

**INVITATION TO BID**  
**for**  
**Test Well Installation and Pumping Test**  
**for City of Deer Lodge**  
**Powell County, Montana**

The City of Deer Lodge will drill a test well to determine the feasibility of the location for installation of a high-yield public water supply well. HydroSolutions Inc (HydroSolutions) is soliciting bids from Montana-licensed water well contractors to install one test well at a site identified near the City of Deer Lodge. In addition to drilling, the contractor will furnish and install a temporary pump and other equipment for completion of one aquifer test.

**Proposed Test Well and Aquifer Test Specifications:**

These specifications are for:

- (1) drilling and construction of one test well to be used for preliminary characterization of subsurface lithology and aquifer yield evaluation, and
- (2) provision and installation of a temporary pump, appurtenances, and power source to conduct a 24-hour well yield test followed by monitoring recovery until pre-pumping water levels are reached.

**Test Well Drilling and Construction**

1. The test well will be located in a location accessible by a drill rig near the City of Deer Lodge, Powell County, Montana. The location of the well will be finalized before drilling. All well construction work will be completed under the direction of the project hydrogeologist and shall be completed in strict accordance with the requirements of Title 37, Chapter 43, Montana Code Annotated and Title 36, Chapter 21, Administrative Rules of Montana, Board of Water Well Contractors.
2. General well construction will consist of a 6-inch diameter or 8-inch diameter, 0.25-inch wall steel casing installed through unconsolidated sediments to a depth up to approximately 250 feet below ground surface (bgs). Casing diameter will depend on casing cost and screen completion.
3. Fifty- to 100-feet of screen with appropriately sized manufactured stainless steel wire wrapped screen with a neoprene K-packer will be installed. In an effort to keep costs down, use of a mills knife and perforation is also being proposed as an option. The well screen assembly shall be equipped with a 3- to 5-foot-long tail pipe with bottom cap.
4. Screen slot size will be based on a sieve analysis of the formation sample(s) from the primary water bearing zone(s) as designated by the project hydrogeologist. The water well contractor is advised that determination of screen slot size may require up to one week.
5. The drilling contractor shall collect formation samples at 5-foot intervals in labeled bags. In addition to these samples, any significant changes in lithology shall be noted by the driller and a formation sample shall be collected. All samples shall consist of

approximately one quart of material. The samples shall be stored in a clear plastic bag and clearly labeled with the depth and time of collection. A large sample consisting of one or more five gallons of material shall be collected from the water-bearing zone(s) as directed by the project hydrogeologist.

6. Driller may be requested by the hydrogeologist to stop drilling and conduct short term (5-15 min) tests of the yield of water bearing zones using air lift methods.
7. Upon completion of well construction, the well shall be developed for 4 to 6 hours using air lift methods, or until discharge is free of sediment. A copy of the driller well log shall be submitted to the Montana Bureau of Mines and Geology and a copy provided to the project hydrogeologist.
8. The drilling site will be reclaimed to original condition.

### **Pumping Test**

The test well shall be test pumped at a constant rate for up to 24 hours using a submersible pump. The pump and pumping rate will be determined after drilling is completed and the estimated yield the well is capable of is evaluated. The highest pumping rate obtainable will be requested. Actual discharge rates during the pumping test will be as directed by the project hydrogeologist.

Prior to commencing the constant rate pumping test, a step-drawdown test lasting up to 8-hours will be completed at the direction of the project hydrogeologist at least 24-hours prior to the constant rate pumping test to help determine the most appropriate constant pumping rate and flow control valve settings. The constant rate pumping test will not be initiated until well recovery is complete. In addition, the following tasks are required:

- Driller will assist hydrogeologist in installing electronic transducer in the test well prior to conducting well yield test.
- Driller shall furnish and install a generator, a temporary pump, piping, flow control valve and calibrated flow meter, and all appurtenances necessary to conduct an 8-hour step test and 24-hour yield test.
- Discharge piping must be of sufficient length to convey the produced water up to 500 feet away from the well so that it does not re-infiltrate into the aquifer. Actual distance will be evaluated and discharge location identified following well installation.
- A temporary submersible pump will be set at a depth of 5 feet above the top of the screen. The pumping rate under total dynamic head (TDH) conditions will be estimate after well completion.
- A well recovery test will be conducted upon pump shutoff and continue for up to 24-hours or until at least 90 percent of pre-pumping water level recovery is achieved. Following completion of the recovery test, the pump and all temporary test equipment may be removed.



## Schedule

Installation of the well and pumping test must be completed no later than April 30, 2020. An earlier completion date is preferred.

## Instructions

Thank you for your consideration of this project. Montana licensed drilling contractors are asked to carefully review the scope of work detailed above and to fill out the attached Bid Form. Questions regarding the project specifications or bid process may be directed to HydroSolutions at the phone numbers or e-mail addresses below.

HydroSolutions Inc

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**Please return completed price schedules via e-mail to the above e-mail address. Bids are due no later than 5:00 pm on Wednesday March 18, 2020**

## Attachments:

Bid Form