



June 11, 2021

Via: Email

Township of Amaranth
374028 6th Line
Laurel ON L0N 1L0

**Re: Waldemar Water Storage
Municipal Class Environmental Assessment (Schedule B)
Addendum Report
Project No.: 300052291.0000**

Introduction

The Waldemar Water Storage Class EA was completed in August 2019. The document noted that the design of the preferred solution was intended to take place in 2019 with construction commencing in 2020. However, there was a request for a Part 2 Order which was eventually declined, but it delayed the project by almost a year. The design work resumed during the Covid pandemic and a number of the original assumptions were found to have changed. Specifically:

- There have been astronomical increases in construction costs;
- Geotechnical work revealed that soils conditions were worse than had been assumed;
- Design issues arose that increased the overall costs, changing the price differential between the alternatives that had previously been considered; and
- Design details allowed the expansion of a standpipe to be considered differently.

A technical memo is attached as Attachment A providing more detail on these changes. Accordingly, it was recommended to revisit the Class EA and reassess the comparison of alternatives.

The Alternatives

There were 3 main alternatives considered in 2019: Do Nothing, Construct Storage Facility, or Connect to Nearby Municipal System. The first and last of these were found to be "Least Preferred" so they were not reopened for consideration at this time. However, the Alternative of "Construct Storage Facility" had been broken into three Options: In ground Reservoir, Standpipe, or Water Tower. It was these three Options that were revisited. Attachment B contains a marked-up version of Table 16 which compared the Alternatives in the original report. It has been redlined to show the revisions that are being considered in the current analysis. Note that no changes have been made to the Water Tower option.

Evaluation of Alternatives

Natural Environment- There were no changes from the 2019 report

Social and Cultural Environment- In the previous review, the Standpipe was discounted because it necessitated a retaining wall. The Concrete Reservoir was preferred, because it was intended to be partially buried (like a walkout style of house). It was expected that the reservoir itself could act as a retaining wall to accommodate the change in slope from back to front. However, design problems arose when the geotechnical work was received, indicating that the structural design of a concrete reservoir would have to be enhanced, even without consideration of retaining the slope. Further problems arose with the consideration of frost and the potential for freezing. As a result, the In Ground Reservoir would have to be fully buried and a large, separate retaining wall would have to be added.

The additional grading and retaining walls required for the In Ground Reservoir offset its aesthetic advantage over the Standpipe. We have reassessed these Alternatives to be equal from a Social and Cultural perspective.

Technical Factors- The 2019 assessment stated “Standpipes are typically not expanded and new facilities are provided for any additional storage needed”. This statement remains accurate. Technically, it is possible to add additional height to a standpipe, but logistically it is difficult to do when the standpipe is an integral part of a live water supply system. However, in the design work that has been completed for the Waldemar system it has been decided to retain the existing concrete reservoir for maintenance purposes. Accordingly, it would be possible to provide a continuous supply of safe drinking water while adding height to a standpipe. This was a very important consideration in 2019 because of the uncertainty of the Sarah Properties subdivision yield. We are now of the opinion that there is no difference between a Standpipe and an In Ground Reservoir when considering expandability.

Financial Factors- The estimated Capital Cost of an In Ground Reservoir has more than doubled. It now approaches the cost of a Water Tower, which was previously determined to be the Least Preferred option.

The Operation and Maintenance cost of a standpipe remains higher, as identified previously. However, the difference in annual cost is less than \$500.00, which is not material. We now consider the Standpipe to be “Most Preferred”, with the In Ground Reservoir and water tower both “Least Preferred”.

Recommended Solution- After considering the Natural, Social & Cultural, Technical, and Financial influences Alternative 2, Option B (Standpipe) has become the Recommended Solution.

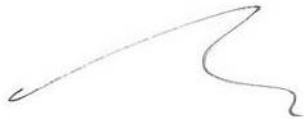
Next Steps

Attachment C is an excerpt from Section A.4.3 of the Municipal Class Environmental Assessment, entitled "Revisions and Addenda to Environmental Study Report". It outlines the process for reconsiderations such as this.

Attachment D is a notice that has been drafted in the Township's name. It follows the format of the example provided in the Municipal Class EA for addenda. If Council is in agreement with this change, then the notice can be issued to commence a 30 day review period for the public and review agencies. In the absence of any concern the project can proceed.

Yours truly,

R.J. Burnside & Associates Limited



Gord Feniak
GF:js

Enclosure(s) Attachment A: Technical Memo #1
Attachment B: Revised Assessment
Attachment C: Class EA Addenda
Attachment D: Notice



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Attachment A

Technical Memo #1



Technical Memorandum No.1

Date: May 7, 2021 **Project No.:** 300052291.0000

Project Name: Waldemar Water Storage Upgrades

Client Name: Township of Amaranth

Submitted To: Gord Feniak, P.Eng., Carley Dixon, P.Eng.

Submitted By: Jeff Paznar, P.Eng., EP

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) completed a Water Storage Municipal Class Environmental Assessment (Schedule B) for the Township of Amaranth (Township) in August 2019. The preferred solution was identified as an expansion of the below grade reservoir at the Waldemar Well Pumphouse including upgrades to the pumping system to meet higher peak demands for future development. The preferred solution also included a new standby generator, electrical upgrades to operate all three wells and pumps, piping modifications and upgrades to the chlorine disinfection system. A site plan illustrating the preferred solution is shown in Figure 1.

2.0 Preliminary Design and Cost Estimate

After completing the preliminary design of the preferred solution, a cost estimate was completed. The total capital cost including engineering and construction services is \$3,900,000. This cost is significantly higher than the \$1,780,000 cost that was included in the EA.

The reason for the significant cost increase for the preferred solution are:

- The level of detail used for cost estimation in the EA was appropriate for comparison of alternatives at the planning stage. The detail of design has allowed a higher level estimate.
- Due to circumstances related to COVID-19, inflation, and the limited supplies of materials, there is a significant increase in costs for construction materials for this project from when the cost estimate in the EA was completed in 2019. These materials include but are not limited to are the unit cost for concrete (including formwork, lumber), rebar, PVC resin, insulation for the reservoir, aluminum (hatches and ladders), gravel and process valves.
- The EA cost estimate was based on a 300 mm wall thickness of the reservoir wall which matched the existing reservoir. However, the geotechnical analysis determined that a

500 mm thick wall would be required. This results in a 67% increase in the volume of concrete required.

- The EA cost was premised on the grade change occurring through the reservoir itself which became problematic when a detailed topographic survey was completed, and freezing issues were reviewed during detailed design. Due to these circumstances a 70 m long retaining wall with approximate average height of 4.5 m is required. This cost was not included in the EA.
- The preliminary design volume of the reservoir was based on the working volume which had to be increased to allow for non-usable volumes.
- Due to this significant increase in the cost for the preferred solution, Burnside has revisited the Standpipe Alternative that was outlined and evaluated in the EA.

3.0 Standpipe at Existing Pumphouse

The runner-up alternative in the EA consisted of constructing a Standpipe for the required water storage. This alternative includes the following upgrades:

- Standpipe (glass fused to steel) approximately 13 m in diameter and 9 meters high. Landscaping will be completed to improve aesthetics for neighboring residents.
- Well pump replacement to address additional head (pressure) requirements to fill the standpipe.
- New pumping system to meet the higher peak demands of future development including new fire pump.
- Generator replacement including fuel tank / source. It is anticipated that the new generator would be located outside the pumphouse.
- Electrical upgrades to operate all three wells and pumps.
- Piping modifications to accommodate the new storage.
- Disinfection system upgrades to ensure primary disinfection.



A schematic of a potential expansion to this system incorporating a standpipe on the site is included in Figure 2 with an example of a standpipe shown above.

4.0 Cost Estimate – Standpipe at Existing Pumphouse

Burnside has revisited the Standpipe option and completed a preliminary cost estimate. The total capital cost including engineering and construction services is \$3,100,000. This cost is higher than the \$1,990,000 cost that was included in the EA.

The increase in cost similar to that of the preferred option relates to circumstances related to COVID-19, inflation, and the limited supplies of materials, there is a significant increase in costs for construction materials for this project from when the cost estimate in the EA was completed

in 2019. These materials include but are not limited to steel, concrete (including formwork (lumber)), rebar, PVC resin, aluminum, gravel and process valves.

5.0 Recommendation

Due to the significant increase in cost to construct the preferred option of the expansion of the below grade reservoir at the Waldemar Well Pumphouse, Burnside recommends that an Addendum to the EA be completed and the preferred option be changed to construct a standpipe at the existing Waldemar Well Pumphouse site. This change in preferred solution requires an Addendum to the EA be completed including a Notice of Filing of Addendum. A period of 30 calendar days following the issue of the Notice of Filing of Addendum shall be allowed for review and response by affected parties.

6.0 Schedule

Once Burnside obtains approval from Council, it will take approximately two weeks to prepare the Addendum to EA. Once the Notice of Filing of Addendum is filed the 30 calendar day review period will begin and design on the standpipe can commence in July 2021. The project can be then tendered in October of 2021 with construction expected to be completed in Fall of 2022.

R.J. Burnside & Associates Limited



Jeff Paznar, P.Eng., EP
Project Engineer

JP:js

Enclosure(s) Figure 1: Option A - Proposed in-ground storage at existing pumphouse
 Figure 2: Option B - Proposed standpipe at existing pumphouse



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Attachment B

Revised Assessment

Attachment B

Table 16: Evaluation of Alternatives

Criteria for Evaluating Alternative Sites	Alterative 1 Do Nothing	Alternative 2 – Construct Storage Facility			Alternative 3 Connect to Nearby Municipal System			
		Existing Waldemar Pumphouse (10 Station Street)		South West Limits of Waldemar				
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower				
A Natural Environment	Most Preferred	Partially Preferred	Partially Preferred	Partially Preferred	Least Preferred			
1 Terrestrial Habitat	No impact over existing	Tree removal is required to accommodate the storage expansion.	Tree removal is required to accommodate the storage expansion. Though not expected to make a significant impact, the standpipe could be extended up, rather than out to minimize tree loss to the extent possible.	Most of the site is already farmed and therefore expect there to be minimal impact.	Both options would require further environmental study. Creek/tributary crossings would be required and new watermain would need to go through environmental areas regulated by the GRCA. Due to the significant cost anticipated with the projects, these environmental studies were not completed as part of this study.			
2 Designated Sites/Species						No designated sites or species in the area.		
3 Aquatic Habitat						The site does not have a water course and therefore no impact over existing conditions.		
4 Hazard Lands						The site has a very small sliver of land within the GRCA's regulatory area and is just outside the Grand River's floodplain. We did not consider land within the Waldemar park as an option because the majority is floodplain land.	Not located within the GRCA's regulatory area.	
5 Construction Impacts						Potential temporary impacts on soils and surface water quality because of construction activities.		


Criteria for Evaluating Alternative Sites	Alterative 1 Do Nothing	Alternative 2 – Construct Storage Facility			Alternative 3 Connect to Nearby Municipal System Option A: Grand Valley Option B: Orangeville
		Existing Waldemar Pumphouse (10 Station Street)		South West Limits of Waldemar	
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower	
B Social and Cultural Environment	Least Preferred	Most Preferred	Partially Preferred	Partially Preferred	Least Preferred
1 Conformity to Local Planning Provisions	Little conformity, given that the Township’s Official Plan designates residential growth for various area in Waldemar. Upgrades to the water system are required to accommodate growth and an already draft plan approved subdivision.	The additional storage would be designed to accommodate future growth. Revise to be the same as Option A			Grand Valley doesn’t have enough capacity for their expected growth and have just completed a Master Servicing Plan. We did not contact the Town of Orangeville due to the expected cost of the project.
2 Heritage Resources (built heritage, landmarks, significant landscapes)	No impact over existing conditions.	No impact over existing conditions.			We do not anticipate impacts as majority of work will be within existing road right of ways.
3 Cultural Resources (archaeological features)	No impact over existing conditions.	A Stage 1 and 2 Archeological Assessment was completed in 2018 and no additional assessment is required. No impact anticipated since no archaeological material or sites were located during the assessment of the property.	Burnside is aware of completed assessments including a Stage 1 in 2011 and a Stage 2-3 in 2014. There is no impact anticipated in the area of the water tower site.	Archeological Assessments may need to be completed should this alternative be selected.	

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility			Alternative 3 Connect to Nearby Municipal System
		Existing Waldemar Pumphouse (10 Station Street)		South West Limits of Waldemar	
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower	
4 Nuisance Impacts	No impact over existing conditions.	<ul style="list-style-type: none"> - Potential impacts on air quality (noise, dust, emissions) during construction. - Potential impacts on air quality because of the standby emergency generator required to supply back up power including routine monthly testing. - An expanded underground reservoir would be integrated to the surroundings like the existing reservoir. - Loss of the existing trees to accommodate the expansion. As part of the design the trees closest to the property line would try to be preserved in order to provide some visual screening for the adjacent residential properties. - Expect some water disruptions to accommodate construction. 	<ul style="list-style-type: none"> - Potential impacts on air quality (noise, dust, emissions) during construction. - Potential impacts on air quality because of the standby emergency generator required to supply back up power including routine monthly testing. - Some consider standpipes to be obtrusive as they are above-grade. Large retaining wall also needed for this option due to steep gradients on site. - Loss of existing trees required to accommodate expansion. To reduce tree loss, the standpipe could be built up higher, to reduce the diameter of the tank to the extent possible. - Expect some water disruptions to accommodate construction. 	<ul style="list-style-type: none"> - Disruptions during construction would include noise, dust and emissions. These would be minimized as best as possible. May be disruptions in water supply to accommodate the connection of the new storage. - Some consider elevated storage to be aesthetically unpleasing and obstructive, while others sometimes consider it to be either unobtrusive or positive in the sense that it provides an identifiable landmark. 	<ul style="list-style-type: none"> - Potential impacts on air quality (noise, dust, emissions) during construction. - Aesthetically the watermain is mostly buried except for flushing locations or air release valves so it has minimal impact. <p>Option A:</p> <ul style="list-style-type: none"> - During the duration of the construction, the trail would likely be closed. This is a general nuisance to those who use the trail. <p>Option B:</p> <ul style="list-style-type: none"> - Construction duration would be longer compared to option A - Route would be within road right of way, and traffic would likely be impacted during construction
5 Land Acquisition	Not required.	Not required. The land owned by the Township.		Land is not owned by the Township. Land acquisition would be required.	Not required as watermain would be kept within existing municipal road right of ways.

This expectation was based on designing the reservoir to be partially above and partially below ground. However concern with freezing would require the entire structure to be buried and a large retaining wall would be required.

Retaining wall for Option B would actually be smaller than retaining wall for Option A

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility			Alternative 3 Connect to Nearby Municipal System
		Existing Waldemar Pumphouse (10 Station Street)		South West Limits of Waldemar	
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower	
C Technical Factors	Least Preferred	Most Preferred	Partially Preferred	Least Preferred	Least Preferred
1 Capability to provide storage for existing and future development	Storage is undersized for current guidelines and would not be enough for future development	Yes, but cannot meet desired fire flows in the distribution system without watermain upgrades. Revise to be the same as Option A	Yes, but cannot meet desired fire flows in the distribution system without watermain upgrades.	Option A – No, as Grand Valley does not have enough capacity currently Option B –Due to cost we did not contact the Town of Orangeville.	
2 Site Considerations	No change	<ul style="list-style-type: none"> - Existing driveway would be utilized for access - The terrain is steep making construction more difficult - The site uses the same driveway as the Waldemar Park. Additional construction considerations will be needed. - Site is owned by the Township - Site is not suitable for water tower due to the elevation of the land and therefore only considered for Option C. - The site would also not be large enough for an elevated tower. 	<ul style="list-style-type: none"> - Temporary driveway needed until the area is developed. - The water tower would have a single feed into the system until the area is developed. - Site is not owned by the Township - Site is at one of the higher elevations in Waldemar reducing the overall height of the pedestal to the extent possible. - Site size should consider impacts of shadows caused by the above grade structures, safety buffers for the provision of falling ice, structural failure and/or tank collapse and aesthetic buffer if applicable. 	<ul style="list-style-type: none"> - Not all the right of ways will be under the jurisdiction of the Township (also County of Dufferin and Town of Orangeville) - Overall larger area of construction. 	

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility		Alternative 3 Connect to Nearby Municipal System	
		Existing Waldemar Pumphouse (10 Station Street)			South West Limits of Waldemar
		Option A: In-Ground Reservoir	Option B: Standpipe		Option C: Water Tower
3 Reliability	<ul style="list-style-type: none"> - No change over existing conditions. - The highlift pumping capacity is not adequate for future demand. - The storage is not sufficient for fire protection to meet current MECP guidelines or Fire Department requirements. - System relies on pumping (although typically is reliable) does have dependencies on the mechanical and electrical equipment which introduce potential points of failure. Backup power equipment is required and is present at the pumphouse. 	<p>Since both options relies on pumping (although is typical reliable) does have dependencies on the mechanical and electrical equipment which introduce potential points of failure. Backup power equipment is required. In the case of both options, the existing generator would need to be replaced to accommodate the upgrades required.</p>	<p>In fact, Standpipes can be expanded by adding an additional "ring" of height. This cannot be done without taking the standpipe out of service temporarily, but it is possible to do so in Waldemar because the existing reservoir is being retained</p> 	<p>Though the water system will still relay on pumping (as the raw water is treated at the existing pumphouse), there is an added advantage of an elevated tower. In the event there is failure at the pumphouse, the water tower can provide water to the system by gravity providing the temporary supply. A fire pump is also no longer needed with this option.</p>	<p>Assuming that both Grand Valley and Orangeville have fully reliable systems, each option is likely to be serviced with a singular trunk watermain. Breakage in the trunk line introduces a concern for reliability.</p>
4 System Expansion and Phasing	No expansion would occur under this alternative.	In-ground reservoirs can be interconnected. The design should consider potential expansions to the extent possible.	Standpipes are typically not expanded and new facilities are provided for any additional storage needed.	Water towers are not typically expanded, and additional storage is achieved by constructing new facilities.	You would need to re-negotiate for more storage and pay for associated upgrades.

Criteria for Evaluating Alternative Sites	Alterative 1 Do Nothing	Alternative 2 – Construct Storage Facility		Alternative 3 Connect to Nearby Municipal System
		Existing Waldemar Pumphouse (10 Station Street)		
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower
5 Water Model Results (Water Distribution System)	<ul style="list-style-type: none"> - All scenarios met minimum optimum pressures. - Areas did exceed the maximum optimum range closest to the pumphouse and at the corner of Henry St. and Mill St. Though pressures are above 70 psi, they are below the MECP max 100 psi threshold. - Original design based on 38 L/s in distribution system. Modelling estimates 38-58 L/s of available fire flow in the distribution system. - Without upgrades to the pumping system and likely the distribution system, 79 L/s or 100 L/s is not achievable. 	<ul style="list-style-type: none"> - All scenarios met minimum optimum pressures. - Areas do exceed the maximum optimum range closest to the pumphouse and at the corner of Henry St. and Mill St.t however below the MECP max 100 psi threshold. <p>Fire flow:</p> <ul style="list-style-type: none"> - Not able to provide the desired 79 L/s or 100 L/s fire flow in all locations. Fire flow ranges are as follows: - West side: 78 – 88 L/s - East side: 72 – 98 L/s <p>Modelling assumes a small section of an existing 150 mm dia. piping on the west side is replaced to provide a continuous 200 mm dia. watermain loop. Final details would be determined at the detail design stage of the future west subdivision.</p> <p>You can achieve higher fire flows with larger diameter watermains. Replacement size to improve flows can be reviewed at the time a specific watermain undergoes replacement at end of life. It would not be considered financially viable to replace watermains before end of life.</p>	<ul style="list-style-type: none"> - All scenarios met minimum optimum pressures. -Areas do exceed the maximum optimum range closest to the pumphouse and at the corner of Henry St. and Mill St. however below the MECP max 100 psi threshold. - Modelling assumes a small section of an existing 150 mm dia. piping on the west side is replaced to provide a continuous 200 mm dia. watermain. Final details would be determined at detail design of the future west subdivision. <p>Fire flow:</p> <ul style="list-style-type: none"> - Not able to provide the desired 79 L/s or 100 L/s fire flow in all locations. Fire flow range are as follows: - West side: All above 100 L/s - -East side: 52 – 69 L/s <p>Significant watermain upgrades are required to achieve the desired fire flows.</p>	Not analyzed.

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility		Alternative 3 Connect to Nearby Municipal System	
		Existing Waldemar Pumphouse (10 Station Street)			South West Limits of Waldemar
		Option A: In-Ground Reservoir	Option B: Standpipe		Option C: Water Tower
6 Contamination Potential	<p>Low</p> <ul style="list-style-type: none"> - Though there is no fencing, the building and hatches are locked. - The storage is outside the floodplain limits identified on GRCA mapping. 	<p>Low</p> <ul style="list-style-type: none"> - Like existing conditions, any new hatches will be locked. - The new storage will be outside the floodplain limits identified on GRCA mapping. 	<p>Low</p> <ul style="list-style-type: none"> - The new site would be fenced with a gate that locks. - Valves and sampling taps would be in an area that can be accessed by a lockable hatch. 	<p>Low</p> <ul style="list-style-type: none"> - Watermains are pressurized preventing contamination - The nearby municipal system would have measures in place to secure their storage sites 	
7 Suitability of Connection to Existing Water System	<p>The existing system is connected. No changes would occur.</p>	<p>With the pumphouse site servicing all existing users, construction must ensure that impacts/disruptions to the existing system are limited during connections/modifications to the existing system. Temporary supply is expected to be required during some portions of construction and potentially some water shut downs.</p>	<p>Limited disruptions expected as work in the existing pumphouse would likely be related to programing. The watermain connection is typical and would impact a limited amount of users should a shut down be required.</p>	<ul style="list-style-type: none"> - Option A: Connection would be expected off the existing watermain at Henry St. and Mill St. - Option B: Connection would be expected off one of the new watermains being constructed to service the new east subdivision (Centurian) 	
8 System Efficiency	<p>Low given much greater need for additional storage.</p>	<p>Water delivered to consumers is "double-pumped", once at the point of supply (at the wells) and once at the point of storage. Highlift pumping equipment is required to meet peak hour demand and fire flows. Highlift pumping system requires back-up power to maintain service during power failures.</p>	<p>Water remains "double pumped" similar to Options A and B however there would be no fire pump needed and the pumps that supply water to the system would only be required to pump max day rather than peak day as required in Options A and B.</p>	<p>The existing system would remain "double pumped". The Township would also be relying on the municipal system that they are connecting to which will also rely on pumping and additional equipment.</p>	

Criteria for Evaluating Alternative Sites	Alterative 1 Do Nothing	Alternative 2 – Construct Storage Facility		Alternative 3 Connect to Nearby Municipal System	
		Existing Waldemar Pumphouse (10 Station Street)			South West Limits of Waldemar
		Option A: In-Ground Reservoir	Option B: Standpipe		Option C: Water Tower
9 Water Quality	The water quality is dependent upon the existing water treatment system.	The water quality is dependent upon the existing water treatment system, but with additional storage that provides more fire protection, there needs to be proper measures in place to avoid the deterioration of water quality due to stagnation. This can be achieved by designing the facility such that all water in the reservoir is kept moving during periods of use (baffle walls encouraging plug flow). Disinfection methods such as chlorination are also required to prevent bacterial growth in the reservoir facility. Water quality monitoring is required prior to distribution to ensure disinfection requirements are met.		The water quality is dependent upon the existing water supply system. Similar to other storage options, there needs to be a provision to avoid stagnation. Operational set-points in the tower would need to be evaluated regularly and adjusted based on actual water demands to minimize potential issues as the tower is designed for ultimate conditions which may not be reached for a significant period of time. In some instances, re-chlorination is required.	We expect with Option B a sampling/re-chlorination station may be required due to the distance but would be determined at detail design. Option A is closer so it may not be required.
10 Ease of Operation and Maintenance (O&M)	O&M procedures would exist and be more critical to ensure existing facilities maintain reliable.	O&M procedures would be the same as the existing system. Due to the upgrades expected, more of the system would be new/replaced which could mean less issues when it comes to repairs due to aging equipment. Cleaning of the in-ground reservoir will depend but typically every 5 to 10 years, cleaning of the tank and a video inspection would be completed.	O&M procedures would be similar to Option A, except the standpipe also requires cathodic protection anodes about every 10 years This item is addressed under Financial Factors	O&M procedures would include the same O&M as the existing system as it would remain in place. Depending on the type, water towers require painting approximately every 20 years or routine maintenance including cathodic protection anodes about every 10 years. Regular cleaning and video inspections are also required.	O&M procedures would include the same O&M as the existing system as it would remain in place. The watermain would require regular flushing.

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility		Alternative 3 Connect to Nearby Municipal System	
		Existing Waldemar Pumphouse (10 Station Street)			South West Limits of Waldemar
		Option A: In-Ground Reservoir	Option B: Standpipe		Option C: Water Tower
11 Regulatory Requirements	<ul style="list-style-type: none"> - Township may be issued an order from the MECP if Township cannot meet water demands - Township may need to impose a by-law restricting water usage which could include banning all outside water usage, or during a fire or high use periods, impose very restrictive water usage 	<ul style="list-style-type: none"> - Would require a drinking water works permit amendment from the MECP - Would require a building permit - The replacement generator would require assessment of emissions and completion of Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere to append to the drinking water works permit amendment application - Would likely require approval from the Grand River Conservation Authority 	<ul style="list-style-type: none"> - Would require a drinking water works permit amendment from the MECP - Would require a building permit - The temporary watermain would require a Form 1 – Record of Watermains Authorized as Future Alteration completed 	<ul style="list-style-type: none"> - Would require a drinking water works permit amendment from the MECP - Likely would require a Form 1 – Record of Watermains Authorized as Future Alteration completed 	

Criteria for Evaluating Alternative Sites	Alternative 1 Do Nothing	Alternative 2 – Construct Storage Facility			Alternative 3 Connect to Nearby Municipal System
		Existing Waldemar Pumphouse (10 Station Street)		South West Limits of Waldemar	
		Option A: In-Ground Reservoir	Option B: Standpipe	Option C: Water Tower	
D Financial Factors	Most Preferred	Partially Preferred	Partially Preferred	Least Preferred	Least Preferred
1 Estimated Capital Costs	No expense. Now \$3,900,000	100 L/s storage - \$1,900,000 - Does not include any existing watermain upsizing. It would not be financially finable to replace most of the existing watermains until they were at end of life which could still be 50+ years into the future 79 L/s storage - \$1,780,000 - Watermain upgrades not included. Any expected upgrades would occur at the same time as construction of the new subdivisions	100 L/s storage - \$2,200,000 - Does not include any existing watermain upsizing. It would not be financially viable to replace most existing watermains until they were at end of life which could still be 50+ years into the future 79 L/s storage - \$1,990,000 - Watermain upgrades not included. Any expected upgrades would occur at the same time as construction of the new subdivisions	- Extra cost associated with acquiring the land, providing temporary access and temporary watermain as land is not yet developed. - The costs below do not include any existing watermain upsizing. 100 L/s storage - \$4,440,000 79 L/s storage - \$4,320,000 Now \$3,100,000	Option A: \$1,750,000* Option B: \$13,300,000* This is just a starting number. There would be an additive capital cost to cover any upgrades for the additional supply at the municipal system that Waldemar would be connected to. There is an unknown cost spent negotiating agreement details related to the capital contributions, operation and maintenance contributions and water rates for the system which would be imposed on Waldemar.
2 O&M costs (related to storage only and not other operational costs such as operator, lab or chemical costs, pump replacement, etc.)	No impact over existing conditions.	O&M associated with storage only (50 year): \$80,000	O&M associated with standpipe only (50 year): \$100,000	O&M associated with storage only (50 year): \$940,000	O&M costs unknown and would be determined as part of negotiations
Addresses Problem	No	Partially*	Partially*	Partially*	Unknown
RECOMMENDED SOLUTION	LEAST PREFERRED	PREFERRED	NOT PREFERRED	NOT PREFERRED	LEAST PREFERRED

*Storage can be adequately sized, but desired fire flows in the distribution system won't be achieved until future watermain upgrades are completed



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Attachment C

Class EA Addenda

following items, for example, should be included:

- key impacts to be monitored.
 - monitoring requirements during construction and during operation of the facility.
 - the period during which monitoring will be necessary.
 - frequency and timing of surveys, the location of monitoring sites and the methods of data collection, analysis and evaluation.
 - the content, manner and form in which records of monitoring data are to be prepared and retained.
 - where and for how long monitoring records and documentation will be on file
- specific requirements for monitoring appropriate to the particular circumstances and conditions under which the project will be implemented.

This section should describe how unexpected environmental effects identified during the monitoring program will be addressed.

Appendices

Items should be included in an Appendix to provide technical support to specific aspects of the information documented in the ESR. These may include:

- maps and plans.
- press releases/notices.
- public contacted.
- submissions, input and opinions received from the public and from review agencies.
- reports of studies undertaken on various elements of the environment.
- other detailed material referenced in the ESR.

Filing of an Addendum.

A.4.3 Revisions and Addenda to Environmental Study Report

Change In Project or Environment

Due to unforeseen circumstances, it may not be feasible to implement the project in the manner outlined in the ESR. Any significant modification to the project or change in the environmental setting for the project which occurs after the filing of the ESR shall be reviewed by the proponent and an addendum to the ESR shall be written. The addendum shall describe the circumstances necessitating the change, the environmental implications of the change, and what, if anything can and will be done to mitigate any negative environmental impacts. The addendum shall be filed with the ESR and Notice of Filing of Addendum (see Sample Notice, Appendix 6) shall be given immediately to all potentially affected members of the public and review agencies as well as those who were notified in the preparation of the original ESR. It should be made clear to review agencies and the public that

when an Addendum to an ESR is issued, only the items in the addendum (i.e. the changes) are open for review, i.e. only the proposed changes to the recommended undertaking are open for review.

A period of 30 calendar days following the issue of the Notice of Filing of Addendum shall be allowed for review and response by affected parties. The Notice shall include the public's right to request a Part II Order within the 30-day review period (see Section A.2.8). If no request is received by the Minister or delegate, the proponent is free to proceed with implementation and construction. During the 30-day addendum review period, no work shall be undertaken that will adversely affect the matter under review. Furthermore, where implementation of a project has already commenced, those portions of the project which are the subject of the addendum, or have the potential to be directly affected by the proposed change, shall cease and shall not be reactivated until the termination of the review period.

Lapse of time

A time lapse may occur between the filing of the ESR and the implementation of the project. In such cases, the proposed project and the environmental mitigation measures proposed may no longer be valid.

Review the project where a 10 year time period has occurred between filing of the ESR and commencement of construction.

If the period of time from (i) filing of the Notice of Completion of ESR in the public record or (ii) the MOE's denial of a Part II Order request(s), to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process and the current environmental setting to ensure that the project and the mitigation measures are still valid given the current planning context. The review shall be recorded in an addendum to the ESR which shall be placed on the public record.

The 10 year review will begin from the date of the Minister's or delegate's decision of any Part II Order requests, or at the end of the public review period following the posting of the Notice of Completion where there is no Part II Order request.

Notice of Filing of Addendum shall be placed on the public record with the ESR and shall be given to the public and to the review agencies; a period of 30 calendar days shall be provided for review and response. The Notice shall include the public's right to request a Part II Order (see Section A.2.8) during the 30-day addendum review period. If no request is received, the proponent is free to proceed with implementation and construction.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Attachment D

Notice

**Township of Amaranth
Municipal Class Environmental Assessment (Schedule B)
Waldemar Water Storage
Notice of Filing of Addendum**

Design of the Waldemar Water Storage Reservoir commenced in 2020, with the geotechnical investigation taking place in 2021. Upon review, the estimated project costs have changed substantially since the planning stages of the project.

An Addendum has now been completed to the Environmental Study Report which was issued on September 4, 2019. The Addendum contains details of the revised assessment of alternatives and amends the recommended alternative from an Inground (Concrete) Reservoir to an Above-ground Standpipe. Please note only the changes proposed in the Addendum are open for review.

By this Notice, the Addendum is being placed on the public record for review in accordance with the requirements of the Municipal Class Environmental Assessment. Subject to comments received as a result of the Notice, the Township intends to proceed with the tendering and construction of this project later this year (2021).

The Addendum is posted on the Township website at www.amaranth.ca or can be requested by contacting the Township's consultant.

R.J. Burnside & Associates Limited
Attn Gord Feniak, P.Eng.
519-938-3076
gfeniak@rjburnside.com

Interested persons should provide written comments on the proposal to the municipality within 30 calendar days from the date of this Notice. Comments should be directed to:

Gord Feniak, c/o
Township of Amaranth
374028 6th Line
Amaranth ON L9W 0M6

A person or party may request that the Minister of the Environment, Conservation and Parks order a change in project status and require a higher level of assessment under an individual Environmental Assessment process (referred to as Part II Order). Reasons must be provided for the request. Part II Order Requests must be submitted using a standard form available on the Provincial Forms Repository website (<http://www.forms.ssb.gov.on.ca/>). The form can be found by searching either "Part II Order" or "012-2206E" (the form ID number) on the Repository's main page. Copies of the Part II Order Request Form must be sent to all contacts below:

Minister	-and-	Director, Environmental Assessment Branch	-and-	Gord Feniak, c/o
Ministry of the Environment,		Ministry of the Environment, Conservation		Township of Amaranth
Conservation and Parks		and Parks		374028 6th Line
Ferguson Block, 77 Wellesley		135 St. Clair Avenue West, 1st Floor		Amaranth ON L9W 0M6
St. West, 11 th Floor		Toronto ON M4V 1P5		gfeniak@rjburnside.com
Toronto ON M7A 2T5		enviropermissions@ontario.ca		
Minister.mecp@ontario.ca				

If there is no "request received by July 30, 2021", the Township will proceed to carry out design and construction of the above-ground standpipe as presented in the planning documentation.

Please note that ALL personal information included in a Part II Order submission - such as name, address, telephone number and property location is collected, maintained and disclosed by the Ministry of the Environment, Conservation and Parks for the purpose of transparency and consultation. The information is collected under the authority of the Environmental Assessment Act or is collected and maintained for the purpose of creating a record that is available to the general public as described in s.37 of the Freedom of Information and Protection of Privacy Act. Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

Mayor Bob Currie
Township of Amaranth

This Notice issued on June 23, 2021