

EXHIBIT 1:
City of San Marcos Scope and Fee Proposal
for 2D Cottonwood Flood Mitigation Analysis
July 7, 2020

INTRODUCTION:

The City of San Marcos contracted Halff Associates, Inc. (Halff) to produce a 2-Dimensional (2D) XPSWMM model and regulatory HEC-RAS models of the Cottonwood Creek overflows along the IH-35 corridor. Efforts associated with the 2D model were summarized in the Cottonwood Overflow 2D Modeling memorandum dated December 22, 2016 with a supporting addendum memorandum dated March 10, 2017. Efforts associated with the 1D HEC-RAS models were summarized in the Cottonwood Creek LOMR memorandum dated January 26, 2018. Due to recent flooding validated with detailed hydrologic and hydraulic analysis in this area, the City wishes to evaluate flood mitigation options to reduce flooding along Interstate Highway 35 (IH-35) caused by streams within the Cottonwood Creek watershed. Mitigation alternatives may include detention, channel/ditch improvements, and IH-35 culvert improvements with the goal of reducing IH-35 overtopping.

The City has asked Halff to provide a proposal to evaluate flood mitigation options to reduce flooding along the IH-35 corridor in the Cottonwood Creek watershed. The following scope of work is provided to perform and document the mitigation analysis.

SCOPE OF WORK:

Task 1: Project Management

- Two (2) meetings with City of San Marcos staff to present results of the mitigation analysis and draft memorandum.
- General project management tasks including coordination, progress reporting and invoicing.

Task 2: Hydrologic Analysis

- Update the Cottonwood LOMR hydrology with the proposed Stormwater Technical Manual Atlas 14 rainfall with a frequency temporal distribution.

Task 3: 2D Model Development

- Develop a 1D/2D InfoWorks ICM model of the Cottonwood Creek watershed near IH-35.
 - The 1D portion of the model will be based on the Cottonwood Creek LOMR HEC-RAS models while the 2D overland mesh will be developed using the 2017 LiDAR.
 - The IH-35 storm drainage network identified in the XPSWMM model will also be integrated into the updated 2D model.
 - Modeling standards shall be consistent with the Blanco/San Marcos and Willow Springs/Purgatory ICM models.

Task 4: Conceptual Flood Mitigation Analysis

- Evaluate five (5) conceptual flood mitigation alternatives to reduce flooding along IH-35 in the Cottonwood Creek watershed using the newly developed 1D/2D model.
 - Perform hydrologic analysis to evaluate impacts of potential regional and site detention including regional detention options evaluated in the 2015 Cottonwood mitigation

analysis. Detention shall also be evaluated for potential regional solutions for future development.

- Perform hydraulic analysis to evaluate potential channel/ditch improvements and crossing improvement options along IH-35.
- Identify the floodplain extent, water surface and property impacts resulting from the conceptual flood mitigation options.
- Advance two (2) conceptual flood mitigation alternatives to reduce flooding along IH-35 in the Cottonwood Creek watershed.
 - In coordination with City staff, review viable flood mitigation options to identify options for advanced analysis.
 - Refine the hydrologic, hydraulic and impact analysis resulting from the agreed upon conceptual flood mitigation projects.
 - Prepare engineers estimates of probable cost for two (2) agreed upon conceptual flood mitigation projects.

Task 5: Documentation and QAQC

- Final models will undergo a thorough quality control review.
- Prepare alternatives analysis documentation. This documentation will include a description of the analysis and simulation results in relation to the existing conditions.

FEE:

Task	Fee
Task 1: PM	\$8,000
Task 2: Hydrologic Analysis	\$9,000
Task 3: 2D Model Development	\$31,000
Task 4: Conceptual Flood Mitigation	\$12,000
Task 5: Documentation and QAQC	\$10,000
TOTAL	\$70,000

TIMELINE:

Project will be completed within 6 months from Notice to Proceed.