



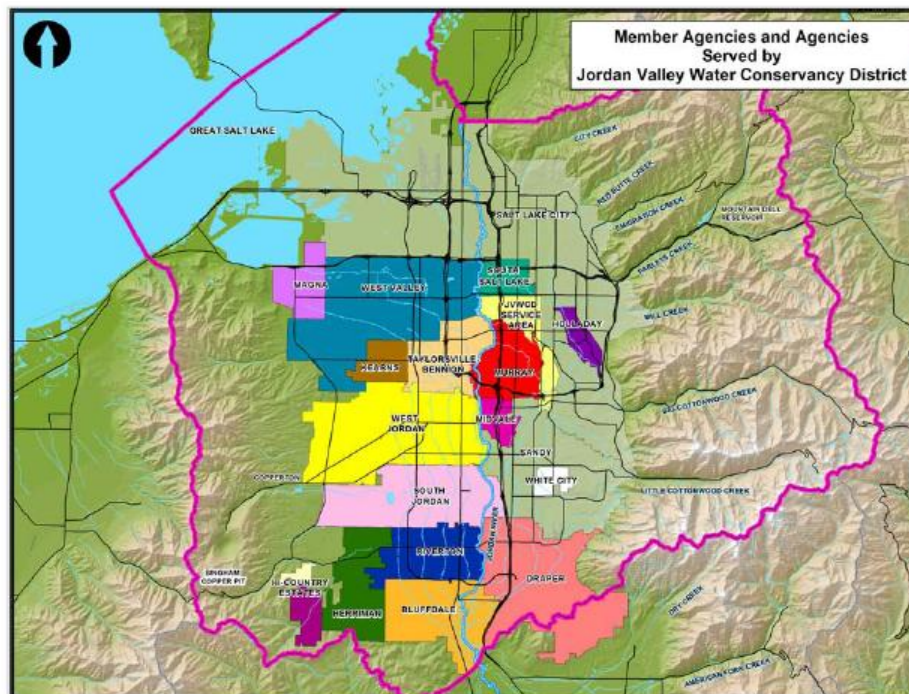
## Statement of Purpose

You are invited to provide a proposal to design a treatment solution for the Casto and Dry Creek Springs. The Casto and Dry Creek Springs have been classified as "under the influence of surface water" under the Surface Water Treatment Rule, meaning the groundwater source may be exposed to inflow from surface water sources and this to be used as drinking water treatment is required to meet this rule.

## Background Information

Jordan Valley Water Conservancy District (JVWCD) provides municipal and industrial (M&I) water throughout its service area in Salt Lake and Utah counties. The JVWCD service area includes some of the fastest growing areas in the state. For example, Salt Lake County population reached one million in 2007, and is projected to double by 2060.

The increase in population creates a need for additional drinking water supplies. Jordan Valley Water Conservancy District holds water rights to two springs which converge through existing piping near 4600 South 3000 East in Salt Lake County. The water source has been proved to be "Under the Influence of Surface Water" according to Surface Water Treatment Rule. The spring will require filtration and disinfection.



## Scope of Work

Submit a written proposal to complete this study and design work. The proposal should highlight the team and tasks necessary to complete the project. The proposal shall be submitted as a hard copy, electronically, and presented to Jordan Valley Water Conservancy District representatives.

The successful proposal team will be asked to complete a feasibility study (FS) and preliminary engineering report (PER) for this project. The FS and PER will be submitted in hard copy and electronically as well as presented to Jordan Valley Water Conservancy District representatives. The FS shall be a pre-design report addressing hydrology, water treatment regulations, and feasibility cost estimates. The PER will contain the design assumptions and engineering drawings.

Design decisions will include: Treatment Process Capacity (flow rate), Flow Control and Pumping Capacities, Treatment Processes, and Building(s) size, location, and style.

Additional documents can be found at <http://www.jvwcd.org> under engineering projects, then university studies.

### Project Objectives:

1. Engineering Objective - Identify and size appropriate treatment technologies which meet EPA's Surface Water Treatment Rule for treatment of the Casto and Dry Creek Springs.
2. Global Objective - Provide a new source of potable water to the Jordan Valley Water Conservancy District service area at a cost which matches the District existing supplies.

### Design Constraints include:

- ✚ A discharge of backwash water is not allowed, although solid waste is allowed (I.E. disposal of used filters)
- ✚ The treatment plant shall be remotely operated. An operator will visit once a day when operating.
- ✚ The treatment plant should be inactive when raw water flow rate is at or below efficiency point. Proper procedures should be in place to preserve the filters and treatment equipment.
- ✚ The treatment plant footprint will need to be located on Naniloa Drive (see Reservoir Site Map)

Milestones will be separated into FS, PER, and Design sections. Completion of the FS will be required first. The FS will have three milestones: hydrologic analysis, water treatment regulations, and feasibility cost estimates. The PER will contain the design assumptions and engineering drawings. The Design milestones will include selection of treatment process, and site design.

All information that will be available includes (and can be found at [jvcwd.org](http://jvcwd.org)):

- ✚ Flow data for each spring
- ✚ Demand data
- ✚ Turbidity flowrate curve

- ✚ Reservoir site plan
- ✚ Springs evaluation report
- ✚ Existing pipeline conditions (size, length, material)

This information can be used to determine the necessary treatment process, size the facility, and other design criteria. It is possible that more information may be gathered and made available upon request.

Site visits can be made upon special arrangement with the representative of JVVCD. This might be helpful in deciding upon site location as well as getting to know him.

While this will be a learning experience for each member of the team, experience in the following areas will greatly enhance the quality of the project design and presentation. There will be enough time during the semester to learn a great deal about these areas if no previous experience exists. The **bolded** areas represent the most important areas:

- ✚ **Hydrology**
- ✚ **Water Treatment Process Selection**
- ✚ Piping/Valving – Mechanical Design
- ✚ **Drinking Water Regulations**
- ✚ **Hydraulics – Pumping and Flow Control System**
- ✚ **Permitting (Division of Drinking Water, Canal Company, Holladay City)**
- ✚ Civil Site Utilities (water, power)
- ✚ Structural – Noise Control
- ✚ Landscaping
- ✚ **Cost Estimating and Net Present Value Estimate**

## Requirement for Proposal Preparation

- ✚ Turn in three copies of the proposal that should include
- ✚ Cover letter
- ✚ 1 page or less executive summary
- ✚ No more than 2 pages statement of qualifications that outlines the background, experience, education, and organizational structure of the team. This section should include some discussion of how you plan to become a "high functioning" team in the course of completing the project. Any outside consultants (professors or others) that will help should also be included.
- ✚ No more than 2 pages work plan that outlines their approach to solving the problem, how their team will work together (including weekly work schedule that shows the hours each will work and the time block the team will be together).
- ✚ No more than 1 page (probably just a few lines) indicating necessary tools, data, equipment.
- ✚ No more than 1 page schedule indicating important milestones.
- ✚ No more than 1 page Engineering Design Budget that would be primarily their time and effort.
- ✚ In the appendix include a 1 page resume for each member of the team

## Outcome and Performance Standards

You will provide this work "as is" meaning that there is no engineering stamp certifying the work. However, our ability to continue receiving help from outside sponsors will be contingent on the good work that you do. You represent the BYU Civil & Environmental Engineering Department and it is expected that you will interact in a professional manner at all times with your mentor and project sponsor, treating them with the utmost respect and consideration of their busy schedules.

While successful completion of the design project is fundamental to the outcome of the work, it is expected that you will also learn important team dynamics and leadership principles. This means that in the process of completing the project you are also seeking to help each member of your team grow and develop confidence in his/her engineering abilities.

An additional motivation for completing this project to the best of the team's ability is that the University of Utah also has a civil engineering design team proposing on this same project. JVCWD wants each group to present their proposal to them at their office.

## Deliverables

- ✚ A final report with design alternatives for the project that include economic and environmental considerations
- ✚ A poster reflecting a summary of your design project
- ✚ A presentation summarizing your design project.
- ✚ All deliverables will be due Friday April 1. During the week of April 4th both a presentation to sponsors and poster session for students, faculty and other interested people will be organized.

## Term of Contract

During winter semester it is expected that each student contribute six hours per week to the completion of the project, with at least 3 hours per week dedicated to working together as a team.

The project deadline is Friday, April 1. There will be various milestone deadlines decided jointly upon by the winning team and the project manager.

## Payments, Incentives, and Penalties

For your effort on the performance of this project you will receive a grade that is awarded according to the following breakdown:

- ✚ 10% Time Card (putting in the requisite time)
- ✚ 10% Project Notebook (demonstrating productivity in the hours spent)
- ✚ 20% Milestones met (each project will outline the expectations for milestones)
- ✚ 35% Final report
- ✚ 10% Poster/Presentation
- ✚ 10% Teamwork Portfolio and Peer evaluation
- ✚ 5% Cooperation

## Contractual Terms and Conditions

There will be no monetary compensation with respect to the work completed, and all work is completed and delivered on a "best effort" basis.

Each member of your team will be asked to sign a [non-disclosure agreement](#) that simply states the work you do belongs to the project sponsor.

## Evaluation and Award Process

Your team's proposal will be evaluated by a panel of three graduate students.

- ✚ 20% - Firm Resources/Ability/Experience
- ✚ 20% - Key Project Personnel
- ✚ 40% - Work Plan and Understanding of the Project
- ✚ 20% - Technical Proposal and Presentation

## Process Schedule

- ✚ October 31 4:00 pm - Request for Proposals will be available online at <http://cecapstone.groups.et.byu.net/Winter2012.htm>
- ✚ November 7 4:50 pm - Question and Answer period with respect to the proposal and submission procedures.
- ✚ November 21 4:00 pm - Three copies of the proposal must be submitted at the beginning of class
- ✚ November 21 4:00-5:30 pm - 5 minute interview (presentation) by your team of the proposal
- ✚ November 30 - Award notification.

The review committee reserves the right to reject any proposal or presentation that is not submitted in a timely fashion or in accordance with the instructions given in this RFP.

## Contacts

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