GROUNDWATER FLOODING ISSUES
Hancock Acres
2019

Photo provided by Liana Pauli
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Photo provided by
Liana Pauli
Map
Information provided by Bob Buller
# Surface and Subsurface Elevations

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>House Elevation</strong></td>
<td>1251</td>
<td>1253</td>
<td>1248</td>
</tr>
<tr>
<td><strong>Basement Elevation(^1)</strong></td>
<td>1243</td>
<td>1245</td>
<td>1240</td>
</tr>
<tr>
<td><strong>Bottom of Well Elev.</strong></td>
<td>1217</td>
<td>1235</td>
<td>1190</td>
</tr>
<tr>
<td><strong>Static Water Elev.(^2)</strong></td>
<td>1237</td>
<td>1246</td>
<td>1225</td>
</tr>
</tbody>
</table>

\(^1\) Assumes a basement depth of 8 feet  
\(^2\) Static water levels at time of construction. Wells were constructed between 1975 and 2015.
Water Well Information

• Water well data obtained from KGS
  – Some well logs were never turned in to KGS
  – Rely on the descriptions of well driller

• Some wells were only drilled to a depth of 14 feet below ground surface

• Top of Shale layer (bedrock) average depth is 26 feet below ground surface
  – Results in a short vertical distance for dewatering
Surface and Subsurface Elevations Schematic

Note: The elevations shown are approximate. Basements were assumed to be eight feet below ground surface.
Proposed Dewatering Well Pump Controls

Note: Proposed ranges and groundwater elevations are approximate. Exact elevations and depths will vary based on existing house and basement elevations. The desired range for maintaining groundwater levels will be determined and refined during well test pumping and final design. Schematic 2 is intended to provide a visual representation of the purpose for the controls and is not to be interpreted as final design conditions.
Hancock Acres
Proposed Well Locations
Waterline Alignment - A
Waterline Alignment - B
### Table 5: Preliminary Project Cost Estimate

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Option A</th>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital Costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permitting, Test Pumping, and Construction Oversight</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Waterline Construction</td>
<td>$223,500</td>
<td>$420,600</td>
</tr>
<tr>
<td>Dewatering Well and Well Pump (5 hp)</td>
<td>$195,000</td>
<td>$180,000</td>
</tr>
<tr>
<td>Dewatering Well and Well Pump (10 hp)</td>
<td>$225,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Monitoring Wells</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Meter Vault</td>
<td>$15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Electrical and Control Systems</td>
<td>$108,000</td>
<td>$108,000</td>
</tr>
<tr>
<td>Permanent Onsite Generators</td>
<td>$180,000</td>
<td>$180,000</td>
</tr>
<tr>
<td>Valve Assemblies</td>
<td>$6,300</td>
<td>$7,100</td>
</tr>
<tr>
<td>Erosion Control/Site Clearing</td>
<td>$65,000</td>
<td>$65,000</td>
</tr>
<tr>
<td>Project Costs (Survey, Design, Admin, Inspection, etc.)</td>
<td>$320,340</td>
<td>$421,100</td>
</tr>
<tr>
<td>Contingency (20%)</td>
<td>$213,560</td>
<td>$280,740</td>
</tr>
<tr>
<td><strong>Total Estimated Capital Cost</strong></td>
<td>$1,681,700</td>
<td>$2,115,550</td>
</tr>
<tr>
<td><strong>Annual O&amp;M Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well Pump and Control System Power (annual)</td>
<td>$11,000</td>
<td></td>
</tr>
<tr>
<td>DWR Reporting (annual)</td>
<td>$1,000</td>
<td></td>
</tr>
<tr>
<td>Well Pump Replacement (every 10 years)</td>
<td>$20,000</td>
<td></td>
</tr>
<tr>
<td>Well Rehabilitation (every 5 years)</td>
<td>$10,000</td>
<td></td>
</tr>
<tr>
<td>Maintenance/Repairs (annual)</td>
<td>$5,000</td>
<td></td>
</tr>
<tr>
<td><strong>Range of Annual Costs</strong></td>
<td>$17,000-$47,000</td>
<td></td>
</tr>
<tr>
<td><strong>Present Value Cost (20 Years)</strong></td>
<td>$2,802,970</td>
<td>$3,236,820</td>
</tr>
</tbody>
</table>

(1) Well and pump costs assume three 5-hp pumps and three 10-hp pumps for option A and two 5-hp pumps for four 10-hp pumps for option B.

(2) Estimated costs do not include costs for easement or right of way acquisition.
Cost Estimates

• Option A is the lowest present value option
• The capital costs for Option A were evaluated to determine per lot costs to homeowners
Assessments

- 91 Properties
- Estimated Cost = $1,631,700
- Costs spread equally per lot/parcel
- Per lot cost = $18,480
- Annual assessment annual (interest rate of 4%) per lot:
  - 20 Years = $112.00/month
Estimated Operating Costs

- Maintaining pumps and equipment and electricity per Year
  - $17,000 - $47,000
- Estimated O&M Cost per month per lot
  - $42.00
Final Estimated Cost

• The total estimated loan payment for the capital costs and the annualized estimated O&M costs over a 20-year period is $154 per month per lot

• Option B would be $183.00 per month per lot
Other Considerations

– Required to obtain a permit from the Kansas Department of Agriculture, Division of Water Resources
– Purchase of property and easements as necessary
– Possible action related to zoning of the property
– Potential risks
– Timing—would be likely to take 1 year or more to become operational
Next Steps

• Create Districts
  – Citizen driven model requires creation of two legal entities
  – Benefit District – allows the county to design, build, and finance project construction. Costs then assessed to the neighborhood for up to 20 years
  – Improvement District – allows the neighborhood to create a governmental entity to operate and maintain the system
Next Steps

• Create Districts
  – A majority of ownerships must sign the petition asking the BoCC to create the benefit district
  – Both districts would have to be approved by BoCC before moving forward
  – Improvement district would set up board of directors, budgets, tax rates for O&M, etc. in accordance with state law
Next Steps

• Design
  – Design would fall into the benefit district duties
  – County would hire a consultant to prepare detailed project plans, permit applications, easement documents, etc. for the project
  – Costs would be included in the total project cost for assessment after completion
Next Steps

• Construction
  – County would acquire needed easements
  – County would work with any utilities that would need to be relocated
  – County would use standard bidding processes to obtain best price for construction
  – County would monitor construction
  – Above costs would be included in final assessments
Next Steps

• Assessments
  – Final assessment notices are sent to owners
  – Owners have 30 day to pay off part or all of assessment
  – Any unpaid portion included in the next county bond sale for permanent financing
  – After the bonds are sold annual payments are calculated and added to the tax rolls
  – If taxes paid through escrow – payments will show up there
Next Steps

- Normal Operation
  - The benefit district and county have completed their participation
  - Improvement district manages the operation and maintenance of the system, sets mill levy rates to support the system, operates through a publicly elected board of directors
  - Improvement district is permanent
QUESTIONS
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