



# Water and Wastewater Services in the Community of Nobleton Municipal Class Environmental Assessment Study



## Online Open House No. 3

**Tuesday, July 20, 2021  
6:30 p.m. to 8 p.m.**

# Project Background

## Problem/Opportunity Statement for this Municipal Class Environmental Assessment (Class EA) Study

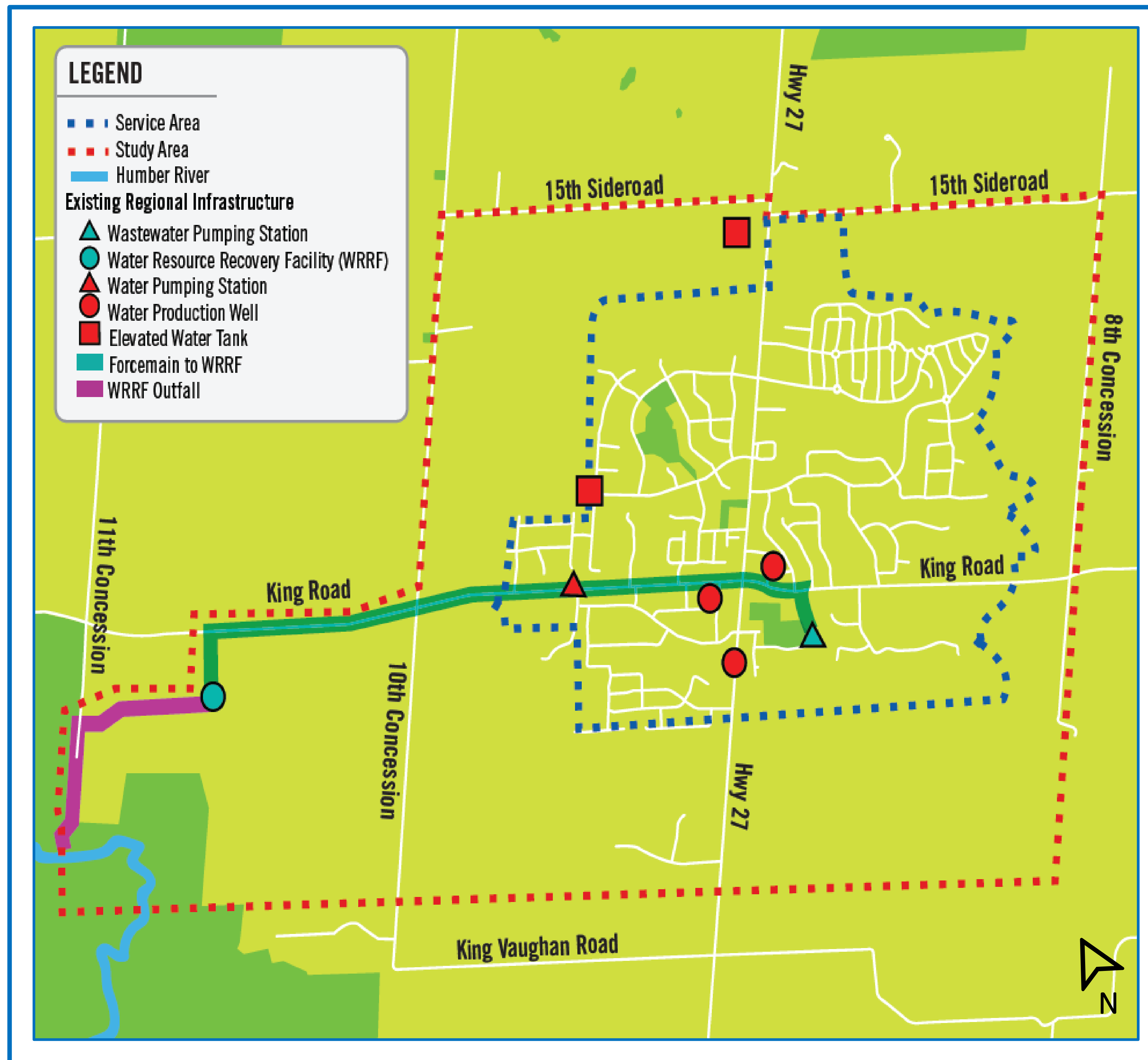
- To identify **long-term water and wastewater servicing solutions** to support forecasted growth in Nobleton to 2041 while **optimizing the use of existing Regional infrastructure**.

## Purpose of this Open House

- Present the **design concepts for the preferred water and wastewater solutions**
- Share the **evaluation of design concepts**
- Share the **recommended conceptual design**
- **Obtain your input**

**We want to hear from you!**

# Project Study and Service Area



## Service Area

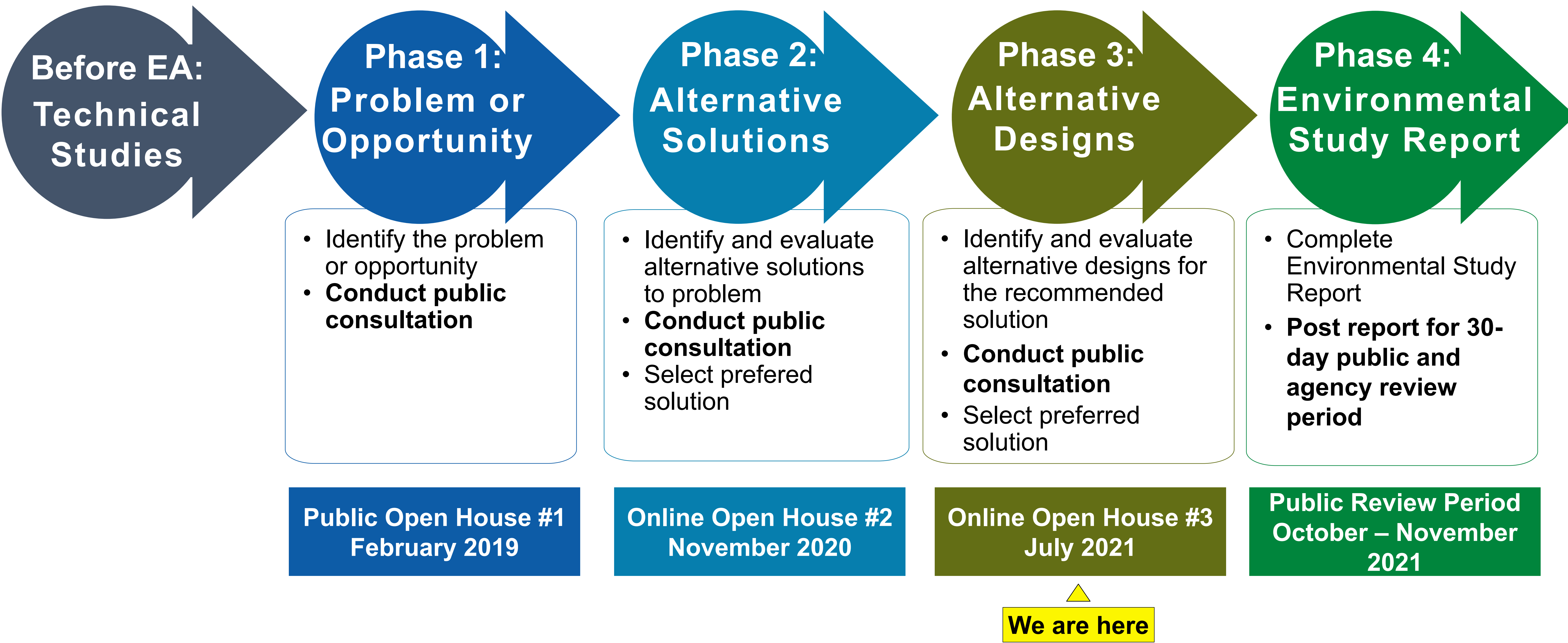
Community of Nobleton boundary including current and planned service areas

## Study Area

All serviced area plus an assessment of potentially impacted lands due to new infrastructure requirements



# Schedule C Municipal Class Environmental Assessment Study Process



# Communication Timeline



**Stay informed** throughout the study process by visiting the project website ([www.york.ca/nobletonea](http://www.york.ca/nobletonea))

**We are here**

November 2018  
Notice of  
Commencement

May 2020  
Newsletter Release

July 2021  
Online Open House #3

February 2019  
Open House #1

November 2020  
Online Open House #2

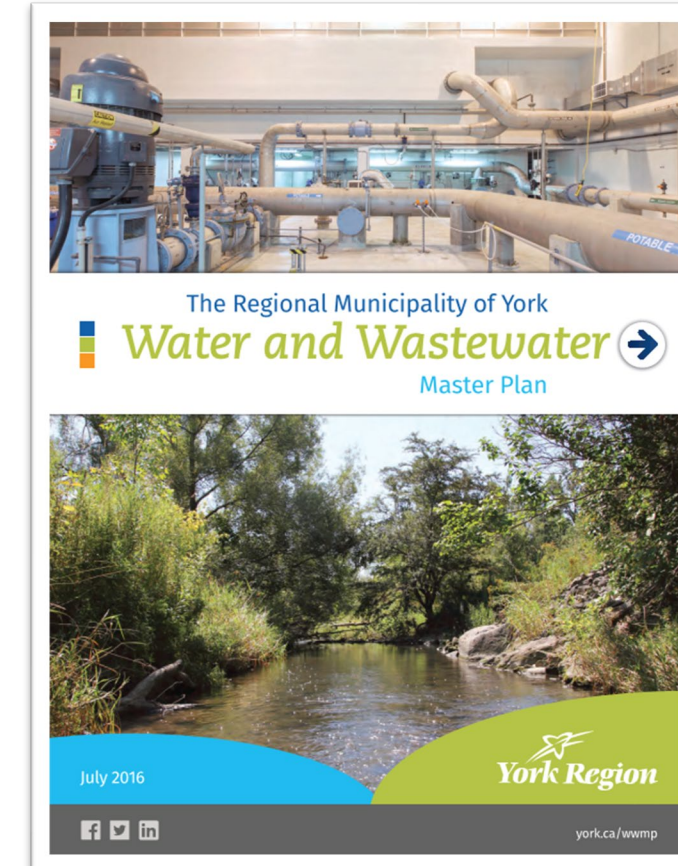
October 2021  
Environmental Study  
Report & Notice of Study  
Completion

# Plans for Consideration

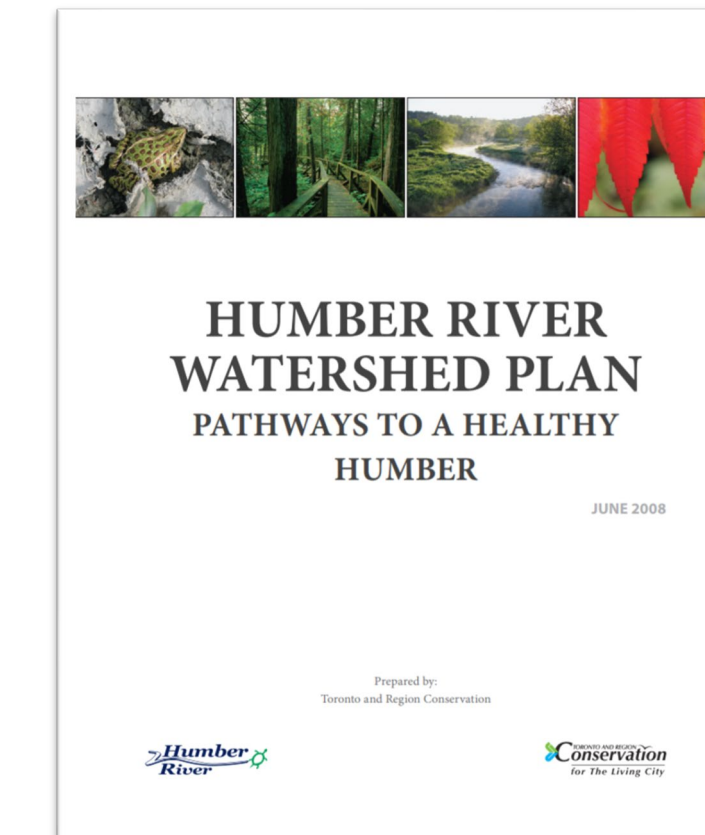
This Class EA must also consider input from various existing documents



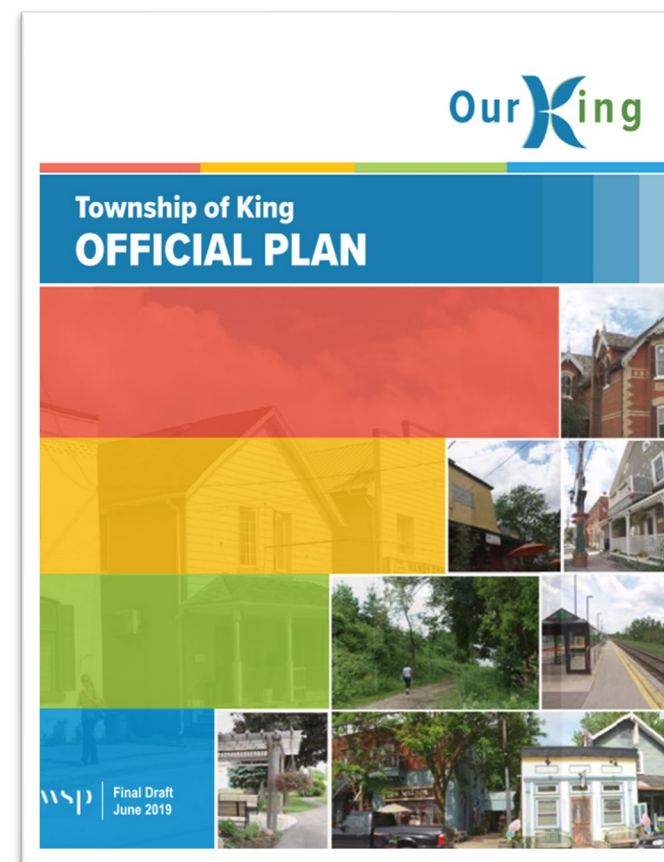
**Places to Grow**



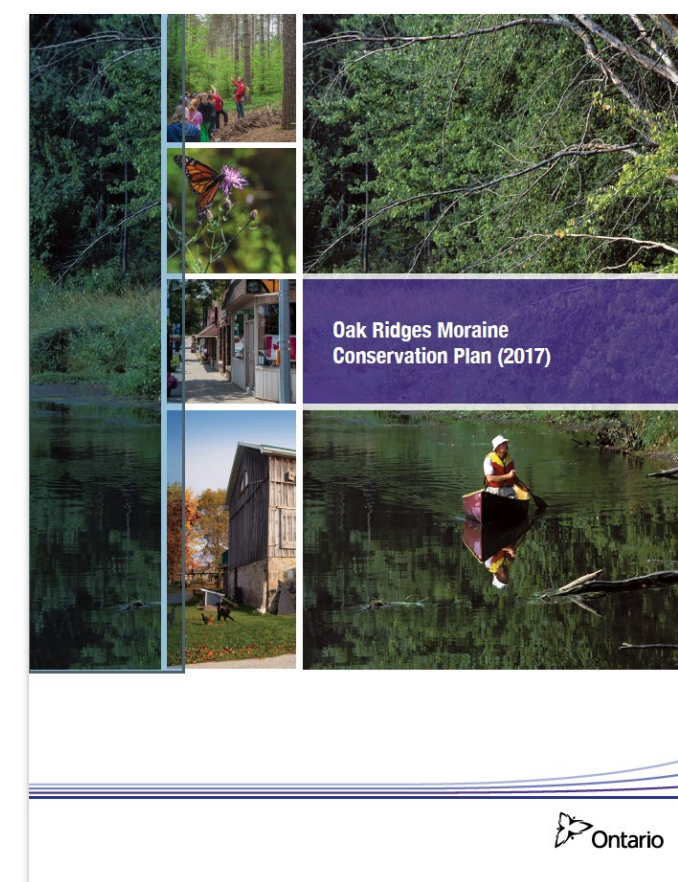
**York Region's 2016 Water and Wastewater Master Plan**



**Humber River Watershed Plan**



**King Township (Our King) Official Plan, 2019**



**Oak Ridges Moraine Conservation Plan**



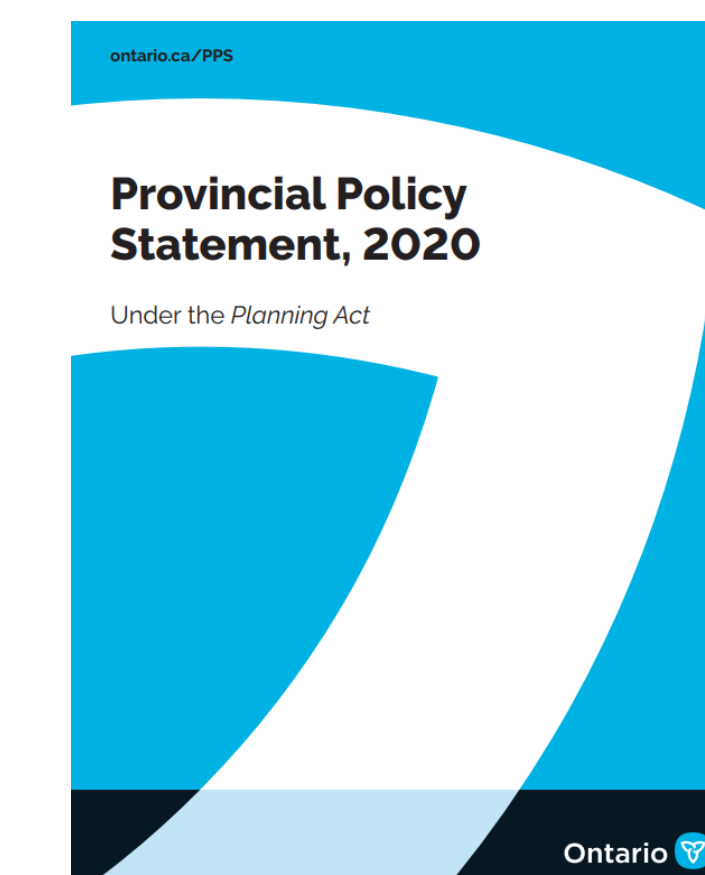
**Clean Water Act / Source Protection Plan**



**York Region's 2010 Official Plan**



**Greenbelt Plan**



**Provincial Policy Statement**

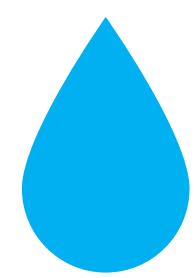


# Technical Studies



## Natural Environment Impact Assessment

- Identification of natural features (wetlands, forests, species at risk, etc.)



## Hydrogeological Assessment

- Review of groundwater conditions in the Study Area (existing wells, groundwater levels, etc.)



## Cultural Heritage Resource Assessment

- Review of cultural heritage resources in the Study Area



## Archaeological Assessment

- Review of potential archaeological resources in the Study Area



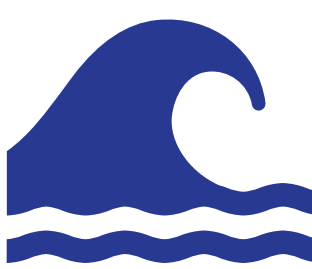
## Geotechnical Assessment

- Assessment of subsurface soil conditions



## Air, Noise and Odour Assessment

- Assessment of short-term and long-term impacts related to air contaminants, odour and noise



## Assimilative Capacity Study

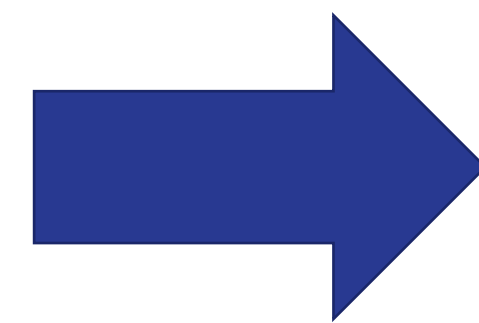
- Investigate effects of Nobleton Water Resource Recovery Facility (WRRF) discharge and recommend effluent limits



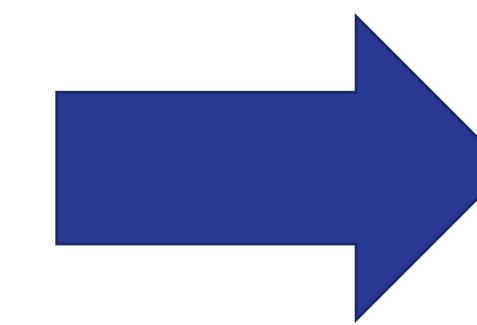
# Nobleton Water System

## STORAGE

Current:  
3,860 m<sup>3</sup>



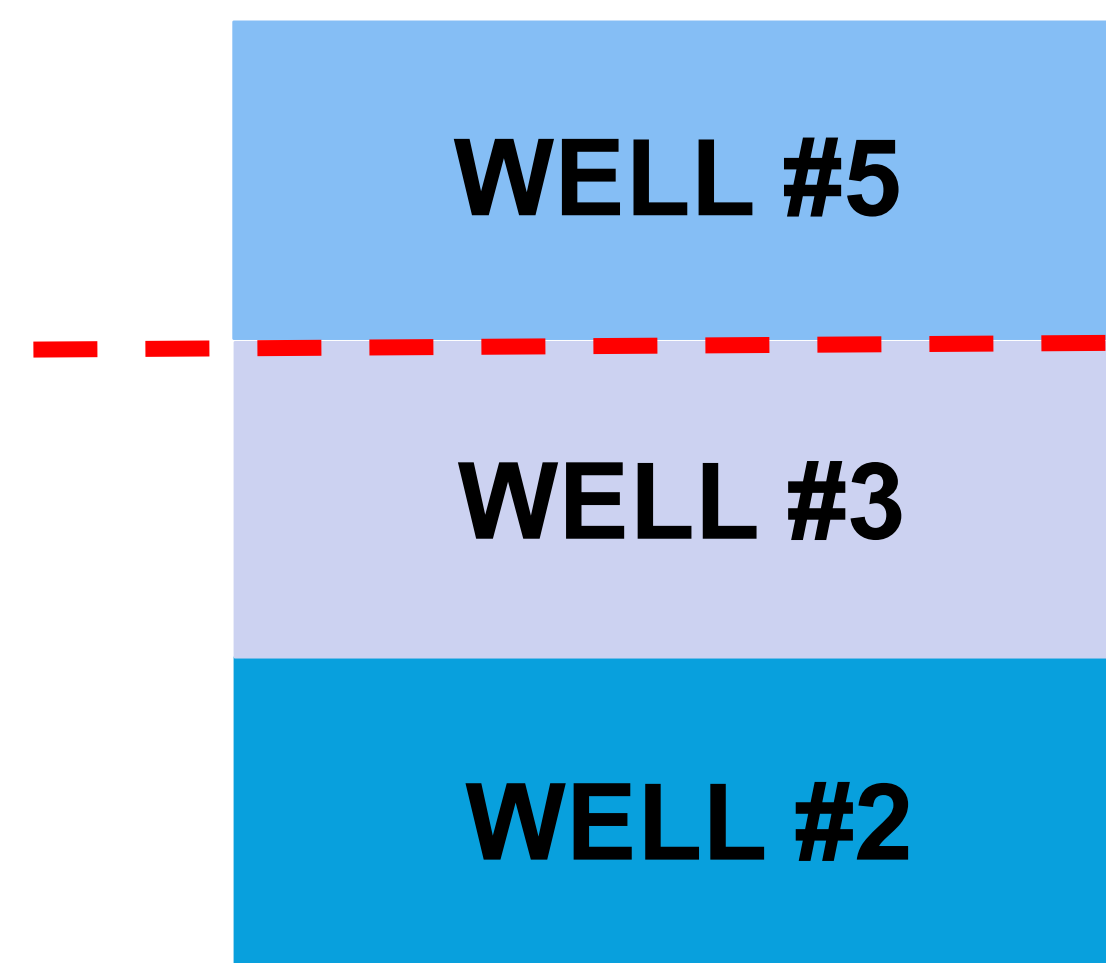
Target:  
3,916 m<sup>3</sup>



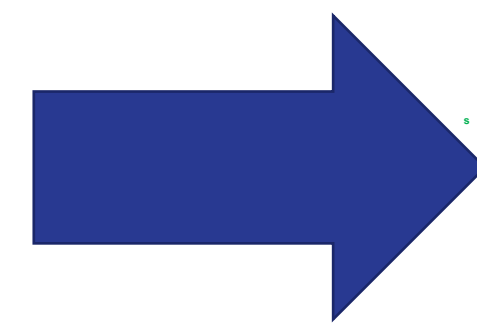
**Solution:**  
Offset storage deficit with  
additional supply

## SUPPLY

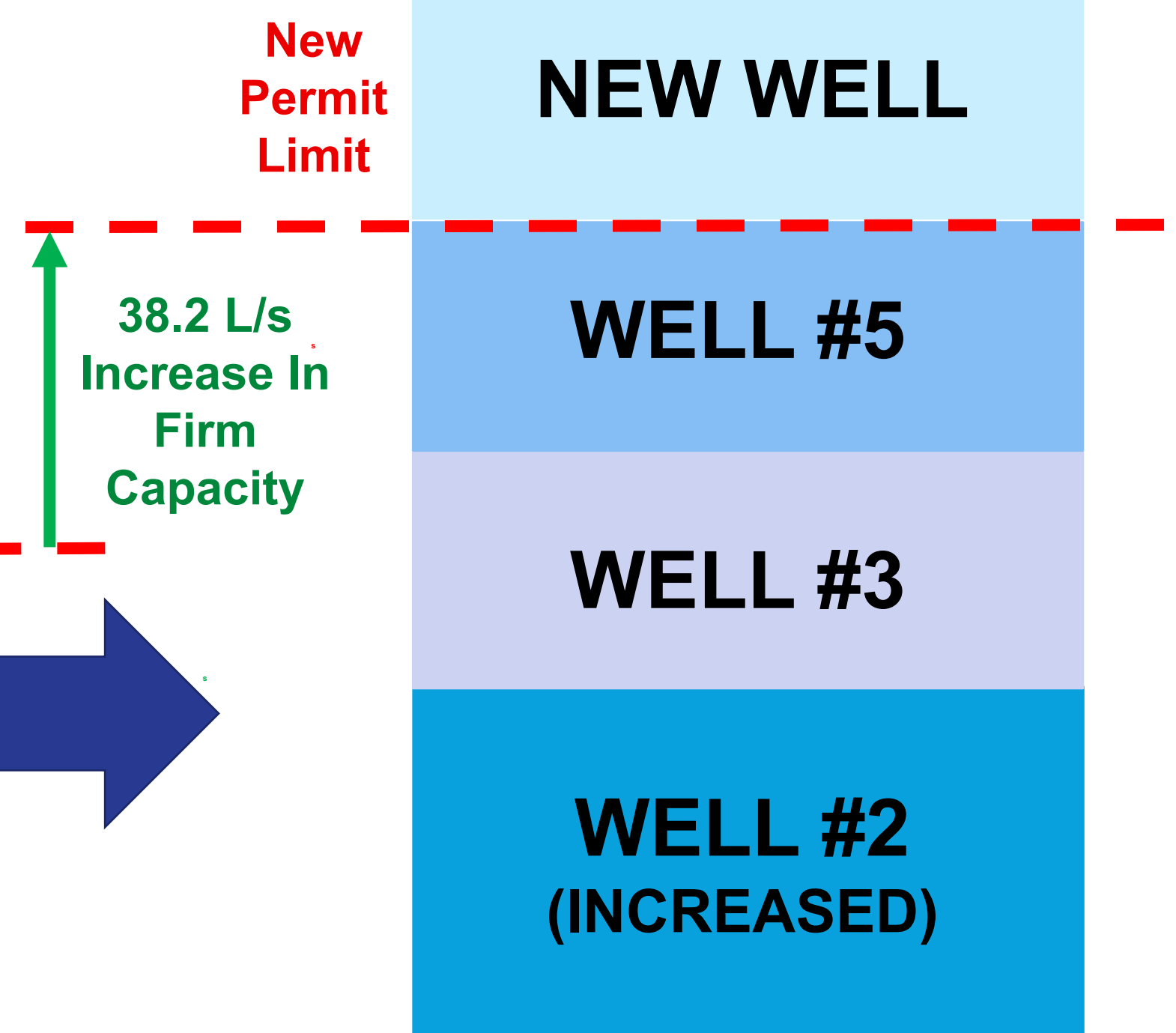
Current:  
51.6 L/s



Existing  
Permit  
Limit

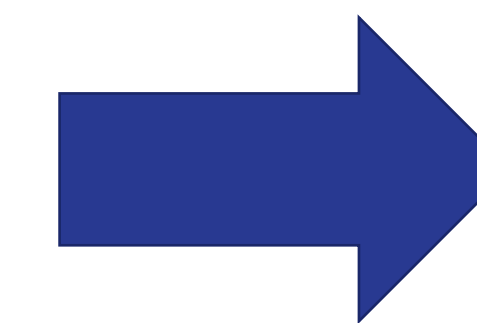


Target:  
89.8 L/s



New  
Permit  
Limit

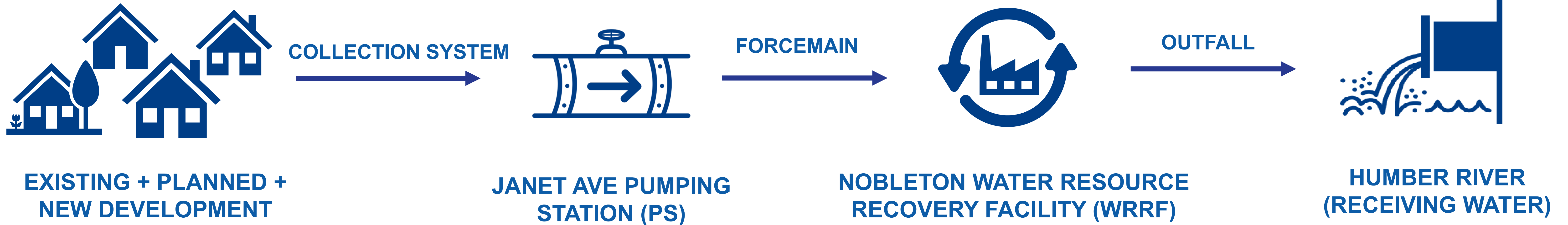
38.2 L/s  
Increase In  
Firm  
Capacity



**Solution:**  
Increase Capacity of Well #2  
+ New Production Well at  
Site H  
(Located on same property as Well #5)



# Nobleton Wastewater System



## Current Flow Rates

Average Daily Flow:  
2,925 m<sup>3</sup>/d

Peak Flow:  
9,177 m<sup>3</sup>/d

## Target Flow Rates

Average Daily Flow:  
3,996 m<sup>3</sup>/d

Peak Flow:  
25,174 m<sup>3</sup>/d

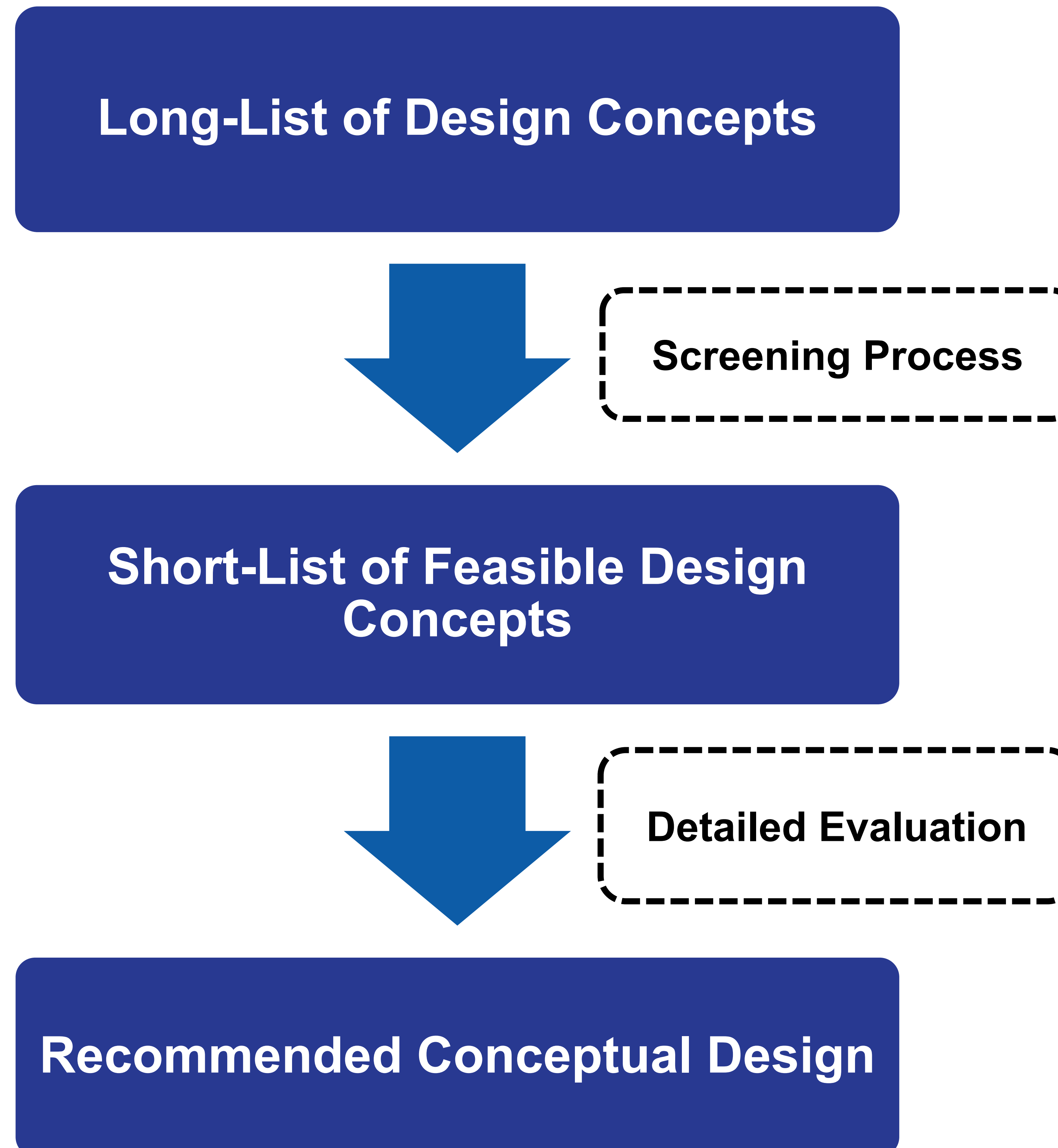
## Solution

Some or all of the following servicing facilities will be expanded and/or upgraded:

- Janet Ave PS
- Forcemain
- Nobleton WRRF
- Outfall

m<sup>3</sup>/d: cubic meters per day

# Design Concepts Evaluation Process



# Design Concepts Screening Process

## Long-list of design concepts were screened under six categories

- 
- Compatibility with Existing Servicing Infrastructure**
- Integration with existing infrastructure in terms of hydraulics, available space and operations

- 
- Proven Technology**
- Use of technology proven to be in operation in North America for at least five years

- 
- Performance Robustness and Reliability**
- Robustness and reliability of performance to meet project objectives, water quality, effluent requirements, and performance requirements

- 
- Stakeholder Acceptance**
- Mitigation of potential impacts to satisfy local and regulatory stakeholders

- 
- Construction Impacts**
- Minimal construction impacts to the natural environment and adjacent landowners/users

- 
- Cost**
- Acceptable capital and operating costs based on high-level assumptions

# Design Concepts Evaluation Process

## Short-list of design concepts were evaluated against five criteria



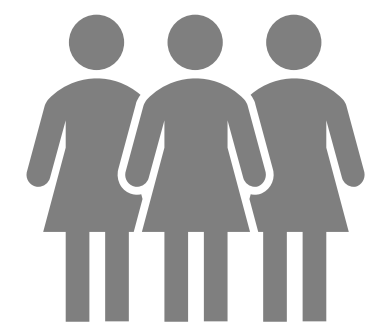
### Technical

- Evaluation of: Constructability, redundancy of supply/service, resilience to climate change, operation and maintenance requirements, adaptability to existing infrastructure, maximizing use of existing infrastructure



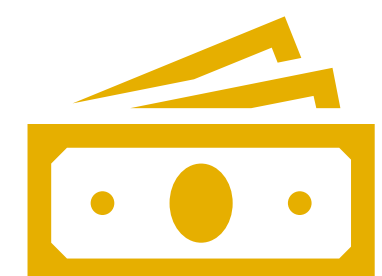
### Natural Environment

- Evaluation of: Aquatic vegetation and wildlife, terrestrial vegetation and wildlife, groundwater resources, surface water resources, greenhouse gas emissions



### Socio-economic Environment

- Evaluation of: Short-term community impacts, long-term community impacts, archaeological sites, cultural/heritage features



### Financial

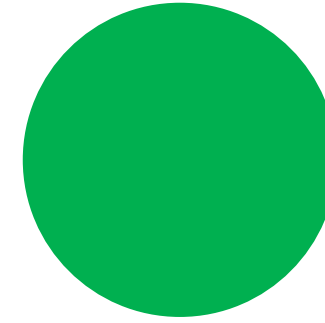
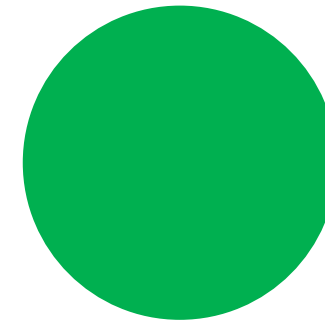
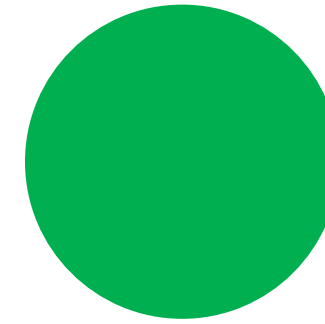
- Evaluation of: Land acquisition cost, capital cost, lifecycle cost

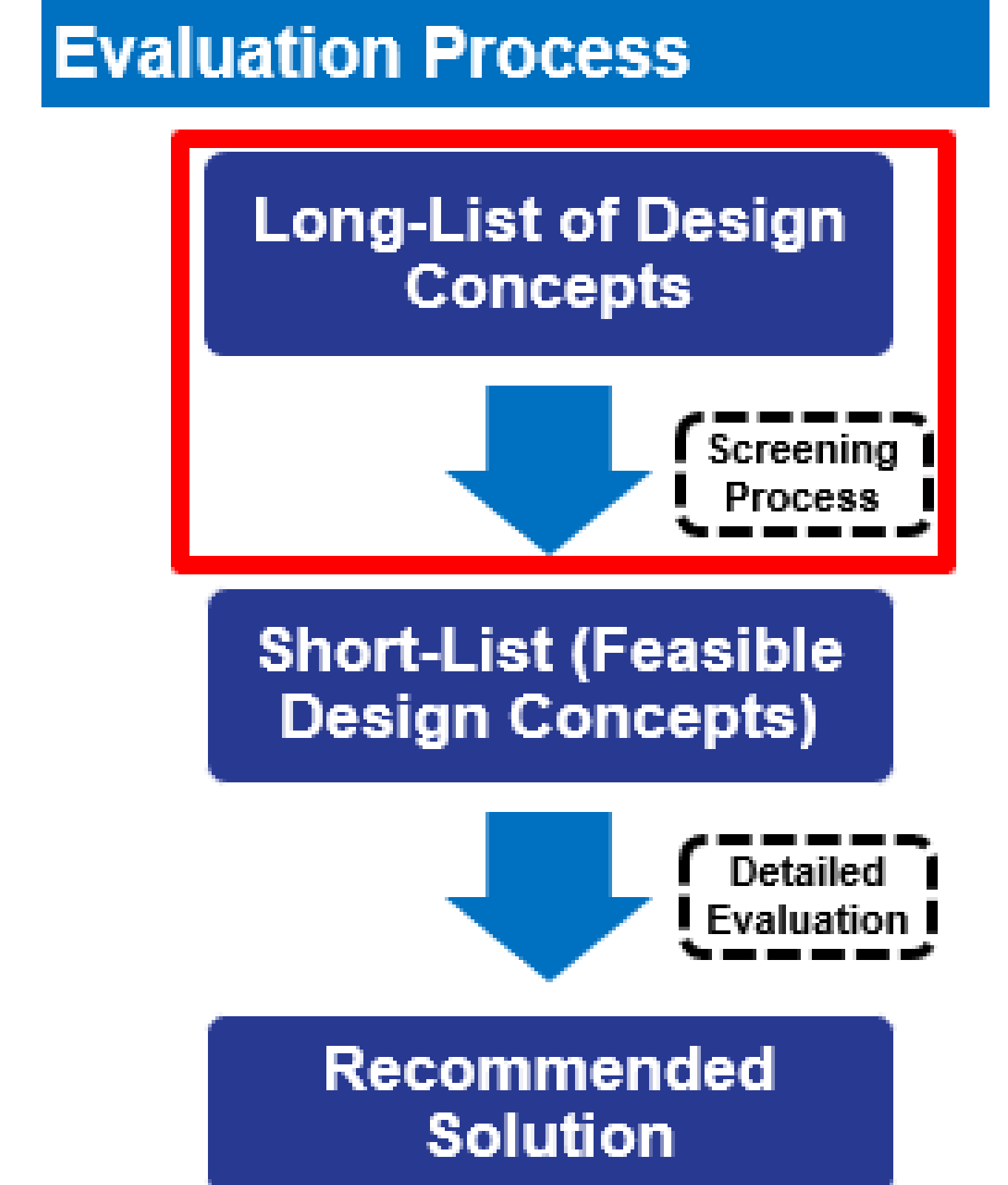


### Jurisdictional/Regulatory

- Evaluation of: Land requirements, ability to accommodate potential future regulatory changes, permits and approvals

# Water Servicing Design Concepts Screening

Solutions Considered to Address Water Supply Needs	Long-List of Water Supply Design Concepts Screening Summary	Screening Status
<b>1. Expand Well Site #2</b>	<ul style="list-style-type: none"> <li>Facility can handle proposed capacity expansion</li> <li>No major modifications required besides equipment upgrades</li> </ul>	 <b>Pass</b>
<b>2.A New Well: Expand existing treatment process of Well Site #5 to include water from new Well Site H</b>	<ul style="list-style-type: none"> <li>Major infrastructure/process adjustments will be needed to treat combined flows from Well Site #5 and Well Site H</li> <li>Other criteria met by continuing to use existing facility</li> </ul>	 <b>Pass</b>
<b>2.B New Well: Add an independent dedicated treatment train from Well Site H</b>	<ul style="list-style-type: none"> <li>New treatment train will be similar to the existing facility for Well Site #5; compatibility, proven technology, and performance criteria has been met</li> <li>Site #5 and Site H are on the same land; stakeholder and constructability impacts would be minimal</li> </ul>	 <b>Pass</b>



# Short-List of Design Concepts: Water Servicing Solutions



All design concepts passed the screening process and were selected for detailed evaluation:

## Design Concept 1

- Expand Well Site #2

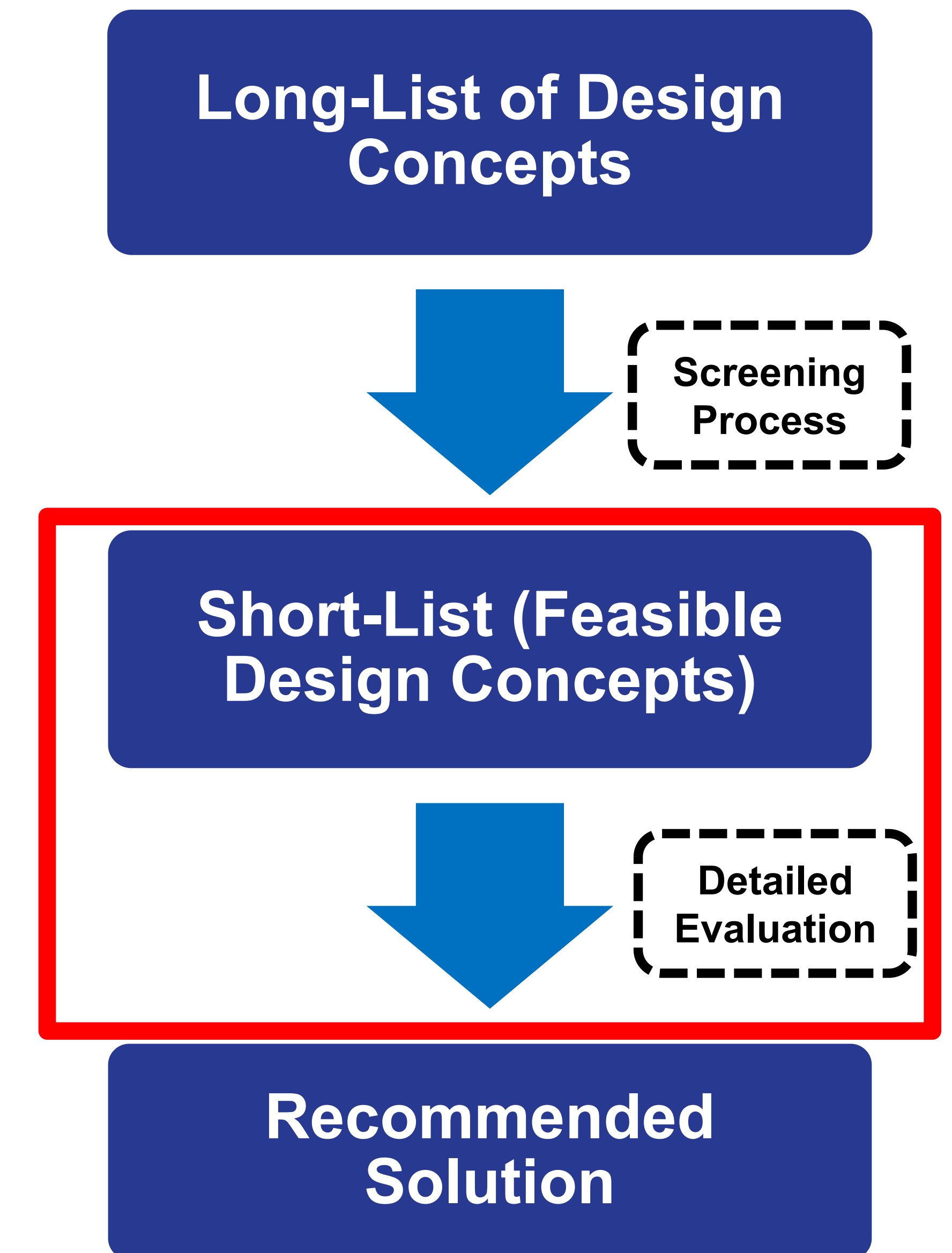
## Design Concept 2.A

- Expand existing treatment process of Well Site #5 to include water from new Well Site H

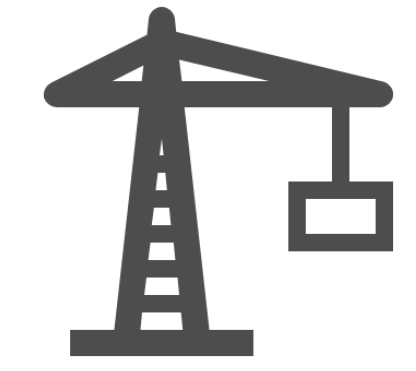
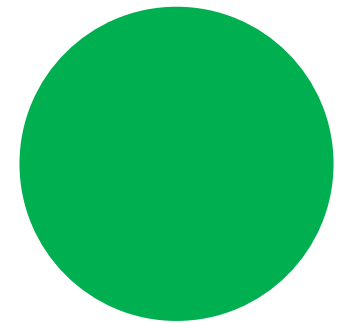
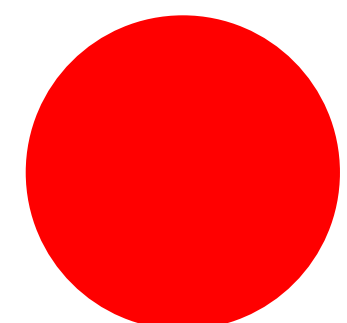
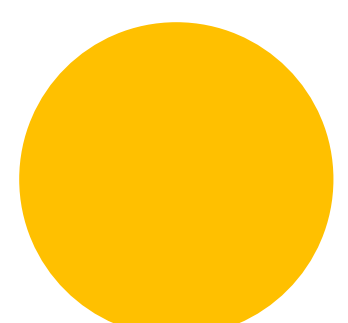

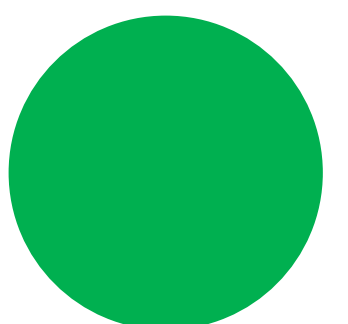
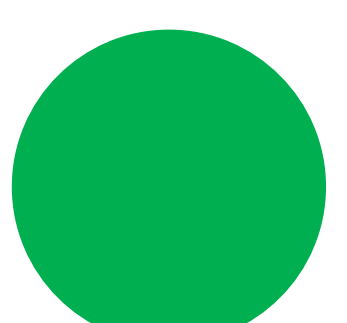
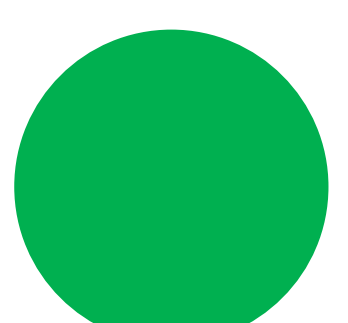

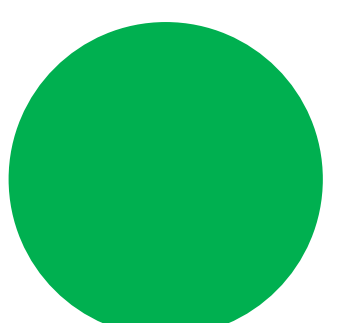
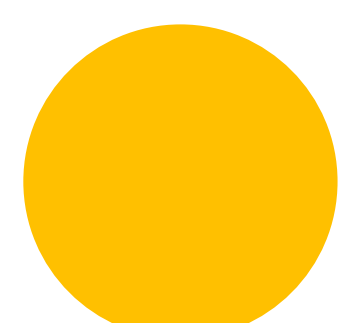
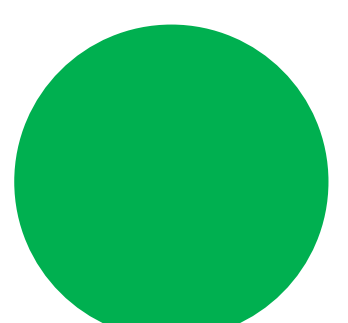
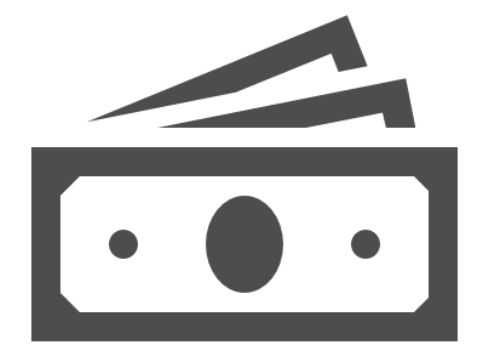
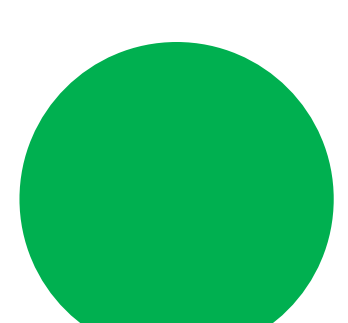
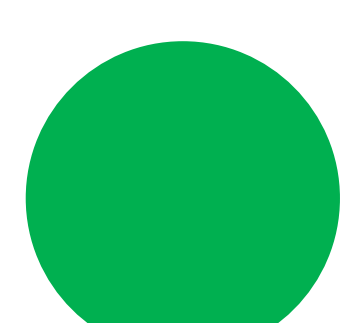
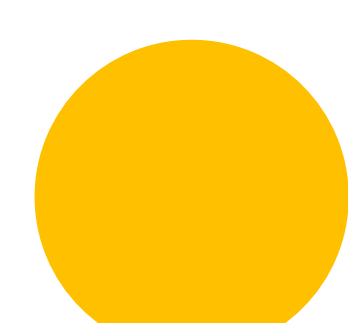

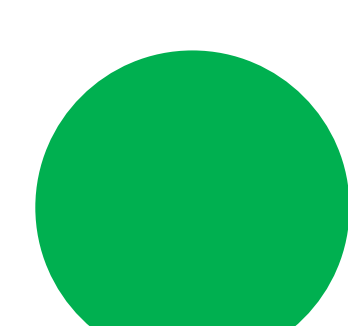
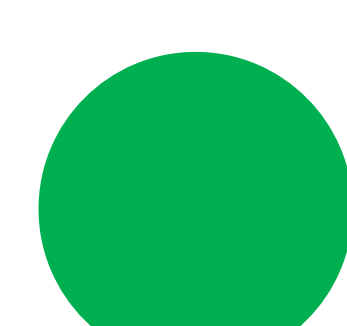
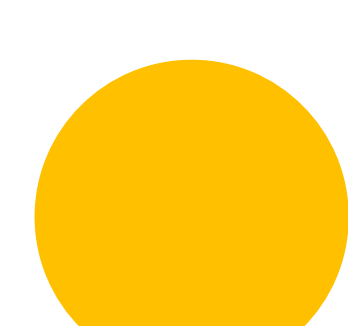
## Design Concept 2.B

- Add an independent dedicated treatment train from Well Site H

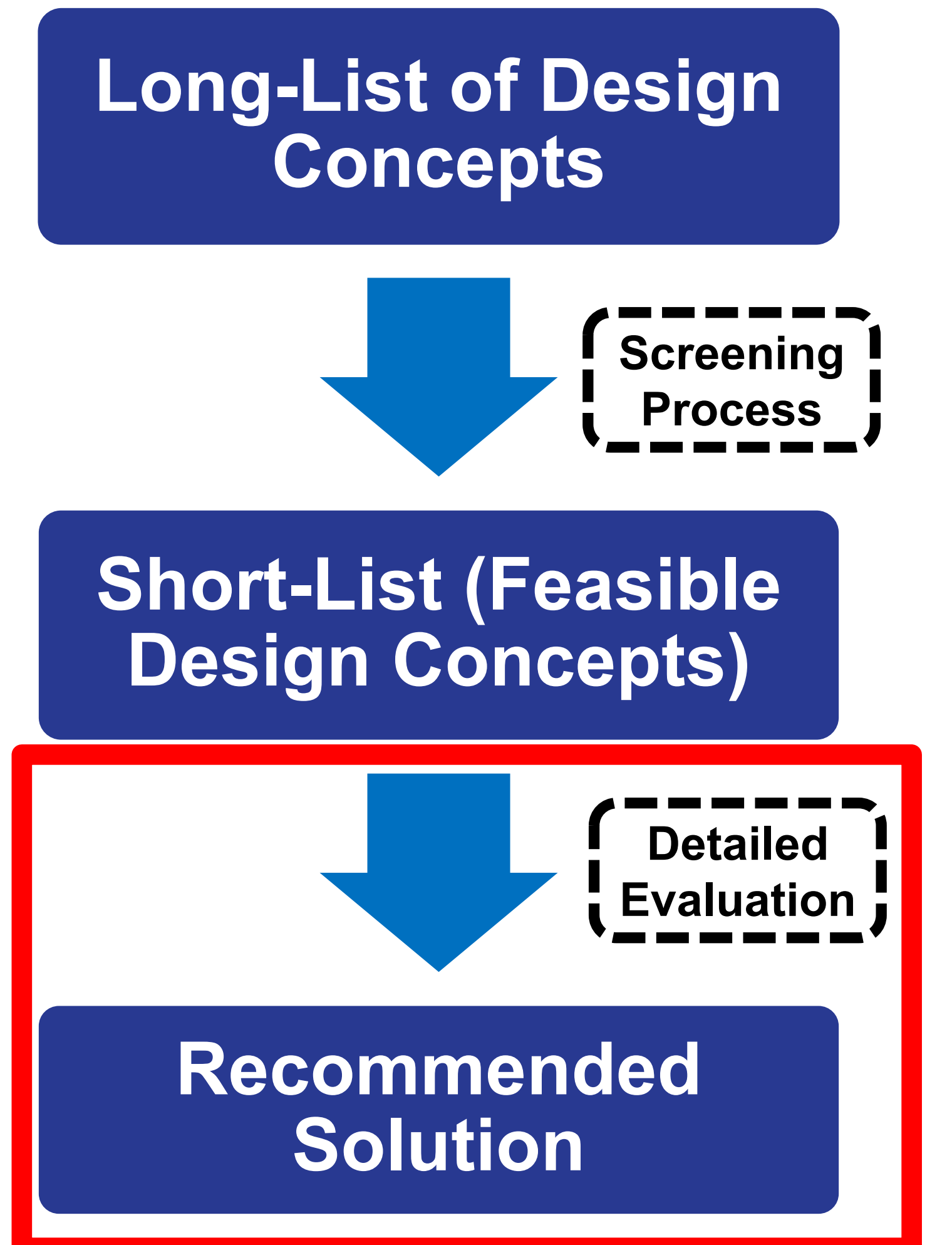
### Evaluation Process



# Water Servicing Design Concepts Detailed Evaluation

Design Concept		Design Concept 1: Expand Well Site #2	Design Concept 2.A: Expand Existing Treatment Process of Well Site #5 to include Water from New Well Site H	Design Concept 2.B: Add an Independent Dedicated Treatment Train from Well Site H
Technical 				
Natural Environment 				
Socio-economic Environment 				
Financial 				
Jurisdictional/Regulatory 				

## Evaluation Process



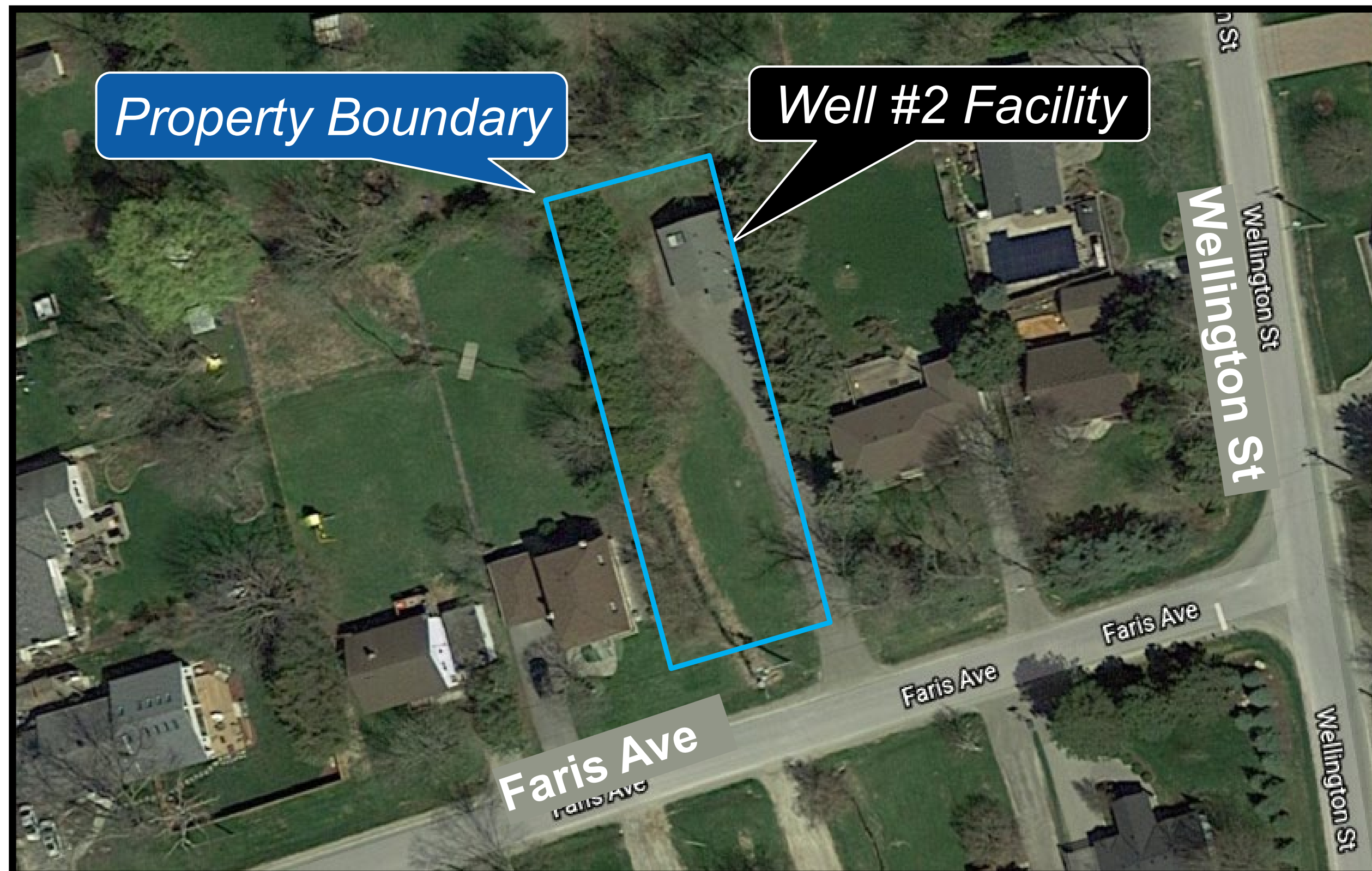
## Scoring Description

-  Low Impact/  
Most Preferred
-  Moderate Impact
-  High Impact

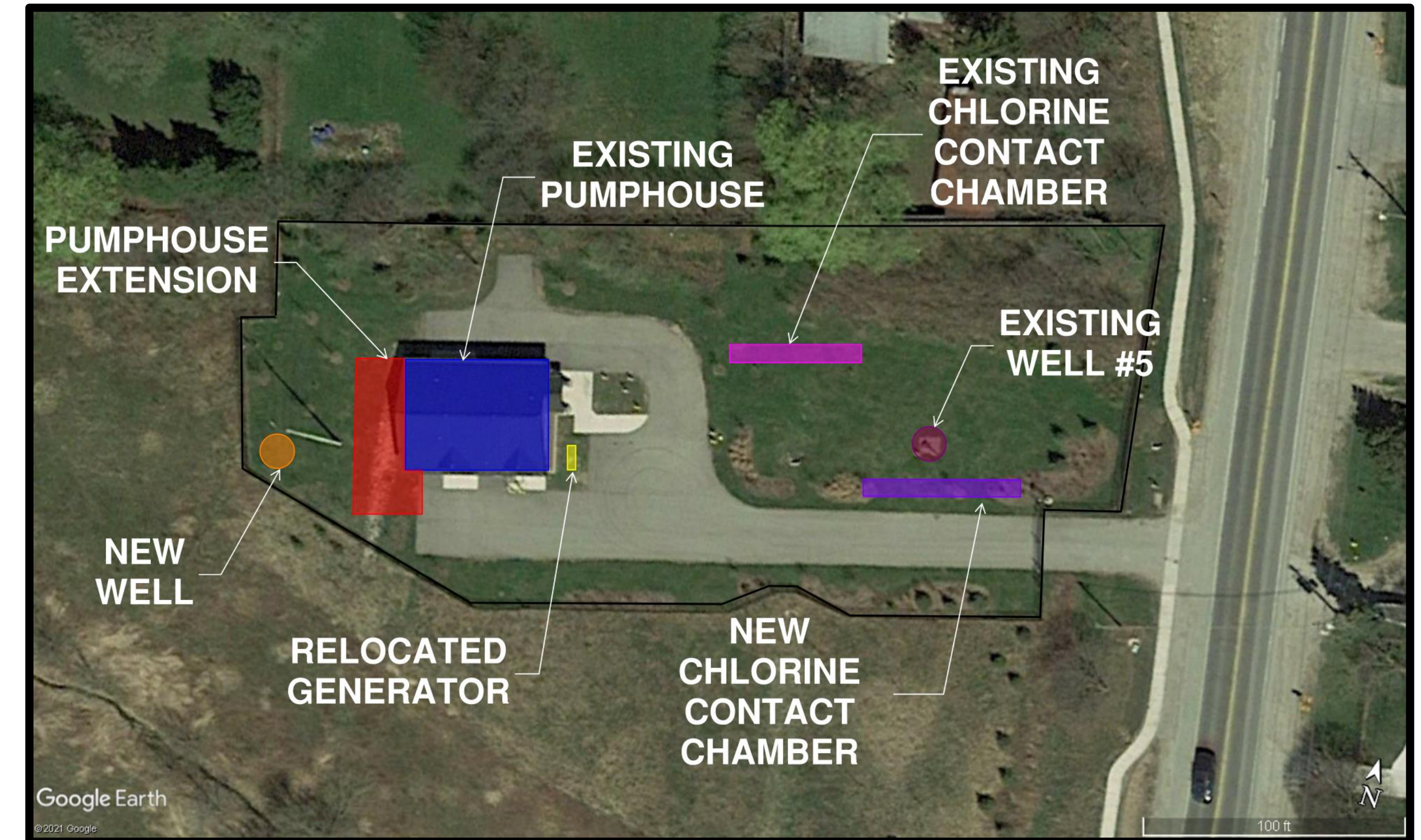
# Water Servicing Recommended Design Concept: Expansion of Well #2 and Addition of an Independent Dedicated Treatment Train for Well Site H



## Expand Well Site #2



## Add an Independent Dedicated Treatment Train from Well Site H



### Technical

- No challenges

### Natural Environment

- No impacts beyond current Well #2 Facility impacts

### Socio-Economic

- Minimal community impacts during construction

### Financial

- No major cost besides minor equipment upgrades

### Jurisdictional/Regulatory

- Minor additional permitting

### Technical

- No challenges; no impact on current water supply

### Natural Environment

- Minor vegetation impact during construction

### Socio-Economic

- Minor impacts during construction and future operation

### Financial

- Moderate cost due to new facility construction

### Jurisdictional/Regulatory

- Additional permits required



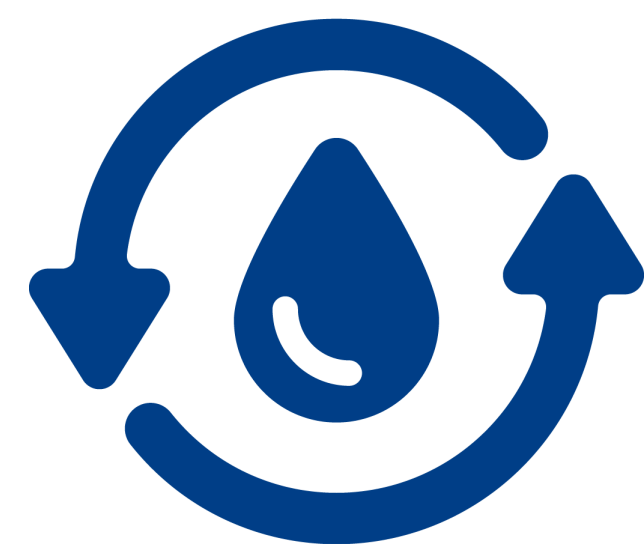
# Wastewater Servicing Solutions

Solutions focused on two different parts of the wastewater system:



## Pumping and Flow Attenuation

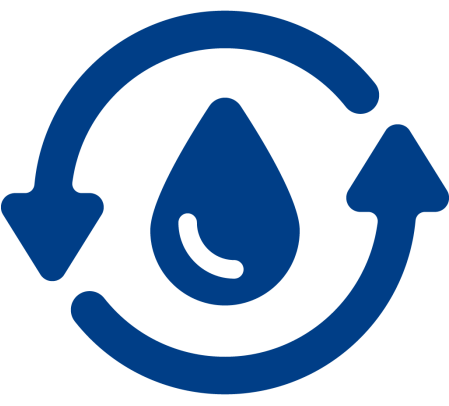
- Design concepts focused on reducing high peak flows through attenuation at Janet Avenue Pumping Station and/or Nobleton Water Resource Recovery Facility



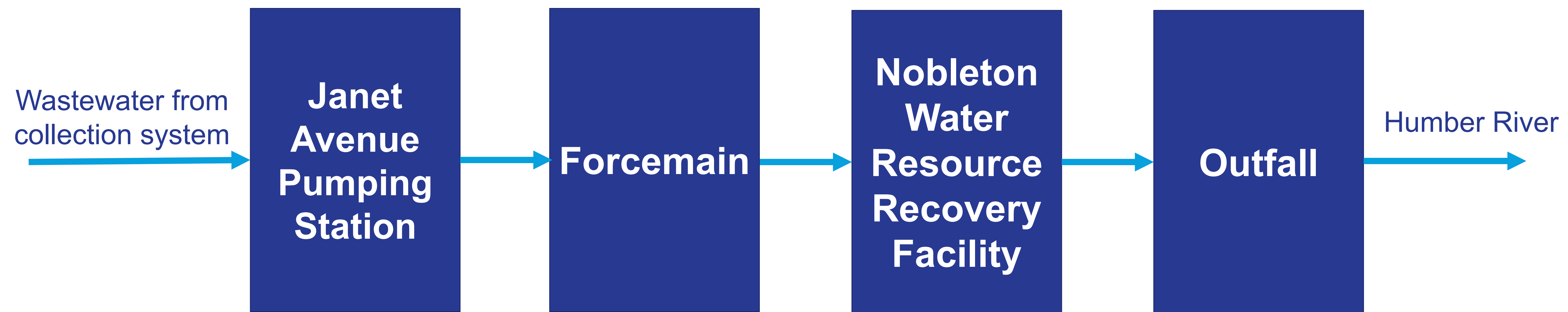
## Nobleton Water Resource Recovery Facility (WRRF)

- Design concepts focused on upgrades and expansions in the treatment plant to meet future flows and effluent quality requirements





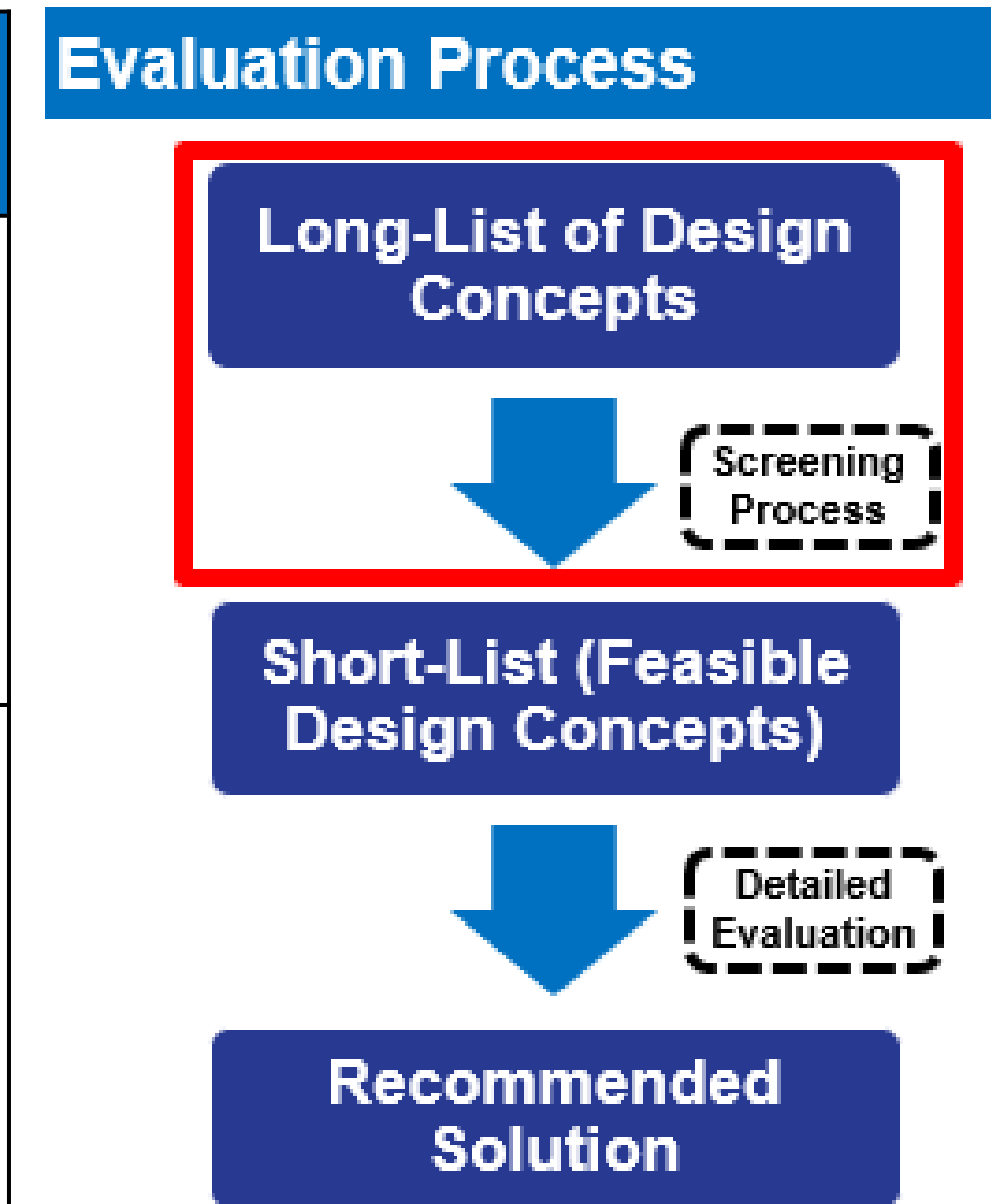
# Nobleton Wastewater System





# Wastewater Pumping and Attenuation Design Concepts Screening

Design Concepts for Wastewater Pumping and Attenuation	Long-List of Design Concepts Wastewater Pumping and Attenuation Screening Summary	Screening Status
1. <b>No flow attenuation: expand Janet Avenue Pumping Station, twin existing forcemain, expand Nobleton Water Resource Recovery Facility (WRRF), twin outfall</b>	<ul style="list-style-type: none"> <li>Requires expansion of entire wastewater system</li> <li>Results in oversized pump station and forcemain that will remain underutilized</li> <li>Expensive due to major construction required</li> </ul>	<b>Fail</b>
2. <b>Flow attenuation at Nobleton WRRF: expand Janet Avenue Pumping Station, twin existing forcemain, expand Nobleton WRRF, provide equalization tank at Nobleton WRRF</b>	<ul style="list-style-type: none"> <li>Expanded pump station, twinned forcemain, and Water Resource Recovery Facility will remain underutilized except during large storm events</li> <li>High cost due to additional pump station required for equalization tank</li> </ul>	<b>Fail</b>
3. <b>A Flow attenuation at Janet Avenue Pumping Station with a Below Grade Storage Tank: expand Janet Avenue Pumping Station, provide equalization tank/pipe at pumping station, expand Nobleton WRRF</b>	<ul style="list-style-type: none"> <li>Alternative eliminates twinning of 4.5 km of forcemain and 670 meters of outfall</li> <li>Requires the least civil and structural work upgrades</li> </ul>	<b>Pass</b>
3. <b>B Flow attenuation at Janet Avenue Pumping Station with a Gravity Pipe: expand Janet Avenue Pumping Station, provide equalization tank/pipe at pumping station, expand Nobleton WRRF</b>	<ul style="list-style-type: none"> <li>Alternative eliminates twinning of 4.5 km of forcemain and 670 meters of outfall</li> <li>Requires the least civil and structural work upgrades</li> </ul>	<b>Pass</b>





# Short-List of Design Concepts: Wastewater Pumping and Attenuation Solutions

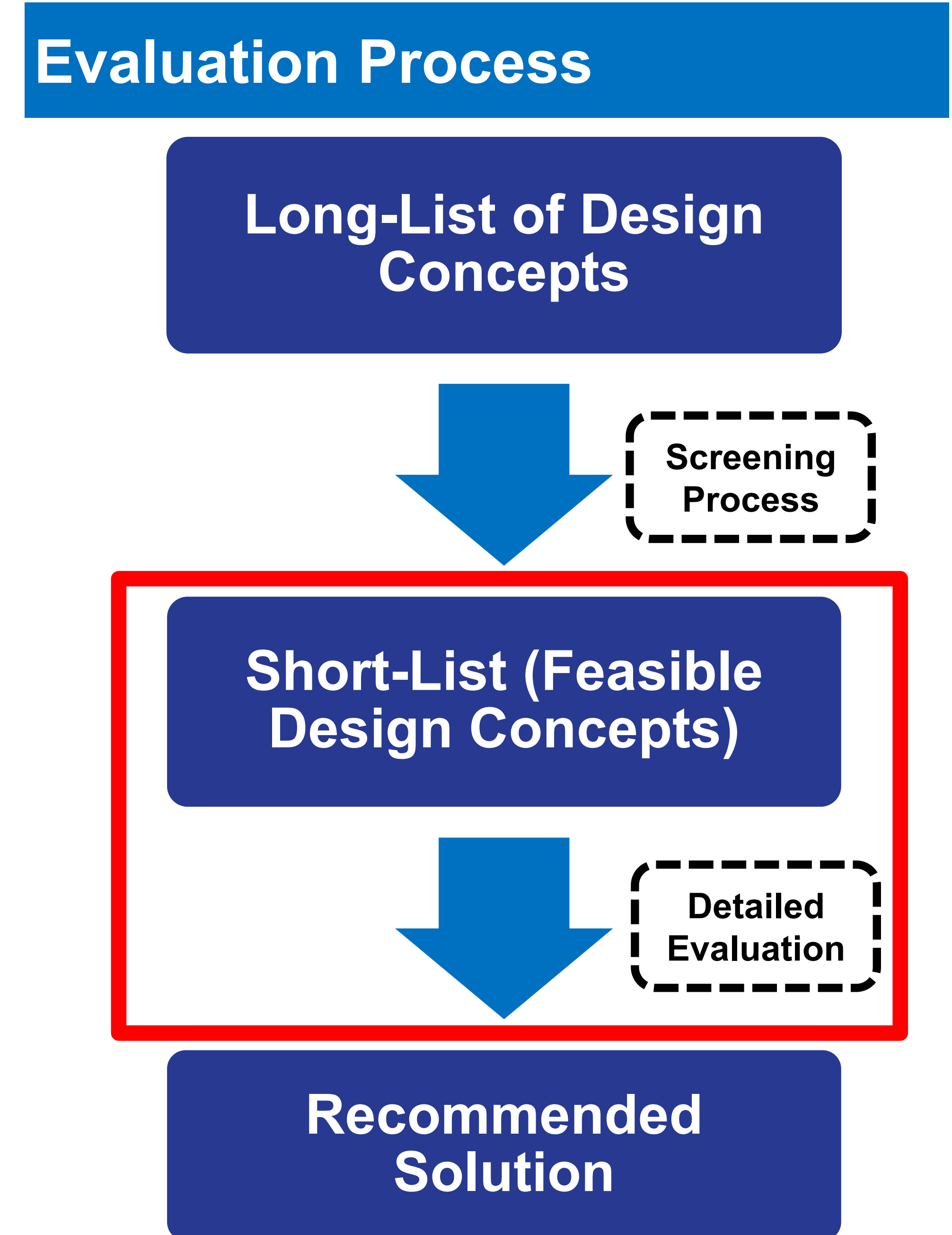
One alternative, with two design concepts, passed the screening process and was selected for detailed evaluation:

## Design Concept 3.A

- Flow attenuation at Janet Avenue Pumping Station with a below grade storage tank

## Design Concept 3.B

- Flow attenuation at Janet Avenue Pumping Station with a gravity pipe

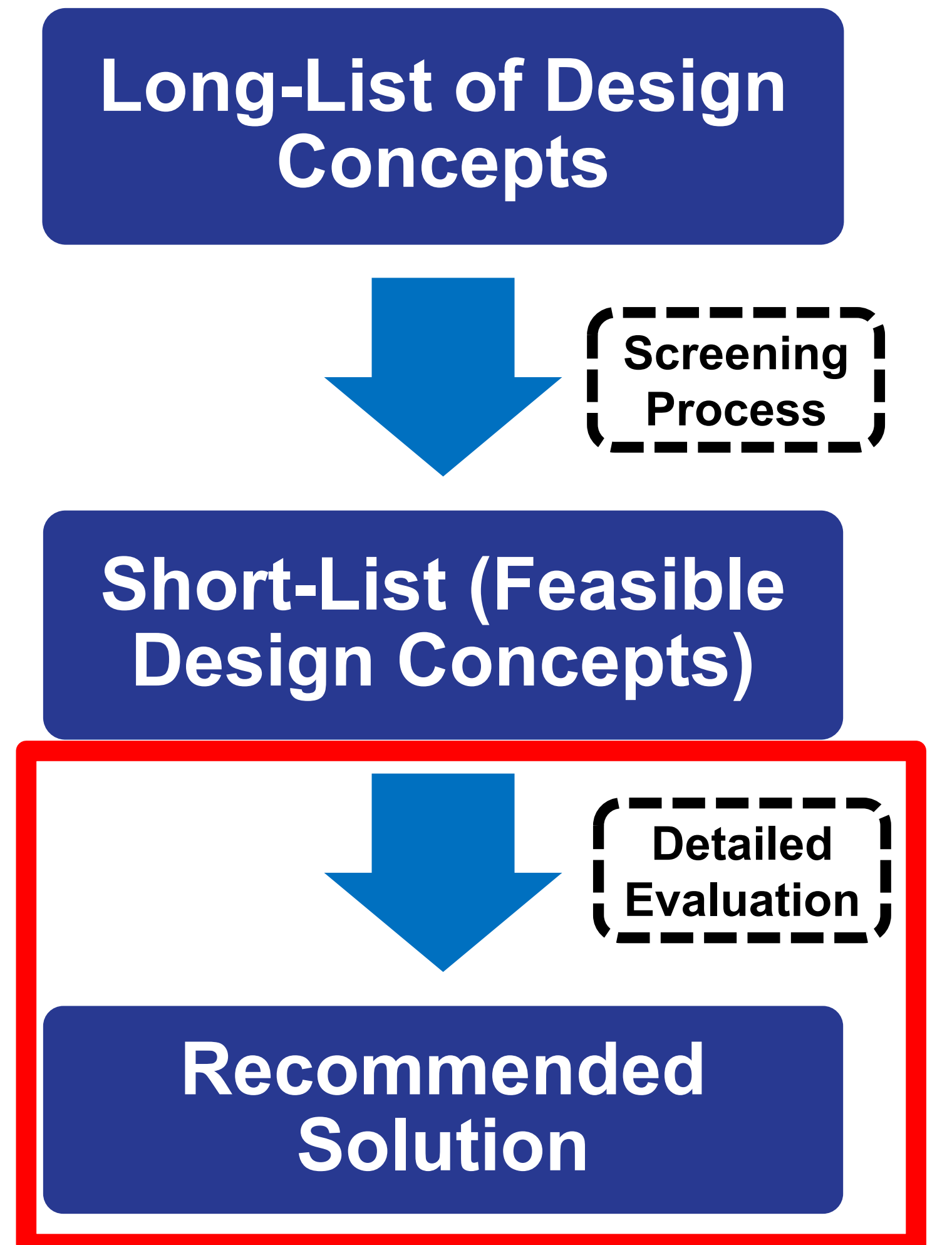


# Wastewater Pumping and Attenuation Design Concepts Detailed Evaluation



		Design Concept 3.A: Flow attenuation at Janet Avenue Pumping Station with a below grade storage tank	Design Concept 3.B: Flow attenuation at Janet Avenue Pumping Station with a gravity pipe
Technical		●	●
Natural Environment		●	●
Socio-economic Environment		●	●
Financial		●	●
Jurisdictional/Regulatory		●	●

## Evaluation Process



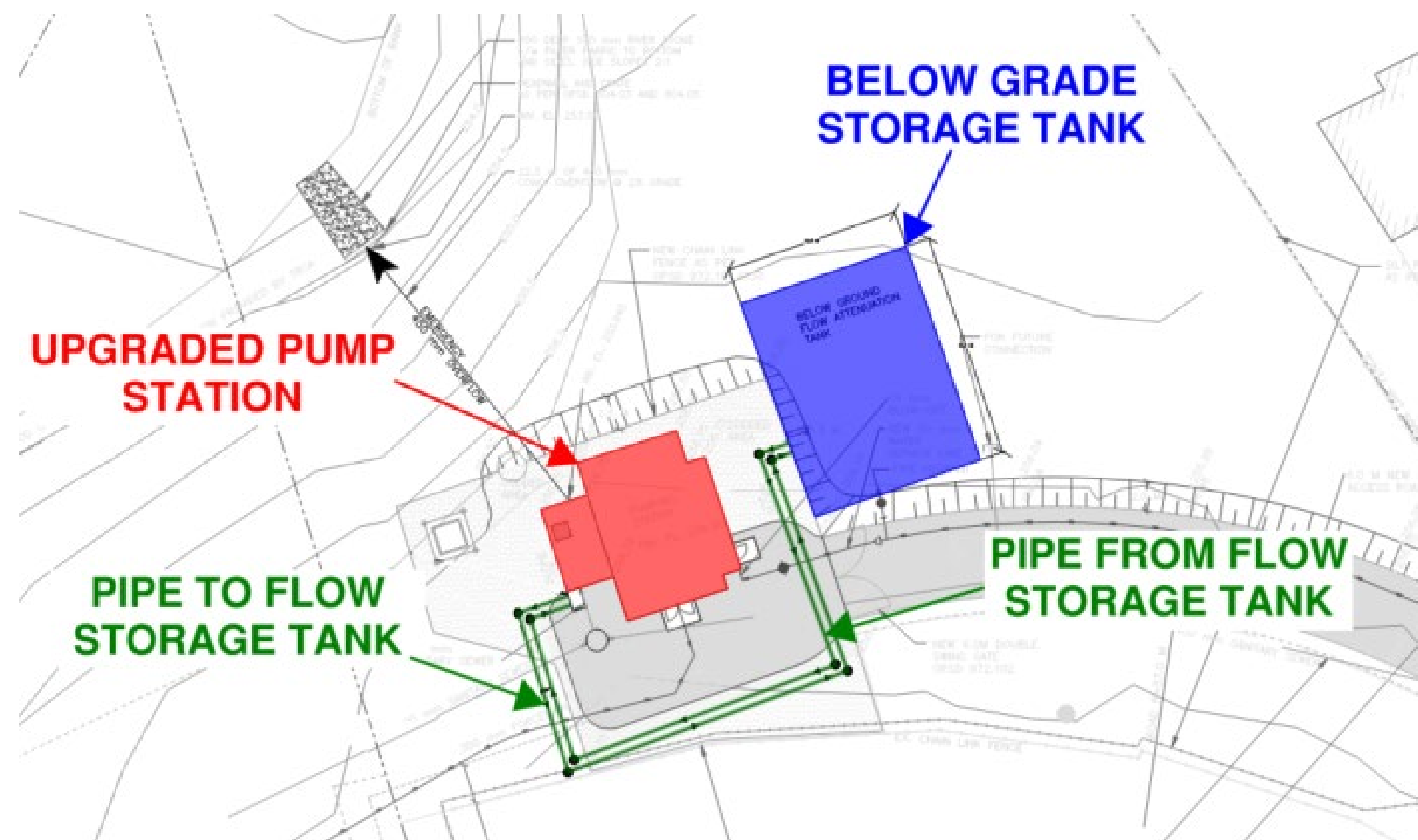
## Scoring Description

- Low Impact/  
Most Preferred
- Moderate Impact
- High Impact

Although both design concepts ranked equally during evaluation, design concept 3.B has a higher impact during construction because gravity pipe will be installed within the site access roadway. As a result of this, the access roadway will not be available, and an alternate site entrance will be needed.



# Wastewater Pumping and Attenuation Recommended Design Concept: Storage Tank at Janet Avenue Pumping Station



## Technical

- No challenges or impacts during construction
- No interruption to access roadway during construction

## Natural Environment

- Minor impact on vegetation, water resources, and wildlife
- Moderate increase in greenhouse gas emissions due to higher energy requirement for pumping

## Socio-Economic

- No anticipated community impacts

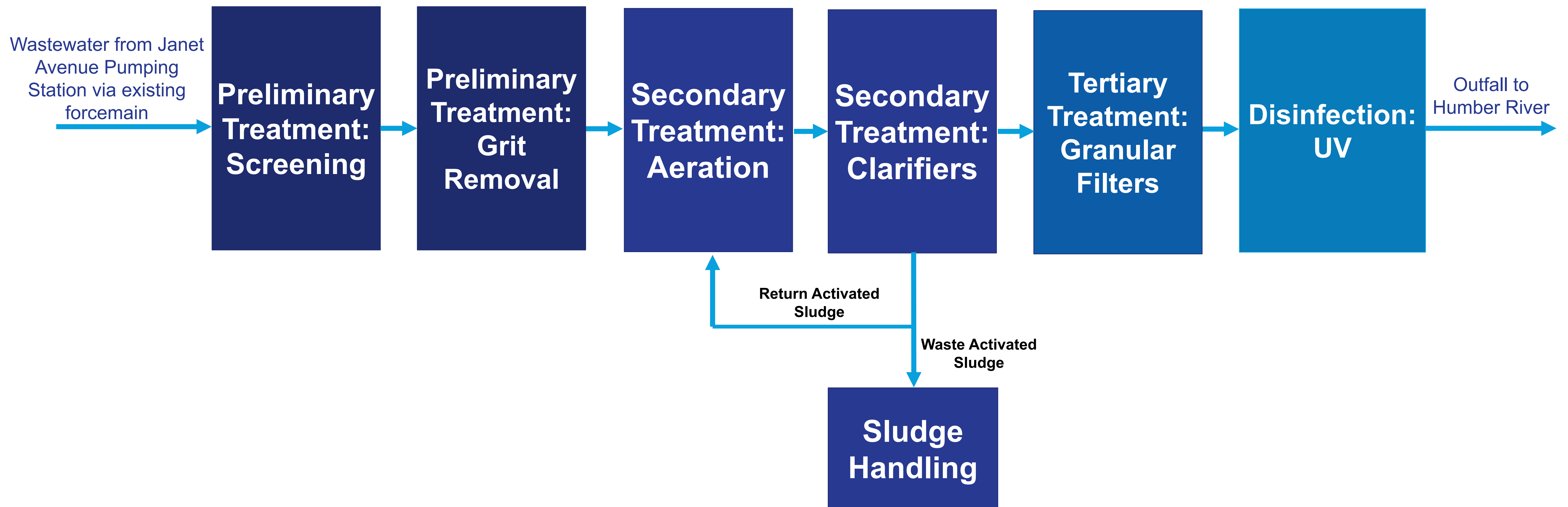
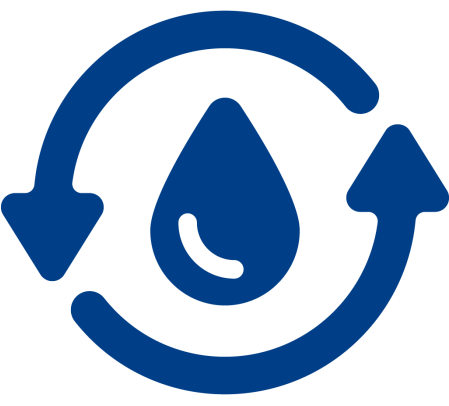
## Financial

- Most economical capital investment and lifecycle cost

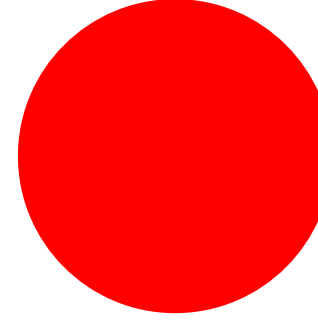
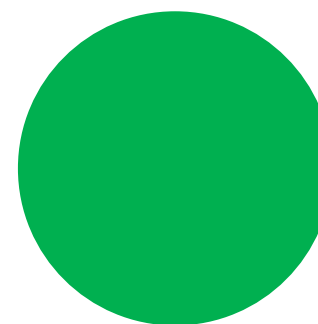
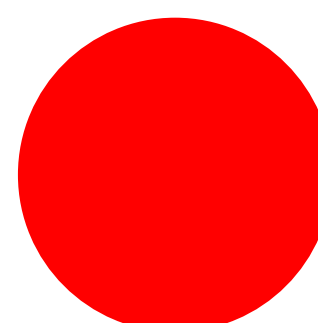
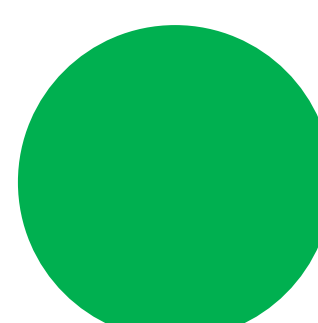
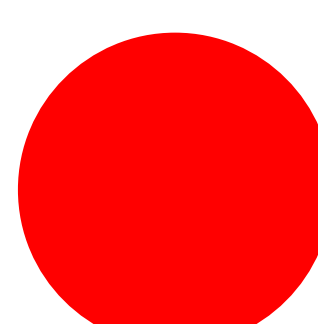
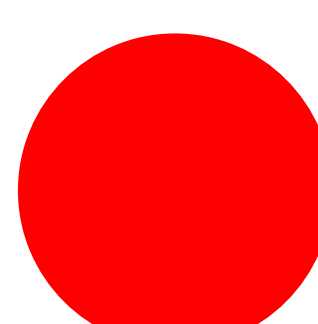
## Jurisdictional/Regulatory

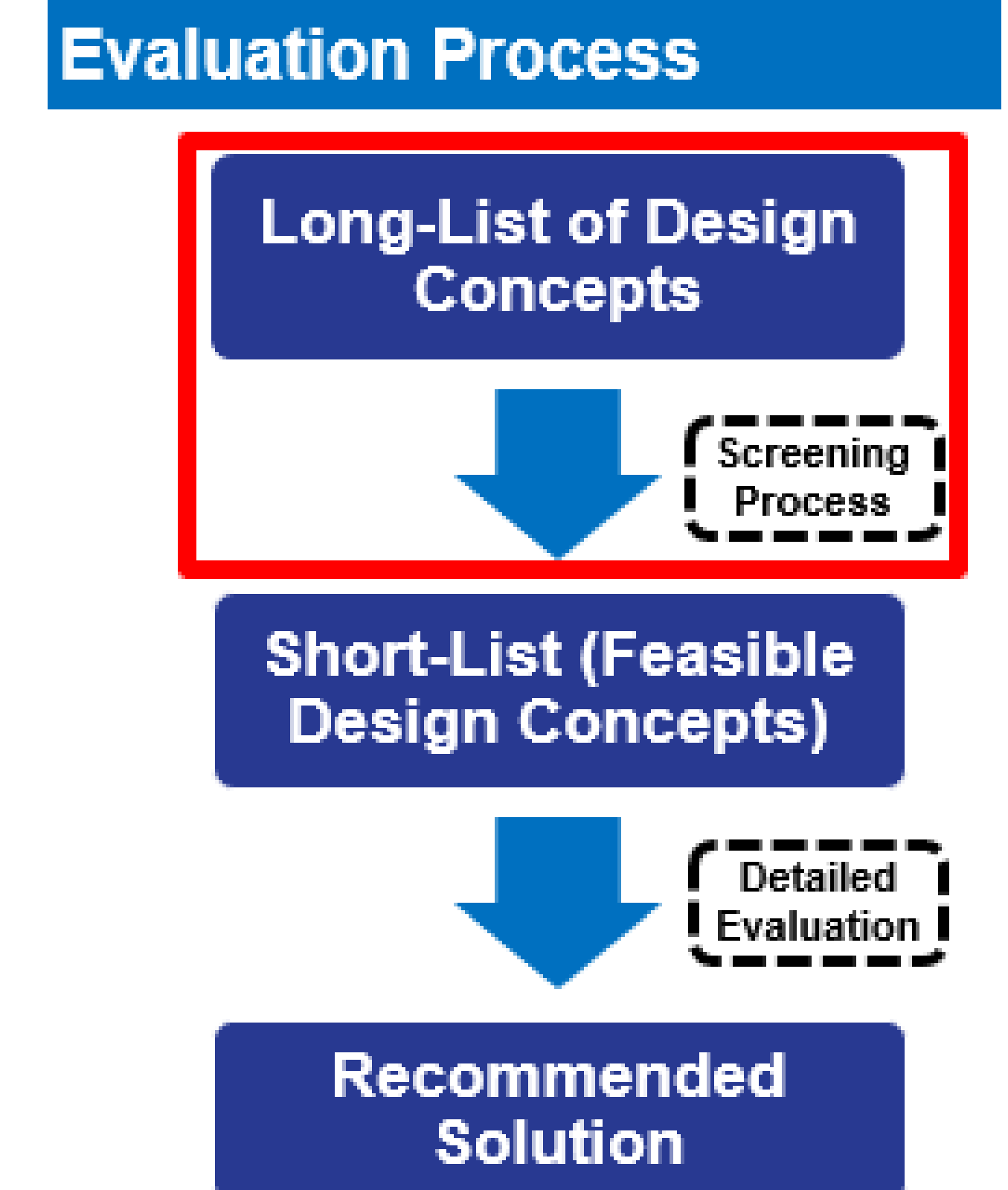
- Amendments to existing permits

# Nobleton Water Resource Recovery Facility (WRRF) Processes Overview



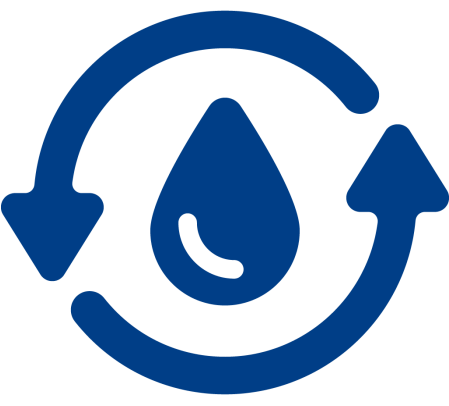
# Nobleton WRRF Upgrades Design Concepts Screening

Design Concepts for Wastewater Servicing Solution	Long-List of Design Concepts Wastewater Solutions Screening Summary	Screening Status
<b>0. No Flow Attenuation</b>	<ul style="list-style-type: none"> <li>With no upstream flow attenuation, there is a significant construction cost and impact in the collection system and Nobleton WRRF</li> </ul>	 <b>Fail</b>
<b>1.A Expand Existing Secondary Biological Treatment: Enlarge Existing Aeration Tanks</b>	<ul style="list-style-type: none"> <li>Minimal construction impacts and capital/operating costs</li> <li>Technology is compatible, performs robustly and satisfied stakeholders</li> </ul>	 <b>Pass</b>
<b>1.B Expand Existing Secondary Biological Treatment: Add Primary Treatment</b>	<ul style="list-style-type: none"> <li>Incompatibility with existing operation and hydraulics</li> <li>Additional facilities will be required for effluent pumping and sludge handling</li> </ul>	 <b>Fail</b>
<b>2. Intensify Secondary Biological Treatment System: Membrane Aerated Bioreactor</b>	<ul style="list-style-type: none"> <li>Minimal construction impacts and capital/operating costs</li> <li>Technology is compatible, performs robustly and satisfied stakeholders</li> </ul>	 <b>Pass</b>
<b>3. Add Secondary Biological Treatment Train</b>	<ul style="list-style-type: none"> <li>Incompatibility with existing operation and hydraulics</li> <li>Additional process facilities will be required for effluent pumping and sludge handling</li> </ul>	 <b>Fail</b>
<b>4. Expand Existing Biological Treatment with Equalization Expansion</b>	<ul style="list-style-type: none"> <li>Requires new process and pumping station</li> <li>Did not pass resiliency criteria because peak treatment capacity would not be increased</li> </ul>	 <b>Fail</b>





# Short-List of Design Concepts: Nobleton WRRF Upgrade Solutions



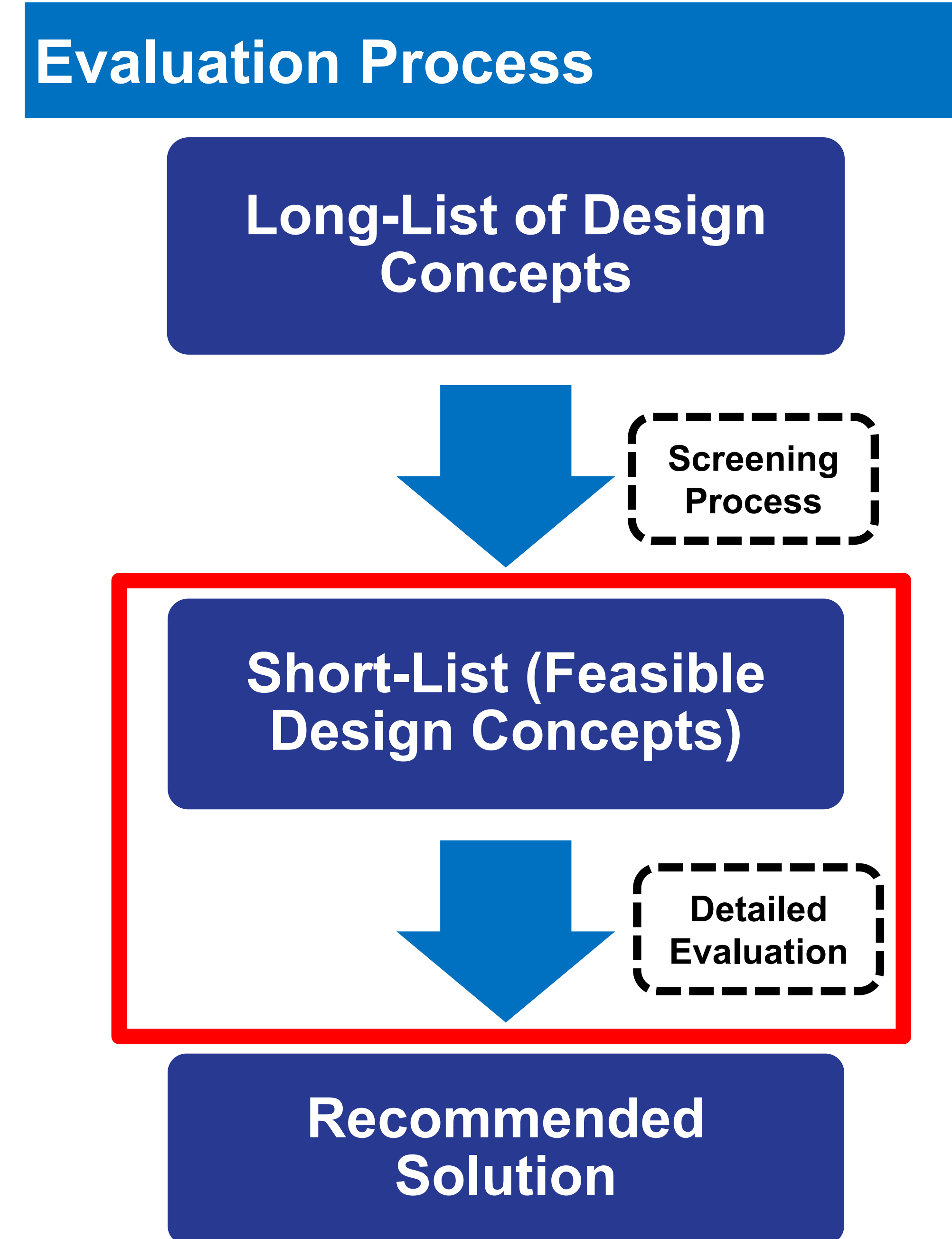
Two alternatives passed the screening process and were selected for detailed evaluation:

## Design Concept 1.A

- Expand existing secondary biological treatment: Enlarge existing aeration tanks

## Design Concept 2

- Intensify secondary biological treatment system: Membrane aerated bioreactor

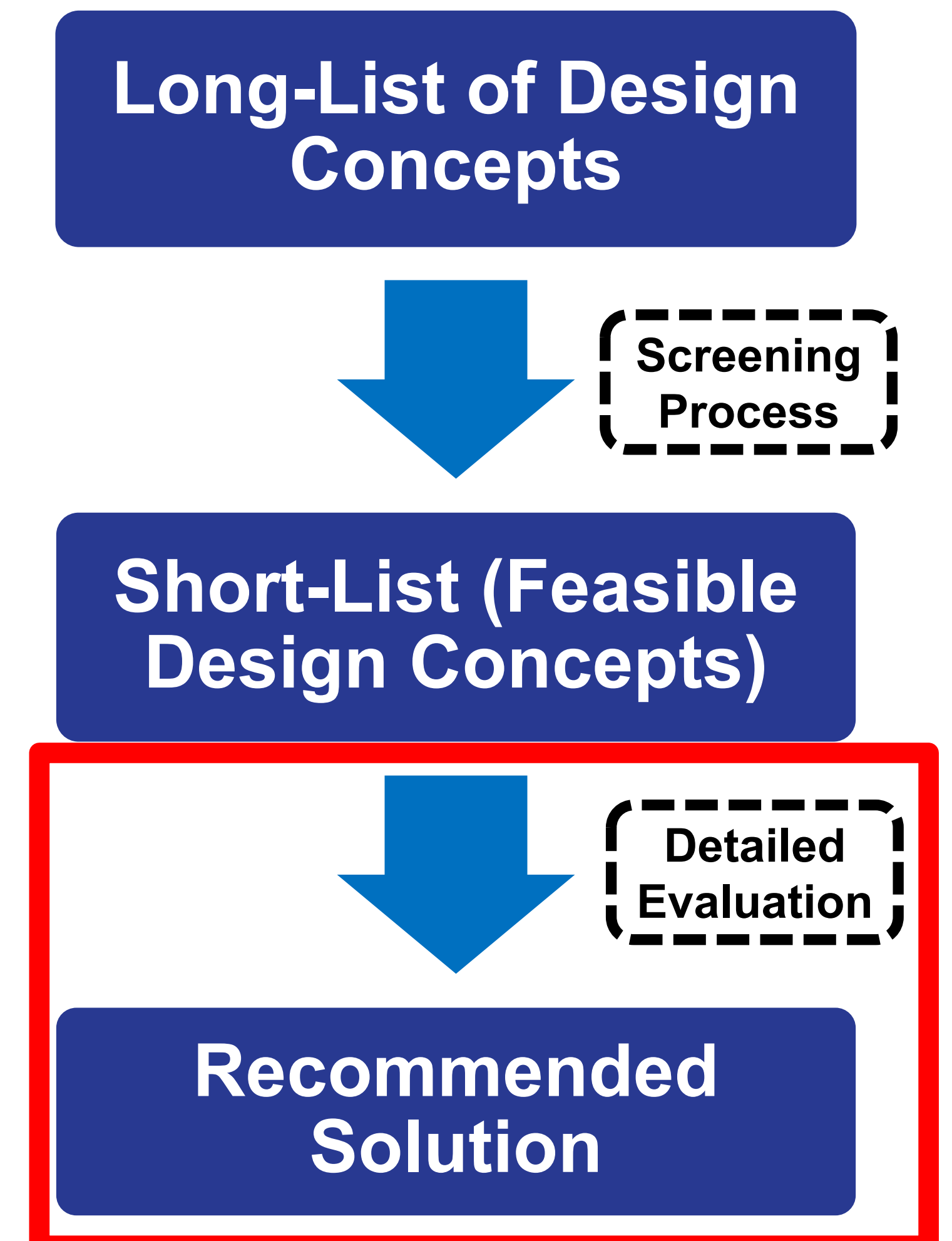


# Nobleton WRRF Upgrade Design Concepts Detailed Evaluation



		Design Concept 1.A: Expand Existing Secondary Biological Treatment: Enlarge Existing Aeration Tanks	Design Concept 2: Intensify Secondary Biological Treatment System: Membrane Aerated Bioreactor
Technical		●	●
Natural Environment		●	●
Socio-economic Environment		●	●
Financial		●	●
Jurisdictional/Regulatory		●	●

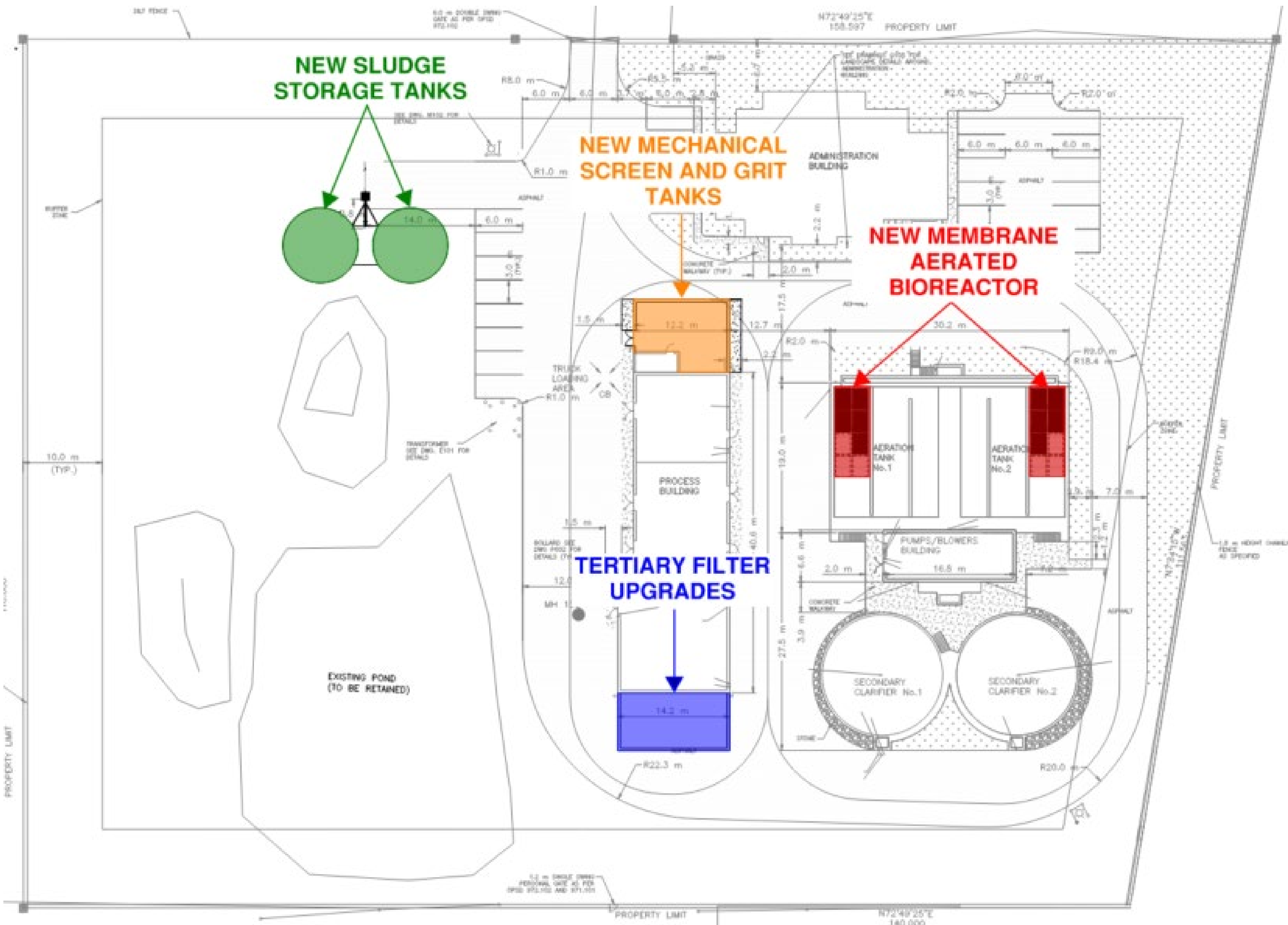
## Evaluation Process



## Scoring Description

- Low Impact/  
Most Preferred
- Moderate Impact
- High Impact

# Nobleton WRRF Upgrade Recommended Design Concept: Intensify Secondary Biological System – Membrane Aerated Bioreactor (MABR)



## Technical

- Existing facilities will need to be modified to accommodate intensification processes

## Natural Environment

- No impact on vegetation, water resources, and wildlife

## Socio-Economic

- No anticipated community impacts

## Financial

- Lowest cost alternative

## Jurisdictional/Regulatory

- Additional permits required due to lack of full-scale Membrane Aerated Bioreactor (MABR) processes

# Summary of Recommended Design Concepts

## Water Servicing



**Expand Well #2 and add an independent dedicated treatment train for Well Site H**

## Wastewater: Pumping and Flow Attenuation



**Expand Janet Avenue Pumping Station and add flow attenuation with an underground storage tank**

## Wastewater: Nobleton WRRF Upgrades



**Intensify secondary biological treatment system with membrane aerated bioreactors**

# Share your thoughts – we’re listening.

Please contact us if you are unable to access the online survey.

- To provide your feedback, complete the survey. Survey can be accessed at **[york.ca/nobletonea](http://york.ca/nobletonea)**
- Please complete the survey by **August 3, 2021**

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## What's Next?

- Document input and compile studies and reports prepared as part of the Class EA process into an **Environmental Study Report**
- Environmental Study Report will be tabled for a mandatory period of 30 days
- You can continue to stay informed about the project, or sign up for updates by visiting the project webpage at **[york.ca/nobleton](http://york.ca/nobleton)**

**Thank you for joining us!**

**THANK YOU**