

**Addressing Mr. Scott Alexander's  
Recommendations**

**Groundwater Conditions of CUP**

**Zavoral Mine and Reclamation Project**

Prepared for

City of Scandia Planning Commission  
January 2, 2013

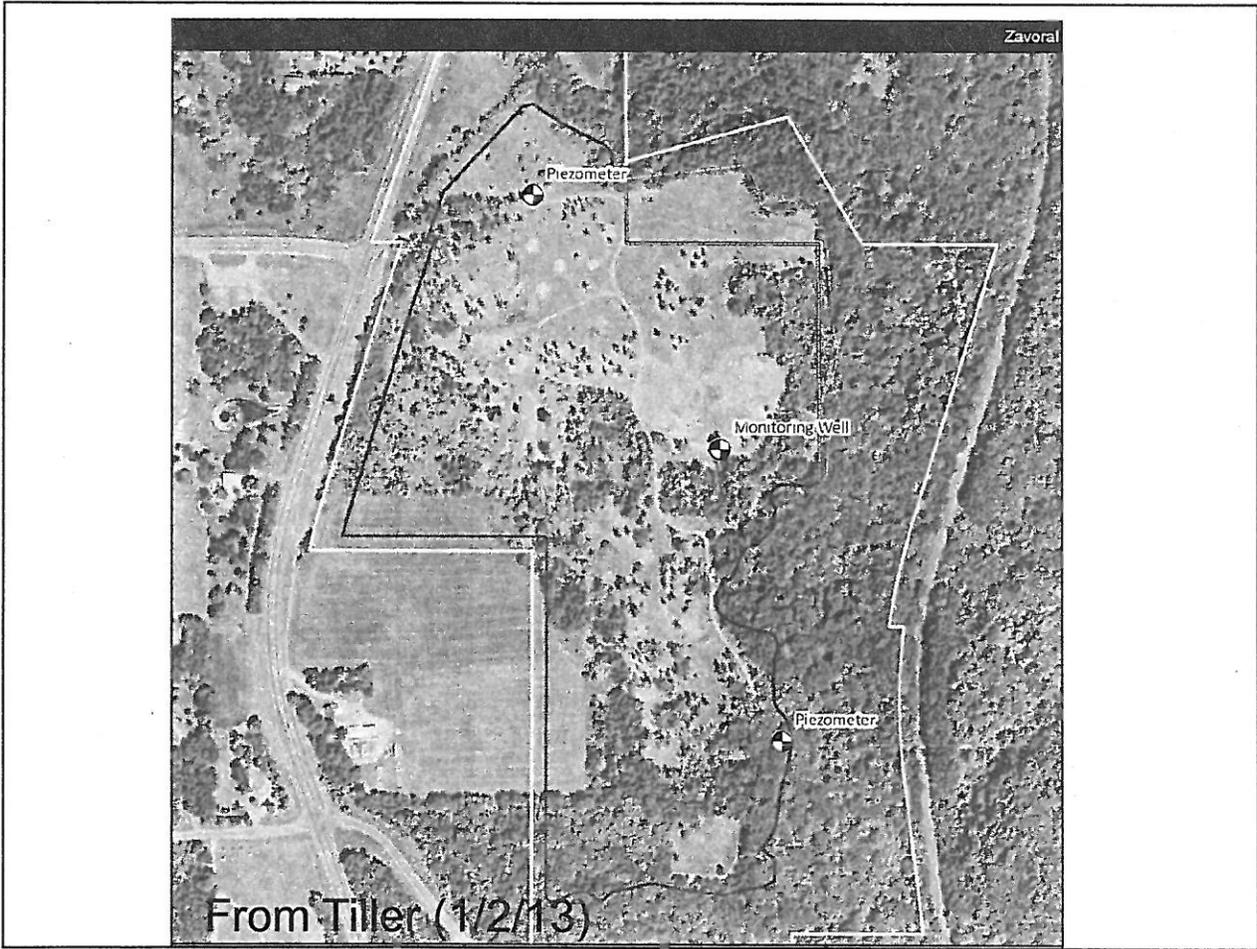
- > Dave Hume, M.S., P.G.
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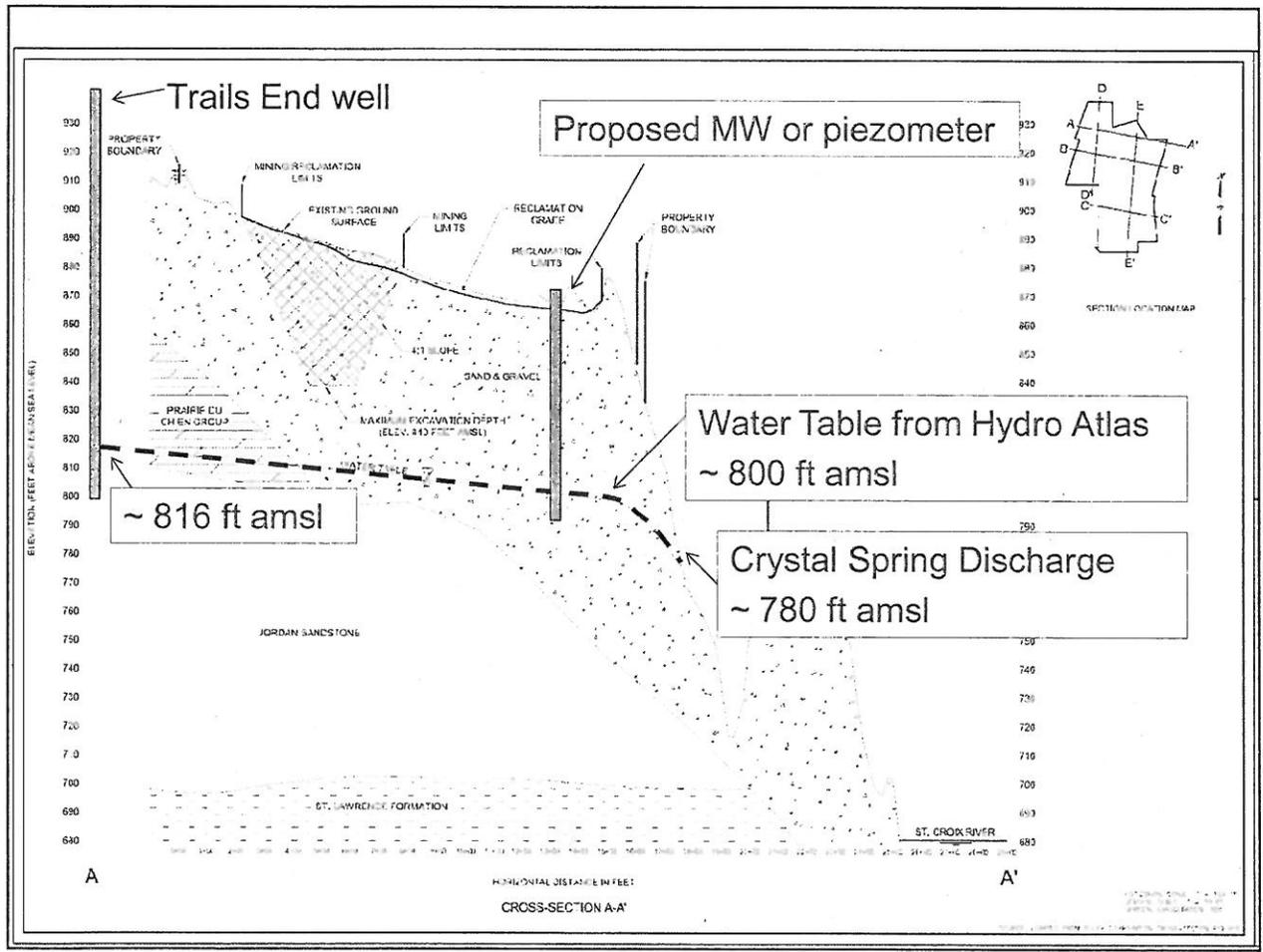
## **Scott Alexander's Recommendations**

### **> Recommendation 1**

"To determine groundwater flow directions and gradients there should be a minimum of 3 monitoring wells located within the paleo channel deposits. The monitoring wells should be installed prior to excavation at the site as discussed in Recommendation 2 below."

- **Applicant will install 3 wells in the paleo channel.**
- **Wells are proposed to be installed in the next few weeks.**
- **3 wells will be used to observe of water levels.**
- **Data will be used to determine flow direction and gradients.**





## **Scott Alexander's Recommendations**

### **> Recommendation 2**

"Mining operations should maintain a minimum separation above existing water table."

- **Water levels measured in the next 2 weeks**
- **Manual and dedicated electronic equipment**
- **Daily water level monitoring frequency**
- **Also elec. conductivity, temp. and pH**
- **Site visits will be conducted monthly to download data and confirm equipment is functioning properly.**
- **Data will be evaluated monthly to assess depth to water and separation from proposed mining elevation. Reports to City and MN DNR**

## **Scott Alexander's Recommendations**

### **> Recommendation 3**

"Improve the distribution of storm water, spreading it over as large an area as possible and increasing evapotranspiration by re-vegetation. Avoid concentrated recharge areas. This should reduce, but not eliminate, the potential for additional blow outs."

- **Storm water will not be "*highly focused, or point recharge...*" Therefore, water level increases in concentrated areas will not occur.**
- **Re-vegetation will be completed during reclamation.**
- **The "*catastrophic collapse of sediments exemplified by blow out area...*" This is very speculative.**