



October 24, 2019

Rohit Vij, PE
Senior Engineer | Capital Improvements/Engineering
630 E Hopkins
San Marcos, TX 78666

**Subject: Wallace Addition Offsite Drainage Improvements Project
 Scope & Fee Proposal for Engineering Services**

Dear Mr. Vij:

BGE, Inc. is pleased to submit a proposal to the City of San Marcos (City) for engineering services for the Wallace Addition Offsite Drainage Improvements Project (Project). Engineering services will be conducted for the Preliminary Engineering Phase, which will analyze the drainage area surrounding and within the Wallace Addition Neighborhood, generally located as follows: Staples Rd. (FM 621) to the south, Flores St. to the north, Tampico St. to the west, and an easement between the Wallace Addition and the Texas Parks and Wildlife Department's AE Woods Fish Hatchery to the east.

The scope of services in Exhibit 1 includes tasks necessary to perform Preliminary Engineering. Exhibit 2 includes a breakdown of hours and the associated fee proposal anticipated for the execution of the Project. Exhibit 3 shows the proposed Project schedule. Exhibit 4 shows the general area to be surveyed as described within the scope of services under Task 2.b.ii.

The proposed fee for this project is \$168,105.00 in basic services.

Thank you very much for this opportunity and we look forward to the successful completion of your Project. Please feel free to contact me should you have any questions or would like to discuss in more detail.

Sincerely,

A handwritten signature in blue ink, appearing to read "Francisco Arce", written in a cursive style.

Francisco Arce, P.E., CFM
Project Manager
BGE, Inc.

EXHIBIT 1

Scope of Services

PROJECT BACKGROUND

In 2018, the Wallace Addition drainage improvements feasibility study was initiated to identify improvements required to mitigate flooding. As a result of said study, it was determined that the existing Cape St. channel and the Staples Rd. ditch and associated culverts do not have adequate capacity to convey 25-year fully developed storm event without spilling out of their banks. This lack of conveyance capacity results in stormwater spilling over Staples Rd. and creating a localized flooding condition within the Wallace Addition neighborhood. Recommendations included:

- Culvert upsizing on Cape St.,
- A ditch diversion via a proposed culvert under Staples Road,
- A new open channel along the TPWD AE Woods Fish Hatchery property to contain 25 year fully developed storm.

It is anticipated that the proposed improvements will alleviate surface runoff and localized flooding issues currently experienced in the neighborhood.

BGE has been procured to develop an updated preliminary engineering report for the City of San Marcos' (City) Wallace Addition Drainage Improvements Project (Project). Anticipated significant engineering services include the following:

- 2-D model, analysis, study, and design recommendations of the drainage area roughly encompassing the following boundaries: Staples Rd. (FM 621) to the south, Flores St. to the north, Tampico St. to the west, and an easement between the Wallace Addition and the Texas Parks and Wildlife Department's AE Woods Fish Hatchery to the east.

SCOPE OF SERVICES

Task 1 – Project Management

- a. Project coordination: Includes general coordination and correspondence with the project team regarding project scope, schedule, and budget.
- b. Monthly invoices, schedule, budget, and progress updates to the City's project manager.

Task 2 – Preliminary Engineering

Upon written Notice to Proceed from the City, BGE will commence with the Preliminary Engineering Phase; the primary goal of which is to evaluate existing infrastructure and provide recommendations, including estimated costs, on appropriate long-term improvements for the project area. Detailed tasks are as follows:

- a. Data Collection: includes, but is not limited to the following,
 - i. Existing City hydrologic and hydraulic models;
 - ii. Available GIS data consisting of existing aerial photography, one-foot topography, road centerlines, and information relating the existing hydrologic and hydraulic models.

- iii. City standards including typical street sections and standard drainage details.
- iv. As-built plans for the detention facilities (private and public), street, and utilities within identified study areas.
- v. Previously conducted flood studies.
- vi. Conduct two (2) site visits.

b. Field Survey

- i. Survey of miscellaneous topographic elevations from ROW boundaries for validation and acquisition of data within the project area for the purposes of creating a hydraulic model.
- ii. Topographic design survey for the recommended improvements will be conducted. The general areas of topographic survey include:
 - The drainage channel along the Right of Way line at Cape St. and Staples Rd. from FM 123 to the property line at the Texas Parks and Wildlife (TPWD) AE Woods Fish Hatchery property.
 - A 30-foot-wide swath of property on the TPWD AE Woods Fish Hatchery property from Staples Road to Flores St.
 - The general area north of Flores St. at a proposed channel tie-in location.

c. Hydraulic and Hydrologic Engineering

i. Flood Risk Reduction Review

- 1. Channel Capacity - Review of channel capacity within the existing easements leading to the San Marcos River. There is no apparent modeled channel in this sub-basin leading to I-35. BGE will investigate benefits of further channel excavation within easements, leading to the San Marcos River.
- 2. Constrictions - Review of constrictions at the drainage crossings of the Staples Road and SH 123 at the southwest border of the Wallace Addition Neighborhood.
- 3. Review Hydrologic and Hydraulic Models – Review the current HEC-HMS and HEC-RAS models obtained from the City and provide enhancements/updates based on updated City Stormwater Technical Manual flood criteria.
- 4. A 2-D hydraulic model will be prepared to determine localized flow patterns and identify flood prone areas within the sub-basin. The 2-D model will be developed with consideration to the NOAA Atlas 14 precipitation frequency values to determine conveyance issues and possible relief options. The City will provide rainfall data for the various storm frequency events required by the City.

ii. Channel Stability Improvement Review

- 1. Stormwater Outlet Stabilization - Review energy dissipation features and proposed stabilization plan for stormwater outlets, where necessary.
- 2. Wallace Addition Improvements - Review drainage pattern within the Wallace Addition Neighborhood and determine effects of improvements on overall capacity.

3. Bank Stabilization – Where necessary, review bank stabilization options, including wrapped soil lifts, limestone walls, and green gabions.
4. Grade Control - Review inset pilot channel / grade control plans.
- iii. Riparian Restoration Improvements: Consider the feasibility of riparian zone improvements and implementation of the preliminary inspection and maintenance plan and associated maintenance costs.
- iv. Easement Review: Verification of existing easements. Review the adequacy of the existing drainage easements for the proposed channel improvements. Review and evaluate temporary easement recommendations.
- v. Constructability Review: Review the project constraints in terms of equipment access and constructability at the various locations where improvements are recommended.
- vi. Conduct Utility Relocation / Coordination Review: Review identified utility constraints and coordination, and if necessary, recommendation for subsurface utility engineering investigations at locations of recommended alternatives.
- vii. Phasing Review: Evaluate recommended prioritization and phasing of proposed improvements for various sections within the sub-basin reach.
- viii. Permit Requirements Review: Review and confirm a list of permit requirements.
- d. Preliminary Engineering Report (PER): BGE will develop a preliminary engineering report consisting of recommendations for infrastructure improvements within the project area. Low Impact Development and water quality features alternatives will be evaluated and if feasible and concurred by City staff, will be incorporated into the design. Aspects of the PER include:
 - i. Development of drainage sub-basin map. The recommendations will be designed to convey stormwater up to the 25-year event (and 100-yr event, if feasible).
 - ii. Existing outfall ditches will be evaluated to ensure sufficient capacity to drain the 25-year storm event (and 100-yr event, if feasible).
 - iii. The final recommended alternative for offsite improvements (excluding profile or cross sections of the channel), progressed to a 30% design level, will be developed and included in the PER.
 - iv. Based on the conceptual layouts, BGE will prepare probable construction costs for each component with a margin of error of $\pm 25\%$. The City will provide BGE with approximate real estate costs including, but not limited to, property values and easement costs if necessary.
 - v. Prepare Schedule: Develop schedules for preliminary design and construction for the various reaches. The schedule will include any proposed phasing plan.
 - vi. PER Workshop: Conduct a meeting with City staff upon completion of individual reviews of PER to provide consensus on concurrence and/or alternate recommendations.

Deliverable: BGE will prepare a PER that will include the following:

- Results of the existing conditions drainage analysis,
- Development of up to three (3) drainage design alternatives and ROW/easement needs,
- A recommendation and 30% design (plan view, excluding profile or cross sections of channels) of a final design alternative,
- Permitting requirements for all recommended improvements,

- Opinion of probable construction costs,
- An updated schedule and potential project phasing. BGE will submit an "Issued for Review PER" in a digital (.pdf) format as well as a "Final PER" with comments/responses incorporated.

ASSUMPTIONS: The following assumptions were made in preparation of this scope proposal. If a specific service is determined to be necessary for the project, BGE will provide a separate scope and fee proposal for the City's approval.

- Engineering design for the 60% through Final submittal phases for of the recommended improvements is not included in this scope and fee proposal. It is assumed that 30% recommended improvements will be developed at the PER stage and an additional services proposal will be developed that will address the 60%, 90%, and Final design milestones. .
- A complete street assessment of the Wallace Addition Neighborhood is not included as it is anticipated that any pavement restoration is limited to hot mix overlay of areas impacted by the excavation envelope.
- A traffic control plan is assumed to be unnecessary; however, if after preparation of the drainage PER, a traffic control plan is deemed necessary, BGE will prepare an additional services proposal for said work.
- A Storm Water Pollution Prevention Plan (SW3P) will be prepared by the Contractor.
- BGE will not assist the City preparing applications and supporting documents for government grants, loans, or planning advances and providing data for detailed applications. If deemed necessary, BGE will prepare a separate scope and fee document for consideration and approval by the City.
- BGE is not responsible for unforeseen, concealed, or differing site conditions, or changes to the project due to the presence of hazardous substances of any form.
- Cultural resources and archeological investigations are not included in this scope proposal, but may be necessary based on final improvement recommendations in the PER phase. A separate scope and fee proposal will be prepared and submitted to the City for approval prior to execution of said work.

EXHIBIT 2**City of San Marcos - Engineering & Capital Improvements Department
FEE PROPOSAL BREAKDOWN**

Project: **Wallace Addition Drainage Improvements**
 Prime Consultant: **BGE, Inc.**
 Proposal Date: **10/24/2019**
 Prepared By: **Roman D. Grijalva, PE**

	Principal (QC)	Sr. Project Manager	RPLS	Project Engineer	EIT III	CADD Tech III / Eng Tech III (GIS)	Survey Crew	Admin/Clerical		
	\$250.00	\$185.00	\$180.00	\$135.00	\$110.00	\$125.00	\$165.00	\$100.00		
TASK CODE AND DESCRIPTION	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	TASK HOURS	TASK / PHASE FEE
Task 1 - Project Management	0	24	0	8	0	0	0	4	36	\$5,920.00
a. Project Coordination		16		8					24	\$4,040.00
b. Monthly invoicing, progress updates (4 month duration)		8						4	12	\$1,880.00
Task 2 - Preliminary Engineering	6	40	10	157	372	420	222	6	1233	\$162,185.00
a. Data Collection		8	2	12	20		30		72	\$10,250.00
b. Field Survey									0	
Staples/Cape St. (6 acres)			4			32	72		108	\$16,600.00
Along Fish Hatchery (17 acres)			4			32	120		156	\$24,520.00
c. Hydraulic and Hydrologic Engineering	2	16		80	176	160			434	\$53,620.00
d. Preliminary Engineering Report and 30% Design	4	16		65	176	196		6	463	\$57,195.00
										\$0.00
TOTAL BASE FEE WITH HOUR BREAKDOWN	6	64	10	165	372	420	222	10	1269	\$ 168,105.00

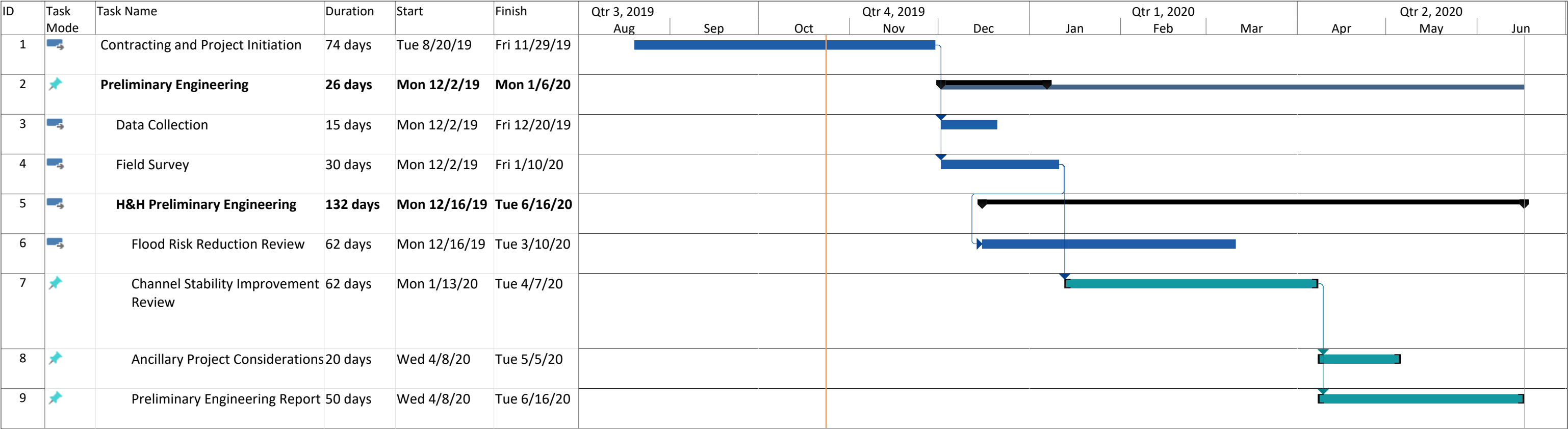


Exhibit 3: Wallace Addition Schedu
Date: Thu 10/24/19

Task

Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

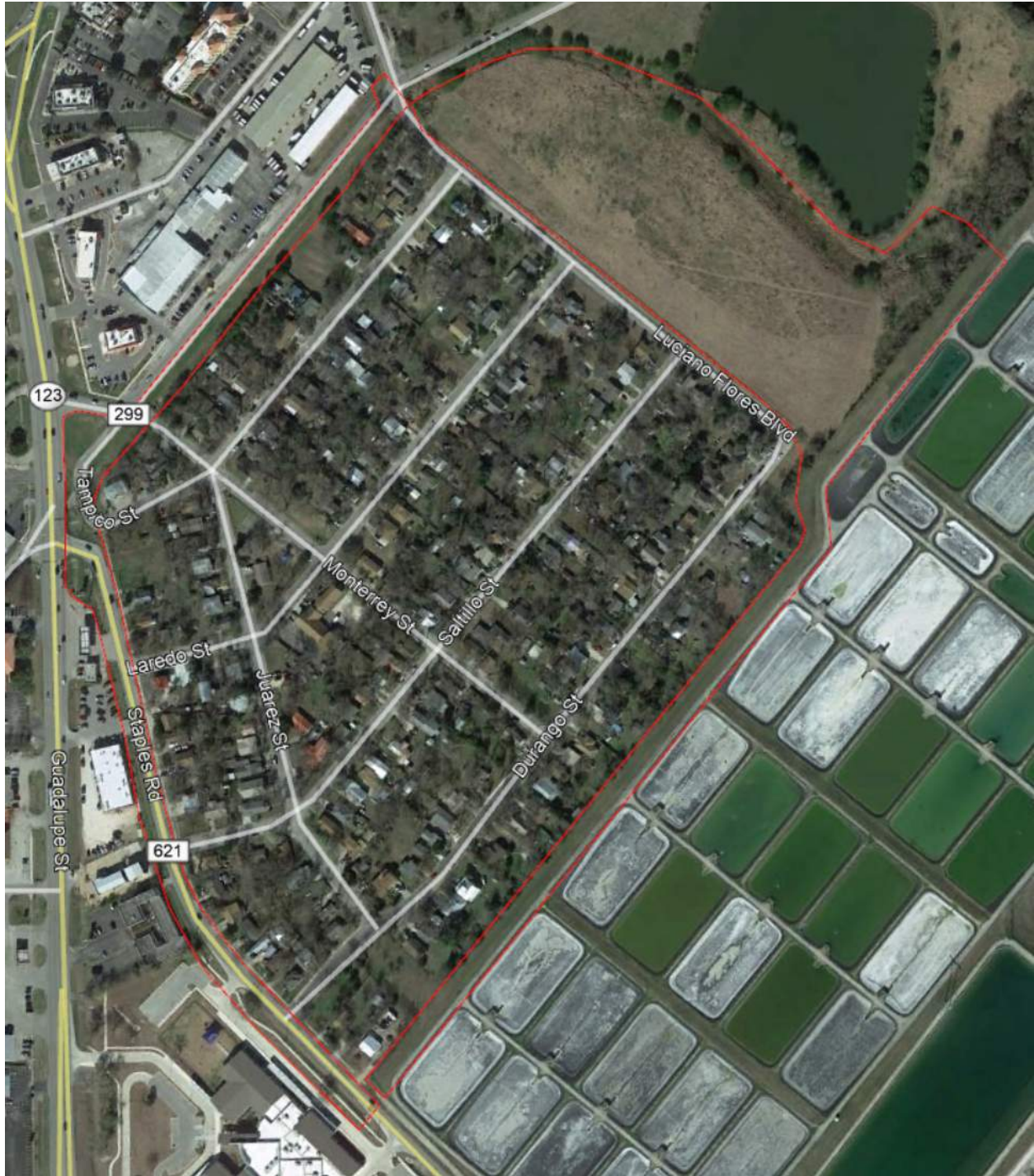
Start-only

Finish-only

Deadline

Progress

EXHIBIT 4



General Area to be Surveyed