SE-260

AMENDMENT NO: 1

AMENDMENT TO PROFESSIONAL SERVICES CONTRACT

AGENCY: SC Office of Resilience

PROJECT NAME: Dillon County Infrastructure

PROJECT NUMBER: D30-N014-MJ

NAME OF FIRM: Weston & Sampson

This Contract is changed as follows: *(Insert description of change in space provided below.)*

Contract amendment to increase scope of work to include additional modeling efforts necessitated by field conditions and existing model discrepancies.

ADJUSTMENTS IN THE CONTRACT SUM:

1. BASIC & SUPPLEMENTAL SERVICES FEE:

Contract Fees Prior to This Amendment		$683,500.00
Change in Fees Per This Amendment	$19,690.00	
Total Revised Basic & Supplemental Services Fee:		$703,190.00

2. ADDITIONAL SERVICES FEE:

Contract Fee Prior to This Amendment		$0.00
Change in Fee Per This Amendment	$0.00	
Total Revised Additional Services Fee:		$0.00

3. REIMBURSABLE EXPENSES:

Contract Fee Prior to This Amendment		$0.00
Change in Amount Per This Amendment	$0.00	
Total Revised Reimbursable Expenses:		$0.00

4. TOTAL CONTRACT AMOUNT:

Total Contract Prior to This Amendment		$683,500.00
Total Amendment Amount	$19,690.00	
Total Revised Contract Amount:		$703,190.00

AGENCY ACCEPTANCE AND CERTIFICATION

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

Change is within Agency A-E Contract Amendment Certification of: $19,690.00 ○ **Yes** ● **No**

BY: Phleisha Lewis **TITLE:** Mitigation Director **DATE:** 08/08/2023

APPROVED BY: [signature] **DATE:** 08/11/2023

(OSE PROJECT MANAGER)

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AMENDMENT REQUEST NO.: 1

AMENDMENT REQUEST SUMMARY – PROFESSIONAL SERVICES CONTRACT

AGENCY: South Carolina Office of Resilience

PROJECT NAME: Dillon County Stormwater Infrastructure Project

PROJECT NUMBER: D30-N014-MJ

NAME OF FIRM: Weston & Sampson

This Contract is requested to be changed as follows: *(Insert description of change in space provided below.)*
Reconstruction of existing model in the project basin

ADJUSTMENTS IN THE CONTRACT SUM:

1.	**REQUESTED CHANGE TO BASIC & SUPPLEMENTAL SERVICES FEE:**		
	Change in Fee Per This Amendment	$19,690.00	
2.	**REQUESTED CHANGE TO ADDITIONAL SERVICES FEE:**		
	Change in Fee Per This Amendment	$0.00	
3.	**REQUESTED CHANGE TO REIMBURSABLE EXPENSES:**		
	Change in Amount Per This Amendment	0	
4.	**REQUESTED CHANGE TO TOTAL CONTRACT AMOUNT:**		
	Total Amendment Amount:		$ 19,690.00

A/E ACCEPTANCE:

BY: _____ **Date:** 8/4/2023
(Signature of A/E Representative)

Print Name of A/E Representative: Meghan E. Moody

Instruction to A/E: Attach documentation as needed to justify the requested change to the contract and submit to Agency.

Weston & Sampson

3955 Faber Place Drive, Suite 200, North Charleston, SC 29405
Tel: 843.881.9804

July 28, 2023

Pamela Kendrick
Environmental & Infrastructure Program Manager
South Carolina Office of Resilience
632 Rosewood Drive
Columbia, SC 29201

Re: SCOR Dillon Stormwater Improvements - Modeling Scope Addition

Dear Ms. Kendrick:

Weston & Sampson's understanding of the scope of work associated with modeling efforts for the City of Dillon and Dillon County projects was that the existing model conditions should be verified as consistent with field conditions, and the proposed upgrades as outlined in the provided scope based on the City of Dillon 2021 Stormwater Master Plan should be confirmed as sufficient to provide stormwater improvements. Upon receiving field survey, Weston & Sampson noted significant elevation differences between the existing conditions model provided by AECOM and the field survey conditions.

Weston & Sampson's survey was conducted by Patriot Surveying LLC with PLS Jason Young. The survey data was collected through multiple investigative means including LiDAR, traditional ground survey, and SUE level B and A. The datum associated with the survey is NAVD88 and benchmarks were set for the project area. The survey was provided in AutoCAD 2019 using SC State Plane coordinates and international foot. A large portion of the Lucius Channel was surveyed using drone LiDAR equipment, with ground shots were taken every 500 LF of the channel to confirm LiDAR results. When the survey was compared to the existing conditions model, variations in elevations ranging from 2 ft. to over 5 ft. were noted. The field survey was found at higher elevations than what was included in the model. Elevation differences were more severe toward the Lucius channel and the downstream most pipes in the system. Invert elevations of the pipes closest to the upstream portions around E. Washington St and 1st Ave varied approximately 2 ft while the invert elevations of the pipes that outfall into the Lucius Channel differed by 4 ft. to 5 ft.

No record drawings exist for the stormwater system. Reference drawings for the stormwater system used for the AECOM Stormwater Masterplan were developed by B. P. Barber in 1975. The drawings indicate upgrades that were proposed in 1975 and include detailed information on the existing stormwater system at the time including inverts, rim elevations, pipe sizes, and lay lengths; however, they were not stamped by a professional engineer, marked for construction, or denoted as-builts. Most of the existing system shown in the 1975 plans were confirmed to still be in place today by AECOM when developing the Masterplan through field spot checks. Weston & Sampson concurs that the pipe locations and sizes denoted in the 1975 existing system plans are consistent with the findings of the field survey; however, the elevations in the plans do not match present day field conditions. As stated in the 2021 Masterplan report, the 1975 existing conditions plans, along with Dillon GIS, were relied upon to build the model with field reconnaissance performed only to locate/verify missing elements. No datum was referenced in the 1975 plans, but typical datums for the time were NVGD29 or MSL, both of which only account for 1 ft or less variation from NAVD88. No known datum can explain the severe variations in elevations between field and model/plans, nor can the inconsistent elevation differences be explained by a known differing attribute. Weston & Sampson spent approximately 4 weeks identifying the elevation differences, tracking down any record drawings, questioning Patriot Surveying to verify methods, confirming how AECOM developed the model, and reviewing the Masterplan. Weston & Sampson suspects that the 1975 existing system plans are responsible for the model inaccuracies.

Attempts were made to use the model by matching invert elevations of the uppermost portions of where the project route survey meets the existing storm system. Due to the inconsistent variations in elevations (i.e., inverts on Washington St. differing by 2 ft while inverts on 1st Ave differ by 3 ft) Weston & Sampson was unable to match up the model with the survey. It was also found during this attempt that some elements within the relevant basin but outside of the project scope are sloped backwards, not connected properly, or have inconsistent invert elevations.

Weston & Sampson feels the responsible path forward is to rebuild the model of the basin within which the project routes are located utilizing the field survey for relevant project portions and system elevations. Verified invert elevations can be used to appropriately elevate the rest of the system utilizing the slopes and pipe sizes referenced in the 1975 existing system plans to create both an existing and proposed condition model. These models will provide realistic information on the efficacy of our planned improvements and support design development. We estimate that the efforts associated with investigating how the variations between model and survey occurred and the time to rebuild the model for our project use account for approximately 4 weeks of delay in schedule and contribute $19,690 of additional coordination and model development costs. Please refer to the table below for a breakdown of efforts.

Please don't hesitate to reach out if there are any additional questions.

Task	Total Staff Hours (Team Ldr + Proj Mangr + Proj Eng + Eng 1)					Cost				
	Dargan to Washington	RR Xing	Lucius Channel	Riverdale	Total	Dargan to Washington	RR Xing	Lucius Channel	Riverdale	Total
Investigate Discrepancies in Model and Survey	16	12	8	10	46	$2,500	$1,875	$1,250	$1,565	$7,190
Anticipated Efforts to Create Basin Model	22	18	24	16	80	$3,438	$2,812	$3,750	$2,500	$12,500
Total	38	30	32	26	126	$5,938	$4,687	$5,000	$4,065	$19,690

SCOR Project Number Breakdown Totals

- IP-21-1701-02 10010623 4600925331, City of Dillon – Dargan to Washington: $5,938
- IP-21-1701-03 10010622 4600925320, City of Dillon – Railroad Crossing: $4,687
- IP-21-1701-01 10010621 4600925318, City of Dillon – Lucius Rd: $5,000
- IP-21-1700-01 10010620 4600925333, Dillon County – Riverdale Project: $4,065

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.

Paige Lux

Paige Lux, PE
Project Manager

Accepted: 8/2/2023
Pam Kendrick, Infrastructure Program Manager