



Ponderosa Nature Resort Water and Wastewater System Improvements

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY



Online Public Information Centre # 2
November 26 – December 17, 2020





Presentation Team



- Philip Rowe, C.E.T., EP
- Senior Vice President, Environmental Planning and Assessment
- Consultant Project Director



- Jennifer Vandermeer, P.Eng.
- Senior Environmental Coordinator
- Consultant Project Manager / EA Lead



- Jeff Paznar, P.Eng., EP
- Senior Project Engineer
- Water Servicing Lead



- Anne Egan, P.Eng.
- Manager, Onsite Wastewater
- Wastewater Servicing Lead





Purpose of the Project

- Ponderosa Nature Resort has identified an opportunity to expand.
- The Site is proposed to operate as a private year-round residential / recreational development.
- Approximately 47 additional residential units are proposed.
- A solution is required to provide water/wastewater servicing to the existing and proposed units.
- An Environmental Assessment (EA) Study is required to identify and evaluate potential alternative solutions and alternative design concepts for the Site servicing and assess the potential impacts of the proposed development.





Purpose of the Public Information Centre

The purpose of this Public Information Centre is:

- To introduce the study
- Provide opportunity to participate and input in the planning and decision-making process
- Discuss issues or concerns public may have
- Identify next steps in the process

We will present information and request input on the following:

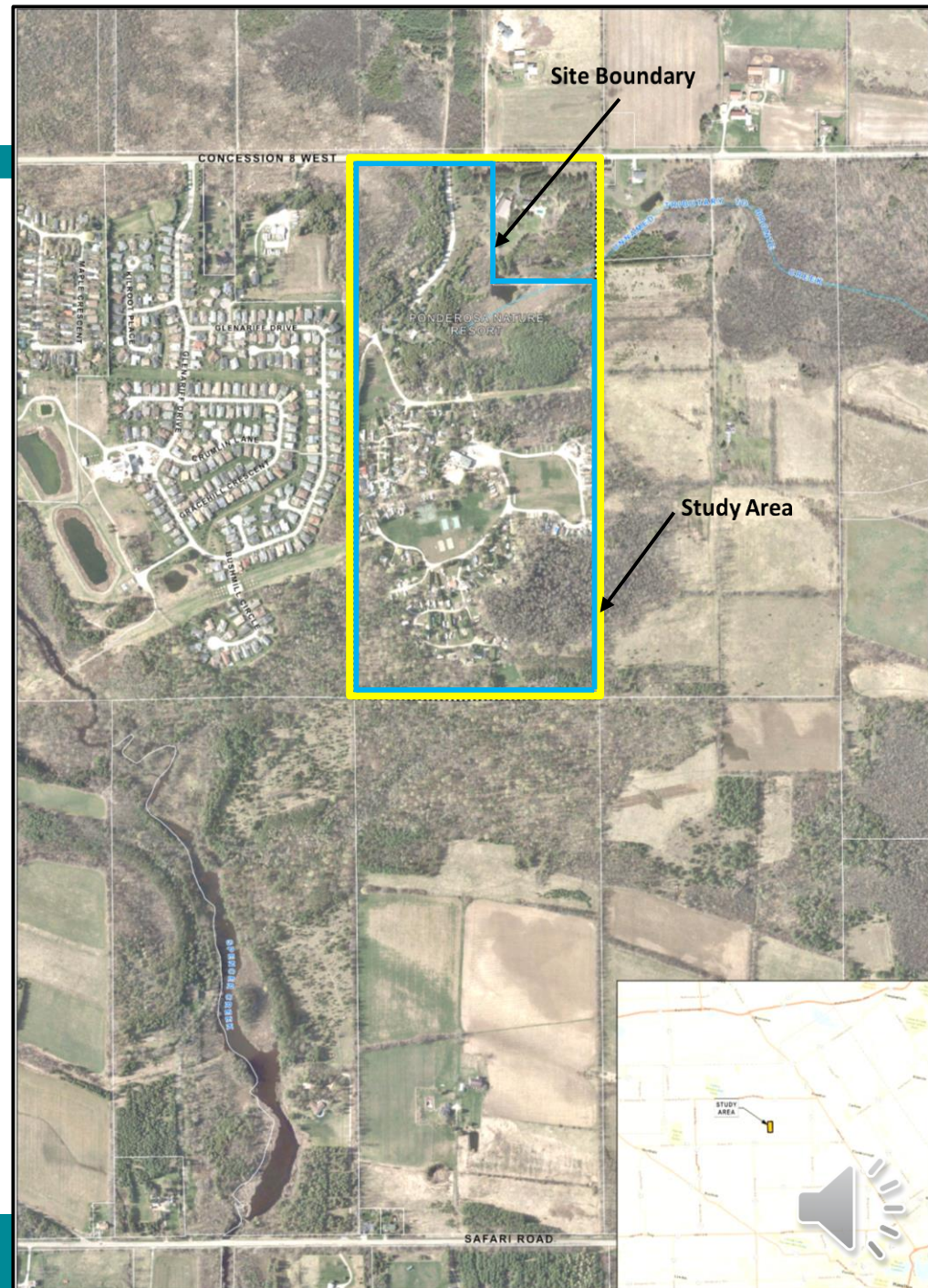
- Project Description and Background
- Problem / Opportunity Statement
- Explanation of the EA Process
- Alternative Solutions being considered
- Evaluation of Alternative Solutions and Preliminary Preferred Alternative





Study Area

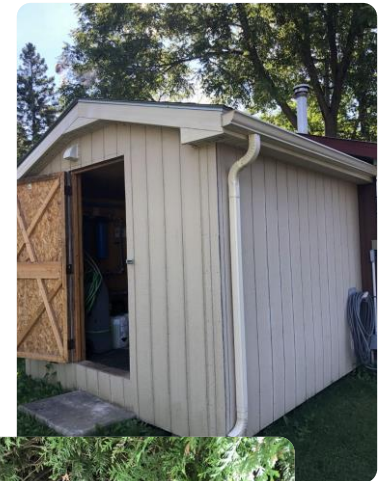
- Study Area for EA includes the entire 37-hectare Site; comprised of 189 private residential units that vary from permanent structures to mobile trailer homes.
- 101 permanent units
- 88 seasonal units (including 9 guest rooms and one apartment).
- Site also includes a clubhouse containing a tavern, restaurant, indoor/outdoor pool, and spa facilities.





Project Background - Water

- Drinking water is provided to the property by four drilled wells.
- The property has a valid Permit to Take Water for a combined maximum taking of 151 litres / minute (216 m³/day).
- Functional Servicing Report (FSR) completed in 2018 concluded no additional supply wells required if sufficient storage can be provided.
- The Study Team assessed the water system needs for the proposed expanded development as part of the EA and confirmed that no additional supply wells are required.
- Further analysis of alternative solutions for treatment and storage are being determined by the Study Team.





Project Background - Wastewater

- Site wastewater servicing consists of a combination of communal sewage systems, individual sewage systems, holding tanks and leaching pits.
- Nine onsite sewage systems (septic systems) consisting of septic tanks and leaching beds provide sanitary service to some of the residential units as well as the clubhouse.
- Other residential units are serviced with either holding tanks or leaching pits.
- Wastewater collected in holding tanks is emptied by the residents at the dumping station on the site.





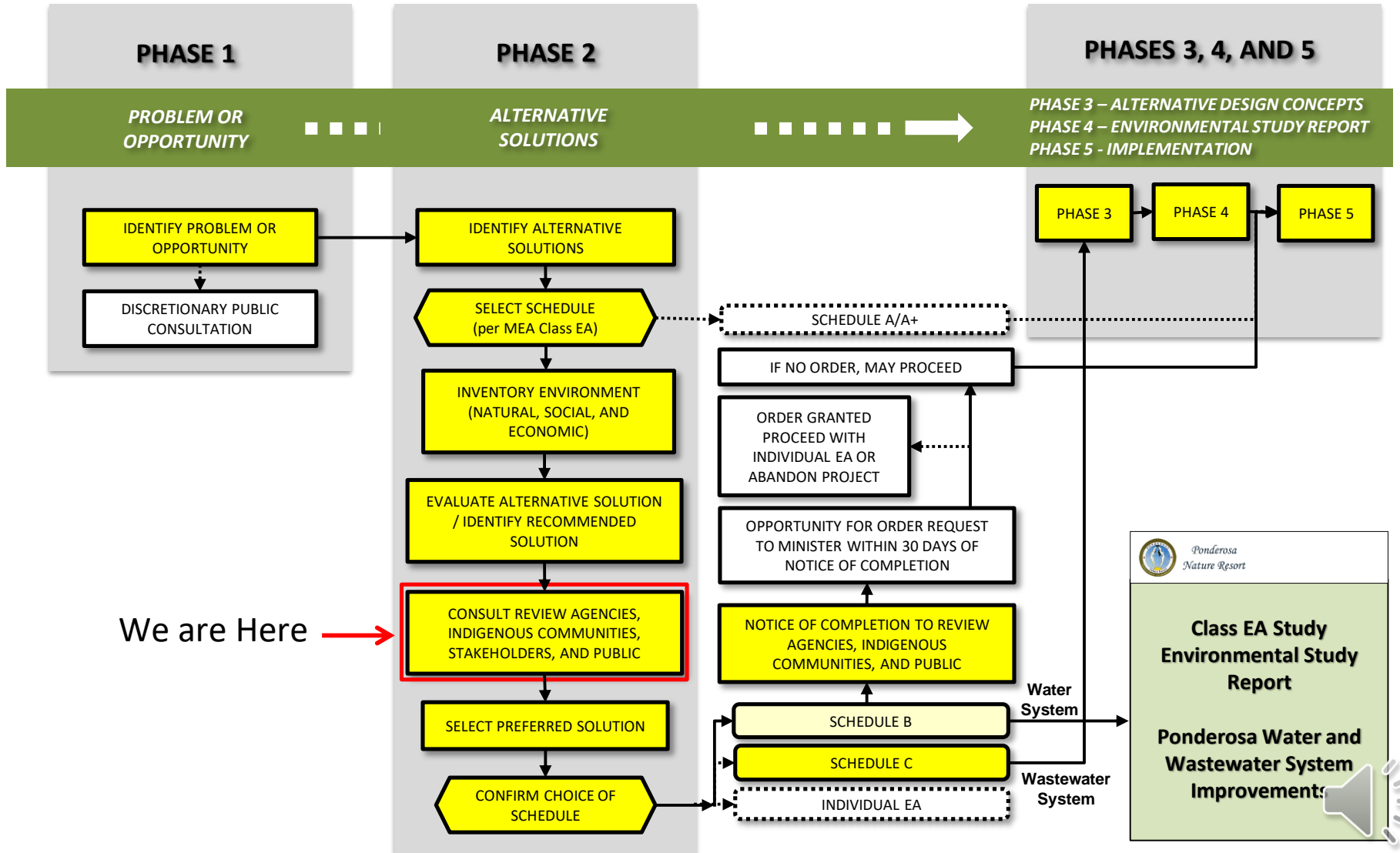
Problem/Opportunity Statement

The purpose of the EA Study is to identify a preferred solution and design concept that provides a cost-effective and environmentally sound means of providing water supply, treatment and distribution and wastewater collection, treatment and discharge for Ponderosa with sufficient capacity to service existing and proposed facilities. Alternatives will be examined as part of the EA Study including the impacts of alternatives on the natural, socio-cultural, technical and economic environment.





The EA Process





Existing Conditions

Natural Environment

Vegetation communities were characterized using the Ecological Land Classification system at the ecosite level. Three vegetation community types were identified in the Study Area, split between eight distinct vegetation community polygons.

ELC Descriptions

CUP3: Coniferous Plantation

CUT: Cultural Thicket

FOC4-1: Fresh-Moist White Cedar Coniferous Forest

FOD5: Dry-Fresh Sugar Maple Deciduous Forest Ecosite

MAS2-1/SWT2: Cattail Mineral Shallow Marsh/Mineral Thicket Swamp complex

OA: Open Water

SWC1-1: White Cedar Mineral Coniferous Swamp

SWD6-2: Silver Maple Organic Deciduous Swamp

SWM1-1: White Cedar - Hardwood Mineral Mixed Swamp

- The Site contains sections of the Beverly Swamp Provincially Significant Wetland (PSW) Complex, which is also a headwater drainage feature for Fairchild Creek, Spencer Creek, and Bronte Creek.
- Most woodlands on the Study Area are either considered Significant Woodland or are within the required 30 m minimum vegetation protection zone (MVPZ).
- Portions of the Beverly Swamp PSW Complex are designated as Life Science Area of Natural and Scientific Interest (ANSI).





Existing Conditions

Natural Environment

Portions of the Study Area have the potential to support habitat for eight Species of Conservation Concern:

- *Avian*
 - Canada Warbler
 - Eastern Wood-pewee
 - Golden-winged Warbler
 - Wood Thrush
- *Butterflies*
 - Monarch
 - West Virginia White
- *Reptiles and Amphibians*
 - Eastern Ribbonsnake
 - Snapping Turtle

Nine SAR were assessed with potential for presence in the Study Area:

- *Avian*
 - Barn Swallow
 - Chimney Swift
 - Cerulean Warbler
 - Least Bittern
- *Flora*
 - American Chestnut
 - Butternut
- *Mammals*
 - Little Brown Myotis
 - Northern Myotis
 - Tri-colored Bat
- *Aquatic Habitat*
 - Not observed



A pond is present in the Study Area and it discharges to an unnamed tributary of Bronte Creek. The pond is considered fish habitat as defined by the *Fisheries Act*. Sampling will be required to determine if fish do not inhabit the pond.





Existing Conditions

Socio-Cultural Environment

The Stage 1 Archaeology background study determined that:

- One previously registered archaeological site is located within 1 km of the Study Area.
- Property inspection determined that parts of the Study Area exhibit archaeological potential and would require Stage 2 assessment if these areas are to be disturbed based on the preferred design concept.
- At this time, the preferred design concept is anticipated to fall within the disturbed area of the Site.



	STUDY AREA		NO POTENTIAL: DISTURBED		WATERCOURSE
	PHOTO AND ORIENTATION		POTENTIAL: JUDGEMENTAL TEST PIT		ROADS
	POTENTIAL: TEST PIT REQUIRED		NO POTENTIAL: LOW AND WET		



Alternative Solutions - Water

The Class EA will consider alternatives for the water servicing, which would typically include options for water supply, treatment and storage. These Alternatives are identified below:

- Do Nothing
- Upgrade Existing Treatment Systems and Construct Centralized Storage, High Lift Pumping and Distribution System
- Construct New Centralized Treatment, Storage and High Lift Pumping with New Distribution System





Historical Water Usage Data

(May 1st to Thanksgiving Weekend Analysis (2016-2020))

Category	Value	Unit
Average Day Demand	47	m ³ /day
Maximum Day Demand	143	m ³ /day
Maximum Day Factor	3.0	N/A
Number of Existing Units	189	units
Average Day Demand (per unit)	250	L/unit/day





Projected Water System Design Flows

Parameter	Value	Unit
Total Units Serviced (existing + future)	236	units
Average Day Demand (per unit based on historical water usage data)	250	L/unit/day
Projected Average Day Demand (rounded)	60	m ³ /day
Projected Maximum Day Demand	180	m ³ /day
Total Existing Permit to Take Water Daily Limit (All 4 wells combined)	216	m ³ /day
Peak Hour Flow (based on MECP standards)	4.5	N/A
Projected Peak Hour Demand	270	m ³ /day

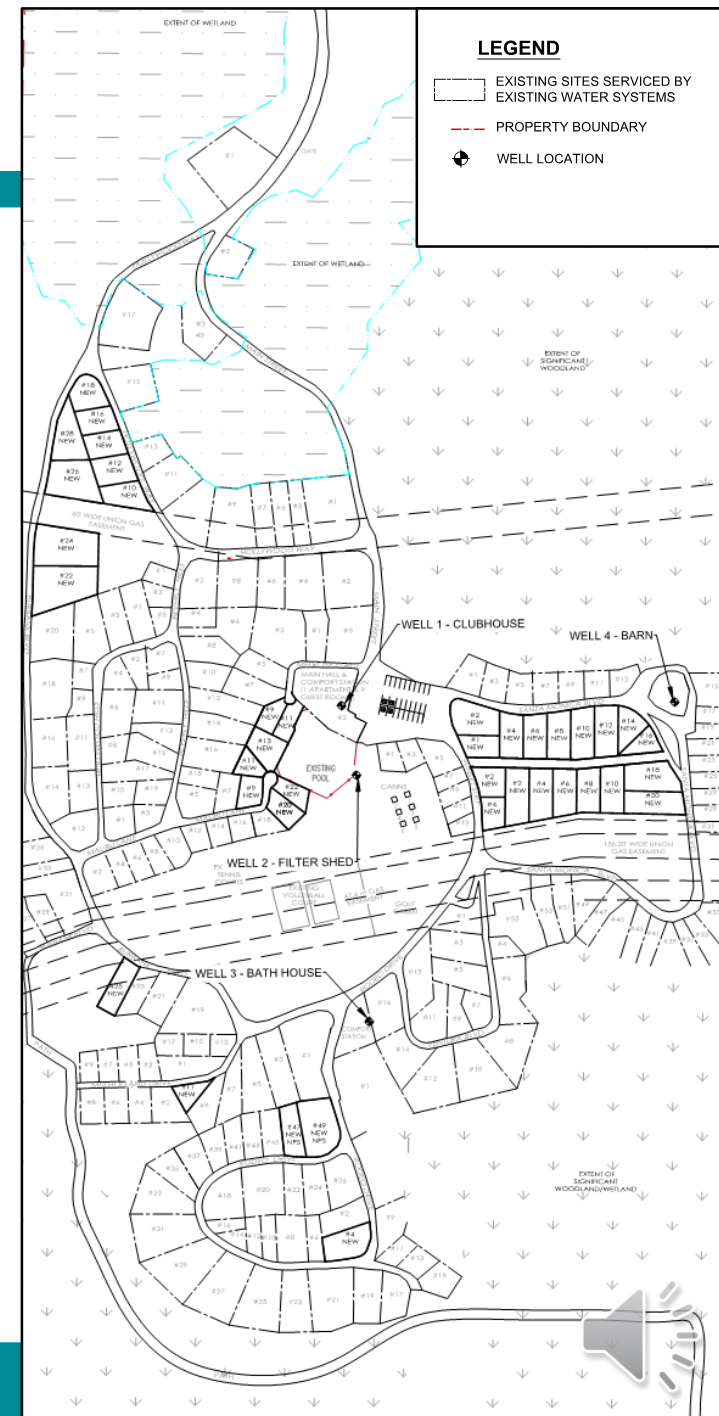




Alternative Solutions - Water

Alternative 1: Do Nothing

No changes to the existing water system. Connect new units to existing water systems.

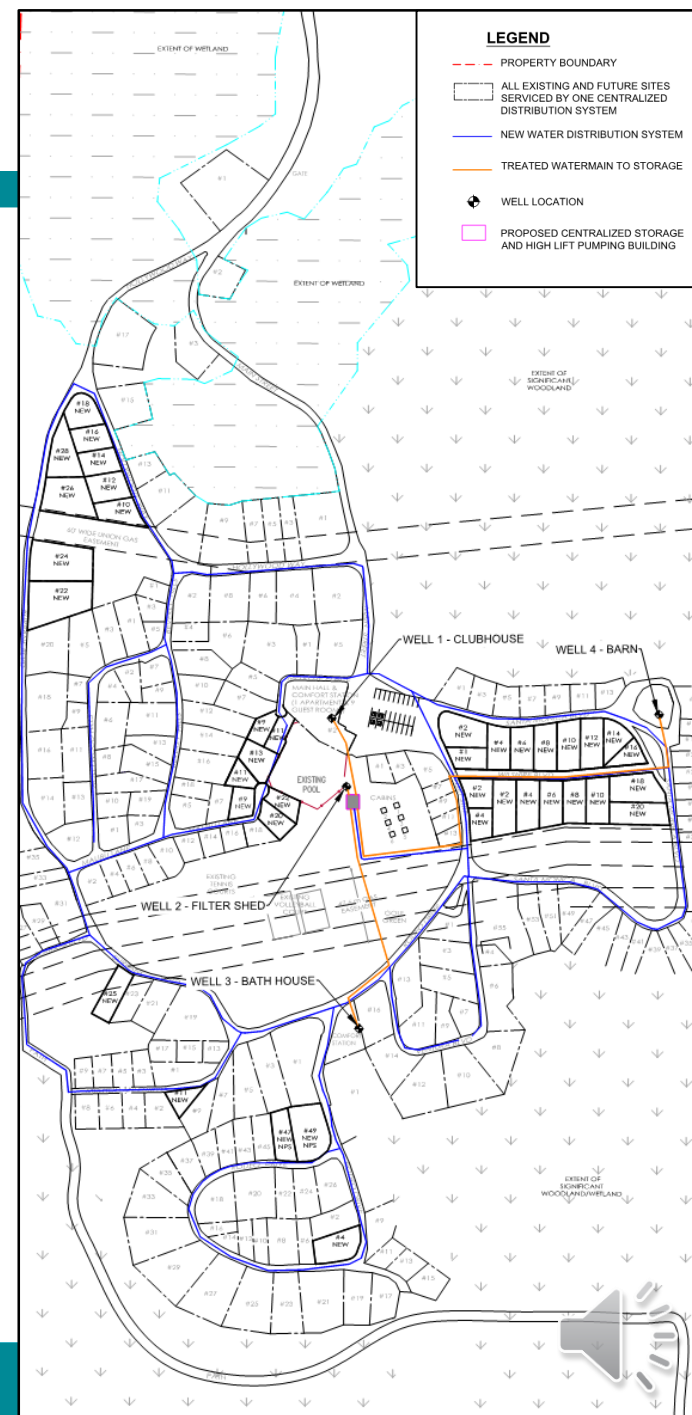




Alternative Solutions - Water

Alternative 2: Upgrade Existing Treatment Systems and Construct Centralized Storage, High Lift Pumping and Distribution System

Construction of a centralized treated water storage reservoir, high lift pumping system and new distribution system. The existing four wells and their respective treatment systems will be utilized with minor upgrades to provide potable water to the centralized storage reservoir.

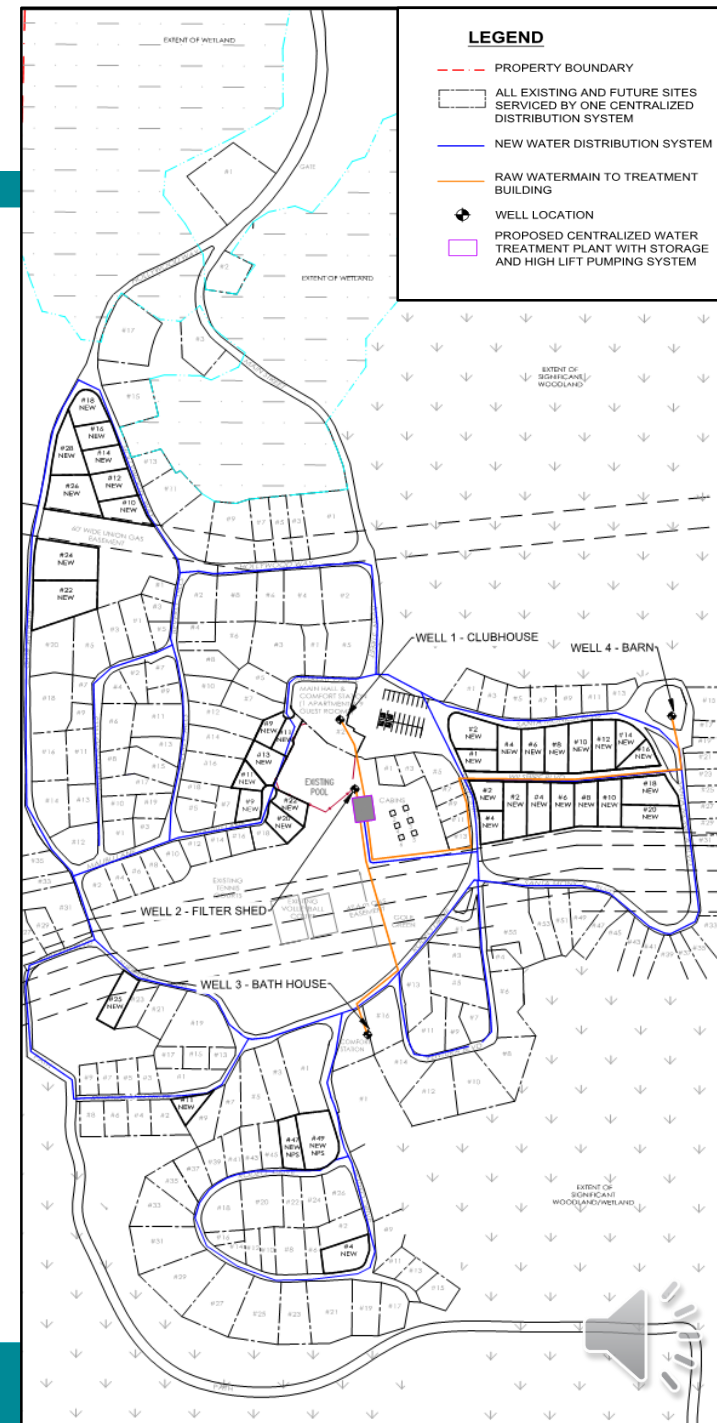




Alternative Solutions - Water

Alternative 3: Construct New Centralized Treatment, Storage and High Lift Pumping with New Distribution System

Construction of single water treatment system that would replace the existing four treatment systems. This option would service Ponderosa from one centralized treatment, storage, high lift pumping and distribution system. Like Alternative 2, this option would require a new distribution system.





Alternative Solutions - Wastewater

The Class EA will consider alternatives for the wastewater servicing, which would typically include options for subsurface or surface discharge of effluent, as well as treatment system options based on the required effluent quality to prevent impacts to the environment. These Alternatives are identified below:

- Do Nothing
- Improve the Current Wastewater System
- Establish a New Centralized Wastewater System with Subsurface Discharge
- Establish a New Centralized Wastewater System with Surface Discharge





Projected Wastewater Design Flows

Parameter	Value	Unit
Total Units Serviced (existing + future)	236	units
Average Flow Per Unit	250	L/unit/day
Projected Average Day Flow (rounded)	60	m ³ /day
Peaking Factor (based on MECP standards)	3.0	N/A
Projected Peak Flow	180	m ³ /day

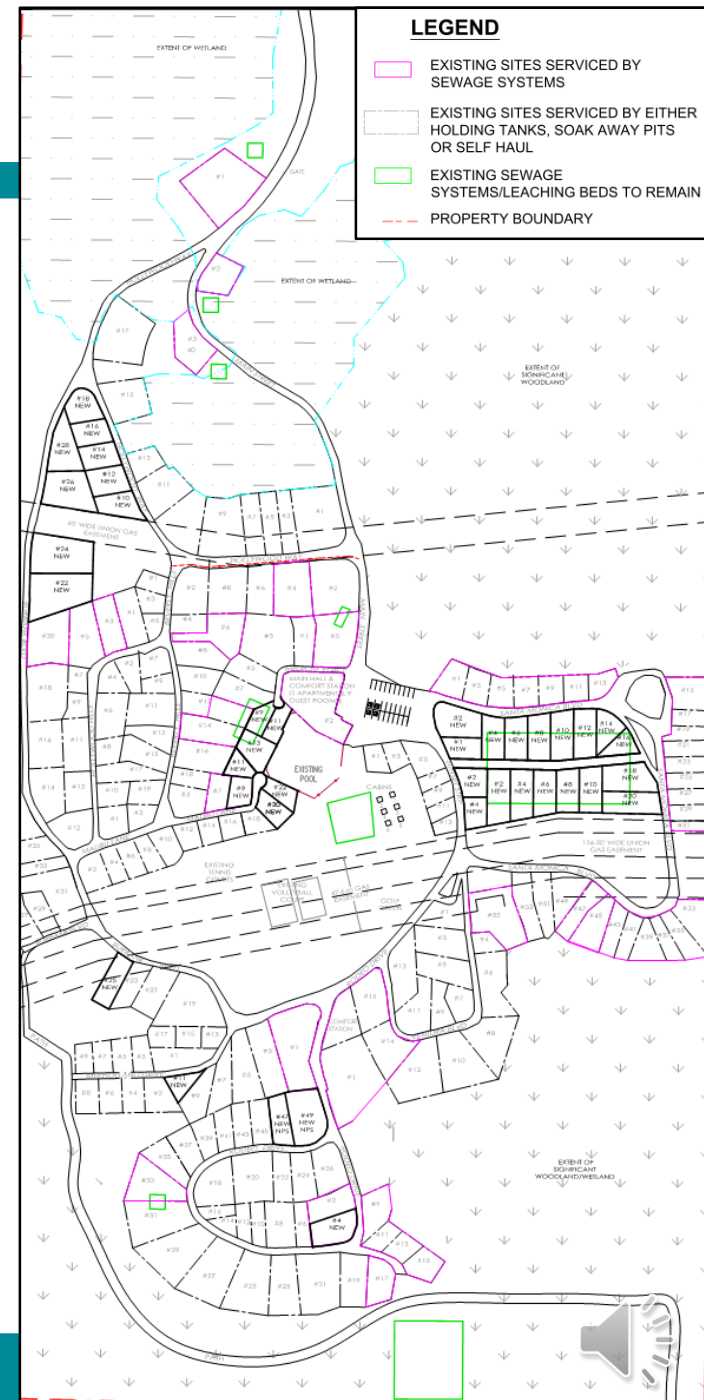




Alternative Solutions - Wastewater

Alternative 1: Do Nothing

No changes to the existing wastewater collection, treatment, and discharge system would be implemented. The Site would operate as is and no efforts would be made to improve or remedy the existing systems.



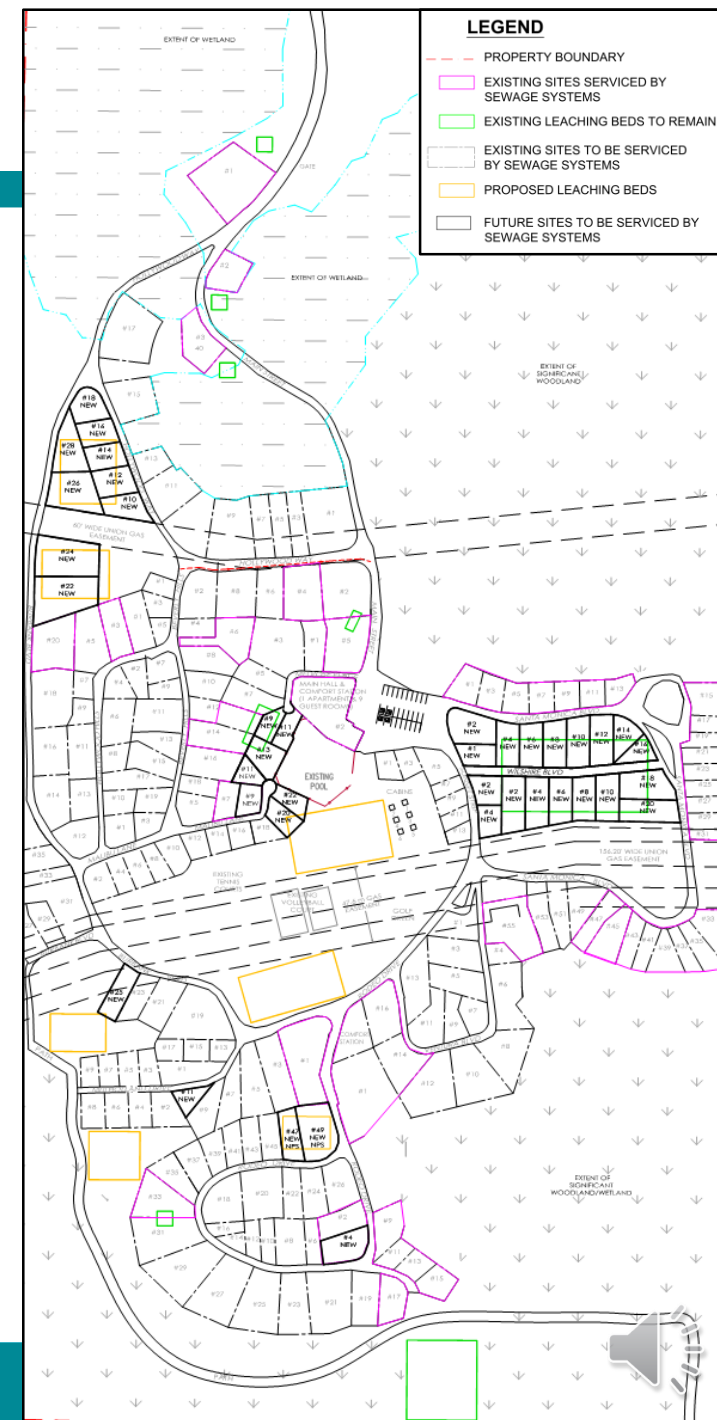


Alternative Solutions - Wastewater

Alternative 2: Improve the Current Wastewater System

Upgrades to the existing systems without expansion of capacity, involving construction of an estimated seven new communal sewage systems to improve the level of service from using either holding tanks and informal soak-away pits.

There will be not be enough space to accommodate all the future units since much of the space that is available for new units would be needed for the sewage systems.



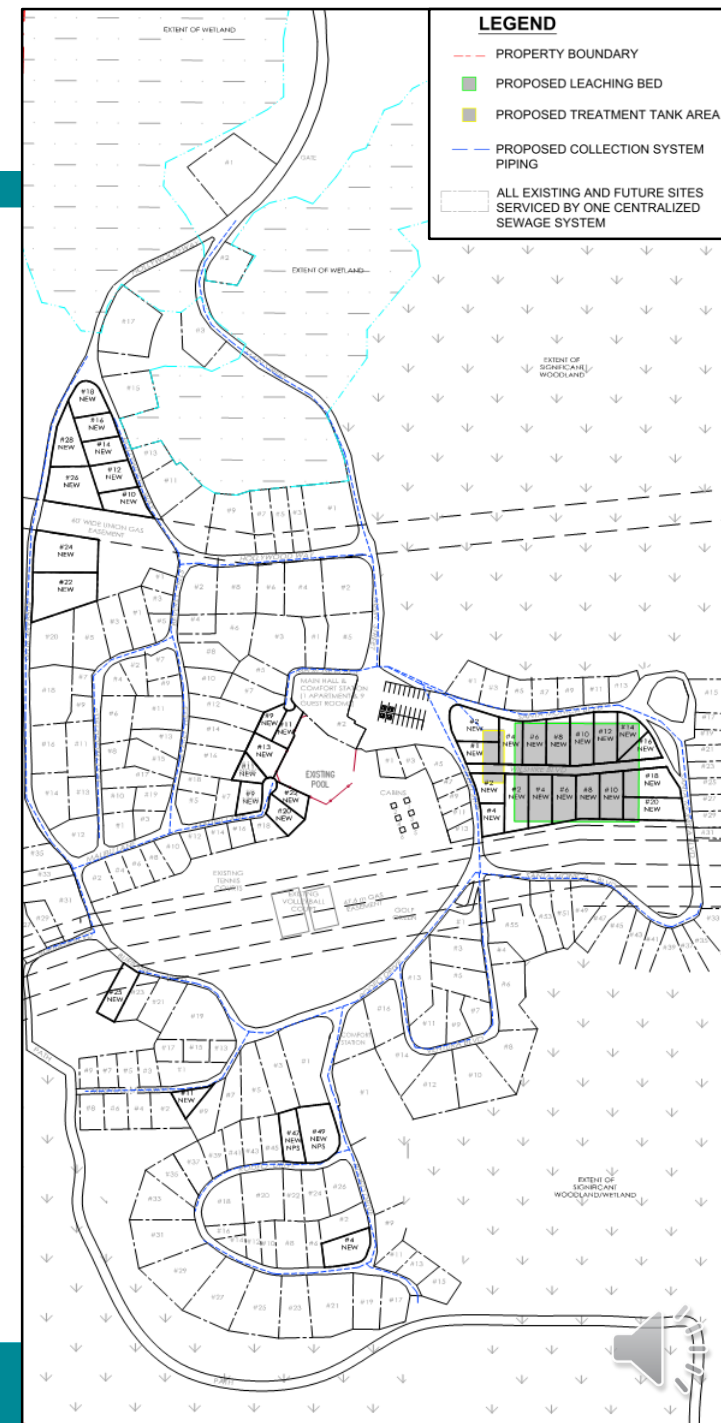


Alternative Solutions - Wastewater

Alternative 3: Establish a New Centralized Wastewater System with Subsurface Discharge

Construction of a new centralized onsite wastewater system including wastewater collection, treatment, and discharge of effluent to one subsurface leaching bed system designed to accommodate existing and future flows.

The proposed location for a centralized leaching bed would be to expand the existing leaching bed located in the open space along Santa Monica Boulevard. The remaining available space would not be able to accommodate the proposed new units.

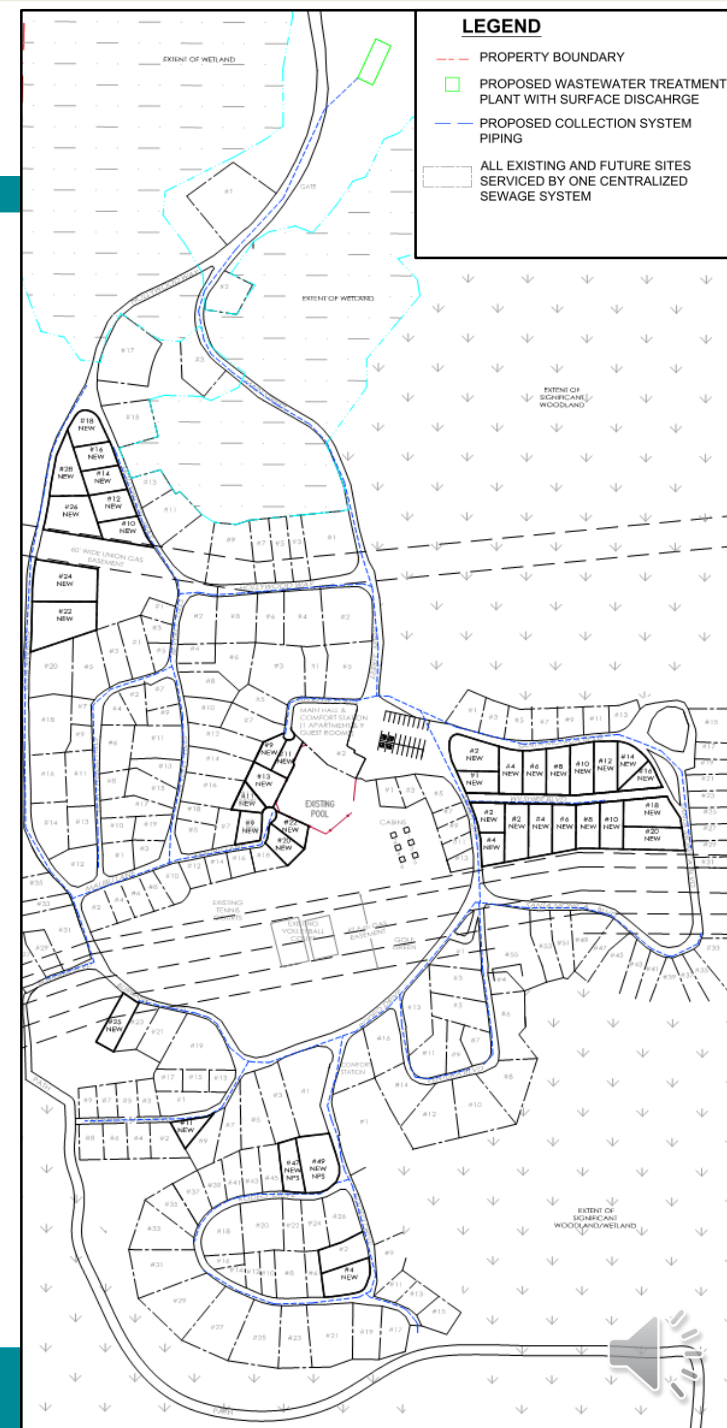




Alternative Solutions - Wastewater

Alternative 4: Establish a New Centralized Wastewater System with Surface Discharge

Construction of a new centralized wastewater system including wastewater collection, treatment, and discharge of treated effluent to surface water via the existing onsite pond. The wastewater treatment plant would be located in the northern portion of the Site in the vicinity of the pond.





Evaluation Criteria - Water

NATURAL ENVIRONMENT

- Impacts to designated sites/species
- Impacts to surface water quality
- Impacts to groundwater quality and quantity
- Impacts to hazard lands (erosion, slope stability, flooding)
- Impacts to vegetation and terrestrial habitat
- Impacts to aquatic habitat
- Source Water Protection

SOCIO-CULTURAL ENVIRONMENT

- Compatibility with City/Region official plan
- Heritage resources (archaeological features, built heritage, and cultural landscapes)
- Nuisance impacts

TECHNICAL ENVIRONMENT

- Ability to adequately address water needs for existing units
- Ability to adequately address water needs for future units
- Ability to provide adequate treatment to meet Ministry criteria
- Ability to provide adequate water storage to meet needs for future units
- Approvals/permit requirements
- Monitoring and Sampling requirements
- Operation & Maintenance requirements and complexity
- Special engineering requirements [Footprint Requirements][Conformity with guidelines and standards]

ECONOMIC ENVIRONMENT

- Comparative capital costs
- Estimated operations and maintenance costs
- MRA financial assurance (Note: The MRA Financial Assurance is significantly higher if the systems are not up to the required standards).





Evaluation Criteria - Wastewater

NATURAL ENVIRONMENT

- Impacts to designated sites/species
- Impacts to surface water quality
- Impacts to groundwater quality and quantity
- Impacts to hazard lands (erosion, slope stability, flooding)
- Impacts to vegetation and terrestrial habitat
- Impacts to aquatic habitat
- Source Water Protection

SOCIO-CULTURAL ENVIRONMENT

- Conformity with City/Region official plan
- Heritage resources (archaeological features, built heritage, and cultural landscapes)
- Nuisance impacts

TECHNICAL ENVIRONMENT

- Ability to adequately address wastewater volumes from existing units
- Ability to adequately address wastewater volumes from future units
- Ability to provide adequate treatment to meet effluent criteria
- Approvals/permit requirements
- Monitoring and Sampling requirements
- Operation & Maintenance requirements and complexity
- Special engineering requirements [Footprint Requirements] [Conformity with guidelines and standards]

ECONOMIC ENVIRONMENT

- Comparative capital costs
- Estimated operations and maintenance costs
- MRA financial assurance (Note: The MRA Financial Assurance is significantly higher if the systems are not up to the required standards).





Evaluation of Alternative Solutions - Water

CRITERIA FOR EVALUATING ALTERNATIVES	1: Do Nothing	2: Improve the Current Water System and upgraded storage capacity	3: Establish a New Centralized Water System using existing water supply and upgraded storage capacity
NATURAL ENVIRONMENT	<p style="text-align: center;">📉</p> <p>No direct impacts to surrounding Significant Woodland and Provincially Significant Wetland (PSW) features, surface or ground water, and aquatic habitat. However aging distribution system will increasingly become more prone to flooding which could become a risk to local surface and ground water and adjacent natural areas. Exceedances of the maximum flow rate in the PTTW is anticipated.</p>	<p style="text-align: center;">📉</p> <p>No direct impacts to surrounding Significant Woodland and Provincially Significant Wetland (PSW) features, surface or ground water and aquatic habitat. Minor to no indirect impact during the construction.</p>	<p style="text-align: center;">📉</p> <p>No direct impacts to surrounding Significant Woodland and Provincially Significant Wetland (PSW) features, surface or ground water and aquatic habitat. Minor to no indirect impact during the construction.</p>
SOCIO-CULTURAL ENVIRONMENT	<p style="text-align: center;">📉</p> <p>No impacts to archaeological features, built heritage, and cultural heritage landscapes. No construction related nuisance impacts. Potential capacity related impacts (temporary loss of service) or health and safety nuisance impacts due to aging distribution system which will increasingly become more prone to breakage. Individual water systems do not provide service if a well is out of operation. But does not provide for the planned growth.</p>	<p style="text-align: center;">📉</p> <p>No impacts to archaeological features, built heritage and cultural heritage landscapes. Potential medium impact to the residents during construction. Essential water use can continue in the event that well(s) are undergoing required maintenance.</p>	<p style="text-align: center;">📉</p> <p>No impacts to archaeological features, built heritage, and cultural heritage landscapes. Potential medium-high impact to the residents during construction. Potential disruption in water availability in the event that the plant undergoes maintenance.</p>
TECHNICAL ENVIRONMENT	<p style="text-align: center;">📉</p> <p>Will be able to adequately address the water needs for the existing but not for the future units. Aging distribution system will increasingly become more prone to failure. Unable to satisfy Ministry treatment criteria.</p>	<p style="text-align: center;">📉</p> <p>Will be able to adequately address the water needs for the existing and future units. Will meet Ministry criteria using upgraded treatment for all systems. Multiple treatment systems to be monitored and maintained. Additional area required for storage and high lift pumping system.</p>	<p style="text-align: center;">📉</p> <p>Will be able to adequately address the water needs for the existing and future units. Will meet Ministry criteria using upgraded treatment and storage. Only one treatment system to be monitored and maintained. Has the largest footprint.</p>
ECONOMIC ENVIRONMENT	<p style="text-align: center;">📉</p> <p>No capital cost. High MRA financial assurance. High O&M cost.</p>	<p style="text-align: center;">📉</p> <p>Medium-high capital cost. Medium MRA financial assurance. Medium-high O&M cost.</p>	<p style="text-align: center;">📉</p> <p>High capital cost. Low MRA financial assurance. Medium O&M cost.</p>
OVERALL SUMMARY	Least Preferred	Most Preferred	Moderately Preferred





Evaluation of Alternative Solutions - Wastewater

CRITERIA FOR EVALUATING ALTERNATIVES	1: Do Nothing	2: Improve the Current Wastewater System	3: Establish a New Centralized Wastewater System with subsurface discharge	4: Establish a New Centralized Wastewater System with surface discharge
NATURAL ENVIRONMENT	<p>Potential to impact to surface water quality in down gradient surface water features. Potential to cause groundwater impacts. The unimproved system will increasingly become a risk to the natural and aquatic habitat feature based on age.</p>	<p>Potential impact to surface water quality in down gradient surface water features. Will likely not meet MECP regulations for ECA approval. Some potential indirect impacts from some leaching beds situated within 30 m of natural woodland and wetland areas. Potential risk to water quality due to septic system age related degradation.</p>	<p>Improve surface water quality in surface water features impacted by groundwater discharge based on improved effluent quality. The discontinued use of the existing conventional leaching beds will have a positive impact on groundwater quality. No impacts to natural woodland and wetland areas. No impact to aquatic habitat.</p>	<p>Improve the quality of effluent discharged from the system and ultimately the water characteristics within Beverly Marsh. Positive impact on groundwater quality. No impacts to natural woodland and wetland areas. Minimal impact is expected to aquatic habitat.</p>
SOCIO-CULTURAL ENVIRONMENT	<p>Not Compatible with City/Region official plan. No impacts to archaeological features, built heritage, and cultural heritage landscapes. No construction related nuisance impacts.</p>	<p>Not Compatible with City/Region official plan. No impacts to archaeological features, built heritage, and cultural heritage landscapes. Minimal impact to the residents during construction.</p>	<p>Compatible with City/Region official plan. Potential impacts to archaeological features, built heritage, and cultural heritage landscapes. Potential high impact to the residents during construction.</p>	<p>Compatible with City/Region official plan. Potential impacts to archaeological features, built heritage, and cultural heritage landscapes.</p>
TECHNICAL ENVIRONMENT	<p>Will not be able to adequately address wastewater volumes from any of the future units. No significant change to existing operation and maintenance requirements.</p>	<p>Will not be able to adequately address wastewater volumes from any of the future units. Multiple systems that will need to be maintained.</p>	<p>Will not be able to adequately address wastewater volumes from any of the future units. One centralized system to operate and maintain with a larger capacity. Moderate complexity. Largest footprint.</p>	<p>Will be able to adequately address wastewater volumes from all future units. One centralized system to operate and maintain with a larger capacity. Most complex system. Small Footprint.</p>
ECONOMIC ENVIRONMENT	<p>No capital cost. Low O&M cost. High MRA financial assurance.</p>	<p>No capital cost. Medium-high O&M cost. Medium MRA financial assurance.</p>	<p>Medium-high capital cost. Medium O&M cost. Low MRA financial assurance.</p>	<p>Medium-high capital cost. High O&M cost. Low MRA financial assurance.</p>
OVERALL SUMMARY	Least Preferred	Least Preferred	Moderately Preferred	Most Preferred



Next Steps

- Confirm preferred solution
- Identify and evaluate alternative design concepts
- PIC # 3 targeted for early 2021
- Completion of Environmental Study Report and EA Filing





Invitation for Participation

Thank you for participating in this PIC.

Public input is an important component of the decision-making process.

You are invited to submit a Comment Sheet to one of the Study Team members below on or before December 17, 2020.

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On behalf of Ponderosa Nature Resort

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Comment Sheet and PIC Presentation available at:

www.rjburnside.com/ponderosa

