

Memorandum

To: PPO Subcommittee
Re: Glacier Creek Wetland/Stream Mitigation Bank Professional Services Contract
Date: April 1, 2010
From: Amanda Grint, Water Resources Engineer

The Glacier Creek property was purchased by the District and UNO in December 2009. A portion of this area of approximately 80 acres is intended to be used as a stream and wetland mitigation bank for the District as well as preserve the ecosystem in the corridor from Allwine Prairie to the Big Papio Creek. Prior to the acquisition, a feasibility study was completed by Jacobson Satchell to determine if wetlands and stream channel mitigation bank were feasible in this area. The results indicated that approximately 50 acres of wetlands and about 9,500 linear feet of stream channel could be constructed for the mitigation bank.

A scope of services was prepared by HWS Consulting Group which outlines the necessary steps to complete the design of the stream and wetland mitigation bank and prepare documents for the proposal including:

- Project Management
- Topographic Survey
- Soils Investigation and Data collection
- Development of conceptual plan and coordination with the Interagency Review Team (IRT)
- Final Plans, bid documents and construction bid letting

The total cost of this professional services contract for Glacier Creek stream and wetland mitigation bank design is not to exceed \$106,800. It is anticipated that this contract will be amended in the future to include construction administration and 5 years of monitoring once the extent of the project features is more clearly defined.

Staff recommends that the District's consultant selection procedure be waived in this case. Should the consultant selection procedure be followed per District Policy 15.2, it is likely that HWS would be selected for the project because the Project Manager who completed the feasibility study at Jacobson Satchell is now with HWS and would be the project manager for this project. Waiving the lengthy consultant selection process would also allow for construction to be completed in 2010.

- **Staff recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute the proposed professional services contract with HWS Consulting Group for the Glacier Creek Stream and Wetland Mitigation Bank Project in an amount not to exceed \$106,800, subject to changes deemed necessary by the General Manager and approved as to form by District Legal Counsel.**

Glacier Creek Stream and Wetland Bank Project

SCOPE OF SERVICES
March 31, 2010



The Papio-Missouri River Natural Resources District (PRMNRD) contacted HWS Consulting Group Inc. (HWS) to provide the engineering design services for the Glacier Creek Wetland Bank. The proposed project includes the creation of approximately 30-acres of wetlands, restoration of two existing channels totaling approximately 2,300 linear feet and creation of as much stream channel as feasible with the existing site hydrology. The limits of the proposed project have been provided in Attachment A.

Prior to moving forward with the design phase, the PMRNRD completed a feasibility study on 83-acres of the site (did not include south 80-acres) to determine if wetlands and a stream channel could be created. Results from feasibility evaluation indicated there is enough water to create 50+ acres of wetlands and 9,500 feet of waterway by diverting a portion of the flow from two existing streams on-site. To develop the scope of services for the project, HWS met with the PMRNRD and University of Nebraska at Omaha (UNO) representatives in February of 2010 to discuss the feasibility study results, stakeholder visions, schedule and an overall project understanding.

HWS is very excited to be providing the engineering design services for the project and foresees this project as a great opportunity to partner with the PMRNRD and UNO to the Omaha community with a potential award winning project that will provide wetland and stream banking credits.

SCOPE OF SERVICES

The following information shall serve as the scope of service for HWS to provide the PMRNRD with engineering design & plan preparation services for the Glacier Creek Stream and Wetland Project.

TASK 1 – KICK-OFF MEETING

HWS will organize a meeting with the project stakeholders to discuss the overall project plan, including PMRNRD goals for new stream channel length, restored channel length, created wetland acres, and UNO goals for the overall site development. HWS will provide a project base map to facilitate the discussion. In addition, the project schedule and stakeholder roles and assignments will be discussed. This meeting will also provide an opportunity for existing information such as the PMRNRD Banking Instrument, legal description, CAD files, trail location, etc, to be exchanged.

Estimated fee - \$2,700

TASK 2 –DATA COLLECTION

Specific site information needed to determine how existing streams will be stabilized and how to create new streams and wetlands will be collected in this task. All existing information

available from the PMRNRD including the 2009 JSC feasibility study will be utilized. Information necessary to complete the design includes a topographic survey, existing easements and legal description, soil characterization, groundwater depth, stream dimensions and conditions, and historical aerial photographs.

Task 2a - Topographic Survey

For this task, HWS will utilize available 2-foot contour interval LIDAR Data and the existing legal description and supplement this information with actual field survey to create a topographic survey map with a 1-foot contour interval. Field data will be collected by HWS' registered land surveyor (RLS). The survey and all plans will be prepared in English units of measurement. This survey shall be to the level necessary to prepare engineering designs for the preparation of plans.

Horizontal Control: Horizontal control will be established for the survey. Three permanent control points will be established throughout the site. Appropriate ties will be established for recovery and re-establishment of the control information. Permanent control points will be ½" rebar.

Vertical Control – Bench Levels: HWS will establish appropriate vertical datum benchmarks for the project. Datum will be according to USGS reported in feet above mean sea level (MSL). This scope anticipates the establishment of three vertical benchmarks within the boundaries of the site. Benchmarks will be established from existing city benchmark information in the area. Level notes that include a recap sheet, level runs, benchmark abstract, and datum benchmark sheet will be prepared.

Site Survey: Surveyor will note all aboveground conditions that exist on the project site outlined in Attachment A. The survey will be used as the base for all site design. Nebraska one-call, the City of Omaha, and Douglas County will be utilized to locate any underground utilities on the site. The site survey will be converted to an electronic base map created in AUTOCAD format. The base map will include the following:

- 1.1.1 Existing utilities
- 1.1.2 Ground contours
- 1.1.3 Cross Sections shall be completed at 100 ft intervals. At transitions, cross sections shall be completed at 25 ft. intervals.
- 1.1.4 Adjacent uses including fences, buildings, entrances, streets, and utilities.
- 1.1.5 Survey along routes for utility extensions.
- 1.1.6 Property corners, property lines, easements and setbacks as shown on the plat of record.

Estimated fee - \$12,000

Task 2b – Soils Investigation

Soil borings and samples will be obtained during a preliminary subsurface exploration from approximately seven (7) locations throughout the proposed stream channel and wetland area to characterize the soils. Soils will be classified using the Unified Soil Classification System

to a depth of about 10 feet below existing grade. The data and information obtained from this initial exploration and associated laboratory testing will be used to provide a preliminary assessment of the suitability of the site for the construction of the proposed wetlands, the restoration of the existing channels and the creation the new channels. Three (3) groundwater piezometers will be installed to allow groundwater observation throughout the growing season and during the monitoring phase. It should be noted that piezometer installation could be forgone if the groundwater depth is too deep to have an effect on wetland development. A drill rig will be used to collect samples and install the piezometers. As part of these services, HWS will setup a utility locate prior to the subsurface drilling. A preliminary report will present the findings of the exploration, laboratory tests and analyses. The report will also include, but might not be limited to: (1) descriptions and engineering properties of the encountered soils; (2) depth to groundwater; (3) the presence of dispersive soils; (4) the existence of sand seams/layer at or near the proposed stream flow lines; (5) the possible necessity of having to rework existing soils to minimize infiltration; and (6) potential construction challenges.

About seven (7) additional 10-foot-deep soil borings, samples, laboratory tests, and analyses would need to be performed during the design phase of the project in order to provide specific and comprehensive geotechnical recommendations regarding the design and construction of the project.

Estimated fee - \$7,000

Task 2c - Stream Characterization

Stream channel conditions will be documented in the field by measuring bed width and bank height, noting substrate type, riparian vegetation, and aquatic habitat. Problem areas such as sloughed banks, steep banks and severely eroded areas will be noted. HWS will follow a Rapid Stream Assessment format to document areas.

Estimated fee - \$2,000

Task 2d – Historic Wetland and Stream Research

HWS will collect reasonably available historical information such as aerial photographs and Farm Service Agency (FSA) information to identify presence of historic wetlands, farmed wetlands, and stream alignments prior to channelization or straightening. This information would be very useful, if it exists, to restore stream and wetlands to existing conditions.

Estimated fee - \$1,600

TASK 3 - HYDROLOGY /HYDRAULIC ANALYSIS

HWS will utilize the preliminary hydrology study from the feasibility study and the COE hydrology study of the Big Papillion Creek to create a hydrology analysis to confirm the amount of runoff available to the site within the watershed area for proposed wetland and stream creation.

HWS will perform a hydraulic analysis on the existing channels and the surrounding area to determine existing hydraulic drainage patterns, area runoff quantities, and natural site contours. As a part of the hydraulic analysis, HWS will model the potential flow of the channel with HEC-RAS design software. Information obtained from the hydraulic analysis shall be used to complete the preliminary design of the project.

Estimated fee - \$19,000

TASK 4 - CONCEPTUAL PLAN DEVELOPMENT

Information obtained from Tasks 1-3 will be used to develop several conceptual plans of stream stabilization, and stream and wetland creation. Conceptual plans will be presented to PMRNRD and UNO staff. HWS will take input from this meeting and develop a final conceptual plan to take into the design phase. This final concept will also be used to present to the Interagency Review Team.

Estimated fee - \$11,900

TASK - 5 WETLAND/STREAM BANK INSTRUMENT APPROVAL

HWS will assist the PMRNRD with approval to incorporate the Glacier Creek Wetland/Stream bank into the already existing Umbrella Bank Instrument. This process will include development of a proposal to incorporate this site under the existing agreement, meeting coordination and site visit with Interagency Review Team (IRT), preparation of bank plan and monitoring and maintenance plan.

Estimated fee - \$10,200

TASK 6 - PRELIMINARY DESIGN

For this task, the project team will use information from data collection and hydrology/hydraulics analysis to provide the preliminary design and plan preparation for the Glacier Creek wetland bank. Topography, hydrology/hydraulics and soils will confirm if streams and wetlands developed in the conceptual plan are sustainable. Once adjustments are made, a project grading plan will be developed. In addition, HWS will prepare engineering designs and plans to meet PMRNRD requirements for the project. The intent of the design is to prepare engineering plans for the construction that improves the hydraulic characteristics of the existing waterways, creation of maximum amount of stream and development of approximately 30-acres of wetlands. A technical memorandum will be prepared summarizing design details such as typical sections to include trail location, and bank stabilization options. As a part of the plan preparation process, the following design activities are anticipated:

- 6.1 Horizontal Geometry
- 6.2 Vertical Geometry
- 6.3 Geotechnical Evaluation
- 6.4 Grading Plan

- 6.5 Stream Stabilization by usage Rock Vanes, Weirs, etc.
- 6.6 Bank Stabilization Needs
- 6.7 Construction Sequencing
- 6.8 Cost Estimating

Following the completion of 50% design, HWS will submit to the PMRNRD and UNO for review preliminary plans of the project. Following the review of the preliminary plans, the project team will begin the preparation of final plans.

Estimated fee - \$20,500

TASK 7 – FINAL DESIGN

Final Plan Check Submittals and Meeting

For this task, HWS will modify the preliminary plans to reflect changes and comments from preliminary review design. Additional detail will be added to the plans as needed and final quantities will be calculated. Following these activities, HWS will submit 2 sets of final plans and contract documents to the PMRNRD for review and comment. Following the PMRNRD's review of the final plans, HWS will commence to the bid letting process.

Construction Bid Letting

HWS will coordinate a bid letting and bid opening with the PMRNRD. During the bid letting process, HWS will notify local contractors and any other contractors requested by the owner of the project to bid. HWS will also provide interested contractors with engineering plans and specifications for the proposed project for a designated fee.

HWS will prepare an Engineer's Estimate for the PMRNRD to use at the bid letting. HWS will attend the letting, review the bids, compile a summary of bids, and provide a recommendation for award of contract.

Estimated fee - \$10,000

TASK 8 – PROJECT PERMITTING

For this task, HWS will complete the necessary permitting required to move the project forward to construction. This shall include all efforts associated with the application preparation and submittal, permit costs and coordination efforts with each agency to acquire successful award of the permits. It is envisioned that the following permits will be necessary for the project.

- NDEQ Notice of Intent Storm water Permit

- Papio Partnership SWPPP and Sediment and Erosion Control Plan
- Floodplain permit
- Corp of Engineers Section 404 permit
- Department of Natural Resources diversion permit and stream allocation permit

Estimated fee - \$6,400

TASK 9 – LONG & SHORT TERM MAINTENANCE PLAN

Following the completion of the plans, specifications and bidding documents, the project teams shall prepare a long and short-term maintenance plan that shall be utilized by the PMRNRD.

Estimated fee - \$3,500

TASK 10 – CONSTRUCTION OBSERVATION

This task shall be negotiated following the completed of final plans and determination construction working days assigned to the project, but will generally include construction observation at particular milestones of project completion and on an as needed basis. For this project, HWS recommends visiting the Site for a kick-off meeting, during the excavation effort, during vegetation installation and for a final inspection. The purpose of the observations is to make certain that construction efforts follow design plans and specifications. HWS will check surface elevations of wetland, evaluate seeding and vegetation transplants, inspect erosion controls, and any other appropriate evaluation. In addition, observation and testing during reworking and compaction of soils will be necessary to verify proper placement.

Estimated fee - NA

TASK 11 – WETLAND AND STREAM MONITORING

HWS will monitor the site according to the wetland monitoring plan for a period of five (5) years. Prior to the first monitoring event, HWS will establish permanent monitoring stations and photo stations at the Site. Stations will be tied to a horizontal control point and have Latitude and Longitude coordinates associated with them. Sample points will be located according to guidelines established in the approved monitoring plan. Field monitoring will consist of assessing the plant community and hydrologic conditions of the mitigation wetland and waterways. Vegetation parameters sampled will include species composition, aerial cover, and hydrophytes composition.

Hydrology will be sampled by measuring the depth of standing water or depth of saturated soil at each sample point and within stream channels. Groundwater will also be recorded from each observation well located on site. Other parameters, such as, wildlife activity, functional values, conditions of structures, and buffer conditions will also be monitored.

An annual monitoring report will be completed to document the results of the monitoring activities performed above and provide a status report of the mitigation wetland in relation to meeting the success criteria. If needed, HWS will provide recommendations regarding modifications and adjustments to the site in order meet success criteria. Photographs will be attached.

Estimated fee - \$25,000

Total Project Estimated Fee - \$131,800