



Text File

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Title

Consider and take action on a resolution authorizing a professional services agreement with Kimley-Horn and Associates, Inc. (K-H) for design work related to the Clear Creek Tributaries Select Clearing and Desnagging Project (DR1910) in an amount not to exceed \$362,900 (Director of Engineering)

..Background:

Approval of this resolution will authorize the City Manager to enter into an agreement with K-H to design drainage improvements along Magnolia Creek, Cedar Gully, Landing Ditch, and Newport Ditch for an amount not to exceed \$362,900.

In March 2019, a channel capacity analysis for League City was conducted by K-H. The study reviewed the following portions of four (4) Clear Creek tributaries:

- Cedar Gully from Clear Creek to FM 518 (DR1910A)
- Landing Ditch from Clear Creek to FM 518 (DR1910B)
- Newport Ditch from Landing Ditch to FM 518 (DR1910C)
- Magnolia Creek from Clear Creek to FM 518 (DR1910D)

This analysis confirmed that by removing vegetation within the channel banks of the selected areas, these tributaries would see a significant increase in their overall channel capacity:

1. The 4,200 LF section of Cedar Gully will see a 38% increase (from 2,321 cfs to 3,095 cfs)
2. The 760 LF section of Landing Ditch will see a 34% increase (from 2,908 cfs to 3,873 cfs)
3. The 5,600 LF section of Newport Ditch will see a 56% increase (from 2,715 cfs to 4,210 cfs)
4. The 8,400 LF section of Magnolia Creek will see a 53% increase (from 1,555 cfs to 2,204 cfs)

This project would allow for more channel capacity while addressing some existing erosion issues which could mean removal of dead and diseased trees and trees within the channel/channel banks or near the top of bank (if there is risk of falling), and/or limited correction of the channel's cross-section to a more uniform earthen pattern. To put this project into perspective, once completed, the 4 tributaries will be able to convey an additional 3,883 cubic feet per second (a little over 29,000 gal./sec) of water to Clear Creek. This also means that these tributaries have more storage capacity during storm and surge events which will allow for greater flood protection to the residents that drain directly into the tributaries (Countryside, Oak Creek, Rustic Oaks, Newport, The Landing and Clear Creek Village Subdivisions to name a few).

While this study was not completed in time to be discussed with the other proposed Drainage Projects noted in the City's recently passed May 2019 General Obligation Bond Referendum, it is a very important project for our residents and as a result, Staff recommends starting this project now.

For this project, K-H will provide engineering services for the select clearing and desnagging of portions of Magnolia Creek, Cedar Gully, Landing Ditch, and Newport Ditch. At this time, it is anticipated that

two (2) U.S. Corp of Engineers (USACE) Nationwide Permits will be needed USACE Nationwide Permits typically take 6 to 9 months to obtain.

This PSA for engineering services will provide

- a boundary and topographic survey of the project limits for Magnolia Creek, Cedar Gully, Landing Ditch and Newport Ditch. The proposed cost for this activity is \$96,700.
- a Geotechnical Engineering Report for the project area will be prepared. The preparation of this report will include field investigations and laboratory testing. The field work will consist of soil borings along the channels at a rate of approximately 1 bore for every 750' of channel. The laboratory testing will be completed using these soil samples. These tests will determine the soil's strength characteristics and to evaluate both the short- and long-term deformation and swell properties. The engineering report will address site conditions at the boring locations, drainage channel recommendations, analyses of the stability of channel slopes, earthwork recommendations and any construction considerations that may need to be looked at when coupled with other study recommendations. The proposed cost for this activity is \$19,600.
- a Hydrologic and Hydraulic Analysis (H&H) of Magnolia Creek, Cedar Gully, and Landing Ditch from FM 518 to Clear Creek and Newport Ditch from Landing Ditch to Clear Creek. The H&H study will look at the proposed improvements from the March 2019 Study and then modify those improvements using Atlas 14 parameters with the intent of conveying the calculated 100-yr peak flow in the channel ROWs and maintaining non-erosive velocities in the 2-, 10-, and 100-yr events. The study will also provide an Opinion of Probable Construction Costs for outlined improvements. The proposed cost for this activity is \$52,100.
- permitting assistance to obtain an Aquatic Resources Delineation, Stream Condition Assessment Permit - Level 1, (2) USACE Nationwide permits, and a TCEQ permit. This work includes internal meetings and meeting with permitting agencies along with the preparation of the actual permits needed for the project. The proposed cost for this activity is \$42,000.
- the design based on the results of the Geotechnical Report, the H&H Study and the environmental investigations (permitting requirements). This PSA requires plan submittals at the 30%, 60%, and 90% completion with an Opinion of Probable Construction Costs. The proposed cost for this activity is \$93,200.
- Bid and Construction Phase Services have been priced assuming this project would be split into 2 separate projects. The proposed costs for these activities are not to exceed \$54,100.
- public meeting assistance will be provided under the PSA. It is anticipated that two (2) to three (3) public meeting will be held. The first meeting will be to make the draft model results available to the public and discuss those findings. A possible second meeting will be tied to the USACE permit. The third meeting will be just prior to the start of construction. K-H will provide brief handouts, mounted exhibits, and powerpoint presentations at each scheduled meeting. The proposed costs for these meetings are \$5,200.00.
- Staff has been working to coordinate drainage projects related to the General Bond Project List. As a result of those efforts, K-H has another project PSA on tonight's agenda, Magnolia Creek and Cedar Gully Channel Improvement Project, that has some overlap with this project. It is anticipated that these projects would run concurrently through the design process. If for some reason this project is delayed, the surveying north of FM 518 along Magnolia Creek and Cedar Gully to Clear Creek would be completed with that change order and \$56,400 in surveying would be deducted from the scope of this project.

The total anticipated engineering cost for this project is not expected to exceed \$362,900. The design and bidding as outlined above for this project could take up to 20 months to complete with the USACE

Nationwide Permit being the primary factor driving the schedule. At this time, it is anticipated that the clearing and Desnagging of all 4 channels would take approximately 14 months to complete. Staff and K-H will work to bid the work out on a “per channel” basis to speed up this estimated schedule, but it is too early to confirm that this could be possible.

The estimated construction cost for this project is \$2,387,400.

Staff recommends executing the attached PSA with K-H in the amount of \$362,900 at this time.

Attachments:

1. Data Sheet
2. Proposed Resolution
3. PSA for Clear Creek Tributaries Select Clearing and Desnagging Project
4. Aerial Map

CONTRACT ORIGINATION:

FUNDING

{X} Total funding in the amount of \$362,900 is available from Reinvestment Cash Fund 5017 with expenses charged to project expense string DR1910-PLAN DESIGN-DESIGN-RE CASH.

STRATEGIC PLANNING

{X} Addresses Strategic Planning Critical Success Factor #1 - Develop & Maintain our Infrastructure