

# GEOLOGIC SITE RECONN / INVESTIGATION: WHAT TO LOOK FOR

IA-NRCS

<b>Structure Component</b>	<b>Site Condition or Consideration</b>	<b>Potential Concern(s)</b>
<b>FOUNDATION</b>	What is exposed in the channel banks, or seen with a hand soil probe?	
	<b>Soft clays</b> or <b>organic soils</b> - - - - -	Compressibility
	<b>Sand and/or gravel</b> (channel deposits, glacial outwash, buried channels)- - -	Seepage
	<b>Bedrock</b> (rock type, bedding thickness, degree of weathering, jointing, cavities)	Seepage
	Depth of <b>core trench</b> needed to ensure a good cutoff (based on above) - - - -	Seepage; Compressibility; Cost
	Amount of <b>stream channel cleanout</b> needed to remove compressible soils - - -	Compressibility; Cost of excavation
	<b>Steepness and height</b> of channel banks - - - - -	Differential settlement
	<b>Headcuts</b> on the downstream channel floor- - - - -	Upstream movement of headcut
<b>POOL</b>	<b>Purpose</b> of the structure - - - - -	Permanent water storage important?
	<b>Sand</b> in the pool area / <b>sandy spot symbols</b> on soils map - - - - -	Seepage
	<b>Rock outcrops</b> in the pool area / <b>outcrop symbols</b> on soils map - - - - -	Seepage
	<b>Sinkholes</b> (in shallow limestone, dolomite, or sandstone bedrock) - - - - -	Rapid water loss
	Abandoned well, mine shaft, or other <b>cultural features</b> (get landowner input) - -	Rapid water loss

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<b>BORROW MATERIALS</b>	<p><b>Quantity</b> of and <b>distance</b> to <b>borrow</b> - - - - -</p> <p><b>Quality of borrow:</b> texture, plasticity, and moisture content - - - - -</p> <p>Limitations on the <b>depth of pool excavation:</b></p> <ul style="list-style-type: none"> <li>- Should not be deeper than the bottom elevation of the cutoff trench - - -</li> <li>- At least 2-3 ft of clay must remain over any sand/gravel/permeable rock - -</li> <li>- Wetness of the borrow (shallow water table) - - - - -</li> </ul>	<p>Construction costs</p> <p>Erodibility; Compaction effort</p> <p>Seepage</p> <p>Seepage</p> <p>Workability &amp; compaction of fill</p>
<b>AUXILIARY SPILLWAY</b>	<p><b>Erodibility</b> of the spillway soils - - - - -</p> <p>Presence of <b>sinkholes</b> and/or <b>seeps</b> - - - - -</p>	<p>Surface erosion on spillway</p> <p>Internal erosion &amp; piping</p>
<b>SHEETPILE</b>	<p>Depth to <b>stiff material</b> (in order to use the standard drawing, stiff glacial till must be present within 4 ft of the surface)- - - - -</p> <p>Depth to <b>bedrock, cobbles</b> or <b>boulders</b> - - - - -</p>	<p>Construction costs; longevity</p> <p>Could limit drive depth</p>
<b>ROCK / RIP-RAP</b>	<p><b>Consistency of soils</b> (e.g., if a geotextile is used under the rock, it must be placed on firm/stiff material or compacted fill so it is not punctured) - - - -</p> <p><b>Steepness</b> of the slope / channel banks - - - - -</p>	<p>Durability/longevity of the structure</p> <p>Slope limits of the design</p>
<b>ANIMAL WASTE STORAGE</b>	<p>Is it in an area of <b>karst bedrock</b> or <b>alluvial soils?</b> (See DNR siting atlas) - - - -</p> <p>Does the investigation meet requirements in IA Instruction 210-389 regarding:</p> <ul style="list-style-type: none"> <li>- the depth and thickness of <b>low permeability soil or rock</b> - - - - -</li> <li>- the number and depth of <b>borings</b> or <b>test pits</b> - - - - -</li> <li>- uniformity of the <b>foundation</b> - - - - -</li> </ul>	<p>Groundwater contamination State of Iowa Admin. Code</p> <p>Groundwater contamination State of Iowa Admin. Code</p> <p>Settlement; NRCS policy (Std. 313)</p>
<b>RESTORED WETLAND</b>	<p><b>Hydric soils</b> must be present, indicating a wetland existed there before - - - -</p> <p><b>Thickness of recent sediment</b> (PSA, fill, etc) dictates maximum depth of excavation</p>	<p>NRCS policy (Std. 657)</p> <p>NRCS policy (Std. 657)</p>