



# WELCOME

## to the Public Information Centre for Marsville Water System Expansion Schedule B Municipal Class Environmental Assessment

Please:

- Sign in
- Review the display materials and discuss your questions and ideas with our team members
- We will review and incorporate feedback from public, agencies, etc.
- We will respond to written questions and comments
- Fill in a comment sheet and place in "Comment Box" or send comments **before July 7<sup>th</sup>, 2023** to:

**Carley Dixon, P. Eng.**  
Project Manager  
R. J. Burnside & Associates Limited  
15 Townline  
Orangeville, ON L9W 3R4  
**T: 226-486-1542**  
**E: Carley.Dixon@rjburnside.com**

**Peter Avgoustis, MPA, MSc**  
Chief Administrative Officer  
Township of East Garafraxa  
065371 Dufferin County Road 3, Unit 2  
East Garafraxa ON L9W 7J8  
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# MUNICIPAL CLASS EA PROCESS FOR SCHEDULE B PROJECT



## PHASE 1 PROBLEM OR OPPORTUNITY

– Identify problems or opportunities

## PHASE 2 ALTERNATIVE SOLUTIONS

- Identify alternative solutions to address the problems or opportunities
  - Consider environmental and technical impacts on each alternative solution
  - Identify preliminary preferred solutions

– **Consult with agencies/stakeholders and the public**

- Select a preferred solution to address the problems or opportunities
  - Evaluate preliminary preferred solutions based on public/agency comments
  - Select a preferred solution to address the problems or opportunities
  - Re-confirm project as a Schedule B undertaking



## PHASE 3 ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION PHASE 4 ENVIRONMENTAL STUDY REPORT

– Not required for Schedule B projects

## PROJECT FILE REPORT

- Prepare project file report that documents Phase 1 and Phase 2 of the process
  - Include copies of all notices and letters relating to public consultation
  - Include all comments received and feedback provided to/from agencies/stakeholders and the public

## NOTICE OF COMPLETION

- Issue Notice of Completion and Project File Report for a 30-day public review period
- If no Section 16(6) order is received, proceed to Phase 5

## PHASE 5 IMPLEMENTATION

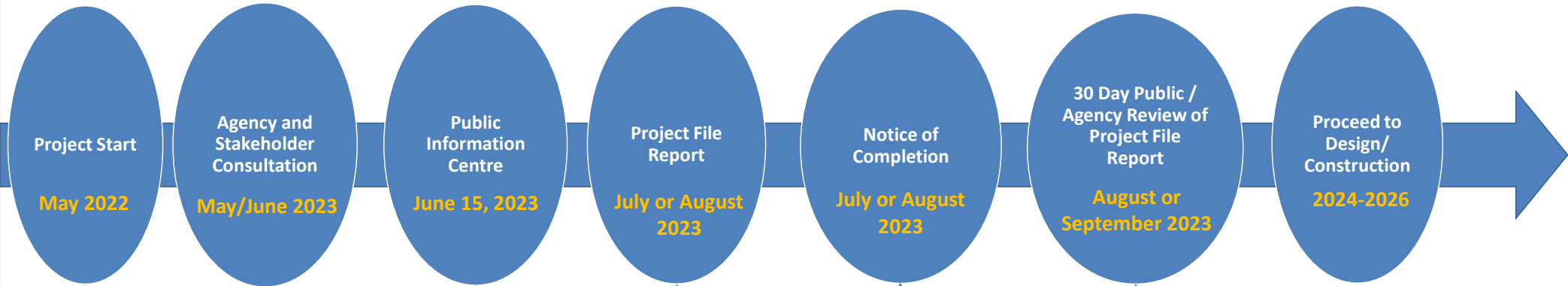
- Proceed to detailed design and construction of the project
- Monitor for environmental provisions and commitments



# CONSULTATION TIMELINE



TIMELINE MAY VARY PENDING COMMENTS RECEIVED



- Mailed letters to Stakeholders and Agencies with copy of Notice of Public Information Centre
- Meetings held with Fire Chief in September 2022 and May 2023

- Notice posted on Township website
- Notice included in Agency/Stakeholder consultation
- Notice mailed to property Owners within Marsville and potential wellhead protection areas outside of Marsville

- Will be posted on the Township website
- Will be available at Township Office for viewing

- Will be on Township website
- Will be sent to stakeholders, agencies, and public on contact list
- Will be mailed to property Owners within Marsville and potential wellhead protection areas outside of Marsville

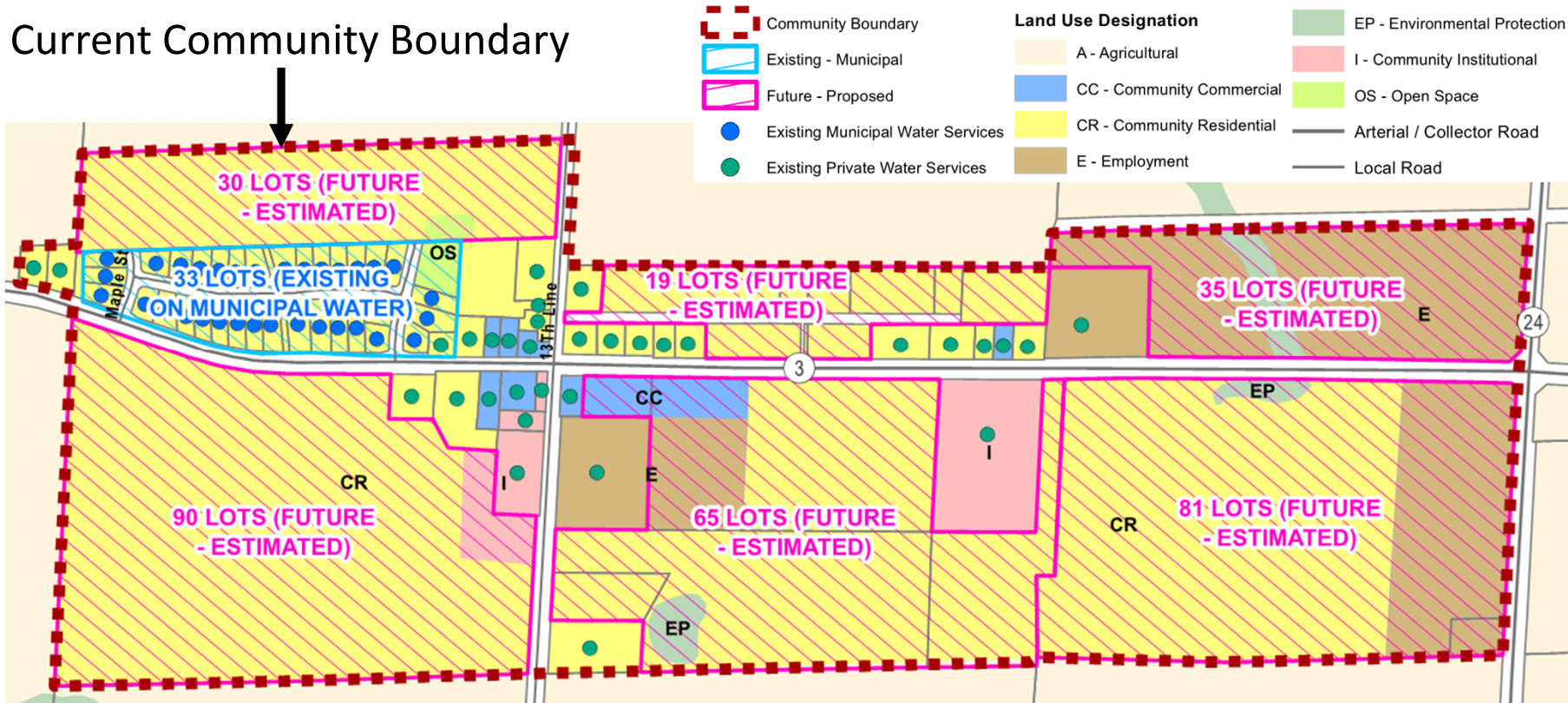
- Review and coordinate comments received
- Any member of the public or agency / stakeholder can request a Section 16(6) order if:
  - You have outstanding concerns that a project going through a Class EA process may have a potential adverse impact on constitutionally protected Aboriginal and treaty rights and you believe that an Order may prevent, mitigate or remedy this impact
  - The Minister can make an Order which can require a proponent to apply for approval or meet further conditions in addition to those in the Class EA



# PROJECT AREA - MARSVILLE



## Current Community Boundary



### New Development Estimate (Equivalent)\*

\* Subject to required studies and planning processes. Number of lots is considered a general residential equivalent estimate and could vary among parcels based on nitrate assessments and other environmental constraints and technical studies

### Existing

Dwellings on Municipal Water System	33 lots
School (Residential Equivalent)	15 lots
Existing Built Properties	32 lots
	<b>80 lots</b>

Future Development	320 lots
Infill Potential Estimate	10 lots
	<b>330 lots</b>

.....+..... = **410 lots**

Approx. 270 lots is residential and remaining is for employment or commercial uses



# EXISTING DRINKING WATER SYSTEM



## Marsville Pumphouse

- Located in the park at the end of Grand Crescent. Serves 33 existing residential properties.
- There is one groundwater well (PW1) rated for 364 L/min (6.1 L/s).
- Sodium Hypochlorite with contact piping is used for disinfection.
- There is another well on site (referred to as PW2), but it is not connected or equipped as a municipal well.

## Water Distribution System

- Watermains all 150 mm diameter.
- Hydrants are only used for flushing. No fire protection is provided in the water system.





## PROBLEM/OPPORTUNITY STATEMENT



**The Township of East Garafraxa is undertaking this Schedule B Class Environmental Assessment to address the problem of how the Township can provide water supply and fire protection to meet the future demands of growth within the current boundaries of Marsville.**



# FUTURE ESTIMATED WATER DEMANDS



	Existing Water System	SCENARIO UNDER CONSIDERATION IN THIS EA		EXISTING WATER SYSTEM CAPABILITIES
		Existing Water System + New Development	Ultimate Population of Marsville (within current boundaries)	Provided
<b>Estimated Population</b> (A residential equivalency has been applied to employment and commercial land areas)	106	1,165	1,316	N/A
<b>Per capita flow</b>	300 L/cap-d	300 L/cap-d	300 L/cap-d	N/A
<b>Max Day Demand</b>	1.6 L/s	10.1 L/s	11.4 L/s	6.07 L/s (no back-up well)
<b>Peak Hour Demand</b>	2.4 L/s	15.2 L/s	17.1 L/s	6.07 L/s (no back-up well)
<b>Fire Flow</b>	<ul style="list-style-type: none"> <li>Water system does not provide fire flow.</li> <li>The closest source of water is a private reservoir on Century Woods site.</li> </ul>	<p>Alternatives include the following options:</p> <ul style="list-style-type: none"> <li>Option A – Offline Reservoirs Minimum 250,000 Litres</li> <li>Option B – Distribution System 38 L/s for 2 hours</li> <li>Option C – MECP Storage 69 L/s for 2 hours</li> <li>Option D – Distribution System 95 L/s for 2 hours</li> </ul>	<p>Alternatives include the following options:</p> <ul style="list-style-type: none"> <li>Option A – Offline Reservoirs Minimum 250,000 Litres</li> <li>Option B – Distribution System 38 L/s for 2 hours</li> <li>Option C – MECP Storage 74 L/s for 2 hours</li> <li>Option D – Distribution System 95 L/s for 2 hours</li> </ul>	N/A
<b>Storage</b>	N/A	<ul style="list-style-type: none"> <li>Option B: 342 m<sup>3</sup></li> <li>Option C: 621 m<sup>3</sup></li> <li>Option D: 855 m<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Option B: 342 m<sup>3</sup></li> <li>Option C: 666 m<sup>3</sup></li> <li>Option D: 855 m<sup>3</sup></li> </ul>	N/A



# ALTERNATIVE SOLUTIONS



## Alternative 1 - Do Nothing

### Alternative 2 – New Groundwater Wells (to increase water supply)

- PW2 (At existing Pumphouse Site)
- West Well Site (Marsville South Subdivision)
- East Well Site (Marsville Estates Subdivision)

### Alternative 3 – Fire Protection Alternatives

#### **Alternative 3A – Offline reservoir(s) – 250,000 L total**

- Site 1 – Existing Marsville Park Site
- Site 2 – Marsville South Subdivision Park (Accessed from internal road)
- Site 3 – Marsville South Subdivision Park (Accessed from 13th Line)
- Site 4 – East Garafraxa Public School
- Site 5 – Marsville Estates Subdivision Entrance
- Site 6 – Marsville Estates Subdivision Park

#### **Alternative 3B – Provide 38 L/s for fire flow from hydrants in distribution system**

- From Well Supply
- From Storage (Standpipe)

#### **Alternative 3C – Provide 69 L/s for fire flow from hydrants in distribution system**

- From Storage (Standpipe)

#### **Alternative 3D – Provide 95 L/s for fire flow from hydrants in distribution system**

- From Storage (Standpipe)

### Alternative 4 – Site Options for Treatment/Storage

- Site 1 – Proposed Marsville South Park (Behind Public Works Yard)
- Site 2 – At the East Test Well Site (Marsville Estates Subdivision Property)
- Site 3 – Existing Park Site
- Site 4 – Proposed Marsville Estates Subdivision Park

### Alternative 5 – Connection to Nearby Municipal System Alternatives

- Option 1 – Hillsburgh – Approx. 7 km from Marsville
- Option 2 – Grand Valley – Approx. 10 km from Marsville
- Option 3 – Orangeville – Approx. 10 km from Marsville





# ALTERNATIVE 1 - DO NOTHING

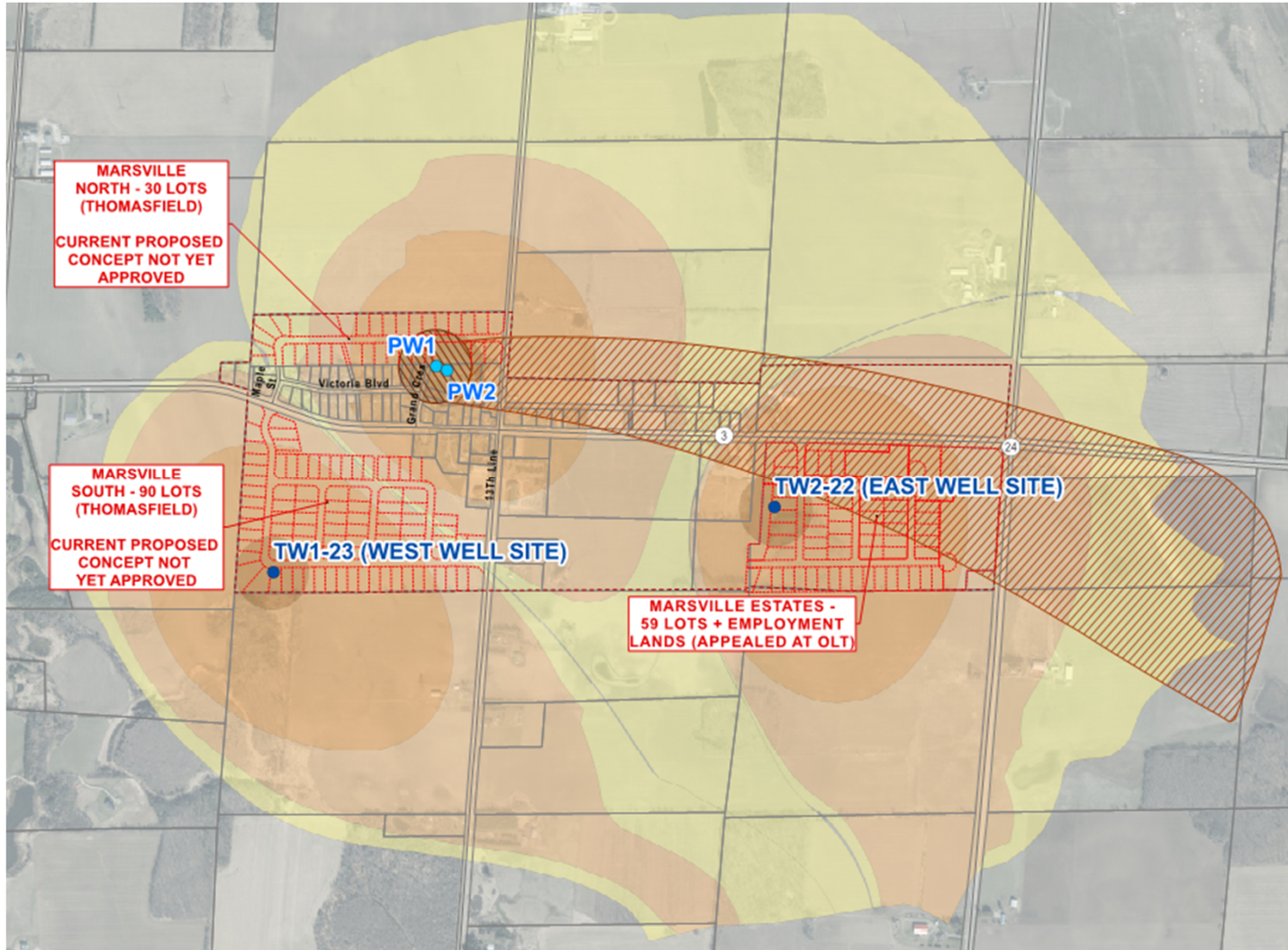


Advantages	Disadvantages
<ul style="list-style-type: none"><li>• No impact over existing conditions related to the natural environment.</li><li>• No additional nuisance related to construction.</li><li>• No expense associated with new infrastructure.</li><li>• No new land is required.</li></ul>	<ul style="list-style-type: none"><li>• Little conformity to planning policies, given the Township's current official plan designates growth for various areas of Marsville.</li><li>• The Township's Risk Management Official has recommended additional water supply in Marsville be from municipal water as opposed to private wells from a Source Water Protection perspective.</li><li>• Fire protection would rely on shuttling water to the source of the fire from sources outside of Marsville.</li><li>• Existing system would remain as is which relies on one well. This creates challenges for maintenance and provides no redundancy should the well go out of service.</li></ul>

**NOT PREFERRED - Alternative 1 does not address the problem statement. Therefore, this alternative was not selected as the preliminary preferred alternative.**



# ALTERNATIVE 2 – NEW GROUNDWATER WELLS (TO INCREASE WATER SUPPLY)

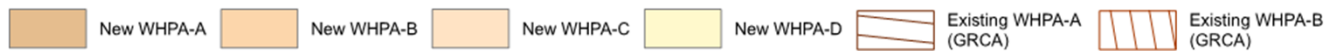


## NEW WELL SITES

- West Well Site (Marsville South Subdivision Site – TW1-23)
- East Well Site (Marsville Estates Subdivision Site – TW2-22)
- PW2 (existing well at existing Pumpouse Site)

## PRELIMINARY WELLHEAD PROTECTION AREAS (WHPAs)

- WHPAs based on wells pumping 25 L/s.
- Final WHPAs to be established based on final municipal well locations and permitted rate.
- Preliminary preferred alternative would reduce the WHPA extents slightly as wells would be rated for less than 25 L/s based on the preliminary preferred alternative.
- Existing WHPA for the current municipal well (PW1) is smaller as it is based on a pumping rate of 6.07 L/s
- The WHPAs have low vulnerability due to the low permeability of the overburden that provides around 60m of protection over the aquifer.
- No source water protection plan policies apply to the WHPA-D (shaded in yellow) due to its low vulnerability.





# ALTERNATIVE 2 – NEW GROUNDWATER WELLS (TO INCREASE WELL SUPPLY)



BURNSIDE

Well Supply Site Options	Natural Environment	Socio-economic / Cultural Environment	Technical Factors
<b>PW1 (Existing Municipal Well)</b>	<ul style="list-style-type: none"> <li>Pumping test required for additional supply however based on PW2 results no impact expected.</li> </ul>	<ul style="list-style-type: none"> <li>No changes to WHPA if existing permitted rate is not changed.</li> <li>Due to the proximity to PW2, WHPA policies anticipated for PW1 would be similar to PW2 if PW1 capacity was increased.</li> </ul>	<ul style="list-style-type: none"> <li>PW1 is the only municipal well. Additional testing on this well is not recommended until a new well is online.</li> <li>PW1 is a 150 mm (6") well with a permitted rate of 6.07 L/s. A larger diameter well would be needed to expand the capacity and would most likely end up being replaced. The 150 mm (6") well could provide flows as high as 10 L/s but would require a 72-hour pumping test for approvals.</li> <li>Amendments to the Permit to Take Water would be required to increase the rate.</li> <li>Detail design of the preliminary preferred alternative would consider advantages of providing infrastructure for a spare connection of PW1.</li> </ul>
<b>PW2 (at Existing Pumphouse Site)</b>	<ul style="list-style-type: none"> <li>Pumping test confirmed no impact and that yields are sustainable.</li> </ul>	<ul style="list-style-type: none"> <li>Summarized below are anticipated impacts associated with a new wellhead protection area and source water protection policies.               <ul style="list-style-type: none"> <li>WHPA A (all properties within 100 m of the well)                   <ul style="list-style-type: none"> <li>Existing and future on-site sewage systems would be included as part of a maintenance inspection program that is implemented by the County of Dufferin Building Department. An inspection every five years is completed. Approximately 2-4 additional existing properties would be added to the current inspection program in addition to the new development lots.</li> <li>Other policies with respect to residential lots are limited however could include education/outreach regarding the protection of the drinking water supply.</li> </ul> </li> <li>WHPA B (2 year time of travel zone – vulnerability score of 6)                   <ul style="list-style-type: none"> <li>Any future use of dense non aqueous phase liquid (DNAPL) or organic solvents would be prohibited in a commercial or industrial setting. If existing, a Risk Management Plan would be required.</li> <li>Township Public Works Site is within WHPA B. A Risk Management Plan would be implemented but would have limited impact to the Township's operation.</li> <li>Century Wood Products is within WHPA B. A Risk Management Plan would be implemented to address DNAPL or organic solvents if they are used on the site.</li> </ul> </li> <li>WHPA C (5 year time of travel zone – vulnerability score of 4)                   <ul style="list-style-type: none"> <li>Any future use of DNAPLs and organic solvents would be prohibited in a commercial or industrial setting. If existing, a Risk Management Plan would be required.</li> </ul> </li> <li>WHPA D (25 year time of travel zone – vulnerability score of 2)                   <ul style="list-style-type: none"> <li>No source water protection plan policies apply.</li> </ul> </li> </ul> </li> <li>The Township already has a Risk Management Plan for salt related to winter road maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>A 72-hour pumping test was completed in 2017 and concluded that PW2 is capable of yields in excess of 19 L/s.</li> <li>PW2 had the least draw down in comparison to the West and East Test Wells (i.e. PW2 is the most efficient).</li> <li>Water Quality Results: Parameters tested met Ontario Drinking Water Standards. Hardness exceeded the Operational Guidelines which is common in groundwater supplies.</li> <li>At the detailed design stage, a video log and casing assessment should be completed to confirm casing integrity and an annular seal should be established at PW2. There is a high probability that it may need to be re-drilled nearby and we have accounted for that in the overall cost estimate.</li> <li>Amendments to the Permit to Take Water would be required to add a new municipal well.</li> </ul>



# ALTERNATIVE 2 – NEW GROUNDWATER WELLS (TO INCREASE WELL SUPPLY)



Well Supply Site Options	Natural Environment	Socio-economic / Cultural Environment	Technical Factors
<p><b>West Test Well (TW1-23)</b></p>	<ul style="list-style-type: none"> <li>The testing completed did not show any significant impact. Long-term pumping tests would be completed to verify the same at the detail design stage.</li> </ul>	<ul style="list-style-type: none"> <li>Summarized below are anticipated impacts associated with a new wellhead protection area and source water protection policies.               <ul style="list-style-type: none"> <li>WHPA A (all properties within 100 m of the well)                   <ul style="list-style-type: none"> <li>Final production well would be located to ensure 100 m separation from the nearby agricultural fields to reduce policies that would need to be implemented. Any encroachment on the south side would be over an area not currently farmed and therefore no impact expected. Future on-site sewage systems would be included as part of a maintenance inspection program that is implemented by the County of Dufferin Building Department.</li> <li>Other policies with respect to residential lots are limited however could include education/outreach regarding the protection of the drinking water supply.</li> </ul> </li> <li>WHPA B (2 year time of travel zone – vulnerability score of 6)                   <ul style="list-style-type: none"> <li>Any future use of (dense non aqueous phase liquid or organic solvent) would be prohibited in a commercial or industrial setting. If existing, a Risk Management Plan would be required.</li> </ul> </li> <li>WHPA C (5 year time of travel zone – vulnerability score of 4)                   <ul style="list-style-type: none"> <li>Any future use of DNAPLs and organic solvents would be prohibited in a commercial or industrial setting. If existing a Risk Management Plan would be required.</li> </ul> </li> <li>WHPA D (25 year time of travel zone – vulnerability score of 2)                   <ul style="list-style-type: none"> <li>No source water protection plan policies apply.</li> </ul> </li> </ul> </li> <li>A Stage 1-2 Archaeological Assessment was completed in 2021 by AMICK Consultants Ltd. that concluded that there was no archaeological concerns.</li> </ul>	<ul style="list-style-type: none"> <li>A 5 hour pumping test was completed. The test suggests a long term capacity of at least 19 L/s.</li> <li>There are no nearby existing wells which is an advantage to this location.</li> <li>There are also no existing on-site sewage systems therefore future property owners would be advised of the source protection area through purchaser acknowledgements.</li> <li>To optimize capacity, well yield and well efficiency, a final production well of up to 10 inch diameter would be constructed near the test well.</li> <li>Water Quality Results: Parameters tested met Ontario Drinking Water Standards. For the Operational Guidelines, hardness exceeded the criteria which is common in groundwater supplies. TW1-23 water quality was slightly better than TW-22 water quality.</li> </ul>
<p><b>East Test Well (TW2-22)</b></p>	<ul style="list-style-type: none"> <li>The testing completed did not show any significant impact. Long-term pumping tests would be completed to verify the same at the detail design stage.</li> </ul>	<ul style="list-style-type: none"> <li>Summarized below are anticipated impacts associated with a new wellhead protection area and source water protection policies.               <ul style="list-style-type: none"> <li>WHPA A (all properties within 100 m of the well)                   <ul style="list-style-type: none"> <li>Existing and future on-site sewage systems would be included as part of a maintenance inspection program that is implemented by the County of Dufferin Building Department. An inspection every five years is completed. While the school's sewage system isn't within 100 m of the proposed well location, it would still be included in the inspection program as part of WHPA A touches its property, as will future lots built around the well that are within WHPA A.</li> <li>Other policies with respect to residential lots are limited however could include education/outreach regarding the protection of the drinking water supply.</li> </ul> </li> <li>WHPA B (2 year time of travel zone – vulnerability score of 6)                   <ul style="list-style-type: none"> <li>Any future use of (dense non aqueous phase liquid or organic solvent) would be prohibited in a commercial or industrial setting. If existing, a Risk Management Plan would be required.</li> </ul> </li> <li>WHPA C (5 year time of travel zone – vulnerability score of 4)                   <ul style="list-style-type: none"> <li>Any future use of DNAPLs and organic solvents would be prohibited in a commercial or industrial setting. If existing a Risk Management Plan would be required.</li> </ul> </li> <li>WHPA D (25 year time of travel zone – vulnerability score of 2)                   <ul style="list-style-type: none"> <li>No source water protection plan policies apply.</li> </ul> </li> </ul> </li> <li>A Stage 1 and 2 Archaeological Assessment was completed in 2020 by Irvin Heritage Inc. and concluded there are no archaeological concerns.</li> </ul>	<ul style="list-style-type: none"> <li>A 4 hour pumping test was completed. The test suggests a long term capacity of at least 19 L/s.</li> <li>The school well is nearby. Long term pumping test would require additional monitoring to confirm if any mitigation measures would be necessary. Mitigation measures could include lowering the well pump in the school well or connection to the future municipal supply and decommissioning of the school well.</li> <li>To optimize capacity, well yield and well efficiency, a final production well of up to 10 inch diameter would be constructed near the test well.</li> <li>Water Quality Results: Parameters tested met Ontario Drinking Water Standards. For the Operational Guidelines, hardness exceeded the criteria which is common in groundwater supplies. For the Aesthetic Objectives, tests for iron and manganese exceeded the objectives.</li> </ul>

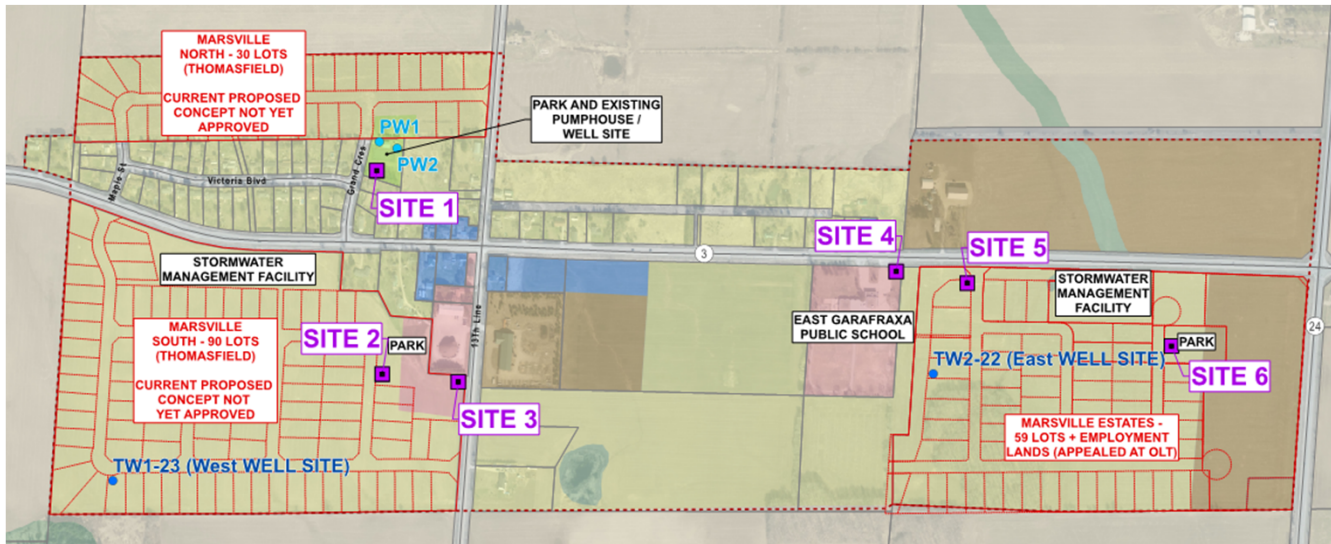


# ALTERNATIVE 3 – FIRE PROTECTION OPTIONS



## ALTERNATIVE 3A – OFFLINE RESERVOIR(S) – 250,000 L total

- Site 1 – Existing Marsville Park Site
- Site 2 – Marsville South Subdivision Park (Accessed from internal road)
- Site 3 – Marsville South Subdivision Park (Accessed from 13th Line)
- Site 4 – East Garafraxa Public School
- Site 5 – Marsville Estates Subdivision Entrance
- Site 6 – Marsville Estates Park



Example of an Offline Reservoir - Only vent pipes, access hatch, and draft pipe for fire department connection can be viewed above ground. Bollards are sometimes added to prevent vehicular traffic from driving/parking over the tank

**ALTERNATIVES 3B, 3C, & 3D – PROVIDE FIRE FLOW AT VARIOUS RATES FROM HYDRANTS IN THE DISTRIBUTION SYSTEM**

### Alternative 3B – 38 L/s for 2 hours

- From Well Supply
- From Storage (standpipe approx. 8.5 m diameter, 8.7 m tall)

### Alternative 3C – 69 L/s for 2 hours

- From Storage (standpipe approx. 8.5 m diameter, 13 m tall)

### Alternative 3D – 95 L/s for 2 hours

- From Storage (standpipe approx. 10.2 m diameter, 13 m tall)



Example of Storage (Standpipe)



# ALTERNATIVE 3 – FIRE PROTECTION OPTIONS



	Natural Environment	Socio-economic / Cultural Environment	Technical Factors	Financial Factors (See Notes)	
Alternative 3A Offline reservoir(s) 250,000 L total	- No impact over existing conditions. Review of the natural environment has taken place as part of the development applications.	- No impact anticipated on cultural resources as archeological assessments have been completed or are proposed on developed/disturbed sites. - Potential impacts on air quality during construction (noise, dust, emissions). - Preferred site locations are on land that have active planning applications. Land cost would be considered in terms of cost sharing/recovery among future developers.	- Least preferred by the Fire Department. Would require a minimum of 2 sites. The existing Marsville Park (Site 1) or a site adjacent to 13 <sup>th</sup> Line (Site 3) is preferred on the west side. On the east side, additional discussions would be required to select a preferred site. Marsville Estates Subdivision is in the OLT process and the dead ends within the subdivision limit maneuvering options for the Fire Department. - Certain building sizes/uses within the employment land use designations could require more off-line reservoirs to comply with the Ontario Building Code. - Fire Department requested automatic fill from the municipal water system. This creates some complexities as the water in the reservoir is 'non potable' so yearly certifications of a backflow preventer that would be located within an underground chamber would be required.	<b>Alternative 3A</b> Capital: - \$22,000 per lot (based on 330 lots) - \$35,000 per lot (based on 201 lots) Life Cycle Costs (30 year) - \$8.9 Million	
Alternative 3B, 3C, & 3D – Provide Fire Flow at Various rates from hydrants in the distribution system	- A back-up generator (in case of a power outage for example) is required which will have air and noise impact during test and emergency use.	- No impact anticipated on cultural resources as archeological assessments have been completed or are proposed on developed/disturbed sites. - Potential impacts on air quality during construction (noise, dust, emissions). - Preferred site locations are on land that have active planning applications. Land costs would be considered in terms of cost sharing/recovery among future developers who do not have the infrastructure on their land.	- Fire Department would treat Alternative 3B (38 L/s) like off-line reservoirs, in that they would draw from a hydrant to fill a tanker to deliver water to the fire at a higher flow rate. - The Fire Department would rate Alternative 3D their most preferred as it provides the most fire flow, however Alternative 3C (69 L/s) which is the MECP guideline for storage for fire protection would be reasonable and comes at a slightly reduced cost. Any fire that requires more water supply would utilize other sources of water or through assistance by other nearby Fire Departments. - A municipal system that provides fire flow can provide a source of water near the employment lands as hydrants can be added as required. It would eliminate their need (unless there are extenuating circumstances) to provide additional fire protection.	<b>Alternative 3B – from wells</b> Capital: - \$29,000 per lot (based on 330 lots) - \$47,000 per lot (based on 201 lots) Life Cycle Costs (30 year) - \$12.2 Million	<b>Alternative 3B – from storage (standpipe)</b> Capital: - \$26,000 per lot (based on 330 lots) - \$42,000 per lot (based on 201 lots) Life Cycle Costs (30 year) - \$11.2 Million
				<b>Alternative 3C – from storage (standpipe)</b> Capital: - \$27,000 per lot (based on 330 lots) - \$44,000 per lot (based on 201 lots) Life Cycle Costs (30 year) - \$11.6 Million	<b>Alternative 3D – from storage (standpipe)</b> Capital: - \$28,000 per lot (based on 330 lots) - \$45,000 per lot (based on 201 lots) Life Cycle Costs (30 year) - \$11.9 Million

**Alternative 3C – from storage (standpipe)**  
 Capital:  
 - \$27,000 per lot (based on 330 lots)  
 - \$44,000 per lot (based on 201 lots)  
 Life Cycle Costs (30 year)  
 - \$11.6 Million  
**Preliminary Preferred Alternative**

**Notes:** Preliminary Cost Estimates. Costs include providing well supply/treatment for drinking water to properties but do not include the cost for the distribution system (pipes/hydrants/valves) to deliver the water to customers. The staging of development plays a role in watermain layout and cost recovering may be required from benefiting parties. The cost per 201 lots is based on the developers with planning applications currently submitted to the Township. Typically, developers upfront costs and there is cost recovery from future benefiting parties.

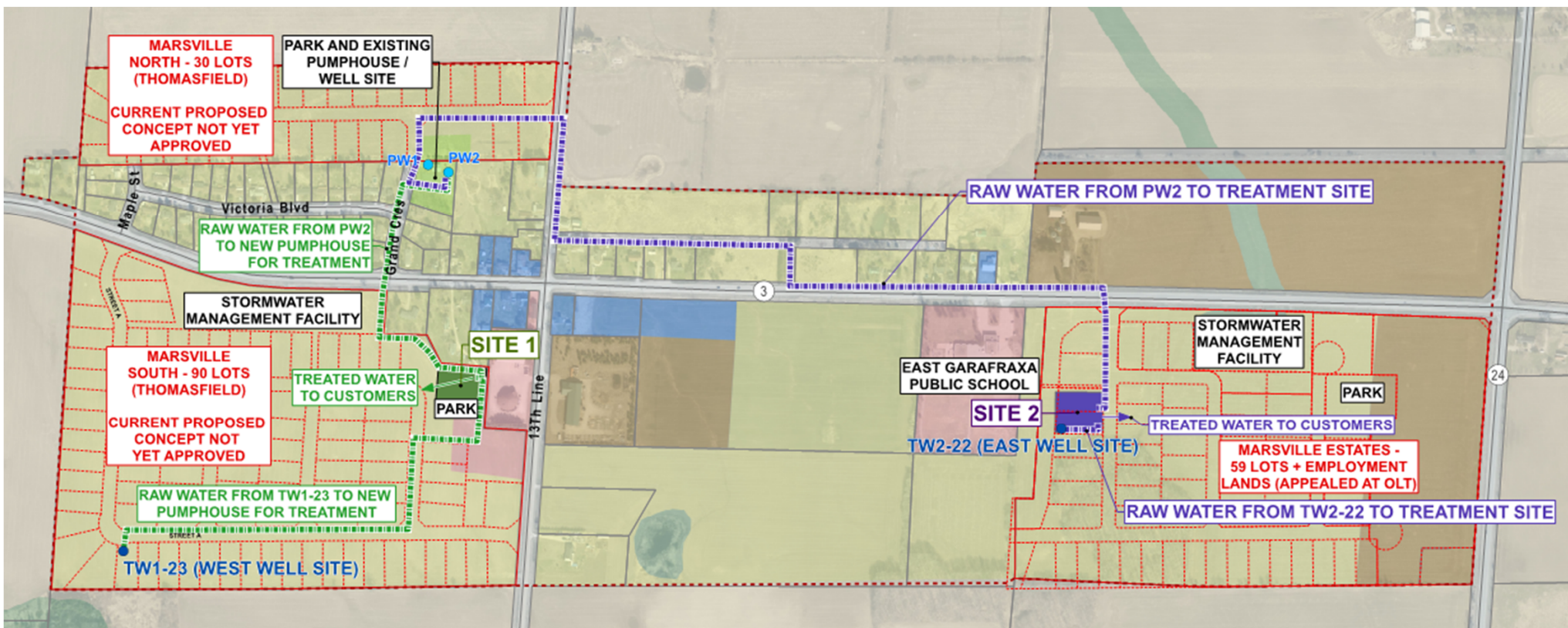


# ALTERNATIVE 4 – SITE OPTIONS FOR TREATMENT AND STORAGE



## SITE 1 PRELIMINARY PREFERRED SITE LOCATION MARSVILLE SOUTH PARK (BEHIND PUBLIC WORKS YARD)

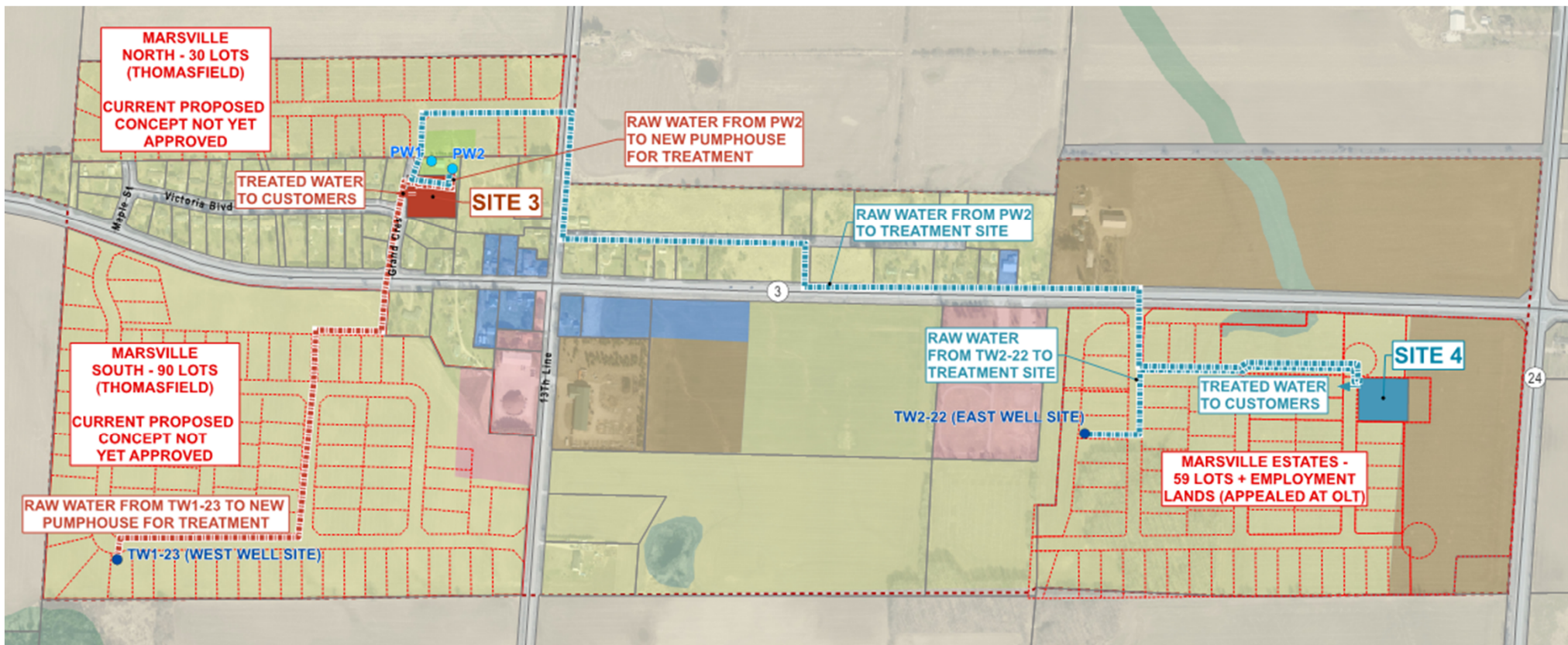
## SITE 2 LEAST PREFERRED MARSVILLE ESTATES SUBDIVISION





### SITE 3 LEAST PREFERRED EXISTING PARK SITE

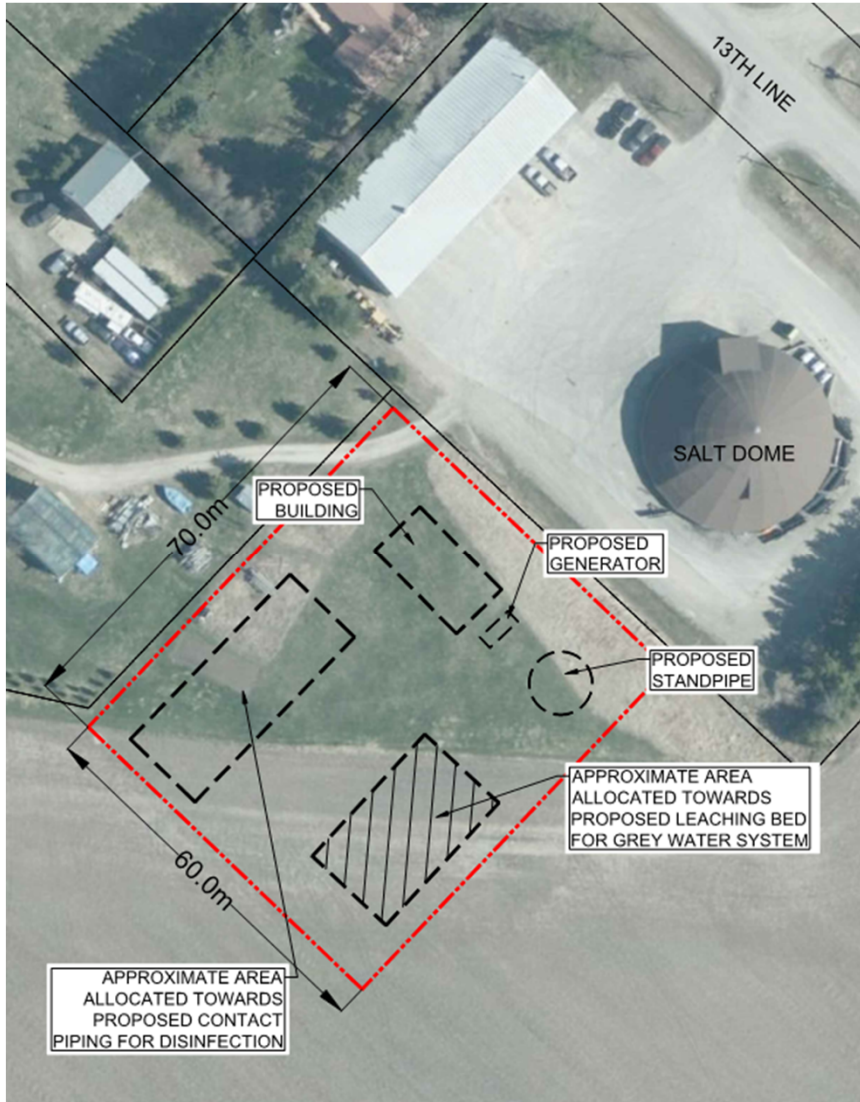
### SITE 4 LEAST PREFERRED MARSVILLE ESTATES SUBDIVISION







## SITE 1: PROPOSED MARSVILLE SOUTH PARK (BEHIND PUBLIC WORKS YARD)



**CONCEPTUAL FIGURE. FINAL LOCATIONS  
DETERMINED AT DETAIL DESIGN.**

Natural Environment	Socio-economic / Cultural Environment	Technical Factors
<ul style="list-style-type: none"> <li>- A back-up generator (in case of a power outage for example) is required which have air &amp; noise impact during testing and emergency use.</li> </ul>	<ul style="list-style-type: none"> <li>- The additional storage would be designed to accommodate future growth areas designated in the Official Plan.</li> <li>- No impact anticipated on cultural resources as an archeological assessment was completed on the site in 2021.</li> <li>- Potential impacts on air quality during construction (noise, dust, emissions).</li> <li>- Site is located on land that has an active planning application. Land costs would be considered in terms of cost sharing/recovery among future benefiting developers.</li> </ul>	<ul style="list-style-type: none"> <li>- The site is on future development land within the current proposed park location. There is significant flexibility at this time to ensure the layout is easily accommodated for within the subdivision as well as considering how that could be coordinated with future park development as the subdivision layout could be modified if needed.</li> <li>- Access to the building could be through the public works yard with secondary future access considered should the public works yard be re-located in the future.</li> <li>-The site is approximately mid-point between PW2 and the West Test Well. It is the most cost effective in terms of providing generator backup to the wells via one generator.</li> <li>-MECP Guidelines indicate a water supply system should have firm capacity which equates to the system providing maximum day demand with the largest well out of service. This alternative would have two wells, a West Well, and PW2.</li> </ul>

### PRELIMINARY PREFERRED ALTERNATIVE



## SITE 2 OR SITE 4: MARSVILLE ESTATES PROPERTY



**CONCEPTUAL FIGURE. FINAL LOCATIONS DETERMINED AT DETAIL DESIGN.**

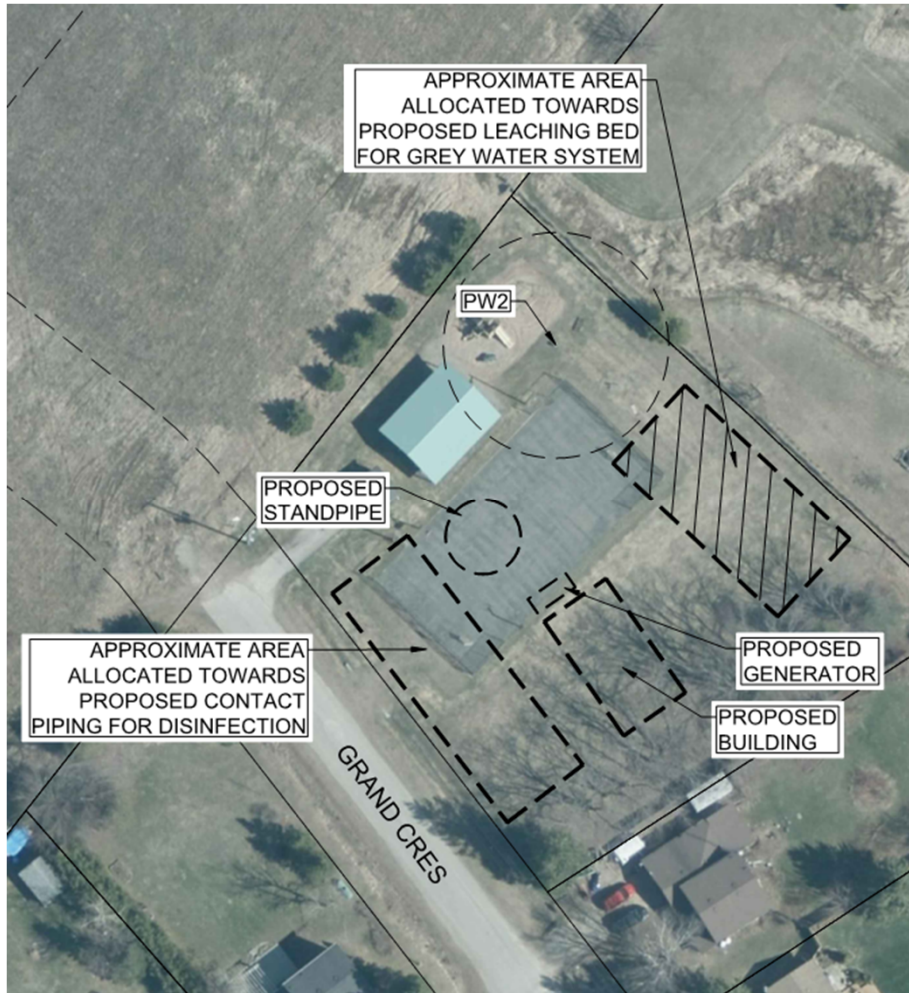
Site 4 would have a similar design concept as above but is least preferred as it is further away from the potential municipal well site. Site 2 is preferred over Site 4.

Natural Environment	Socio-economic / Cultural Environment	Technical Factors
<ul style="list-style-type: none"> <li>- A back-up generator (in case of a power outage for example) is required which have air &amp; noise impact during testing or emergency use.</li> </ul>	<ul style="list-style-type: none"> <li>- The project would be designed to accommodate future growth areas designated in the Official Plan.</li> <li>- No impact anticipated on cultural resources as an archeological assessment was completed on the site in 2020.</li> <li>- Potential impacts on air quality during construction (noise, dust, emissions).</li> <li>- Site is located on land that has an active planning application. Land costs would be considered in terms of cost sharing/recovery among future benefiting developers.</li> </ul>	<ul style="list-style-type: none"> <li>- Would require a site area of approximately 70 m long by 60 m wide. There are complexities with modifying the site layout due to the OLT process underway.</li> <li>- Well TW2-22 would require treatment to remove iron and manganese which is above the aesthetic limit.</li> <li>- MECP Guidelines indicate a water supply system should have firm capacity which equates to the system providing maximum day demand with the largest well out of service. This alternative would have two wells.</li> <li>- A building site that is closer to the well is preferred to reduce costs associated with the raw water line, and electrical costs associated with the well pump being able to operate off the generator.</li> <li>- Depending on development timing this site could be used for location of storage and treatment and hooked up to TW1-23 and PW2.</li> </ul>

**NOT A PREFERRED SITE OPTION**



### SITE 3: EXISTING PARK SITE



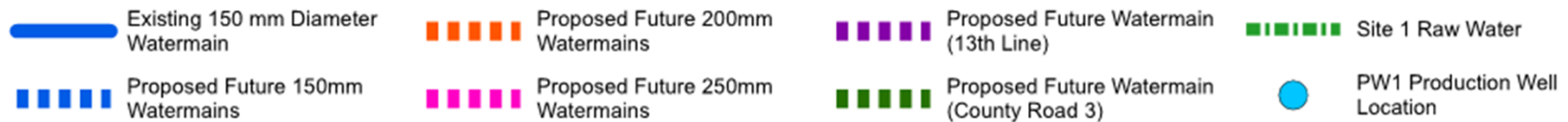
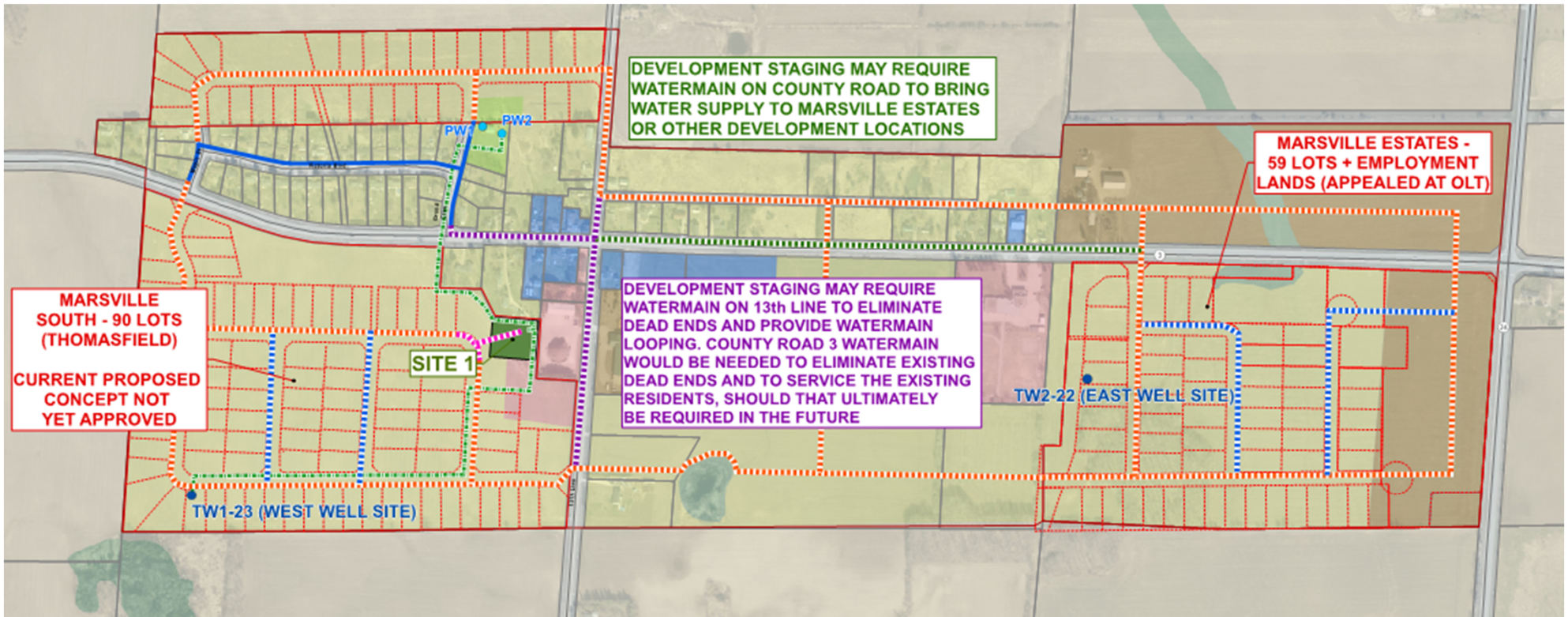
**CONCEPTUAL FIGURE. FINAL LOCATIONS DETERMINED AT DETAIL DESIGN.**

Natural Environment	Socio-economic / Cultural Environment	Technical Factors
<ul style="list-style-type: none"> <li>- A back-up generator (in case of a power outage for example) is required which have air &amp; noise impact during testing or emergency use.</li> </ul>	<ul style="list-style-type: none"> <li>- No impact anticipated on cultural resources as the site is already developed.</li> <li>- Potential impacts on air quality during construction (noise, dust, emissions).</li> <li>- The development of the site would result in the loss of useable park land and the tennis court would need to be removed to preserve trees along the south property line.</li> <li>- While the existing building could be demolished it would not compensate for the large area needed to accommodate current design standards.</li> <li>- We would anticipate due to loss of parkland, enhancements to the existing remaining park area would be requested which could include pathways, new playground/park furniture and/or enhancements at other future park locations.</li> </ul>	<ul style="list-style-type: none"> <li>- The size of the 'vacant' portion of the site is limited and creates more difficulty in accommodating the works. Underground chambers for disinfection could be utilized to reduce the footprint in comparison to contact piping but would likely not be enough to preserve the tennis court.</li> <li>- Using Township lands allows work to commence without requiring lands to be pre-dedicated. There is less complexities from a staging standpoint, but very limited space. Negotiations related to compensation for this area would be required.</li> <li>- Recommend using PW2 and West Test Well with this option.</li> </ul>

**NOT A PREFERRED SITE OPTION**



# CONCEPTUAL WATER DISTRIBUTION SYSTEM SIZED TO DELIVER MINIMUM 69 L/S OF FIRE FLOW & MAXIMUM DAY DEMAND



## Notes:

- Configuration may change as a result of detail design, future planning applications which will determine future road locations, and timing/location of developments.
- Dufferin County prefers watermains to be placed outside their existing road right of way where possible. All watermains within the County Road would require detail design to finalize its location and approval from the County.
- Final watermain sizes will be determined at the detail design stage. We expect watermain sizes to range from 150mm to 250mm. Similar sizing would meet ultimate fire flow for the community when the watermain system is entirely looped with no dead ends.



# ALTERNATIVE 5 – CONNECT TO NEARBY MUNICIPAL SYSTEM



## OPTION 1: MARVILLE TO HILLSBURGH

- Approx. 7 km

## OPTION 2: MARVILLE TO GRAND VALLEY

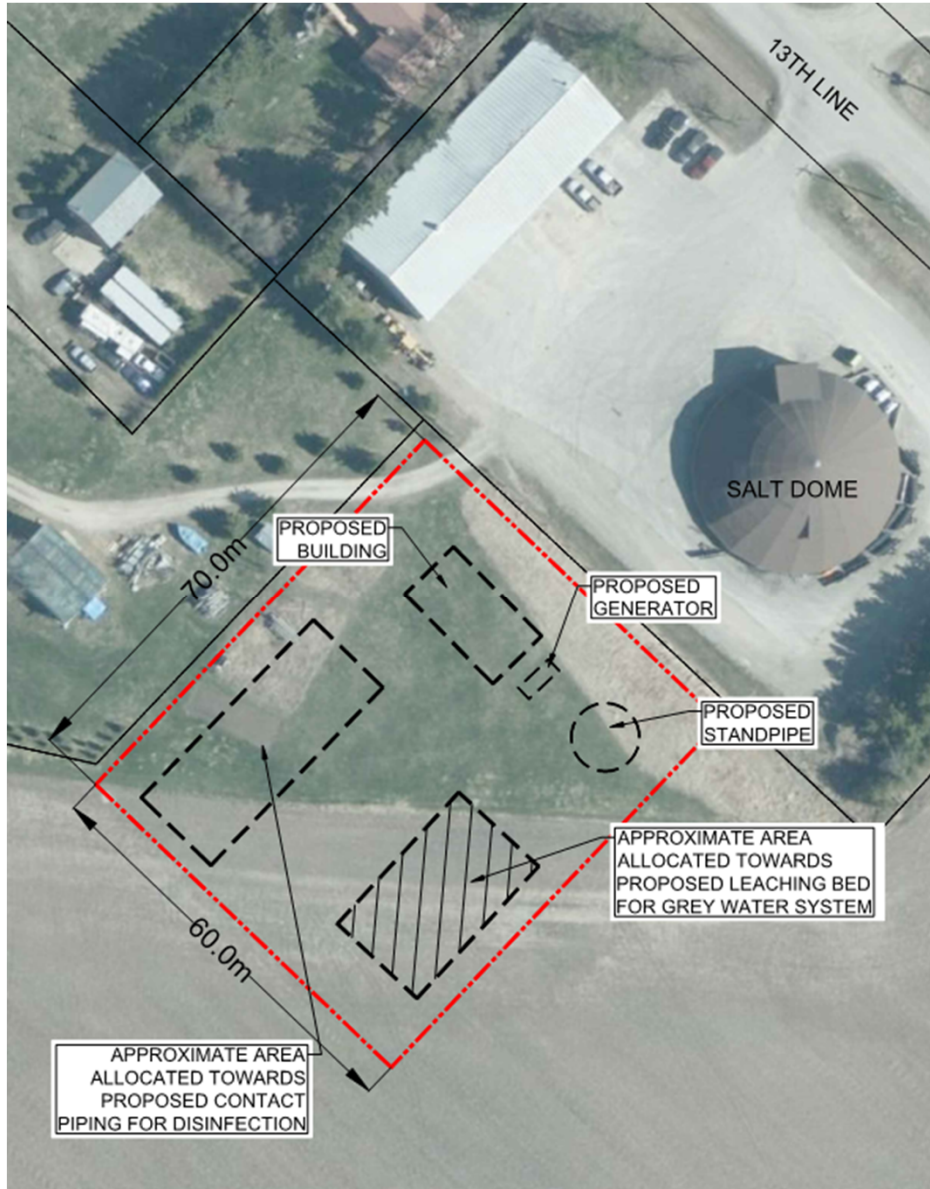
- Approx. 10 km

## OPTION 3: MARVILLE TO ORANGEVILLE

- Approx. 10 km

Natural Environment	Socio-economic / Cultural Environment	Technical Factors	Financial Factors
<p>Overall</p> <ul style="list-style-type: none"> <li>- More area is disturbed compared to other alternatives. All options require watermain to go through environmental areas. Detailed assessment would be needed if this alternative was being considered further including discussions with both GRCA and CVC.</li> </ul>	<p>Overall</p> <ul style="list-style-type: none"> <li>- Aesthetically the watermain is mostly buried except for flushing locations or air release valves so it has minimal impact.</li> <li>- Potential impacts on air quality during construction (noise, dust, emissions)</li> <li>- Both options require agreements and negotiating can be costly and time consuming. They are typically renewed or renegotiated depending on the terms of the agreement which re-commences negotiation requirements.</li> </ul>	<ul style="list-style-type: none"> <li>- Consultation with impacted municipalities would be required. We did not approach any of the municipalities for discussion as the cost is expected to be significantly higher than other options.</li> <li>- In addition to the impacted municipality, County of Dufferin would also have to be consulted on preferred routes.</li> </ul>	<p>Capital cost was not reviewed in detail as the costs will be significantly higher than the other alternatives. There are also many unknown costs that take place through negotiations with the municipality to determine how much financial compensation should be provided for the connection, future capital upgrades and operation and maintenance. Water rates would be typically set by the municipality who supplies the water. The cost for negotiations alone would be considered substantial.</p>

**ALTERNATIVE LEAST PREFERRED**



## ALTERNATIVE 3C AND ALTERNATIVE 4 (SITE 1) MECP STORAGE FOR FIRE PROTECTION WITH WATER TREATMENT AND STORAGE LOCATED IN PROPOSED MARSVILLE SOUTH PARK

### Why?

- Site located mid-point between potential municipal well locations near PW2 and TW1-23. Two wells would be required for this alternative.
- Township can work with Developer to finalize subdivision layout to optimize use of the area.
- Site would be adjacent to Public Works yard which could provide internal site access to the building.
- Based on modelling, 69 L/s-74 L/s is achievable with watermain sizes of 150mm to 250mm diameter.

**BACKUP PRELIMINARY PREFERRED ALTERNATIVE** – The EA considers implications with respect to timing of developments and their location within Marsville. Should Marsville South Subdivision not be sufficiently advanced for the preliminary preferred alternative, an alternate site could be selected within Marsville Estates Subdivision pending Ontario Land Tribunal impacts.



## NEXT STEPS



1. Provide comments by completing the comment sheet and placing into “Comment Box” or send to Carley Dixon or Peter Avgoustis before **July 7, 2023**.
2. We will review comments received and conduct additional work if necessary.
3. We will re-evaluate alternatives in light of comments received.
4. We will select preferred alternative and finalize Project File Report.
5. We will issue Notice of Completion.
6. There will be a 30-Day Public / Agency Review of Project File Report once Notice of Completion is issued
7. If no Section 16(6) order is received, proceed to design and construction. Financial arrangements for payment of the expanded water system will need to be made prior to commencing the design and construction stage.

These presentation materials will be available online at:

<https://www.eastgarafraxa.ca/en/municipal-government/planning-and-development.aspx#Planning-Notices>

**THANK YOU FOR ATTENDING**