

# EXHIBIT E -Work Authorization

## HIDALGO COUNTY

Professional Engineering Services Contract # C-20-086-03-10

### Work Authorization Form

## WORK AUTHORIZATION NO. 01

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Section I.A. of the Agreement made by and between HIDALGO COUNTY, action herein by and through the Commissioner's Court, hereinafter called the "Owner," and, Half Associates, Inc., professional engineers of McAllen, Texas, hereinafter called "Engineer".

PART 1. SCOPE OF WORK The purpose of this Work Authorization is for the Engineer to provide Professional Engineering Services for the Drainage Study & Assessment Project at Hidalgo County Precinct 4

The scope of services to be provided by the Owner is identified in EXHIBIT "A" – Scope of Services to be Provided by the Owner attached hereto.

The scope of services to be provided by the Engineer is identified in EXHIBIT "B" – Scope of Services to be Provided by the Engineer attached hereto.

PART 2. ESTIMATED COST The estimated cost for services under this Work Authorization is for \$329,000.00. This amount is based upon the costs outlined in the Estimated Cost Proposal attached hereto as EXHIBIT "D".

PART 3. PAYMENT Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Article/Part/Section 6 of the Agreement.

PART 4. FUNDING This Work Authorization No.6 shall be funded through funding source: Account No. \_\_\_\_\_ Requisition Number \_\_\_\_\_ (MUST BE INCLUDED AFTER CC APPROVAL)

PART 5. PERIOD OF SERVICE This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate and terminate upon completion of scopes of the work authorization.

PART 6. RESPONSIBILITIES AND OBLIGATIONS This Authorization does not waive the parties' responsibilities and obligations provided under the Agreement.

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION Acknowledgement and confirmation by Hidalgo County Precinct #4, Commissioner Ellie Torres as to content and detail of this Work Authorization No. 01 .

HIDALGO COUNTY PRECINCT No. 4

BY: Ellie Torres, Commissioner

PART 8. ACCEPTANCE AND APPROVAL This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on \_\_\_\_\_ as indicated below and effective as of \_\_\_\_ day of \_\_\_\_\_, 2020.

THE ENGINEER:

THE OWNER:

HALFF ASSOCIATES INC.

HIDALGO COUNTY

  
By: Raul Garcia, Jr., PE, CFM

\_\_\_\_\_  
By: Richard F. Cortez, County Judge

ATTEST:

By: \_\_\_\_\_  
Arturo Guajardo, Jr., County Clerk

#### LIST OF ATTACHMENTS

ATTACHMENT "A" -Service to be Provided by the Owner  
ATTACHMENT "B" -Services to be Provided by the Engineer  
ATTACHMENT "C" -Work Schedule  
ATTACHMENT "D" -Cost Proposal

# EXHIBIT A

## -Scope of Services to be provided by the Owner

The following provides an outline of the services to be provided by the **OWNER** in the development of the Project.

The **OWNER** will provide to the **ENGINEER** the following:

- (1) Authorization to the **ENGINEER** to begin work in accordance with Section 3 of this Agreement.
- (2) Payment for work performed by the **ENGINEER** and accepted by the **OWNER** in accordance with Section 6 of the Agreement.
- (3) Assistance to the **ENGINEER**, as necessary, to obtain the required data and information from other local, regional, State and Federal agencies that the **ENGINEER** cannot easily obtain.
- (4) Provide any available relevant data the **OWNER** may have on file concerning the project.
- (5) Provide timely review and decisions in response to the **ENGINEER'S** request for information and/or required submittals and deliverables, in order for the **ENGINEER** to maintain the agreed-upon work schedule prepared in accordance with Attachment "C" of this Agreement.
- (6) Attend and participate in progress meetings as required and as coordinated and conducted by the **ENGINEER**.
- (7) Assist the **ENGINEER** in the preparation of the project mailing list; provide representation, a site and stenographer for all public meetings; additionally:  
*Public Meetings*
  - (a) Approve agenda and all exhibits prior to public meeting.
  - (b) Approve date and location of the meeting.
  - (c) Review/approve Public Meeting Report.
- (8) Attend the Preliminary Concept Conference coordinated and conducted by the **ENGINEER** and more particularly identified in Attachment "B" of the Agreement.
- (9) Assist the **ENGINEER** as required in the coordination with the USACE and the Federal Emergency Management Agency (FEMA) and any other coordinating agency or entity.
- (10) Review and approve the Project design criteria.
- (11) Review and approve change orders as required and prepared by the **ENGINEER**.

# EXHIBIT B

## -Scope of Services to be provided by the Engineer

Through project award via Work Authorization, Engineer shall provide Professional Services required to design and specify Building Repair and Renovation Projects. Type of services that may be included as dictated by the individual project requirements consist of: 1) Civil Engineering. Upon Identification by the Owner of specific projects that require the professional services of the Engineer, a detailed scope of work and identification of professional service disciplines required shall be established.

**Halff Associates, Inc. is pleased to submit this Work Authorization No. 01 under the Professional Service Agreement C-20-089-03-10 with Hidalgo County to provide Professional Services for the “Drainage Study & Assessment Project at Hidalgo County Precinct 4”.**

### Project Purpose

Halff Associates (Halff) will provide professional services needed to assess the flood risks located within the unincorporated areas of Hidalgo County Precinct 4. The purpose and goal of the Drainage Study & Assessment at Hidalgo County Precinct 4 is to develop a comprehensive evaluation of the existing drainage conditions by developing an accurate and current understanding of the drainage infrastructure. This understanding will include a comprehensive inventory of existing data, accurate simulations, flood problem area identification, and flood mitigation solutions. A drainage Capital Improvement Project (CIP) booklet, including an objective scoring system and cost estimates, will be developed to address flooding issues.

A detailed scope for the Drainage Study & Assessment Project at Hidalgo County Precinct 4 with specific tasks and associated deliverables are discussed in the following scope of services.

### Project Scope

#### **Task 1: Project Management**

Halff Associates project management activities shall include task leadership and direction, telephone and written communication, project status reports, project progress meetings, project invoicing, and personnel and data management among other general project management activities. Specific meetings beyond staff management coordination and regular communication include the following:

- Attend one (1) project kickoff meeting with staff from the County. The meeting will be coordinated by the Halff Project Manager and is intended to discuss key items such as project schedule, budget, and any specific directives. Halff will provide a preliminary schedule of tasks.
- Attend up to twelve (12) Project Verification/Validation meetings and workshops over the course of the project schedule, to discuss specific tasks such as data collection and inventory, model evaluation, field verification, ranking criteria, etc. Meeting minutes shall be submitted to the

County Project Manager within five (5) working days after each meeting.

- Attend up to two (2) public meetings to inform the public about the project, identify citizen issues, provide public information regarding the current drainage conditions and potential improvement alternatives, and increase public understanding of the planning process. Engineer will develop the necessary exhibits and/or presentation.
- Monthly project status reports shall be provided to the County with the monthly invoice. Progress shall include notes regarding work completed in the preceding billing cycle, work expected to be completed in the next cycle, and any outstanding questions or issues for discussion.

## **Task 2: Data Collection**

Data collection and model inventory tasks will generally include gathering, organizing, and reviewing of all data provided, both hard copy and digital format. Data shall be provided by the County, as well as from other sources such as Hidalgo County, Hidalgo County Drainage District No. 1, FEMA, the U.S Army Corps of Engineers (USACE), and other consultants, if necessary. Data review tasks will generally include comprehensive analysis of all models, reports, record drawings, and GIS information to determine the accuracy and validity of each. Halff will also review the current drainage criteria and work with the County to recommend any potential changes or clarifications that may be needed. Available 2011 LiDAR information will be used to establish surface improvements located within flood areas of the watershed. This does not include survey of any subsurface facilities. Existing underground structures or utilities not accessible will be obtained from record drawings and utility locating services provided by the County. Specific tasks relating to data collection include the following:

- 1) Obtain, Review & Incorporate GIS Data
  - a) Data requests will be directed to the County with additional requests made to outside entities, if necessary.
  - b) Halff will collect and catalogue all relevant GIS data including, but not limited to, storm drain network, terrain (LiDAR) Data, land use/zoning, FEMA mapping, planimetrics, political boundaries, development and subdivisions, detention pond locations, utility information, parcel information, etc. Halff intends to use the LiDAR
  - c) All GIS data gathered will be organized in Geodatabase format for use during the DMP process and will be provided to the County.
- 2) Obtain, Review & Incorporate Hydrologic and Hydraulic Models
  - a) Existing models developed within the project boundary will be requested. These may include models developed for regional detention pond projects, channel improvement projects, large scale developments, etc. A preliminary analysis of the models will be performed to determine relevance.
  - b) Model results will be compared to the effective Digital Flood Insurance Rate Map (DFIRM) data and the flood insurance claim data provided and discrepancies will be identified. The County will request flood insurance claim data from TWDB/TNRIS. For flood insurance claim data, Halff will compare the effective floodplains to specific claim locations to help determine if the flooding is riverine or caused by a localized (site specific) flooding issue.
  - c) Halff will consider the drainage patterns and determine the best modeling tools to utilize. Because of the flatness of the terrain in this area, Halff will provide HEC-HMS for hydrology and HEC-RAS 2D for hydraulic modeling. Specific data and deliverables will be coordinated with County and HCDD1 staff.

- 3) Obtain, Review & Incorporate Drainage Reports and Record Drawings

- a) Drainage reports developed for major development projects or capital projects, including detention, channel improvement, and storm sewer improvement, will be requested from the County for review and implementation into the MDP.
- b) Record or “As-Built” drawings will be requested from the County for improvements including, but not limited to, creek improvements, detention/retention ponds, storm sewer trunk line, and major developments.
- c) Halff will coordinate with County staff to identify locations of previous drainage complaints.
- d) Halff will coordinate with Hidalgo County Drainage District #1 (HCDD1) staff regarding areas and projects that have been completed as a result of previous studies, such as the City of Edinburg 2015 Master Drainage Plan and Hidalgo County 2006 Master Drainage Plan. This will include any updated hydrologic/hydraulic modeling or as-built construction drawings that may have been prepared.

### **Task 3: Drainage Problem Identification**

Halff will compile a list of drainage problem area “hot spots” identified in previous studies based on the data collected in the previous task and other areas as identified by input from the County and HCDD1 staff. Remaining flood and drainage issues will be identified using the best available existing information, drainage complaints, and County known areas of flooding. A field reconnaissance will be conducted to verify drainage problem areas. The following sub-tasks to be conducted for this task include the following.

- 1) Prepare Hydrologic and Hydraulic Models
  - a) Utilize existing H&H models developed for the County and modify subbasins as needed for critical facilities as identified by County staff. Updates may include modification of development levels, updated terrain information, etc. Any new modeling will be consistent with previous modeling and be based on available data including State Soil Geographic (STATSGO) or Soil Survey Geographic (SSURGO) soil information, land use, and other available County data.
  - b) Assist in developing and prioritizing the list of critical facilities for suggested improvements to existing bridge/culvert crossings and future planned developments as they relate to the County’s Transportation Master Plan.
  - c) Based on County recommendations, develop models for critical facilities listed in Task 3.1.b
- 2) Identify Drainage Problems
  - a) Halff will identify drainage problems by reviewing existing H&H models from previous studies and information. The identified drainage problems may include:
  - b) Stream flooding
  - c) Road overtopping
  - d) Building flooding
  - e) Stream erosion
  - f) Roads threatened
  - g) Buildings threatened
  - h) Utility infrastructure threatened
  - i) Local drainage
  - j) Street flooding
  - k) Subdivision (lot) flooding
- 3) Field Reconnaissance
  - a) Halff will conduct a field visit of identified flood risk areas where access is available from public right-of-way (ROW) and of selected road crossings, storm sewer outfalls, retention/detention ponds, and

sections of identified streams. During the site visits, Halff will geo-locate all features, photograph the feature, and include notes regarding the dimensions, conditions, etc.

- b) Limited survey will be conducted in select areas, and as required, to verify existing conditions.
- c) Once the field verification process is complete, the GIS data developed will be evaluated for completeness and correctness and finalized. The data will be provided to the County as part of the final submittal.

#### **Task 4: Develop Drainage Solutions**

##### 1) Flood Mitigation Solutions

A flood mitigation solution will be recommended for up to ten (10) flood risk areas previously identified in Task 3.2 and may include phased improvements broken out by type (i.e. detention, culvert improvements, ditch improvements, storm drain, etc.). Halff will utilize existing H&H models to the maximum extent practicable. A desktop environmental assessment will be conducted to identify potential environmental permitting needs for each flood mitigation solution. Flood protection may include the following structural and non-structural measures as independent and combination solutions:

##### Structural Alternatives:

- Storm drain system improvements
- Road crossing improvements
- Channel improvements
- Detention and Retention Ponds
- Flood walls
- Pump stations

##### Non-Structural Alternatives:

- Identify flood areas and depths
- Require new buildings to be elevated
- Voluntary buy-out program of buildings most prone to flooding
- Hazard classification for low water crossings
- Modifications to current drainage maintenance criteria, policies, or standards

##### 2) Ranking and Categorizing Projects

Using a systematic process, Halff will rank and categorize each evaluated drainage project. The projects will be classified as Large CIP (regional), Small CIP (local), and O&M (small projects) which will be defined with County staff input. When scoring is complete, Halff will provide a draft drainage matrix for solutions developed for County review. The draft solutions will include a one- page project summary that will include the project description, conceptual flood mitigation solution, and probable cost estimate. A FEMA defensible Benefit-Cost Analysis (BCA) will be conducted to support recommendations and requests for federal funding.

##### 3) CIP Prioritization

Halff will meet with County and HCDD1 staff to review the project classifications and confirm objectives and assumptions for the CIP prioritization. The prioritization of the drainage CIP projects will likely be evaluated based on criteria that may include Public Safety, Economic Impact, Environmental Impact, and Project Timing among others. Each of the criteria developed will have a description and scoring values. The conceptual drainage projects will be prioritized based on the criteria scoring.

### **Task 5: Prepare Drainage Master Plan**

The main deliverable for the DMP will include a bound booklet of one-page project summaries to include a mapped location of improvements, project description and cost estimate (similar to what was provided to Precinct #1 by Halff in August 2018). A supplementary technical memo will also be provided discussing methodologies used, data collection and evaluation criteria. Specific tasks relating to the submittal preparation include the following:

- 1) Bound Flood Assessment/DMP Booklet
  - a) Project area summary map w/list of recommended projects within project area
  - b) Project Priority Ranking spreadsheet
  - c) Existing conditions floodplain maps with at-risk structures identified
  - d) One-page project summary sheets w/mapped improvements, project description and cost estimate.
- 2) Digital Data Deliverable
  - a) Prepare the DMP Geodatabase for submittal. The Geodatabase will include the feature classes relating to the model inventory and report/plan inventory as well as the field data collected. Other relevant digital data collected will be organized into the Geodatabase as well. Provide all models collected as well as any model updates. The models will be catalogued and include the location, date prepared, and any other information available. The associated GIS features will be included in the Geodatabase. The evaluation will be provided as part of the narrative; but notes will be included in the GIS.
  - b) Provide all photos taken during the field verification process in .jpg format. Photos will be compressed to a size not to exceed 1MB. The associated GIS features will be included in the Geodatabase.
  - c) Provide the full library of scanned documentation, including reports and record drawings.
- 3) Map the 10-, 25-, 50- and 100-year floodplains. Halff assumes that the most feasible flood solutions will be to protect from the 10- and 25-year flood events, but this will be verified and compared against the 100-year storm. Atlas 14 rainfall data will be used and 2011 LiDAR terrain.
- 4) Technical Memo
  - a) Prepare a technical DMP memo, including a narrative discussing the assumptions and procedures of each task, relevant figures and tables, meeting notes, and a log of project decisions. Copies of the digital information will be included on CD/DVD with the report.

### **Task 6: Quality Assurance/Quality Control**

Each task will be subjected to internal QA/QC by a separate water resources team at Halff. Associated documentation will be provided with the final report. Specific tasks relating to the QA/QC process include the following:

- 1) QA/QC Procedures
  - a) The QA/QC program will include a multi-level approach to ensure that senior members review, comment, and approve the completed work. Quality control reviews shall be initiated for the data collection, GIS data development, and final report elements of the work. All project materials

presented to the County as draft or final products will be accompanied by QA/QC certification. QA/QC will be performed for the following specific tasks:

- i) Data and Model Inventory – Including the data scans and associated Geodatabase
  - ii) Field Data Verification – Including notes and photos taken as well as the GIS data developed in the field.
  - iii) Drainage Master Plan – Including the booklet, technical memo, exhibits, and tables. The final digital submittal will also be reviewed.
- b) The ENGINEER shall retain all work products generated and information gathered and used during the course of the project. This includes, but is not limited to, base data as well as intermediate work products.

# EXHIBIT C

## -Work Schedule

A detailed work schedule for each **Work Authorization**, identified and more particularly described in **Article 7** of this Agreement, shall be prepared by the **Engineer** to be submitted and approved by the Owner in writing for each **Work Authorization**. The work schedule will provide specific work sequence and definite review times by the **Owner** and the **Engineer** of the work performed.

The **Engineer** will diligently pursue the completion of each **Work Authorization** as defined by the milestones and deliverable due dates outlined in each **Work Authorization**'s associated work schedule.

The **Engineer** will inform the **Owner** (in reasonable advance of the delay) should the **Engineer** encounter delays that would prevent the performance of all work in accordance with the established work schedule.

### **ANTICIPATED SCHEDULE**

Halff will commence work on this project following the kick-off meeting with Hidalgo County Precinct 4 and the HCDD1 staff. Halff anticipates completion of all effort and submittal of deliverables within 12 months of this kick-off meeting. A detailed project schedule will be provided and discussed at the kick-off meeting.

# EXHIBIT D

## Cost Proposal

### Fee Schedule for Drainage Study & Assessment Project at Hidalgo County Precinct 4

<b>Task 1 – Project Management</b>	<b>\$38,000.00</b>
<b>Task 2 – Data Collection</b>	<b>\$24,000.00</b>
<b>Task 3 – Drainage Problem Identification</b>	<b>\$105,000.00</b>
<b>Task 4 – Develop Drainage Solutions</b>	<b>\$102,000.00</b>
<b>Task 5 – Prepare Drainage Master Plan</b>	<b>\$42,000.00</b>
<b>Task 6 – Quality Assurance / Quality Control</b>	<b>\$16,000.00</b>
<b>Expenses</b>	<b>\$2,000.00</b>

**Total:** **\$329,000.00**

**\*\*\*This fee shall be lump sum and invoiced as percentage of completion throughout the project schedule.**

# CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 2

Complete Nos. 1 - 4 and 6 if there are interested parties.  
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

## OFFICE USE ONLY CERTIFICATION OF FILING

Certificate Number:  
2020-595949

Date Filed:  
03/05/2020

Date Acknowledged:

**1 Name of business entity filing form, and the city, state and country of the business entity's place of business.**

Half Associates, Inc.  
McAllen, TX United States

**2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

Hidalgo County Precinct No. 4

**3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

C-20-086-03-10  
Professional Engineering Services for Drainage Study & Assessment Project

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary
	Zapalac, Russell	Austin, TX United States	X	
	Tanksley, Dan	Richardson, TX United States	X	
	Sagel, Joseph	Richardson, TX United States	X	
	Murray, Menton	McAllen, TX United States	X	
	Moya, Mike	Austin, TX United States	X	
	Miller, Steven	Austin, TX United States	X	
	Kunz, Pat	Richardson, TX United States	X	
	Ickert, Andrew	Fort Worth, TX United States	X	
	Jackson, Todd	Austin, TX United States	X	
	Edwards, Mark	Richardson, TX United States	X	
	Bargainer, Tim	Austin, TX United States	X	
	Baker, Jessica	Richardson, TX United States	X	
	Adams, Bobby	Houston, TX United States	X	

# CERTIFICATE OF INTERESTED PARTIES

FORM 1295

2 of 2

Complete Nos. 1 - 4 and 6 if there are interested parties.  
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

## OFFICE USE ONLY CERTIFICATION OF FILING

**1 Name of business entity filing form, and the city, state and country of the business entity's place of business.**

Certificate Number:  
2020-595949

Half Associates, Inc.  
McAllen, TX United States

Date Filed:  
03/05/2020

**2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

Date Acknowledged:

Hidalgo County Precinct No. 4

**3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

C-20-086-03-10  
Professional Engineering Services for Drainage Study & Assessment Project

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary

5 Check only if there is NO Interested Party.

**6 UNSWORN DECLARATION**

My name is Raul Garcia Jr., and my date of birth is 9/20/75

My address is 5000 W. Military Hwy #100, McAllen, TX, 78503, US  
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Hidalgo County, State of TX, on the 5<sup>th</sup> day of March, 2020  
(month) (year)

  
\_\_\_\_\_  
Signature of authorized agent of contracting business entity  
(Declarant)