Shingletown Wells Iron and Manganese Treatment Upgrades

Schedule “C” Class Environmental Assessment

Virtual Public Consultation Centre #3
Welcome!

Goals of this Public Consultation Centre

- Provide background information on the Shingletown Wells
- Present preliminary facility size requirements and potential locations
- Provide the evaluation criteria for the potential facility locations
- Evaluate locations for iron and manganese treatment facility, and
- Contact a project team member if you have any questions or would like to provide input

Comments received during this study will be used to help identify a preferred location for the iron and manganese treatment facility for the Shingletown Wells
Shingletown wells iron and manganese treatment upgrades project overview

What are we doing?
Planning upgrades to the Shingletown Wells to provide treatment to reduce iron and manganese. This study will look at the best way to complete these upgrades.

What does it mean to you?
These upgrades will require a new facility for the treatment equipment. It is expected additional property at the Region’s existing water supply site, or a new site will be required. There is no change in the amount of water being taken from the Shingletown Wells.

Why are we doing it
The province is expected to lower aesthetic drinking water objectives for manganese in the near future. The Shingletown Wells have been identified as requiring upgrades to meet these future aesthetic objectives. We are taking steps now to ensure we are ready to meet these objectives.

Aesthetic objectives are targets we meet when treating water for taste, odour, and colour.
The preferred treatment alternative has been identified earlier in this study as oxidation and filtration and the preferred residual management alternative was identified as backwash equalization tank with supernatant recycling and haulage of settled solids.

Backwash contains iron and manganese particles. After enough time to allow settling, most of the water separates as “supernatant”. The solids would thicken to “settled solids”.

Water into the distribution system

Filtration system with media that helps remove the iron and manganese

Well water into filtration

Chlorine storage and injection system

K50, K51, K52 Wells

Settled solids hauled offsite

Backwash from filters

Supernatant to filter inlet

Supernatant recycle pump

Backwash equalization tank

Region of Waterloo
Based on the preferred treatment and residual management approach, an approximate site layout was determined. The new site should have space for adequate property set-backs, driveway, parking, and landscaping.
Requirements for potential treatment site location

There is not enough space on the existing site for a new treatment facility. Potential options for a new site were identified based on:

- Land size for new building and driveway
- Vehicle access to the new site
- Distance to the existing Shingletown Wells and watermains
- Environmental features, cultural heritage features, and areas of archaeological potential
- Current and potential future land uses
Potential alternatives were screened to develop a short-list of potential location options for detailed evaluation.
Environmental field investigations were completed at the three locations identified to observe the local wildlife and vegetation.

Given the current land uses and proximity to the roadway, all three locations would be minimally impacted by the construction of a new iron and manganese facility. No species at risk impacts were anticipated at any of the three locations.
Archaeological assessment

An initial review indicates that all three locations retain archaeological potential. Field investigations will be completed at the detailed design stage for the recommended location to determine if there are any items on the property of archeological importance. At this stage, all three sites were considered to have equal archaeological potential.
Evaluation criteria

Criteria scoring
The potential locations for an iron and manganese facility will be evaluated according to the criteria shown below, with each of the four criteria being considered equally. The highest overall score will identify the preferred location.

Technical Criteria
• Provides reliable service
• Meets current and future needs
• Aligns with existing and planned infrastructure
• Aligns with existing and future land uses
• Aligns with approval and permitting process
• Manages and minimizes construction risks
• Ability to adapt to climate change

Social Criteria
• Protects health and safety
• Minimizes impacts to residents and businesses related to noise, odour, traffic, and aesthetics
• Minimizes impacts to businesses
• Manages and minimizes construction impacts
• Protects cultural heritage features
• Protects archaeological features

Financial Criteria
• Provides low lifecycle costs

Natural Environment Criteria
• Protects environmental features
• Protects wildlife and species at risk
• Protects groundwater, streams, and rivers
• Minimizes climate change impacts
Location 1: Property to the west of the existing site

**Advantages:**
- Removal of agriculture at this location has minimal impact on wildlife

**Disadvantages:**
- Longest distance from existing well site
- Crossing of local tributary is required to connect location to existing wells. It is partially located in Grand River Conservation Authority regulated area
- Largest potential social impact due to location being the closest to existing houses in the area
- Highest lifecycle cost due to distance from existing wells and construction required in the roadway

**Legend**
- Existing Site
- Proposed property Line
- GRCA Reg. Limits
- Existing property Line

**Location:** Along Bleams Road, approximately 250 m west of the existing site.

**Description of property:** agriculture, row crops
Location 2: Property to the south of the existing site

Advantages:
- Removal of agriculture at this location has minimal impact on wildlife

Disadvantages:
- Construction within roadway increases complexity
- Medium distance from existing well site
- Crossing of local tributary within Grand River Conservation Authority regulated area required to connect location to existing wells
- Moderate potential social impact based on its medium distance from nearby houses
- Moderate lifecycle cost due to distance from existing wells and construction required in the roadway

Location: Along Bleams Road, approximately 85 m south of the existing site.

Description of property: agriculture, row crops
Location 3: Property to the east of the existing site

Advantages:
• Shortest distance to existing well site
• Adjacent to existing wells which offers more flexibility for construction and operation
• Lowest lifecycle cost due to proximity to the existing wells
• Smallest potential social impact due to location being the farthest from existing houses

Disadvantages:
• Location is partially located in Grand River Conservation Authority regulated area
• Pasture provides a potential wildlife habitat

Location: Along Bleams Road, approximately 30 m east of the existing site.
Description of property: agriculture, pasture
## Evaluation of design concepts

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Location 1: Property To West of Existing Site</th>
<th>Location 2: Property To South of Existing Site</th>
<th>Location 3: Property To East of Existing Site</th>
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<tbody>
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Preferred location

Location 3 had the best score and is the preferred location for the new iron and manganese treatment facility. This location is closest to the existing wells site, the furthest from local residences and has the lowest lifecycle cost.
Next steps

- **Review background information**
- **Collect data, review existing conditions and identify project constraints and opportunities**
  - **Public Consultation Centre #1**
  - **Introduce the project**
- **Develop and evaluate alternatives**
  - **Public Consultation Centre #2**
  - **Develop and evaluate alternatives to meet the Shingletown Wells needs including treatment approach and key site requirements**
- **Identify preferred alternative**
  - **Public Consultation Centre #3**
  - **Identify the preferred alternative based on the evaluation process (the preferred alternative is the option that is considered the best overall solution)**
  - **Prepare the Environmental Study Report to document project information and the decision-making process**
- **Develop and evaluate alternative design concepts**
  - **Obtain input on the preferred treatment approach**
- **Obtain input on the facility location and size**
- **Region of Waterloo Council**
  - Region of Waterloo Council will provide approval to file the Environmental Study Report for a **30 day review period for public comment.**
New iron and manganese facility

There are several stages for this project that will need to be completed before the new facility is built. The following is an estimate of the project timeline. This timeline may change as the project progresses:

**Conceptual design (2021)**
- The Region needs to acquire land based on the preferred location
- A geotechnical investigation used to look at the properties of the soil at the site will be conducted involving the drilling of several boreholes

**Detailed design (2023 to 2026)**
- Several investigations will be conducted to support the detailed design including a site survey and further archeological assessment
- The exterior look of the building and the landscaping will be determined during detailed design

**Construction (2027 to 2029)**
- Facility constructed will likely be a one-storey building
- The site will include a paved road and landscaping to match the surrounding area
Thank you for your participation!

Get engaged!
Do you have questions, comments, or want to stay up to date?

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More information, including copies of project notices and Public Consultation Centre materials can be found at: https://www.regionofwaterloo.ca/CurrentWaterProjects/