS work plan and EA for the rehabilitation of the Fredonia FRS. Conducted a cost-benefit analysis to determine the economic impact of a series of flood events on the town of Fredonia. Used Marshall Valuation Service cost data to estimate structure and content values of downstream property. Used GIS analysis and the NRCS URB1 Model to measure the benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; roadways; and other infrastructure. Action alternative retained for detailed study consisted of converting dam to levee to maintain 100-year flood protection. Fee: $98K

e.

(1) TITLE AND LOCATION *(City and State)*: **EA and Watershed Plan, Powerline, Vineyard, and Rittenhouse FRS, Maricopa County, AZ** — Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Flood Control District of Maricopa County. Project Manager/Environmental Economist assisting in preparation of NRCS work plan and EA for rehabilitation of three dams. Conducted cost-benefit analysis to determine economic impact of series of flood events on downstream area. Used GIS analysis and NRCS URB1 Model to measure benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; and roadways. Fee: $106K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Steven J. Wittig, CE	**NEPA**	9	7

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Valley Forge, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Natural Resource Management	Certified Ecologist e-RAILSAFE Badge Adult First Aid Adult CPR/AED

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Ecological Society of America; Society of Wetland Scientists

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015 | CONSTRUCTION *(If appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Environmental Scientist responsible for leading the field effort to identify and delineate waterways and wetlands according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). Delineation efforts encompassed the 235-acre Lost River Site 16 study area and the 14-acre Edwards Run offsite mitigation area located in Hampshire County. Contract Fee: >$2M

b.

(1) TITLE AND LOCATION *(City and State)*: **Various Dam Safety and Water Resources Engineering Assignments, Struble Dam Trench Drain, Chester County, PA,** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016) | CONSTRUCTION *(If appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

CCWRA. Environmental Scientist responsible for performing wetland delineation and preparing a technical memorandum for an area proposed for a replacement dam trench drain. Fee: $2.5M (est.)

c.

(1) TITLE AND LOCATION *(City and State)*: **Hurricane Sandy Contractor Services, Multiple Municipalities, NJ**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016) | CONSTRUCTION *(If appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

New Jersey Department of Environmental Protection. Environmental Scientist responsible for performing Tier 2 NEPA evaluations of homes damaged by Superstorm Sandy as part of NJDEP processes to obtain federal funds. Also responsible for performing field reviews associated with Tier 2 NEPA evaluations. Fee: $1.7M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*: **S.R. 0052 Relocation, Chester County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012 | CONSTRUCTION *(If appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Longwood Gardens. Environmental Scientist assisting with NEPA document re-evaluation for the relocation of a roadway. Assisted in performing fieldwork and coordination for a USACE Jurisdictional Determination. Also assisted with temporary seeding construction specifications. Responsible for performing and assisting with wetland mitigation fieldwork, report preparation, and report editing. Fee: $468K

e.

(1) TITLE AND LOCATION *(City and State)*: **Delaware County Bridge Replacements, Concord Avenue Bridge Over Railroad, Delaware County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2012 | CONSTRUCTION *(If appl.)*: Ongoing (2015)

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania Department of Transportation (PennDOT), District 6-0. Environmental Scientist responsible for preparing NEPA documentation for a bridge replacement, performing wetland delineation and USACE Jurisdictional Determination application, and assisting with a PennDOT environmental due diligence evaluation. Fee: $4.6M (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Kristin L. Civitella	**NEPA**	19	15

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Valley Forge, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Environmental Biology MS/Environmental Pollution Control	First Aid CPR-Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Advancing Women in Transportation (AWT), 2015-present; Transportation Research Board (TRB), 2015-present

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Environmental Scientist identifying and delineating waterways and wetlands according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). Delineation efforts encompassed the 235-acre Lost River Site 16 study area and the 14-acre Edwards Run off-site mitigation area located in Hampshire County. Contract Fee: >$2M

b.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam Wetland Mitigation Monitoring, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Chester County Water Resource Authority. Environmental Scientist for the wetland mitigation field monitoring and survey at Chambers Lake in Hibernia Park. The project involved conducting postconstruction monitoring of the created wetlands and addressing permit compliance issues. Fee: $2.5M (est.)

c.

(1) TITLE AND LOCATION *(City and State)*: **Gilboa Dam Reconstruction, Gilboa, NY**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(if appl.)*: 2014

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

New York City Department of Environmental Protection. Environmental Scientist assisting on environmental studies involving wetlands related to the rehabilitation a dam spillway. Duties also included coordination with team members from various Gannett Fleming offices. Fee: $22M

d.

(1) TITLE AND LOCATION *(City and State)*: **Valley Forge National Park Water Main Restoration, Delaware County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2015); CONSTRUCTION *(if appl.)*: Ongoing (2015)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Aqua Pennsylvania. Environmental Manager for environmental activities involving permitting and NEPA approval through the National Park Service, natural resource and cultural and historic investigations, and agency coordination. The project involves the replacement of a 24-inch water main in PA Route 23 and PA Route 252, and the crossing of Valley Creek near Washington's headquarters. Fee: $3.9M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Water Main Restoration, Valley Forge National Historical Park, Chester County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2010; CONSTRUCTION *(if appl.)*: Ongoing (2015)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Aqua Pennsylvania. Environmental Manager for environmental activities involving NEPA approval (CEE) through the National Park Service, natural resource investigations, agency coordination, bioengineering techniques on engineering design, and construction oversight. Fee: $3.9M (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Michelle A. Brummer, AICP	**Public Involvement**	17	13

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BLA/Landscape Architecture MLA/Landscape Architecture, Watershed Stewardship Option	Certified Planner AICP

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: American Planning Association (APA); APA Pennsylvania Central Section, Central Section Council - Professional Planner at-Large Member

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Comprehensive Master Plan Update, Parkersburg, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

City of Parkersburg. Project Manager and Lead Planner for the technical services of a comprehensive plan, evaluating current conditions, alternatives, goal development, recommendations, and implementation strategy, with an emphasis on land use, as well as public outreach. The planning effort updated the City's 2001 comprehensive plan after the completion of upgrades to U.S. Route 50 from the Ohio River to I-77. The rural city's declining population and employment figures had been casting a dark shadow on its projected future. The alternatives phase offered three options for future development based on projected trends, applied local and regional policy, and citizen issues and best practices. Based on the selected alternative, the plan outlines strategies to change trends toward a more prosperous, affordable, and sustainable city along the Ohio River. Fee: $120K

b.

(1) TITLE AND LOCATION *(City and State)*: **Berkeley County Comprehensive Plan, Berkeley County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2006 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Berkeley County Planning Commission. Project Planner responsible for data collection and public meeting facilitation. The comprehensive plan addressed land use, infrastructure, and public service issues arising from growth pressures with tools for guiding growth to serviceable locations and for higher quality design and construction. Fee: $362K

c.

(1) TITLE AND LOCATION *(City and State)*: **Interchange Development Ordinance, Wood County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Washington Suburban Sanitary Commission. Project Manager responsible for the preparation of an Interchange Development Ordinance, applicable to the highway interchanges of I-77 and Corridor D (U.S. Route 50) within the County's jurisdiction. The ordinance establishes standards for any and all development, focusing on safe access and circulation, consistency in setbacks and site design, managed signage and lighting, conservation of natural character, and minimal impact to sensitive natural resources. Provisions and standards were drawn from the model ordinance for the I-99 interchanges in central Pennsylvania and the City of Parkersburg's ordinances. Fee: $11K

d.

(1) TITLE AND LOCATION *(City and State)*: **County Comprehensive Plan, Bradford County, PA,**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2005 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Bradford County Board of Commissioners. Project Planner and Public Involvement Coordinator responsible for preparing the vision and plan for a Northern Tier municipality. The assessment was focused on County resources; however, the regional context of the Northern Tier and New York municipalities was also considered. The plan was intended to address business attraction and retention, land use and transportation relationships, and the conservation of natural and cultural rural character, among other themes. Public involvement opportunities included a planning advisory committee, community information stations, focus groups, and a project website. Fee: $169K

e.

(1) TITLE AND LOCATION *(City and State)*: **County Comprehensive Plan Update, Somerset County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2003 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Somerset County Board of Commissioners. Project Planner and Public Involvement Coordinator responsible for the development of a comprehensive plan update for a southwestern Pennsylvania municipality. Planning efforts focused on recent strategic visioning efforts and emphasized economic development, transportation corridors, water resources, and rural recreation. Public involvement highlights included County planning information stations (project kiosks located and updated throughout the county), children's visioning activities, and local officials' workshops focused on continued intermunicipal dialogue and implementation. Fee: $120K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Craig S. Shirk, AICP, ENV SP	**Social Environment/Cultural Resources**	22	19

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BA/Geoenvironmental Studies MS/Environmental Science	AICP Envision™ Sustainability Professional (ENV SP)

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: APA; AICP; Pennsylvania Planning Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Review of NEPA Compliance Documentation for the NorthMet (PolyMet) Mine Project, MN**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

U.S. Environmental Protection Agency (U.S. EPA), Region 5. Project Manager managing NEPA and technical hydrological services to support the U.S. EPA, Region 5 in the review of a copper sulfide ore mine and processing project. Gannett Fleming provided expertise in hydrology and hydrogeology to assist U.S. EPA in evaluation of groundwater and surface water interconnections and groundwater contaminant transport. Our firm provided technical review of NEPA and supporting documentation to assist U.S. EPA in its role as a cooperating agency for final environmental impact statement (EIS). Fee: $65K

b.

(1) TITLE AND LOCATION *(City and State)*: **Mississippi River Reintroduction Into Bayou Lafourche, Ascension, Assumption, and Lafourche, LA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2007; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

U.S. Environmental Protection Agency, Region 6. Assistant Project Manager and Senior Environmental Scientist for development of an environmental impact statement analyzing the potential impacts of increasing existing freshwater diversion and associated dredging along 55-mile segment of Bayou Lafourche. Investigation was intended to partially restore ecological role of Bayou Lafourche in development and nourishment of wetlands along Louisiana's coast with Gulf of Mexico. Project involved substantial water quality, threatened and endangered species, community, and cumulative resource benefit issues and concerns. EIS was developed based on detailed 30 percent engineering design completed by project sponsors and supplemented by additional original research and field reviews of study area. Fee: $410K

c.

(1) TITLE AND LOCATION *(City and State)*: **Upper Dauphin, Cumberland, and Perry County Park-and-Ride Study, Dauphin, Cumberland, and Perry Counties, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Tri-County Regional Planning Commission. Environmental Planner for preparation of environmental data collection, analyses, and documentation for a regional park-and-ride study. Environmental data collection activities consisted of gathering available GIS data layers for various natural, cultural, and social environment resources. Results identified types of detailed environmental studies (i.e., wetlands, cultural resources, Phase I environmental site assessments) required for each site as planning moves forward into project development and NEPA process. Fee: $677K

d.

(1) TITLE AND LOCATION *(City and State)*: **Greencastle Area Water System Improvements, Greencastle, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2003; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Greencastle Area, Franklin County Water Authority. Environmental Project Manager for preparation of an EA in coordination with USACE, Baltimore District. EA was necessary for the USACE to provide funding under Section 313 of Water Resources Development Act of 1992 for these local water system improvements. Project was needed to satisfy anticipated needs of future industrial, commercial, and business enterprises adjacent to Exit 5 along I-81. Proposed improvements consisted of new booster pumping station and approximately 3,300 LF of new water transmission main. Major issues analyzed were potential impacts upon Greencastle Historic District and construction-related environmental impacts in a residential area of the borough. Assessed natural and socioeconomic impacts and prepared environmental documentation. Fee: $454K

e.

(1) TITLE AND LOCATION *(City and State)*: **Water System Improvements, Laurens County, SC**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2003; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

U.S. Environmental Protection Agency, Region 4. Project Manager for the development of an EA for proposed water system improvements. The project proposed the replacement of 15.1 miles of existing water main along SC Route 72 to address pressure and distribution problems in this rural area. Issues centered on the potential for secondary impacts associated with future development around Lake Greenwood, a major regional recreational lake. EA was completed to fulfill requirements for providing State and Tribal Assistance Grant funding to the Laurens County Water and Sewer Commission. Fee: $7K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Steven C. Smith, WPIT	**Natural Resources/Wetland Delineation**	14	14

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Geoenvironmental Studies	Wetland Professional in Training

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Society of Wetland Scientists

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Site 1 Dam Rehabilitation, Preston County, WV** Section F #1

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Environmental Scientist and Permit Coordinator responsible for wetland and waterway identification and delineation, development of a wetland and waterway mitigation plan, and preparation of necessary local, state and federal environmental permits for the rehabilitation of an existing 45-foot-high zoned embankment dam. Fee: $999K (est.)

b.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam Rehabilitation, Lackawanna County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Environmental Scientist responsible for conducting wetland and waterway identification/delineation and stream rapid bioassessments in support of permit applications required for the Nesbitt Dam rehabilitation. Other responsibilities included developing a wetland mitigation plan for the creation of 0.25 acres of on-site palustrine wetlands, preparing USACE Section 404 and PADEP Chapter 105 Dam Permit Applications, and coordinating with the regulating agencies. Fee: $3.7M

c.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation of Watres Dam, Lackawanna County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2008; CONSTRUCTION *(if appl.)*: 2008

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Environmental Scientist responsible for conducting wetland and waterway identification and delineation, surveys for timber rattlesnake habitat, and stream rapid bioassessments in support of permit applications required for the Watres Dam rehabilitation. Also prepared USACE Section 404/PADEP Chapter 105 Dam Permit Applications and coordinated with the regulating agencies. Fee: $992K

d.

(1) TITLE AND LOCATION *(City and State)*: **George B. Stevenson Dam Rehabilitation, Sinnemahoning State Park, Cameron County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania Department of General Services. Environmental Scientist for the identification and delineation of wetlands and waterways immediately downstream of the existing dam to support the planning and permitting of the proposed dam rehabilitation. Other responsibilities included preparing USACE Section 404/PADEP Chapter 105 Dam Permit Applications and coordinating with the regulating agencies. Fee: $780K

e.

(1) TITLE AND LOCATION *(City and State)*: **Pikes Creek Dam Rehabilitation Project – Preliminary Design Phase, Luzerne County,**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Environmental Scientist responsible for conducting the fieldwork and preparing the wetlands and waterways identification and delineation report for the Pike Creek Dam study area. Coordinated with federal and state agencies regarding the potential for threatened and/or endangered species and initiated agency coordination in support of project authorization. Lead permit coordinator responsible for the documentation of proposed impacts, alternatives considered and efforts made to avoid and minimize disturbances, and preparation of a wetland mitigation plan to create 0.25 acres of palustrine wetlands to compensate for unavoidable wetland impacts resulting from the project. Fee: $1.85M (est.)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
David H. Graff, PWS, CE, CWB	**Natural Resources/Wetland Delineation**	16	9

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Environmental Studies MAEd/Environmental Studies	Professional Wetland Scientist Certified Ecologist Certified Wildlife Biologist e-RAILSAFE Badge

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: The Wildlife Society; Society of Wetland Scientists; Ecological Society of America

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek – Whites Run Sub-Watershed of the Potomac River Watershed, New Creek Site 14 Rehabilitation Project, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Environmental Scientist responsible for designing a wetland mitigation plan to lessen wetland and stream losses associated with the rehabilitation of the New Creek dam structure. Mitigation components consisted of restoring and creating 3.5 acres of palustrine-emergent and scrub-shrub wetlands and creating 887 LF of stream to reach Linton Creek. The plan was reviewed and approved by the NRCS and U.S. Army Corps of Engineers. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior Environmental Scientist responsible for identifying and delineating waterways and wetlands according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). Delineation efforts encompassed the 235-acre Lost River Site 16 study area and the 14-acre Edwards Run off-site mitigation area located in Hampshire County. Contract Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **Struble Dam Toe Drain Repair Project, West Caln Township, Chester County, PA** — Section F #8

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing (2016); CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

CCWRA. Senior Environmental Scientist and Wildlife Biologist responsible for evaluating the proposed areas of disturbance and action area for potential bog turtle habitat. Conducted the fieldwork and prepared the Phase I Bog Turtle Habitat Report. Fee: $2.5M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*: **George B. Stevenson Dam Rehabilitation, Sinnemahoning State Park, Cameron County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Environmental Scientist responsible for the identification and delineation of wetlands and waterways immediately downstream of the existing dam to support the planning and permitting of the dam rehabilitation. Fee: $23.5K

e.

(1) TITLE AND LOCATION *(City and State)*: **Springton Reservoir Dam Rehabilitation, Delaware County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Aqua Pennsylvania, Inc. Environmental Scientist tasked with supporting field efforts to delineate wetlands and waterways and conduct a bog turtle habitat survey. Assisted in performing rapid bioassessment protocols downstream of the dam. Reviewed the wetland delineation report and bog turtle survey documents. Fee: $942K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Corey W. Myers	**Natural Resources/Wetland Delineation**	5	1

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Environmental Technology Management	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Pennsylvania Association of Environmental Professionals

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV Section F #6	2015	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

NRCS. Environmental Scientist for the identification and delineation of wetland and waterways within the 235-acre Lost River Site 16 study area in Hardy County and the 14-acre Edwards Run offsite mitigation area located in Hampshire County. Accompanied the USACE during the field review of the delineation boundaries that resulted in USACE approving the boundaries and issuing a preliminary jurisdictional determination, which was later used in calculating wetland and stream impacts. Contract Fee: >$2M

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Catskill Watershed Dams, Reservoirs, and Associated Facilities Reconstruction Design Services, Wetland Delineation and Botanical Surveys for Ashokan Reservoir, Old Esopus, and Beaver Kill Creek Flooding Release Project, Schoharie County, NY	Ongoing (2018)	Ongoing (2018)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

New York City Department of Environmental Protection. Environmental Scientist delineating and evaluating wetlands within the zone of inundation. Fieldwork investigations involved mapping the zone of inundation with GPS technology, identifying wetland features and assessing their function and values, collecting tree data using the point-center-quarter method, and preparing a project impact summary. Fee: $22M (est.)

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Pikes Creek Dam Rehabilitation Project – Preliminary Design Phase, Luzerne County, PA	Ongoing (2016)	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania American Water. Environmental Scientist assisting the Lead Environmental Scientist in conducting the fieldwork and preparing the wetlands and waterways identification and delineation report for the Pike Creek Dam study area. Fee: $1.85M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Lake Scranton Dam Rehabilitation Engineering Services, Luzerne County, PA	Ongoing (2016)	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania American Water. Environmental Scientist conducting the fieldwork and assisting in the preparation of the wetlands and waterways identification and delineation report for the Lake Scranton Dam study area. Fee: $613K (est.)

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Gunter Valley Dam Rehabilitation and Breach Services, Lurgan Township, Franklin County, PA	2014	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania Department of General Services. Environmental Scientist assisting the Lead Environmental Scientist during the wetland delineation for the rehabilitation of the 550-foot-long, 83-foot high embankment dam to meet current dam safety standards. Fee: $740K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Samantha R. Hockenberry	**Natural Resources/Wetland Delineation**	1	1

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Biology MS/Biology	Taxonomic Certification

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Society of Wetland Scientists; Society for Freshwater Science; Pennsylvania Academy of Science; Pennsylvania Association of Professional Soil Scientists; Pennsylvania Association of Environmental Professionals

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV** Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

USDA, NRCS. West Virginia State Office. Senior Environmental Scientist and Aquatic Insect Taxonomist responsible for leading the field effort to assess the quality of Lower Cove Run and Poplar Hollow. This effort was comprised of developing and implementing a field sampling plan, which included collecting macroinvertebrates from various sampling reach stations, obtaining water quality data, and completing U.S. Environmental Protection Agency rapid bioassessment evaluation methods for physiochemical and habitat assessments under authorization of a WV. Identified macroinvertebrates were collected under the authorization of a West Virginia Department of Environmental Protection-issued scientific collector's permit. Identified macroinvertebrates in the lab to the lowest practical taxonomic level, then digitally photographed specimens under magnification to compile the project's digital reference collection. This data was used in the West Virginia Stream Condition Index metrics and compared to West Virginia tolerance values. The stream survey results were used as a basis for stream mitigation credits as calculated using the West Virginia stream and wetland valuation metrics. Contract Fee: >$2M

b.

(1) TITLE AND LOCATION *(City and State)*: **Dam Environmental Assessments, Northeastern U.S.**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2019); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Confidential Client. Environmental Scientist in the field conducting wetlands and waterways identification and delineation and evaluating wetlands for potential bog turtle (Clemmys muhlenbergii) habitat within the designated study area. The bog turtle is currently listed as endangered and threatened. Other responsibilities include technical writing as co-author of the Wetlands and Waterways Identification and Delineation Reports and the Phase I Bog Turtle Reports. Fee: $72K (est.)

c.

(1) TITLE AND LOCATION *(City and State)*: **Pikes Creek Dam Rehabilitation Project – Preliminary Design Phase, Luzerne County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

Pennsylvania American Water. Environmental Scientist coordinating with federal and state agencies regarding the potential for threatened and/or endangered species in support of project authorization. Assistant permit coordinator responsible for the documentation of proposed impacts, alternatives considered and efforts made to avoid and minimize disturbances, preparation of a wetland mitigation plan to create 0.25 acres of palustrine wetlands to compensate for unavoidable wetland impacts resulting from the project, and preparation of the dam safety letter of amendment. fee: $1.8M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*: **Lake Scranton Dam Rehabilitation Engineering Services, Luzerne County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

*Pennsylvania American Water*Environmental Scientist responsible for conducting the fieldwork and preparing the wetlands and waterways identification and delineation report for the Lake Scranton Dam study area. Coordinated with federal and state agencies regarding the potential for threatened and/or endangered species and initiated agency coordination in support of project authorization. Fee: $613K (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Environmental Site Assessment, Juniata County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE ☒ Check if project performed with current firm

M&G Realty. Environmental Scientist for identification and delineation of wetlands and a Phase I Environmental Site Assessment within a 20.49-acre study area. Geographic information system (GIS) responsibilities included geospatial data processing, creation of report map figures, and wetland delineation mapping using ArcGIS 10.2. Co-authored the Wetlands and Waterways Identification and Delineation Technical Memorandum. Fee: $186K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jillian N. Arnold, CFM	**Natural Resources/Wetland Delineation**	11	11

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Geo-Environmental Studies MS/Biology	Certified Floodplain Manager

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Society of Wetland Scientists; ASFPM

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery/Indefinite Quantity Contract – Lost River Site 16 Dam, Lost City, Hardy County, WV** Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Environmental Scientist for the field effort to identify and delineate waterways and wetlands according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). Delineation efforts encompassed the 235-acre Lost River Site 16 study area and the 14-acre Edwards Run off-site mitigation area located in Hampshire County. Accompanied the USACE during the field review of the delineation boundaries, which resulted in the USACE approving the boundaries and issuing a preliminary jurisdictional determination, which was later used in calculating wetland and stream impacts. Served as the USDA's authorized agent and primary author of the USACE Application for Department of the Army (404) Permit and State of West Virginia Department of Environmental Protection Application for 401 Water Quality Certification. Contract Fee: >$2M

b.

(1) TITLE AND LOCATION *(City and State)*: **Elmhurst Dam Rehabilitation, Roaring Brook Township, Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: Ongoing (2017)

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Environmental Scientist conducting the fieldwork and coordinating with federal and state agencies for permitting for the Elmhurst Dam rehabilitation and bridge removal. Fee: $1.9M (est.)

c.

(1) TITLE AND LOCATION *(City and State)*: **Ashokan Dam Wetland Delineation and Flood Release Project, Ulster County, NY**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2019); CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

New York City Department of Environmental Protection. Environmental Scientist responsible for evaluating wetland habitat along 30 miles of Esopus Creek from the Schoharie Reservoir discharge channel downstream to the Hudson River. Responsibilities included field identification of wetland habitat, mapping, and reporting current conditions prior to large and continuous water releases from the rehabilitation of Gilboa Dam. These studies will be used as baseline data to compare how these releases will affect the natural habitat along Esopus Creek. Fee: $5.75M (est.)

d.

(1) TITLE AND LOCATION *(City and State)*: **Tempe Town Downstream Dam Replacement Project, Maricopa County, AZ** Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

City of Tempe. Environmental Scientist preparing the USACE Section 404 Individual Permit Application and Section 401 Water Quality Certificate from the Arizona Department of Environmental Quality. Responsibilities included preparation of mapping, biological evaluation, environmental assessment, public notice, and agency coordination. Fee: $489K

e.

(1) TITLE AND LOCATION *(City and State)*: **Nature-Like Fishway, Sunbury, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania Department of General Services/Department of Conservation and Natural Resources. GIS Analyst obtaining base data and producing final mapping of a wetland mitigation plan for a fishway at Sunbury Dam. Created various layers for proposed planting of deciduous and coniferous shrubs, natural regrowth of the breached dam area, and wetland mitigation boundaries. Final mapping was produced and presented to USACE for approval of proposed nature-like fishway. Fee: $470K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Matthew D. Houtz, GISP	**Economics/GIS**	15	6

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
Matthew D. Houtz, GISP	Certified Geographic Information Systems Professional

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: N/A

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **NRCS Dam Assessments, Statewide WV**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2014	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Senior GIS Analyst developing custom desktop GIS applications to display findings of 25 NRCS dam assessments in West Virginia in a more user-friendly product, an interactive map using Esri's ArcReader software. Our firm's scope of work included dam inspections, reconnaissance of downstream impact areas, dam assessment reports, preparation of cost estimates to rehabilitate the dams, and development of a GIS database containing inundated structures. Each database was presented in an ArcReader mapping application, which included an interactive street map, recent aerial photography, a topographic map, inundation areas that could be toggled on/off, and photo locations of inundated structures that also provided a photo of the structure to the client. Fee: $1.8M

b.

(1) TITLE AND LOCATION *(City and State)*: **Engineering Study for the Rehabilitation of the Fredonia FRS – Planning Phase II, Fredonia, AZ** Section F #5

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2009	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Town of Fredonia. Senior GIS Analyst working with the environmental economist on determining the economic impact of two "alternatives" as part of a dam rehabilitation project. GIS data was compiled in a geodatabase and used to map and analyze stream corridors, various flood recurrence intervals, land use (particularly agricultural lands), and tax parcel data, which included tax assessment data. GIS Analyst for running impact analyses to determine the depth of flooding on impacted agricultural lands when looking at both alternatives. Fee: $98K

c.

(1) TITLE AND LOCATION *(City and State)*: **Pre-Planning Concepts Study for Saddleback FRS Rehabilitation Project, Maricopa County, AZ** Section F #4

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2015	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Flood Control District of Maricopa County. Senior GIS Analyst performing data analysis for the economic assessment of flood damages to infrastructure and agriculture in the 100-year storm event under With Dam and Without Dam conditions, based on FLO-2D modeling conducted for the project. The purpose of the analysis was to provide quantitative input on potential damages to use in the conceptual development of rehabilitation alternatives. The analysis included assessment of flood damages to a downstream natural gas-powered combined-cycle electric generating plant. Fee: $489K

d.

(1) TITLE AND LOCATION *(City and State)*: **Hibernia Dam, Chester County, PA** Section F #8

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
Ongoing (2016)	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Chester County Water Resources Authority. Senior GIS Analyst for data analysis and mapping of the Hibernia Dam, which is an existing 64.5-foot-high, 630-foot-long, zoned earth embankment dam constructed in 1994. Prepared Emergency Action Plan GIS mapping that illustrated traffic control points, floodplains, crucial infrastructure and evacuation points. The GIS EAP maps are a vital component for local planners and engineers to safely mitigate flood damages to property and human life. Fee: $2.5M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Comprehensive Master Plan Update, Parkersburg, WV**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

City of Parkersburg. Project GIS Analyst the preparation of an inventory map series, including sensitive land and water features, cultural and historic resources, existing land use, functional classification, community facilities and services, and public service districts; a future land use map to guide zoning revisions; and the return and delivery of associated data to the City. Planning effort updates the City's 2001 comprehensive plan after the completion of upgrades to U.S. 50 from the Ohio River to I-77. The plan outlines strategies to change trends toward a more prosperous, affordable, and sustainable city along the Ohio River. Fee: $120K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Christopher D. Krebs, PE, CFM, GISP	**Economics/GIS**	22	12

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/VA; Certified Floodplain Manager; Certified Geographic Information Systems Professional; Esri Certified AcrGIS Desktop Professional

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASFPM ; Pennsylvania Association of Floodplain Managers

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Engineering Study for the Rehabilitation of the Fredonia FRS – Planning Phase II, Fredonia, AZ** — Section F #5

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2009; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Town of Fredonia. GIS Task Manager working with an environmental economist to determine the economic impact of two "alternatives" as part of a dam rehabilitation project. GIS data was compiled in an Esri geodatabase and used to map inundation areas and analyze flood damages for various flood-recurrence intervals and land use scenarios. Fee: $98K

b.

(1) TITLE AND LOCATION *(City and State)*: **White Tanks FRS No. 4, Maricopa County, AZ** — Section F #4

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Flood Control District of Maricopa County. GIS Task Manager for NRCS planning-phase study for dam rehabilitation. Preparation of NRCS work plan and environmental assessment involved developing alternatives for no action, the decommissioning and rehabilitation of the dam to meet current criteria. Developed GIS data sets to support an unsteady flow HEC-RAS model for the reach downstream of the dam to estimate flood depths and velocities during extreme events for the alternatives.In a GIS environment, automated development of input data for an URB1 flood damages assessment model using the HEC-RAS results, and GIS data for impacted properties and structures downstream. Fee: $489K

c.

(1) TITLE AND LOCATION *(City and State)*: **NRCS Dam Assessments, Statewide WV**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. GIS Task Manager conducting assessments for more than 100 NRCS dams located in WV. Coordinated with local and state agencies to obtain GIS data, developing GIS data sets to support automated H&H modeling, providing GIS/GPS field data collection support, and packaging digital deliverables that are accessed from a GIS application. Coordinated the acquisition of a statewide GIS database including high-resolution terrain and orthoimagery and high-accuracy building footprints, streams, and road centerlines. Provided terrain surfaces and supplemental data (flooding areas, shade relief, stream profiles) to support H&H modeling. Provided GPS and geotagging technical support for the field acquisition of photos identifying downstream buildings impacted during a dam failure. Converted GIS data to CAD format to support dam failure inundation mapping in AutoCAD. Packaged project data into an interactive ArcReader map, with point-and-click access to H&H models, as-built plans, field investigations, dam inspection reports, photos, and dam failure inundation areas. Fee: $1.8M

d.

(1) TITLE AND LOCATION *(City and State)*: **Modeling, Mapping, and Consequence (MMC) Analysis for USACE-owned Dam**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES Ongoing (2016); CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

USACE, Vicksburg District, MMC Production Center. Senior Project Engineer coordinating all GIS data acquisition, conducting dam break analyses, and supervising production of project mapping. Analysis included development of custom GIS application to build HMR52 input file. Hydrologic analyses for the probable maximum flood used HEC-HMS; dam break was performed using DAMBRK; and flood-wave routing downstream used the unsteady flow capabilities of HEC RAS 3.1. Results from HEC-HMS were managed using HEC-DSS Vue and input directly into the HEC-RAS for subwatersheds downstream of the dam. The results of the analyses were mapped through GIS and used for the emergency action plan. Fee: $1.05M (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Safety Evaluations of Existing Dams Inspections and Dam Safety Engineering Services, Nationwide, VA, NC, SC, NH, MA, MI, ND, SD, IL, TX, WI, MO, TN, and AR**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

U.S. Department of the Interior, USFWS. H&H and GIS Task Manager for this dam safety services indefinite delivery contract. The project included H&H modeling, dam-failure modeling using HEC-RAS and GIS mapping, and emergency action plan updates. Fee: $2.1M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Vladimir Cecka, PE	**Submittal Review**	25	25

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/PA, GA, MO, KY, VA, FL, NJ, IN First Aid-Adult CRP/AED-Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: American Concrete Institute; National Council of Examiners for Engineering and Surveying

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site No. 14, Keyser, WV** — **Section F #2**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Structural Project Manager responsible for the design of a new 80-foot-tall principal spillway riser to replace the existing structure at the New Creek Site No. 14 dam as part of a seismic upgrade. The design was in accordance with NRCS technical reports and design procedures. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Indefinite Delivery Contract for Dams, Lost River Site No. 16, Hardy County, WV,** — **Section F #6**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Structural Project Manager involved in the design of a new 45-foot-tall principal spillway riser and impact basin at the Lost River Site No. 16 dam. The design was in accordance with NRCS technical reports and design procedures. Fee: >$2M

c.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Dam, Randolph County, WV** — **Section F #7**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Structural Project Manager responsible for designing an inlet and concrete conduit in the principal spillway of a RCC dam. Fee: $1.5M

d.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers Site 1 Dam Rehabilitation, Preston County, WV** — **Section F #1**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Structural Project Manager responsible for design of a new riser to replace the existing structure for an existing 45-foot-high zoned embankment dam. The design was in accordance with NRCS technical reports and design procedures. Fee: $999K (est.)

e.

(1) TITLE AND LOCATION *(City and State)*: **Elmhurst Dam Rehabilitation (PADEP D70-35-18), Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: Ongoing (2017)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Structural Project Manager responsible for preliminary and final design. Structural design included spillway widening, existing crest rehabilitation, and a new box culvert under an existing roadway. The new spillway consisted of a new slab with steps, retaining walls, and labyrinth walls. Designed temporary sheathing that will be used during construction to stabilize existing ground. Fee: $1.9M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Chad T. Hoover, EIT	**Prepare Record/As-Built Drawings**	9	9

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
AAS/Civil Technology BS/Structural Design and Construction Engineering Technology	EIT/PA

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Upper Deckers and Salem Fork Site 11 and 11A Dam Evaluations, Preston and Harrison Counties, WV** — Section F #10

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014; CONSTRUCTION *(if appl.)* 2014

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Lead CADD Technician preparing drawing and CADD standards for the evaluation of the dams. The project consisted of evaluating spillway capacity and the auxiliary spillway integrity usefulness of the site. Fee: $593K

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Grant County, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Lead CADD Technician responsible for preparing contract drawings and CADD standards for the rehabilitation of an existing 100-foot-high, 940-foot-long zoned earthfill dam. Responsibilities also included providing construction-phase services by using construction surveys to determine as-built quantities. Rehabilitation measures included slope stabilization, RCC spillway armoring, a new toe drain system, and outlet works modifications. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **NRCS Dam Assessments, WV, WI, ND, and NH**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. CADD Technician assisting in preparing inundation maps for dam assessment reports for 29 NRCS dams located in West Virginia, Wisconsin, North Dakota, and New Hampshire. Work included performing dam inspections; conducting reconnaissance of downstream impact areas; performing dam failure modeling using HEC-RAS; preparing inundation mapping; performing hydrologic, hydraulic, and auxiliary spillway analyses using the NRCS SITES computer program; preparing failure risk indexes; identifying deficiencies; and developing rehabilitation alternatives. Fee: $1.8M

d.

(1) TITLE AND LOCATION *(City and State)*: **Lost River No. 16 Dam, Hardy County, WV** — Section F #6

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2015; CONSTRUCTION *(if appl.)* N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. CADD Technician responsible for design drawings and CADD standards for a dam being constructed for water supply and flood control. Fee: >$2M

e.

(1) TITLE AND LOCATION *(City and State)*: **Rehabilitation of Thorn Run Dam, Butler County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* 2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Lead CADD Technician responsible for preparing contract drawings and NRCS. CADD standards for the rehabilitation of a 30-foot-high, 600-foot-long earthen embankment dam. Rehabilitation measures included slope stabilization, RCC embankment armoring, a new toe drain system, and a new concrete spillway. Prepared conceptual design drawings for increasing the dam's spillway capacity and correcting embankment deficiencies. Fee: $1.3M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Adam J. Moyer, PLS	**Survey**	10	10

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
AAS/Surveying Technology BS/Civil Engineering Technology	EIT/PA PLS/PA First Aid/CPR/AED- Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: Pennsylvania Society of Land Surveyors; National Society of Professional Surveyors

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Dam Site 14, Keyser, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

USDA, NRCS, West Virginia State Office. Party Chief collecting topographic survey data of the New Creek Dam and surrounding area, including access roads and cross sections downstream of the dam, and for conducting depth-sounding surveys in the reservoir. Responsible for the collection of as-built and construction check surveys during construction. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Salem Fork Sites 11 and 11A Dams, Harrison County, WV** — Section F #10

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2014; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Party Chief coordinating and conducting all survey work, including establishing survey control and setting monuments to be used during construction. Used GPS and total station equipment to map the existing topographic and planimetric features of the existing dam and appurtenant structures and to conduct a bathymetric survey of the reservoir bottom for use in the design of rehabilitation features for the dam. Fee: $200K

c.

(1) TITLE AND LOCATION *(City and State)*: **Elkwater Fork Water Supply Dam, Randolph County, WV** — Section F #7

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Survey Technician for the 130-foot-high, 700-foot-long RCC gravity dam with a construction cost of $33 million. Services included ground surveys and aerial mapping of the dam and reservoir area. Fee: $1.5M

d.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam Rehabilitation, Scranton, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Party Chief collecting topographic survey data of a dam and surrounding area, including access roads and cross sections downstream of the dam, and for conducting depth-sounding surveys in the reservoir. Served as a Specialist developing erosion and sediment pollution control plans. Provided on-site engineering services for the placement of RCC. Fee: $3.7M

e.

(1) TITLE AND LOCATION *(City and State)*: **Elmhurst Dam Rehabilitation, Elmhurst, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* Ongoing (2017)

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Party Chief responsible for collecting topographic survey data of a dam and surrounding area, including access roads and cross sections downstream of the dam, and for performing depth-sounding surveys in the reservoir. Also served as Specialist responsible for developing stability calculations and construction drawings for the rehabilitation of the dam. Fee: $1.9M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Brian S. Miller, PE, SIT	**Survey**	8	8

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering Technology	Professional Engineer/PA SIT/PA First Aid/CPR/AED- Adult

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: National Society of Professional Surveyors

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Dam Assessments, WV**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2011	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. CADD Technician assisting in preparing inundation maps for dam assessment reports for 75 NRCS dams located in West Virginia. Work includes performing dam inspections; conducting reconnaissance of downstream impact areas; performing dam failure modeling using HEC-RAS; preparing inundation mapping; performing hydrologic, hydraulic, and auxiliary spillway analyses using the NRCS SITES computer program; preparing failure risk indexes; identifying deficiencies; and developing rehabilitation alternatives. Fee: $1.8M

b.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Grant County, WV**

Section F #2

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2013	2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. CADD Technician/Engineering Technician preparing contract drawings, checking quantities, and reviewing cost estimates for the rehabilitation of an existing 100-foot-high, 940-foot-long zoned earthfill dam. Also performed field surveys during construction. Rehabilitation measures included slope stabilization, RCC spillway armoring, a new toe-drain system, and outlet works modifications. Fee: $3M

c.

(1) TITLE AND LOCATION *(City and State)*: **Lost River Site 16, Hardy County, WV**

Section F #6

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2015	N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. CADD Technician responsible for developing plans and details using AutoCAD while implementing Autodesk Civil 3D as a design tool for the preliminary layout and development of auxiliary spillway alternatives for a new 80-foot-high zoned earthfill dam. Hydrologic analyses were completed using the NRCS's SITES computer model. The model was also used to evaluate the proposed spillway's susceptibility to erosion damage and breaching. In addition, the project scope of work included establishing GPS control, aerial mapping of the Lost River Valley, stakeout of exploratory drill holes and test pits, on-site exploration of subsurface conditions, laboratory testing of soil and rock samples, materials studies, preliminary zoning and design of the earthfill embankment, hydrologic and hydraulic analyses, and proportioning of various hydraulic structures. Fee: >$2M

d.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam Rehabilitation, Lackawanna County, PA**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2012	2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. CADD Technician responsible for the preparation of contract drawings and CADD standards for the emergency repair of a 101-foot-high, 530-foot-long earthfill and stone masonry dam. Worked on the final design of rehabilitation measures, including slope flattening and RCC buttressing and armoring. Also assisted in construction management during construction of the dam for RCC inspection. Fee: $3.7M

e.

(1) TITLE AND LOCATION *(City and State)*: **Thorn Run Dam Rehabilitation, Butler County, PA**

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(if appl.)*
2009	2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Lead CADD Technician responsible for the preparation of contract drawings and CADD standards for the rehabilitation of a 30-foot-high, 600-foot-long zoned earthen embankment dam. Rehabilitation measures included slope stabilization, RCC embankment armoring, a new toe-drain system, and a new concrete spillway. Prepared conceptual design drawings for increasing the spillway capacity and correcting embankment deficiencies. Fee: $1.3M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Aaron D. Achenbach, Assoc. DBIA, ENV SP	**QC Inspections & Tests/Document Daily Activities**	11	7

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Harrisburg, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BA/History MS/Geoenvironmental Studies	ACI Grade 1; Nuclear Moisture/Density Equipment; Portable Nuclear Gauge Safety Certification; Envision™ Sustainability Professional; Associate Design-Build Professional

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASDSO; Design-Build institute of America

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Rehabilitation, Keyser, WV** — Section F #2

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2013; CONSTRUCTION *(if appl.)* 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Fill and Concrete Inspector monitoring rehabilitation work and upgrades to dam. QA responsibilities included approval of subgrade soils, dewatering efforts, groundwater level monitoring using Geokon software to read piezometers, soil approval for fill placement, setup of field laboratory soils testing for gradation analyses, one-point proctors conducted on soil samples, inspection of toe drain construction, use of nuclear moisture/density gauge, proper separation of soil types into stockpiles, daily measurements of quantities excavated and fill placed, assistance with site surveying, and site meetings with client and contractor. Concrete QA inspection involved monitoring construction of the new intake structure by checking dimensions and reinforcing steel and proper curing methods. Inspected intake riser mechanical hardware. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Nesbitt Dam Rehabilitation, Lackawanna County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Resident Project Representative monitoring rehabilitation work and upgrades. Monitored installation of relief wells, dewatering wells, piezometers, hillside excavation for signs of instability, conducted biweekly readings of inclinometers and piezometers, observed installation of driven piles for spillway training wall, verified proper testing was conducted by QC for concrete placement, inspected spillway apron bedrock for dental concrete placement, and RCC inspection. QA inspection involved installing upstream piezometers and dewatering wells, drilling and high-mobility grouting through embankment core cutoff wall center, drilling and grouting for the upstream and downstream compaction grouting program, monitoring upstream and downstream piezometers during grouting program, and tracking contractor costs. Continuously monitored seepage volumes at downstream weirs and conducted chlorine slug testing. Fee: $3.7M

c.

(1) TITLE AND LOCATION *(City and State)*: **Lee Hall Dam Rehabilitation Preliminary Geotechnical Design, Newport News, VA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2012; CONSTRUCTION *(if appl.)* N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Newport News Waterworks. Assisted with determining theoretical contractor production rates regarding construction of the toe drain and embankment fill for a major dam rehabilitation project. Fee: $2M

d.

(1) TITLE AND LOCATION *(City and State)*: **Thorn Run Dam Rehabilitation, Butler County, PA**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2012

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Pennsylvania American Water. Resident Project Representative assisting with monitoring rehabilitation work and upgrades to the dam. Monitored the surcharge fill placement and the fine sand blanket drainfill. Fill operation inspection involved monitoring for proper soil types, soil lift construction, moisture content, nuclear moisture/density compaction results, and recommendation of different fill placement and compaction methods to comply with plans and specifications. Monitoring was required for concrete and steel reinforcement placement for spillway sections and underlying drainage system for the spillway. Inspection included subgrade approval, compaction of the fine and coarse sand drainfill, and HDPE pipe placement. Reinforcing steel erection was inspected, along with locations and installation of water stop, contraction and construction joint placement, and dimensions for each slab and wall section. QA inspection for erosion and sediment controls. Fee: $1.3M

e.

(1) TITLE AND LOCATION *(City and State)*: **Acid Mine Drainage Reclamation, Goat Site 1 and Laurel Run, Morgantown, WV**

(2) YEAR COMPLETED: PROFESSIONAL SERVICES 2011; CONSTRUCTION *(if appl.)* 2011

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Construction Inspector representing NRCS's site plans and specifications on-site by direct construction observation and inspection. Made sure of proper construction of six rock sediment dams; maintained daily logs and photos and documented construction methods and progress; monitored quantities and pay items; resolved contractor issues; and approved subgrade soils, soils used in construction and earthfill, compaction methods, and dimensions. Fee: $1.8M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Michael A. MacAllister, PE	**Safety/Schedule**	33	33

15. FIRM NAME AND LOCATION *(City and State)*

Gannett Fleming, Pittsburgh, PA

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Civil Engineering	Professional Engineer/PA; Underground Storage Tank Testing Certified

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Professional Organizations: ASCE; American Public Transit Association; American Society of Highway Engineers; Association for Bridge Construction and Design; Consulting Engineers Council of Pennsylvania

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **New Creek Site 14 Dam Construction-Phase Services, Keyser, WV** Section F #2

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: 2013

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Construction Project Manager overseeing work of project personnel and providing project management and administrative services for the rehabilitation of a 100-foot-high, 940-foot-long zoned earthfill dam. Rehabilitation included slope stabilization, RCC auxiliary spillway armoring, a new toe drain system, and outlet works modifications. Fee: $3M

b.

(1) TITLE AND LOCATION *(City and State)*: **Shenango Intake Dam Rehabilitation, Sharon, PA,**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Aqua Pennsylvania, Inc., Shenango Division. Construction Manager on a dam rehabilitation project at a water treatment plant. Observed and documented the contractor's daily activities; conducted progress meetings; prepared and distributed meeting minutes; shop drawing coordination; prepared change orders; reviewed contractors' pay requests, including recommendation for payment; and worked with Aqua Pennsylvania staff to minimize disruptions during construction. Fee: $300K

c.

(1) TITLE AND LOCATION *(City and State)*: **Thorn Run Dam Rehabilitation, Butler County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: 2012

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania American Water. Construction Manager overseeing construction inspection staff for dam safety upgrades to a 38-foot-high high-hazard raw-water impounding structure with a 600-foot-long zoned earthfill embankment. The rehabilitation includes constructing RCC embankment overtopping protection, reconstructing the severely deteriorated principal spillway, and installing embankment drainage systems. Fee: $1.3M

d.

(1) TITLE AND LOCATION *(City and State)*: **Breaching of Upper and Lower Hereford Manor Lake Dams, Beaver County, PA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012; CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Pennsylvania Department of General Services. Construction Manager for the project that included reestablishing Doe Run downstream of the Lower Dam and constructing a new 8-foot-high by 12-foot-wide box culvert to convey the reestablished stream under a state highway. Provided project documentation, verified quantities, utility coordination, and monitored contractor compliance with the contract requirements. Fee: $1M

e.

(1) TITLE AND LOCATION *(City and State)*: **Acid Mine Drainage Remediation, Goat Run and Laurel Sites, Morgantown, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011; CONSTRUCTION *(if appl.)*: 2011

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

NRCS. Construction Project Manager overseeing the work of construction inspection personnel and providing project management and administrative services for the remediation of acid mine drainage areas at four abandoned coal mining sites east of Morgantown. Proposed measures to reclaim acid mine drainage included open limestone channels, rock sediment dams, limestone ponds, culvert installations, roads for construction access, a settling pond, mine adit seals, subsurface drains, and erosion and sediment control features. Inspection was performed for six rock sediment dams consisting of cutoff trenches and an earth core covered by thousands of tons of limestone boulders; Maintained daily logs and photos and documented construction methods and progress; monitored quantities and pay items; resolved issues with the contractor; and approved subgrade soils, soils used in construction and earthfill, compaction methods, and dimensions. The project included thousands of feet of open limestone channels and associated collecting ponds that allow continuous contact of the acidic water with varying gradations of limestone. Various-sized culverts were constructed and incorporated into the channels. Fee: $1.9M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
C. Michael Anslinger, MA, RPA	**Social Environment/Cultural Resources**	36	21

15. FIRM NAME AND LOCATION *(City and State)*

cra cultural resource analysts, inc, **Hurricane, WV**

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BS/Anthropology (Archaeology) MA/Anthropology (Archaeology)	Register of Professional Archaeologists

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19 RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Phase I Cultural Resources Survey for the Proposed Brush Creek Dam Site 14 Rehabilitation Project, Beaver Pond District, Mercer County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

NRCS. Project Manager and Principal Investigator for archaeological part of this 8.3 acre Section 106 compliance project completed under contract with the NRCS. Systematic survey of the APE for direct effects did not discovery evidence for archaeological sites in surface or buried contexts. No additional archaeological investigations were recommended; the West Virginia State Historic Preservation Office and NRCS concurred with the recommendation. Fee: $14K

b.

(1) TITLE AND LOCATION *(City and State)*: **Phase I Archaeological Identification Survey for the Proposed Red Warrior II Surface Mine, Kanawha County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Warrior Energy, LLC. Project Manager and Principal Investigator for proposed 141 acre surface mine permit, which required an Article 3 permit from the West Virginia Department of Environmental Protection (WVDEP). Historical research and systematic survey of the proposed permit area did not identify evidence of archaeological sites. Based on project findings no additional archaeological investigations were recommended. West Virginia State Historic Preservation Office and WVDEP concurred with the recommendation. Fee: $20K

c.

(1) TITLE AND LOCATION *(City and State)*: **Phase I archaeological Identification Survey for the Proposed Braxton County Airport Runway 1 Approach Obstruction Removal Project, Braxton County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Chapman Technical Group. Project Manager and Principal Investigator for 5.4 acre Section 106 compliance project requiring a permit from the U.S. Army Corps of Engineers, Huntington District. Department of Transportation, Federal Aviation Authority (FAA) was identified as the lead agency. The project involved the completion of historical research and systematic archaeological survey. One previously undocumented historic period archaeological site was discovered. The site was recommended not eligible for listing in National Register of Historic Places under Criterion D. The West Virginia State Historic Preservation Office, Huntington District, and FAA concurred with the recommendation. Fee: $8K

d.

(1) TITLE AND LOCATION *(City and State)*: **Phase I archaeological Identification Survey for the Proposed Expansion and Modification of the Beech Ridge Wind Energy II Project, Greenbrier County, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Invenergy, LLC. Project Manager and Principal Investigator for Section 106 compliance project, with the USFWS identified as the lead agency for Section 106 of the National Historic Preservation Act compliance. Historical research and systematic survey was completed for the 9.4 acres of upland. No evidence of archaeological sites was discovered and it was recommended that additional archaeological investigations were not warranted. The West Virginia State Historic Preservation Office, Huntington District and USFWS concurred with the recommendation. Fee: $6K

e.

(1) TITLE AND LOCATION *(City and State)*: **Phase I Archaeological Identification Survey for the Proposed Kincheloe Stream and Wetland Mitigation Bank, Harrison and Lewis Counties, WV**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015; CONSTRUCTION *(if appl.)*: N/A

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm

West Virginia Bunrootis, LLC. Project Manager and Principal Investigator for Section 106 compliance project, which required Section 404 permit form U.S. Army Corps of Engineers, Pittsburgh District. Historical research and systematic field survey of over 60 acres identified five previously undocumented sites dating to historic and prehistoric periods. Sites were recommended not eligible for listing in National Register of Historic Places under Criterion D. West Virginia State Historic Preservation Office and Pittsburgh District concurred with the recommendation. Fee: $15K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Elizabeth Heavrin	**Social Environment/Cultural Resources**	8	5

15. FIRM NAME AND LOCATION *(City and State)*

cra cultural resource analysts, inc, **Lexington, KY**

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
BA/History MHP/Historic Preservation	N/A

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Historic Documentation of Site CL 168, Kentucky River Lock and Dam No. 1, located southeast of Carrollton, Carroll County, Kentucky**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Kentucky River Authority and Stantec Consulting Services, Inc. Served as project manager and principal investigator overseeing the completion of state level documentation of the USACE-owned lock and dam property, which included development of a detailed context, archival-quality digital photography, and measured drawings of the lockmasters' houses. Fee: $10K

b.

(1) TITLE AND LOCATION *(City and State)*: **Cultural Historic Resource Survey for the Proposed Beech Fork River Rubble Dam Maintenance Project, Nelson County, Kentucky**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

City of Bardstown. Served as project manager, principal investigator, and author for this project which included documentation and National Register evaluation of the rubble dam to support a USACE permit for improvements to the structure. Fee: $5K

c.

(1) TITLE AND LOCATION *(City and State)*: **Cultural Historic Resource Survey for the Proposed Kentucky River Lock and Dam No. 8 Renovation Project, Garrard and Jessamine Counties, Kentucky**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

Kentucky River Authority. Served as project manager, principal investigator, and author for this project which included documentation and National Register evaluation of the lock and dam to support a USACE permit for improvements to the structure. Fee: $4K

d.

(1) TITLE AND LOCATION *(City and State)*: **Historic Resource Study on National Cemetery Administration Confederate Cemeteries and Related Sites. Multiple locations**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

United States Department of Veterans Affairs. Architectural Historian/Historian and Project Manager charged with overseeing the completion of National Register of Historic Places nominations and amendments and Historic American Landscape Survey reports for 18 sites located throughout the United States. Fee: $159K

e.

(1) TITLE AND LOCATION *(City and State)*: **Provided Assistance to the Department of Veterans Affairs to Meet their National Historic Preservation Act (NHPA) Compliance Requirements at the Fort Thomas, Kentucky Facility**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2012 | CONSTRUCTION *(if appl.)*: N/A

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

United States Department of Veterans Affairs. Served as project manager overseeing completion of this project that included an archaeological reconnaissance, HABS documentation, and development of a Memorandum of Agreement. Fee: $48K

Section F

Gannett Fleming
100 Years
of Excellence Delivered **As Promised**

ISO 9001:2008 CERTIFIED

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 1

21. TITLE AND LOCATION *(City and State)*: **Upper Deckers Creek Site 1 Dam Rehabilitation, Preston County, WV**

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
Ongoing (2016)	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS West Virginia State Office	Andy Deichert, PE	304-284-7563

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and cost)*

Goal/Objective:
Assess dam and its appurtenances for compliance with NRCS requirements, evaluate rehabilitation designs, and design selected rehabilitation features.

The NRCS has been involved in assessing the conditions of existing dams, including Upper Deckers Creek Site 1, to determine their eligibility for rehabilitation and assistance under the Watershed Rehabilitation Program. In 2006, the NRCS conducted a preliminary assessment of the dam which determined that the dam was in relatively good condition; however, the development downstream presented a potential significant hazard should the dam suddenly fail. The existence of the downstream development warranted changing the hazard classification of Upper Deckers Creek Site 1 from significant (Class B) to high (Class C). The NRCS conducted a previous preliminary feasibility study, which concluded that Upper Deckers Creek Site 1 has potential for additional water storage capacity. NRCS was therefore interested in determining the feasibility of increasing the normal pool elevation.

Upper Deckers Creek Site 1. To comply with Class C high Hazard design criteria, Gannett Fleming recommended excavating an earth/rock cut auxiliary spillway at the left dam abutment appeared to be the most economical alternative for both maintaining the existing pool and raising the pool to provide additional water supply storage

Upper Deckers Creek Site 1 Dam consists of a 500-foot-long, zoned earthfill embankment. The dam has two spillways – a single-stage principal spillway and an open channel vegetated auxiliary spillway. Gannett Fleming developed work plans for Phase I planning efforts consisting of initiation activities, dams history review, preliminary and final analyses, determination of initial rehabilitation scope, and formulation of rehabilitation options. We performed field surveys and mapping; geotechnical field investigation and interpretation; rock and soil mechanics testing, evaluation and interpretation; existing structural conditions investigation, testing and evaluation; hydrologic analysis; and hydraulic design and proportioning and report preparation.

The subsurface investigation program included 890 LF of soil and rock drilling and sampling, as well as 2,300 LF of geophysical surveys consisting of seismic refraction and multichannel analysis of surface waves. The subsurface investigation also included borehole rock pressure testing and installation of vibrating-wire piezometers. We coordinated the laboratory testing program of soil and rock samples and prepared an investigation report and design calculations associated with NRCS SITES modeling of existing and proposed auxiliary spillways.

The primary deficiency at Upper Deckers Creek Site 1 is inadequate conveyance capacity of the auxiliary spillway. Alternatives considered to increase the conveyance capacity and to bring the dam into compliance with current NRCS high hazard dam design criteria included widening and armoring the existing auxiliary spillway using RCC, armoring the existing spillway with RCC and raising the dam, armoring the embankment with RCC or ACBs so that it could be overtopped, constructing a new auxiliary spillway at left abutment, combinations of the above, and decommission dam (loss of flood control benefits offered by the project).

Of the alternatives evaluated, excavating an earth/rock cut auxiliary spillway at the left dam abutment appeared to be the most economical alternative to maintain the existing pool and raise the pool to provide additional water supply storage. Gannett Fleming is currently providing design services for the dam rehabilitation.

*"The AE firm provides **professional work in a professional manner.**"*

- Amy Stonebraker, NRCS on evaluation of the Phase I Engineering Planning of Upper Deckers Creek Site 1

Fee: $999K (est.)

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA; Pittsburgh, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 2

21. TITLE AND LOCATION (City and State)
New Creek Site 14 Dam, Grant County, WV

22. YEAR COMPLETED
PROFESSIONAL SERVICES: 2013
CONSTRUCTION (if appl): 2013

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS West Virginia State Office	Andy Deichert, PE	304-284-7563

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Assess dam and its appurtenances for compliance with NRCS requirements, design rehabilitation features, and provide construction support.

New Creek Site 14 is an NRCS earth embankment dam constructed in 1963 that provides flood control and water supply for the City of Keyser, WV. The dam is 114 feet high and 940 feet long, impounding approximately 1,070 acre-feet of water at normal pool. The outlet works consist of an 80-foot-high riser intake structure with a 30-inch outlet conduit and plunge pool. The auxiliary spillway is grass-lined.

Gannett Fleming performed planning, analysis, design, construction drawings, and specifications and construction management for the dam. We conducted a detailed hydrologic study, auxiliary spillwa, integrity analyses, and detailed dam break hydraulic analysis of New Creek and its floodplain. Tasks included reviewing existing hydrologic and hydraulic (H&H) data; collecting topographic data; developing several SITES H&H models; performing a site visit; completing an approximate survey of channel obstructions, including 22 bridges; and developing a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS software. The model was run to simulate failure of the dam during both sunny day and hydrologic loading conditions in order to predict the flood extents and water surface elevations of outflow from the reservoir for those scenarios.

RCC Spillway at New Creek Site 14 Dam. Fly ash, a byproduct of coal-fired power generation, was used to replace 50 percent of the cement in all RCC used for this project. Using recycled materials resulted in significant energy and pollution savings by decreasing the Portland cement usage on this project by approximately 2,850 tons which results in CO_2 emissions and eliminates the need to landfill these industry by-products.

Several sustainable features were incorporated in the New Creek Site 14 Dam rehabilitation project. Ground-granulated blast furnace slag, a byproduct of the steel manufacturing industry, was used to replace 42.5 percent of the cement in all conventional concrete used for this project. In addition, fly ash, a byproduct of coal-fired power generation, was used to replace 50 percent of the cement in all RCC for this project. Using these recycled materials alone resulted in significant energy and pollution savings by decreasing the Portland cement usage on this project by approximately 2,850 tons which directly results in a reduction of approximately 2,850 tons of CO_2 emissions and eliminates the need to landfill these industry by-products. On this same project, concrete from the old riser structure was recycled as fish habitat to be placed in the reservoir and the excavated materials from the expanded auxiliary spillway were used to improve the stability of the upstream and downstream embankment slopes.

*"...Gannett Fleming is a well managed and **highly qualified dam design firm**. The firm has worked on several projects for USDA-NRCS in West Virginia and has **consistently provided excellent service in a timely fashion**."*

- Amy Stonebraker, Supervisory Contract Specialist, NRCS on ACASS evaluation of Final Design of New Creek Site 14 Rehabilitation

Fee: $3M

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA; Pittsburgh, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 3

21. TITLE AND LOCATION *(City and State)*

Supplemental Watershed Plan/EAs for Upper Brushy Creek Watershed FRS 7, 13A and 17, East Fork Above Lavon Watershed FRS 1A, 2B, 4 and 17, and Salt Creek and Laterals Watershed FRS 13, Collin, Grayson, Williamson, Wise, and Parker Counties, TX

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
2005	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS Texas State Office	Ronnie G. Skala, PE, CFM	254-742-9872

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Bring high hazard facilities into compliance with current NRCS and State of Texas dam safety criteria.

As a subconsultant, Gannett Fleming provided engineering and economic analysis services to the Texas NRCS for rehabilitation planning of aging NRCS dams. The projects included preparation of Supplemental Watershed Plan/Environmental Assessments for eight dams, including FRS's 7, 13A and 17 of the Upper Brushy Creek Watershed, FRS 1A, 2B, 4 and 17 of the East Fork above Lavon Watershed, and FRS 13 of the Salt Creek and Laterals Watershed.

The primary purpose of these planning studies was to identify the most cost-effective approach for bringing the dams into compliance with current NRCS and State of Texas dam safety criteria. The dams, constructed under the NRCS Watershed Protection program, originally had sparsely populated downstream floodplains used primarily for agricultural production. Significant urban development has occurred downstream and upstream from these dams, resulting in a high hazard classification.

Alternatives considered included the Future without Project (controlled breaches), relocation of at-risk properties, decommissioning, and rehabilitation. Rehabilitation alternatives consisted of providing additional principal and auxiliary spillway capacity to meet current performance and safety standards, and to extend the service life and flood control benefits for 100 years.

Emergency spillway, FRS 13A. Gannett Fleming prepared Supplemental Watershed Plan/Environmental Assessments for eight FRS's.

Since the dam sites have earth-lined auxiliary spillways, the NRCS required an assessment of each dam's spillway erodibility. Our hydraulics and geotechnical engineers developed and executed the SITES computer model to assess each spillway's erodibility potential for a range of flood events. Geologic profiles were constructed, based on borings located in the existing as-built construction drawings. We documented the analysis and provided recommendations for armoring the dams to alleviate erosion failure concerns.

Upper Brushy Creek FRS 7, sediment pool. Our firm also quantified the benefits that the sediment pools behind several dams provided, including recreation, water supply, stormwater detention, and an aesthetic/amenity value to adjacent properties.

Gannett Fleming conducted benefit-cost analyses for each dam to evaluate alternatives retained for detailed study and identify the National Economic Development Alternative, in accordance with the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G), the *Natural Resource Economics Handbook Part 611 – Water Resources* and the *National Watershed Manual*. Our firm quantified the benefits of maintaining flood protection for agriculture, roads, bridges, and residential and commercial properties. The NRCS URB1 model was used to estimate the benefits of continuing flood protection to downstream structures. Our firm also quantified the benefits that the sediment pools behind several dams provided, including recreation, water supply, stormwater detention, and an aesthetic/amenity value to adjacent properties. Converting the benefits and costs to an annual average equivalent, we identified the alternative that would maximize net benefits.

Fee: $273K

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA	Subconsultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 4

21. TITLE AND LOCATION *(City and State)*

White Tanks FRS No. 4 Supplemental Watershed Plan/EA; McMicken Dam Rehabilitation; Powerline, Vineyard Road and Rittenhouse Supplemental Watershed Plan/EA; and Saddleback Dam Mitigation, Maricopa and Pinal Counties, AZ

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
2015	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
Flood Control District of Maricopa County (FCDMC)	Tom Renckly	602-506-8561

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goals/Objectives:
Bring high hazard facilities into compliance with current NRCS and State of Arizona dam safety criteria.

White Tanks FRS No. 4 Supplemental Watershed Plan/Environmental Assessment and **Preliminary Design Services**

Gannett Fleming provided engineering and planning services for the rehabilitation of White Tanks FRS No. 4. Our firm is also developing the alignment and preliminary design for the inflow and outflow channels to convey flood waters along the 12-mile corridor connecting White Tanks FRSs 3 and 4 with the Gila River. Technical analyses applied on this project include seepage analysis, dam break analysis, filter and drain compatibility, 2-D dynamic routing, SITES modeling, and slope stability analysis.

White Tanks FRS No. 4. Technical analyses applied on this project include seepage analysis, dam break analysis, filter and drain compatibility, 2-D dynamic routing, hydrologic modeling, SITES modeling, slope stability analysis, and risk analysis.

The FRS is a low-height homogenous earth dam with two principal gated corrugated metal pipe outlets and two earth-cut, unlined emergency spillways. The structure has been classified as a high hazard structure by the Arizona Department of Water Resources and NRCS due to downstream development. Gannett Fleming and FCDMC conducted dam inspections and investigations that revealed transverse cracking. Gannett Fleming determined that a central filter/drain previously constructed had used filter materials not compatible with the drain materials, and that the embankment/filter was marginally acceptable based on current criteria.

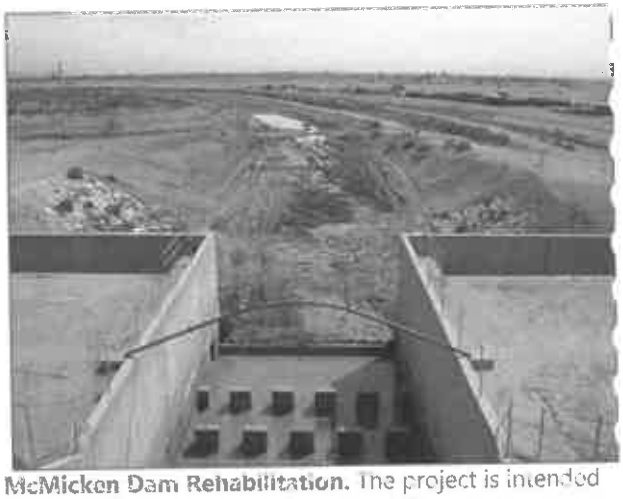
Our firm prepared a Supplemental Watershed Plan/EA to identify and evaluate alternatives for rehabilitation or removal of the FRS. We facilitated alternatives analysis and risk analysis workshops with project decision makers that achieved consensus on alternative selection. We conducted NEPA-related public involvement activities, and documented the social, cultural and natural resource impacts of each alternative.

In support of the EA, we conducted a benefit-cost analysis in accordance with NRCS guidance to determine the economic impacts of a series of potential flood events under each alternative. HEC-1 and HEC-RAS modeling was conducted to support the benefit-cost analysis. Our firm used the NRCS URB1 model to measure the benefits of maintaining flood protection for residential, commercial, and institutional properties, and GIS analysis to measure benefits to agriculture, roadways, and other infrastructure. We converted future benefits and costs to average annual equivalents and identified the National Economic Development alternative.

Fee: $1.7M

McMicken Dam Rehabilitation

As part of a team, Gannett Fleming is providing engineering services for the rehabilitation of McMicken Dam, a 9.5-mile-long homogenous earthen embankment dam.



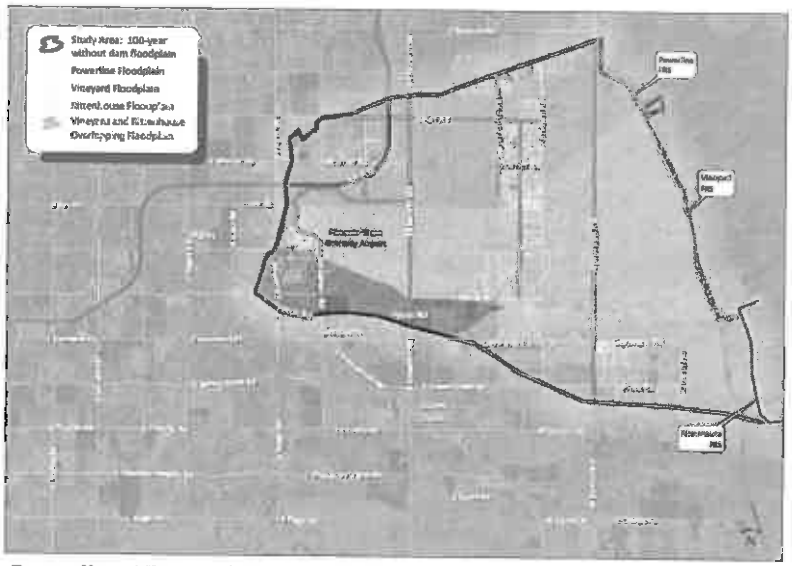
McMicken Dam Rehabilitation. The project is intended to eliminate or mitigate current dam safety deficiencies and failure modes caused by aging infrastructure land subsidence, earth fissuring and urban encroachment.

The project is intended to eliminate or mitigate current dam safety deficiencies and failure modes caused by aging infrastructure, land subsidence, earth fissuring and urban encroachment. The rehabilitation includes modifications to several structures, including fissure risk zone remediation embankment, fissure risk zone and non-fissure risk zone embankment sections, emergency spillway, principal outlet, 6-mile outlet channel, and 4-mile outlet wash. Gannett Fleming is performing final design geotechnical investigations, developing final mitigation alternatives, and preparing construction plans and specifications for final design of each of the project components.

Fee: $489K

Powerline, Vineyard Road, and Rittenhouse Supplemental Watershed Plan and Environmental Assessment
As a subconsultant, Gannett Fleming performed economic analyses in support of the Watershed Plan/EA for the rehabilitation of three dams in Pinal County, AZ. The analyses were prepared in accordance with the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G), the *Natural Resource Economics Handbook Part 611 – Water Resources* and the December 2009 *National Watershed Manual*.

Gannett Fleming used the NRCS URB1 model and GIS analysis to measure the benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; roadways; and other infrastructure. The analysis included measuring the impact of a regional airport shutdown due to flooding. Marshall and Swift Valuation Service cost data was used to estimate structure and content values of large institutional structures for model input. Our firm also measured the administrative cost savings to the National Flood Insurance Program (NFIP) from a reduction in the number of properties that must participate under each alternative.
Gannett Fleming calculated net economic benefits and a benefit-cost ratio for each alternative using the federal water project discount rate, and determined the National Economic Development alternative. We were able to demonstrate that a positive benefit-cost ratio was achieved for each individual FRS by appropriately distributing benefits between the three dams.



Powerline, Vineyard Road and Rittenhouse Dams' downstream floodplains under the 100-year Without Dam scenario. Gannett Fleming used the NRCS URB1 model and GIS analysis to measure the benefits of maintaining flood protection.

Fee: $106K

Saddleback Dam Mitigation

Saddleback FRS, a 5-mile compacted earth-fill dam with a principal spillway and four irrigation outlets, has experienced numerous erosion holes and longitudinal cracking. The FCDMC identified the need to modify the embankment to mitigate cracking and retained Gannett Fleming to perform geotechnical investigations, develop mitigation alternatives, and prepare final design plans and specifications. Gannett Fleming investigated three potential causes of the observed distress: differential settlement of collapsible foundation soil, incompatibility of the filter/drain with the overlying embankment soil, and settlement of the potentially loosely placed filter/drain. We performed failure modes and effects analyses to assess the mitigation alternatives for the central filter/drain. Final design drawings and specifications are currently being developed.

Our firm also prepared an economic assessment of flood damages in the 100-year storm event under With Dam and Without Dam conditions, based on FLO-2D modeling conducted for the project. The purpose of the analysis was to provide quantitative input on potential damages to use in the conceptual development of rehabilitation alternatives. The analysis included assessment of flood damages to a downstream natural gas-powered combined-cycle electric generating plant.

Fee: $455K

25 FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA	Prime; Subconsultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 5

21. TITLE AND LOCATION *(City and State)*: **Fredonia FRS Engineering Study, Fredonia, AZ**

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
2009	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
Town of Fredonia	Steven L. Winwand, Mayor	928-643-7241

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Evaluate alternatives for rehabilitating or modifying the dam to comply with current dam safety criteria from both the NRCS and ADWR.

As a subconsultant, Gannett Fleming provided geotechnical and dam engineering services and conducted an economic analysis in support of an NRCS Supplemental Watershed Plan and EA for the rehabilitation of the Fredonia FRS in northern Arizona. The project objectives were to: (1) provide planning and engineering assessment level services for the dam to allow a federal cost-share under the Small Watershed Rehabilitation Program, and (2) to evaluate alternatives for rehabilitating or modifying the dam to comply with current dam safety criteria from the NRCS and Arizona Department of Water Resources (ADWR).

Our firm reviewed pertinent data on the dam, including engineering design and geotechnical reports, as-built plans, ADWR groundwater records, monitoring data, and construction quality-assurance results. Our staff conducted the failure modes and effects analysis on the structure. Additional responsibilities involved providing support for geotechnical design and construction reports on filter design, foundation soils, borrow material, and regional geology. Our firm performed alternatives analyses for concept-level design of structural alternatives including dam raise, foundation treatments, and erosion protection. The action alternative retained for detailed study consisted of converting the dam to a levee to maintain 100-year flood protection.

Gannett Fleming also conducted a cost-benefit analysis to determine the economic impact of a series of flood events on the town of Fredonia. We used GIS-based tax assessment data, aerial photography, National Agricultural Statistics Service cropland GIS data layers, and GIS land use data to identify downstream structures. The values of large institutional structures not captured in the assessment data were measured on a square foot basis using Marshall and Swift Valuation Service cost data. Our firm used GIS analysis and the NRCS URB1 Model to measure the benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; roadways; and other infrastructure.

Fredonia FRS. Our team provided support for geotechnical design and construction reports on filter design, foundation soils, borrow material, and regional geology.

Affected downstream property, Fredonia FRS. Our firm used GIS analysis and the NRCS URB1 Model to measure the benefits of maintaining flood protection for agriculture, residential, commercial, and institutional properties; roadways; and other infrastructure.

Fee: $98K

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA	Subconsultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20 EXAMPLE PROJECT KEY NUMBER: 6

21. TITLE AND LOCATION *(City and State)*: **Lost River Watershed Dams, Site No. 16, Hardy County, WV**

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
2015	N/A

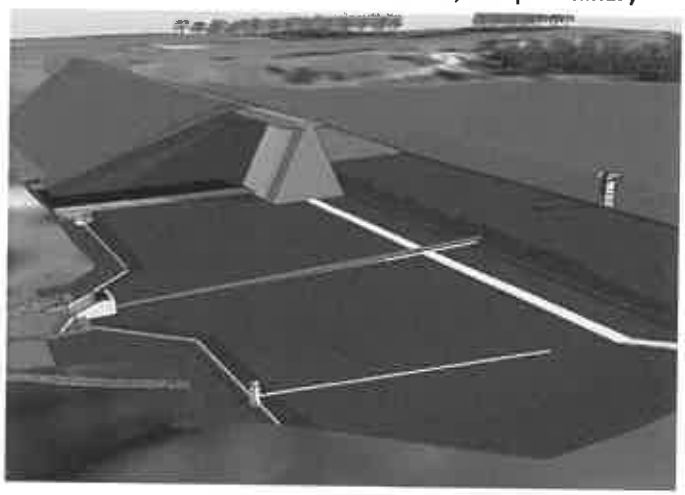
23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS West Virginia State Office	Andy Deichert, PE	304-284-7563

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Design new earth embankment dam to create flood control, water supply and recreation reservoir.

Lost River Site 16 is one of five flood control structures originally planned to control flood damage in the Lost River Watershed. The site has a contributing drainage area of 11.88 square miles. Gannett Fleming provided hydraulic analysis, surveying, environmental studies, and preliminary and final design for the proposed multi-purpose dam, which will provide both flood control and water supply storage with some recreational benefits. The proposed 90-foot-high, 2,000-foot-long zoned earth embankment dam has a principal spillway featuring a riser structure and principal spillway conduit through the dam. The dam would also have an auxiliary spillway cut into rock. Gannett Fleming designed the structure to retard the runoff from a 10-day duration, 100-year frequency storm without discharge occurring in the auxiliary spillway. We also designed the structure to pass the Freeboard Hydrograph without overtopping the dam. We designed the reservoir to provide adequate water supply storage to withstand the drought of record.



Lost River Site No. 16 Riser Rendering. Gannett Fleming designed the structure to retard the runoff from a 10-day duration, 100-year frequency storm without discharge occurring in the auxiliary spillway.

Services provided to date include aerial and ground surveys and mapping, subsurface exploration, laboratory testing of soil and rock samples, design of the dam and ancillary facilities, SITES analysis of the auxiliary spillway, preparation of contract drawings and specifications, construction cost estimating, and support services during construction. We are currently assisting the NRCS with permit application support for the Department of the Army, Clean Water Act Section 404 Individual Permit.

*"We repeatedly have selected Gannett Fleming to provide engineering services for our projects because they are a recognized leader in the field of dam engineering, are **responsive to our needs**, have **consistently delivered quality services**, have the **capacity to work on large projects in a deadline driven environment**, and can **adjust their schedules for execution of the work to meet our needs**."*

- Andy Deichert, NRCS

Pamela Yost of the NRCS West Virginia Office gave Gannett Fleming a ***perfect Client Satisfaction Evaluation (CSE) score*** for services provided during the Lost River No. 16 task order assignment.

Fee: >$2M

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA; Valley Forge, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 7

21. TITLE AND LOCATION (City and State)

Elkwater Fork Water Supply Dam, Randolph County, WV

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
2011	2011

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS West Virginia State Office	Andy Deichert, PE	304-284-7563

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Design new RCC Dam to create water supply and recreation reservoir.

During the preparation of a countywide water resource assessment in the late 1990s for the NRCS, Gannett Fleming identified Elkwater Fork as a potential site for the creation of a new water supply reservoir. The site was one of about 40 potential reservoir sites identified and investigated. The study concluded that the Elkwater Fork site was the best location for a new reservoir to provide an adequate source of drinking water to more than 20,000 Randolph County residents. Subsequently, NRCS selected our firm to design a new 130-foot-high RCC dam on Elkwater Fork in the Upper Tygart Valley Watershed. The dam provides a 3.0-mgd water supply reservoir and offers 54 acres of recreation opportunities for families and visitors.

NRCS chose Gannett Fleming for this project because of our experience; our capability to design the project within a constrained construction schedule and funding limitations; and our ability to provide comprehensive geotechnical, environmental, and drilling services throughout investigation, design, and construction phases.

Our firm completed surveys and mapping; subsurface exploration and testing; hydraulic proportioning; stability analyses; safe yield analyses; preliminary dam design; preparation of an Operation, Inspection, and Maintenance Plan; as well as final contract drawings and specifications. Gannett Fleming was selected for this contract because of our experience, our ability to design the project within a constrained construction schedule and funding limitations, and our ability to provide comprehensive geotechnical, environmental, and drilling services throughout investigation, design, and construction phases. All of our work was subject to independent technical review by the NRCS National Technical Center in Fort Worth, Texas. The dam was completed in 2011 at a construction cost of about $32 million.

The 130-foot-high RCC Elkwater Fork Water Supply Dam was built to improve health and human safety by assuring a reliable source of drinking water for more than 20,000 residents of Randolph County, WV. The dam provides a 3.0-mgd water supply reservoir and offers 54 acres of recreation opportunities for families and visitors.

The dedication of the Elkwater Fork Water Supply Dam was held on August 22, 2012. The event was open to the public and was well attended by hundreds of people, including political and business leaders. This $33 million, 130-foot-high roller-compacted concrete dam on Elkwater Fork in the Upper Tygart Valley Watershed was designed by Gannett Fleming for the NRCS.

Fees: $1.5M

Elkwater Fork Water Supply Dam. NRCS chose Gannett Fleming for this project because of our experience; our capability to design the project within a constrained construction schedule and funding limitations; and our ability to provide comprehensive geotechnical, environmental, and drilling services throughout investigation, design, and construction phases.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20 EXAMPLE PROJECT KEY NUMBER: 8

21. TITLE AND LOCATION *(City and State)*: **Various Dam Safety and Water Resources Engineering Assignments, Chester County, PA**

22. YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing (2016); CONSTRUCTION (if appl.): N/A

23 PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
Chester County Water Resources Authority (CCWRA)	Janet L. Bowers, PG	610-344-5400

Goal/Objective: Provide wide range of engineering services to assess and maintain NRCS dams owned and operated by CCWRA.

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

CCWRA operates, manages, and maintains four regional flood control dams. These dams are earthen embankment structures constructed by NRCS between 1972 and 1994. Gannett Fleming is providing consulting and field services to assist CCWRA in the areas of dam engineering design, safety, management and operations; reservoir management and water supply release operations; wetland services; stormwater engineering design and construction management; land surveying; land management; geotechnical and foundation engineering; GIS and CADD; and other related field, engineering, and technical services. In addition, we are advising and assisting CCWRA in comprehending and complying with all relevant federal, state, and other regulations pertaining to the flood control facilities. Work is assigned on a task order basis and all assignments performed were completed on schedule in compliance with all CCWRA requirements.

Our firm prepared draft bid form and technical specifications for the service maintenance of Hibernia Dam's conservation release flow control valve for a three-year contract that includes two service events per year. Additionally, we performed investigations, evaluations, monitoring, analysis, and interpretation of elevated piezometer readings and Hibernia Dam to assist in the determination of cause and effects of the higher than normal piezometric readings. Work completed involved manually monitoring existing piezometer instrumentation twice weekly at Hibernia Dam and observing and documenting embankment conditions with photographs. We are currently planning additional subsurface investigations.

Hibernia Dam. Gannett Fleming performed investigations, evaluations, monitoring, analysis, and interpretation of elevated piezometer readings to assist in the determination of cause and effects for the higher than normal piezometric readings.

Gannett Fleming manually monitored and interpreted existing piezometric instrumentation at Beaver Creek and Struble Dams. Twelve piezometers, two per casing, are in place at each dam. The discharge rate from the embankment drain outlets at each dam was monitored concurrent with the piezometer monitoring, and documentation was recorded in tabular and graphical form. Our firm also provided riser monitoring for Beaver Creek Dam. We surveyed six structure settlement monitoring "points" to a 0.01 horizontal and vertical accuracy with respect to established control, and prepared a brief letter report summarizing the survey results.

We conducted additional investigations, evaluation, and monitoring at Struble Dam. Our firm reviewed existing NRCS construction documents and records, performed topographic surveys, conducted a geophysical survey, and evaluated the compatibility of embankment soils, fine drain fill, and coarse drain fill. The geophysical surveys included two-dimensional electrical resistivity, self-potential, and infrared thermal imaging to identify seepage along a 700-foot section of the earthen embankment. Our firm completed the evaluation and prepared a letter report to recommend improvements for embankment drainage and slope stability.

We are conducting annual inspections and drafting revised emergency action plans (EAPs) for the four existing earthen embankment dams, as well as preparing inspection reports in accordance with Pennsylvania Department of Environmental Protection requirements. Revised draft EAPs included updated inundation mapping in accordance with current EAP guidelines and were submitted to CCWRA for comment.

Fee: $2.5M (est.)

25 FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA; Valley Forge, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER: 9

21. TITLE AND LOCATION *(City and State)*: **Renwick Dam Rehabilitation, Cavalier, ND**

22. YEAR COMPLETED: PROFESSIONAL SERVICES: 2012; CONSTRUCTION (if appl.): 2014

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS Bismarck State Office	Scott Davis	701-530-2087

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Review NRCS rehabilitation design and provide construction support services.

In 2010, Gannett Fleming performed an independent review of the design, plans, and specifications for Renwick Dam. This review provided important recommendations, which were incorporated into the final design documents for this project. A key feature of this rehabilitation project is a stepped, RCC spillway over the embankment. Dam design review tasks for this project included review of the NRCS project design folder; identification of potential dam safety deficiencies not addressed; identifying non-compliance with NRCS design criteria, omissions, inadequacies, or errors; and recommendation of corrective actions and assessment of construction access. Our firm provided documentation of adequacy of structural, hydrologic, hydraulic, seepage control, stability, zoning, seismic and instrumentation systems design; environmental considerations; construction drawings; specifications; bid schedules; cost estimates; construction evaluations, including construction schedules and construction quality assurance plans; and operation and maintenance plans.

Phase I raised portions of the embankment 5.4 feet and pre-loaded portions of the embankment where the RCC, stepped chute spillway will be located and the accompanying conventional concrete sidewalls. Phase II included the installation of the stepped chute spillway, conventional concrete sidewalls, a slight modification to the principal spillway riser, and completion of the earthwork to raise the top of dam 5.4 feet over the remainder of the alignment. Gannett Fleming provided construction inspection services during Phase II.

Services included:

- Maintaining a daily job diary with photographs
- Providing quality assurance testing
- Performing surveying checks and reviewing and verifying contractor survey notes for compliance
- Enforcing safety regulations
- Inspection contractor's quality control system
- Conducting wage interviews
- Inspecting pollution control efforts
- Documenting changes to project on as-built drawings
- Communicating with NRCS on a regular basis.

Renwick Dam. A key feature of this rehabilitation project is a stepped, RCC spillway over the embankment.

Fee: $466K (est.)

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 10

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if appl.)
Salem Fork Sites 11 and 11A Phase I Dam Rehabilitation Planning, Preston and Harrison Counties, WV	2014	N/A

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NO.
NRCS West Virginia State Office	Andy Deichert, PE	304-284-7563

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*

Goal/Objective:
Assess dams and their appurtenances for compliance with NRCS requirements and develop rehabilitation alternatives to address deficiencies.

The purpose of the original Salem Fork Watershed Work Plan Agreement signed in 1954 was to outline land treatment and structural measures necessary to achieve erosion control and alleviate flood damage. Seven floodwater retarding dams were constructed on tributaries within the Salem Fork Watershed as part of this work plan. Salem Fork Site 11 is a single-purpose flood control dam. Uncontrolled drainage area of the structure is 148.1 acres. Salem Fork Site 11A, which is located about 0.5 miles upstream of the dam, controls an additional 181.2 acres of drainage area. The dam and its appurtenances consist of a 225-foot long, zoned earthfill embankment with a maximum height of 29.4 feet. The dam has two spillways: a two-stage principal spillway riser structure and an open channel, vegetated auxiliary spillway.

Gannett Fleming developed work plans for the completion of Phase I planning efforts generally consisting of initiation activities, dams history review, preliminary and final analyses of existing dams, determination of initial rehabilitation work scope, and formulation of rehabilitation options. Tasks included field surveys and mapping, geotechnical field investigation and interpretation, rock and soil mechanics testing, evaluation and interpretation, existing structural conditions investigation, testing and evaluation, hydrologic analysis, hydraulic design and proportioning, and report preparation.

Salem Fork Site 11A. Gannett Fleming evaluated several spillway rehabilitation alternatives to comply with Class C high hazard design criteria and recommended armoring the auxiliary spillway.

We conducted a detailed hydrologic study, auxiliary spillway integrity analyses, and dam break hydraulic analyses of the dams and their floodplain. Tasks included reviewing existing H&H data, collecting topographic data, developing several SITES H&H models, performing a site visit, completing an approximate survey of channel obstructions, and developing a detailed hydraulic model using HEC-GeoRAS, HEC-RAS, and ArcGIS software. The dam breach model was run to simulate failure of the dam during both sunny day and hydrologic loading conditions to predict the flood extents and water surface elevations of outflow from the reservoir for those scenarios. We used the subsurface exploration test borings drilled to evaluate subsurface conditions beneath the dams' auxiliary spillways to develop SITES integrity analyses.

Following the analyses and investigations, Gannett Fleming developed several potential rehabilitation alternatives. Assuming the dam must satisfy Class C (high hazard) design criteria, the only current known deficiency is the potential breaching of the auxiliary spillway. The potential rehabilitation alternatives considered for Salem Fork Site 11 assume that Salem Fork Site 11A is not decommissioned. Alternatives considered for Salem Fork Site 11 included armoring the auxiliary spillway to prevent erosion and breaching of the spillway. Armoring the spillway using ACBs appears to be the preferred option. We also evaluated widening the existing auxiliary spillway and flattening the spillway chute using the SITES model, but found this impractical because of the site conditions. We also presented decommissioning or breaching the dam as possible alternatives.

Fee: $200K

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Gannett Fleming	Harrisburg, PA; Pittsburgh, PA	Prime

Section G

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G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "X" under projects key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Paul G. Schweiger, PE, CFM	Project Manager; Dam Rehabilitation Alternatives; Public Involvement	X	X	X	X			X	X	X	X
Rodney E. Holderbaum, PE, PLS, PS	Project Principal & Quality Assurance/Quality Control	X	X					X	X	X	X
Eric C. Neast, PE	Planning Studies - Task Manager; Pollution Control		X					X	X		
Donald P. Roarabaugh, PE	Upper Deckers Creek Site 1 Construction Oversight - Task Manager; Dam Rehabilitation Alternatives	X	X	X			X	X	X	X	
Robert T. Saber, PE	Dam Rehabilitation Alternatives		X				X	X	X		
Timothy W. Johnston, PE	Dam Rehabilitation Alternatives	X	X					X	X		X
William J. Franz, PE, PG	Dam Rehabilitation Alternatives	X	X						X	X	X
Amanda J. Hess, PE, CFM	Hydraulics and Hydrology	X			X		X	X	X		X
Benjamin P. Israel-Devadason, PE, CFM	Hydraulics and Hydrology	X	X		X		X		X		X
Gregory L. Richards, PE, CFM	Hydraulics and Hydrology	X	X						X		X
William J. Kingston III, CFM	Hydraulics and Hydrology										
Cari R. Beenenga, PE	Subsurface Investigation/Geologic Evaluation; Submittal Review	X	X						X		X
David M. Snyder, PE	Subsurface Investigation/Geologic Evaluation; Foundation Inspection	X	X				X	X	X		X
Jeremy S. Robinson, PG	Subsurface Investigation/Geologic Evaluation	X	X				X		X		
Edward J. Barben, PE	Subsurface Investigation/Geologic Evaluation; Foundation Inspection	X	X				X		X		X
Andrew J. Smithmyer, PG	Subsurface Investigation/Geologic Evaluation	X	X				X	X	X		X
Katherine E. Sharpe, AICP	NEPA – Lead; Economics/GIS			X	X	X					
Steven J. Wittig, CE	NEPA						X		X		

29 EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	Upper Deckers Creek Site 1 Dam Rehabilitation Planning and Construction, Preston County, WV	6	Lost River Watershed Dams, Site No. 16, Hardy County, WV
2	New Creek Site 14 Dam, Grant County, WV	7	Elkwater Fork Water Supply Dam, Randolph County, WV
3	Suppiemental Watershed Plan/EAs for Upper Brushy Creek Watershed FRS 7, 13A and 17, East Fork Above Lavon Watershed FRS 1A, 2B, 4 and 17, and Salt Creek and Laterals Watershed FRS 13, Collin, Grayson, Williamson, Wise, and Parker Counties, TX	8	Various Dam Safety and Water Resources Engineering Assignments, Chester County, PA
4	White Tanks FRS No. 4 Supplemental Watershed Plan/EA; McMicken Dam Rehabilitation; Powerline, Vineyard Road and Rittenhouse Supplemental Watershed Plan/EA; and Saddleback Dam Mitigation, Maricopa and Pinal Counties, AZ	9	Renwick Dam Rehabilitation, Cavalier, ND
5	Fredonia FRS Engineering Study, Fredonia, AZ	10	Salem Fork Sites 11 and 11A Phase I Dam Rehabilitation Planning, Preston and Harrison Counties, WV

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "X" under projects key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Kristin L. Civitella	NEPA						X		X		
Michelle A. Brummer, AICP	Public Involvement										
Craig S. Shirk, AICP, ENV SP	Social Environment/Cultural Resources			X							
Steven C. Smith, WPIT	Natural Resources/Wetland Delineation	X	X				X		X		
David H. Graff, PWS, CE, CWB	Natural Resources/Wetland Delineation	X	X				X		X		X
Corey W. Myers	Natural Resources/Wetland Delineation						X				
Samantha R. Hockenberry	Natural Resources/Wetland Delineation						X				
Jillian N. Arnold, CFM	Natural Resources/Wetland Delineation				X		X		X		
Matthew D. Houtz, GISP	Economics/GIS	X	X		X	X			X		X
Christopher D. Krebs, PE, CFM, GISP	Economics/GIS	X	X		X	X		X	X		X
Vladimir Cecka, PE	Submittal Review	X	X				X	X	X		
Chad T. Hoover	Prepare Record/As-Built Drawings	X	X		X		X	X	X		X
Adam J. Moyer, PLS	Survey	X	X					X	X		X
Brian S. Miller, PE, SIT	Survey	X	X				X	X	X		X
Aaron D. Achenbach, Assoc. DBIA, ENV SP	QC Inspections & Tests/Document Daily Activities	X	X								
Michael A. MacAllister, PE	Safety/Schedule	X	X								X
C. Michael Anslinger, MA, RPA	Social Environment/Cultural Resources										
Elizabeth Heavrin	Social Environment/Cultural Resources										

29 EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	Upper Deckers Creek Site 1 Dam Rehabilitation Planning and Construction, Preston County, WV	6	Lost River Watershed Dams, Site No. 16, Hardy County, WV
2	New Creek Site 14 Dam, Grant County, WV	7	Elkwater Fork Water Supply Dam, Randolph County, WV
3	Supplemental Watershed Plan/EAs for Upper Brushy Creek Watershed FRS 7, 13A and 17, East Fork Above Lavon Watershed FRS 1A, 2B, 4 and 17, and Salt Creek and Laterals Watershed FRS 13, Collin, Grayson, Williamson, Wise, and Parker Counties, TX	8	Various Dam Safety and Water Resources Engineering Assignments, Chester County, PA
4	White Tanks FRS No. 4 Supplemental Watershed Plan/EA; McMicken Dam Rehabilitation; Powerline, Vineyard Road and Rittenhouse Supplemental Watershed Plan/EA; and Saddleback Dam Mitigation, Maricopa and Pinal Counties, AZ	9	Renwick Dam Rehabilitation, Cavalier, ND
5	Fredonia FRS Engineering Study, Fredonia, AZ	10	Salem Fork Sites 11 and 11A Phase I Dam Rehabilitation Planning, Preston and Harrison Counties, WV

Sections H-

Gannett Fleming
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Section H Contents

Introduction

Gannett Fleming, Inc. is celebrating its 100-year anniversary in 2015. As a mid-sized, privately-owned engineering firm, Gannett Fleming cultivates an environment of innovation and knowledge sharing that results in delivering a high level of quality and client satisfaction. This has translated into more than 200 industry and client awards during the last three years alone and consistent excellent evaluations from our clients.

With nearly 2,000 employees located across more than 60 offices worldwide, Gannett Fleming is recognized in the top 10% of Design Firms each year by the *Engineering News-Record* and currently listed as #11 of the top 15 Dam and Reservoir engineering firms.

Gannett Fleming has a high degree of expertise in the design of earthen embankment dams with experience ranging from small, 8-foot-high earthen embankment dams (Lake Natalie Dam, PA) to those exceeding 770 feet in height (Oroville Dam, CA), including reconstruction design for the 180-foot-high Gilboa Dam. We are recognized experts in seepage analysis and seepage remediation design.

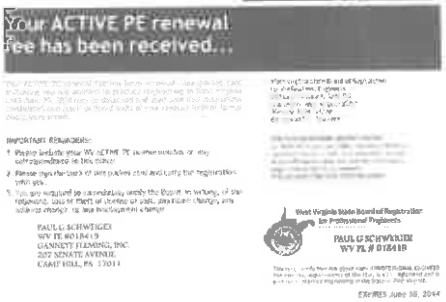
Our ability to successfully deliver engineering services is based on our people, our experience, and our knowledge of these watershed dam sites. Our integrated teams of planners, scientists, engineers, and managers work with our clients to create innovative and cost-effective infrastructure projects that are socially, environmentally, and financially sustainable. Our firm's completed projects include more than 100 new dams, modification of more than 250 existing dams, and safety evaluations of more than 500 dams.

Figure 1: Gilboa Dam Dedication. Gannett Fleming has experience providing successful engineering services for all dam types. We provided award-winning dam safety improvements and upgrades to the 180-foot-high concrete gravity and earthen embankment Gilboa Dam in New York.

1. Project Team Qualifications

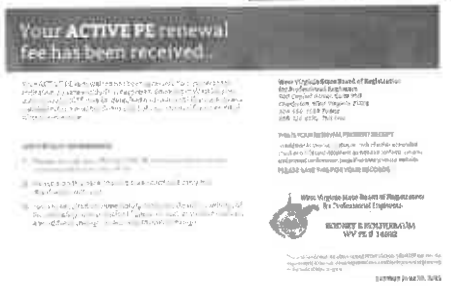
Our Project Team includes qualified personnel in key disciplines, including geotechnical engineers, engineering geologists, hydraulic engineers, hydrologists, structural engineers, environmental scientists, economists, and construction inspection staff. They have extensive professional experience in dam engineering for NRCS dams, including planning, design, and construction oversight and will use this experience and expertise to provide quality and comprehensive services under this contract. Gannett Fleming has designated four team members as key personnel for this project. These four key personnel routinely work together on dam projects, including NRCS WV's Lost River Site 16 Dam, New Creek Site 14 Dam, and Upper Deckers Site 1 Dam.

The following paragraphs provide an overview of each person's qualifications and experience. The Organizational Chart in Section D presents our staffing plan; resumes located in Section E provide more detailed information regarding each team member's qualifications and experience.



Paul G. Schweiger, PE will serve as Project Manager. In that role, his primary purpose is to provide project leadership with the aim of improving project outcomes for WVCA. His background includes:

- 31 years of experience on more than 500 dams of various types and sizes
- 22 years of experience working on NRCS dam projects
- Registered Professional Engineer in West Virginia
- Lead Designer or Project Manager on the NRCS' Lost River Site 27, North Fork Hughes River, New Creek Site 14, Elkwater Fork, Lost River 16, and Upper Deckers Site 1 Dams
- Authored more than 50 technical papers and articles on dam engineering
- Instructor for application of SITES to evaluate earth cut spillway stability and integrity
- Member of USSD Committee for Dam Rehabilitation using RCC, ASDSO Technical/Training Program Committee, and NRCS RCC Work Group
- Served as Public Sector Representative on National Dam Safety Review Board
- Recipient of ASDSO's President's Award and the "National Award of Merit"



Rodney E. Holderbaum, PE will serve as **Project Principal and manage QA/QC**. As Project Principal, Rod is responsible for overall contract oversight and client satisfaction. He will monitor the performance of the contract and ensure that optimum resources are available to WVCA at all times. His background includes:

- 41 years experience in the dam engineering profession
- Professional Engineer in West Virginia
- Proven track record on prior NRCS RCC and earthfill dam projects
- Project Principal for Elkwater Fork and Lost River 16 Dams and Civil Project Manager for North Fork Hughes River, Lost River 27, Lost River 4, and Lost River 10 Dams, all completed NRCS assignments
- Project Engineer, Manager, or Principal for 30 earthfill dam design projects
- Member of American Concrete Institute (ACI) Committee 207 – Mass Concrete
- Member of the USACE RCC Research Steering Committee that guided new research to facilitate the use of RCC on USACE and other projects
- National Practice Leader for Dam Engineering
- Has provided engineering services on more than 200 dams and flood control projects of various types and sizes
- Specialized area of expertise in the design and construction of roller-compacted concrete (RCC) dams, including materials investigations and testing

Eric C. Neast, PE will serve as the Task Manager for the Planning Studies. He will lead the planning studies team to perform the environmental investigations, H&H analyses, and alternatives assessment to meet WVCA's goals and objectives. His background includes

- 25 years of experience
- Project Manager on more than 15 dam assignments
- Designed trash racks to reduce clogging at six Harmon Creek, WV, riser structures
- Project Engineer on the WV NRCS New Creek Site 14 Dam rehabilitation
- Specialized expertise in dam rehabilitation, dredging reservoirs, and sedimentation erosion control
- Successfully cultivates key relationships with regulatory, political, and local stakeholders, including local authorities, state agencies, and local community groups

Donald P. Roarabaugh, PE will serve as the Task Manager for construction oversight at Upper Deckers Creek Site 1. His background includes:

- Nearly 20 years of experience in water resources engineering with an emphasis on managing analyses, designs, construction-phase services, and monitoring for dam projects
- Senior Project Engineer or Project Engineer for NRCS dams, including New Creek Site 14, Lost River Site 16, Elkwater Fork, North Fork Hughes River, Upper Deckers Site 1, and Renwick Dams
- Responsible for RCC mix design and RCC design and construction quality control specifications for Elkwater Fork, New Creek Site 14, Upper Deckers Site 1, and Renwick Dams
- Specializes in start-up support for RCC dam projects, including 15 RCC construction projects in the last 10 years.

2. References and Performance Data

For the past 20 years, Gannett Fleming has worked almost continuously for the West Virginia NRCS designing new dams, rehabilitating existing dams, conducting dam assessments, preparing planning studies, providing construction support services and conducting dam safety training seminars. What makes this 20-year experience so relevant is that almost all of the engineers and scientists that provided the new dam design and construction services for the early West Virginia NRCS projects completed in the 1990s, such as the Lost River Site 27 Dam and the Hughes River Dam, have remained with Gannett Fleming and are available to work on this project. Paul Schweiger, the designated Project Manager for this assignment was the principal designer for the North Fork Hughes River Dam and Lost River Site 27 Dam, and later served as the Project Manager and designer for the Elkwater Fork Dam, Lost River Site 16 Dam, Salem Fork Dams, New Creek Site 14 Dam and Upper Deckers Site 1 Dam.

Figure 2 provides a timeline of selected West Virginia NRCS projects completed by Gannett Fleming for the past 20 years. Figure 2 does not include the NRCS projects Gannett Fleming has completed in Arizona, Hawaii, Indiana, Maine, Massachusetts, New Hampshire, New Jersey, New Mexico, North Dakota, Ohio, Pennsylvania, Texas, Vermont, Virginia, and Wisconsin, or the

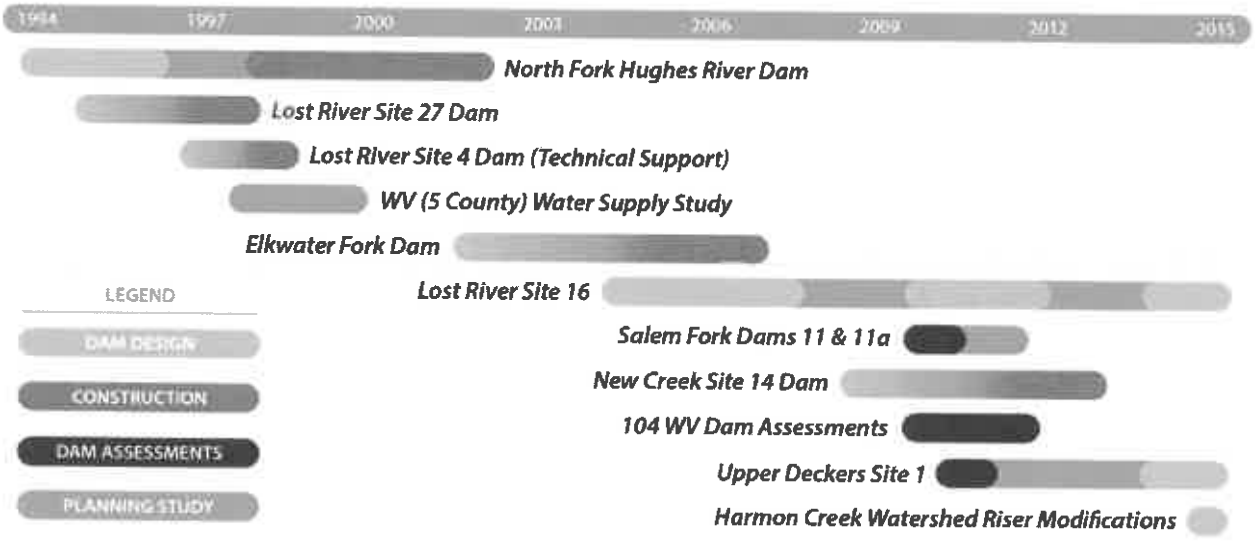


Figure 2. Timeline illustrating Gannett Fleming's near continuous experience completing West Virginia dam projects.

updating of some of the NRCS technical design manuals (Design of Reinforced Concrete Structures and Design of Riser Structures) for the NRCS Technical Center in Fort Worth.

As demonstrated in this SF 330, Gannett Fleming has an extensive history of involvement in design and construction projects. Each year we manage thousands of design and construction management tasks worldwide. Our firm has a solid track history of cost control for governmental and private client assignments, which is evident in many of our client ratings. Cost monitoring and control are critical components to Gannett Fleming's management plan. Standard cost accounting procedures provide our Contract Managers with real-time data to monitor project costs and keep the work within budget.

Our firm's successful past performance on projects is also confirmed by a variety of indicators, including:

- Maintenance of a continuously growing consulting engineering business for a century
- A level of repeat business for prior clients that constitutes more than 75% of the firm's ongoing business
- Active NRCS projects for the past 22 years
- The firm scoring above average in comprehensive performance on client questionnaires for more than 80% of its assignments
- Industry awards for completed assignments
- Past and current client references, including those listed within Section F
- Our ability to retain qualified and experienced personnel on staff, reflected by our low personnel turnover rate.

We encourage WVCA to contact any of the points of contact provided on the projects in Section F to inquire as to our quality of work, responsiveness, and adherence to budgets and schedules.

Gannett Fleming also conducts Client Satisfaction Evaluations (CSE) with clients to help provide feedback needed for continuous improvement. Our CSE form includes six individual measurement points (see Table 1), and one "overall performance" assessment. Clients evaluate our performance on a scale of 5 (highest) to 1 (lowest). In addition, clients are invited to add narrative comments to the CSE form. Over the past three years, nearly 600 clients gave Gannett Fleming an overall 4.7 out of 5 overall performance rating. CSE statistics through 2014 are shown in Table 1. A recent CSE we received from West Virginia NRCS for Lost River Site 16 is provided in Figure 3. Also included in Figure 3 is an Architect/Engineer Contract Administration Support System (ACASS) Rating for New Creek Site 14. The ACASS, which is now the Contractor Performance Assessment Reporting System (CPARS), is another key performance measurement. Additionally, we regularly receive letters of reference from our clients. We include an example reference letter from Andy Deichert, PE, with West Virginia NRCS on page 6.

Table 1: Client Satisfaction Evaluation Statistics for 2014. Gannett Fleming received perfect scores on 95 CSEs in 2014.

Measurement Points	Average Rating
Technical Quality – Did we adhere to the scope? Was our work complete? Was our work accurate?	4.69
Timeliness – Did we adhere to the schedule? Were we prompt in dealing with other matters?	4.64
Cost Effectiveness – Did we adhere to the budget? Was the value received commensurate with the dollars spent?	4.65
Dependability/Reliability – Did we honor our commitments without reminders? Did we properly support your interests?	4.69
Cooperation – Did we display flexibility? Were we easy to approach? Were we actively helpful?	4.86
Communication – Were we good listeners? Did we ask appropriate questions? Did we provide information proactively?	4.69
Performance – Overall, how well did we serve you?	4.71

Figure 3: Recent Client Satisfaction Evaluation and ACASS Rating from West Virginia NRCS.

Client Name: USDA/NRCS West VA State Office
GF Project Manager: David H. Graff
GF Project Number: 059142
GF Org. Number: 100407
Project Description: Gannett Fleming Environmental Team that conducted the fieldwork & permit applications for the Lost River Site 16 Watershed Dam

SURVEY RESPONSES

Element	Evaluation Factors	Ranking
Technical Quality	Did we adhere to the scope? Was our work complete? Was our work accurate?	5
Timeliness	Did we adhere to the schedule? Were we prompt in dealing with other matters?	5
Cost Effectiveness	Did we adhere to the budget? Was the value received commensurate with the dollars spent?	5
Dependability/Reliability	Did we honor our commitments without reminders? Did we properly support your interests?	5
Cooperation	Did we display flexibility? Were we easy to approach? Were we actively helpful?	5
Communication	Were we good listeners? Did we ask appropriate questions? Did we provide information proactively?	5
Performance	Overall, how well did we serve you?	5

Would you retain our services again? Yes

Would you recommend us to others? Yes

May we use you as a reference? Yes

Would you like us to contact you to further discuss our performance? No

Are there other issues not addressed in this survey that you would like to bring to our attention? No

What could we do to serve you better?
Excellent service

Evaluator's Name: Pam Yost

Evaluator's email address: pamela.yost@wv.usda.gov

Year: 2014 Quarter: 4

FOR OFFICIAL USE ONLY / SOURCE SELECTION INFORMATION - SEE FAR 2.101, 3.104, AND 42.1503

16. QUALITY OF A-E SERVICES BY DISCIPLINE

a. DISCIPLINE	DESIGN/SERVICES: EXCEPTIONAL	VERY GOOD	SATISFACTORY	MARGINAL	UNSATISFACTORY	CONSTRUCTION: EXCEPTIONAL	VERY GOOD	SATISFACTORY	MARGINAL	UNSATISFACTORY
Architectural										
Structural	X									
Civil		X								
Mechanical										
Electrical										
Fire Protection										
Surveying, Mapping, & Geospatial Information Sys.		X								
Cost Estimating		X								
Value Engineering		X								
Environmental Engineering										
Geotechnical Engineering	X									
Master Planning										
Hydrology	X									
Chemical Engineering										
Geology	X									
Chemistry										
Risk Assessment		X								
Safety/Occupational Health										
Hydrographic Surveying										
[illegible]	X									

17 DESIGN PHASE OR ENGINEERING SERVICES (Quality of A-E Services Evaluation)

ATTRIBUTES	EXCEPTIONAL	VERY GOOD	SATISFACTORY	MARGINAL	UNSATISFACTORY
Thoroughness of Site Investigations/Field Analysis	X				
Quality Control Procedures and Execution		X			
Plans/Specs Accurate and Coordinated	X				
Plans Clear and Detailed Sufficiently	X				
Management and Adherence to Schedules	X				
Meeting Cost Limitations		X			
Suitability of Design or Study Results	X				
Solution Environmentally Suitable	X				
Cooperativeness and Responsiveness	X				
Quality of Briefing and Presentations		X			
Innovative Approaches/Technologies		X			
Implementation of Sm. Business Subcontracting Plan		X			

16b. DISCIPLINE, NAME AND ADDRESS OF KEY CONSULTANT(S) (If applicable)
NAME: Paul Schweiger
ADDRESS: Harrisburg, PA
DISCIPLINE: Project Manager
NAME: Cari Beenenga ADDRESS: Harrisburg, PA DISCIPLINE: Geotechnical Engineer
NAME: Jon Boarabaugh
ADDRESS: Harrisburg, PA
DISCIPLINE: RCC Specialist

18 HOW MANY 100% FINAL RESUBMITTALS WERE REQUIRED BECAUSE OF POOR A-E PERFORMANCE? 0

19 CONSTRUCTION PHASE (Quality of A-E Services Evaluation)

ATTRIBUTES	EXCEPTIONAL	VERY GOOD	SATISFACTORY	MARGINAL	UNSATISFACTORY
Plans Clear and Detailed Sufficiently					
Drawings Reflect True Conditions					
Plans/Specs Accurate and Coordinated					
Design Constructibility					
Cooperativeness and Responsiveness					
Timeliness and Quality of Processing Submittals					
Product & Equipment Selections Readily Available					
Timeliness of Answers to Design Questions					
Field Consultation and Investigations					
Quality of Construction Support Services					

20. REMARKS

PLEASE SEE CONTINUATION SHEET

DD FORM 2631 (BACK), APR 1999

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
1550 Earl Core Road, Suite 200
Morgantown, WV 26505
(304) 284-7540 (Phone)
(304) 284-4839 (Fax)

January 5, 2010

Letter of Reference for Gannett Fleming, Inc.

St. Johns River Water Management District
4049 Reid Street
Palatka, Florida 32177

To whom it may concern,

Over the past 15 years, Gannett Fleming completed 16 projects for the West Virginia NRCS, including final design for four new dams, construction support for six dams, comprehensive water supply planning studies for three counties, safe yield investigations for several water supply projects, and other assignments. The total fees for the engineering services provided by Gannett Fleming for these projects exceed $7 million.

In December 2009 we awarded a new 5-year indefinite delivery/indefinite quantity contract to Gannett Fleming for planning and design of new dams and rehabilitation of existing earthfill dams at various locations in West Virginia. Initial projects under this contract include final design for the rehabilitation of New Creek Dam Site 14 and planning for the rehabilitation of Salem Fork Dam Sites 11 and 11a and Upper Deckers Creek Site 1. Modifications to Upper Deckers Creek Site 1 will involve increasing the reservoir capacity for water supply.

Gannett Fleming was also recently awarded a 5-year indefinite delivery/indefinite quantity contract for engineering services for the assessment of dams, design, design review and construction management services for work with NRCS in the continental United States, including Alaska. For the first year under this contract, the West Virginia NRCS authorized Gannett Fleming to complete Dam Rehabilitation Assessment Reports for 25 earthfill dams at various locations within West Virginia.

We repeatedly have selected Gannett Fleming to provide engineering services for our projects because they are a recognized leader in the field of dam engineering, are responsive to our needs, have consistently delivered quality services, have the capacity to work on large projects in a deadline driven environment, and can adjust their schedules for execution of the work to meet our needs. Their past performance is demonstrated by their successful completion of many of our dam projects. We have consistently given Gannett Fleming a high level of approval of their work.

You are welcome to call me at 304-284-7563 if need more information regarding Gannett Fleming's performance.

Sincerely,

Andy Deichert

Andy Deichert, P.E.
Civil Engineer

Helping People Help the Land

An Equal Opportunity Provider and Employer

3. Approach and Methodology to Meet Goals and Objectives

3.1. Brush Creek 9, Brush Creek Site 15, Potomac-New Creek-Whites Run Site 17, and Potomac-New Creek Site 1

Goal/Objective 1: Develop planning level engineering hydrology and hydraulic data, develop rehabilitation alternatives, analyze impacts of alternatives, and develop narratives.

Goal/Objective 1 is absolutely critical to the success of each of the four planning projects. ***Based on our intimate knowledge and understanding gained during the dam assessments of these four structures, the most significant deficiencies identified at each dam are related to the hydraulic performance of the structures,*** including the conveyance capacity of the spillways, the activation frequency of the auxiliary spillway, the drawdown capacity of the principal spillway, and the stability and integrity of the auxiliary spillway. It is therefore necessary to accurately determine the hydrologic and hydraulic response of the watersheds and reservoirs for the 100-year flood, the Spillway Design Hydrograph (SDH) and the Freeboard Design Hydrograph (FBH).

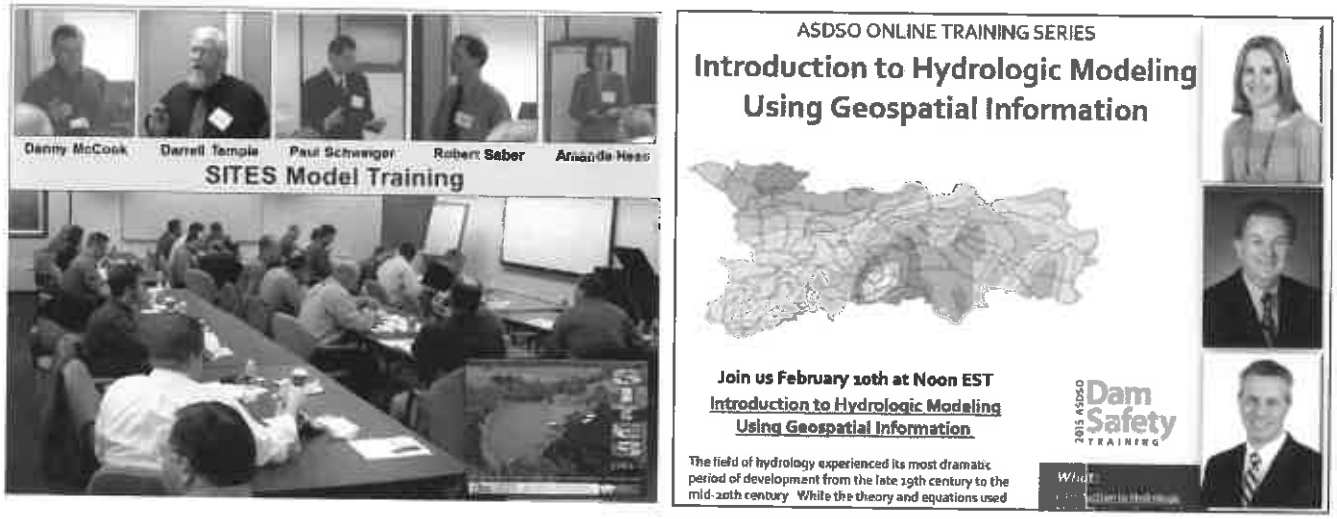


Figure 4: Training Opportunities. Gannett Fleming personnel regularly provide training to U.S. dam owners with topics including SITES and hydrologic modeling.

Gannett Fleming is nationally recognized for its hydrologic and hydraulic engineering expertise for dams and flood control projects as demonstrated by the technical seminars we regularly present and by the services we provide to the NRCS, USACE, FEMA, USFWS, the USBR and FERC. The computer models needed to perform the hydrologic and hydraulic analyses include SITES, HEC-HMS, HEC-RAS, and XPSWMM. Our engineers regularly teach national seminars and publish technical papers on the use of this software. Paul Schweiger, the designated Project Manager for this assignment, is an expert hydrologic and hydraulic engineering expert reviewer for USACE dam and flood control projects. Over the past five years, Gannett Fleming has completed hydrologic and hydraulics analyses for more than 300 dams, approximately half of which were performed for the NRCS.

Figure 5: Lake Laura Dam. Our geologists and geotechnical engineers performed subsurface exploration and mapped the geologic profile of the auxiliary spillway at Lake Laura Dam to develop the erodibility parameters needed to evaluate the stability and integrity of the auxiliary spillway.

When conducting hydraulic and hydrologic analyses, it is important to use accurate inputs such as the watershed curve number and terrain data. Gannett Fleming is a leader in analyzing and using the latest NRCS soils information to obtain watershed curve numbers and using LIDAR terrain data for hydraulic analyses. ***We will provide accurate hydrologic and hydraulic analyses for each dam in full compliance with NRCS***

requirements. Our geologists and geotechnical engineers will use state-of-the-art geophysical and subsurface exploration procedures, such as seismic refraction, digital photogrammetry, geophysical investigations, rock coring, and test pitting, to develop the geologic profiles and erodibility parameters needed by our hydraulic engineers to evaluate the stability and integrity of the auxiliary spillways.

Developing dam rehabilitation alternatives requires creativity, a thorough understanding of available options, and expertise with innovative construction techniques. Having designed over 200 new dam and rehabilitation projects at locations throughout the United States, Gannett Fleming has expertise with all of the latest construction techniques including roller-compacted concrete (RCC), articulating concrete block revetments (ACBs), soil cement, deep soil mixing, advanced grouting techniques, sheet pile cutoffs, Hydroplus fuse gates, labyrinth spillways, etc. For most of these construction techniques, Gannett Fleming has pioneered applications that have been adopted industry-wide. This is demonstrated by the many engineering design manuals we have written for the NRCS, USACE, PCA, and others on using these methods for dam rehabilitation.

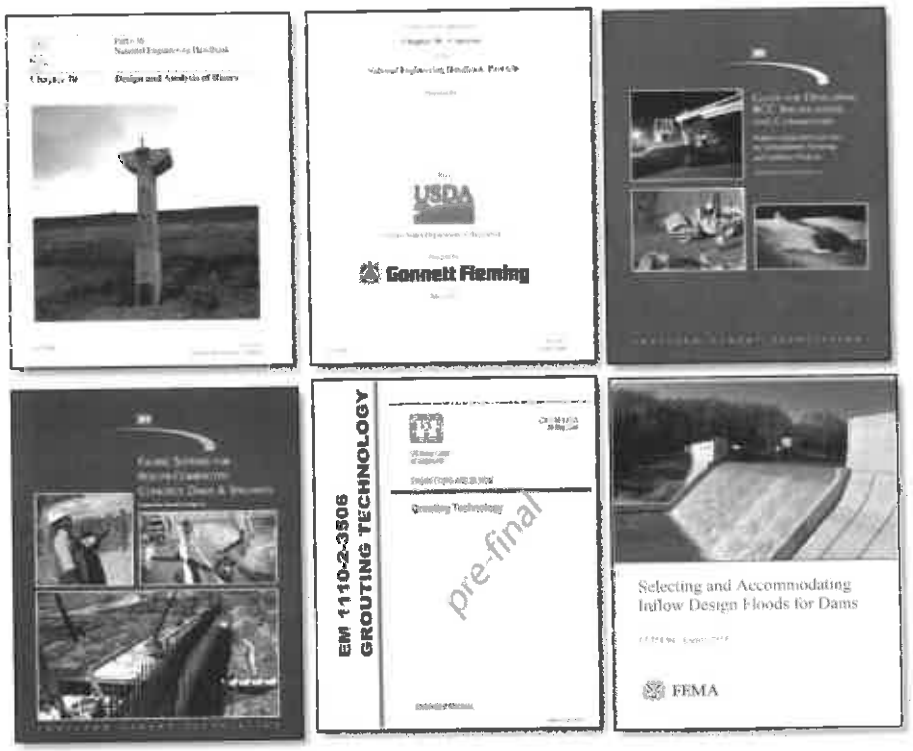


Figure 6: Sample Dam Engineering Design Manuals. We have written engineering design manuals for the NRCS, USACE, PCA on new and innovative dam rehabilitation methods.

Designing dam rehabilitation options for NRCS dams also requires a thorough understanding of NRCS policies and design standards. Gannett Fleming is in regular communication with NRCS technical leaders and researchers including the Agricultural Research Service (ARS), and provided technical reviews for NRCS dam designs under the open-end national contract we have with the NRCS for the last ten years. For example, we recently provided technical review for the rehabilitation of Renwick Dam, a $7.6 million RCC dam overtopping rehabilitation design prepared by the North Dakota NRCS. We also provided construction inspection and engineering support services for this project. ***All of our West Virginia new dam and dam rehabilitation projects (6 projects totaling more than $100 million in construction costs) have been reviewed and approved by both the West Virginia NRCS state office in Morgantown and the NRCS Technical Center in Fort Worth, Texas, demonstrating our understanding of the regulatory process and our ability to help our client achieve compliance.***

Figure 7: New Creek Site 14 Dam, WV. Through our experience developing environmental mitigation measures at WV dams for the NRCS, our environmental scientists have a thorough understanding of West Virginia's current regulatory and resource agency standards and requirements.

Analyzing the impacts of alternatives and developing narratives requires environmental scientists with a thorough understanding of current regulatory and resource agency standards and requirements including those unique to West Virginia. Our environmental scientists and economists have completed the necessary investigations and assisted the WV NRCS prepare permit applications for dam rehabilitation and new dam projects. For example, in early 2015 we completed the environmental analyses and coordination with regulatory and resource agencies on behalf of the WV NRCS for the construction of Lost River Site 16, a new 90-foot-high flood control and water supply dam. We provided similar assistance, including developing environmental mitigation measures for the rehabilitation of New Creek Site 14 Dam.

In summary, our approach and methodology to achieve this goal is to:

- Assign each task to the most qualified team member
- Use the most current NRCS approved computer models and analysis methodologies
- Evaluate the full range of dam rehabilitation options available to address deficiencies at each site
- Assess the costs, benefits and impacts of each alternative to establish the preferred alternative
- Prepare the narratives required in accordance with NRCS procedures.

Goal/Objective 2: Develop planning level biological data, analyze impacts of alternatives and develop narratives.

Gannett Fleming's environmental professionals have a working knowledge of the natural resources and regulatory processes in West Virginia. Our baseline biological data is used to develop project narratives and is incorporated into project planning documents, preliminary impact calculations, and alternatives analyses. In 2014, our team was selected by NRCS to lead wetland identification and delineation efforts on the Lost River Site 16 Watershed Dam project in Hardy County and also on the Edwards Run Mitigation Site in Hampshire County. Our efforts included stream assessments of Lower Cove Run and Edwards Run. The team completed the field efforts within the project schedule and deadlines. NRCS evaluated our work as excellent and the United States Army Corps of Engineers reviewed our boundaries in the field and accepted our reports, data, and mapping. ***We understand the environmental role in each of these projects, and will develop the narratives and specific baseline data to support project planning and alternatives analyses.***

For each site, our environmental scientists will conduct planning level research on the existing biological data either known to the specific site or known to the region to establish baseline conditions of natural resources. Planning level biological data will review and incorporate existing information from various sources including: USGS topographic quadrangle sheets; aerial photography; county land use maps; federal and county wetland maps, FEMA maps, county soil survey data; and a general search of other previous studies and surveys.

We will also conduct an initial project inquiry with the U.S. Fish & Wildlife Service and West Virginia Natural Heritage Program to determine if any protected species, such as the northern long-eared bat and Indiana bat, or habitats are known to occur within the project study area or surrounding region. If protected species are listed by the respective agencies, we will include them in the biological baseline data of the site along with their known habitat requirements and conservation measures.

Figure 8: WV Stream Evaluation Biological Findings. During a stream assessment of Lower Cove Run, Gannett Fleming captured and identified fish species such as the mottled sculpin.

Following our investigation, we will prepare a detailed narrative of each site alternative to present the purpose and need of the alternative, its intended benefits, the proposed actions required to implement the alternative, and a description of the final alternative once implemented. We will analyze the environmental impacts of each alternative and compare them with other alternatives to aid in an alternative selection. A comparison of alternatives to analyze impacts may include the following:

- Acreage of earth disturbance required
- Acreage of tree clearing required
- Acreage of habitat disturbance required
- Potential impacts to downstream and upstream natural resources
- Linear feet and acreage impacts to waterways
- Linear feet and acreage impacts to wetlands
- Potential impacts to protected species or species of special concern
- Potential impacts to aquatic ecosystems
- Potential impacts to terrestrial ecosystems
- Permitting requirements
- Seasonal restrictions and conservation measures required
- Potential mitigation requirements

The results of this effort will be incorporated into the overall evaluation of alternatives.

Goal/Objective 3: Develop planning level economic data, analyze impacts of alternatives and develop narratives.

Gannett Fleming has a proficient understanding of economic analyses for dam rehabilitation projects. Our project economist has conducted benefit-cost analyses on 14 other NRCS dams to evaluate rehabilitation alternatives within the Watershed Plan/NEPA process. We have expertise in quantifying a wide variety of benefit categories in both rural and urban settings, including avoided flood damages to agriculture, infrastructure and diverse structure types (e.g., homes, schools, businesses, power plants, airports), as well as quantifying the benefits that dams may provide for recreation facilities and activities, water supply, storm water detention, and aesthetic/amenity values to water-adjacent properties. We are accustomed to working closely with NRCS to identify the National Economic Development alternative, and to allocate and document project benefits and costs according to NRCS guidance.

In accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G), the Natural Resource Economics Handbook Part 611 – Water Resources and the December 2009 National Watershed Program Manual, we will prepare benefit-cost analyses for the four dams.

Gannett Fleming will use the USACE's HEC-FIA (Flood Impact Analysis) software (version 2.2) to quantify the expected structural damages from flooding under the rehabilitation alternatives retained for detailed study, as well as a future without project alternative, developed to provide a baseline for establishing project benefits. We will estimate the cost of physical damage to residential and commercial buildings, agriculture and structures, and institutional and recreational facilities. Gannett Fleming's experience measuring economic effects of flood damages using HEC-FIA modeling includes eight USACE dam failure and consequence studies.

HEC-FIA data input will include the results of hydraulic modeling, including flood depth, arrival time and duration grids, in conjunction with GIS-based tax assessment, aerial photography and land use data. We will estimate the value of large institutional structures not captured in the tax assessment data on a square foot basis using Marshall valuation commercial cost database. Our firm has consistently used Marshall Valuation Service data on dam rehabilitation studies to accurately capture the full value of structure damages.

We will model flood damages to structures for the 100-year and multiple smaller storm events. Elevations will be based on a bare earth terrain developed from the collected Digital Elevation Model (DEM) data, with a standard height added to approximate finished floor elevation for structures. The analysis will use the model's structure inventory and damage functions to calculate potential economic loss, supplemented with additional NRCS or USACE damage factors as needed.

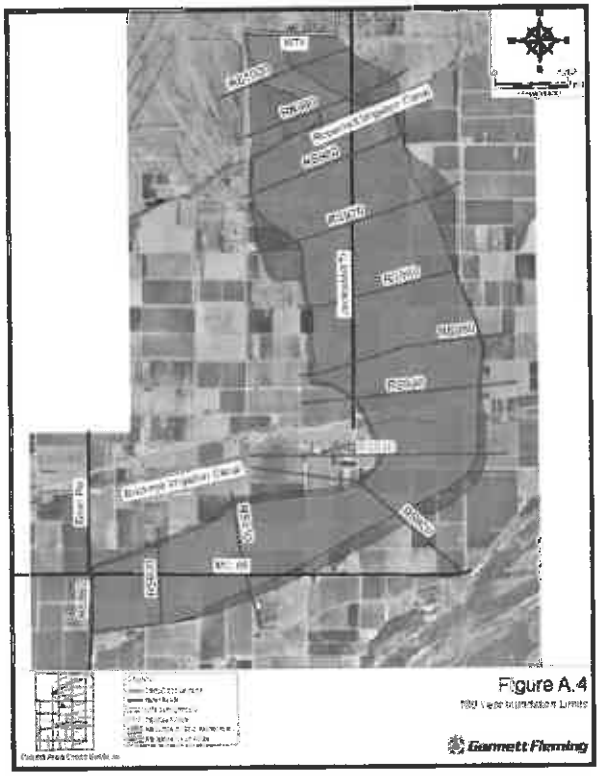


Figure 9: White Tanks No. 4 100-Year Inundation Limits. We used inundation limits under the 100-year storm event to determine potential flood damages.

Using GIS-based spreadsheet analysis, Gannett Fleming will calculate other benefit categories consisting of:

- Damages to transportation and utility infrastructure
- Administrative cost savings to the National Flood Insurance Program (NFIP) from a reduction in the number of properties that must participate under each alternative
- Recreation activity and water supply benefits provided by the dams, where applicable

We will calculate net economic benefits and a benefit-cost ratio for each alternative using the federal water project discount rate, and determine the National Economic Development (NED) alternative in coordination with WVCA and NRCS. For each dam, Gannett Fleming will document the benefit-cost analysis in an Economic Analysis Technical Memorandum that will include study area inventory, methodology, results and discussion. After NRCS and WVCA approval, Gannett Fleming will incorporate a summary of the analysis, as well as the economics-related Watershed Plan tables required by NRCS and formatted according to NRCS guidelines, into the Watershed Plan/NEPA document.

Goal/Objective 4: **Develop all other planning level data as required to comply with NRCS water resources planning requirements set forth in the NRCS Title 390, National Watershed Program Manual (NWPM), Part 505 (attached) which is incorporated by reference.**

Gannett Fleming has extensive experience in addressing the wide range of resource issues associated with dam rehabilitation projects and similar major federal actions. Our firm offers a committed and knowledgeable interdisciplinary staff of NEPA compliance personnel with significant experience and skills in natural, social, economic and cultural resource assessments and studies.

Our public involvement specialist has worked with multiple municipalities in West Virginia on stakeholder involvement events for projects, such as summits, focus groups, and interviews, as well as traditional public meetings. Early and continuous efforts during project planning processes garnered support for plan refinement, adoption and subsequent implementation.

In addition to the engineering and hydraulic data (Goal/Objective 1), biological data (Goal/Objective 2), and economic data (Goal/Objective 3), Gannett Fleming will characterize other social, cultural, and environmental considerations and identify potential project impacts. These other resource evaluations involve a wide range of potential concerns as noted at 501.24.B of the NWPM and Part 410.9.C of NRCS GM-190, Subpart A, Section 410.9.C in order to comply with the National Environmental Policy Act and associated federal and state environmental laws and regulations.

Scoping is a public process designed for the early identification of substantive environmental issues and concerns associated with the proposed project. Section 505.35 Development of Rehabilitation Project Plans (NWPM Part 505.35) requires that the planning of dam rehabilitation projects must follow the procedures at Part 501, including addressing each of the applicable scoping concern subjects (Part 501.24.B):

- National Economic Development (NED)
- Air quality
- Coral reefs
- Cultural resources
- Ecologically critical areas
- Endangered and threatened species
- Environmental justice and civil rights
- Essential fish habitat
- Fish and wildlife resources
- Floodplain management
- Forest resources
- Invasive species
- Land use
- Migratory birds
- Natural areas
- Parklands
- Prime and unique farmland, and farmland of statewide significance
- Public health and safety
- Regional water resource plans (including coastal zone plans
- Riparian areas
- Scenic beauty

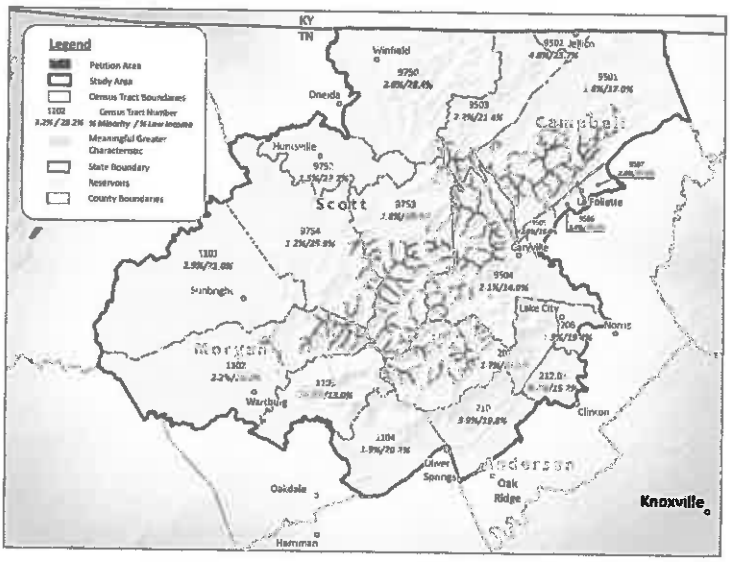


Figure 10: Socioeconomic and Environmental Justice Analysis. Gannett Fleming performs detailed socioeconomic and environmental analyses for our clients. This is a sample analysis prepared for the U.S. Office of Surface Mining and the U.S. Environmental Protection Agency covering a 67,000 acre area in rural northeastern Tennessee.

- Scientific resources
- Sole source aquifers
- Social issues
- Soil resources
- Water quality
- Water resources
- Waters of the United States, including special aquatic sites
- Wetlands
- Wild and scenic rivers
- Other concerns identified by SLO, agencies, and the public

Scoping provides the initial opportunity for building confidence and trust between project proponents and project stakeholders. Stakeholders involved in the NEPA process may include state and local government agencies, non-governmental organizations or groups, and affected citizens. Scoping will consist of:

- Identifying public and agency concerns.
- Clearly defining environmental issues.
- Identifying range of alternatives to be examined.
- Identifying related issues that originate from separate legislation, regulation or Executive order.
- Identifying State, Tribal government, and local agency requirements that must be addressed.

Gannett Fleming will assist WVCA to ***conduct scoping early in the NEPA process to ensure that important issues are identified and studied, as well as determine what issues may be insignificant***. This understanding at an early stage allows the project team to focus on the important issues, avoiding the need to complete an exhaustive analysis of relatively less-critical environmental concerns.

While we anticipate that not all of the scoping subjects identified in Part 501.24.B are applicable to the projects associated with this EOI, pertinent issues (beyond engineering, biological and economic concerns) could include cultural resources, environmental justice, land use, farmlands, parklands and recreation use, public health and safety, water resource planning, scenic resources, and other community social issues.

The development of planning data for these subjects would involve a combination of field views and detailed studies, supported by readily available demographic and economic data from sources including the U.S. Census, the U.S. Bureau of Labor Statistics, the West Virginia Department of Commerce, the West Virginia Region 1 Planning & Development Council (including Mercer County), the West Virginia Region 8 Planning & Development Council (including Mineral County) the Mineral County Planning Commission and the West Virginia Division of Culture and History.

Goal/Objective 5: Ensure all tasks are completed to the satisfactory review and approval, when required, from NRCS and any other involved federal government agencies.

As demonstrated in 2. References and Performance Data in the preceding pages, the team assigned to this project has ***successfully completed many new dam and dam rehabilitation designs to the satisfaction of all agencies involved in the approval process, including the WV NRCS, the NRCS Technical Center in Texas, the West Virginia DEP, the USACE, the County Conservation District and others.*** The best proof of Gannett Fleming's performance in this regard is to contact the WV NRCS as our reference for numerous NRCS dam projects.

Our approach and methodology to achieve this goal is to closely follow NRCS procedures for all tasks and to ***regularly coordinate decisions, analyses and deliverables with the WVCA and NRCS as the work progresses***. This approach will include a kickoff meeting, regular progress meetings, and workshops as needed to obtain input and concurrence on our study approach, findings and recommendations.

Goal/Objective 6: Coordinate all aspects of planning process with Sponsors and stakeholders by incorporating their feedback into the selected rehabilitation option. Conduct and manage public processes associated with planning including; but not limited to, scoping meetings, public meetings, sponsor meetings, and agency coordination meetings.

Gannett Fleming views the WVCA and NRCS as partners and welcomes your involvement in the study, especially in the selection of the rehabilitation option for each dam. Many rehabilitation options have different advantages and disadvantages and require owner input. Some of the differences between rehabilitation options impact the operation and maintenance of the facility, aesthetics of the site, public and worker safety around the site, and long-term performance of the structure. These are all factors that require feedback from the WVCA, the NRCS, other agencies, and the public.

Concrete dam proposed for lake at Bear Creek Village

By Tom Venesky
Citizens' Voice Staff Writer

A feasibility study on reconstructing the Bear Creek Dam found that the best solution would be to replace entirely the timber reinforced structure with a concrete mass-based dam.

A fund drive, sponsored by the Bear Creek Association, raised $954,000 in pledges. Bear Creek Village Councilman Tim Faber explained that the pledge total would have risen to $737,220 with the addition of a Keystone Historic Preservation Grant. The goal for the project was $950,000.

Paul Schweiger, a dam engineer with Gannett Fleming, said the ultimate solution is to preserve the historic significance and appeal of a timber crib dam and beautify the downstream area.

He cautioned that constructing a new timber crib dam would be difficult because such a structure is deemed a "high hazard dam," which has a questionable degree of safety.

To preserve the aesthetics of the timber crib dam, which is important to the historic community, Schweiger said the surface of the concrete dam would be covered with wooden planks to reproduce the look of the original dam. He added that materials from the old dam could be reused to beautify the surrounding area and possibly construct an overlook.

"We're keeping the original style but just using different materials," he said. "The life cycle of the concrete is 100 years. It has a short construction time and it could be constructed this fall."

He added the new dam would not affect the reservoir level and the concrete would span from both abutments right down to the bedrock.

"We'd like to make it look like it did in the early 1900s. We're awaiting authorization from the association," he added.

A representative from the Pennsylvania Historic Museum Commission explained that the grant was originally approved last March when officials wanted to repair the dam. But when the proposal changed to constructing a new concrete dam with a wooded surface, it didn't meet the required Keystone Grant guidelines and the grant had to be withdrawn.

"The guidelines say we can't fund complete reconstruction or new construction," said the representative. "But we do want you to know the proposal does a lot for the historical district and community because it helps the lake. We think it's a good project, but we can't fund it through the grant program."

Faber praised the community for the overwhelming pledge support. He said there were 96 donors out of 130 families in the village. "The campaign went over the top on Christmas Eve, which I think was appropriate because it was miraculous," he said.

"We're going to have a lake again."

Members of Bear Creek Association listen to construction plans

Figure 11: Stakeholder Outreach. Paul Schweiger conducted a stakeholder meeting for the Bear Creek Dam rehabilitation project that involved coordination with more than 100 property owners around the lake.

To achieve this goal, we will work closely with the WVCA and NRCS to identify all stakeholders and their primary interests in the project. Stakeholders could include adjacent property owners, resource agencies, community leaders, and local, state, and federal government. Working with WVCA and NRCS, we will develop a master plan for coordinating and managing the public process. The master plan for each facility needs to effectively address critical issues that are of importance to all project stakeholders. The ultimate success of each project will be determined by developing a compelling Master Plan that addresses all of the deficiencies at each facility while meeting WVCA's overall strategic plan for the facilities. This will require a thorough understanding of all of the issues, input from all stakeholders, creativity with a vision, and an effective outreach and communication program.

Figure 12: Urban Encroachment. Some dam projects, like New Creek Site 1 where significant urban encroachment has occurred, may require considerable stakeholder outreach and coordination.

We will tailor the stakeholder outreach program for each dam to the level of interest and public participation needed as recommended by the WVCA and NRCS. For example, at New Creek Site 1, significant urban encroachment has occurred onto the dam site and any rehabilitation alternative will involve considerable coordination and feedback from the adjacent property owners and surrounding community.

Once the stakeholder assessment steps are complete, we will implement a series of well-planned Stakeholder Engagement activities, such as community open houses or workshops. These activities will help educate stakeholders about the project, timeline, and plans for the future. The objective of these activities will be to ease tensions, allay concerns, and build confidence in the project and project team.

The purpose of a stakeholder outreach project is to improve understanding and participation of targeted individuals, groups, and communities. This can be achieved by reducing barriers to information for the target audience; informing them of the benefits to participating; and focusing on the needs and wants of target audiences. The outreach program can include the following stakeholder engagement activities:

- Community open houses
- Monthly meetings
- Visioning Workshop
- Facilitator-led workshop to gain community insight and "buy-in" to future improvements
- Dedicated website
- Toll-free hotline
- Social media
- Community progress reports (newsletters)
- Online stakeholder tracking

Figure 13: Stakeholder Meetings. Outreach for fishing wharf at Conowingo Dam included facilitating meetings with stakeholders at local diners and other favorite public meeting places.

Goal/Objective 7: **Assign a project manager to maintain schedules, budgets, press releases, public notifications, administrative tasks, and other duties necessary to complete the planning process. The project manager shall serve as the point of contact for the AE.**

*"**Paul Schweiger** is ... a remarkable engineer with a philosophy that their **work is not complete until the Service is satisfied. The quality of their work and the depth of their commitment to exceptional performance are as if they are employed by the U.S. Fish and Wildlife Service and share our responsibilities and goals."***

- ACASS evaluation comment by Christopher Bell, USFWS

The successful completion of any project is largely dependent upon the skills and expertise of our team. A Project Manager must be technically strong and also able to facilitate work activities while proactively communicating and resolving project challenges. Our Project Manager, Paul Schweiger, brings a skill set of deep technical qualifications with demonstrated management capability. Paul's technical background is in dam safety engineering, and he has more than 30 years of experience performing project investigations, dam assessments, designs, design reviews, reports, construction drawings, and specifications, as well as providing construction contract administration services, hydrologic and hydraulic (H&H) studies, dam rehabilitation, and new hydraulic structures. In compliment to Paul's understanding of the technical requirements, he has served as Project manager on more than 100 projects during his career and knows how to manage the execution of projects to ensure adherence to scope, schedule, budget and quality. His combination of technical expertise and progressive management philosophy makes him ideally suited to lead this team.

Paul has published more than 50 technical papers and design manuals on a wide range of dam engineering subjects, including papers on dam removal. Paul has received national awards in Engineering Excellence from the American Consulting Engineers Council, the ASDSO, and the Association of Conservation Engineers for several new dam and dam rehabilitation projects. He serves as a frequent lecturer on dam engineering, including conducting Dam Owner Workshops and Emergency Planning Workshops at locations throughout the U.S. on behalf of the ASDSO and the U.S. Fish and Wildlife Service. He is an approved FERC facilitator for performing failure-modes analysis exercises for dams.

As the main point-of-contact, Paul will regularly communicate with WVCA to discuss project status and progress, and to vet issues. He is committed to working with WVCA as an extension of its staff, and will always be available by cell phone, if not in person, for the duration of the project. Paul will proactively communicate any project challenges, risks, and solutions to WVCA to keep the project on track. He will also maintain project oversight, adhere to the quality assurance/quality control (QA/QC) program, prepare project invoicing/progress reporting, and address all items raised by WVCA. He will identify and address any issues, risks, or areas of potential concern that may arise before they can impact schedule, budget, or the quality of the product. He will apply his recent, relevant experience to streamline the execution of this project while maintaining schedules, budgets, press releases, public notifications, and administrative tasks to complete the planning process. He will provide progress reports, invoices, and updated salary rate schedules; and identify potential out of scope work and offsetting credits for reduced scope.

Goal/Objective 8: Adhere to the following timelines as referenced in the Project Agreements.

To adhere to WVCA's schedule, our Project Manager, Paul Schweiger, will assign the work to the best-qualified but most cost-effective team members. He will regularly monitor the schedules of all open tasks, and provide monthly updates to WVCA.

Gannett Fleming uses many tools to track project schedules, and selects appropriate tools to match project complexity. Typical scheduling tools include:

- Gantt and PERT charts,
- Microsoft Project, and
- Primavera Project Planner and Expedition.

Our team will select appropriate scheduling tools and develop an appropriate method and schedule. Actual progress versus established milestone deadlines will indicate performance. During regular meetings, the project team will identify and discuss schedule variances and then make appropriate adjustments to keep the project on schedule.

Figure 14: New Creek Site 14 Dam, WV. Gannett Fleming performed planning, analysis, design construction drawings, and specifications, permitting, and construction management on a fast-track schedule for this NRCS WV dam.

Table 2: Adhering to WVCA's Schedule. Our team will select appropriate scheduling tools and develop an appropriate method and schedule to meet WVCA's deadlines.

Project	Draft NEPA Document Date	Final NEPA Document Date
Brush Creek Site 15	6/31/16	11/31/16
Brush Creek Site 9	10/31/16	3/31/17
Potomac-New Creek Site 17	12/1/16	4/31/17
Potomac-New Creek Site 1	1/1/17	5/31/17

Gannett Fleming commits a willingness to meet project budgets and schedules and to WVCA project requirements. With a staff of nearly 2,000 employees, we have the resources to draw upon to provide the necessary staffing with persons with the required expertise and with the appropriate salary levels.

With more than 500 professional level staff members qualified and available to WVCA, the Gannett Fleming team has the ability to apply approximately 777,000 man-hours per year to complete our assignments no matter what the schedule. The current utilization rate for these professionals based on known workload is 65 percent. Therefore, we have over 200,000 staff hours currently available for new projects. This level of versatility and availability means the Gannett Fleming team can meet the demands of this project and complete the required scope of work on time and within budget. If the Project Manager determines that the current staff assigned to the project will not complete the objectives within WVCA's timeframes, additional resources will be pulled from other offices without impacts to the work order budget.

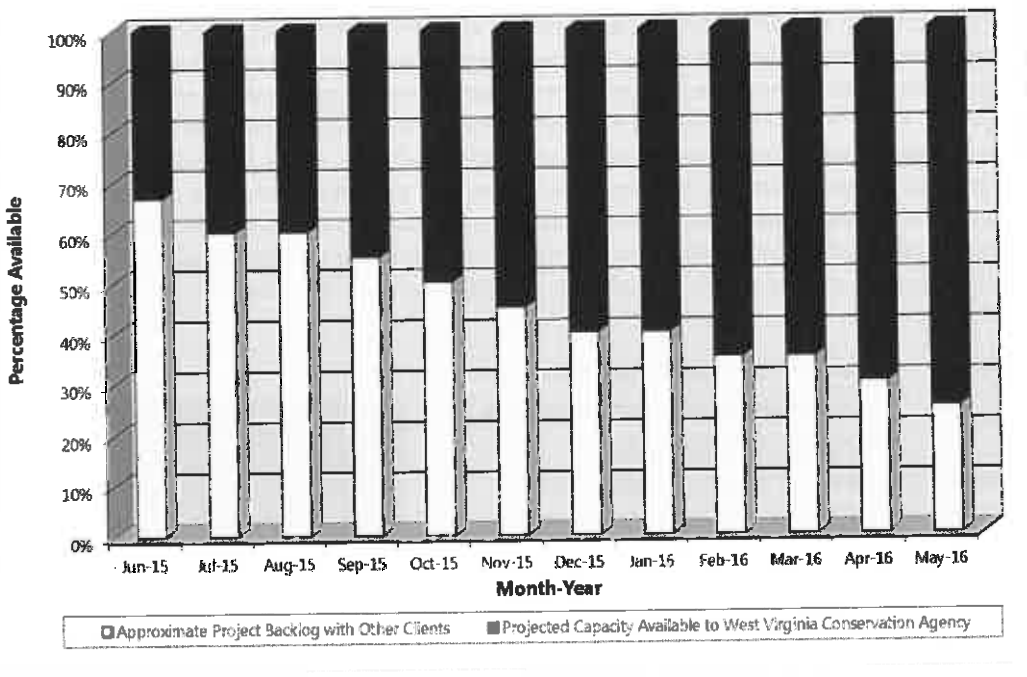


Figure 15: Proposed Team's Availability. The current utilization rate for our project team based on known workload is currently 65 percent, decreasing over the next 12 months.

Goal/Objective 9: Develop planning documents addressing the 25 scoping concerns in the National Watershed Program Manual (NWPM), Part 505 and additional concerns of sponsors and the public. Evaluate direct and cumulative impacts of alternatives with conclusions and narratives.

Gannett Fleming offers NEPA compliance personnel with significant experience and skills in natural, social economic and cultural resource assessments and studies. Gannett Fleming prepared the Watershed Plan/EA for the $15 million dollar rehabilitation of White Tanks FRS #4 in Maricopa County, AZ, and has provided NEPA and engineering support for approximately 13 other NRCS dam rehabilitation projects over the past decade. Our firm has held multiple consecutive nationwide NEPA contracts with the U.S. Environmental Protection Agency, Office of Federal Activities and currently holds a Blanket Purchase Agreement Contract for NEPA Services with the U.S. General Services Administration.

Our partner, Cultural Resource Analysts, Inc. (CRA) ***previously provided Section 106 cultural resource compliance services for the NRCS at Brush Creek Dam Site 14*** and other dam projects within West Virginia for the USACE, Huntington District involving National Register evaluations, archaeological surveys, and historic property management plans.

Figure 16: Brush Creek Dam Site 14. The direct Area of Potential Effect for this project consisted of approximately 3.4 ha (8.3 acres) for possible use to rehabilitate the previously constructed PL83-566 flood control dam, including areas to be used for borrow, staging, and access roads.

NEPA compliance for each dam project would follow the procedures of NRCS General Manual Title 190, Ecological Services, Part 410 (Compliance with NEPA) and Part 610 (National Environmental Compliance Handbook), along with relevant sections of the National Watershed Program Manual.

On behalf of WVCA and NRCS, Gannett Fleming will complete an initial Environmental Evaluation (EE) using the NRCS worksheet (Form NRCS-CPA-52) for each dam rehabilitation project. Completion of an EE will provide an initial analysis of potential environmental effects and a framework for NEPA and regulatory compliance. We will complete sections A through P and coordinate the review and the determination of the EE finding with the responsible NRCS official and WVCA.

Based on the initial analysis of potential effects, Gannett Fleming will determine the type of NEPA compliance document required in coordination with NRCS and WVCA.

Gannett Fleming will develop NEPA compliance documentation in compliance with the general format identified in the NWPM Part 501.31 and include the following major evaluation components:

- Purpose and Need for Action – Summarizes why the proposed action (e.g. dam rehabilitation) is needed and the goals to be achieved by project implementation.
- Scope of the EA – Documents the general range of project alternatives and associated actions, the area potentially affected by the project, and the significant issues of concern identified through the scoping process that require detailed analysis.
- Affected Environment – Characterizes the current physical, biological, ecological, economic and social environment within the project watershed and other areas of potential impact and covers the full range of resource considerations identified through the scoping process which are relevant to the proposed action.
- Alternatives – Identifies preliminary alternatives considered and eliminated from consideration and the alternatives studied in detail through the NEPA process, including a Future Without Project Alternative and the National Economic Development Alternative.
- Environmental Consequences – Provides details concerning resource impacts associated with each alternative studied, the determination of significance of those impacts, and a comparison of direct and cumulative impacts among the alternatives considered. Gannett Fleming would follow the guidance of USDA Technical Note 610.126 "Considering the Cumulative Effects of NRCS Activities" to assess cumulative effects for each project.
- Consultation, Coordination and Public Participation – Summarizes comments and input obtained from governmental agencies and other public organizations and individuals and provides information on how those comments or information were considered in the project analysis and/or identification of a Preferred Alternative.
- Identification of the Preferred Alternative – Encapsulates the results of the detailed analyses, agency and public consultation, benefit cost analyses, and NRCS decision making process and rationale for the identification of the preferred course of action for addressing the project purpose. This section also provides details concerning any mitigation measures and authorizations/permits required to address resource impacts of the proposed action.

Goal/Objective 10: Complete a wetland delineation, using the current US Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Secure a Jurisdictional or Preliminary Jurisdictional wetlands determination from the US Corps of Engineers as determined by the SCC.

Professional Wetland Scientists certified by the Society of Wetland Scientists will lead the Gannett Fleming wetland delineation group. In 2014, the team investigated more than 250 acres of natural areas in West Virginia to identify and delineate wetlands and waterways. Our team's report, mapping and field presentation of delineated boundaries were reviewed and approved by the USACE during a field verification to support a jurisdictional determination. The regulatory agencies are familiar with our field personnel and reports.

Figure 17: Lost River Site 16, WV. In 2014, the team investigated more than 250 acres of natural areas in West Virginia to identify and delineate wetlands and waterways. Our team's report, mapping and field presentation of delineated boundaries were reviewed and approved by the USACE during a field verification to support a jurisdictional determination.

The purpose of a wetland delineation is to identify the limits of waterways and wetlands. We will identify and delineate palustrine wetland boundaries in the field with uniquely labeled survey flagging using methods described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), U.S. Army Corps of Engineers, April 2012. Our field approach to identify and delineate waters including wetlands is in accordance with the standards and expectations of the regulatory agencies. Wetlands will be classified according to the Cowardin Classification System (1977).

We will complete wetland field data forms to document wetland or non-wetland data points. If wetlands are present in and directly adjacent to the study area, they will be included in the delineation so that their presence could be shown on project mapping for future planning and permitting.

We will characterize soils by evaluating the upper horizons of the soil profile. Using a "sharpshooter" spade with a 14-inch blade, we will dig soil pits, evaluate soil layers for depth, texture, saturation, and describe the layers using standard soil nomenclature. The Munsell Soil Color Charts (Macbeth Division of Kollmorgen Instruments Corporation, 1994) will determine the colors of horizons and redoximorphic features, if present. In the field, we will determine soil observations of reducing conditions using presence/absence determinations of redoximorphic concretions and oxidized rhizospheres, and identifying low chroma matrices.

Our botanists will identify plant communities and record dominants and presence within the data plot area. Plant species will be assigned to their respective stratum and assigned to their respective indicator status [e.g., Upland (UPL), Facultative Upland (FACU), Facultative (FAC), Facultative Wetland (FACW), or Obligate Wetland (OBL) based on the 2014 USACE National Wetland Plant List (Lichvar and Kartesz, 2014) or updated version if available at the time of the fieldwork.

Wetland function and value assessments will be performed at each wetland location using the methods outlined in The Highway Methodology Workbook Supplement, Wetland Functions and Values A Descriptive Approach, USACE New England District (NEDEP-360-1-30a 1995).

In preparation for our field studies, our project team will acquire and review existing preliminary data. Base mapping will include topographical maps, LIDAR, National Wetland Inventory maps, National Cooperative Soil Survey (NCSS) soil surveys, technical publications, aerial photographs, and other existing information. This preliminary step to fieldwork allows for an efficient and accurate field effort.

We will identify waterways through a review of available mapping and field investigations. Topographic and engineering maps will indicate the presence of streams within the project study area. We will perform our field investigations for waterways in conjunction with the wetland field investigation, which include the field verification of mapped watercourses and the identification and delineation of streams, springs, and seeps not previously mapped. We will identify waterways by the presence of bed and banks and/or ordinary high water marks. The flow regime of each identified waterway will be characterized based upon field indicators of hydrologic, floral, and faunal characteristics at the time of the investigation. Perennial streams typically exhibit flow and support a benthic macroinvertebrate community comprised of two or more taxa. Intermittent waterways typically exhibit flow during precipitation events, but support a benthic macroinvertebrate community comprised of less than two taxa. Ephemeral waterways typically exhibit flow in direct response to precipitation in the watershed and no benthic macroinvertebrate communities are expected to be present. All identified waterways will be photographed. Linear, man-made channels (ditches) that were constructed in uplands to divert storm water flow or provide some other historically agricultural purpose will be considered to be non-jurisdictional features.

Figure 18: Wetland Delineation and Surveying, WV. Using GPS technology with sub-meter accuracy, we will map wetland and waterway features. If present, wetland boundaries will be marked using biodegradable pink wetland flagging.

Using GPS technology with sub-meter accuracy, we will map wetland and waterway features. Data points will be exported into a GIS or CADD file to present features on existing project drawings and plans. We will investigate data point locations for primary and secondary wetland hydrology indicators. If present, wetland boundaries will be marked using biodegradable pink wetland flagging. Wetland boundary data points will be located using a Trimble™ GeoXH 6000 Global Positioning System (GPS). The GeoXH 6000 is capable of attaining submeter accuracy. The GPS data will then be transferred onto relevant site mapping using a known coordinate system. Acreage calculations will

be to the nearest 0.01 acre for each delineated habitat. If a site includes more than one Cowardin type, they will be individually calculated and presented in a table and associated map. Tables will be generated for each site to summarize the Cowardin type, acreages associated with each classification, the Corps' jurisdictional status, and if invasive species are present or other species of significance were observed during fieldwork.

The results of the wetlands and waterways field work will be presented in a report to be prepared for each site area. The Wetland Identification and Delineation Report will include a description of the project study area, background information, investigation methods used, wetland datasheets, photo logs, site mapping, tabularized coordinates of mapped features, and function and value sheets. The report and mapping will be used as a basis for agency coordination, jurisdictional determination and to also support future planning and permitting efforts.

After review by the State Conservation Committee (SCC), the Wetlands and Waterways Identification and Delineation Report will be submitted to the respective U.S. Army Corps of Engineers District, to request a field visit to review the delineation boundaries in order to obtain a Preliminary Jurisdictional Determination. A request for a Preliminary Jurisdictional Determination will acknowledge that the SCC does not dispute federal jurisdiction by presenting isolated features. If isolated wetland features are delineated, the SCC may request that these features be acknowledged as isolated, then the USACE will require the project team to go through the Approved Jurisdictional Determination process to establish isolation. These issues will be handled on a case by case basis.

Wetland flagging will be placed in the field within a day or two of the field visit by the USACE for purposes of a Jurisdictional Determination. Any changes to the field boundaries will be re-located using a GPS unit with sub-meter accuracy. After the Corps reviews and approves the Final Wetlands and Waterways Identification and Delineation Report it will serve as a baseline reference for impact determinations.

Goal/Objective 11: Complete a WV Stream and Wetland Valuation Metric (SWVM) for the selected alternative. Develop a mitigation plan based on the results of the USCOE wetland determination and the SWVM, if necessary, for the selected alternative.

The West Virginia SWVM incorporates the findings of the Wetlands and Waterways Identification and Delineation Report and also requires additional data to be collected to assess water quality and ecological value for waterways. The SWVM is a tool used to determine compensatory mitigation for impacts to regulated features. We used this at Lost River Site 16 and are familiar with using SWVM for the purposes of calculating compensatory mitigation requirements and were one of the first consultants to use SWVM for its intended application.

Certified Ecologists recognized by the Ecological Society of America will lead the Gannett Fleming aquatic assessment group. In 2014, the team investigated over 8,000 linear feet of natural streams in West Virginia to gather baseline data to calculate SWVM. We conducted stream evaluations at each site under a Scientific Collecting Permit for the purpose of macroinvertebrate sample collection. Each scientist participating in the stream evaluation efforts obtained a West Virginia Fishing License. The West Virginia Department of Environmental Protection (WVDEP) approved our team's report, mapping, field methods and data evaluations. The regulatory agencies are familiar with our field personnel and qualifications.

Figure 19: Stream Investigation. In 2014, the team investigated over 8,000 linear feet of natural streams in West Virginia to gather baseline data to calculate SWVM.

We will evaluate and survey perennial streams for benthic macroinvertebrates in accordance with the Rapid Bioassessment Protocols (RBP) for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish (2nd Edition) (Barbour et al, 1999). The team will select sampling reaches from downstream and upstream locations as well as throughout the Site area to establish background and baseline conditions. We will identify, evaluate, and survey a sample reach consisting of a 100-meter (approximately 330-feet) length of stream for its physical, chemical and biological characteristics. Our team will complete the Rapid Bioassessment Physical Characterization/Water Quality and Habitat Assessment Field Data Sheets for low or high

gradient streams while at sampling reach locations (Barbour et al, 1999). We will obtain water quality measurements using a YSI 556 water meter or equivalent.

Gannett Fleming will collect macroinvertebrates using a D-frame dip net and the kick-netting method for D-frame dip nets as described in the RBP for Single and Multi-Habitat Approaches for macro-invertebrate collection. WV DEP Watershed Assessment Branch 2014 Standard Operating Procedures for macroinvertebrate collection recommends 11 kicks per sampling reach; however, to ensure sufficient macroinvertebrate samples, we will collect 20 kicks in each stream (WVDEP, 2014). For each sampling reach, our team will composite the collections from all 20 kicks into one sample and stored in 95% denatured ethanol. We will complete the Rapid Bioassessment Benthic Macroinvertebrate Field Data Sheet in the field following completion of macroinvertebrate collection (Barbour et al, 1999). For quality control, our team will collect a duplicate macroinvertebrate sample at a randomly selected sampling reach to represent 10% of the total sampling effort for the respective site.

To avoid the potential for transporting organisms from one watershed to another, field equipment will be thoroughly cleaned with a solution of 95% denatured ethanol to kill and dislodge remnant organisms from previous use. Waders will be cleaned and dried prior to fieldwork, and all waders used will have rubber soles and felt or padded soles will be prohibited. Between sampling reaches the D-frame net and sieve will be rinsed with 95% denatured ethanol to kill and dislodge remaining organisms. Boot soles will be brush scrubbed and inspected for trapped organisms to reduced cross-contamination between sampling reaches.

The full sample for each reach will be picked in its entirety for all macroinvertebrates. Picking efforts will be quality control reviewed by re-picking/searching half of each sample's total volume for missed individuals. If the efficiency rate of the picking effort was greater than 90%, then the sample will have passed quality control review for picking.

For each reach sample, macroinvertebrates will be sorted to family and identified to the lowest practical taxonomic level, which will be genus for most specimens. A reference collection will be assembled exhibiting all taxa identified and representing 5% of the total sampling effort collection will be for quality control identification review. A digital photographic reference collection, depicting each taxa and taxon identifiable features, will be assembled and appended to the Stream Evaluation Report.

Macroinvertebrates will be identified and reviewed using a Wolfe DigiVu SZM 3.0 Stereomicroscope with up to 40x magnification. Dichotomous keys will be used for macroinvertebrate identification.

Figure 20: Macroinvertebrate under Microscope. Macroinvertebrates will be identified and reviewed using a Wolfe DigiVu SZM 3.0 Stereomicroscope with up to 40x magnification.

The picking and identification efforts will be conducted by our environmental scientist with a Society of Freshwater Science Taxonomic Certification to Family Level for Aquatic Insects and academic training in the field of aquatic entomology and taxonomy. Quality control review will be conducted by our team's senior aquatic biologist/insect taxonomist with 27 years of experience in the field of aquatic wildlife biology and entomology.

The summary of macroinvertebrate sample composition will be identified to the lowest practical taxonomic level and summarized in a table in the report. The surface water quality data will be summarized in a table in the report. West Virginia Stream Condition Index (WVSCI) metrics, macroinvertebrate sample to family level with WV tolerances values will be summarized in table in the report. The digital photographic reference collection for macroinvertebrates will append the report.

The Stream Evaluation Report will document and describe each sampling reach and watercourse within the study area. Stream evaluation data will be summarized for each sampling reach and watercourse. The RBP Habitat Assessment Score is the sum total of the ten criteria for which each sampling reach and watercourse will be evaluated in the field based on the RBP protocols. Rapid Bioassessment Field and Lab Data Forms will be presented in the report with the RBP score for each reach evaluated.

The West Virginia Stream Condition Index (WVSCI) is comprised of six metric values calculated from macroinvertebrate samples. The six metric values are standardized using the best standard values for each metric, provided by the WV Department of Environmental Protection (DEP) and Division of Natural Resources' Scientific Collection Database, to metrics score out of 100.

The WVSCI Total Score is the average of the six metric scores. Virginia Stream Condition Index Calculation Sheets will be provided in the Stream Evaluation Report.

SWVM incorporates the findings of the Wetlands and Waterways Identification and Delineation Report and Stream Evaluation Report and serves as a tool for determining compensatory mitigation requirements for impacts to wetlands and waterways. If mitigation is required at a Site, the federal and state agencies will refer to the SWVM calculations to establish mitigation goals for the proposed impacts.

Temporary and permanent impacts to wetlands and waterways under the jurisdiction of the U.S. Army Corps of Engineers and WVDEP will require federal and state authorization of these impacts under Section 404 of the Clean Water Act and Section 401 Water Quality Certification. A mitigation plan will serve to document the required compensation proposed to mitigate for the proposed impacts in accordance with the 2008 Mitigation Rule, 33 CFR Part 332 of the Federal Register.

Mitigation plans, if needed will consider banks, the in lieu fee program, and onsite/offsite mitigation options. If mitigation banks are established they can be presented as a primary mitigation option. If banks are not established, the West Virginia In Lieu Fee program is a preferred option with a goal of no net loss of existing stream and wetland acreage and functions in West Virginia through effective restoration, enhancement, replacement, and preservation of aquatic resources. The program utilizes watershed and landscape based planning to identify and assess potential mitigation opportunities that maximize the ecological benefits of aquatic resources within the same geographic service areas as the impacts. By consolidating the mitigation requirements stemming from multiple impacts, large scale watershed efforts can be focused within priority watersheds. The In Lieu Fee program works closely with other state and federal agencies, non-government organizations, academic institutions, watershed associations, individuals and others to develop plans and set priorities.

The In Lieu Fee program was initiated by the Department of Environmental Protection to provide an additional tool for achieving compensatory mitigation for unavoidable impacts to waters of the United States and state waters, including wetlands, streams and associated buffers. Permits required for such impacts by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, under Section 10 of the Rivers and Harbors Act, and by the State of West Virginia under Section 401 of the Clean Water Act. The permit allows permittees to participate in the state's In Lieu Fee program if there are no Mitigation Banks available to provide compensatory mitigation. Permittees participate by paying a fee to the program which is determined by inputting qualitative and quantitative data from proposed impacts to streams and wetlands into the SWVM.

If an onsite/offsite mitigation plan would be feasible for a Site, then the objectives of that plan will follow the U.S. Army Corps of Engineers Multi-Agency Compensatory Mitigation Plan Checklist for Aquatic Resource Impacts under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The key features of the mitigation plan for onsite/offsite mitigation would include:

- Mitigation Goals and Objectives
- Describe functions lost at impact site
- Describe functions to be gained at mitigation site
- Describe overall watershed improvements to be gained
- Baseline Information for Impact and Proposed Mitigation Sites
- Provide data on physical attributes of sites (soils, vegetation, hydrology)
- Describe historic and existing land uses and resources impacted
- Describe reference site attributes if available
- Mitigation Site Selection and Justification
- Describe process of selecting proposed site
- Likelihood of success, future land use compatibility, etc.
- Mitigation Work Plan
- Location

Figure 21: West Virginia Wetland Soil Evaluation. Our mitigation plans for onsite/offsite mitigation include a description of the soils, vegetation, and hydrology parameter changes.

- Construction Plan
- Describe planned hydrology, vegetation, soils, buffers, etc.
- Performance Standards
- Identify success criteria
- Compare functions lost and gained at impact and mitigation sites
- Describe soils, vegetation and hydrology parameter changes
- Site Protection and Maintenance
- List parties and responsibilities
- Provide evidence of legal protective measures
- Maintenance plan and schedule
- Monitoring Plan
- Provide monitoring schedule, identify party (ies) and responsibilities
- Specify data to be collected, including assessment tools and methodologies
- Adaptive Management Plan
- Identify party (ies) and responsibilities
- Remedial measures (financial assurances, management plan, etc.)
- Financial Assurances
- Identify party (ies) responsible for assurances
- Specify type of assurance, contents and schedule

3.2. Upper Deckers Creek Site 1

Gannett Fleming is currently performing preliminary design (up to 60% design documents) of the Upper Deckers Creek Site 1 dam rehabilitation and is proceeding to final design in the fall of 2015. The NRCS Recommended Plan for Upper Deckers Creek Site 1 consists of rehabilitating the dam and adding rural water supply as a new purpose. This action will modify Upper Deckers Creek Site 1 to provide the level of flood protection commensurate with its hazard class, secure a rural water supply for Public Service District 1, and eliminate the liability of operating a dam in non-compliance with current design criteria.

Because of the uncertainties and complications associated with obtaining permits for the original NRCS' Recommend Plan, the alternative to rehabilitate the dam by armoring the embankment with roller-compacted concrete (RCC) was reconsidered and discussed. Although this option was estimated to have a slightly higher construction cost, it was determined to have significantly less environmental and other impacts, and thus less difficult to implement. A decision was subsequently made to select this option for the Recommended Plan.

In developing this Plan of Work for final design, Gannett Fleming performed an in-house value-engineering of the RCC embankment armoring alternative with the goal of addressing the concerns expressed with the original Recommended Plan and reducing project costs. This effort resulted in a modified RCC embankment overtopping design that eliminated the conventional reinforced concrete spillway training walls. This was accomplished by armoring the entire downstream slope of the embankment and constructing converging sloped RCC training walls using RCC. The most recent research developed by the USDA Agricultural Research Service (ARS) laboratory under the direction of Dr. Sherry Hunt is being used to determine the required horizontal extent of the RCC armoring ("Model Study of RCC Stepped Spillways with Sloped Converging Training Walls" [2008]).

The proposed RCC embankment armoring alternative also provides best use of onsite materials and eliminates the need for borrow material (fill and topsoil) to modify the embankment and significantly reduces the amount of excavated material that needs to be spoiled. Fill material for modifying the embankment will be obtained from the existing embankment excavation for the RCC armoring, thus eliminating the need for offsite borrow material. Excess material excavated to modify the dam will be spoiled within the existing auxiliary spillway and at the toe of the embankment. The approach will be to spoil all excess excavated material onsite.

The proposed Plan of Work developed for this project was revised to include the following features:

- Replacing the existing riser and outlet structures with a new riser and outlet structure. The new outlet structure will consist of a plunge pool. The normal pool will be raised approximately 11.54 feet to elevation 1736.0 to provide water supply and an allowance for conservation releases.
- Removing the existing embankment drainage system and constructing a new internal embankment filter and drainage system under the RCC armoring and around the principal spillway conduit.

- Constructing a new stepped RCC auxiliary spillway over the embankment and backfilling the existing earth-cut auxiliary spillway. The assumed embankment armoring concept is shown in Figure 1. The need for the stilling basin features will be determined during Phase II of the design – Supporting Documentation, Development of Design Data. Both unformed and formed RCC step configurations will be considered in the preliminary design phase, along with recommendations for final design. It is assumed that both options may be included in the final design to allow final section based on bid price.
- Flattening the upstream and downstream embankment slopes will be flattened to 4H:1V and 3H:1V, respectively, to make best use of available materials, increase stability of the embankment slopes, and facilitate maintenance of the structure.
- The approximately 17,000 cubic yards of surplus material from the excavation of the embankment will be used to construct a berm at the toe of the dam.

Figure 22: Upper Deckers Creek Site 1 Dam Rehabilitation. In this artist rendering of proposed modifications to Upper Decker's Site 1, RCC armoring is shown without vegetated soil cover to illustrate the extent of RCC armoring.

Goal/Objective 1: Oversee quality control inspections and tests performed by the contractor.

The project as described in the aforementioned section will require construction-phase quality control inspections and tests for mixing and placement of RCC, placement of filter drain material, embankment fill, conventional reinforced concrete, and other materials. Gannett Fleming has provided construction quality control inspection and testing services to the NRCS on prior watershed projects including training in the latest RCC quality control procedures and on-call field assistance or office quality control reviews during construction. In addition, we have assumed full responsibility for all resident and office construction-phase quality control services for prior NRCS' dam rehabilitation projects. Gannett Fleming has had multiple concurrent dam construction projects ongoing across the United States for the past 20 years and has full-time construction support staff dedicated to dam construction projects that are trained and qualified to provide all quality control inspections and tests for dam construction projects. Overall, Gannett Fleming has provided construction management services on over 100 dam projects.

The quality of a construction project depends heavily on the performance of the inspection staff. We understand that this means providing well-trained and experienced field personnel who receive the proper support from management and who work in an atmosphere dedicated to partnering. In order to meet the quality objectives of our clients, we maintain an experienced staff of construction professionals; many of our professionals have attained NICET certifications, and many others are licensed Professional Engineers. Our typical on-site inspection services include:

- Administering project meetings
- Analyzing and updating construction schedules
- RCC mix designs, RCC plant calibration, RCC test sections and RCC production testing
- Concrete air, slump, and compressive strength testing
- Documentation of construction activities
- Field office administration
- Inspecting for compliance with environmental requirements
- Material verification testing (including field laboratories)
- Monitoring compliance with contract drawings and specifications
- Monitoring traffic control plans
- Project records management
- Quantity calculations for contractor payments.

Figure 23: Elkwater Fork Dam. Gannett Fleming oversaw quality control testing of RCC at NRCS WV's Elkwater Fork Dam.

In summary, our approach and methodology to achieve this goal is to staff the construction phase of this project with the most qualified construction support professional and follow established NRCS construction quality control procedures. We will staff the project with a Chief Inspector experienced with Watershed Dams and NRCS construction documentation and inspection procedures, and field personnel who are knowledgeable with the type of work being performed at any given time; including fill placement, concrete placement drainfill placement, and RCC placement; and who understand the quality control tests including the procedures to perform the tests and the reason for performing the tests.

Goal/Objective 2: Prepare records (as-built) drawings.

We will prepare as-built drawings in accordance with NRCS National Engineering Manual part 511.11(b). The as-built drawings recently prepared for the NRCS by Gannett Fleming for the rehabilitation of New Creek Site 14 provide an example of the quality of our work and ability to complete this task to the full satisfaction of the NRCS. Gannett Fleming's approach and methodology to achieve this goal is to following the same procedures we used to complete the as-built drawings for New Creek Site 14 as well as other NRCS dam projects. In general, we complete the as-built drawings as the project progresses, incorporating shop drawings, field measurements, and surveys, so the as-built records are complete when the construction is complete. We will also prepare as-built specifications as the project progresses, in accordance with NRCS policies, to incorporate any approved revisions or changes.

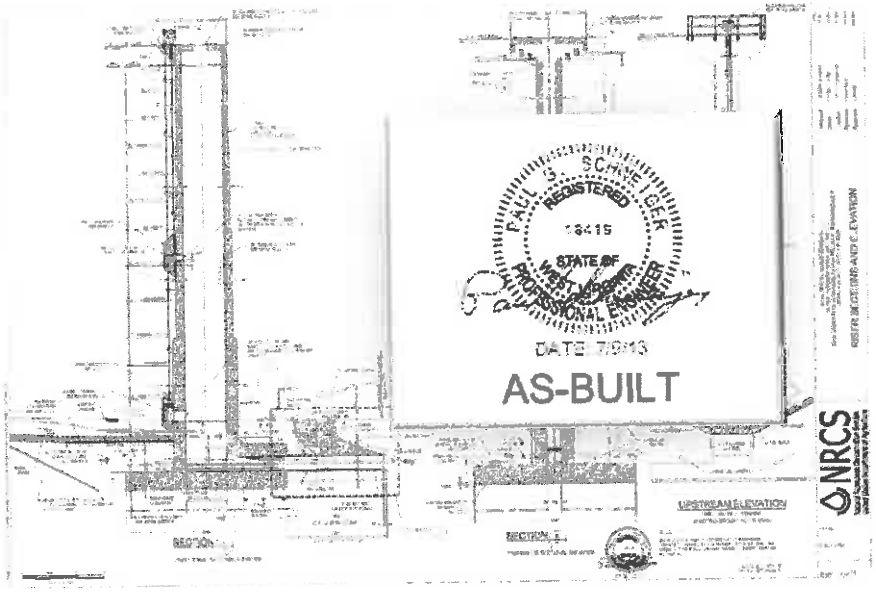


Figure 24: New Creek Site 14 Sample As-built Drawings. Paul Schweiger, a WV Professional Engineer and our proposed Project Manager, stamped the as-built drawings for NRCS WV's New Creek Site 14 Dam project.

Goal/Objective 3: Review construction contractor's submittals and coordinate submittal review responses.

Gannett Fleming employs an array of software tools to provide effective management of construction projects including submittals and reviews. These tools include web-based document management systems such as ProjectMates (by Systemates, Inc.). When appropriate, we will use these web-based construction management tools as the Project Controls System Software (PCSS) to enhance communication and data sharing for all of the various elements included within the "umbrella" of this assignment. The use of ProjectMates was adopted for our two most recent NRCS dam rehabilitation construction projects (New Creek Site 14, WV in 2011 and 2012, and Renwick Dam, ND in 2013 and 2014). This web-based software allows the contractor to upload submittals directly the secure web site which creates a record of the transmittal and provides immediate notification of the submittal to the WVCA, NRCS, designer and onsite construction support staff. Submittal reviews and responses are similarly uploaded to the site by the reviewers with immediate notifications to the Contractor, WVCA, NRCS and onsite construction support staff. This software and procedure provides dated records and easy tracking of submittals and responses, convenient access to all submittal documents and reviews, and creates a powerful database that is provided to the WVCA as a final project deliverable for future reference.

Goal/Objective 4: Review and verify contractor survey notes for compliance with contract documents.

Gannett Fleming has professional surveyor's that regularly complete construction-phase surveys and other surveys including high-precision monument surveys, reservoir bathymetric surveys and fill quantity surveys. Our surveyors installed the survey controls at Upper Decker's Site 1 and completed the bathymetric survey and topographic surveys required for this project, and are therefore very familiar with this site. Gannett Fleming's approach and methodology to achieve this goal is to use the same procedures we used to verify the contractor's survey notes for compliance with the contract documents for the construction of the modifications to New Creek Site 14 . This will include review of the Contractor's surveys by our surveyors and CADD technicians to verify the project is being built in accordance with the contract documents and within the allowable tolerances in the project specifications.

Goal/Objective 5: Document daily construction activities.

Having provided onsite construction support and resident engineering services to the NRCS for numerous construction projects, Gannett Fleming is very familiar with the NRCS documentation requirements. Our approach and methodology to achieve this goal is to use the same procedures we used to document construction activities for New Creek Site 14 dam rehabilitation project. In addition to maintaining the daily field books, including the job diary books, calculations books, fill inspector books, concrete inspector books, drainfill inspector books, and RCC inspector books, we will also scan and upload the daily entries into ProjectMates so that they can be accessed by the WVCA, NRCS and the engineer as needed. Note that access to data uploaded to ProjectMates will be managed securely and access privileges to this information will only be granted to those who are authorized to have access. The field books will contain records of work performed each day, equipment used and on standby, Contractor personnel onsite and hours worked, and key communications with Contractor personnel in accordance with NRCS procedures and policies. We will also maintain all other NRCS required documentation in the field office including logs of visitors, wage rate interviews, NPDES inspections, etc. An example daily entry from the Chief Inspector's job diary as proposed for documenting daily construction activities and to be uploaded to ProjectMates is shown on Figure 25.

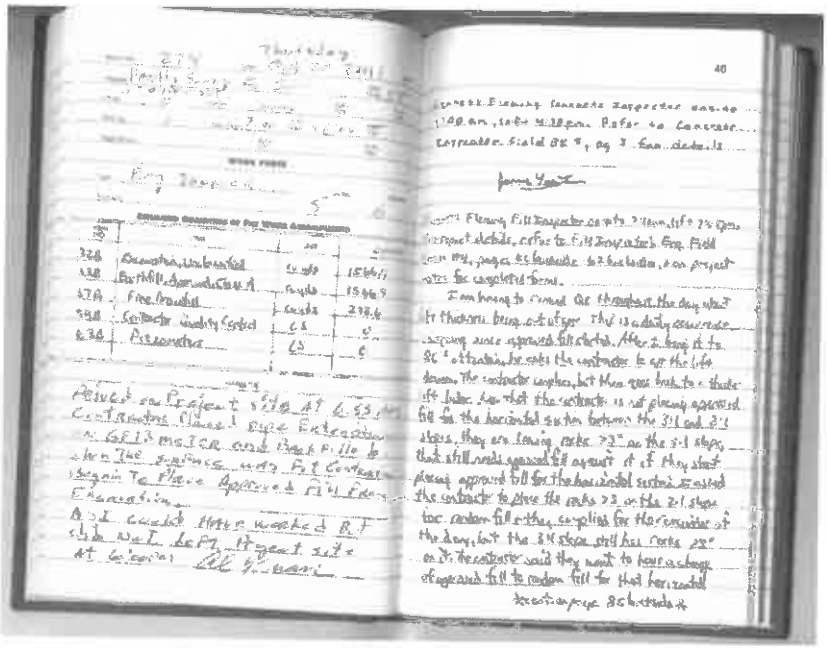


Figure 25: New Creek Site 14 NRCS Job Diary. Our Chief Inspector updates the job diary daily with to document daily construction activities to be uploaded to ProjectMates.

Goal/Objective 6: Monitor pollution control measures for compliance with the NPDES permit, state, and local regulations.

Gannett Fleming will inspect and monitor all pollution control facilities installed by the Contractor for compliance with the approved NPDES Permit, Erosion and Sedimentation Pollution Control Plans and Specification, and applicable federal, state, and local laws. Inspections will include inspection of the initial feature installation, daily patrols, and during/following all storm events. Records will be maintained in the project diary. A record of formal inspections of the NPDES facilities will also be maintained on the wall of the field office if requested by West Virginia DEP as was required for the New Creek Site 14 Rehabilitation Project.

Figure 26: New Creek Site 14 Pollution Control Measures. We inspected erosion control measures for the access road along the crest of dam for the multi-year construction project at New Creek Site 14.

Goal/Objective 7: Monitor the safety plan and construction schedule.

Gannett Fleming will monitor the safety plan for compliance with applicable OSHA, WVCA, and NRCS requirements including routine checks that Contractor's personnel are wearing appropriate personal protective equipment (PPE) and work is being performed in accordance with applicable safety laws. Communications with regard to safety violations will be recorded in the job diary and escalated to a higher level if unsafe actions are not corrected.

Gannett Fleming will monitor the construction schedule for conformance with the project Performance Time plan. The schedule will be evaluated, at a minimum, during biweekly onsite progress meetings with the Contractor. Gannett Fleming will apply our extensive construction experience to evaluate any schedule slippage and Contractor proposed recovery plans, and will advise the WVCA and CO accordingly.

Goal/Objective 8: Process the pay estimates, as required by the Contracting Officer assisting, as requested, with payroll-related contract requirements.

Gannett Fleming's Chief Inspector will record the work performed each day in the job diary and will review each monthly progress payment request from the Contractor. We will make every effort to resolve any discrepancies with the Contractor at the field level through regular communication and thorough record keeping. We will perform wage rate interviews in accordance with NRCS procedures and maintain records of the interviews on the appropriate forms and note the interviews in the job diary.

Goal/Objective 9: Provide independent construction cost estimates for contract modifications and changes.

Gannett Fleming will provide independent construction cost estimates for contract modifications and changes as requested by the WVCA or NRCS. Cost estimates for Contract Mods will be performed by our experienced office support staff in conjunction with our resident inspector, field inspectors, the WVCA, and the NRCS. We will have prepared the Engineer's construction cost estimate for the project and thus will be well suited to evaluate the cost of any changes that may arise during construction.

Gannett Fleming has extensive experience with in-house value engineering, and evaluating contractor-proposed value engineering and/or modifications that arise from unforeseen conditions encountered with rehabilitation projects as the work progresses and deviations from original construction records are uncovered. Our experienced field staff will be the first line of verification that a changed condition has been found.

Goal/Objective 10: Ensure all tasks are completed to the satisfactory review and approval, when required, from involved federal agencies.

Gannett Fleming's experienced field staff will be continuously verifying that the work is performed in accordance with the Contract Documents. We have worked with the WVCA, WV NRCS, WV DEP, and Pittsburg District of the USACE on prior

Watershed Dam construction projects, including the New Creek Site 14 Dam Rehabilitation project, and have the intimate knowledge of Watershed Dams and ancillary facilities necessary to detect deviations from the Contract Documents.
Goal/Objective 11: perform Quality Assurance Plan (QAP) items as identified in the QAP; including but not limited to, surveying, material testing, observation, etc.

Gannett Fleming will provide field staff knowledgeable in Watershed Dams and all aspects of the types of work that will be performed to rehabilitate Upper Decker's Creek Site 1. Our extensive experience with Watershed Dams facilitates knowledgeable observation of the Contractor's work. Our Chief Inspector will have a minimum of 10 years construction experience and will have experience with dam construction. Our supporting field staff will have experience with the types of work and the QA testing that meets or exceeds the requirements set forth in the Quality Assurance Plan. In addition, our field personnel will be in regular communication with our office support staff to understand the requirements of all elements of the project and the design intent of each feature.

We will use our in-house surveyors to check construction control including layout and elevations at key junctures in the project. We will use either in-house surveyors or an approved local subcontracted surveying firm to spot-check the contractor's surveys and to survey for final conformance with the contract documents and final pay quantities.

Figure 27: New Creek Site 14 Fine and Coarse Drain Fill Placement. Our experienced fill/excavation inspectors were on site during placement of fill/drainfill at New Creek Site 14.

We will have experienced fill/excavation inspectors on site during times of key excavations, and during placement of fill/drainfill. Our fill inspector will have prior experience on fill placements for dams; be familiar with earth, rock, and drain fill placing operations; be knowledgeable in NRCS documentation procedures; be licensed to operate a nuclear density gauge, and understand the project plans and specifications. In addition, we have the capability to perform gradations and proctor curves at our in-house geotechnical laboratory, or we may use an approved local subcontracted testing firm. Fill placement inspectors will maintain a Field Book for fill placement and coordinate daily entries into the job diary with the Chief Inspector.

For inspection of conventional concrete placements, we will have an experienced concrete inspector onsite to check forms, reinforcing steel and other embedded items, observe the placements, and perform tests in accordance with the Quality Assurance Plan. Our concrete inspector will have ACI concrete field testing technician, Grade I certification or higher. Concrete placement inspectors will maintain a Field Book for concrete placement and will coordinate daily entries into the job diary with the Chief Inspector.

For inspection of roller-compacted concrete (RCC) placements, we will have an experienced RCC inspector onsite to observe placements and perform tests in accordance with the Quality Assurance Plan. Our RCC inspectors will have prior experience on other RCC construction projects and will be under the supervision of office support staff with more than 10 years of RCC construction experience. During critical times of RCC placement, such as the trial placement and start-up of production placement, we will have RCC staff onsite with more than 10 years of RCC construction experience. RCC placement inspectors will maintain a Field Book for RCC placement and will coordinate daily entries into the job diary with the Chief Inspector.

In summary, quality assurance testing, observations, and surveys will be performed and documented in accordance with the Quality Assurance Plan and NRCS procedures. The project will be staffed with a Chief Inspector experienced with dam construction and with over 10 years of construction experience. Supporting field staff for fill, concrete, and RCC placement will be experienced in their respective lines of responsibilities and will perform their work under the leadership of the Chief Inspector and guidance of supporting office staff who fully understand the design intent and requirements. The office support staff will review QA testing and coordinate any concerns with the WVCA and NRCS as appropriate.

I. AUTHORIZED REPRESENTATIVE The foregoing is a statement of facts	
31. SIGNATURE	32. DATE 6/2/2015
33. NAME AND TITLE Paul G. Schweiger, PE, Vice President	

SF 330 Part II

SF 330 Part II

Gannett Fleming
100 Years
of Excellence Delivered As Promised

ISO 9001:2008 CERTIFIED

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) Name: Gannett Fleming Camp Hill, PA	3. YEAR ESTABLISHED: 1915
	4. DUNS NUMBER: 60-915-3887
2b. STREET: 207 Senate Avenue	5. OWNERSHIP
2c. CITY: Camp Hill; 2d. STATE: PA; 2e. ZIP: 17011	a. TYPE: Corporation
6a. POINT OF CONTACT NAME AND TITLE: Paul G. Schweiger, PE, CFM, Vice President	b. SMALL BUSINESS STATUS: N/A
6b. TELEPHONE NUMBER: (717) 763-7211; 6c. EMAIL ADDRESS: pschweiger@gfnet.com	7. NAME OF FIRM *(If block 2a is a branch office)*: Gannett Fleming, Inc.
8a. FORMER FIRM NAME(S) *(If any)*: N/A	8b. YR. ESTABLISHED: N/A; 8c. DUNS NUMBER: N/A

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	(2) BRANCH
06	Architect	42	9
08	CADD Technician	88	32
12	Civil Engineer	118	20
15	Construction Inspector	160	21
16	Construction Manager	79	20
18	Cost Engineer/Estimator	5	4
20	Economist	18	8
21	Electrical Engineer	99	25
23	Environmental Engineer	31	3
24	Environmental Scientist	52	19
27	Foundation/Geotechnical Engr.	54	23
29	GIS Specialist	43	17
30	Geologist	41	11
32	Hydraulic Engineer	35	16
36	Industrial Hygienist	2	2
38	Land Surveyor	7	1
39	Landscape Architect	2	1
42	Mechanical Engineer	28	15
47	Planner: Urban/Regional	38	14
52	Sanitary Engineer	23	8
57	Structural Engineer	130	40
59	Engineering Technician	107	31
60	Transportation Engineer	190	32
62	Water Resources Engineer	50	21
	Hydrogeologists	6	2
	Other Employees	485	395
Total		1986	685

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
A01	Bridges	6
A04	Construction Management	4
A05	Cost Estimating, Engrg, Analysis	1
A08	Dams (Concrete; Arch)	4
A10	Dams (Earth/Rock); Dikes; Levees	7
A11	Ecological/Archeol. Investigations	1
B01	Energy Conservation/New Energy	1
B02	EIS, EA, Environmental Stmts	4
C04	Environ. & Nat'l Resource Mapping	1
C06	Environmental Planning	1
C08	Environmental Remediation	1
C10	Fisheries; Fish Ladders	2
C12	GIS Services	5
C18	Hydraulics & Pneumatics	2
D02	Land Surveying	1
E01	Landscape Architecture	1
E03	Planning (Comm/Reg/Area/Statewide)	6
E04	Planning (Site/Installation/Proj)	2
E07	Public Safety Facilities	1
E09	Rehab (Bldgs; Struct; Facil)	3
E10	Risk Analysis	1
E11	Rivers/Canals/Waterways/Flood Ctrl	2
F02	Seismic Designs & Studies	1
G01	Survey/Platting/Mapping/Floodplain	2
G02	Sustainable Design	2
G04	Water Rsrcs; Hydrology; Grndwater	6
G06	Water Supply/Treatment/Distb.	6

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(insert revenue index number shown at right)

a. Federal Work	8
b. Non-Federal Work	10
c. Total Work	10

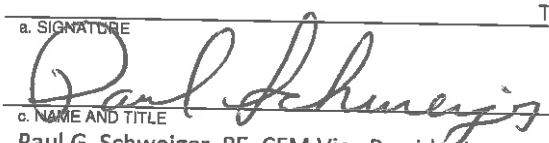
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: 6/2/2015

c. NAME AND TITLE: Paul G. Schweiger, PE, CFM Vice President

Forms

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(if any)*

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) Name: Gannett Fleming Valley Forge, PA	3. YEAR ESTABLISHED: 1957
	4. DUNS NUMBER: 06-987-9666
2b. STREET: Valley Forge Corporate Center, 1010 Adams Avenue	5. OWNERSHIP
2c. CITY: Audubon; 2d. STATE: PA; 2e. ZIP: 19403-2402	a. TYPE: Corporation
6a. POINT OF CONTACT NAME AND TITLE: Esther M. McGinnis. Senior Vice President	b. SMALL BUSINESS STATUS: N/A
6b. TELEPHONE NUMBER: (610) 650-8101; 6c. EMAIL ADDRESS: emcginnis@gfnet.com	7. NAME OF FIRM *(If block 2a is a branch office)*: Gannett Fleming Affiliates, Inc.
8a. FORMER FIRM NAME(S) *(if any)*: N/A	8b. YR. ESTABLISHED: N/A; 8c. DUNS NUMBER: N/A

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	(2) BRANCH
02	Administrative	323	13
08	CADD Technician	88	6
12	Civil Engineer	118	1
14	Computer Programmer	117	3
15	Construction Inspector	160	1
16	Construction Manager	79	2
20	Economist	18	4
21	Electrical Engineer	99	14
23	Environmental Engineer	31	2
24	Environmental Scientist	52	4
27	Foundation/Geotechnical Engineer	54	8
30	Geologist	41	4
38	Land Surveyor	7	4
57	Structural Engineer	130	14
59	Engineering Technician	107	7
60	Transportation Engineer	190	36
62	Water Resources Engineer	50	7
	Facility/Maintenance & Support	18	1
	Other Employees	304	0
Total		1986	131

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
B02	Bridges	6
C15	Construction Management	1
D01	Dams (Concrete; Arch)	1
D02	Dams (Earth/Rock); Dikes; Levees	3
E03	Electrical Studies and Design	2
E09	EIS, EA, Environmental Statements	3
E11	Environmental Planning	1
H07	Highways/Streets/Parking Lots	7
L02	Land Surveying	1
P04	Pipelines (cross country, liquid and gas)	1
P07	Plumbing & Piping Design	1
P12	Power Generation/Transmission/ Distribution	1
R03	Railroad; Rapid Transit	7
S03	Seismic Designs & Studies	1
S04	Sewage Coll./Treatmt/Disposal	5
S05	Soils/Geologic Studies; Foundations	1
S07	Solid Wastes/Incineration/Landfill	2
S09	Struct. Design; Special Structures	1
S10	Surveying; Platting; Mapping; Flood Plain Studies	1
T03	Traffic & Transportation	3

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	8
c. Total Work	8

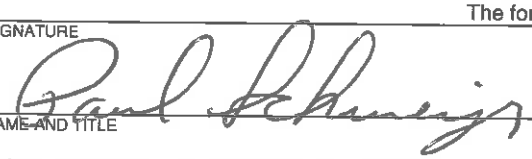
PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE



b. DATE: 6/2/2015

c. NAME AND TITLE: Paul G. Schweiger, PE, CFM Vice President

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(if any)*

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) Name
Gannett Fleming Pittsburgh, PA

3. YEAR ESTABLISHED: 1957

4. DUNS NUMBER: 83-206-4112

2b. STREET: Foster Plaza 8, 730 Holiday Drive, Suite 400

2c. CITY: Pittsburgh

2d. STATE: PA

2e. ZIP: 15220

5. OWNERSHIP
a. TYPE: Corporation

6a. POINT OF CONTACT NAME AND TITLE: John W. Kovacs, PE, PMP, DGE, Senior Vice President

b. SMALL BUSINESS STATUS: N/A

6b. TELEPHONE NUMBER: (412) 922-5575

6c. EMAIL ADDRESS: jkovacs@gfnet.com

7. NAME OF FIRM *(If block 2a is a branch office)*: Gannett Fleming Affiliates, Inc.

8a. FORMER FIRM NAME(S) *(if any)*: N/A

8b. YR. ESTABLISHED: N/A

8c. DUNS NUMBER: N/A

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	(2) BRANCH
02	Administrative	323	16
08	CADD Technician	88	6
14	Computer Programmer	117	3
15	Construction Inspector	160	12
16	Construction Manager	79	5
21	Electrical Engineer	99	1
24	Environmental Scientist	52	1
27	Foundation/Geotechnical Engineer	54	7
29	Geographic Information System Specialist	43	1
30	Geologist	41	5
52	Sanitary Engineer	23	4
57	Structural Engineer	130	8
59	Engineering Technician	107	12
60	Transportation Engineer	190	6
62	Water Resources Engineer	50	3
	Other Employees	430	0
Total		1986	90

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
B02	Bridges	6
C15	Construction Management	2
D01	Dams (Concrete; Arch)	1
D02	Dams (Earth/Rock); Dikes; Levees	2
E01	Ecological/Archeol. Investigations	1
E07	Energy Conservation; New Energy Sources	1
E09	EIS, EA, Environmental Statements	2
E12	Environmental Remediation	2
G04	GIS Services: Development, Analysis, and Data Collection	3
H07	Highways/Streets/Parking Lots	5
I01	Industrial Bldgs; Manufacturing Plants	1
P05	Planning (Comm/Reg/Area/Statewide)	1
P06	Planning (Site, Installation, and Project)	1
S03	Seismic Designs & Studies	1
S04	Sewage Coll./Treatmt/Disposal	6
S09	Struct. Design; Special Structures	4
S13	Stormwater Handling & Facilities	1
T03	Traffic & Transportation	4
W02	Water Resources; Hydrology; Groundwater	2
W03	Water Supply/Treatment/Distribution	4

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS
(insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	8
c. Total Work	8

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE
The foregoing is a statement of facts.

a. SIGNATURE

b. DATE: 6/2/2015

c. NAME AND TITLE
Paul G. Schweiger, PE, CFM, Vice President

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(if any)*

PART II – GENERAL QUALIFICATIONS

*(If a firm has branch offices, **complete for each specific branch office seeking** work.)*

2a. FIRM (OR BRANCH OFFICE) Name: HETAGER DRILLING Punxsutawney, PA	3. YEAR ESTABLISHED: 1987
	4. DUNS NUMBER: Pending
2b. STREET: 1857 Woodland Avenue Ext.	5. OWNERSHIP
2c. CITY: Punxsutawney; 2d. STATE: PA; 2e. ZIP: 15767	a. TYPE: Corporation
6a. POINT OF CONTACT NAME AND TITLE: Paul A. Hale	b. SMALL BUS-INESS STATUS: N/A
6b. TELEPHONE NUMBER: (814) 938-7370; 6c. EMAIL ADDRESS: phale@gfnet.com	7. NAME OF FIRM *(If block 2a is a branch office)*: Gannett Fleming Affiliates, Inc.
8a. FORMER FIRM NAME(S) *(if any)*: N/A	8b. YR. ESTABLISHED: N/A; 8c. DUNS NUMBER: N/A

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	(2) BRANCH
02	Administrative	323	1
30	Geologists	41	1
42	Mechanical Engineers	28	1
70	Drillers	23	20
	Other Employees	1571	0
Total		1986	23

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
B02	Bridges	2
C10	Comm. Bldgs Low Rise	1
D02	Dams (earth/rock)	1
E13	Env Testing	1
H07	Highways/Streets/Parking	4
H09	Hospitals/Medical Fac	1
H10	Hotels; Motels	1
P04	Pipelines (x-country)	1
S04	Sewage Collection/Treatment	1
S05	Soils/Geologic Studies	1
S07	Solid Wastes/Incinerator	1
T05	Towers (self support)	1
W02	Water Resources; Hydrologic	1
W03	Water Supply/Treatment	1
X10	Utilities (Public)	2
X23	Quarries	1
X24	Coal & Mineral Exploration	5

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(insert revenue index number shown at right)

a. Federal Work	1
b. Non-Federal Work	6
c. Total Work	6

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE: John Kovacs

b. DATE: 5/29/2015

c. NAME AND TITLE: John W. Kovacs, PE, PMP, DGE, Chairman (L.G. Hetager Drilling, Inc., Chairman)

ARCHITECT – ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER (If any)

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME	3. YEAR ESTABLISHED	4. DUNS NUMBER
Cultural Resource Analysts, Inc. (West Virginia Branch Office)	1994	603124587

2b. STREET	5. OWNERSHIP
3556 Teays Valley Road, Suite 3	a. TYPE: S Corporation

2c. CITY	2d. STATE	2e. ZIP CODE	b. SMALL BUSINESS STATUS
Hurricane	WV	25560	SB

6a. POINT OF CONTACT NAME AND TITLE	7. NAME OF FIRM (If block 2a is a branch office)
C. Michael Anslinger, Senior Vice President, East Region	

6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS
(304) 562-7233	manslinger@crai-ky.com

8a. FORMER FIRM NAME(S) (If any)	8b. YR ESTABLISHED	8c. DUNS NUMBER
		[Insert]

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
02	Administrative	9	1
05	Archaeologist	43	4
08	CADD Technician	4	1
29	Geographic Information Sys. Specialist	4	1
58	Technician/Analysts	17	3
	Architectural Historian	6	0
	Other Employees		
	Total	83	10

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number (see below)
C02	Cemeteries (Planning & Relocation)	1
C14	Conservation & Resource Management	1
E01	Archaeology	5
G04	Geographic Information System Service	1
H08	Historical Preservation	1
R07	Remote Sensing	1

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

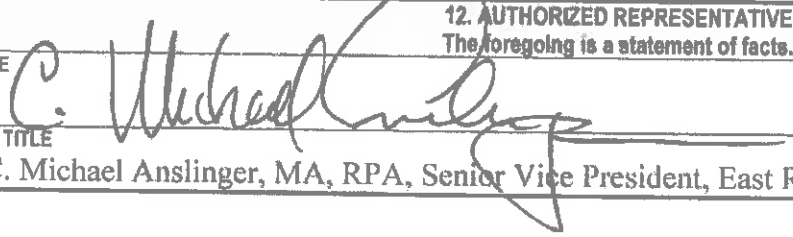
a. Federal Work	1
b. Non-Federal Work	5
c. Total Work	5

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 

b. DATE: 5-30-2015

c. NAME AND TITLE: C. Michael Anslinger, MA, RPA, Senior Vice President, East Region

ARCHITECT – ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER (If any)

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME			3. YEAR ESTABLISHED	4. DUNS NUMBER
Cultural Resource Analysts, Inc. (Corporate Office)			1983	603124587
2b. STREET			5. OWNERSHIP	
151 Walton Avenue			a. TYPE: S Corporation	
2c. CITY	2d. STATE	2e. ZIP CODE	b. SMALL BUSINESS STATUS	
Lexington	KY	40508	SB	
6a. POINT OF CONTACT NAME AND TITLE			7. NAME OF FIRM *(If block 2a is a branch office)*	
Charles M. Niquette				
6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS			
859-252-4737	cmniquette@crai-ky.com			
8a. FORMER FIRM NAME(S) *(If any)*			8b.YR ESTABLISHED	8c. DUNS NUMBER

9. EMPLOYEES BY DISCIPLINE

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	(2) BRANCH
02	Administrative	4	
05	Archaeologist	20	
08	CADD Technician	3	
29	Geographic Information Sys. Specialist	3	
58	Technician/Analysts	11	
	Architectural Historian	4	
	Other Employees		
	Total	45	

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

a. Profile Code	b. Experience	c. Revenue Index Number (see below)
C02	Cemeteries (Planning & Relocation)	1
C14	Conservation & Resource Management	1
E01	Archaeology	7
G04	Geographic Information System Service	1
H08	Historical Preservation	2
R07	Remote Sensing	1

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

(Insert revenue index number shown at right)

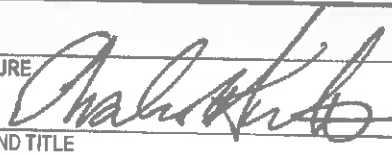
a. Federal Work	4
b. Non-Federal Work	7
c. Total Work	7

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000
2. $100,000 to less than $250,000
3. $250,000 to less than $500,000
4. $500,000 to less than $1 million
5. $1 million to less than $2 million
6. $2 million to less than $5 million
7. $5 million to less than $10 million
8. $10 million to less than $25 million
9. $25 million to less than $50 million
10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 

b. DATE: 5/30/2015

c. NAME AND TITLE

Charles M. Niquette, MA, RPA, President/Chief Executive Officer

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: AGR1500000004

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[√]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Gannett Fleming, Inc.
Company

Paul Schneider
Authorized Signature

June 2, 2015
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

CERTIFICATIONAND SIGNATURE PAGE

By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Gannett Fleming, Inc.
(Company)

Paul Schneider, Vice President
(Authorized Signature) (Representative Name, Title)

717-763-7211 717-763-8150 June 2, 2015
(Phone Number) (Fax Number) (Date)

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Gannett Fleming, Inc.

Authorized Signature: _____ Date: May 28, 2015

State of Pennsylvania

County of Cumberland, to-wit:

Taken, subscribed, and sworn to before me this 28 day of May, 2015

My Commission expires December 16, 2018.

AFFIX SEAL HERE

NOTARY PUBLIC _____

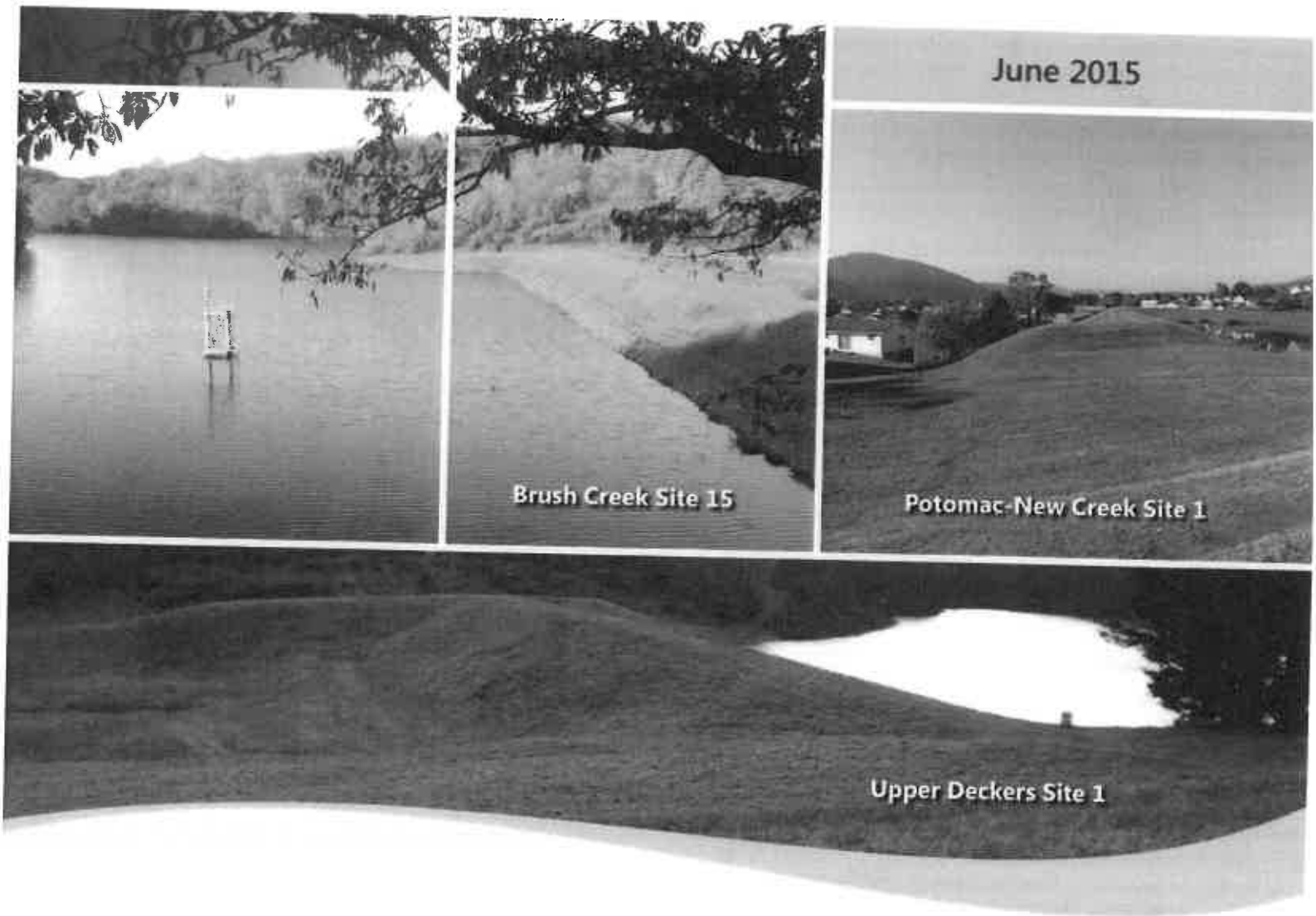
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Jennifer L. Bauer, Notary Public
Franklin Twp., York County
My Commission Expires Dec. 16, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Expression of Interest

Submitted to:

West Virginia
Conservation Agency

Watershed Dam Rehabilitation Program



June 2015

Submitted by:

Gannett Fleming
100 Years
of Excellence Delivered As Promised

ISO 9001:2008 CERTIFIED