

# REQUEST FOR PROPOSALS

TYPE I WATER WELL

## Well 1 Replacement (Well 11)

East Side Iron Removal Facility  
Union Township, Isabella County

### **Proposals Due:**

2:00 P.M. Friday, June 2, 2017

### **Address Proposals to:**

Charter Township of Union  
Attn: Kim Smith, Public Works Coordinator  
2010 S. Lincoln  
Mt. Pleasant, MI 48858  
(989) 772-4600, Ext 224

### **Request to Bid:**

Northern Well and Pump  
Attention: Dale Stewart  
Layne Christensen Co.  
Attention: Ted Batkie  
Peerless Midwest, Inc.  
Attention: Bob Masters  
Raymer Well Drilling  
Attention: Gerry Neubecker

### **Scope of Services:**

Union Township is requesting a proposal to construct a Type I Water Well to replace the existing Well 1 at the East Side Iron Removal Treatment Facility located off of Isabella Road in Union Township, Isabella County. The proposed well shall be capable of producing up to 400 gpm and include a pilot boring for design of the well. The information contained below are the specific qualifications each well driller must meet in order to provide an accurate proposal. The owner reserves the right to accept or reject all bids that are received.

### **Background Information:**

The existing East Side Iron Removal Facility is owned and operated by Union Township and provides municipal water service to the customers within the Township. The facility operates on two (2) 400 gpm production wells (Wells #1 and #10) and one (1) 700 gpm well (Well #7), provides iron removal treatment utilizing one (1) 400 gpm gravity and one (1) 1,200 gpm pressure iron removal filter and then distributes water out to system. Wells #1 and #2 were both drilled and pump tested in 1987 by Layne Northern. Well 7 was drilled and pump tested by Peerless Midwest in 2008. Results of the aquifer analysis demonstrated that the aquifer was variable, with Well #1 operating hydraulically under artesian conditions and Wells #10 and #7 under water table conditions and both receive their recharge from vertical leakage and natural flow. Based upon the well development and testing of the three (3) wells it was determined that Wells #1 and #10 both could operate simultaneously at a combined rate of 800 gpm for extended emergency periods of time along with Well 7 at 700 gpm. During extended

emergency situations all three (3) have the capability to operate and meet demands. It must be demonstrated that a replacement well for Well #1 can be developed at the existing East Side well site either in the same aquifer as the existing wells or in a deeper aquifer and that this well field will be capable of meeting the proposed operation / capacity requirements described previously or greater. The well driller will be responsible to determine the best depth of the proposed well that will be able to provide the most flow capacity without impeding the existing Well #10 or #7, nor regional water levels. Due to the size of the proposed well, historic records of the existing aquifer and confined site conditions, exploration and preliminary testing is needed. This is to be accomplished in four (4) phases. The first phase will include obtaining MDEQ approval and the installation of one (1) pilot boring. The second phase will complete the construction of two(2) monitoring wells and a large diameter 12" Type I Well, yield and drawdown testing compliant with the MDEQ requirements. Since the results of Phase I shall determine whether Phase II, III and IV proceeds, it is the intent of the owner to request that the bids being submitted encompass the scope of work for all Phases separately. Findings of Phase I shall assist to determine the feasibility of completing Phase II, III and IV.

### **Phase I – Exploratory Drilling and Preliminary Aquifer Investigation**

#### ***Test Boring***

- The contractor shall meet on site with the MDEQ area engineer and the owner to obtain approval for the test boring site. They shall then proceed with Installation of one (1) pilot hole with the purpose to sample and log existing geological conditions. The bore shall be used as an aid to assist the well driller with determining depth of proposed test well. Contractor can assume the pilot boring shall be located within 50 feet of Well #1.
- The test boring shall be logged with a continuous gamma logger at 0.10' intervals for purposes of determining the quality and clay content of the formation.
- Test boring shall be abandoned with neat cement grout.

### **Phase II – Type I Water Well & Aquifer Analysis**

**\*\*Note\*\***

The results of Phase I shall determine the advancement to Phase II. The driller shall not advance to Phase II without authorization from owner.

#### **Test/Permanent/Monitoring Well Construction**

Contractor shall be responsible for obtaining MDEQ approval for construction of the large diameter test/permanent well. This may include water withdrawal assessment determination, construction permit and the stamp of a professional engineer. All costs of which shall be included by the contractor.

Installation of one (1) test well capable of producing up to 400 gallons per minute (gpm). The contractor shall be ultimately responsible for determining the screen slot size. For the purposes of this bid, basic assumptions of depth and diameter have been provided for comparative purposes. The test well shall be used to verify water quality and aquifer capacity to

meet proposed operation conditions for facility. This well shall be converted to production well upon demonstrating satisfactory results. The well shall be constructed in accordance with the State of Michigan Well Construction Code (Rules to Part 127 of Act 368 of the Public Acts of 1978, as amended). All materials in contact with drinking water shall meet ANSI/NSF approval and shall include the following:

- 12" Steel well casing and be installed in the following manner:
  - Driller shall be responsible for determining slot size of well screen and submit to owner for review prior to installation.
  - Casing shall be welded joint
  - **Casing shall be SCH 80 wall thickness**
  
- Stainless steel screen
  - Driller shall be responsible for determining slot opening size and submit to owner for review prior to installation.
  - Screen shall be continuous wire wrapped well screen
  - Entrance velocity shall not exceed 0.1 fps
  - Screen shall be 12" full diameter, no telescoped screen
  - Screen shall be threaded welded to bottom of casing
  - Assume 10 feet of well screen for bid purposes
  
- Neat cement grout from within 5 ft of the top of screen to 5 feet below grade to allow for installation of a pitless adapter.
  
- No organic drilling additives shall be used and the contractor agrees by submitting a bid to have all vehicles, equipment and materials brought on site searched, inspected and or tested, whether in plain site or in containers of any type.
  
- Well protective cap, such as a piece of steel welded on until a pump is installed
  
- Two(2) Monitoring wells shall be 4" pvc with neat cement grout and 10 feet of stainless steel 4" well screen. Include developing the monitoring wells with air lift.

Well Driller shall be responsible for performing the following, in addition to the work outlined above in the Well Construction section:

- Mobilization
- Performance of well construction logs and static water including documentation provided to owner in accordance with the state DEQ Well Code.
- Development of wells including conducting a well capacity test at various discharge Rates (8 hour step test) to demonstrate ample capacity and influence on adjacent (Wells #10 And #7) and regional water levels (Mount Pleasant City Wells are approximately 1 mile west at the intersection of Mission / Deerfield Road) as required by MDEQ.
  - Driller shall be responsible for monitoring static water levels in any existing monitoring wells and proposed well with respect to capacity test. Use of Wells #1 nor #10 as monitoring wells is not an option because they will be in use by Township.
  - Documentation of all testing and water level observations shall be provided

- to owner
  - Driller shall be responsible for discharging water to acceptable location that will not cause any soil erosion or sedimentation up to 400 feet away.
- Chemical and radiological water quality sampling (Unit 37 plus radiological) shall be performed for proposed well in accordance the state DEQ Well Code including documentation of results to owner. Two bacteria samples, at least 24 hours apart shall be collected during the testing and development of the large diameter well. Contractor is responsible for chlorinating the well to obtain two good samples. Bacteria samples shall be collected in the presence of the owner and shall be submitted to the owner for analysis at their chosen lab. Contractor should not include any cost for bacteria samples.
  - All costs incurred with the sampling and testing shall be the drillers' responsibility, except bacteria samples.

### **Well Construction**

Conversion of test well to production well capable of producing up to 400 gallons per minute (gpm) and two(2) monitoring wells to similar depths of the first well (Phase I) within the same aquifer, as directed by MDEQ. All work shall be conducted in accordance with the State of Michigan Well Construction Code (Rules to Part 127 of Act 368 of the Public Acts of 1978, as amended). All materials in contact with drinking water shall meet ANSI/NSF approval and shall include the following:

### **Aquifer Test**

Well Driller shall be responsible for performing the following, in addition to the work outlined above in the Well Construction section:

- Mobilization
- Providing all test pumping equipment including pump, discharge, flow measurement devices, power supply and fuel.
- Driller shall be responsible for discharging water to acceptable location that will not cause any soil erosion or sedimentation ~500 feet away.
- Quantity and location of monitoring wells used for observation shall be under the direction of the MDEQ
- Submit well construction logs and static water levels including documentation provided to owner in accordance with the state DEQ Well Code.
- Development of well to demonstrate ample capacity and influence on adjacent (Wells #10 and #7) and regional water levels (Mount Pleasant City Wells are approximately 1 mile west at the intersection of Mission / Deerfield Road) as required by MDEQ. Development of wells shall include conducting yield and drawdown testing 72-hour continuous pump testing and recovery for unconfined aquifer. In accordance with state DEQ Well Code and Aquifer Test Requirements for Public Type I wells.
- An aquifer analysis and report shall be completed in accordance with DEQ well code and aquifer test requirements for Public Type I wells. The analysis shall be completed by a professional geologist and submitted to MDEQ.
- Water levels during the aquifer test shall be monitored with pressure transducers accurate to 1/100<sup>th</sup> of a foot.

- Water levels collected by hand measuring devices or airline will not be accepted.
- It is the contractor's responsibility to obtain an approved aquifer test or repeat the test at no additional cost to the Township.

### **Equipment**

Driller shall provide all equipment and materials necessary to complete the work outlined above in the Well Construction and Duties to provide for the well installation, development, yield and drawdown testing, disinfection, water quality sampling, mobilization, and clean-up. They shall include, but are not limited to, the following not stated previously:

- Temporary Pumping and means of operation
- Temporary Power Supply
- Flow monitoring and water level measuring devices
- Piping, valving and appurtenances
- Discharge hose

### **Phase III – Permanent Pumping Equipment**

For purposes of the bid assume the following equipment to be provided, installed or moved from the existing well:

#### **Provide and Install:**

- Preparation and submittal of an ACT399 permit to MDEQ upon completion and approval of the aquifer test by MDEQ.
  - The permit must be stamped by a licensed engineer.  
Contractor is responsible for obtaining an approved permit prior to proceeding.
- Grundfos 385S150-2
- 15 HP, 460 volt, 3 phase motor
- 75 feet of 6" Certa-Lok Drop Pipe
- 85 feet of Heavy duty flat jacketed wire (no exceptions)
- Two(2) new Baker 12" pitless adapter O-rings
- Heavy Wall galvanized nipples to connect to pitless
- Stainless Steel Certa-Lok adapters to connect to pump or pitless as needed
- 6" ductile iron check valve (in addition to check valve in pump)

#### **Move from existing well:**

- Remove and re-install Baker 12" pitless adapter from existing Well 1 to the new well.

### **Phase IV – Well 1 abandonment**

- Remove and provide all pumping equipment to the township (42' setting of Certa-Lok, 10 HP motor and 7 stage pump bowl)
- Abandon Well 1 with neat cement per MDEQ code

### **Warranty:**

The driller shall provide a guarantee for materials and workmanship for a period of not less than two (2) years following substantial completion on any or all work performed

above to the owner including bacteria free water samples.

**Services / Materials Not To Be Included:**

The proposal shall not include providing and/or installation of the following items:

- Site accessibility (provided by owner)
- Water supply (provided by owner)
- Site Electrical
- Distribution Piping

**Schedule:**

The commencement of Phase I is subject to MDEQ approval and installation will be coordinated with the selected well driller. Completion of work shall be anticipated to be by September 2017 for both Phases.

**Proposal and Qualification Requirements:**

It is requested that the proposal being submitted be broken out by phase and costs associated with each sub-item within each phase to allow the owner the flexibility to adjust the contract as the project progresses.

1. Two monitoring wells shall be 4" and **neat cement** grouted.
2. Permanent well shall be 12" diameter (screen and casing) and neat cement grouted.
3. All wells shall be assumed to be 100' deep for bidding purposes.
4. Permanent well screen design shall assume 10'.
5. Contractor is responsible for ALL MDEQ permitting including an engineer stamp (not the MDEQ district engineer).
6. MDEQ well construction code rules must be followed at all times
7. All bidders must be a licensed well driller in the state of Michigan **under the bidding contractor's company name and all drilling equipment must be wholly owned by the bidder. Sub-contracted drilling will not be accepted.**
8. **Drilling, pump testing or aquifer analysis may not be subcontracted for purposes of providing a turnkey project.**
9. Contractor is responsible for two good bacteria samples at least 24 hours apart
10. Contractor must supply complete references for six(6) municipal well drilling projects of 12" diameter and larger wells drilled by their company meeting the requirements of items 7 and 8 above. **Failure to meet this requirement will result in disqualification.**
11. Contractor shall provide a statement of qualifications (1) highlighting being regularly engaged in the municipal well and pump business and (2) having been in business under the same name for a minimum of 15 years.
12. The Township reserves the right to accept or reject any bid for any reason and is not obligated to take the lowest bid price.

**Bid Table:**

| Item   | Cost |
|--|------|
| Test Drilling to 100 ft  |      |
| Gamma Logging Test Boring  |      |
| <b>Phase I Total:</b>  |      |
| Mobilization   |      |
| 12" Well per the specifications w/development                              |      |
| Two(2) 4" Monitoring Wells   |      |
| Well Testing (aquifer test, step test)                                     |      |
| Aquifer Analysis by Professional Geologist and submittal                   |      |
| <b>Phase II Total:</b>   |      |
| Act 399 permit, stamped by a professional engineer.                        |      |
| Pumping equipment (pump, motor, wire, drop pipe, check valve and fittings) |      |
| Move 12" Pitless Adapter   |      |
| <b>Phase III Total:</b>  |      |
| Abandon Well 1   |      |
| <b>Phase IV Total</b>  |      |
| <b>Unit Prices for Additional Work:</b>                                    |      |
| 12" well drilling  |      |
| 12" well screen (add/deduct) per foot                                      |      |
| Test boring (add/deduct) per foot  |      |

**Number of Years in Business Under the Same Company Name:** \_\_\_\_\_

**Subcontracted Services:** \_\_\_\_\_

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**Municipal Well References (12" and larger) (Name, water system name, project description, phone number):**

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

3. \_\_\_\_\_  
\_\_\_\_\_

4. \_\_\_\_\_  
\_\_\_\_\_

5. \_\_\_\_\_  
\_\_\_\_\_



6. \_\_\_\_\_

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**Statement of Qualifications:**