

WORK AUTHORIZATION NO. 1

PROJECT: Smith Branch Flood Control Near Juvenile Justice Center

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated July 16, 2019 and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Doucet & Associates (the "Engineer").

Part 1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is \$520,000.00.

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on December 31, 2021. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Work Authorization. Engineer understands and agrees that County's payment of amounts under this Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Contract. It is further understood and agreed by Engineer that County shall have the right to terminate this Contract at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Part 7. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this 23rd day of July, 2019.

ENGINEER:

Doucet & Associates, Inc.

By: 
Signature

Amy Doucet
Printed Name

President
Title

COUNTY:

Williamson County, Texas

By: 
Signature

Bill Gravell, Jr.
Printed Name

Williamson County Judge
Title

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Attachment A - Services to be Provided by County

Williamson County will provide a Project Manager and any requested data that is in the County's control.

Attachment B - Services to be Provided by Engineer

SCOPE OF SERVICES

The scope of services for Work Authorization No. 1 consists of Final Design & Permitting and Construction Drawings & Bid Documents. A detailed breakdown of tasks within each phase of work is provided below.

Final Design & Permitting

- 1) **Field Reconnaissance (Design, Permitting, and Construction Documents Development)**
In order to understand site conditions and provide solid solutions during design and construction document development (prior to the construction phase), Doucet staff will take approximately 10 field reconnaissance trips (e.g. if two people go to the site at one time, that represents two trips) to the site during the performance of the design work outlined in this proposal. Site visits during the construction phase are included as part of Phase III. Field investigations will also be part of the work proposed by our subconsultants but the time and cost associated with their trips are included in their respective proposed work efforts (see attachments).
- 2) **Project Meetings & Coordination**
In order to coordinate the considerable work that will be required for the proposed project, it is anticipated that ten (10) meetings will be held with the County and attended by two Doucet staff per meeting. If only one Doucet staff attends, then proportionately more meetings can be attended within the proposed budget. Project progress/status, upcoming work, problems and/or potential problems, agency coordination, and other items will be discussed with plans made to eliminate or minimize any impacts to the project progress and budget. Subconsultants will participate in certain meetings as needed and per their respective scopes of work.
- 3) **Subconsultant Coordination**
The Doucet Project Manager (PM) will coordinate subconsultant work activities and schedule adherence. The PM will also keep the County informed on subconsultant progress and any problems that might be encountered. Doucet staff, including our PM and/or myself, have worked with all of our subconsultants so we anticipate great teamwork and an efficiently run project. Our subconsultants and their respective work descriptions are generally outlined above.
- 4) **Field Surveying**
The proposed field surveying work will include several items including: a boundary survey of the WCJJC tract (approx. 180 acres), a design survey of the Maple Street Embankment area, a design and tree survey of the proposed levee and floodwall systems, and a tree and topographic survey of the proposed work area (approx. 40 acres). Our PM will oversee the work and coordinate with the County to obtain access and needed information. Details regarding the proposed field surveying and associated costs are provided in Attachment F.

5) Maple Street Embankment Stability Analysis

This work task will consist of the two items below and will provide a much better understanding of: the material makeup of the embankment, the embankment's overall stability, the embankment's ability to pass large flows through its opening without overtopping, and the flooding conditions that could result if the structure were to fail during a very large PMF-related event. The geotechnical investigation and assessment are presented in Attachment D.

- a. Geotechnical Investigation & Assessment (Holt)
- b. PMF Hydrologic & Hydraulic Modeling – per TCEQ H&H Guidelines for Dams (although the embankment is not a dam), excludes TCEQ Dam Safety Program coordination (Scheibe)

6) Maple Street Embankment Engineering Evaluation

This evaluation of the embankment would focus on putting the above embankment stability and PMF analyses into perspective as far as presenting/discussing the magnitude of any flooding risks associated with the embankment's ability to withstand and pass high flows through its opening as well as identifying viable design considerations to provide additional protection against those risks. Options for stabilizing the embankment opening along Smith Branch will be developed and discussed with the County. We anticipate that stabilization options for the opening using riprap will include the use of large rock/boulders or concrete. The selected option will be incorporated into the final channel design improvements along Smith Branch. Any structural embankment improvements considered will only be developed to a conceptual level since improvements to the embankment itself will require a rigorous analysis and design effort which would have to be done in a subsequent design project. The work for this task will be performed under the following two tasks.

- a. Embankment Stabilization Concepts, as needed
- b. Opening Scour/Erosion Protection Options

7) Channel Improvement Design

The design of channel improvements will begin with the consideration of previous preliminary design concepts developed for the County by Doucet as part of WA #1. It is anticipated that the earlier improvements will be modified to reflect conditions without a proposed ball field being located along the right (east) bank of Smith Branch near the Justice Center as well as consider other items that our environmental studies might present (trees, pauper cemetery, waters of the US, utilities, etc.). This task will work simultaneously with Task 9 (Hydrologic & Hydraulic Modeling) to best align and size the channel improvements. Improvements will include the Maple Street Embankment opening that Smith Branch flows through.

- a. Smith Branch Main Stem
- b. Smith Branch Tributary 1
- c. Utility Coordination (Channel, Embankment Opening), Levee/Floodwall, and Interior Drainage)

8) Levee/Floodwall System Designs (Smith Branch & Tributary 1)

As with the channel improvement designs, the design of levee/floodwall systems will begin with the consideration of preliminary design concepts developed for the County by Doucet during WA #1. This task will work simultaneously with Task 9 (Hydrologic & Hydraulic Modeling) to best align and size the improvements. Performed by Frank Lam & Associates using the geotechnical analyses, structural evaluations and/or designs of the levee systems and floodwall will be a key

part of this work task to ensure that the structures will withstand design conditions and will meet FEMA accreditation requirements. Items included are:

- a. Earthen Levee Design
- b. Floodwall Design
- c. Levee and Floodwall Stability Analyses
- d. Settlement/Foundation Analyses
- e. Operation Plan
- f. Flood Warning System
- g. Maintenance Plan
- h. Interior Drainage Analysis
- i. Interior Drainage Improvement Design

9) Hydrologic & Hydraulic Modeling

H&H modeling will be performed with Scheibe Consulting taking the lead. This task will include refined H&H modeling of the project area. H&H modeling will focus on merging of the Tributary 1 RAS model with the overall Smith Branch unsteady RAS model. This will follow with refined analysis of conceptual solutions developed. Modeling of the conceptual solutions will allow our design team to select the most advantageous improvements that will meet all project goals. Modeling will include conceptual level updates, 60% design level updates, 90% design level updates, and final design level updates. Analysis will focus on the estimated Atlas 14 100-yr and 500-yr flood events. Modeling and analysis will be performed to a level acceptable by FEMA with the intent of submitting a CLOMR for review and approval. Tasks include:

- a. Incorporate Atlas 14 Rainfall Data
- b. Conceptual Level Design Modeling
- c. 60% Design Modeling – incorporate final Atlas 14 precipitation data
- d. 90% Design Modeling
- e. Final Design Modeling

10) Permitting Coordination

Permitting Coordination will be significant for this project as there are numerous project elements that must be designed to meet all respective requirements. Additionally, project plans and supporting documentation must be submitted to specific agencies/entities for their review and approval to ensure that the project meets their respective requirements. The environmental permitting will be of significant importance as project improvements must be developed in a manner to avoid and/or mitigate potential impacts. Therefore, design engineers will work very closely with the environmental leads at Blanton & Associates. The environmental scope of work is outlined in Attachment C. Permitting coordination includes:

- a. Environmental (Williamson County, City of Georgetown, CWA, ESA, TCEQ, THC, and USACE)
- b. TCEQ WPAP – required in recharge zone
- c. Williamson County Review
- d. City of Georgetown Review

11) Public Meeting

It is anticipated that there will be one public meeting that will be scheduled with County staff at a time and location to be determined later. However, the County may decide that a public meeting is not required.

12) Engineering Report

An engineering report will be developed to present and document all pertinent project work that led to the designs developed. The results presented will form the basis for the construction drawings of the proposed improvements. The report will include all applicable subconsultant work products (some possibly by reference or as attachments) that influence improvement designs.

13) FEMA CLOMR

A CLOMR will be developed and submitted to FEMA in order to gain their approval in the proposed Smith Branch and Tributary 1 improvements proposed. Coordination with FEMA will be performed to establish the applicable modeling information (i.e. FPP models and Atlas 14 rainfall).

Construction Drawings & Bid Documents

Construction drawing and bid document development will be provided based on the analyses and designs that were developed in Phase I. A listing of the anticipated drawings is provided below.

1) Construction Drawings

- a. Cover
- b. General Notes
- c. Existing Conditions – Topo & Tree Survey
- d. Proposed Conditions – Overall Site Project Layout
- e. Drainage Plan – Existing Conditions
- f. Drainage Plan – Proposed Conditions
- g. Erosion & Sedimentation Control Plan
- h. Levee/Floodwall System Plan & Profiles
- i. Levee/Floodwall System Details
- j. Maple Street Embankment Opening Improvement Plan
- k. Maple Street Embankment Improvement Opening Details
- l. Channel Improvements Plan and Profile – Smith Branch
- m. Channel Improvements Plan and Profile – Smith Branch Tributary 1
- n. Interior Drainage Improvement Plan & Profiles
- o. Interior Drainage Improvement Details
- p. Miscellaneous Details

2) Project Manual & Specifications

A project manual with specifications will be developed per the County's requirements. The manual with specifications along with the construction drawings will guide interested contractors in providing solid bids to perform the construction work required. The manual and specifications will then specifically outline how the project improvements are to be built by the selected bidder (contractor).

3) **Engineer's Opinion of Probable Construction Cost**

Doucet will provide construction cost estimates at the 60%, 90%, and 100% design levels to allow the County to better see the ultimate costs of the project improvements during the design/construction drawing process.

4) **Pre-Bid Conference & Bid Addenda Coordination**

Doucet will assist the County in holding a pre-bid conference and then coordinate bid addenda as needed.

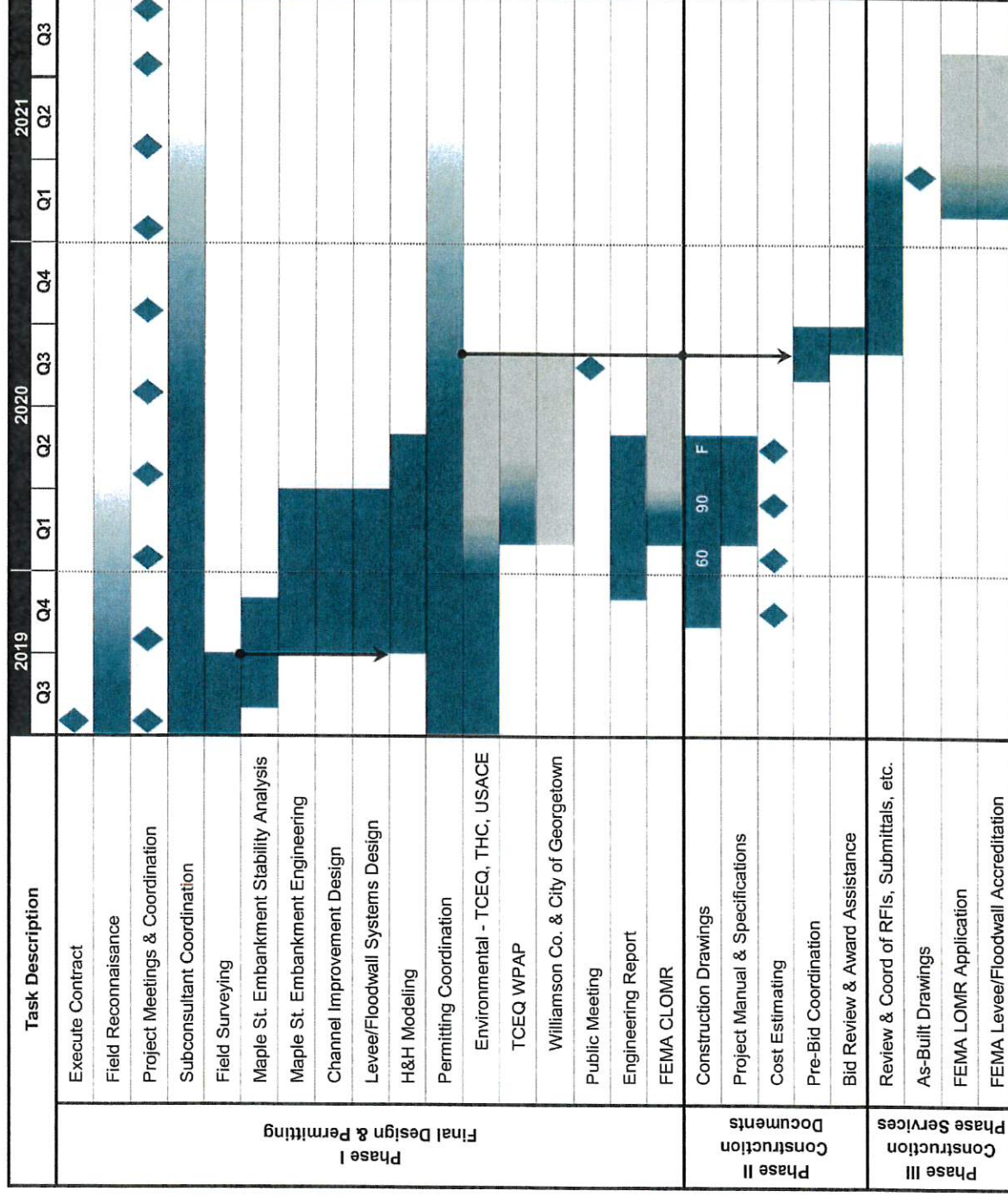
5) **Bid Review & Award Assistance**

Once bids are received, Doucet will review the bids and assist the County in selecting the contractor that will construct the project.

Attachment C - Work Schedule

Please see next page.

ANTICIPATED PROJECT TIMELINE
Smith Branch Flood Control & Drainage Engineering Services
Williamson County Juvenile Justice Center



 = Doucet Services
 = Estimated Agency Review

Attachment D - Fee Schedule

Please see next page.



7401B Highway 71 West, Suite 160
Austin, TX 78735
Office: 512.583.2600
Fax: 512.583.2601

DoucetandAssociates.com

Schedule A

Doucet & Associates 2019 Fee Schedule (effective 04/01/2019)

<u>Personnel</u>	<u>Hourly Fee</u>	<u>Personnel</u>	<u>Hourly Fee</u>
Principal Engineer (PE)	\$240.00	Principal Surveyor (RPLS)	\$240.00
Senior Project Manager	\$220.00	Project Manager (RPLS)	\$200.00
Project Manager	\$190.00	Project Coordinator	\$140.00
Senior Project Engineer (PE)	\$175.00	Survey Specialist	\$130.00
Project Engineer III	\$160.00	Survey Technician	\$100.00
Project Engineer II	\$150.00	GIS Specialist	\$130.00
Project Engineer I	\$140.00	GIS Technician	\$100.00
Engineer Associate II	\$125.00	LiDAR Specialist	\$130.00
Engineer Associate I	\$110.00	LiDAR Technician	\$100.00
Sr. Construction Technician	\$140.00	Aerial Mapping Specialist	\$130.00
Construction Manager	\$105.00	Aerial Mapping Technician	\$100.00
Program Manager	\$105.00	Utility Specialist	\$130.00
Sr. Civil Technician	\$135.00	Utility Technician	\$100.00
Civil Technician	\$120.00	Field Coordinator	\$140.00
Assistant Civil Technician	\$110.00	Field Specialist	\$110.00
		Field Technician	\$ 60.00
Senior Planner (AICP)	\$160.00	Division Administrator	\$100.00
Project Planner	\$145.00	LiDAR Scanner	\$100.00/hr
Staff Planner	\$110.00	Drone	\$600.00/hr
Planning Technician	\$100.00	Ground Targets	\$25/ea
		Concrete Monuments	\$250/ea
Sr. Operations Assistant	\$ 90.00	ATV/Boat/Sonar	\$100/day
Operations Assistant	\$ 70.00		
		Mileage	Current IRS rate
Expert Witness	\$500.00		

COMMITMENT YOU EXPECT.
EXPERIENCE YOU NEED.
PEOPLE YOU TRUST.



Doucet, Schelbe will make necessary updates to the H&H models and submit to FEMA as a LOMR for final acceptance. It is assumed that only minor changes from the final design (i.e. CLOMR documents) and the final construction will occur. If major changes in the construction occur, then additional scope and fee may be necessary to ensure an accurate LOMR application and modeling updates are submitted. This effort will include up to two (2) rounds of minor FEMA comments associated with the LOMR application. This effort also assumes that Doucet will have the levee accredited by FEMA prior to (or in conjunction with) the LOMR application.

Fee Schedule:

See the attached Fee Schedule for the hourly breakdown by task.

If additional services are required [including construction phase services], these services shall be billed at the following hourly rates:

1. *Principal Engineer - \$219/hr*
2. *Senior Engineer - \$188.5/hr*
3. *Project Engineer - \$147.5/hr*
4. *Engineer - \$127.25/hr*
5. *EIT 2 - \$112/hr*
6. *EIT 1 - \$96.75/hr*
7. *Admin - \$66/hr*

Notes:

1. This engineering fee does not include permit fees to the city, county, TCEQ, USACE, FEMA, or other unanticipated review/permitting authorities.

Attachment A

		Project Manager	Senior Engineer	Project Engineer	Technician	Clerical	Total
No.	Scope of Work	148.00	129.00	95.00	71.00	61.00	
1	Review of soil information and consultation with geotechnical engineer.		4				\$ 492.00
2	Structural engineering and drawings for the floodwall and footing at 60% submittal.	4	24		24		\$ 5,248.00
3	Address review comments.		2		4		\$ 530.00
4	Structural engineering and drawings for the floodwall and footing at 90% submittal.	2	16		24		\$ 3,968.00
5	Address Review comments.		4		4		\$ 776.00
6	Final engineering and construction documents for the floodwall and footing.	2	16		24		\$ 3,968.00
7	Anticipate one meeting with client and consultants during design phase.		4				\$ 492.00
8	Prepare cost estimate for structural items.	2	8				\$ 1,280.00
9	Construction Phase services include:						\$ -
	One site visit		4				\$ 492.00
	Respond to RFIs		6				\$ 738.00
	Review submittals		4				\$ 492.00
10	General administration.					4	\$ 244.00
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
							\$ -
	Total	10	92	0	80	4	\$ 18,720.00

RATE SCHEDULE**Effective January 1, 2019 through December 31, 2019****PERSONNEL**

Blanton & Associates, Inc., provides services on an hourly professional fee basis according to the rates scheduled below:

Project Principal.....	\$225.00
Project Manager.....	\$160.00 - \$180.00
Senior Environmental Professional.....	\$130.00 - \$160.00
Staff Scientist II	\$120.00 - \$130.00
Staff Scientist I.....	\$110.00 - \$120.00
Environmental Technician II	\$ 90.00 - \$110.00
Environmental Technician I.....	\$ 75.00 - \$ 90.00
GIS Analyst/Cartography.....	\$ 95.00 - \$110.00
GIS Technician	\$ 80.00 - \$ 95.00
Clerical/Administrative.....	\$ 60.00 - \$ 70.00

TRAVEL & SUBSISTENCE

All travel expenses, including lodging, are invoiced at actual cost. Cost of mileage for company-owned vehicles is computed at the current IRS rate. Rental automobiles and fuel costs for same will reflect actual costs to the firm. Company boats are billed at a rate of \$500.00 per day plus fuel. Copies will be billed at the rate of \$.05 per page.

PURCHASED SERVICES

All purchased services are invoiced at actual cost. These include, but are not limited to, reproduction, computer time, long distance telephone, consultants, subcontract services, rented or leased equipment, and expendable supplies.

**GEOTECHNICAL INVESTIGATION
FOR
WILLIAMSON COUNTY JUVENILE JUSTICE CENTER
DRAINAGE IMPROVEMENTS
WILCO WAY
GEORGETOWN, TEXAS**

COST ESTIMATE

1.	Engineer's site Visit – 6 Hrs. @ \$165.00	\$ 990.00
2.	Rig Mobilization:.....	650.00
	Support Truck and Crew Travel Time 3 Days @ \$225.00/Day	675.00
3.	Drilling, Logging, and Sampling:	
	Maple Street Embankment	
	11 Borings @ 15 feet – 165 LF @ \$16.00/Ft.	2,640.00
	Levee/Floodwall Alignment	
	7 Borings at 15 feet – 105 LF @ \$16.00/Ft.	1,680.00
	Excavation Area Borings	
	6 Borings at 5 feet – @ \$110.00 Ea.	660.00
4.	Laboratory Testing (Atterberg Limits, Unconfined Compression Tests, Minus #200 Sieve Tests, Moisture Contents, Dry Density, Permeability Tests, Triaxial tests, etc.).....	4,800.00
5.	Engineering Report with Evaluation of Maple Street Dam Embankment, New Levee Flood Wall Recommendations and Suitability of On-Site Excavated Soils for Fill:	2,500.00
	Sub Total	\$ 12,595.00

Additional engineering and lab testing services for in depth stability/settlement analysis for the embankments to meet FEMA Accreditation\$ 5,000.00
Total Estimated Cost\$ 19,595.00

Total estimated costs are expected to range from about \$19,000 to \$21,500.00 depending on the subsurface conditions, extent of laboratory testing and engineering hours required.

CLIENT INFORMATION: (Responsible Billing Party)

This information must be filled out before the geotechnical investigation can be scheduled. The undersigned agrees to the above scope of work and following conditions and is responsible for payment.

WJJC Drainage Improvements
3 June 2019
Page 3 of 4

HOLT
ENGINEERING, INC.

2220 Barton Skyway -- Austin, Texas -- 78704 -- Ph. (512) 447-8166 -- Fax (512) 447-0852