

**City of Port Richey Dredging
Geotechnical Data Collection and Opinions of Probable Costs
C2008-053-03 [Work Order #4] Progress Summary
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August 2009

TASK NO.	DESCRIPTION/PROGRESS SUMMARY	APPROX. % COMPLETE
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Task 1:	Geotechnical Data Collection from Miller's Bayou & Cotee River	10%
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Taylor Engineering will coordinate with Ardaman and Associates (Ardaman), a subconsultant to Taylor Engineering to provide the City of Port Richey with a geotechnical investigation of the Miller's Bayou (Channels 1, 7, 8, 9, 10, 14, 15, 16, 17, 18, 24, and 26) and the Cotee River (Channels 2, 3, 4, 5, 6, 19, 20, 21, 22, 25, and 29). The focus of this investigation is to determine detailed geotechnical investigations needed to define the extent and quality (location, depths, thickness, hardness) of rock within the dredging template.

To approximate the amount of existing (pre-dredging) rock versus the amount of existing (pre-dredging) unconsolidated material (sand, shell, silt, clay, and muck) within the permitted dredging template, Taylor Engineering will conduct the following investigation and analysis. To evaluate the approximate volume of rock within the proposed dredging template, Taylor Engineering will analyze any existing reliable data and the results of the proposed geotechnical data collection (with protocols established in Ardaman's scope of services). From this information, Taylor Engineering will develop a series of three-dimensional (3D) surfaces for each channel based on the top and bottom of rock elevations encountered during the proposed geotechnical field investigation. Ardaman will collect approximately 40 Standard Penetration Test (SPT) borings within the permitted channels (excluding Channels 11 & 13) to evaluate the strength of the rock within the proposed dredging template.

Taylor Engineering will base these 3D surfaces on the lateral location of top and bottom of rock elevation for each boring. For those borings that did not encounter rock, Taylor Engineering will assume an elevation below the dredge template to ensure that the surface does not mistakenly calculate rock in these areas. These surfaces will assume a linear relationship between borings and a uniform cross section for each individual boring.

To determine the amount of existing rock within the dredging template, Taylor Engineering will use AutoCAD (Automatic Computer Aided Design) and proprietary programs to perform a series of "cut and fill" calculations. The calculations will provide a comparison of the various sediment stratum within each the created surfaces and the proposed dredging template. The result will yield an approximate calculated volume of rock within the dredging template of each channel.

Taylor Engineering and Ardaman and Associates have established a core boring schedule. The goal of this investigation is to determine the horizontal extents and depths of limestone within the dredging template. This phase concerns only the Miller's Bayou and Cotee River channels.

Each of the two proposed layouts begins with 18 borings that will verify the existence of limestone encountered by Dr. Ping Wang and by the City. If the previous data proves accurate then Taylor Engineering will proceed with boring layout 2 to concentrate on collecting additional data in areas where the previous data suggested limestone occurs. However, if the previous data does not prove accurate then Taylor Engineering will proceed with boring layout 1 to concentrate on collecting accurate data throughout the project limits. Each option contains 45 borings (44 to -12 ft below the water's surface and 1 (B-19) near the Bay Boulevard Bridge in Channel 24 to -55 ft below the water.

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TASK 2: Preliminary Opinion of Probable Cost for Cotee River

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Taylor Engineering will provide the City of Port Richey with a preliminary opinion of probable cost for dredging channels within Cotee River (Channels 2, 3, 4, 5, 6, 19, 20, 21, 22, 25, and 29). The cost opinion will include all expected engineering, modification of the existing FDEP permit, establishment of special assessment district (provided by GSG), construction, and final permit certification expenses. Taylor Engineering will perform material take-offs to estimate the quantities of project construction materials. Taylor Engineering will research material unit costs, adjusted for the project location and current market conditions. Taylor Engineering will also attempt to obtain cost information from local contractors and material suppliers near the project. This opinion of probable cost will serve for planning purposes. Actual construction costs may vary depending on prevailing market conditions at the time of dredging.

This task is on hold awaiting authorization to proceed.

TASK 3: Preliminary Opinion of Probable Cost for North Bay Boulevard

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Taylor Engineering will provide the City of Port Richey with a preliminary opinion of probable cost to dredge permitted channels (numbers 11 & 13, and new channels 12, 23, and 30) within the North Bay Boulevard area. Providing adequate access (height, width, and depth clearance) to these five channels will require the construction of at least one bridge near the intersection of Channel 24 and Bay Boulevard, and possibly a second bridge between Green Street and Betty Street. Taylor Engineering will analyze the collected data and provide an opinion of probable cost for two channel alignments and the request bridge and road infrastructure needed to connect these channels with Channel 24.

Taylor Engineering will provide the city with an order of magnitude cost for the two bridges mentioned above. Taylor Engineering will base this cost on one site visit and one geotechnical boring. Taylor Engineering will not obtain topographic survey data, right-of-way location, or develop preliminary roadway or bridge design as typically performed for an engineering cost estimate. For each bridge, Taylor Engineering will assume the following:

- A required clearance for boat passage beneath the bridge of about 10 ft at MHW
- A required width for single boat passage beneath the bridge of 12 ft
- A minimum water depth of 6 ft at MLW
- Unencumbered, 24-hour access along Bay Blvd.

Based on these assumptions, simple field measurements, and one soil boring, Taylor Engineering will recommend a bridge type — culvert crossing, arch, or other type bridge — based on cost. With this determination, Taylor Engineering will contact pre-fabricated bridge suppliers for order of magnitude cost estimates. For the bridge approaches, Taylor Engineering will estimate soil fill, retaining wall costs (if necessary), and roadway costs. To determine potential effects to utilities, Taylor Engineering will contact the “Sunshine Call before You Dig” agency to identify utilities within the right-of-way. Based on information supplied by this agency, Taylor Engineering will provide an order of magnitude costs for utility work associated with bridge construction.

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The cost opinion will include all expected permitting, engineering, establishment of special assessment district (provided by GSG), construction, and final permit certification expenses. Taylor Engineering will perform material take-offs to estimate the quantities of project construction materials. Taylor Engineering will research material unit costs, adjusted for the project location and current market conditions. Taylor Engineering will also attempt to obtain cost information from local contractors and material suppliers near the project. This opinion of probable cost will serve for planning purposes. Actual construction costs may vary depending on prevailing market conditions at the time of dredging.

Taylor Engineering believes the successful completion of this task will provide the city with the requisite cost information to proceed with one design alternative. Please note that at this time, the city does not have an active FDEP Environmental Resource Permit Application for any configuration of Channels 12, 23, and 30.

This task is on hold awaiting authorization to proceed.

ANTICIPATED WORK NEXT MONTH:

Ardaman and Associates is scheduled to complete their field investigation and begin the reporting portion of their scope during the month of September. Meanwhile, following authorization at the September 23, 2009 council meeting, Taylor Engineering will begin work on the Task 2 and 3 opinion of probable cost.